Annex C: ESG (2016) Princes Quay Footbridge, A63 Castle Street Improvement, Hull, Factual Report on Ground Investigation. Report No A5066-15. For Balfour Beatty Limited and Ove Arup & Partners

PRINCESS QUAY FOOTBRIDGE, A63 CASTLE STREET IMPROVEMENT, HULL

FACTUAL REPORT ON GROUND INVESTIGATION

Report No A5066-15

April 2016

Carried out for:
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Report No A5066-15

April 2016

Issue No Date	Status	Prepared by	Checked by	Approved by
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4 March 2016	Final report	NAME and QUALIFICATIONS J R Litten BSc, MSc, FGS SIGNATURE [redacted]	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS SIGNATURE [redacted]	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS SIGNATURE [redacted]
5 April 2016	Final report	NAME and QUALIFICATIONS J R Litten BSc, MSc, FGS SIGNATURE [redacted]	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS SIGNATURE [redacted]	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS SIGNATURE [redacted]

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the written authorisation from ESGL. ESGL shall not be liable for any use of the Report for any purpose other than that for which it was originally prepared.

Whilst every effort has been made to ensure the accuracy of the data supplied and any analysis interpretation derived from it, the possibility exists of variations in the ground and groundwater conditions around and between the exploratory positions. No liability can be accepted for any such variations in these conditions. Furthermore, any recommendations are specific to the development as detailed in this Report and no liability will be accepted should they be used for the design of alternative schemes without prior consultant with ESGL

C O N T E N T S

1 INTRODUCTION

In April 2015 ESG was commissioned by Ove Arup & Partners, on behalf of Balfour Beatty Limited, to carry out a ground investigation on the A63 Castle Street, Hull. The investigation was required to obtain geotechnical and geoenvironmental information to assist in the design and construction of a footbridge to span the A63 between the Prince's Dock and Humber Dock as part of the A63 Castle Street Improvement Project.

The scope of the investigation was specified by Ove Arup & Partners and comprised cable percussion, cable percussion with rotary core follow on boreholes and sonic drilling, cone penetration testing (CPT) and laboratory testing. The investigation was performed in accordance with the contract specification, and the general requirements of BS 5930 (2015), BS EN 1997-2 (2007), BS EN ISO 22475-1 (2006) and other relevant related standards identified below. The fieldwork took place between 20th July and 17th September 2015.

This report presents the factual records of the fieldwork and laboratory testing undertaken. The information is also presented as digital data as defined in AGS (2011).

2 SITE SETTING

2.1 Location and Description

Prince's Dock and Humber Dock lie respectively to the north and south of Castle Street in central Hull at National Grid reference TA 096 284, see Site Location Plan in Appendix A.

The site lies on both sides of Castle Street, bounded by Prince's Dock to the north and Humber Dock to the south. Overwater work was also undertaken in Humber Dock.

2.2 Published Geology

The published geological map for the area, British Geological Survey (BGS) Sheet 80 (1983) and the BGS Geology of Britain Viewer (2015) show the site located on superficial Alluvium with the Burnham Chalk Formation, part of the Cretaceous age White Chalk Subgroup, as the underlying bedrock.

Ove Arup & Partners indicate the possible presence of Glacial Till, Glacial Lacustrine Silt and Clay and Fluvioglacial Sand and Gravel/Aeolian Sand between the Alluvium and bedrock. A covering of Made Ground associated with historical use of the site is also indicated.

3 FIELDWORK

The fieldwork was carried out in general accordance with BS 5930 (2015), BS EN 1997-2 (2007) and BS EN ISO 22475-1 (2006).

The exploratory hole and in situ test locations were selected by Ove Arup & Partners and set out from local features. The coordinates and reduced levels were surveyed by ESG to National Gid and Ordnance Datum. The exploratory hole and in situ test locations are shown on the Site Plan in Appendix A.

3.1 Exploratory Holes

The exploratory holes are listed in the following table.

TABLE 1 : SUMMARY OF EXPLORATORY HOLES

TYPE	QUANTITY	MAXIMUM DEPTH (m)	REMARKS
Cable Percussion Boring	2	32.70	BH410 and BH412
Cable Percussion Boring extended by Rotary Coring	7	45.00	BH413, BH414, BH415,BH416, BH501, BH502 and BH503
Sonic Drilling	1	34.50	BH411

The exploratory hole logs are presented in Appendix B. These provide information including the equipment and methods used, samples taken, tests carried out, water observations and descriptions of the strata encountered. Explanation of the terms and abbreviations used on the logs is given in the Key to Exploratory Hole Records in Appendix B, together with other explanatory information. The logging of soil and rock materials is in accordance with BS EN ISO 14688-1+A1 (2013) for soils and BS EN ISO 14689-1 (2003) for rocks, as amplified by BS 5930 (2015).

Undisturbed samples were split and described by an experienced engineer. The descriptions are included in Appendix B and photographs presented in Appendix G.

Standard penetration tests (SPT) in the boreholes were carried out in accordance with BS EN ISO 22476-3+A1 (2011) and the SPT hammer energy ratio certificates are included in Appendix B. The SPT results are presented on the logs as uncorrected N values.

Photographs of the rotary drilled cores are presented in Appendix G.

On completion of the fieldwork geotechnical samples were transported to ESG's Doncaster office for temporary retention, with those required for testing being transferred to ESG's geotechnical laboratory at Doncaster. Geoenvironmental samples were transported from site directly to ESG's Environmental Chemistry laboratory at Burton-on-Trent.

3.2 Groundwater Monitoring

Instrumentation installed in the exploratory holes for groundwater monitoring are shown on the logs and summarised in Appendix C. Dataloggers were installed in the standpipes after initial readings to allow long term monitoring of groundwater level variation. Records of groundwater monitoring carried out by ESG after the fieldwork period are presented in Appendix C.

4 CONE PENETRATION TESTING

4.1 General

Cone Penetration Testing was carried out using separate cone magnetometer and electric piezocone penetrometers operated from a 20 tonne CPT truck. The test plots are presented in Appendix D.

CPT was carried out in accordance with Part 9 of BS 1377 (1990). The serial numbers of the cones used are indicated on the test plots. The calibration certificates are included in Appendix D and provides details of the manufacturer, cone dimensions, capacity and geometry.

Any opinions and interpretations presented are outside the scope of the UKAS accreditation for cone penetration testing.

4.2 Data Processing

Test control and data acquisition during CPT was carried out using CPTest, a proprietary software supplied by Geomil Equipment BV of Holland. The measured cone end resistance, sleeve friction, dynamic porewater pressure and inclination were recorded at 1 cm intervals of penetration.

Interpretation of the data was carried out using Geomil's CPTask software. The interpretation follows the recommendations of Lunne et al (1997) to derive (where appropriate): friction ratio, pore pressure ratio, undrained shear strength (minimum and maximum range presented using typical cone factors of 20 and 12 respectively), relative density, angle of friction and soil type. The soil classification uses the soil behaviour type chart of Robertson (1990). A nominal groundwater level at 1.5 m below ground level has been used in the interpretation.

Explanation of the terms used and derivations of the cone and soil parameters are given in the Key in Appendix D. The data are presented as plots relative to depth below ground level on the CPT logs in Appendix D. The records of dissipation tests as pore pressure against time are also included in Appendix D.

Note to records for CPT502 and 503

1. The porewater pressure data obtained during CPTs at the overwater locations CPT502 and 503 appears to have been attenuated somewhat in comparison with other tests measuring porewater pressure with a u_1 filter position. The reason for this is uncertain but it is suggested that the protective rubber sheath fitted to maintain saturation during test set-up has remained in place for the initial penetration through the very low strength materials, obscuring some of the porewater pressure response.

2. The raw data obtained for CPT502 shows apparently negative cone resistance values during the penetration range from approximately 8 to 10 m following a dissipation test at 8.00 m. Post-processing inspection of the data suggests that an offset drift from the original zero reading had occurred during this dissipation test, possibly due to moisture migration in the cone. Based on the apparent negative cone resistance value at the end of the dissipation test of 0.9 MPa, a correction to q_c equal to this has been applied to the data below 8 m. This would be expected to represent the minimum magnitude of adjustment, slightly higher values could potentially be considered, up to perhaps 1.1 MPa based on the dissipation test starting q_c value of about 0.2 MPa. The raw and adjusted plots are shown as CPT502 and CPT502(Rev) respectively.

5 LABORATORY TESTING

5.1 Geotechnical Testing

Geotechnical laboratory testing was scheduled by Ove Arup & Partners and was carried out in accordance with BS 1377 (1990), BS EN ISO 17892 (2014) Part 1 and ISRM (2007) unless otherwise stated. The testing is summarised below and the results are presented in Appendix E.

- Water Content Determination
- Saturated Moisture Content of Chalk
- Atterberg Limit Determination
- Particle Size Distribution Analysis
- Acid Soluble Sulphate Content, Water Soluble Sulphate Content, Total Sulphur Content and pH Value of Soils. Carried out by ESG Environmental Chemistry, test methods are BS 1377 or others recognised in BRE Special Digest 1 (2005); they are indicated on the results report sheets in Appendix E.
- Organic Matter Content
- Dry Density/Moisture Content Relationship (Heavy 4.5kg Compaction)
- One Dimensional Oedometer Consolidation Testing
- Unconsolidated Undrained Triaxial Compression Testing
- Consolidated Undrained Triaxial Compression Testing
- Consolidated Drained Triaxial Compression Testing

5.2 Geoenvironmental Testing

Geoenvironmental laboratory testing was scheduled by Ove Arup & Partners on soil samples recovered during the fieldwork as detailed below. The testing was carried out by the laboratory at Burton-on-Trent. The results are presented in Appendix F.

TYPE	REMARKS
Ove arup & Partners Suite E1, E3, E4 and E9	
Asbestos screen and ID, Arsenic, Antimony, Beryllium, Boron (water soluble), Cadmium, Chromium – total, Chromium VI, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Vanadium, Zinc, Cyanide (total), Total Organic Carbon, pH, TPH CWG, BTEX, PAH USEPA 16, Phenol total	6No
Ove Arup & Partners Suite E15	
Vinyl Chloride, Trichlorethene, Tetrachloroethene, Tetrachloromethane	5No

REFERENCES

AGS : 2010 : Electronic transfer of geotechnical and geoenvironmental data (Edition 4 including Addendum 3. October 2011). Association of Geotechnical and Geoenvironmental Specialists.

BGS England and Wales Sheet 80 : 1983 : Kingston upon Hull. 1:50000 geological map (solid). British Geological Survey.

BGS England and Wales Sheet 80 : 1983 : Kingston upon Hull. 1:50000 geological map (drift). British Geological Survey.

BGS Geology of Britain Viewer : 2015. www.bgs.ac.uk. 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 : 2015 : Code of practice for ground investigations. British Standards Institution.

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

BS EN ISO 14688-1:2002+A1 : 2013 : Geotechnical investigation and testing - Identification and classification of soil - Part 1 Identification and description. British Standards Institution.

BS EN ISO 14688-2:2004+A1 : 2013 : 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 17892-1, Geotechnical investigation and testing – Laboratory Testing of soil – Determination of water content.

BS EN ISO 22475-1 : 2006 : Geotechnical investigation and testing – Sampling methods and groundwater measurements - Part 1 Technical principles for execution. British Standards Institution.

BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing - Part 3 Standard penetration test. British Standards Institution.

ISRM : 2007 : The Complete ISRM Suggested Methods for Rock Characterisation, Testing and Monitoring (1974-2006). Commission on Testing Methods, International Society for Rock Mechanics (Editors Ulusay R & Hudson JA).

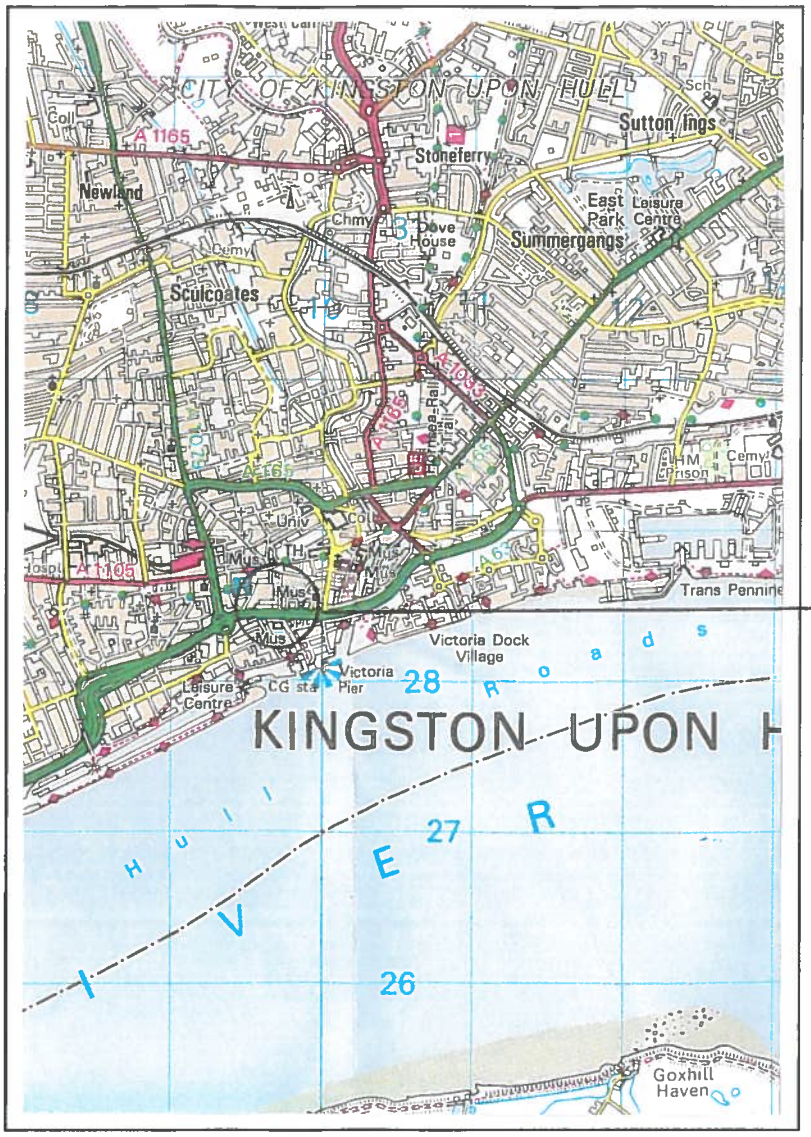
Lunne T, Robertson PK and Powell JJM : 1997 : Cone Penetration Testing in Geotechnical Practice. Blackie Academic & Professional.

Robertson PK : 1990 : Soil classification using the cone penetration test. Canadian Geotechnical Journal, 27(1), 151-8.

APPENDIX A

FIGURES AND DRAWINGS

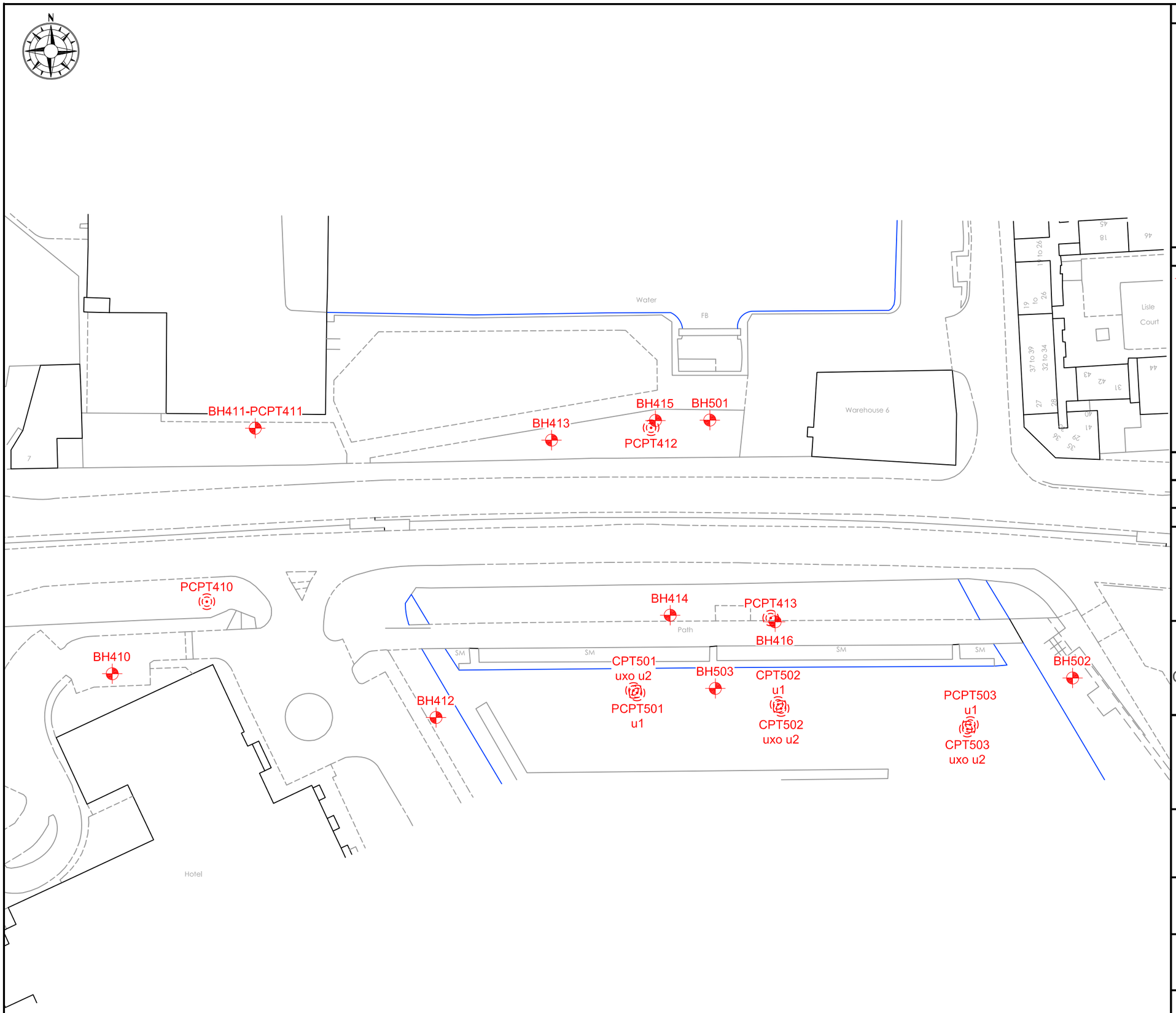
Site Location Plan



N

THE SITE

Notes: Scale 1:50 000	Project PRINCESS QUAY Project No. A5066-15 Carried out for Balfour Beatty Limited	Figure A1



GENERAL NOTES

1. Reproduced from Balfour Beatty Limited's Drawing.
2. Hole Locations to National Grid Co-ordinate Reference System.

LEGEND TO SYMBOLS

Borehole Location

CPT Location

Scale: 1:750

0 7.5m 15 22.5 30 37.5

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

AMENDMENTS

Title

SITE PLAN

Project

PRINCESS QUAY FOOTBRIDGE, A63 CASTLE STREET IMPROVEMENT, HULL

Client

BALFOUR BEATTY LIMITED

ESG

Date	Drawn By	Approv. By
25/11/2015	BS	JL

Sheet Size	Scale	Project No
A3	1:750	A5066-15

Drawing No	Rev
A2	0

APPENDIX B

EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records	Key
SPT Hammer Energy Ratio Report	SPT Hammer Reference SM21, SM33, SM37 and 024
Borehole Logs	BH410, BH411, BH412, BH413, BH414, BH415, BH416, BH501, BH502 and BH503
Split Tube Sample Descriptions	

Key to Exploratory Hole Records

SAMPLES

Undisturbed

U	Driven tube sample
UT	Driven thin wall tube sample
TW	Pushed thin wall tube sample
P	Pushed piston sample

} nominally 100 mm diameter and full recovery unless otherwise stated

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+A1:2011. 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 5930:2015

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

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

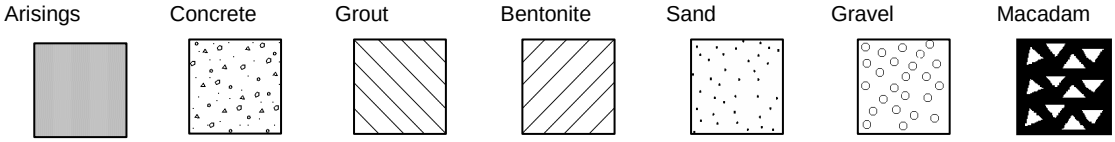
The installation of single point instruments is indicated on the Record. The location of the measuring device is shown in the Legend column.

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 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+A1:2013 and 14689-1:2003 respectively as amplified by BS 5930:2015.

2 For fine soils, consistency determined during description is reported for those strata where undisturbed samples are available. Where the logger considers that the sample may not be representative of the condition in situ, for whatever reason, the reported consistency is given in brackets. The reliability of the sample is indicated by Probably or Possibly as appropriate. Hence (Probably firm) indicates the logger is reasonably confident of the assessment, but (Possibly firm) means less certainty. Where the samples available are too disturbed to allow a reasonable assessment of the in situ condition, no consistency is given.

3 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.

4 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.

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

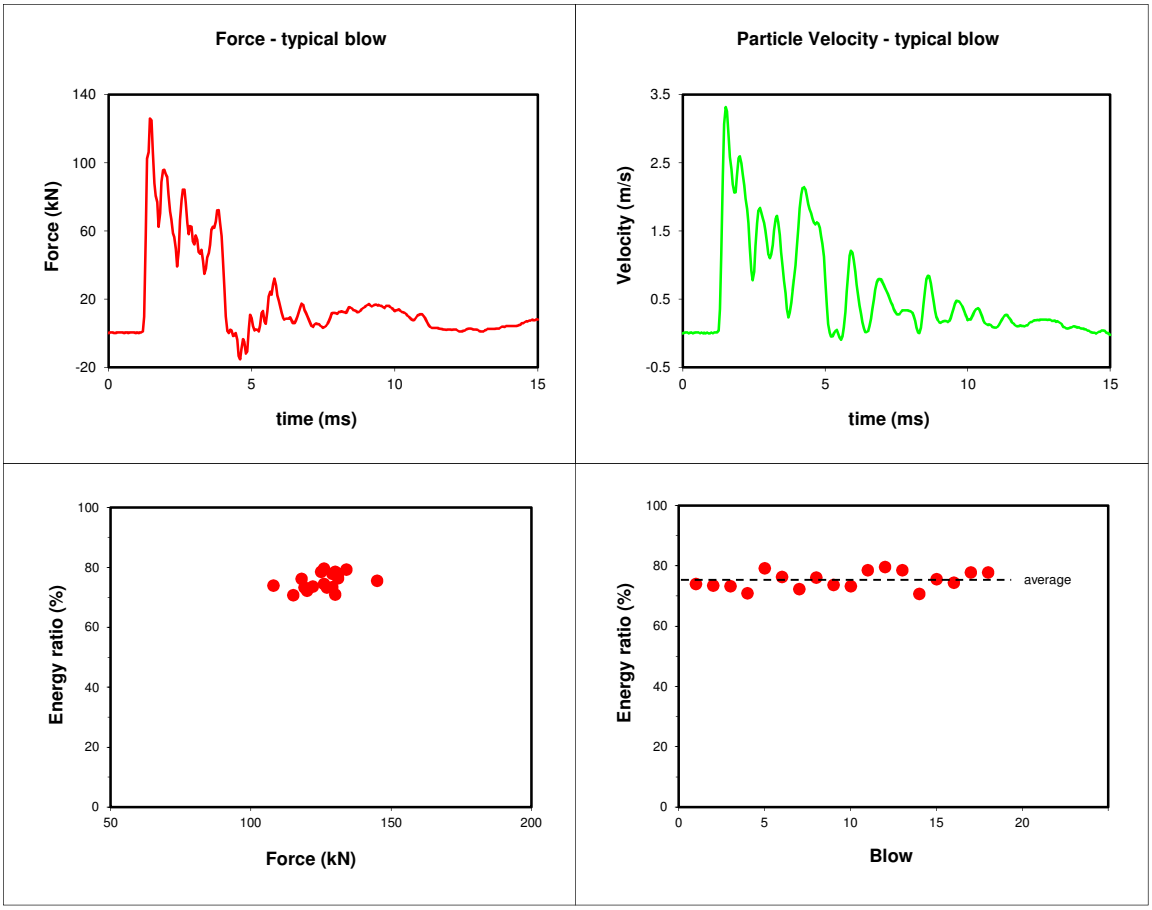
6 Water level observations of discernible entries during the advancing of the exploratory hole are given at the foot of the log and in the Legend column. The term "none observed" is used where no discrete entries are identified although this does not necessarily indicate that the hole has not been advanced 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 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.

7 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.

Hammer Energy Report

Date of test:	26/06/2015	**Hammer ID:**	SM21
		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:**	CT9
		Type:	Cable Percussion
		Foreman:	B Jeffrey

Remarks:
Data obtained from test carried out in BH1, located in ESG Doncaster yard. Test carried out at depth of 5.50 mbgl, with a total blow count of 18. 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 18 blows* = **0.356 kN-m**

Energy ratio = $\frac{E_{meas}}{E_{theor}}$ = **75 %**

Test carried out by: Malcolm Carr

Signed for issue: [redacted]

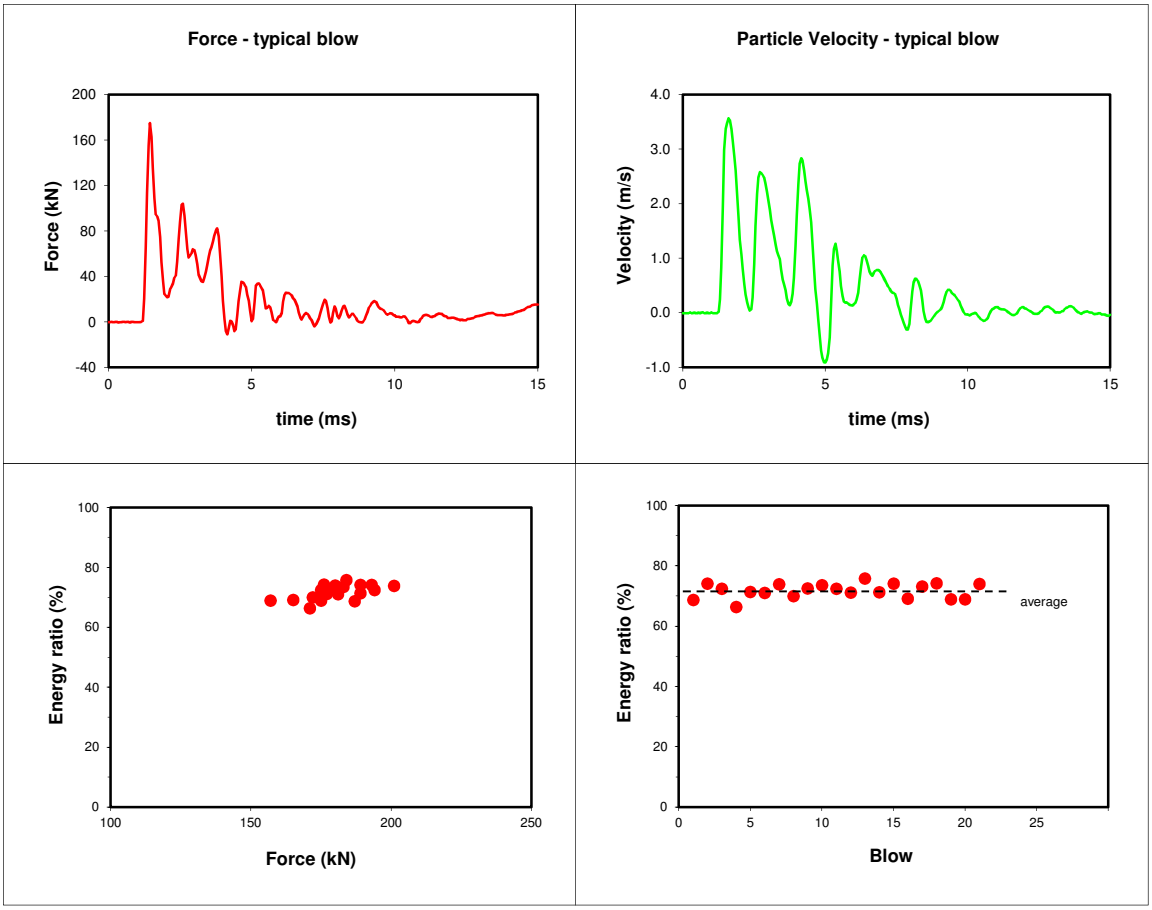
Test carried out in accordance with BS EN ISO 22476-3:2005

Equipment used: SPT Analyzer Serial No. 4032T

Hammer Energy Report

Date of test:	10/04/2015	**Hammer ID:**	SM33
		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:	Beretta T44
Test rod type:	NWY	**Rig ID:**	R60
		Type:	Rotary
		Foreman:	P Govan

Remarks:
Data obtained from test carried out in BH1, located in ESG Doncaster yard. Test carried out at depth of 5.50 mbgl, with a total blow count of 21. 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 21 blows* = **0.340 kN-m**

Energy ratio = $\frac{E_{meas}}{E_{theor}}$ = **72 %**

Test carried out by: Malcolm Carr

Signed for issue: [redacted]

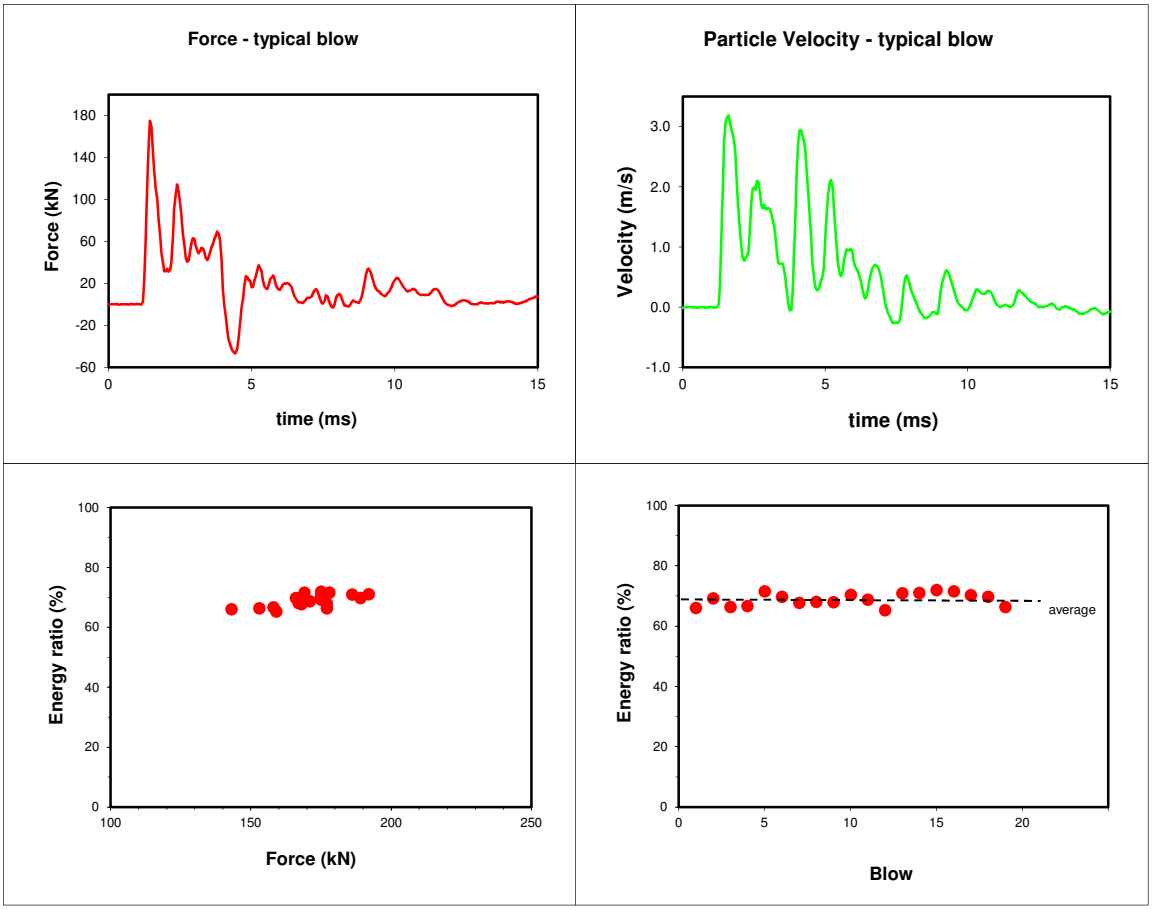
Test carried out in accordance with BS EN ISO 22476-3:2005

Equipment used: SPT Analyzer Serial No. 4032T

Hammer Energy Report

Date of test:	07/01/2015	**Hammer ID:**	SM37
		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)	206840 MPa	**Model:**	Automatic Trip Hammer
Length	0.60 m		
		Rig:	Dando 3000
Test rod type:	NWY	**Rig ID:**	CT62
		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 5.33mbgl, with a total blow count of 20. 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 20 blows* = **0.326 kN-m**

Energy ratio = $\frac{E_{meas}}{E_{theor}}$ = **69 %**

Test carried out by: Malcolm Carr

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

Signed for issue: [redacted]

Equipment used: SPT Analyzer Serial No. 4032T

Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Dynamic sampling uk ltd
Unit 8.
Victory park way.
Victory road.
Derby.
DE24 8ZF

Hammer Ref:	024
Test Date:	09/03/2015
Report Date:	
File Name:	024.spt
Test Operator:	TP

Instrumented Rod Data

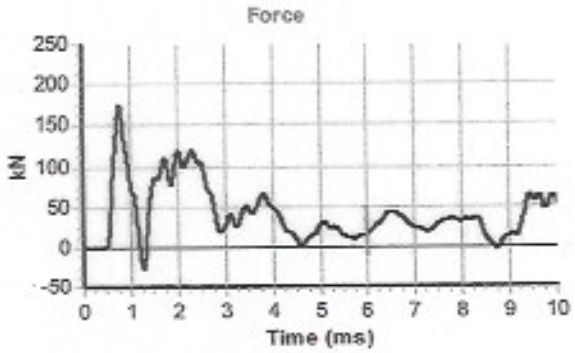
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.9
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	6455
Accelerometer No.2:	6457

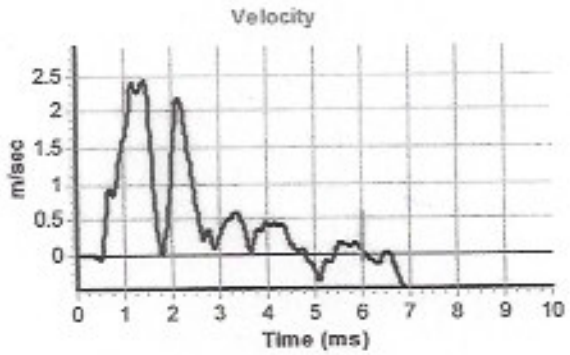
Hammer Information

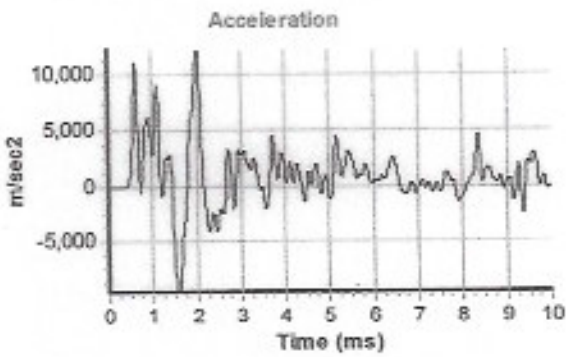
Hammer Mass m (kg):	63.5
Falling Height h (mm):	750
String Length L (m):	15.0

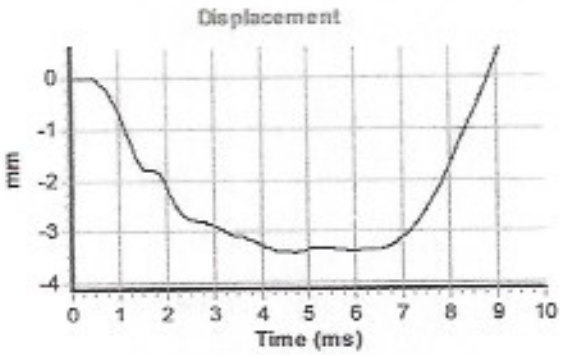
Comments / Location

Tested at Dynamic sampling yard.









Calculations

Area of Rod A (mm2):	1021
Theoretical Energy E_{theor} (J):	467
Measured Energy E_{meas} (J):	341

Energy Ratio E_r (%): **73**

[redacted]

Signed: T.parker

Title: operations manager

The recommended calibration interval is 12 months

Borehole Log

Drilled	MR/LW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.39 mOD
Logged	RM	17/08/2015	Dando 3000	0.00	32.70	200	32.60	**Coordinates (m)**	E 509545.76
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m					**National Grid**	N 428423.12
Approved	JRL	20/08/2015	Cable percussion to 32.70m Hammer ID: SM37, Rod type NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.20 - 0.50	B 1				Tarmacadam. (MADE GROUND) Light yellowish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of sandstone and concrete. (MADE GROUND)		0.10 (0.10) +4.29 (0.40)		
0.65 - 0.80 0.75	B 2 ES 3						0.50 +3.89		
1.00 - 1.20	B 4				Firm to stiff brown mottled dark grey slightly sandy silty CLAY. (MADE GROUND)		(0.70)		
1.20 - 1.65	UT 5	25 blows 100% rec	1.20	Dry	Firm brown and brownish grey slightly gravelly sandy CLAY with medium cobble content. Trace of carbonaceous material. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, chalk, flint, brick, concrete and rare clinker. Cobbles are subrounded brick. (MADE GROUND)		1.20 +3.19		
1.70 - 2.15	UT 6	25 blows 100% rec	1.70	Dry			(0.58)		
2.15 - 2.25	D 7						1.78 +2.61		
2.30 - 2.75	UT 8	20 blows 100% rec Split and Describe photo unavailable	2.00	Dry	Firm thinly laminated dark greyish brown, locally dark orangish brown, slightly sandy silty CLAY with occasional very closely to closely spaced thin laminae of orangish brown and grey fine to medium sand. Locally, partings of silt and light brown fine sand on laminae surfaces.	2.30-2.75 Laminations locally inclined 30-35deg			
2.75 - 3.00	B 9								
3.00 - 4.00	P 10	90% rec	3.00	Dry			(2.72)		
						3.36-3.60 Irregular subvertical dark orange brown sandy silt lenses			
4.00 - 4.45	UT 11	15 blows 100% rec Split and Describe photo unavailable	4.00	Dry					
4.50 - 5.50	P 12	100% rec	4.50		Firm indistinctly laminated greyish brown and brownish grey silty CLAY with occasional thin greyish brown and orangish brown fine sand laminations. Rare black carbonaceous inclusions <5x5mm.	4.31-4.36 Vertical dark orangish brown sandy silt parting 4.50-5.12 Very closely spaced thin orangish brown silty fine sand laminations	4.50 -0.11		
			12/08/15 5.50	1700 Dry			(1.00)		
5.50	D 13	20 blows No Recovery			Soft indistinctly thinly to thickly laminated fissured greyish brown silty CLAY with occasional thin and thick laminae of dark grey and black fine sand and rare orangish brown fine sand pockets. Rare carbonaceous inclusions. Fissures are randomly orientated, very closely to closely spaced.		5.50 -1.11		
5.50 - 5.95 5.50 - 6.00	UT 13A B 14		13/08/15 5.50	0800 5.00		6.00-6.22 Occasional orangish brown discolouration adjacent to laminae surfaces, penetrating <6mm. Laminae locally inclined 50-60deg			
6.00 - 7.00	P 15	100% rec	6.00	5.90			(1.25)		
7.00 - 7.45	UT 16	10 blows 100% rec	7.00	6.60	Very soft to soft, becoming firm, indistinctly thinly and thickly laminated dark grey and greyish brown slightly sandy silty CLAY with fine sand partings and occasional orangish brown fine sand pockets <5mm.	6.75-7.00 Frequent fine sand partings	6.75 -2.36		
			13/08/15 7.00	1700 6.60		7.21 Becoming firm			
7.50 - 8.00	UT 17	20 blows 75% rec							
			14/11/15 7.00	0800 6.70					
8.00 - 8.45	UT 18	20 blows 100% rec	8.00	Dry			(2.45)		
8.45 - 8.65	D 19								
8.70 - 9.15	UT 20	20 blows 100% rec	8.70	Dry		8.70-9.15 Occasional black slightly organic silty clay pockets <15-20mm			
9.20 - 9.65 9.20 - 9.70	UT 21A B 21	15 blows No Recovery	9.20	Damp	Soft, becoming firm, thinly and thickly laminated dark grey slightly sandy silty CLAY with laminations of greyish brown fine sand.		9.20 -4.81		
			14/08/15 9.70	1700 Damp					
9.70 - 10.15	UT 22	20 blows 45% rec					(0.95)		
						9.85-10.15 Becoming firm			

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH410

Borehole Log

Drilled	MR/LW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.39 mOD
Logged	RM	17/08/2015	Dando 3000	0.00	32.70	200	32.60	**Coordinates (m)**	E 509545.76
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m					**National Grid**	N 428423.12
Approved	JRL	20/08/2015	Cable percussion to 32.70m Hammer ID: SM37, Rod type NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.15 - 10.60 10.15 - 10.65	UT 23A B 23	20 blows No Recovery			Firm indistinctly thinly laminated fissured dark grey silty CLAY with very closely to closely spaced think laminae of dark grey and black fine sand. Fissures are randomly orientated, very closely to closely spaced.		10.15 -5.76		
10.65 10.70 - 11.15	D 24 UT 25	20 blows 45% rec	10.70	5.40			(0.75)		
11.15 - 11.35	D 26				Medium dense dark grey and greyish brown slightly silty clayey fine to coarse SAND. Occasional dark grey organic silty clay pockets. Frequent fine gravel sized shell fragments.	11.08 Thin black carbonaceous lamination	10.90 -6.51		
11.40 - 11.85 11.40 - 11.90	SPTC B 27	N=15 (3,3/4,3,4,4)	11.40	6.00			(1.50)		
12.40 - 12.85 12.40 - 12.85 12.40 - 12.90	SPTS D 28 B 29	N=19 (3,4/5,4,5,5)	12.40	6.60	Medium dense dark grey silty fine to medium SAND. Occasional fine gravel sized shell fragments. Slight vegetative odour.		12.40 -8.01		
13.40 - 13.85 13.40 - 13.85 13.40 - 13.90	SPTS D 30 B 31	N=22 (4,4/5,5,6,6)	13.40	7.00		13.40-13.85 Slightly silty	(2.00)		
14.40 - 14.85 14.40 - 14.85 14.40 - 14.90	SPTS D 32 B 33	N=23 (4,5/5,6,6,6)	14.40	7.00	Medium dense dark grey slightly silty fine to coarse SAND with occasional black pseudo-fibrous peat bands/pockets. Occasional fine gravel sized shell fragments.	14.40-14.90 Rare to occasional dark brown to black pseudo-fibrous peat pockets	14.40 -10.01		
15.40 - 15.85 15.40 - 15.85 15.40 - 15.90	SPTS D 34 B 35	N=22 (3,4/5,5,6,6)	15.40	6.00		15.40-15.85 Fine to medium; peat pockets absent	(3.60)		
16.40 - 16.85 16.40 - 16.85 16.40 - 16.90	SPTS D 36 B 37	N=23 (4,5/6,5,6,6)	16.40	7.00		16.40-16.90 Rare to occasional dark brown to black pseudo-fibrous peat pockets			
17.40 - 17.85 17.40 - 17.85 17.40 - 17.90	SPTS D 38 B 39	N=27 (5,6/7,6,7,7)	17.40 17/08/15 17.90	7.60 1700 8.00		17.40-17.90 Occasional peat fragments			
18.00	D 40		18/08/15 17.90	0800 7.00	Firm, becoming stiff, indistinctly laminated fissured greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine of various lithologies including sandstone, chalk, flint, igneous and quartzite. Rare pockets and partings of grey silt and fine sand.		18.00 -13.61		
18.40 - 18.85 18.40 - 18.85 18.40 - 18.90	SPTS D 41 B 42	N=19 (3,4/4,4,5,6)	18.40	7.00			(1.60)		
18.90 - 19.35	UT 43	70 blows 30% rec	18.90	11.00		18.90-19.80 Becoming stiff 19.13-19.35 Locally firm			
19.40 - 19.85 19.40 - 19.90	SPTC B 44	N=24 (5,6/6,5,6,7)	19.40	12.60			19.60 -15.21		
19.90 - 20.35 19.90 - 20.40	UT 45A B 45	50 blows No Recovery			Firm to stiff and stiff thinly to thickly laminated, locally slightly gravelly, greyish brown CLAY with very closely to closely spaced thin laminae of	19.80-20.40 Slightly gravelly			

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH410

Borehole Log

Drilled	MR/LW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.39 mOD
Logged	RM	17/08/2015	Dando 3000	0.00	32.70	200	32.60	**Coordinates (m)**	E 509545.76
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m					**National Grid**	N 428423.12
Approved	JRL	20/08/2015	Cable percussion to 32.70m Hammer ID: SM37, Rod type NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
					orangish brown fine sand. Occasional parting of silt on laminae surfaces. Gravel is angular to subrounded fine to medium flint, chalk and quartzite.				
20.35 20.40 - 20.85 20.40 - 20.90	D 46 SPTC B 47	N=29 (6,6/7,7,7,8)	20.40	13.40		20.40-20.90 Occasional thick laminae of orangish brown fine sand			
21.00 - 21.45	UT 48	100 blows 45% rec	21.00	14.10		21.00 Predominantly stiff	(3.05)		
21.45 - 21.65	D 49					21.24-21.43 Locally indistinctly cross laminated; no silt or sand laminations			
21.70 - 22.15 21.70 - 22.20	SPTC B 50	N=29 (5,6/7,7,7,8)	21.70	14.00		21.45-21.65 Slightly gravelly			
22.20 - 22.65	UT 51	120 blows 45% rec	22.20	13.70		22.20-22.29 Firm to stiff			
22.65 - 22.85	D 52				Firm thinly laminated greyish brown CLAY with occasional very closely to closely spaced thin to thick laminae of yellowish brown fine sand. Occasional dusting of light grey silt on laminae surfaces.		22.65 -18.26		
22.90 - 23.35 22.90 - 23.40	SPTC B 53	N=30 (6,6/7,7,8,8)	22.90 18/08/15 23.40	13.00 1700 13.00			(0.75)		
23.50 - 23.95	UT 54	110 blows 45% rec	19/08/15 23.40	0800 8.00	Stiff indistinctly laminated greyish brown CLAY with occasional sand partings and laminations.	23.67-23.95 More frequent sand laminae	23.40 -19.01 (0.55)		
23.95 - 24.15	D 55				Dense reddish brown, becoming greyish brown, slightly silty slightly gravelly fine to medium SAND. Gravel is subangular to subrounded fine of chalk and flint.		23.95 -19.56		
24.80 - 25.25 24.80 - 25.30	SPTS B 56	N=31 (5,6/7,7,8,9)	24.80	8.30		24.80-27.80 Becoming greyish brown			
25.80 - 26.25 25.80 - 26.30	SPTS B 57	N=30 (6,7/8,6,8,8)	25.80	9.10			(3.85)		
26.80 - 27.25 26.80 - 27.30	SPTS B 58	N=34 (7,8/8,8,9,9)	26.80 19/08/15 27.30 20/08/15 27.30	9.60 1700 10.10 0800 12.00					
27.80 - 28.25 27.80 - 28.25 27.80 - 28.30	SPTS D 59 B 60	N=42 (7,9/10,10,11,11)	27.80	12.00	Dense to very dense greyish brown to brown slightly silty gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of chalk and flint.		27.80 -23.41		
28.80 - 29.20 28.80 - 29.25 28.80 - 29.30	SPTS D 61 B 62	50 (8,9/11,14,17,8 for 20mm)	28.80	12.80			(2.20)		
29.80 - 30.18 29.80 - 30.25 29.80 - 30.30	SPTS D 63 B 64	50 (10,11/13,16,18,3 for 0mm)	29.80	13.60			30.00 -25.61		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH410

Borehole Log

Drilled	MR/LW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.39 mOD
Logged	RM	17/08/2015	Dando 3000	0.00	32.70	200	32.60	**Coordinates (m)**	E 509545.76
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m					**National Grid**	N 428423.12
Approved	JRL	20/08/2015	Cable percussion to 32.70m Hammer ID: SM37, Rod type NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
					Very dense greyish brown and cream sandy slightly silty GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of various lithologies. Cobbles are subrounded of chalk.		(1.30)		
30.80 - 31.04 30.80 - 31.10 30.80 - 31.30	SPTS D 65 B 66	50 (17,8 for 20mm/20,25,5 for 0mm)	30.80	13.90					
31.30	D 67				Very dense multicoloured SAND and GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, quartzite, chalk and flint. Cobbles are subrounded sandstone, flint and chalk.		31.30 -26.91 (0.50)		
31.50 - 31.66 31.50 - 31.80	SPTS B 68	50 (25 for 60mm/29,21 for 30mm)	31.50	14.40					
32.00 - 32.16 32.00 - 32.50	SPTS B 69	50 (25 for 50mm/31,19 for 30mm)	22.00	14.00			31.80 -27.41		
			20/08/15	1700	CHALK recovered as cream silty slightly sandy gravel with low cobble content. Gravel and cobbles are very weak, low to medium density with occasional orangish brown staining. Rare subrounded gravel of flint. (BURNHAM CHALK FORMATION, Possible Grade Dc)		(0.90)		
32.60 - 32.72 32.60 - 32.70	SPTS D 70	50 (25 for 40mm/40,10 for 0mm)	32.60	14.00			32.70 -28.31		
					END OF EXPLORATORY HOLE				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH410

Borehole Log

Drilled	DR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.24 mOD
Logged	RM/TC	20/08/2015	GeoSonic 10-08	0.00	6.00	200	6.00	**Coordinates (m)**	E 509574.24
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	6.00	34.50	164	34.50	**National Grid**	N 428472.02
Approved	JRL	24/08/2015	Sonic core drilling to 34.50m.						

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
1.20 - 1.50			100 NA NA		
2.20	87		B 1		
1.50 - 3.00	NA NA				
3.70 - 4.00	100		D 2		
3.00 - 4.50	NA NA				
4.50 - 6.00	100				
	NA NA				
5.50 - 5.70			D 3		
				20/08/15 6.00	1700 Dry
				21/08/15 6.00	0800
6.50 - 6.75			D 4		
6.00 - 7.50	100 NA NA				
7.50 - 9.00	80				
	NA NA				
8.70 - 8.90			D 5		
9.50 - 9.70	100		D 6		
	NA NA				
9.00 - 10.50					

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Firm dark brown mottled orange brown and grey sandy gravelly CLAY. Gravel is subangular to subrounded fine and medium of concrete, brick, flint and building rubble. (MADE GROUND)		(1.75)		
Firm orange brown mottled grey and reddish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine and medium of various lithologies including brick.		1.75 +2.49 (0.35) 2.10 +2.14		
Firm dark brown mottled orange brown and grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine and medium of flint, brick, concrete, clay pipe, animal bone fragments and pottery. Cobbles are subangular of brick. (MADE GROUND)		(1.10) 3.20 +1.04		
Firm dark orange brown and brownish grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine and medium of flint, brick, concrete and animal bone fragments. (MADE GROUND)		(0.40) 3.60 +0.64		
Soft dark grey and black sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of brick and animal bone fragments, textile and clay pipe. Strong vegetative odour. (MADE GROUND)		(0.55) 4.15 +0.09 (0.25) 4.40 -0.16		
Firm greyish brown, locally mottled black, slightly sandy slightly gravelly CLAY. Gravel is subangular fine, locally medium, of brick. Slight vegetative odour. (MADE GROUND)		(0.50) 4.90 -0.66		
Soft to firm, locally indistinctly laminated, brownish grey slightly sandy silty CLAY. (ALLUVIUM)		(1.10)		
Firm, locally soft, thinly laminated brownish grey silty CLAY. Frequent dustings of dark grey silt and brown sand on laminae surfaces. (ALLUVIUM)		6.00 -1.76		
Soft, locally firm, indistinctly laminated, brownish grey silty CLAY. Frequent dustings of dark grey silt and brown sand on laminae surfaces. (ALLUVIUM)		(0.80)		
Firm indistinctly laminated indistinctly fissured greyish brown silty sandy CLAY. (ALLUVIUM)		6.80 -2.56 (0.70)		
Greyish brown silty SAND, locally tending to sandy clay. (ALLUVIUM)	7.50-7.80 AZCL. 8.60-8.80 Tending to sandy clay.	7.50 -3.26 (1.75)		
Firm indistinctly laminated greyish brown slightly sandy CLAY. Dustings of silt and organic material on laminae surfaces. (ALLUVIUM)		9.25 -5.01		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH411

Borehole Log

Drilled	DR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.24 mOD
Logged	RM/TC	20/08/2015	GeoSonic 10-08	0.00	6.00	200	6.00	**Coordinates (m)**	E 509574.24
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	6.00	34.50	164	34.50	**National Grid**	N 428472.02
Approved	JRL	24/08/2015	Sonic core drilling to 34.50m.						

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
10.65 - 10.80			D 7		
10.50 - 12.00	100 NA NA				
11.40 - 12.00			B 8		
12.00 - 13.50	80 NA NA				
13.50 - 15.00	100 NA NA				
14.60 - 14.80			D 9		
15.30 - 15.80			B 10		
15.00 - 16.50	100 NA NA				
16.75 - 17.25			B 11		
16.50 - 18.00	100 NA NA				
17.50 - 17.75			D 12		
18.30 - 18.90			B 13		
18.00 - 19.50	100 NA NA				
19.40 - 19.50			D 14		

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
		(1.95)		
Brownish grey clayey fine and medium, locally fine to coarse, SAND. Frequent shell fragments. (ALLUVIUM)		11.20 -6.96		
	12.80-13.20 Fine to coarse sand	(4.05)		
Light greyish brown speckled black clayey fine to coarse SAND. Frequent shell fragments. Trace of organic material. (ALLUVIUM)		15.25 -11.01		
		(0.80)		
Dark greyish brown mottled black clayey fine to coarse SAND with frequent peat fragments/bands. Occasional shell fragments. (ALLUVIUM)		16.05 -11.81		
		(2.20)		
	17.75-18.00 Frequent fragments of pseudo-fibrous peat.			
Cream mottled yellowish grey clayey sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of chalk and flint. (ALLUVIUM)		18.25 -14.01		
		(0.65)		
Stiff indistinctly thinly, locally thickly, laminated greyish brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine and medium of chalk and flint. (Possible GLACIOLACUSTRINE DEPOSITS)		18.90 -14.66		
		(0.60)		
Firm, locally stiff, indistinctly thinly and thickly laminated greyish brown CLAY. (GLACIOLACUSTRINE DEPOSITS)		19.50 -15.26		
		(0.60)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
12.10 - 18.50	Blowing sand.; casing repeatedly dropping 1.50-2.00m.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH411

Borehole Log

Drilled	DR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.24 mOD
Logged	RM/TC	20/08/2015	GeoSonic 10-08	0.00	6.00	200	6.00	**Coordinates (m)**	E 509574.24
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	6.00	34.50	164	34.50	**National Grid**	N 428472.02
Approved	JRL	24/08/2015	Sonic core drilling to 34.50m.						

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
19.50 - 21.00	100 NA NA				
20.75 - 20.90			D 15	21/08/15 21.00	1700
21.20 - 21.40			D 16	22/08/15 21.00	0800
21.00 - 22.50	100 NA NA				
23.10 - 23.40			D 17		
22.50 - 24.00	100 NA NA				
24.00 - 25.50	67 NA NA				
26.00 - 26.50			B 18		
25.50 - 27.00	100 NA NA				
27.00 - 28.50	100 NA NA				
28.50 - 29.20			B 19		
29.20 - 30.00			B 20		
28.50 - 30.00	100 NA NA				

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Firm, locally stiff, thinly laminated greyish brown CLAY with occasional orange brown medium sand bands/pockets. Dustings of light grey silt on laminae surfaces. (GLACIOLACUSTRINE DEPOSITS)	20.55-20.60 Orange brown medium sand.	20.10 -15.86 (2.45)		
Dark orange brown gravelly medium to coarse SAND, locally with yellow fine sand laminations. Gravel is subangular to subrounded fine chalk and local subangular fine and medium flint. (FLUVIOGLACIAL SAND and GRAVEL)		22.55 -18.31 (1.45)		
Dark orange brown clayey gravelly medium to coarse SAND with rare thin dark orange brown clay laminations. Gravel is subangular to subrounded fine chalk, gravel and occasional subangular fine and medium flint. (FLUVIOGLACIAL SAND and GRAVEL)	24.00-24.50 AZCL. 26.00-26.25 Thinly laminated with dark orange brown clay	24.00 -19.76 (5.30)		
Dark orange brown mottled cream and grey gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium of chalk and locally subangular flint. (FLUVIOGLACIAL SAND and GRAVEL)		29.30 -25.06 (1.40)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
24.50 - 30.50	Blowing sand; casing dropped 4.50m

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH411

Borehole Log

Drilled	DR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.24 mOD
Logged	RM/TC	20/08/2015	GeoSonic 10-08	0.00	6.00	200	6.00	**Coordinates (m)**	E 509574.24
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	6.00	34.50	164	34.50	**National Grid**	N 428472.02
Approved	JRL	24/08/2015	Sonic core drilling to 34.50m.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.50 - 31.50 30.00 - 31.50	100 NA NA		B 21			CHALK recovered as sandy gravelly SILT with low cobble content. Gravel and cobbles are weak to medium strong, low to medium density. Rare subangular fine to medium flint gravel. (BURNHAM CHALK FORMATION)	31.50-32.50 AZCL.	30.70 -26.46		
31.50 - 33.00	33 NA NA						33.00-33.50 AZCL.	(3.80)		
33.00 - 34.50	67 NA NA			22/08/15 34.50	1700					
						END OF EXPLORATORY HOLE		34.50 -30.26		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH411

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.84 mOD
Logged	EM/RM	20/07/2015	Dando 2000.	0.00	2.50	250	2.50	**Coordinates (m)**	E 509610.26
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	2.50	32.50	200	32.30	**National Grid**	N 428414.40
Approved	JRL	06/08/2015	Cable percussion to 32.50m SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

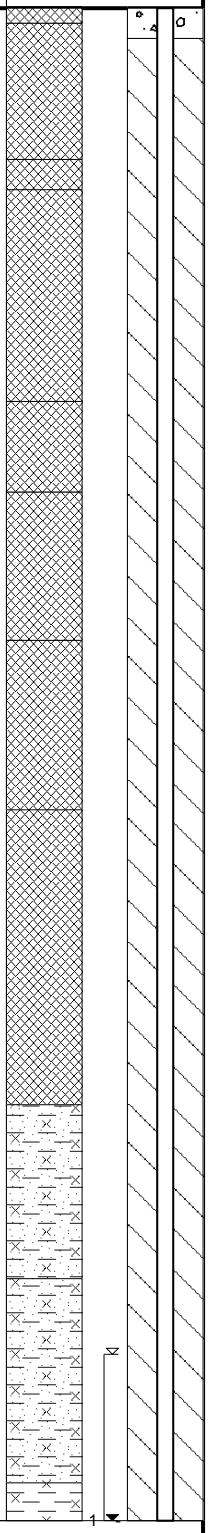
Depth	Type & No	Records	Date Casing	Time Water
0.00 - 0.50	B 1			
0.20	ES 2			
0.50	ES 3			
1.00	ES 4			
1.20 - 1.65	SPTS	N=4 (1,1/1,1,1,1)	1.20	dry
1.20 - 1.65	D 5			
1.20 - 1.70	B 6			
1.70 - 2.15	UT 7	10 blows 80% rec	1.70	Dry
2.15 - 2.25	D 8			
2.25 - 2.70	SPTS	N=4 (1,1/1,1,1,1)	2.20	dry
2.25 - 2.70	D 9			
2.25 - 2.75	B 10			
2.75 - 3.20	UT 11	10 blows 65% rec	2.70	Dry
3.20 - 3.95	SPTS	N=4 (1,1/1,1,1,1) SW=300	3.20	dry
3.20 - 3.95	D 12			
3.20 - 4.00	B 13			
4.00 - 4.45	UT 14	9 blows 100% rec	4.00	Dry
4.45 - 4.55	D 15			
4.55 - 5.30	SPTS	N=4 (1,1/1,1,1,1) SW=300	4.50	dry
4.55 - 5.30	D 16			
5.30 - 5.75	UT 17	9 blows 100% rec	5.30	Dry
5.75 - 5.85	D 18			
5.85 - 6.30	UT 19	10 blows 100% rec	5.50	Dry
6.30 - 6.40	D 20			
6.40 - 6.85	UT 21	10 blows 100% rec Split and Describe and photo not available	6.40	Dry
6.85 - 6.95	D 22		21/07/15 6.90	1800 dry
7.00 - 8.00	P 23	50% rec	22/07/15 6.90	0800 dry
7.50 - 8.00	B 24			
8.00 - 8.45	UT 25	8 blows 100% rec	8.00	Dry
8.45 - 8.50	D 26			
8.50 - 8.95	UT 27	8 blows 100% rec	8.50	Dry
8.95 - 9.10	D 28			
9.10 - 9.55	UT 29	8 blows 100% rec	9.00	Dry
9.55 - 9.75	D 30			
9.75 - 10.20	UT 31	15 blows 100% rec	9.50	Dry

Strata Description

Main	Detail	Depth, Level (Thickness)
Concrete bricks. (MADE GROUND)		0.10 (0.10) +4.74
Brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of various lithologies including chalk, flint, brick and concrete. (MADE GROUND)		(0.90)
Brown slightly gravelly clayey fine SAND. Gravel is angular to subrounded fine to medium of quartzite and chalk. (MADE GROUND)		1.00 (0.20) +3.84 1.20 +3.64
Soft, locally firm, indistinctly fissured orangish brown sandy silty CLAY with occasional orangish brown sand partings. Rare carbonaceous material. Sand is fine. Fissures are randomly orientated, closely spaced. Occasional rootlets <2mm. (MADE GROUND)	2.10-2.60 Occasional orangish brown fine sand partings 2.15 Firm	(1.40)
Soft indistinctly laminated orangish brown and greyish brown slightly sandy silty CLAY. Occasional parting of grey silt on laminae surfaces. (MADE GROUND)		2.60 (0.60) +2.24
Soft thinly laminated indistinctly fissured brownish grey and dark grey slightly sandy silty CLAY. (MADE GROUND)		3.20 (0.98) +1.64
Soft thinly to thickly laminated indistinctly fissured brownish grey, locally greyish brown, slightly gravelly silty CLAY with low cobble content and occasional dark grey organic clay pockets. Gravel is angular to subrounded fine to coarse of concrete, chalk, flint, pottery, limestone and brick. Cobbles are subrounded of brick. (MADE GROUND)	4.25-4.55 Grades soft to firm; greyish brown with dark grey silt pockets	4.18 (1.12) +0.66
Soft, locally firm, indistinctly laminated brownish grey and brown slightly sandy, locally slightly gravelly, silty CLAY. (MADE GROUND)	5.35-5.40 Slightly gravelly; subangular fine to medium of brick 5.66 Black slightly organic clay pocket 25x25mm 6.05 Becoming firm 6.16-6.30 Slightly gravelly; subangular to subrounded fine to coarse of chalk, flint, brick and limestone	5.30 (1.95) -0.46
Soft and firm indistinctly thinly and thickly laminated indistinctly fissured dark grey mottled greyish brown slightly sandy silty CLAY. Occasional parting of fine sand on laminae surfaces. Fissures are randomly orientated, extremely closely spaced.	7.00-7.25 Slightly gravelly; subrounded predominantly fine, includes brick, concrete and chalk	7.25 (1.15) -2.41
Firm thinly laminated greyish brown slightly sandy silty CLAY. Frequent parting of light yellowish brown fine sand and occasional to frequent partings of dark grey silt on laminae surfaces.		8.40 (1.35) -3.56
	9.10-9.32 Soft 9.10-9.50 Speckling of black carbonaceous material	
Firm, locally soft, thinly, locally thickly, laminated grey and greyish brown silty CLAY with partings of		9.75 -4.91

Hole continues on next sheet

Legend / Backfill



Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	10.00	Rose to 8.90 m after 20 minutes. Medium inflow.	8.60

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH412

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.84 mOD
Logged	EM/RM	20/07/2015	Dando 2000.	0.00	2.50	250	2.50	**Coordinates (m)**	E 509610.26
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	2.50	32.50	200	32.30	**National Grid**	N 428414.40
Approved	JRL	06/08/2015	Cable percussion to 32.50m SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
					dark grey and brown fine sand on laminae surfaces, occasional sand pockets and occasional dark brown peat pockets. (ALLUVIUM)	10.20-10.30 Occasional dark brown peat pockets 10.42 Dark grey fine to coarse sand lamination; frequent shell fragments 10.80-11.30 Becoming soft, indistinctly laminated	(1.55)		
10.20 - 10.30 10.30 - 10.75	D 32 UT 33	6 blows 100% rec	22/07/15 10.20	1800 dry					
			23/07/15 10.20	0800 6.20					
10.80 - 11.25 10.80 - 11.30	UT 34A B 34	8 blows No Recovery	10.80	6.20					
11.30 - 11.75	UT 35	20 blows 100% rec	11.30	6.40			11.30 (0.07) 11.37	-6.46 -6.53	
					Orange brown fine to medium, occasionally coarse, SAND. Rare shell fragments.				
11.75 - 11.85	D 36				Medium dense dark grey and brownish grey slightly silty fine to coarse SAND. Occasional fine gravel size shell fragments.				
12.00 - 12.45 12.00 12.00 - 12.50	SPTC D 37 B 38	N=19 (3,4/4,5,5,5)	12.00	6.70					
12.50 - 12.95 12.50 - 12.95 12.50 - 13.00	SPTS D 39 B 40	N=20 (4,4/5,4,5,6)	12.50	7.20					
13.50 - 13.95 13.50 - 14.00	SPTC B 41	N=21 (4,5/5,5,6,5)	13.50	7.80					
14.50 - 14.95 14.50 - 14.95 14.50 - 15.00	SPTS D 42 B 43	N=23 (4,5/6,5,6,6)	14.50	8.30					
							(7.93)		
15.50 - 15.95 15.50 - 15.95 15.50 - 16.00	SPTS D 44 B 45	N=22 (3,4/5,5,6,6)	15.50	8.60					
16.50 - 16.95 16.50 - 17.00	SPTC B 46	N=22 (3,3/4,5,6,7)	16.50	8.00					
17.50 - 17.95 17.50 - 17.95 17.50 - 18.00	SPTS D 47 B 48	N=25 (4,5/5,6,7,7)	17.50	7.40					
18.50 - 18.95 18.50 - 18.95 18.50 - 19.00	SPTS D 49 B 50	N=29 (5,6/7,7,7,8)	18.50	6.30					
			23/07/15 19.30	1800 0.00					
19.30	D 51						19.30	-14.46	
			29/07/15 19.30	0800 0.00	Medium dense to dense greyish brown, locally slightly clayey, sandy GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded of chalk and		(0.70)		
19.50 - 19.95	SPTC	N=30 (6,6/7,7,8,8)	29/07/15 20.00	1800 2.30		19.80-20.00 Slightly clayey			
					Hole continues on next sheet		20.00	-15.16	

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH412

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.84 mOD
Logged	EM/RM	20/07/2015	Dando 2000.	0.00	2.50	250	2.50	**Coordinates (m)**	E 509610.26
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	2.50	32.50	200	32.30	**National Grid**	N 428414.40
Approved	JRL	06/08/2015	Cable percussion to 32.50m SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.00 - 20.45 20.00	UT 54 D 53	50 blows 100% rec			flint.				
					Stiff thinly to thickly laminated fissured dark greyish brown and yellowish brown slightly gravelly CLAY with occasional partings of silt and fine sand on laminae surfaces and occasional thick sand laminations. Gravel is subangular to subrounded medium to coarse of chalk.	20.20-20.21 Orangish brown fine to medium sand lamination	(0.50)		
20.45 - 20.55	D 55						20.50 -15.66		
20.60 - 21.05 20.60 - 21.10	SPTC B 56	N=16 (3,3/4,4,4,4)	20.60	7.60					
21.10 - 21.55	UT 57	45 blows 100% rec	21.10	7.80	Firm, locally stiff, thinly and thickly laminated greyish brown CLAY with occasional thin yellowish brown fine sand laminae and rare black fine to medium sand partings. Occasional parting of dark grey silt and yellowish brown fine to medium sand on laminae surfaces.	21.10-21.55 Stiff			
21.55 - 21.65 21.65 - 22.10 21.65 - 22.15	D 58 SPTC B 59	N=19 (4,4/5,4,5,5)	21.60	8.30		21.55-21.65 Rare black fine to medium sand partings	(2.80)		
22.20 - 22.65	UT 60	45 blows 100% rec	22.20	8.00		22.40-22.65 Firm, locally stiff			
22.65 - 22.75	D 61					22.65-23.30 Occasional thin yellowish brown fine sand laminae			
22.80 - 23.25 22.80 - 23.30	SPTC B 62	N=20 (3,4/4,5,6,5)	22.80	8.80					
23.30 - 23.75 23.30 - 23.80	UT NR B 63	38 blows No Recovery	23.30	9.00	Firm, locally stiff, thinly to thickly laminated greyish brown slightly sandy slightly gravelly CLAY with frequent partings and thin laminations of brown silt and orangish brown sand.		23.30 -18.46		
23.80 - 24.25 23.80 - 24.30	SPTC B 64	N=22 (4,4/5,6,5,6)	23.80	9.60			(1.24)		
24.30 - 24.75	UT 65	70 blows 100% rec	24.30	10.10		24.30-24.42 Becoming stiff 24.42-24.54 Interlaminated clay and sand			
24.75 - 24.85	D 66				Orangish brown slightly gravelly silty fine to coarse SAND with occasional pockets of black fine to medium sand. Gravel is subangular to subrounded fine of flint and chalk.		24.54 -19.70 (0.76)		
25.30 - 25.75 25.30 - 25.75 25.30 - 25.80	SPTS D 67 B 68	N=47 (5,9/10,11,12,14)	25.30	10.40	Dense, becoming very dense, greyish brown slightly gravelly clayey fine to coarse SAND. Gravel is angular to subrounded predominantly fine to medium of chalk and flint.		25.30 -20.46		
26.30 - 26.75 26.30 - 26.75 26.30 - 26.80	SPTS D 69 B 70	N=47 (6,10/10,12,12,13)	26.30	10.90			(3.00)		
27.30 - 27.70 27.30 - 27.75 27.30 - 27.80	SPTS D 71 B 72	50 (7,10/12,14,15,9 for 30mm)	27.30	11.10		27.30-27.75 Becoming very dense			
28.30 - 28.70 28.30 - 28.75 28.30 - 28.80	SPTS D 73 B 74	50 (9,12/14,14,16,6 for 30mm)	28.30 30/07/15 28.80 03/08/15 28.80	12.00 1800 0.00 0800 6.00	Very dense greyish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of chalk and flint.		28.30 -23.46 (1.00)		
29.30 - 29.66 29.30 - 29.70 29.30 - 29.80	SPTS D 75 B 76	50 (10,14/15,19,16 for 60mm)	29.30	7.00	Very dense brown slightly silty very sandy GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded of chalk and flint.		29.30 -24.46		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH412

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.84 mOD
Logged	EM/RM	20/07/2015	Dando 2000.	0.00	2.50	250	2.50	**Coordinates (m)**	E 509610.26
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	2.50	32.50	200	32.30	**National Grid**	N 428414.40
Approved	JRL	06/08/2015	Cable percussion to 32.50m SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.30 - 30.56 30.30 - 30.80	SPTC B 77	50 (17,8 for 20mm/19,24,7 for 10mm)	03/08/15 30.30 ~~30.30~~ 06/08/15 30.20	1800 8.40 ~~8.40~~ 0800 5.00			(1.70)		
31.00	D 78				CHALK recovered as cream slightly sandy slightly silty gravel with medium cobble content. Gravel and cobbles are very weak to weak, medium density, white stained brown. Occasional angular to subrounded fine to medium flint gravel.		31.00 -26.16		
31.30 - 31.60 31.30 - 31.60 31.30 - 31.80	SPTS D 79 B 80	50 (15,10 for 60mm/18,21,11 for 20mm)					(1.50)		
32.30 - 32.49	SPTC	50 (20,5 for 0mm/25,25 for 40mm)			END OF EXPLORATORY HOLE		32.50 -27.66		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
32.00 - 32.30	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH412

Borehole Log

Drilled	BJ/JS	**Start**	03/08/2015
Logged	RM		
Checked	TC	**End**	
Approved	JRL		07/08/2015

Equipment, Methods and Remarks

Dando 2000/Geotec 10
Service inspection pit hand excavcated to 1.20m
Cable percussion to 33.00m, rotary core to 44.50m
SPT hammer ID. SM21, Rod type NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	12.50	250	33.00
12.50	33.00	200	
33.00	44.50	140	

Ground Level	5.16 mOD
Coordinates (m)	E 509633.26
National Grid	N 428469.64

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.20 - 0.40	B 1				Brownish grey slightly gravelly sandy CLAY. Occasional plant rootlets. (TOPSOIL)		0.10 (0.10) +5.06		
0.50 - 0.70	B 2				Greyish brown gravelly clayey fine to coarse SAND. Gravel is angular to subrounded fine to coarse of various lithologies including brick, flint, chalk, ceramic, sandstone, quartzite and igneous lithologies. (MADE GROUND)		(0.40) 0.50 +4.66		
0.70 - 0.90	B 3						(0.20) 0.70 +4.46		
0.90 - 1.20 1.00	B 4 ES 5						(0.20) 0.90 +4.26		
1.20 - 1.50	B 6				Light brown clayey SAND and GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, concrete, brick, chalk and flint. Cobbles are subrounded brick. (MADE GROUND)		(0.60)		
1.50 - 1.95 1.50 - 1.75 1.50 - 2.00	SPTS D 7 B 8	N=52 (4,8/17,19,8,8)	1.50	Dry			1.50 +3.66		
2.50 - 2.95 2.50 - 2.75 2.50 - 3.00	SPTS D 9 B 10	N=36 (4,8/8,8,8,12)	2.50	Dry	Stiff greyish brown sandy gravelly CLAY with low cobble content and occasional pockets of orangish brown fine to medium sand. Sand is fine. Gravel is angular to subrounded fine to coarse of various lithologies including concrete, brick, chalk and flint. Cobbles are subrounded brick. (MADE GROUND)				
3.00 - 3.45 3.00 3.00 - 3.45 3.00 - 3.50	SPTS ES 11 D 12 B 13	N=33 (4,9/9,6,8,10)	3.00	Dry	Firm dark grey and greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, brick, chalk, flint and concrete. Occasional plastic fragments. (MADE GROUND)		(3.00)		
3.50 - 3.95 3.50 - 4.00	SPTC B 14	N=28 (6,3/5,9,7,7)	3.00	Dry	Dense, becoming medium dense and loose, reddish brown and dark greyish brown sandy silty GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of predominantly brick and concrete. Cobbles are subrounded brick. (MADE GROUND)	3.50-4.00 Becoming medium dense			
4.00 - 4.45 4.00 - 4.45 4.00 - 4.45	SPTS B 15 D 15	N=8 (2,4/3,1,2,2)	4.00	Dry		4.00-4.45 Becoming loose 4.00 Possible level of basement slab			
4.45 - 4.90 4.45 - 4.90 4.45 - 4.90	SPTS B 17 D 17	N=1 (2,2/1,,,)	4.40	Dry			4.50 +0.66		
5.00 - 5.45	UT 18	13 blows 90% rec	5.00		Firm brownish grey slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of various lithologies including brick, concrete, chalk and flint. (MADE GROUND)		(0.45) 4.95 +0.21		
5.55 - 6.55	P 20	100% rec			Soft, locally firm, indistinctly thinly laminated fissured greyish brown and brownish grey silty CLAY with partings of silt and fine sand on laminae surfaces and occasional sand lenses. Fissures are randomly orientated, extremely closely to very closely spaced.	5.55-5.85 Soft 5.65-5.90 Firm	(2.15)		
6.55 - 7.00	UT 21	10 blows 100% rec	6.00						
7.10 - 8.10	P 23	100% rec			Firm, locally stiff, indistinctly thinly laminated fissured greyish brown, occasionally dark grey, silty CLAY with frequent partings of silt and fine sand on laminae surfaces. Partings and thin fine sand and silt., occasional sand lenses/pockets and rare black silty organic pockets.	7.50-8.10 Vegetative odour	7.10 -1.94		
8.10 - 8.55	UT 24	13 blows 100% rec	8.00				(1.45)		
8.65 - 9.10	UT 26	15 blows 100% rec	8.00		Firm indistinctly thinly and thickly laminated dark grey and greyish brown silty CLAY with very closely to closely spaced thin to thick laminae of greyish brown fine sand. Rare carbonaceous material.		8.55 -3.39		
9.20 - 10.20	P 28	90% rec					(0.55) 9.10 -3.94		
					Firm indistinctly thinly and thickly laminated fissured greyish brown and brownish grey silty CLAY with frequent silt and fine sand partings on laminae surfaces, occasional sand laminations and lenses/pockets and rare black silty organic	9.39-10.20 Vegetative odour			

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH413

Borehole Log

Drilled	BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.16 mOD
Logged	RM	03/08/2015	Dando 2000/Geotec 10	0.00	12.50	250	33.00	**Coordinates (m)**	E 509633.26
Checked	TC	**End**	Service inspection pit hand excavcated to 1.20m	12.50	33.00	200		**National Grid**	N 428469.64
Approved	JRL	07/08/2015	Cable percussion to 33.00m, rotary core to 44.50m	33.00	44.50	140			
			SPT hammer ID. SM21, Rod type NWY						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
10.20 - 10.65	UT 29	28 blows 100% rec	10.20	
10.75 - 11.20	UT 31	15 blows 100% rec	10.50	
11.30 - 11.75	UT 33	20 blows 100% rec	11.30	
11.85 - 12.30	UT 35	10 blows No Recovery	11.70	
11.85 - 12.30	B 35		13/08/15	1800
			12.00	
			14/08/15	0800
12.50 - 12.95	SPTS	N=14 (1,2/2,3,3,6)	12.00	8.00
12.50 - 12.75	D 36		12.00	8.30
12.50 - 12.95	B 37			
13.50 - 13.95	SPTS	N=12 (2,4/2,2,3,5)	13.50	6.70
13.50 - 13.95	D 38			
13.50 - 14.00	B 38			
14.50 - 14.95	SPTS	N=13 (1,2/2,4,3,4)	14.50	11.00
14.50 - 14.95	D 39			
14.50 - 15.00	B 40			
15.50 - 15.95	SPTS	N=15 (2,3/4,3,3,5)	15.50	9.40
15.50 - 15.95	D 41			
15.50 - 16.00	B 42			
16.50 - 16.95	SPTS	N=12 (1/2,2,3,5)	16.50	8.30
16.50 - 16.95	D 43			
16.50 - 17.00	B 44			
17.50 - 17.95	SPTS	N=17 (2,3/3,4,5,5)	17.50	6.90
17.50 - 17.75	D 45			
17.50 - 18.00	B 46			
18.50 - 18.95	SPTS	N=11 (1,2/2,2,3,4)	18.50	8.20
18.50 - 18.95	B 48			
18.50 - 18.95	D 47			
18.95 - 19.40	SPTS	N=13 (2,4/3,4,3,3)	18.50	8.00
18.95 - 19.40	B 50			
18.95 - 19.40	D 49			
19.40 - 19.85	SPTC	N=30 (3,6/6,8,8,8)	19.40	4.90
19.40 - 19.85	B 51			
			14/08/15	1800
			19.80	4.90
19.85 - 20.70	B 52			
			17/08/15	0800
			19.80	2.60

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
clay pockets. Occasional irregular thin and thick clay laminations.				
		(2.90)		
	10.75-11.20 Occasional irregular thin and thick clay laminations			
	11.30-11.75 Locally stiff			
	11.47 Becoming greyish brown			
		12.00 -6.84		
Medium dense dark grey and greyish brown slightly gravelly silty fine to coarse SAND with rare organic/peat pockets. Gravel is subangular fine of flint. Rare shell fragments.				
	12.50-12.95 Dark grey fine sand			
	13.50-14.00 Rare dark brown oxidising to black pseudo-fibrous peat pockets			
		(4.50)		
	15.50-16.00 Slightly silty			
		16.50 -11.34		
Medium dense dark grey and greyish brown slightly silty fine to medium SAND with occasional fragments of brown oxidising to black pseudo-fibrous peat. Rare to occasional fine to medium gravel sized shell fragments.				
	17.50-17.95 Black organic sand partings			
		(3.00)		
	18.30-18.95 Frequent brown oxidising to black pseudo-fibrous peat pockets			
		19.50 -14.34		
Medium dense to dense very sandy silty GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone,		(0.60)		
Hole continues on next sheet				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH413

Borehole Log

Drilled	BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.16 mOD
Logged	RM	03/08/2015	Dando 2000/Geotec 10	0.00	12.50	250	33.00	**Coordinates (m)**	E 509633.26
Checked	TC	**End**	Service inspection pit hand excavcated to 1.20m	12.50	33.00	200		**National Grid**	N 428469.64
Approved	JRL	07/08/2015	Cable percussion to 33.00m, rotary core to 44.50m	33.00	44.50	140			
			SPT hammer ID. SM21, Rod type NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
					flint, quartzite and chalk. Cobbles are subrounded flint and sandstone.		20.10 -14.94 (0.60)		
20.20 - 20.65 20.20 - 20.70	UT 53A B 53	100 blows No Recovery							
					Firm to stiff indistinctly thinly laminated brownish grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded flint and sandstone.		20.70 -15.54 (0.50)		
20.70 - 21.15 20.70 - 21.20	SPTC B 54	N=34 (6,7/8,8,8,10)	20.10	2.75					
21.20 - 21.65	UT 55	100 blows 40% rec	21.10	3.10			21.20 -16.04		
					Very stiff thinly laminated greyish brown mottled grey silty CLAY with very closely to closely spaced thin laminae of yellowish brown fine sand.				
21.70 - 22.15 21.70 21.70 - 22.20	SPTC D 56 B 57	N=29 (3,5/7,7,7,8)	21.10	3.10		21.70-22.15 Occasional black fine sand on laminae surfaces			
					Stiff thinly and thickly laminated fissured greyish brown silty CLAY with extremely closely spaced yellowish brown fine to medium sand laminations silt partings and laminations, occasional black fine sand laminae and rare slightly gravelly fine sand pockets.				
22.20 - 22.65	UT 58	95 blows 45% rec	22.10	4.00					
22.65 - 22.75 22.75 - 23.20 22.75 - 23.20	D 59 SPTC B 60	N=33 (4,6/8,8,8,9)	22.10	4.05		22.65-22.75 Rare pockets of brown slightly gravelly fine sand pockets. Gravel is angular fine to coarse of chalk and flint			
23.20 - 23.65	UT 61	100 blows 45% rec	23.10	4.30		23.20 1No subrounded fine chalk gravel	(4.00)		
23.65 - 23.75 23.75 - 24.20 23.75 - 24.20	D 62 SPTC B 63	N=36 (6,7/8,9,9,10)	23.10	4.50					
24.20 - 24.65	UT 64	100 blows 45% rec	24.10	4.95					
24.65 - 24.75 24.75 - 25.20 24.75 - 25.20	D 65 SPTC B 66	N=37 (5,7/8,9,10,10)	24.10	5.30		24.65-25.20 Occasional very closely spaced thin to thick laminae of black fine sand			
25.20 - 25.65	UT 67	100 blows 45% rec	25.00	5.70			25.20 -20.04		
					Firm to stiff indistinctly thinly and thickly laminated fissured dark greyish brown slightly sandy gravelly CLAY with occasional fine sand pockets. Gravel is angular to subrounded fine to medium of chalk and flint.		(1.20)		
25.65 - 25.75 25.75 - 26.20 25.75 - 26.20	D 68 SPTC B 69	N=42 (7,8/10,10,10,12)	25.00	5.90		25.65-25.68 Rare yellowish brown fine sand pockets			
26.20 - 26.65 26.20 - 26.65	B 70 UT 70A	100 blows No Recovery							
					Medium dense to dense brownish grey gravelly clayey fine to medium SAND. Gravel is subangular to subrounded fine to medium of chalk and flint.		26.40 -21.24 (1.20)		
26.65 - 27.10 26.65 - 27.10	SPTC B 71	N=24 (3,4/4,6,6,8)	26.10 17/08/15 27.00	6.95 1800 2.00					
27.10 - 27.55 27.10 - 27.60	SPTC B 72	N=31 (4,6/6,8,8,9)	18/08/15 27.00	0800 3.50					
27.60 - 28.05 27.60 - 28.05 27.60 - 28.10	SPTS D 73 B 74	N=34 (5,7/7,8,9,10)	27.60	3.90			27.60 -22.44		
					Dense greyish brown gravelly clayey fine to coarse SAND. Gravel is angular to subrounded fine to medium of flint and chalk.				
28.10 - 28.55 28.10 - 28.60	SPTC B 75	N=38 (6,7/9,9,9,11)	28.10	4.30					
28.60 - 29.05 28.60 - 29.05 28.60 - 29.10	SPTS D 76 B 77	N=38 (7,7/8,9,10,11)	28.50	4.40			(2.00)		
29.10 - 29.55 29.10 - 29.60	SPTC B 78	N=44 (8,9/10,10,11,13)	29.10	4.50					
29.60 - 30.01 29.60 - 30.70	SPTC B 79	55 (9,10/11,13,14,17 for 33mm)	29.55	4.60	Very dense greyish brown SAND and GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of various lithologies		29.60 -24.44 (0.50)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH413

Borehole Log

Drilled	BJ/JS	**Start**	
Logged	RM		03/08/2015
Checked	TC	**End**	
Approved	JRL		07/08/2015

Equipment, Methods and Remarks

Dando 2000/Geotec 10
Service inspection pit hand excavcated to 1.20m
Cable percussion to 33.00m, rotary core to 44.50m
SPT hammer ID. SM21, Rod type NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	12.50	250	33.00
12.50	33.00	200	
33.00	44.50	140	

Ground Level	5.16 mOD
Coordinates (m)	E 509633.26
National Grid	N 428469.64

Samples and Tests

Depth	Type & No		Records	Date Casing	Time Water
30.10 - 30.51	SPTC		50 (9,11/13,13,16,8 for 33mm)	29.60	4.60
30.60 - 30.93 30.60 - 31.10 30.70	SPTC B 81 B 80		50 (10,13/16,18,16 for 33mm)	30.60	4.75
31.10 - 31.34 31.10 - 31.60	SPTC B 82		50 (15,10 for 20mm/18,32 for 75mm)	31.10	4.80
31.60 - 32.00	B 83				
32.00 - 32.30 32.00 - 33.00	SPTS		50 (11,14/21,29 for 75mm)	32.00	4.90
32.70 - 32.97 32.70 - 33.00	SPTS		50 (13,12 for 48mm/20,30 for 75mm)	32.00 18/08/15 32.00	4.95 1800 4.95
			Flush: 33.00 - 38.50 Water 100%	32.00 18/08/15 32.00 20/08/15 33.00	4.95 1800 4.95 0800 4.10
33.00 - 34.00	45 0 0	NI NI NI			
34.00 - 35.50	60 10 0				
35.50 - 37.00	47 5 0	NI NI 70			
37.00 - 38.50	60 23 9				
38.50 - 40.00	43 7 7	NI NI 130	Flush: 38.50 - 41.50 Water 80%		

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
including sandstone, chalk, flint and quartzite.		30.10 -24.94		
Very dense multicoloured very sandy clayey GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, chalk, flint and quartzite. Cobbles are subrounded flint and sandstone.		(1.90)		
CHALK recovered as cream slightly silty slightly sandy GRAVEL with medium cobble content. Gravel and cobbles are very weak, low to medium density, cream stained light yellowish brown. Occasional angular to subrounded fine to coarse flint gravel.		32.00 -26.84 (0.99)		
Structureless CHALK composed of cream silty sandy subangular to subrounded fine to coarse GRAVEL and COBBLES. Core recovered non intact.	33.00-33.55 AZCL.	32.99 -27.83 (1.61)		
	34.00-34.60 AZCL.			
Weak, locally moderately strong, high density white locally cream CHALK. Bedding fractures are subhorizontal 0-10deg, closely spaced (60/100/120), infilled with cream silt <3mm. Joints subvertical 80-90 degrees, infilled with cream silt <3mm.	34.60-34.90 Probable subvertical joint, stepped rough, locally silt <5mm. 35.05-35.20 Frequent fine to coarse flint gravel. 35.50-36.20 AZCL. 36.45-37.70 Frequent fine to coarse flint gravel. 37.00-37.60 AZCL. 37.79-37.87 Irregular inclusions of flint up to 10mm. 38.50-39.35 AZCL. 39.35-39.80 Frequent fine to coarse gravel and cobbles of flint. 40.00-40.80 AZCL.	34.60 -29.44 (6.35)		

Hole continues on next sheet

Depth	TCR SCR RQD	If	Records	Date Casing	Time Water

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH413

Borehole Log

Drilled	BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.16 mOD
Logged	RM	03/08/2015	Dando 2000/Geotec 10	0.00	12.50	250	33.00	**Coordinates (m)**	E 509633.26
Checked	TC	**End**	Service inspection pit hand excavcated to 1.20m	12.50	33.00	200		**National Grid**	N 428469.64
Approved	JRL	07/08/2015	Cable percussion to 33.00m, rotary core to 44.50m	33.00	44.50	140			
			SPT hammer ID. SM21, Rod type NWY						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
40.00 - 41.50	53 9 0					Weak to moderately strong, high density, white CHALK. Bedding fractures are subhorizontal 0-10 degrees, closely locally medium spaced, infilled with cream locally speckled grey silt <3mm.	41.00-41.50 Subvertical fracture, locally cream silt infill <3mm 41.50-41.70 AZCL.	40.95 -35.79		
41.50 - 43.00	87 23 23	NI 80 250	Flush: 41.50 - 43.00 Water 70%	20/08/15 33.00	1800 4.30		42.15-43.00 Subvertical fracture, locally silt infill <1mm 42.27-42.38 Irregular flint bands.	(3.55)		
43.00 - 44.50	100 47 26		Flush: 43.00 - 43.50 Water 0%				43.45-43.67 Subvertical fracture, locally silt infill <2mm 43.66-43.67 8mm grey silt infill. 44.05-44.35 Subvertical fracture, locally infill <1mm	44.50 -39.34		
						END OF EXPLORATORY HOLE				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks	
Depths (m)	Remarks

Hard Boring		
Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH413

Borehole Log

Drilled	IT/BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.68 mOD
Logged	EM	20/08/2015	Dando 2000/Geotec 10	0.00	8.50	250	8.50	**Coordinates (m)**	E 509656.90
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	8.50	32.20	200	32.20	**National Grid**	N 428434.77
Approved	JRL	25/08/2015	Cable percussion to 32.00m, rotary core to 41.50m	32.20	41.50	140			
			SPT Hammer ID: SM21, Rod type: NWY						

Samples and Tests / Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.20 0.20	B 1 ES 2				Friable dark brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including flint, brick, concrete and chalk. Occasional rootlets. (MADE GROUND)		(0.20) 0.20 +4.48		
0.50 0.50 0.50	B 3 D 4 ES 5				Dark brown gravelly clayey fine to coarse SAND. Gravel is angular to subrounded fine to coarse of various lithologies including chalk, flint, concrete and brick. (MADE GROUND)		(0.30) 0.50 +4.18 (1.00)		
1.50 - 1.95 1.50 - 2.00	SPTC B 6	N=32 (4,7/7,8,8,9)	1.50		Dark brown and grey sandy GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including brick, flint, concrete, slats and chalk. Cobbles are subrounded of chalk, flint, concrete and brick. (MADE GROUND)		1.50 +3.18 (0.50)		
2.00 - 2.45 2.00 - 2.50	SPTC B 7	N=31 (3,6/4,8,9,10)	2.00		Stiff dark brown and grey slightly sandy gravelly CLAY with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including chalk, flint, concrete and brick. Cobbles, 2No, are subrounded of chalk and flint. (MADE GROUND)		2.00 +2.68 (0.50)		
2.50 - 2.95 2.50 - 3.00	SPTC B 8	N=28 (3,5/5,7,7,9)	2.50				2.50 +2.18		
3.00 - 3.45 3.00 - 3.50	SPTC B 9	N=30 (5,6/3,8,9,10)	3.00	2.50	Dense light brown and grey sandy clayey GRAVEL. Sand is fine to coarse. Gravel is subrounded fine to coarse of various lithologies including brick, chalk, flint and concrete. (MADE GROUND)	3.00-3.50 Medium cobble content	(1.00)		
3.50 - 3.95 3.50 - 4.00	SPTC B 10	N=41 (8,11/7,10,10,14)	3.30	2.90			3.50 +1.18		
4.00 - 4.45 4.00 - 4.50	SPTC B 11	N=45 (13,10/10,7,15,13)	4.00	2.95	Medium dense dark brown slightly sandy slightly silty GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including brick, concrete, chalk and flint. Cobbles are subrounded of brick, chalk and flint. (MADE GROUND)				
4.50 - 4.95 4.50 - 5.00	SPTC B 12	N=50 (11,12/17,16,9,8)	4.50	3.00	Dense dark brown sandy slightly silty GRAVEL with low to medium content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including quartzite, brick, concrete, chalk and flint. Cobbles are subrounded of brick and concrete. (MADE GROUND)	4.50-5.50 Medium cobble content	(2.00)		
5.00 - 5.45 5.00 - 5.50	SPTC B 13	N=38 (8,13/11,11,7,9)	5.00	3.20					
5.50 - 5.80 5.50 - 6.00	SPTC B 14	50 (10,10/21,29 for 75mm)	5.50	3.40	Very dense, becoming medium dense, dark brown sandy GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, flint, chalk, concrete and brick. Cobbles are subrounded of brick. Occasional wood fragments. Slight hydrocarbon odour. (MADE GROUND)		5.50 -0.82		
6.00 - 6.45 6.00 - 6.50	SPTC B 15	N=50 (14,9/9,13,14,14)	6.00	3.50					
6.50 - 6.95 6.50 - 7.00	SPTC B 16	N=25 (8,6/6,5,5,9)	6.50	3.50		6.50-7.50 Becoming medium dense, medium cobble content.	(2.00)		
7.00 - 7.45 7.00 - 7.50	SPTC B 18	N=26 (4,6/6,5,7,8)	7.00	3.60					
7.50 - 7.95 7.50 - 7.95	SPTC B 19	N=38 (5,7/8,8,10,12)			Dense dark brown very sandy clayey GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including brick, concrete, chalk, quartzite and flint. Cobbles are subrounded of brick and concrete. Slight hydrocarbon odour. (MADE GROUND)		7.50 -2.82		
7.95 - 8.40 7.95 - 8.40	SPTC B 20	N=53 (8,15/17,8,14,14)	7.50	3.70		8.00-8.50 Subangular floor tile cobble	(1.00)		
8.40 - 8.85 8.40 - 8.85	SPTC B 21	N=5 (5,3/2,1,1,1)	8.40	3.50			8.50 -3.82		
8.85 - 9.30	U 22	14 blows No Recovery	8.40	4.10	Soft dark grey and brown silty CLAY with frequent clayey silt pockets. (MADE GROUND)		(0.35) 8.85 -4.17		
9.40 9.40 - 9.85	D 23 U 24	20 blows 100% rec	9.40	4.60	Firm, locally soft to firm, locally indistinctly thinly laminated fissured, dark brown and grey silty CLAY. (Possible MADE GROUND)				
9.95	D 25					9.85-9.95	(2.15)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
8.00 - 8.30	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH414

Borehole Log

Drilled	IT/BJ/JS	**Start**	20/08/2015
Logged	EM	**End**	25/08/2015
Checked	TC		
Approved	JRL		

Equipment, Methods and Remarks

Dando 2000/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 32.00m, rotary core to 41.50m
SPT Hammer ID: SM21, Rod type: NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	8.50	250	8.50
8.50	32.20	200	32.20
32.20	41.50	140	

Ground Level	4.68 mOD
Coordinates (m)	E 509656.90
National Grid	N 428434.77

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
10.00 - 11.00	P 26	70% rec Split and Describe and photo not available	10.00	4.30
11.00 - 11.45	U 27	25 blows 90% rec	11.00	4.60
11.55 - 12.00	SPTS	N=20 (2,4/4,5,4,7)	11.50	4.70
11.55	D 28			
11.55 - 12.00	D 29			
11.55 - 12.00	B 30			
12.00 - 12.45	SPTC	N=20 (3,4/4,4,6,6)	12.00	5.10
12.00 - 12.45	B 31			
12.55 - 13.00	SPTS	N=22 (4,5/5,5,5,7)	12.00	5.30
12.55 - 13.00	D 32			
12.55 - 13.00	B 33			
13.00 - 13.45	SPTC	N=28 (4,5/6,8,7,7)	13.00	5.20
13.00 - 13.45	B 34			
13.45 - 13.90	SPTS	N=19 (2,4/4,5,5,5)	13.45	4.70
13.45 - 13.90	D 35			
13.45 - 13.90	B 36			
13.90 - 14.35	SPTC	N=26 (3,4/6,6,7,7)	13.90	5.30
13.90 - 14.35	B 37			
			24/08/15	1800
			13.90	5.30
14.35 - 14.80	SPTS	N=22 (2,4/5,5,6,6)		
14.35 - 14.80	B 39		25/08/15	0800
14.35 - 14.80	D 38		13.90	2.60
14.80 - 15.25	SPTC	N=28 (3,5/6,8,7,7)	14.80	3.00
14.80 - 15.25	B 40			
15.25 - 15.70	SPTS	N=23 (2,4/6,6,5,6)	14.80	3.10
15.25 - 15.70	D 41			
15.25 - 15.70	B 42			
15.70 - 16.15	SPTC	N=29 (3,6/7,8,7,7)	15.70	2.90
15.70 - 16.15	B 43			
16.15 - 16.60	SPTS	N=17 (2,4/4,4,4,5)	15.70	3.00
16.15 - 16.60	B 45			
16.15 - 16.60	D 44			
16.60 - 17.05	SPTC	N=21 (3,5/5,4,6,6)	16.60	3.20
16.60 - 17.05	B 46			
17.05 - 17.50	SPTS	N=36 (5,6/8,8,10,10)	16.60	2.90
17.05 - 17.50	B 48			
17.05 - 17.50	D 47			
17.50 - 17.95	SPTC	N=32 (5,7/7,7,9,9)	17.50	2.70
17.50 - 17.95	B 49			
17.95 - 18.40	SPTS	N=35 (4,5/8,8,8,11)	17.50	2.90
17.95 - 18.40	D 50			
17.95 - 18.40	B 51			
18.40 - 18.85	SPTC	N=35 (3,5/7,9,9,10)	18.40	3.00
18.40 - 18.85	B 52			
18.85 - 19.30	SPTS	N=36 (4,5/8,8,10,10)	18.80	2.60
18.85 - 19.30	B 54			
18.85 - 19.30	D 53			
19.30 - 19.75	U 55	51 blows 100% rec Split and Describe and photo not available	19.30	2.30
19.85 - 20.30	SPTC	N=23 (2,4/6,6,5,6)	19.30	2.60
19.85	D 56			
19.85 - 20.30	B 57			

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
	Indistinctly thinly laminated with very closely spaced randomly orientated fissures			
Firm, locally soft, indistinctly thinly laminated dark greyish brown and grey slightly sandy slightly gravelly silty CLAY with occasional partings of black organic silt. Gravel is subangular coarse igneous.		11.00 -6.32 (0.40) 11.40 -6.72 (0.15) 11.55 -6.87		
Orangish brown fine to coarse SAND.				
Medium dense dark brown and grey slightly silty, locally silty, fine to medium SAND. Rare fine gravel size shell fragments.	12.00-13.45 Silty sand	(3.70)		
Medium dense dark brown and grey silty fine to medium SAND with rare to occasional black psudo-fibrous peat pockets. Occasional fine to medium gravel size shell fragments.	15.25-17.05 Rare to occasional dark brown oxidising to black psued- fibrous peat	15.25 -10.57 (1.80)		
Dense dark grey and brown slightly silty fine to medium SAND with occasional dark brown oxidising to black psuedo-fibrous peat pockets and rare brown clay pockets. Occasional shell fragments.	17.05-17.50 Rare brown clay pockets	17.05 -12.37 (1.75)		
Dense brown and grey gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of chalk and flint.		18.80 -14.12 (0.50)		
Firm to stiff greyish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subrounded to subangular fine to medium of chalk.	19.75-20.68 Occasional black fine sand partings	19.30 -14.62 (1.00)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH414

Borehole Log

Drilled	IT/BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.68 mOD
Logged	EM	20/08/2015	Dando 2000/Geotec 10	0.00	8.50	250	8.50	**Coordinates (m)**	E 509656.90
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	8.50	32.20	200	32.20	**National Grid**	N 428434.77
Approved	JRL	25/08/2015	Cable percussion to 32.00m, rotary core to 41.50m	32.20	41.50	140			
			SPT Hammer ID: SM21, Rod type: NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.30 - 20.75	U 58	47 blows 100% rec	20.30	3.10	Stiff thinly to thickly laminated greyish brown slightly gravelly silty CLAY with extremely to very closely spaced orangish brown fine to medium sand laminations. Gravel is subrounded fine to medium of chalk.	20.62 Orangish brown fine to medium sand pocket , 30x15mm	20.30 -15.62		
20.85 - 21.30 20.85 20.85 - 21.30	SPTC D 59 B 60	N=22 (3,3/5,5,5,7)	20.80	2.90					
21.30 - 21.75	U 61	37 blows No Recovery	21.30	3.00			(2.45)		
21.85 - 22.30 21.85 21.85 - 22.30	SPTC D 62 B 63	N=24 (4,5/6,6,6,6)	21.80	2.90		21.85-22.30 Rare subangular to subrounded fine to medium chalk and flint gravel on laminae surfaces			
22.30 - 22.75	U 64	32 blows 100% rec	22.30	2.80					
22.85 - 23.30 22.85 22.85 - 23.30	SPTC D 65 B 66	N=21 (4,3/4,4,5,8)	22.80	3.00	Firm to stiff thinly laminated greyish brown silty CLAY with very closely to closely spaced thin laminae of brown fine sand.		22.75 -18.07		
23.30 - 23.75 23.30 - 23.75	B 67 U NR	75 blows No Recovery	23.30	3.10					
23.70 - 24.20 23.75 - 24.20	B 68 SPTC	N=18 (1,3/4,4,5,5)	23.70	3.40			(2.15)		
			25/08/15 23.70	1800 3.40					
24.20 - 24.65	U 69	53 blows 100% rec				24.45-24.65 Firm, locally stiff			
24.75 - 25.20 24.75 24.75 - 25.20	SPTC D 70 B 71	N=30 (4,5/6,8,8,8)	24.70	2.70	Dense orangish brown very silty fine to medium SAND.	24.75-25.20 Occasional partings of dark grey fine to medium sand and rare subrounded fine to medium chalk gravel	24.90 -20.22		
25.20 - 25.65 25.20 - 25.65 25.20 - 25.65	SPTS B 73 D 72	N=34 (3,8/6,9,9,10)	25.20	3.10			(0.75)		
25.65 - 26.10 25.65 - 26.10	SPTC B 74	N=34 (6,7/7,9,9,9)	25.65	2.60	Dense orangish brown slightly gravelly silty fine to medium SAND. Gravel is angular to subrounded fine to medium of flint and chalk.		25.65 -20.97		
26.10 - 26.55 26.10 - 26.55 26.10 - 26.55	SPTS B 76 D 75	N=38 (5,8/9,9,10,10)	26.00	3.00			(0.90)		
26.55 - 27.00 26.55 - 27.00	SPTC B 77	N=28 (3,4/5,6,8,9)	26.00	2.80	Medium dense dark brown gravelly slightly silty fine to medium SAND. Gravel is angular to subrounded fine to medium of chalk and flint.		26.55 -21.87		
							(0.45)		
27.00 - 27.25 27.00 - 27.25 27.00 - 27.50	SPTS D 78 B 79	50 (8,17 for 40mm/22,28 for 60mm)	27.00	2.70	Very dense dark brown gravelly slightly silty fine to medium SAND. Gravel is angular to subrounded fine to medium of chalk and flint.		27.00 -22.32		
27.50 - 27.80 27.50 - 28.00	SPTC B 80	50 (10,15/23,27 for 70mm)	27.50	2.30			(1.00)		
28.00 - 28.45 28.00 - 28.45 28.00 - 28.50	SPTS D 81 B 82	N=46 (8,9/10,10,11,15)	28.00	3.10	Dense to very dense multicoloured very sandy slightly silty GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, chalk, flint and quartzite. Cobbles are subrounded of chalk and flint.		28.00 -23.32		
28.50 - 28.75 28.50 - 29.00	SPTC B 83	50 (12,13 for 40mm/30,20 for 60mm)	28.50	2.90					
29.00 - 29.45 29.00 - 29.45 29.00 - 29.50	SPTS D 84 B 85	N=55 (9,10/12,12,14,17)	29.00	3.10					
29.50 - 29.68 29.50 - 30.00	SPTC B 86	50 (10,15 for 40mm/50 for 70mm)	29.50	2.90			(3.60)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
29.00 - 29.30	30	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH414

Borehole Log

Drilled	IT/BJ/JS	**Start**	20/08/2015
Logged	EM	**End**	25/08/2015
Checked	TC		
Approved	JRL		

Equipment, Methods and Remarks

Dando 2000/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 32.00m, rotary core to 41.50m
SPT Hammer ID: SM21, Rod type: NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	8.50	250	8.50
8.50	32.20	200	32.20
32.20	41.50	140	

Ground Level	4.68 mOD
Coordinates (m)	E 509656.90
National Grid	N 428434.77

Samples and Tests

Depth	Type & No		Records	Date Casing	Time Water
30.00 - 30.45 30.00 - 30.50	SPTS B 87		N=49 (8,9/10,12,12,15)	30.00	2.60
30.50 - 30.95 30.50 - 31.00	SPTC B 88		N=53 (8,12/10,12,14,17)	30.50	2.40
31.00 - 31.45 31.00 - 31.50	SPTC B 89		N=45 (5,9/9,10,12,14)	31.00	3.00
31.50 - 31.70 31.50 - 31.70	SPTS D 90		50 (18,7 for 10mm/26,24 for 40mm)	31.50	2.80
32.00 - 32.14	SPTC		50 (25 for 70mm/50 for 70mm)	26/08/15 26/08/15 32.00	1800 1800 2.70
			Flush: 32.20 - 41.50 Water 100%	32.00 27/08/15 32.20	2.70 0800 5.50
32.20 - 34.00	44 0 0	NI NI NI			
34.00 - 35.50	67 8 0				
35.50 - 37.00	80 17 0	NI 50 120			
37.00 - 38.50	97 38 15				
38.50			93 35 0		
				27/08/15 32.20	1800 6.00

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
CHALK recovered as cream slightly sandy slightly silty GRAVEL. Gravel is very weak, low density, stained light orangish brown with traces of brown clay. Occasional subangular to subrounded fine to medium flint gravel.	32.20-33.40 AZCL.	31.60 -26.92 (0.60) 32.20 -27.52		
Structureless CHALK composed of silty sandy subangular to subrounded fine to coarse GRAVEL with medium subangular to subrounded cobble content. Sand is fine to coarse greyish brown. Clasts are weak to medium strong, low to medium density. Occasional subangular fine and medium flint gravel.	34.00-34.50 AZCL	(2.15)		
Medium strong medium density cream speckled brownish grey CHALK. Bedding fractures are subhorizontal 0-10deg, very closely and closely spaced (0/50/120), locally cream silt infill up to 3mm. Other fractures are subvertical 80-90deg, planar and stepped rough. (BURNHAM CHALK FORMATION, Grade B3)	34.45-34.95 Core predominantly non intact 35.50-35.80 AZCL. 35.85-36.05 Core non intact. 36.20-36.85 Core predominantly non intact 37.00-37.16 Core non intact. 37.70-38.05 Core predominantly non intact 38.05-38.10 Subangular grey rounded medium to coarse flint gravel.	34.35 -29.67 (4.25)		
Medium strong medium to high density white, locally speckled brownish grey, CHALK. Bedding fractures are subhorizontal 0-10deg, closely and medium spaced, planar and stepped rough, locally light grey silt infill up to 10mm. Other fractures are subvertical 80-90deg, planar rough. Fractures locally stained orange brown. (BURNHAM CHALK FORMATION, Grade C2)	39.17-39.30 Subangular fine to coarse chalk and flint gravel core non intact. 39.30-39.50 Core non intact 39.65 10mm grey silt infill.	38.60 -33.92		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
31.60 - 32.00	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH414

Borehole Log

Drilled	IT/BJ/JS	**Start**	20/08/2015
Logged	EM	**End**	25/08/2015
Checked	TC		
Approved	JRL		

Equipment, Methods and Remarks

Dando 2000/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 32.00m, rotary core to 41.50m
SPT Hammer ID: SM21, Rod type: NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	8.50	250	8.50
8.50	32.20	200	32.20
32.20	41.50	140	

Ground Level	4.68 mOD
Coordinates (m)	E 509656.90
National Grid	N 428434.77

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
				28/08/15	0800			(2.90)		
				32.20	6.10					
40.00 - 41.50	93	NI					40.45-40.60 Core non intact			
	47	120								
	30	270					40.80 8mm grey silt infill.			
							40.84 5 to 8mm flint band			
							41.20-41.50 Subangular fine to coarse flint and chalk gravel and cobbles			
						END OF EXPLORATORY HOLE		41.50 -36.82		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH414

Borehole Log

Drilled	JB/JS	**Start**	
Logged	EM/RM	29/07/2015	
Checked	TC	**End**	
Approved	JRL	10/08/2015	

Equipment, Methods and Remarks

Dando 175/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 33.50m, rotary core to 45.00m
SPT Hammer ID: 024, Rod type: Whitworth.

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	10.00	250	10.00
10.00	33.50	200	33.50
33.50	45.00	146	

Ground Level	5.29 mOD
Coordinates (m)	E 509653.97
National Grid	N 428473.56

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.00 - 0.40	B 1				TOPSOIL. Occasional rootlets.		0.10 (0.10) +5.19		
			29/07/15	1800 dry	Dark brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including concrete, chalk, flint, brick and quartzite. Cobbles are subrounded of brick. (MADE GROUND)		(0.40)		
0.40 - 1.00	B 2		30/07/15	0800 dry			0.50 +4.79		
1.00 - 1.45	SPTS	N=11 (1,1/1,2,3,5)		dry	Greyish brown gravelly clayey fine to coarse SAND with low cobble content. Gravel is angular to subrounded fine to coarse of various lithologies including brick, chalk, quartzite, flint and concrete. Cobbles are subrounded of brick. (MADE GROUND)		(0.70)		
1.00 - 1.45	D 3								
1.00 - 1.50	B 4						1.20 +4.09		
1.50 - 1.95	SPTS	N=4 (1,0/1,1,1,1)	1.50	dry			(0.70)		
1.50	ES 6								
1.50 - 1.95	D 5								
1.50 - 2.00	B 6						1.90 +3.39		
2.00 - 2.45	UT 7	13 blows 100% rec	2.00	dry	Soft to firm brown mottled orangish and greyish brown slightly gravelly sandy CLAY. Gravel is angular to subrounded fine to coarse of various lithologies including brick, flint, quartzite, concrete and chalk. (MADE GROUND)				
2.45 - 2.65	D 8						(1.10)		
2.65 - 3.00	B 10	50 blows No Recovery		dry	Soft, locally firm, indistinctly thinly and thickly laminated fissured greyish brown slightly sandy slightly gravelly silty CLAY with low cobble content, occasional yellowish brown fine sand lenses and orangish brown clay pockets. Gravel is subangular fine of chalk and brick. Cobbles are subrounded of sandstone and concrete. (MADE GROUND/Reworked ALLUVIUM)	2.65-3.00 Low cobble content			
2.65 - 3.00	UT 9								
3.00 - 3.45	SPTS	N=4 (3,2/1,1,1,1)	3.00	dry			3.00 (0.10) +2.29		
3.00 - 3.45	D 11						3.10 +2.19		
3.00 - 3.50	B 12								
3.50 - 3.95	SPTS	N=7 (3,3/2,2,2,1)	3.00	3.40	Brown sandy clayey GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including brick, concrete and sandstone. (MADE GROUND/Reworked ALLUVIUM)				
3.50 - 4.00	B 14						(1.35)		
4.00 - 4.45	UT 15	11 blows 100% rec	4.00	dry	Firm, locally soft to firm, greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of brick, chalk and concrete. (MADE GROUND/Reworked ALLUVIUM)				
4.45 - 4.65	D 16		30/07/15	1800			4.45 +0.84		
			4.00	dry					
4.65 - 5.65	P 17	70% rec	31/07/15	0800	Firm, locally soft, indistinctly thinly and thickly laminated greyish brown slightly sandy slightly gravelly, locally slightly organic, silty CLAY with low cobble content. Silt and fine to medium sand partings on laminbae surfaces. Gravel is angular to subrounded fine to medium of brick, chalk, flint and concrete. Cobbles are subrounded of concrete and brick. Occasional wood fragments. (MADE GROUND/Reworked ALLUVIUM)	4.65-4.74 Sand lenses 40mm thick			
			4.00	dry					
5.75 - 6.75	B 19	No Recovery	5.65	dry		5.75-6.75 Occasional wood fragments			
5.75 - 6.75	P 19A								
6.75 - 7.20	UT 20	13 blows 100% rec	6.75	dry			(4.55)		
						6.87 Wood fragments <50mm			
7.20 - 7.40	D 21					7.20-7.90 Slightly organic, occasional wood fragments. Vegetative odour			
7.40 - 7.85	SPTS	N=4 (1,1/0,2,1,1)	7.40	dry					
7.40 - 7.85	D 22								
7.40 - 7.90	B 23								
7.90 - 8.35	UT 24	14 blows 100% rec	7.90	dry					
						8.00-10.00 Low cobble content			
						8.04 Concrete cobble			
8.35 - 8.55	D 25								
8.55 - 9.00	SPTS	N=5 (1,2/2,1,1,1)	8.55	dry		8.50-8.65 Large wood fragment			
8.55 - 9.00	D 26								
8.55 - 9.00	B 27								
9.00 - 10.00	P 28	100% rec	9.00	dry		9.00 Pottery recovered	9.00 -3.71		
					Soft indistinctly thinly and thickly laminated greyish brown slightly sandy silty CLAY with occasional dark grey sandy silty clay pockets <3x5mm. (MADE GROUND/Reworked ALLUVIUM)		(1.00)		
						10.00 Brick cobble	10.00 -4.71		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
0.25 - 0.40	75	
3.00 - 3.30	45	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH415

Borehole Log

Drilled	JB/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.29 mOD
Logged	EM/RM	29/07/2015	Dando 175/Geotec 10	0.00	10.00	250	10.00	**Coordinates (m)**	E 509653.97
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	10.00	33.50	200	33.50		
Approved	JRL	10/08/2015	Cable percussion to 33.50m, rotary core to 45.00m	33.50	45.00	146		**National Grid**	N 428473.56
			SPT Hammer ID: 024, Rod type: Whitworth.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.00 - 10.45	UT 29	17 blows 100% rec	10.00	dry	Firm, locally soft, indistinctly thinly laminated, fissured brown and grey slightly sandy silty CLAY with occasional irregular silt laminations and occasional partings of fine sand on laminae surfaces.	10.12-10.32 Very closely spaced irregular dark orangish brown clayey silt laminations <10mm			
10.45 - 10.65	D 30								
10.65 - 11.65	P 31	100% rec	10.65	dry			(1.79)		
			31/07/15	1800					
			11.65	10.30					
11.70 - 12.15	UT 32	13 blows 100% rec							
			03/08/15	0800			11.79 -6.50		
			11.65	5.24	Medium dense greyish brown fine to medium SAND with occasional organic clay and peat pockets. Occasional fine gravel size size shell fragments and black organic clay pockets <10x10mm.				
12.15 - 12.35	D 33								
12.35 - 12.80	SPTS	N=22 (3,3/5,5,5,7)	12.35	6.10		12.35-12.80 Occasional black organic clay pockets	(1.21)		
12.35 - 12.80	D 34								
12.35 - 12.80	B 35								
12.80 - 13.25	SPTC	N=20 (3,2/5,4,5,6)	12.80	6.02		12.80-13.00 Occasional black peat and black organic clay pockets			
12.80 - 13.30	B 37						13.00 -7.71		
					Medium dense dark grey mottled orangish brown silty fine to medium SAND. Occasional fine gravel size shell fragments and occasional black organic clay pockets.				
13.30 - 13.75	SPTS	N=15 (2,3/2,4,4,5)	13.30	5.65					
13.30 - 13.75	D 38								
13.30 - 13.80	B 39								
13.80 - 14.25	SPTC	N=15 (2,1/2,4,5,4)	13.80	6.20					
13.80 - 14.30	B 41								
14.30 - 14.75	SPTS	N=24 (3,3/4,5,7,8)	14.30	7.20		14.30-14.75 Sand is fine to coarse			
14.30 - 14.75	D 42								
14.30 - 14.80	B 43								
14.80 - 15.25	SPTC	N=23 (3,5/5,6,6,6)	14.80	7.84					
14.80 - 15.30	B 45								
15.30 - 15.75	SPTS	N=14 (2,2/2,3,5,4)	15.30	6.91		15.30-15.75 Rare silty sand pockets			
15.30 - 15.75	D 46								
15.30 - 15.80	B 47								
15.80 - 16.25	SPTC	N=20 (3,5/4,6,5,5)	15.80	6.97					
15.80 - 16.30	B 49								
16.30 - 16.75	SPTS	N=13 (2,2/3,3,3,4)	16.30	7.30		16.30-16.75 Sand is fine to coarse 16.30-19.80 Organic black sand laminations	(6.80)		
16.30 - 16.75	D 50								
16.30 - 16.80	B 51								
16.80 - 17.25	SPTC	N=13 (3,2/3,3,3,4)	16.80	7.60					
16.80 - 17.30	B 53								
17.30 - 17.75	SPTS	N=16 (3,3/3,3,4,6)	17.30	7.30					
17.30 - 17.75	D 54								
17.30 - 17.80	B 55								
17.80 - 18.25	SPTC	N=12 (3,3/4,3,2,3)	17.80	7.68					
17.80 - 18.30	B 57								
18.30 - 18.75	SPTS	N=15 (2,2/3,4,4,4)	18.30	7.45					
18.30 - 18.75	D 58								
18.30 - 18.80	B 59								
18.80 - 19.25	SPTC	N=22 (3,4/4,5,6,7)	18.80	7.55					
18.80 - 19.30	B 61								
19.30 - 19.75	SPTS	N=20 (5,4/4,5,6,5)	19.30	7.80		19.30-19.80 Organic material on black sand laminations			
19.30 - 19.75	D 62								
19.30 - 19.80	B 63								
19.80 - 20.25	SPTC	N=12 (2,2/3,2,3,4)	19.80	7.40			19.80 -14.51		
19.80 - 20.30	B 65				Medium dense greyish brown very gravelly silty				

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	11.65	Rose to 10.30 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH415

Borehole Log

Drilled	JB/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.29 mOD
Logged	EM/RM	29/07/2015	Dando 175/Geotec 10	0.00	10.00	250	10.00	**Coordinates (m)**	E 509653.97
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	10.00	33.50	200	33.50	**National Grid**	N 428473.56
Approved	JRL	10/08/2015	Cable percussion to 33.50m, rotary core to 45.00m	33.50	45.00	146			
			SPT Hammer ID: 024, Rod type: Whitworth.						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
20.30 - 20.75	SPTS	N=18 (3,2/3,4,5,6)	20.30	8.25
20.30 - 20.75	D 66			
20.30 - 20.80	B 67			
20.80 - 21.25	SPTC	N=22 (4,4/4,5,7,6)	20.80	9.81
20.80 - 21.30	B 69			
21.30 - 21.75	UT 70	38 blows 75% rec	21.30	10.25
21.75 - 21.95	D 71		03/08/15	1800
			21.30	10.22
22.00 - 22.45	SPTC	N=19 (3,5/5,5,4,5)		
22.00 - 22.50	B 73		05/08/15	1200
			21.30	7.64
22.50 - 22.95	UT 74	32 blows 100% rec	22.50	8.15
22.95 - 23.15	D 75			
23.15 - 23.60	SPTC	N=22 (4,4/4,5,6,7)	23.15	9.75
23.15 - 23.60	B 77			
23.60 - 24.05	UT 78	48 blows 45% rec	23.60	10.17
24.05 - 24.25	D 79			
24.25 - 24.70	SPTC	N=15 (2,3/3,3,4,5)	24.25	11.50
24.25 - 24.70	B 81			
24.70 - 25.15	UT 82	51 blows 100% rec	24.70	12.10
25.15 - 25.35	D 83			
25.35 - 25.80	SPTC	N=48 (7,5/7,12,14,15)	25.35	12.35
25.35 - 25.80	B 85			
			05/08/15	1640
			25.35	12.35
25.80 - 26.25	SPTS	N=38 (7,10/10,7,9,12)		
25.80 - 26.25	D 86		06/08/15	0800
25.80 - 26.30	B 87		25.35	3.10
26.30 - 26.75	SPTC	N=46 (9,10/9,10,11,16)	26.30	6.75
26.30 - 26.80	B 89			
26.80 - 27.19	SPTS	60 (7,9/10,16,26,8 for 15mm)	26.80	0.00
26.80 - 27.25	D 90			
26.80 - 27.30	B 91			
27.30 - 27.75	SPTC	N=43 (6,7/6,6,15,16)	27.30	1.20
27.30 - 27.80	B 93			
27.80 - 28.18	SPTS	50 (11,11/17,17,16 for 75mm)	27.80	1.85
27.80 - 28.25	D 94			
27.80 - 28.30	B 95			
28.30 - 28.75	SPTC	N=43 (8,9/10,10,11,12)	28.30	1.06
28.30 - 28.80	B 97			
28.80 - 29.25	SPTS	N=40 (9,10/10,11,10,9)	28.80	1.00
28.80 - 29.25	D 98			
29.30 - 29.66	SPTC	50 (8,13/16,24,10 for 55mm)	0.30	0.00
29.30 - 29.80	B 101			
29.80 - 30.25	SPTS	N=29 (5,7/8,7,6,8)	29.80	0.00
29.80	B 99			
29.80 - 30.25	D 102			
29.80 - 30.30	B 103			

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
fine to coarse SAND with medium cobble content. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, chalk and flint. Cobbles are subrounded of sandstone. Occasional fine gravel size shell fragments. (ALLUVIUM)		(0.90)		
		20.70 -15.41		
Firm, locally stiff, indistinctly thinly and thickly laminated indistinctly fissured greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse of quartz, chalk, sandstone, igneous and flint. Fissures are extremely closely spaced and randomly orientated. Occasional partings of fine sand on laminae surfaces.		(1.80)		
Stiff, locally firm, becoming very stiff, thinly and thickly laminated greyish brown, locally slightly gravelly, CLAY with occasional fine sand lenses. Frequent partings of light brown silt and orangish brown fine sand on laminae surfaces.	23.00-23.50 Disturbed clay zones <20mm	22.50 -17.21		
	23.60-24.05 Firm, locally stiff	(3.00)		
	24.70-25.15 Firm			
	25.15-25.80 Becoming very stiff			
Very stiff indistinctly thinly and thickly laminated greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to medium of chalk and flint. Occasional dusting of brown silt on laminae surfaces.		25.50 -20.21		
		(0.50)		
Dense orangish brown and cream sandy GRAVEL. Sand is fine to medium. Gravel is angular to subrounded fine to medium of chalk and flint.		26.00 -20.71		
		(0.30)		
Dense to very dense orangish brown slightly gravelly slightly silty fine to medium SAND with occasional black silt pockets. Gravel is angular to subrounded fine to medium of chalk and flint.		26.30 -21.01		
		(1.50)		
Very dense orangish brown and greyish brown very gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of chalk and flint.		27.80 -22.51		
		(1.00)		
Dense to very dense greyish brown and orangish brown gravelly fine to medium SAND. Gravel is angular to subrounded fine to medium of chalk and flint.		28.80 -23.51		
		(1.30)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH415

Borehole Log

Drilled	JB/JS	**Start**	
Logged	EM/RM	29/07/2015	
Checked	TC	**End**	
Approved	JRL	10/08/2015	

Equipment, Methods and Remarks

Dando 175/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 33.50m, rotary core to 45.00m
SPT Hammer ID: 024, Rod type: Whitworth.

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	10.00	250	10.00
10.00	33.50	200	33.50
33.50	45.00	146	

Ground Level	5.29 mOD
Coordinates (m)	E 509653.97
National Grid	N 428473.56

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
30.30 - 30.75 30.30 - 30.80	SPTC B 105	N=32 (6,6/7,6,9,10)	30.30	0.00
30.80 - 31.25 30.80 - 31.25 30.80 - 31.30	SPTS D 106 B 107	N=49 (6,8/15,12,10,12)	30.80 06/08/15 30.80 07/08/15 30.80	0.00 1800 0.00 0800 4.17
31.80 - 32.00 31.80 - 32.30	SPTC B 109	50 (25 for 70mm/30,20 for 55mm)	31.80	6.10
32.30 - 32.58 32.30 - 32.80	SPTC B 111	50 (14,11 for 45mm/22,23,5 for 5mm)	32.30	6.95
32.80 - 33.08 32.80 - 33.50	SPTC	50 (20,5 for 5mm/20,19,11 for 45mm)	32.80 07/08/15 33.50	6.95 1800 6.95
33.50 - 34.50	80 0 0	Flush: 33.50 - 45.00 Water 100%	07/08/15 33.50 10/08/15 33.50	1800 6.95 1030 4.10
34.50 - 36.00	49 0 0	NI NI NI		
36.00 - 37.50	73 0 0	NI NI NI		
37.50 - 39.00	95 53 0	NI NI 91		
39.00 - 40.50	85 17 13			

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend
Dense multicoloured slightly sandy GRAVEL with medium cobble content. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of predominantly chalk and flint. Cobbles are subrounded of chalk and flint.		30.10 -24.81 (0.70)	
Dense yellowish brown gravelly fine to coarse SAND. Gravel is angular to subrounded fine to coarse of chalk and flint.		30.80 -25.51 (1.00)	
Very dense greyish brown very sandy silty GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint.		31.80 -26.51 (1.00)	
CHALK recovered as cream slightly sandy silty GRAVEL with medium cobble content. Clasts are very weak to weak, low to medium density, white stained orangish brown with traces of brown clay.		32.80 -27.51 (0.70)	
Structureless CHALK composed of slightly sandy slightly silty subangular to subrounded fine to coarse GRAVEL with medium cobble content. Gravel and cobbles are weak, medium density. Occasional angular to subangular flint cobbles.	33.50-33.70 AZCL 34.50-35.26 AZCL	33.50 -28.21 (3.41)	
Probably weak medium density cream CHALK. Probably very closely spaced fractures with brownish grey silt infill to 5mm. Occasional flint gravel.	36.00-36.41 AZCL	36.91 -31.62 (0.80)	
Medium strong, locally weak, medium to high density white CHALK. Bedding fractures are subhorizontal 0-10deg, very closely to closely spaced, planar rough with cream, brownish grey silt infill. Subvertical fractures 80-90deg, planar rough, open, locally silt infill <3mm. Core recovered predominantly non intact (BURNHAM CHALK FORMATION, Possible Grade C4)	37.78-37.84 Subvertical fracture, local grey silt infill up to 3mm and grey discolouration/ speckling on fracture surface 39.00-39.22 AZCL	37.71 -32.42 (1.79)	
Medium strong high density white, locally cream, CHALK. Bedding fractures are subhorizontal 0-10deg, very closely to closely spaced, planar locally stepped rough, with brownish grey and		39.50 -34.21	

Hole continues on next sheet

Backfill

Depth	TCR SCR RQD	If	Records	Date Casing	Time Water

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
32.00 - 33.50	120	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH415

Borehole Log

Drilled	JB/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.29 mOD
Logged	EM/RM	29/07/2015	Dando 175/Geotec 10	0.00	10.00	250	10.00	**Coordinates (m)**	E 509653.97
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	10.00	33.50	200	33.50	**National Grid**	N 428473.56
Approved	JRL	10/08/2015	Cable percussion to 33.50m, rotary core to 45.00m	33.50	45.00	146			
			SPT Hammer ID: 024, Rod type: Whitworth.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
		NI NI 120				white silt infill. Other fractures subvertical, planar and stepped rough. (BURNHAM CHALK FORMATION, Possible Grade C4)	40.50-40.97 AZCL	(1.60)		
40.50 - 42.00	69 23 15					Medium strong high density white CHALK. Bedding fractures are subhorizontal 0-10deg, closely spaced, planar rough with locally silt infill.	42.00-42.21 AZCL	41.10 -35.81		
42.00 - 43.50	86 25 25	NI NI 180					43.50-43.75 AZCL	(3.90)		
43.50 - 45.00	83 13 0			10/08/15 33.50	1800			45.00 -39.71		
						END OF EXPLORATORY HOLE				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks	
Depths (m)	Remarks

Hard Boring		
Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH415

Borehole Log

Drilled	MR/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.58 mOD
Logged	RM	24/08/2015	Dando 3000/Geotec 10	0.00	8.70	250	8.70	**Coordinates (m)**	E 509677.81
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	8.70	31.50	200	31.50	**National Grid**	N 428433.47
Approved	JRL	01/09/2015	Cable percussion to 32.00m, rotary core to 40.00m	31.50	40.00	140			
			Hammer ID: SM37, Rod type NWY						

Samples and Tests / Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.00 - 0.45 0.00 - 0.45 0.00 - 0.45	B 1 D 2 ES 3				Grass over stiff friable dark brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including brick, flint, chalk and concrete. Occasional rootlets. (MADE GROUND)		(0.45) 0.45 +4.13		
					Dark brown sandy slightly clayey sandy GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including concrete, bricks flint and chalk. Cobbles are subangular of brick and concrete. (MADE GROUND)		(0.75)		
1.20 - 1.65 1.20 - 1.65 1.20 - 1.70	SPTS D 4 B 5	N=23 (6,6/5,5,6,7)	1.20	Dry			1.20 +3.38		
1.70 - 2.15 1.70 - 2.20	SPTC B 6	N=25 (6,7/8,6,6,5)	1.70	Dry	Medium dense dark brown and grey very sandy silty GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including brick, concrete, chalk, flint and slate with rare plastic and glass. Cobbles are subrounded brick and concrete. (MADE GROUND)		(1.00)		
2.20 - 2.65 2.20 - 2.65 2.20 - 2.70	SPTS D 7 B 8	N=25 (7,8/7,5,6,7)	2.20 24/08/15 2.70	Dry 1800 Dry			2.20 +2.38 (0.50)		
2.70 - 3.15 2.70 - 3.15 2.70 - 3.20	SPTS D 9 B 10	N=32 (6,7/8,7,8,9)	25/08/15 2.70	0800 Dry	Medium dense dark brown gravelly fine to coarse SAND with low subrounded cobble content of brick. Gravel is angular to subrounded, fine to coarse of various lithologies including bricks, concrete, chalk, flint and quartzite. Slight hydrocarbon odour. (MADE GROUND)		2.70 +1.88 (0.50)		
3.20 - 3.65 3.20 - 3.70	SPTC B 11	N=28 (4,5/7,8,7,6)	3.20	Dry			3.20 +1.38 (0.50)		
3.70 - 4.15 3.70 - 4.20	SPTS B 12	N=29 (4,5/6,7,9,7)	3.70	3.60	Dense dark brown sandy GRAVEL with medium cobble content. Sand is fine to coarse, gravel is angular to subrounded fine to coarse of various lithologies including brick, concrete, chalk, flint and quartzite. Cobbles are subrounded of brick. Slight hydrocarbon odour. (MADE GROUND)		3.70 +0.88		
4.20 - 4.65 4.20 - 4.70	SPTC B 13	N=24 (7,8/4,6,7,7)	4.20	3.80	Medium dense dark brown slightly gravelly fine to coarse SAND. Gravel is angular to subrounded, fine to coarse of various lithologies including brick, quartzite, chalk, concrete and flint. Slight hydrocarbon odour. (MADE GROUND)	4.20-4.70 Rare wood fragment noted.			
4.70 - 5.15 4.70 - 5.20	SPTS B 14	N=44 (9,10/12,10,11,11)	4.70	4.00		4.70-5.20 Becoming dense GRAVEL.			
5.20 - 5.65 5.20 - 5.70	SPTC B 15	N=37 (10,14/7,9,10,11)	5.20	4.40	Medium dense to dense dark brown slightly silty sandy GRAVEL with medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including quartzite, brick, chalk, flint and slate. Rare wood fragments. Cobbles are subrounded brick and concrete. Slight hydrocarbon odour. (MADE GROUND)	5.20-5.70 Occasional wood fragments	(3.00)		
5.70 - 6.15 5.70 - 6.20	SPTS B 16	N=26 (4,3/4,5,7,10)	5.70	4.80					
6.20 - 6.65 6.20 - 6.70	SPTC B 17	N=27 (6,7/6,5,7,9)	6.20	3.60					
6.70 - 7.10 6.70 - 7.20	SPTS B 18	50 (8,9/10,14,17,9 for 30mm)	6.70	3.80	Very dense dark brown gravelly slightly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of various lithologies including slate, brick, flint, concrete, chalk and quartzite. Slight hydrocarbon odour. (MADE GROUND)		6.70 -2.12 (0.50)		
7.20 - 7.65 7.20 - 7.70	SPTS B 19	N=50 (6,7/8,8,17,17)	7.20	4.00	Dense to very dense dark brown slightly silty slightly sandy GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including concrete, flint, brick, chalk and quartzite. Cobbles are subrounded brick, concrete and chalk. Slight hydrocarbon odour. (MADE GROUND)		7.20 -2.62		
7.70 - 8.15 7.70 - 8.20	SPTS B 20	N=37 (12,10/10,8,9,10)	7.70	3.30			(1.00)		
8.20 - 8.65 8.20 - 8.70	SPTS B 21	N=28 (6,5/6,7,8,7)	25/08/15 8.20	1800 3.30			8.20 -3.62 (0.50)		
8.70 8.70 - 9.15 8.70 - 9.20	B 22 UT 23A B 23	10 blows No Recovery	8.70	2.30	White and dark brown slightly sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including concrete, brick, chalk and flint. Cobbles are subrounded concrete and chalk. Slight hydrocarbon odour. (MADE GROUND)		8.70 -4.12		
9.20 - 9.65	UT 24	17 blows 100% rec	9.20	2.70	Firm, locally soft, indistinctly laminated fissured dark grey and brown silty CLAY with partings of silt and fine sand on laminae surfaces and occasional sand lenses <2mm.. Strong hydrocarbon	9.65 Soft to firm	(2.22)		
9.65 - 9.75 9.75 - 10.75	D 25 P 26	80% rec							

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	3.60	Rose to 3.20 m after 20 minutes. Medium	3.00

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
7.60 - 7.70	45	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH416

Borehole Log

Drilled	MR/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.58 mOD
Logged	RM	24/08/2015	Dando 3000/Geotec 10	0.00	8.70	250	8.70	**Coordinates (m)**	E 509677.81
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	8.70	31.50	200	31.50	**National Grid**	N 428433.47
Approved	JRL	01/09/2015	Cable percussion to 32.00m, rotary core to 40.00m	31.50	40.00	140			
			Hammer ID: SM37, Rod type NWY						

Samples and Tests / Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
					odour.	10.07-10.75 Laminations locally inclined at 30deg			
10.80 - 11.25	UT 27	24 blows 65% rec	10.80	3.00					
					Medium dense dark grey slightly silty fine to medium SAND. Rare fine gravel sized shell fragments.		10.92 -6.34		
11.25 - 11.95	D 28								
11.50 - 11.95 11.50 - 12.00	SPTC B 29	N=14 (2,3/3,3,4,4)	11.50	3.00		11.50-12.00 Rare medium flint gravel			
12.50 - 12.95 12.50 - 13.00	SPTC B 30	N=18 (3,4/4,4,5,5)	12.50	3.40			(3.08)		
13.50 - 13.95 13.50 - 14.00	SPTC B 31	N=19 (3,4/5,4,5,5)	13.50	3.60					
14.00 - 14.45 14.00 - 14.45 14.00 - 14.50	SPTS D 32 B 33	N=17 (2,3/4,4,4,5)	14.00	3.50	Medium dense dark grey silty fine to coarse SAND with rare to occasional pseudo-fibrous peat pockets. Occasional fine and medium gravel sized shell fragments.		14.00 -9.42		
14.50 - 14.95 14.50 - 15.00	SPTC B 34	N=13 (3,3/3,3,4,3)	14.50	4.00		14.50-15.00 Rare rounded fine sandstone gravel			
15.00 - 15.45 15.00 - 15.45 15.00 - 15.50	SPTS D 35 B 36	N=20 (4,5/5,4,5,6)	15.00	4.00					
15.50 - 15.95 15.50 - 16.00	SPTC B 37	N=22 (4,4/5,5,6,6)	15.50	4.40					
16.00 - 16.45 16.00 - 16.45 16.00 - 16.50	SPTS D 38 B 39	N=27 (5,6/7,6,7,7)	16.00	4.60					
16.50 - 16.95 16.50 - 17.00	SPTC B 40	N=24 (5,6/6,5,6,7)	16.50	4.60			(5.00)		
17.00 - 17.45 17.00 - 17.45 17.00 - 17.50	SPTS D 41 B 42	N=27 (6,7/6,7,7,7)	17.00	5.00					
			26/08/15 17.50	1800 5.00					
17.50 - 17.95 17.50 - 18.00	SPTC B 43	N=28 (6,6/7,6,7,8)	27/08/15 17.50	0800 2.50					
18.00 - 18.45 18.00 - 18.45 18.00 - 18.50	SPTS D 44 B 45	N=24 (5,6/6,5,6,7)	18.00	2.70					
18.50 - 18.95 18.50 - 19.00	SPTC B 46	N=28 (6,6/7,6,7,8)	18.50	3.00					
19.00 - 19.45 19.00 - 19.45 19.00 - 19.50	SPTS D 47 B 48	N=30 (7,8/7,7,8,8)	19.00	3.60	Medium dense to dense dark grey gravelly silty fine to coarse SAND with rare dark brown pseudo-fibrous peat pockets. Gravel is subangular to subrounded fine to medium of flint.		19.00 -14.42 (0.50)		
19.50	D 49						19.50 -14.92		
19.70 - 20.15	UT 50	37 blows 100% rec	19.70	4.50	Firm dark brown to black pseudofibrous PEAT.	19.77-19.80 Gravel pocket	(0.20) 19.70 -15.12		
					Firm thinly and thickly laminated brownish grey				
					Hole continues on next sheet				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH416

Borehole Log

Drilled	MR/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.58 mOD
Logged	RM	24/08/2015	Dando 3000/Geotec 10	0.00	8.70	250	8.70	**Coordinates (m)**	E 509677.81
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	8.70	31.50	200	31.50	**National Grid**	N 428433.47
Approved	JRL	01/09/2015	Cable percussion to 32.00m, rotary core to 40.00m	31.50	40.00	140			
			Hammer ID: SM37, Rod type NWY						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
20.15 - 20.35	D 51			
20.40 - 20.85	SPTS	N=20 (4,4/5,4,5,6)	20.40	5.20
20.40 - 20.85	D 52			
20.40 - 20.90	B 53			
20.90 - 21.35	UT 54	35 blows 100% rec	20.90	3.60
21.35 - 21.55	D 55			
21.70 - 22.15	SPTS	N=23 (4,4/5,5,6,7)	21.70	4.70
21.70 - 22.15	D 56			
21.70 - 22.20	B 57			
22.20 - 22.65	UT 58	50 blows 65% rec	22.20	4.90
22.65 - 22.85	D 59			
22.90 - 23.35	SPTS	N=24 (5,5/5,6,6,7)	22.90	3.00
22.90 - 23.35	D 60			
22.90 - 23.40	B 61			
23.50 - 23.95	UT 62	35 blows 75% rec	23.50	3.60
23.95 - 24.15	D 63			
24.20 - 24.65	SPTS	N=28 (6,6/7,7,7,7)	24.20	4.80
24.20 - 24.65	D 64			
24.20 - 24.70	B 65			
24.70 - 25.15	UT 66	35 blows 100% rec	24.70	5.10
24.70 - 25.25	D 67			
			27/08/15	1800
			25.25	5.10
25.30 - 25.75	SPTS	N=26 (5,6/6,6,7,7)		
25.30 - 25.80	B 68		28/08/15	0800
			25.25	2.20
25.80 - 26.25	SPTS	N=24 (6,6/6,5,6,7)	25.80	2.60
25.80 - 26.30	B 69			
26.40 - 26.85	SPTC	N=28 (6,7/7,6,7,8)	26.40	3.00
26.40 - 26.90	B 70			
27.00 - 27.45	SPTS	N=28 (6,6/7,7,7,7)	27.00	3.00
27.00 - 27.50	B 71			
27.50 - 27.95	SPTC	N=31 (6,7/8,8,7,8)	27.50	3.00
27.50 - 28.00	B 72			
28.00 - 28.45	SPTS	N=32 (7,8/8,7,8,9)	28.00	3.00
28.00	D 74			
28.00 - 28.50	B 73			
28.50 - 28.95	SPTC	N=40 (8,8/9,10,10,11)	28.50	3.00
28.50 - 29.00	B 75			
29.00 - 29.28	SPTS	50 (16,9 for 50mm/20,27,3 for 0mm)	29.00	3.00
29.00 - 29.35	D 76			
29.00 - 29.50	B 77			
29.50 - 29.75	SPTC	50 (18,7 for 40mm/26,24 for 60mm)	29.50	3.00
29.50 - 30.00	B 78			
			28/08/15	1800
			30.00	3.00

Strata Description

Main	Detail	Depth, Level (Thickness)
slightly gravelly silty CLAY with partings of silt and fine sand on laminae surfaces and yellowish brown fine sand laminations. Gravel is subrounded to rounded fine to coarse of chalk and sandstone.		(0.70) 20.40 -15.82
Firm to stiff thinly to thickly laminated brownish grey CLAY with thin laminations of brown silt and fine sand.		(1.30) 21.70 -17.12
Firm, becoming stiff at 22.20m, thinly laminated greyish brown, locally slightly sandy, becoming sandy, locally slightly gravelly, silty CLAY with occasional brown fine sand lenses/laminations. Gravel is subangular to subrounded fine quartzite, chalk and flint.	22.46-22.55 Indistinctly laminated 22.65-22.85 Rare subrounded medium quartzite gravel 22.90-23.40 Parting of black fine sand and rare fine chalk and flint gravel 23.50-23.69 Firm 23.69-23.95 Slight vegetative odour	(3.55)
Medium dense dark grey and greyish brown slightly gravelly silty fine to coarse SAND. Gravel is subrounded fine to medium of flint. Vegetative odour.	24.70-24.74 Frequent orangish brown sand pockets 25.05-25.10 Frequent orangish brown sand pockets	25.25 -20.67
		(2.85)
Dense, becoming very dense, dark greyish brown and cream slightly sandy GRAVEL., locally tending to Sand and Gravel. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium occasionally coarse of chalk, flint and occasional igneous. Slight vegetative odour.		28.00 -23.42
		(1.50)
	29.00-31.80 Becoming very dense	
Very dense dark greyish brown very gravelly silty fine to coarse SAND. Gravel is subanguklar to subrounded fine to medium of chalk and flint.		29.50 -24.92

Hole continues on next sheet

Legend: Backfill

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH416

Borehole Log

Drilled	MR/JS	**Start**	24/08/2015
Logged	RM	**End**	01/09/2015
Checked	TC		
Approved	JRL		

Equipment, Methods and Remarks

Dando 3000/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 32.00m, rotary core to 40.00m
Hammer ID: SM37, Rod type NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	8.70	250	8.70
8.70	31.50	200	31.50
31.50	40.00	140	

Ground Level	4.58 mOD
Coordinates (m)	E 509677.81
National Grid	N 428433.47

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.00 - 30.24 30.00 - 30.50	SPTS B 79	50 (17,8 for 20mm/26,24 for 75mm)	01/09/15 30.00	0800 2.00					
30.50 - 30.68 30.50 - 31.00	SPTC B 80	50 (23,2 for 0mm/29,21 for 30mm)	30.50	2.00			(2.00)		
31.00 - 31.18 31.00 31.00 - 31.15 31.00 - 31.50	SPTS D 81 D 82 B 83	45 (25 for 70mm/31,14 for 30mm)	31.00	2.00			31.50 -26.92		
31.70 - 31.84	SPTC	50 (25 for 60mm/40,10 for 0mm)	31.70	2.00	CHALK recovered as cream slightly silty slightly sandy subangular to subrounded, fine to coarse GRAVEL. Gravel is moderately weak, low density, locally stained greyish brown.	31.80-33.50 AZCL.	(0.30) 31.80 -27.22		
31.80 - 34.00	27 0 0	NI NI NI			Structureless CHALK composed of slightly silty slightly sandy subangular to subrounded fine to coarse GRAVEL with medium cobble content. Gravel and cobbles are weak to medium strong, medium density. Occasional subangular medium flint gravel.		(3.90)		
34.00 - 35.50	53 0 0					34.00-34.70 AZCL.			
35.50 - 37.00	80 23 0	NI 50 150			Medium strong to strong medium density cream CHALK. Bedding fractures are subhorizontal 0-10deg, very closely spaced, planar rough, open, locally cream silt infill <10mm. Other fractures are subvertical 80-90deg planar rough, open and locally inclined 45deg.	35.50-35.80 AZCL. 35.90-36.02 Rinded flint cobble 36.22-37.00 Core predominantly NI	35.70 -31.12 (1.30)		
37.00 - 38.50	100 53 28				Medium strong high density white CHALK. Bedding fractures are subhorizontal 0-10deg, very closely and closely spaced, planar locally stepped rough, cream and light grey silt infill <10mm. Other fractures are subvertical 80-90deg, planar locally stepped rough silt infill <3mm, locally inclined 45deg. Occasional rinded flint cobbles.	37.10-37.25 Core NI 38.30-38.50 Rinded grey flint cobble	37.00 -32.42 (3.00)		
38.50 - 40.00	93 48 23	NI 40 200				38.66-38.89 Core NI 38.89-38.98 Rinded grey flint cobble 38.98-39.08 Core NI, subangular medium flint gravel 39.20-39.33 Core NI 39.50-39.55 Subhorizontal fracture infilled with subangular fine to coarse chalk gravel and light grey silt.			
					END OF EXPLORATORY HOLE		40.00 -35.42		

Depth	TCR SCR RQD	If	Records	Date Casing	Time Water

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
31.50 - 31.70	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH416

Borehole Log

Drilled	BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.23 mOD
Logged	EM/RM	03/08/2015	Dando 2000/Geotec 10	0.00	9.60	250	9.60	**Coordinates (m)**	E 509664.80
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	9.60	33.00	200	33.00	**National Grid**	N 428473.64
Approved	JRL	13/08/2015	Cable percussion to 33.00m, rotary core to 40.00m	33.00	45.00	146	33.50		
			SPT Hammer ID: SM21, Rod type: NWY						

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
1.50 - 1.95	SPTS		N=11 (4,3/2,2,3,4)	1.50	dry
1.50 - 1.95	D 4				
1.50 - 2.00	B 5				
2.50 - 2.95	SPTS		N=10 (1,2/2,3,2,3)	2.50	dry
2.50 - 2.95	D 6				
2.50 - 3.00	B 7				
3.50 - 3.95	SPTS		N=13 (1,2/4,3,2,4)	3.00	2.60
3.50	B 8			03/08/15	1800
3.50 - 4.00	W 9			3.00	2.60
4.00 - 4.45	SPTS		N=44 (5,10/12,17,9,6)	06/08/15	
4.00	ES 11			3.00	
4.00 - 4.50	B 10				0800
4.50 - 4.95	SPTC		N=25 (4,5/6,6,6,7)	4.50	3.20
4.50 - 5.00	B 12				2.90
5.00 - 5.45	SPTS		N=9 (2,1/2,2,2,3)	4.50	3.00
5.00 - 5.50	B 13				
5.50 - 5.95	SPTC		N=15 (2,4/4,4,4,3)	5.50	3.30
5.50 - 6.00	B 14				
6.00 - 6.45	SPTS		N=15 (2,4/3,4,4,4)	6.00	2.90
6.00 - 6.45	B 16				
6.00 - 6.50	D 15				
6.50 - 6.95	SPTC		N=15 (2,3/4,4,3,4)	6.00	3.00
6.50 - 7.00	B 17				
7.00 - 7.45	SPTS		N=16 (2,3/3,3,3,7)	7.00	3.60
7.00 - 7.45	B 18				
7.00 - 7.50	B 19				
7.50 - 7.95	SPTC		N=19 (1,4/3,3,5,8)	7.50	4.10
7.50 - 8.00	B 20				
8.00 - 8.45	SPTC		N=31 (2,3/4,3,12,12)	7.50	4.40
8.00 - 8.50	B 21				
8.50 - 8.80	B 22				
9.50 - 9.74	SPTS		50 (10,15/26,24 for 20mm)	06/08/15	1800
9.50 - 10.00	D 23A			9.00	2.90
9.50 - 9.69	B 23			07/08/15	
				9.00	0800
					4.10

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Firm greyish brown sandy CLAY. Occasional rootlets. (TOPSOIL)	0.30-0.35 Concrete slab 0.50-0.55 Concrete slab 0.55-0.60 Orangish brown fine to coarse sand	(0.20) 0.20 +5.03 (0.15) 0.35 +4.88 (0.30) 0.65 +4.58 (0.25) 0.90 +4.33 (0.30) 1.20 +4.03		
Dark brown and greyish brown gravelly slightly clayey fine to coarse SAND with low cobble content. Gravel is angular to subrounded fine to coarse of various lithologies including brick, concrete, chalk and flint. Cobbles are subrounded of concrete. (MADE GROUND)				
Brown and light grey sandy GRAVEL with orangish brown fine to coarse sand pockets and low to medium cobble content. Sand is fine. Gravel is angular to subrounded fine of various lithologies including brick, concrete, chalk and flint. Rare plastic and nylon. (MADE GROUND)	1.50-2.00 Decreasing clay proportion	(1.30)		
Dark brown and grey sandy GRAVEL with medium to high cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including brick, chalk, concrete, flint, quartzite and macadam. Cobbles are subrounded of brick, flint, chalk and concrete. (MADE GROUND)	2.50-3.00 Decreasing silt and sand proportion	2.50 +2.73		
White and brown sandy slightly clayey GRAVEL with high cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including chalk, flint, brick and concrete. Cobbles are subrounded of chalk and flint. (MADE GROUND)		(1.50)		
Medium dense white sandy slightly clayey GRAVEL with medium to high cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded of chalk. (MADE GROUND)		4.00 +1.23		
Medium dense white stained light brown and orangish brown sandy slightly silty GRAVEL with medium to high cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded of chalk and flint. (MADE GROUND)		(0.50) 4.50 +0.73		
Dense white stained light brown and orangish brown very sandy silty GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel is angular of subrounded fine to coarse of chalk, brick and flint. Cobbles are subangular of chalk. (MADE GROUND)	6.00-6.50 High cobble content	(0.50) 5.00 +0.23 (0.50) 5.50 -0.27		
Medium dense white stained yellowish and orangish brown slightly sandy slightly silty GRAVEL with rare yellow and greyish brown silty clay pockets. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint. (MADE GROUND)		(2.80)		
Loose white stained light brown sandy slightly silty GRAVEL with low to medium cobble content and pockets of grey silty clay. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded of chalk. (MADE GROUND)				
Medium dense white stained light brown sandy silty GRAVEL with low to medium, occasionally high, cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded of chalk. (MADE GROUND)	8.00 Grades to dense 8.50 Base of lock structure	8.30 -3.07 (0.20) 8.50 -3.27 (0.30) 8.80 -3.57		
Dark grey slightly sandy silty GRAVEL with low cobble content. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of chalk and brick. Cobbles are subrounded of chalk. Rare metal. (MADE GROUND)		(0.70)		
Compacted/intact bricks. Recovered as angular to subrounded fine to coarse gravel . (MADE GROUND)		9.50 -4.27		
Brick and wood FILL.		(0.25) 9.75 -4.52		
Hole continues on next sheet				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	3.50	Rose to 2.60 m after 20 minutes. Fast inflow.	

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
3.20 - 3.40	30	
4.00 - 4.30	45	
8.50 - 8.80	75	
9.60 - 9.60	45	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH501

Borehole Log

Drilled	BJ/JS	**Start**	
Logged	EM/RM	03/08/2015	
Checked	TC	**End**	
Approved	JRL	13/08/2015	

Equipment, Methods and Remarks

Dando 2000/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 33.00m, rotary core to 40.00m
SPT Hammer ID: SM21, Rod type: NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	9.60	250	9.60
9.60	33.00	200	33.00
33.00	45.00	146	33.50

Ground Level	5.23 mOD
Coordinates (m)	E 509664.80
National Grid	N 428473.64

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.00 - 10.45	SPTC		N=17 (1,0/2,3,6,6)	10.00	4.10	(Drillers description) (MADE GROUND) MADE GROUND: timber. (Assumed timber cross beam)		(0.75)		
10.00 - 10.50	B 24									
10.50 - 10.95	SPTS		N=2 (1,2/0,0,1,1)	10.00	3.90	Medium dense sandy silty GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of brick and rare chalk. Abundant wood/ timber. (MADE GROUND/Reworked ALLUVIUM)		10.50	-5.27	
10.50 - 10.95	B 26									
10.50 - 11.00	D 25									
11.00 - 11.45	U 27		19 blows 100% rec	10.50	4.30		11.00-11.05 Dark grey black slightly organic silty fine sand	(1.00)		
11.55	D 28		14 blows 100% rec	10.50		Firm indistinctly laminated dark brownish grey slightly organic silty CLAY with occasional silty sand pockets/beds. Occasional wood fragments. (MADE GROUND/Reworked ALLUVIUM)	11.05-11.20 Dark greyish brown and grey silty fine and medium sand	11.50	-6.27	
11.55 - 12.00	U 29				4.20	Soft indistinctly laminated dark grey and brownish grey sandy silty CLAY with occasional partings of fine sand, pockets of dark grey clay and occasional carbonaceous fragments.	11.50-12.00 Vegetative odour	(0.55)		
12.05	D 30		8 blows 100% rec	12.00			12.00-12.10 Becoming sandy clayey silt	12.05	-6.82	
12.05 - 12.50	U 31				4.60	Medium dense dark grey silty fine to medium SAND with occasional dark grey clay pockets. Rare to occasional fine gravel size shell fragments.	12.05-12.13 Occasional dark grey sandy clay pockets			
12.60 - 13.05	SPTS		N=15 (1,2/2,3,4,6)	12.00	3.90		12.10-12.50 Dark grey clay pockets	(1.45)		
12.60	D 32						12.60 Slightly silty			
12.60 - 13.05	B 34									
12.60 - 13.05	D 33									
13.05 - 13.50	SPTC		N=15 (2,3/3,4,4,4)	12.00	3.80					
13.05 - 13.50	B 35									
13.50 - 13.95	SPTS		N=5 (1,2/2,1,0,2)	13.50	3.90	Loose dark grey and greyish brown silty fine to medium SAND. Rare wood fragments. Rare fine gravel size shell fragments.	13.50-13.95 Rare wood fragments (possibly driven by casing)	13.50	-8.27	
13.50 - 13.95	B 37									
13.50 - 13.95	D 36									
13.95 - 14.40	SPTC		N=9 (1,2/2,2,2,3)	13.50	4.10			(1.35)		
13.95 - 14.40	B 38									
14.40 - 14.85	SPTS		N=4 (1,0/1,1,0,2)	14.00	4.60					
14.40 - 14.85	B 39									
14.85 - 15.30	SPTS		N=22 (1,2/2,4,6,10)	14.85	4.30	Medium dense dark grey and greyish brown slightly silty fine to medium SAND with rare fine gravel size shell fragments.		14.85	-9.62	
14.85 - 15.30	D 40									
14.85 - 15.30	B 41									
15.30 - 15.75	SPTC		N=21 (2,4/4,5,6,6)	15.30	4.70			(0.90)		
15.30 - 15.75	B 42									
15.75 - 16.20	SPTS		N=30 (2,4/6,6,8,10)	15.30	5.10	Medium dense to dense dark grey and greyish brown silty fine to medium SAND with rare organic clay and pseudo-fibrous peat pockets. Rare fine gravel size shell fragments.		15.75	-10.52	
15.75 - 16.20	B 44									
15.75 - 16.20	D 43									
16.20 - 16.65	SPTC		N=38 (5,8/8,10,10,10)	16.20	4.10					
16.20 - 16.65	B 45									
				07/08/15	1800					
				16.20	4.10					
16.65 - 17.10	SPTS		N=20 (2,4/4,4,4,8)							
16.65 - 17.10	D 46			10/08/15						
16.65 - 17.10	B 47			16.20						
					0800					
17.10 - 17.55	SPTC		N=25 (3,5/6,6,6,7)	17.10	3.30		17.10-17.55 Rare dark brown oxidising pseudo fibrous peat			
17.10 - 17.55	B 48				3.80			(3.15)		
17.55 - 18.00	SPTS		N=27 (3,4/5,6,8,8)	17.10	3.60		17.55-18.00 Black organic clay and dark brown oxidising to black pseudo fibrous peat pockets <10x15mm			
17.55 - 18.00	D 49									
17.55 - 18.00	B 50									
18.00 - 18.45	SPTC		N=22 (2,2/4,5,6,7)	18.00	3.70					
18.00 - 18.45	B 51									
18.45 - 18.90	SPTS		N=22 (2,3/4,5,5,8)	18.00	4.10		18.45-18.90 Rare dark brown oxidising to black pseudo fibrous peat pockets			
18.45 - 18.90	D 52									
18.45 - 18.90	B 53									
18.90 - 19.35	SPTC		N=30 (2,2/5,7,9,9)	18.90	3.60	Medium dense dark grey and greyish brown fine to medium SAND with pockets of dark brown oxidising to black pseudo-fibrous peat. Rare fine gravel size shell fragments.		18.90	-13.67	
18.90 - 19.35	B 54									
19.35 - 19.80	SPTS		N=26 (4,4/6,6,6,8)	18.90	3.40					
19.35 - 19.80	D 55									
19.35 - 19.80	B 56							(1.35)		
19.80 - 20.25	SPTC		N=30 (2,2/5,7,9,9)	19.80	3.90		19.80-20.15 Decreasing peat proportion			
19.80 - 20.25	B 57									

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH501

Borehole Log

Drilled	BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.23 mOD
Logged	EM/RM	03/08/2015	Dando 2000/Geotec 10	0.00	9.60	250	9.60	**Coordinates (m)**	E 509664.80
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	9.60	33.00	200	33.00	**National Grid**	N 428473.64
Approved	JRL	13/08/2015	Cable percussion to 33.00m, rotary core to 40.00m	33.00	45.00	146	33.50		
			SPT Hammer ID: SM21, Rod type: NWY						

Samples and Tests

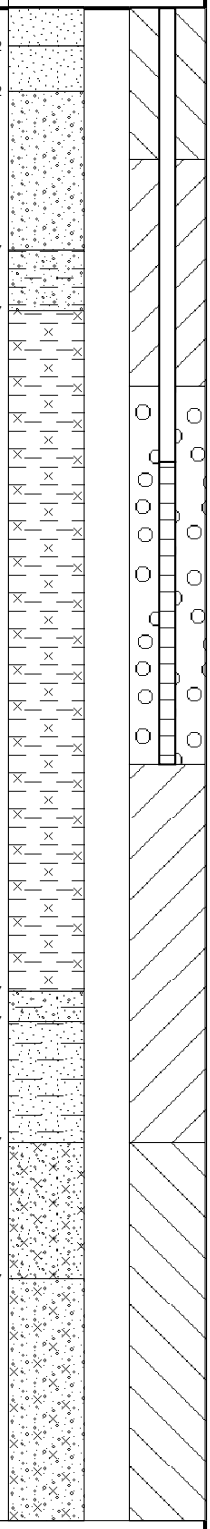
Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
20.25 - 20.70	SPTS		N=24 (3,5/5,5,7,7)	20.00	4.30
20.25 - 20.70	B 59				
20.25 - 20.70	D 58				
20.70 - 21.15	SPTS		N=14 (2,2/3,3,4,4)	20.70	3.90
20.70 - 21.15	D 60				
20.70 - 21.15	B 61				
21.15 - 21.60	SPTC		N=20 (3,3/5,4,5,6)	21.00	3.70
21.15 - 21.60	B 62				
21.60 - 22.05	SPTS		N=16 (1,3/3,3,5,5)	21.60	3.90
21.60 - 22.05	B 64				
21.60 - 22.05	D 63				
22.05 - 22.50	U 65		38 blows 100% rec	21.60	3.70
22.60 - 23.05	SPTS		N=17 (1,2/3,3,5,6)	22.60	3.70
22.60	D 66				
22.60 - 23.05	D 67				
22.60 - 23.05	B 68				
23.05 - 23.50	U 69		33 blows 100% rec	22.60	3.80
23.60 - 24.05	SPTS		N=22 (2,4/4,4,6,8)	23.60	4.30
23.60	D 71				
23.60 - 24.05	D 70				
23.60 - 24.05	B 72				
24.05 - 24.50	U 73		39 blows 100% rec	24.00	4.90
24.60 - 25.05	SPTC		N=20 (4,4/4,4,4,8)	24.60	3.30
24.60	B 75				
24.60 - 25.05	D 74			10/08/15	
				24.60	1800 3.30
25.05 - 25.50	U 76		29 blows 100% rec		
				11/08/15	
				24.60	0800 1.80
25.60 - 26.05	SPTC		N=19 (3,4/3,4,5,7)	25.00	1.90
25.60	D 77				
25.60 - 26.05	B 78				
26.05 - 26.50	U 79		26 blows 100% rec	25.00	1.70
26.50	D 80				
26.60 - 26.86	SPTS		50 (10,15/29,21 for 30mm)	26.00	2.10
26.60 - 26.85	D 81				
26.60 - 27.05	B 82				
27.05 - 27.34	SPTC		50 (12,13/20,30 for 60mm)	26.00	2.30
27.05 - 27.50	B 83				
27.50 - 27.80	SPTS		50 (10,15/26,24 for 70mm)	27.50	1.10
27.50 - 27.95	B 84				
27.95 - 28.22	SPTC		50 (12,13/20,30 for 40mm)	27.50	1.90
27.95 - 28.40	B 85				
28.40 - 28.85	SPTS		N=46 (5,8/8,10,12,16)	28.40	1.60
28.40 - 28.85	B 87				
28.40 - 28.85	D 86				
28.85 - 29.30	SPTC		N=47 (8,9/10,10,12,15)	28.80	2.60
28.85 - 29.30	B 88				
29.30 - 29.75	SPTS		N=52 (7,10/9,12,15,16)	29.30	1.85
29.30 - 29.75	B 89				
29.75 - 30.20	SPTC		N=52 (8,9/9,12,14,17)	29.30	2.20
29.75 - 30.20	B 90				

Strata Description

Main	Detail	Depth, Level (Thickness)
Greyish brown fine to medium SAND.		20.25 -15.02 (0.30) 20.55 -15.32
Medium dense multicoloured slightly silty very sandy GRAVEL with rare dark brown pseudo-fibrous peat pockets. Sand is fine to coarse. Gravel is angular to subrounded fine to medium of chalk and flint.	21.15-21.60 Rare coarse chalk gravel and pockets of dark brown peat	(1.05)
Firm greyish brown and black slightly gravelly sandy CLAY with rare pockets of brown peat. Gravel is angular to subrounded fine to coarse of chalk and flint.		21.60 -16.37 (0.40) 22.00 -16.77
Firm, locally stiff, thinly laminated greyish brown silty CLAY with partings and thin laminations of yellowish brown fine sand and orangish brown silt.	22.10 Inclined 40deg fine sand parting 22.20 Inclined 40deg fine sand parting 22.50-22.60 Fine sand 22.50-23.10 Locally thinly laminated 23.05-23.50 Firm to stiff 23.07 Orange brown sand pocket 10x15mm 23.50-23.60 Fine sand, 10-15mm, with 2No subangular to subrounded fine to medium chalk and flint gravel on sand laminae 24.05-24.50 Firm 24.50-24.60 2No subrounded chalk gravel	(4.50)
	25.05 Firm to stiff 25.05 Orangish brown fine to medium sand partings, up to 5mm 25.19 Stiff	
	26.00-26.50 Stiff, locally firm 26.20-26.25 Orangish brown very sandy GRAVEL	26.50 -21.27 (0.20) 26.70 -21.47
Very dense greyish brown gravelly slightly clayey fine to medium SAND. Gravel is angular to subrounded fine to medium of chalk and flint.	26.90-27.00 Chalk and flint gravel band	
Very dense orangish brown mottled greyish brown slightly clayey fine and medium SAND.	27.00 Slightly gravelly	(0.80) 27.50 -22.27
Very dense greyish brown gravelly silty fine to medium SAND. Gravel is subangular to subrounded fine to medium of chalk and flint.		(0.90)
Dense to very dense grey and brown gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to medium of chalk and flint.		28.40 -23.17 (1.80)

Hole continues on next sheet

Legend | **Backfill**



Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH501

Borehole Log

Drilled	BJ/JS	**Start**	03/08/2015
Logged	EM/RM	**End**	13/08/2015
Checked	TC		
Approved	JRL		

Equipment, Methods and Remarks

Dando 2000/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 33.00m, rotary core to 40.00m
SPT Hammer ID: SM21, Rod type: NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	9.60	250	9.60
9.60	33.00	200	33.00
33.00	45.00	146	33.50

Ground Level	5.23 mOD
Coordinates (m)	E 509664.80
National Grid	N 428473.64

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
30.20 - 30.65	SPTS		N=38 (5,6/6,8,8,16)	30.20	1.90
30.20 - 30.65	B 92				
30.20 - 30.65	D 91				
30.65 - 31.10	SPTC		N=44 (9,10/10,12,10,12)	30.20	2.00
30.65 - 31.10	B 93				
31.10 - 31.55	SPTS		N=42 (4,8/9,9,10,14)	31.10	2.30
31.10 - 31.55	D 94				
31.10 - 31.55	B 95				
31.55 - 32.00	SPTC		N=36 (4,7/7,9,8,12)	31.50	1.80
31.55 - 32.00	B 96				
32.00 - 32.45	SPTC		N=37 (8,10/9,8,10,10)	32.00	1.90
32.00 - 32.45	B 97				
32.45 - 32.70	SPTS		50 (12,15/27,23 for 30mm)	32.45	2.10
32.45 - 32.70	D 98			11/08/15	
				32.45	1800
				12/08/15	2.10
				32.45	0800
33.00 - 33.20			Flush: 33.00 - 45.00 Water 100%	33.00	1.70
33.00 - 33.20			50 (15,10 for 20mm/33,17 for 30mm)		1.70
33.00 - 33.20			B 100		
			D 99		
33.00 - 34.50	17 0 0				
34.50 - 36.00	60 20 0				
36.00 - 37.50	52 5 0				
				12/08/15	1100
				33.00	1.70
				13/08/15	0800
				33.00	6.50
37.50 - 39.00	66 5 0				
39.00 - 40.50	53 17 0				

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Dense greyish brown SAND and GRAVEL. Sand is fine to medium. Gravel is angular to subrounded fine to coarse of chalk and flint.		30.20 -24.97 (0.90)		
Dense multicoloured very sandy slightly silty GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of various lithologies including chalk, flint, quartzite, sandstone and igneous lithologies.		31.10 -25.87 (1.40)		
CHALK recovered as cream slightly sandy slightly silty GRAVEL with medium cobble content. Sand is fine to medium. Gravel and cobbles are weak to medium strong, medium density, stained light orangish brown. Rare subrounded fine to coarse flint gravel.	33.00-34.25 AZCL	32.50 -27.27 (0.50) 33.00 -27.77		
Structureless CHALK composed of cream and light grey sandy silty subangular fine to coarse GRAVEL. Gravel is strong, medium density.	34.50-35.10 AZCL	(2.10)		
Structureless CHALK composed of cream and white mottled grey slightly sandy slightly silty subangular fine to coarse GAVEL and COBBLES. Gravel and cobbles are strong, high density, cream with local black specks. Occasional subangular fine to coarse flint gravel.	36.00-36.72 AZCL	35.10 -29.87 (1.55)		
Strong high density cream, locally speckled black, CHALK. Fractures are closely spaced, subhorizontal and subvertical, planar rough with speckled black staining.		36.65 -31.42 (0.13) 36.78 -31.55		
Structureless CHALK composed of cream, white and grey sandy silty subangular fine to coarse GRAVEL and COBBLES. Gravel and cobbles are medium strong, high density. Frequent subangular fine to medium flint gravel.	37.73-37.80 Strong high density cream chalk 38.01-39.00 AZCL 39.00 Subangular flint cobble 39.00-39.70 AZCL 39.20-39.40 Strong high density cream chalk	(4.22)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
32.50 - 33.00	60	
33.00 - 33.00	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH501

Borehole Log

Drilled	BJ/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	5.23 mOD
Logged	EM/RM	03/08/2015	Dando 2000/Geotec 10	0.00	9.60	250	9.60	**Coordinates (m)**	E 509664.80
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	9.60	33.00	200	33.00	**National Grid**	N 428473.64
Approved	JRL	13/08/2015	Cable percussion to 33.00m, rotary core to 40.00m	33.00	45.00	146	33.50		
			SPT Hammer ID: SM21, Rod type: NWY						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
							40.50-41.02 AZCL			
40.50 - 42.00	65 13 0					Strong high density cream, locally speckled black, CHALK. Fractures are subhorizontal, closely spaced, planar, rough with cream silty sand infill.		41.00 -35.77 (1.30)		
							42.00-42.38 AZCL			
42.00 - 43.50	75 18 0					Structureless CHALK composed of cream, white and grey sandy silty subangular fine to coarse gravel and COBBLES. Gravel and cobbles are medium strong, high density. Frequent subangular fine to medium flint gravel.		42.30 -37.07 (1.20)		
43.50 - 45.00	87 22 0					Strong high density cream, locally speckled black, CHALK. Fractures are subhorizontal, closely spaced, planar rough with cream silty sand infill.	43.50-43.70 AZCL 43.60-44.00 Subangular fine to medium flint gravel	43.50 -38.27 (1.50)		
				13/08/15 33.00	1700 0.00					
						END OF EXPLORATORY HOLE		45.00 -39.77		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH501

Borehole Log

Drilled	JB/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.87 mOD
Logged	EM/RM	21/07/2015	Dando 175/Geotec 10	0.00	33.60	200	33.20	**Coordinates (m)**	E 509737.06
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	33.60	40.00	146		**National Grid**	N 428422.27
Approved	JRL	03/08/2015	Cable percussion to 33.60m, rotary core to 40.00m SPT Hammer ID: 024 Rod type: Whitworth.						

Samples and Tests / Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.00 - 0.50	B 1					Brick.		0.10 (0.10) +4.77		
0.10 - 0.40	ES 3					(MADE GROUND)		0.15 (0.05) +4.72		
						Light brown slightly gravelly fine to medium SAND. Gravel is angular to subrounded fine to coarse of sandstone and quartzite. (MADE GROUND)				
0.60 - 1.00	B 2									
						Firm thinly laminated grey mottled light brownish grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of various lithologies including chalk, flint, brick and sandstone. (MADE GROUND)		(1.65)		
1.20 - 1.65	SPTC		N=6 (1,1/2,2,1,1)	1.20	dry					
1.20 - 1.65	B 5									
1.50	ES 4									
1.70 - 2.15	UT 6		8 blows 100% rec	1.70	dry					
						Orangish brown slightly silty fine to medium SAND with thin and thick laminations of firm brown CLAY. (MADE GROUND)	1.79 Bone fragment, 30x5mm	1.80 +3.07		
2.15 - 2.35	D 7									
2.35 - 2.80	UT 8		9 blows 100% rec	2.35	dry			(1.00)		
2.80 - 3.00	D 9						2.80-3.00 Brown sand	2.80 +2.07		
3.00 - 3.45	UT 10		7 blows 100% rec Split and Describe and photo not available	3.00	dry	Soft thinly laminated dark grey slightly gravelly sandy silty CLAY with occasional brown sand partings and pockets and occasional organic clay/ peat pockets. Gravel is subangular fine to medium of chalk, brick and pottery. Partings of orangish brown fine sand on laminae surfaces. (MADE GROUND)				
3.45 - 3.65	D 11						3.45-3.65 Occasional lenses of orangish brown fine to medium sand	(1.30)		
3.65 - 4.10	UT 12		13 blows 90% rec	3.65	dry		3.75 UT dropping under own weight			
4.10 - 4.30	D 13						3.80-4.10 Black organic clay and dark brown peat pockets	4.10 +0.77		
4.30 - 4.75	UT 14		12 blows 100% rec	4.30	dry	Very soft to soft dark grey and dark ngreyish brown slightly gravelly sandy silty CLAY with low cobble content and occasional peat pockets. Sand is fine. Gravel is angular to subrounded fine to coarse of various lithologies including sandstone, brick, concrete and occasional igneous material. Cobbles are subangular of sandstone. (MADE GROUND/Reworked ALLUVIUM)	4.20 1No subangular igneous cobble			
4.75 - 4.95	D 15						4.40-4.55 Occasional peat pockets <25x30mm	(1.40)		
4.95 - 5.40	UT 16		16 blows 75% rec	4.95	dry		4.60 1No sandstone cobble			
5.40 - 6.40	P 17		100% rec					5.50 -0.63		
						Firm indistinctly laminated dark greyish brown and brownish grey slightly gravelly silty CLAY with fine sand partings. Gravel is subangular to subrounded fine to coarse of various lithologies including concrete, brick and clinker. (MADE GROUND)	5.95-6.30 No gravel	(0.80)		
				21/07/15 5.40	1800 dry					
6.40 - 6.85	SPTS		N=5 (1,2/1,1,1,2)			Soft black and dark grey slightly gravelly slightly sandy silty CLAY with lenses of brownish grey silty sand. Gravel is subangular of flint. (MADE GROUND)	6.30-6.40 Orangish brown fine sand	6.30 -1.43		
6.40 - 6.85	B 19			22/07/15				(0.55)		
6.40 - 6.85	D 18			5.40	0800					
6.85 - 7.30	UT 20		11 blows 100% rec	6.85	dry dry	Firm, locally indistinctly laminated dark grey, locally black slightly sandy CLAY with extremely to very closely spaced thin and thick dark orange brown silty fine sand laminations. Laminations frequently inclined 40-50deg. (MADE GROUND)		6.85 -1.98		
7.30 - 7.50	D 21							(0.45)		
7.50 - 7.95	UT 22		14 blows 100% rec	7.50	dry	Firm, locally soft, indistinctly thinly laminated dark grey and black sandy silty CLAY with occasional fine sand laminations and silty sand pockets. (MADE GROUND)		7.30 -2.43		
7.95 - 8.15	D 23						7.95-8.15 2No subangular medium brick gravel	(0.52)		
8.15 - 8.60	SPTC		N=4 (1,0/1,1,1,1)	8.15	dry	Dark orangish brown and greyish brown, locally very silty, fine to medium SAND. (MADE GROUND)		7.82 -2.95		
8.15 - 8.60	B 25							(0.38)		
						Soft to very soft dark grey organic sandy silty CLAY.		8.20 -3.33		
8.60 - 9.05	UT 26		15 blows 75% rec Split and Describe and photo not available	8.60	dry			(0.40)		
						Soft to firm fissured dark greyish brown organic silty CLAY with frequent lenses/partings of brown fine sand.		8.60 -3.73		
9.05 - 9.25	D 27						9.05-9.25 Structureless			
9.25 - 9.70	UT 28		15 blows 75% rec	9.25	dry			(1.10)		
9.70 - 9.90	D 29						9.54-9.70 Frequentr fine sand lenses <10mm; fissures randomly orientated	9.70 -4.83		
9.90 - 10.35	UT 30		21 blows 95% rec	9.90	dry	Very soft dark grey silty CLAY with occasional sand				

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH502

Borehole Log

Drilled	JB/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.87 mOD
Logged	EM/RM	21/07/2015	Dando 175/Geotec 10	0.00	33.60	200	33.20	**Coordinates (m)**	E 509737.06
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	33.60	40.00	146		**National Grid**	N 428422.27
Approved	JRL	03/08/2015	Cable percussion to 33.60m, rotary core to 40.00m SPT Hammer ID: 024 Rod type: Whitworth.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
						pockets.		(0.95)		
10.35 - 10.51	D 31									
10.55 - 11.05	P NR		No Recovery no recovery	10.55	dry			10.65 -5.78		
						Medium dense dark grey and light yellowish brown slightly silty fine to medium SAND. Occasional fine gravel size shell fragments.				
11.05 - 11.50	SPTC		N=12 (2,3/3,3,3,3)	11.05	7.06					
11.05 - 11.50	B 33									
11.05 - 11.50	B 34									
11.50 - 11.95	SPTC		N=26 (6,8/9,6,5,6)	11.50	7.56					
11.50 - 12.00	B 36									
12.00 - 12.45	SPTC		N=13 (3,2/3,3,4,3)	12.00	5.85		12.00-12.45 Decreasing silt content	(2.85)		
12.00 - 12.50	B 38									
12.50 - 12.95	SPTC		N=14 (4,4/3,4,4,3)	12.50	6.02					
12.50 - 12.95	B 40									
13.00 - 13.45	SPTC		N=22 (2,4/4,5,6,7)	13.00	6.53		13.00-13.45 Increasing coarse sand proportion			
13.00 - 13.50	B 42									
13.50 - 13.95	SPTS		N=24 (4,4/4,5,7,8)	13.50	6.65			13.50 -8.63		
13.50 - 13.95	D 43					Medium dense greyish brown mottled brownish grey slightly silty fine, predominantly medium to coarse SAND. Occasional fine gravel size shell fragments.				
13.50 - 14.00	B 44									
14.00 - 14.45	SPTC		N=21 (3,4/5,5,5,6)	14.00	7.15					
14.00 - 14.50	B 46									
14.50 - 14.95	SPTS		N=21 (4,5/4,5,6,6)	14.50	6.90			(2.00)		
14.50 - 14.95	D 47									
15.00 - 15.45	SPTC		N=19 (5,4/4,5,5,5)	15.00	6.86					
15.00 - 15.50	B 48									
15.50 - 15.95	SPTS		N=18 (3,4/4,5,4,5)	15.50	7.20			15.50 -10.63		
15.50 - 15.95	D 50					Medium dense brownish grey mottled black slightly silty fine to coarse SAND with occasional pockets of organic material. Plant remains and wood recovered. Occasional fine gravel size shell fragments.				
15.50 - 16.00	B 51			22/07/15 16.00	1800 7.20					
16.00 - 16.45	SPTS		N=19 (4,4/4,5,5,5)	23/07/15 16.00	0800 9.00					
16.00 - 16.45	D 53									
16.00 - 16.50	B 54									
16.50 - 16.95	SPTC		N=16 (3,5/3,4,4,5)	16.50	7.52			(2.50)		
16.50 - 17.00	B 56									
17.00 - 17.45	SPTS		N=17 (3,3/3,3,5,6)	17.00	6.74		17.00-17.50 Occasional dark grey and black peat pockets			
17.00 - 17.45	B 58									
17.00 - 17.50	D 57									
17.50 - 17.95	SPTC		N=16 (3,3/4,4,5,3)	17.50	7.07					
17.50 - 18.00	B 60									
18.00 - 18.45	SPTS		N=21 (4,4/4,5,6,6)	18.00	7.00			18.00 -13.13		
18.00 - 18.45	D 61					Medium dense yellowish brown, locally brownish grey, silty fine to medium SAND with pockets of dark brown and black peat and organic clay, 80-100mm spacing. Rare fine gravel size shell fragments.				
18.00 - 18.50	B 62									
18.50 - 18.95	SPTC		N=21 (5,4/5,4,6,6)	18.50	7.30					
18.50 - 19.00	B 64									
19.00 - 19.45	SPTS		N=17 (2,3/4,4,5,4)	19.00	6.84		19.00-19.50 Increasing organic content	(2.00)		
19.00 - 19.45	B 66									
19.00 - 19.50	D 65									
19.50 - 19.95	SPTC		N=20 (4,4/4,5,6,5)	19.50	7.05					
19.50 - 20.00	B 68									
								20.00 -15.13		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH502

Borehole Log

Drilled	JB/JS	**Start**	
Logged	EM/RM	21/07/2015	
Checked	TC	**End**	
Approved	JRL	03/08/2015	

Equipment, Methods and Remarks

Dando 175/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 33.60m, rotary core to 40.00m
SPT Hammer ID: 024 Rod type: Whitworth.

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	33.60	200	33.20
33.60	40.00	146	

Ground Level	4.87 mOD
Coordinates (m)	E 509737.06
National Grid	N 428422.27

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.00 - 20.45	SPTC		N=22 (4,4/4,6,7,5)	20.00	7.45	Medium dense yellowish brown, locally brownish grey, gravelly silty fine to medium SAND with dark brown and black peat and organic clay pockets, 80-100mm spacing. Gravel is subrounded fine to coarse of quartz. Rare fine gravel size shell fragments.		(0.40)		
20.00 - 20.45	B 70							20.40	-15.53	
20.00 - 20.50	D 69							(0.10)		
20.50 - 20.95	SPTS		N=26 (6,6/6,6,7,7)	20.50	8.01			20.50	-15.63	
20.50 - 21.00	B 72									
21.00 - 21.45	UT 73		42 blows 100% rec			Dark grey gravelly slightly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of quartzite and flint. Rare fine gravel size shell fragments.	21.22-21.45 Laminations inclined	(1.00)		
21.45 - 21.65	D 74							21.50	-16.63	
21.65 - 22.10	SPTC		N=21 (4,4/4,5,6,6)	21.65	9.45	Firm thinly, locally thickly, laminated greyish brown silty CLAY with thin laminae of brown fine to medium sand and occasional silt partings.		(0.30)		
21.65 - 22.10	B 76							21.80	-16.93	
22.10 - 22.55	UT 77		58 blows 100% rec			Stiff indistinctly thinly and thickly laminated fissured brownish grey CLAY. Partings of light brown sand on laminae surfaces. Fissures are inclined, closely spaced.				
22.55 - 22.75	D 78									
22.75 - 23.20	SPTC		N=17 (3,4/4,4,4,5)	22.75	8.50	Stiff thickly laminated greyish brown slightly gravelly CLAY with occasional silty sand pockets sand and silt laminations. Gravel is subangular fine of chalk. Dusting of brown fine sand and silt on laminae surfaces.				
22.75 - 23.00	B 80									
23.00 - 23.45	UT 81		47 blows 100% rec				23.00-23.09 Firm	(2.30)		
23.45 - 23.65	D 82									
23.65 - 24.10	SPTC		N=20 (5,6/5,5,4,6)	23.65	10.16					
23.65 - 24.10	B 84									
24.10 - 24.55	UT 85		49 blows 100% rec			Stiff thinly to thickly laminated greyish brown CLAY with brown silt partings and very closely spaced thin laminations of fine, locally medium sand.		24.10	-19.23	
24.55 - 24.75	D 86			23/07/15	1800		24.45 1No subrounded medium chalk gravel			
24.75 - 25.20	SPTC		N=18 (4,4/5,4,4,5)	24.75	9.86		24.75-25.25 Laminations inclined	(1.55)		
24.75 - 25.20	B 88			24/07/15						
25.20 - 25.65	UT 89		41 blows 65% rec	24.75	0800 14.02		25.20 Slightly gravelly sand pocket 20x25mm 25.20-25.65			
25.65 - 25.85	D 90			24/07/15	1800		Increasing sand proportion	25.65	-20.78	
25.85 - 26.30	SPTS		N=21 (3,3/3,5,6,7)	25.20	11.40	Medium dense orangish brown gravelly slightly silty fine to medium SAND with low cobble content. Gravel is angular to subrounded fine to coarse of flint and chalk. Cobbles are subrounded chalk.	25.26 Inclined 25deg silt lamination			
25.85 - 26.30	B 92			25.85						
25.85 - 26.30	D 91			27/07/15	0.00					
26.30 - 26.75	SPTC		N=21 (2,4/4,6,6,5)	25.20			26.20-26.70 Low cobble content	(1.05)		
26.30 - 26.75	B 94			26.30	0800					
26.75 - 27.17	SPTS		50 (6,8/13,14,13,10 for 45mm)	26.75	0.00 1.35	Dense to very dense brown and grey gravelly fine to coarse SAND with low to medium cobble content. Gravel is angular to subrounded fine to coarse of chalk and flint. Cobbles are subrounded of chalk.		26.70	-21.83	
26.75 - 27.20	B 96				1.05					
26.75 - 27.20	D 95									
27.20 - 27.65	SPTC		N=49 (5,6/12,13,13,11)	27.20	0.00			(1.50)		
27.20 - 27.70	B 98									
27.70 - 28.15	SPTS		N=56 (6,6/6,13,14,23)	27.70	0.80					
27.70 - 28.15	D 99									
27.70 - 28.20	B 100									
28.20 - 28.65	SPTC		N=44 (8,8/8,9,14,13)	28.20	0.60	Dense to very dense greyish brown SAND and GRAVEL, locally sandy GRAVEL with medium cobble content. Sand is fine to medium, locally coarse. Gravel is angular to subrounded fine to coarse of predominantly chalk and flint. Cobbles are subrounded of chalk and flint.		28.20	-23.33	
28.20 - 28.70	B 102									
28.70 - 29.08	SPTC		50 (11,12/14,18,18 for 75mm)	28.70	0.00		28.70-29.20 Sandy gravel			
28.70 - 29.20	B 104									
29.20 - 29.65	SPTC		N=37 (8,9/9,8,9,11)	29.20	0.00					
29.20 - 29.70	B 106									
29.70 - 30.15	SPTC		N=37 (9,8/7,10,10,10)	29.70	0.00			(3.20)		
29.70 - 30.20	B 108									

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH502

Borehole Log

Drilled	JB/JS	**Start**	
Logged	EM/RM	21/07/2015	
Checked	TC	**End**	
Approved	JRL	03/08/2015	

Equipment, Methods and Remarks

Dando 175/Geotec 10
Service inspection pit hand excavated to 1.20m
Cable percussion to 33.60m, rotary core to 40.00m
SPT Hammer ID: 024 Rod type: Whitworth.

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	33.60	200	33.20
33.60	40.00	146	

Ground Level	4.87 mOD
Coordinates (m)	E 509737.06
National Grid	N 428422.27

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.20 - 30.65 30.20 - 30.70	SPTC B 110		N=35 (4,4/8,10,9,8)	30.20	1.60		30.20-30.65 Sandy gravel			
30.70 - 31.15 30.70 - 31.15 30.70 - 31.20	SPTS B 112 D 111		N=47 (9,8/10,11,11,15)	30.70	0.00		30.70-31.15 Medium cobble content			
31.20 - 31.65	SPTC		N=45 (9,14/11,14,10,10)	31.20	0.00					
				27/07/15 31.20	1800 0.00	CHALK recovered as cream sandy slightly silty GRAVEL with low to medium cobble content. Sand is fine to coarse. Gravel and cobbles are very weak to weak medium density, white, occasionally stained brown. Occasional flint gravel.		31.40 -26.53		
31.70 - 32.20	B 114			28/07/15 31.20	0800 3.65			(1.30)		
32.20 - 32.47 32.20 - 32.54 32.20 - 32.70	SPTS D 115 B 116		50 (8,16/32,18 for 45mm)	32.20	1.15					
32.70 - 33.10 32.70 - 33.08 32.70 - 33.20	SPTC B 117 B 118		50 (12,13/14,14,16,6 for 20mm)	32.70	0.95	CHALK recovered as cream slightly silty subangular to subrounded gravel with medium cobbles content. Gravel and cobbles are weak to strong, medium density white. Rare subrounded flint gravel.		32.70 -27.83		
33.20 - 33.42 33.20 33.20 - 33.60	SPTC B 119		50 (18,7 for 20mm/28,22 for 50mm)	33.20 28/07/15 33.20	2.10 1800 2.10			(0.90)		
33.60 - 34.80	100 0 0		Flush: 33.60 - 40.00 Water 100%	03/08/15 33.20	0800 3.20	Structureless CHALK composed of creamish brown slightly sandy silty subangular fine to medium GRAVEL with low cobble content. Gravel and cobbles are very weak to weak, low to medium density, stained brown. Rare flint gravel.		33.60 -28.73 (0.30) 33.90 -29.03		
34.80 - 36.40	94 0 0					Structureless CHALK composed of slightly sandy silty subangular fine to coarse GRAVEL with low cobble content. Gravel and cobbles are very weak to weak, low to medium density, locally speckled with dark brown staining. Rare flint cobbles.	34.85-34.95 Strong high density cream chalk 35.42-35.55 Strong high density cream chalk			
36.40 - 38.00	94 19 0						36.75-36.85 Strong high density cream chalk 37.10-37.20 Strong high density cream chalk 37.40-37.50 Flint cobble 37.73-38.00 Strong high density cream chalk	(5.70)		
38.00 - 39.60	72 0 0						38.00-39.30 Frequent flint cobbles 38.45-39.60 AZCL			
39.60 - 40.00	100 0 0			03/08/15 33.20	1800 0.00	Moderately weak medium density cream CHALK. Fractures are possibly closely spaced, planar rough, possibly speckled and stained black,		39.60 -34.73 (0.40) 40.00 -35.13		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
31.20 - 33.60	Water added to assist boring.

Hard Boring

Depths (m)	Duration (mins)	Tools used
32.20 - 33.60	150	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH502

Borehole Log

Drilled	JB/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	4.87 mOD
Logged	EM/RM	21/07/2015	Dando 175/Geotec 10	0.00	33.60	200	33.20	**Coordinates (m)**	E 509737.06
Checked	TC	**End**	Service inspection pit hand excavated to 1.20m	33.60	40.00	146		**National Grid**	N 428422.27
Approved	JRL	03/08/2015	Cable percussion to 33.60m, rotary core to 40.00m SPT Hammer ID: 024 Rod type: Whitworth.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
						occasionally infilled with cream comminuted chalk/ silt.				
						END OF EXPLORATORY HOLE				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks	
Depths (m)	Remarks

Hard Boring		
Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH502

Borehole Log

Drilled	DS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.29 mOD
Logged	GS/RM	12/09/2015	Dando 3000/Beretta T51	5.00	16.50	250	16.50	**Coordinates (m)**	E 509665.90
Checked	TC	**End**	Cable percussion to 33.30m, rotary core to 40.00m	16.50	36.10	200	36.10	**National Grid**	N 428420.20
Approved	JRL	17/09/2015	Deck to bed: 5.00m.	36.10	40.00	146			
			SPT Hammer ID: SM38, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
						Water Column.				
								(5.00)		
5.00 - 5.45 5.00 5.00 - 5.50	SPTC B 2 ES 1		N=5 (1,1/1,1,1,2)	5.00	0.50	Very soft geenish brown slightly clayey SILT with rare angular medium flint gravel. Hydrocarbon odour. (MADE GROUND - DOCK SILT)		5.00 -1.71		
5.50 - 5.95 5.50 - 6.00	SPTS B 3		N=9 (1,1/2,4,2,1)	5.50	0.50			(1.00)		
6.00 - 6.45 6.00 - 6.45 6.00 - 6.50	SPTS B 5 D 4		N=15 (5,4/4,3,4,4)	6.00	0.50	Medium dense grey and cream sandy slightly clayey GRAVEL with low cobble content. Gravel is subangular to subrounded fine to coarse of chalk, flint and occasional brick. (MADE GROUND)		6.00 -2.71		
6.50 - 6.95 6.50 - 7.00	SPTC B 6		N=13 (1,1/3,4,3,3)	6.50	0.50			(1.00)		
7.00 - 7.45 7.00 - 7.50	SPTS B 7		N=3 (3,4/2,1,0,0)	7.00	0.50	Soft grey and dark grey, locally slightly sandy, clayey SILT. Slight hydrocarbon odour.		7.00 -3.71		
				12/09/15 7.50	1800 0.50			(0.50)		
7.50 - 8.50	P 8		90% rec Split and Describe and photo not available	13/09/15 7.50	1000 0.50	Soft dark grey slightly sandy silty CLAY with occasional partings of orangish brown silt. Slight hydrocarbon odour.		7.50 -4.21		
8.50 - 9.50	P 9		90% rec				8.70-9.05 Locally fissured	(2.00)		
9.50 - 9.95	UT 10		21 blows 100% rec			Firm, locally soft, indistinctly fissured dark grey and greyish brown slightly sandy silty CLAY.	9.20-9.33 Occasional partings, up to 2mm, of dark orangish brown silt	9.50 -6.21		
9.95 - 10.15	D 11							(0.65)		
						Hole continues on next sheet				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole

BH503

Borehole Log

Drilled	DS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.29 mOD
Logged	GS/RM	12/09/2015	Dando 3000/Beretta T51	5.00	16.50	250	16.50	**Coordinates (m)**	E 509665.90
Checked	TC	**End**	Cable percussion to 33.30m, rotary core to 40.00m	16.50	36.10	200	36.10	**National Grid**	N 428420.20
Approved	JRL	17/09/2015	Deck to bed: 5.00m.	36.10	40.00	146			
			SPT Hammer ID: SM38, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.15 - 10.60	UT 12		38 blows 78% rec			Soft indistinctly thinly laminated brownish grey silty CLAY.		10.15 (0.13) 10.28	-6.86 -6.99	
10.80 - 11.25 10.80 - 11.25 10.80 - 11.30	SPTS B 14 D 13		N=17 (3,4/4,4,4,5)	10.80	0.50	Medium dense to very dense dark grey locally brownish grey clayey fine and medium, occasionally coarse, SAND. Rare fine gravel sized shell fragments.				
11.30 - 11.75 11.30 - 11.80	SPTC B 15		N=35 (3,4/7,8,10,10)	11.30	0.50		11.30-11.80 Dense	(2.62)		
11.80 - 12.25 11.80 - 12.25	SPTS D 16		N=67 (4,9/11,16,19,21)	11.80	0.50		11.80-12.30 Very dense			
12.30 - 12.75 12.30 - 12.90	SPTC B 17		N=36 (5,6/7,8,10,11)	12.30	0.50		12.30-12.90 Dense			
12.90 - 13.35 12.90 - 13.35	SPTS D 18		N=34 (5,5/6,8,10,10)	12.90	0.50	Dense light yellowish brown fine to coarse SAND. 1No fragment of black pseudo-fibrous peat. Rare to occasional shell fragments.		12.90	-9.61	
13.40 - 13.85 13.40 - 14.10	SPTC B 19		N=31 (3,5/7,7,8,9)	13.40	0.50			(1.20)		
14.10 - 14.55 14.10 - 14.55	SPTS D 20		N=24 (3,3/4,4,7,9)	14.10	0.50	Medium dense greyish brown mottled dark grey and black fine to coarse SAND with occasional black sand and dark grey sandy silt laminations. Fine gravel size shell fragments. Vegetative odour from black sand.		14.10	-10.81	
14.60 - 15.05 14.60 - 15.20	SPTC B 21		N=27 (5,7/7,7,6,7)	14.60	0.50					
15.20 - 15.65 15.20 - 15.65	SPTS D 22		N=17 (3,3/3,4,4,6)	15.20	0.50		15.20 Peat fragments on black sand laminations			
15.80 - 16.25 15.80 - 16.50	SPTC B 23		N=27 (3,4/5,6,8,8)	15.80	0.50			(3.70)		
				13/09/15 16.50	1650 0.50					
16.60 - 17.05 16.60 - 17.05	SPTS D 24		N=20 (4,4/5,4,5,6)	14/09/15 16.50 16.60	1115 0.50 0.50					
17.20 - 17.65 17.20 - 17.70	SPTC B 25		N=23 (4,5/5,5,6,7)	17.20	0.50					
17.70 - 18.15 17.70 - 18.15	SPTS D 26		N=37 (5,7/7,9,10,11)	17.70	0.50			17.80	-14.51	
18.15 - 18.45 18.15 - 18.55	SPTC B 27		51 (9,13/22,29 for 75mm)	18.15	0.50	Dense to very dense greyish brown and cream very sandy slightly clayey GRAVEL. Gravel is fine and medium occasionally coarse subangular to subrounded predominantly flint and chalk. Rare coarse gravel sized pockets of pseudo-fibrous peat.		(0.92)		
18.55 - 19.00	UT 28		121 blows 100% rec				18.55-18.72 Strata boundary at 60deg			
19.00 - 19.20	D 29					Stiff thinly laminated greyish brown and brown CLAY with orangish brown silt partings on laminae surfaces and occasional thin (2-3mm) laminations and pockets/lenses of fine sand. Relict root tracks throughout.		18.72	-15.43	
19.20 - 19.65 19.20 - 19.65 19.20 - 19.70	SPTS D 30 B 31		N=31 (3,5/7,7,9,8)	18.65	0.50					
19.70 - 20.15	UT 32		32 blows 100% rec				19.70-19.92 Thinly to thickly laminated 19.83 Inclined	(2.53)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH503

Borehole Log

Drilled	DS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.29 mOD
Logged	GS/RM	12/09/2015	Dando 3000/Beretta T51	5.00	16.50	250	16.50	**Coordinates (m)**	E 509665.90
Checked	TC	**End**	Cable percussion to 33.30m, rotary core to 40.00m	16.50	36.10	200	36.10	**National Grid**	N 428420.20
Approved	JRL	17/09/2015	Deck to bed: 5.00m.	36.10	40.00	146			
			SPT Hammer ID: SM38, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.15 - 20.30	D 33						60-65deg orangish brown fine to medium sand lamination			
20.30 - 20.80	B 35									
20.50 - 20.95	SPTS		N=24 (3,4/4,5,7,8)	19.70	0.50					
20.50 - 20.75	D 34			14/09/15						
				20.80	1615					
20.80 - 21.25	UT 36		37 blows 100% rec		0.50					
				15/09/15						
				20.80	0710					
					0.50		20.84-20.94 Irregular subvertical soft brown slightly gravelly sandy clay pocket <10mm. Gravel is subrounded to rounded fine to medium of chalk			
21.25 - 21.40	D 37					Stiff greyish brown indistinctly thinly and thickly laminated silty CLAY with partings of silt and yellowish brown fine sand on laminae surfaces and occasional pockets/lenses of yellowish brown fine sand.		21.25 -17.96		
21.40 - 21.85	SPTS		N=19 (3,3/4,4,5,6)	20.80	0.50					
21.40 - 21.85	B 39									
21.40 - 21.90	D 38									
21.90 - 22.35	UT 40		32 blows 100% rec					(2.05)		
22.35 - 22.50	D 41									
22.50 - 22.95	SPTC		N=21 (3,4/4,5,6,6)	21.90	0.50					
22.50 - 23.00	B 42									
23.00 - 23.45	UT 43		51 blows 89% rec							
23.45 - 23.60	D 44a					Dense to very dense dark reddish brown slightly gravelly fine and medium SAND. Gravel is subangular fine and medium of flint.		23.30 -20.01		
23.60 - 24.05	SPTS		N=37 (3,5/5,8,11,13)	23.00	0.50					
23.60 - 24.05	D 44									
24.20 - 24.65	SPTC		N=34 (7,7/8,8,9,9)	24.20	0.50					
24.70 - 25.15	SPTS		N=42 (8,9/9,10,10,13)	24.70	0.50					
24.70 - 25.15	D 45							(3.10)		
25.20 - 25.65	SPTC		N=44 (9,9/10,10,12,12)	25.20	0.50					
25.20 - 25.70	B 46									
25.70 - 25.99	SPTS		50 (9,14/23,27 for 65mm)	25.70	0.50					
25.70 - 26.30	D 47									
26.30 - 26.60	SPTC		55 (9,10/19,36 for 75mm)	26.30	0.50					
26.40 - 27.00	B 48					Dense to very dense dark reddish brown fine and medium gravelly SAND. Gravel is subangular to subrounded fine and medium chalk and flint.		26.40 -23.11		
27.00 - 27.45	SPTS		N=55 (8,10/14,13,14,14)	27.00	0.50		27.00-27.80 Grading to SAND and GRAVEL			
27.00 - 27.45	B 50									
27.00 - 27.50	D 49							(1.90)		
27.80 - 28.25	SPTC		N=52 (9,9/10,12,15,15)	27.80	0.50					
27.80 - 28.30	B 51									
28.30 - 28.52	SPTS		50 (15,10 for 45mm/36,14 for 25mm)	28.30	0.50	Very dense light and dark grey mottled cream and black SAND AND GRAVEL. Gravel is subangular to subrounded fine to coarse of chalk and flint.		28.30 -25.01		
28.30 - 28.51	B 53									
28.30 - 28.80	D 52									
28.80 - 29.06	SPTC		50 (9,15/28,22 for 35mm)	28.80	0.50			(1.10)		
28.80 - 29.40	B 54									
29.40 - 29.54	SPTS		50 (25 for 70mm/50 for 70mm)	29.40	0.50	Very dense grey brown mottled cream and blue grey very sandy GRAVEL. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of chalk and		29.40 -26.11		
29.40 - 30.00	B 55									
				15/09/15	1820					
				30.00	0.50					

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project A63 PRINCESS QUAY

Project No. A5066-15

Carried out for Balfour Beatty Limited

Borehole BH503

Borehole Log

Drilled	DS	**Start**	
Logged	GS/RM		12/09/2015
Checked	TC	**End**	
Approved	JRL		17/09/2015

Equipment, Methods and Remarks

Dando 3000/Beretta T51
Cable percussion to 33.30m, rotary core to 40.00m
Deck to bed: 5.00m.
SPT Hammer ID: SM38, Rod type: NWY.

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
5.00	16.50	250	16.50
16.50	36.10	200	36.10
36.10	40.00	146	

Ground Level	3.29 mOD
Coordinates (m)	E 509665.90
National Grid	N 428420.20

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
30.10 - 30.80	B 56		50 (10,12/19,27,4 for 75mm)	16/09/15	0715
30.20 - 30.58	SPTC			30.00	0.50
				30.20	
					0.50
30.80 - 31.05	SPTS		50 (14,11 for 35mm/23,27 for 65mm)	30.80	0.50
30.80 - 31.05	D 57				
31.00 - 31.30	B 58				
31.30 - 32.00	B 59				
32.00 - 32.50	B 60				
32.50 - 33.80			B 61		
33.30 - 34.60	92 14 0	NI 20 100			
34.60 - 36.10	73 18 0			16/09/15	1800
				36.10	0.50
			Flush: 36.10 - 40.00 Polymer 80%	17/09/15	0800
				36.10	0.50
36.10 - 37.60	100 40 0	NI 50 95			
37.60 - 39.10	63 37 27	NI 80 250			
39.10 - 40.00	133 61 39			17/09/15	1800

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
flint.		(1.60)		
Structureless CHALK recovered as cream mottled light and dark grey sandy GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of chalk and flint. Cobbles are subangular flint.		31.00 -27.71 (1.00)		
Structureless CHALK recovered as silty sandy subangular to subrounded fine to coarse GRAVEL and COBBLES. Frequent subangular flint cobbles.		32.00 -28.71 (1.30)		
Medium strong medium to high density white and cream CHALK. Bedding fractures are subhorizontal 0-10deg, very closely to closely spaced. Other fractures are subvertical 80-90deg, planar rough, locally cream silt infill (0/1/3) and rarely inclined 45deg. Occasional subangular flint gravel	33.30-33.60 NI 33.90-34.60 Subvertical fracture 80-90deg stepped planar rough 34.55-34.60 Subangular medium to coarse rinded flint gravel 35.10-35.20 Predominantly NI; subvertical fracture 35.23-35.33 NI; subangular medium to coarse rinded flint gravel 35.40-36.10 Predominantly NI; subvertical fracture	33.30 -30.01 (2.80)		
Medium strong medium to very dense white CHALK. Bedding fractures are subhorizontal 0-10deg, very closely to closely spaced. Other fractures are inclined 45deg locally infilled with cream silt <3mm planar rough, locally subvertical 80-90deg, planar and stepped rough.	36.70-36.95 NI 37.15-37.50 NI; subvertical fracture 37.28-37.35 Subangular rinded flint gravel and cobbles	36.10 -32.81 (1.40)		
Medium strong very dense white CHALK. Bedding fractures are subhorizontal 0-10deg, closely and medium spaced, planar rough. Other fractures are subvertical 80-90deg, planar rough. Occasional subangular flint gravel.	37.60-38.15 AZCL 37.80-37.94 NI 38.10-38.30 NI; subvertical fracture, subangular medium to coarse rinded flint gravel 39.40-39.53 NI 39.77-39.90 NI; subvertical fracture	37.50 -34.21 (2.50)		
END OF EXPLORATORY HOLE		40.00 -36.71		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	**A63 PRINCESS QUAY**
Project No.	**A5066-15**
Carried out for	**Balfour Beatty Limited**

Borehole

BH503

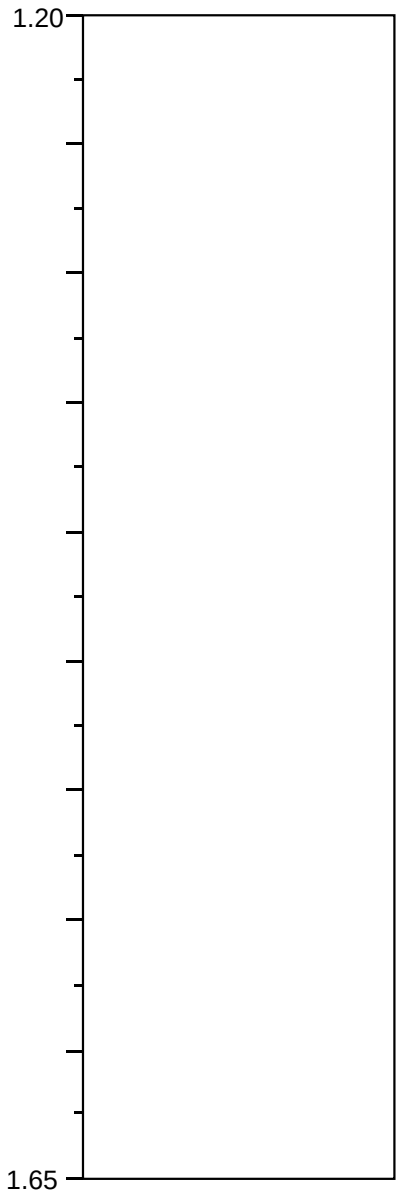
Split Tube Sample Description

Borehole No	BH410		
Sample No	5		
Sample Depth, mBGL	1.20	-	1.65
Sample Type	UT		

Description

Firm, locally stiff brown, locally brownish grey, slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to medium predominantly of chalk, flint and sandstone. Occasional speckling of black carbonaceous material throughout.
(MADE GROUND)

1.25m: 1No coarse clinker gravel



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

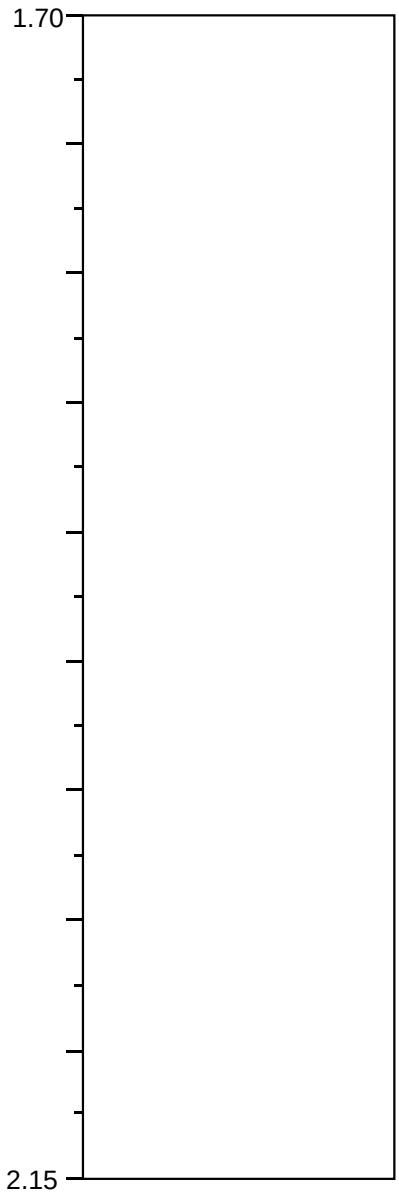
Borehole No	BH410		
Sample No	6		
Sample Depth, mBGL	1.70	-	2.15
Sample Type	UT		

Description

1.70-1.78m
Firm dark brown, locally grey, slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine and medium of various lithologies including sandstone, brick and flint. (MADE GROUND)

1.78-2.15m
Firm thinly to thickly laminated dark orangish brown mottled grey, locally black, slightly sandy silty CLAY with occasional irregular thin fine to medium sand laminations.

1.78-1.92m: occasional fine rootlets.



Remarks:

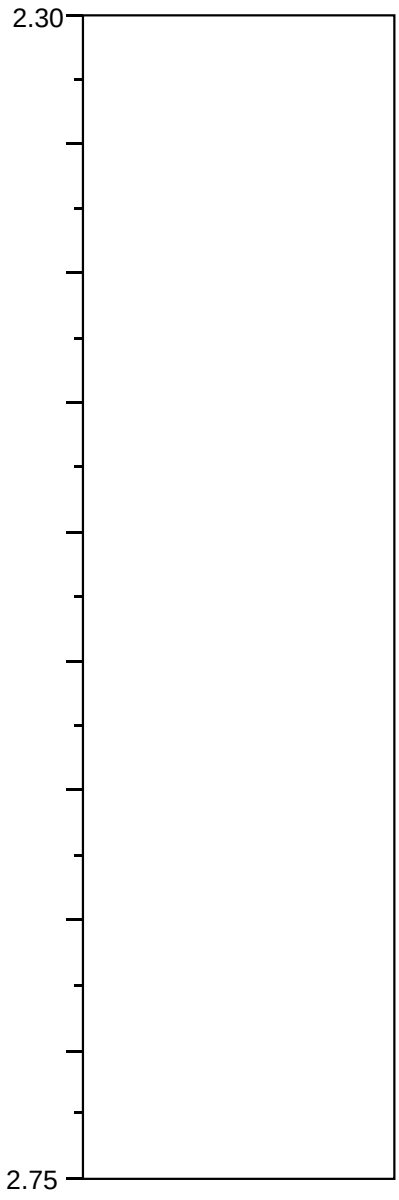
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	8		
Sample Depth, mBGL	2.30	-	2.75
Sample Type	UT		

Description

Firm thinly and thickly laminated greyish brown mottled grey, locally dark yellowish brown, silty CLAY with occasional partings of orange brown and grey fine to medium sand.



Laminations locally inclined 30-35deg

2.55-2.66m: locally mottled dark yellowish brown

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

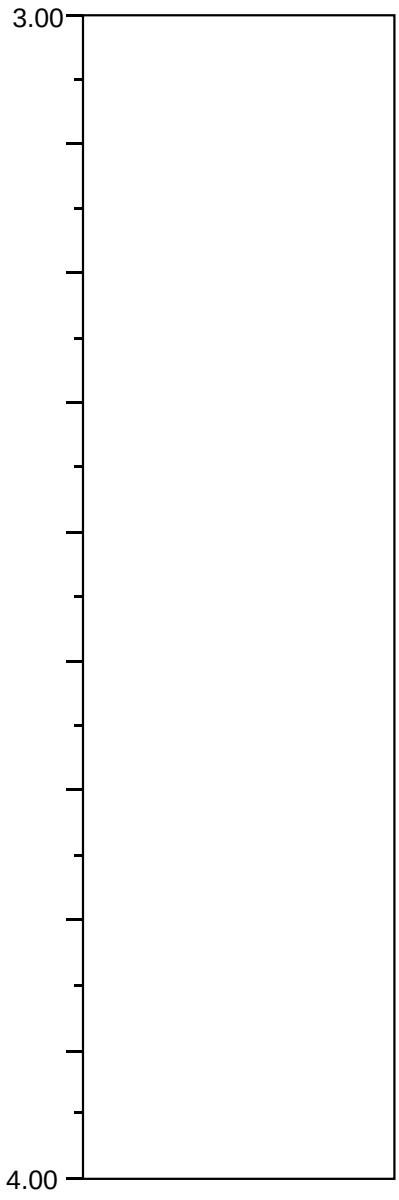
Borehole No	BH410		
Sample No	10		
Sample Depth, mBGL	3.00	-	4.00
Sample Type	P		

Description

3.00-3.60m
Firm thinly, indistinctly thickly, laminated greyish brown, locally slightly sandy, silty CLAY with occasional partings of brown silt on laminae surfaces.

3.10-3.60m: slightly sandy

3.36-3.60m: irregular subvertical lenses of dark orange brown sandy silt lenses



Remarks:
Material descibed is remaining sample after extrusion for triaxial test specimen

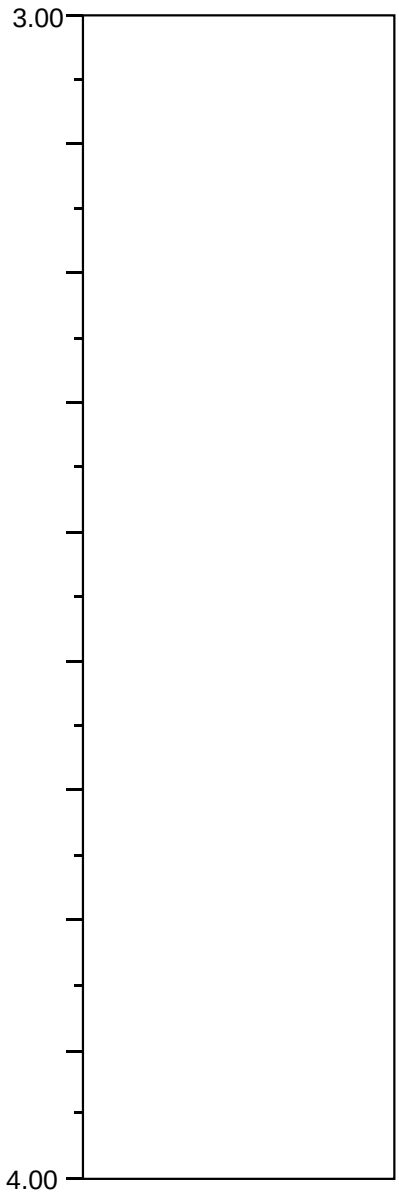
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	10		
Sample Depth, mBGL	3.00	-	4.00
Sample Type	P		

Description

3.75 - 4.00m:
Firm thinly laminated dark greyish brown silty CLAY with local partings of light brown fine sand and silt on laminae surfaces. Slight vegetative odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

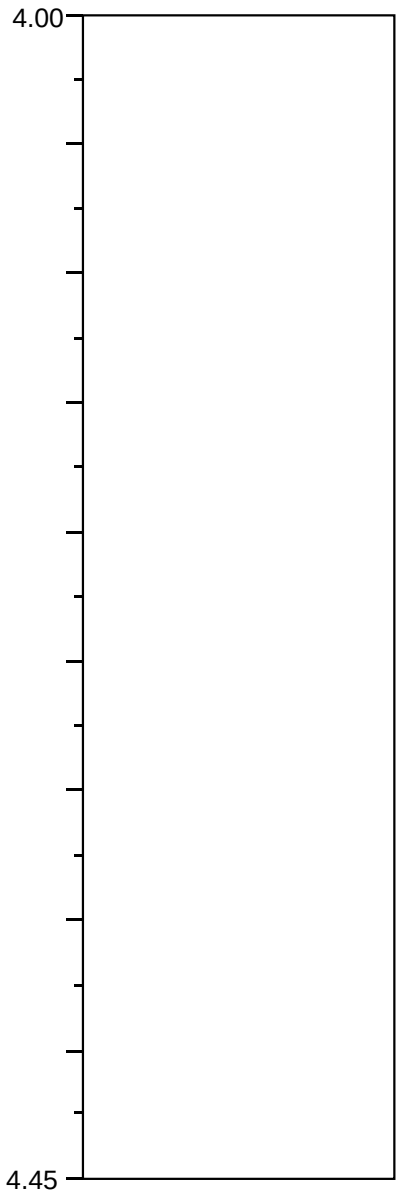
Split Tube Sample Description

Borehole No	BH410		
Sample No	11		
Sample Depth, mBGL	4.00	-	4.45
Sample Type	UT		

Description

Firm, locally soft to firm, thinly, occasionally thickly, laminated greyish brown and orangish brown, locally slightly sandy, silty CLAY with occasional dark grey silt partings.

4.31-4.36m: vertical dark orangish brown sandy silt parting



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

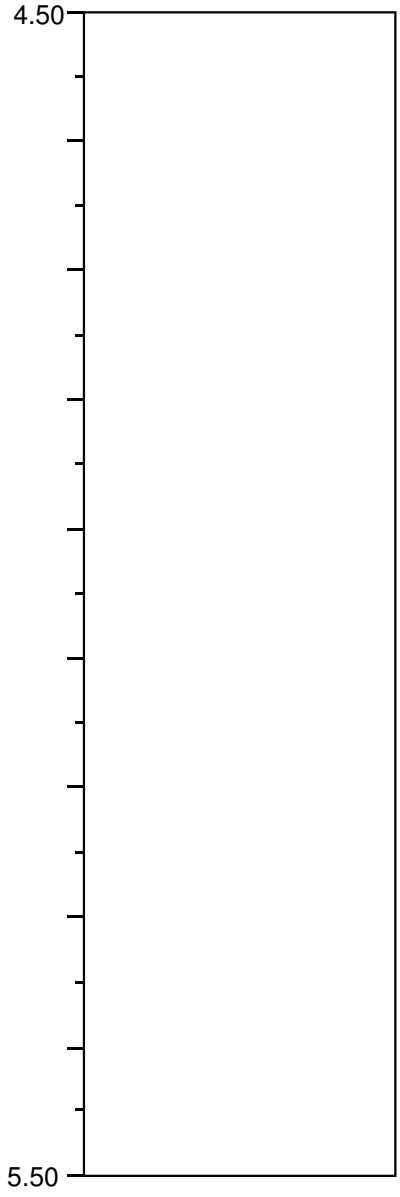
Borehole No	BH410		
Sample No	12		
Sample Depth, mBGL	4.50	-	5.50
Sample Type	P		

Description

Firm indistinctly thinly and thickly laminated greyish brown and brownish grey silty CLAY with occasional thin laminations of greyish brown and orangish brown fine sand and rare inclusions, up to 5x5mm, of black carbonaceous material.

4.50-5.12m: occasional very closely to closely spaced thin laminations of greyish brown fine sand

5.30-5.45m: very closely spaced thin laminations of orangish brown silty fine sand



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	15		
Sample Depth, mBGL	6.00	-	7.00
Sample Type	P		

Description

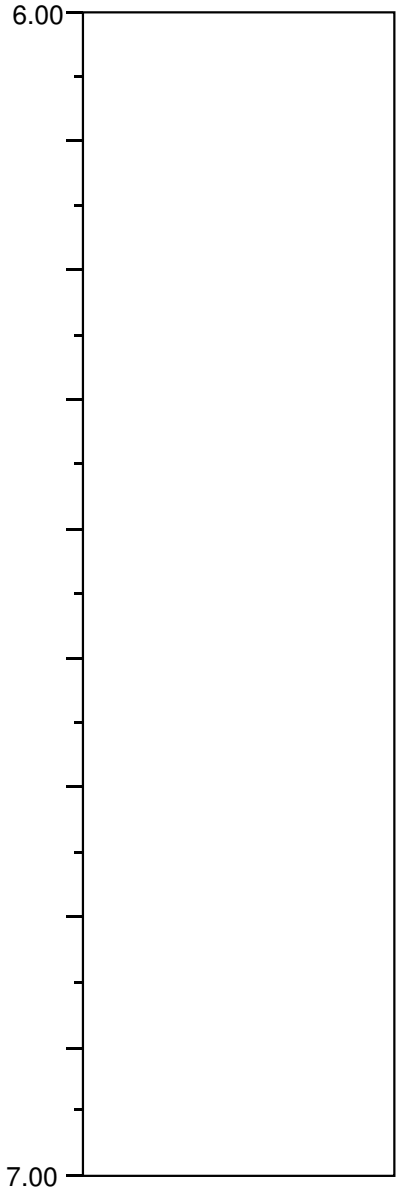
6.00-6.75m
Soft indistinctly thinly to thickly laminated, locally indistinctly fissured, grey brown and brownish grey silty CLAY with occasional thin and thick laminations of greyish brown fine sand and iclusions of black carbonaceous material.

6.00-6.22m: localised occasional discolouration to orangish brown, penetratrating up to 6mm adjacent to laminae surfaces, locally inclined to 50-60deg

6.24m: thick lamination of greyish brown fine sand

6.31-6.37m: occasional inclusions, up to 2x5mm, of black carbonaceous material

6.38-6.70: extremely to very closely spaced thin and thick laminations of greyish brown fine sand



Remarks:
Material described is remaining sample after extrusion for triaxial test specimen.

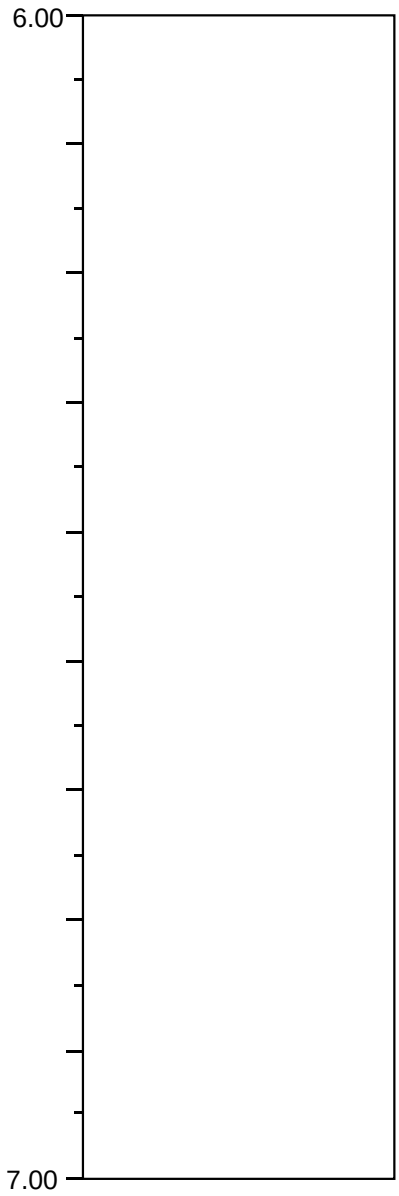
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	15		
Sample Depth, mBGL	6.00	-	7.00
Sample Type	P		

Description

6.75 - 7.00m:
Very soft to soft indistinctly thinly and thickly laminated dark grey and brown silty CLAY with frequent fine sand partings and rare pockets, up to 5mm, of orangish brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

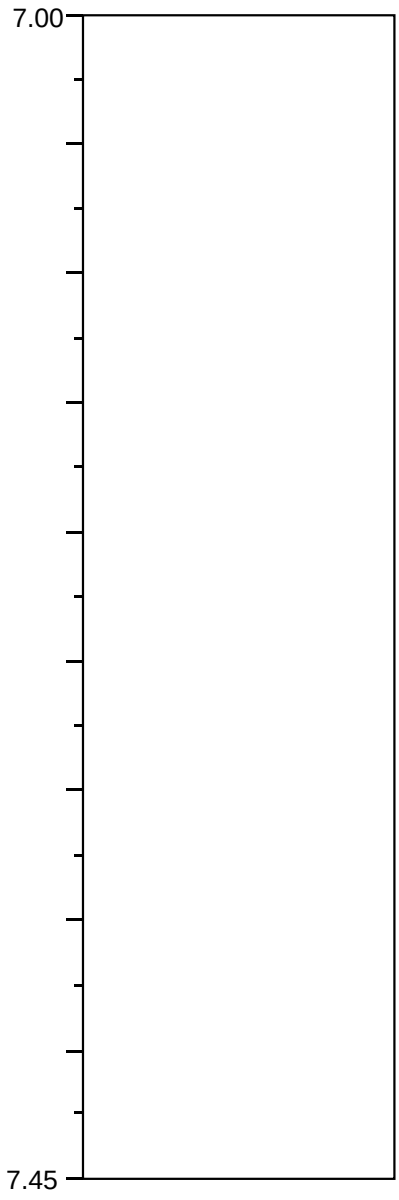
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	16		
Sample Depth, mBGL	7.00	-	7.45
Sample Type	UT		

Description

Soft, becoming firm, indistinctly thinly and thickly laminated, locally indistinctly fissured, dark grey and greyish brown slightly sandy silty CLAY with occasional thin laminations of dark grey fine sand.
Fissures are randomly orientated, extremely closely to very closely spaced.



7.21m: becoming firm

Remarks:

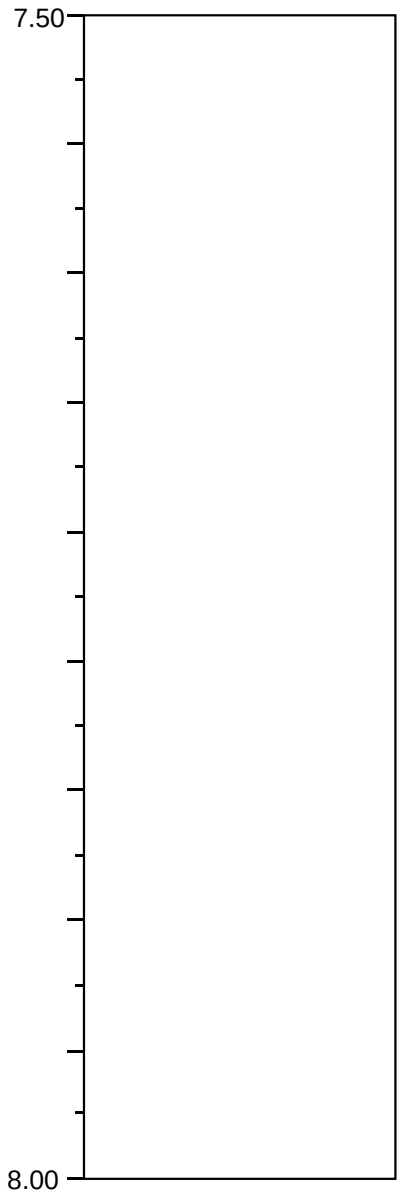
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	17		
Sample Depth, mBGL	7.50	-	8.00
Sample Type	UT		

Description

Firm, locally soft, indistinctly thinly and thickly laminated dark greyish brown silty CLAY with occasional thin laminations and pockets of dark orangish brown fine sand.



Remarks:

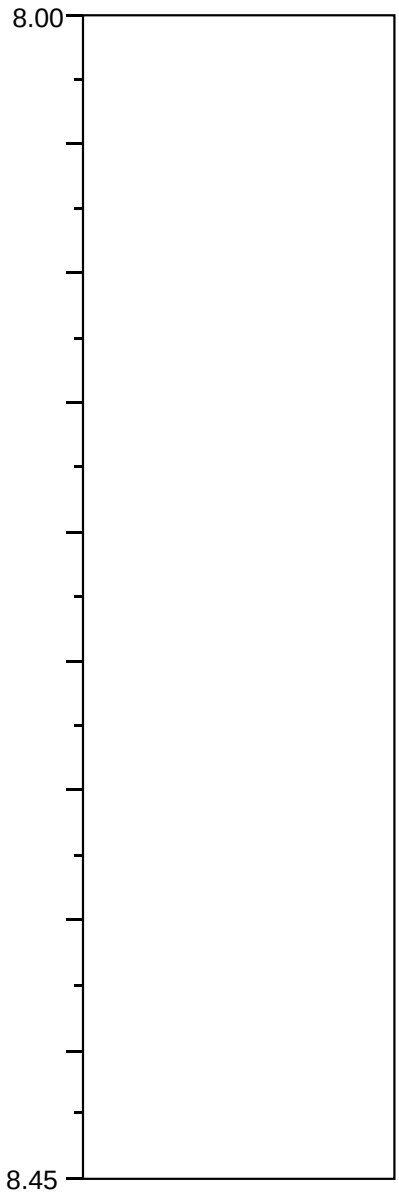
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	18		
Sample Depth, mBGL	8.00	-	8.45
Sample Type	UT		

Description

Firm indistinctly thinly to thickly laminated fissured greyish brown and dark grey slightly sandy silty CLAY with occasional thick laminations of fine sand.



Remarks:

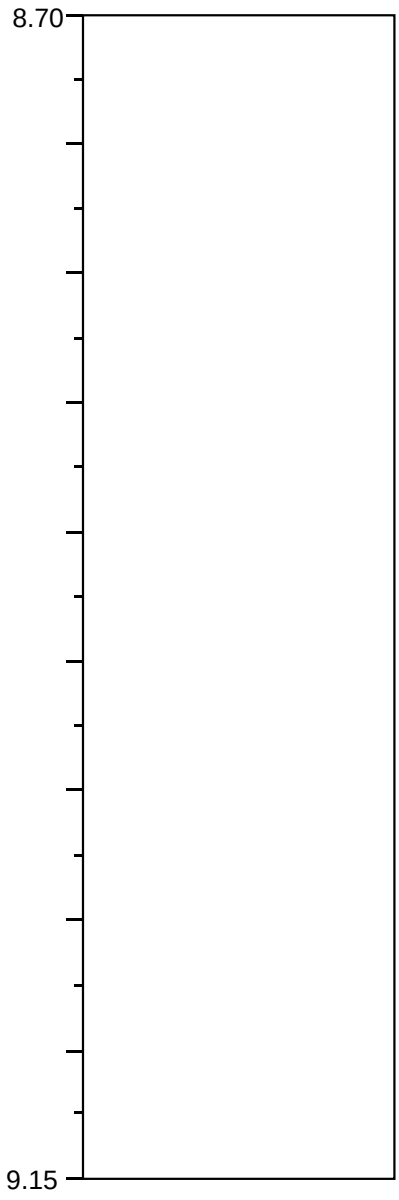
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	20		
Sample Depth, mBGL	8.70	-	9.15
Sample Type	UT		

Description

Soft to firm, becoming firm, indistinctly thinly laminated dark greyish brown and dark grey slightly sandy silty CLAY with very closely to closely spaced thin to thick laminations of dark grey and dark orangish brown fine sand. Occasional pockets <15x20mm of black slightly organic silty clay.



Remarks:

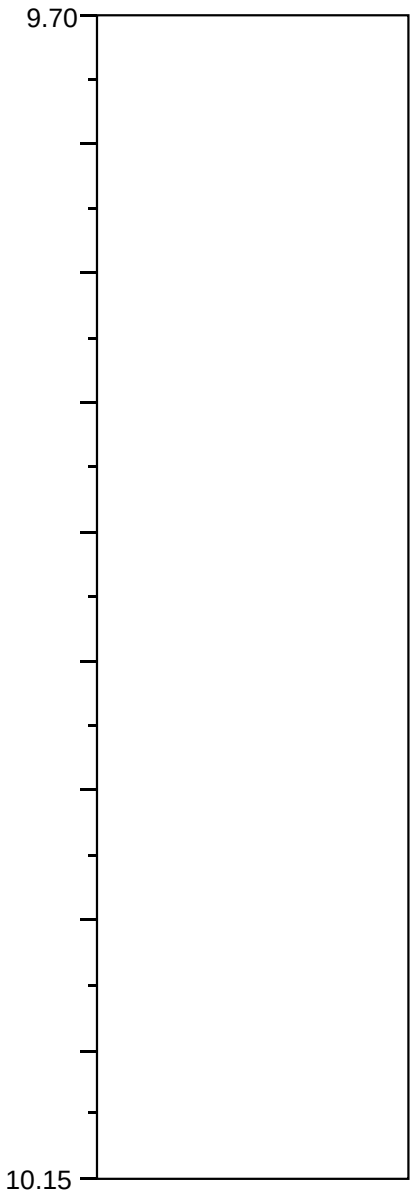
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH410**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH410		
Sample No	22		
Sample Depth, mBGL	9.70	-	10.15
Sample Type	UT		

Description

Soft, becoming firm by 9.85m, thinly and thickly laminated dark grey and greyish brown slightly sandy silty CLAY with extremely to very closely spaced laminations, up to 10mm, of greyish brown fine sand.



Remarks:

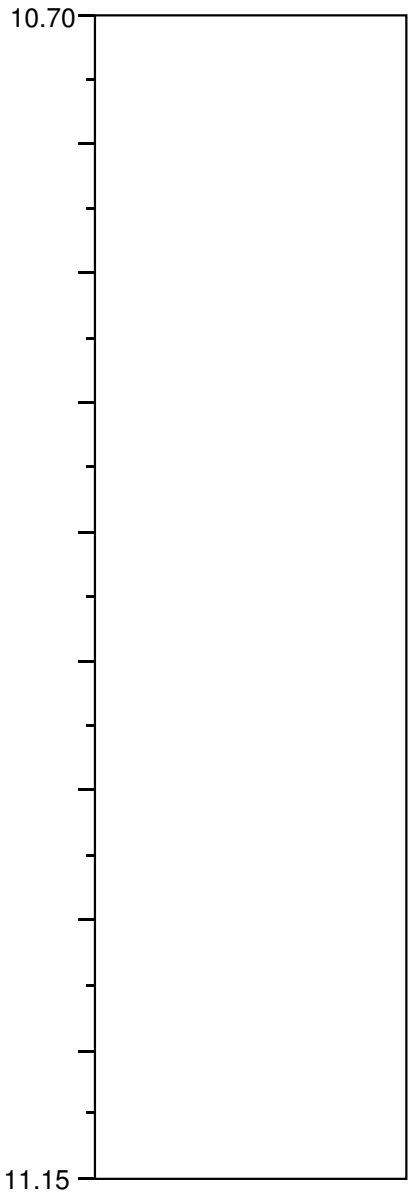
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	25		
Sample Depth, mBGL	10.70	-	11.15
Sample Type	UT		

Description

10.70-10.90m
Firm indistinctly laminated dark grey silty CLAYwith very closely spaced thin to thick laminations of dark orangish brown and greyish brown fine to medium sand. Occasional orange brown fine to medium sand pockets.



10.86: orange brown fine to medium sand pocket, 30x40mm

10.90-11.15m
Grey and greyish brown slightly silty, locally slightly clayey, fine to coarse SAND. Frequent fine to medium gravel size shell fragments.

11.08: thin lamination of black carbonaceous material

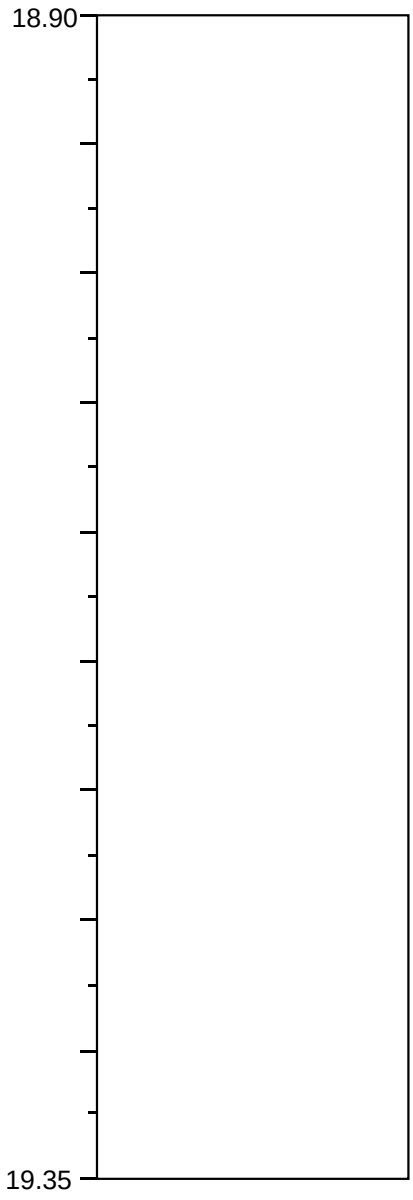
Remarks:

Split Tube Sample Description

Borehole No	BH410		
Sample No	43		
Sample Depth, mBGL	18.90	-	19.35
Sample Type	UT		

Description

18.90-19.10m
Stiff greyish brown, locally mottled grey, slightly sandy slightly gravelly CLAY. Gravel is subrounded fine to medium of chalk and flint.



Remarks:
Material described is remaining sample after partial extrusion for triaxial test specimen

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

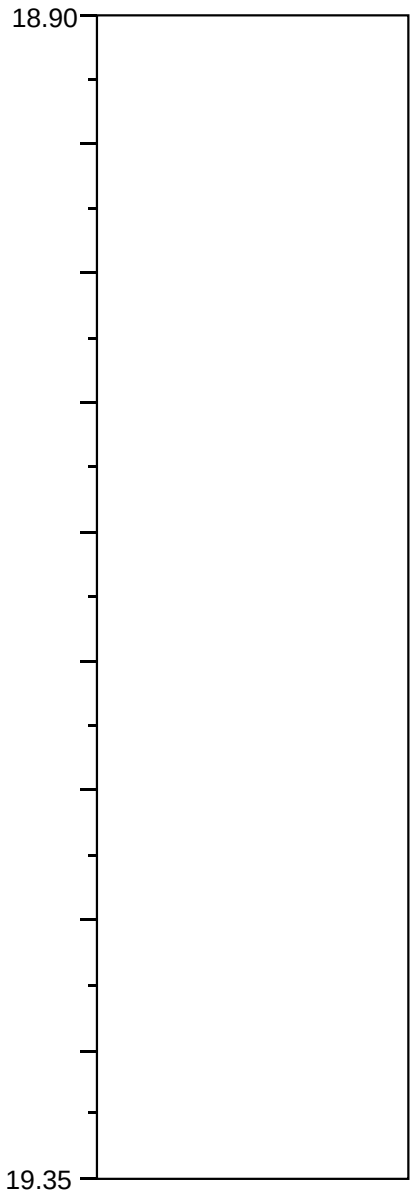
Split Tube Sample Description

Borehole No	BH410		
Sample No	43		
Sample Depth, mBGL	18.90	-	19.35
Sample Type	UT		

Description

19.13 - 19.35m:
Stiff, locally firm, indistinctly thinly and thickly laminated fissured dark greyish brown slightly gravelly CLAY with partings of silt and fine sand.Gravel is subrounded fine to medium of chalk and igneous rock.
Fissures are closely spaced, smooth, polished, locally randomly orientated.

18.96m: Subrounded medium igneous gravel.
18.98m: Subrounded medium chalk gravel.
19.07m: Subrounded fine chalk gravel.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

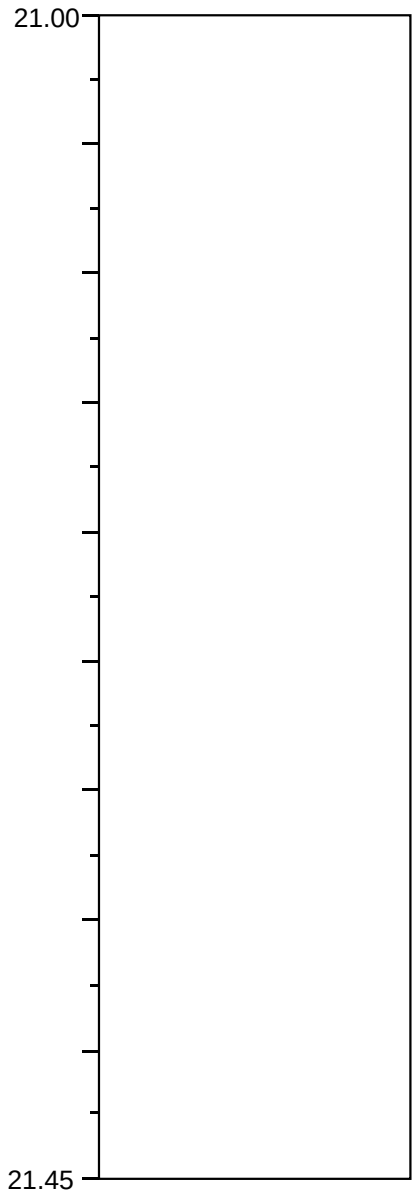
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	48		
Sample Depth, mBGL	21.00	-	21.45
Sample Type	UT		

Description

Stiff thinly to thickly laminated greyish brown CLAY with closely spaced thin orangish brown fine sand laminations and occasional thin brown silt laminations.



21.24-21.43m: indistinctly locally cross laminated; no silt or sand laminations

Remarks:

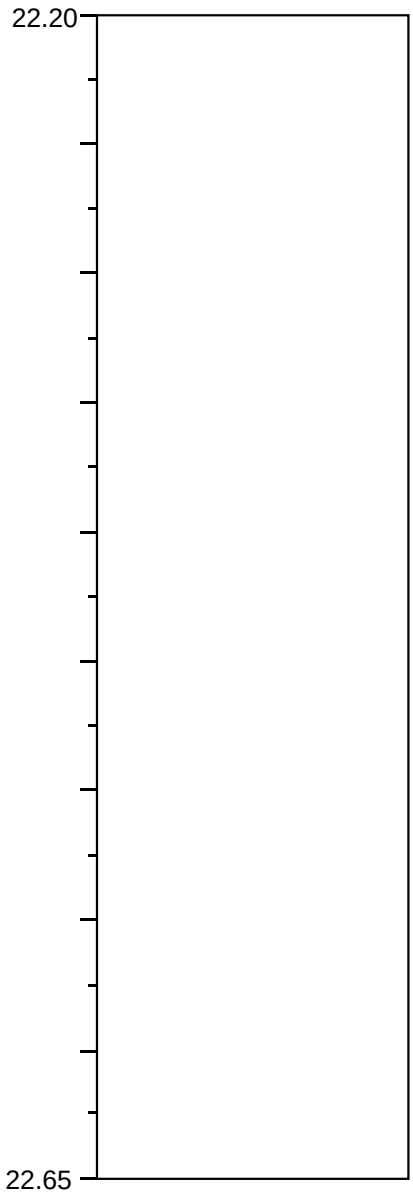
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	51		
Sample Depth, mBGL	22.20	-	22.65
Sample Type	UT		

Description

Firm to stiff, becoming stiff by 22.29m, thinly and thickly laminated greyish brown, locally slightly gravelly, CLAY with frequent thin brown silt laminations <3mm and occasional very closely, locally extremely closely spaced, thin orange brown fine sand laminations <4mm. Gravel is subrounded medium of chalk.



22.51m: 1No subrounded medium chalk gravel

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH410		
Sample No	54		
Sample Depth, mBGL	23.50	-	23.95
Sample Type	UT		

Description

23.50-23.67m
Stiff thickly, locally thinly laminated greyish brown CLAY with occasional sand partings and thin sand laminations

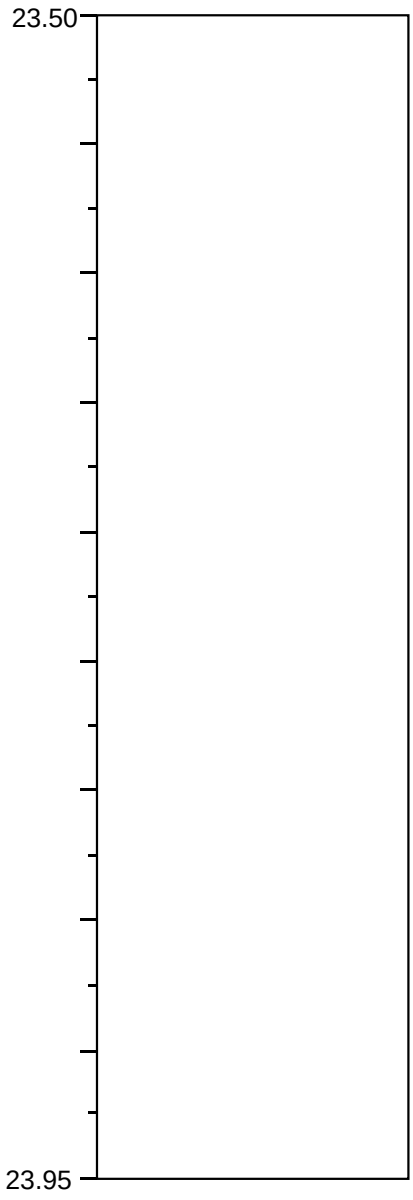
23.57m: fine sand parting

23.67m: thin light orangish brown sand lamination, 2mm

23.67-23.95m
Stiff thinly to thickly laminated, locally cross laminated, greyish brown CLAY with frequent silt partings and thin silt laminations and extremely to very closely spaced thin, locally thick, sand laminations.

23.80m: thick orange brown fine sand lamination

23.92-23.95m: sand laminations dark grey



Remarks:

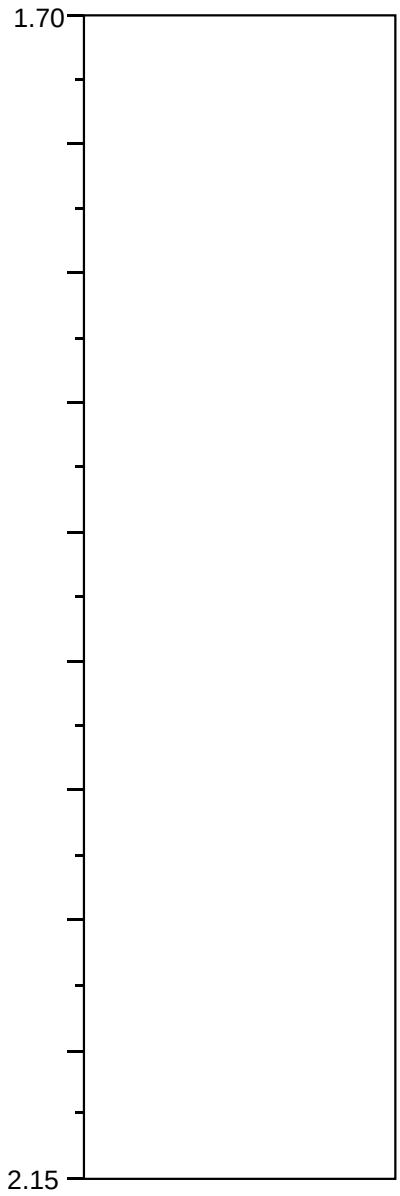
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH410
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	7		
Sample Depth, mBGL	1.70	-	2.15
Sample Type	UT		

Description

1.72 - 2.15m:
Soft to firm indistinctly fissured orangish brown sandy silty CLAY. Sand is fine. Rare fine and medium gravel size inclusions of carbonaceous material.
Fissures are randomly orientated, closely spaced.
(MADE GROUND)



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

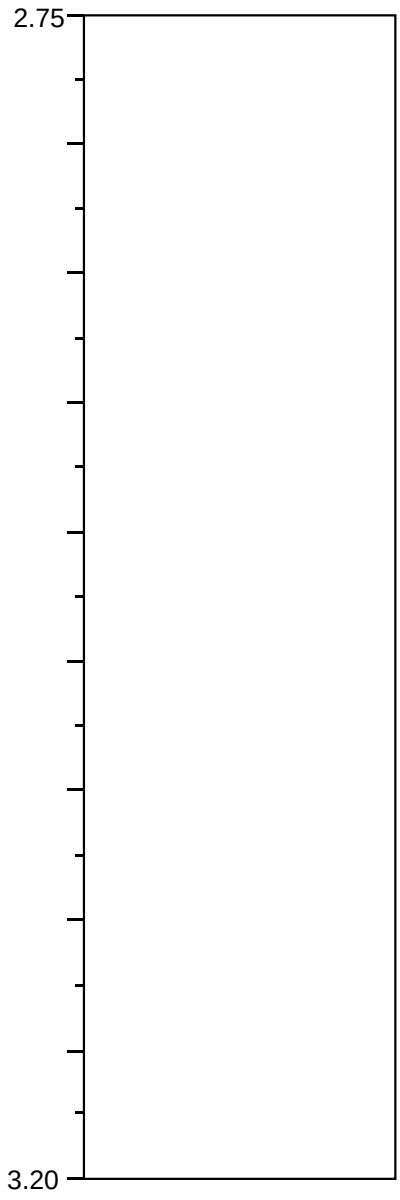
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	11		
Sample Depth, mBGL	2.75	-	3.20
Sample Type	UT		

Description

Soft indistinctly thickly laminated orangish brown and grey slightly sandy silty CLAY.
(MADE GROUND)



Remarks:

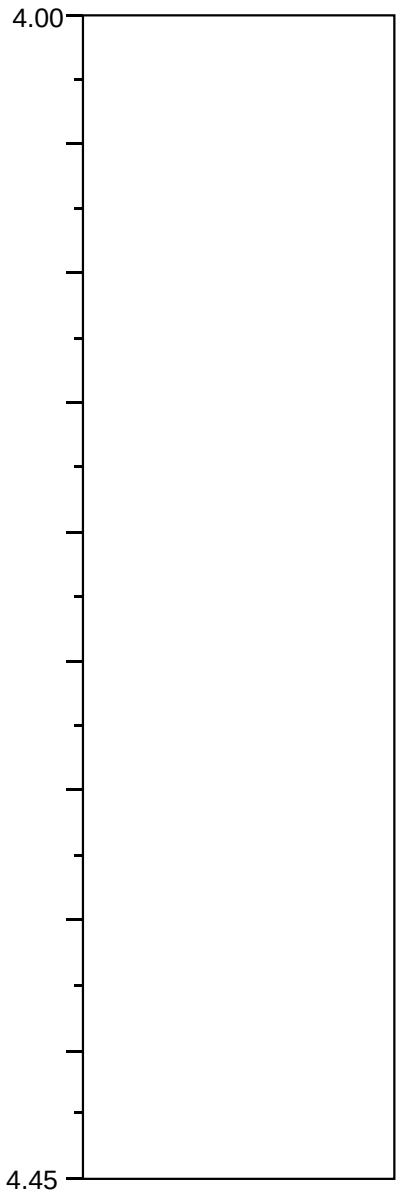
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	14		
Sample Depth, mBGL	4.00	-	4.45
Sample Type	UT		

Description

4.18-4.45m
Soft to firm thinly to thickly laminated greyish brown slightly gravelly silty CLAY with occasional pockets of dark grey organic clay. Gravel is subangular to subrounded fine to medium of various lithologies including brick and pottery.
(MADE GROUND)



4.33m: irregular pocket of dark grey organic clay

Remarks:
Material described is remaining sample after partial extrusion for triaxial test specimen

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

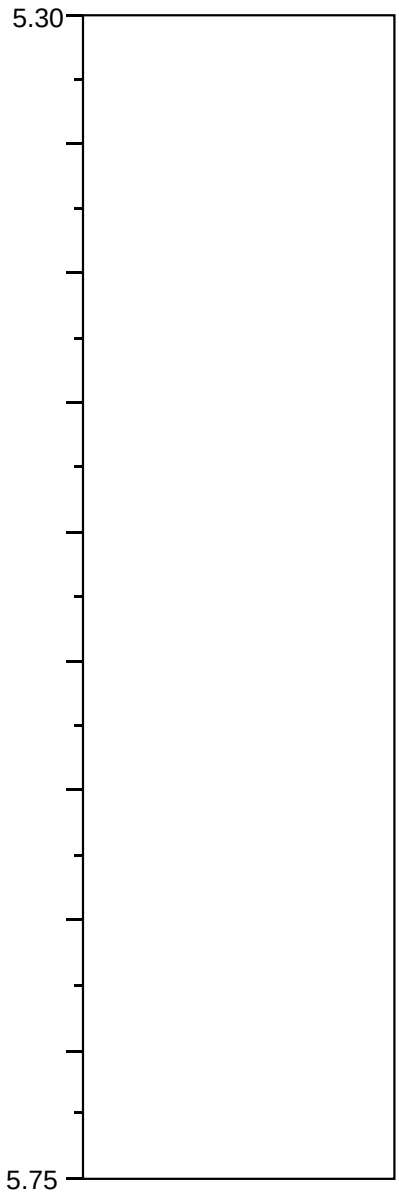
Split Tube Sample Description

Borehole No	BH412		
Sample No	17		
Sample Depth, mBGL	5.30	-	5.75
Sample Type	UT		

Description

Soft, locally firm, indistinctly laminated brownish grey and brown slightly sandy, locally slightly gravelly, silty CLAY. Gravel is subangular fine to medium of brick.
(MADE GROUND)

5.35-5.40m: slightly gravelly



5.66: black slightly organic clay pocket, 25x25mm

Remarks:

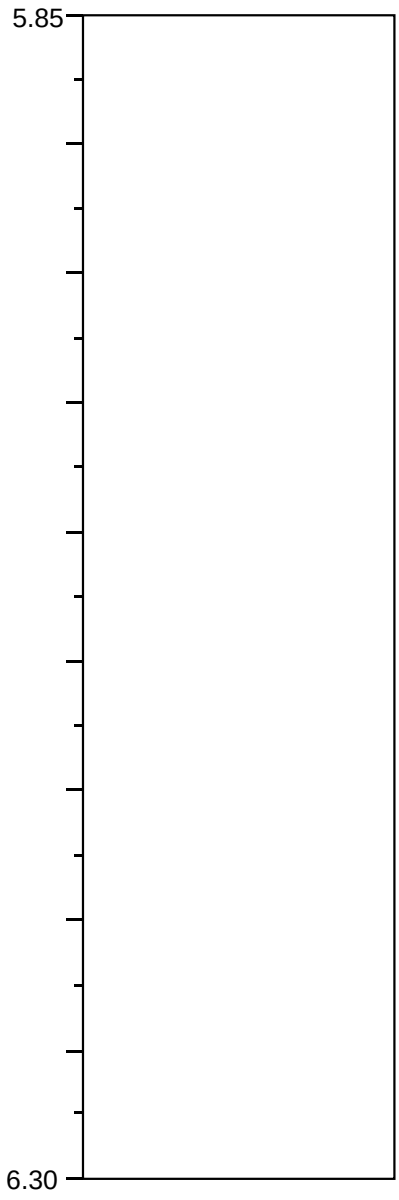
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	19		
Sample Depth, mBGL	5.85	-	6.30
Sample Type	UT		

Description

Soft, becoming firm by 6.05m, indistinctly fissured, locally indistinctly laminated grey slightly sandy, locally slightly gravelly, silty CLAY. Rare shell fragments. Gravel is subangular to subrounded fine to coarse of chalk, flint, brick and limestone. Fissures are randomly orientated, extremely closely spaced (MADE GROUND)



6.16-6.30m: slightly gravelly

Remarks:

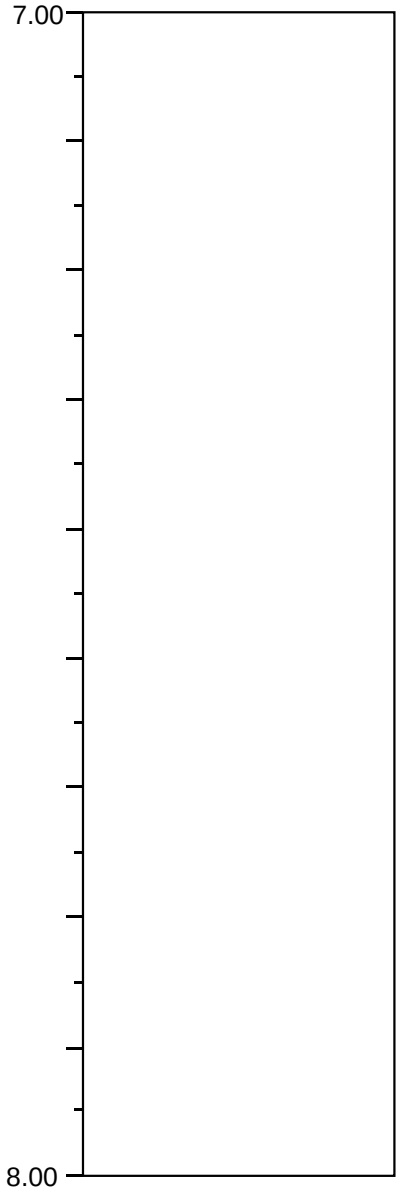
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	23		
Sample Depth, mBGL	7.00	-	8.00
Sample Type	P		

Description

7.00-7.25m
Soft, locally firm, indistinctly thinly and thickly laminated greyish brown slightly gravelly silty CLAY with occasional partings of fine sand on laminae surfaces. Occasional inclusions of black carbonaceous material. Gravel is subrounded fine, occasionally fine to medium, of various lithologies including brick, concrete and chalk.
(MADE GROUND)



Remarks:
Material described is remaining sample after extrustion for triaxial test specimen

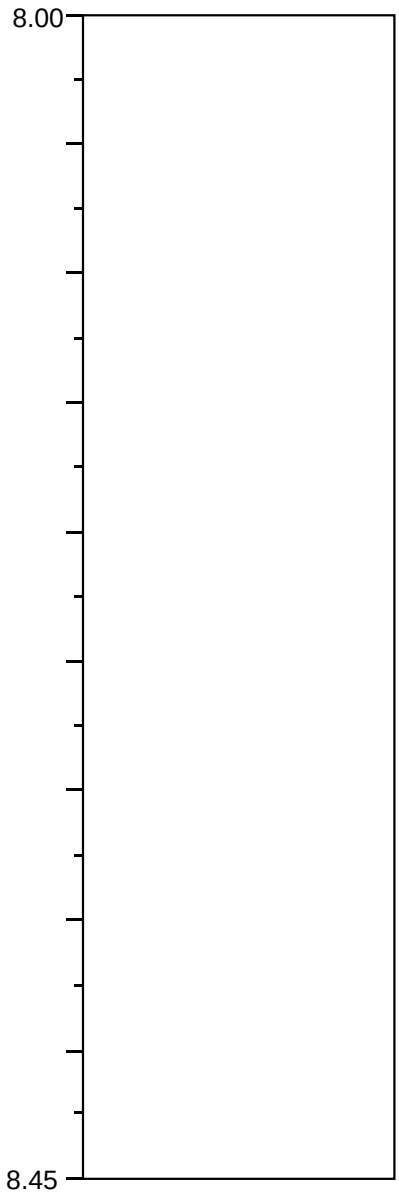
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	25		
Sample Depth, mBGL	8.00	-	8.45
Sample Type	UT		

Description

Firm, locally soft, thinly and thickly laminated greyish brown, locally brownish grey, slightly sandy silty CLAY with occasional dark grey silt partings and thin laminations of greyish brown fine and medium sand.



8.28-8.36m: occasional thin laminations of greyish brown fine and medium sand

Remarks:

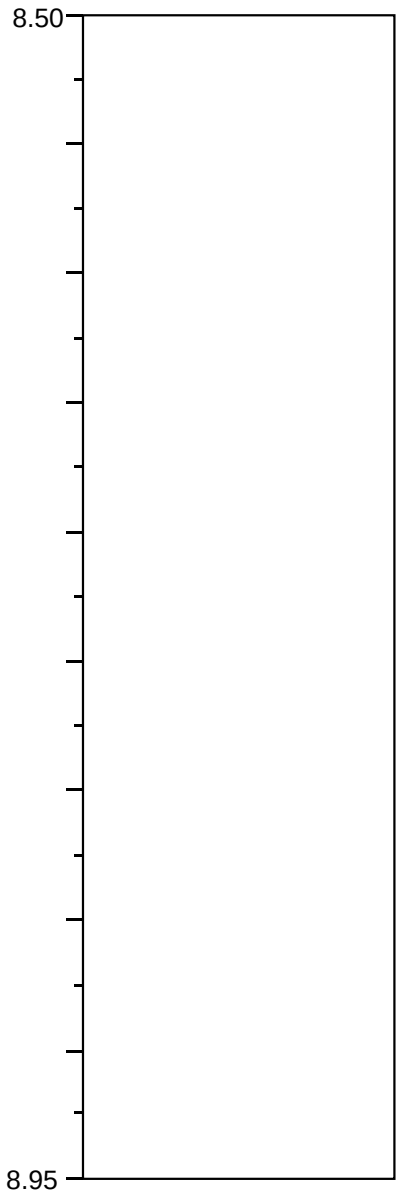
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	27		
Sample Depth, mBGL	8.50	-	8.95
Sample Type	UT		

Description

Firm indistinctly thinly laminated greyish brown and brownish grey slightly sandy silty CLAY with occasional partings of grey silt.



Remarks:

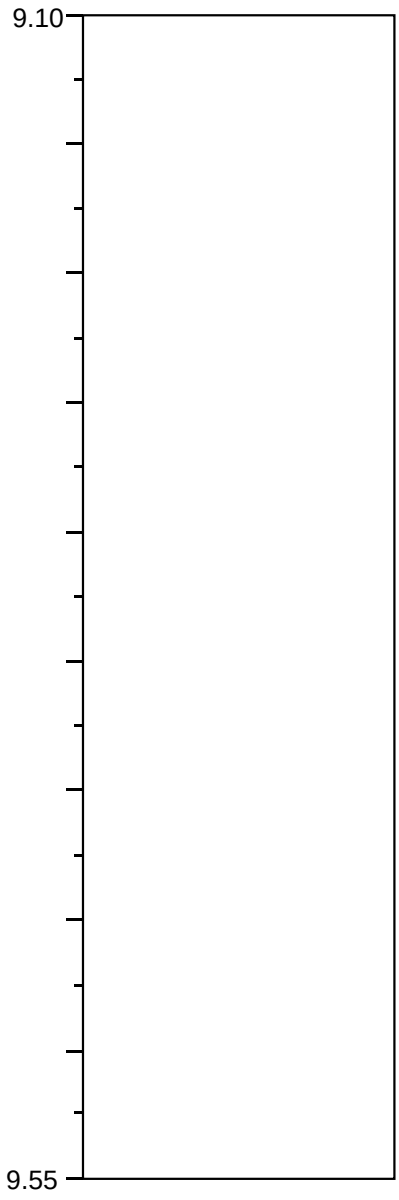
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH412**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH412		
Sample No	29		
Sample Depth, mBGL	9.10	-	9.55
Sample Type	UT		

Description

Soft, becoming firm by 9.32m, thinly and thickly laminated greyish brown and brownish grey, locally slightly sandy, silty CLAY. Frequent parting of dark grey silt and brown fine sand on laminae surfaces. Occasional speckling of black carbonaceous material throughout.



Remarks:

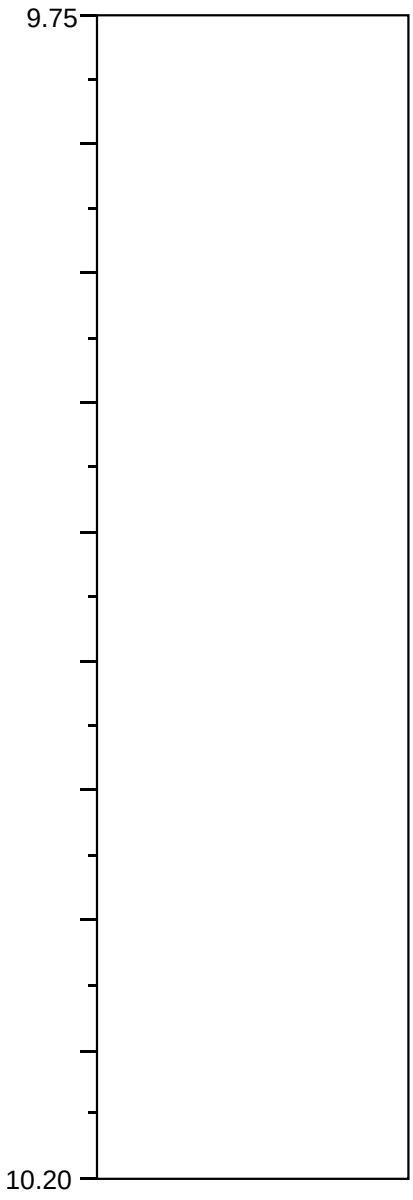
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	31		
Sample Depth, mBGL	9.75	-	10.20
Sample Type	UT		

Description

Firm thinly, locally thickly, laminated dark greyish brown silty CLAY with frequent partings of brown fine sand and dark grey silt on laminae surfaces. Rare pockets, up to 15x20mm, of dark grey silty fine sand.



Remarks:
Material described is remaining sample after extrusion for triaxial test specimen

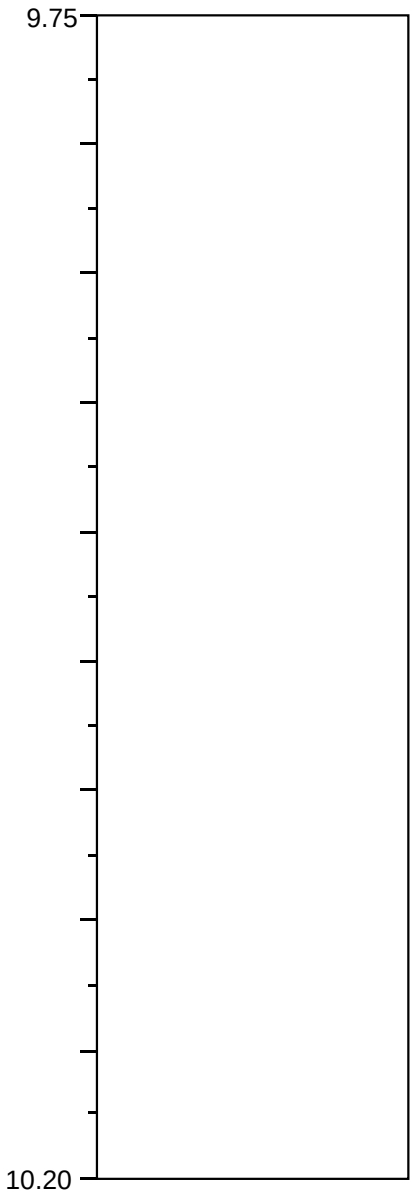
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	31		
Sample Depth, mBGL	9.75	-	10.20
Sample Type	UT		

Description

9.92 - 10.20m:
Firm thinly, locally thickly laminated, dark greyish brown silty CLAY with partings of light brown fine sand and silt. Vegetative odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

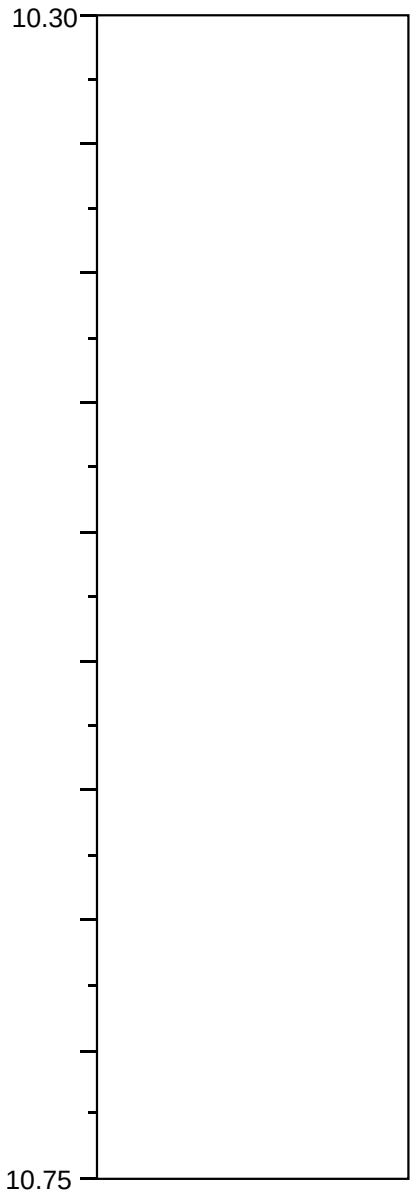
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	33		
Sample Depth, mBGL	10.30	-	10.75
Sample Type	UT		

Description

Firm thinly to thickly laminated dark grey and dark greyish brown slightly sandy silty CLAY, locally grading to clayey SILT, with occasional silt partings, sand pockets and thin sand laminations.



10.41m: orangish brown fine to medium sand pocket 15x20mm

10.42: thin dark grey fine to coarse sand lamination with frequent shell fragments

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

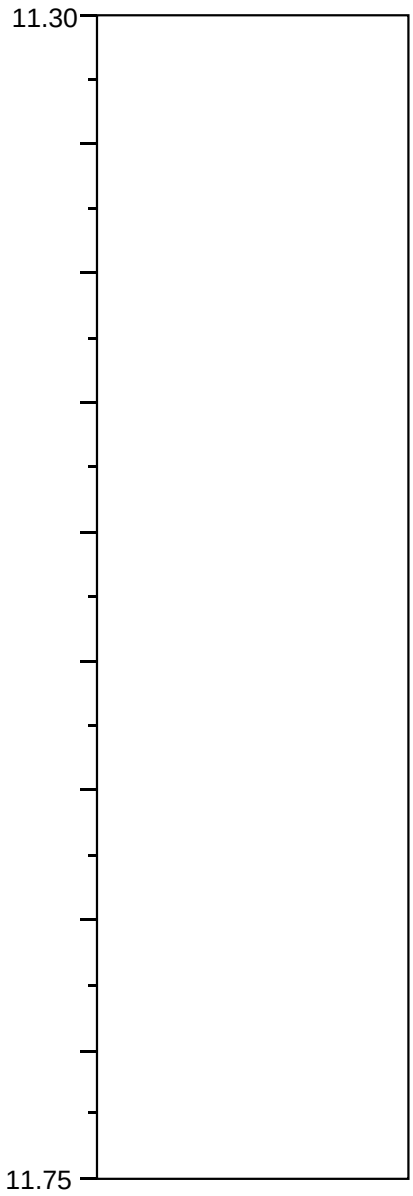
Split Tube Sample Description

Borehole No	BH412		
Sample No	35		
Sample Depth, mBGL	11.30	-	11.75
Sample Type	UT		

Description

11.30-11.37m
Orange brown fine to medium, occasionally coarse, SAND. Rare fine gravel size shell fragments.

11.37-11.67m Dark grey, locally greyish brown, silty fine to coarse SAND. Rare fine to medium gravel size shell fragments.



Remarks:

Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH412**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

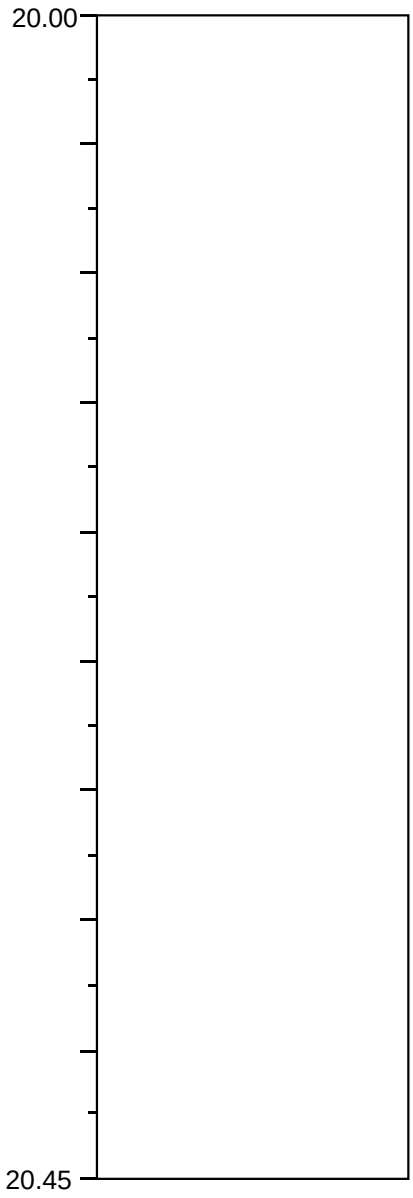
Borehole No	BH412		
Sample No	54		
Sample Depth, mBGL	20.00	-	20.45
Sample Type	UT		

Description

20.00-20.07m
Firm greyish brown slightly gravelly CLAY. Gravel is subrounded to rounded fine and medium of chalk.

20.07-20.21m
Stiff thinly and thickly laminated greyish brown slightly gravelly CLAY with occasional thin laminations of brown silt and occasional thick laminations of orangish brown fine to medium sand. Gravel is subangular to subrounded medium to coarse of chalk.

20.20-20.21m: thick lamination of orangish brown fine to medium sand



Remarks:
Material described is remaining sample after partial extrusion for triaxial test specimen

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH412		
Sample No	57		
Sample Depth, mBGL	21.10	-	21.55
Sample Type	UT		

Description

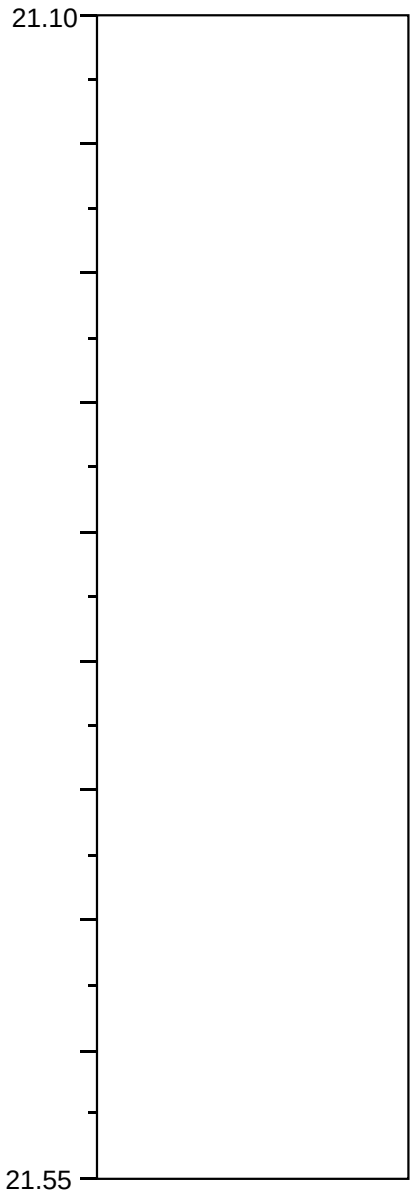
Stiff thinly to thickly laminated greyish brown CLAY with occasional brown silt partings and orange brown fine sand laminations.

21.12m: thin orange brown fine sand lamination

21.21m: thin orange brown fine sand lamination

21.34m: thin orange brown fine sand lamination

21.47m: thick orange brown fine sand lamination



Remarks:

Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH412**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH412		
Sample No	60		
Sample Depth, mBGL	22.20	-	22.65
Sample Type	UT		

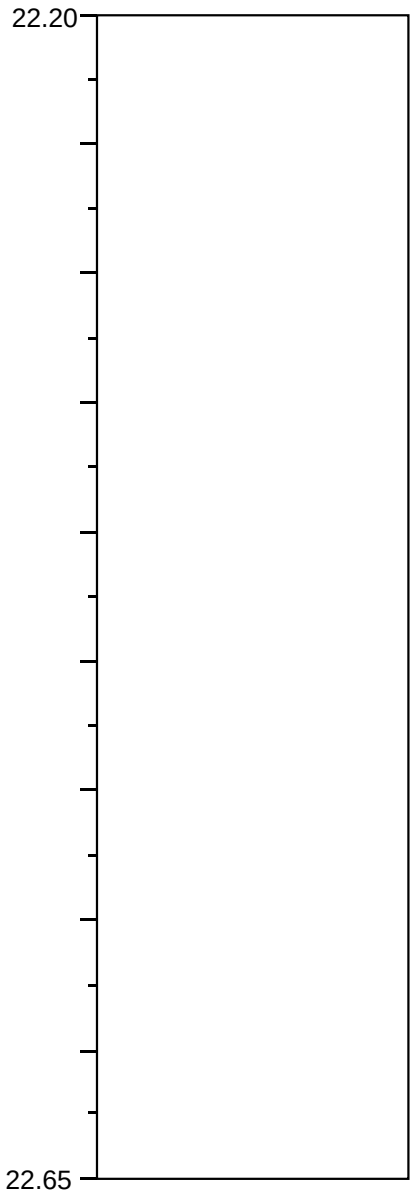
Description

22.42-22.65m
Firm, locally stiff, thinly to thickly laminated, locally cross laminated, greyish brown CLAY with occasional thin brown silt partings and thin to thick light orange brown fine to medium sand laminations.

22.51m: 10mm sand lamination

22.55m: Extremely closely spaced sand laminations, 5mm and 10mm

22.58m: 5mm sand lamination



Remarks:
Material described is remainder after sample taken for triaxial test sample

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

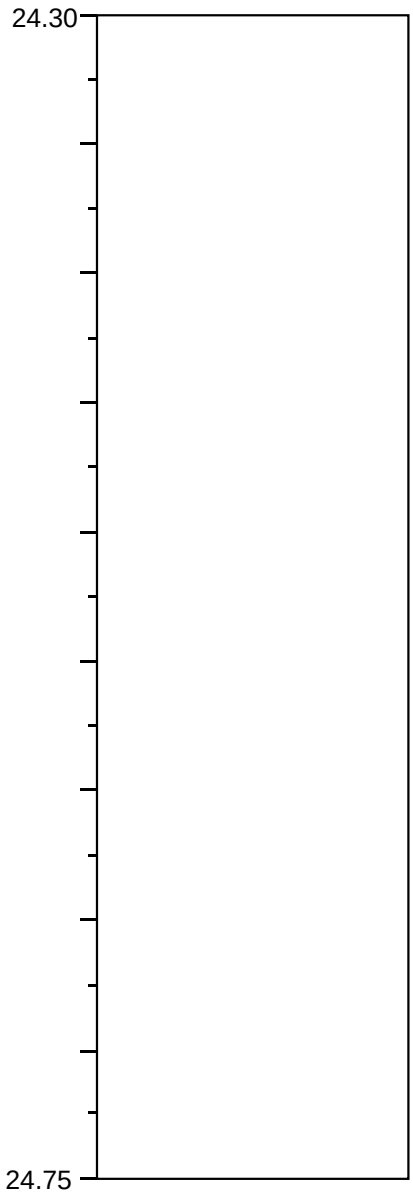
Borehole No	BH412		
Sample No	65		
Sample Depth, mBGL	24.30	-	24.75
Sample Type	UT		

Description

24.30-24.42m
Stiff thinly and thickly laminated greyish brown CLAY with frequent parting and thin laminations of brown silt and occasional thin laminations of orange brown fine sand.

24.42-24.54
Thinly to thickly interlaminated stiff greyish brown CLAY and orangish brown fine to medium SAND.

24.54-24.75m Orangish brown fine and medium SAND.



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH412
	Carried out for	Balfour Beatty Limited	

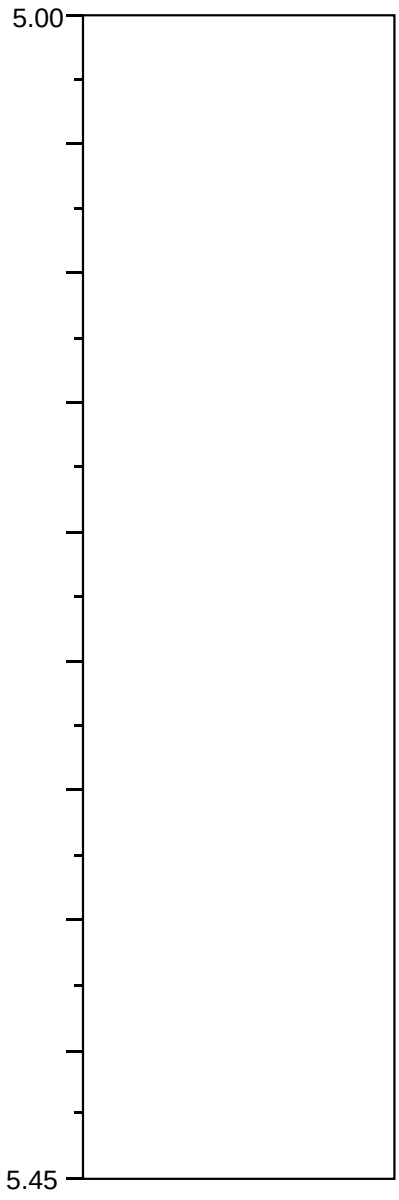
Split Tube Sample Description

Borehole No	BH413		
Sample No	18		
Sample Depth, mBGL	5.00	-	5.45
Sample Type	UT		

Description

Soft, locally firm, thinly to thickly laminated brownish grey and greyish brown slightly sandy silty CLAY with greyish brown silt partings.

5.00-5.21m: indistinctly laminated



Remarks:

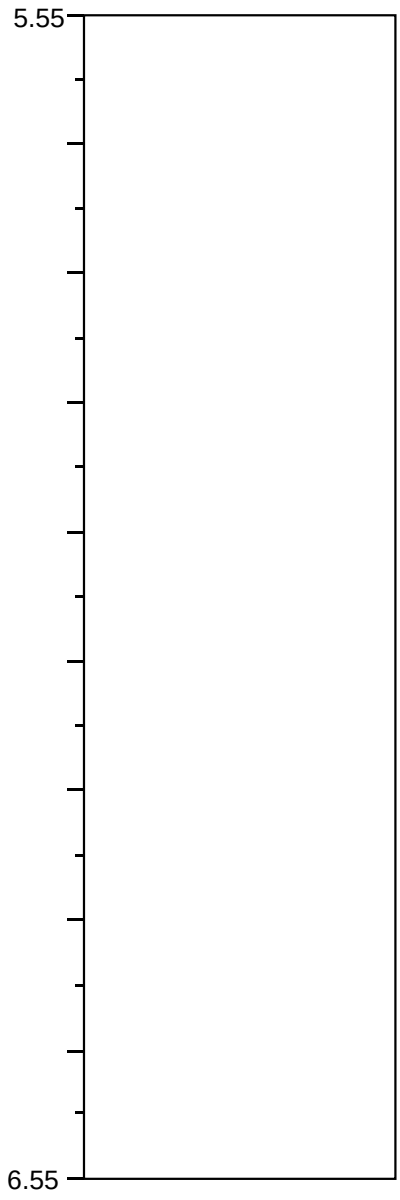
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	20		
Sample Depth, mBGL	5.55	-	6.55
Sample Type	P		

Description

5.55-5.90mSoft, becoming firm by 5.85m, indistinctly thinly and thickly laminated greyish brown silty CLAY with occasional parting of greyish brown silt and fine sand on laminae surfaces.



Remarks:
Material described is remaining sample after extrusion for triaxial test specimen

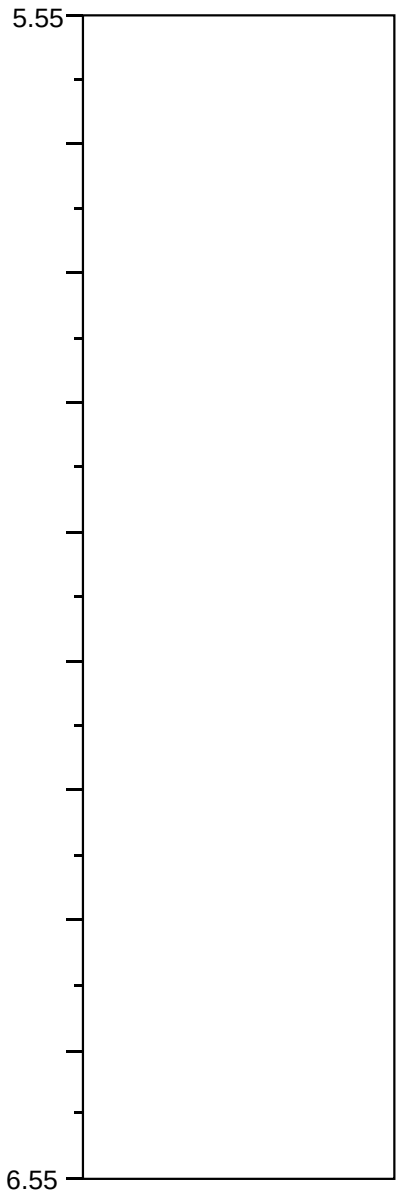
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	20		
Sample Depth, mBGL	5.55	-	6.55
Sample Type	P		

Description

5.88m:
Firm thinly laminated dark greyish brown oxidising to brown silty CLAY with frequent partings of fine light brown sand and very closely spaced lenses, up to 2mm, of light brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

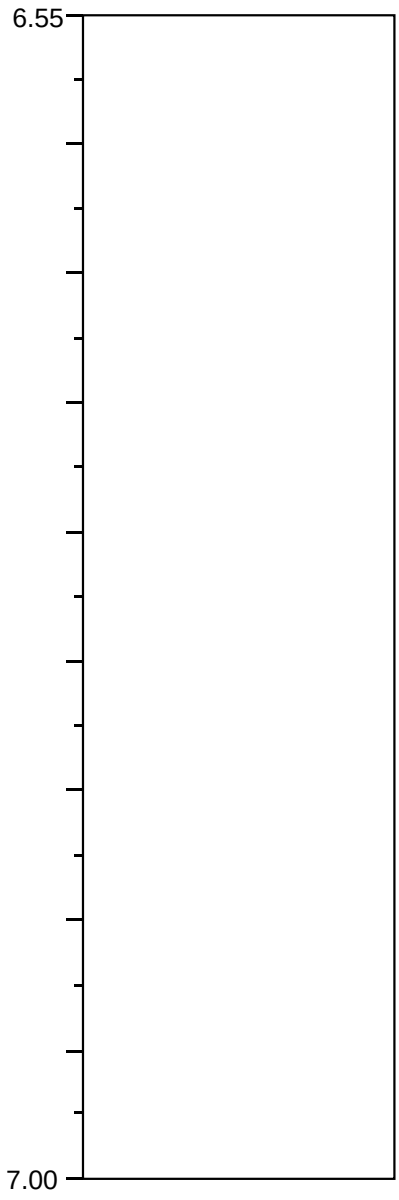
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	21		
Sample Depth, mBGL	6.55	-	7.00
Sample Type	UT		

Description

Soft, becoming soft to firm, indistinctly laminated greyish brown, locally brownish grey, silty CLAY with occasional partings of dark grey sandy silt.



Remarks:

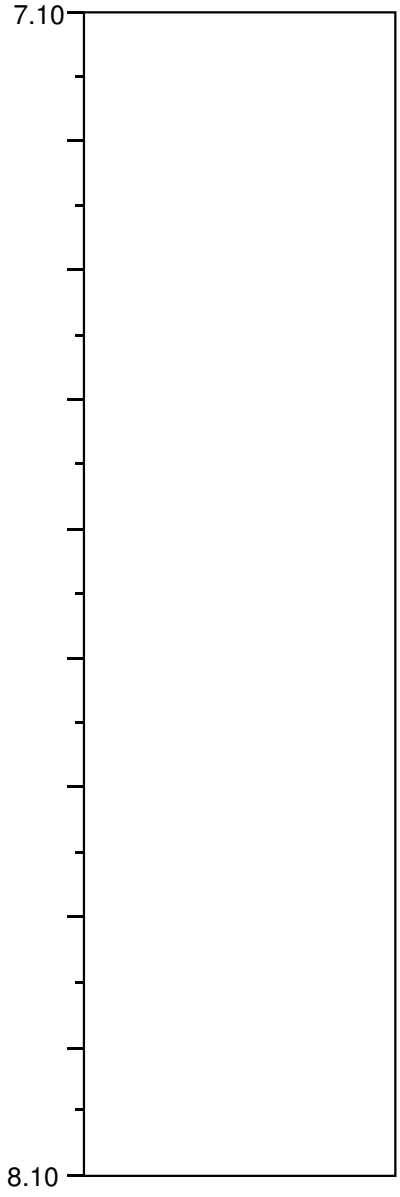
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	23		
Sample Depth, mBGL	7.10	-	8.10
Sample Type	P		

Description

7.10-7.50m
Firm indistinctly thinly and thickly laminated indistinctly fissured greyish brown silty CLAY with partings of silt and silty fine sand on laminae surfaces. Fissures are randomly orientated, extremely to very closely spaced.



Remarks:
Material described is remaining sample after extrusion for triaxial test specimen

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

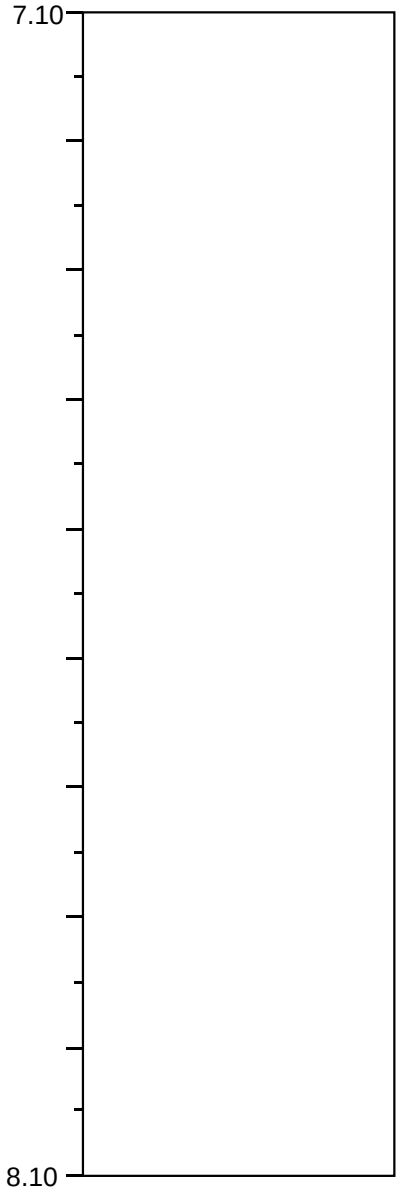
Split Tube Sample Description

Borehole No	BH413		
Sample No	23		
Sample Depth, mBGL	7.10	-	8.10
Sample Type	P		

Description

7.50 - 8.10m:
Firm, locally stiff, thinly and thickly laminated indistinctly fissured greyish brown silty CLAY with partings of fine sand and silt.
Vegetative odour.
Fissures are randomly orientated, closely spaced.

Detail:
7.13, 7.18 and 7.24m: Thin lenses, up to 2mm, of light brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

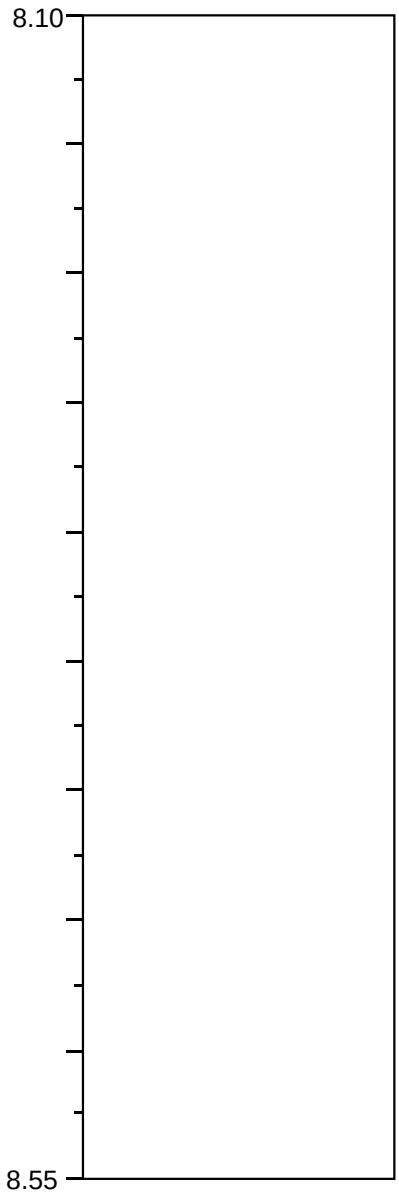
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	24		
Sample Depth, mBGL	8.10	-	8.55
Sample Type	UT		

Description

Firm indistinctly thinly and thickly laminated dark grey and greyish brown silty CLAY with very closely spaced partings to thin laminations of orangish brown fine sand.



Remarks:

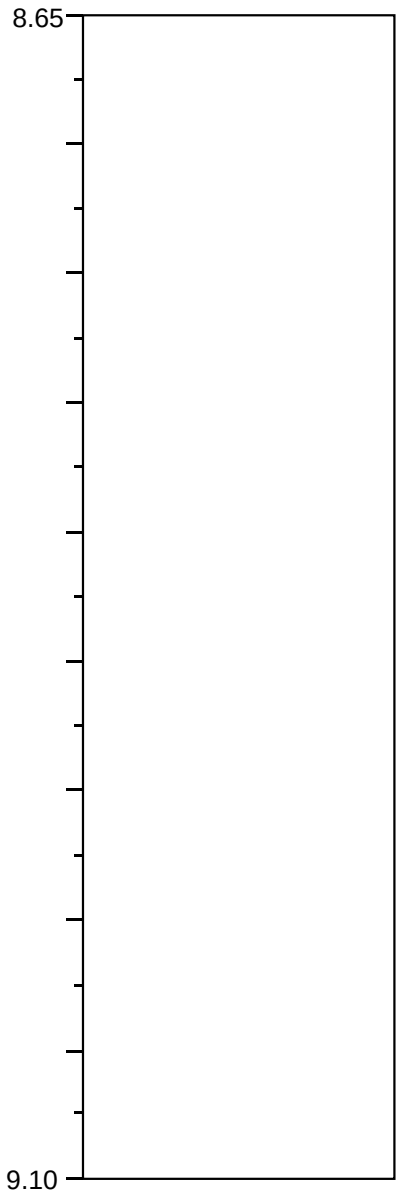
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH413**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH413		
Sample No	26		
Sample Depth, mBGL	8.65	-	9.10
Sample Type	UT		

Description

Firm indistinctly thinly and thickly laminated dark grey and greyish brown silty CLAY with very closely spaced partings and thin laminations of greyish brown fine sand. Rare inclusions of black carbonaceous material throughout.



Remarks:

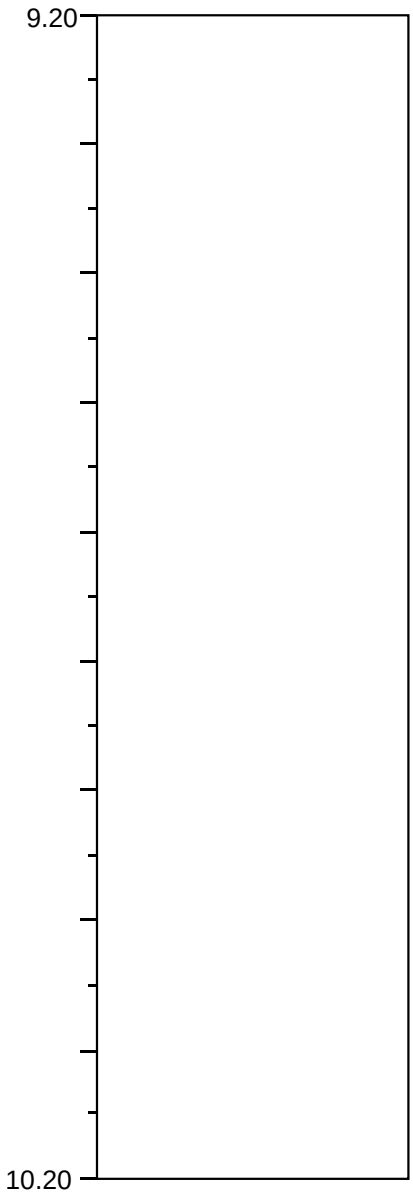
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	28		
Sample Depth, mBGL	9.20	-	10.20
Sample Type	P		

Description

9.39 - 10.20m:
Firm indistinctly thinly laminated fissured brownish grey silty CLAY with partings of dark grey silt and light brown fine sand. Occasional lenses, up to 2mm, of yellowish brown fine sand. Fissures are randomly orientated, closely spaced. Vegetative odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

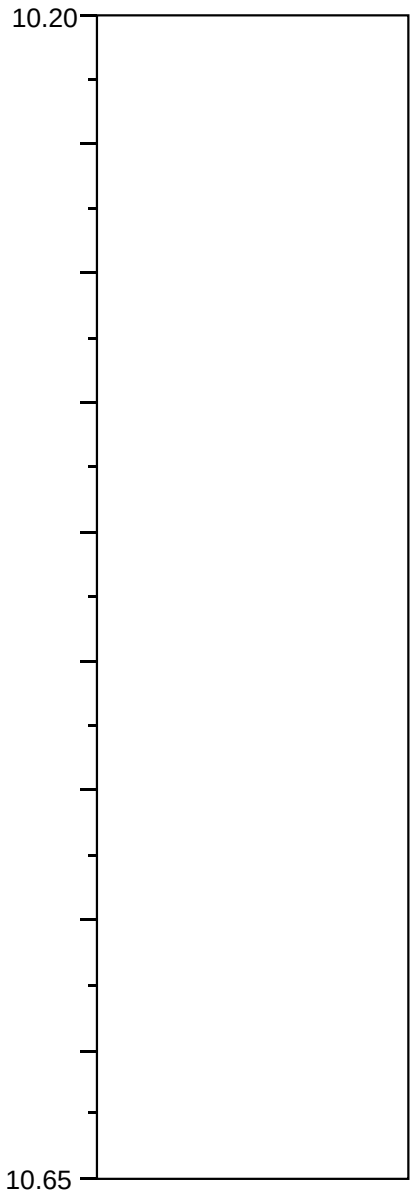
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	29		
Sample Depth, mBGL	10.20	-	10.65
Sample Type	UT		

Description

Firm indistinctly thinly and thickly laminated dark brownish grey and greyish brown silty CLAY with extremely closely to very closely spaced partings of greyish brown silty fine sand



Remarks:

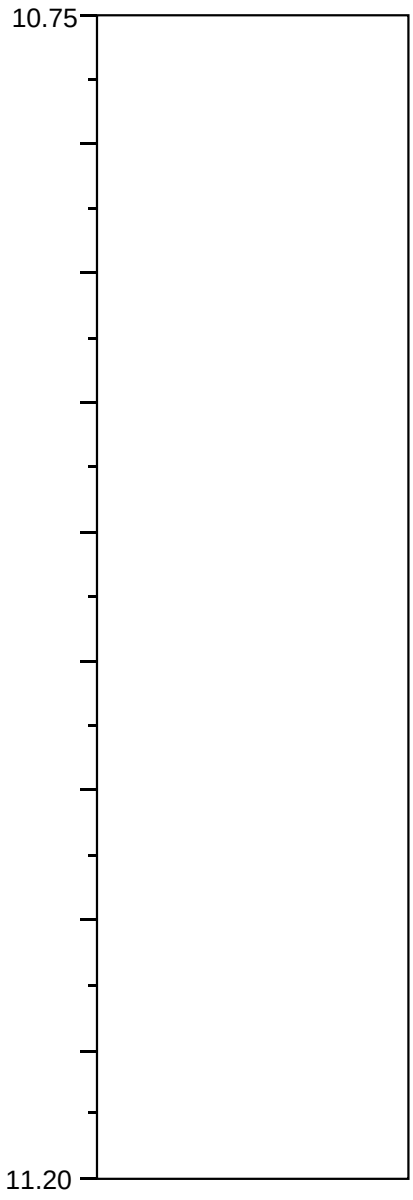
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	31		
Sample Depth, mBGL	10.75	-	11.20
Sample Type	UT		

Description

Firm indistinctly thinly and thickly laminated greyish brown and brownish grey silty CLAY with occasional partings of silt on laminae surfaces and very closely to closely spaced irregular thin and thick laminations of dark orangish brown clay. Rare pockets of dark grey slightly organic silty clay.



Remarks:

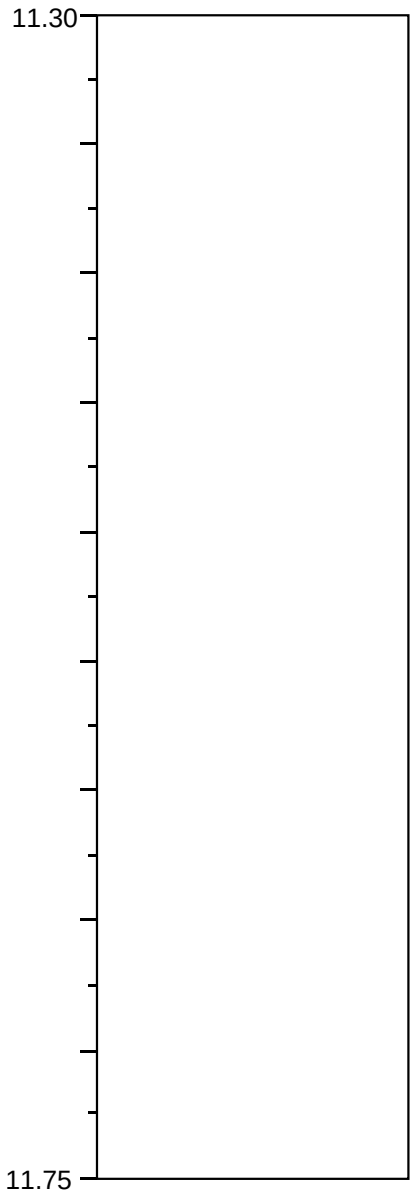
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH413**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH413		
Sample No	33		
Sample Depth, mBGL	11.30	-	11.75
Sample Type	UT		

Description

Firm, locally stiff, indistinctly thinly and thickly laminated brownish grey, becoming greyish brown, silty CLAY with occasional pockets of dark grey silty fine sand.



11.47m: becoming greyish brown

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

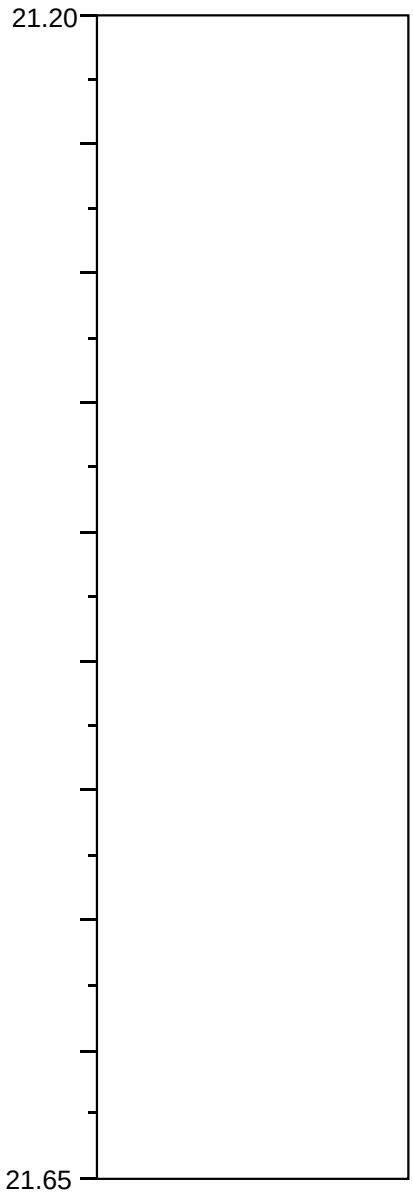
Split Tube Sample Description

Borehole No	BH413		
Sample No	55		
Sample Depth, mBGL	21.20	-	21.65
Sample Type	UT		

Description

Firm to stiff thinly and thickly laminated greyish brown silty CLAY with frequent partings and thin laminations of brown silt and very closely spaced thin laminations of yellowish brown fine and medium sand.

21.29m: Thick lamination of black fine and medium sand



Remarks:
Material described is remaining sample after partial extrusion for triaxial test specimen

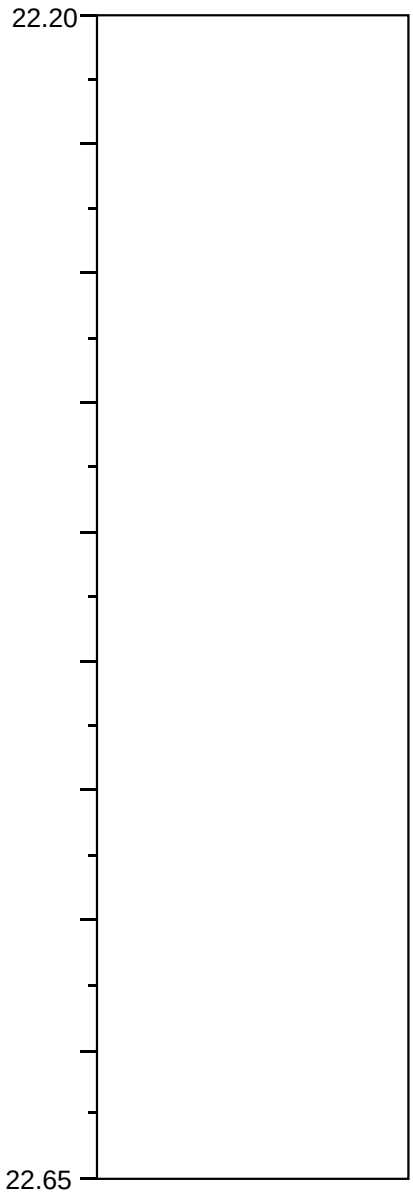
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	58		
Sample Depth, mBGL	22.20	-	22.65
Sample Type	UT		

Description

Stiff thinly and thickly laminated greyish brown CLAY with partings and thin laminations of brown silt and orange brown fine to medium sand.



Remarks:

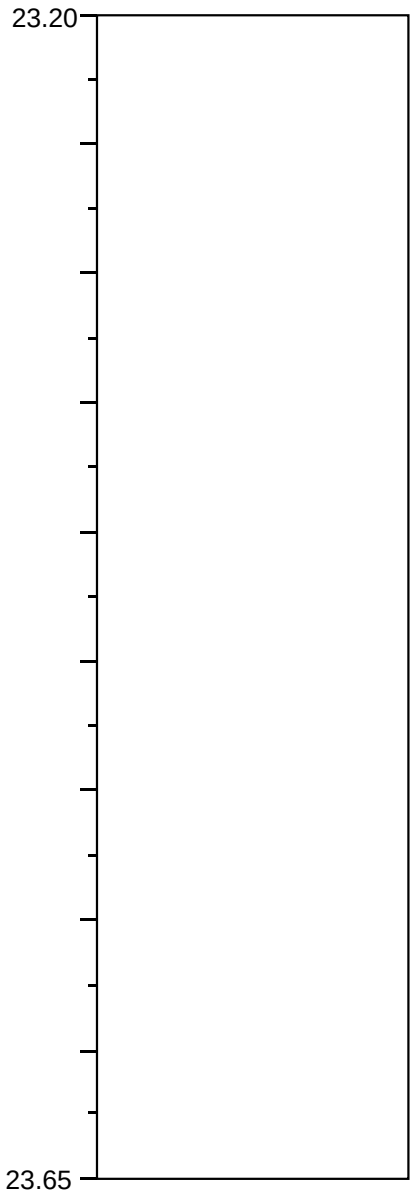
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	61		
Sample Depth, mBGL	23.20	-	23.65
Sample Type	UT		

Description

Stiff thinly to thickly laminated greyish brown, locally slightly gravelly, silty CLAY with frequent very thin brown silt laminations and closely spaced, between 23.51-23.65m very closely spaced, thin light orange brown fine and medium sand laminations.



23.42: 1No subrounded fine chalk gravel

Remarks:

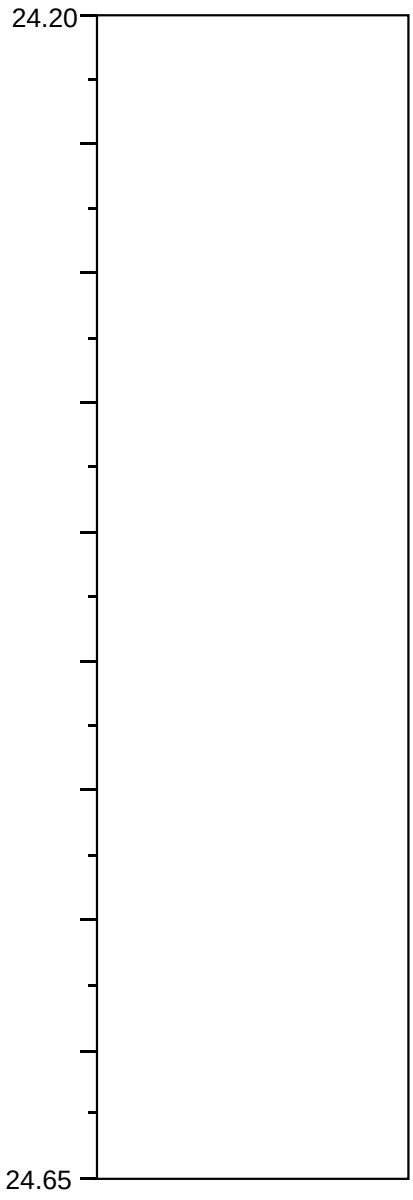
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	64		
Sample Depth, mBGL	24.20	-	24.65
Sample Type	UT		

Description

Stiff thinly to thickly laminated greyish brown CLAY with frequent partings and thin laminations of brown silt and extremely closely and very closely spaced partings and thin laminations of orange brown fine and medium sand.



Remarks:

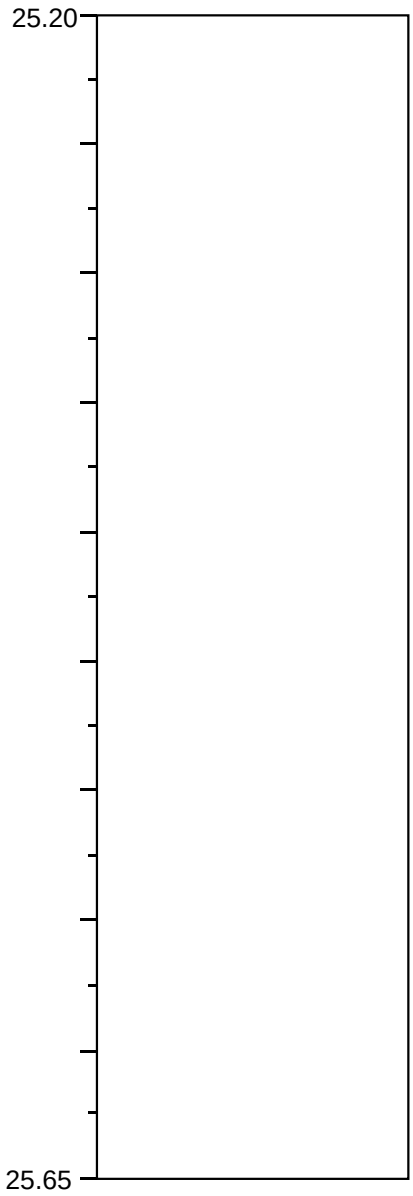
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH413		
Sample No	67		
Sample Depth, mBGL	25.20	-	25.65
Sample Type	UT		

Description

25.42 - 25.65m:
Firm to stiff indistinctly thinly, locally thickly, laminated dark greyish brown slightly sandy slightly gravelly CLAY with partings of silt and fine sand. Gravel is subangular to subrounded fine to medium of chalk. Occasional pockets up to 15mm of yellowish brown fine sand. Slight vegetative odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

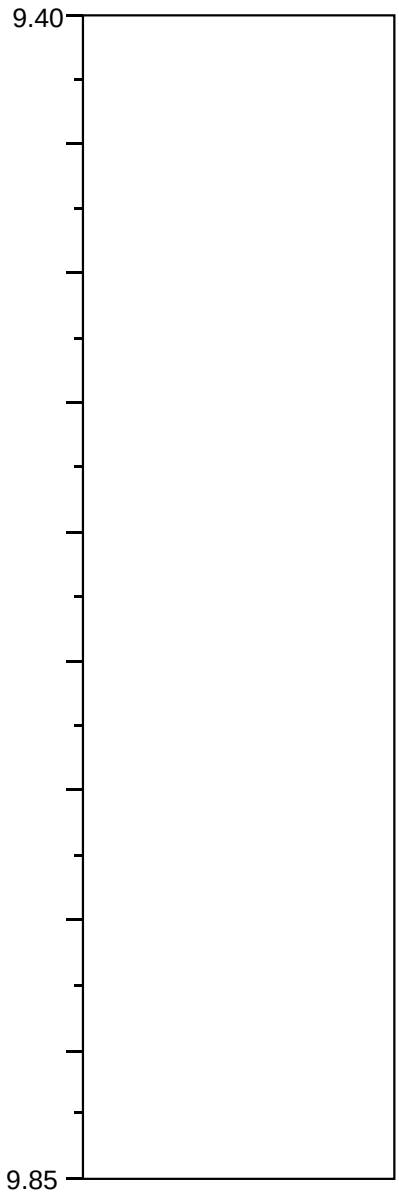
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH413
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH414			
Sample No	24			
Sample Depth, mBGL	9.40	-	9.85	Note: Sample length <> 45 cm
Sample Type	U			

Description

Firm, locally soft to firm, locally indistinctly laminated, greyish brown slightly sandy slightly gravelly silty CLAYwith occasional pockets of carbonaceous material. Gravel is angular coarse of slag. Rare gravel size shell fragments. Slight vegetative odour. (MADE GROUND)



9.51m: 1No coarse gravel of slag

9.69: 1No pocket, 10x15mm, pocket of black carbonaceous material

9.82m: 1No coarse gravel size shell fragment

Remarks:

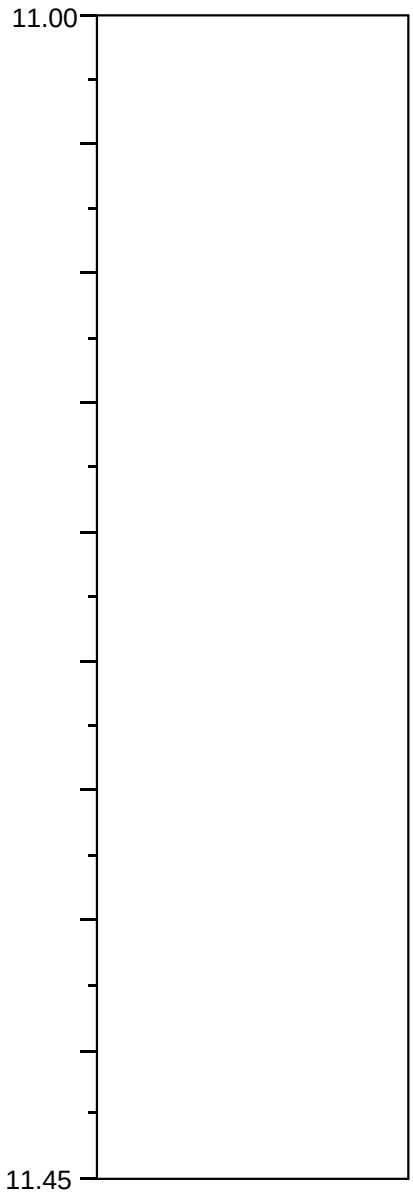
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH414
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH414			
Sample No	27			
Sample Depth, mBGL	11.00	-	11.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

11.00-11.24m
Soft, becoming firm, indistinctly thinly and thickly laminated, locally indistinctly fissured, dark greyish brown slightly sandy slightly gravelly silty CLAY. Gravel is subangular coarse of igneous material.



11.22m: 1No subangular coarse igneous gravel

11.24-11.45m
Orangish brown fine to coarse SAND. Occasional fine to medium gravel size shell fragments.

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH414
	Carried out for	Balfour Beatty Limited	

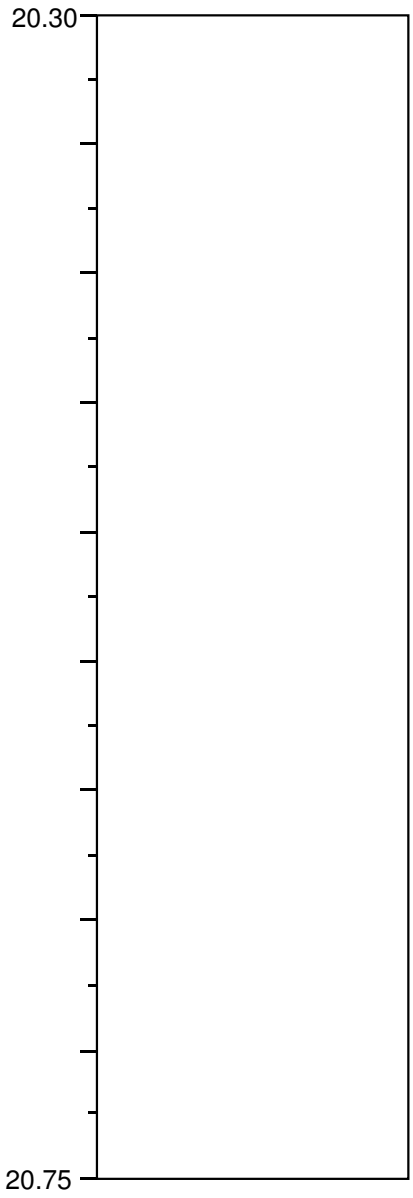
Split Tube Sample Description

Borehole No	BH414			
Sample No	58			
Sample Depth, mBGL	20.30	-	20.75	Note: Sample length <> 45 cm
Sample Type	U			

Description

20.52-20.75m
Stiff thinly to thickly laminated greyish brown slightly gravelly silty CLAY with extremely closely to very closely spaced thin laminations of orangish brown silt and fine to medium sand and occasional pockets of orangish brown fine to medium sand. Gravel is subrounded fine and medium of chalk.

20.62m: orangish brown fine to medium sand pocket, 30x15mm



Remarks:
Material described remaining sample following partial extrusion for triaxial test specimen

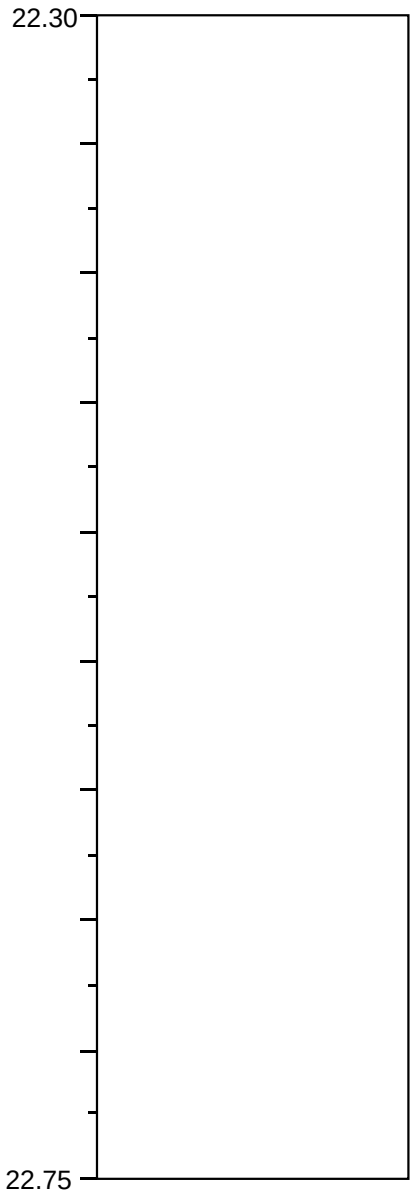
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH414
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH414		
Sample No	64		
Sample Depth, mBGL	22.30	-	22.75
Sample Type	64		

Description

Stiff, locally firm to stiff, thinly to thickly laminated greyish brown CLAY with frequent partings of orangish brown silt and, locally, with very closely spaced thin laminations of orangish brown fine sand.



Remarks:

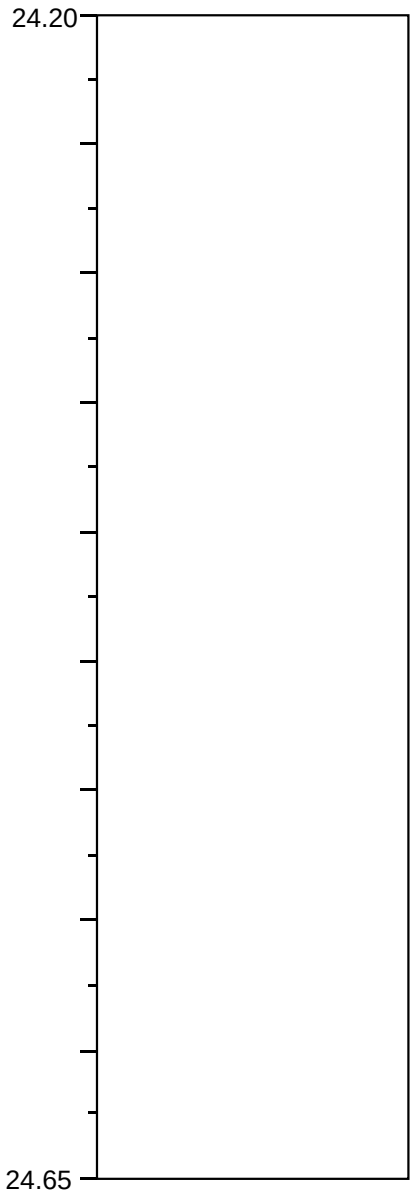
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH414
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH414			
Sample No	69			
Sample Depth, mBGL	24.20	-	24.65	Note: Sample length <> 45 cm
Sample Type	U			

Description

24.45-24.65m
Firm, locally stiff, thinly and thickly laminated greyish brown silty CLAY with very thin silt laminations and very closely, locally extremely closely, spaced thin orange brown fine sand laminations.



Remarks:
Material described is remainder following sample taken for triaxial testing

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH414
	Carried out for	Balfour Beatty Limited	

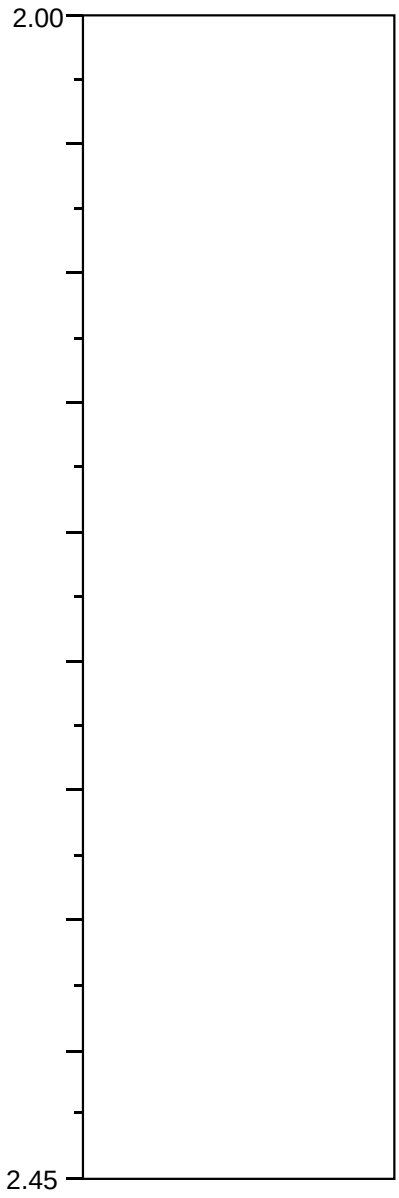
Split Tube Sample Description

Borehole No	BH415		
Sample No	7		
Sample Depth, mBGL	2.00	-	2.45
Sample Type	UT		

Description

2.00 - 2.45m:
Soft to firm indistinctly thinly and thickly laminated, fissured greyish brown slightly sandy locally gravelly silty CLAY with partings of orangish brown silt and fine sand. Gravel is subangular to subrounded fine to medium of chalk and brick. Fissures are randomly orientated, closely spaced, orangish brown silt and fine sand infill.

Detail:
2.05m: Subangular to subrounded fine gravel of chalk.
2.10m: Subangular to subrounded fine to medium gravel of brick.



Remarks:

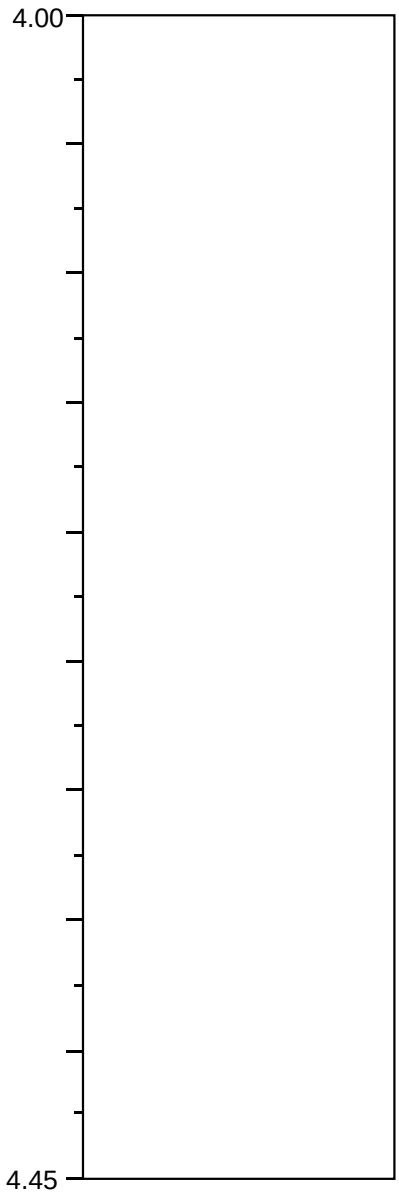
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH415		
Sample No	15		
Sample Depth, mBGL	4.00	-	4.45
Sample Type	UT		

Description

Firm, locally soft to firm, dark brown and greyish brown slightly sandy, locally sandy, slightly gravelly CLAY.Gravel is subangular to rounded fine to coarse of brick, concrete and occasional chalk.
(MADE GROUND)



Remarks:

Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH415**
	Carried out for	**Balfour Beatty Limited**	

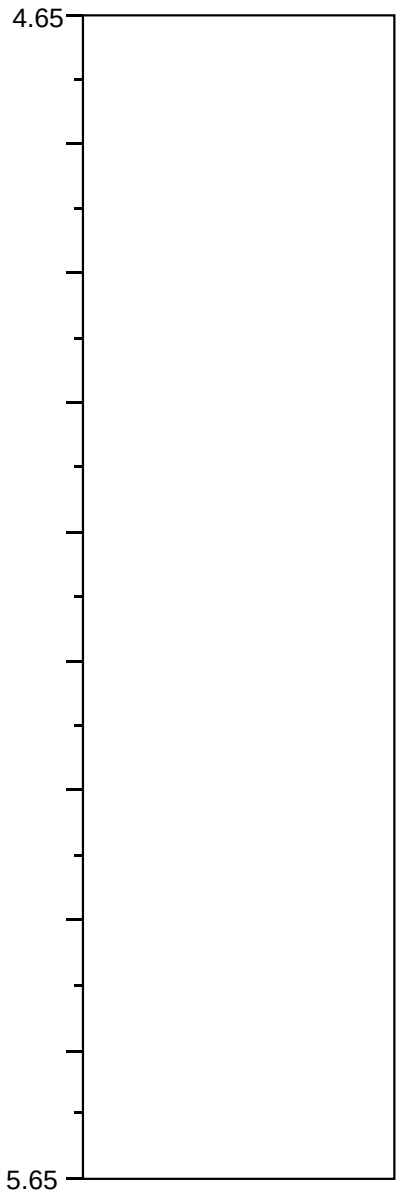
Split Tube Sample Description

Borehole No	BH415		
Sample No	17		
Sample Depth, mBGL	4.65	-	5.65
Sample Type	P		

Description

5.05 - 5.65m:
Firm indistinctly thinly and thickly laminated indistinctly fissured dark greyish brown and yellowish brown slightly gravelly silty CLAY with partings of silt and fine sand on laminae surfaces. Slight vegetative odour.
Fissures are closely spaced and randomly orientated.
(MADE GROUND)

Detail:
4.65 - 4.74m: Lens of light yellowish brown fine sand, up to 40mm wide.
4.67m: Subangular medium gravel of brick.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH415
	Carried out for	Balfour Beatty Limited	

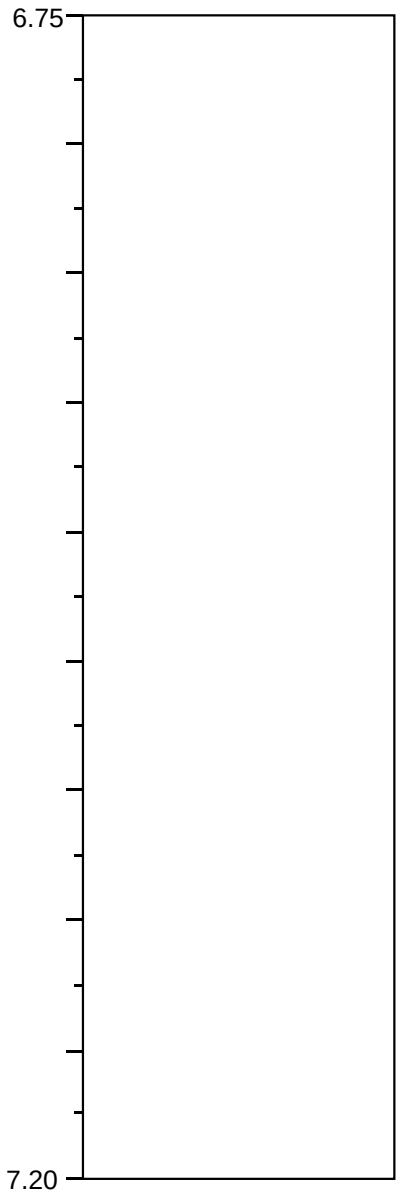
Split Tube Sample Description

Borehole No	BH415		
Sample No	20		
Sample Depth, mBGL	6.75	-	7.20
Sample Type	UT		

Description

Firm thinly and thickly laminated fissured greyish brown and dark grey mottled greyish cream, silty locally gravelly CLAY with partings of dark grey silt and orangish brown fine sand. Gravel is subangular to subrounded fine to medium of chalk, flint, brick and igneous lithologies. Rare wood fragments up to 50mm. Fissures are closely spaced and randomly orientated. (MADE GROUND)

Detail:
6.75m - Subangular fine to coarse gravel of brick.
6.83m - 6.93m - Vertical concave fissure associated with subangular to subrounded fine to medium gravel of chalk and flint.
6.87m - Wood fragments up to 50mm.



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

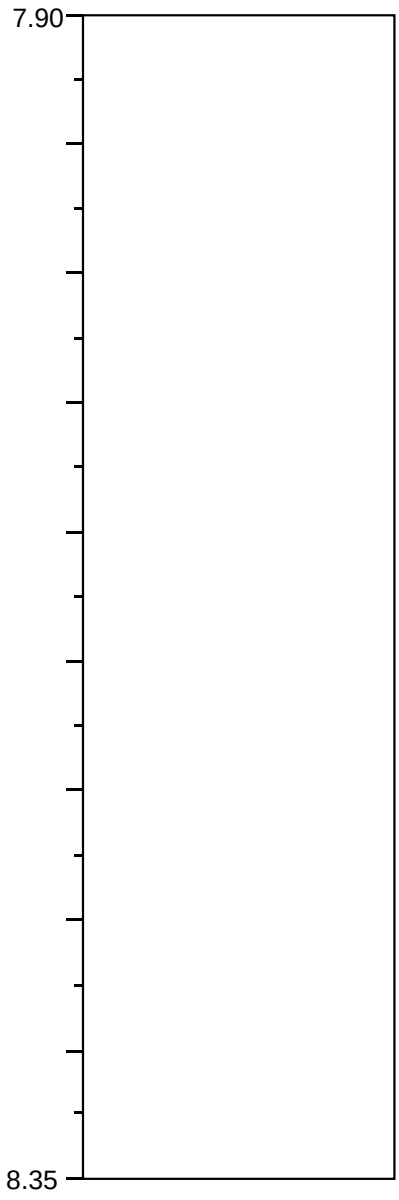
Borehole No	BH415		
Sample No	24		
Sample Depth, mBGL	7.90	-	8.35
Sample Type	UT		

Description

Firm, becoming indistinctly laminated, dark brown and greyish brown slightly sandy, locally sandy, slightly gravelly CLAY with low cobble content. Gravel is subangular to rounded fine to coarse of brick, concrete and occasional chalk.Cobbles are of concrete.
(MADE GROUND)

7.98-8.35m: indistinctly laminated

8.04m: concrete cobble



Remarks:

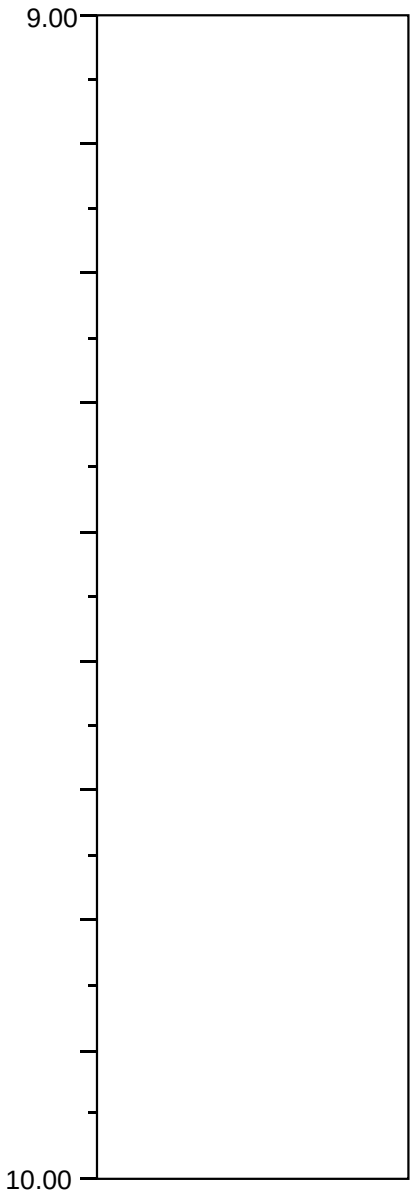
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH415**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH415		
Sample No	28		
Sample Depth, mBGL	9.00	-	10.00
Sample Type	P		

Description

Soft indistinctly thinly and thickly laminated greyish brown slightly sandy silty CLAY with occasional pockets, <3x5mm, of dark grey sandy silty clay.
(MADE GROUND)



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH415
	Carried out for	Balfour Beatty Limited	

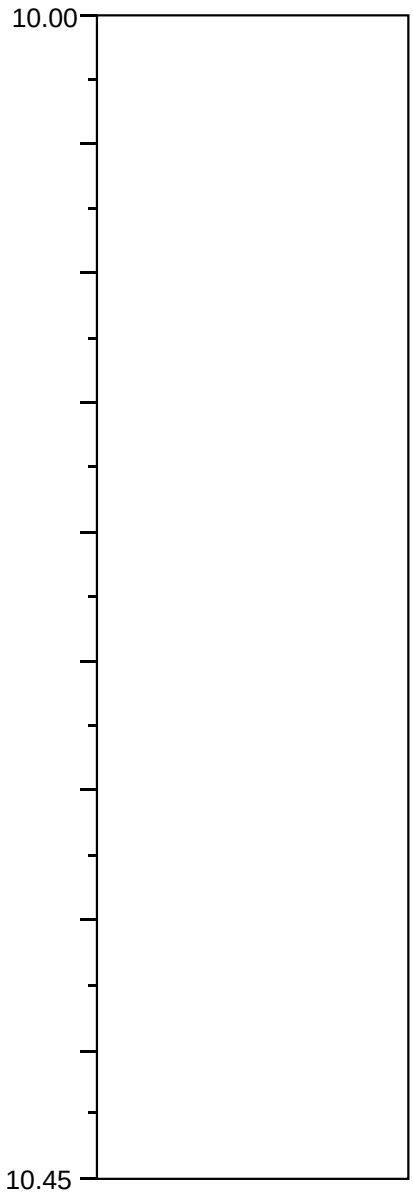
Split Tube Sample Description

Borehole No	BH415		
Sample No	29		
Sample Depth, mBGL	10.00	-	10.45
Sample Type	UT		

Description

Firm indistinctly thinly laminated brown, locally greyish brown, locally slightly sandy silty CLAY.Occasional irregular thin and thick silt laminations.

10.12-10.32m: very closely spaced irregular laminations, up to 10mm, of dark orangish brown clayey silt.



Remarks:

Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH415**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

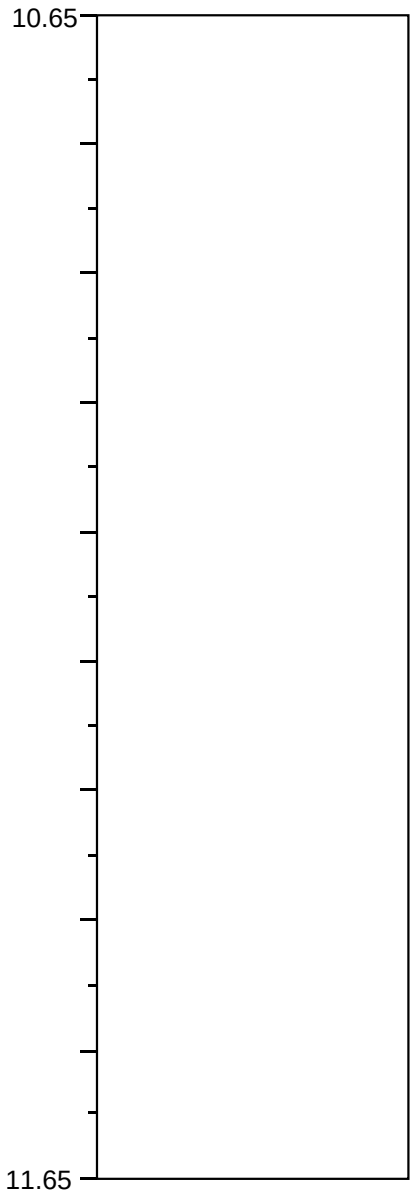
Borehole No	BH415		
Sample No	31		
Sample Depth, mBGL	10.65	-	11.65
Sample Type	P		

Description

10.65-11.00m
Firm indistinctly thinly and thickly laminated, locally indistinctly fissured, brown slightly sandy silty CLAY with occasional thin laminations of orange brown fine sand and partings of greyish brown silt and fine sand along laminae surfaces.
Frequent discolouration to dark orangish brown, penetrating up to 5mm, along laminae surfaces.

10.85-11.00m: occasional indistinct 70-85deg fissures

10.97mm: 3mm lamination of orange brown fine sand



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH415
	Carried out for	Balfour Beatty Limited	

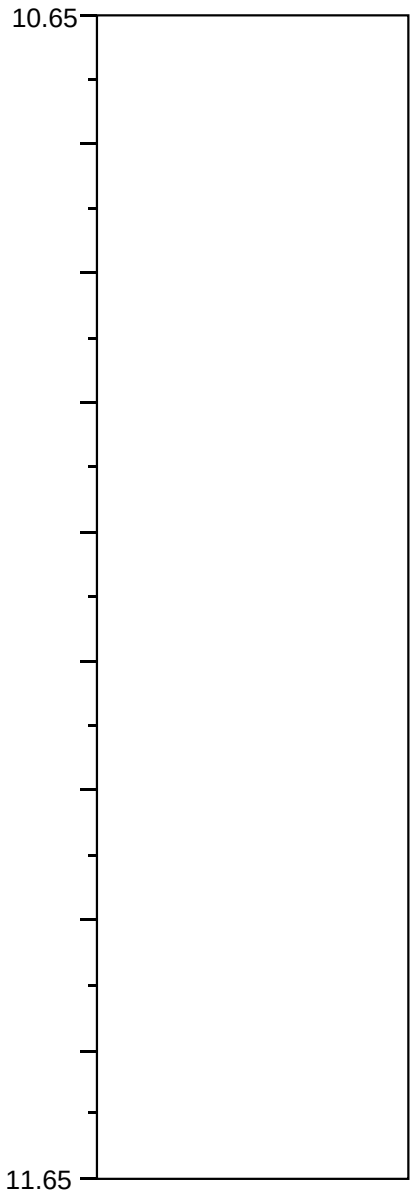
Split Tube Sample Description

Borehole No	BH415		
Sample No	31		
Sample Depth, mBGL	10.65	-	11.65
Sample Type	P		

Description

11.01 - 11.65m:
Firm, locally soft, indistinctly thinly laminated, fissured light brown and dark grey slightly sandy silty CLAY. Locally, closely spaced inclined, typically 30 deg, fissure infilled, 1mm, with light brown fine sand.

Detail:
10.74m: Stepped inclined 30deg fissure, infilled with light brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH415
	Carried out for	Balfour Beatty Limited	

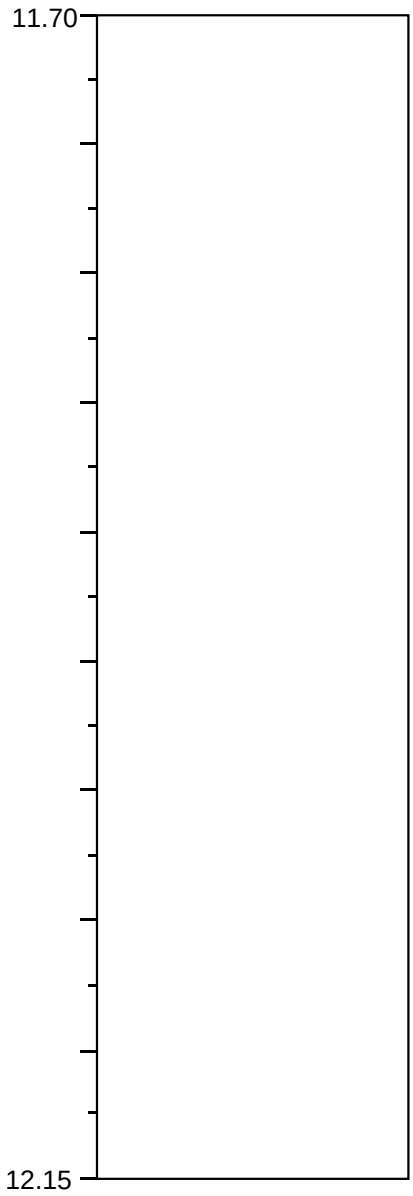
Split Tube Sample Description

Borehole No	BH415		
Sample No	32		
Sample Depth, mBGL	11.70	-	12.15
Sample Type	UT		

Description

11.70-11.79m
Firm thinly, occasionally thickly, interlaminated dark grey and dark greyish brown silty CLAY and silty fine SAND.

11.79-12.15m
Dark grey and greyish brown, locally clayey, silty fine to medium SAND with occasional soft black organic clay pockets, <10x10mm.



Remarks:

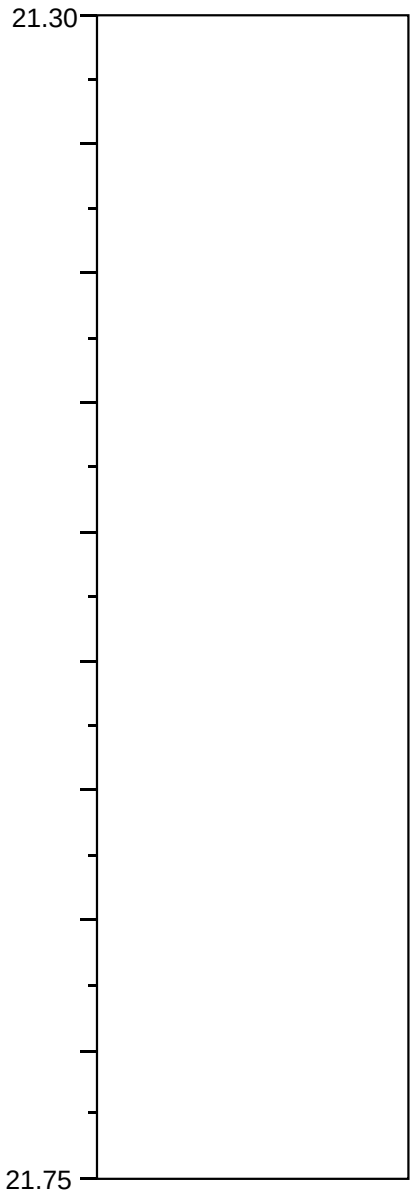
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH415		
Sample No	70		
Sample Depth, mBGL	21.30	-	21.75
Sample Type	UT		

Description

21.30-21.39m
Firm to stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of chalk, flint and occasional quartz and sandstone.



Remarks:
Material described is remaing sample after partial extrusion for triaxial test specimen

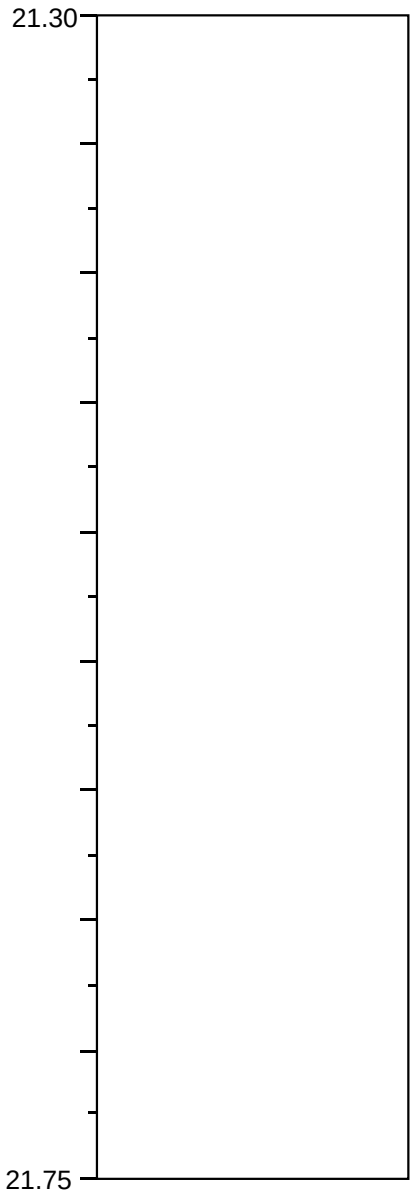
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH415		
Sample No	70		
Sample Depth, mBGL	21.30	-	21.75
Sample Type	UT		

Description

21.39 - 21.75m:
Stiff, locally firm, thinly and thickly laminated, locally fissured, dark greyish brown slightly sandy slightly gravelly CLAY with partings of silt and fine sand. Gravel is subangular to subrounded fine to medium of chalk, flint and igneous. Fissures are randomly orientated, closely spaced.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

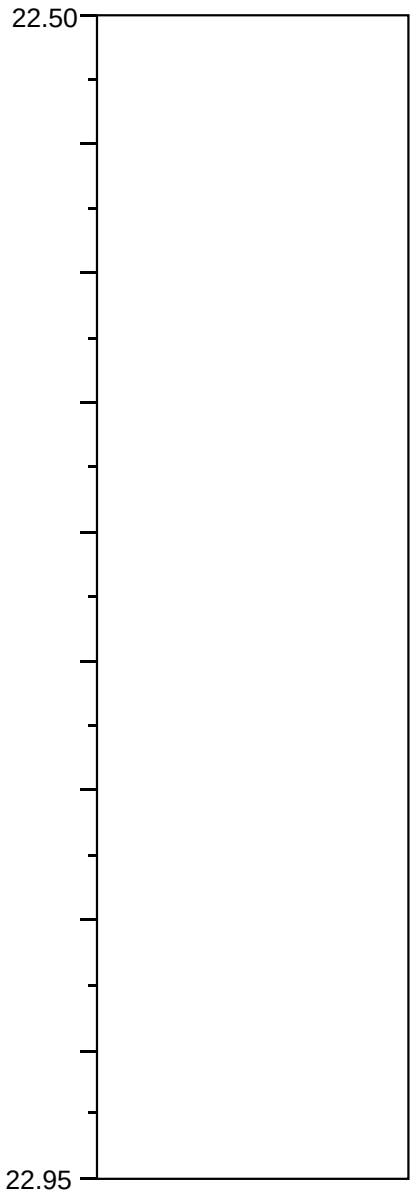
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH415		
Sample No	74		
Sample Depth, mBGL	22.50	-	22.95
Sample Type	UT		

Description

22.50-22.70m
Stiff thinly and thickly laminated greyish brown CLAY with frequent partings and thin laminations of orangish brown silt and very closely spaced thin laminations of orangish brown fine sand



Remarks:
Material described is remaining sample after partial extrusioin for triaxial test sample

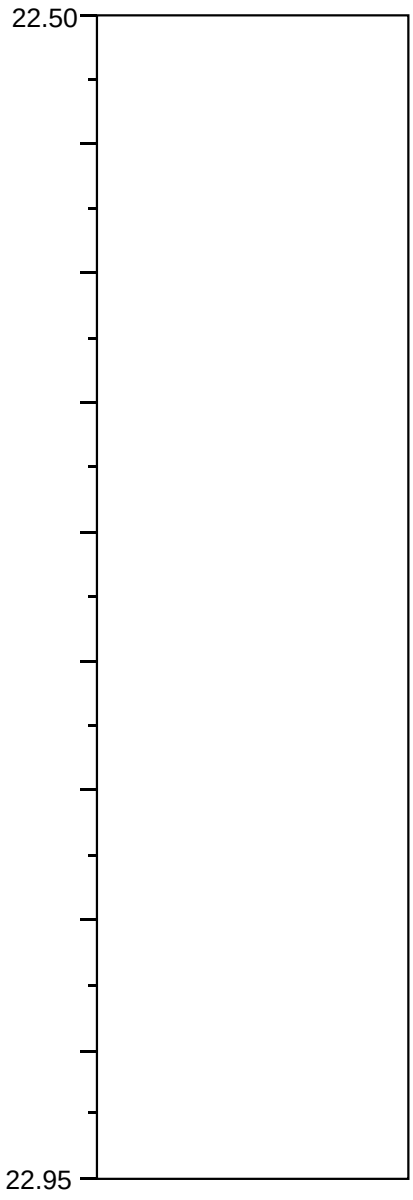
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH415		
Sample No	74		
Sample Depth, mBGL	22.50	-	22.95
Sample Type	UT		

Description

22.50-22.70m
Stiff thinly and thickly laminated greyish brown CLAY with frequent partings and thin laminations of orangish brown silt and very closely spaced thin laminations of orangish brown fine sand



Remarks:
Material described is remaining sample after partial extrusion for triaxial test sample

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH415
	Carried out for	Balfour Beatty Limited	

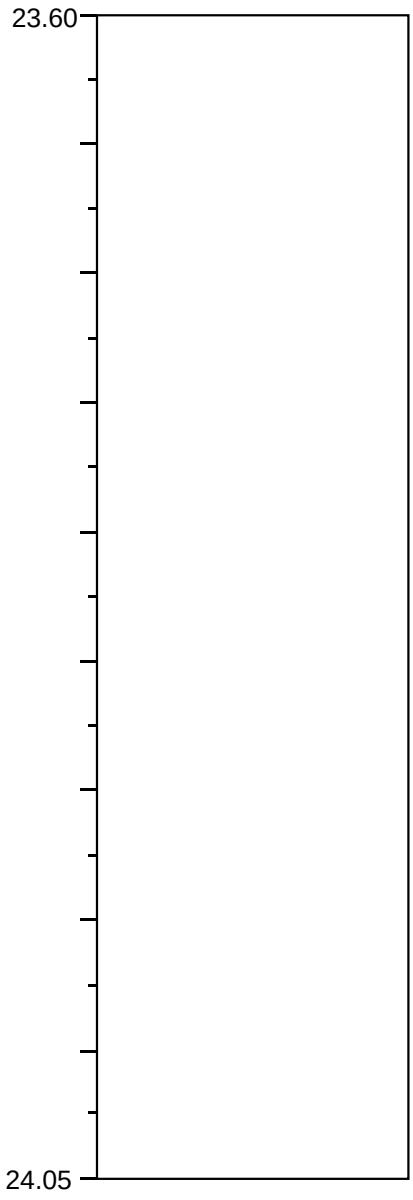
Split Tube Sample Description

Borehole No	BH415		
Sample No	78		
Sample Depth, mBGL	23.60	-	24.05
Sample Type	UT		

Description

23.60-23.80m
Stiff thinly and thickly laminated greyish brown CLAY with partings of brown silt on laminae surfaces. Very closely spaced lenses, up to 3mm, of yellowish brown fine sand.

23.64m: 1No subrounded fine chalk gravel



Remarks:
Material described is remaining sample after extrusion for triaxial test specimen

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH415
	Carried out for	Balfour Beatty Limited	

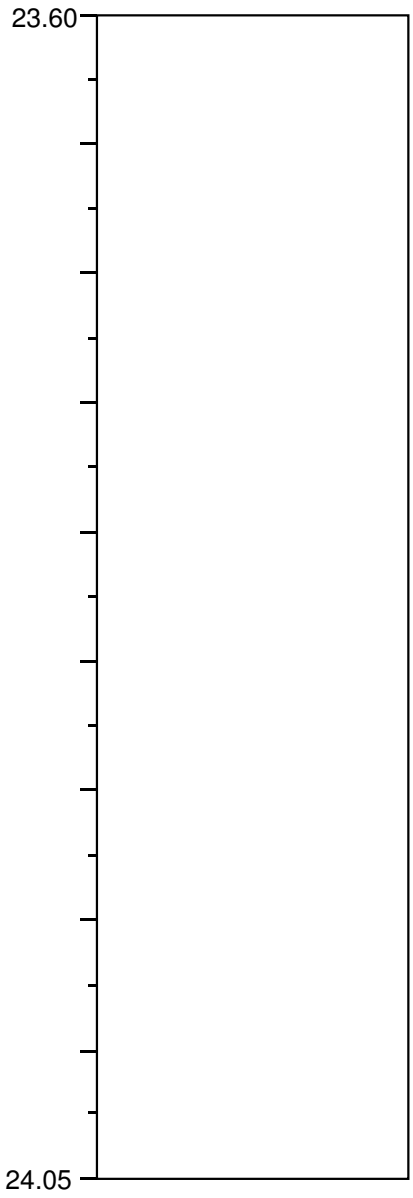
Split Tube Sample Description

Borehole No	BH415		
Sample No	78		
Sample Depth, mBGL	23.60	-	24.05
Sample Type	UT		

Description

23.80 - 24.05m:
Firm, locally stiff, thinly laminated dark greyish brown silty CLAY with partings of silt and yellowish brown fine sand. Closely spaced lenses of yellowish brown fine sand, up to 2mm.

Detail:
23.65m: Lens up to 2mm of yellowish brown fine sand.
23.70m: Lens up to 2mm of yellowish brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

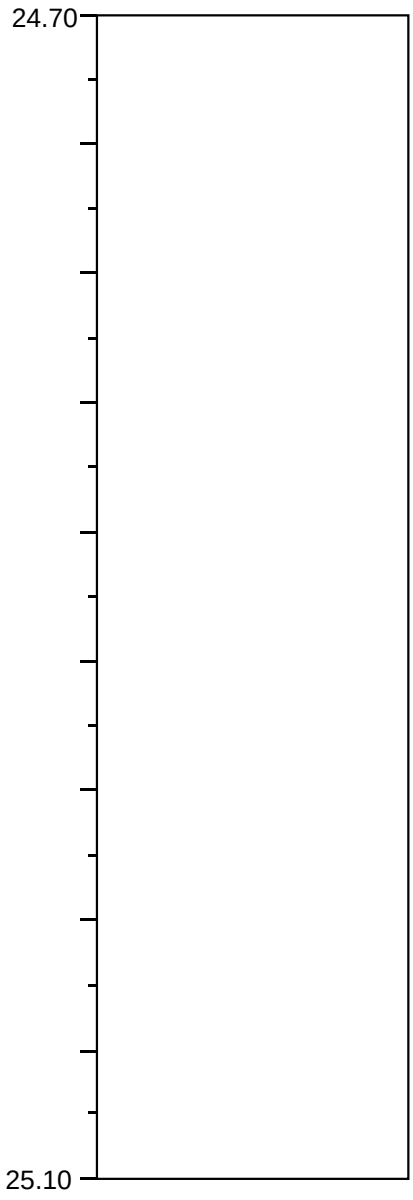
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH415		
Sample No	82		
Sample Depth, mBGL	24.70	-	25.10
Sample Type	UT		

Description

24.70 - 25.10m:
Firm greyish brown thinly and thickly laminated, locally fissured, silty CLAY with partings of dark grey silt and yellowish brown fine sand and lenses, up to 5mm, of yellowish brown fine sand. Fissures are randomly orientated, closely spaced.



Remarks:

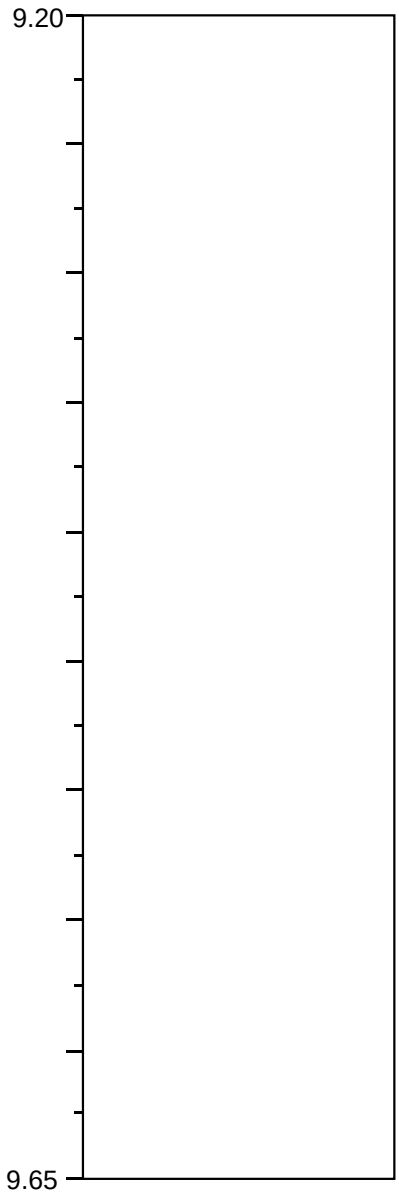
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH415
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH416		
Sample No	24		
Sample Depth, mBGL	9.20	-	9.65
Sample Type	UT		

Description

9.56 - 9.65m:
Firm, locally stiff, fissured dark grey slightly organic silty CLAY. Fissures are randomly orientated, closely spaced. Strong vegetative odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

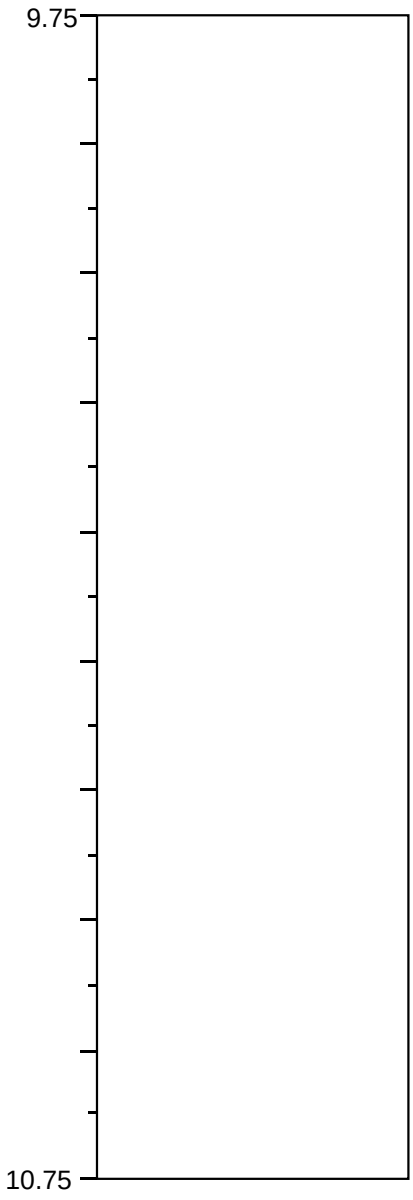
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH416		
Sample No	26		
Sample Depth, mBGL	9.75	-	10.75
Sample Type	P		

Description

9.75-10.05m
Firm, locally fissured, dark greyish brown silty CLAY with occasional irregular thin laminations of brown fine sand. Fissures are randomly orientated, extremely to very closely spaced. Frequent discolouration to dark brown adjacent to fissure surfaces penetrating up to 5mm.



Remarks:
Material described is remaining sample after extrusion for tiaxial test specimen

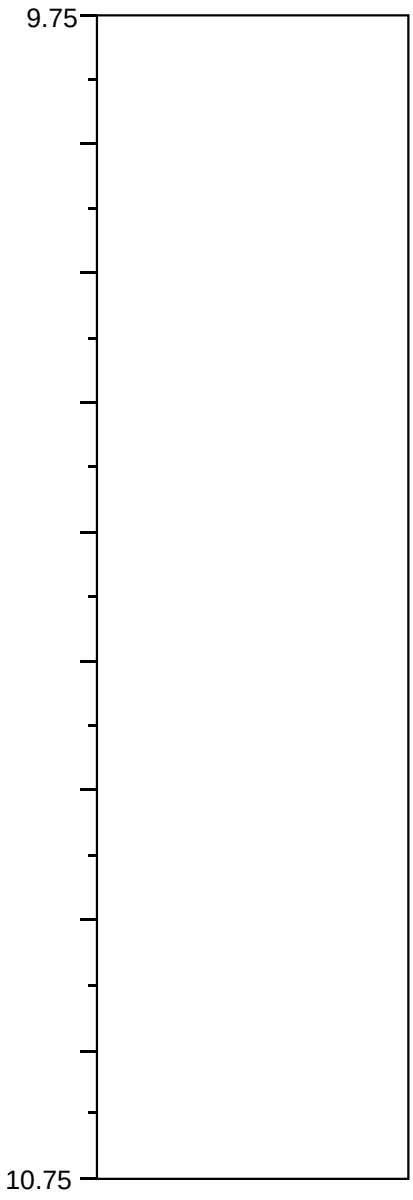
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH416		
Sample No	26		
Sample Depth, mBGL	9.75	-	10.75
Sample Type	P		

Description

10.07 - 10.75m:
Firm indistinctly thinly and thickly laminated dark grey and brown silty CLAY with partings of silt and yellowish brown fine and medium sand and frequent lenses of yellowish brown fine sand up to 2mm wide, locally inclined to 30deg.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH416
	Carried out for	Balfour Beatty Limited	

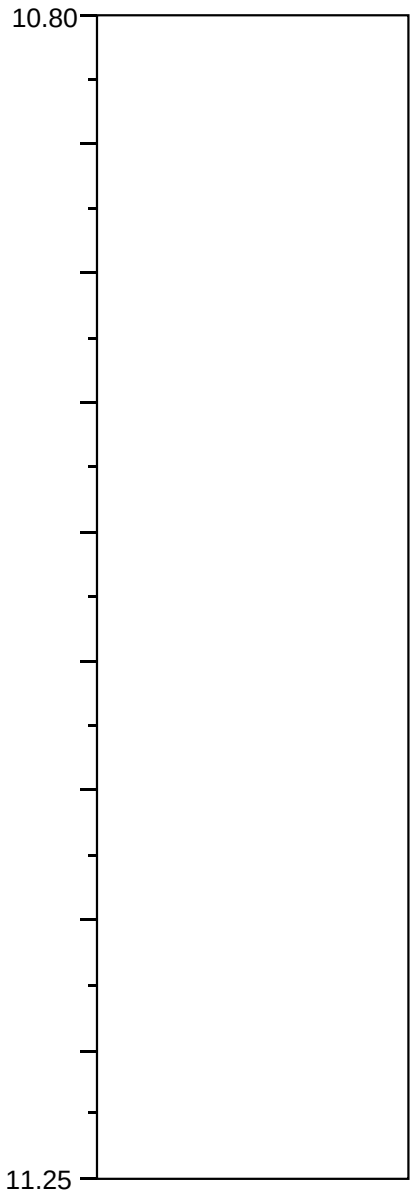
Split Tube Sample Description

Borehole No	BH416		
Sample No	27		
Sample Depth, mBGL	10.80	-	11.25
Sample Type	UT		

Description

10.80-10.92m
Firm indistinctly laminated dark grey and greyish brown silty CLAY with occasional partings and thin laminations of grey silty fine sand.

10.92-11.25m
Dark grey, locally silty, fine to medium SAND. Occasional fine to medium gravel size shell fragments.



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH416		
Sample No	50		
Sample Depth, mBGL	19.70	-	20.15
Sample Type	UT		

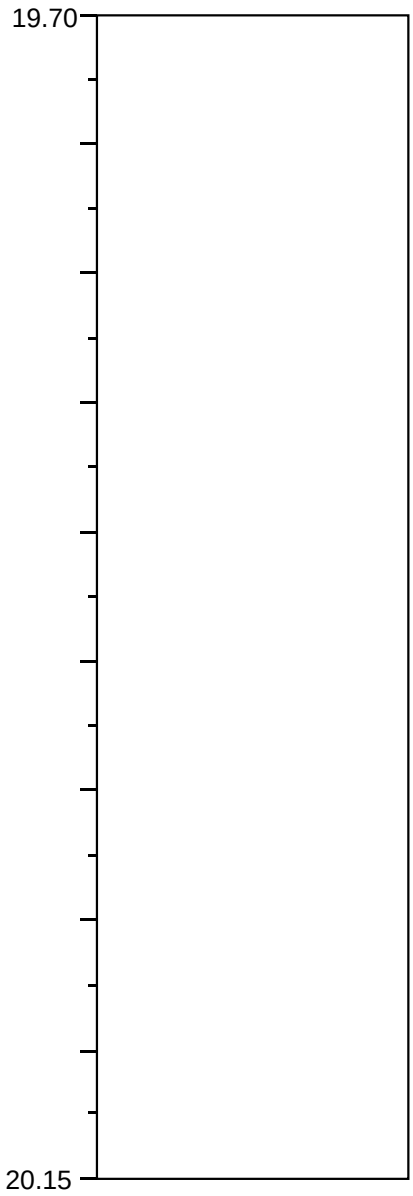
Description

19.70-19.92m,
Firm thinly occasionally thickly laminated greyish brown slightly gravelly CLAY with frequent partings of orangish brown silt and occasional partings and thin laminations of orangish brown fine to medium sand. Gravel is subrounded to rounded medium to coarse chalk and sandstone.

19.77-19.80m: pocket of gravel

19.82-19.83m: orangiish brown fine to medium sand lamination

19.83-19.91m: very closely spaced partings and thin laminations of orangish brown fine to medium sand



Remarks:
Material described is remaining sample after partial extrusion for triaxial test specimen

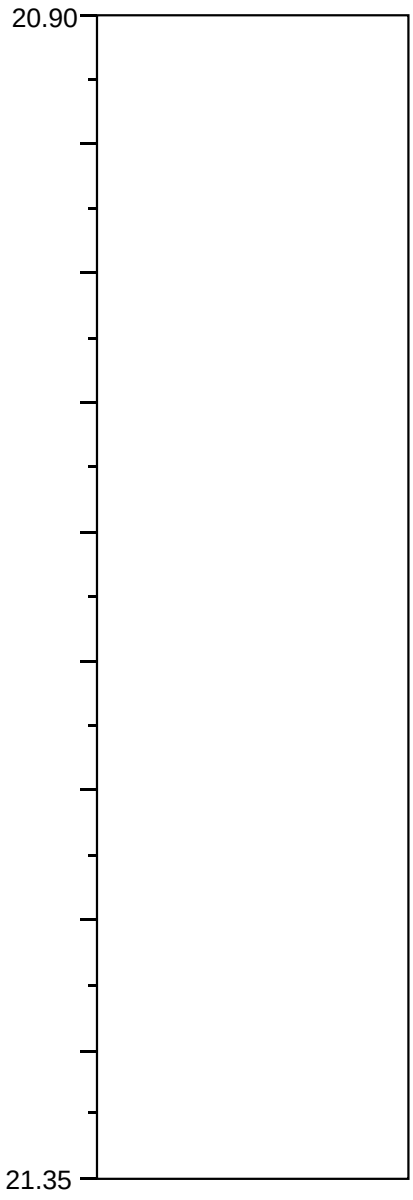
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH416		
Sample No	54		
Sample Depth, mBGL	20.90	-	21.35
Sample Type	UT		

Description

Firm, becoming stiff by 20.97m, thinly to thickly laminated brownish grey CLAY with occasional thin brown silt and orange brown fine to medium sand laminations



21.09m: 4mm orange brown fine to medium sand lamination

21.21mm: 5mm orange brown fine to medium sand lamination

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

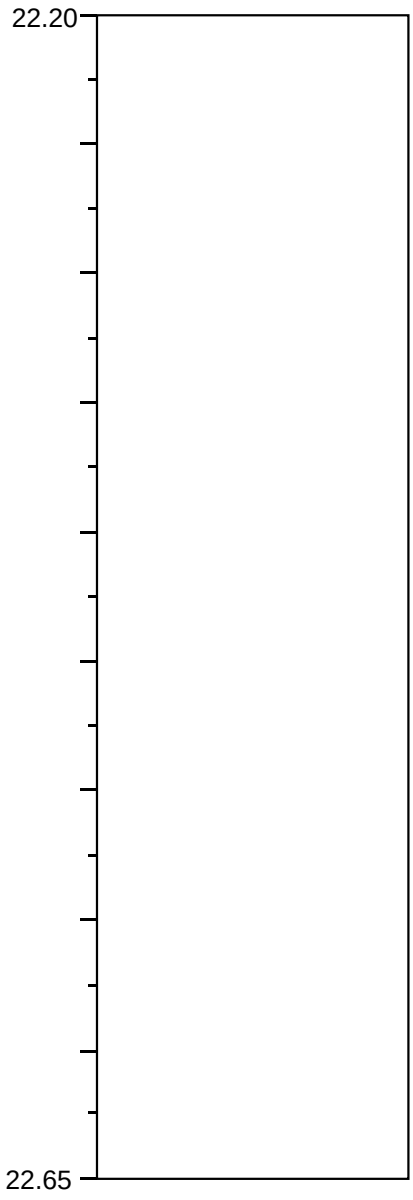
Borehole No	BH416		
Sample No	58		
Sample Depth, mBGL	22.20	-	22.65
Sample Type	UT		

Description

Stiff thinly to thickly, locally indistinctly, laminated greyish brown CLAY with frequent brown silt partings and occasional thin orangish brown fine sand laminations.

22.20m-22.46m: extremely closely to very closely spaced thin laminations of orangish brown fine sand.

22.46-22.55m: indistinctly laminated



Remarks:

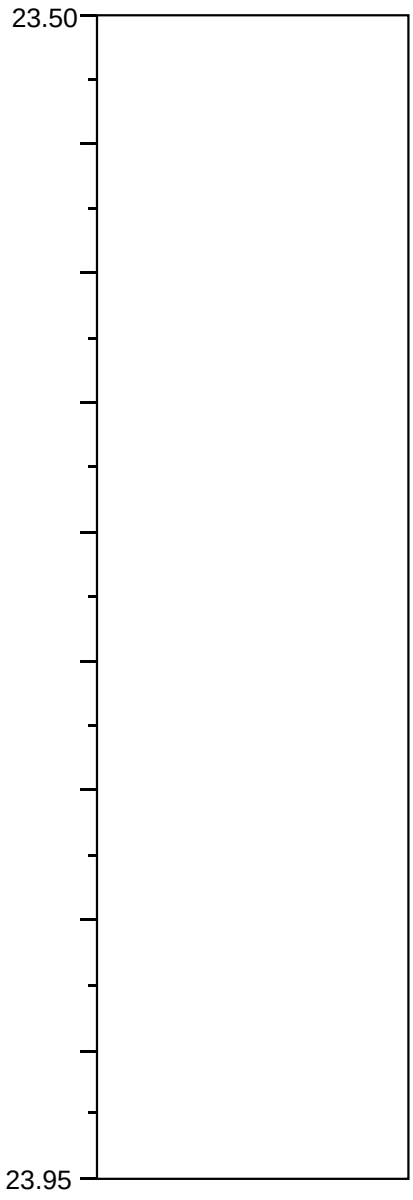
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH416		
Sample No	62		
Sample Depth, mBGL	23.50	-	23.95
Sample Type	UT		

Description

23.50-23.69m
Firm thinly laminated greyish brown silty CLAY with partings and thin laminations of orangish brown silt.



Remarks:
Material described is remaining sample after extrusion for triaxial test specimen

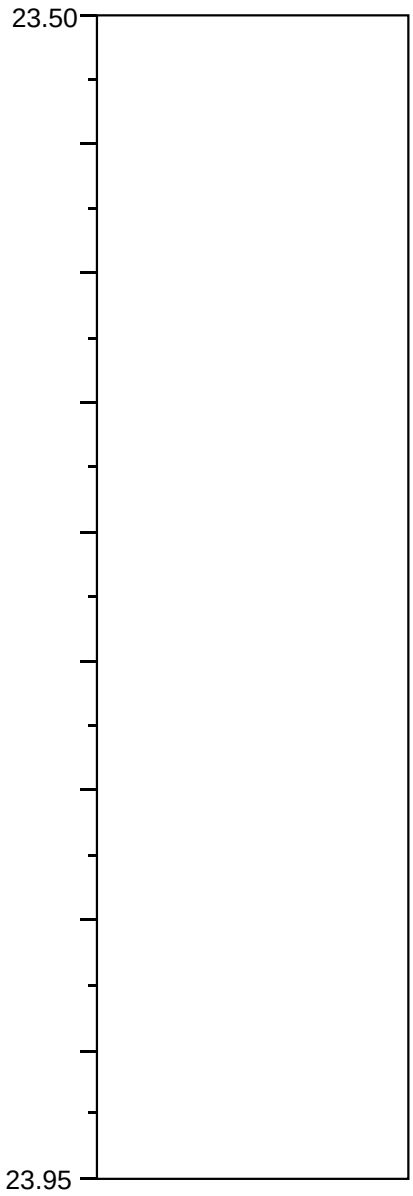
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH416		
Sample No	62		
Sample Depth, mBGL	23.50	-	23.95
Sample Type	UT		

Description

23.69 - 23.95m:
Stiff thinly laminated dark greyish brown and light brown silty CLAY with partings of silt and light yellowish brown fine sand and occasional lenses of orangish brown fine sand. Slight vegetative odour. Rare subangular fine chalk gravel.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH416
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

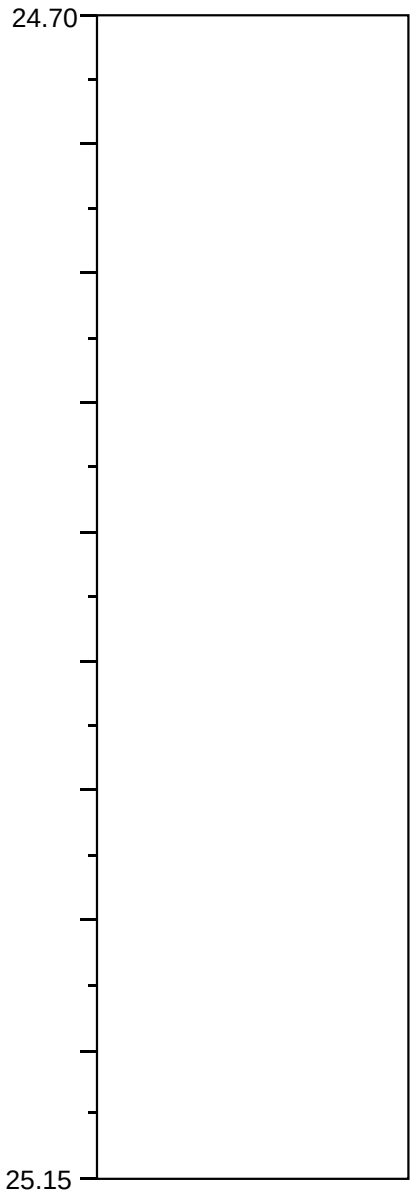
Borehole No	BH416		
Sample No	66		
Sample Depth, mBGL	24.70	-	25.15
Sample Type	UT		

Description

Stiff thinly to thickly laminated, locally indistinct, greyish brown, locally slightly gravelly, silty CLAY with occasional orange brown silt partings and, locally, orangish brown fine and medium sand pockets. Gravel is subrounded fine flint.

24.70-24.74: frequent orangish brown fine sand pockets, <10x20mm

25.05-25.10m: frequent orangish brown fine and medium sand pockets, 10x20mm. Slightly gravelly.



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH416
	Carried out for	Balfour Beatty Limited	

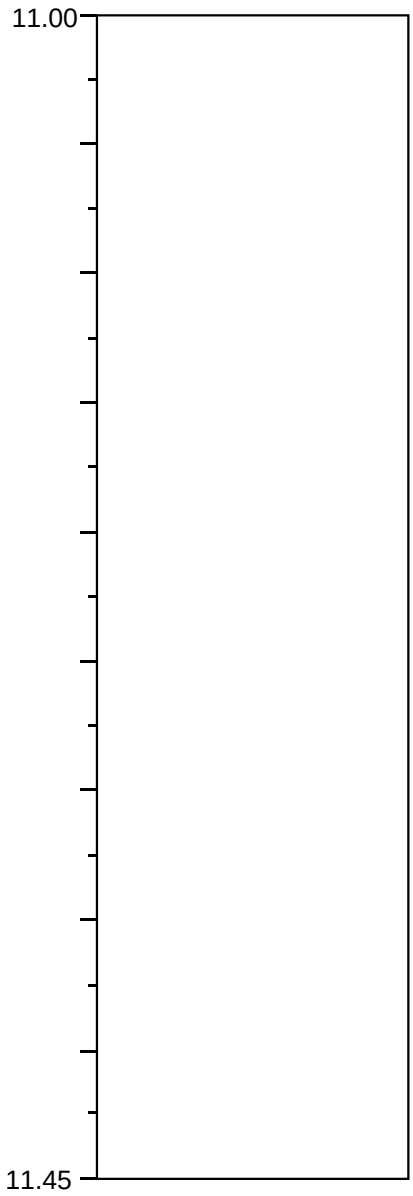
Split Tube Sample Description

Borehole No	BH501			
Sample No	27			
Sample Depth, mBGL	11.00	-	11.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

11.00-11.05m
Dark grey and black slightly organic silty fine SAND.
(MADE GROUND)

11.05-11.20m
Dark greyish brown and grey silty fine and medium SAND with frequent pockets, <10x15mm, of dark brown silty clay.
(MADE GROUND)



Remarks:
Material described is remaining sample after partial extrusion for triaxial test specimen

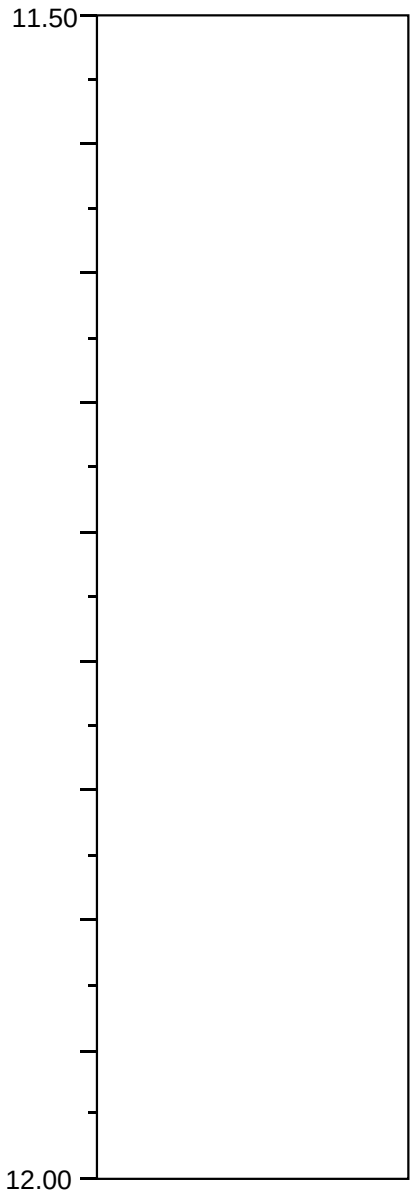
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH501
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH501			
Sample No	29			
Sample Depth, mBGL	11.50	-	12.00	Note: Sample length <> 45 cm
Sample Type	U			

Description

Soft indistinctly thinly and thickly laminated dark grey and brown organic silty CLAY with occasional partings of fine sand. Occasional carbonaceous material throughout. Vegetative odour.



Remarks:
Material described from triaxial test specimen.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH501
	Carried out for	Balfour Beatty Limited	

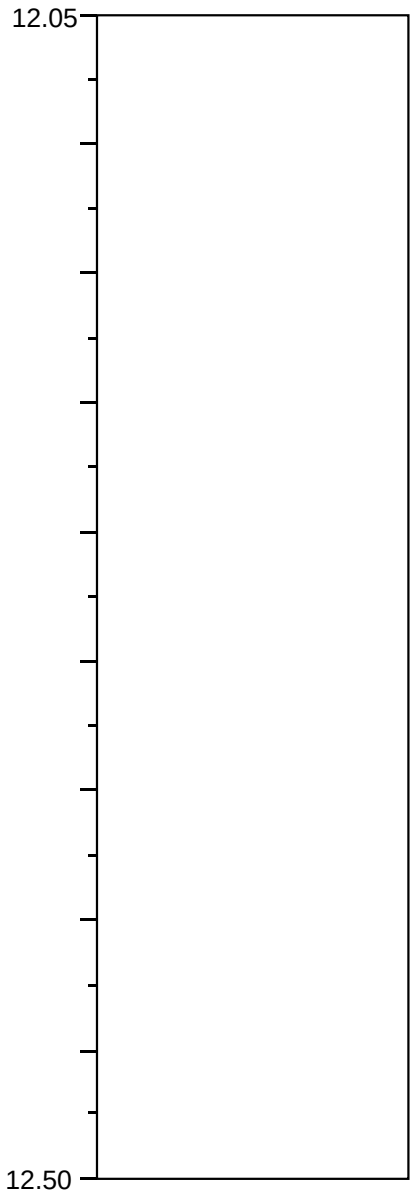
Split Tube Sample Description

Borehole No	BH501			
Sample No	31			
Sample Depth, mBGL	12.05	-	12.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

Dark grey silty fine to medium SAND with occasional dark grey sandy silty clay pockets.

12.05-12.13m: occasional dark grey sandy silty clay pockets, 10x15mm.



Remarks:

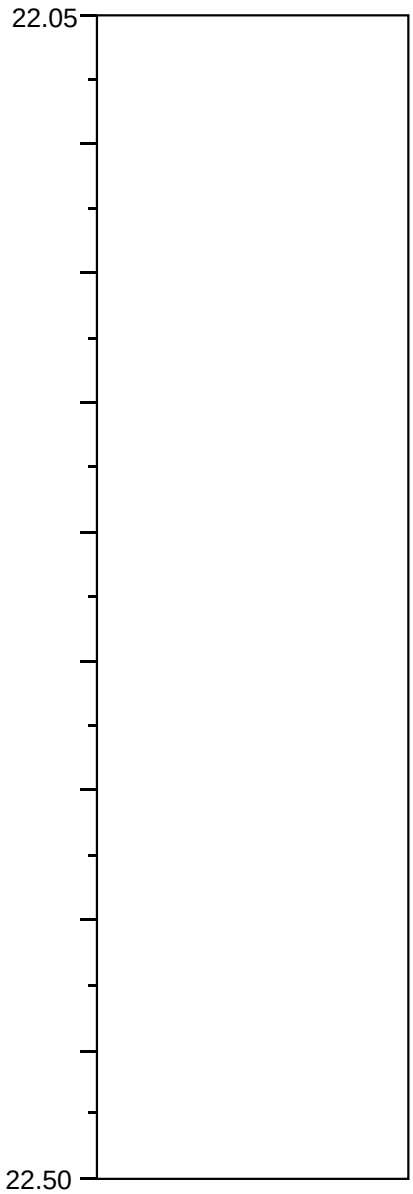
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH501
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH501			
Sample No	65			
Sample Depth, mBGL	22.05	-	22.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

22.05-22.23m
Firm thinly, locally indistinctly, laminated greyish brown slightly gravelly silty CLAY with occasional partings and thin laminations of brown silt. Gravel is subangular to subrounded fine to medium of chalk and flint.



Remarks:
Material described is remaining sample after extrusion for triaxial test specimen

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH501
	Carried out for	Balfour Beatty Limited	

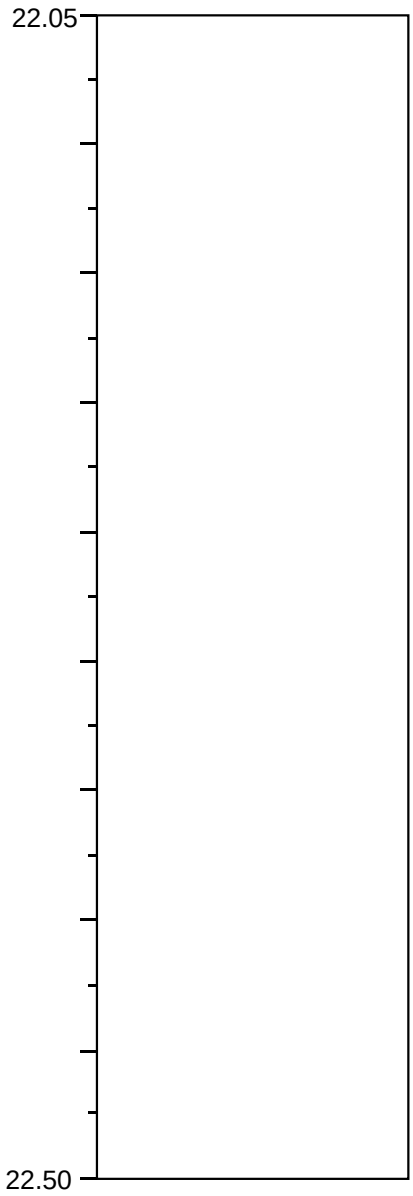
Split Tube Sample Description

Borehole No	BH501			
Sample No	65			
Sample Depth, mBGL	22.05	-	22.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

22.23 - 22.50m:
Firm, locally stiff, thinly and thickly laminated dark greyish brown silty CLAY with partings of silt and yellowish brown fine sand.

Detail:
22.10m: Inclined 40 degree parting of yellowish brown fine sand, closed.
22.20m: inclined 40 degree parting of yellowish brown fine sand, open to 3mm.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH501
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

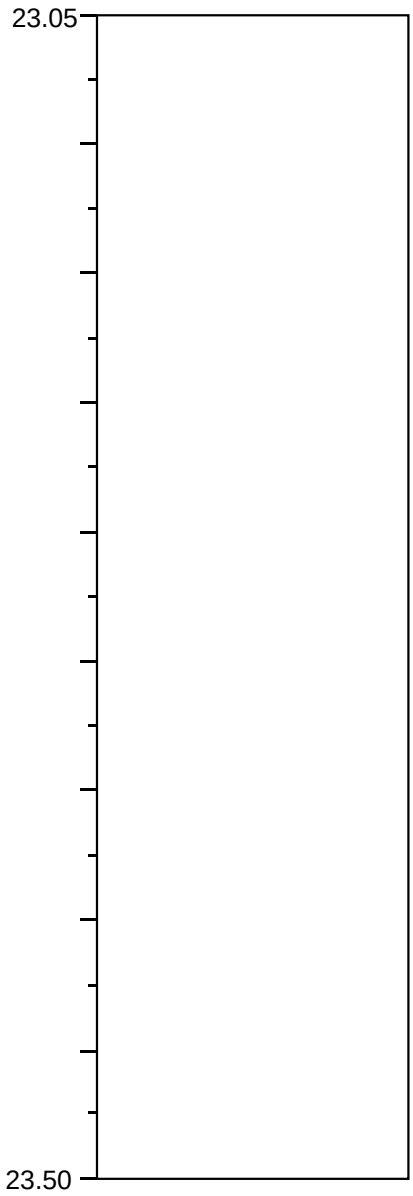
Borehole No	BH501			
Sample No	69			
Sample Depth, mBGL	23.05	-	23.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

Firm to stiff thinly to thickly laminated greyish brown CLAY with partings and thin laminations of orange brown silt and occasional pockets and thin laminations of orange brown fine to medium sand.

23.07m: orange brown fine to medium sand pocket, 10x15mm

23.12m:thin orange brown fine to medium sand lamination



Remarks:

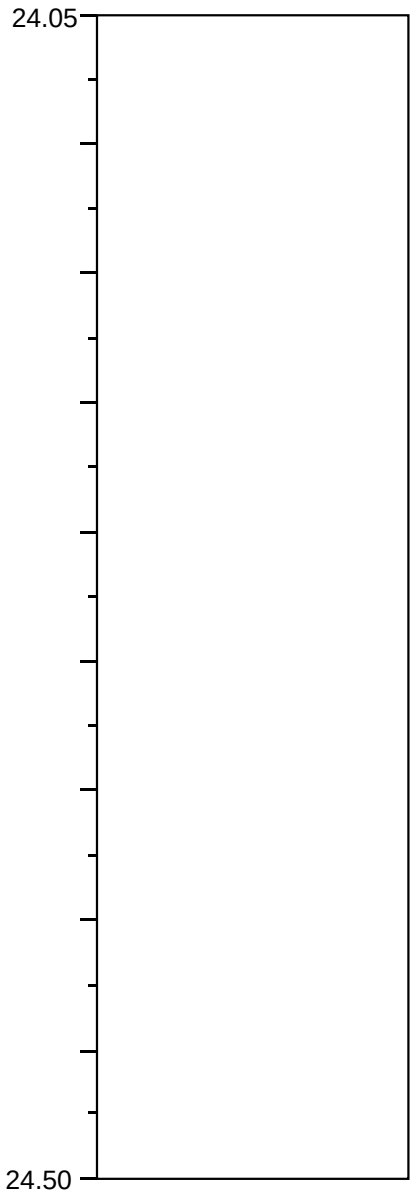
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH501
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH501			
Sample No	73			
Sample Depth, mBGL	24.05	-	24.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

24.05-24.28m
Firm thinly, occasionally thickly, laminated greyish brown silty CLAY with frequent partings and thin laminations of brown silt and very closely to closely spaced thin laminations of orangish brown fine sand.



Remarks:
Material described is remaining sample after partial extrusion for triaxial test specimen

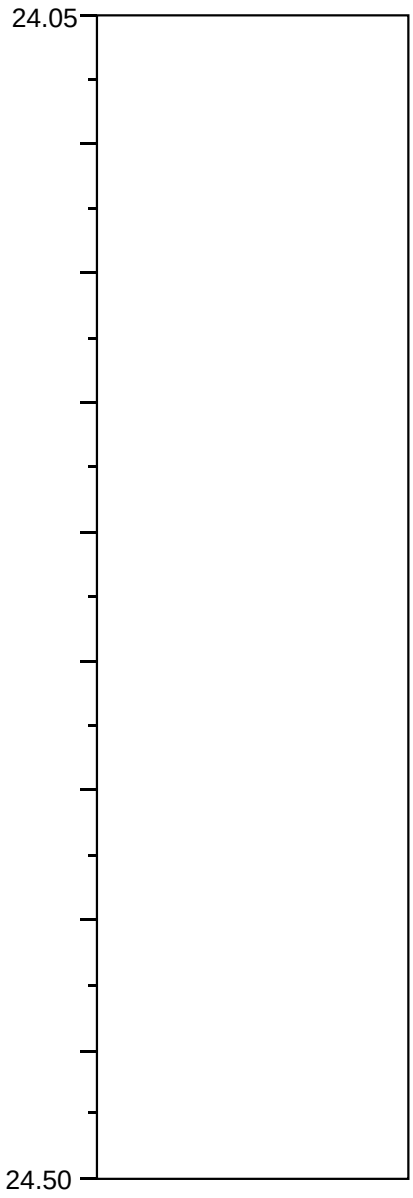
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH501
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH501			
Sample No	73			
Sample Depth, mBGL	24.05	-	24.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

24.28 - 24.50m:
Firm thinly, locally thickly, laminated dark greyish brown silty CLAY with frequent partings of silt and very closely spaced partings and thin laminations of yellowish brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH501
	Carried out for	Balfour Beatty Limited	

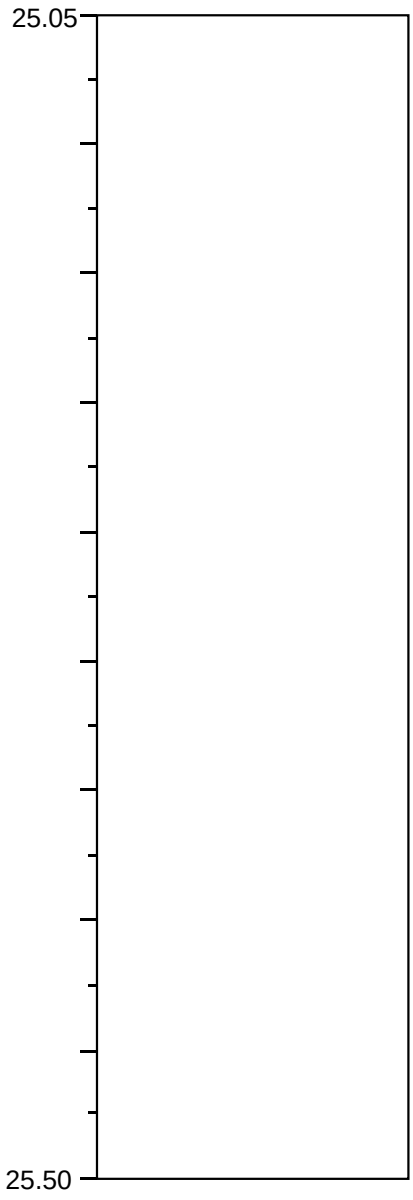
Split Tube Sample Description

Borehole No	BH501			
Sample No	76			
Sample Depth, mBGL	25.05	-	25.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

25.05 - 25.50m:
Firm to stiff, becoming stiff by 25.19m, thinly to thickly laminated greyish brown CLAY with occasional dustings and partings up to 2mm of brown silt. Partings are very closely spaced up to 5mm of orangish brown fine to medium sand.

Detail:
25.23m - pocket (30x20mm) of soft (very wet) clay. Probably disturbed material.



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH501
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH501			
Sample No	79			
Sample Depth, mBGL	26.05	-	26.50	Note: Sample length <> 45 cm
Sample Type	U			

Description

Stiff, locally firm, thinly to thickly, locally indistinctly, laminated greyish brown, locally slightly gravelly, CLAY with partings and thin laminations of brown silt. Occasional pockets of fine sand and very sandy gravel. Gravel is subangular fine to medium chalk and flint.

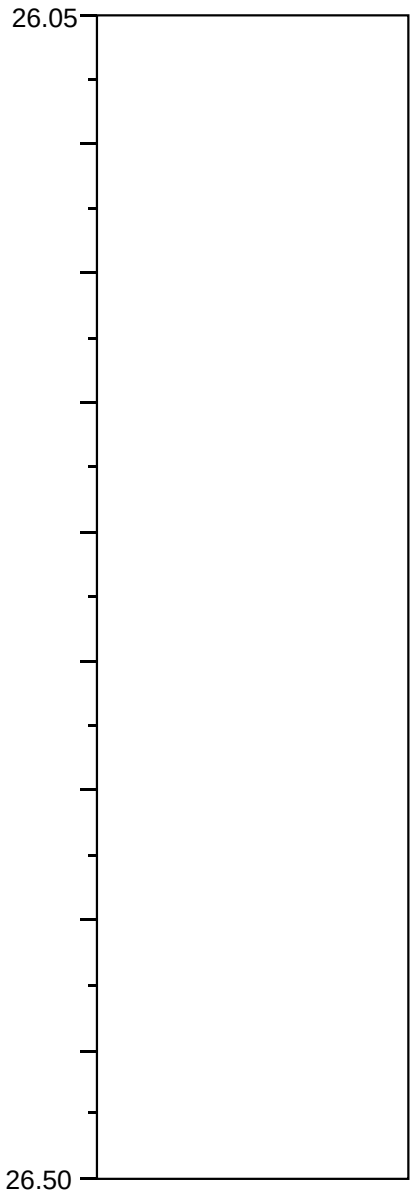
26.09-26.14m: frequent irregular orangish brown fine sand pockets, 3x5mm

26.12: 1No subangular fine chalk gravel

26.17-26.21m: indistinctly laminated

26.21-26.23: orangish brown very silty fine sand

26.23-26.25m: orangish brown very sandy gravel



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH501
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

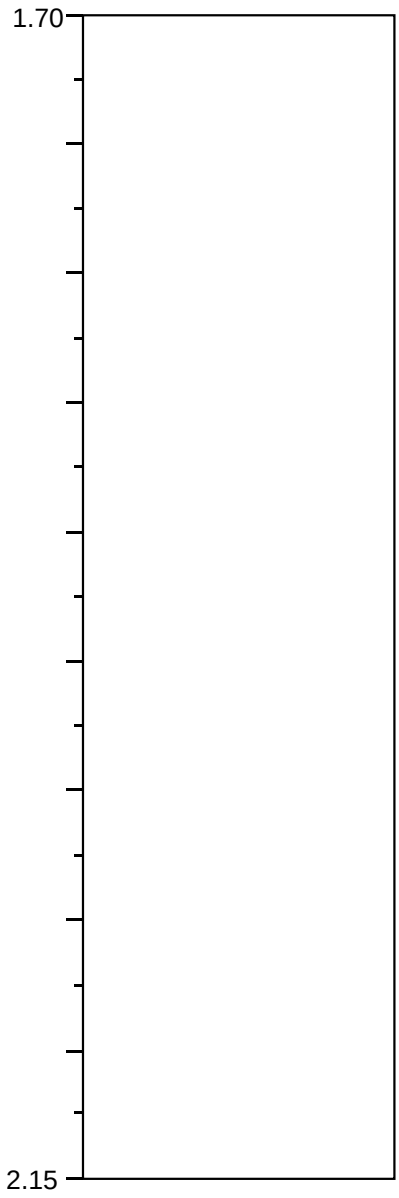
Borehole No	BH502		
Sample No	6		
Sample Depth, mBGL	1.70	-	2.15
Sample Type	UT		

Description

1.70-1.80m
Firm dark orange brown, locally mottled grey, slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to medium predominantly of chalk and brick.Occasional bone fragments. (MADE GROUND)

1.79m: 1No bone fragment, 30x5mm

1.80-1.90m Orangish brown slightly silty fine to medium SAND. (MADE GROUND)



Remarks:

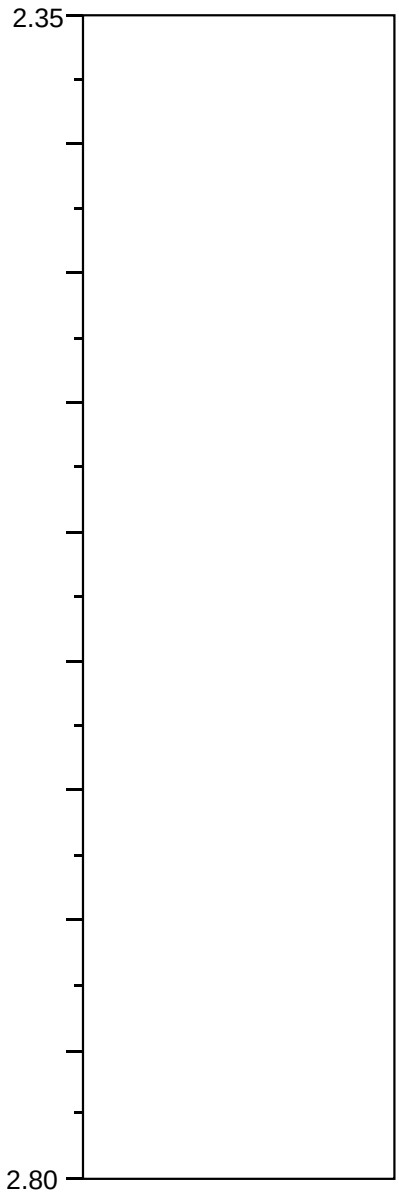
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	8		
Sample Depth, mBGL	2.35	-	2.80
Sample Type	UT		

Description

Orangish brown slightly silty fine to medium SAND with extremely closely to very closely spaced thin and thick soft to firm brown clay laminations.
(MADE GROUND)



Remarks:

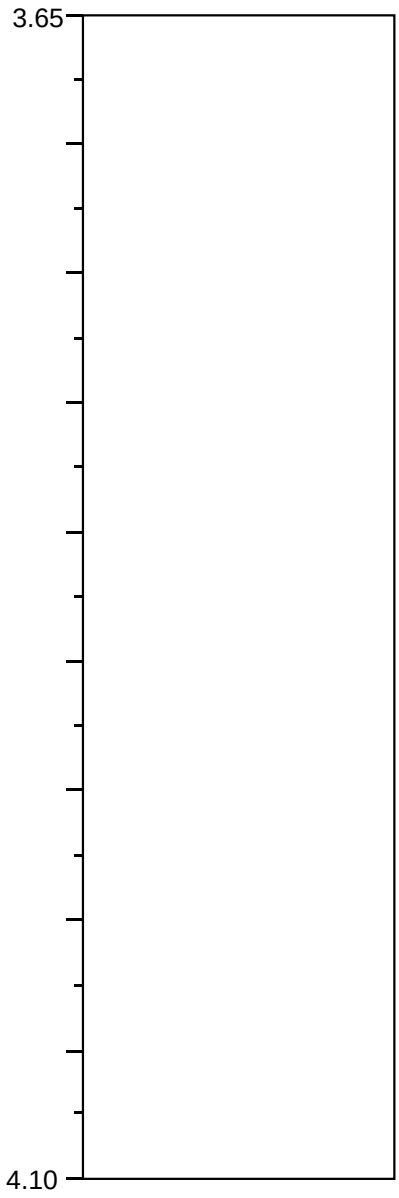
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH502**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH502		
Sample No	12		
Sample Depth, mBGL	3.65	-	4.10
Sample Type	UT		

Description

Soft, locally soft to firm, thinly laminated dark grey and grey slightly gravelly silty CLAY with occasional orange brown fine to coarse sand pockets and frequent irregular dark grey black organic silty clay pockets <25mm. Gravel is subangular to subrounded fine to coarse of various lithologies including brick, chalk and pottery.
(MADE GROUND)



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	14		
Sample Depth, mBGL	4.30	-	4.75
Sample Type	UT		

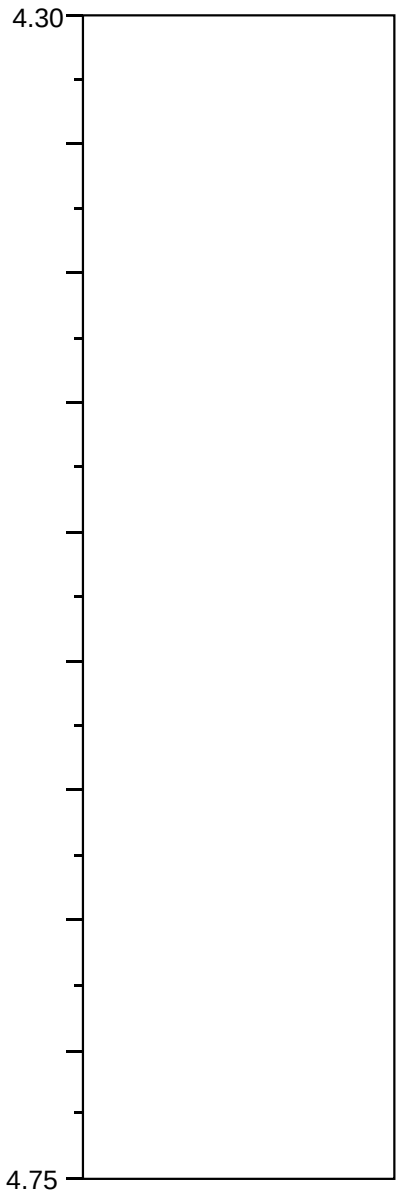
Description

Very soft to soft dark grey and dark greyish brown slightly gravelly sandy silty CLAY with low cobble content and, locally, occasional peat pockets. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of various lithologies including brick, concrete, pottery and sandstone. Cobbles are sandstone.
(MADE GROUND)

4.33m: 50x40mm vitreous pottery

4.40-4.55m: occasional black and brown clayey peat pockets, up to 25x30mm

4.60m: 1No sandstone cobble



Remarks:

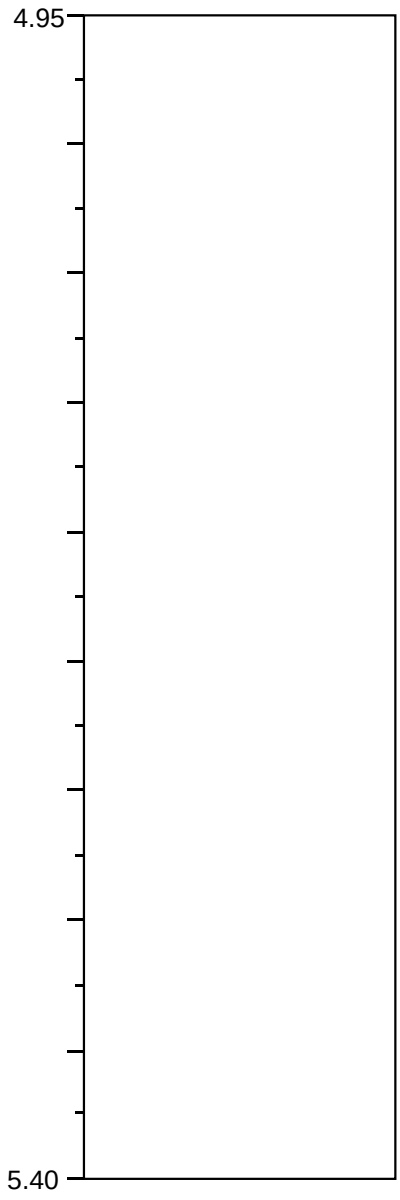
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	16		
Sample Depth, mBGL	4.95	-	5.40
Sample Type	UT		

Description

Very soft to soft dark grey and dark brown slightly gravelly sandy silty CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of various lithologies including sandstone, brick and occasional flint.
(MADE GROUND)



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	17		
Sample Depth, mBGL	5.40	-	6.40
Sample Type	P		

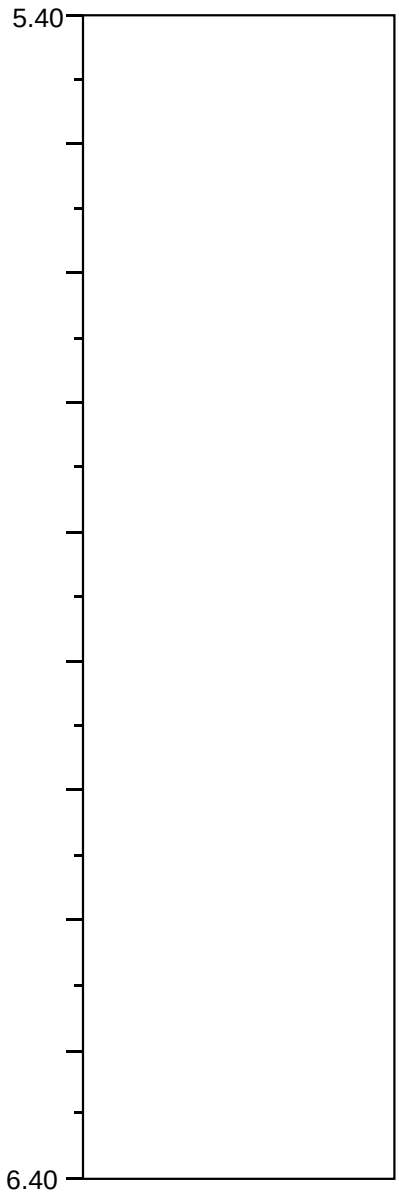
Description

5.40-5.49m
Soft dark grey slightly gravelly sandy silty CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of various lithologies including clinker and brick.
(MADE GROUND)

5.49-5.95m Firm indistincly laminated dark greyish brown dark ngreyish brown anbd brownish grey slightly gravelly silty CLAY with occasional partings of fine sand. Gravel is subangular to subrounded fine to coarse of varioius lithologies including concrete, brick and clinker.
(MADE GROUND)

5.89m: 1mm parting of fine sand

5.95-6.40m
Firm indistinctly thinly and thickly laminated greyish brown sandy silty CLAY with occasional thick laminations of orange brown fine to medium sand. Rare black speckling and inclusions, <2mm, of black carbonaceous material.



Remarks:

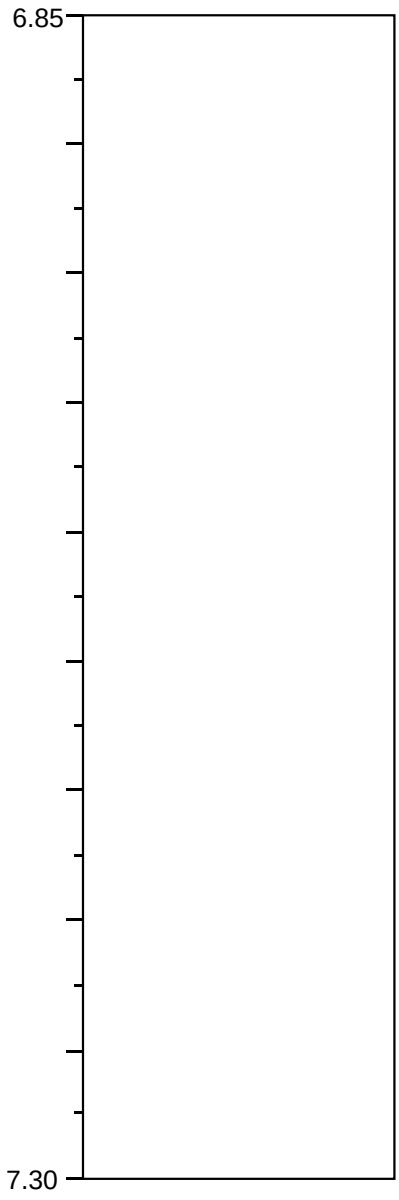
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	20		
Sample Depth, mBGL	6.85	-	7.30
Sample Type	UT		

Description

Firm, locally indistinctly thinly and thickly laminated, frequently inclined to 40-50deg, dark grey, locally black, slightly sandy CLAY with extremely to very closely spaced thin and thick laminations of dark orange brown silty fine sand.



Remarks:

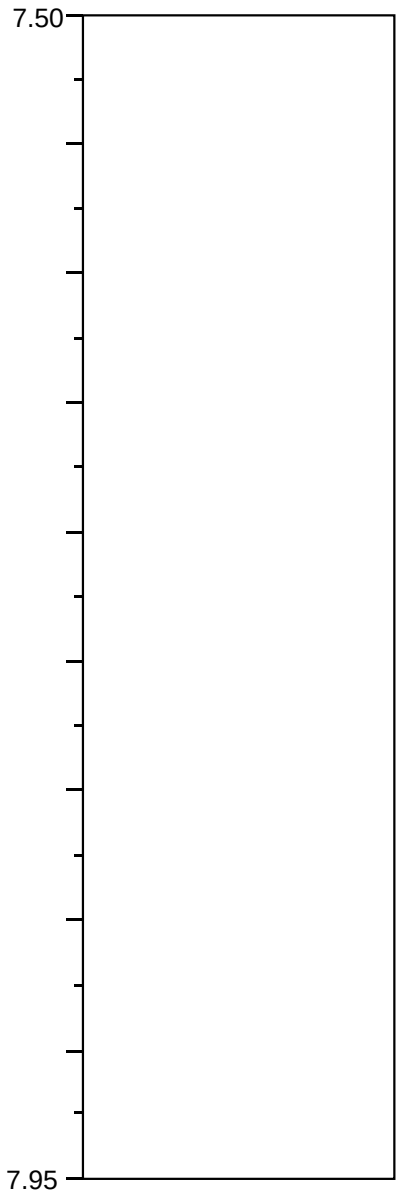
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	22		
Sample Depth, mBGL	7.50	-	7.95
Sample Type	UT		

Description

7.50-7.82: Firm, locally soft, indistinctly thinly to thickly laminated dark grey and dark greyish brown sandy silty CLAY with occasional thick dark greyish brown fine sand laminations and soft dark grey silty clay pockets.



7.82-7.95m
Dark orangish brown and greyish brown, locally very silty, fine to medium SAND.

Remarks:

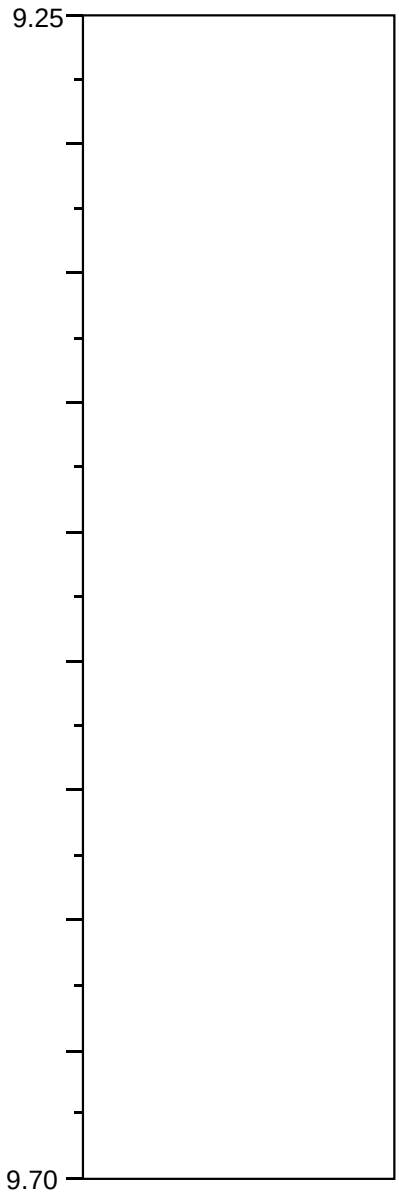
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	28		
Sample Depth, mBGL	9.25	-	9.70
Sample Type	UT		

Description

9.54 - 9.70m
Firm fissured greyish brown mottled dark orangish brown silty CLAY with frequent lenses up to 10mm of orangish brown fine sand and occasional pockets up to 5mm of yellow and greyish brown fine sand.
Fissures are randomly orientated, closely spaced.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

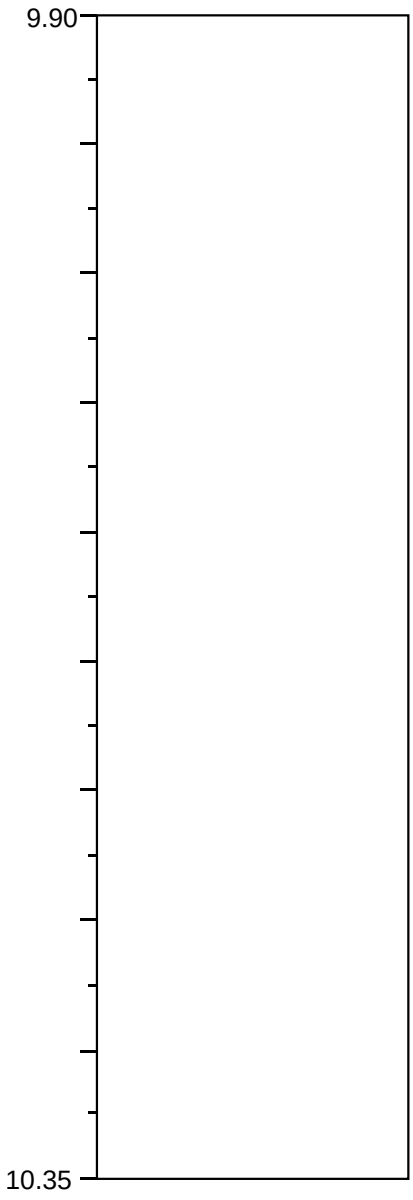
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	30		
Sample Depth, mBGL	9.90	-	10.35
Sample Type	UT		

Description

Very soft dark grey silty CLAY with frequent fine and medium sand pockets, up to 25x25mm.



Remarks:

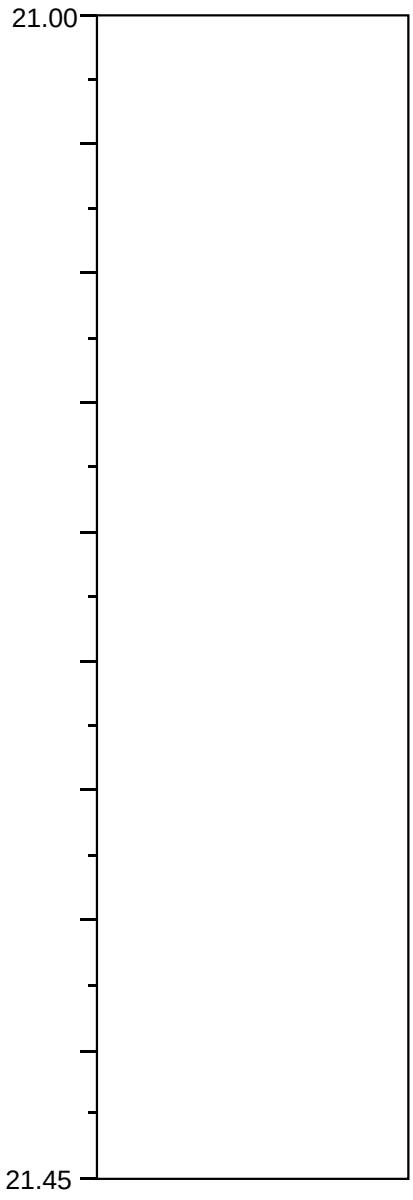
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH502**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH502		
Sample No	73		
Sample Depth, mBGL	21.00	-	21.45
Sample Type	UT		

Description

21.22 - 21.45m:
Firm thinly, locally thickly, laminated dark greyish brown silty CLAY with frequent partings of yellowish brown fine sand and occasional partings of silt.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

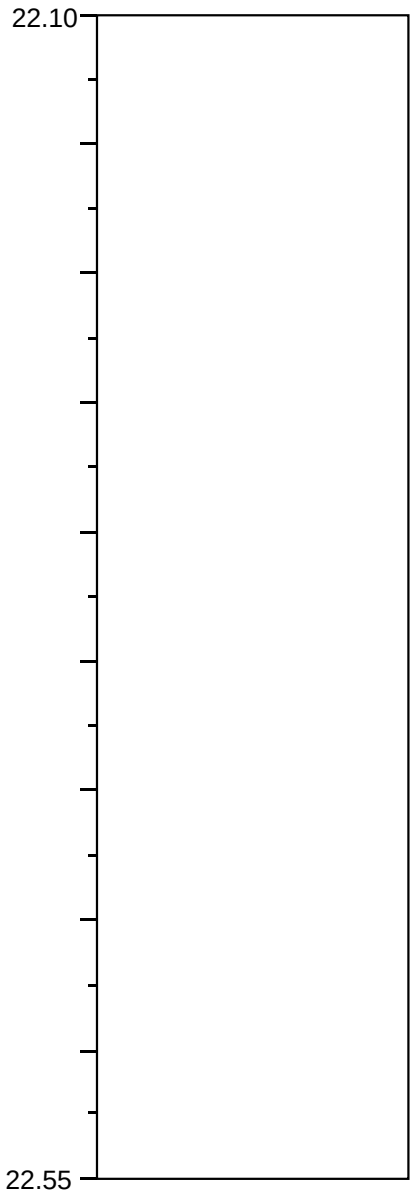
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	77		
Sample Depth, mBGL	22.10	-	22.55
Sample Type	UT		

Description

22.10-22.18m
Stiff thinly and thickly laminated greyish brown, locally slightly gravelly, CLAY with occasional brown silt partings. Gravel is subrounded medium of chalk.



22.18m: 1No subrounded medium chalk gravel

22.18-22.52m
Stiff thinly and thickly laminated greyish brown CLAY with partings and thin to thick brown silt interlaminations and very closely spaced thin orange brown fine to medium sand laminations.

Remarks:

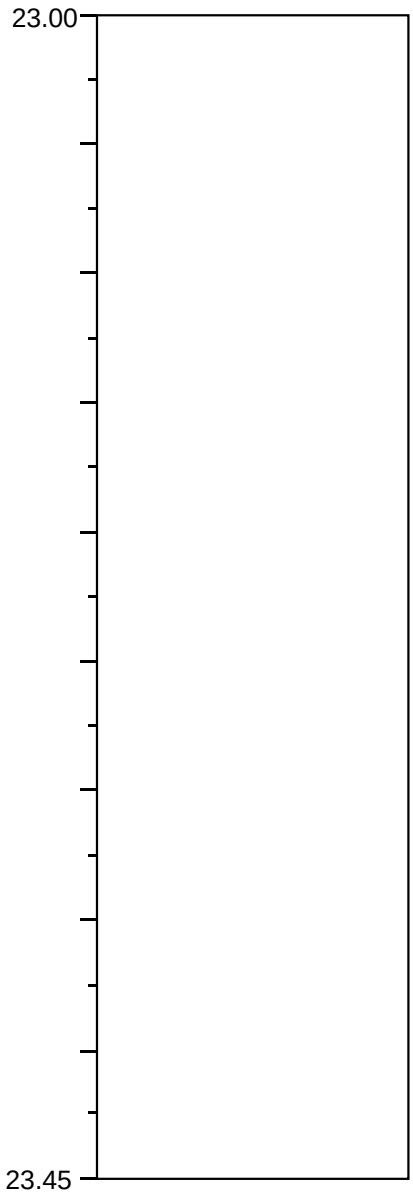
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	81		
Sample Depth, mBGL	23.00	-	23.45
Sample Type	UT		

Description

Firm, becoming stiff by 23.09m, thinly to thickly laminated greyish brown CLAY with occasional thin brown silt laminations and closely spaced thin orange brown fine sand laminations.



Remarks:

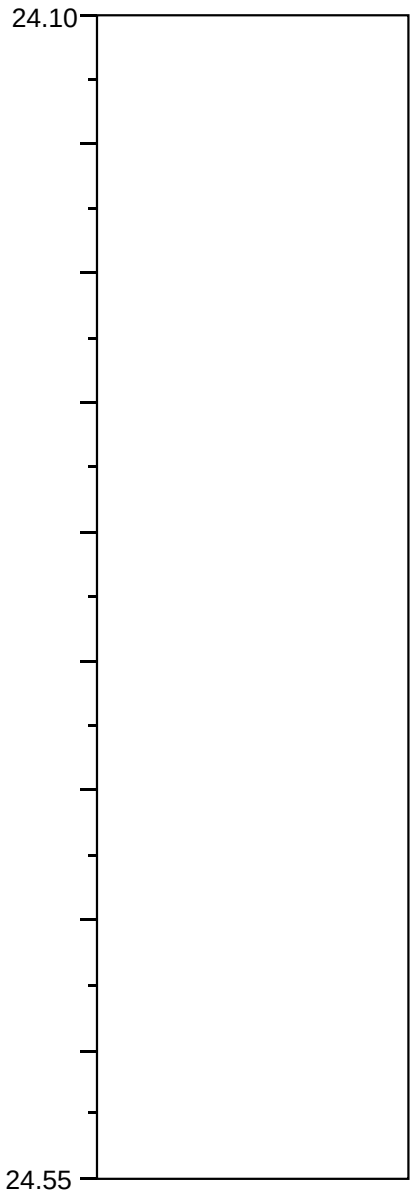
Notes:	**Project**	**A63 PRINCESS QUAY**	**Bh No/Depth**
	Project No.	**A5066-15**	**BH502**
	Carried out for	**Balfour Beatty Limited**	

Split Tube Sample Description

Borehole No	BH502		
Sample No	85		
Sample Depth, mBGL	24.10	-	24.55
Sample Type	UT		

Description

Stiff thinly to thickly laminated greyish brown, locally slightly gravelly, CLAY with brown silt partings, very closely spaced thin laminations of fine, locally fine and medium, sand and occasional dark grey fine to medium sand pockets. Gravel is subrounded medium of chalk.



24.28-24.31m: dark grey fine and medium sand pocket

24.45m: 1No subrounded medium chalk gravel

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH502		
Sample No	89		
Sample Depth, mBGL	25.20	-	25.65
Sample Type	UT		

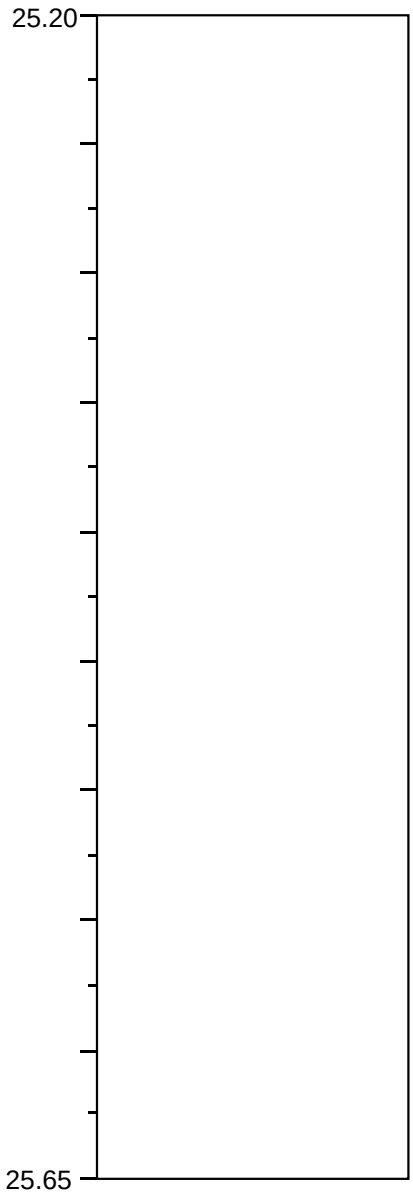
Description

25.20-25.28m
Orangish brown slightly silty fine and medium SAND with occasional thin silt laminations and slightly gravelly sand pockets. Gravel is subangular to subrounded fine to coarse chalk and flint.

25.20m: slightly gravelly sand pocket, 20x25mm

25.26m: silt lamination, inclined 25deg

25.28-25.65m
Stiff thinly and thickly laminated greyish brown CLAY with occasional thin orange brown silt laminations.



Remarks:

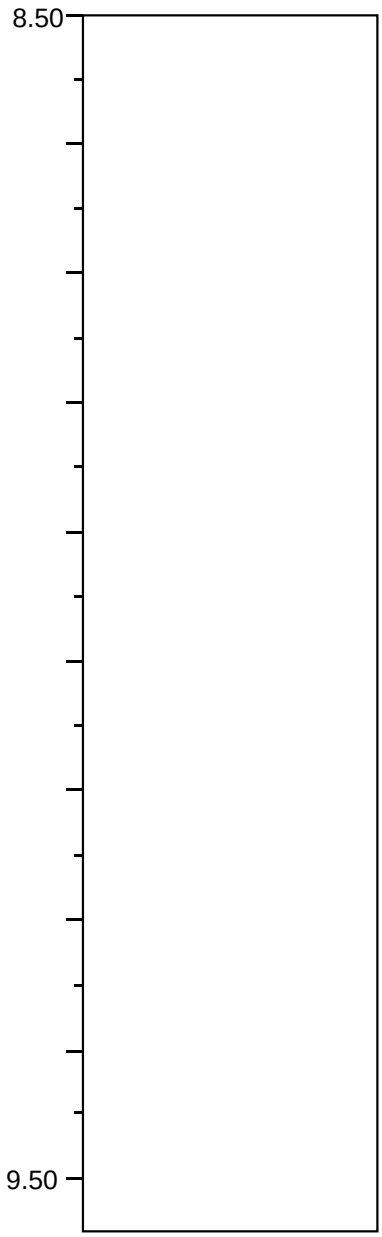
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH502
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH503		
Sample No	9		
Sample Depth, mBGL	8.50	-	9.50
Sample Type	P		

Description

Soft, locally fissured, greyish brown slightly sandy silty CLAY with occasional partings of dark orange brown silt.



8.70-9.05m: locally fissured; randomly orientated, very closely spaced

9.20-9.33m: occasional partings, up to 2mm, of dark orange brown silt

Remarks:

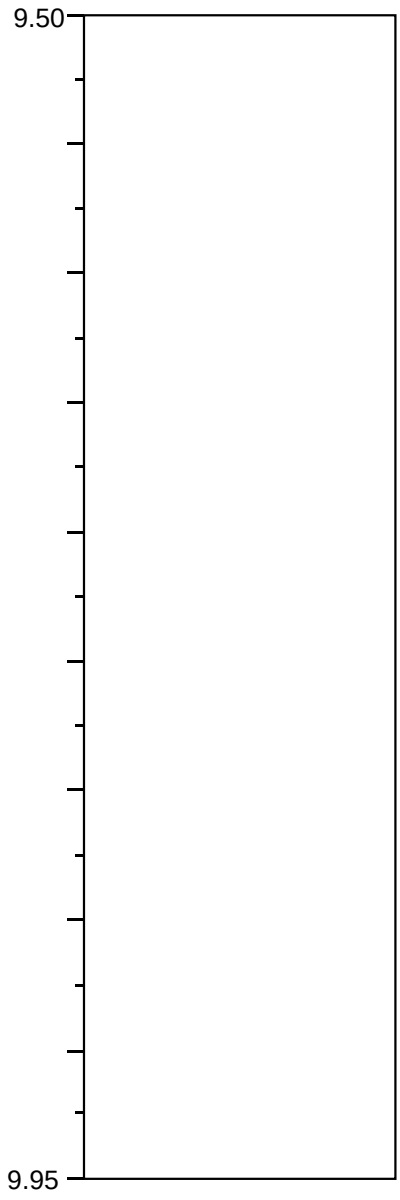
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH503
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH503		
Sample No	10		
Sample Depth, mBGL	9.50	-	9.95
Sample Type	UT		

Description

Firm, locally soft indistinctly fissured dark grey and greyish brown slightly sandy silty CLAY. Fissures are randomly orientated, extremely closely to closely spaced.



Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH503
	Carried out for	Balfour Beatty Limited	

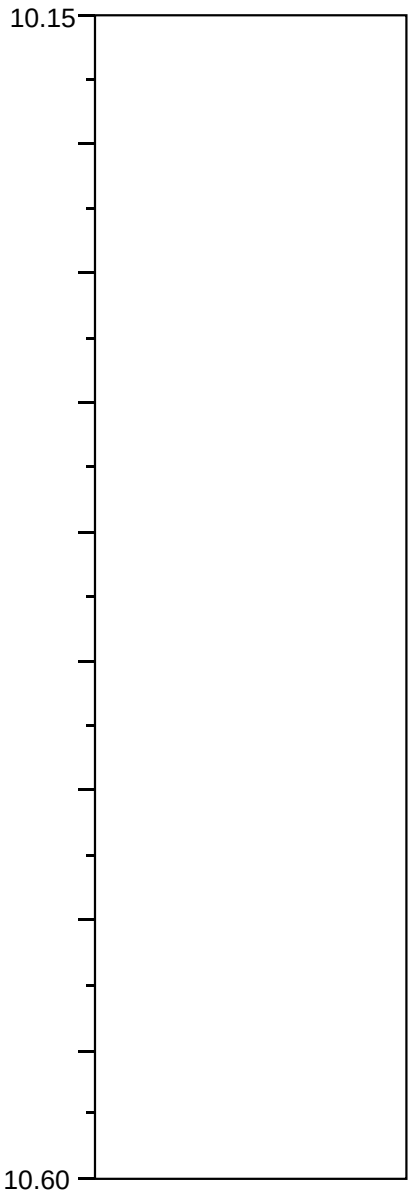
Split Tube Sample Description

Borehole No	BH503		
Sample No	12		
Sample Depth, mBGL	10.15	-	10.60
Sample Type	UT		

Description

10.15-10.28m
Soft indistinctly thinly laminated brownish grey silty CLAY.

10.28-10.60m
Dark grey and black predominantly fine to medium, occasionally coarse, SAND. Rare fine gravel size shell fragments.



Remarks:

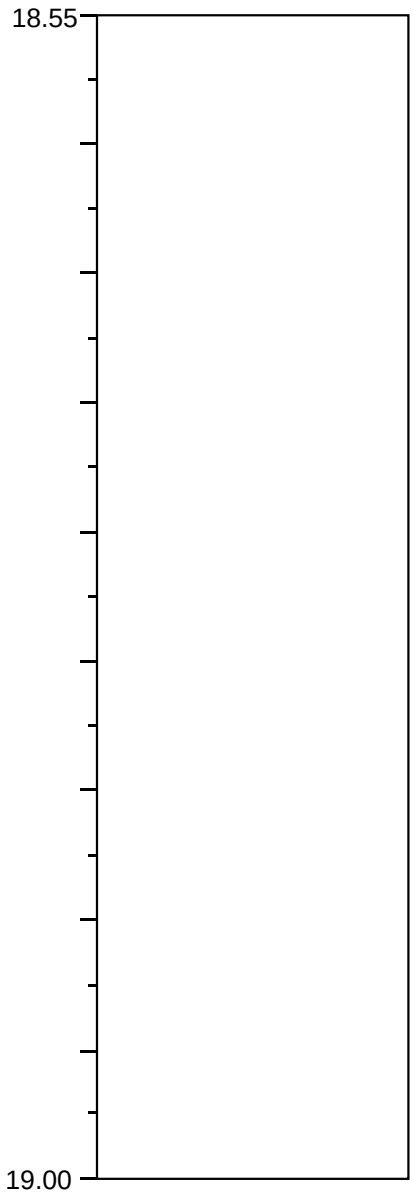
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH503
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH503		
Sample No	28		
Sample Depth, mBGL	18.55	-	19.00
Sample Type	UT		

Description

18.55-18.72m
Greyish brown and light brown sandy GRAVEL Gravel is fine and medium, occasionally coarse subangular flint and chalk.



Strata boundary at 60deg, varies 18.65-18.72m

18.72-19.00m
Stiff thinly, locally thickly, laminated brown mottled grey CLAY with occasional light brown silt partings.

Relict root tracks throughout

Remarks:

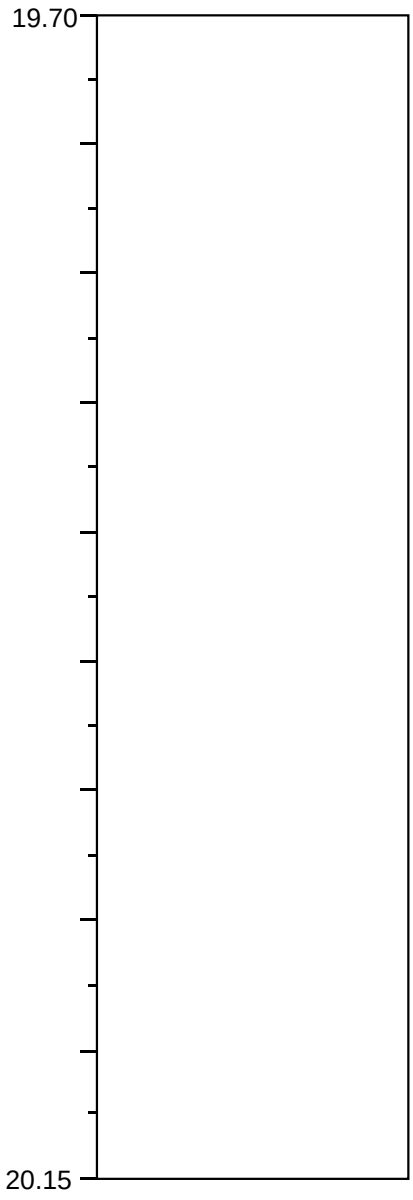
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH503
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH503		
Sample No	32		
Sample Depth, mBGL	19.70	-	20.15
Sample Type	UT		

Description

19.70- 19.92m
Stiff greyish brown, locally indistinctly, thinly to thickly laminated greyish brown CLAY with very closely spaced partings to thick laminations of orange brown fine to medium sand.



19.83m: inclined, 60-65deg, thin lamination of orange brown fine to medium sand with fine to coarse gravel size shell fragments

Remarks:
Material described is remaining sample after extrusion for triaxial test sample

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH503
	Carried out for	Balfour Beatty Limited	

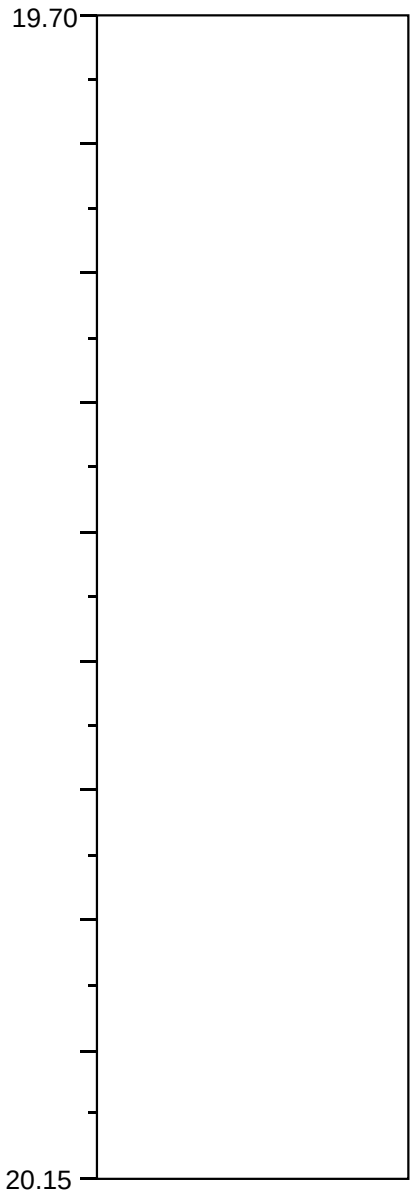
Split Tube Sample Description

Borehole No	BH503		
Sample No	32		
Sample Depth, mBGL	19.70	-	20.15
Sample Type	UT		

Description

19.92 - 20.15m:
Stiff thinly laminated dark greyish brown and light brown silty CLAY with partings of light brown silt and yellowish brown fine sand, thin lenses, up to 5mm, of yellowish brown fine and medium sand and pockets, up to 12mm, of yellowish brown medium sand.

,



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH503
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH503		
Sample No	36		
Sample Depth, mBGL	20.80	-	21.25
Sample Type	UT		

Description

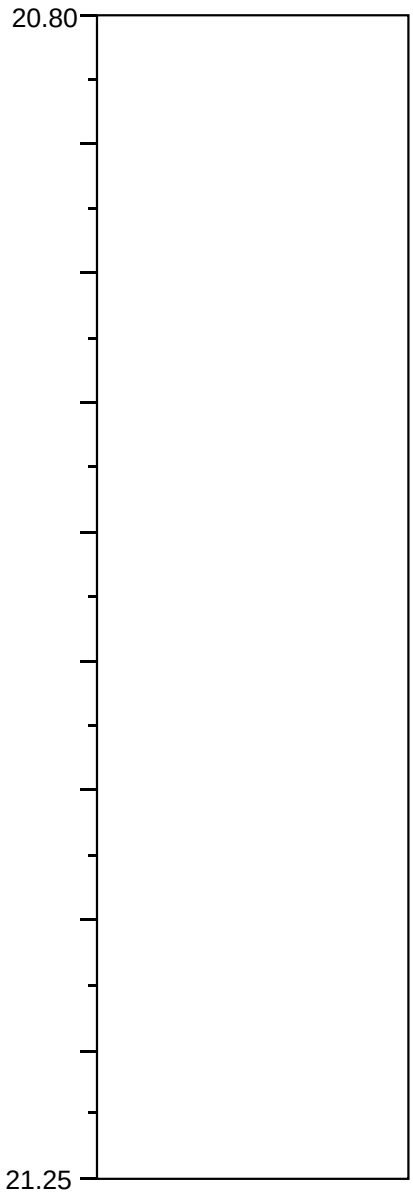
Stiff thinly and thickly laminated greyish brown CLAY with occasional partings of orangish brown silt and thin laminations of orange brown fine to medium sand.

20.84-20.94m: subvertical, irregular, <10mm, pocket of soft brown and slightly gravelly sandy clay. Gravel is subrounded to rounded fine to medium of chalk.

20.94m: thin orange brown fine to medium sand lamination

21.01m: thin orange brown fine to medium sand lamination

21.04m: indistinctly laminated



Remarks:

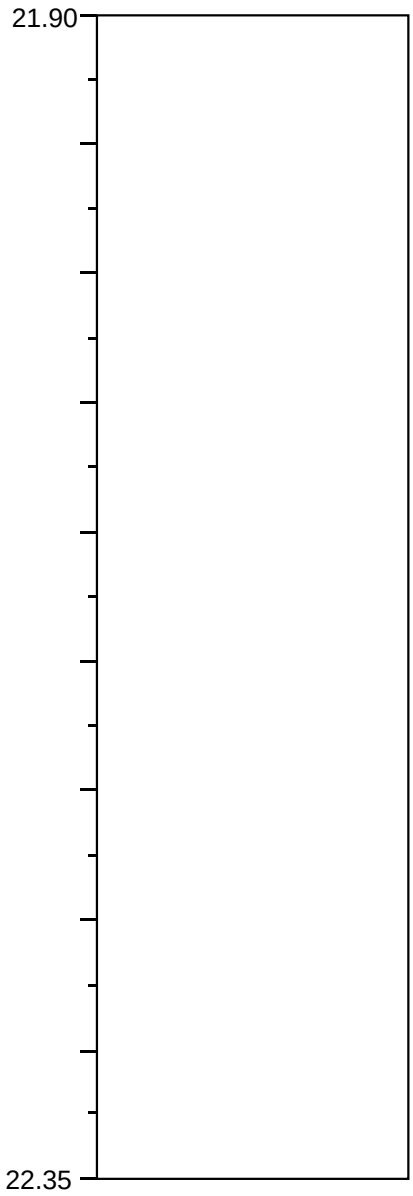
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH503
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH503		
Sample No	40		
Sample Depth, mBGL	21.90	-	22.35
Sample Type	UT		

Description

22.12 - 22.35m:
Firm thinly, locally thickly, laminated dark greyish brown silty CLAY with partings of silt and yellowish brown fine sand and closely spaced lenses, up to 5mm, of yellowish brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

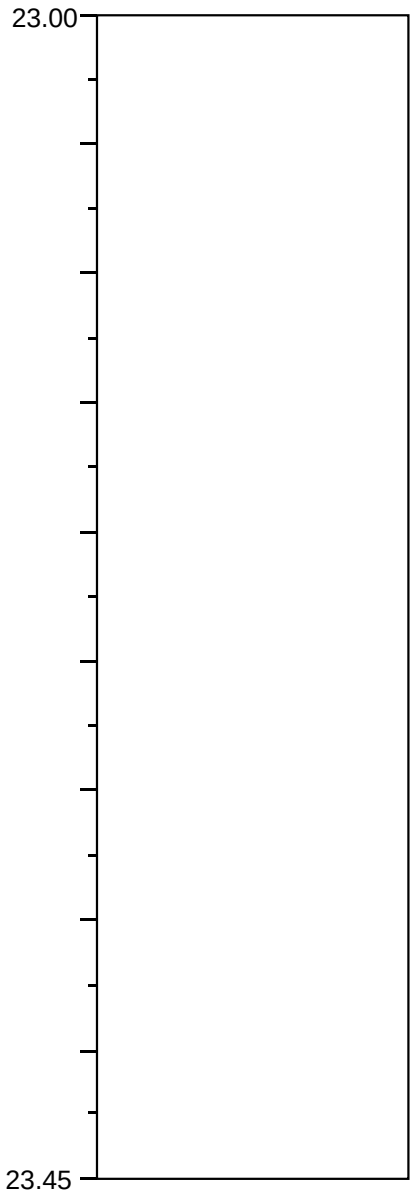
Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5099-15	BH503
	Carried out for	Balfour Beatty Limited	

Split Tube Sample Description

Borehole No	BH503		
Sample No	43		
Sample Depth, mBGL	23.00	-	23.45
Sample Type	UT		

Description

Stiff thinly to thickly laminated greyish brown CLAY with frequent partings and thin laminations of orangish brown silt and very closely spaced thin laminations of orangish brown fine sand. Occasional dark orangish brown silty fine to medium sand pockets.



23.28-23.34m: dark orangish brown silty fine to medium sand pocket

Remarks:

Notes:	Project	A63 PRINCESS QUAY	Bh No/Depth
	Project No.	A5066-15	BH503
	Carried out for	Balfour Beatty Limited	

APPENDIX C

INSTRUMENTATION AND MONITORING

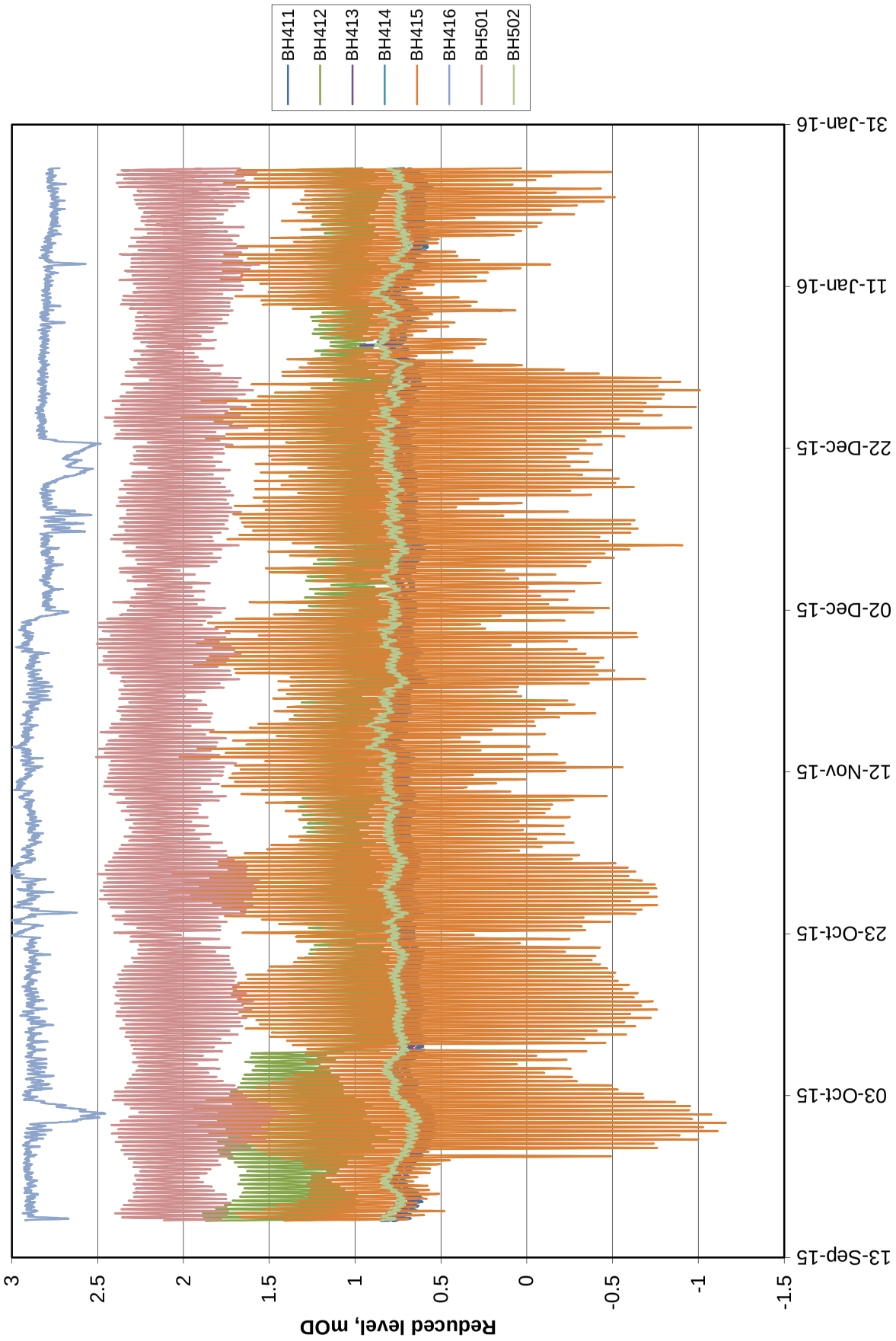
Installation Details

Instrument reference	Instrument type (see Notes)	Installation date	Pipe diameter (mm)	Instrument base (mbgl)	Response zone range (mbgl)	Instrument Base (m AoD)	Pipe top details	Headworks
BH410	SP	20/08/2015	50	7.00	5.00 to 8.00	-2.61	Gas tap	Flush cover
BH411	SP	26/08/2015	50	15.50	13.50 to 17.10	-11.26	Gas tap	Flush cover
BH412	SP	10/08/2015	50	23.00	21.00 to 23.50	-18.16	Gas tap	Flush cover
BH413	SP	24/08/2015	50	9.00	7.00 to 10.00	-3.84	Gas tap	Flush cover
BH414	SP	29/08/2015	50	15.50	14.00 to 17.00	-10.82	Gas tap	Flush cover
BH415	SP	11/08/2015	50	42.50	40.50 to 45.00	-37.21	Gas tap	Flush cover
BH416	SP	04/09/2015	50	5.00	3.50 to 5.60	-0.42	Gas tap	Flush cover
BH501	SP	14/08/2015	50	24.00	22.50 to 25.00	-18.77	Gas tap	Flush cover
BH502	SP	03/08/2015	50	17.50	16.50 to 18.50	-12.63	Gas tap	Flush cover

Groundwater Monitoring

Location	Instrument reference	Instrument Type	Base of Instrument	Date Time (hhmm)	Depth to groundwater (mbgl)	Depth to groundwater (m AoD)
BH411		SP	15.50	08/10/2015 13:00	3.65	0.59
BH411		SP	15.50	25/01/2016 14:10	3.59	0.65
BH412		SP	23.00	08/10/2015 13:28	4.45	0.39
BH412		SP	23.00	25/01/2016 14:30	3.82	1.02
BH413		SP	9.00	08/10/2015 13:20	4.46	0.7
BH413		SP	9.00	25/01/2016 14:40	4.45	0.71
BH414		SP	15.50	08/10/2015 13:35	4.97	-0.29
BH414		SP	15.50	25/01/2016 14:45	3.92	0.76
BH415		SP	42.50	08/10/2015 13:10	5.22	0.07
BH415		SP	42.50	25/01/2016 14:55	5.28	0.01
BH416		SP	5.00	08/10/2015 13:40	1.67	2.91
BH416		SP	5.00	25/01/2016 14:50	1.88	2.7
BH501		SP	24.00	08/10/2015 13:40	3.30	1.93
BH501		SP	24.00	25/01/2016 14:20	3.54	1.69
BH502		SP	17.50	08/10/2015 13:45	4.14	0.73
BH502		SP	17.50	25/01/2016 15:00	4.09	0.78

Groundwater Level Summary



Notes:		
	Project PRINCESS QUAY, A63 CASTLE ROAD IMPROVEMENT, HULL **Project No.** A5066-15 **Carried out for** Balfour Beatty	**Figure** 1

APPENDIX D

CONE PENETRATION TESTING

Summary of Cone Magnetometer Tests	Table 1
Summary of Cone Penetration Tests	Table 2
Cone Calibration Certificate	C10.CF1P.125 11.03.2015 and 03.07.2015
Key to Cone Penetration Test Records	Key CPT
Magnetometer Cone Test Plots	See Table 1
Cone Penetration Test Plots	See Table 2

Summary of Cone Magnetometer Tests

CPT No.	Depth of push (m)	Depth of data (m)	Date	Easting	Northing	Elevation (mOD)	Remarks	No. of Sheets
BH410	12.50	12.23	23/07/2015	509545.77	428423.12	4.39	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
BH411	12.50	12.23	29/07/2015	509574.25	428472.03	4.24	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214 Third attempt at this location	1
BH412	13.47	13.20	15/07/2015	509610.26	428414.41	4.84	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1195 Test carried out by In Situ SI	1
BH413	13.50	13.23	28/07/2015	509633.27	428469.64	5.16	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
BH414	1.18	0.91	23/07/2015	509656.91	428434.78	4.68	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214 Fourth attempt at this location	1
BH414	24.85	24.58	12/08/2015	509656.91	428434.78	4.68	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214 Second visit to this location	1
BH415	14.00	13.73	28/07/2015	509653.97	428473.57	5.29	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214 Second attempt at this location	1
BH416	5.67	5.40	24/07/2015	509677.81	428433.48	4.58	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214 Sixth attempt at this location	1
BH416	13.00	12.73	12/08/2015	509677.81	428433.48	4.58	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214 Second visit to this location	1
BH501	8.46	8.19	28/07/2015	509664.80	428473.64	5.23	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
BH502	13.77	13.50	15/07/2015	509737.07	428422.28	4.87	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1195 Test carried out by In Situ SI	1
BH503	17.48	17.21	10/09/2015	509638.52	428484.57	5.00	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT410M	12.50	12.23	23/07/2015	509564.61	428437.48	3.85	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT501M	11.56	11.29	09/09/2015	509649.60	428419.80	3.79	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT502M	17.57	17.30	11/09/2015	509679.00	428416.20	3.38	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214 Second attempt at this location	1
CPT503M	17.90	17.63	10/09/2015	509716.10	428412.10	3.38	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1

Notes:

Project A63 PRINCESS QUAY
Project No. A5066-15
Carried out for Balfour Beatty Limited

Table 1

Summary of Cone Penetration Tests

CPT No.	Depth (m)	Date	Easting	Northing	Elevation (mOD)	Remarks	No. of Sheets
CPT410	16.63	27/07/2015	509564.61	428437.48	3.85	Test using 10cm2 piezocone C10CFIP.125 u1 pwp readings appear unreliable, assumed desaturation of filter at start of test. Dissipation tests at 4.52m & 7.50m	5
CPT410a	24.33	27/07/2015	509564.61	428437.48	3.85	Test using 10cm2 piezocone C10CFIP.125 Data to 16.50m affected by CPT410. Dissipation test at 18.58m	7
CPT410b	17.64	28/07/2015	509564.61	428437.48	3.85	Test using 10cm2 piezocone C10CFIP.125 Repush of CPT410 0 to 16.50m. Dissipation tests at 4.63m & 7.89m	5
CPT411	2.38	30/07/2015	509574.25	428472.03	4.24	Test using 10cm2 piezocone C10CFIP.125 Test terminated on obstruction	3
CPT411a	5.99	30/07/2015	509574.25	428472.03	4.24	Test using 10cm2 piezocone C10CFIP.125 Dissipation test at 5.98m Test terminated at maximum safe inclination	4
CPT411b	1.58	30/07/2015	509574.25	428472.03	4.24	Test using 10cm2 piezocone C10CFIP.125 Test terminated on obstruction	3
CPT411c	0.88	30/07/2015	509574.25	428472.03	4.24	Test using 10cm2 piezocone C10CFIP.125 Test terminated on obstruction	3
CPT411d	18.71	30/07/2015	509574.25	428472.03	4.24	Test using 10cm2 piezocone C10CFIP.125	3
CPT412	0.85	29/07/2015	509653.10	428472.11	5.27	Test using 10cm2 piezocone C10CFIP.125 Test terminated on obstruction	3
CPT412a	26.00	29/07/2015	509654.69	428473.54	5.27	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 10.00m & 22.64m	8
CPT413	24.72	13/08/2015	509676.93	428434.22	4.62	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 10.20m & 21.73m	8
CPT501	5.95	10/09/2015	509650.30	428419.30	3.37	Test using 10cm2 piezocone C10CFIP.125 Test terminated on obstruction	3
CPT501a	6.56	10/09/2015	509650.30	428419.30	3.37	Test using 10cm2 piezocone C10CFIP.125 Test terminated on obstruction	3
CPT501b	18.12	10/09/2015	509650.30	428419.30	3.37	Test using 10cm2 piezocone C10CFIP.125 Dissipation test at 9.05m	4
CPT502	23.53	12/09/2015	509678.40	428417.00	3.38	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 8.00m & 20.75m See Notes.	8
CPT503	18.10	11/09/2015	509716.70	428413.00	3.38	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 8.85m & 9.00m See Notes.	5

Notes (unless indicated otherwise above)

- Piezocone fitted with sintered bronze pore pressure filter located in the tip (u1) position
- Tests with 10 cm^2 cone carried out with a friction reducer
- Tests terminated at maximum achievable depth (refusal)
- No backfilling to CPT holes
- Dissipation tests showing irregular cone resistance and/or pore water pressure responses have probably been affected by pontoon movements during montoring.
- Pore pressure response for CPT502 and 503 apparently attenuated during test, possibly due to protective sheath remaining in place. See text.
- Raw cone resistance data for CPT502 apparently affected by test zero shift during test. Adjusted plot presented as CPT502(Rev). See text.

GeoPoint Systems bv

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E-mail : info@geopoint.nl
BTW : NL814690178.B01
IBAN : NL28 INGB0682301396
BIC : INGBNL2A

Cone Calibration Certificate

Certificate:	**GS-125-006**	
Instrument Type:	Electric Compression Cone	
Model:	C10-CFIP	
Serial number:	125	
Calibration date:	03-07-2015	
Client:	EGS	
Calibrated by:	M. van Es	
Calibration instruments		
Manufacturer:	Hottinger Baldwin Messtechnik GmbH	
HBM certificate no. :	FL1461	
Calibration conditions		
Ambient temperature:	22.1	°C
Atmospheric pressure:	1026	mBar
Cone specifications		
Cone base area:	1000	mm2
Load tip resistance (nom.):	50	kN
Friction sleeve area:	15000	mm2
Load local friction (nom.):	15	kN
Load pore pressure (nom.):	2	MPa
Inclination (nom.):	20	°
Temperature compensation (all channels):	0...+40	°C
Maximum overload capacity (all channels):	100	%
Cone area ratio (a):	0.80	
Max. inaccuracy, relative to measurement value:	1.0	%

	Tip:		Sleeve:		Pore Pressure:		Inclinometer:	
	qc in kN	mV	fs in kN	mV	MPa	mV	Degrees	mV
Zero points:		0234		0253		0229		
	0	0	0	0	0	0	0	0085
	5	0385	1.50	0520	0.4	1303	5	0350
	10	0771	3.00	1040	0.8	2601	10	0880
	15	1157	4.50	1560	1.2	3898	15	1675
	20	1541	6.00	2084	1.6	5186	20	2207
	25	1925	7.50	2609	2	6467	25	2740
	30	2309	9.00	3130				
	35	2695	10.50	3651				
	40	3081	12.00	4177				
	45	3465	13.50	4705				
	50	3848	15.00	5224				

Max. error, abs. qc:	35 kPa
Max. error, abs. fs:	2 kPa
Max. error, abs. u2:	10 kPa
Max. error, abs. I:	1 °

This calibration is compliant with GeoPoint Systems internal quality system, internal calibration procedures and meets the requirements of NEN2649, NEN5140, NORSOK G-001, ISSMFE and ASTM using calibration equipment traceable to (Inter-) National Standards.

Approved by: B. van Eijk
Date: 03-07-2015

[redacted]

Environmental Scientifics Group.

CPT CONE

Cone No.	C10-CFIP.125	Date of Calibration	11 March 2015
Manufacturer	GeoPoint.	Reference Standards	BS 1377 : 1990 Part 9
Compression/ Subtraction	Compression	Reference Equipment	Pressure meter 1972A
			Vernier callipers GCV1
Pore Pressure Channel (Y/N)	Y		Load cell 22541
			Voltmeter 06402486
Cone end area ratio (by dimension measurement), a	0.5	Sleeve end area ratio (by dimension measurement), b	1.0

Note: Calibration Zero taken as no load in free air, Output taken as slope of linear regression line x maximum load.

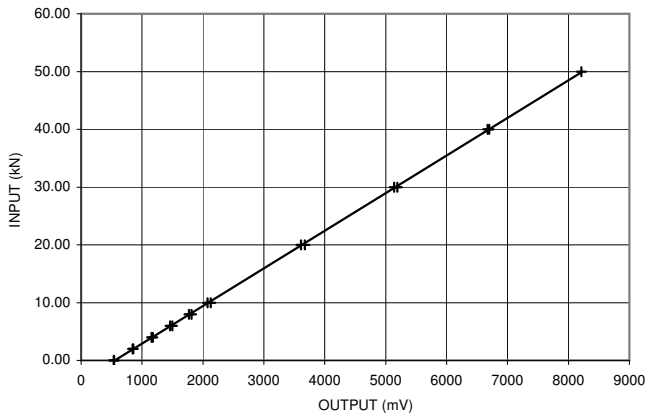
Cone Type (S/ C/ M/ D/ T): C

Ch 3 (P/ C/ T/ N/ F): P

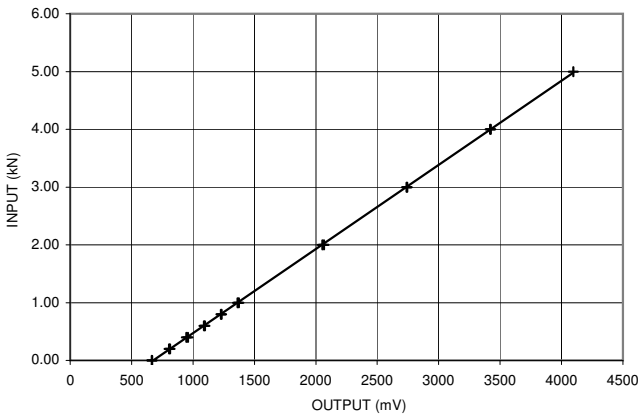
	Output		Input		Zero		Area		Alarm	
Channel 1	7673	mV	50	kN	461	mV	10	cm^2	45	kN
Channel 2	3432	mV	5.0	kN	254	mV	150	cm^2	6	kN
Channel 3	9260	mV	20	Bar	732	mV			16	Bar

Inclination	0^o	5^o	10^o	Alarm
	67	310	1201	15
	15^o	20^o	25^o	
	2498	4110	5425	Extra Channels: N

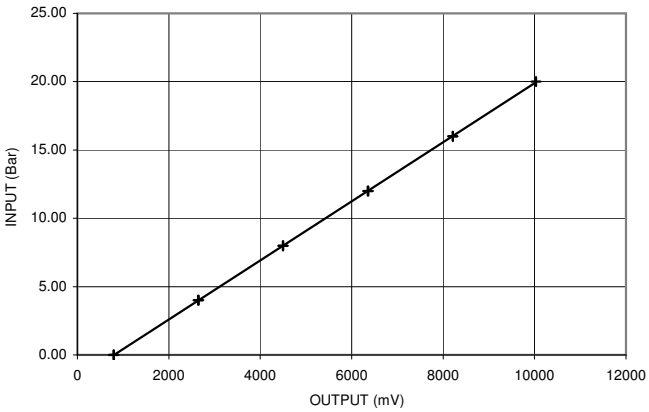
CHANNEL 1 - TIP



CHANNEL 2 - FRICTION SLEEVE



CHANNEL 3 - PORE PRESSURE



ESG Environmental Scientifics Group

Cone calibrated by:
DkBowns
Date:
11 March 2015

Authorised for use by:
[redacted]
Manager

Key to Cone Penetration Test Records

Parameter	Unit	Description	Equation
Measured parameters			
q_c	MPa	Cone resistance	Measured parameter
f_s	MPa	Sleeve friction	Measured parameter
I	degrees	Inclination	Measured parameter
u	MPa	Dynamic pore pressure (Piezocone only)	Measured parameter. Denoted as u_1 and u_2 for pore pressure filter locations on cone face and cone shoulder respectively.
-	m, s	Penetration depth and corresponding time	Measured parameters
Derived cone parameters			
R_f	%	Friction ratio	f_s / q_c . 100 %
q_t	MPa	Corrected cone resistance (Piezocone only)	$q_c + (1 - a) . u_2$ where a = area ratio of cone = A_n/A_c A_n = cross sectional areas of cone tip shaft A_c = projected area of cone tip
f_t	MPa	Corrected sleeve friction (Piezocone only)	$(f_s – (u_2 . A_{sb} – u_3 . A_{st})) / A_s$ where b = area ratio of friction sleeve A_{sb} and A_{st} are bottom and top cross sectional areas of friction sleeve
q_e	MPa	Effective cone resistance (Piezocone only)	$q_t – u_2$
q_n	MPa	Net cone resistance (Piezocone or using $q_t = q_c$)	$q_t - \sigma_{vo}$ where σ_{vo} = vertical total stress
R_t'	%	Corrected friction ratio (Piezocone only)	f_t / q_t . 100 %
Δu	MPa	Excess pore pressure (Piezocone only)	$u - u_0$ where u_0 = equilibrium pore water pressure
B_q	-	Pore pressure ratio (Piezocone only)	$(u - u_0) / (q_t - \sigma_{vo}) = \Delta u/q_n$
-	-	Dynamic pore pressure ratio (Piezocone only)	u / q_c
Q_t	-	Normalised cone resistance (Piezocone or using $q_t = q_c$)	$(q_t - \sigma_{vo}) / \sigma'_{vo} = q_n / \sigma'_{vo}$ where σ'_{vo} = vertical effective stress
F_r	%	Normalised local friction (Piezocone or using $q_t = q_c$)	$f_s / (q_t - \sigma_{vo}) = f_s / q_n$. 100 %

Notes:

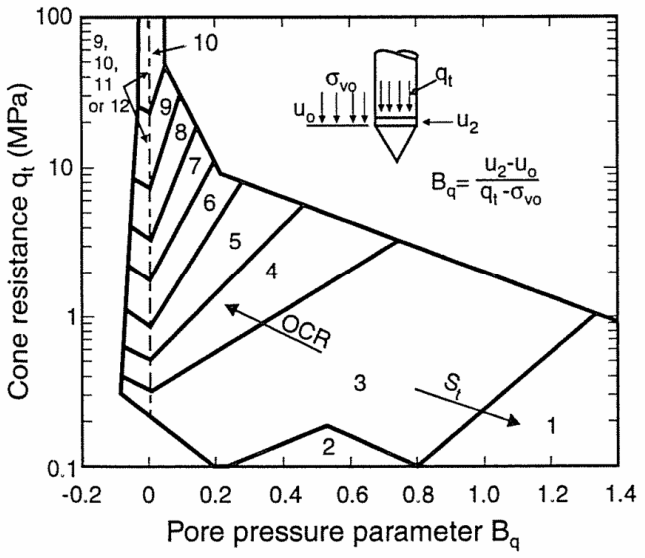
Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

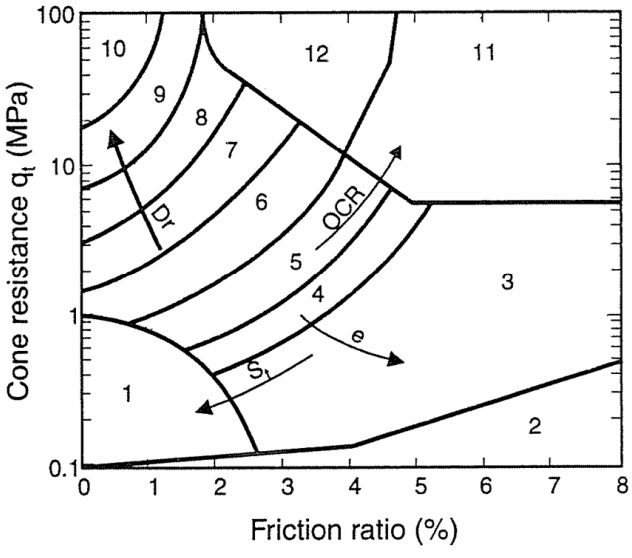
Key CPT

Key to Cone Penetration Test Records

Derived soil parameters		
Parameter	Description	Remarks
-	Soil Type	Classification after Robertson (1990) using normalised cone resistance, normalised friction ratio and pore pressure ratio (piezocone only), see Figure 1.
s_u Su(min) and Su(max)	Undrained Shear Strength (Clays)	Interpretation for fine soils only – soil types 3 and 4. Based on net cone resistance (corrected where pore pressure data available) and empirical cone factor $= (q_c - \sigma_{vo}) / N_k$ Plots of minimum and maximum strength presented using N_k of 20 and 12.
D_r RD	Relative Density	Interpretation for coarse soils only – soil types 5, 6 and 7. After Baldi et al (1986) for moderately compressible, unaged, uncemented, silica sand $= (1 / C_2) . Ln (q_c / C_0 (\sigma')^{C_1})$ For NC sands : $C_0 = 157$, $C_1 = 0.55$, $C_2 = 2.41$, $\sigma' = \sigma'_{vo}$ For OC sands : $C_0 = 181$, $C_1 = 0.55$, $C_2 = 2.61$, $\sigma' = \sigma'_m$ and mean effective stress = $\sigma'_m = (\sigma'_{vo} + 2\ \sigma'_{ho}) / 3$
ϕ IFA	Internal Friction Angle	Interpretation for coarse soils only – soil types 5, 6 and 7. After Robertson and Campanella (1983) for uncemented, moderately incompressible, predominately silica sands $= Arctan (0.105 + 0.16 . Ln (q_c / \sigma'_{vo}))$
I_c	Soil Behaviour Type Index	After Jefferies and Davies (1993) modified by Lunne et al (1997) $= ((3.47 – Log\ Q_t)^2 + (Log\ F_r + 1.22)^2)^{0.5}$
N_{60}	Equivalent Standard Penetration Test (SPT) N value	$= (q_c / p_a) / 8.5 . (1 - I_c / 4.6))$ p_a – reference stress of 100 kPa

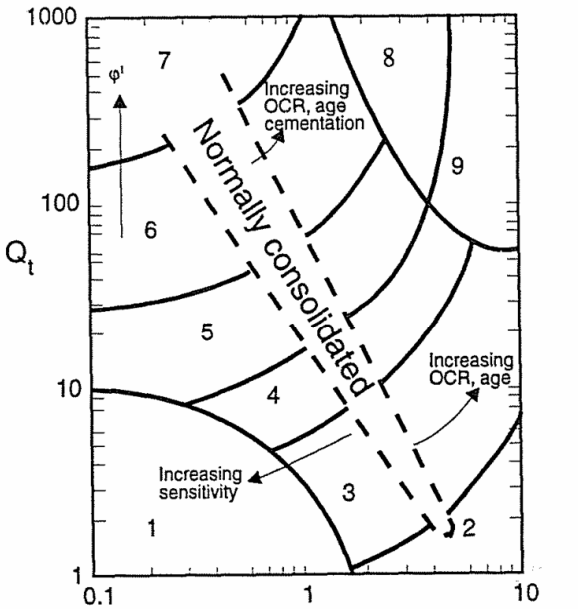
Soil Behaviour Type Interpretation



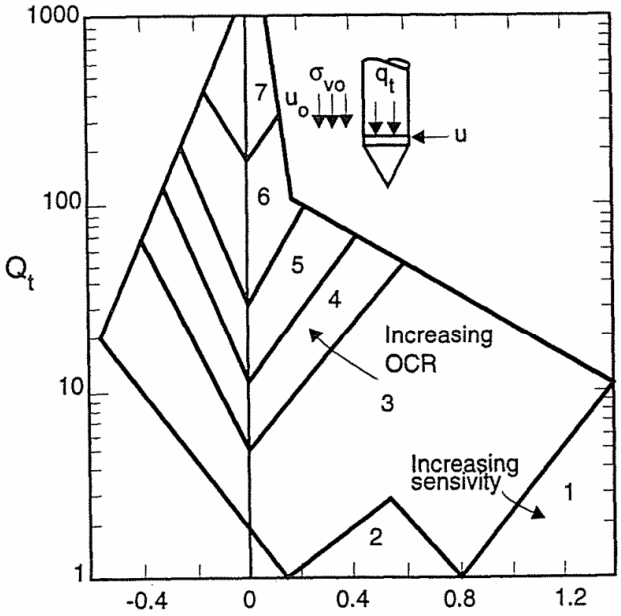


KEY TO SOIL BEHAVIOUR TYPES - after Robertson et al (1986)

ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE
1	Sensitive fine grained	5	Clayey silt to silty clay	9	Sand
2	Organic material	6	Sandy silt to clayey silt	10	Gravelly sand to sand
3	Clay	7	Silty sand to sandy silt	11	Very stiff fine grained*
4	Silty clay to clay	8	Sand to silty sand	12	Sand to clayey sand*



$Q_t = \frac{q_t - \sigma_{vo}}{\sigma'_{vo}}$ $F_r = \frac{f_s \times 100\%}{q_t - \sigma_{vo}}$



$B_q = \frac{u_2 - u_o}{q_t - \sigma_{vo}}$

KEY TO SOIL BEHAVIOUR TYPES – after Robertson (1990)

ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE
1	Sensitive fine grained	4	Silt mixtures: clayey silt to silty clay	7	Gravelly sand to sand
2	Organic soils – peats	5	Sand mixtures: silty sand to sandy silt	8	Very stiff sand to clayey sand
3	Clays: clay to silty clay	6	Sands: clean sand to silty sand	9	Very stiff fine grained

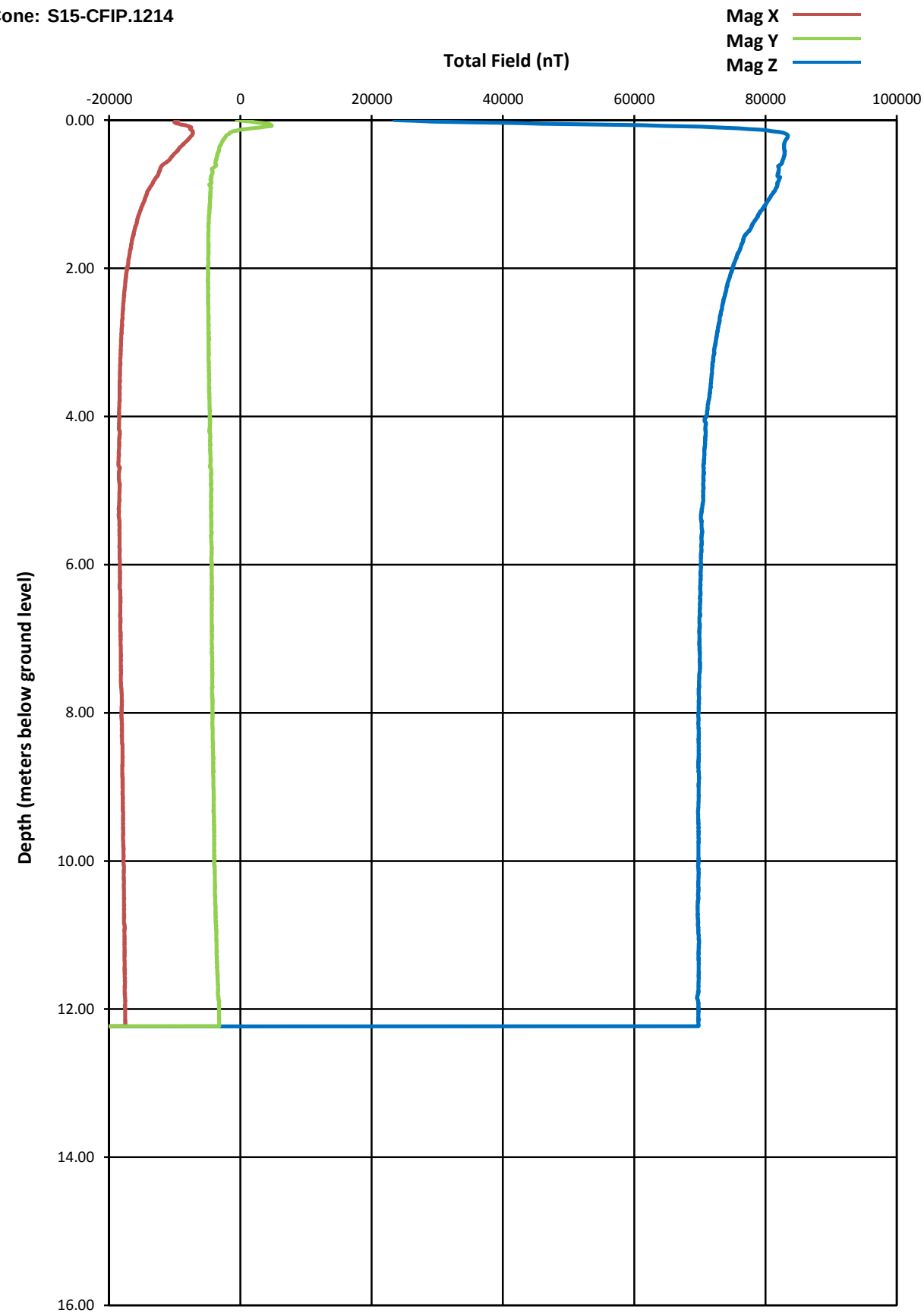
Notes:

Project: A63 Castle Street Improvement, Hull
Project No.: A5049-15
Carried out for: Balfour Beatty

Figure
Key CPT

Cone Magnetometer

Date: 23-07-2015
Cone: S15-CFIP.1214



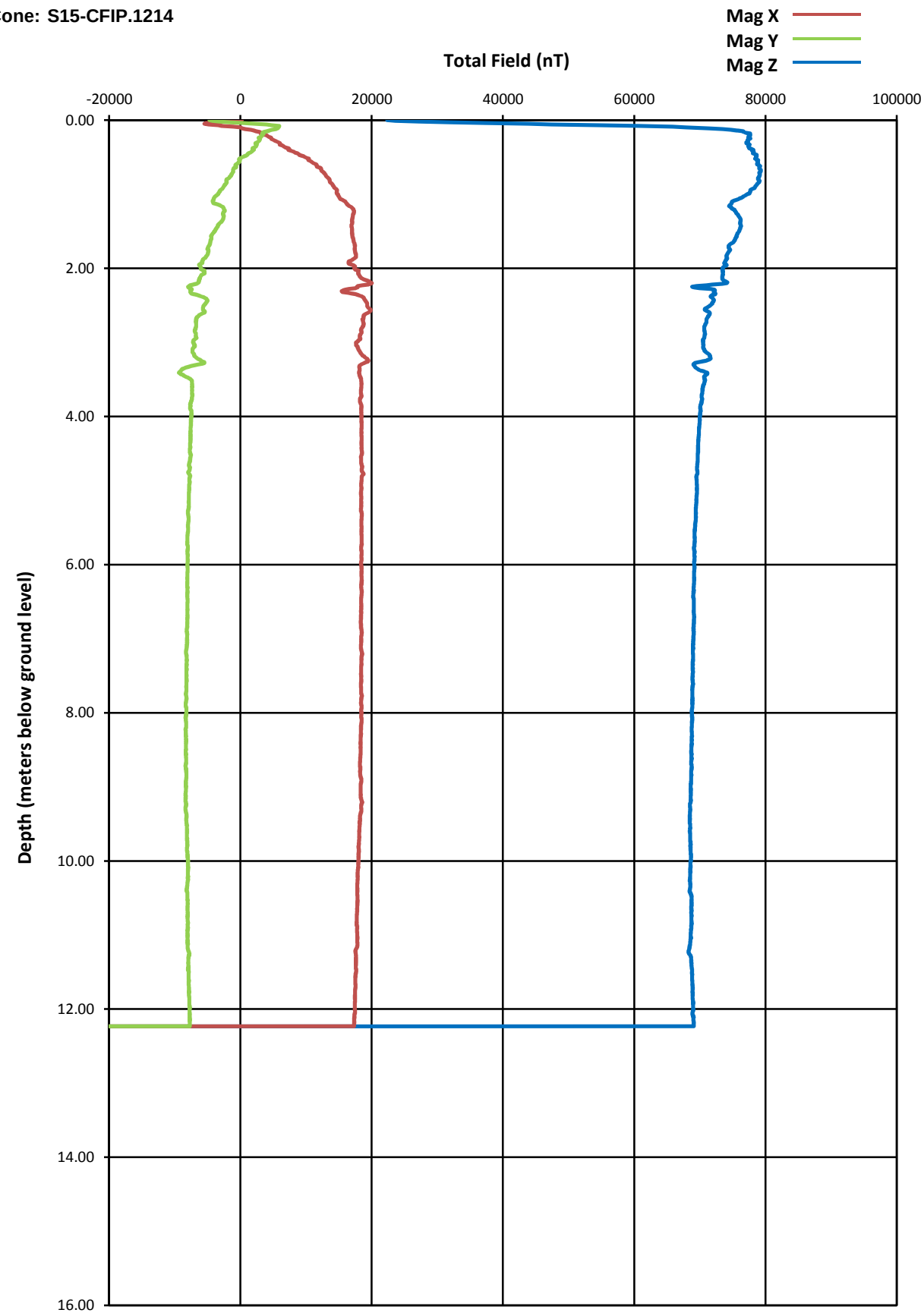
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH410

Cone Magnetometer

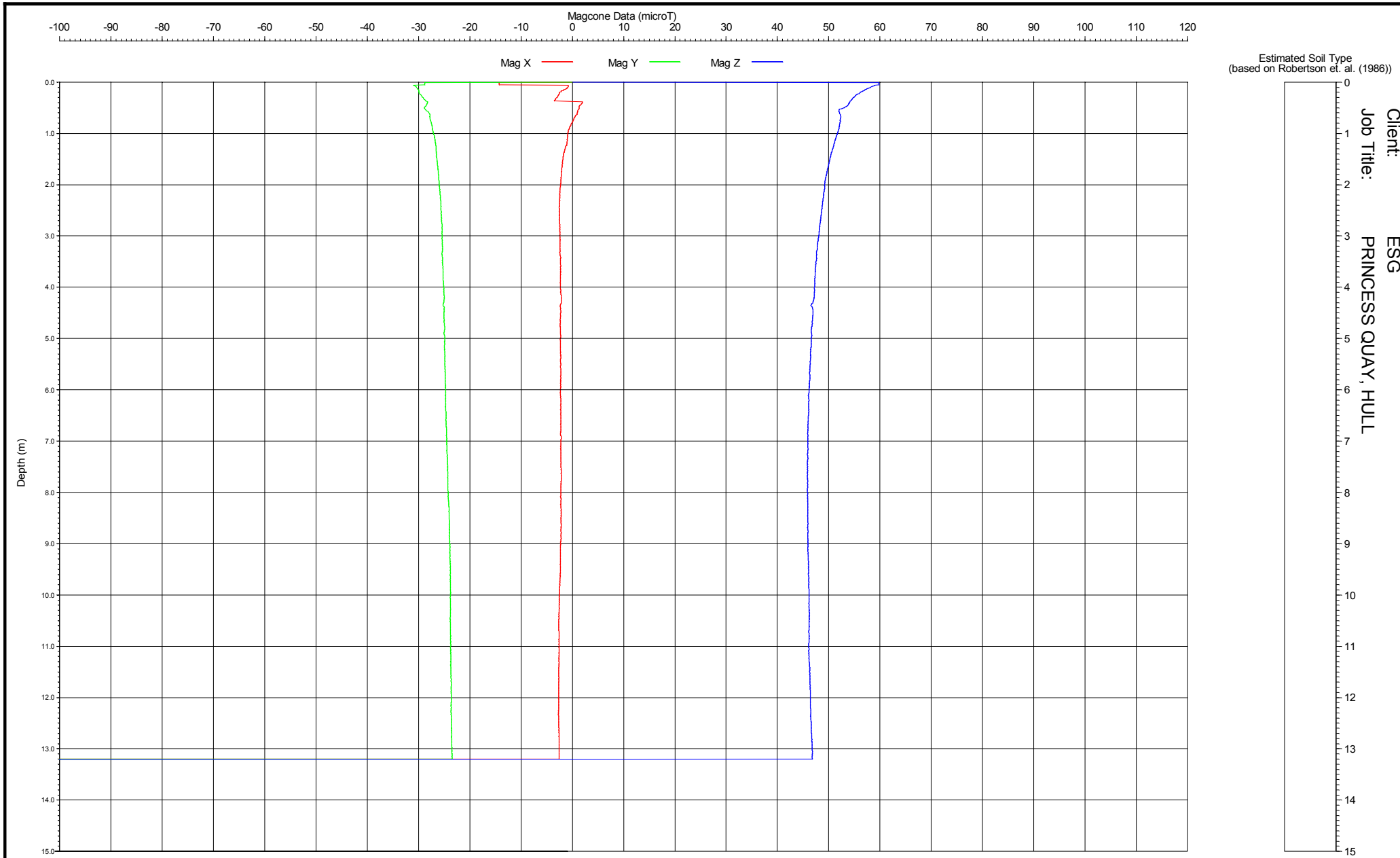
Date: 29-07-2015
Cone: S15-CFIP.1214



Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH411



Client: ESG

Job Title: PRINCESS QUAY, HULL

Location: Hull

Coordinates: -

Ground Level: -

Cone & Rig Used: Magnetometer.1195 - CPT 009

Remarks: Test refused on total pressure.

Date of Test: 15/07/2015

Date of Plot: 15/07/2015

File Name: 1150252 - MAG 412

Checked By: [redacted]

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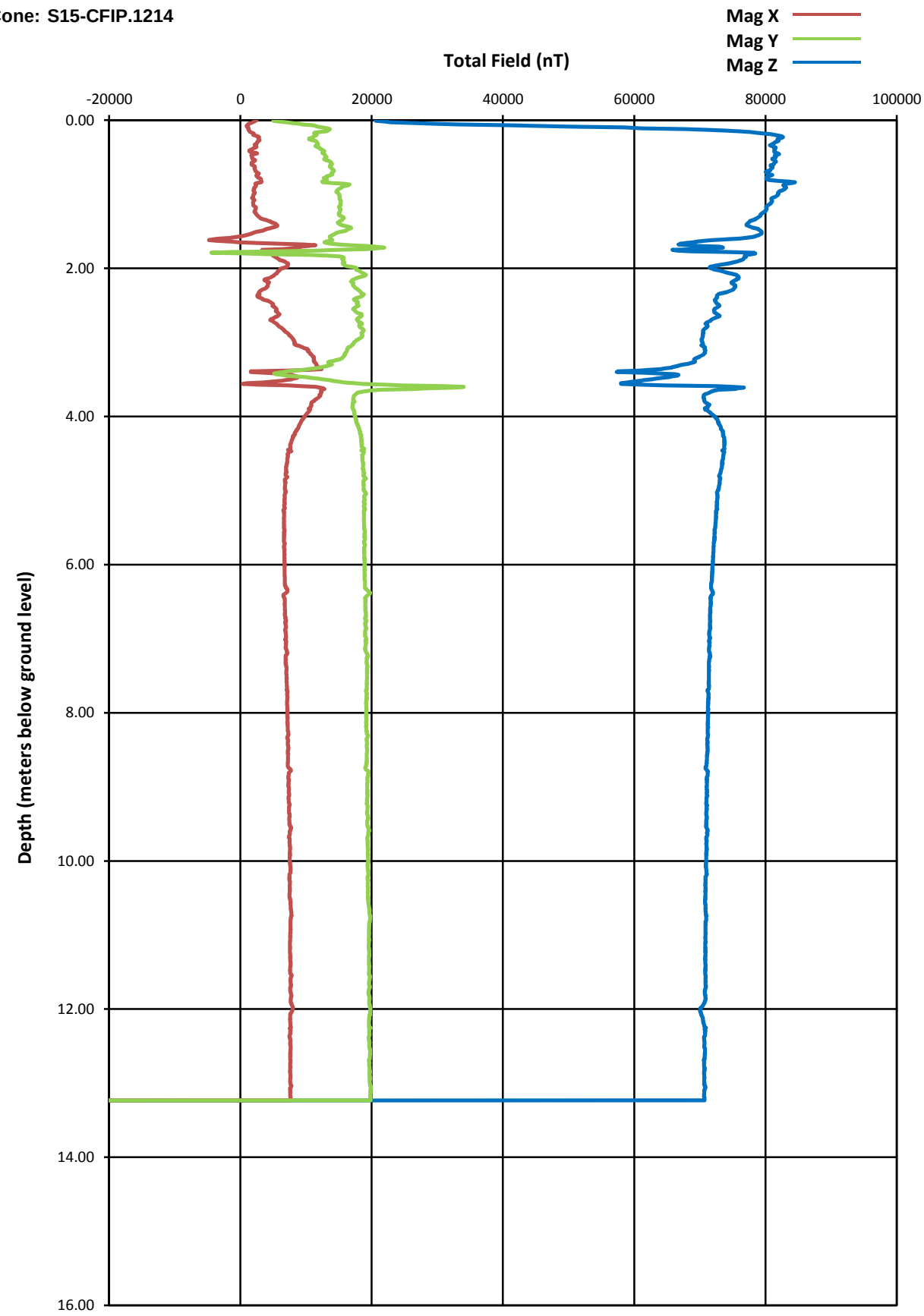
PIEZO CONE PENETRATION TEST

MAG 412

Form: CPT0017

Cone Magnetometer

Date: 28-07-2015
Cone: S15-CFIP.1214



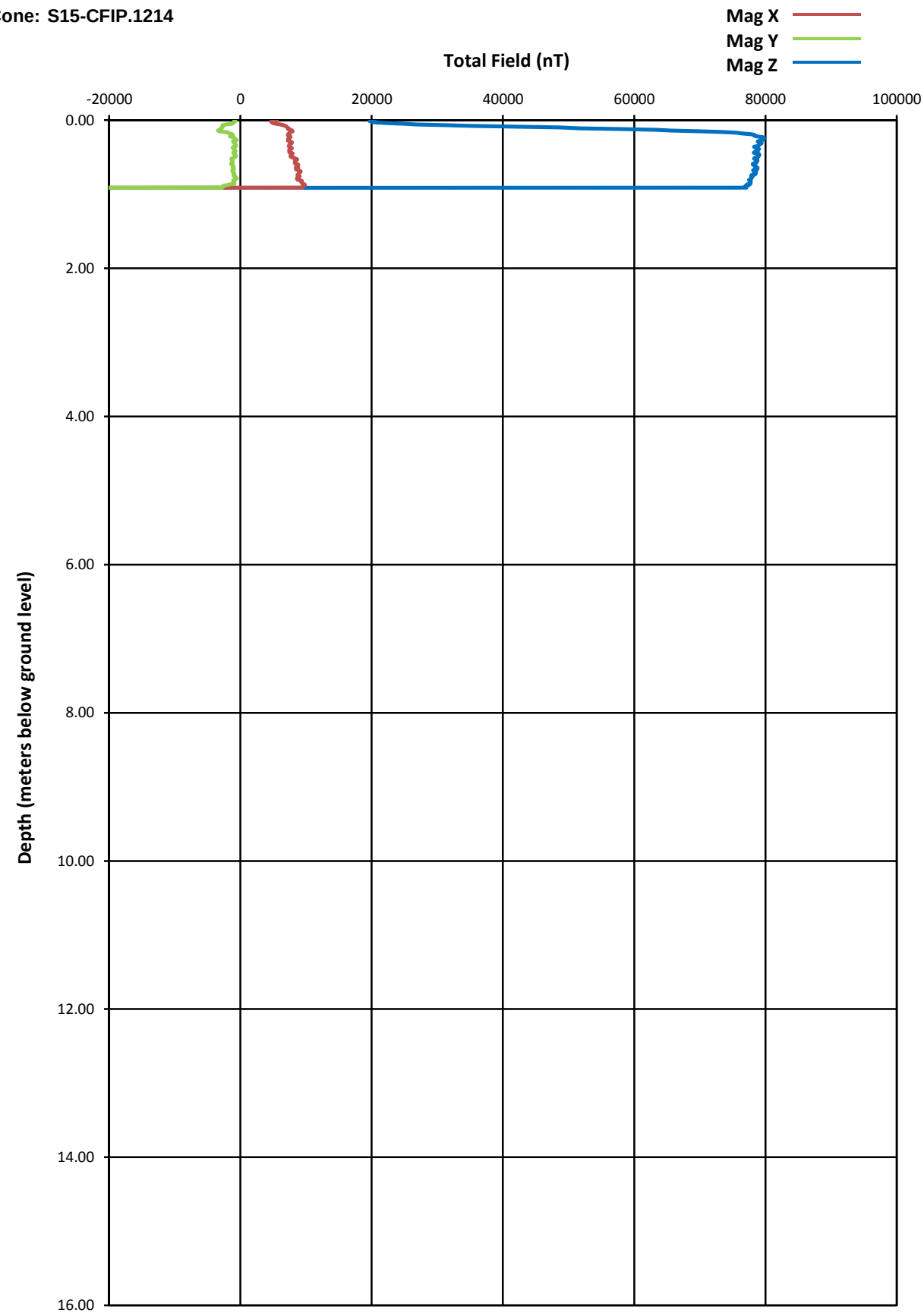
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH413

Cone Magnetometer

Date: 23-07-2015
Cone: S15-CFIP.1214



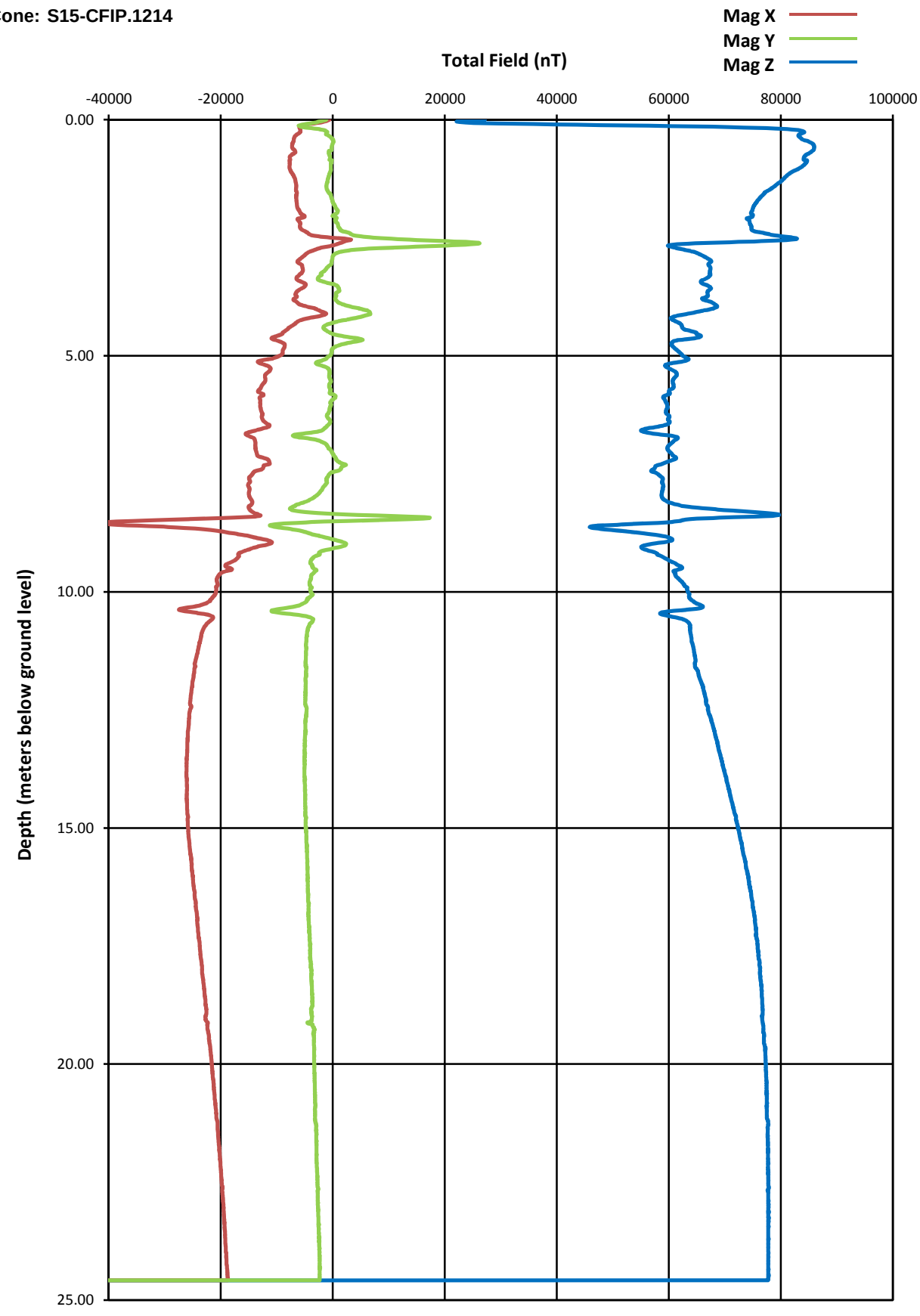
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH414

Cone Magnetometer

Date: 12-08-2015
Cone: S15-CFIP.1214



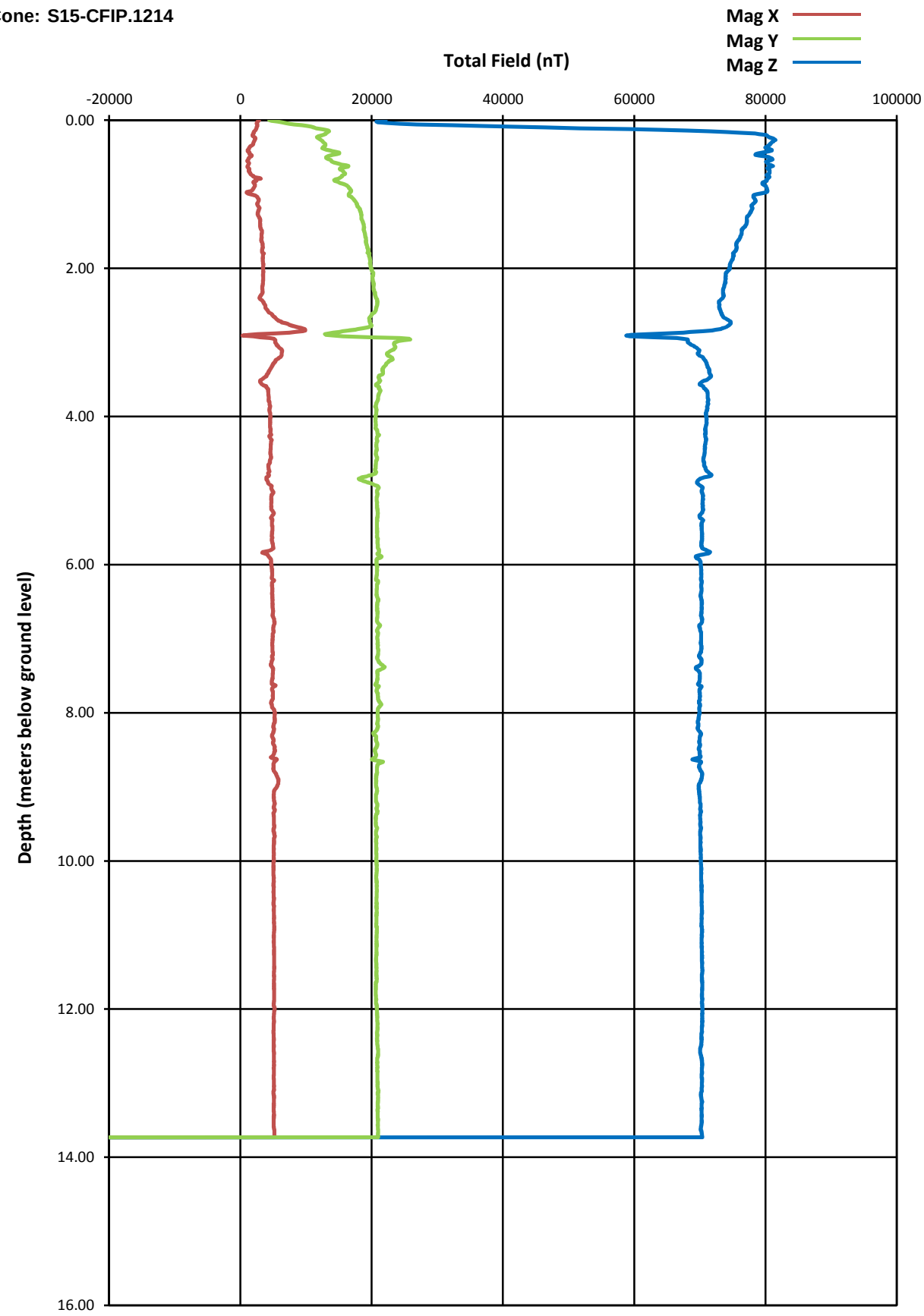
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH414 revisit

Cone Magnetometer

Date: 28-07-2015
Cone: S15-CFIP.1214



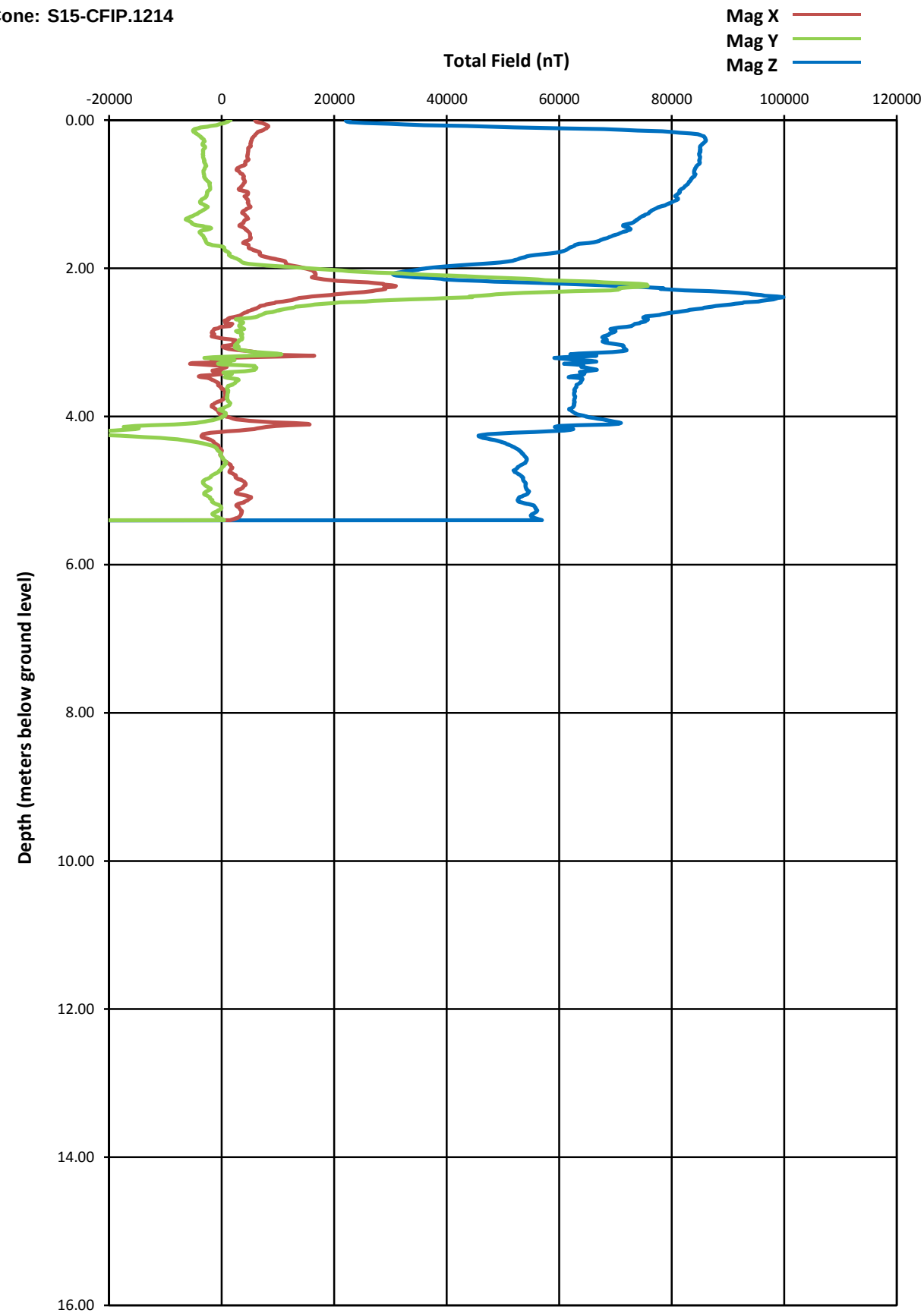
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH415

Cone Magnetometer

Date: 24-07-2015
Cone: S15-CFIP.1214



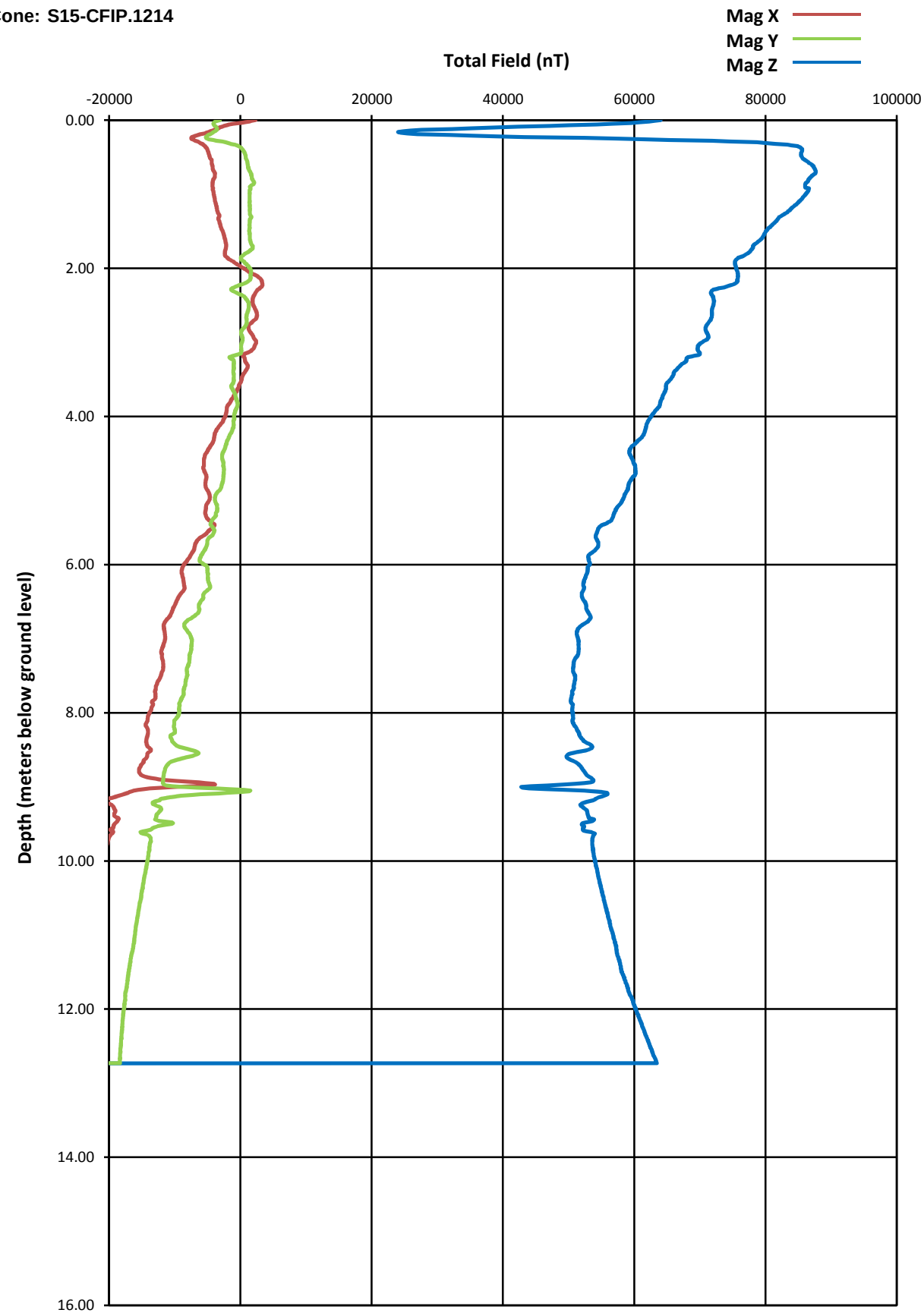
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH416

Cone Magnetometer

Date: 12-08-2015
Cone: S15-CFIP.1214



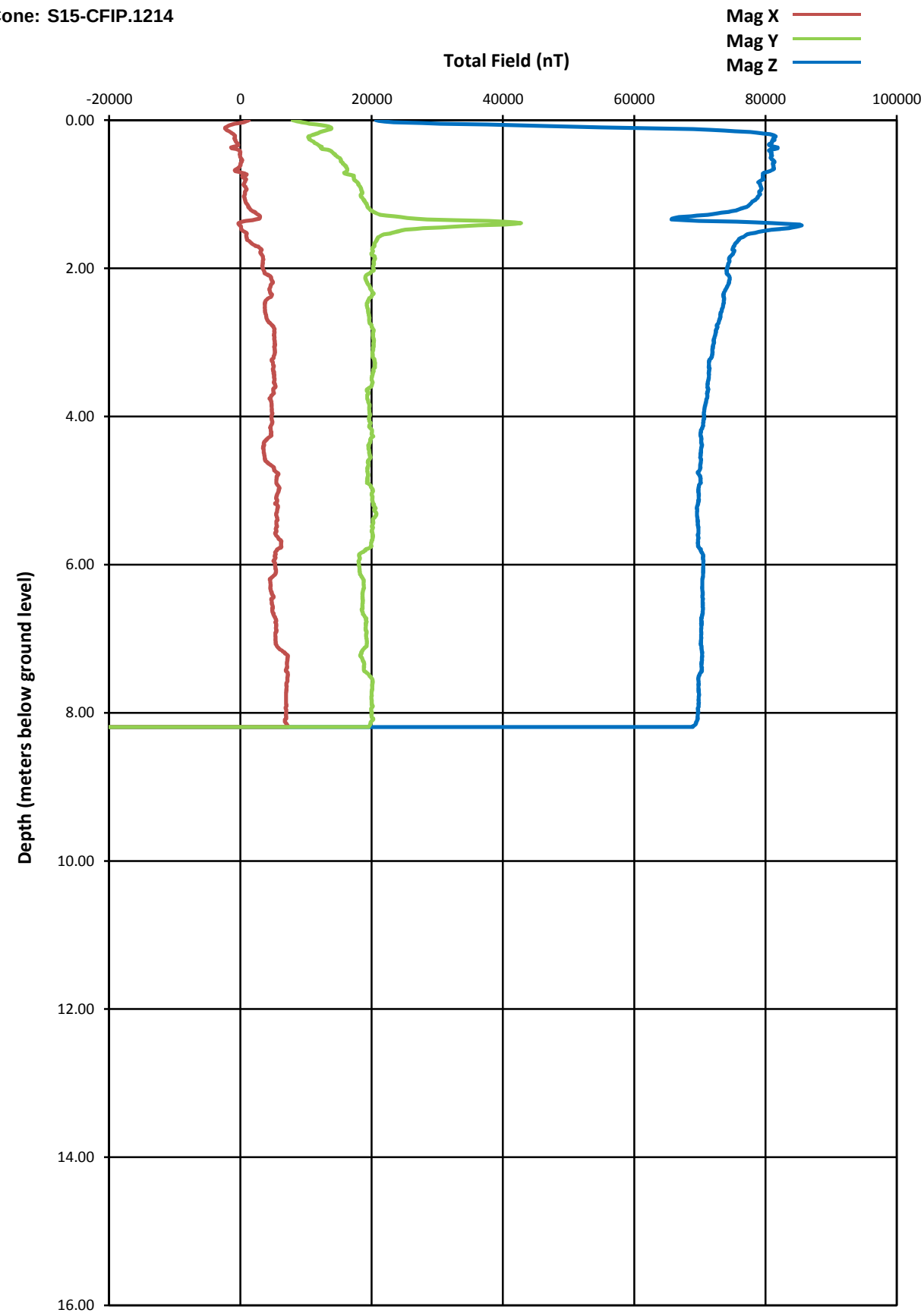
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH416 revisit

Cone Magnetometer

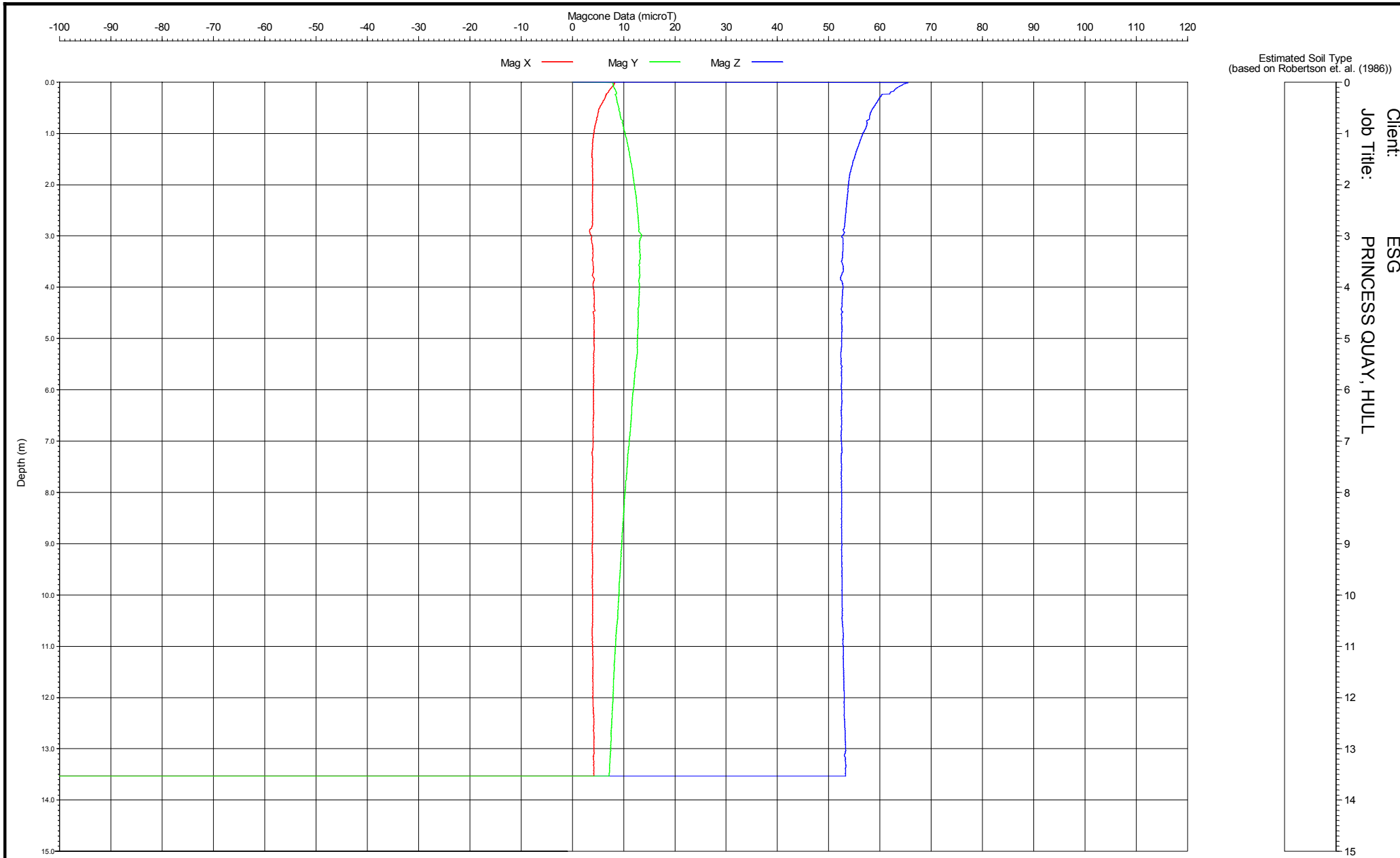
Date: 28-07-2015
Cone: S15-CFIP.1214



Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH501



Client: ESG

Job Title: PRINCESS QUAY, HULL

Location: Hull

Coordinates: -

Ground Level: -

Cone & Rig Used: Magnetometer.1195 - CPT 009

Remarks: Test refused on total pressure.

Date of Test: 15/07/2015

Date of Plot: 15/07/2015

File Name: 1150252 - MAG 502

Checked By: [redacted]

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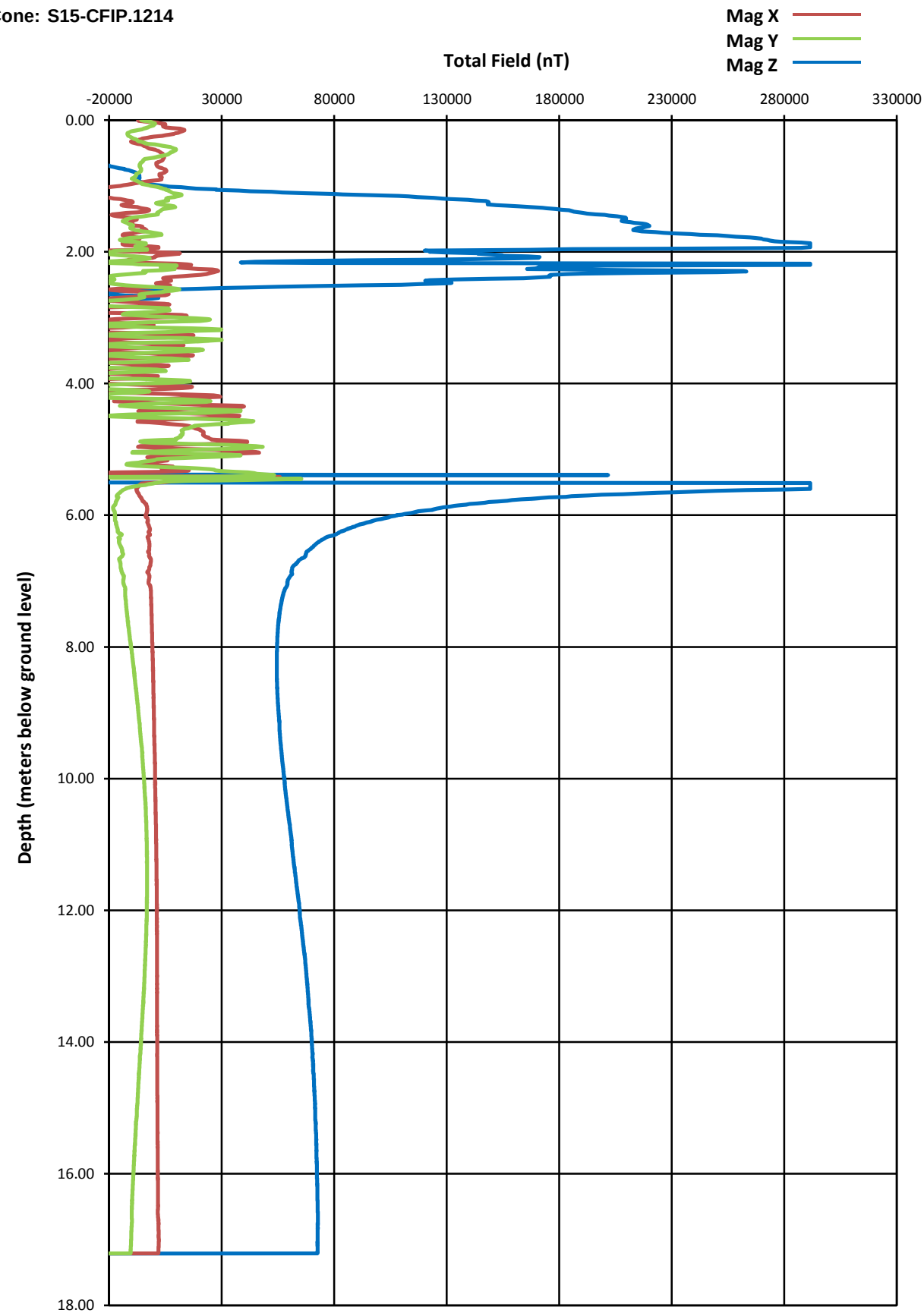
PIEZO CONE PENETRATION TEST

MAG 502

Form: CPT0017

Cone Magnetometer

Date: 10-09-2015
Cone: S15-CFIP.1214



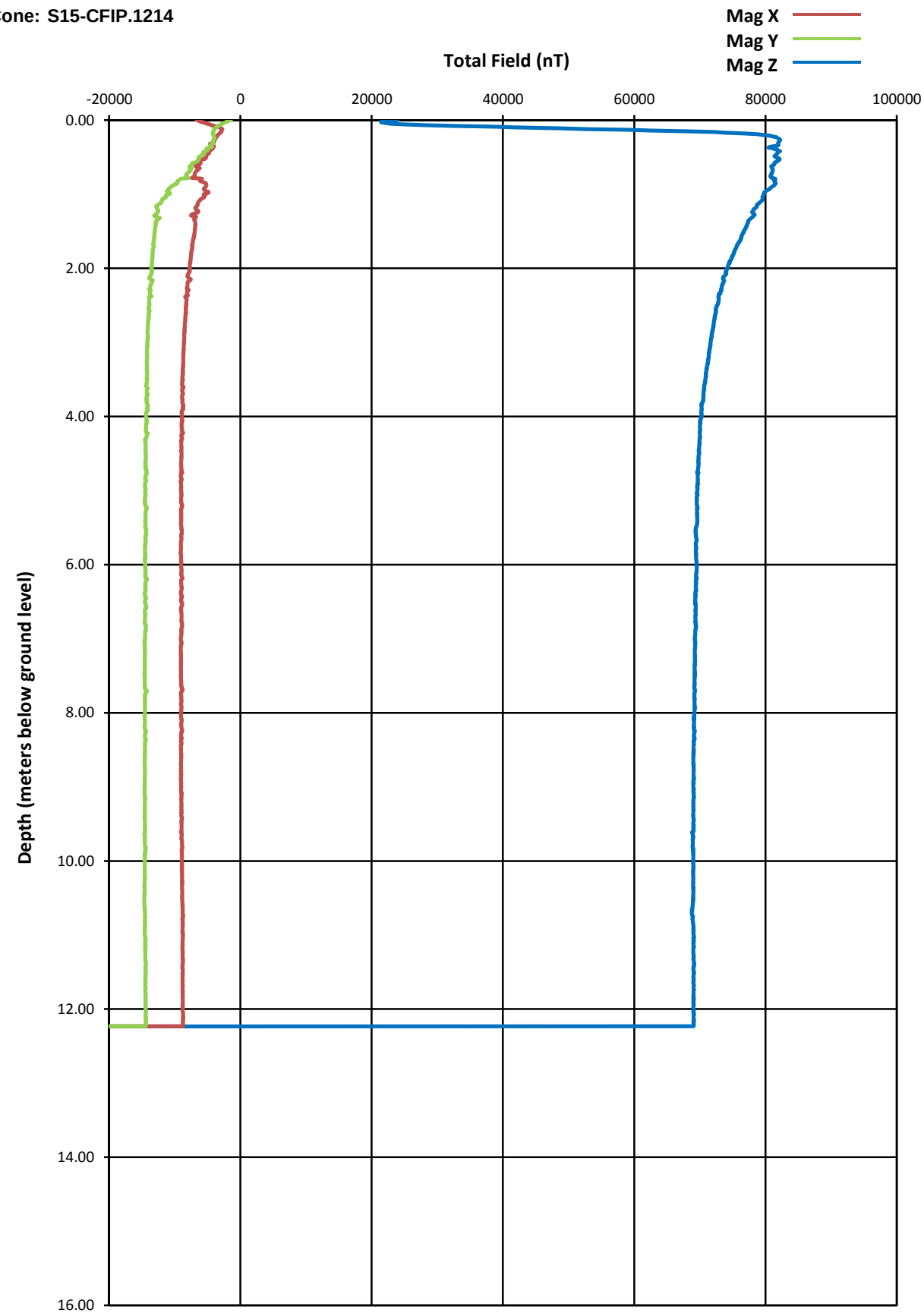
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
BH503

Cone Magnetometer

Date: 23-07-2015
Cone: S15-CFIP.1214



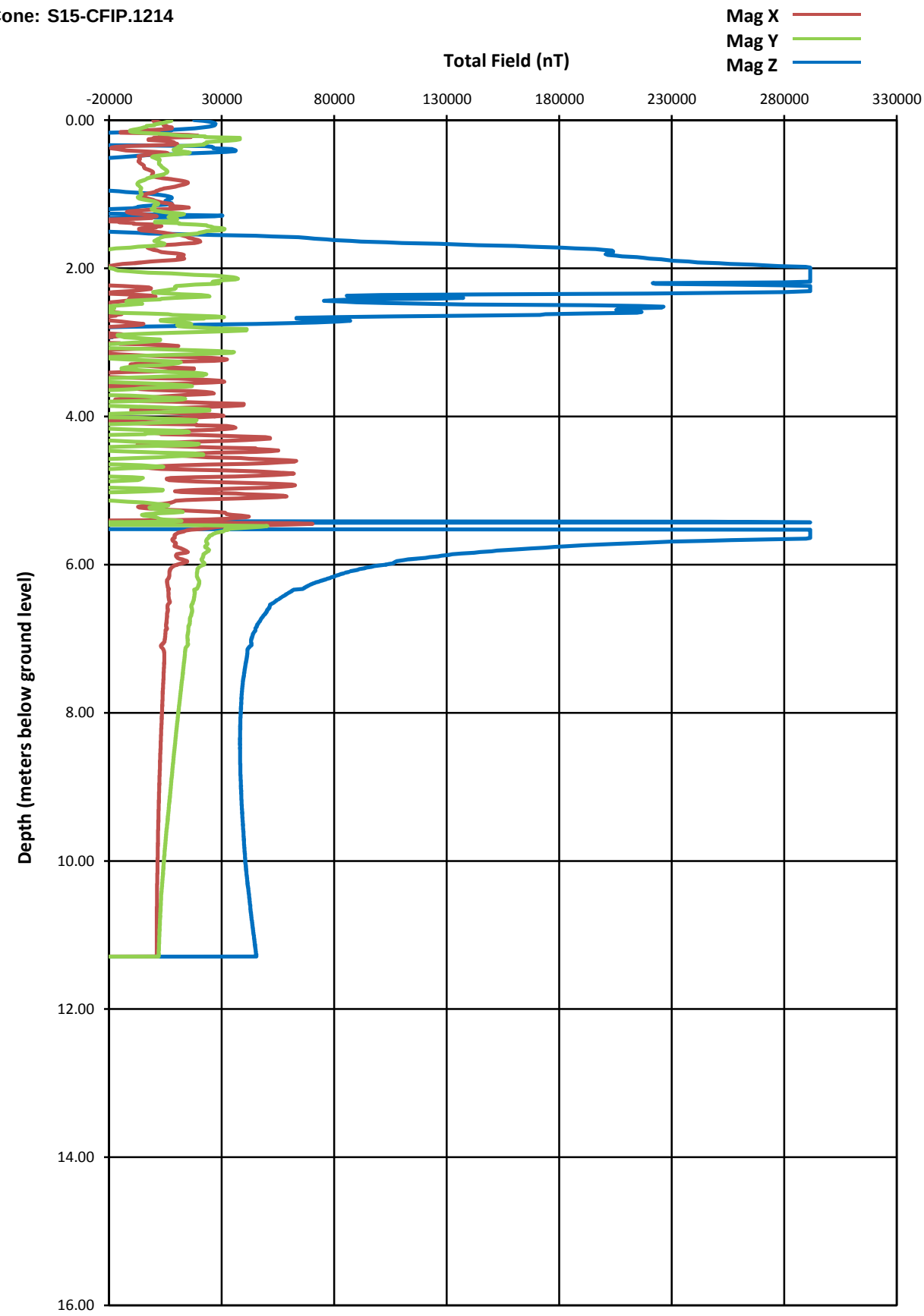
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
CPT410M

Cone Magnetometer

Date: 09-09-2015
Cone: S15-CFIP.1214



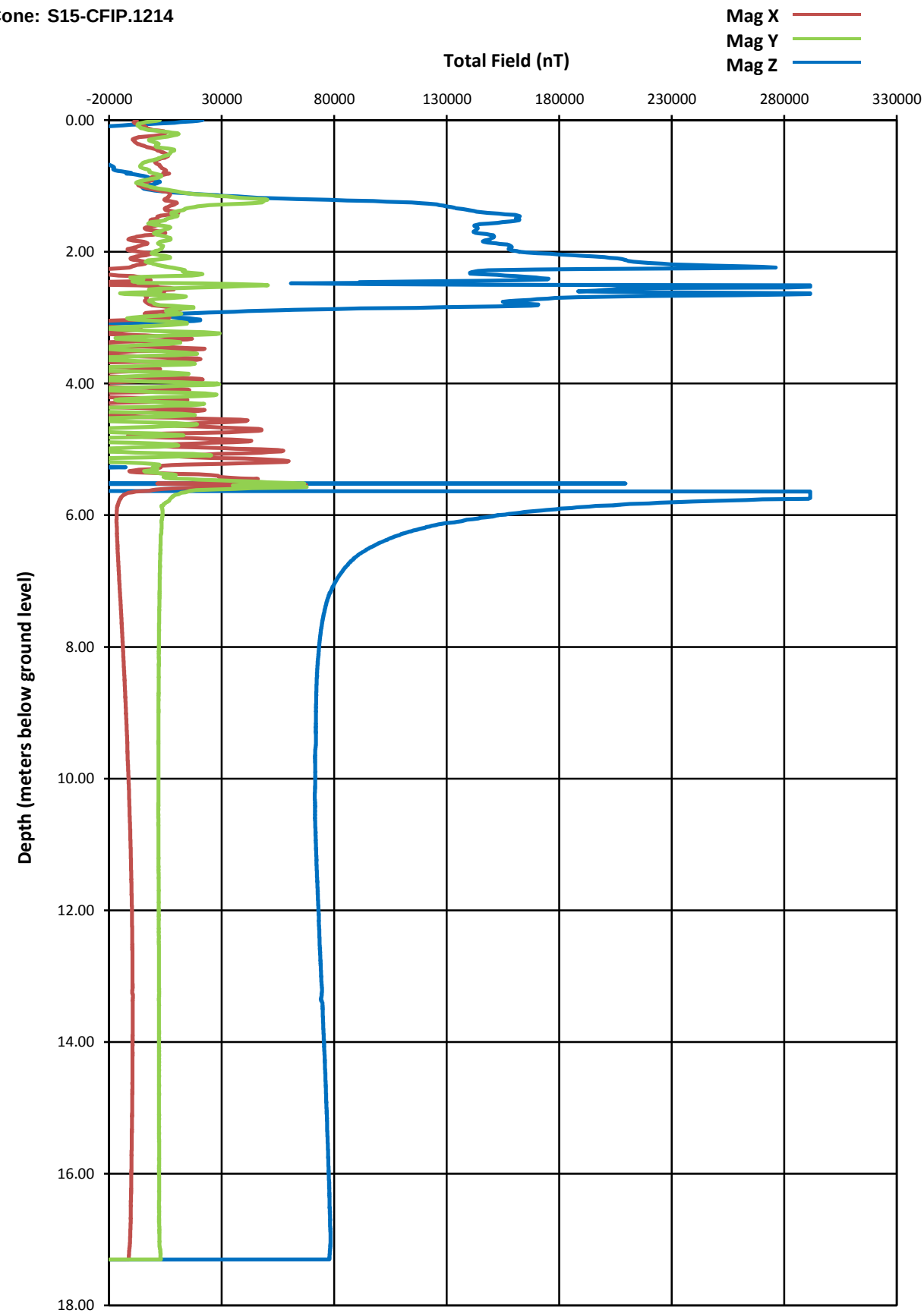
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
CPT501M

Cone Magnetometer

Date: 11-09-2015
Cone: S15-CFIP.1214



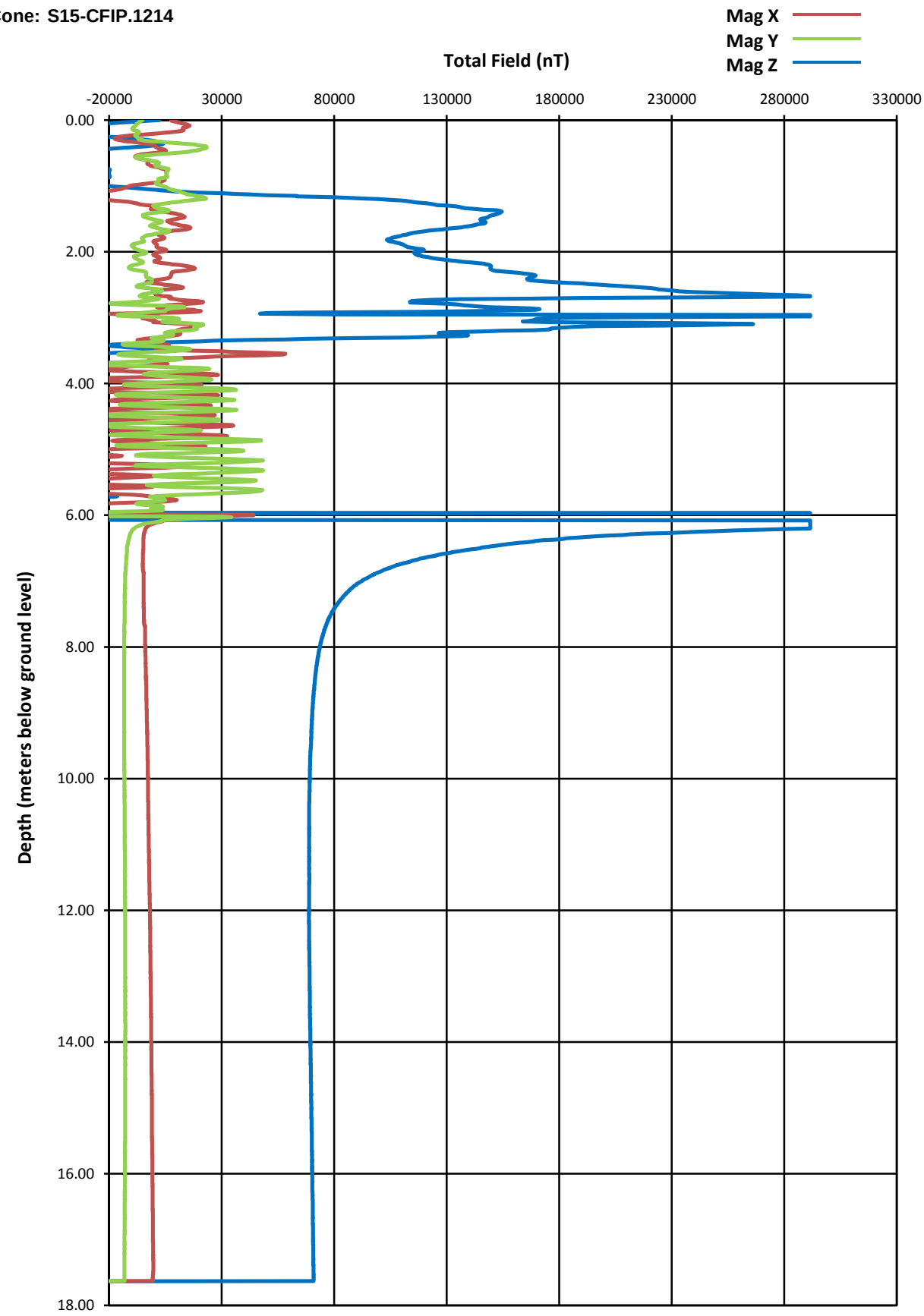
Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

Figure
CPT502M

Cone Magnetometer

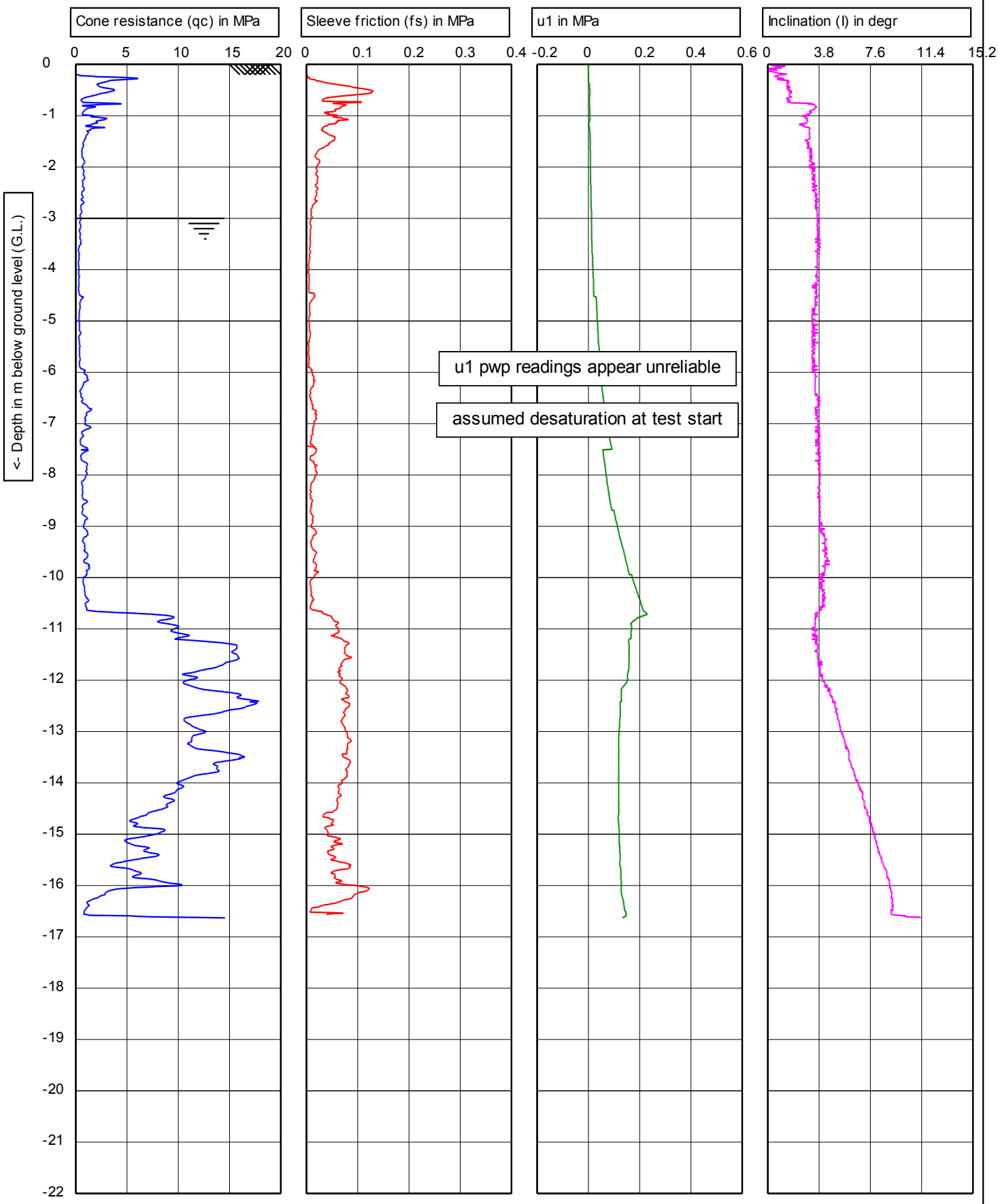
Date: 10-09-2015
Cone: S15-CFIP.1214



Notes: Data obtained within 2 m of ground surface is likely to be affected by presence of CPT unit.

Project	A63 PRINCESS QUAY
Project No.	A5066-15
Carried out for	Balfour Beatty Limited

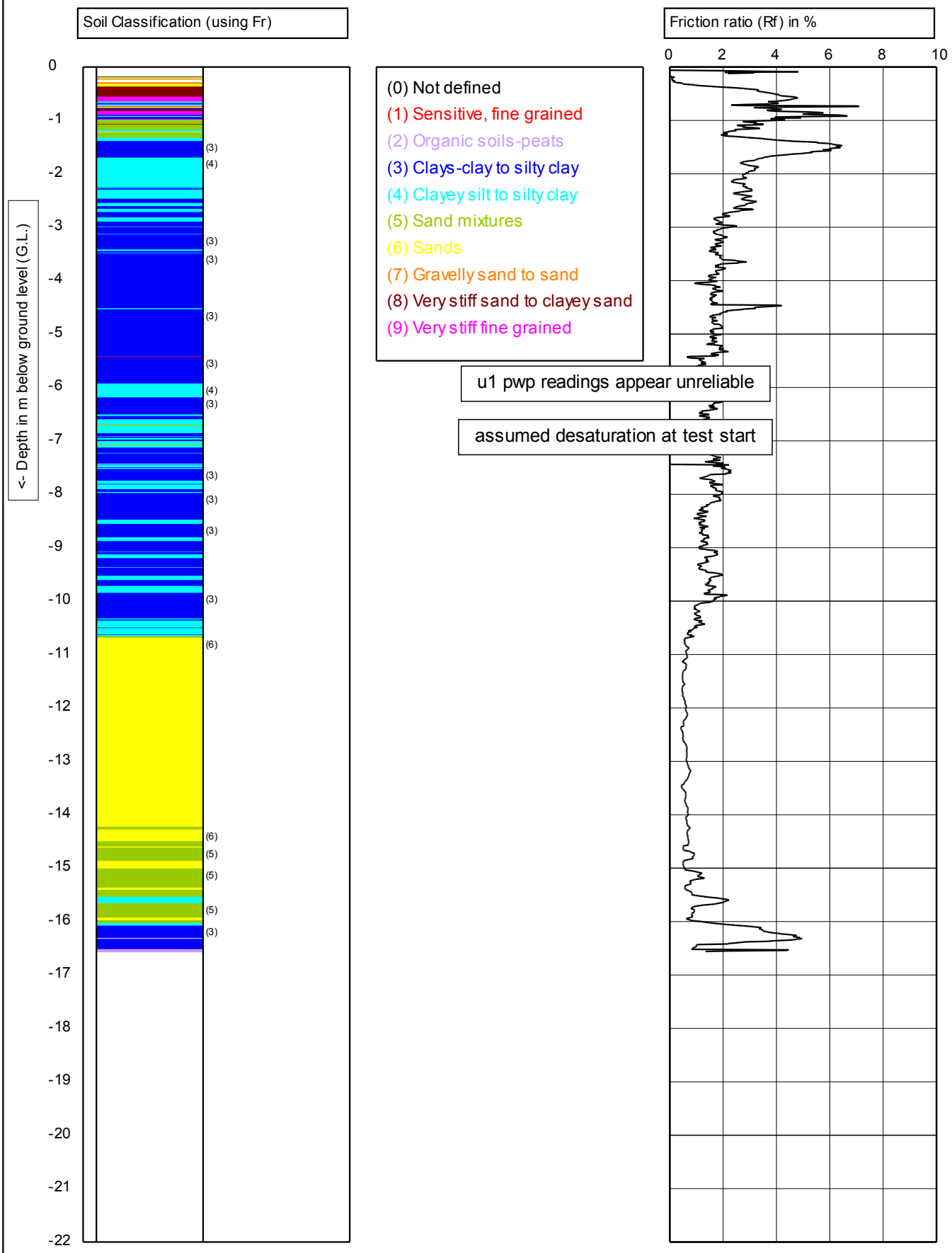
Figure
CPT503M



ESG

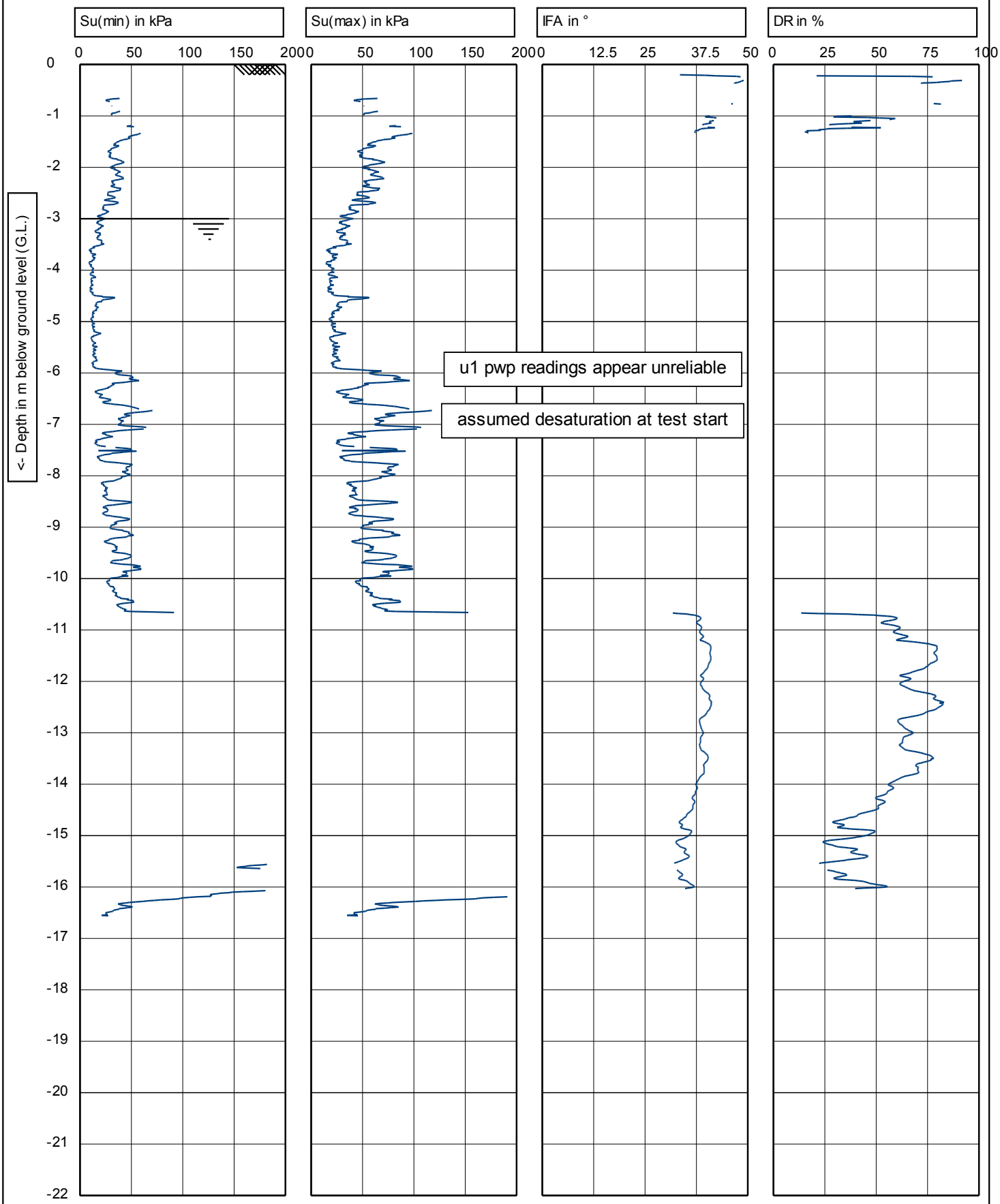
CPTask V1.23

u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill :	0
	G.L. 0 W.L.: -3	Date:	27/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT410 1/3



ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 27/07/2015
	Project: Princess Quay Footbridge		Cone no.: C10CFIP.125
	Location: A63 Castle Street Improvement		Project no.: A5066-15
	Position:		CPT no.: CPT410 2/3

CPTask V1.23



ESG

u1
150 cm²
10 cm²

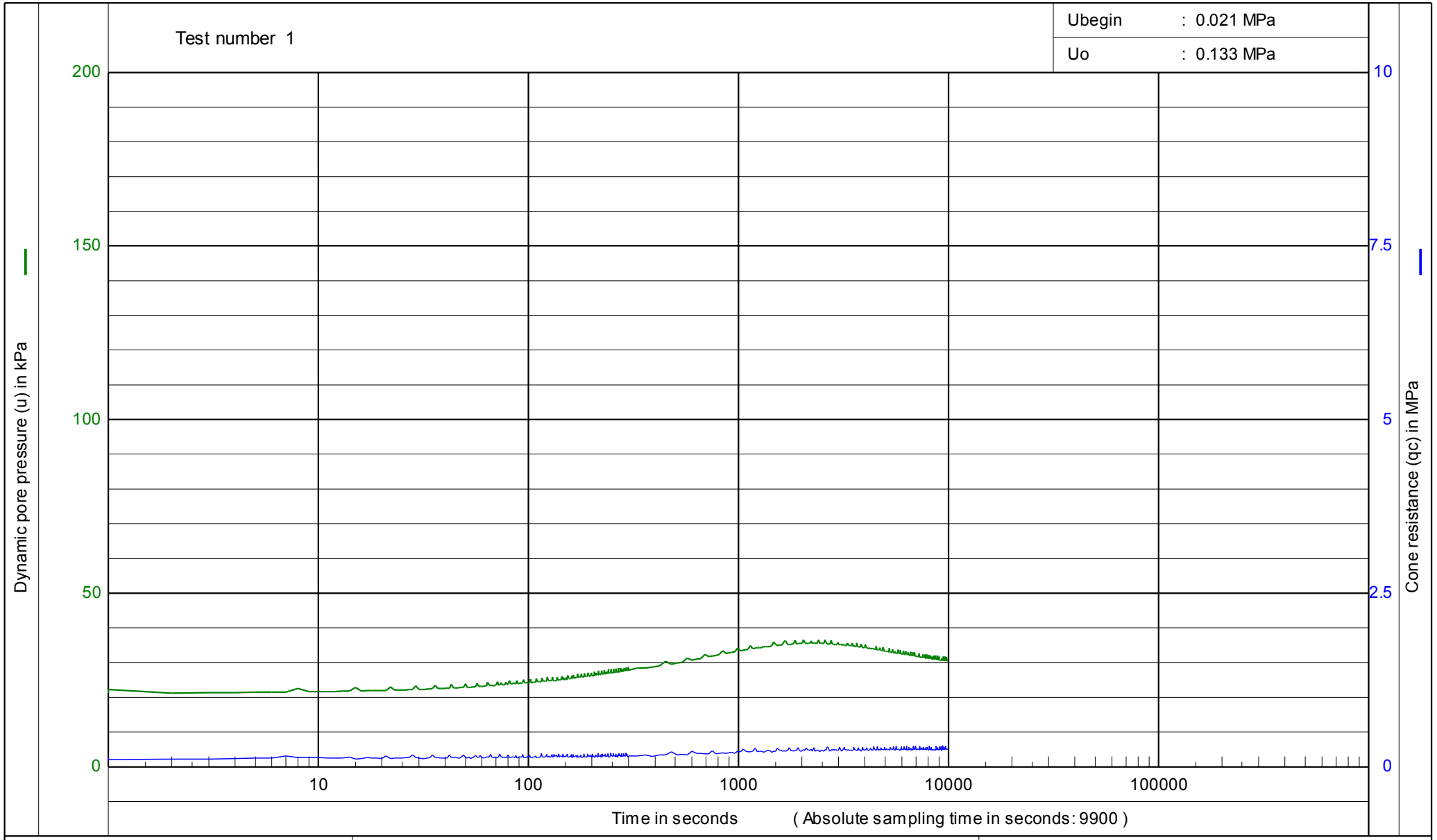
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**27/07/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT410** **3/3**

CPTask V1.23



ESG

BS1377 Part 9 : 1999

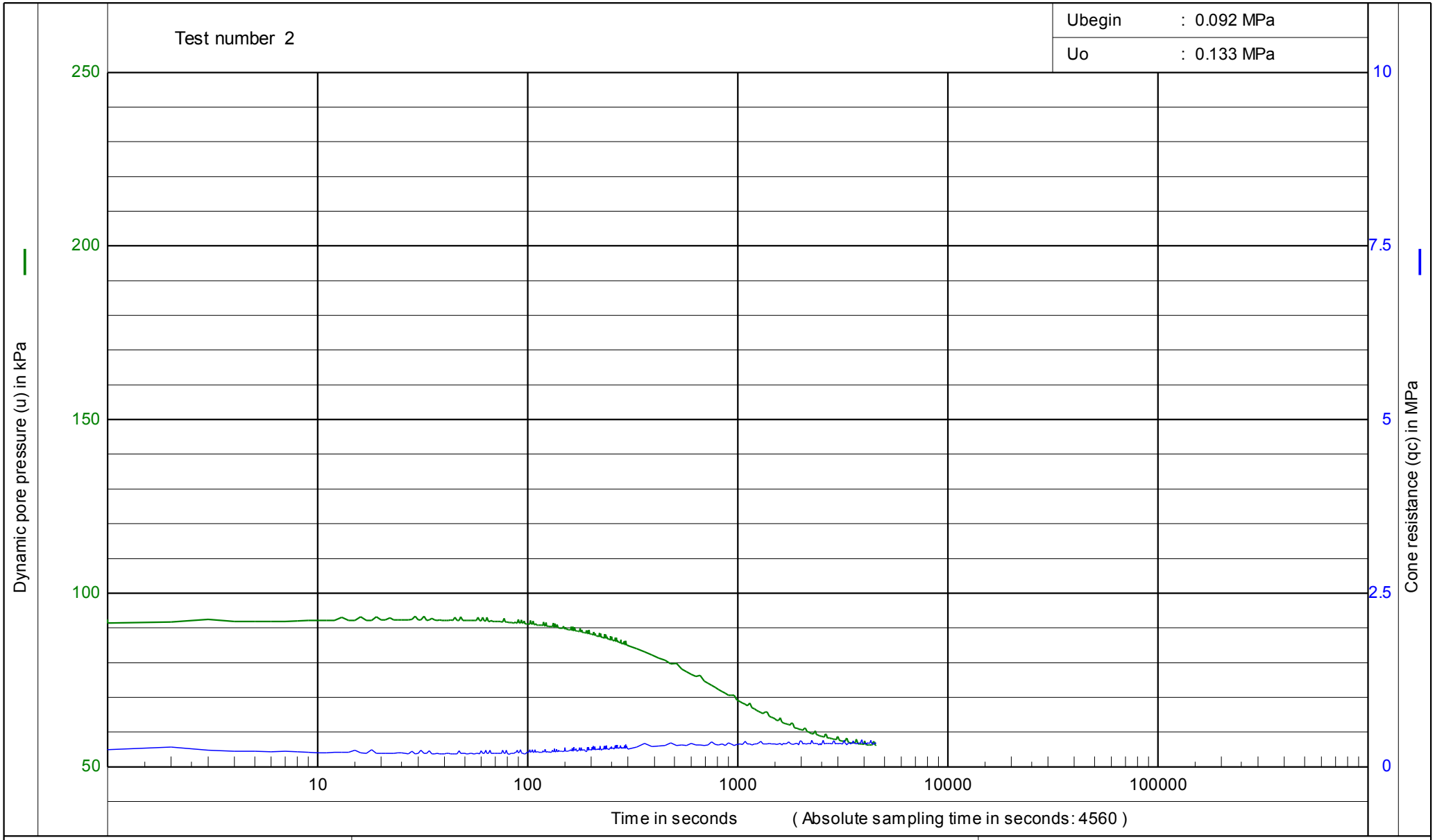
Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 27/07/2015
Project no.	: A5066-15
CPT no.	: CPT410
Test depth	: -4.52 [m] - G.L.
Water level	: -3 [m] - G.L.

Test number 2

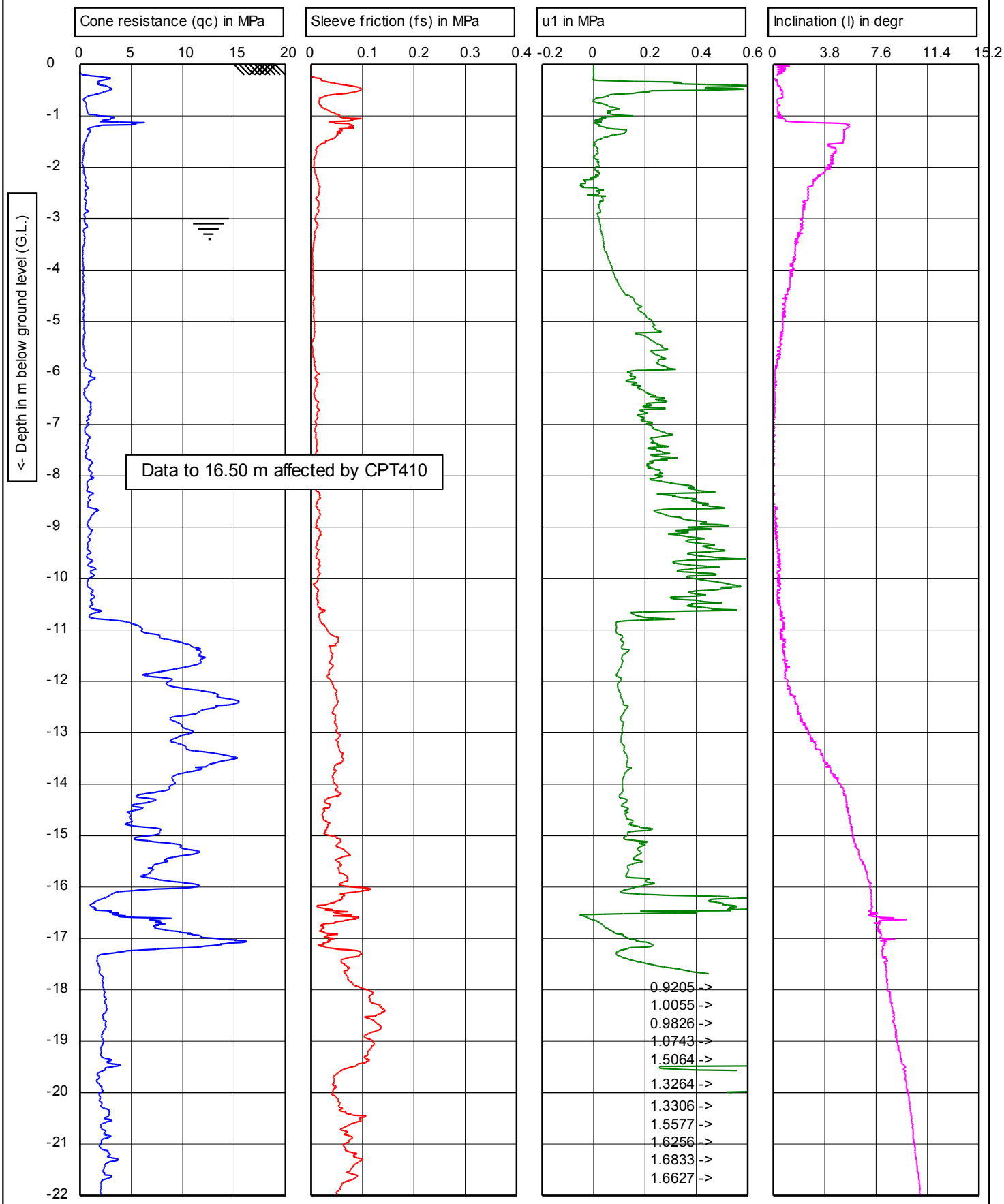
Ubegin	: 0.092 MPa
Uo	: 0.133 MPa



BS1377 Part 9 : 1999

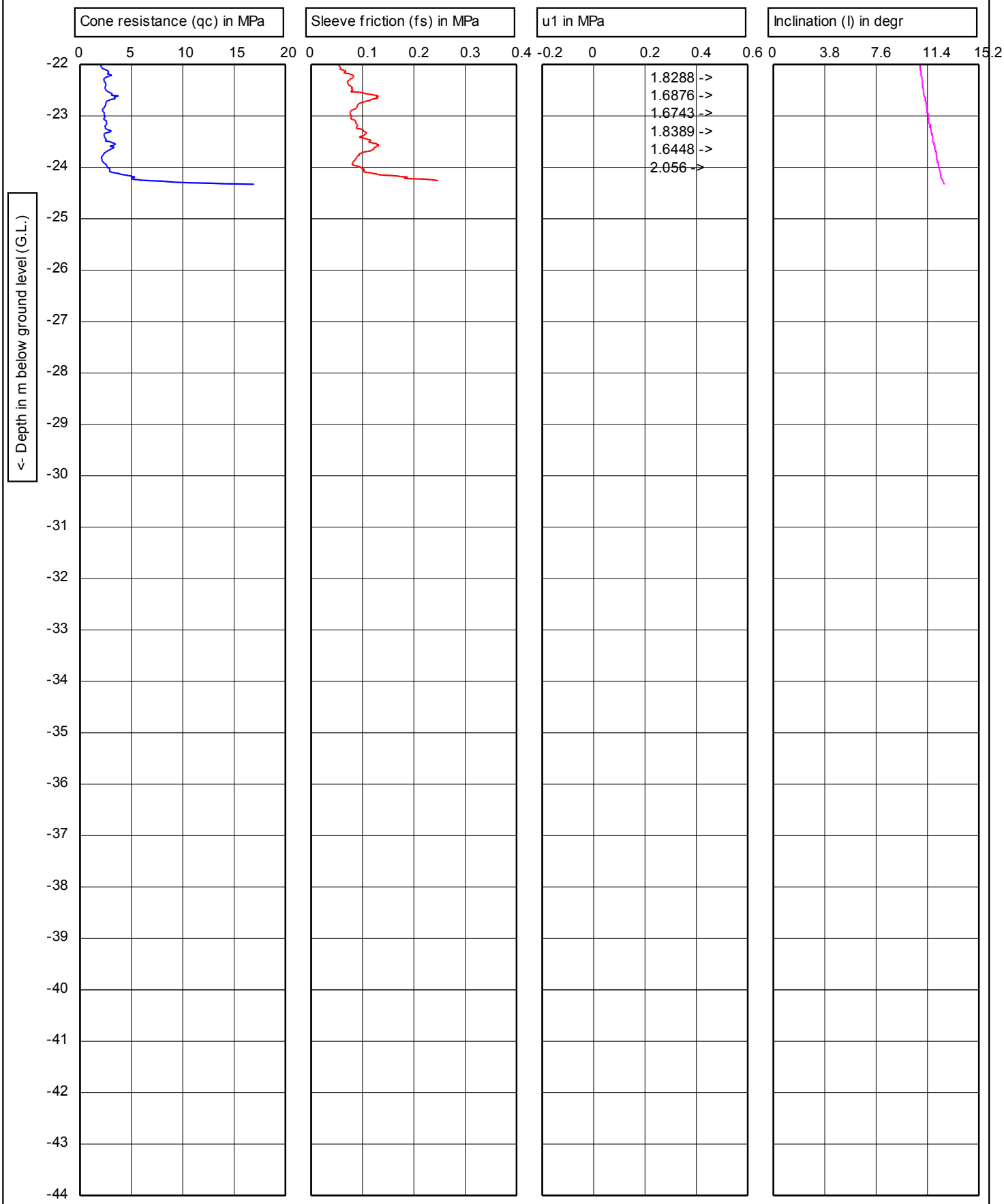
Project	: Princess Quay Footbridge
Location	: A63 Castle Street Improvement

Date	: 27/07/2015
Project no.	: A5066-15
CPT no.	: CPT410
Test depth	: -7.5 m [m] - G.L.
Water level	: -3 [m] - G.L.



ESG	BS1377 Part 9 : 1999	Predrill :	0
u1 150 cm² 10 cm²	G.L. 0 / W.L.: -3	Date:	27/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT410a 1/6

CPTask V1.23



ESG

u1
150 cm²
10 cm²

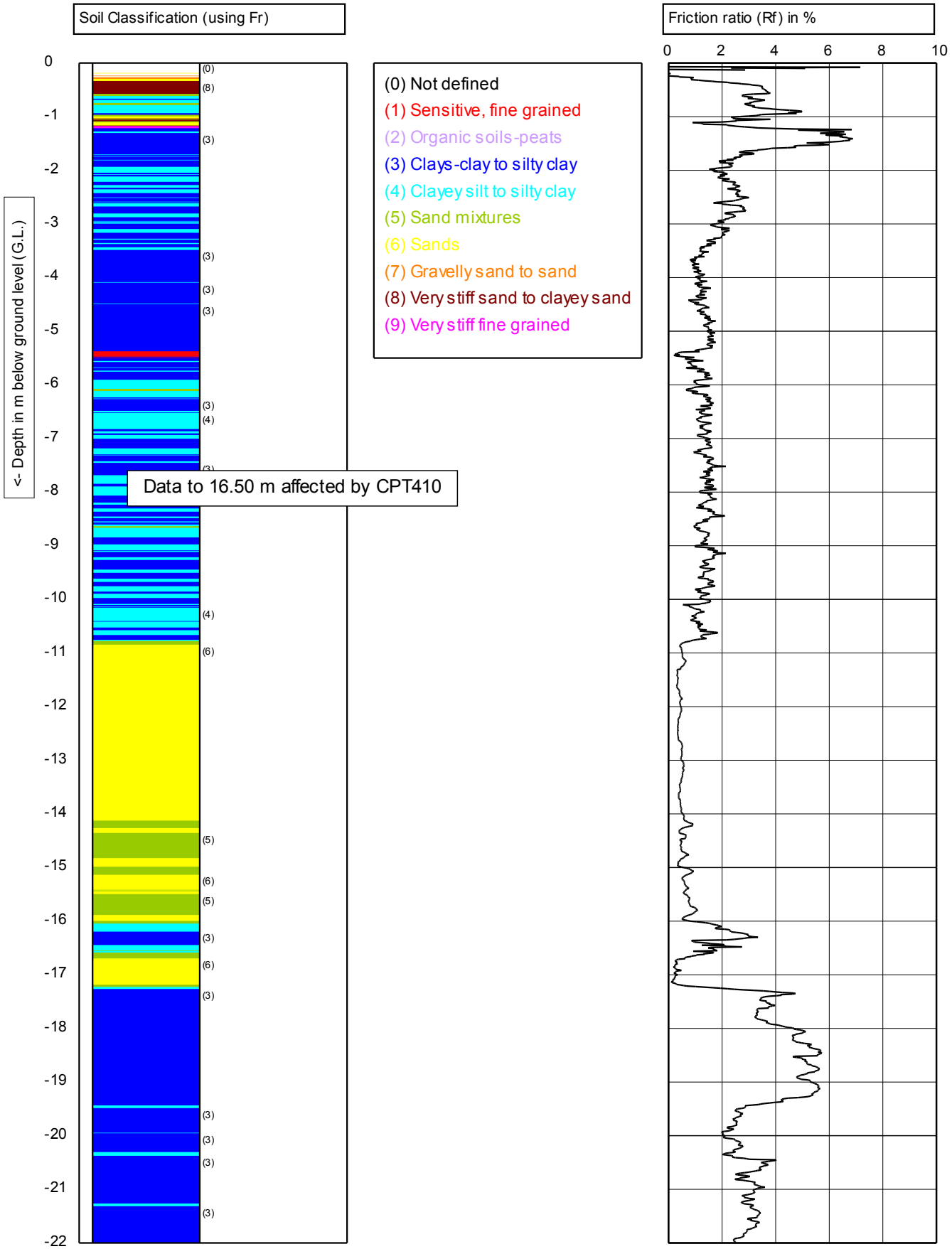
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**27/07/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT410a** **2/6**

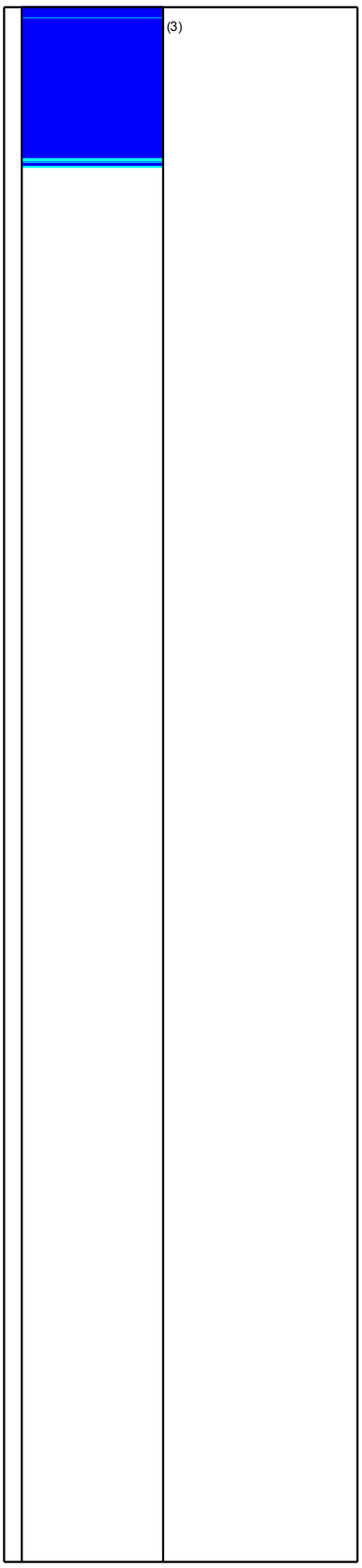
CPTask V1.23



ESG	BS1377 Part 9 : 1999	Predrill :	0
u1 150 cm² 10 cm²	G.L. 0 / W.L.: -3	Date:	27/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT410a 3/6

CPTask V1.23

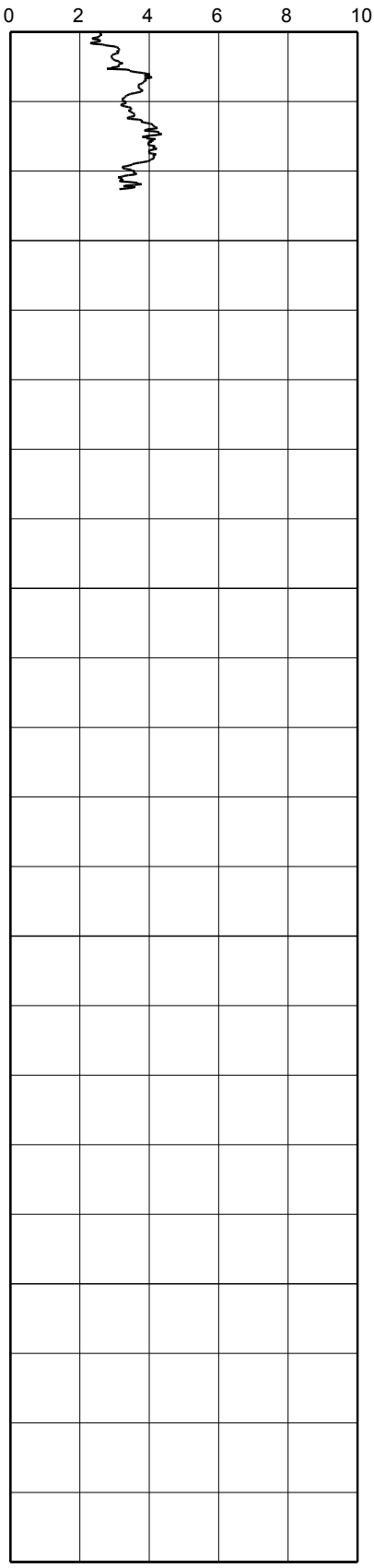
Soil Classification (using Fr)



<- Depth in m below ground level (G.L.)

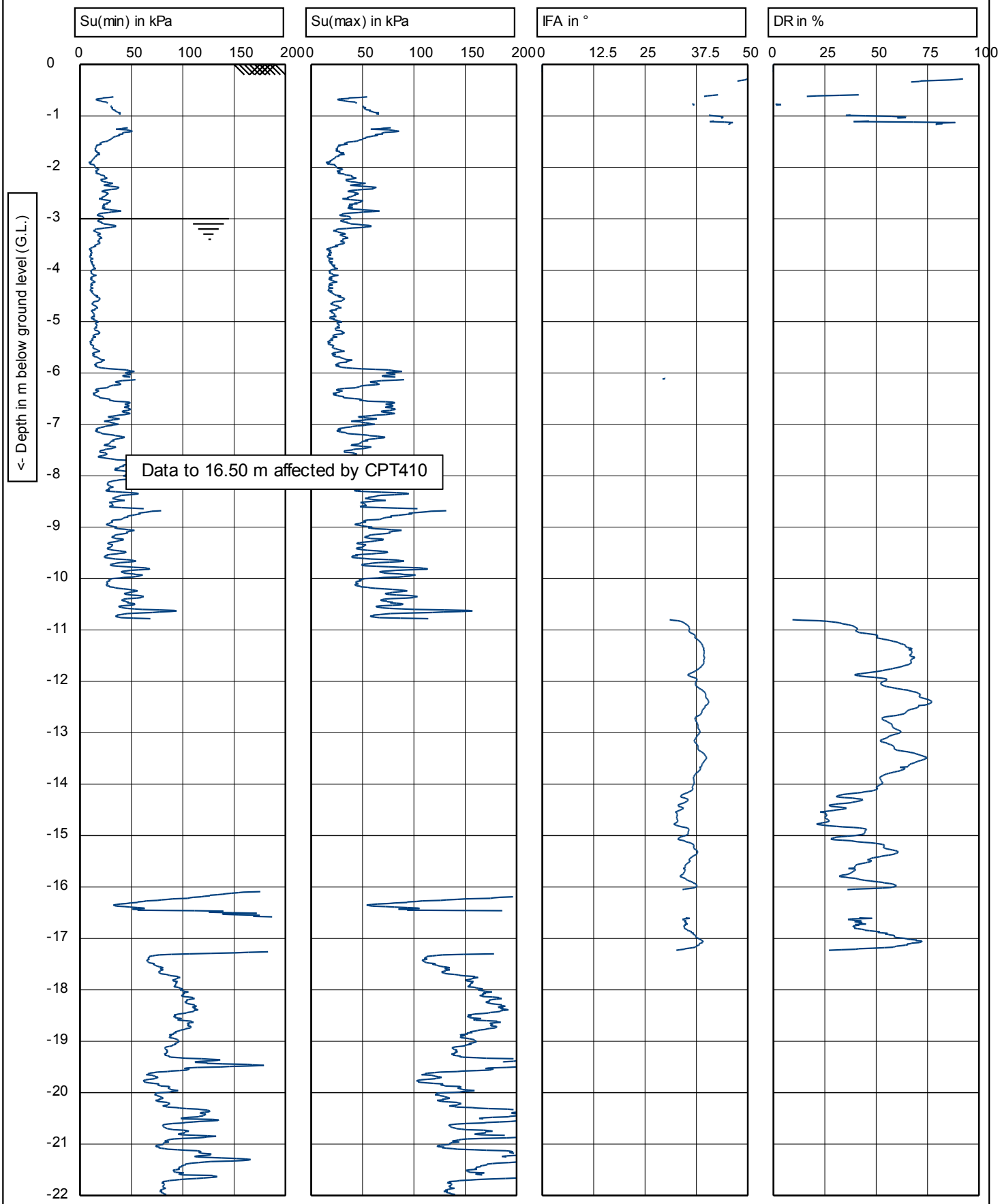
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



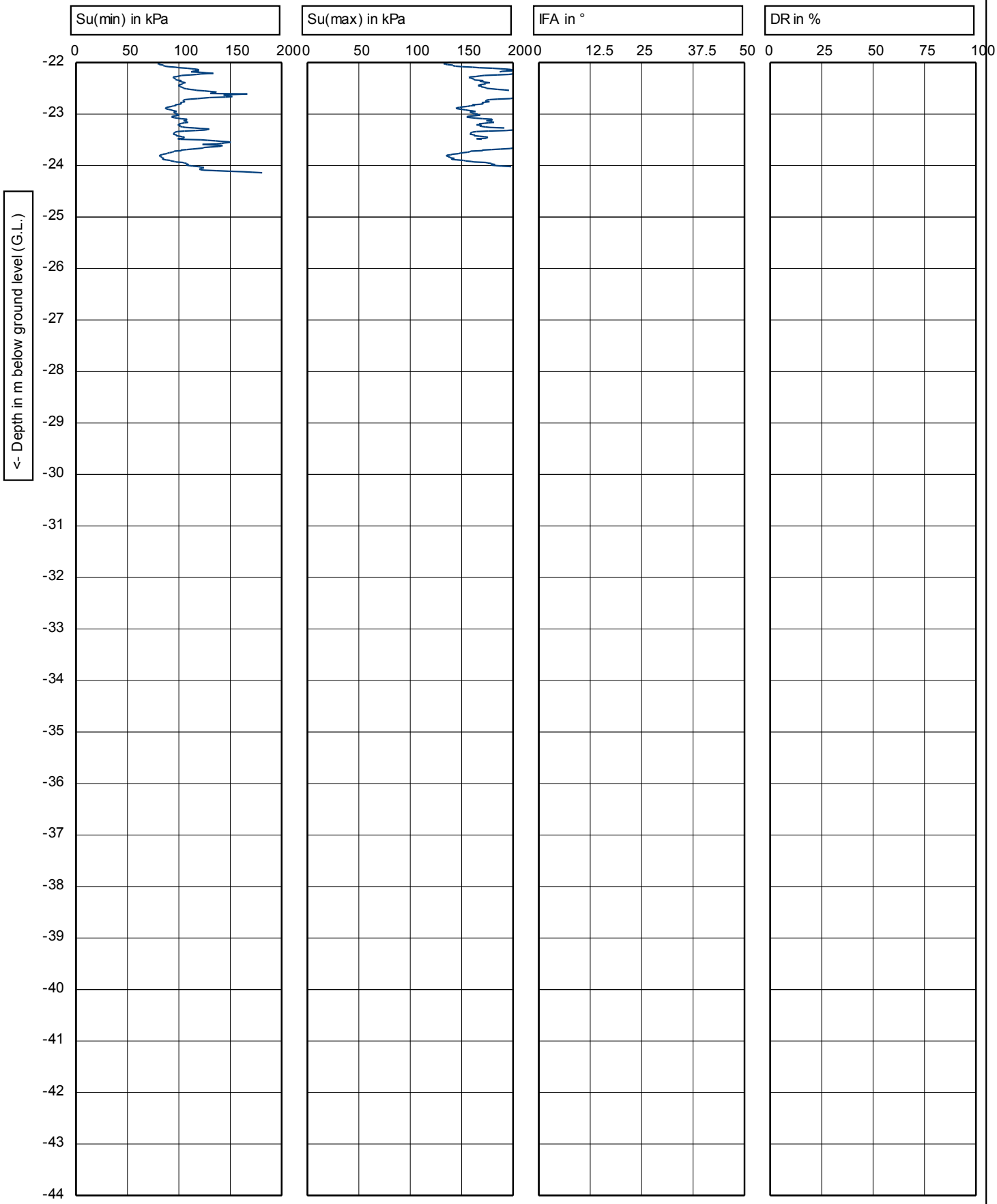
ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 27/07/2015
	Project: Princess Quay Footbridge		Cone no.: C10CFIP.125
	Location: A63 Castle Street Improvement		Project no.: A5066-15
	Position:		CPT no.: CPT410a 4/6

CPTask V1.23



ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 27/07/2015
Project: Princess Quay Footbridge			Cone no.: C10CFIP.125
Location: A63 Castle Street Improvement			Project no.: A5066-15
Position:			CPT no.: CPT410a 5/6

CPTask V1.23



ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

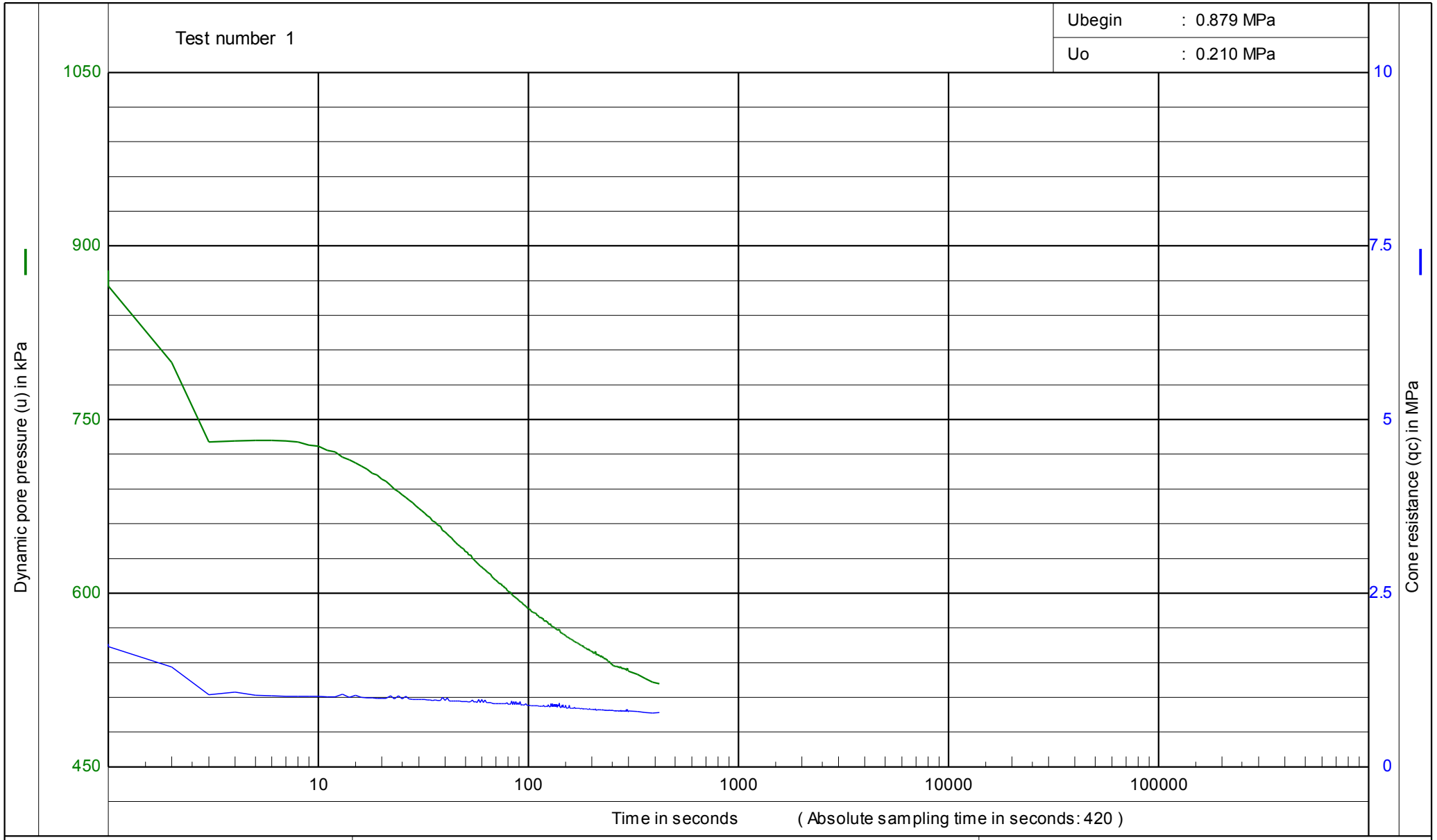
Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **27/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT410a** **6/6**

CPTask V1.23

Test number 1

Ubegin	: 0.879 MPa
Uo	: 0.210 MPa



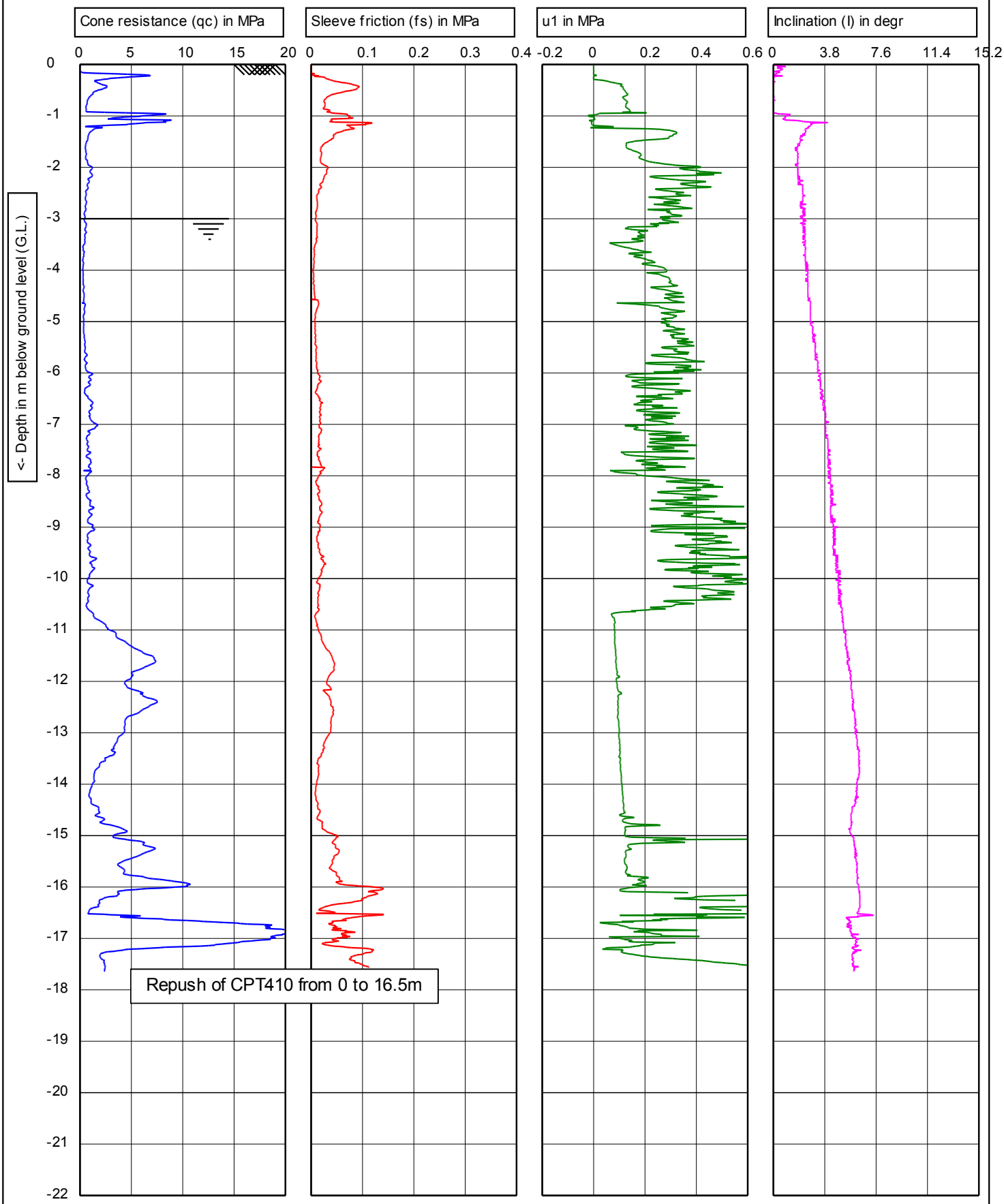
ESG

BS1377 Part 9 : 1999

Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 27/07/2015
Project no.	: A5066-15
CPT no.	: CPT410a
Test depth	: -18.58 [m] - G.L.
Water level	: -3 [m] - G.L.

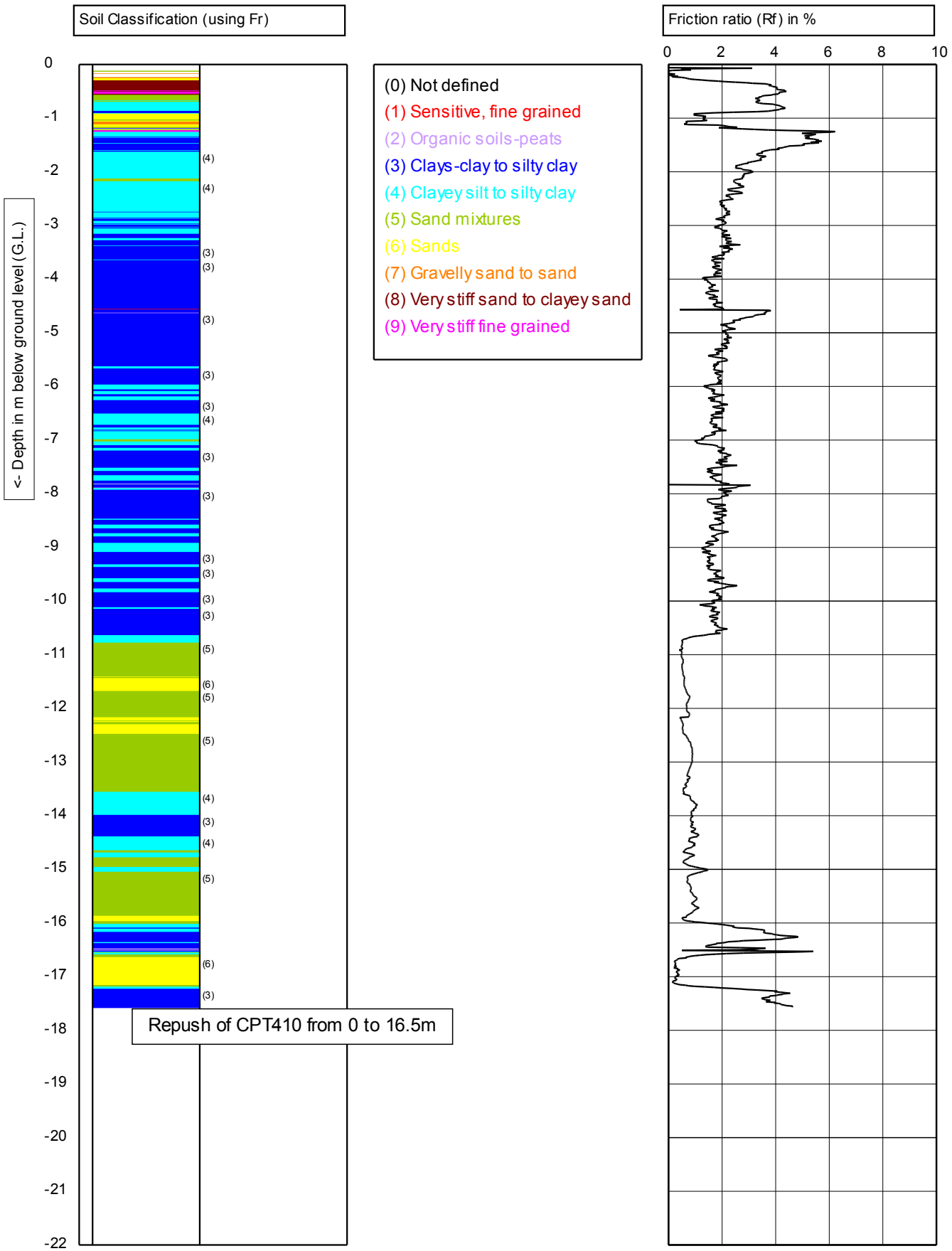


ESG

CPTask V1.23

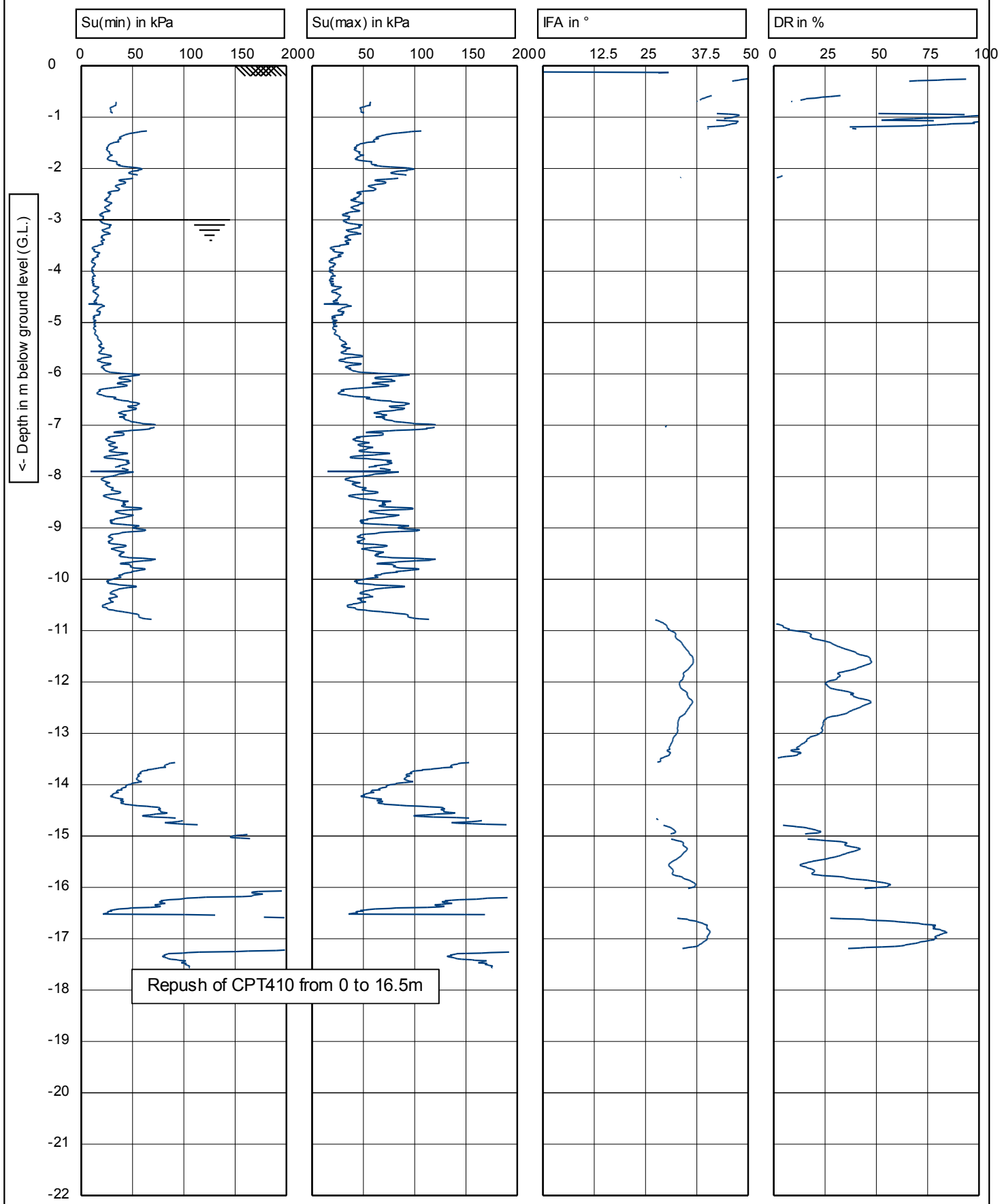
u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -3	Date:	28/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT410b 1/3



ESG	BS1377 Part 9 : 1999	Predrill :	0
u1 150 cm² 10 cm²	G.L. 0 / W.L.: -3	Date:	28/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT410b 2/3

CPTask V1.23



ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

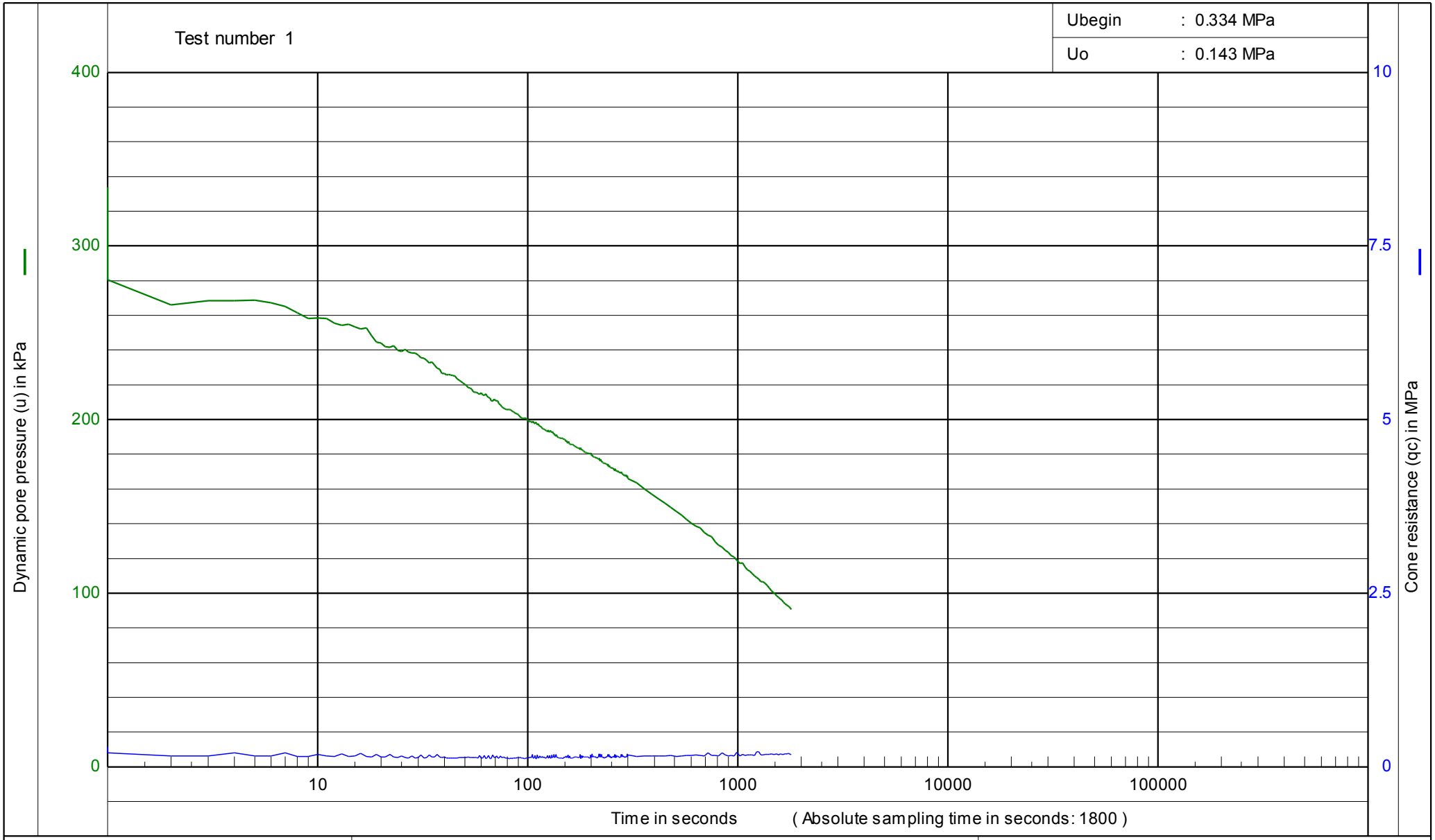
Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **28/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT410b** **3/3**

CPTask V1.23

Test number 1

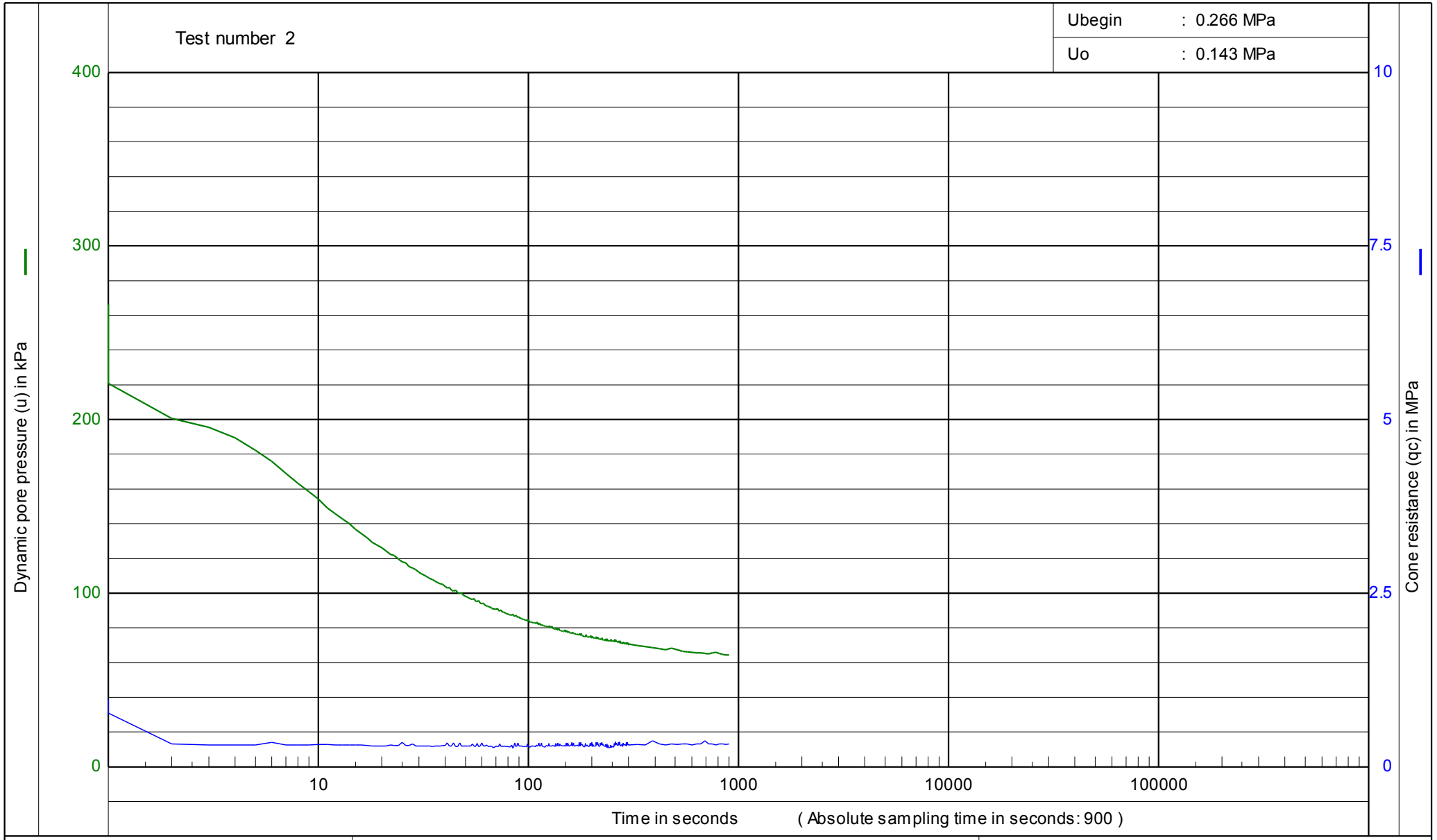
Ubegin	: 0.334 MPa
Uo	: 0.143 MPa



BS1377 Part 9 : 1999

Project	: Princess Quay Footbridge
Location	: A63 Castle Street Improvement

Date	: 28/07/2015
Project no.	: A5066-15
CPT no.	: CPT410b
Test depth	: -4.63 [m] - G.L.
Water level	: -3 [m] - G.L.



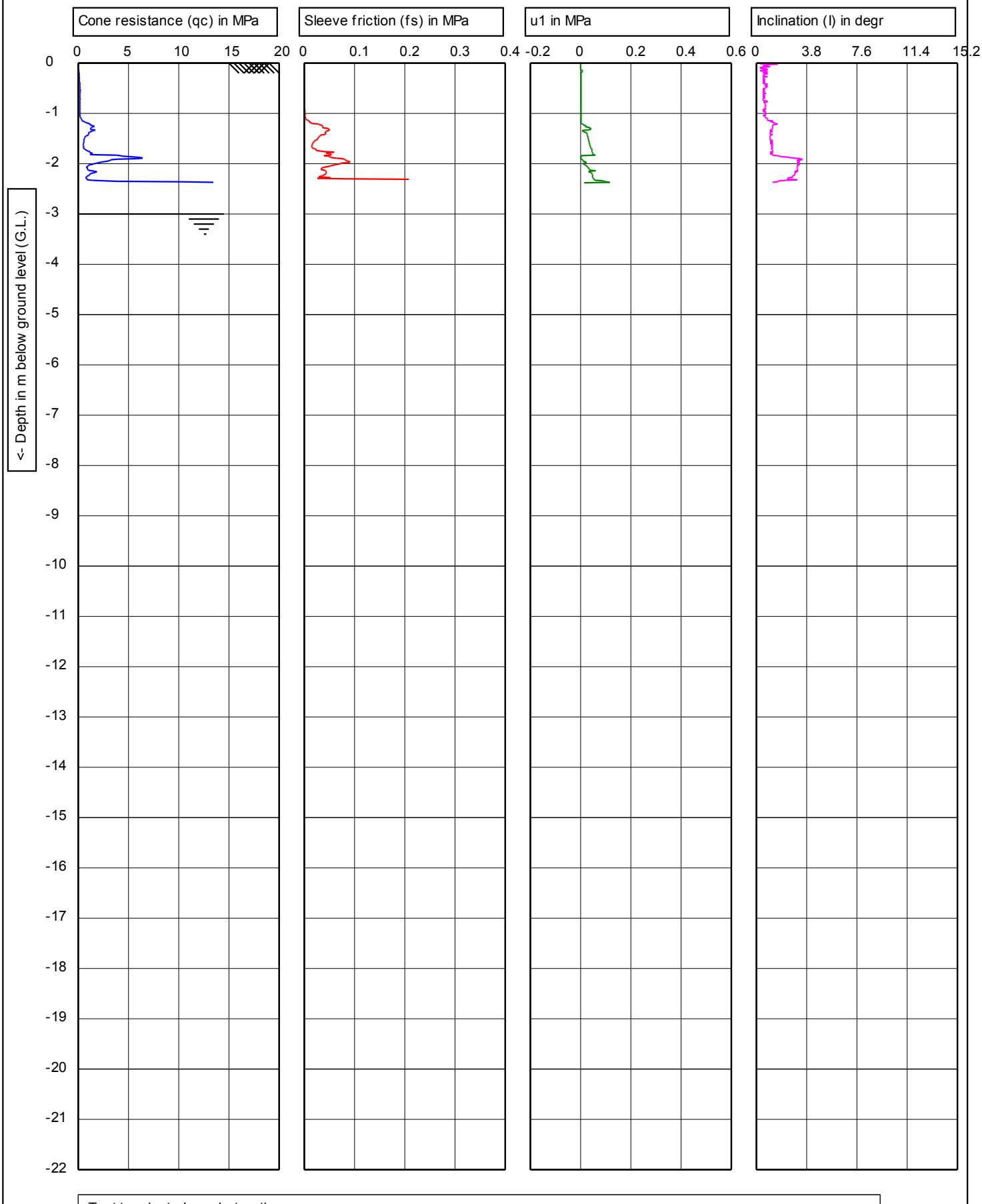
ESG

BS1377 Part 9 : 1999

Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 28/07/2015
Project no.	: A5066-15
CPT no.	: CPT410b
Test depth	: -7.89 [m] - G.L.
Water level	: -3 [m] - G.L.



Test terminated on obstruction

ESG

CPTask V1.23

u1
150 cm²
10 cm²

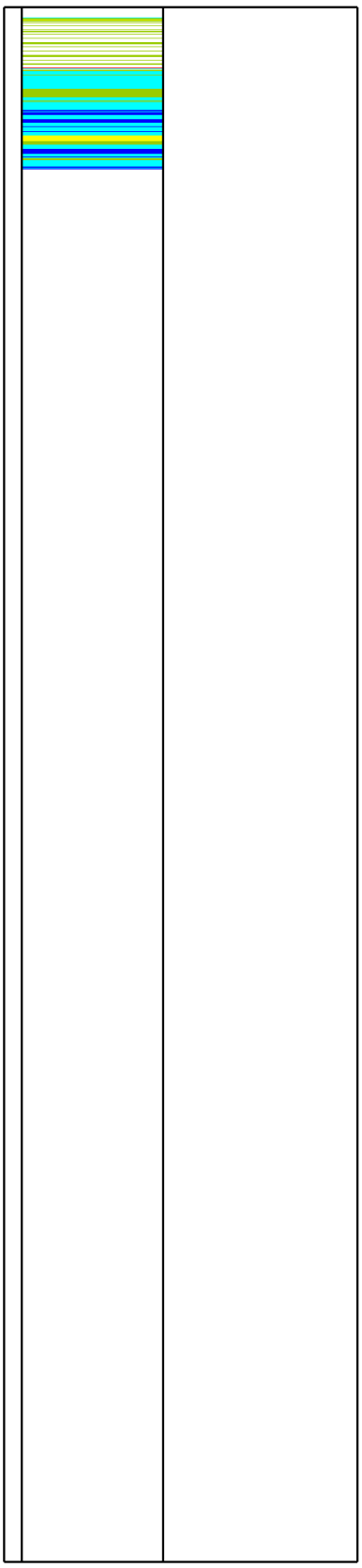
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

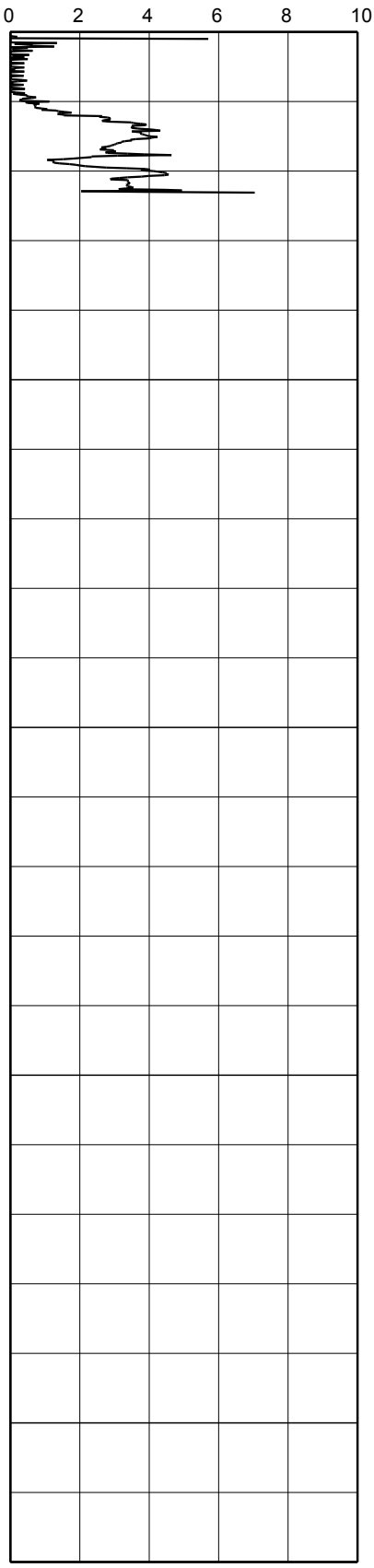
Predrill :	**0**
Date:	**30/07/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT411** **1/3**

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

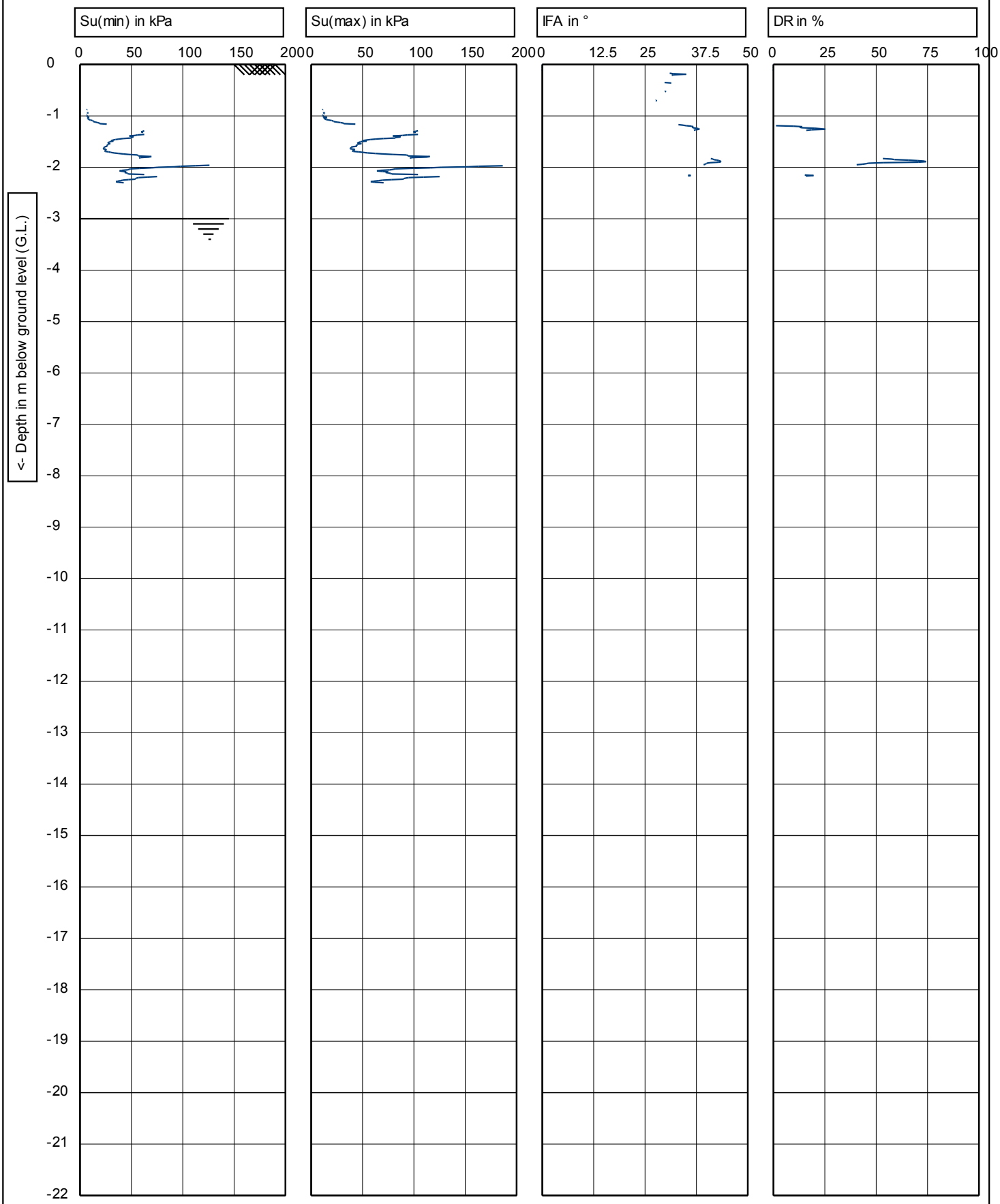
Friction ratio (Rf) in %



Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 30/07/2015
	Project:	Princess Quay Footbridge	Cone no.: C10CFIP.125
	Location:	A63 Castle Street Improvement	Project no.: A5066-15
	Position:		CPT no.: CPT411 2/3

CPTask V1.23



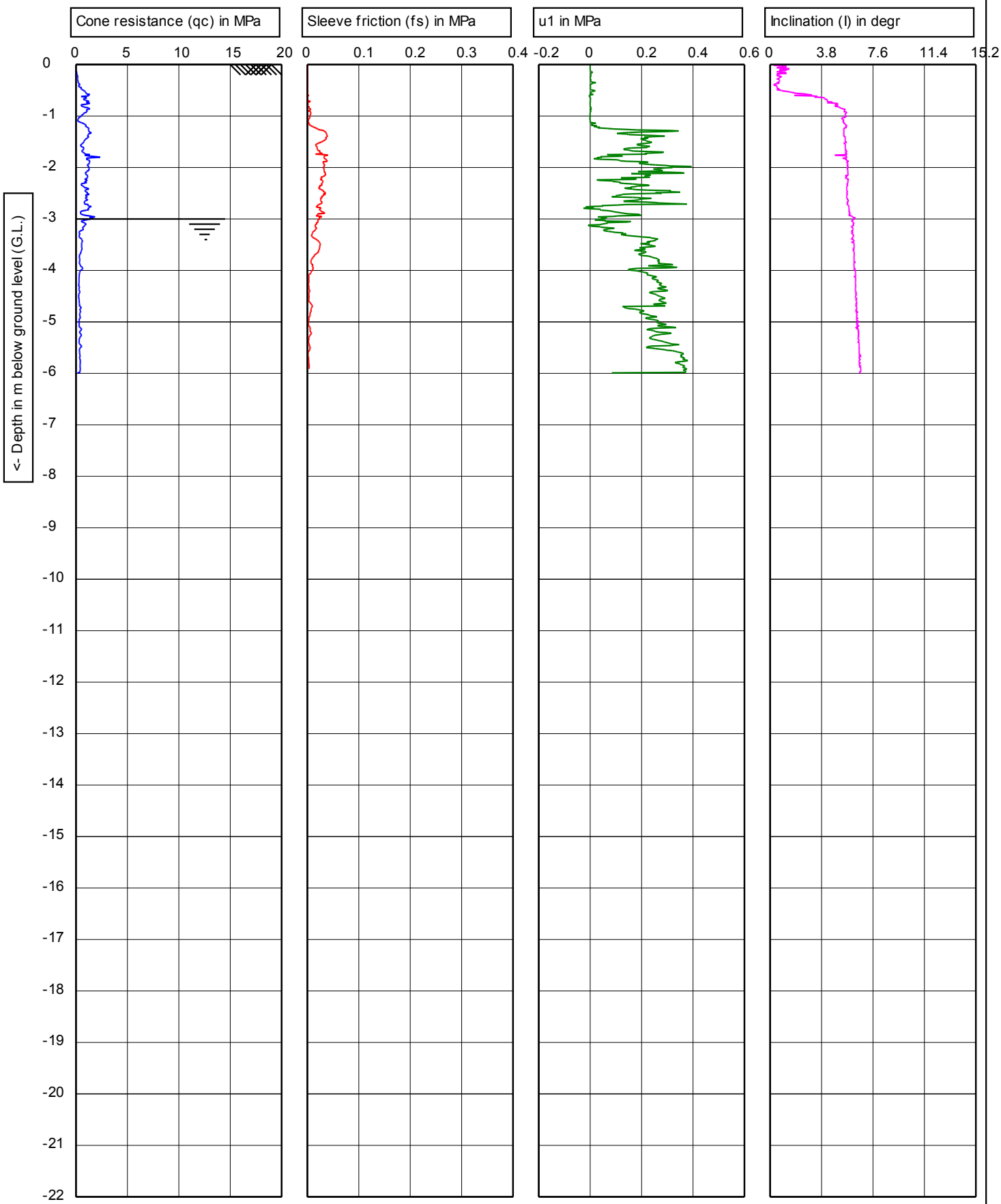
Test terminated on obstruction

ESG

CPTask V1.23

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -3	Date:	30/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT411 3/3



Test terminated on max inclination

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

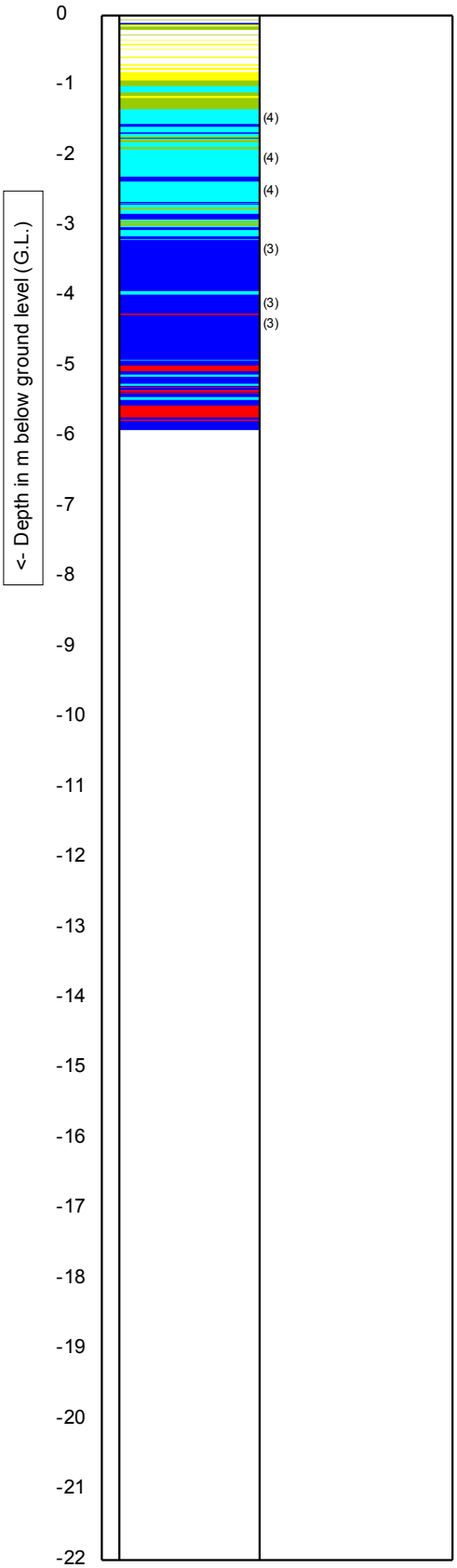
G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**30/07/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT411a** **1/3**

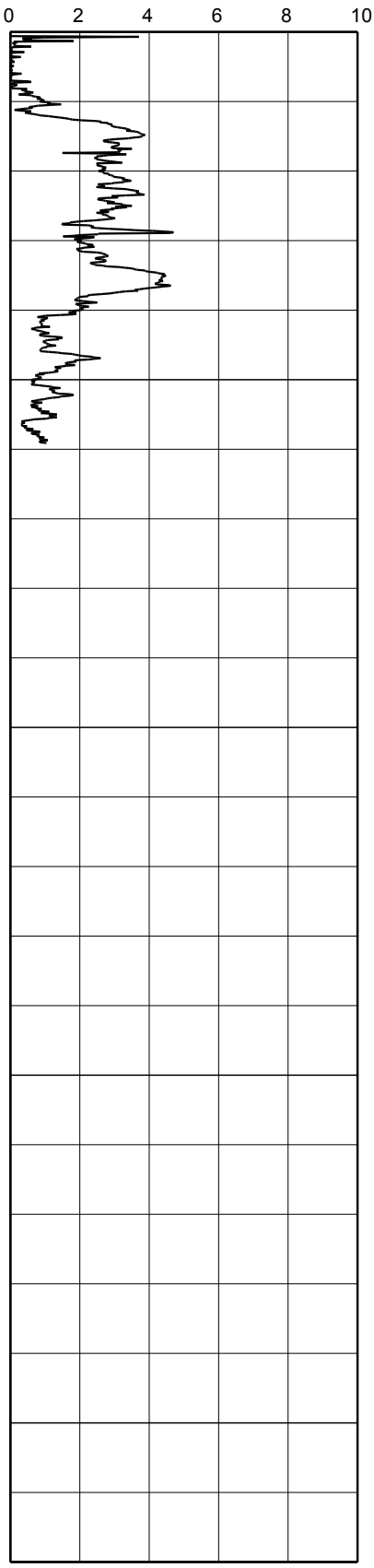
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



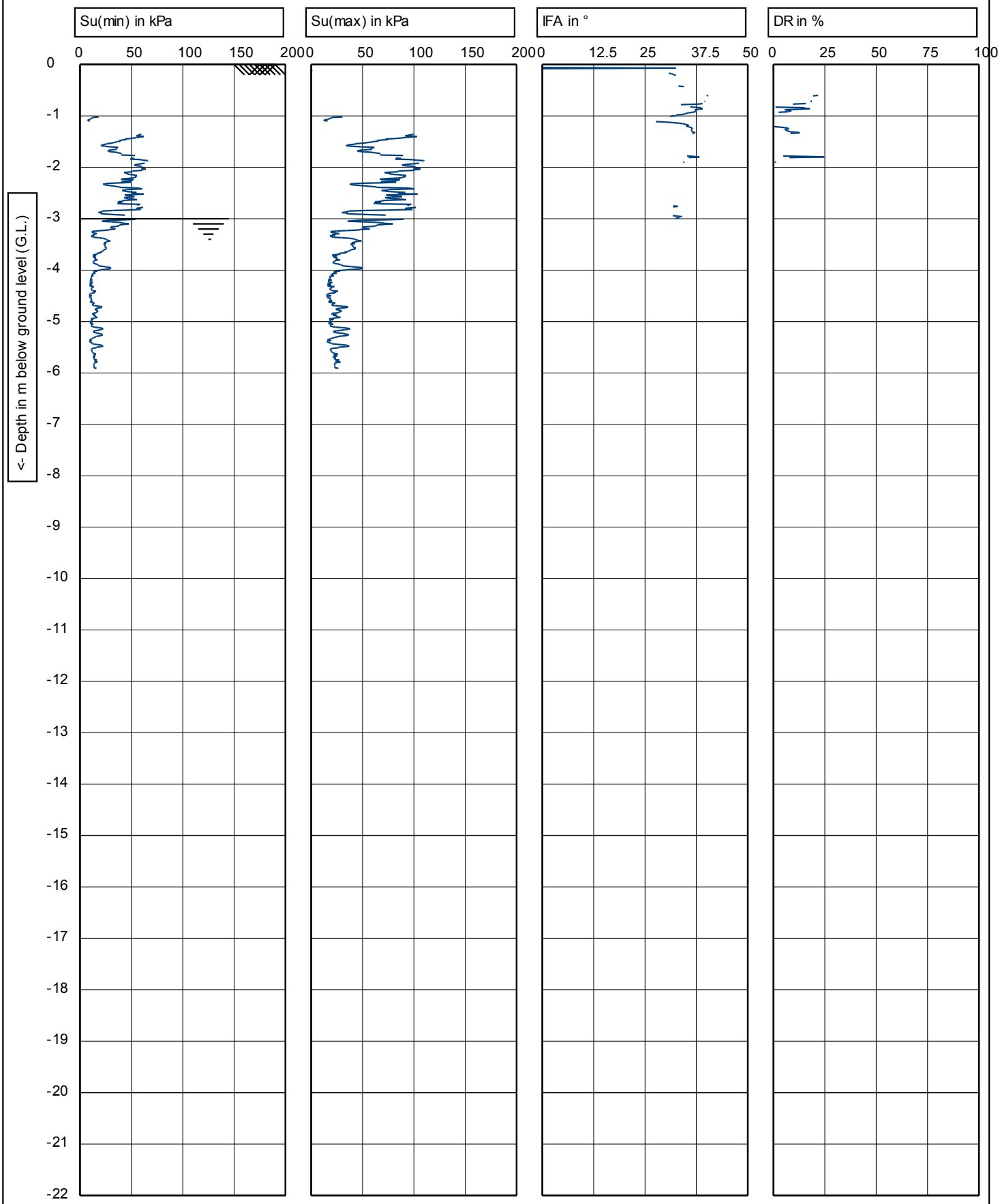
Test terminated on max inclination

CPTask V1.23

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -3	Date:	30/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT411a 2/3



Test terminated on max inclination

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

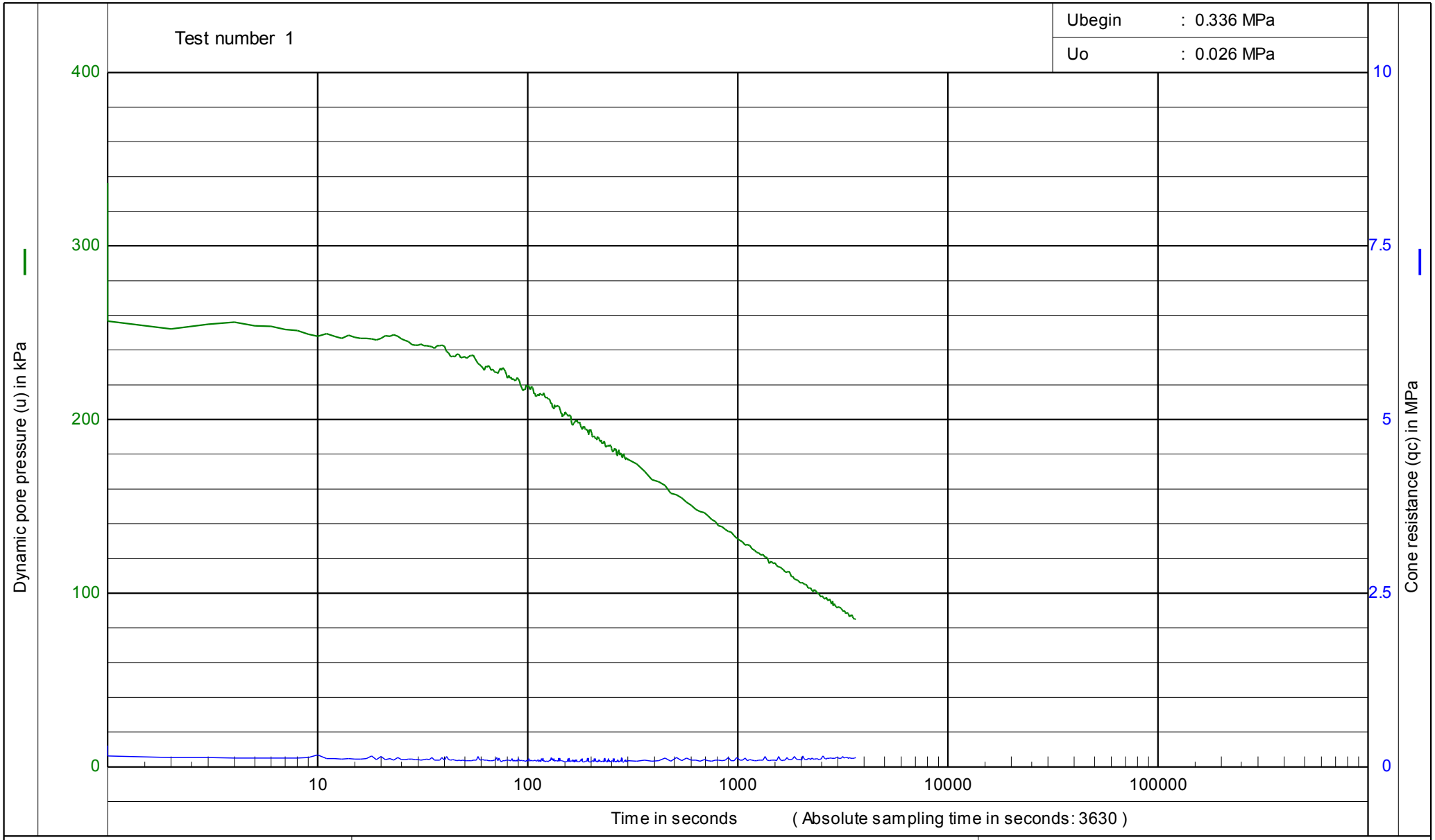
Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**30/07/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT411a** **3/3**

CPTask V1.23

Test number 1

Ubegin	: 0.336 MPa
Uo	: 0.026 MPa

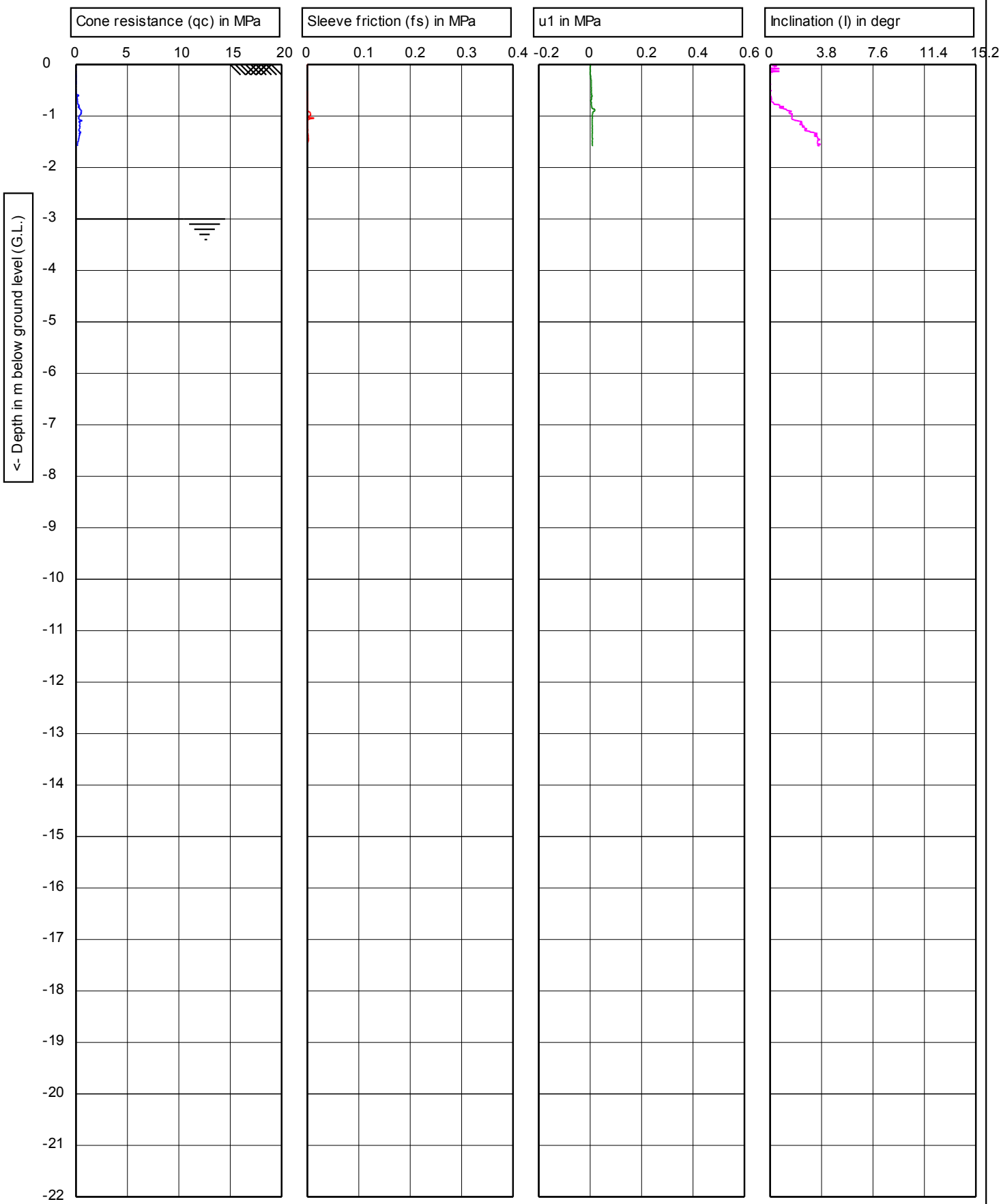


BS1377 Part 9 : 1999

Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 30/07/2015
Project no.	: A5066-15
CPT no.	: CPT411a
Test depth	: -5.98 [m] - G.L.
Water level	: -3 [m] - G.L.

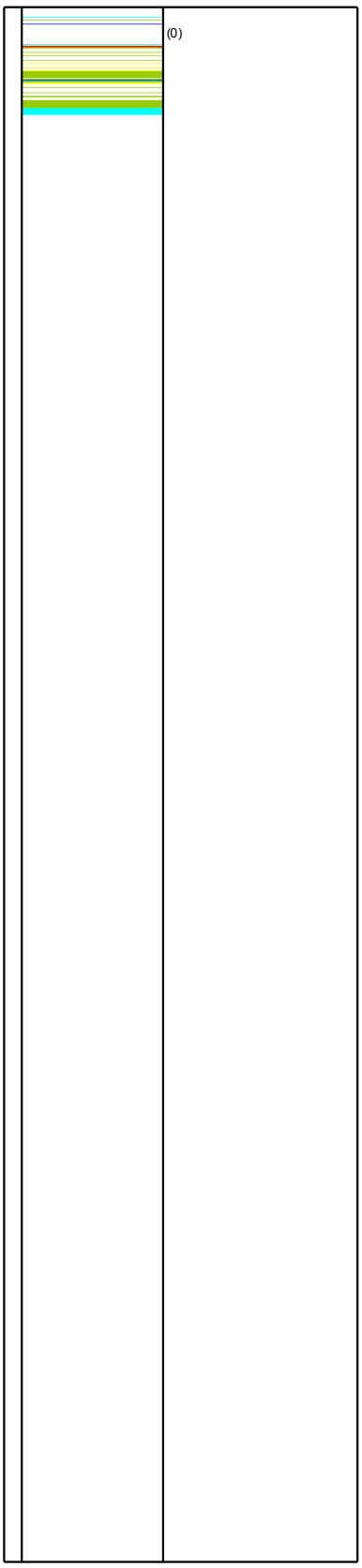


Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 30/07/2015
Project: Princess Quay Footbridge			Cone no.: C10CFIP.125
Location: A63 Castle Street Improvement			Project no.: A5066-15
Position:			CPT no.: CPT411b 1/3

CPTask V1.23

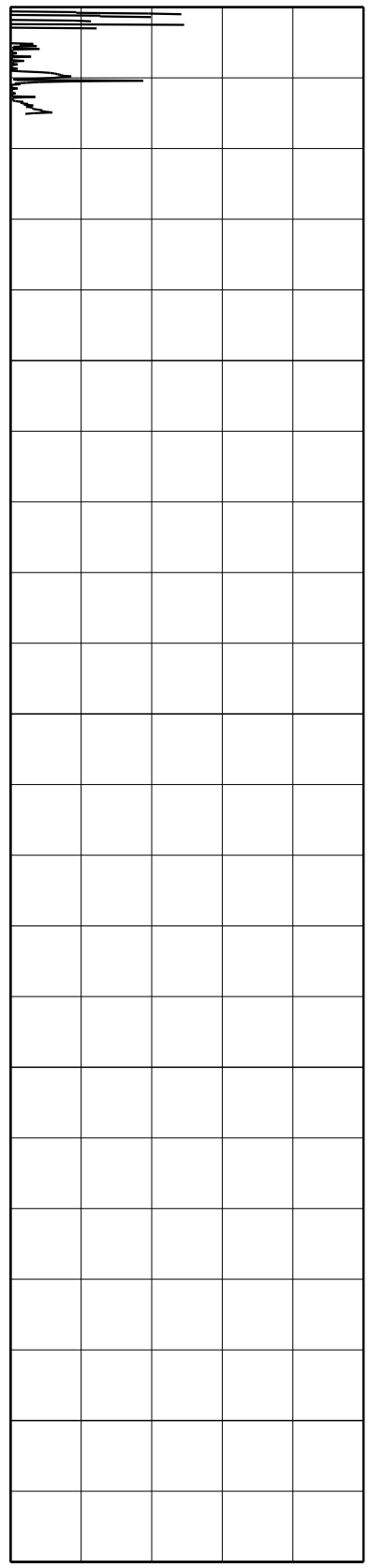
Soil Classification (using Fr)



<- Depth in m below ground level (G.L.)

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

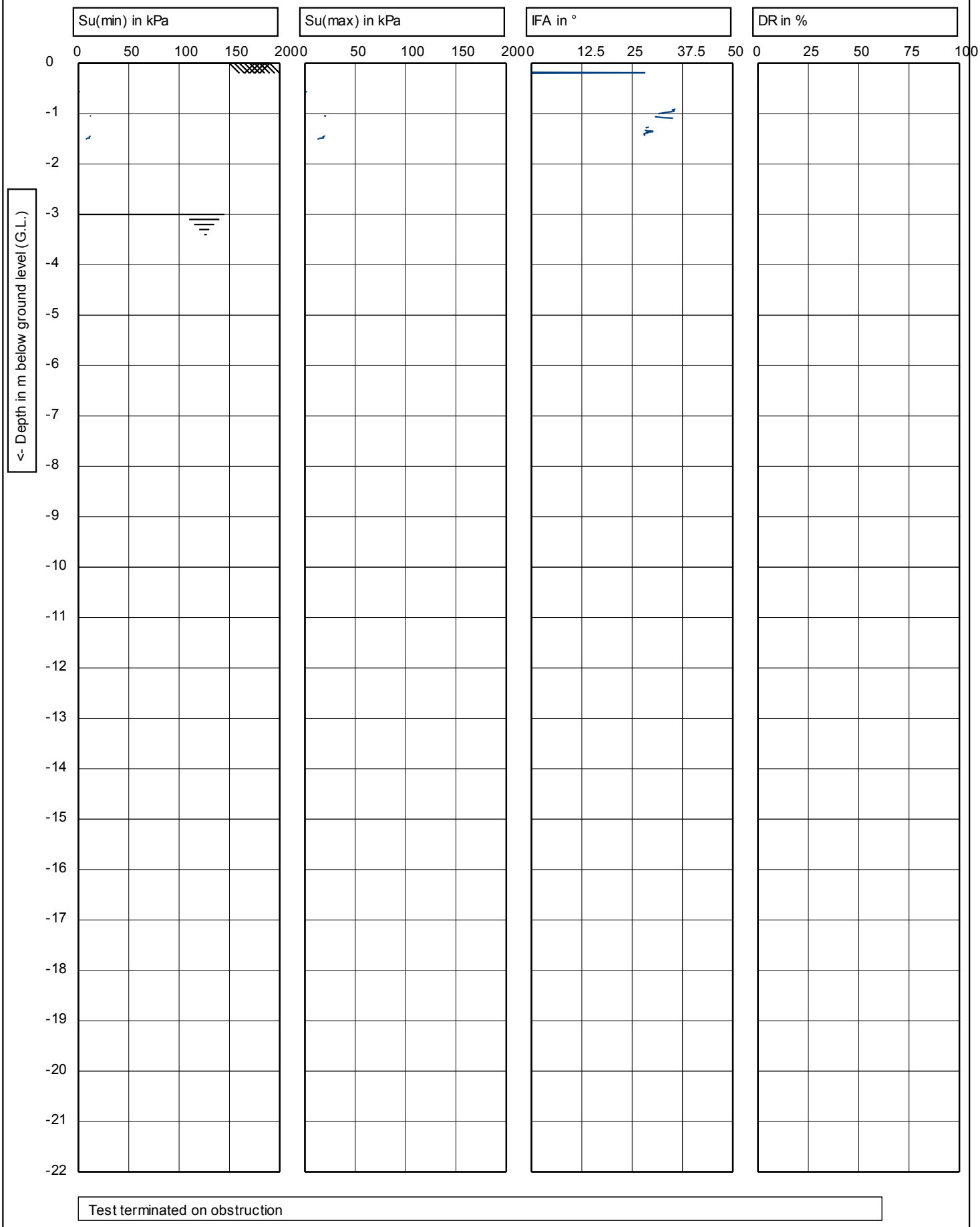
Friction ratio (Rf) in %



Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 30/07/2015
	Project:	Princess Quay Footbridge	Cone no.: C10CFIP.125
	Location:	A63 Castle Street Improvement	Project no.: A5066-15
	Position:		CPT no.: CPT411b 2/3

CPTask V1.23



Test terminated on obstruction

ESG

u1
150 cm²
10 cm²

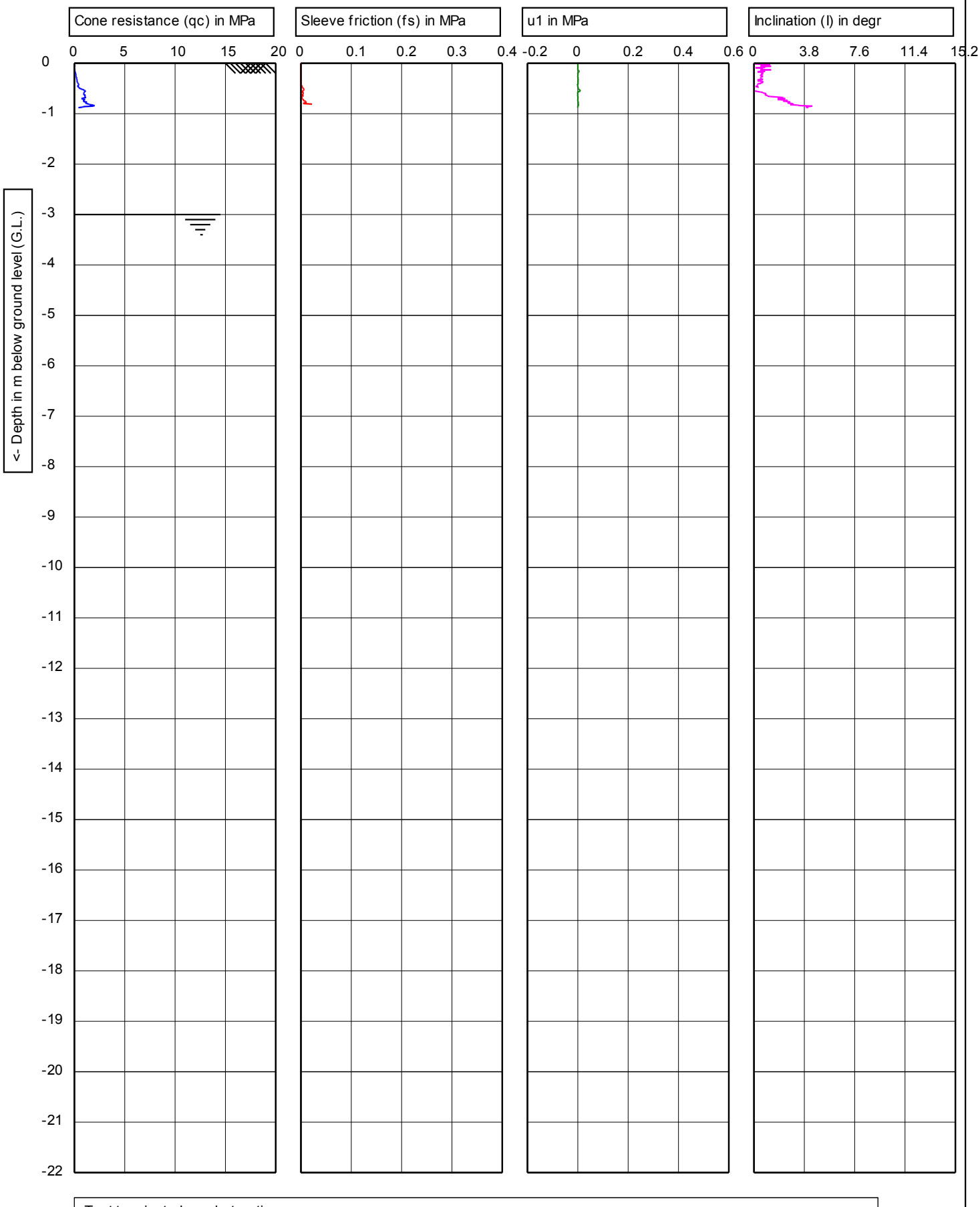
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **30/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT411b** **3/3**

CPTask V1.23

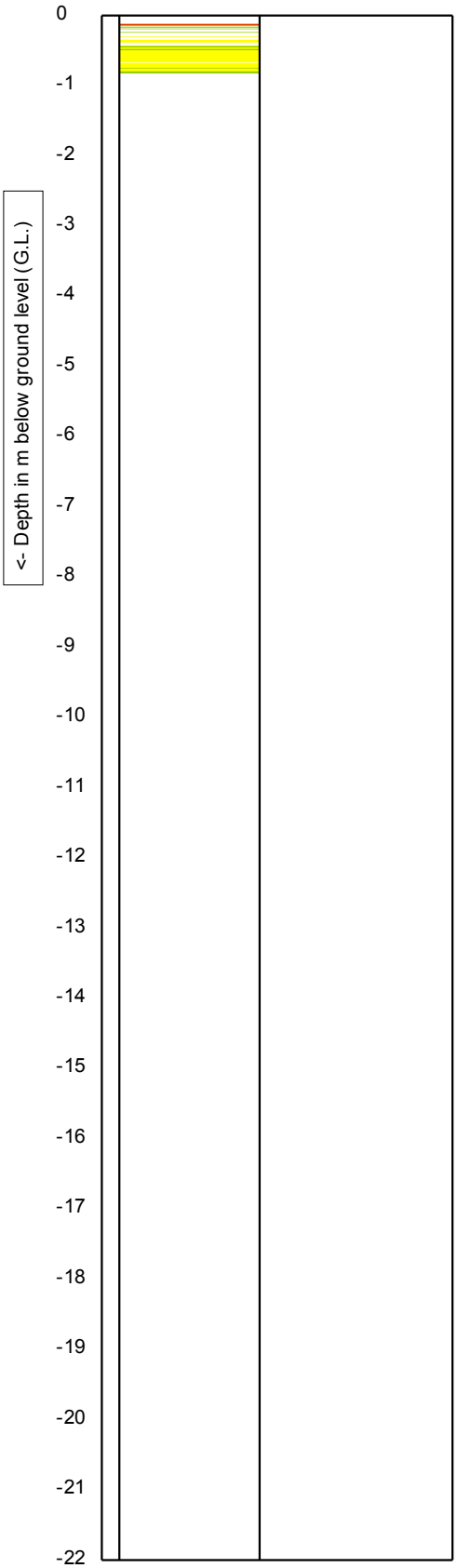


Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 30/07/2015
	Project: Princess Quay Footbridge		Cone no.: C10CFIP.125
	Location: A63 Castle Street Improvement		Project no.: A5066-15
	Position:		CPT no.: CPT411c 1/3

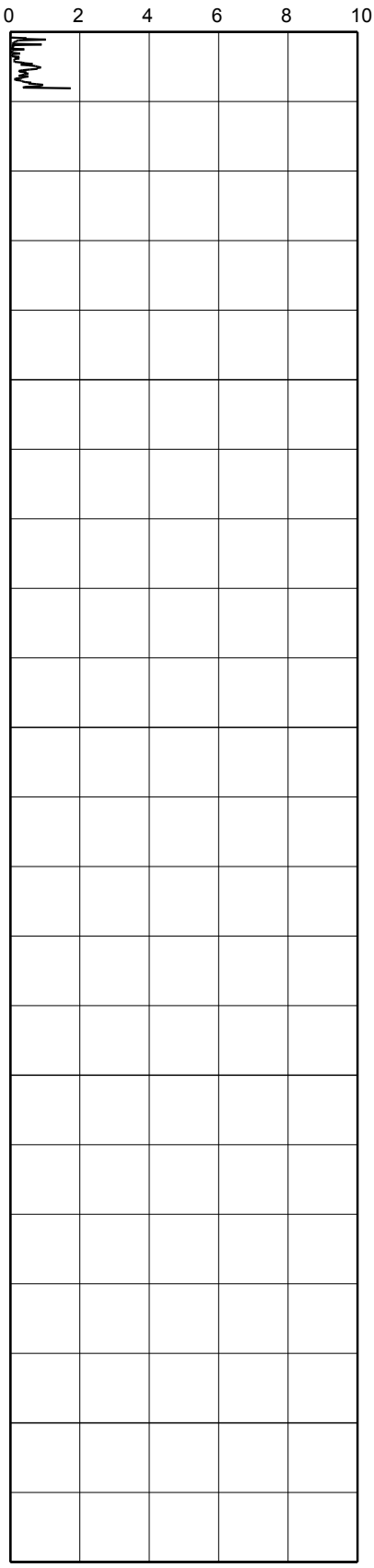
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

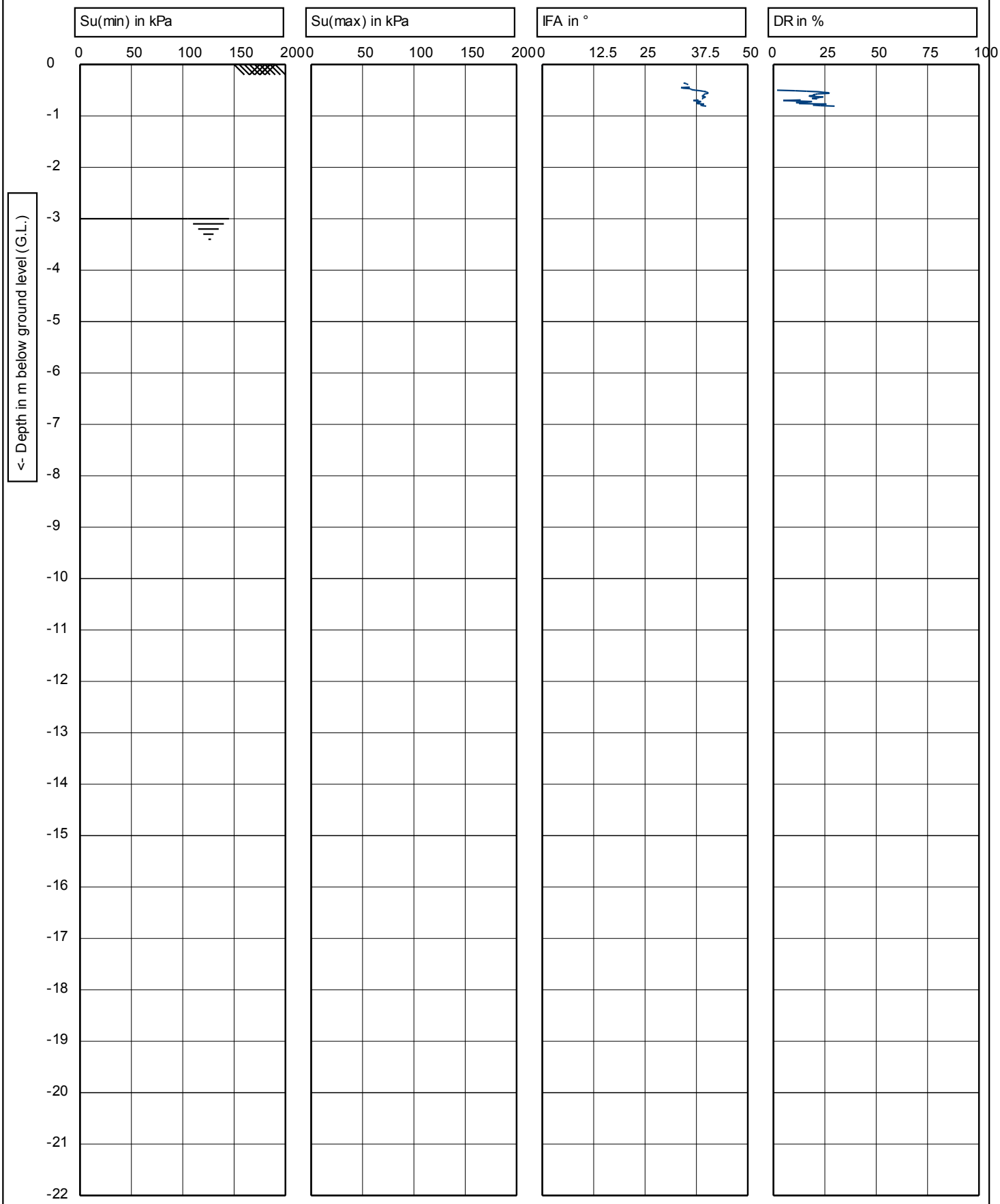
Friction ratio (Rf) in %



Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 30/07/2015
	Project:	Princess Quay Footbridge	Cone no.: C10CFIP.125
	Location:	A63 Castle Street Improvement	Project no.: A5066-15
	Position:		CPT no.: CPT411c 2/3

CPTask V1.23



Test terminated on obstruction

ESG

u1
150 cm²
10 cm²

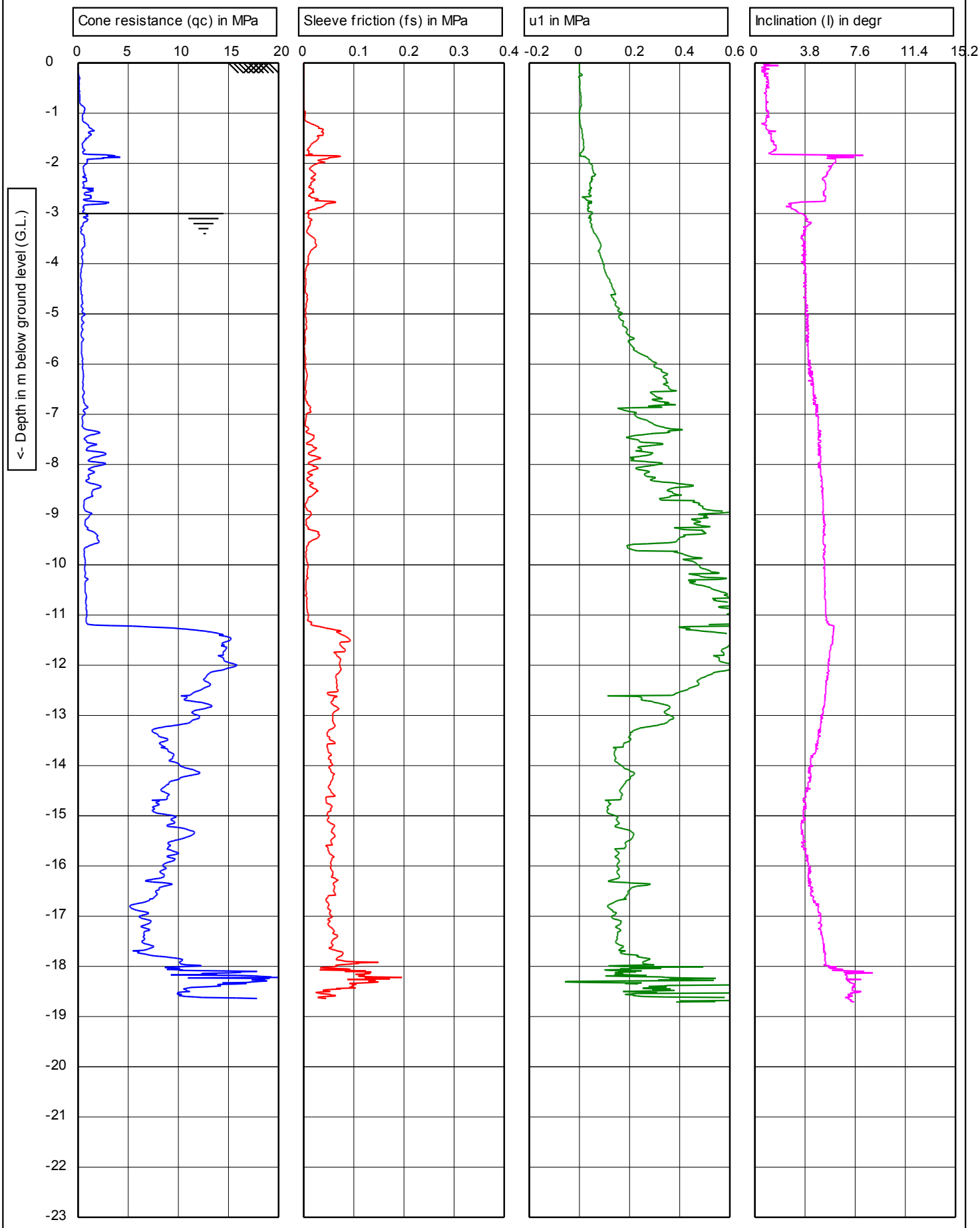
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **30/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT411c** **3/3**

CPTask V1.23



ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

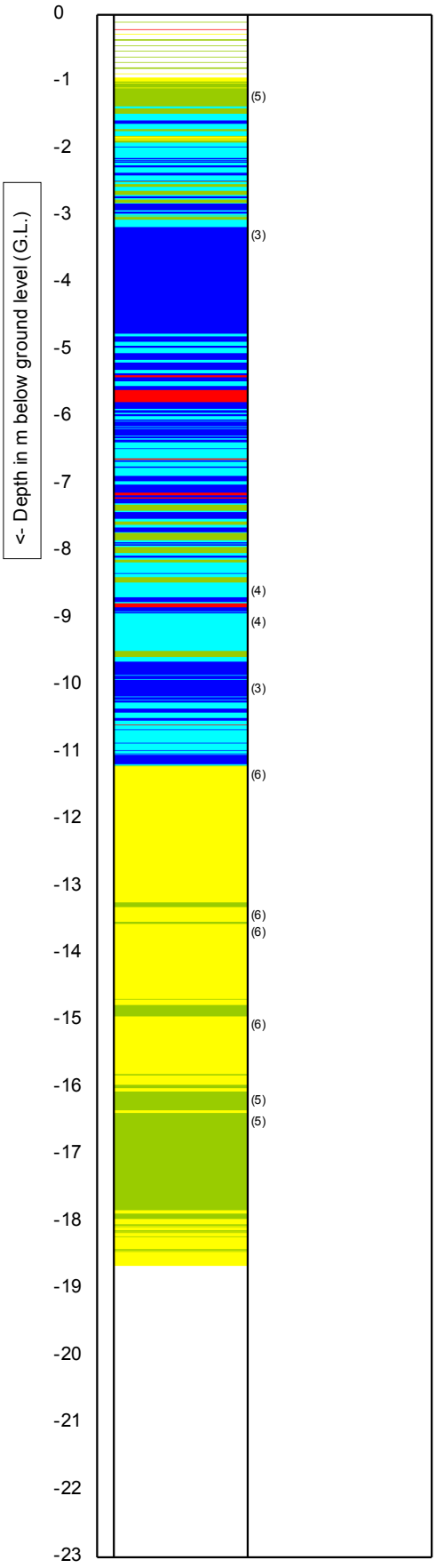
G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **30/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT411d** **1/3**

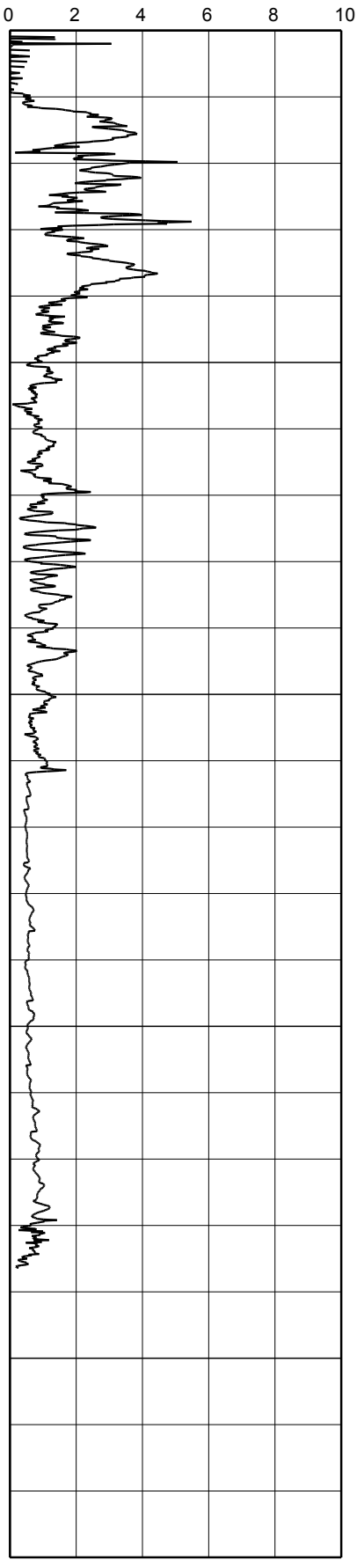
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

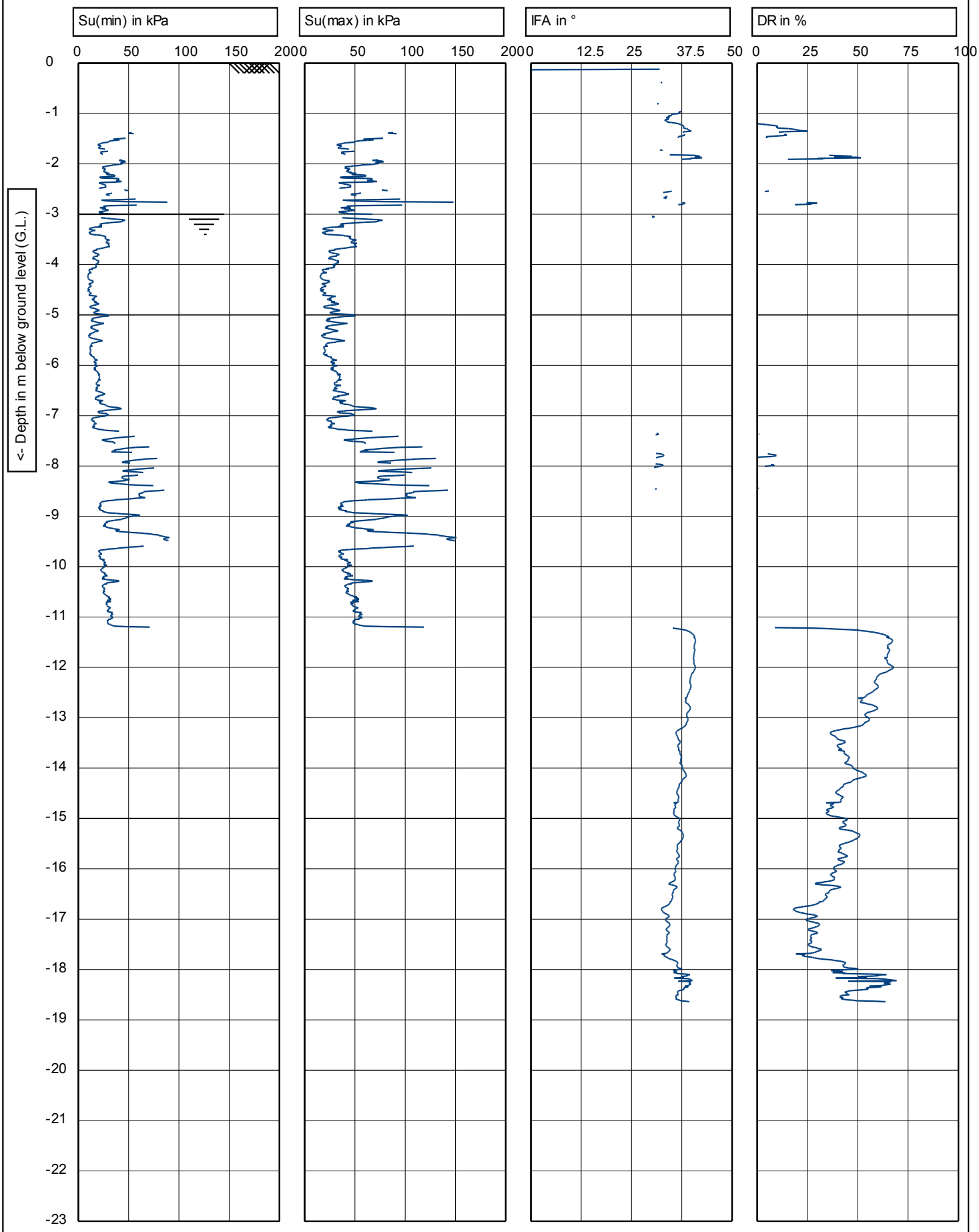
Friction ratio (Rf) in %



ESG

u1 150 cm² 10 cm²	BS1377 Part 9 : 1999		Predrill : 0
	G.L. 0	W.L.: -3	Date: 30/07/2015
Project: Princess Quay Footbridge			Cone no.: C10CFIP.125
Location: A63 Castle Street Improvement			Project no.: A5066-15
Position:			CPT no.: CPT411d 2/3

CPTask V1.23



ESG

u1
150 cm²
10 cm²

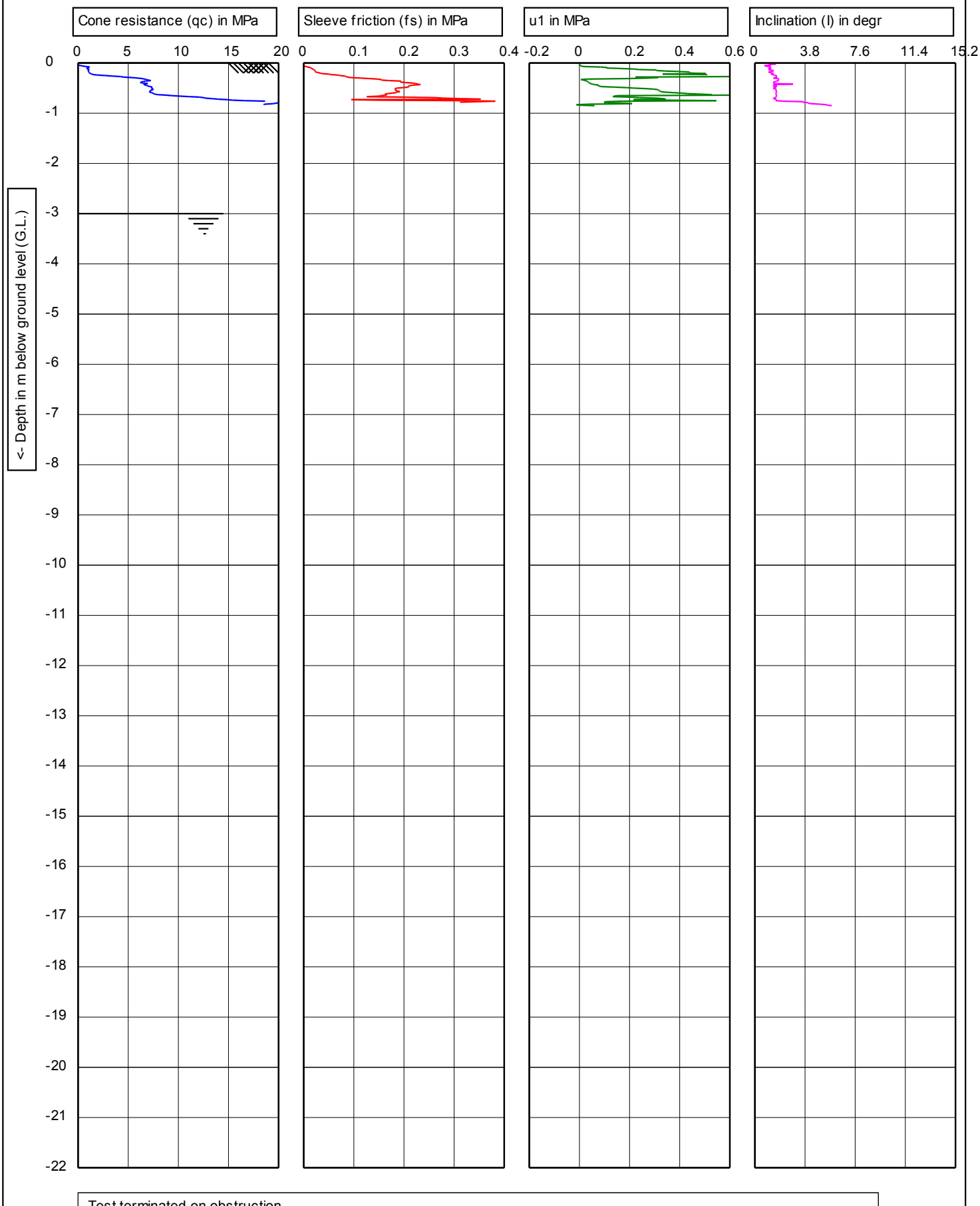
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **30/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT411d** **3/3**

CPTask V1.23



Test terminated on obstruction

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

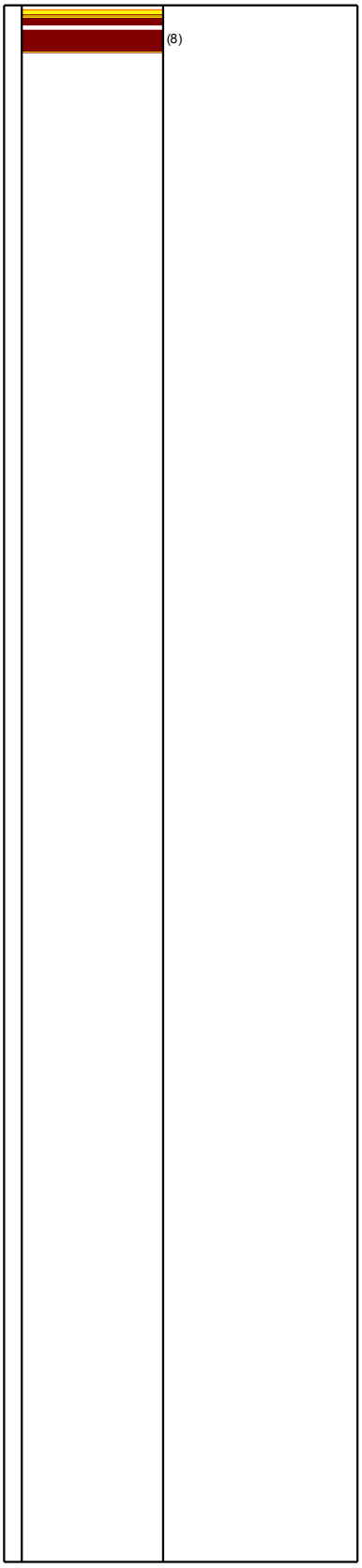
G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**29/07/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT412** **1/3**

CPTask V1.23

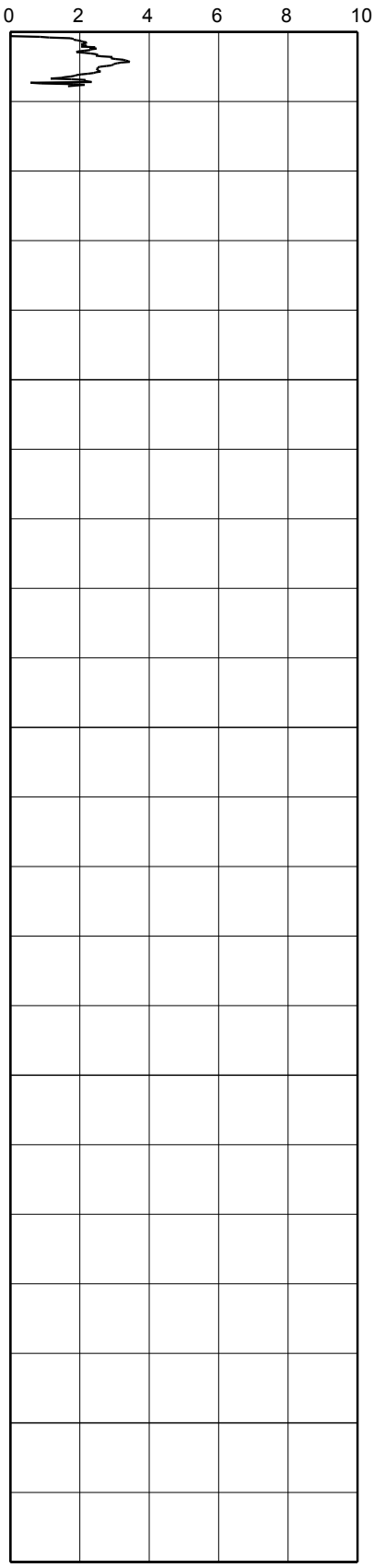
Soil Classification (using Fr)



<- Depth in m below ground level (G.L.)

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



Test terminated on obstruction

CPTask V1.23

ESG

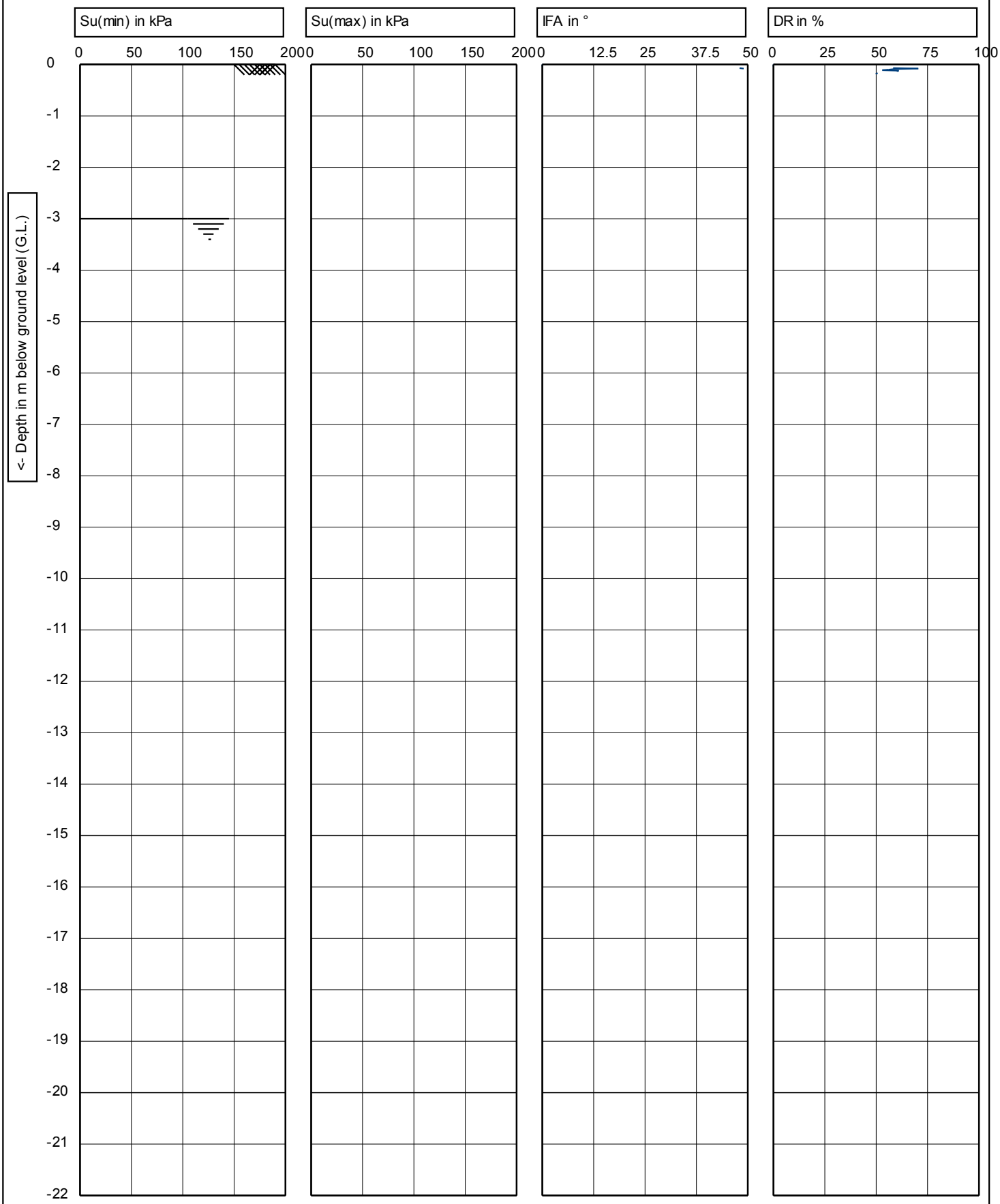
u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **29/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT412** **2/3**



Test terminated on obstruction

ESG

u1
150 cm²
10 cm²

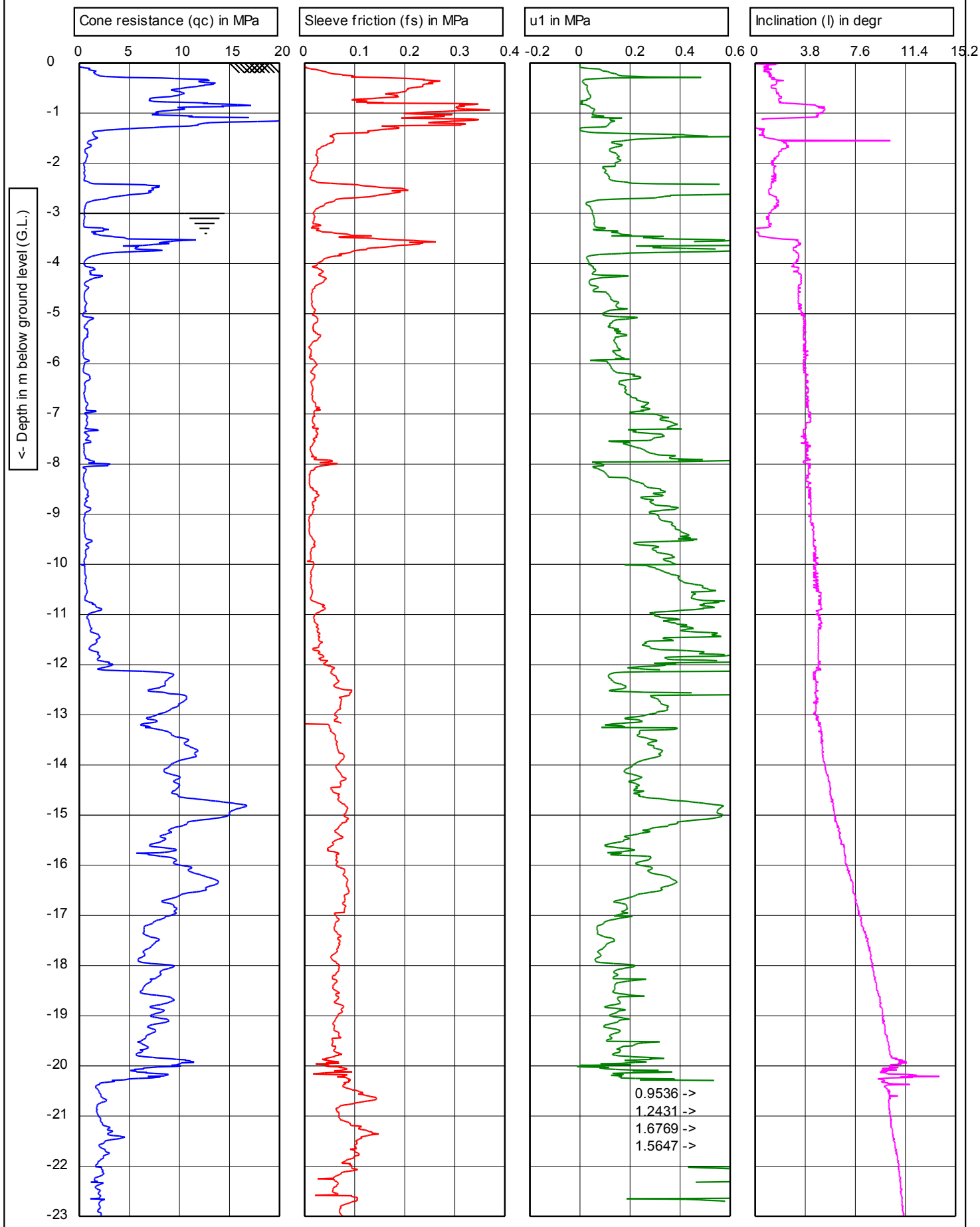
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

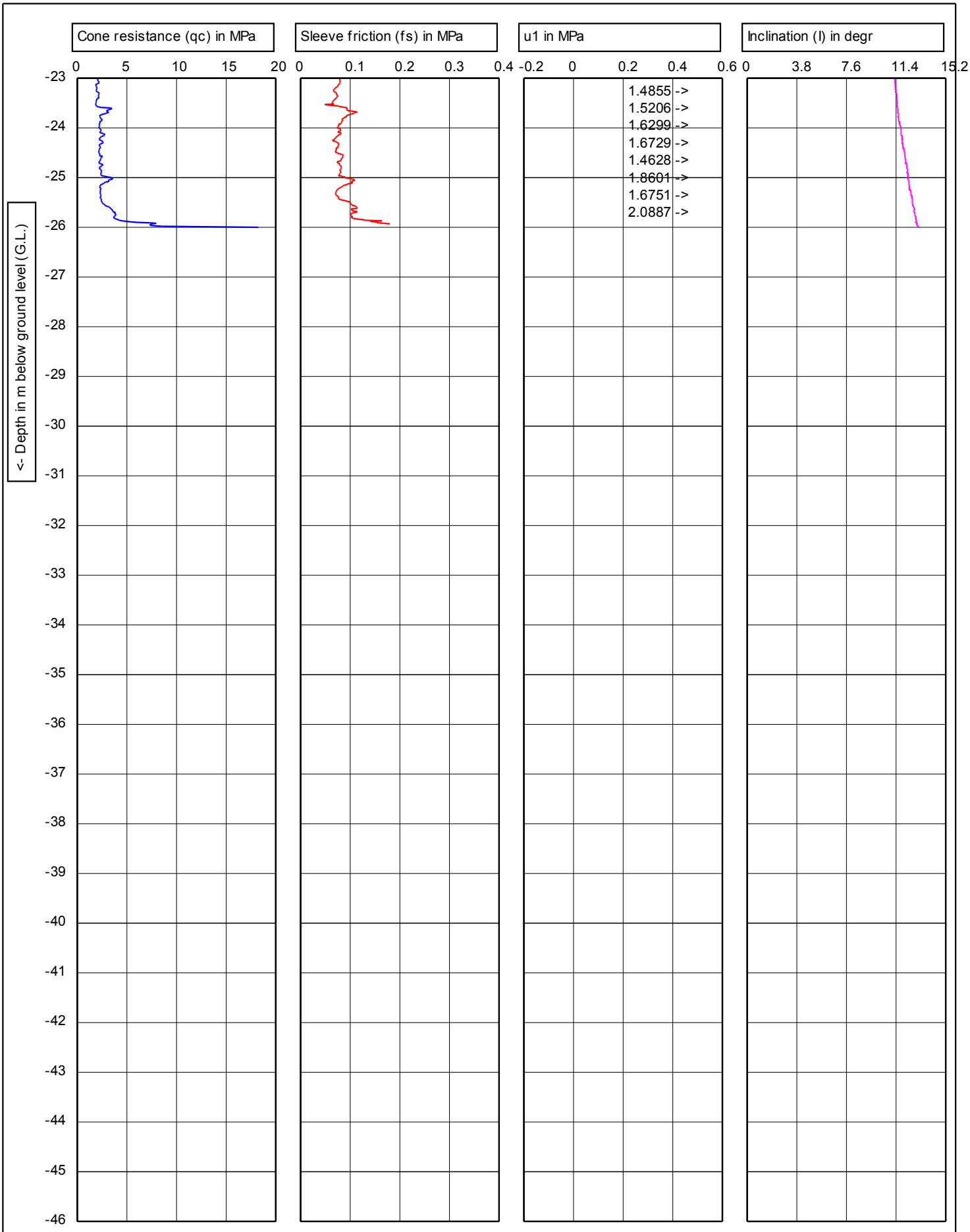
Predrill : **0**
Date: **29/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT412** **3/3**

CPTask V1.23



ESG	u1 150 cm² / 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 29/07/2015
	Project: Princess Quay Footbridge		Cone no.: C10CFIP.125
	Location: A63 Castle Street Improvement		Project no.: A5066-15
	Position:		CPT no.: CPT412a 1/6

CPTask V1.23

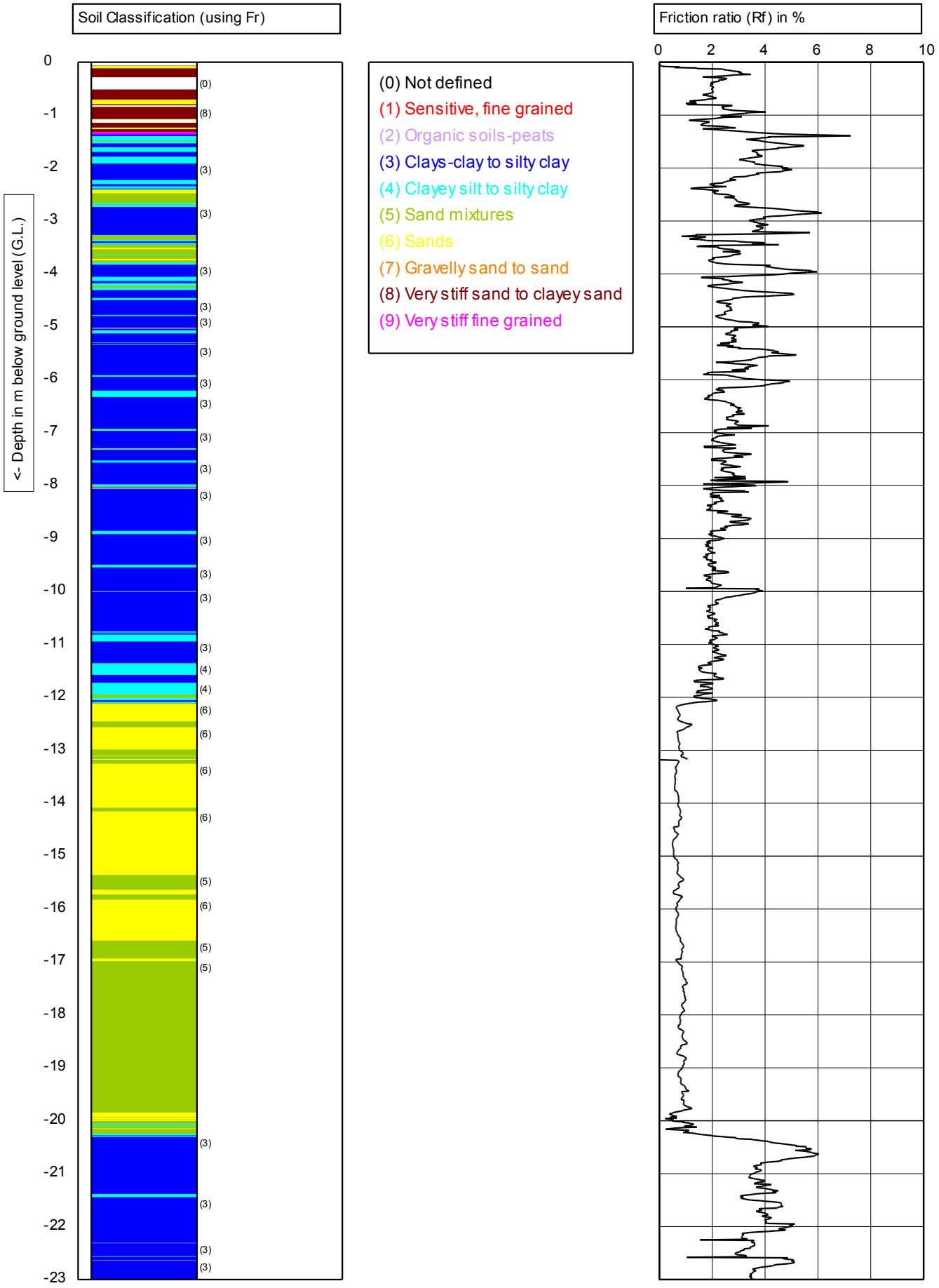


ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -3	Date:	29/07/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT412a 2/6

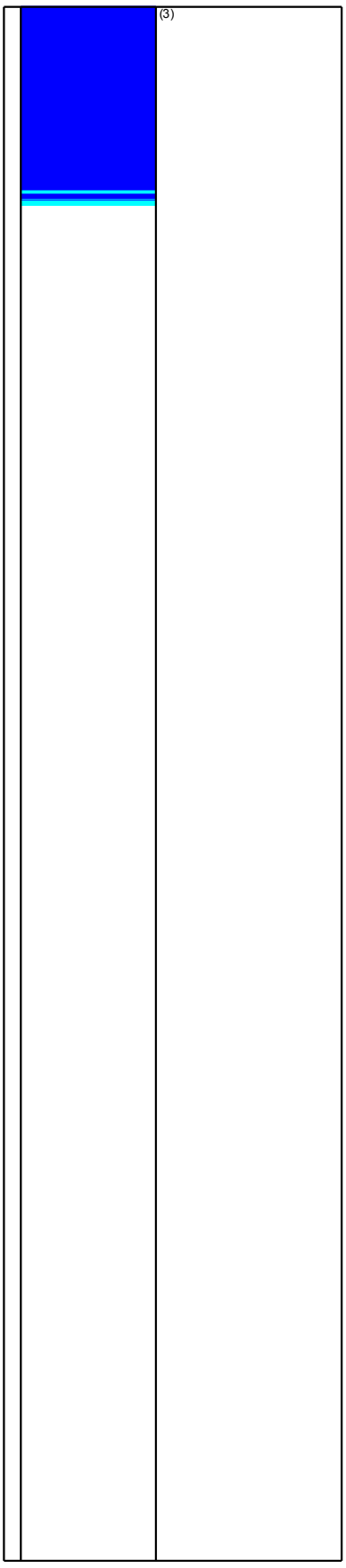
CPTask V1.23



CPTask V1.23

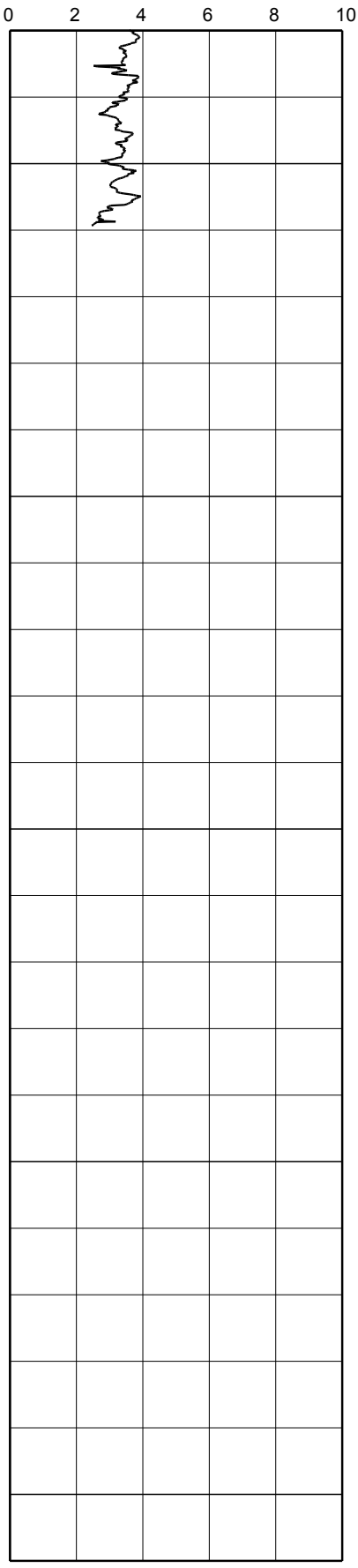
ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 29/07/2015
Project: Princess Quay Footbridge			Cone no.: C10CFIP.125
Location: A63 Castle Street Improvement			Project no.: A5066-15
Position:			CPT no.: CPT412a 3/6

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



<- Depth in m below ground level (G.L.)

-23 -24 -25 -26 -27 -28 -29 -30 -31 -32 -33 -34 -35 -36 -37 -38 -39 -40 -41 -42 -43 -44 -45 -46

ESG

u1
150 cm²
10 cm²

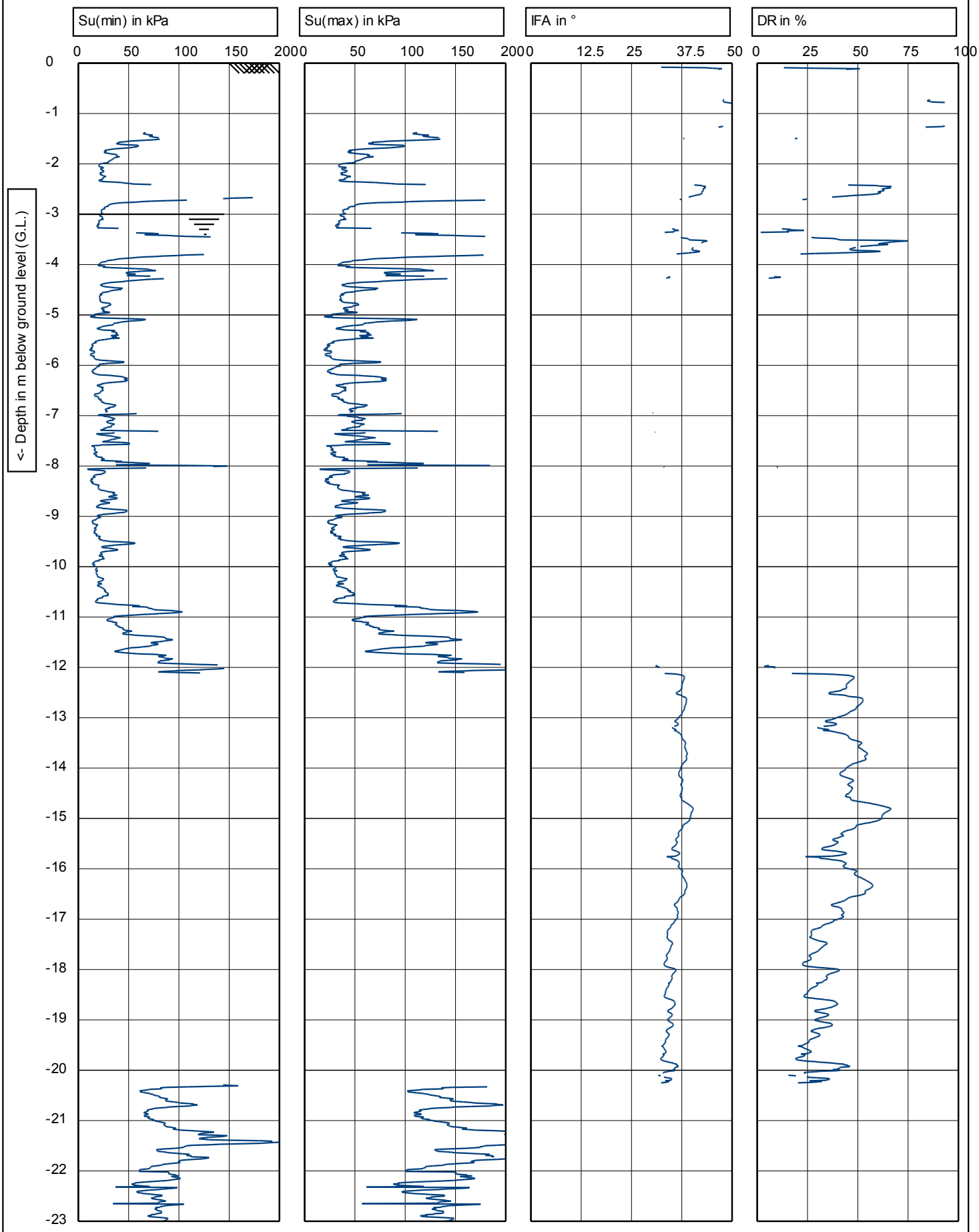
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **29/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT412a** **4/6**

CPTask V1.23



ESG

u1
150 cm²
10 cm²

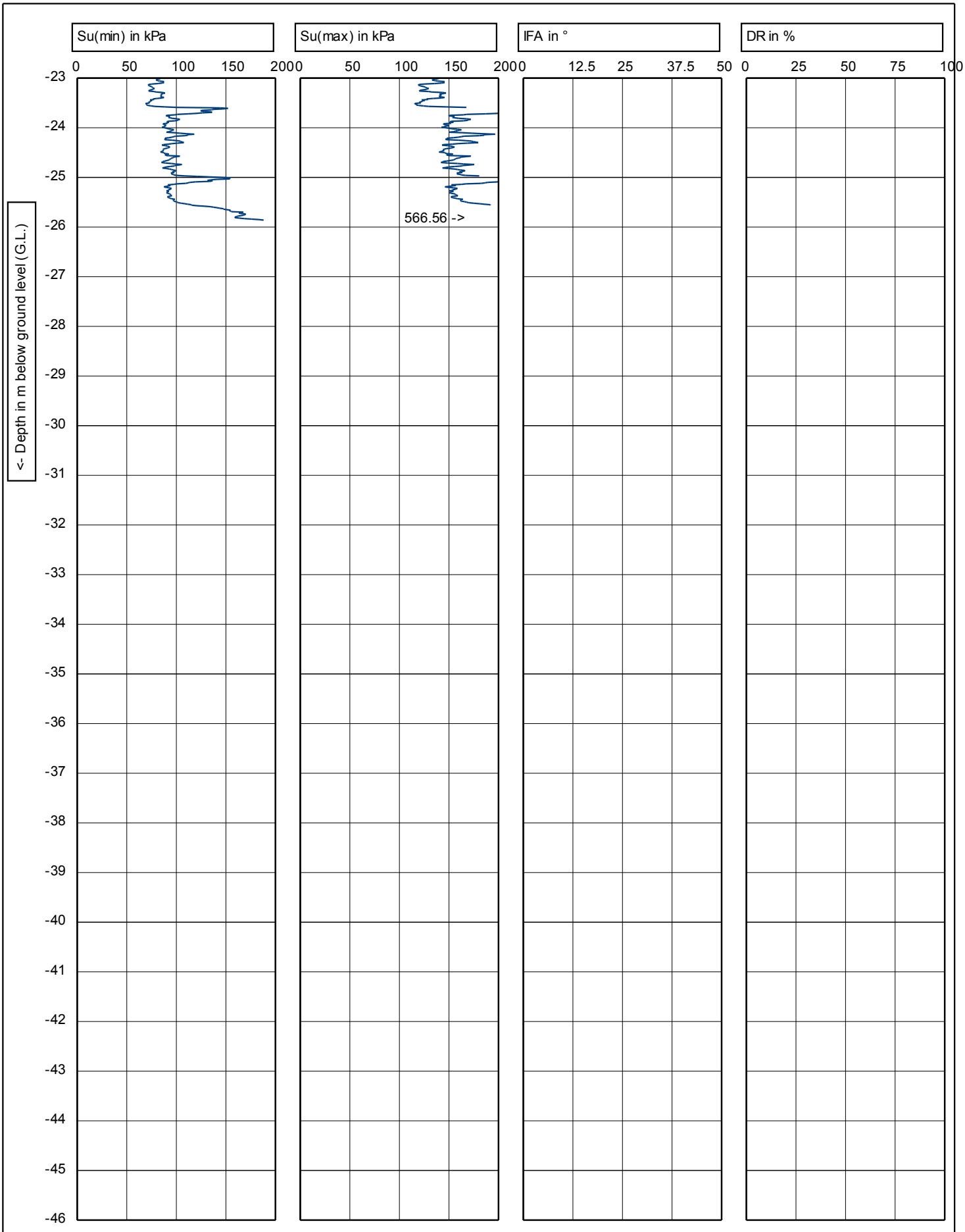
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**29/07/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT412a** **5/6**

CPTask V1.23



ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

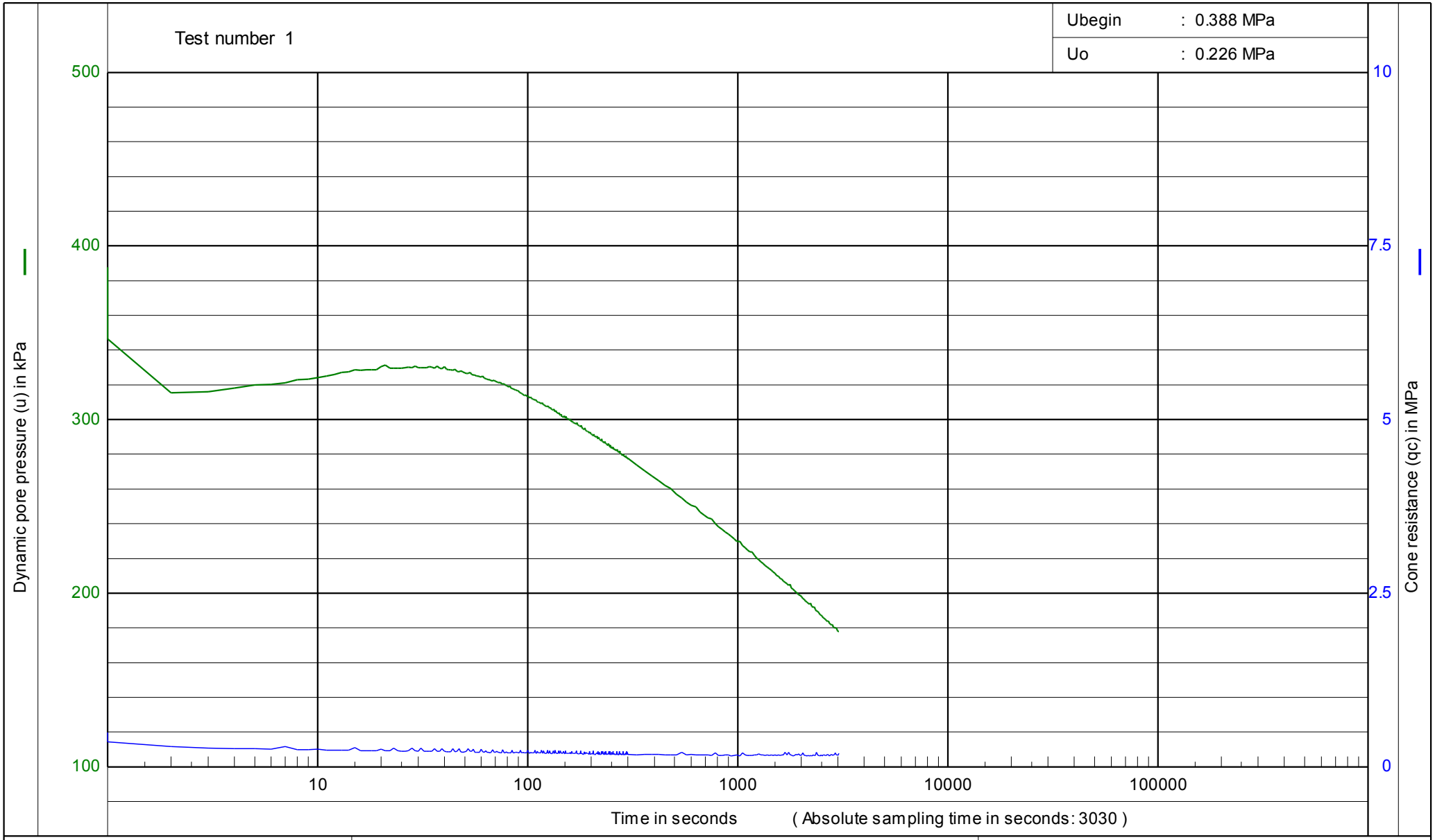
Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **29/07/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT412a** **6/6**

CPTask V1.23

Test number 1

Ubegin	: 0.388 MPa
Uo	: 0.226 MPa



BS1377 Part 9 : 1999

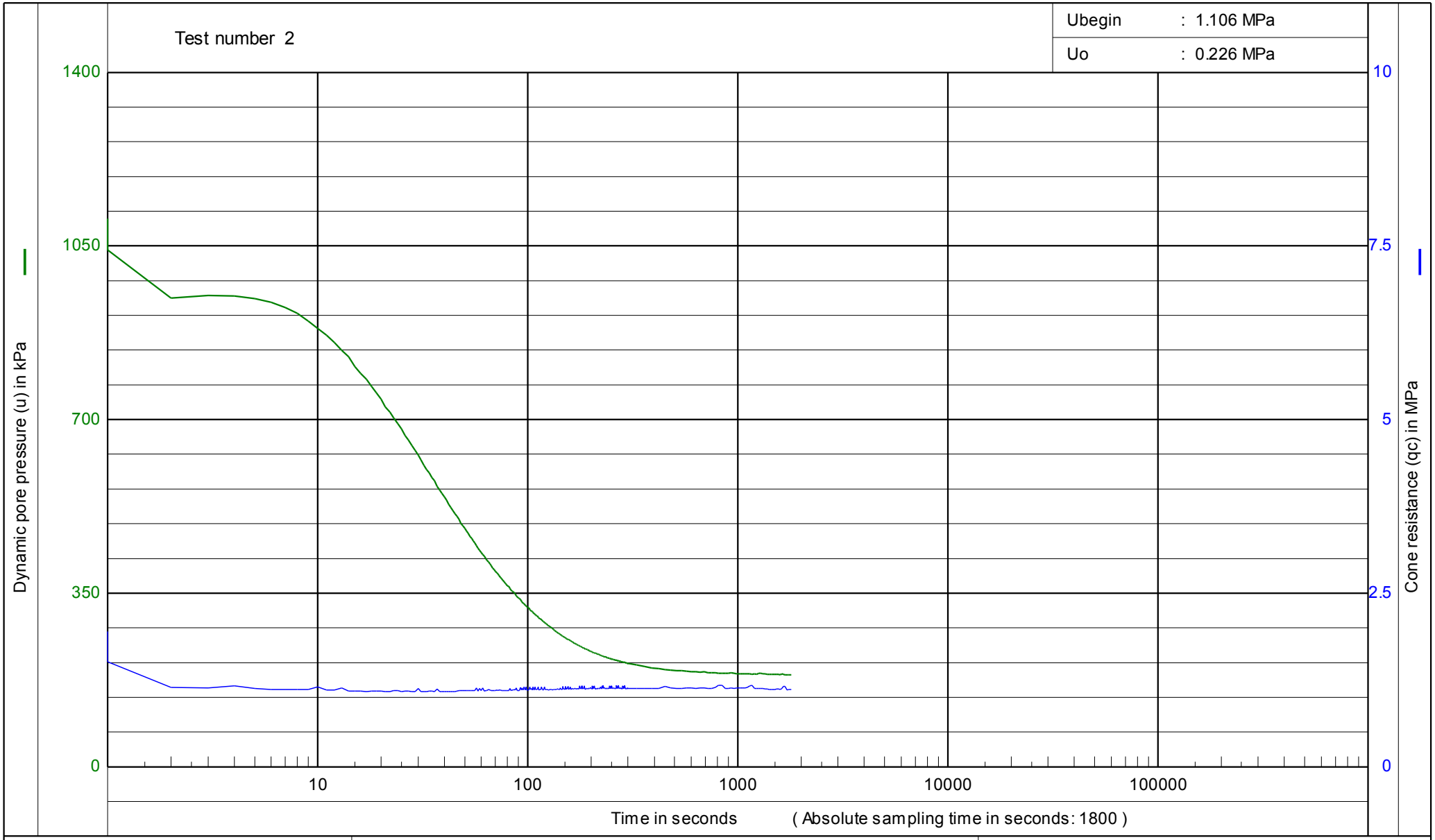
Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 29/07/2015
Project no.	: A5066-15
CPT no.	: CPT412a
Test depth	: -10 m[m] - G.L.
Water level	: -3 [m] - G.L.

Test number 2

Ubegin	: 1.106 MPa
Uo	: 0.226 MPa



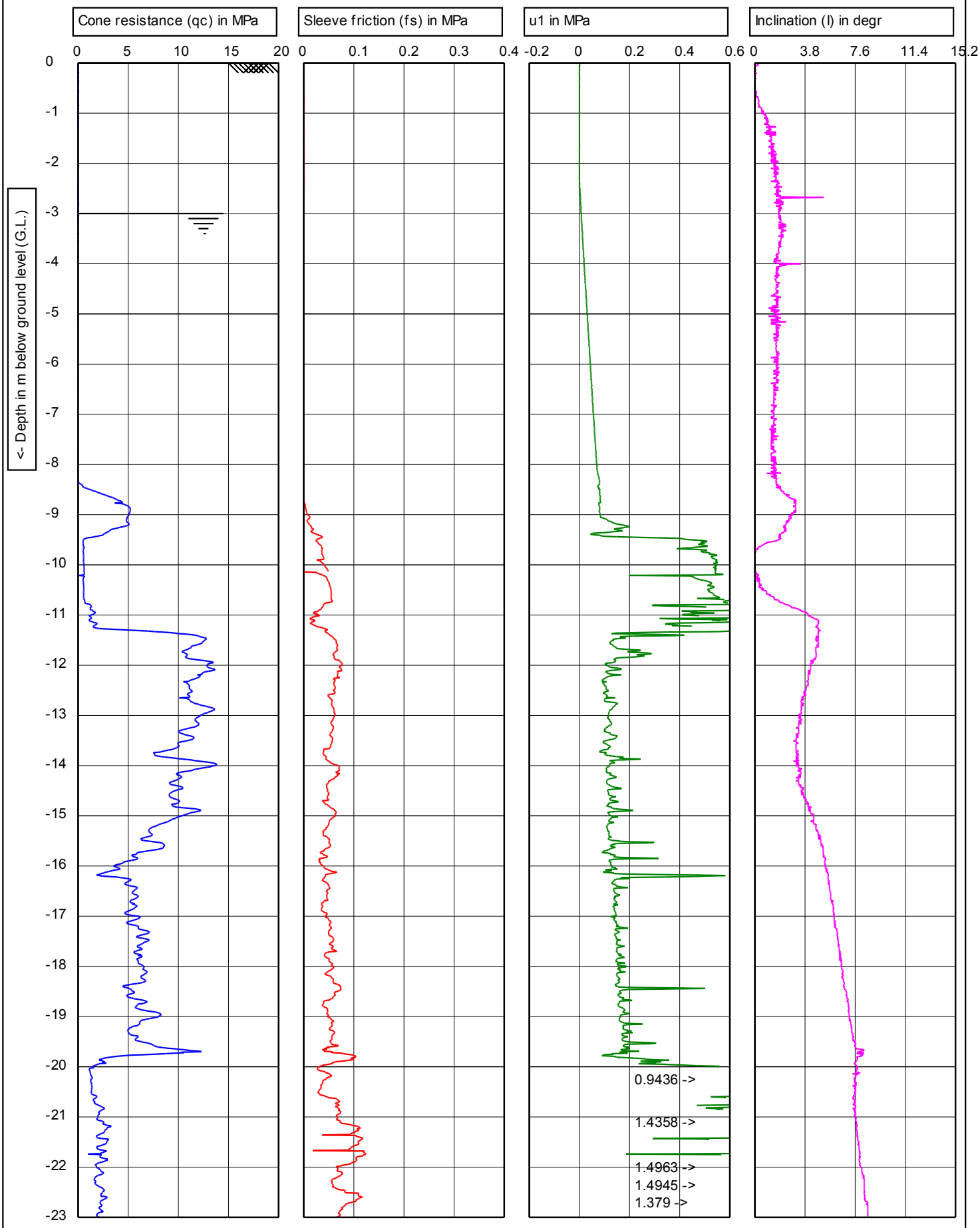
ESG

BS1377 Part 9 : 1999

Project : Princess Quay Footbridge

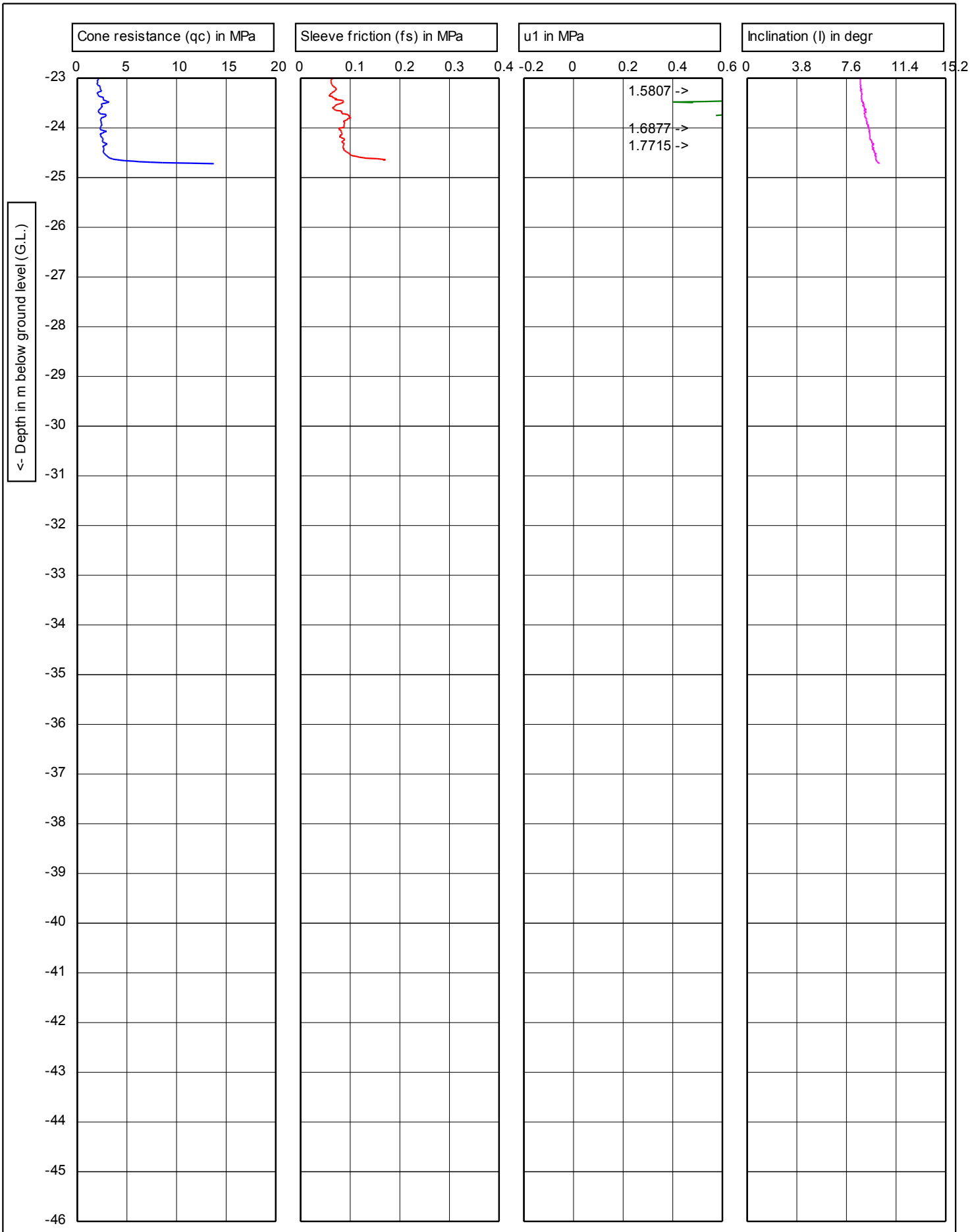
Location : A63 Castle Street Improvement

Date	: 29/07/2015
Project no.	: A5066-15
CPT no.	: CPT412a
Test depth	: -22.64 [m] - G.L.
Water level	: -3 [m] - G.L.



ESG	u1 150 cm² / 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -3	Date: 13/08/2015
	Project: Princess Quay Footbridge		Cone no.: C10CFIP.125
	Location: A63 Castle Street Improvement		Project no.: A5066-15
	Position:		CPT no.: CPT413 1/6

CPTask V1.23



ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

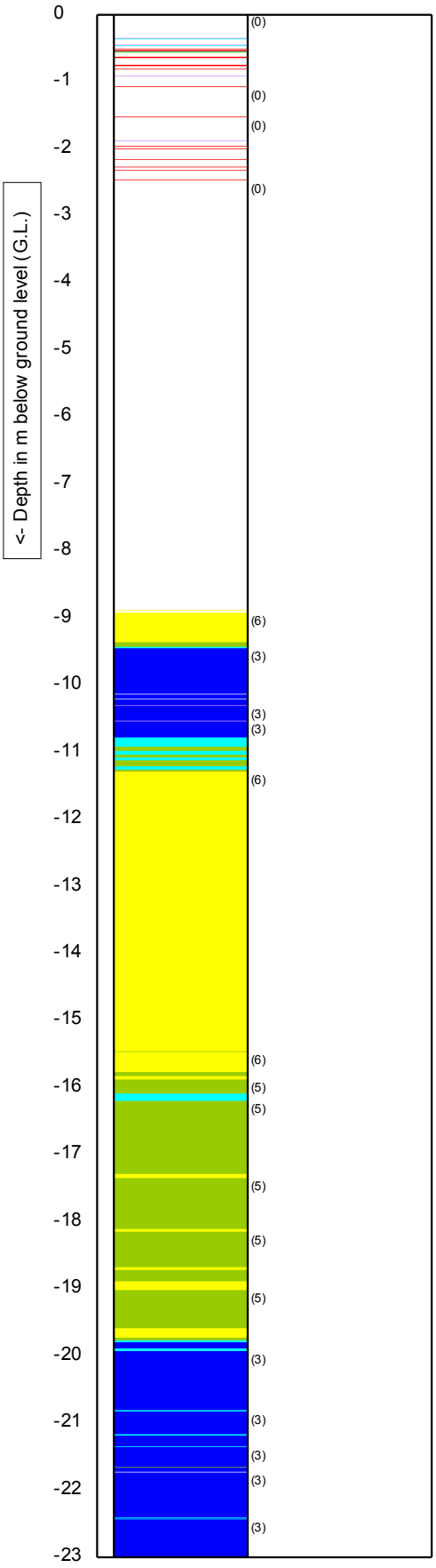
G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**13/08/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT413** **2/6**

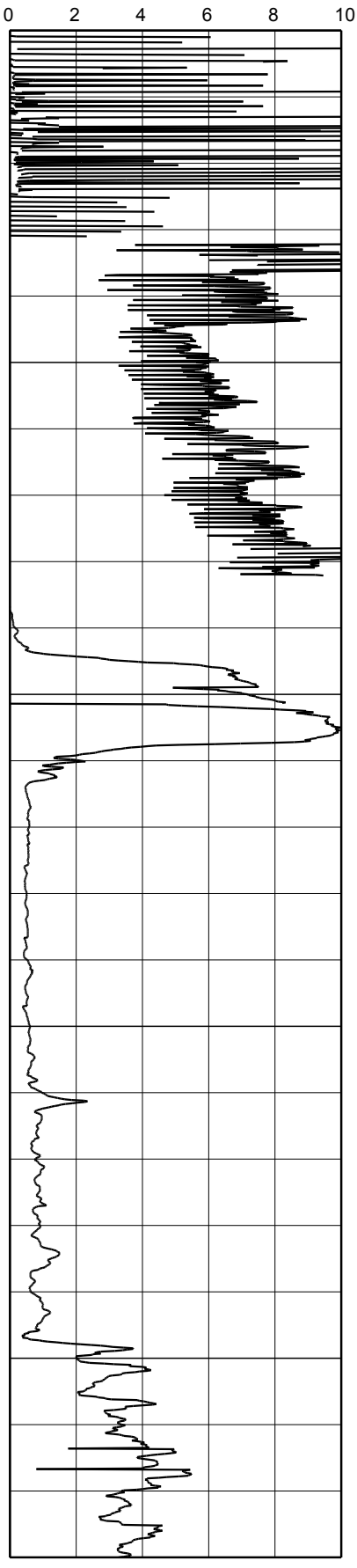
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %

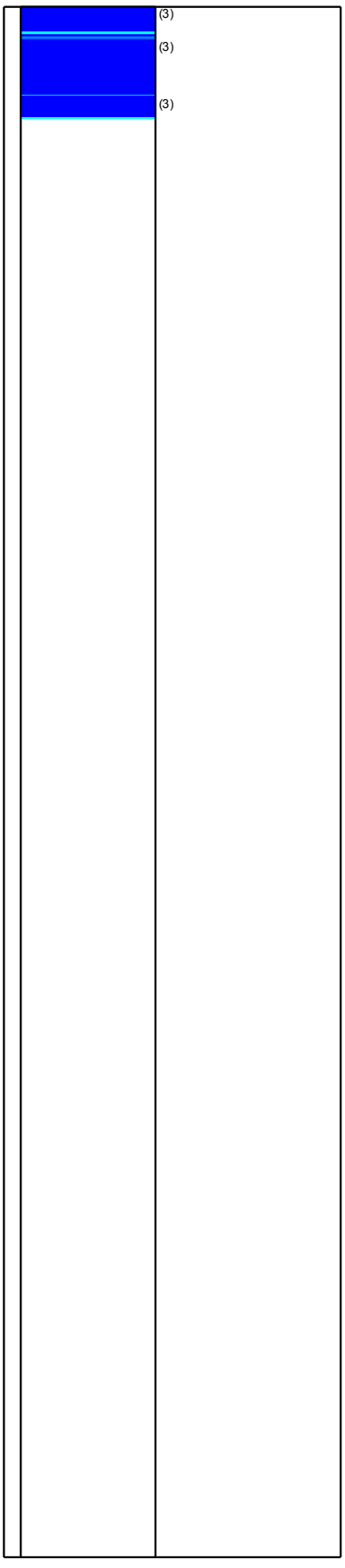


ESG

CPTask V1.23

u1 150 cm² 10 cm²	BS1377 Part 9 : 1999		Predrill : 0
	G.L. 0	W.L.: -3	Date: 13/08/2015
Project: Princess Quay Footbridge			Cone no.: C10CFIP.125
Location: A63 Castle Street Improvement			Project no.: A5066-15
Position:			CPT no.: CPT413 3/6

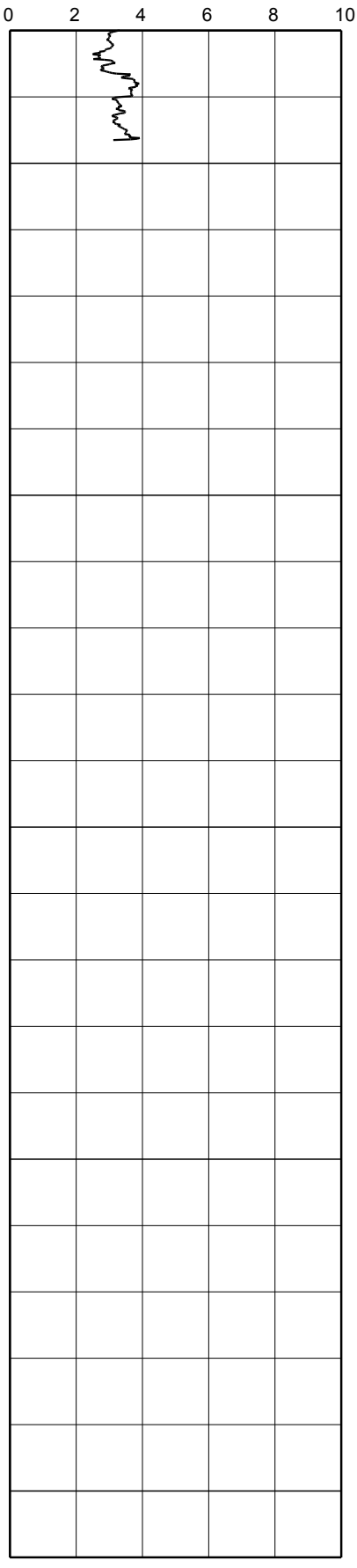
Soil Classification (using Fr)



<- Depth in m below ground level (G.L.)

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



CPTask V1.23

ESG

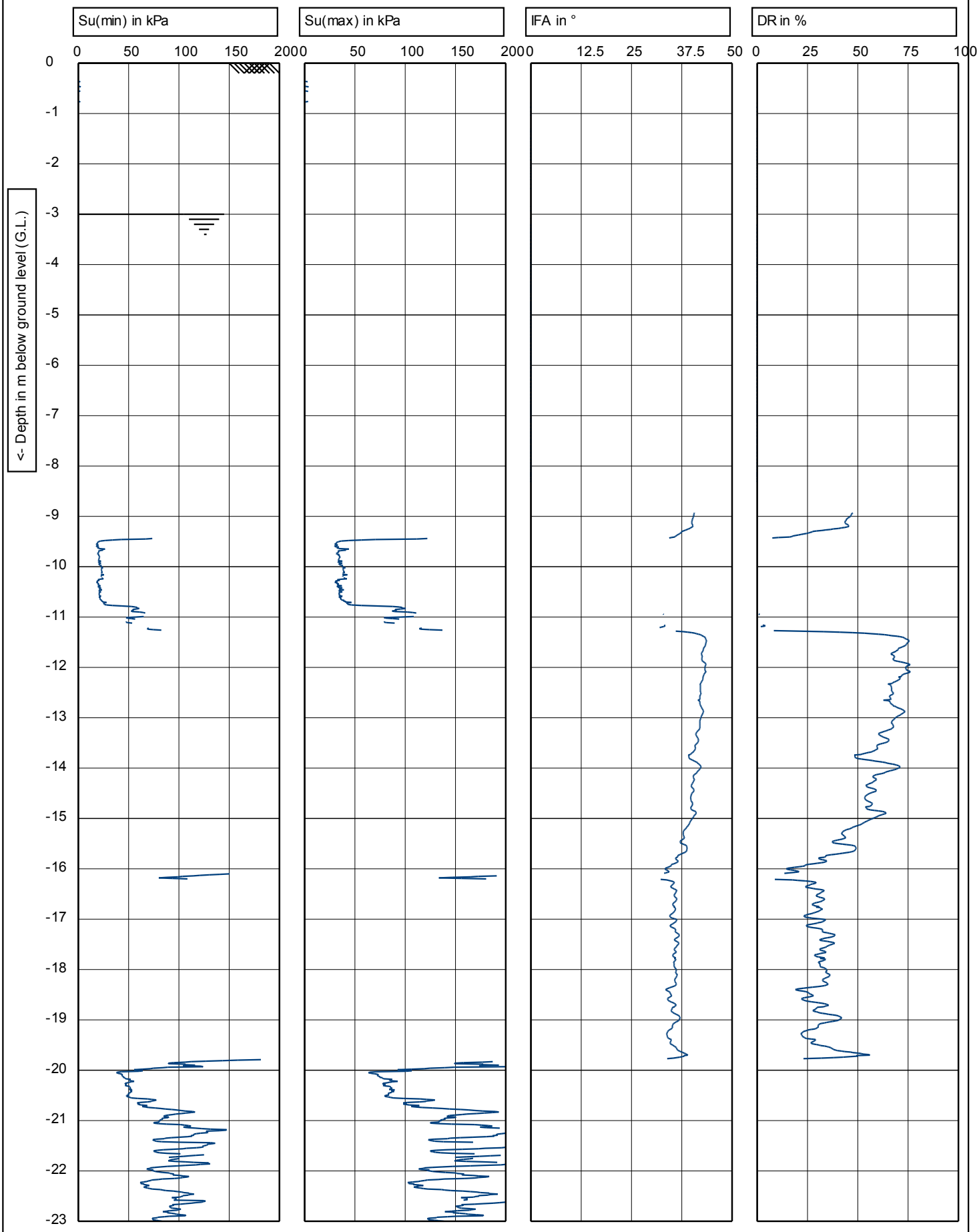
u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **13/08/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT413** **4/6**

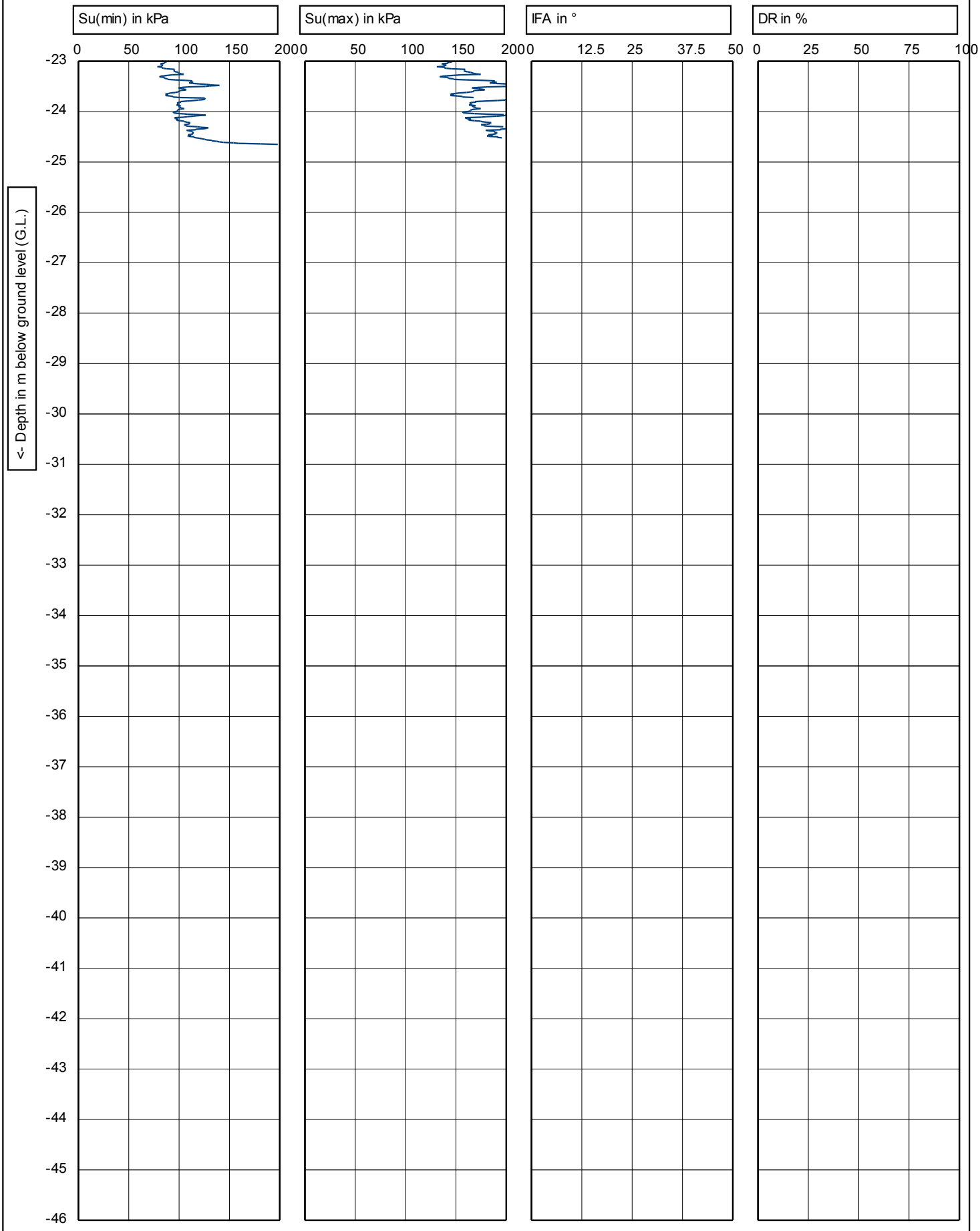


ESG

CPTask V1.23

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -3	Date:	13/08/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT413 5/6



ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-3**

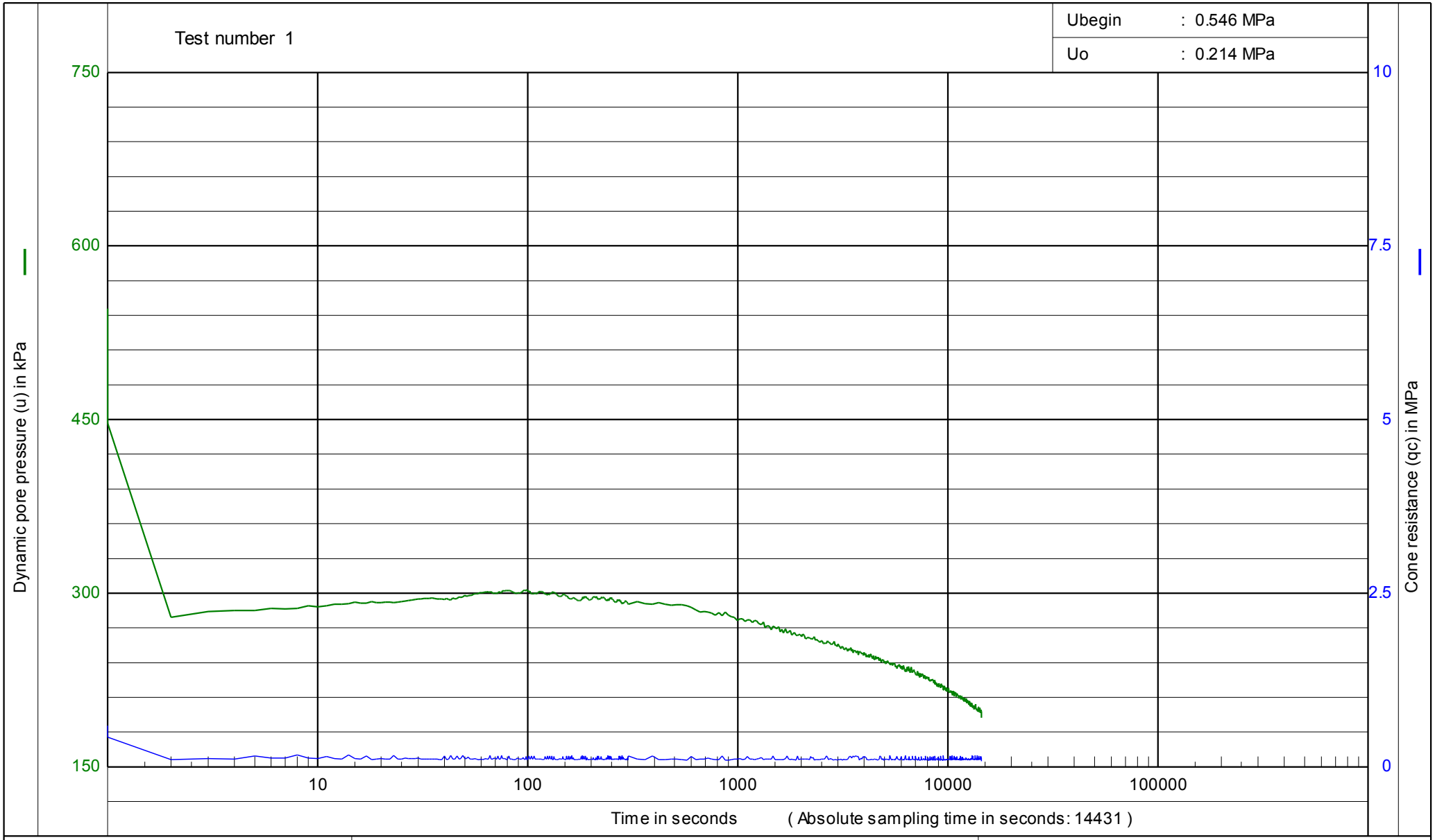
Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **13/08/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT413** **6/6**

CPTask V1.23

Test number 1

Ubegin	: 0.546 MPa
Uo	: 0.214 MPa



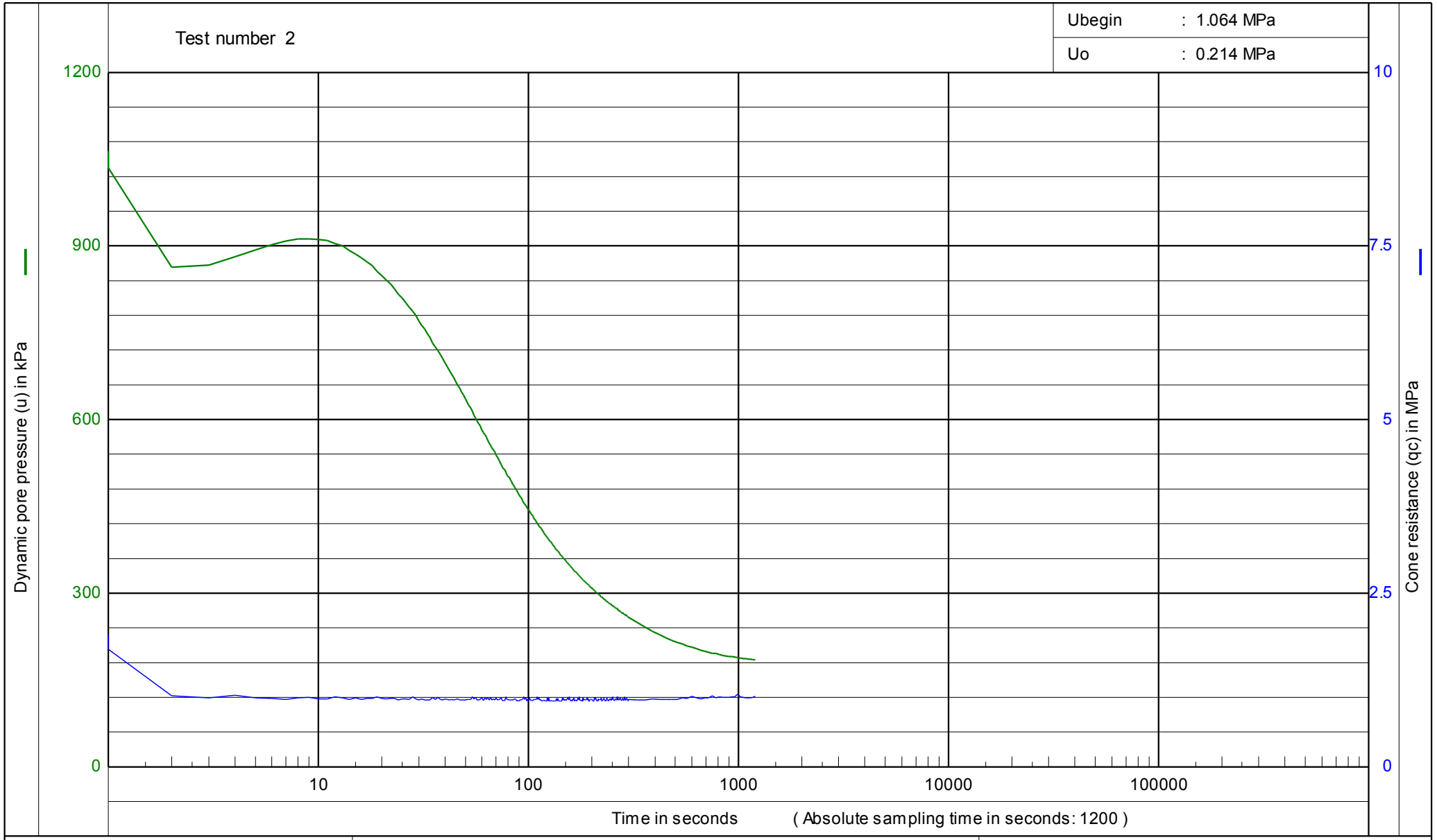
BS1377 Part 9 : 1999

Project	: Princess Quay Footbridge
Location	: A63 Castle Street Improvement

Date	: 13/08/2015
Project no.	: A5066-15
CPT no.	: CPT413
Test depth	: -10.2 [m] - G.L.
Water level	: -3 [m] - G.L.

Test number 2

Ubegin	: 1.064 MPa
Uo	: 0.214 MPa



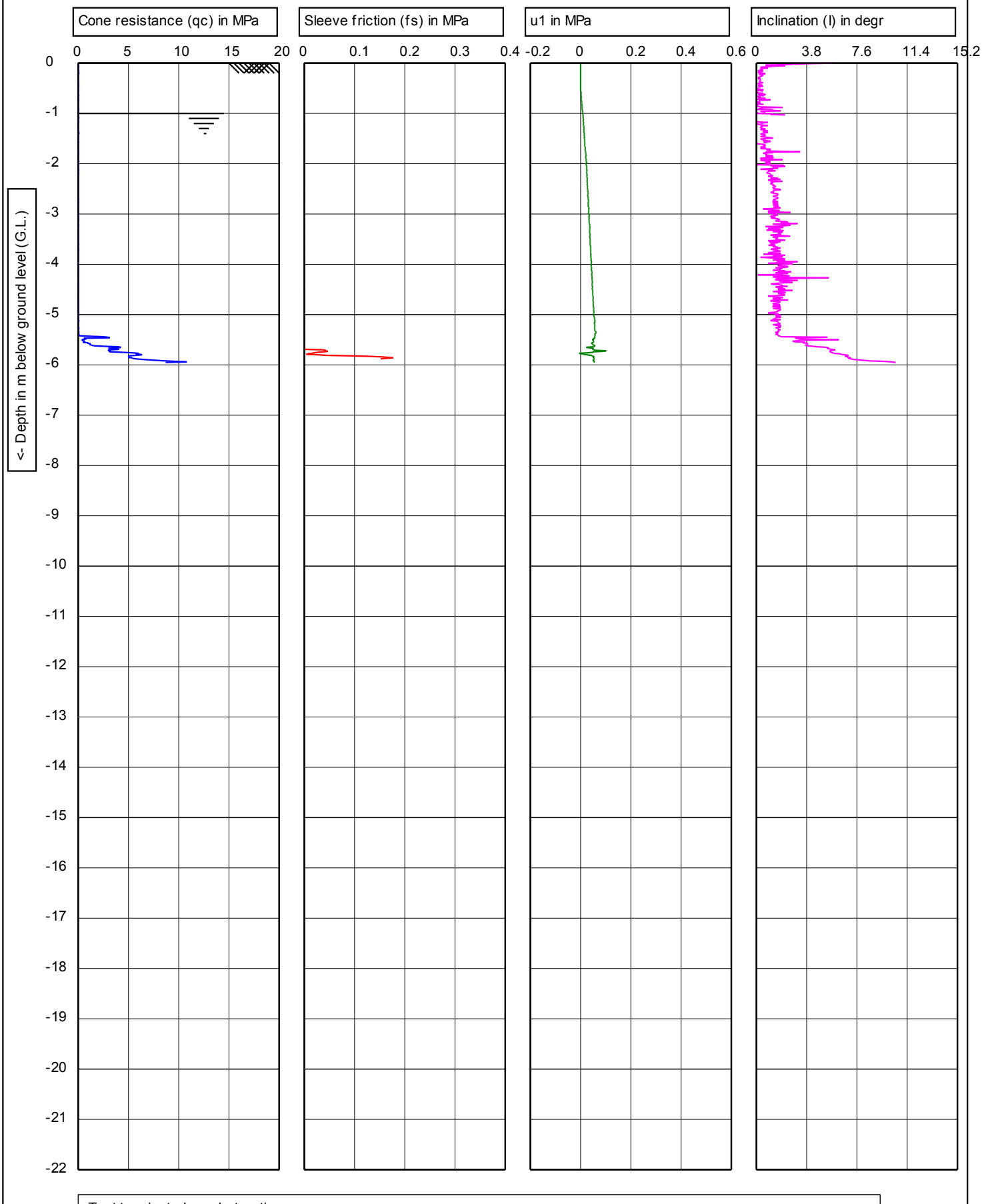
ESG

BS1377 Part 9 : 1999

Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 13/08/2015
Project no.	: A5066-15
CPT no.	: CPT413
Test depth	: -21.73 [m] - G.L.
Water level	: -3 [m] - G.L.



Test terminated on obstruction

ESG

CPTask V1.23

u1
150 cm²
10 cm²

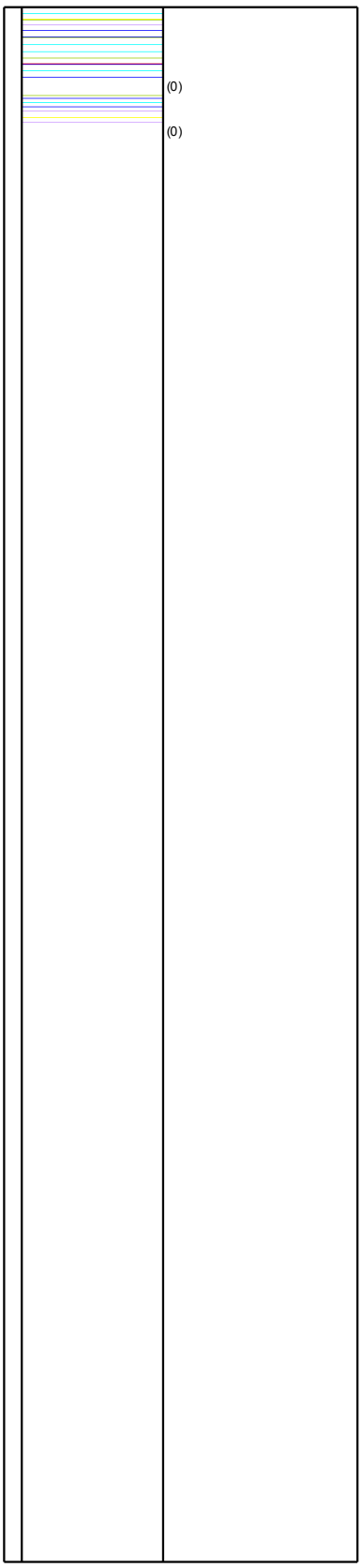
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**10/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT501** 1/3

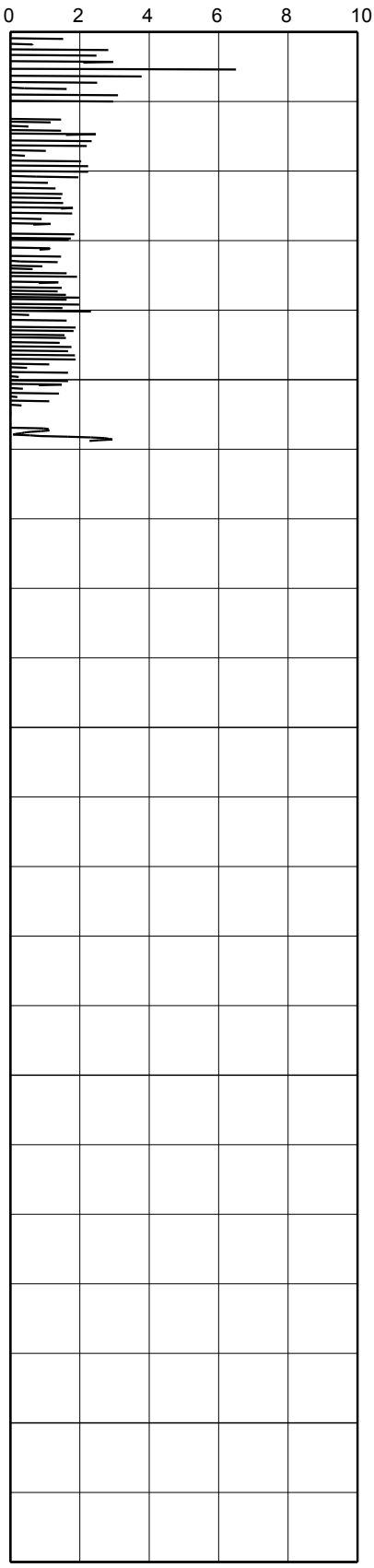
Soil Classification (using Fr)



<- Depth in m below ground level (G.L.)

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

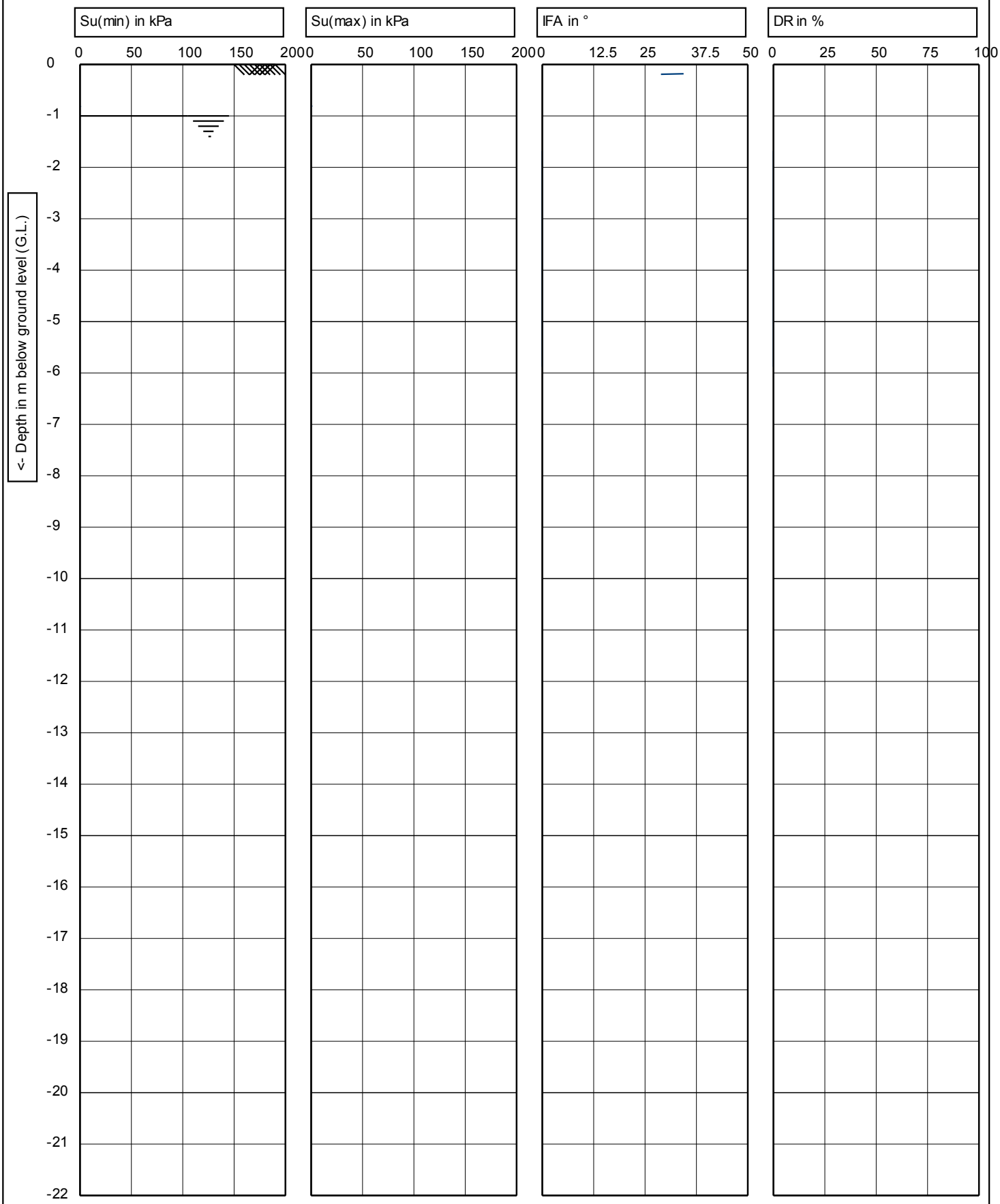
Friction ratio (Rf) in %



Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -1	Date: 10/09/2015
	Project: Princess Quay Footbridge		Cone no.: C10CFIP.125
	Location: A63 Castle Street Improvement		Project no.: A5066-15
	Position:		CPT no.: CPT501 2/3

CPTask V1.23



Test terminated on obstruction

ESG

u1
150 cm²
10 cm²

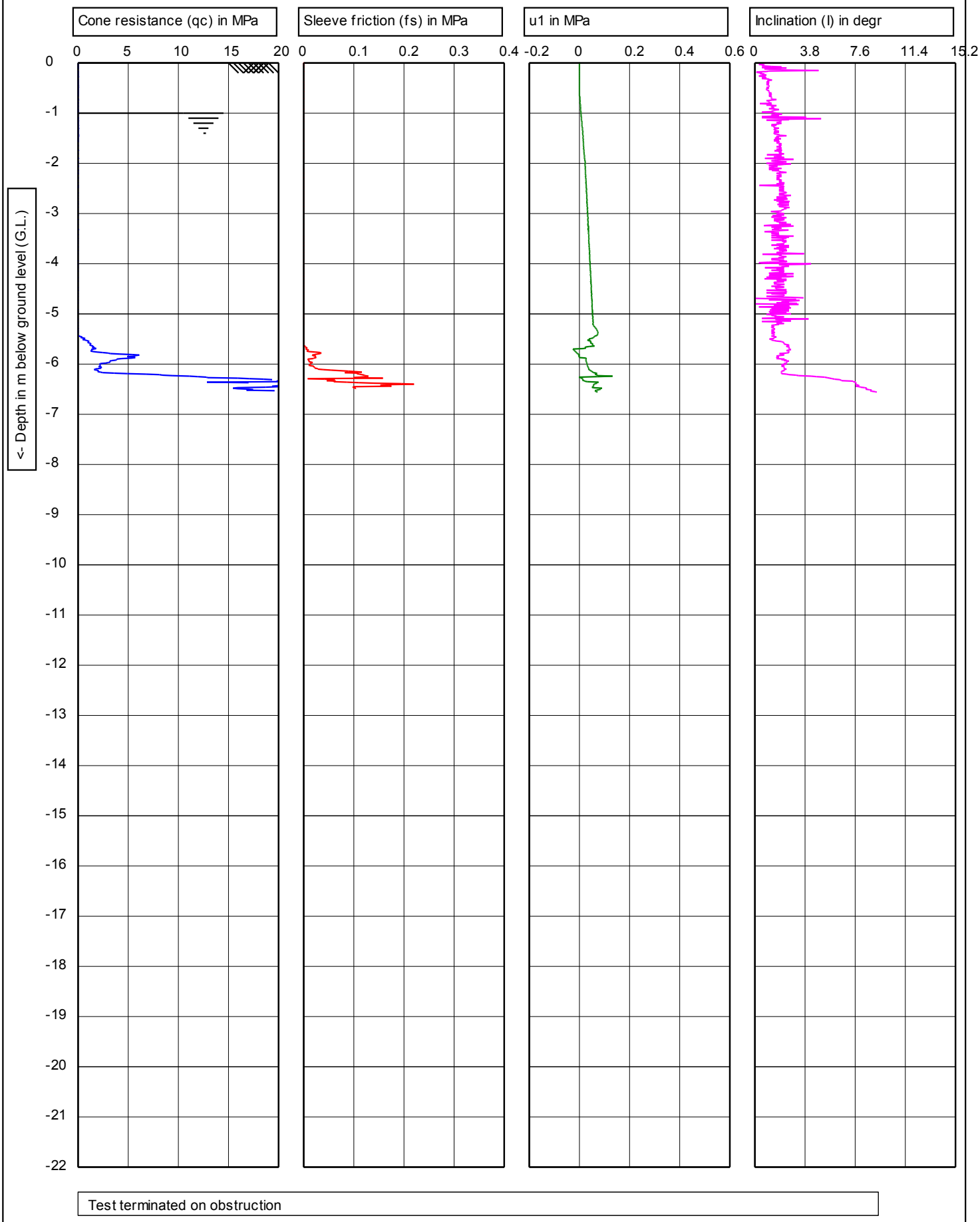
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **10/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT501** **3/3**

CPTask V1.23

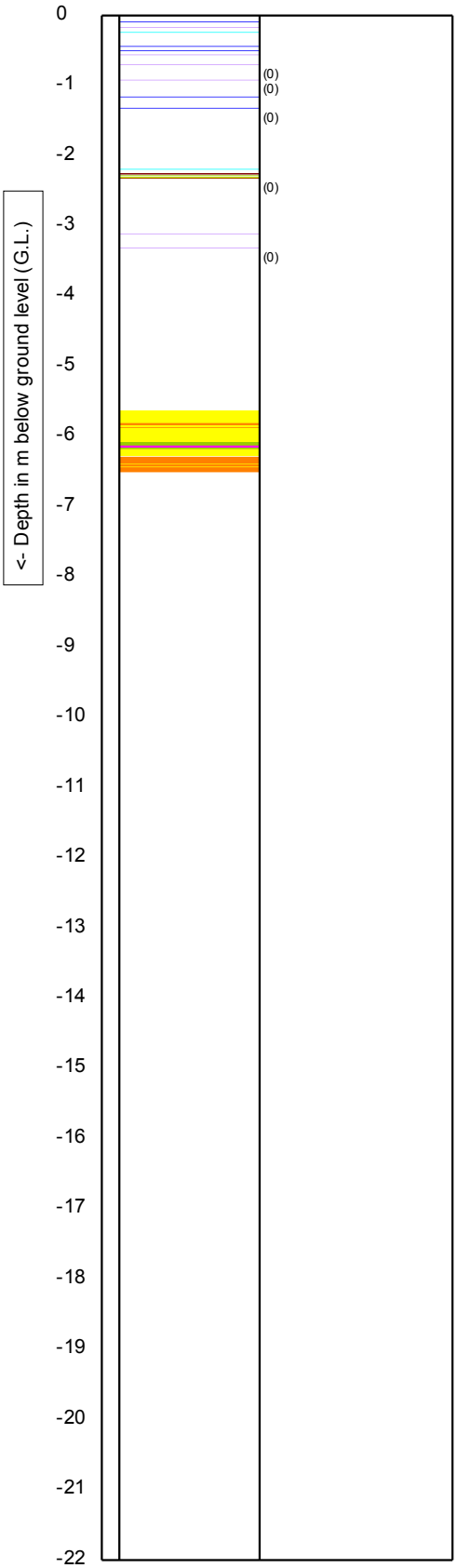


Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -1	Date: 10/09/2015
	Project: Princess Quay Footbridge		Cone no.: C10CFIP.125
	Location: A63 Castle Street Improvement		Project no.: A5066-15
	Position:		CPT no.: CPT501a 1/3

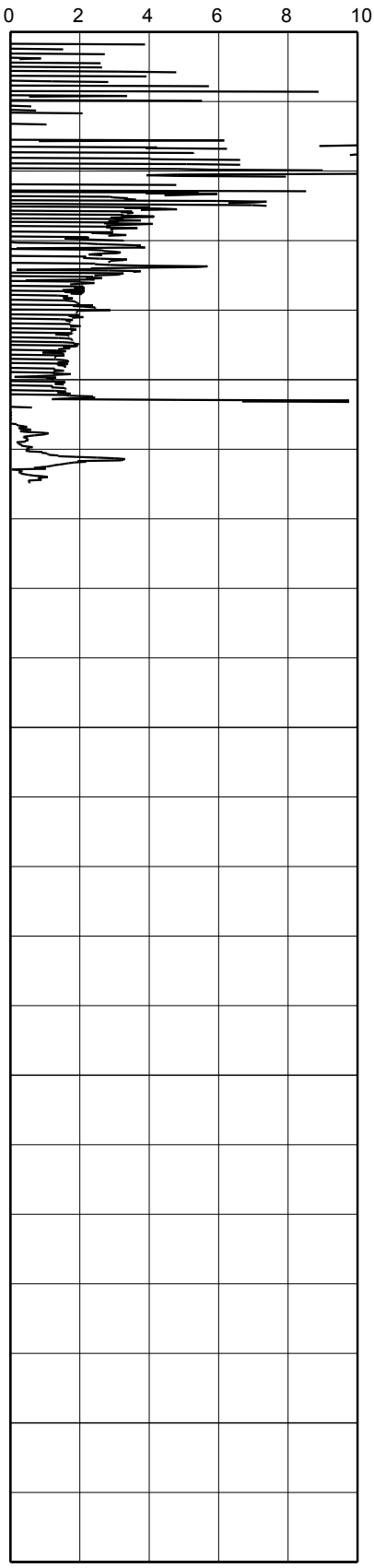
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

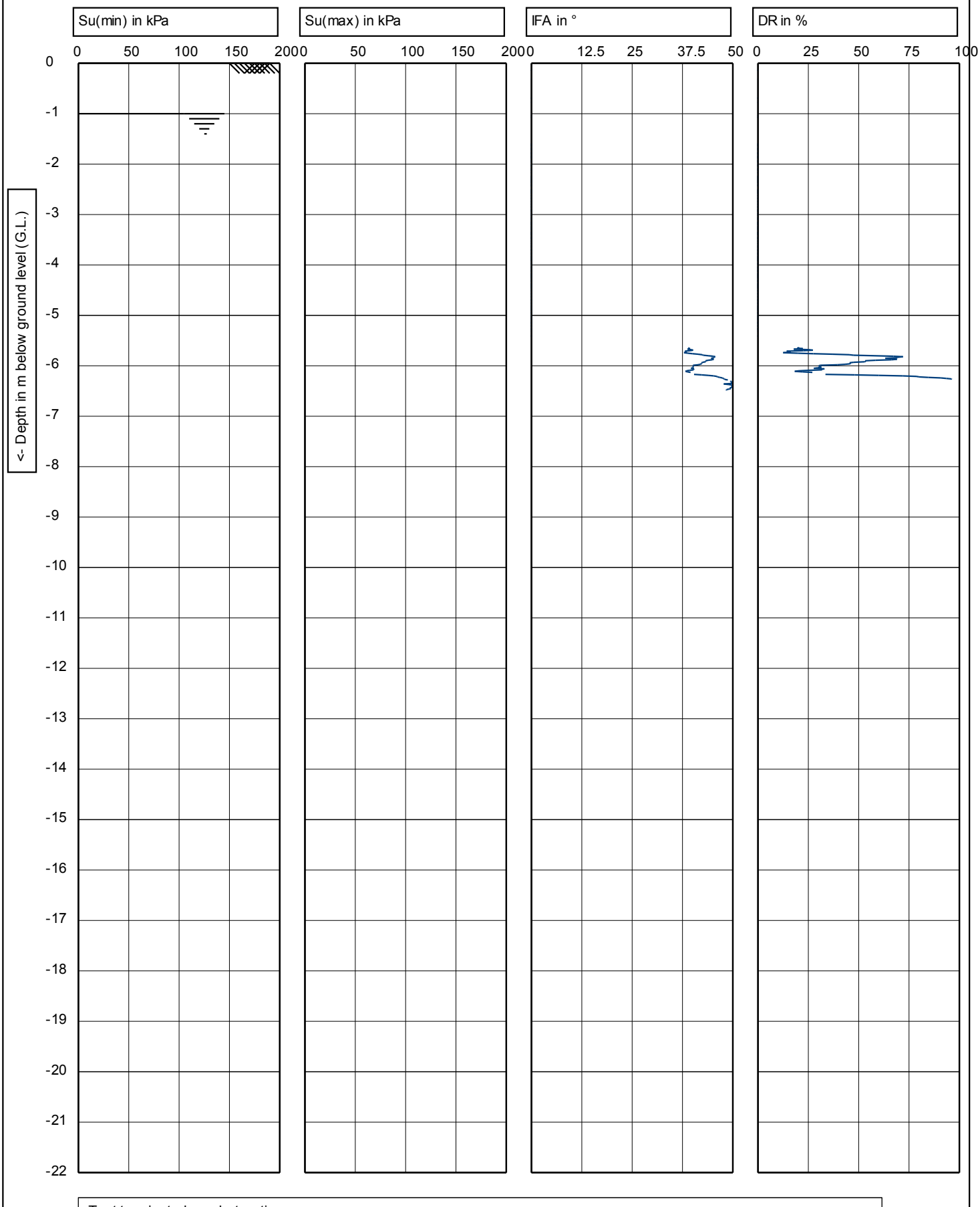
Friction ratio (Rf) in %



Test terminated on obstruction

ESG	u1 150 cm² 10 cm²	BS1377 Part 9 : 1999	Predrill : 0
		G.L. 0 / W.L.: -1	Date: 10/09/2015
	Project:	Princess Quay Footbridge	Cone no.: C10CFIP.125
	Location:	A63 Castle Street Improvement	Project no.: A5066-15
	Position:		CPT no.: CPT501a 2/3

CPTask V1.23



Test terminated on obstruction

ESG

u1
150 cm²
10 cm²

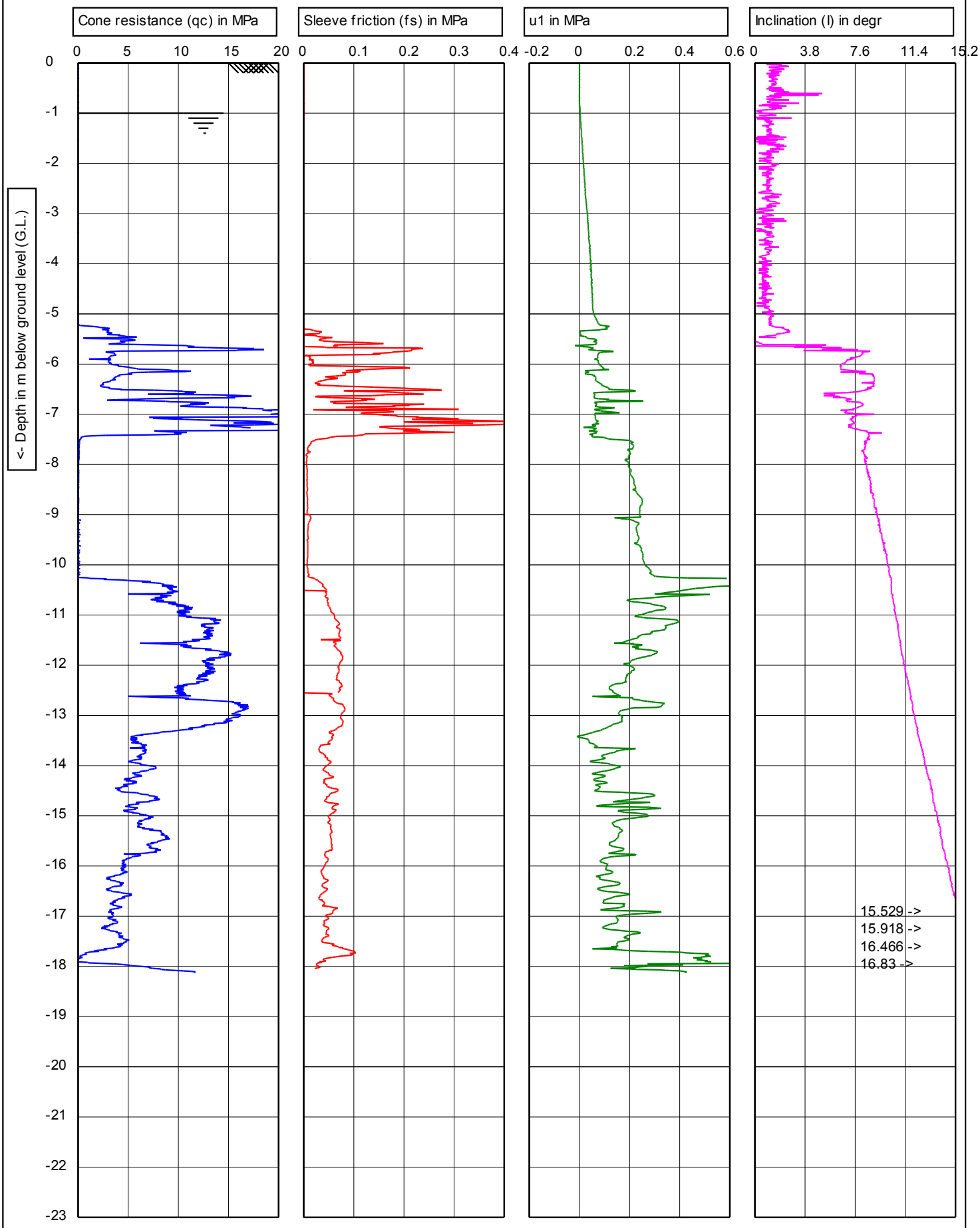
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **10/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT501a** **3/3**

CPTask V1.23



BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**

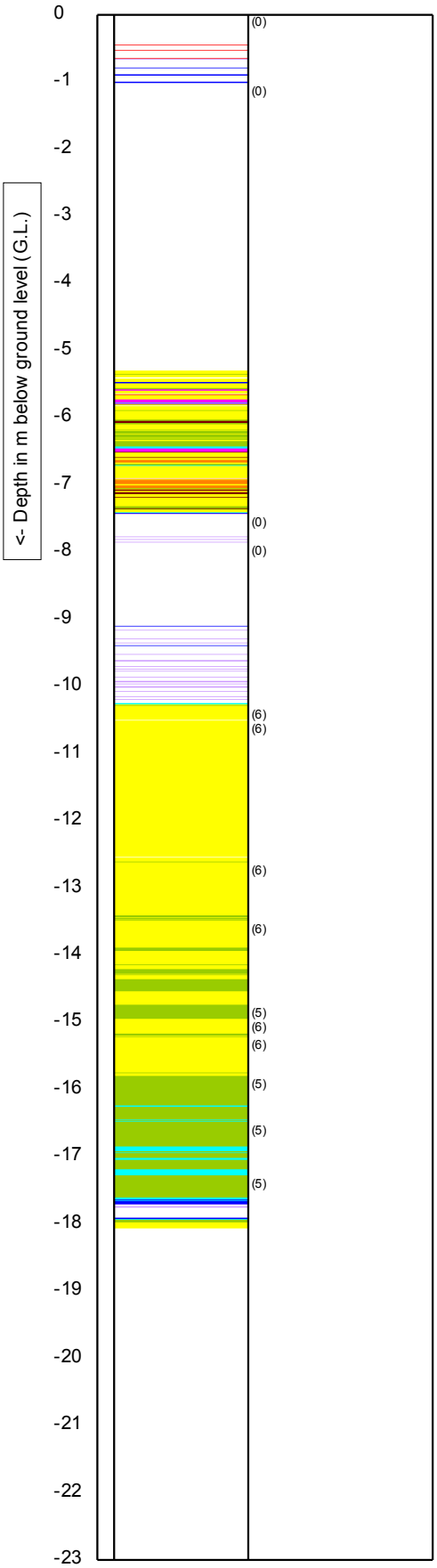
Location: **A63 Castle Street Improvement**

Position:

Predrill :	**0**
Date:	**10/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT501b** 1/3

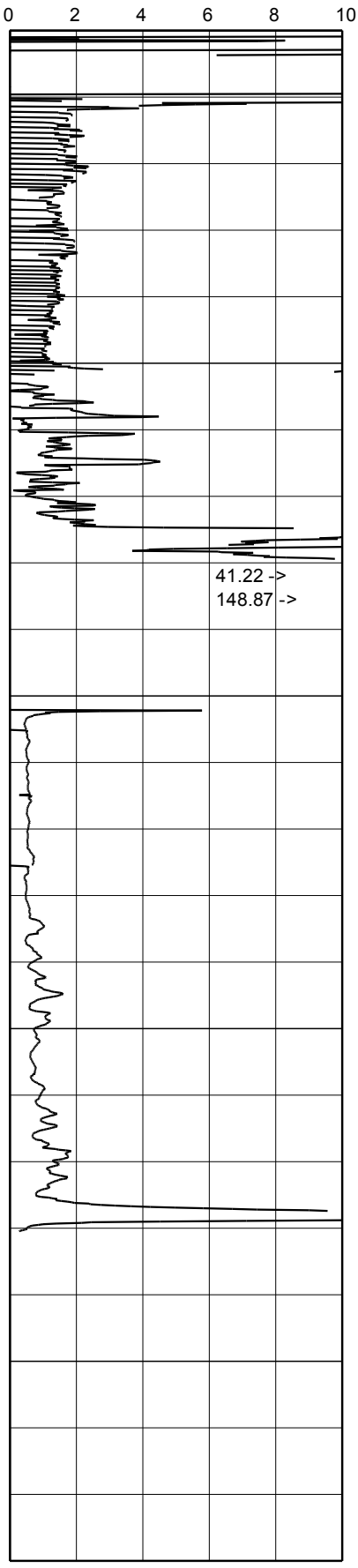
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



ESG

u1
150 cm²
10 cm²

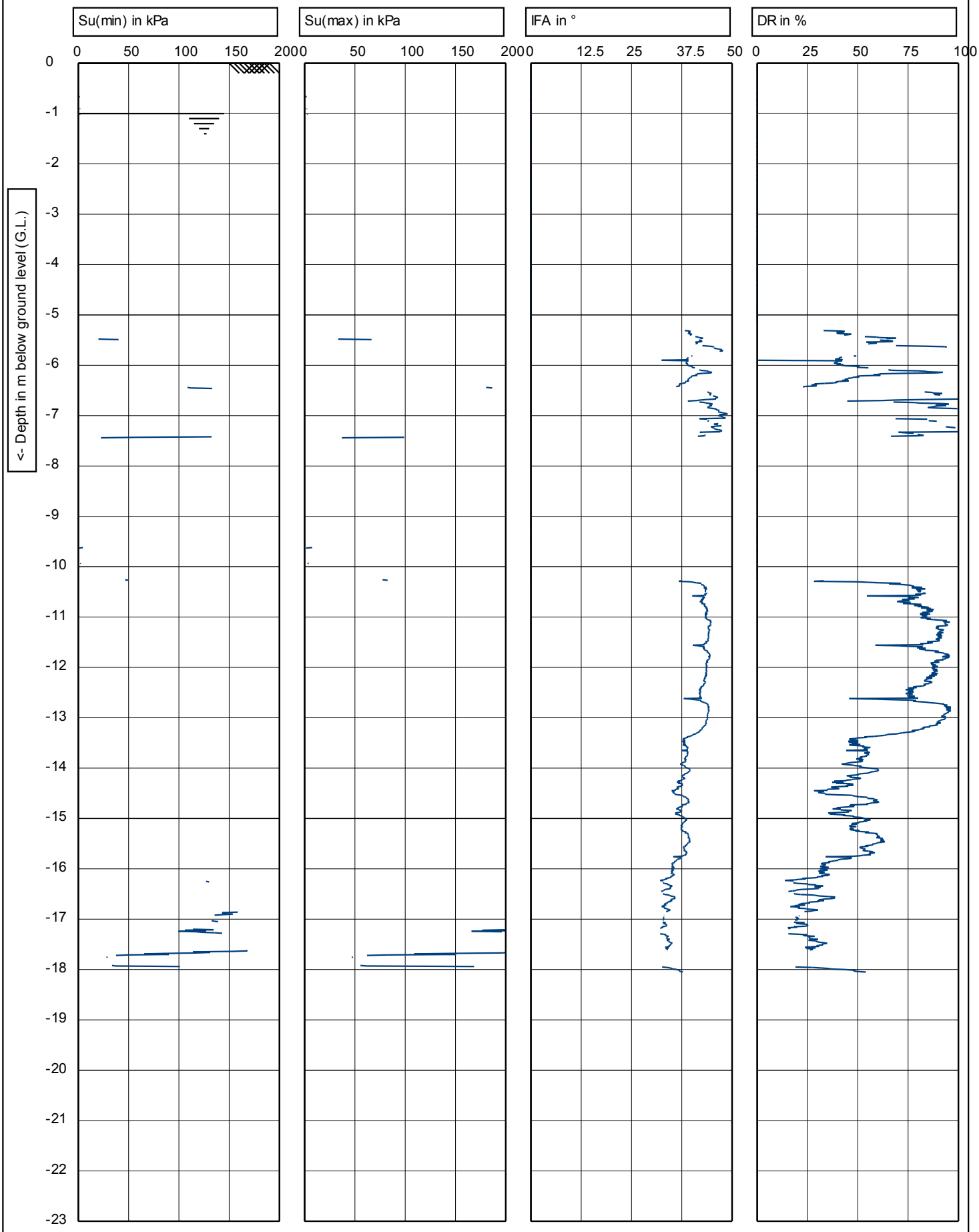
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **10/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT501b** **2/3**

CPTask V1.23



ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**

Location: **A63 Castle Street Improvement**

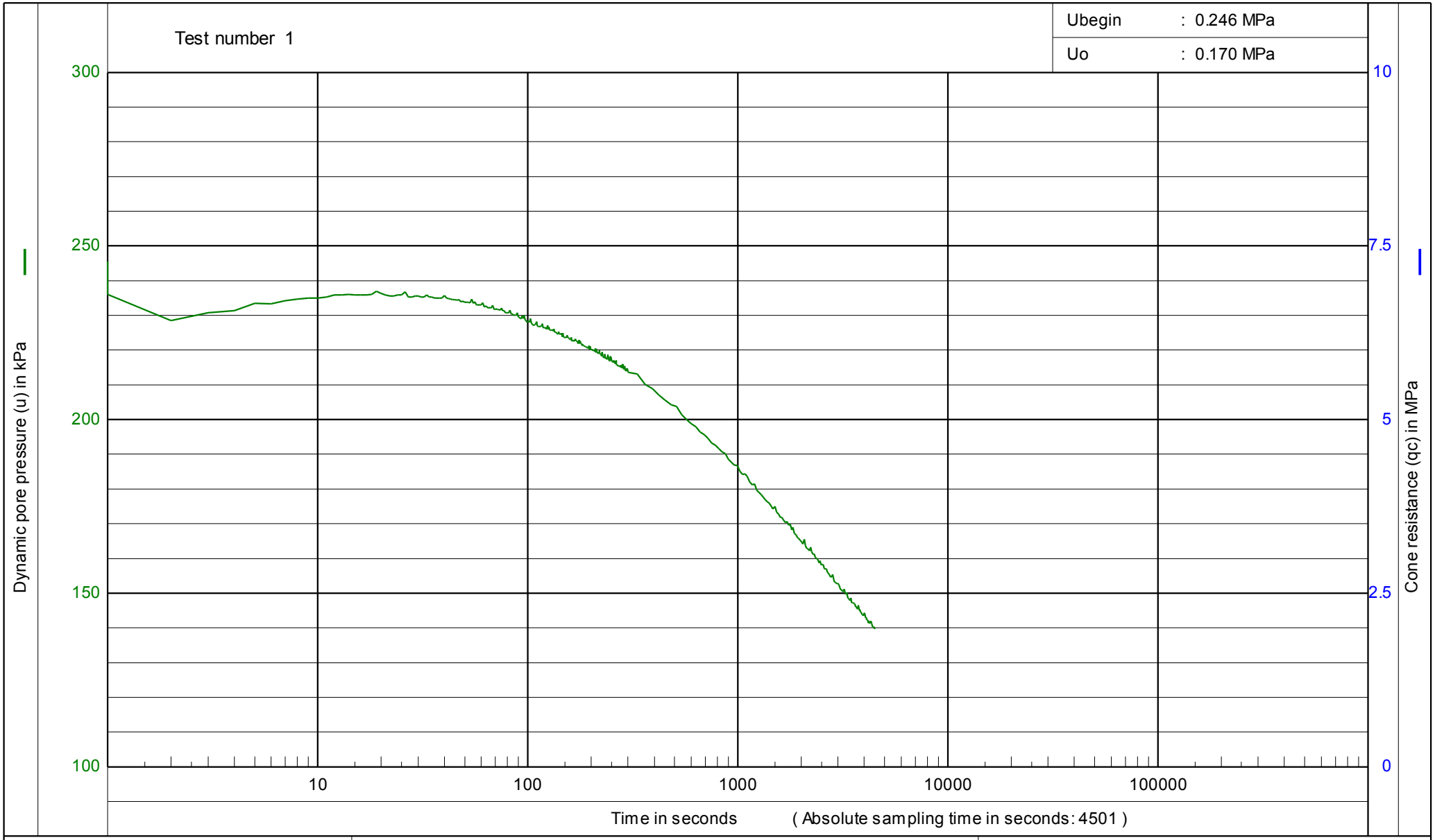
Position:

Predrill :	**0**
Date:	**10/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT501b** **3/3**

CPTask V1.23

Test number 1

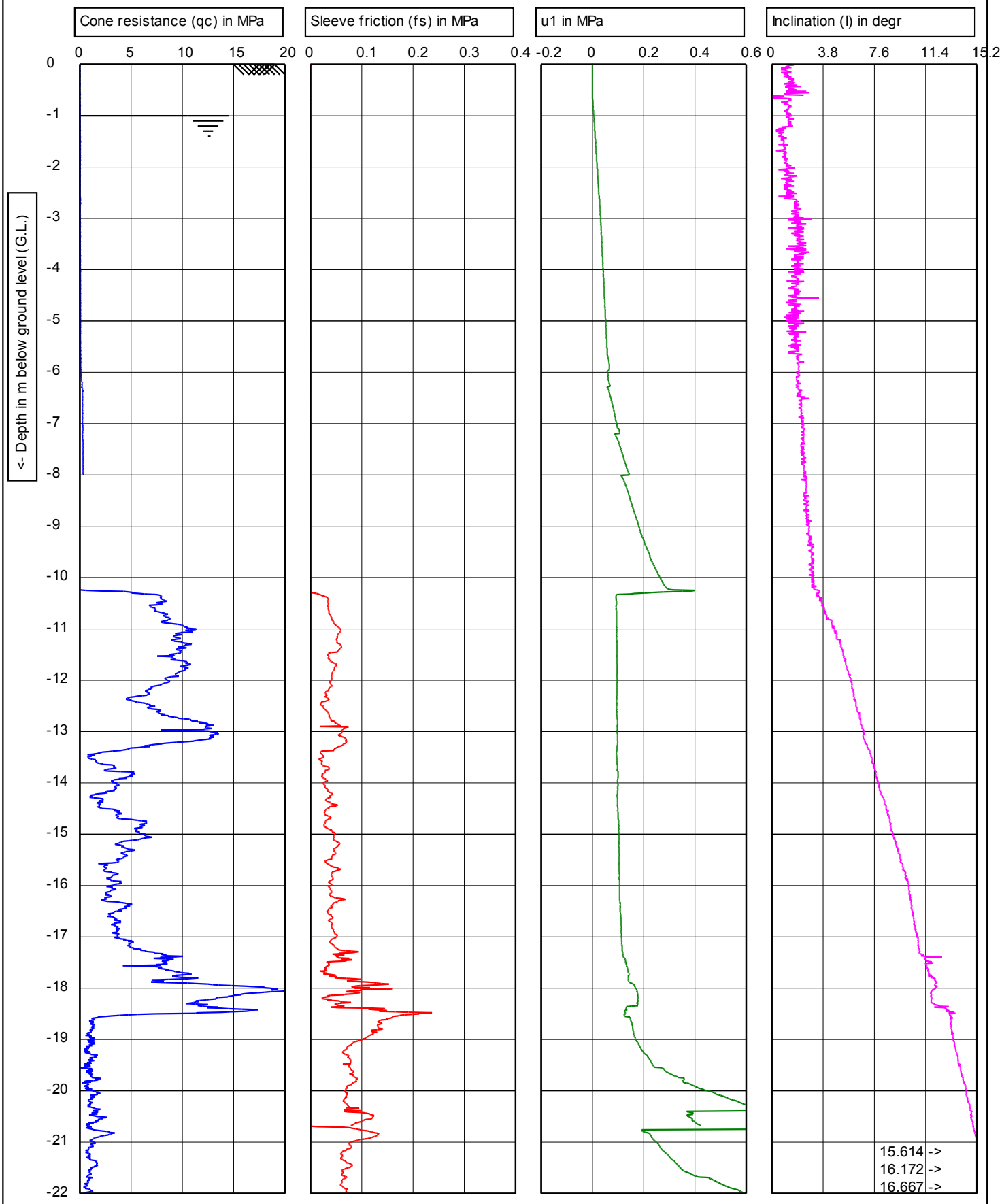
Ubegin	: 0.246 MPa
Uo	: 0.170 MPa



BS1377 Part 9 : 1999

Project	: Princess Quay Footbridge
Location	: A63 Castle Street Improvement

Date	: 10/09/2015
Project no.	: A5066-15
CPT no.	: CPT501b
Test depth	: -9.05 [m] - G.L.
Water level	: -1 [m] - G.L.



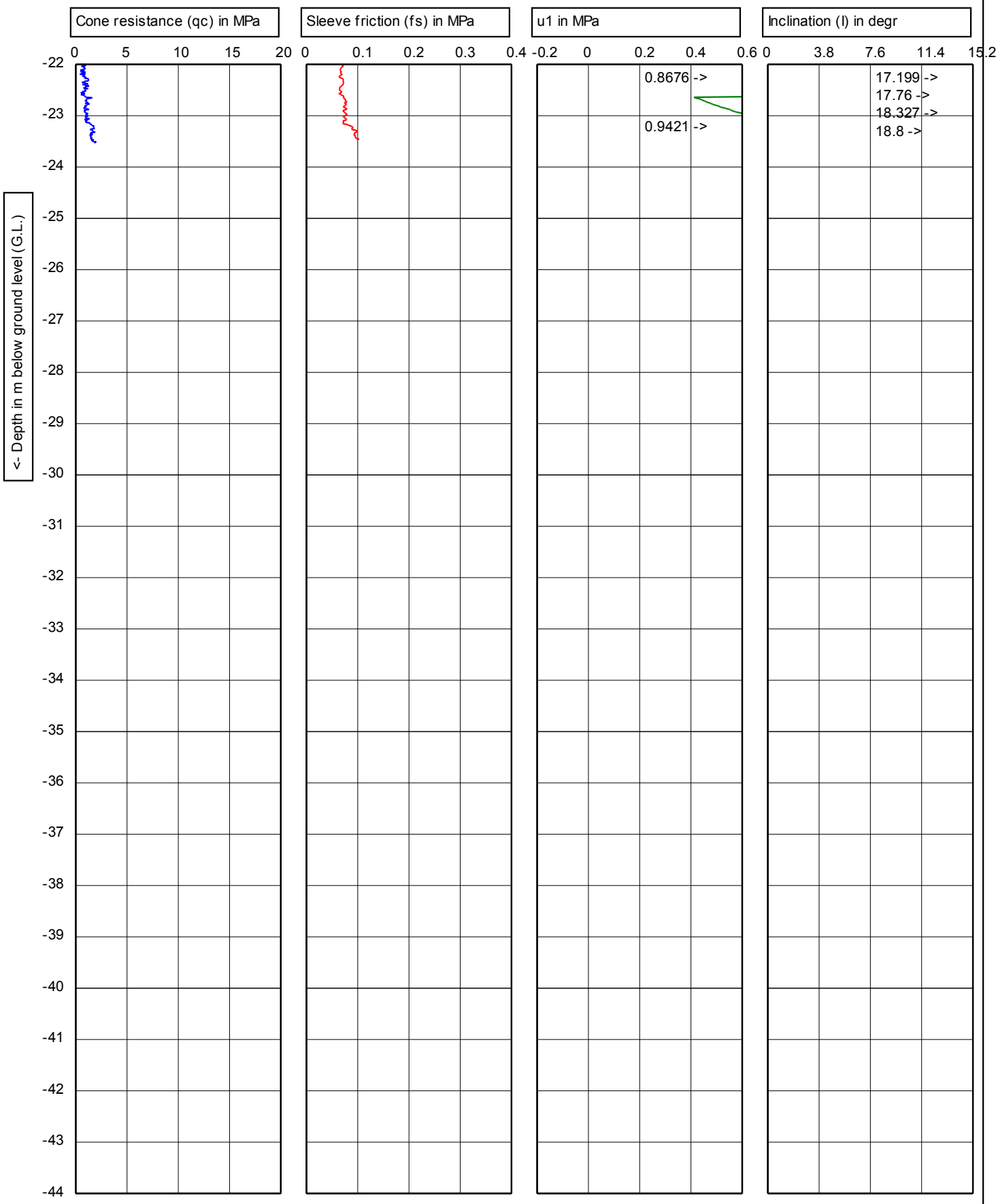
Cone resistance raw data apparently affected by data zero shift - see text in section 4.2
Pore pressure response apparently attenuated during test- see text section 4.2
See Table 2 re: dissipation tests

ESG

CPTask V1.23

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -1	Date:	12/09/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT502 1/6



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2
Pore pressure response apparently attenuated during test- see text section 4.2
See Table 2 re: dissipation tests

ESG

u1
150 cm²
10 cm²

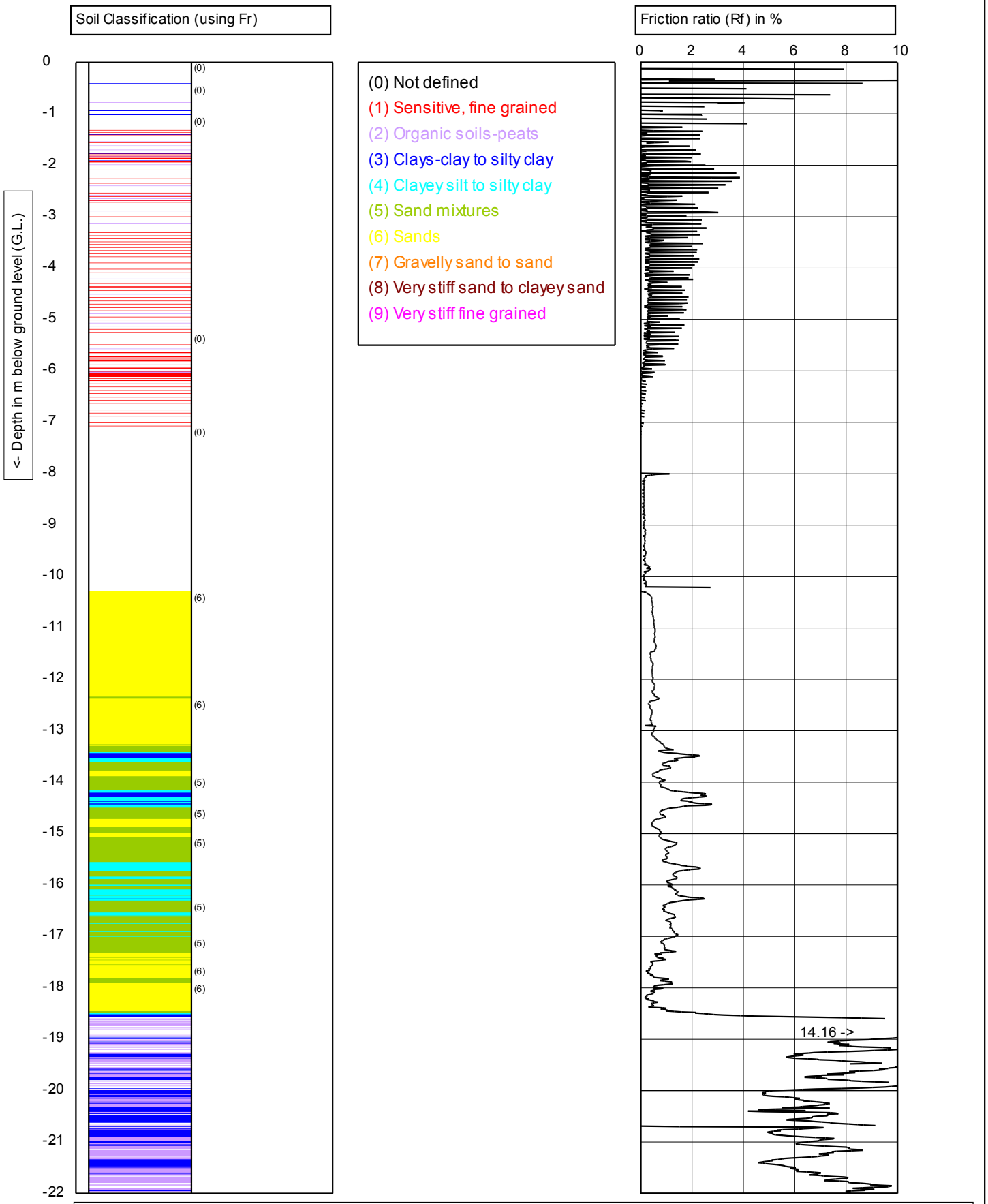
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**12/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT502** **2/6**

CPTask V1.23



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2
Pore pressure response apparently attenuated during test- see text section 4.2
See Table 2 re: dissipation tests

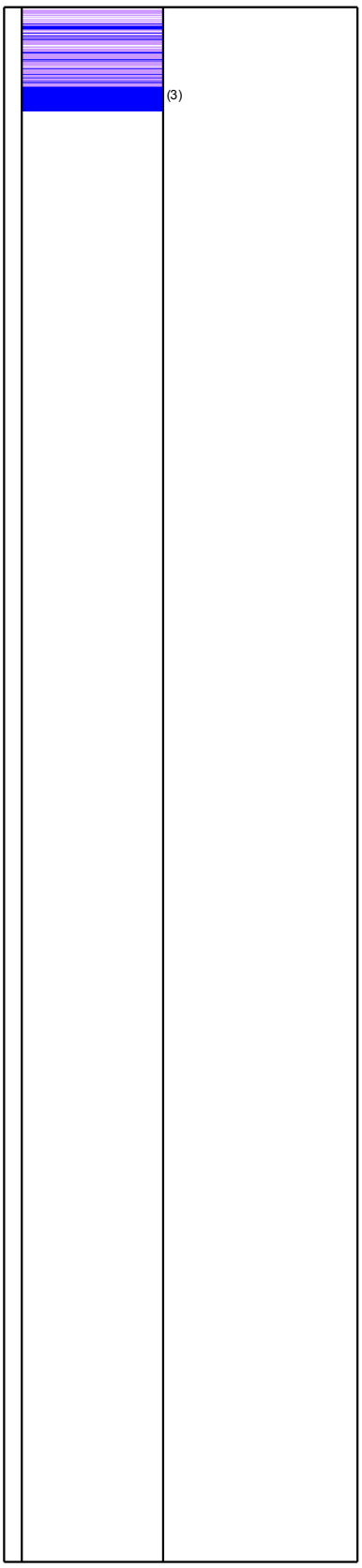
ESG

CPTask V1.23

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -1	Date:	12/09/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT502 3/6

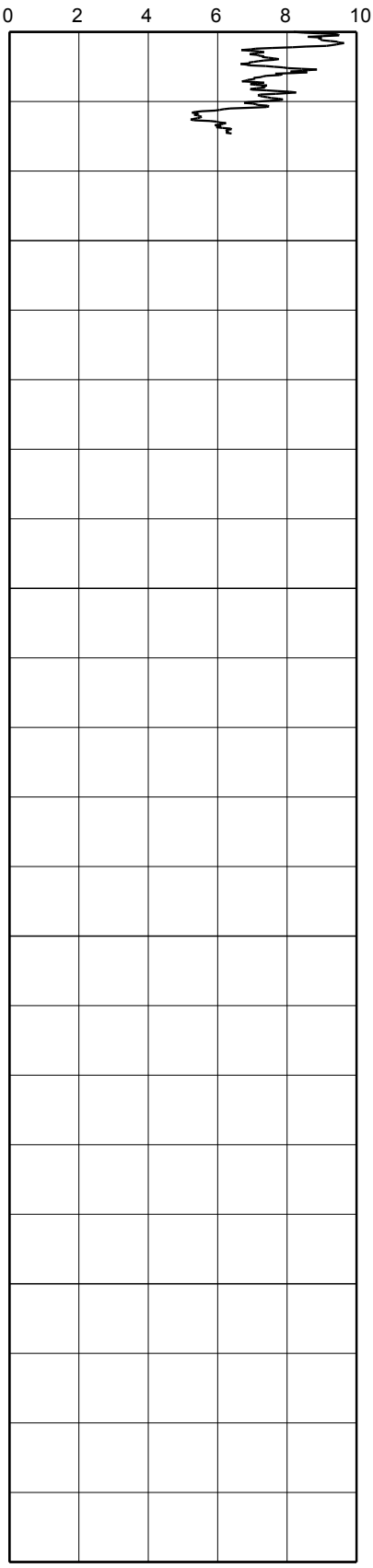
Soil Classification (using Fr)



<- Depth in m below ground level (G.L.)

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2
Pore pressure response apparently attenuated during test- see text section 4.2
See Table 2 re: dissipation tests

ESG

u1
150 cm²
10 cm²

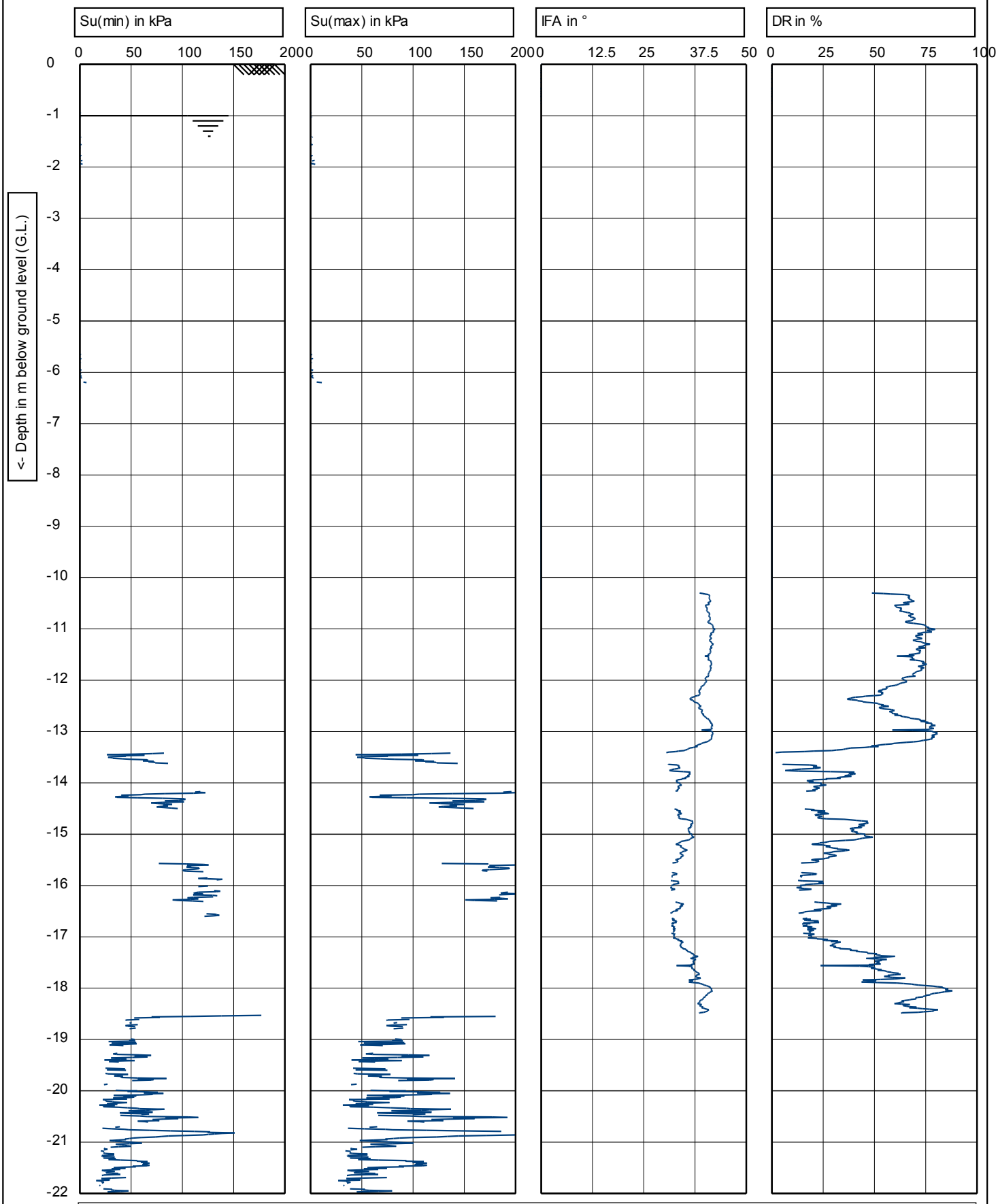
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **12/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT502** **4/6**

CPTask V1.23



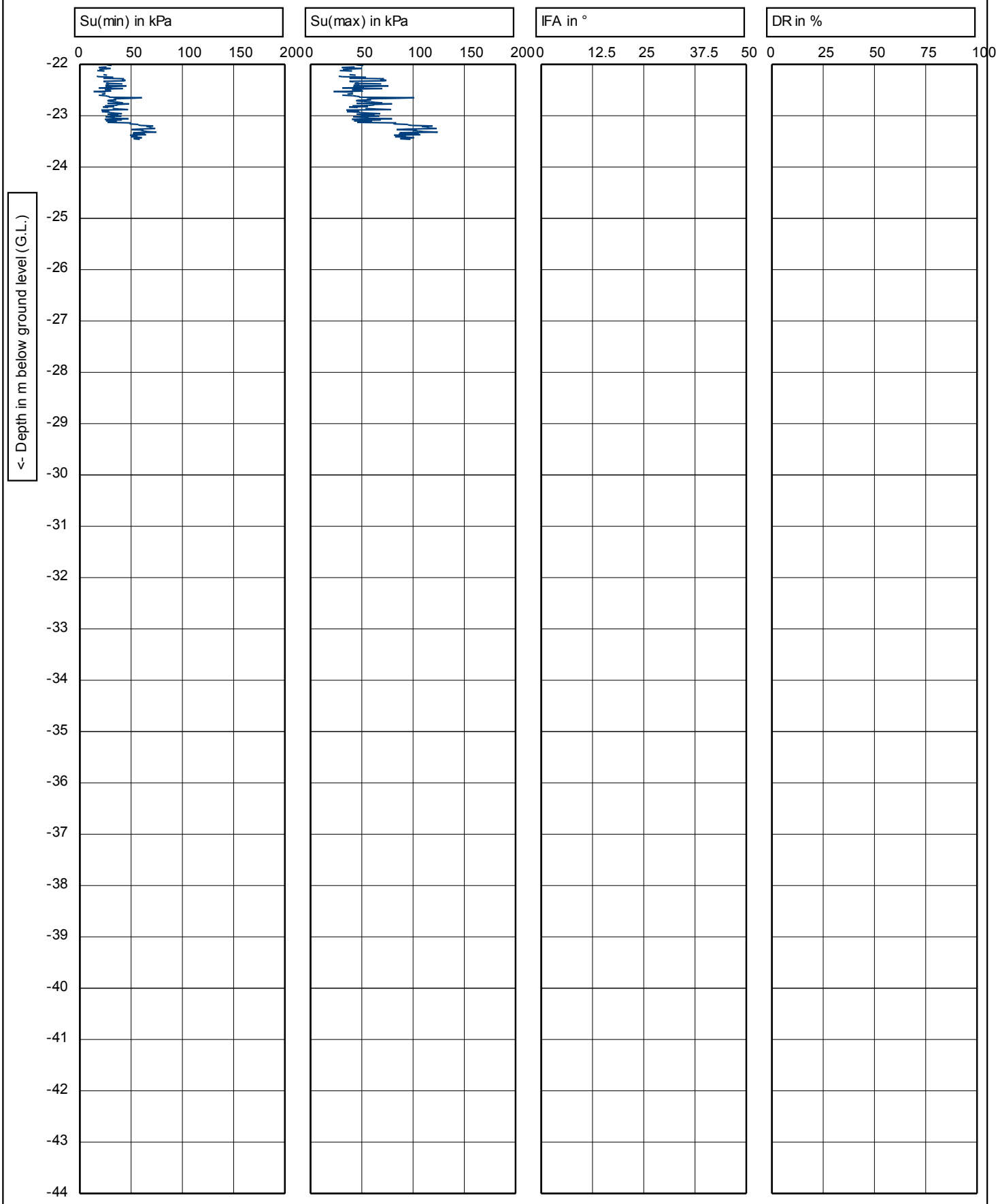
Cone resistance raw data apparently affected by data zero shift - see text in section 4.2
Pore pressure response apparently attenuated during test- see text section 4.2
See Table 2 re: dissipation tests

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999		Predrill :	0
G.L. 0	W.L.: -1	Date:	12/09/2015
Project: Princess Quay Footbridge		Cone no.:	C10CFIP.125
Location: A63 Castle Street Improvement		Project no.:	A5066-15
Position:		CPT no.:	CPT502 5/6

CPTask V1.23



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2
Pore pressure response apparently attenuated during test- see text section 4.2
See Table 2 re: dissipation tests

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

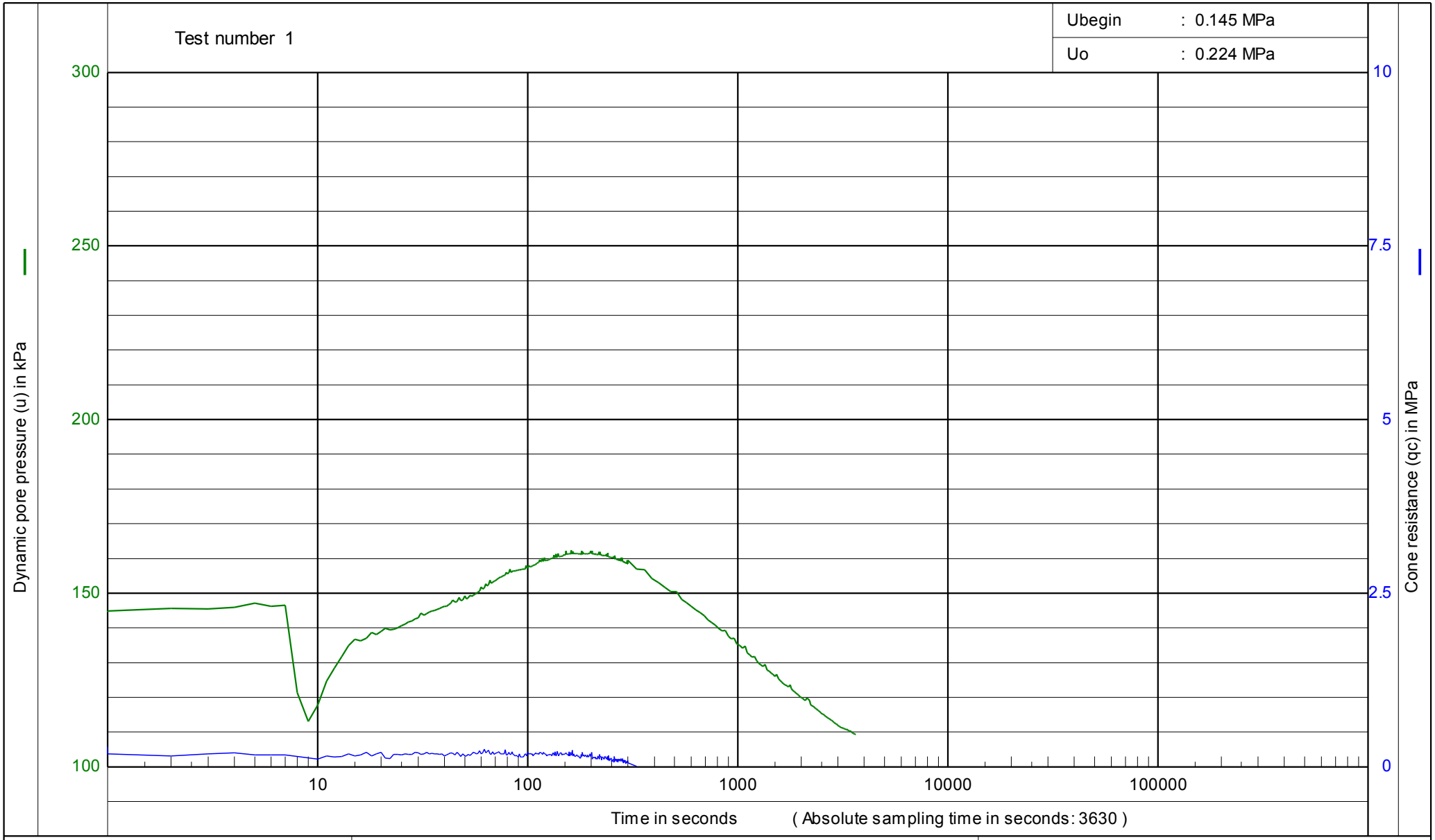
Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **12/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT502** **6/6**

CPTask V1.23

Test number 1

Ubegin	: 0.145 MPa
Uo	: 0.224 MPa



BS1377 Part 9 : 1999

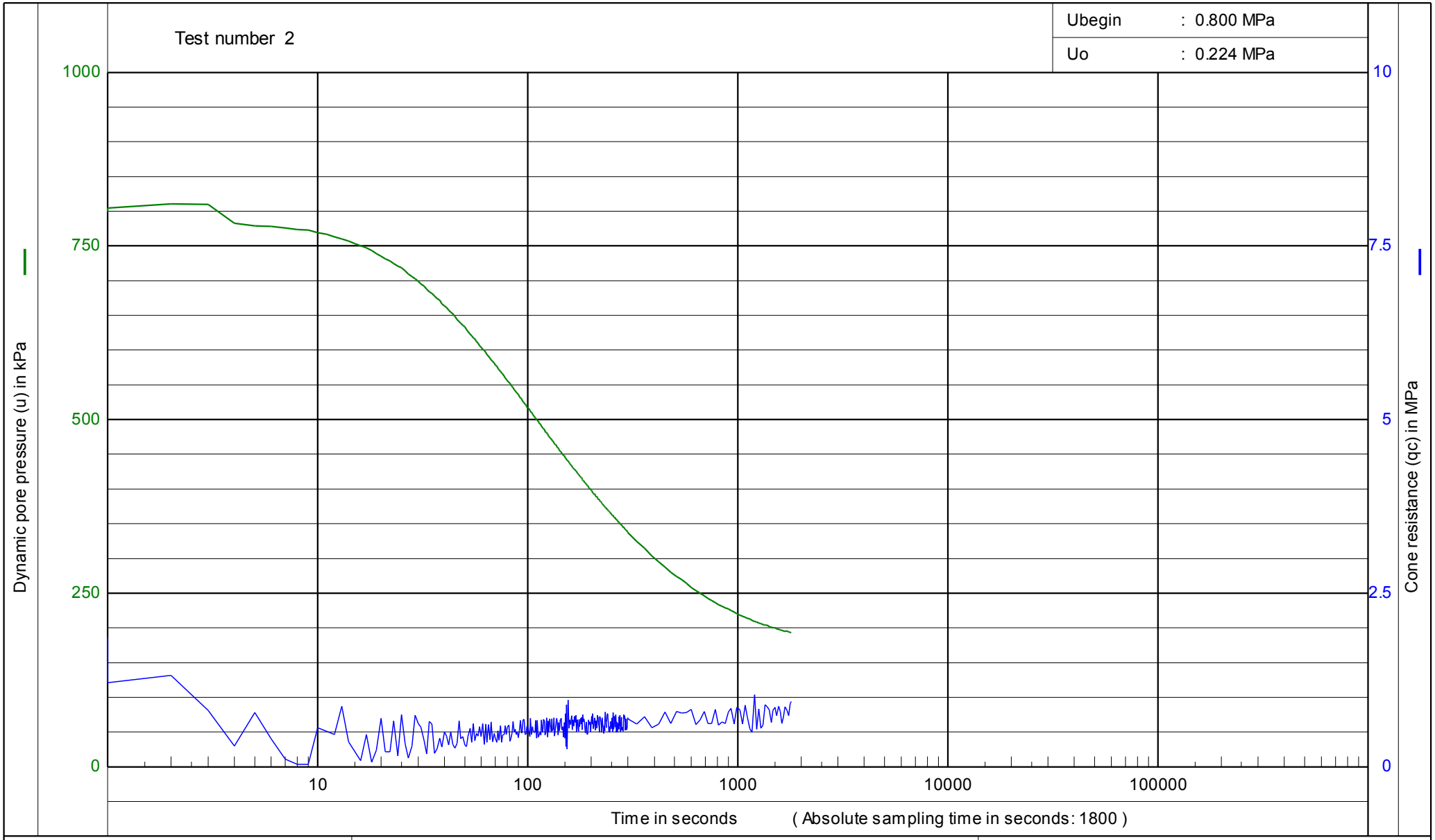
Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 12/09/2015
Project no.	: A5066-15
CPT no.	: CPT502
Test depth	: -8 m [m] - G.L.
Water level	: -1 [m] - G.L.

Test number 2

Ubegin	: 0.800 MPa
Uo	: 0.224 MPa



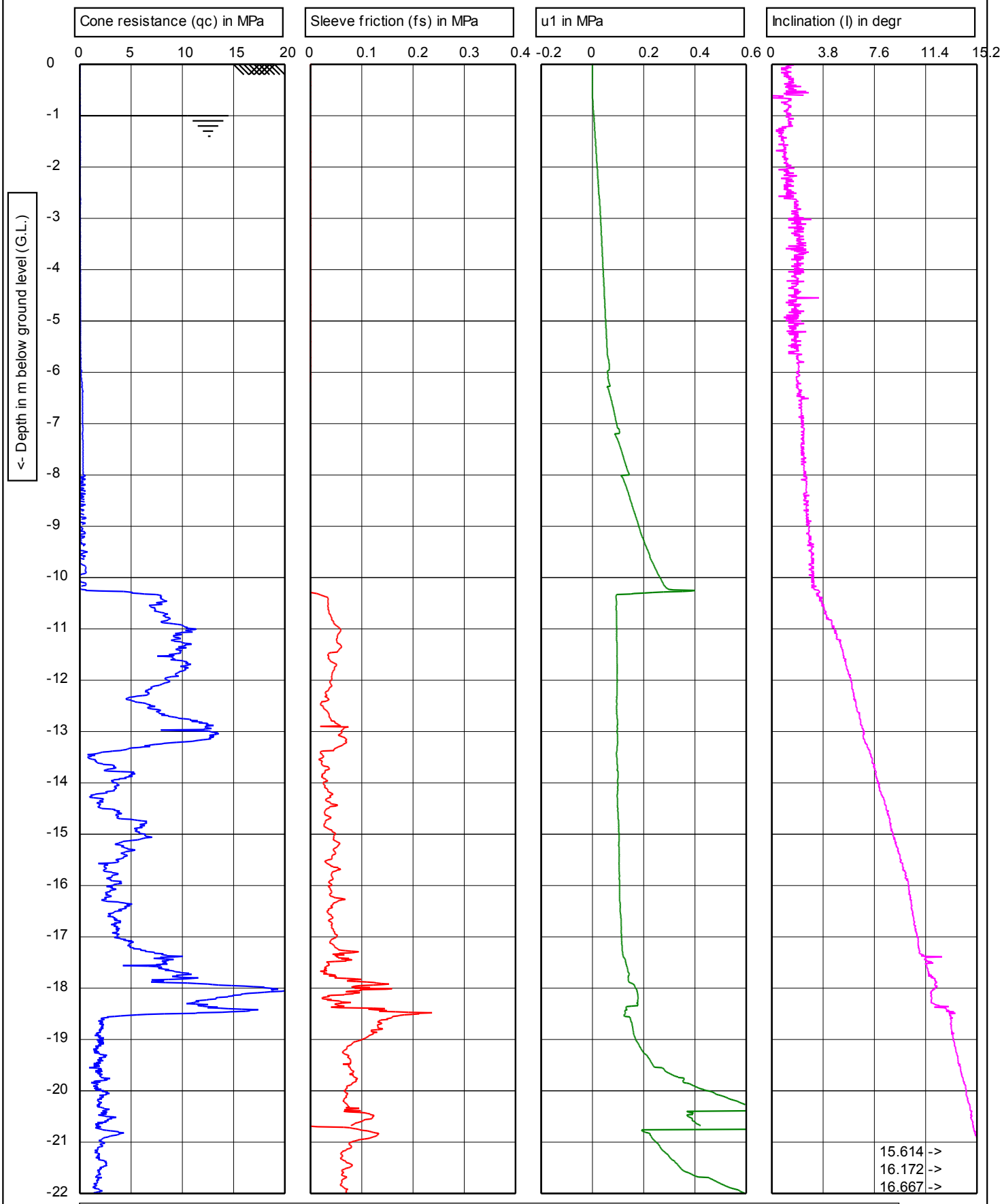
ESG

BS1377 Part 9 : 1999

Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 12/09/2015
Project no.	: A5066-15
CPT no.	: CPT502
Test depth	: -20.75 [m] - G.L.
Water level	: -1 [m] - G.L.



ESG

u1
150 cm²
10 cm²

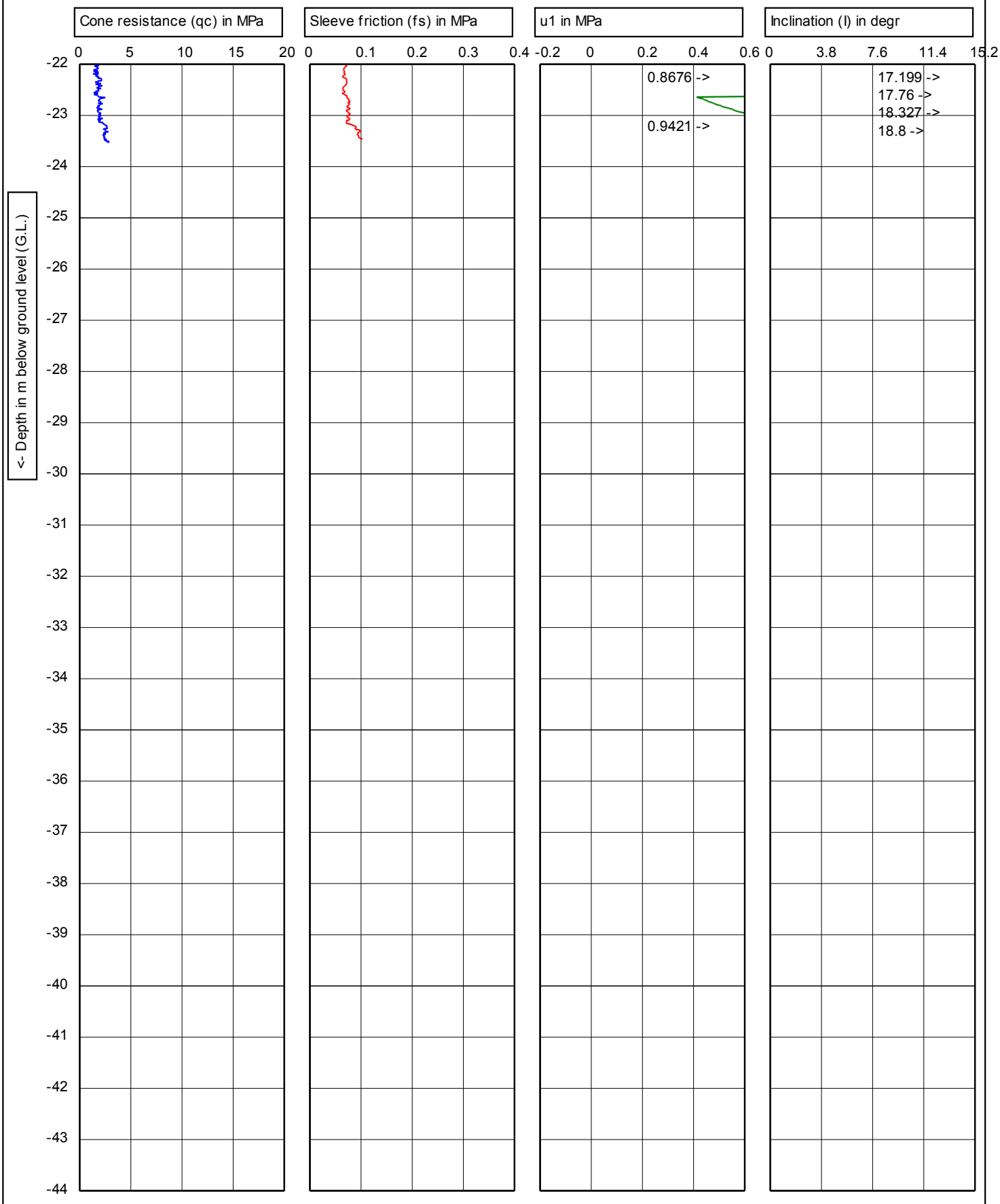
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **12/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT502 (Rev)** **1/6**

CPTask V1.23



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2

Pore pressure response apparently attenuated during test- see text section 4.2 | See Table 2 re. dissipation tests

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

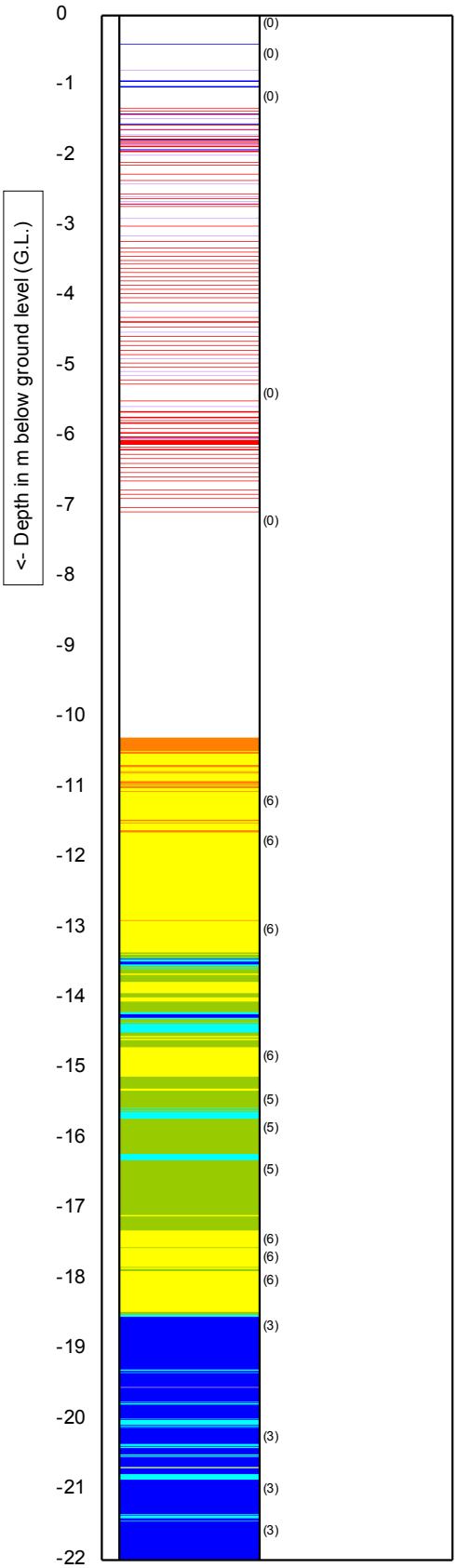
G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill :	**0**
Date:	**12/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT502 (Rev)** **2/6**

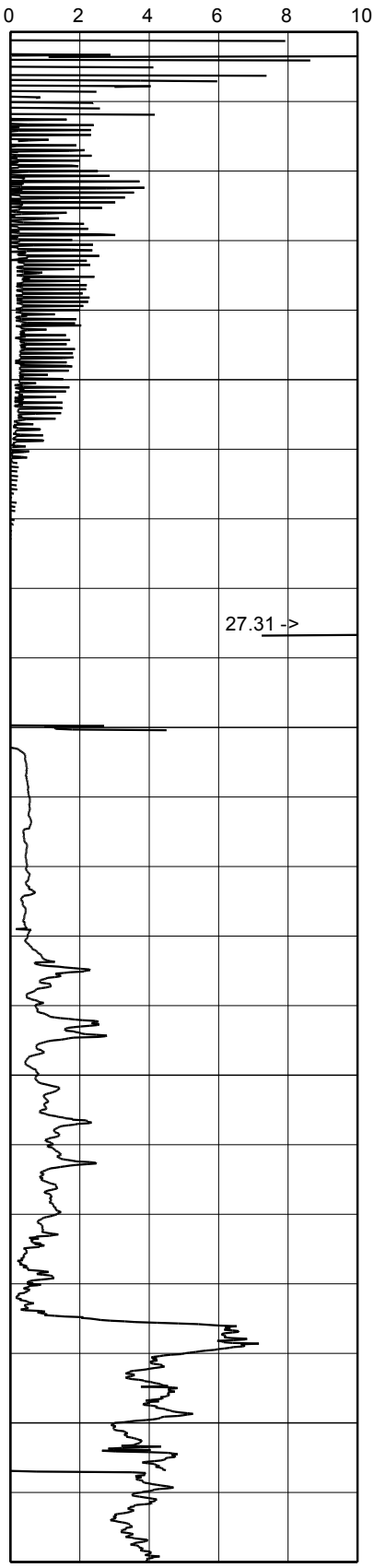
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2

Pore pressure response apparently attenuated during test- see text section 4.2

See Table 2 re. dissipation tests

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

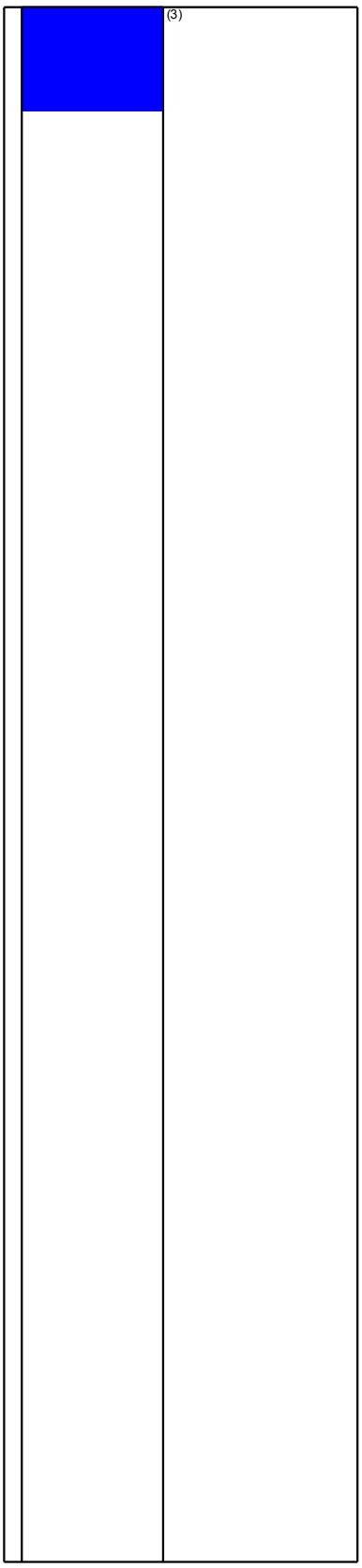
G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **12/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT502 (Rev)** **3/6**

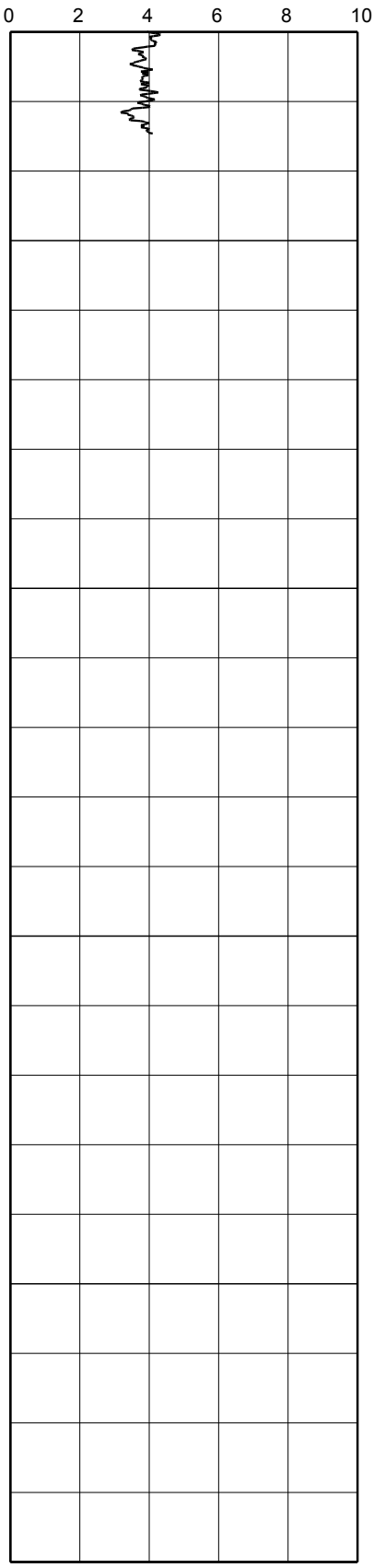
CPTask V1.23

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



<- Depth in m below ground level (G.L.)

-22 -23 -24 -25 -26 -27 -28 -29 -30 -31 -32 -33 -34 -35 -36 -37 -38 -39 -40 -41 -42 -43 -44

Cone resistance raw data apparently affected by data zero shift - see text in section 4.2

Pore pressure response apparently attenuated during test- see text section 4.2

See Table 2 re. dissipation tests

ESG

u1
150 cm²
10 cm²

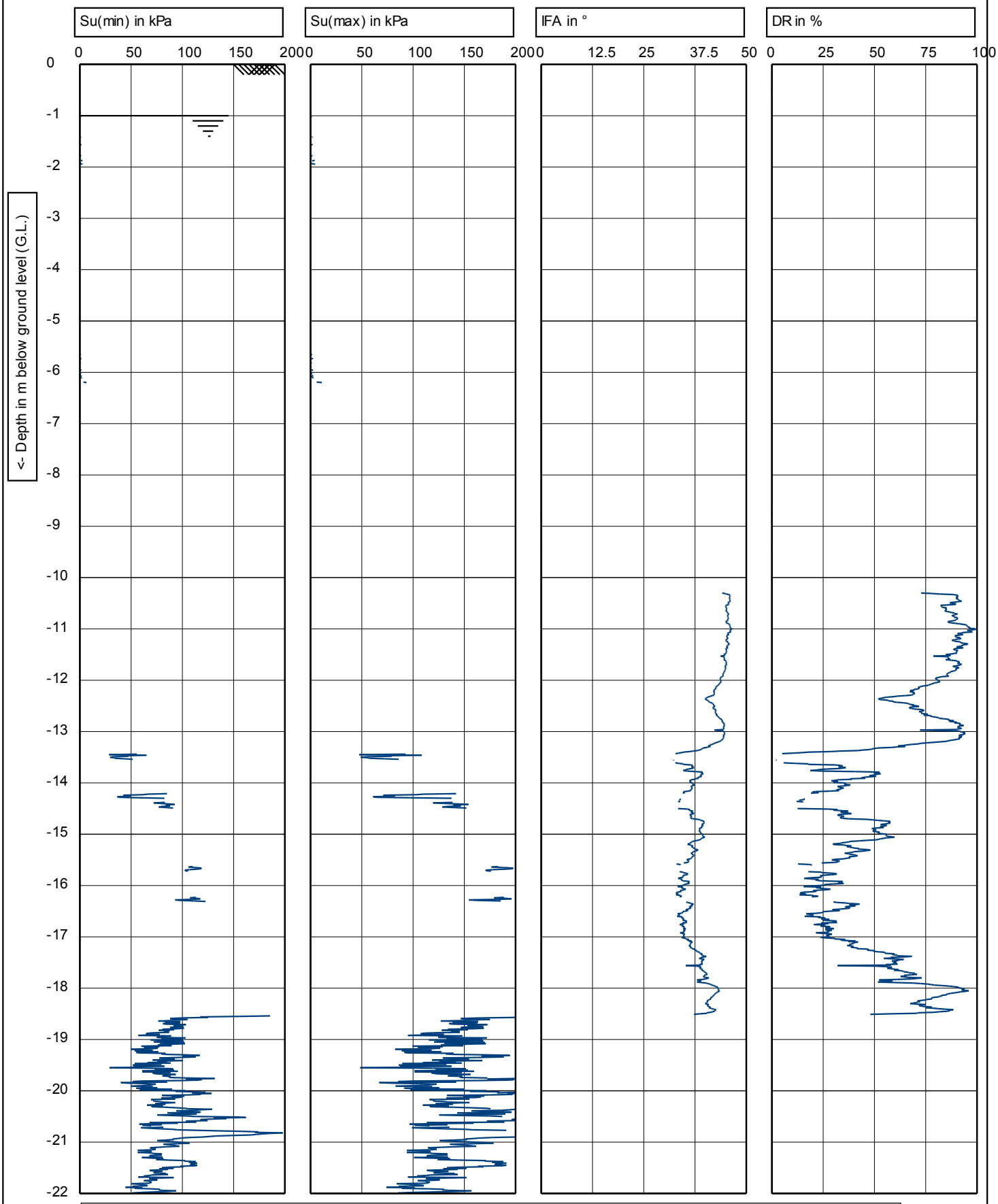
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **12/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT502 (Rev)** **4/6**

CPTask V1.23



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2

Pore pressure response apparently attenuated during test- see text section 4.2

See Table 2 re. dissipation tests

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

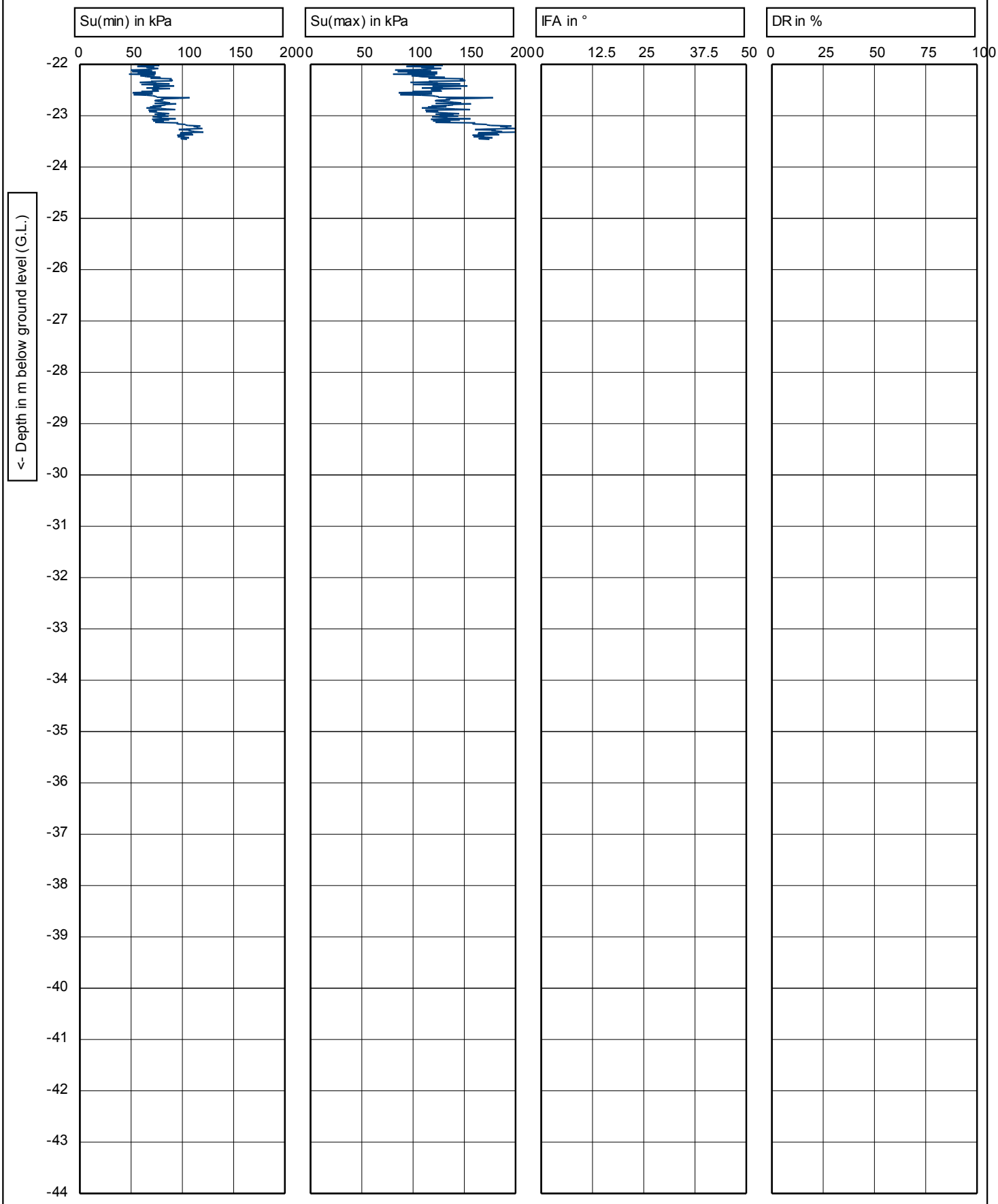
Project: **Princess Quay Footbridge**

Location: **A63 Castle Street Improvement**

Position:

Predrill :	**0**
Date:	**12/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT502 (Rev)** **5/6**

CPTask V1.23



Cone resistance raw data apparently affected by data zero shift - see text in section 4.2

Pore pressure response apparently attenuated during test- see text section 4.2 | See Table 2 re. dissipation tests

ESG

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

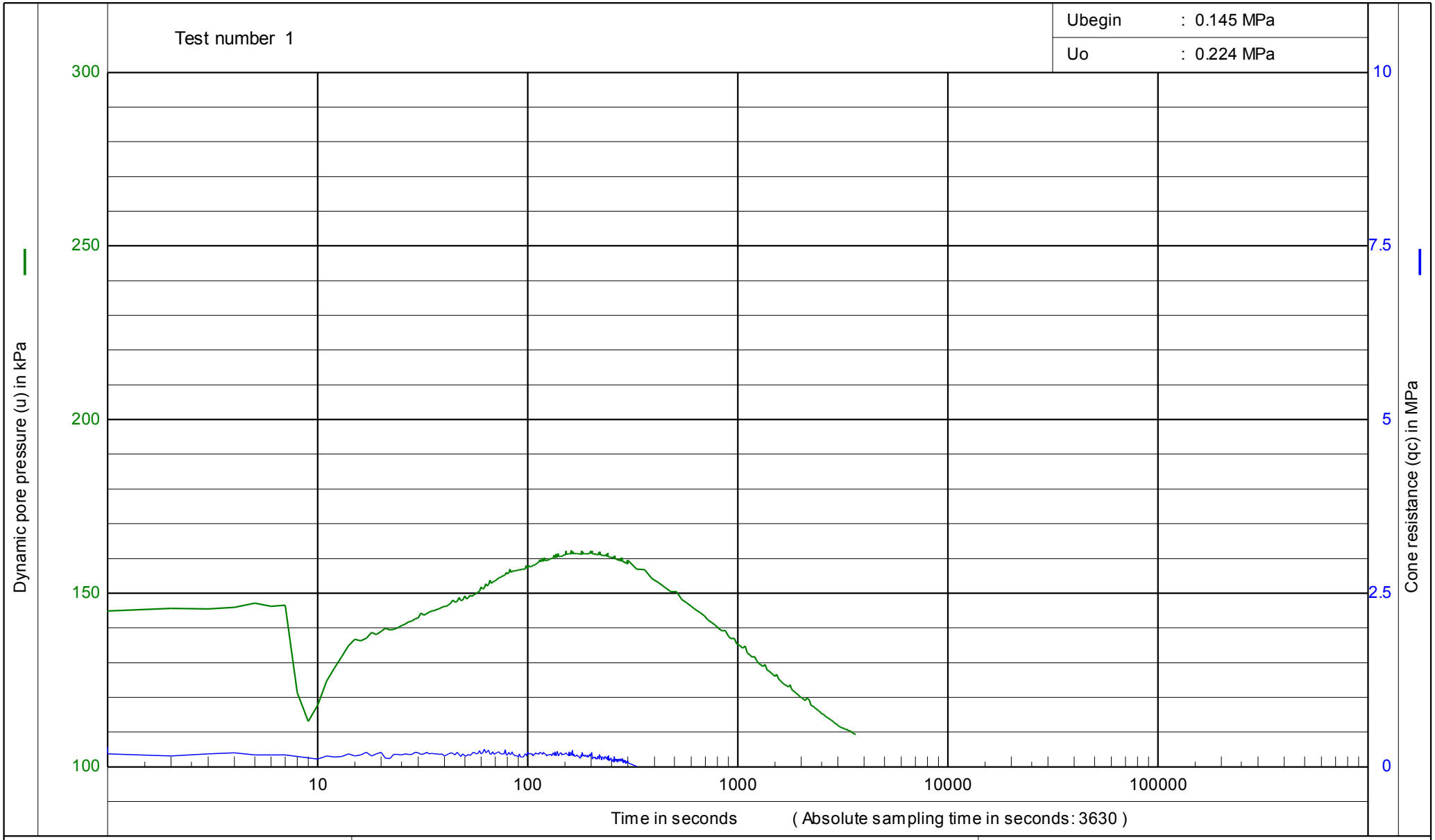
Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **12/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT502 (Rev)** **6/6**

CPTask V1.23

Test number 1

Ubegin	: 0.145 MPa
Uo	: 0.224 MPa



BS1377 Part 9 : 1999

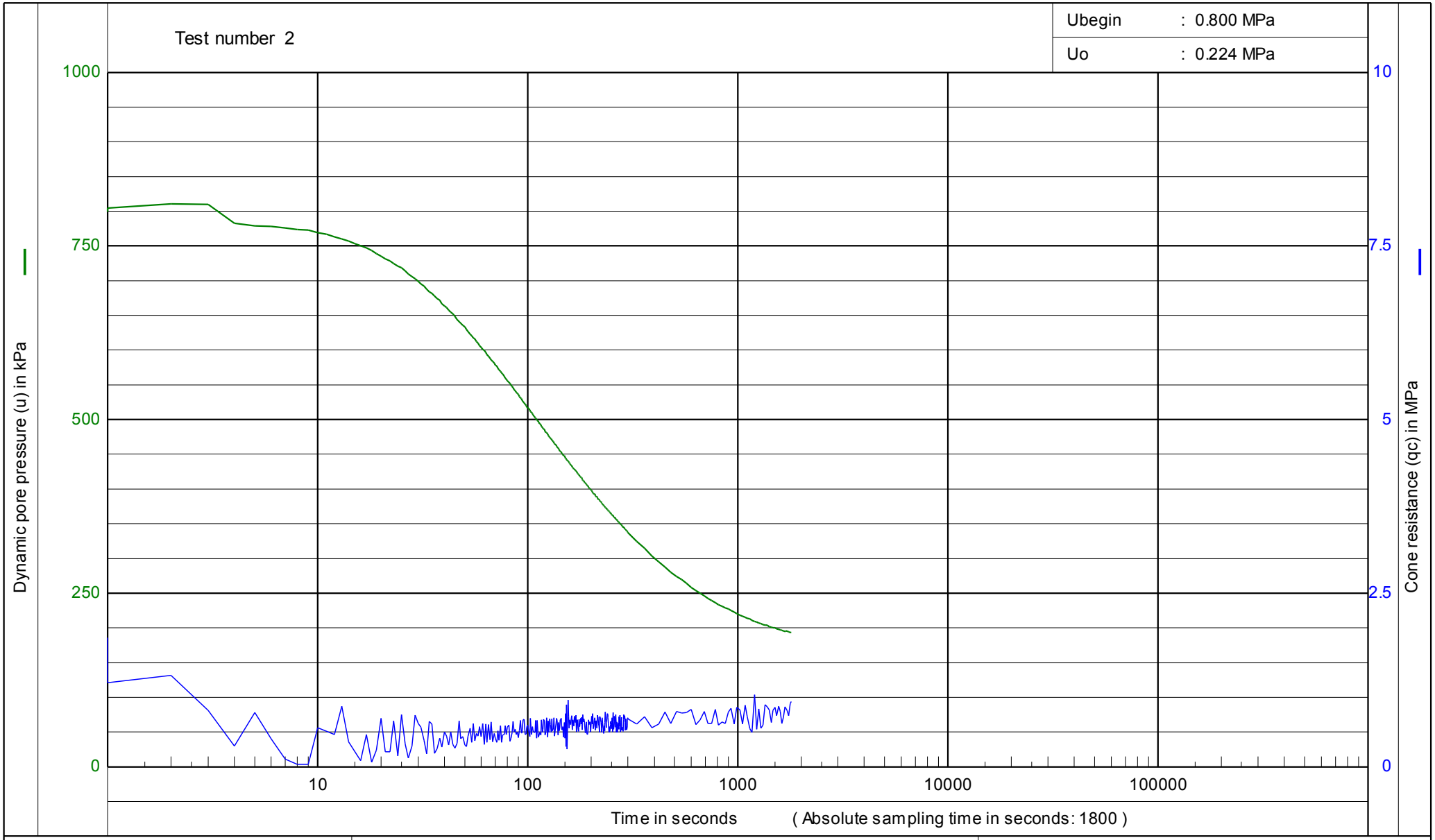
Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 12/09/2015
Project no.	: A5066-15
CPT no.	: CPT502 (Rev)
Test depth	: -8 m [m] - G.L.
Water level	: -1 [m] - G.L.

Test number 2

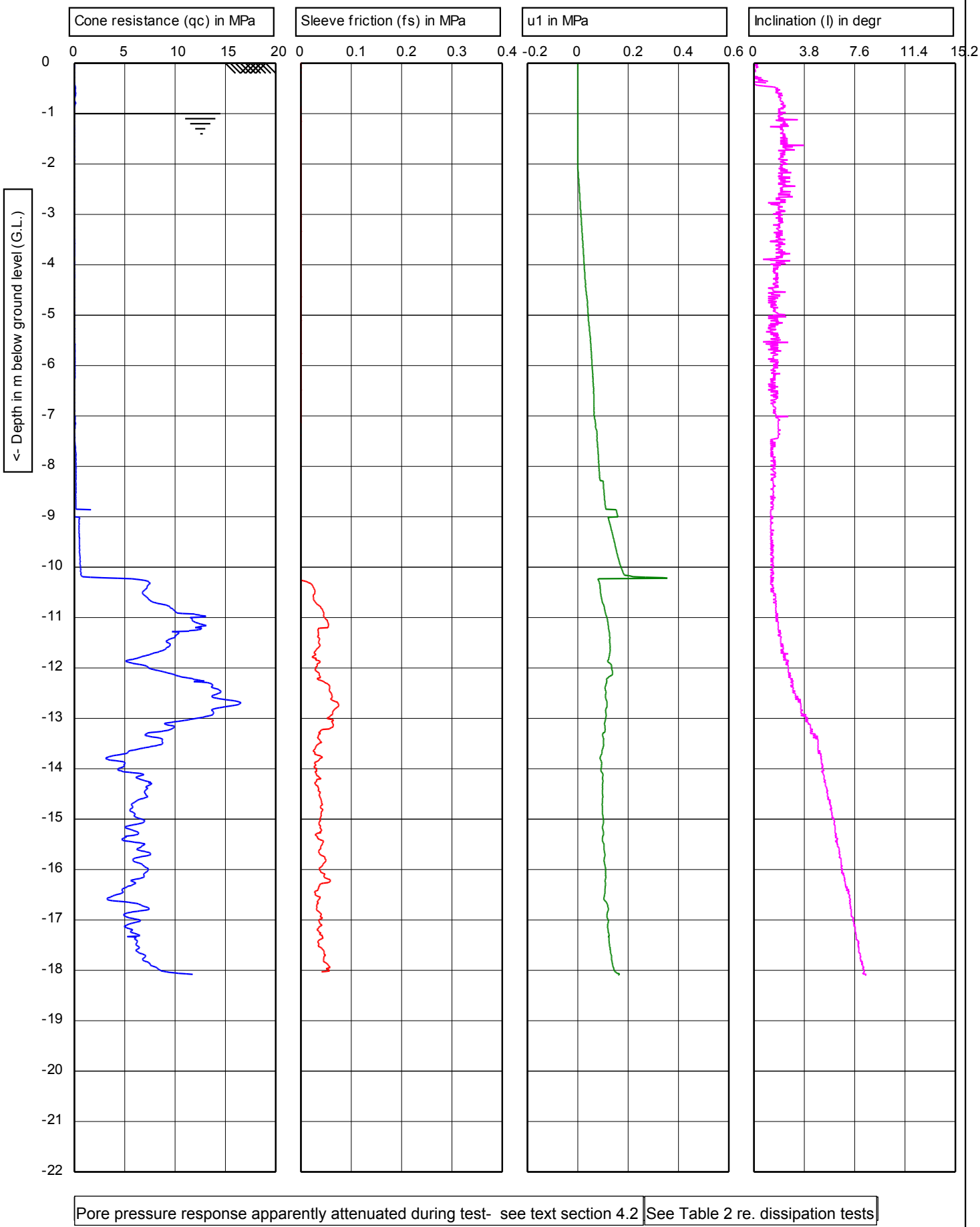
Ubegin	: 0.800 MPa
Uo	: 0.224 MPa



BS1377 Part 9 : 1999

Project	: Princess Quay Footbridge
Location	: A63 Castle Street Improvement

Date	: 12/09/2015
Project no.	: A5066-15
CPT no.	: CPT502 (Rev)
Test depth	: -20.75 [m] - G.L.
Water level	: -1 [m] - G.L.



Pore pressure response apparently attenuated during test- see text section 4.2

See Table 2 re. dissipation tests

ESG

CPTask V1.23

u1
150 cm²
10 cm²

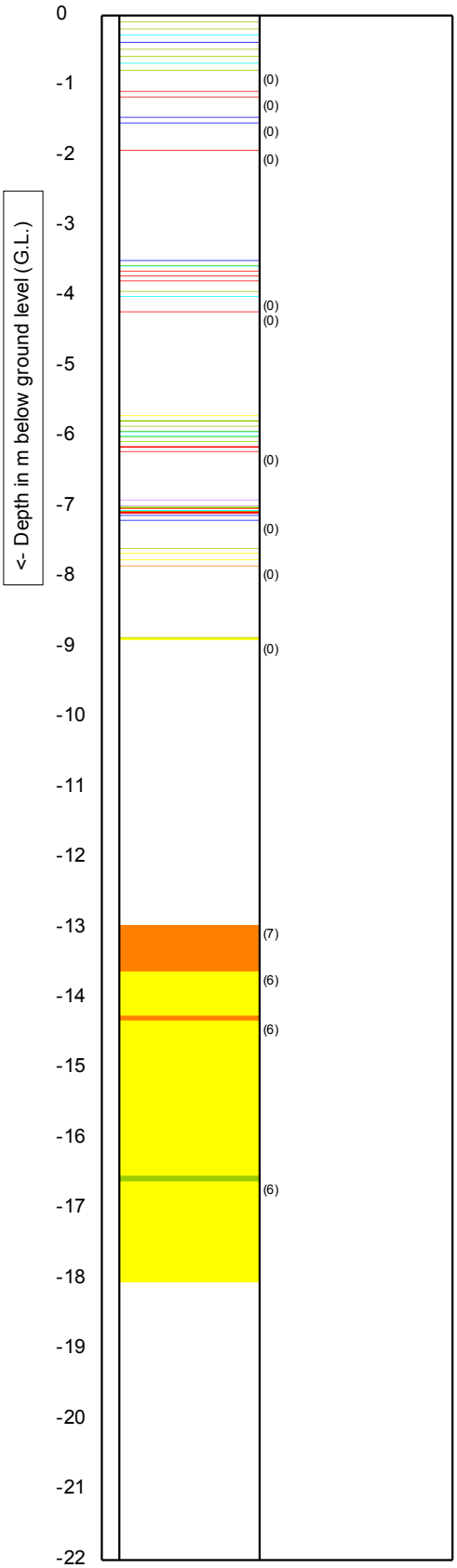
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

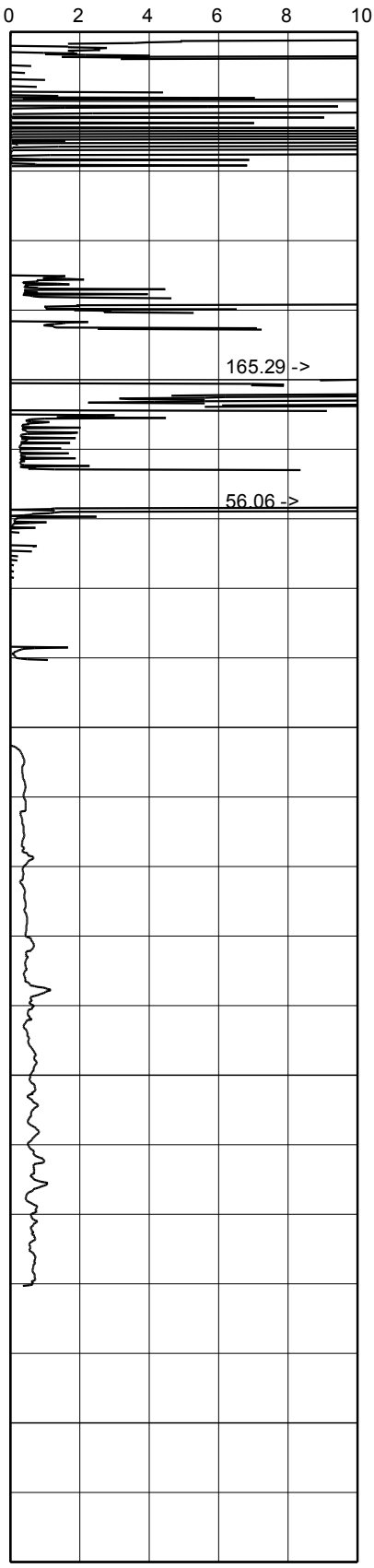
Predrill :	**0**
Date:	**11/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT503** **1/3**

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



Pore pressure response apparently attenuated during test- see text section 4.2

See Table 2 re. dissipation tests

ESG

u1
150 cm²
10 cm²

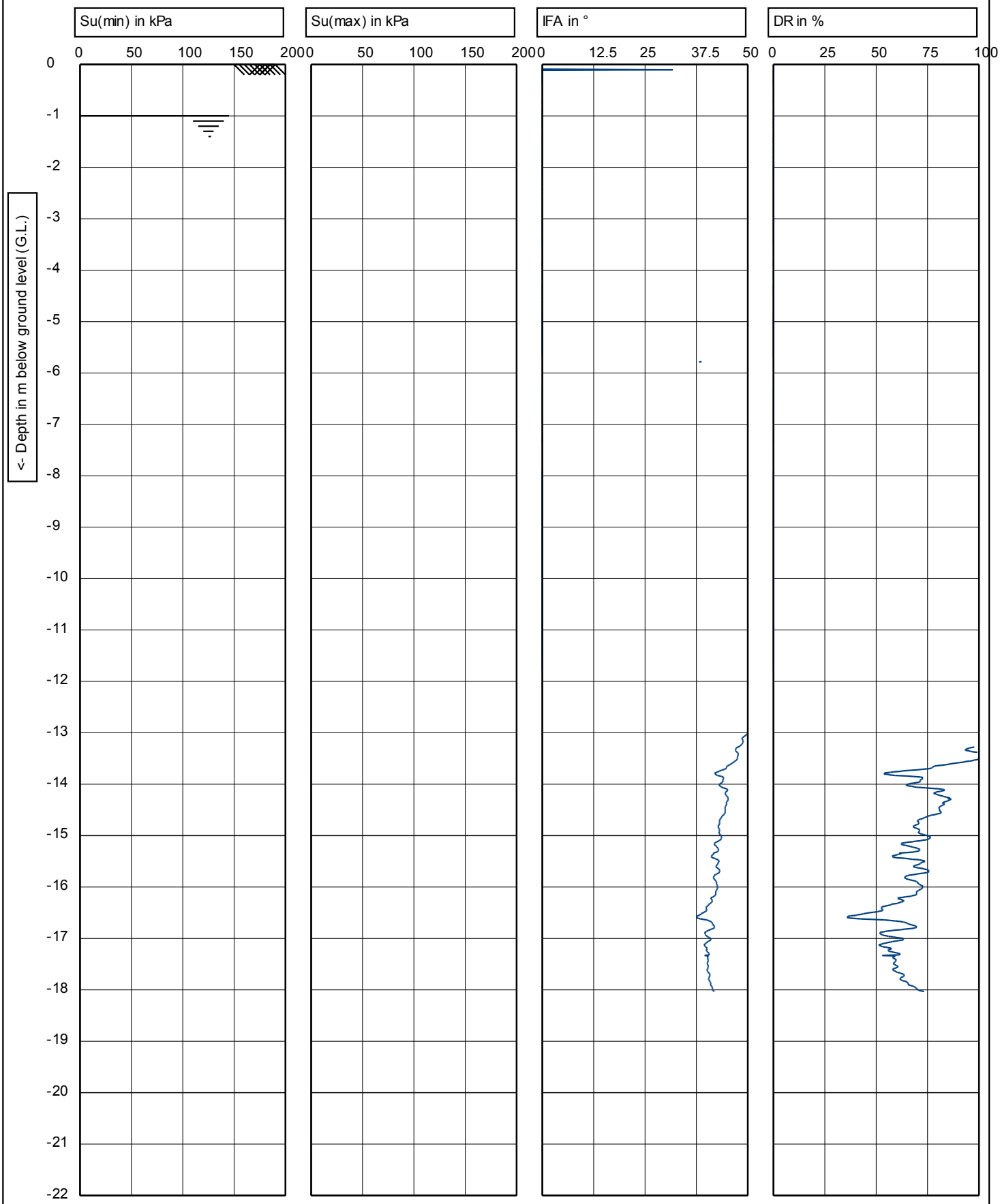
BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**
Location: **A63 Castle Street Improvement**
Position:

Predrill : **0**
Date: **11/09/2015**
Cone no.: **C10CFIP.125**
Project no.: **A5066-15**
CPT no.: **CPT503** **2/3**

CPTask V1.23



Pore pressure response apparently attenuated during test- see text section 4.2

See Table 2 re. dissipation tests

ESG

CPTask V1.23

u1
150 cm²
10 cm²

BS1377 Part 9 : 1999

G.L. **0** W.L.: **-1**

Project: **Princess Quay Footbridge**

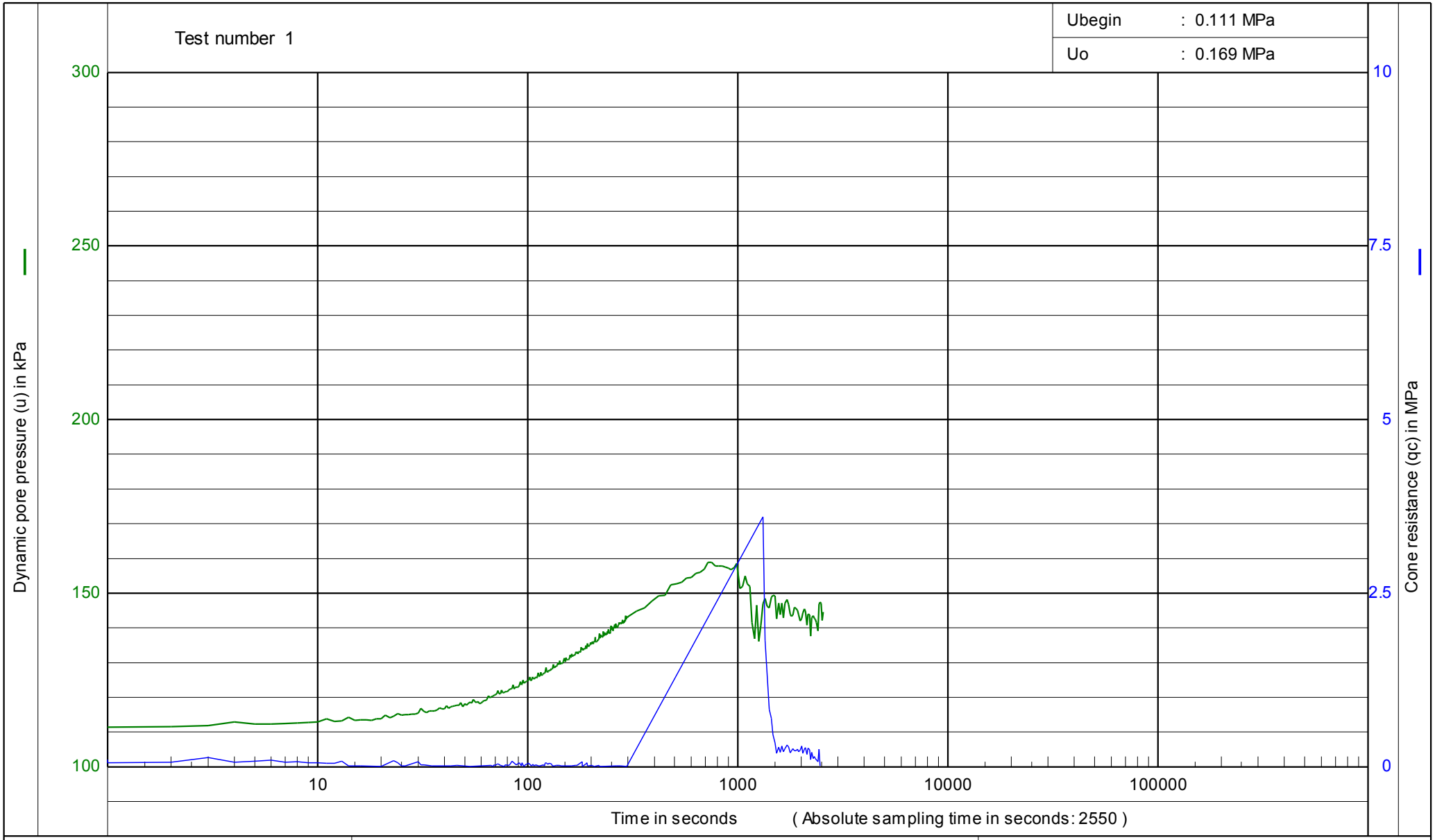
Location: **A63 Castle Street Improvement**

Position:

Predrill :	**0**
Date:	**11/09/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5066-15**
CPT no.:	**CPT503** **3/3**

Test number 1

Ubegin	: 0.111 MPa
Uo	: 0.169 MPa



BS1377 Part 9 : 1999

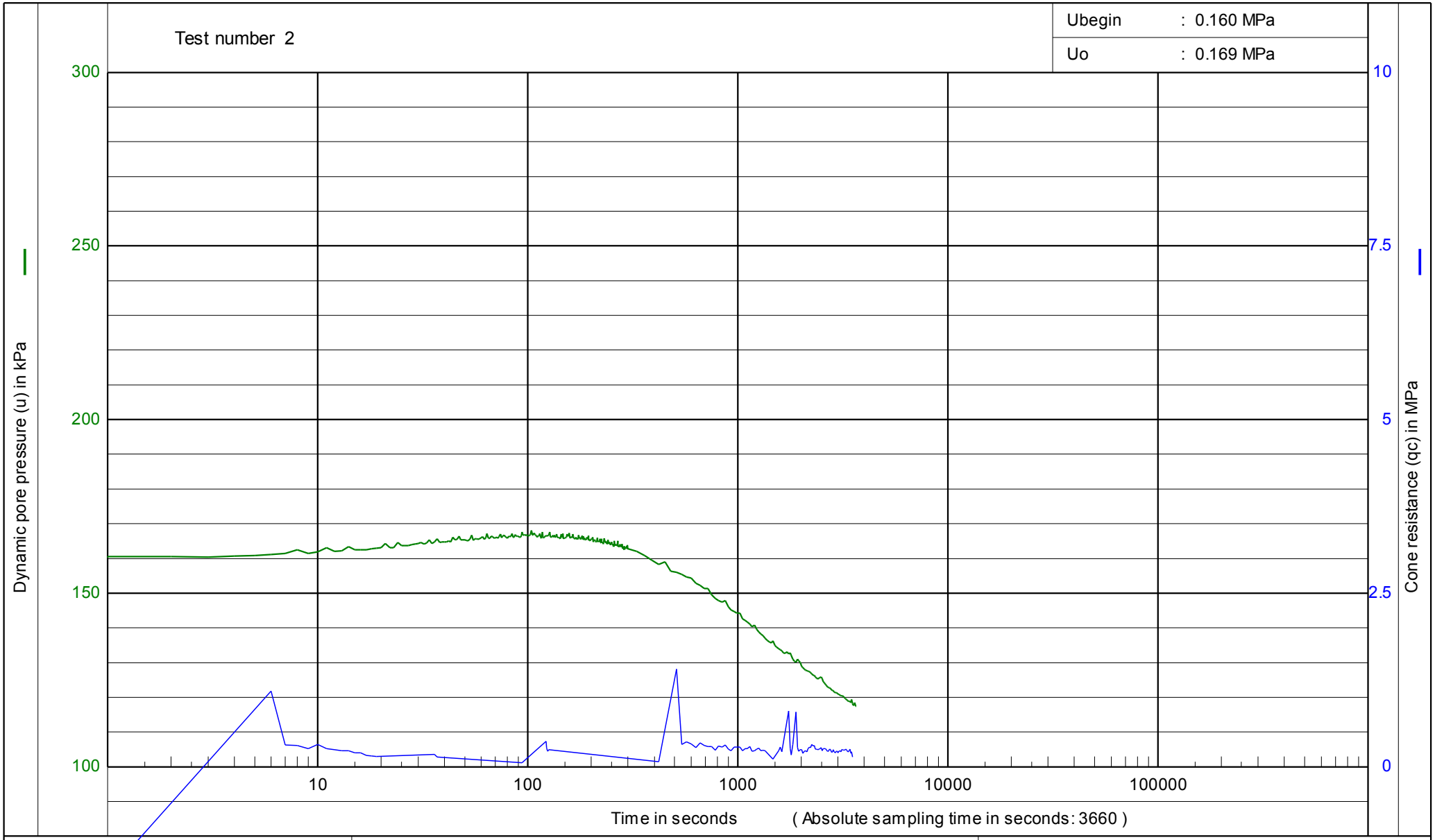
Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 11/09/2015
Project no.	: A5066-15
CPT no.	: CPT503
Test depth	: -8.85 [m] - G.L.
Water level	: -1 [m] - G.L.

Test number 2

Ubegin	: 0.160 MPa
Uo	: 0.169 MPa



BS1377 Part 9 : 1999

Project : Princess Quay Footbridge

Location : A63 Castle Street Improvement

Date	: 11/09/2015
Project no.	: A5066-15
CPT no.	: CPT503
Test depth	: -9 m [m] - G.L.
Water level	: -1 [m] - G.L.

APPENDIX E

GEOTECHNICAL LABORATORY TEST RESULTS

Index Properties	INDX (2 sheets)
Saturated Moisture Content of Chalk – Summary of Results	SMCSUM (1 sheet)
Particle Size Distribution Analyses	PSD (73 sheets)
Chemical Tests – Summary of Results	CHEM (2 sheets)
Soil Reports	EFS/156045, EFS/156436, EFS/156446 and EFS/157962 (24 sheets)
Dry Density/Moisture Content Relationship (Heavy 4.5kg Compaction)	COMPH (1 sheet)
One Dimensional Consolidation Test	OED (7 sheets)
Unconsolidated Undrained Triaxial Compression Tests – Summary of Results	UUSUM (1 sheet)
Consolidated Undrained Triaxial Compression Tests (Single Stage)	CU (63 sheets)
Consolidated Drained Triaxial Compression Tests (Single Stage)	CD (3 sheets)

INDEX PROPERTIES - SUMMARY OF RESULTS

Project No	Project Name
A5066-15	A63 PRINCESS QUAY

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	p Mg/m^3	p_d Mg/m^3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	p_s Mg/m^3	Remarks
BH410	4	1.00	1.20	B	Brown slightly sandy CLAY.			25	99 n	49 a	24	25		
BH410	17	7.50	8.00	UT	Very dark grey slightly sandy silty CLAY.			35	99 n	42 a	25	17		
BH410	18	8.00	8.45	UT	Soft brownish grey laminated organic slightly sandy CLAY.			32	100 n	41 a	21	20		
BH410	43	18.90	19.35	UT	Firm to stiff greyish brown slightly sandy slightly gravelly CLAY.			25	99 n	46 a	23	23		
BH410	51	22.20	22.65	UT	Brown slightly sandy silty CLAY.			28	100 n	47 a	24	23		
BH411	1	2.20	2.20	B	Dark brown slightly sandy slightly gravelly CLAY with occasional brick fragments and			48	63 s	65 a	33	32		
BH411	3	5.50	5.70	D	Dark brown clayey SILT.			41	100 n	49 a	29	20		
BH411	4	6.50	6.75	D	Dark brownish grey silty CLAY.			39	100 n	43 a	23	20		
BH411	5	8.70	8.90	D	Greyish brown sandy clayey SILT.			49	100 n	36 a	25	11		
BH411	6	9.50	9.70	D	Brown sandy SILT.			29	100 n	41 a	26	15		
BH411	7	10.65	10.80	D	Brown SILT.			33	100 n	52 a	25	27		
BH411	14	19.40	19.50	D	Brown slightly gravelly CLAY.			24	98 n	51 a	25	26		
BH411	15	20.75	20.90	D	Brown sandy silty CLAY.			27	100 n	40 a	21	19		
BH411	16	21.20	21.40	D	Brown slightly sandy CLAY.			29	100 n	39 a	20	19		
BH411	17	23.10	23.40	D	Brown laminated sandy CLAY.			28	100 n	48 a	23	25		
BH412	7	1.70	2.15	UT	Firm brown sandy CLAY.			35	100 n	40 a	23	17		
BH412	14	4.00	4.45	UT	Soft brown mottled dark grey organic slightly gravelly CLAY.			36	100 n	39 a	22	17		
BH412	23	7.00	8.00	P	Brown mottled dark grey organic slightly sandy SILT.			34	100 n	38 a	20	18		
BH412	31	9.75	10.20	UT	Firm greyish brown slightly sandy CLAY.			29	100 n	39 a	24	15		
BH412	54	20.00	20.45	UT	Firm to stiff greyish brown CLAY with sand partings.			26	100 n	41 a	22	19		
BH412	60	22.20	22.65	UT	Stiff laminated greyish brown slightly sandy CLAY with sand on laminae.			25	100 n	41 a	22	19		
BH412	63	23.30	23.80	B	Dark brown slightly sandy slightly gravelly silty CLAY.			41	97 n	36 a	19	17		
BH413	20	5.55	6.55	P	Soft to firm brownish grey organic slightly sandy CLAY.			48	100 s	52 a	26	26		
BH413	23	7.10	8.10	P	Brown slightly sandy SILT becoming soft greyish brown slightly sandy CLAY towards			54	100 n	39 a	26	13		
BH413	28	9.20	10.20	P	Soft greyish brown organic silty CLAY.			32	100 n	43 a	25	18		
BH413	29	10.20	10.65	UT	Soft brown mottled grey organic slightly sandy CLAY.			33	100 n	41 a	22	19		
BH413	55	21.20	21.65	UT	Firm brown slightly sandy CLAY with occasional partings of sand.			26	100 n	37 a	21	16		
BH413	67	25.20	25.65	UT	Still greyish brown laminated slightly sandy CLAY.			19	100 n	35 a	20	15		
BH414	22	8.85	9.30	U	Dark greyish brown gravelly silty SAND with one cobble becoming dark grey slightly			25	54 s	59 a	30	29		
BH414	26	10.00	11.00	P	Soft dark grey organic slightly sandy CLAY.			61	100 n	82 a	46	36		
BH414	55	19.30	19.75	U	Stiff brown slightly sandy slightly gravelly CLAY.			25	99 n	58 a	26	32		
BH414	58	20.30	20.75	U	Stiff dark brown slightly sandy CLAY with partings of silt and sand.			25	100 n	42 a	22	20		

General notes: All above tests carried out to BS1377 : 1990 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

INDEX PROPERTIES - SUMMARY OF RESULTS

Project No	Project Name
A5066-15	A63 PRINCESS QUAY

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	
BH414	61	21.30	21.75	U	Soft greyish brown organic slightly sandy silty CLAY.			21	100 n	37 a	21	16		
BH414	69	24.20	24.65	U	Firm greyish brown slightly sandy CLAY with partings of sand.			27	100 n	40 a	22	18		
BH415	7	2.00	2.45	UT	Soft to firm brown slightly gravelly sandy CLAY.			29	95 n	53 a	28	25		
BH415	17	4.65	5.65	P	Brown organic slightly sandy slightly gravelly CLAY.			41	90 s	38 a	24	14		
BH415	20	6.75	7.20	UT	Firm brownish grey organic sandy gravelly silty CLAY.			28	76 s	48 a	26	22		
BH415	28	9.00	10.00	P	Soft laminated brown slightly sandy silty CLAY with sand on laminae.			29	100 n	34 a	23	11		
BH415	74	22.50	22.95	UT	Firm brown slightly sandy CLAY with silt partings.			26	100 n	36 a	22	14		
BH415	82	24.70	25.15	UT	Soft to firm CLAY with frequent silt laminations.			27	100 n	45 a	25	20		
BH416	24	9.20	9.65	UT	Soft brownish grey organic slightly sandy CLAY.			56	100 n	79 a	45	34		
BH416	50	19.70	20.15	UT	Firm greyish brown laminated slightly sandy CLAY.			27	100 n	34 a	20	14		
BH416	62	23.50	23.95	UT	Firm greyish brown laminated slightly sandy CLAY.			29	100 n	41 a	22	19		
BH501	27	11.00	11.45	U	Soft to firm grey slightly sandy slightly gravelly CLAY.			35	98 s	41 a	21	20		
BH501	64	21.60	22.05	B	Black very gravelly clayey SAND.			36	51 s	50 a	33	17		
BH501	65	22.05	22.50	U	Soft greyish brown slightly sandy CLAY.			25	100 n	37 a	19	18		
BH501	73	24.05	24.50	U	Firm to stiff brown slightly sandy CLAY.			26	100 n	41 a	24	17		
BH502	10	3.00	3.45	UT	Soft brown slightly gravelly sandy CLAY.			30	95 n	43 a	23	20		
BH502	17	5.40	6.40	P	Brown slightly sandy slightly gravelly CLAY.			36	89 s	40 a	23	17		
BH502	19	6.40	6.85	B	Brown slightly gravelly sandy CLAY.			37	97 s	38 a	22	16		
BH502	26	8.60	9.05	UT	Brown mottled dark grey organic slightly sandy SILT.			32	100 n	37 a	22	15		
BH502	28	9.25	9.70	UT	Soft brown slightly sandy CLAY.			32	100 n	31 a	18	13		
BH502	73	21.00	21.45	UT	Firm to stiff greyish brown slightly sandy CLAY with sand partings.			26	99 n	38 a	21	17		
BH502	81	23.00	23.45	UT	Firm laminated greyish brown slightly sandy CLAY.			26	99 n	42 a	20	22		
BH503	2	5.00	5.50	B	Brown slightly sandy slightly gravelly CLAY.			141	98 s	92 a	36	56		
BH503	8	7.50	8.50	P	Dark grey slightly sandy silty CLAY.			73	100 n	85 a	40	45		
BH503	10	9.50	9.95	UT	Soft dark grey CLAY.			67	100 n	81 a	35	46		
BH503	32	19.70	20.15	UT	Brown slightly sandy CLAY.			26	100 n	38 a	21	17		
BH503	40	21.90	22.35	UT	Firm laminated greyish brown slightly sandy CLAY.			27	100 n	38 a	22	16		

General notes: All above tests carried out to BS1377 : 1990 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	

SATURATED MOISTURE CONTENT OF CHALK - SUMMARY OF RESULTS

Project No	Project Name
A5066-15	A63 PRINCESS QUAY

Hole No.	Sample				Specimen details			Saturation Moisture Content (3)	Porosity (4)	Remarks
	No.	Depth (m)		type	Moisture Content (1)	Bulk density (2)	Dry density			
		from	to		%	Mg/m³	Mg/m³	%	%	
BH412	80	31.30	31.80	B	14	2.20	1.93	15	28	
BH416	83	31.00	31.50	B	13	2.24	1.98	13	27	
BH501	8	3.50	4.00	B	12	2.28	2.04	12	24	
BH501	20	7.50	8.00	B	12	2.25	2.01	13	25	
BH501	100	33.00	33.20	B	12	2.27	2.03	12	25	

Notes:

Test Specification : British Standard 1377 : Part 2 : 1990 clause 3.3

(1) Specimen dried at 105 - 110 °C

(2) Derived as part of standard test by immersion in water (buoyancy)

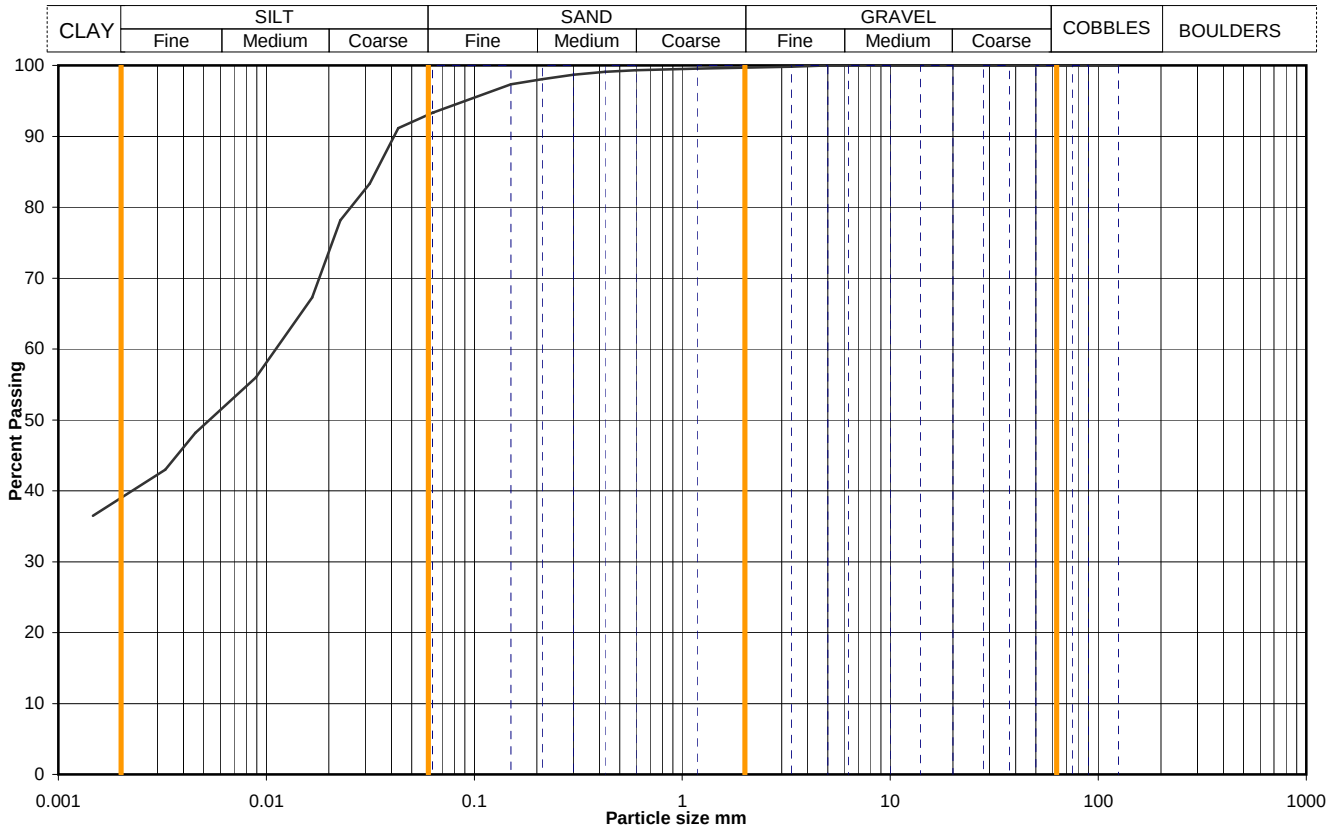
(3) SMC derived using particle density 2.70 Mg/m^3

(4) Porosity (%) = 100 x (1 - (dry density / particle density))

above notes apply unless annotated otherwise in the remarks

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	1.00		
			Samp No	4	Type	B
			ID	A5066-1520150721032143		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	93
90	100	0.0431	91
75	100	0.0314	83
63	100	0.0226	78
50	100	0.0166	67
37.5	100	0.0089	56
28	100	0.0046	48
20	100	0.0033	43
14	100	0.0015	36
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	98		
0.150	97	8.4	
0.063	93		

Soil description	Brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	7	7
	Silt	54	54
	Clay	39	39

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

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

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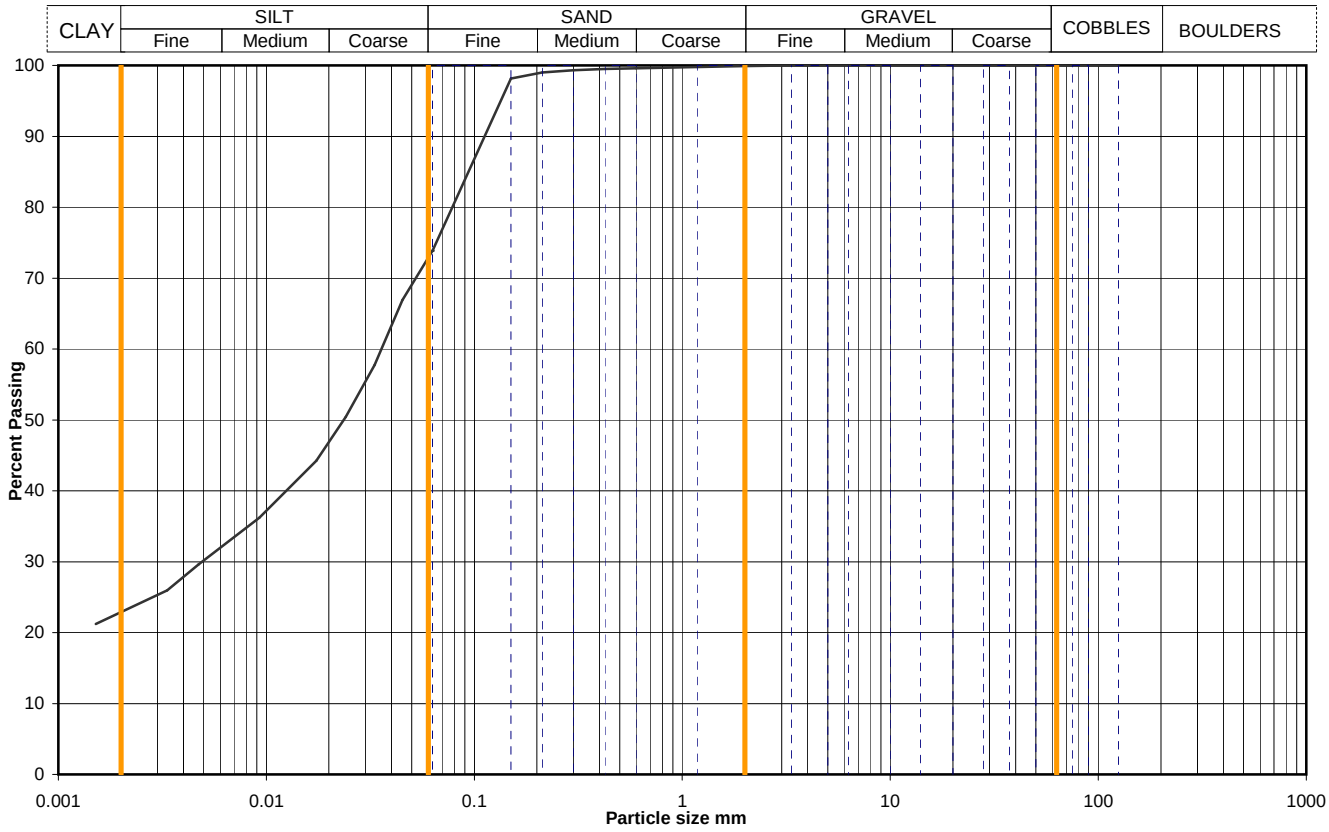
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.50		
			Samp No	17	Type	UT
			ID	A5066-1520150901102546		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	74
90	100	0.0451	67
75	100	0.0331	58
63	100	0.0241	50
50	100	0.0174	44
37.5	100	0.0092	36
28	100	0.0047	30
20	100	0.0033	26
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	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	98	6.3	
0.063	74		

Soil description	Very dark grey slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	27	27
	Silt	50	50
	Clay	23	23

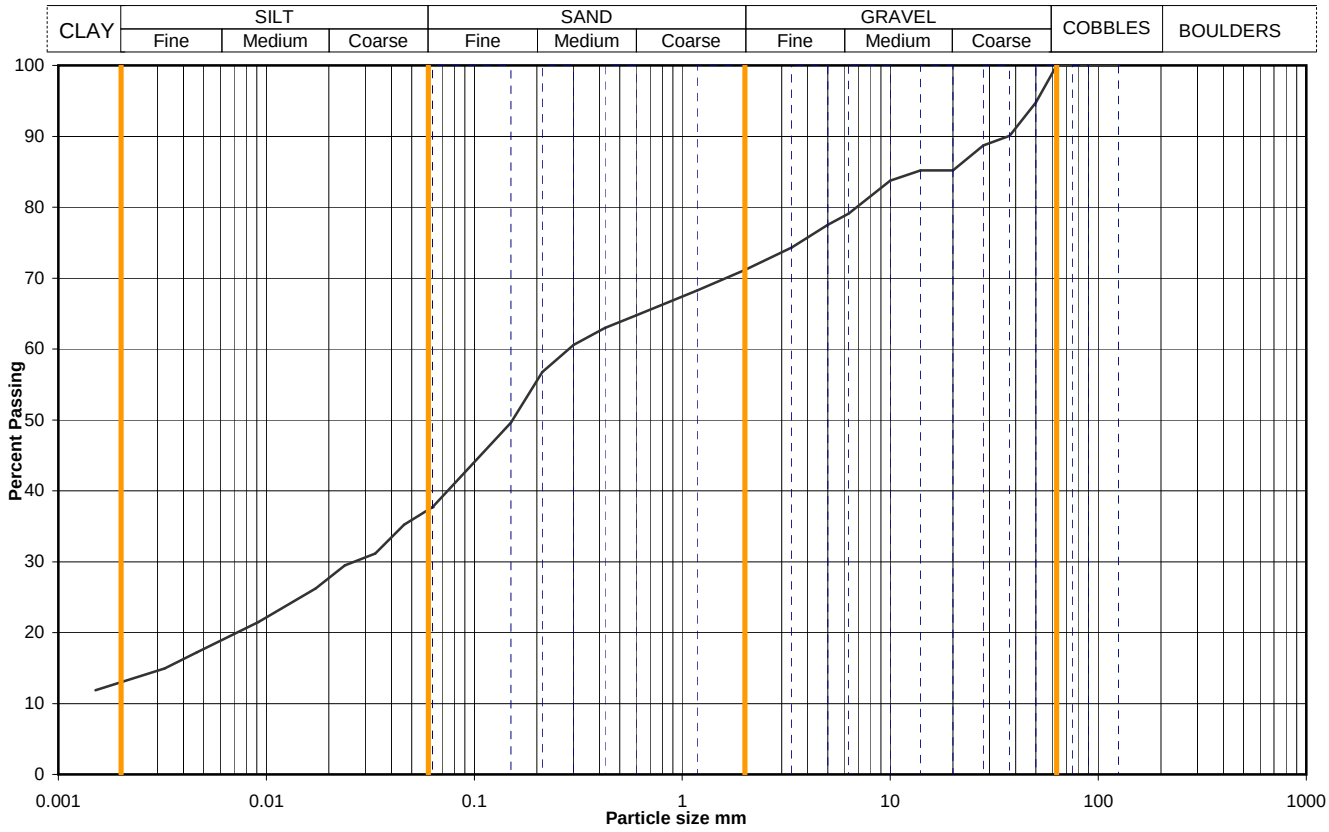
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	2.20		
			Samp No	1	Type	B
			ID	A5066-1520151001030059		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	38
90	100	0.0458	35
75	100	0.0334	31
63	100	0.0239	29
50	95	0.0172	26
37.5	90	0.0092	22
28	89	0.0046	17
20	85	0.0032	15
14	85	0.0015	12
10	84		
6.3	79		
5.0	78		
3.35	74		
2.00	71		
1.18	68	Particle density, Mg/m3	
0.600	65		
0.425	63	2.65 assumed	
0.300	61	Dry mass of sample, kg	
0.212	57		
0.150	50	3.7	
0.063	38		

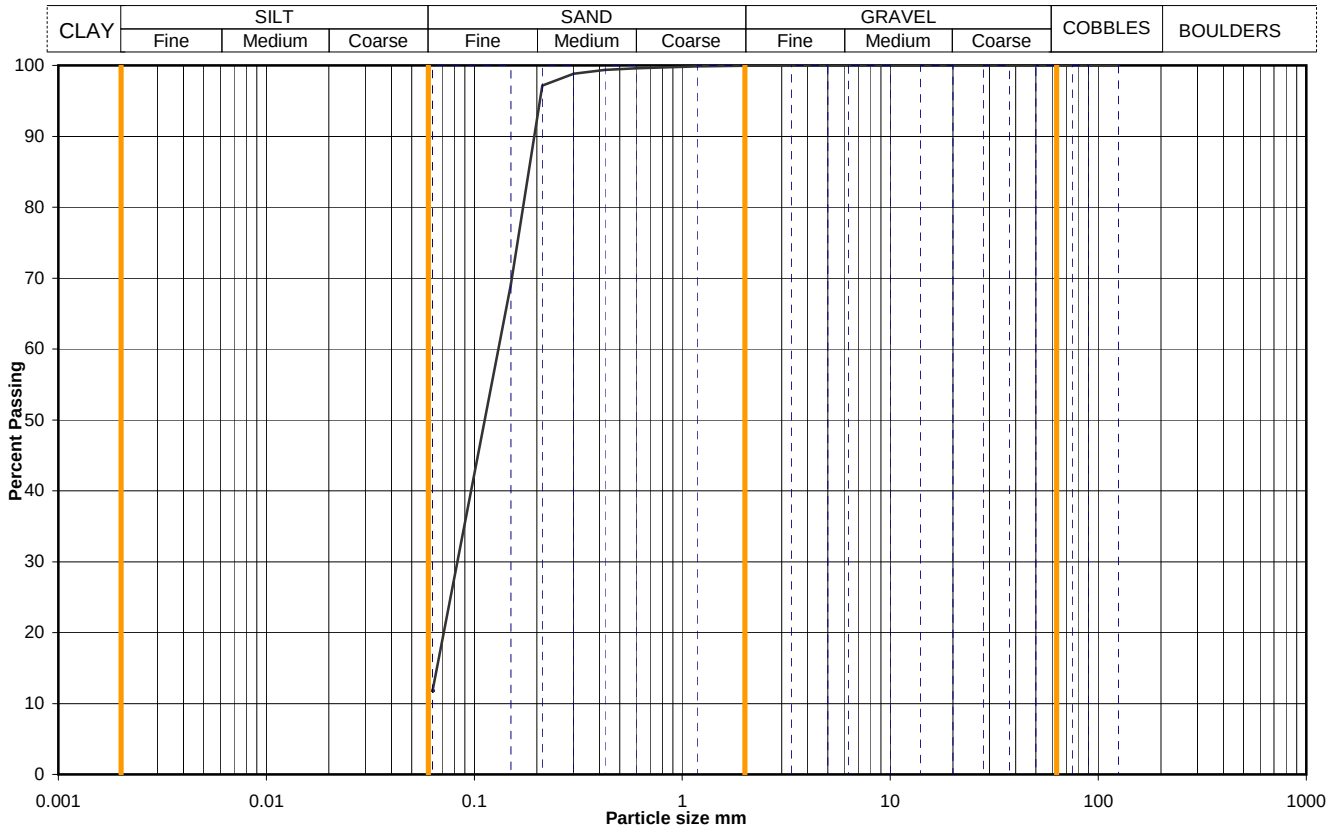
Soil description	Dark brown slightly sandy slightly gravelly CLAY with occasional brick fragments and pottery fragments.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	29	29
	Sand	34	34
	Silt	24	24
	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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	11.40		
			Samp No	8	Type	B
			ID	A5066-1520151001030158		
			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	99		
0.300	99	Dry mass of sample, kg	
0.212	97		
0.150	69	29.6	
0.063	12		

Soil description	Brown SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	88	88
	Silt	silt+clay =	
	Clay	12	12

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

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

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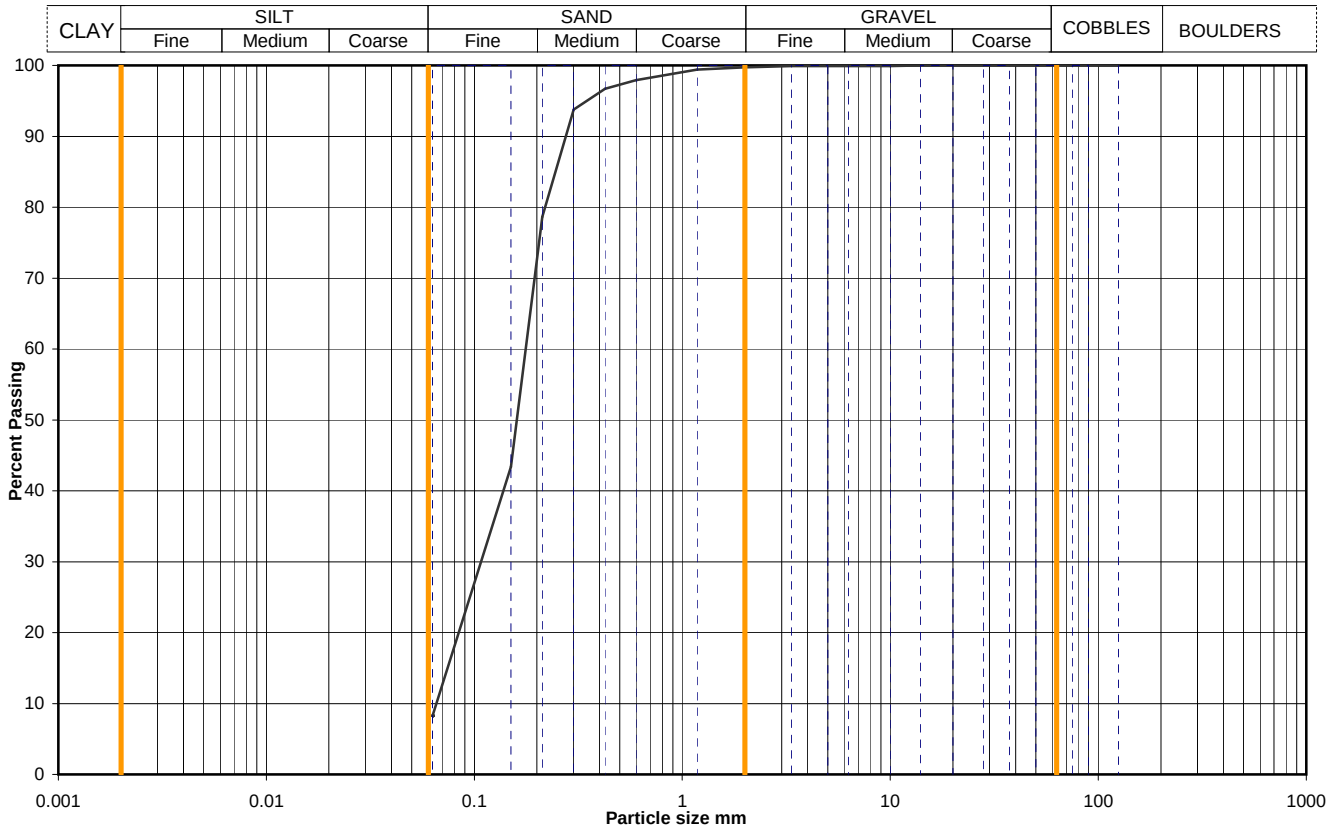
Figure **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	15.30		
			Samp No	10	Type	B
			ID	A5066-1520151001030219		
			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	99		
0.600	98		
0.425	97		
0.300	94	Dry mass of sample, kg	
0.212	79		
0.150	43	6.7	
0.063	8		

Soil description	Brown SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	91	91
	Silt	silt+clay =	
	Clay	9	9

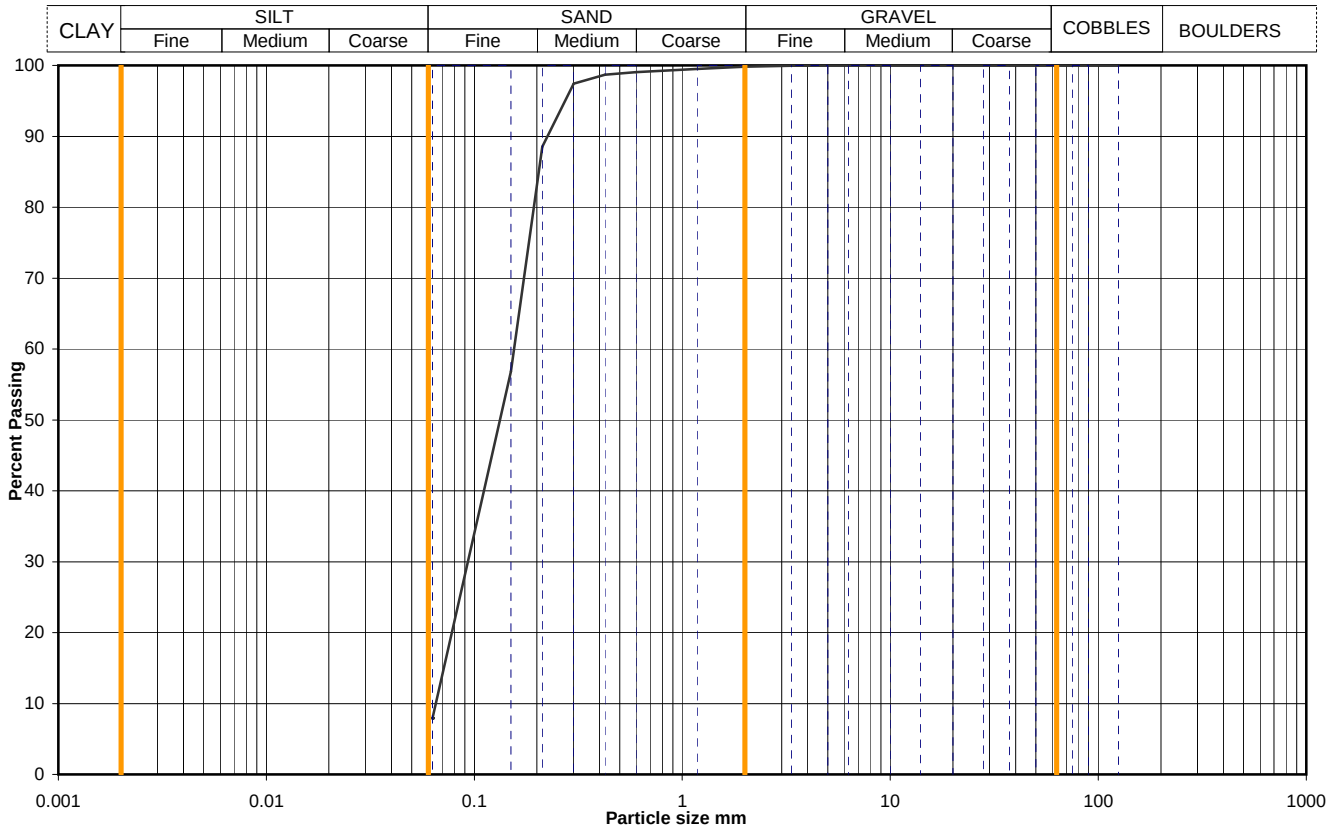
Uniformity Coefficient	D_{60} / D_{10}	3

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	16.75		
			Samp No	11	Type	B
			ID	A5066-1520151001030228		
			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	99		
0.425	99		
0.300	97	Dry mass of sample, kg	
0.212	89		
0.150	57	5.7	
0.063	8		

Soil description	Brown silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	92	92
	Silt	silt+clay =	
	Clay	8	8

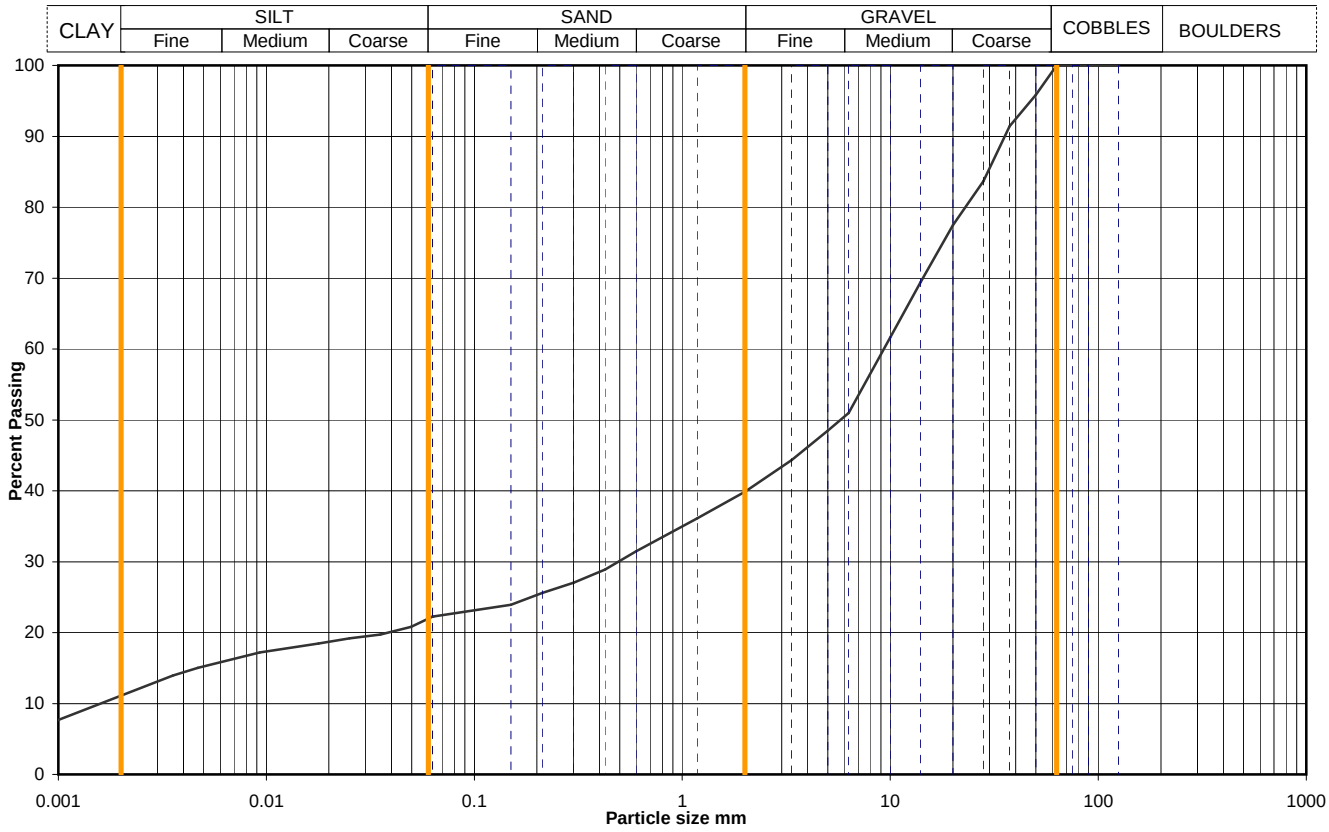
Uniformity Coefficient	D_{60} / D_{10}	2

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	18.30		
			Samp No	13	Type	B
			ID	A5066-1520151001030247		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	22
90	100	0.0496	21
75	100	0.0353	20
63	100	0.0251	19
50	96	0.0178	18
37.5	91	0.0093	17
28	84	0.0047	15
20	77	0.0036	14
14	69	0.0008	7
10	62		
6.3	51		
5.0	48		
3.35	44		
2.00	40		
1.18	36	Particle density, Mg/m3	
0.600	31		
0.425	29	2.65 assumed	
0.300	27	Dry mass of sample, kg	
0.212	26		
0.150	24	8.9	
0.063	22		

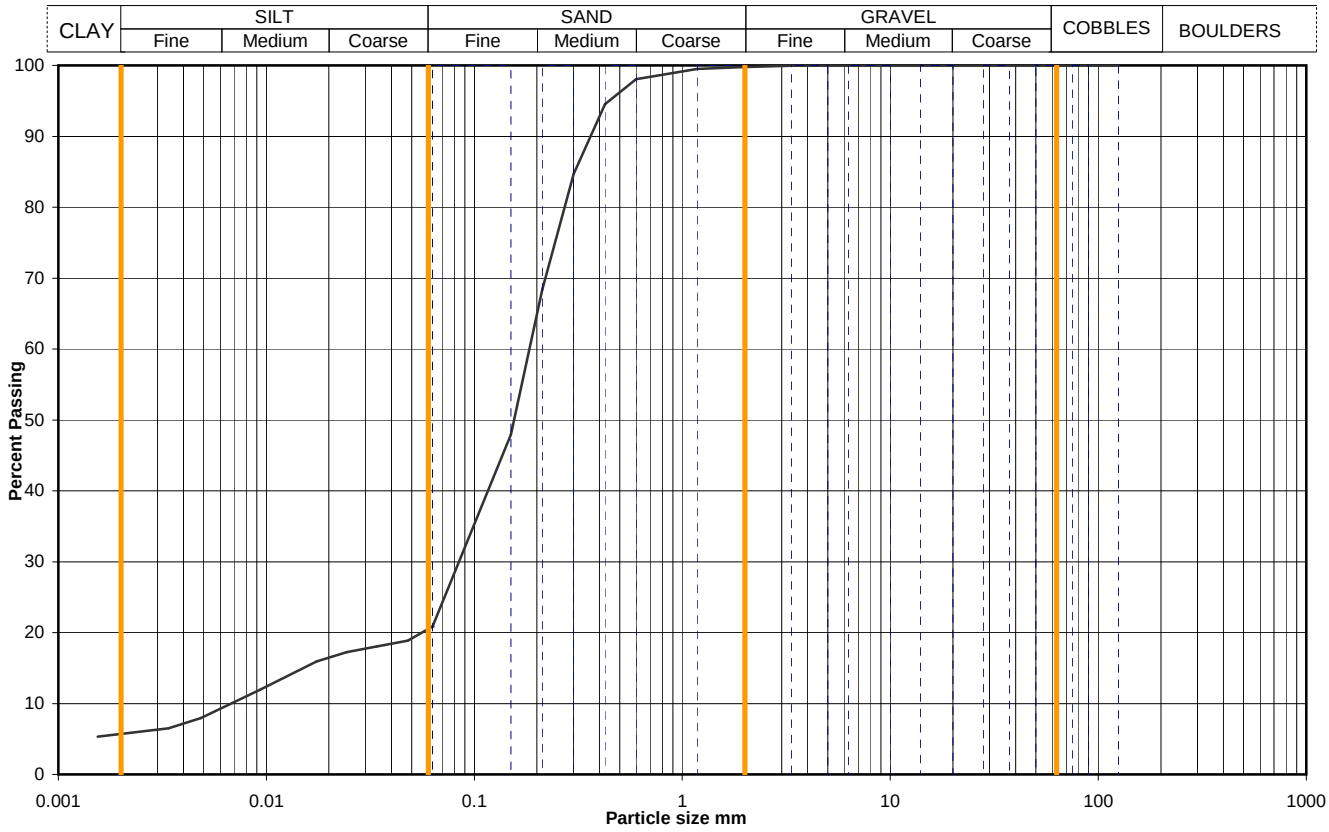
Soil description	Brown sandy clayey GRAVEL.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	60	60
	Sand	18	18
	Silt	11	11
	Clay	11	11

Uniformity Coefficient	D_{60} / D_{10}	5838

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	26.00		
			Samp No	18	Type	B
			ID	A5066-1520151001030336		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	21
90	100	0.0479	19
75	100	0.0341	18
63	100	0.0243	17
50	100	0.0174	16
37.5	100	0.0093	12
28	100	0.0048	8
20	100	0.0034	7
14	100	0.0015	5
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	99	Particle density, Mg/m3	
0.600	98		
0.425	95	2.65 assumed	
0.300	85	Dry mass of sample, kg	
0.212	68		
0.150	48	6.2	
0.063	21		

Soil description	Brown SAND with occasional clay pockets.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	79	79
	Silt	15	15
	Clay	6	6

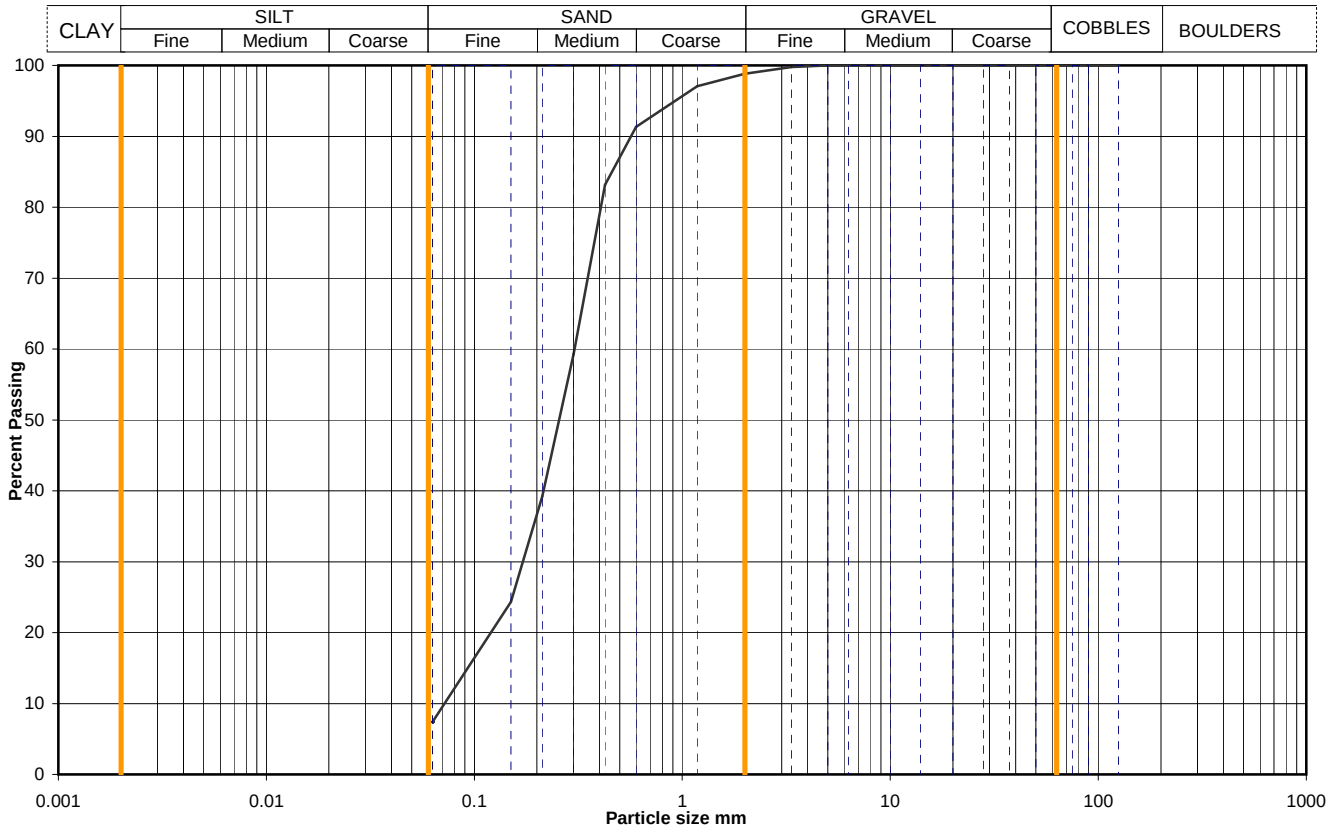
Uniformity Coefficient	D_{60} / D_{10}	27

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	28.50		
			Samp No	19	Type	B
			ID	A5066-1520151001030348		
			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	99		
1.18	97		
0.600	91		
0.425	83		
0.300	59	Dry mass of sample, kg	
0.212	39		
0.150	24	7.7	
0.063	7		

Soil description	Brown slightly gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	91	91
	Silt	silt+clay =	
	Clay	8	8

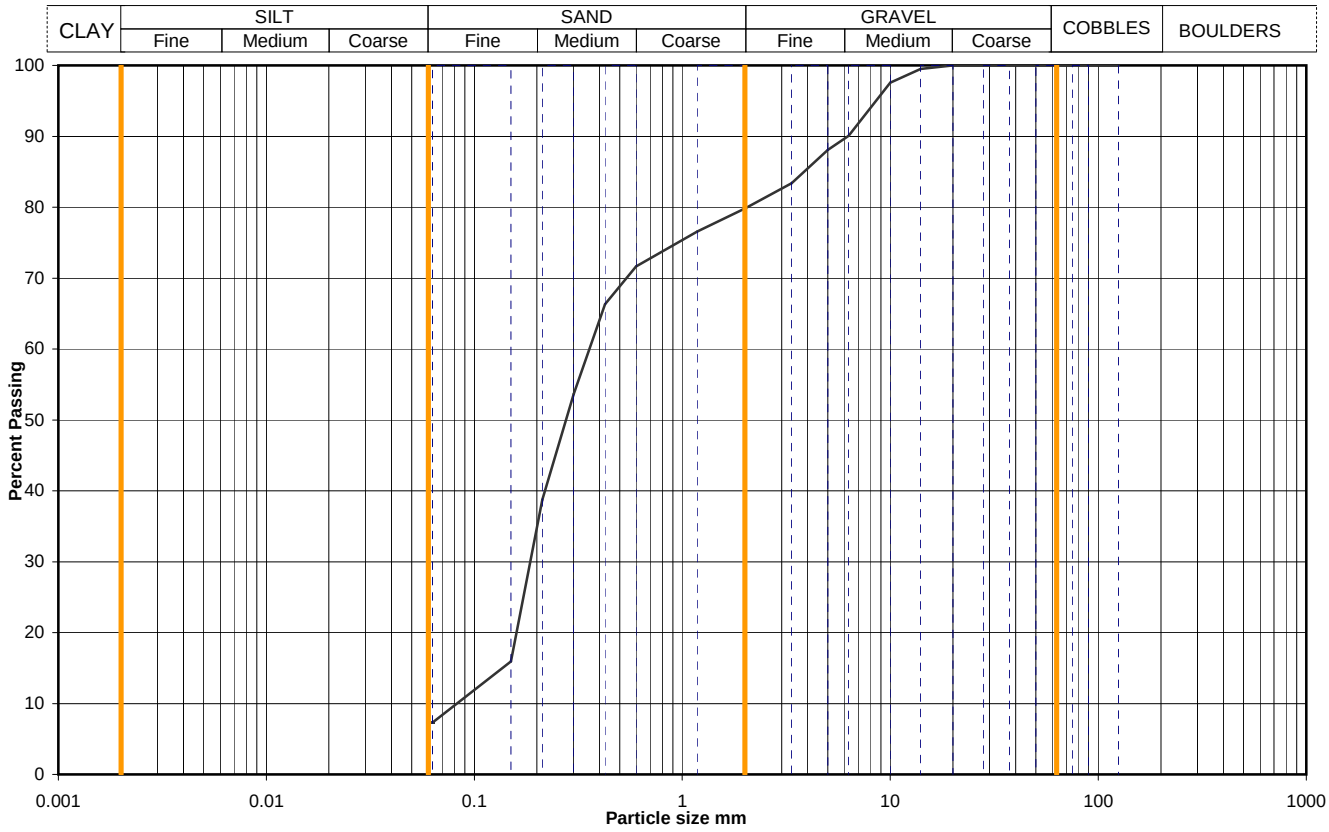
Uniformity Coefficient	D_{60} / D_{10}	4

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	29.20		
			Samp No	20	Type	B
			ID	A5066-1520151001030358		
			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	98		
6.3	90		
5.0	88		
3.35	83		
2.00	80		
1.18	77		
0.600	72		
0.425	66		
0.300	54	Dry mass of sample, kg	
0.212	39		
0.150	16	7.0	
0.063	7		

Soil description	Brown gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	20	20
	Sand	73	73
	Silt	silt+clay =	
	Clay	7	7

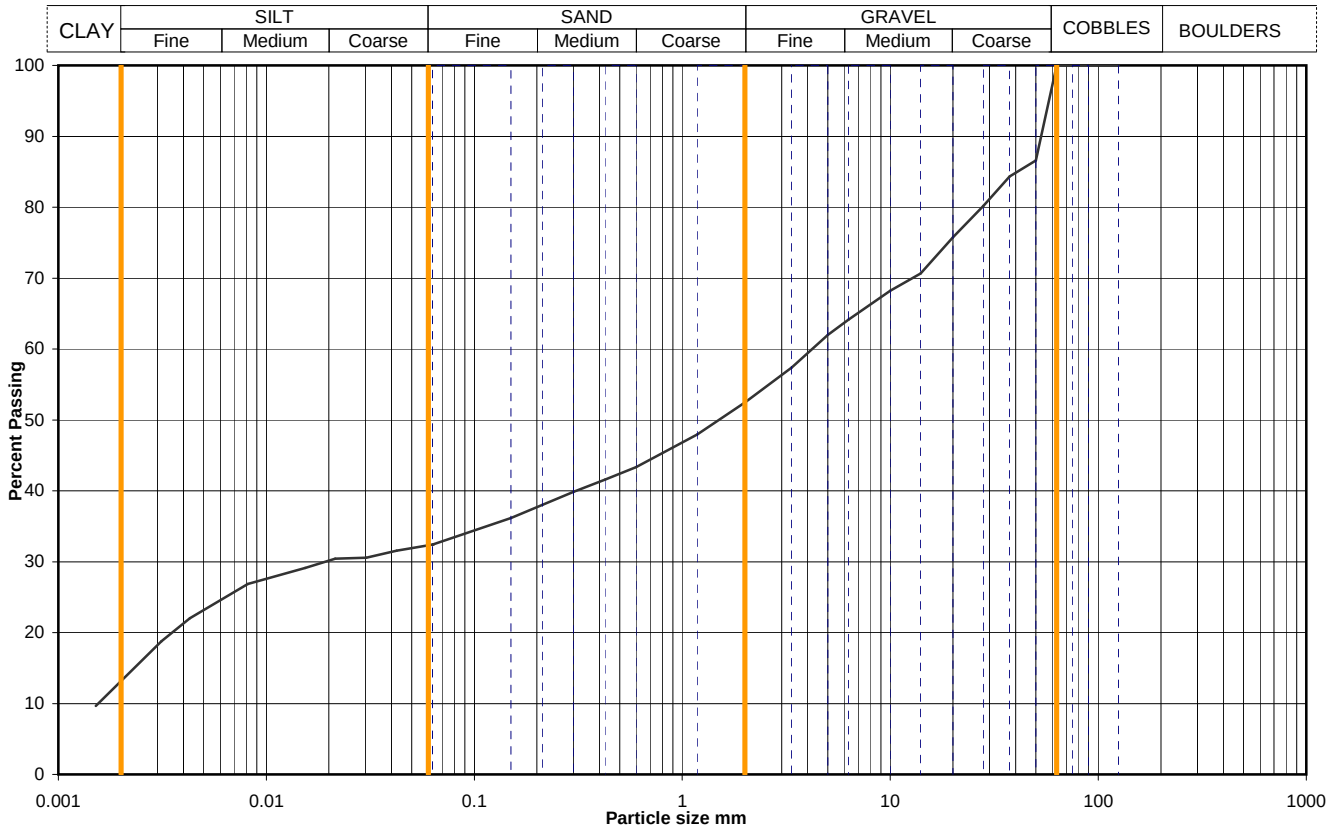
Uniformity Coefficient	D_{60} / D_{10}	4

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH411		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	30.50		
			Samp No	21	Type	B
			ID	A5066-1520151001030407		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0423	32
75	100	0.0303	31
63	100	0.0214	30
50	87	0.0154	29
37.5	84	0.0082	27
28	80	0.0043	22
20	76	0.0031	19
14	71	0.0015	10
10	68		
6.3	64		
5.0	62		
3.35	57		
2.00	52		
1.18	48	Particle density, Mg/m3	
0.600	43		
0.425	42	2.65 assumed	
0.300	40	Dry mass of sample, kg	
0.212	38		
0.150	36	7.4	
0.063	32		

Soil description	Light grey slightly sandy gravelly CLAY with chalk fragments.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	48	48
	Sand	20	20
	Silt	19	19
	Clay	13	13

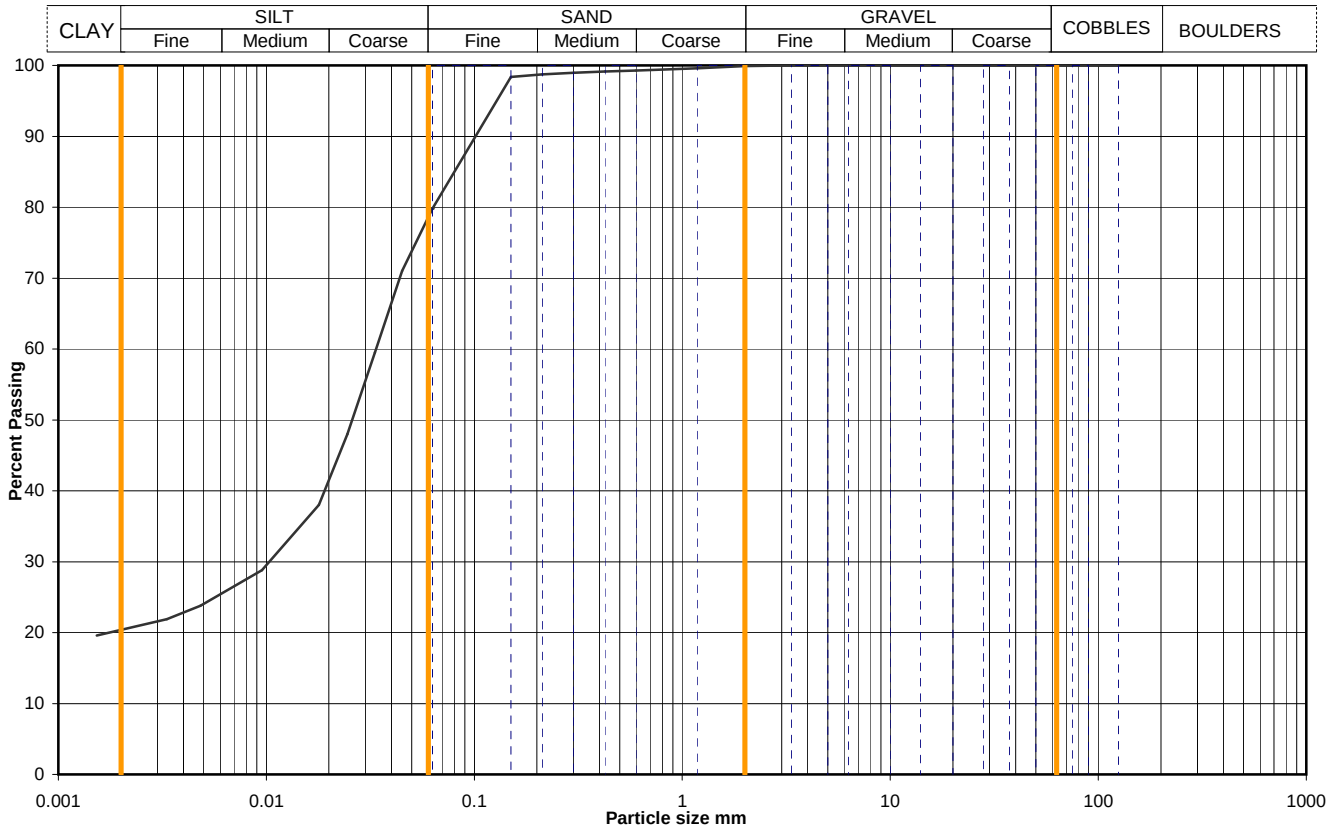
Uniformity Coefficient	D_{60} / D_{10}	2707

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	6.40		
			Samp No	21	Type	UT
			ID	A5066-1520150804042041		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	80
90	100	0.0449	71
75	100	0.0332	59
63	100	0.0245	48
50	100	0.0179	38
37.5	100	0.0095	29
28	100	0.0048	24
20	100	0.0033	22
14	100	0.0015	20
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	98	5.3	
0.063	80		

Soil description	Soft brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	21	21
	Silt	58	58
	Clay	21	21

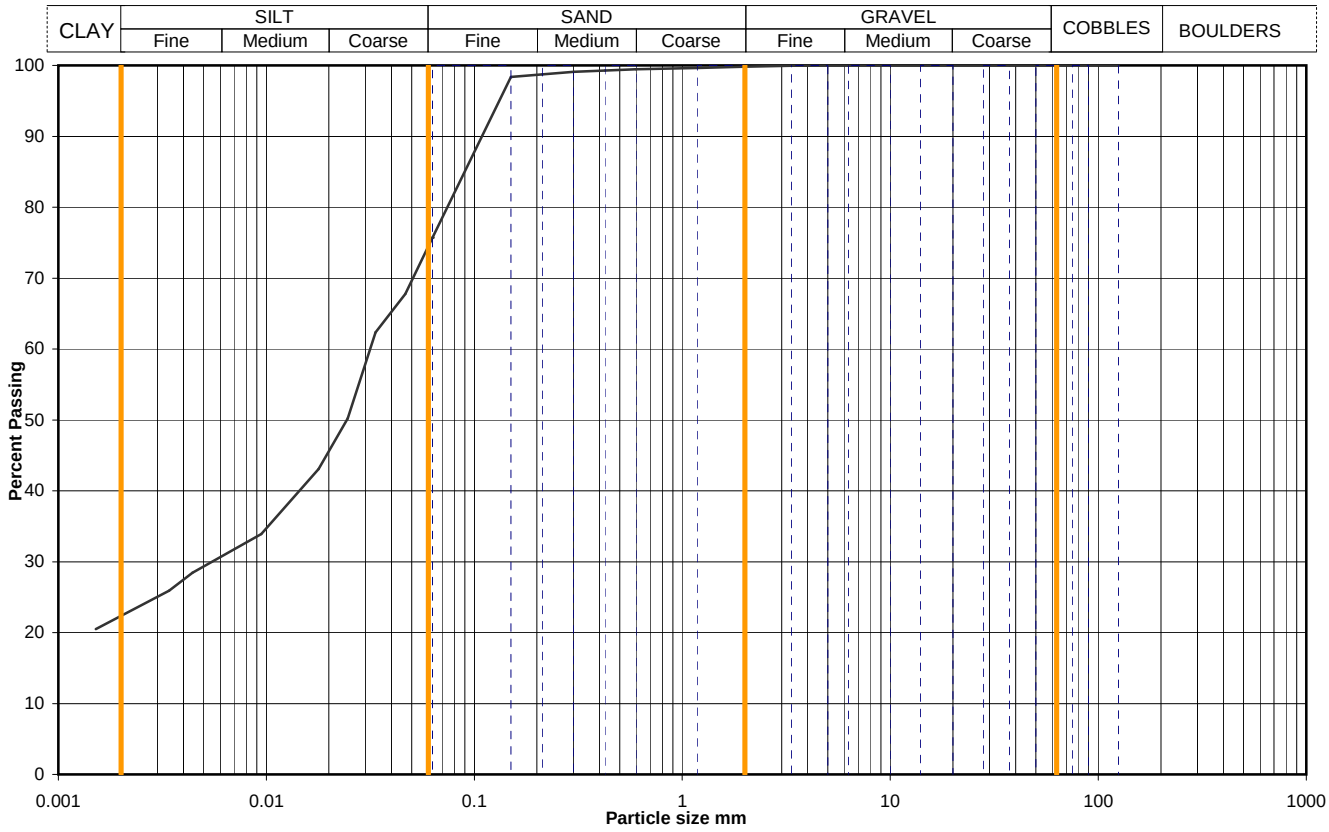
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	8.45		
			Samp No	26	Type	D
			ID	A5066-1520150804042156		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	76
90	100	0.0465	68
75	100	0.0335	62
63	100	0.0246	50
50	100	0.0178	43
37.5	100	0.0094	34
28	100	0.0044	28
20	100	0.0034	26
14	100	0.0015	20
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	98	0.3	
0.063	76		

Soil description	Brown silty slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	25	25
	Silt	52	52
	Clay	23	23

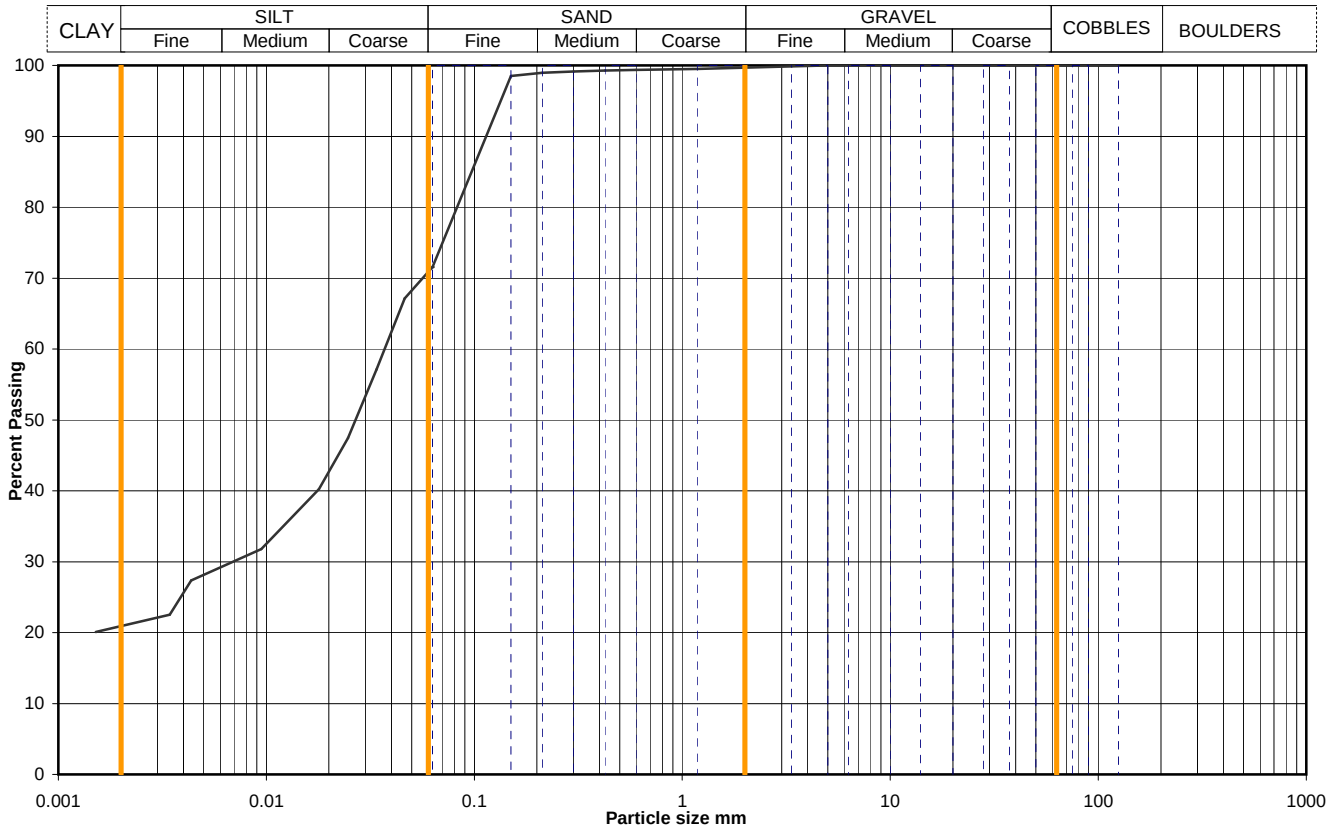
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.55		
			Samp No	30	Type	D
			ID	A5066-1520150804042243		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	72
90	100	0.0462	67
75	100	0.0338	57
63	100	0.0247	47
50	100	0.0179	40
37.5	100	0.0095	32
28	100	0.0043	27
20	100	0.0034	23
14	100	0.0015	20
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	99	0.1	
0.063	72		

Soil description	Brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	29	29
	Silt	50	50
	Clay	21	21

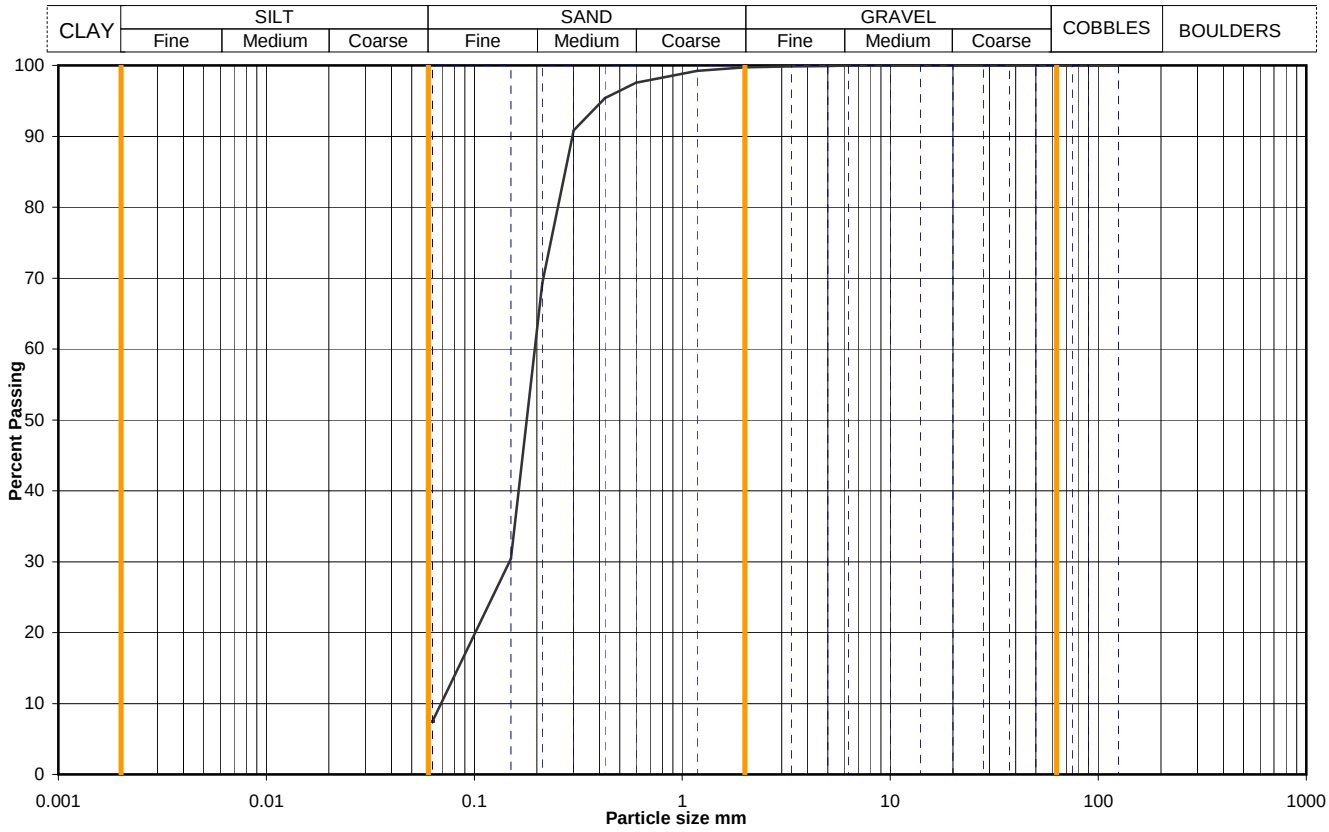
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	14.50		
			Samp No	42	Type	D
			ID	A5066-1520150804042535		
			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	99		
0.600	98		
0.425	95		
0.300	91	Dry mass of sample, kg	
0.212	69		
0.150	30	0.6	
0.063	7		

Soil description	Brown silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	92	92
	Silt	silt+clay =	
	Clay	8	8

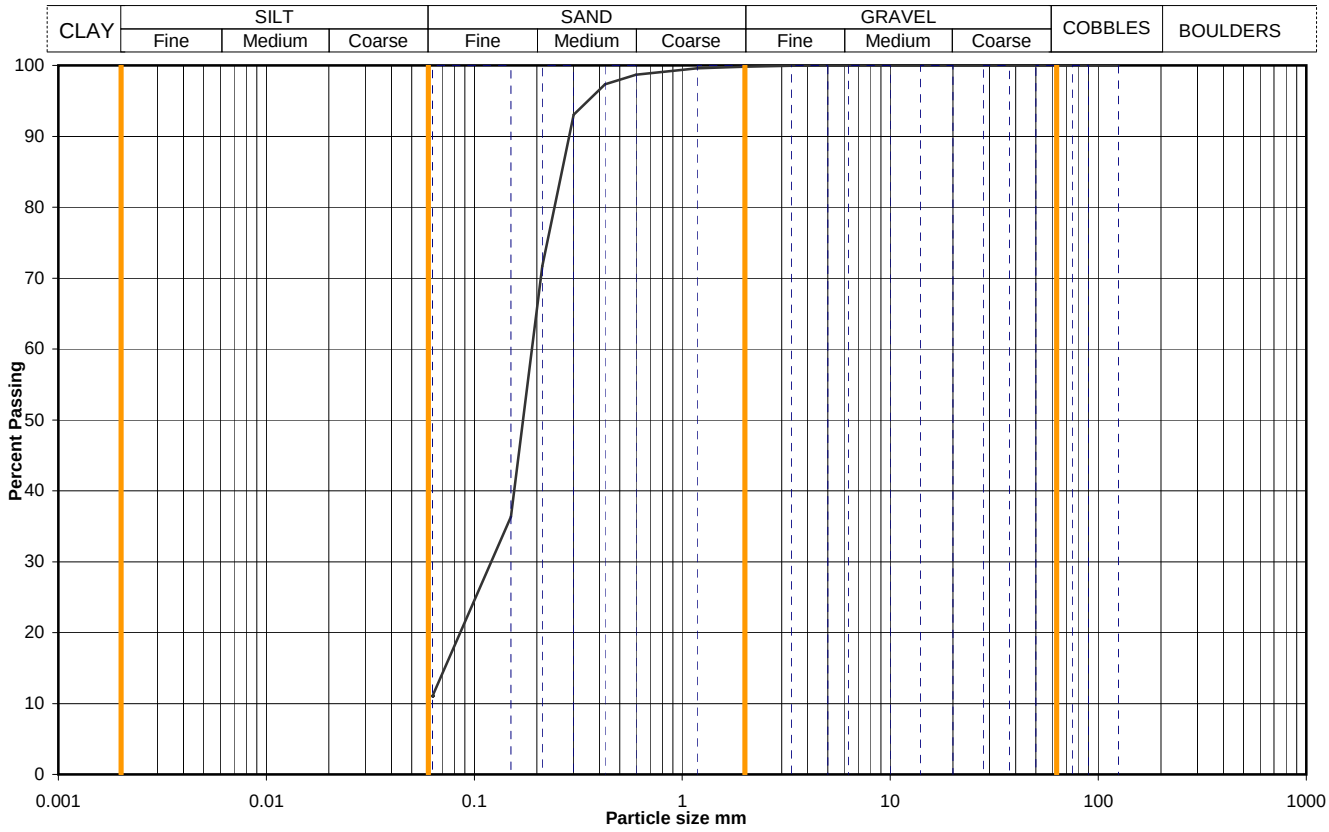
Uniformity Coefficient	D_{60} / D_{10}	3

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	17.50		
			Samp No	48	Type	B
			ID	A5066-1520150804042708		
			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	99		
0.425	97		
0.300	93	Dry mass of sample, kg	
0.212	72		
0.150	36	12.0	
0.063	11		

Soil description	Dark grey silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	89	89
	Silt	silt+clay =	
	Clay	11	11

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

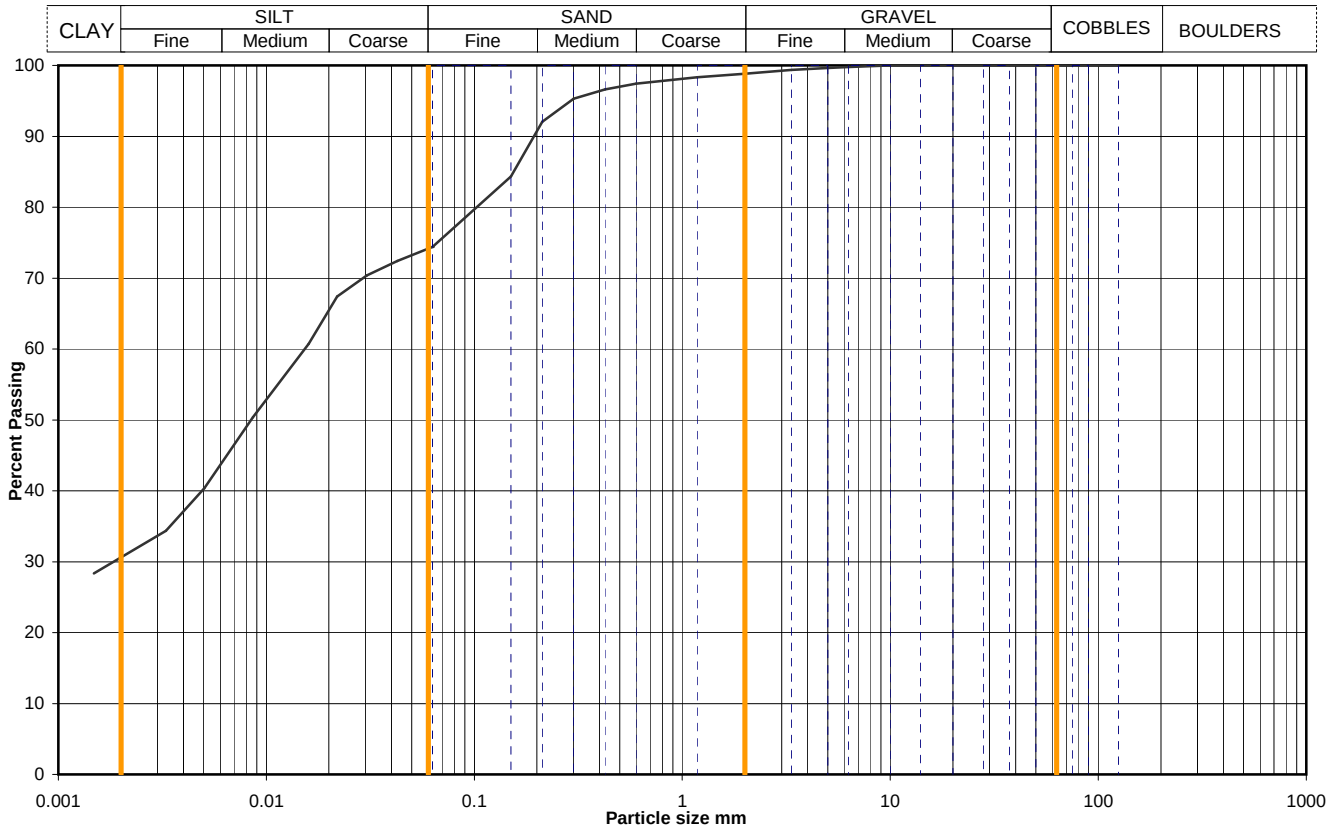
Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52

Figure **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	23.30		
			Samp No	63	Type	B
			ID	A5066-1520150817022401		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	74
90	100	0.0426	72
75	100	0.0305	70
63	100	0.0219	67
50	100	0.0160	61
37.5	100	0.0086	50
28	100	0.0050	40
20	100	0.0033	34
14	100	0.0015	28
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	99		
1.18	98	Particle density, Mg/m3	
0.600	97		
0.425	97	2.65 assumed	
0.300	95	Dry mass of sample, kg	
0.212	92		
0.150	84	12.2	
0.063	74		

Soil description	Dark brown slightly sandy slightly gravelly silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	25	25
	Silt	43	43
	Clay	31	31

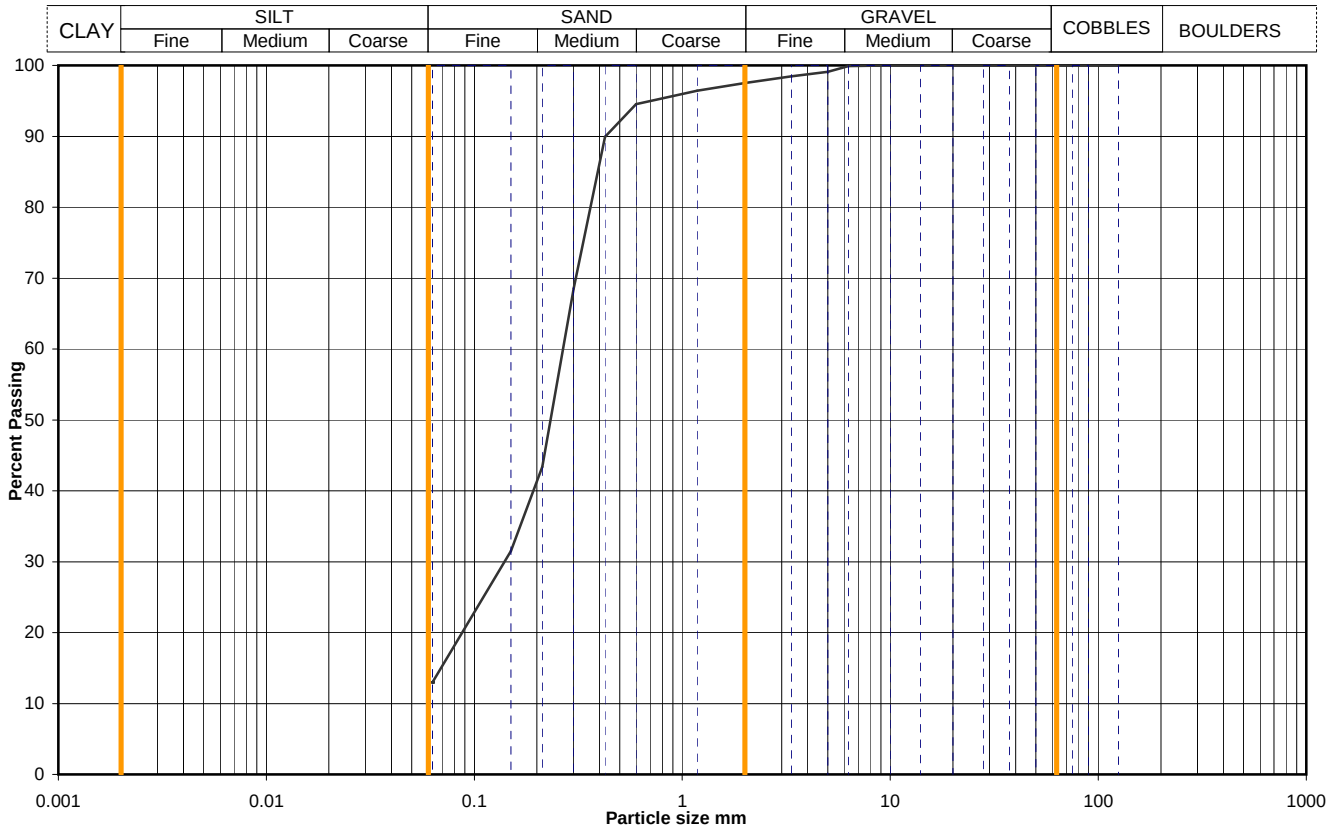
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	25.30		
			Samp No	68	Type	B
			ID	A5066-1520150817022543		
			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	99		
3.35	98		
2.00	98		
1.18	96		
0.600	95		
0.425	90		
0.300	69	Dry mass of sample, kg	
0.212	43		
0.150	32	17.4	
0.063	13		

Soil description	Brown slightly gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	2	2
	Sand	85	85
	Silt	silt+clay =	
	Clay	13	13

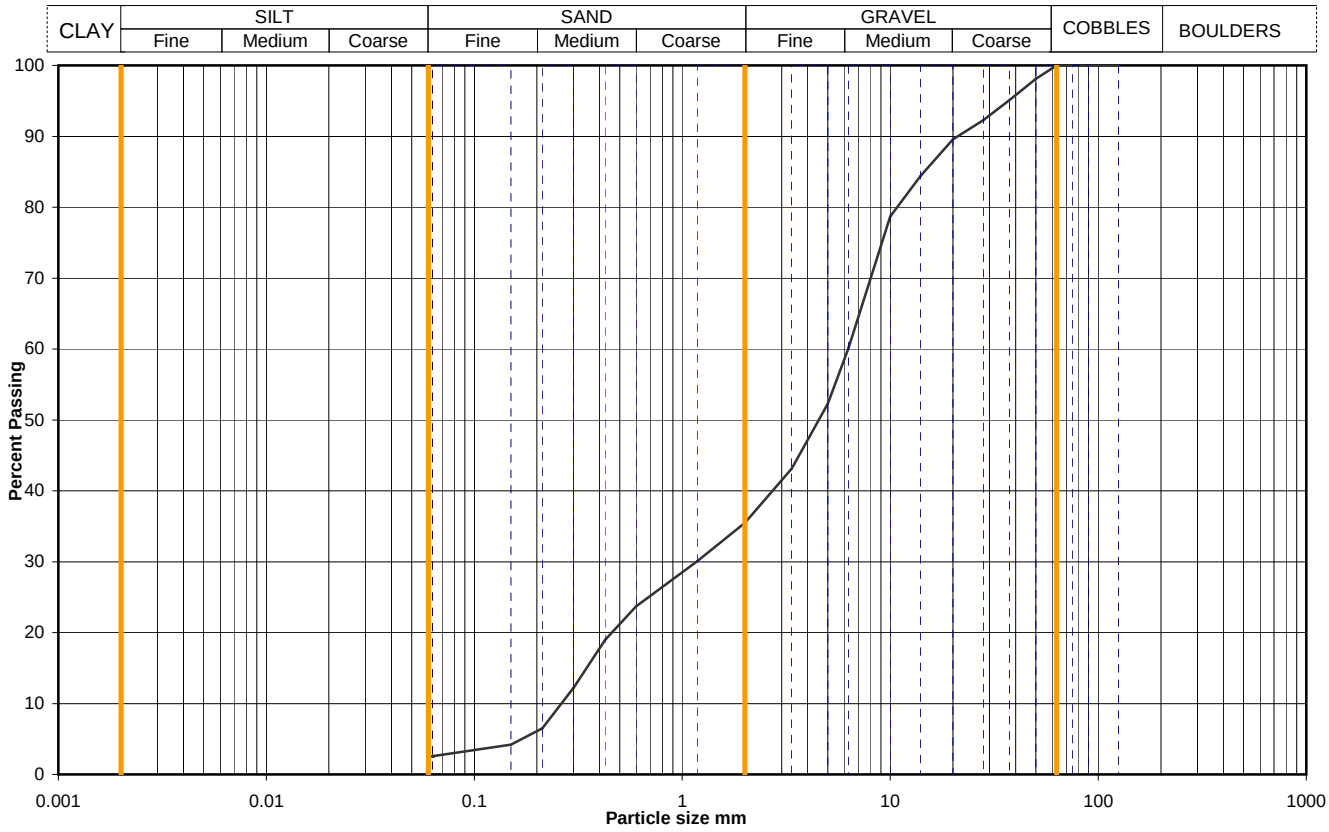
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:52	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	29.30		
			Samp No	76	Type	B
			ID	A5066-1520150817023121		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	98		
37.5	95		
28	92		
20	90		
14	84		
10	79		
6.3	60		
5.0	52		
3.35	43		
2.00	35		
1.18	30		
0.600	24		
0.425	19		
0.300	12	Dry mass of sample, kg	
0.212	6		
0.150	4	12.9	
0.063	3		

Soil description	Brown sandy GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	65	65
	Sand	33	33
	Silt	silt+clay =	
	Clay	2	2

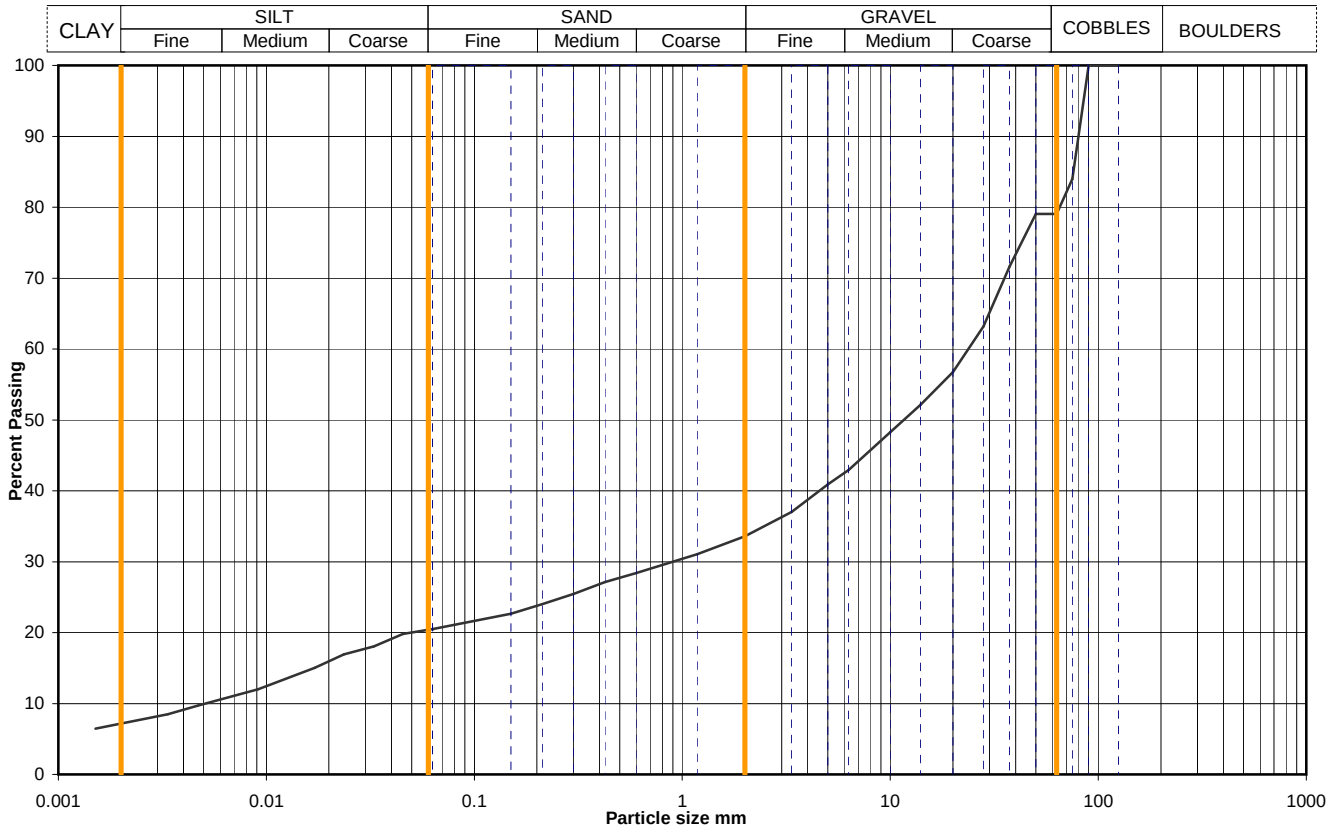
Uniformity Coefficient	D_{60} / D_{10}	24

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	2.50		
			Samp No	10	Type	B
			ID	A5066-1520150903024252		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	20
90	100	0.0454	20
75	84	0.0329	18
63	79	0.0236	17
50	79	0.0171	15
37.5	72	0.0091	12
28	63	0.0047	10
20	57	0.0034	8
14	52	0.0015	6
10	48		
6.3	43		
5.0	41		
3.35	37		
2.00	34		
1.18	31	Particle density, Mg/m3	
0.600	28		
0.425	27	2.65 assumed	
0.300	25	Dry mass of sample, kg	
0.212	24		
0.150	23	4.7	
0.063	20		

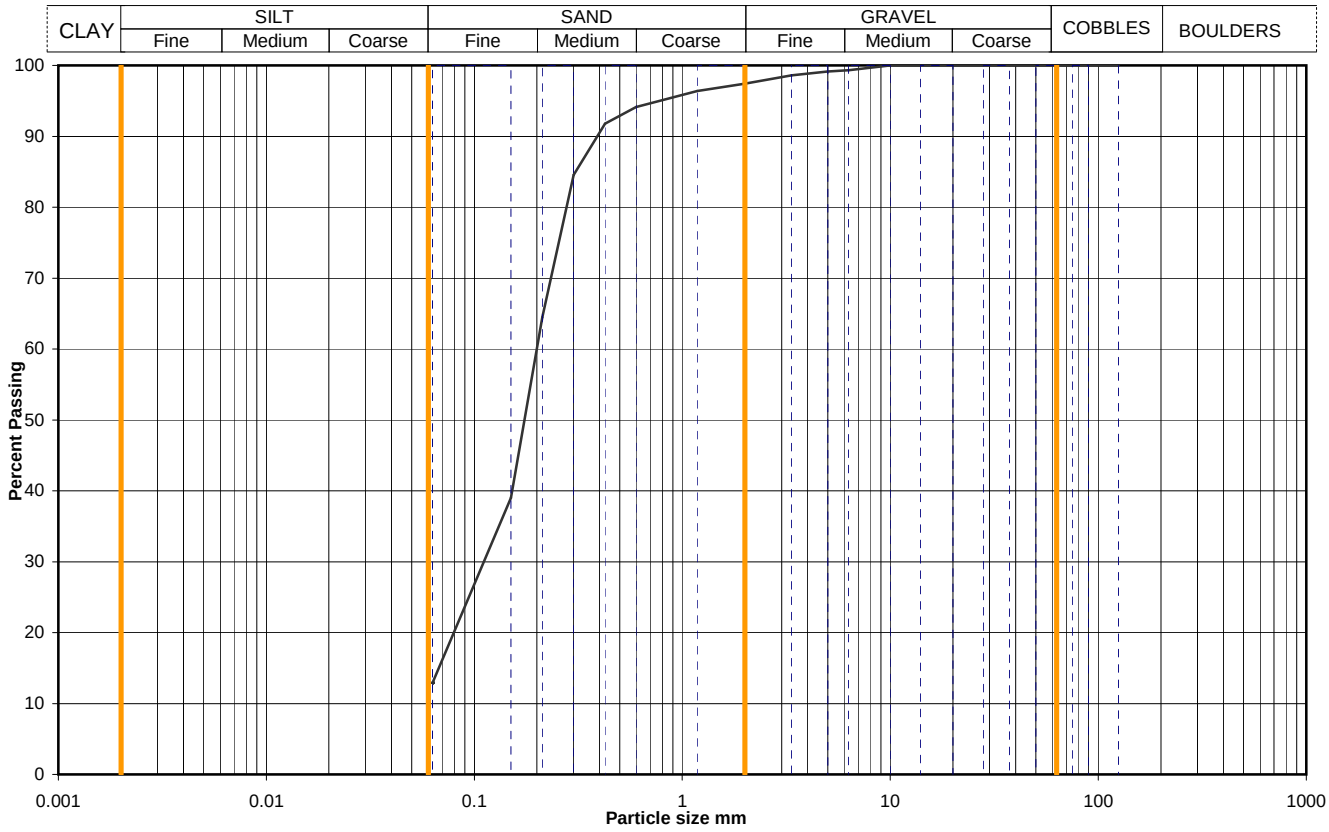
Soil description	Brown gravelly clayey SAND.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	21	0
	Gravel	45	57
	Sand	13	16
	Silt	14	18
	Clay	7	9

Uniformity Coefficient	D_{60} / D_{10}	4629

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	14.50		
			Samp No	40	Type	B
			ID	A5066-1520150903033834		
			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	99		
5.0	99		
3.35	99		
2.00	97		
1.18	96		
0.600	94		
0.425	92		
0.300	85	Dry mass of sample, kg	
0.212	64		
0.150	39	5.1	
0.063	13		

Soil description	Dark grey slightly gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	3	3
	Sand	85	85
	Silt	silt+clay =	
	Clay	12	12

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

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

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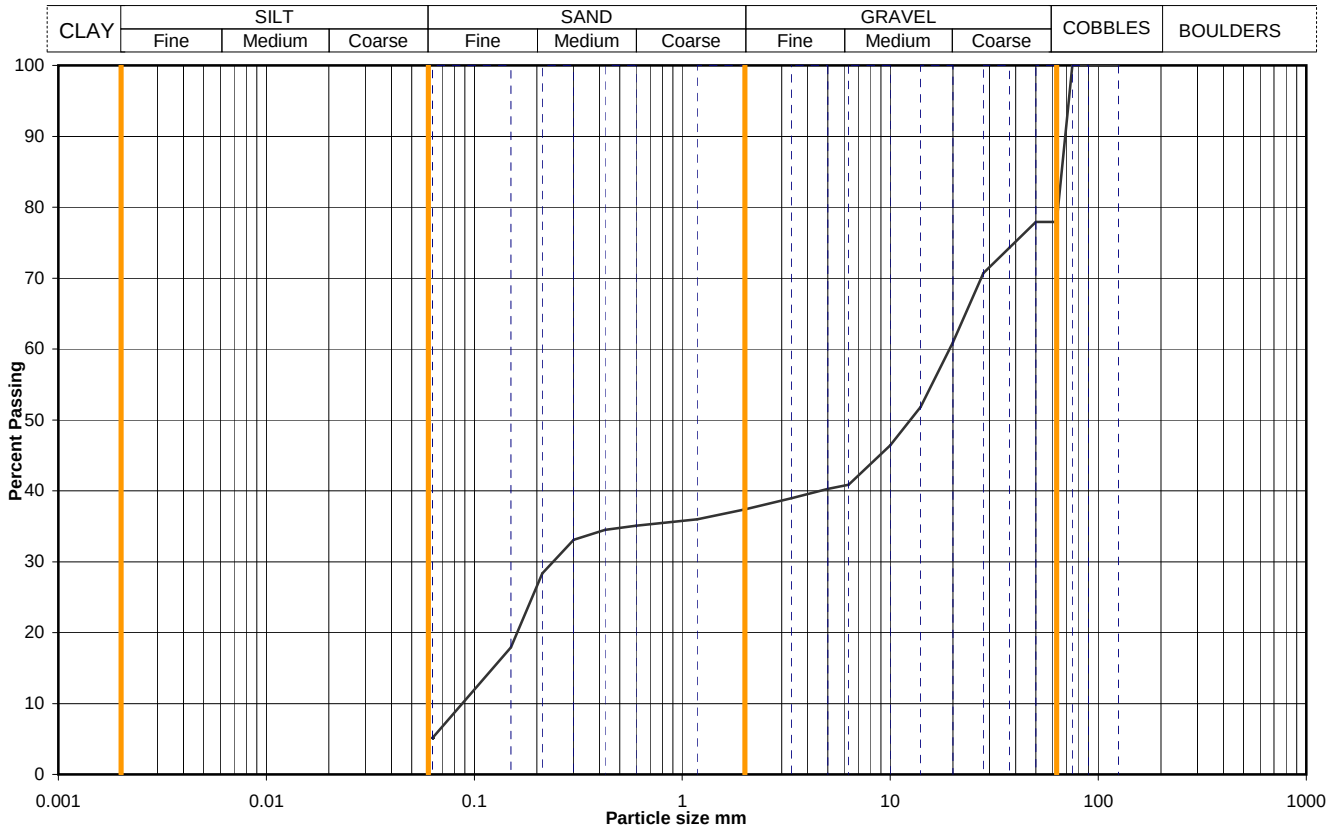
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	19.40		
			Samp No	51	Type	B
			ID	A5066-1520150903034335		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	78		
50	78		
37.5	74		
28	71		
20	61		
14	52		
10	46		
6.3	41		
5.0	40		
3.35	39		
2.00	37		
1.18	36		
0.600	35		
0.425	34		
0.300	33	Dry mass of sample, kg	
0.212	28		
0.150	18	5.3	
0.063	5		

Soil description	Dark brown very sandy silty GRAVEL with two cobbles. .		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	22	0
	Gravel	41	53
	Sand	32	41
	Silt	silt+clay =	
	Clay	5	6

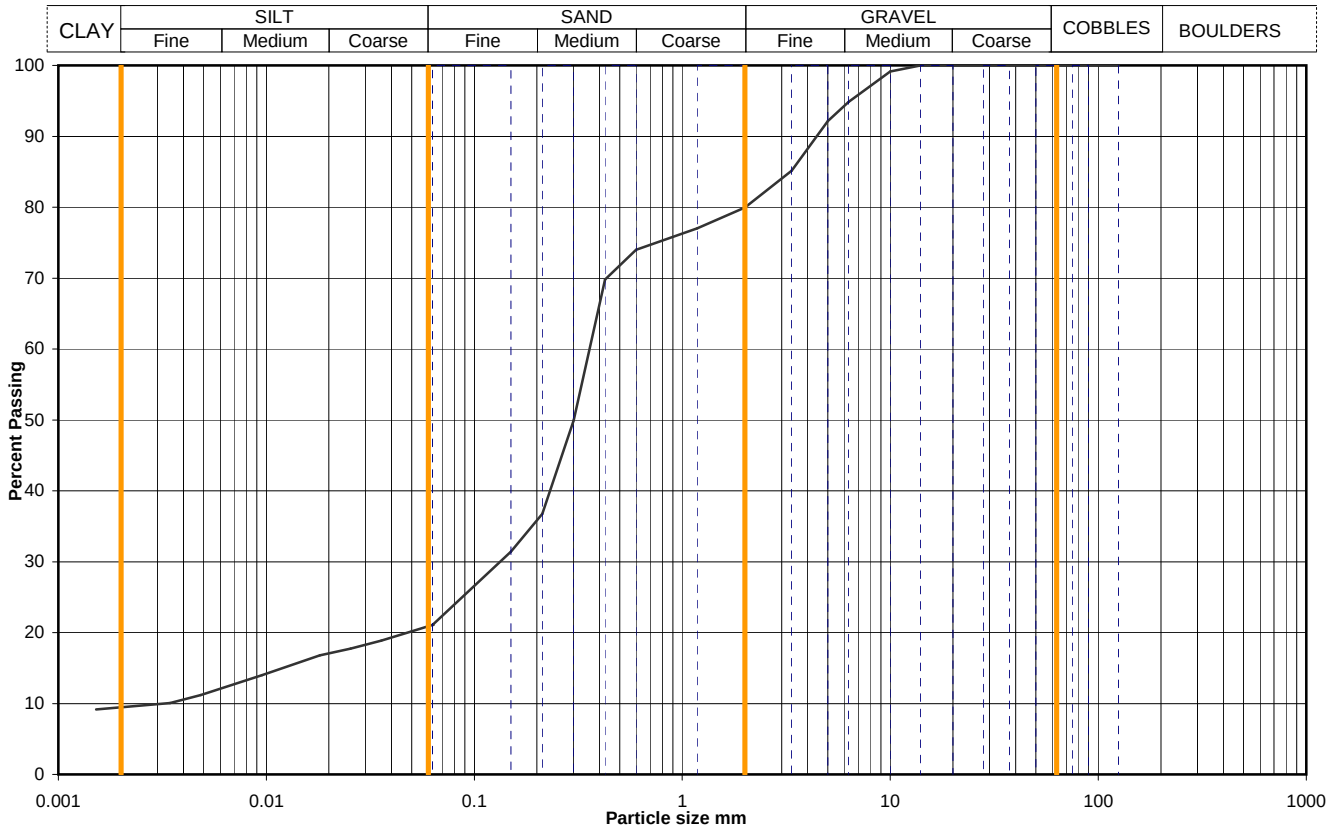
Uniformity Coefficient	D_{60} / D_{10}	220

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	28.10		
			Samp No	75	Type	B
			ID	A5066-1520150827040143		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	21
90	100	0.0501	20
75	100	0.0357	19
63	100	0.0254	18
50	100	0.0181	17
37.5	100	0.0095	14
28	100	0.0048	11
20	100	0.0034	10
14	100	0.0015	9
10	99		
6.3	95		
5.0	92		
3.35	85		
2.00	80		
1.18	77	Particle density, Mg/m3	
0.600	74		
0.425	70	2.65 assumed	
0.300	50	Dry mass of sample, kg	
0.212	37		
0.150	31	7.6	
0.063	21		

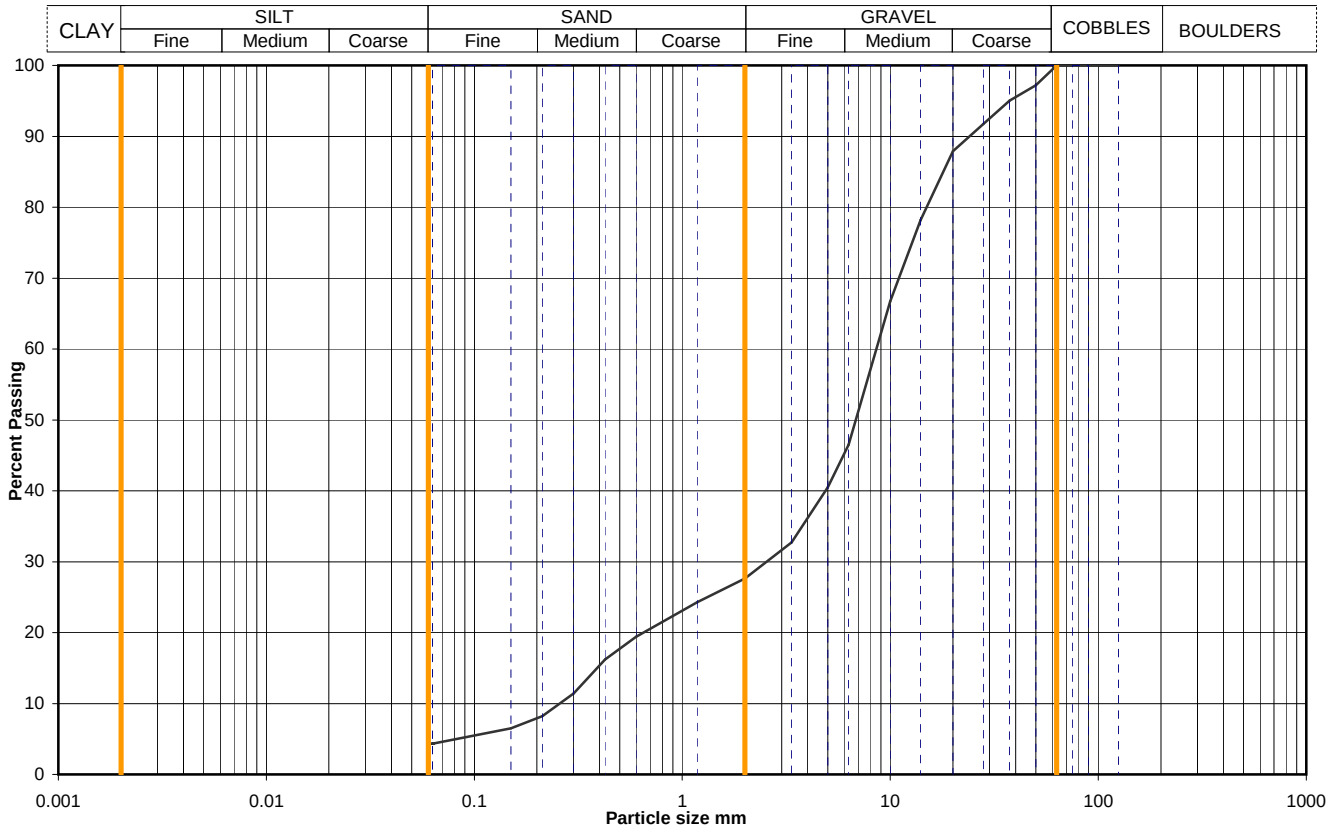
Soil description	Dark brown slightly gravelly clayey SAND.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	20	20
	Sand	59	59
	Silt	11	11
	Clay	10	10

Uniformity Coefficient	D_{60} / D_{10}	112

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	31.60		
			Samp No	83	Type	B
			ID	A5066-1520150827040651		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	95		
28	92		
20	88		
14	78		
10	67		
6.3	46		
5.0	40		
3.35	33		
2.00	28		
1.18	24		
0.600	19		
0.425	16		
0.300	11	Dry mass of sample, kg	
0.212	8		
0.150	7	10.0	
0.063	4		

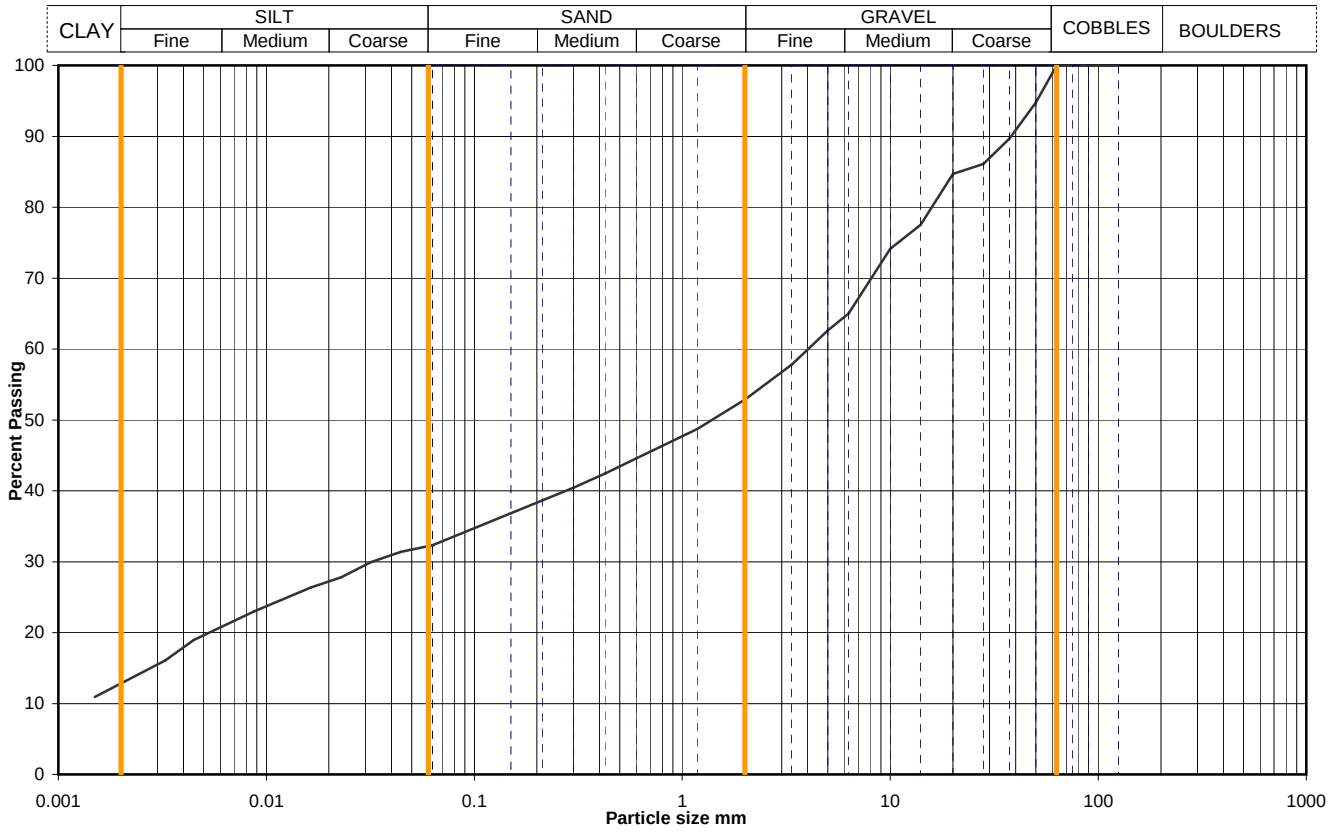
Soil description	Multicoloured slightly sandy slightly clayey GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	72	72
	Sand	23	23
	Silt	silt+clay =	
	Clay	5	5

Uniformity Coefficient	D_{60} / D_{10}	33

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	1.50		
			Samp No	6	Type	B
			ID	A5066-1520150828095751		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0442	31
75	100	0.0317	30
63	100	0.0229	28
50	95	0.0164	26
37.5	90	0.0087	23
28	86	0.0045	19
20	85	0.0033	16
14	78	0.0015	11
10	74		
6.3	65		
5.0	63		
3.35	58		
2.00	53		
1.18	49	Particle density, Mg/m3	
0.600	45		
0.425	42	2.65 assumed	
0.300	40	Dry mass of sample, kg	
0.212	39		
0.150	37	9.8	
0.063	32		

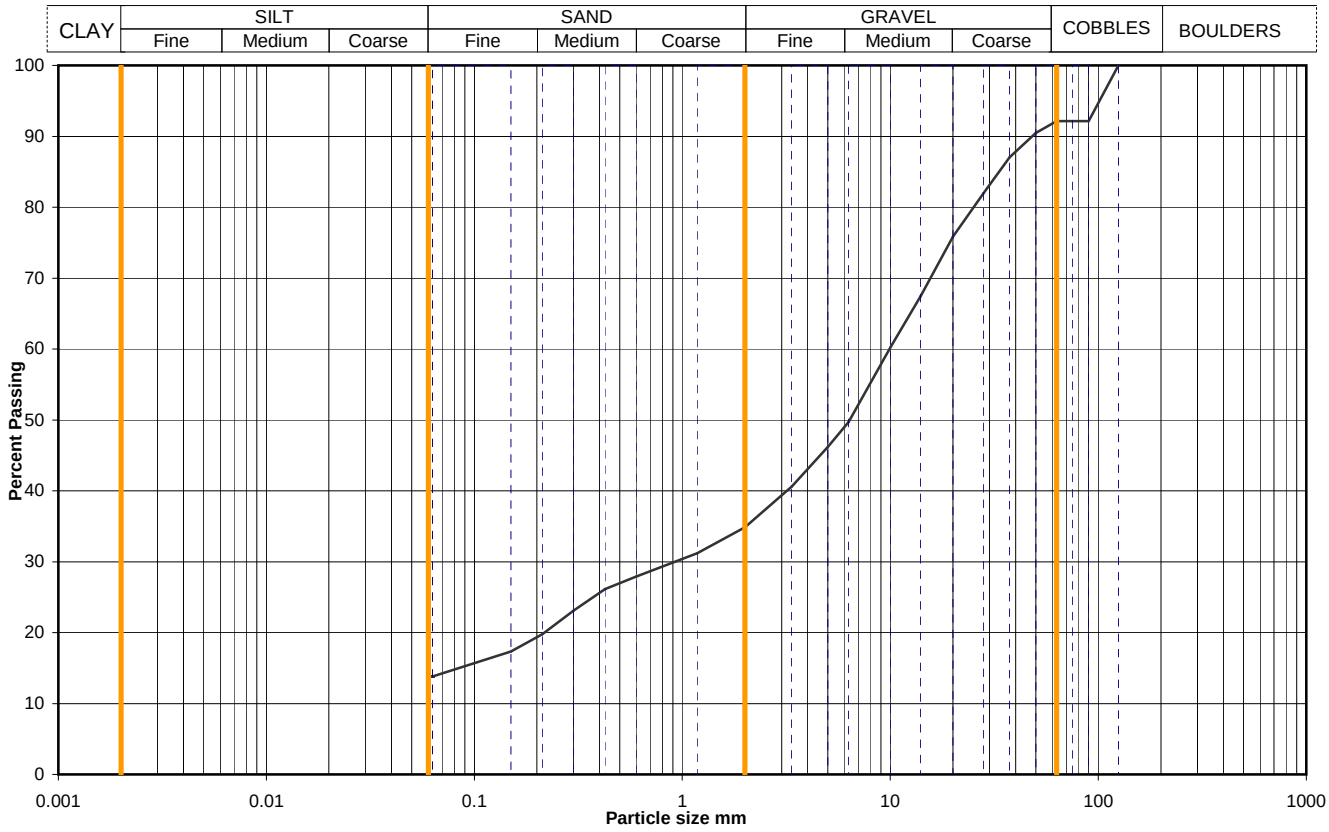
Soil description	Brown slightly sandy gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	47	47
	Sand	21	21
	Silt	19	19
	Clay	13	13

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

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.95		
			Samp No	20	Type	B
			ID	A5066-1520150828103640		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	92		
75	92		
63	92		
50	90		
37.5	87		
28	82		
20	76		
14	67		
10	60		
6.3	50		
5.0	46		
3.35	41		
2.00	35		
1.18	31		
0.600	28		
0.425	26		
0.300	23	Dry mass of sample, kg	
0.212	20		
0.150	17	15.9	
0.063	14		

Soil description	Dark brown sandy clayey GRAVEL contains occasional wood pieces and one cobble.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	8	0
	Gravel	57	62
	Sand	21	23
	Silt	silt+clay =	
	Clay	14	15

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

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

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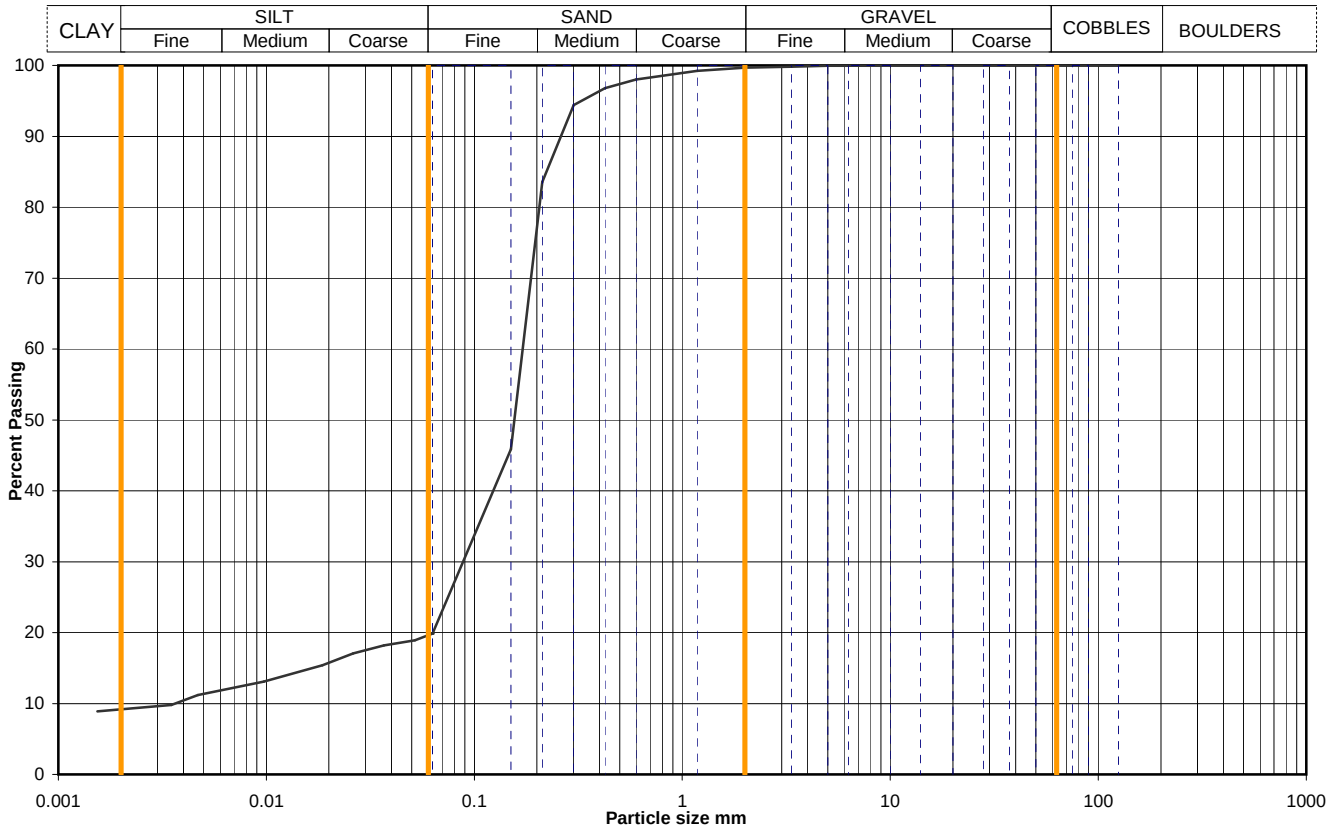
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	12.55		
			Samp No	33	Type	B
			ID	A5066-1520150828110028		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	20
90	100	0.0517	19
75	100	0.0367	18
63	100	0.0261	17
50	100	0.0186	15
37.5	100	0.0097	13
28	100	0.0047	11
20	100	0.0035	10
14	100	0.0015	9
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	99	Particle density, Mg/m3	
0.600	98		
0.425	97	2.65 assumed	
0.300	94	Dry mass of sample, kg	
0.212	84		
0.150	46	4.3	
0.063	20		

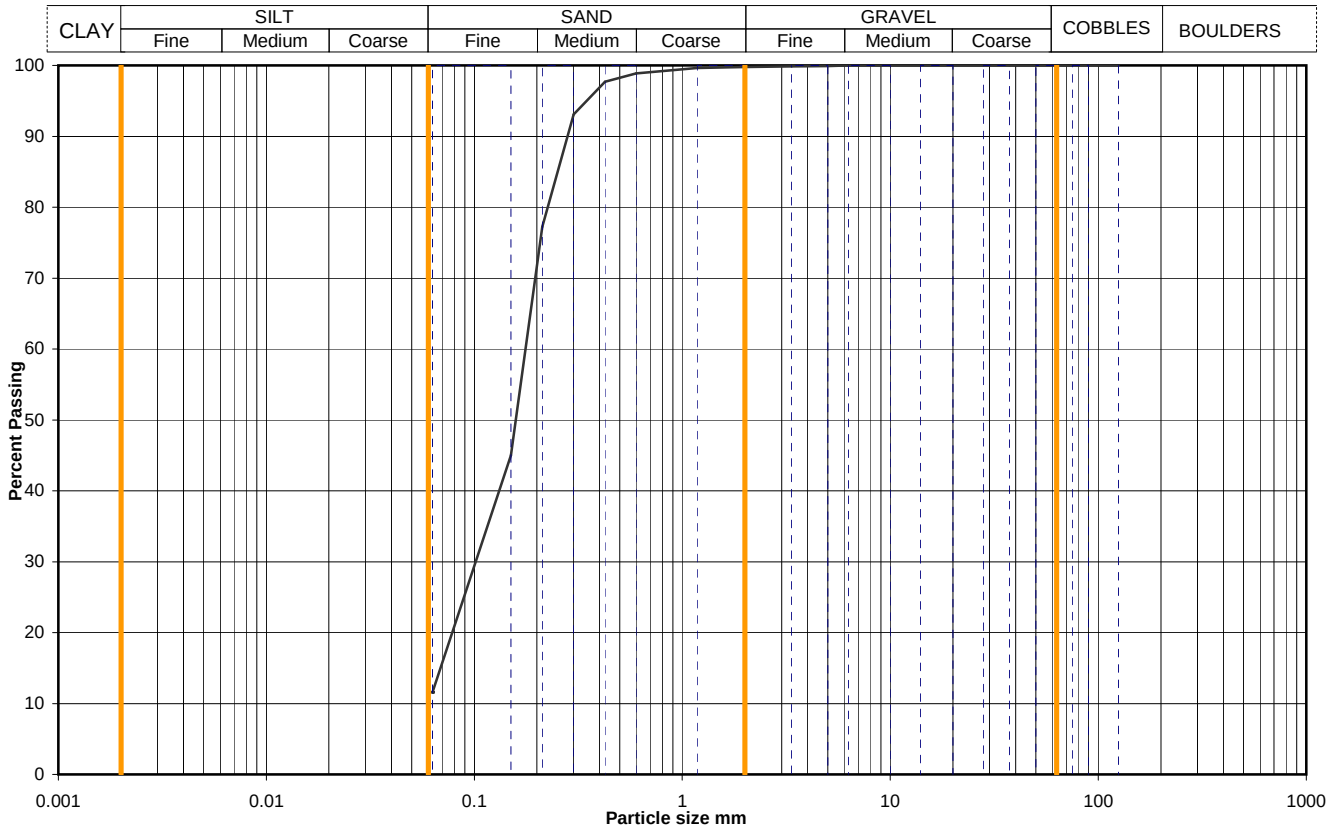
Soil description	Black clayey SAND.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	80	80
	Silt	11	11
	Clay	9	9

Uniformity Coefficient	D_{60} / D_{10}	47

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	15.25		
			Samp No	42	Type	B
			ID	A5066-1520150828111624		
			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	99		
0.425	98		
0.300	93	Dry mass of sample, kg	
0.212	77		
0.150	45	8.7	
0.063	12		

Soil description	Black SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	88	88
	Silt	silt+clay =	
	Clay	12	12

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

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

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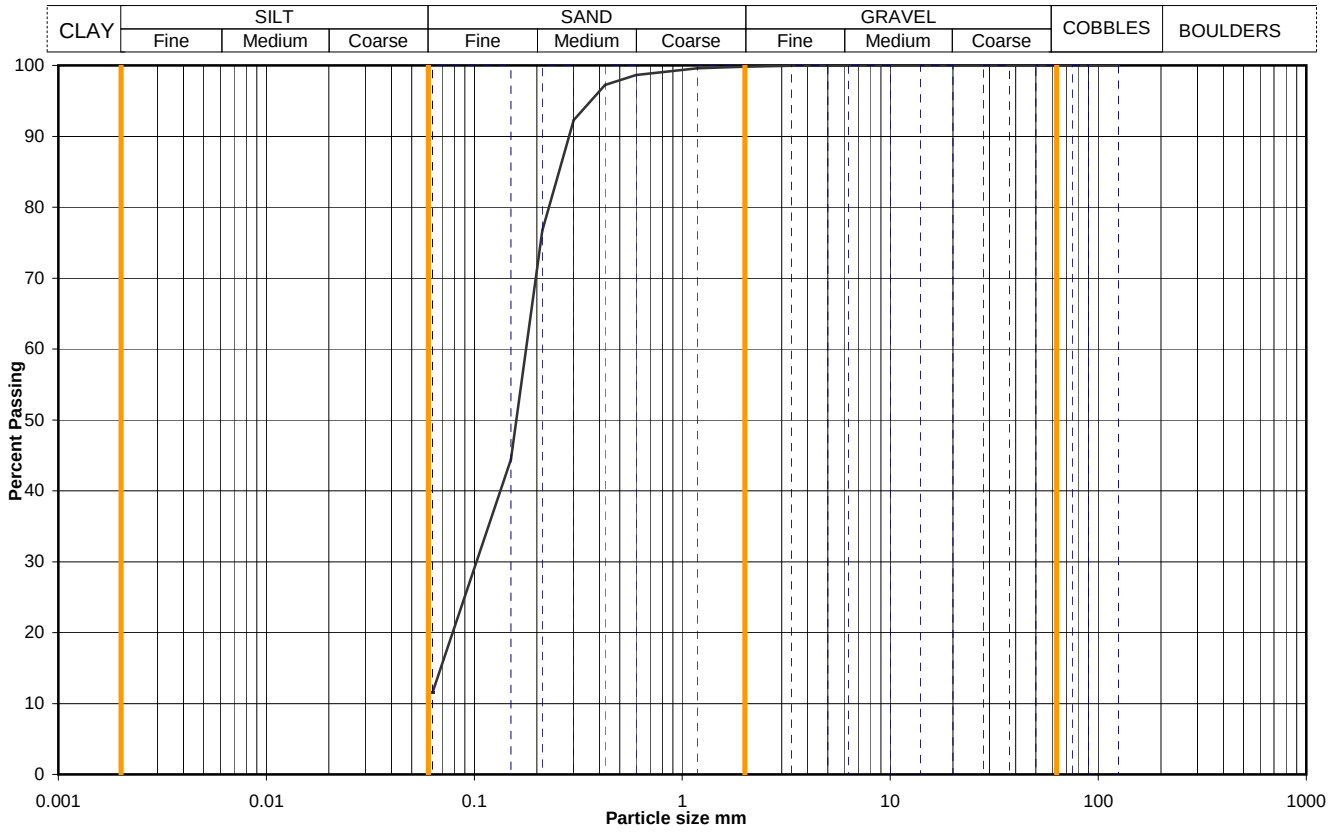
Figure **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	18.40		
			Samp No	52	Type	B
			ID	A5066-1520150828112759		
			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	99		
0.425	97		
0.300	92	Dry mass of sample, kg	
0.212	77		
0.150	44	6.1	
0.063	12		

Soil description	Black SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	88	88
	Silt	silt+clay =	
	Clay	12	12

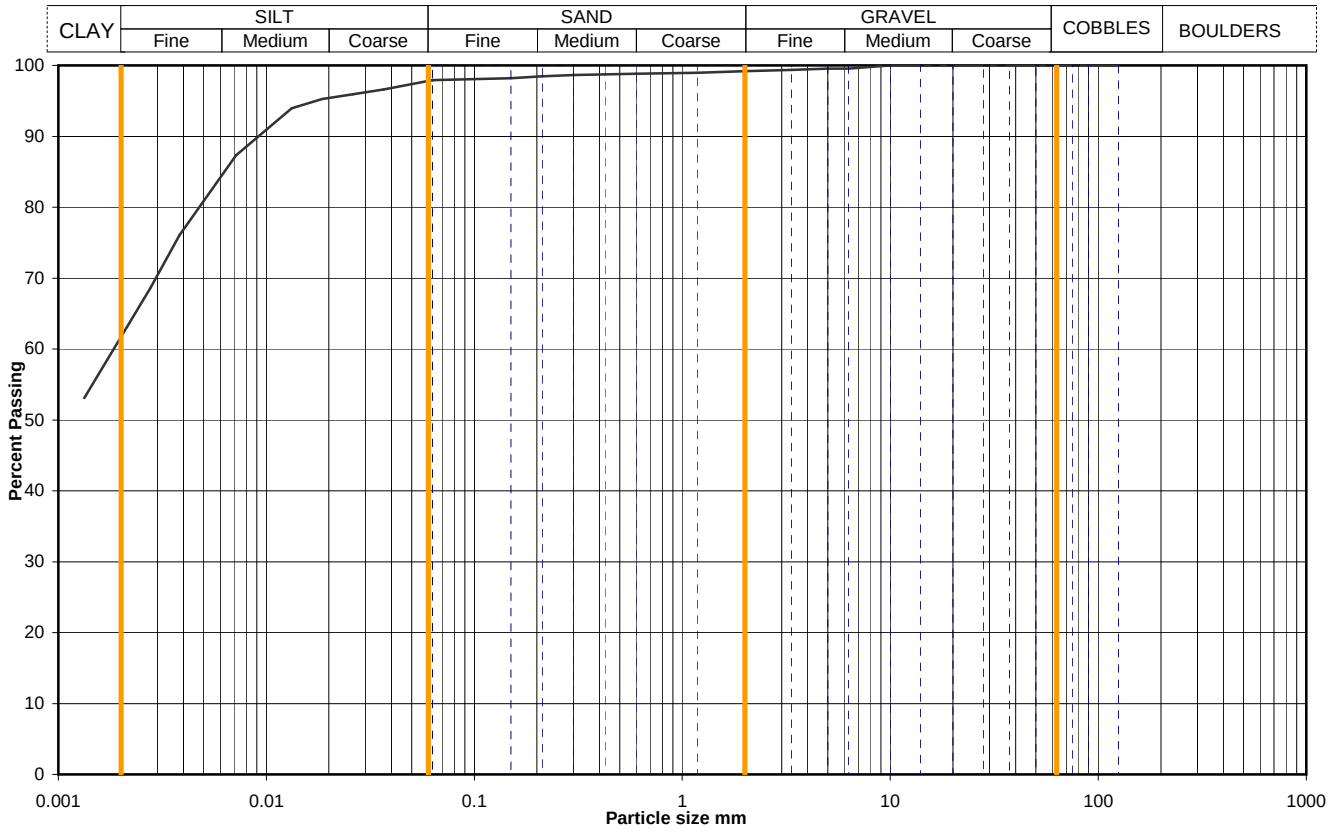
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	19.30		
			Samp No	55	Type	U
			ID	A5066-1520150828113143		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	98
90	100	0.0368	97
75	100	0.0261	96
63	100	0.0185	95
50	100	0.0132	94
37.5	100	0.0071	87
28	100	0.0038	76
20	100	0.0028	69
14	100	0.0013	53
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	98		
0.150	98	7.0	
0.063	98		

Soil description	Stiff brown slightly sandy slightly gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	1	1
	Silt	36	36
	Clay	62	62

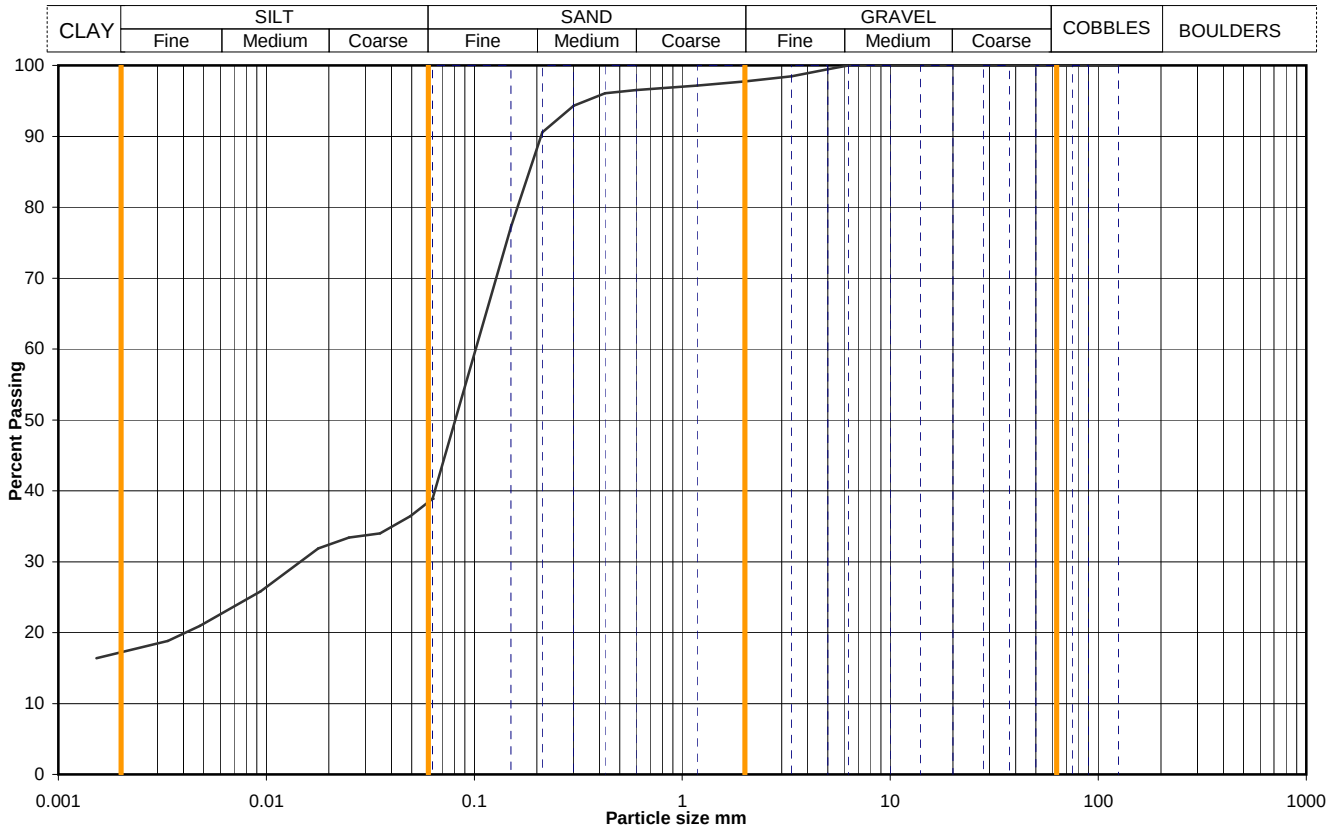
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	25.20		
			Samp No	73	Type	B
			ID	A5066-1520150901110343		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	39
90	100	0.0493	36
75	100	0.0352	34
63	100	0.0250	33
50	100	0.0178	32
37.5	100	0.0094	26
28	100	0.0048	21
20	100	0.0034	19
14	100	0.0015	16
10	100		
6.3	100		
5.0	99		
3.35	98		
2.00	98		
1.18	97	Particle density, Mg/m3	
0.600	97		
0.425	96	2.65 assumed	
0.300	94	Dry mass of sample, kg	
0.212	91		
0.150	77	5.9	
0.063	39		

Soil description	Brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	2	2
	Sand	59	59
	Silt	21	21
	Clay	18	18

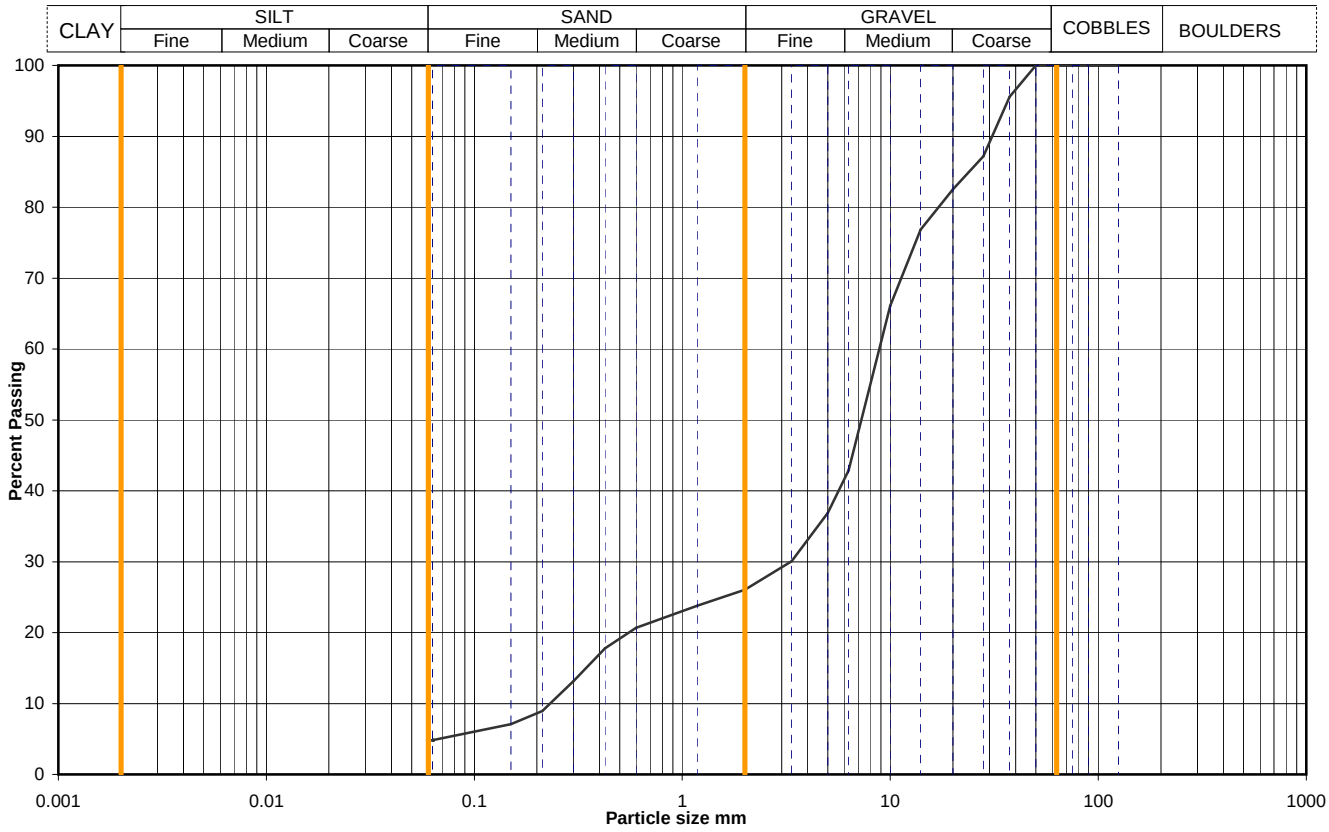
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	28.50		
			Samp No	83	Type	B
			ID	A5066-1520150901112833		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	87		
20	83		
14	77		
10	66		
6.3	43		
5.0	37		
3.35	30		
2.00	26		
1.18	24		
0.600	21		
0.425	18		
0.300	13	Dry mass of sample, kg	
0.212	9	5.7	
0.150	7		
0.063	5		

Soil description	Brown sandy clayey GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	74	74
	Sand	21	21
	Silt	silt+clay =	
	Clay	5	5

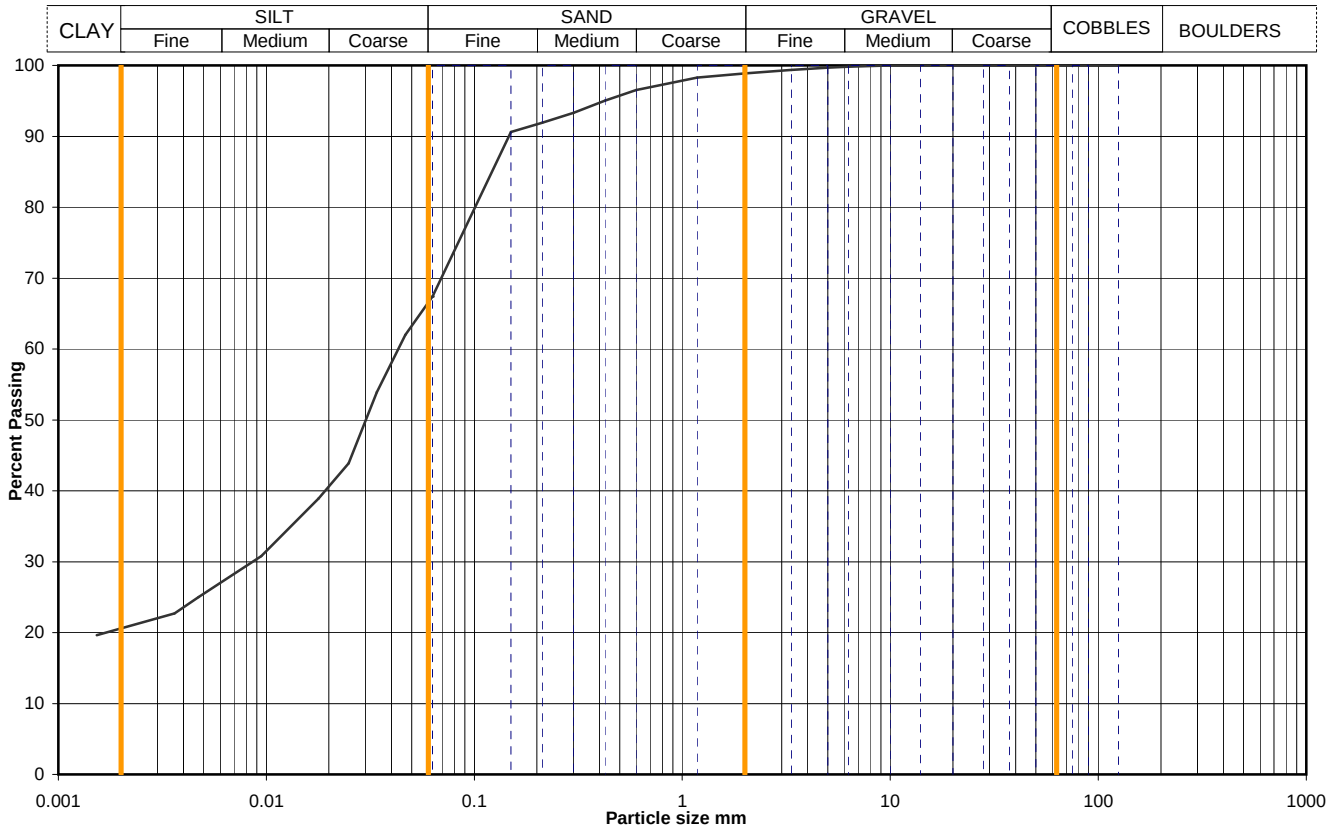
Uniformity Coefficient	D_{60} / D_{10}	38

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	2.00		
			Samp No	7	Type	UT
			ID	A5066-1520150806123751		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	67
90	100	0.0466	62
75	100	0.0339	54
63	100	0.0248	44
50	100	0.0179	39
37.5	100	0.0095	31
28	100	0.0047	25
20	100	0.0036	23
14	100	0.0015	20
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	99		
1.18	98	Particle density, Mg/m3	
0.600	97		
0.425	95	2.65 assumed	
0.300	93	Dry mass of sample, kg	
0.212	92		
0.150	91	4.5	
0.063	67		

Soil description	Soft to firm brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	32	32
	Silt	46	46
	Clay	21	21

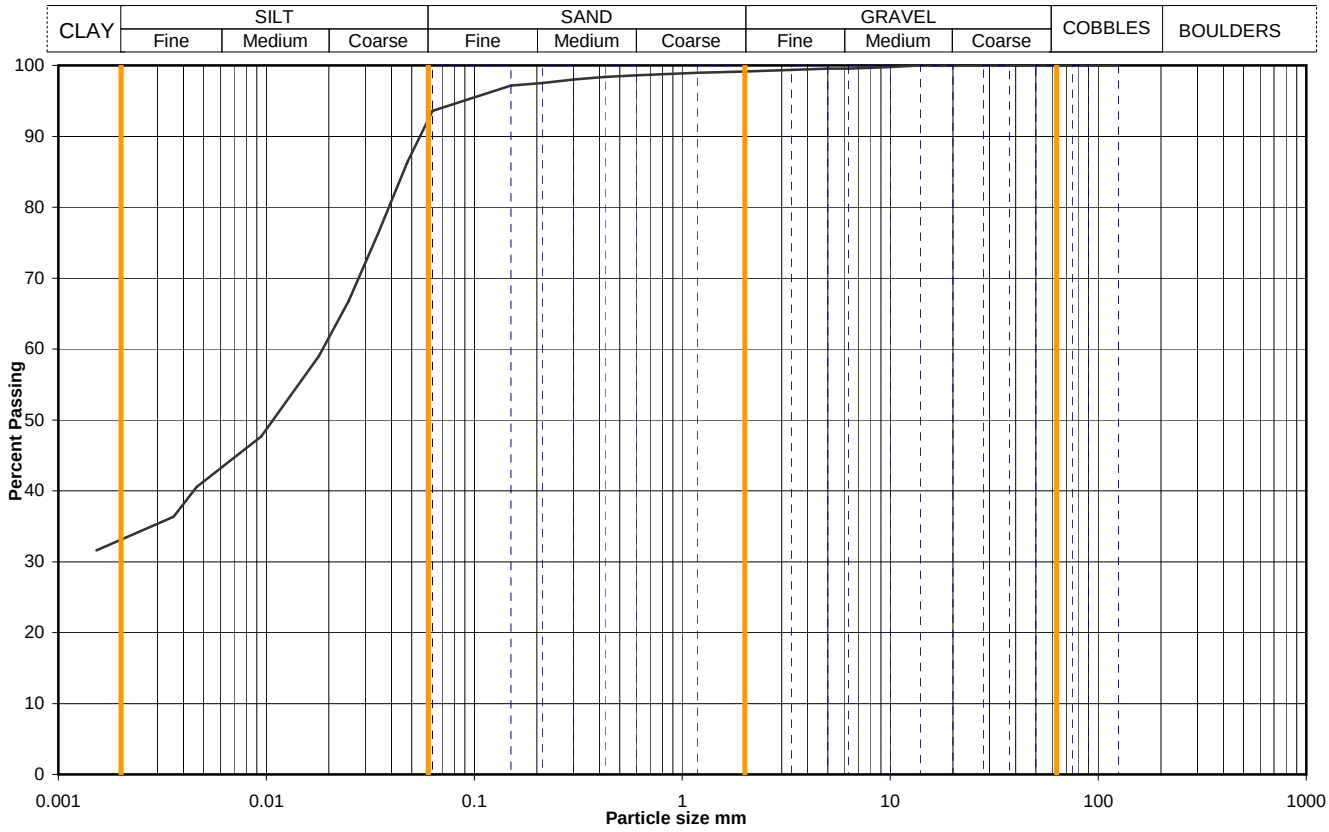
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	3.50		
			Samp No	14	Type	B
			ID	A5066-1520150806123930		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	94
90	100	0.0477	86
75	100	0.0345	76
63	100	0.0249	67
50	100	0.0179	59
37.5	100	0.0095	48
28	100	0.0046	41
20	100	0.0036	36
14	100	0.0015	32
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	98	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	98		
0.150	97	9.5	
0.063	94		

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	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	7	7
	Silt	59	59
	Clay	33	33

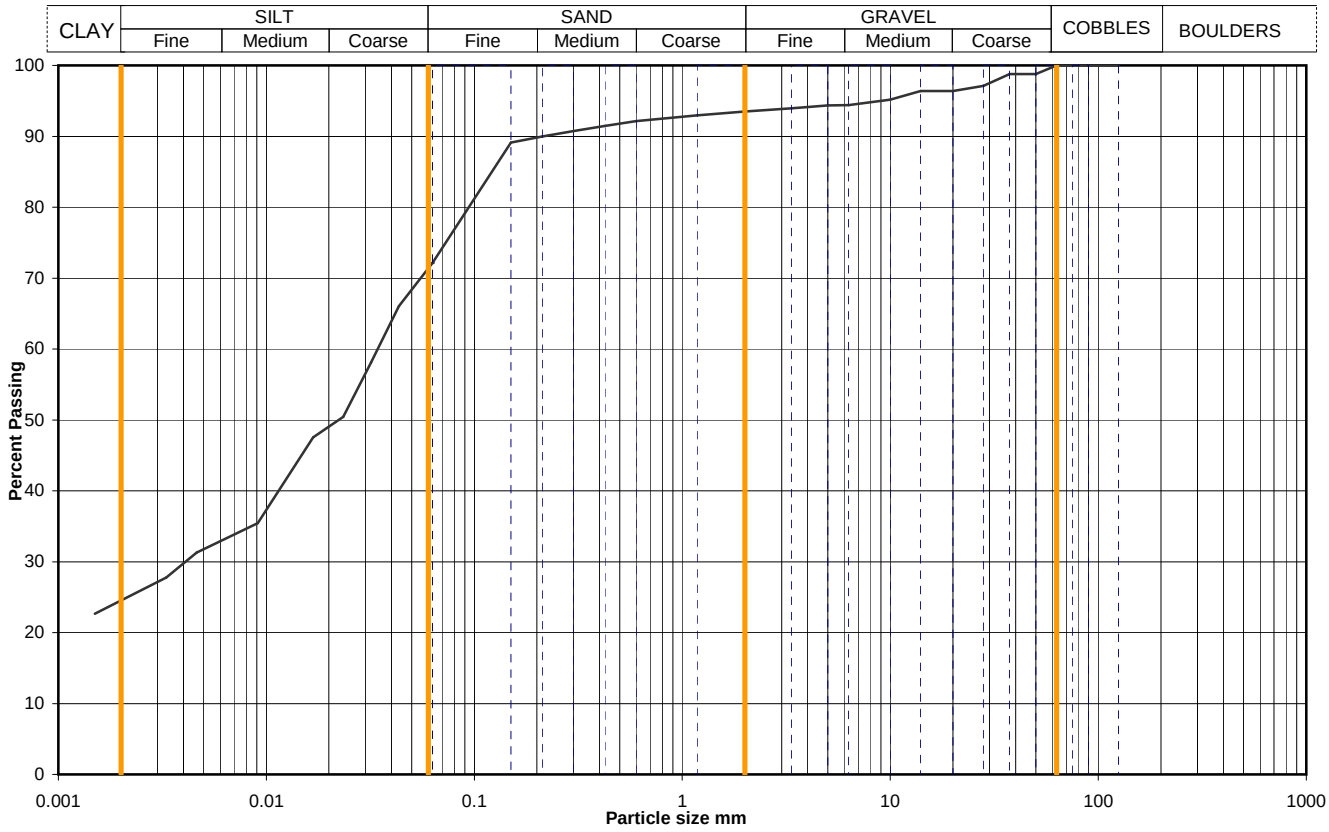
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.75		
			Samp No	19	Type	B
			ID	A5066-1520150806124044		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	72
90	100	0.0434	66
75	100	0.0319	58
63	100	0.0234	50
50	99	0.0168	48
37.5	99	0.0091	35
28	97	0.0046	31
20	96	0.0033	28
14	96	0.0015	23
10	95		
6.3	94		
5.0	94		
3.35	94		
2.00	93		
1.18	93	Particle density, Mg/m3	
0.600	92		
0.425	91	2.65 assumed	
0.300	91	Dry mass of sample, kg	
0.212	90		
0.150	89	9.4	
0.063	72		

Soil description	Dark brown slightly sandy slightly gravelly silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	7	7
	Sand	22	22
	Silt	47	47
	Clay	24	24

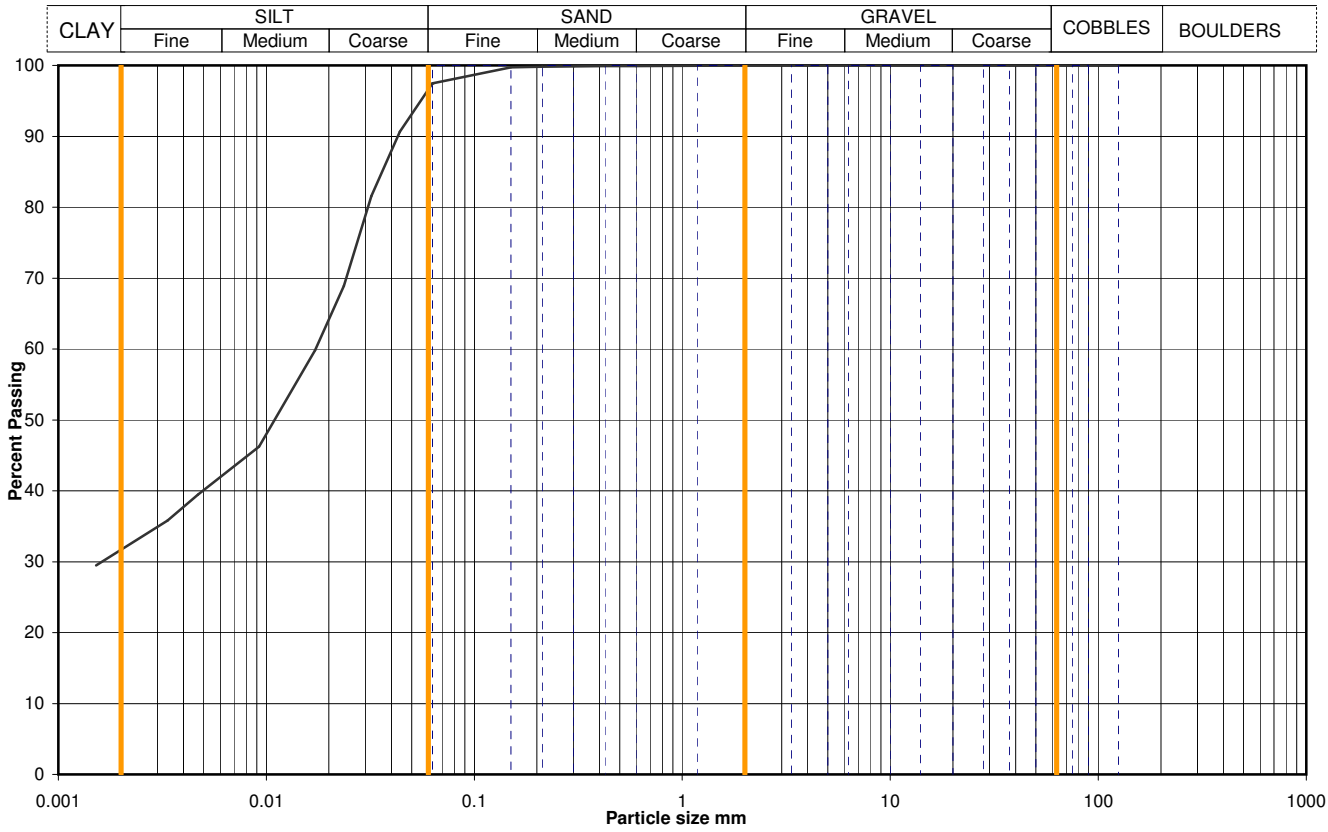
Uniformity Coefficient	**D_{60} / D_{10}**	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.00		
			Samp No	28	Type	P
			ID	A5066-1520150806124240		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	97
90	100	0.0439	91
75	100	0.0320	82
63	100	0.0236	69
50	100	0.0172	60
37.5	100	0.0092	46
28	100	0.0047	39
20	100	0.0033	36
14	100	0.0015	29
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	0.1	
0.063	97		

Soil description	Soft laminated brown slightly sandy silty CLAY with sand on laminae.		
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	3	3
	Silt	65	65
	Clay	32	32

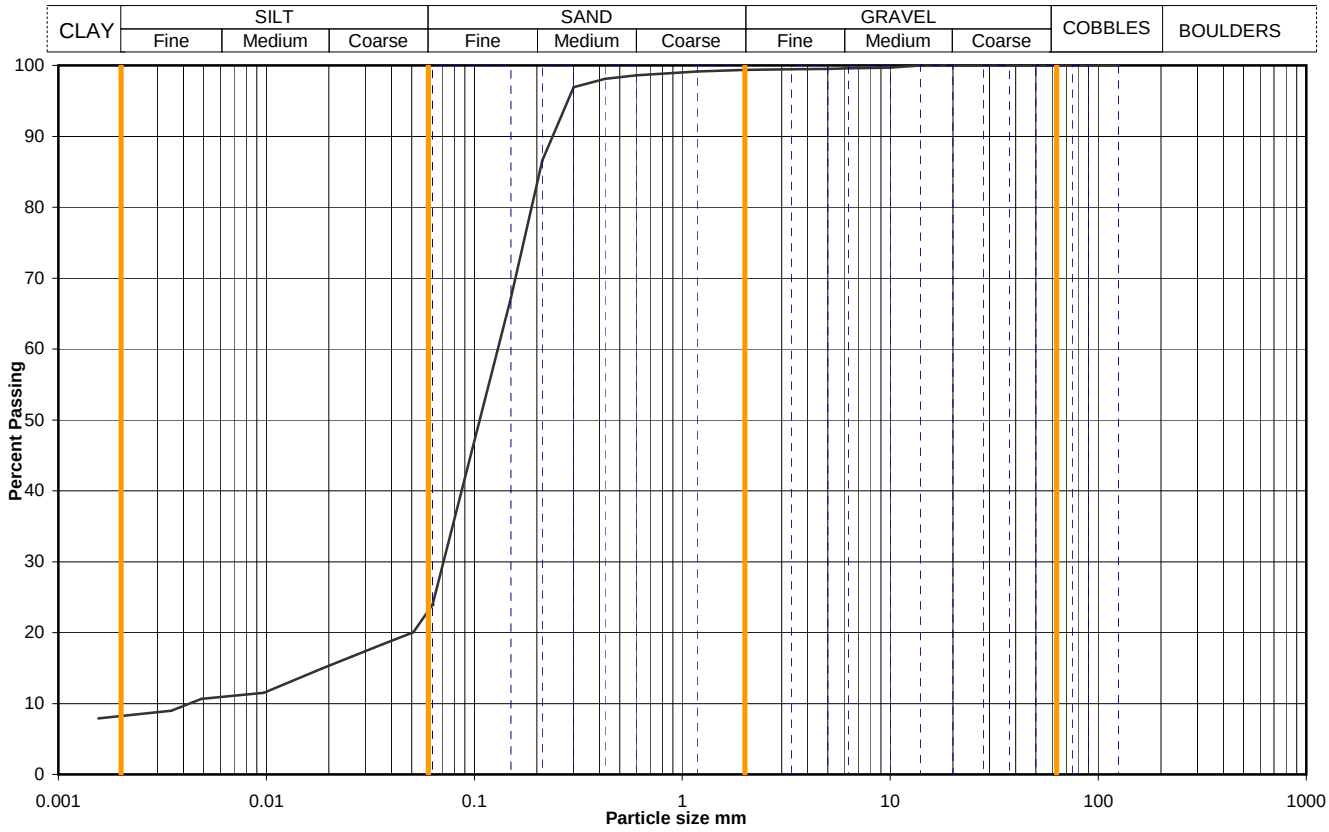
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.3 dry sieve
	Sedimentation	9.5 hydrometer

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/12/2015 12:10	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	12.35		
			Samp No	35	Type	B
			ID	A5066-1520150806124417		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	24
90	100	0.0509	20
75	100	0.0364	18
63	100	0.0260	17
50	100	0.0185	15
37.5	100	0.0097	12
28	100	0.0049	11
20	100	0.0035	9
14	100	0.0016	8
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	98	2.65 assumed	
0.300	97	Dry mass of sample, kg	
0.212	87		
0.150	67	7.5	
0.063	24		

Soil description	Very dark brown mottled light brown SAND.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	76	76
	Silt	15	15
	Clay	8	8

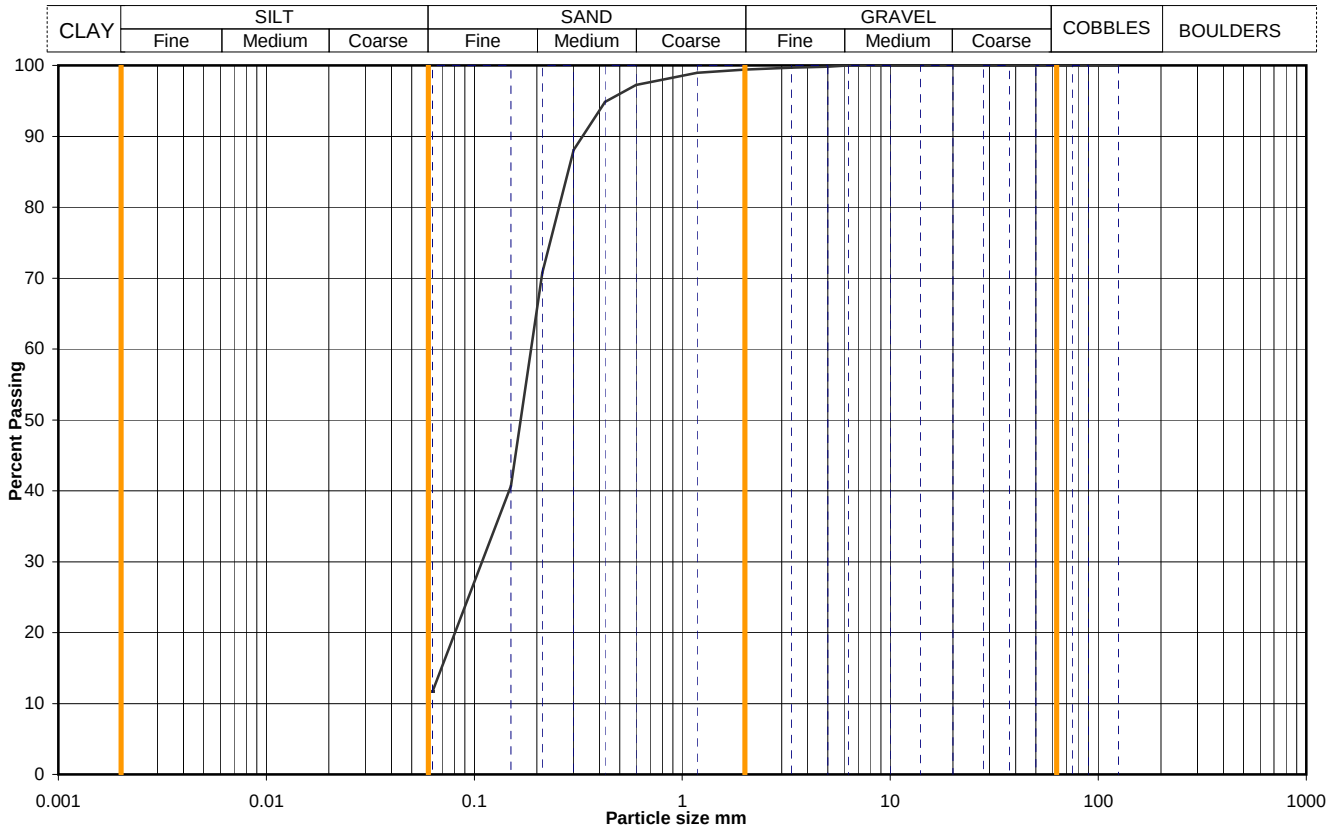
Uniformity Coefficient	D_{60} / D_{10}	30

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	13.30		
			Samp No	39	Type	B
			ID	A5066-1520150806124547		
			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	99		
1.18	99		
0.600	97		
0.425	95		
0.300	88	Dry mass of sample, kg	
0.212	71		
0.150	41	9.3	
0.063	12		

Soil description	Grey silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	88	88
	Silt	silt+clay =	
	Clay	11	11

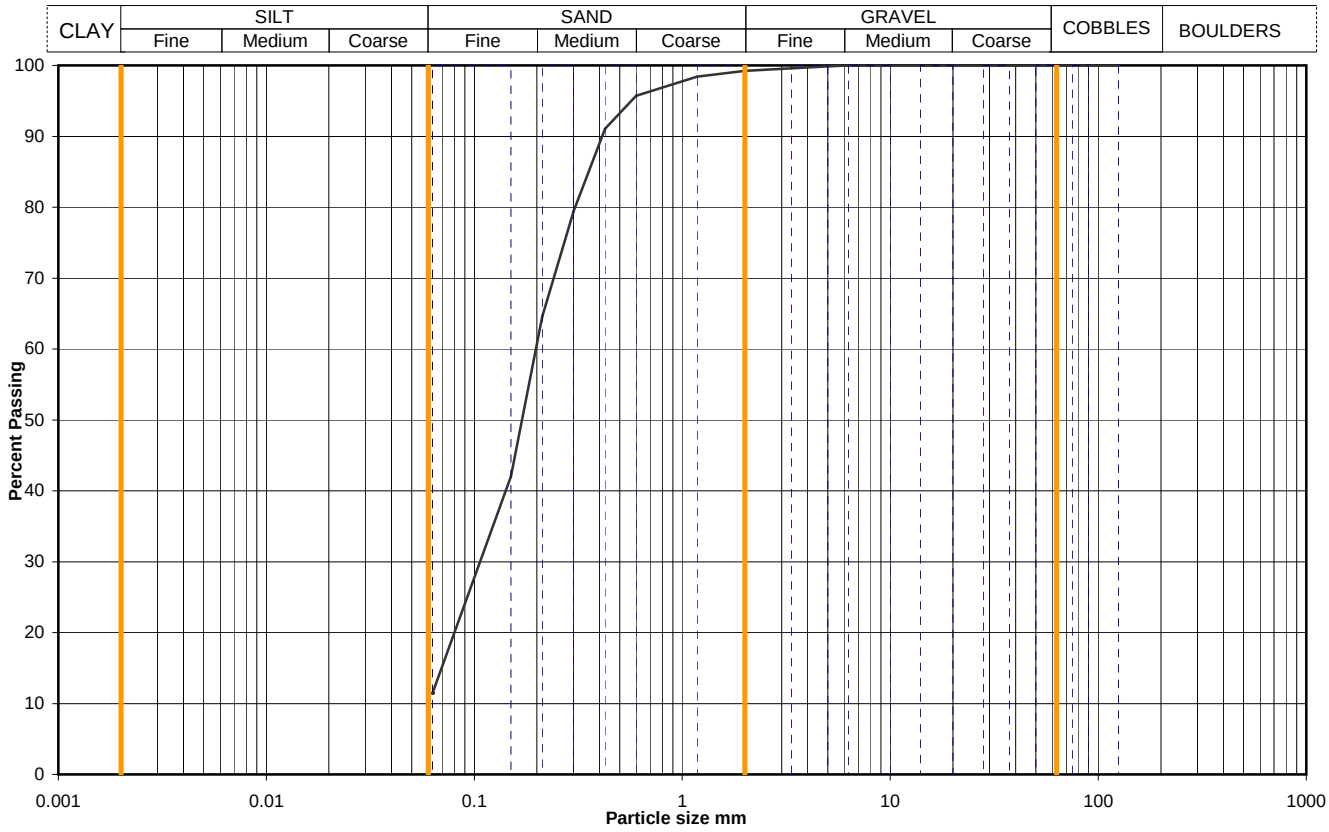
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	15.80		
			Samp No	49	Type	B
			ID	A5066-1520150806124752		
			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	99		
1.18	98		
0.600	96		
0.425	91		
0.300	79	Dry mass of sample, kg	
0.212	65		
0.150	42	13.6	
0.063	11		

Soil description	Black silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	88	88
	Silt	silt+clay =	
	Clay	11	11

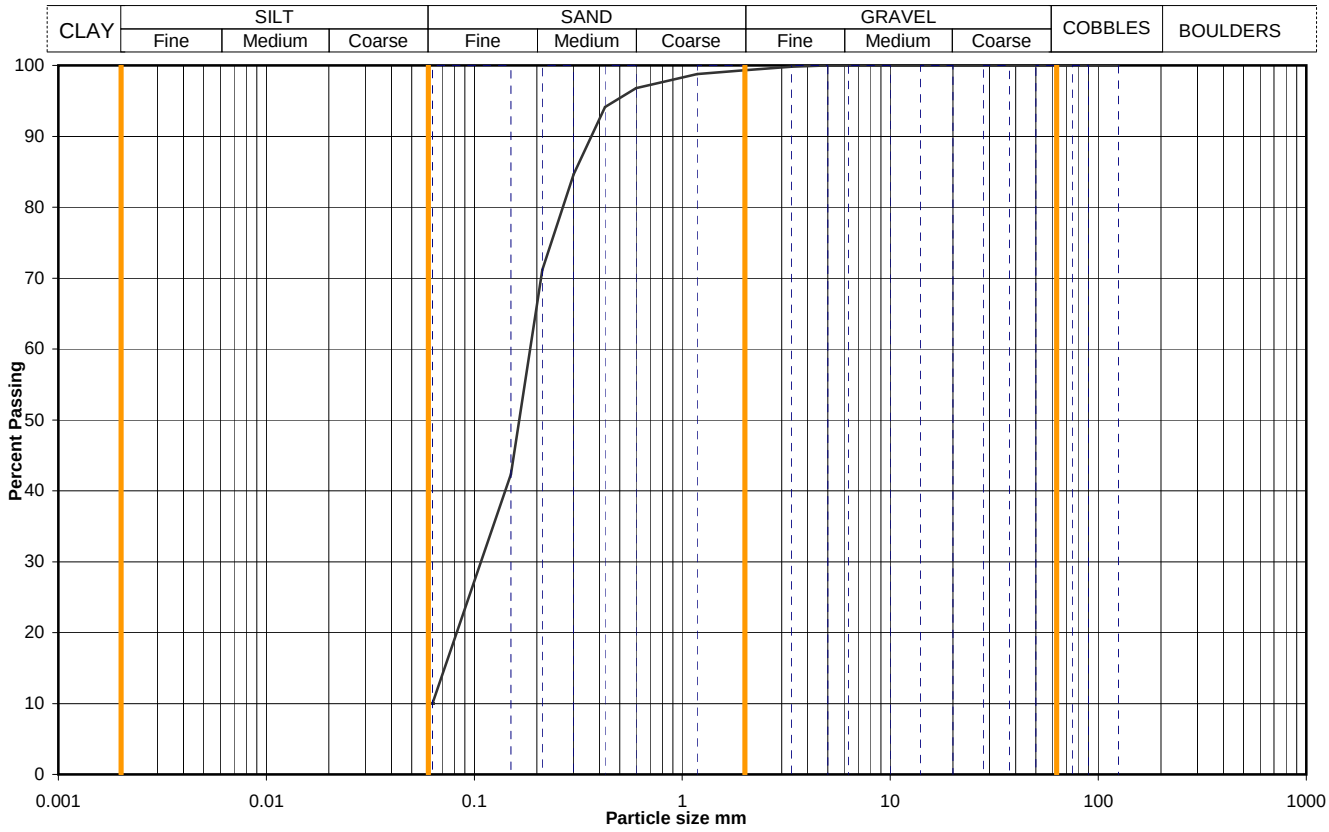
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	17.80		
			Samp No	57	Type	B
			ID	A5066-1520150817031444		
			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	99		
1.18	99		
0.600	97		
0.425	94		
0.300	85	Dry mass of sample, kg	
0.212	71		
0.150	42	8.8	
0.063	10		

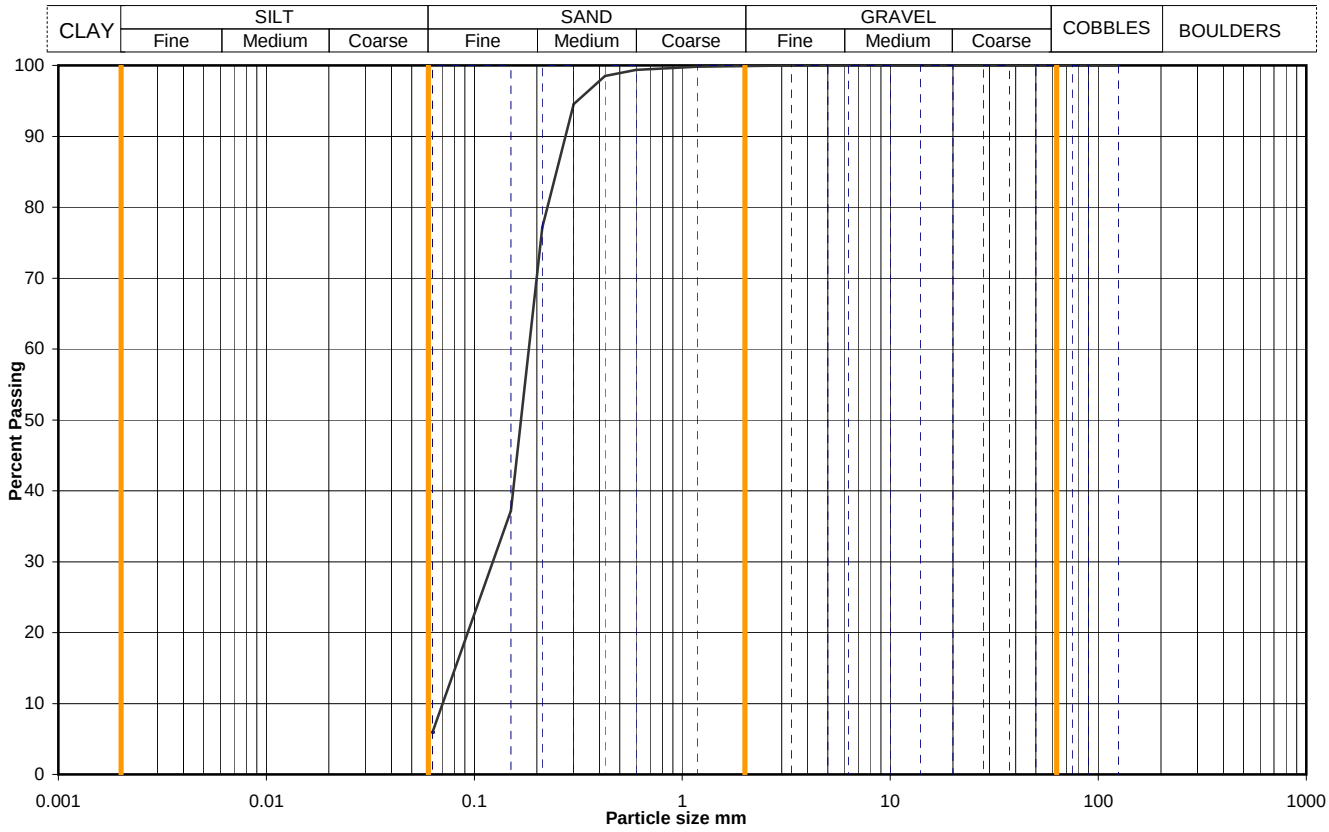
Soil description	Dark brown silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	89	89
	Silt	silt+clay =	
	Clay	10	10

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

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	19.30		
			Samp No	63	Type	B
			ID	A5066-1520150817031619		
			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	99		
0.425	99		
0.300	95	Dry mass of sample, kg	
0.212	77		
0.150	37	11.4	
0.063	6		

Soil description	Dark grey SAND with wood fragment.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	94	94
	Silt	silt+clay =	
	Clay	6	6

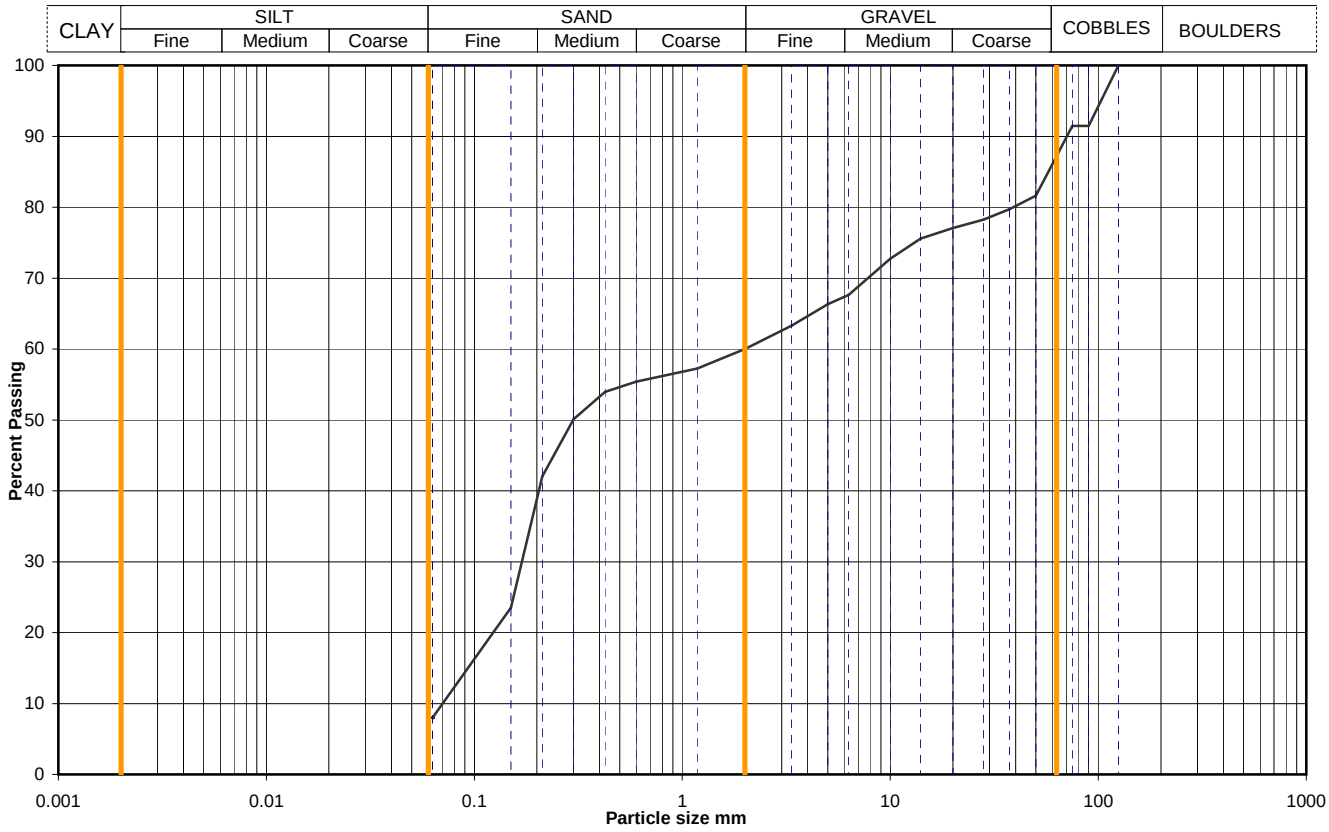
Uniformity Coefficient	D_{60} / D_{10}	3

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	20.30		
			Samp No	67	Type	B
			ID	A5066-1520150817031714		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	91		
75	91		
63	87		
50	82		
37.5	80		
28	78		
20	77		
14	76		
10	73		
6.3	68		
5.0	66		
3.35	63		
2.00	60		
1.18	57		
0.600	55		
0.425	54		
0.300	50	Dry mass of sample, kg	
0.212	42		
0.150	24	10.6	
0.063	8		

Soil description	Grey very gravelly clayey SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	13	0
	Gravel	27	31
	Sand	52	60
	Silt	silt+clay =	
	Clay	8	9

Uniformity Coefficient	D_{60} / D_{10}	28

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

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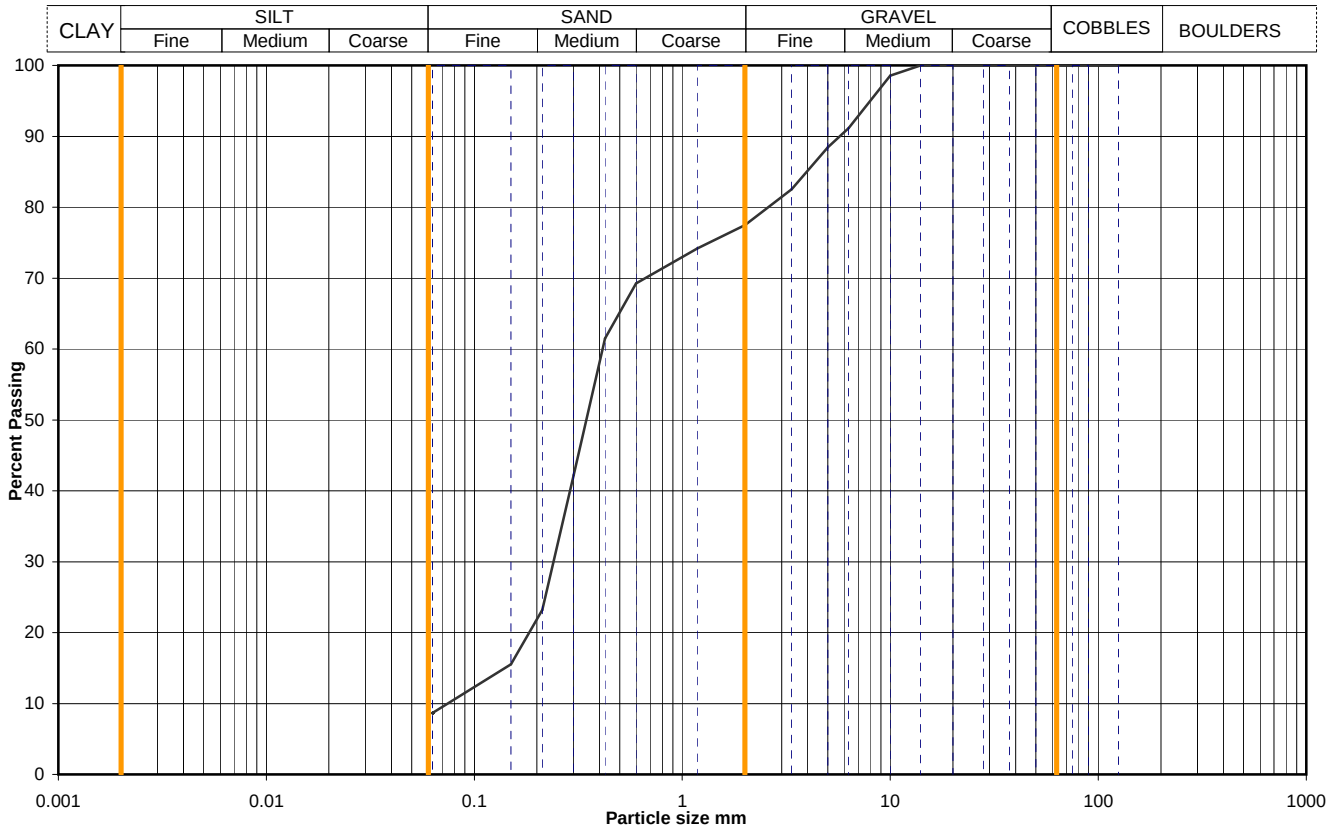
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	28.80		
			Samp No	98	Type	D
			ID	A5066-1520150817032433		
			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	99		
6.3	91		
5.0	88		
3.35	83		
2.00	77		
1.18	74		
0.600	69		
0.425	61		
0.300	42	Dry mass of sample, kg	
0.212	23		
0.150	16	0.4	
0.063	9		

Soil description	Brown very gravelly SAND with shell fragments.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	23	23
	Sand	69	69
	Silt	silt+clay =	
	Clay	8	8

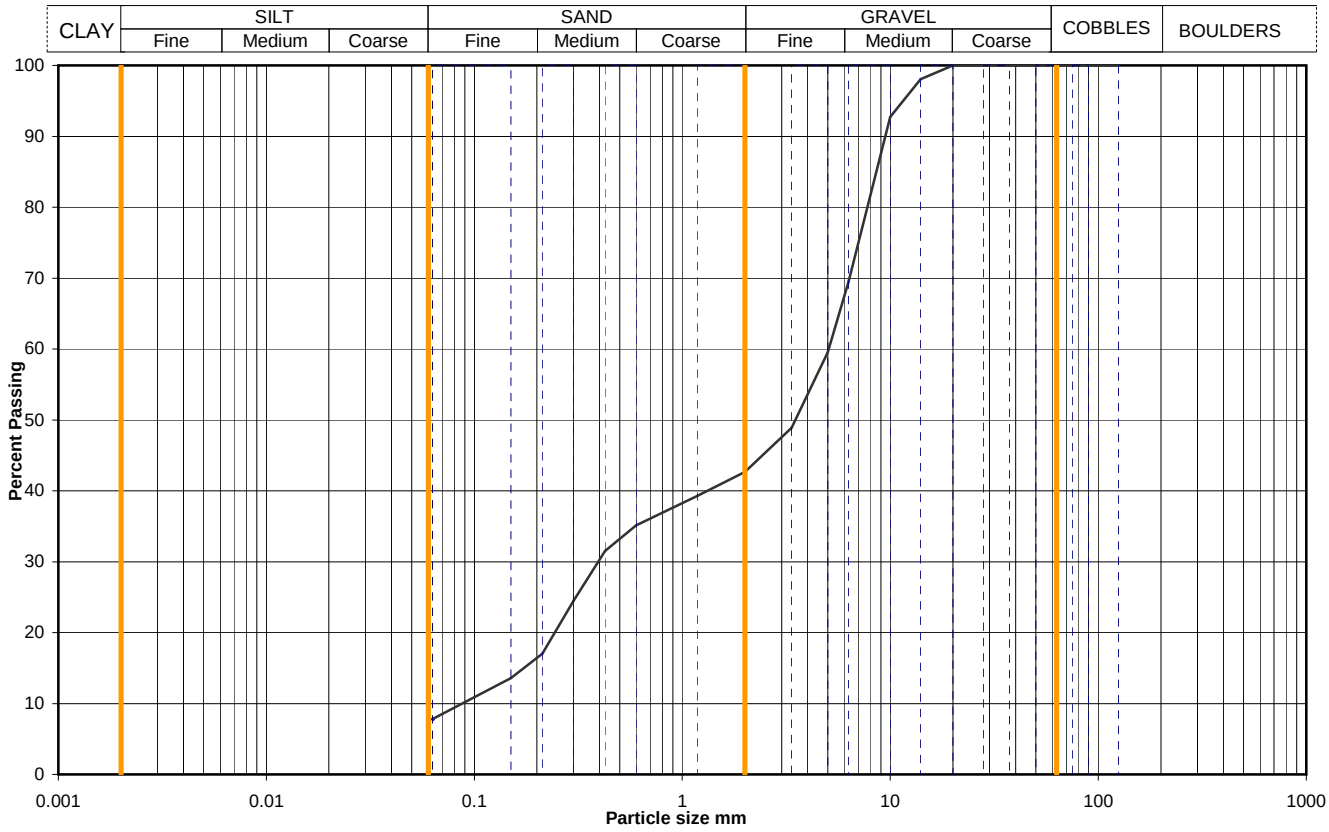
Uniformity Coefficient	D_{60} / D_{10}	6

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:53	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	31.80		
			Samp No	109	Type	B
			ID	A5066-1520150817032723		
			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	98		
10	93		
6.3	70		
5.0	60		
3.35	49		
2.00	43		
1.18	39		
0.600	35		
0.425	32		
0.300	25	Dry mass of sample, kg	
0.212	17		
0.150	14	9.7	
0.063	8		

Soil description	Dark grey very sandy silty GRAVEL with shell fragments.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	57	57
	Sand	35	35
	Silt	silt+clay =	
	Clay	8	8

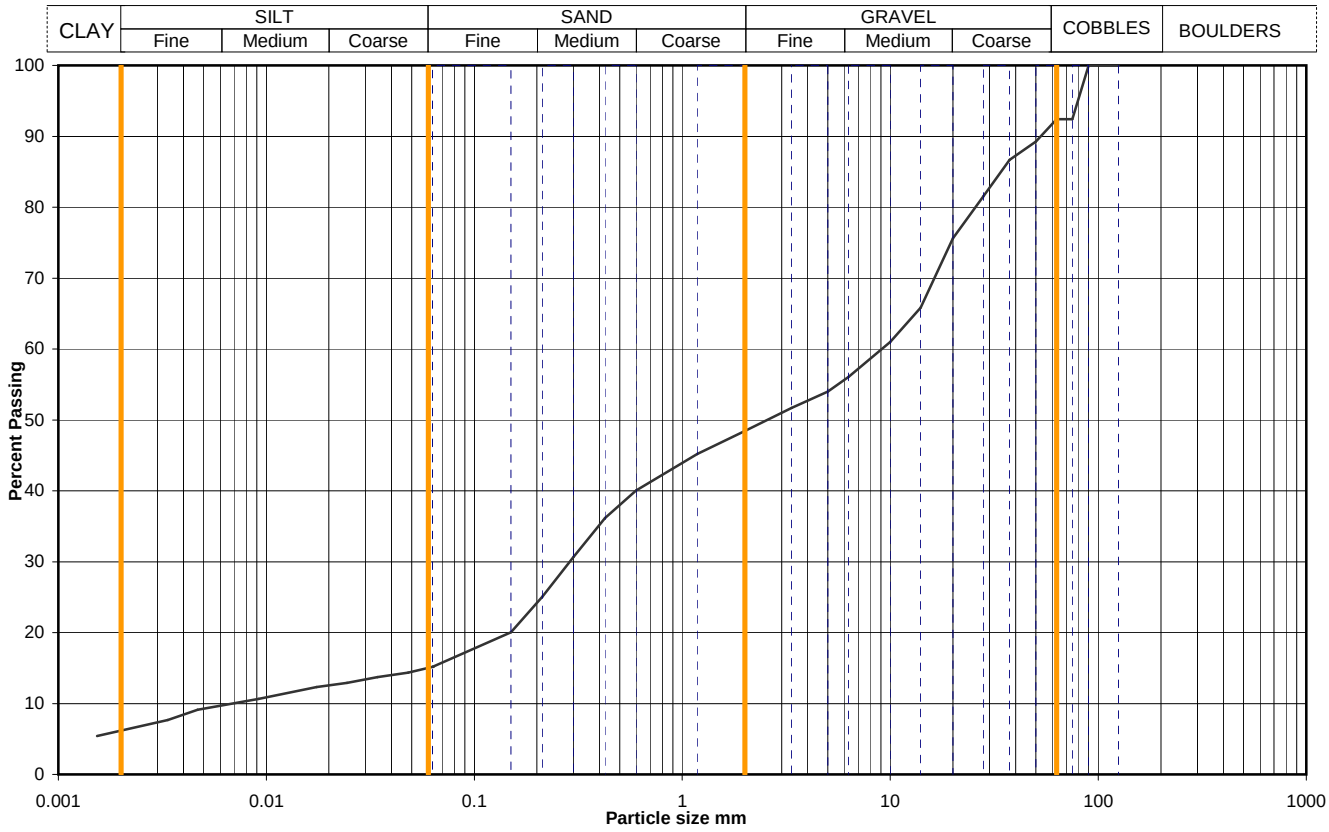
Uniformity Coefficient	D_{60} / D_{10}	58

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	1.20		
			Samp No	5	Type	B
			ID	A5066-1520150826043354		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	15
90	100	0.0480	14
75	92	0.0342	14
63	92	0.0245	13
50	89	0.0174	12
37.5	87	0.0092	11
28	82	0.0047	9
20	76	0.0034	8
14	66	0.0015	5
10	61		
6.3	56		
5.0	54		
3.35	52		
2.00	48		
1.18	45	Particle density, Mg/m3	
0.600	40		
0.425	36	2.65 assumed	
0.300	31	Dry mass of sample, kg	
0.212	25		
0.150	20	9.1	
0.063	15		

Soil description	Dark grey very sandy clayey GRAVEL with one cobble.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	8	0
	Gravel	44	48
	Sand	33	36
	Silt	9	10
	Clay	6	7

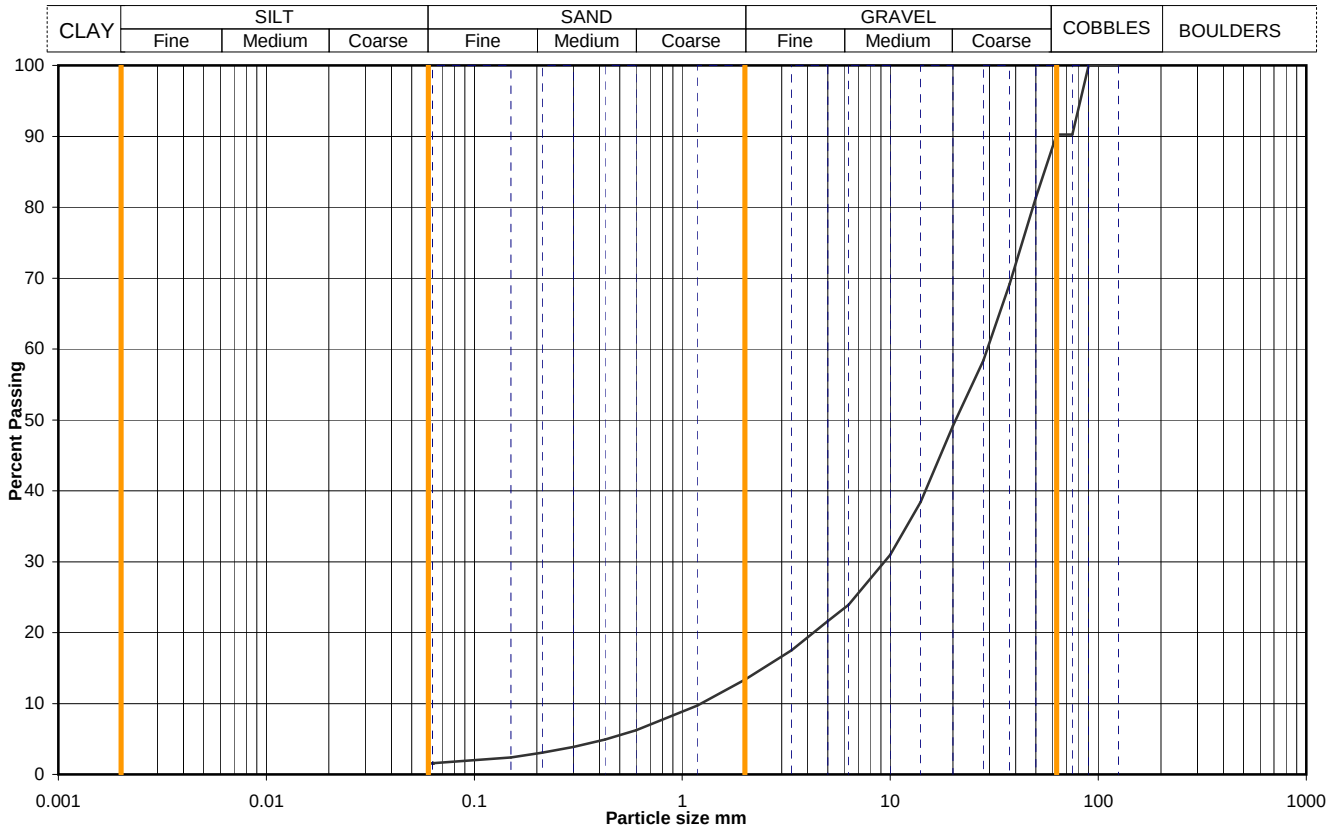
Uniformity Coefficient	D_{60} / D_{10}	1326

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	3.70		
			Samp No	12	Type	B
			ID	A5066-1520150827092319		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	90		
63	90		
50	81		
37.5	69		
28	58		
20	49		
14	38		
10	31		
6.3	24		
5.0	22		
3.35	18		
2.00	13		
1.18	10		
0.600	6		
0.425	5		
0.300	4	Dry mass of sample, kg	
0.212	3		
0.150	2	10.2	
0.063	2		

Soil description	Brown slightly sandy clayey GRAVEL with one cobble.
Preparation / Pretreatment	Sieve: natural material
Remarks	

Sample Proportions *<60mm values to aid description only	Whole	*<63mm
Cobbles / boulders	10	0
Gravel	77	86
Sand	12	13
Silt	silt+clay =	
Clay	1	1

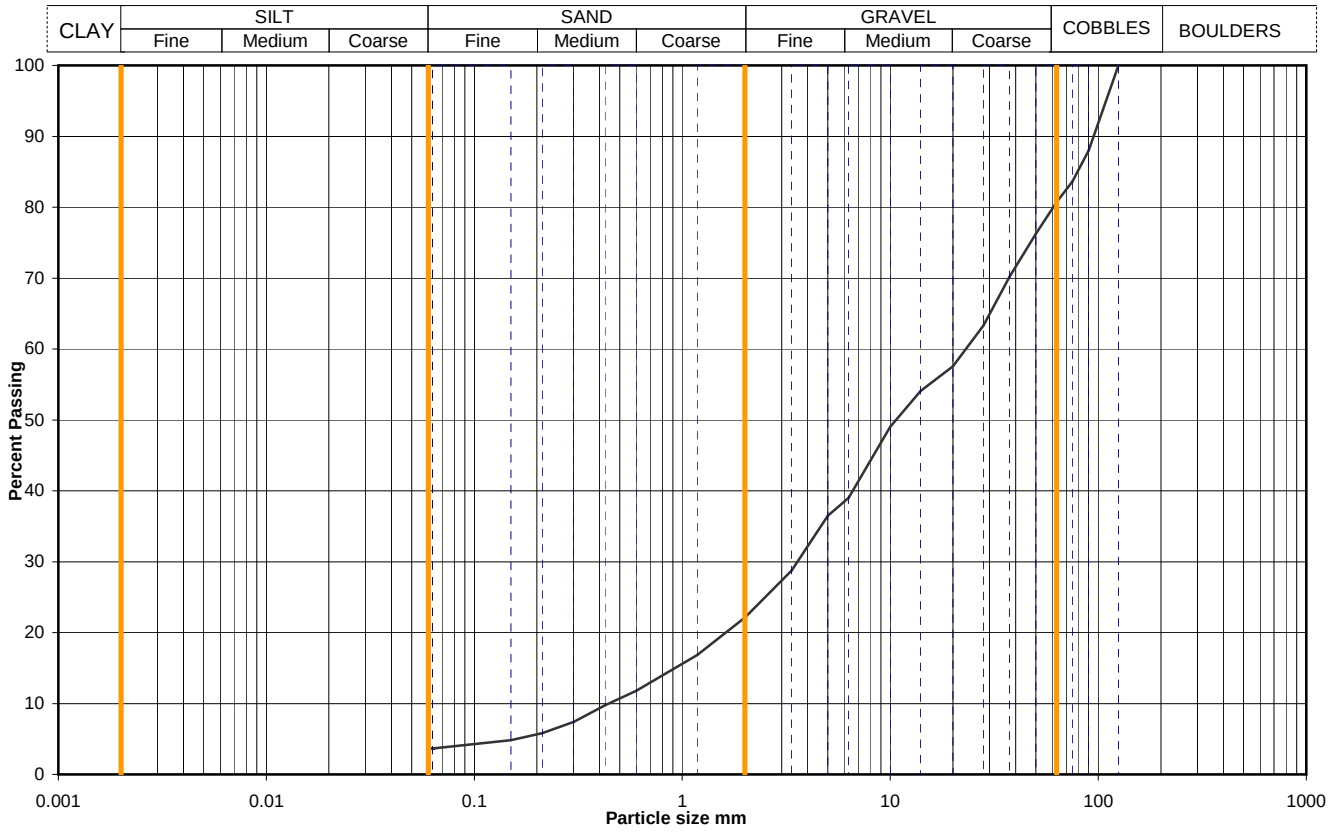
Uniformity Coefficient	D_{60} / D_{10}	24

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

QA Ref			Figure
SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	Printed:10/11/2015 16:54	**PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.70		
			Samp No	20	Type	B
			ID	A5066-1520150827093022		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	88		
75	84		
63	81		
50	76		
37.5	70		
28	63		
20	58		
14	54		
10	49		
6.3	39		
5.0	36		
3.35	29		
2.00	22		
1.18	17		
0.600	12		
0.425	10		
0.300	7	Dry mass of sample, kg	
0.212	6		
0.150	5	8.7	
0.063	4		

Soil description	Brown very sandy GRAVEL with three cobbles.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	19	0
	Gravel	59	73
	Sand	18	22
	Silt	silt+clay =	
	Clay	4	5

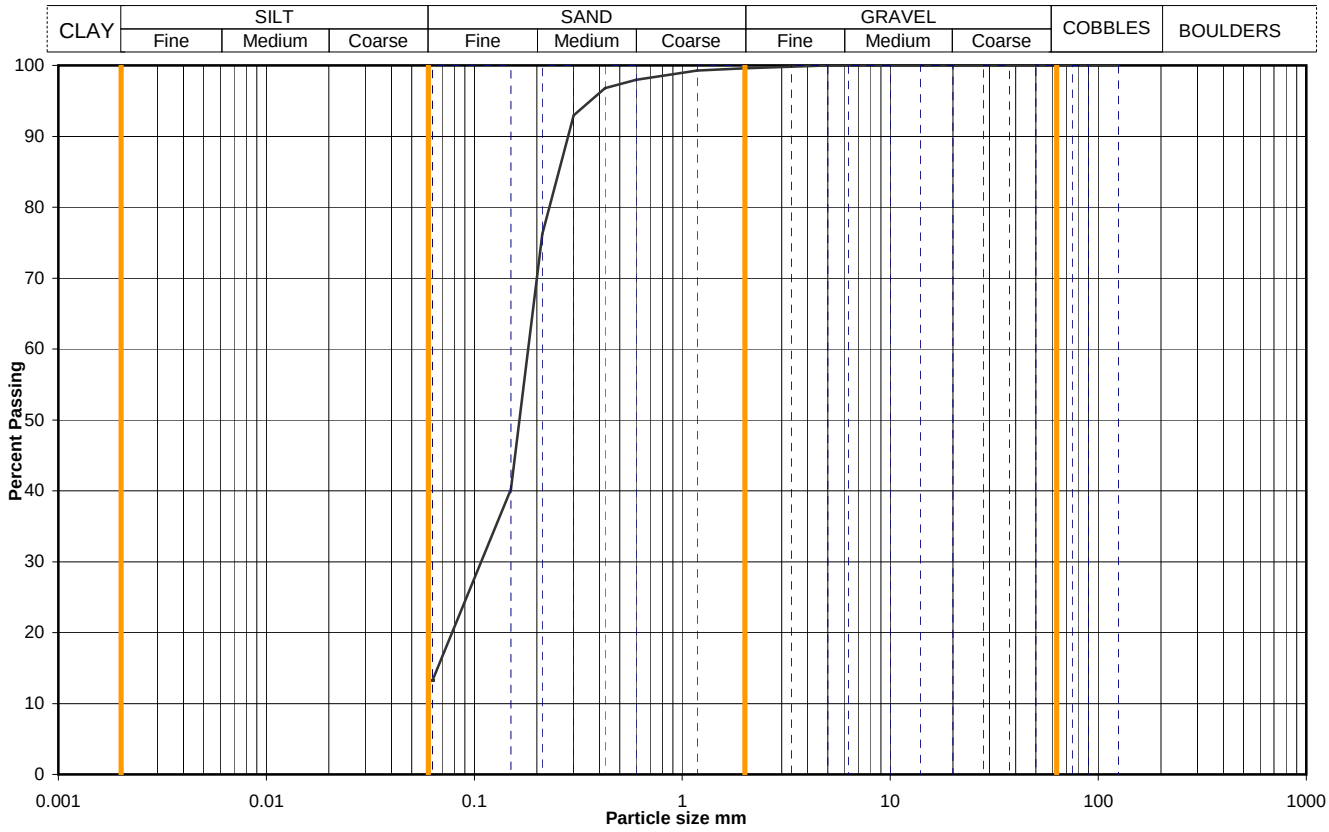
Uniformity Coefficient	D_{60} / D_{10}	52

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	14.50		
			Samp No	34	Type	B
			ID	A5066-1520150909121342		
			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	99		
0.600	98		
0.425	97		
0.300	93	Dry mass of sample, kg	
0.212	76		
0.150	40	8.1	
0.063	13		

Soil description	Grey clayey SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	86	86
	Silt	silt+clay =	
	Clay	14	14

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

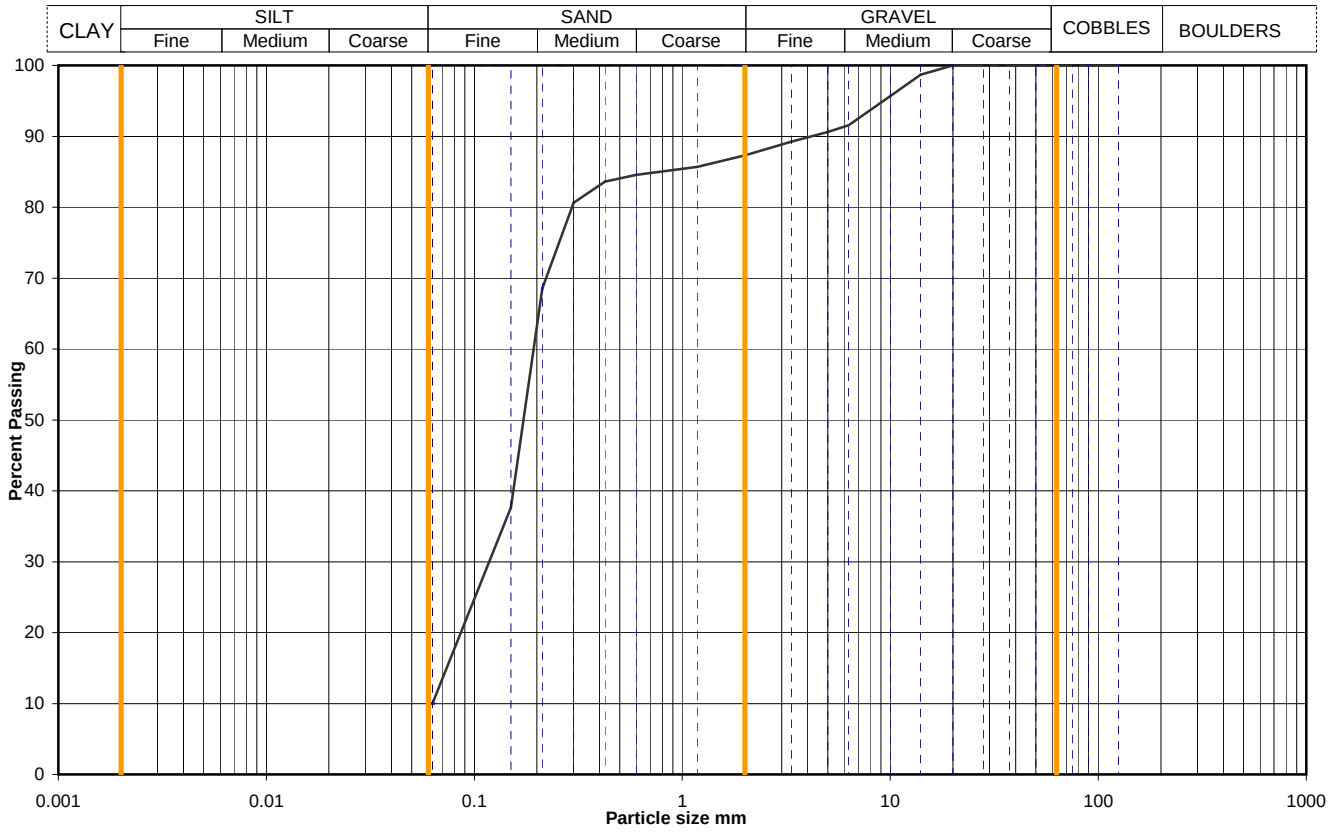
Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54

Figure **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	19.00		
			Samp No	48	Type	B
			ID	A5066-1520150909121915		
			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	96		
6.3	92		
5.0	91		
3.35	89		
2.00	87		
1.18	86		
0.600	85		
0.425	84		
0.300	81	Dry mass of sample, kg	
0.212	69		
0.150	38	10.6	
0.063	10		

Soil description	Very dark grey mottled brown slightly gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	13	13
	Sand	77	77
	Silt	silt+clay =	
	Clay	10	10

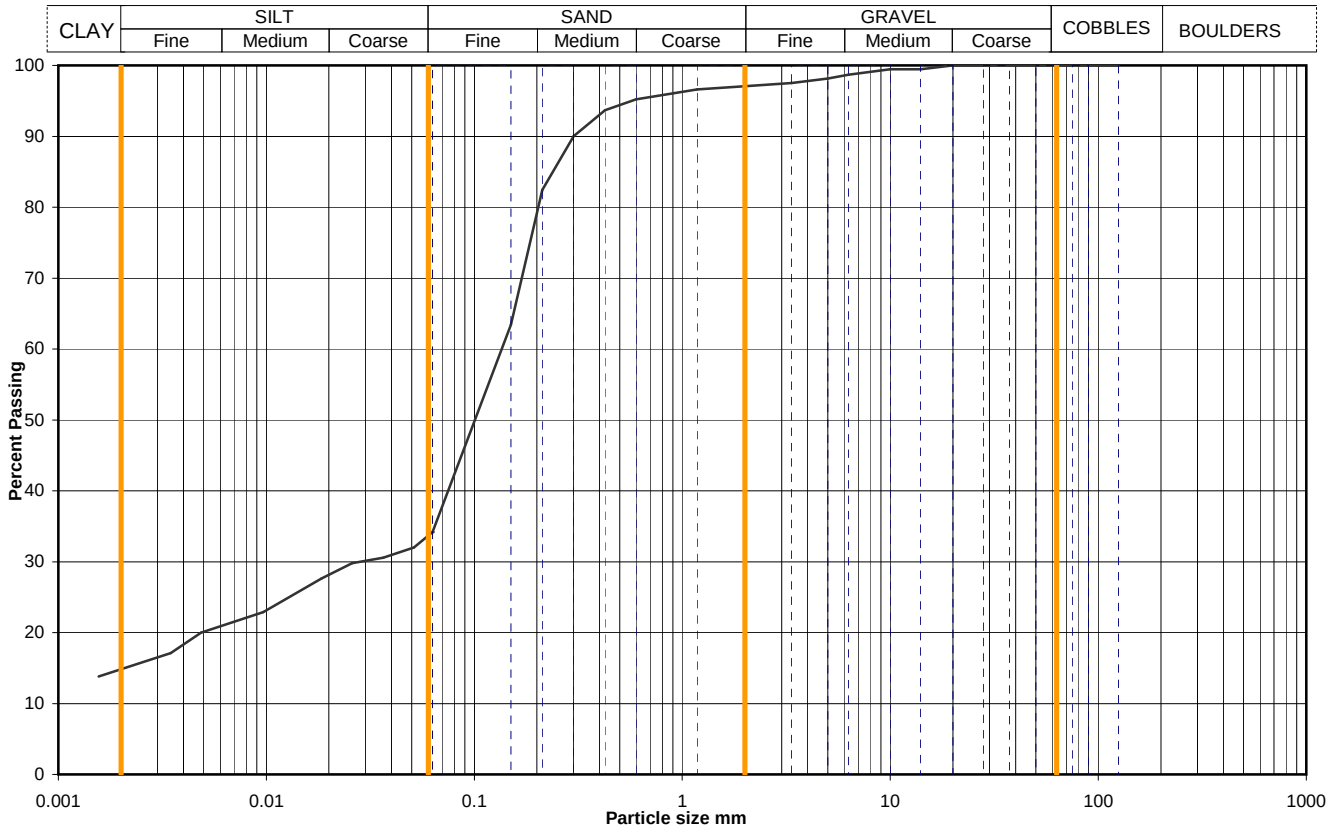
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	25.30		
			Samp No	68	Type	B
			ID	A5066-1520150909122832		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	34
90	100	0.0513	32
75	100	0.0364	31
63	100	0.0258	30
50	100	0.0184	28
37.5	100	0.0096	23
28	100	0.0049	20
20	100	0.0035	17
14	99	0.0016	14
10	99		
6.3	99		
5.0	98		
3.35	97		
2.00	97		
1.18	97	Particle density, Mg/m3	
0.600	95		
0.425	94	2.65 assumed	
0.300	90	Dry mass of sample, kg	
0.212	82		
0.150	63	8.3	
0.063	34		

Soil description	Grey slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	3	3
	Sand	63	63
	Silt	19	19
	Clay	15	15

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

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

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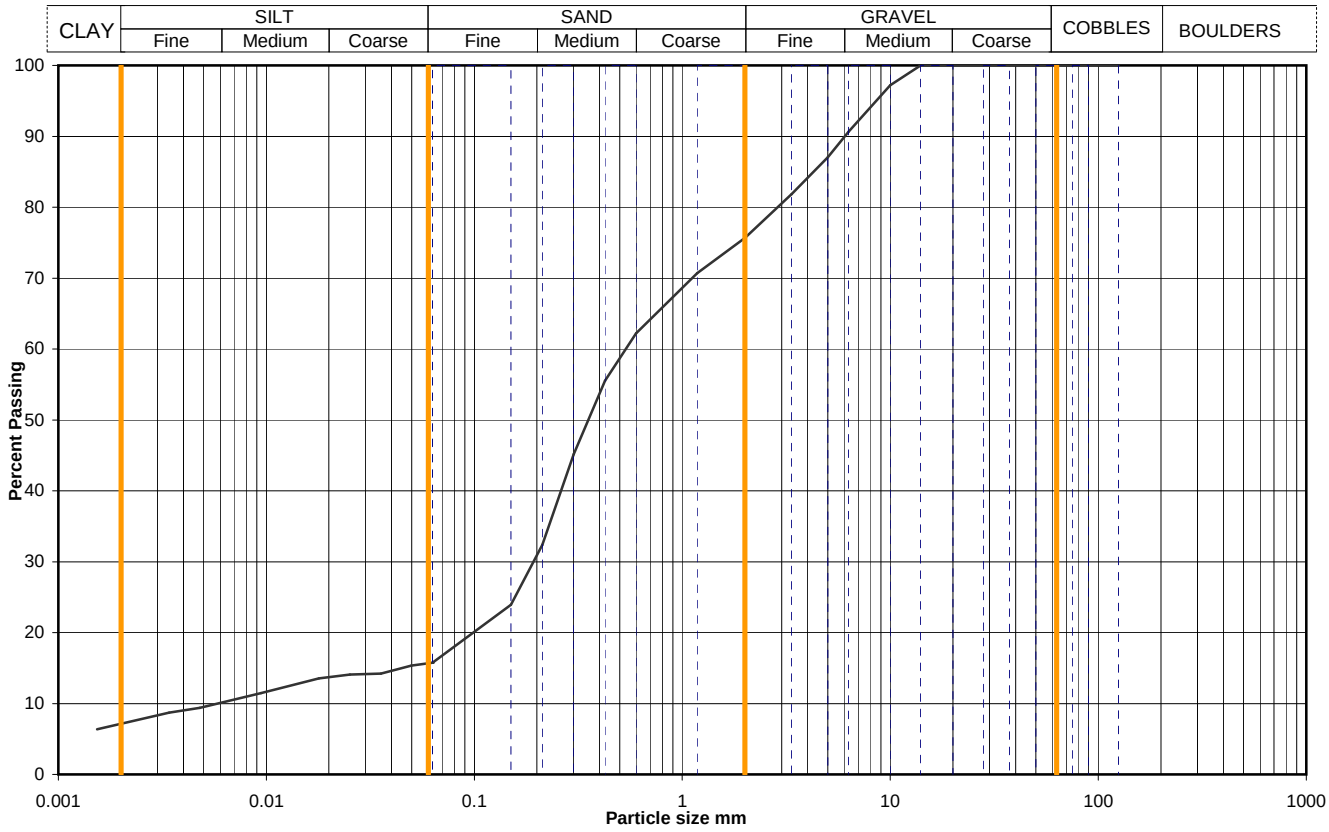
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	29.50		
			Samp No	78	Type	B
			ID	A5066-1520150909123122		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	16
90	100	0.0499	15
75	100	0.0356	14
63	100	0.0252	14
50	100	0.0179	14
37.5	100	0.0094	11
28	100	0.0048	9
20	100	0.0034	9
14	100	0.0015	6
10	97		
6.3	91		
5.0	87		
3.35	82		
2.00	76		
1.18	71	Particle density, Mg/m3	
0.600	62		
0.425	56	2.65 assumed	
0.300	45	Dry mass of sample, kg	
0.212	32		
0.150	24	17.4	
0.063	16		

Soil description	Very dark grey very gravelly clayey SAND.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	24	24
	Sand	60	60
	Silt	9	9
	Clay	7	7

Uniformity Coefficient	D_{60} / D_{10}	92

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

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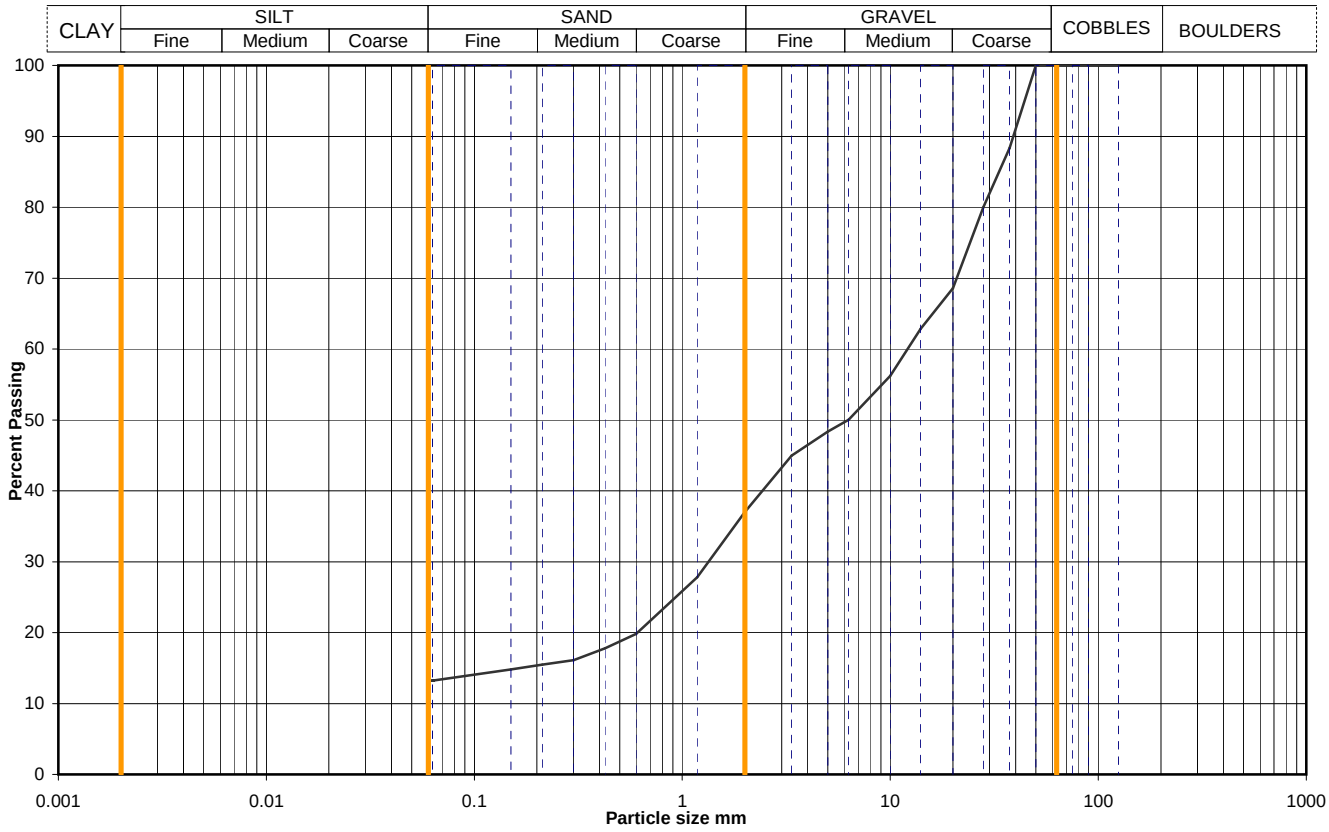
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.00		
			Samp No	10	Type	B
			ID	A5066-1520150818110753		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	88		
28	80		
20	69		
14	63		
10	56		
6.3	50		
5.0	48		
3.35	45		
2.00	37		
1.18	28		
0.600	20		
0.425	18		
0.300	16	Dry mass of sample, kg	
0.212	16		
0.150	15	3.1	
0.063	13		

Soil description	Grey very sandy silty GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	63	63
	Sand	24	24
	Silt	silt+clay =	
	Clay	13	13

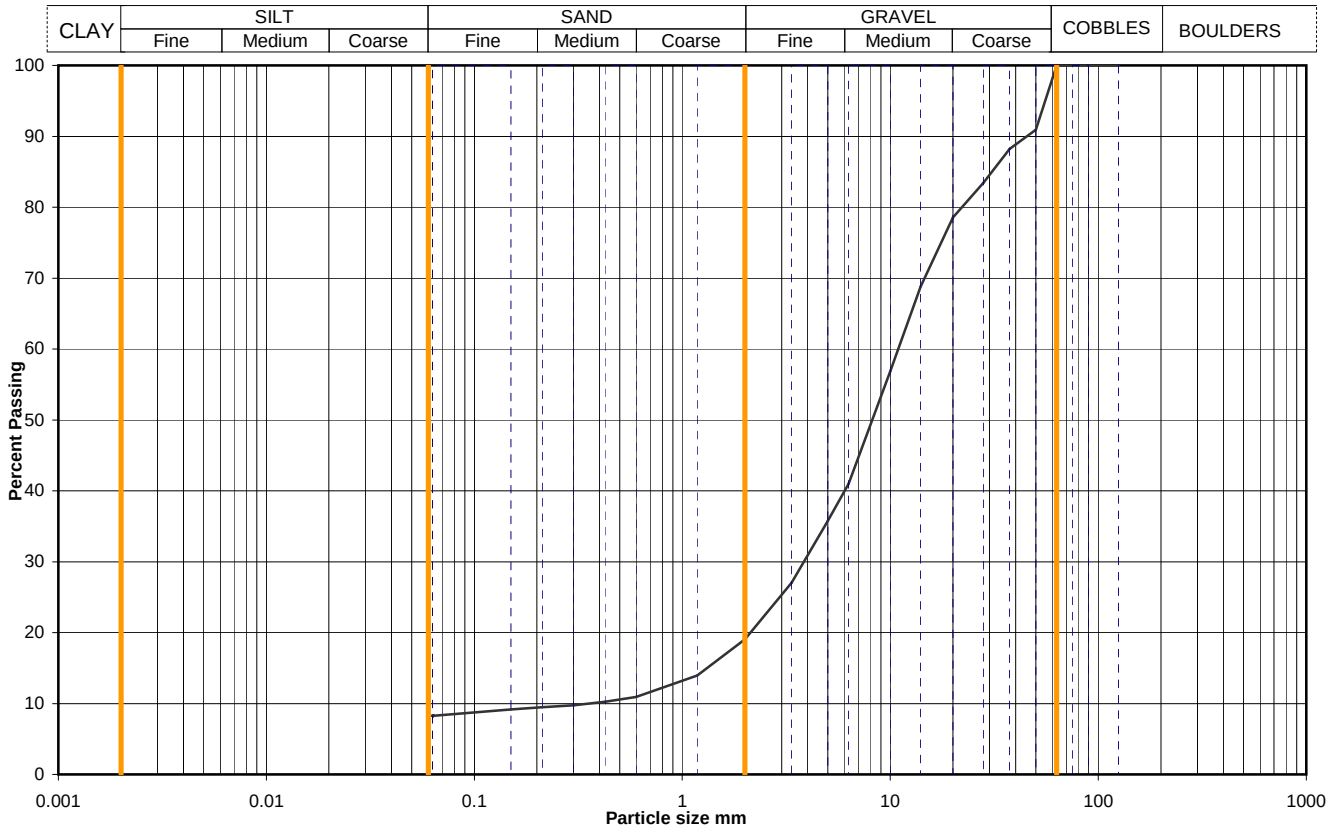
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.50		
			Samp No	20	Type	B
			ID	A5066-1520150818111049		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	91		
37.5	88		
28	83		
20	79		
14	69		
10	57		
6.3	41		
5.0	36		
3.35	27		
2.00	19		
1.18	14		
0.600	11		
0.425	10		
0.300	10	Dry mass of sample, kg	
0.212	9		
0.150	9	7.3	
0.063	8		

Soil description	Light grey sandy silty GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	81	81
	Sand	11	11
	Silt	silt+clay =	
	Clay	8	8

Uniformity Coefficient	D_{60} / D_{10}	31

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

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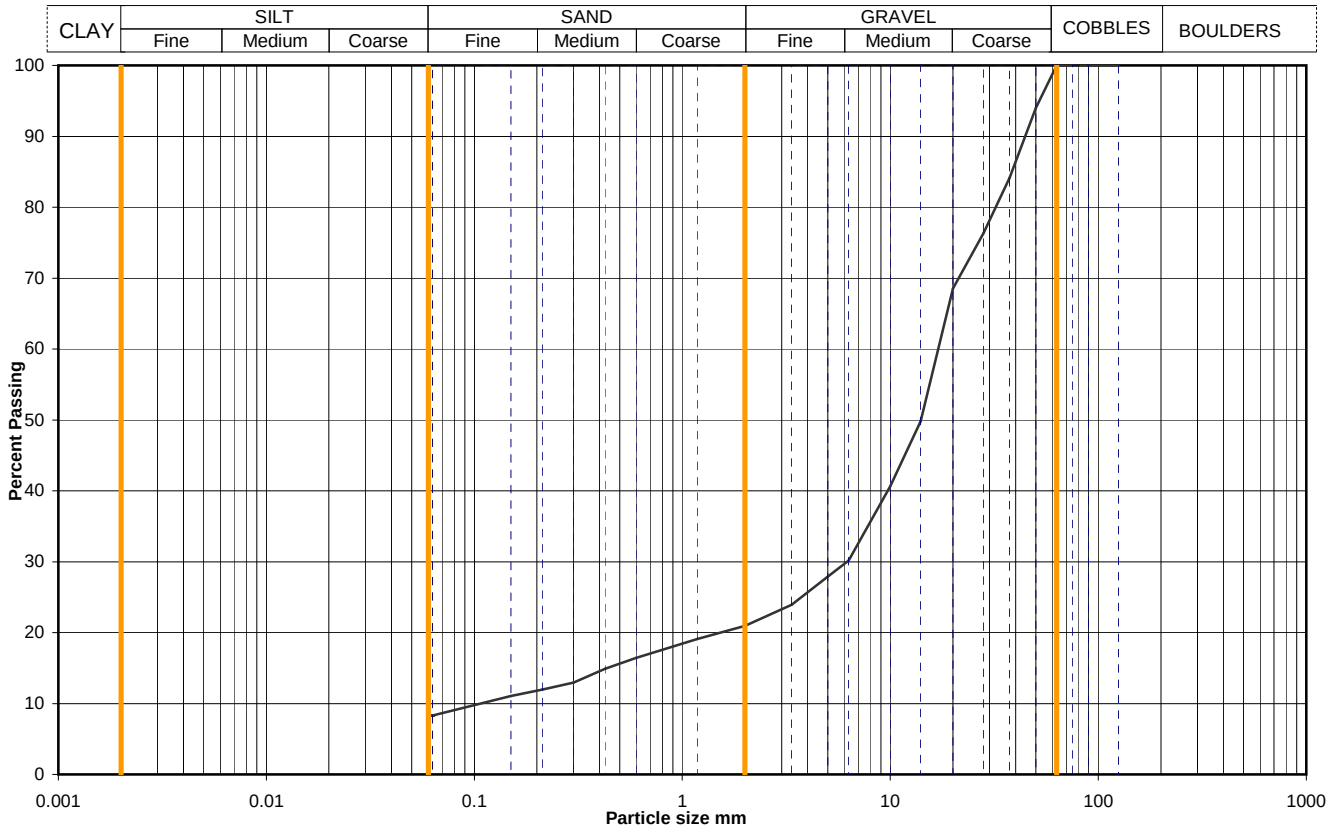
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	10.00		
			Samp No	24	Type	B
			ID	A5066-1520150818111140		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	94		
37.5	84		
28	76		
20	69		
14	50		
10	41		
6.3	30		
5.0	28		
3.35	24		
2.00	21		
1.18	19		
0.600	16		
0.425	15		
0.300	13	Dry mass of sample, kg	
0.212	12		
0.150	11	7.9	
0.063	8		

Soil description	Dark brown sandy silty GRAVEL.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	79	79
	Sand	13	13
	Silt	silt+clay =	
	Clay	8	8

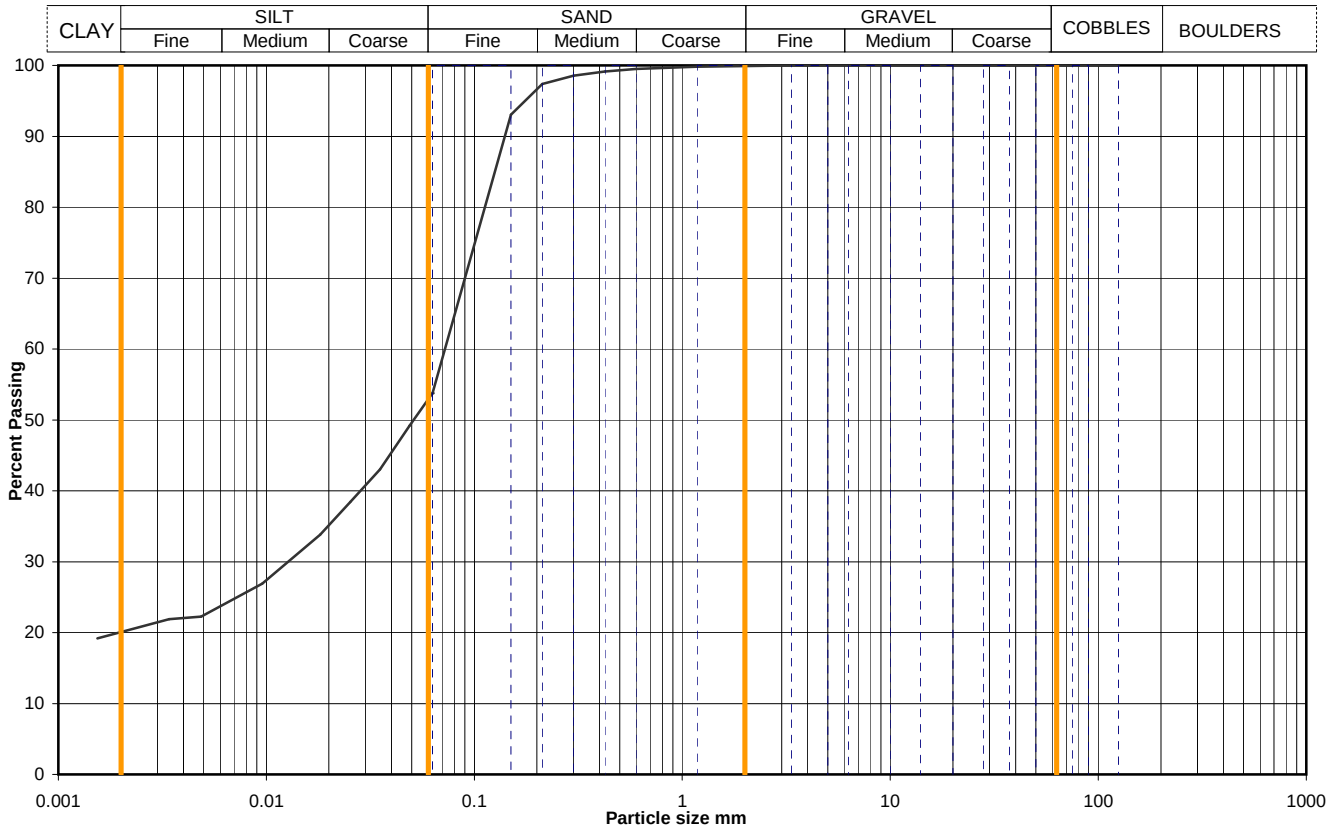
Uniformity Coefficient	D_{60} / D_{10}	158

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.3 dry sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	11.50		
			Samp No	29	Type	U
			ID	A5066-1520150818111229		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	54
90	100	0.0488	49
75	100	0.0352	43
63	100	0.0253	38
50	100	0.0181	34
37.5	100	0.0096	27
28	100	0.0048	22
20	100	0.0034	22
14	100	0.0015	19
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	99	Dry mass of sample, kg	
0.212	97		
0.150	93	0.8	
0.063	54		

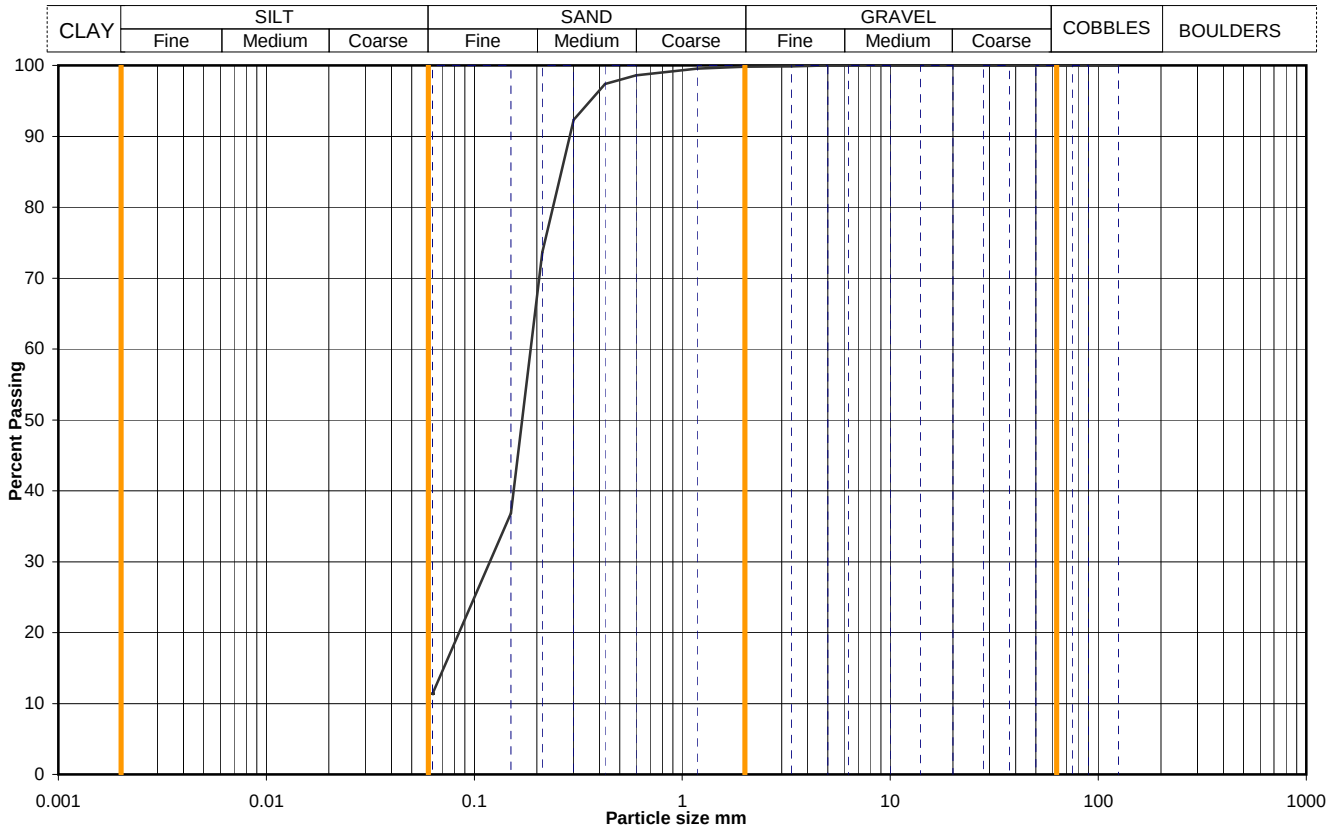
Soil description	Soft to firm brownish grey sandy SILT.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	47	47
	Silt	33	33
	Clay	20	20

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

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	17.10		
			Samp No	48	Type	B
			ID	A5066-1520150818111626		
			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	99		
0.425	97		
0.300	92	Dry mass of sample, kg	
0.212	74		
0.150	37	6.5	
0.063	11		

Soil description	Black silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	88	88
	Silt	silt+clay =	
	Clay	12	12

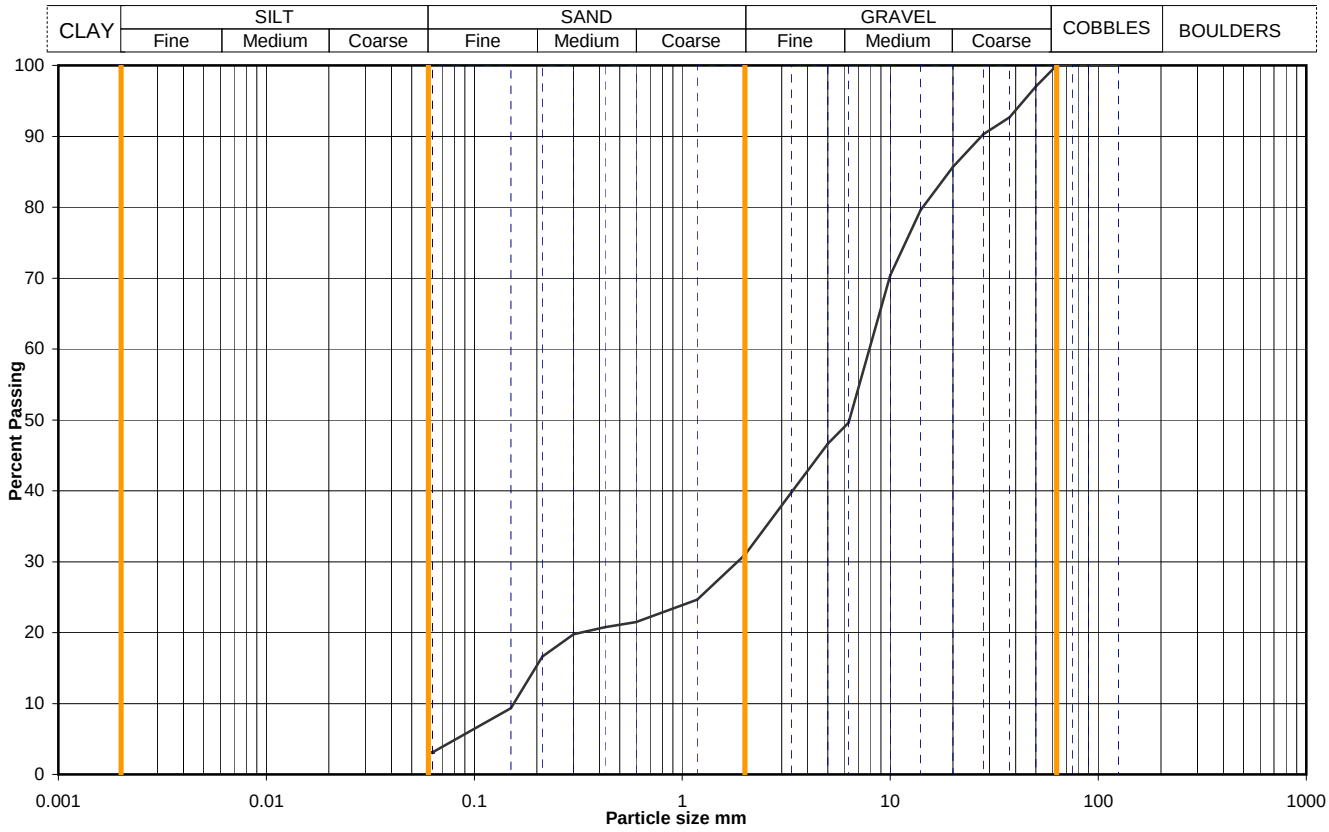
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	20.70		
			Samp No	61	Type	B
			ID	A5066-1520150818111808		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	93		
28	90		
20	86		
14	80		
10	70		
6.3	50		
5.0	47		
3.35	40		
2.00	31		
1.18	25		
0.600	21		
0.425	21		
0.300	20	Dry mass of sample, kg	
0.212	17		
0.150	9	12.7	
0.063	3		

Soil description	Dark brown very sandy GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	69	69
	Sand	28	28
	Silt	silt+clay =	
	Clay	3	3

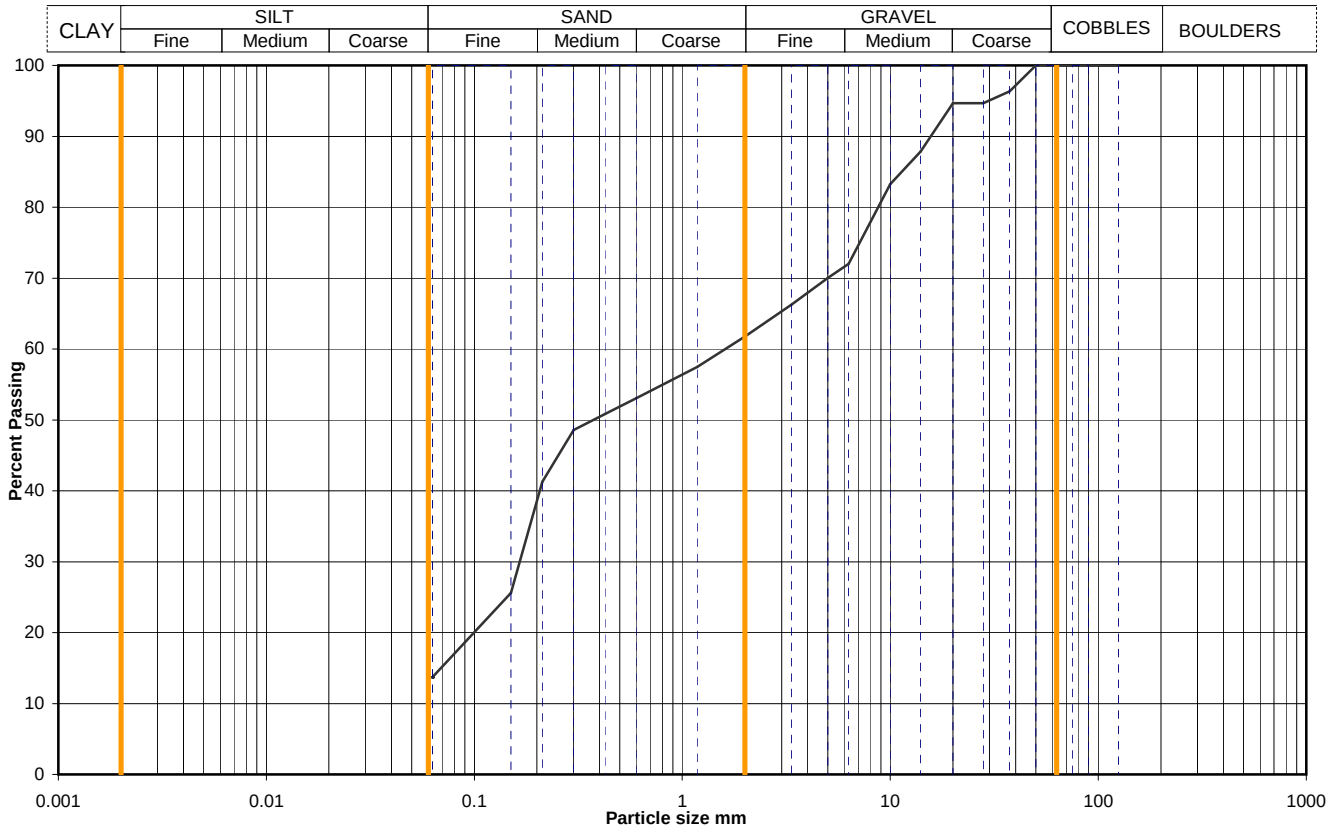
Uniformity Coefficient	D_{60} / D_{10}	51

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	21.60		
			Samp No	64	Type	B
			ID	A5066-1520150818111831		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	95		
20	95		
14	88		
10	83		
6.3	72		
5.0	70		
3.35	66		
2.00	62		
1.18	57		
0.600	53		
0.425	51		
0.300	49	Dry mass of sample, kg	
0.212	41		
0.150	26	3.0	
0.063	14		

Soil description	Black very gravelly clayey SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	38	38
	Sand	48	48
	Silt	silt+clay =	
	Clay	14	14

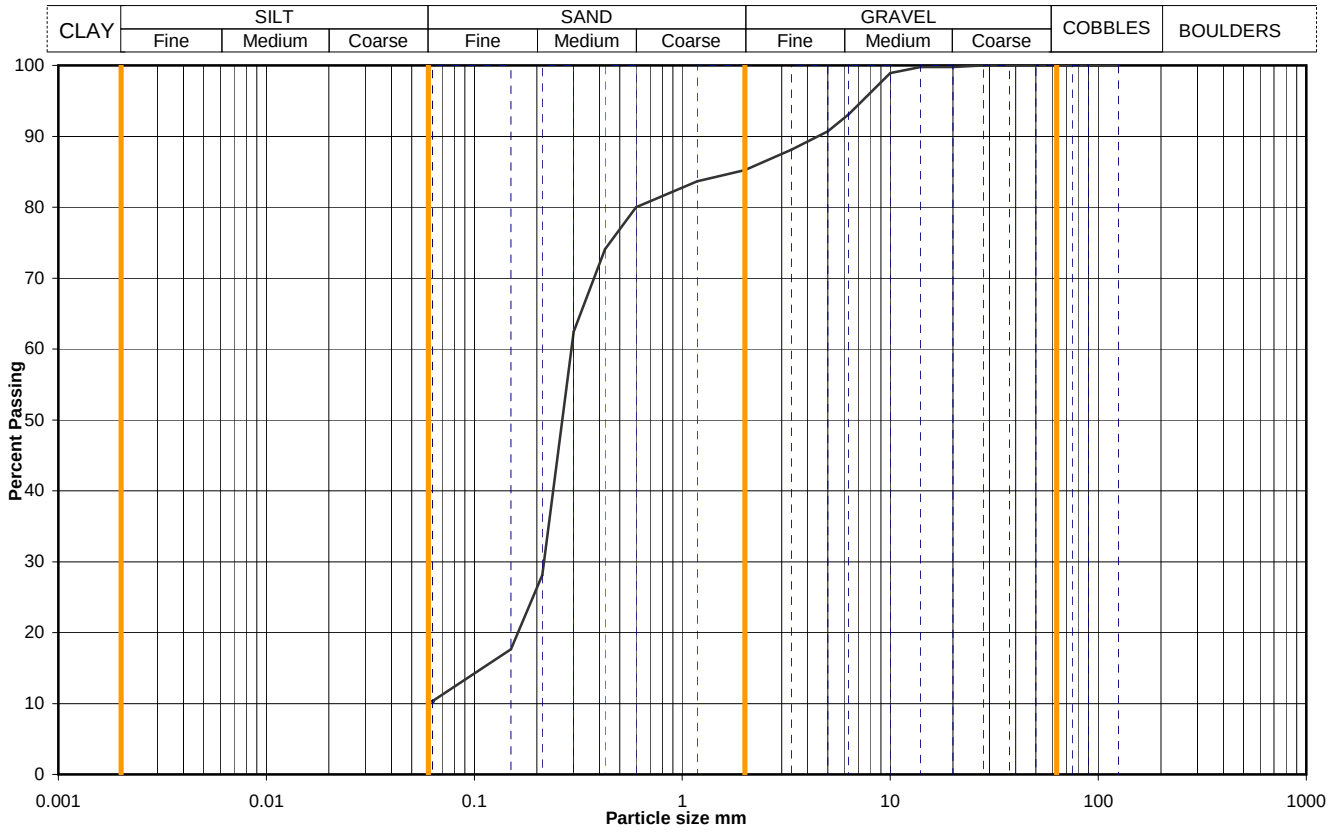
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	29.30		
			Samp No	89	Type	B
			ID	A5066-1520150818112215		
			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	99		
6.3	93		
5.0	91		
3.35	88		
2.00	85		
1.18	84		
0.600	80		
0.425	74		
0.300	62	Dry mass of sample, kg	
0.212	28		
0.150	18	10.8	
0.063	10		

Soil description	Brown gravelly silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	15	15
	Sand	75	75
	Silt	silt+clay =	
	Clay	10	10

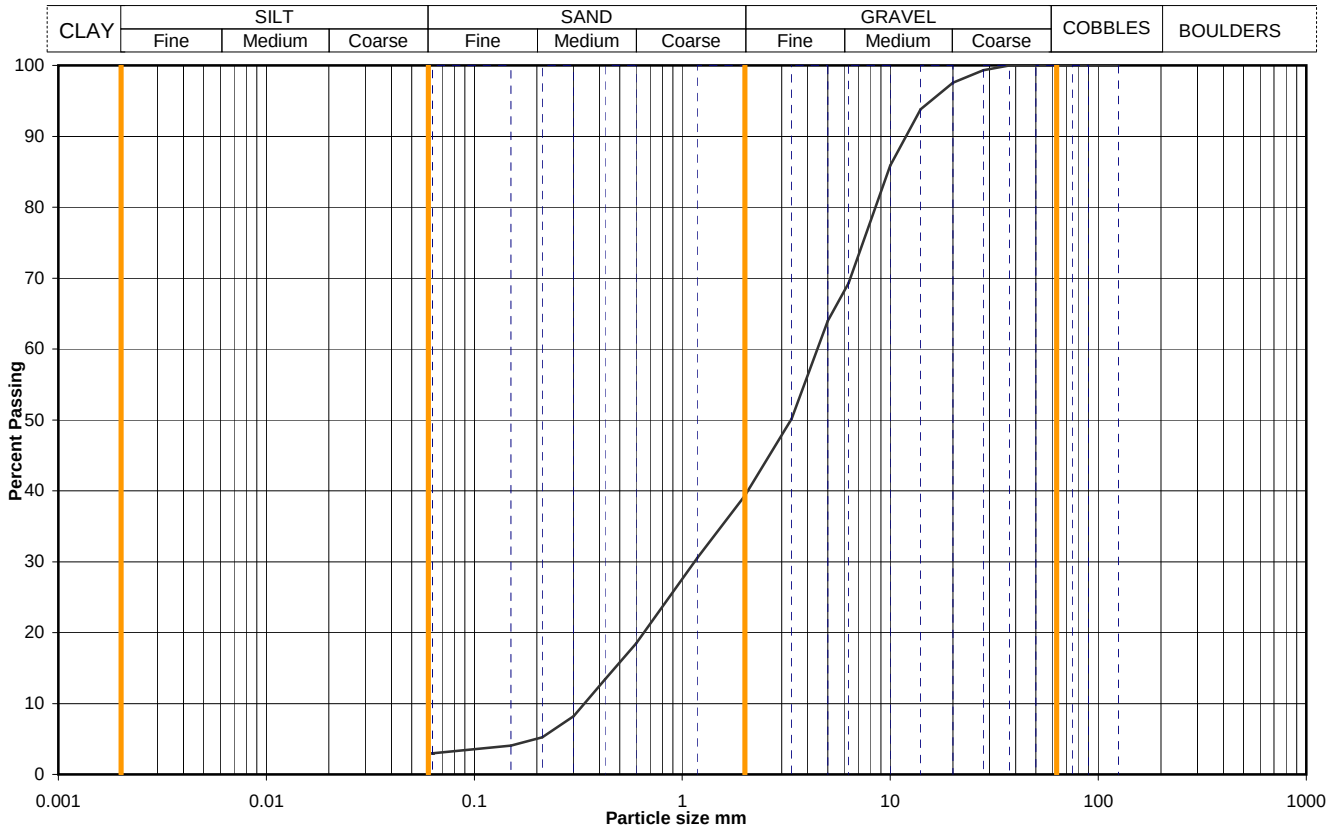
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	32.00		
			Samp No	97	Type	B
			ID	A5066-1520150818112322		
			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	99		
20	98		
14	94		
10	86		
6.3	69		
5.0	64		
3.35	50		
2.00	39		
1.18	30		
0.600	18		
0.425	13		
0.300	8	Dry mass of sample, kg	
0.212	5		
0.150	4	19.4	
0.063	3		

Soil description	Brown very sandy GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	61	61
	Sand	36	36
	Silt	silt+clay =	
	Clay	3	3

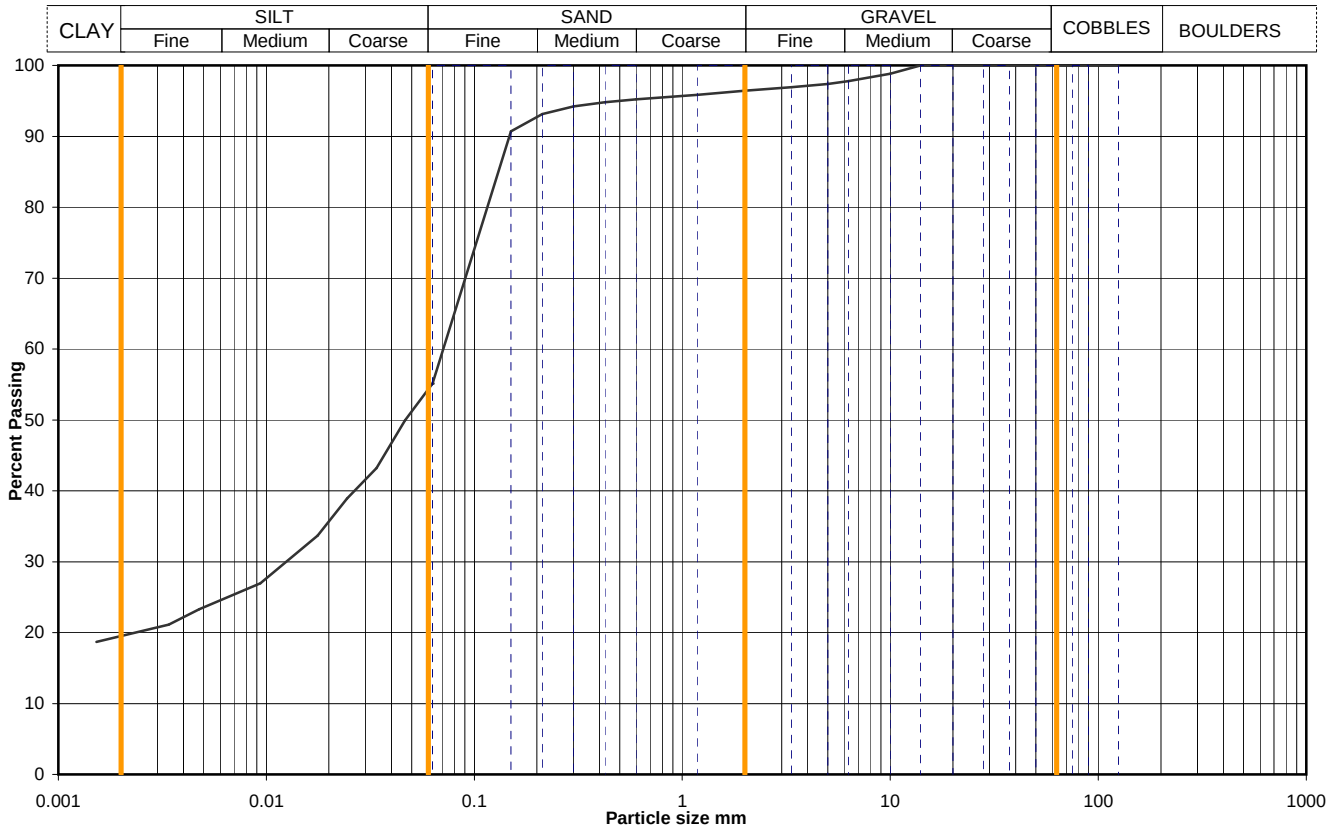
Uniformity Coefficient	D_{60} / D_{10}	13

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	3.00		
			Samp No	10	Type	UT
			ID	A5066-1520150804024920		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	55
90	100	0.0465	50
75	100	0.0339	43
63	100	0.0244	39
50	100	0.0177	34
37.5	100	0.0094	27
28	100	0.0047	23
20	100	0.0034	21
14	100	0.0015	19
10	99		
6.3	98		
5.0	97		
3.35	97		
2.00	96		
1.18	96	Particle density, Mg/m3	
0.600	95		
0.425	95	2.65 assumed	
0.300	94	Dry mass of sample, kg	
0.212	93		
0.150	91	4.9	
0.063	55		

Soil description	Soft brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	4	4
	Sand	42	42
	Silt	35	35
	Clay	19	19

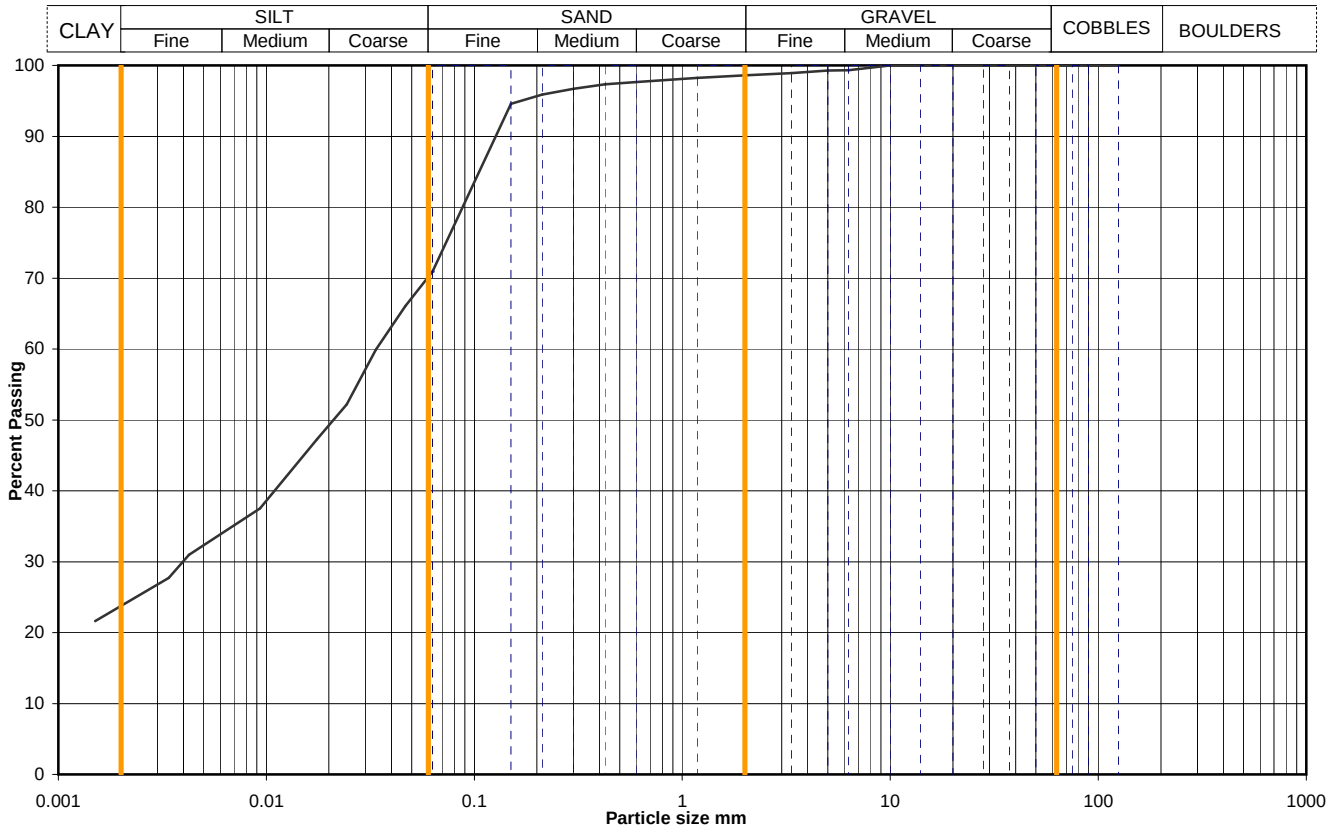
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	6.40		
			Samp No	19	Type	B
			ID	A5066-1520150804025213		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	71
90	100	0.0465	66
75	100	0.0336	60
63	100	0.0244	52
50	100	0.0175	47
37.5	100	0.0093	38
28	100	0.0042	31
20	100	0.0034	28
14	100	0.0015	22
10	100		
6.3	99		
5.0	99		
3.35	99		
2.00	99		
1.18	98	Particle density, Mg/m3	
0.600	98		
0.425	97	2.65 assumed	
0.300	97	Dry mass of sample, kg	
0.212	96		
0.150	95	3.9	
0.063	71		

Soil description	Brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	28	28
	Silt	47	47
	Clay	24	24

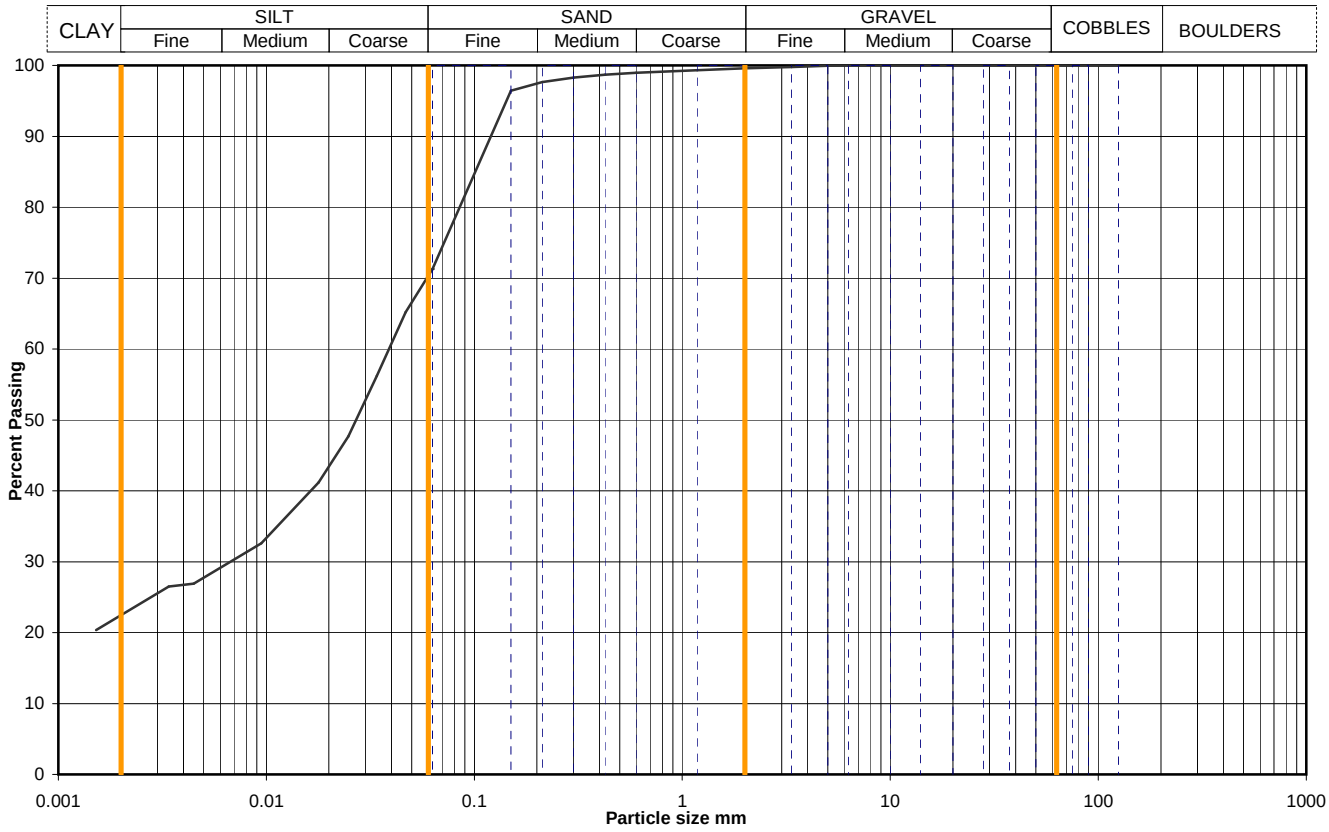
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	8.15		
			Samp No	25	Type	B
			ID	A5066-1520150804025809		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	71
90	100	0.0467	65
75	100	0.0340	56
63	100	0.0247	48
50	100	0.0179	41
37.5	100	0.0095	33
28	100	0.0045	27
20	100	0.0034	26
14	100	0.0015	20
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	98		
0.150	96	8.5	
0.063	71		

Soil description	Dark grey mottled brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	29	29
	Silt	48	48
	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

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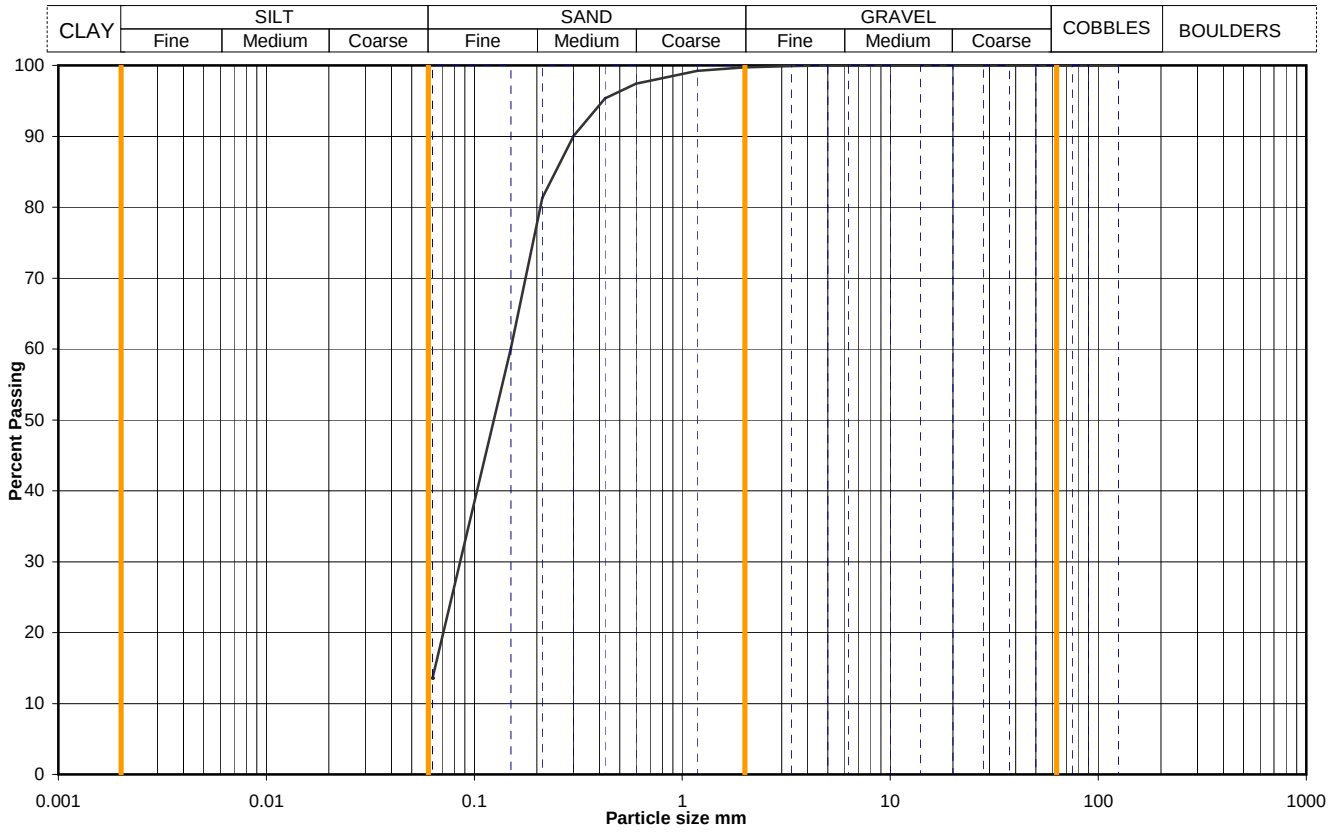
Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	12.00		
			Samp No	38	Type	B
			ID	A5066-1520150804030415		
			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	99		
0.600	97		
0.425	95		
0.300	90	Dry mass of sample, kg	
0.212	81		
0.150	60	8.5	
0.063	14		

Soil description	Grey mottled brown SAND		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	86	86
	Silt	silt+clay =	
	Clay	14	14

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

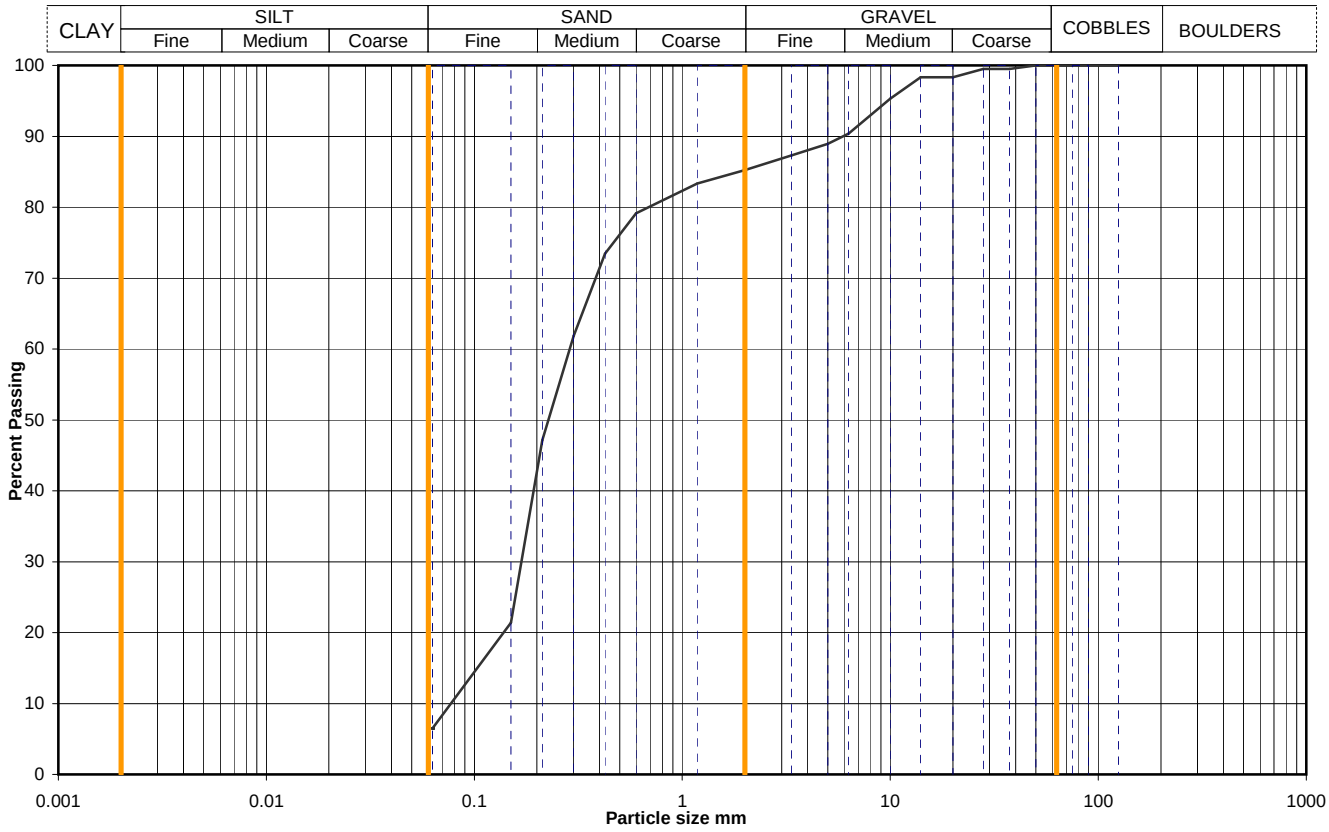
Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54

Figure **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	20.00		
			Samp No	70	Type	B
			ID	A5066-1520150804031054		
			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	98		
14	98		
10	95		
6.3	90		
5.0	89		
3.35	87		
2.00	85		
1.18	83		
0.600	79		
0.425	73		
0.300	62	Dry mass of sample, kg	
0.212	47		
0.150	21	12.5	
0.063	7		

Soil description	Dark grey slightly gravelly silty SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	15	15
	Sand	79	79
	Silt	silt+clay =	
	Clay	6	6

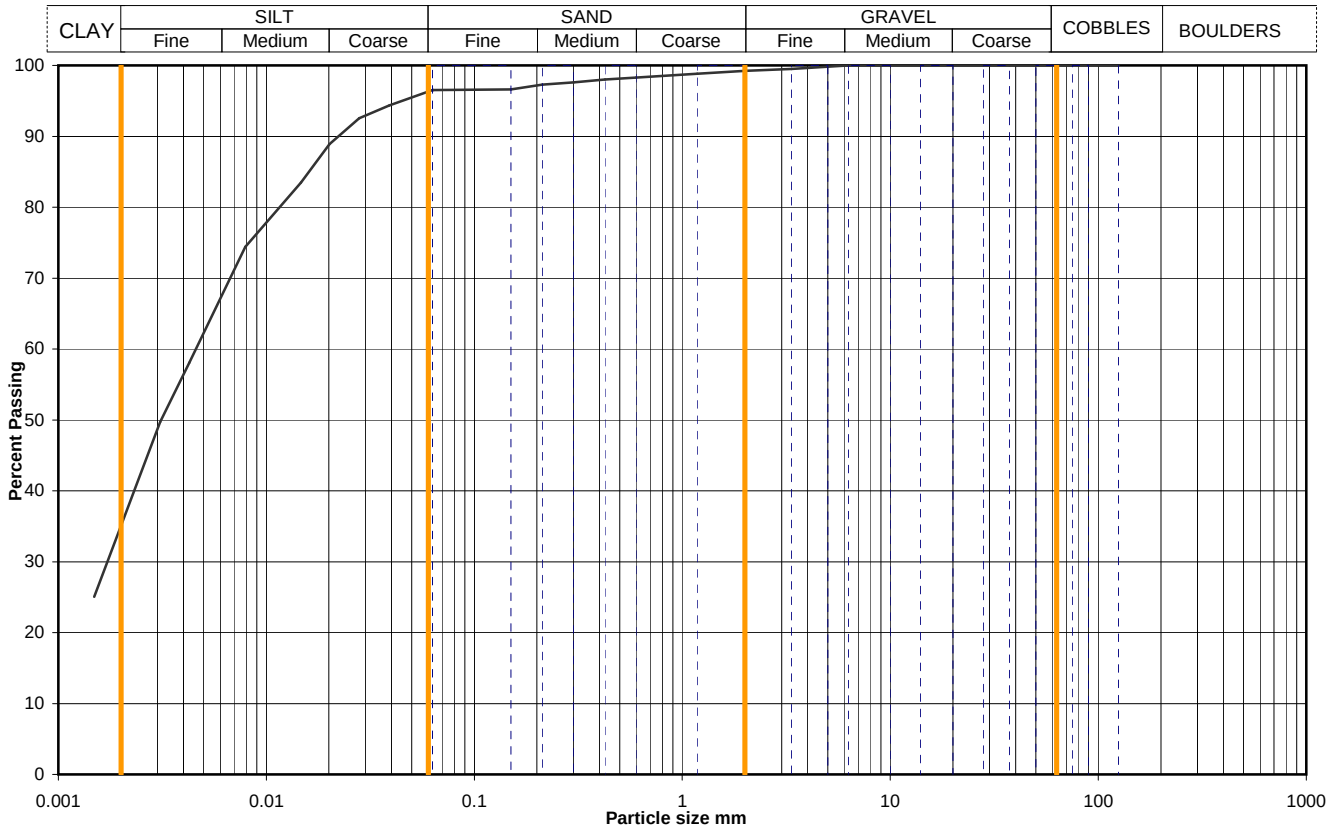
Uniformity Coefficient	D_{60} / D_{10}	4

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.00		
			Samp No	2	Type	B
			ID	A5066-1520150923015427		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	97
90	100	0.0391	94
75	100	0.0279	93
63	100	0.0201	89
50	100	0.0147	83
37.5	100	0.0079	74
28	100	0.0043	58
20	100	0.0031	50
14	100	0.0015	25
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	98		
0.425	98	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	97		
0.150	97	2.4	
0.063	97		

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	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	3	3
	Silt	61	61
	Clay	35	35

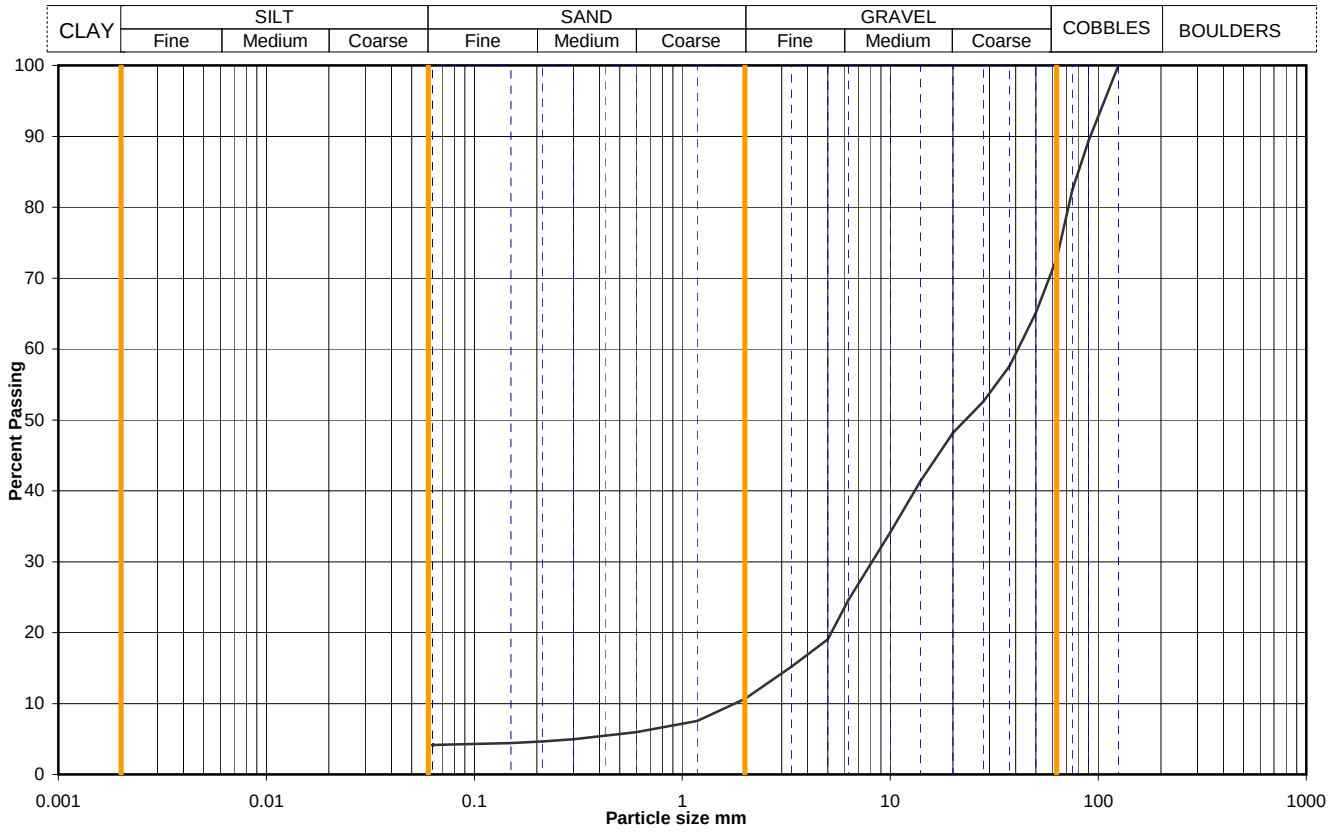
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:54	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	6.50		
			Samp No	6	Type	B
			ID	A5066-1520150923015445		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	89		
75	82		
63	73		
50	65		
37.5	58		
28	53		
20	48		
14	41		
10	34		
6.3	25		
5.0	19		
3.35	15		
2.00	11		
1.18	8		
0.600	6		
0.425	5		
0.300	5	Dry mass of sample, kg	
0.212	5		
0.150	4	18.3	
0.063	4		

Soil description	Multicoloured slightly sandy GRAVEL with occasional brick fragments and seven cobbles.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	27	0
	Gravel	62	85
	Sand	7	10
	Silt	silt+clay =	
	Clay	4	5

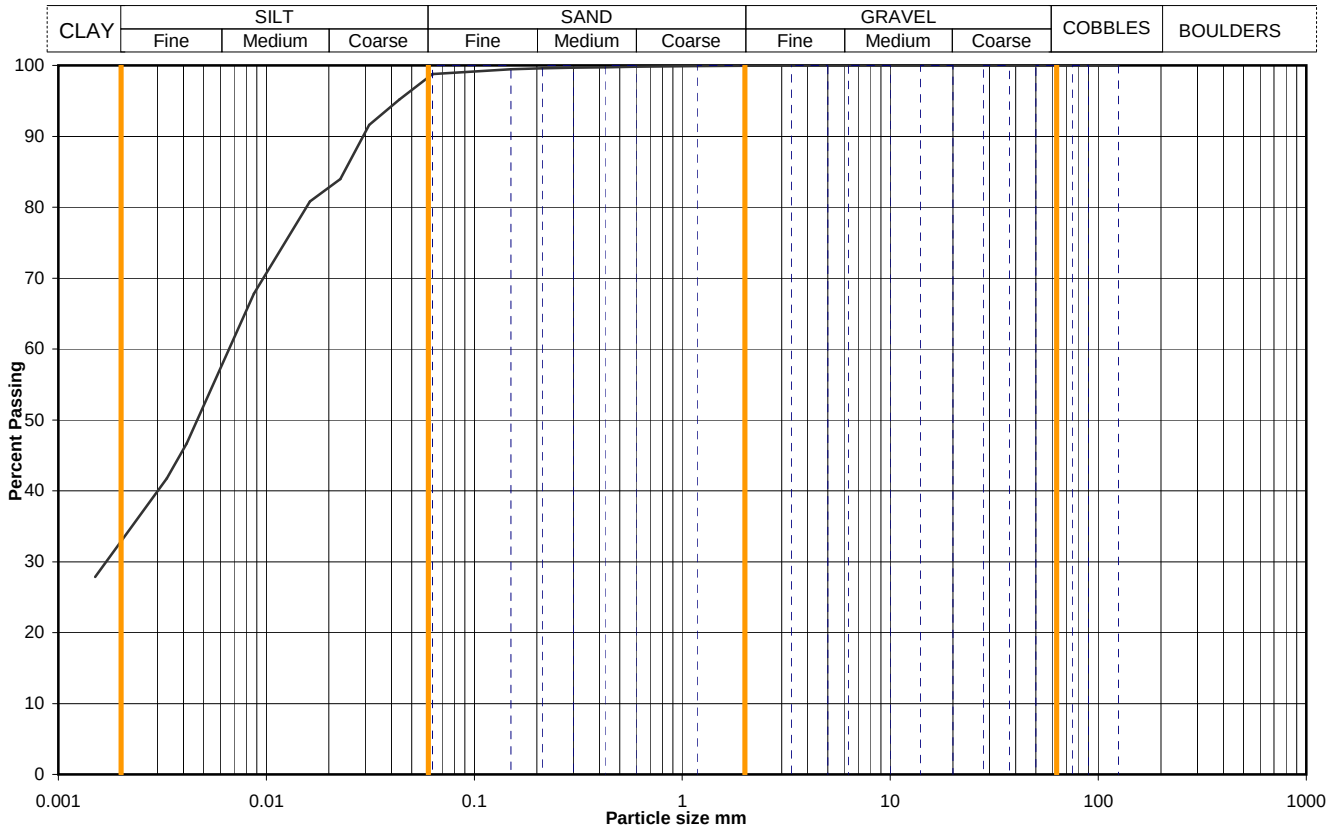
Uniformity Coefficient	D_{60} / D_{10}	23

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:55	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.50		
			Samp No	8	Type	P
			ID	A5066-1520150923015456		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0436	95
75	100	0.0312	92
63	100	0.0227	84
50	100	0.0162	81
37.5	100	0.0087	68
28	100	0.0041	47
20	100	0.0033	42
14	100	0.0015	28
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	3.5	
0.063	99		

Soil description	Dark grey slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	2	2
	Silt	65	65
	Clay	33	33

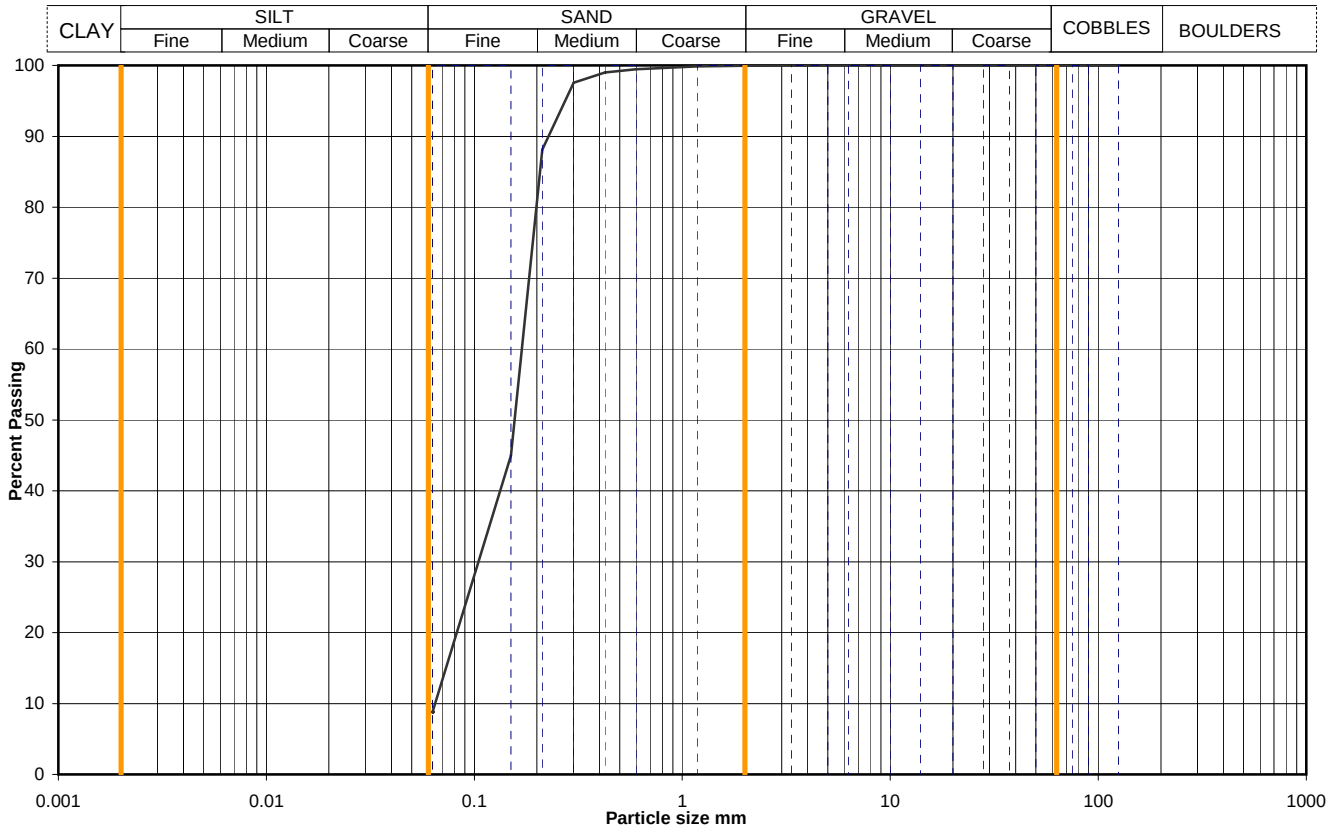
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:55	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	11.30		
			Samp No	15	Type	B
			ID	A5066-1520150923015925		
			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	99		
0.425	99		
0.300	98	Dry mass of sample, kg	
0.212	88		
0.150	45	7.5	
0.063	9		

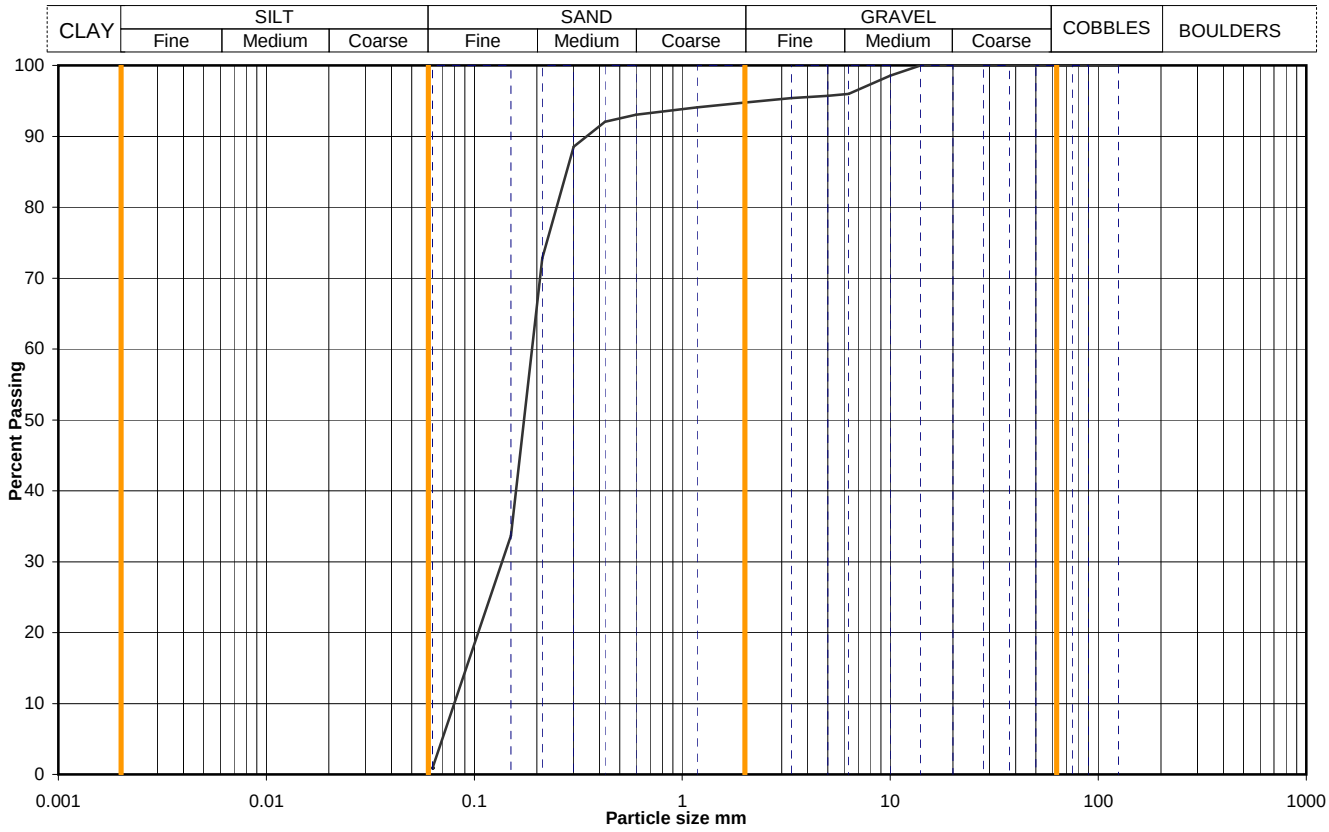
Soil description	Very dark brown SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	91	91
	Silt	silt+clay =	
	Clay	9	9

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

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

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	17.20		
			Samp No	25	Type	B
			ID	A5066-1520150923020057		
			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	99		
6.3	96		
5.0	96		
3.35	95		
2.00	95		
1.18	94		
0.600	93		
0.425	92		
0.300	89	Dry mass of sample, kg	
0.212	73		
0.150	34	6.5	
0.063	1		

Soil description	Black slightly gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	5	5
	Sand	94	94
	Silt	silt+clay =	
	Clay	1	1

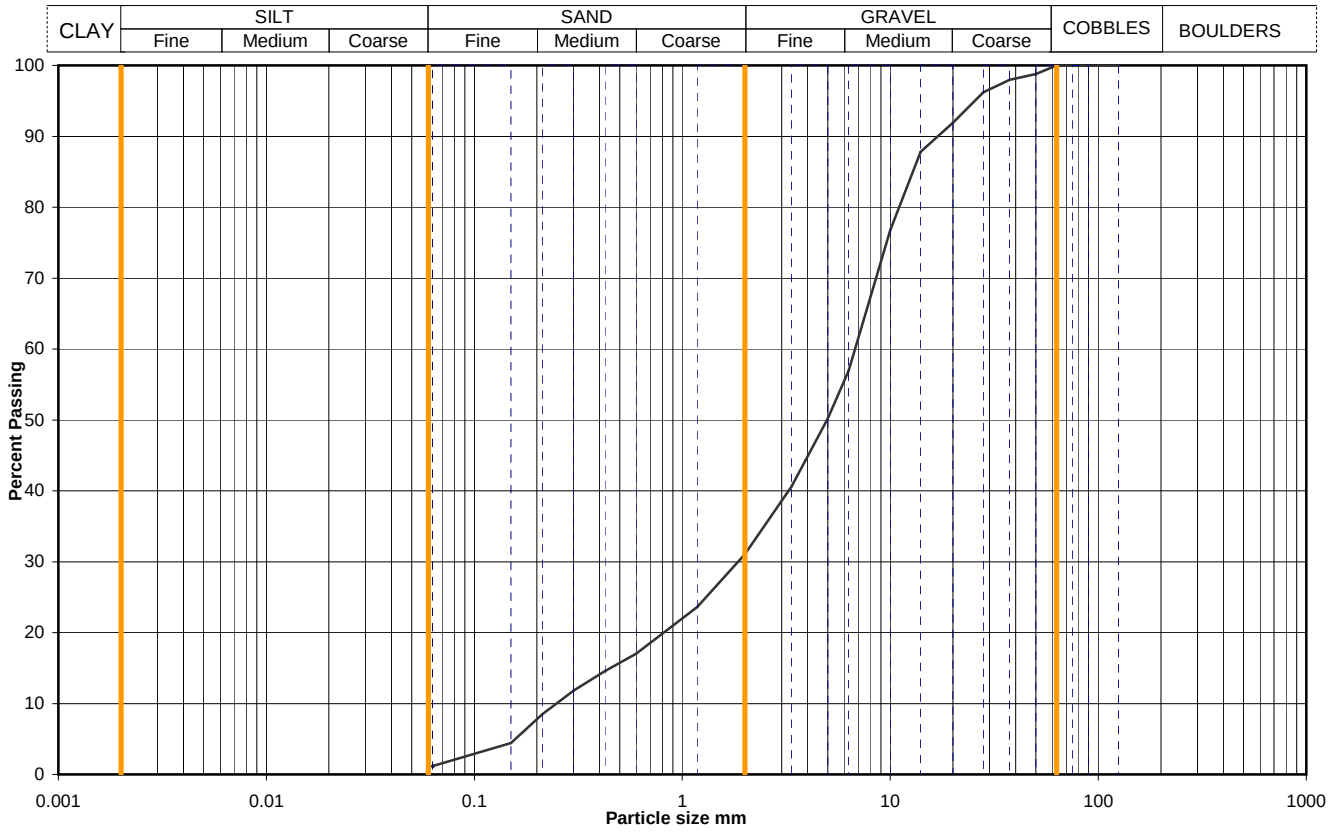
Uniformity Coefficient	D_{60} / D_{10}	2

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:55	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	18.15		
			Samp No	27	Type	B
			ID	A5066-1520150923020110		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	98		
28	96		
20	92		
14	88		
10	77		
6.3	57		
5.0	50		
3.35	41		
2.00	31		
1.18	24		
0.600	17		
0.425	15		
0.300	12	Dry mass of sample, kg	
0.212	9		
0.150	4	16.3	
0.063	1		

Soil description	Multicoloured sandy GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	69	69
	Sand	30	30
	Silt	silt+clay =	
	Clay	1	1

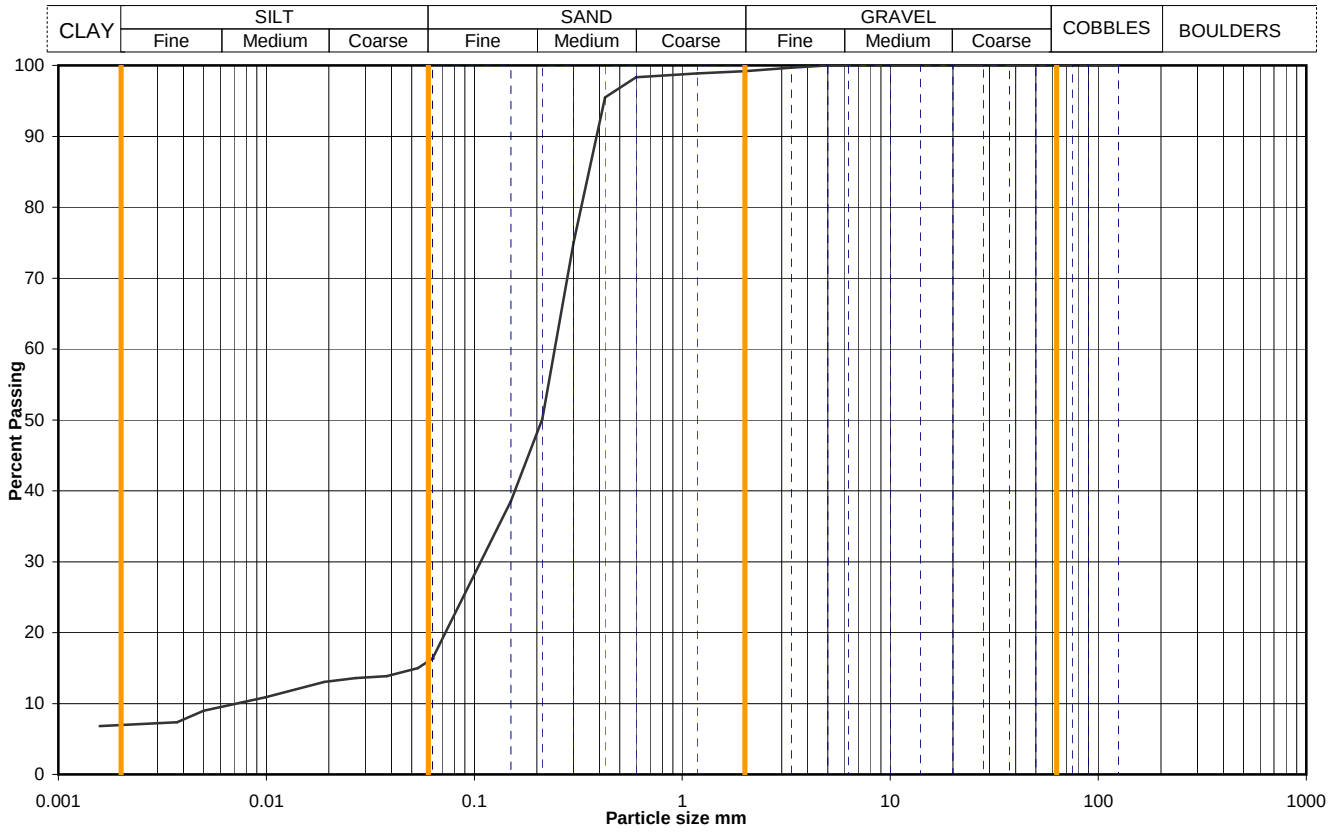
Uniformity Coefficient	D_{60} / D_{10}	27

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:55	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	25.20		
			Samp No	46	Type	B
			ID	A5066-1520150923020606		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	16
90	100	0.0534	15
75	100	0.0379	14
63	100	0.0268	14
50	100	0.0190	13
37.5	100	0.0099	11
28	100	0.0050	9
20	100	0.0037	7
14	100	0.0016	7
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	98		
0.425	96	2.65 assumed	
0.300	75	Dry mass of sample, kg	
0.212	50		
0.150	39	14.0	
0.063	16		

Soil description	Brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	83	83
	Silt	9	9
	Clay	7	7

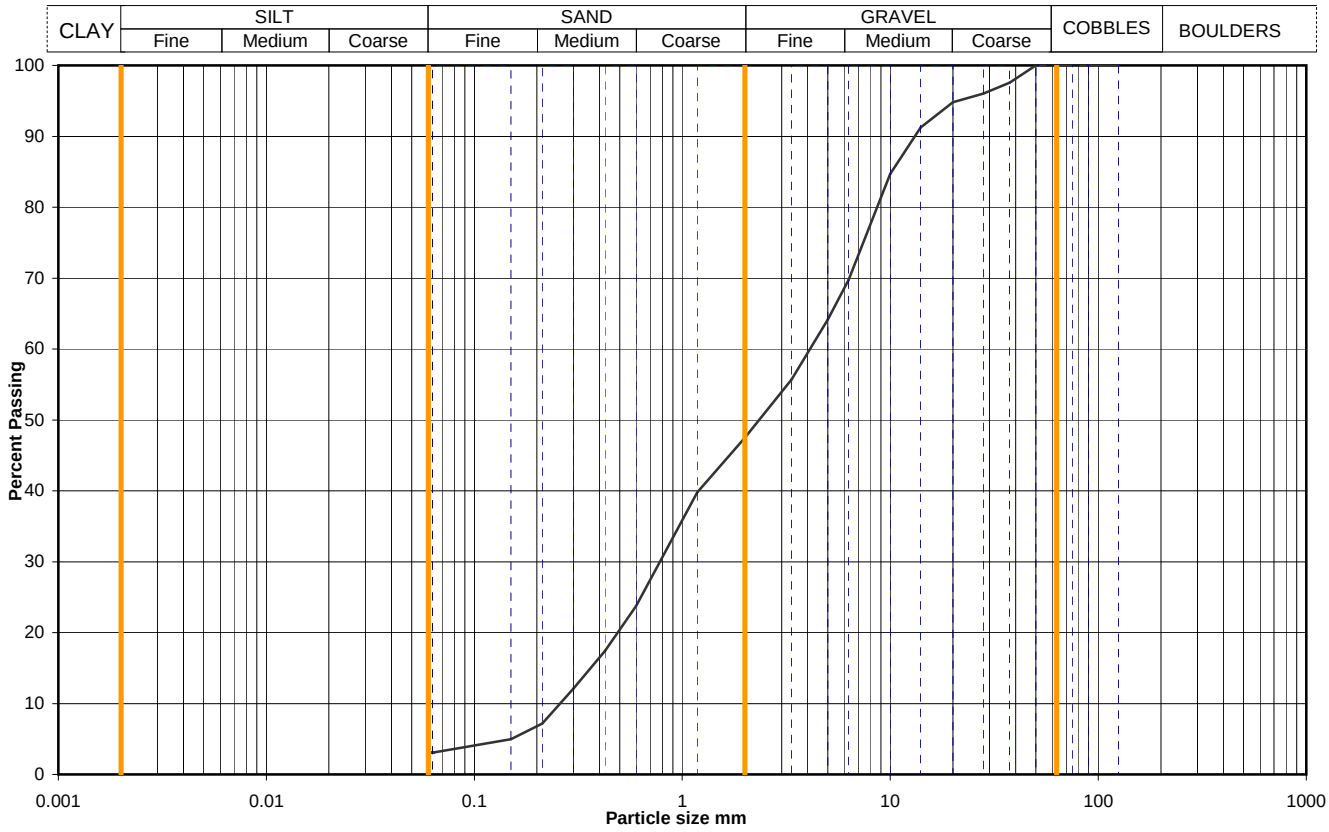
Uniformity Coefficient	D_{60} / D_{10}	34

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:55	**Figure** **PSD**

Particle Size Distribution Analysis

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	28.30		
			Samp No	53	Type	B
			ID	A5066-1520150923021118		
			Spec Ref			



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	96		
20	95		
14	91		
10	85		
6.3	70		
5.0	64		
3.35	56		
2.00	48		
1.18	40		
0.600	24		
0.425	17		
0.300	12	Dry mass of sample, kg	
0.212	7		
0.150	5	14.5	
0.063	3		

Soil description	Multicoloured very sandy GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	52	52
	Sand	44	44
	Silt	silt+clay =	
	Clay	4	4

Uniformity Coefficient	D_{60} / D_{10}	16

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

QA Ref SLR 2,9 Rev 88 Aug 11	ESG Environmental Scientifics Group	UKAS TESTING 1157	Printed:10/11/2015 16:55	**Figure** **PSD**

CHEMICAL TESTS - SUMMARY OF RESULTS

Hole No.	Sample			type	Soil Description	Org	LOI	pH	Sulphate as SO_4				SD1 options			CO_2	Chloride, Cl		<2 mm	Remarks
	No.	Depth (m)							Preparation/test *	2:1 water sol.	ground water	acid sol.	TS	Mg mg/L NO_3 mg/L NH_4			water sol.	acid sol.		
		from	to			%	%			g/L	g/L	%	%			%	%	%	%	
BH410	4	1.00		B				8.4		0.08		0.05	0.07							
BH411	2	3.70	4.00	D	Dark brownish grey slightly sandy slightly gravelly organic CLAY	7.9													39	
BH411	9	14.60	14.80	D	Dark brown slightly clayey organic SAND	0.9 c													100	
BH411	12	17.50	17.75	D	Brown silty SAND	1.2 c													100	
BH412	11	2.75		UT				8.7		0.11		0.06	0.25							
BH412	46	16.50	17.00	B	Dark brown SAND	0.6													67	
BH413	10	2.50		B				10.5		0.20		0.34	0.17							
BH413	45	17.50	17.75	D	Dark brown silty SAND	1.0													76	
BH413	54	20.70		B				8.9		0.12		0.06	0.06							
BH414	6	1.50		B				9.7		0.30		0.13	0.08							
BH414	19	7.50		B				9.1		0.58		0.27	0.18						100	
BH414	22	8.85	9.30	UT	Dark greyish brown gravelly silty SAND with one cobble	5.0 s c													100	
BH415	6	1.50		B				8.5		0.16		0.07	0.89							
BH415	19	5.75		B				8.1		0.47		0.14	0.26							
BH415	39	13.30	13.80	B	Grey silty SAND	0.6 s													99	
BH415	63	19.30	19.80	B	Dark grey SAND with wood fragment	0.4 s													100	
BH416		3.70		D				9.1		1.72		1.21	0.48							
BH416		29.50		D				8.8		0.70		0.19	0.14							
BH501	5	1.50		B				8.5		0.05		0.05	0.05							
BH501	17	6,5		B				8.7		0.10		0.05	0.04							
BH501	24	10.00		B				9.0		0.52		0.17	0.11							
BH501	39	14.40		B				8.7		0.32		0.10	0.14							
BH501	53	18.45	18.90	B	Black mottled brown SAND	0.3 s													100	
BH501	62	21.15	21.60	B	Black slightly sandy slightly gravelly SILT	0.4 s													100	

BS 1377 : definitive method unless stated :

Org Organic matter content

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

CHEMICAL TESTS - SUMMARY OF RESULTS

Hole No.	Sample			type	Soil Description	Org	LOI	pH	Sulphate as SO_4				SD1 options			CO_2	Chloride, Cl		<2 mm	Remarks
	No.	Depth (m)							Preparation/test *	2:1 water sol.	ground water	acid sol.	TS	Mg mg/L NO_3 mg/L NH_4			water sol.	acid sol.		
		from	to			%	%			g/L	g/L	%	%			%	%	%	%	
BH501	78	25.60		B				8.5		0.18		0.07	0.20							
BH501	83	27.05		B				8.7		0.09		0.03	0.06							
BH501	97	32.00		B				8.8		0.04		0.04	0.04							
BH502	6	1.70		UT				8.5		0.18		0.07	0.20							
BH502	38	12.00	12.50	B	Grey mottled brown SAND	0.4													100	
BH503	27	18.15	18.55	B		0.7 s c													31	

BS 1377 : definitive method unless stated :

Org Organic matter content

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

TEST REPORT

1252

Report No. EFS/156045 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Princess Quay

The 8 samples described in this report were registered for analysis by ESG on 09-Sep-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 15-Sep-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]
Managing Director
Multi-Sector Services

Date of Issue: 15-Sep-2015

Tests marked '^' have been subcontracted to another laboratory.
Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	pH Units												
Method Codes :			ICPACIDS	ICPWSS	TSBRE1	WSLM50												
Method Reporting Limits :			20	10	0.005													
UKAS Accredited :			Yes	Yes	No	No												
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Total Sulphur.**	**pH (BS1377)**												
1561678	BH415 B 6 1.50		732	156	0.089	8.5												
1561679	BH415 B 19 5.75		1360	470	0.256	8.1												
1561680	BH501 B 5 1.50		473	52	0.048	8.5												
1561681	BH501 B 17 6.50		545	98	0.043	8.7												
1561682	BH501 B 24 10.00		1710 §	517 §	0.109	9.0												
1561683	BH501 B 39 14.40		1040	315	0.142	8.7												
1561684	BH501 B 83 27.05		320	94	0.064	8.7												
1561685	BH501 B 97 32.00		379	60	0.043	8.8												

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Princess Quay

Sample Analysis

Date Printed	**15-Sep-2015**
Report Number	**EFS/156045**
Table Number	**1**

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Princess Quay
Report No S156045

Consignment No S50427
Date Logged 09-Sep-2015

Report Due 15-Sep-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1561678	BH415 1.50-2.00	D	D	D	D	D	D	D	D	D	D	D	D
CL/1561679	BH415 5.75-6.75	D	D				D	D	D	D	D	D	D
CL/1561680	BH501 1.50-2.00	D	D				D	D	D	D	D	D	D
CL/1561681	BH501 6.50-7.00	D	D				D	D	D	D	D	D	D
CL/1561682	BH501 10.00-10.50	D	D				D	D	D	D	D	D	D
CL/1561683	BH501 14.40-14.85	D	D				D	D	D	D	D	D	D
CL/1561684	BH501 27.05-27.50	D	D				D	D	D	D	D	D	D
CL/1561685	BH501 32.00-32.45	D	D				D	D	D	D	D	D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : Princess Quay

Report Number : S15_6045

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1561678	BH415 B 6 1.50	CLAY
CL/1561679	BH415 B 19 5.75	CLAY
CL/1561680	BH501 B 5 1.50	CLAY
CL/1561681	BH501 B 17 6.50	SILT
CL/1561682	BH501 B 24 10.00	STONE
CL/1561683	BH501 B 39 14.40	SILT
CL/1561684	BH501 B 83 27.05	SILT
CL/1561685	BH501 B 97 32.00	SILT

TEST REPORT

1252

Report No. EFS/156436 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Princess Quay

The 6 samples described in this report were registered for analysis by ESG on 23-Sep-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 29-Sep-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 29-Sep-2015

Tests marked '^' have been subcontracted to another laboratory.
Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.
ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	pH Units												
Method Codes :			ICPACIDS	ICPWSS	TSBRE1	WSLM50												
Method Reporting Limits :			20	10	0.005													
UKAS Accredited :			Yes	Yes	No	No												
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Total Sulphur.**	**pH (BS1377)**												
1563269	BH410 B 4 1.00		517	84	0.069	8.4												
1563270	BH412 UT 11 2.75		626	110	0.247	8.7												
1563271	BH413 B 10 2.50		3370	204	0.170	10.5												
1563272	BH413 B 54 20.70		559	124	0.064	8.9												
1563273	BH501 B 78 25.60		722	178	0.203	8.5												
1563274	BH502 UT 6 1.70		350	35	0.068	8.7												

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Client Name **ESG Doncaster**

Contact Mr M Stanley

Princess Quay

Sample Analysis

Date Printed	**29-Sep-2015**
Report Number	**EFS/156436**
Table Number	**1**

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Princess Quay
Report No S156436

Consignment No S50743
Date Logged 23-Sep-2015

Report Due 29-Sep-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1563269	BH410 1.0-1.2	D	D	D	D	D	D	D	D	D	D	D	D
CL/1563270	BH412 2.75-3.2	D	D				D	D	D	D	D	D	D
CL/1563271	BH413 2.5-3.0	D	D				D	D	D	D	D	D	D
CL/1563272	BH413 20.7-21.2	D	D				D	D	D	D	D	D	D
CL/1563273	BH501 25.6-26.05	D	D				D	D	D	D	D	D	D
CL/1563274	BH502 1.7-2.15	D	D				D	D	D	D	D	D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

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Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : Princess Quay

Report Number : S15_6436

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1563269	BH410 B 4 1.00	CLAY
CL/1563270	BH412 UT 11 2.75	MADE GROUND
CL/1563271	BH413 B 10 2.50	SILT
CL/1563272	BH413 B 54 20.70	CLAY
CL/1563273	BH501 B 78 25.60	SILT
CL/1563274	BH502 UT 6 1.70	SILT

TEST REPORT

1252

Report No. EFS/156446 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Princess Quay

The 2 samples described in this report were registered for analysis by ESG on 23-Sep-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 29-Sep-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]
Managing Director
Multi-Sector Services

Date of Issue: 29-Sep-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	pH Units												
Method Codes :			ICPACIDS	ICPWSS	TSBRE1	WSLM50												
Method Reporting Limits :			20	10	0.005													
UKAS Accredited :			Yes	Yes	No	No												
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Total Sulphur.**	**pH (BS1377)**												
1563329	BH416 D 3.70		12100	1720	0.485	9.1												
1563330	BH416 D 29.50		1950	702	0.137	8.8												

ESG

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Client Name	**ESG Doncaster**
Contact	Mr M Stanley

Princess Quay

Sample Analysis

Date Printed	**29-Sep-2015**
Report Number	**EFS/156446**
Table Number	**1**

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S156446

Customer **ESG Doncaster**
Site **Princess Quay**
Report No **S156446**

Consignment No S50750
Date Logged 23-Sep-2015

Report Due 29-Sep-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1563329	BH416 3.70-4.20	D	D	D	D	D	D	D	D	D	D	D	D
CL/1563330	BH416 29.50-30.00	D	D				D	D	D	D	D	D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
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Sample Descriptions

Client : ESG Doncaster
Site : Princess Quay
Report Number : S15_6446

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1563329	BH416 D 3.70	MADE GROUND
CL/1563330	BH416 D 29.50	SILT

TEST REPORT

1252

Report No. EFS/157962 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: A5066-15 A63 Princess Quay

The 2 samples described in this report were registered for analysis by ESG on 20-Nov-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 25-Nov-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 25-Nov-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	pH Units												
Method Codes :			ICPACIDS	ICPWSS	TSBRE1	WSLM50												
Method Reporting Limits :			20	10	0.005													
UKAS Accredited :			Yes	Yes	No	No												
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Total Sulphur.**	**pH (BS1377)**												
1570141	BH414 B 6 1.50		1280	296	0.082	9.7												
1570142	BH414 B 19 7.50		2710	582	0.181	9.1												

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

A5066-15 A63 Princess Quay

Sample Analysis

Date Printed	**25-Nov-2015**
Report Number	**EFS/157962**
Table Number	**1**

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S157962

Customer **ESG Doncaster**
Site **A5066-15 A63 Princess Quay**
Report No **S157962**

Consignment No S51913
Date Logged 20-Nov-2015

Report Due 27-Nov-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1570141	BH414 1.50-2.00	D	D	D	D	D	D	D	D	D	D	D	D
CL/1570142	BH414 7.50-7.95	D	D				D	D	D	D	D	D	D

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E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
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Sample Descriptions

Client : ESG Doncaster

Site : A5066-15 A63 Princess Quay

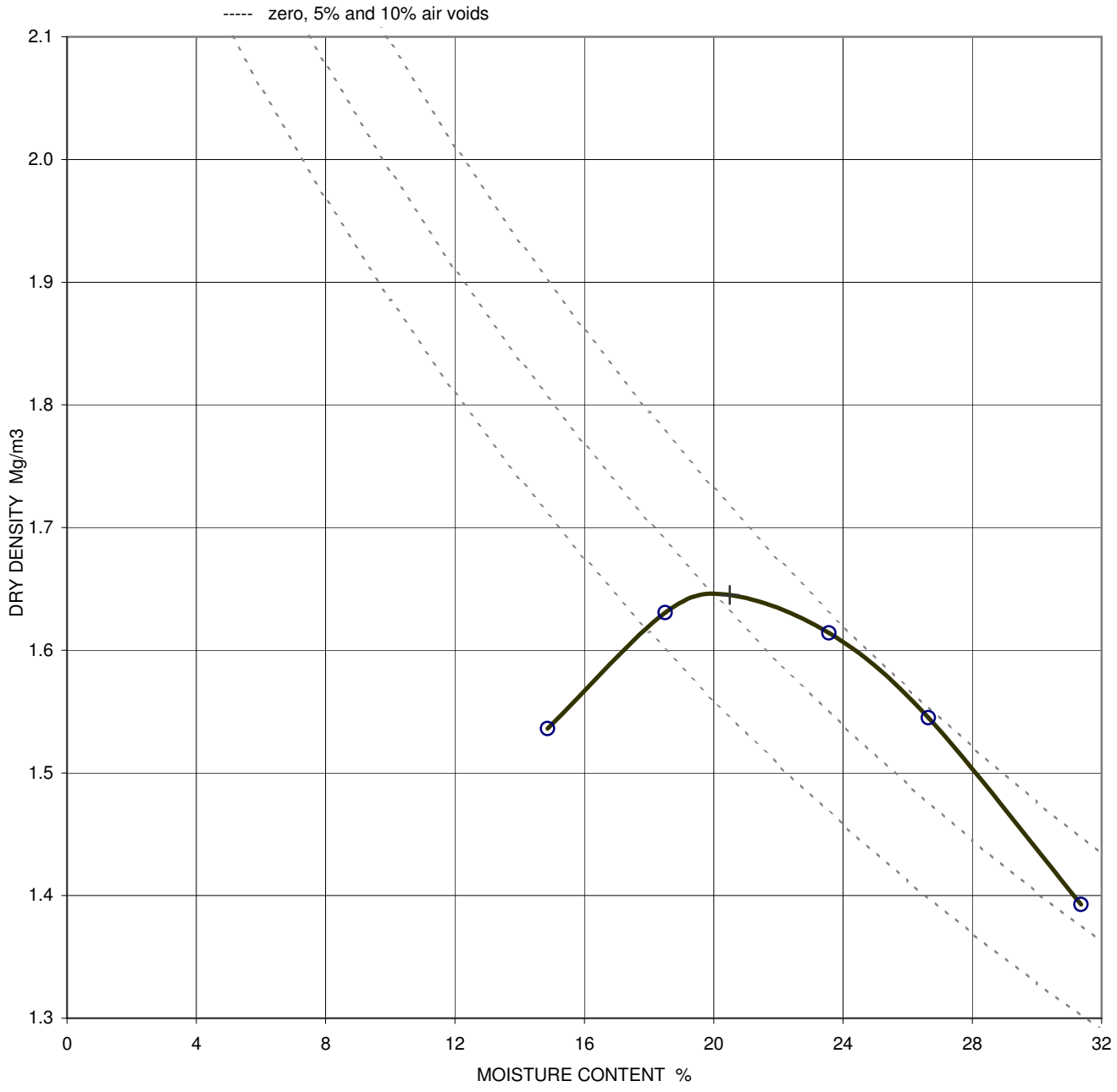
Report Number : S15_7962

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1570141	BH414 B 6 1.50	CLAY
CL/1570142	BH414 B 19 7.50	MADE GROUND

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : HEAVY COMPACTION, 4.5 kg rammer

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	1.00		
			Samp No	4	Type	B
			ID	A5066-1520150721032143		
			Spec Ref			



Soil description	Brown slightly sandy CLAY.		
Test method	BS 1377:part 4:1990: clause 3.5, 4.5 kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.65	assumed	
Remarks			

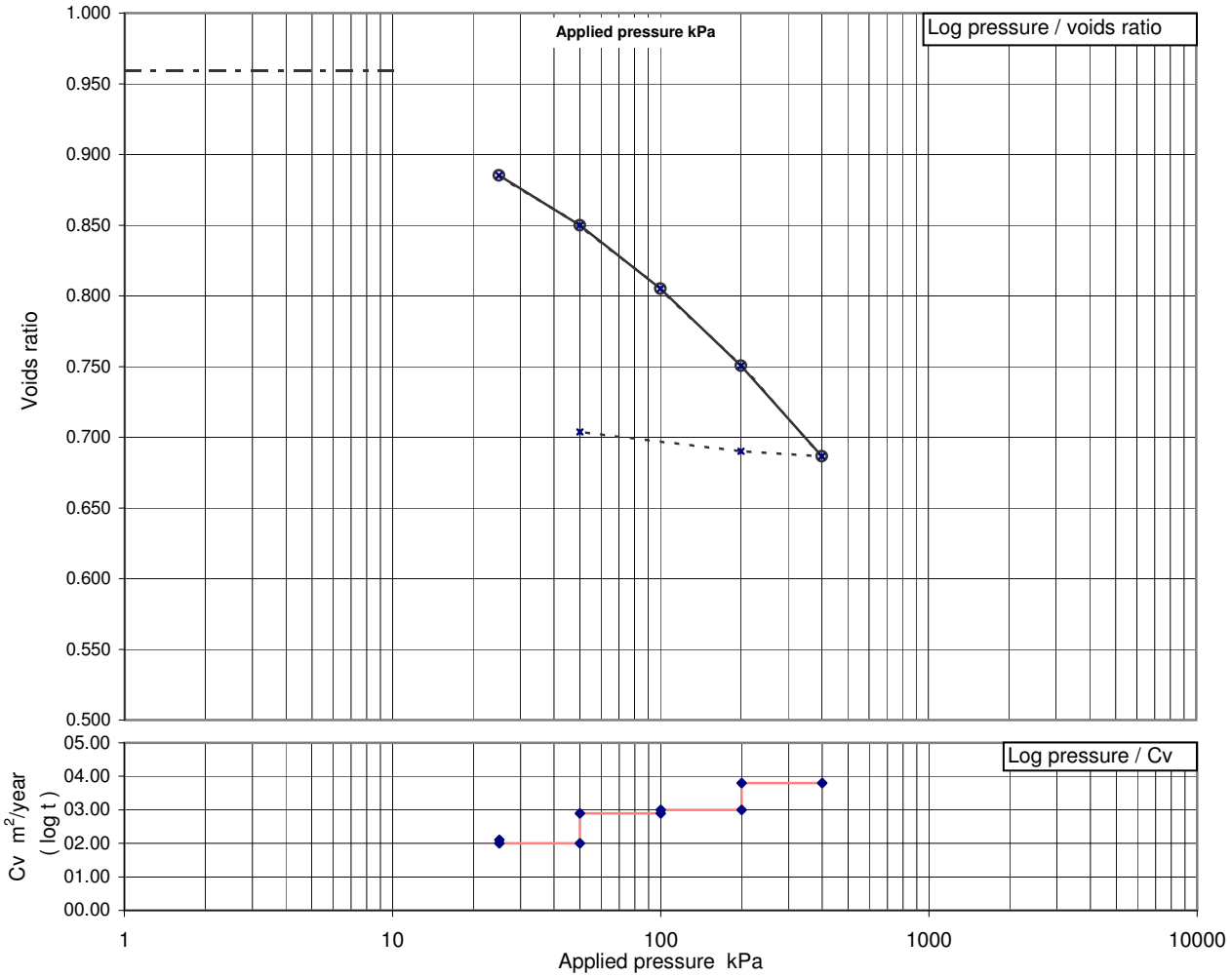
Derived Parameters +

Maximum dry density, Mg/m3 **1.65**

Optimum moisture content, % **21**

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	8.00		
			Samp No	18	Type	UT
			ID	A5066-1520150901102635		
			Spec Ref			



Soil description	Soft brownish grey laminated organic slightly sandy CLAY.
Preparation	Undisturbed
Index properties (if available)	Liquid limit % 41 Plastic limit % 21

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	74.99		mm
Height	20.13	17.50	mm
Voids ratio	0.960	0.704	
Moisture content	36	27	%
Bulk density	1.84	1.98	Mg/m³
Dry density	1.35	1.56	Mg/m³
Saturation	100	103	%
Average temperature for test	23		°C

Swelling pressure: not measured kPa

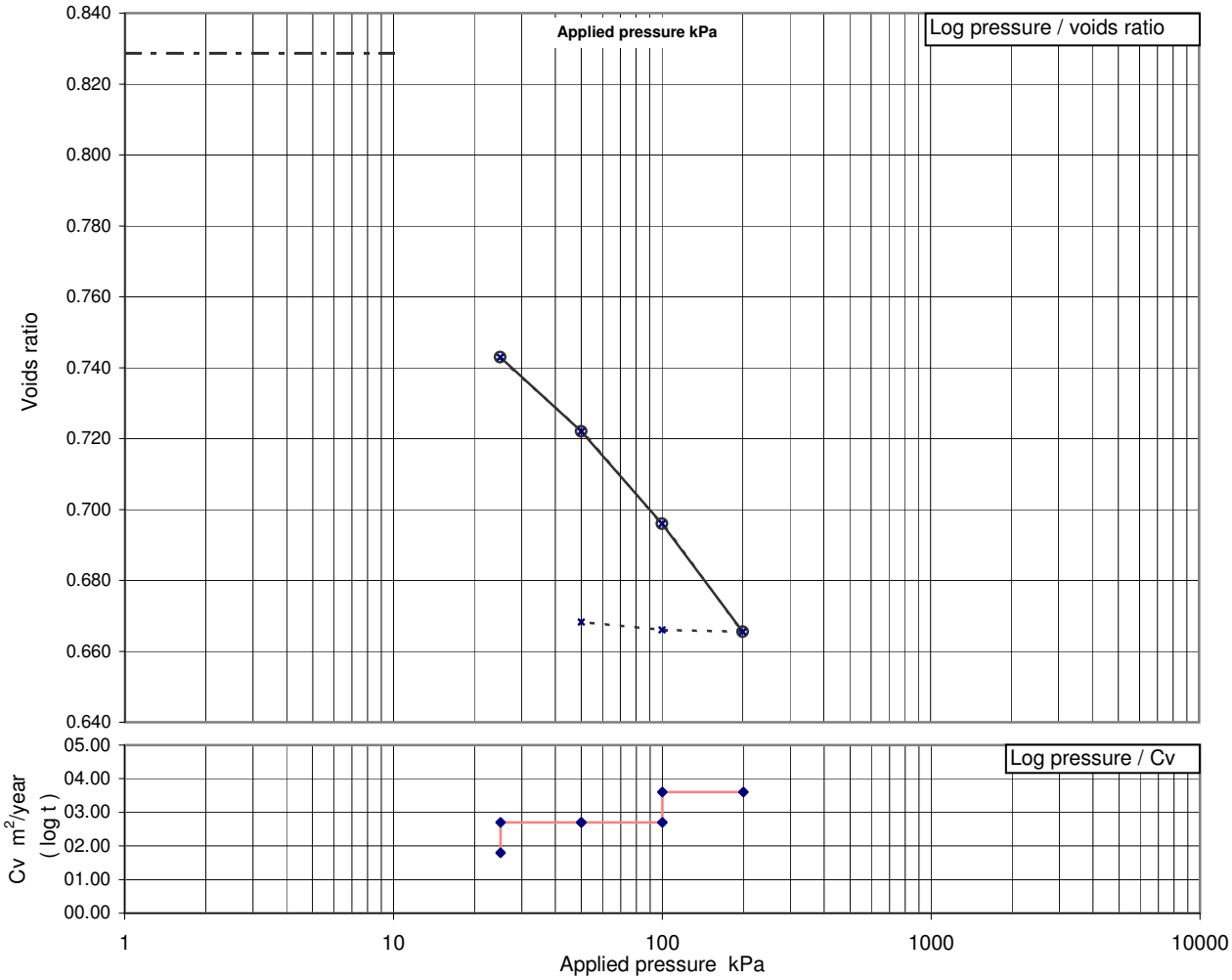
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	0.9597				
25	0.8853	1.518	2.1	2.3	
50	0.8500	0.750	2	2.1	
100	0.8050	0.486	2.9	3	
200	0.7506	0.301	3	3.2	
400	0.6864	0.183	3.8	4.1	
200	0.6900	0.011	-	-	
50	0.7037	0.054	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	8.00		
			Samp No	25	Type	UT
			ID	A5066-1520150804042144		
			Spec Ref			



Soil description: Grey organic slightly sandy clayey SILT.

Preparation: Undisturbed

Index properties (if available): Liquid limit % | Plastic limit %

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	75.00		mm
Height	18.94	17.28	mm
Voids ratio	0.829	0.668	
Moisture content	31	25	%
Bulk density	1.89	1.98	Mg/m^3
Dry density	1.45	1.59	Mg/m^3
Saturation	98	99	%
Average temperature for test	23		°C

Swelling pressure: not measured kPa

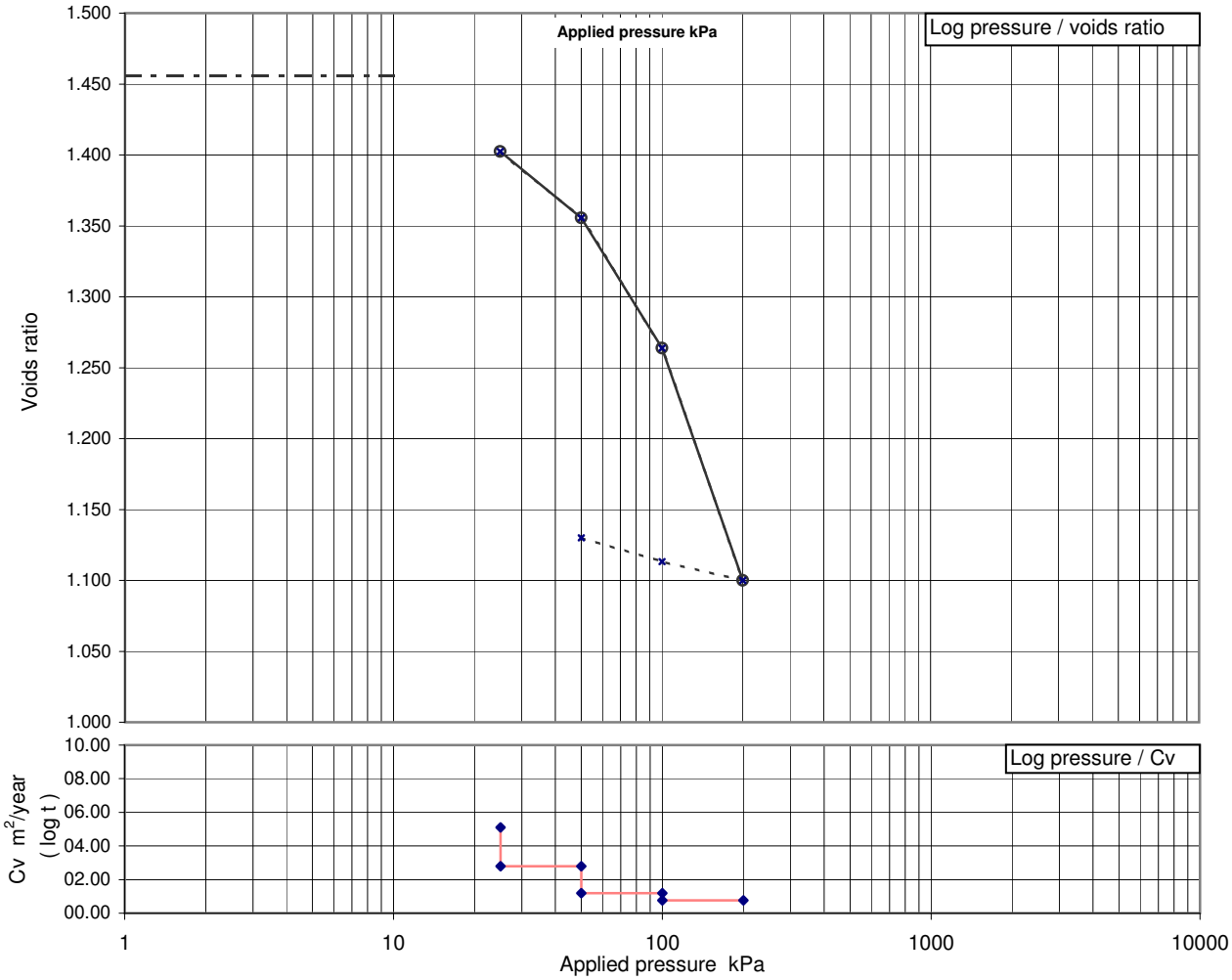
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) m^2/year	C_v ($t_{90, root}$) m^2/year	
0	0.8286				
25	0.7430	1.873	1.8	1.9	
50	0.7220	0.481	2.7	2.8	
100	0.6960	0.303	2.7	2.9	
200	0.6655	0.179	3.6	3.9	
100	0.6660	0.003	-	-	
50	0.6682	0.027	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.55		
			Samp No	20	Type	P
			ID	A5066-1520150903025927		
			Spec Ref			



Soil description	Soft to firm brownish grey organic slightly sandy CLAY.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	52	Plastic limit %	26

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	75.01		mm
Height	20.14	17.47	mm
Voids ratio	1.456	1.130	
Moisture content	52	42	%
Bulk density	1.64	1.77	Mg/m³
Dry density	1.08	1.24	Mg/m³
Saturation	95	99	%
Average temperature for test	23		°C

Swelling pressure: not measured kPa

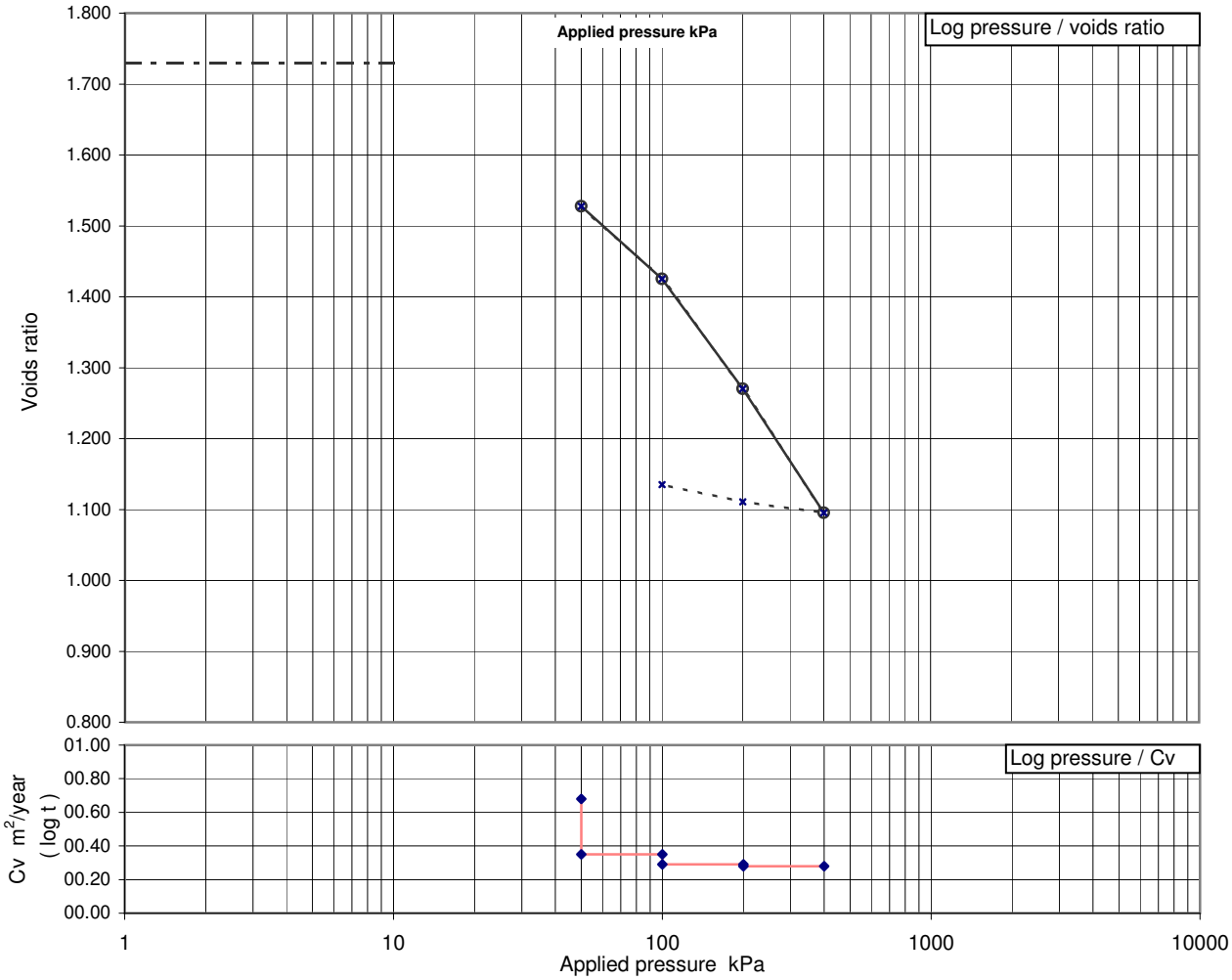
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	1.4559				
25	1.4024	0.872	5.1	5.5	
50	1.3557	0.778	2.8	3	
100	1.2639	0.780	1.2	1.3	
200	1.0999	0.724	0.77	0.82	
100	1.1132	0.063	-	-	
50	1.1301	0.159	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH414		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	10.00		
			Samp No	26	Type	P
			ID	A5066-1520150828104839		
			Spec Ref			



Soil description	Soft dark grey organic slightly sandy CLAY.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	82	Plastic limit %	46

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	75.00		mm
Height	18.95	14.82	mm
Voids ratio	1.730	1.135	
Moisture content	63	43	%
Bulk density	1.58	1.77	Mg/m^3
Dry density	0.97	1.24	Mg/m^3
Saturation	96	100	%
Average temperature for test	21		°C

Swelling pressure: not measured kPa

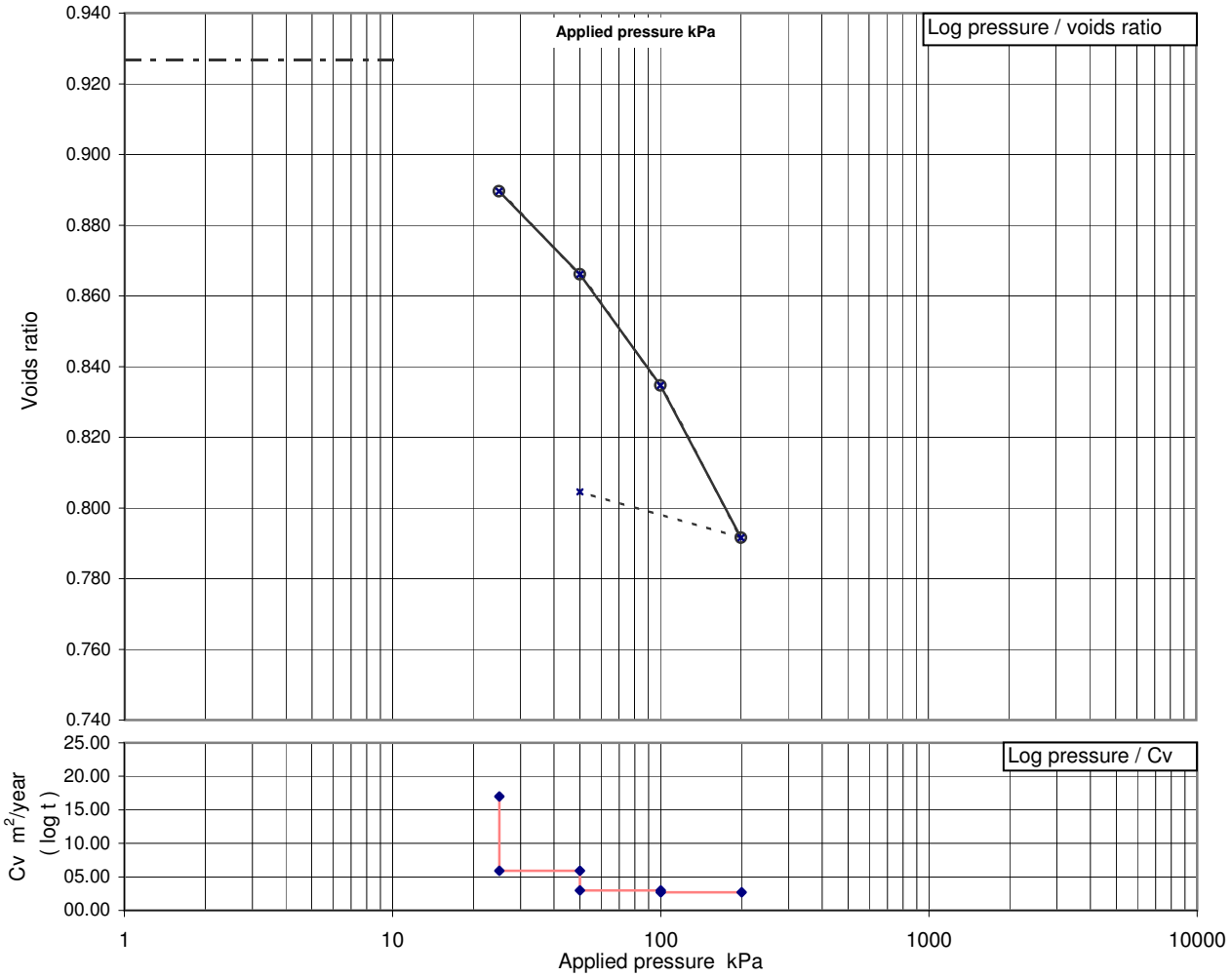
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) m^2/year	C_v ($t_{90, root}$) m^2/year	
0	1.7305				
50	1.5274	1.487	0.68	0.74	
100	1.4251	0.810	0.35	0.37	
200	1.2703	0.638	0.29	0.31	
400	1.0955	0.385	0.28	0.3	
200	1.1107	0.036	-	-	
100	1.1353	0.117	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	2.00		
			Samp No	7	Type	UT
			ID	A5066-1520150806123751		
			Spec Ref			



Soil description	Soft to firm brown slightly gravelly sandy CLAY.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	53	Plastic limit %	28

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	75.00		mm
Height	18.94	17.74	mm
Voids ratio	0.927	0.805	
Moisture content	32	31	%
Bulk density	1.82	1.92	Mg/m³
Dry density	1.38	1.47	Mg/m³
Saturation	92	101	%
Average temperature for test	23		°C

Swelling pressure: not measured kPa

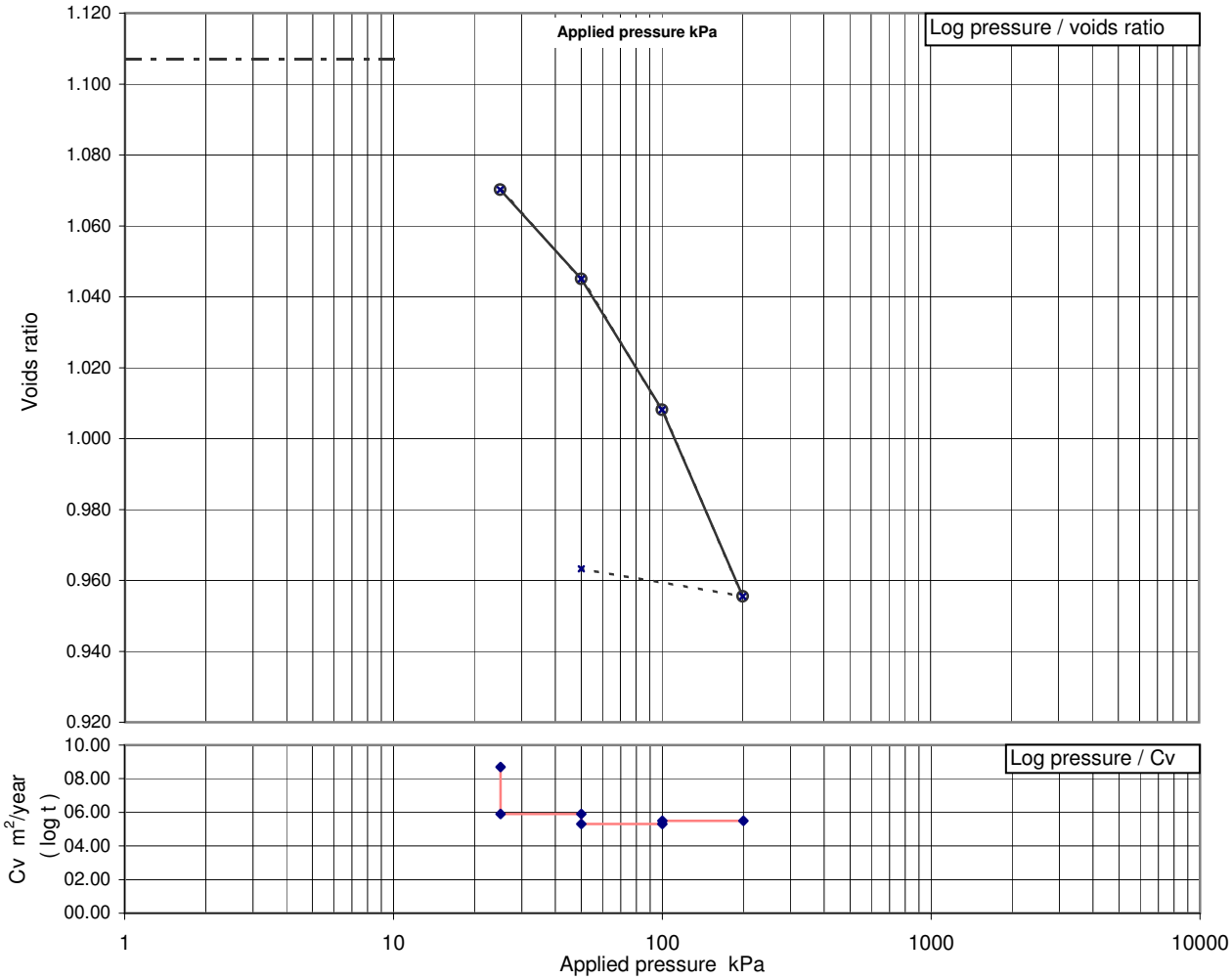
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	0.9268				
25	0.8896	0.773	17	19	
50	0.8661	0.497	5.9	6.3	
100	0.8346	0.337	3	3.1	
200	0.7916	0.235	2.7	2.9	
50	0.8045	0.048	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	6.75		
			Samp No	20	Type	UT
			ID	A5066-1520150806124051		
			Spec Ref			



Soil description	Firm brownish grey organic sandy gravelly silty CLAY.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	48	Plastic limit %	26

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	75.02		mm
Height	18.94	17.64	mm
Voids ratio	1.107	0.963	
Moisture content	37	34	%
Bulk density	1.72	1.81	Mg/m³
Dry density	1.26	1.35	Mg/m³
Saturation	88	94	%
Average temperature for test	23		°C

Swelling pressure: not measured kPa

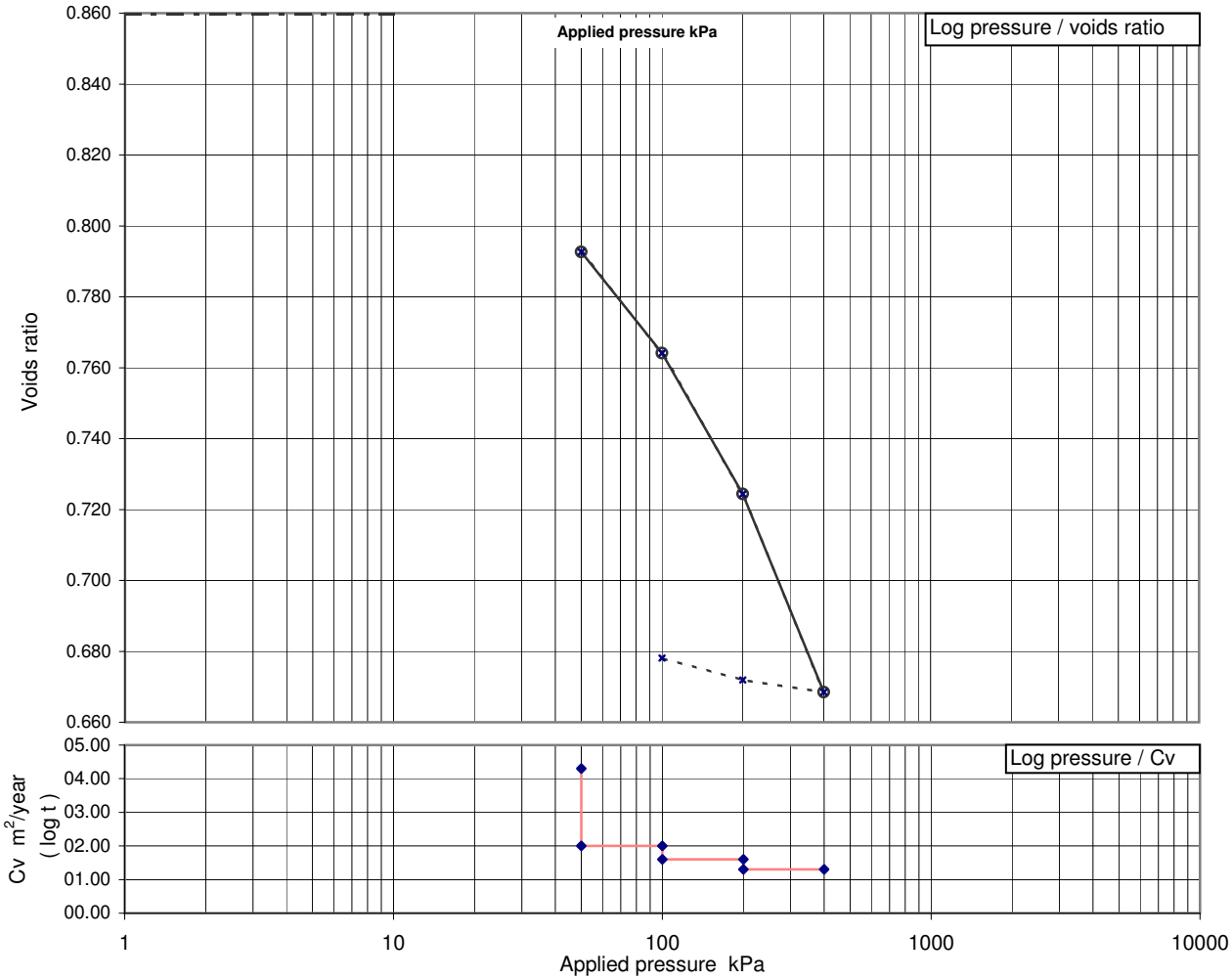
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	1.1071				
25	1.0702	0.699	8.7	9.3	
50	1.0451	0.486	5.9	6.2	
100	1.0081	0.361	5.3	5.6	
200	0.9555	0.262	5.5	5.8	
50	0.9633	0.027	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.00		
			Samp No	28	Type	P
			ID	A5066-1520150806124240		
			Spec Ref			



Soil description	Soft laminated brown slightly sandy silty CLAY with sand on laminae.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	34	Plastic limit %	23

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	75.00		mm
Height	18.95	17.10	mm
Voids ratio	0.860	0.678	
Moisture content	30	25	%
Bulk density	1.85	1.98	Mg/m^3
Dry density	1.42	1.58	Mg/m^3
Saturation	92	98	%
Average temperature for test			°C

Swelling pressure: not measured kPa

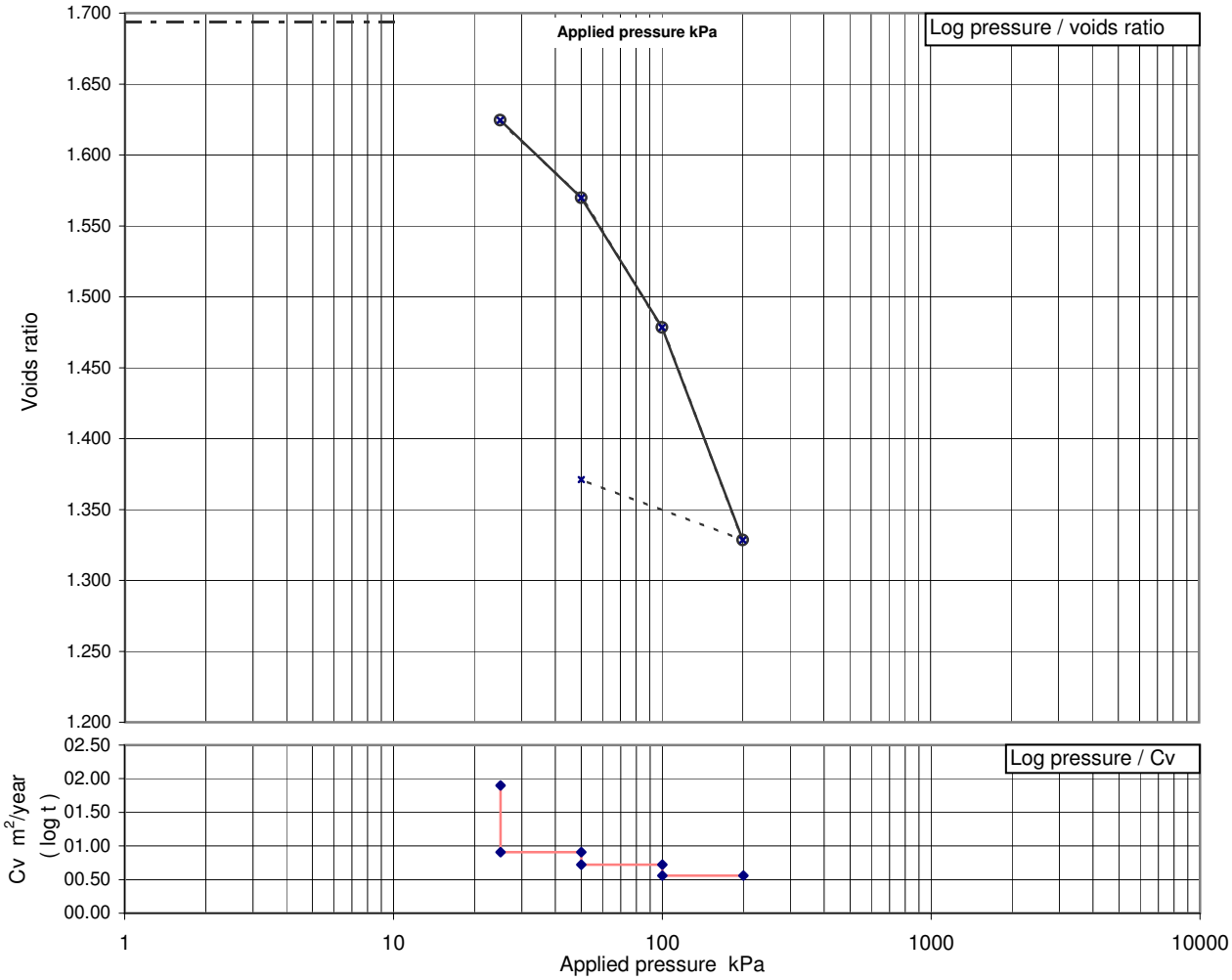
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) m^2/year	C_v ($t_{90, root}$) m^2/year	
0	0.8597				
50	0.7926	0.722	4.3	4.6	
100	0.7641	0.317	2	2.2	
200	0.7244	0.225	1.6	1.7	
400	0.6685	0.162	1.3	1.4	
200	0.6719	0.010	-	-	
100	0.6781	0.037	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.20		
			Samp No	24	Type	UT
			ID	A5066-1520150909120955		
			Spec Ref			



Soil description: Soft brownish grey organic slightly sandy CLAY.

Preparation: Undisturbed

Index properties (if available): Liquid limit % 79 | Plastic limit % 45

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	74.99		mm
Height	18.93	16.66	mm
Voids ratio	1.694	1.371	
Moisture content	60	50	%
Bulk density	1.58	1.68	Mg/m³
Dry density	0.98	1.12	Mg/m³
Saturation	95	97	%
Average temperature for test	23		°C

Swelling pressure: not measured kPa

Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	1.6937				
25	1.6246	1.027	1.9	2	
50	1.5697	0.837	0.91	0.98	
100	1.4784	0.710	0.72	0.76	
200	1.3285	0.605	0.56	0.6	
50	1.3710	0.122	-	-	

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

Project No	Project Name
A5066-15	A63 PRINCESS QUAY

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	ó₃ kPa	At failure / end of stage: Axial strain %	ó₁ - ó₃ kPa	c_u kPa	MODE	Remarks
BH410	43	18.90	19.35	UT	Firm to stiff greyish brown slightly sandy slightly gravelly CLAY.	2.01	1.61	25	UU	103.9	215	17.8	138	69	C	
BH412	7	1.70	2.15	UT	Firm brown sandy CLAY.	1.91	1.42	35	UU	102.7	40	10.9	51	25	P	
BH412	31	9.75	10.20	UT	Firm greyish brown slightly sandy CLAY.	1.98	1.53	29	UU	103.8	123	19.8	76	38	P	
BH412	54	20.00	20.45	UT	Firm to stiff greyish brown CLAY with sand partings.	1.98	1.58	25	UU	103.5	225	12.8	191	95	P	
BH412	60	22.20	22.65	UT	Stiff laminated greyish brown slightly sandy CLAY with sand on laminae.	2.00	1.60	25	UU	103.9	250	6.9	105	52	B	
BH413	55	21.20	21.65	UT	Firm brown slightly sandy CLAY with occasional partings of sand.	2.01	1.61	26	UU	102.9	240	19.8	121	60	C	
BH413	67	25.20	25.65	UT	Still greyish brown laminated slightly sandy CLAY.	2.14	1.80	19	UU	103.4	280	19.9	359	179	P	
BH414	58	20.30	20.75	U	Stiff dark brown slightly sandy CLAY with partings of silt and sand.	2.01	1.60	25	UU	102.8	230	10.9	177	89	B	
BH414	69	24.20	24.65	U	Firm greyish brown slightly sandy CLAY with partings of sand.	1.99	1.57	27	UU	103.6	270	11.9	65	33	C	
BH415	31	10.65	11.65	P	Firm dark brown mottled brown sandy silty CLAY.	1.87	1.42	32	UU	97.6	133	18.3	89	44	C	
BH415	70	21.30	21.75	UT	Stiff laminated greyish brown slightly sandy slightly gravelly CLAY.	1.99	1.55	29	UU	103.5	240	19.3	110	55	P	
BH415	74	22.50	22.95	UT	Firm brown slightly sandy CLAY with silt partings.	2.01	1.60	26	UU	103.5	250	18.4	92	46	P	
BH415	78	23.60	24.05	UT	Firm to stiff brown slightly sandy CLAY.	1.98	1.56	27	UU	103.8	260	7.4	140	70	B	
BH416	50	19.70	20.15	UT	Firm greyish brown laminated slightly sandy CLAY.	2.02	1.59	27	UU	103.0	225	19.8	115	58	C	
BH416	62	23.50	23.95	UT	Firm greyish brown laminated slightly sandy CLAY.	1.98	1.53	29	UU	103.5	260	19.8	65	33	P	
BH501	73	24.05	24.50	U	Firm to stiff brown slightly sandy CLAY.	1.99	1.58	26	UU	103.7	265	12.4	107	54	P	
BH502	73	21.00	21.45	UT	Firm to stiff greyish brown slightly sandy CLAY with sand partings.	1.99	1.58	26	UU	103.5	235	11.4	130	65	B	
BH502	81	23.00	23.45	UT	Firm laminated greyish brown slightly sandy CLAY.	2.01	1.60	26	UU	103.8	255	18.3	117	59	C	
BH503	40	21.90	22.35	UT	Firm laminated greyish brown slightly sandy CLAY.	1.98	1.56	27	UU	103.7	220	11.3	169	84	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)	ó₃	cell pressure	Mode of failure	P	plastic
UUM - multistage test on a single specimen	ó₁ - ó₃	deviator stress		B	brittle
suffix R - remoulded or recompacted	c_u	undrained shear strength		C	compound

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

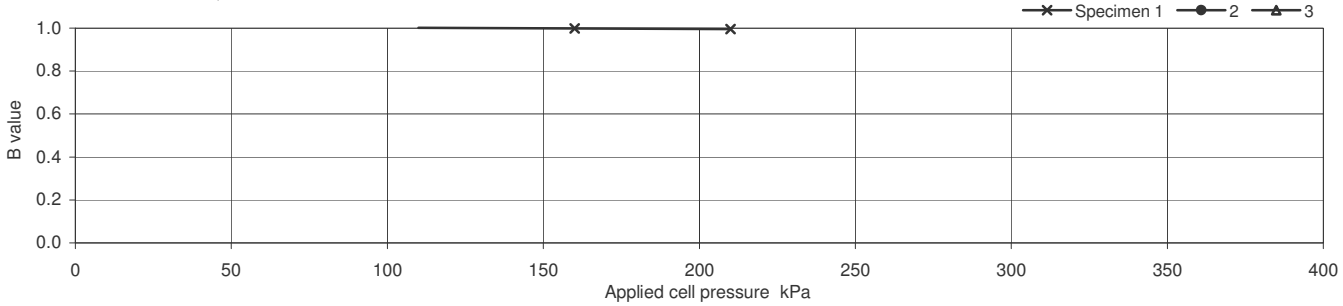
Project No	A5066-15	Sample Details:	Hole No	BH410	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	3.00 - 4.00	
			No	P	Type 10
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.11		
	Diameter	mm	96.51		
	Bulk Density	Mg/m³	1.85		
	Water Content	%	40		
	Dry density	Mg/m³	1.32		
After consolidation	Length	mm	199.91		
	Diameter	mm	94.98		
	Bulk Density*	Mg/m³	1.89		
	Water Content*	%	37		
	Dry density*	Mg/m³	1.38		

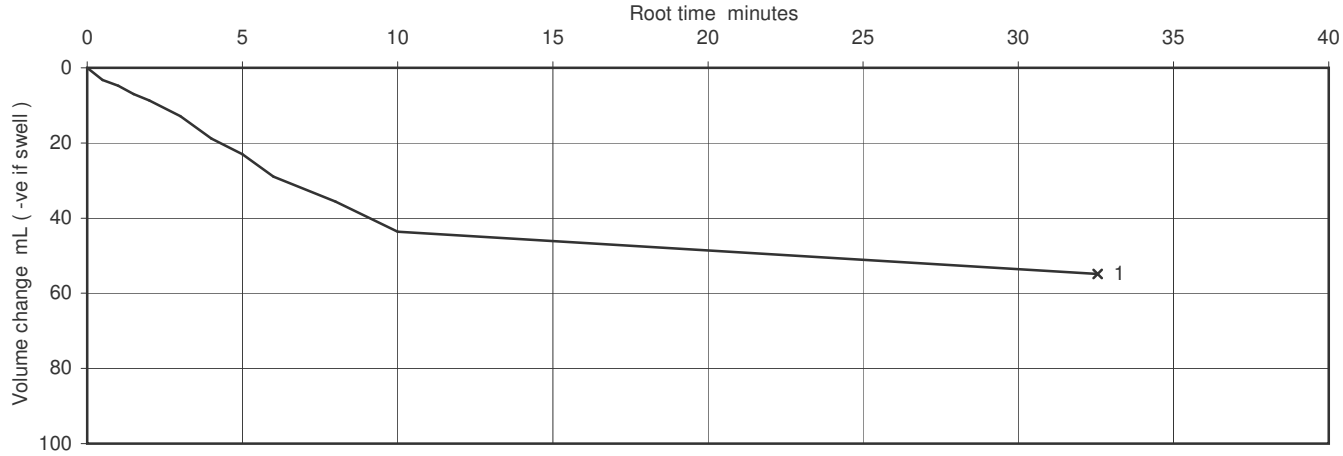
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft to firm brown slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	203.2		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		360			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		80			kPa
	Pore pressure at start of consolidation		355			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.17			m^2/year
	Coefficient of Compressibility	M_{vi}	0.68			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.5E-10			m/s

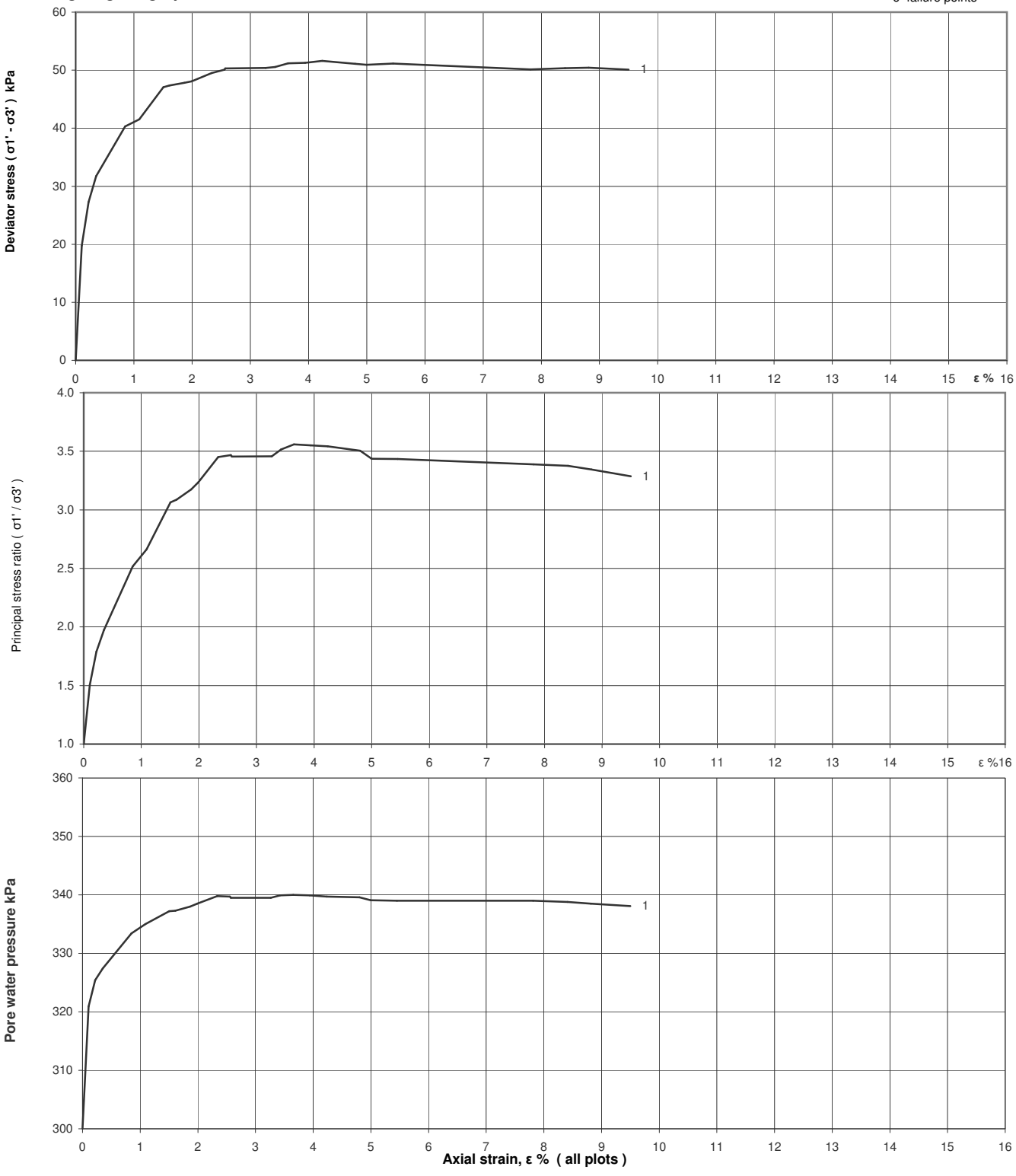


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	3.00 - 4.00		
			No	P	Type	10
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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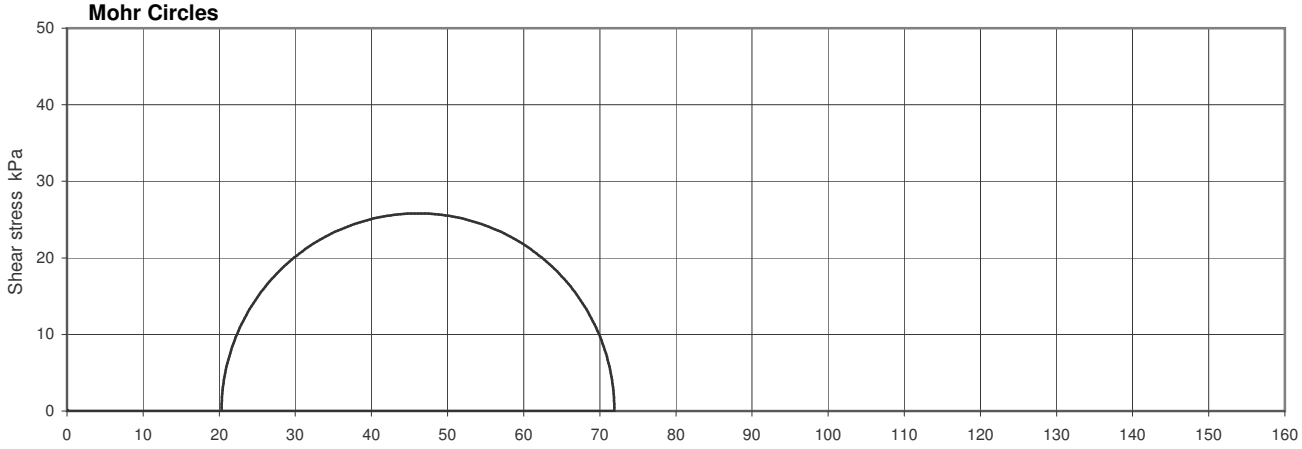
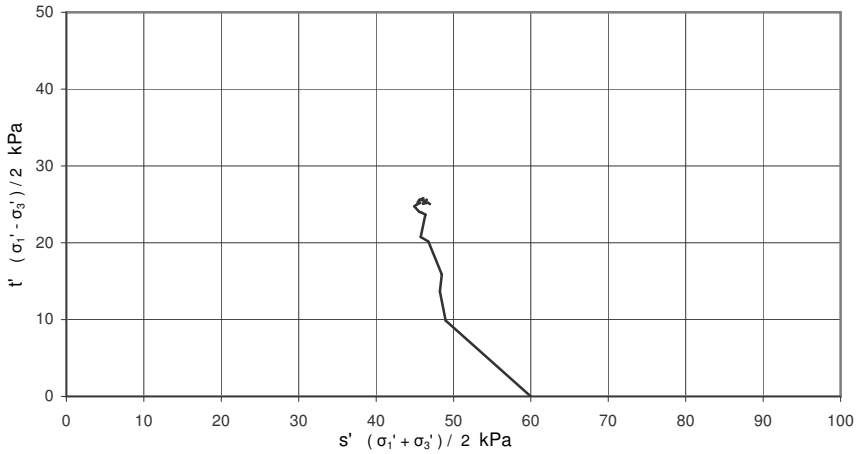
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	3.00 - 4.00		
			No	P	Type	10
			ID			
			Spec Ref			

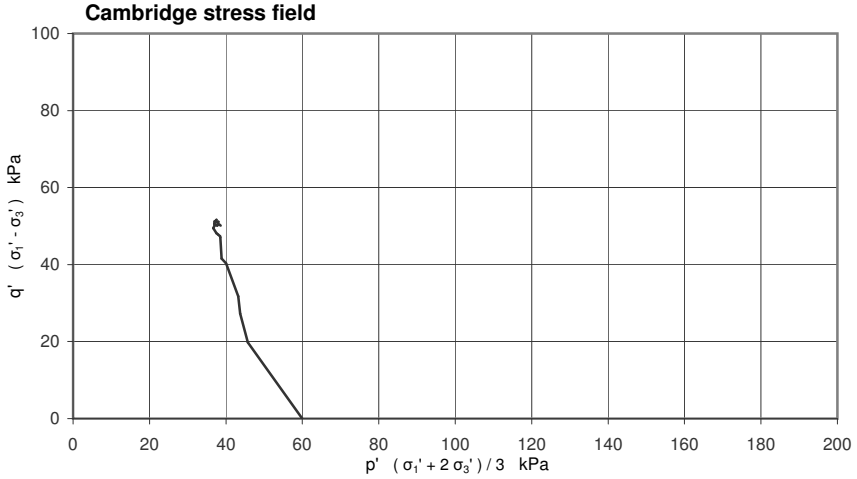
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	360			kPa
Initial pwp	300			kPa
Initial σ_3'	60			kPa
Rate of strain	1.11			%/hr

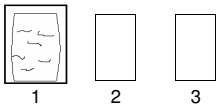
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	4.24			%
$(\sigma_1' / \sigma_3')_f$	3.543			
$(\sigma_1' - \sigma_3')_f$	51.6			kPa
u_f	340			kPa
$\sigma_3'_f$	20			kPa
$\sigma_1'_f$	72			kPa
A_f	0.77			
Time to failure	3.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.388 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

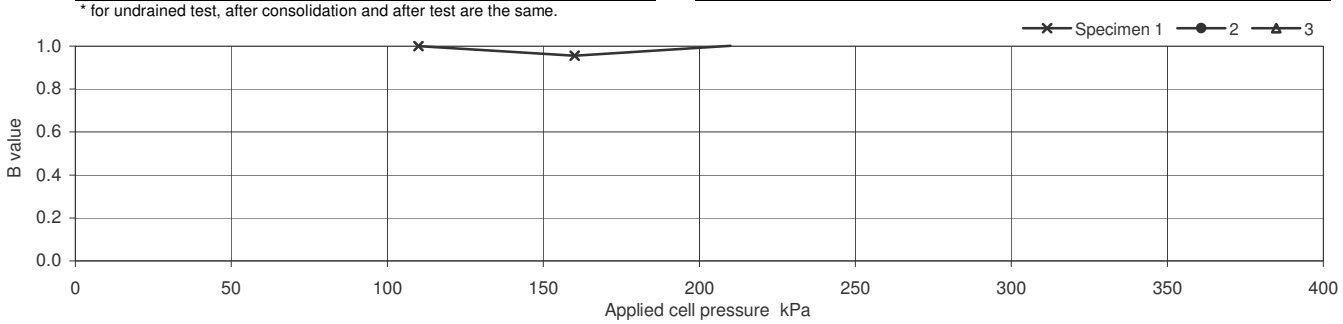
Project No	A5066-15	Sample Details:	Hole No	BH410	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	6.00-7.00	
			No	15	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.83		
	Diameter	mm	97.30		
	Bulk Density	Mg/m³	1.93		
	Water Content	%	33		
	Dry density	Mg/m³	1.45		
After consolidation	Length	mm	200.55		
	Diameter	mm	96.20		
	Bulk Density*	Mg/m³	1.96		
	Water Content*	%	31		
	Dry density*	Mg/m³	1.50		

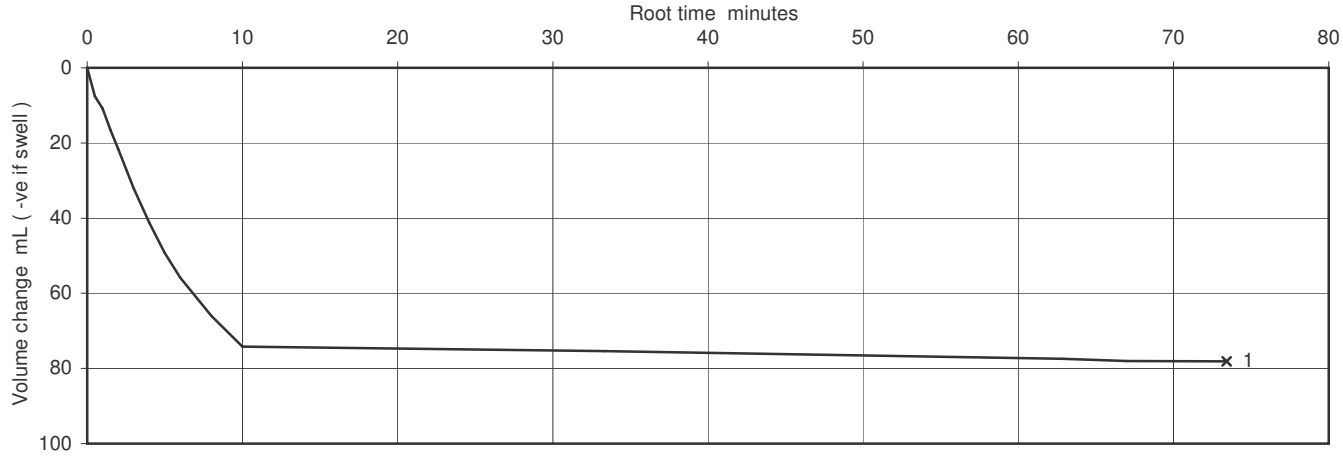
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft dark grey slightly sandy CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	208		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		390			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		90			kPa
	Pore pressure at start of consolidation		385			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.62			m^2/year
	Coefficient of Compressibility	M_{vi}	0.60			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	4.9E-10			m/s

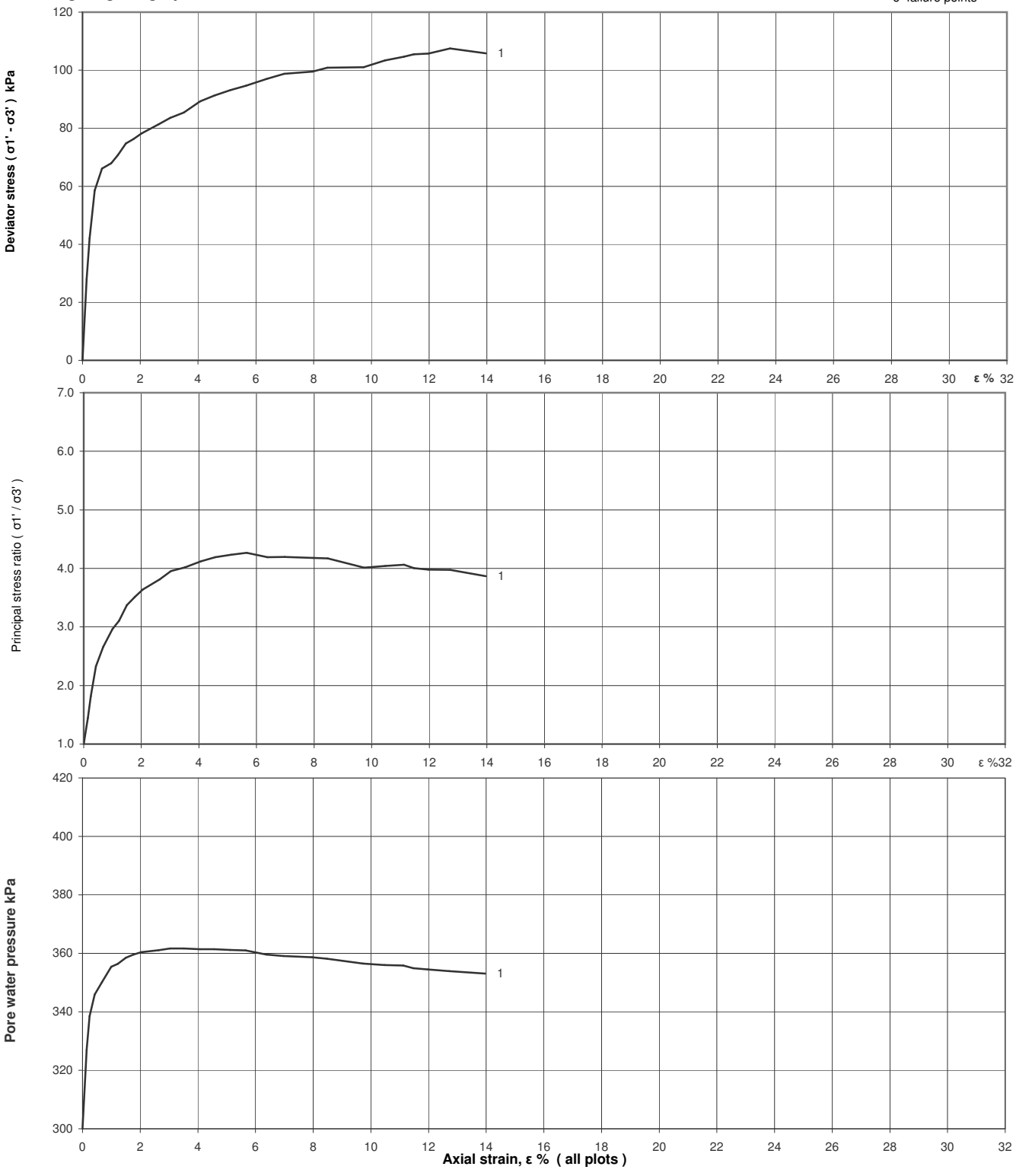


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	6.00-7.00		
			No	15	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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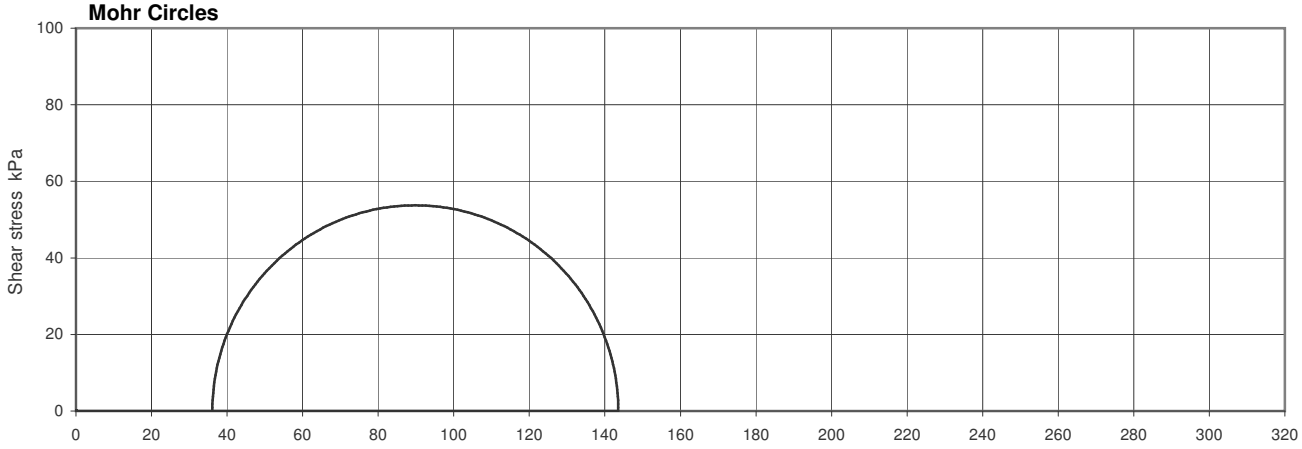
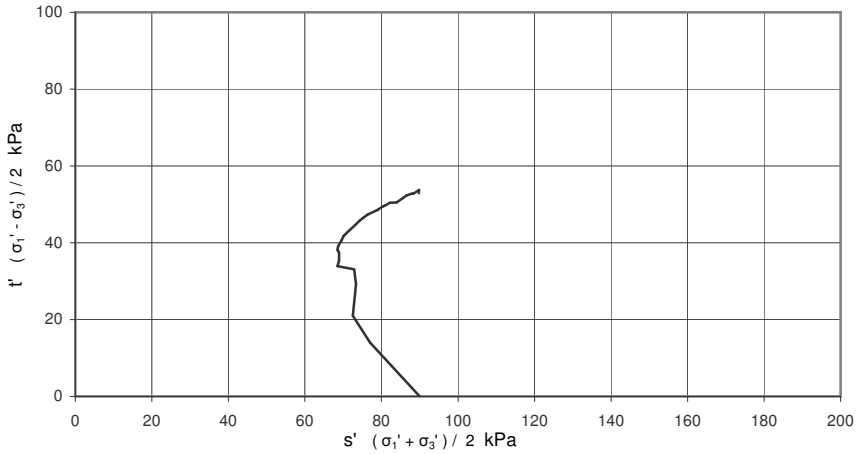
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH410		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	6.00-7.00		
			No	15	Type	P
			ID			
			Spec Ref			

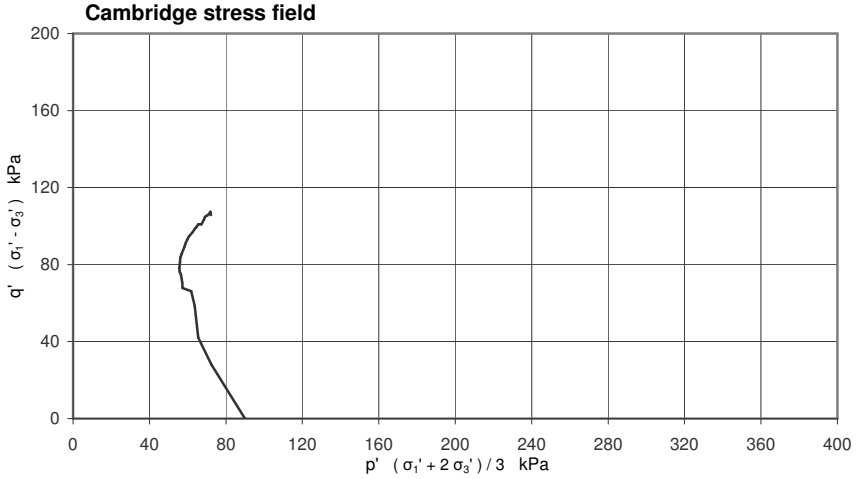
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	390			kPa
Initial pwp	300			kPa
Initial σ_3'	90			kPa
Rate of strain	2.00			%/hr

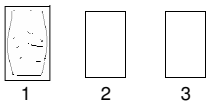
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.72			%
$(\sigma_1' / \sigma_3')_f$	3.977			
$(\sigma_1' - \sigma_3')_f$	107.5			kPa
u_f	354			kPa
$\sigma_3'_f$	36			kPa
$\sigma_1'_f$	144			kPa
A_f	0.50			
Time to failure	6.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.388 mm thick rubber membrane(s)

Ref			Figure
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Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

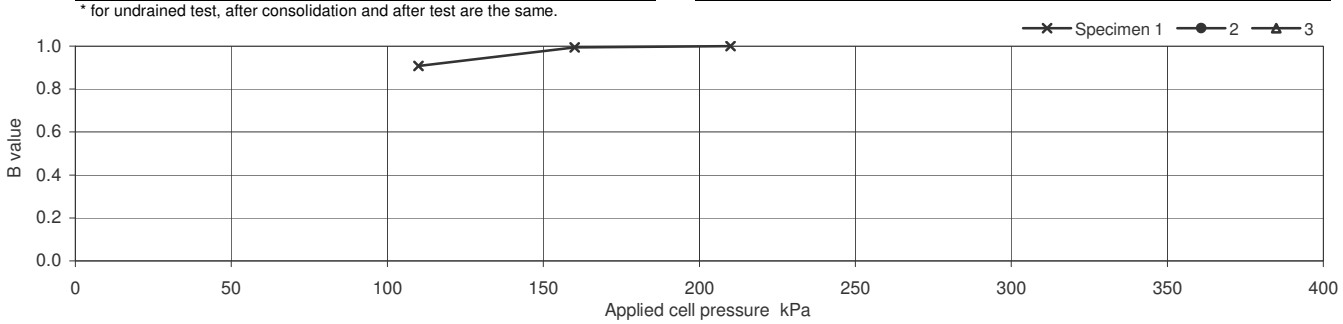
Project No	A5066-15	Sample Details:	Hole No	BH412	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.00-4.45	
			No	14	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	201.33		
	Diameter	mm	103.67		
	Bulk Density	Mg/m³	1.90		
	Water Content	%	36		
	Dry density	Mg/m³	1.40		
After consolidation	Length	mm	196.11		
	Diameter	mm	100.95		
	Bulk Density*	Mg/m³	1.97		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.51		

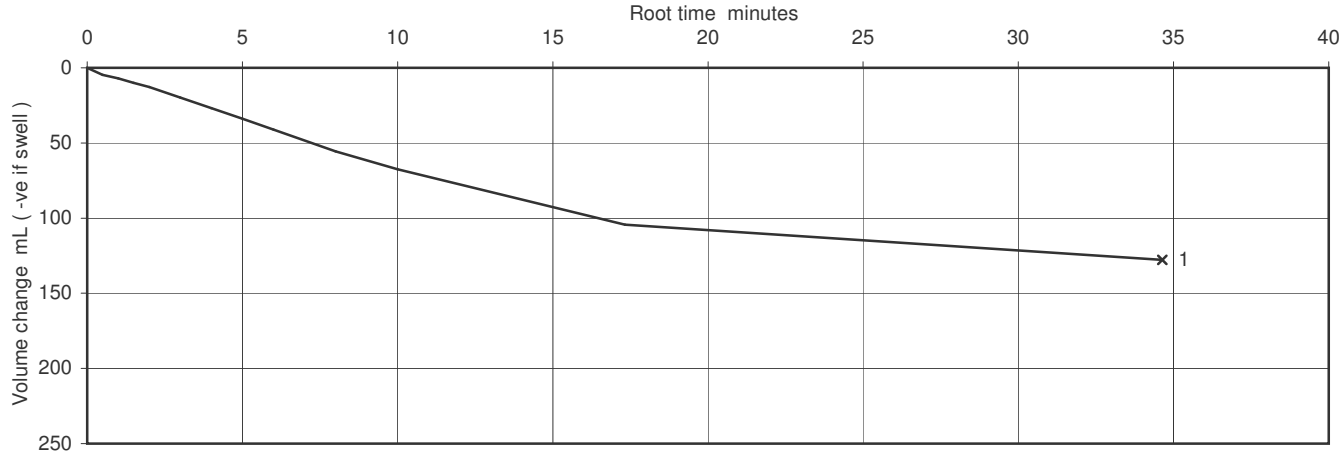
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown mottled dark grey slightly gravelly organic CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	201.3		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		365			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		65			kPa
	Pore pressure at start of consolidation		360			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.66			m^2/year
	Coefficient of Compressibility	M_{vi}	1.27			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.6E-10			m/s

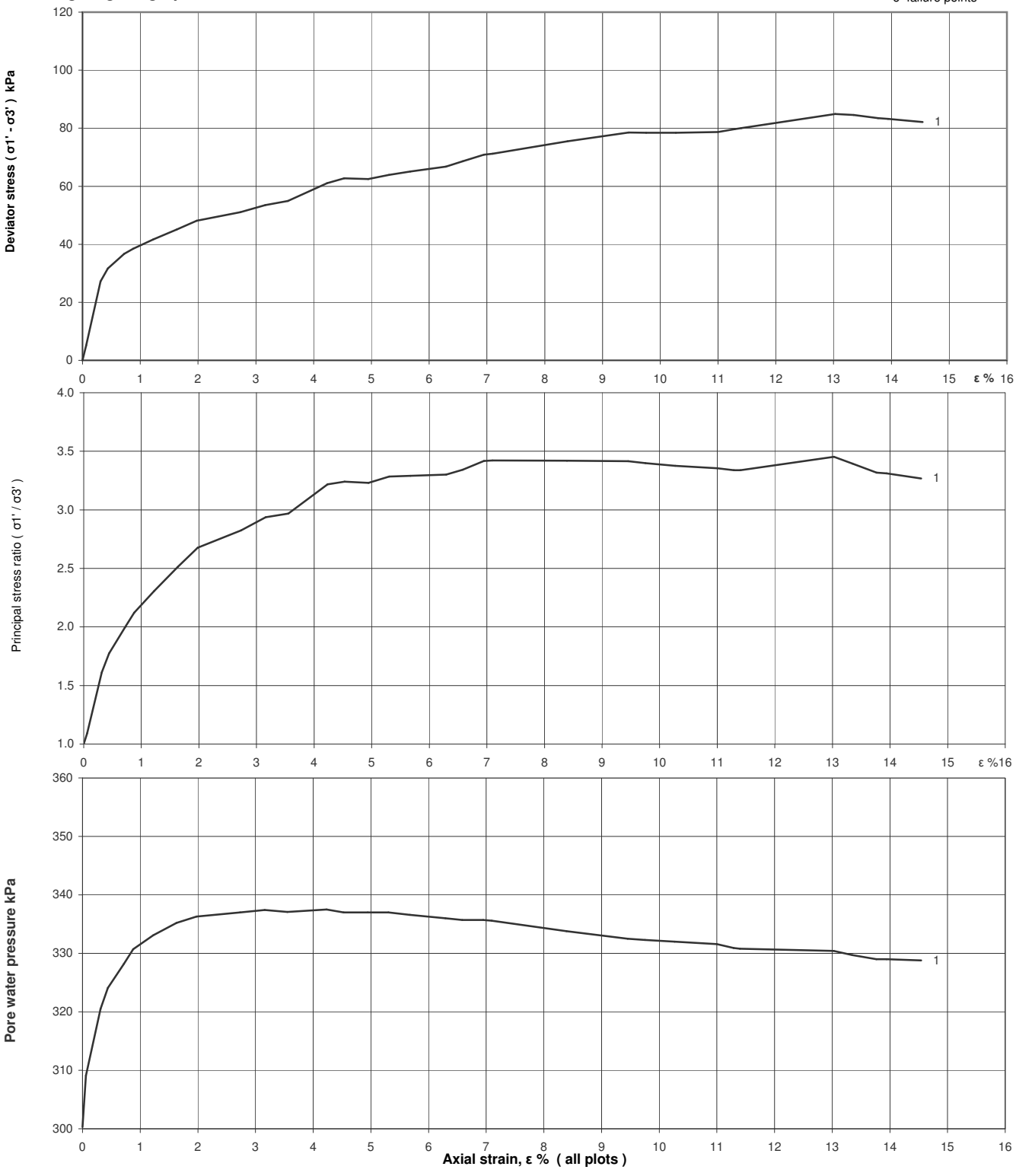


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No		BH412	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)		4.00-4.45	
			No	14	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

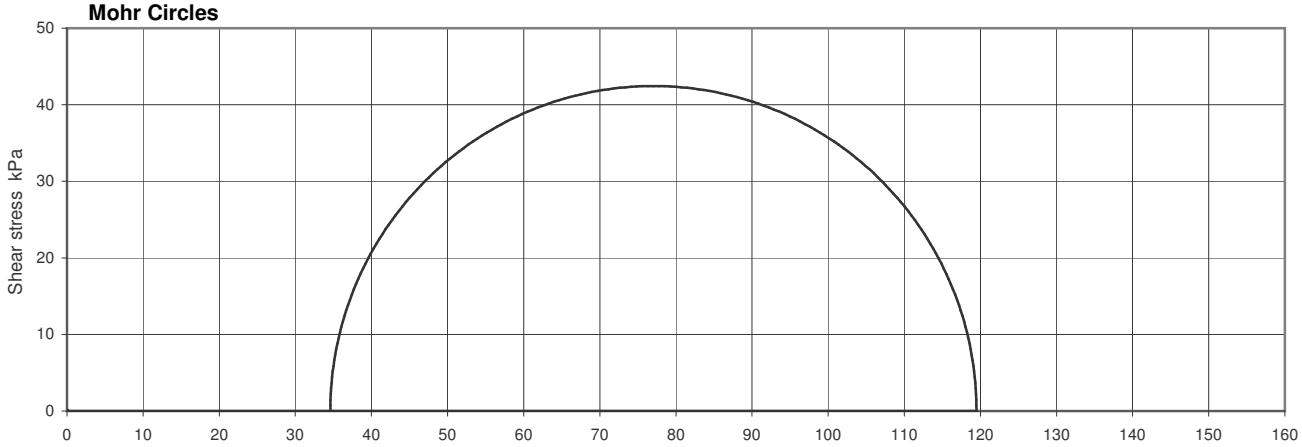


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:17	**CU** sheet 2 of 3

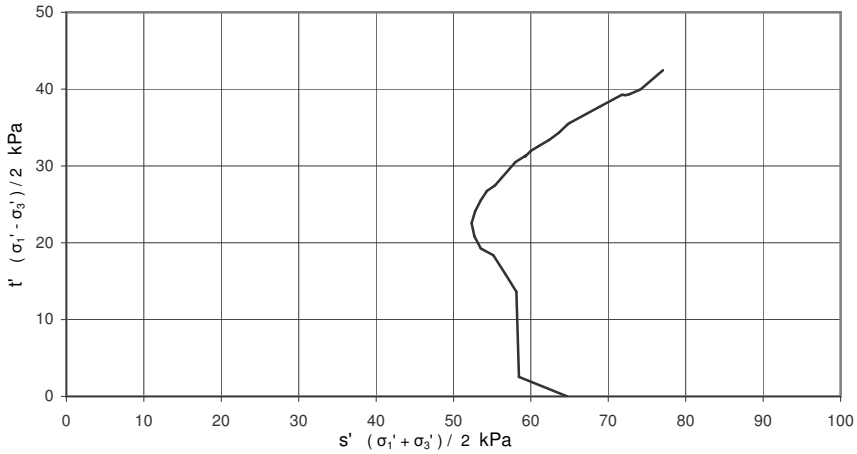
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.00-4.45		
			No	14	Type	UT
			ID			
			Spec Ref			

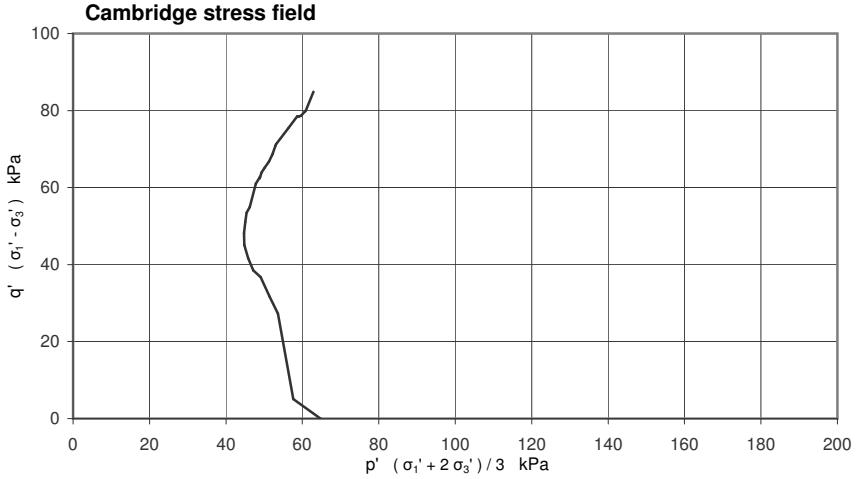
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	365			kPa
Initial pwp	300			kPa
Initial σ_3'	65			kPa
Rate of strain	0.47			%/hr

Failure conditions

Criterion	Maximum deviator stress			
Axial strain	13.03			%
$(\sigma_1' / \sigma_3')_f$	3.453			
$(\sigma_1' - \sigma_3')_f$	84.9			kPa
u_f	330			kPa
$\sigma_3'_f$	35			kPa
$\sigma_1'_f$	119			kPa
A_f	0.35			
Time to failure	27.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure

1	2	3

Notes : Deviator stresses corrected for area change, vertical side drains and 0.313 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

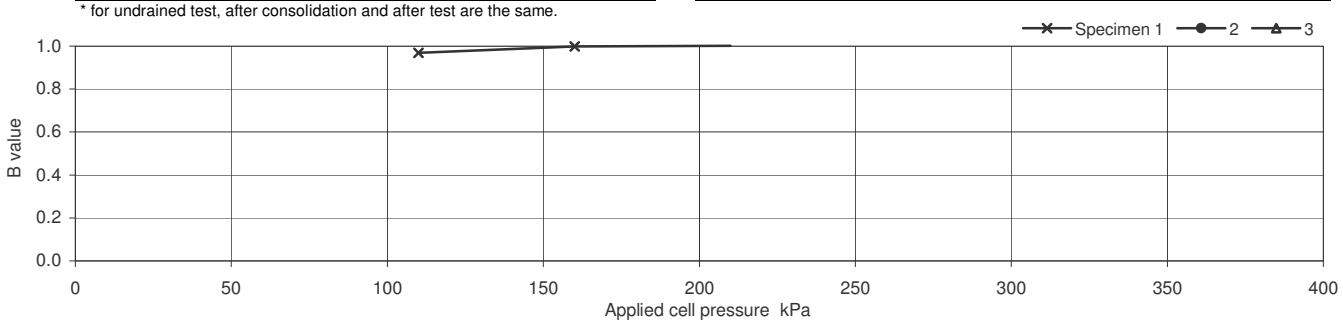
Project No	A5066-15	Sample Details:	Hole No	BH412	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.00-8.00	
			No	23	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	200.23		
	Diameter	mm	99.38		
	Bulk Density	Mg/m³	1.89		
	Water Content	%	34		
	Dry density	Mg/m³	1.41		
After consolidation	Length	mm	193.09		
	Diameter	mm	95.77		
	Bulk Density*	Mg/m³	2.00		
	Water Content*	%	27		
	Dry density*	Mg/m³	1.57		

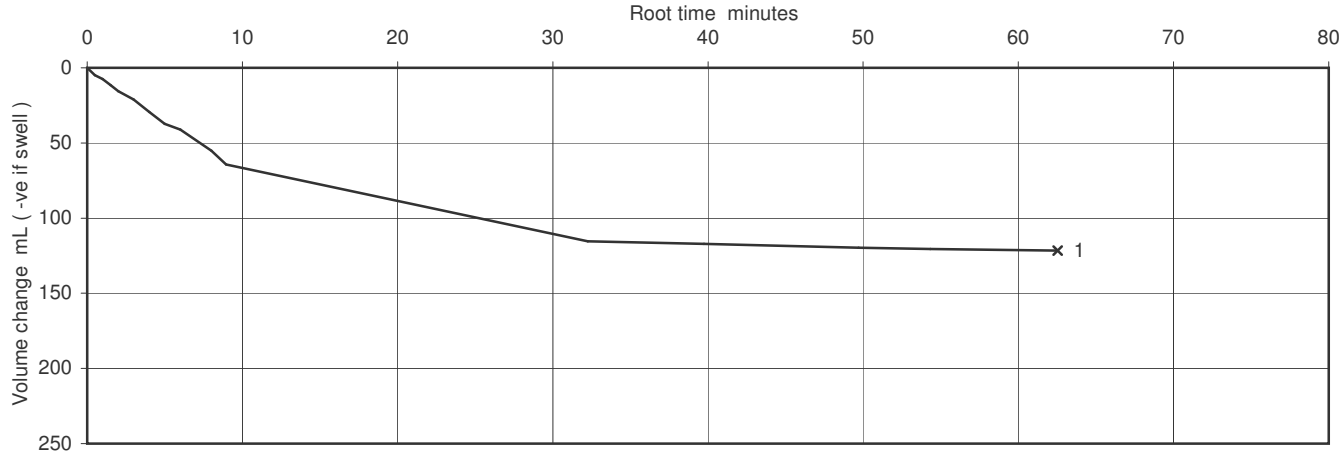
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown mottled dark grey slighty sandy organic SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	206.6		
Final B Value		0.97		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		397			kPa
	Pore pressure at end of consolidation		304			kPa
	Pore pressure dissipation at end of consolidation		96			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.67			m^2/year
	Coefficient of Compressibility	M_{vi}	0.86			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.8E-10			m/s

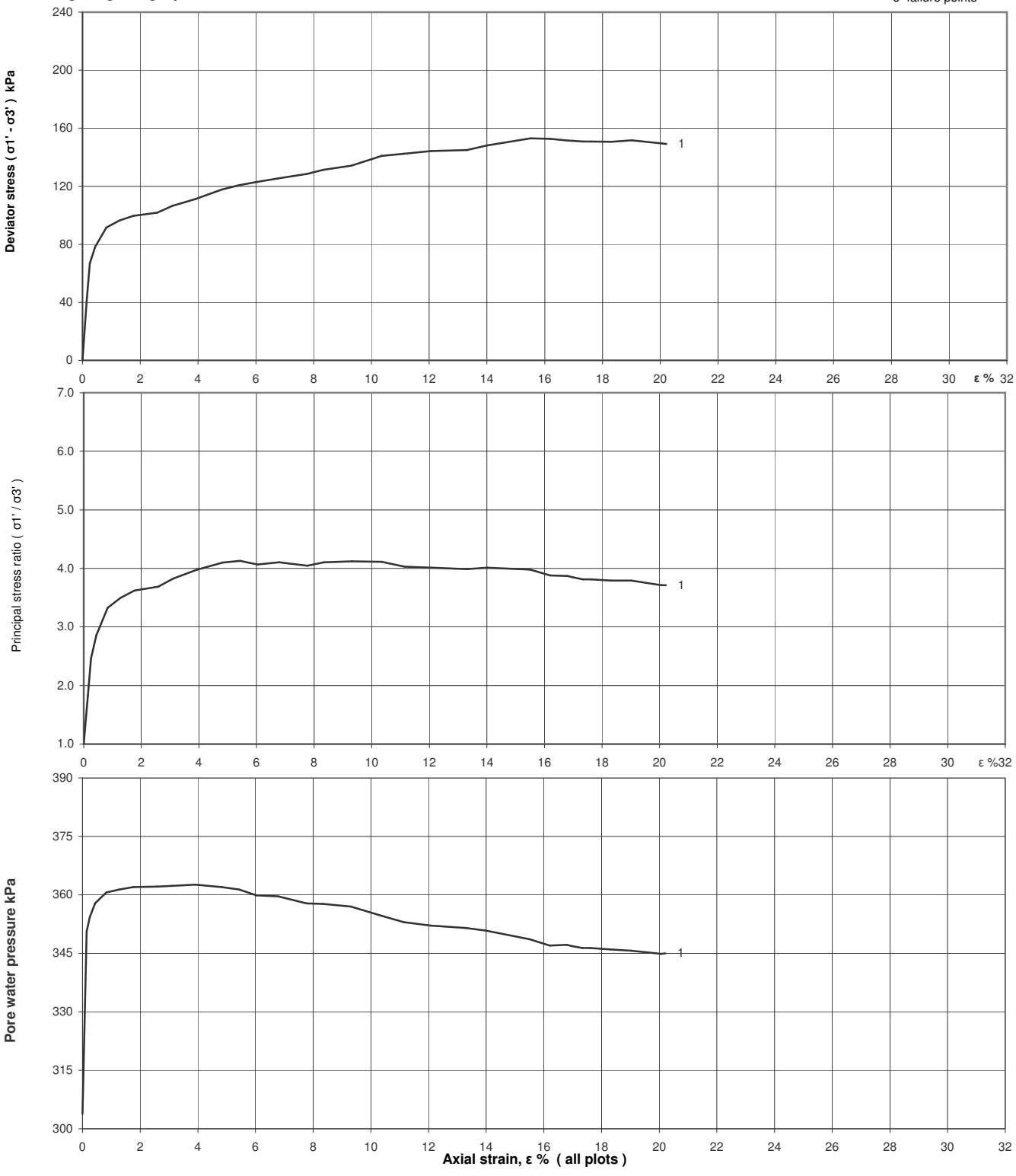


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.00-8.00		
			No	23	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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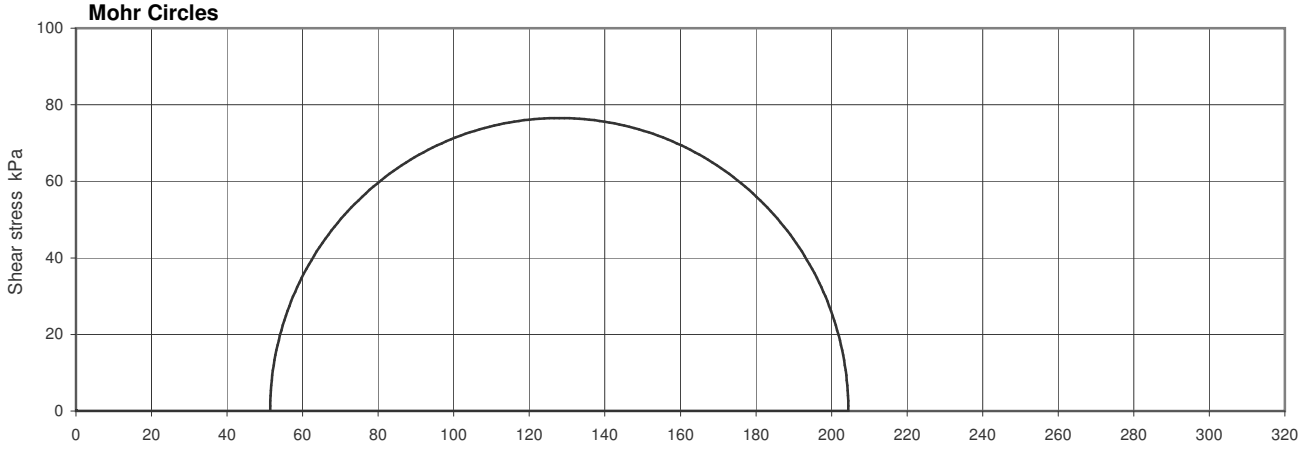
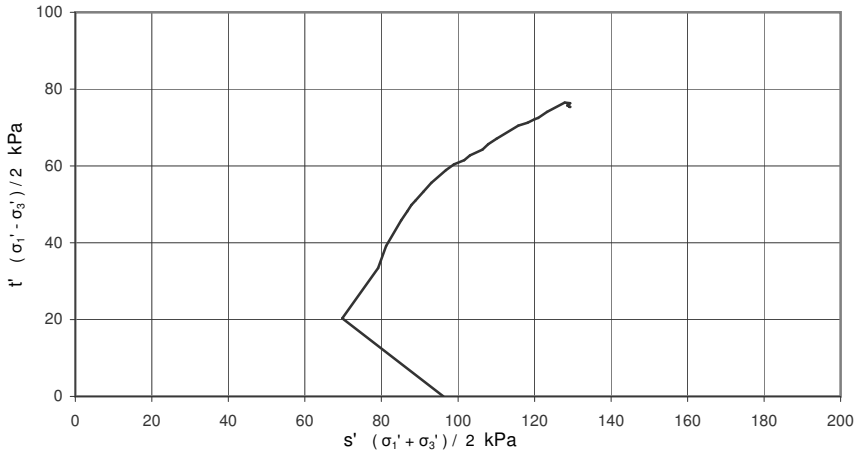
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH412		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.00-8.00		
			No	23	Type	P
			ID			
			Spec Ref			

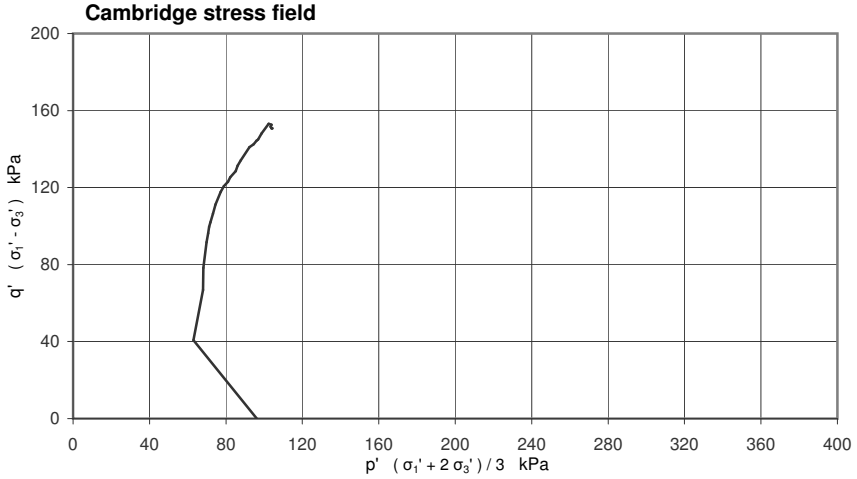
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	304			kPa
Initial σ_3'	96			kPa
Rate of strain	0.56			%/hr

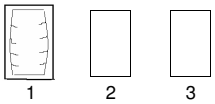
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	15.51			%
$(\sigma_1' / \sigma_3')_f$	3.978			
$(\sigma_1' - \sigma_3')_f$	153.1			kPa
u_f	349			kPa
$\sigma_3'_f$	51			kPa
$\sigma_1'_f$	204			kPa
A_f	0.29			
Time to failure	27.7			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.313 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

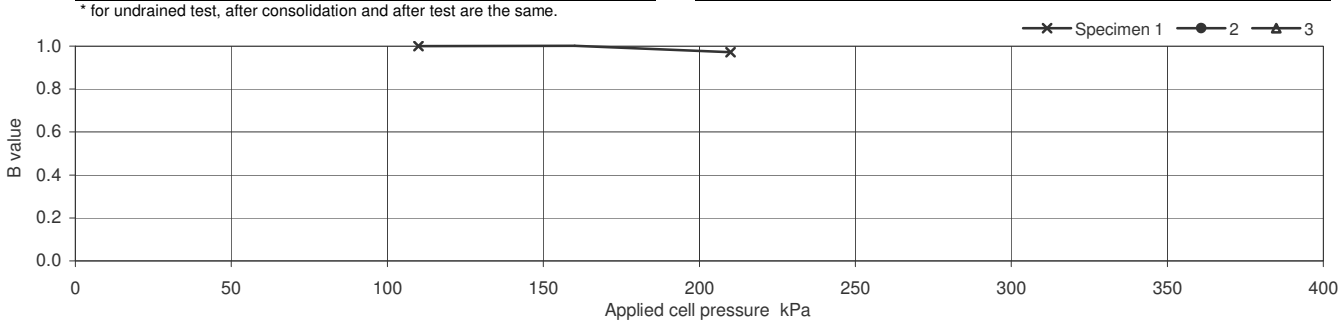
Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.55-6.55		
			No	20	Type	P
			ID			
			Spec Ref			

Specimen Details			1	2	3
Initial	Length	mm	201.47		
	Diameter	mm	98.15		
	Bulk Density	Mg/m³	1.84		
	Water Content	%	40		
	Dry density	Mg/m³	1.31		
After consolidation	Length	mm	197.01		
	Diameter	mm	95.95		
	Bulk Density*	Mg/m³	1.90		
	Water Content*	%	35		
	Dry density*	Mg/m³	1.40		

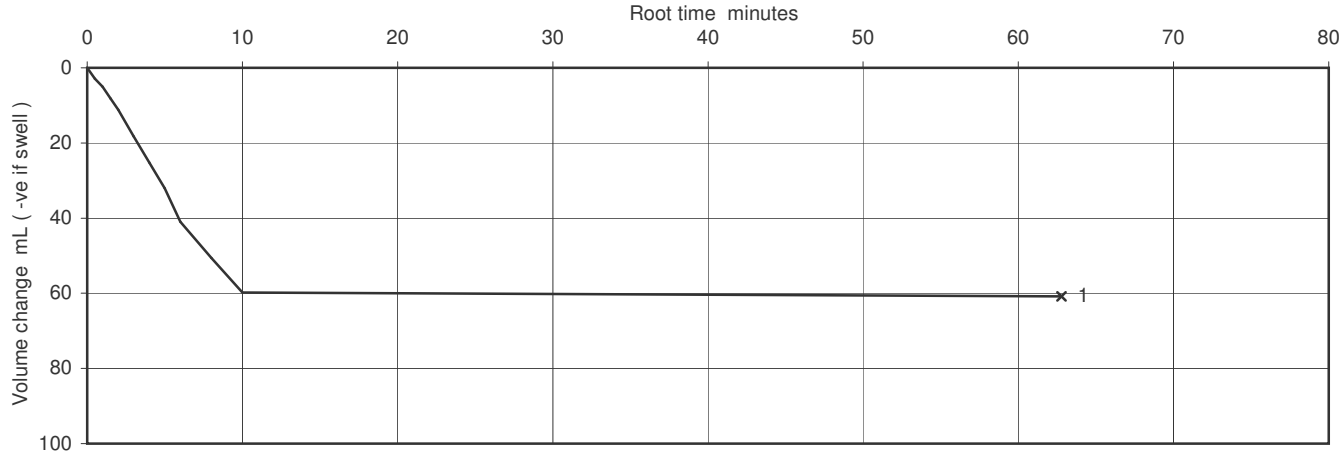
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brownish grey slightly sandy organic CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	203.7		
Final B Value		0.97		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		385			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		85			kPa
	Pore pressure at start of consolidation		378			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.04			m^2/year
	Coefficient of Compressibility	M_{vi}	0.53			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.3E-10			m/s

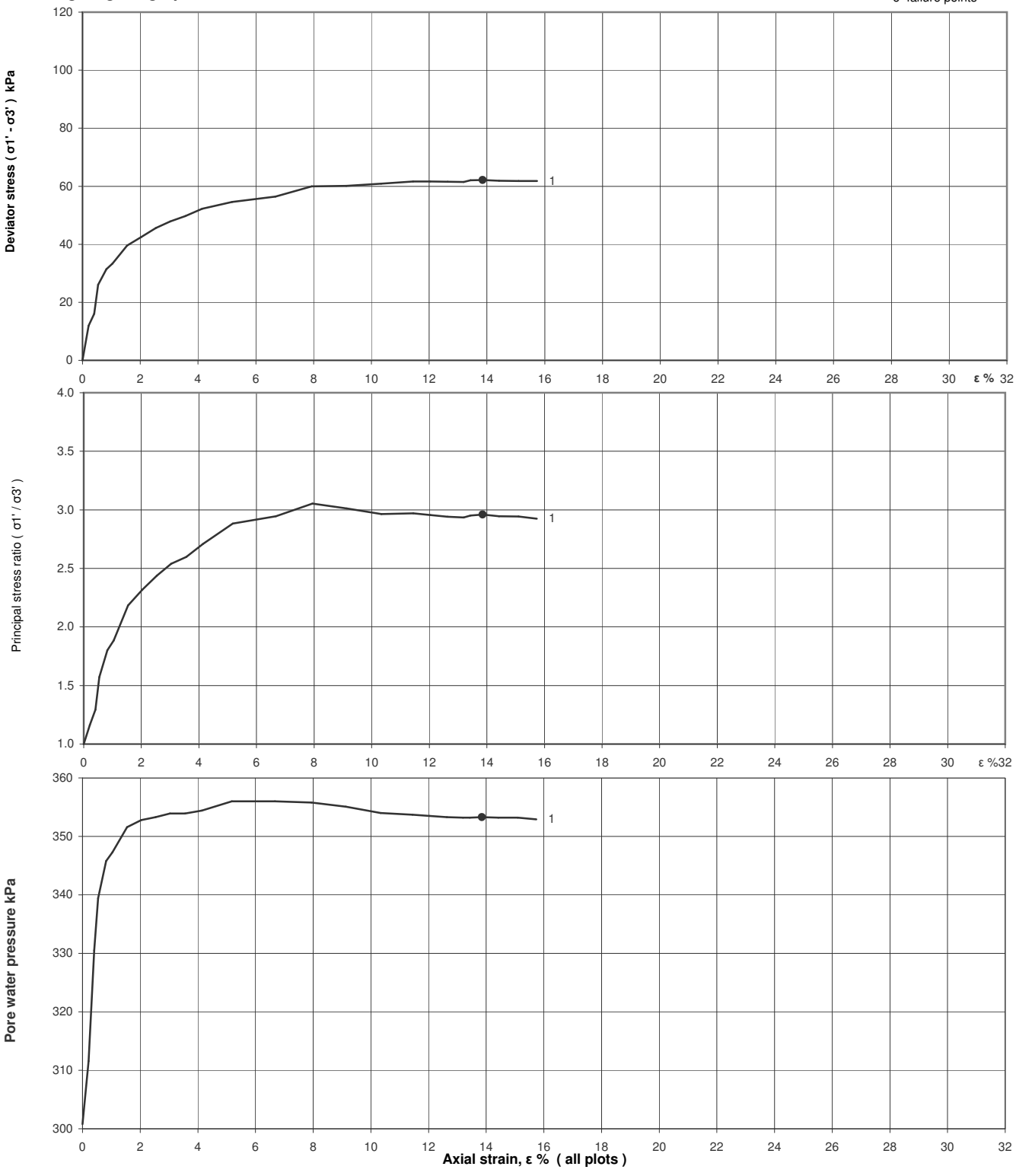


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.55-6.55		
			No	20	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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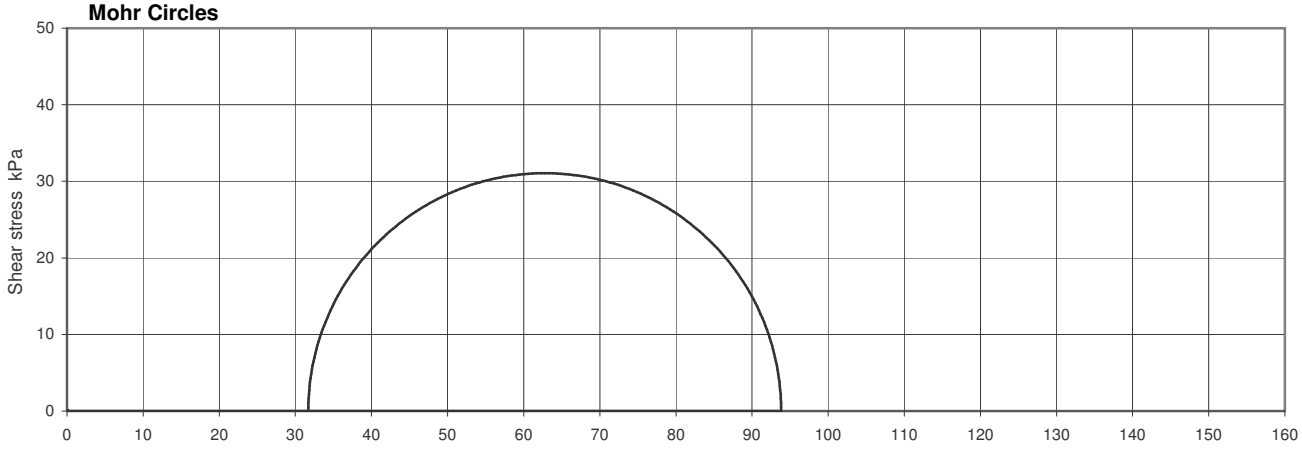
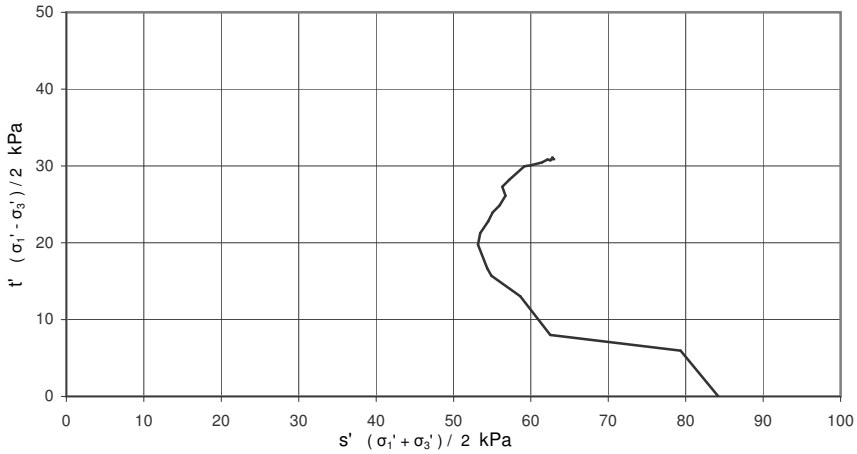
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.55-6.55		
			No	20	Type	P
			ID			
			Spec Ref			

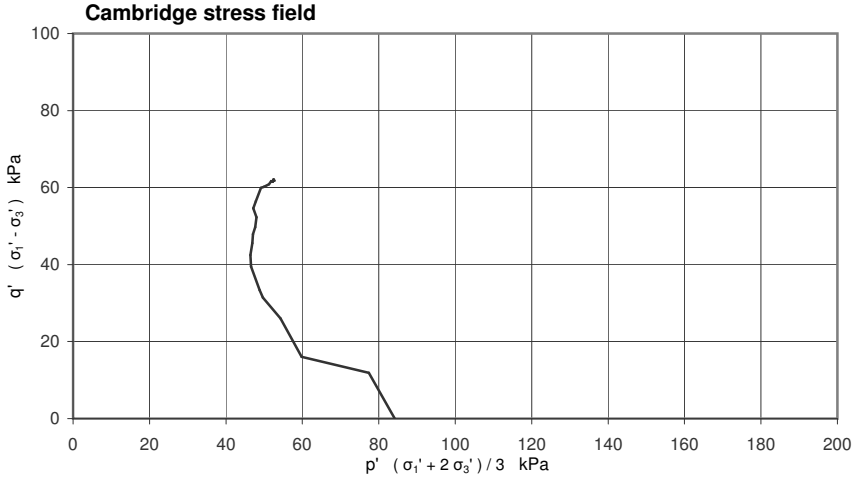
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	385			kPa
Initial pwp	301			kPa
Initial σ_3'	84			kPa
Rate of strain	2.00			%/hr

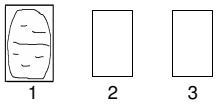
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	13.86			%
$(\sigma_1' / \sigma_3')_f$	2.960			
$(\sigma_1' - \sigma_3')_f$	62.1			kPa
u_f	353			kPa
$\sigma_3'_f$	32			kPa
$\sigma_1'_f$	94			kPa
A_f	0.85			
Time to failure	6.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.388 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

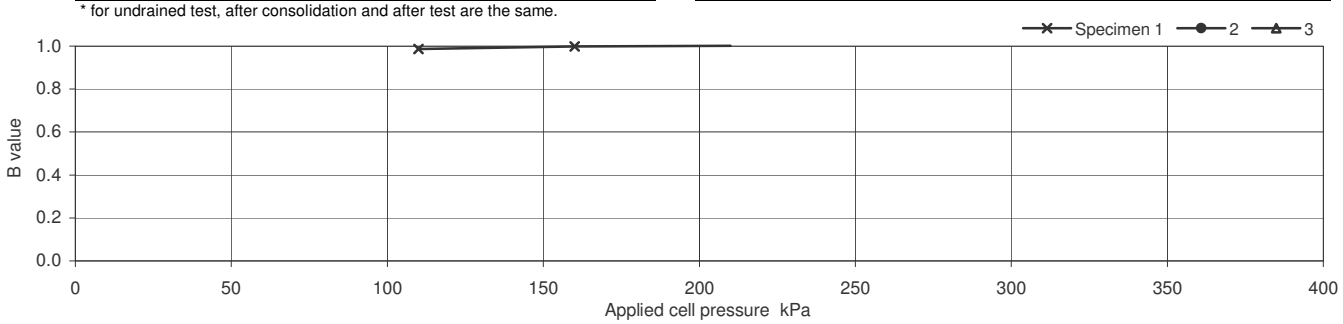
Project No	A5066-15	Sample Details:	Hole No	BH413	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.10 - 8.10	
			No	23	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.12		
	Diameter	mm	102.06		
	Bulk Density	Mg/m³	1.96		
	Water Content	%	54		
	Dry density	Mg/m³	1.27		
After consolidation	Length	mm	187.13		
	Diameter	mm	93.69		
	Bulk Density*	Mg/m³	2.16		
	Water Content*	%	31		
	Dry density*	Mg/m³	1.64		

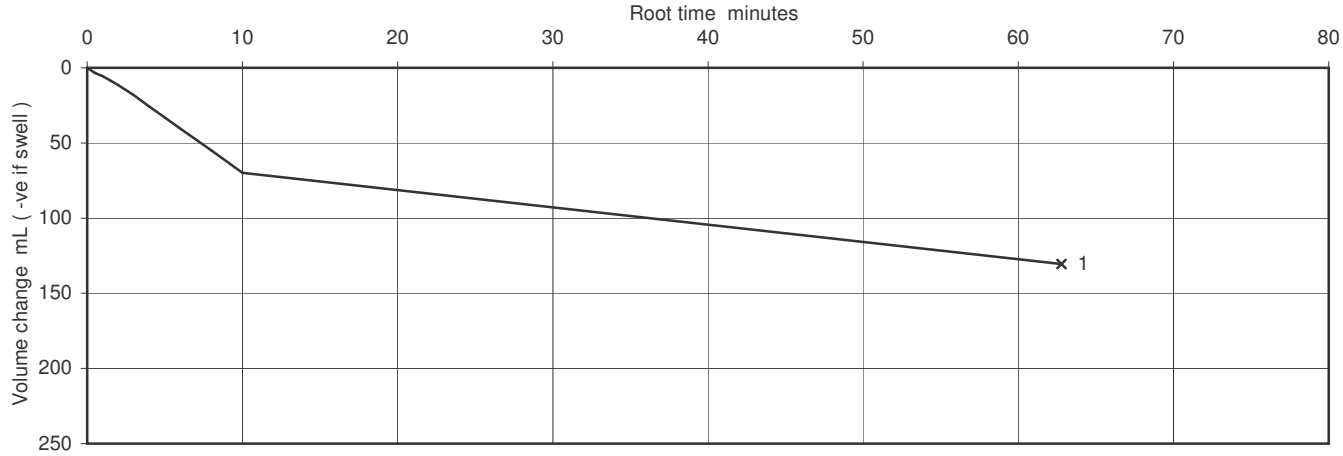
* for undrained test, after consolidation and after test are the same.

Soil Description	Brown slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	207.1		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		398			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.15			m^2/year
	Coefficient of Compressibility	M_{vi}	0.96			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.4E-10			m/s

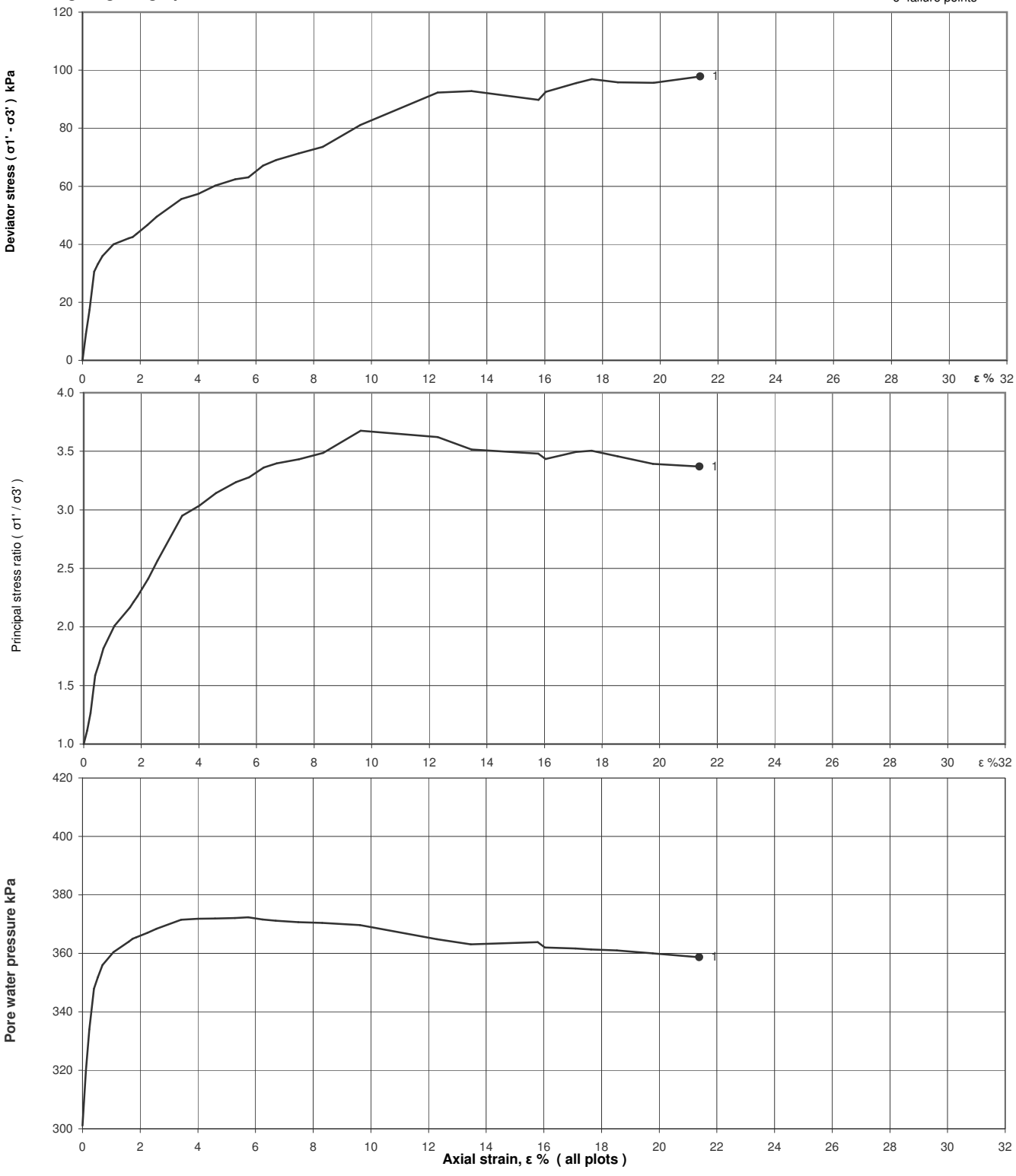


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.10 - 8.10		
			No	23	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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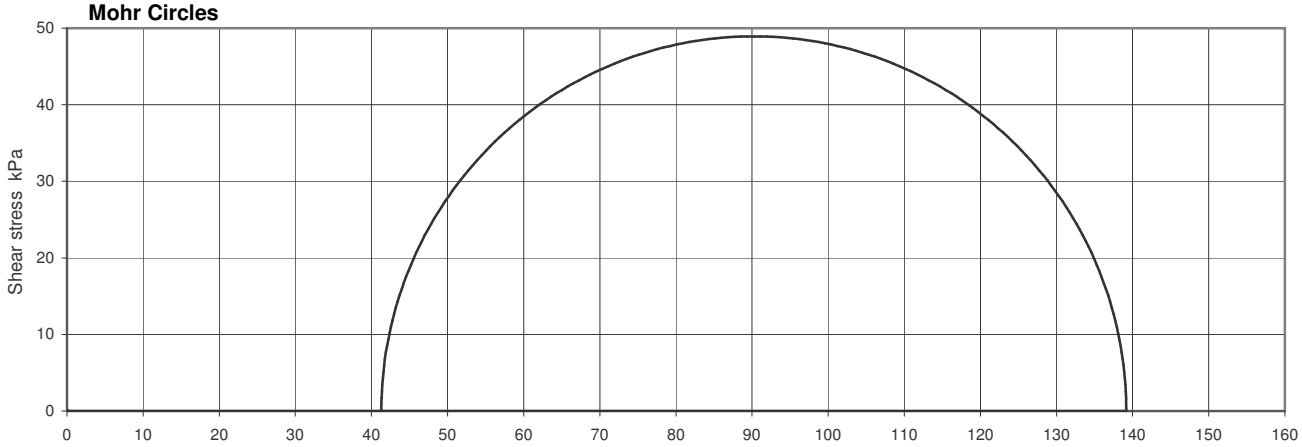
UKAS TESTING 1157

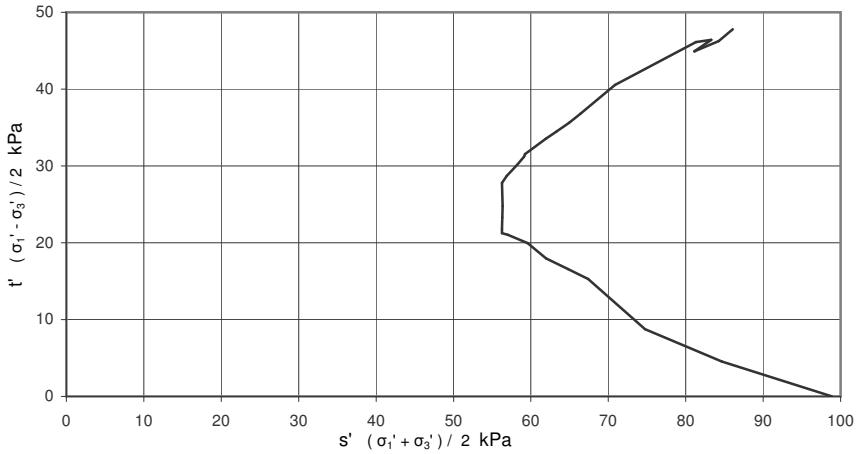
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.10 - 8.10		
			No	23	Type	P
			ID			
			Spec Ref			

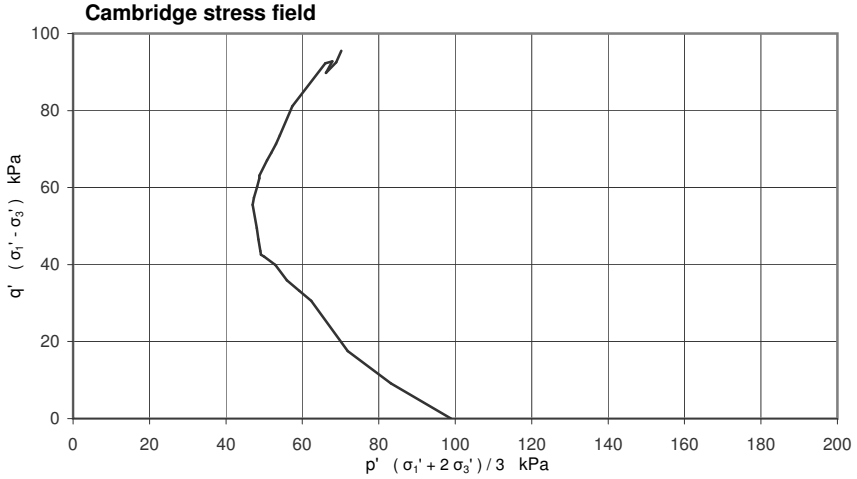
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	301			kPa
Initial σ_3'	99			kPa
Rate of strain	2.00			%/hr

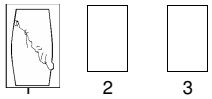
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	21.39			%
$(\sigma_1' / \sigma_3')_f$	3.370			
$(\sigma_1' - \sigma_3')_f$	97.9			kPa
u_f	359			kPa
$\sigma_3'_f$	41			kPa
$\sigma_1'_f$	139			kPa
A_f	0.59			
Time to failure	10.7			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.388 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

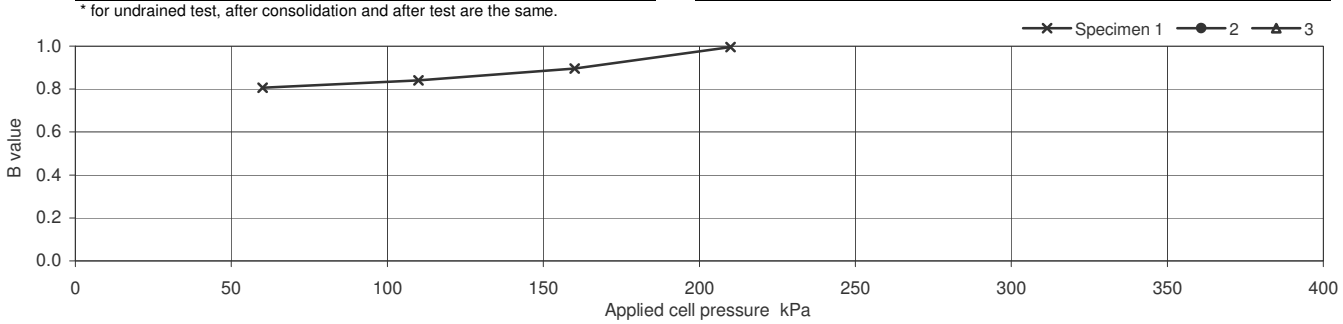
Project No	A5066-15	Sample Details:	Hole No	BH413	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.20 - 10.20	
			No	P	Type 28
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.40		
	Diameter	mm	97.76		
	Bulk Density	Mg/m³	1.89		
	Water Content	%	32		
	Dry density	Mg/m³	1.43		
After consolidation	Length	mm	198.43		
	Diameter	mm	95.34		
	Bulk Density*	Mg/m³	1.96		
	Water Content*	%	28		
	Dry density*	Mg/m³	1.54		

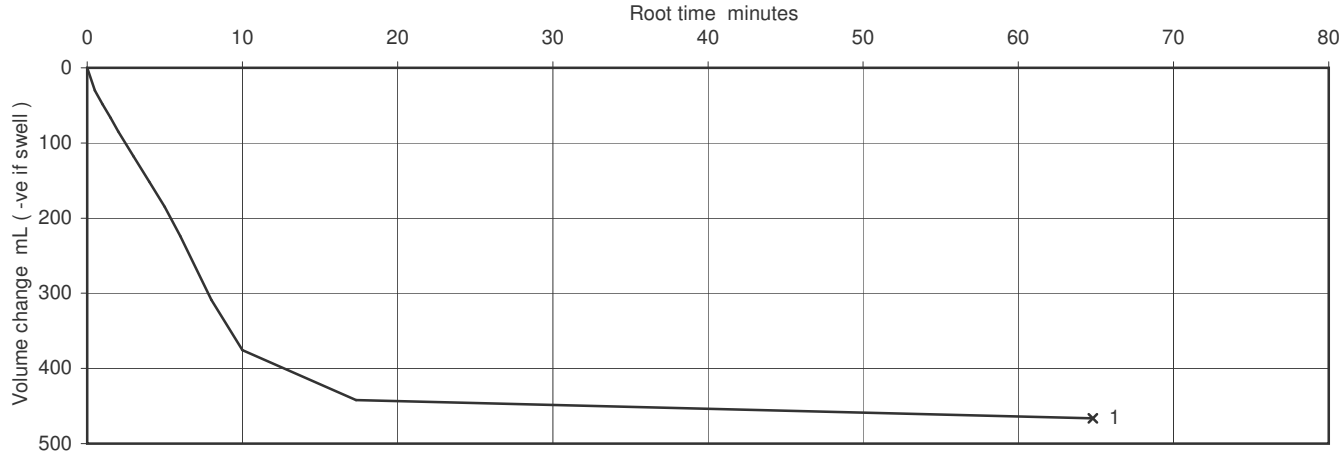
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm brown slightly sandy CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	199.2		
Final B Value		1.00		



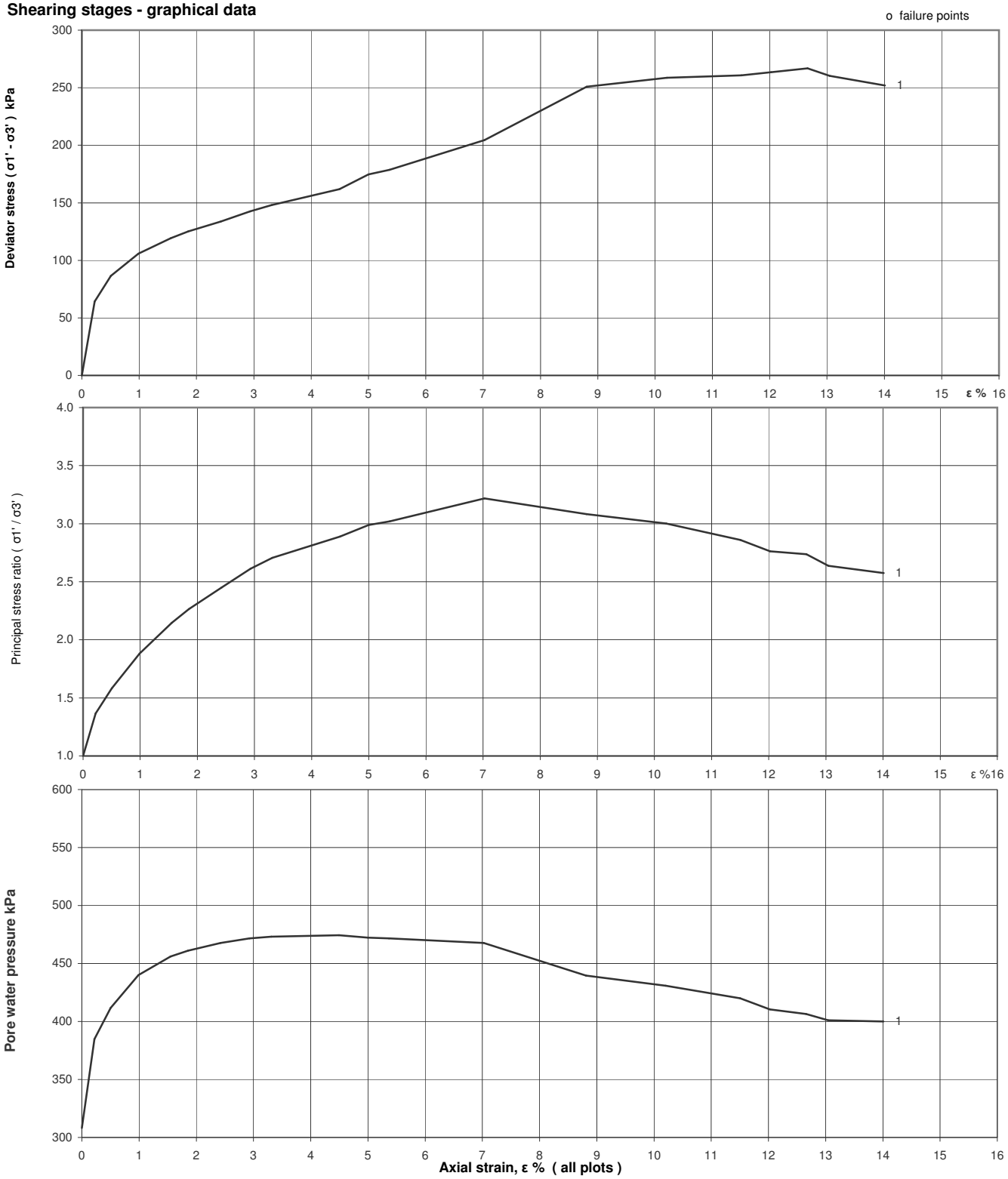
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		560			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		260			kPa
	Pore pressure at start of consolidation		519			kPa
	Pore pressure at end of consolidation		308			kPa
	Pore pressure dissipation at end of consolidation		96			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.45			m^2/year
	Coefficient of Compressibility	M_{vi}	1.17			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	5.3E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.20 - 10.20		
			No	P	Type	28
			ID			
			Spec Ref			

Shearing stages - graphical data

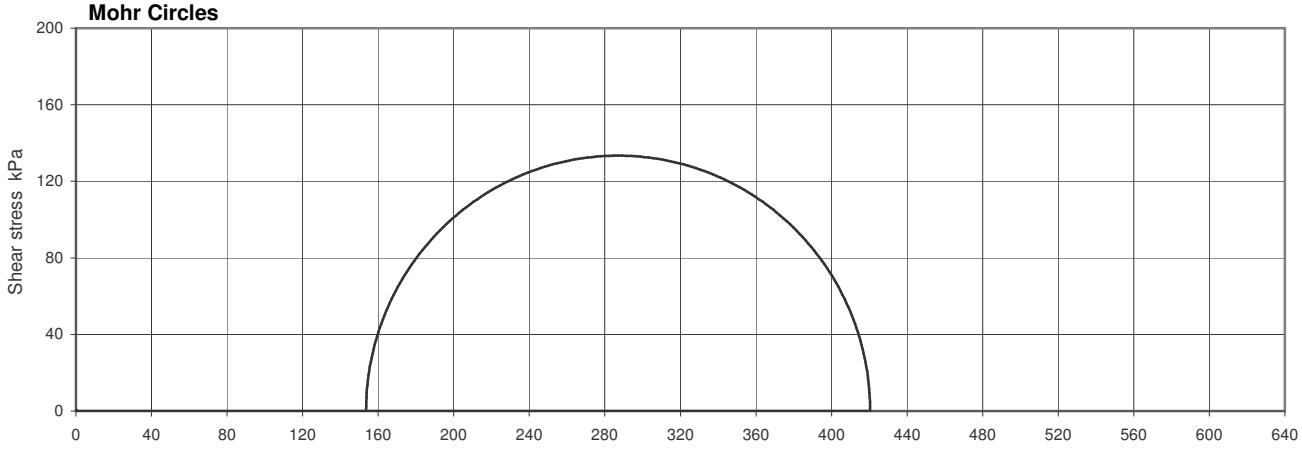


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:18	**CU** sheet 2 of 3

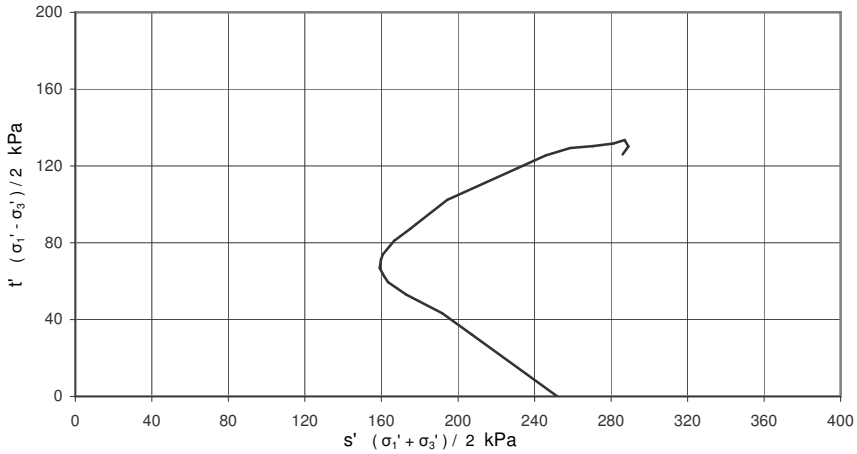
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.20 - 10.20		
			No	P	Type	28
			ID			
			Spec Ref			

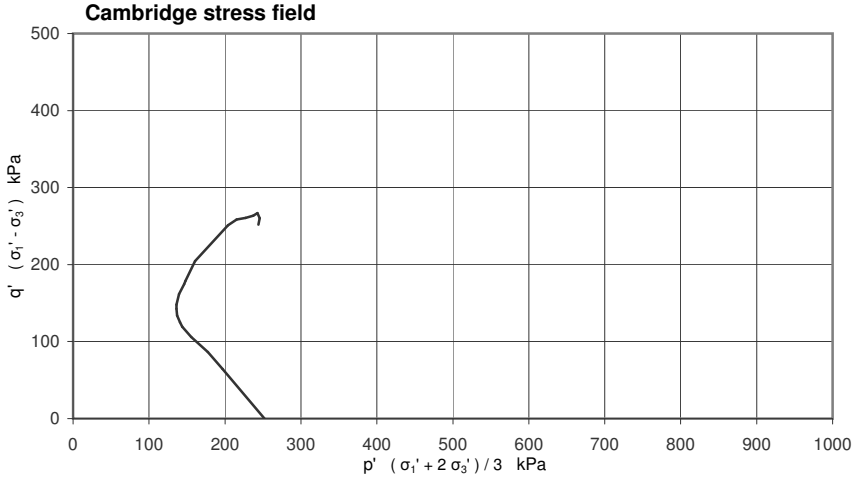
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	560			kPa
Initial pwp	308			kPa
Initial σ_3'	252			kPa
Rate of strain	1.14			%/hr

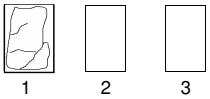
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.66			%
$(\sigma_1' / \sigma_3')_f$	2.737			
$(\sigma_1' - \sigma_3')_f$	266.8			kPa
u_f	406			kPa
$\sigma_3'_f$	154			kPa
$\sigma_1'_f$	420			kPa
A_f	0.37			
Time to failure	11.1			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.32 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

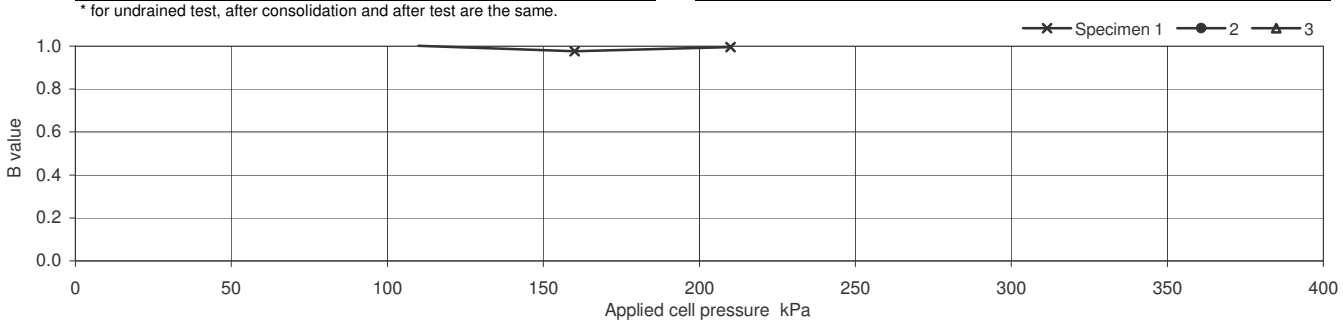
Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	10.20-10.65		
			No	29	Type	UT
			ID			
			Spec Ref			

Specimen Details			1	2	3
Initial	Length	mm	206.18		
	Diameter	mm	100.75		
	Bulk Density	Mg/m³	1.90		
	Water Content	%	33		
	Dry density	Mg/m³	1.43		
After consolidation	Length	mm	203.84		
	Diameter	mm	99.61		
	Bulk Density*	Mg/m³	1.93		
	Water Content*	%	31		
	Dry density*	Mg/m³	1.48		

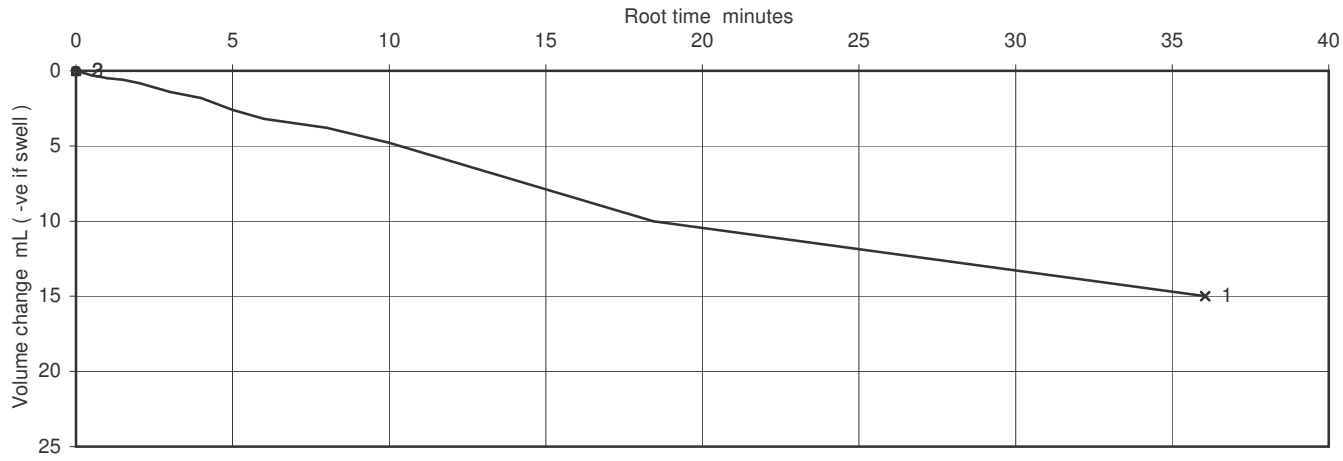
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown mottled grey organic slightly sandy CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	200.1		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		370			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		70			kPa
	Pore pressure at start of consolidation		360			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.25			m^2/year
	Coefficient of Compressibility	M_{vi}	0.15			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.2E-11			m/s

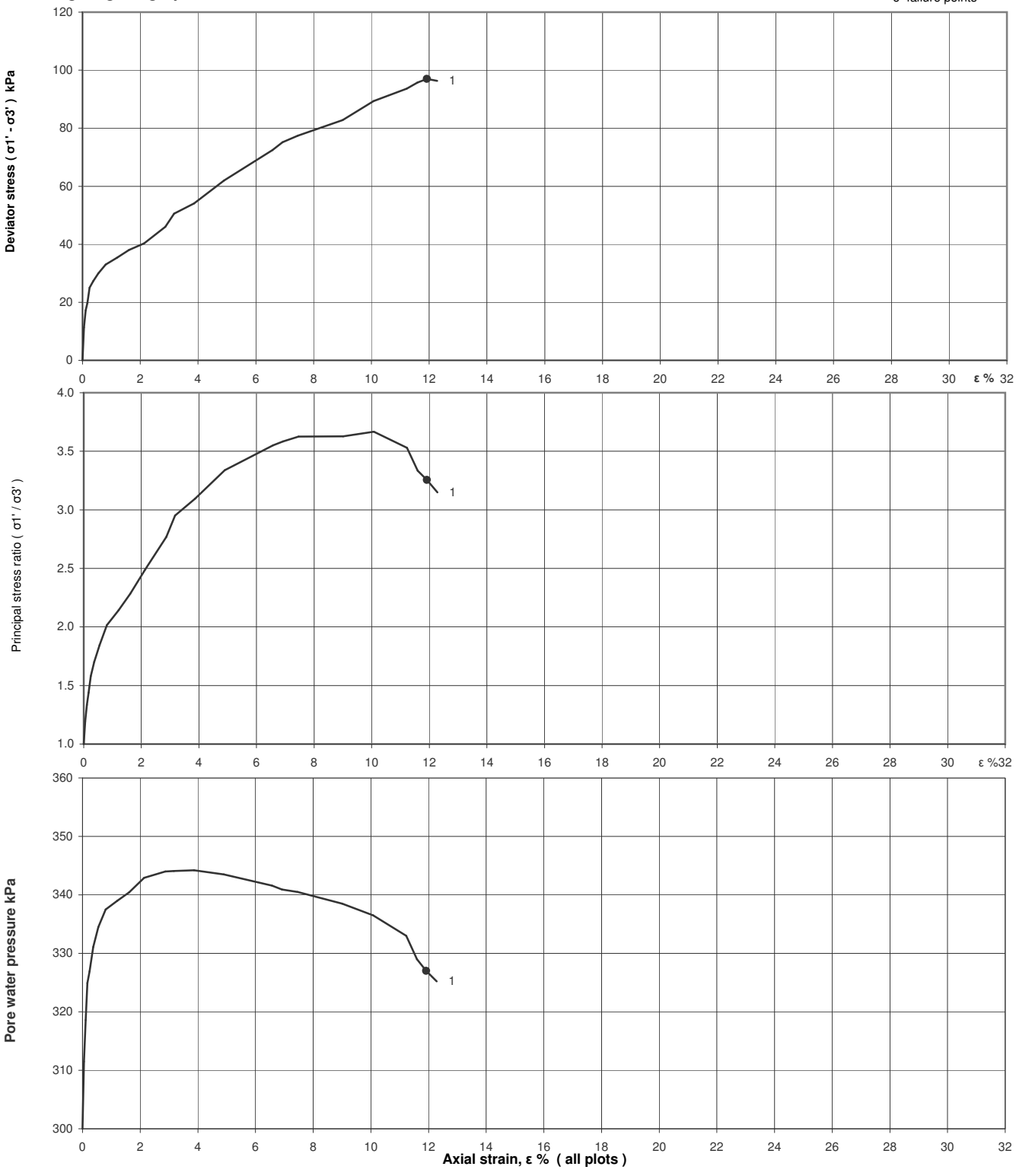


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	10.20-10.65		
			No	29	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

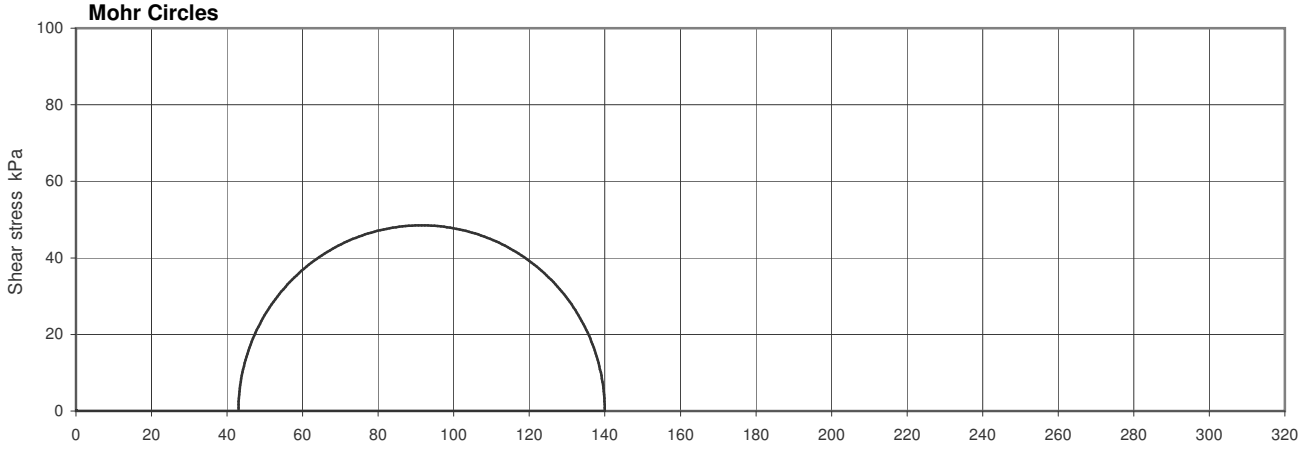


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:19	**CU** sheet 2 of 3

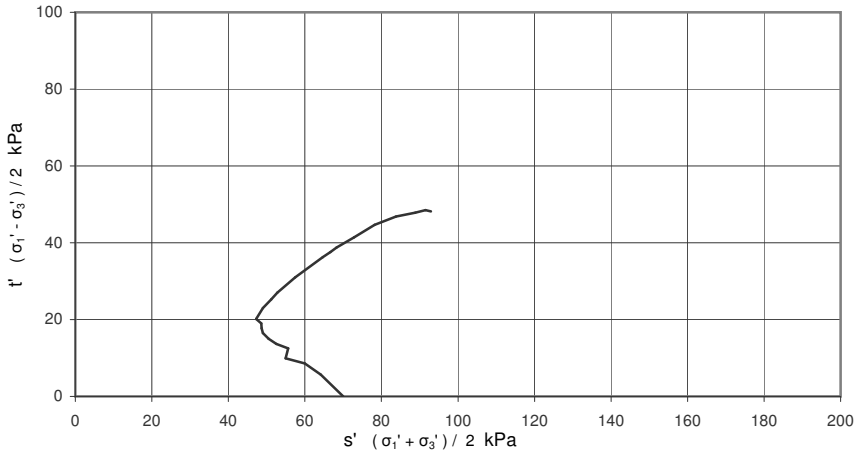
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH413		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	10.20-10.65		
			No	29	Type	UT
			ID			
			Spec Ref			

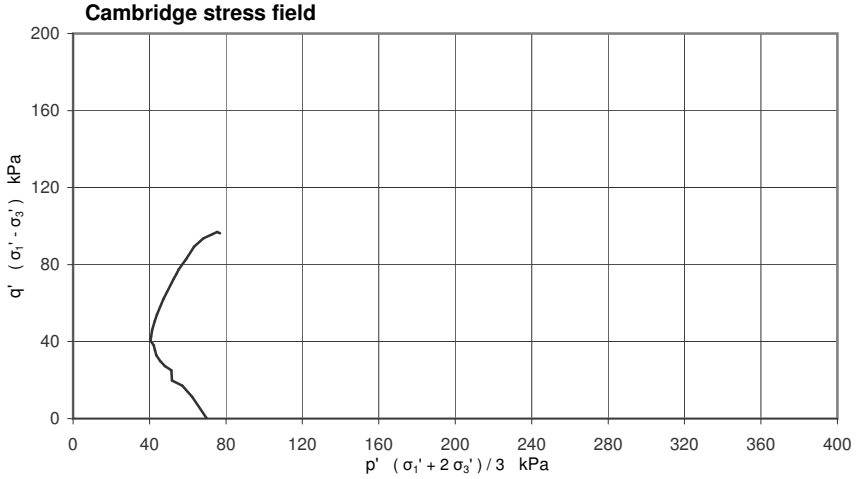
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	370			kPa
Initial pwp	300			kPa
Initial σ_3'	70			kPa
Rate of strain	0.64			%/hr

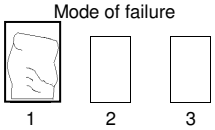
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	11.92			%
$(\sigma_1' / \sigma_3')_f$	3.255			
$(\sigma_1' - \sigma_3')_f$	97.0			kPa
u_f	327			kPa
$\sigma_3'_f$	43			kPa
$\sigma_1'_f$	140			kPa
A_f	0.28			
Time to failure	18.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.388 mm thick rubber membrane(s)

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:19	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

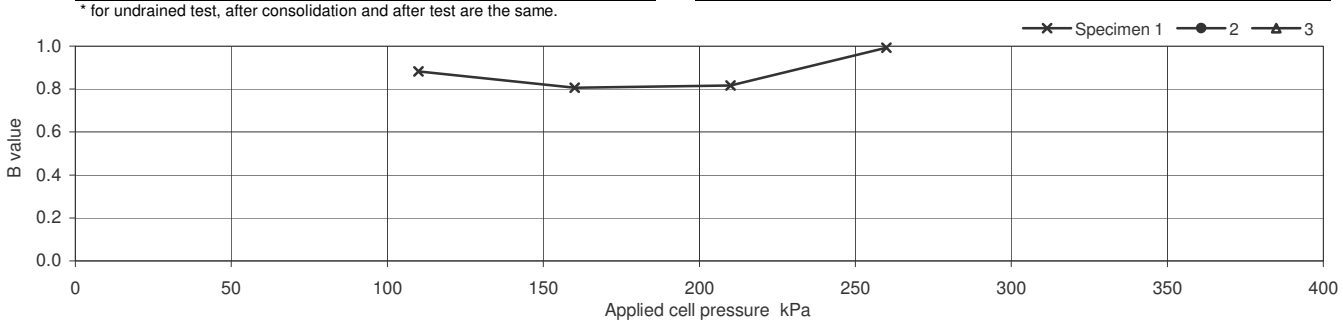
Project No	A5066-15	Sample Details:	Hole No	BH415	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.65-5.65	
			No	17	Type P
			ID		
			Spec Ref	Sample 1	

Specimen Details			1	2	3
Initial	Length	mm	204.41		
	Diameter	mm	99.00		
	Bulk Density	Mg/m³	1.62		
	Water Content	%	41		
	Dry density	Mg/m³	1.15		
After consolidation	Length	mm	197.88		
	Diameter	mm	95.78		
	Bulk Density*	Mg/m³	1.79		
	Water Content*	%	41		
	Dry density*	Mg/m³	1.27		

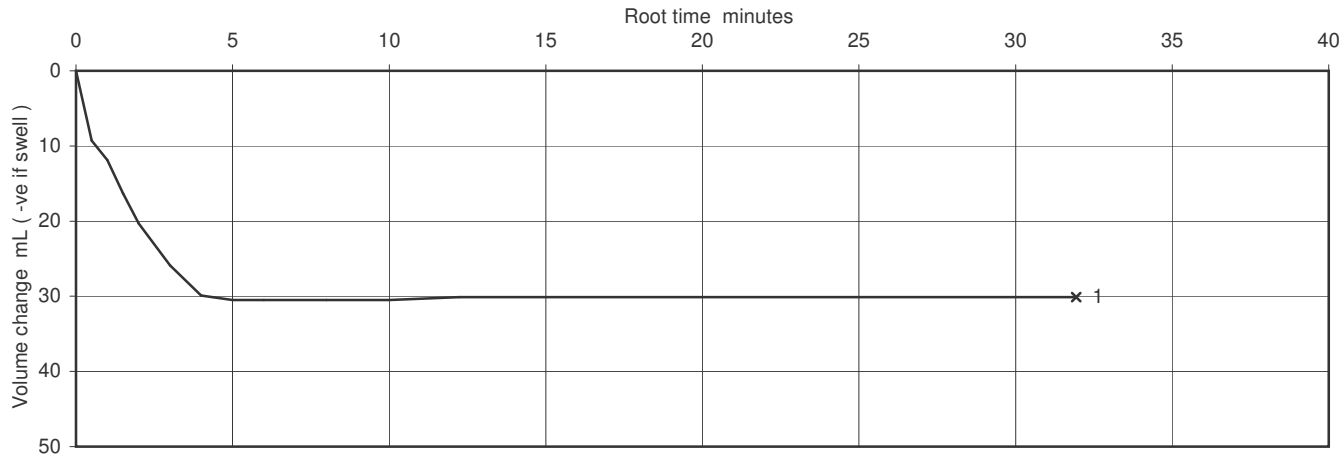
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft to firm black slightly sandy slightly gravelly organic CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	244		
Final B Value		0.99		



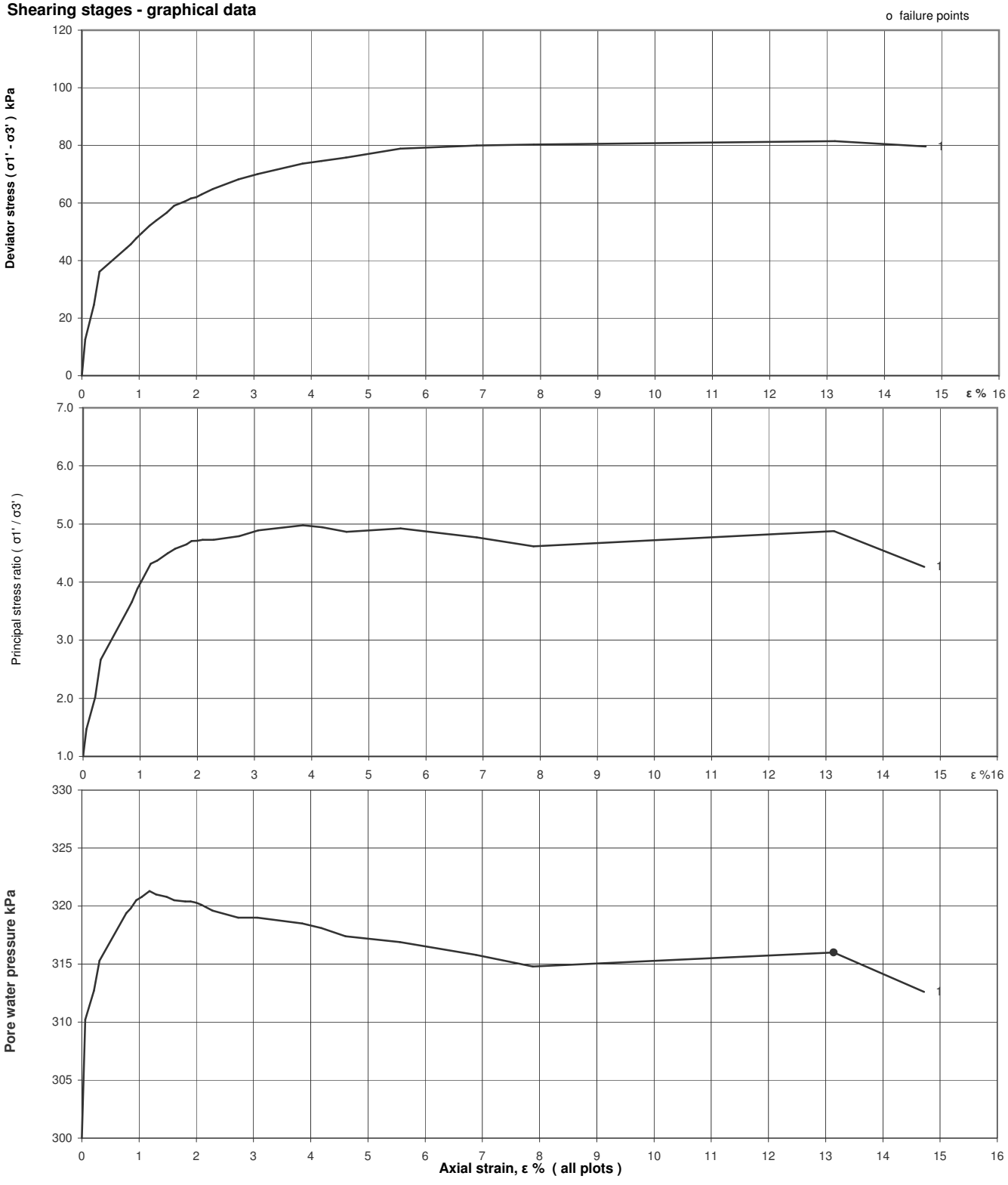
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		337			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		37			kPa
	Pore pressure at start of consolidation		319			kPa
	Pore pressure at end of consolidation		302			kPa
	Pore pressure dissipation at end of consolidation		89			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	14.08			m^2/year
	Coefficient of Compressibility	M_{vi}	1.03			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	4.5E-09			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.65-5.65		
			No	17	Type	P
			ID			
			Spec Ref	Sample 1		

Shearing stages - graphical data

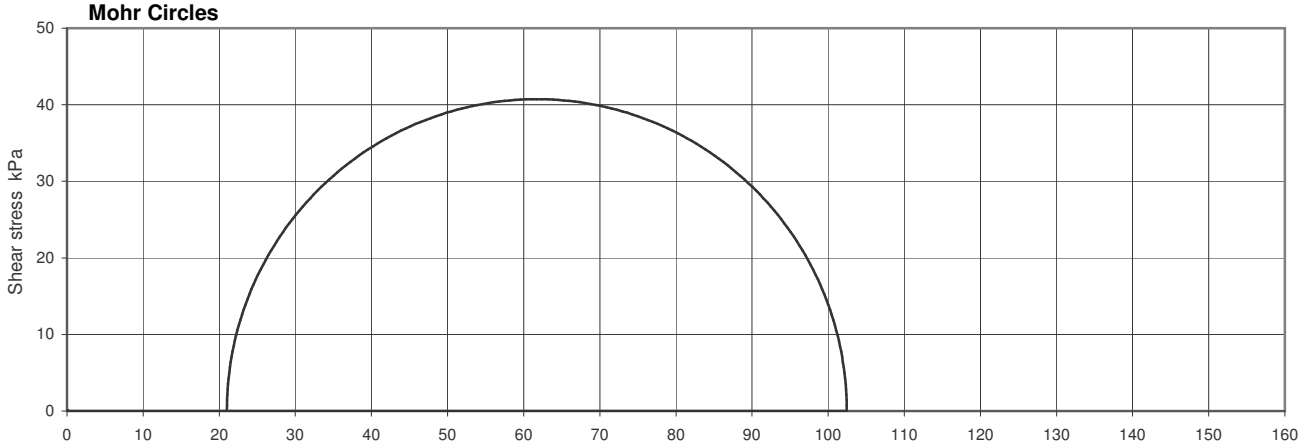


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:07/10/2015 12:00	**CU** sheet 2 of 3

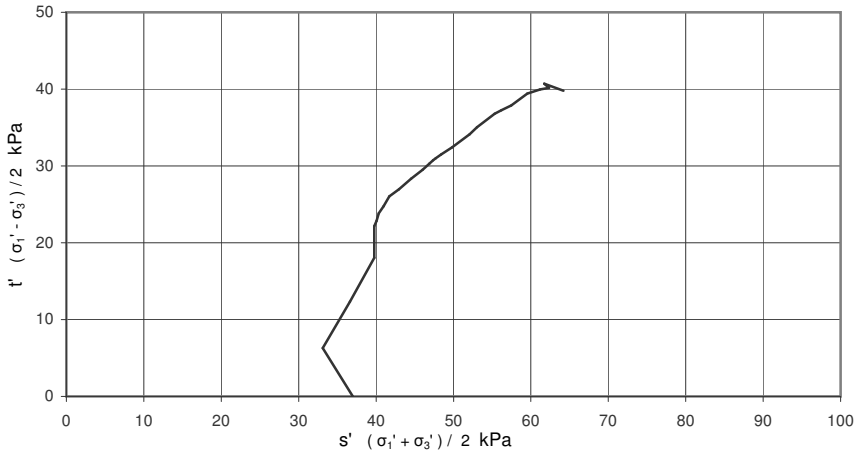
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.65-5.65		
			No	17	Type	P
			ID			
			Spec Ref	Sample 1		

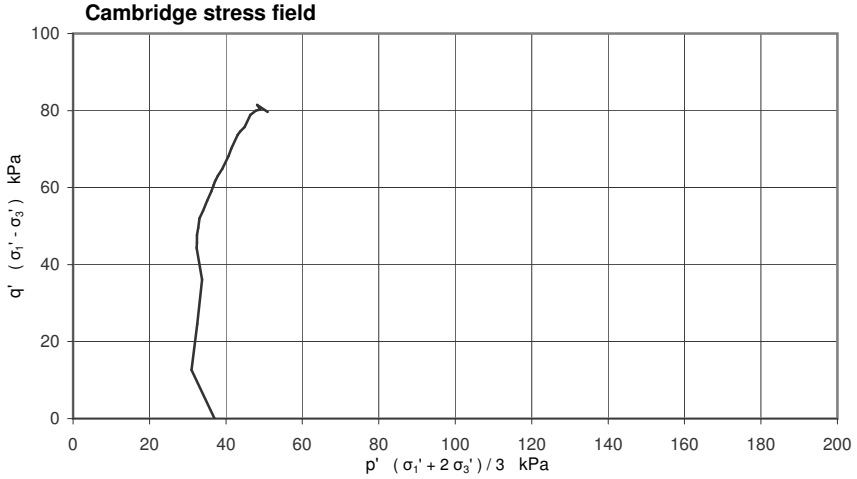
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	337			kPa
Initial pwp	300			kPa
Initial σ_3'	37			kPa
Rate of strain	2.00			%/hr

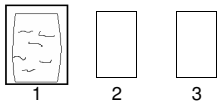
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	13.14			%
$(\sigma_1' / \sigma_3')_f$	4.879			
$(\sigma_1' - \sigma_3')_f$	81.5			kPa
u_f	316			kPa
$\sigma_3'_f$	21			kPa
$\sigma_1'_f$	102			kPa
A_f	0.20			
Time to failure	6.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.328 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

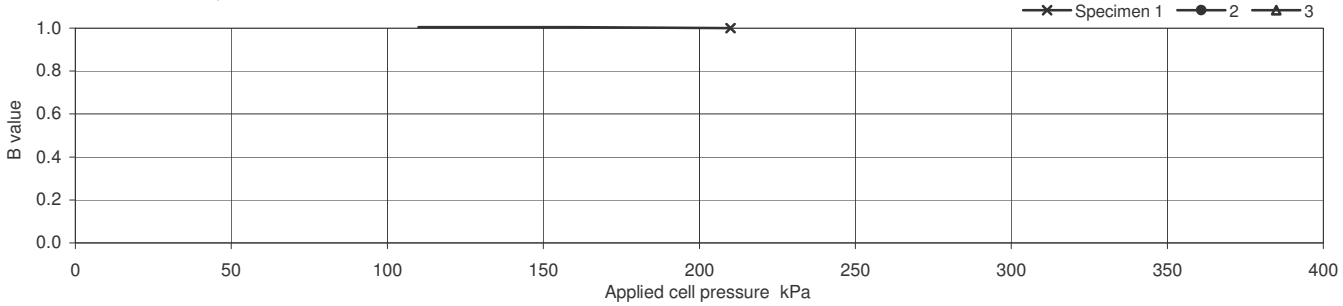
Project No	A5066-15	Sample Details:	Hole No	BH415	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.65-5.65	
			No	17	Type P
			ID		
			Spec Ref	Sample 2	

Specimen Details			1	2	3
Initial	Length	mm	201.99		
	Diameter	mm	99.79		
	Bulk Density	Mg/m³	1.90		
	Water Content	%	34		
	Dry density	Mg/m³	1.42		
After consolidation	Length	mm	196.11		
	Diameter	mm	96.84		
	Bulk Density*	Mg/m³	1.98		
	Water Content*	%	28		
	Dry density*	Mg/m³	1.55		

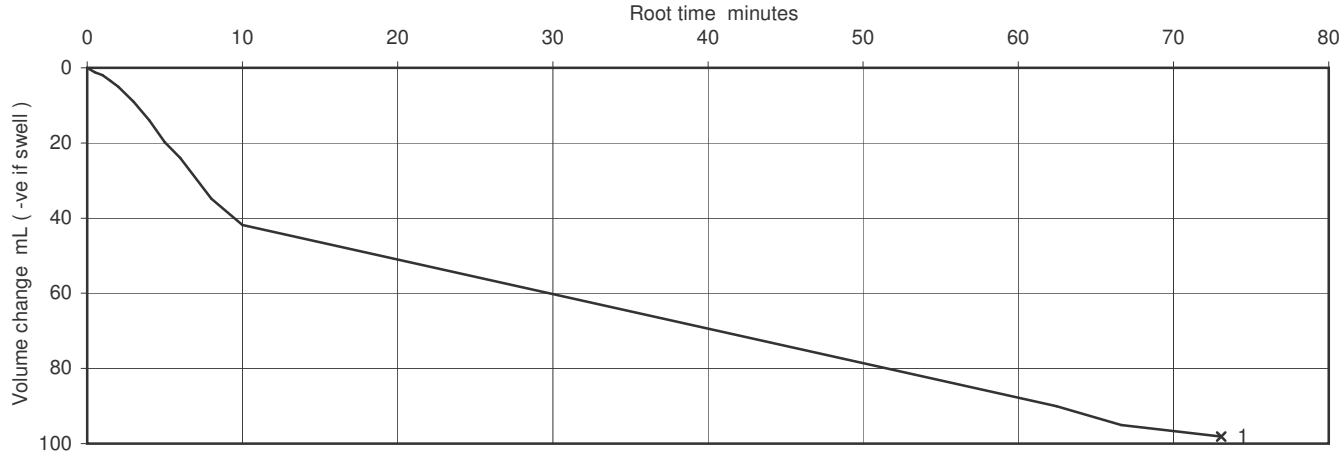
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown slightly sandy silty CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	195.5		
Final B Value		1.00		



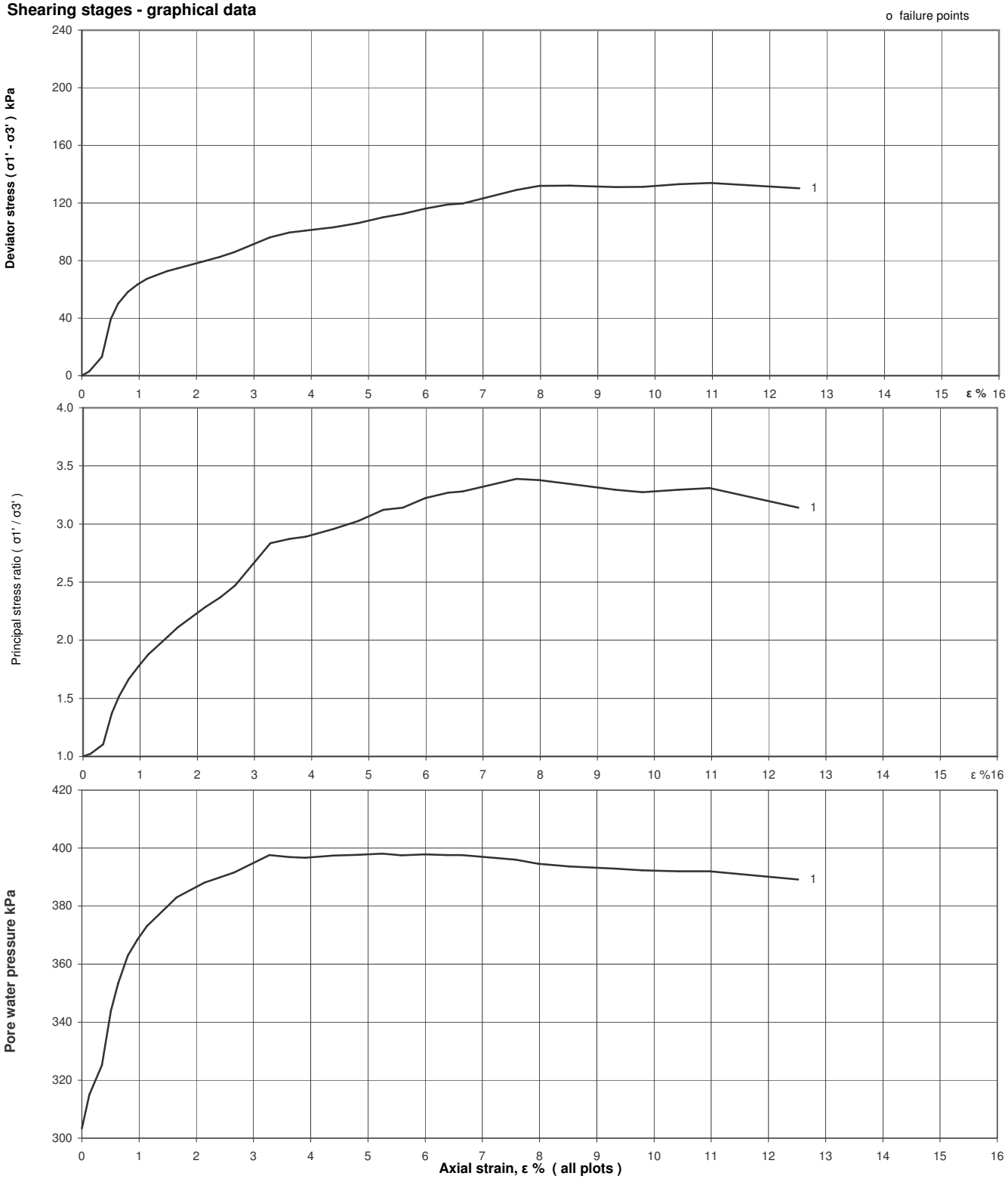
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		450			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		150			kPa
	Pore pressure at start of consolidation		443			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		98			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.48			m^2/year
	Coefficient of Compressibility	M_{vi}	0.46			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.7E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.65-5.65		
			No	17	Type	P
			ID			
			Spec Ref	Sample 2		

Shearing stages - graphical data

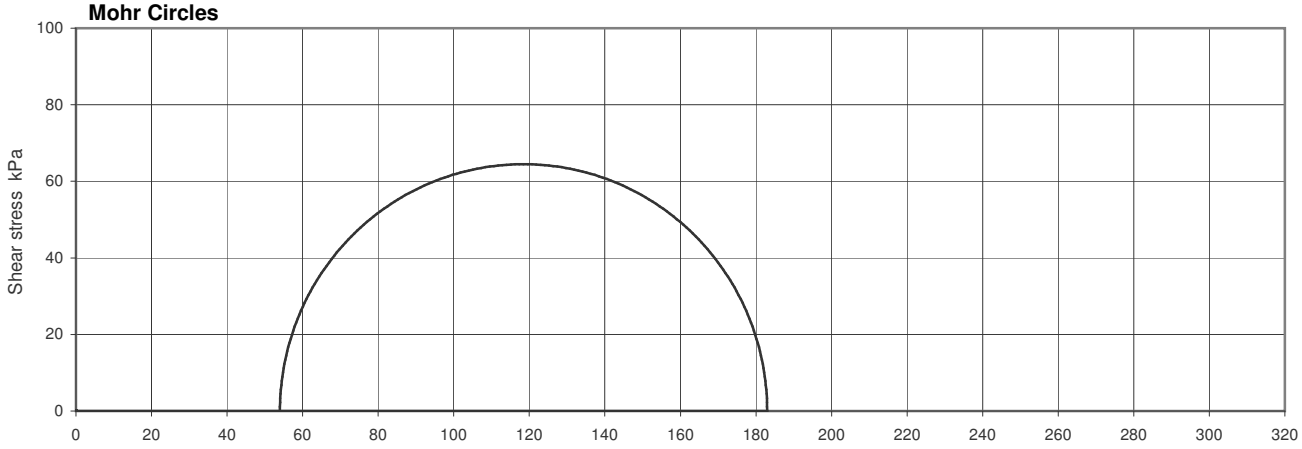


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:07/10/2015 11:58	**CU** sheet 2 of 3

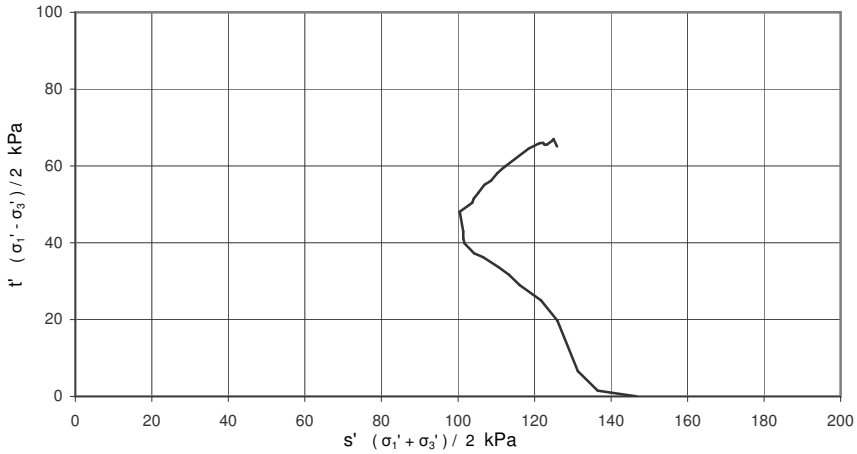
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	4.65-5.65		
			No	17	Type	P
			ID			
			Spec Ref	Sample 2		

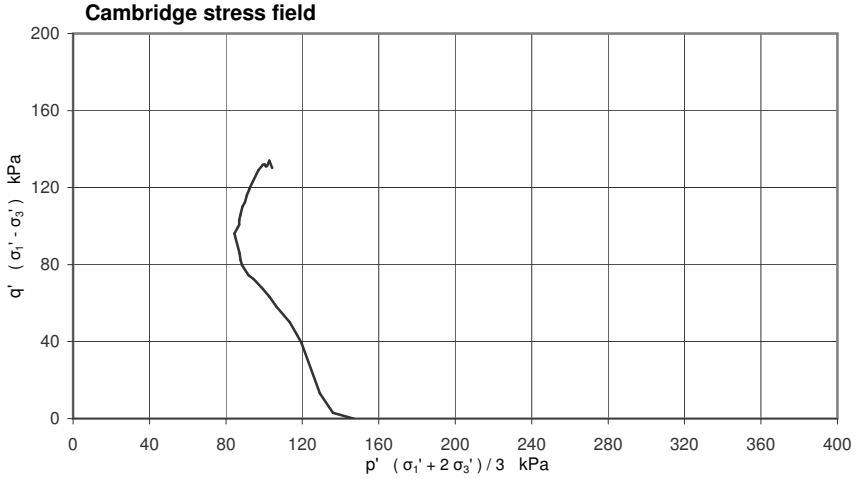
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	450			kPa
Initial pwp	303			kPa
Initial σ_3'	147			kPa
Rate of strain	0.40			%/hr

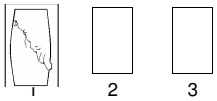
Failure conditions

Criterion				
Axial strain	7.58			%
$(\sigma_1' / \sigma_3')_f$	3.388			
$(\sigma_1' - \sigma_3')_f$	129.0			kPa
u_f	396			kPa
$\sigma_3'_f$	54			kPa
$\sigma_1'_f$	183			kPa
A_f	0.72			
Time to failure	19.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.276 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

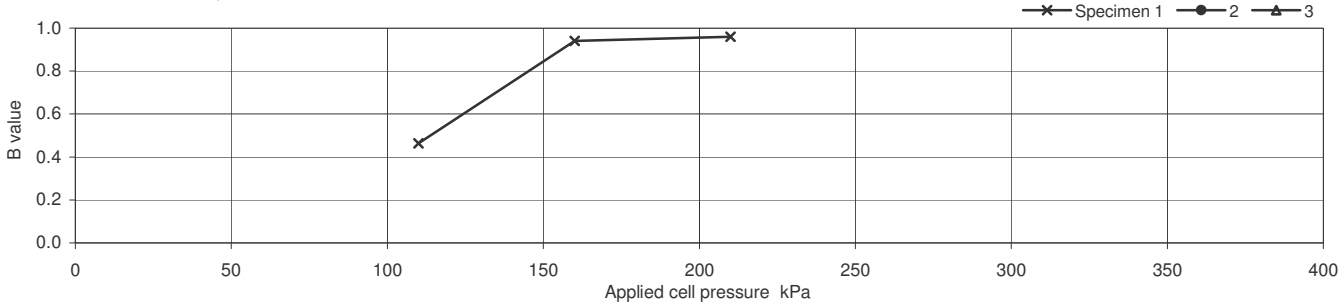
Project No	A5066-15	Sample Details:	Hole No	BH415	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.90 - 8.35	
			No	24	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.11		
	Diameter	mm	103.73		
	Bulk Density	Mg/m³	1.77		
	Water Content	%	36		
	Dry density	Mg/m³	1.30		
After consolidation	Length	mm	198.39		
	Diameter	mm	101.29		
	Bulk Density*	Mg/m³	1.87		
	Water Content*	%	34		
	Dry density*	Mg/m³	1.39		

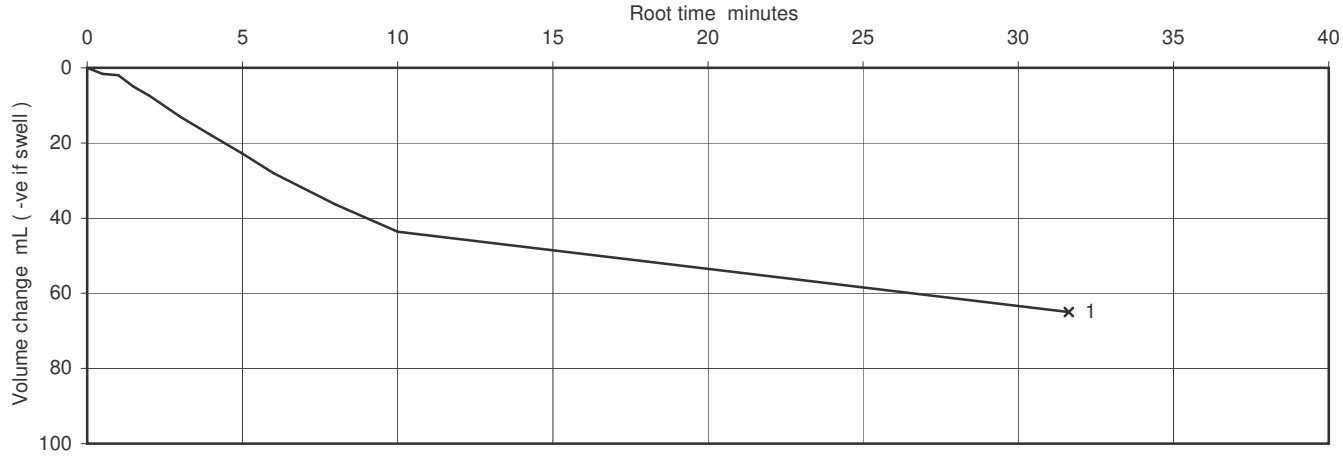
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm dark brown slightly sandy slightly gravelly CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	190		
Final B Value		0.96		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		378			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.53			m^2/year
	Coefficient of Compressibility	M_{vi}	0.47			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	7.7E-11			m/s

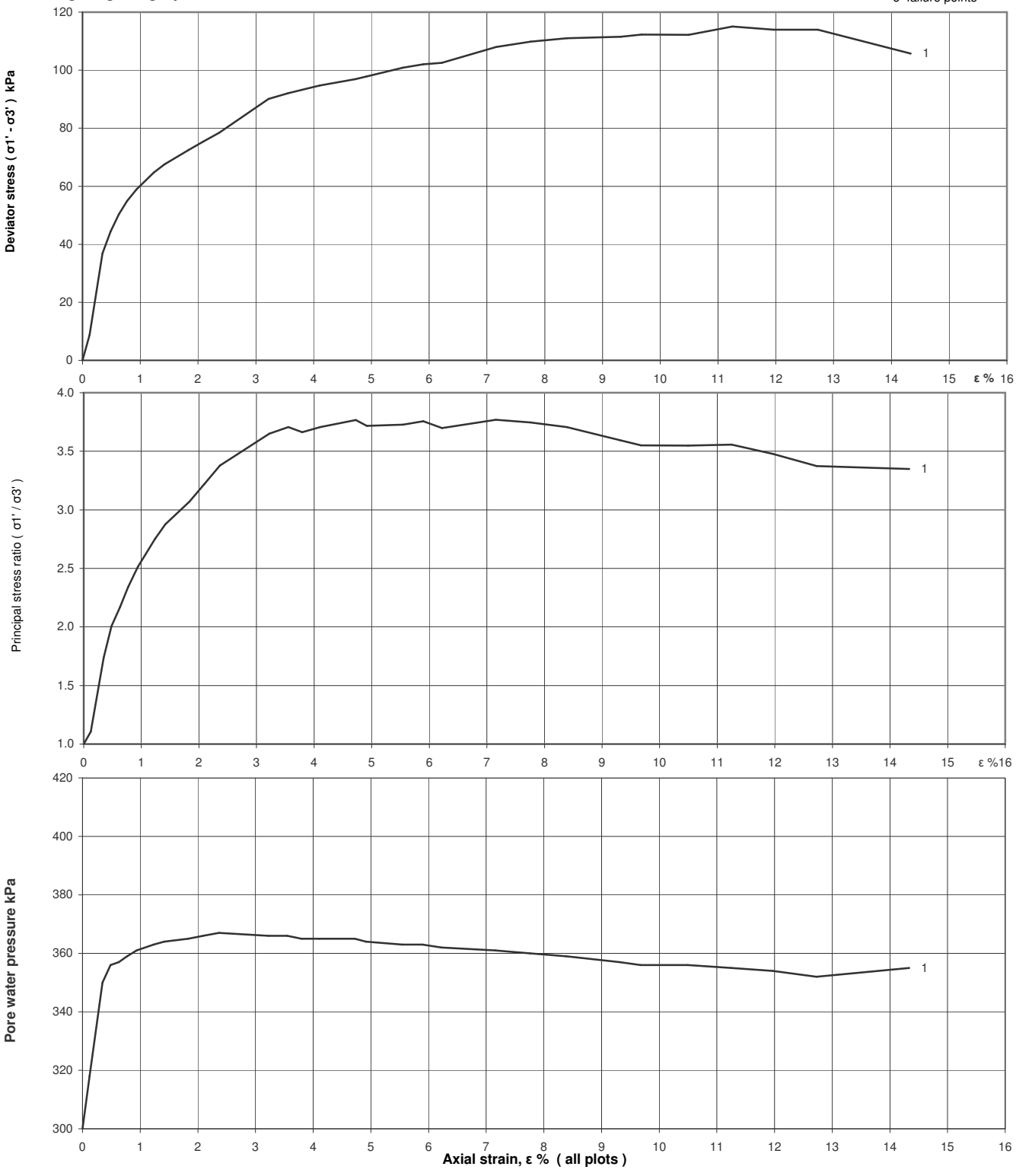


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.90 - 8.35		
			No	24	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

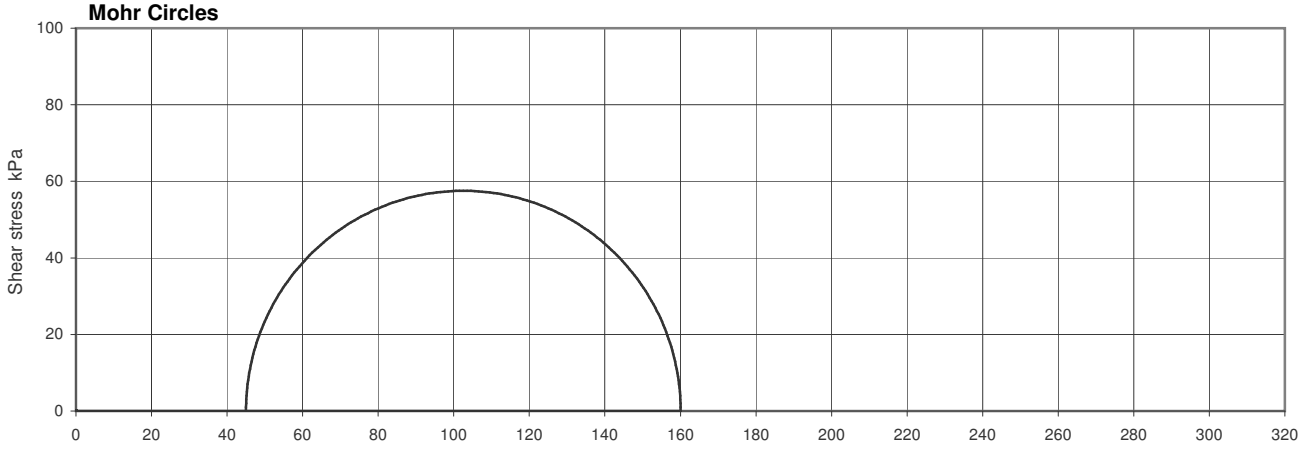


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:20	**CU** sheet 2 of 3

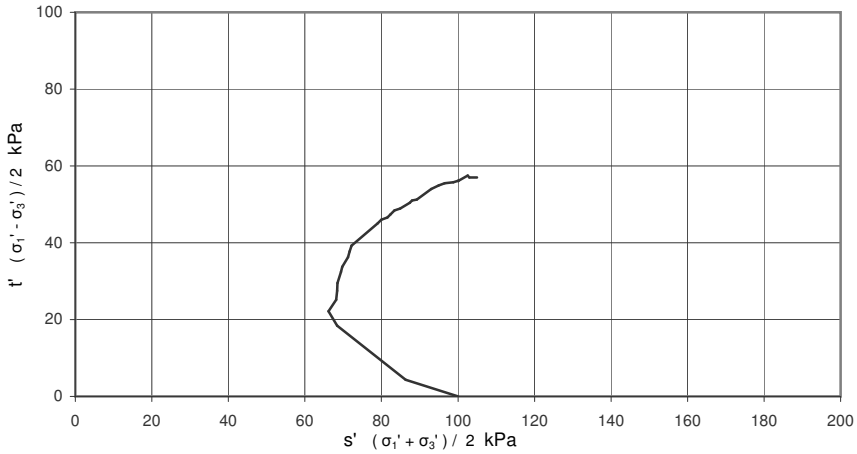
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.90 - 8.35		
			No	24	Type	UT
			ID			
			Spec Ref			

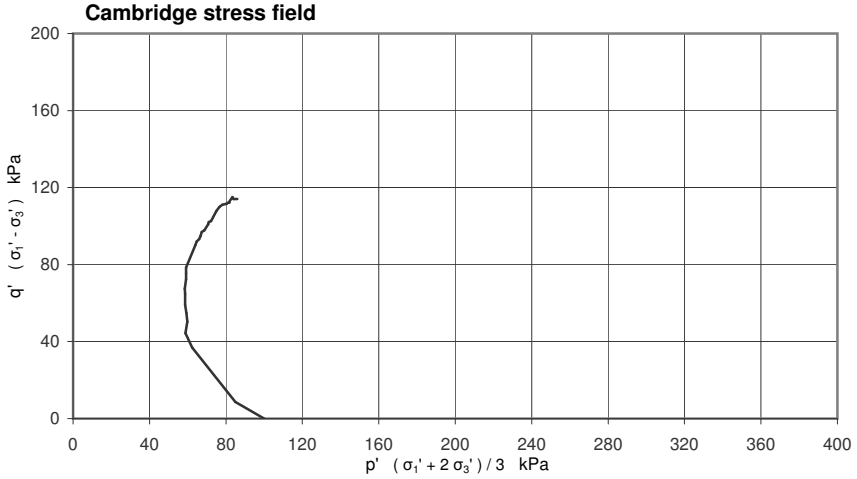
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	300			kPa
Initial σ_3'	100			kPa
Rate of strain	0.39			%/hr

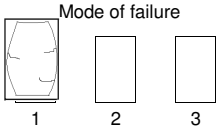
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	11.25			%
$(\sigma_1' / \sigma_3')_f$	3.557			
$(\sigma_1' - \sigma_3')_f$	115.1			kPa
u_f	355			kPa
$\sigma_3'_f$	45			kPa
$\sigma_1'_f$	160			kPa
A_f	0.48			
Time to failure	28.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.286 mm thick rubber membrane(s)

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:20	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

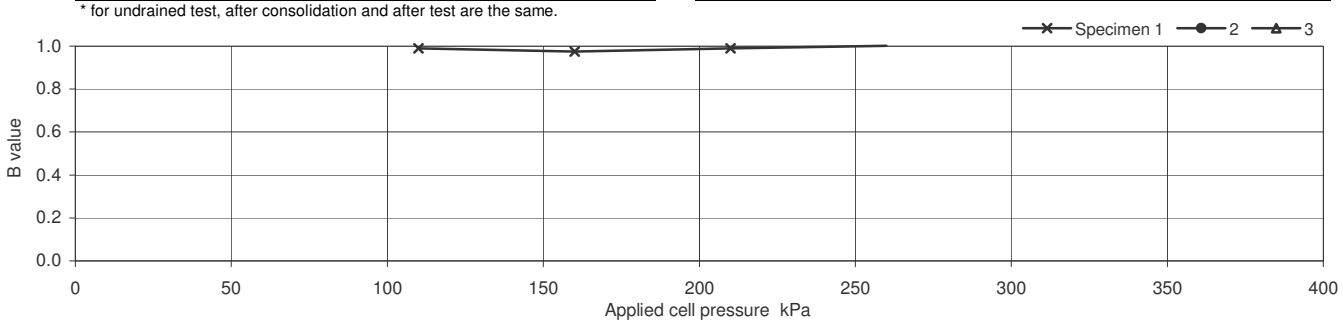
Project No	A5066-15	Sample Details:	Hole No	BH415	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.00-10.00	
			No	28	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	192.02		
	Diameter	mm	97.74		
	Bulk Density	Mg/m³	1.94		
	Water Content	%	72		
	Dry density	Mg/m³	1.13		
After consolidation	Length	mm	167.25		
	Diameter	mm	84.19		
	Bulk Density*	Mg/m³	2.20		
	Water Content*	%	26		
	Dry density*	Mg/m³	1.74		

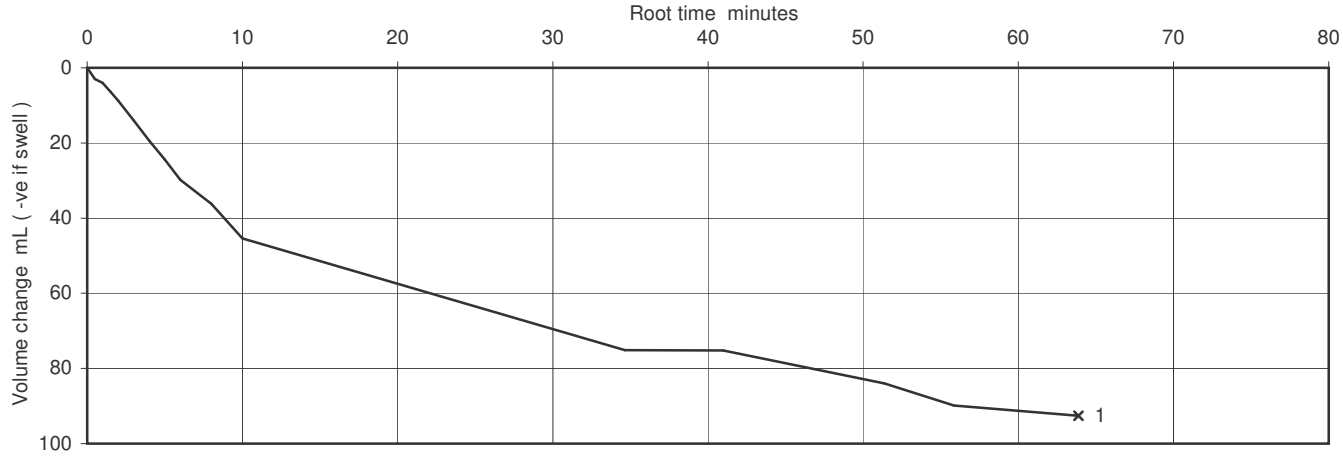
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft laminated brown sandy silty CLAY with sand on laminea.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	252.1		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		535			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		235			kPa
	Pore pressure at start of consolidation		512			kPa
	Pore pressure at end of consolidation		302			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.39			m^2/year
	Coefficient of Compressibility	M_{vi}	0.44			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	5.3E-11			m/s

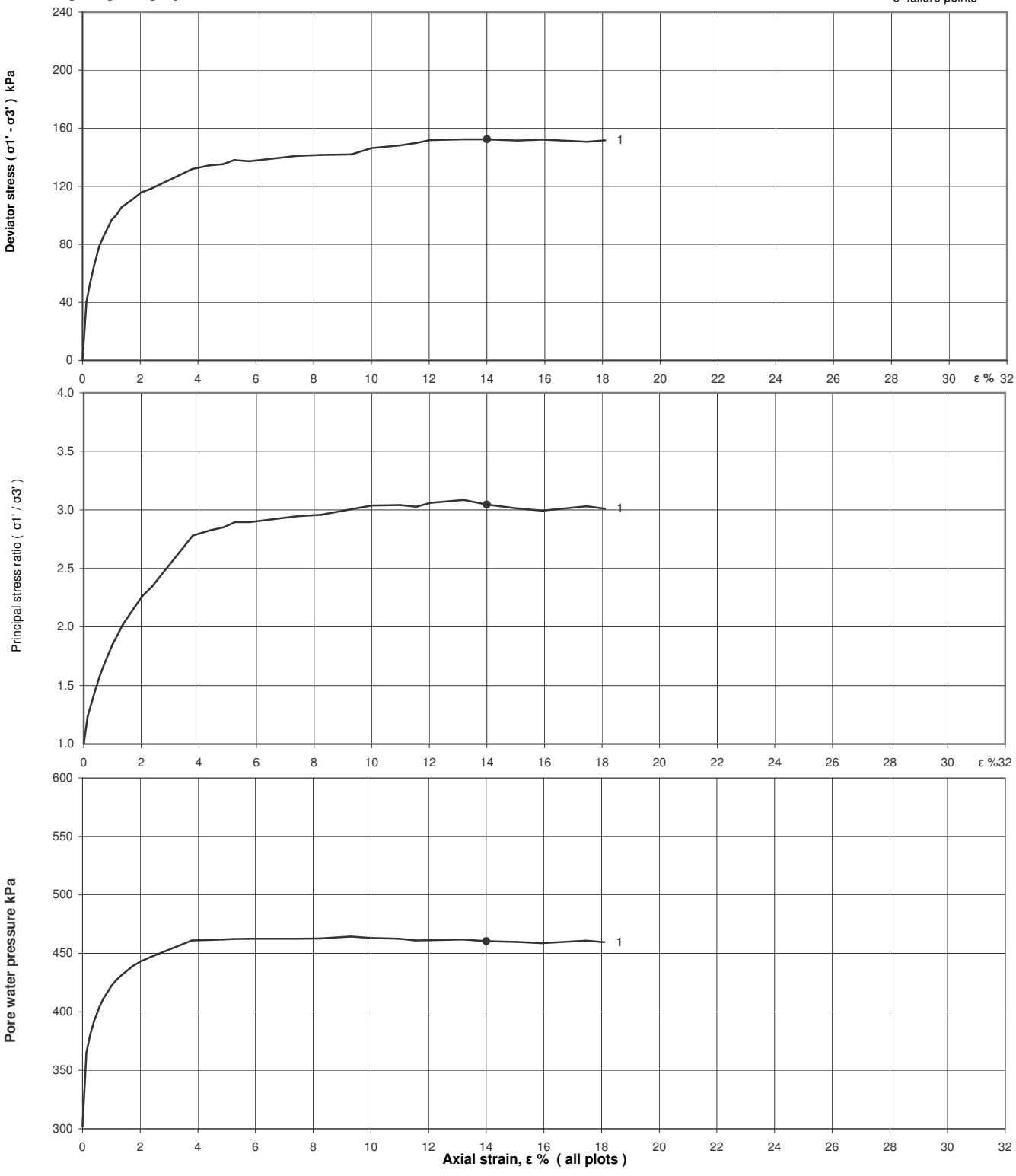


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.00-10.00		
			No	28	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

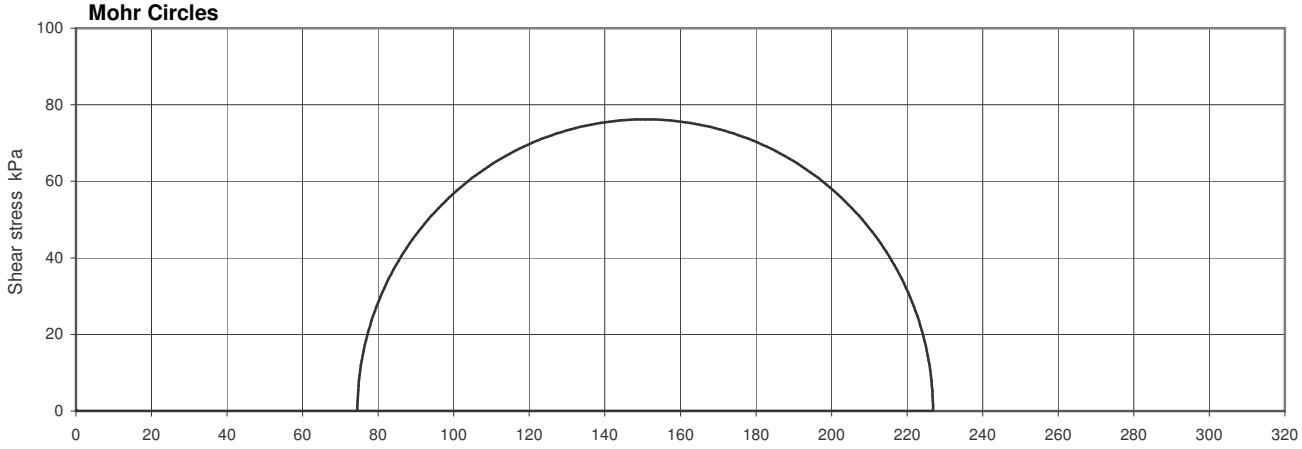


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:10/12/2015 12:28	**CU** sheet 2 of 3

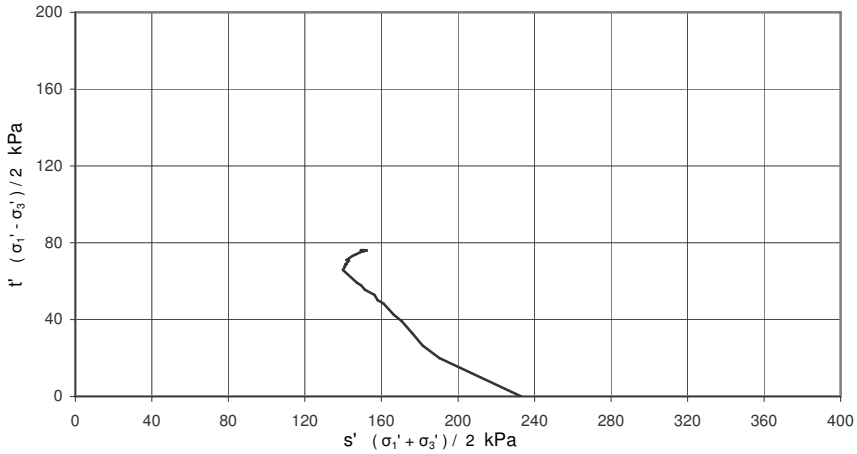
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH415		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.00-10.00		
			No	28	Type	P
			ID			
			Spec Ref			

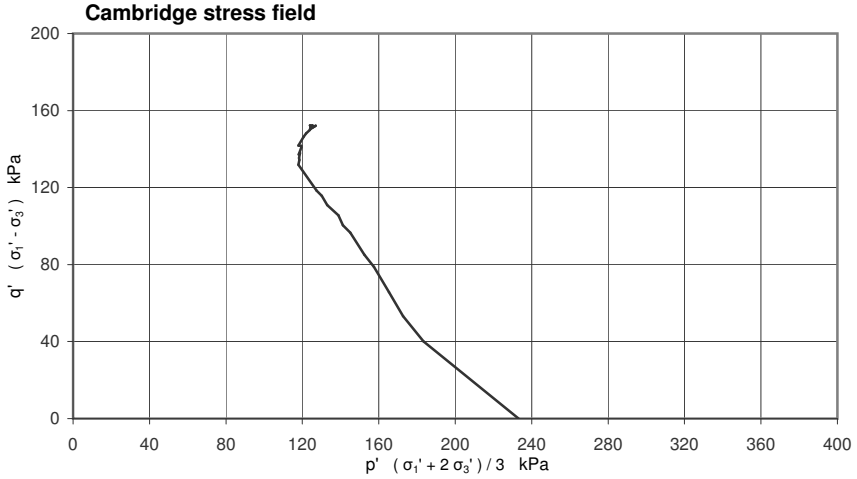
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	535			kPa
Initial pwp	302			kPa
Initial σ_3'	233			kPa
Rate of strain	0.42			%/hr

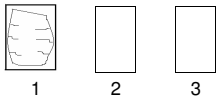
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	14.00			%
$(\sigma_1' / \sigma_3')_f$	3.045			
$(\sigma_1' - \sigma_3')_f$	152.4			kPa
u_f	461			kPa
$\sigma_3'_f$	75			kPa
$\sigma_1'_f$	227			kPa
A_f	1.04			
Time to failure	33.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.303 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

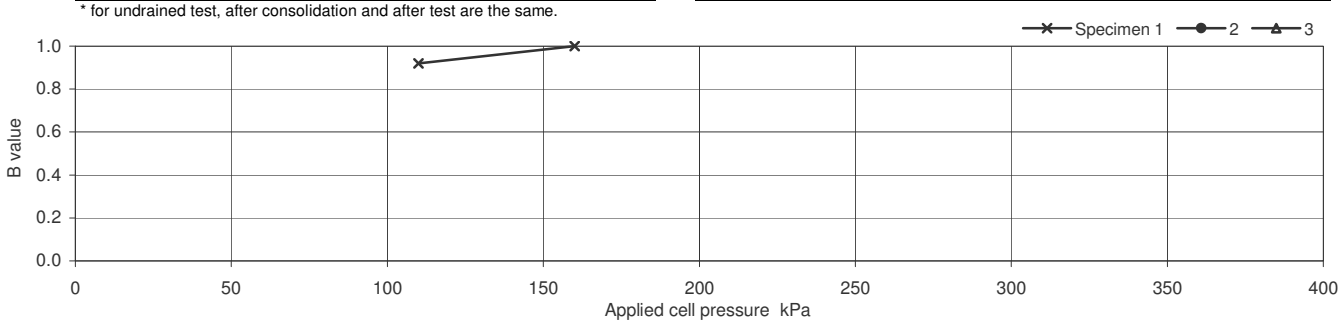
Project No	A5066-15	Sample Details:	Hole No	BH416	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.75-10.75	
			No	26	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	208.72		
	Diameter	mm	96.77		
	Bulk Density	Mg/m³	1.94		
	Water Content	%	31		
	Dry density	Mg/m³	1.48		
After consolidation	Length	mm	207.12		
	Diameter	mm	96.02		
	Bulk Density*	Mg/m³	1.96		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.51		

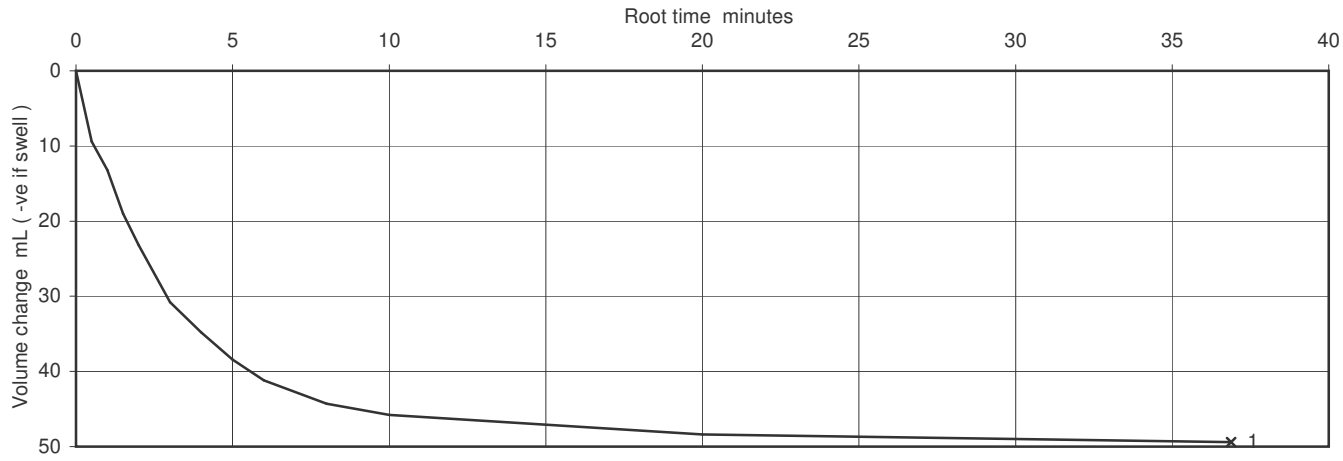
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm dark grey sandy CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	145		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		425			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		125			kPa
	Pore pressure at start of consolidation		414			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	6.61			m^2/year
	Coefficient of Compressibility	M_{vi}	0.28			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	5.7E-10			m/s

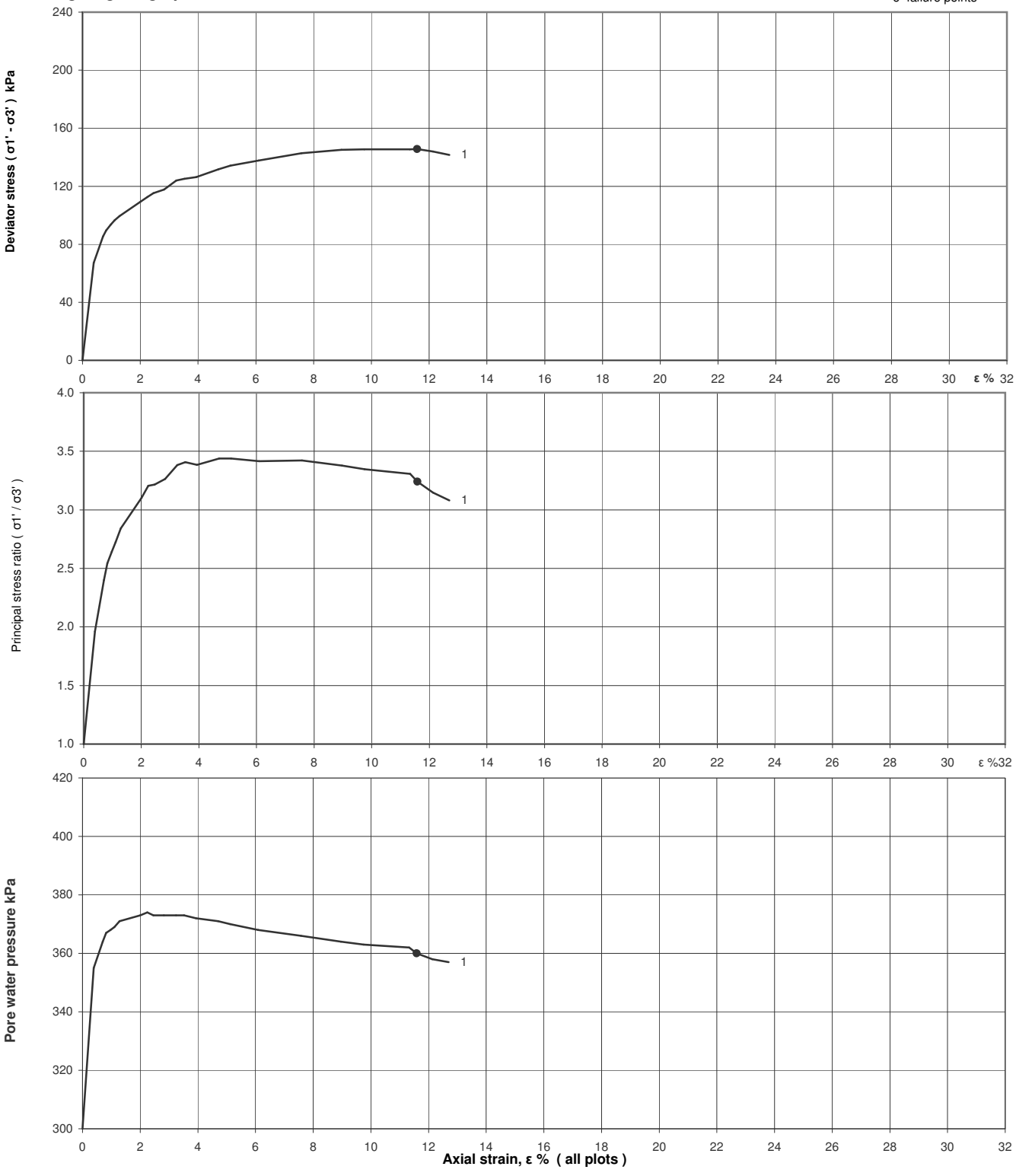


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.75-10.75		
			No	26	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

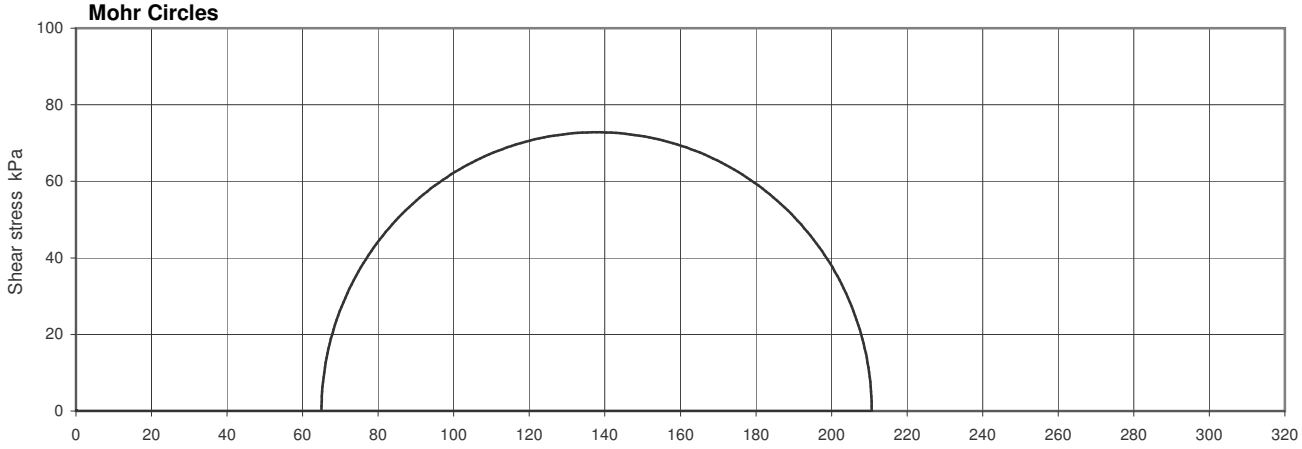


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:21	**CU** sheet 2 of 3

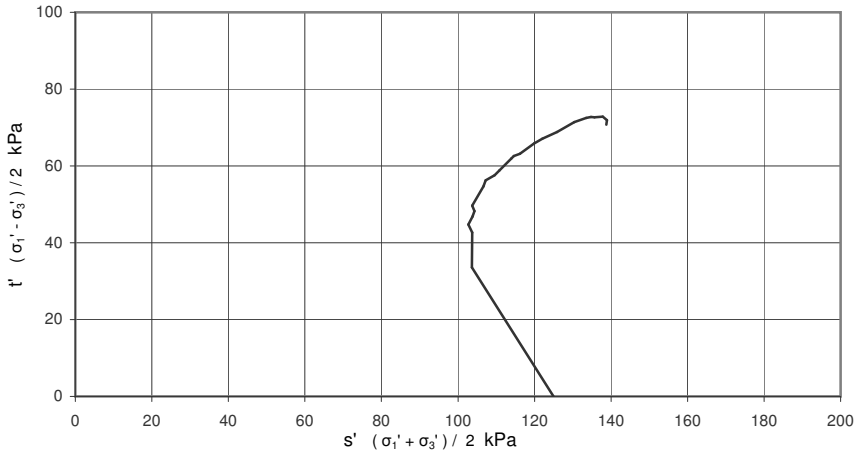
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH416		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.75-10.75		
			No	26	Type	P
			ID			
			Spec Ref			

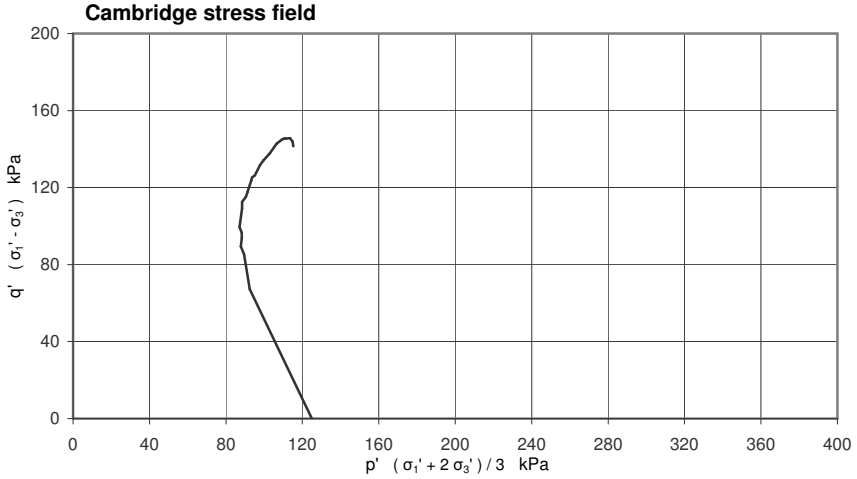
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	425			kPa
Initial pwp	300			kPa
Initial σ_3'	125			kPa
Rate of strain	2.00			%/hr

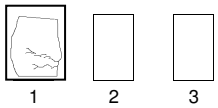
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	11.59			%
$(\sigma_1' / \sigma_3')_f$	3.241			
$(\sigma_1' - \sigma_3')_f$	145.6			kPa
u_f	360			kPa
$\sigma_3'_f$	65			kPa
$\sigma_1'_f$	211			kPa
A_f	0.41			
Time to failure	5.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.322 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

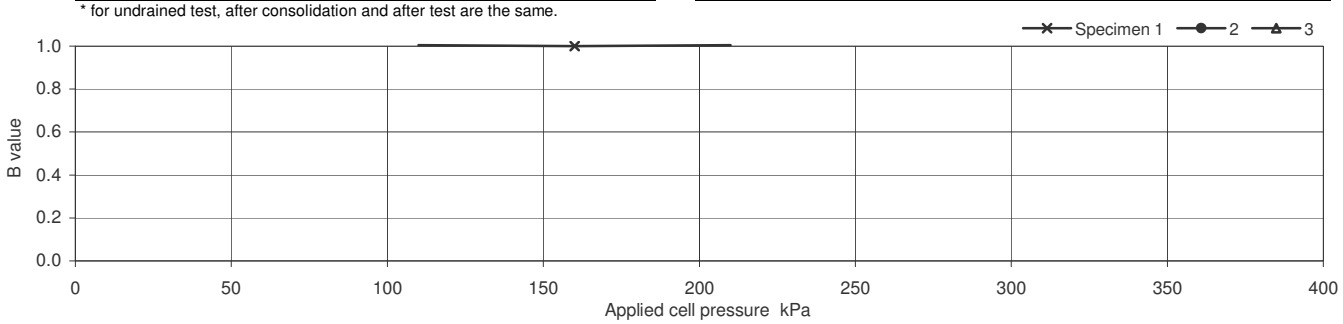
Project No	A5066-15	Sample Details:	Hole No	BH501	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	11.00-11.45	
			No	27	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.88		
	Diameter	mm	105.28		
	Bulk Density	Mg/m³	1.88		
	Water Content	%	55		
	Dry density	Mg/m³	1.21		
After consolidation	Length	mm	185.36		
	Diameter	mm	95.24		
	Bulk Density*	Mg/m³	2.10		
	Water Content*	%	29		
	Dry density*	Mg/m³	1.63		

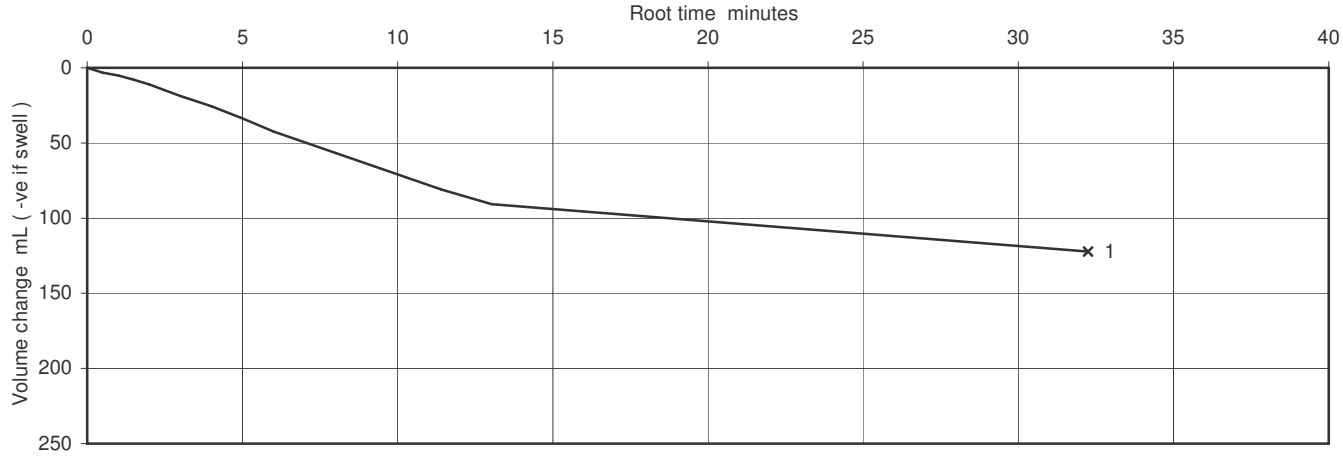
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft grey slightly gravelly sandy CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	200.3		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		433			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		133			kPa
	Pore pressure at start of consolidation		423			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.74			m^2/year
	Coefficient of Compressibility	M_{vi}	0.70			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.6E-10			m/s

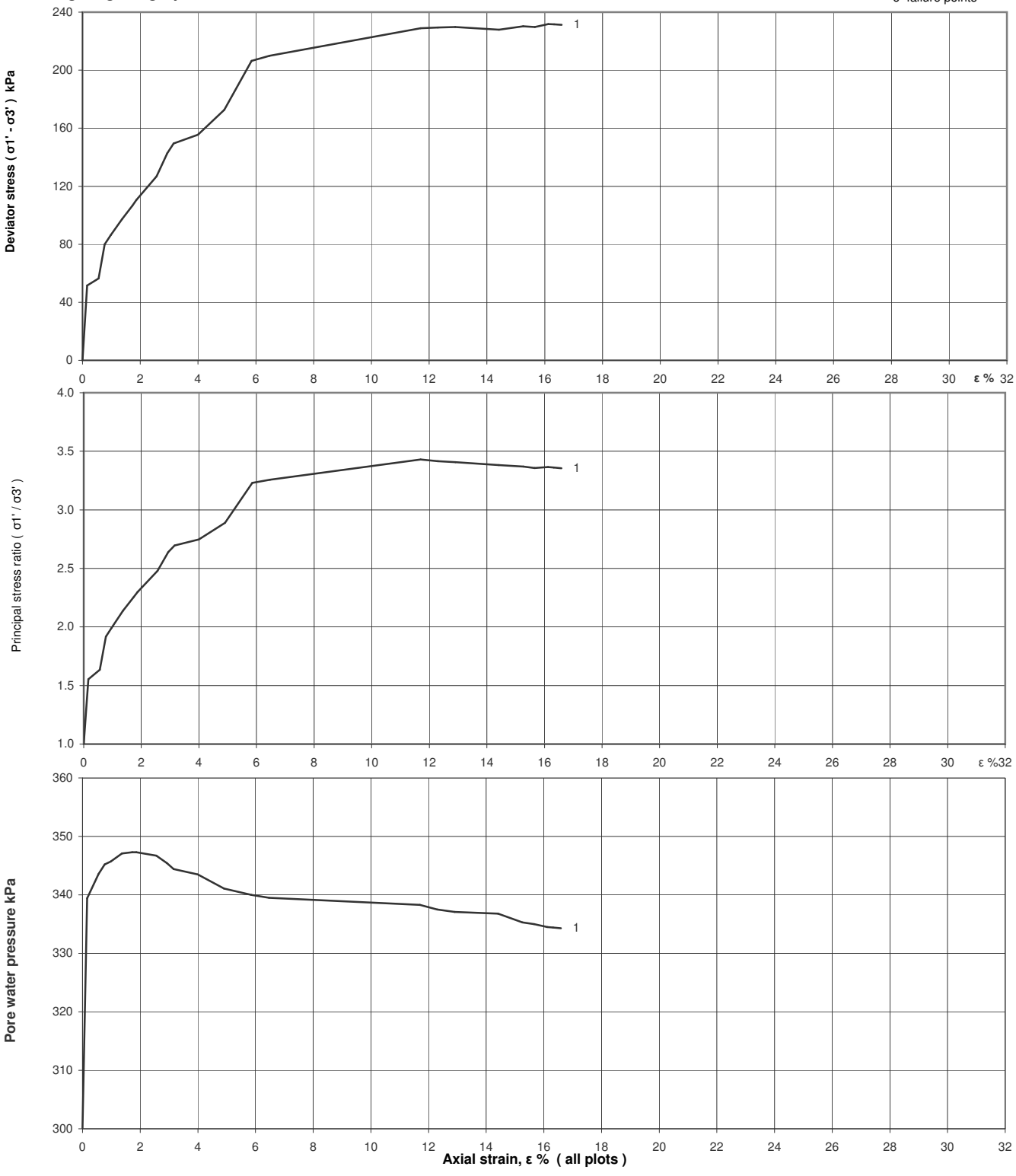


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	11.00-11.45		
			No	27	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

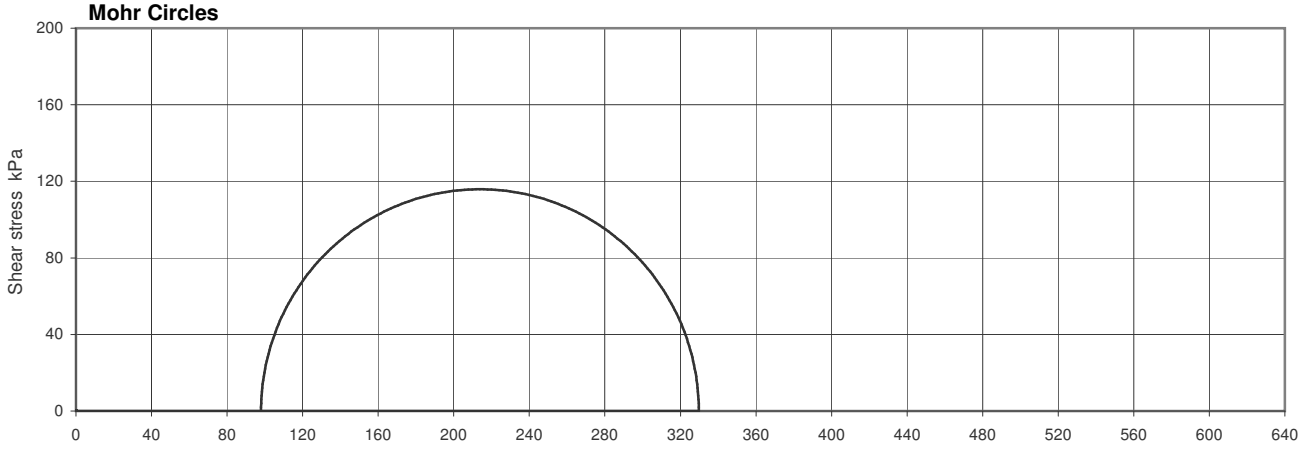


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:07/10/2015 11:59	**CU** sheet 2 of 3

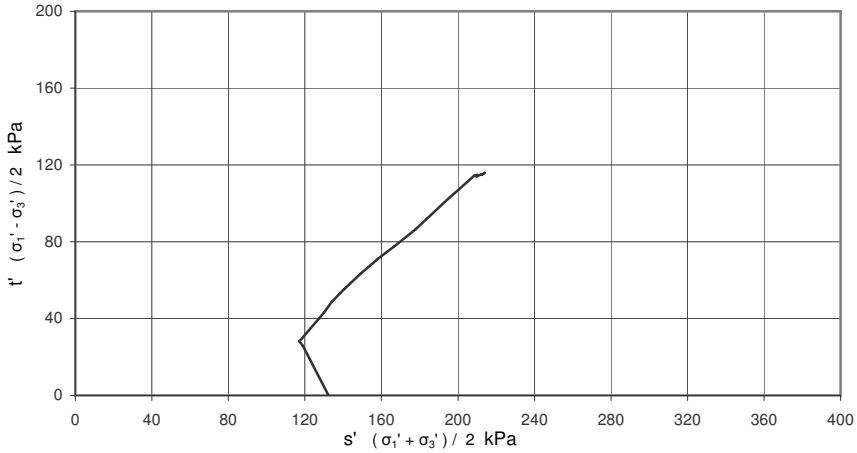
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	11.00-11.45		
			No	27	Type	U
			ID			
			Spec Ref			

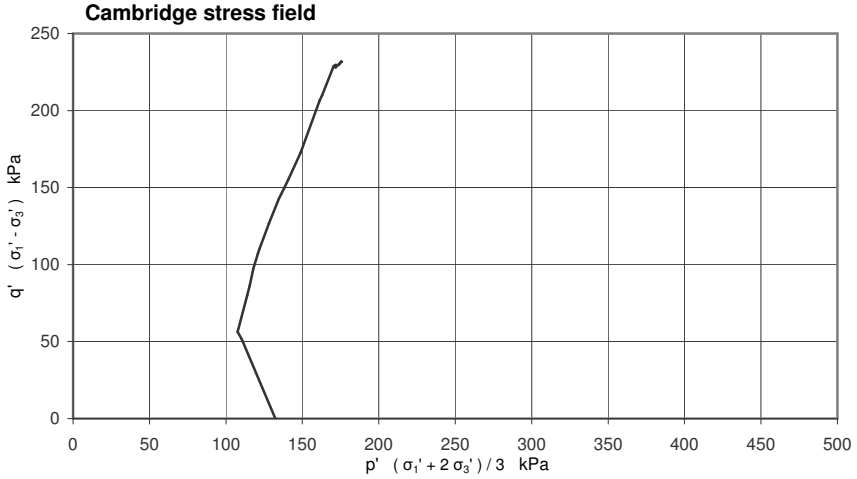
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	432.5			kPa
Initial pwp	300			kPa
Initial σ_3'	132			kPa
Rate of strain	0.41			%/hr

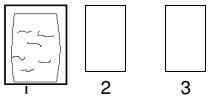
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	16.12			%
$(\sigma_1' / \sigma_3')_f$	3.365			
$(\sigma_1' - \sigma_3')_f$	231.7			kPa
u_f	335			kPa
$\sigma_3'_f$	98			kPa
$\sigma_1'_f$	330			kPa
A_f	0.15			
Time to failure	39.5			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.308 mm thick rubber membrane(s)

Split & Describe after test

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:07/10/2015 11:59	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

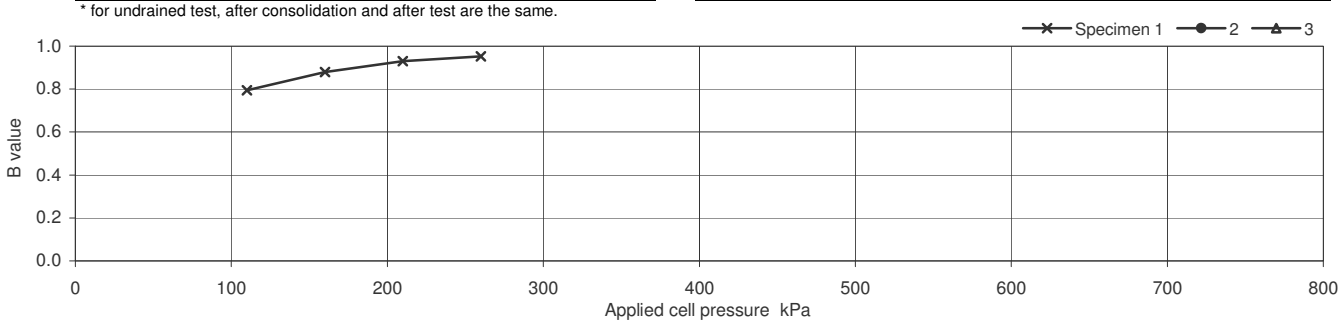
Project No	A5066-15	Sample Details:	Hole No	BH501	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	22.05-22.5	
			No	65	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.96		
	Diameter	mm	103.66		
	Bulk Density	Mg/m³	2.01		
	Water Content	%	25		
	Dry density	Mg/m³	1.61		
After consolidation	Length	mm	199.97		
	Diameter	mm	102.12		
	Bulk Density*	Mg/m³	2.06		
	Water Content*	%	23		
	Dry density*	Mg/m³	1.68		

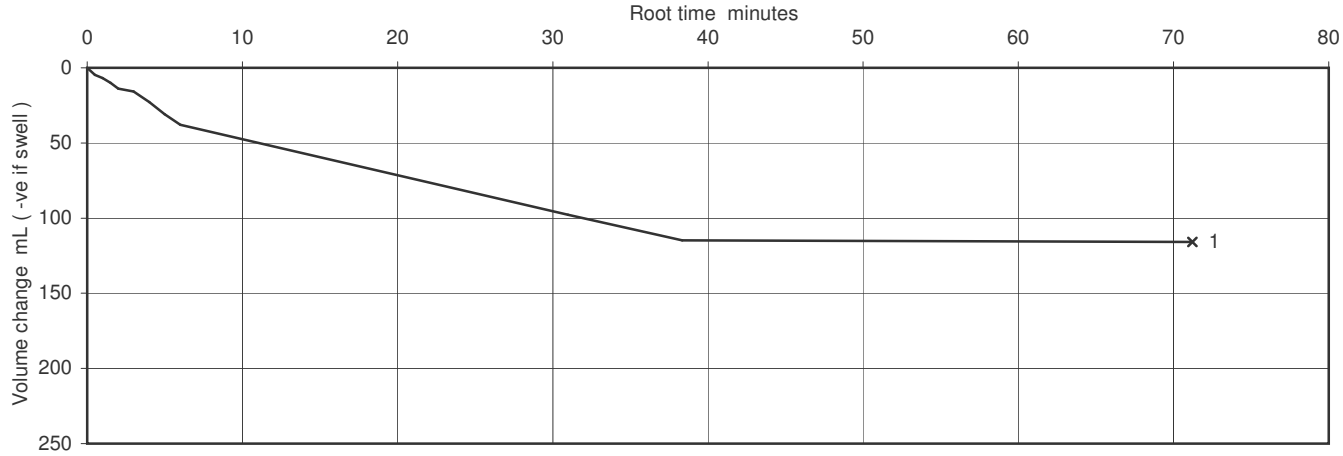
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft greyish brown slightly sandy CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	243.5		
Final B Value		0.97		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		423			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		123			kPa
	Pore pressure at start of consolidation		402			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.57			m^2/year
	Coefficient of Compressibility	M_{vi}	0.65			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.1E-10			m/s

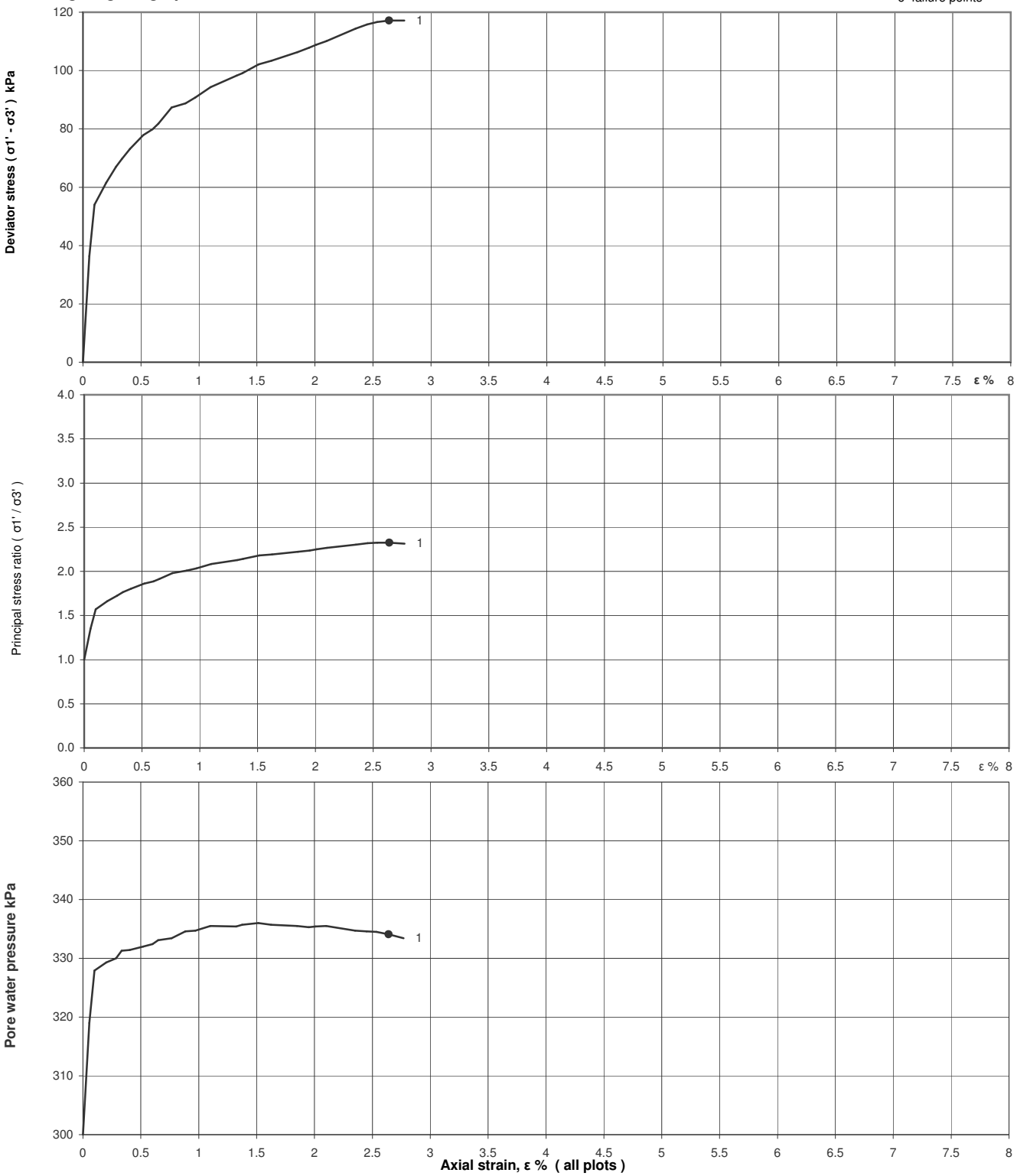


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	22.05-22.5		
			No	65	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

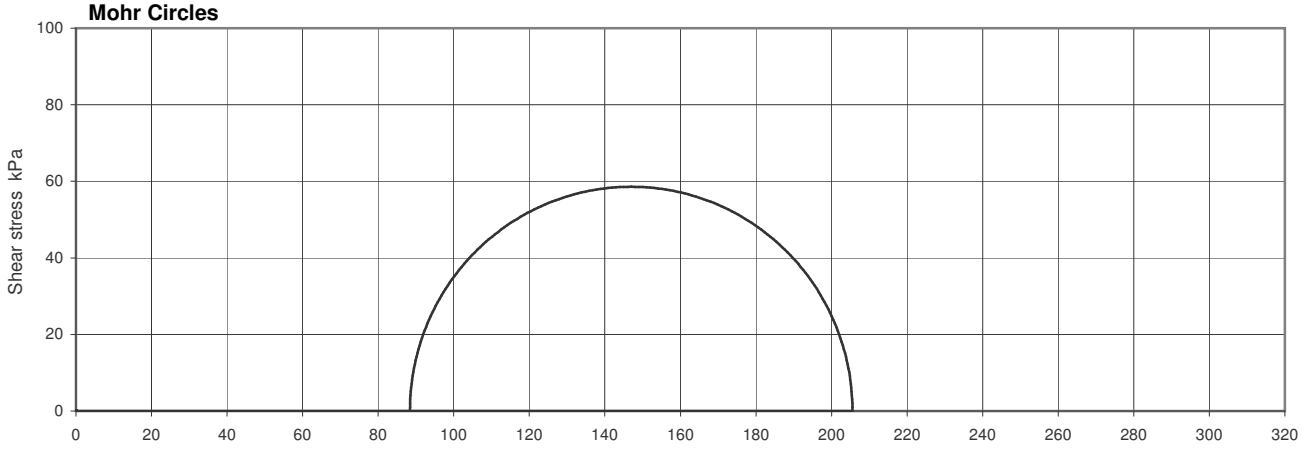


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:24	**CU** sheet 2 of 3

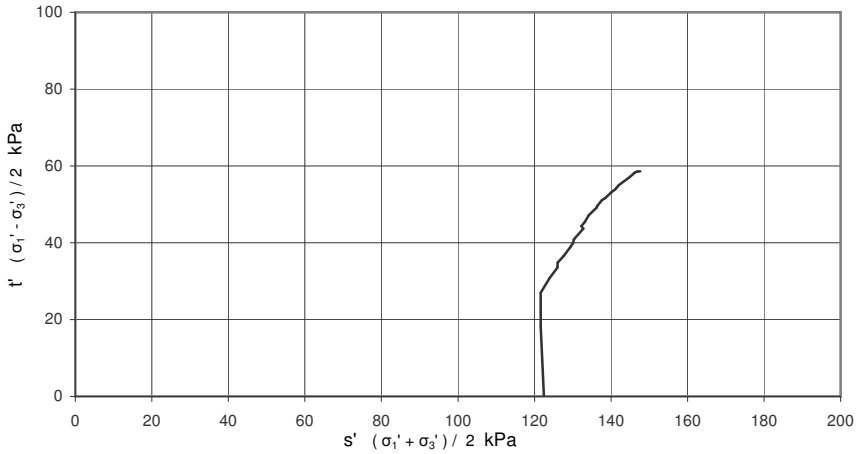
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH501		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	22.05-22.5		
			No	65	Type	U
			ID			
			Spec Ref			

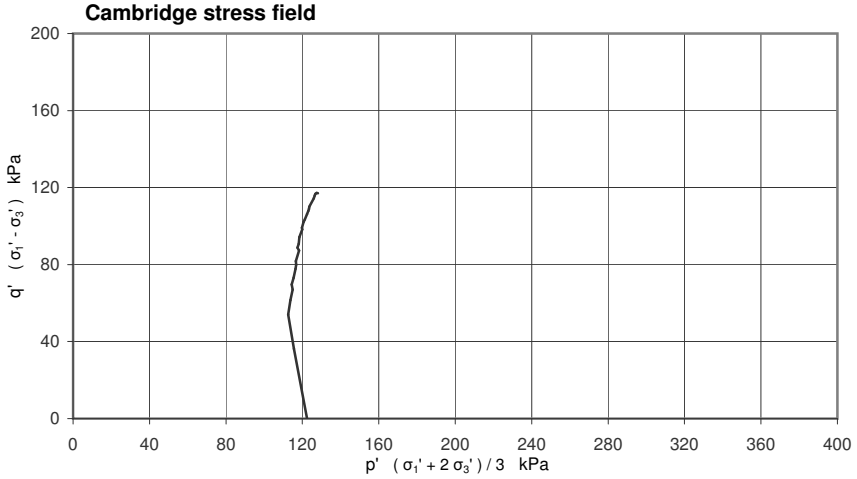
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	422.5			kPa
Initial pwp	300			kPa
Initial σ_3'	123			kPa
Rate of strain	0.41			%/hr

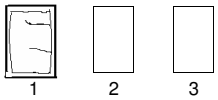
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	2.64			%
$(\sigma_1' / \sigma_3')_f$	2.325			
$(\sigma_1' - \sigma_3')_f$	117.1			kPa
u_f	334			kPa
$\sigma_3'_f$	88			kPa
$\sigma_1'_f$	206			kPa
A_f	0.29			
Time to failure	6.5			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.328 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

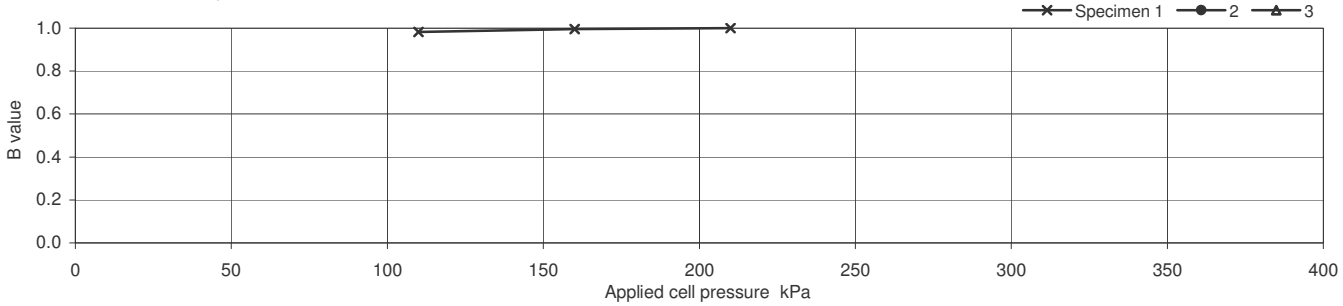
Project No	A5066-15	Sample Details:	Hole No	BH502	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.40-6.40	
			No	20	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.00		
	Diameter	mm	103.03		
	Bulk Density	Mg/m³	1.96		
	Water Content	%	32		
	Dry density	Mg/m³	1.48		
After consolidation	Length	mm	198.60		
	Diameter	mm	100.77		
	Bulk Density*	Mg/m³	2.02		
	Water Content*	%	28		
	Dry density*	Mg/m³	1.59		

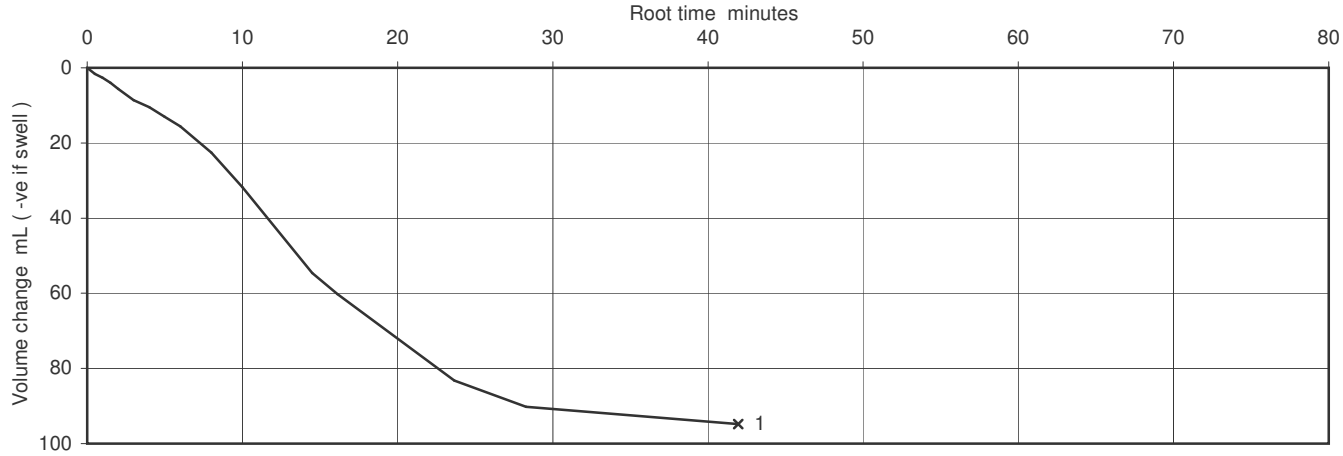
* for undrained test, after consolidation and after test are the same.

Soil Description	Dark grey slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	208.8		
Final B Value		0.97		



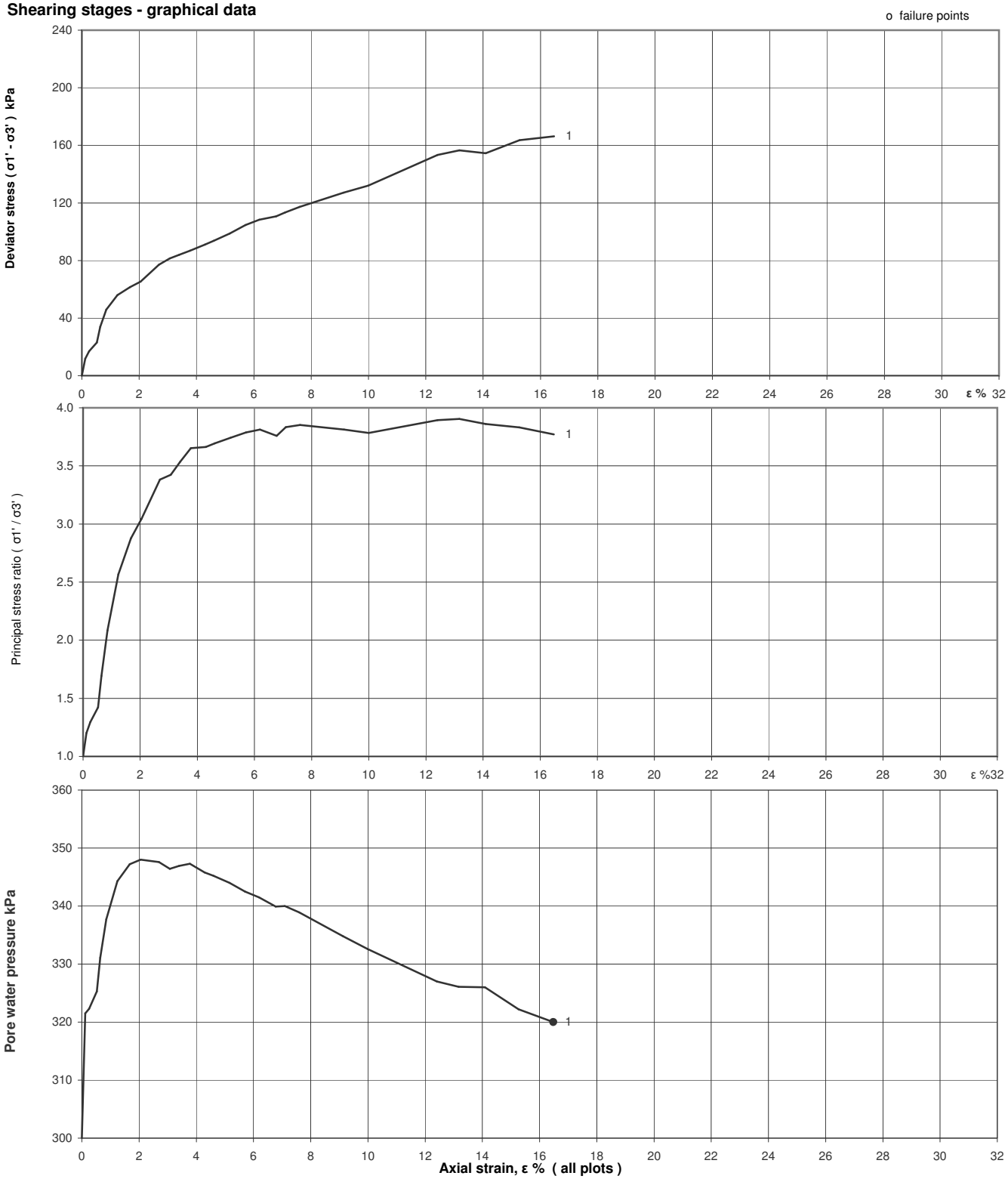
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		380			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		80			kPa
	Pore pressure at start of consolidation		377			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.41			m^2/year
	Coefficient of Compressibility	M_{vi}	0.73			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	9.3E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.40-6.40		
			No	20	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data



Ref			Figure
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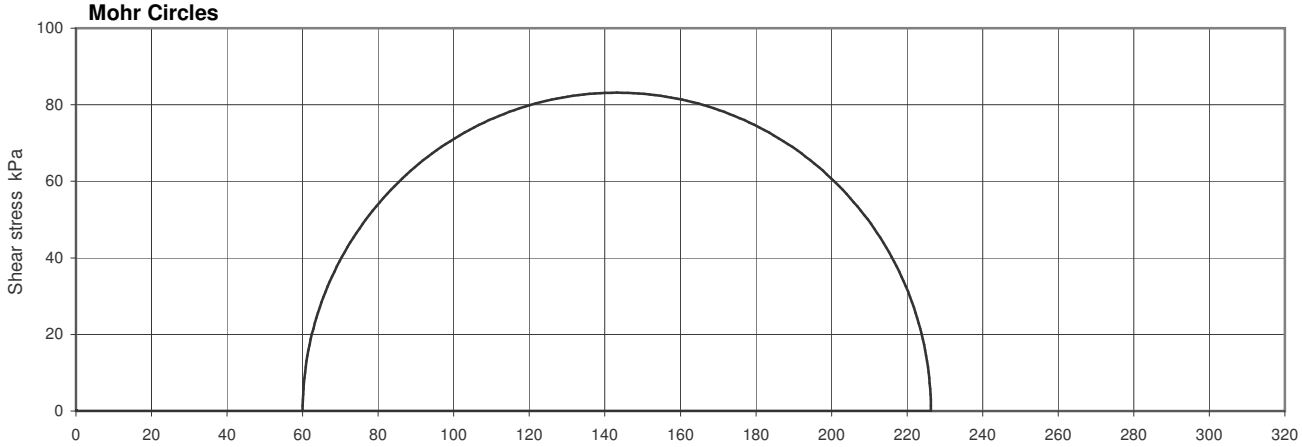
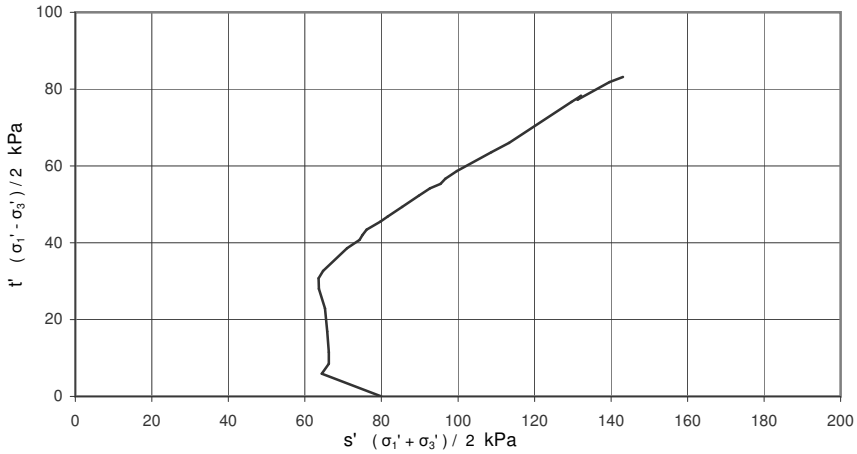
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	5.40-6.40		
			No	20	Type	UT
			ID			
			Spec Ref			

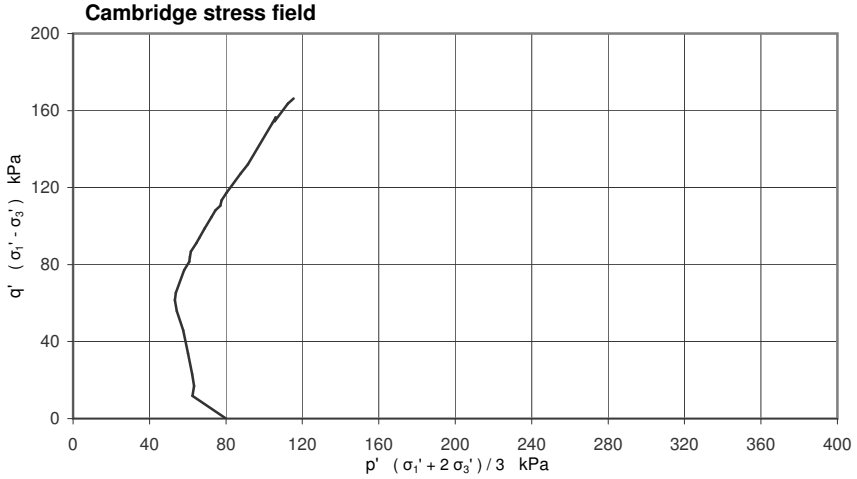
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	380			kPa
Initial pwp	300			kPa
Initial σ_3'	80			kPa
Rate of strain	0.31			%/hr

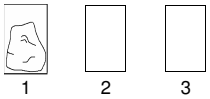
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	16.48			%
$(\sigma_1' / \sigma_3')_f$	3.772			
$(\sigma_1' - \sigma_3')_f$	166.3			kPa
u_f	320			kPa
$\sigma_3'_f$	60			kPa
$\sigma_1'_f$	226			kPa
A_f	0.12			
Time to failure	53.7			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.31 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

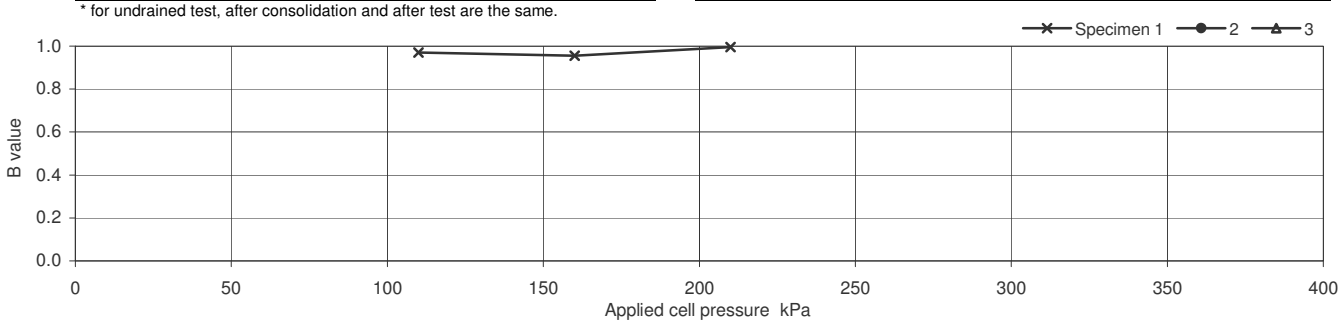
Project No	A5066-15	Sample Details:	Hole No	BH502	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	8.60-9.05	
			No	26	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	188.11		
	Diameter	mm	103.01		
	Bulk Density	Mg/m³	1.85		
	Water Content	%	32		
	Dry density	Mg/m³	1.40		
After consolidation	Length	mm	180.67		
	Diameter	mm	98.85		
	Bulk Density*	Mg/m³	1.99		
	Water Content*	%	25		
	Dry density*	Mg/m³	1.59		

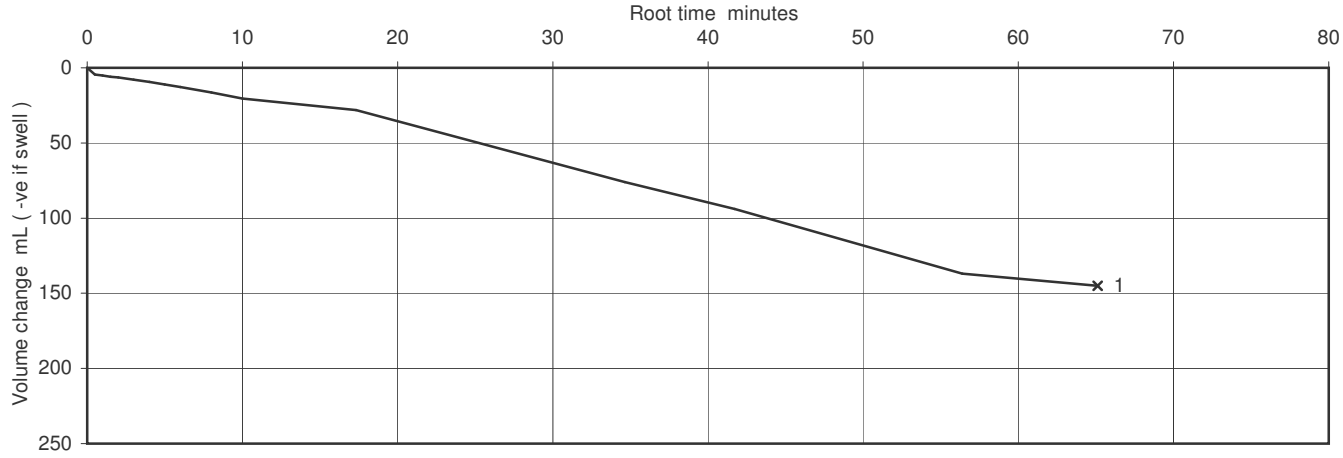
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown mottled dark grey sl sandy organic SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	200.1		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		355			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		55			kPa
	Pore pressure at start of consolidation		349			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		95			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.07			m^2/year
	Coefficient of Compressibility	M_{vi}	2.05			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	4.5E-11			m/s

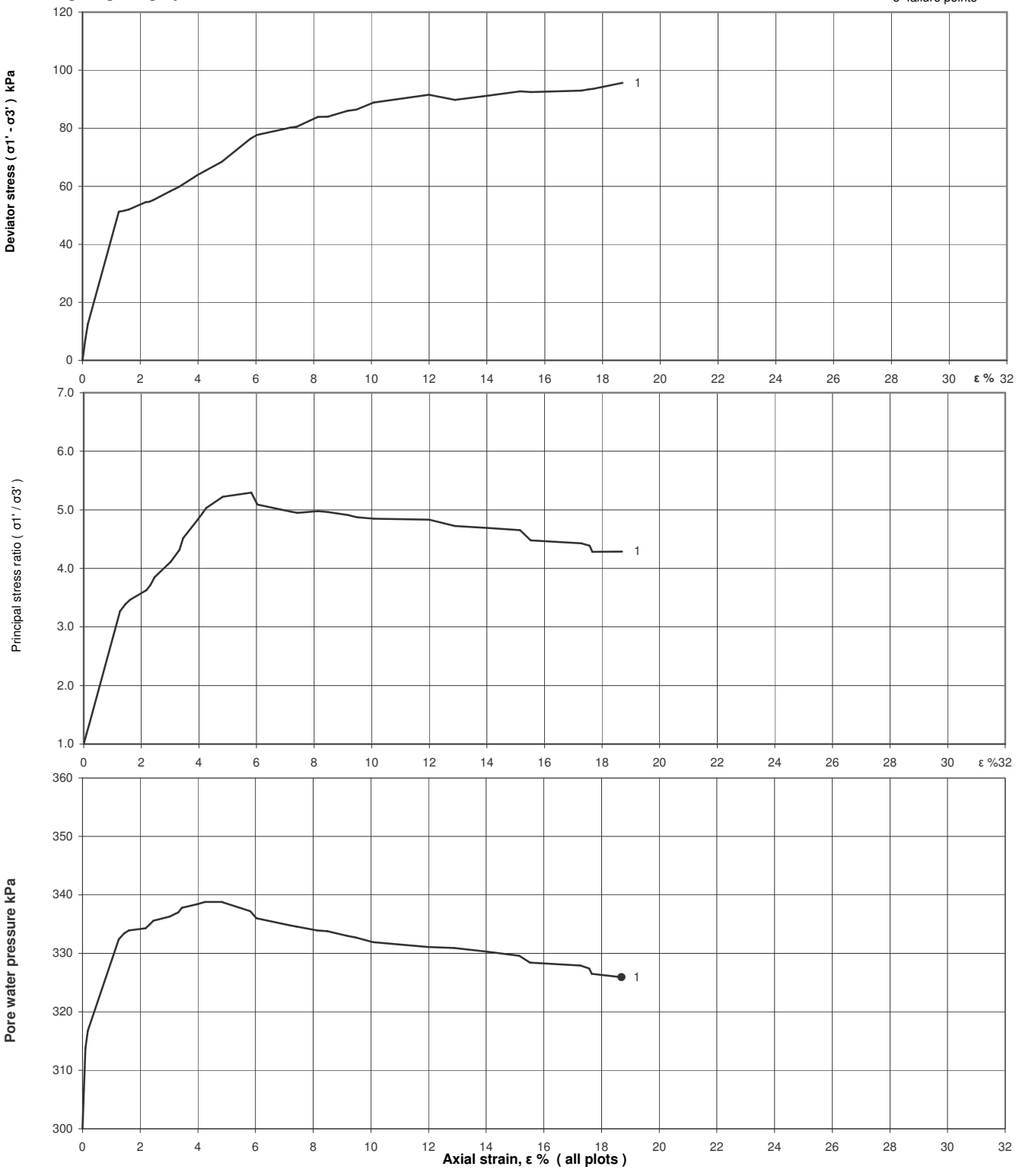


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	8.60-9.05		
			No	26	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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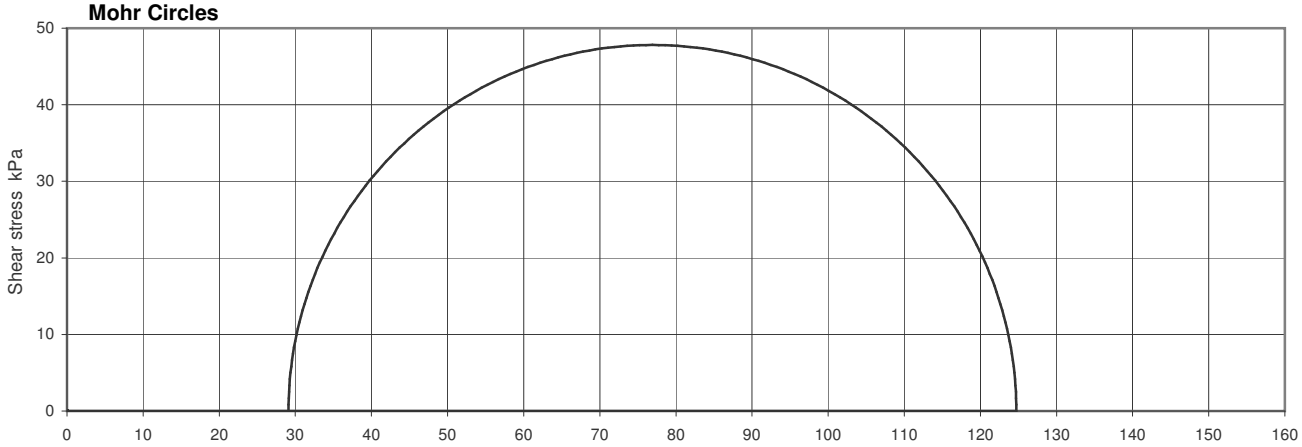
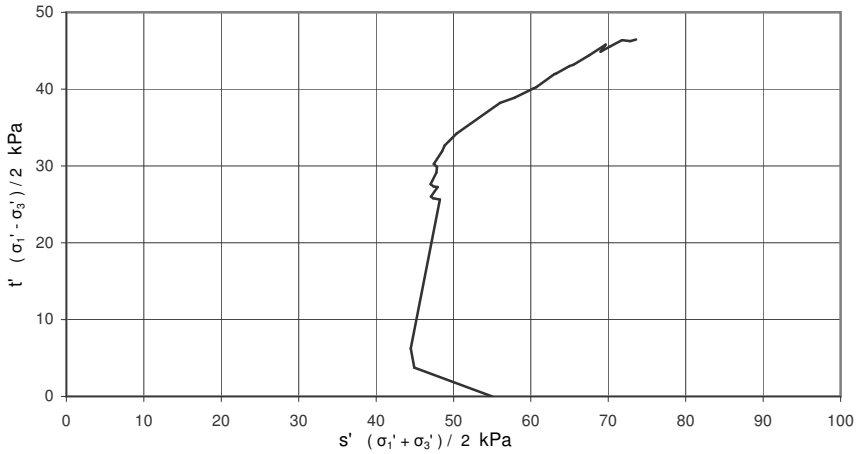
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	8.60-9.05		
			No	26	Type	UT
			ID			
			Spec Ref			

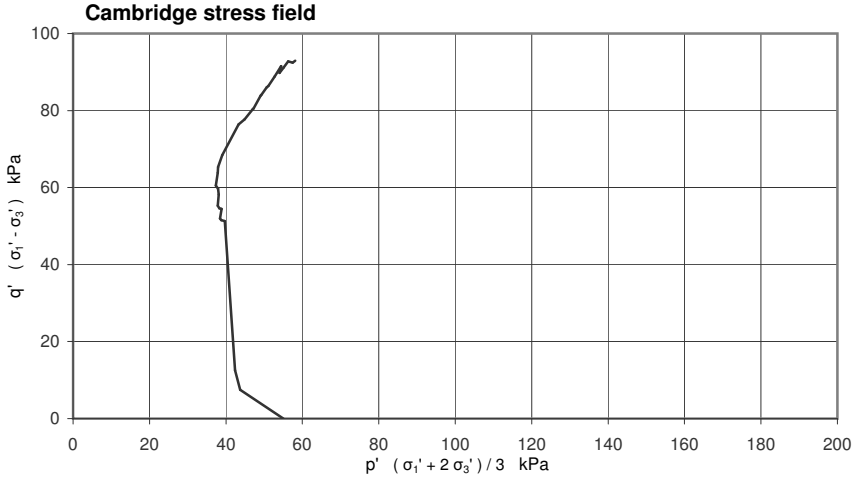
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	355			kPa
Initial pwp	300			kPa
Initial σ_3'	55			kPa
Rate of strain	0.05			%/hr

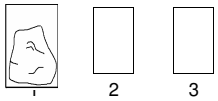
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	18.69			%
$(\sigma_1' / \sigma_3')_f$	4.286			
$(\sigma_1' - \sigma_3')_f$	95.6			kPa
u_f	326			kPa
$\sigma_3'_f$	29			kPa
$\sigma_1'_f$	125			kPa
A_f	0.27			
Time to failure	394.3			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.313 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

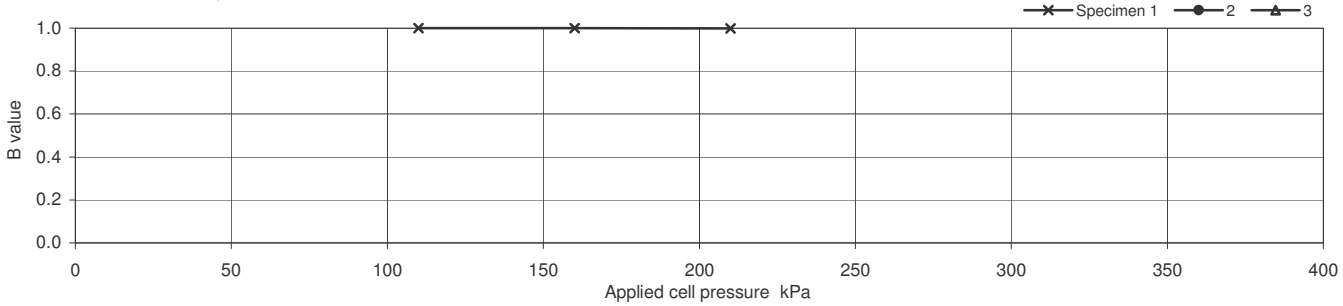
Project No	A5066-15	Sample Details:	Hole No	BH502	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.25-9.70	
			No	28	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	165.43		
	Diameter	mm	103.80		
	Bulk Density	Mg/m³	1.82		
	Water Content	%	32		
	Dry density	Mg/m³	1.38		
After consolidation	Length	mm	155.21		
	Diameter	mm	97.17		
	Bulk Density*	Mg/m³	2.03		
	Water Content*	%	21		
	Dry density*	Mg/m³	1.68		

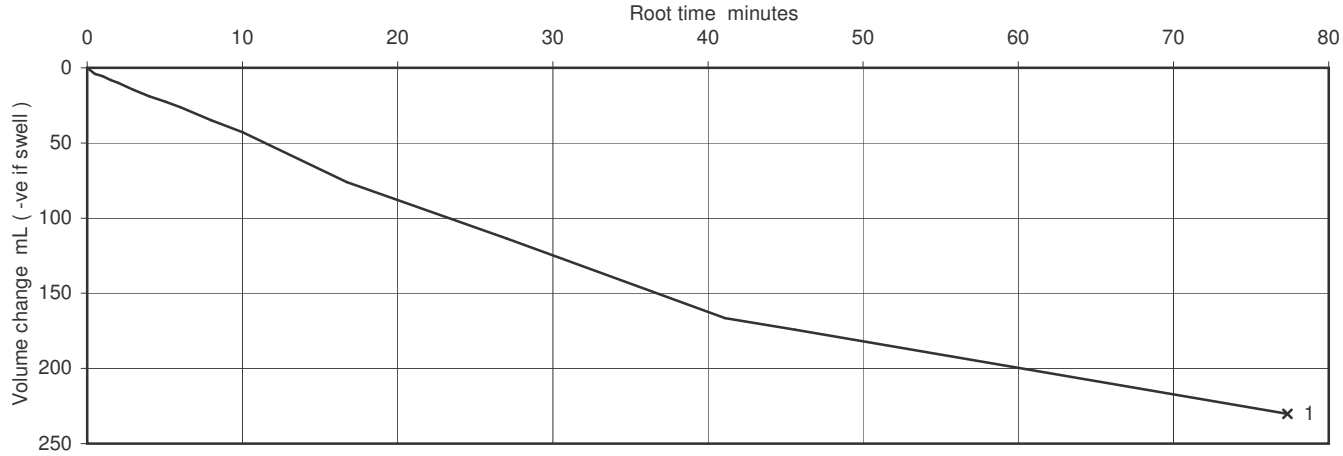
* for undrained test, after consolidation and after test are the same.

Soil Description	Brown SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	202.9		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		535			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		235			kPa
	Pore pressure at start of consolidation		531			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.12			m^2/year
	Coefficient of Compressibility	M_{vi}	0.73			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.7E-11			m/s

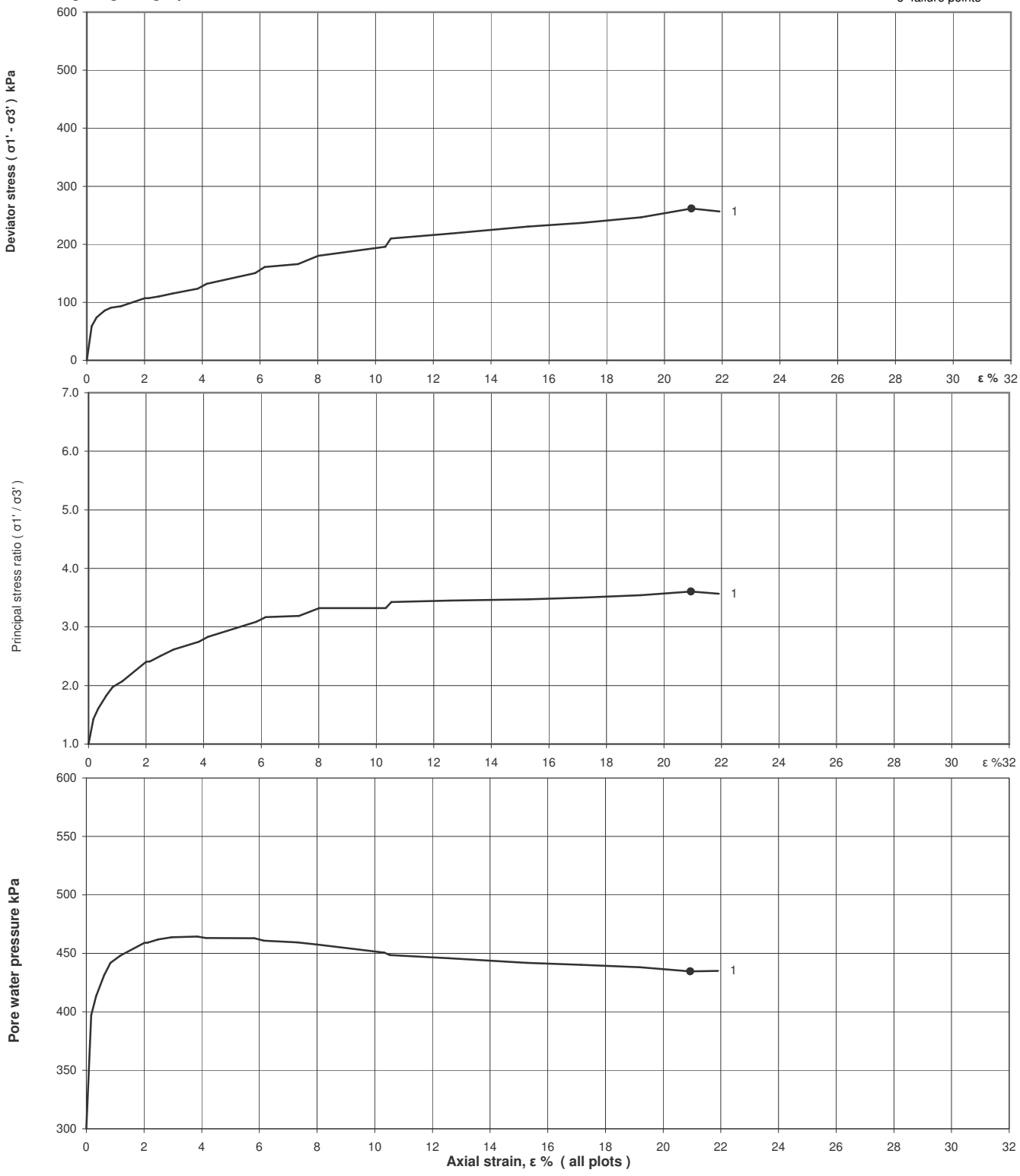


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.25-9.70		
			No	28	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

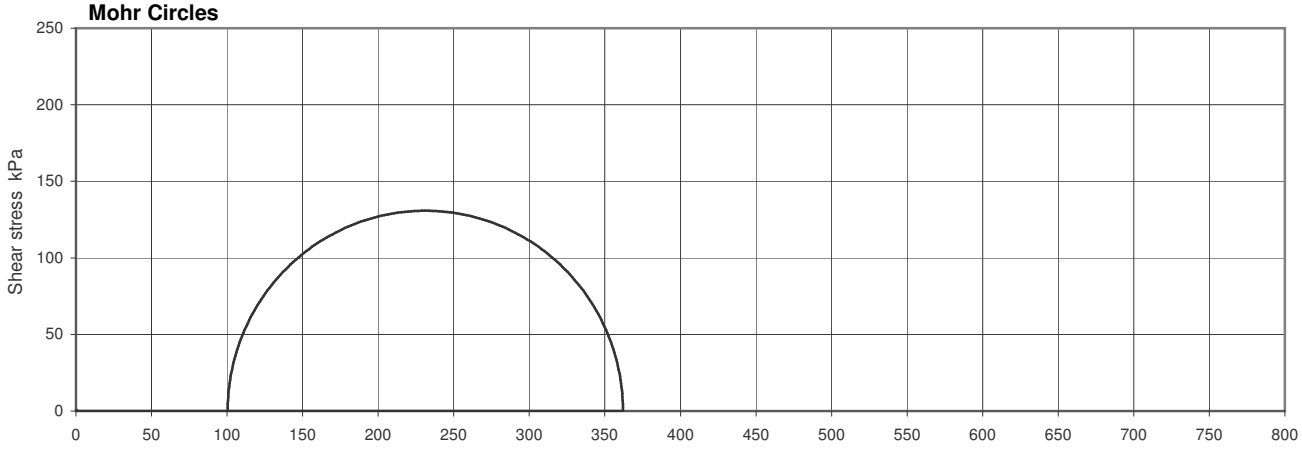


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:30/10/2015 14:26	**CU** sheet 2 of 3

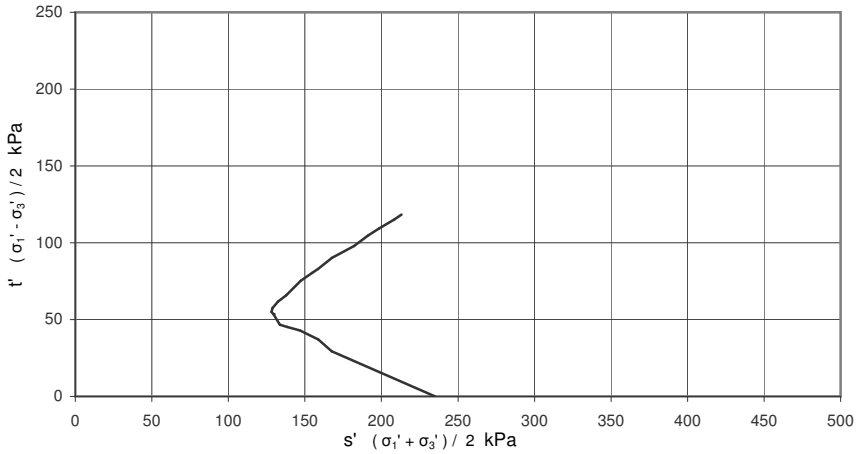
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH502		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.25-9.70		
			No	28	Type	UT
			ID			
			Spec Ref			

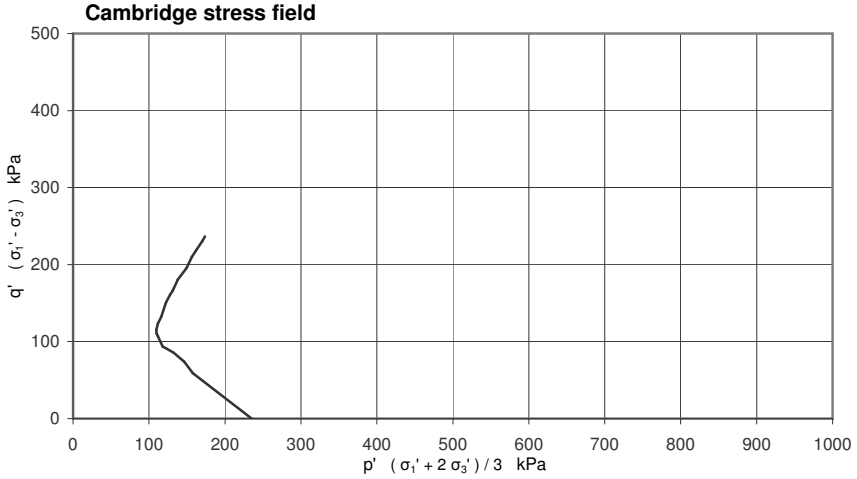
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	535			kPa
Initial pwp	300			kPa
Initial σ_3'	235			kPa
Rate of strain	0.19			%/hr

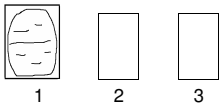
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	20.94			%
$(\sigma_1' / \sigma_3')_f$	3.605			
$(\sigma_1' - \sigma_3')_f$	261.6			kPa
u_f	435			kPa
$\sigma_3'_f$	100			kPa
$\sigma_1'_f$	362			kPa
A_f	0.51			
Time to failure	110.2			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.299 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

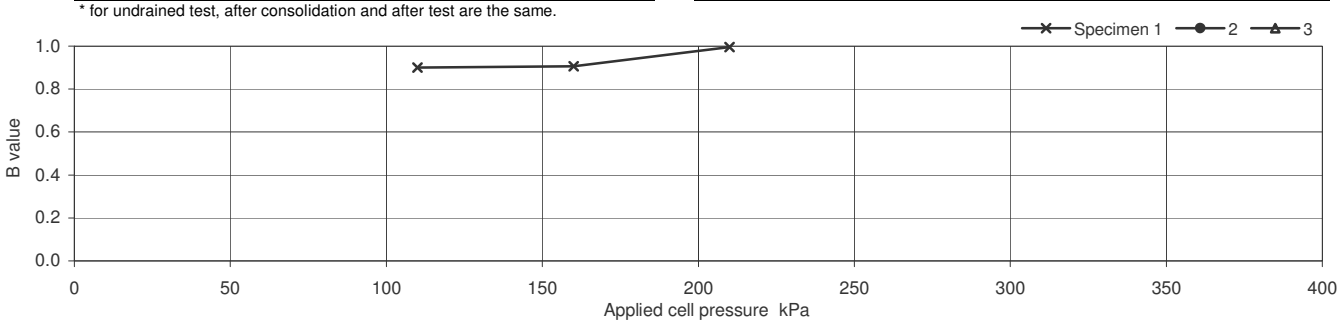
Project No	A5066-15	Sample Details:	Hole No	BH503	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.50-8.50	
			No	8	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.78		
	Diameter	mm	95.57		
	Bulk Density	Mg/m³	1.63		
	Water Content	%	74		
	Dry density	Mg/m³	0.93		
After consolidation	Length	mm	191.49		
	Diameter	mm	89.62		
	Bulk Density*	Mg/m³	1.75		
	Water Content*	%	54		
	Dry density*	Mg/m³	1.13		

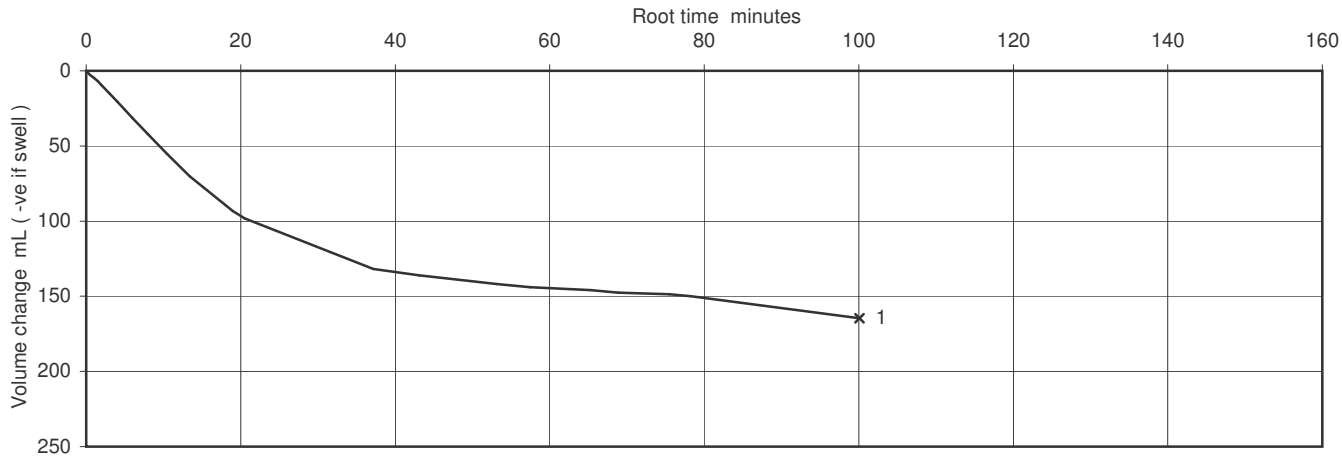
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brownish grey CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	194.4		
Final B Value		1.04		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		375			kPa
	Back Pressure applied		301			kPa
	Effective Pressure		75			kPa
	Pore pressure at start of consolidation		364			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.17			m^2/year
	Coefficient of Compressibility	M_{vi}	1.90			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.0E-10			m/s

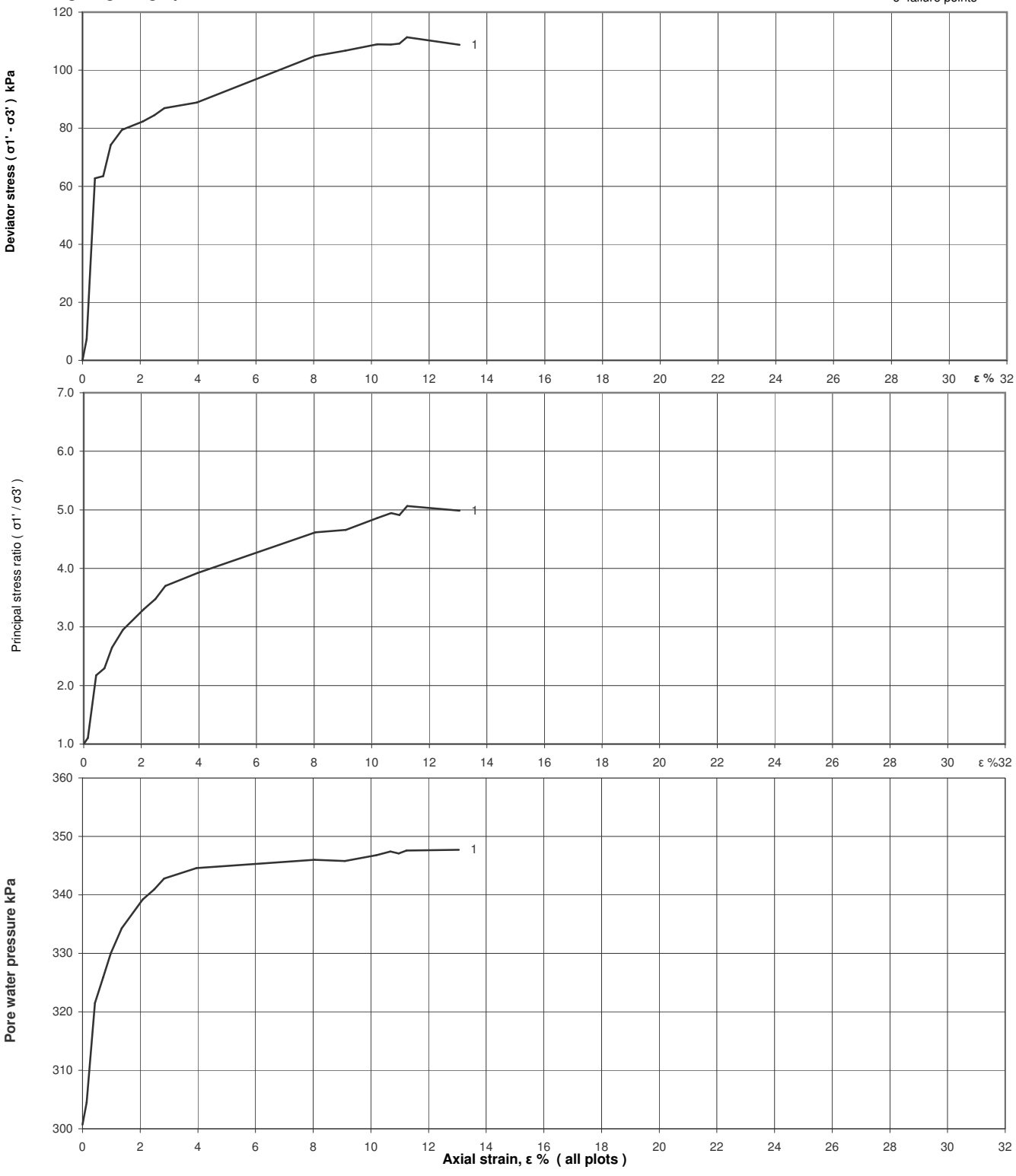


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.50-8.50		
			No	8	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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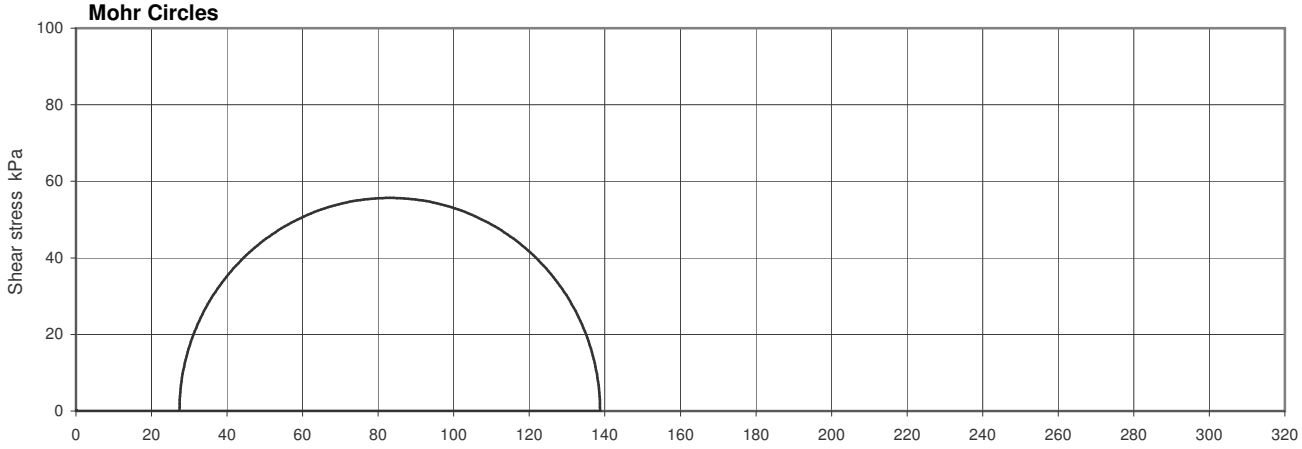
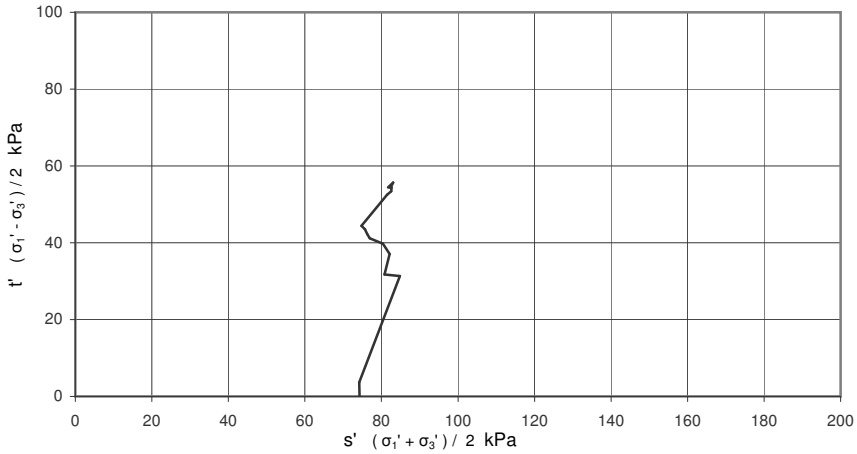
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	7.50-8.50		
			No	8	Type	P
			ID			
			Spec Ref			

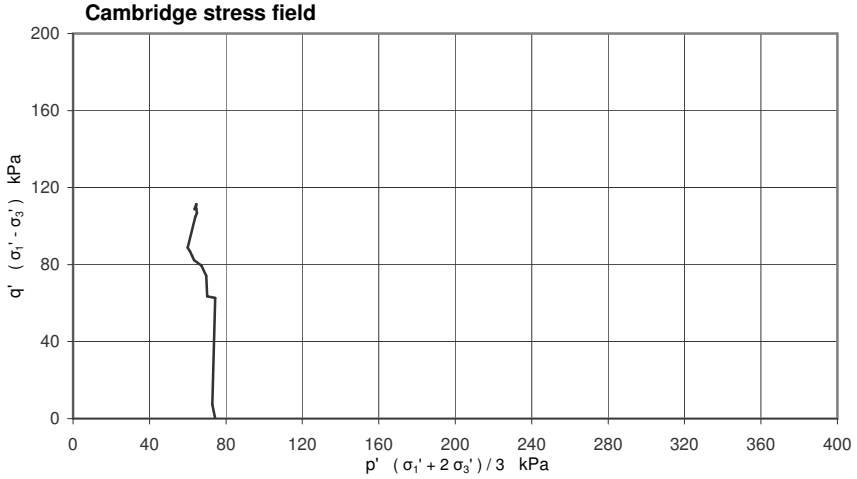
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	375			kPa
Initial pwp	301			kPa
Initial σ_3'	74			kPa
Rate of strain	0.52			%/hr

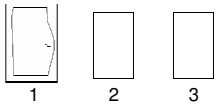
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	11.23			%
$(\sigma_1' / \sigma_3')_f$	5.063			
$(\sigma_1' - \sigma_3')_f$	111.3			kPa
u_f	348			kPa
$\sigma_3'_f$	27			kPa
$\sigma_1'_f$	139			kPa
A_f	0.42			
Time to failure	21.5			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.31 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

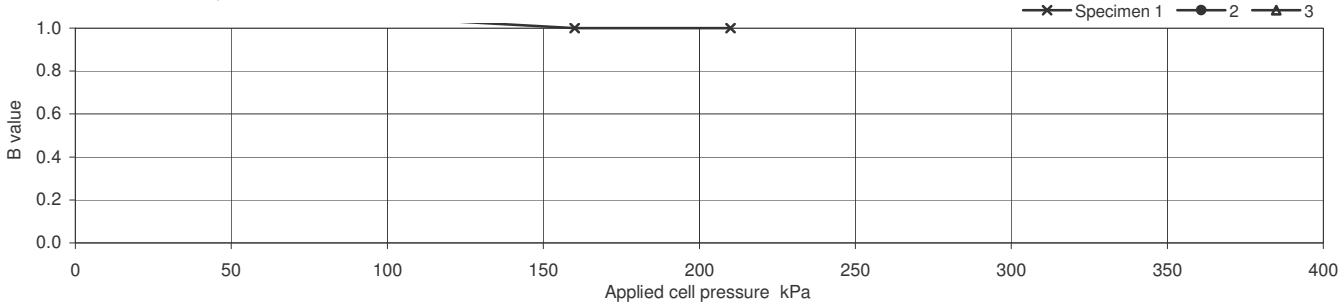
Project No	A5066-15	Sample Details:	Hole No	BH503	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.5 - 9.95	
			No	10	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.23		
	Diameter	mm	104.00		
	Bulk Density	Mg/m³	1.54		
	Water Content	%	67		
	Dry density	Mg/m³	0.92		
After consolidation	Length	mm	188.20		
	Diameter	mm	96.00		
	Bulk Density*	Mg/m³	1.71		
	Water Content*	%	47		
	Dry density*	Mg/m³	1.17		

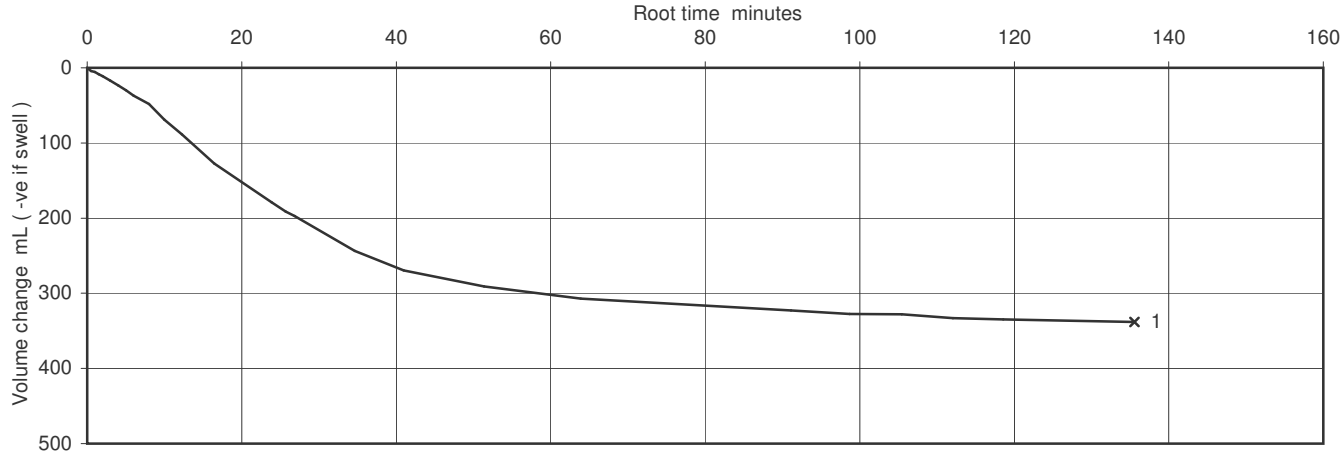
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft dark grey CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	194		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		395			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		95			kPa
	Pore pressure at start of consolidation		307			kPa
	Pore pressure at end of consolidation		305			kPa
	Pore pressure dissipation at end of consolidation		29			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.12			m^2/year
	Coefficient of Compressibility	M_{vi}	2.27			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	8.6E-11			m/s

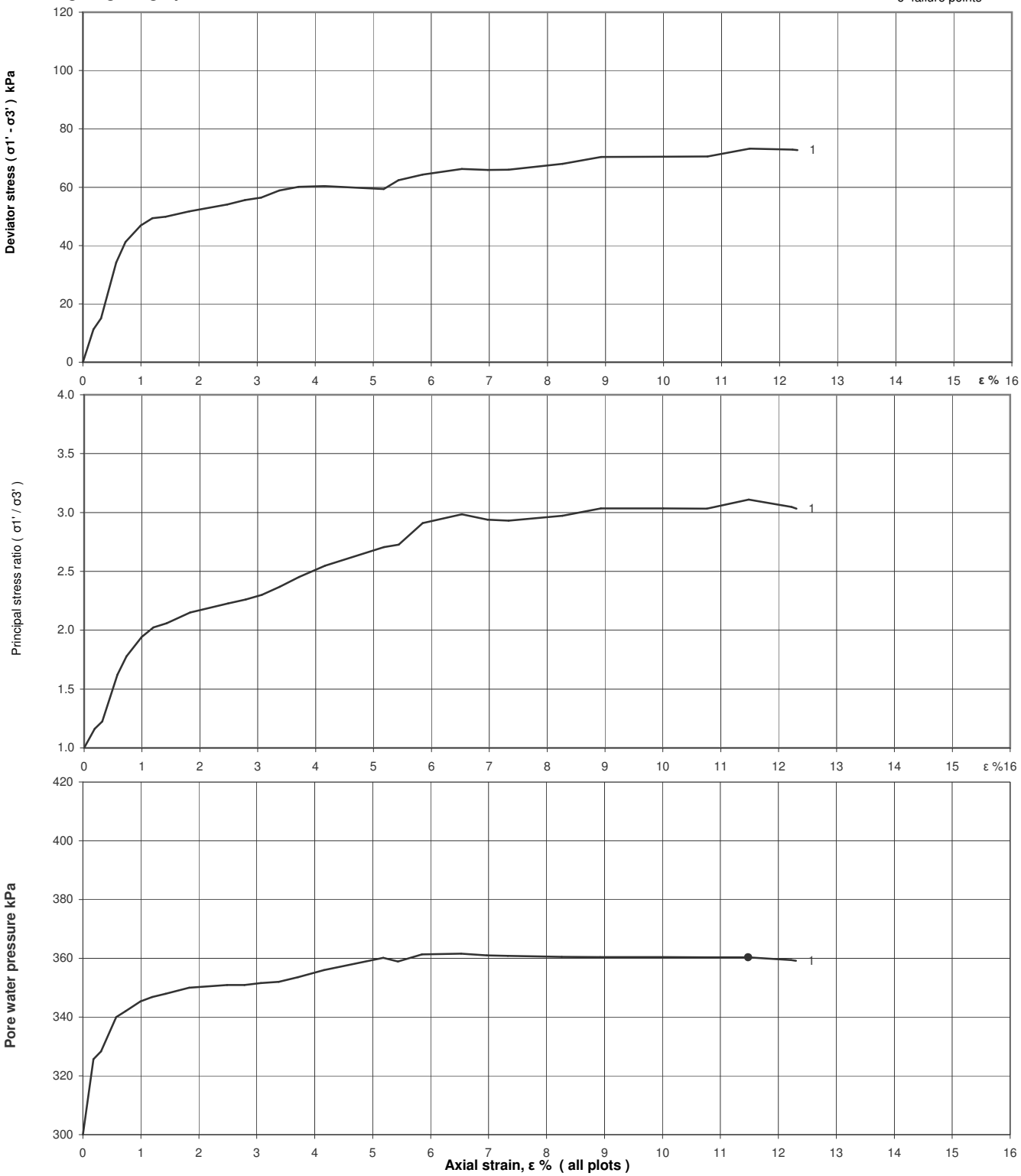


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.5 - 9.95		
			No	10	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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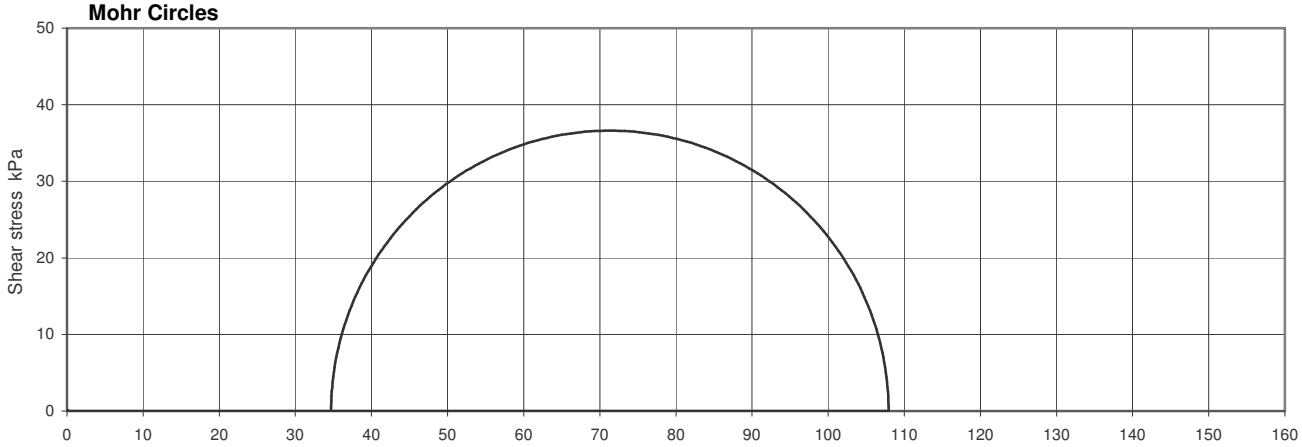
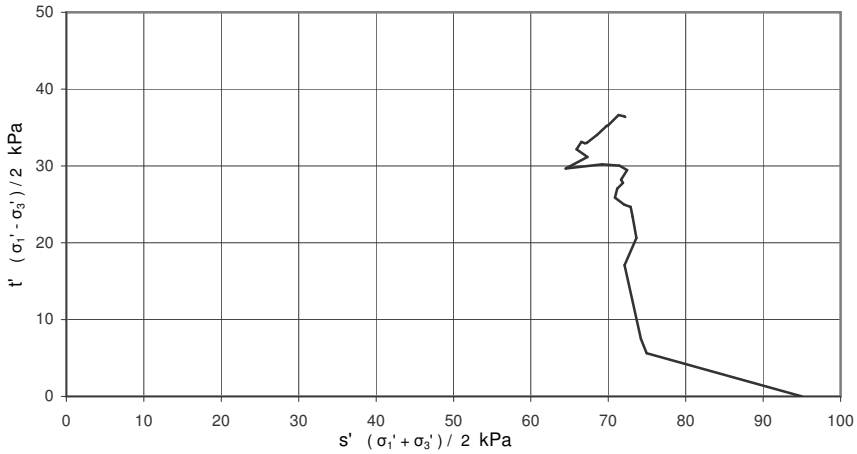
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	9.5 - 9.95		
			No	10	Type	UT
			ID			
			Spec Ref			

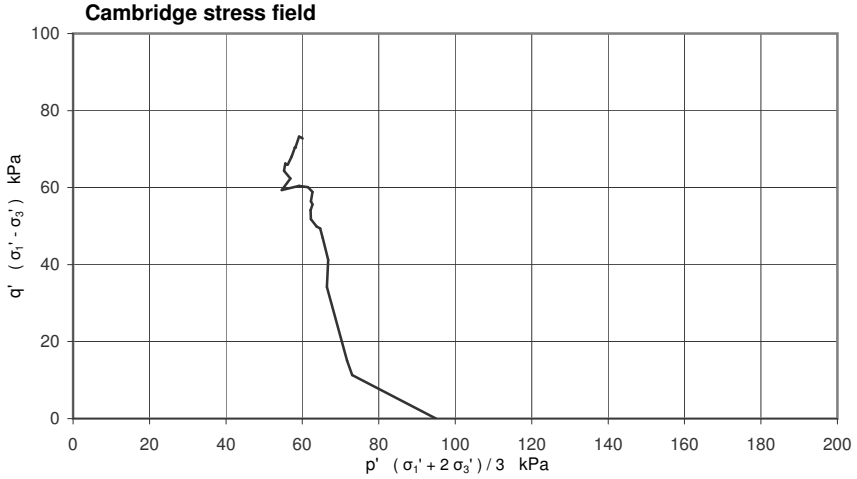
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	395			kPa
Initial pwp	300			kPa
Initial σ_3'	95			kPa
Rate of strain	0.27			%/hr

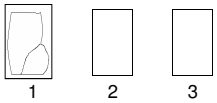
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	11.48			%
$(\sigma_1' / \sigma_3')_f$	3.110			
$(\sigma_1' - \sigma_3')_f$	73.2			kPa
u_f	360			kPa
$\sigma_3'_f$	35			kPa
$\sigma_1'_f$	108			kPa
A_f	0.82			
Time to failure	42.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.31 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

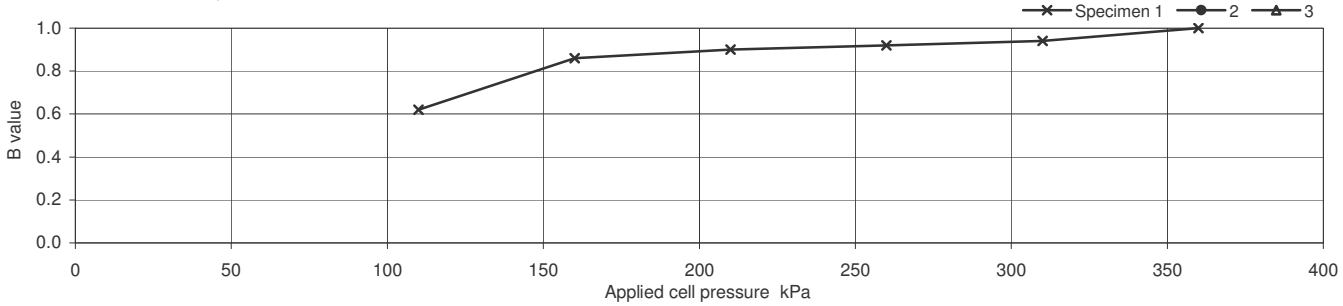
Project No	A5066-15	Sample Details:	Hole No	BH503	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	19.7 - 20.15	
			No	32	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	204.13		
	Diameter	mm	102.70		
	Bulk Density	Mg/m³	2.03		
	Water Content	%	26		
	Dry density	Mg/m³	1.62		
After consolidation	Length	mm	202.55		
	Diameter	mm	101.90		
	Bulk Density*	Mg/m³	2.06		
	Water Content*	%	24		
	Dry density*	Mg/m³	1.66		

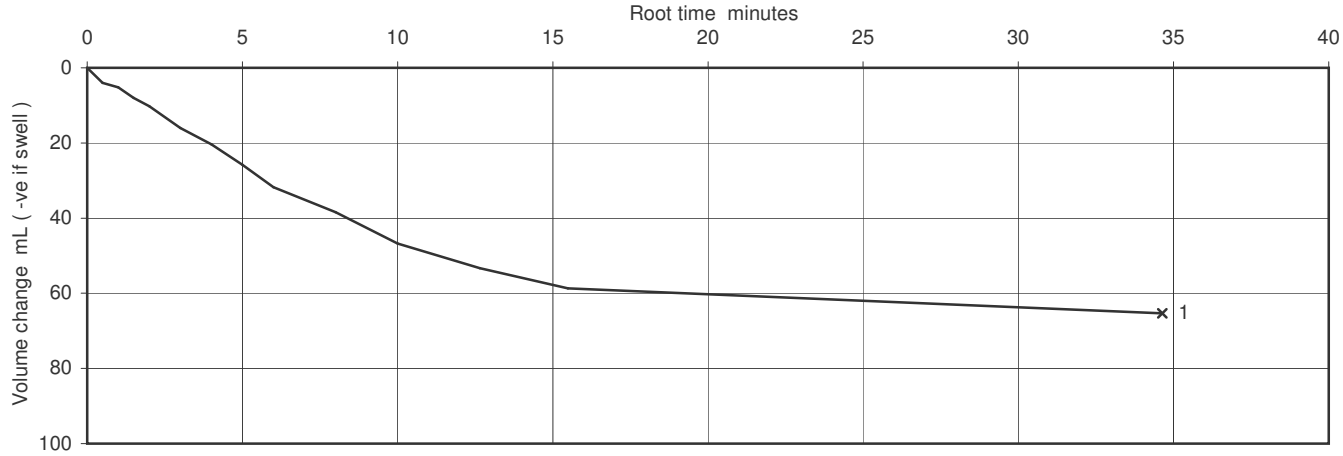
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm brown slightly sandy laminated CLAY becoming Clayey SAND towards bottom of specimen.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	360		
Final pore water pressure	kPa	344		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		500			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		200			kPa
	Pore pressure at start of consolidation		484			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.38			m^2/year
	Coefficient of Compressibility	M_{vi}	0.21			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	8.8E-11			m/s

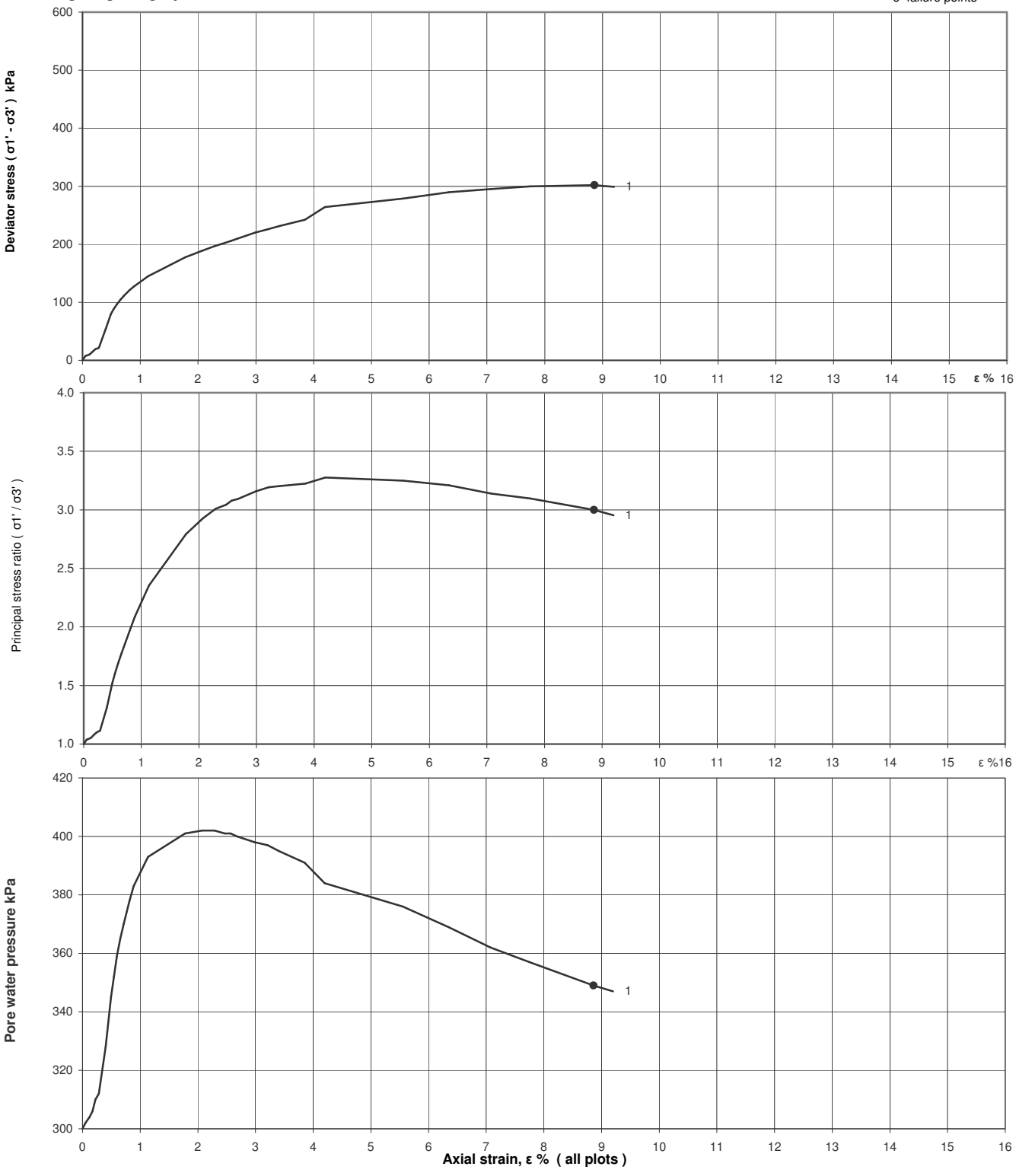


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	19.7 - 20.15		
			No	32	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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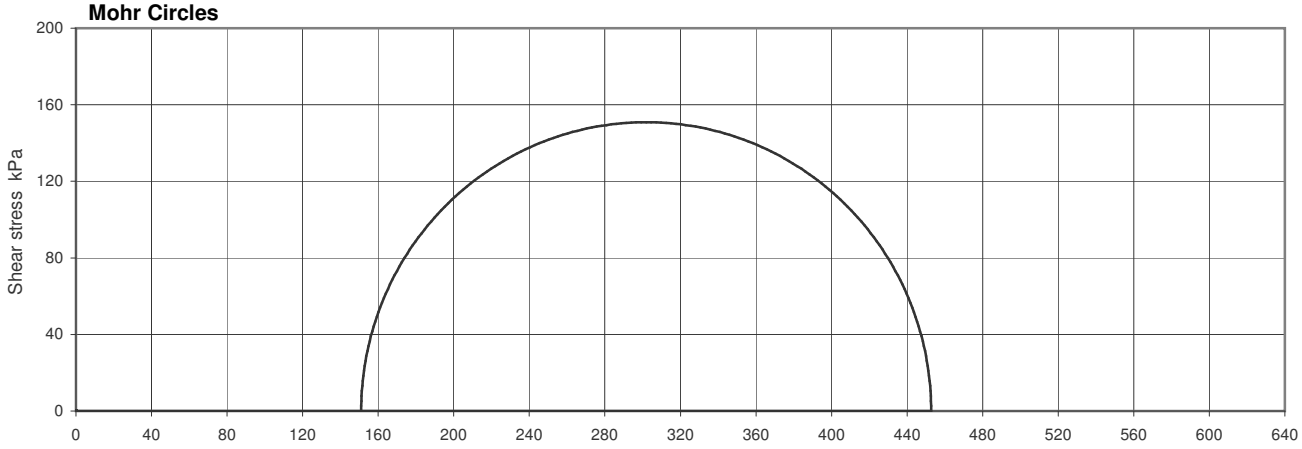
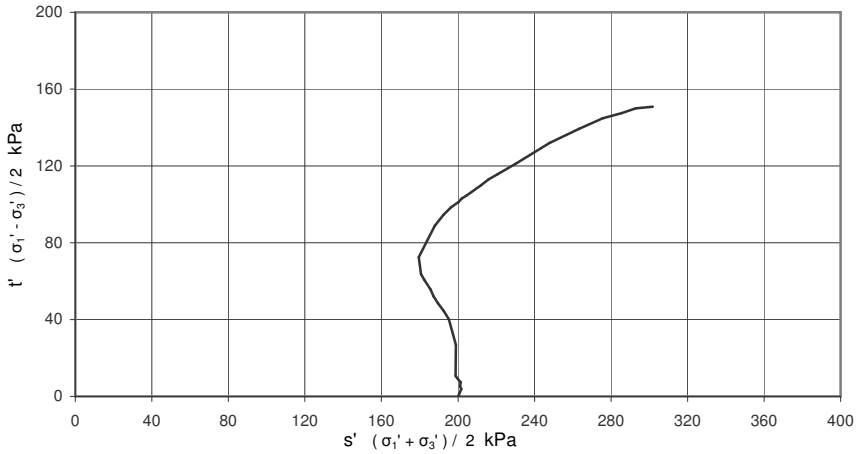
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No	BH503		
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	19.7 - 20.15		
			No	32	Type	UT
			ID			
			Spec Ref			

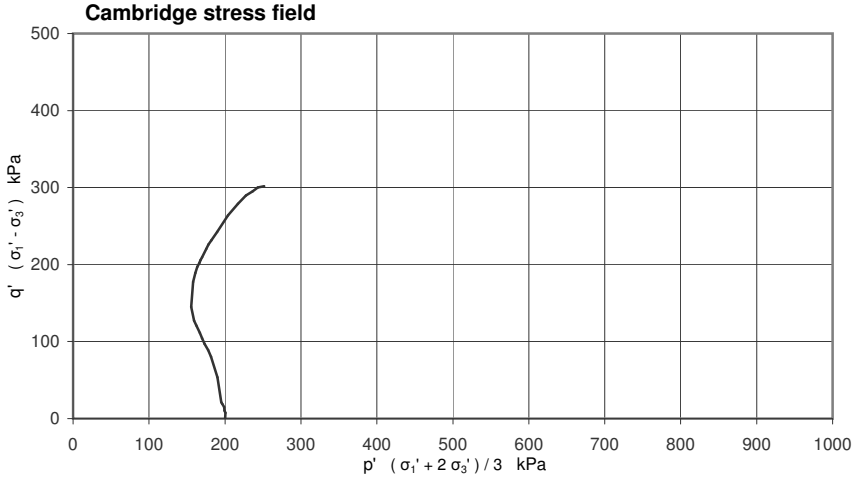
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	500			kPa
Initial pwp	300			kPa
Initial σ_3'	200			kPa
Rate of strain	1.03			%/hr

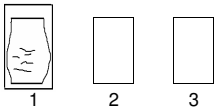
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	8.86			%
$(\sigma_1' / \sigma_3')_f$	2.998			
$(\sigma_1' - \sigma_3')_f$	301.8			kPa
u_f	349			kPa
$\sigma_3'_f$	151			kPa
$\sigma_1'_f$	453			kPa
A_f	0.16			
Time to failure	8.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.31 mm thick rubber membrane(s)

Consolidated Drained Triaxial Compression test with Measurement of Volume Change
(BS1377 : Part 8 : 1990)

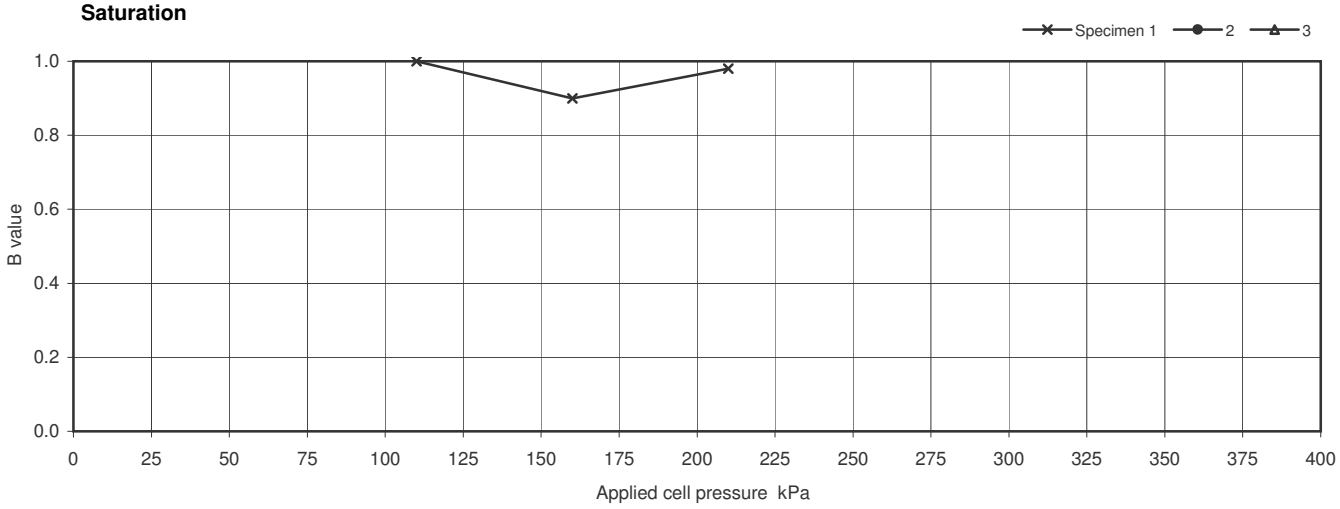
Project No	A5066-15	Sample Details:	Hole No	BH414	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)	10.00-11.00	
			No	26	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.6		
	Diameter	mm	97.6		
	Bulk Density	Mg/m³	1.61		
	Water Content	%	58.2		
	Dry density	Mg/m³	1.01		
After consolidation	Length	mm	193.4		
	Diameter	mm	93.1		
	Bulk Density	Mg/m³	1.72		
	Water Content	%	47.4		
	Dry density	Mg/m³	1.17		
After test	Bulk Density	Mg/m³	1.75		
	Water Content	%	44.3		
	Dry density	Mg/m³	1.21		

Soil Description	Dark grey organic slightly sandy CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	190		
Final B Value		0.98		

Saturation

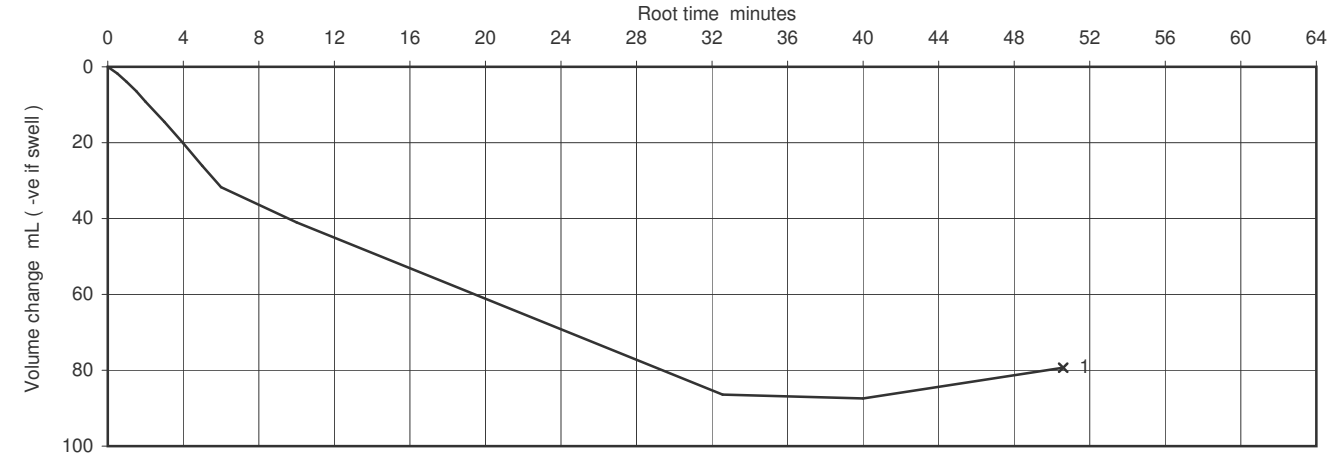


Consolidation Details see sheet 2 for plots	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		430			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		130			kPa
	Pore pressure at start of consolidation		415			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.65			m^2/year
	Coefficient of Compressibility	M_{vi}	0.50			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	9.9E-11			m/s

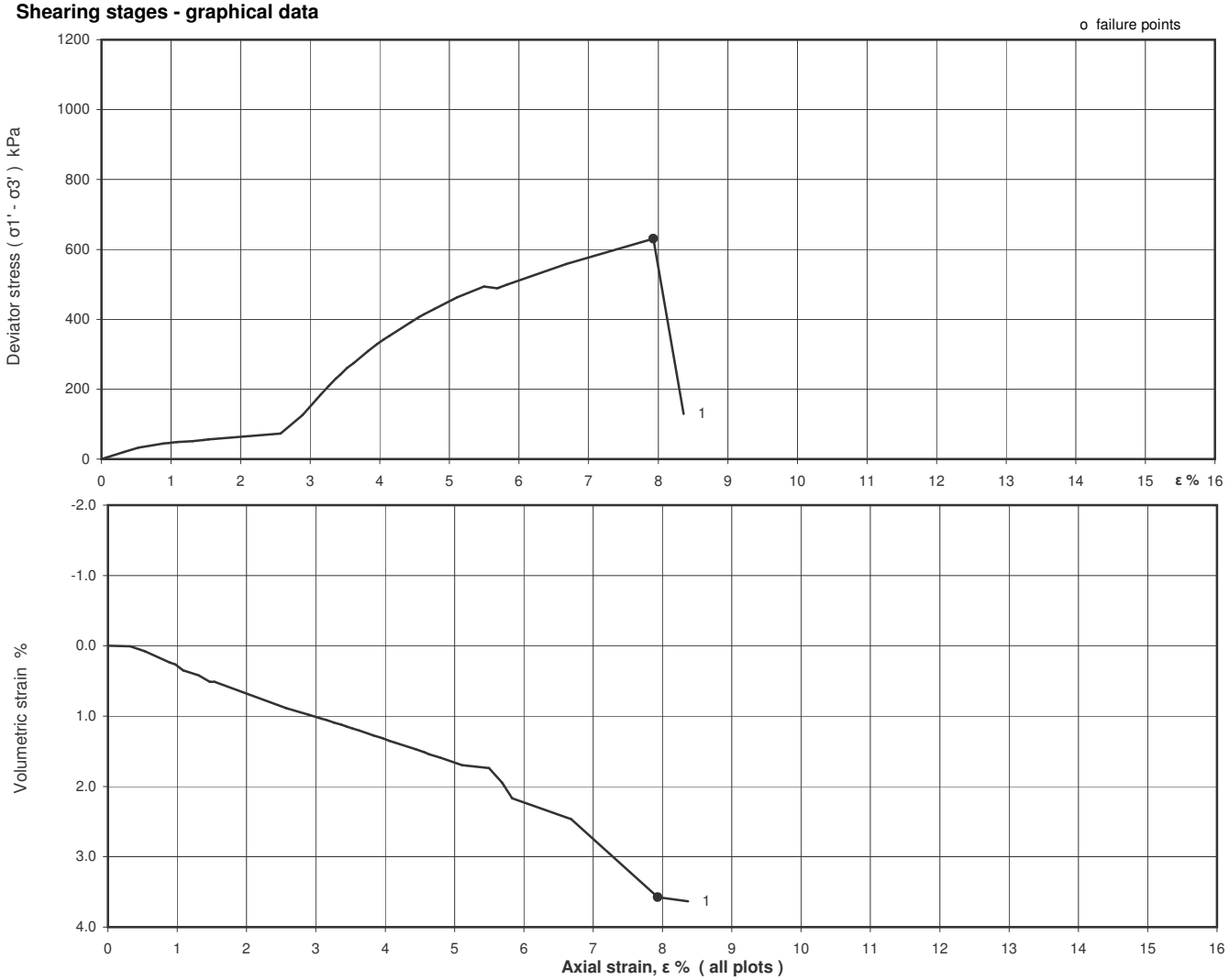
Consolidated Drained Triaxial Compression test with Measurement of Volume Change
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No		BH414	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)		10.00-11.00	
			No	26	Type	P
			ID			
			Spec Ref			

Consolidation



Shearing stages - graphical data



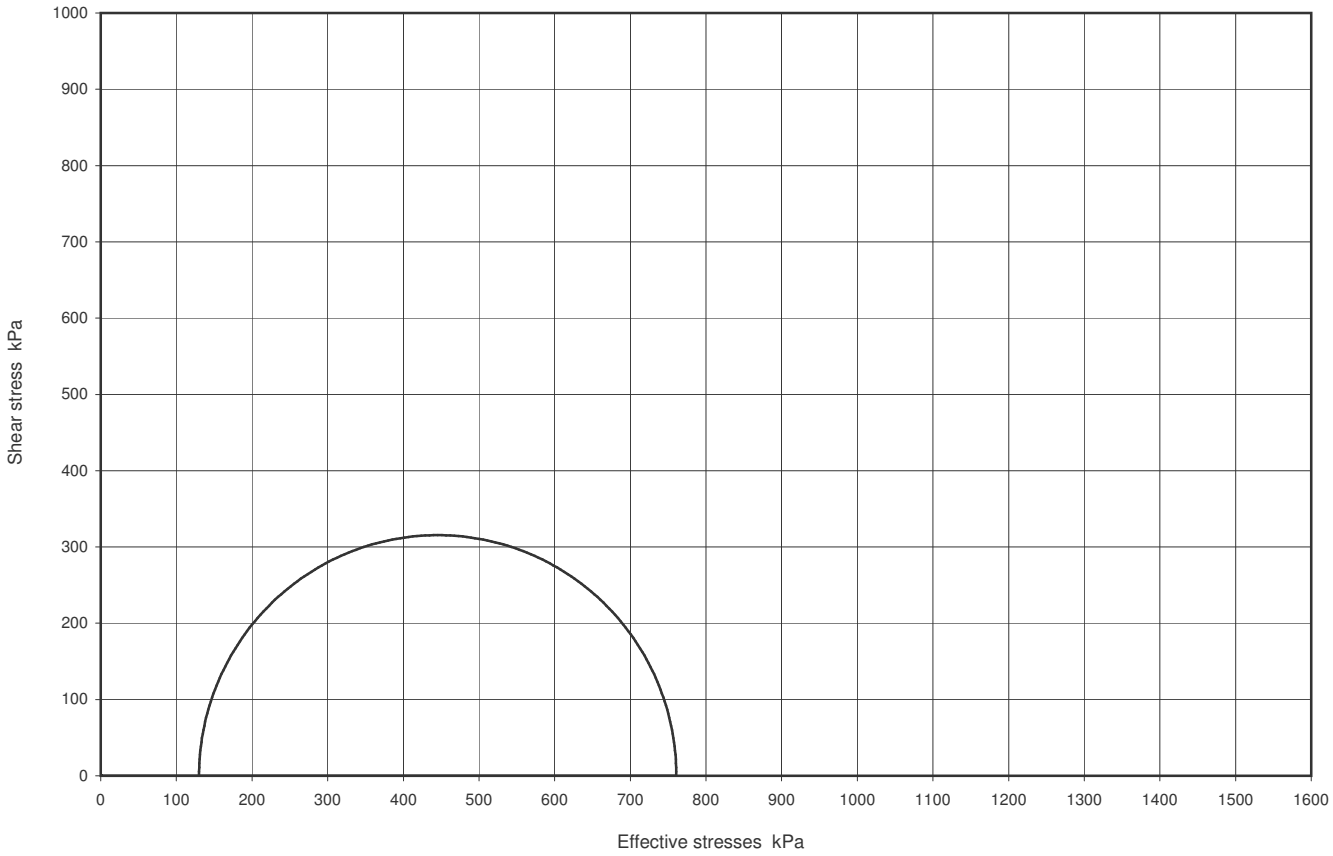
Ref			Figure
SLR8.2 Rev 85 Jan 10	ESG	Printed:10/11/2015 16:52	**CD** sheet 2 of 3

UKAS TESTING 1157

Consolidated Drained Triaxial Compression test with Measurement of Volume Change
(BS1377 : Part 8 : 1990)

Project No	A5066-15	Sample Details:	Hole No		BH414	
Project Name	A63 PRINCESS QUAY		Depth (m BGL)		10.00-11.00	
			No	26	Type	P
			ID			
			Spec Ref			

Mohr Circles



Compression stages

Specimen	1			
Cell pressure	430			kPa
Initial pwp	300			kPa
Initial σ_3'	130			kPa
Rate of strain	0.24			%/hr

Shear Strength Parameters

Linear regression

c '	kPa	not assessed
Ø '	degrees	not assessed

Manual re-assessment

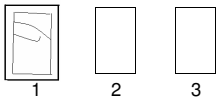
c '	kPa	-
Ø '	degrees	-

Failure conditions

Criterion	Maximum deviator stress			
Axial strain	7.93			%
$(\sigma_1' - \sigma_3')_f$	630.8			kPa
Volumetric strain	3.57			%
$\sigma_3'_f$	130			kPa
$\sigma_1'_f$	761			kPa
Time to failure	33.5			hrs

Notes :

Deviator stresses corrected for area change, vertical side drains and 0.32 mm thick rubber membrane(s)

Mode of failure 

UKAS TESTING 1157

APPENDIX F

GEOENVIRONMENTAL LABORATORY TEST RESULTS

Test Reports	EFS/154882 EFS/154941 EFS/155230 EFS/155240 EFS/155417

TEST REPORT

1252

Interim Report
Report No. EFS/154882 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: A63 Princess Quay

The 2 samples described in this report were registered for analysis by ESG on 22-Jul-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 28-Jul-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns Managing Director
Multi-Sector Services

Date of Issue: 28-Jul-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
			Method Codes :	GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
			Method Reporting Limits :	0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
			UKAS Accredited :	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	Client Sample Description	Sample Date	GRO (AA) by HSA GC-FID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Zinc (MS)	Beryllium.	pH units (AR)	
1555885	BH 412 ES 2 0.20	15-Jul-15	Req	0.8	0.8	10	0.76	11.5	24.5	304.2	416.7	0.23	1.5	13.9	<0.5	81.5	0.237	8.6	
1555886	BH 414 ES 5 0.50	15-Jul-15	Req	3.1	1.4	23.7	0.62	78.8	107.2	165.8	845.6	0.54	1.3	39.8	0.5	257.6	1.13	8.2	

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

Tel +44 (0) 1283 554400

Fax +44 (0) 1283 554422

Client Name ESG Doncaster

Contact Mr N Cooke

A63 Princess Quay

Sample Analysis

Interim Report

Date Printed	**28-Jul-2015**
Report Number	**EFS/154882**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg		mg/kg	µg/kg	mg/kg	mg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg
Method Codes :			SFAPI	SFAPI	Sub002a	TPHUSSI	VOCHSAS	ICPMSS	KONECR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS
Method Reporting Limits :			0.5	0.5		20		0.6	0.1	0.04	5	1	2	6	4	2		
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos Screen**	**TPH by GCFID (AR/Si)**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**BTEX-HSA GCMS analysis**	**PAH (16) by GCMS**
1555885	BH 412 ES 2 0.20	15-Jul-15	<0.5	<0.5		Req	Req	19	<0.1	0.73	<5	<1	<2	<6	<4	<2	Req	Req
1555886	BH 414 ES 5 0.50	15-Jul-15	<0.5	<0.5		Req	Req	53	<0.1	2.28	<5	<1	<2	<6	<4	<2	Req	Req

Bretby Business Park, Ashby Road

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

A63 Princess Quay

Sample Analysis

Interim Report

Date Printed	**28-Jul-2015**
Report Number	**EFS/154882**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: A63 Princess Quay		
Sample Details:	BH 412 ES 2 0.20	**Job Number:**	S15_4882
LIMS ID Number:	CL1555885	**Date Booked in:**	22-Jul-15
QC Batch Number:	150713	**Date Extracted:**	23-Jul-15
Quantitation File:	Initial Calibration	**Date Analysed:**	23-Jul-15
Directory:	2315PAHMS20\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	4.68	0.11	94
Phenanthrene	85-01-8	5.49	1.03	98
Anthracene	120-12-7	5.54	0.31	93
Fluoranthene	206-44-0	6.80	1.59	99
Pyrene	129-00-0	7.08	1.23	100
Benzo[a]anthracene	56-55-3	8.74	0.91	94
Chrysene	218-01-9	8.79	0.75	97
Benzo[b]fluoranthene	205-99-2	10.26	1.12	94
Benzo[k]fluoranthene	207-08-9	10.30	0.50	94
Benzo[a]pyrene	50-32-8	10.69	0.79	95
Indeno[1,2,3-cd]pyrene	193-39-5	12.06	0.54	93
Dibenzo[a,h]anthracene	53-70-3	12.09	0.16	97
Benzo[g,h,i]perylene	191-24-2	12.35	0.46	97
Total (USEPA16) PAHs	-	-	< 9.74	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	101
Acenaphthene-d10	101
Phenanthrene-d10	106
Chrysene-d12	106
Perylene-d12	106

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	108
Terphenyl-d14	74

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: A63 Princess Quay		
Sample Details:	BH 414 ES 5 0.50	**Job Number:**	S15_4882
LIMS ID Number:	CL1555886	**Date Booked in:**	22-Jul-15
QC Batch Number:	150713	**Date Extracted:**	23-Jul-15
Quantitation File:	Initial Calibration	**Date Analysed:**	24-Jul-15
Directory:	2315PAHMS20\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	3.16	0.12	97
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	5.49	0.45	98
Anthracene	120-12-7	5.54	0.13	96
Fluoranthene	206-44-0	6.80	0.74	99
Pyrene	129-00-0	7.08	0.63	99
Benzo[a]anthracene	56-55-3	8.74	0.46	95
Chrysene	218-01-9	8.79	0.49	97
Benzo[b]fluoranthene	205-99-2	10.26	0.77	95
Benzo[k]fluoranthene	207-08-9	10.30	0.25	95
Benzo[a]pyrene	50-32-8	10.69	0.48	95
Indeno[1,2,3-cd]pyrene	193-39-5	12.06	0.47	93
Dibenzo[a,h]anthracene	53-70-3	12.09	0.11	96
Benzo[g,h,i]perylene	191-24-2	12.35	0.41	97
Total (USEPA16) PAHs	-	-	< 5.75	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	96
Acenaphthene-d10	95
Phenanthrene-d10	100
Chrysene-d12	97
Perylene-d12	98

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	107
Terphenyl-d14	72

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Gasoline Range Organics
(BTEX and Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_4882
Directory: E:\TES\DATA\2015\0724HSA_GC9\150726 2015-07-26 20-36-30\020F2001.D
Method: Headspace GCFID

Matrix: Soil
Date Booked in: 22-Jul-15
Date extracted: 24-Jul-15
Date Analysed: 27-Jul-15, 02:43

*** Sample data with an asterisk are not UKAS accredited.**

		Concentration, (mg/kg) - as wet weight					Aliphatics				
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**m/p-Xylene**	**o-Xylene**	**C5 - C6**	**>C6 - C7**	**>C7 - C8**	**>C8 - C10**	**Total GRO**
CL1555885	BH 412 ES 2 0.20	<0.010	<0.010	<0.010	<0.010	<0.010	<0.2	<0.2	<0.2	<0.2	<0.2
CL1555886	BH 414 ES 5 0.50	<0.010	<0.010	<0.010	<0.010	<0.010	<0.2	<0.2	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_4882
QC Batch Number: 150713
Directory: D:\TES\DATA\Y2015\072415TPH_GC4\072415 2015-07-24 11-03-25\093B5801.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

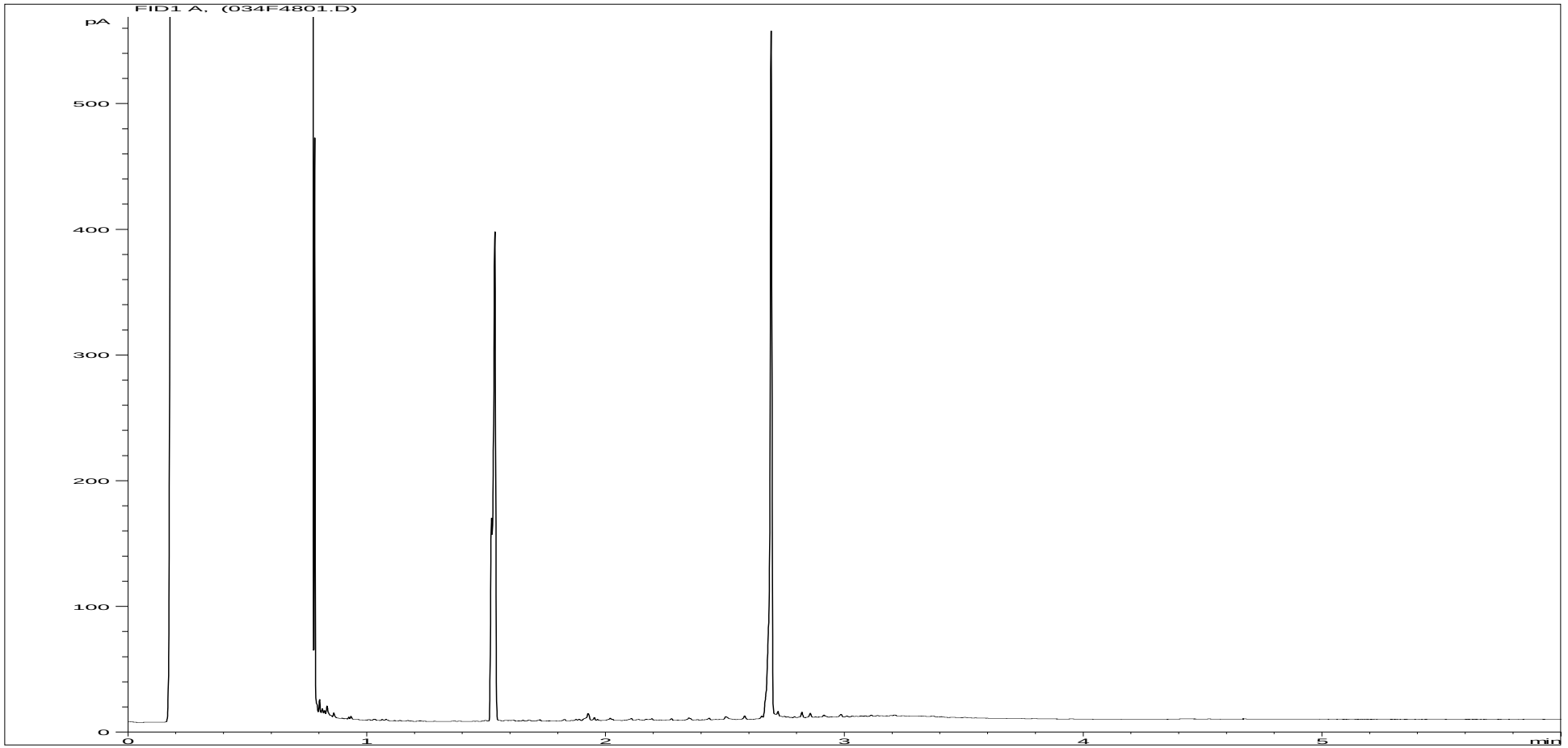
Matrix: Soil
Date Booked in 22-Jul-15
Date Extracted 23-Jul-15
Date Analysed: 25-Jul-15, 11:08:28

*** 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**
CL1555885	BH 412 ES 2 0.20	<4	<4	<4	<4	<4	<4	6.08	12.6	15.6	31.7	26.4	50.6
CL1555886	BH 414 ES 5 0.50	<4	<4	<4	<4	<4	<4	12.2	5.73	67.6	48.1	88.1	66.7

Where individual results are flagged see report notes for status.

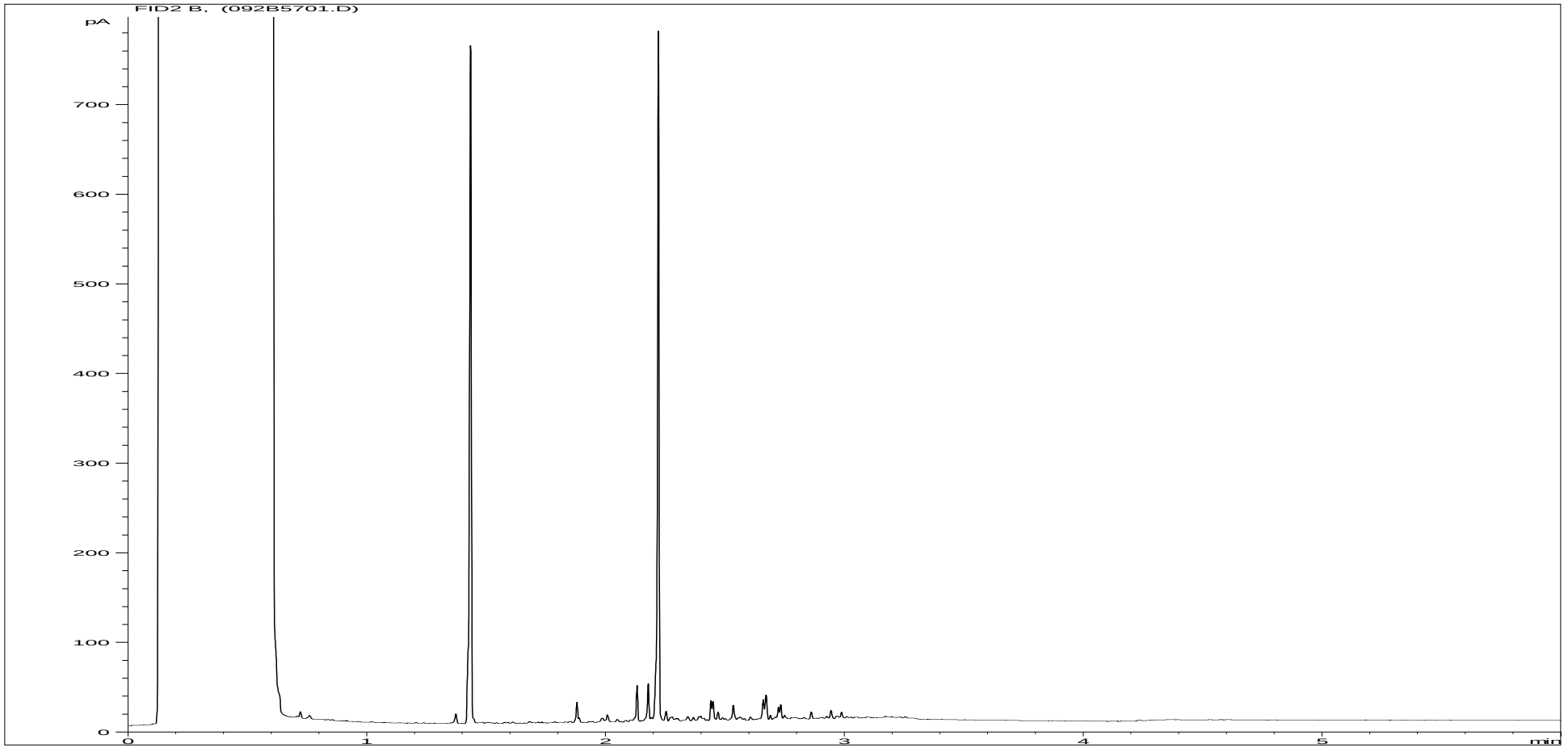
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1555885ALI	**Job Number:**	S15_4882
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH 412 ES 2 0.20
Acquisition Date/Time:	24-Jul-15, 23:26:58		
Datafile:	D:\TES\DATA\Y2015\072415TPH_GC4\072415 2015-07-24 11-03-25\034F4801.D		

Where individual results are flagged see report notes for status.

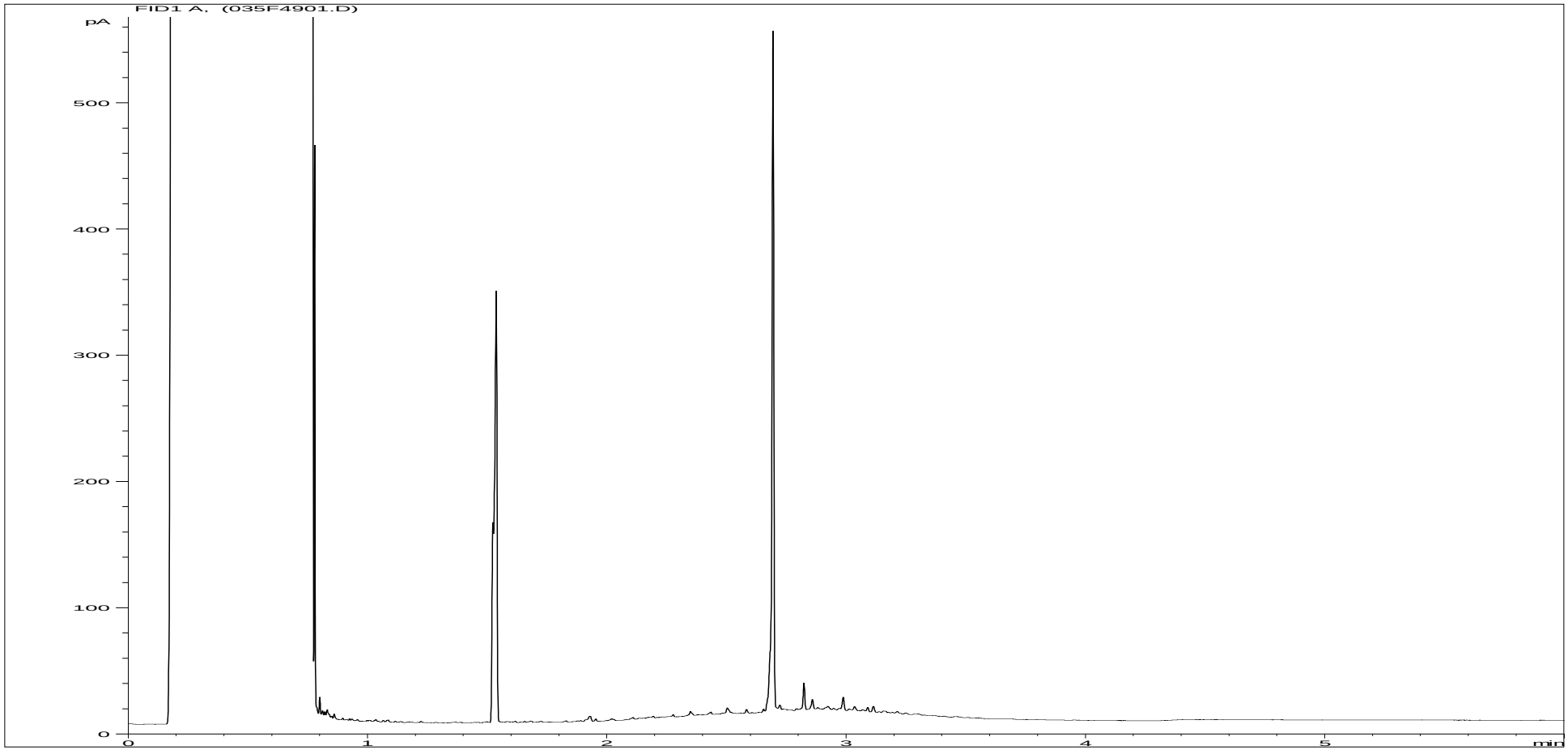
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1555885ARO	**Job Number:**	S15_4882
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH 412 ES 2 0.20
Acquisition Date/Time:	25-Jul-15, 10:54:42		
Datafile:	D:\TES\DATA\Y2015\072415TPH_GC4\072415 2015-07-24 11-03-25\092B5701.D		

Where individual results are flagged see report notes for status.

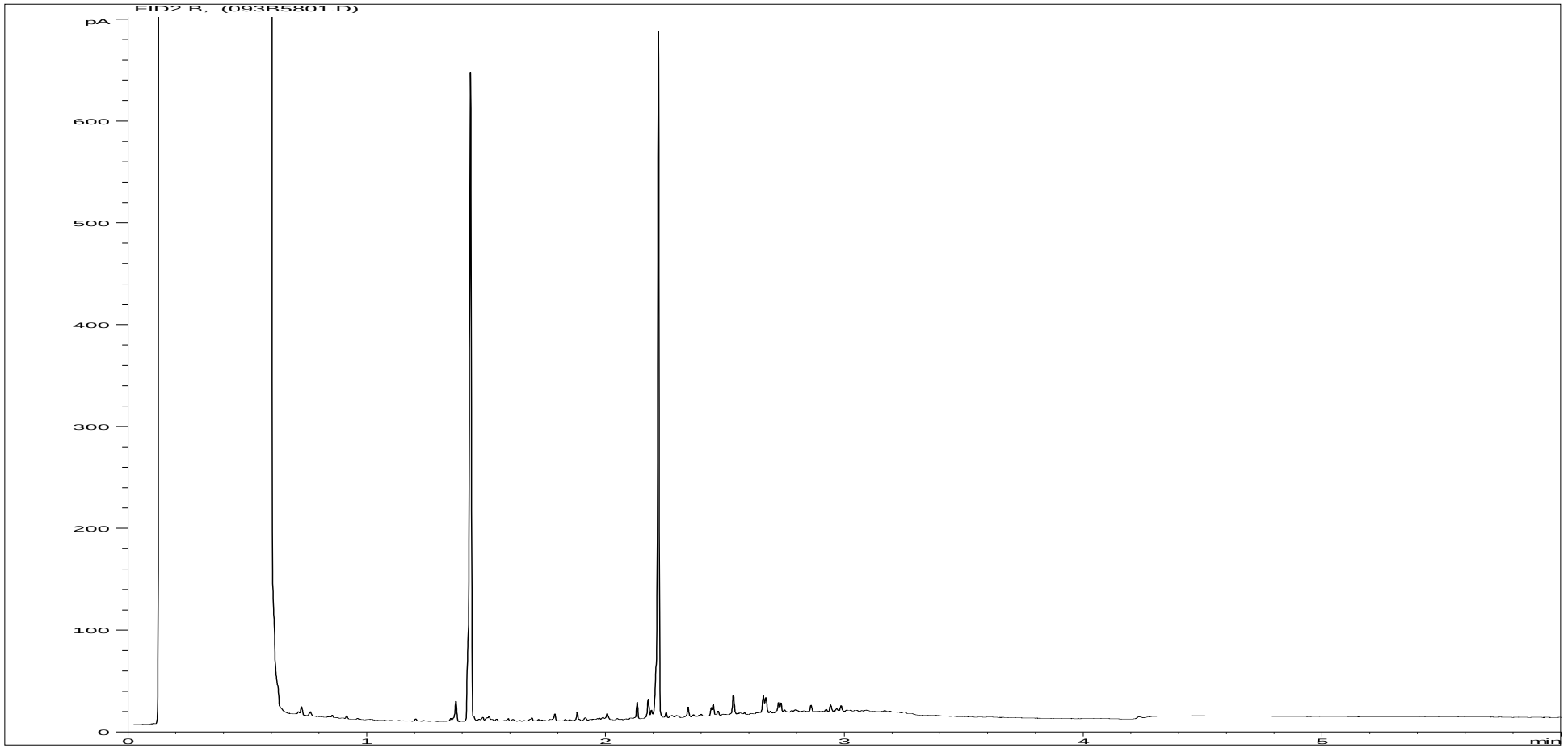
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1555886ALI	**Job Number:**	S15_4882
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH 414 ES 5 0.50
Acquisition Date/Time:	24-Jul-15, 23:40:06		
Datafile:	D:\TES\DATA\Y2015\072415TPH_GC4\072415 2015-07-24 11-03-25\035F4901.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1555886ARO	**Job Number:**	S15_4882
Multiplier:	11.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH 414 ES 5 0.50
Acquisition Date/Time:	25-Jul-15, 11:08:28		
Datafile:	D:\TES\DATA\Y2015\072415TPH_GC4\072415 2015-07-24 11-03-25\093B5801.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: A63 Princess Quay	**Directory/Quant file:**	724VOC.MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH 412 ES 2 0.20	**Date Booked in:**	22-Jul-15	**Method:**	Headspace
LIMS ID Number:	CL1555885	**Date Analysed:**	24-Jul-15	**Multiplier:**	0.93
Job Number:	S15_4882	**Operator:**	TP	**Position:**	19

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	-	< 5	-
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	4.06	95	Dibromofluoromethane	102
1,4-Difluorobenzene	4.40	97	Toluene-d8	97
Chlorobenzene-d5	5.51	89		
Bromofluorobenzene	5.91	80		
1,4-Dichlorobenzene-d4	6.31	68		
Naphthalene-d8	7.16	42		

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:	ESG Doncaster: A63 Princess Quay	**Directory/Quant file:**	724VOC.MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH 414 ES 5 0.50	**Date Booked in:**	22-Jul-15	**Method:**	Headspace
LIMS ID Number:	CL1555886	**Date Analysed:**	24-Jul-15	**Multiplier:**	1.1
Job Number:	S15_4882	**Operator:**	TP	**Position:**	20

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	-	< 6	-
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	-	< 6	-
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	-	< 6	-
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	4.06	96	Dibromofluoromethane	101
1,4-Difluorobenzene	4.40	94	Toluene-d8	93
Chlorobenzene-d5	5.51	71		
Bromofluorobenzene	5.91	53		
1,4-Dichlorobenzene-d4	6.31	36		
Naphthalene-d8	7.16	11		

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.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154882

Customer ESG Doncaster
Site A63 Princess Quay
Report No S154882

Consignment No S49420
Date Logged 22-Jul-2015

Report Due 28-Jul-2015

ID Number	Description	MethodID	CustServ	GROHSA	ICPBOR	ICPMSS												ICPSOIL	KONECR	PAHMSUS	PHSOIL	SFAPI		Sub002a	TPHUSSI	VOCHSAS
		Sampled	REPORT A	GRO (AA) by HSA GC-FID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos Screen	TPH by GCFID (AR/Si)	BTEX-HSA GCMS analysis
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
CL/1555885	BH 412 0.20	15/07/15																									
CL/1555886	BH 414 0.50	15/07/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154882

Customer **ESG Doncaster**
Site **A63 Princess Quay**
Report No **S154882**

Consignment No S49420
Date Logged 22-Jul-2015

Report Due 28-Jul-2015

ID Number	Description	MethodID	VOCHSAS		WSLM59
		Sampled	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	
CL/1555885	BH 412 0.20	15/07/15			
CL/1555886	BH 414 0.50	15/07/15			

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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/1555886	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
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	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : A63 Princess Quay

Report Number : S15_4882

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1555885	BH 412 ES 2 0.20	SILT
CL/1555886	BH 414 ES 5 0.50	MADE GROUND

TEST REPORT

1252

Report No. EFS/154941 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: A63 Princess Quay

The 1 sample described in this report were registered for analysis by ESG on 23-Jul-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 29-Jul-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 29-Jul-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA) by HSA GC-FID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1556161	BH410 ES 3 0.75	21-Jul-15	Req	2.9	1.1	14.5	0.23	27.1	31.3	80.2	741.1	0.27	2.2	25.8	<0.5	85.3	0.744	8.5

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Client Name ESG Doncaster

Contact Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**29-Jul-2015**
Report Number	**EFS/154941**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg		mg/kg	µg/kg	mg/kg	mg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg
Method Codes :			SFAPI	SFAPI	Sub002a	TPHUSSI	VOCHSAS	ICPMSS	KONECR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS
Method Reporting Limits :			0.5	0.5		20		0.6	0.1	0.04	5	1	2	6	4	2		
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos Screen**	**TPH by GCFID (AR/Si)**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**BTEX-HSA GCMS analysis**	**PAH (16) by GCMS**
1556161	BH410 ES 3 0.75	21-Jul-15	<0.5	<0.5	NAIIS	Req	Req	39.8	<0.1	2.03	<5	<1	<2	<6	<4	<2	Req	Req

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**29-Jul-2015**
Report Number	**EFS/154941**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: A63 Princess Quay		
Sample Details:	BH410 ES 3 0.75	**Job Number:**	S15_4941
LIMS ID Number:	CL1556161	**Date Booked in:**	23-Jul-15
QC Batch Number:	719	**Date Extracted:**	24-Jul-15
Quantitation File:	Initial Calibration	**Date Analysed:**	25-Jul-15
Directory:	2415PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	102
Acenaphthene-d10	99
Phenanthrene-d10	100
Chrysene-d12	104
Perylene-d12	105

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	99
Terphenyl-d14	74

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Gasoline Range Organics
(BTEX and Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_4941
Directory: E:\TES\DATA\2015\0727HSA_GC9\150727A 2015-07-27 16-52-00\035F1901.D
Method: Headspace GCFID

Matrix: Soil
Date Booked in: 23-Jul-15
Date extracted: 27-Jul-15
Date Analysed: 27-Jul-15, 22:42

*** Sample data with an asterisk are not UKAS accredited.**

		Concentration, (mg/kg) - as wet weight					Aliphatics				
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**m/p-Xylene**	**o-Xylene**	**C5 - C6**	**>C6 - C7**	**>C7 - C8**	**>C8 - C10**	**Total GRO**
CL1556161	BH410 ES 3 0.75	<0.010	<0.010	<0.010	<0.010	<0.010	<0.2	<0.2	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_4941
QC Batch Number: 150719
Directory: D:\TES\DATA\Y2015\072815TPH_GC4\072815 2015-07-28 09-43-09\056B1801.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

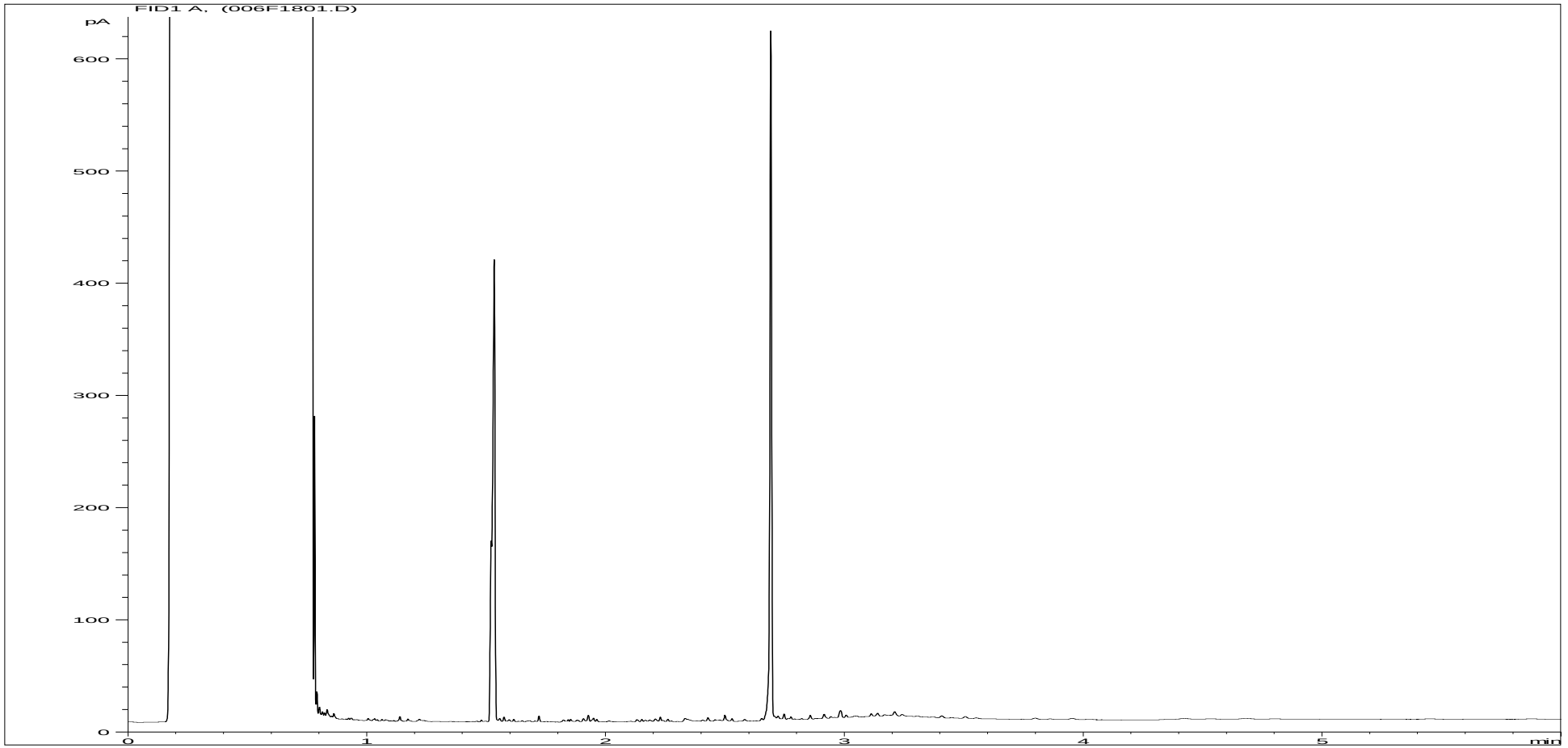
Matrix: Soil
Date Booked in 23-Jul-15
Date Extracted 24-Jul-15
Date Analysed: 28-Jul-15, 13:37:52

*** 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**
CL1556161	BH410 ES 3 0.75	<4	<4	<4	<4	<4	4.22	<4	7.4	<8.76	23	<20	37.5

Where individual results are flagged see report notes for status.

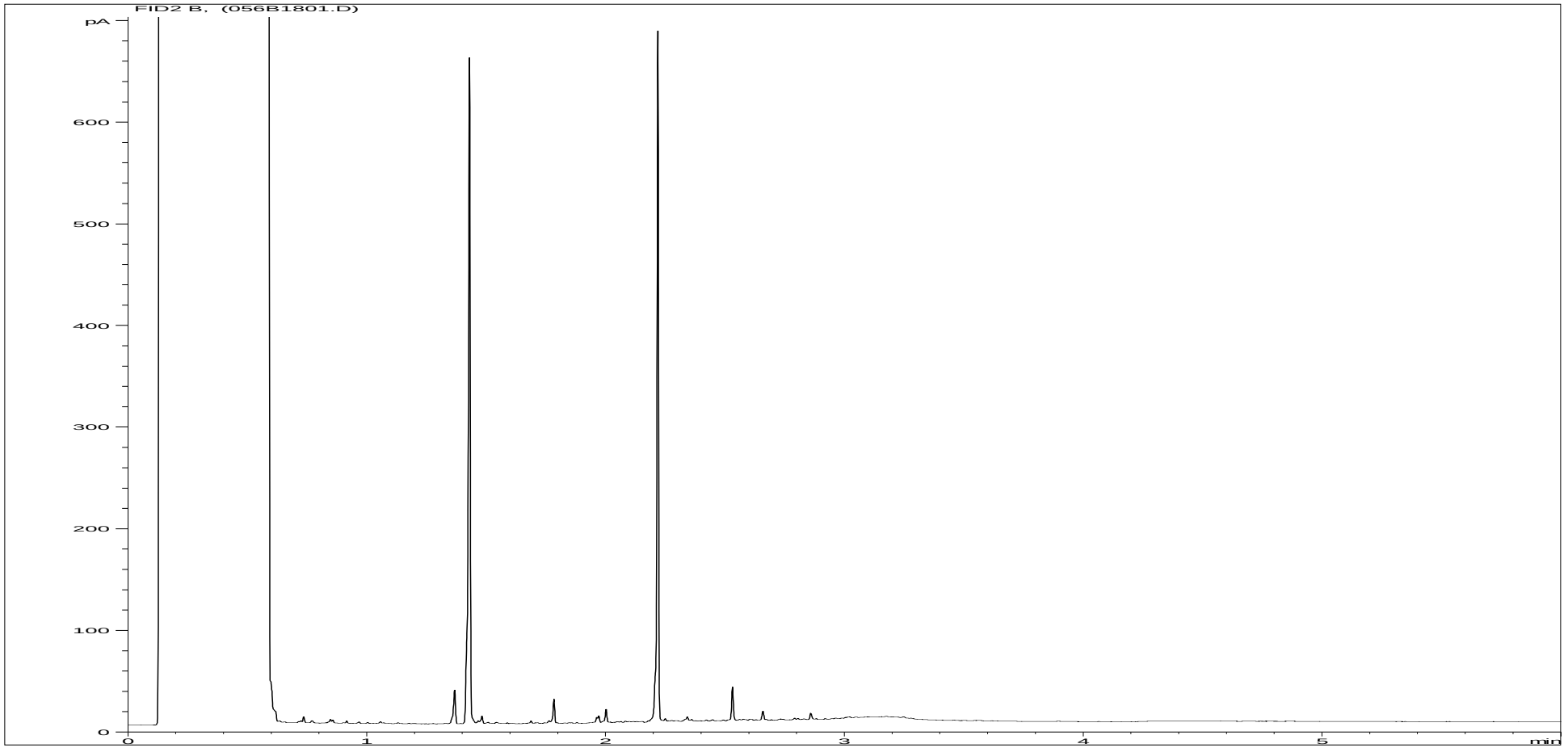
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1556161ALI	**Job Number:**	S15_4941
Multiplier:	15.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH410 ES 3 0.75
Acquisition Date/Time:	28-Jul-15, 13:37:52		
Datafile:	D:\TES\DATA\Y2015\072815TPH_GC4\072815 2015-07-28 09-43-09\006F1801.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1556161ARO	**Job Number:**	S15_4941
Multiplier:	12	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH410 ES 3 0.75
Acquisition Date/Time:	28-Jul-15, 13:37:52		
Datafile:	D:\TES\DATA\Y2015\072815TPH_GC4\072815 2015-07-28 09-43-09\056B1801.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: A63 Princess Quay	**Directory/Quant file:**	724VOC.MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH410 ES 3 0.75	**Date Booked in:**	23-Jul-15	**Method:**	Headspace
LIMS ID Number:	CL1556161	**Date Analysed:**	24-Jul-15	**Multiplier:**	1.04
Job Number:	S15_4941	**Operator:**	TP	**Position:**	30

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	-	< 5	-
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	4.06	103	Dibromofluoromethane	103
1,4-Difluorobenzene	4.40	101	Toluene-d8	96
Chlorobenzene-d5	5.51	84		
Bromofluorobenzene	5.91	69		
1,4-Dichlorobenzene-d4	6.31	53		
Naphthalene-d8	7.16	20		

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.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

UKAS TESTING 1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0488-10658**
For the attention of:	ESG Doncaster	**Report Date:**	**27/07/2015**
Site Address:	A63 Princess Quay	**Project Number:**	**S154941**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1556161	21/07/15	BH410 0.75	27/07/2015					Screen Only	NAIIS

Keys

NAACR = Not Analysed at Clients Request

NAIIS = No Asbestos Identified in Sample (Screens Only)

*** visible to naked eye**

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name:	Nathan Brough	Authorised Signatory:
Position:	Lab Analyst	

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154941

Customer ESG Doncaster
Site A63 Princess Quay
Report No S154941

Consignment No S49453
Date Logged 23-Jul-2015

Report Due 29-Jul-2015

ID Number	Description	MethodID	CustServ	GROHSA	ICPBOR	ICPMSS												ICPSOIL	KONECR	PAHMSUS	PHSOIL	SFAPI		Sub002a	TPHUSSI	VOCHSAS
		Sampled	REPORT A	GRO (AA) by HSA GC-FID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos Screen	TPH by GCFID (AR/Si)	BTEX-HSA GCMS analysis
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
CL/1556161	BH410 0.75	21/07/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site A63 Princess Quay
Report No S154941

Consignment No S49453
Date Logged 23-Jul-2015

Report Due 29-Jul-2015

ID Number	Description	MethodID	VOCHSAS		WSLM59
		Sampled	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	
CL/1556161	BH410 0.75	21/07/15			

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
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	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : A63 Princess Quay
Report Number : S15_4941

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1556161	BH410 ES 3 0.75	MADE GROUND

TEST REPORT

1252

Report No. EFS/155230 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: A63 Princess Quay

The 1 sample described in this report were registered for analysis by ESG on 05-Aug-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 11-Aug-2015

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

The following tables are contained in this report:

On behalf of ESG :
Declan Burns
Managing Director
Multi-Sector Services

Date of Issue: 11-Aug-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1557592	BH415 ES 6 1.50	04-Aug-15	Req	3.4	0.4	11	0.18	23.5	15	26.3	551.3	<0.1	0.9	23.6	<0.5	67.8	0.619	8.7

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

Tel +44 (0) 1283 554400

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Client Name ESG Doncaster

Contact Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**11-Aug-2015**
Report Number	**EFS/155230**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg	
Method Codes :			SFAPI	SFAPI	Sub002	TPHUSSI	ICPMSS	KONECR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS	
Method Reporting Limits :			0.5	0.5		10	0.6	0.1	0.04	5	1	2	6	4	2			
UKAS Accredited :			Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos ID and Quantification**	**TPH by GCFID (Si-UKCWG)>44**	**Vanadium (MS)**	**Chromium vi:**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**BTEX-HSA GCMS analysis**	**PAH (16) by GCMS**	
1557592	BH415 ES 6 1.50	**04-Aug-15**	0.7	<0.5	NADIS	Req	34.3	<0.1	1.29	<5	<1	<2	<6	<4	<2	Req	Req	

ESG

Bretby Business Park, Ashby Road

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**11-Aug-2015**
Report Number	**EFS/155230**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: A63 Princess Quay		
Sample Details:	BH415 ES 6 1.50	**Job Number:**	S15_5230
LIMS ID Number:	CL1557592	**Date Booked in:**	05-Aug-15
QC Batch Number:	150771	**Date Extracted:**	06-Aug-15
Quantitation File:	Initial Calibration	**Date Analysed:**	07-Aug-15
Directory:	615PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8*	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0*	-	< 0.08	-
Pyrene	129-00-0*	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9*	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	114
Acenaphthene-d10	113
Phenanthrene-d10	115
Chrysene-d12	120
Perylene-d12	116

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	92
Terphenyl-d14	68

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_5230
Directory: E:\TES\DATA\2015\0810HSA_GC9\150810 2015-08-10 09-53-05\145B4501.D
Method: HEADSPACE GCFID

Matrix: Soil
Date Booked in: 05-Aug-15
Date extracted: 10-Aug-15
Date Analysed: 10-Aug-15, 23:42:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1557592	BH415 ES 6 1.50	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_5230
QC Batch Number: 150771
Directory: D:\TES\DATA\Y2013\02\080715TPH_GC3\078B3301.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

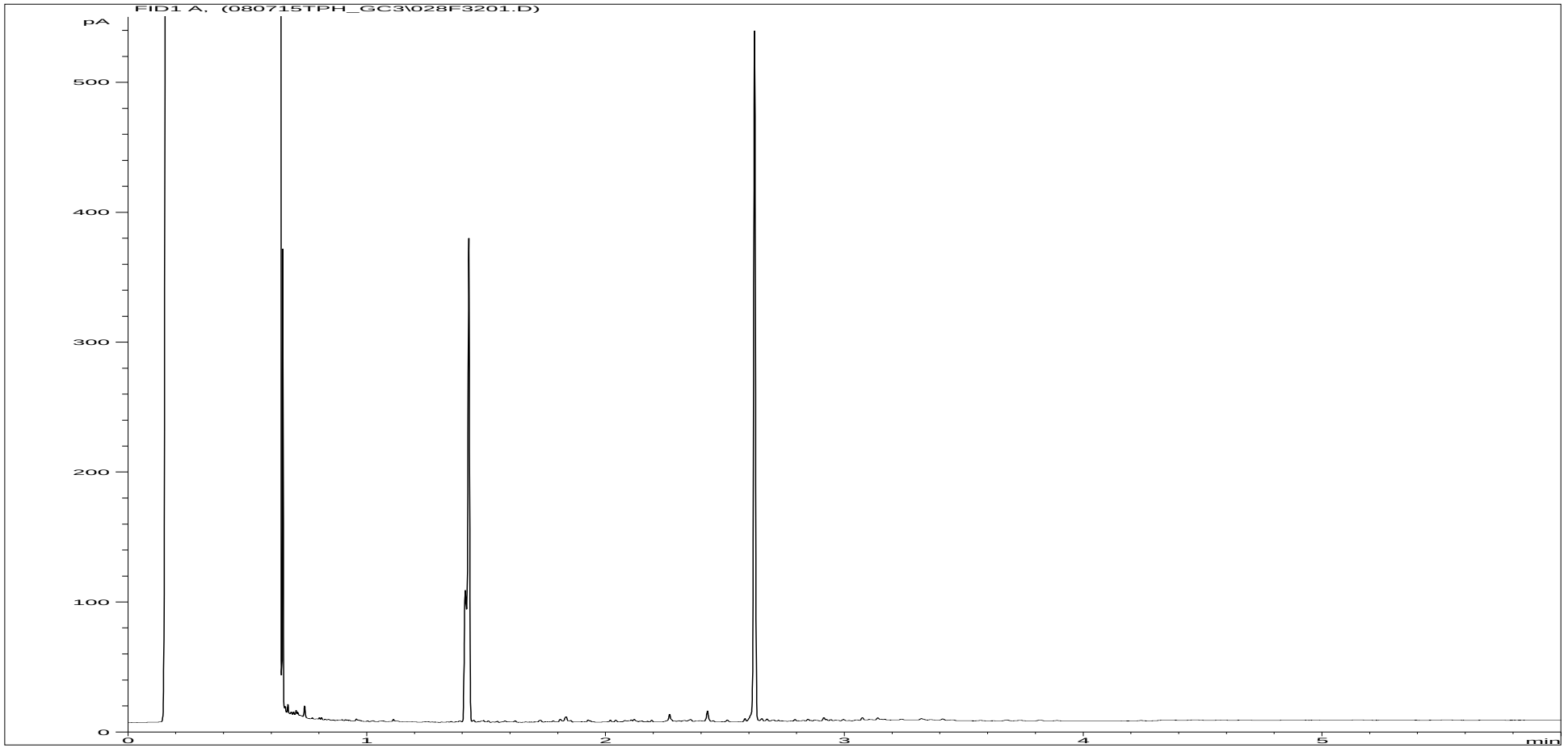
Matrix: Soil
Date Booked in: 05-Aug-15
Date Extracted: 06-Aug-15
Date Analysed: 07-Aug-15

Bands marked with a ' * ' are not UKAS Accredited

		Concentration, (mg/kg) - as wet weight												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1557592	BH415 ES 6 1.50	<4	<4	<4	<4	<4	5.53	<11.9	4.62	<5.62	9.5	<5.62	<20	22.1

Where individual results are flagged see report notes for status.

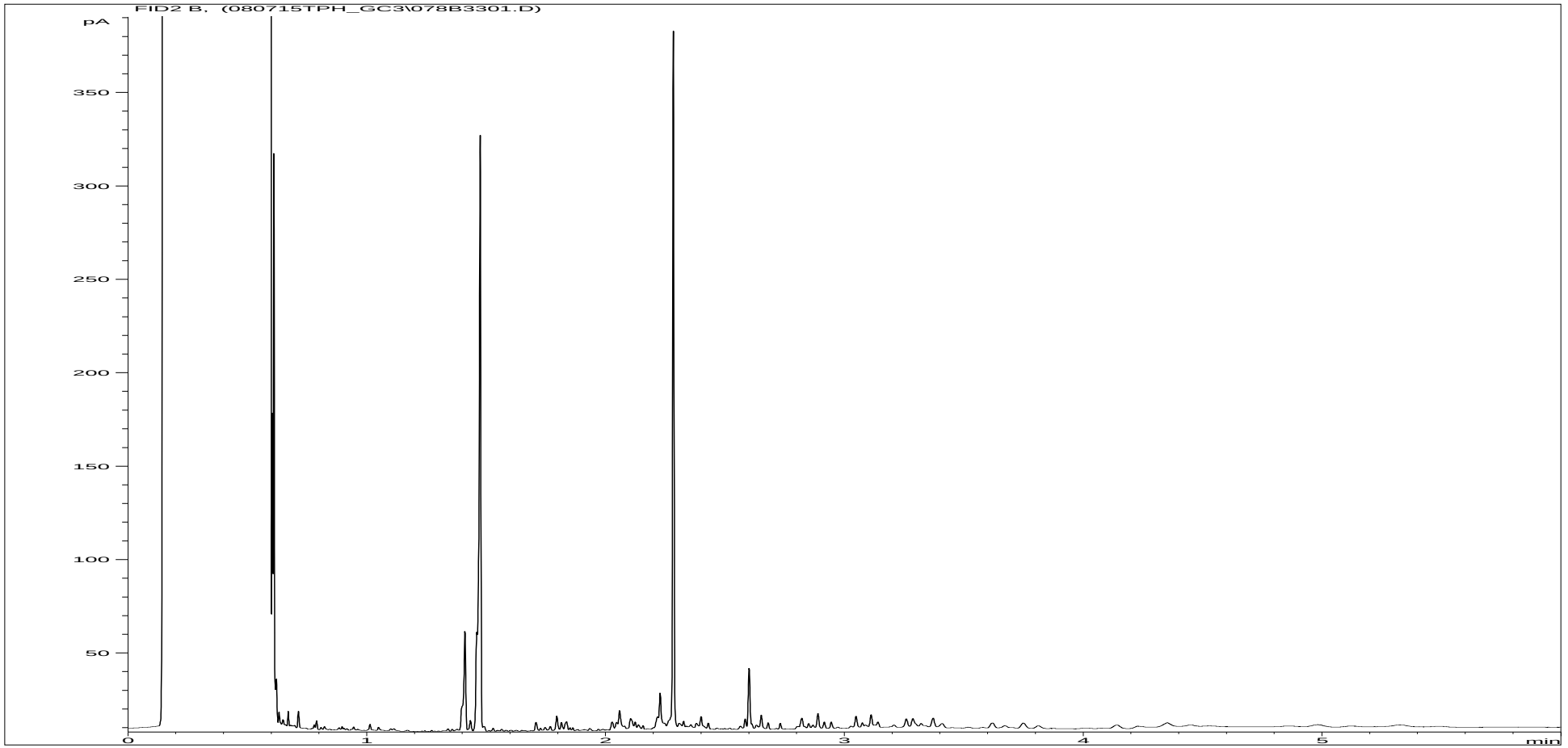
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1557592ALI	**Job Number:**	S15_5230
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH415 ES 6 1.50
Acquisition Date/Time:	07-Aug-15		
Datafile:	D:\TES\DATA\Y2013\02\080715TPH_GC3\028F3201.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1557592ARO	**Job Number:**	S15_5230
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH415 ES 6 1.50
Acquisition Date/Time:	07-Aug-15		
Datafile:	D:\TES\DATA\Y2013\02\080715TPH_GC3\078B3301.D		

Where individual results are flagged see report notes for status.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-10728**
For the attention of:	ESG Doncaster	**Report Date:**	**11/08/2015**
Site Address:	A63 Princess Quay	**Project Number:**	**S155230**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1557592	04/08/15	BH415 1.50	10/08/2015	1040	992	0.0000	0.0000		NADIS

Keys

NAACR = Not Analysed at Clients Request

NAIIS = No Asbestos Identified in Sample (Screens Only)

*** visible to naked eye**

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name: Rachel Howell

Authorised Signatory:

Position: Lab Technician

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S155230

Customer ESG Doncaster
Site A63 Princess Quay
Report No S155230

Consignment No S49703
Date Logged 05-Aug-2015

Report Due 11-Aug-2015

ID Number	Description	Sampled	MethodID	CustServ	GROHSA	ICPBOR	ICPMSS											ICPSOIL	KONECR	PAHMSUS	PHSOIL	SFAPI		Sub002	TPHUSSI	VOCHSAS
				REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos ID and Quantification	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis
					✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓
CL/1557592	BH415 1.50	04/08/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site A63 Princess Quay
Report No S155230

Consignment No S49703
Date Logged 05-Aug-2015

Report Due 11-Aug-2015

ID Number	Description	MethodID	VOCHSAS	WSLM59
		Sampled	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	
CL/1557592	BH415 1.50	04/08/15		

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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
PAHMSUS	CL1557592	The Secondary process control result associated with this Test has not wholly met the requirements of the Laboratory Quality Management System (QMS). All other Process controls (including the Primary Process control) are within specification. The Laboratorybelieves that the validity of the data has not been affected however under these circumstances, the UKAS accreditation is removed for Phenanthrene, Chrysene, Fluoranthene and Pyrene.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
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	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : A63 Princess Quay
Report Number : S15_5230

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1557592	BH415 ES 6 1.50	SILT

TEST REPORT

1252

Report No. EFS/155240 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: A63 Princess Quay

The 1 sample described in this report were registered for analysis by ESG on 06-Aug-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 12-Aug-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 12-Aug-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1557642	BH413 ES 3 1.00	04-Aug-15	Req	1.8	0.7	13.1	0.31	31	33.8	67.8	588.9	0.14	1.6	26.3	<0.5	80.9	0.782	8.1

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

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Client Name ESG Doncaster

Contact Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**12-Aug-2015**
Report Number	**EFS/155240**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	%	mg/kg	µg/kg	mg/kg	mg/kg	% M/M	mg/kg							
Method Codes :			SFAPI	SFAPI	Sub002	TPHUSSI	VOCHSAS	ICPMSS	KONECR	WSLM59	PAHMSUS							
Method Reporting Limits :			0.5	0.5		10		0.6	0.1	0.04								
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	No	No	No	Yes							
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos ID and Quantification**	**TPH by GCFID (Si-UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**Total Organic Carbon**	**PAH (16) by GCMS**							
1557642	BH413 ES 3 1.00	**04-Aug-15**	<0.5	<0.5	NADIS	Req	Req	41.2	<0.1	1.94	Req							

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**12-Aug-2015**
Report Number	**EFS/155240**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: A63 Princess Quay		
Sample Details:	BH413 ES 3 1.00	**Job Number:**	S15_5240
LIMS ID Number:	CL1557642	**Date Booked in:**	06-Aug-15
QC Batch Number:	150776	**Date Extracted:**	10-Aug-15
Quantitation File:	Initial Calibration	**Date Analysed:**	10-Aug-15
Directory:	1015PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	6.76	0.16	77
Pyrene	129-00-0	7.03	0.14	76
Benzo[a]anthracene	56-55-3	8.70	0.11	85
Chrysene	218-01-9	8.75	0.14	95
Benzo[b]fluoranthene	205-99-2	10.23	0.17	93
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	10.65	0.10	92
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.62	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	103
Acenaphthene-d10	97
Phenanthrene-d10	100
Chrysene-d12	94
Perylene-d12	92

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	95
Terphenyl-d14	69

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_5240
Directory: E:\TES\DATA\2015\0811HSA_GC9\150811A 2015-08-11 15-12-19\008F0201.D
Method: HEADSPACE GCFID

Matrix: Soil
Date Booked in: 06-Aug-15
Date extracted: 11-Aug-15
Date Analysed: 11-Aug-15, 15:47:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1557642	BH413 ES 3 1.00	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_5240
QC Batch Number: 150776
Directory: D:\TES\DATA\Y2013\02\081115TPH_GC3\091B3801.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

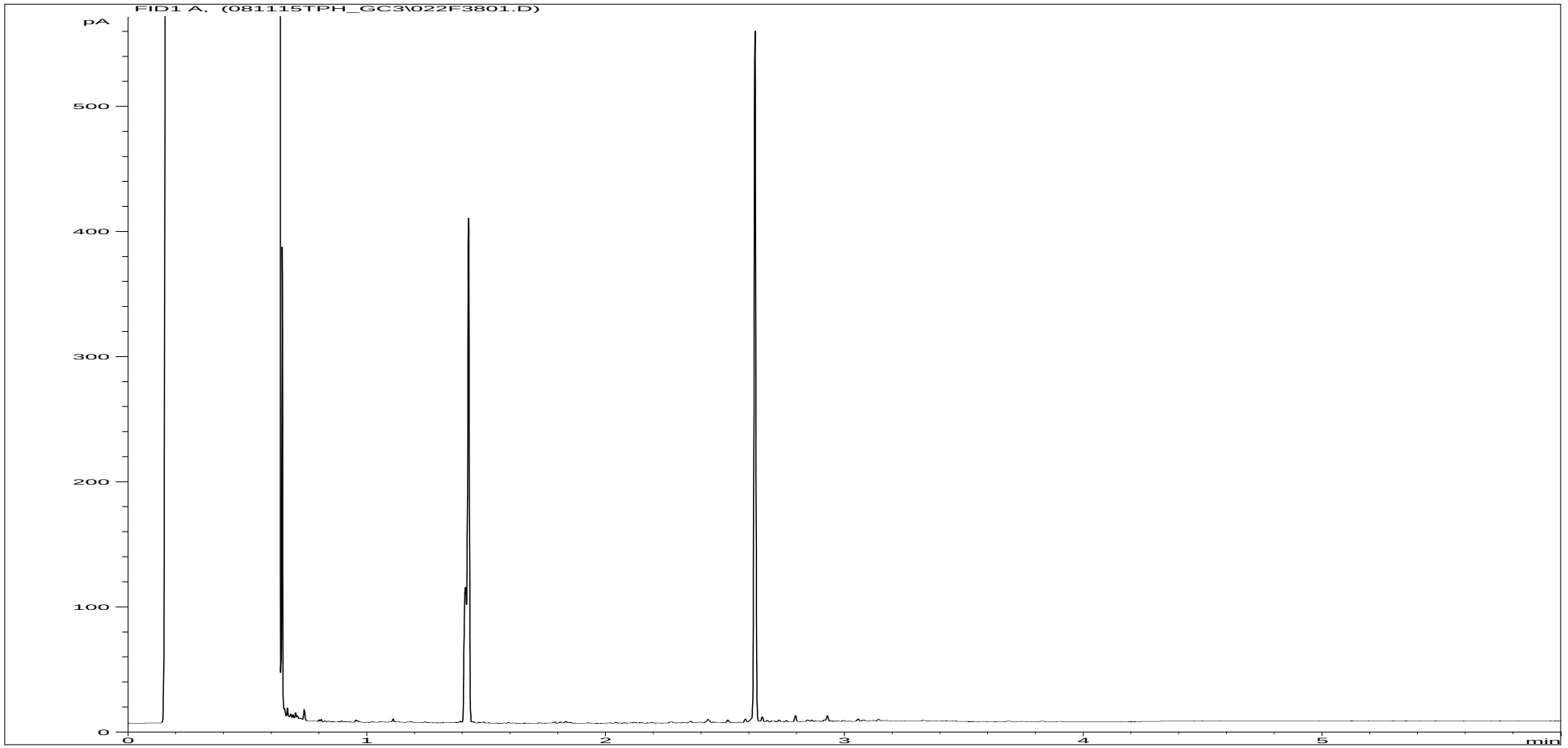
Matrix: Soil
Date Booked in: 06-Aug-15
Date Extracted: 10-Aug-15
Date Analysed: 11-Aug-15

Bands marked with a ' * ' are not UKAS Accredited

		Concentration, (mg/kg) - as wet weight												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1557642	BH413 ES 3 1.00	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	<8.76	<5.62	<20	<20

Where individual results are flagged see report notes for status.

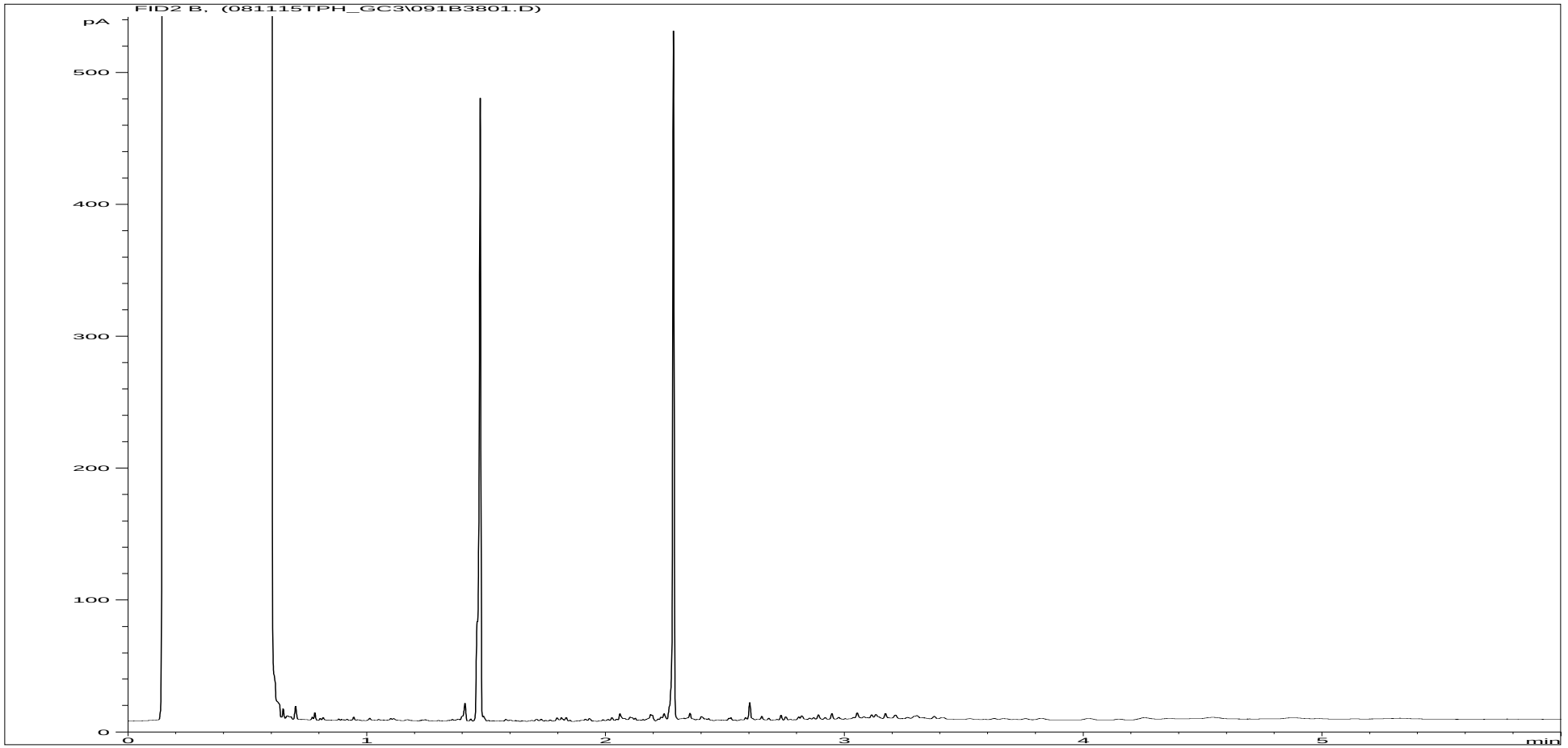
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1557642ALI	**Job Number:**	S15_5240
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH413 ES 3 1.00
Acquisition Date/Time:	11-Aug-15		
Datafile:	D:\TES\DATA\Y2013\02\081115TPH_GC3\022F3801.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1557642ARO	**Job Number:**	S15_5240
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH413 ES 3 1.00
Acquisition Date/Time:	11-Aug-15		
Datafile:	D:\TES\DATA\Y2013\02\081115TPH_GC3\091B3801.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: A63 Princess Quay	**Directory/Quant file:**	810VOC.MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH413 ES 3 1.00	**Date Booked in:**	06-Aug-15	**Method:**	Headspace
LIMS ID Number:	CL1557642	**Date Analysed:**	10-Aug-15	**Multiplier:**	1
Job Number:	S15_5240	**Operator:**	PR	**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	-	< 5	-
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	4.01	85	Dibromofluoromethane	107
1,4-Difluorobenzene	4.35	84	Toluene-d8	96
Chlorobenzene-d5	5.47	74		
Bromofluorobenzene	5.86	65		
1,4-Dichlorobenzene-d4	6.26	54		
Naphthalene-d8	7.09	23		

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.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-10727**
For the attention of:	ESG Doncaster	**Report Date:**	**11/08/2015**
Site Address:	A63 Princess Quay	**Project Number:**	**S155240**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1557642	04/08/15	BH413 1.00	10/08/2015	867	547	0.0000	0.0000		NADIS

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Screens Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name: Rachel Howell

Authorised Signatory:

Position: Lab Technician

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S155240

Customer ESG Doncaster
Site A63 Princess Quay
Report No S155240

Consignment No S49775
Date Logged 06-Aug-2015

Report Due 12-Aug-2015

ID Number	Description	MethodID	CustServ	GROHSA	ICPBOR	ICPMSS												ICPSOIL	KONECR	PAHMSUS	PHSOIL	SFAPI		Sub002	TPHUSSI	VOCHSAS	WSLM59
		Sampled	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos ID and Quantification	TPH by GCFID (Si-UKCWG)>44	VOC HSA-GCMS	Total Organic Carbon
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	
CL/1557642	BH413 1.00	04/08/15																										

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S155240

Customer ESG Doncaster
Site A63 Princess Quay
Report No S155240

Consignment No S49775
Date Logged 06-Aug-2015

Report Due 12-Aug-2015

ID Number	Description	Sampled	MethodID: WSLM59 Total Organic Carbon
CL/1557642	BH413 1.00	04/08/15	

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key	
A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key	
	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
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	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : A63 Princess Quay
Report Number : S15_5240

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1557642	BH413 ES 3 1.00	MADE GROUND

TEST REPORT

1252

Report No. EFS/155417 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: A63 Princess Quay

The 1 sample described in this report were registered for analysis by ESG on 13-Aug-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 21-Aug-2015

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

The following tables are contained in this report:

On behalf of ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 21-Aug-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA) by HSA GC-FID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1558586	BH501 ES 1A 4.00	**07-Aug-15**	Req §	0.7 §	0.3 §	2.4 §	0.29 §	5.6 §	6.3 §	16.2 §	594.6 §	<0.1 §	<0.5 §	11.2 §	<0.5 §	19.4 §	0.138 §	8.5 §

ESG

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

Tel +44 (0) 1283 554400

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Client Name **ESG Doncaster**

Contact Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**21-Aug-2015**
Report Number	**EFS/155417**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	%	mg/kg	µg/kg	mg/kg	mg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	mg/kg
Method Codes :			SFAPI	SFAPI	Sub002	TPHUSSI	VOCHSAS	ICPMSS	KONECR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS
Method Reporting Limits :			0.5	0.5		20		0.6	0.1	0.04	5	1	2	6	4	2	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos ID and Quantification**	**TPH by GCFID (AR/Si)**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**PAH (16) by GCMS**
1558586	BH501 ES 1A 4.00	07-Aug-15	<0.5 §	<0.5 §	NADIS	Req §	Req §	7.1	<0.1	0.46	<5 §	<1 §	<2 §	<6 §	<4 §	<2 §	Req §

Bretby Business Park, Ashby Road

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

A63 Princess Quay

Sample Analysis

Date Printed	**21-Aug-2015**
Report Number	**EFS/155417**
Table Number	**1**

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: A63 Princess Quay		
Sample Details:	BH501 ES 1A 4.00	**Job Number:**	S15_5417
LIMS ID Number:	CL1558586	**Date Booked in:**	13-Aug-15
QC Batch Number:	150817	**Date Extracted:**	20-Aug-15
Quantitation File:	Initial Calibration	**Date Analysed:**	20-Aug-15
Directory:	1915PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: No

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	5.32	0.17	97
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	6.60	0.20	95
Pyrene	129-00-0	6.88	0.17	98
Benzo[a]anthracene	56-55-3	8.53	0.14	97
Chrysene	218-01-9	8.58	0.12	95
Benzo[b]fluoranthene	205-99-2	10.05	0.15	77
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	10.47	0.13	95
Indeno[1,2,3-cd]pyrene	193-39-5	11.84	0.10	57
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	12.13	0.09	48
Total (USEPA16) PAHs	-	-	< 1.83	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	84
Acenaphthene-d10	83
Phenanthrene-d10	86
Chrysene-d12	84
Perylene-d12	85

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	104
Terphenyl-d14	77

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Gasoline Range Organics
(BTEX and Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_5417
Directory: C:\CHEM32\1\DATA\0817HSA_GC12\081715 2015-08-17 10-55-19\067F6701.D
Method: Headspace GCFID

Matrix: Soil
Date Booked in: 13-Aug-15
Date extracted: 17-Aug-15
Date Analysed: 18-Aug-15, 08:1

*** Sample data with an asterisk are not UKAS accredited.**

		Concentration, (mg/kg) - as wet weight					Aliphatics				
Sample ID	Client ID	Benzene	Toluene	Ethyl benzene	m/p-Xylene	o-Xylene	C5 - C6	>C6 - C7	>C7 - C8	>C8 - C10	Total GRO
* CL1558586	BH501 ES 1A 4.00	<0.010	<0.010	<0.010	<0.010	<0.010	<0.2	<0.2	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : A63 Princess Quay
Job Number: S15_5417
QC Batch Number: 150805
Directory: D:\TES\DATA\Y2013\02\081815TPH_GC3\067B9601.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

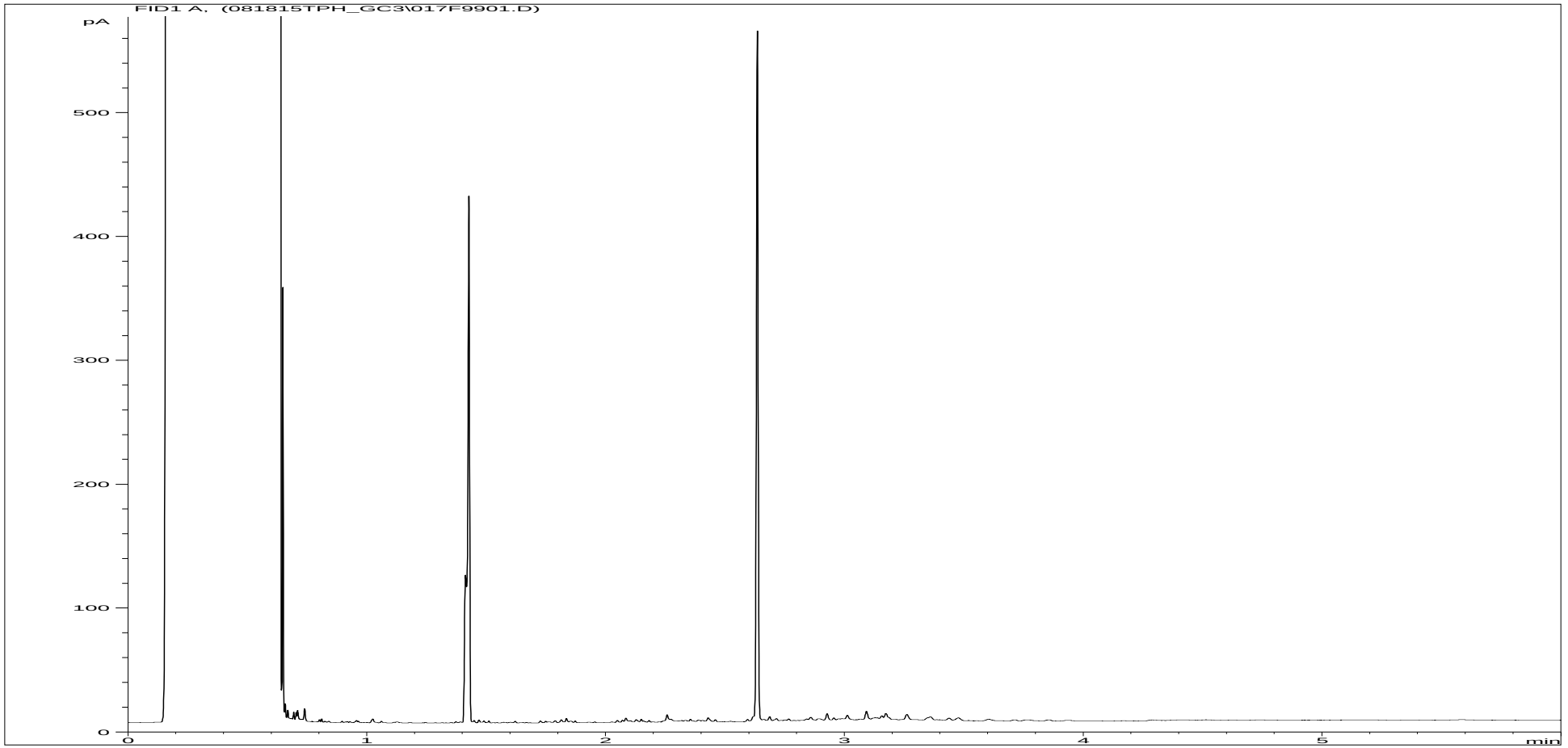
Matrix: Soil
Date Booked in 13-Aug-15
Date Extracted 18-Aug-15
Date Analysed: 19-Aug-15

*** 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
* CL1558586	BH501 ES 1A 4.00	<4	<4	<4	<4	<4	<4	<4	4.57	13.2	15.7	21.9	29.6

Where individual results are flagged see report notes for status.

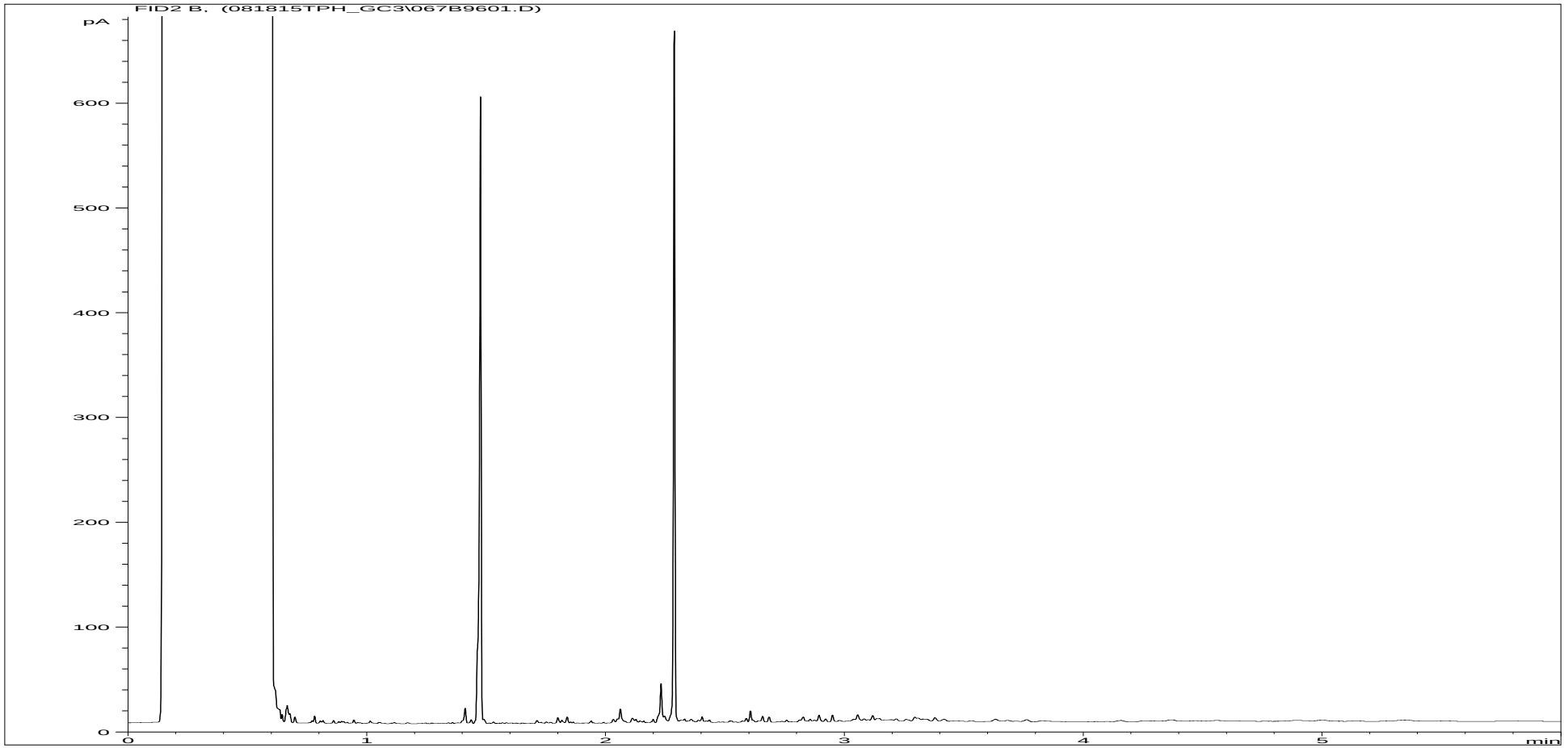
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1558586ALI	**Job Number:**	S15_5417
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH501 ES 1A 4.00
Acquisition Date/Time:	19-Aug-15		
Datafile:	D:\TES\DATA\Y2013\02\081815TPH_GC3\017F9901.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1558586ARO	**Job Number:**	S15_5417
Multiplier:	11.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	A63 Princess Quay
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH501 ES 1A 4.00
Acquisition Date/Time:	19-Aug-15		
Datafile:	D:\TES\DATA\Y2013\02\081815TPH_GC3\067B9601.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: No

Customer and Site Details:	ESG Doncaster: A63 Princess Quay	**Directory/Quant file:**	818VOC.MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH501 ES 1A 4.00	**Date Booked in:**	13-Aug-15	**Method:**	Headspace
LIMS ID Number:	CL1558586	**Date Analysed:**	18-Aug-15	**Multiplier:**	0.93
Job Number:	S15_5417	**Operator:**	PR	**Position:**	22

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	-	< 5	-
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	4.01	89	Dibromofluoromethane	90
1,4-Difluorobenzene	4.35	89	Toluene-d8	99
Chlorobenzene-d5	5.46	90		
Bromofluorobenzene	5.86	87		
1,4-Dichlorobenzene-d4	6.26	84		
Naphthalene-d8	7.09	75		

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.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-10800**
For the attention of:	ESG Doncaster	**Report Date:**	**19/08/2015**
Site Address:	A63 Princess Quay	**Project Number:**	**S155417**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1558586	07/08/15	BH501 4.00	19/08/2015	968	142	0.0000	0.0000		NADIS

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Screens Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name:	Tom Pratt	Authorised Signatory:
Position:	Lab Technician	

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S155417

Customer ESG Doncaster
Site A63 Princess Quay
Report No S155417

Consignment No S49864
Date Logged 13-Aug-2015

Report Due 19-Aug-2015

ID Number	Description	MethodID	CustServ	GROHSA	ICPBOR	ICPMSS											ICPSOIL	KONECR	PAHMSUS	PHSOIL	SFAPI		Sub002	TPHUSSI
		Sampled	REPORT A	GRO (AA) by HSA GC-FID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos ID and Quantification	TPH by GCFID (AR/Si)
																								✓	
CL/1558586	BH501 4.00	07/08/15																							

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site A63 Princess Quay
Report No S155417

Consignment No S49864
Date Logged 13-Aug-2015

Report Due 19-Aug-2015

ID Number	Description	MethodID	VOCHSAS		WSLM59
		Sampled	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
CL/1558586	BH501 4.00	07/08/15	E	E	

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35°C	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35°C	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
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	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
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
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : A63 Princess Quay
Report Number : S15_5417

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1558586	BH501 ES 1A 4.00	CHALK

APPENDIX G

PHOTOGRAPHS

Split and Describe	Plates 1 to 60
Rotary Cores	BH411.BH413, BH414, BH415, BH416, BH501, BH502 and BH503

Split Tube Photographs

Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	1
	Carried out for	Balfour Beatty Limited	

Split Tube Photographs

Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	2
	Carried out for	Balfour Beatty Limited	

Split Tube Photographs

Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	3
	Carried out for	Balfour Beatty Limited	

Split Tube Photographs

Notes:	**Project** A63 PRINCESS QUAY **Project No.** A5066-15 **Carried out for** Balfour Beatty Limited	**Plate** 4

Split Tube Photographs

Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	5
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	6
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	7
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	8
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate 9
	Project No.	A5066-15	
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	10
	Carried out for	Balfour Beatty Limited	

Split Tube Photographs

Notes:	**Project** A63 PRINCESS QUAY **Project No.** A5066-15 **Carried out for** Balfour Beatty Limited	**Plate** 11

Split Tube Photographs

Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	12
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	13
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	14
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	15
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	16
	Carried out for	Balfour Beatty Limited	

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	Project No.	A5066-15	17
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	18
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	19
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	20
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	21
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	22
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	23
	Carried out for	Balfour Beatty Limited	

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	Project No.	A5066-15	24
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	Project No.	A5066-15	29
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	Project No.	A5066-15	31
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	Project No.	A5066-15	32
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	33
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	34
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	36
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	37
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	38
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	39
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	40
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	41
	Carried out for	Balfour Beatty Limited	

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	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	43
	Carried out for	Balfour Beatty Limited	

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	Project No.	A5066-15	44
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	45
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	Project No.	A5066-15	46
	Carried out for	Balfour Beatty Limited	

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	Project No.	A5066-15	48
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	Project No.	A5066-15	49
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	Project No.	A5066-15	50
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	51
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	52
	Carried out for	Balfour Beatty Limited	

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Notes:	Project: A63 PRINCESS QUAY Project No.: A5066-15 Carried out for: Balfour Beatty Limited	Plate 53

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	54
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	55
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	Project No.	A5066-15	56
	Carried out for	Balfour Beatty Limited	

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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	57
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	58
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	59
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Notes:	Project	A63 PRINCESS QUAY	Plate
	Project No.	A5066-15	60
	Carried out for	Balfour Beatty Limited	

Core Photographs

Notes:	Project	PRINCESS QUAY FOOTBRIDGE	BH411
	Project No.	A5066-15	
	Carried out for	Balfour Beatty Limited	

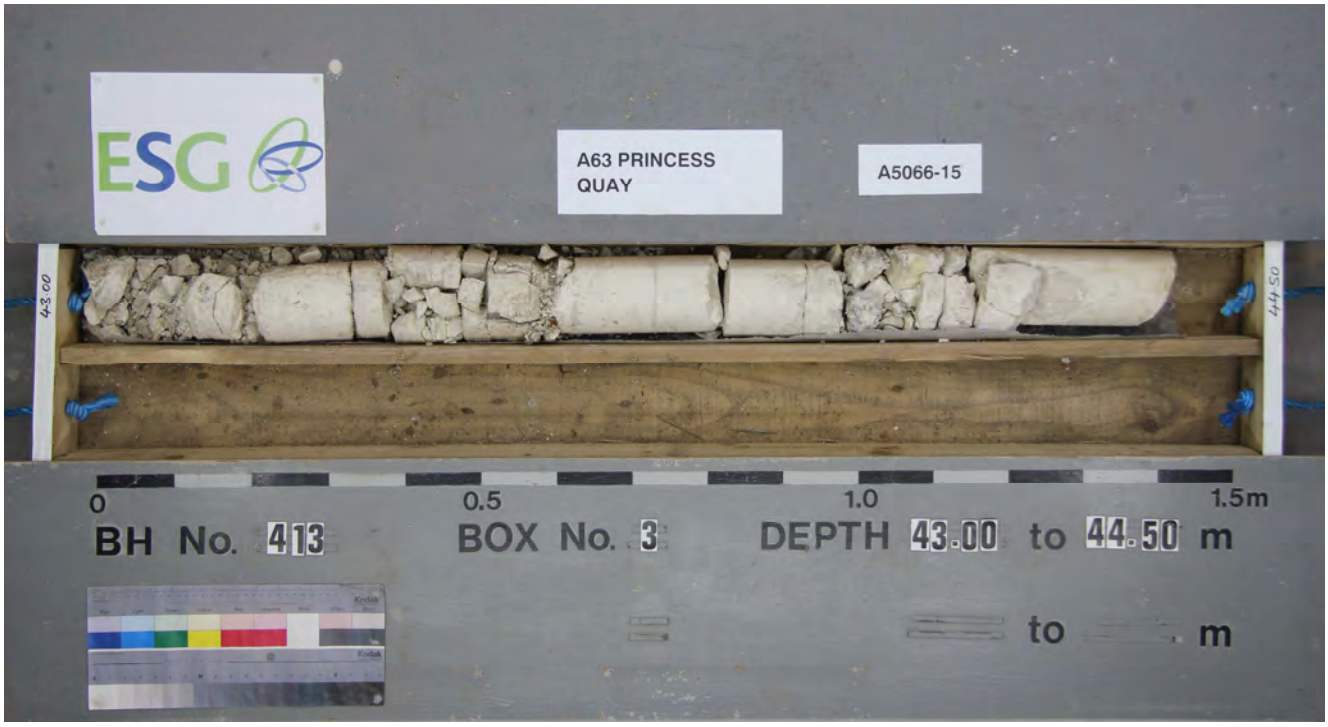
Core Photographs

Notes:	Project	PRINCESS QUAY FOOTBRIDGE	BH411
	Project No.	A5066-15	
	Carried out for	Balfour Beatty Limited	

Core Photographs

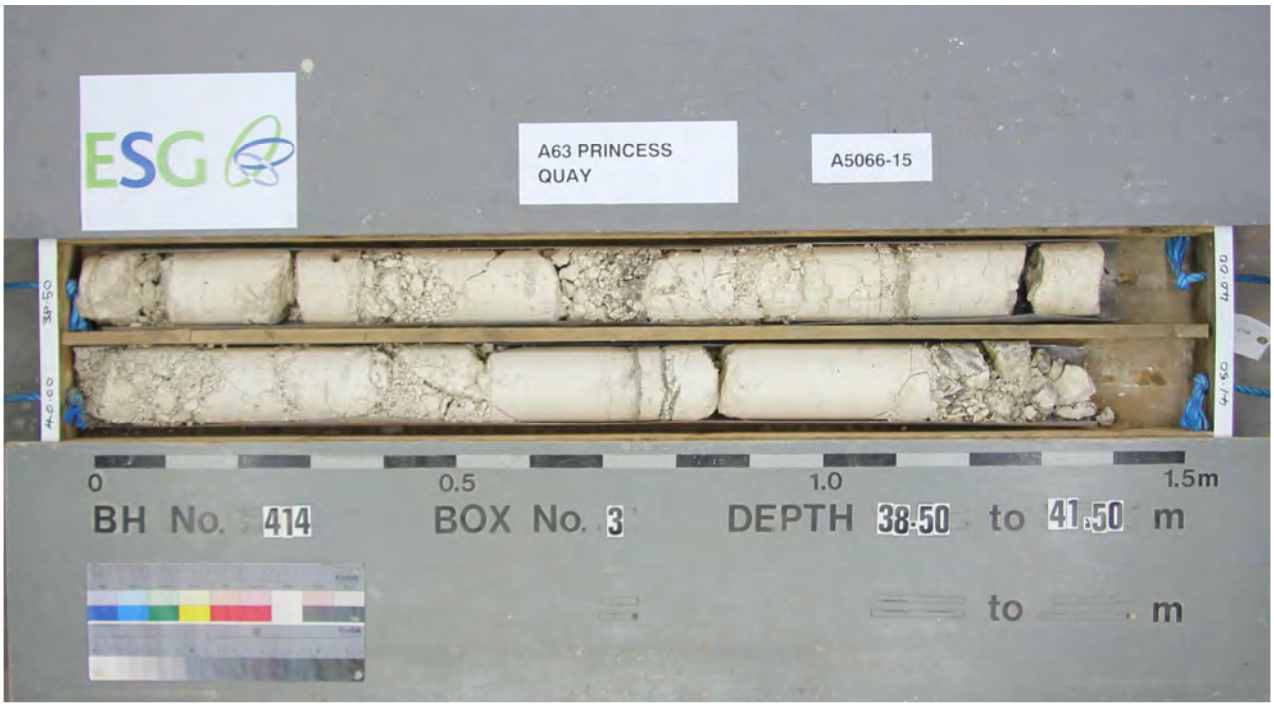
Notes:	Project: PRINCESS QUAY FOOTBRIDGE Project No.: A5066-15 Carried out for: Balfour Beatty Limited	**BH411**

Core Photographs



Notes:	Project	PRINCESS QUAY FOOTBRIDGE	BH413
	Project No.	A5066-15	
	Carried out for	Balfour Beatty Limited	

Core Photographs



Notes:	Project	PRINCESS QUAY FOOTBRIDGE	BH414
	Project No.	A5066-15	
	Carried out for	Balfour Beatty Limited	

Core Photographs

Notes:	Project: PRINCESS QUAY FOOTBRIDGE Project No.: A5066-15 Carried out for: Balfour Beatty Limited	**BH414**

Core Photographs

Notes:	Project	PRINCESS QUAY FOOTBRIDGE	BH416
	Project No.	A5066-15	
	Carried out for	Balfour Beatty Limited	

Core Photographs

Notes:	Project	PRINCESS QUAY FOOTBRIDGE	BH501
	Project No.	A5066-15	
	Carried out for	Balfour Beatty Limited	

Core Photographs

Notes:	**Project** PRINCESS QUAY FOOTBRIDGE **Project No.** A5066-15 **Carried out for** Balfour Beatty Limited	**BH502**

Core Photographs

Notes:	**Project** PRINCESS QUAY FOOTBRIDGE **Project No.** A5066-15 **Carried out for** Balfour Beatty Limited	**BH503**

Annex D: ESG (2016) Trinity Burial Ground, A63 Castle Street Improvement, Hull, Factual Report on Ground Investigation. Report No A5049-15. For Balfour Beatty Limited and Ove Arup & Partners

TRINITY BURIAL GROUND, A63 CASTLE STREET IMPROVEMENT, HULL

FACTUAL REPORT ON GROUND INVESTIGATION

Report No A5049-15

April 2016

Carried out for:
Balfour Beatty Limited
Admiral House
Rose Wharf
78 East Street
Leeds
LS9 8EE

Engineer:
Ove Arup & Partners
Admiral House
Rose Wharf
78 East Street
Leeds
LS9 8EE

ESG
Askern Road, Carcroft,
Doncaster, South Yorkshire DN6 8DG
Tel: +44 (0) 1302 723456
email: geo.doncaster@esg.co.uk

Report No A5049-15

April 2016

Issue No Date	Status	Prepared by	Checked by	Approved by
1 October 2015	Draft report	NAME and QUALIFICATIONS J R Litten BSc, MSc, FGS	NAME and QUALIFICATIONS L Brown BSc, MSc, CEng, MICE	NAME and QUALIFICATIONS L Brown BSc, MSc, CEng, MICE
		SIGNATURE	SIGNATURE PP	SIGNATURE PP
2 January 2016	Draft Report	NAME and QUALIFICATIONS J R Litten BSc, MSc, FGS	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS
		SIGNATURE	SIGNATURE	SIGNATURE
3 April 2016	Final Report	NAME and QUALIFICATIONS J R Litten BSc, MSc, FGS	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS	NAME and QUALIFICATIONS I R Campbell BSc, BEng, ACSM, FGS
		SIGNATURE	SIGNATURE	SIGNATURE

C O N T E N T S

1 INTRODUCTION

In April 2015 ESG was commissioned by Ove Arup & Partners, on behalf of Balfour Beatty Limited, to carry out a ground investigation on an area of land known as Trinity Burial Ground, Castle Street, Hull. The investigation was required to obtain geotechnical and geoenvironmental information as part of the A63 Castle Street Improvement Project.

The scope of the investigation was specified by Ove Arup & Partners and comprised vibracore, cable percussion and cable percussion with rotary core follow on boreholes, cone penetration testing (CPT) and laboratory testing. The investigation was performed in accordance with the contract specification, and the general requirements of BS 5930 (2015), BS EN 1997-2 (2007), BS EN ISO 22475-1 (2006) and other relevant related standards identified below. The fieldwork took place between 13 May and 26 June 2015.

This report presents the factual records of the fieldwork and laboratory testing undertaken. The information is also presented as digital data as defined in AGS (2010).

2 SITE SETTING

2.1 Location and Description

Trinity Burial Ground lie in the central part of Hull about 400 m north of the River Humber at National Grid reference TA 094 283, see Site Location Plan in Appendix A.

The site is irregular in shape, generally level and is bounded to the north by the A63, Castle Street, to the west by Commercial Road and to the south and east by Holiday Inn Hull Marina Building.

2.2 Published Geology

The published geological map for the area, British Geological Survey (BGS) Sheet 80 (1983) and the BGS Geology of Britain Viewer (2015) show the site located on superficial Alluvium with the Burnham Chalk Formation, part of the Cretaceous age White Chalk Subgroup, as the underlying bedrock.

Ove Arup & Partners indicate the possible presence of Glacial Till, Glacial Lacustrine Silt and Clay and Fluvioglacial Sand and Gravel between the Alluvium and bedrock. A covering of Made Ground associated with historical use of the site is also indicated.

3 FIELDWORK

The fieldwork was carried out in general accordance with BS 5930 (2015), BS EN 1997-2 (2007) and BS EN ISO 22475-1 (2006).

The exploratory hole and in situ test locations were selected by Ove Arup & Partners and set out from local features. The exploratory hole and in situ test locations are shown on the Site Plan in Appendix A.

3.1 Exploratory Holes

The exploratory holes are listed in the following table.

TABLE 1 : SUMMARY OF EXPLORATORY HOLES

TYPE	QUANTITY	MAXIMUM DEPTH (m)	REMARKS
Sonic Boreholes	2	37.00	BH301 and BH305
Cable Percussion Boring	6	33.15	BH302, BH303, BH306, BH308, BH307 and BH309
Cable Percussion Boring extended by Rotary Coring	2	40.00	BH304 and BH310

Service inspection pits were excavated prior to each borehole and, to minimise risk of contact with buried human remains, these were machine dug.

The exploratory hole logs are presented in Appendix B. These provide information including the equipment and methods used, samples taken, tests carried out, water observations and descriptions of the strata encountered. Explanation of the terms and abbreviations used on the logs is given in the Key to Exploratory Hole Records in Appendix B, together with other explanatory information. The logging of soil and rock materials is in accordance with BS EN ISO 14688-1+A1 (2013) for soils and BS EN ISO 14689-1 (2003) for rocks, as amplified by BS 5930 (2015).

Undisturbed samples not used for laboratory testing were split and described by an experienced Geologist / Engineer. The descriptions are included in Appendix B and photographs presented in Appendix G.

Standard penetration tests (SPT) in the boreholes were carried out in accordance with BS EN ISO 22476-3+A1 (2011) and the SPT hammer energy ratio certificates are included in Appendix B. The SPT results are presented on the logs as uncorrected N values.

Photographs of the rotary drilled core are presented in Appendix G.

On completion of the fieldwork geotechnical samples were transported to the ESG's Doncaster office for temporary retention, with those required for testing being transferred to the ESG's geotechnical laboratory at Doncaster. Geoenvironmental samples were transported from site directly to ESG's Environmental Chemistry laboratory at Burton-on-Trent.

3.2 Groundwater Monitoring

Instrumentation installed in the exploratory holes for groundwater monitoring are shown on the logs and summarised in Appendix C. Data Recorders were installed in the standpipe piezometers after initial readings to allow long term monitoring of groundwater level variation. Records of groundwater monitoring carried out by ESG after the fieldwork period are presented in Appendix C. Tidal conditions were indicated in two installations, BH305 and BH306, and these are presented separately as are the two vibrating wire piezometers, BH304 and BH310.

4 CONE PENETRATION TESTING

4.1 General

Penetration testing was carried out using separate cone magnetometer and electric piezocone penetrometers operated from a 20 tonne CPT truck. Cone magnetometer tests were performed at 20 locations (CPT301 to CPT320) to a maximum depth of 20 m, see summary of tests in Table 1. The test plots are presented in Appendix D. Piezocone testing was also carried out at these locations to a maximum depth of 24.3 m, see Table 2. At locations CPT302 and 307 additional attempts were made to try to achieve greater penetration depth. Dissipation tests were carried out at locations and depths instructed by Arup.

CPT was carried out in accordance with Part 9 of BS 1377 (1990). The serial numbers of the cones used are indicated on the test plots. The calibration certificates are included in Appendix D and provides details of the manufacturer, cone dimensions, capacity and geometry.

Any opinions and interpretations presented are outside the scope of the UKAS accreditation for cone penetration testing.

4.2 Data Processing

Test control and data acquisition during CPT was carried out using CPTest, a proprietary software supplied by Geomil Equipment BV of Holland. The measured cone end resistance, sleeve friction, dynamic porewater pressure and inclination were recorded at 1 cm intervals of penetration.

Interpretation of the data was carried out using Geomil's CPTask software. The interpretation follows the recommendations of Lunne et al (1997) to derive (where appropriate): friction ratio, pore pressure ratio, undrained shear strength (minimum and maximum range presented using typical cone factors of 20 and 12 respectively), relative density, angle of friction and soil type. The soil classification uses the soil behaviour type chart of Robertson (1990). A nominal groundwater level at 1.5 m below ground level has been used in the interpretation.

Explanation of the terms used and derivations of the cone and soil parameters are given in the Key in Appendix D. The data are presented as plots relative to depth below ground level on the CPT logs in Appendix D. The records of dissipation tests as pore pressure against time are also included in Appendix D.

5 LABORATORY TESTING

5.1 Geotechnical Testing

Geotechnical laboratory testing was scheduled by Ove Arup & Partners and was carried out in accordance with BS 1377 (1990), BS EN ISO 17892 (2014) Part 1 and ISRM (2007) unless otherwise stated. The testing is summarised below and the results are presented in Appendix E.

- Water Content Determination
- Saturated Moisture Content of Chalk
- Atterberg Limit Determination
- Particle Density
- Particle Size Distribution Analysis
- Acid Soluble Sulphate Content, Water Soluble Sulphate Content, Total Sulphur Content and pH Value of Soils.
- Organic Matter Content
- Dry Density/Moisture Content Relationship (Light 2.5 kg and Heavy 4.5 kg Compaction)
- One Dimensional Oedometer Consolidation Testing
- Unconsolidated Undrained Triaxial Compression Testing
- Consolidated Undrained Triaxial Compression Testing
- Unconfined Compressive Strength Testing
- Point Load Index

5.2 Geoenvironmental Testing

Geoenvironmental laboratory testing was scheduled by Ove Arup & Partners on soil samples recovered during the fieldwork. The testing was carried out by the laboratory at Burton-on-Trent. The results are presented in Appendix F.

TABLE 2 : SUMMARY OF GEOENVIRONMENTAL LABORATORY TESTING

TYPE	**REMARKS**
Ove Arup & Partners Suite E1, E3, E4 and E9	
Antimony, Arsenic, Beryllium, Boron (water soluble), Cadmium, Chromium - total, Chromium VI, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Vanadium, Zinc, Cyanide (total), Total Organic Carbon, pH, TPH CWG, BTEX, PAH USEPA 16, Phenols - total	36No
Ove Arup & Partners Suite E2	
Asbestos screen and ID	12No
Ove Arup & Partners Suite E5	
Volatile Hydrocarbons and Semi-Volatile Hydrocarbons	16No
Ove Arup & Partners Suite E6	
Polychlorinated Hydrocarbons WHO 12	8No
Ove Arup & Partners Suite E10	
Speciated Phenols	9No
Ove Arup & Partners Suite H and I	
Waste Acceptance Criteria (WAC)	17No

REFERENCES

AGS : 2010 : Electronic transfer of geotechnical and geoenvironmental data (Edition 4 including Addendum 3. October 2011). Association of Geotechnical and Geoenvironmental Specialists.

BGS England and Wales Sheet 80 : 1983 : Kingston upon Hull. 1:50000 geological map (solid). British Geological Survey.

BGS England and Wales Sheet 80 : 1983 : Kingston upon Hull. 1:50000 geological map (drift). British Geological Survey.

BGS Geology of Britain Viewer : 2015. www.bgs.ac.uk. 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 : 2015 : Code of practice for ground investigations. British Standards Institution.

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

BS EN ISO 14688-1:2002+A1 : 2013 : Geotechnical investigation and testing - Identification and classification of soil - Part 1 Identification and description. British Standards Institution.

BS EN ISO 14688-2:2004+A1 : 2013 : 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 17892-1, Geotechnical investigation and testing – Laboratory Testing of soil – Determination of water content.

BS EN ISO 22475-1 : 2006 : Geotechnical investigation and testing – Sampling methods and groundwater measurements - Part 1 Technical principles for execution. British Standards Institution.

BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing - Part 3 Standard penetration test. British Standards Institution.

ISRM : 2007 : The Complete ISRM Suggested Methods for Rock Characterisation, Testing and Monitoring (1974-2006). Commission on Testing Methods, International Society for Rock Mechanics (Editors Ulusay R & Hudson JA).

Lunne T, Robertson PK and Powell JJM : 1997 : Cone Penetration Testing in Geotechnical Practice. Blackie Academic & Professional.

Robertson P K : 1990 : Soil classification using the cone penetration test. Canadian Geotechnical Journal, 27(1), 151-8

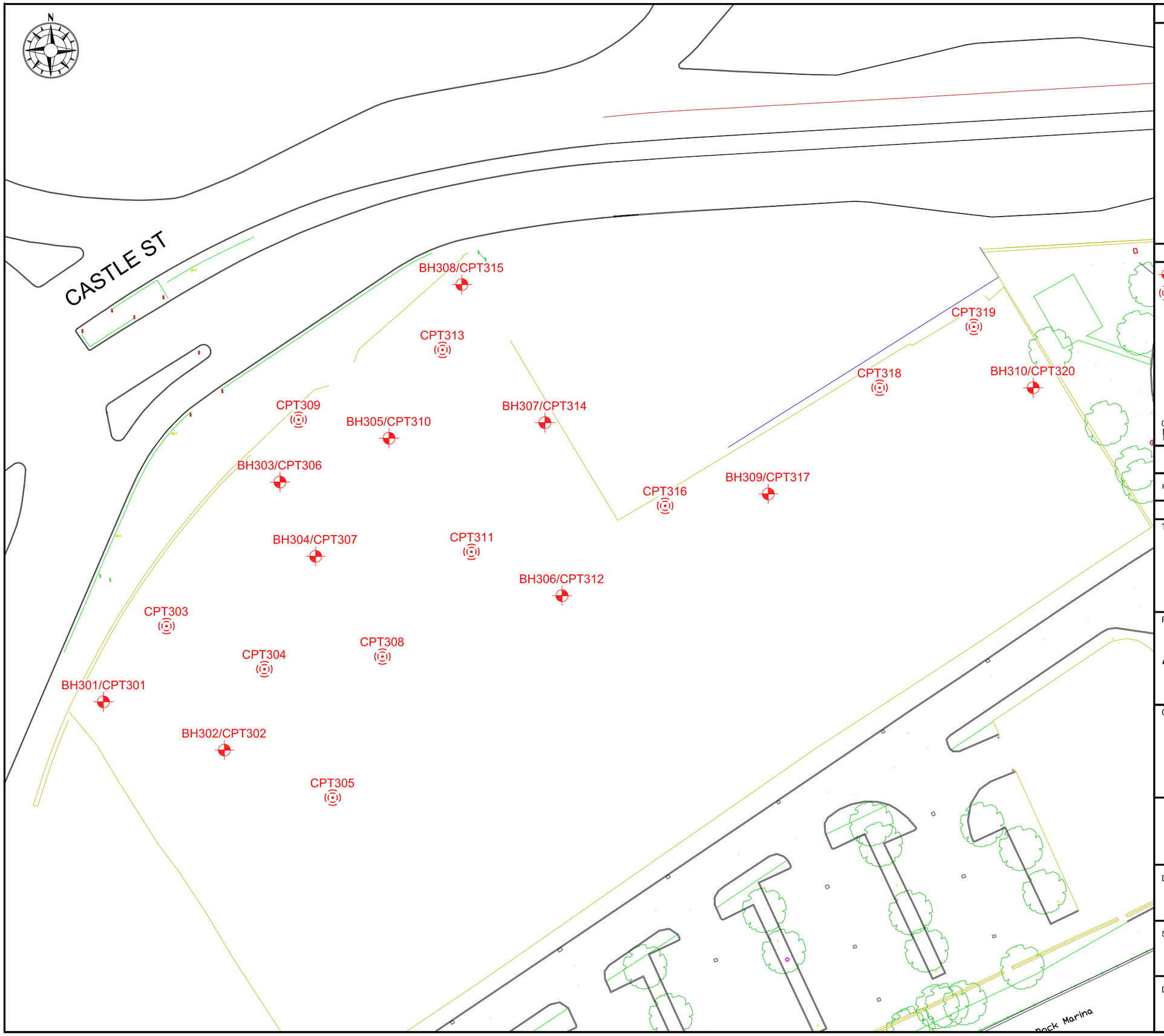
APPENDIX A

FIGURES AND DRAWINGS

Site Location Plan	A1
Site Plan	A2

Site Location Plan

Notes: Scale 1:50 000	**Project** TRINITY BURIAL GROUND **Project No.** A5049-15 **Carried out for** Balfour Beatty Limited	**Figure** **A1**



GENERAL NOTES

1. Reproduced from Balfour Beatty Limited's Drawing.

LEGEND TO SYMBOLS

Borehole Location

CPT Location

Scale: 1:500

0 5m 10 15 20 25

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

AMENDMENTS

Title

SITE PLAN

Project

TRINITY BURIAL GROUND,
A63 CASTLE STREET IMPROVEMENT,
HULL

Client

BALFOUR BEATTY LIMITED

ESG

Date	Drawn By	Approv. By
24/09/2015	BS	JL

Sheet Size	Scale	Project No
A3	1:500	A5049-15

Drawing No	Rev
A2	0

APPENDIX B

EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records	Key
SPT Hammer Energy Ratio Report	SPT Hammer Reference SM37 and AR1000
Borehole Logs	BH301, BH302, BH303, BH304, BH305, BH306, BH307, BH308, BH309 and BH310
Split Tube Sample Descriptions	BH302 (22), BH303 (23), BH304 (12), BH306 (27), BH307 (20), BH308 (19), BH309 (24) and BH310 (15)

Key to Exploratory Hole Records

SAMPLES

Undisturbed

U	Driven tube sample	nominally 100 mm diameter and full recovery unless otherwise stated
UT	Driven thin wall tube sample	
TW	Pushed thin wall tube sample	
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+A1:2011. 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 5930:2015

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

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

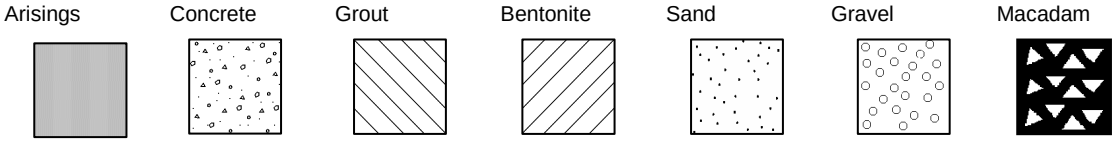
The installation of single point instruments is indicated on the Record. The location of the measuring device is shown in the Legend column.

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 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+A1:2013 and 14689-1:2003 respectively as amplified by BS 5930:2015.

2 For fine soils, consistency determined during description is reported for those strata where undisturbed samples are available. Where the logger considers that the sample may not be representative of the condition in situ, for whatever reason, the reported consistency is given in brackets. The reliability of the sample is indicated by Probably or Possibly as appropriate. Hence (Probably firm) indicates the logger is reasonably confident of the assessment, but (Possibly firm) means less certainty. Where the samples available are too disturbed to allow a reasonable assessment of the in situ condition, no consistency is given.

3 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.

4 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.

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

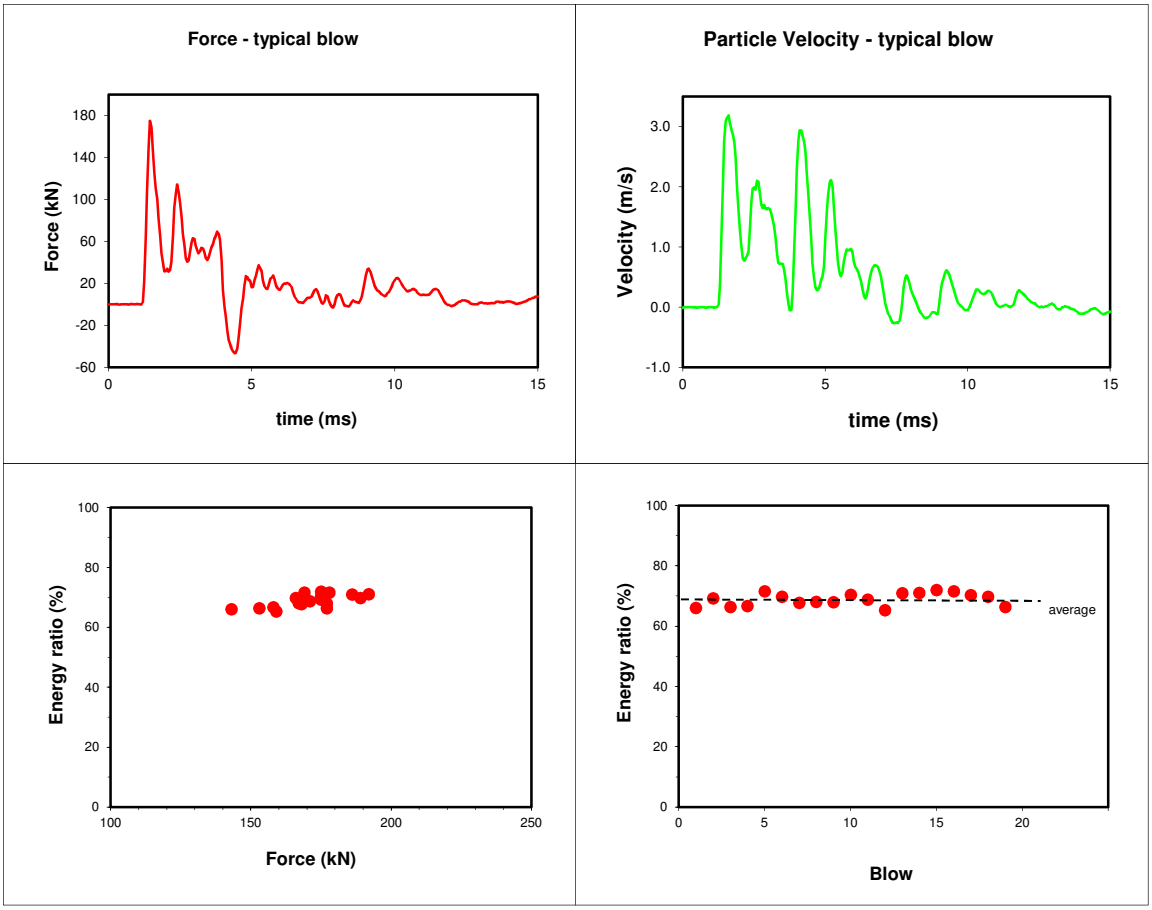
6 Water level observations of discernible entries during the advancing of the exploratory hole are given at the foot of the log and in the Legend column. The term "none observed" is used where no discrete entries are identified although this does not necessarily indicate that the hole has not been advanced 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 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.

7 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.

Hammer Energy Report

Date of test:	07/01/2015	**Hammer ID:**	SM37
		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)	206840 MPa	**Model:**	Automatic Trip Hammer
Length	0.60 m		
		Rig:	Dando 3000
Test rod type:	NWY	**Rig ID:**	CT62
		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 5.33mbgl, with a total blow count of 20. 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 20 blows* = **0.326 kN-m**

Energy ratio = $\frac{E_{meas}}{E_{theor}}$ = **69 %**

Test carried out by: Malcolm Carr

Signed for issue:

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

Equipment used: SPT Analyzer Serial No. 4032T

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref:	AR1000
Test Date:	14/07/2015
Report Date:	7/15/2015
File Name:	AR1000.spt
Test Operator:	SH

Instrumented Rod Data

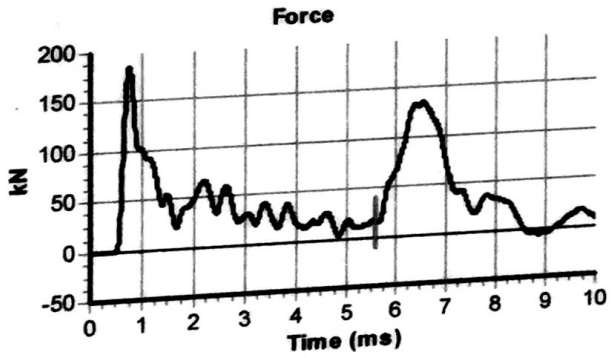
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.1
Assumed Modulus E_a (GPa):	200
Accelerometer No.1:	7079
Accelerometer No.2:	7080

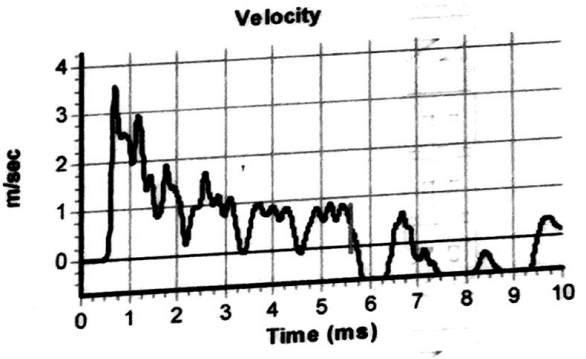
SPT Hammer Information

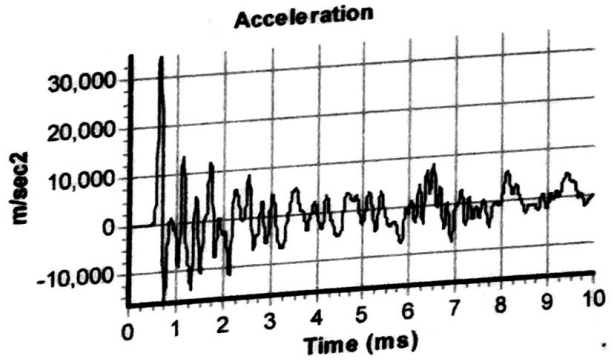
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	13.0

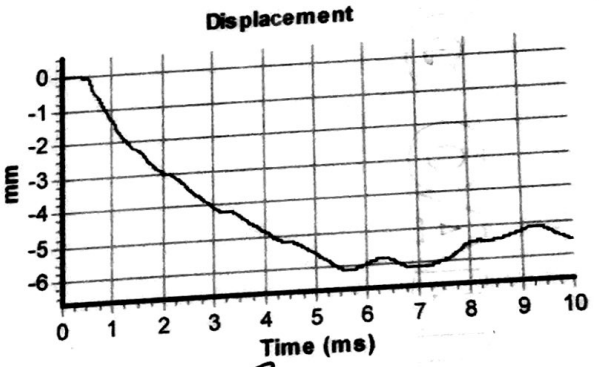
Comments / Location

CALIBRATION









Calculations

Area of Rod A	(mm2):	918
Theoretical Energy E_{theor}	(J):	473
Measured Energy E_{meas}	(J):	340

Energy Ratio E_r (%): **72**

Signed: S. HOWARTH

Title: FITTER

The recommended calibration interval is 12 months

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.01 mOD
Logged	RPH	26/05/2015	Geosonic Mini	0.00	37.00	100	37.00	**Coordinates (m)**	E 509383.93
Checked	JRL	**End**	Inspection pit machine excavated to 1.20m					**National Grid**	N 428372.57
Approved	LB	27/05/2015	Sonic drilling to 37.00m						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
0.15	ES 1			
0.15 - 0.20	B 2			
0.20	D 3			
0.30 - 0.50	B 4			
0.50	ES 5			
		100		
1.20 - 1.50		NA		
		NA		
2.00 - 2.10		CS 6		
	80			
1.50 - 3.00	NA			
	NA			
3.00 - 4.50	40			
	NA			
	NA			
4.00 - 4.10		CS 7		
4.80 - 4.90		CS 8		
	100			
4.50 - 6.00	NA			
	NA			
6.00 - 7.50	80			
	NA			
	NA			
8.00 - 8.10		CS 9		
	80			
7.50 - 9.00	NA			
	NA			
	100			
	NA			
9.60 - 9.70	NA	CS 10		
9.00 - 10.50				

Strata Description

Main	Detail	Depth, Level (Thickness)
Firm dark brown slightly gravelly sandy CLAY with rootlets. Gravel is angular fine to medium of brick, sandstone and pottery. (TOPSOIL)		(0.20) 0.20 +2.81
Firm brown slightly gravelly sandy CLAY. Gravel is angular fine to coarse of brick, sandstone, chalk and pottery. Occasional to frequent intact human skulls and bones. (MADE GROUND)	0.60-1.20 Intact human skulls. Baby/ infant skulls and bones	(1.00) 1.20 +1.81
Firm dark brown slightly sandy slightly gravelly silty CLAY with low cobble content. Gravel is angular to subrounded fine to coarse of various lithologies including flint, chalk, concrete and sandstone. Cobbles are concrete. Occasional plant roots up to 10mm. (MADE GROUND)	1.50-1.70 AZCL 1.70-2.45 Occasional pockets of dark brown clay	(1.25) 2.45 +0.56
Firm thinly laminated dark brown and orangish brown CLAY with occasional grey silt parting. (MADE GROUND)	2.70 Base of burial ground	(0.55) 3.00 +0.01
Soft indistinctly thinly laminated indistinctly fissured greyish brown slightly sandy silty CLAY. Occasional gravel size shell fragments. Dusting of fine sand on laminae surfaces.	3.00-3.90 AZCL	(3.00) 6.00 -2.99
Soft indistinctly thinly laminated greyish brown slightly organic very sandy CLAY. Occasional grey and brown silt dusting on laminae surfaces.	6.00-6.30 AZCL	(1.80) 7.80 -4.79
Greyish brown and grey silty fine, becoming fine to coarse, SAND with occasional dark grey and black clayey organic silt pockets. Occasional angular to subrounded fine to medium gravel size shell fragments.	7.50-7.80 AZCL 9.25-9.50 Becoming fine to coarse	(1.70) 9.50 -6.49
Firm dark brown oxidising to black slightly sandy organic silty CLAY. Occasional gravel size shell fragments.		(0.30) 9.80 -6.79

Hole continues on next sheet

Legend

Backfill

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
0.00 - 37.00	Groundwater not observed
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH301

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.01 mOD
Logged	RPH	26/05/2015	Geosonic Mini	0.00	37.00	100	37.00	**Coordinates (m)**	E 509383.93
Checked	JRL	**End**	Inspection pit machine excavated to 1.20m					**National Grid**	N 428372.57
Approved	LB	27/05/2015	Sonic drilling to 37.00m						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.10 - 10.20		CS 11			Firm thinly to thickly laminated fissured greenish grey and brown slightly sandy silty CLAY with frequent dark brown fibrous peat pockets. Occasional gravel size shell fragments. Frequent dusting of light brown silt on laminae surfaces. Fissures are randomly orientated, extremely closely spaced.		(2.00)		
10.50 - 12.00	100 NA NA								
11.90 - 12.00		CS 12			Firm dark brown oxdising to black slightly sandy slightly organic silty CLAY. Occasional wood fragments, up to 5mm.		11.80 -8.79 (0.20) 12.00 -8.99		
12.00 - 13.50	100 NA NA				Stiff greenish grey, locally slightly gravelly, sandy CLAY with occasional slightly gravelly fine to coarse sand bands/pockets. Sand is fine to coarse.	12.70-12.80 Fine to coarse slightly gravelly sand band/ pocket. Gravel is angular to subrounded fine to coarse of chalk and flint.	(1.50)		
12.90 - 13.00		CS 13							
13.50 - 15.00		B 20			Greyish brown very gravelly silty fine to coarse SAND. Gravel is angular to subrounded fine to coarse of various lithologies including flint, chalk, sandstone and quartzite.	13.20-13.35 Slightly gravelly 13.50-14.00 AZCL	13.50 -10.49		
13.50 - 15.00	33 NA NA						(2.40)		
						15.00-15.50 AZCL			
15.60 - 15.70	67 NA NA	CS 14							
15.00 - 16.50									
					Stiff greyish brown sandy silty CLAY. Sand is fine.		15.90 -12.89		
16.20 - 16.30		CS 15					(0.60)		
					Stiff thinly to thickly laminated greyish brown, locally slightly gravelly, slightly sandy silty CLAY with occasional slightly gravelly fine to medium sand bands/pockets. Occasional dusting of fine sand on laminae surfaces.		16.50 -13.49		
16.50 - 18.00	100 NA NA								
						18.00-18.35 AZCL			
18.00 - 19.50	77 NA NA								
						18.93-18.97 Light brown slightly gravelly fine to medium sand. Gravel is angular to subrounded fine to coarse of chalk 19.60-19.80 Occasional dark grey and black			

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH301

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.01 mOD
Logged	RPH	26/05/2015	Geosonic Mini	0.00	37.00	100	37.00	**Coordinates (m)**	E 509383.93
Checked	JRL	**End**	Inspection pit machine excavated to 1.20m					**National Grid**	N 428372.57
Approved	LB	27/05/2015	Sonic drilling to 37.00m						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.10 - 20.20 19.50 - 21.00	100 NA NA	CS 16				slightly gravelly fine sand. Gravel is angular to subrounded fine to coarse of chalk 20.50-22.50 Occasional dusting of light brown and grey silt and fine sand on laminae surfaces	(7.15)		
21.00 - 22.50	100 NA NA								
22.50 - 24.00	100 NA NA					23.10-23.15 Occasional dark grey fine sand 23.35-23.40 Slightly gravelly. Gravel is subangular fine to medium of chalk	23.65 -20.64		
			26/06/15 24.00	1800	Dark orangish brown slightly gravelly very silty fine to medium, locally coarse, SAND. Gravel is angular to subrounded, fine to medium of chalk and flint.				
24.00 - 24.70		B 18	27/05/15 24.00	0800 1.80					
24.40 - 24.50		CS 17							
24.00 - 25.50 24.90 - 25.80	100 NA NA	B 19					(3.15)		
25.50 - 27.00	87 NA NA					25.50-25.70 AZCL			
					CHALK recovered as cream slightly sandy gravelly SILT with low cobble content. Gravel is very weak, low density, white with rare black specks, angular to subrounded. Cobbles are very weak to weak, low to medium density. Occasional flint gravel.		26.80 -23.79		
27.00 - 28.50	100 0 0					27.29-27.32 Light grey silt			
28.50 - 30.00	100 0 0					29.85-29.90 Flat cobble			
					Hole continues on next sheet				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks	
Depths (m)	Remarks

Hard Boring		
Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH301

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.01 mOD
Logged	RPH	26/05/2015	Geosonic Mini	0.00	37.00	100	37.00	**Coordinates (m)**	E 509383.93
Checked	JRL	**End**	Inspection pit machine excavated to 1.20m					**National Grid**	N 428372.57
Approved	LB	27/05/2015	Sonic drilling to 37.00m						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.00 - 31.50	100 0 0								
31.50 - 33.00	100 0 0						(10.20)		
33.00 - 34.50	57 0 0					32.70-33.00 Fragmented subrounded cobble; very weak to weak low to medium density 33.00-33.65 AZCL			
34.50 - 35.20	100 0 0								
35.20 - 36.00	100 0 0								
36.00 - 37.00	100 0 0					36.90-37.00 Occasional cobbles; very weak low density			
					END OF EXPLORATORY HOLE		37.00 -33.99		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH301

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.08 mOD
Logged	GS/RM/TC	11/06/2015	Dando 175 Machine excavated inspection pit to 1.20m Cable percussion to 27.85m SPT Hammer ID: AR1000, Rod type: NWY.	0.00	27.85	200	27.00	**Coordinates (m)**	E 509396.51
Checked	JRL	**End**						**National Grid**	N 428365.25
Approved	LB	18/06/2015							

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
0.20	ES 1			
0.20 - 0.30	B 2			
0.30	D 3			
0.40	ES 4			
0.45	B 5			
0.70	ES 6A			
0.80	D 7A			
2.00	ES 6			
2.00 - 2.50	B 7		11/06/15	1800 dry
2.50 - 3.50	P 8	40% rec	12/06/15	0800 dry
3.50	ES 10	15 blows Split and describe record unavailable		
3.50 - 3.95	U 9			
4.00 - 5.00	P 11	100% rec	4.00	3.90
5.00 - 5.45	U 12	12 blows		
5.50	D 13	14 blows		
5.50 - 5.95	U 14			
6.00	D 15	100% rec	6.00	damp
6.00 - 7.00	P 16			
7.25 - 7.70	U 17	15 blows		
7.75	D 18	100% rec	7.50	damp
7.75 - 8.75	P 19			
9.00 - 9.45	U 20	15 blows		
9.50	D 21	15 blows		
9.50 - 9.95	U 22			
		19 blows		

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Firm dark brown slightly gravelly sandy CLAY. Gravel is angular fine to coarse of brick and chalk. Occasional rootlets. (TOPSOIL)		(0.30) 0.30 +2.78		
Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of brick and chalk. Occasional skull and bone fragments. (MADE GROUND)	0.90 Small bone fragments 1.00 Bones and skull bones 1.15 Bones, darker organic preservation, iron staining present	(1.70)		
Firm thinly laminated greyish brown, locally mottled orangish brown and grey, slightly sandy silty CLAY with occasional dark orangish brown silty fine sand dustings and partings. Occasional dustings of silt and fine sand on laminae surfaces.	2.00 Believed base of burial ground 2.00-2.50 Rootlet and rootlet tracks 2.57 3mm orangish brown fine sand lens	2.00 +1.08		
	4.00-5.00 Becomes thinly and thickly laminated	(3.00)		
Soft thinly and thickly laminated greyish brown slightly sandy CLAY.	5.00-5.45 Frequent lenses of land brown sand, up to 5mm	5.00 -1.92		
	5.50-5.95 Frequent vertical to subvertical fissures <12mm length	(1.00)		
Soft, locally firm, thinly laminated greyish brown, occasionally light brown, silty CLAY with extremely closely spaced fine sand and silt laminations.	6.00-7.00 Locally firm; occasional pockets of light brown silty clay	6.00 -2.92		
		(1.25)		
Soft indistinctly laminated greyish brown slightly sandy CLAY with rare light brown fine sand pockets <15mm.		7.25 -4.17		
		(0.50)		
Firm thinly to thickly laminated dark greyish brown silty CLAY with thick clayey silt laminations <15mm and occasional light brown fine sand laminations.		7.75 -4.67		
		(1.00)		
Very soft, locally soft, indistinctly thinly to thickly laminated dark brownish grey slightly sandy CLAY with occasional brown fine to medium sand pockets <5mm.	9.00-9.35 Very soft, locally soft 9.15-9.20 Randomly orientated extremely closely spaced fissures	8.75 -5.67		
		(0.75)		
Firm thinly and thickly laminated light to dark greyish brown slightly sandy silty CLAY. Frequent gravel size carbonaceous pockets. Impersistent randomly orientated		9.50 -6.42		
Hole continues on next sheet	10.00-10.10 Locally stiff	(1.00)		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	4.00	Rose to 3.90 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH302

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.08 mOD
Logged	GS/RM/TC	11/06/2015	Dando 175	0.00	27.85	200	27.00	**Coordinates (m)**	E 509396.51
Checked	JRL	**End**	Machine excavated inspection pit to 1.20m					**National Grid**	N 428365.25
Approved	LB	18/06/2015	Cable percussion to 27.85m SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests / Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.00	D 23				fissures.				
10.00 - 10.45	U 24					10.10-10.44 Rare subvertical fissures, <7mm length			
10.00 - 10.50	B 25		12/06/15	1800					
			10.50	damp					
10.50 - 11.50	P 26	100% rec	15/06/15	0800	Firm, locally indistinctly thinly to thickly laminated dark greyish brown slightly peaty, locally peaty, silty CLAY. Peat is pseudofibrous with pant remains up to 20mm.		10.50 -7.42		
			10.50	9.30		10.71 Wood remains 60x8mm. Occasional impersistent planar fissure surfaces throughout			
							(1.71)		
11.50 - 11.95	U 27	25 blows				11.50 Locally soft with black carbonaceous inclusions 11.54 Wood fragment			
12.00	D 28	20 blows							
12.00 - 12.45	U 29					12.00-12.20 Locally stiff	12.21 -9.13		
12.50	D 30	20 blows Split and			Firm dark brown oxidising black pseudofibrous to fibrous PEAT. Occasional wood fragments up to 20mm.				
12.50 - 12.95	U 31	describe record unavailable					(0.79)		
13.00	D 32	26 blows Split and	12.00	13.00	Firm indistinctly thinly laminated brownish grey sandy CLAY with occasional silt dustings on laminae surfaces.		13.00 -9.92		
13.00 - 13.45	U 33	describe record unavailable					(0.50)		
13.50	D 34				Firm greenish grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of chalk and flint.		13.50 -10.42		
14.00 - 14.45	SPTS	N=15 (3,2/3,3,4,5)	13.00	4.20					
14.00 - 14.45	D 35								
14.00 - 14.50	B 36								
							(2.50)		
15.00 - 15.45	SPTS	N=17 (3,3/3,4,5,5)	15.00	4.70					
15.00 - 15.45	D 37								
15.00 - 15.50	B 38								
16.00 - 16.45	SPTS	N=16 (3,3/4,4,4,4)	16.00	5.90	Stiff greyish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of chalk, sandstone, flint and various igneous lithologies.	16.00-16.58 Gravelly fine to coarse SAND	16.00 -12.92		
16.00 - 16.45	D 39								
16.00 - 16.50	B 40								
16.50 - 16.95	U 41	60 blows					(1.10)		
17.00	D 42	70 blows				17.00-17.10 Locally firm			
17.00 - 17.45	U 43				Stiff indistinctly laminated slightly gravelly slightly sandy CLAY. Gravel is subangular fine to medium of chalk.		17.10 -14.02		
							(0.40)		
17.50	D 44	85 blows			Stiff, locally firm, friable indistinctly thinly laminated indistinctly fissured greyish brown CLAY with occasional dusting of fine sand on laminae surfaces. Fissures are randomly orientated, closely spaced.		17.50 -14.42		
17.50 - 17.95	U 45								
18.00 - 18.45	SPTS	N=19 (4,4/5,4,5,5)	17.50	15.60		18.00-18.50 Rare subangular fine chalk gravel	(1.00)		
18.00	D 46								
18.00 - 18.45	D 47								
18.00 - 18.50	B 48								
18.50 - 18.95	U 49	65 blows				18.50-18.73 Slightly gravelly 18.58 20mm orangish brown sand parting 18.68 4mm black sand parting 19.00-19.15 Soft	18.50 -15.42		
					Stiff, locally firm, occasionally thinly laminated greyish brown slightly gravelly CLAY with very closely spaced orangish brown fine to medium sand partings, up to 5mm. Gravel is subrounded to rounded fine of chalk. Occasional dustings of brown silt along laminae surfaces. Occasional indistinct randomly orientated, closely spaced fissures.		(0.65)		
19.00	D 50	70 blows					19.15 -16.07		
19.00 - 19.45	U 51						(0.35)		
19.50	D 52	100 blows No Recovery			Firm thinly and thickly cross laminated greyish brown, locally brown and black, slightly gravelly clayey SILT with occasional inclined sand laminations at 50deg. Gravel is subangular to		19.50 -16.42		
19.50 - 19.95	U NR								
19.50 - 20.00	B 54								

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
2	13.30	Rose to 11.90 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH302

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.08 mOD
Logged	GS/RM/TC	11/06/2015	Dando 175	0.00	27.85	200	27.00	**Coordinates (m)**	E 509396.51
Checked	JRL	**End**	Machine excavated inspection pit to 1.20m					**National Grid**	N 428365.25
Approved	LB	18/06/2015	Cable percussion to 27.85m SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.00 - 20.45 20.00 - 20.45 20.00 - 20.50	SPTS D 55 B 56	N=20 (4,3/4,5,5,6)	19.00	16.70	subrounded fine to coarse chalk and flint. Dustings of silt and fine sand on laminae surfaces.		(1.50)		
20.50 - 20.95	U 57	60 blows			Firm, becoming stiff, thinly laminated greyish brown, locally slightly gravelly, CLAY. Occasional fine sand dustings on laminae surfaces. Occasional sand partings. Gravel is subrounded medium of chalk.	20.67-20.71 Irregular extremely closely spaced orangish brown silty sand partings <10mm	21.00 -17.92		
21.00 21.00 - 21.45	D 58 U 59	60 blows					(0.50)		
			15/06/15 21.00	1800 18.60	Firm, locally soft and very stiff, thinly laminated and locally thickly laminated greyish brown slightly sandy silty CLAY, locally with low cobble content. Frequent silt dustings and occasional fine sand dustings on laminae surfaces. Cobbles are subrounded of chalk.	20.79 Orangish brown silty fine to medium sand parting <3mm; 2No subrounded medium chalk gravel	21.50 -18.42		
21.50 21.50 - 21.95	D 60 U 61	65 blows	16/06/15 21.00	0800 12.00			(0.50)		
22.00 - 22.44 22.00 22.00 - 22.45 22.00 - 22.50	SPTS D 62 D 63 B 64	50 (8,10/12,12,13,13 for 70mm)	21.70	8.70	Very stiff indistinctly laminated brown CLAY with low cobble content. Rare light brown silt dustings on laminae surfaces. Cobbles are subrounded of chalk.	20.82 6mm orangish brown silty fine sand parting 21.00-21.20 Soft; occasional steep fissures <10mm 21.50 Rare fine black sand on laminae surfaces 21.50-21.95 Stiff; low cobble content 22.00-22.45 Thin and thick laminations of light greyish brown fine sand 22.50-22.69 Soft	22.00 -18.92		
22.50 - 22.95	U 65	80 blows			Firm, locally soft and very stiff, thinly laminated and locally thickly laminated greyish brown slightly sandy silty CLAY, locally with low cobble content. Frequent silt dustings and occasional fine sand dustings on laminae surfaces. Cobbles are subrounded of chalk.		(1.00)		
23.00 23.00 - 23.45 23.00 - 23.50	D 66 U NR B 68	80 blows No Recovery			Very dense greyish brown gravelly clayey silty fine to medium SAND. Gravel is subangular to subrounded fine to coarse of chalk, flint and sandstone. (Possible FLUVIOGLACIAL SAND and GRAVEL)		23.00 -19.92		
23.50 - 23.94 23.50 - 23.95 23.50 - 24.50	SPTS D 69 B 70	50 (8,12/14,18,18 for 63mm)	22.50	8.60			(2.00)		
25.00 - 25.38 25.00 - 25.45 25.00 - 25.50	SPTS D 71 B 72	50 (10,11/12,16,18,4 for 8mm)	24.50	10.35	CHALK recovered as silty gravelly SAND with low cobble content. Gravel is very weak, low density, cream. Cobbles are weak cream. Matrix is cream and light grey. Occasional flint gravel. (BURNHAM CHALK FORMATION)		25.00 -21.92		
26.50 - 26.70 26.50 - 26.95 26.50 - 27.00	SPTS D 73 B 74	50 (15,10 for 39mm/40,10 for 12mm)	26.00	9.70			(2.85)		
27.70 - 27.85 27.70 - 27.85	SPTS D 75	50 (19,6 for 35mm/50 for 40mm)	16/06/15 27.00 ~~27.00~~	1800 8.80 ~~8.80~~	END OF EXPLORATORY HOLE		27.85 -24.77		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
23.80 - 24.00	45	
27.00 - 27.70	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH302

Borehole Log

Drilled	SK	Start	26/05/2015
Logged	RM/GS/TC	End	03/06/2015
Checked	JRL		
Approved	LB		

Equipment, Methods and Remarks

Dando 175
Machine excavated inspection pit to 1.20m
Cable percussion to 30.00m
SPT Hammer ID: AR1000, Rod type: NWY

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	2.00	250	2.00
2.00	30.00	200	28.50

Ground Level	3.11 mOD
Coordinates (m)	E 509401.89
National Grid	N 428396.49

Samples and Tests

Depth	Type & No	Records	Date / Casing	Time / Water
0.20	ES 1A			
0.20 - 0.30	B 2A			
0.30	D 3A			
0.50	ES 4A			
0.60 - 1.00	B 5A			
0.80	D 6A			
2.20 - 2.65	U 1	30 blows	2.00	dry
2.70	ES 7A	20 blows	2.70	dry
2.70	D 2			
2.70 - 3.15	U 3			
3.20	D 4	100% rec	3.00	damp
3.20 - 4.20	P 5			
			26/05/15 4.20	1800 damp
4.20 - 4.65	U 6	15 blows Split and describe record unavailable	27/05/15 4.20	0800 4.10
4.70	D 7	15 blows	4.50	4.00
4.70 - 5.15	U 8			
5.20	D 9	20 blows Split and describe record unavailable	4.50	damp
5.20 - 5.65	U 10			
5.70	D 11	100% rec	5.50	damp
5.70 - 6.70	P 12			
6.70 - 7.15	U 13	20 blows	6.00	dry
7.20	D 14	20 blows	7.00	6.70
7.20 - 7.65	U 15			
7.70	ES 13A	20 blows No Recovery	7.50	7.10
7.70	D 16			
7.70 - 8.15	U NR			
7.70 - 8.20	B 18			
8.20 - 9.20	P 19	100% rec	7.50	6.90
9.20 - 9.65	U NR	15 blows No Recovery	9.00	8.20
9.70	D 21	20 blows Split and describe record unavailable	9.00	9.30
9.70 - 10.15	U 22			
9.70 - 10.20	B 23			

Strata Description

Main	Detail	Depth (Thickness)	Level
Soft dark brown sandy CLAY. Frequent rootlets. (TOPSOIL)		0.10 (0.10)	+3.01
Dark brown slightly gravelly clayey fine to medium SAND Gravel is angular fine to medium of brick. (MADE GROUND)		0.30 (0.20)	+2.81
Firm brown sandy CLAY. (MADE GROUND) Below 0.90m, bone fragments mixed with soil.	0.90-1.20 Occasional bone fragments	(1.90)	
Firm thinly to thickly laminated fissured brown, locally mottled grey, slightly sandy silty CLAY. Frequent extremely closely spaced light brown orangish sand laminations. Fissures are subvertical and subhorizontal, very closely spaced, planar, occasional reddish brown staining. Occasional roots up to 2mm.	2.20 Believed base of burial ground 2.20-2.34 Locally stiff 2.25 5mm sand parting, inclined at 20-25deg	2.20 (1.00)	+0.91
Firm thinly laminated dark greyish brown organic slightly sandy silty CLAY. Dustings of light brown fine sand on laminae surfaces.	3.34 Inclined 5mm sand lens	3.20 (1.50)	-0.09
Firm, locally soft, thinly laminated dark brownish grey sandy clayey SILT. Dustings of fine sand on laminae surfaces.		4.70 (1.00)	-1.59
Firm, locally stiff, indistinctly cross thinly laminated fissured dark brownish grey oxidising brown clayey organic SILT with dustings of fine sand on laminae surfaces at 20mm spacings. Fissures are closely spaced and randomly orientated.	5.76 Fine sand lens, up to 25mm	5.70 (1.00)	-2.59
Firm, locally soft, thinly laminated fissured dark greyish brown and brown slightly sandy silty CLAY with occasional partings of fine sand up to 10mm. Rare light brown silt dusting on laminae surfaces. Fissures are randomly orientated, extremely closely spaced.		6.70 (1.00)	-3.59
Firm thinly laminated dark greyish brown and brown sandy SILT. Occasional fine sand on laminae surfaces.	8.23 Orangish brown silty sand parting 8.30-8.33 Orangish brown silty sand parting	7.70 (2.00)	-4.59
Dark brownish grey organic silty fine to medium SAND.		9.70 (0.50)	-6.59

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	7.20	Rose to 6.60 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.
1.20 - 22.50	Water added to assist boring.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

AGS

Project	TRINITY BURIAL GROUND
Project No.	A5049-15
Carried out for	Balfour Beatty

Borehole **BH303**

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.11 mOD
Logged	RM/GS/TC	26/05/2015	Dando 175	0.00	2.00	250	2.00	**Coordinates (m)**	E 509401.89
Checked	JRL	**End**	Machine excavated inspection pit to 1.20m	2.00	30.00	200	28.50	**National Grid**	N 428396.49
Approved	LB	03/06/2015	Cable percussion to 30.00m SPT Hammer ID: AR1000, Rod type: NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.20 - 10.65	U 24	20 blows	10.00	9.70	Firm, locally soft, thinly and thickly laminated fissured greenish grey silty CLAY with rare dark grey soft sandy clay pockets. Fissures are randomly orientated, very closely spaced. Locally, fine sandy silt on lamination surfaces.	10.45 Dark grey and black sandy clay 10.70-10.95 Very soft to soft; rare peat fragments	10.20 -7.09 (1.55)		
10.70 10.70 - 11.15	D 25 U 26	25 blows	10.70	10.10					
11.20 11.20 - 12.20	D 27 P 28	Split and describe record unavailable 75% rec	11.20	damp		11.20 Tending to black oxidising dark brown pseudofibrous PEAT	11.75 -8.64		
12.20 - 12.65	U 29	70 blows	12.00	7.30	Firm, becoming stiff, dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium chalk, sandstone, siltstone and flint.		(1.45)	2	
12.70 - 13.15	U 30	80 blows Split and describe record unavailable	12.50	7.40		12.70 Becoming stiff			
13.20 13.20 - 13.65	D 31 U 32	75 blows	13.20	dry	Stiff thinly cross laminated brown mottled grey silty CLAY with occasional bands/pockets of very soft clay. Occasional dustings of fine sand on laminae surfaces and occasional pockets of subangular fine to medium chalk gravel. (GLACIAL TILL)	13.20-13.34 Slightly gravelly	13.20 -10.09 (0.50)		
13.70 13.70 - 14.15	D 33 U 34	75 blows	13.50	dry		13.87-12.90 Very soft clay	13.70 -10.59 (0.50)		
14.20 - 14.65 14.20 14.20 - 14.45 14.20 - 14.70	SPTS D 35 D 36 B 37	N=33 (5,7/7,8,8,10)	13.50	dry	Stiff indistinctly thinly laminated light brown CLAY. Rare light brown silt dusting on laminae surfaces. Occasional very soft grey sandy clay partings/ pockets.	14.00 Very soft clay pocket	14.20 -11.09		
14.70 - 15.15	U 38	120 blows	13.50	dry	Stiff fissured thinly and thickly laminated brown, locally slightly gravelly, CLAY. Occasional dustings of grey silt on laminae surfaces. Gravel is subangular fine to medium chalk. Fissures are randomly orientated, extremely closely to very closely spaced.	14.70 Laminations inclined 60-			
			27/05/15 15.00	1800 dry					
15.20 - 15.65	U 39	130 blows	28/05/15 15.00	0800 12.00		15.20 Friable with occasional polished fissures 15.29-15.34 Slightly gravelly clayey sand 15.70-15.86 Locally very stiff	(2.00)	3	
15.70 15.70 - 16.15	D 40 U 41	130 blows	15.00	dry					
16.20 - 16.65 16.20 16.20 - 16.65	SPTS D 42 D 43	N=33 (6,6/7,8,8,10)	15.00	dry	Stiff fissured thinly laminated brown CLAY. Fissures are randomly orientated, very closely space, locally polished with frequent light brown silt dustings on surfaces.		16.20 -13.09		
16.70 - 17.20	B 44								
17.20 - 17.65	U 45	120 blows 100% rec	15.00	dry		17.20 Becoming very stiff	(2.00)		
17.70 17.70 - 18.15 17.70 - 18.20	D 46 U NR B 48	120 blows No Recovery	15.00	damp					
18.20 - 18.65 18.20 - 18.65 18.20 - 18.70	SPTS D 49 B 50	N=29 (4,5/7,7,7,8)	15.00	damp	Stiff thinly to thickly laminated brown CLAY. Frequent orangish brown fine sand on laminae surfaces. Rare angular to subangular fine gravel of chalk.		18.20 -15.09		
18.70 - 19.15	U 51	95 blows	15.00	15.60		18.70-19.15 Slight gravelly 18.75 12mm orangish brown fine sand pocket 19.20 Becoming slightly sandy	(2.30)		
19.20 19.20 - 19.65	D 52 U 53	90 blows	15.00	15.90					
19.70	D 54	120 blows No Recovery							

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
2	12.20	Rose to 7.30 m after 20 minutes.	
3	18.70	Rose to 15.00 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH303

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.11 mOD
Logged	RM/GS/TC	26/05/2015	Dando 175	0.00	2.00	250	2.00	**Coordinates (m)**	E 509401.89
Checked	JRL	**End**	Machine excavated inspection pit to 1.20m	2.00	30.00	200	28.50	**National Grid**	N 428396.49
Approved	LB	03/06/2015	Cable percussion to 30.00m SPT Hammer ID: AR1000, Rod type: NWY						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.00 - 20.45 20.00 - 20.50	U NR B 56		19.50	15.80					
20.50 - 20.95	U 57	100 blows	19.50	15.20	Firm, becoming stiff, thinly to thickly, locally cross, laminated greyish brown CLAY. Sometimes brown and light brown silt partings <5mm and dusting on laminae surfaces. Occasional orangish brown fine to medium sand partings.	20.50-20.60 Locally firm	20.50 -17.39 (0.50)		
21.00 21.00 - 21.45	D 58 U 59	85 blows	21.00	13.40	Stiff thinly laminated, locally cross laminated, greyish brown slightly sandy silty CLAY. Laminations inclined at 40deg.	21.15-21.45 Cross laminated; frequent fine sand lenses <8mm. Rare chalk gravel	21.00 -17.89 (0.50)		
21.50 - 21.95 21.50 21.50 - 21.95 21.50 - 22.00	SPTS D 60 D 61 B 62	N=26 (4,5/5,6,7,8)	21.00	14.10	Stiff thinly to thickly laminated greyish brown silty CLAY with orangish brown silty fine sand partings. Fine sand on laminae surfaces. Partings typically inclined at 40-50deg.		21.50 -18.39 (1.50)		
22.00 - 22.45	U 63	100 blows	21.00	14.30					
22.50 - 22.94 22.50 22.50 - 22.95 22.50 - 23.00	SPTS D 64 D 65 B 66	50 (7,8/12,13,13,12 for 61mm)	21.00	14.20					
23.00 - 23.45	U 67	100 blows 73% rec	22.50	0.00	Firm thinly and thickly, locally cross, laminated brown slightly sandy silty CLAY. Extremely closely to very closely spaced orangish brown silty fine to medium sand partings, typically at 40-50deg. Rare subrounded to rounded fine to coarse gravel of chalk.		23.00 -19.89 (0.50)		
23.50 23.50 - 23.95 23.50 - 24.00	D 68 D 69 B 70		28/05/15 23.30	1800 0.00	Firm thinly to thickly laminated brown sandy SILT. Sand is fine. Frequent orangish brown fine sand and occasional subrounded fine to medium chalk gravel on laminae surfaces.		23.50 -20.39		
			29/05/15 23.30	0800 0.00			(1.00)		
24.50 - 24.95 24.50 - 24.95 24.50 - 25.00	SPTS D 71 B 72	N=15 (3,3/4,4,4,3)	24.00	1.30	Firm orangish brown slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subrounded fine to medium of chalk and flint. Cobbles are subangular chalk.		24.50 -21.39 (0.50)		
					CHALK recovered as slightly silty subangular GRAVEL. Gravel is weak, low density, light grey and cream.		25.00 -21.89		
25.30 - 25.75 25.50 - 25.95 25.50 - 26.00	SPTS D 73 B 74	N=39 (5,6/8,10,10,11)	25.50	2.60			(1.50)		
26.50 - 26.95 26.50 - 26.95 26.50 - 27.00	SPTS D 75 B 76	N=45 (7,8/10,11,11,13)	26.50	2.80	CHALK recovered as cream and light grey silty sandy GRAVEL with low cobble content. Gravel and cobbles are very weak, low density, cream, subangular.		26.50 -23.39		
27.50 - 27.90 27.50 - 27.95 27.50 - 28.00	SPTS D 77 B 78	50 (5,6/7,18,18,7 for 21mm)	27.00	3.30			(2.00)		
28.50 - 28.90 28.50 - 28.95 28.50 - 29.00	SPTS D 79 B 80	50 (8,8/12,14,15,9 for 27mm)	27.00	3.80	CHALK recovered as cream slightly gravelly sandy SILT. Gravel is extremely weak, low density and subangular. Occasional subangular flint gravel.		28.50 -25.39		
			29/05/15 28.50	1800 3.35					
			01/06/15 28.50	0800 3.60			(1.50)		
29.50 - 29.62 29.50 - 29.95 29.50 - 30.00	SPTS D 81 B 82	50 (25 for 70mm/50 for 48mm)	28.50	3.60					
			01/06/15 28.50	1800 3.60					
					END OF EXPLORATORY HOLE		30.00 -26.89		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
23.95 - 25.50	Water added to assist boring.

Hard Boring

Depths (m)	Duration (mins)	Tools used
28.00 - 28.50	45	
29.50 - 30.00	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH303

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.03 mOD
Logged	RM/GS	03/06/2015	Dando 175/Beretta T44	0.00	2.20	250	2.20	**Coordinates (m)**	E 509410.33
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.20	13.50	200	13.50		
Approved	LB	09/06/2015	Cable percussion to 13.50m, rotary core to 40.00m	13.50	40.00	146	40.00	**National Grid**	N 428390.32
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests / Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.20	ES 1				Dark greyish brown slightly gravelly clayey fine to coarse SAND. Gravel is angular fine to coarse of brick. Frequent rootlets. (TOPSOIL)		0.10 (0.10) +2.93		
0.20 - 0.30	B 2						(0.30)		
0.30	D 3						0.40 +2.63		
0.40 - 0.70	B 4				Greyish brown gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse of flint, chalk and brick. (MADE GROUND)				
0.70	B 5								
0.80	D 6						(0.80)		
1.20 - 1.65	SPTS	N=3 (1,0/1,1,1,0)		dry	Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of brick and chalk. Occasional human skulls and bones. (MADE GROUND)		1.20 +1.83		
1.20 - 1.65	D 7								
1.20 - 1.70	B 8						(0.60)		
					Firm, locally indistinctly laminated, orangish brown slightly sandy silty CLAY. Occasional dustings of light brown silt on laminae surfaces. Occasional rootlets up to 2mm and roots up to 4mm. (MADE GROUND)	1.80 Base of burial ground	1.80 +1.23		
2.00	ES 9								
2.20 - 3.20	P 10	50% rec	1.50	dry	Firm thinly to thickly laminated orangish brown, locally dark grey slightly sandy silty organic CLAY with dusting of silt and light orangish brown fine sand and silt on laminae surfaces. Occasional organic content.		(1.50)		
3.20 - 3.65	U 11	10 blows	1.50	dry			3.30 -0.27		
3.70	D 12	15 blows	3.50	dry	Firm thinly, locally thickly laminated, dark brownish grey to orangish brown silty organic CLAY with frequent dustings of fine sand on laminae surfaces. Occasional bands of soft thinly laminated greyish brown slightly sandy clay. Organic odour.	3.70-3.80 Slightly sandy slightly gravelly.	(0.90)		
3.70 - 4.15	U 13					3.93-4.15 5mm orangish brown fine sand lenses			
4.00	ES 15								
4.20	D 14				Soft, locally firm, thinly laminated greyish brown slightly sandy silty organic CLAY. Dustings of fine sand on laminae surfaces.		4.20 -1.17		
4.20 - 4.50	B 16					4.30-4.50 Locally clayey silt			
4.50 - 5.50	P 17	100% rec	4.50	4.10					
						4.92-5.50 Black carbonaceous material on laminae surfaces			
5.50 - 5.95	U NR	20 blows	4.50	4.10			(2.30)		
5.50 - 6.00	B 19								
6.00 - 6.45	U 20	20 blows	6.00	damp		6.00-6.17 Brownish grey slightly clayey silt			
6.50	D 21	100% rec	6.50	damp	Soft and firm thinly laminated greyish brown, locally orangish brown, slightly sandy silty CLAY with occasional black organic pockets <25mm, and fine sand laminations <3mm.	6.54 Inclined fissure surface	6.50 -3.47		
6.50 - 7.50	P 22					6.62 Inclined 8mm orangish brown silty sand laminations			
			03/06/15	1800			(1.50)		
			7.50	damp					
7.50 - 7.95	U 23	20 blows	~~7.50~~	~~dry~~					
8.00	D 24	25 blows	7.50	dry	Firm, locally stiff, thinly and thickly laminated dark greyish brown slightly sandy silty CLAY with occasional fine to coarse sand laminations, <5mm. Vegetative odour.	8.00-8.13 Thin fine sand laminations	8.00 -4.97		
8.00 - 8.45	U 25					8.00-8.17 Locally soft			
8.50	D 26	100% rec	8.50	dry		8.20-8.45 Locally stiff			
8.50 - 9.50	P 27						(1.50)		
						9.30-9.50 Fissured			
9.50 - 9.95	U 28	70 blows	8.50	dry	Medium dense thinly laminated dark grey and dark greenish grey, locally orangish brown, slightly silty fine to coarse SAND. Rare silt		9.50 -6.47		
							(1.00)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	4.30	Rose to 4.10 m after 20 minutes.	
2	10.00	Rose to 4.60 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH304

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.03 mOD
Logged	RM/GS	03/06/2015	Dando 175/Beretta T44	0.00	2.20	250	2.20	**Coordinates (m)**	E 509410.33
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.20	13.50	200	13.50	**National Grid**	N 428390.32
Approved	LB	09/06/2015	Cable percussion to 13.50m, rotary core to 40.00m	13.50	40.00	146	40.00		
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
10.00	D 29			
10.50 - 10.95	SPTS	N=13 (2,2/3,3,3,4)	10.50	
10.50 - 10.95	D 30			
10.50 - 11.00	B 31			
11.00 - 11.45	U 32	45 blows	10.50	4.40
11.50	D 33			
12.00 - 12.45	SPTS	N=13 (3,3/3,3,3,4)	10.50	
12.00 - 12.45	D 34			
12.00 - 12.50	B 35			
13.00 - 13.45	U 36	50 blows	10.50	4.70
			04/06/15	1800
13.50		D 37	13.50	4.90
	0		08/06/15	0800
13.50 - 14.25	NA		13.50	5.50
	NA			
	27			
14.25 - 15.00	NA			
	NA			
	67			
15.00 - 15.75	NA			
	NA			
	100			
15.75 - 16.50	NA	CS 38		
16.15 - 16.40	NA			
16.80 - 17.10		CS 39		
	100			
16.50 - 18.00	NA			
	NA			
	43			
18.00 - 19.50	NA			
	NA			

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
interlaminations.				
Firm thinly laminated indistinctly fissured greyish brown slightly organic slightly sandy silty CLAY with occasional fine sand lenses <3mm. Fissures are randomly orientated, extremely closely spaced. Dustings of fine sand on laminae surfaces.		10.50 -7.47 (0.45)		
Very soft thinly laminated, greyish brown sandy silty CLAY with occasional fine sand lenses. Dustings of light brown silt on laminae surfaces.		10.95 -7.92 (0.20)		
Firm thinly to thickly laminated sandy clayey SILT. Frequent dustings of fine sand on laminae surfaces.		11.15 -8.12 (0.85)		
Firm thinly laminated greyish brown sandy clayey SILT. Occasional dustings of fine sand on laminae surfaces.		12.00 -8.97 (1.00)		
Greyish brown and brown slightly silty PEAT. rare wood fragments.	13.00-13.25 Slightly silty peat.	13.00 -9.97 (0.25)		
Soft brown slightly gravelly sandy organic CLAY. Ocasional peat bands/pockets. Gravel is subrounded fine of chalk.		13.25 -10.22 (1.00)		
Brown to black fibrous PEAT with occasional plant remains.	14.25 Strata boundary uncertain 14.25-14.80 AZCL	14.25 -11.22 (0.75)		
Firm to stiff fissured indistinctly thinly to thickly laminated greyish brown, locally slightly gravelly, CLAY with low cobble content. Fissures are randomly orientated, extremely closely spaced. Occasional dustings of light brown silt and fine sand on laminae surfaces. Gravel is subangular to subrounded fine to coarse chalk, quartzite and igneous lithologies. Cobbles are chalk.	15.00-15.45 AZCL 15.45-15.50 Slightly gravelly; 1No. cobble (80x65mm) 16.50-16.75 AZCL 18.00-18.85 AZCL	15.00 -11.97 (3.85)		
Firm, locally stiff, thinly to thickly laminated greyish brown silty CLAY with occasional partings of orangish brown sand. Occasional light brown silt dusting on laminae surfaces.	18.85-19.50 Occasional light brown silt dusting on laminae surfaces 19.50-19.95 AZCL	18.85 -15.82		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH304

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.03 mOD
Logged	RM/GS	03/06/2015	Dando 175/Beretta T44	0.00	2.20	250	2.20	**Coordinates (m)**	E 509410.33
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.20	13.50	200	13.50	**National Grid**	N 428390.32
Approved	LB	09/06/2015	Cable percussion to 13.50m, rotary core to 40.00m	13.50	40.00	146	40.00		
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
19.50 - 21.00 20.25 - 20.65	77 NA NA	CS 40							
						21.00-21.10 AZCL			
21.00 - 21.75	87 NA NA						(4.65)		
						21.75-21.80 AZCL			
21.75 - 22.50	93 NA NA								
						22.50-22.85 AZCL			
23.00 - 24.00 22.50 - 24.00	77 NA NA	B 45							
							23.50 -20.47		
23.80 - 24.00		CS 41			Orangish brown slightly gravelly slightly silty fine to medium SAND. Gravel is angular to subrounded fine to medium of chalk and flint.				
24.00 - 25.00		B 43				24.00-24.50 AZCL			
24.00 - 25.50	67 NA NA						(2.75)		
25.00 - 25.20 25.00 - 25.50		B 44 CS 42				25.10-25.30 Occasional black fine sand			
			08/06/15 25.50	1730 1.00					
			09/06/15 25.50	0800 3.50		25.50-26.25 No recovery			
25.50 - 26.25	0 NA NA								
						26.25-26.60 AZCL	26.25 -23.22		
26.25 - 27.00	47 NA NA				Structureless CHALK composed of slightly sandy slightly silty subangular to subrounded fine to coarse GRAVEL and COBBLES. Clasts are very weak to medium strong, low to high density with traces of brown clay.		(0.75)		
						27.00-27.47 AZCL	27.00 -23.97		
27.00 - 27.75	37 0 0				Structureless CHALK composed of slightly sandy slightly silty subangular to subrounded GRAVEL with high cobble content. Gravel is very weak to weak, low density, white stained brown with occasional grey speckling. Cobbles are weak, medium density, white with brown staining and occasional grey speckling. Occasional fragmented small to medium flint gravel.	27.47-27.75 Heavy brown staining			
						27.75-27.95 AZCL			
27.75 - 28.50	73 0 0								
						28.40-28.50 light orangish brown staining			
28.50 - 29.25	47 0 0					28.50-28.90 AZCL			
29.10 - 29.25		CS 50							
						29.26-29.32 AZCL			
29.25 - 30.00	91 0 0					29.60-29.75 Small to medium flint gravel			
						30.00-30.35 AZCL			
					Hole continues on next sheet				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH304

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.03 mOD
Logged	RM/GS	03/06/2015	Dando 175/Beretta T44	0.00	2.20	250	2.20	**Coordinates (m)**	E 509410.33
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.20	13.50	200	13.50		
Approved	LB	09/06/2015	Cable percussion to 13.50m, rotary core to 40.00m	13.50	40.00	146	40.00	**National Grid**	N 428390.32
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Time Casing / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
						(6.55)		
30.00 - 31.50	77 0 0							
					31.35-31.50 Small to medium flint gravel 31.50-32.25 No recovery			
31.50 - 32.25	0 0 0							
					32.25-32.60 AZCL			
32.25 - 33.00	53 0 0				32.60-32.80 Small to medium flint gravel 33.00-33.35 NI			
						33.55 -30.52		
33.00 - 34.50	87 31 0			Medium strong, locally weak, medium to high density white CHALK. Bedding fractures are subhorizontal 0-10deg, extremely closely to closely spaced, planar and undulating rough, open with light orangish brown staining and white putty chalk infill up to 3mm. Joints subvertical 80-90deg, planar and undulating rough, light orangish brown staining. Subordinated joints, inclined 45-60deg, planar and undulating rough, light orangish brown staining and grey speckling. Occasional bands of fine to medium flint gravel and occasional flint cobbles. (BURNHAM CHALK FORMATION, Possibly Grade C4)	33.70-33.77 Flint cobble 33.90-34.00 NI 34.13-34.34 NI			
34.50 - 34.65		CS 51			34.42-34.50 NI 34.50-34.60 AZCL 34.60-34.70 NI	(1.87)		
					34.95-35.07 NI			
34.50 - 36.00 35.32 - 35.50	93 69 31	CS 48			35.30-35.42 NI			
				Weak, high density, white stained light brown with occasional grey speckling, CHALK. Bedding fractures are subhorizontal 0-10deg, very closely to medium spaced, planar and undulating rough, open with light brown staining and grey silt and chalk infill up to 3mm. Joints are subvertical 80-90deg, planar and undulating rough, open. Subordinate joints, inclined 45-75deg. No flint observed. (BURNHAM CHALK FORMATION, Possibly Grade B3)		35.42 -32.39		
35.73 - 36.00		CS 46			35.59-35.62 NI			
					36.00-36.30 AZCL			
					36.30-36.40 NI			
36.63 - 36.90 36.00 - 37.50	80 73 39	CS 47						
					37.50-37.65 AZCL			
					37.72-37.87 NI	(4.58)		
38.00 - 38.10		CS 49			38.10-38.22 NI			
37.50 - 39.00	90 67 35				38.30-38.47 Subordinate 45-60deg, closely spaced planar and stepped rough, open, with brown staining and grey silt infill up to 3mm			
					38.67-38.80 NI 39.00-39.25 AZCL 39.25-39.65 NI			
39.00 - 40.00	75 35 0							
					39.70-40.00 Subordinate 60-75deg, planar rough, open with brown staining			
39.90 - 40.00		CS 52	09/06/15 1800 40.00			40.00 -36.97		
				END OF EXPLORATORY HOLE				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH304

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.36 mOD
Logged	RPH	27/05/2015	Geosonic mini	0.00	37.00	150	36.00	**Coordinates (m)**	E 509421.84
Checked	JRL	**End**	Machine excavated trial pit to 1.20m					**National Grid**	N 428406.03
Approved	LB	02/06/2015	Sonic drilling to 37.00m						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.20	B 2					Dark brown clayey fine to coarse SAND. Frequent rootlets. (TOPSOIL)	0.00-1.20 No evidence of human remains encountered	0.10 (0.10) +3.26		
0.20 - 0.30	ES 1							0.30 (0.20) +3.06		
0.30	D 3					Brown slightly gravelly slightly clayey fine to coarse SAND. Gravel is angular fine to coarse of brick and pottery. (MADE GROUND)		(0.90)		
0.40	ES 4									
0.50 - 0.70	B 5					Firm brown slightly gravelly sandy CLAY. Gravel is angular fine to coarse brick. (MADE GROUND)				
0.80	D 6									
1.20			100 NA NA D 7			Firm indistinctly laminated greyish brown locally orangish brown slightly sandy silty CLAY. with occasional dark grey silty fine sand lenses/ pockets. Occasional shell fragments. Occasional roots up to 4mm and rootlets up to 2mm.	1.50-1.80 AZCL	1.20 +2.16		
1.20 - 1.50								(1.25)		
2.10 - 2.20	80 NA NA		CS 8							
1.50 - 3.00							2.35-2.45 Dark grey silty fine to medium sand 2.45-3.25 Occasional dark grey silty fine sand pockets	2.45 +0.91		
2.60 - 2.70			CS 9			Firm indistinctly laminated orangish brown slightly sandy slightly gravelly silty CLAY. Occasional dusting of brown silt and fine sand on laminae surfaces. Occasional gravel size shell fragments.		(0.80)		
3.00 - 4.50	100 NA NA					Soft, locally firm, thinly laminated dark grey slightly sandy silty CLAY. Occasional dusting of brown fine sand on laminae surfaces.		3.25 +0.11		
4.00 - 4.10			CS 10					(1.35)		
5.20 - 5.30	100 NA NA		CS 11			Soft, locally firm, thinly and thickly laminated greyish brown slightly sandy silty CLAY. Occasional brown and grey silt dusting on laminae surfaces.		4.60 -1.24		
4.50 - 6.00								(1.40)		
6.40 - 6.50			CS 12			Soft indistinctly laminated indistinctly fissured greyish brown slightly sandy silty CLAY.		6.00 -2.64		
6.00 - 7.50	100 NA NA							(1.40)		
7.90 - 8.00			CS 13			Soft, locally firm, brownish grey slightly sandy silty CLAY.		7.40 -4.04		
7.50 - 9.00	100 NA NA							(1.60)		
9.60 - 9.70	100 NA NA		CS 14			Soft thinly and thickly laminated brownish grey slightly sandy silty CLAY. Occasional grey and brown fine sand dusting on laminae surfaces.		9.00 -5.64		
9.00 - 10.50								(1.23)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH305

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.36 mOD
Logged	RPH	27/05/2015	Geosonic mini	0.00	37.00	150	36.00	**Coordinates (m)**	E 509421.84
Checked	JRL	**End**	Machine excavated trial pit to 1.20m					**National Grid**	N 428406.03
Approved	LB	02/06/2015	Sonic drilling to 37.00m						

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
11.00 - 11.10 11.00 - 12.00 10.50 - 12.00	100 NA NA		B 20 CS 15		
12.10 - 12.20 12.00 - 13.50	100 NA NA		CS 16		
13.50 - 15.00	83 NA NA				
15.30 - 15.40 15.00 - 16.50	100 NA NA	NA NA NA	CS 17		
16.50 - 18.00	90 NA NA			27/05/15	1800
18.00 - 19.50	53 NA NA			28/05/15	0800
19.80 - 19.90			CS 18		

Strata Description

Main	Detail	Depth, Level (Thickness)
Dark grey and greyish brown fine to coarse SAND with occasional black clayey slightly organic silt pockets. Frequent fine to medium gravel size shell fragments.		10.23 -6.87 (1.77)
Firm thinly laminated indistinctly fissured greenish grey and brown slightly sandy silty CLAY with occasional fine sand lenses up to 3mm. Occasional gravel size shell fragments. Dusting of fine sand and silt on laminae surfaces. Fissures are randomly orientated, extremely closely spaced.	13.50-13.75 AZCL	12.00 -8.64 (2.35)
Dark brown oxidising to black fibrous PEAT. Rare fragments of wood up to 5mm.		14.35 -10.99 (0.55)
Dark brownish grey gravelly slightly clayey fine to coarse SAND. Gravel is angular to subrounded, fine to coarse of chalk, flint and sandstone.		14.90 -11.54 15.00 (0.10) -11.64
Firm to stiff indistinctly thinly laminated greyish brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded, fine to coarse of chalk , flint and sandstone.		(1.65)
	16.50-16.65 AZCL	
Firm to stiff thinly and thickly laminated greyish brown slightly sandy, locally slightly gravelly, silty CLAY with rare orangish brown and dark grey and black fine sand lenses and brown slightly gravelly clay bands/lenses. Frequent dusting of light brown silt and brown fine sand on laminae surfaces.	16.65-16.70 Soft brown slightly gravelly clay. 18.00-18.70 AZCL	16.65 -13.29

Hole continues on next sheet

Legend

Backfill

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH305

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.36 mOD
Logged	RPH	27/05/2015	Geosonic mini	0.00	37.00	150	36.00	**Coordinates (m)**	E 509421.84
Checked	JRL	**End**	Machine excavated trial pit to 1.20m					**National Grid**	N 428406.03
Approved	LB	02/06/2015	Sonic drilling to 37.00m						

Samples and Tests

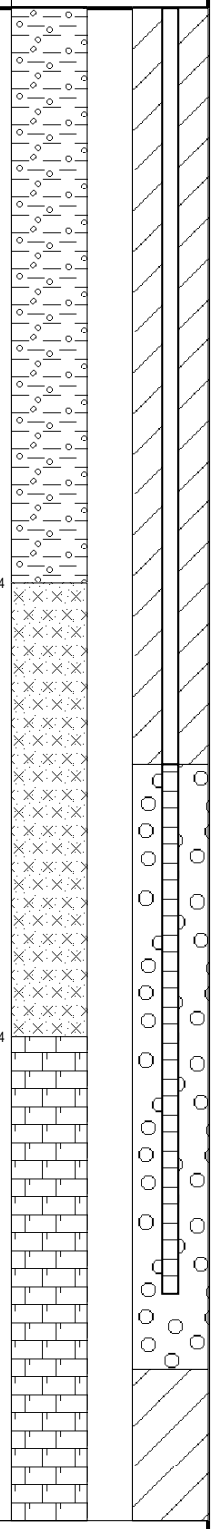
Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
19.50 - 21.00	100 NA NA				
21.00 - 22.50	100 NA NA				
22.50 - 24.00	100 NA NA				
24.50 - 24.60			B 21		
24.50 - 25.50	100 NA NA		CS 19		
24.00 - 25.50				28/05/15	1800
25.50 - 26.00			B 22	29/05/15	0800 1.70
25.50 - 27.00	87 NA NA		B 23		
26.25 - 27.00					
27.00 - 28.50	100 NA NA				
28.50 - 30.00	100 NA NA				

Strata Description

Main	Detail	Depth, Level (Thickness)
	22.30-22.35 Angular to subrounded fine to medium chalk and flint gravel	(7.15)
	23.10-23.15 Dark grey and black fine sand.	
Orangish brown, locally slightly gravelly, sandy SILT with occasional silty fine sand bands/lenses.	23.65-23.80 Subangular to subrounded fine to medium chalk gravel.	23.80 -20.44
	25.20-25.30 Rare subangular fine to medium chalk gravel 25.50-25.70 AZCL 25.70-26.20 Brown silty fine sand	(3.00)
CHALK recovered as cream, locally stained light brown, slightly sandy gravelly SILT with occasional cobbles. Gravel and cobbles are very weak, low density white with rare grey specks. Occasional small to medium flint gravel and cobbles.	27.00-27.15 Light orange brown staining	26.80 -23.44
	28.45-28.50 Flint cobble	
	28.90-29.00 Brown clay traces; small flint gravel	
Hole continues on next sheet	30.00-30.25 Flint cobble	

Legend

Backfill



Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks	
Depths (m)	**Remarks**

Hard Boring		
Depths (m)	**Duration (mins)**	**Tools used**

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH305

Borehole Log

Drilled	JW	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.36 mOD
Logged	RPH	27/05/2015	Geosonic mini	0.00	37.00	150	36.00	**Coordinates (m)**	E 509421.84
Checked	JRL	**End**	Machine excavated trial pit to 1.20m					**National Grid**	N 428406.03
Approved	LB	02/06/2015	Sonic drilling to 37.00m						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.00 - 31.50	100 NA NA	NA NA NA						(10.20)		
31.50 - 33.00	100 NA NA						32.18-32.25 Flint cobble			
33.00 - 34.50	100 NA NA						33.60-33.80 Occasional small to medium flint gravel			
34.50 - 36.00	100 NA NA						35.05-35.15 Clasts becoming weak low to medium density 35.40-35.50 Grey clay traces			
36.00 - 37.00	100 NA NA			29/05/15	1800		36.30-36.40 Grey clay traces; orange brown staining			
						END OF EXPLORATORY HOLE		37.00 -33.64		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks	
Depths (m)	Remarks

Hard Boring		
Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH305

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.12 mOD
Logged	RPH	08/06/2015	Dando 175	0.00	2.50	250	2.50	**Coordinates (m)**	E 509444.09
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.50	29.65	200	29.00	**National Grid**	N 428383.01
Approved	LB	11/06/2015	Cable percussion to 29.65m, rotary core to 29.65m						
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.10 - 0.30 0.20	B 1 ES 2	0.00-1.20 Machine excavated inspection pit.			Dark greyish brown slightly gravelly fine to medium SAND. Gravel is angular fine to coarse of sandstone and brick. Occasional roots. (TOPSOIL)	0.20 Timber exposed 0.15 x 0.50m	0.10 (0.10) +3.02 0.30 (0.20) +2.82		
0.50 - 1.00 0.70 0.80	B 3 ES 4 D 5				Dark greyish brown gravelly fine to coarse SAND with high cobble content. Gravel is angular fine to coarse of brick, masonry and pottery. Cobbles are angular of brick. (MADE GROUND)		(0.90)		
1.20 - 2.00 1.50	B 6 D 7				Firm brown slightly sandy slightly gravelly CLAY. Gravel is angular fine to coarse of brick and chalk. (MADE GROUND)		1.20 +1.92 (0.60)		
2.00 2.00 - 2.45	ES 8 U 9	10 blows	2.00	dry	Firm brown sandy gravelly CLAY with low cobble content. Gravel is subangular to subrounded fine to coarse of brick, concrete, flint and chalk. Cobbles are of brick and concrete. Human remains found. (MADE GROUND)	1.80 Base of burial ground 2.00-2.18 Stiff	1.80 +1.32		
2.50 2.50 - 2.95	D 10 U 11	15 blows	2.50	dry	Firm, locally stiff, thinly laminated fissured brown locally slightly sandy, silty CLAY. Occasional silt dustings and pockets. Occasional root fragments up to 3mm.	2.50 Fissured	(1.20)		
3.00 3.00 - 3.45	D 12 U 13	15 blows	2.50	dry	Firm, locally soft, thinly to thickly laminated dark grey and greyish brown slightly sandy silty CLAY. Occasional sand and silt lenses and dustings of fine sand on laminae surfaces.	3.00-3.45 Locally soft	3.00 +0.12		
3.50 3.50 - 4.50	D 14 P 15	80% rec 67bar	3.00	dry		3.56 Irregular sand lens 3.60 Irregular sand lens	(1.60)		
4.50 4.50 - 4.95	ES 16 U 17	15 blows	4.50	dry			4.60 -1.48		
5.00 5.00 - 5.95	D 18 U 19	15 blows Split and describe record unavailable	4.50	dry	Firm, locally soft, thinly to thickly laminated fissured dark grey slightly sandy silty CLAY. Occasional fine sand pockets and silt partings on laminae surfaces.	4.80-4.95 Becoming soft, greyish brown	(1.40)		
5.50 5.50 - 6.50	D 20 P 21	100% rec	5.50	dry			6.00 -2.88		
6.50 - 6.95	U 22	12 blows	5.50	dry	Firm indistinctly thinly cross laminated fissured brownish grey, oxidising to brown, silty CLAY. Locally with light brown fine sand lenses sand dusting of silt on laminae and fissure surfaces. Fissures are randomly orientated, closely spaced. Organic odour.	6.50-6.64 Soft 6.67-6.95 Occasional light brown fine sand partings, <1mm	(1.00)		
7.00 7.00 - 7.45	D 23 U 24		7.00	dry	Soft, locally firm, thinly laminated greyish brown slightly sandy CLAY. Occasional light brown silt dusting on laminae surfaces. Rare extremely to very closely spaced, typically <3mm, dark brown and black subhorizontal sand lenses.		7.00 -3.88		
7.50 7.50 - 8.50	D 25 P 26	100% rec 65bar; Split and describe record unavailable	7.00	dry			(1.60)		
8.50 - 8.95	U 27	12 blows	08/06/15 8.50	1800 dry					
9.00 9.00 - 10.00	D 28 P 29	100% rec	09/06/15 8.50	0800 8.30 damp	Firm indistinctly thinly and thickly laminated fissured dark greyish brown slightly sandy silty CLAY with dusting of fine light brown sand and silt on laminae surfaces. Wood fragments <10mm. Slight organic odour.		8.60 -5.48 (0.70)		
		20 blows			Firm indistinctly fissured greyish brown silty CLAY, locally grading to very clayey silt. Fissures are randomly orientated, extremely closely to closely spaced, locally polished, with occasional light brown sand on surfaces.		9.30 -6.18 (1.20)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH306

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.12 mOD
Logged	RPH	08/06/2015	Dando 175	0.00	2.50	250	2.50	**Coordinates (m)**	E 509444.09
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.50	29.65	200	29.00	**National Grid**	N 428383.01
Approved	LB	11/06/2015	Cable percussion to 29.65m, rotary core to 29.65m						
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
10.00 - 10.45	U 30		9.70	damp
10.50	D 31	20 blows No Recovery	10.50	7.60
10.50 - 10.95	U NR			
10.50 - 11.00	B 33			
11.00 - 11.45	U 34	15 blows	10.50	7.80
11.50	D 35	100% rec	11.00	7.80
11.50 - 12.50	P 36			
12.50 - 12.95	U 37	20 blows	12.00	8.80
13.00	D 38	20 blows	13.00	10.80
13.00 - 13.45	U 39			
13.50	D 40	30 blows No Recovery	13.00	11.90
13.50 - 13.95	U NR			
13.50 - 14.00	B 42			
14.00 - 14.45	U 43	45 blows	13.50	12.70
14.50	D 44	70 blows	14.50	12.90
14.50 - 14.95	U 45			
14.50 - 15.00	B 47			
15.00	D 46	80 blows	14.50	13.90
15.00 - 15.45	U 48			
15.50 - 15.95	SPTS	N=38 (6,8/8,9,10,11)	14.50	13.90
15.50	D 49			
15.50 - 15.95	D 50			
15.50 - 16.00	B 51			
16.00 - 16.45	U 52	80 blows	14.50	13.90
16.50	D 53	90 blows	14.50	13.90
16.50 - 16.95	U 54			
17.00	D 55	100 blows	14.50	13.90
17.00 - 17.45	U 56			
17.50 - 17.95	SPTS	N=39 (7,7/9,9,10,11)	17.00	17.10
17.50	D 57			
17.50 - 17.95	D 58			
17.50 - 18.00	B 59			
18.00 - 18.45	U 60	80 blows	18.00	17.10
18.50	D 61	80 blows	18.00	17.10
18.50 - 18.95	U 62			
19.00	D 63	80 blows	18.00	17.10
19.00 - 19.45	U 64			
			09/06/15	1800
			19.50	19.30
19.50 - 19.95	SPTS	N=19 (4,5/4,5,5,5)	~~19.50~~	~~9.50~~
19.50	D 65		10/06/15	0800
19.50 - 19.95	D 66		19.50	9.50
19.50 - 20.00	B 67			
		~~65 blows~~		

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Firm thinly and thickly laminated greenish grey slightly sandy clayey SILT. Frequent partings <5mm of fine sand. Occasional black carbonaceous pockets.	10.50-11.00 Tending to silty clay	10.50 -7.38 (1.00)		1
Firm thinly to thickly, locally cross, laminated greyish brown silty CLAY. Frequent dustings of light brown silt and fine sand on laminae surfaces.	11.50-12.95 Locally soft	11.50 -8.38 (1.40)		
	12.50-12.90 Occasional peat lenses and pockets			
Firm dark brown and black pseudofibrous PEAT. Wood fragments up to 100mm.		12.90 -9.78 (0.30)		
Greenish grey sandy clayey SILT. Sand is fine. Occasional relict rootlets.		13.20 -10.08 (1.10)		
Stiff greyish brown and light brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is subangular to rounded fine to coarse of chalk, flint, sandstone and igneous lithologies. Cobbles are subangular of igneous lithologies.	14.50-15.00 Rare cobbles	14.30 -11.18 (0.70)		
Firm indistinctly thinly laminated slightly sandy slightly gravelly CLAY. Occasional lenses and partings of light brown silt and fine sand. Gravel is subangular to rounded fine to coarse of chalk, flint and sandstone.		15.00 -11.88 (0.16) 15.16 -12.04		
Stiff thinly and thickly laminated, indistinctly cross laminated, greyish brown, locally light brown, slightly sandy CLAY. Occasional dusting of silt on laminae surfaces.	15.50-15.95 Rare subangular to subrounded fine to medium chalk gravel	(1.84)		
	16.50-16.95 Firm, locally soft			
Stiff thinly to thickly laminated greyish brown CLAY. Occasional dustings of silt and fine sand on laminae surfaces.		17.00 -13.88 (1.00)		
Stiff thinly and thickly laminated fissured orangish brown CLAY. Occasional dusting of silt and fine sand on laminae surfaces.	18.25 Orangish brown sand pocket 18.26 Inclined sand parting 18.50-18.93 Locally firm; locally cross laminated 18.70-18.93 Very closely spaced sand partings <3mm 18.84 Orangish brown sand pocket 18.85-19.30 Slightly gravelly 19.21-19.30 Extremely closely spaced sand partings	18.00 -14.88 (2.00)		
Hole continues on next sheet		20.00 -16.88		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	10.50	Rose to 7.60 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH306

Borehole Log

Drilled	SK	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.12 mOD
Logged	RPH	08/06/2015	Dando 175	0.00	2.50	250	2.50	**Coordinates (m)**	E 509444.09
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.50	29.65	200	29.00	**National Grid**	N 428383.01
Approved	LB	11/06/2015	Cable percussion to 29.65m, rotary core to 29.65m						
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
20.00 - 20.45	U 68		19.50	9.50
20.50	D 69	60 blows	19.50	9.50
20.50 - 20.95	U 70			
21.00	D 71	70 blows 65% rec	19.50	9.50
21.00 - 21.45	U 72			
21.50 - 21.95	SPTS	N=21 (4,5/5,5,5,6)	21.00	16.70
21.50	D 73			
21.50 - 21.95	D 74			
21.50 - 22.00	B 75			
22.00 - 22.45	U 76	100 blows	21.00	16.70
22.50 - 22.95	U 78	100 blows 60% rec	22.50	3.80
22.60	D 77			
23.00	D 79	140 blows No Recovery	22.50	3.80
23.00 - 23.45	U NR			
23.00 - 23.50	B 81			
23.50 - 23.95	SPTS	N=21 (4,5/4,5,6,6)	23.50	5.10
23.50 - 23.95	D 82			
23.50 - 24.00	B 83			
24.50 - 24.85	SPTS	50 (10,10/15,19,16 for 51mm)	23.50	5.75
24.50 - 24.95	D 84			
24.50 - 25.00	B 85			
25.50 - 25.86	SPTS	50 (11,12/14,17,19 for 61mm)	25.00	6.30
25.50 - 25.95	D 86			
25.50 - 26.00	B 87			
26.50 - 26.95	D 88			
26.50 - 27.00	B 89			
27.50 - 27.85	SPTS	50 (4,5/15,19,16 for 48mm)	27.00	6.80
27.50 - 27.95	D 90			
27.50 - 28.00	B 91			
28.50 - 28.89	SPTS	53 (8,9/9,17,19,8 for 18mm)	28.00	6.90
28.50 - 28.95	D NR			
			10/06/15	1800
			29.00	6.00
29.50 - 29.82	SPTS	68 (19,6/18,39,11 for 23mm)	11/06/15	1800
29.50 - 29.65	D 94		29.00	6.70
			~~29.00~~	~~6.70~~

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Firm, locally stiff, thinly to thickly laminated brownish grey silty CLAY with frequent lenses of light brown silt and fine sand.	20.50-20.65 Soft, possibly dusturbed 20.65-20.80 Frequent extremely closely spaced sand lenses	(1.00)		
Stiff, locally firm, thinly to thickly laminated brown silty CLAY. Rare subrounded fine chalk gravel.	21.00-21.14 Subvertical sand parting 21.05-21.25 Slightly gravelly 21.14-21.29 Extremely closely to closely spaced sand partings	21.00 -17.88 (1.00)		
Stiff thinly to thickly laminated light brown slightly sandy CLAY with frequent light extremely closely spaced orangish brown fine to medium sand lenses <4mm. Frequent light brown silt dusting on laminae surfaces.	21.45 Fine black sand laminae 22.30-22.75 Occasional dustings of dark grey fine silty sand on laminae surfaces	22.00 -18.88 (1.30)		
Medium dense, becoming very dense, interlaminated orangish brown and dark grey slightly gravelly slightly silty fine to medium SAND. Gravel is subangular to subrounded fine to medium of chalk.	23.30 Possible blowing sand	23.30 -20.18 (2.60)		
	24.50-27.90 Becoming very dense 24.50 Becoming slightly gravelly			
Very dense brown and cream slightly silty SAND and GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of chalk and occasional flint.		25.90 -22.78 (2.00)		
CHALK recovered as light grey and cream slightly gravelly silty fine SAND. Gravel is subangular fine to coarse chalk and flint.		27.90 -24.78 (1.75)		
END OF EXPLORATORY HOLE		29.65 -26.53		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
28.50 - 29.50	90	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH306

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	2.95 mOD
Logged	RPH	01/06/2015	Dando 2000	0.00	4.20	250	4.20	**Coordinates (m)**	E 509437.17
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	4.20	20.00	200	20.00		
Approved	LB	11/06/2015	Cable percussion to 30.37m	20.00	30.37	150	30.30	**National Grid**	N 428406.29
			SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.10 - 0.30 0.20 0.20 0.50 0.50 - 0.80 0.70	B 2A D 3A ES 1A ES 4A B 5A D 6A	0.00-1.20 Machine excavated inspectin pit.			Dark greyish brown slightly gravelly slightly silty fine to medium SAND. Gravel is angular fine to coarse of brick and masonry. Occasional roots. (TOPSOIL)		0.10 (0.10) +2.85 (0.20) 0.30 +2.65		
					Greyish brown slightly gravelly slightly clayey fine to medium SAND. Gravel is angular fine to coarse of brick and chalk. Occasional tree roots. (MADE GROUND)		(1.10)		
1.20 - 1.65 1.20 - 1.65 1.20 - 1.70	SPTS D 1 B 2	N=10 (1,2/2,2,3,3)	1.20	dry	Firm brown slightly sandy gravelly CLAY. Gravel is angular fine to coarse of brick and chalk. Occasional human bones. (MADE GROUND)	1.40 Base of burial ground	1.40 +1.55		
2.00 - 2.45	UT 3	15 blows 100% rec	2.00	dry	Stiff, locally indistinctly thinly laminated, brown slightly sandy silty CLAY. Occasional light brown silt dustings on laminae surfaces. Occasional shell fragments. Occasional rootlets up to 2mm and roots up to 4mm.	2.00-2.20 Firm to stiff	(1.05)		
2.45 - 2.50 2.50 2.60 2.60 - 3.05	D 4 ES 5 D 6 UT 7	7 blows 100% rec	2.60	dry	Firm thinly and thickly laminated greyish brown and brown silty CLAY. Occasional light brown and grey silt dustings on laminae surfaces. Rootlets up to 2mm.	2.60-2.80 Fine sand laminations	2.45 +0.50 2.60 (0.15) +0.35 (0.45)		
3.05 - 3.15 3.15 - 4.15	D 8 P 9	90% rec 60bar	3.10	dry	Soft, locally firm, thinly and thickly laminated greyish brown slightly sandy silty CLAY with frequent grey sand laminations up to 5mm. Occasional orangish brown and grey silt and fine sand dusting on laminae surfaces.		3.05 -0.10		
			01/06/15 3.10	1800 dry	Firm thinly to thickly laminated greyish brown slightly sandy silty CLAY with frequent brown and grey silt and fine sand laminations. Frequent grey silt dustings on laminae surfaces.		(2.10)		
4.20 - 4.65 4.20 - 4.65	UT NR B 11	7 blows No Recovery	02/06/15 3.10	0800 dry					
4.65 4.70 - 5.15	D 12 UT 13	10 blows 100% rec	4.70	4.00		4.70-4.95 Locally stiff			
5.15 - 5.35	D 14				Soft thinly and thickly laminated fissured greyish brown slightly sandy silty CLAY with localised steeply dipping fissures. Sand is fine.		5.15 -2.20		
5.35 5.35 - 5.80	ES 15 UT 16	10 blows 100% rec	5.30	5.00		5.35-5.42 Frequent silt partings 5.57-5.80 Slightly organic	(0.65)		
5.80 - 6.00	D 17				Firm thinly and thickly laminated greyish brown slightly sandy organic silty CLAY. Frequent grey silt dustings on laminae surfaces.		5.80 -2.85		
6.20 - 7.20	P 18	100% rec				6.23 Extremely closely spaced 70deg fissure surfaces	(1.85)		
7.20 - 7.65	UT 19	15 blows 100% rec	7.20	dry		7.20-7.40 Soft, locally firm			
7.65 - 7.85	D 20		02/06/15 7.20	1800 dry	Soft to firm thinly and thickly laminated greyish brown slightly organic silty CLAY, locally sandy silt. Occasional grey silt dustings on laminae surfaces.		7.65 -4.70		
7.85 - 8.30	UT 20	12 blows 100% rec	03/06/15 7.20	0800 6.00		8.05-8.50 Grades to clayey silt	(1.05)		
8.30 - 8.50	D 21					8.30-8.50 Very soft			
8.50 - 9.50	P 22	100% rec 70bar	8.50	8.20			8.70 -5.75		
					Firm indistinctly thinly to thickly cross laminated dark grey and light brown slightly sandy silty CLAY. Occasional light brown silt dusting on laminae surfaces.		(0.80)		
9.50 - 9.95 9.50 9.50 - 10.00 9.50 - 9.95	SPTS D 23 D 24 B 25	N=34 (2,4/8,8,8,10)	9.50	4.60	Dense dark grey and greyish brown fine to coarse SAND with occasional black clayey organic silt pockets. Occasional fine gravel size shell fragments.		9.50 -6.55		
					Hole continues on next sheet		(1.00)		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH307

Borehole Log

Drilled	MR	**Start**	01/06/2015
Logged	RPH	**End**	11/06/2015
Checked	JRL		
Approved	LB		

Equipment, Methods and Remarks

Dando 2000
Machine excavated trial pit to 1.20m
Cable percussion to 30.37m
SPT Hammer ID: SM37, Rod type: NWY.

Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)
0.00	4.20	250	4.20
4.20	20.00	200	20.00
20.00	30.37	150	30.30

Ground Level	2.95 mOD
Coordinates (m)	E 509437.17
National Grid	N 428406.29

Samples and Tests / Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.50 - 11.02 10.50 - 11.02 10.50 - 11.10	SPTS D 26 B 27	N=4 (1,1/1,1,1,1) SW=75	10.50	5.40	Very loose dark grey and greyish brown clayey fine to coarse SAND with occasional black slightly organic clayey silt pockets. Occasional gravel size shell fragments.		10.50 -7.55 (0.80)		
11.30 - 11.75 11.30 - 11.75 11.30 - 11.80	SPTS D 28 B 29	N=27 (2,3/5,7,7,8)	11.30	5.30	Medium dense dark brownish grey slightly gravelly silty fine to coarse SAND. Gravel is subangular fine flint. Occasional shell fragments.		11.30 -8.35 (0.70)		
12.00	D 30				Firm dark grey and black slightly sandy silty CLAY. Occasional plant fragments <5mm.		12.00 -9.05 (0.47)		
12.30 - 12.75	UT 31	20 blows 100% rec	12.30	6.10		12.30-12.40 Rare sand lenes	12.47 -9.52		
12.75 - 12.95	D 32				Dark brown oxidising to black fibrous PEAT Frequent fragments of wood up to 30mm.		(0.53)		
13.00 13.00 - 13.45	D 33 UT 34	20 blows 100% rec	13.00	7.80	Firm, becoming stiff at 13.20m, greyish brown slightly gravelly slightly sandy CLAY. Gravel is subangular to subrounded fine to medium of chalk, flint and sandstone.	13.20-13.45 Becoming stiff; occasional black carbonaceous material	13.00 -10.05 (0.50)		
13.50 - 13.95 13.50 - 14.00	UT NR B 35	25 blows No Recovery	13.50	6.60	Dark brownish grey clayey SAND and GRAVEL with low cobble content. Sand is fine to coarse. Gravel is subangular fine to coarse of chalk, flint and sandstone. Cobbles are subrounded of sandstone and igneous lithologies.		13.50 -10.55 (0.50)		
14.00 - 14.45 14.00 - 14.45 14.00 - 14.50	SPTS D 36 B 37	N=12 (1,2/2,3,3,4)	14.00 03/06/15 14.00	5.50 1800 5.50		14.00-14.50 Firm	14.00 -11.05		
14.50 - 14.95	UT 38	55 blows 100% rec	04/06/15 14.00	0800 5.85	Firm, becoming stiff, indistinctly thinly laminated greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of chalk, flint, sandstone and igneous lithologies.	14.50 Grades to stiff 14.71-14.95 Becoming gravelly			
14.95 - 15.15	D 39						(2.15)		
15.15 - 15.60	UT 40	50 blows 100% rec	15.10	6.50		15.15-15.60 Fissured			
15.60 - 15.80	D 41								
15.80 - 16.25	UT 42	60 blows 100% rec	15.80	8.90					
16.25 - 16.45	D 43				Stiff indistinctly thinly laminated light brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of flint, sandstone, chalk and igneous lithologies.		16.15 -13.20		
16.45 - 16.90 16.45 - 16.90 16.45 - 16.90	SPTS B 45 ES 44	N=29 (4,4/7,7,7,8)	16.40	9.00			(0.91)		
16.90 - 17.35	UT 46	50 blows 100% rec	16.90	9.40		16.90-17.06 Locally, with silt on laminae surfaces	17.06 -14.11		
17.35 - 17.55	D 47				Stiff to very stiff indistinctly thinly laminated indistinctly fissured greyish brown CLAY. Occasional light brown silt dusting on laminae surfaces.				
17.55 - 18.00	UT 48	60 blows 100% rec	17.50	10.70			(0.94)		
18.00 - 18.20	D 49						18.00 -15.05		
18.20 - 18.65	UT 50	60 blows 100% rec	18.20	12.40	Firm, locally stiff, thinly laminated greyish brown sandy CLAY with occasional sand lenses. Occasional light brown silt dustings on laminae surfaces. Occasional shell fragments.	18.26 Subrounded coarse sandstone gravel	(0.65)		
18.65 - 18.85	D 51					18.29-18.35 3No lenses of orangish brown sand	18.65 -15.70		
18.85 - 19.30 18.85 - 19.30 18.85 - 19.30	SPTS B 53 D 52	N=21 (2,4/5,5,5,6)	18.80	12.70	Stiff thinly laminated to thickly laminated greyish brown slightly sandy CLAY, occasionally clayey silt, with rare orangish brown fine sand lenses. Frequent light brown silt and orangish brown fine sand dusting on laminae surfaces.				
19.30 - 19.75	UT 54	50 blows 100% rec	19.30	13.10					
19.75 - 19.95	D 55						(1.95)		
19.95 - 20.40	UT 56	40 blows 100% rec	19.90	13.80					

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	TRINITY BURIAL GROUND
Project No.	A5049-15
Carried out for	Balfour Beatty

Borehole

BH307

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	2.95 mOD
Logged	RPH	01/06/2015	Dando 2000	0.00	4.20	250	4.20	**Coordinates (m)**	E 509437.17
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	4.20	20.00	200	20.00		
Approved	LB	11/06/2015	Cable percussion to 30.37m	20.00	30.37	150	30.30	**National Grid**	N 428406.29
			SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
20.40 - 20.60	D 57			
20.60 - 21.05	UT 58	45 blows 100% rec	20.00	14.00
21.05 - 21.25	D 59		04/06/15	1800
			20.00	14.00
21.30 - 21.75	SPTS	N=26 (2,4/4,7,7,8)		
21.30 - 21.75	D 60		08/06/15	0800
21.30 - 21.80	B 61		20.00	3.00
22.30 - 22.75	SPTS	N=40 (4,7/9,10,10,11)	22.30	3.00
22.30 - 22.75	D 62			
22.30 - 22.80	B 63			
23.30 - 23.75	SPTS	N=46 (4,5/9,9,12,16)	23.30	4.10
23.30 - 23.75	D 64			
23.30 - 23.80	B 65			
24.30 - 24.75	SPTS	N=33 (4,4/8,8,8,9)	24.30	3.50
24.30 - 24.75	D 66			
24.30 - 24.80	B 67			
25.30 - 25.75	SPTS	N=42 (4,5/8,9,11,14)	25.30	4.00
25.30 - 25.75	D 68			
26.30 - 26.54	SPTS	51 (13,12 for 40mm/26,25 for 50mm)	26.30	4.60
26.30 - 26.54	D 69		08/06/15	1800
26.30 - 26.80	B 70		26.30	4.60
			09/06/15	0800
			20.30	4.30
27.30 - 27.54	SPTS	50 (17,8 for 20mm/20,25,5 for 0mm)	27.30	1.50
27.30 - 27.55	D 71			
27.30 - 27.80	B 72			
28.30 - 28.65	SPTS	70 (19,6/20,31,19 for 50mm)	28.30	2.00
28.30 - 28.53	D 73			
28.30 - 28.80	B 74			
29.30 - 29.40	SPTS	50 (25 for 50mm/50 for 50mm)	29.30	0.00
29.30 - 29.40	D 75			
29.30 - 29.80	B 76			

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
	20.22 Pocket of orangish brown fine sand			
	20.40-20.60 Occasional dark grey and black fine sand			
Stiff, locally firm, thinly to thickly laminated greyish brown CLAY with frequent dustings and partings of brown silt and orangish brown sand.	20.82-21.05 Clayey silt	20.60 -17.65		
	21.05-21.25 Subangular fine to medium gravel of chalk on laminae surfaces	(2.15)		
	22.30-22.70 Occasional black silty sand laminations	22.75 -19.80		
Dense orangish brown, locally slightly gravelly, silty fine to medium SAND with occasional thin dark grey silt lenses up to 2mm.		(2.75)		
	24.30-24.75 Rare subangular fine to medium chalk gravel			
Dense light brown and cream SAND and GRAVEL. Sand is fine to coarse. Gravel is subangular fine to coarse of chalk.		25.50 -22.55		
		(0.80)		
CHALK recovered as brown and cream sandy silty fine to coarse GRAVEL with medium cobble content. Gravel and cobbles are predominantly medium strong to strong, light brown and cream. Rare medium to coarse flint gravel.		26.30 -23.35		
		(4.07)		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
30.00 - 30.30	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH307

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	2.95 mOD
Logged	RPH	01/06/2015	Dando 2000	0.00	4.20	250	4.20	**Coordinates (m)**	E 509437.17
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	4.20	20.00	200	20.00		
Approved	LB	11/06/2015	Cable percussion to 30.37m	20.00	30.37	150	30.30	**National Grid**	N 428406.29
			SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.30 - 30.37 30.30 - 30.37	SPTS D 77	50 (25 for 30mm/50 for 40mm)			END OF EXPLORATORY HOLE		30.37 -27.42		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH307

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.23 mOD
Logged	RPH	17/06/2015	Dando 2000.	0.00	5.00	250	5.00	**Coordinates (m)**	E 509424.17
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	5.00	21.00	200	21.00		
Approved	LB	26/06/2015	Cable percussion to 27.70m	21.00	27.70	150	27.50	**National Grid**	N 428418.29
			SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
0.20	D 3A				Dark greyish brown slightly clayey fine to medium SAND. Large tree roots 20-150mm. (TOPSOIL)		0.10 (0.10) +3.13		
0.20	B 2A						0.25 (0.15) +2.98		
0.20	ES 1A				Dark grey slightly gravelly slightly silty fine to medium SAND. Gravel is angular fine to coarse of brick. Occasional roots. (MADE GROUND)		(0.95)		
0.40	ES 4A								
0.50 - 0.70	B 5A								
0.80	D 6A				Firm brown slightly sandy slightly gravelly silty CLAY. Gravel is angular fine to coarse of brick and chalk. Occasional human bones. (MADE GROUND)		1.20 +2.03		
1.20 - 1.65	SPTS	N=21 (2,3/4,4,6,7)							
1.20 - 1.65	D 1						(0.50)		
1.20 - 1.70	B 3								
1.40	ES 2								
1.70 - 2.15	UT 4	25 blows 100% rec	1.70	dry	Stiff greyish brown, locally mottled orangish brown, slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded, fine to coarse of chalk, brick and sandstone. (MADE GROUND)	1.70 Base of burial ground	1.70 +1.53		
							(0.45)		
2.15 - 2.60	UT 5	20 blows 100% rec	2.10	dry	Stiff thinly to thickly laminated greyish brown slightly sandy silty CLAY with low cobble content. Cobbles are sandstone. Frequent sand lenses <5mm. Occasional silt dusting on laminae surfaces.	2.15 Sandstone cobble	2.15 +1.08		
2.60 - 2.80	D 6				Stiff brown indistinctly thinly laminated slightly sandy CLAY with dusting of orangish brown sand on laminae surfaces. Rare rootlets and wood fragments.		(0.85)		
3.00 - 3.60	P 7	100% rec	3.00	dry	Firm, locally stiff, indistinctly thinly to thickly laminated orangish and greyish brown slightly sandy silty CLAY. Occasional plant fragments		3.00 +0.23		
							(0.40)		
3.70	D 8				Firm, locally stiff, thinly to thickly laminated orangish and greyish brown slightly sandy silty CLAY. Slight organic odour.	3.50-4.00 Rare clay lithorelics and plant remains	3.40 -0.17		
							(0.77)		
4.00 - 5.00	P 9	100% rec	4.00	dry			4.17 -0.94		
					Firm thinly to thickly laminated fissured dark greyish brown slightly sandy clayey SILT. Slight sand dusting on laminae surfaces.				
5.00 - 6.00	P 10	100% rec	5.00	dry					
							(2.48)		
			17/06/15 5.00	1800 dry		5.75-6.00 Dark brownish grey; vegetative odour			
6.00	ES 11	15 blows 100% rec Split and describe record unavailable							
6.00 - 6.45	UT 12		18/06/15 5.00	0800 2.80					
6.45 - 6.65	D 13					6.45-6.65 Clayey fine sand interlaminations			
6.65 - 7.65	P 14	100% rec	6.60	3.10	Firm thinly to thickly laminated greyish brown and light brown slightly sandy silty CLAY. Occasional light brown silt dusting on laminae surfaces.		6.65 -3.42		
							(0.20)		
					Firm thinly, locally thickly, laminated dark brownish grey silty CLAY with frequent silt parts <2mm, and silt dusting on laminae surfaces.		6.85 -3.62		
							(0.40)		
					Soft, locally firm, indistinctly laminated, brownish grey and dark grey slightly sandy CLAY. Occasional extremely closely spaced vertical fissures.		7.25 -4.02		
7.65 - 8.10	U 15	15 blows 100% rec	8.00	4.50			(0.85)		
					Soft, locally firm, thinly and thickly laminated dark grey clayey SILT with interlaminations and occasional pockets of light brownish grey fine sand. Dusting of light brown sand on laminae surfaces.		8.10 -4.87		
8.50	ES 17								
8.75 - 9.75	P 18	70% rec	8.50	4.60		8.80-9.75 Tending to greyish brown and light brown silty sand	(1.65)		
9.75 - 10.20	SPTS	N=18 (2,2/5,4,5,4)	9.70	4.80			9.75 -6.52		
9.75 - 10.20	D 19				Firm dark brownish grey very sandy organic SILT. Rare subangular shell fragments.				
9.75 - 10.25	B 20								

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks
0.00 - 27.70	Groundwater not observed
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH308

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.23 mOD
Logged	RPH	17/06/2015	Dando 2000.	0.00	5.00	250	5.00	**Coordinates (m)**	E 509424.17
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	5.00	21.00	200	21.00		
Approved	LB	26/06/2015	Cable percussion to 27.70m	21.00	27.70	150	27.50	**National Grid**	N 428418.29
			SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
							(1.00)		
10.75 - 11.20 10.75 - 11.20 10.75 - 11.25	SPTS D 21 B 22	N=18 (2,3/3,4,5,6)	10.70	5.20	Medium dense dark greyish brown and light brownish grey slightly silty fine to coarse SAND. Rare subangular fine shell fragments.		10.75 -7.52		
							(1.50)		
11.75 - 12.20 11.75 - 12.20 11.75 - 12.25	SPTS D 23 B 24	N=20 (2,4/5,4,5,6)	11.70	6.60					
					Firm, locally stiff, thinly laminated brownish grey and light grey silty CLAY with occasional dark grey sandy clay lenses <6mm. Occasional silt dusting on laminae surfaces.		12.25 -9.02		
12.50 - 12.95	UT 25	11 blows 100% rec	12.50	8.10			(0.75)		
13.00 - 13.45	UT 26	21 blows 100% rec	13.00	8.60	Dark brown to black pseudo-fibrous PEAT. Wood fragments up to to 70mm.		13.00 -9.77		
							(0.30)		
13.45 - 13.65	D 27				Stiff thinly laminated dark greenish grey and greyish brown slightly sandy silty CLAY with occasional plant remains and interbedded pseudofibrous peat lenses.	13.30-13.50 Occasional black plant remains <6mm 13.65-13.84 Interbedded with black pseudofibrous peat lenses <3mm.	13.30 -10.07		
13.65 - 14.10	UT 28	23 blows 100% rec	13.60	9.00			(1.15)		
14.10 - 14.30	D 29		18/06/15 14.10	1800 9.00					
14.30 - 14.75 14.30 - 14.80	SPTS B 30	N=23 (3,4/5,5,6,7)	~~11.30~~	~~7.10~~			14.45 -11.22		
					Stiff, becoming very stiff, dark greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of chalk and flint.				
14.80 - 15.25 14.80 - 15.30	UT NR B 31	50 blows No Recovery	14.80	8.30		14.95 Grades to firm			
15.25 15.30 - 15.75 15.30 - 15.80	D 32 UT NR B 33	50 blows No Recovery	15.30	9.00			(1.60)		
15.80 - 16.25	UT 34	50 blows 100% rec	15.80	dry		15.80 Becoming very stiff 15.90-16.05 Slightly gravelly	16.05 -12.82		
16.25 - 16.35 16.35 - 16.80 16.35 - 16.80 16.35 - 16.85	D 35 SPTS D 36 B 37	N=40 (7,7/9,9,10,12)	16.30	dry	Stiff indistinctly thinly cross laminated indistinctly fissured dark greyish brown slightly sandy silty CLAY with dustings of light brown silty sand on laminae surfaces. Fissures are randomly orientated, closely spaced.	15.93-16.25 Subangular to subrounded fine to medium chalk and sandstone gravel 15.94 Sandstone cobble 15.98 Inclined fissures	(0.80)		
16.85 - 17.30	UT 38	35 blows 90% rec	16.80	dry	Very stiff thinly laminated brown and light brown sandy silty CLAY with frequent light brown and beige fine sand and silt lenses <3mm. Rare light brown silt dustings on laminae surfaces.	16.05-16.25 Stiff	16.85 -13.62		
			19/06/15 17.30	1800 dry			(0.75)		
17.30 - 17.40 17.40 - 17.85	D 39 UT 40	50 blows 100% rec				17.40-17.60 Locally, inclined 20-30deg laminations , occasional 70-80deg fissures			
			24/06/15 17.30	0800 8.20	Stiff thinly, locally thickly, laminated dark greyish brown and light brown CLAY with dustings of silt on laminae surfaces and occasional lenses of light brown fine sand <5mm.		17.60 -14.37		
17.85 - 17.95 17.95 - 18.40	D 41 UT 42	50 blows 100% rec	17.90	dry		17.95-18.15 Slightly gravelly 17.95-18.20 Locally softened next to subvertical partings	(0.35) 17.95 -14.72		
18.40 - 18.60	D 43				Firm fissured indistinctly thinly laminated greyish brown and light brownish grey slightly sandy slightly gravelly silty CLAY with occasional medium sand partings <5mm.. Fissures are randomly orientated, closely spaced. Silt and fine sand dusting on laminae surfaces. Gravel is subangular to subrounded fine of chalk and flint.		(1.55)		
19.00 - 19.45 19.00 - 19.45 19.00 - 19.50	SPTS D 44 B 45	N=25 (3,4/5,6,7,7)	19.00	16.50					
19.50 - 19.95	UT 46	50 blows 100% rec	19.50	19.00			19.50 -16.27		
					Stiff thinly to thickly, locally indistinctly, laminated greyish brown silty CLAY with occasional light brown silt and fine sand partings.	19.50-19.69 Indistinctly extremely closely spaced randomly orientated fissures.			
19.95 - 20.15	D 47								
					Hole continues on next sheet	Occasional light brown silt dusting on surfaces			

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
10.30 - 12.00	90	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH308

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.23 mOD
Logged	RPH	17/06/2015	Dando 2000.	0.00	5.00	250	5.00	**Coordinates (m)**	E 509424.17
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	5.00	21.00	200	21.00	**National Grid**	N 428418.29
Approved	LB	26/06/2015	Cable percussion to 27.70m	21.00	27.70	150	27.50		
			SPT Hammer ID: SM37, Rod type: NWY.						

Samples and Tests

Depth	Type & No	Records	Date Casing	Time Water
20.20 - 20.65	UT 48	50 blows 65% rec	20.20	19.30
20.65 - 20.85	D 49		24/06/15	1800
			20.20	19.30
21.00 - 21.45	UT 50	50 blows 100% rec	25/06/15	0800
			20.20	6.80
			21.00	2.00
21.45 - 21.55	D 51			
21.55 - 22.00	SPTS	N=31 (3,5/6,8,8,9)	21.00	0.00
21.55 - 22.00	D 52			
21.55 - 22.05	B 53			
22.05 - 22.50	UT 54	50 blows 100% rec	22.00	4.60
22.50 - 22.60	D 55			
23.10 - 23.43	SPTS	50 (5,9/17,16,17 for 30mm)	23.00	2.00
23.10 - 23.40	D 56			
23.10 - 23.60	B 57			
			25/06/15	1800
			23.00	2.00
			26/06/15	0800
			23.00	4.60
24.10 - 24.54	SPTS	50 (5,9/9,10,16,15 for 60mm)	24.00	0.00
24.10 - 24.55	D 58			
24.10 - 24.60	B 59			
25.10 - 25.55	SPTS	N=48 (5,6/8,10,14,16)	25.00	0.00
25.10 - 25.60	B 60			
26.10 - 26.44	SPTS	50 (14,11 for 70mm/17,19,14 for 40mm)	26.00	0.00
26.10 - 26.60	B 61			
27.10 - 27.36	SPTS	50 (17,8 for 20mm/21,21,8 for 10mm)	27.00	0.00
27.10 - 27.40	D 62			
27.10 - 27.60	B 63			
			26/06/15	1800
27.60 - 27.82	SPTS	50 (21,4 for 0mm/24,26 for 70mm)	27.50	0.00
27.60 - 27.70	D 64		27.50	0.00

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
	19.57 Light brown silt parting, 3mm	(1.15)		
	19.68-19.71 Extremely closely spaced light brown silty fine sand partings	20.65 -17.42		
Firm thinly and thickly laminated light brown and brown slightly sandy CLAY with light brown silt and fine and medium sand laminations.	19.83-19.87 Extremely closely spaced light brown silty fine sand partings	(1.93)		
	19.90-19.95 Extremely closely spaced orangish brown and black silty fine sand partings	22.58 -19.35		
Stiff fissured indistinctly laminated greyish brown and brownish grey slightly sandy slightly gravelly silty CLAY with occasional black medium sand pockets. Gravel is subrounded fine chalk.		(0.67)		
Dark orange brown gravelly very silty fine to medium SAND. Gravel is subangular to subrounded fine and medium of flint and chalk.		23.25 -20.02		
		(1.75)		
CHALK recovered as slightly sandy slightly gravelly silty CLAY with low cobble content. Gravel is medium strong, cream and light grey, fine to coarse. Cobbles are medium strong, subangular. Occasional fine to medium flint gravel.		25.00 -21.77		
		(2.70)		
END OF EXPLORATORY HOLE		27.70 -24.47		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
27.40 - 27.60	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH308

Borehole Log

ESG

Drilled	MR	Start	Equipment, Methods and Remarks	Depth from (m)	to (m)	Diameter (mm)	Casing Depth (m)	Ground Level	3.19 mOD
Logged	RM/GS/TC	19/05/2015	Dando 2000 Machine excavated trial pit to 1.20m Cable percussion to 33.15m SPT Hammer ID: SM37, Rod type: NWY UT samples with double weight below 13.30m	0.00 7.80 21.80	7.80 21.80 33.15	250 200 150	7.80 21.80 33.00	Coordinates (m)	E 509471.22
Checked	JRL	End						National Grid	N 428398.17
Approved	LB	29/05/2015							

Samples and Tests

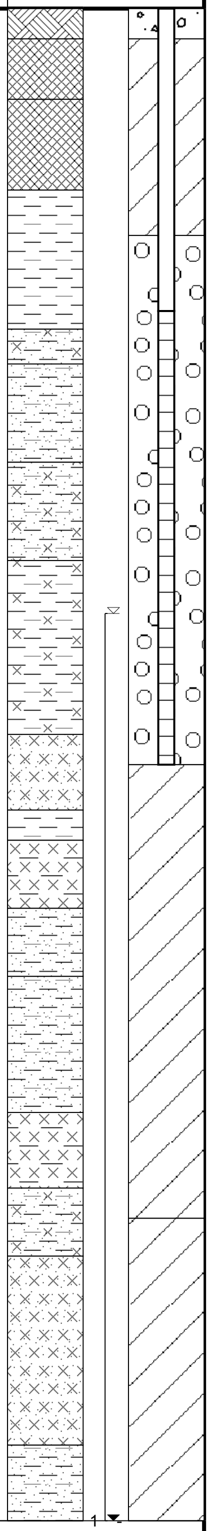
Depth	Type & No	Records	Date / Casing	Time / Water
0.10	D 1A			
0.30	D 2A			
0.30 - 0.60	B 4A			
0.40	ES 3A			
0.70	D 5A			
0.70 - 1.20	B 7A			
0.80	ES 6A			
1.80 - 1.90	D 1		1.80	dry
1.80 - 1.90	P NR	25 blows 100% rec	1.90	dry
1.90 - 2.35	UT 2			
2.35 - 2.55	ES 4			
2.35 - 2.55	D 3			
2.55 - 3.00	UT 5	20 blows 100% rec	2.50	dry
3.00 - 3.20	D 6			
3.00 - 3.20	ES 7			
3.20 - 3.65	UT 8	15 blows 100% rec Split and describe record unavailable	3.00	dry
3.65 - 3.85	D 9			
3.65 - 3.85	ES 10			
3.85 - 4.80	P 11	95% rec 50bar	3.80	dry
4.80 - 5.25	UT 12	10 blows 100% rec	4.80	dry
			19/05/15 5.30	1800 dry
5.25 - 5.30	D 13			
5.30 - 5.75	UT 14	15 blows 100% rec	20/05/15 5.30	0800 dry
5.75 - 5.95	D 15			
5.95	D 16	25 blows 100% rec	5.95	dry
5.95 - 6.40	UT 17			
6.40 - 6.60	D 18			
6.60 - 7.05	UT 19	25 blows 100% rec	6.60	dry
7.05 - 7.15	D 20			
7.15 - 7.60	UT 21	25 blows 100% rec	7.10	dry
7.60 - 7.80	D 22			
7.80 - 8.25	UT 23	15 blows 100% rec	7.80	dry
8.25 - 8.45	D 24			
8.50 - 9.50	P 25	90% rec 60bar	8.50	dry
9.50 - 9.95	UT 26	15 blows 100% rec	9.50	dry
9.95 - 10.00	D 27			

Strata Description

Main	Depth	Level	(Thickness)
Dark brown and black slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of brick and sandstone. Frequent roots and rootlets. (TOPSOIL)	0.20	+2.99	(0.20)
Grey and brown sandy slightly clayey GRAVEL with low cobble content. Gravel is angular to subangular fine to coarse of brick, flint and sandstone. Cobbles are angular of brick. (MADE GROUND)	0.60	+2.59	(0.40)
Soft to firm dark reddish brown slightly sandy slightly gravelly CLAY. Gravel is subangular of sandstone and flint. (MADE GROUND)	1.20	+1.99	(0.60)
Stiff thinly laminated fissured brown CLAY. Fissures are randomly orientated, extremely closely spaced. Occasional fine sand dustings on laminae surfaces.	2.12	+1.07	(0.92)
Stiff indistinctly thinly laminated indistinctly fissured orangish brown slightly sandy silty CLAY. Occasional fine sand dusting on laminae surfaces. Fissures are randomly orientated, closely spaced.	2.35	+0.84	(0.23)
Firm thinly laminated fissured brown, locally mottled greyish brown, slightly sandy CLAY. Fissures are subvertical to vertical, extremely closely spaced. Occasional orangish brown fine sand and silt dusting on laminae surfaces. Vertical silt infill along vertical relict rootlet tracks.	3.00	+0.19	(0.65)
Soft thinly laminated brownish grey and dark grey slightly sandy silty CLAY. Slight vegetative odour.	3.65	-0.46	(0.65)
Firm thinly cross laminated greyish brown silty CLAY. Occasional fine to medium sand lenses. Dusting of light brown sand on laminae surfaces. Slight vegetative odour.	4.80	-1.61	(1.15)
Firm, locally soft, thinly to thickly laminated brownish grey slightly sandy, locally sandy, SILT.	5.30	-2.11	(0.50)
Soft thinly, occasionally thickly laminated greyish brown slightly organic CLAY. Rare brown silt partings, up to 2mm, along laminae surfaces.	5.50	-2.31	(0.20)
Firm thinly to thickly laminated dark greyish brown and dark brown clayey SILT.	5.95	-2.76	(0.45)
Soft, locally firm, greyish brown slightly sandy, locally slightly organic, CLAY with occasional sandy silt and sand laminations.	6.40	-3.21	(0.45)
Soft indistinctly laminated fissured greyish brown slightly sandy CLAY with rare light brown silt and fine sand dusting on laminae surfaces. Fissures are randomly orientated, extremely closely spaced.	7.30	-4.11	(0.90)
Soft thinly to thickly laminated, locally cross laminated, greyish brown clayey SILT.	7.80	-4.61	(0.50)
Soft fissured greyish brown slightly sandy silty CLAY. Fissures are randomly orientated, extremely closely spaced.	8.25	-5.06	(0.45)
Firm indistinctly thinly and thickly laminated greyish brown and dark grey slightly sandy clayey SILT with occasional orangish brown fine sand partings <3mm.	9.50	-6.31	(1.25)
Firm indistinctly laminated fissured dark brown slightly sandy CLAY with occasional slightly sandy clayey silt and orangish brown fine sand bands. Occasional silt and fine sand dusting on laminae	10.00	-6.81	(0.50)

Detail:
- 0.00-1.20 No human remains encountered
- 0.60-1.10 Electric cable and metal pipe
- 1.90-2.12 Occasionally thickly laminated
- 3.00-3.32 Black carbonaceous material noted
- 3.65-3.85 Locally soft
- 3.90 20mm light brown fine and medium sand lens
- 5.16 70deg inclined fissure
- 5.37 Carbonaceous inclusion, 10x15mm
- 5.95-6.17 Slightly organic
- 6.10 Slightly sandy silt band
- 7.31-7.60 Occasional black carbonaceous material
- 8.63 Orangish brown fine sand lens 10mm
- 9.28-9.50 Slightly sandy clayey silt

Legend / Backfill



Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	10.00	Rose to 4.00 m after 20 minutes.	4.00

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project	TRINITY BURIAL GROUND
Project No.	A5049-15
Carried out for	Balfour Beatty

Borehole **BH309**

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.19 mOD
Logged	RM/GS/TC	19/05/2015	Dando 2000	0.00	7.80	250	7.80	**Coordinates (m)**	E 509471.22
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	7.80	21.80	200	21.80	**National Grid**	N 428398.17
Approved	LB	29/05/2015	Cable percussion to 33.15m	21.80	33.15	150	33.00		
			SPT Hammer ID: SM37, Rod type: NWY						
			UT samples with double weight below 13.30m						

Samples and Tests / Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
10.00	W 28				surfaces. Fissures are randomly orientated, extremely closely spaced.				
10.00 - 10.20	D 29	N=4 (1,1/1,1,1,1) SW=75	10.20	4.00					
10.20 - 10.72	SPTS				Very loose to medium dense dark grey and black slightly gravelly clayey fine to coarse SAND. Frequent coarse sand to fine gravel size shell fragments.	10.20-10.72 Possible 'blown sand'			
10.20 - 10.73	D 30								
10.20 - 10.73	B 31								
10.75 - 11.20	SPTS	N=24 (2,4/7,5,6,6)	10.70	4.00		10.75-11.20 Medium dense	(1.45)		
10.75 - 11.20	D 32								
10.75 - 11.20	B 33								
11.20 - 11.65	SPTS	N=12 (2,3/3,4,2,3)	11.20	4.00					
11.20 - 11.65	D 34								
11.20 - 11.65	B 35		20/05/15	1800			11.45 -8.26		
			11.60	4.00	Thinly laminated dark brownish grey slightly sandy clayey SILT. Occasional fine sand dusting on laminae surfaces.				
11.65 - 12.10	SPTS	N=4 (1,1/1,1,1,1)							
11.65 - 12.10	B 37		21/05/15	0800					
11.65 - 12.10	D 36		11.60	2.80					
12.10 - 13.30	P 39	100% rec 70bar	12.10	2.20		12.16 10mm greyish brown sand lens, rare shell gravel 12.18 10mm greyish brown sand lens with black carbonaceous material	(1.85)		
13.30 - 13.75	UT 40	20 blows 100% rec	13.30	2.80	Firm, locally stiff, dark and light brown pseudofibrous PEAT. Occasional wood fragments <250mm.		13.30 -10.11		
13.50	D 41								
13.75 - 13.95	D 42						(1.05)		
13.95 - 14.40	SPTS	N=16 (4,7/6,5,3,2)	13.90	2.30					
13.95 - 14.40	B 44								
13.95 - 14.40	D 43								
14.40 - 14.85	UT 45	35 blows 100% rec	14.40	3.10	Light orangish brown mottled dark grey gravelly slightly silty fine to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse of various lithologies including chalk, sandstone, flint and igneous. Cobbles are subrounded of sandstone.		14.35 -11.16 (0.25)		
14.85 - 15.05	D 46					14.60-14.75 Light brown ; gravel predominantly chalk	14.60 -11.41		
15.05 - 15.50	UT 47	55 blows 100% rec	15.00	5.30	Stiff, locally firm and very stiff, greyish brown and grey slightly sandy slightly gravelly CLAY with low cobble content. Gravel is subangular to subrounded fine to medium of chalk, flint, quartzite and igneous. Cobbles are sandstone.	15.09 Sandstone cobble	(0.68)		
15.50 - 15.70	D 48						15.28 -12.09		
15.70 - 16.15	UT 49	55 blows 100% rec	15.70	6.00	Stiff indistinctly thinly laminated, locally fissured, greyish brown mottled yellowish brown slightly sandy slightly gravelly, locally gravelly, locally fissured, CLAY. Gravel is subangular to rounded fine to coarse of chalk, flint and quartzite.	15.70-15.81 Gravelly	(0.64)		
16.15 - 16.35	D 50						15.92 -12.73		
16.35 - 16.80	UT 51	60 blows 100% rec	16.20	6.60	Stiff thinly to thickly laminated greyish brown slightly sandy CLAY. Occasional silt dustings on laminae surfaces.	16.35-16.37 Angular to subrounded fine to medium flint gravel 16.70-17.00 Locally cross laminated			
16.80 - 17.00	D 52								
17.00 - 17.45	SPTS	N=24 (3,4/4,6,6,8)	17.00	3.50			(2.43)		
17.00 - 17.45	B 54								
17.00 - 17.45	D 53								
17.45 - 17.90	UT 55	60 blows 100% rec	17.40	3.80					
17.90 - 18.10	D 56								
18.10 - 18.65	UT 57	50 blows 100% rec	18.00	4.00					
							18.35 -15.16		
18.55 - 18.75	D 58		21/05/15	1800	Stiff, locally firm, thinly to thickly laminated greyish brown slightly sandy CLAY with extremely closely to closely spaced light brown fine to medium sand laminations. Occasional silt and fine sand on laminae surfaces. Occasional sand lenses up to 10mm.				
18.75 - 19.20	UT 59	35 blows 100% rec	18.70	4.00		18.75-19.20 Firm; 2No subrounded medium chalk grave			
			22/05/15	0800					
			18.70	3.50					
19.20 - 19.40	D 60								
19.40 - 19.85	SPTS	N=20 (2,3/4,5,5,6)	19.40	3.80		19.40-19.85 Rare wood fragments			
19.40 - 19.85	D 61								
19.40 - 19.85	B 62						(2.65)		
19.85 - 20.30	UT 63	45 blows 100% rec Split and describe record unavailable	19.80	4.00					

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH309

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.19 mOD
Logged	RM/GS/TC	19/05/2015	Dando 2000	0.00	7.80	250	7.80	**Coordinates (m)**	E 509471.22
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	7.80	21.80	200	21.80	**National Grid**	N 428398.17
Approved	LB	29/05/2015	Cable percussion to 33.15m	21.80	33.15	150	33.00		
			SPT Hammer ID: SM37, Rod type: NWY						
			UT samples with double weight below 13.30m						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
20.30 - 20.50	D 64					20.05-20.95 Stiff to very stiff 20.30-20.50 Rare black fine sandy gravel laminations			
20.50 - 20.95	UT 65	45 blows 100% rec	20.50	4.20					
20.95 - 21.15	D 66						21.00 -17.81		
21.15 - 21.60	UT 67	45 blows 100% rec	20.70	4.30	Stiff thinly laminated greyish brown silty CLAY with extremely to very closely spaced orangish brown fine to medium sand partings <8mm. Occasional silt and fine sand dusting on laminae surfaces.				
21.60 - 21.80	D 68		22/05/15 20.77	1800 0.00		21.57 1No subrounded fine chalk gravel			
21.80 - 22.75	SPTS	N=34 (4,4/6,8,9,11)							
21.80 - 22.70	D 69	SW=500	26/05/15 20.77	0800 2.60					
21.80 - 22.70	B 70						(2.78)		
22.70 - 23.15	UT 71	50 blows 100% rec	22.70	4.70					
23.15 - 23.35	D 72								
23.35 - 23.80	UT 73	100 blows 100% rec	23.30	5.20					
23.80 - 24.00	D 74					23.65-23.69 Locally black silty sand 23.67-23.70 Cross laminated	23.78 -20.59		
24.00 - 24.38	SPTS	50 (6,9/12,12,24,2 for 0mm)	24.00	-6.60	Very dense dark orangish brown slightly gravelly to gravelly fine to medium SAND. Gravel is subrounded fine to medium of flint and chalk.				
24.00 - 24.38	D 75		26/05/15 24.00	1800 6.60					
24.00 - 24.40	B 76						(1.22)		
			27/05/15 24.00	0800 5.30					
25.00 - 25.45	SPTS	N=36 (2,4/6,8,11,11)	25.00	0.50			25.00 -21.81		
25.00 - 25.45	D 77				Dense to very dense orangish brown gravelly fine to medium SAND. Gravel is subrounded fine to medium of flint and chalk.				
25.00 - 25.50	B 78								
26.00 - 26.44	SPTS	50 (4,5/8,11,14,17 for 70mm)	26.00	1.10		26.00-28.00 Very dense			
26.00 - 26.40	D 79								
26.00 - 26.50	B 80						(3.00)		
27.00 - 27.32	SPTS	50 (4,7/13,27,10 for 20mm)	27.00	2.00					
27.00 - 27.33	D 81								
28.00 - 28.30	SPTS	50 (13,12 for 70mm/24,21,5 for 5mm)	28.00	0.70			28.00 -24.81		
28.00 - 28.30	D 82				CHALK recovered as light grey and light greyish brown slightly gravelly silty fine SAND. Gravel is very weak, whitish grey subangular. Occasional subangular fine to coarse flint gravel.				
28.00 - 28.50	B 83						(1.15)		
29.00 - 29.33	SPTS	50 (4,6/15,24,11 for 30mm)	29.00	1.10					
29.00 - 29.30	D 84								
29.00 - 29.50	B 85				CHALK recovered as cream and light grey slightly gravelly SILT with low cobble content. Gravel and cobbles are very weak, whitish grey, subangular. Occasional subangular flint gravel.		29.15 -25.96		
					Hole continues on next sheet				

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH309

Borehole Log

Drilled	MR	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.19 mOD
Logged	RM/GS/TC	19/05/2015	Dando 2000	0.00	7.80	250	7.80	**Coordinates (m)**	E 509471.22
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	7.80	21.80	200	21.80	**National Grid**	N 428398.17
Approved	LB	29/05/2015	Cable percussion to 33.15m	21.80	33.15	150	33.00		
			SPT Hammer ID: SM37, Rod type: NWY						
			UT samples with double weight below 13.30m						

Samples and Tests

Strata Description

Depth	Type & No	Records	Date / Casing	Time / Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.00 - 30.25 30.00 - 30.26 30.00 - 30.50	SPTS D 86 B 87	50 (11,14 for 50mm/26,24 for 50mm)	30.00 27/05/15 ~~30.00~~ 28/05/15 30.00	0.00 1730 ~~5.30~~ 0800 5.10					
31.00 - 31.26 31.00 - 31.27 31.00 - 31.50	SPTS D 88 B 89	50 (17,8 for 30mm/20,22,8 for 10mm)	31.00	0.00			(4.00)		
32.00 - 32.17 32.00 - 32.17 32.00 - 32.50	SPTS D 90 B 91	50 (25 for 75mm/30,20 for 20mm)	32.00	1.50					
33.00 - 33.15 33.00 - 33.15	SPTS D 92	50 (25 for 75mm/50 for 75mm)	33.00	1.90					
					END OF EXPLORATORY HOLE		33.15 -29.96		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used
32.70 - 33.00	60	

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH309

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.54 mOD
Logged	RPM	04/06/2015	Dando 175/Beretta T44	0.00	2.50	250	2.50	**Coordinates (m)**	E 509499.97
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.50	15.00	200	15.00	**National Grid**	N 428410.77
Approved	LB	16/06/2015	Cable percussion to 15.00m, rotary core to 40.00m	15.00	40.00	146	33.00		
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
0.20	ES 1A				
0.30 - 0.40	B 2A				
0.55	ES 3A				
0.60 - 0.80	B 4A				
0.90	D 5A				
1.20 - 1.65	SPTS		N=3 (1,0/1,1,0,1)		
1.20 - 1.65	D 6				
1.70 - 2.00	B 8				
2.00	ES 7				
2.30 - 2.50	B 11				
2.50	U 12		10 blows 90% rec	2.00	
2.50	D 10				
2.50 - 2.95	ES 9				dry
3.00	P 14		100% rec	3.00	
3.00 - 4.00	D 13				dry
				04/06/15	1800
				4.00	3.90
4.00 - 4.45	U 15		10 blows		
				05/06/15	0800
				4.00	2.90
4.50	D 16		15 blows 100% rec	4.50	
4.50 - 4.95	U 17				3.40
5.00	D 18		15 blows	5.00	
5.00 - 5.45	U 19				4.60
5.50	D 20		100% rec 55bar	5.00	
5.50 - 6.50	P 21				4.60
6.50 - 6.95	U 22		15 blows 100% rec	5.00	4.60
7.00	D 23			7.00	
7.00 - 7.45	B 25				damp
7.00 - 7.50	U 24				
7.50 - 8.50	P 26			7.50	damp
8.50 - 8.95	U 27		15 blows 90% rec	8.50	dry
9.00	D 28		20 blows 100% rec	8.50	
9.00 - 9.45	U 29				dry
9.50	P 31		100% rec	9.00	
9.50 - 10.50	D 30				dry

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Dark brown slightly gravelly clayey fine to coarse SAND. Gravel is angular fine to coarse of brick. Occasional rootlets. (MADE GROUND)		0.10 (0.10) +3.44		
Grey clayey SAND and GRAVEL with low cobble content. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of flint, chalk, sandstone and brick. Cobbles are angular of brick. (MADE GROUND)		0.50 (0.40) +3.04		
Firm brown slightly gravelly sandy CLAY. Gravel is angular fine to coarse of brick, chalk and flint. (MADE GROUND)		1.20 (0.70) +2.34		
Recovered with bones, sent to exhumation technician.		1.70 (0.50) +1.84		
In situ brickwork. (Base of crypt) (MADE GROUND)		1.95 (0.25) +1.59		
Firm brown slightly sandy gravelly silty CLAY with medium cobble content. Gravel and cobbles are subangular fine to coarse of red brick. (Possible burial chamber) (MADE GROUND)	2.70 Brick cobble	2.50 (0.55) +1.04		
Firm light brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is subangular to subrounded fine to medium of chalk. Cobble is subangular of brick. Rare plant rootlets. (MADE GROUND)		2.90 (0.40) +0.64		
Firm indistinctly thinly laminated indistinctly fissured dark brownish grey silty CLAY. Frequent organic inclusions. Fissures are randomly orientated, closely spaced. Occasional silt dusting on laminae surfaces.		4.00 (1.10) -0.46		
Very soft indistinctly thinly laminated brownish grey slightly sandy silty CLAY. Rare sand lenes and pockets.	4.20-4.43 Soft with rare greyish brown sand pockets 4.50-4.86 Rare sand lenses. 4.86-5.03 Soft	5.50 (1.50) -1.96		
Soft to firm indistinctly thinly to thickly laminated greyish brown slightly sandy silty CLAY with dustings of light brown silt and fine sand on laminae surfaces.		6.50 (1.00) -2.96		
Very soft, locally soft, thinly to thickly laminated fissured greyish brown slightly sandy silty CLAY. Fissures are randomly orientated, extremely closely spaced.	7.00-7.50 Tending to clayey SILT	7.50 (0.60) -3.96		
Firm indistinctly laminated, locally cross laminated, brown slightly sandy silty CLAY. Occasional silt dusting on laminae surfaces, Occasional shell fragments.	7.94 Light brown silt lens, 2mm	8.10 (0.40) -4.56		
Firm thinly to thickly laminated greyish brown silty CLAY. Frequent silt and fine sand dusting on laminae surfaces.	7.94-8.05 Vertical, stepped fissure	8.50 (0.50) -4.96		
Firm indistinctly thinly laminated light greyish brown slightly sandy silty CLAY. Rare silt dusting on laminae surfaces. Occasional subvertical closely spaced fissures.		9.00 (0.50) -5.46		
Firm indistinctly thinly laminated greyish brown slightly sandy CLAY. Occasional sand laminations. Rare plant fragments up to 1mm throughout.		9.50 -5.96		
Firm indistinctly thinly laminated fissured dark brownish grey slightly sandy silty CLAY with occasional fine sand partings, <1mm, and sand pockets <15mm. Slight vegetative odour.				

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
1	4.00	Rose to 3.90 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks
0.00 - 1.20	450mm diameter sleeve installed.

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH310

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.54 mOD
Logged	RPM	04/06/2015	Dando 175/Beretta T44	0.00	2.50	250	2.50	**Coordinates (m)**	E 509499.97
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.50	15.00	200	15.00	**National Grid**	N 428410.77
Approved	LB	16/06/2015	Cable percussion to 15.00m, rotary core to 40.00m	15.00	40.00	146	33.00		
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

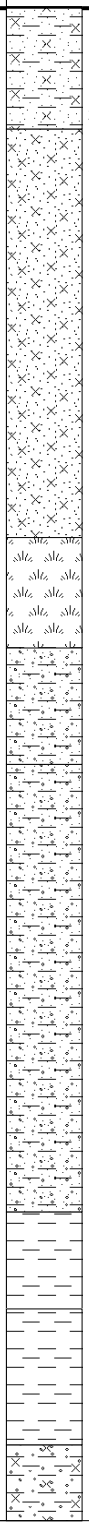
Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
11.00 - 11.45 11.00 - 11.45 11.00 - 11.50	SPTS D 32 B 33		N=15 (3,5/4,3,4,4)	11.00	4.90
				05/06/15 12.00	1800 4.70
12.00 - 12.45 12.00 - 12.45 12.00 - 12.50	SPTS D 34 B 35		N=17 (3,3/4,5,4,4)	08/06/15 12.00	 0800 4.20
13.00 - 13.45 13.00 - 13.45 13.00 - 13.50	SPTS D 36 B 37		N=27 (4,6/5,6,8,8)	13.00	4.40
14.00 - 14.45	U 38		60 blows 90% rec	13.00	4.40
14.50	D 39				
				08/06/15 15.00	1800 4.80
15.00 - 15.75	33 NA NA		Flush: 15.00 - 19.50 Polymer 100%	12/06/15 15.00	0800 3.10
15.98 - 16.30 15.75 - 16.50	100 NA NA		CS 40		
16.50 - 18.00	27 NA NA				
18.10 - 18.60 18.00 - 18.75	100 NA NA		ES 41		
19.00 - 19.40 18.75 - 19.50	100 NA NA		CS 42		
19.60 - 20.05			Flush: 19.50 - 21.00 Polymer 50% CS 43		

Strata Description

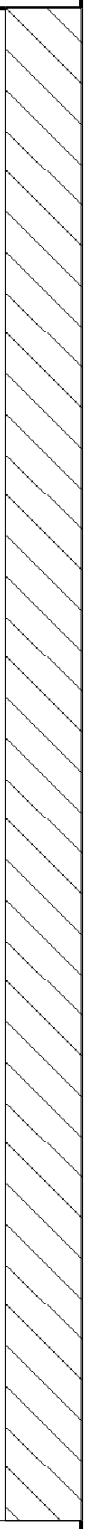
Main	Detail	Depth, Level (Thickness)
		(1.30)
Medium dense greyish brown silty fine to medium SAND with occasional greyish brown clay pockets. Occasional fine gravel size shell fragments.		10.80 -7.26
		(2.70)
Dark brown and black pseudo fibrous PEAT. Occasional wood fragments up to 15mm.		13.50 -9.96
		(0.73)
Firm greyish brown, locally yellowish brown and grey, slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of chalk, flint, occasional sandstone and igneous lithologies.		14.23 -10.69
		(0.77)
Firm greyish brown slightly sandy slightly gravelly CLAY with low cobble content. Gravel is angular to subrounded, fine to coarse of chalk, flint and various igneous lithologies. Cobbles are subrounded igneous.	15.00-15.50 AZCL	15.00 -11.46
	16.50-17.60 AZCL	(2.96)
	17.60-17.76 Firm locally stiff brown clay 17.76-17.88 Subrounded cobble	17.96 -14.42
Stiff indistinctly thinly to thickly laminated indistinctly fissured greyish brown, locally brown, CLAY. Fissures are randomly orientated, extremely closely spaced. Occasional grey silt dusting on laminae and fissure surfaces.		(0.64)
Stiff thinly laminated greyish brown, locally slightly gravelly, CLAY. Gravel is subrounded medium of chalk. Frequent light brown silt dusting on laminae surfaces.		18.60 -15.06
	19.08 Medium chalk gravel	(0.90)
Firm brownish grey slightly gravelly silty CLAY. Gravel is angular to subrounded fine to coarse of chalk and flint.		19.50 -15.96
		(0.75)

Hole continues on next sheet

Legend



Backfill



Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)
2	10.70	Rose to 6.00 m after 20 minutes.	

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH310

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.54 mOD
Logged	RPM	04/06/2015	Dando 175/Beretta T44	0.00	2.50	250	2.50	**Coordinates (m)**	E 509499.97
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.50	15.00	200	15.00	**National Grid**	N 428410.77
Approved	LB	16/06/2015	Cable percussion to 15.00m, rotary core to 40.00m	15.00	40.00	146	33.00		
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water
19.50 - 21.00	100 NA NA			12/06/15 21.00	1530 2.50
21.00 - 21.50			Flush: 21.00 - 28.75 Polymer 25% CS 45	15/06/15 21.00	0800 3.10
21.50 - 21.90	100 NA NA		CS 46		
21.00 - 22.50					
21.90 - 22.35			CS 47		
22.50 - 23.00			B 52		
22.50 - 24.00	100 NA NA		CS 48		
23.27 - 23.60					
24.68 - 24.83	93 NA NA	NA NA NA	CS 49		
24.00 - 25.50					
25.25 - 25.45			CS 50		
25.50 - 27.00	77 NA NA				
26.51 - 26.77			CS 51		
27.00 - 28.50	11 NA NA				
28.50 - 28.75			100 NA NA	15/06/15 28.75	1630
			Flush: 28.75 - 33.00 Polymer 20%	16/06/15 28.75	0800 3.10
28.75 - 30.00	0 NA NA	NA NA NA			

Strata Description

Main	Detail	Depth, Level (Thickness)	Legend	Backfill
Firm indistinctly thinly to thickly laminated indistinctly fissured greyish brown CLAY. Fissures are randomly orientated, extremely closely to closely spaced.		20.25 -16.71 (0.51) 20.76 -17.22		
Stiff brownish grey slightly sandy slightly gravelly silty CLAY. Gravel is angular to subrounded fine to medium of chalk and flint.				
Orangish brown, locally slightly gravelly, silty fine to medium SAND with occasional brown fine to coarse sand partings. Gravel is angular to subrounded fine to coarse chalk and flint.	24.00-24.10 AZCL 24.10-24.25 Slightly gravelly 24.41-24.45 Slightly gravelly 24.68-24.83 Brown fine to coarse sand 25.11-25.16 Brown fine to coarse sand 25.50-25.85 AZCL 26.27-26.32 Brown fine to coarse sand 26.32-27.00 Slightly gravelly 27.00-28.33 AZCL	(0.22) 23.98 -20.44 (4.74)		
CHALK recovered as sandy slightly silty GRAVEL with medium cobble content. Gravel and cobbles are very weak to weak, low to medium density, white stained brown with rare grey specks. Occasional fine to medium flint gravel. No recovery Chalk rubble. (Driller's description)	30.00-31.10 AZCL	28.50 -24.96 (0.25) 28.75 -25.21 (1.25) 30.00 -26.46		

Hole continues on next sheet

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole BH310

Borehole Log

Drilled	SK/JS	**Start**	**Equipment, Methods and Remarks**	**Depth from (m)**	**to (m)**	**Diameter (mm)**	**Casing Depth (m)**	**Ground Level**	3.54 mOD
Logged	RPM	04/06/2015	Dando 175/Beretta T44	0.00	2.50	250	2.50	**Coordinates (m)**	E 509499.97
Checked	JRL	**End**	Machine excavated trial pit to 1.20m	2.50	15.00	200	15.00	**National Grid**	N 428410.77
Approved	LB	16/06/2015	Cable percussion to 15.00m, rotary core to 40.00m	15.00	40.00	146	33.00		
			SPT Hammer ID: AR1000, Rod type: NWY.						

Samples and Tests

Strata Description

Depth	TCR SCR RQD	If	Records/Samples	Date Casing	Time Water	Main	Detail	Depth, Level (Thickness)	Legend	Backfill
30.00 - 31.50	27 0 0	NI NI NI				Structureless CHALK composed of slightly sandy silty angular to subrounded fine to coarse GRAVEL with medium subrounded cobble content. Gravel and cobbles are very weak to weak, low to medium density, white stained brown with rare grey specks. Occasional fine to medium flint gravel. (BURNHAM CHALK FORMATION, Possibly Grade Dc)	31.50-32.00 AZCL	(3.00)		
31.50 - 32.25	33 0 0						32.25-33.00 No recovery - Chalk rubble (driller's description)			
32.25 - 33.00	0 0 0	NA NA NA		16/06/15 33.00	1530		33.00-33.38 NI	33.00 -29.46		
33.00 - 34.00 33.53 - 33.70	100 24 0		CS 55			Weak, low to medium density, white stained light orange brown CHALK. Bedding fractures are subhorizontal 0-10deg, extremely closely to closely spaced, planar and undulating rough, open with light orangish brown staining and white putty chalk infill up to 3mm. Prominent subvertical 80-90deg joint sets, planar and undulating rough, light orangish brown staining. Others inclined 45-60deg, planar and undulating rough, stained light orange brown with occasional grey specks. Occasional fine to medium flint gravel and rare flint cobbles (BURNHAM CHALK FORMATION, Possibly Grade C4)	33.43-33.51 NI 33.68-33.90 NI 33.97-34.00 NI 34.00-34.08 Flint cobble			
34.35 - 34.45			CS 53				34.15-34.43 NI			
34.00 - 35.50	77 19 0						34.52-34.91 NI; occasional fine to medium flint gravel 34.99-35.10 NI 35.15-35.70 AZCL			
35.50 - 36.00	60 24 0						35.70-35.81 NI; occasional fine to medium flint gravel			
36.10 - 36.90			CS 56				35.93-36.00 NI 36.07-36.27 NI 36.27-36.38 Inclined joint			
36.00 - 37.00	100 34 0	NI NI 90					36.38-36.41 NI 36.48-36.76 NI	(7.00)		
36.80 - 36.90			CS 54				36.85-37.00 NI; occasional fine to medium flint gravel 37.00-37.72 AZCL			
37.00 - 38.50	52 15 0						37.72-37.89 NI; occasional fine to medium flint gravel 37.95-38.12 NI; occasional fine to medium flint gravel 38.20-38.30 NI; occasional fine to medium flint gravel 38.42-38.46 NI 38.50-38.95 AZCL			
38.50 - 40.00	70 48 0						38.95-39.15 NI; occasional fine flint gravel 39.15-39.55 Subvertical, planar and stepped rough, open, 3mm grey silt infill 39.80-39.93 NI; occasional fine to medium flint gravel			
						END OF EXPLORATORY HOLE		40.00 -36.46		

Groundwater Entries

No.	Depth Strike (m)	Remarks	Depth Sealed (m)

Depth Related Remarks

Depths (m)	Remarks

Hard Boring

Depths (m)	Duration (mins)	Tools used

Notes: For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Scale 1:50

Project TRINITY BURIAL GROUND

Project No. A5049-15

Carried out for Balfour Beatty

Borehole

BH310

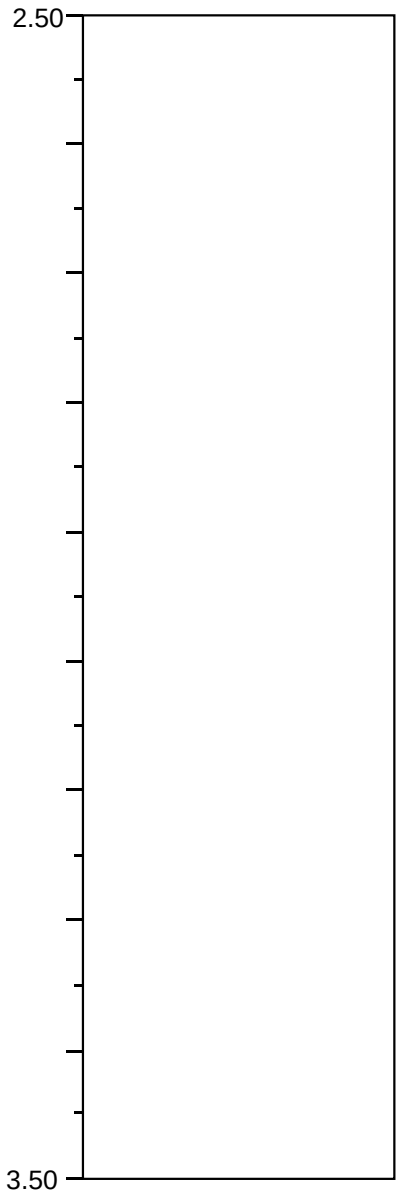
Split Tube Sample Description

Borehole No	BH302		
Sample No	8		
Sample Depth, mBGL	2.50	-	3.50
Sample Type	P		

Description

2.88 - 3.50m: Firm thinly laminated grey oxidised to orangish brown, slightly sandy silty organic CLAY with occasional dustings of dark greyish brown silt on laminae surfaces.

Detail:
2.57m: 3mm wide lens of orangish brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

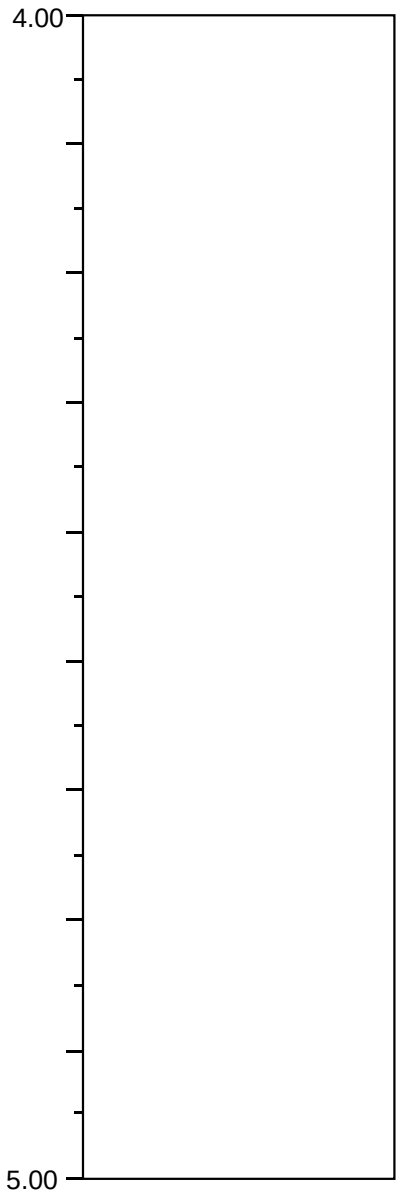
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302		
Sample No	11		
Sample Depth, mBGL	4.00	-	5.00
Sample Type	P		

Description

Firm, indistinctly thinly to thickly laminated (2mm to 8mm) greyish brown slightly sandy silty CLAY with occasional dustings of dark brownish grey silt along laminae surfaces and occasional dustings and partings up to 2mm of dark orangish brown fine silty sand.



Remarks:
4.17m - 5.00m Sample taken for testing.

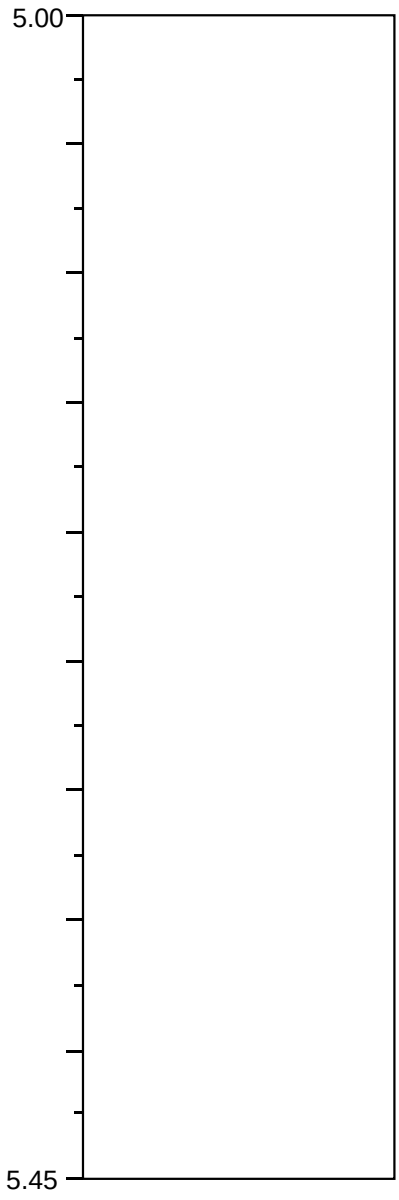
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302		
Sample No	12		
Sample Depth, mBGL	5.00	-	5.45
Sample Type	U		

Description

5.00 - 5.45m:
Soft thinly laminated brownish grey slightly sandy CLAY with frequent lenses of light brown fine sand <5mm extremely closely to closely spaced.



Remarks:

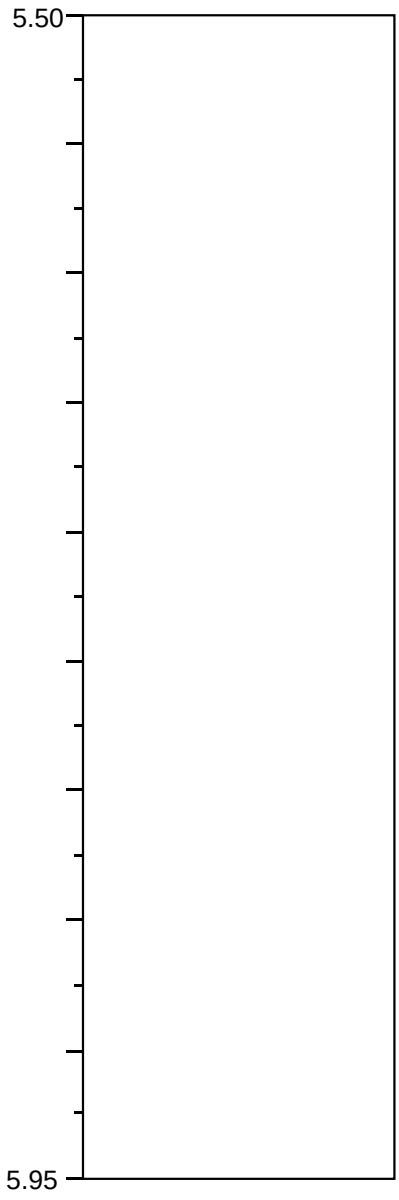
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302		
Sample No	14		
Sample Depth, mBGL	5.50	-	5.95
Sample Type	U		

Description

5.50 - 5.95m:
Soft indistinctly thinly laminated greyish brown slightly sandy CLAY with frequent vertical to subvertical dipping fissures typically <12mm in length, extremely closely spaced.



Remarks:

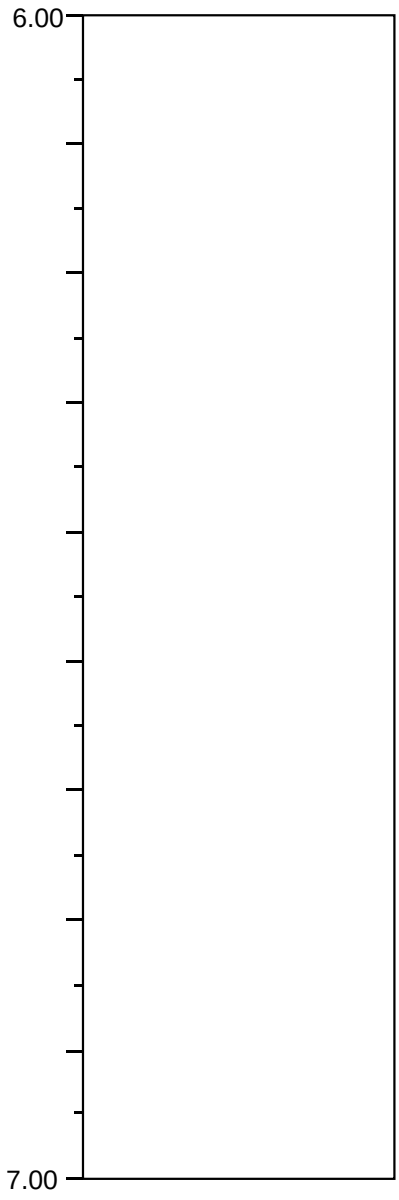
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302		
Sample No	16		
Sample Depth, mBGL	6.00	-	7.00
Sample Type	P		

Description

6.00 - 6.70m:
Soft, locally firm, thinly laminated greyish brown and occasional light brown silty CLAY with extremely closely spaced fine sand and silt laminations.



Remarks:

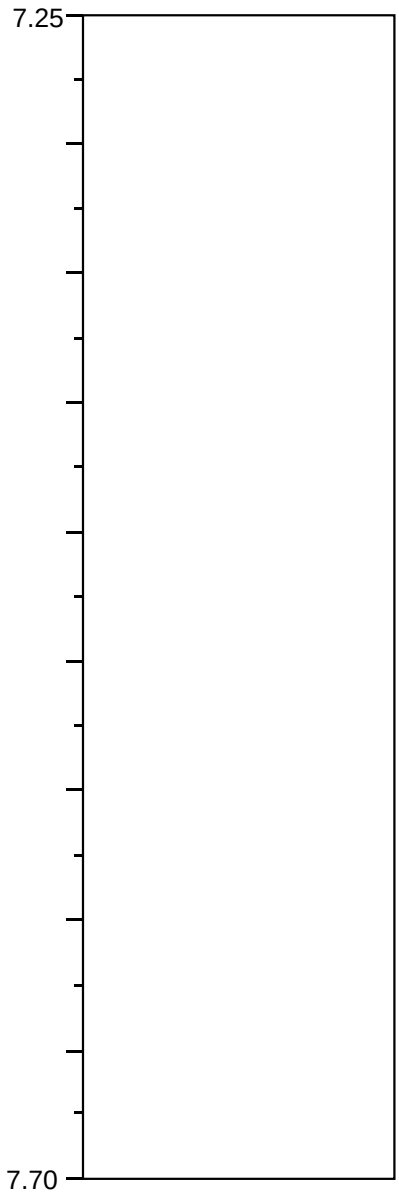
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302		
Sample No	17		
Sample Depth, mBGL	7.25	-	7.70
Sample Type	U		

Description

7.25 - 7.60m:
Probable sample disturbance.
Soft indistinctly thinly laminated greyish brown slightly sandy CLAY with rare pockets of light brown fine sand typically <15mm diameter.



Remarks:

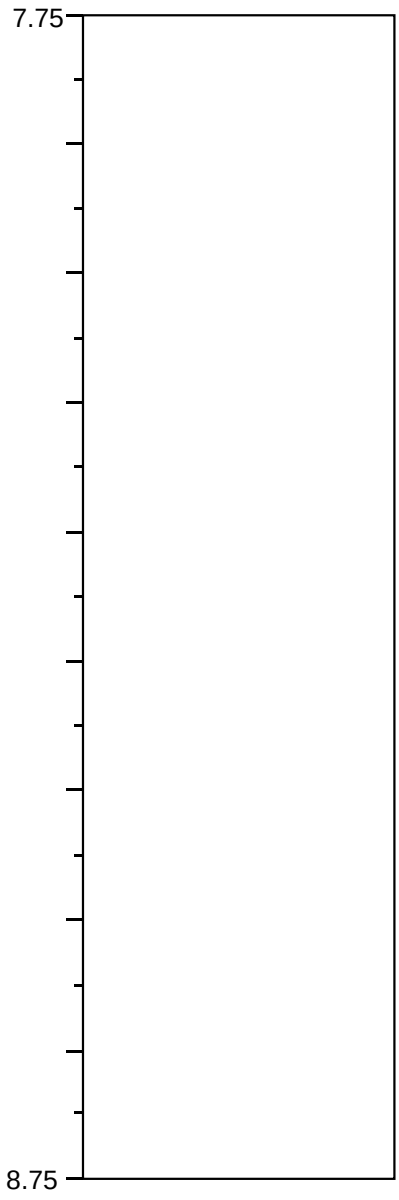
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302		
Sample No	19		
Sample Depth, mBGL	7.75	-	8.75
Sample Type	P		

Description

Firm, thinly to thickly (1mm to 6mm) laminated, dark greyish brown silty CLAY with laminations up to 15mm of clayey silt. Occasional partings of light brown fine sand.



Remarks:
7.92m – 8.75m Sample taken for testing.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

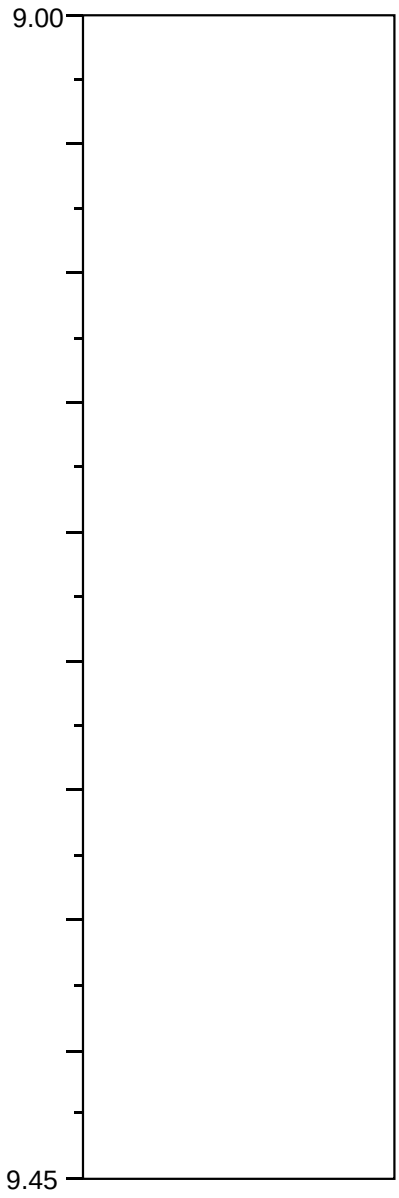
Split Tube Sample Description

Borehole No	BH302			
Sample No	20			
Sample Depth, mBGL	9.00	-	9.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

9.00 - 9.35m:
Very soft, locally soft, indistinctly very thinly to thinly laminated dark brownish grey slightly sandy CLAY with localised pockets of brown fine to medium sand <5mm diameter.

Detail:
9.15 - 9.20m: Extremely closely spaced randomly orientated fissures.



Remarks:

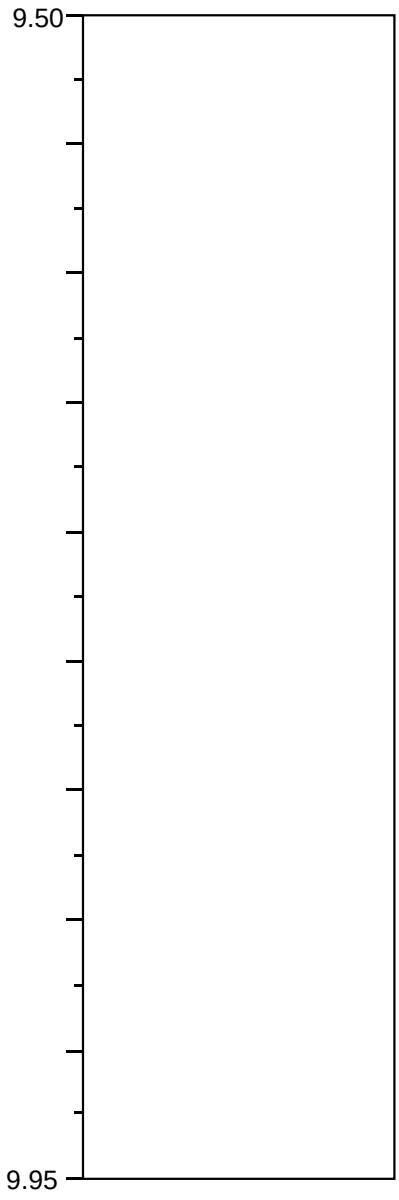
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302			
Sample No	22			
Sample Depth, mBGL	9.50	-	9.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

9.50 - 9.67m:
Firm thinly cross laminated fissured light greyish brown slightly sandy slightly silty CLAY. Frequent irregular/disturbed light brown fine sand lenses <3mm extremely closely spaced with occasional disturbed grey patches of fine sand throughout sample.
Fissures are randomly orientated.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

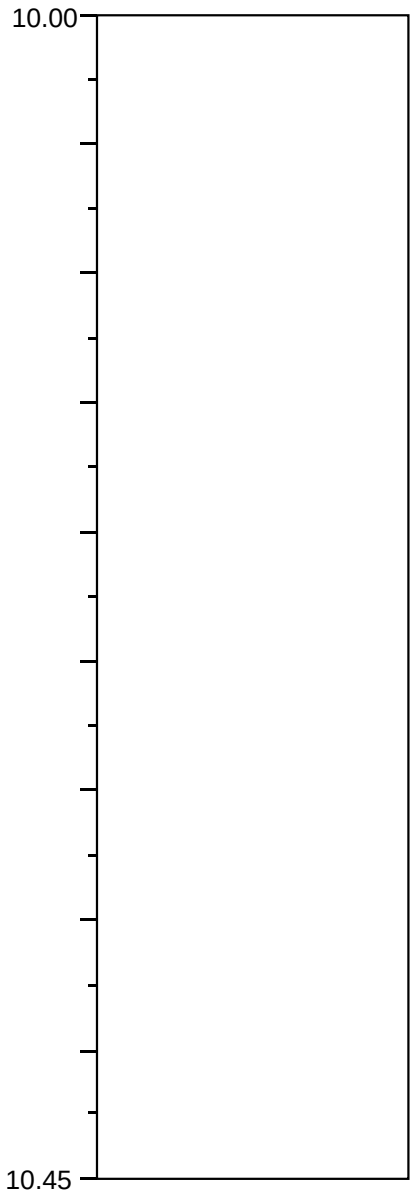
Split Tube Sample Description

Borehole No	BH302			
Sample No	24			
Sample Depth, mBGL	10.00	-	10.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

10.00 - 10.10m:
Firm, locally stiff, thinly laminated light to dark greyish brown sandy slightly silty CLAY.

10.10 - 10.44m:
Firm thinly laminated, locally laminated, dark brownish grey slightly sandy CLAY with occasional fine sand dustings on laminae. Rare subvertical dipping fissures typically <7mm length, extremely closely spaced.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

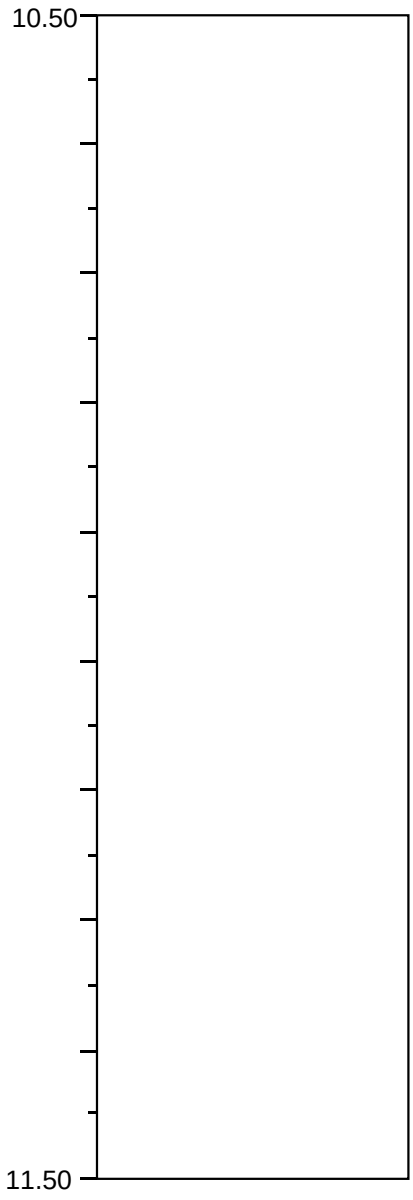
Split Tube Sample Description

Borehole No	BH302		
Sample No	26		
Sample Depth, mBGL	10.50	-	11.50
Sample Type	P		

Description

10.50 - 11.50m:
Firm, locally indistinctly thinly to thickly laminated, dark greyish brown slightly peaty, locally peaty, silty CLAY. Peat is pseudo fibrous with plant remains up to 20mm.

Detail:
10.71m - wood remains 60 x 8mm. Occasional impersistent planar fissure surfaces throughout.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

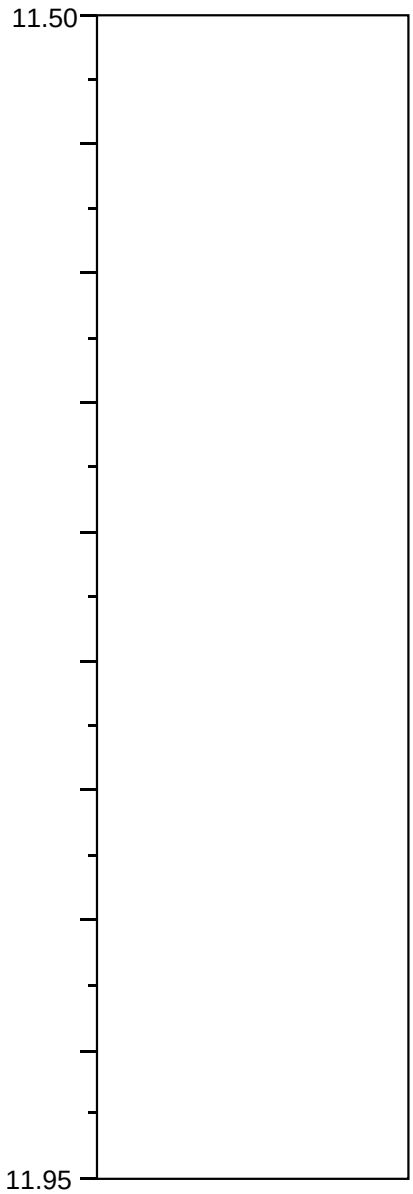
Borehole No	BH302			
Sample No	27			
Sample Depth, mBGL	11.50	-	11.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

11.50 - 11.64m:
Soft, locally firm, thinly and thickly cross laminated greyish brown, locally brownish grey, slightly sandy CLAY with rare randomly orientated fissures extremely to very closely spaced.

11.68 - 11.95m:
Firm indistinctly thinly laminated dark brownish grey, locally greenish grey, silty CLAY with frequent fine and medium gravel size black carbonaceous inclusions.

Detail:
11.54m: 50x20x3mm wood fragment.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

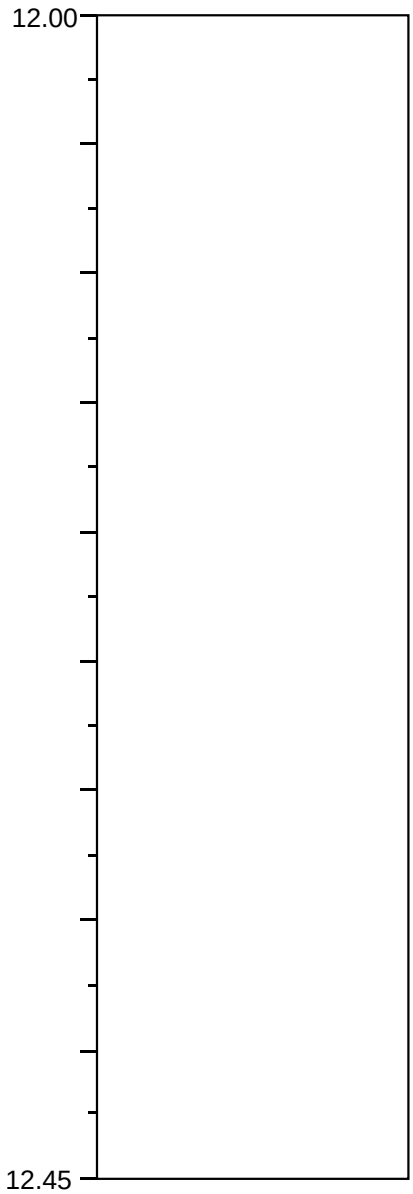
Split Tube Sample Description

Borehole No	BH302			
Sample No	29			
Sample Depth, mBGL	12.00	-	12.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

12.00 - 12.21m:
Stiff thinly laminated dark greenish brown slightly silty CLAY with rare black plant remains typically up to 10mm in length.

12.21 - 12.45m:
Firm dark brown oxidising to black psuedo fibrous PEAT with wood fragments up to 20mm.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

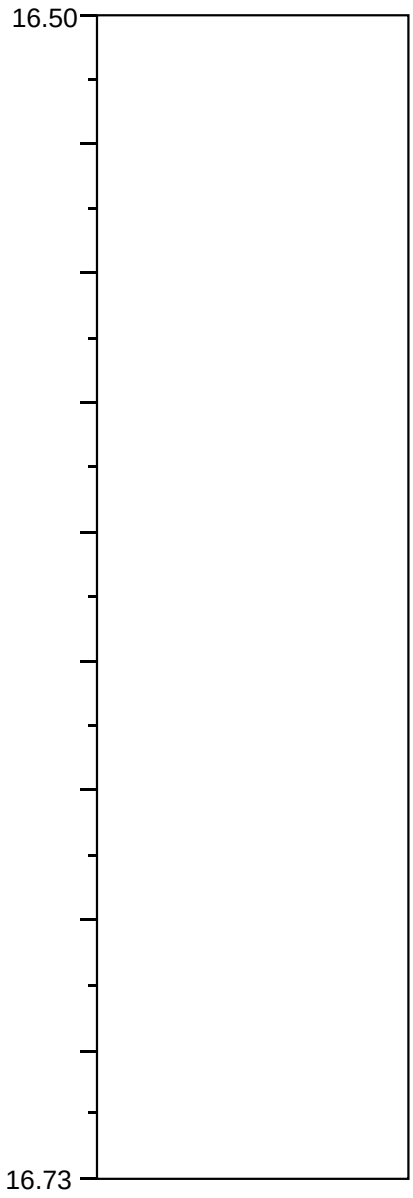
Split Tube Sample Description

Borehole No	BH302			
Sample No	41			
Sample Depth, mBGL	16.50	-	16.73	Note: Sample length <> 45 cm
Sample Type	U			

Description

16.50 - 16.58m:
Probable sample disturbance greyish brown gravelly fine to coarse SAND adjacent to clay on a steep inclined surface (probable clay cutter surface). Gravel is subangular to subrounded fine to medium of chalk, flint and sandstone.

16.58 - 16.73m:
Stiff indistinctly thinly laminated greyish brown, locally slightly sandy, slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of predominantly chalk with occasional flint.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

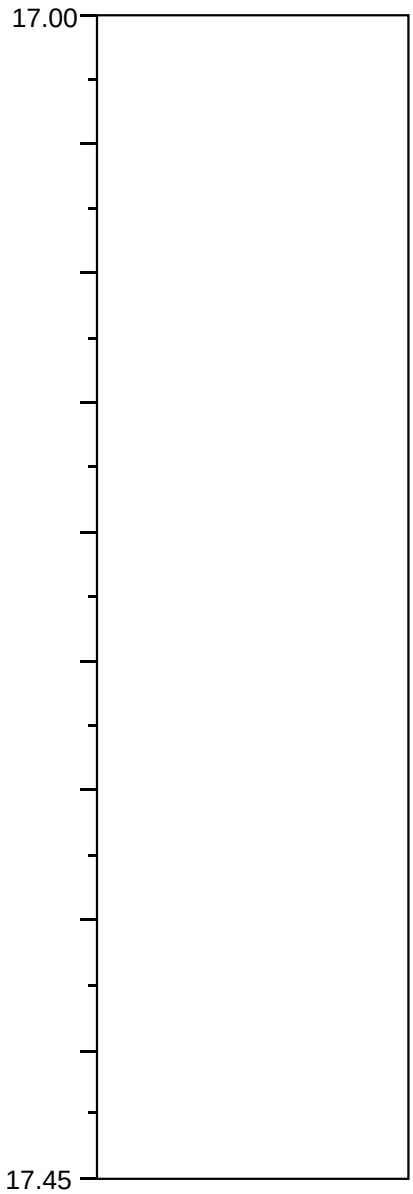
Split Tube Sample Description

Borehole No	BH302			
Sample No	43			
Sample Depth, mBGL	17.00	-	17.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

17.00 - 17.09m:
Firm greyish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of chalk and sandstone.

17.09 - 17.35m:
Stiff indistinctly thinly laminated greyish brown slightly sandy CLAY with rare gravel. Gravel is subangular fine to medium of chalk.



Remarks:

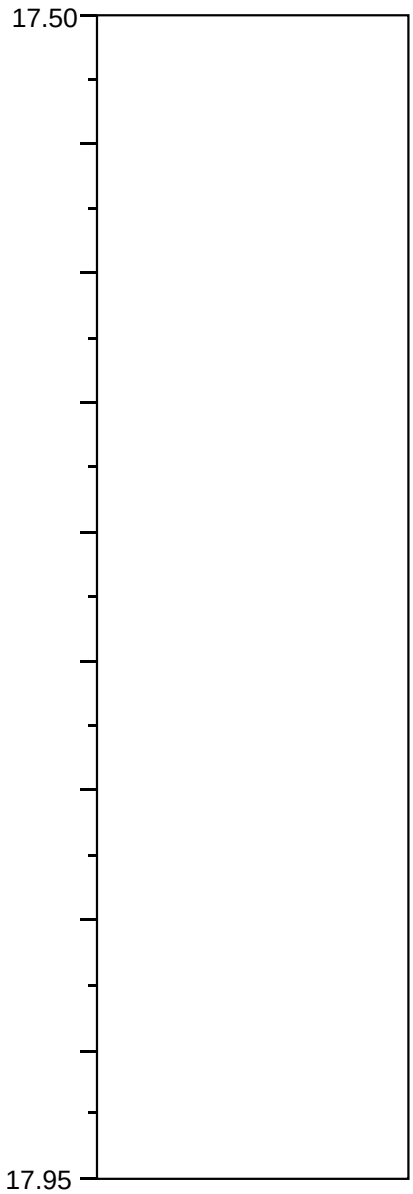
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302			
Sample No	45			
Sample Depth, mBGL	17.50	-	17.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

17.50 - 17.90m:
Stiff indistinctly thinly laminated greyish brown slightly sandy slightly silty CLAY with rare light brownish beige silt dustings and laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302			
Sample No	49			
Sample Depth, mBGL	18.50	-	18.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

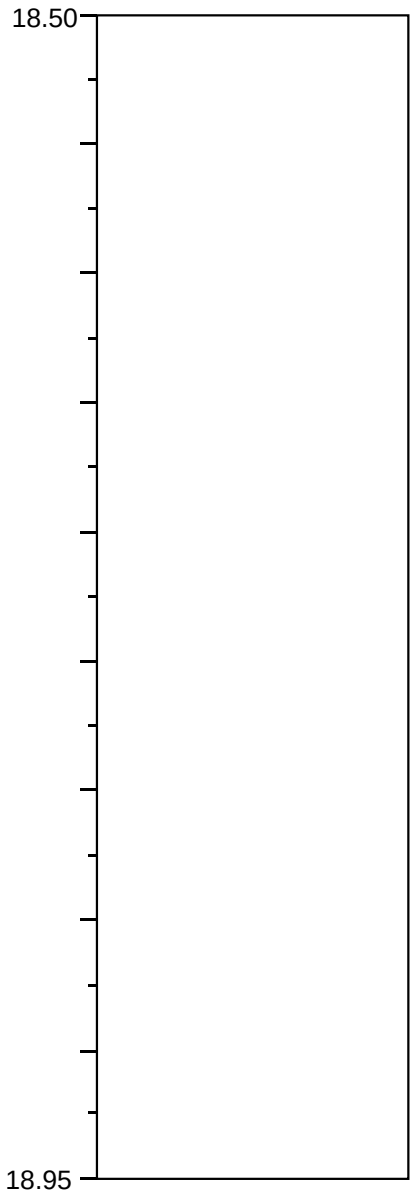
18.50 - 18.73m:
Stiff, locally firm, thinly, occasionally thickly laminated, greyish brown CLAY with occasional dustings of brown silt along laminae surfaces. Very closely spaced partings up to 5mm thick of orangish brown fine to medium sand. Rare subrounded to rounded fine gravel of chalk throughout. Occasionally closely spaced randomly orientated indistinct fissure surface.

18.73 - 18.95m:
Stiff thinly to thickly laminated (1 to 8mm), locally indistinctly fissured, brown silty CLAY. Occasional dusting of light brown silt and orangish brown fine sand on laminae surfaces.

Detail:
18.50m: Thin 3mm lenses of orangish brown fine sand.

18.58m: 20mm thick parting of orangish brown fine to medium sand.

18.68m: 4mm thick parting of black fine to coarse sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

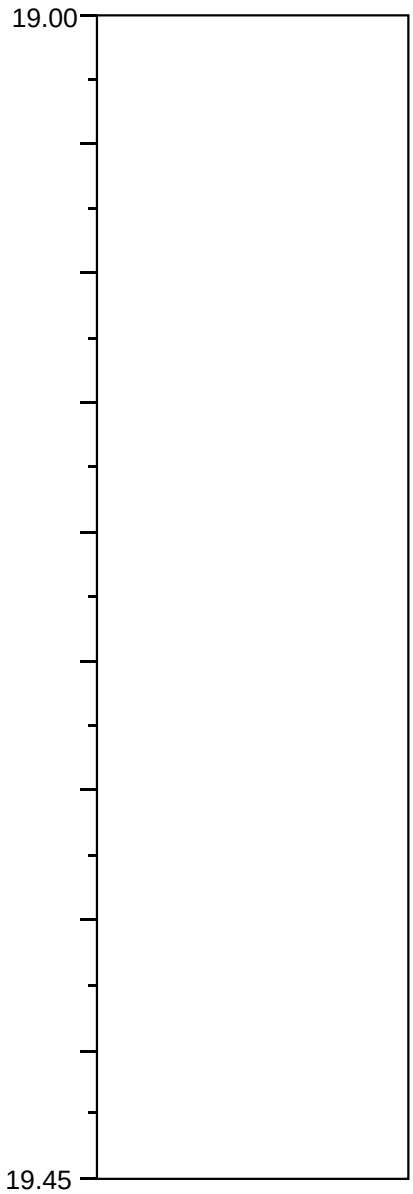
Borehole No	BH302			
Sample No	51			
Sample Depth, mBGL	19.00	-	19.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

19.00 - 19.15m:
Soft indistinctly thinly laminated greyish brown slightly sandy CLAY. Rare pockets of light brown fine to medium sand typically up to 12mm diameter. Occasional steeply dipping fissures approximately <6mm in length.

19.18 - 19.45m:
Firm locally stiff thinly to thickly indistinctly laminated brown clayey SILT.

Detail:
19.06 - 19.10m: Frequent thin lenses of orangish brown silt.
19.08m: Subangular coarse flint gravel.
19.17m: Rounded medium chalk gravel.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

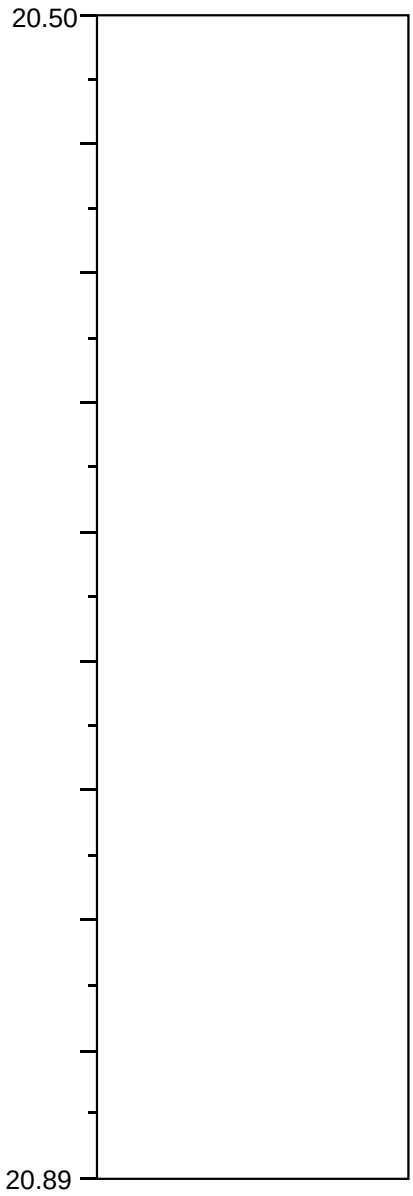
Split Tube Sample Description

Borehole No	BH302			
Sample No	57			
Sample Depth, mBGL	20.50	-	20.89	Note: Sample length <> 45 cm
Sample Type	U			

Description

20.50 - 20.89m:
Stiff thinly and thickly laminated greyish brown CLAY with frequent dustings and partings up to 3mm of light brown silt along laminae surfaces.

Detail:
20.50 - 20.61m: Indistinctly laminated, no silt dustings or partings.
20.67 - 20.71m: Extremely closely spaced. Irregular partings up to 10mm of orangish brown silty fine to medium sand.
20.79m: 3mm parting of orangish brown silty fine to medium sand. 2No. subrounded medium gravel of chalk.
20.82m: 6mm parting of orangish brown silty fine to medium sand.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

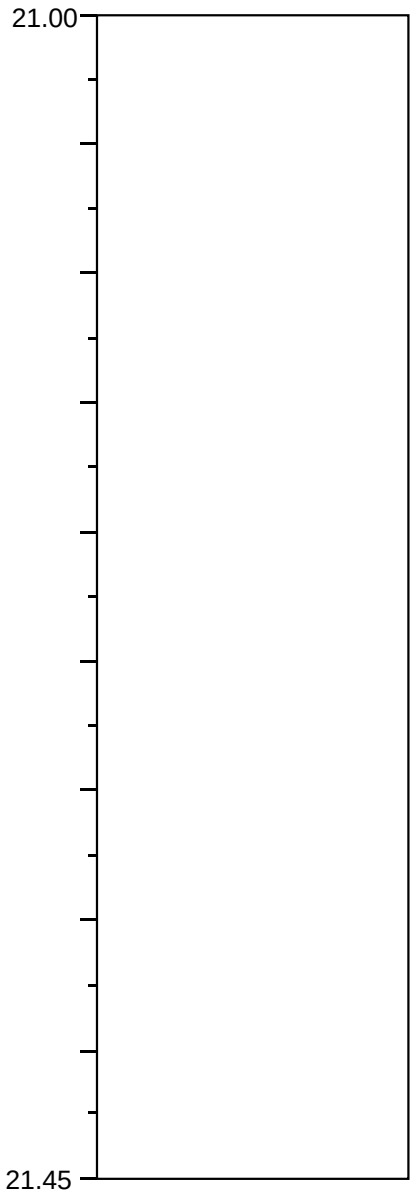
Split Tube Sample Description

Borehole No	BH302			
Sample No	59			
Sample Depth, mBGL	21.00	-	21.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

21.00 - 21.20m:
Soft indistintly thinly laminated greyish brown slightly sandy CLAY with occasional steeply dipping fissures up to 10mm. Frequent fine sand dustings on laminae surfaces.

21.20 - 21.45m:
Firm thinly laminated greyish brown slightly sandy CLAY. Frequent light brown fine sand lenses up to 4mm extremely closely spaced.



Remarks:

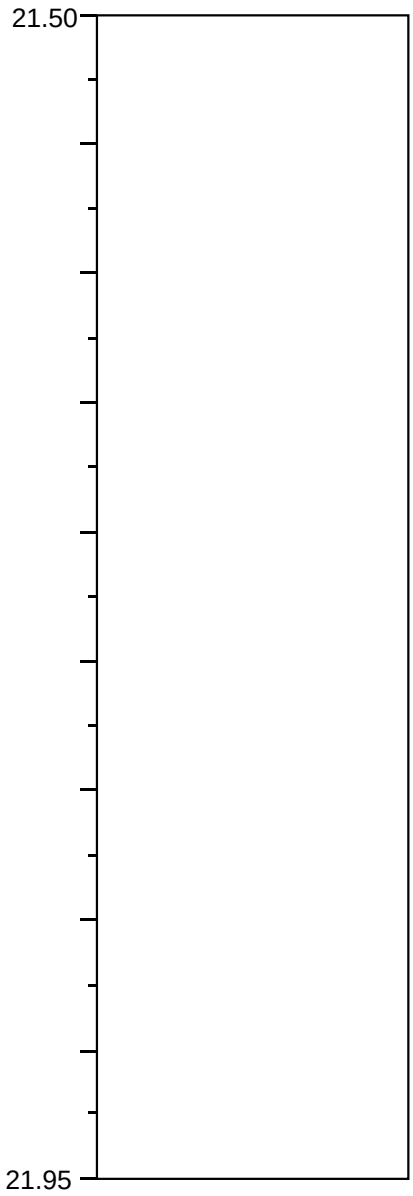
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302			
Sample No	61			
Sample Depth, mBGL	21.50	-	21.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

21.50 - 21.95m:
Very stiff indistinctly thinly laminated brown CLAY with low cobble content. Rare light brown silt dustings present on laminae surfaces. Cobbles are subrounded of chalk.



Remarks:

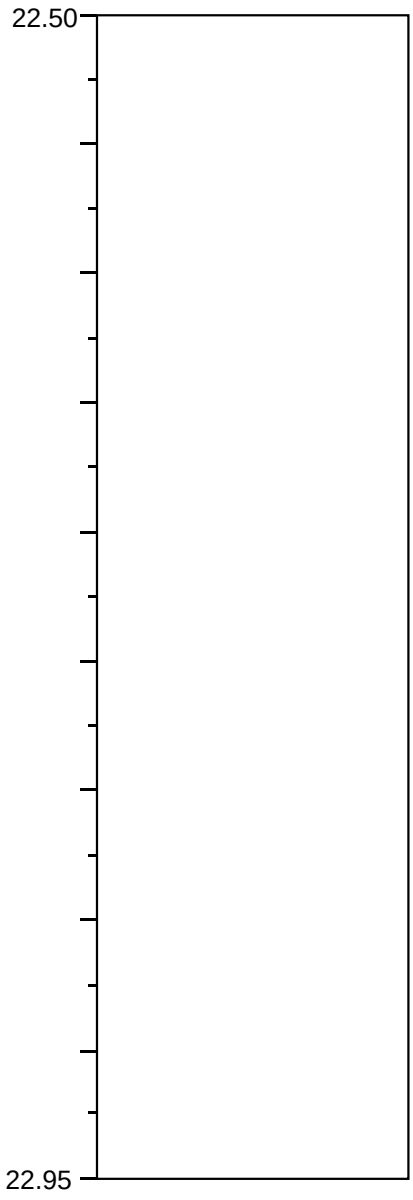
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH302			
Sample No	65			
Sample Depth, mBGL	22.50	-	22.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

22.50 - 22.69m:
Soft thinly laminated light brown, locally dark brown, silty CLAY with rare light brown silt dustings of laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH302
	Carried out for	Balfour Beatty	

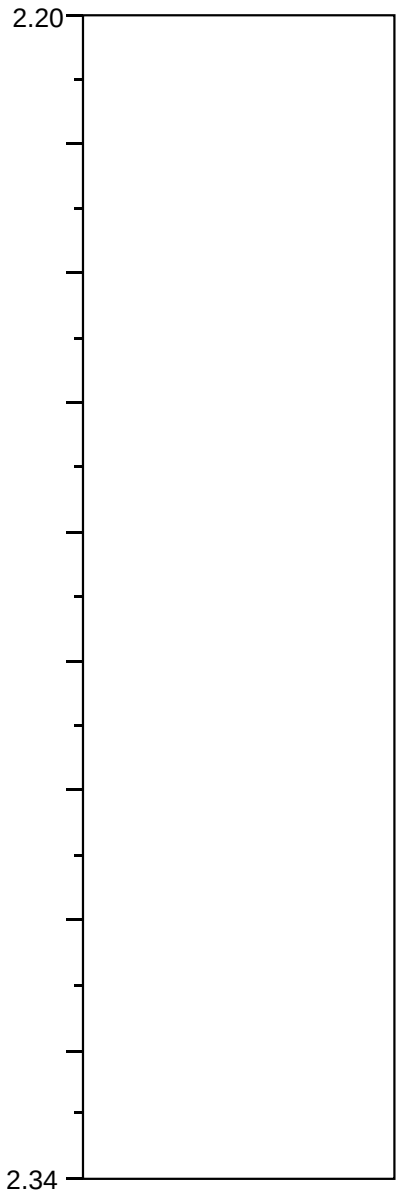
Split Tube Sample Description

Borehole No	BH303			
Sample No	1			
Sample Depth, mBGL	2.20	-	2.34	Note: Sample length <> 45 cm
Sample Type	U			

Description

2.20 - 2.34m:
Firm, locally stiff, indistinctly thinly and thickly laminated fissured brown slightly sandy CLAY with frequent dustings and partings up to 2mm of light brown silt. Fissures are very closely spaced, predominantly subrounded and subhorizontal, planar with occasional reddish brown staining. Occasional relict rootlets tracks throughout.

Detail:
2.25m: 5mm thick parting of light brown fine silt sand.
Laminations locally inclined to 20-25 degree.



Remarks:

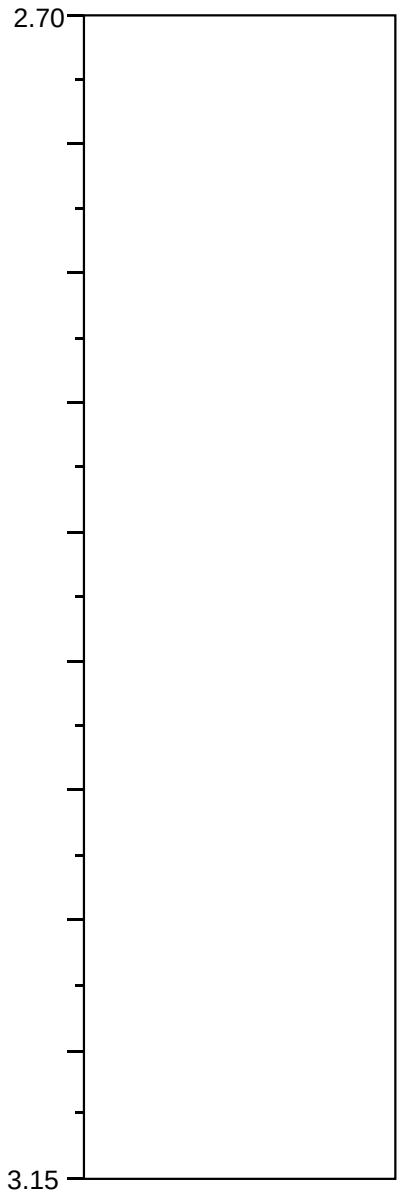
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303		
Sample No	3		
Sample Depth, mBGL	2.70	-	3.15
Sample Type	U		

Description

2.70 - 3.15m:
Firm thinly to thickly laminated light brown and locally dark brown slightly sandy silty CLAY with frequent light orangish brown fine sand interlaminations typically <4mm, extremely closely spaced.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

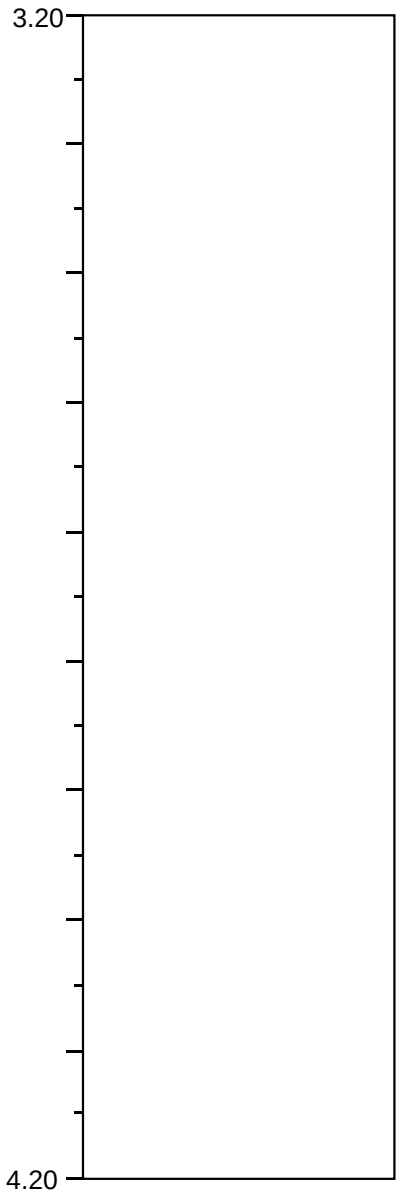
Split Tube Sample Description

Borehole No	BH303		
Sample No	5		
Sample Depth, mBGL	3.20	-	4.20
Sample Type	P		

Description

Firm, thinly and thickly laminated dark greyish brown clayey SILT with dustings of fine light brown sand on laminae surfaces.

Detail:
3.34m Inclined lens up to 5mm wide of fine light brown sand.



Remarks:
3.39m - 4.20m Sample taken for testing.

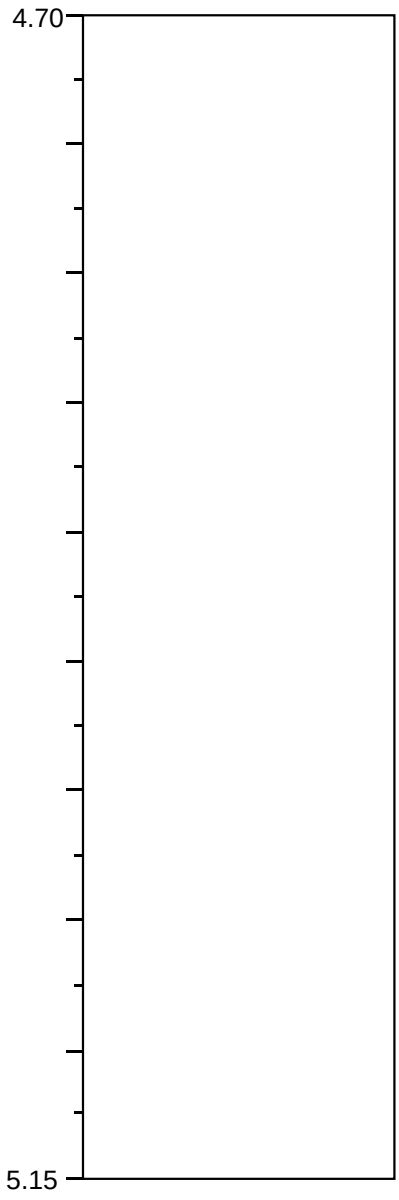
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303		
Sample No	8		
Sample Depth, mBGL	4.70	-	5.15
Sample Type	U		

Description

4.70 - 4.84m:
Probable sample disturbance.
Soft greyish brown slightly sandy CLAY with rare light and dark brown fine to medium sand laminations.



Remarks:
0.14m recovery.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

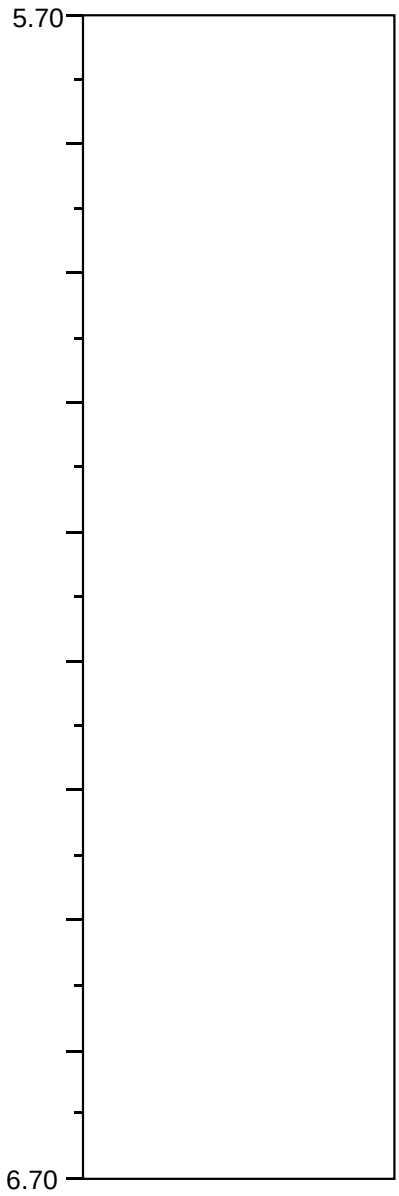
Split Tube Sample Description

Borehole No	BH303		
Sample No	12		
Sample Depth, mBGL	5.70	-	6.70
Sample Type	P		

Description

Firm locally stiff, indistinctly thinly cross-laminated fissured dark greyish brown, oxidising to brown, clayey organic SILT with frequent dustings of light brown fine sand on laminae surfaces and organic odour. Occasional lenses up to 25mm of light brown fine sand. Fissures are closely spaced and randomly orientated.

Detail:
5.76m Lens up to 25mm of light brown fine sand.



Remarks:
5.87m – 6.70m Sample taken for testing.

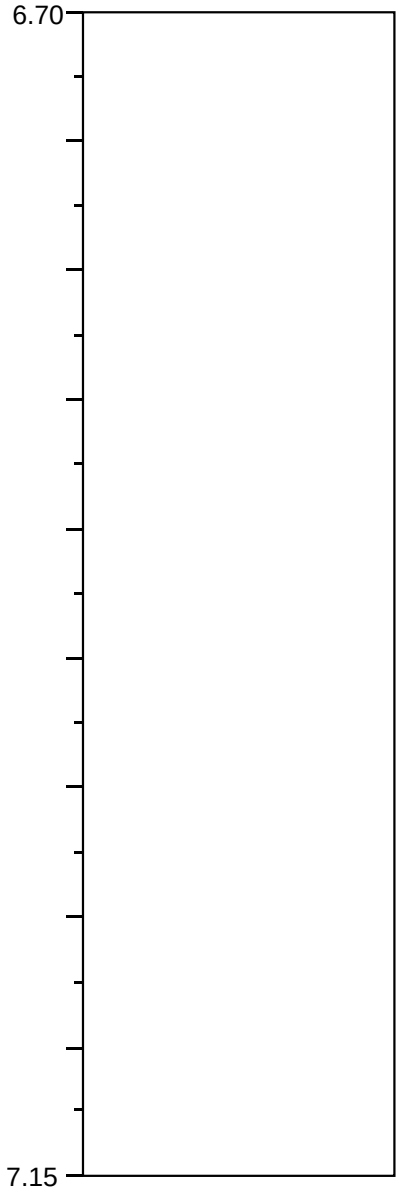
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303		
Sample No	13		
Sample Depth, mBGL	6.70	-	7.15
Sample Type	U		

Description

6.70 - 7.07m:
Firm, localy soft, indistinctly thinly laminated greyish brown and light brown sandy slightly silty CLAY with occasional light brown silty dustings on laminae surfaces.
Frequent randomly orientated fissures up to 10mm, extremely closely spaced.



Remarks:

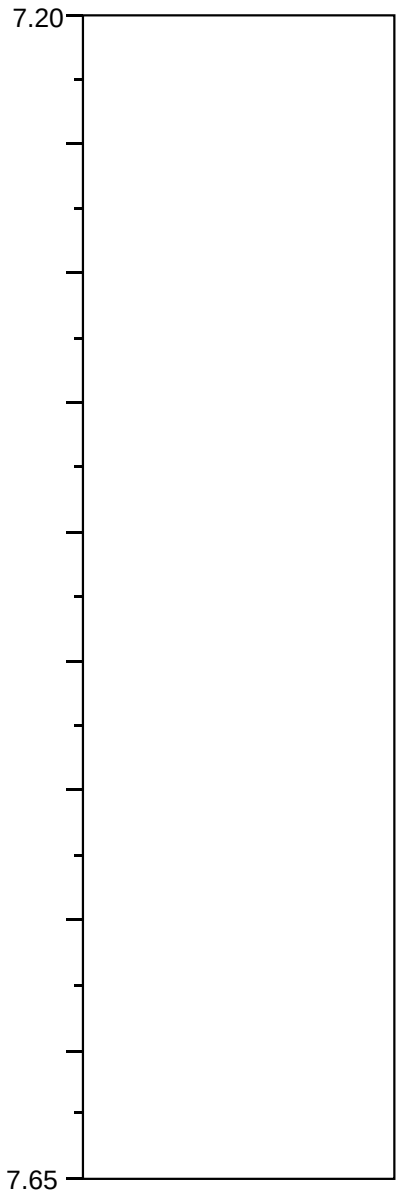
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303		
Sample No	15		
Sample Depth, mBGL	7.20	-	7.65
Sample Type	U		

Description

7.20 - 7.41m:
Soft, locally firm, possibly drill disturbed/fissured thinly laminated dark greyish brown and light brown slightly sandy CLAY with rare light brown silt dusings on laminae surfaces.
Fissures are randomly orientated up to 10mm, extremely closely spaced.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

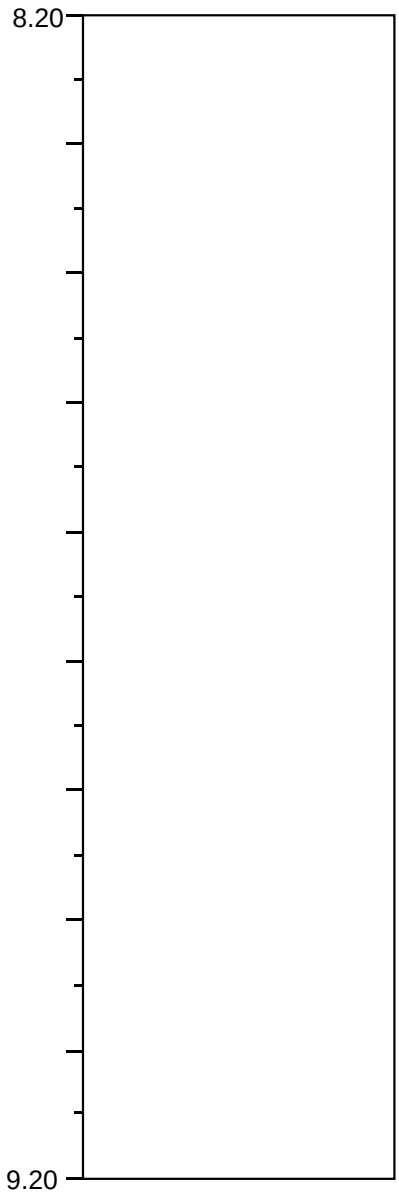
Split Tube Sample Description

Borehole No	BH303		
Sample No	19		
Sample Depth, mBGL	8.20	-	9.20
Sample Type	P		

Description

8.62 - 9.20m: Firm indistinctly thinly and thickly laminated black and dark greyish brown sandy slightly clayey SILT.

Detail:
8.23 - 8.24m: Orange brown fine silty sand.
8.30 - 8.33m: Orange brown fine silty sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

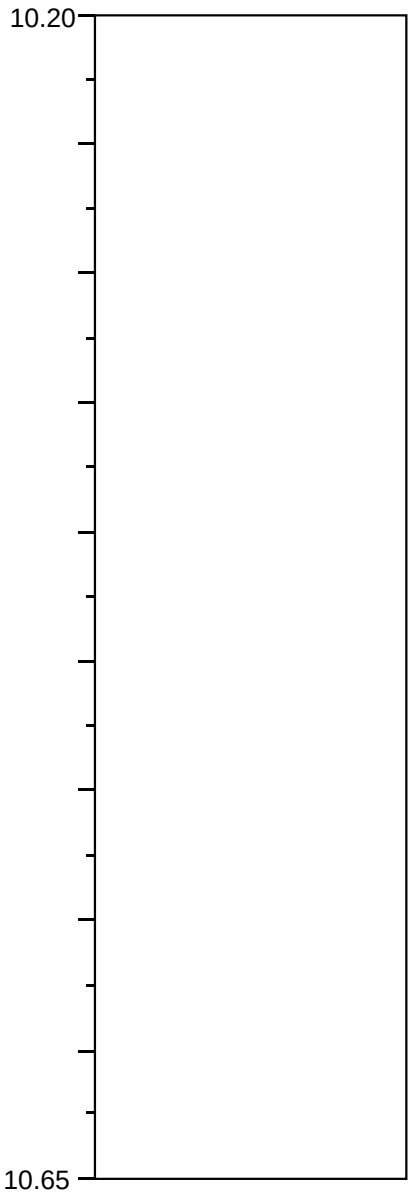
Split Tube Sample Description

Borehole No	BH303			
Sample No	24			
Sample Depth, mBGL	10.20	-	10.65	Note: Sample length <> 45 cm
Sample Type	U			

Description

10.20 - 10.49m:
Firm, locally soft, fissured thinly to thickly lamianted greenish grey slightly sandy slightly silty CLAY with rare pockets of very soft dark grey and black sandy clay. Fissures are randomly orientated typically <7mm extremely closely spaced.

Details:
10.45m: Patch of very soft dark grey and black sandy clay with light brown silt dustings of laminae surfaces.



Remarks:

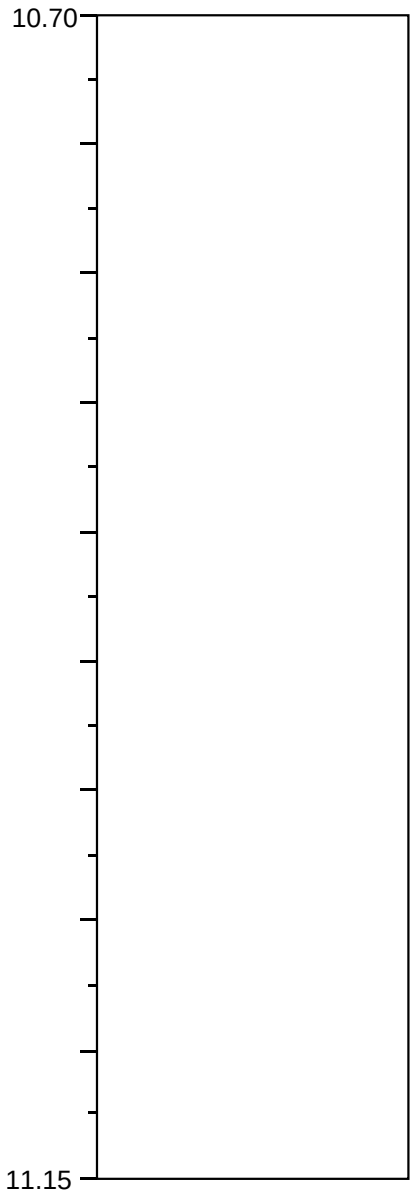
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	26			
Sample Depth, mBGL	10.70	-	11.15	Note: Sample length <> 45 cm
Sample Type	U			

Description

10.70 - 10.95m:
Very soft to soft dark brownish grey thinly to thickly laminated slightly sandy CLAY with rare angular fragments of dark brown oxidising black fibrous peat typically elongated <10mm.



Remarks:

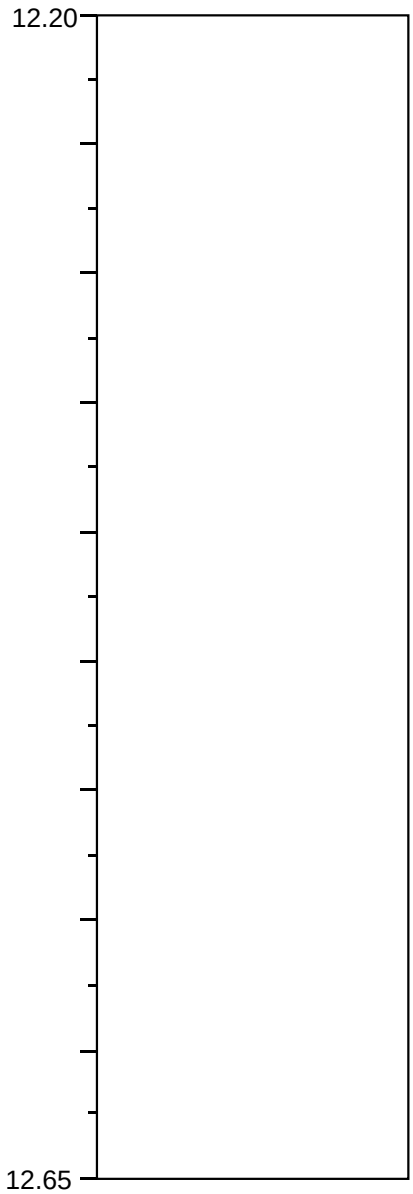
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	29			
Sample Depth, mBGL	12.20	-	12.65	Note: Sample length <> 45 cm
Sample Type	U			

Description

12.20 - 12.30m:
Moderate sample disturbance.
Firm, becoming stiff with depth, greyish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to angular fine to coarse of sandstone, siltstone, flint and occasional chalk.



Remarks:
0.10m recovery.

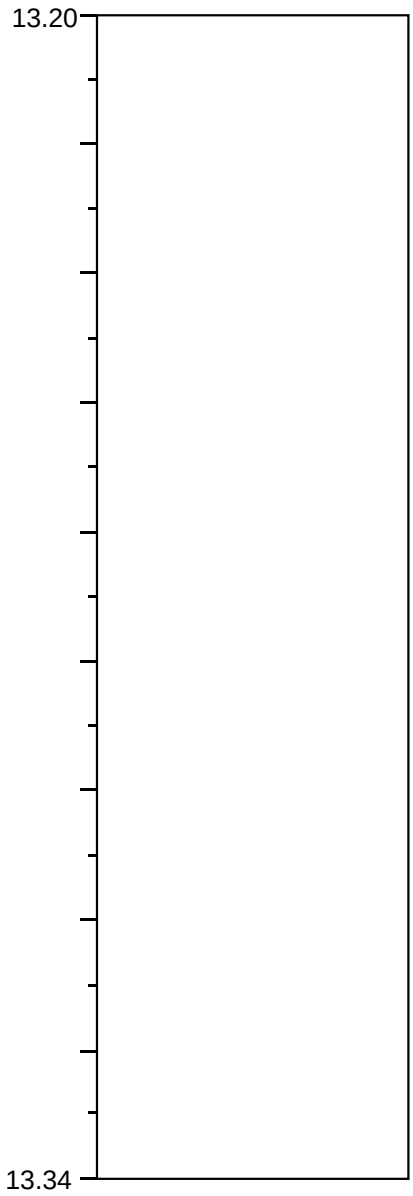
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	32			
Sample Depth, mBGL	13.20	-	13.34	Note: Sample length <> 45 cm
Sample Type	U			

Description

13.20 - 13.34m:
Stiff thinly laminated occasionally indistinctly brown mottled grey slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse of various lithologies including chalk, flint and sandstone. Occasional dustings of grey silt and fine sand on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	34			
Sample Depth, mBGL	13.70	-	14.15	Note: Sample length <> 45 cm
Sample Type	U			

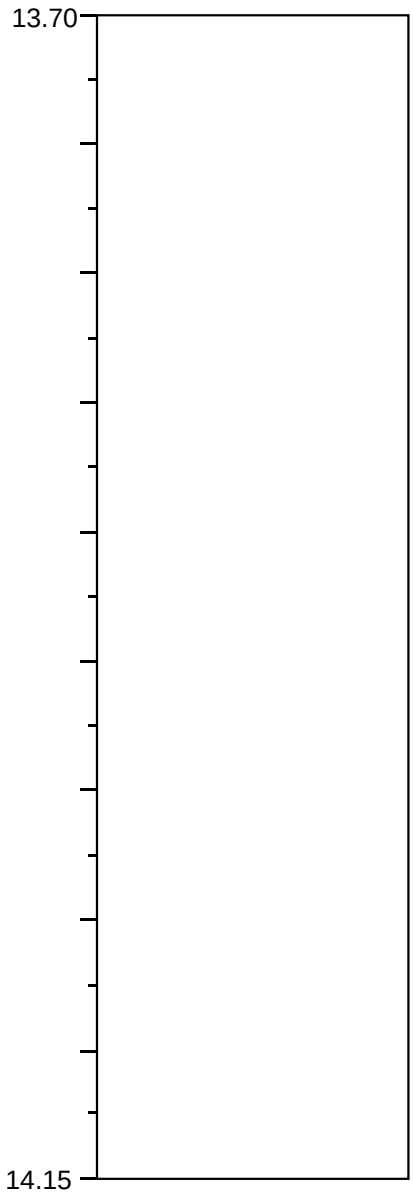
Description

13.70 - 13.78m:
Stiff indistinctly thinly laminated light brown CLAY with rare light brown silt dustings on laminae surfaces.

13.87 - 13.90m:
Very soft brownish grey sandy CLAY.

13.90 - 14.13m:
Stiff indistinctly thinly laminated light brown CLAY with rare light brown silt dustings on laminae surfaces.

Detail:
14.00m: Pocket of very soft grey sandy CLAY typically covering 50% core surface up to 20mm.



Remarks:

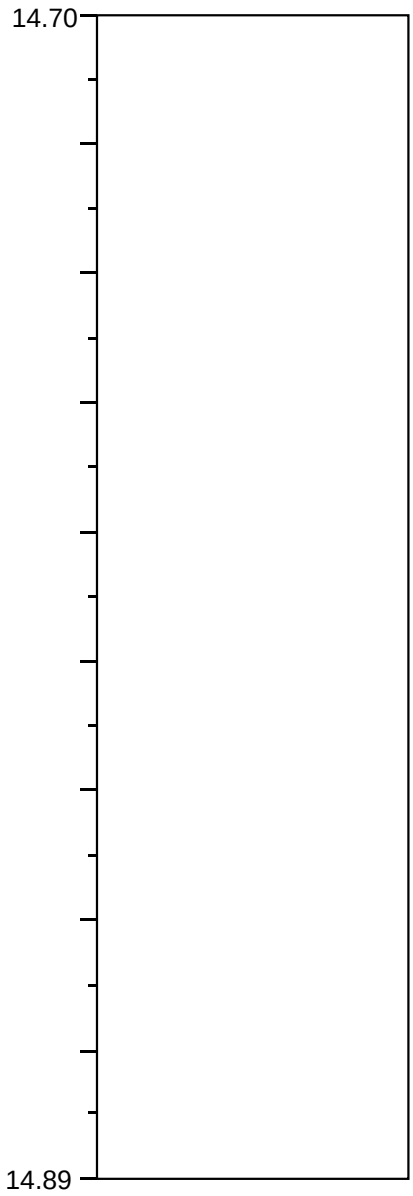
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	38			
Sample Depth, mBGL	14.70	-	14.89	Note: Sample length <> 45 cm
Sample Type	U			

Description

14.70 - 14.89m:
Stiff indistinctly thinly laminated fissured brown, locally slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of predominantly chalk. Occasional dustings and partings up to 3mm of light brown silt along laminae and fissure surfaces. Laminations predominantly inclined to 60-70 degree. Fissures are extremely closely to very closely spaced, randomly orientated, occasionaly polished.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

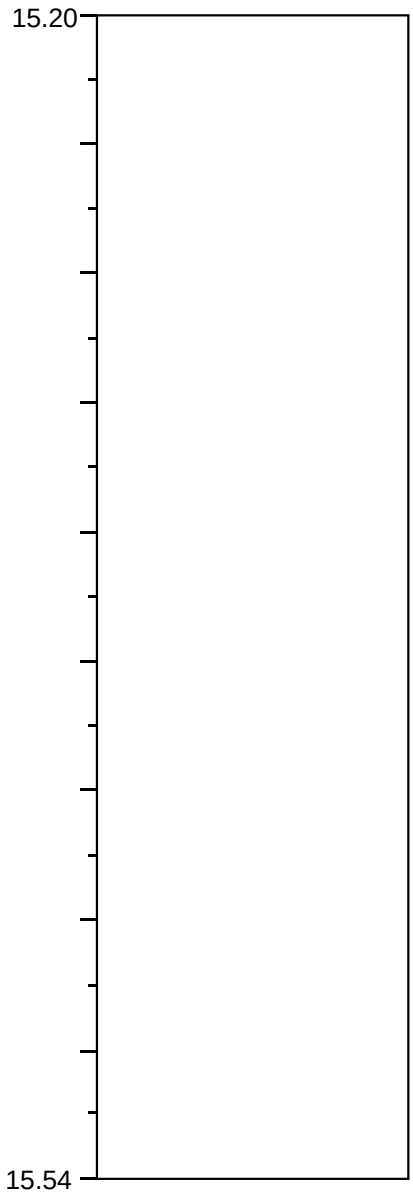
Split Tube Sample Description

Borehole No	BH303			
Sample No	39			
Sample Depth, mBGL	15.20	-	15.54	Note: Sample length <> 45 cm
Sample Type	U			

Description

15.20 - 15.54:
Firm, becoming stiff by 15.34m, locally thinly, occasionally thickly laminated fissured brown CLAY. Fissures are extremely closely to very closely spaced, randomly orientated, locally polished. Occasional dustings of light brown and grey silt on laminae and fissure surfaces.

Detail:
15.29 - 15.34m: Inclusion of dark grey and brown slightly gravelly clayey fine to medium sand. Gravel is subrounded to rounded fine to medium of chalk and flint. 1No. subrounded coarse gravel of sandstone (inclusion extends 60mm into sample).



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

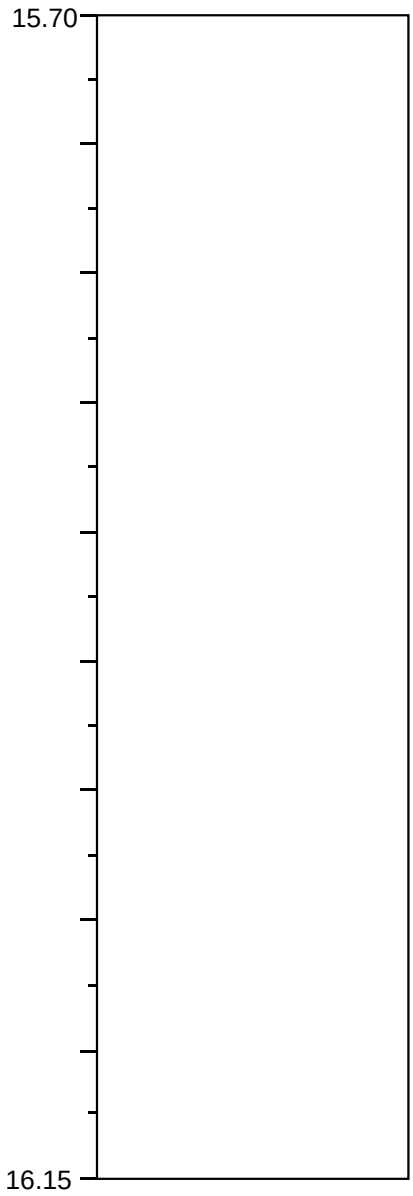
Borehole No	BH303			
Sample No	41			
Sample Depth, mBGL	15.70	-	16.15	Note: Sample length <> 45 cm
Sample Type	U			

Description

15.70 - 15.86m:
Stiff, locally very stiff, thinly, occasionally thickly laminated, fissured brown CLAY with occasional dustings of light brown silt along laminae surfaces. Fissures are extremely closely to very closely spaced and randomly orientated.

15.92 - 16.15m:
Stiff indistinctly thinly laminated, locally fissured, brown CLAY with occasional light brown silt dustings on laminae surfaces. Fissures extremely closely to very closely spaced randomly orientated.

Detail:
15.70m: 1No. subrounded coarse gravel of chalk.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

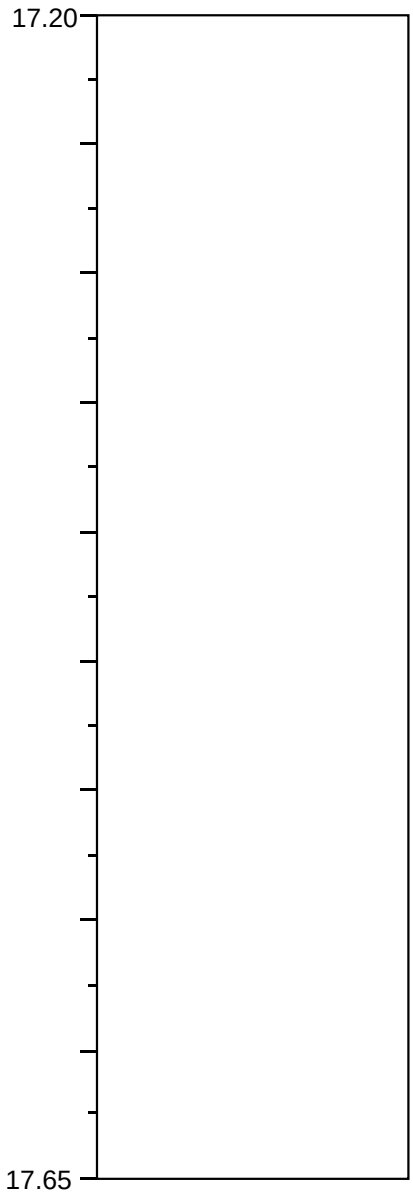
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	45			
Sample Depth, mBGL	17.20	-	17.65	Note: Sample length <> 45 cm
Sample Type	U			

Description

17.20 - 17.40m:
Probable sample disturbance.
Very stiff indistinctly thinly laminated greyish brown slightly sandy CLAY.



Remarks:
0.20m recovery.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

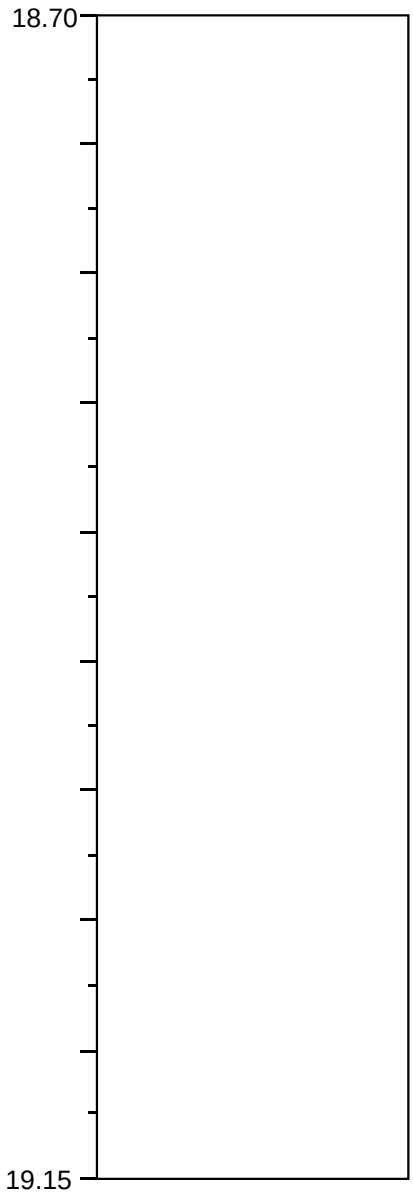
Split Tube Sample Description

Borehole No	BH303			
Sample No	51			
Sample Depth, mBGL	18.70	-	19.15	Note: Sample length <> 45 cm
Sample Type	U			

Description

18.70 - 19.15m:
Stiff thinly to thickly laminated brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine of chalk. Frequent light brown fine sand and silt dustings on laminae surfaces.

Detail:
18.75m: Rare pockets of light brown and orangish brown fine sand up to 12mm thick.



Remarks:

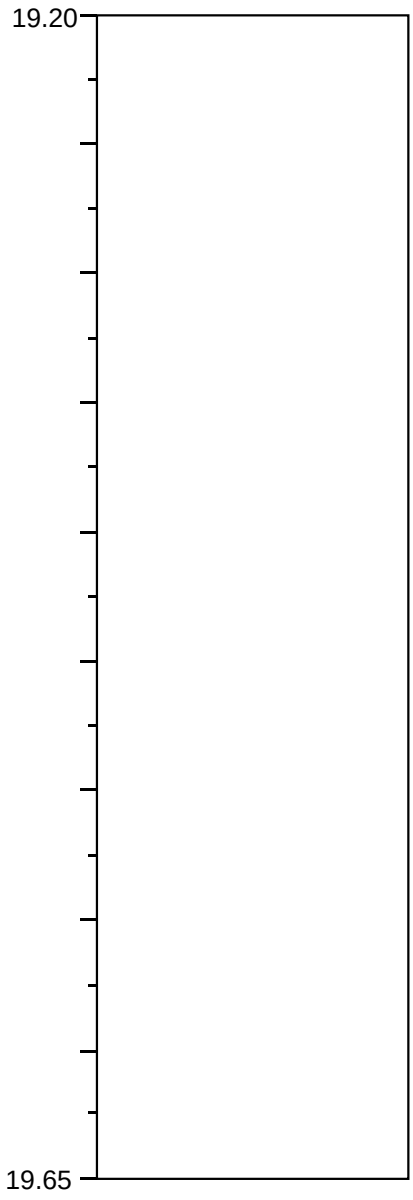
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	53			
Sample Depth, mBGL	19.20	-	19.65	Note: Sample length <> 45 cm
Sample Type	U			

Description

19.20 - 19.47m:
Stiff thinly laminated brown slightly sandy CLAY with frequent light brown and orangish brown fine sand and silt on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

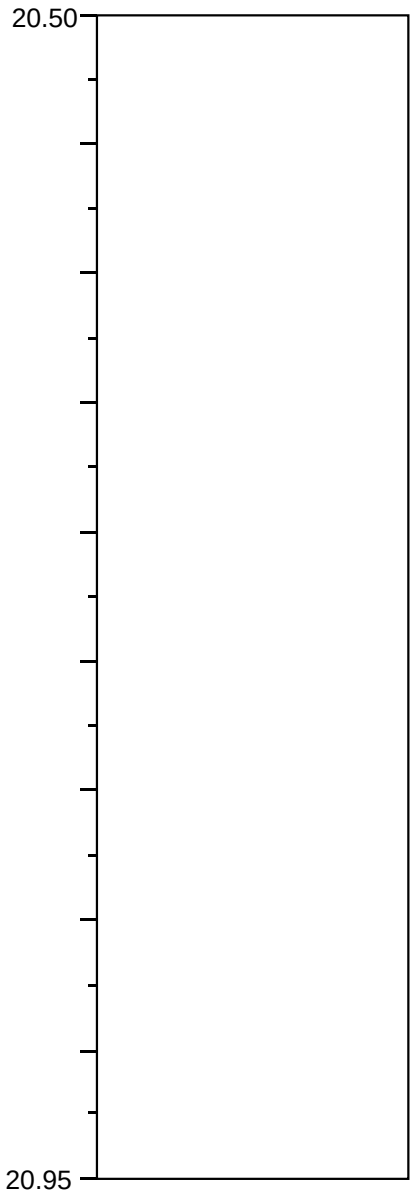
Split Tube Sample Description

Borehole No	BH303			
Sample No	57			
Sample Depth, mBGL	20.50	-	20.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

20.50 - 20.95m:
Firm, becoming stiff by 20.61m, thinly to thickly, locally cross laminated, greyish brown CLAY.

Detail:
20.50 - 20.83m: With frequent dustings and partings up to 5mm of brown and light brown silt along laminae surfaces.
20.83 - 20.95m: Indistinctly laminated. No dustings or partings of silt.
20.63m: 10mm thick parting of orangish brown and black fine to medium sand.
20.68m: 30mm thick parting (thinning out) of orangish brown fine to medium sand.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

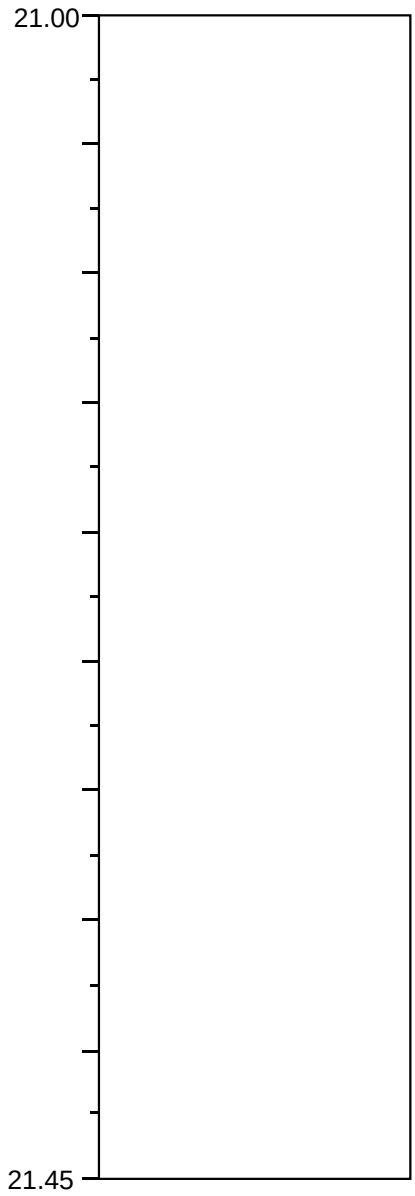
Borehole No	BH303			
Sample No	59			
Sample Depth, mBGL	21.00	-	21.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

21.00 - 21.15m:
Stiff thinly laminated light brown and brown slightly sandy silty CLAY with occasional light brown silt dusting on laminae surfaces.

21.15 - 21.45m:
Stiff thinly to thickly undulating cross laminated brown slightly sandy silty CLAY with frequent light brown and orange fine sand lenses typically <8mm, extremely closely spaced.

Detail:
21.20m: Rare chalk gravel



Remarks:

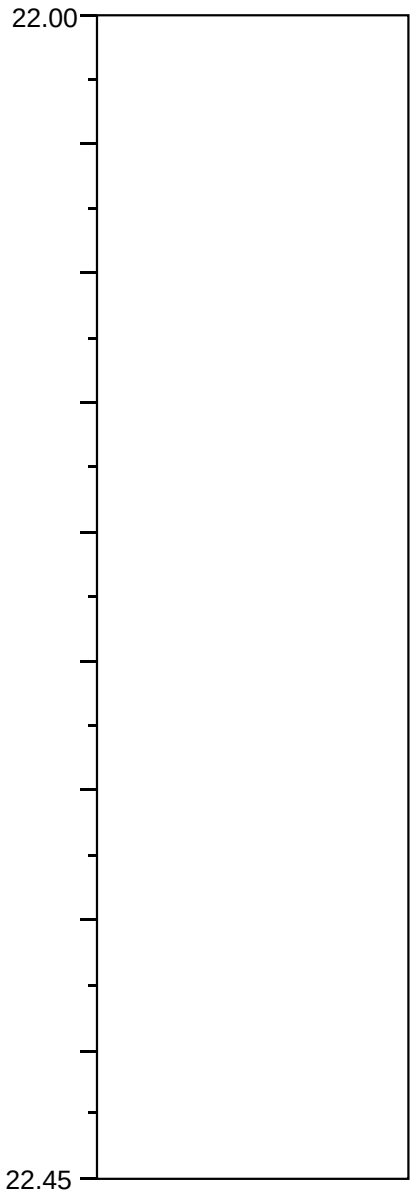
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH303			
Sample No	63			
Sample Depth, mBGL	22.00	-	22.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

22.00 - 22.45m:
Stiff thinly to thickly laminated greyish brown silty CLAY with extremely closely to very closely spaced partings up to 5mm thick of orangish brown silty fine sand. Partings typically inclined to 40-50 degree.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

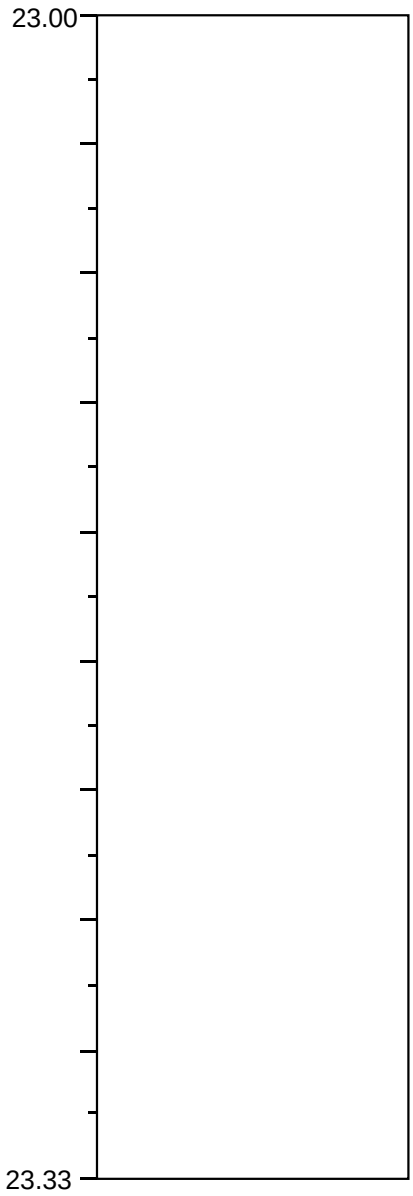
Split Tube Sample Description

Borehole No	BH303			
Sample No	67			
Sample Depth, mBGL	23.00	-	23.33	Note: Sample length <> 45 cm
Sample Type	U			

Description

23.00 - 23.33m:
Firm thinly and thickly, locally cross laminated, brown slightly sandy silty CLAY with occasional subrounded to rounded fine to coarse gravel of chalk. Extremely closely to very closely spaced partings up to 10mm thick of orangish brown silty fine to medium sand typically inclined to 40-50 degree.

Detail:
23.00 - 23.09m: Sand partings locally black.
23.13m - 30mm thick parting of orangish brown silty fine to medium sand.



Remarks:

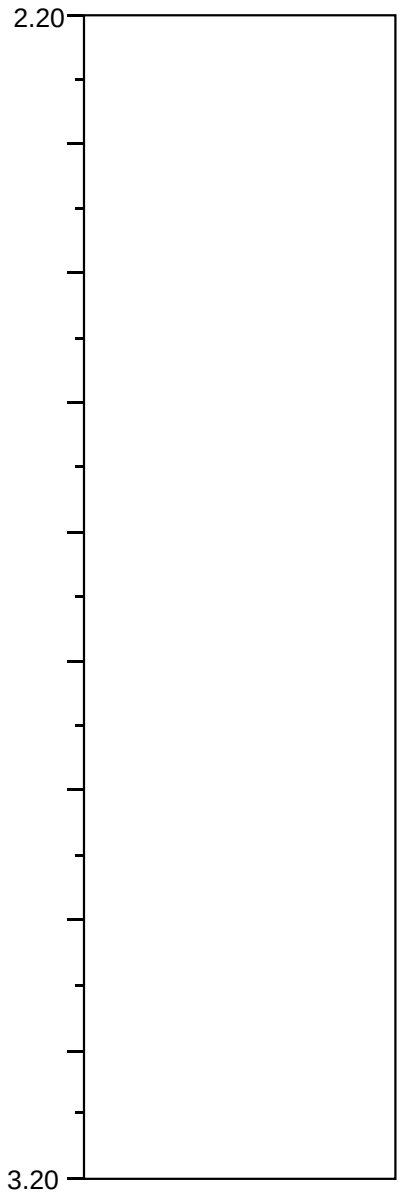
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH303
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH304		
Sample No	10		
Sample Depth, mBGL	2.20	-	3.20
Sample Type	P		

Description

2.20 - 3.20m:
Firm thinly to thickly laminated orangish brown, locally dark grey, slightly sandy silty slightly organic CLAY with frequent dustings of light orangish brown fine sand and silt on laminae surfaces. Local organic content.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

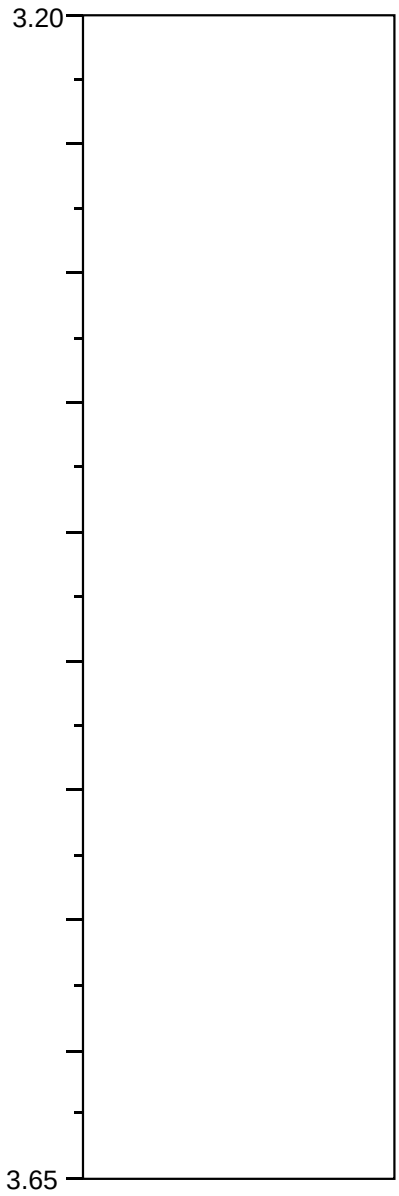
Split Tube Sample Description

Borehole No	BH304		
Sample No	11		
Sample Depth, mBGL	3.20	-	3.65
Sample Type	U		

Description

3.20 - 3.29m:
Soft, locally firm, thinly laminated greyish brown slightly sandy slightly silty CLAY with light brown silt dustings on laminae surfaces.

3.37 - 3.65m:
Firm thinly laminated, locally thickly laminated, dark brownish grey oxidising to brown silty organic CLAY with frequent dustings of light brown fine and medium sand on laminae surfaces and organic odour. Occasional lenses up to 5mm of light orangish brown fine and medium sand. Organic odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

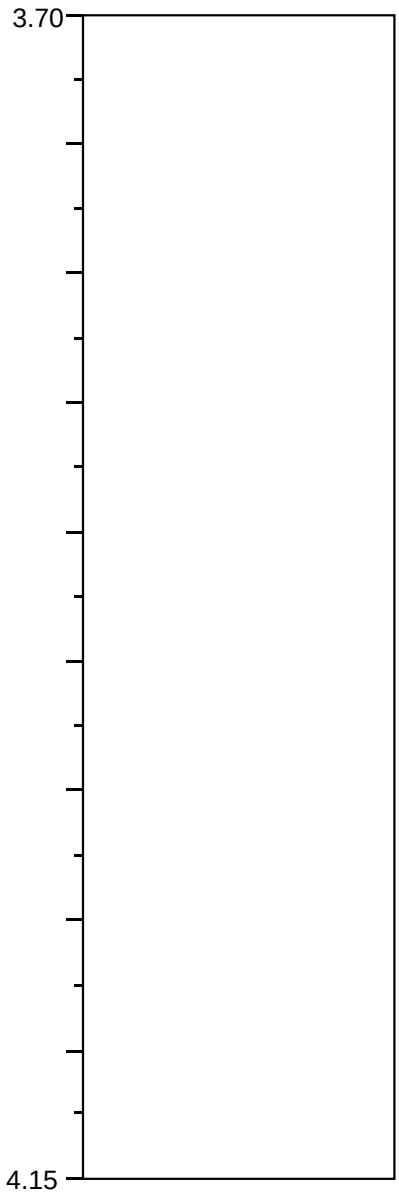
Split Tube Sample Description

Borehole No	BH304		
Sample No	13		
Sample Depth, mBGL	3.70	-	4.15
Sample Type	U		

Description

3.70 - 3.80m:
Firm greyish brown slightly sandy very gravelly CLAY. Gravel is angular fine to coarse of various igneous lithologies including chalk, flint and sandstone with rare shell fragments typical <3mm diameter.

3.93 - 4.15m:
Firm thinly laminated, locally thickly laminated, dark grey mottled dark orangish brown silty CLAY with dustings of light brown fine sand on laminae surfaces. Lenses of fine and medium light orangish brown sand up to 5mm. Organic odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

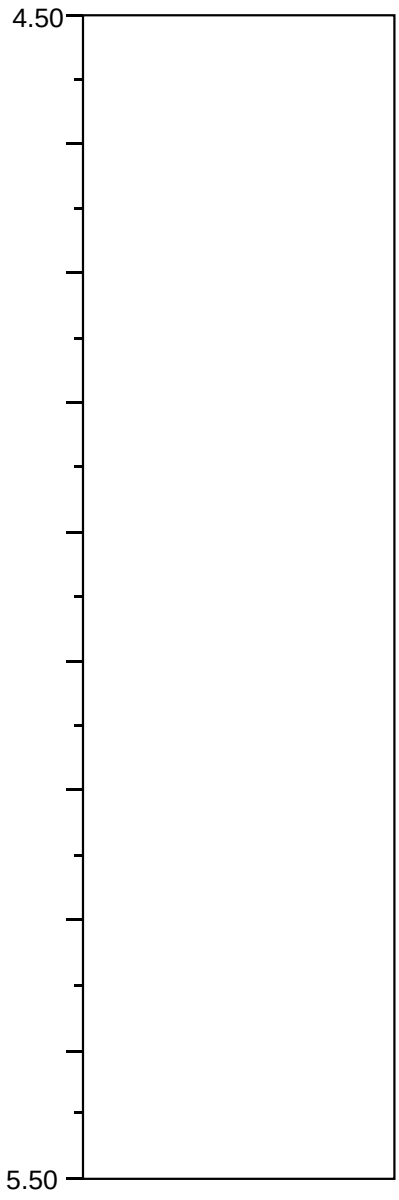
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH304		
Sample No	17		
Sample Depth, mBGL	4.50	-	5.50
Sample Type	P		

Description

4.92 - 5.50m: Soft, locally firm, thinly laminated greyish brown, locally oxidising to dark brown, slightly sandy silty organic CLAY with frequent dustings of greyish brown silt and black carbonaceous speckling on laminae surfaces.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

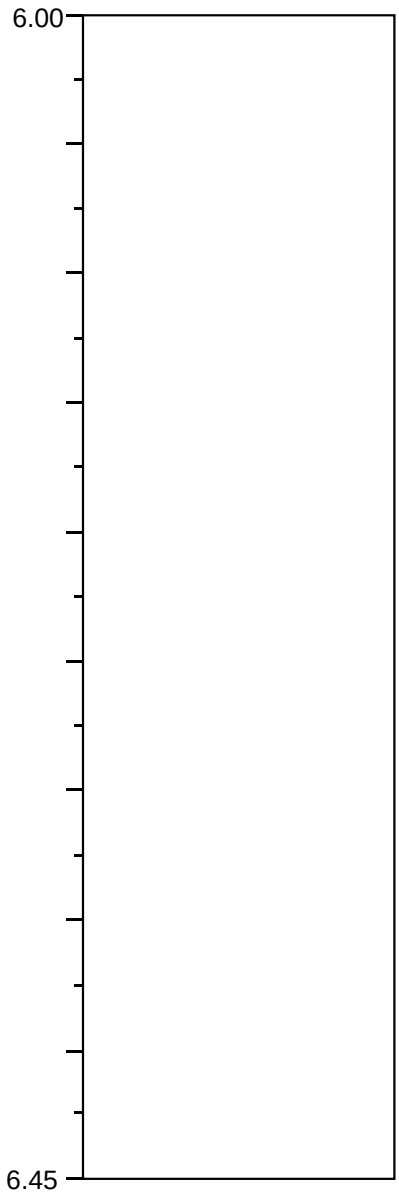
Split Tube Sample Description

Borehole No	BH304		
Sample No	20		
Sample Depth, mBGL	6.00	-	6.45
Sample Type	U		

Description

6.00 - 6.18m:
Soft, locally firm, thinly laminated brownish grey slightly sandy CLAY with randomly orientated fissures throughout sample typically <7mm extremely closely spaced.

6.23 - 6.45m:
Firm thinly laminated, locally indistinctly thinly laminated, brownish grey oxidising to brown slightly clayey SILT with dustings of fine sand on laminae surfaces.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

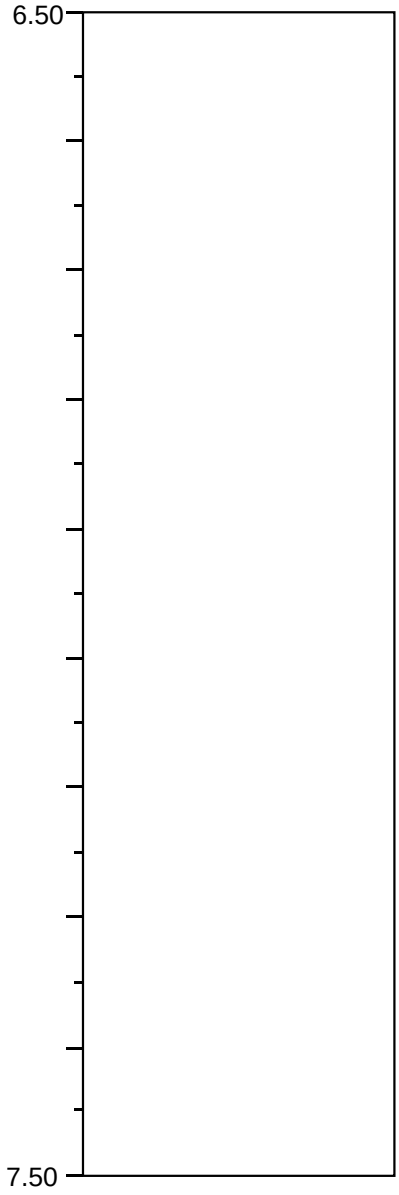
Split Tube Sample Description

Borehole No	BH304		
Sample No	22		
Sample Depth, mBGL	6.50	-	7.50
Sample Type	P		

Description

6.63 - 7.50m: Firm indistinctly thinly laminated dark greyish brown, locally oxidised dark orangish brown, slightly sandy silty CLAY. Occasional fine gravel size black carbonaceous inclusions.

Detail:
6.54m: Inclined planar fissure surface.
6.62m: Inclined 8mm thick dark orangish brown fine silty sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

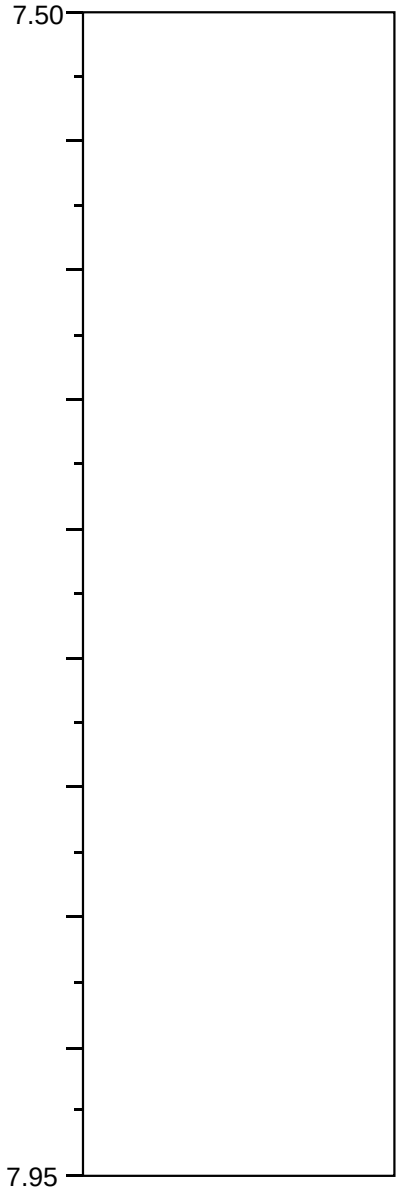
Split Tube Sample Description

Borehole No	BH304		
Sample No	23		
Sample Depth, mBGL	7.50	-	7.95
Sample Type	U		

Description

7.50 - 7.57m:
Soft, locally firm, indistinctly thinly laminated greyish brown slightly sandy CLAY with occasional randomly orientated fissures typically less than 6mm extremely closely spaced.

7.68 - 7.95m:
Firm, locally indistinctly thinly laminated, locally indistinctly fissured, dark brownish grey oxidising to orangish brown silty slightly organic CLAY.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

Split Tube Sample Description

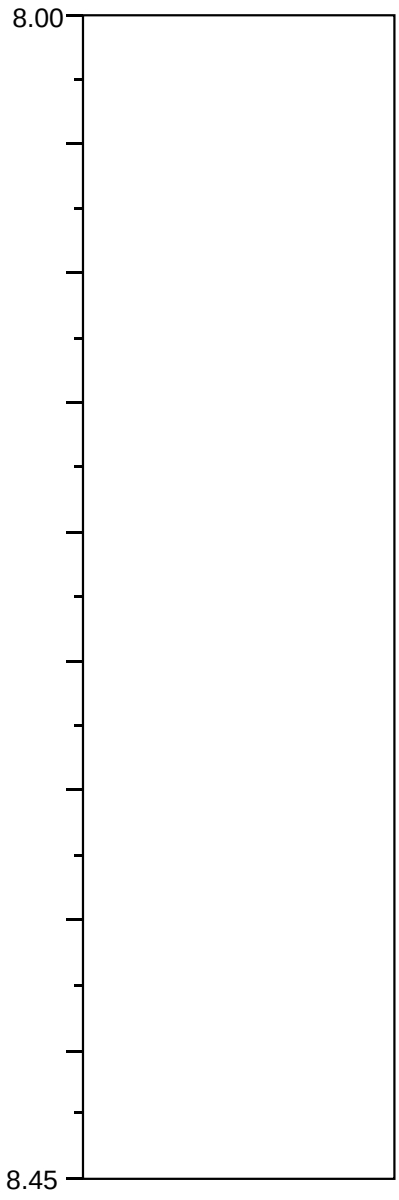
Borehole No	BH304			
Sample No	25			
Sample Depth, mBGL	8.00	-	8.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

8.00 - 8.17m:
Sample probably disturbed.
Soft indistinctly thinly laminated greyish brown slightly sandy CLAY with rare medium to coarse sand laminations <3mm extremely closely to closely spaced.

8.20 - 8.45m:
Firm, locally stiff, indistinctly thinly cross laminated and fissured brownish grey oxidising to brown silty CLAY with dustings of light brown fine sand on laminae surfaces. Organic odour.
Fissures are closely spaced and randomly orientated.

Detail:
8.10 - 8.13m: Thin laminations of light brown fine sand.



Remarks:

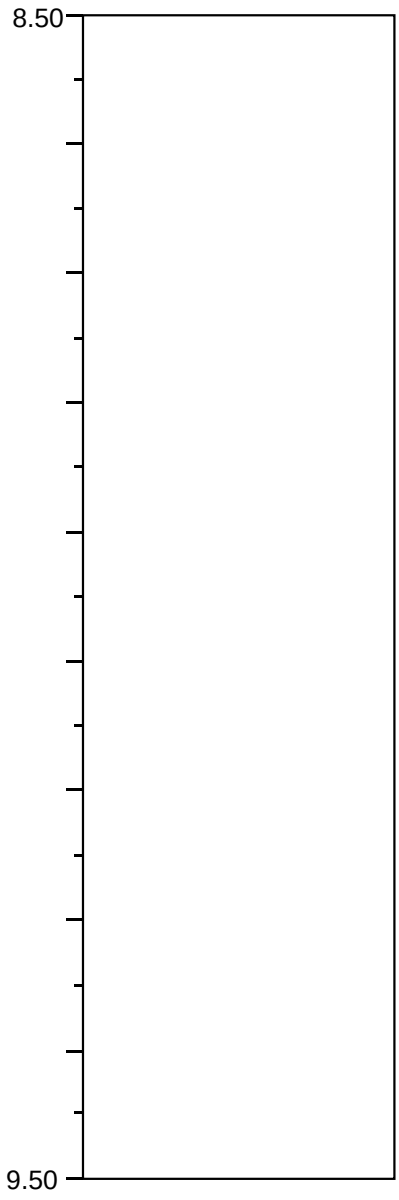
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH304		
Sample No	27		
Sample Depth, mBGL	8.50	-	9.50
Sample Type	P		

Description

9.30 - 9.50m: Firm indistinctly thinly laminated fissured dark brownish grey oxidising to brown silty CLAY with occasional dustings of silt and light brown fine sand on laminae surfaces. Frequent lenses of light brown fine and medium sand up to 10mm.
Fissures are closely spaced and randomly orientated. Organic odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

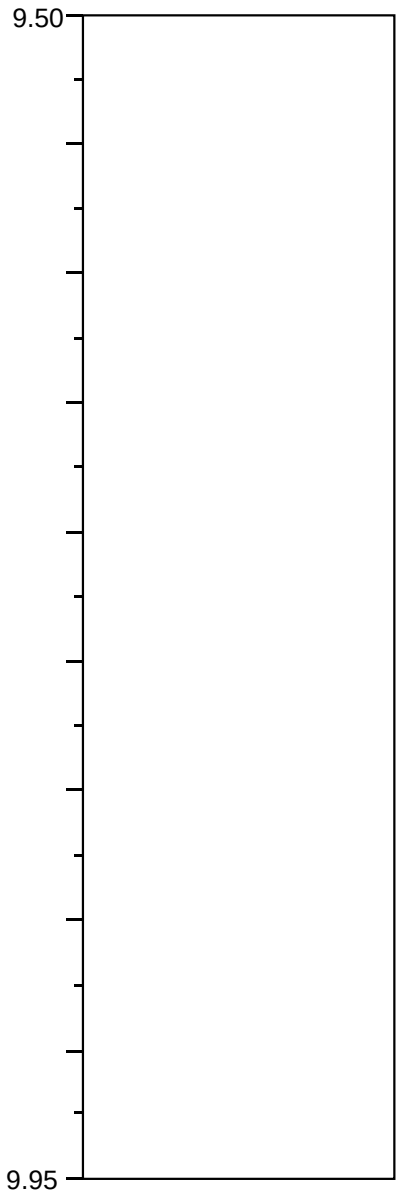
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH304			
Sample No	28			
Sample Depth, mBGL	9.50	-	9.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

9.50 - 9.82m:
Dark grey and light orangish brown thinly laminated to very thinly bedded slightly silty fine to coarse SAND with rare silt interlaminations typically <2mm, extremely closely spaced.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

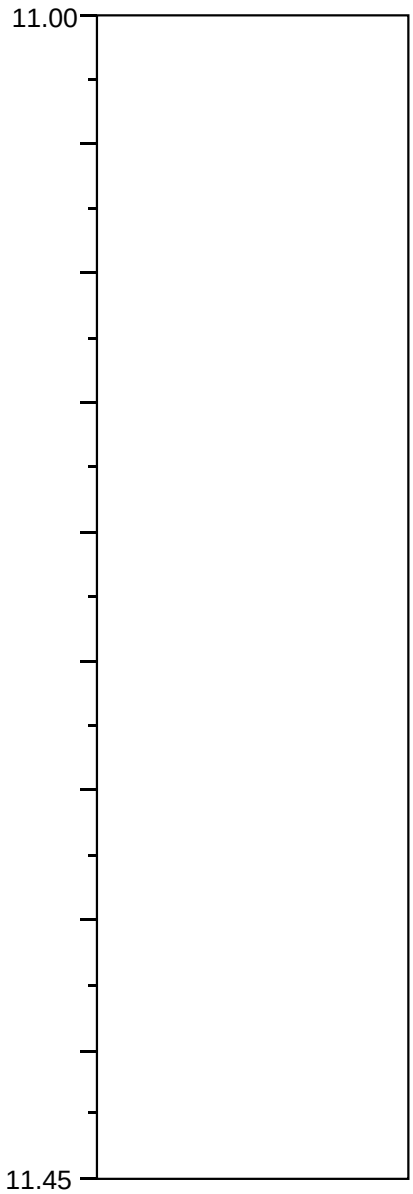
Split Tube Sample Description

Borehole No	BH304			
Sample No	32			
Sample Depth, mBGL	11.00	-	11.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

11.00 - 11.13m:
Very soft thinly laminated sandy silty CLAY with occasional fine sand lenses <2mm extremely closely spaced with dustings of light brown silty on laminae surfaces.

11.18 - 11.45m:
Firm thinly to thickly laminated (2 - 8mm) greyish brown sandy clayey SILT with frequent dustings of light brown fine sand on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

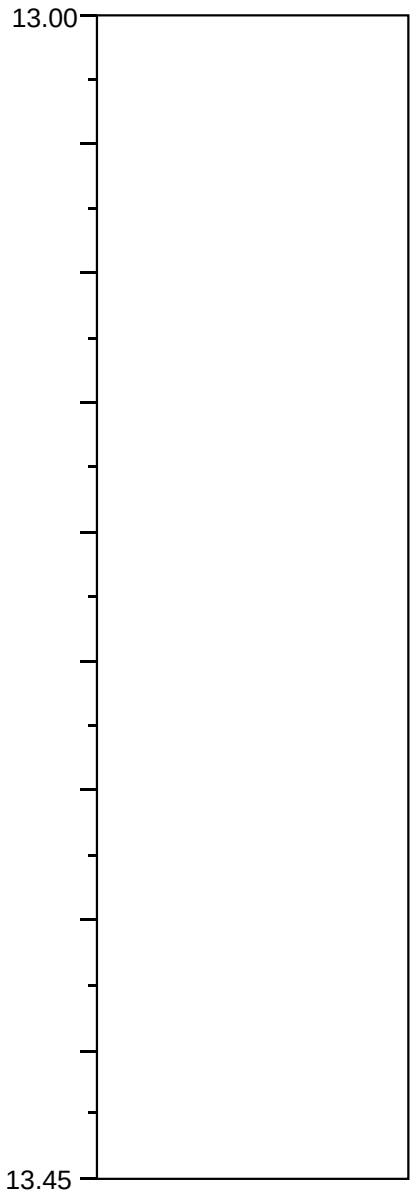
Split Tube Sample Description

Borehole No	BH304			
Sample No	36			
Sample Depth, mBGL	13.00	-	13.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

13.00 - 13.10m:
Very stiff fibrous greyish purple and light brown slightly silty PEAT with rare fragments of wood <4mm extremely closely to very closely spaced.

13.10 - 13.25m:
Stiff, locally indistinctly thinly laminated, dark brown slightly silty PEAT with rare wood fragments, <2mm. Vegetative odour.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH304
	Carried out for	Balfour Beatty	

Split Tube Sample Description

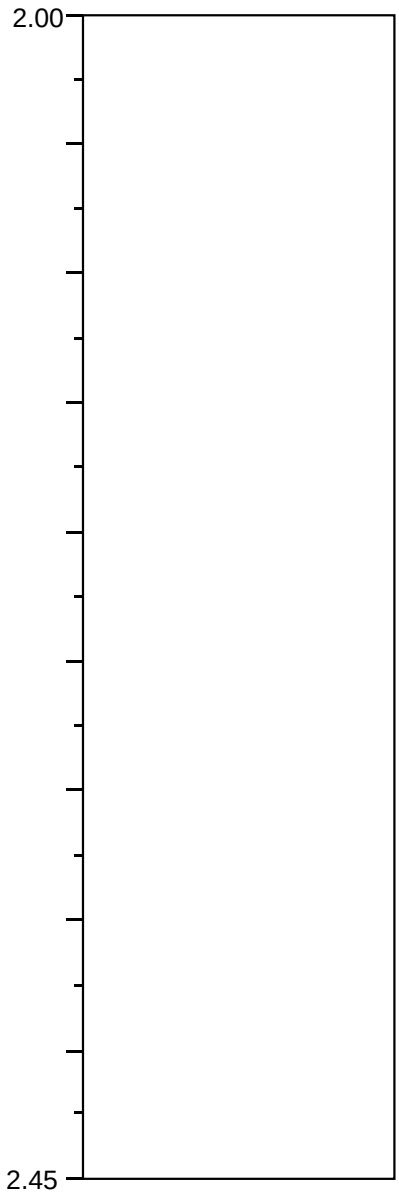
Borehole No	BH306		
Sample No	9		
Sample Depth, mBGL	2.00	-	2.45
Sample Type	U		

Description

2.00 - 2.18m:
Stiff thinly laminated light brown and dark brown slightly sandy CLAY. Occasional light brown and orange dustings of silt <3mm, very closely spaced.

2.18 - 2.45m:
Firm, locally indistinctly thinly laminated, indistinctly fissured brown slightly sandy CLAY.
Fissures are extremely closely spaced and randomly orientated with dark orangish brown infill to relic rootlet tracks.

Detail:
2.03m: Irregular pocket up to 20mm of light orangish brown silt.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

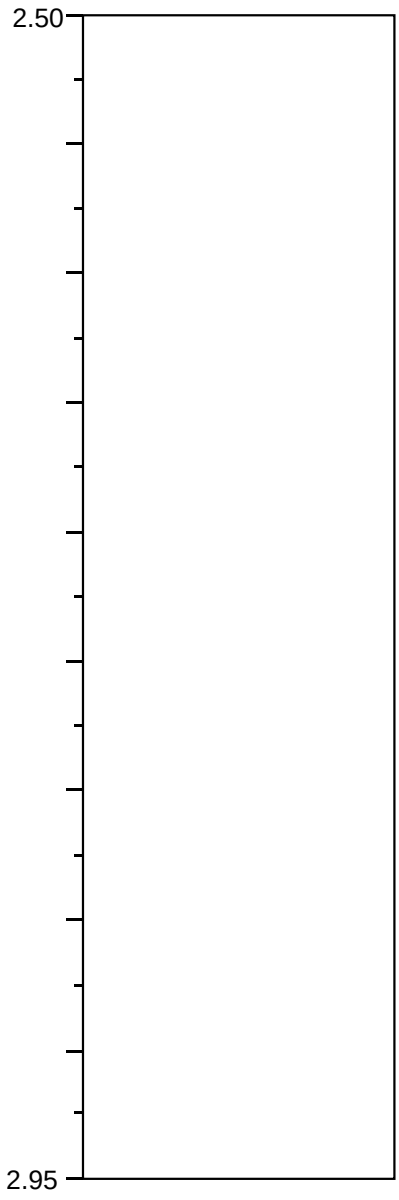
Split Tube Sample Description

Borehole No	BH306		
Sample No	11		
Sample Depth, mBGL	2.50	-	2.95
Sample Type	U		

Description

2.69 - 2.95m: Firm thinly laminated, locally fissured, dark brown silty CLAY with dustings of light brown silt on laminae surface.Occasional plant and rootlet fragments up to 2mm.

Fissures are closely spaced, randomly orientated and rough.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

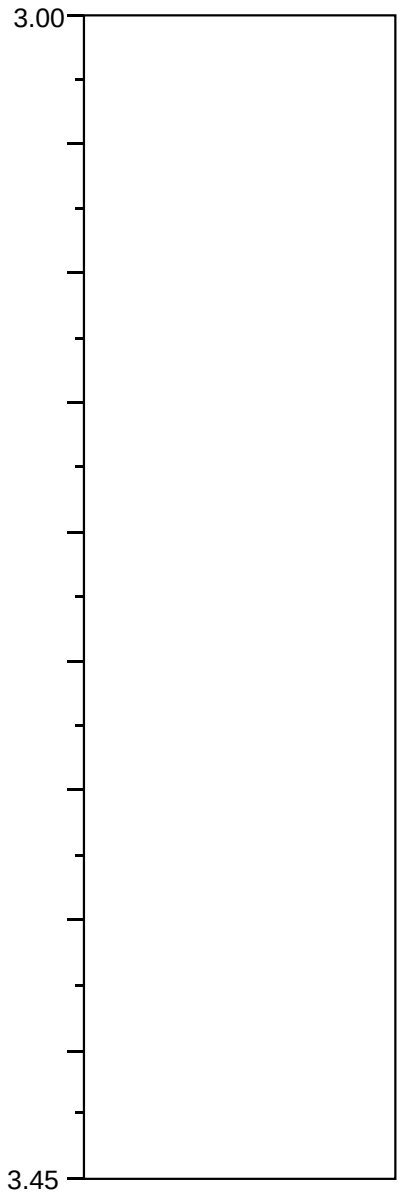
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306		
Sample No	13		
Sample Depth, mBGL	3.00	-	3.45
Sample Type	U		

Description

3.00 - 3.45m:
Firm, locally soft, thinly laminated brownish dark grey slightly sandy silty CLAY with occasional light brown silty dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

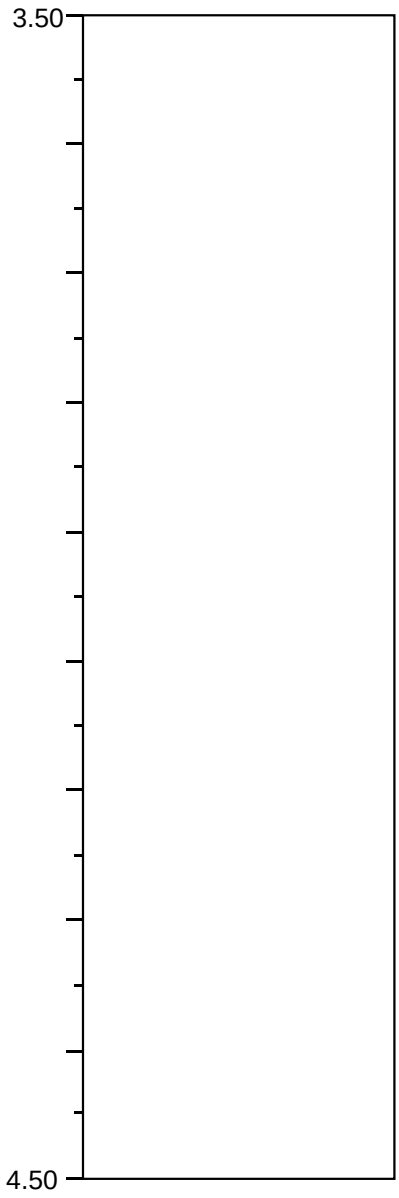
Split Tube Sample Description

Borehole No	BH306		
Sample No	15		
Sample Depth, mBGL	3.50	-	4.50
Sample Type	P		

Description

3.85 - 4.50m: Firm indistinctly thinly and thickly laminated dark grey and dark greyish brown slightly sandy silty CLAY.

Detail:
3.56m: Irregular lens 2mm thick of light brown fine sand.
3.60m: Irregular lens 3mm thick of orangish brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

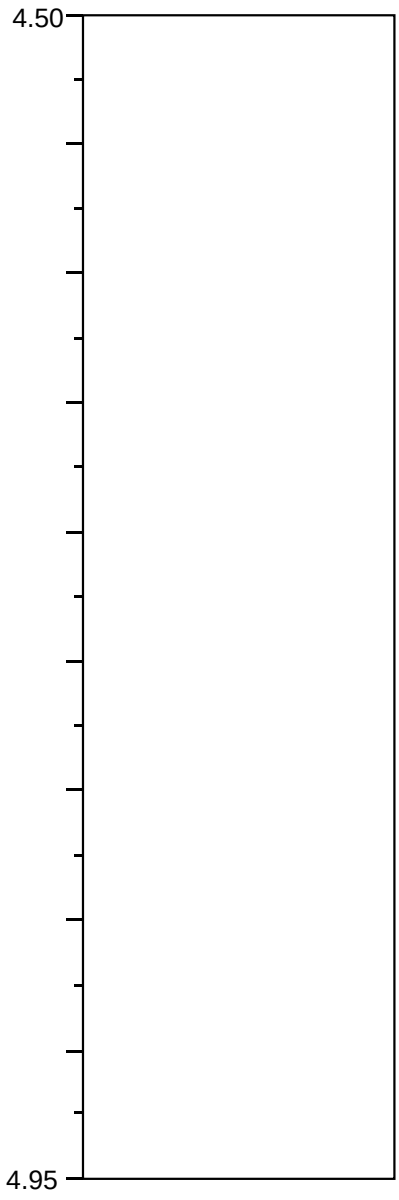
Split Tube Sample Description

Borehole No	BH306		
Sample No	17		
Sample Depth, mBGL	4.50	-	4.95
Sample Type	U		

Description

4.50 - 4.80m:
Soft, locally firm, thinly laminated light and dark grey slightly sandy CLAY with occasional pockets of light brown fine sand. Occasional light brown silt dustings on laminae surfaces.

4.80 - 4.95m:
Soft indistinctly thinly laminated greyish brown slightly sandy silty CLAY with occasional dark grey silt dustings on laminae surfaces.



Remarks:

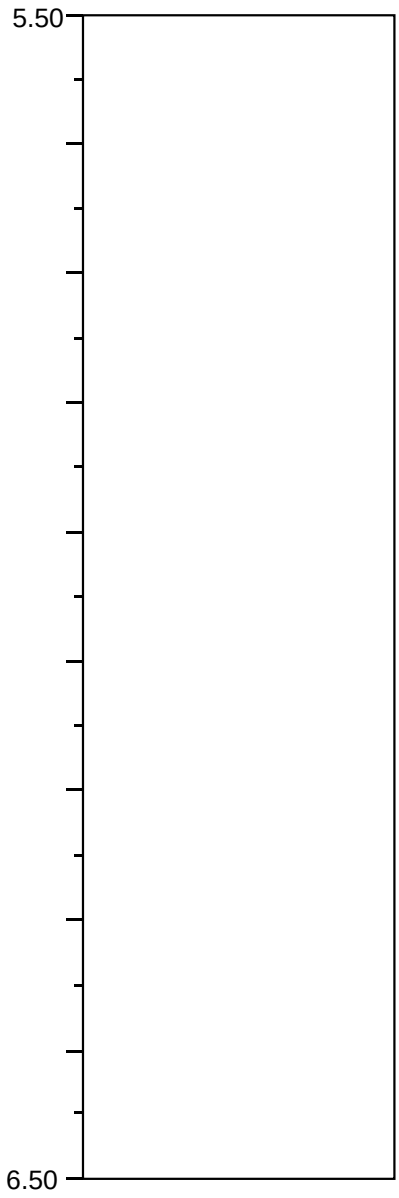
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306		
Sample No	21		
Sample Depth, mBGL	5.50	-	6.50
Sample Type	P		

Description

6.22 - 6.50m:
Firm indistinctly thinly cross laminated indistinctly fissured brownish grey oxidising to brown silty CLAY with local light brown fine sand lenses up to 10mm and dustings of silt on laminae and fissure surfaces. Organic odour.
Fissures are closely spaced and randomly orientated.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

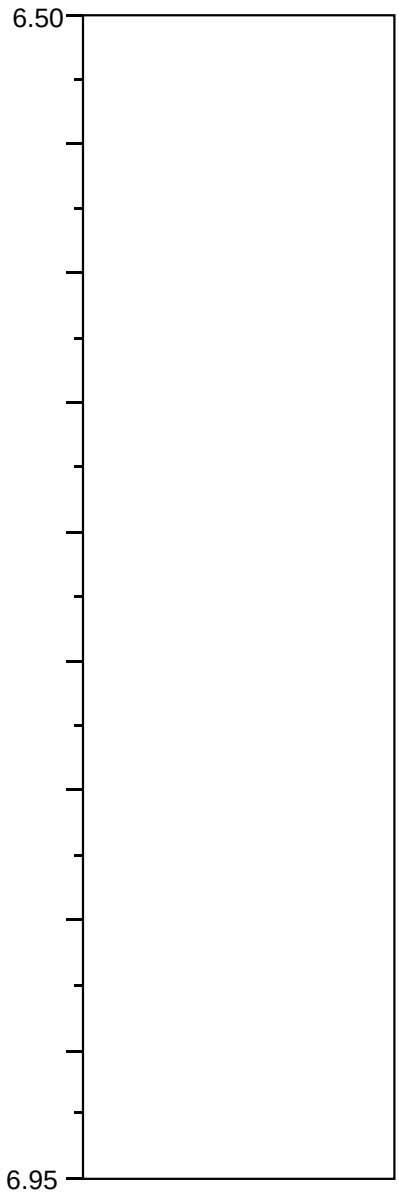
Split Tube Sample Description

Borehole No	BH306		
Sample No	22		
Sample Depth, mBGL	6.50	-	6.95
Sample Type	U		

Description

6.50 - 6.64m:
Soft thinly laminated greyish brown slightly sandy CLAY.

6.67 - 6.95m:
Firm, locally indistinctly thinly and thickly laminated (2 - 7mm), slightly sandy silty CLAY with occasional dark brown silt dustings of laminae surfaces. Occasional partings up to 1mm of fine light brown sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

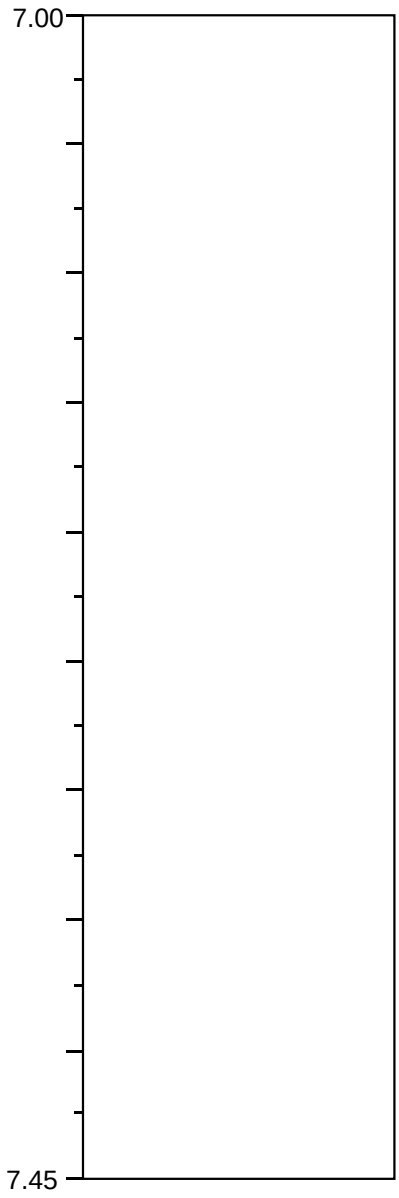
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306		
Sample No	24		
Sample Depth, mBGL	7.00	-	7.45
Sample Type	U		

Description

7.00 - 7.42m:
Soft, locally firm, thinly laminated greyish brown slightly sandy CLAY. Occasional light brown silt dusting on laminae surfaces. Rare extremely closely to very closely spaced, typically <3mm, dark brown and black subhorizontal fine sand lenses.



Remarks:

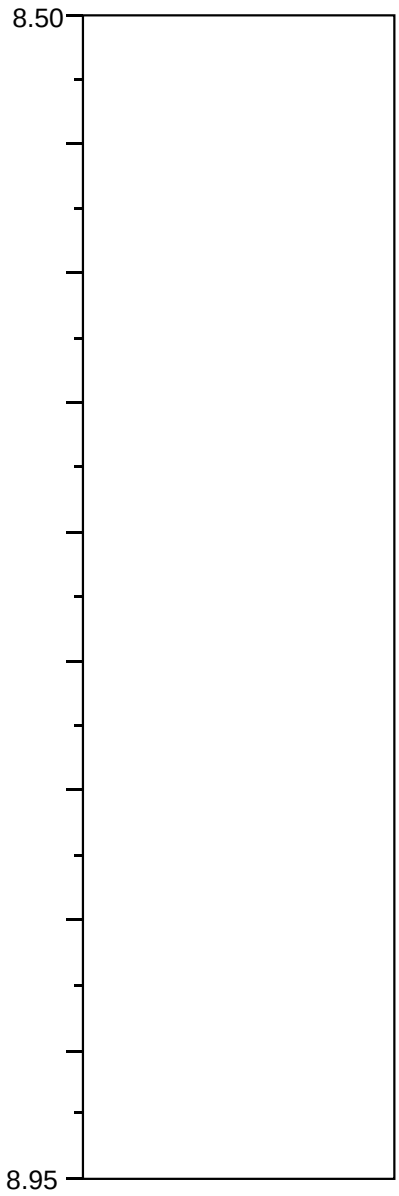
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	27			
Sample Depth, mBGL	8.50	-	8.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

8.60 - 8.95m
Firm, indistinctly thinly and thickly laminated, fissured dark greyish brown slightly sandy silty CLAY with dustings of fine light brown sand and silt on laminae surfaces.
Fissures are closely spaced randomly orientated. Slight organic odour.



Remarks:

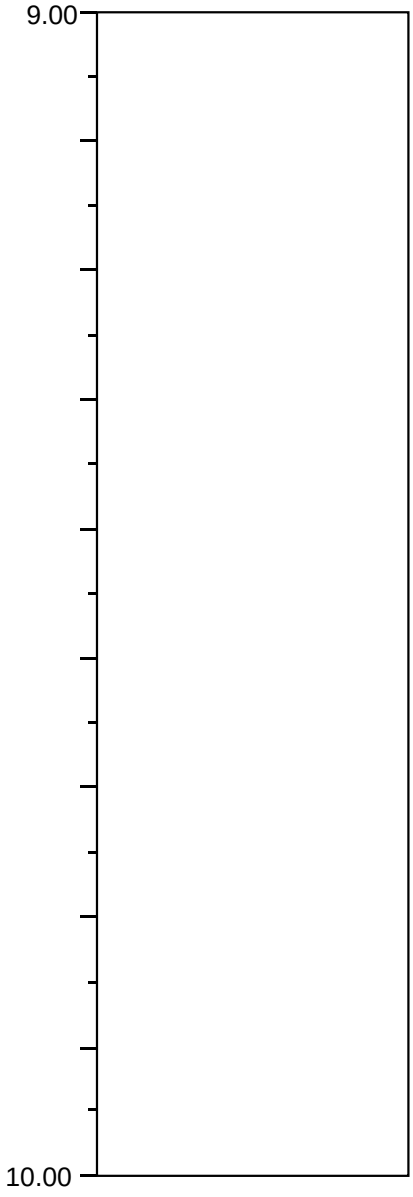
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306		
Sample No	29		
Sample Depth, mBGL	9.00	-	10.00
Sample Type	P		

Description

9.00 - 9.30m:
Firm indistinctly thinly to thickly laminated greyish brown slightly sandy silty CLAY with wood fragments up to 10mm.
9.30 - 10.00m:
Firm, locally stiff, indistinctly fissured greyish brown silty CLAY. Fissures are extremely closely to closely spaced, locally polished, with occasional fine light brown sand on surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

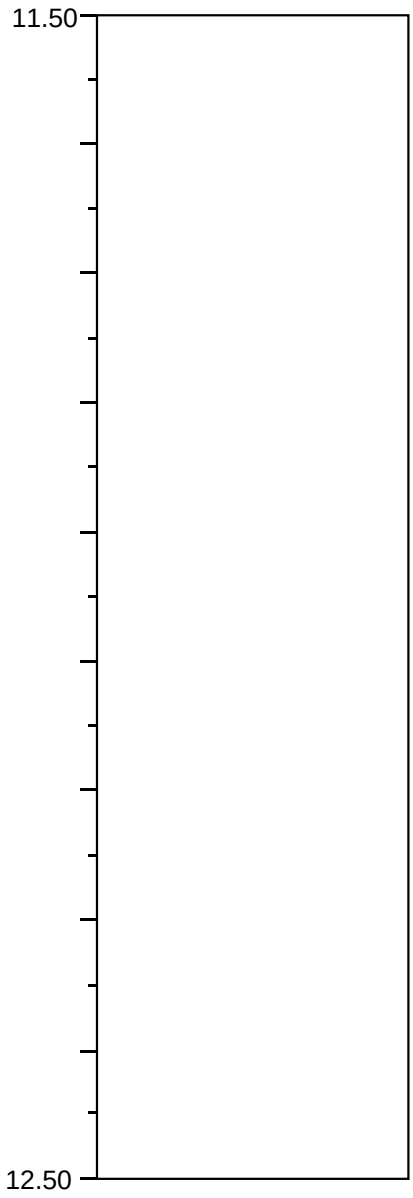
Split Tube Sample Description

Borehole No	BH306		
Sample No	36		
Sample Depth, mBGL	11.50	-	12.50
Sample Type	P		

Description

11.50 - 12.50m:
Firm, locally soft,thinly to thickly laminated greenish grey mottled brown slightly sandy silty CLAY with occasional grey fine sand interlaminations <4mm, extremely closely spaced.
Fissures are randomly orientated, extremely clsoely spaced.

Detail:
11.67 - 11.69m: Fine silty sand lenses



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

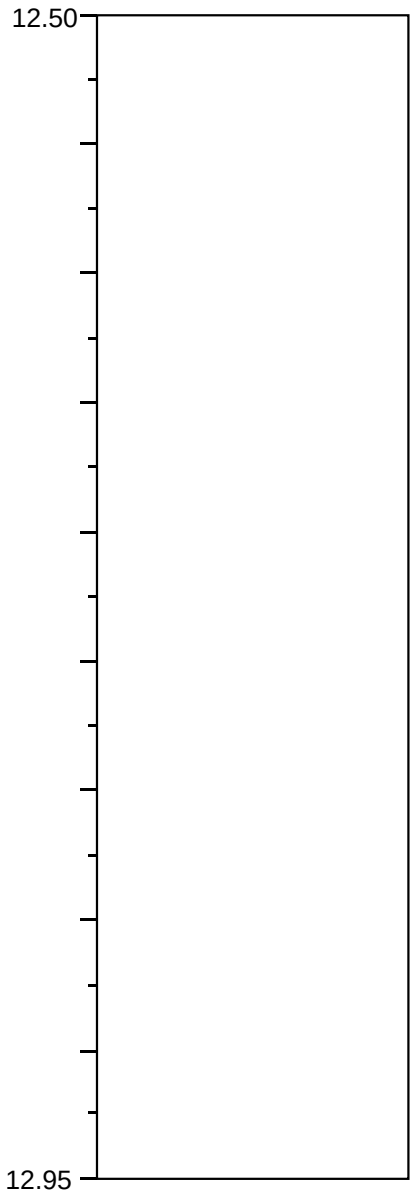
Split Tube Sample Description

Borehole No	BH306			
Sample No	37			
Sample Depth, mBGL	12.50	-	12.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

12.50 - 12.57m:
Soft dark brown oxidising to black organic silty CLAY with occasional extremely closely spaced black fibrous peat lenses.

12.57 - 12.71m:
Stiff indistinctly thinly laminated brownish grey slightly sandy CLAY with rare nodules of dark brown and black peat <3mm diameter.



Remarks:

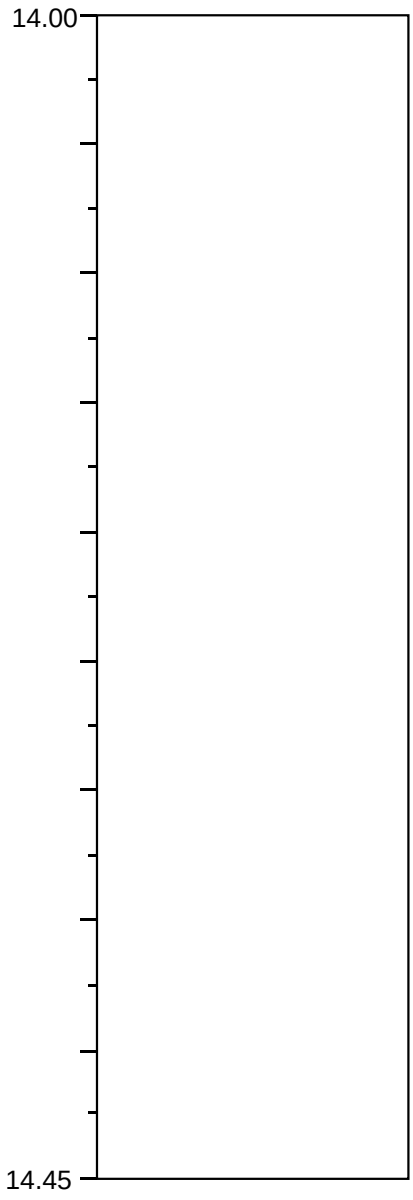
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	43			
Sample Depth, mBGL	14.00	-	14.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

14.00 - 14.45m:
Nothing recovered.



Remarks:

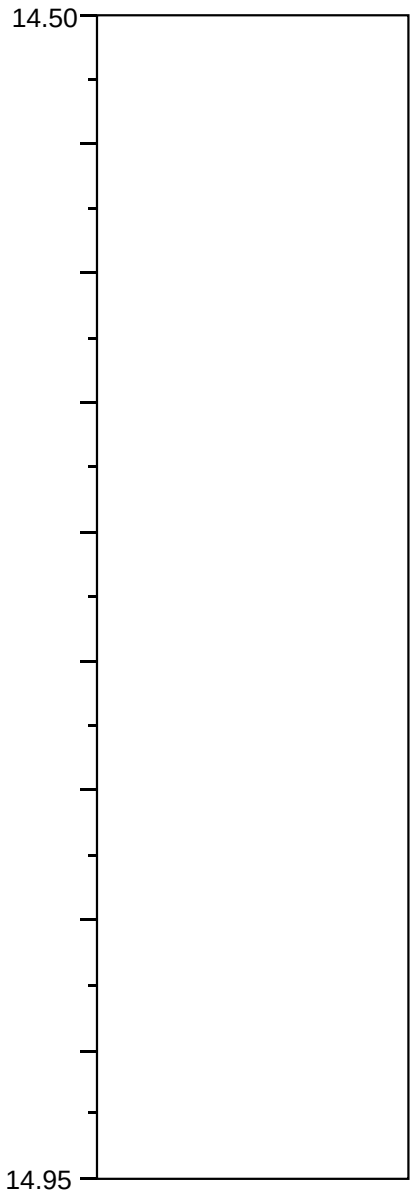
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	45			
Sample Depth, mBGL	14.50	-	14.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

14.81 - 14.95m:
Stiff, locally indistinctly thinly laminated, dark greyish brown and dark grey slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine and medium, locally coarse, of chalk, sandstone and igneous lithologies.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

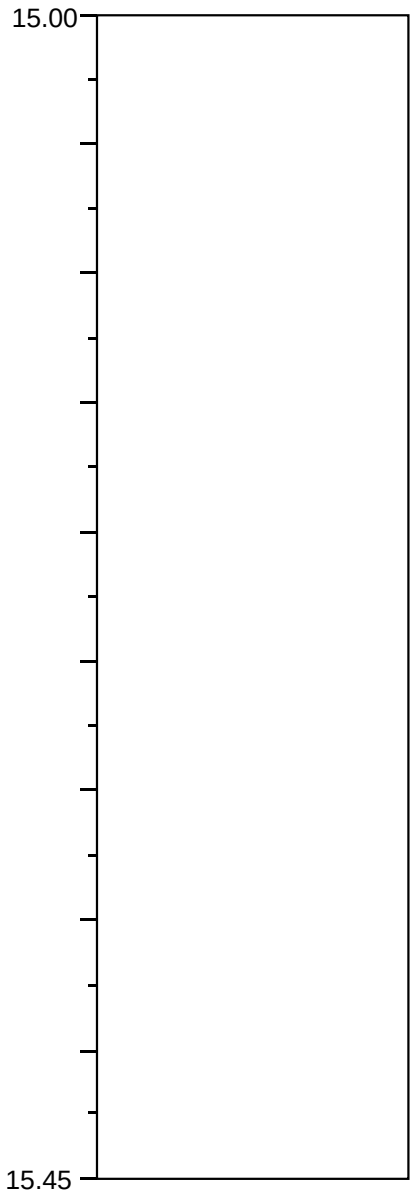
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	48			
Sample Depth, mBGL	15.00	-	15.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

15.00 - 15.16m:
Firm, locally stiff, indistinctly very thinly laminated slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of sandstone and chalk. Localised as reddish orange oxidation patches <4mm.



Remarks:

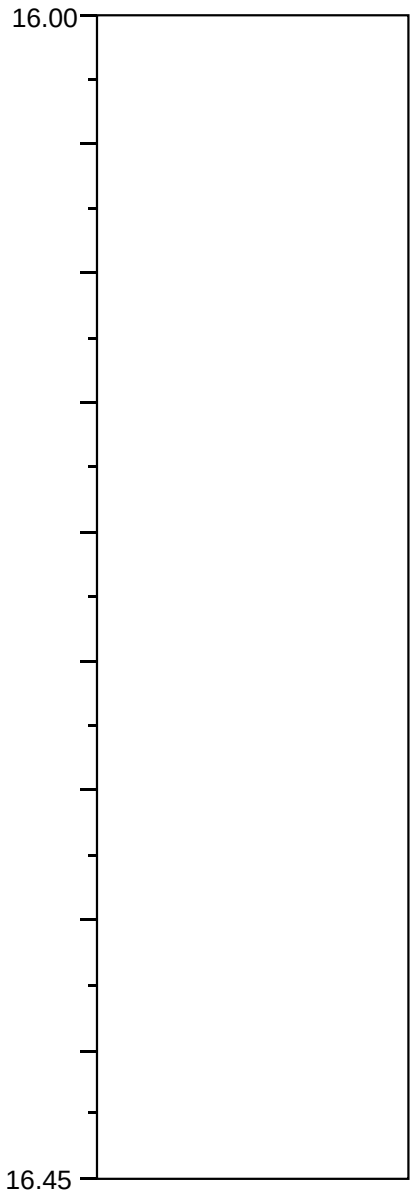
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	52			
Sample Depth, mBGL	16.00	-	16.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

16.00 - 16.45m:
Stiff indistinctly thinly laminated light brown slightly sandy CLAY with frequent extremely closely spaced, typically <4mm, light brown fine sand lenses.



Remarks:

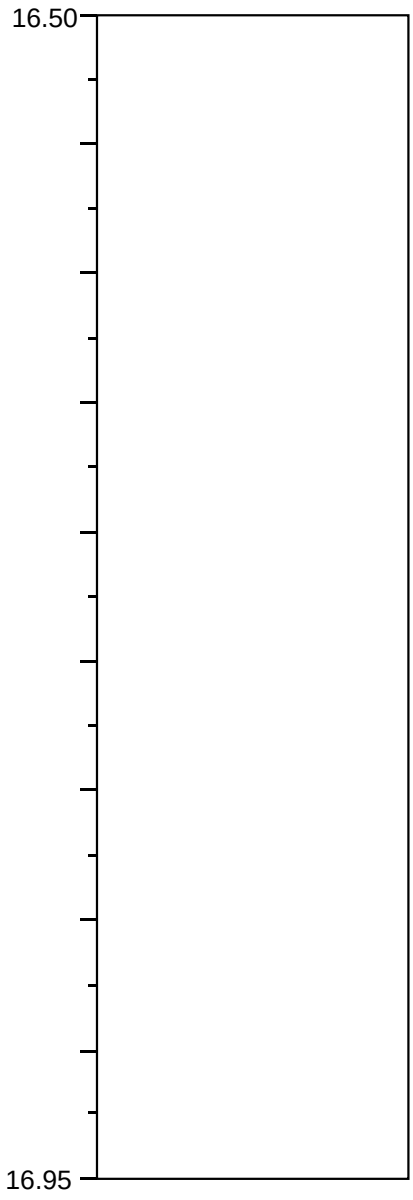
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	54			
Sample Depth, mBGL	16.50	-	16.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

16.50 - 16.95m:
Firm, locally soft, thinly to thickly laminated light brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of chalk and sandstone. Frequent extremely closely spaced, typically <4mm, light brown fine sand lenses.



Remarks:

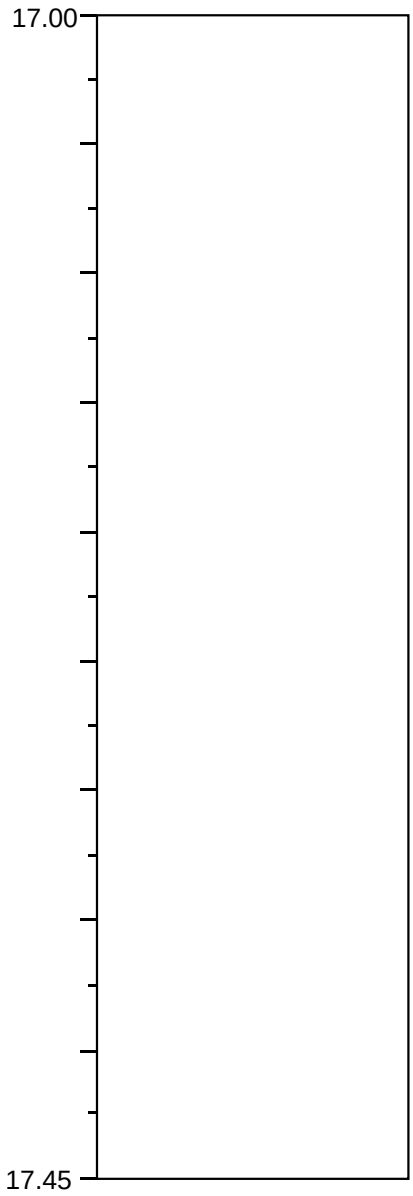
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	56			
Sample Depth, mBGL	17.00	-	17.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

17.00 - 17.43m:
Stiff indistinctly laminated brown silty CLAY. Ocassional light brown silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	60			
Sample Depth, mBGL	18.00	-	18.26	Note: Sample length <> 45 cm
Sample Type	U			

Description

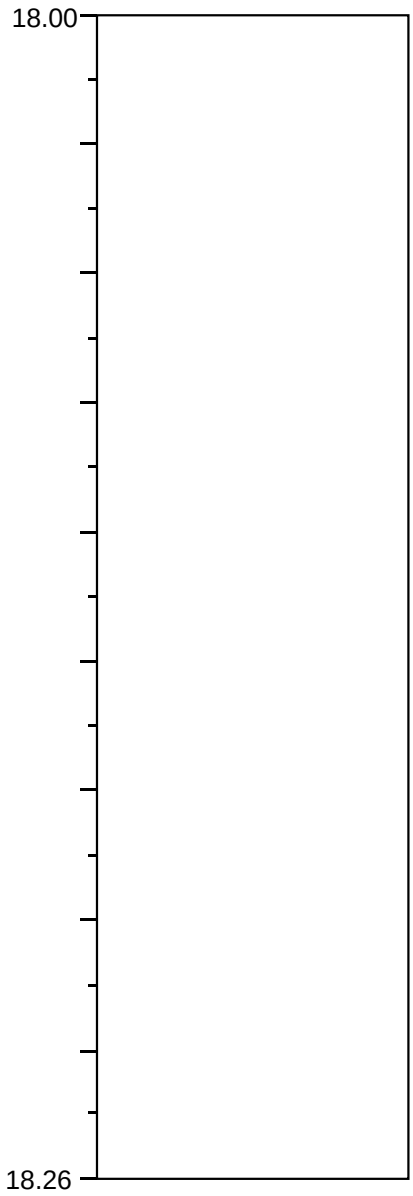
18.00 - 18.26m:
Stiff thinly laminated, locally indistinctly, fissured greyish brown CLAY.

Detail:
18.03 - 18.13m: Extremely closely to very closely spaced partings, up to 7mm, of light orangish brown silty fine sand.

18.13 - 18.26m: Indistinctly laminated.

18.25m: 20-30mm pocket of light orangish brown fine to medium sand.

18.26m: Inclined 25 degree 4mm thick parting of light orangish brown fine to medium sand.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	62			
Sample Depth, mBGL	18.50	-	18.93	Note: Sample length <> 45 cm
Sample Type	U			

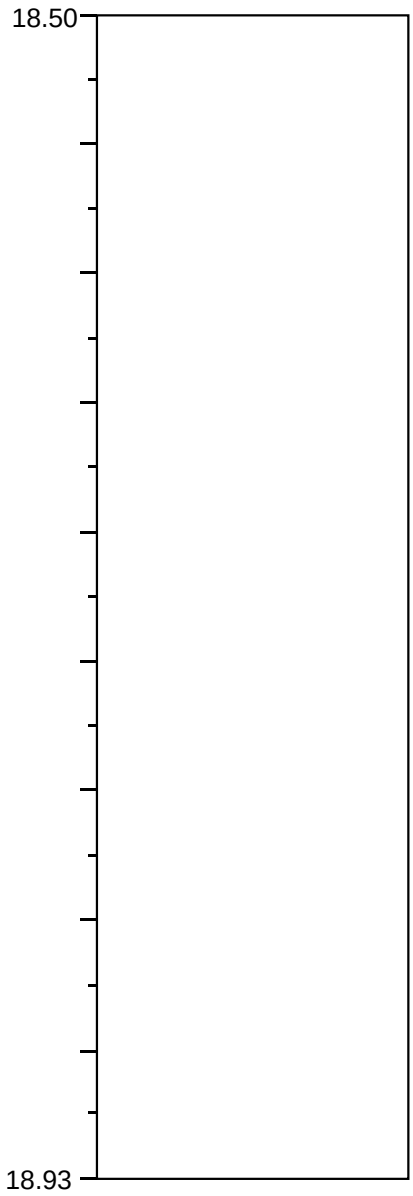
Description

18.50 - 18.93m:
Stiff, locally firm, thinly to thickly, locally cross laminated, greyish brown slightly gravelly CLAY with occasional dustings of brown silt and orangish brown fine sand along laminae surfaces. Gravel is subrounded to rounded fine to medium of chalk.

Detail:
18.50 - 18.64m: Sample partially disturbed.

18.70 - 18.93m: Very closely spaced partings, up to 3mm, of orangish brown fine to medium sand.

18.84m: 30-40mm pocket of orangish brown fine to medium sand.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

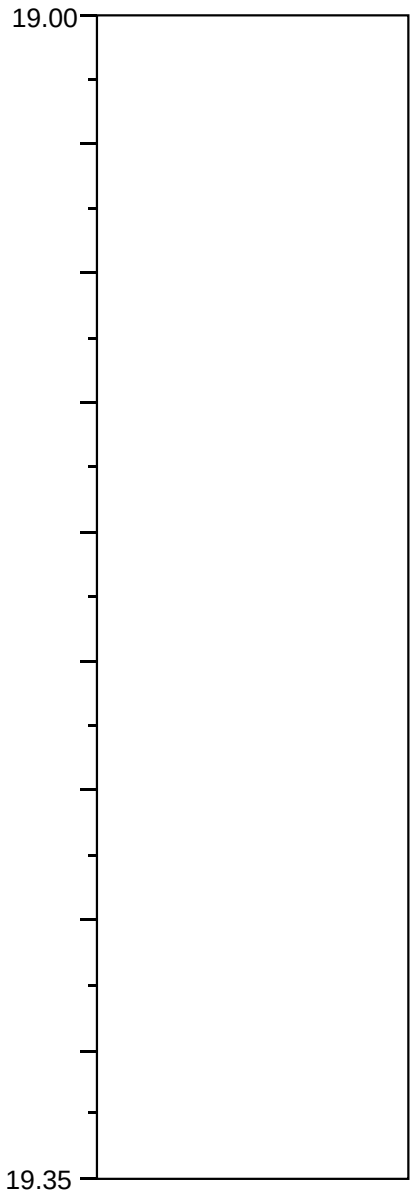
Borehole No	BH306			
Sample No	64			
Sample Depth, mBGL	19.00	-	19.35	Note: Sample length <> 45 cm
Sample Type	U			

Description

19.13 - 19.35m:
Stiff thinly to thickly laminated greyish brown slightly gravelly CLAY with occasional dustings of greyish brown silt and dark grey fine sand along laminae surfaces.Gravel is subrounded to rounded fine of chalk.

Detail:
19.00 - 19.13m: Sample disturbed, soft to firm.

19.21 - 19.30m: Extremely closely spaced partings up to 5mm thick of orangish brown and dark grey fine to medium sand.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

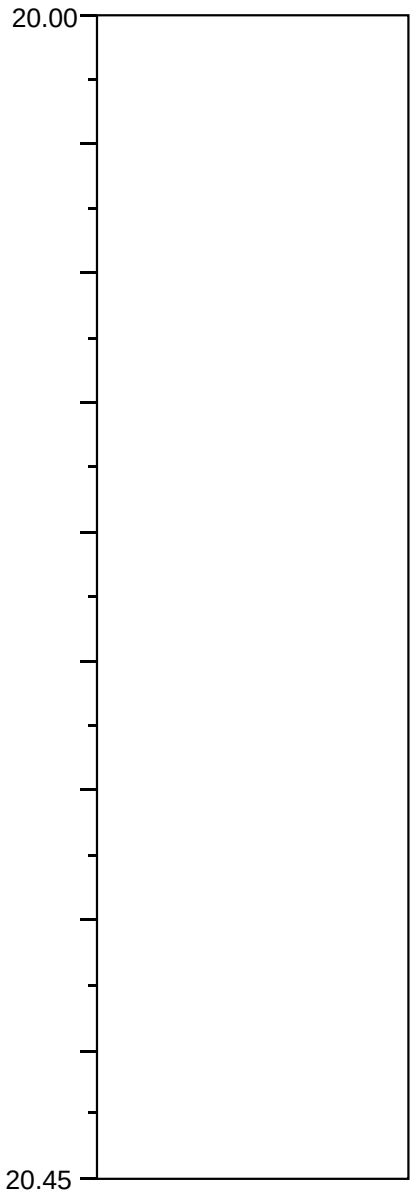
Split Tube Sample Description

Borehole No	BH306			
Sample No	68			
Sample Depth, mBGL	20.00	-	20.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

20.00 - 20.10m:
Firm indistinctly thinly laminated light and dark brown silty CLAY.

20.10 - 20.45m:
Firm, becoming stiff with depth, thinly to thickly laminated light and dark brown slightly sandy silty CLAY with frequent extremely closely to closely spaced, typically <6mm, orangish brown fine sand and silt lenses.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

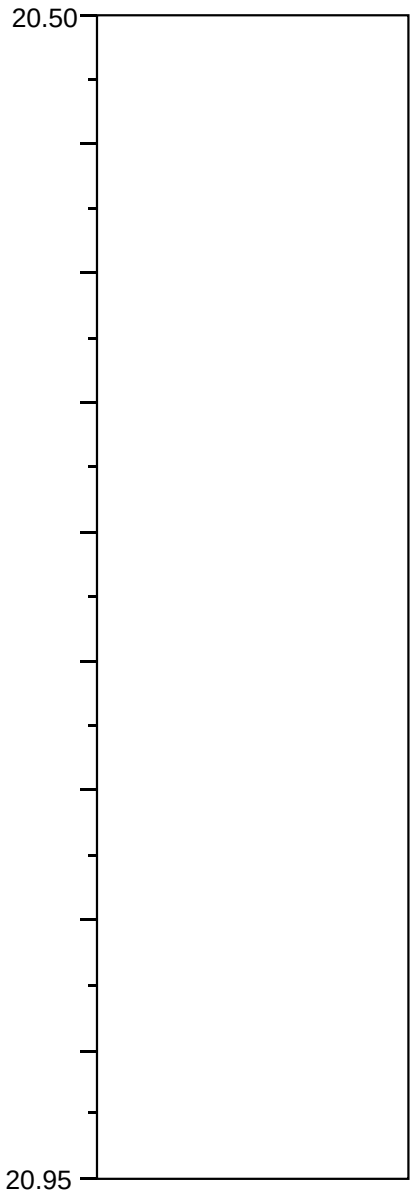
Split Tube Sample Description

Borehole No	BH306			
Sample No	70			
Sample Depth, mBGL	20.50	-	20.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

20.50 - 20.65m:
Highly disturbed; Soft thinly cross laminated fissured greyish brown sandy CLAY. Frequent fine to medium sand and silt dustings on laminae surfaces.
Fissures are stepped and dipping <6mm.

20.65 - 20.80m:
Stiff thinly to thickly laminated slightly sandy silty CLAY. Rare silt dusting on laminae surfaces. Frequent extremely closely spaced, typically <4mm, subhorizontal light brown fine to medium sand lenses.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

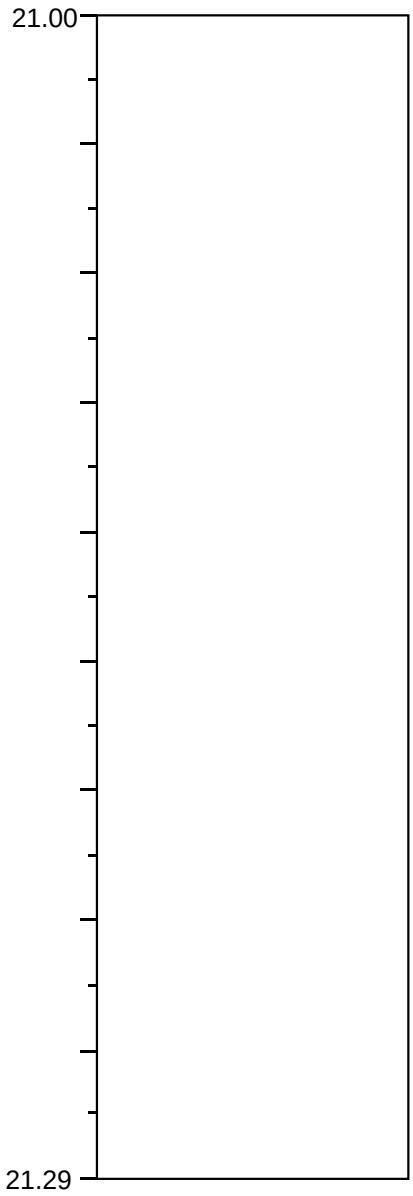
Borehole No	BH306			
Sample No	72			
Sample Depth, mBGL	21.00	-	21.29	Note: Sample length <> 45 cm
Sample Type	U			

Description

21.00 - 21.29m:
Stiff, locally firm, thinly to thickly laminated greyish brown slightly gravelly CLAY with occasional dustings of brown silt along laminae surfaces. Gravel is subrounded to rounded fine of chalk.

Detail:
21.00 - 21.14m: Irregular subvertical parting, up to 5mm thick, of orangish brown silty fine sand.

21.14 - 21.29m: Extremely closely to closely spaced partings, up to 3mm thick, of orangish brown silty fine sand.



Remarks:

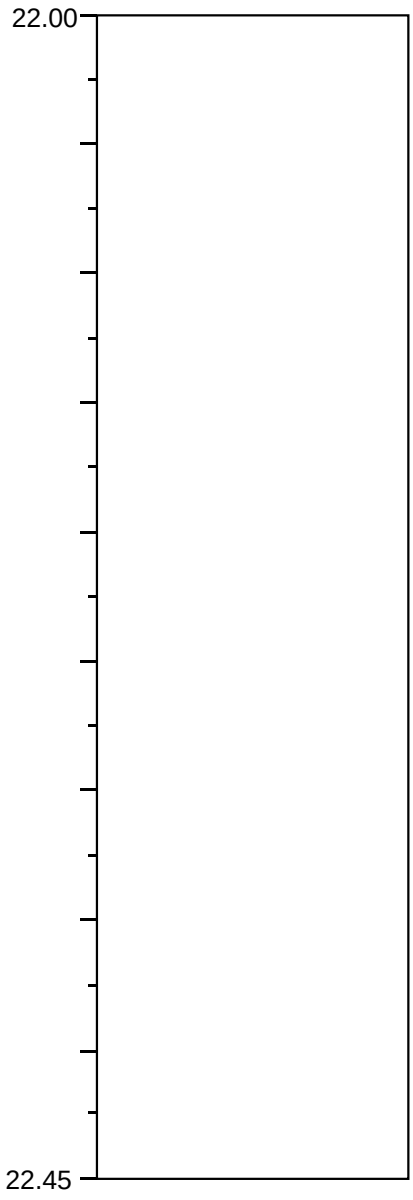
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH306			
Sample No	76			
Sample Depth, mBGL	22.00	-	22.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

22.00 - 22.40m:
Stiff thinly to thickly laminated light brown slightly sandy CLAY with frequent light orangish brown fine to medium sand lenses extremely closely spaced typically <4mm and frequent light brown silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

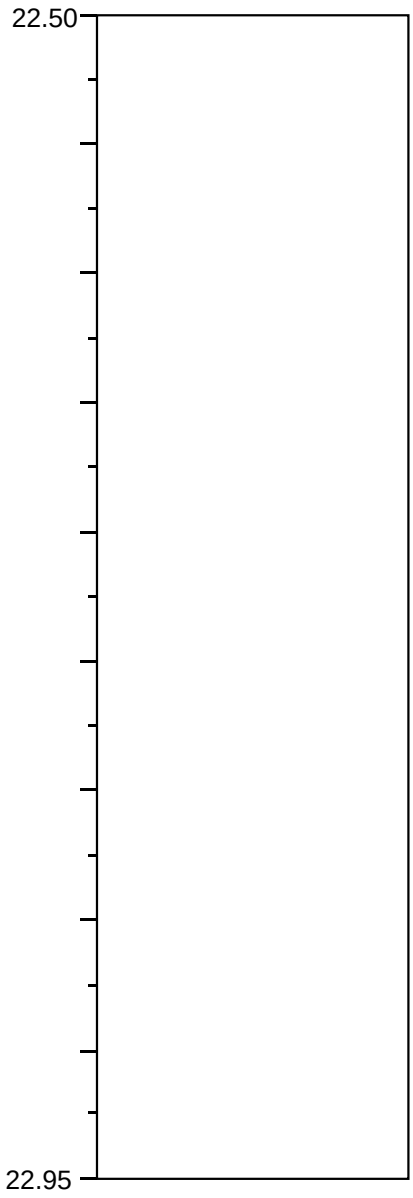
Split Tube Sample Description

Borehole No	BH306			
Sample No	78			
Sample Depth, mBGL	22.50	-	22.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

22.50 - 22.57m:
Firm thinly laminated light greyish brown slightly sandy CLAY with frequent extremely closely spaced, typically <4mm, orangish light brown fine to medium sand lenses.Occasional light brown silt dustings on laminae surfaces.

22.57 - 22.71m:
Stiff indistinctly thinly laminated greyish brown slightly sandy CLAY.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH306
	Carried out for	Balfour Beatty	

Split Tube Sample Description

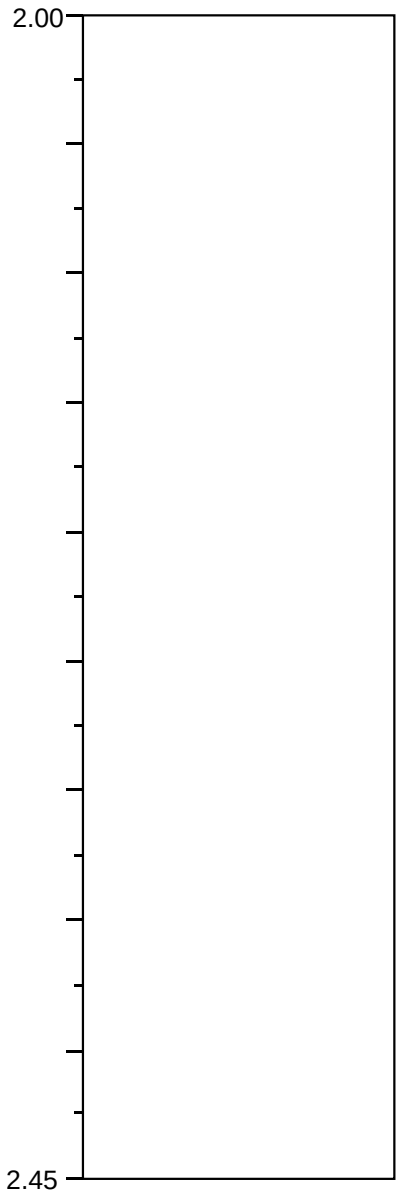
Borehole No	BH307		
Sample No	3		
Sample Depth, mBGL	2.00	-	2.45
Sample Type	UT		

Description

2.00 - 2.20m:
Firm to stiff, locally indistinctly thinly laminated, light brown slightly sandy CLAY with occasional light brownish orange silty dustings on laminae surfaces.

2.20 - 2.45m:
Stiff thinly to thickly laminated (1-6mm) brown silty CLAY with occasional dustings of light brown silt and orangish brown fine sand on laminae surfaces.
Occasional indistinct very closely spaced randomly orientated fissures. Grey infill to relic rootlet traces.

Detail:
2.06m: fine gravel size light brown silt inclusion



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

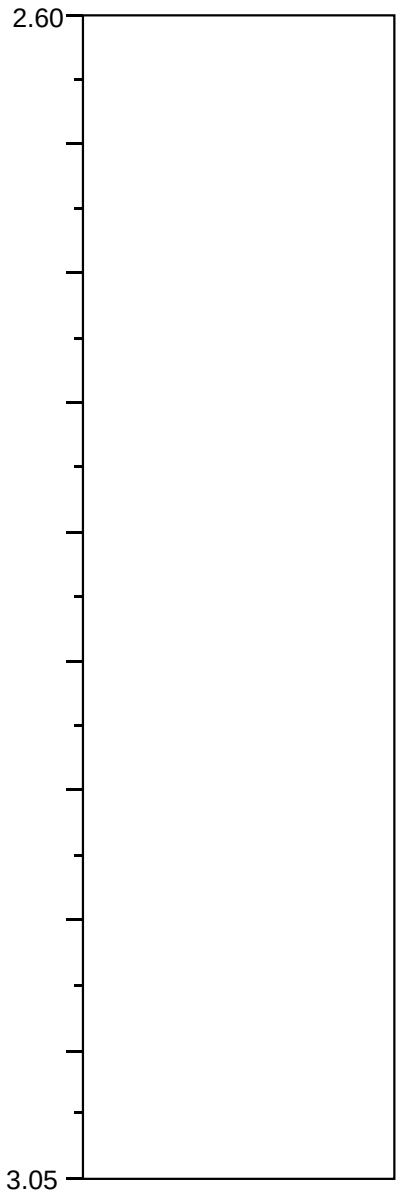
Borehole No	BH307		
Sample No	7		
Sample Depth, mBGL	2.60	-	3.05
Sample Type	UT		

Description

2.60 - 2.80m:
Soft, locally firm, thinly to thickly laminated sandy silty CLAY. Frequent extremely closely spaced greyish black fine sand laminations.

2.80 - 2.88m:
Soft indistinctly thinly laminated greyish brown slightly sandy CLAY with occasional light brown silt on laminae surfaces.

2.88 - 2.98m:
Soft thinly to thickly laminated sandy silty CLAY with frequent extremely closely spaced greyish black fine to medium sand laminations up to 10mm. Rare light brown silt dustings on laminae surfaces.



Remarks:

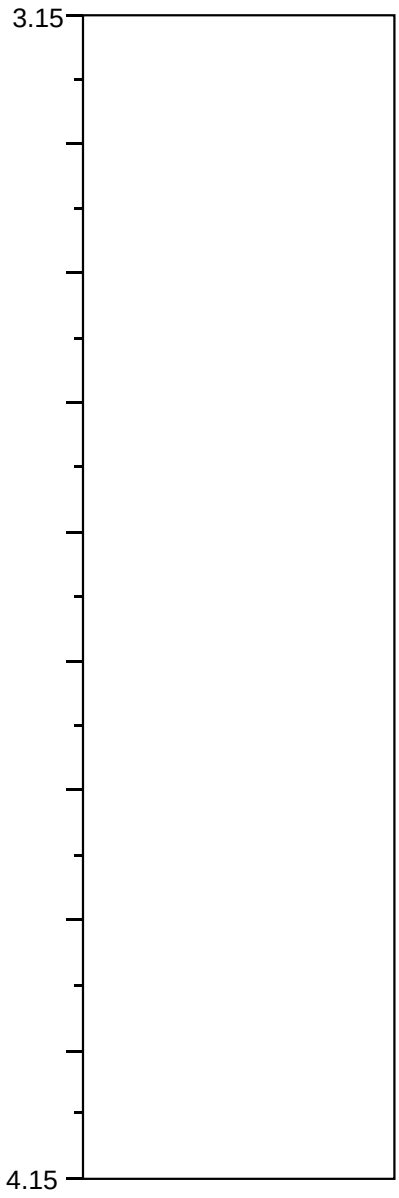
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	9		
Sample Depth, mBGL	3.15	-	4.15
Sample Type	P		

Description

3.15 - 4.15m:
Firm thinly to thickly laminated greyish brown silty CLAY with frequent orangish brown and dark grey silt interlaminations <5mm. Rare greyish orange and brown silt and fine sand dustings on laminae surfaces.



Remarks:

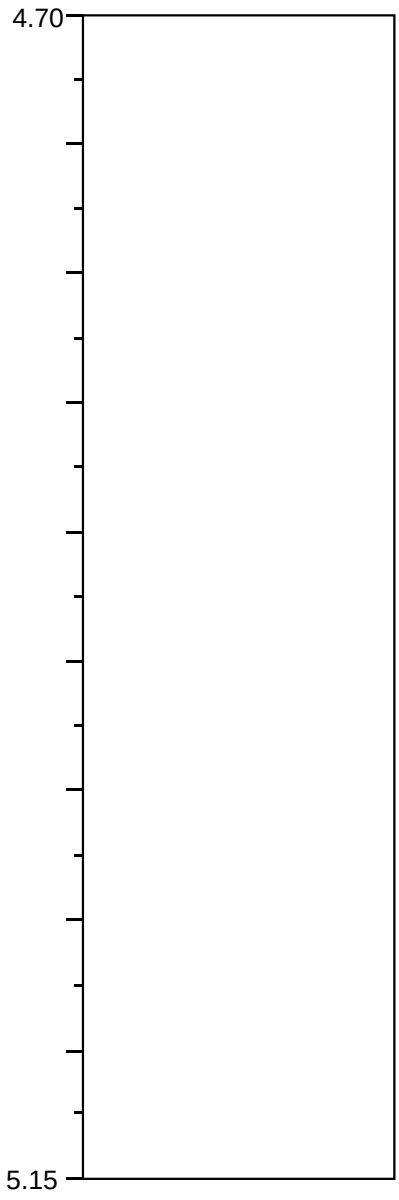
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	13		
Sample Depth, mBGL	4.70	-	5.15
Sample Type	UT		

Description

4.70 - 4.96m:
Firm to stiff thinly cross laminated greyish brown slightly sandy slightly CLAY. Frequent extremely closely spaced fine sand lenses, approximately <5mm thick. Frequent light brown silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

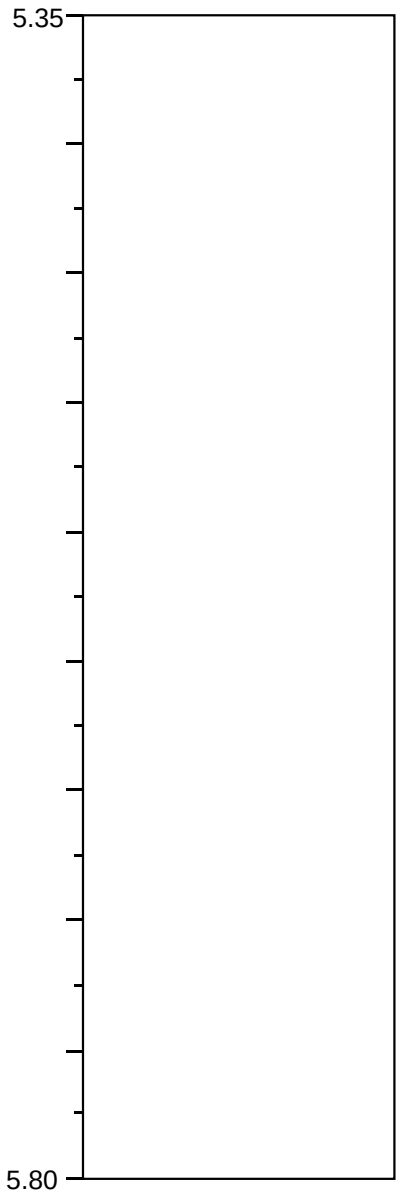
Borehole No	BH307		
Sample No	16		
Sample Depth, mBGL	5.35	-	5.80
Sample Type	UT		

Description

5.35 - 5.56m:
Soft thinly laminated greyish brown slightly sandy CLAY with localised steeply dipping fissures typically <17mm length.

5.57 - 5.80m:
Firm indistinctly thinly to thickly, locally cross, laminated dark brownish grey oxidising to orangish brown silty slightly organic CLAY.

Detail:
5.35 - 5.42m: Frequent partings up to 8mm of very clayey silt.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

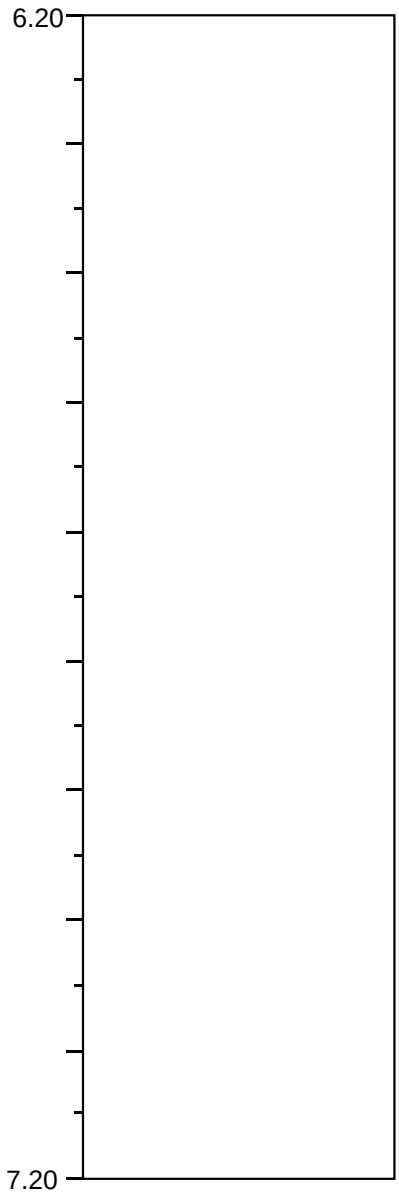
Split Tube Sample Description

Borehole No	BH307		
Sample No	18		
Sample Depth, mBGL	6.20	-	7.20
Sample Type	P		

Description

Firm, thinly laminated, dark brownish grey and dark orangish brown slightly sandy silty organic CLAY, occasionally tending to slightly sandy clayey silt. Frequent brownish grey dustings of silt on laminae surfaces.

Detail:
6.23m Extremely closely spaced, 70deg inclined fissure surfaces.



Remarks:
6.37m - 7.20m Sample taken for testing.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

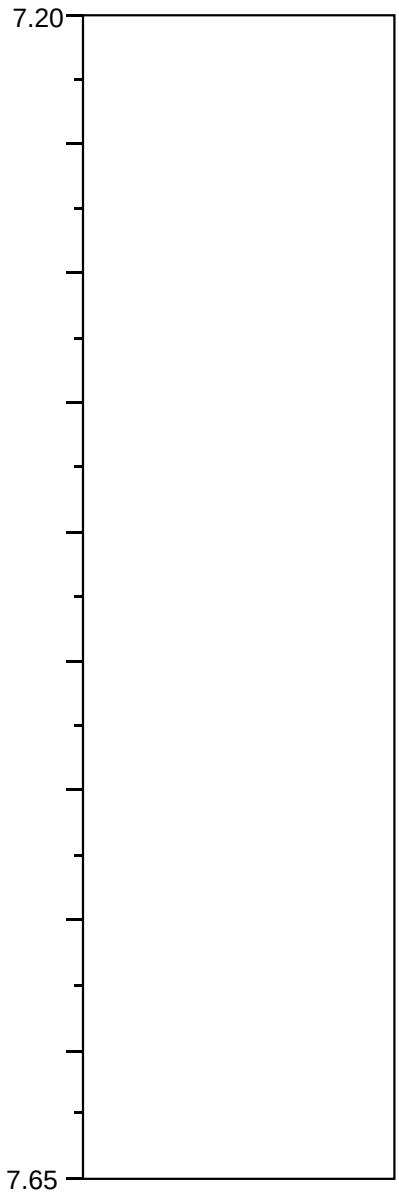
Split Tube Sample Description

Borehole No	BH307		
Sample No	19		
Sample Depth, mBGL	7.20	-	7.65
Sample Type	UT		

Description

7.20 - 7.40m:
Soft, locally firm, thinly laminated greyish brown slightly sandy CLAY. Rare light brown silt dustings on laminae surfaces.

7.42 - 7.65m:
Firm thinly laminated, locally thinly cross laminated (1 to 5mm), greyish brown silty CLAY with dustings of light brown silt and occasional light brown fine sand on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

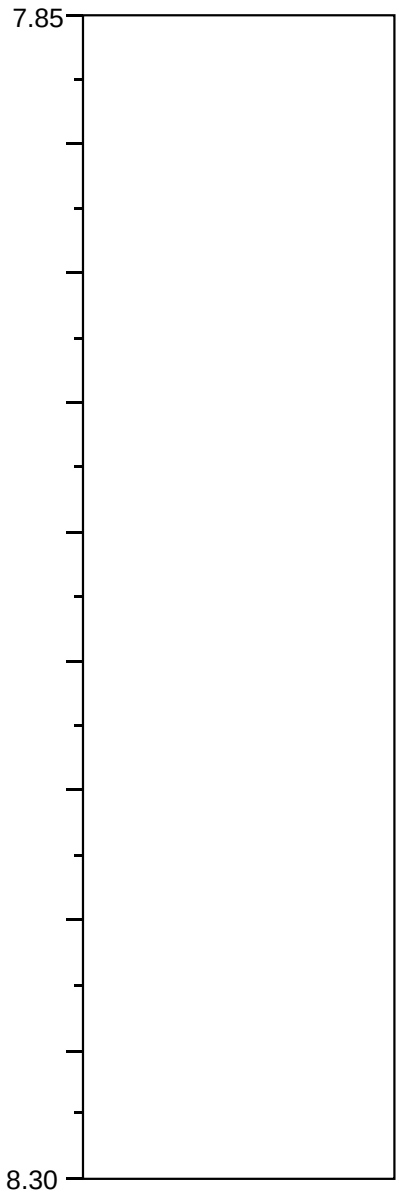
Split Tube Sample Description

Borehole No	BH307		
Sample No	20		
Sample Depth, mBGL	7.85	-	8.30
Sample Type	UT		

Description

7.85 - 8.05m
Firm thinly to thickly laminated greyish brown slightly sandy CLAY with occasional light brown silt dustings on laminae.

8.05 - 8.30m:
Firm thinly laminated and thinly cross laminated dark orangish brown interlaminated dark grey sandy slightly clayey, locally organic, SILT.



Remarks:

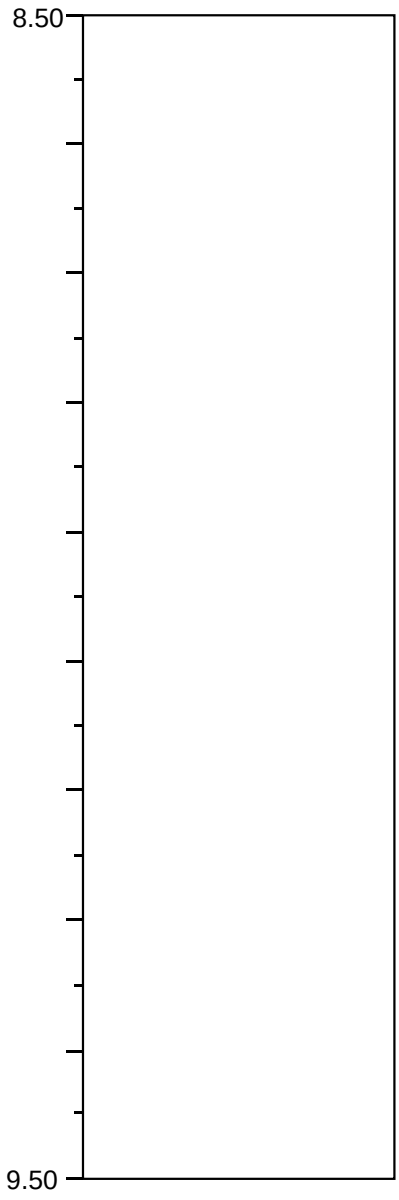
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	22		
Sample Depth, mBGL	8.50	-	9.50
Sample Type	P		

Description

8.70 - 9.50m:
Firm indistinctly thinly to thickly cross laminated dark grey and light brown slightly sandy silty CLAY with occasional light brown silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	31		
Sample Depth, mBGL	12.30	-	12.75
Sample Type	UT		

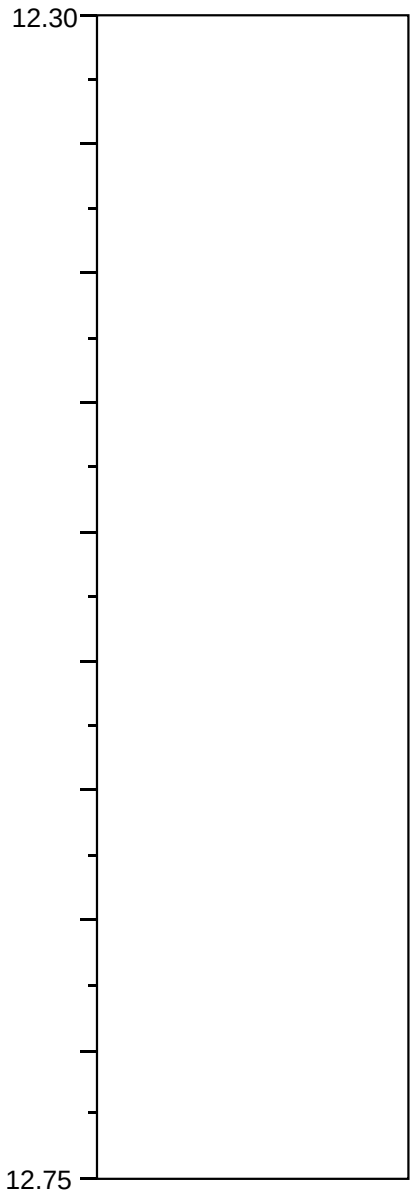
Description

12.30 - 12.40m:
Firm dark brown thinly lamianted slightly sandy CLAY with rare sand lenses typically <3mm, very closely spaced.

12.40 - 12.41m:
Dark brown to black fibrous PEAT with light brownish yellow silt dustings.

12.41 - 12.47m:
Firm dark brown organic thinly laminated slightly sandy silty CLAY.

12.47 - 12.75m:
Stiff black and dark brown pseudofibrous PEAT with large fragments of wood up to 30mm thick throughout sample. (Probable sample disturbance and water loss).



Remarks:
-

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

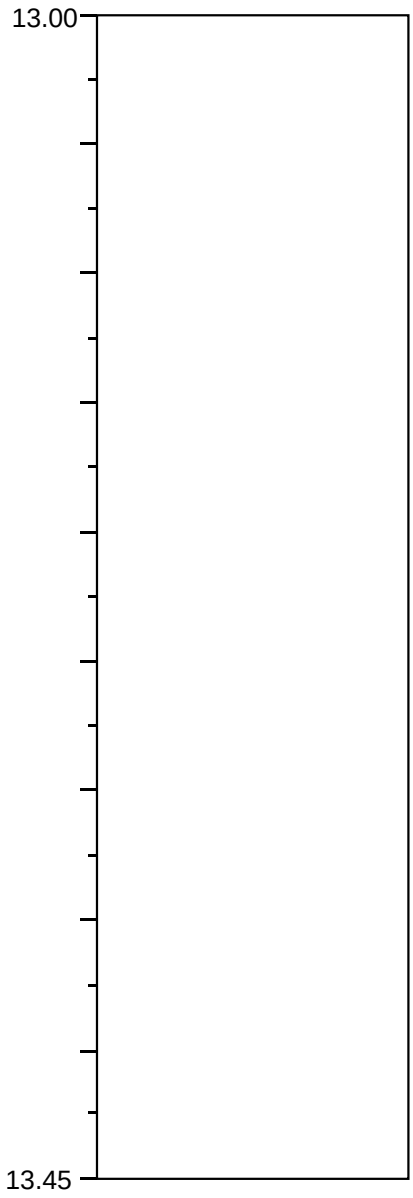
Borehole No	BH307		
Sample No	34		
Sample Depth, mBGL	13.00	-	13.45
Sample Type	UT		

Description

13.00 - 13.05m:
Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of chalk, flint and sandstone.

13.05 - 13.11m:
Firm greyish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine of predominantly chalk.

13.20 - 13.45m:
Stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is subrounded to rounded fine to medium of predominantly chalk, quartzite and sandstone. Occasional pockets up to 3mm of black carbonaceous material.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

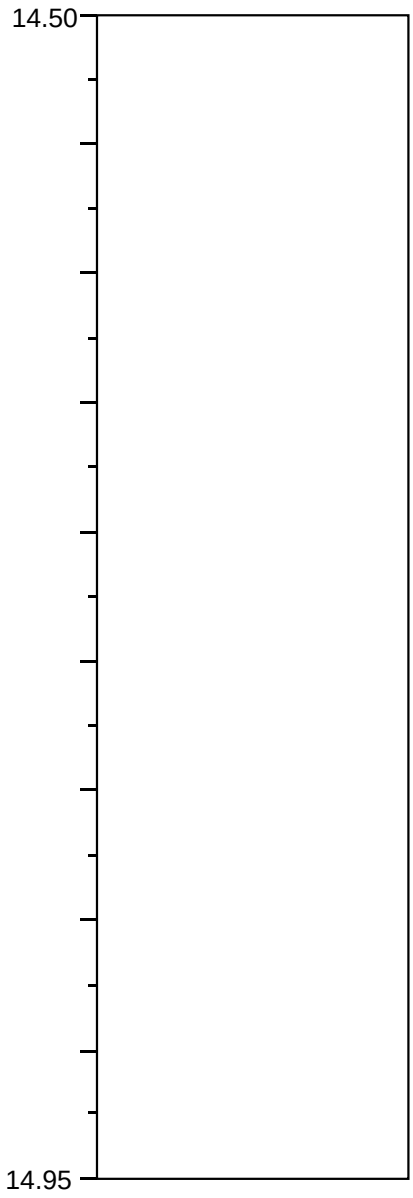
Split Tube Sample Description

Borehole No	BH307		
Sample No	38		
Sample Depth, mBGL	14.50	-	14.95
Sample Type	UT		

Description

14.50 - 14.70m:
Stiff, locally very stiff, occasionally indistinctly fissured, greyish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of various lithologies including chalk, flint, sandstone and igneous composition.

14.71 - 14.95m:
Stiff indistinctly thinly laminated dark greyish brown slightly sandy gravelly CLAY. Gravel is subrounded fine and medium chalk and occasional subangular medium flint.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

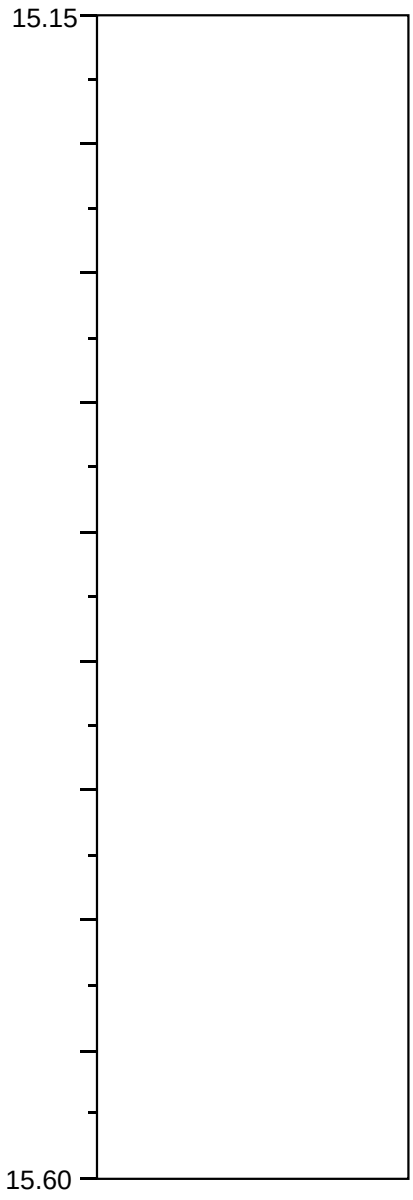
Split Tube Sample Description

Borehole No	BH307		
Sample No	40		
Sample Depth, mBGL	15.15	-	15.60
Sample Type	UT		

Description

15.15 - 15.60m:
Stiff indistinctly thinly laminated fissured slightly gravelly CLAY. Gravel is subrounded fine to medium chalk and flint with rare igneous lithologies. Frequent dustings of light brown silt on laminae surfaces.
Fissures are closely spaced and randomly orientated.

Detail:
15.27m: Subangular medium to coarse flint gravel.



Remarks:

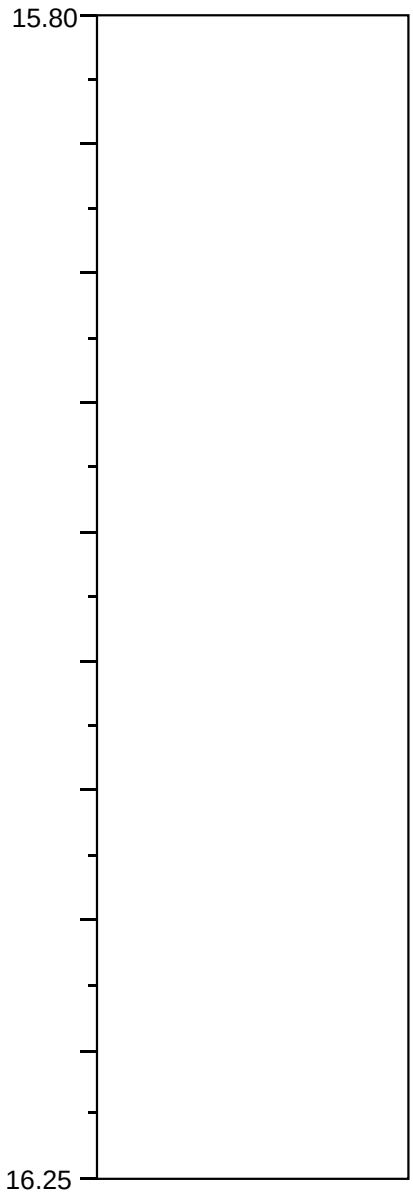
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	42		
Sample Depth, mBGL	15.80	-	16.25
Sample Type	UT		

Description

16.15 - 16.25m:
Stiff indistinctly thinly laminated light brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse of flint, sandstone, chalk and igneous lithologies.



Remarks:
15.80 - 16.15m: Material used in laboratory testing.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

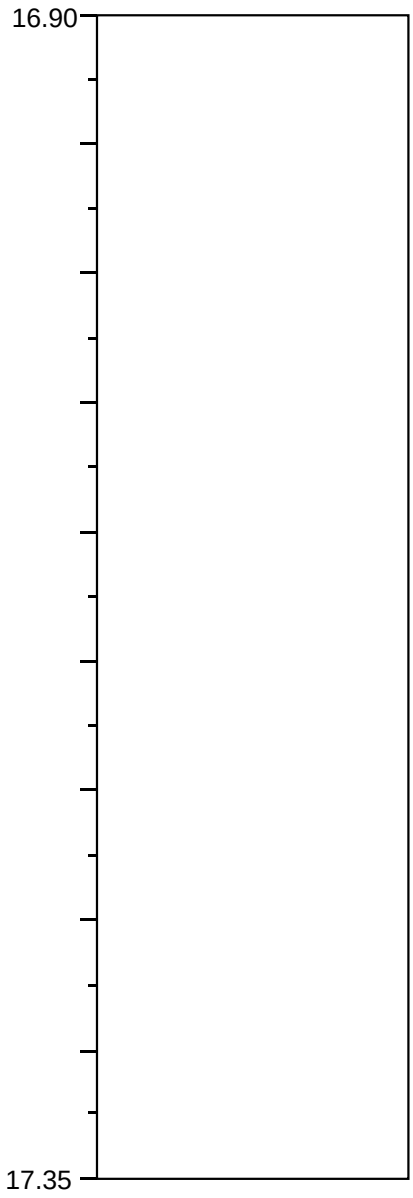
Split Tube Sample Description

Borehole No	BH307		
Sample No	46		
Sample Depth, mBGL	16.90	-	17.35
Sample Type	UT		

Description

16.90 - 17.06m:
Stiff, indistinctly thinly laminated greyish brown slightly gravelly CLAY. Gravel is subrounded to rounded fine to coarse of predominantly chalk. Locally indistinctly fissured with dustings of light brown silt on surfaces.

17.10 - 17.35m:
Stiff, locally very stiff, thinly to thickly laminated (2 - 10mm) brown CLAY with occasional dustings of light brown silt on laminae surfaces. Rare fine gravel size black carbonaceous inclusions.



Remarks:

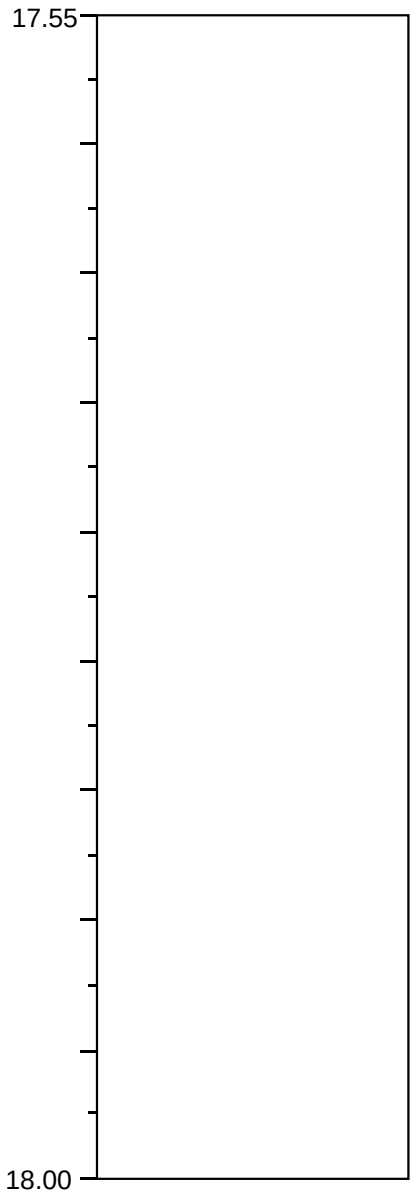
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	48		
Sample Depth, mBGL	17.55	-	18.00
Sample Type	UT		

Description

17.55 - 18.00m:
Very stiff thinly laminated light brown CLAY with rare extremely to very closely spaced light brown and white silt lenses.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	50		
Sample Depth, mBGL	18.20	-	18.65
Sample Type	UT		

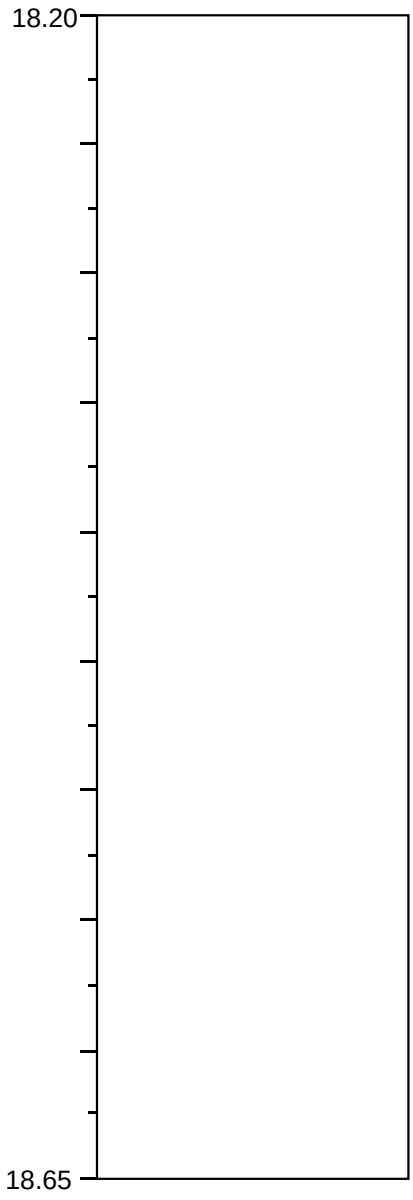
Description

18.20 - 18.37m:
Firm thinly laminated to very thinly bedded greyish brown slightly gravelly sandy CLAY with rare shell fragments. Gravel is angular to subangular fine to medium of chalk. Frequent horizontal undulating fine to coarse light orangish brown extremely to very closely spaced sand lenses.

18.43 - 18.65m:
Firm thinly laminated greyish brown CLAY with occasional thin lenses (3mm) of orangish brown fine and medium sand.

Detail:
18.26m: Subrounded coarse sandstone gravel.

18.29 - 18.35m: 3No. Lenses of orangish brown fine and medium sand.



Remarks:

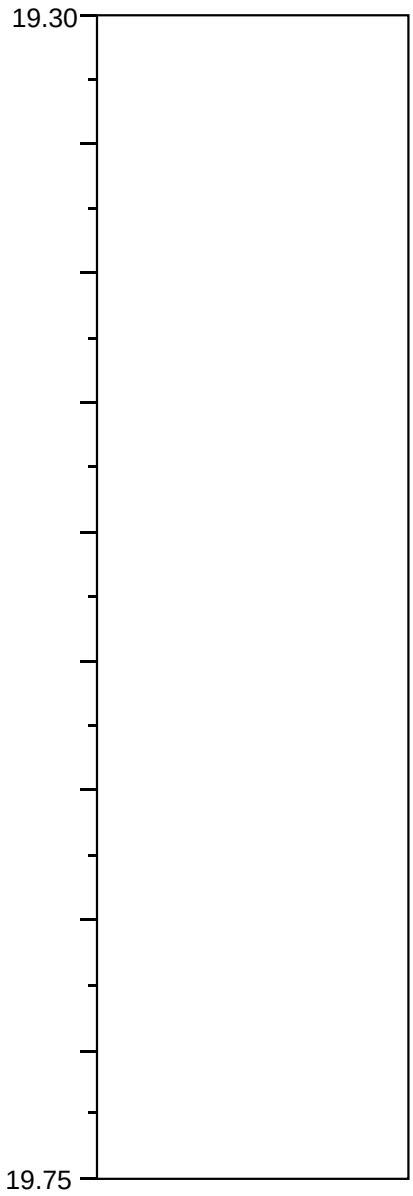
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH307		
Sample No	54		
Sample Depth, mBGL	19.30	-	19.75
Sample Type	UT		

Description

19.30 - 19.70m:
Stiff thinly to thickly laminated brown slightly sandy CLAY.
Occasional light orangish brown extremely to closely spaced fine sand lenses.



Remarks:
Recovery 0.40m.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

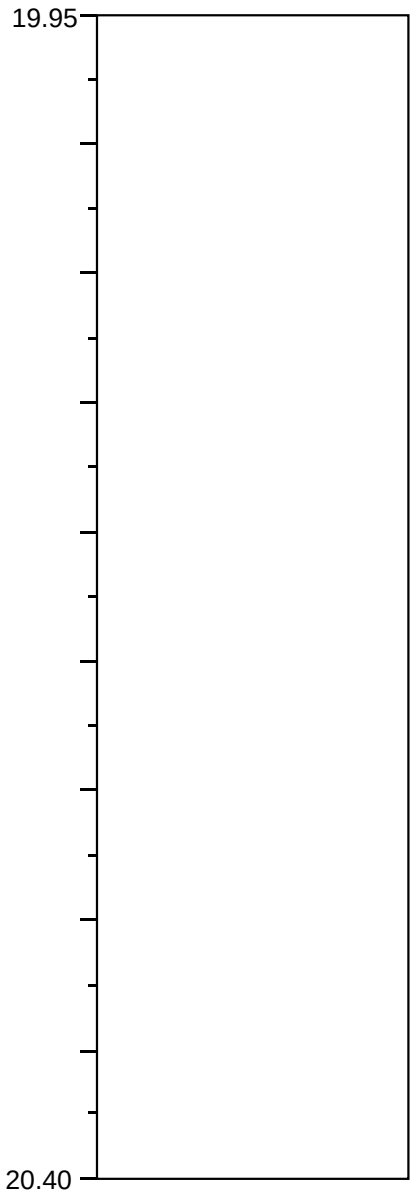
Split Tube Sample Description

Borehole No	BH307		
Sample No	56		
Sample Depth, mBGL	19.95	-	20.40
Sample Type	UT		

Description

19.95 - 20.40m:
Stiff thinly to thickly laminated light brown slightly sandy CLAY with frequent light brown silt and orangish brown fine sand lenses.

Detail:
20.22m: Pocket of light orangish brown fine sand.



Remarks:
Recovery 0.48m.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

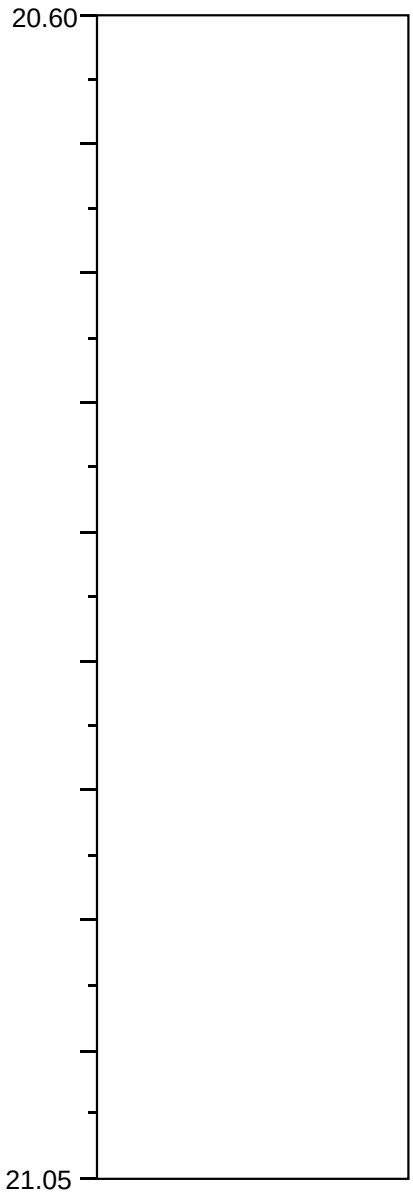
Split Tube Sample Description

Borehole No	BH307		
Sample No	58		
Sample Depth, mBGL	20.60	-	21.05
Sample Type	UT		

Description

20.60 - 20.82m:
Stiff thinly to thickly laminated greyish brown CLAY with frequent dustings and partings, up to 2mm, of brown silt. Extremely to closely spaced partings, up to 5mm, of orangish brown fine to medium sand.

20.82 - 21.05m:
Firm, locally stiff, thinly laminated dark greyish brown and light orangish brown clayey SILT with dustings of light brown fine sand and silt on laminae surfaces and lenses up to 10mm of light orangish brown fine and medium sand.



Remarks:

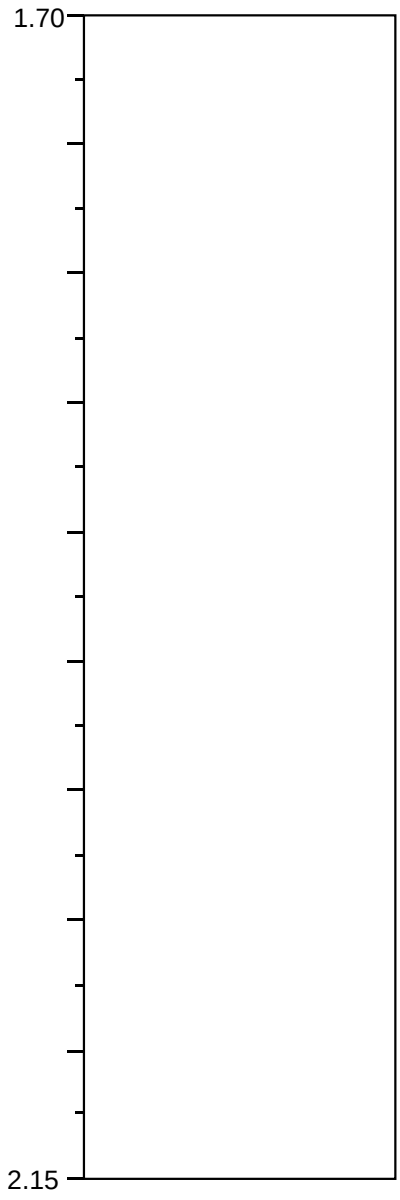
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH307
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	4		
Sample Depth, mBGL	1.70	-	2.15
Sample Type	UT		

Description

1.70 - 2.10m:
Stiff thinly to thickly laminated greyish brown slightly sandy silty CLAY with frequent light brown fine sand lenses up to 5mm. Occasional silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

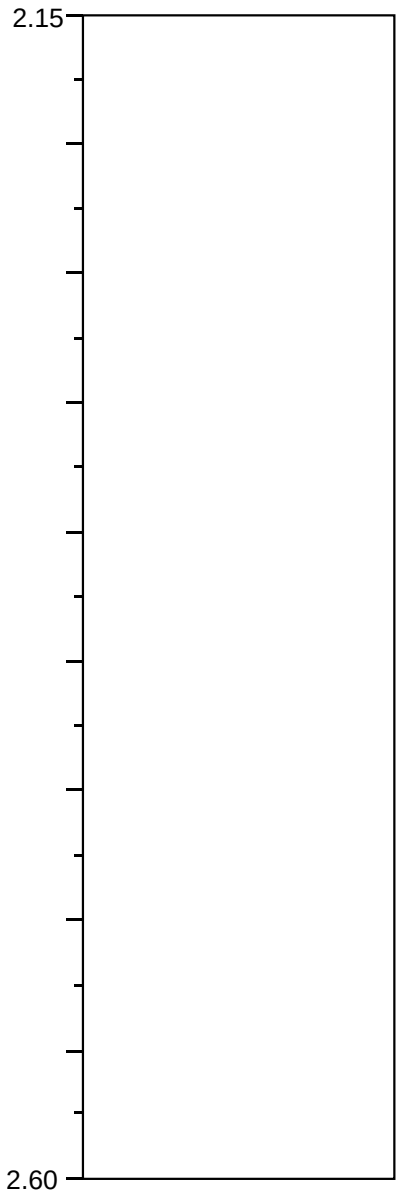
Split Tube Sample Description

Borehole No	BH308		
Sample No	5		
Sample Depth, mBGL	2.15	-	2.60
Sample Type	UT		

Description

2.15 - 2.58m:
Stiff thinly laminated greyish brown slightly sandy silty CLAY with frequent light orangish brown extremely closely spaced sand lenses.

Detail:
2.15m: Cobble of sandstone.



Remarks:

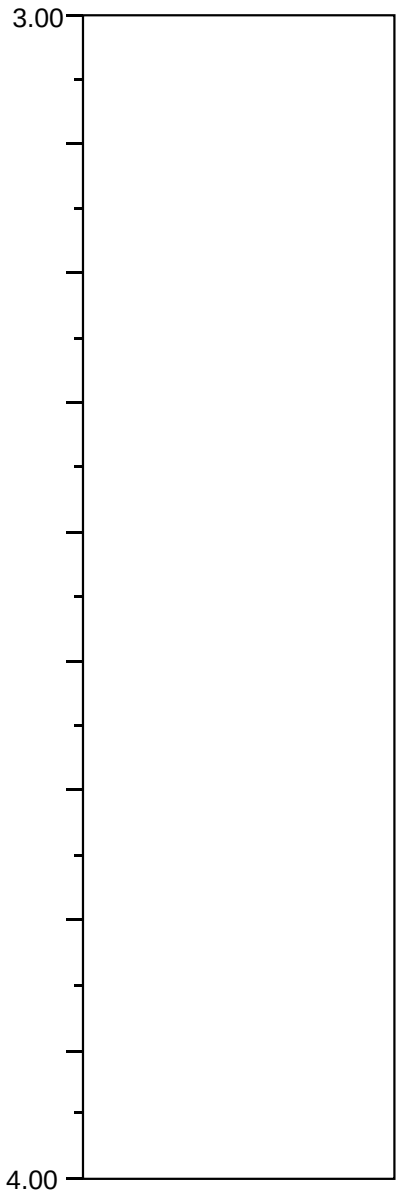
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	7		
Sample Depth, mBGL	3.00	-	4.00
Sample Type	P		

Description

3.00 - 4.00m:
Firm, locally stiff, indistinctly thinly to thickly laminated, orangish and greyish brown slightly sandy silty CLAY with occasional plant fragments up to 2mm.
Below 3.42m, becoming distinctly thinly to thickly laminated.
Slight organic odour.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

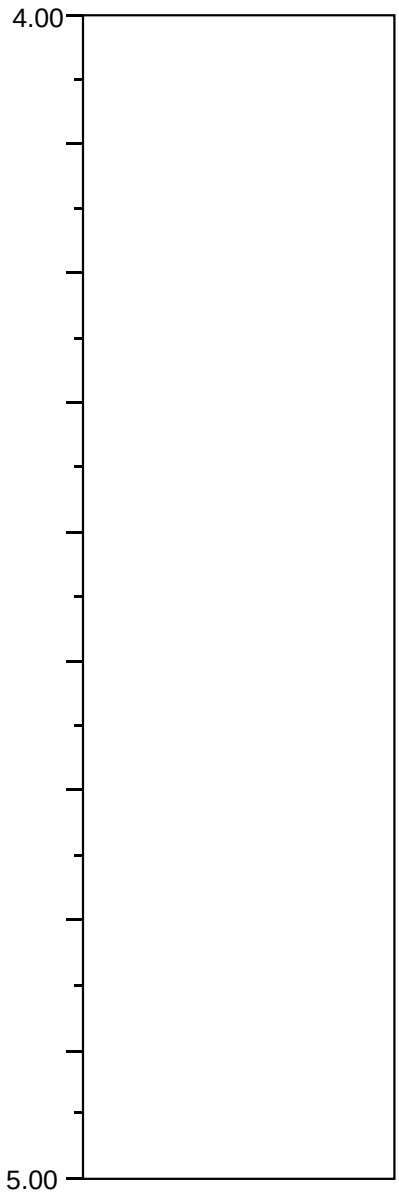
Split Tube Sample Description

Borehole No	BH308		
Sample No	9		
Sample Depth, mBGL	4.00	-	5.00
Sample Type	P		

Description

4.17 - 5.00m: Firm thinly to thickly laminated dark grey and greyish brown slightly sandy clayey SILT.

Detail:
Laminae typically 1 - 5mm thick.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

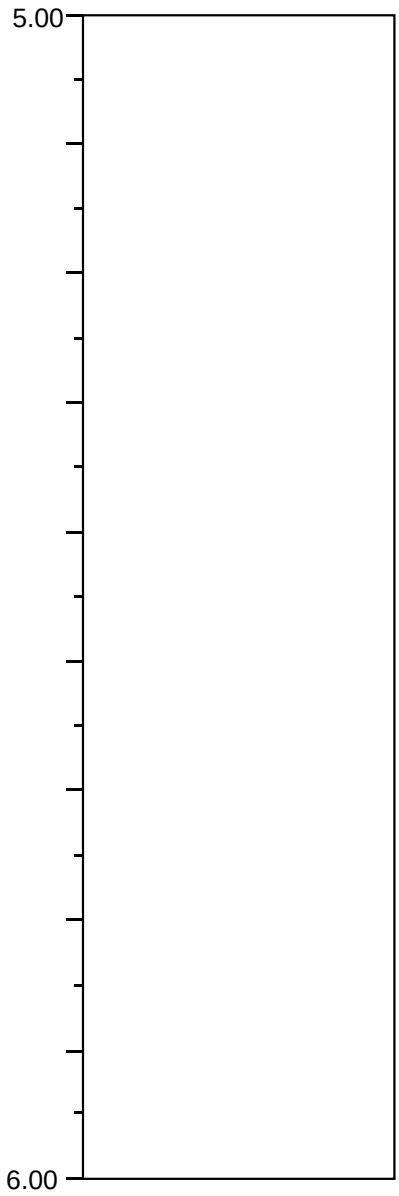
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	10		
Sample Depth, mBGL	5.00	-	6.00
Sample Type	P		

Description

5.75 - 6.00m: Firm indistinctly thinly cross laminated fissured dark brownish grey oxidising to dark brown clayey SILT with occasional dustings of light brown fine sand on laminae surfaces. Organic odour.
Fissures are closely spaced and randomly orientated.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

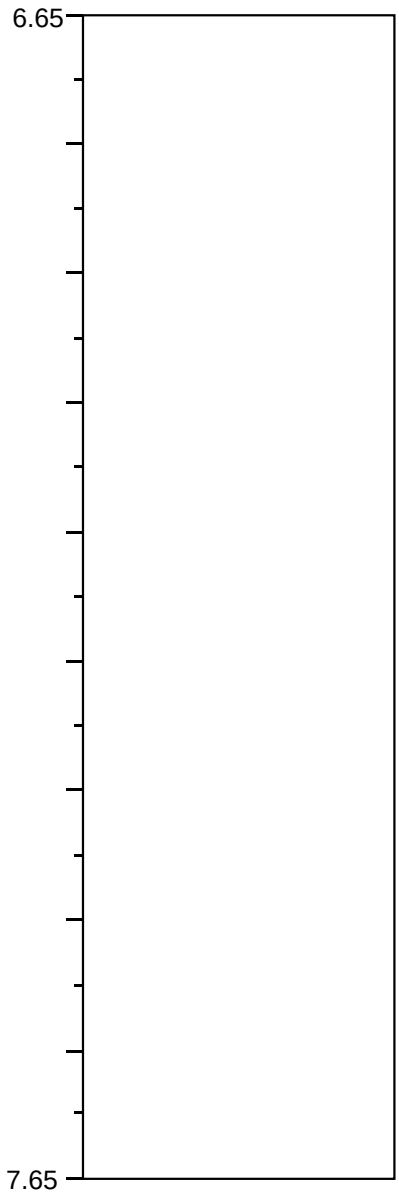
Split Tube Sample Description

Borehole No	BH308		
Sample No	14		
Sample Depth, mBGL	6.65	-	7.65
Sample Type	P		

Description

6.65 - 6.85m:
Firm thinly to thickly laminated greyish brown and light brown slightly sandy silty CLAY with occasional light brown silt dustings on laminae surfaces.

6.85 - 7.25m:
Firm thinly laminated, locally thickly laminated, locally indistinctly fissured, dark brownish grey oxidising to brown silty CLAY with frequent dustings of light brown silt and partings of up to 2mm on laminae surfaces.



Remarks:

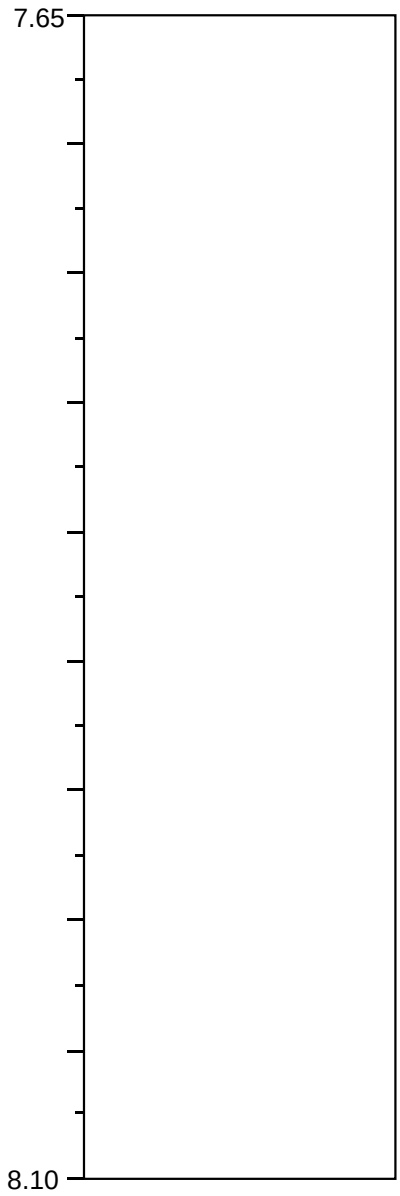
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308			
Sample No	15			
Sample Depth, mBGL	7.65	-	8.10	Note: Sample length <> 45 cm
Sample Type	U			

Description

7.65 - 8.05m:
Soft, locally firm, indistinctly thinly laminated brownish grey slightly sandy CLAY. Occasional extremely closely spaced vertical fissures.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

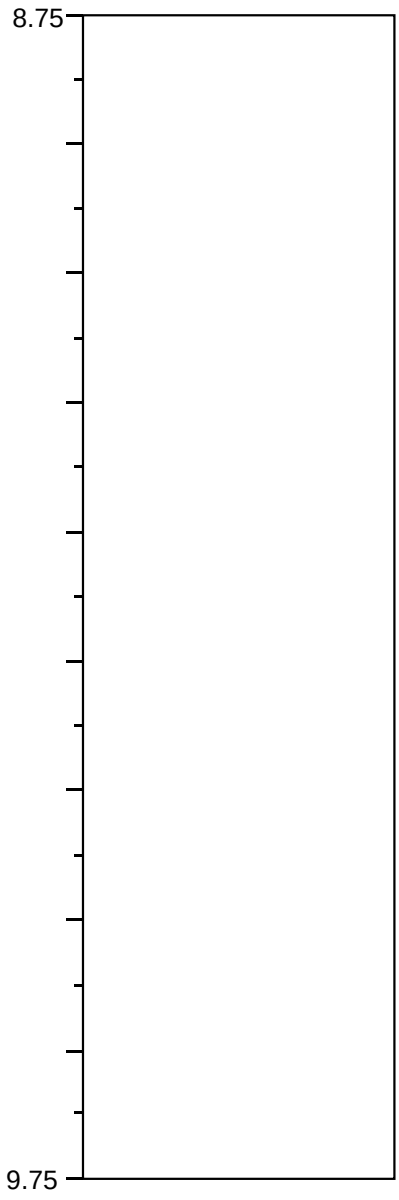
Split Tube Sample Description

Borehole No	BH308		
Sample No	18		
Sample Depth, mBGL	8.75	-	9.75
Sample Type	P		

Description

9.38 - 9.75:
Soft, locally firm, thinly, locally thickly, laminated dark grey oxidising to brown clayey SILT with interlaminations of light brown fine and medium sand and dustings of light brown fine and medium sand on laminae surfaces.

Detail:
8.90m: Tending to light brown fine and medium sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

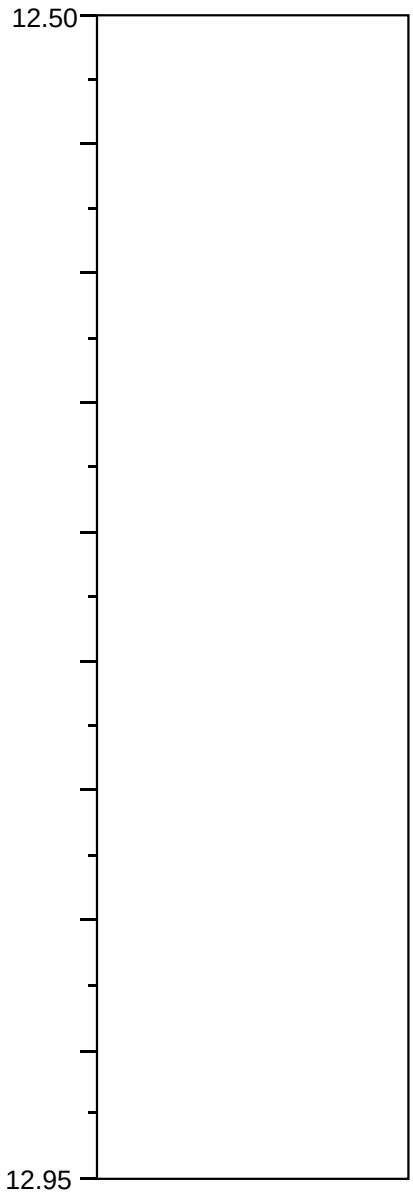
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	25		
Sample Depth, mBGL	12.50	-	12.95
Sample Type	UT		

Description

12.50 - 12.93m:
Firm, locally stiff, thinly laminated brownish grey and light grey silty CLAY with occasional subhorizontal dark grey sandy clay lenses up to 6mm thick. Occasional silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

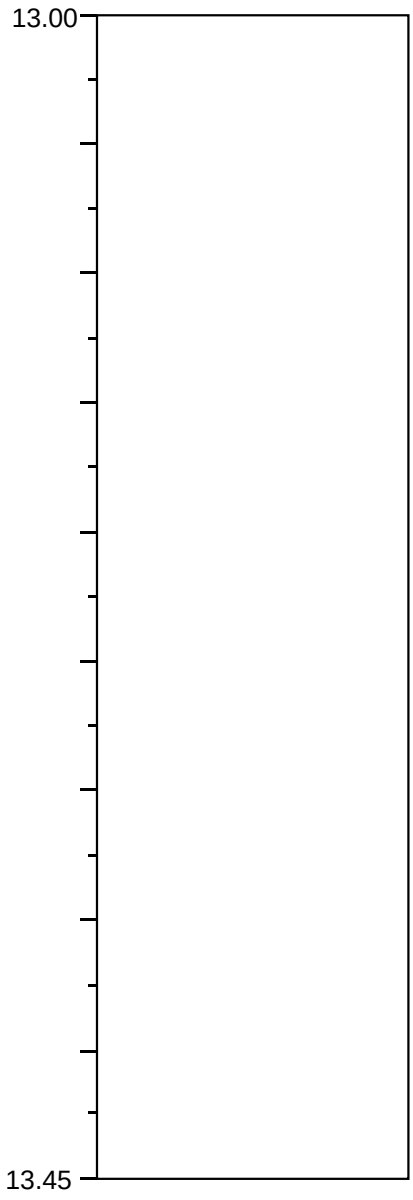
Split Tube Sample Description

Borehole No	BH308		
Sample No	26		
Sample Depth, mBGL	13.00	-	13.45
Sample Type	UT		

Description

13.00 - 13.30m:
Dense dark brown oxidising to black pseudofibrous slightly sitly PEAT with rare wood fragments up to 10mm.

13.30 - 13.50m:
Stiff indistinctly thinly laminated dark greenish grey slightly organic silty CLAY with occasional black plant remains up to 6mm.



Remarks:

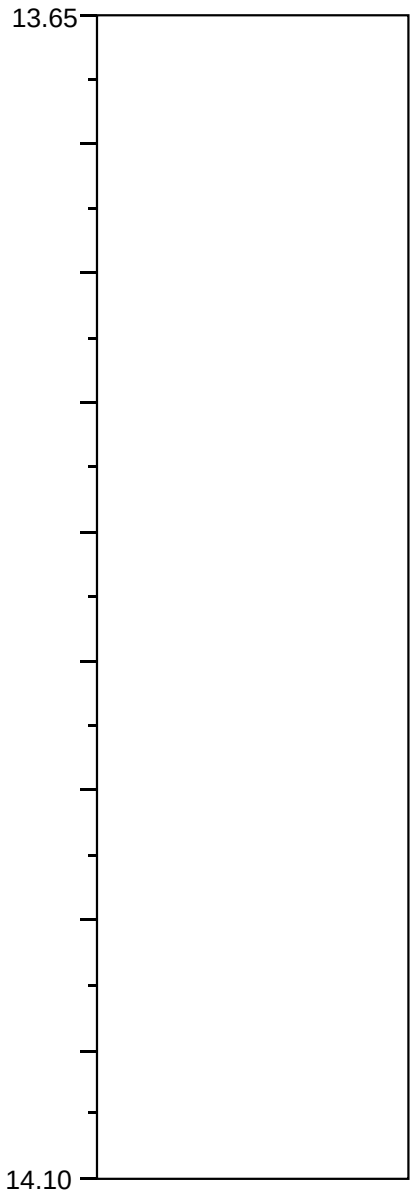
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	28		
Sample Depth, mBGL	13.65	-	14.10
Sample Type	UT		

Description

13.65 - 13.84m:
Stiff thinly laminated dark greyish brown slightly sandy CLAY interbedded with frequent soft black friable psuedofibrous peat lenses up to 3mm thick.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

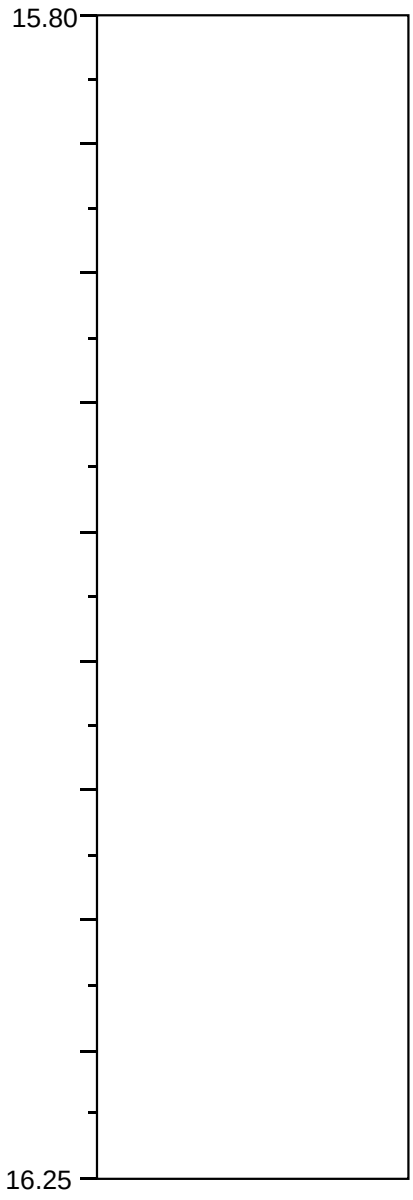
Borehole No	BH308		
Sample No	34		
Sample Depth, mBGL	15.80	-	16.25
Sample Type	UT		

Description

15.90 - 16.05m:
Very stiff, locally indistinctly, thickly laminated greyish brown and dark grey slighty sandy slighty gravelly CLAY. Gravel is subangular to rounded fine to coarse of various lithologies predominantly chalk, flint, sandstone and quartzite.

16.05 - 16.25m:
Stiff indistinctly thinly cross laminated indistinctly fissured dark greyish brown slightly sandy silty CLAY with dustings of fine light brown sand on laminae surfaces. Fissures are closely spaced and randomly orientated.

Detail:
15.94m: 1no. rounded cobble of sandstone.
15.98m: Persistent inclined 40 degree planar fissure surfaces.



Remarks:

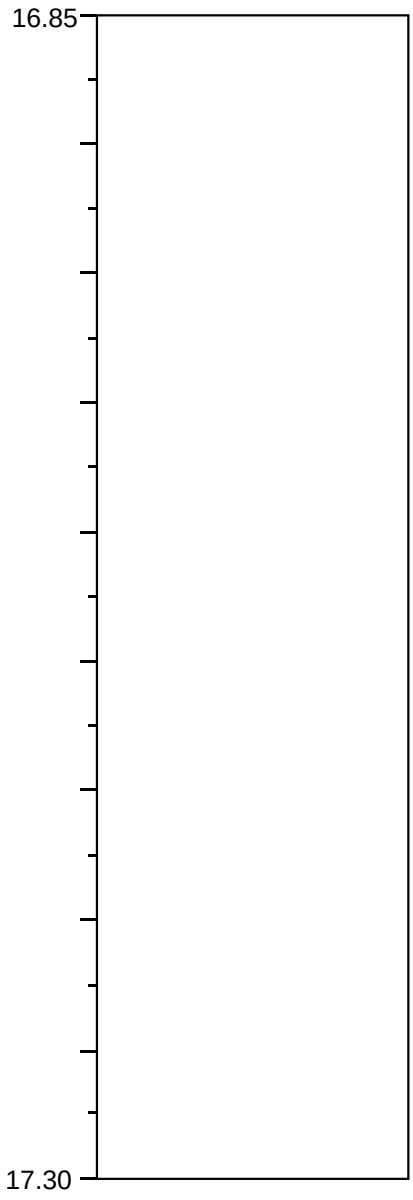
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	38		
Sample Depth, mBGL	16.85	-	17.30
Sample Type	UT		

Description

16.85 - 17.23m:
Very stiff thinly laminated brown and light brown sandy silty CLAY with frequent light brown and beige fine sand and silt lenses up to 3mm. Rare light brown silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

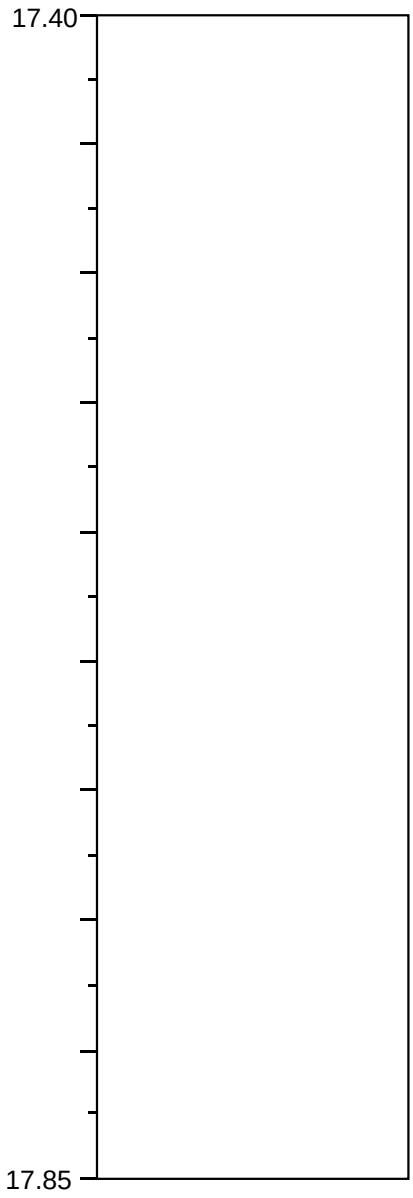
Split Tube Sample Description

Borehole No	BH308		
Sample No	40		
Sample Depth, mBGL	17.40	-	17.85
Sample Type	UT		

Description

17.40 - 17.62:
Very stiff thinly to thickly laminated greyish brown silty CLAY with occasional dustings of light grey along laminae surfaces. Rare partings up to 3mm of light brown silt. Laminations locally crossed and inclined to 20 - 30 degree. Occasional impersistent steeply inclined 70 - 80 degree fissure surfaces.

17.60 - 17.85m:
Stiff thinly, locally thickly, laminated dark greyish brown and light brown CLAY with dustings of silt on laminae surfaces and local lenses of light brown fine sand up to 5mm.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

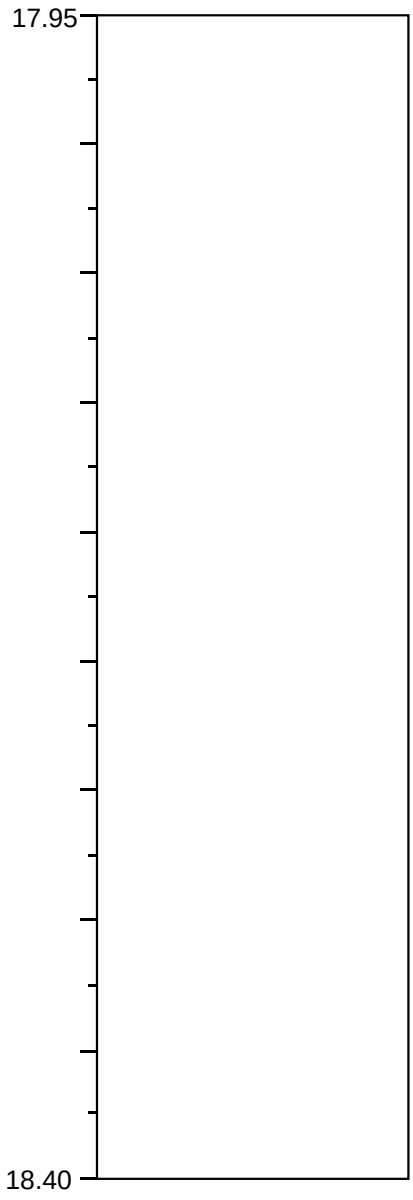
Borehole No	BH308		
Sample No	42		
Sample Depth, mBGL	17.95	-	18.40
Sample Type	UT		

Description

17.95 - 18.40m:
Firm indistinctly thinly and thickly laminated slightly sandy silty CLAY with frequent pockets and partings of orangish brown fine to medium sand.

Detail:
17.95 - 18.15m: Rare subrounded to rounded fine to medium gravel of chalk.

17.95 - 18.20m: Clay, locally softened, very wet adjacent to persistent subvertical partings of sand penetrating up to 20mm.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	46		
Sample Depth, mBGL	19.50	-	19.95
Sample Type	UT		

Description

19.50 - 19.95m:
Stiff thinly to thickly, locally indistinctly, laminated greyish brown silty CLAY.

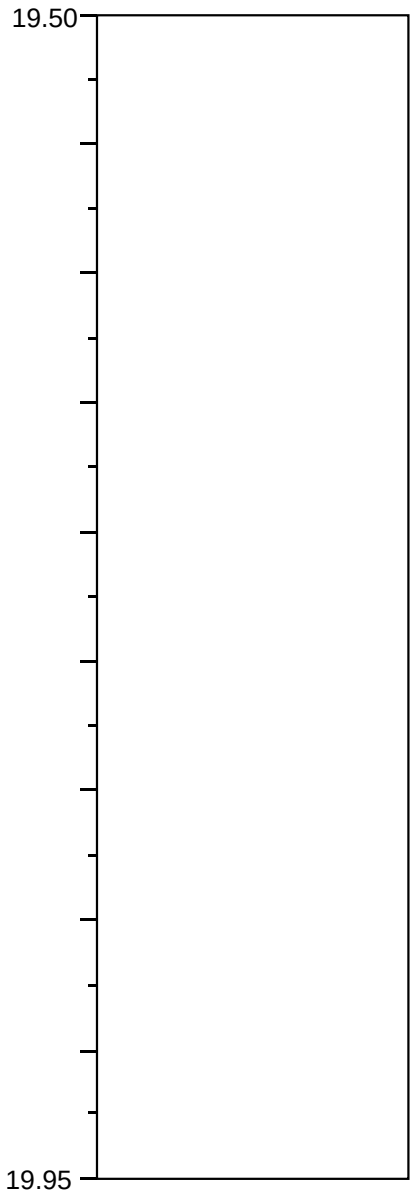
Detail:
19.50 - 19.69m: Indistinctly extremely closely spaced randomly orientated fissures with occasional dustings of light brown silt on surfaces.

19.57m: 3mm parting of light brown silt.

19.68 - 19.71m: Extremely closely spaced partings of light brown silty fine sand.

19.83 - 19.87: Extremely closely spaced partings of light brown silty fine sand.

19.90 - 19.95m: Extremely closely spaced partings of orangish brown and black silty fine sand.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

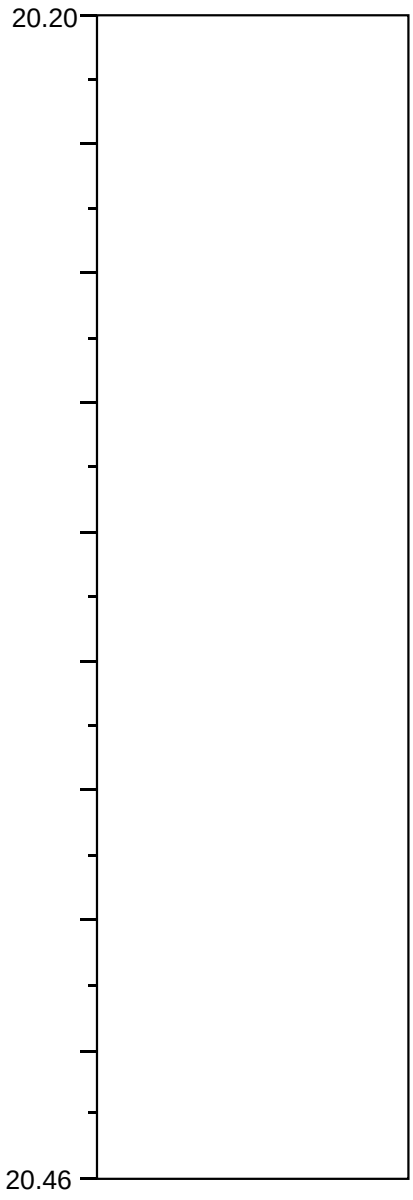
Split Tube Sample Description

Borehole No	BH308		
Sample No	48		
Sample Depth, mBGL	20.20	-	20.46
Sample Type	UT		

Description

20.20 - 20.46m:
Probable sample disturbance.
Firm indistinctly thinly and thickly laminated greyish brown slightly sandy silty CLAY.

Detail:
20.34 - 20.46m: With frequent pockets and partings of dark orangish brown silty fine to medium sand. Clay, locally softened, adjacent to sand inclusions in parts very wet



Remarks:

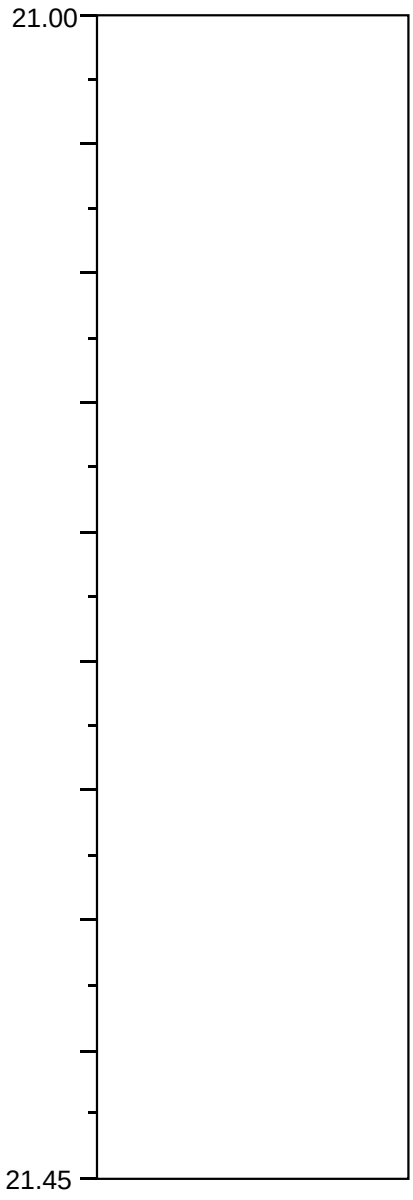
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	50		
Sample Depth, mBGL	21.00	-	21.45
Sample Type	UT		

Description

21.00 - 21.45m:
Firm thinly and thickly laminated light brown and brown slightly sandy slightly silty CLAY with extremely closely spaced light brown fine and medium sand laminations, <5mm.



Remarks:

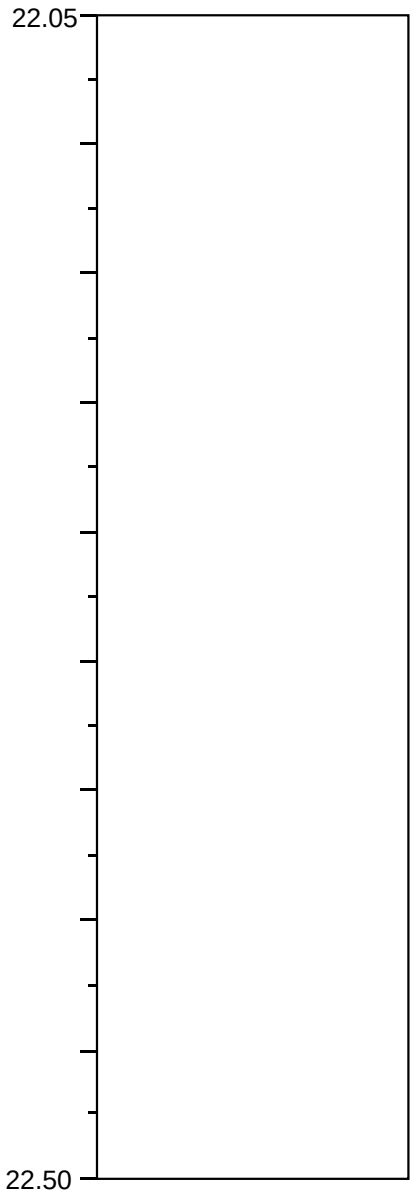
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH308		
Sample No	54		
Sample Depth, mBGL	22.05	-	22.50
Sample Type	UT		

Description

22.05 - 22.18m:
Firm thinly laminated light brown slightly sandy CLAY with frequent extremely closely spaced, typically <3mm, interlaminations of orangish light brown fine sand and silt.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH308
	Carried out for	Balfour Beatty	

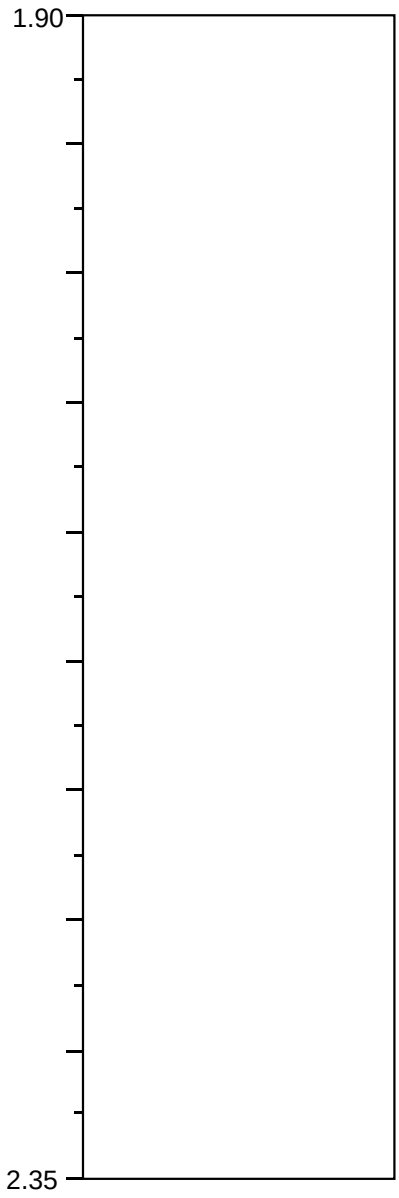
Split Tube Sample Description

Borehole No	BH309		
Sample No	2		
Sample Depth, mBGL	1.90	-	2.35
Sample Type	UT		

Description

1.90 - 2.12m:
Stiff thinly, occasionally thickly, laminated fissured brown CLAY. Fissures are extremely closely to very closely spaced randomly orientated.

2.12 - 2.35m:
Stiff indistinctly thinly laminated indistinctly fissured orangish brown slightly sandy silty CLAY with occasional dustings of light greyish brown fine sand on laminae and fissure surfaces. Fissures are closely spaced and randomly orientated. Vertical grey infill on relic root traces.



Remarks:

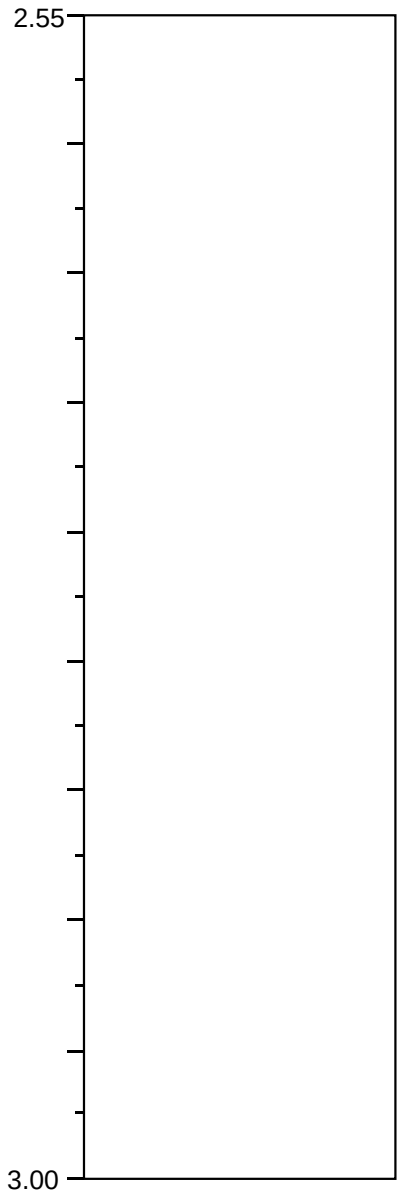
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	5		
Sample Depth, mBGL	2.55	-	3.00
Sample Type	UT		

Description

2.55 - 3.00m:
Firm to stiff thinly laminated fissured brown mottled greyish brown slightly sandy CLAY. Fissures are generally steeply to vertical dipping extremely closely spaced. Occasional light brown fine sand and silt dustings on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

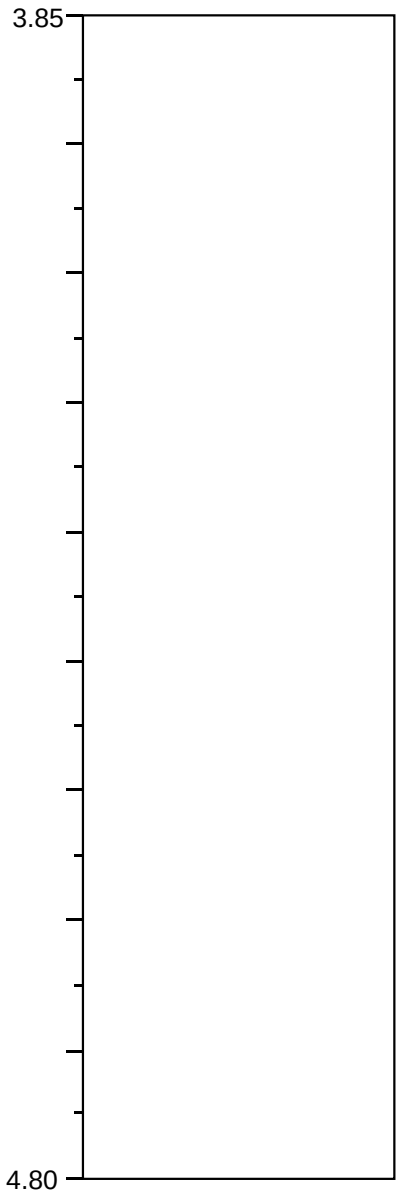
Split Tube Sample Description

Borehole No	BH309		
Sample No	11		
Sample Depth, mBGL	3.85	-	4.80
Sample Type	P		

Description

Firm thinly cross-laminated, locally indistinctly, dark greyish brown silty CLAY with dustings of light brown fine and medium sand on laminae surfaces, locally light brown fine and medium sand lenses up to 20mm.

Detail:
3.90m Light brown fine and medium sand lens, 20mm wide.



Remarks:
4.03m - 4.80m Sample taken for testing.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

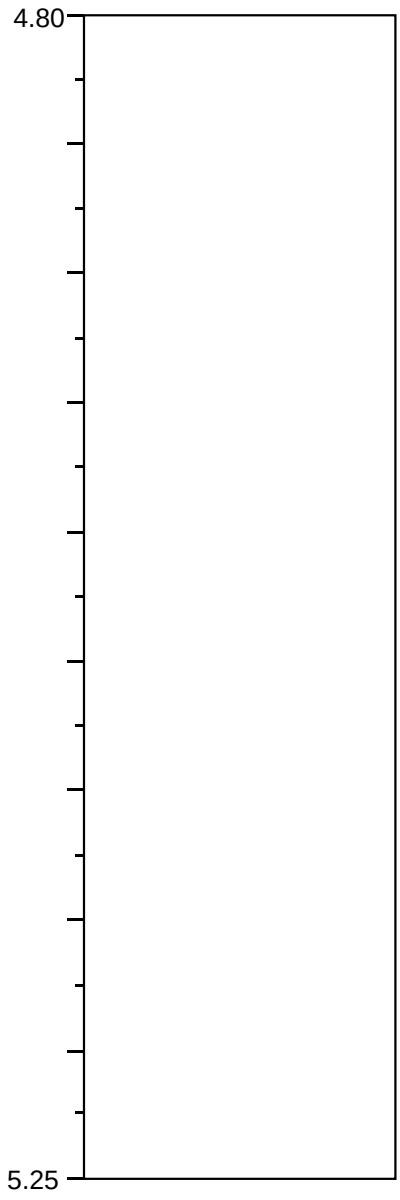
Split Tube Sample Description

Borehole No	BH309		
Sample No	12		
Sample Depth, mBGL	4.80	-	5.25
Sample Type	UT		

Description

4.95 - 5.25: Firm thinly to thickly laminated (1 - 6mm) brownish grey slightly sandy, locally sandy, SILT.

Detail:
5.16m: 70 degree inclined fissure.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

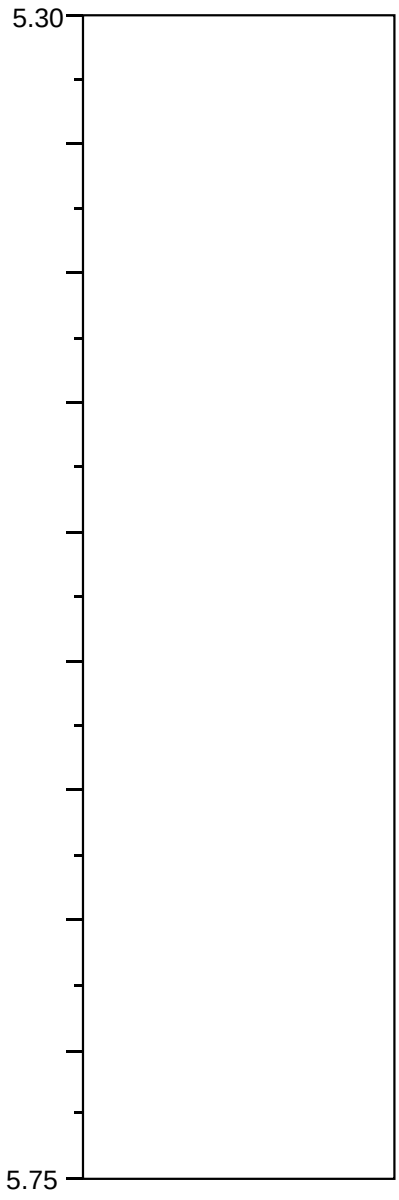
Borehole No	BH309		
Sample No	14		
Sample Depth, mBGL	5.30	-	5.75
Sample Type	UT		

Description

5.30 - 5.49m:
Soft thinly, occasionally thickly, laminated greyish brown slightly organic CLAY with rare partings up to 2mm of brown silt along laminae surfaces.

5.52 - 5.75m:
Firm thinly to thickly laminated dark greyish brown and dark brown clayey SILT locally tending to silty clay.

Detail:
5.37m: 1No. inclusion 10 x 15mm of black carbonaceous material.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

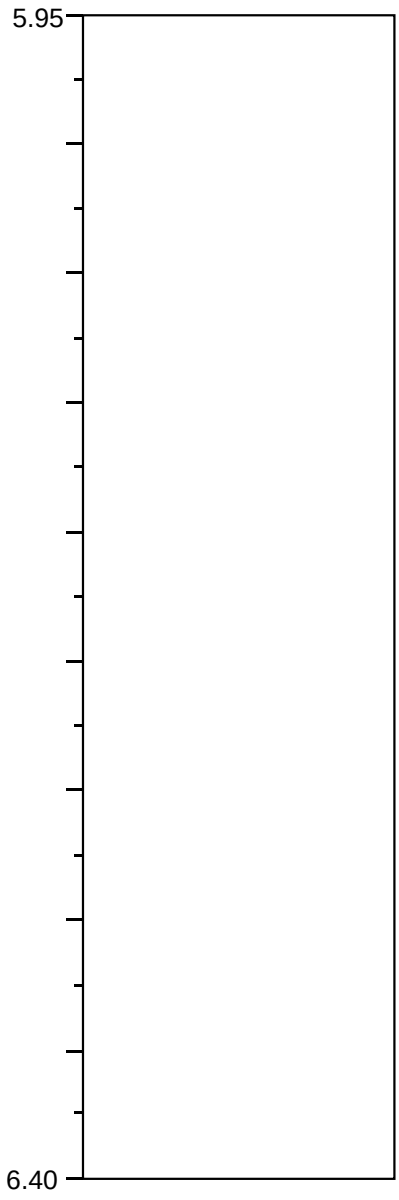
Split Tube Sample Description

Borehole No	BH309		
Sample No	17		
Sample Depth, mBGL	5.95	-	6.40
Sample Type	UT		

Description

5.95 - 6.17m:
Probable sample disturbance.
Soft, locally firm, thinly laminated light and dark greyish brown slightly organic slightly sandy CLAY.

Detail:
6.10m: Soft band of light brown fine to medium slightly sandy silt.



Remarks:
0.22m recovery.

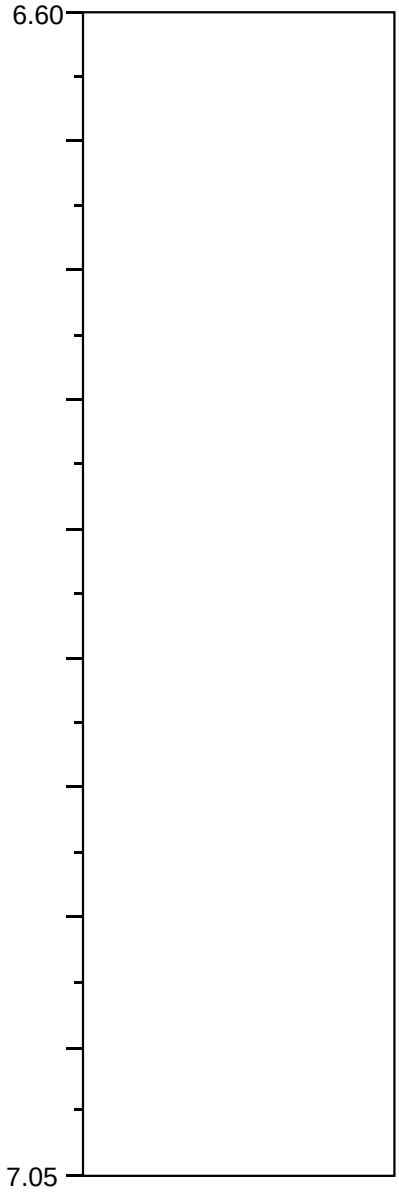
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	19		
Sample Depth, mBGL	6.60	-	7.05
Sample Type	UT		

Description

6.60 - 6.99m:
Soft indistinctly thinly laminated fissured greyish brown slightly sandy CLAY with rare light brown silt and fine sand dustings on laminae surfaces. Fissures are randomly orientated and extremely closely spaced.



Remarks:

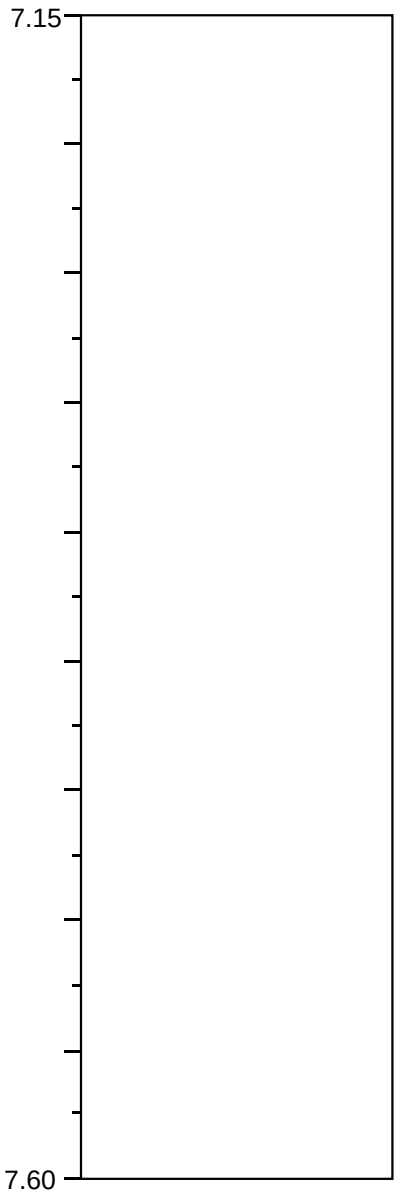
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	21		
Sample Depth, mBGL	7.15	-	7.60
Sample Type	UT		

Description

7.31 - 7.60m:
Thinly to thickly laminated, locally cross laminated, greyish brown clayey SILT. Occasional speckling of black carbonaceous material on laminae surfaces.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

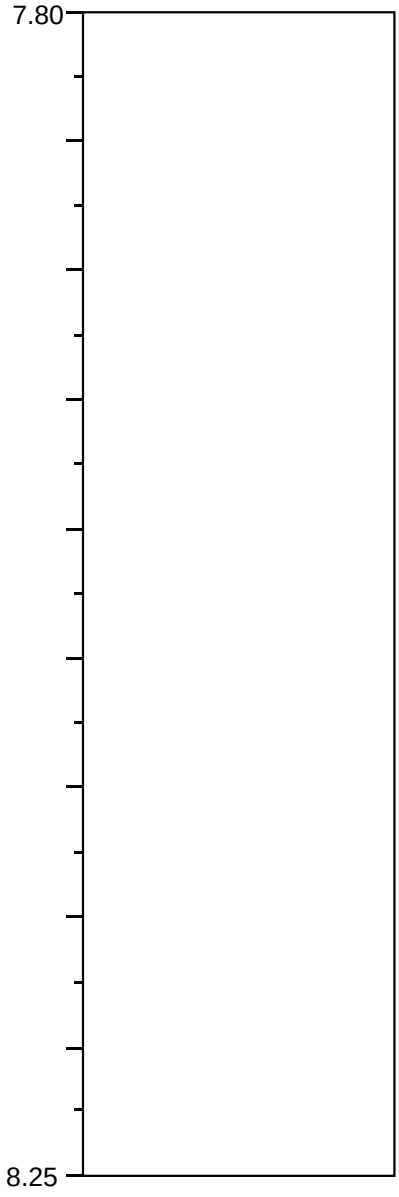
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	23		
Sample Depth, mBGL	7.80	-	8.25
Sample Type	UT		

Description

7.80 - 8.25m:
Soft fissured dark greyish brown slightly sandy CLAY. Fissures are randomly orientated and extremely closely spaced,



Remarks:
0.45m recovery.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

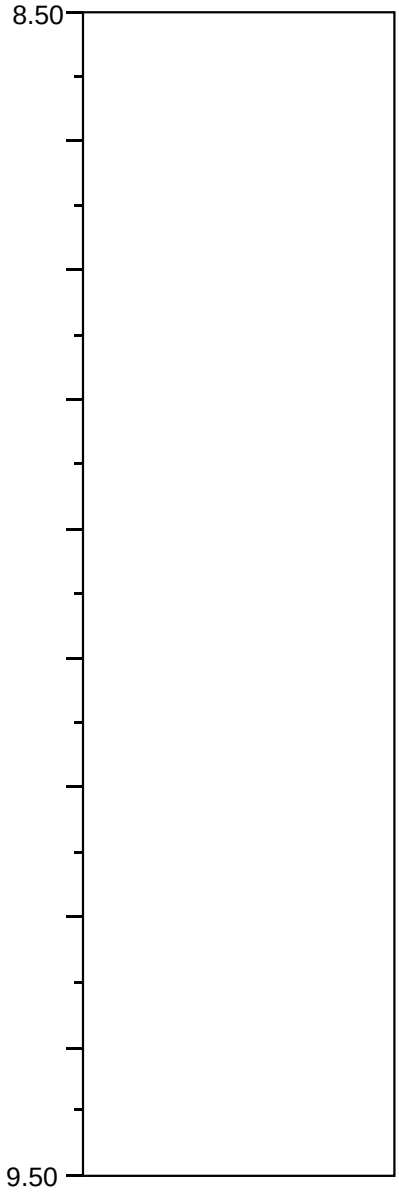
Split Tube Sample Description

Borehole No	BH309		
Sample No	25		
Sample Depth, mBGL	8.50	-	9.50
Sample Type	P		

Description

9.28 - 9.50m:
Firm indistinctly thinly and thickly laminated up to 8mm greyish brown and dark grey slightly sandy clayey SILT with occasional partings up to 3mm of dark orangish brown fine sand.

Detail:
8.63m: Thick 10mm lens of dark orangish brown fine sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

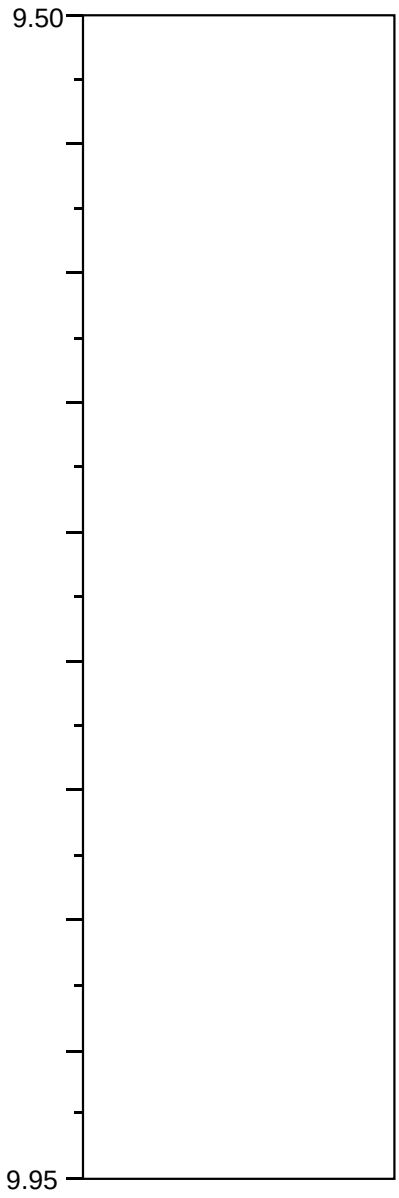
Split Tube Sample Description

Borehole No	BH309		
Sample No	26		
Sample Depth, mBGL	9.50	-	9.95
Sample Type	UT		

Description

9.50 - 9.78m:
Firm indistinctly thinly laminated fissured light and dark brown slightly sandy CLAY with rare dark brown fine sand and silt dustings on laminae surfaces. Fissures are steeply dipping to subvertical, extremely closely spaced.

9.78 - 9.95m:
Firm indistinctly thinly laminated brownish grey slightly sandy CLAY.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

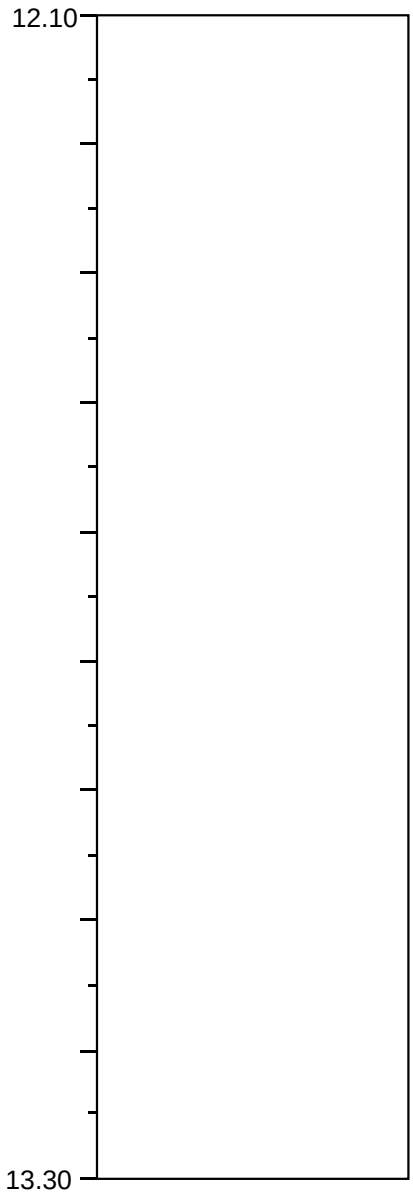
Split Tube Sample Description

Borehole No	BH309		
Sample No	39		
Sample Depth, mBGL	12.10	-	13.30
Sample Type	P		

Description

12.85 - 13.30m: Thinly and thickly indistinctly laminated dark brownish grey slightly sandy clayey SILT with occasional oxidisation to dark brown, penetrating up to 3mm on laminae surfaces.

Detail:
12.16m: 10mm dark greyish brown sand lens with rare shell fragments.
12.18m: 10mm dark greyish brown sand lens with rare shell fragments and fine gravel size fragments of black carbonaceous material.
12.24 - 12.25m: 1mm partings of fine dark greyish brown sand.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

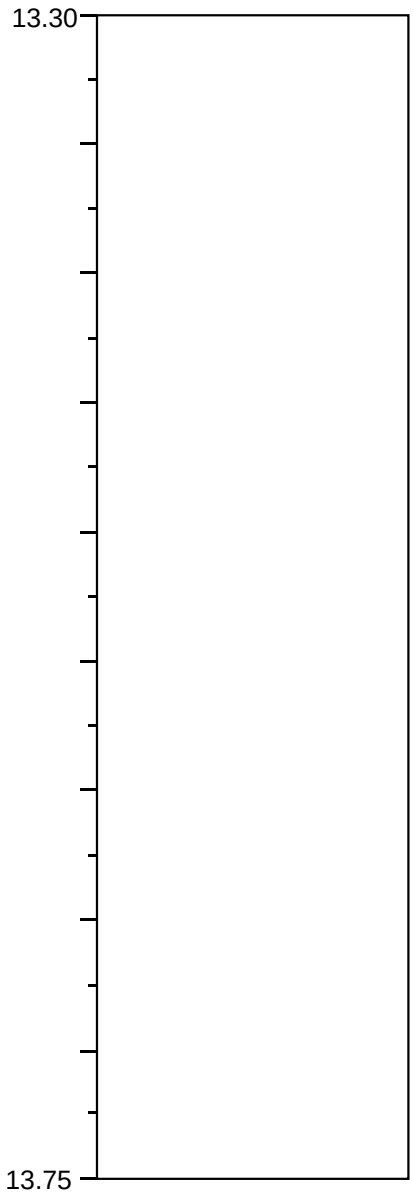
Borehole No	BH309		
Sample No	40		
Sample Depth, mBGL	13.30	-	13.75
Sample Type	UT		

Description

13.30 - 13.46m:
Firm, locally stiff, dark and light brown pseudo fibrous PEAT.

13.46 - 13.75m:
(Probable sample disturbance and water loss)
Stiff black and dark brown pseudo fibrous PEAT with fragments of wood up to 250mm thick throughout sample.

Detail:
13.30 - 13.40m: Partially decomposed wood fragment.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

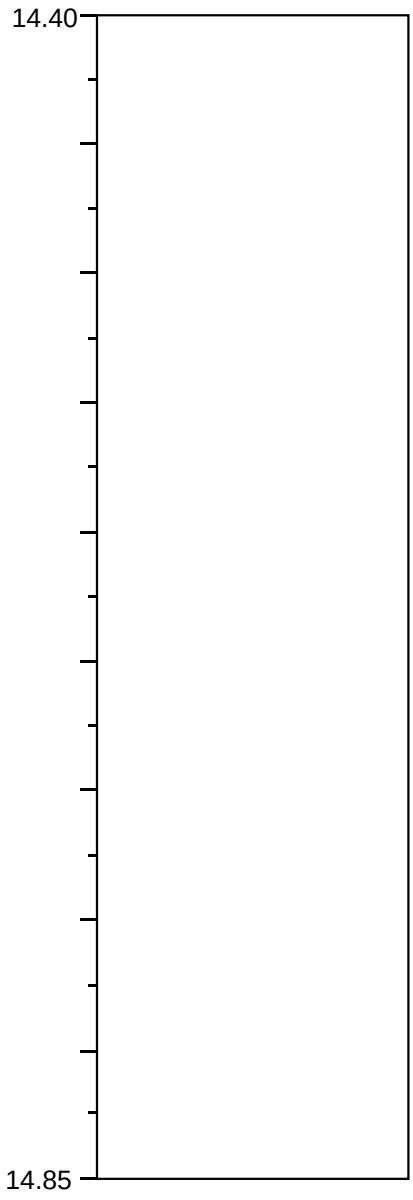
Split Tube Sample Description

Borehole No	BH309		
Sample No	45		
Sample Depth, mBGL	14.40	-	14.85
Sample Type	UT		

Description

14.40 - 14.60m:
Light orangish brown mottled dark grey and blue gravelly slightly silty SAND with low cobble content. Gravel is angular to subangular fine to coarse of various igneous lithologies including chalk, sandstone and flint. Cobbles are subrounded of sandstone and flint.

14.60 - 14.75m:
Stiff, locally very stiff, light brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of predominantly chalk with rare flint and igneous lithologies.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	47		
Sample Depth, mBGL	15.05	-	15.50
Sample Type	UT		

Description

15.05 - 15.28m:
Firm, locally stiff, greyish brown, locally mottled grey, slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse of various lithologies including chalk, flint, quartzite and sandstone.

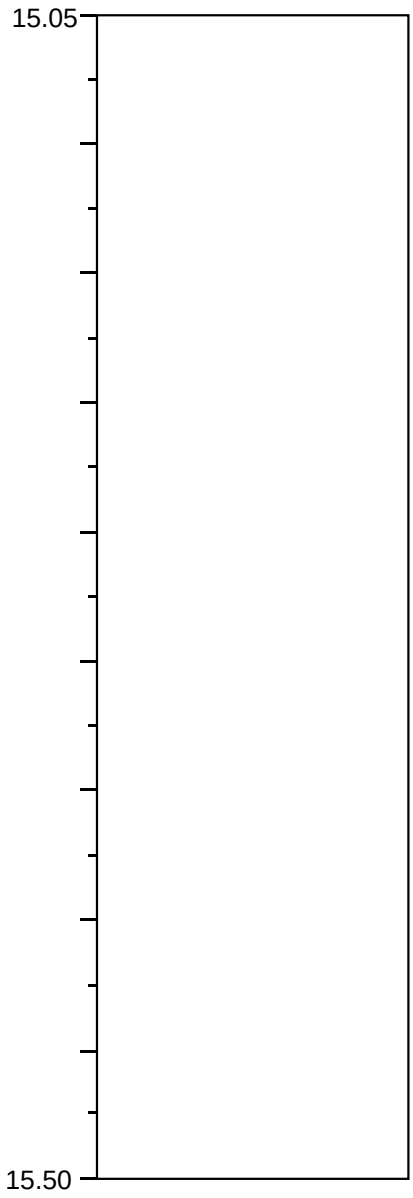
15.28 - 15.50m:
Stiff indistinctly thinly laminated greyish brown and grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine and medium of chalk and igneous lithologies.

Detail:
15.05 - 15.13m: Gravelly.

15.09m: 1No. cobble 80mm x 55mm of sandstone.

15.15 - 15.28m: Locally indistinctly thinly laminated.

15.18m: Subrounded coarse igneous gravel.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	49		
Sample Depth, mBGL	15.70	-	16.15
Sample Type	UT		

Description

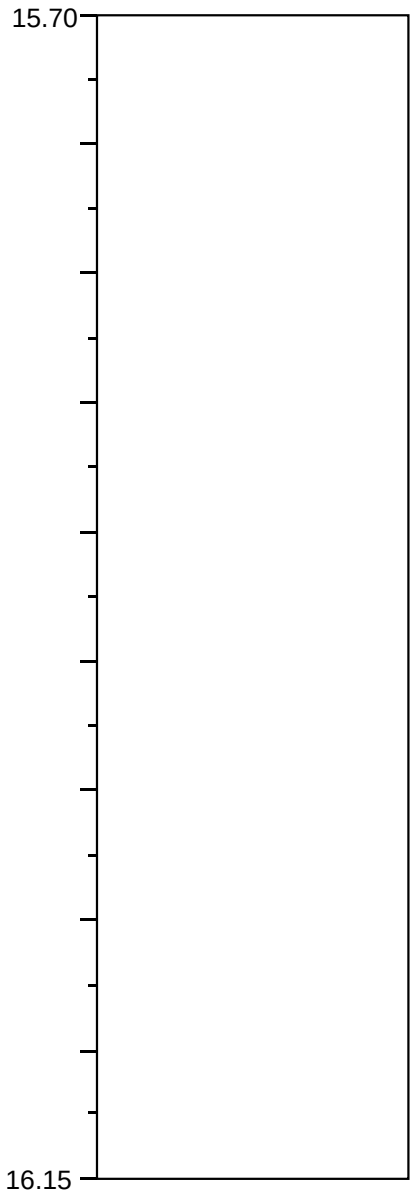
15.70 - 15.90m:
Stiff, locally firm, locally indistinctly thinly laminated, greyish brown, locally mottled grey, slightly sandy gravelly CLAY, becoming slightly gravelly below 15.81m. Gravel is subangular to rounded fine to coarse of various lithologies including chalk, flint, quartzite and sandstone. Occasional indistinct fissure surface throughout.

15.92 - 16.15m:
Stiff greyish brown slightly sandy slightly silty CLAY.

Detail:
15.72 - 15.76m: 2No. planar fissure surfaces.

15.79m: Subrounded coarse igneous gravel.

15.81 - 15.87m: Indistinctly thinly laminated.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

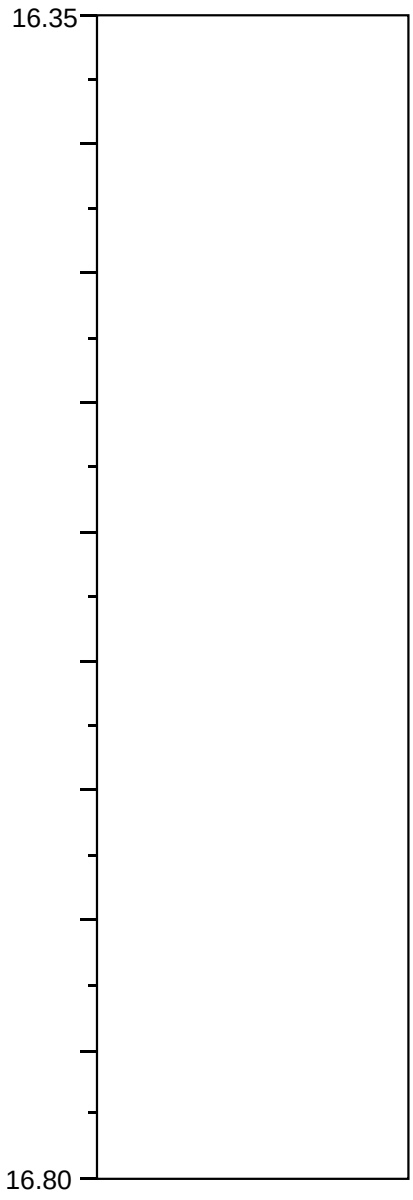
Split Tube Sample Description

Borehole No	BH309		
Sample No	51		
Sample Depth, mBGL	16.35	-	16.80
Sample Type	UT		

Description

16.35 - 16.67m:
Very stiff indistinctly thinly to thickly laminated, locally slightly gravelly, CLAY. Gravel is angular to subrounded fine to medium of flint. Rare light brown silt dustings on laminae surfaces.

Detail:
16.35 - 16.37m: Slightly gravelly



Remarks:

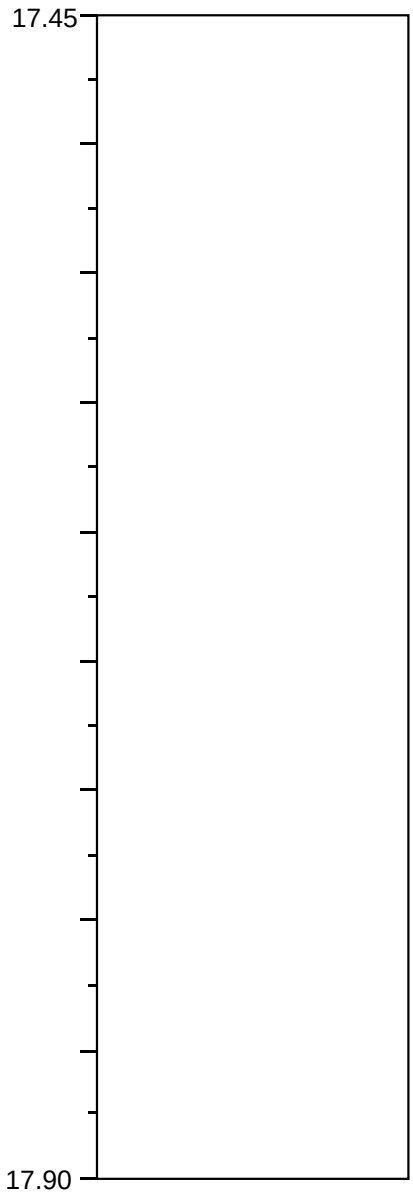
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	55		
Sample Depth, mBGL	17.45	-	17.90
Sample Type	UT		

Description

17.45 - 17.70m:
Probable sample disturbance.
Very stiff indistinctly thinly laminated greyish brown slightly sandy CLAY.



Remarks:
0.25m recovery.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

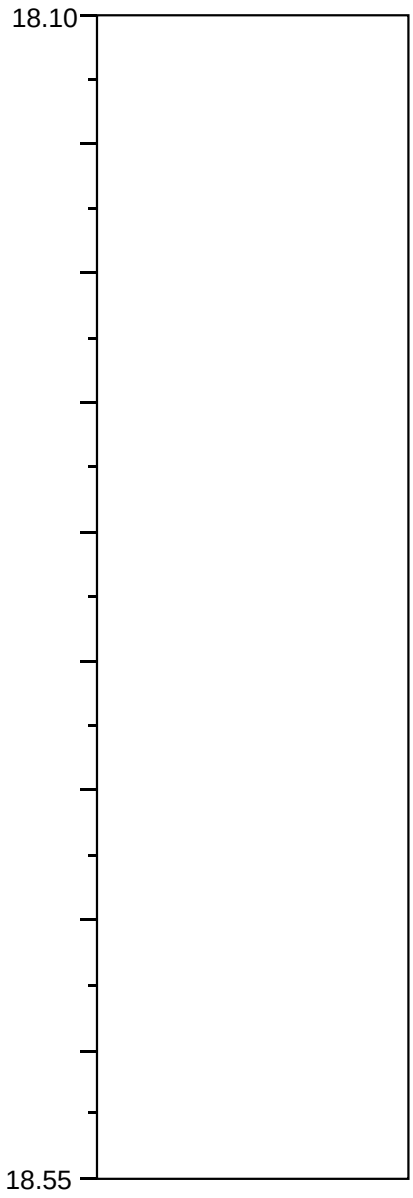
Borehole No	BH309		
Sample No	57		
Sample Depth, mBGL	18.10	-	18.55
Sample Type	UT		

Description

18.10 - 18.34m:
Probable sample disturbance.
Stiff indistinctly thinly laminated dark greyish brown slightly sandy CLAY.

18.34 - 18.45:
Stiff thinly laminated dark greyish brown slightly sandy CLAY with horizontal light brownish orange fine to medium sand lenses.

18.45 - 18.55:
Stiff thinly to thickly laminated, locally cross laminated, dark greyish brown slightly sandy silty CLAY. Rare silt dustings on laminae surfaces.



Remarks:

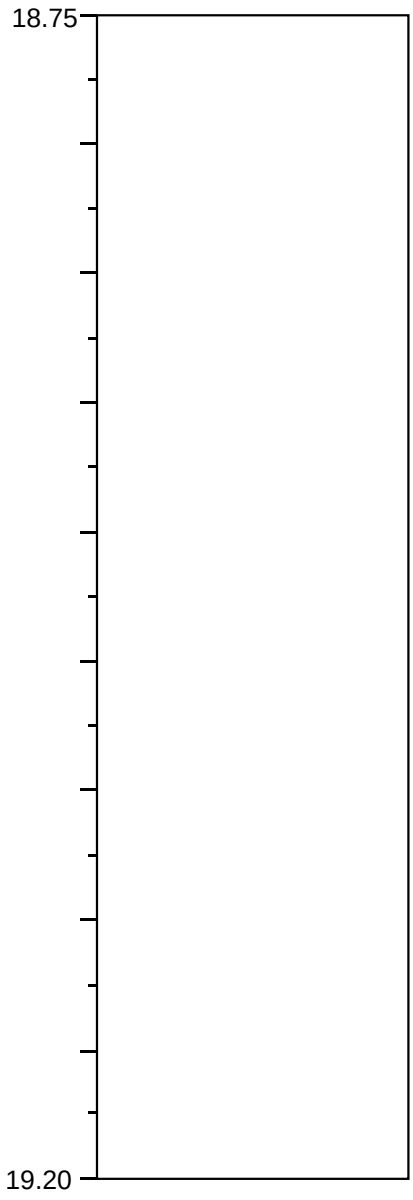
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	59		
Sample Depth, mBGL	18.75	-	19.20
Sample Type	UT		

Description

18.75 - 19.20m:
Firm thinly to thickly laminated light brown and brown slightly sandy CLAY with extremely closely to closely spaced light brown fine to medium sand laminations, typically <10mm. Rare light brown silt dusting on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

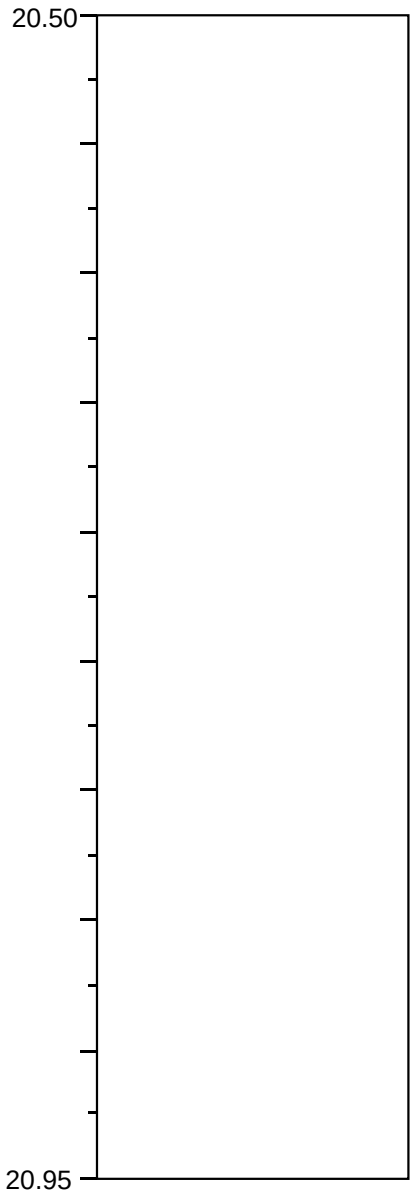
Split Tube Sample Description

Borehole No	BH309		
Sample No	65		
Sample Depth, mBGL	20.50	-	20.95
Sample Type	UT		

Description

20.50 - 20.65m:
Probable sample disturbance.
Stiff thinly laminated greyish brown slightly sandy CLAY with light brownish orange fine to medium sand lenses.

20.65 - 20.95m:
Stiff to very stiff dark brownish grey slightly sandy CLAY.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

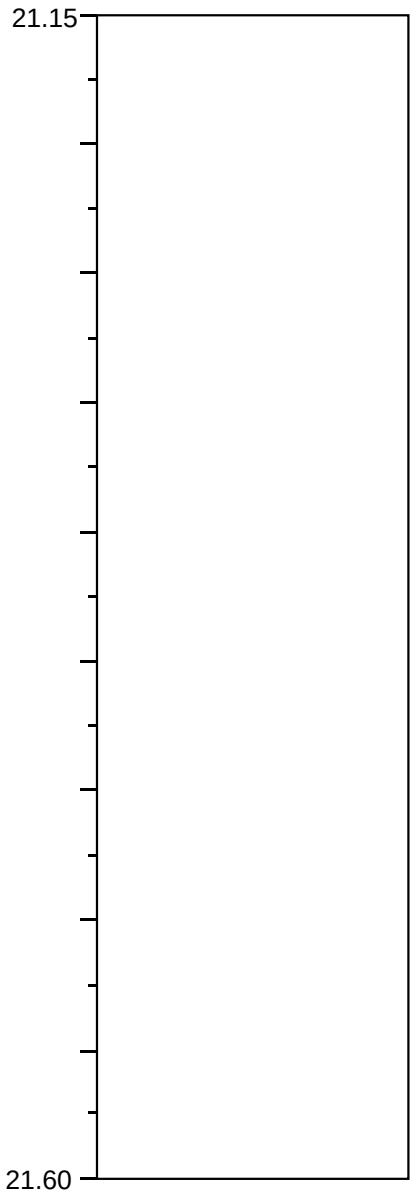
Split Tube Sample Description

Borehole No	BH309		
Sample No	67		
Sample Depth, mBGL	21.15	-	21.60
Sample Type	UT		

Description

21.15 - 21.60m:
Stiff thinly to thickly laminated greyish brown silty CLAY with very closely, locally extremely closely, spaced partings, up to 5mm, of orangish brown silty fine to medium sand. Occasional dusting of light brown silt on laminae surfaces.

Detail:
21.57m: 1No. subrounded fine gravel of chalk.



Remarks:

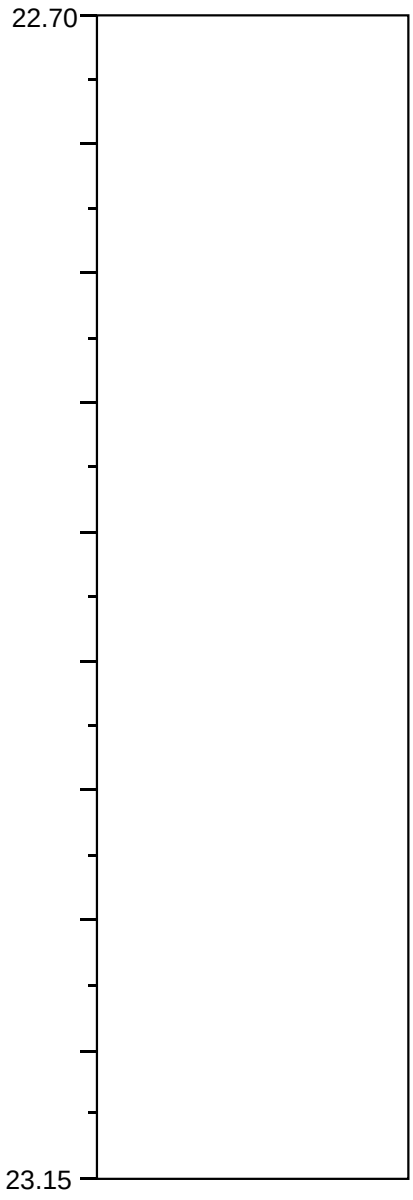
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH309		
Sample No	71		
Sample Depth, mBGL	22.70	-	23.15
Sample Type	UT		

Description

22.70 - 23.15m:
Stiff, locally firm, thinly and thickly laminated greyish brown silty CLAY with very closely, locally extremely closely, spaced partings, up to 5mm thick, of orangish brown silty fine to medium sand. Occasional dusting of light brown silt on laminae surfaces.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

Split Tube Sample Description

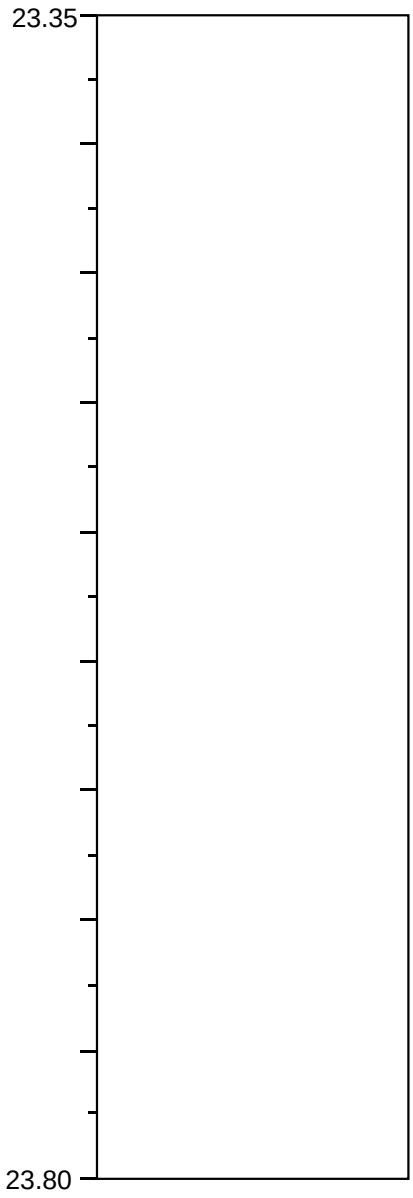
Borehole No	BH309		
Sample No	73		
Sample Depth, mBGL	23.35	-	23.80
Sample Type	UT		

Description

23.35 - 23.78m:
Stiff thinly and thickly laminated greyish brown CLAY. Occasional dustings of light brown silt along laminae surfaces. Very closely, locally extremely closely, spaced between 23.50 - 23.70m, partings up to 8mm thick of orangish brown silty fine to medium sand.

23.78 - 23.80m:
Orangish brown gravelly fine to medium SAND. Gravel is subrounded to rounded fine to medium of chalk and flint.

Detail:
23.65 - 23.69m: Locally black silty sand.
23.67 - 23.70m: Cross laminated.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH309
	Carried out for	Balfour Beatty	

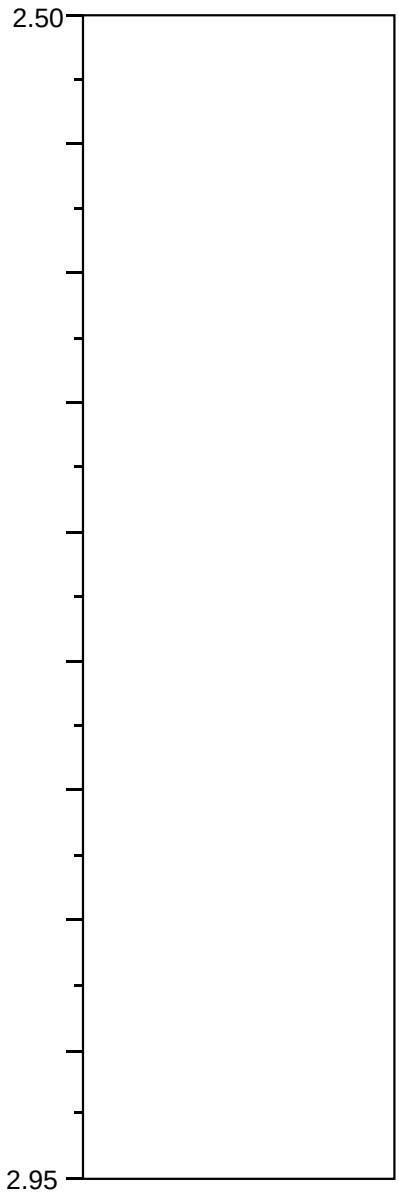
Split Tube Sample Description

Borehole No	BH310		
Sample No	12		
Sample Depth, mBGL	2.50	-	2.95
Sample Type	U		

Description

2.50 - 2.89m:
Firm light brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to medium of chalk. Rare plant rootlets up to 100mm.

Detail:
2.70m: Subangular red brick cobble.



Remarks:

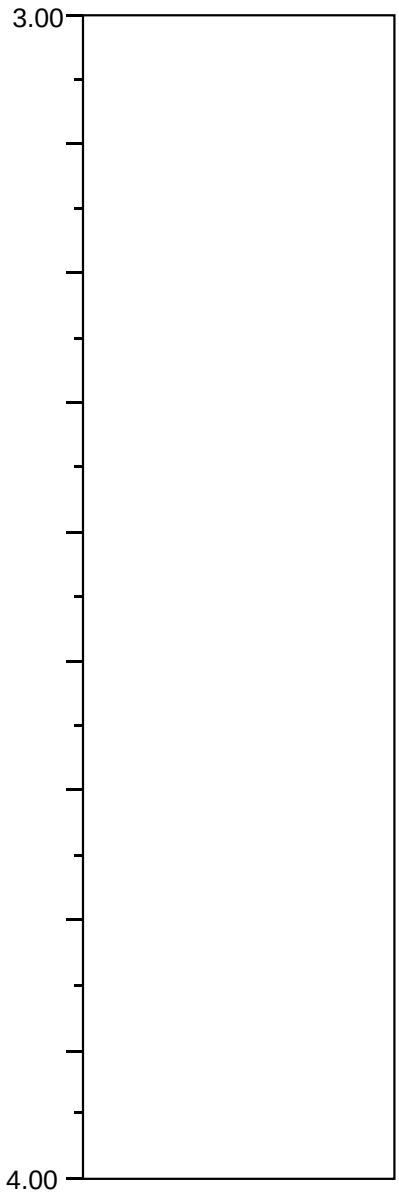
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	14		
Sample Depth, mBGL	3.00	-	4.00
Sample Type	P		

Description

3.38 - 3.75m:
Firm indistinctly thinly laminated indistinctly fissured dark brownish grey silty CLAY with frequent inclusions of organic material.
Fissures are randomly orientated, closely spaced; stained brown on surfaces.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

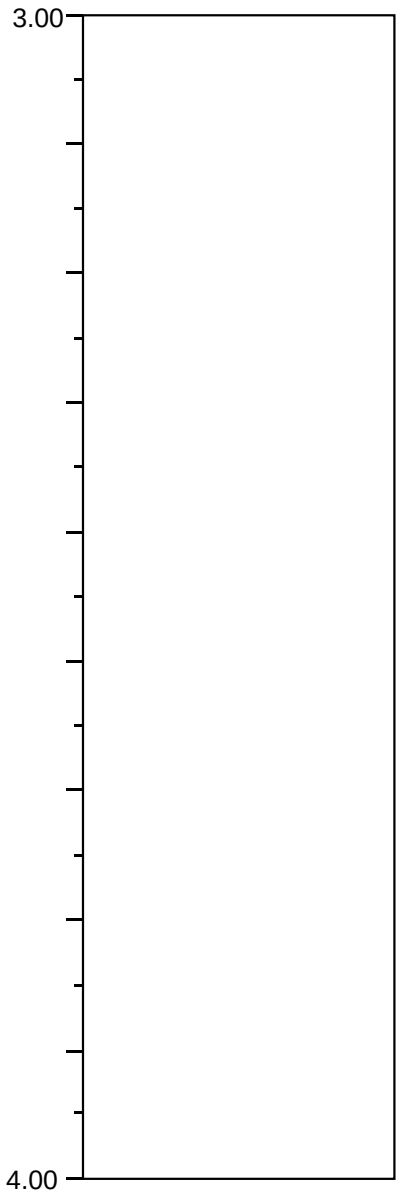
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	14		
Sample Depth, mBGL	3.00	-	4.00
Sample Type	P		

Description

3.75 - 4.00m:
Firm indistinctly thinly laminated (1 to 5mm) dark greyish brown, locally dark orangish brown, silty CLAY. Occasional dustings of dark brown silt on laminae surfaces.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

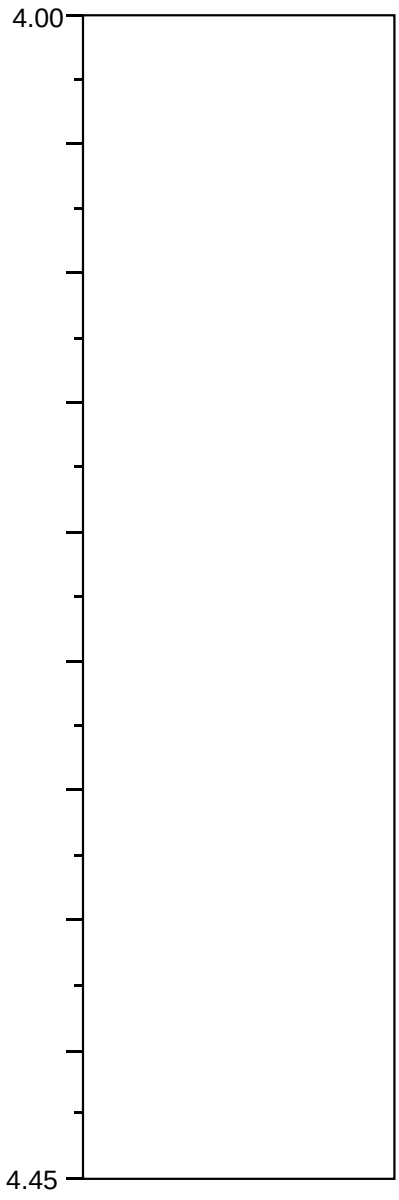
Split Tube Sample Description

Borehole No	BH310		
Sample No	15		
Sample Depth, mBGL	4.00	-	4.45
Sample Type	U		

Description

4.00 - 4.20m:
Very soft indistinctly thinly laminated brownish grey slightly sandy silty CLAY.

4.20 - 4.43m:
Soft indistinctly thinly laminated brownish grey slightly sandy silty CLAY with rare disturbed pockets of greyish brown fine sand, typically up to 7mm diameter.



Remarks:

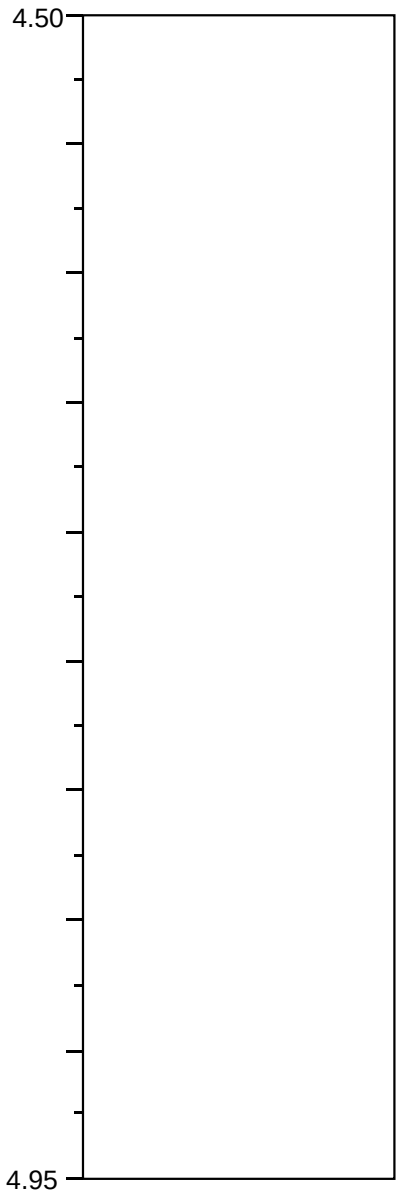
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	17		
Sample Depth, mBGL	4.50	-	4.95
Sample Type	U		

Description

4.50 - 4.86m:
Very soft, locally soft, indistinctly thinly laminated brownish grey slightly sandy CLAY with rare extremely closely to closely spaced light brown fine to medium sand lenses, <3mm.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

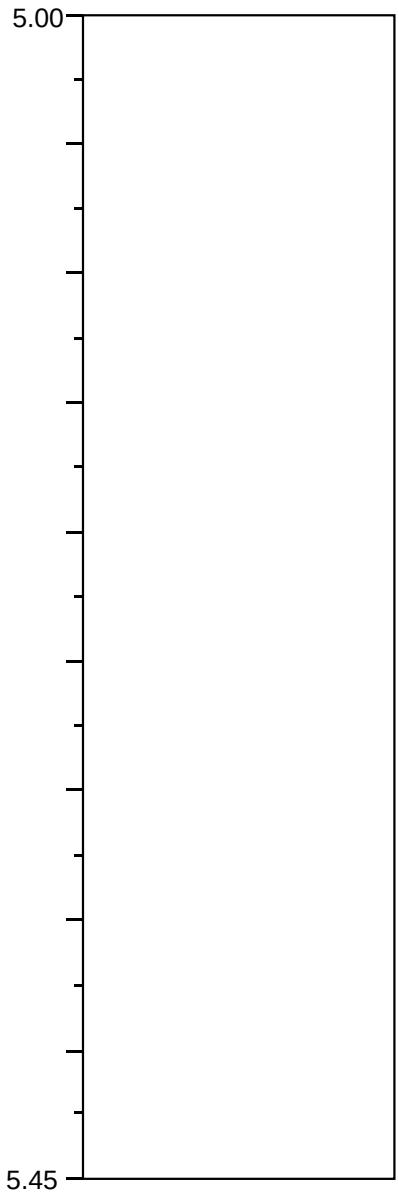
Split Tube Sample Description

Borehole No	BH310		
Sample No	19		
Sample Depth, mBGL	5.00	-	5.45
Sample Type	U		

Description

5.00 - 5.08m:
Soft indistinctly thinly laminated light brownish grey slightly sandy silty CLAY.

5.08 - 5.34m:
Very soft indistinctly thinly laminated light brownish grey slightly sandy silty CLAY.



Remarks:

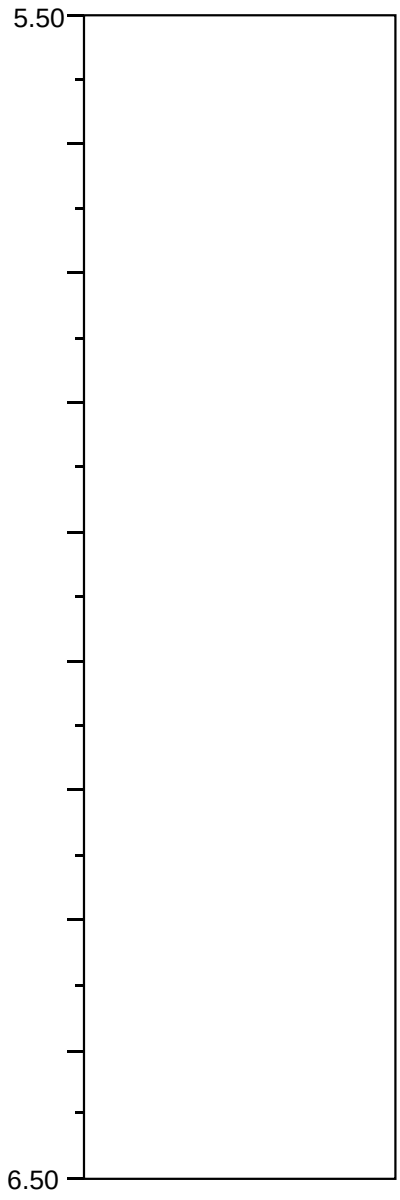
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	21		
Sample Depth, mBGL	5.50	-	6.50
Sample Type	P		

Description

5.50 - 6.50m:
Soft to firm indistinctly thinly to thickly laminated greyish brown slightly sandy silty CLAY with dustings of light brown silt and fine sand on laminae surfaces.



Remarks:

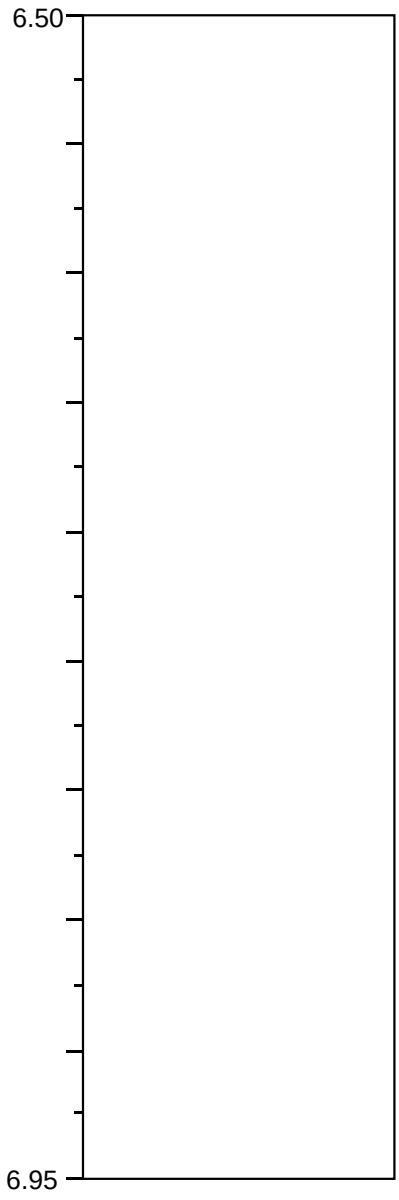
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	22		
Sample Depth, mBGL	6.50	-	6.95
Sample Type	U		

Description

6.50 - 6.88m:
Very soft, locally soft, thinly to thickly laminated fissured greyish brown slightly sandy CLAY. Fissures are randomly orientated, extremely closely spaced.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

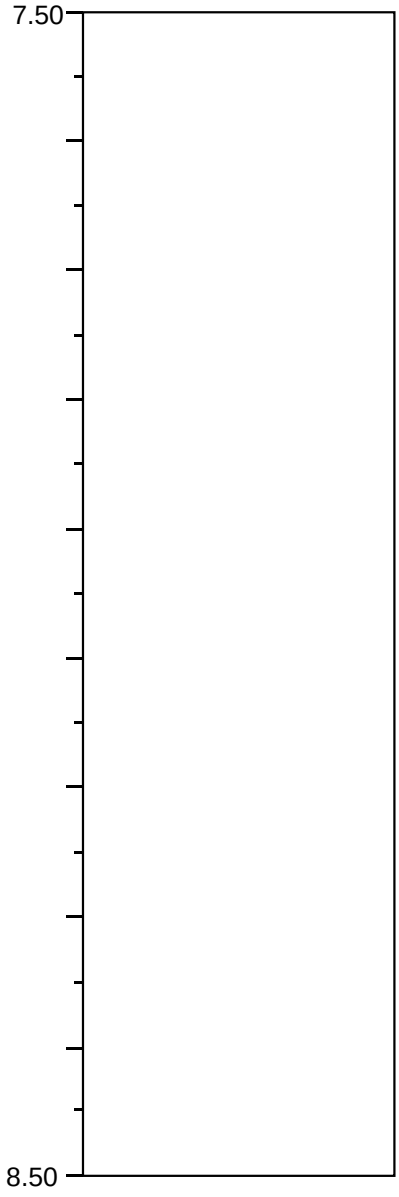
Split Tube Sample Description

Borehole No	BH310		
Sample No	26		
Sample Depth, mBGL	7.50	-	8.50
Sample Type	P		

Description

7.85 - 8.10m:
Firm indistinctly locally thinly cross-laminated brown slightly sandy silty CLAY with occasional dustings of light brown silt on laminae surfaces. Occasionally dark orangish brown locally penetrating to 3mm on laminae surfaces.

Detail:
7.94m: 2mm wide lens of light brown silt.
7.94 - 8.05m: Vertical stepped fissure surface.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

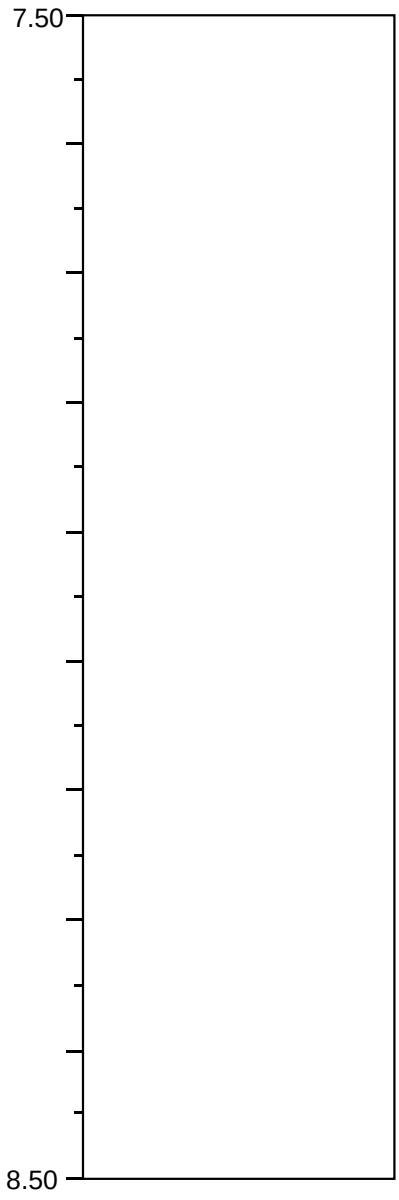
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	26		
Sample Depth, mBGL	7.50	-	8.50
Sample Type	P		

Description

8.10 - 8.50m:
Firm thinly to thickly laminated (1 - 7mm) greyish brown silty CLAY with frequent dustings of greyish brown silt and orangish brown fine sand on laminae surfaces.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

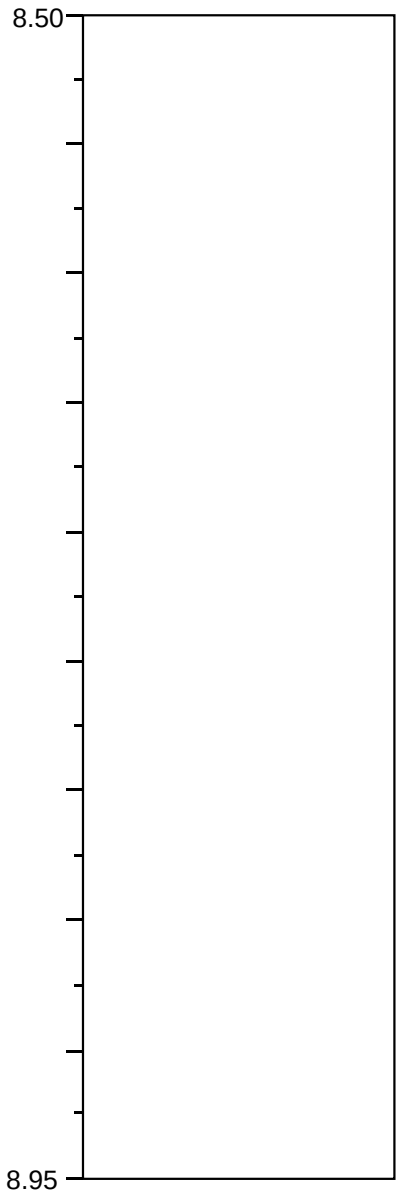
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310			
Sample No	27			
Sample Depth, mBGL	8.50	-	8.95	Note: Sample length <> 45 cm
Sample Type	U			

Description

8.50 - 8.75m:
Firm indistinctly thinly laminated light greyish brown slightly sandy silty CLAY. Rare light brown silt dustings on laminae. Occasional steeply dipping extremely closely spaced fissures.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

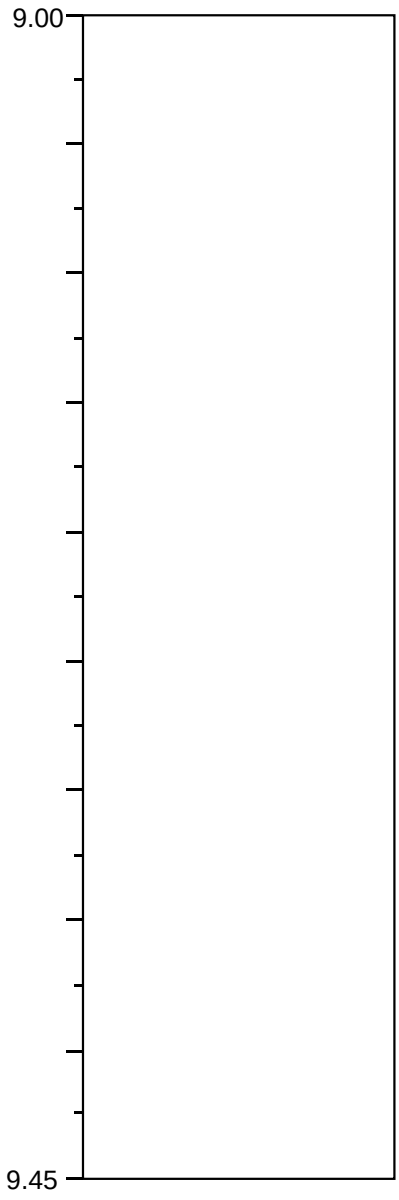
Split Tube Sample Description

Borehole No	BH310			
Sample No	29			
Sample Depth, mBGL	9.00	-	9.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

9.00 - 9.20m:
Probable sample disturbance.
Firm greyish brown slightly sandy CLAY with light and dark brown fine to medium sand laminations.

9.20 - 9.30m:
Firm, becoming firmer with depth, dark greyish brown slightly sandy CLAY. Laminations probably disturbed with sample.



Remarks:

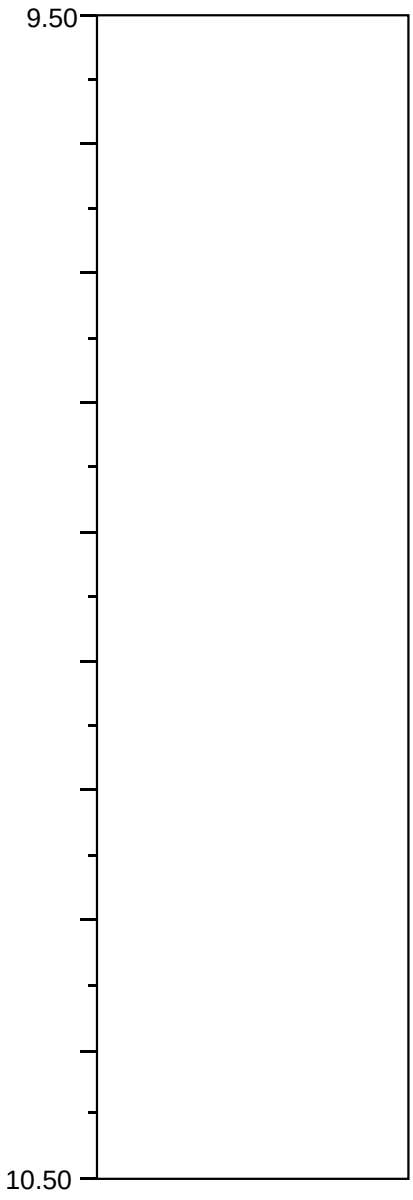
Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	31		
Sample Depth, mBGL	9.50	-	10.50
Sample Type	P		

Description

10.00 - 10.50m:
Firm indistinctly thinly laminated fissured dark brownish grey mottled orangish brown slightly sandy silty CLAY with local partings of light orangish brown fine sand up to 1mm. Pockets of light brown fine and medium sand up to 15mm.
Fissures are randomly orientated, closely spaced. Slight organic odour.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

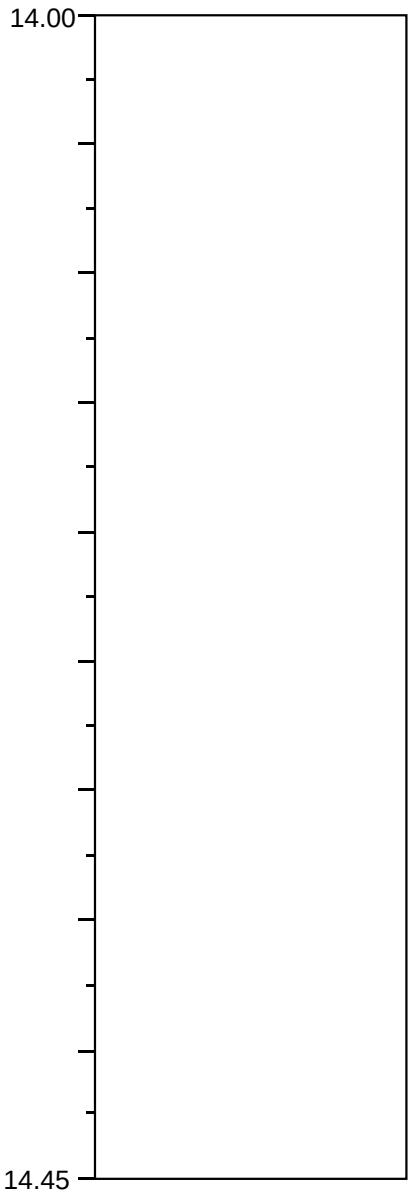
Borehole No	BH310			
Sample No	38			
Sample Depth, mBGL	14.00	-	14.45	Note: Sample length <> 45 cm
Sample Type	U			

Description

14.00 - 14.07m:
Soft dark brown and black fibrous to pseudofibrous PEAT.

14.07 - 14.23m:
Light and dark brown pseudofibrous PEAT with occasional elongated wood fragments <15mm.

14.23 - 14.30m:
Firm greenish grey slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse of various igneous lithologies including chalk.



Remarks:

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

Split Tube Sample Description

Borehole No	BH310		
Sample No	42		
Sample Depth, mBGL	19.00	-	19.40
Sample Type	CS		

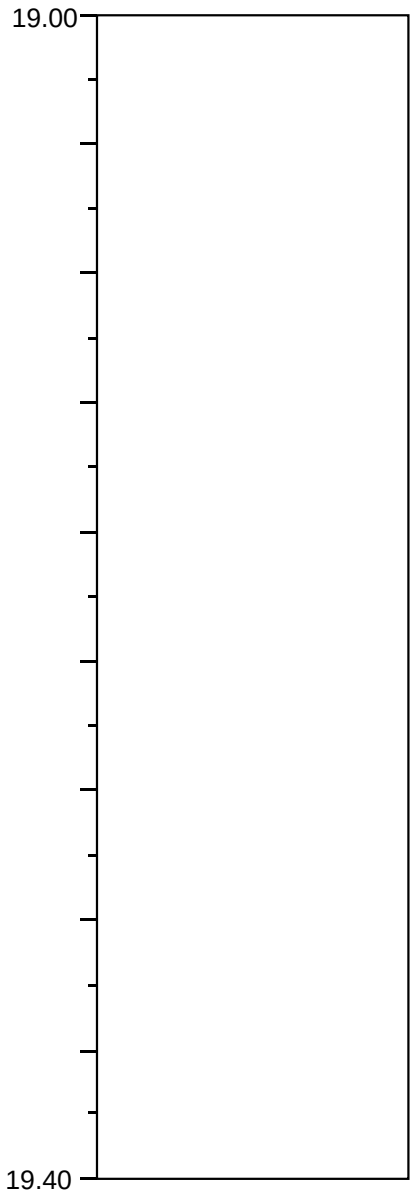
Description

19.20 - 19.40m:
Stiff thinly and thickly laminated dark greyish brown and light brown CLAY with dustings of silt and fine light brown sand on laminae surfaces.

Detail:
19.07m: Planar undulating fissure.

19.07 - 19.20m: Tending to indistinctly fissured, closely spaced and randomly orientated.

19.08m: Subrounded medium chalk gravel.



Remarks:
Material described from triaxial test specimen.
Remainder of sample not examined.

Notes:	Project	TRINITY BURIAL GROUND	Bh No/Depth
	Project No.	A5049-15	BH310
	Carried out for	Balfour Beatty	

APPENDIX C

INSTRUMENTATION AND MONITORING

Groundwater Installation Details

Instrument reference	Instrument type (see Notes)	Installation date	Pipe diameter (mm)	Instrument base (mbgl)	Instrument base (mAoD)	Response zone range (mbgl)	Pipe top details	Headworks	Remarks
BH301	SP	27/05/2015	50	8.00	-4.99	6.00 to 8.00	Gas tap	Flush cover	
BH302	SP	18/06/2015	50	5.00	-1.92	2.50 to 5.00	Gas tap	Flush cover	
BH303	SP	03/06/2015	50	12.50	-9.39	11.00 to 12.50	Gas tap	Flush cover	
BH304	EPIE	09/06/2015	10	7.00	-3.97		Data Recorder	Flush cover	
BH305	SP	02/06/2015	50	28.50	-25.14	25.00 to 29.00	Gas tap	Flush cover	
BH306	SP	11/06/2015	50	29.40	-26.28	27.40 to 29.40	Gas tap	Flush cover	
BH307	SP	11/06/2015	50	4.00	-1.05	2.00 to 4.00	Gas tap	Flush cover	
BH308	SP	26/06/2015	50	11.80	-8.57	10.00 to 11.80	Gas tap	Flush cover	
BH309	SP	29/05/2015	50	5.00	-1.81	1.50 to 5.00	Gas tap	Flush cover	
BH310	EPIE	16/06/2015	10	3.00	0.54		Data Recorder	Flush cover	

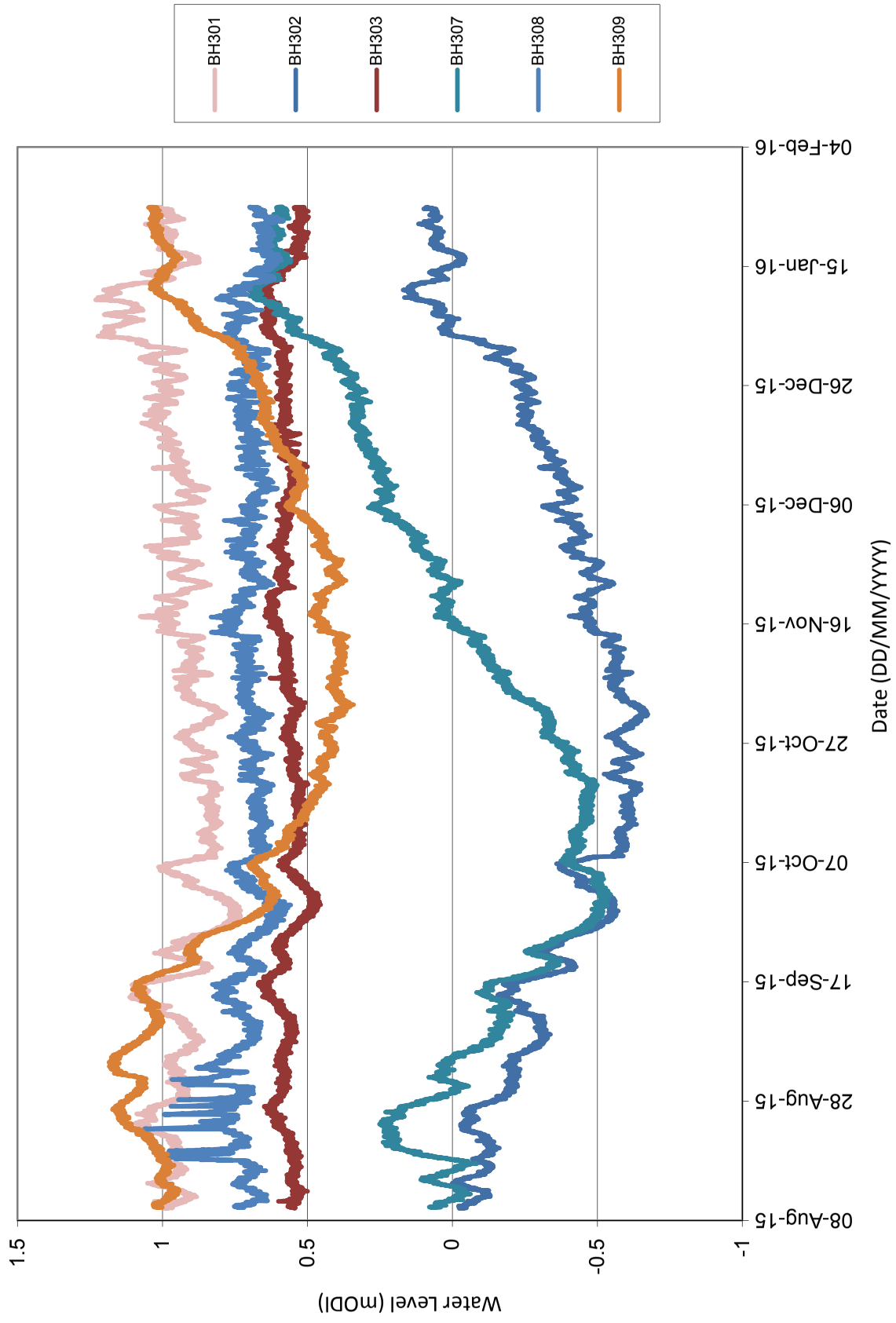
Notes: Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Electronic Piezometer

Groundwater Monitoring

Location	Instrument Type	Base of Instrument	Date Time (hhmm)	Depth to groundwater (mbgl)	Depth to groundwater (mOD)	Comments
BH301	SP	8.00	24/06/2015 11:40	2.05	0.96	
			25/06/2015 10:45	2.22	0.79	
			08/10/2015 10:30	2.15	0.86	
BH302	SP	5.00	24/06/2015 11:45	2.45	0.63	
			25/06/2015 10:50	2.45	0.63	
			08/10/2015 20:55	3.55	-0.47	
BH303	SP	12.50	08/10/2010 10:50	2.55	0.56	
			24/06/2015 11:35	2.40	0.71	
			25/06/2015 10:55	2.35	0.76	
BH305	SP	28.50	24/06/2015 11:30	3.00	0.36	
			25/06/2015 10:30	3.05	0.31	
			08/10/2015 11:30	3.63	-0.27	
BH306	SP	29.40	24/06/2015 11:05	2.21	0.91	
			25/06/2015 11:05	2.55	0.57	
			08/10/2015 11:40	3.66	-0.54	
BH307	SP	4.00	24/06/2015 11:15	2.28	0.67	
			25/06/2015 11:15	2.15	0.35	
			09/10/2015 05:00	3.35	-0.4	
BH308	SP	11.80	08/10/2015 12:00	2.55	0.68	
BH309	SP	5.00	24/06/2015 11:00	3.15	0.04	
			25/06/2015 11:25	3.10	0.09	
			08/10/2015 12:10	3.50	-0.31	

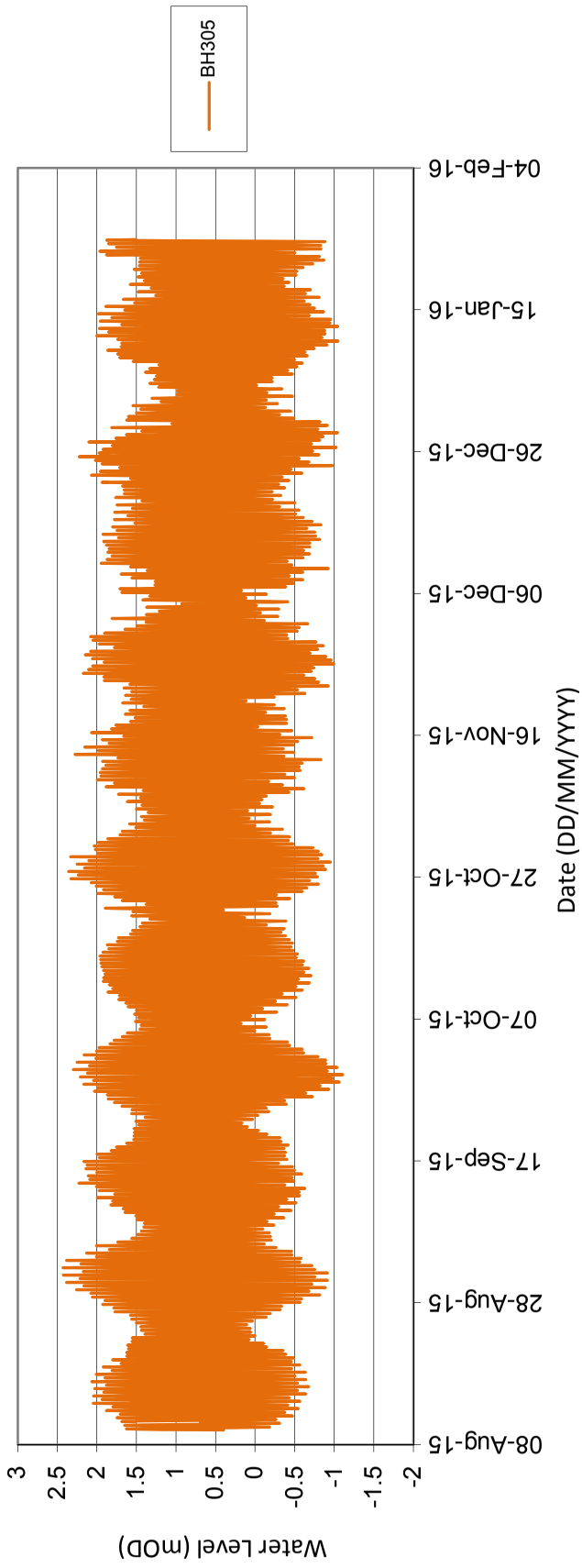
Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

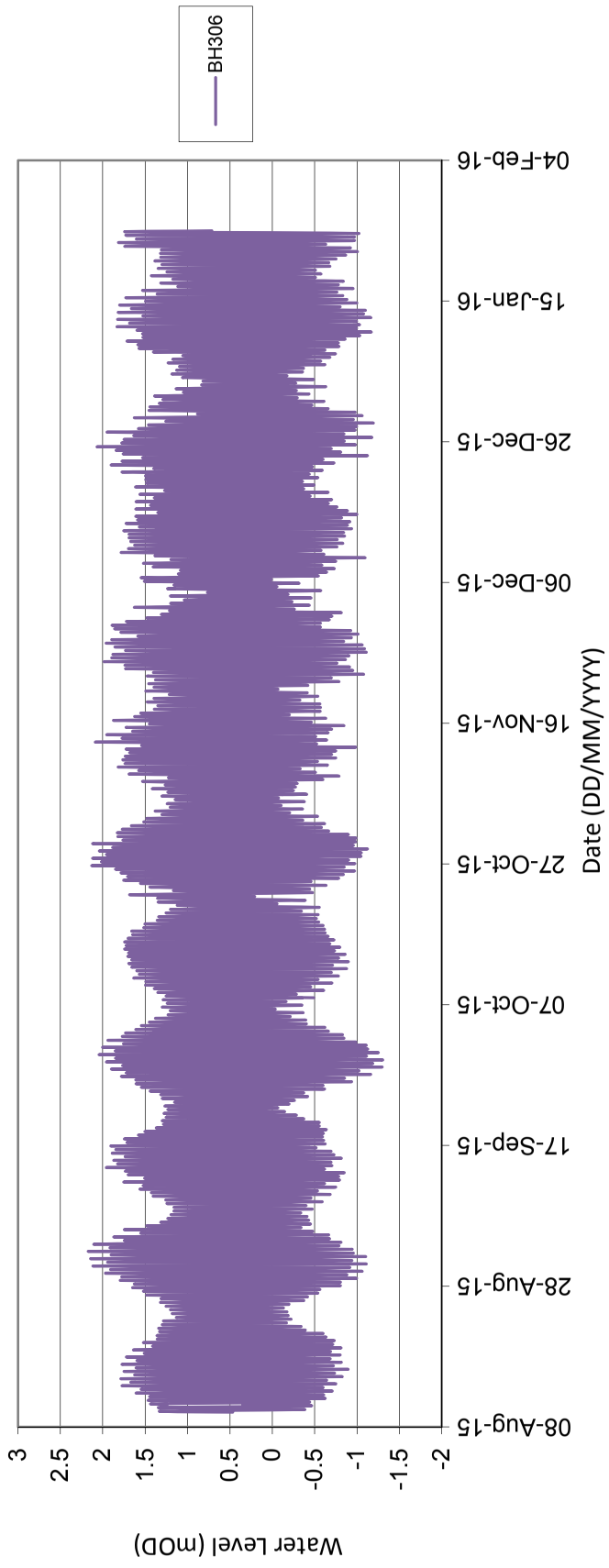
Groundwater Level - Data Logger Plots (Non-Tidal)



Notes:	Project	TRINITY BURIAL GROUND	Figure
	Project No.	A5049-15	C3.1
	Carried out for	Balfour Beatty	

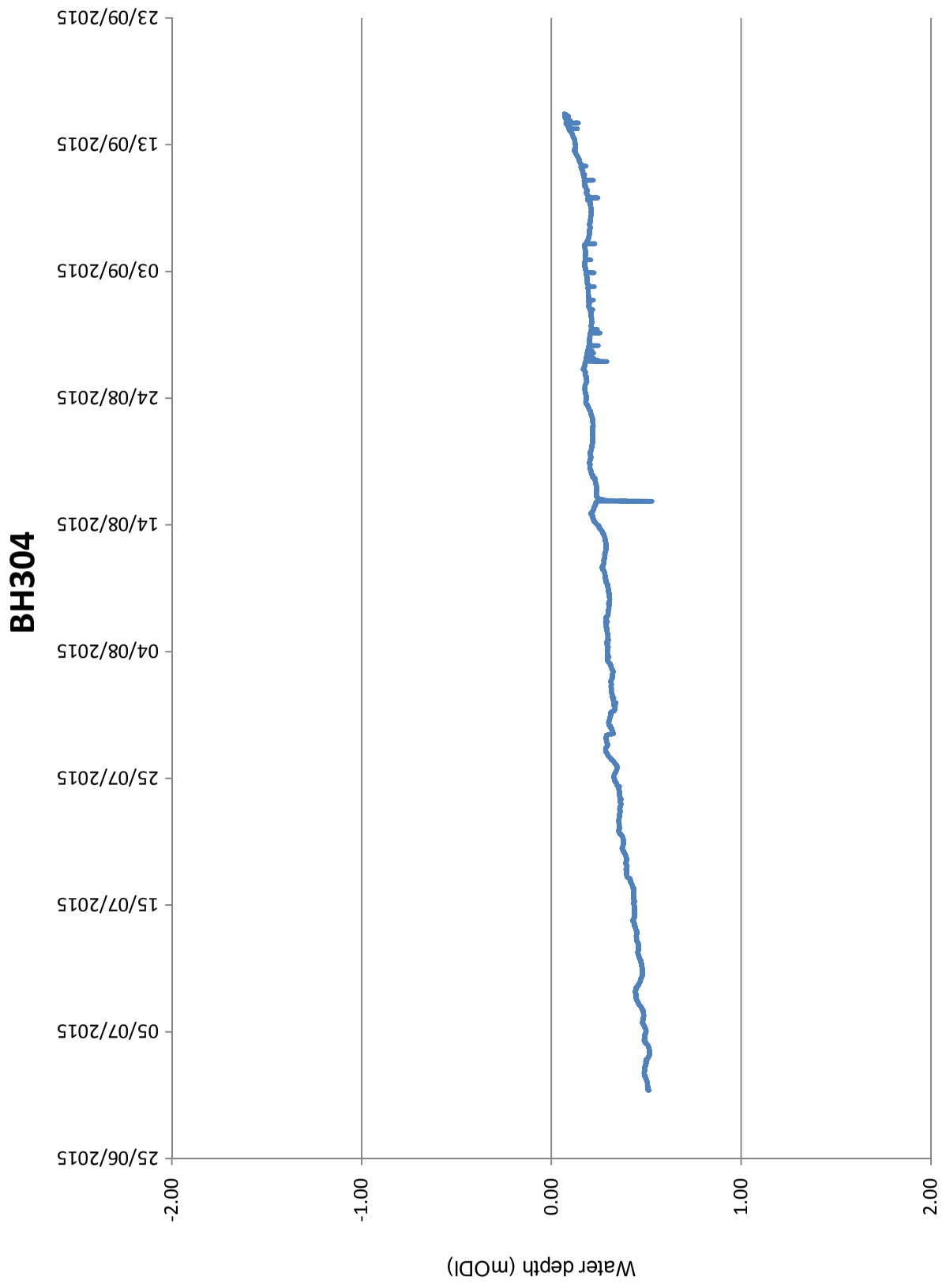
Groundwater Level - Data Logger Plots (Tidal)





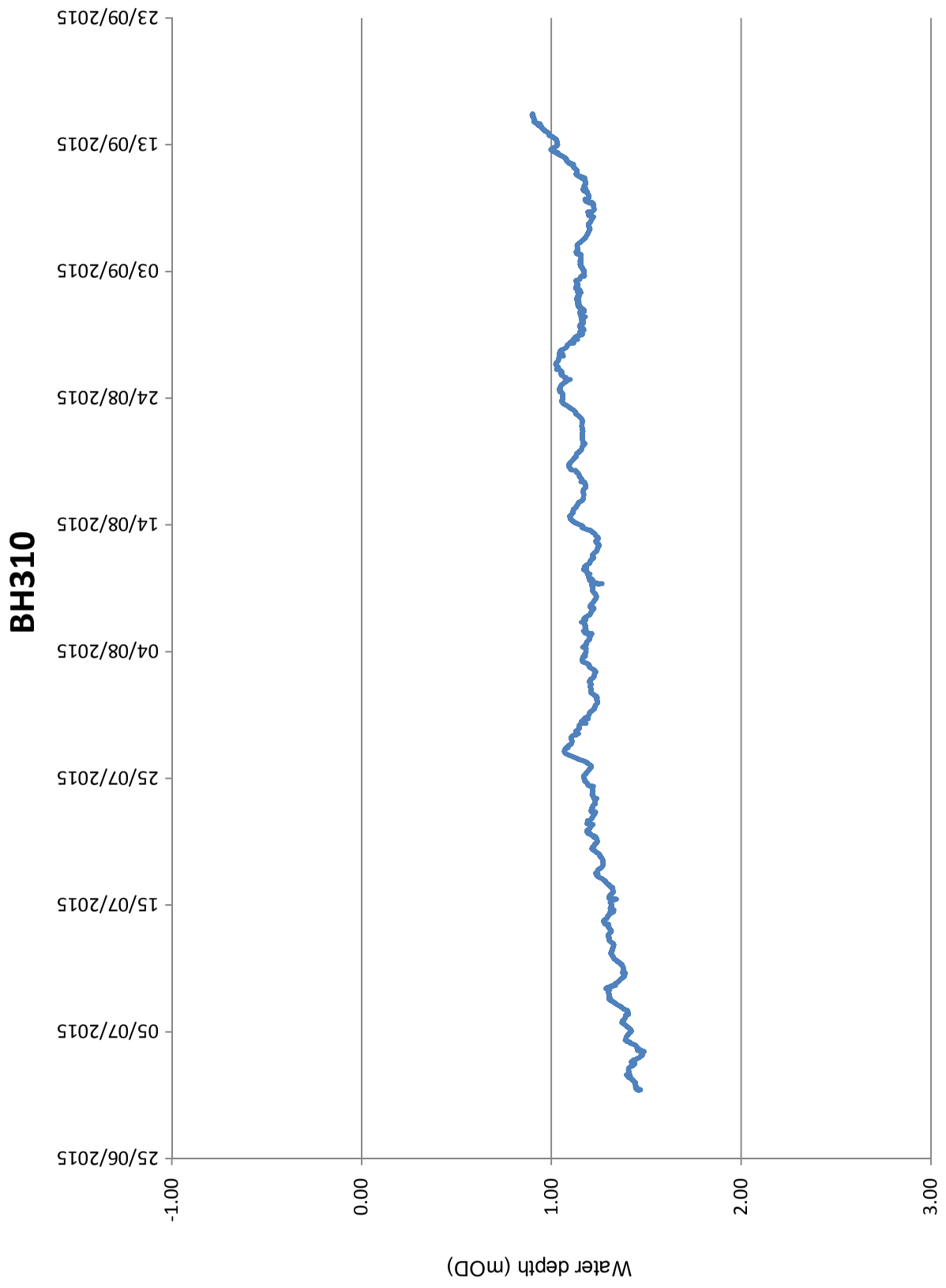
Notes:	Project	TRINITY BURIAL GROUND	Figure
	Project No.	A5049-15	C3.2
	Carried out for	Balfour Beatty	

VWP Monitoring Data - Water Depth



Notes:	Project	TRINITY BURIAL GROUND	Figure
	Project No.	A5049-15	C4.1
	Carried out for	Balfour Beatty	

VWP Monitoring Data - Water Depth



Notes:	Project	TRINITY BURIAL GROUND	Figure
	Project No.	A5049-15	C4.2
	Carried out for	Balfour Beatty	

APPENDIX D

CONE PENETRATION TESTING

Summary of Cone Magnetometer Tests

CPT No.	Depth of push (m)	Depth of data (m)	Date	Easting	Northing	Elevation (mOD)	Remarks	No. of Sheets
CPT301	15.00	14.73	19/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT302	15.00	14.73	19/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT303	14.00	13.73	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT304	12.51	12.24	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT305	15.00	14.73	21/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT306	12.50	12.23	19/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT307	12.50	12.23	19/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT308	12.50	12.23	21/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT309	12.50	12.23	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT310	12.50	12.23	19/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT311	12.50	12.23	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT312	17.50	17.23	19/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT313	12.50	12.23	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT314	20.29	20.02	18/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT315	20.28	20.01	18/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT316	12.50	12.23	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT317	20.01	19.74	15/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT318	12.50	12.23	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT319	12.51	12.24	20/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1
CPT320	20.28	20.01	18/05/2015	-	-	-	Test using combined magcone 15cm^2 piezocone S15-CFIIP.1214	1

Notes:

Project A63 CASTLE STREET IMPROVEMENT, HULL
Project No. A5049-15
Carried out for Balfour Beatty

Table 1

Summary of Cone Penetration Tests

CPT No.	Depth (m)	Date	Easting	Northing	Elevation (mOD)	Remarks	No. of Sheets
CPT301	23.43	29/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 6.50m & 8.04m.	8
CPT302	14.95	26/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation test at 6.07m.	4
CPT302A	23.28	08/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation test at 19.28m.	7
CPT303	23.38	02/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 6.50m & 8.04m.	8
CPT304	23.29	03/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 1.92m & 7.07m.	8
CPT305	23.52	26/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 4.50m & 13.47m.	8
CPT306	23.57	22/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 4.50m & 11.07m.	8
CPT307	14.09	27/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 3.00m & 5.25m.	5
CPT307A	14.21	05/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125	3
CPT308	23.34	03/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 4.04m & 8.83m.	8
CPT309	23.40	28/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 6.00m & 18.00m.	8
CPT310	23.59	22/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 6.60m & 13.11m.	8
CPT311	23.54	04/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 4.50m & 6.13m.	8
CPT312	19.16	01/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 4.00m & 16.01m.	5
CPT313	24.29	08/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 5.27m & 9.00m.	8
CPT314	22.91	21/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 3.50m & 7.51m.	5
CPT315	23.30	04/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 6.60m & 14.02m.	8
CPT316	23.48	01/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 2.54m & 5.00m.	8
CPT317	23.72	02/06/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 5.01m & 9.10m.	8
CPT318	23.93	29/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 3.50m & 6.60m.	8
CPT319	23.75	27/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 4.50m & 8.00m.	8
CPT320	23.96	26/05/2015	-	-	-	Test using 10cm2 piezocone C10CFIP.125 Dissipation tests at 5.50m & 19.59m.	8

Notes (unless indicated otherwise above)

- Piezocone fitted with sintered bronze pore pressure filter located in the tip (u1) position
- Tests with 10 cm^2 cone carried out with a friction reducer
- Tests terminated at maximum achievable depth (refusal)
- No backfilling to CPT holes

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2171 AL Sassenheim
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E-mail : info@geopoint.nl
BTW : NL814690178.B01
IBAN : NL28 INGB0682301396
BIC : INGBNL2A

Cone Calibration Certificate

Certificate:	**GS-1214-002**	
Instrument Type:	Electric Subtraction Cone	
Model:	S15-CFIIP	
Serial number:	1214	
Calibration date:	29-04-2015	
Client:	Soil Mechanics	
Calibrated by:	W. Volgering	
Calibration instruments		
Manufacturer:	Hottinger Baldwin Messtechnik GmbH	
HBM certificate no. :	FL1461	
Calibration conditions		
Ambient temperature:	19.9	°C
Atmospheric pressure:	1017	mBar
Cone specifications		
Cone base area:	1500	mm2
Load tip resistance (nom.):	50	kN
Friction sleeve area:	20000	mm2
Load tip + local friction (nom.):	50	kN
Load friction sleeve (nom.):	22.5	kN
Load pore pressure (nom.):	2	MPa
Inclination (nom.):	+/- 20	°
Temperature compensation (all channels):	0...+40	°C
Maximum overload capacity (all channels):	100	%
Cone area ratio (a):	0.79	
Max. Inaccuracy, relative to measurement value:	1.0	%

	Tip:		Sleeve:		Pore Pressure:		Inclinometer:		
	qc in kN	mV	fs in kN	mV	MPa	mV	Degrees	X (mV)	Y (mV)
Zero points:		0284		0223		0273			
	0	0	0	0	0	0	0	2394	2567
	5	0307	5	0321	0.4	1283	-20	0310	0557
	10	0616	10	0642	0.8	2563	20	4439	4603
	15	0926	15	0964	1.2	3840			
	20	1234	20	1286	1.6	5114			
	25	1544	25	1609	2.0	6385			
	30	1853	30	1932					
	35	2163	35	2255					
	40	2473	40	2578					
	45	2782	45	2902					
	50	3089	50	3223					

Max. eror, abs. qc:	35 kPa
Max. error, abs. fs:	2 kPa
Max. error, abs. u2:	10 kPa
Max. error, abs. I:	1 °

This calibration is compliant with GeoPoint Systems internal quality system, internal calibration procedures and meets the requirements of NEN2649, NEN5140, NORSOK G-001, ISSMFE and ASTM using calibration equipment traceable to (Inter-) National Standards.

[redacted]

Approved by: B. van Eijk
Date: 29-04-201

Environmental Scientifics Group.

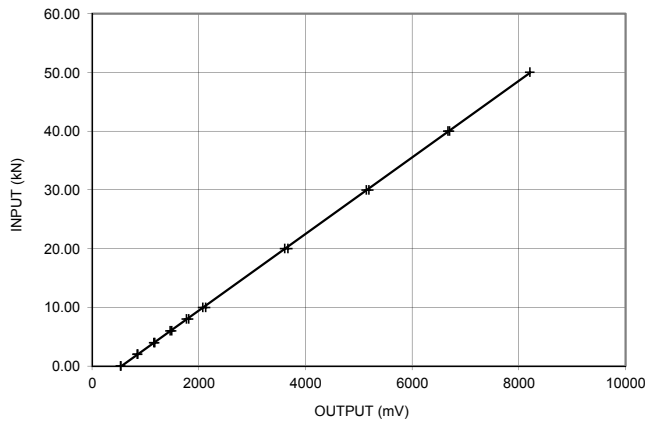
CPT CONE

Cone No.	C10-CFIP.125	Date of Calibration	11 March 2015	
Manufacturer	GeoPoint.	Reference Standards	BS 1377 : 1990 Part 9	
Compression/ Subtraction	Compression	Reference Equipment	Pressure meter	1972A
			Vernier callipers	GCV1
Pore Pressure Channel (Y/N)	Y		Load cell	22541
			Voltmeter	06402486
Cone end area ratio (by dimension measurement), a	0.8	Sleeve end area ratio (by dimension measurement), b	1.0	

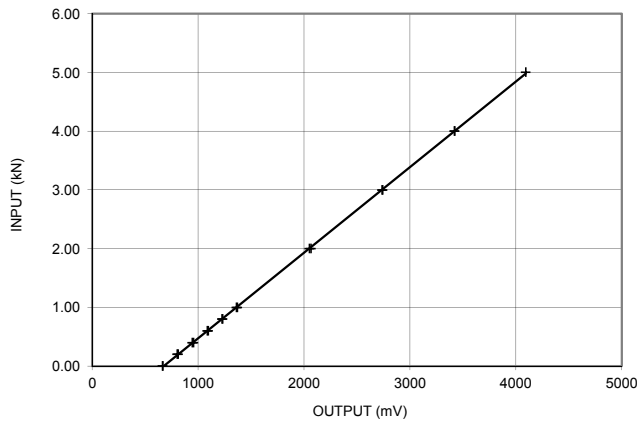
Note: Calibration Zero taken as no load in free air, Output taken as slope of linear regression line x maximum load.

Cone Type (S/ C/ M/ D/ T)		C		Ch 3 (P/ C/ T/ N/ F)		P			
	Output		Input		Zero		Area		Alarm	
Channel 1	7673	mV	50	kN	461	mV	10	cm^2	45	kN
Channel 2	3432	mV	5.0	kN	254	mV	150	cm^2	6	kN
Channel 3	9260	mV	20	Bar	732	mV			16	Bar
Inclination	0^o		5^o		10^o				Alarm	
	67		310		1201				15	
	15^o		20^o		25^o					
	2498		4110		5425		Extra Channels		N	

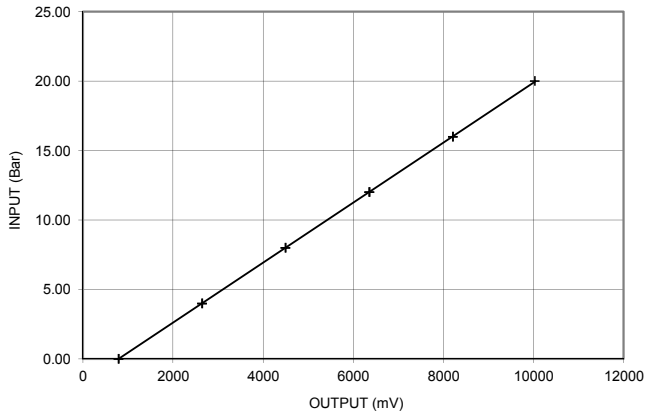
CHANNEL 1 - TIP



CHANNEL 2 - FRICTION SLEEVE



CHANNEL 3 - PORE PRESSURE



ESG Environmental Scientifics Group	Cone calibrated by: DkBowns Date: 11 March 2015	[redacted] Authorised for use by: Manager

Key to Cone Penetration Test Records

Parameter	Unit	Description	Equation
Measured parameters			
q_c	MPa	Cone resistance	Measured parameter
f_s	MPa	Sleeve friction	Measured parameter
I	degrees	Inclination	Measured parameter
u	MPa	Dynamic pore pressure (Piezocone only)	Measured parameter. Denoted as u_1 and u_2 for pore pressure filter locations on cone face and cone shoulder respectively.
-	m, s	Penetration depth and corresponding time	Measured parameters
Derived cone parameters			
R_f	%	Friction ratio	f_s / q_c . 100 %
q_t	MPa	Corrected cone resistance (Piezocone only)	$q_c + (1 - a) . u_2$ where a = area ratio of cone = A_n/A_c A_n = cross sectional areas of cone tip shaft A_c = projected area of cone tip
f_t	MPa	Corrected sleeve friction (Piezocone only)	$(f_s – (u_2 . A_{sb} – u_3 . A_{st})) / A_s$ where b = area ratio of friction sleeve A_{sb} and A_{st} are bottom and top cross sectional areas of friction sleeve
q_e	MPa	Effective cone resistance (Piezocone only)	$q_t – u_2$
q_n	MPa	Net cone resistance (Piezocone or using $q_t = q_c$)	$q_t - \sigma_{vo}$ where σ_{vo} = vertical total stress
R_t'	%	Corrected friction ratio (Piezocone only)	f_t / q_t . 100 %
Δu	MPa	Excess pore pressure (Piezocone only)	$u - u_0$ where u_0 = equilibrium pore water pressure
B_q	-	Pore pressure ratio (Piezocone only)	$(u - u_0) / (q_t - \sigma_{vo}) = \Delta u/q_n$
-	-	Dynamic pore pressure ratio (Piezocone only)	u / q_c
Q_t	-	Normalised cone resistance (Piezocone or using $q_t = q_c$)	$(q_t - \sigma_{vo}) / \sigma'_{vo} = q_n / \sigma'_{vo}$ where σ'_{vo} = vertical effective stress
F_r	%	Normalised local friction (Piezocone or using $q_t = q_c$)	$f_s / (q_t - \sigma_{vo}) = f_s / q_n$. 100 %

Notes:

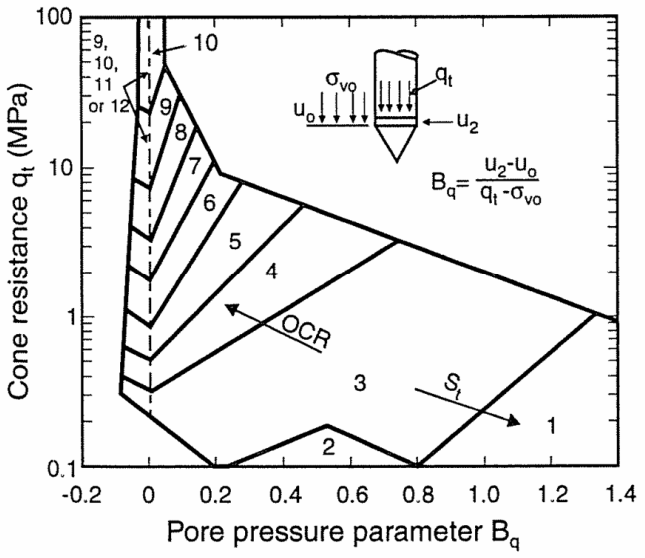
Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

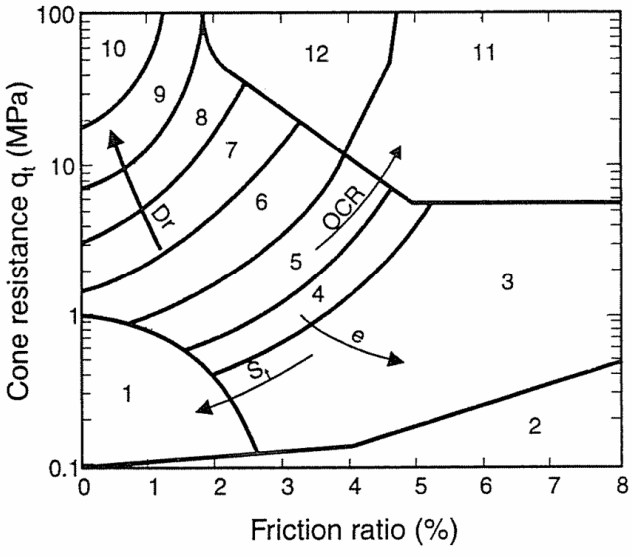
Key CPT

Key to Cone Penetration Test Records

Derived soil parameters		
Parameter	Description	Remarks
-	Soil Type	Classification after Robertson (1990) using normalised cone resistance, normalised friction ratio and pore pressure ratio (piezocone only), see Figure 1.
s_u Su(min) and Su(max)	Undrained Shear Strength (Clays)	Interpretation for fine soils only – soil types 3 and 4. Based on net cone resistance (corrected where pore pressure data available) and empirical cone factor $= (q_c - \sigma_{vo}) / N_k$ Plots of minimum and maximum strength presented using N_k of 20 and 12.
D_r RD	Relative Density	Interpretation for coarse soils only – soil types 5, 6 and 7. After Baldi et al (1986) for moderately compressible, unaged, uncemented, silica sand $= (1 / C_2) . Ln (q_c / C_0 (\sigma')^{C_1})$ For NC sands : $C_0 = 157$, $C_1 = 0.55$, $C_2 = 2.41$, $\sigma' = \sigma'_{vo}$ For OC sands : $C_0 = 181$, $C_1 = 0.55$, $C_2 = 2.61$, $\sigma' = \sigma'_m$ and mean effective stress = $\sigma'_m = (\sigma'_{vo} + 2\ \sigma'_{ho}) / 3$
ϕ IFA	Internal Friction Angle	Interpretation for coarse soils only – soil types 5, 6 and 7. After Robertson and Campanella (1983) for uncemented, moderately incompressible, predominately silica sands $= Arctan (0.105 + 0.16 . Ln (q_c / \sigma'_{vo}))$
I_c	Soil Behaviour Type Index	After Jefferies and Davies (1993) modified by Lunne et al (1997) $= ((3.47 – Log\ Q_t)^2 + (Log\ F_r + 1.22)^2)^{0.5}$
N_{60}	Equivalent Standard Penetration Test (SPT) N value	$= (q_c / p_a) / 8.5 . (1 - I_c / 4.6))$ p_a – reference stress of 100 kPa

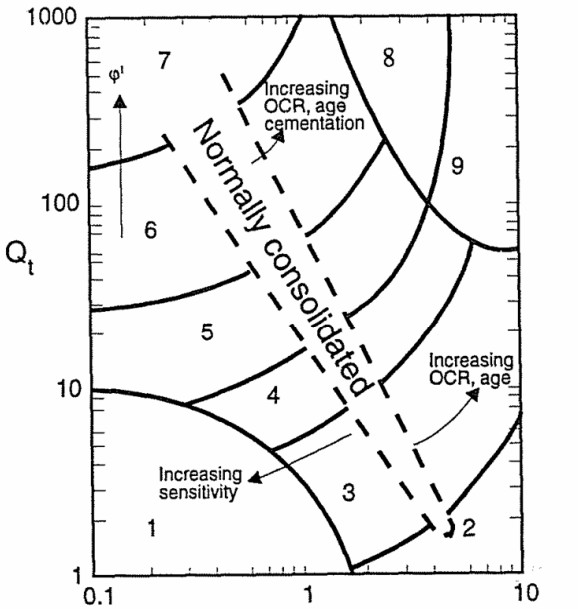
Soil Behaviour Type Interpretation



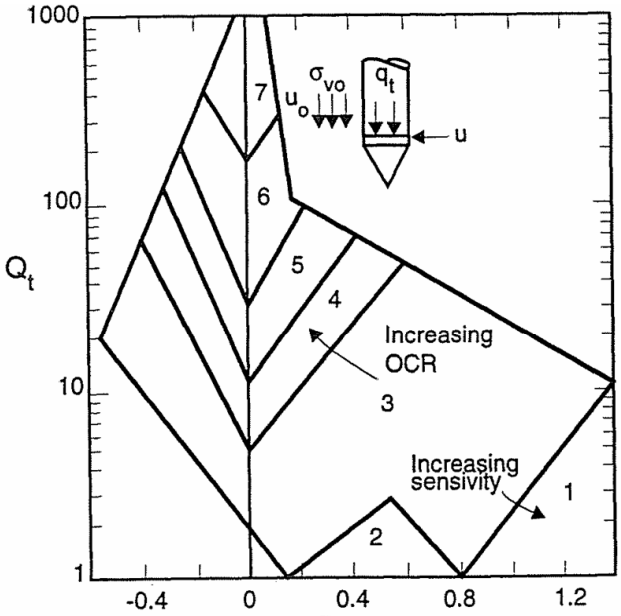


KEY TO SOIL BEHAVIOUR TYPES - after Robertson et al (1986)

ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE
1	Sensitive fine grained	5	Clayey silt to silty clay	9	Sand
2	Organic material	6	Sandy silt to clayey silt	10	Gravelly sand to sand
3	Clay	7	Silty sand to sandy silt	11	Very stiff fine grained*
4	Silty clay to clay	8	Sand to silty sand	12	Sand to clayey sand*



$Q_t = \frac{q_t - \sigma_{vo}}{\sigma'_{vo}}$ $F_r = \frac{f_s \times 100\%}{q_t - \sigma_{vo}}$



$B_q = \frac{u_2 - u_o}{q_t - \sigma_{vo}}$

KEY TO SOIL BEHAVIOUR TYPES – after Robertson (1990)

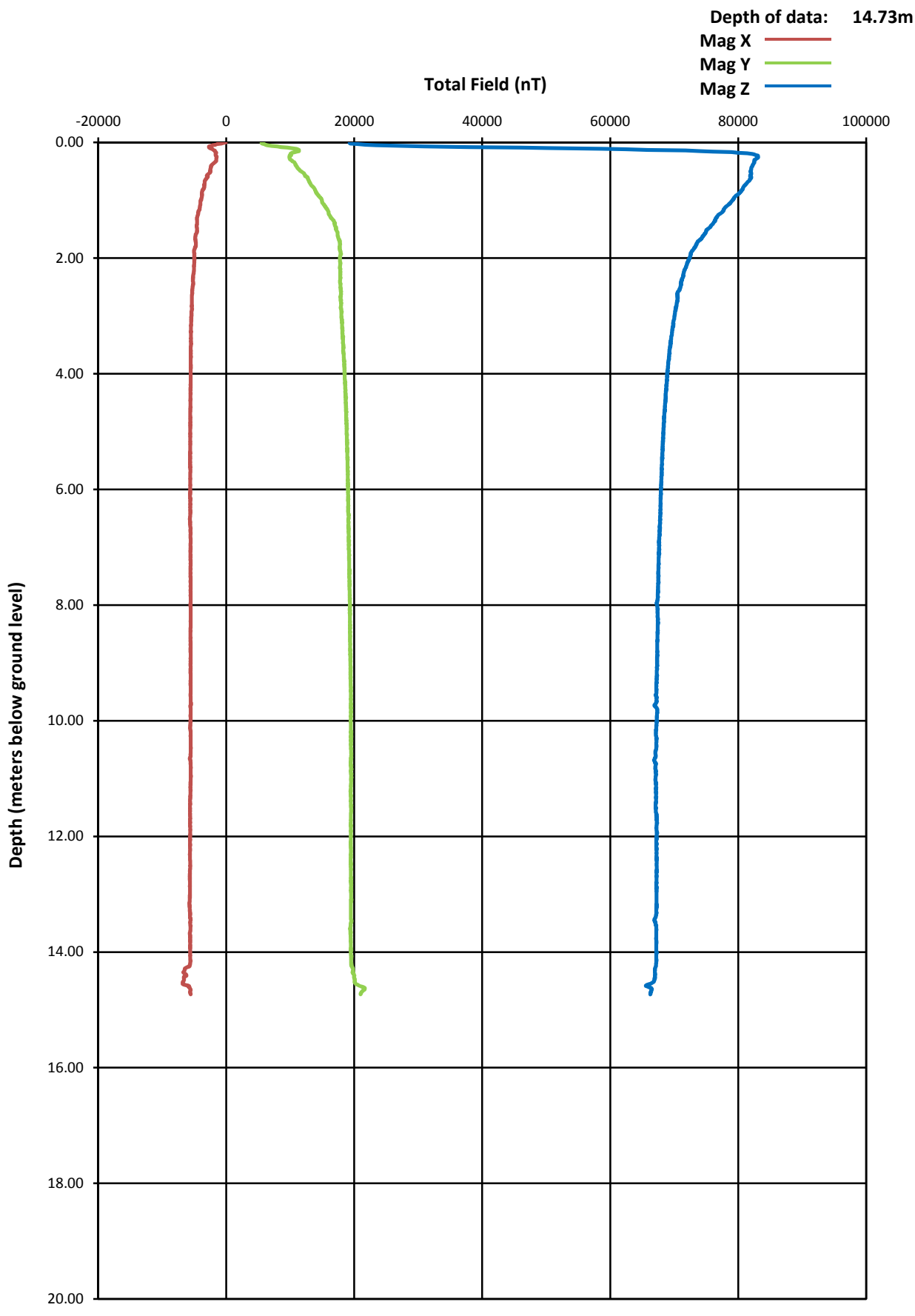
ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE
1	Sensitive fine grained	4	Silt mixtures: clayey silt to silty clay	7	Gravelly sand to sand
2	Organic soils – peats	5	Sand mixtures: silty sand to sandy silt	8	Very stiff sand to clayey sand
3	Clays: clay to silty clay	6	Sands: clean sand to silty sand	9	Very stiff fine grained

Notes:

Project: A63 Castle Street Improvement, Hull
Project No.: A5049-15
Carried out for: Balfour Beatty

Figure
Key CPT

Magnetometer Test CPT301

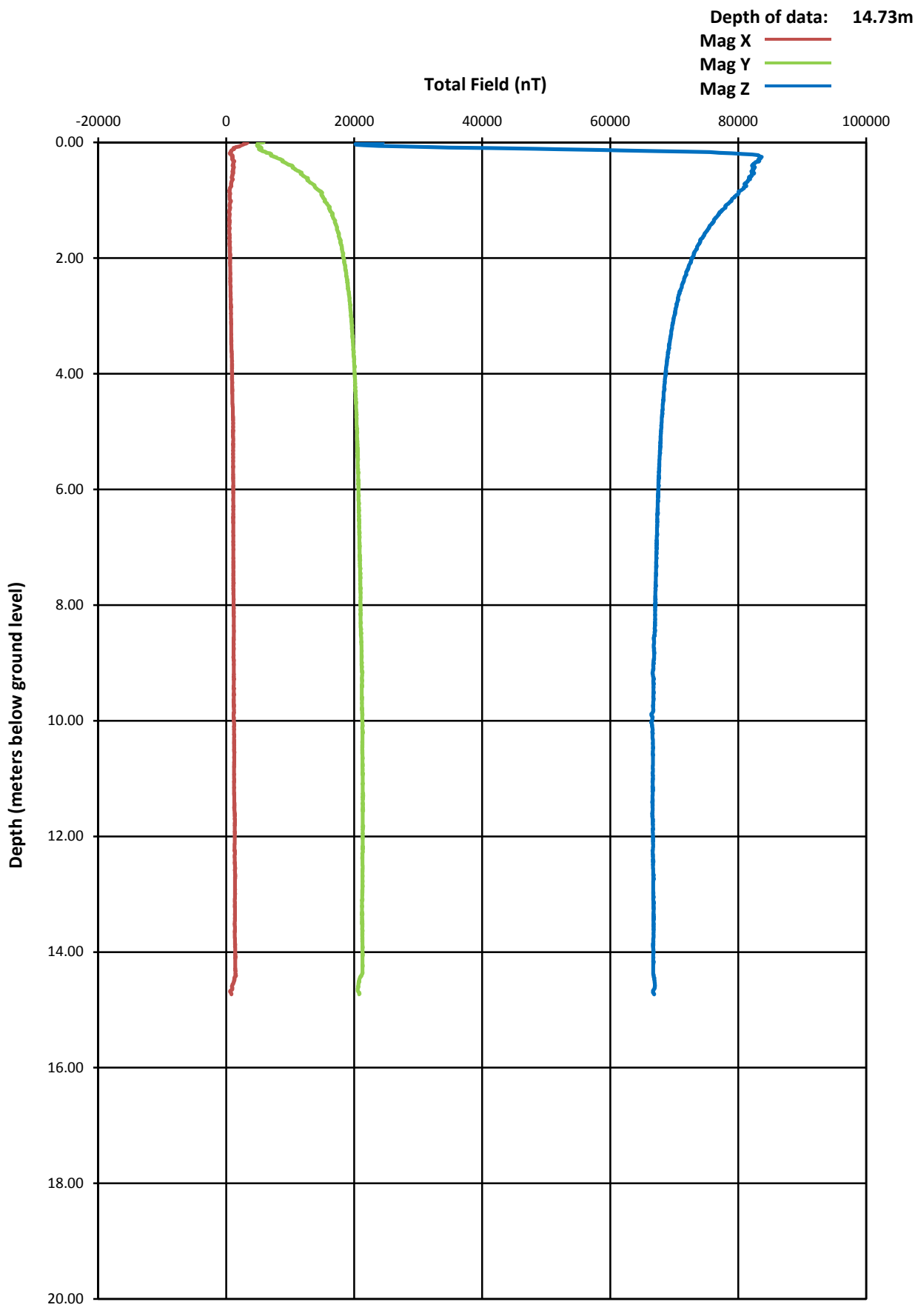


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT301

Magnetometer Test CPT302

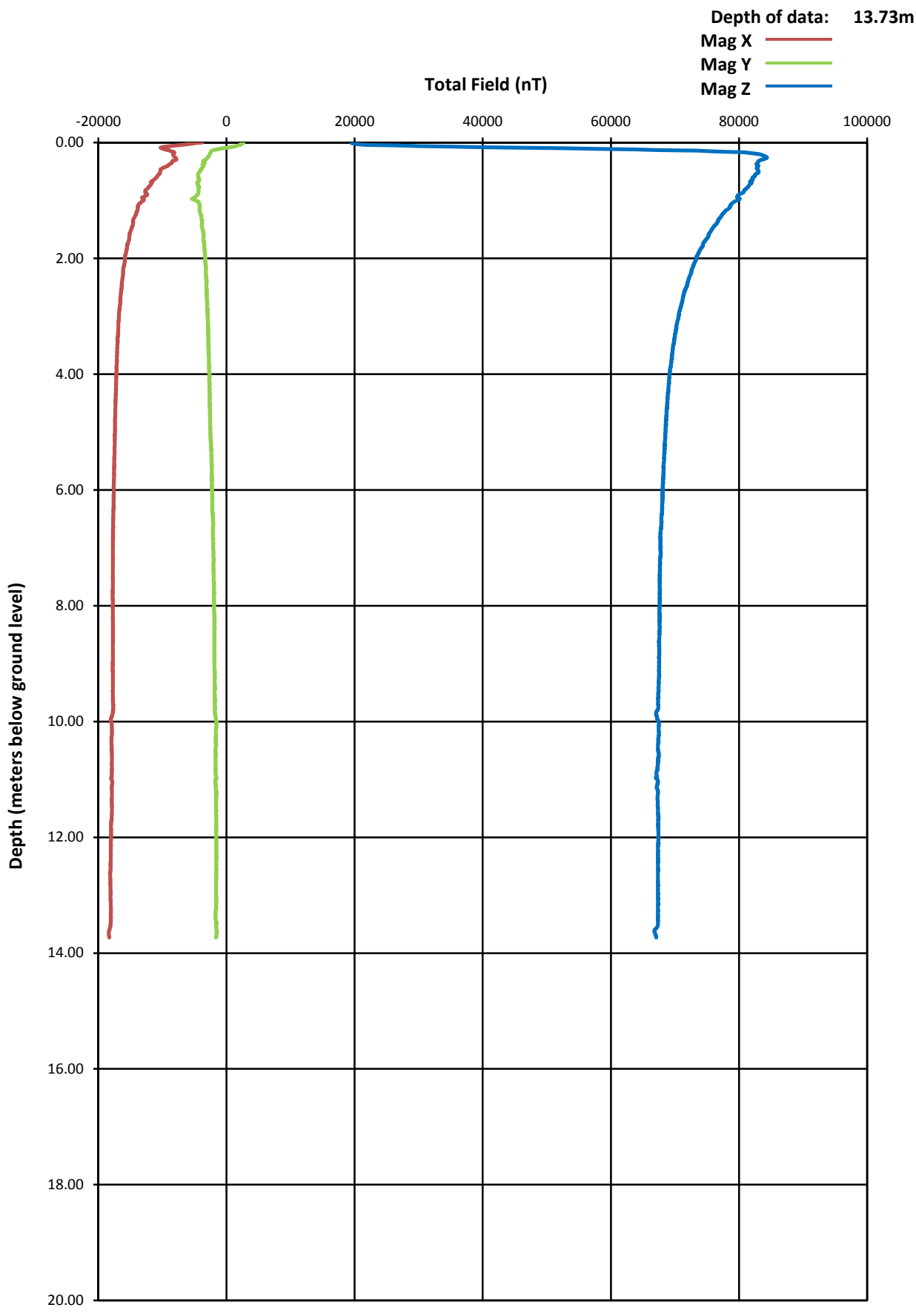


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT302

Magnetometer Test CPT303

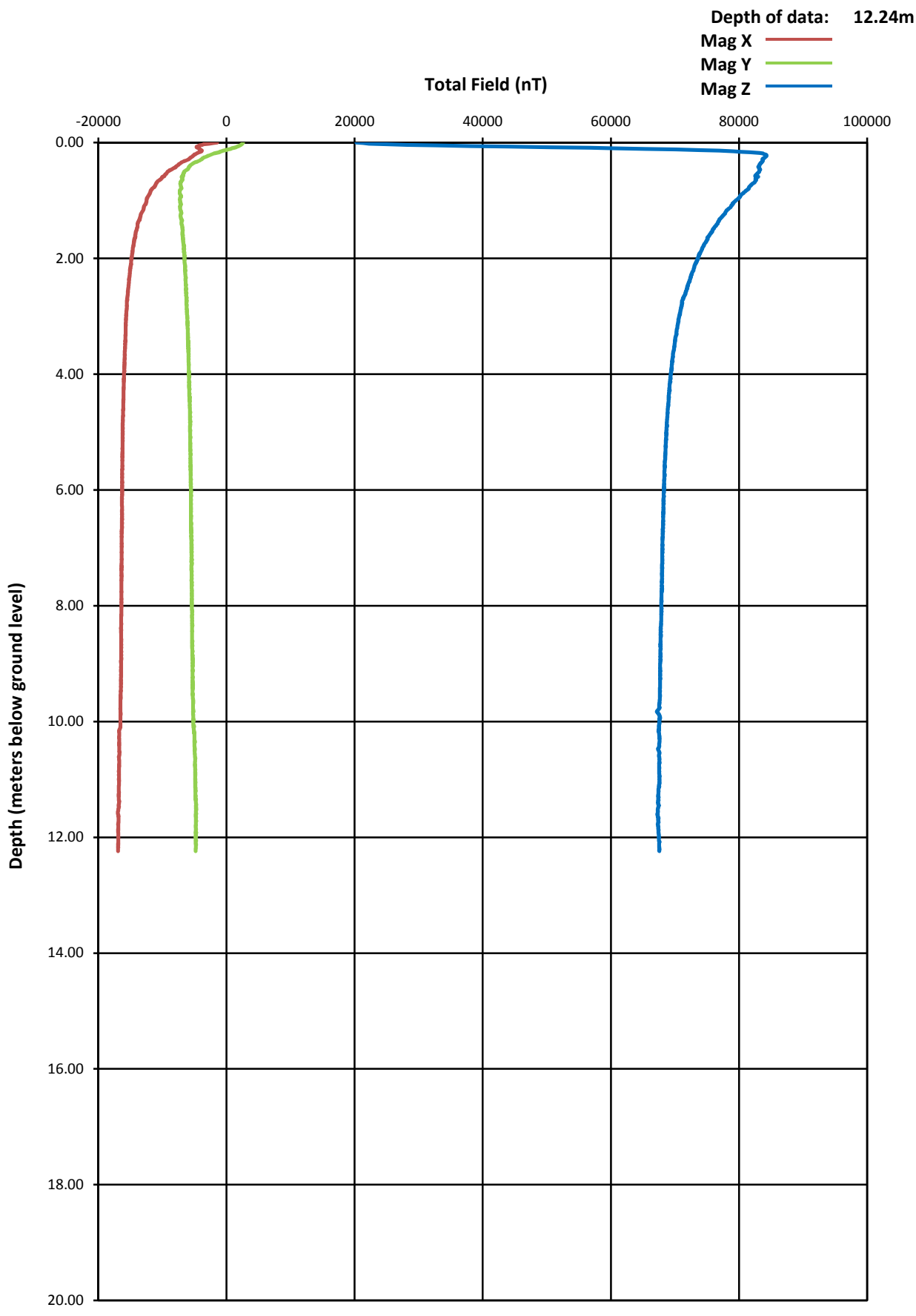


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT303

Magnetometer Test CPT304

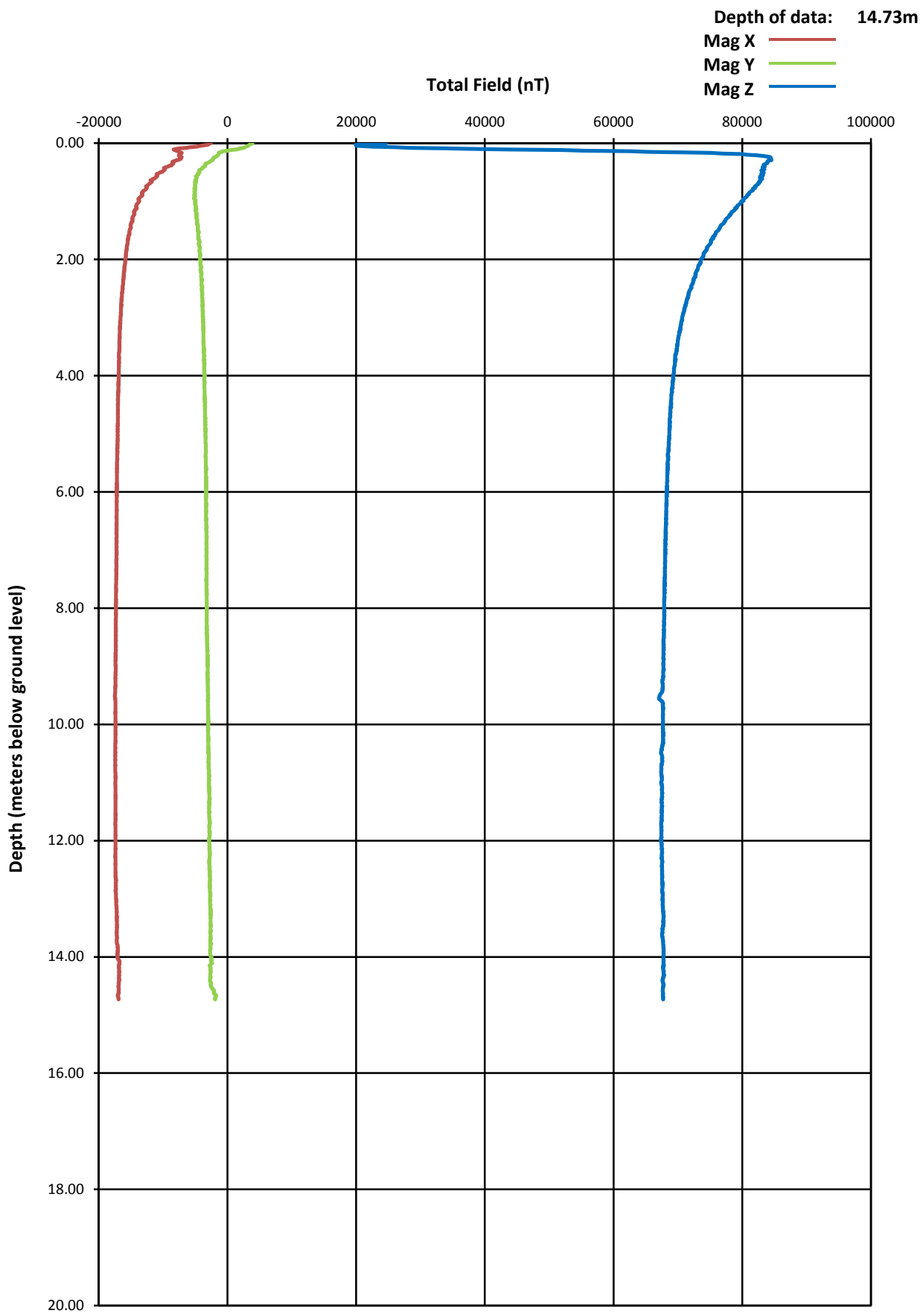


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT304

Magnetometer Test CPT305

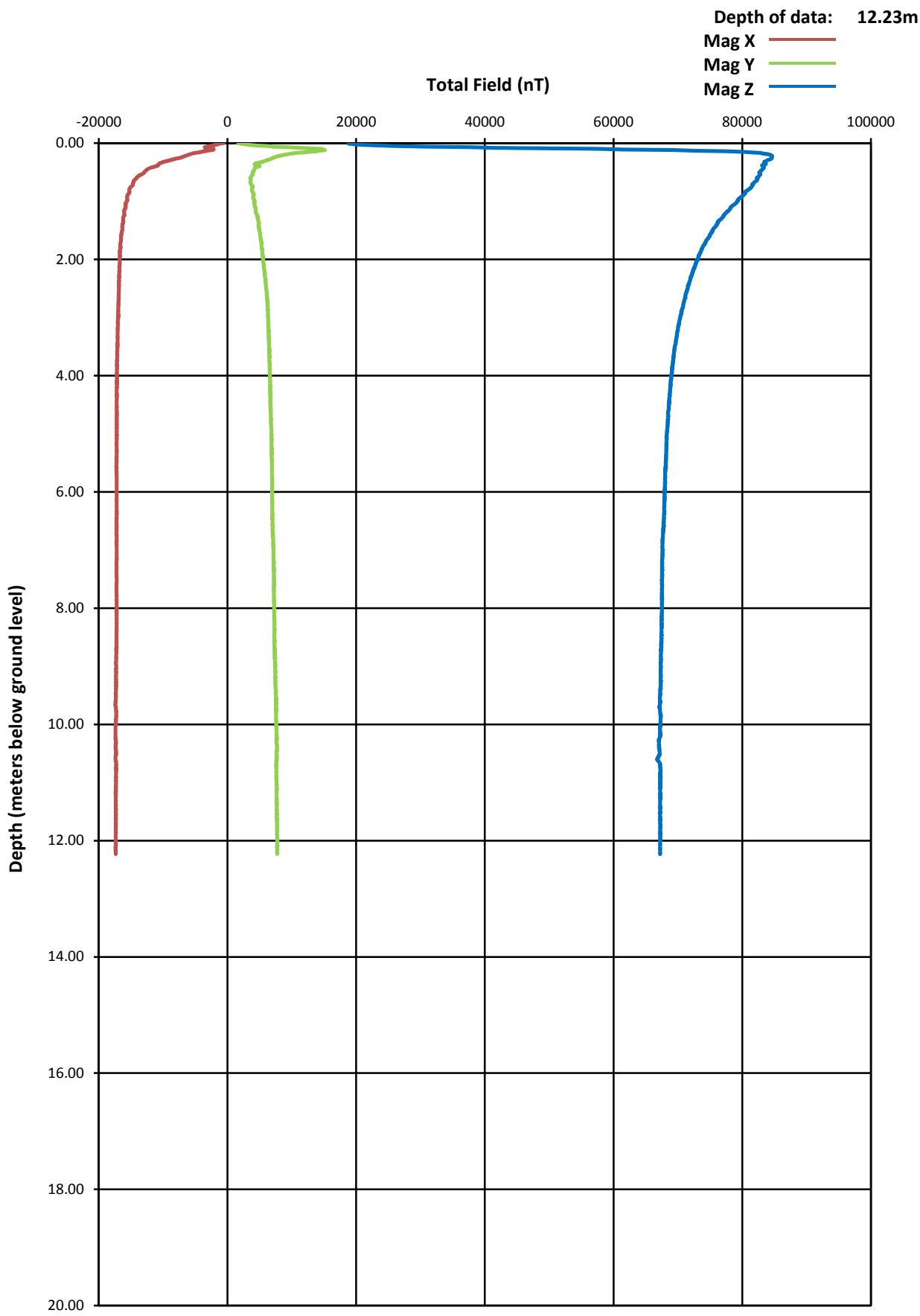


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT305

Magnetometer Test CPT306

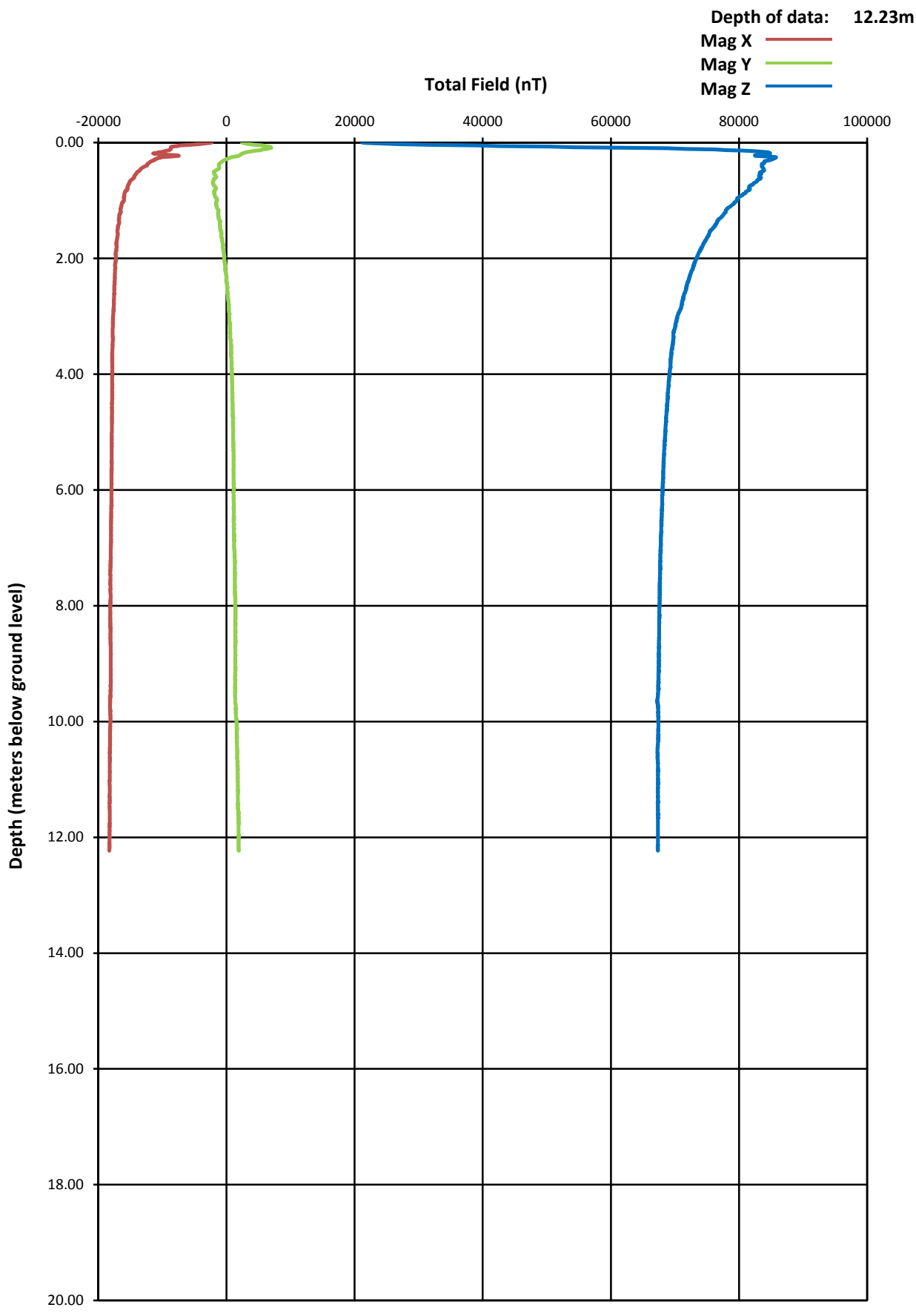


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT306

Magnetometer Test CPT307

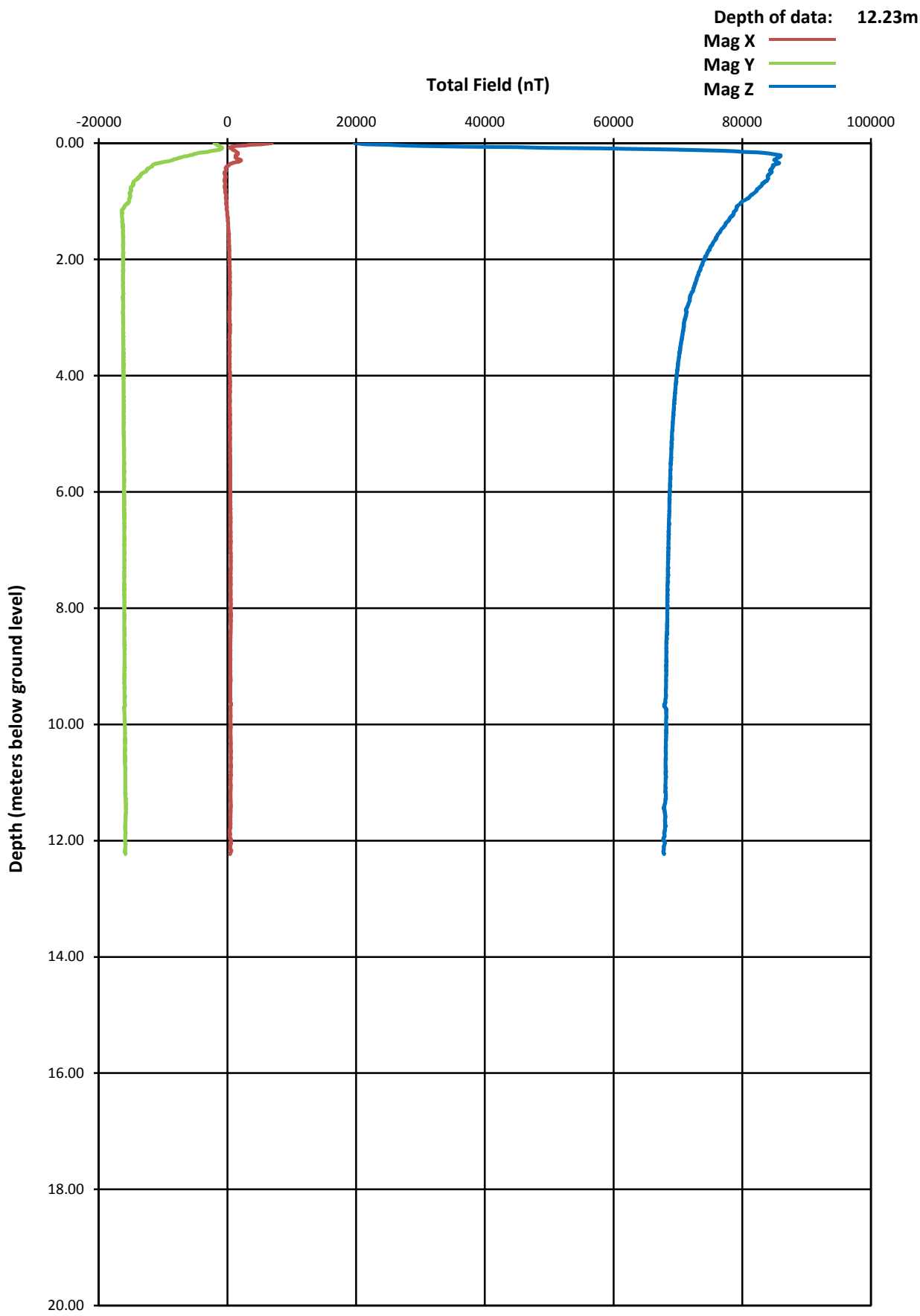


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT307

Magnetometer Test CPT308

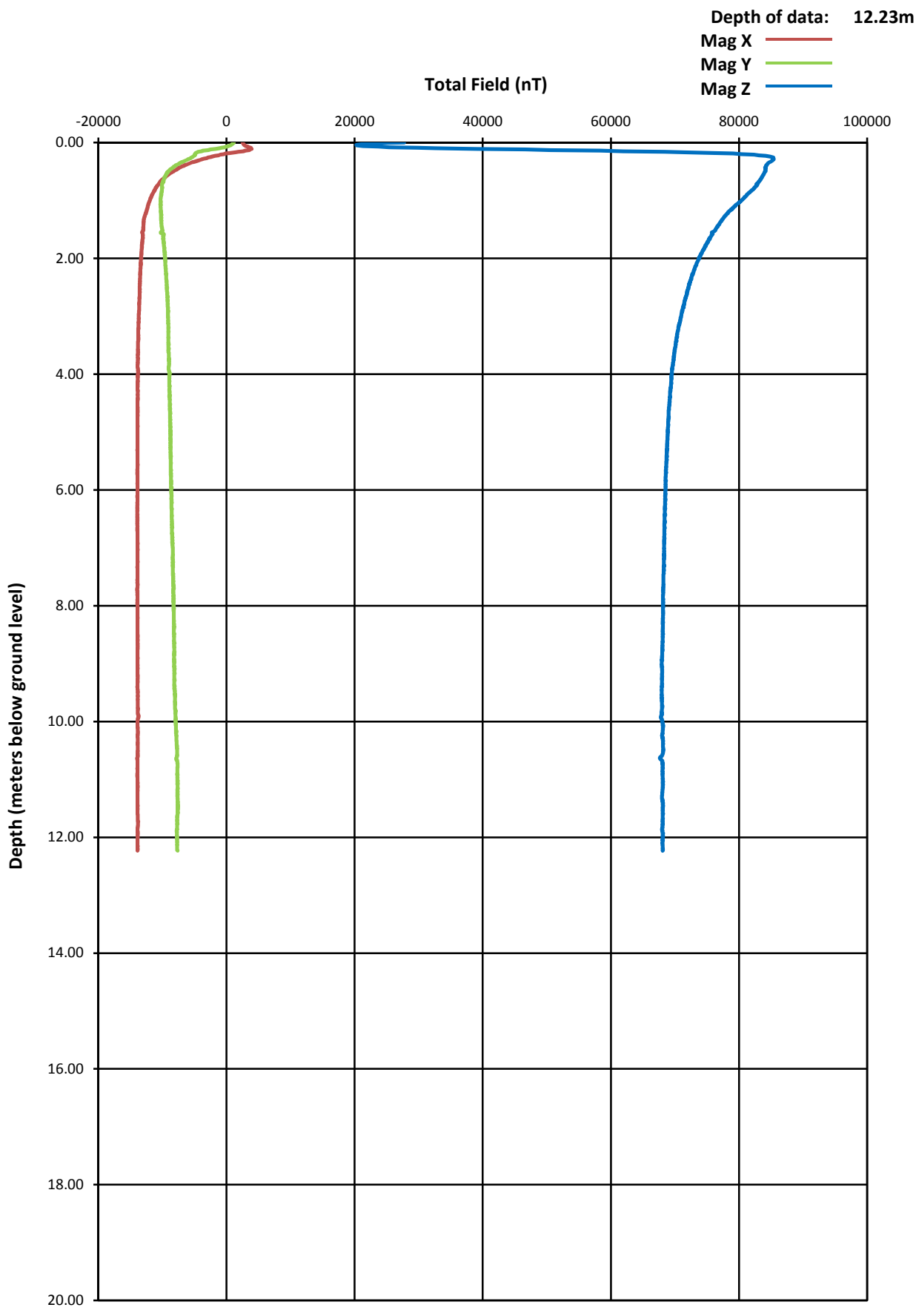


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT308

Magnetometer Test CPT309

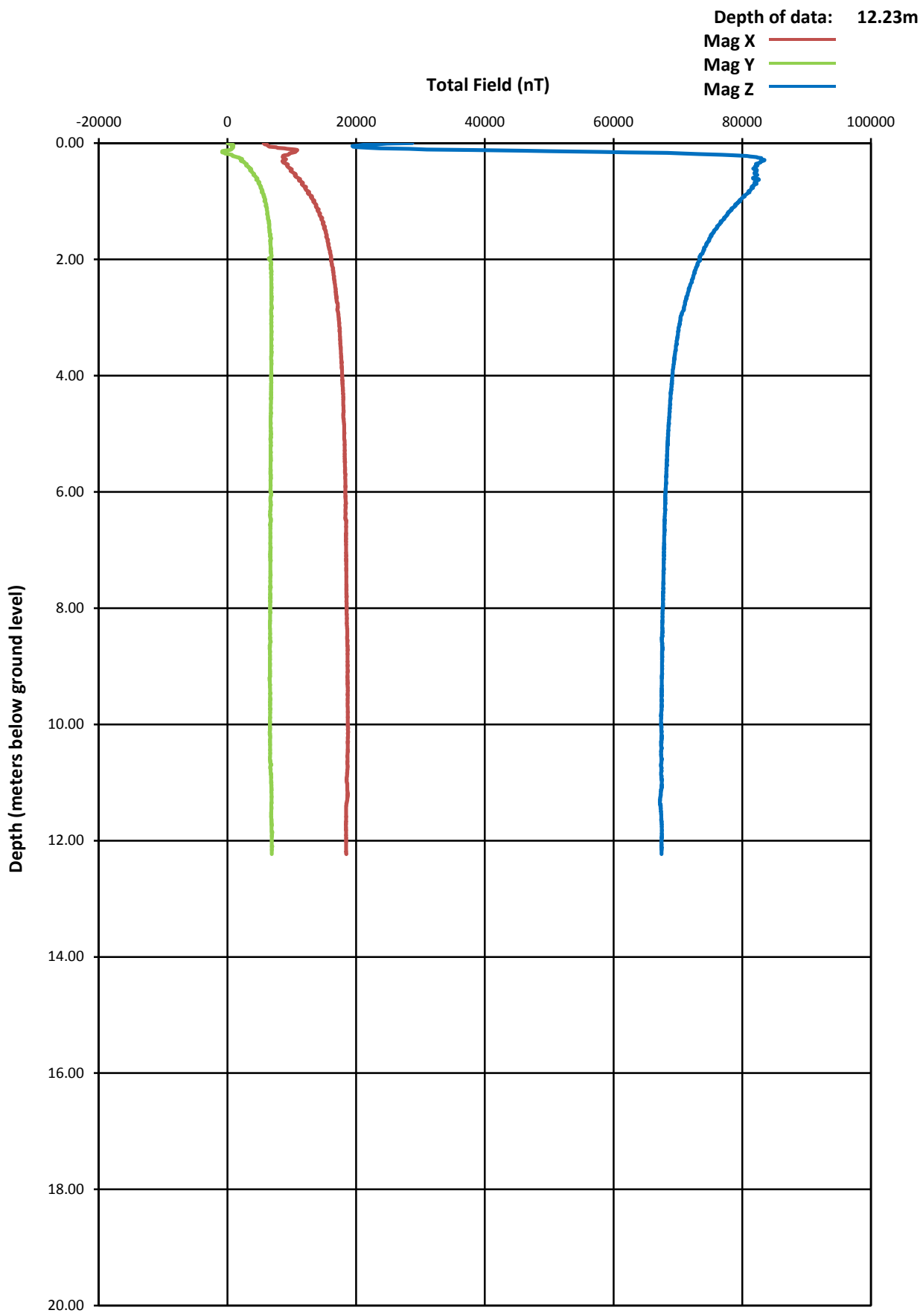


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT309

Magnetometer Test CPT310

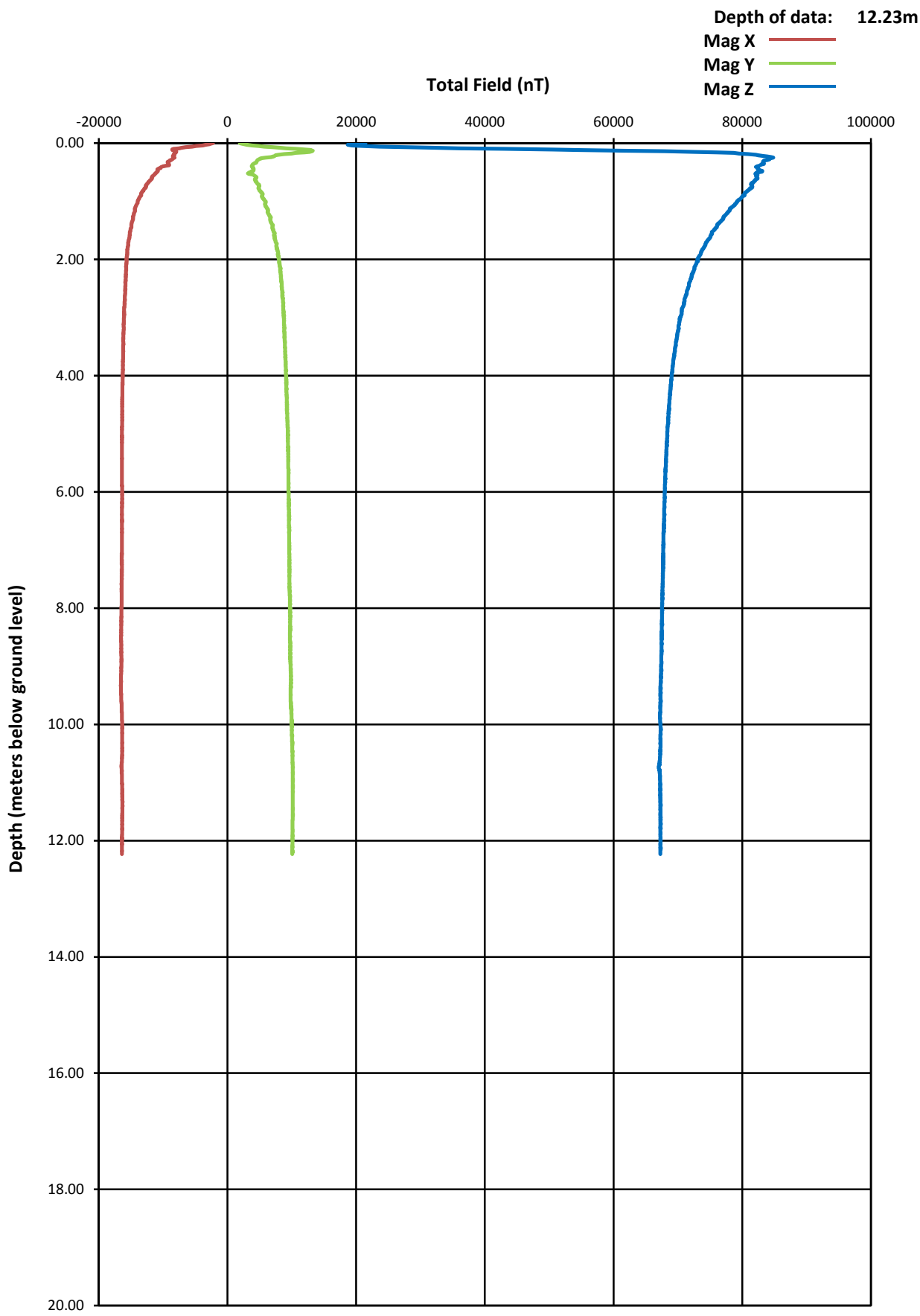


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT310

Magnetometer Test CPT311

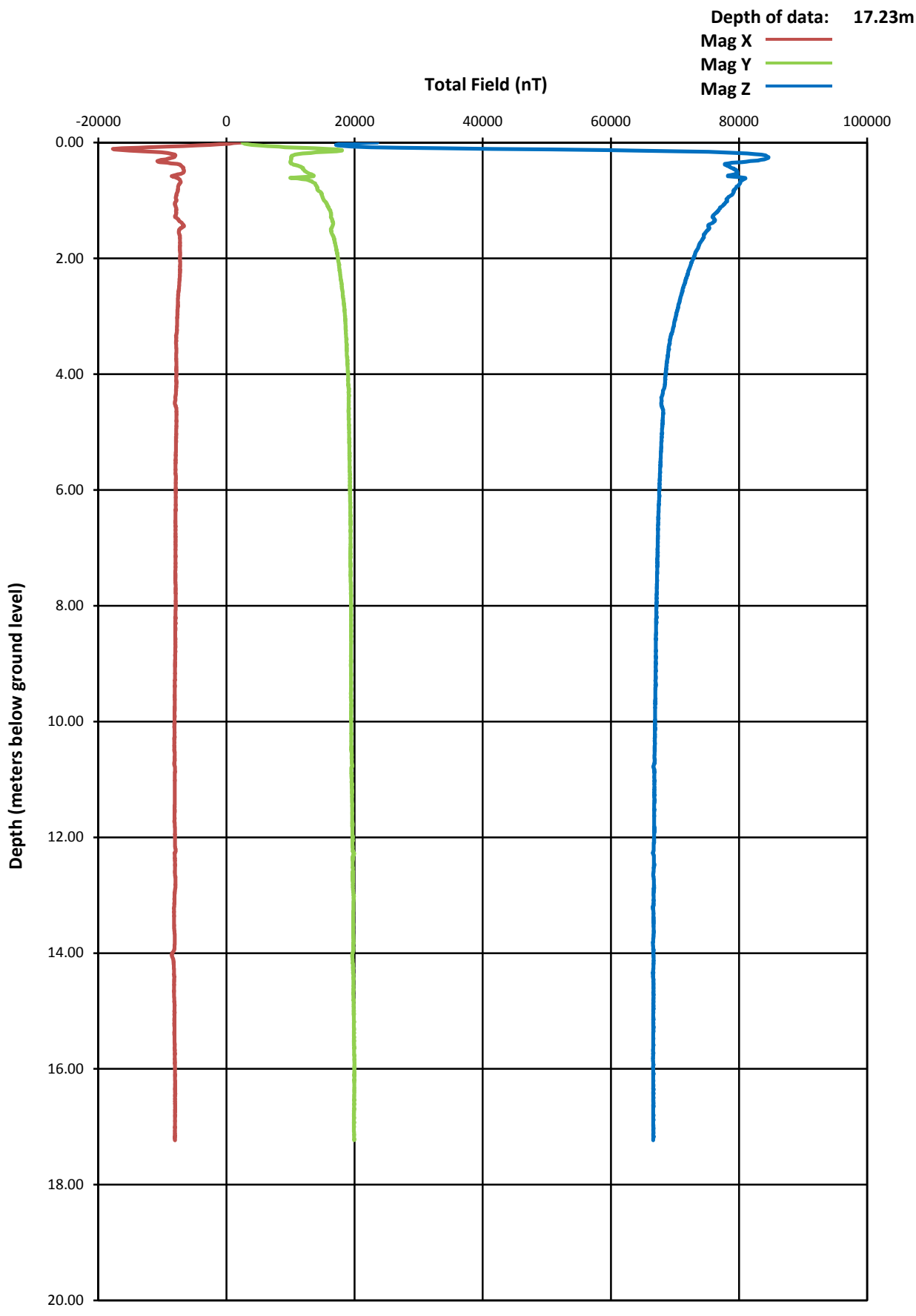


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT311

Magnetometer Test CPT312

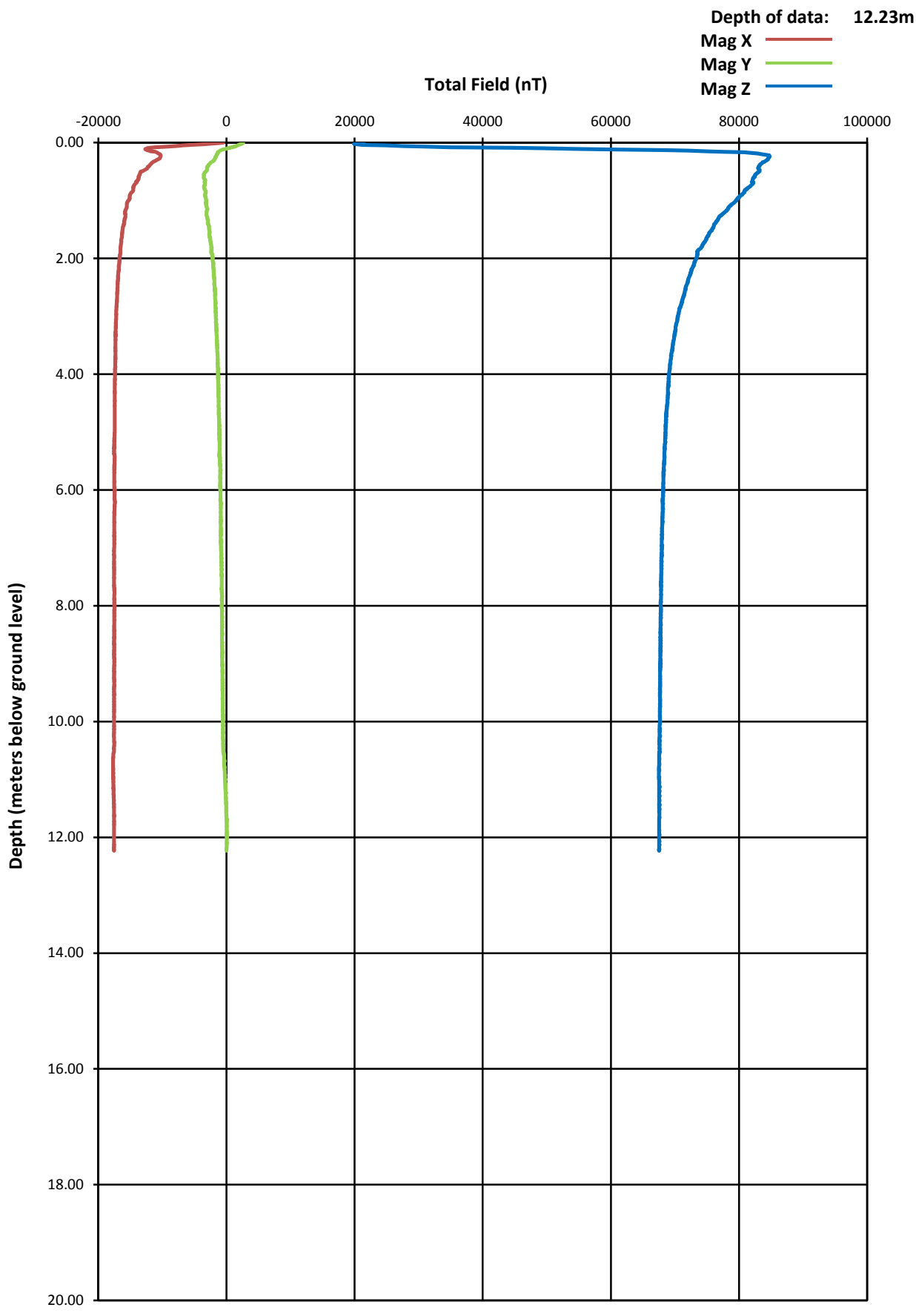


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT312

Magnetometer Test CPT313

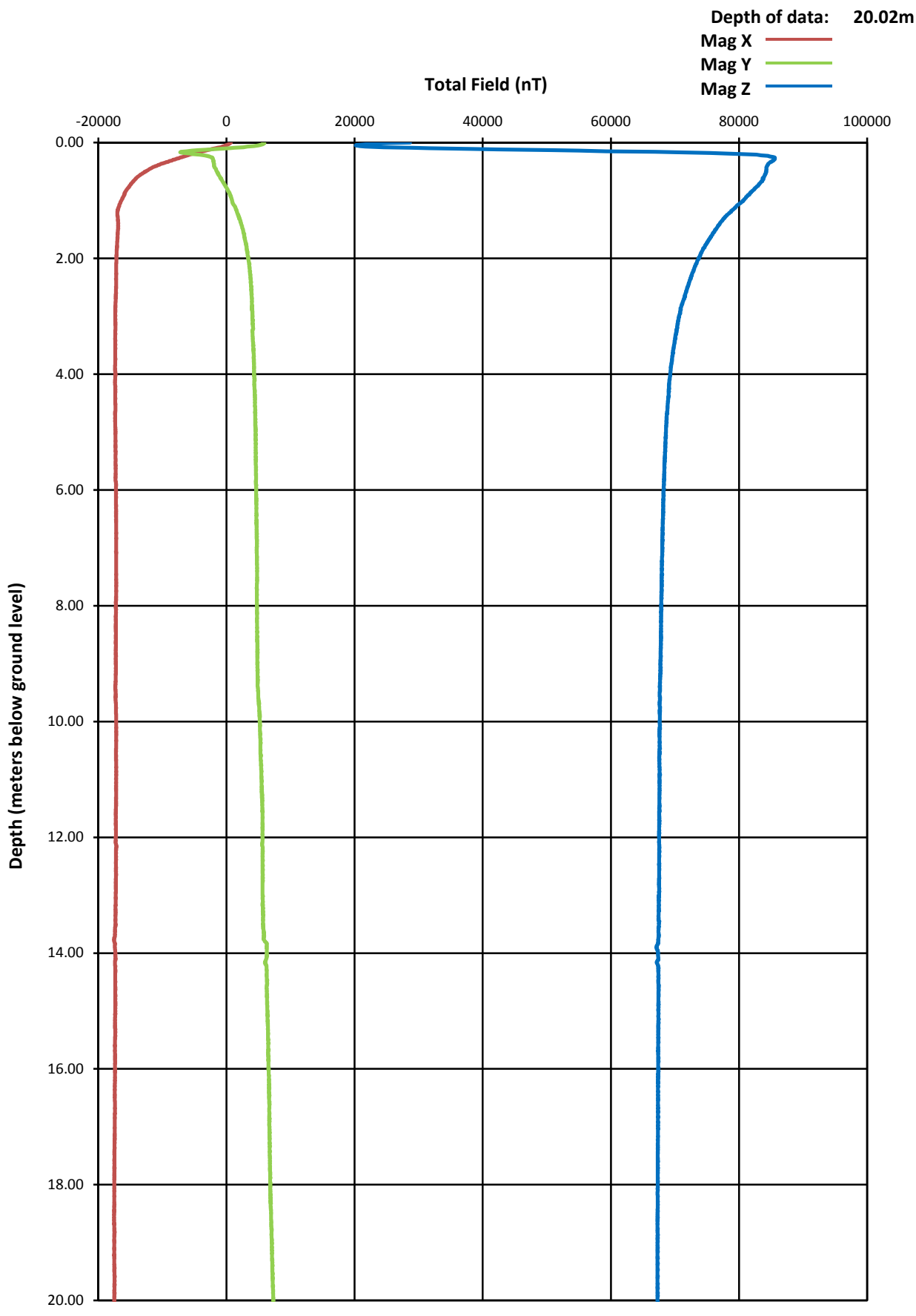


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT313

Magnetometer Test CPT314

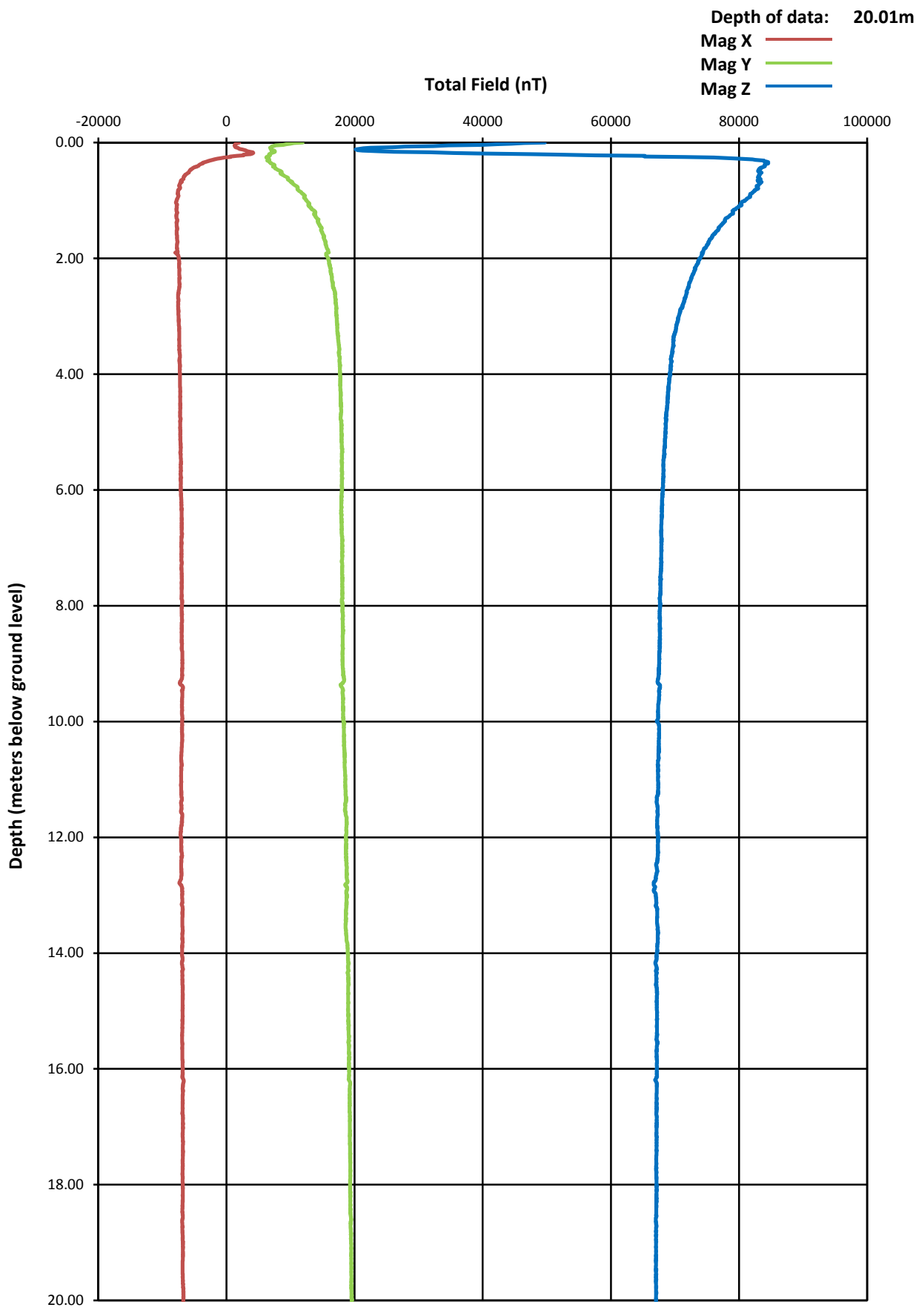


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT314

Magnetometer Test CPT315

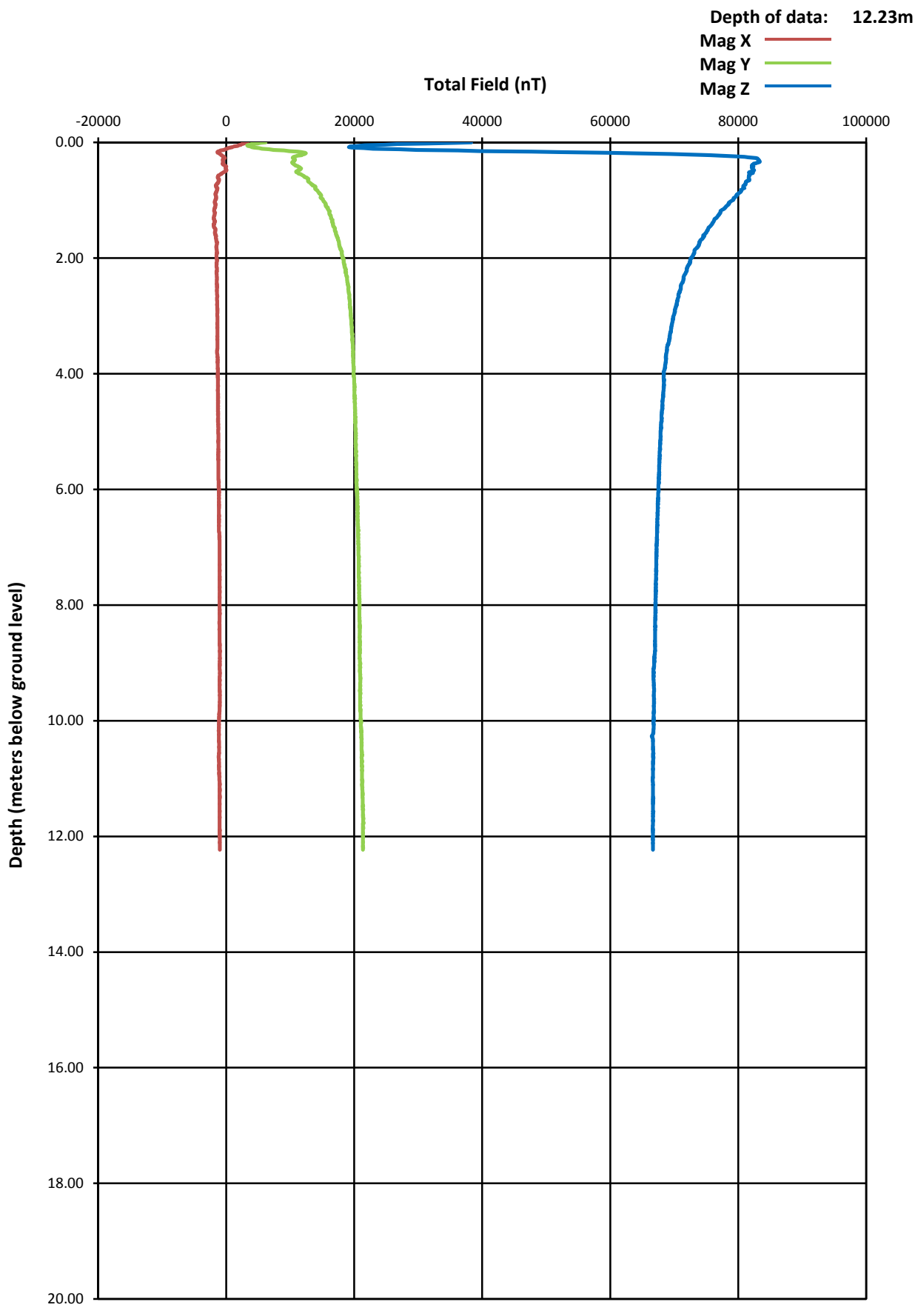


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT315

Magnetometer Test CPT316

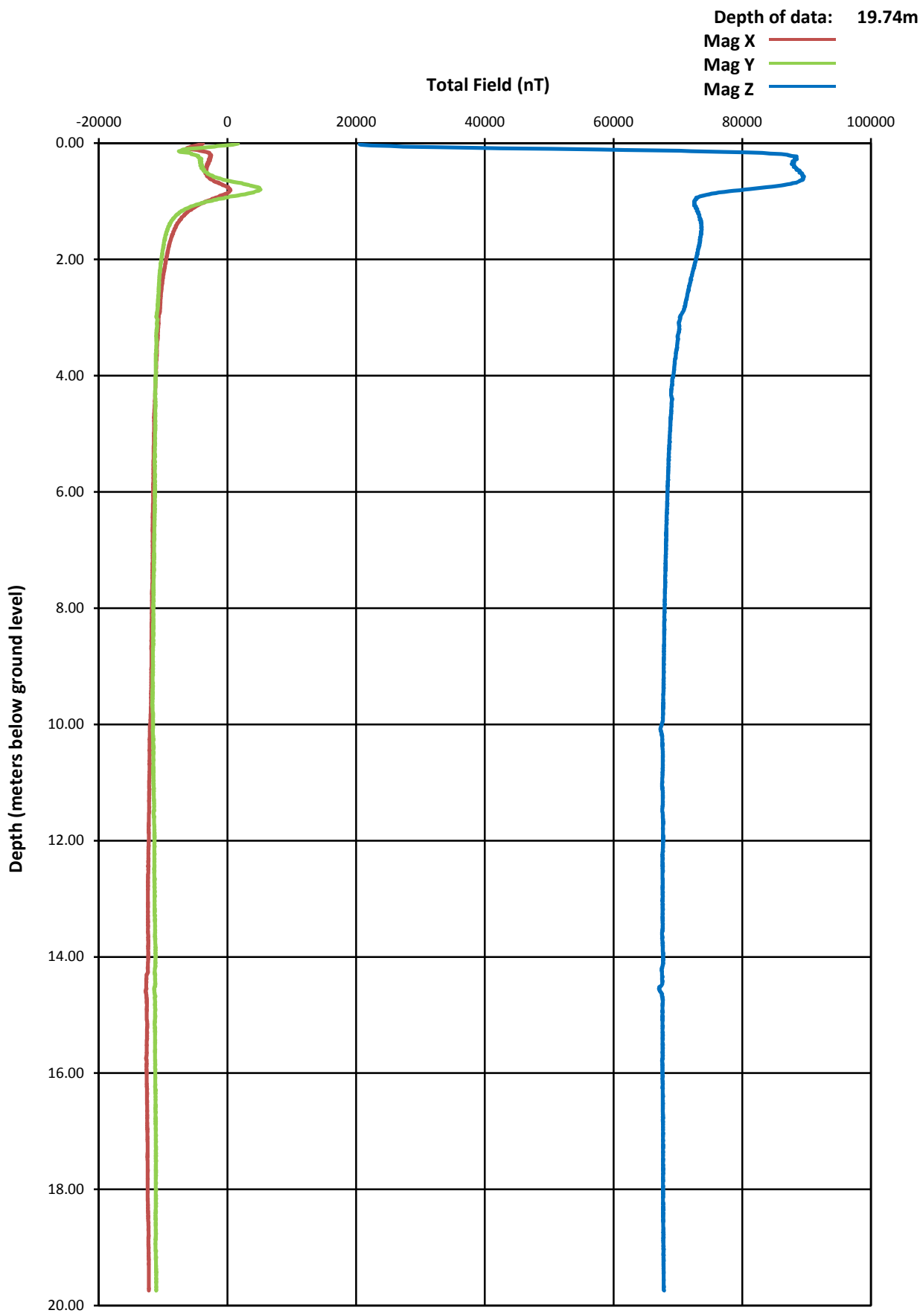


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT316

Magnetometer Test CPT317

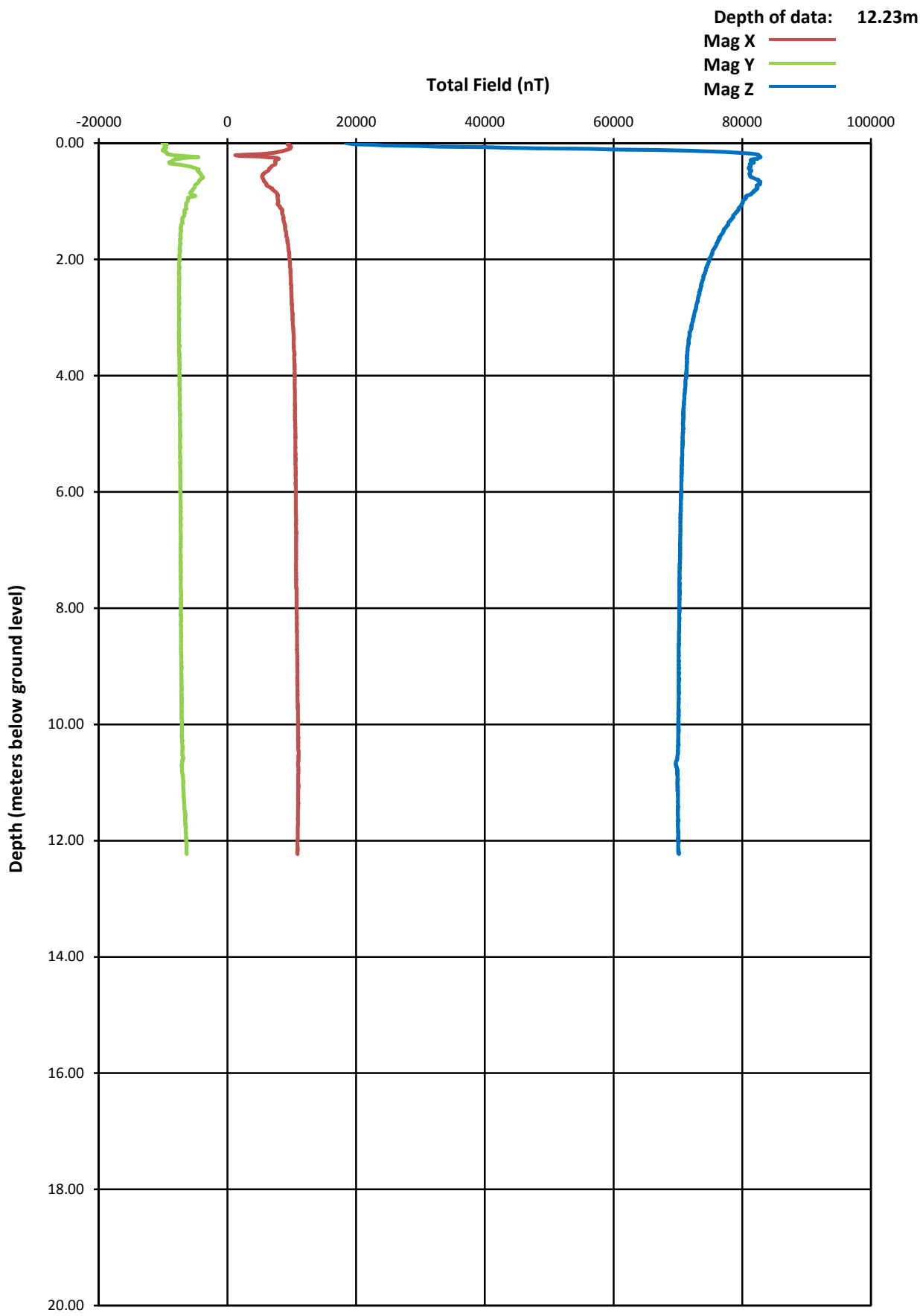


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT317

Magnetometer Test CPT318

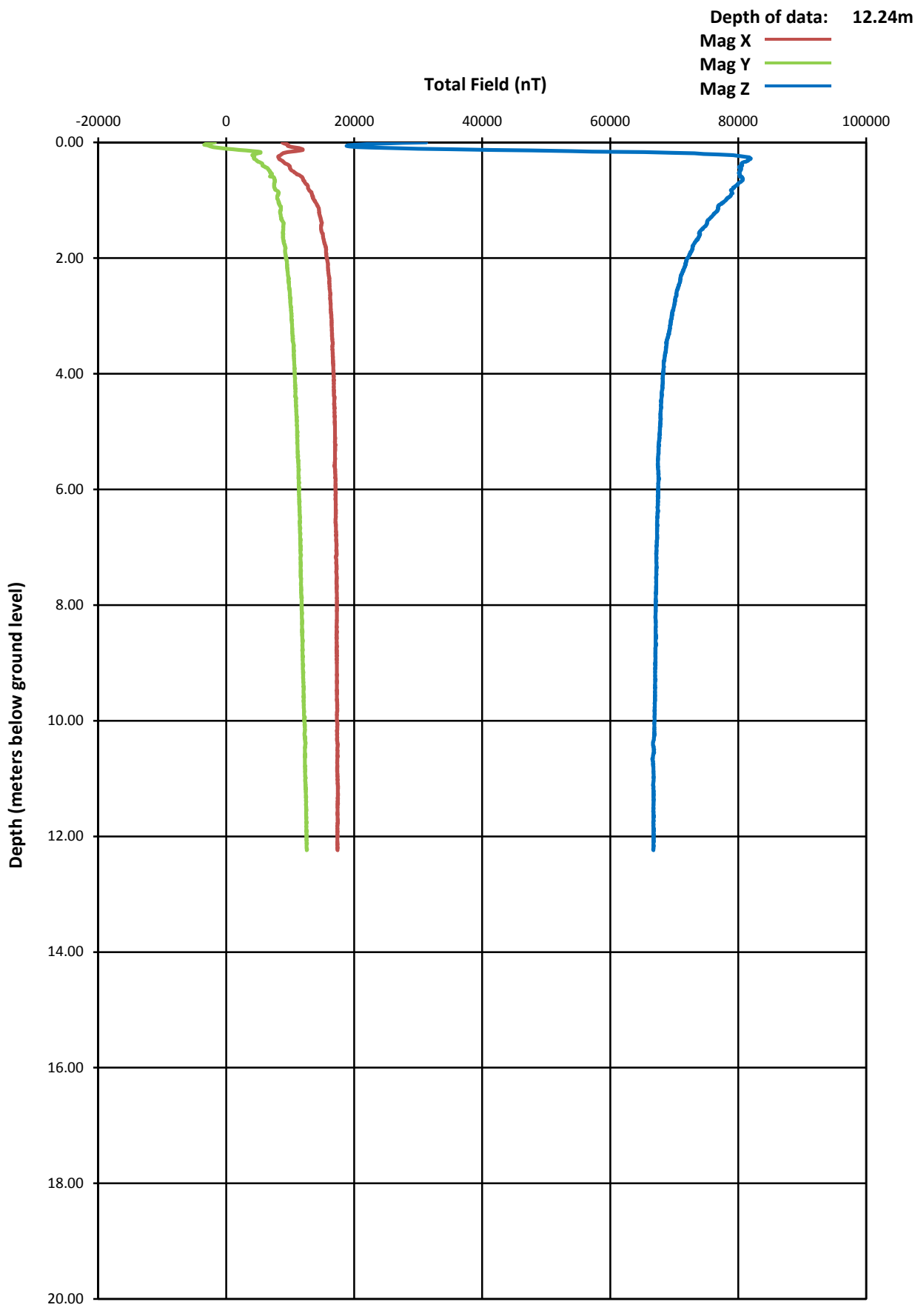


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT318

Magnetometer Test CPT319

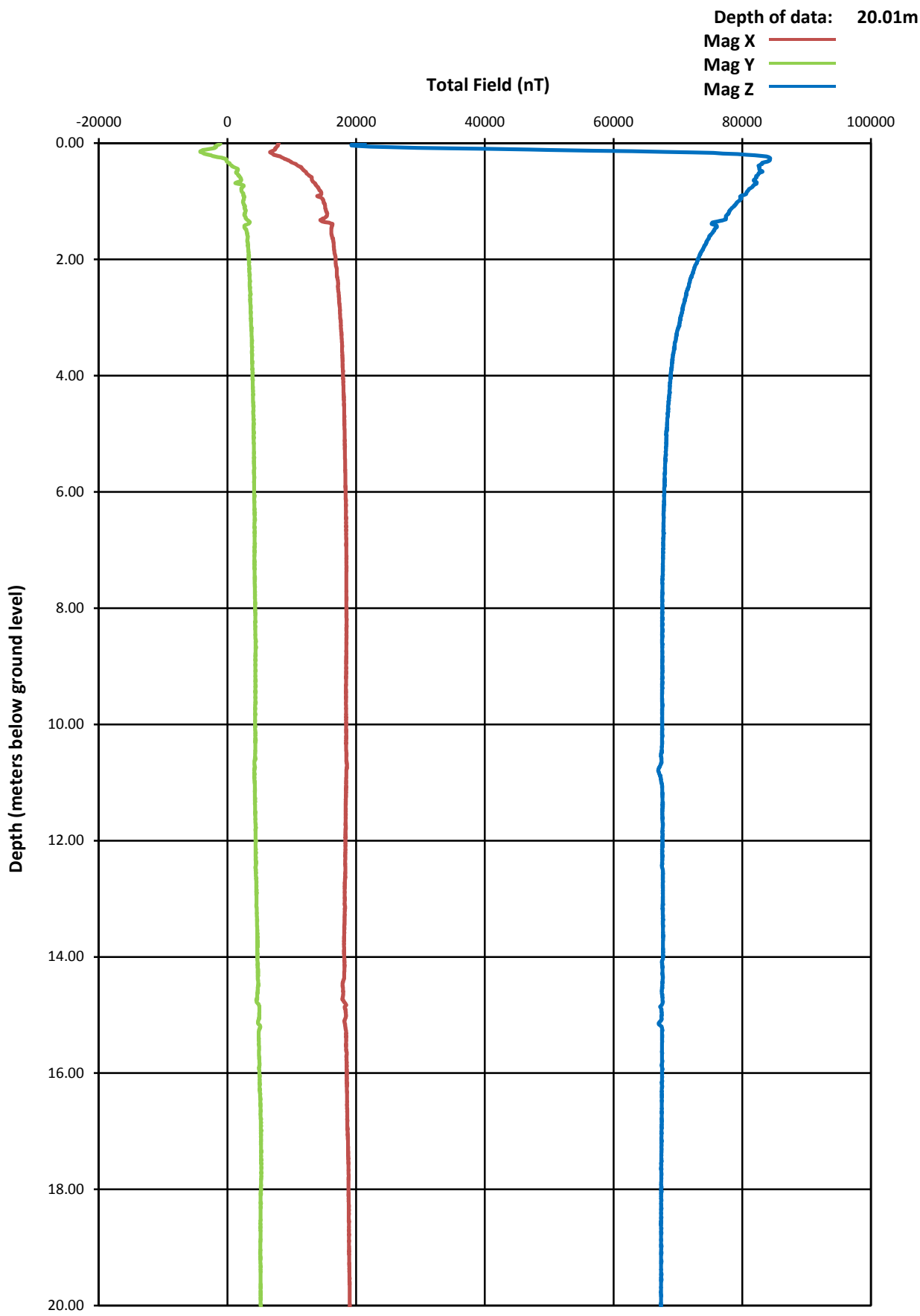


Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT319

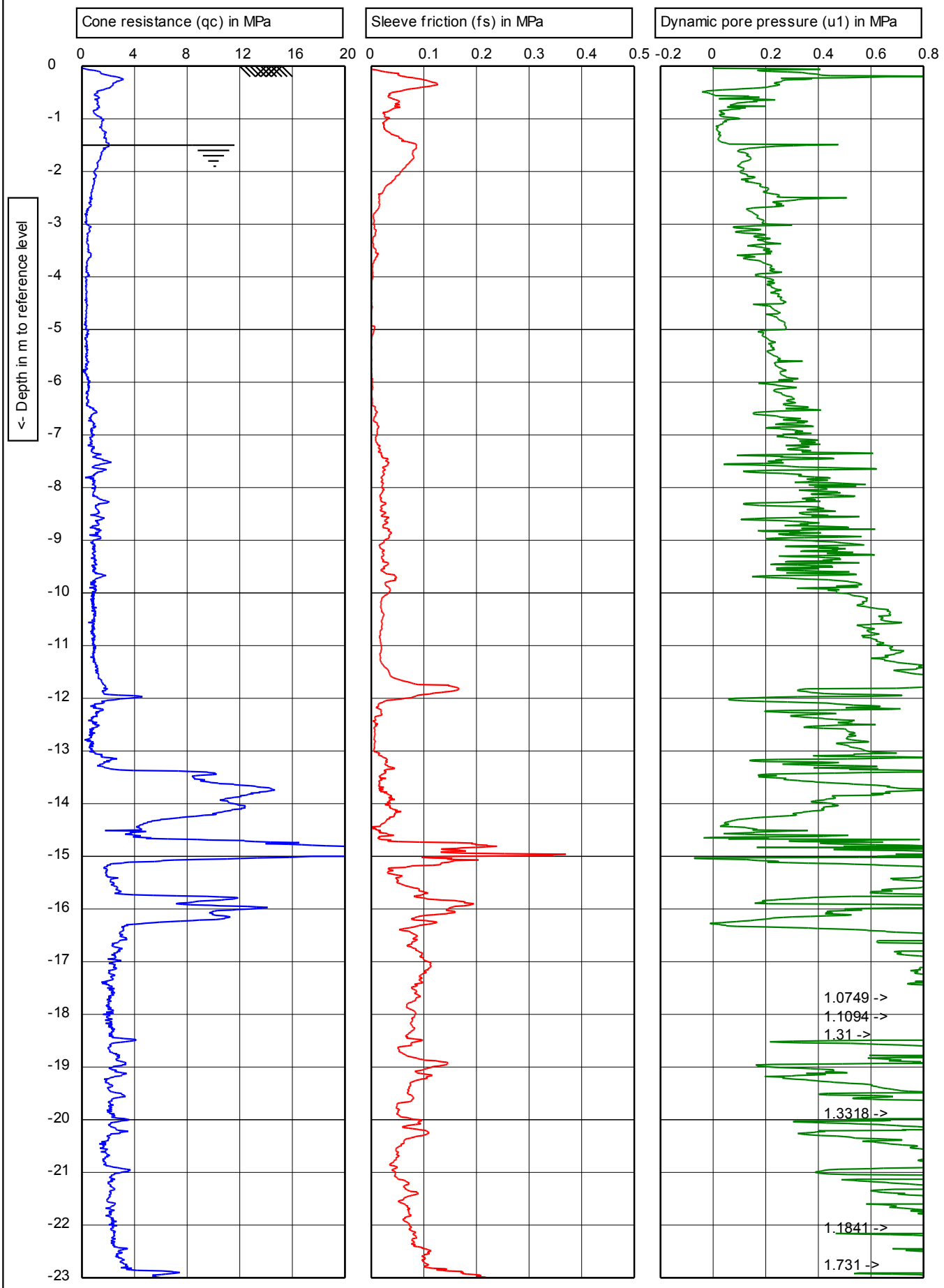
Magnetometer Test CPT320



Notes:
Data obtained within 2 m of ground surface affected by presence of CPT truck. Quoted depths relative to ground level at time of test.

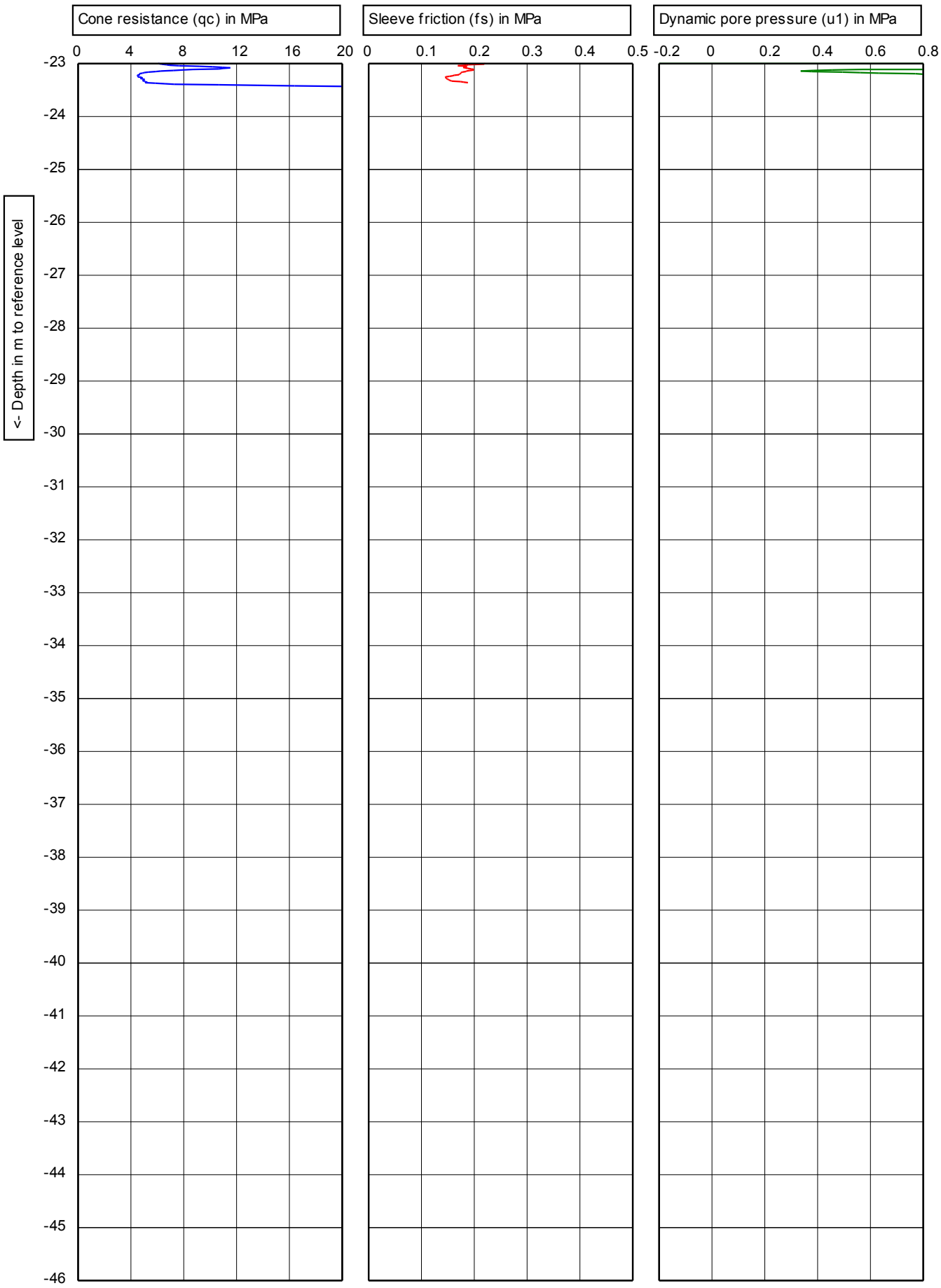
Project	A63 Castle Street Improvement, Hull
Project No.	A5049-15
Carried out for	Balfour Beatty

Figure
Test CPT320



u1 / 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.5**	Date: **29/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT301** **1/6**

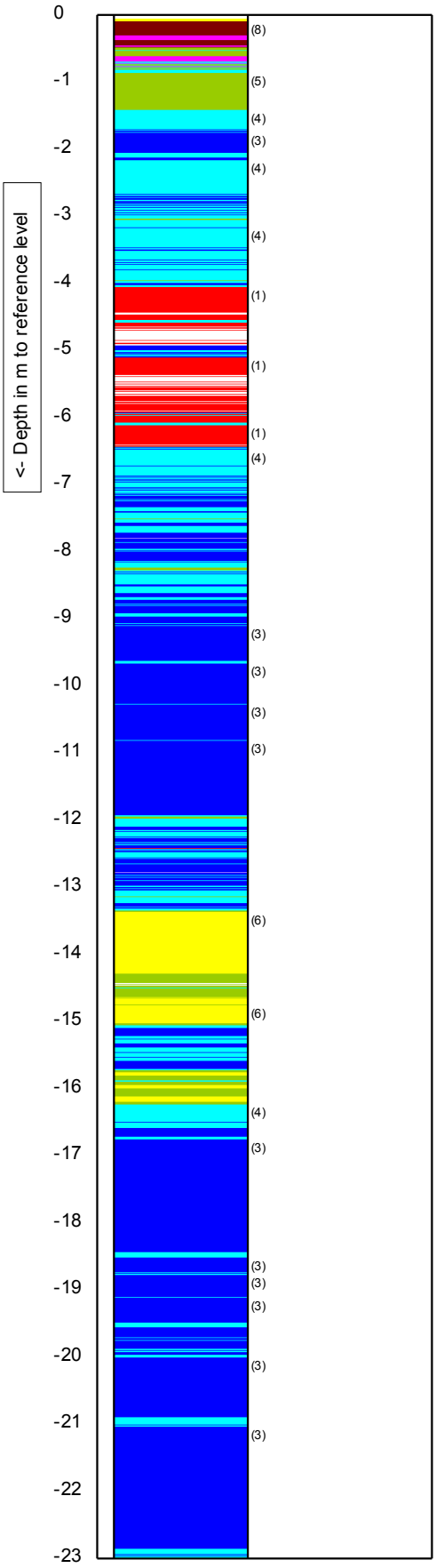
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.5**	Date: **29/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT301** **2/6**

CPTask V1.33

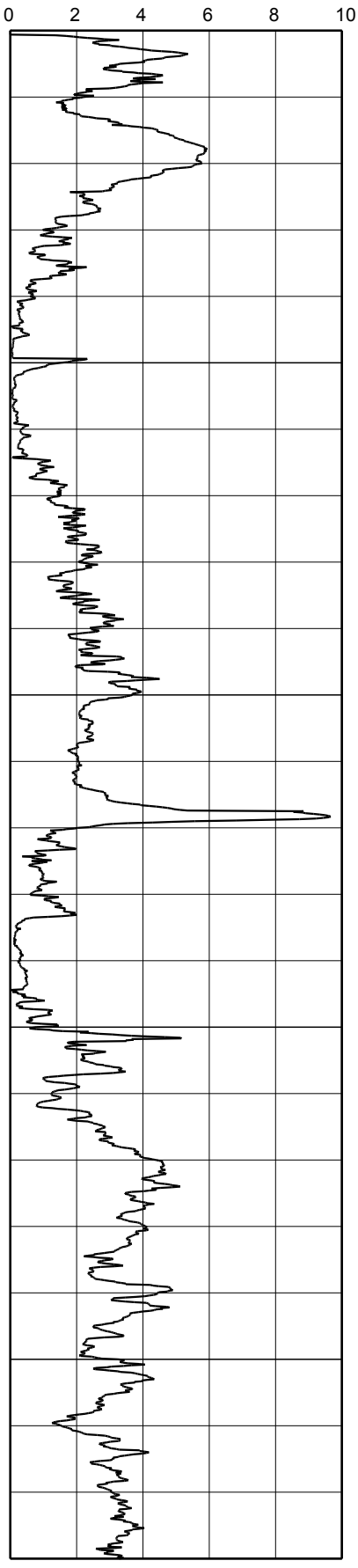
Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

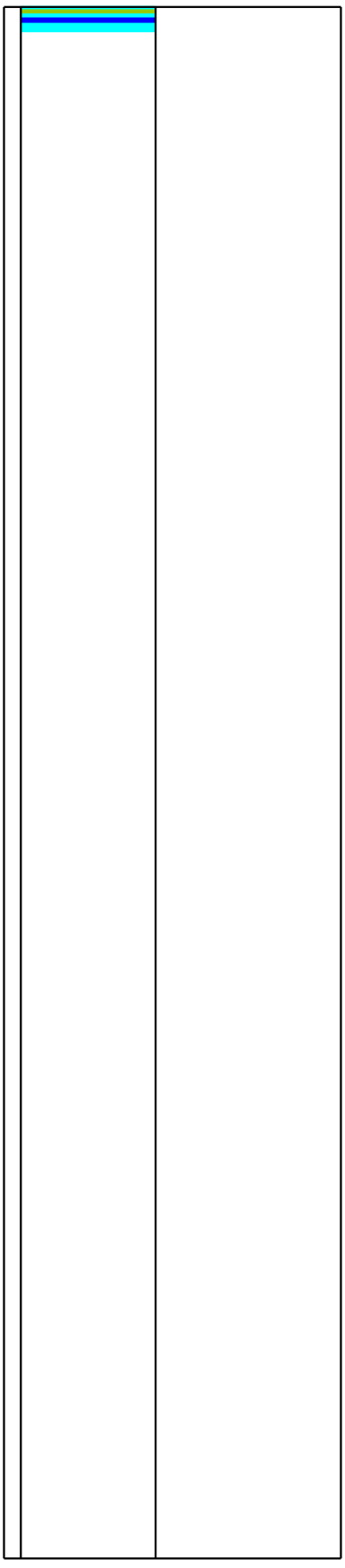
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.5	Date: 29/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT301 3/6

CPTask V1.33

Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
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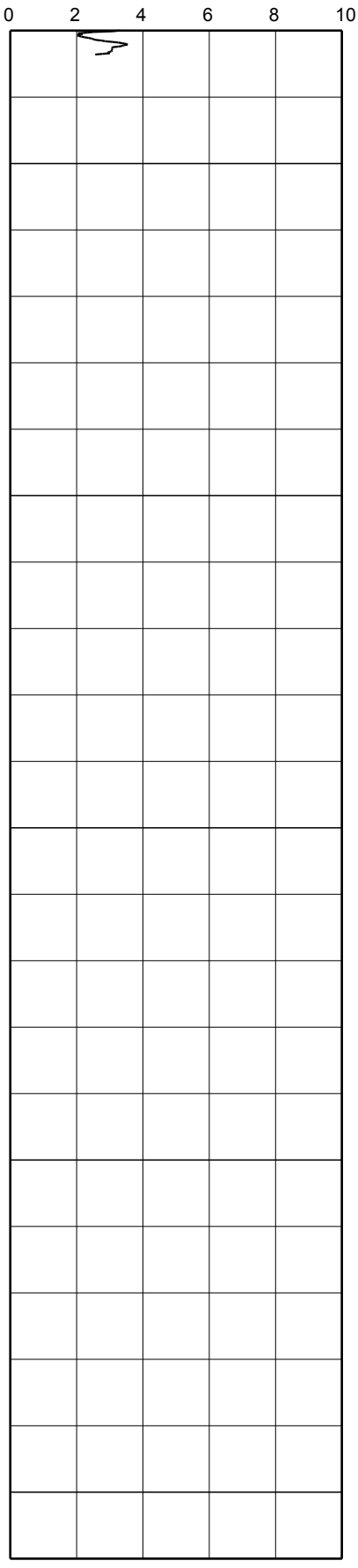
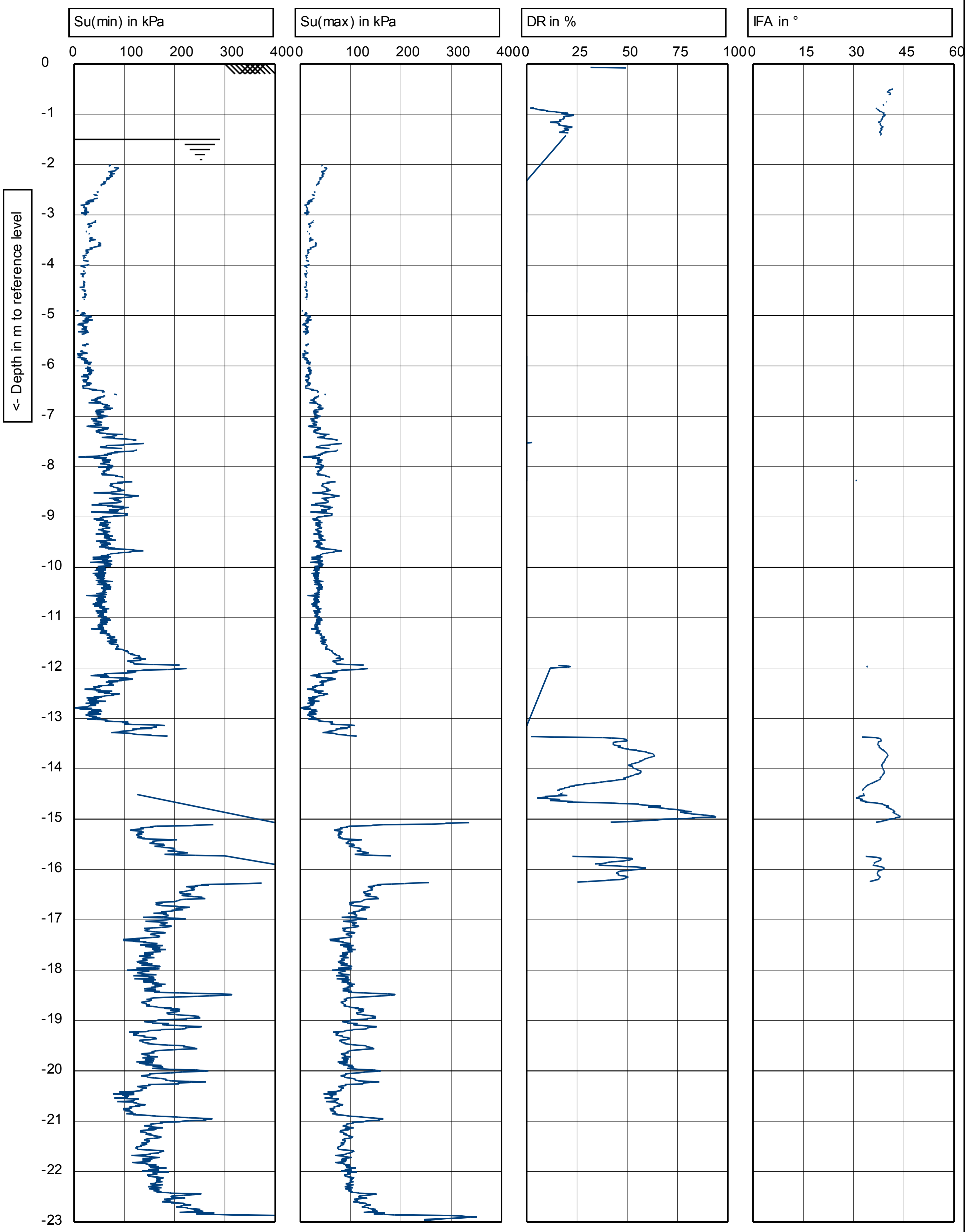
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



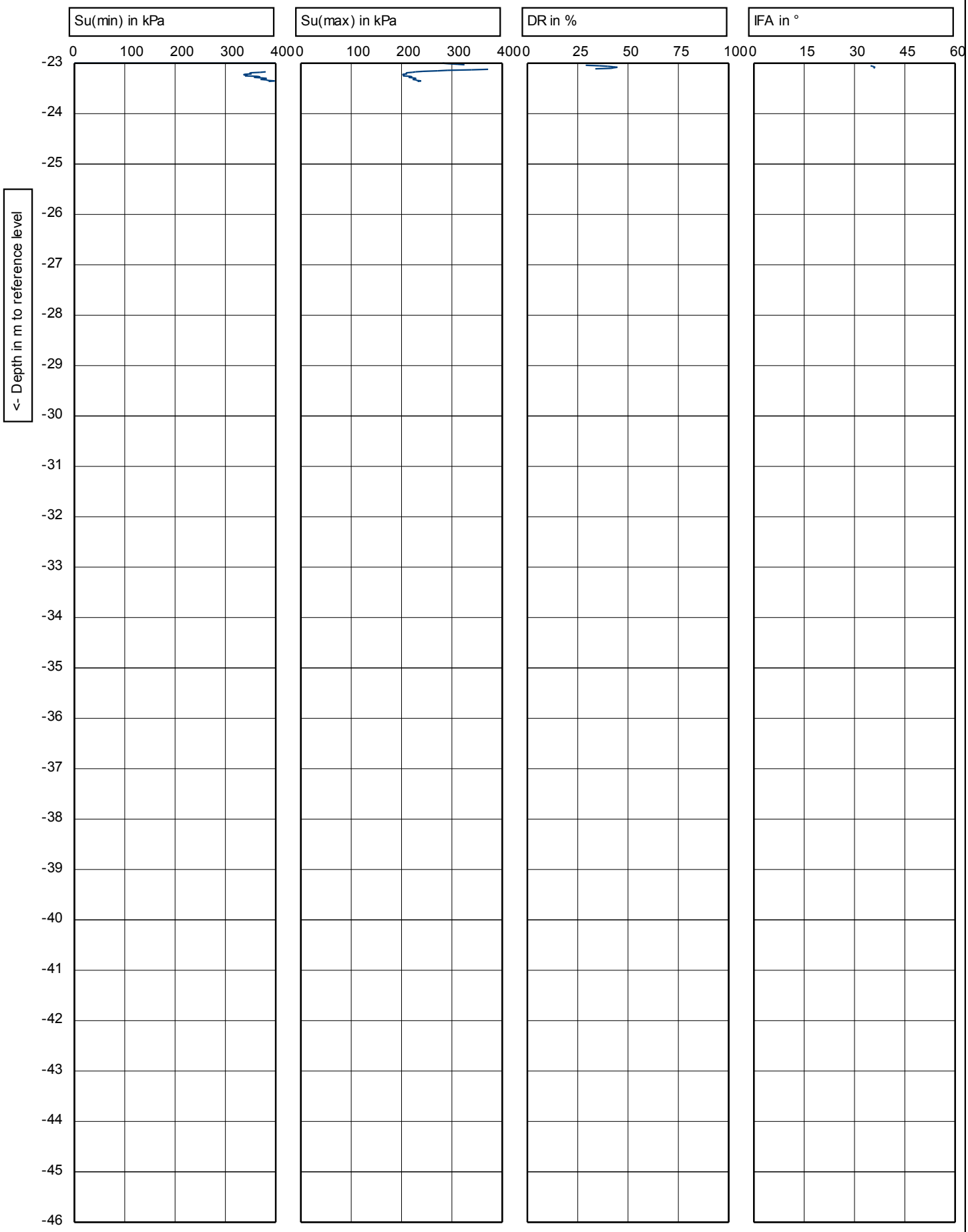
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.5**	Date: **29/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT301** 4/6

CPTask V1.33



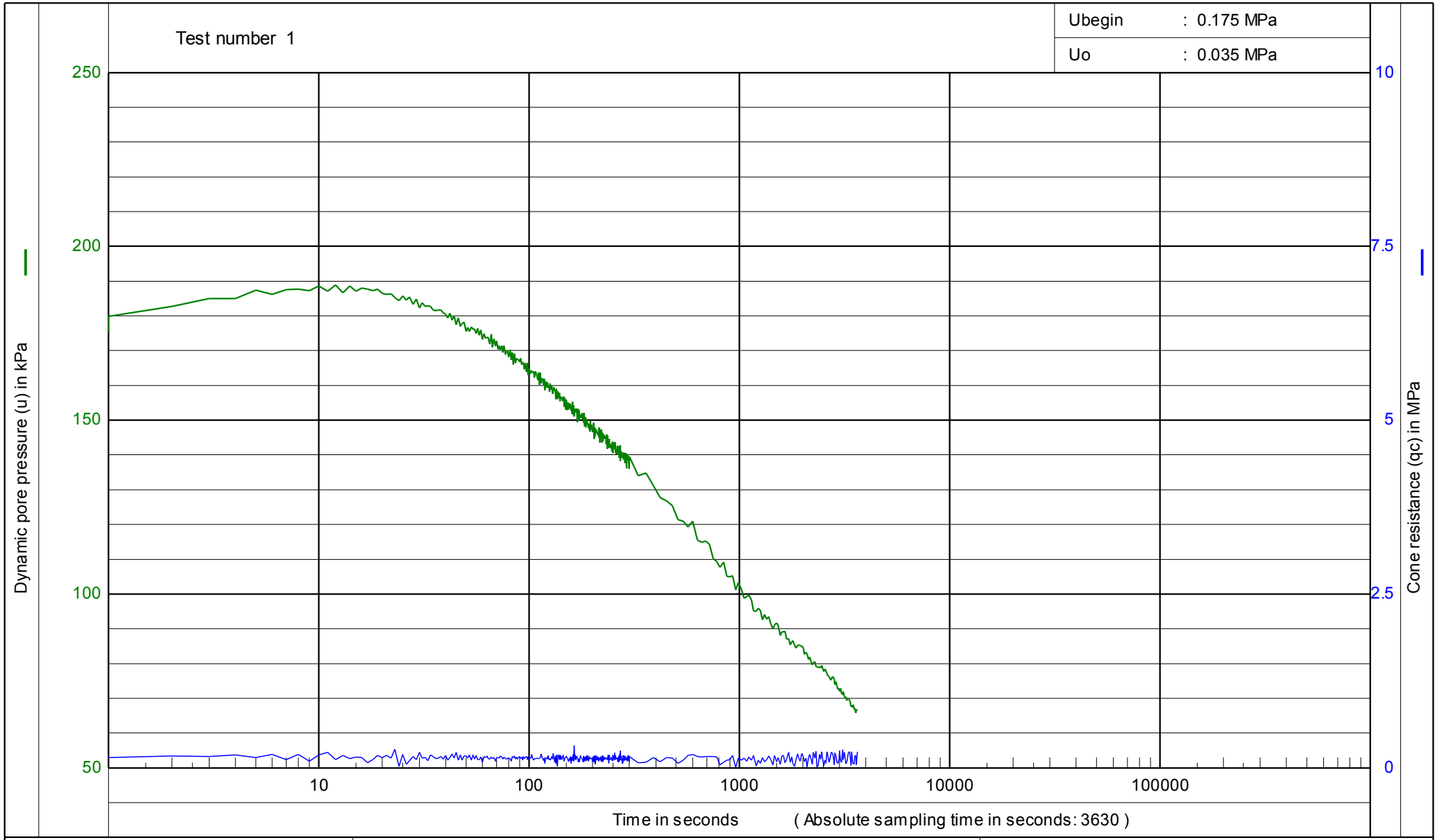
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill :	**0**
	G.L. 0 NAP	W.L.: **-1.5**	Date:	**29/05/2015**
Project:	**A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location:	**Trinity Burial Ground**		Project no.:	**A5049-15**
Position:			CPT no.:	**CPT301** **5/6**

CPTask V1.33

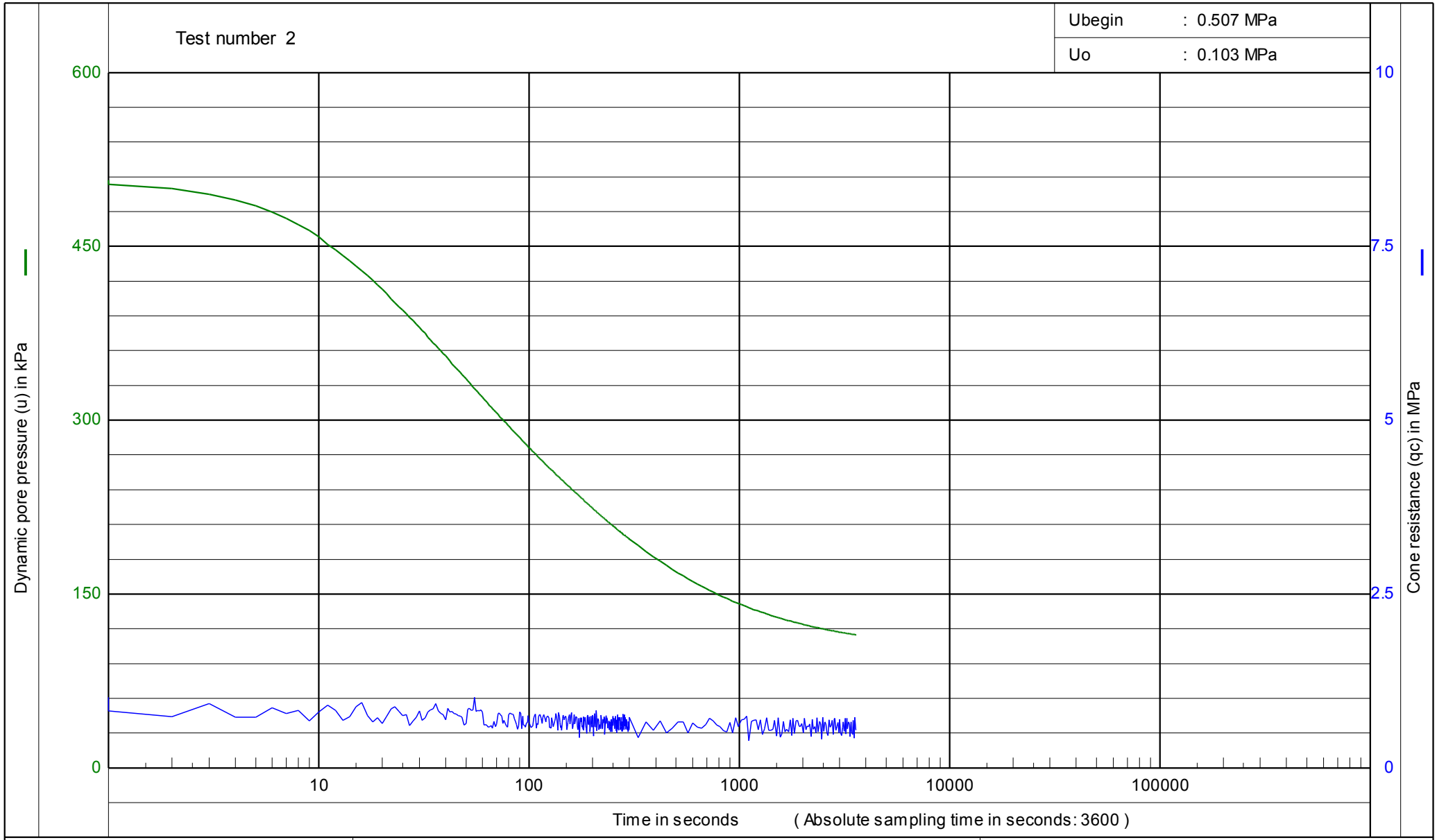


	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-1.5**	Date: **29/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT301** **6/6**

CPTask V1.33



Test Method BS1377 : Part 9 : 1990 :3.1	
Project : A63 Castle Street Improvement	Date : 29/05/2015
Location : Trinity Burial Ground	Project no. : A5049-15
	CPT no. : CPT301
	Test depth : -5 [m] - G.L.
	Water level : -1.5 [m] - G.L.

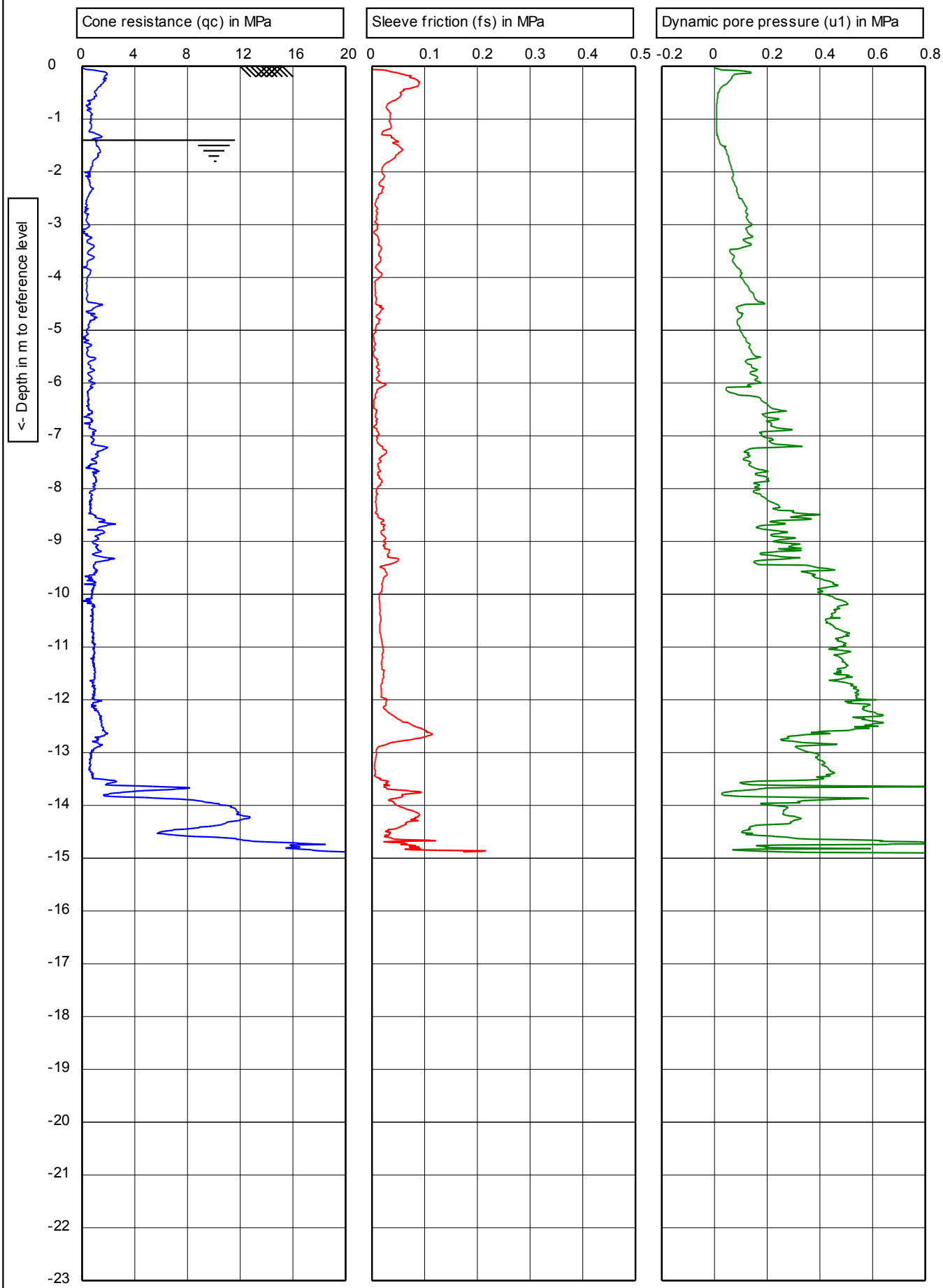


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

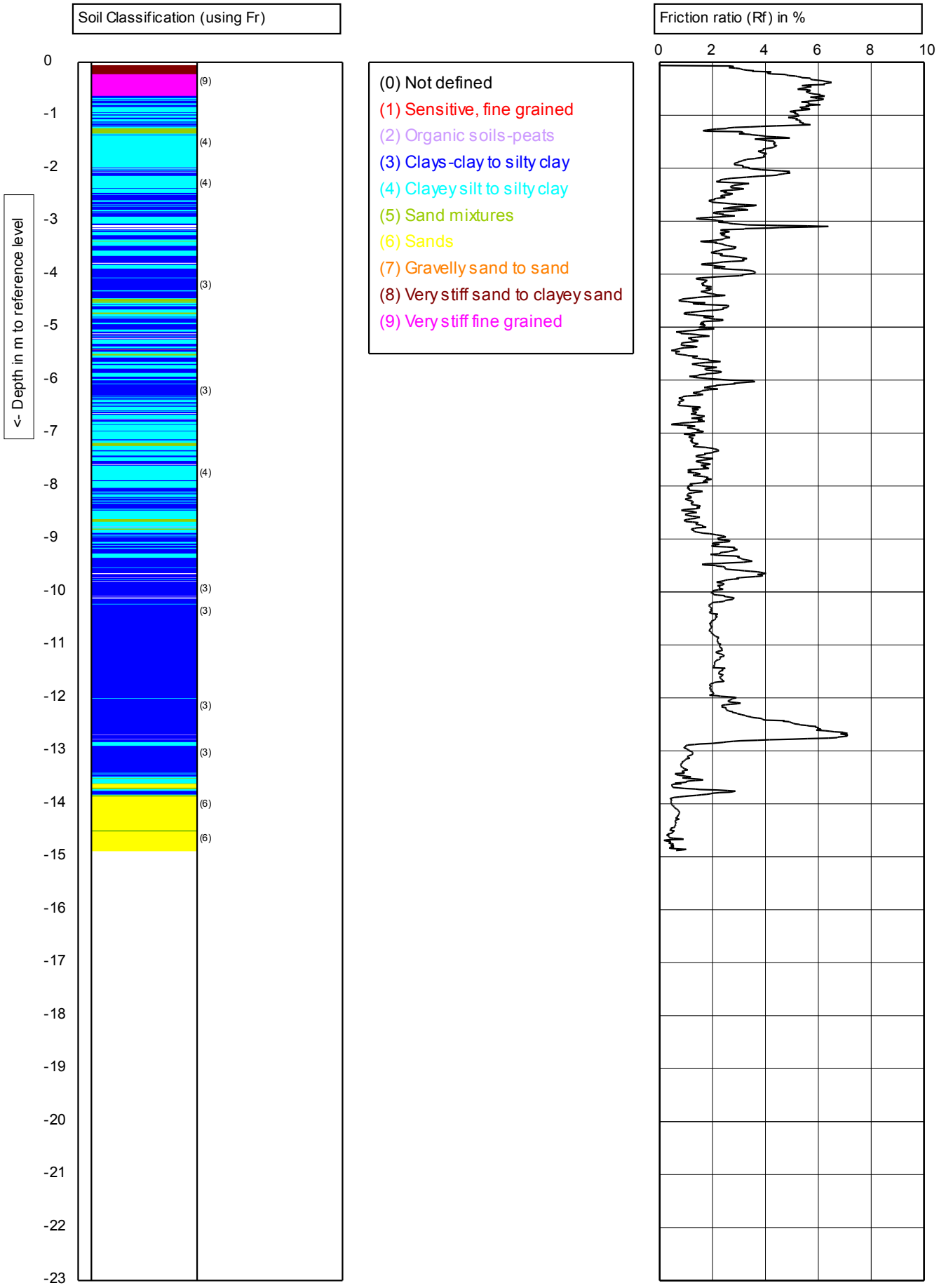
Location : Trinity Burial Ground

Date	:	29/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT301
Test depth	:	-11.81 [m] - G.L.
Water level	:	-1.5 [m] - G.L.



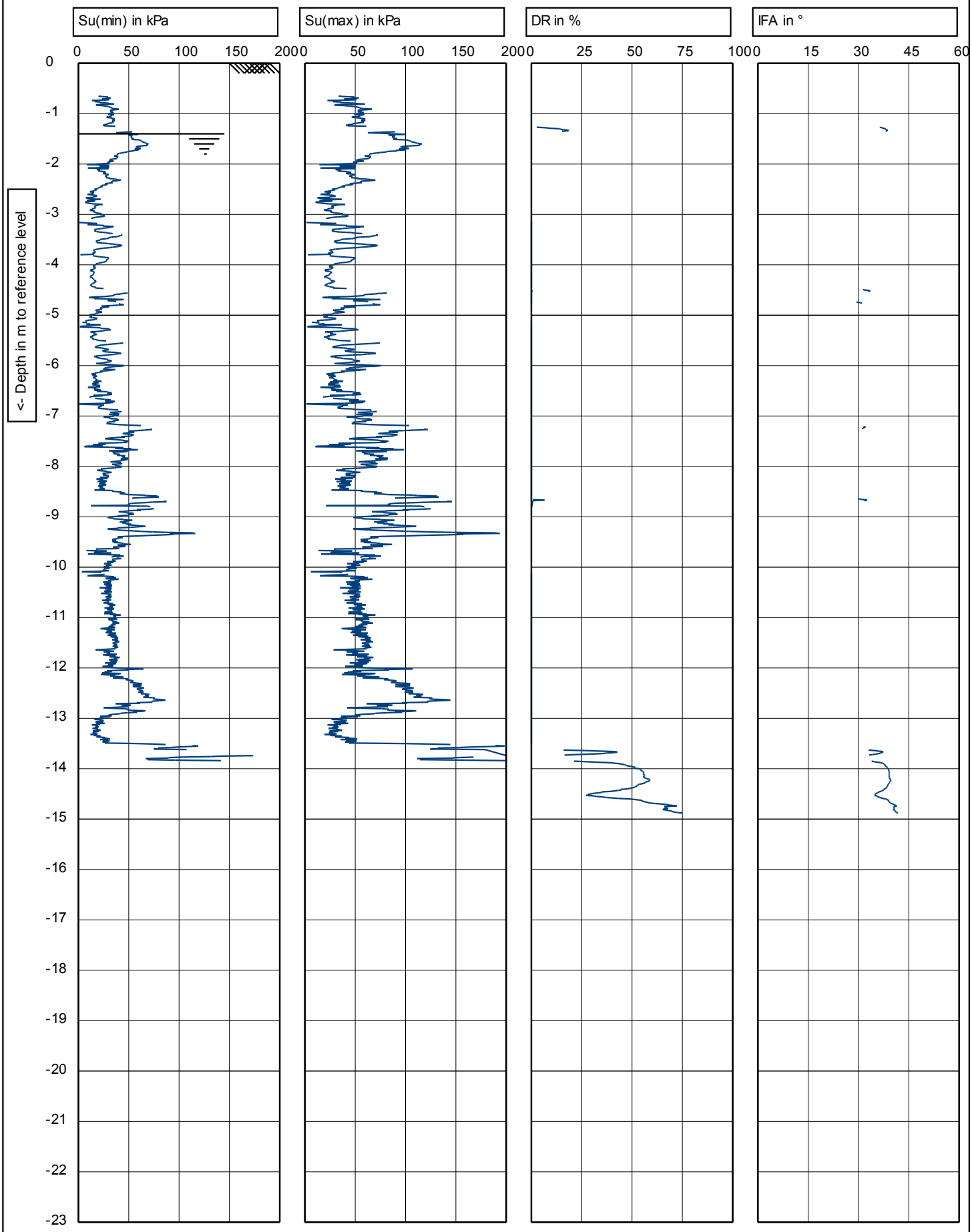
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.4**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT302** **1/3**

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-1.4**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT302** **2/3**

CPTask V1.33

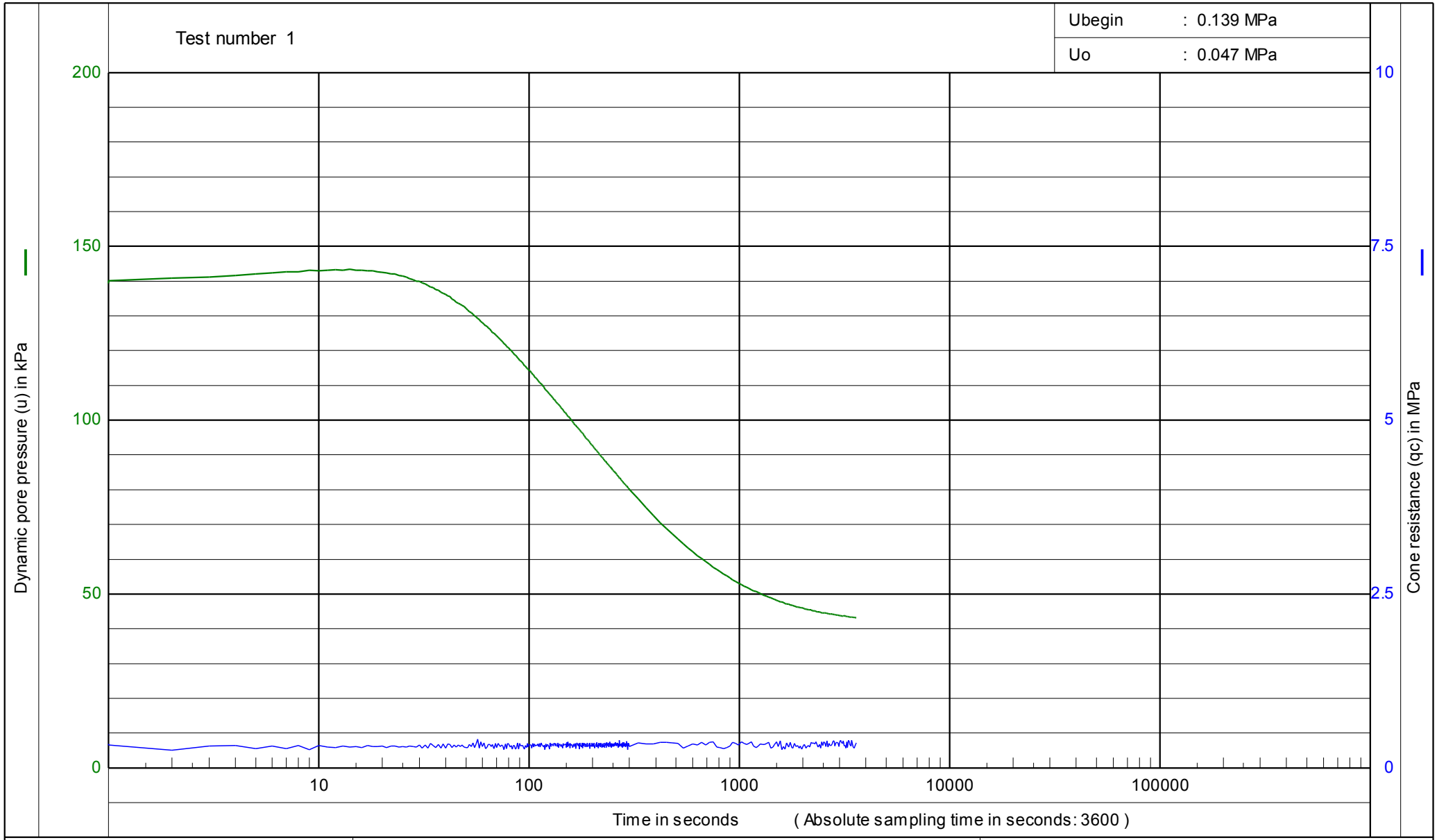


r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.4**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT302** **3/3**

CPTask V1.33

Test number 1

Ubegin	: 0.139 MPa
Uo	: 0.047 MPa

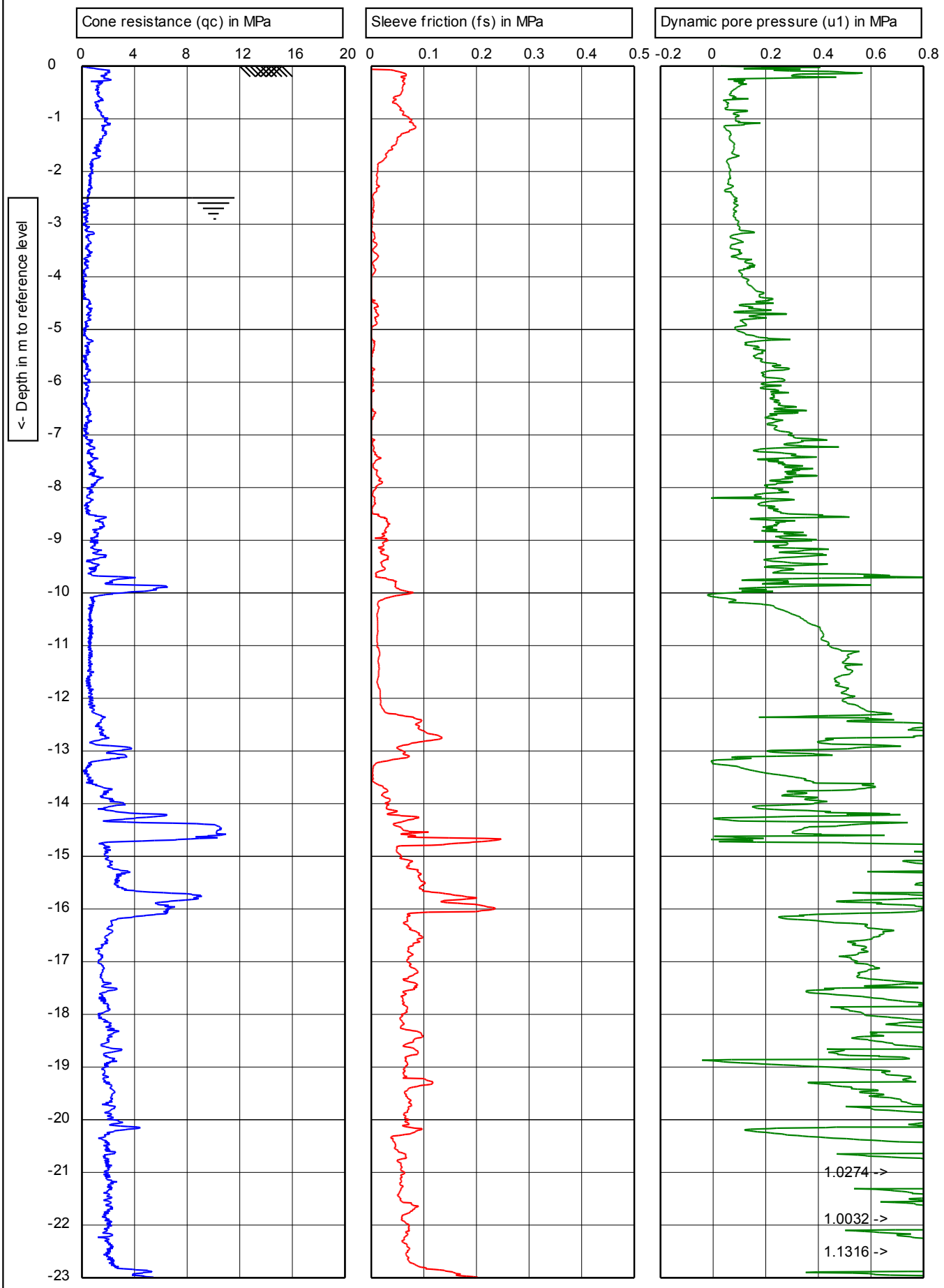


Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement

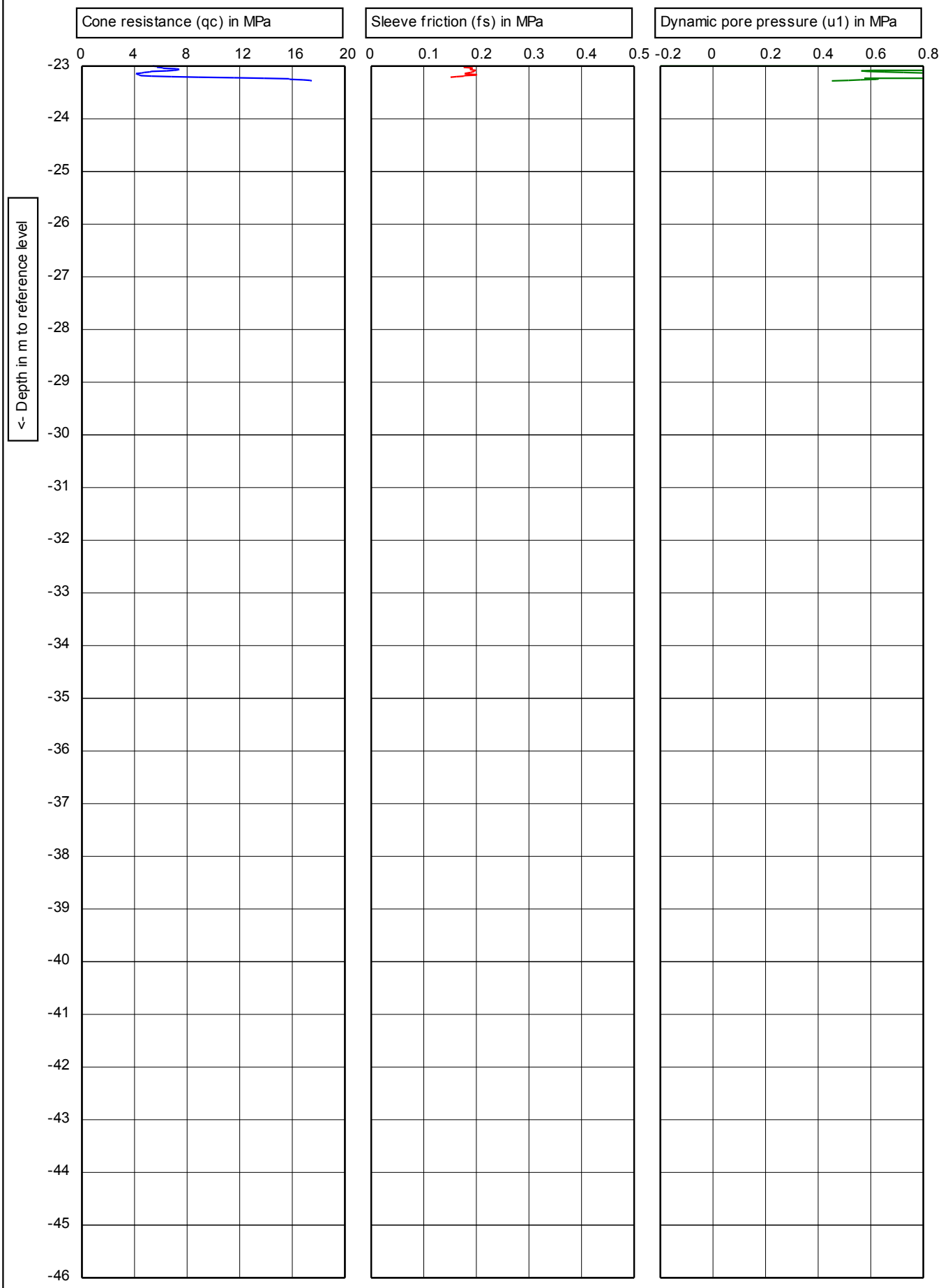
Location : Trinity Burial Ground

Date	: 26/05/2015	
Project no.	: A5049-15	
CPT no.	: CPT302	
Test depth	: -6.07	[m] - G.L.
Water level	: -1.4	[m] - G.L.



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.5**	Date: **08/06/2015**
Project:	**A63 Castle Street Improvement**		Cone no.: **C10CFIP.125**
Location:	**Trinity Burial Ground**		Project no.: **A5049-15**
Position:			CPT no.: **CPT302A** **1/6**

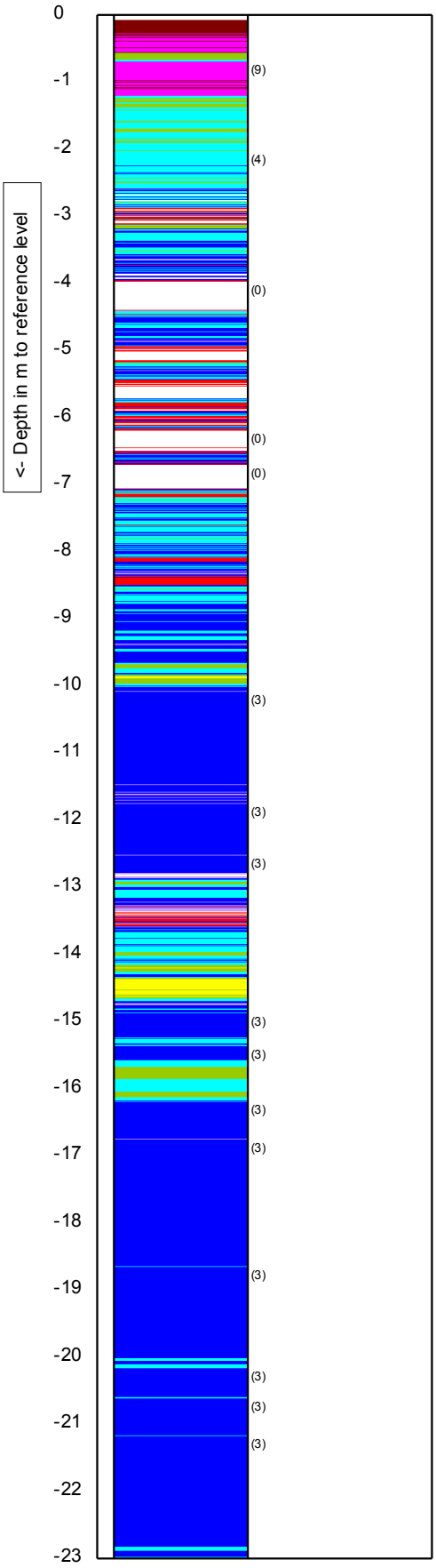
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.5**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT302A** **2/6**

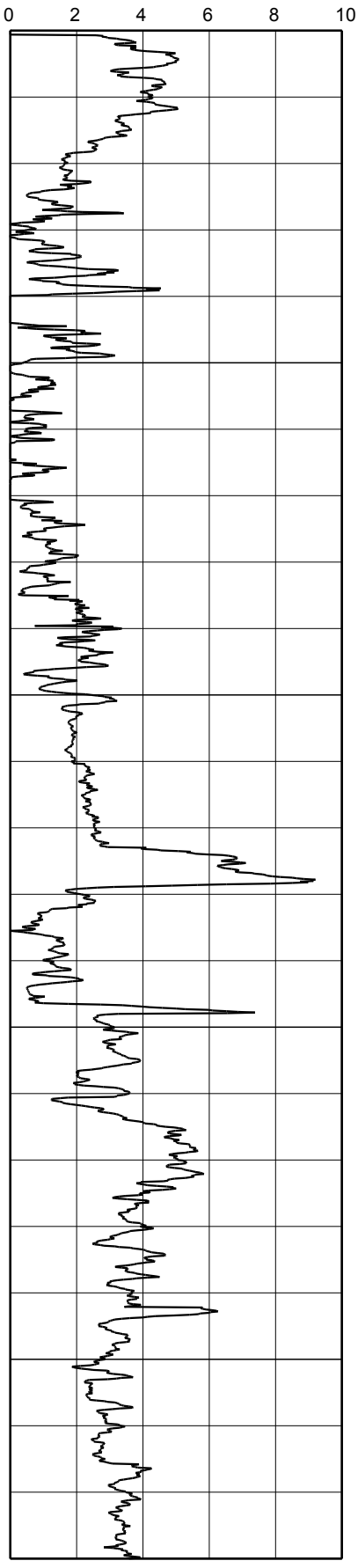
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

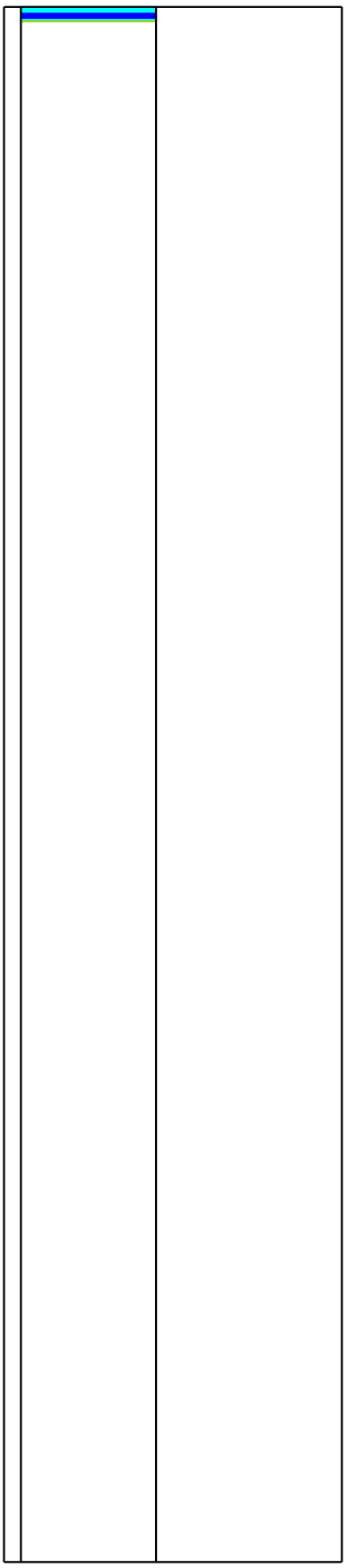
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -2.5	Date: 08/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT302A 3/6

CPTask V1.33

Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
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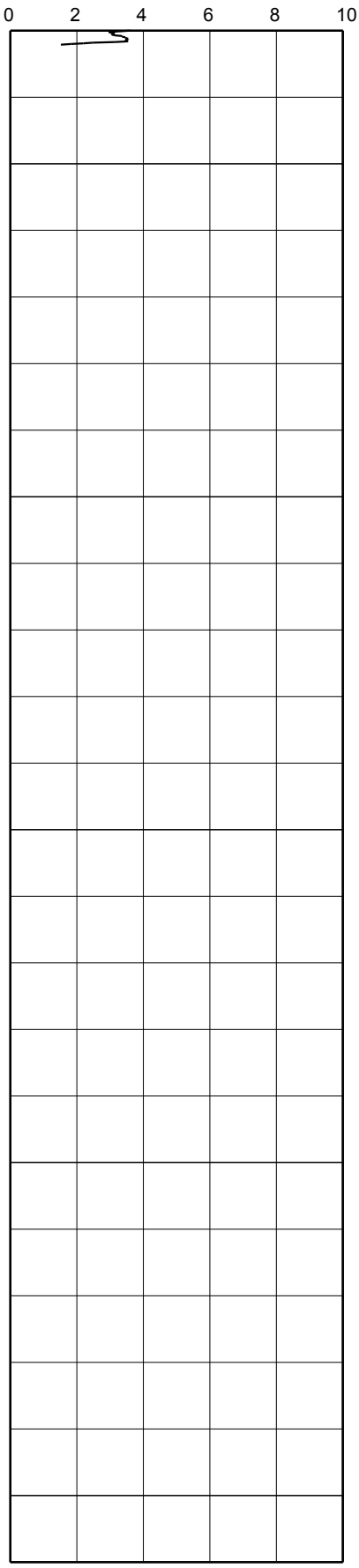
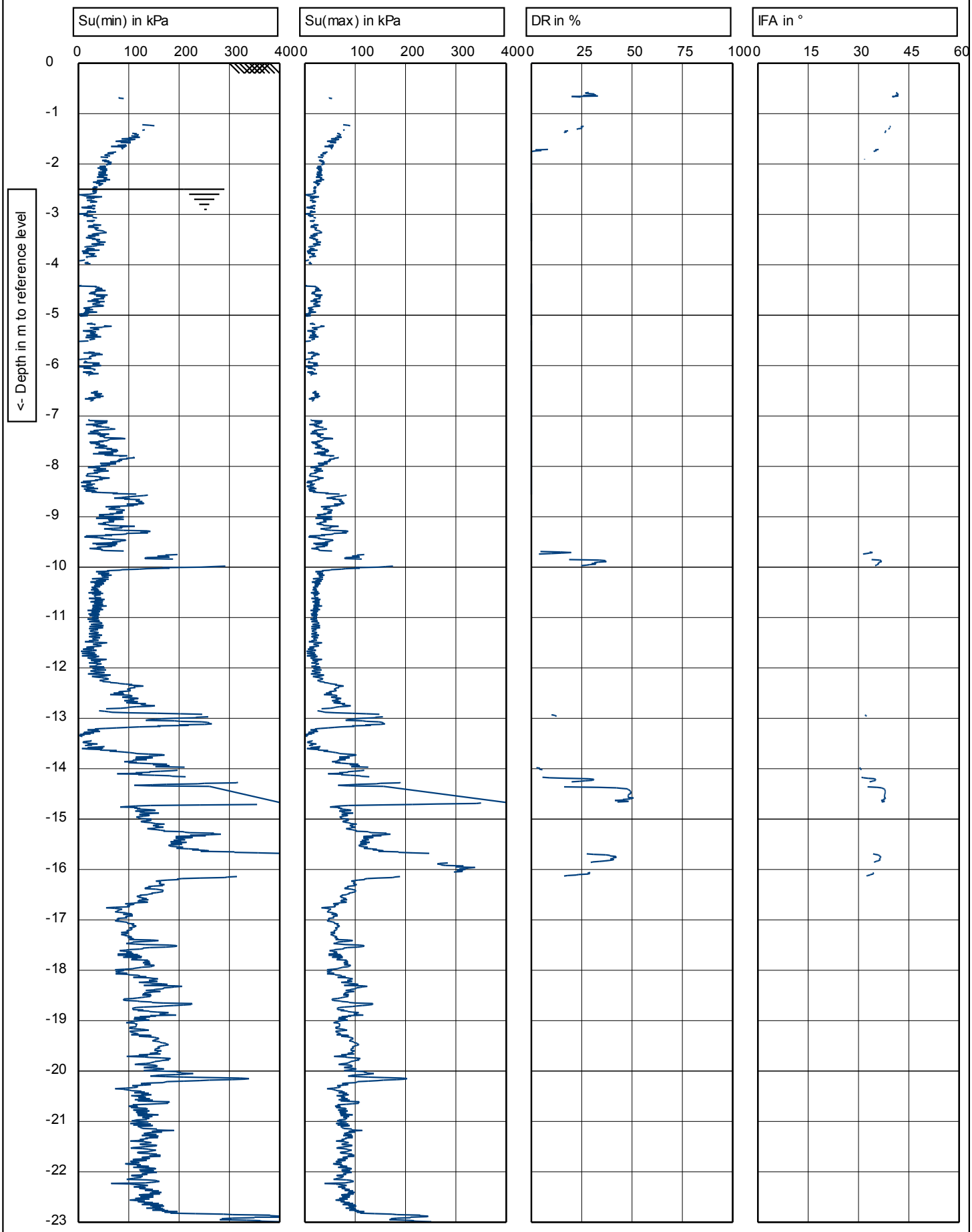
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



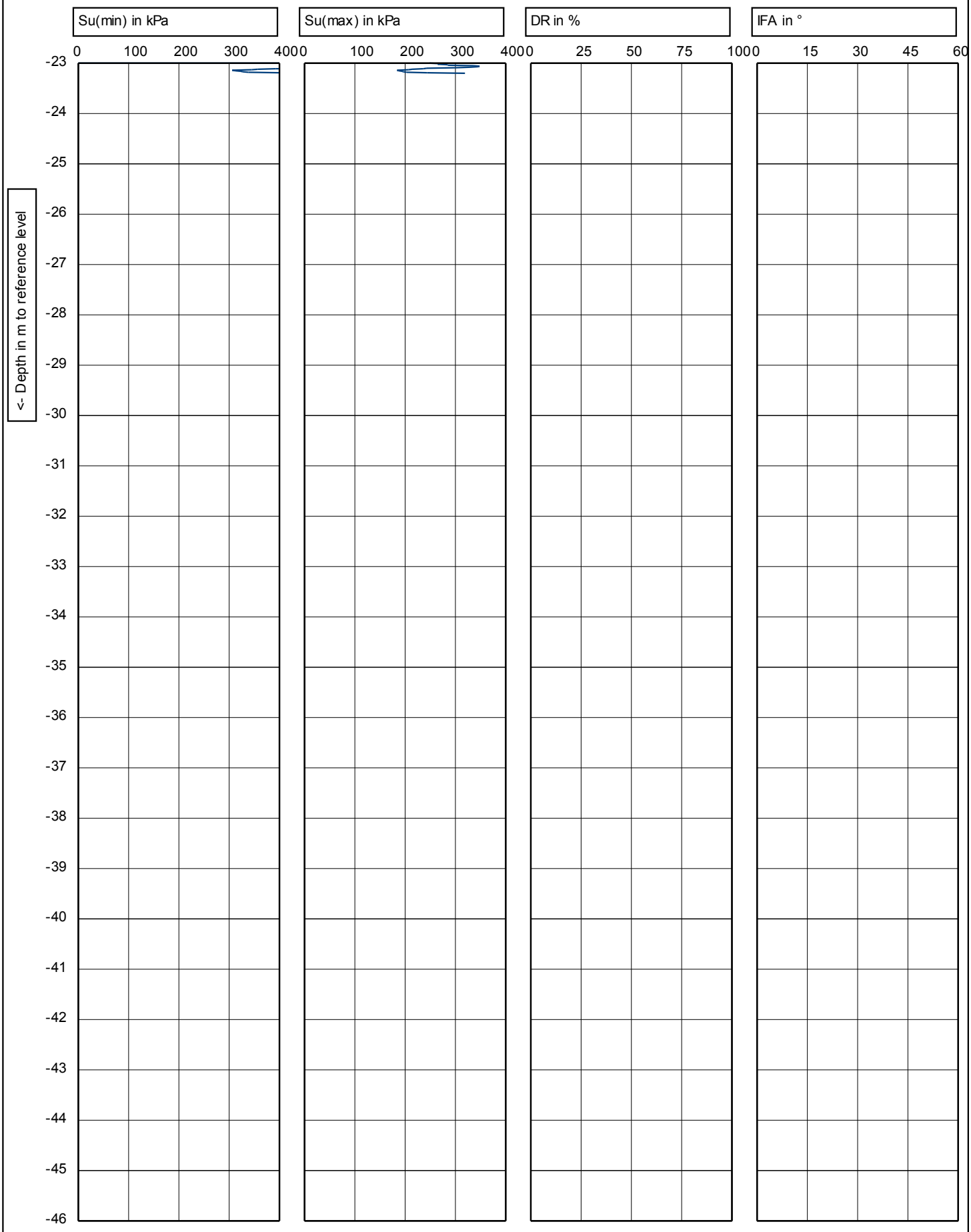
r u1 L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-2.5**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT302A** 4/6

CPTask V1.33



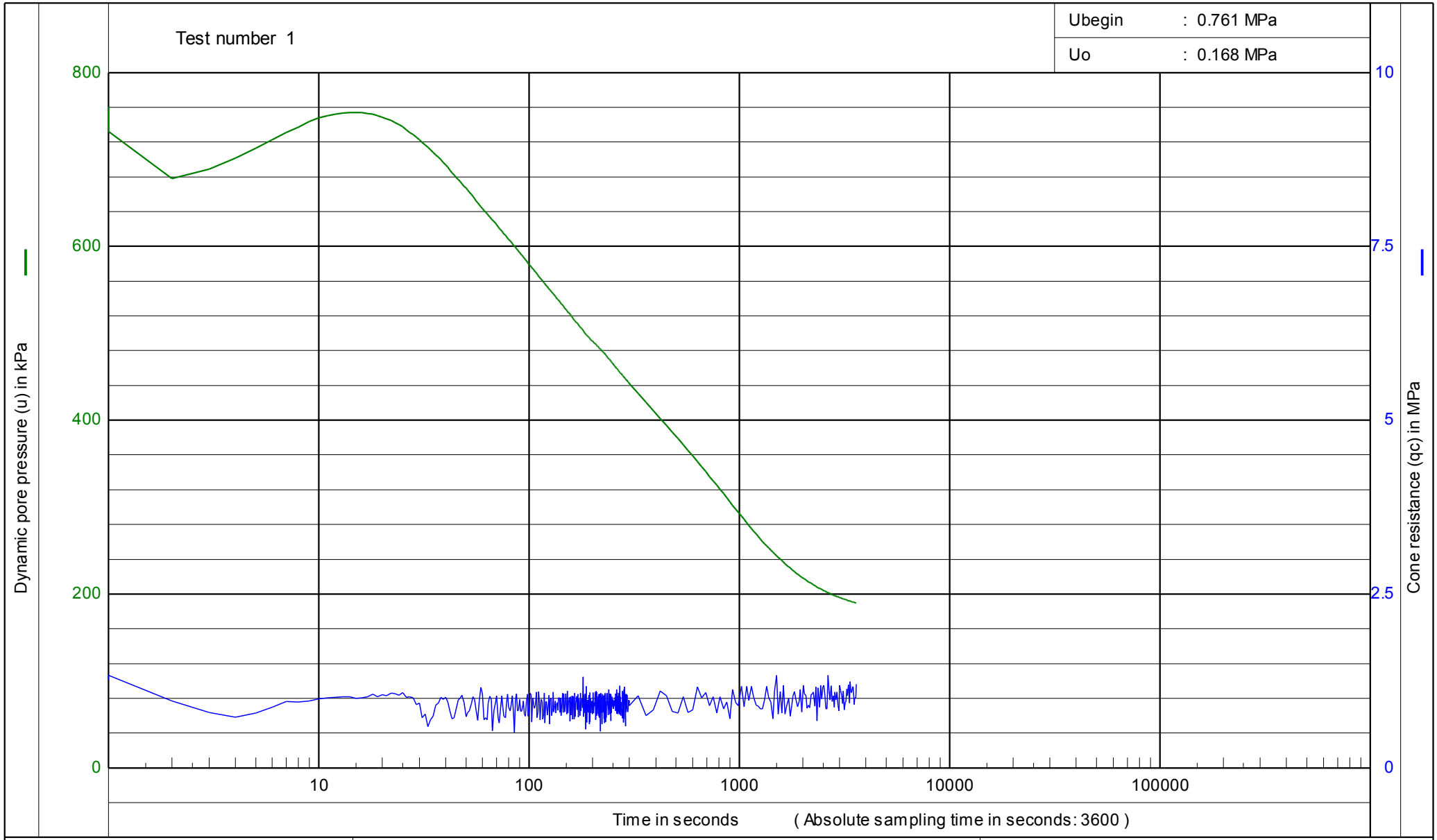
	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-2.5**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT302A** **5/6**

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1	Predrill :	**0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP — W.L.: **-2.5**	Date:	**08/06/2015**
Project: **A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location: **Trinity Burial Ground**		Project no.:	**A5049-15**
Position:		CPT no.:	**CPT302A** **6/6**

CPTask V1.33

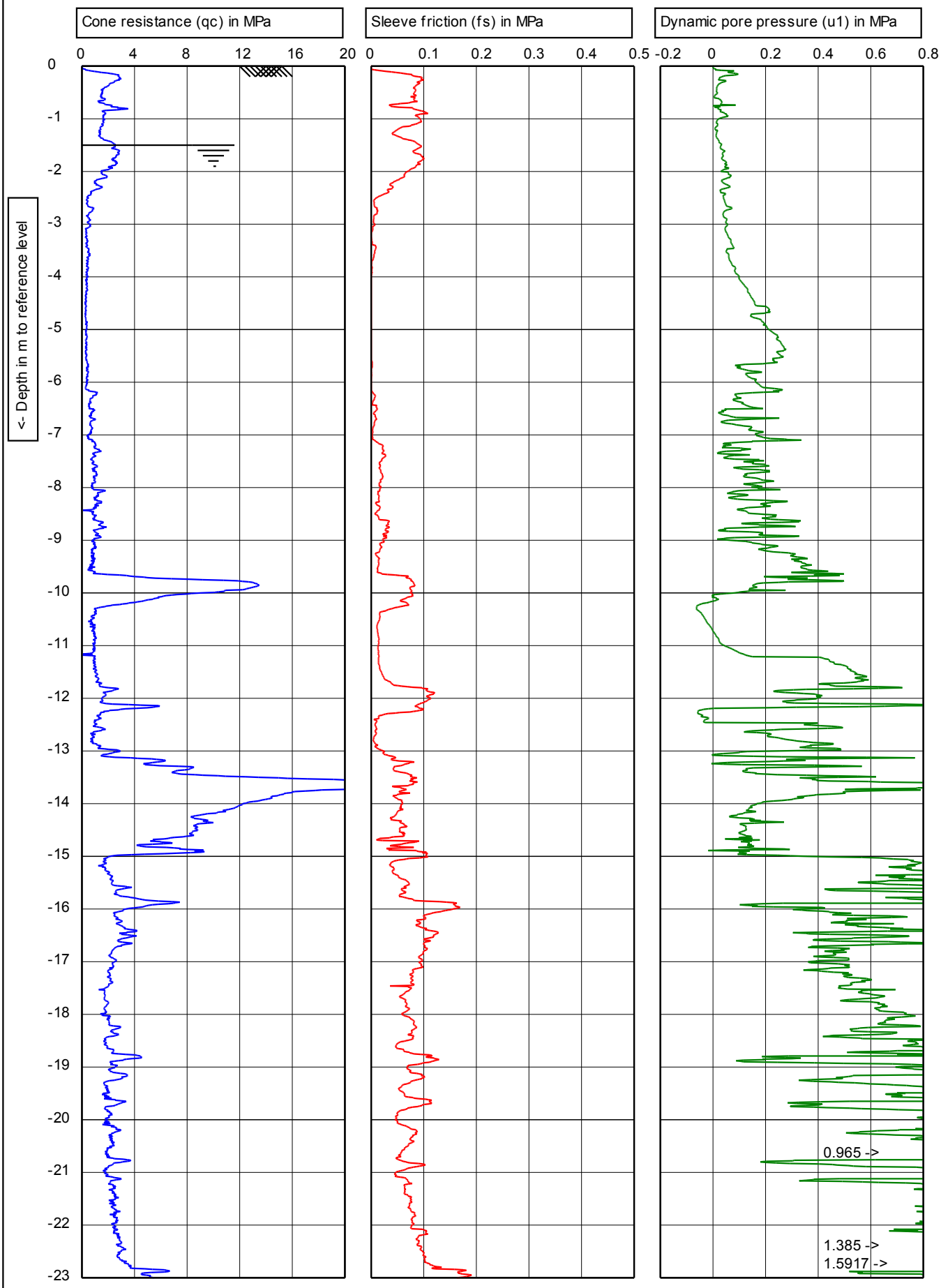


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

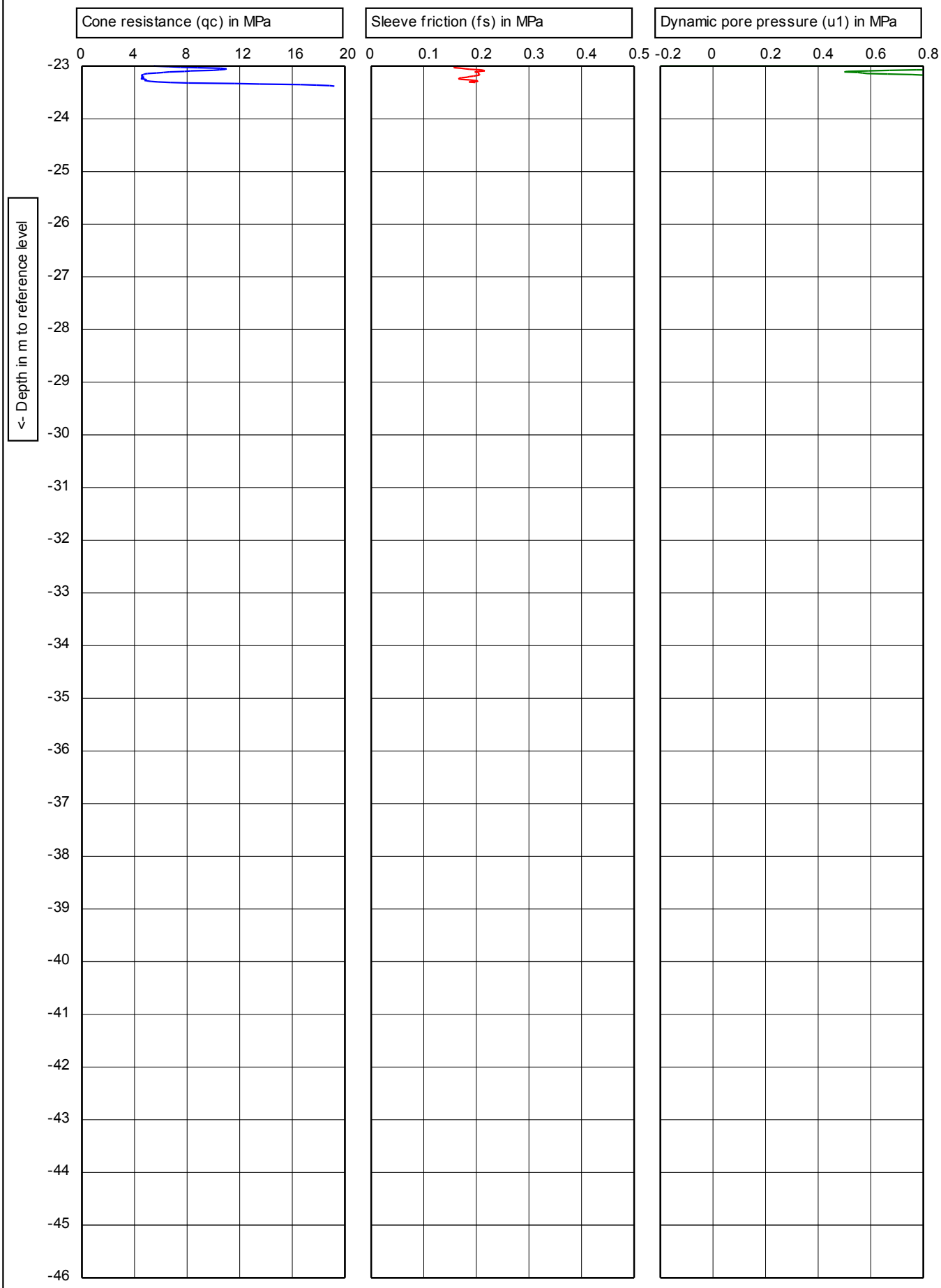
Location : Trinity Burial Ground

Date	:	08/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT302A
Test depth	:	-19.28 [m] - G.L.
Water level	:	-2.5 [m] - G.L.



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.5**	Date: **02/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT303** **1/6**

CPTask V1.33



u1
150 cm²
10 cm²

Test Method BS1377 : Part 9 : 1990 :3.1

G.L. 0 NAP | W.L.: **-1.5**

Project: **A63 Castle Street Improvement**

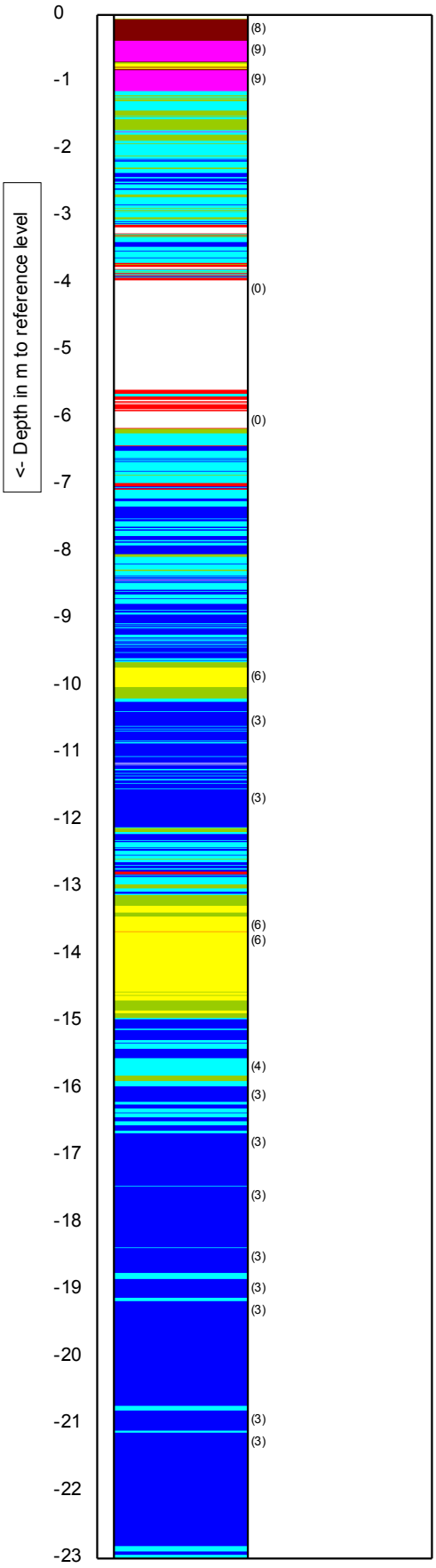
Location: **Trinity Burial Ground**

Position:

Predrill :	**0**
Date:	**02/06/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5049-15**
CPT no.:	**CPT303** **2/6**

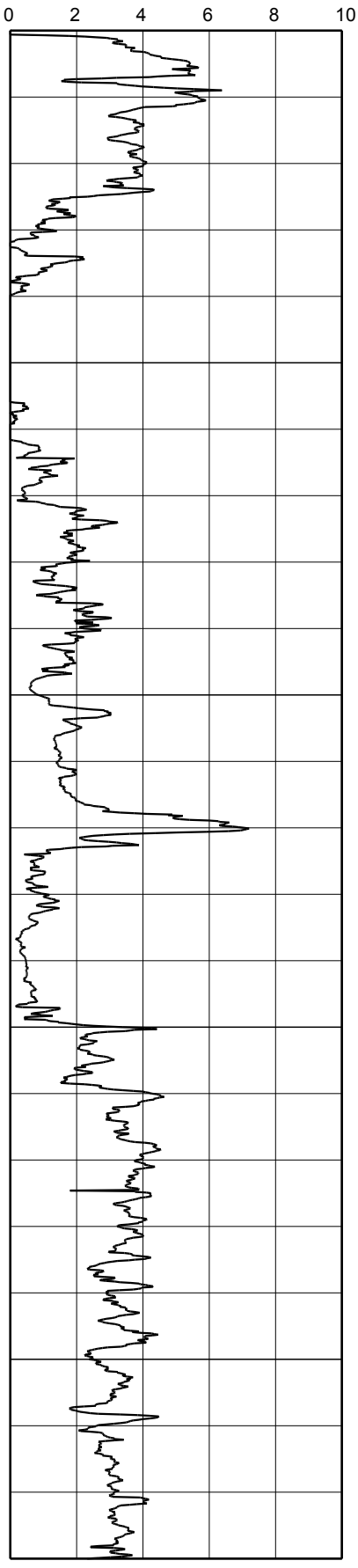
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

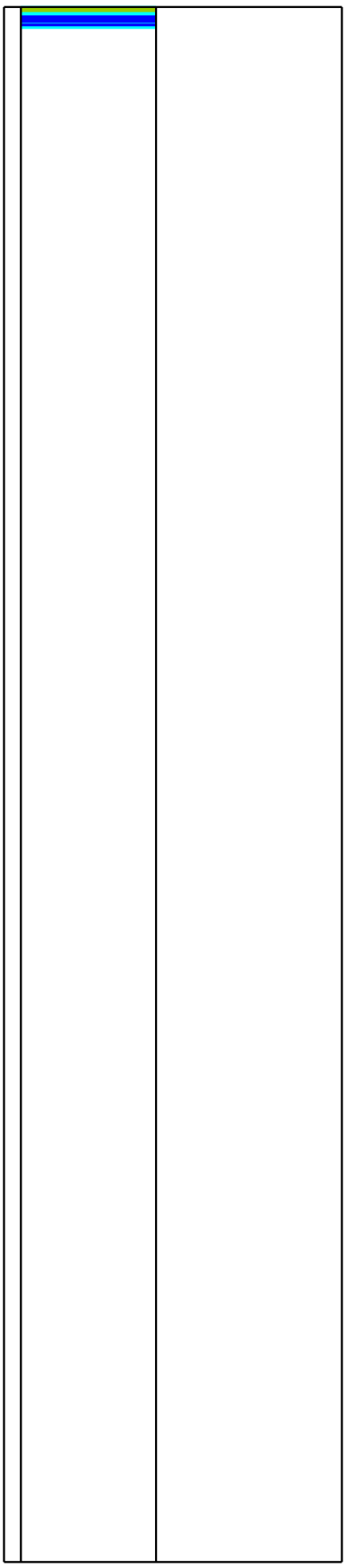
Friction ratio (Rf) in %



r u1 L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.5**	Date: **02/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT303** 3/6

CPTask V1.33

Soil Classification (using Fr)



<- Depth in m to reference level

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(6) Sands
(7) Gravelly sand to sand
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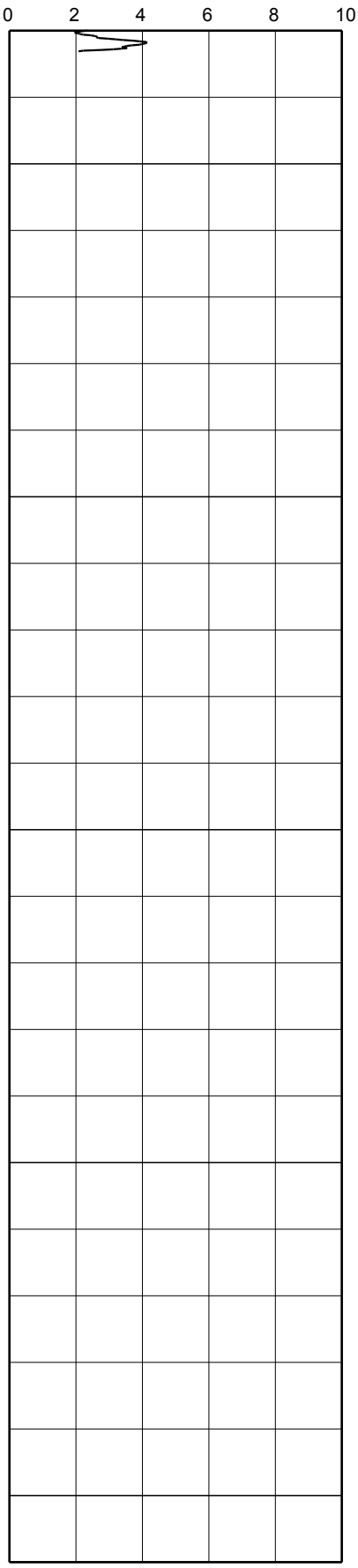
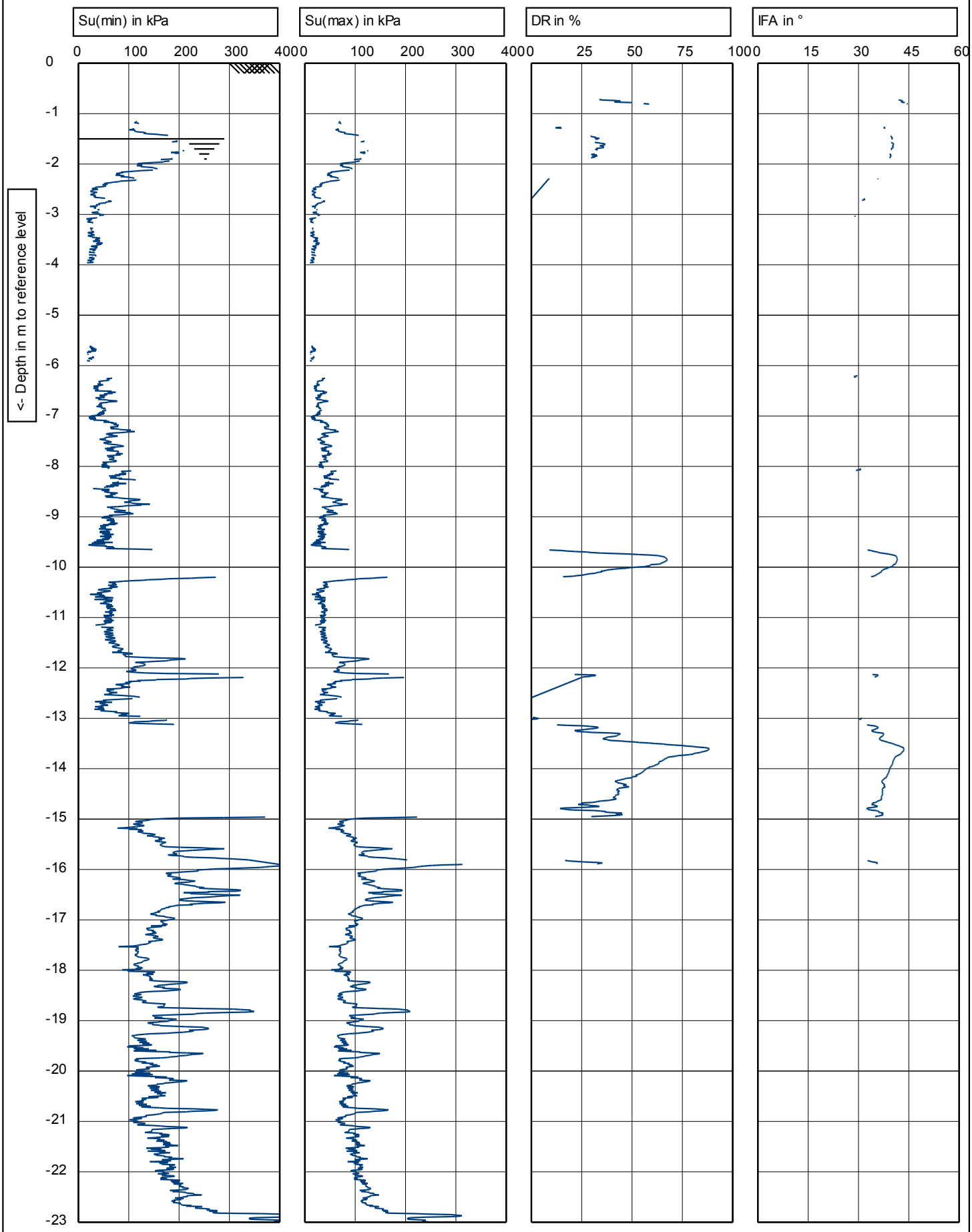
Friction ratio (Rf) in %



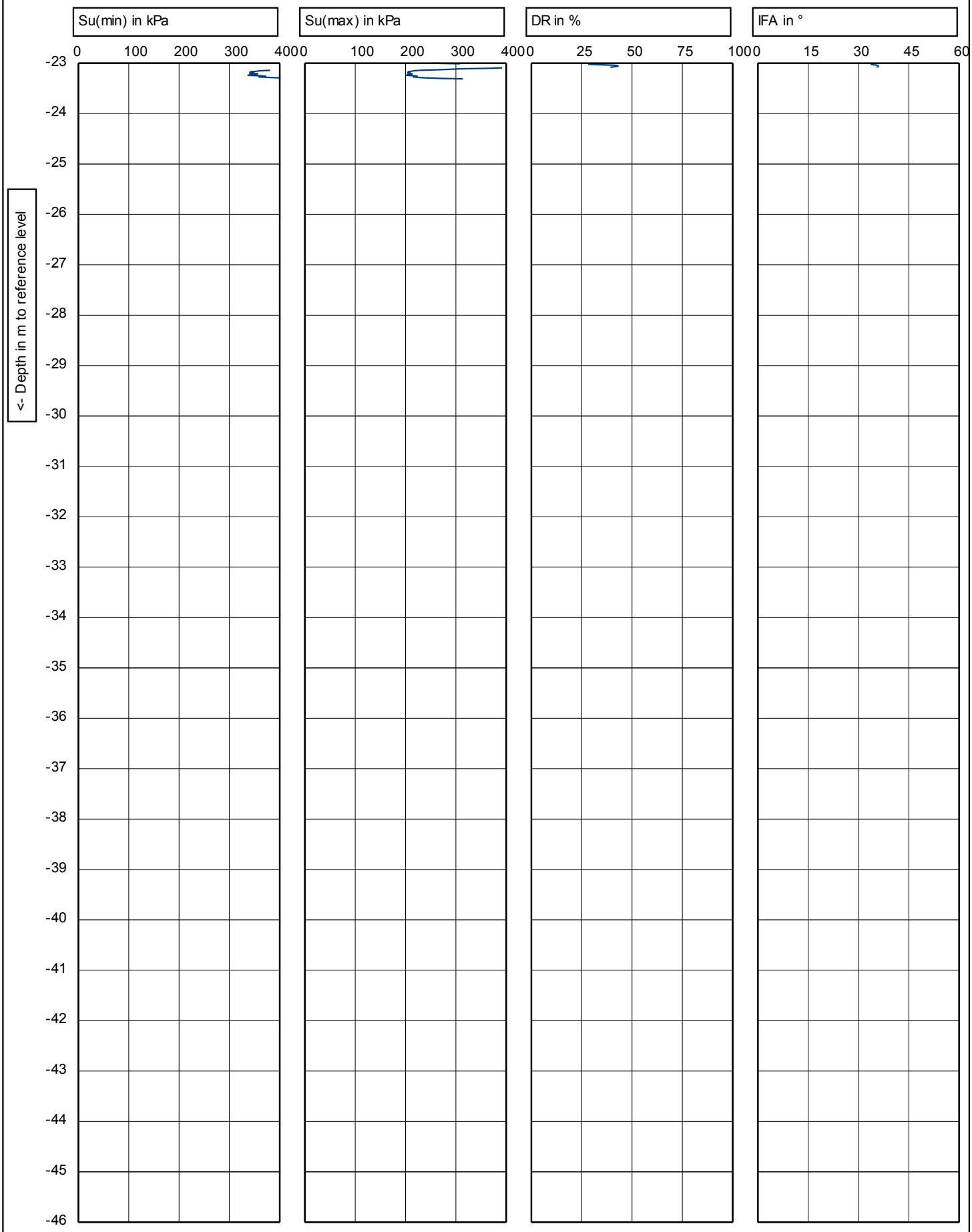
r u1 / L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.5**	Date: **02/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT303** 4/6

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-1.5**	Date: **02/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT303** **5/6**

CPTask V1.33

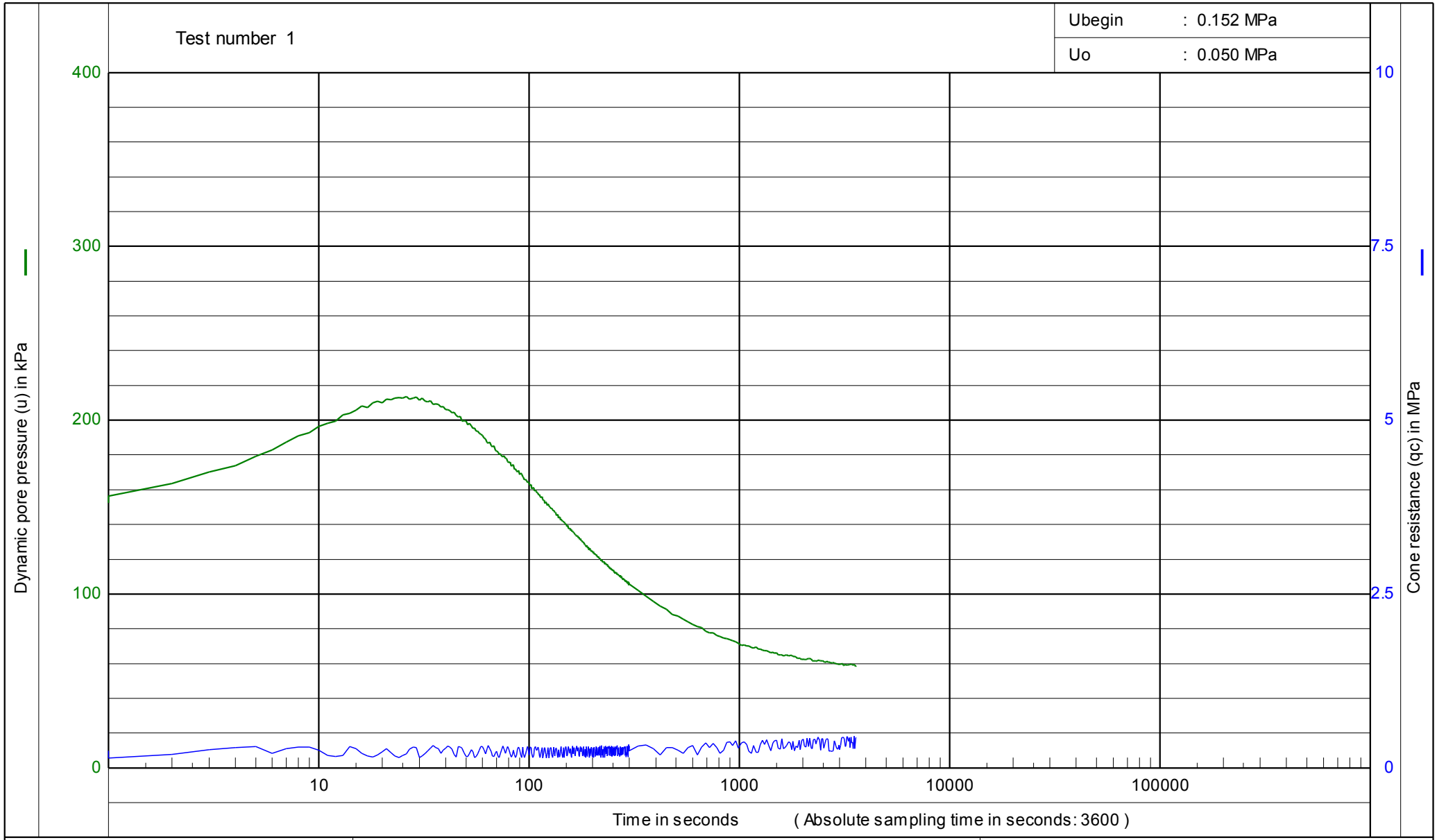


	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-1.5**	Date: **02/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT303** **6/6**

CPTask V1.33

Test number 1

Ubegin	: 0.152 MPa
Uo	: 0.050 MPa



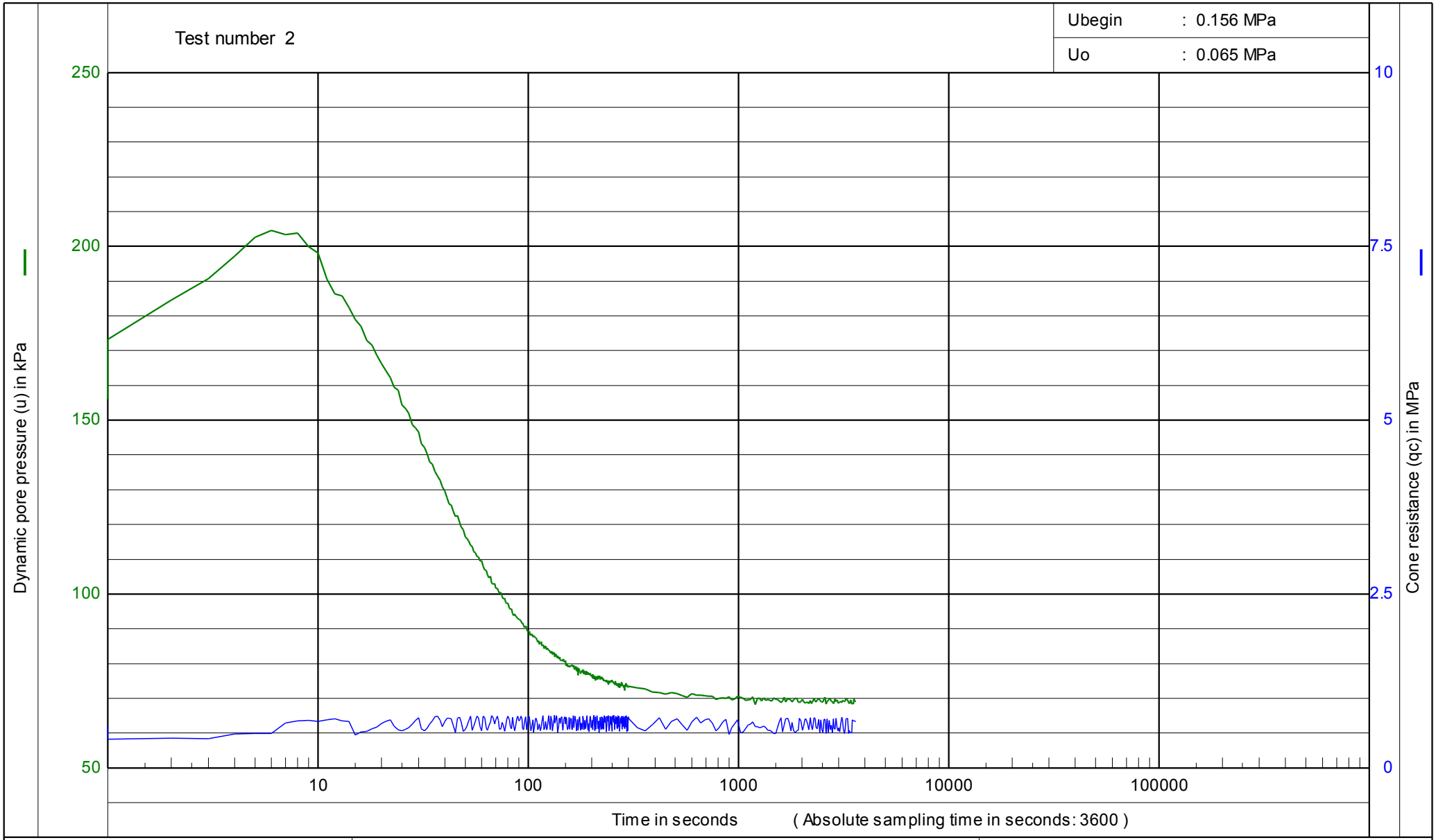
Test Method BS1377 : Part 9 : 1990 :3.1

Project	: A63 Castle Street Improvement
Location	: Trinity Burial Ground

Date	: 02/06/2015	
Project no.	: A5049-15	
CPT no.	: CPT303	
Test depth	: -6.5	[m] - G.L.
Water level	: -1.5	[m] - G.L.

Test number 2

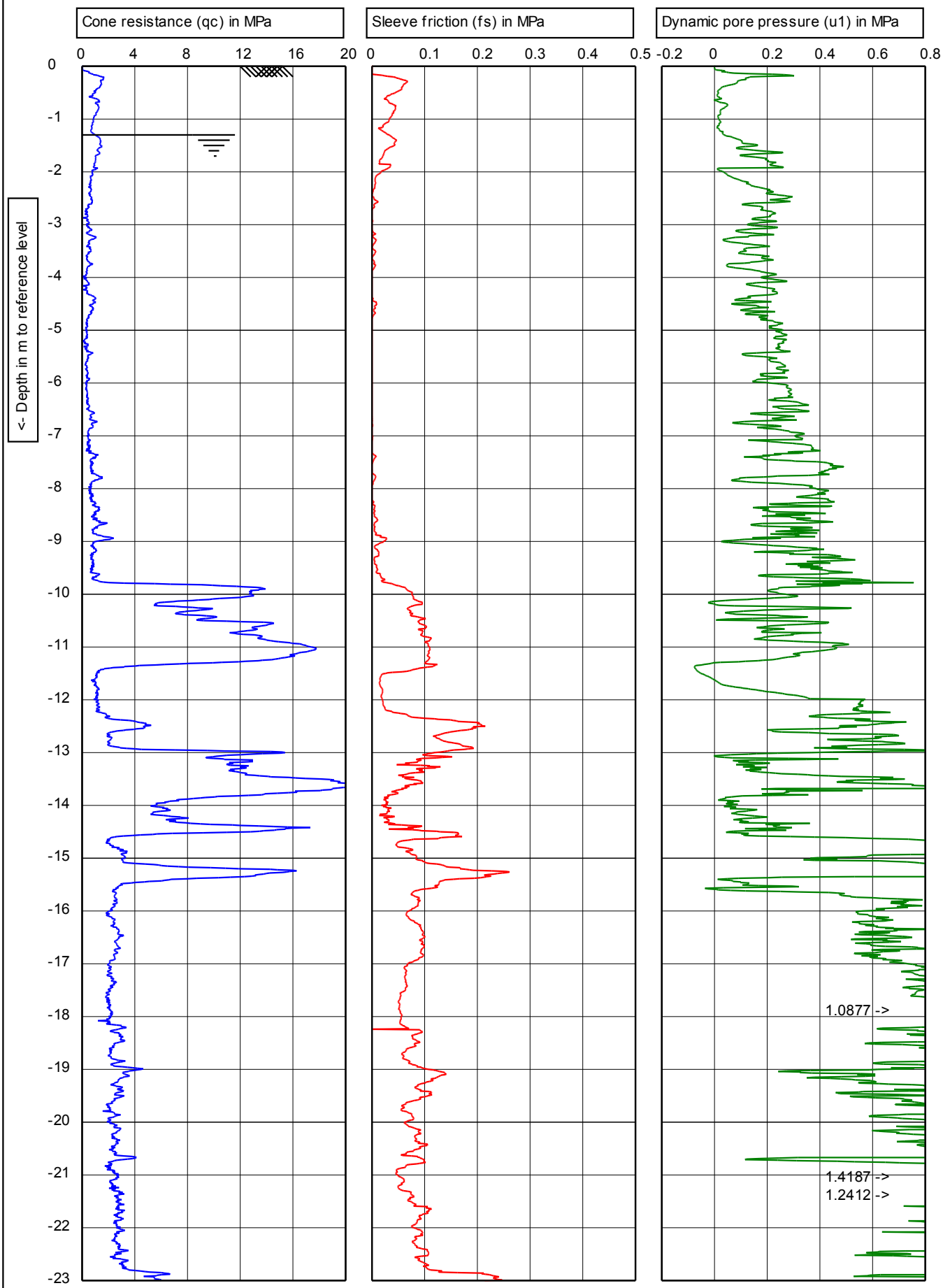
Ubegin	: 0.156 MPa
Uo	: 0.065 MPa



Test Method BS1377 : Part 9 : 1990 :3.1

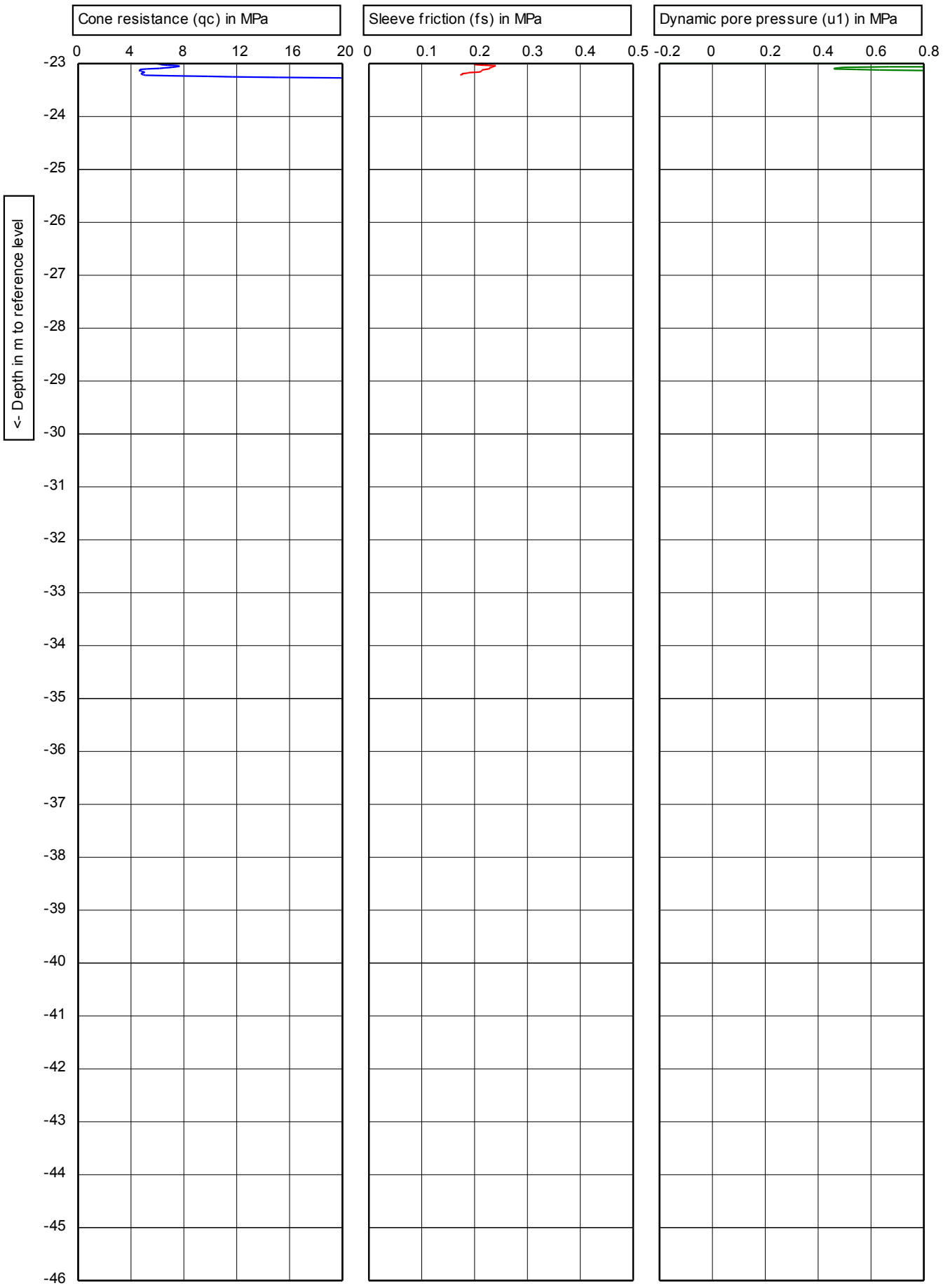
Project	: A63 Castle Street Improvement
Location	: Trinity Burial Ground

Date	: 02/06/2015	
Project no.	: A5049-15	
CPT no.	: CPT303	
Test depth	: -8.04	[m] - G.L.
Water level	: -1.5	[m] - G.L.



u1 / 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT304** **1/6**

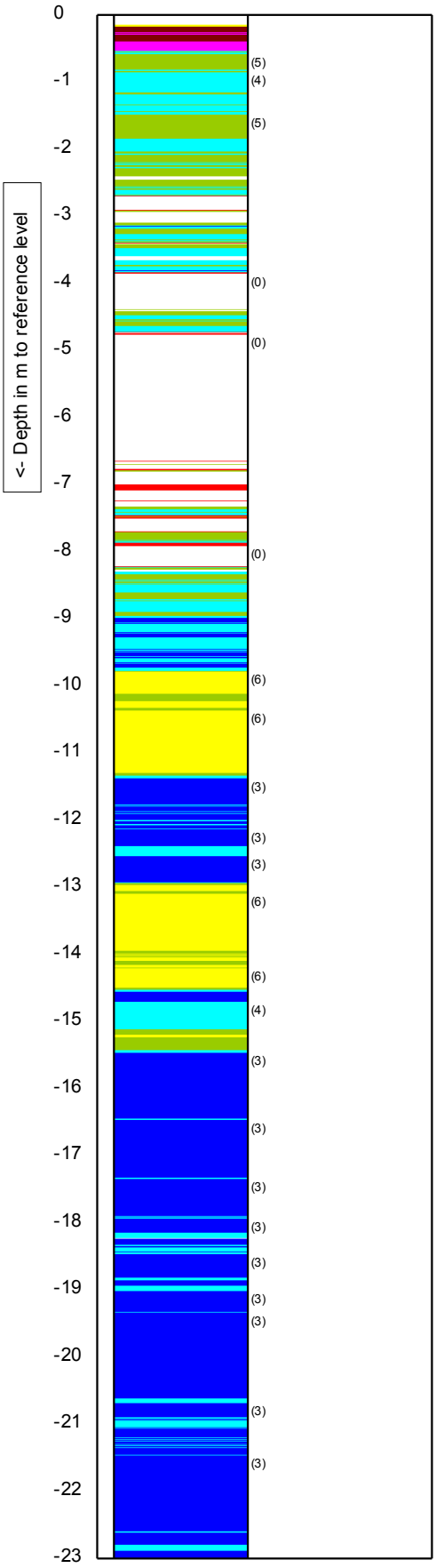
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT304** **2/6**

CPTask V1.33

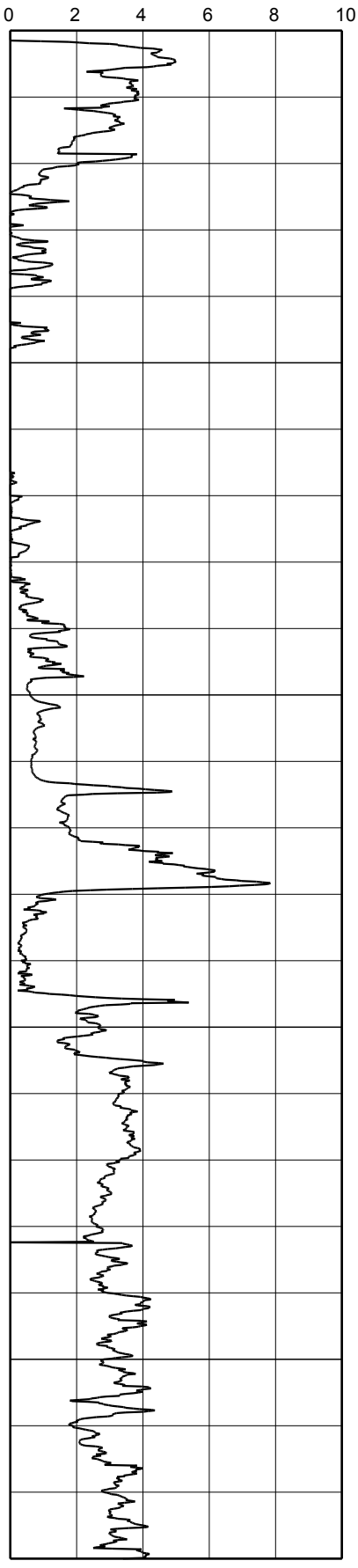
Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

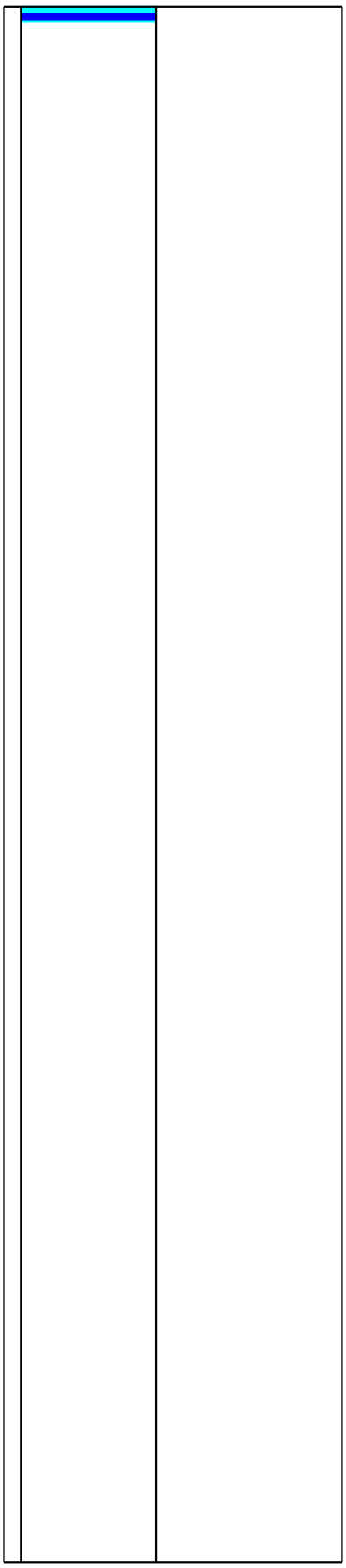
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.3	Date: 03/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT304 3/6

CPTask V1.33

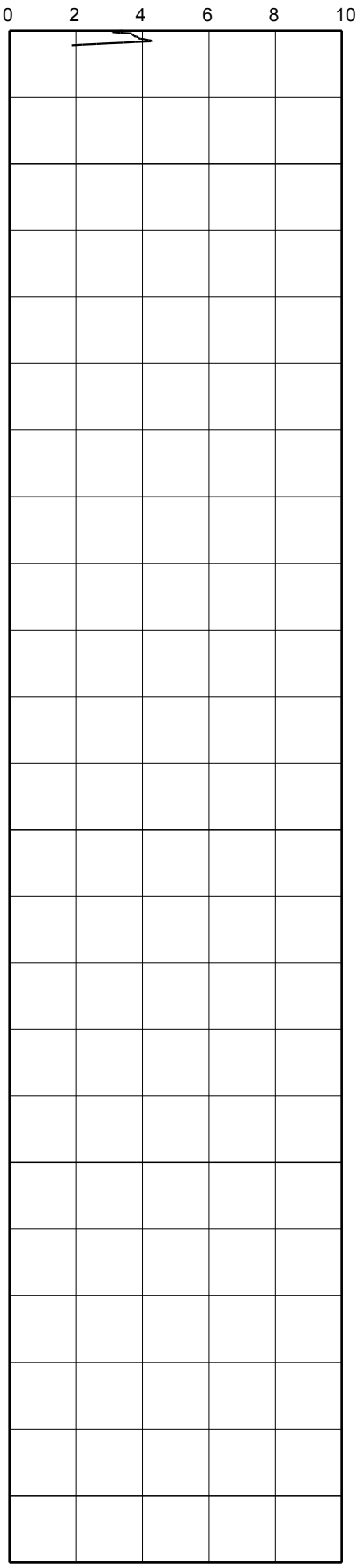
Soil Classification (using Fr)



<- Depth in m to reference level

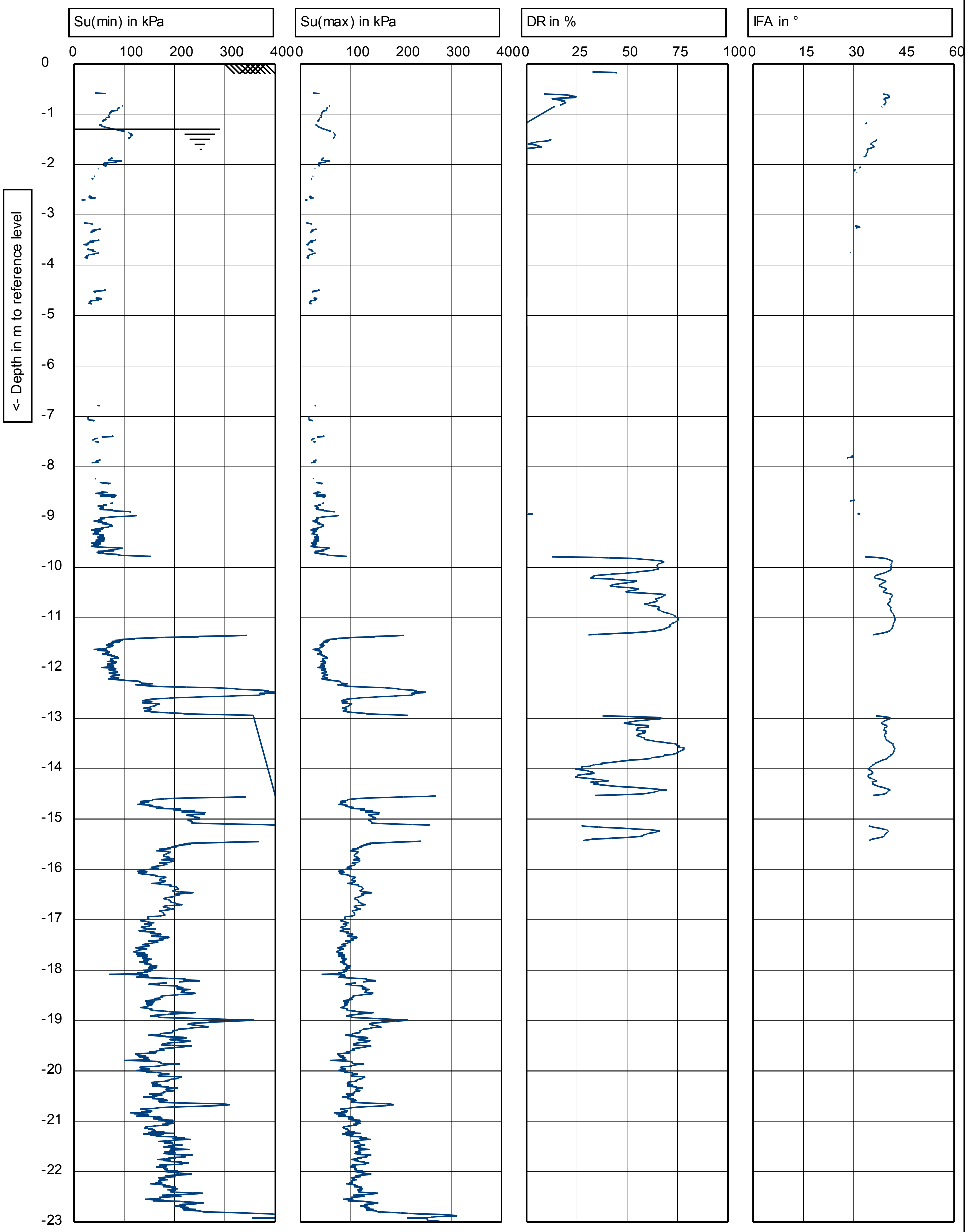
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



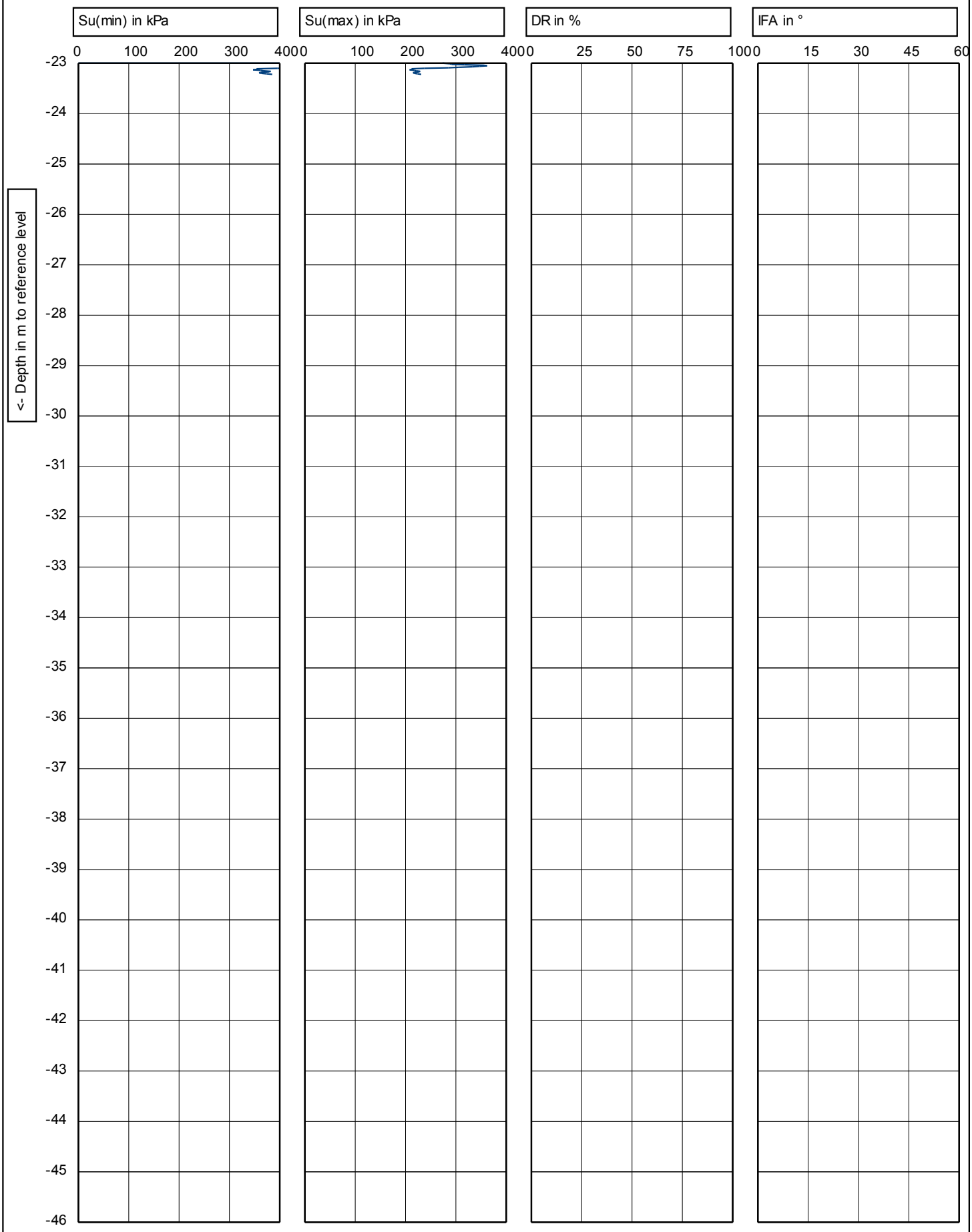
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT304** **4/6**

CPTask V1.33



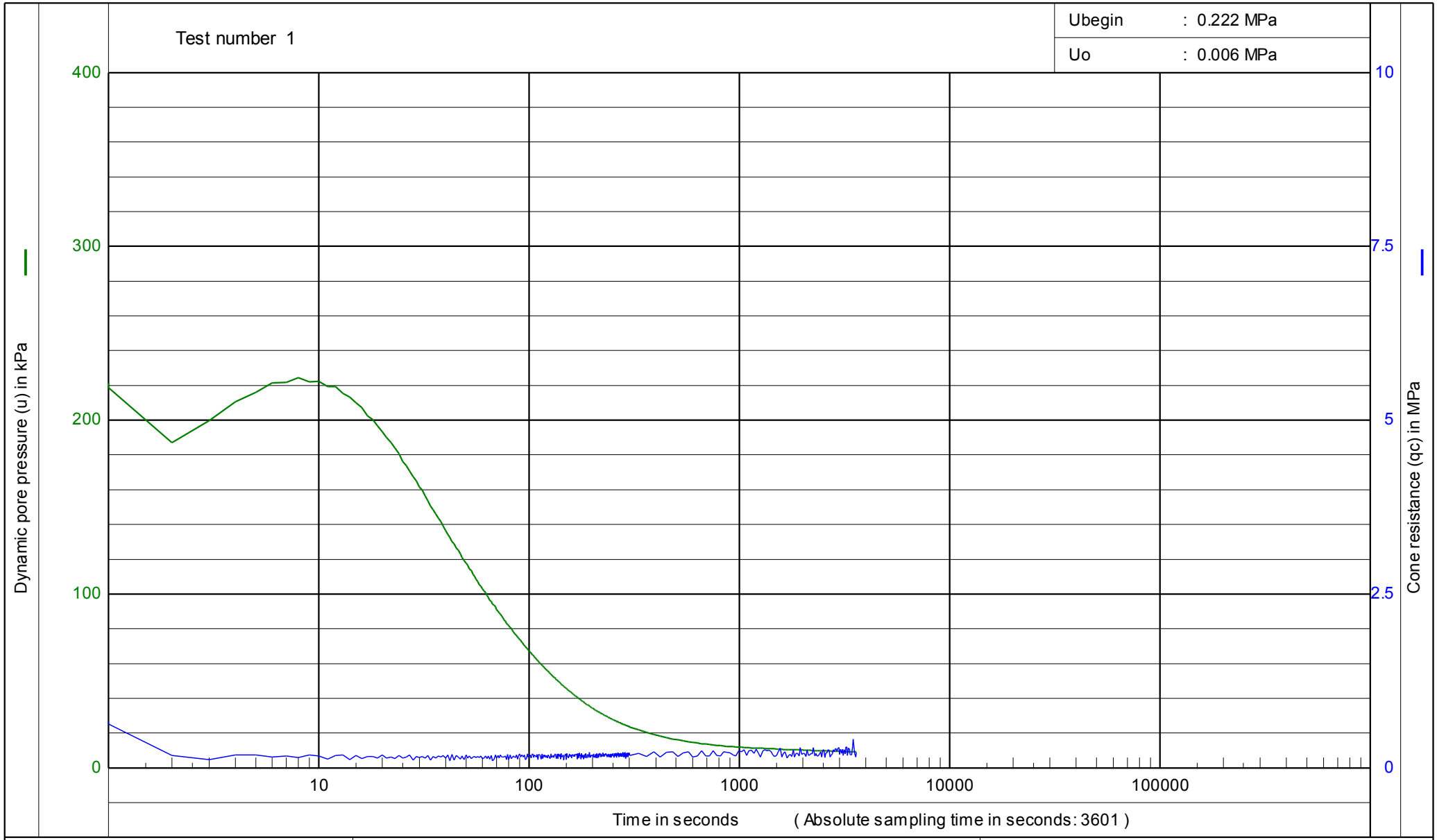
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill :	0
	G.L. 0 NAP	W.L.: **-1.3**	Date:	**03/06/2015**
Project:	**A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location:	**Trinity Burial Ground**		Project no.:	**A5049-15**
Position:			CPT no.:	**CPT304** 5/6

CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT304** **6/6**

CPTask V1.33

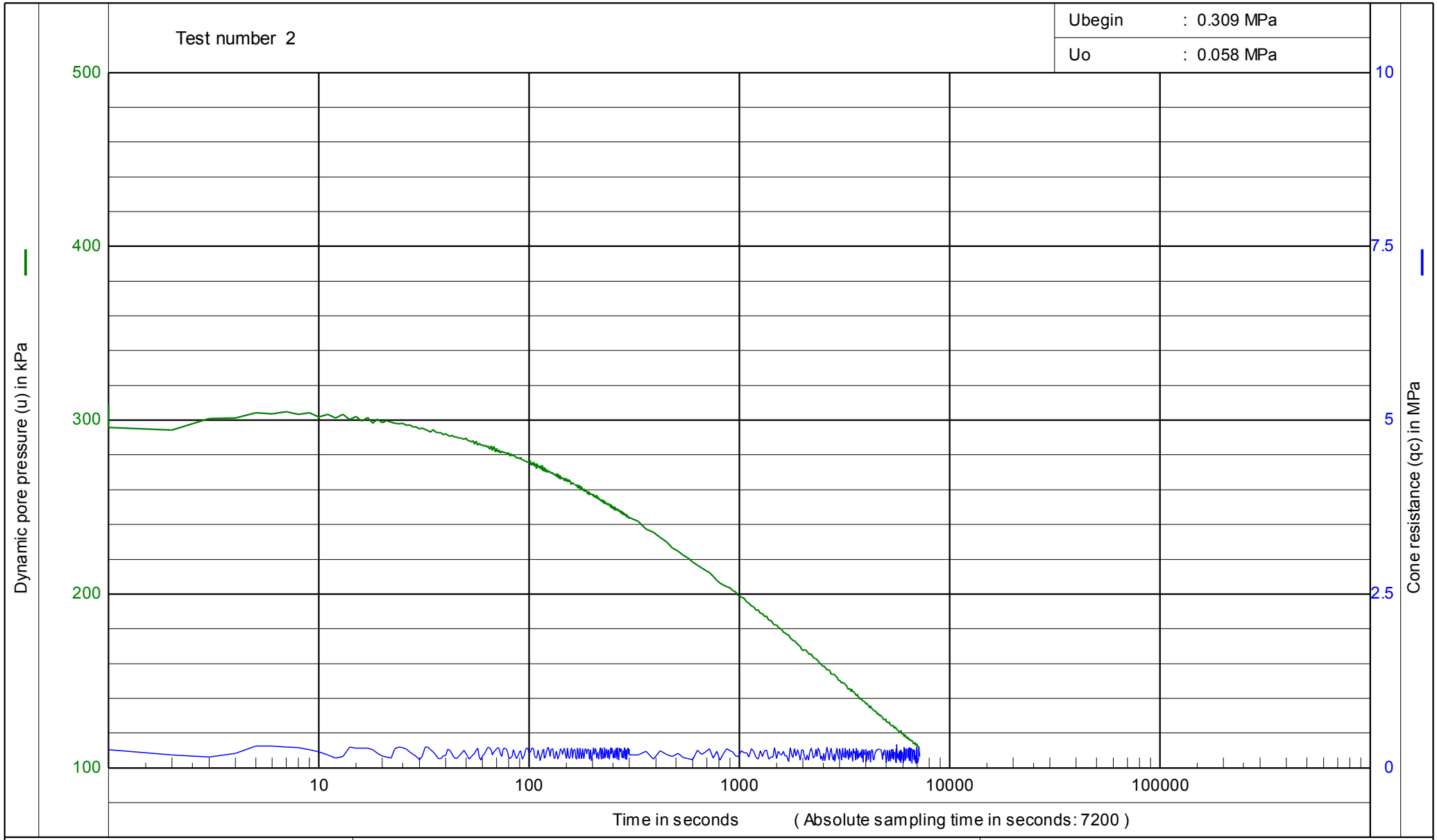


Test Method BS1377 : Part 9 : 1990 :3.1

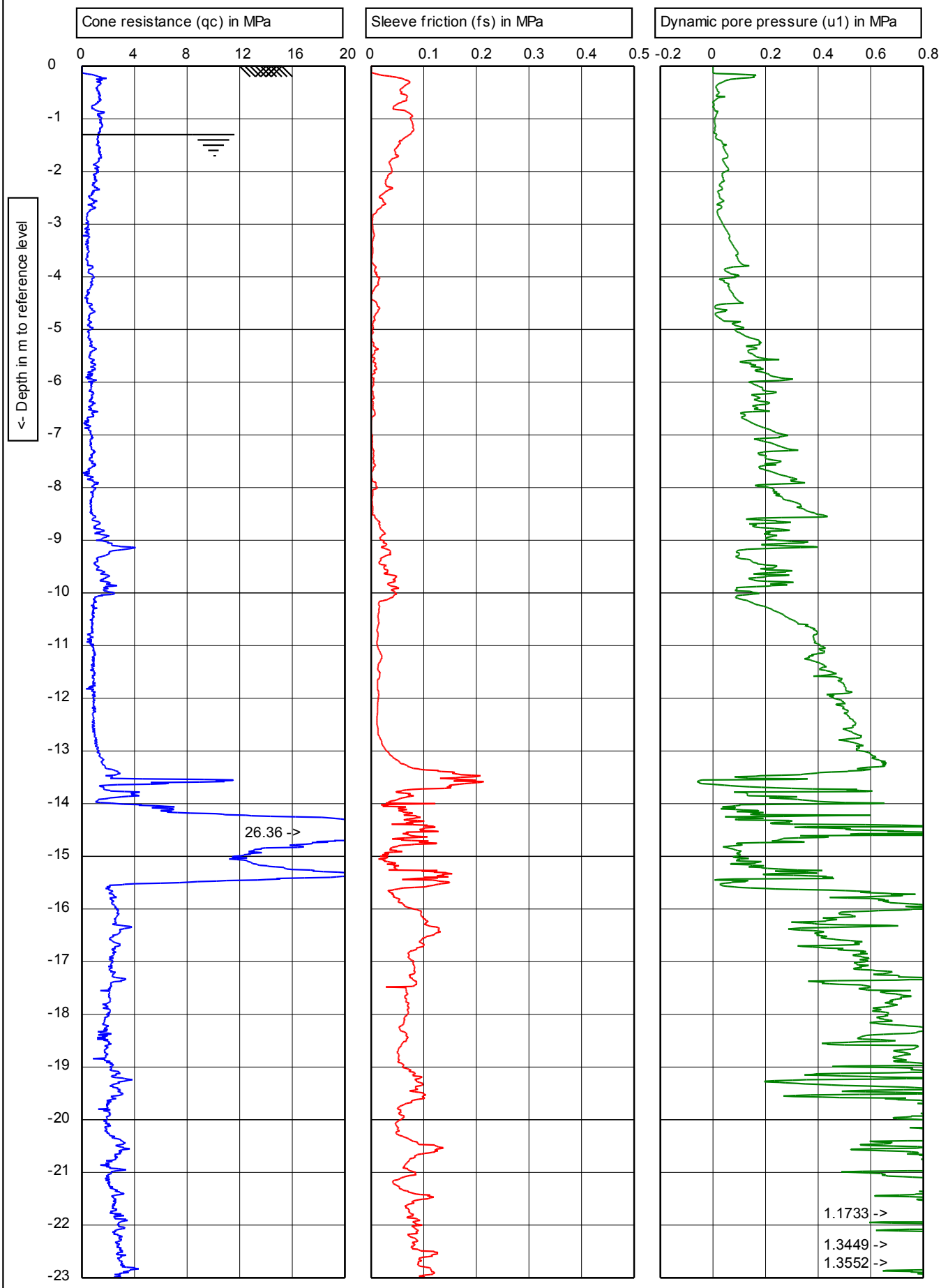
Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	03/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT304
Test depth	:	-1.92 [m] - G.L.
Water level	:	-1.3 [m] - G.L.

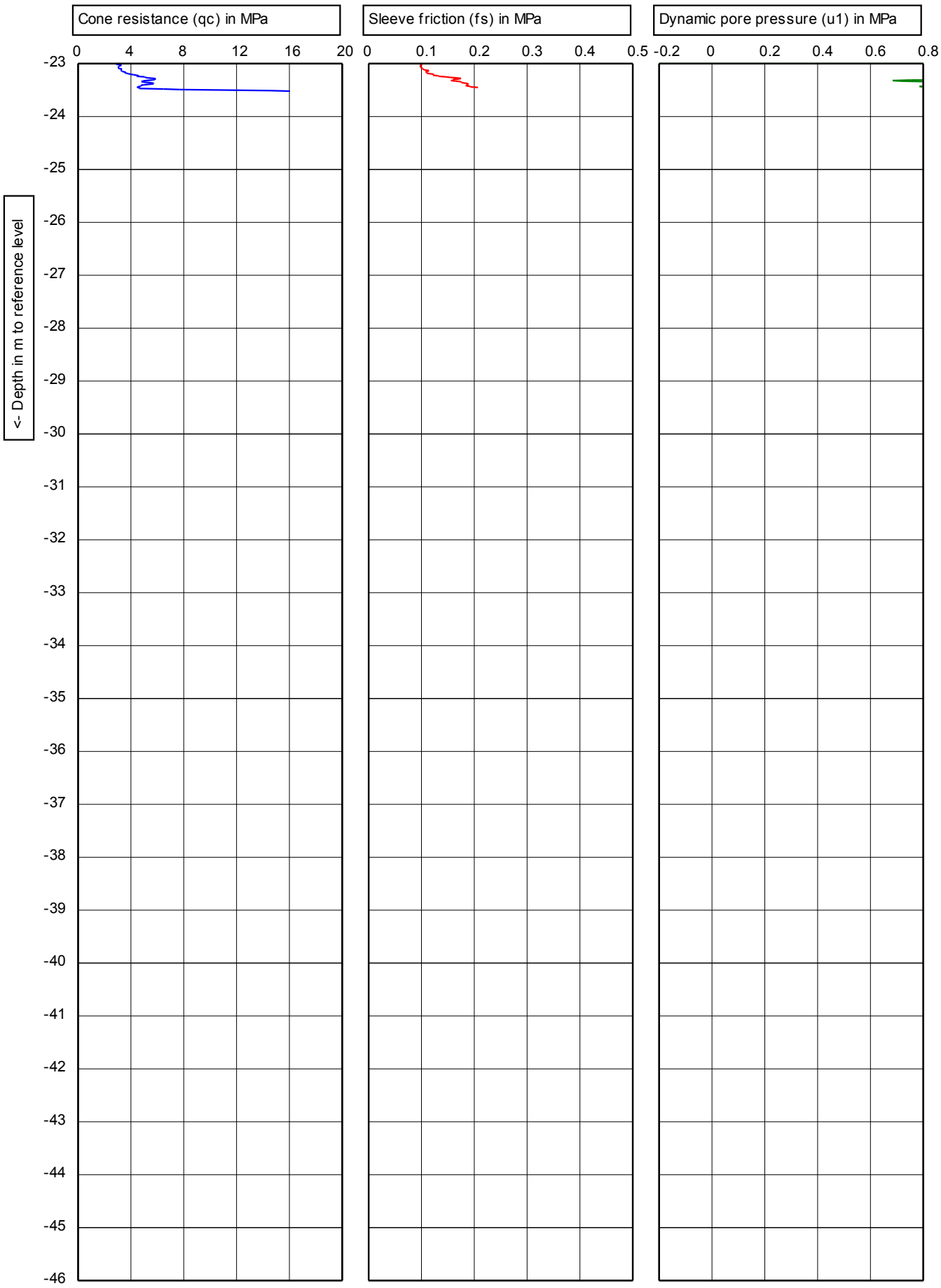


Test Method BS1377 : Part 9 : 1990 :3.1	
Project : A63 Castle Street Improvement	Date : 03/06/2015
Location : Trinity Burial Ground	Project no. : A5049-15
	CPT no. : CPT304
	Test depth : -7.07 [m] - G.L.
	Water level : -1.3 [m] - G.L.



u1 / 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT305** **1/6**

CPTask V1.33



u1
150 cm²
10 cm²

Test Method BS1377 : Part 9 : 1990 : 3.1

G.L. 0 NAP | W.L.: **-1.3**

Project: **A63 Castle Street Improvement**

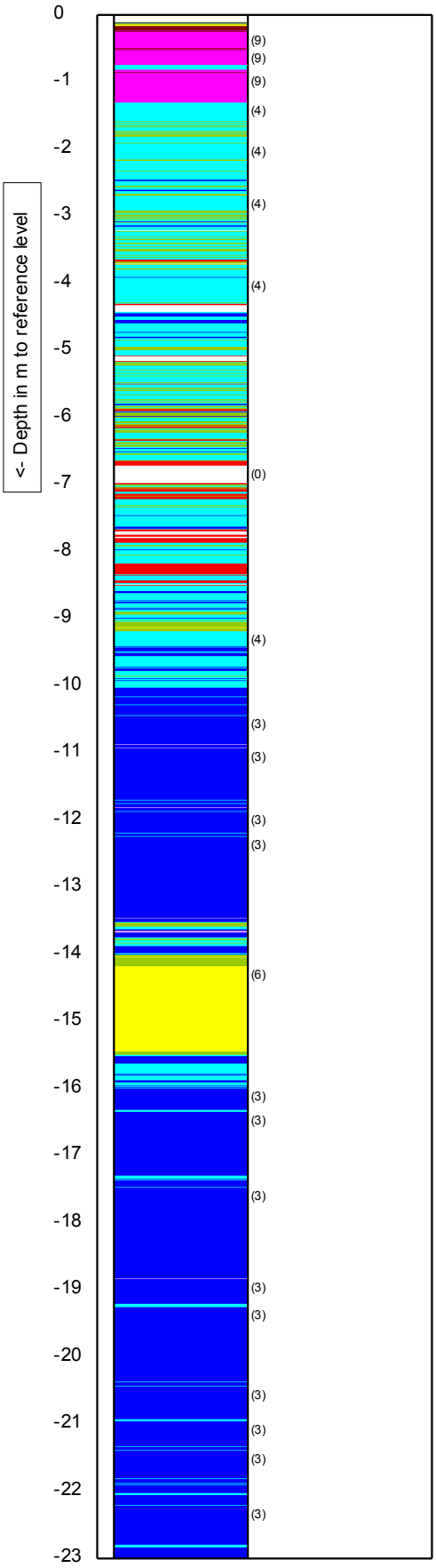
Location: **Trinity Burial Ground**

Position:

Predrill :	**0**
Date:	**26/05/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5049-15**
CPT no.:	**CPT305** **2/6**

CPTask V1.33

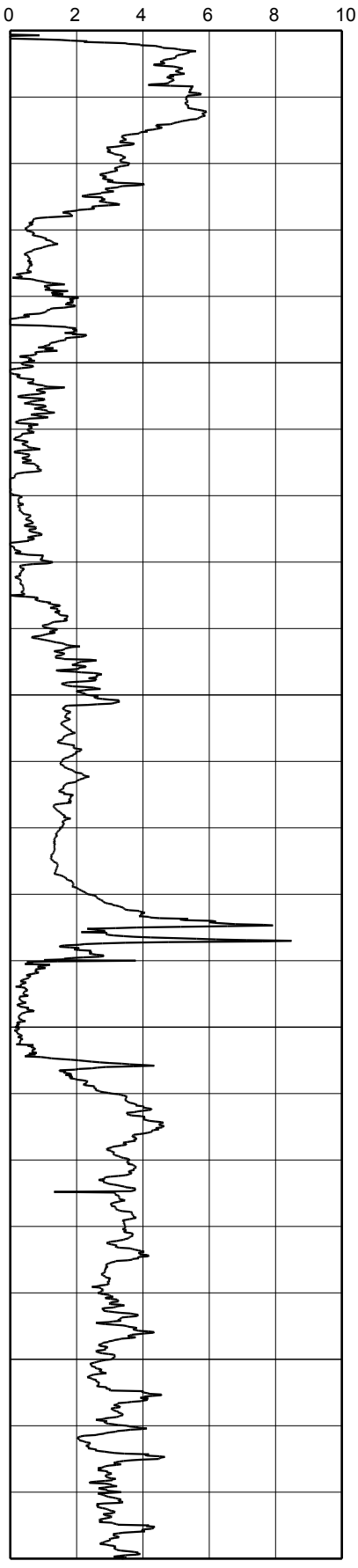
Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

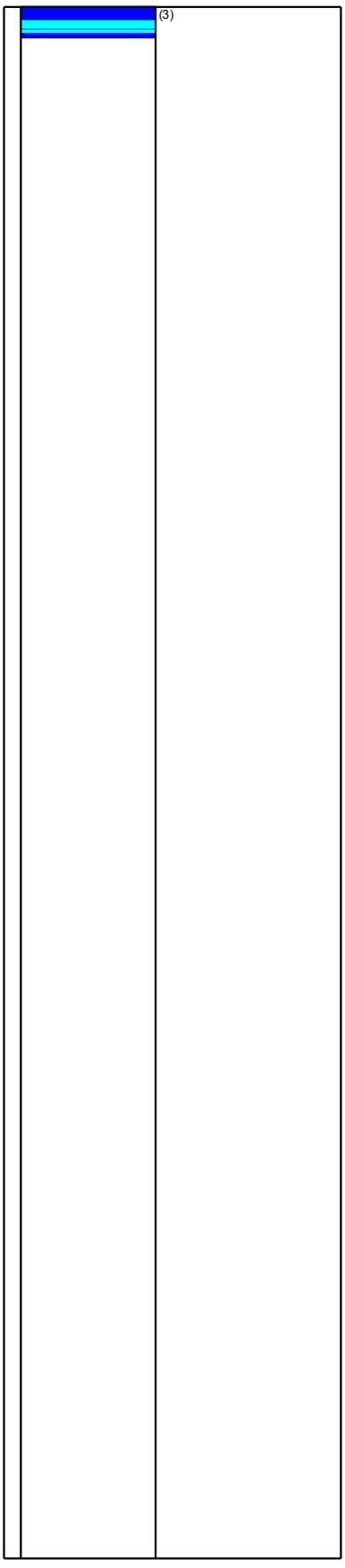
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.3	Date: 26/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT305 3/6

CPTask V1.33

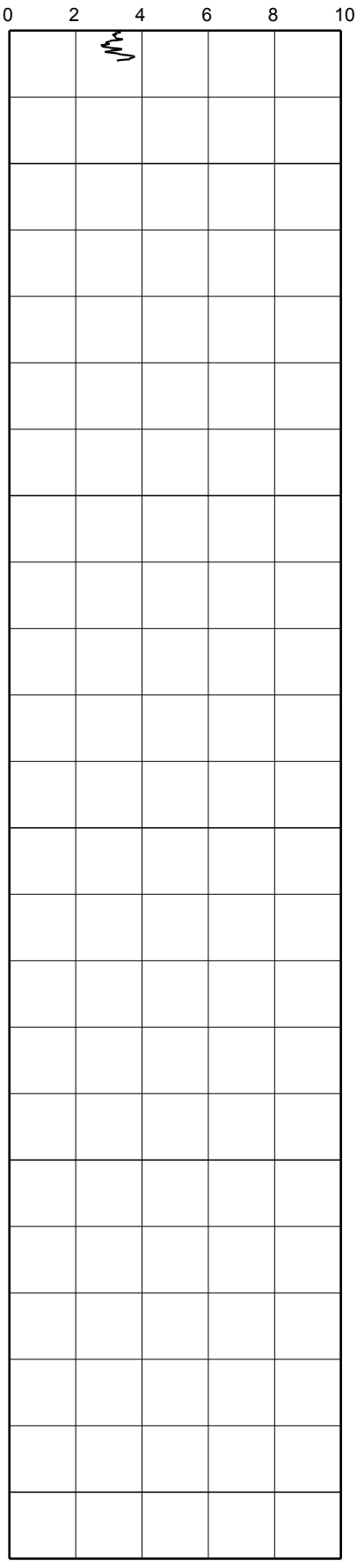
Soil Classification (using Fr)



<- Depth in m to reference level

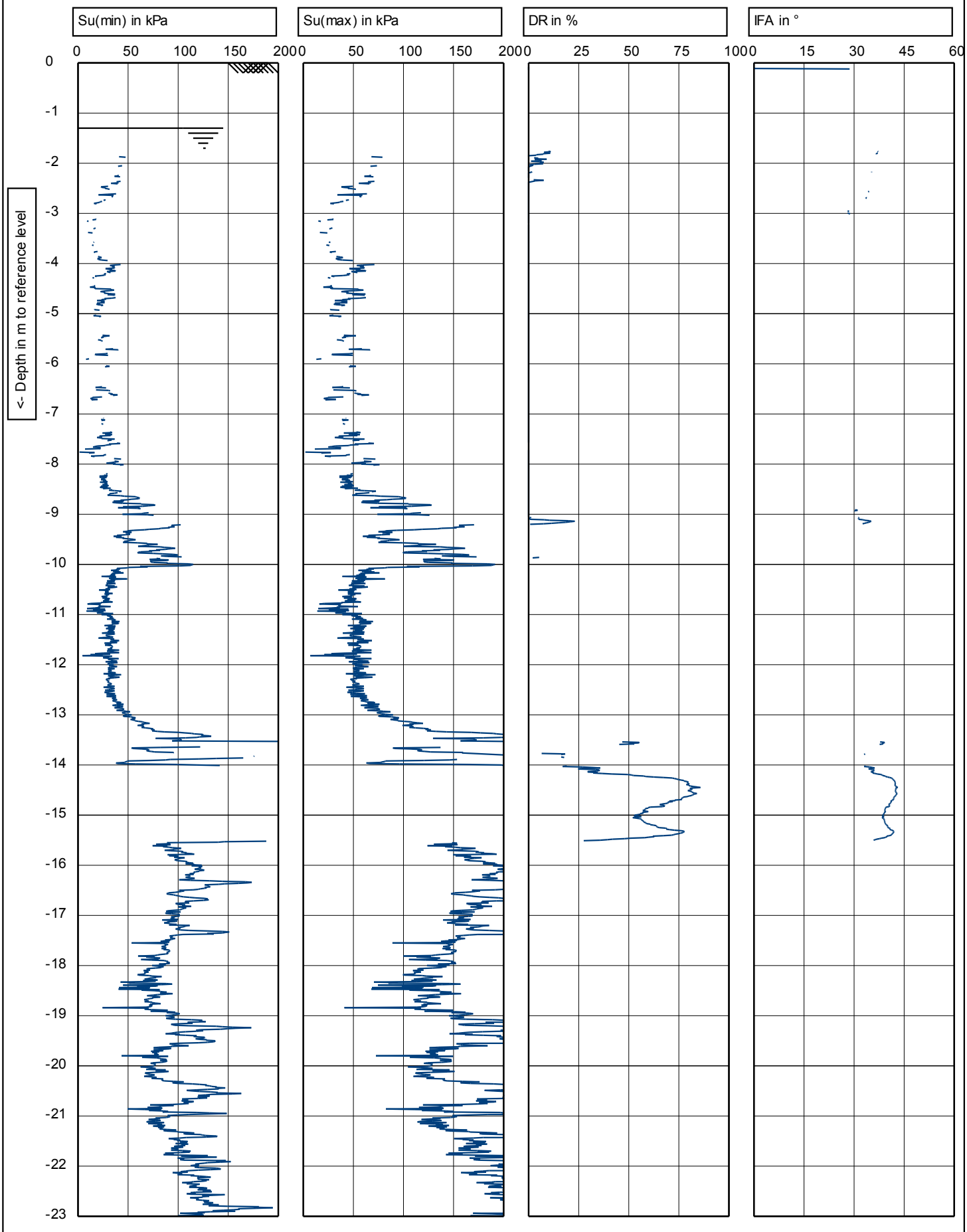
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



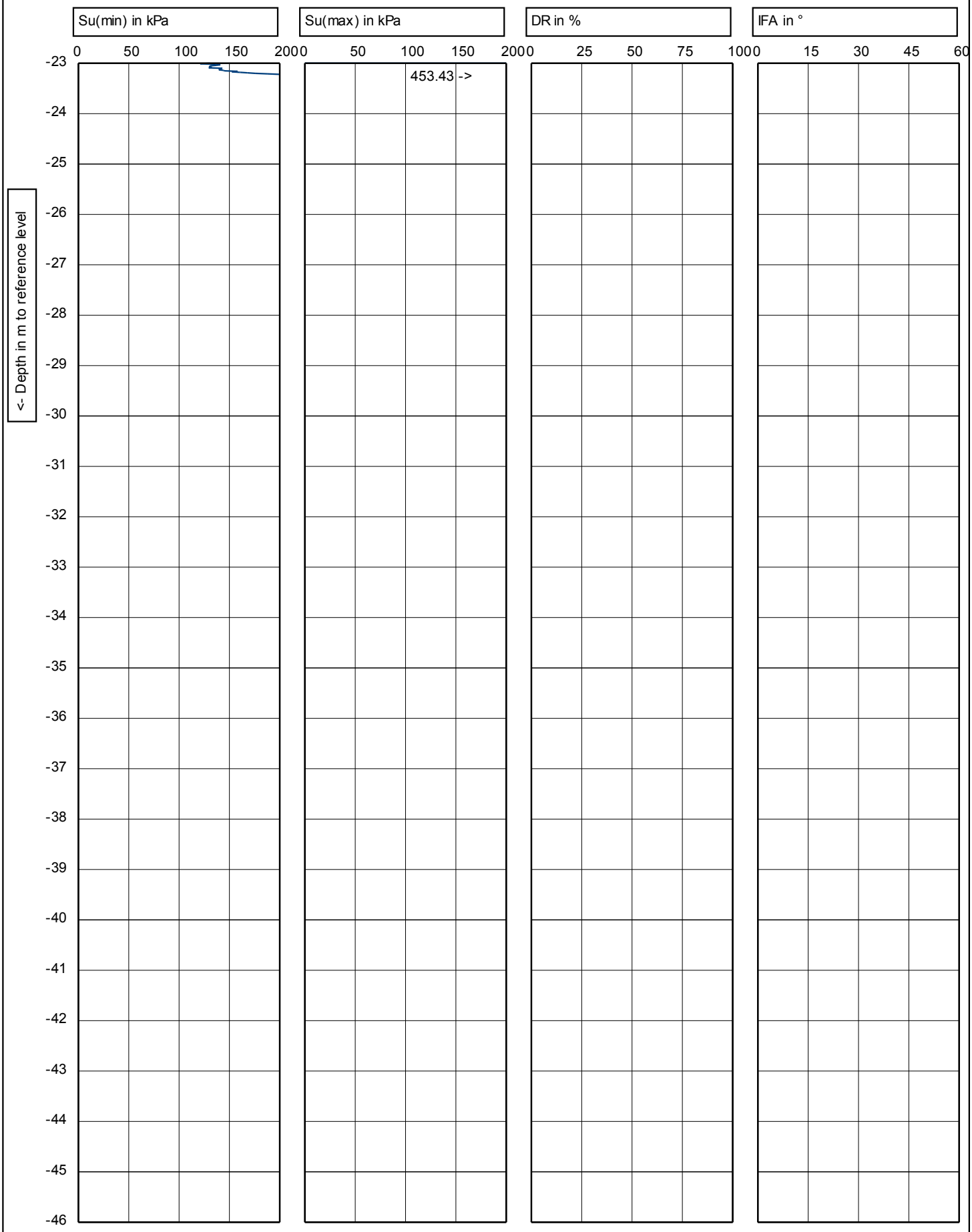
┌ u1 └ 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT305** **4/6**

CPTask V1.33



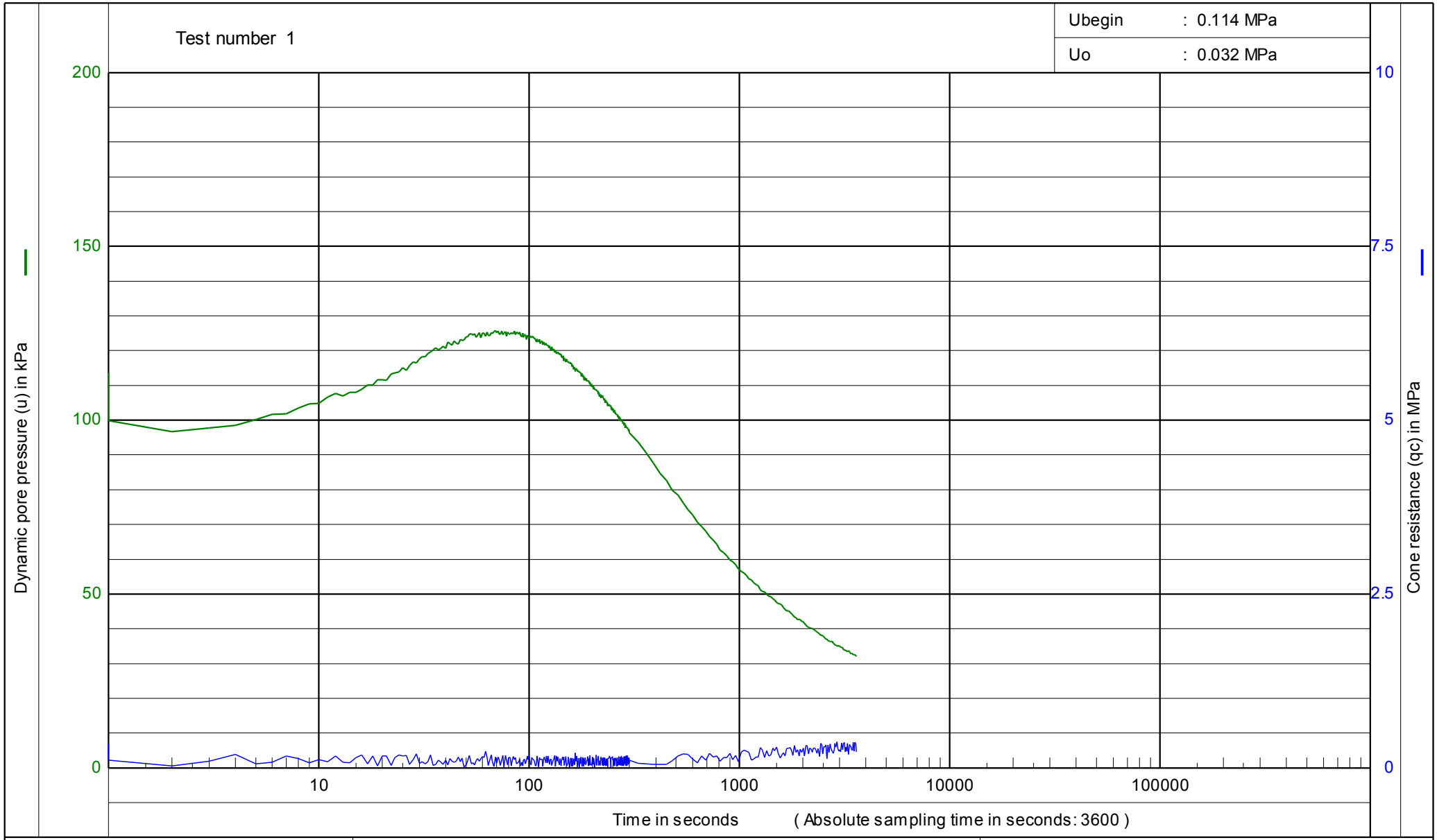
qu1 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT305** **5/6**

CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT305** **6/6**

CPTask V1.33



Test Method BS1377 : Part 9 : 1990 : 3.1

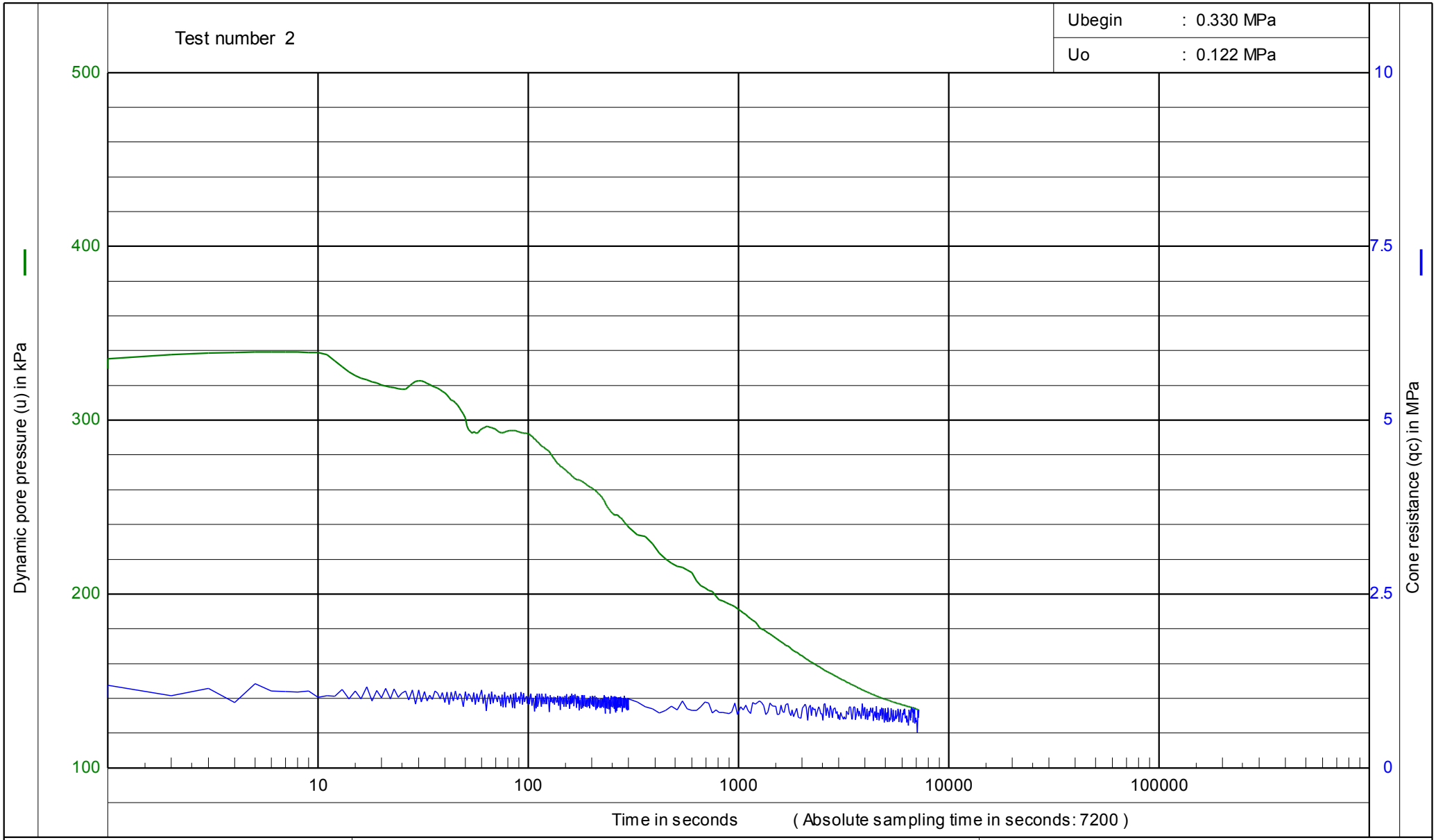
Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	26/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT305
Test depth	:	-4.5 [m] - G.L.
Water level	:	-1.3 [m] - G.L.

Test number 2

Ubegin	: 0.330 MPa
Uo	: 0.122 MPa

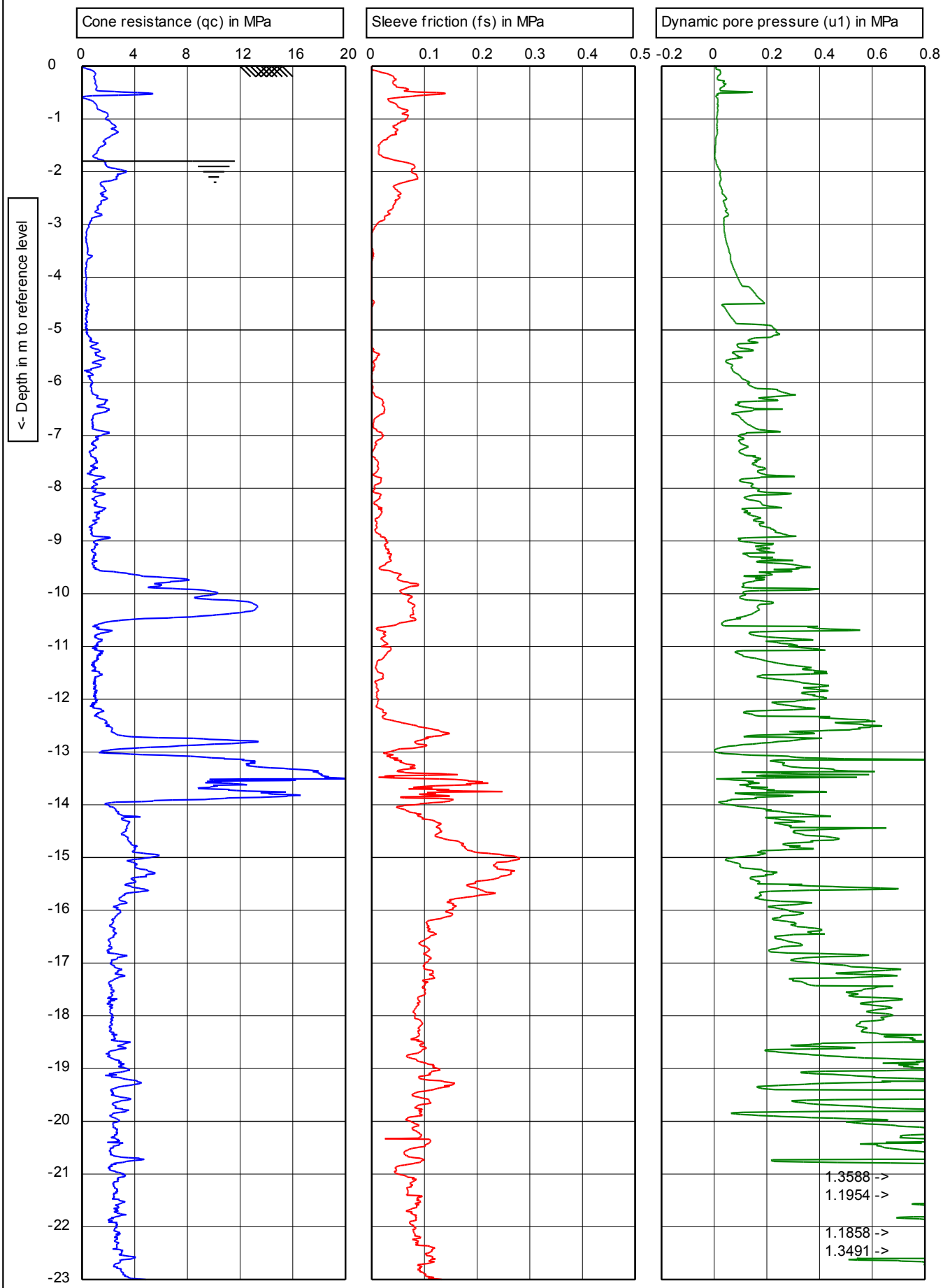


Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	: 26/05/2015	
Project no.	: A5049-15	
CPT no.	: CPT305	
Test depth	: -13.47	[m] - G.L.
Water level	: -1.3	[m] - G.L.



u1
150 cm²
10 cm²

Test Method BS1377 : Part 9 : 1990 : 3.1

G.L. 0 NAP | W.L.: **-1.8**

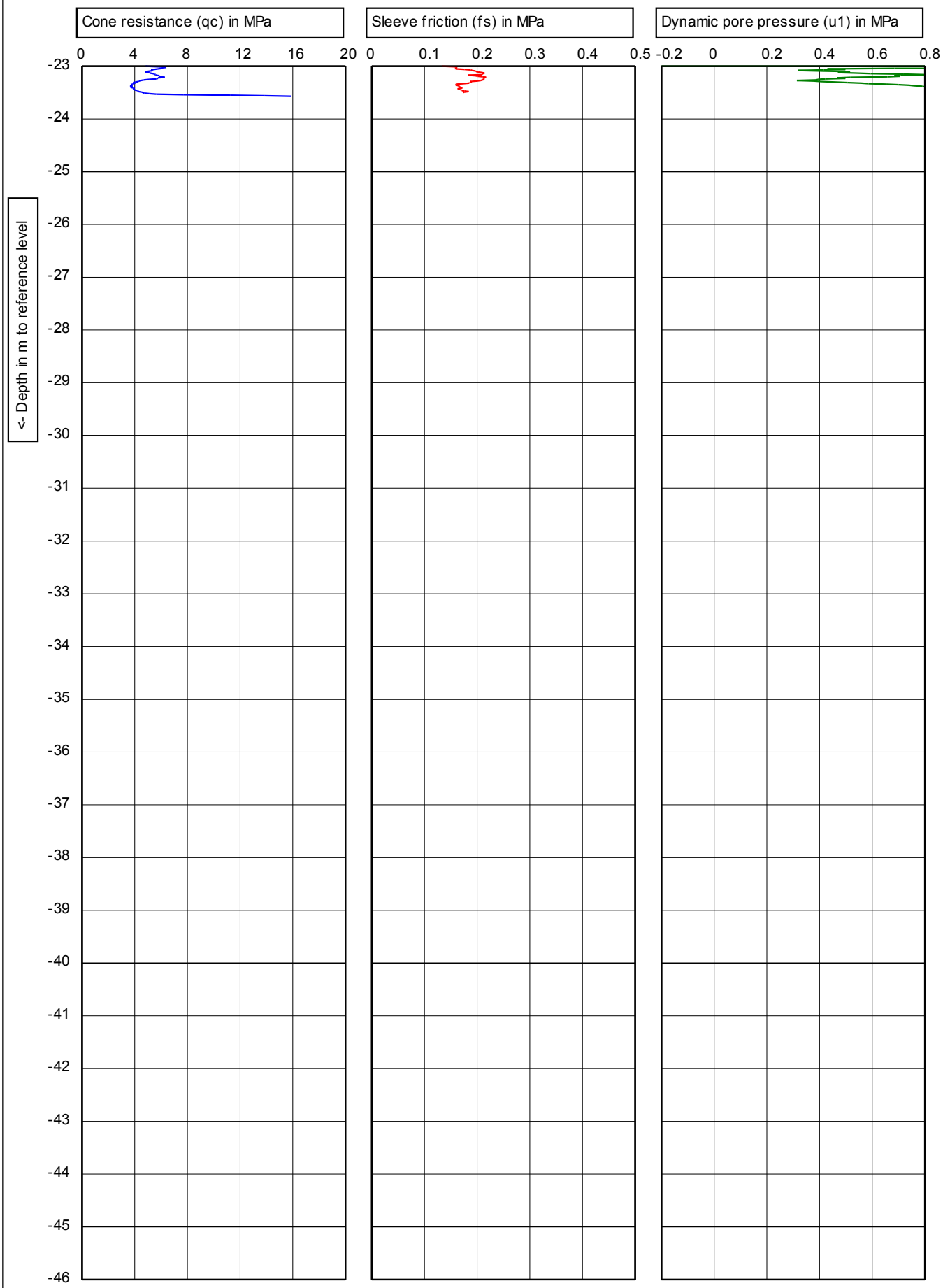
Project: **A63 Castle Street Improvement**

Location: **Trinity Burial Ground**

Position:

Predrill :	**0**
Date:	**22/05/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5049-15**
CPT no.:	**CPT306** 1/6

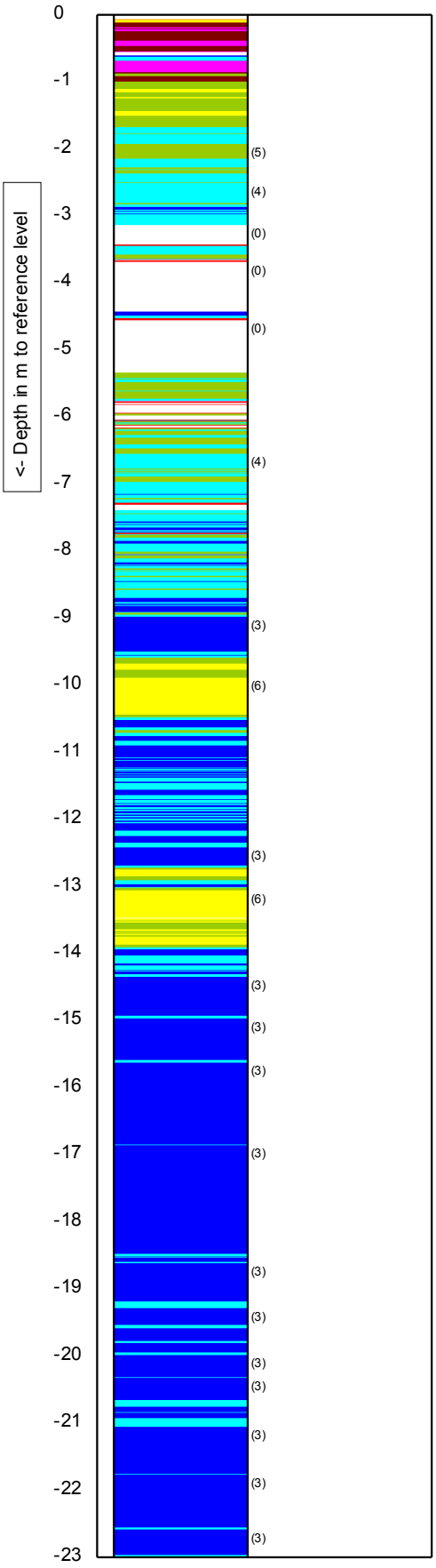
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **22/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT306** **2/6**

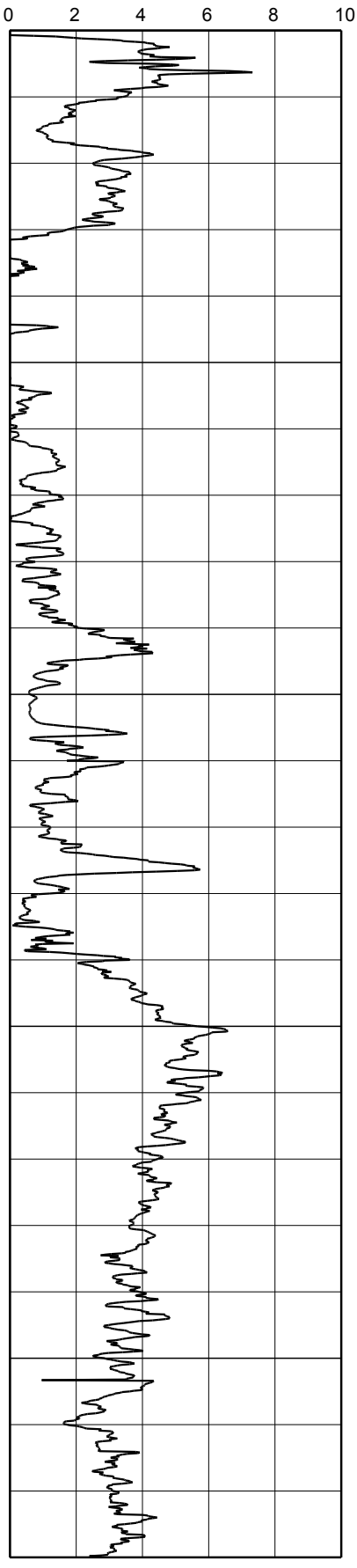
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

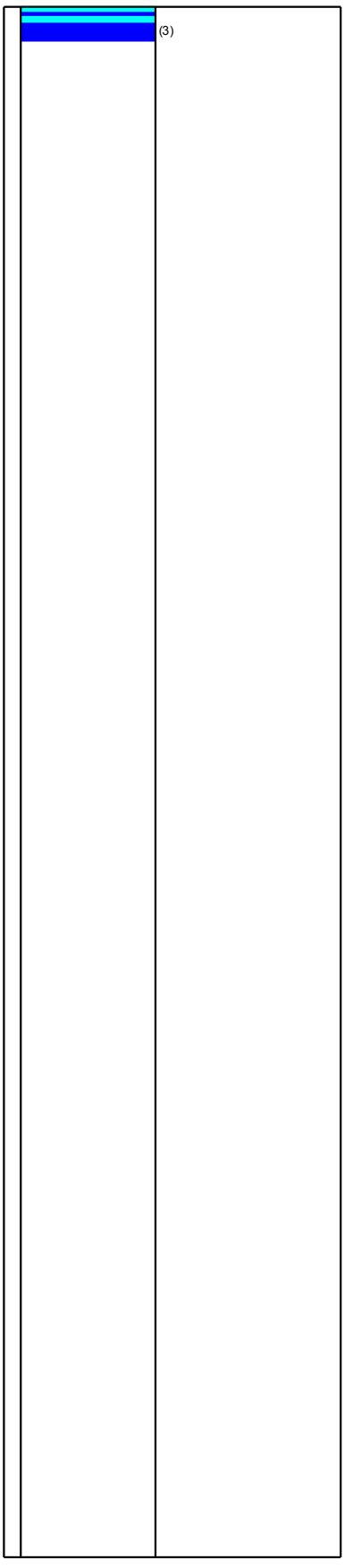
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.8	Date: 22/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT306 3/6

CPTask V1.33

Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
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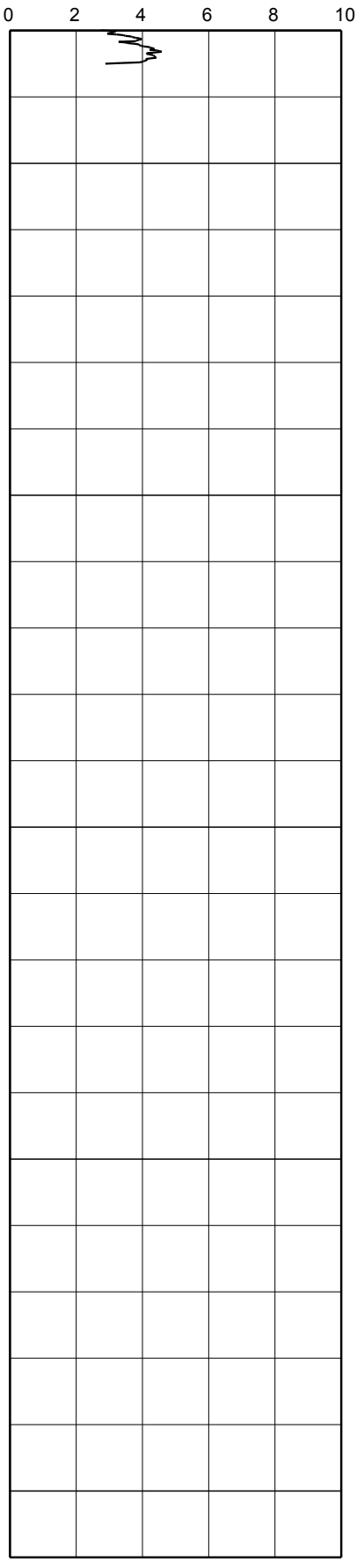
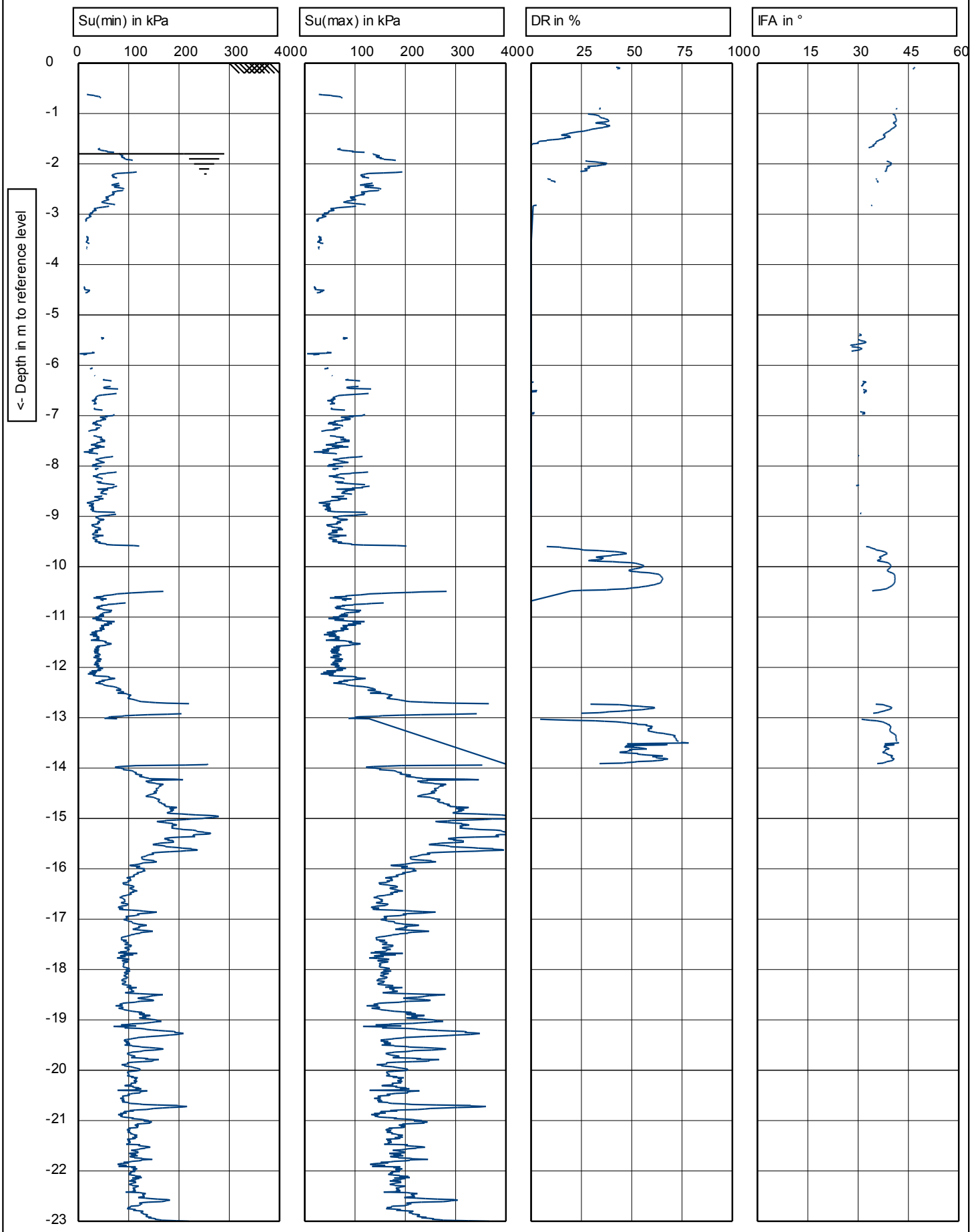
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



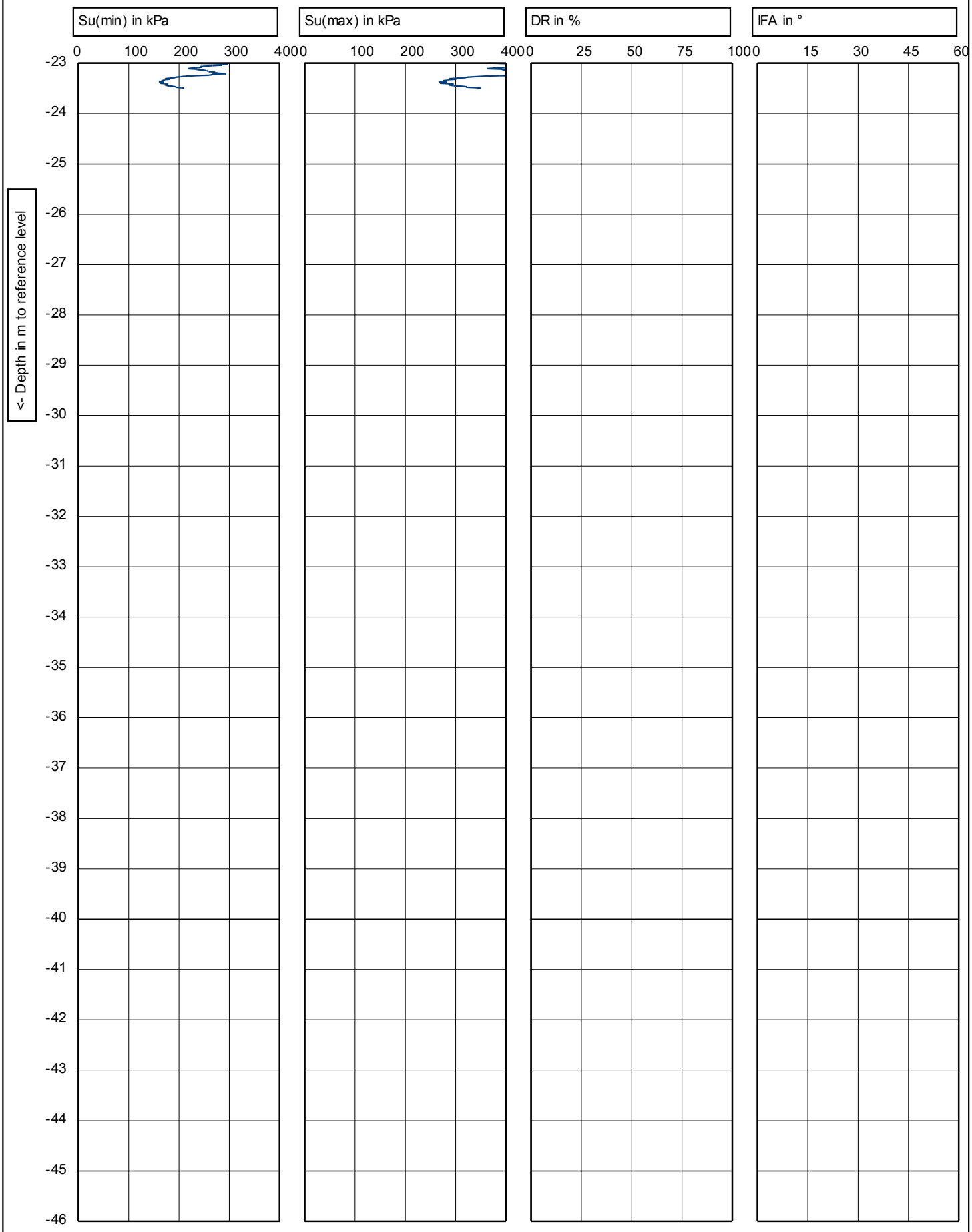
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.8	Date: 22/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT306 4/6

CPTask V1.33



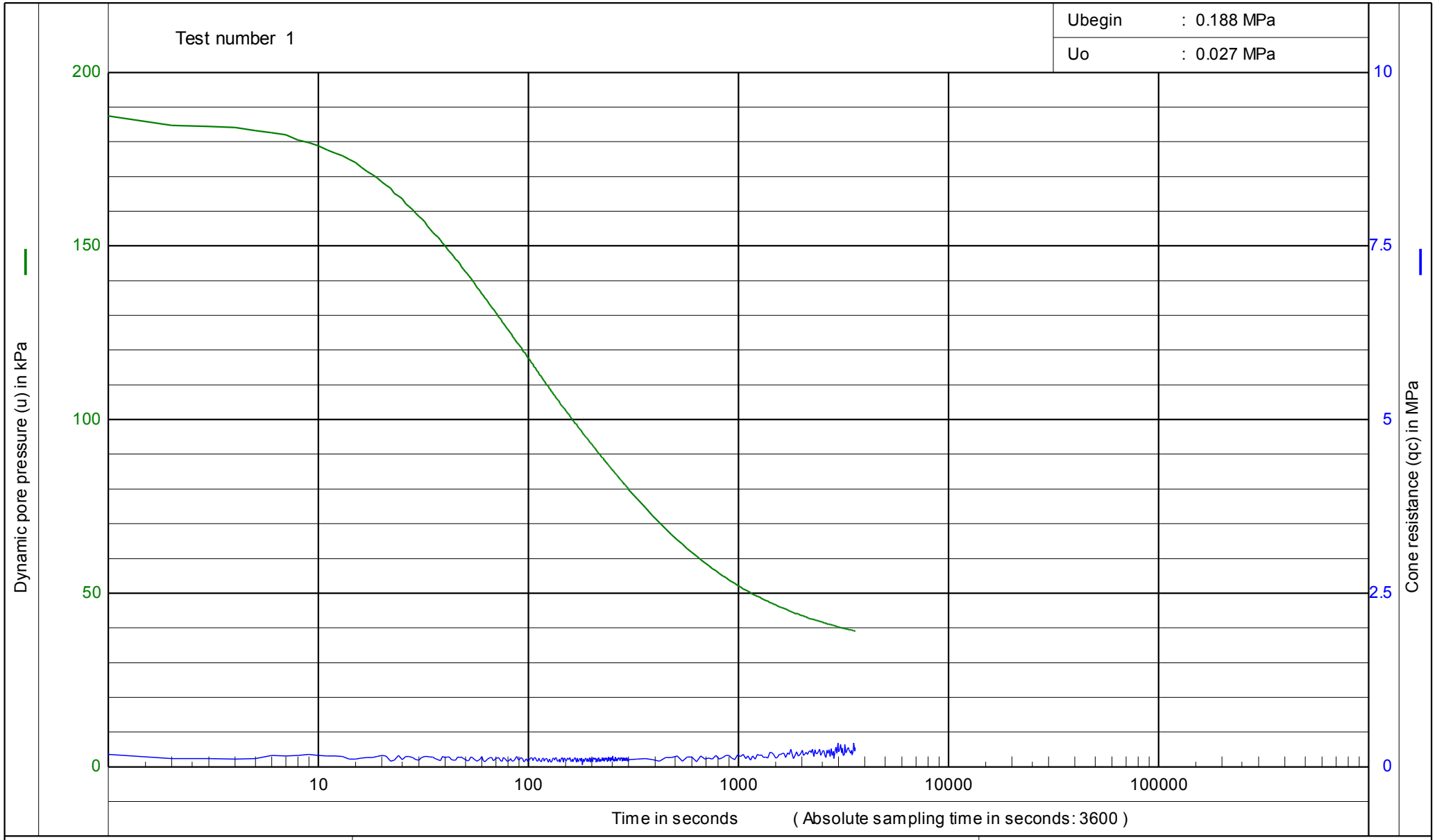
	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-1.8**	Date: **22/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT306** **5/6**

CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **22/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT306** **6/6**

CPTask V1.33

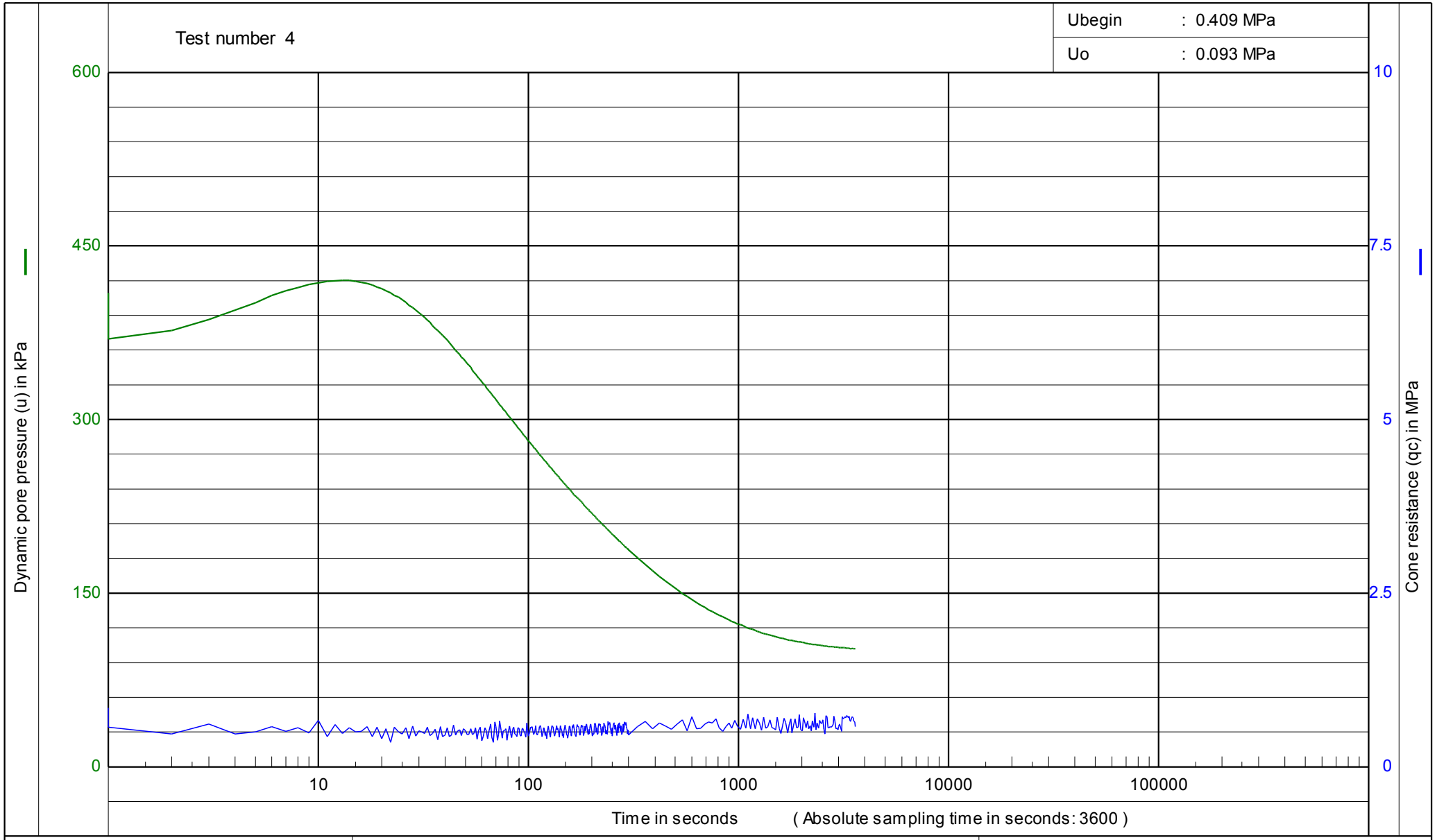


Test Method BS1377 : Part 9 : 1990 : 3.1

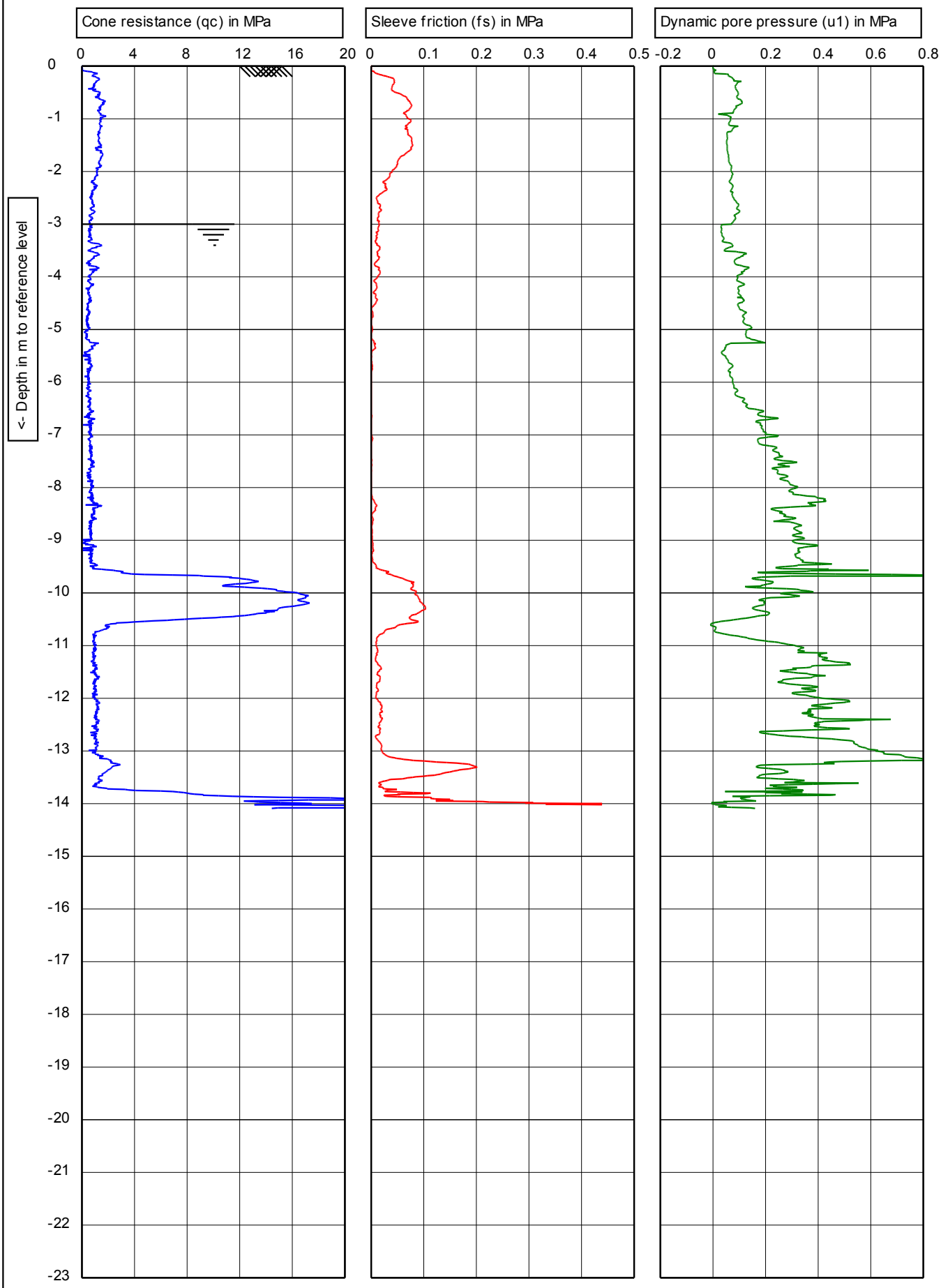
Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	22/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT306
Test depth	:	-4.5 [m] - G.L.
Water level	:	-1.8 [m] - G.L.



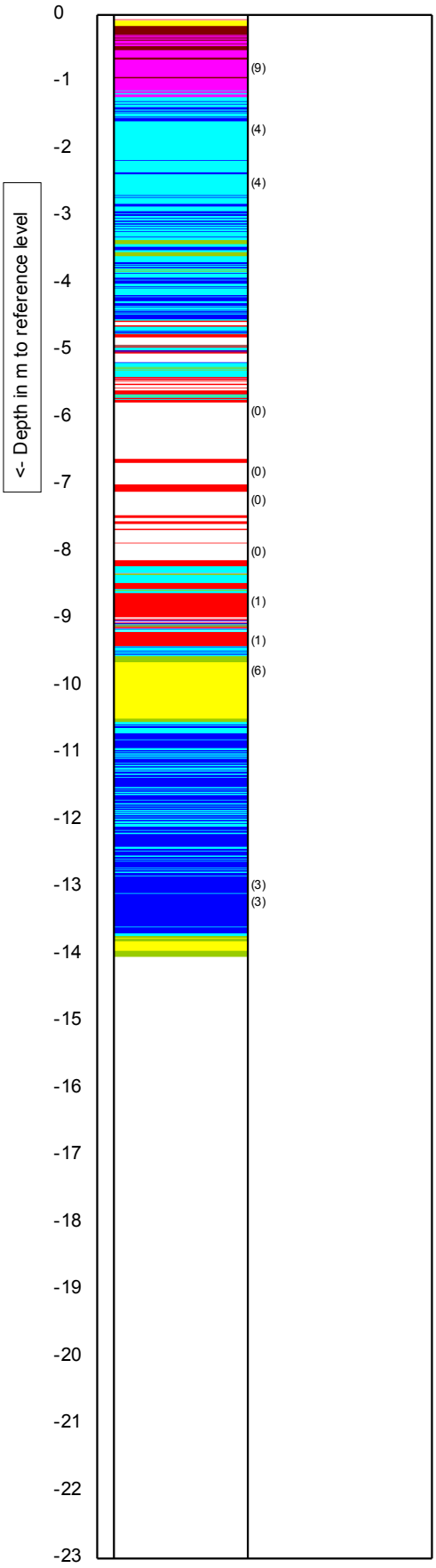
Test Method BS1377 : Part 9 : 1990 : 3.1	
Project : A63 Castle Street Improvement	Date : 22/05/2015
Location : Trinity Burial Ground	Project no. : A5049-15
	CPT no. : CPT306
	Test depth : -11.07 [m] - G.L.
	Water level : -1.8 [m] - G.L.



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-3**	Date: **27/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT307** **1/3**

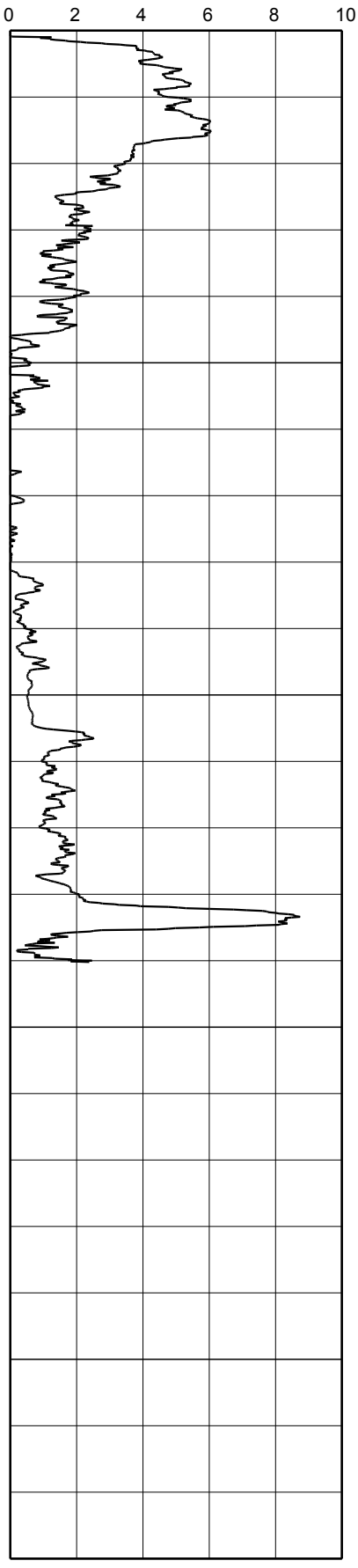
CPTask V1.33

Soil Classification (using Fr)



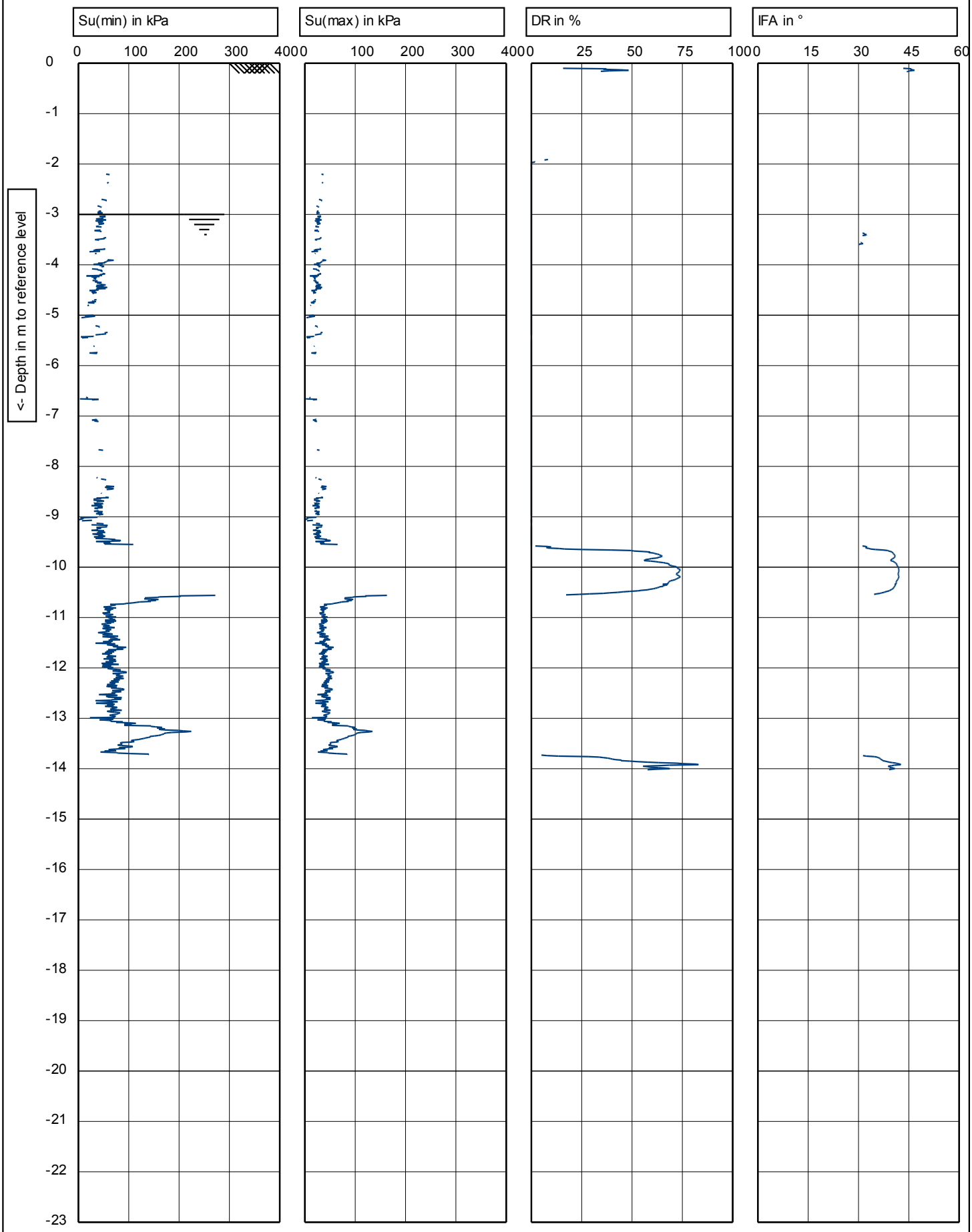
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -3	Date: 27/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT307 2/3

CPTask V1.33

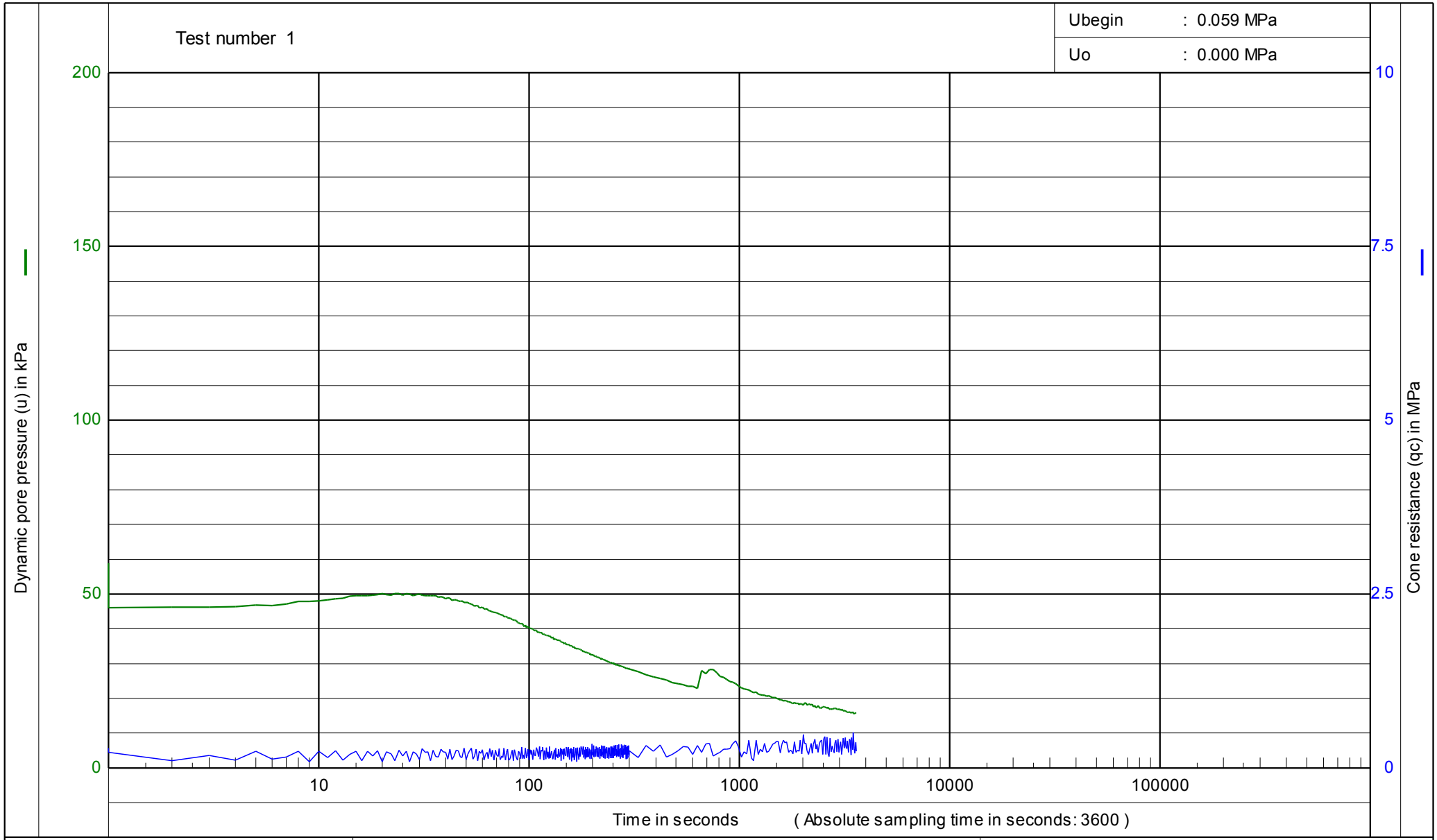


	Test Method BS1377 : Part 9 : 1990 :3.1	Predrill :	**0**
r u1 / 150 cm² / 10 cm²	G.L. 0 NAP — W.L.: **-3**	Date:	**27/05/2015**
Project: **A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location: **Trinity Burial Ground**		Project no.:	**A5049-15**
Position:		CPT no.:	**CPT307** **3/3**

CPTask V1.33

Test number 1

Ubegin	: 0.059 MPa
Uo	: 0.000 MPa



Test Method BS1377 : Part 9 : 1990 :3.1

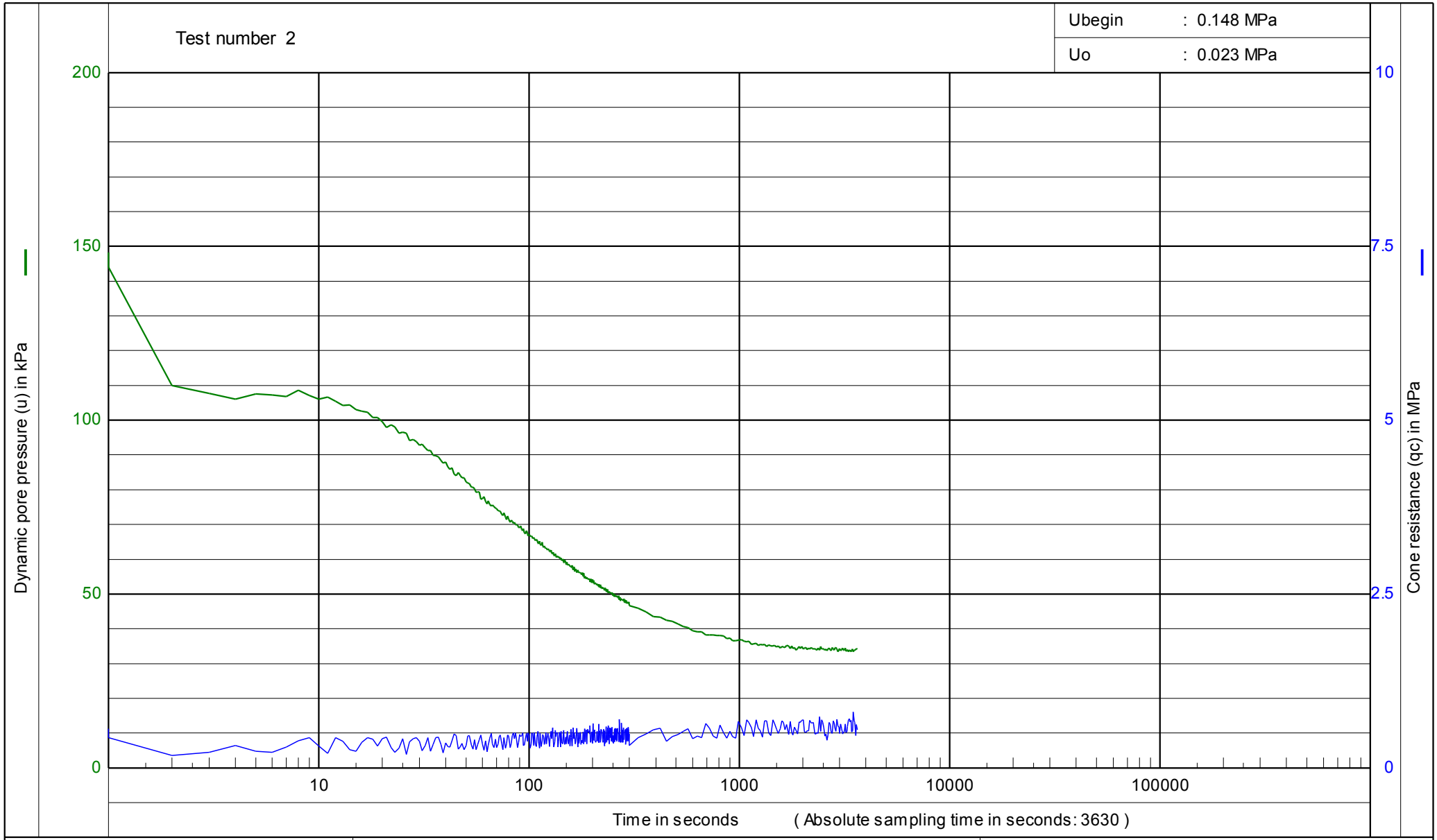
Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	: 27/05/2015	
Project no.	: A5049-15	
CPT no.	: CPT307	
Test depth	: -3	[m] - G.L.
Water level	: -3	[m] - G.L.

Test number 2

Ubegin	: 0.148 MPa
Uo	: 0.023 MPa

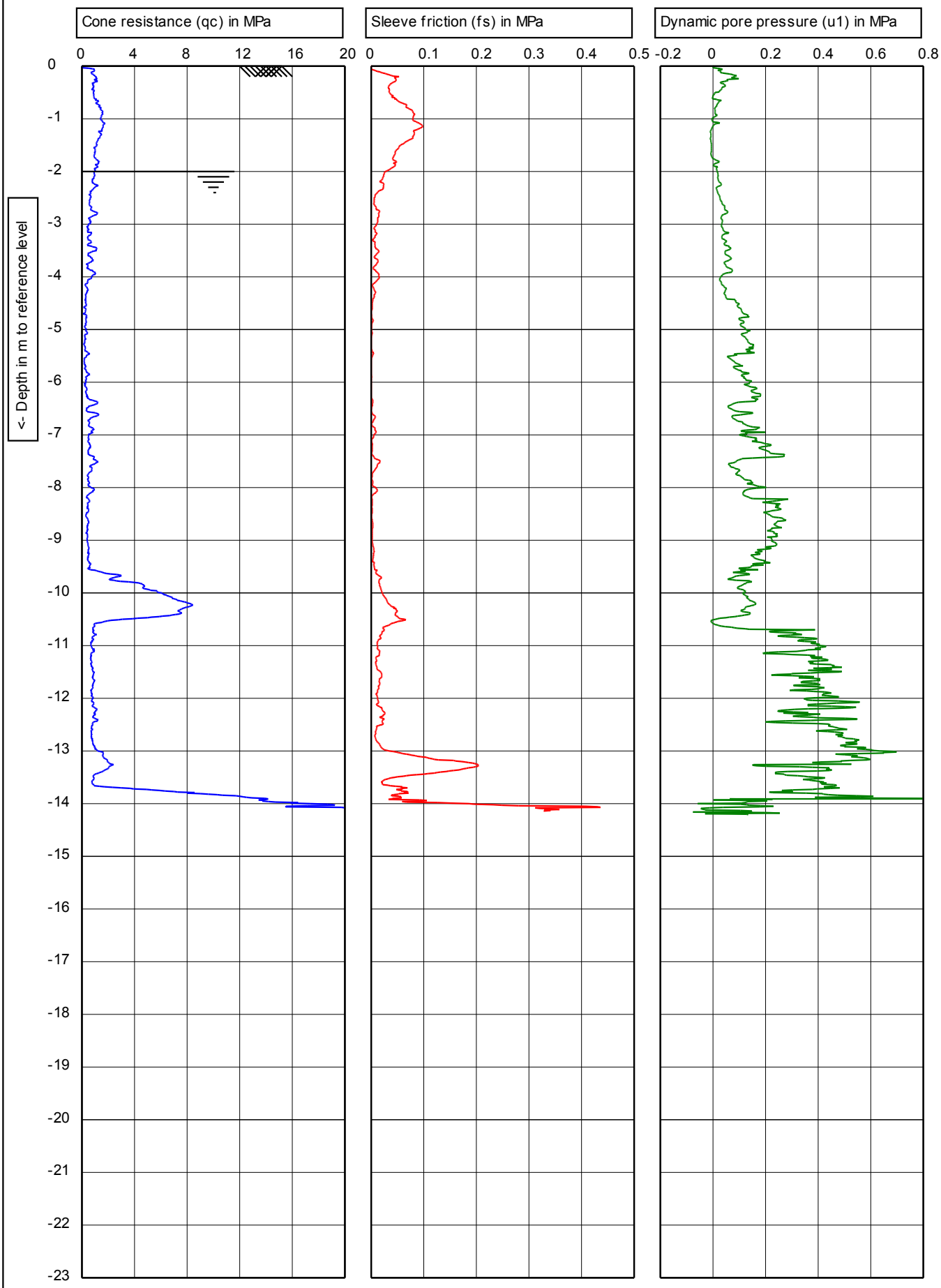


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

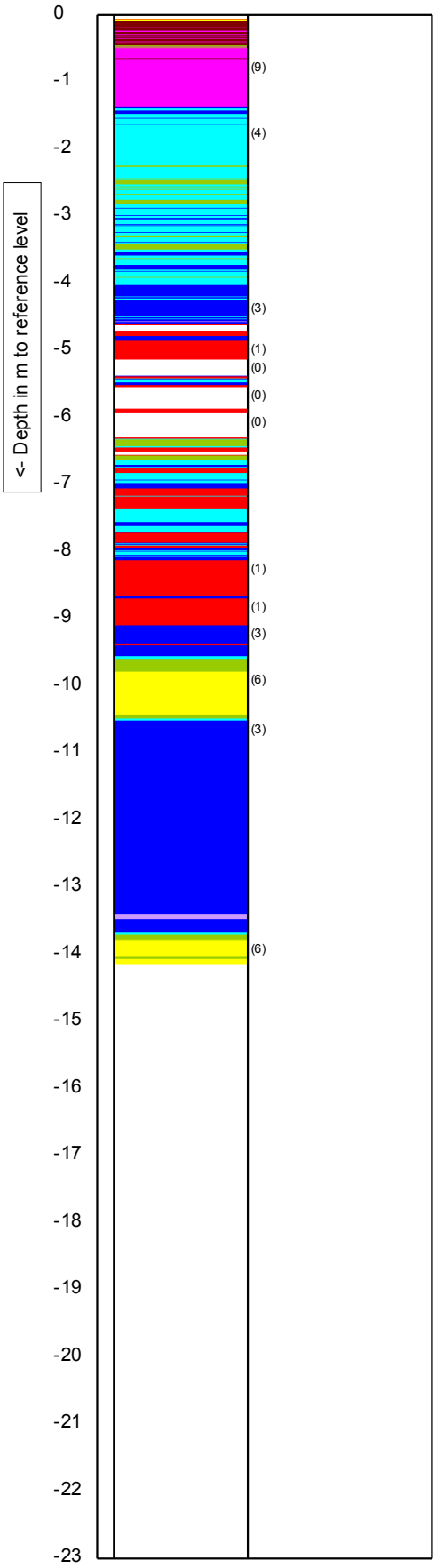
Date	: 27/05/2015	
Project no.	: A5049-15	
CPT no.	: CPT307	
Test depth	: -5.25	[m] - G.L.
Water level	: -3	[m] - G.L.



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2**	Date: **05/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT307A** **1/3**

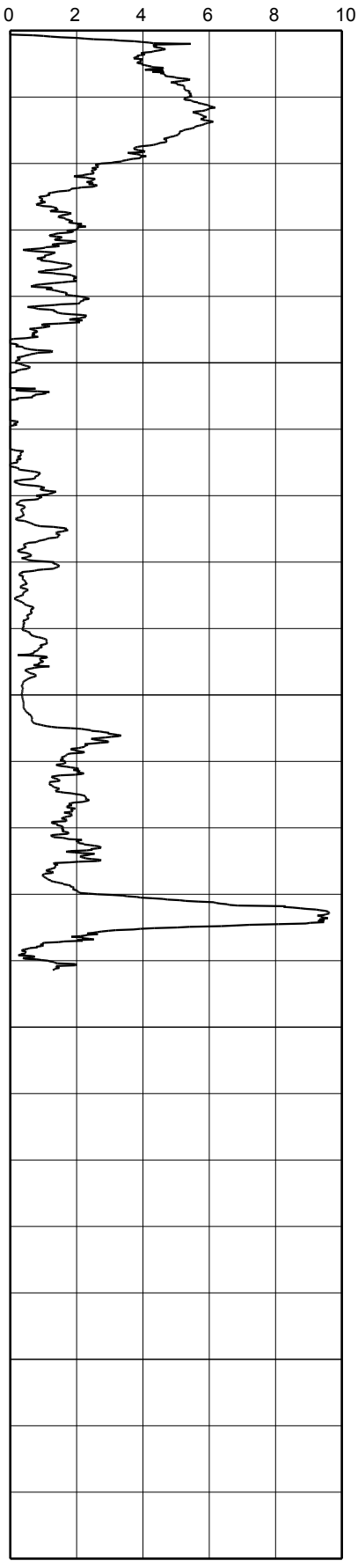
CPTask V1.33

Soil Classification (using Fr)



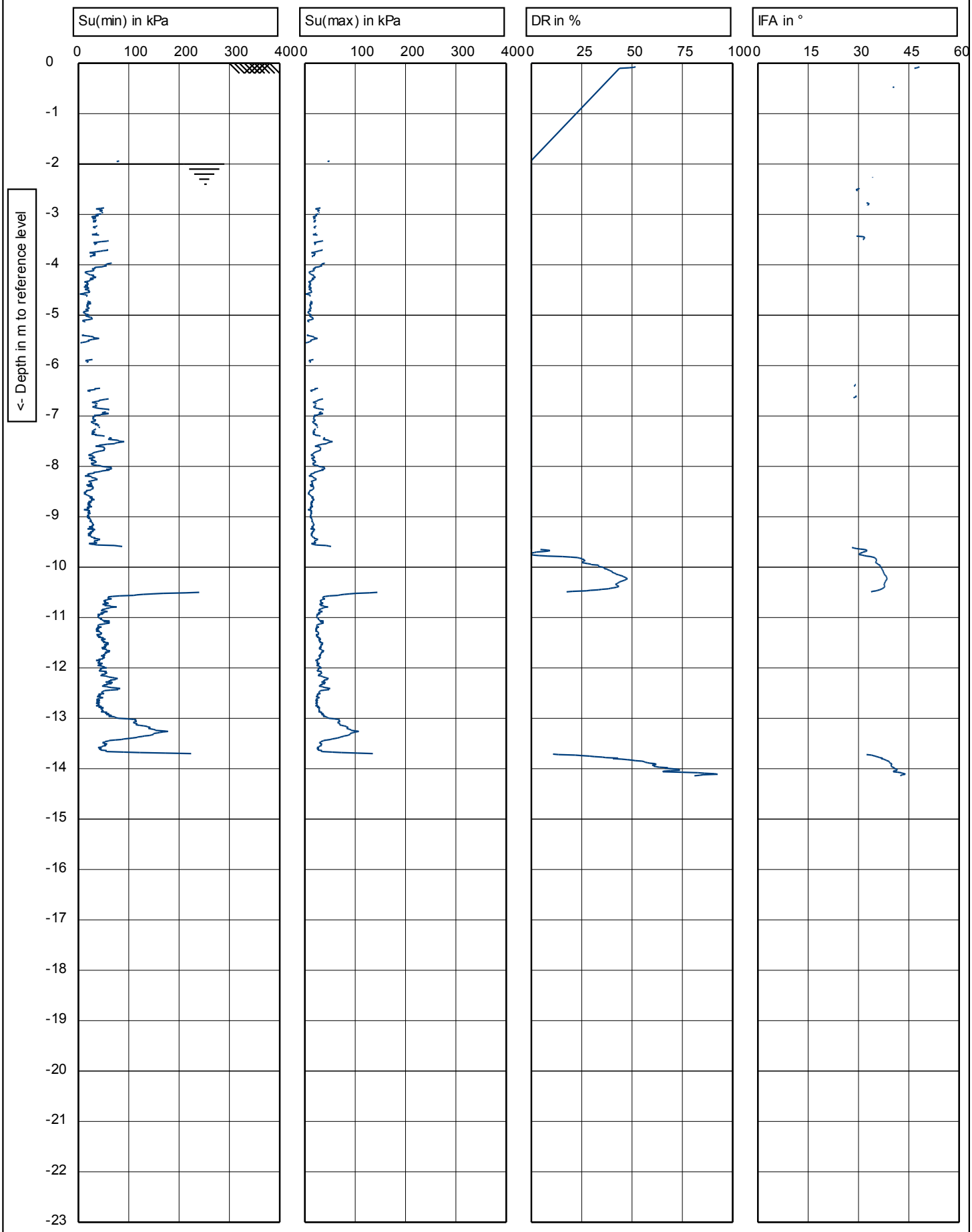
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



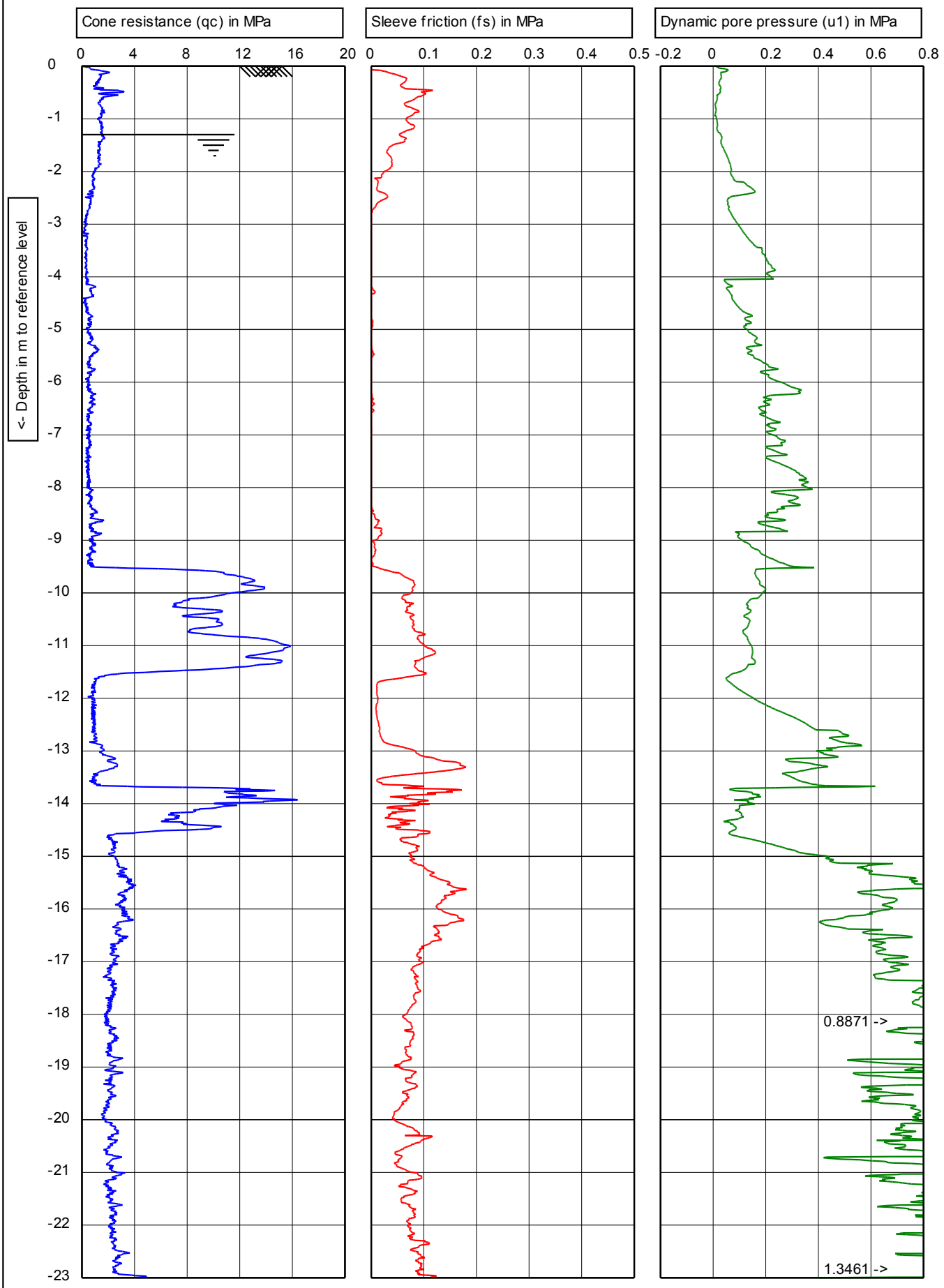
u1 / 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -2	Date: 05/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT307A 2/3

CPTask V1.33



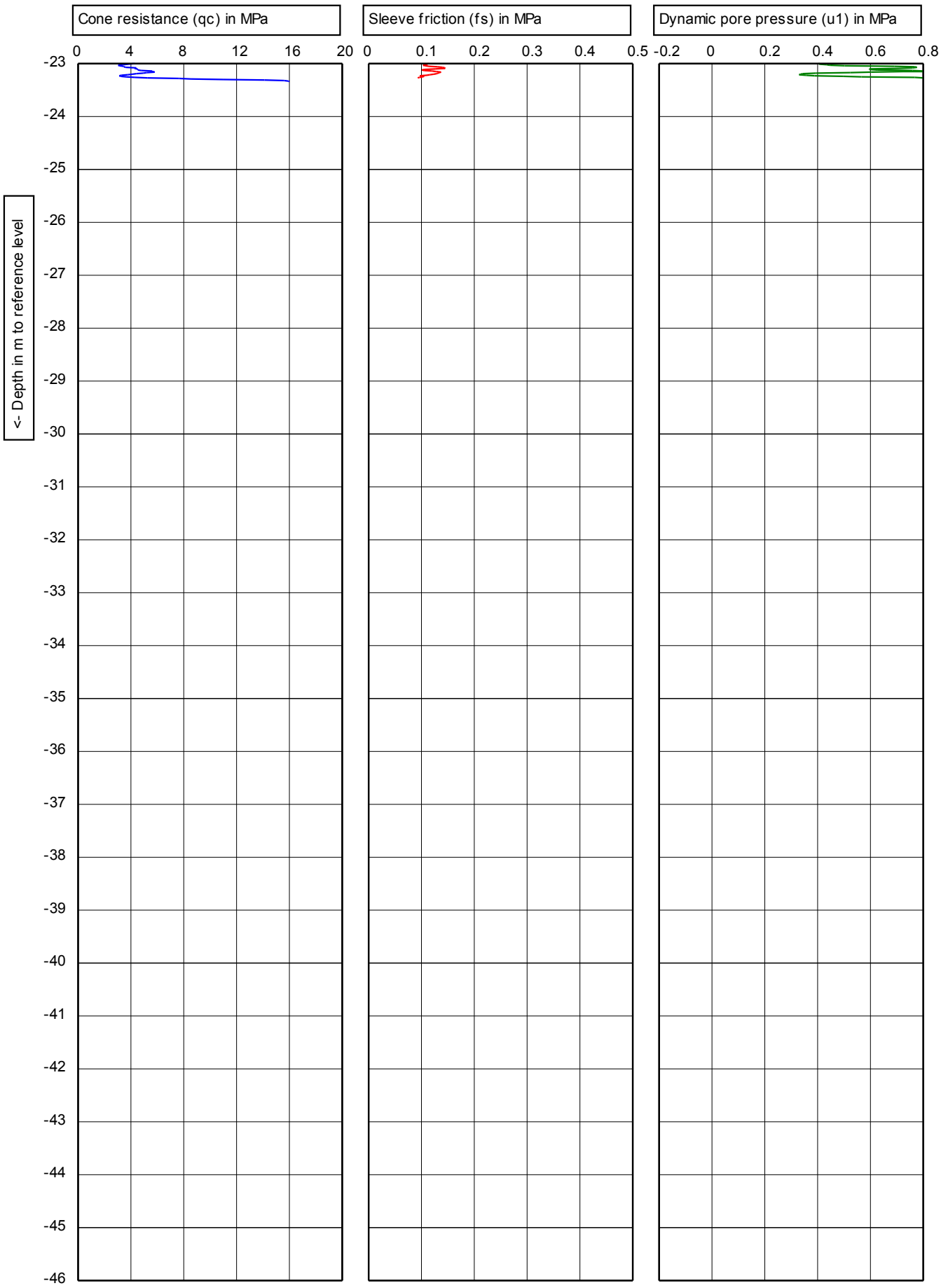
	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-2**	Date: **05/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT307A** **3/3**

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT308** **1/6**

CPTask V1.33



u1
150 cm²
10 cm²

Test Method BS1377 : Part 9 : 1990 :3.1

G.L. 0 NAP | W.L.: **-1.3**

Project: **A63 Castle Street Improvement**

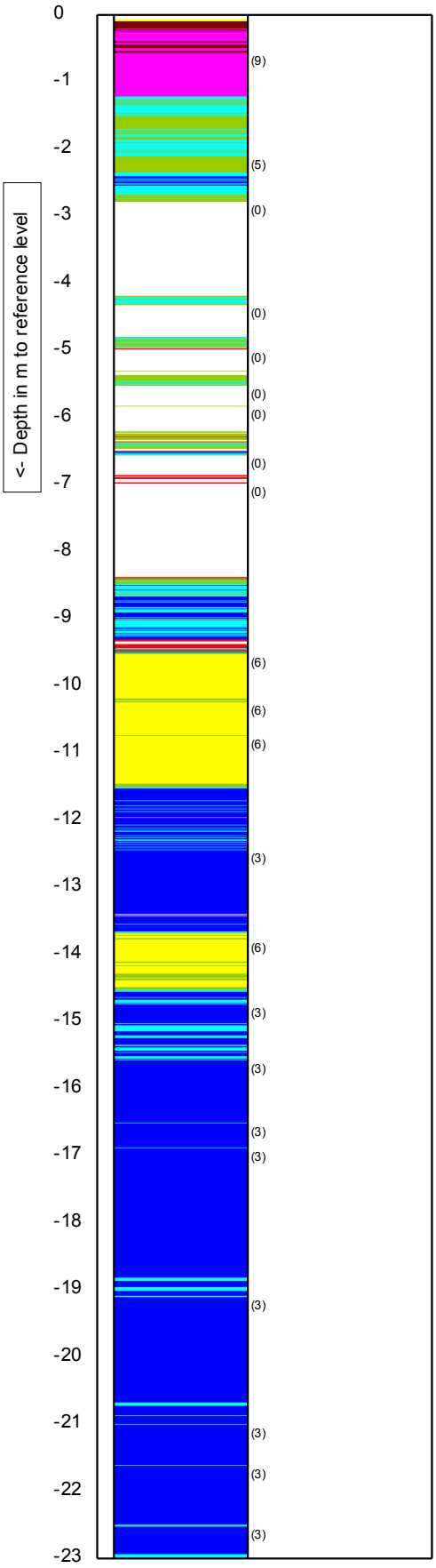
Location: **Trinity Burial Ground**

Position:

Predrill :	**0**
Date:	**03/06/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5049-15**
CPT no.:	**CPT308** **2/6**

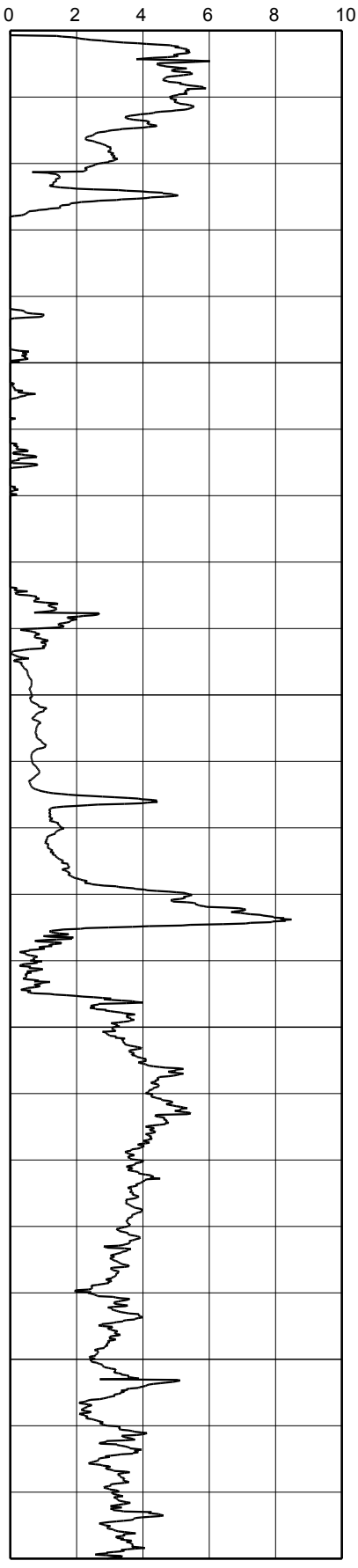
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

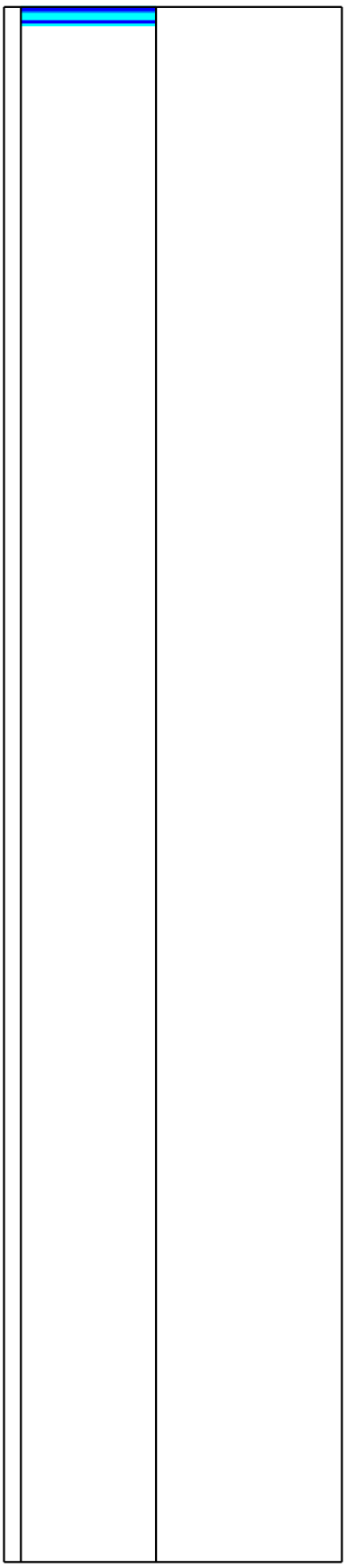
Friction ratio (Rf) in %



r u1 / L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.3	Date: 03/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT308 3/6

CPTask V1.33

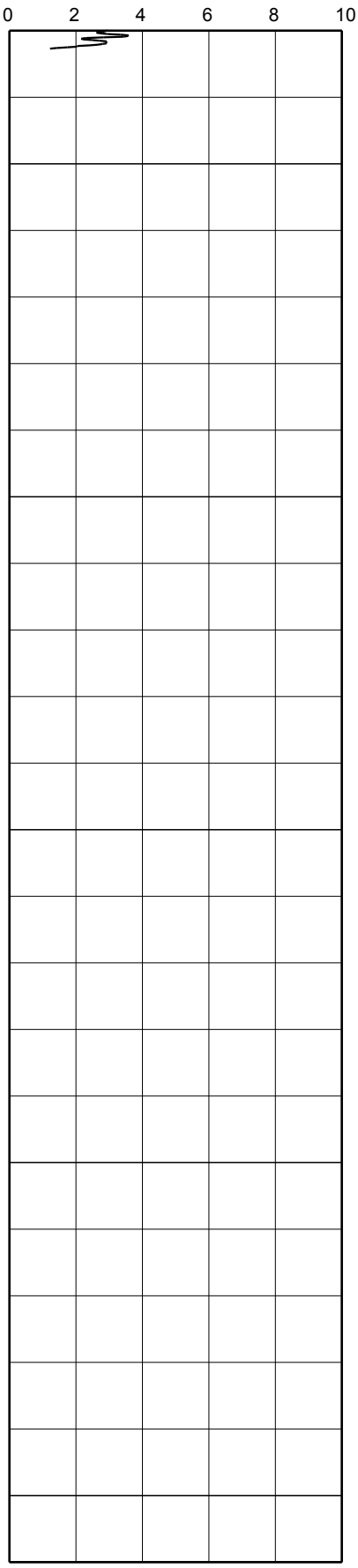
Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

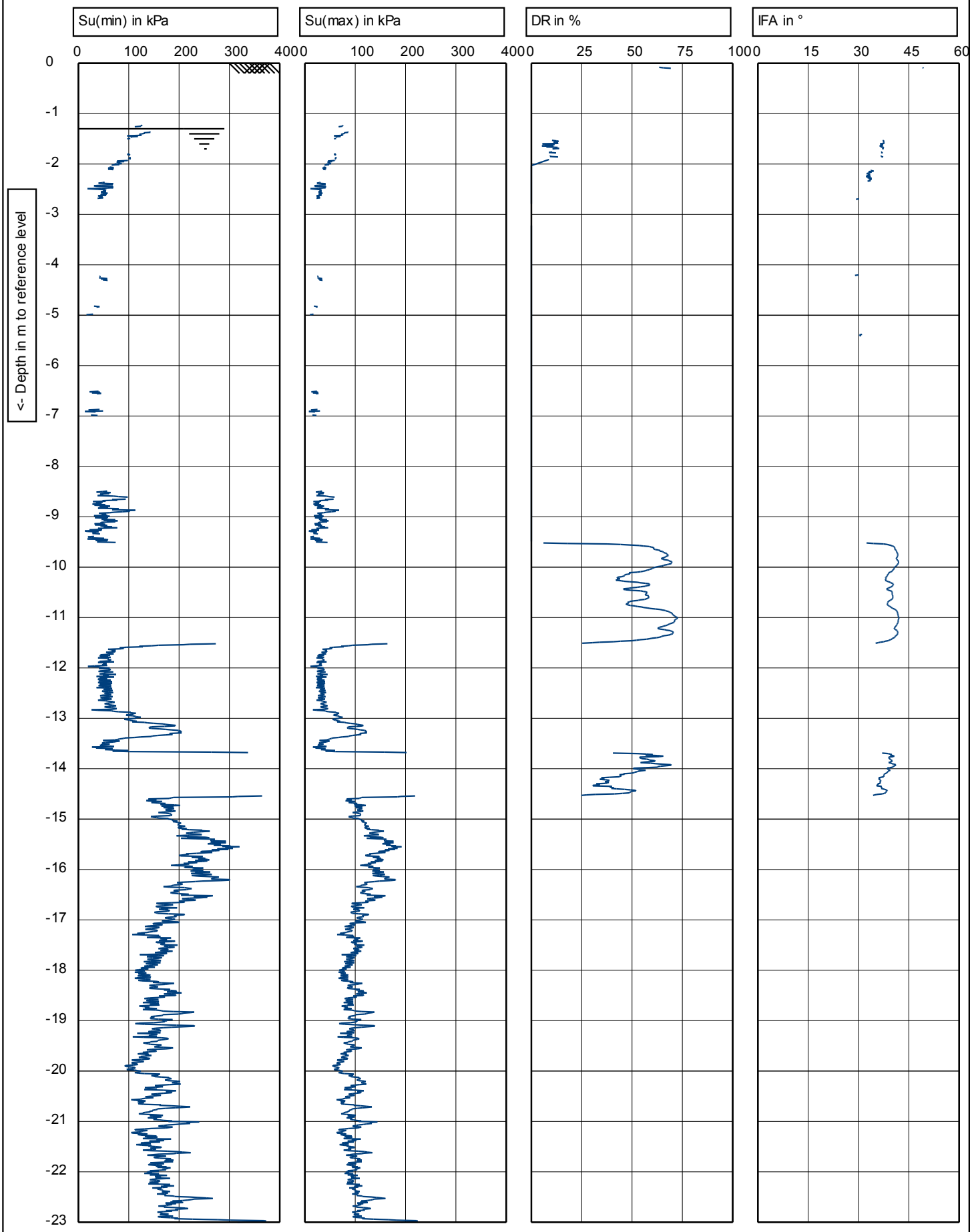
Friction ratio (Rf) in %



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT308** **4/6**

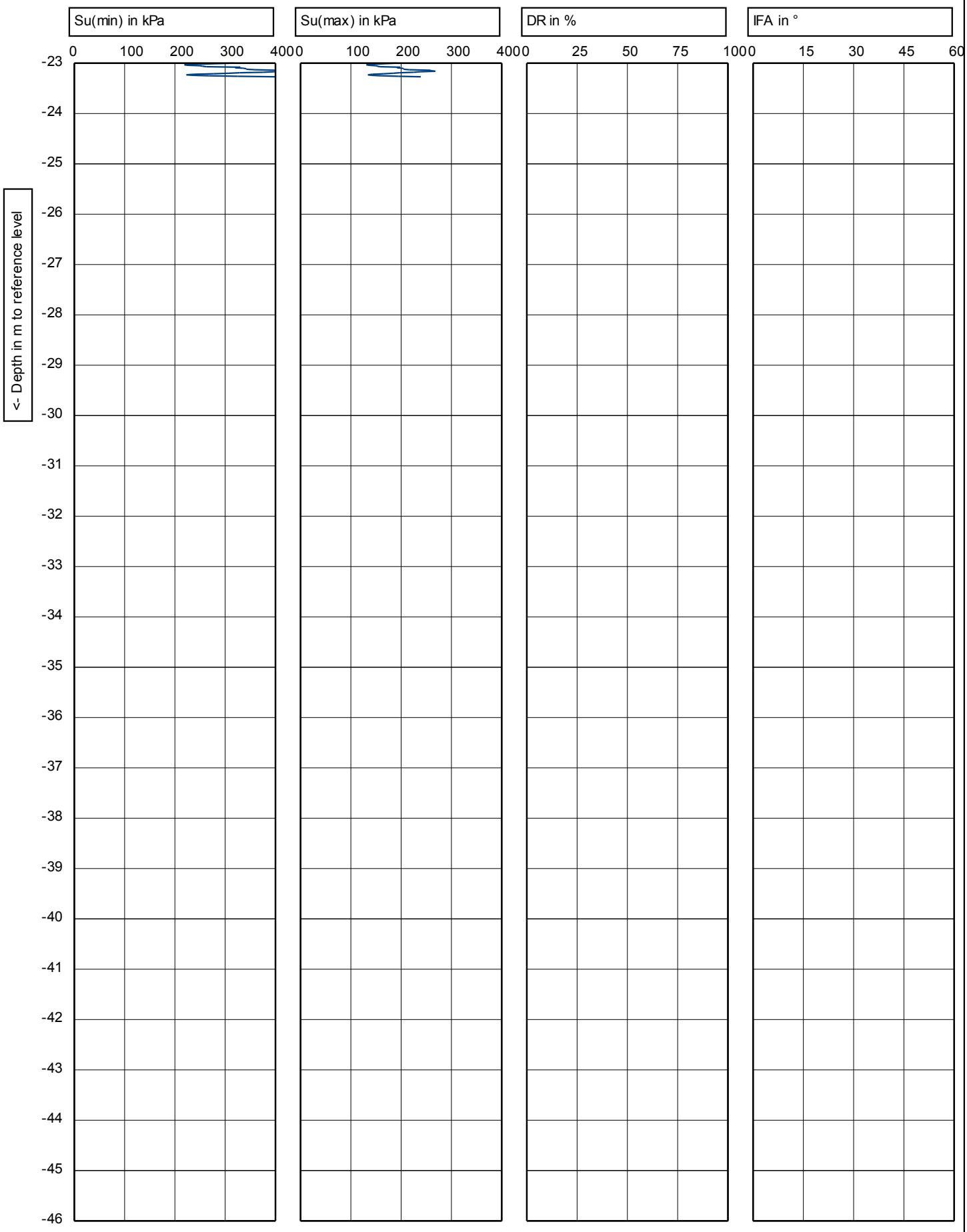
u1
150 cm²
10 cm²

CPTask V1.33



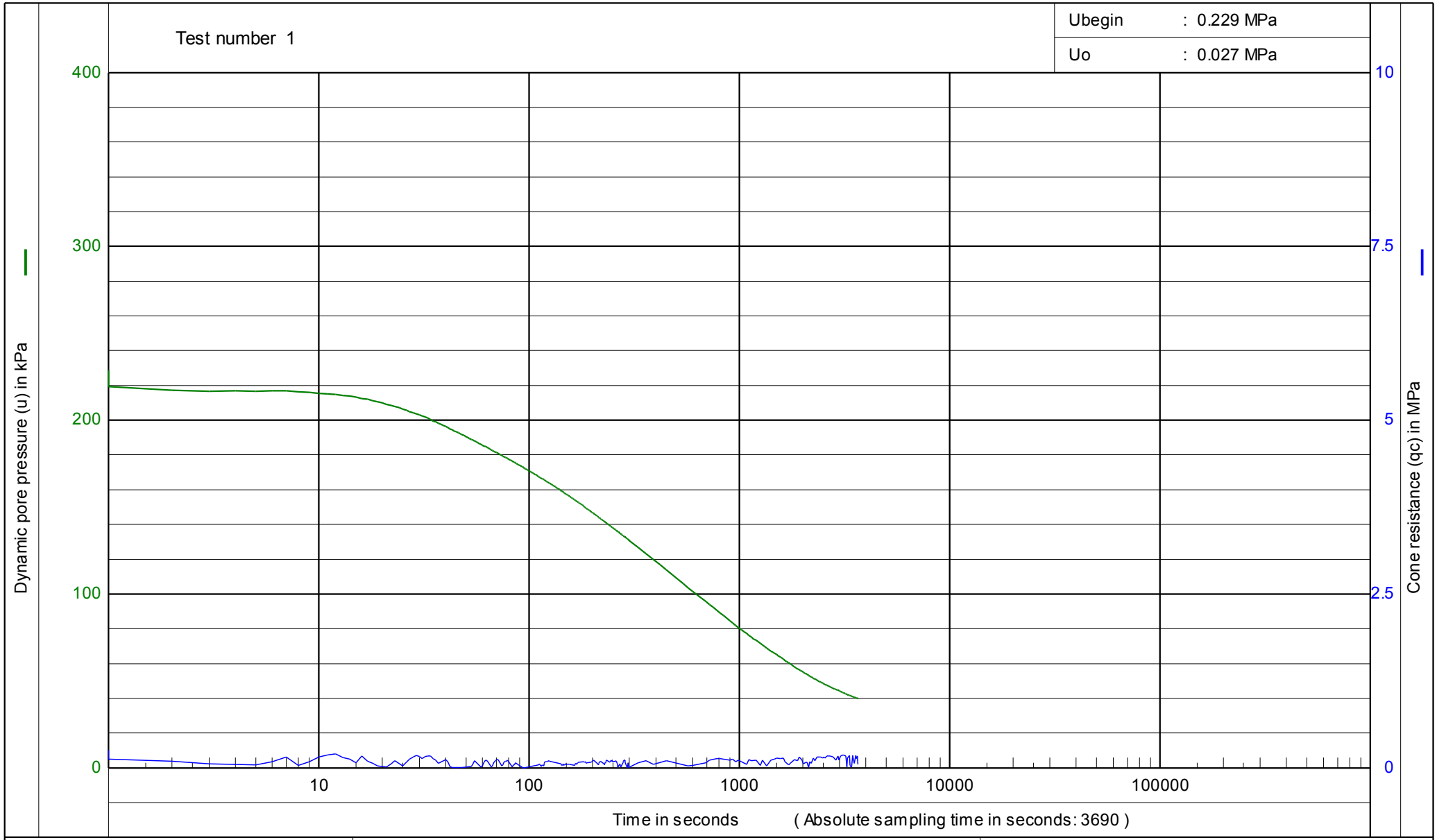
r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT308** **5/6**

CPTask V1.33

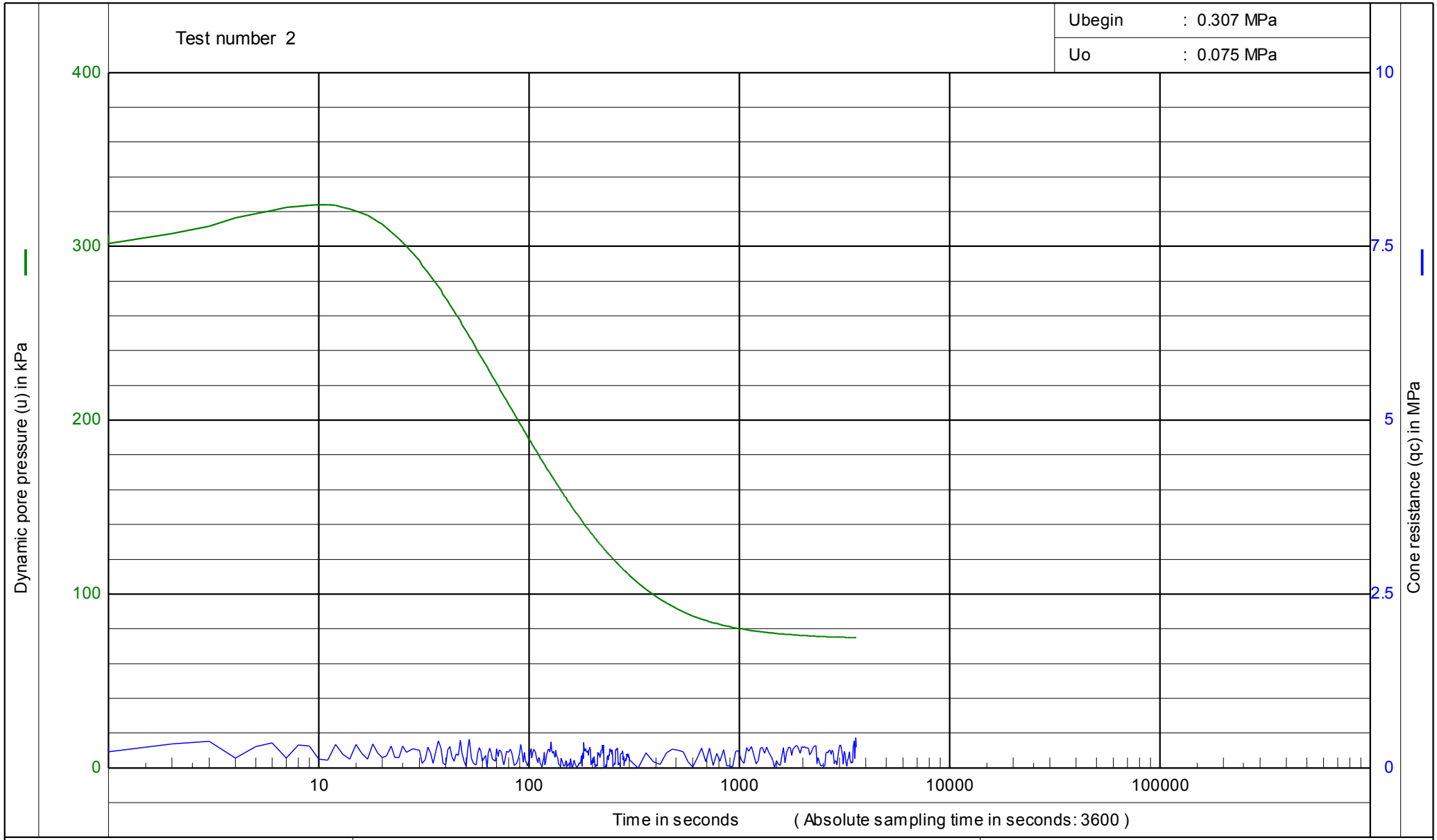


	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-1.3**	Date: **03/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT308** **6/6**

CPTask V1.33



Test Method BS1377 : Part 9 : 1990 :3.1	
Project : A63 Castle Street Improvement	Date : 03/06/2015
Location : Trinity Burial Ground	Project no. : A5049-15
	CPT no. : CPT308
	Test depth : -4.04 [m] - G.L.
	Water level : -1.3 [m] - G.L.

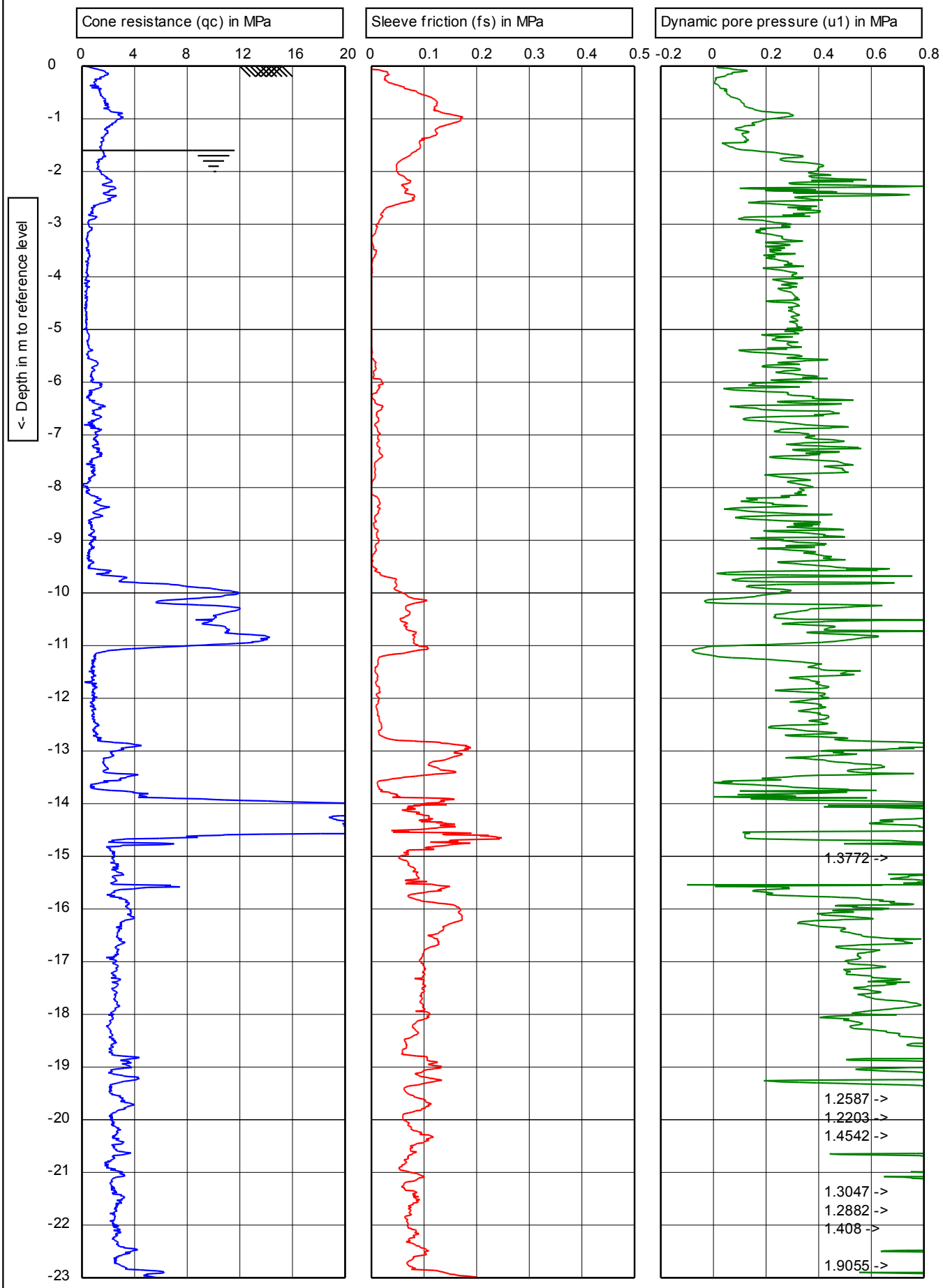


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

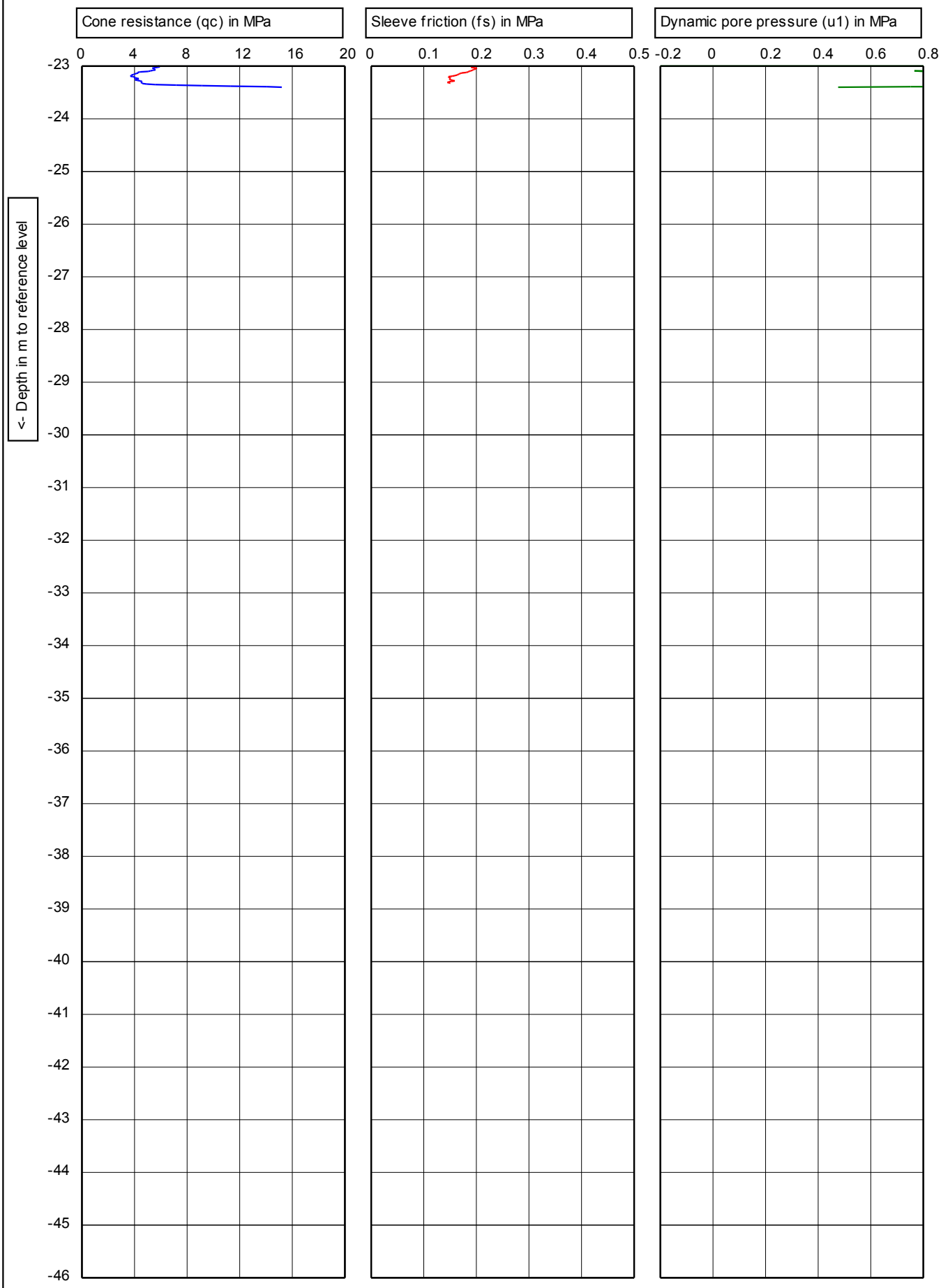
Location : Trinity Burial Ground

Date	:	03/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT308
Test depth	:	-8.83 [m] - G.L.
Water level	:	-1.3 [m] - G.L.



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.6**	Date: **28/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT309** **1/6**

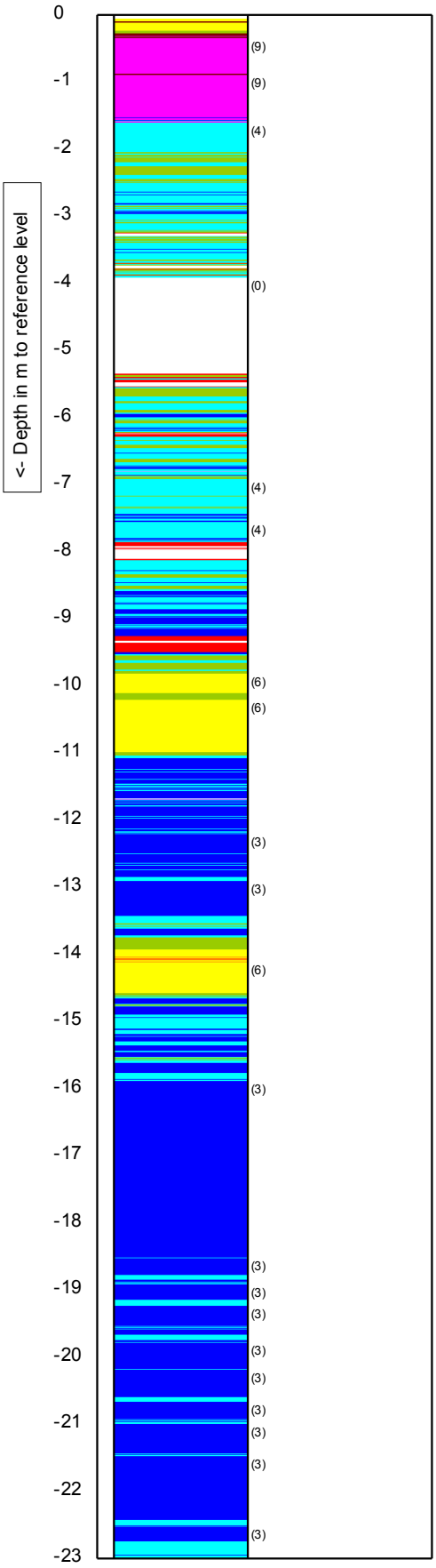
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.6**	Date: **28/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT309** **2/6**

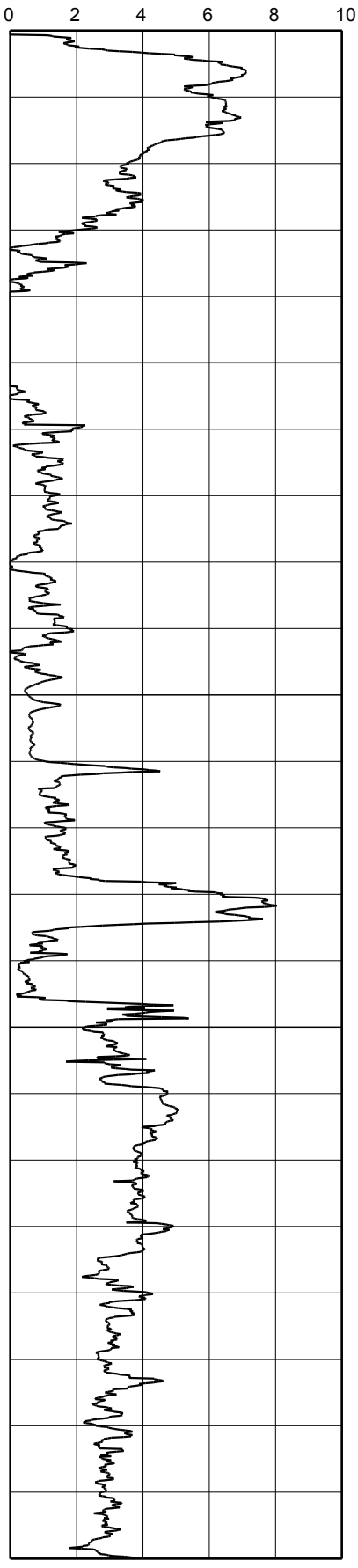
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

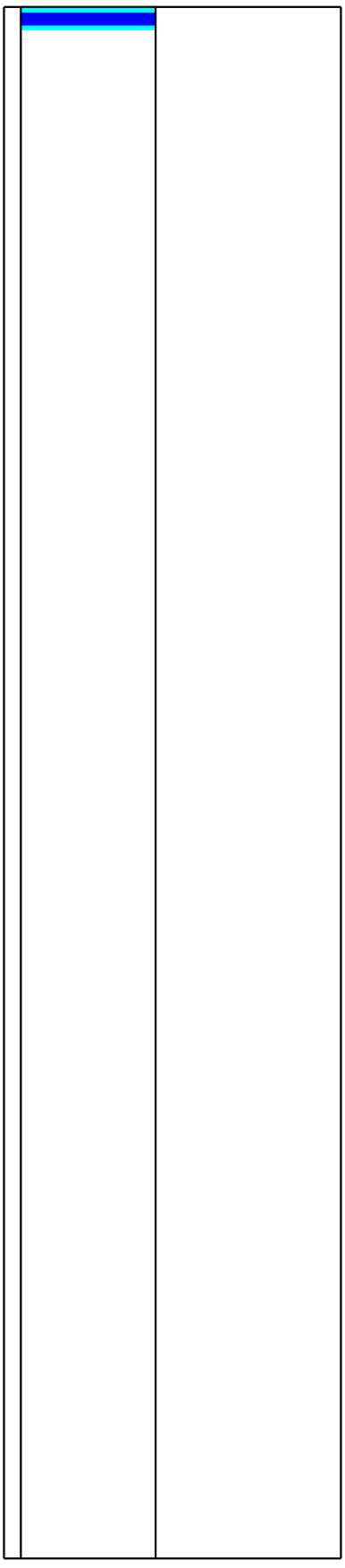
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.6**	Date: **28/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT309** **3/6**

CPTask V1.33

Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
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(6) Sands
(7) Gravelly sand to sand
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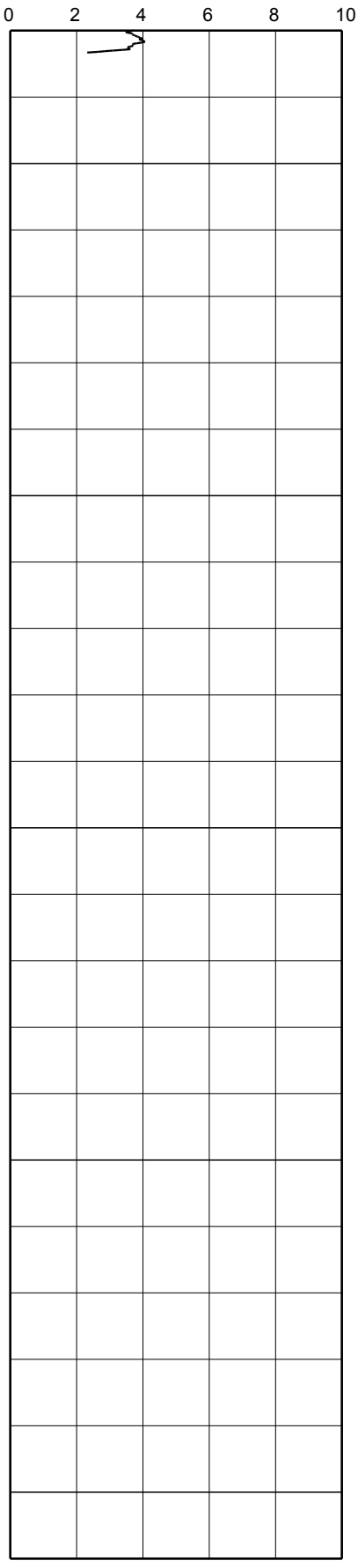
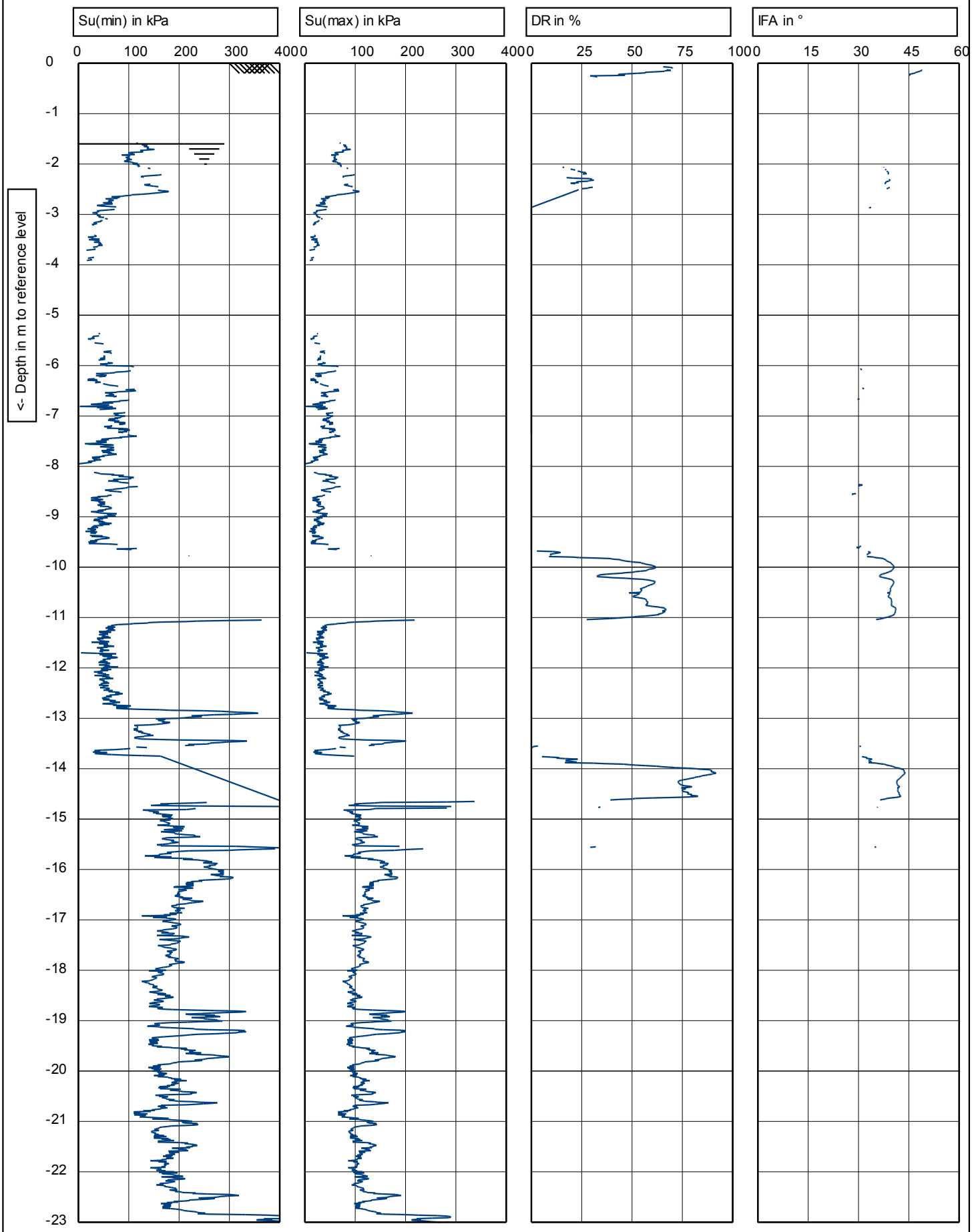
Friction ratio (Rf) in %



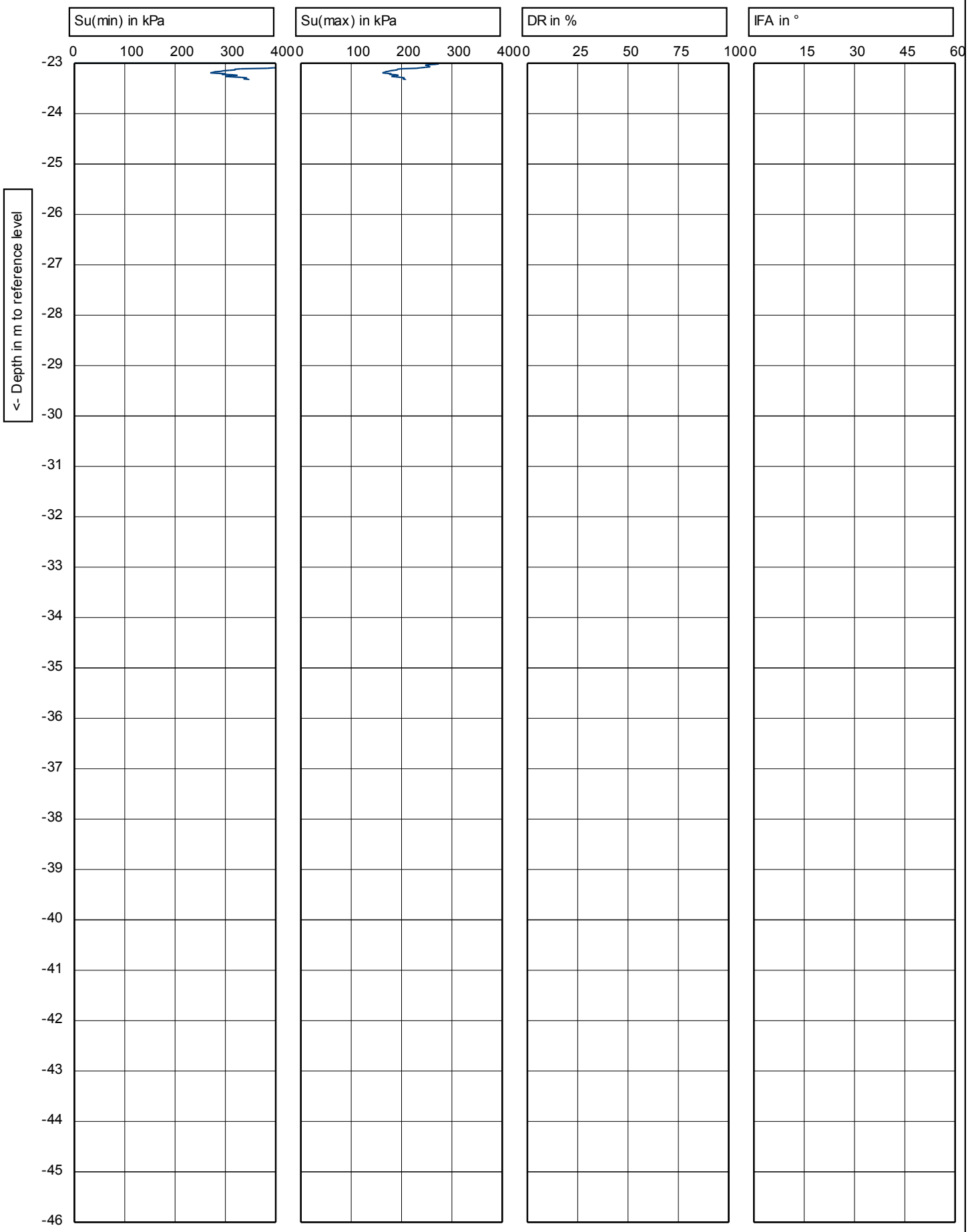
┌ u1 └ 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.6**	Date: **28/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT309** **4/6**

CPTask V1.33



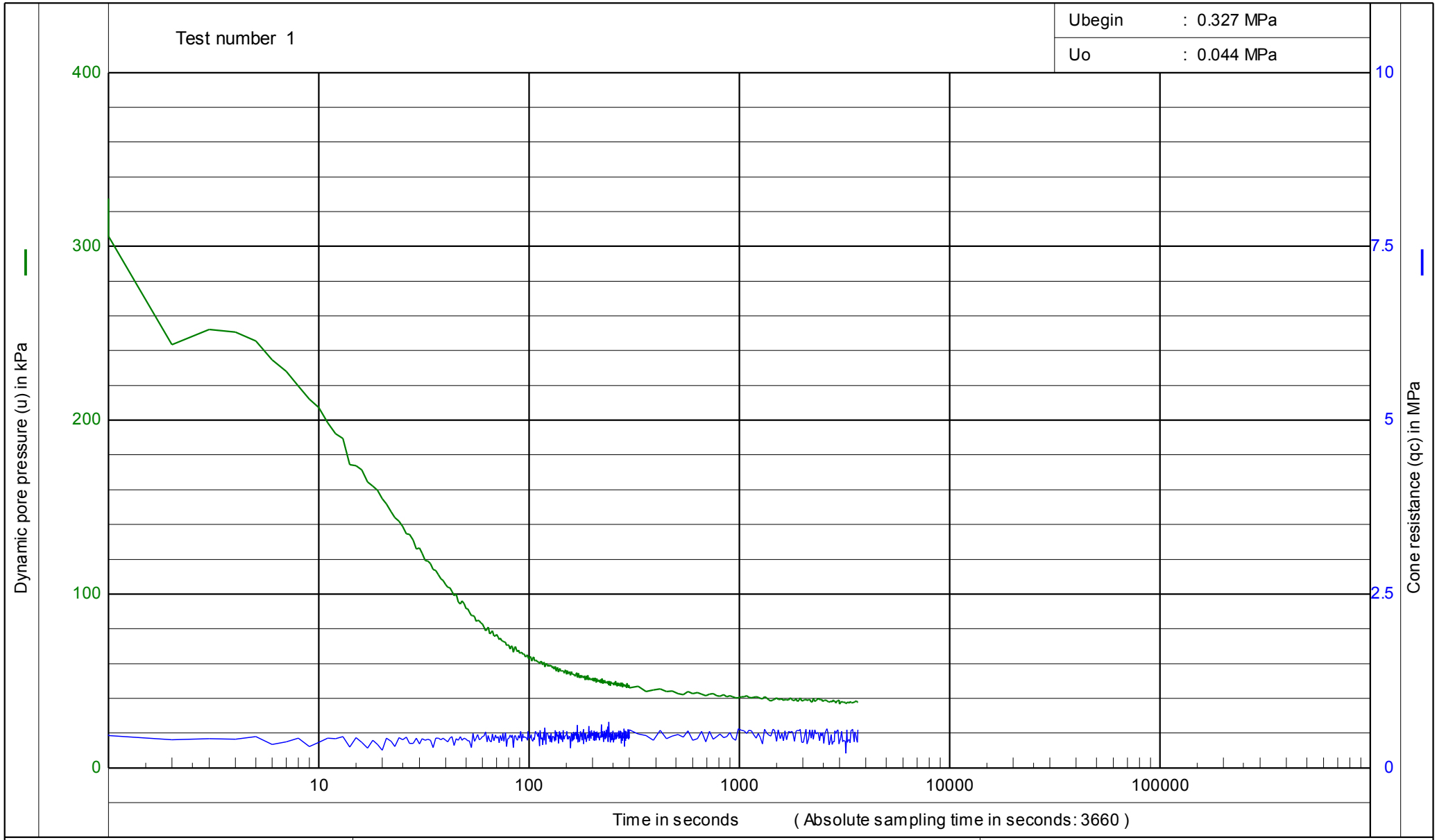
r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.6**	Date: **28/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT309** **5/6**

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-1.6**	Date: **28/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT309** **6/6**

CPTask V1.33



Test Method BS1377 : Part 9 : 1990 :3.1

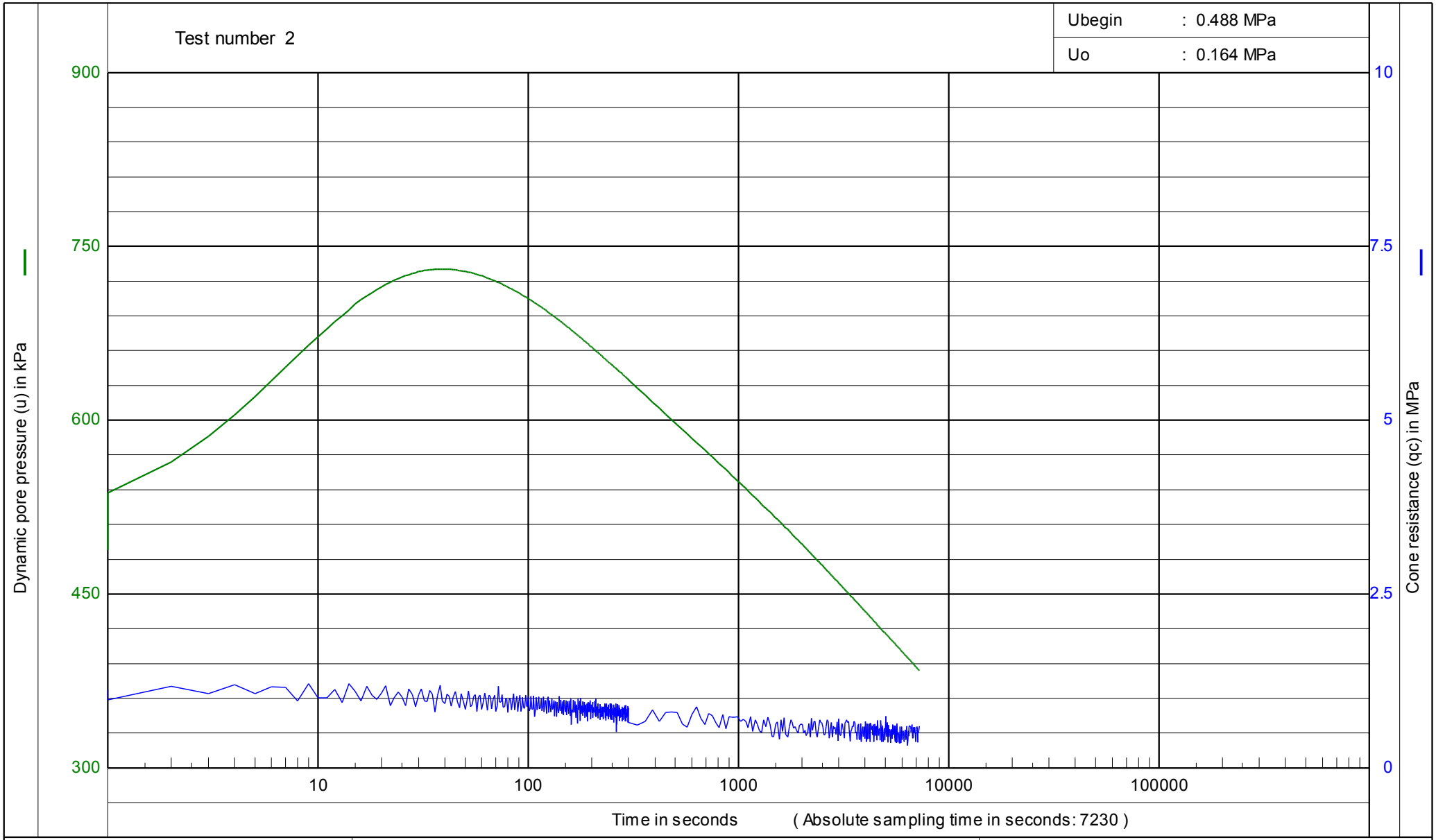
Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	28/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT309
Test depth	:	-6 [m] - G.L.
Water level	:	-1.6 [m] - G.L.

Test number 2

Ubegin	: 0.488 MPa
Uo	: 0.164 MPa

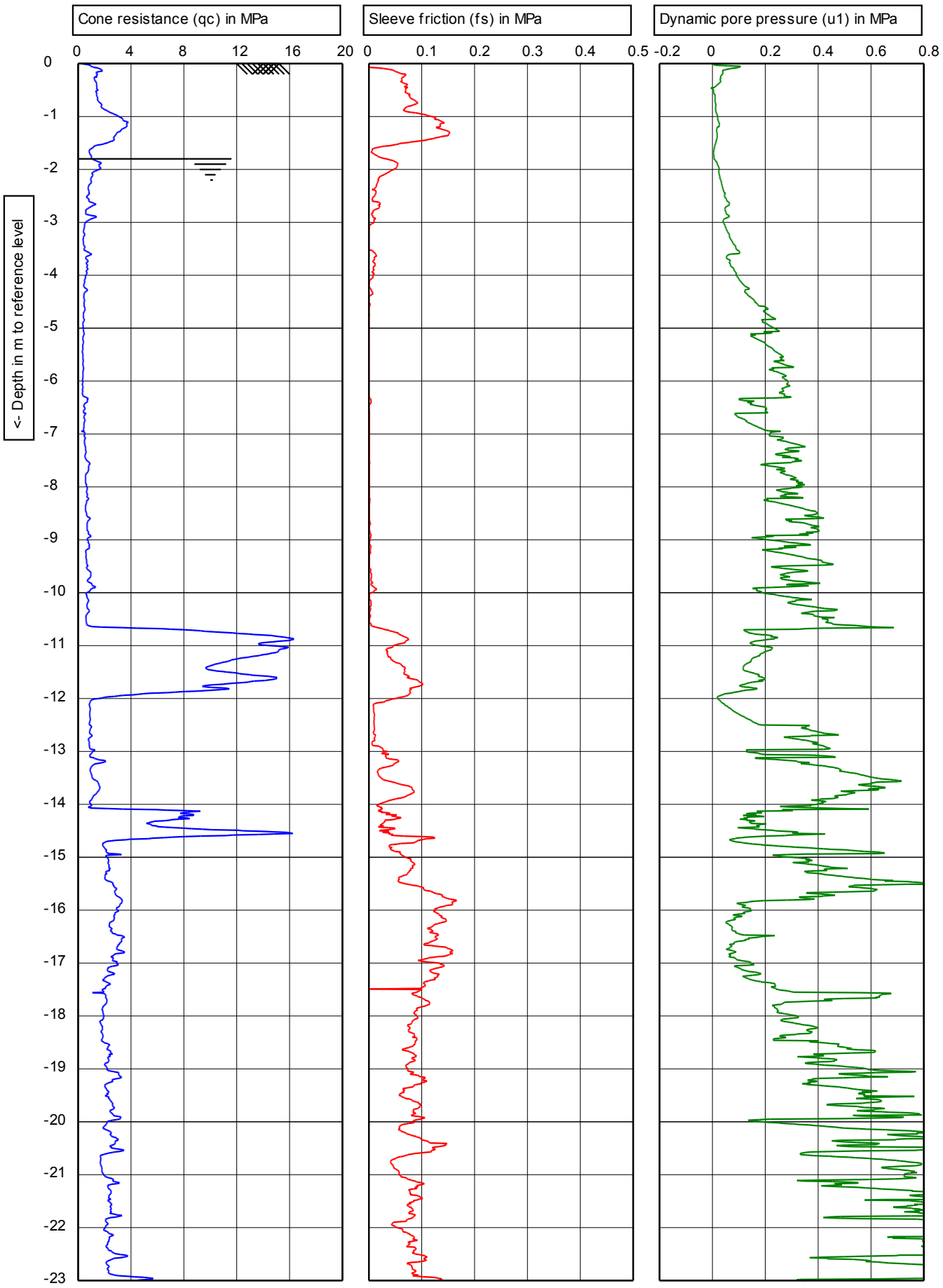


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

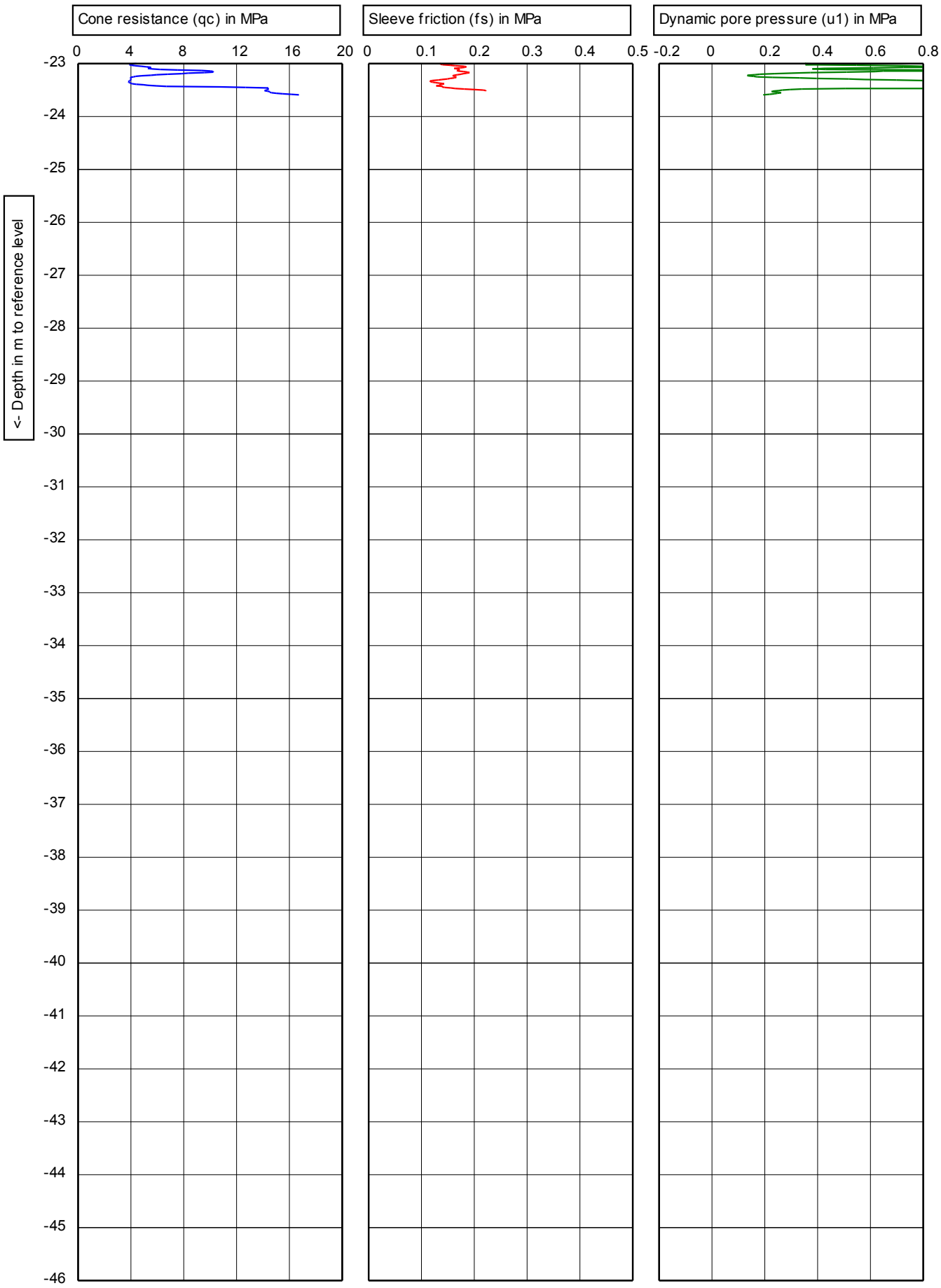
Location : Trinity Burial Ground

Date	: 28/05/2015	
Project no.	: A5049-15	
CPT no.	: CPT309	
Test depth	: -18	[m] - G.L.
Water level	: -1.6	[m] - G.L.



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **22/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT310** **1/6**

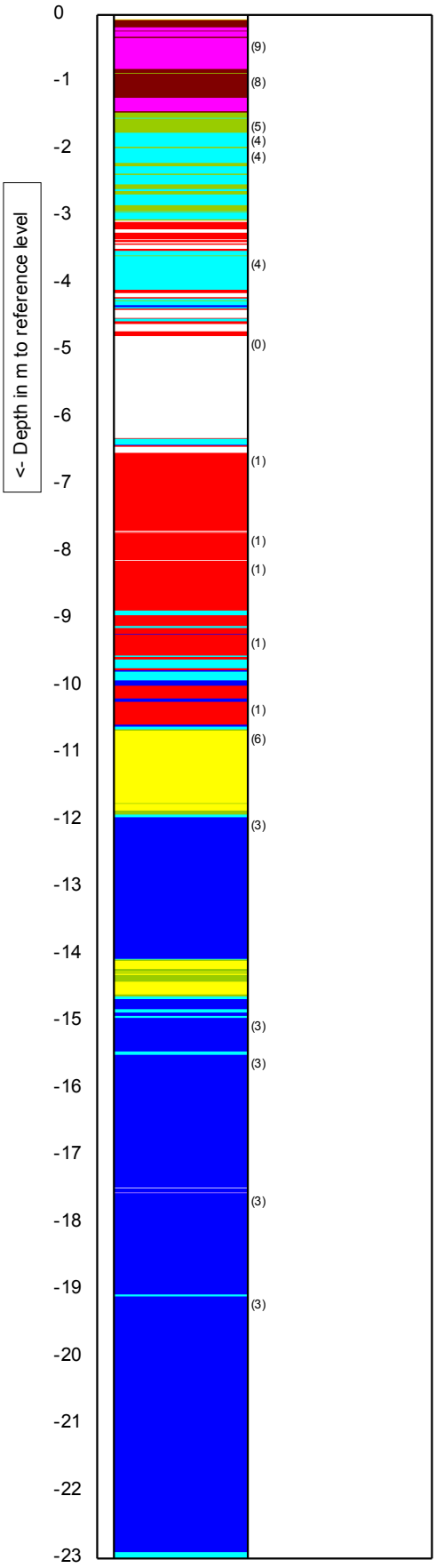
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **22/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT310** **2/6**

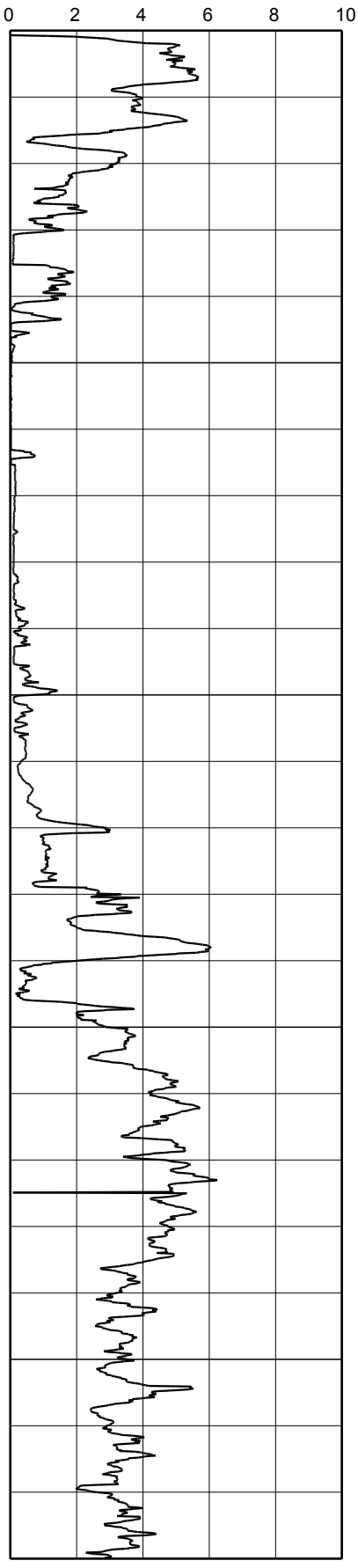
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

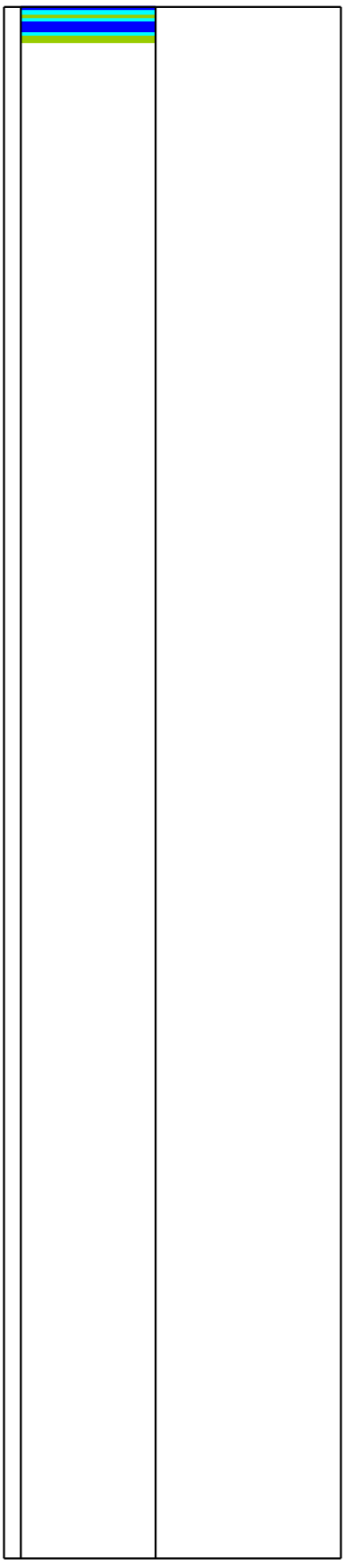
Friction ratio (Rf) in %



u1 / 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.8	Date: 22/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT310 3/6

CPTask V1.33

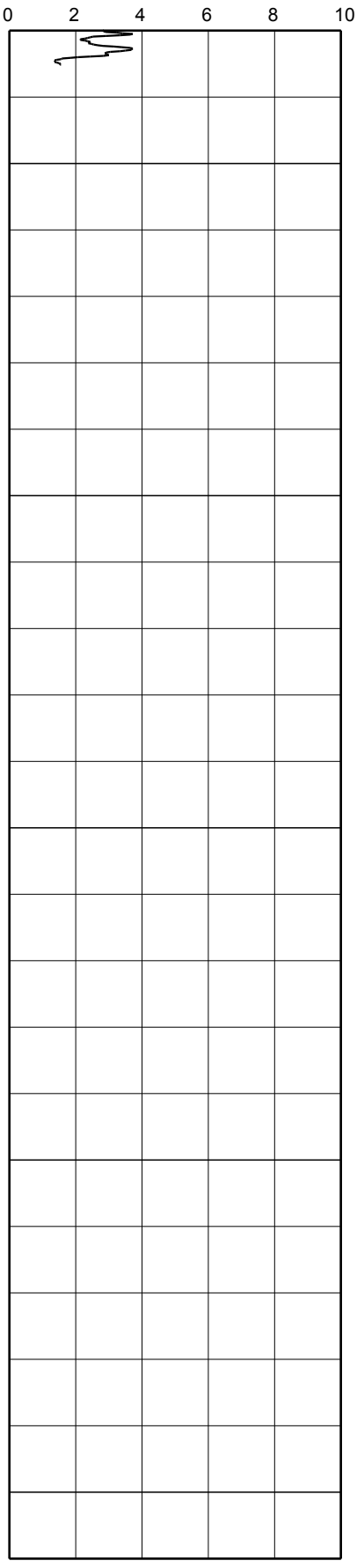
Soil Classification (using Fr)



<- Depth in m to reference level

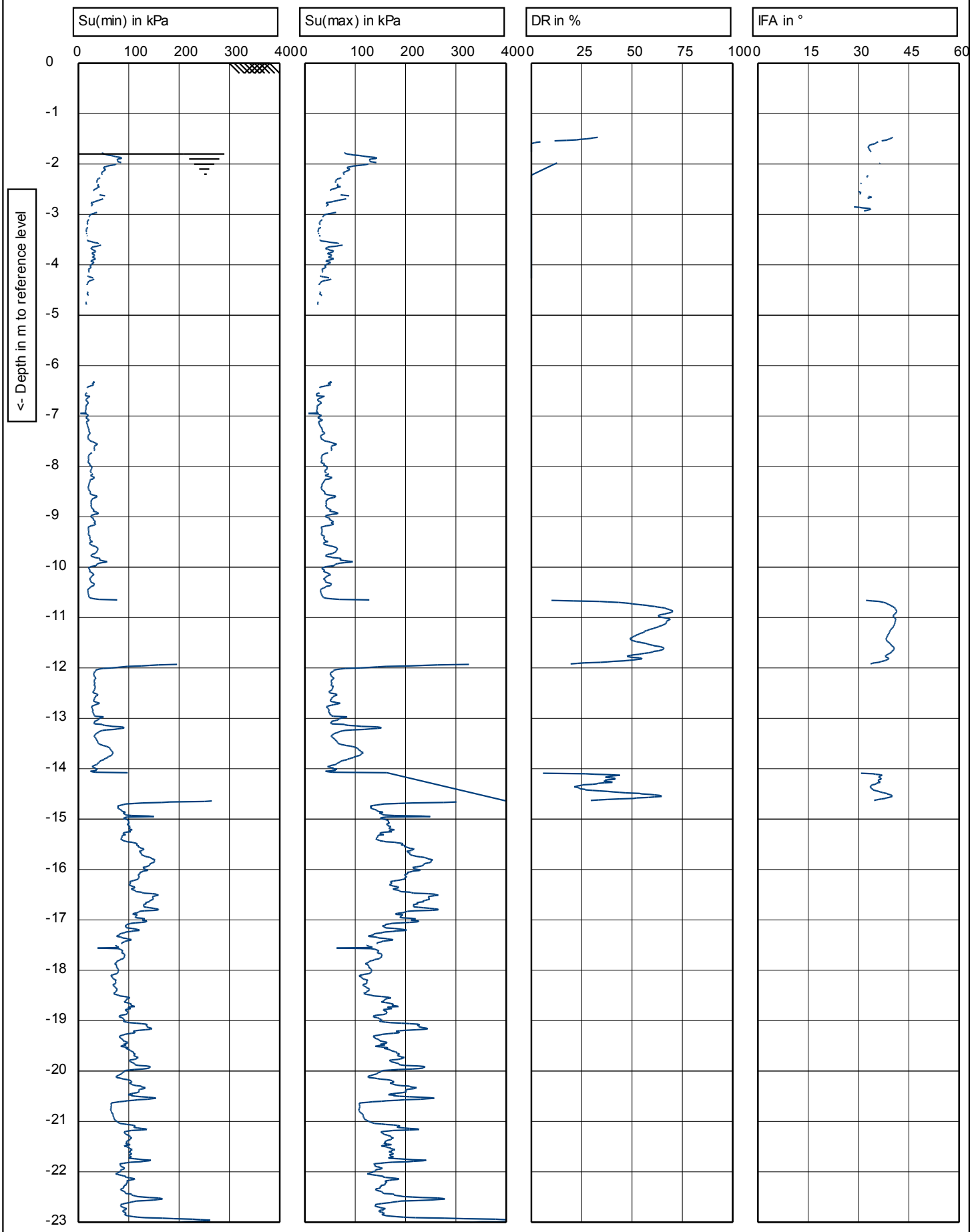
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



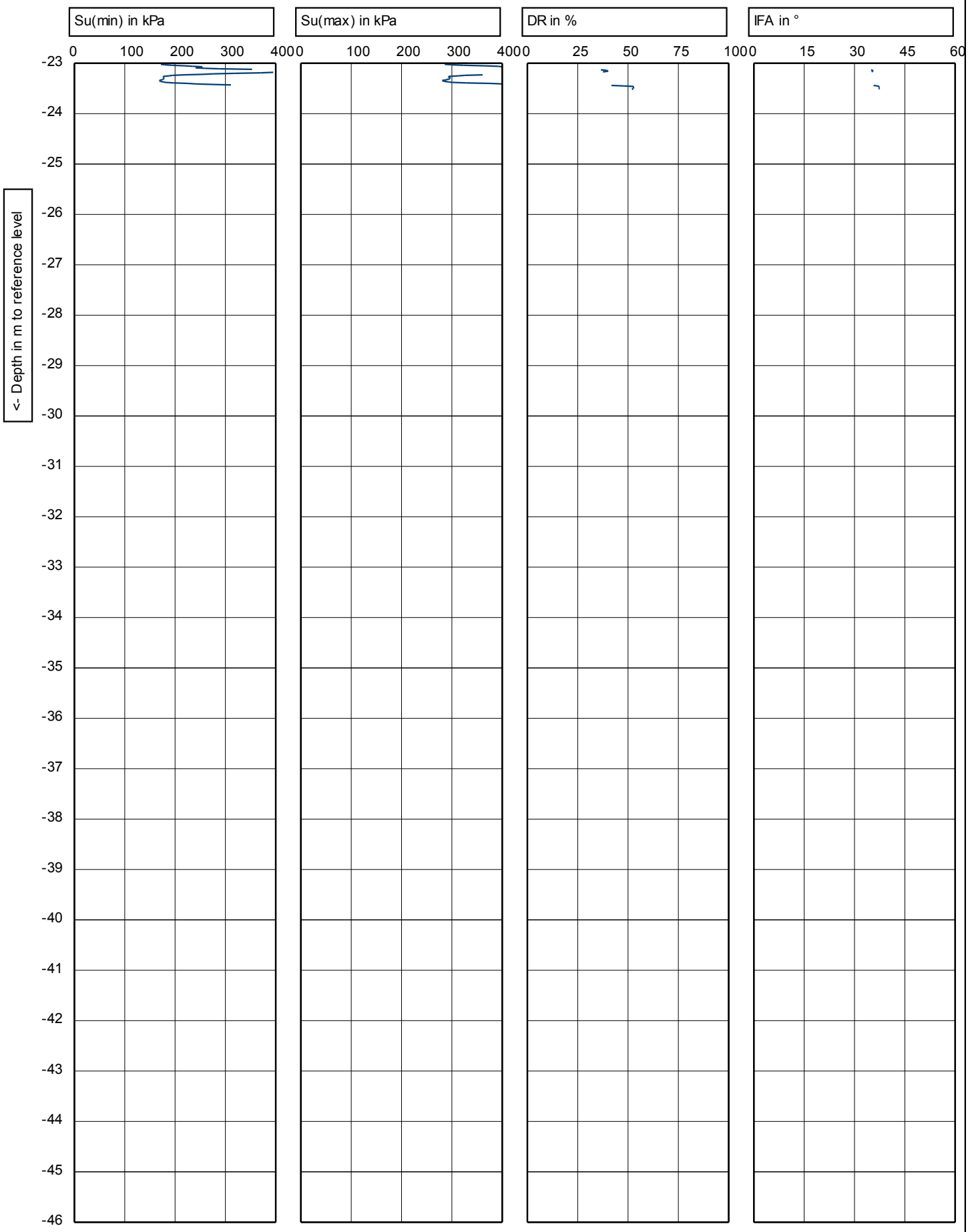
⌜ u1 ⌞ 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.8**	Date: **22/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT310** **4/6**

CPTask V1.33



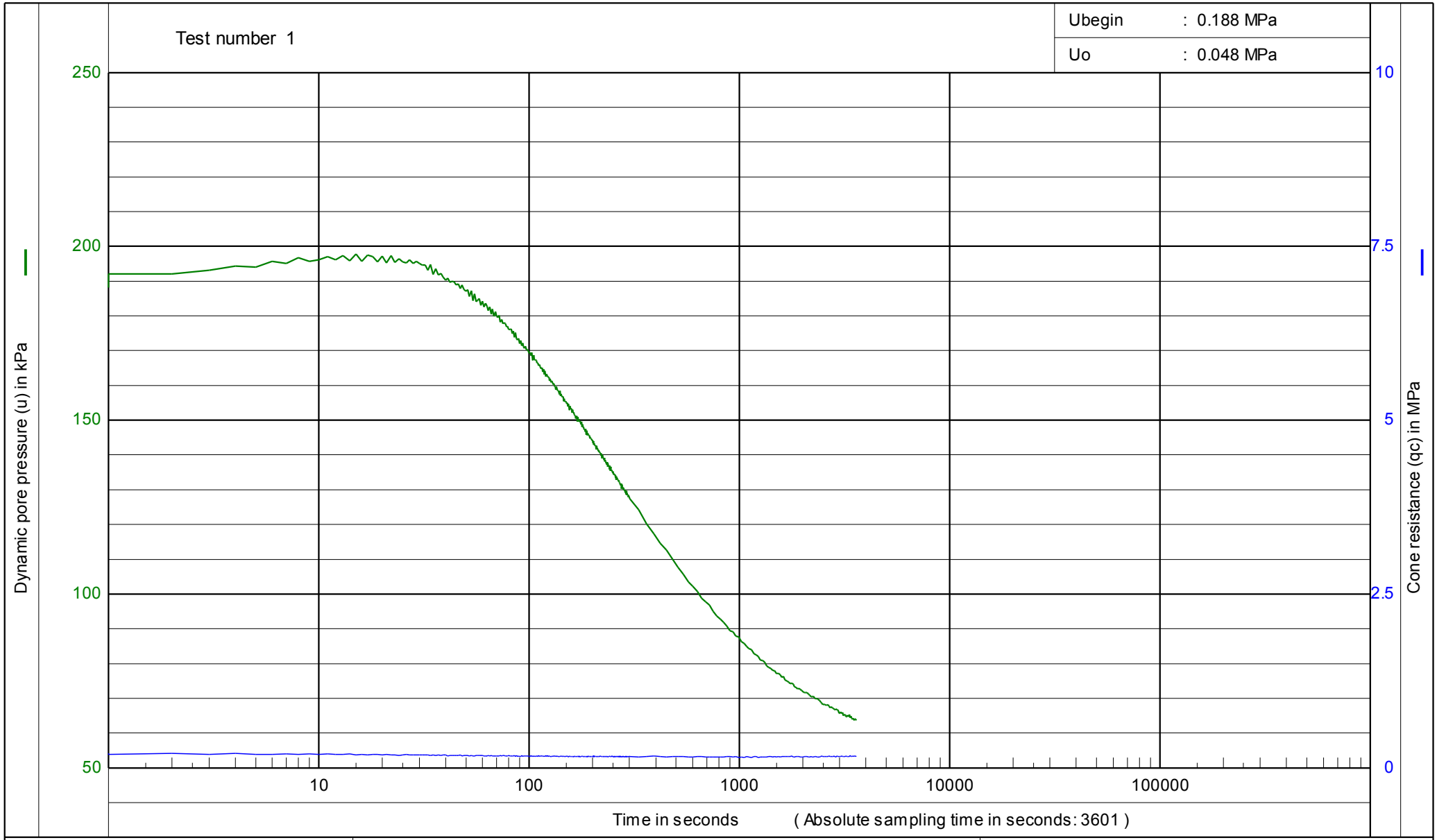
	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
qu1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-1.8**	Date: **22/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT310** **5/6**

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 : 3.1	Predrill :	**0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP — W.L.: **-1.8**	Date:	**22/05/2015**
Project: **A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location: **Trinity Burial Ground**		Project no.:	**A5049-15**
Position:		CPT no.:	**CPT310** **6/6**

CPTask V1.33

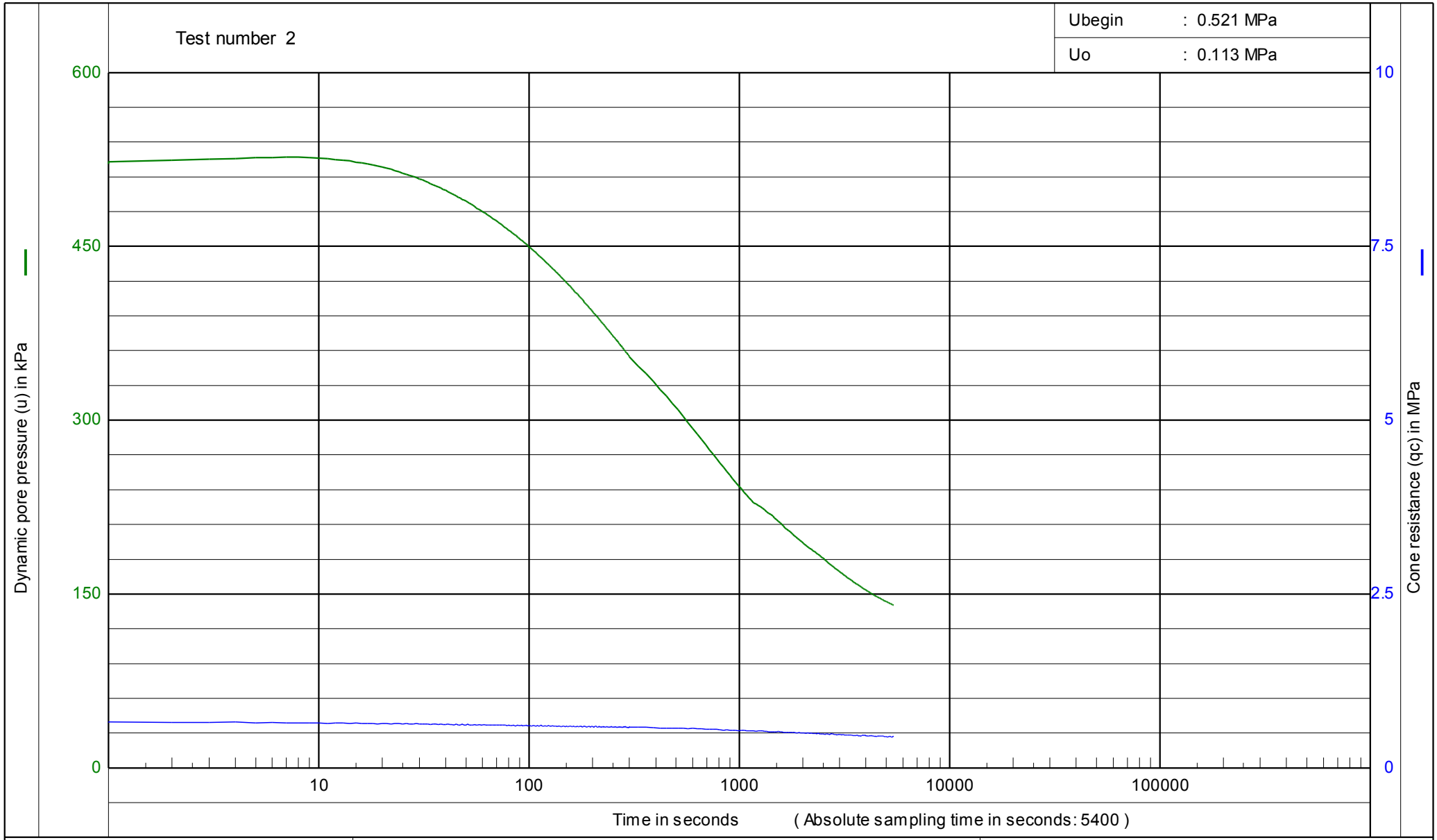


Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	22/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT310
Test depth	:	-6.6 [m] - G.L.
Water level	:	-1.8 [m] - G.L.

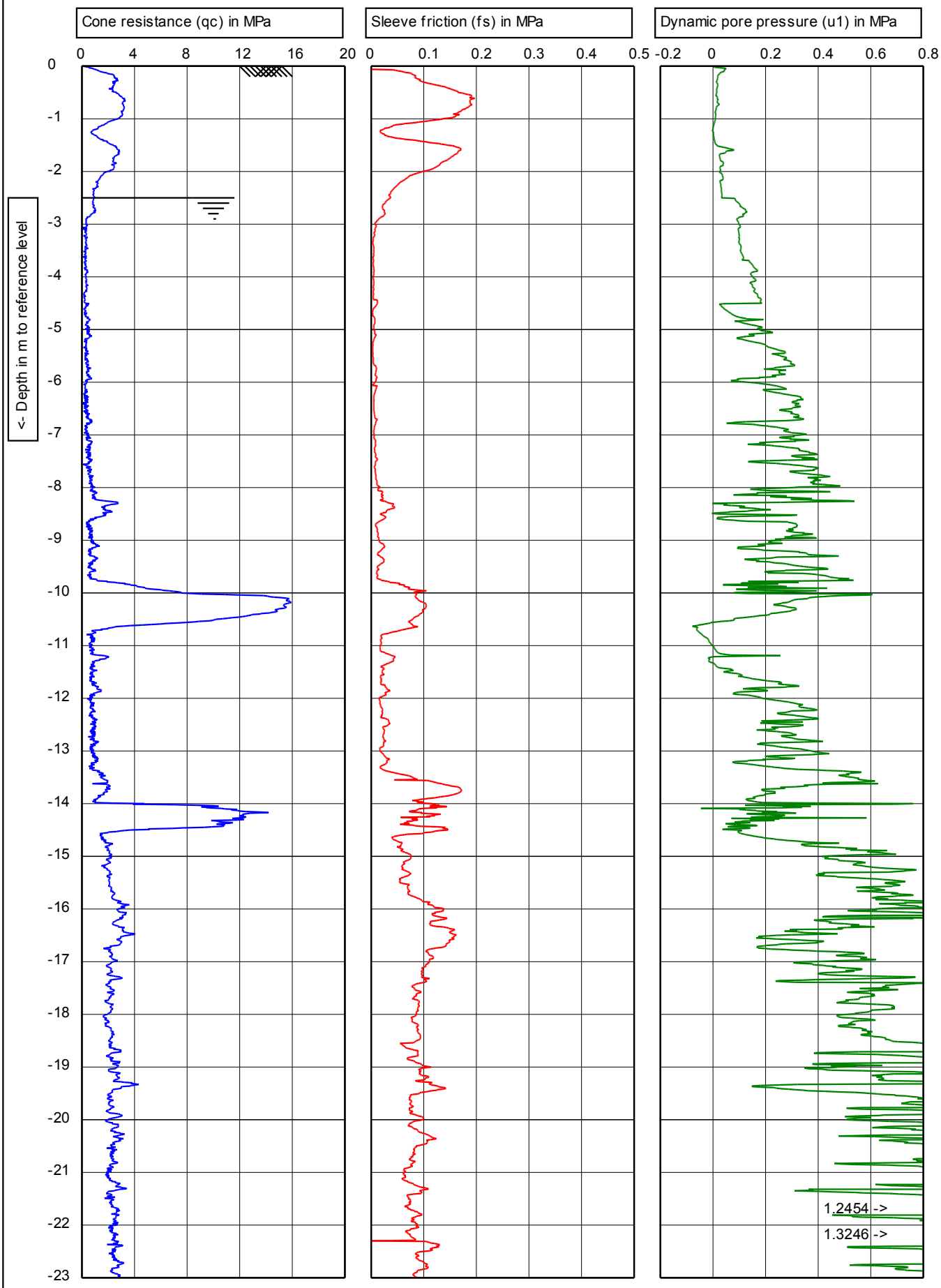


Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement

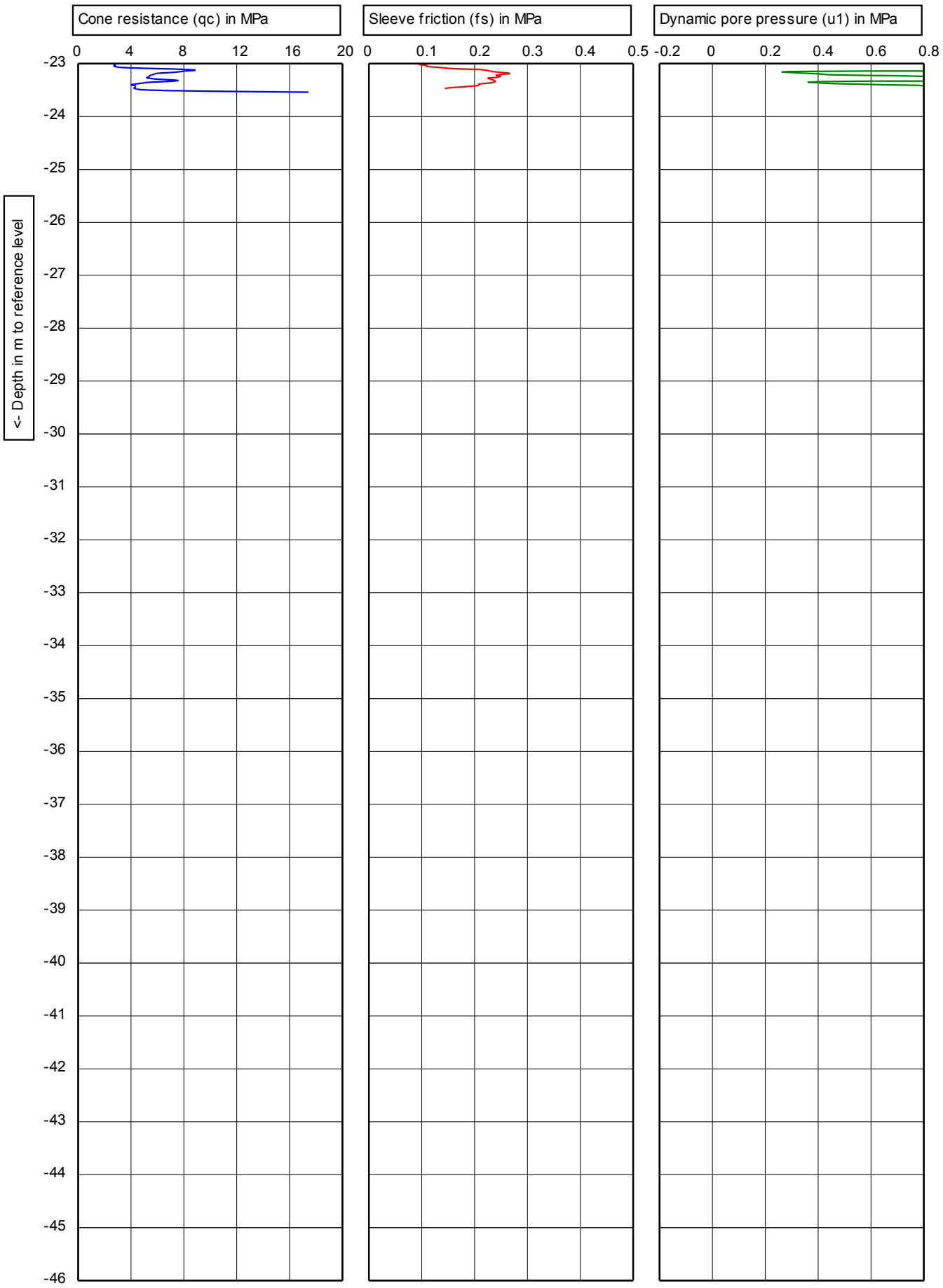
Location : Trinity Burial Ground

Date	:	22/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT310
Test depth	:	-13.11 [m] - G.L.
Water level	:	-1.8 [m] - G.L.



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.5**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT311** **1/6**

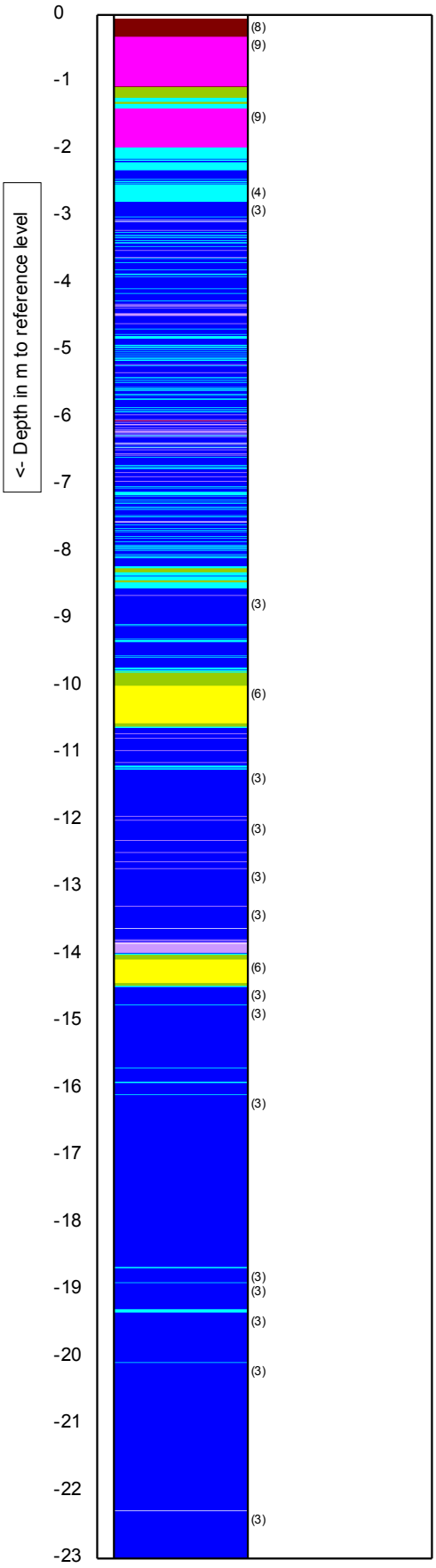
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.5**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT311** **2/6**

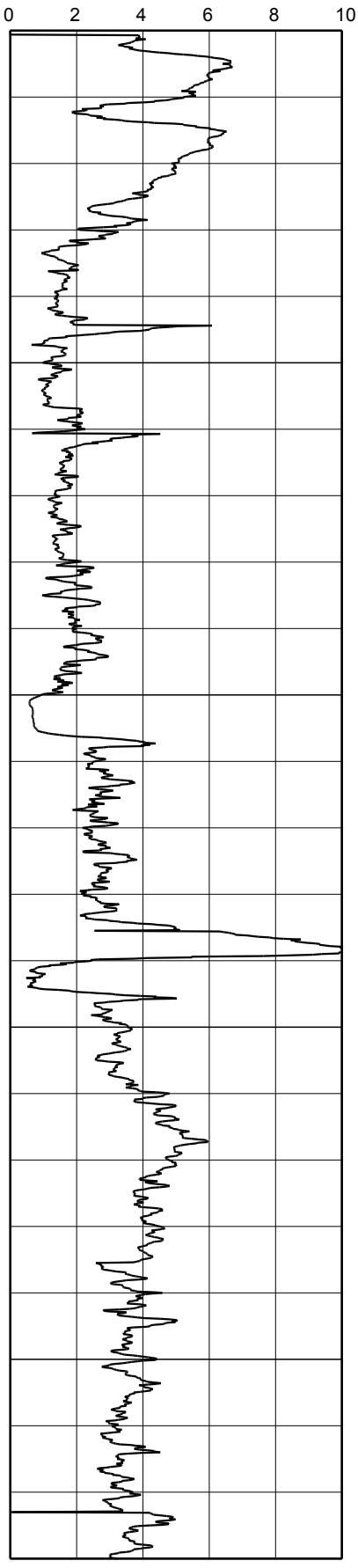
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

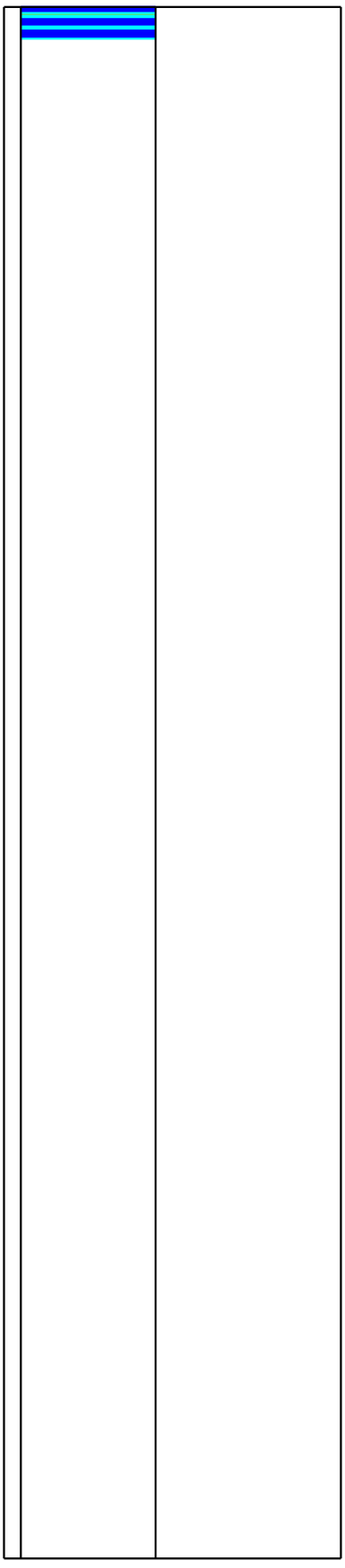
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-2.5**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT311** **3/6**

CPTask V1.33

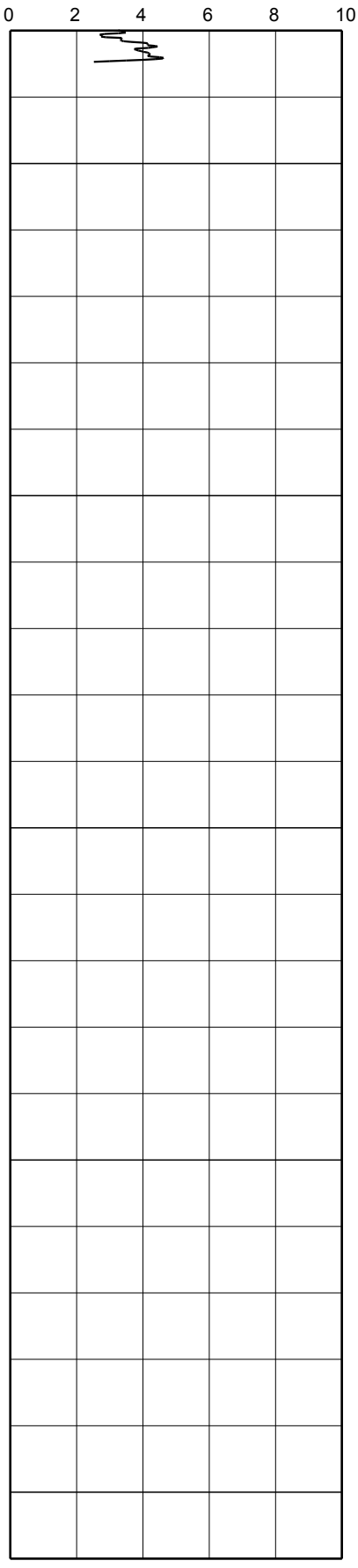
Soil Classification (using Fr)



<- Depth in m to reference level

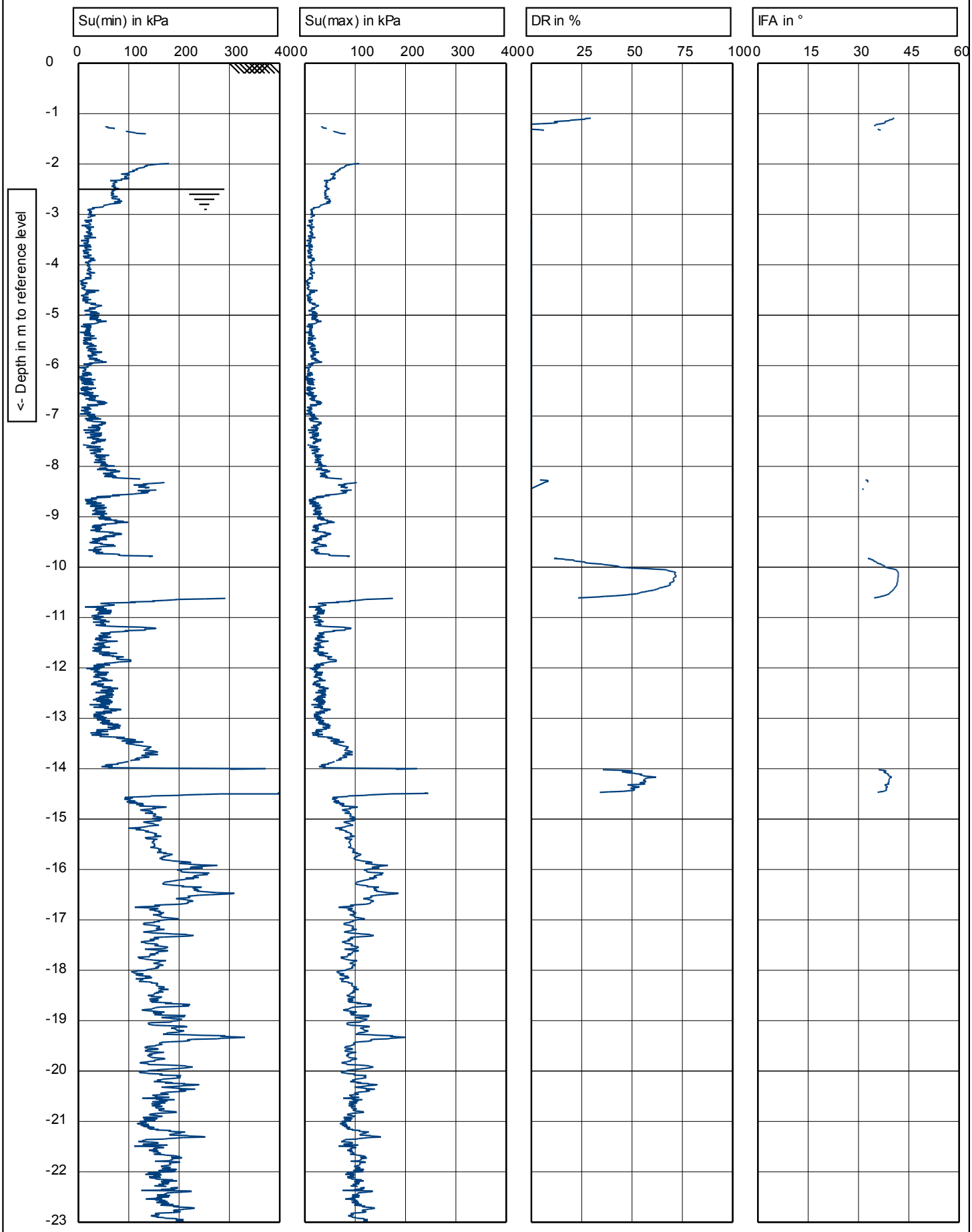
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



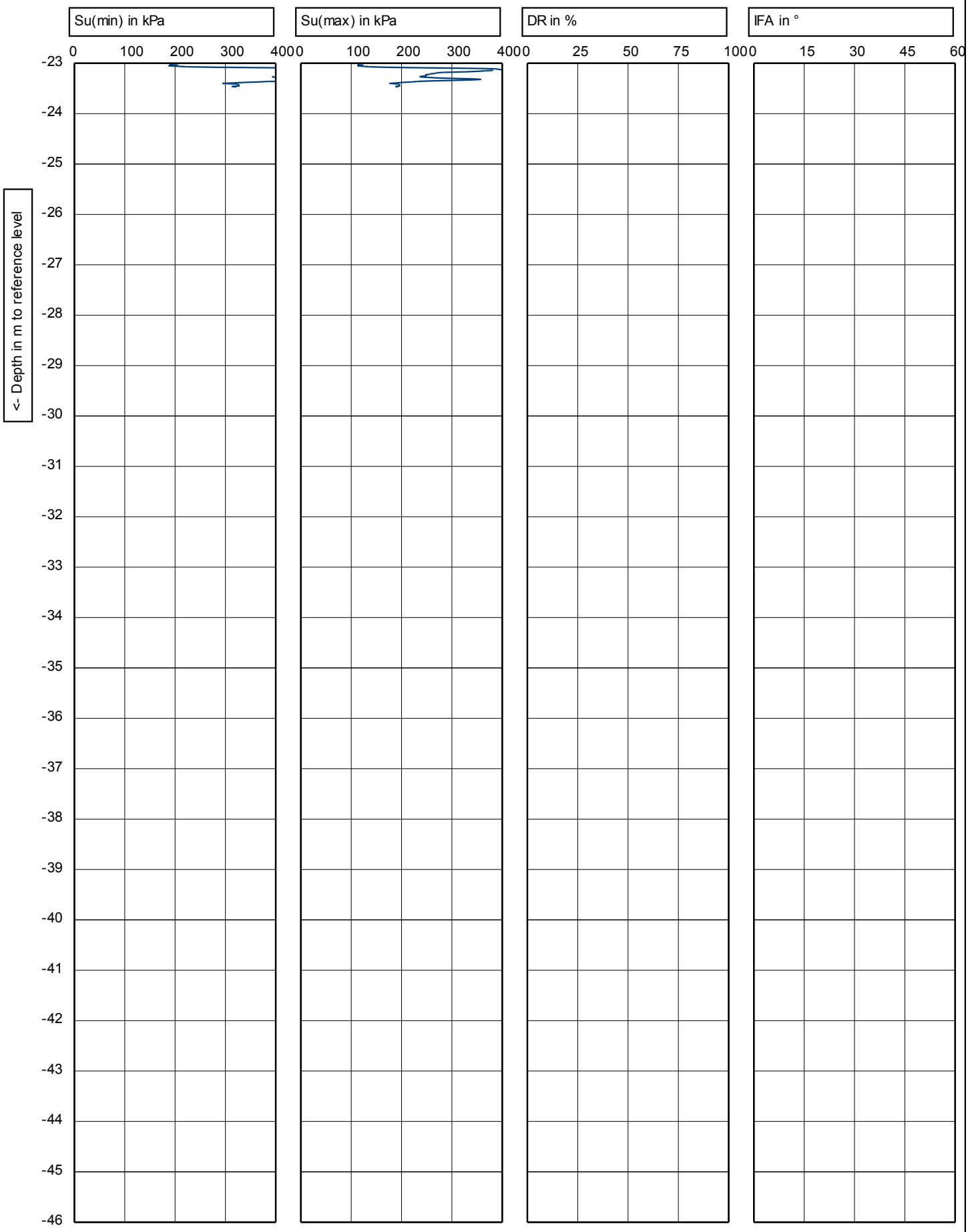
┌ u1 └ 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.5**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT311** **4/6**

CPTask V1.33



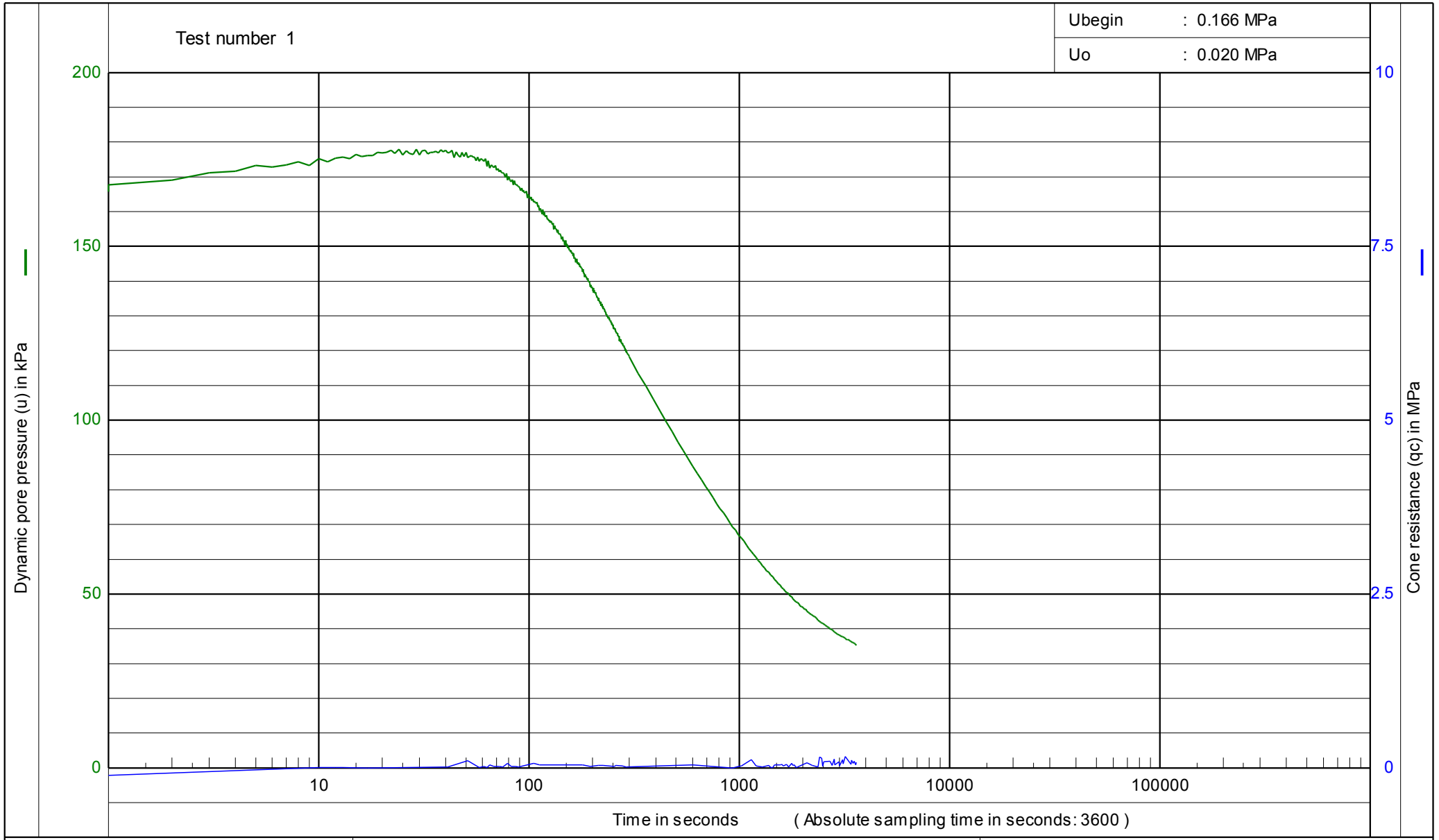
r u1 / L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.5**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT311** **5/6**

CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.5**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT311** **6/6**

CPTask V1.33

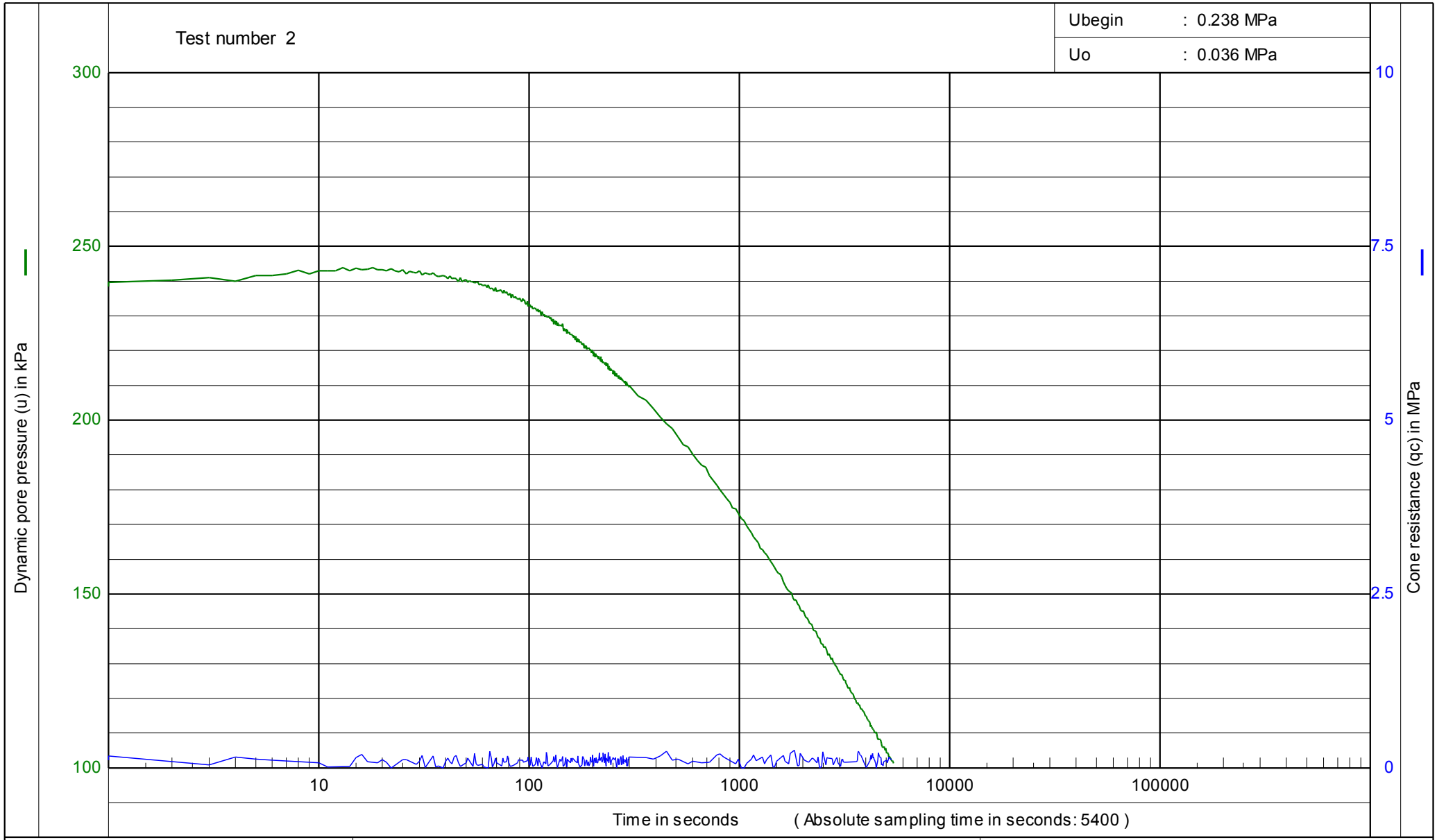


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	04/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT311
Test depth	:	-4.5 [m] - G.L.
Water level	:	-2.5 [m] - G.L.

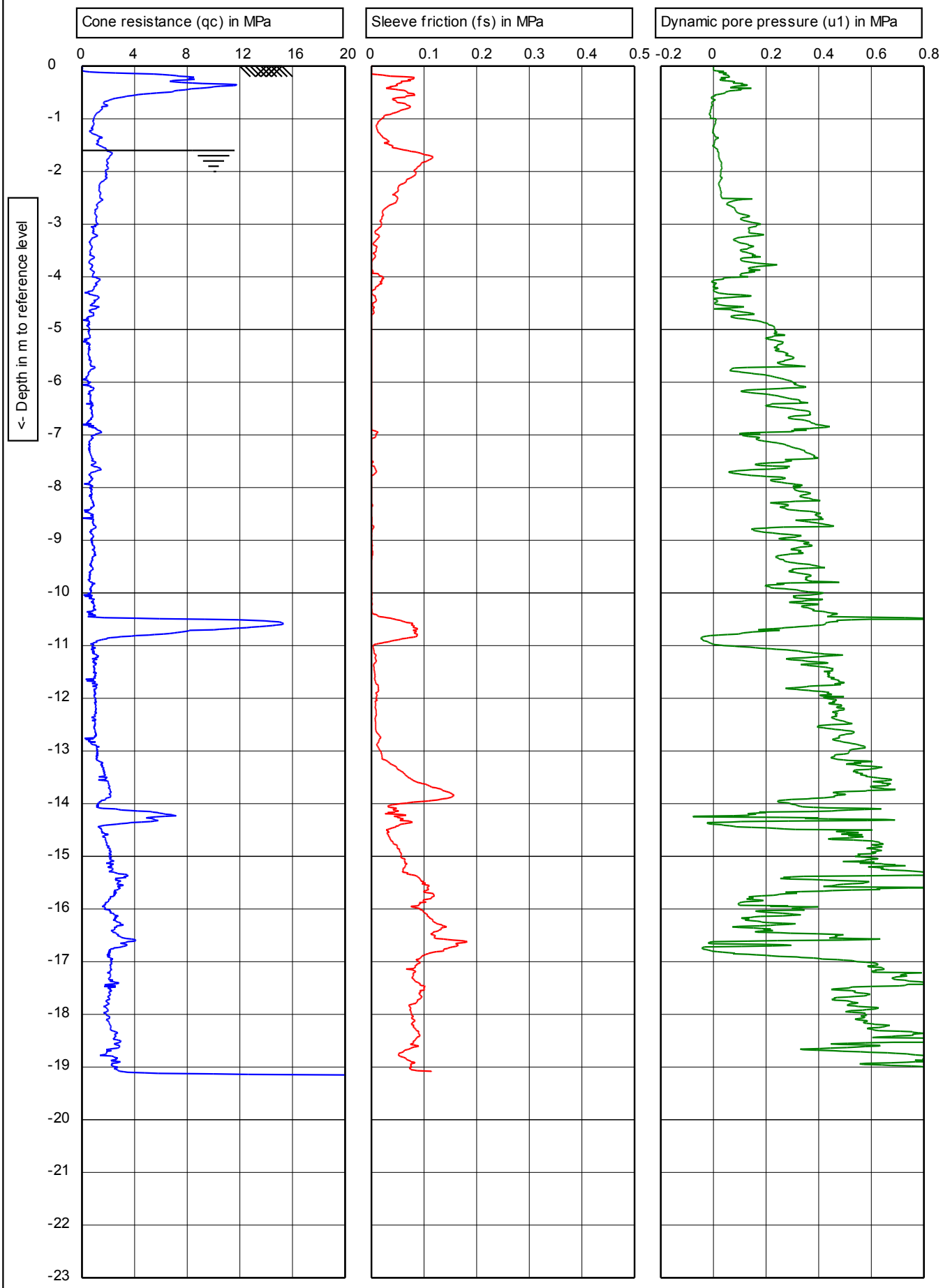


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

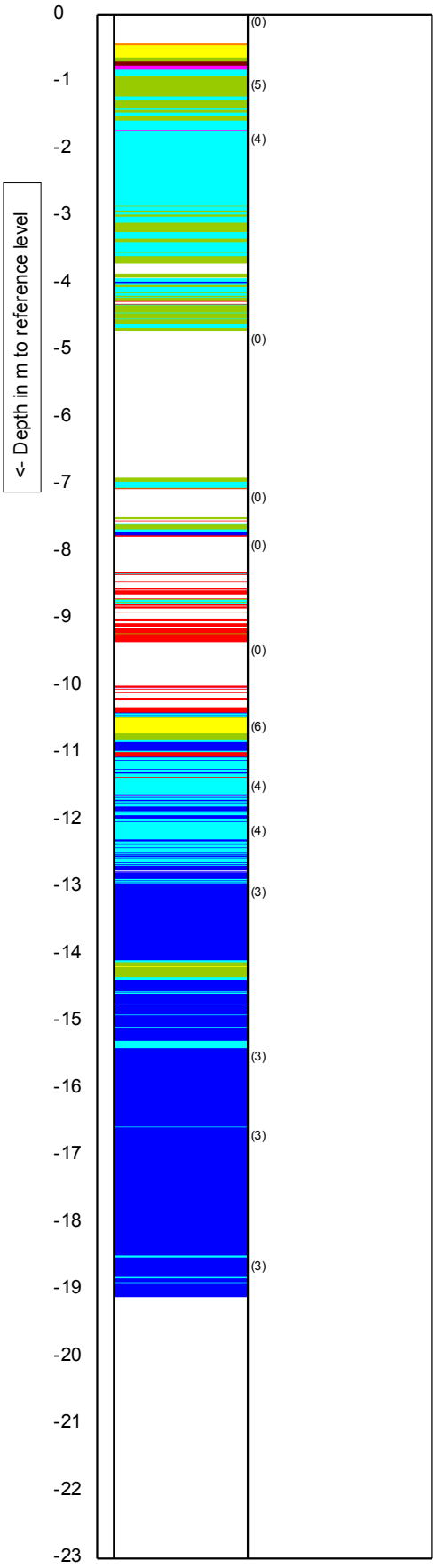
Date	:	04/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT311
Test depth	:	-6.13 [m] - G.L.
Water level	:	-2.5 [m] - G.L.



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.6**	Date: **01/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT312** **1/3**

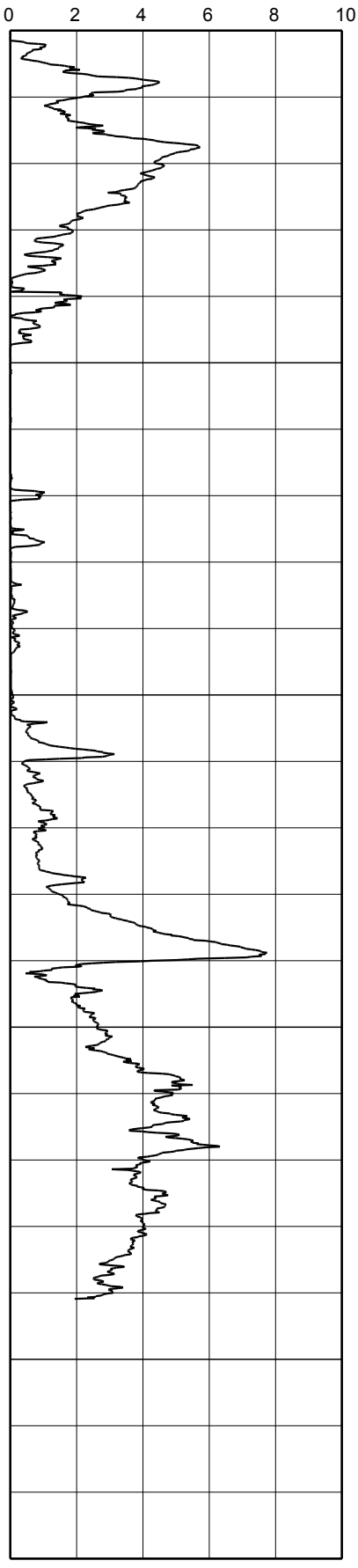
CPTask V1.33

Soil Classification (using Fr)



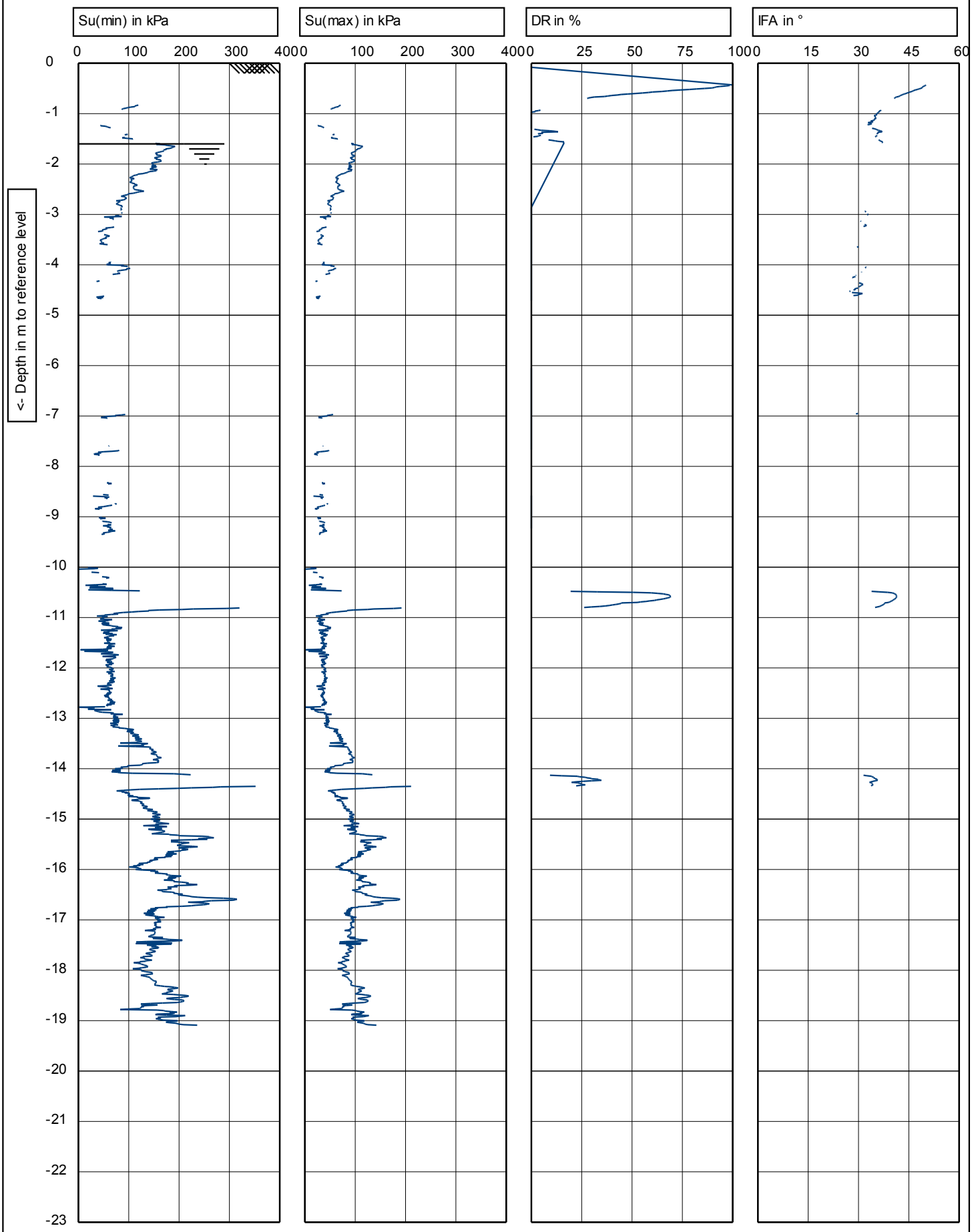
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



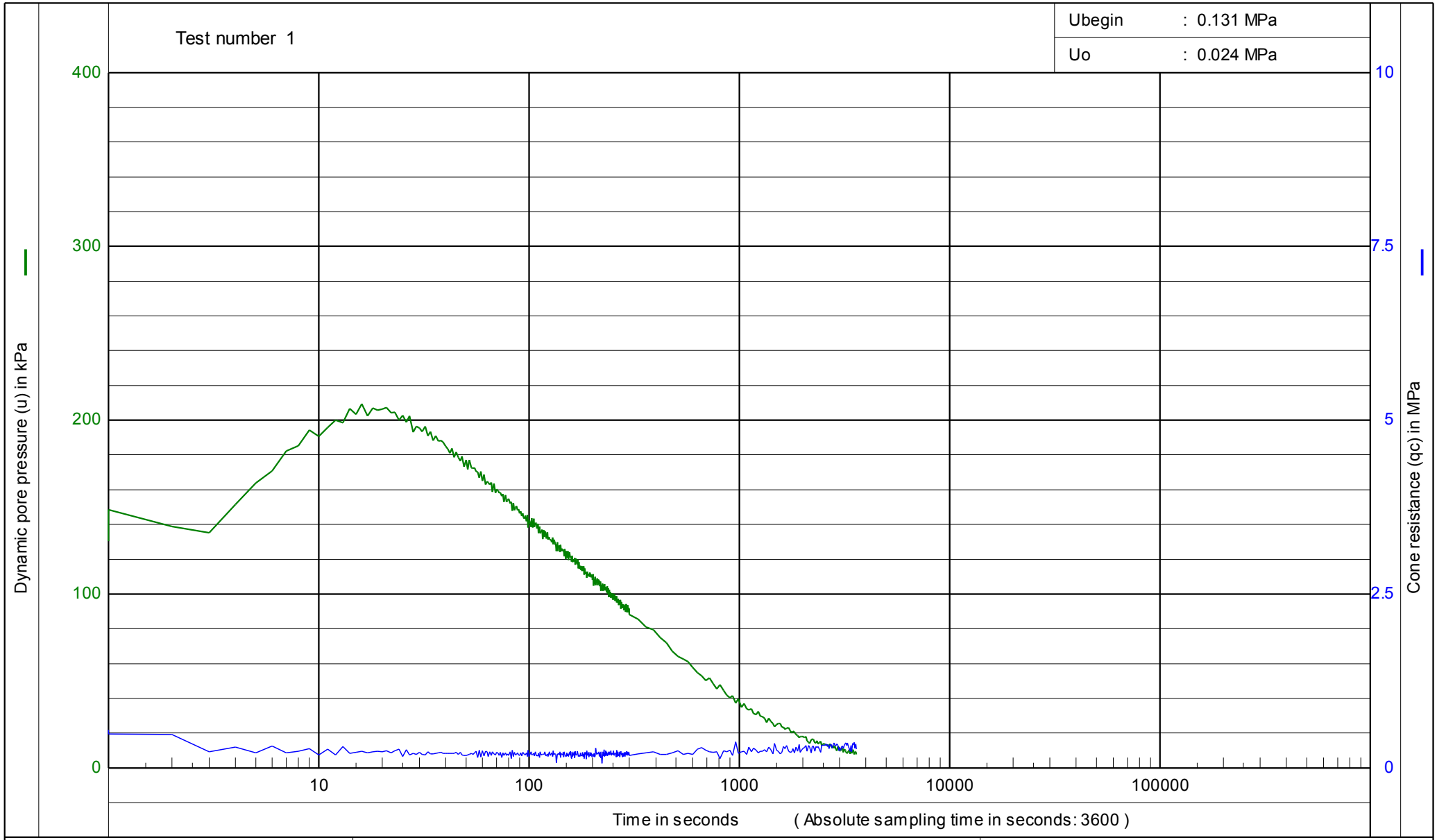
r u1 / L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.6**	Date: **01/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT312** **2/3**

CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.6**	Date: **01/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT312** **3/3**

CPTask V1.33

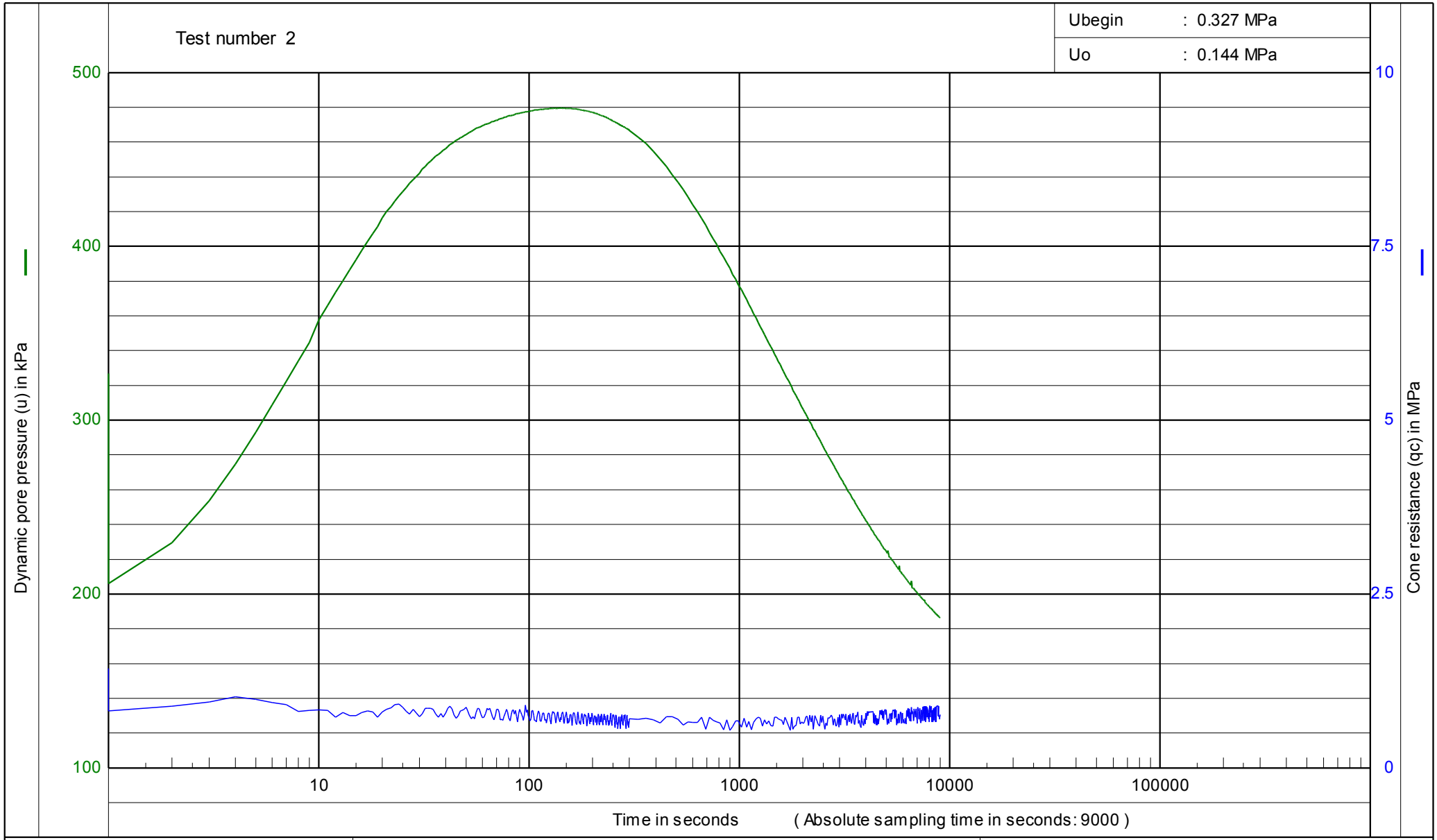


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	01/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT312
Test depth	:	-4 [m] - G.L.
Water level	:	-1.6 [m] - G.L.

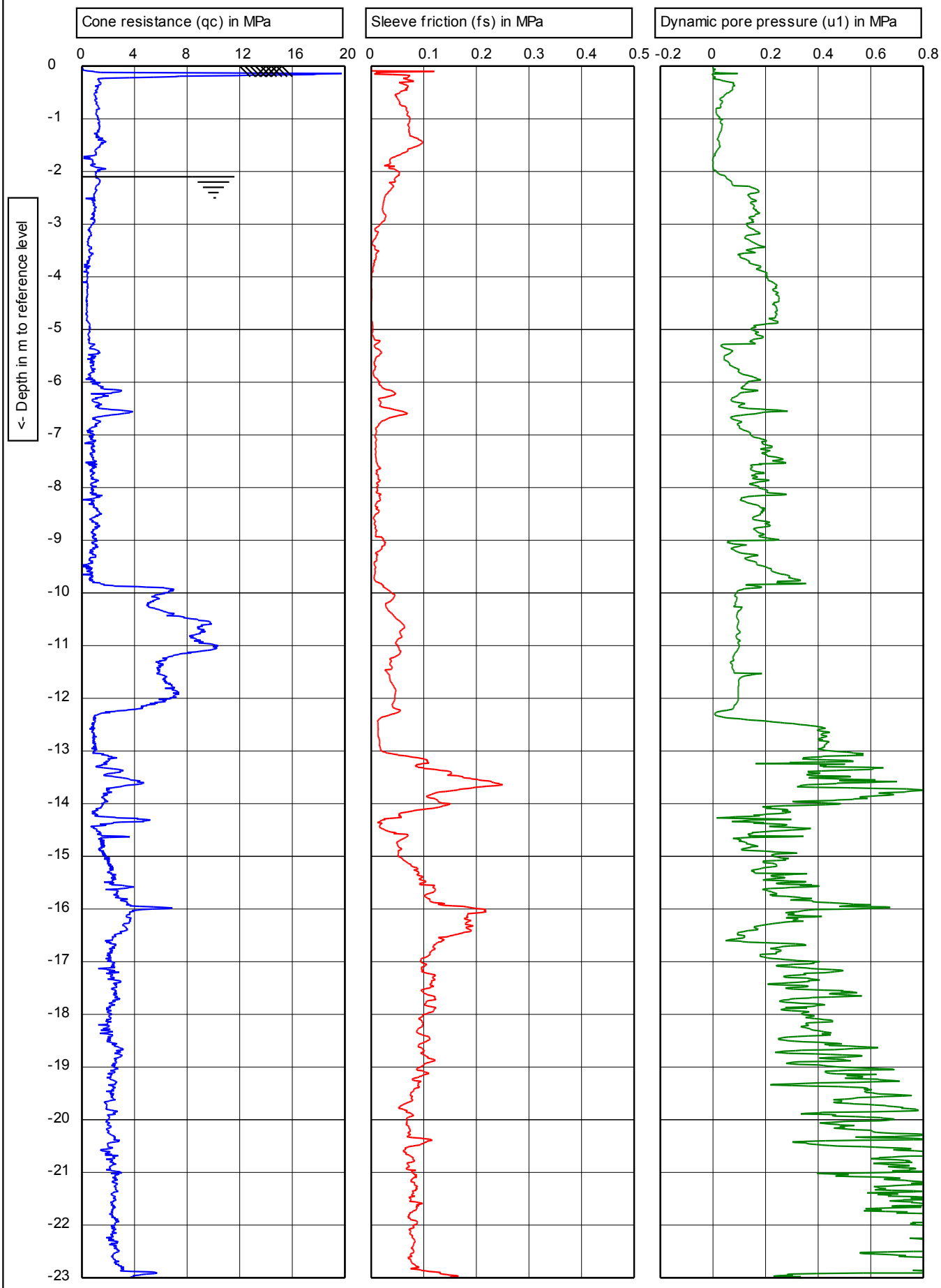


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

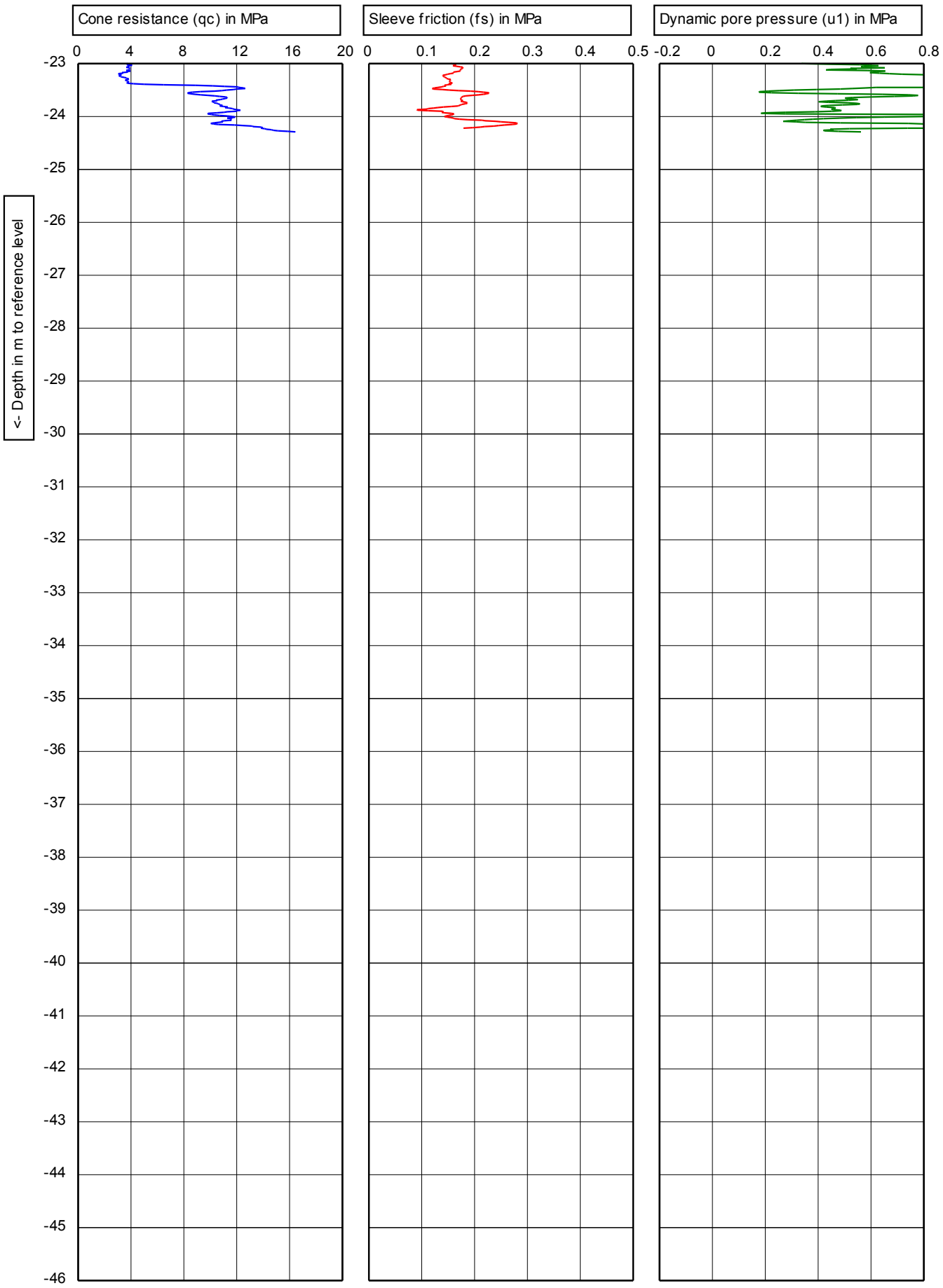
Location : Trinity Burial Ground

Date	:	01/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT312
Test depth	:	-16.01 [m] - G.L.
Water level	:	-1.6 [m] - G.L.



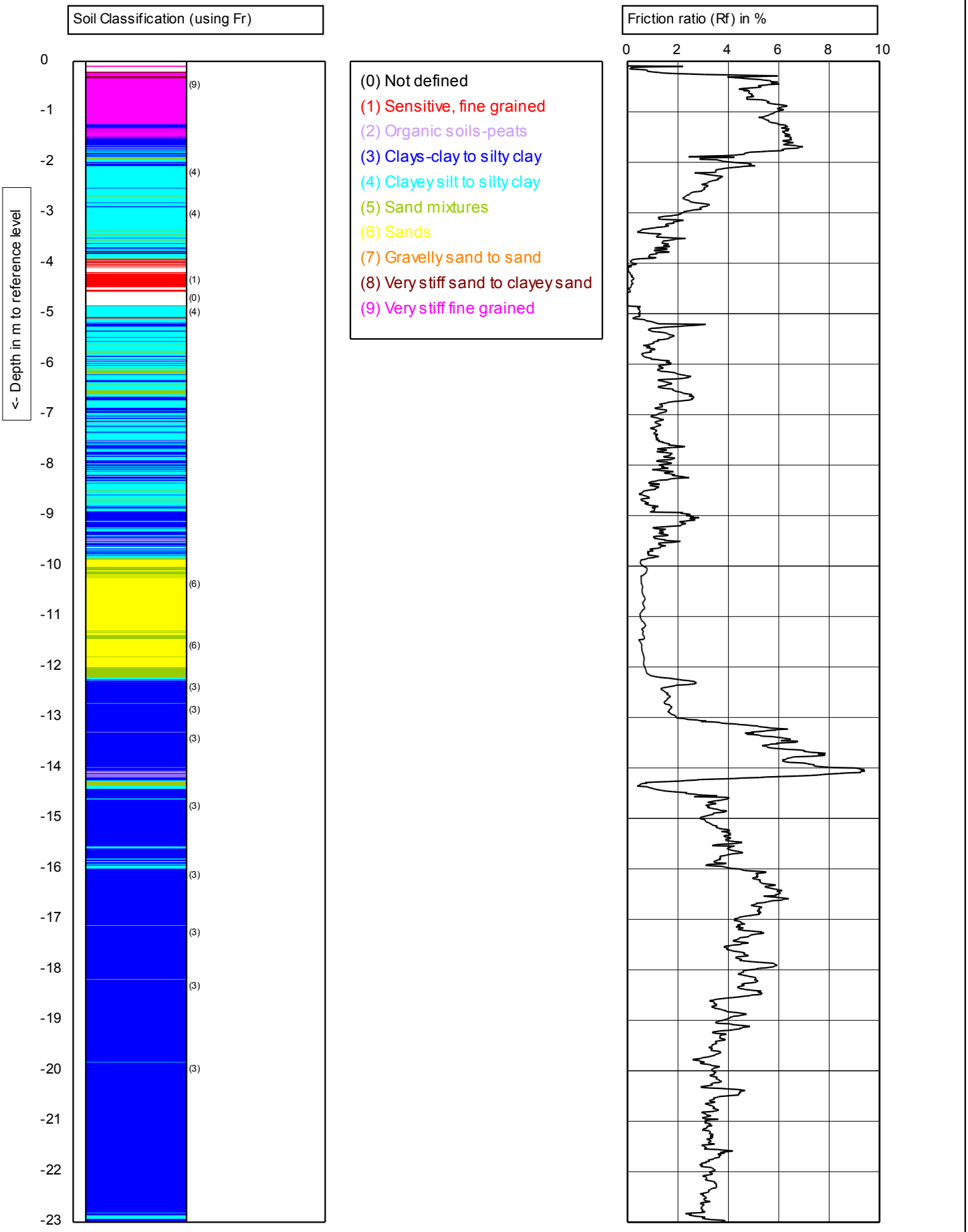
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-2.1**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT313** **1/6**

CPTask V1.33



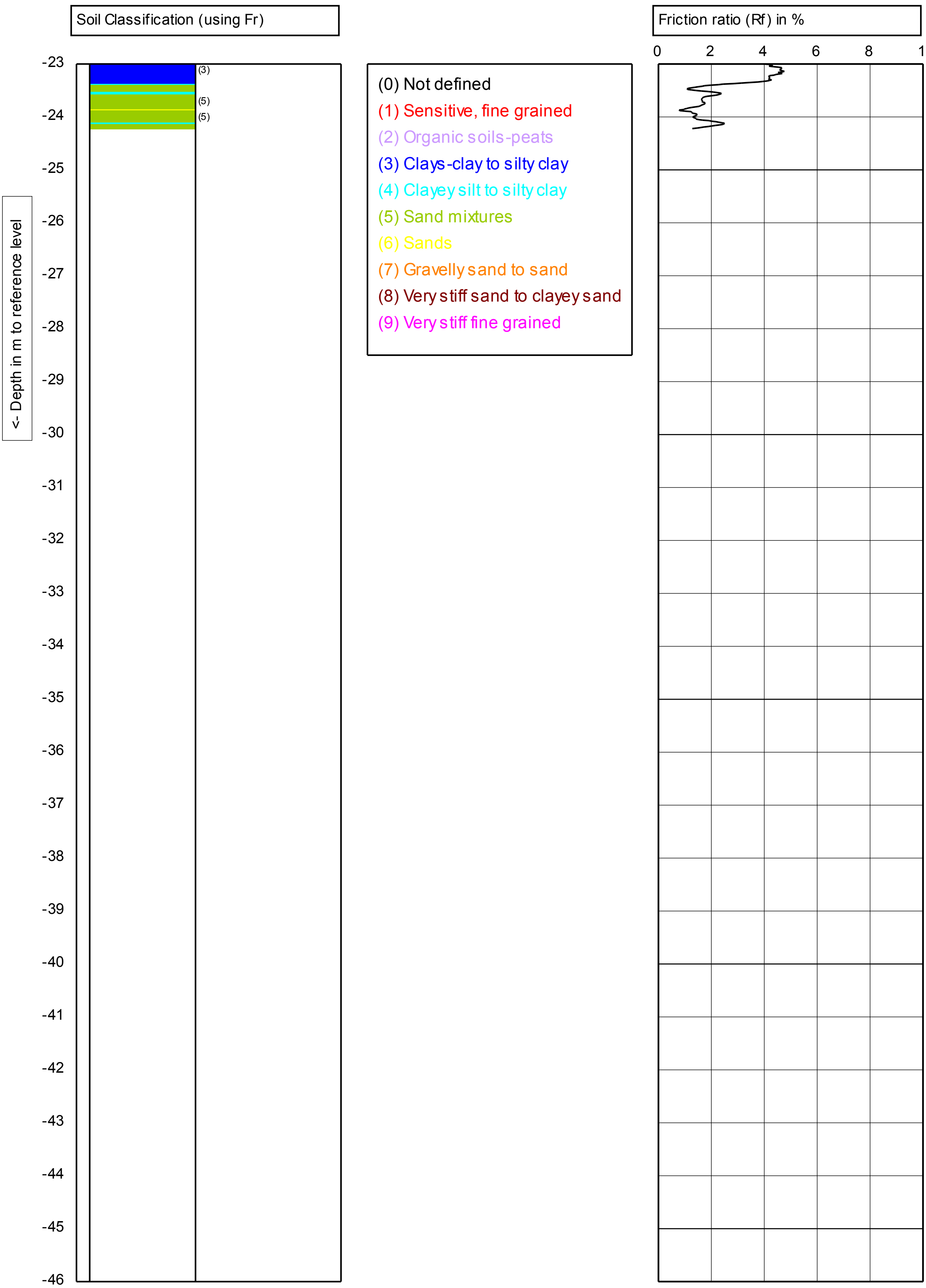
	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-2.1**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT313** **2/6**

CPTask V1.33



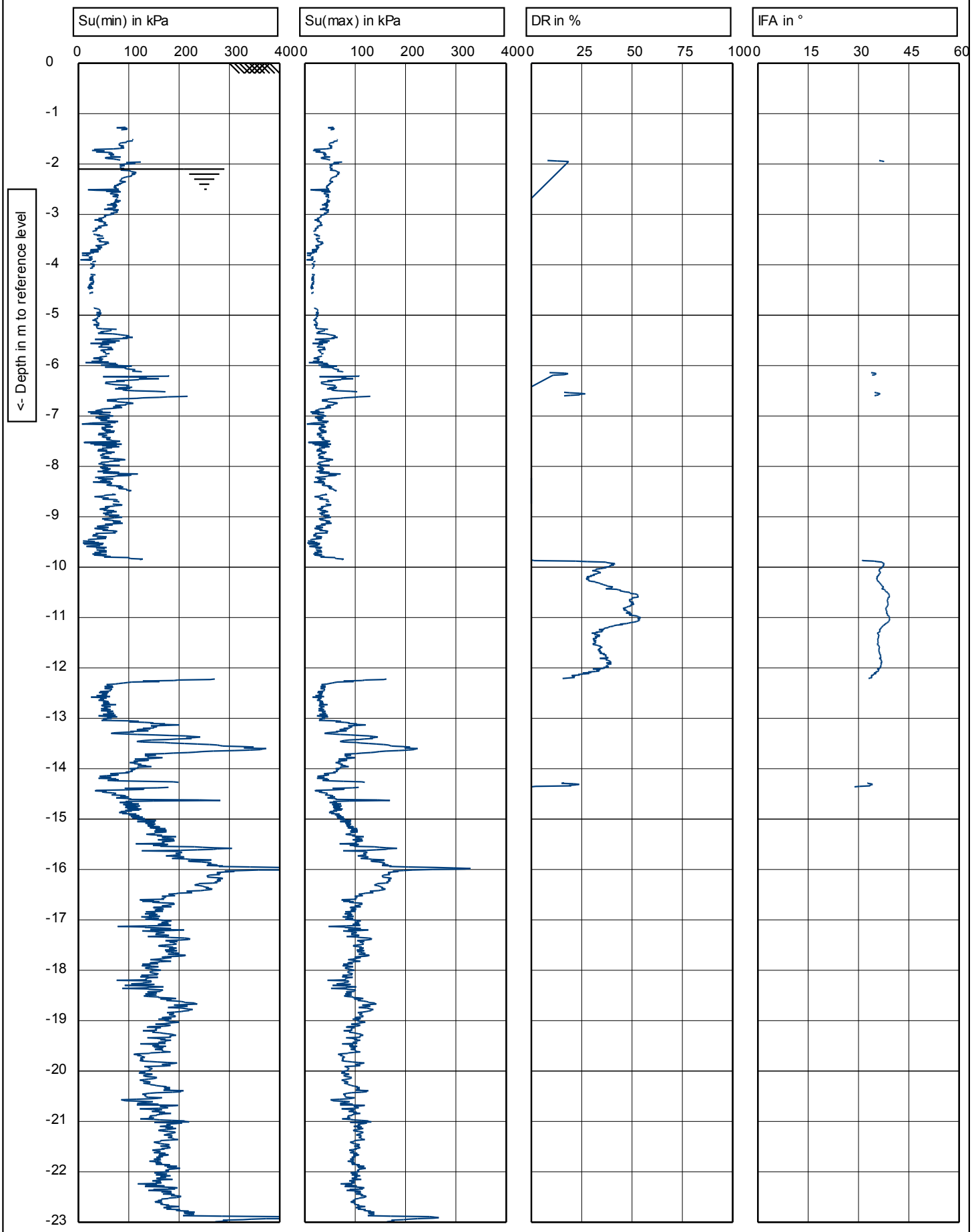
	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-2.1**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT313** **3/6**

CPTask V1.33



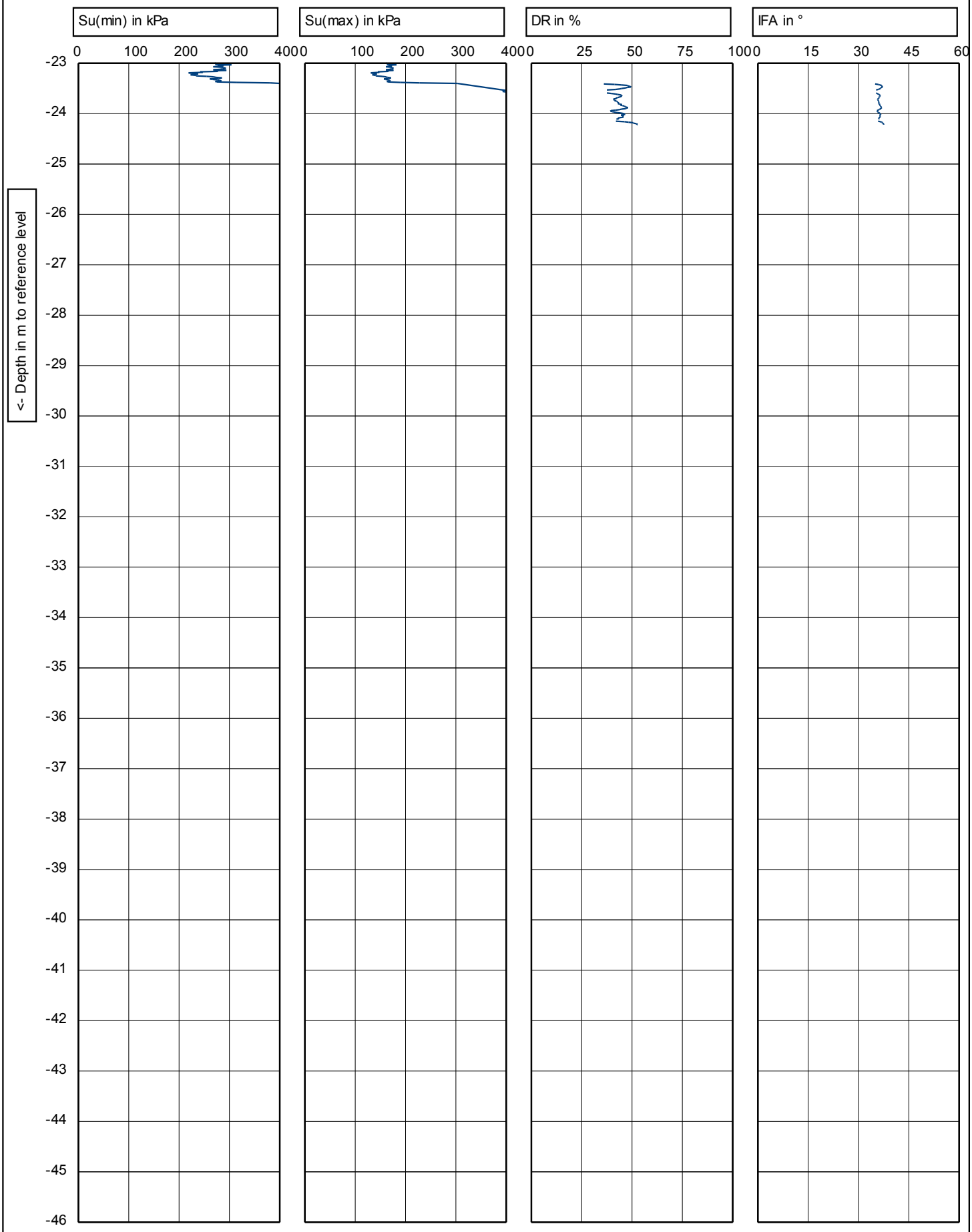
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1	Predrill :	0
	G.L. 0 NAP — W.L.: **-2.1**	Date:	**08/06/2015**
Project:	**A63 Castle Street Improvement**	Cone no.:	**C10CFIP.125**
Location:	**Trinity Burial Ground**	Project no.:	**A5049-15**
Position:		CPT no.:	**CPT313** **4/6**

CPTask V1.33



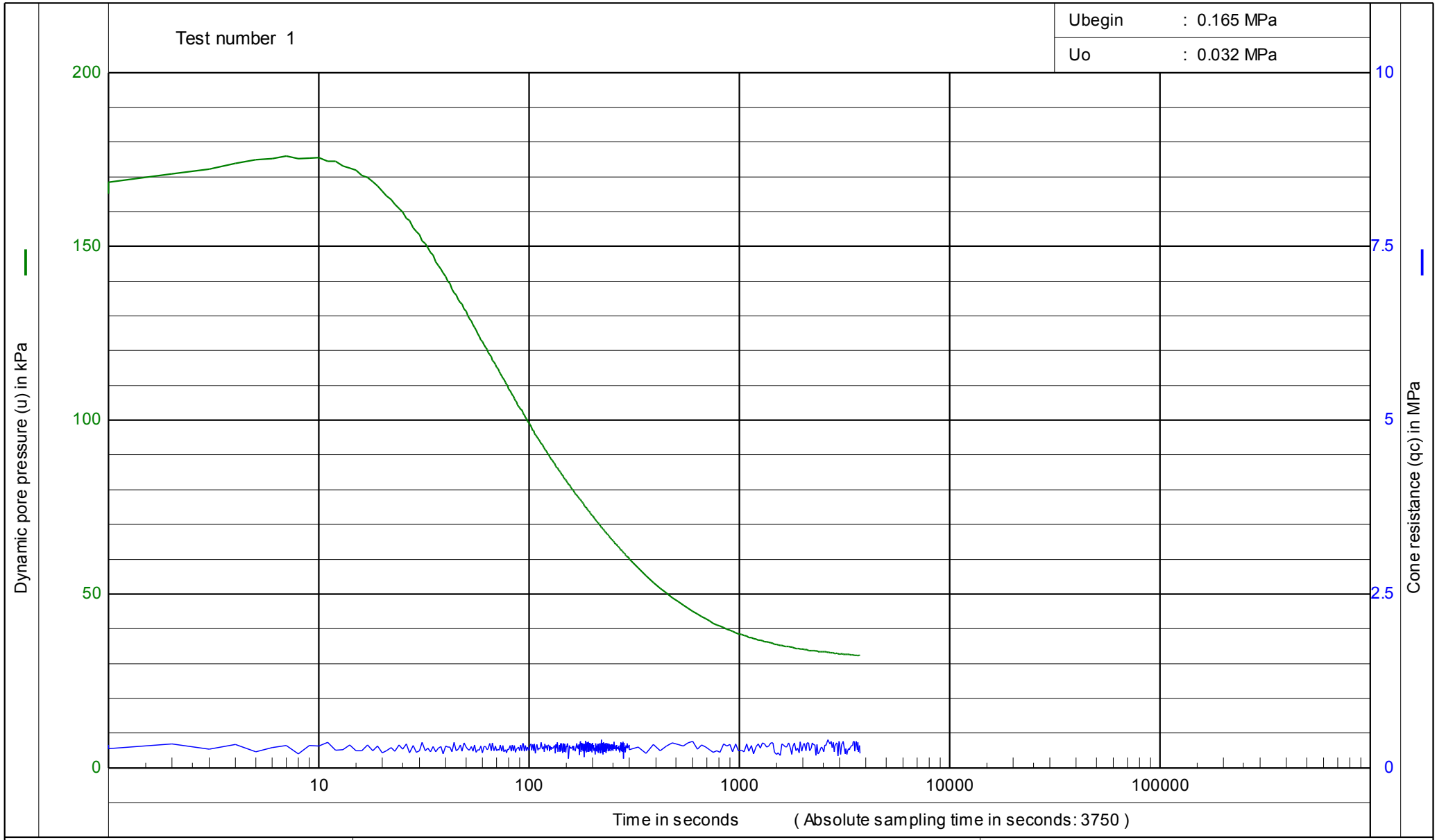
r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.1**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT313** **5/6**

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-2.1**	Date: **08/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT313** **6/6**

CPTask V1.33

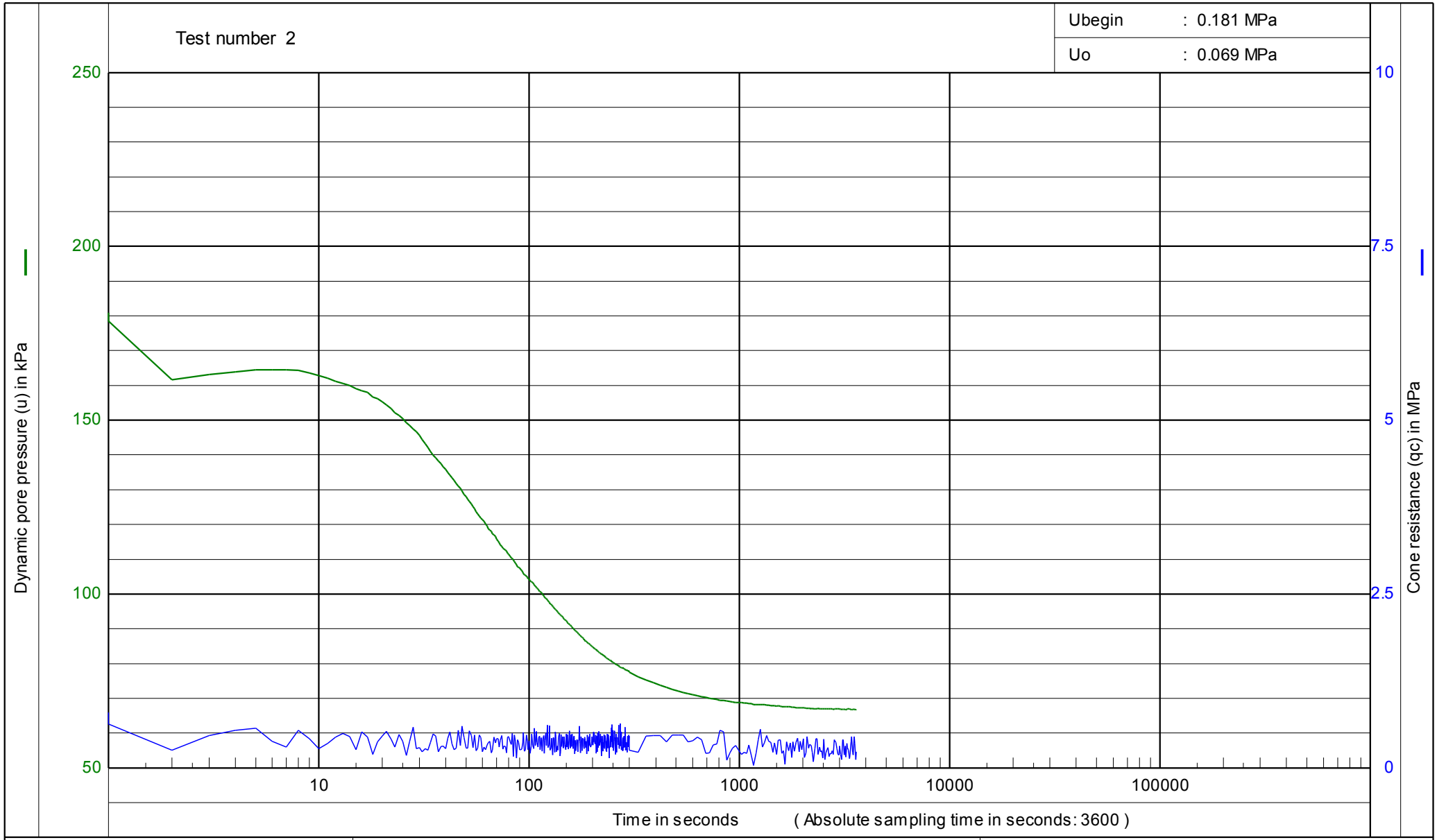


Test Method BS1377 : Part 9 : 1990 :3.1

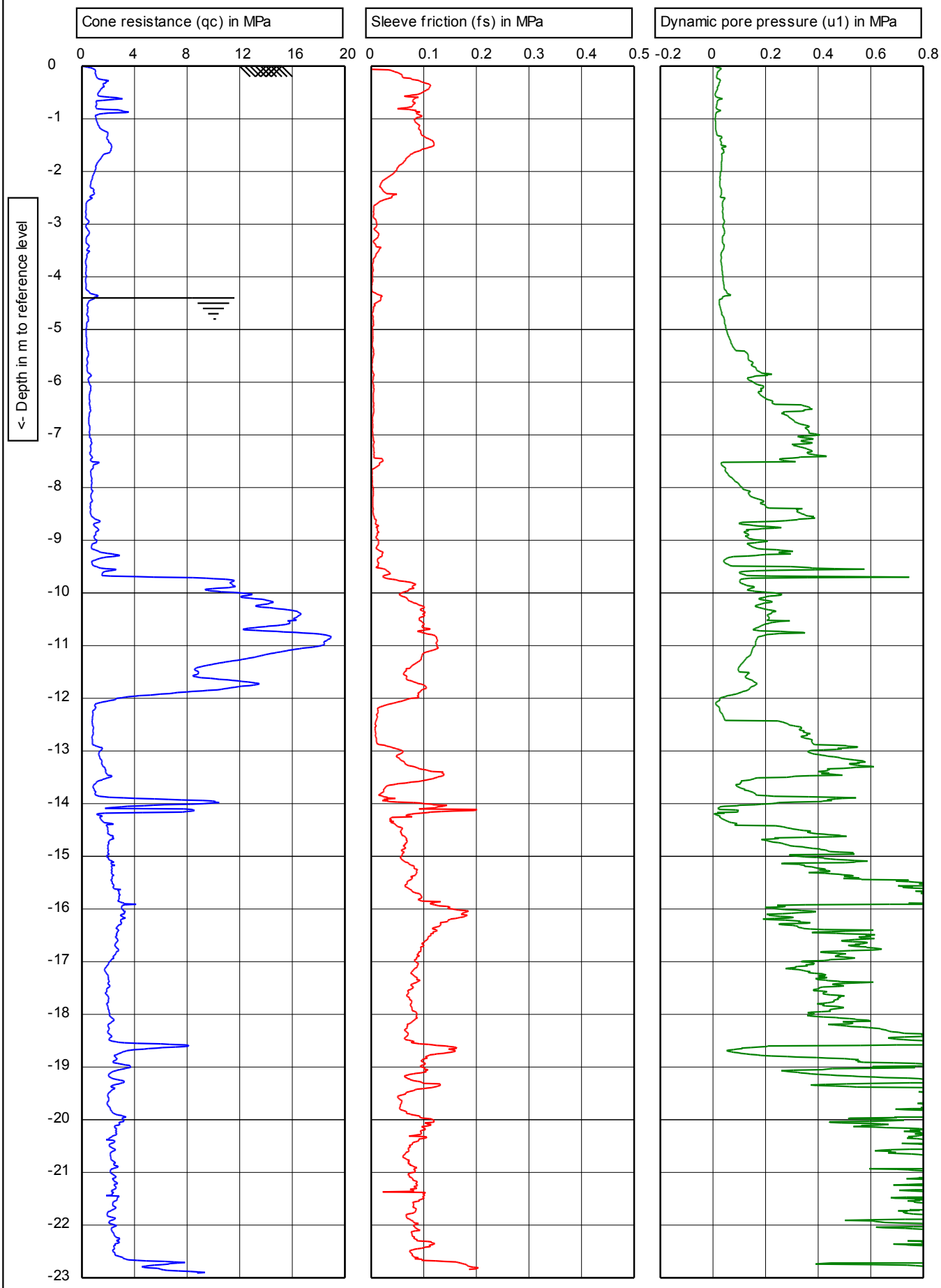
Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	08/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT313
Test depth	:	-5.27 [m] - G.L.
Water level	:	-2.1 [m] - G.L.

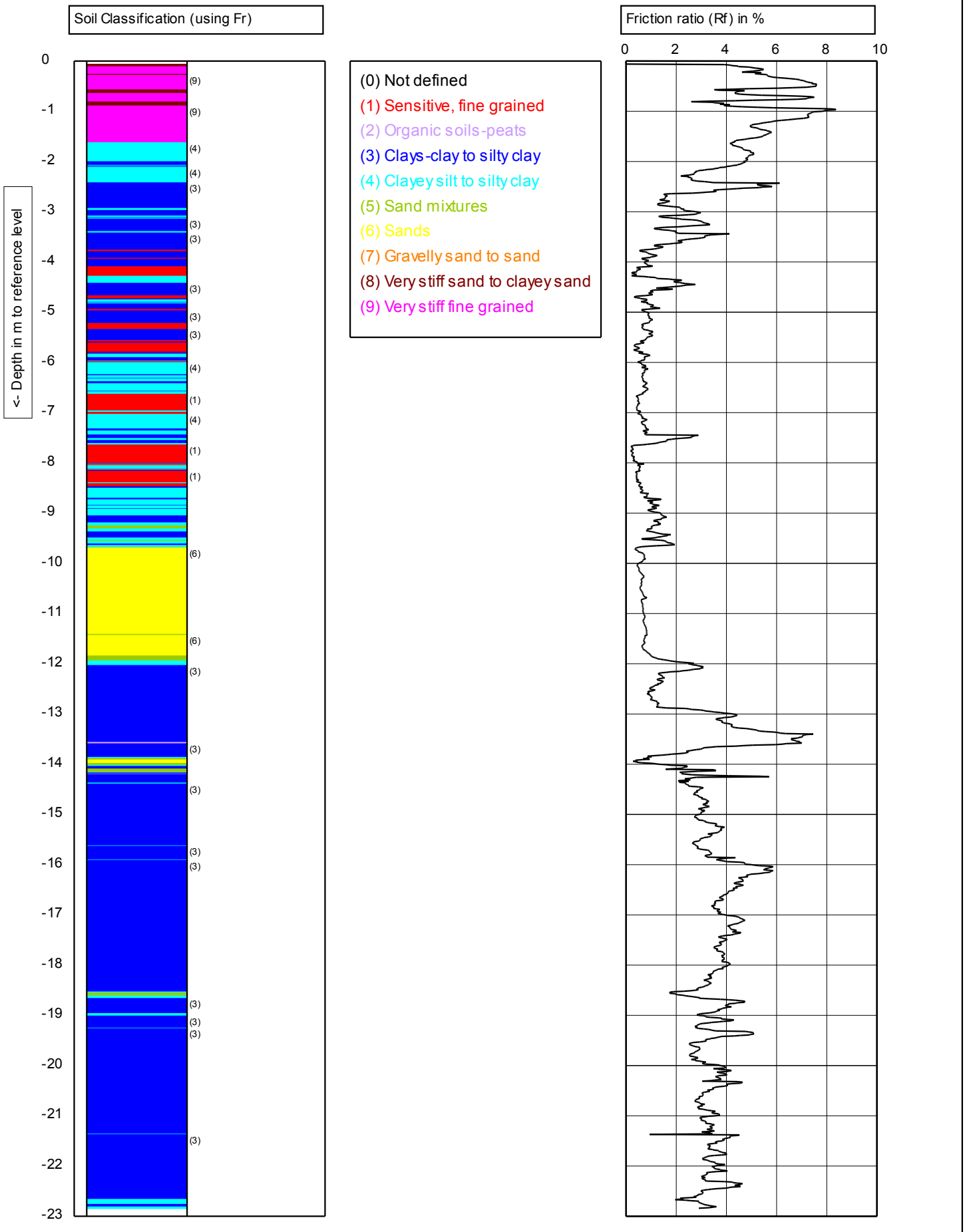


	Test Method BS1377 : Part 9 : 1990 :3.1	Date : 08/06/2015
	Project : A63 Castle Street Improvement	Project no. : A5049-15
	Location : Trinity Burial Ground	CPT no. : CPT313
		Test depth : -9 [m] - G.L.
		Water level : -2.1 [m] - G.L.



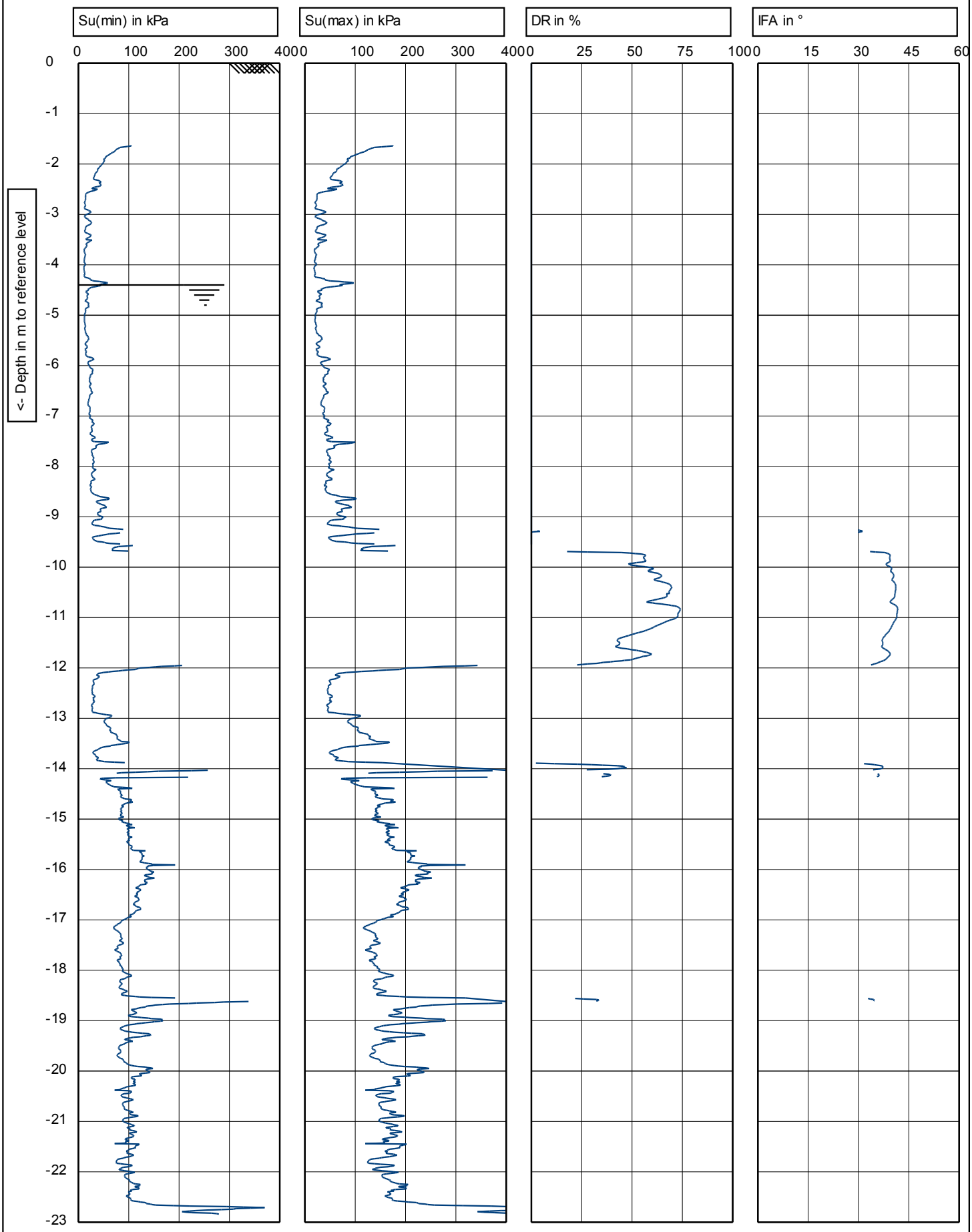
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-4.4**	Date: **21/05/2015**
Project: **A63 Castle Street Improvement, Hull**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT314** **1/3**

CPTask V1.33



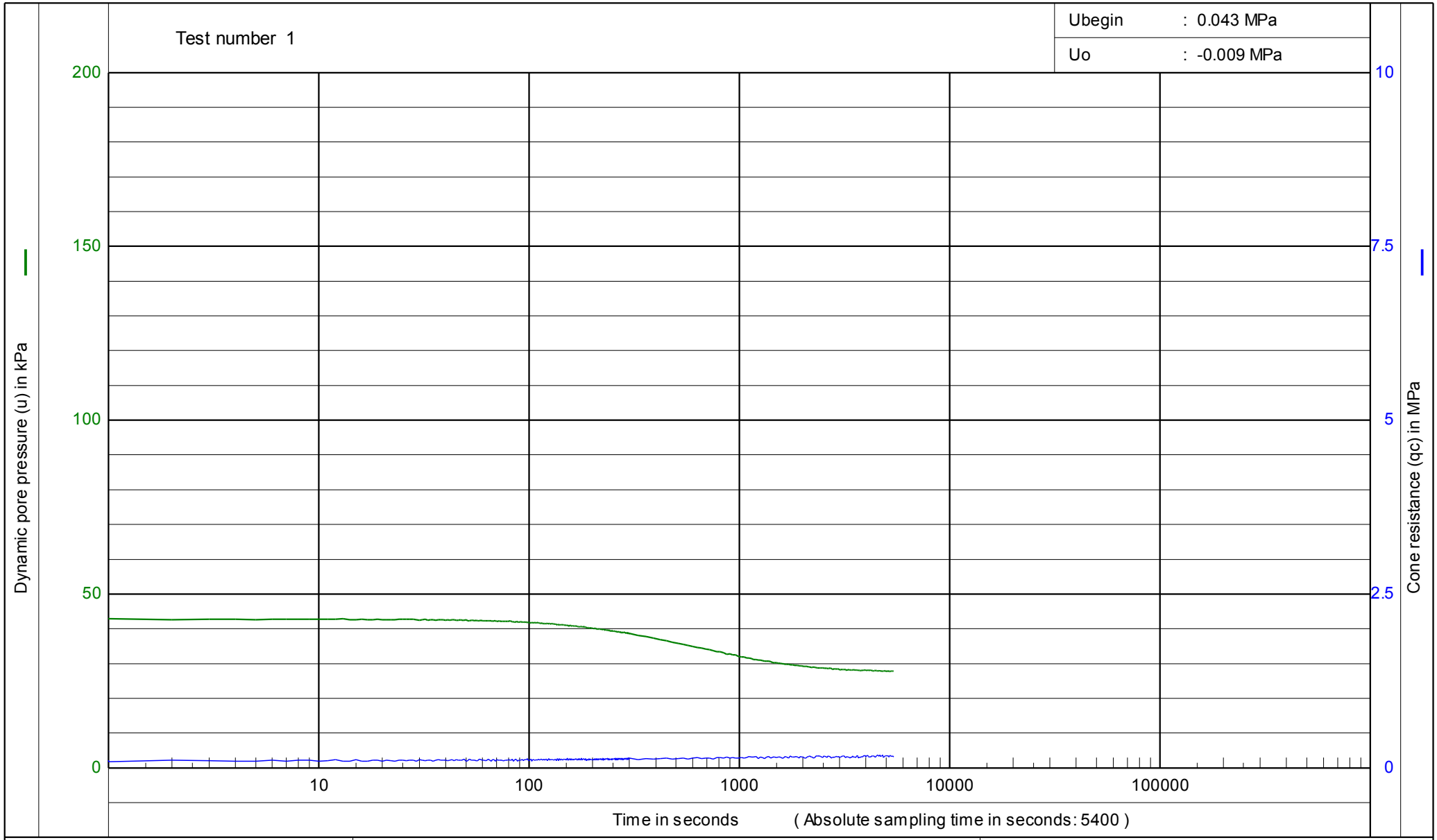
	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-4.4**	Date: **21/05/2015**
Project: **A63 Castle Street Improvement, Hull**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT314** **2/3**

CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-4.4**	Date: **21/05/2015**
Project: **A63 Castle Street Improvement, Hull**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT314** **3/3**

CPTask V1.33

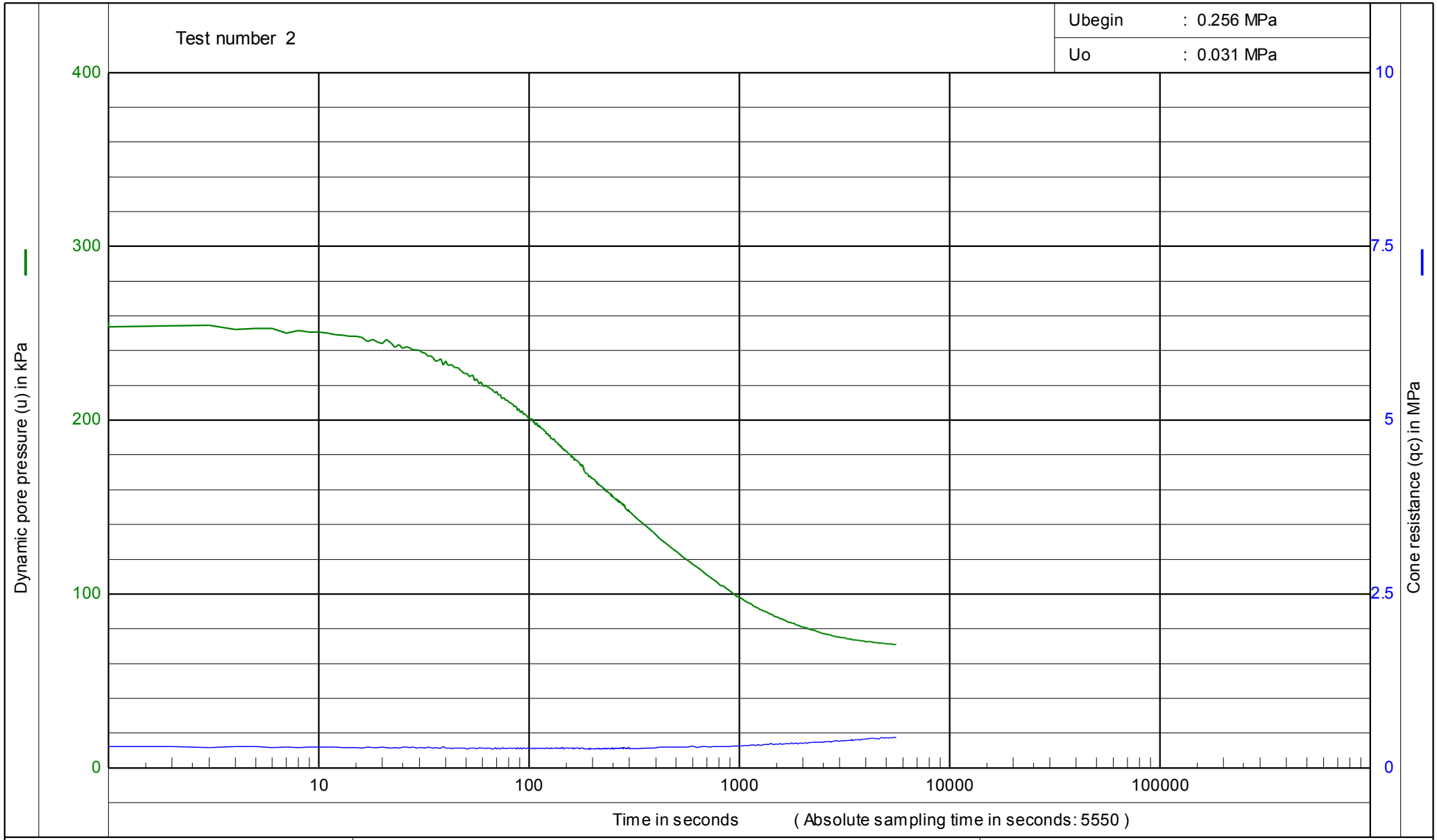


Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement, Hull

Location : Trinity Burial Ground

Date	:	21/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT314
Test depth	:	-3.5 [m] - G.L.
Water level	:	-4.4 [m] - G.L.

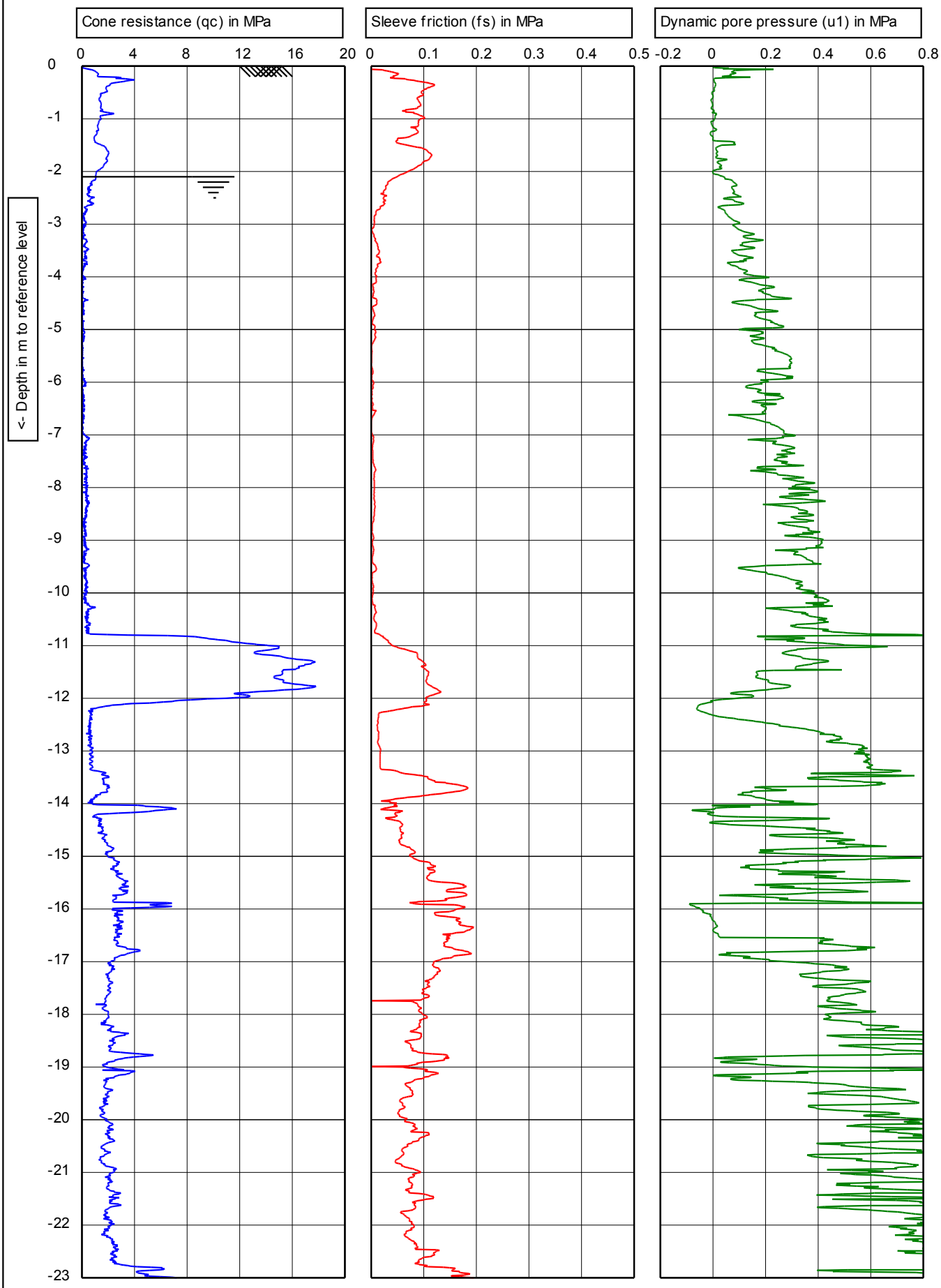


Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement, Hull

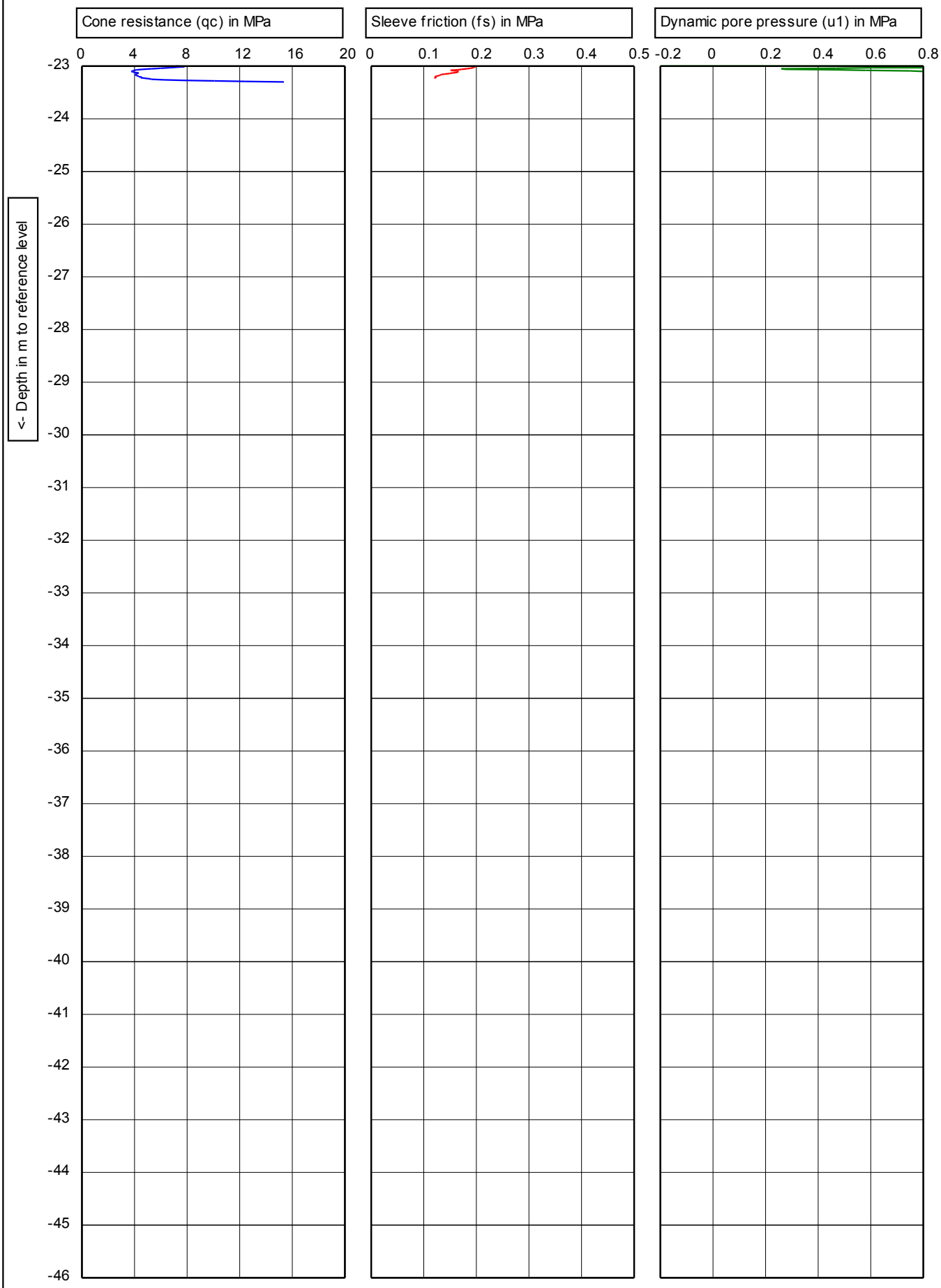
Location : Trinity Burial Ground

Date	:	21/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT314
Test depth	:	-7.51 [m] - G.L.
Water level	:	-4.4 [m] - G.L.



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-2.1**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT315** 1/6

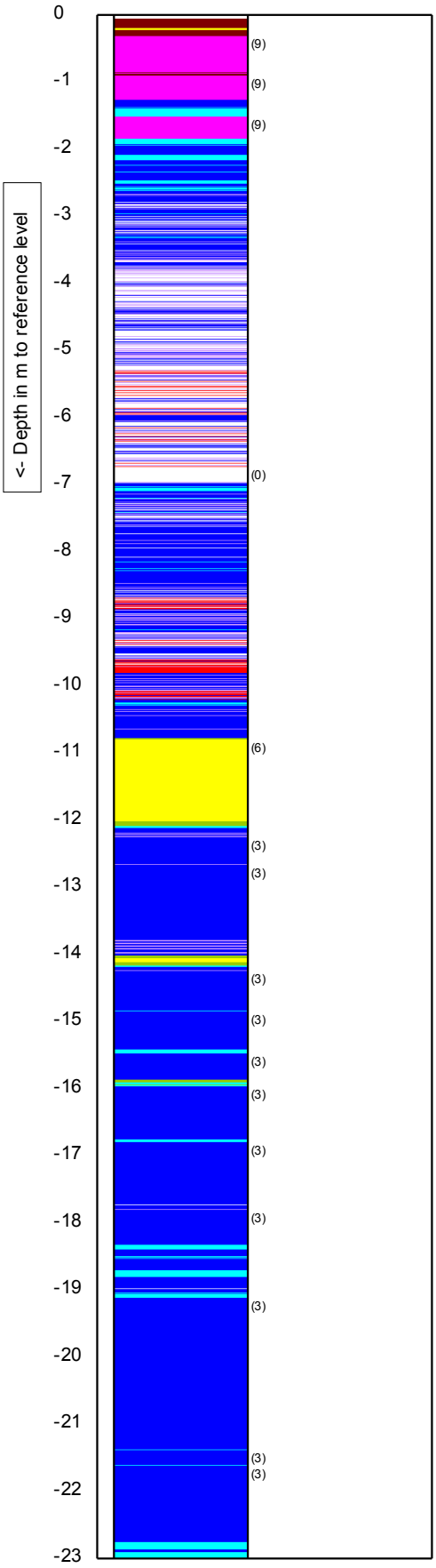
CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.1**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT315** **2/6**

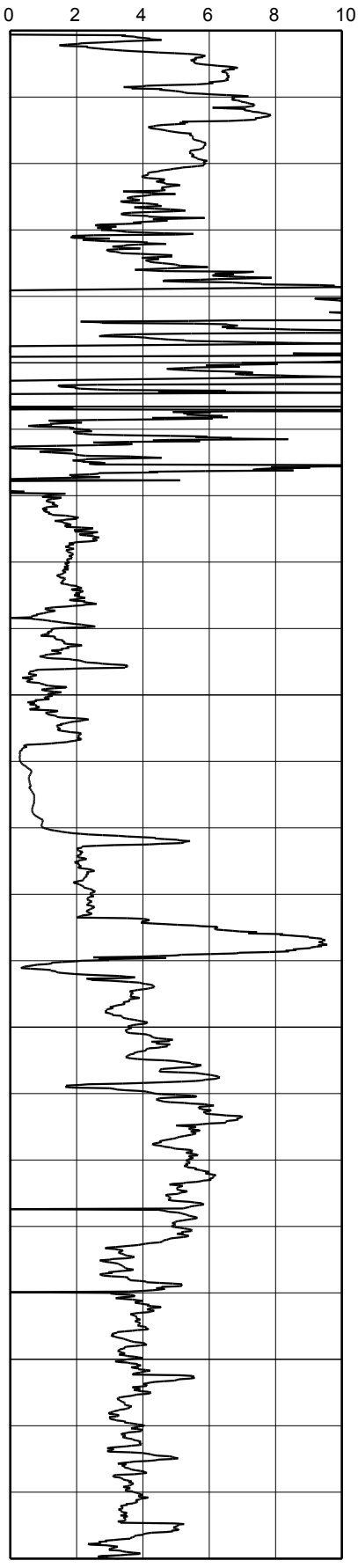
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

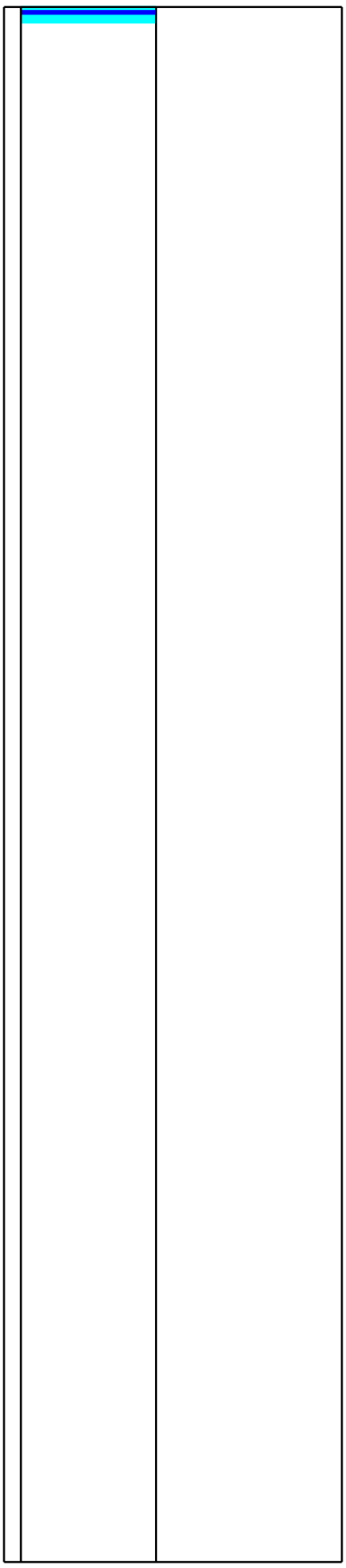
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-2.1**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT315** 3/6

CPTask V1.33

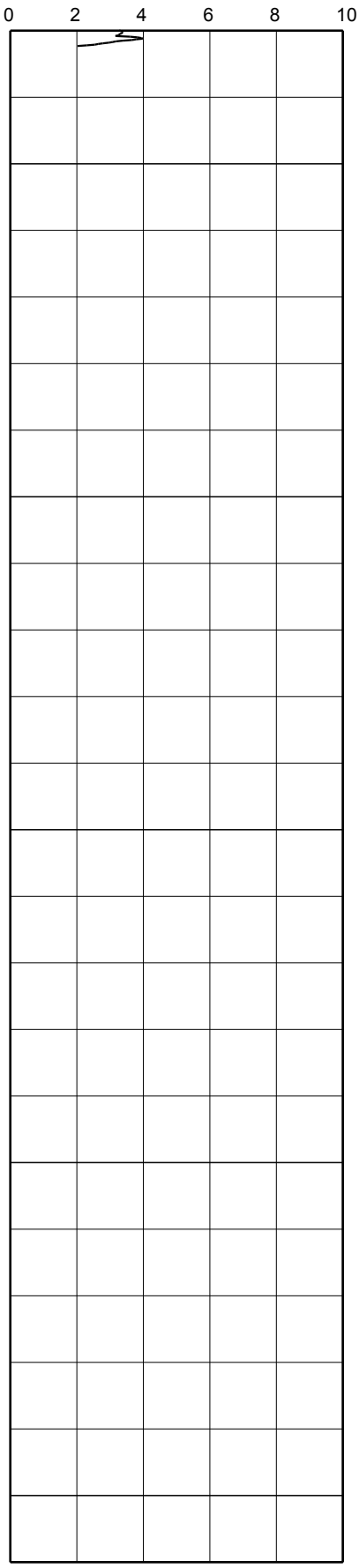
Soil Classification (using Fr)



<- Depth in m to reference level

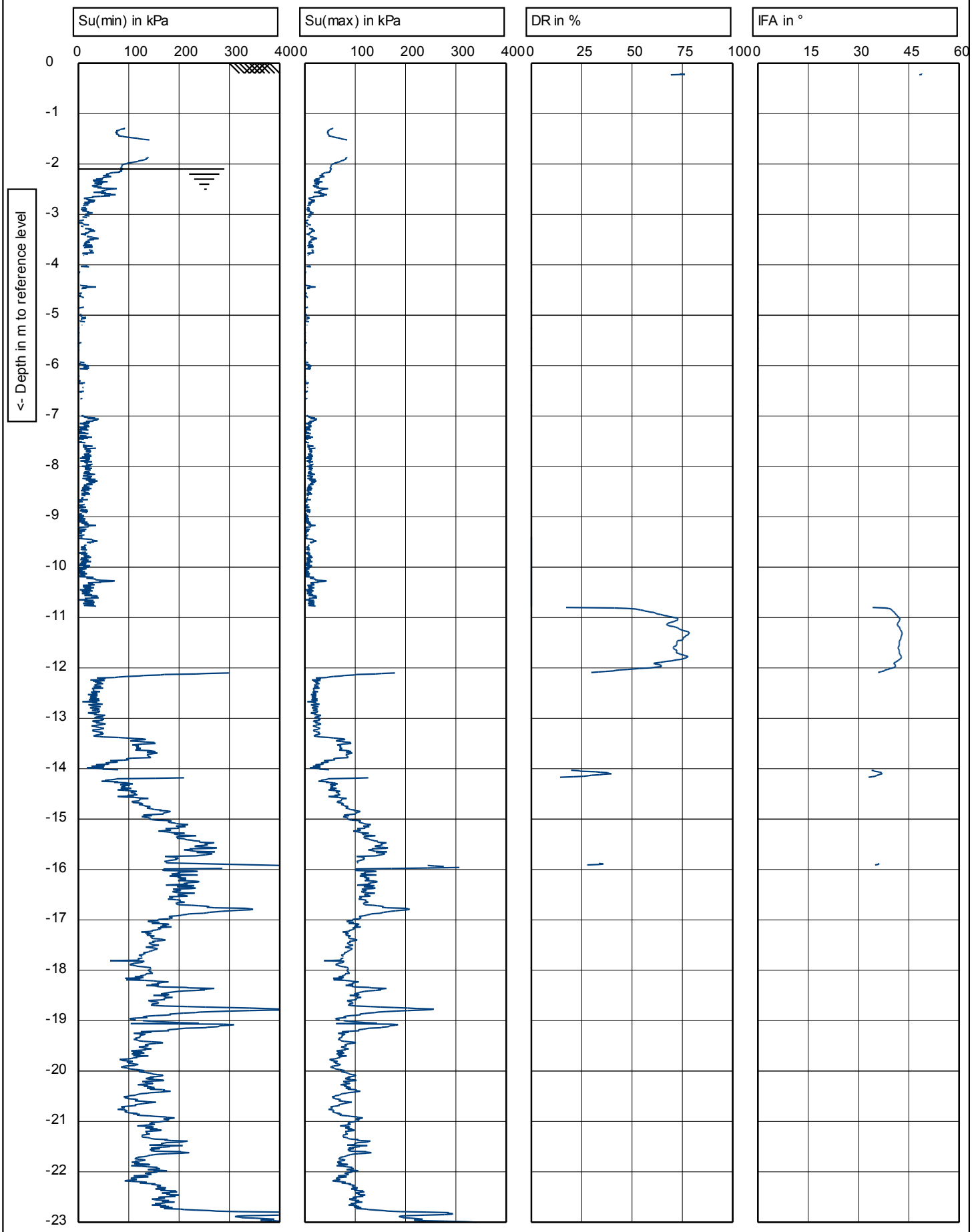
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



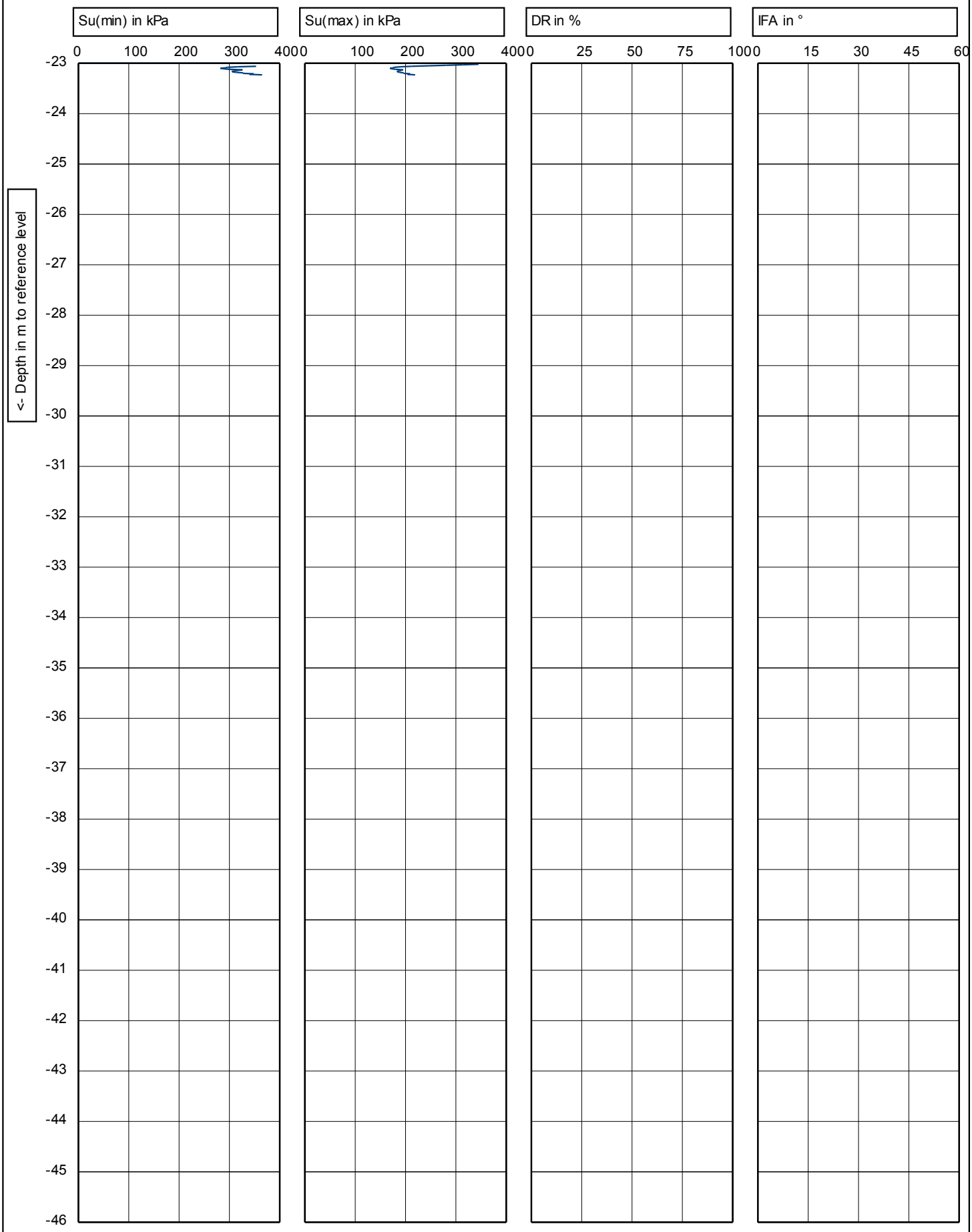
u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-2.1**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT315** **4/6**

CPTask V1.33



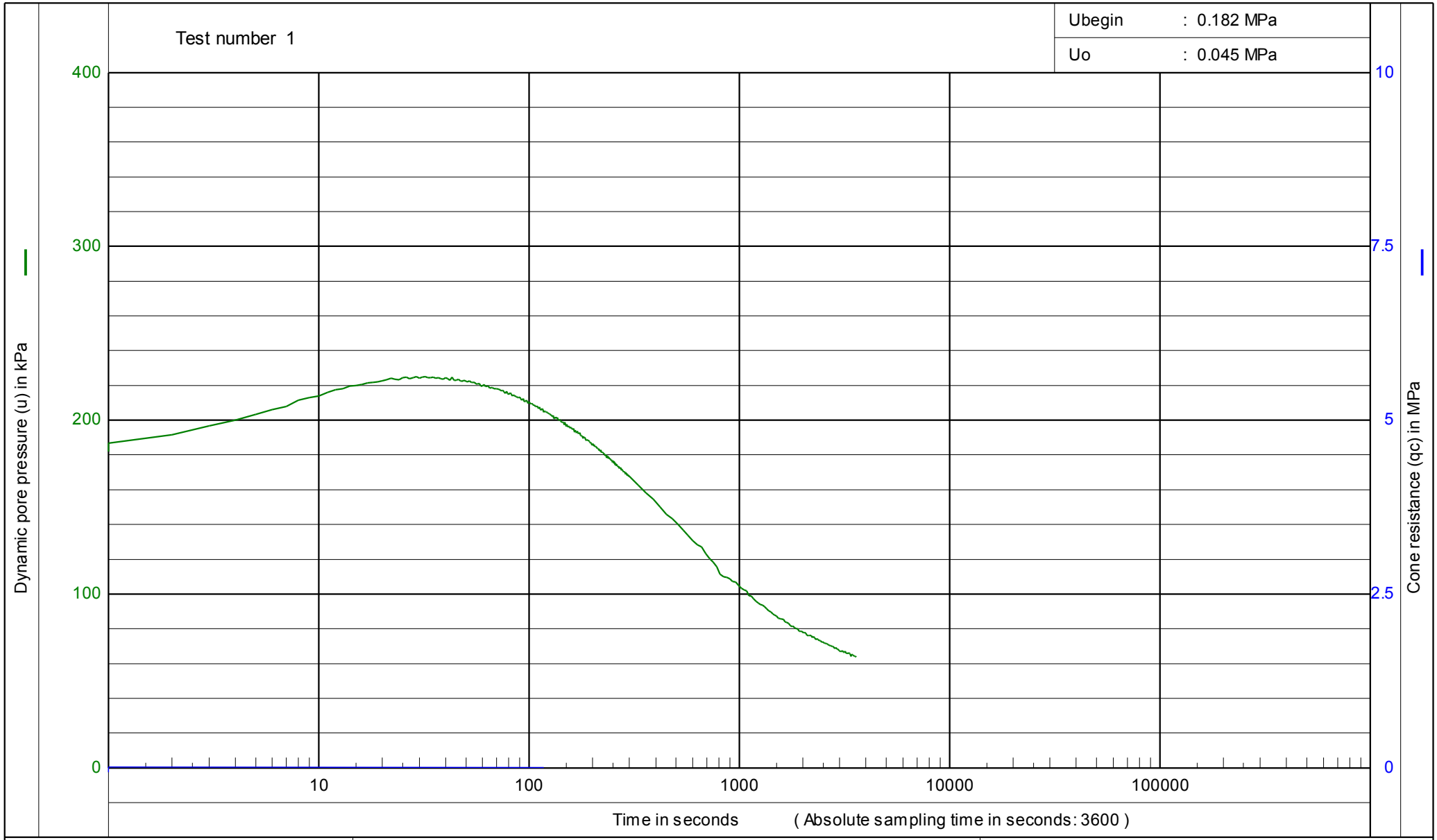
r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.1**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT315** **5/6**

CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-2.1**	Date: **04/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT315** **6/6**

CPTask V1.33

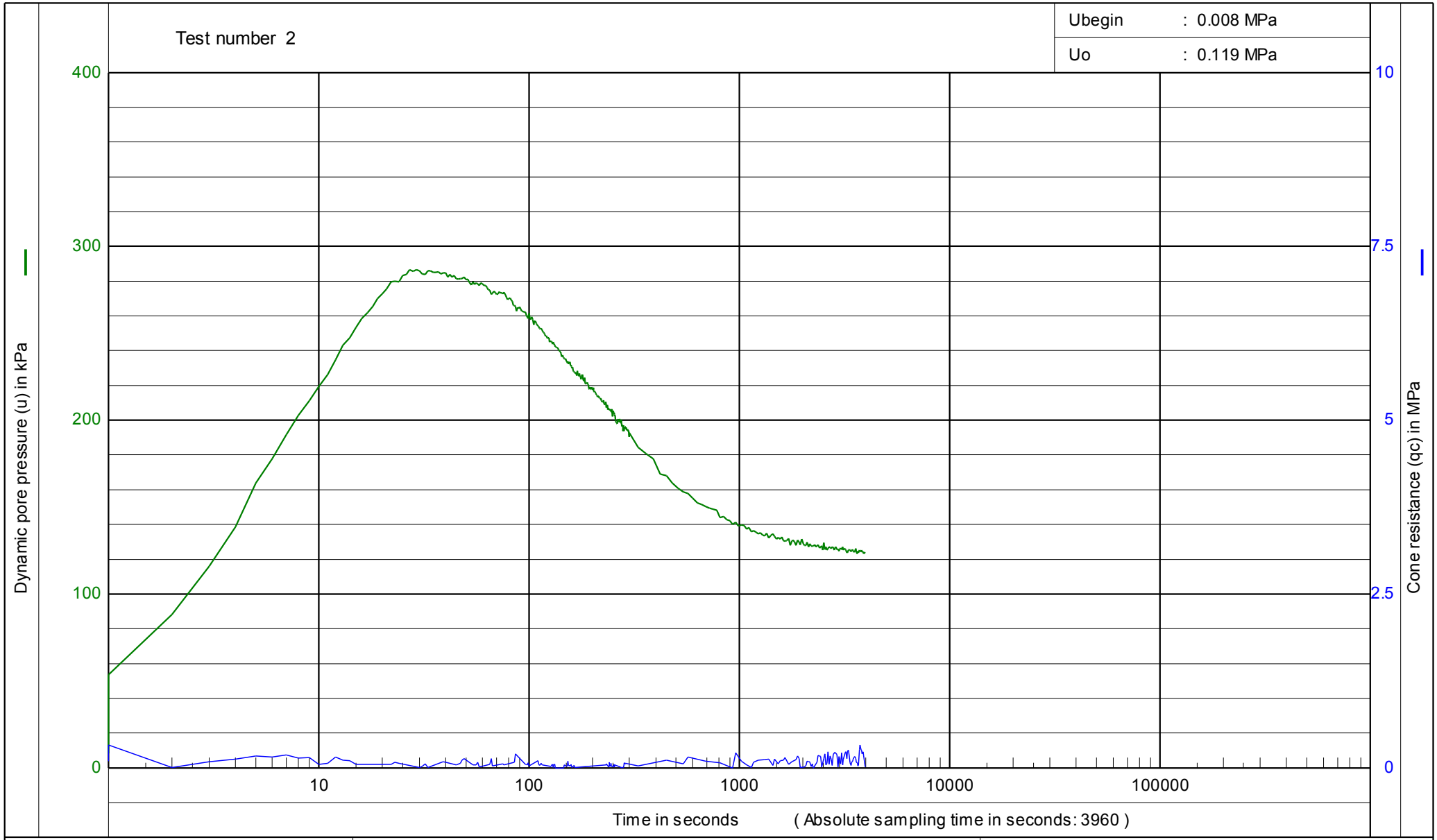


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	04/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT315
Test depth	:	-6.6 [m] - G.L.
Water level	:	-2.1 [m] - G.L.

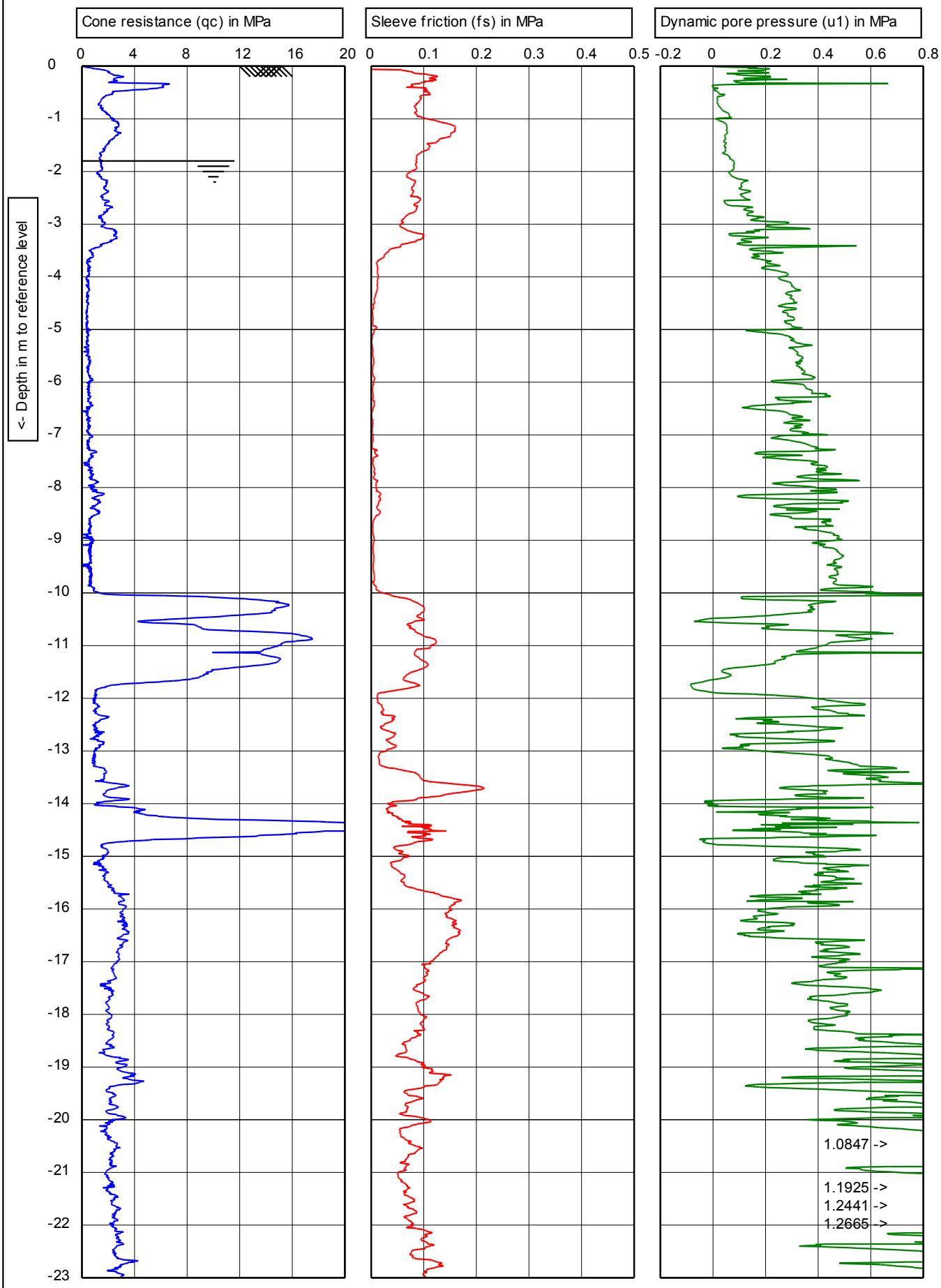


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

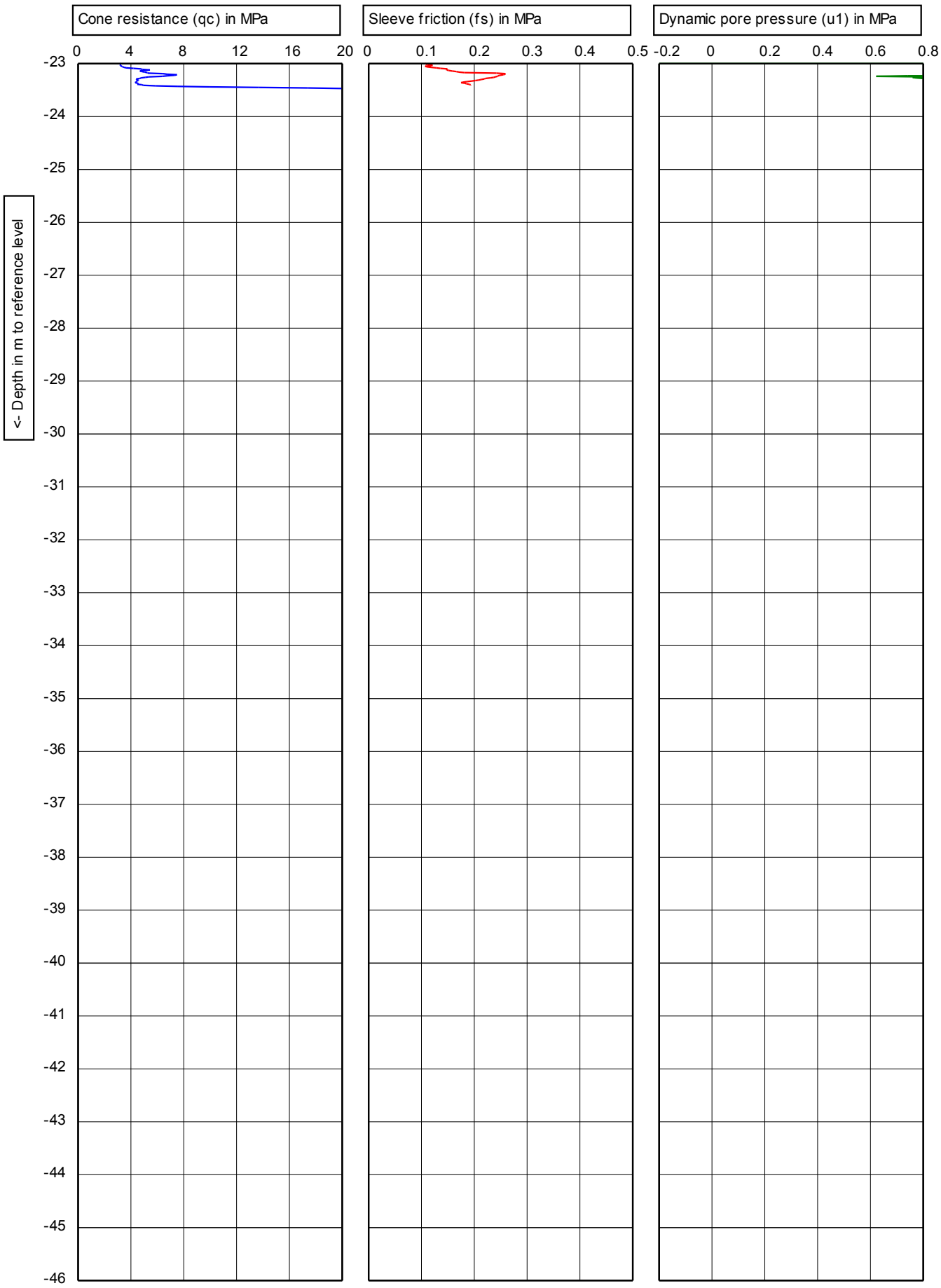
Location : Trinity Burial Ground

Date	:	04/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT315
Test depth	:	-14.02 [m] - G.L.
Water level	:	-2.1 [m] - G.L.



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.8	Date: 01/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT316 1/6

CPTask V1.33



u1
150 cm²
10 cm²

Test Method BS1377 : Part 9 : 1990 :3.1

G.L. 0 NAP | W.L.: **-1.8**

Project: **A63 Castle Street Improvement**

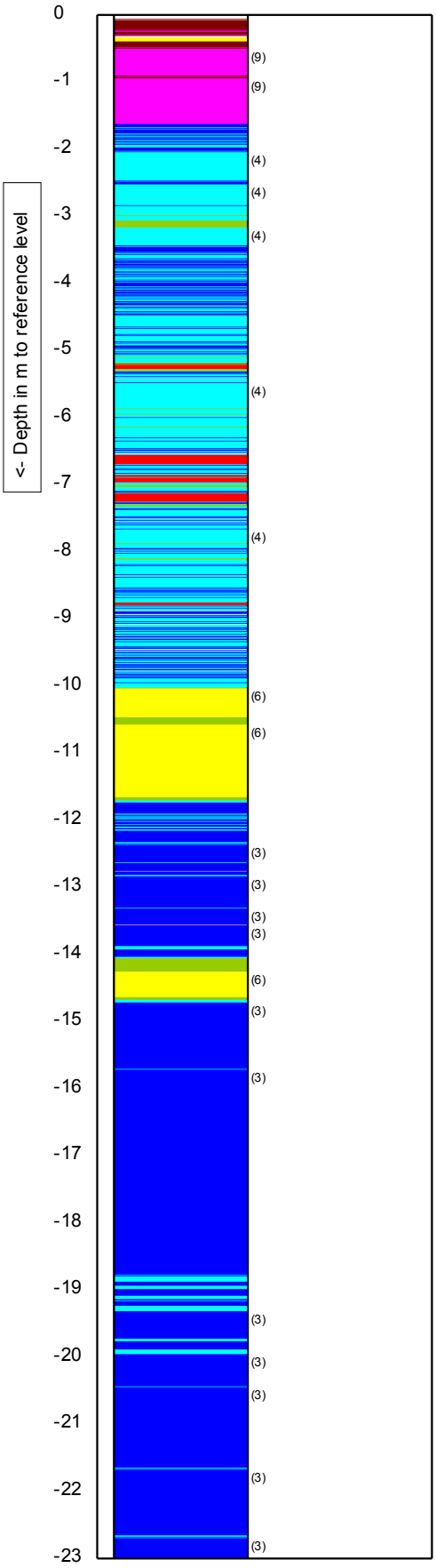
Location: **Trinity Burial Ground**

Position:

Predrill :	**0**
Date:	**01/06/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5049-15**
CPT no.:	**CPT316** **2/6**

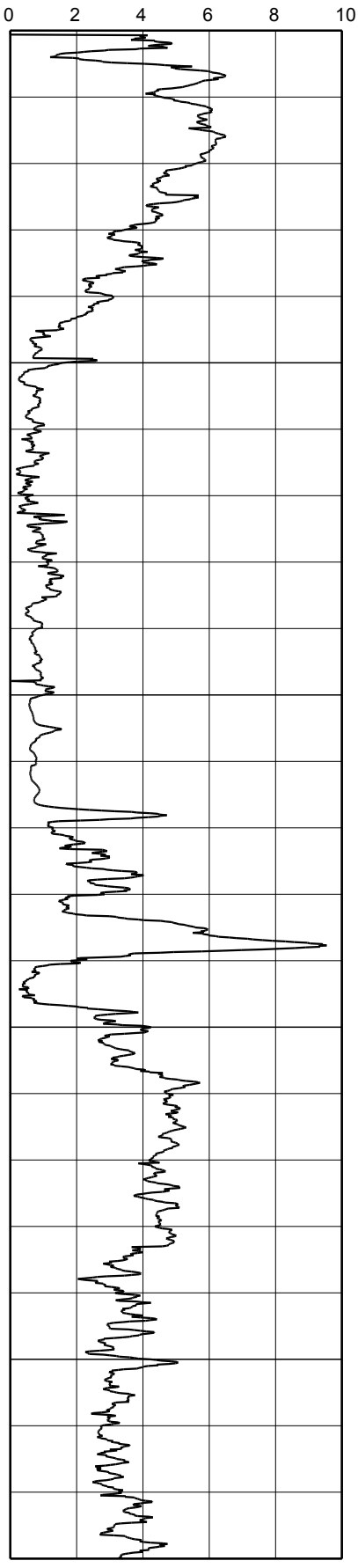
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

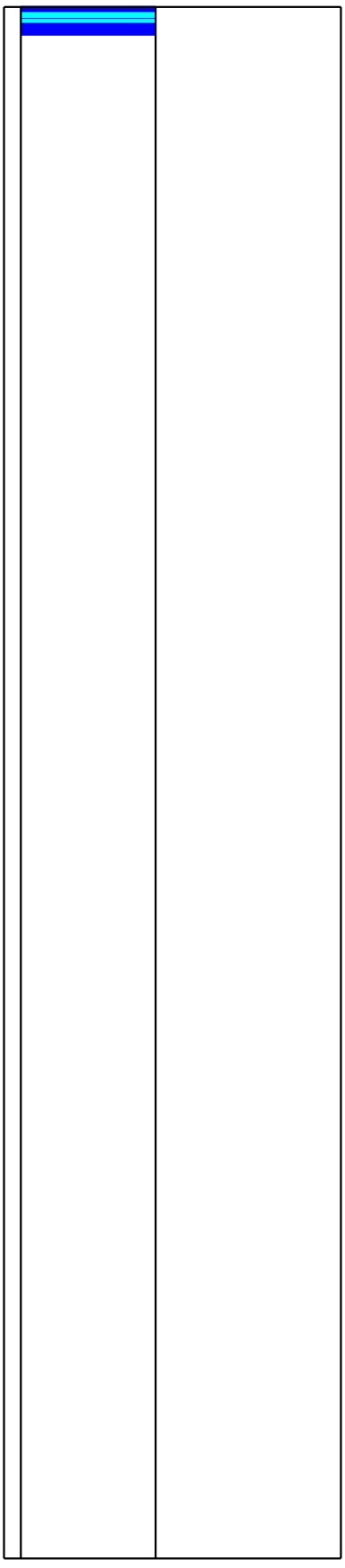
Friction ratio (Rf) in %



┌ u1 └ 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.8**	Date: **01/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT316** **3/6**

CPTask V1.33

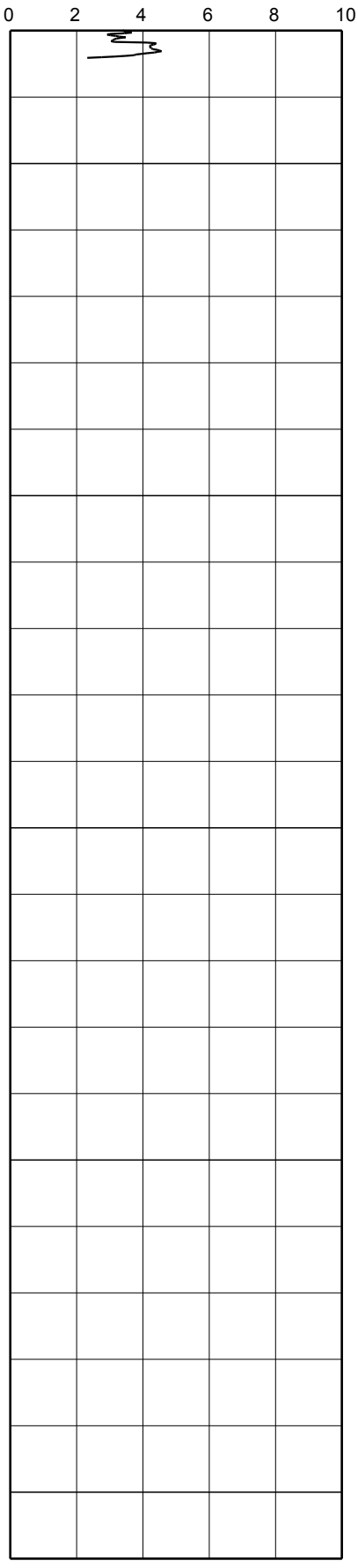
Soil Classification (using Fr)



<- Depth in m to reference level

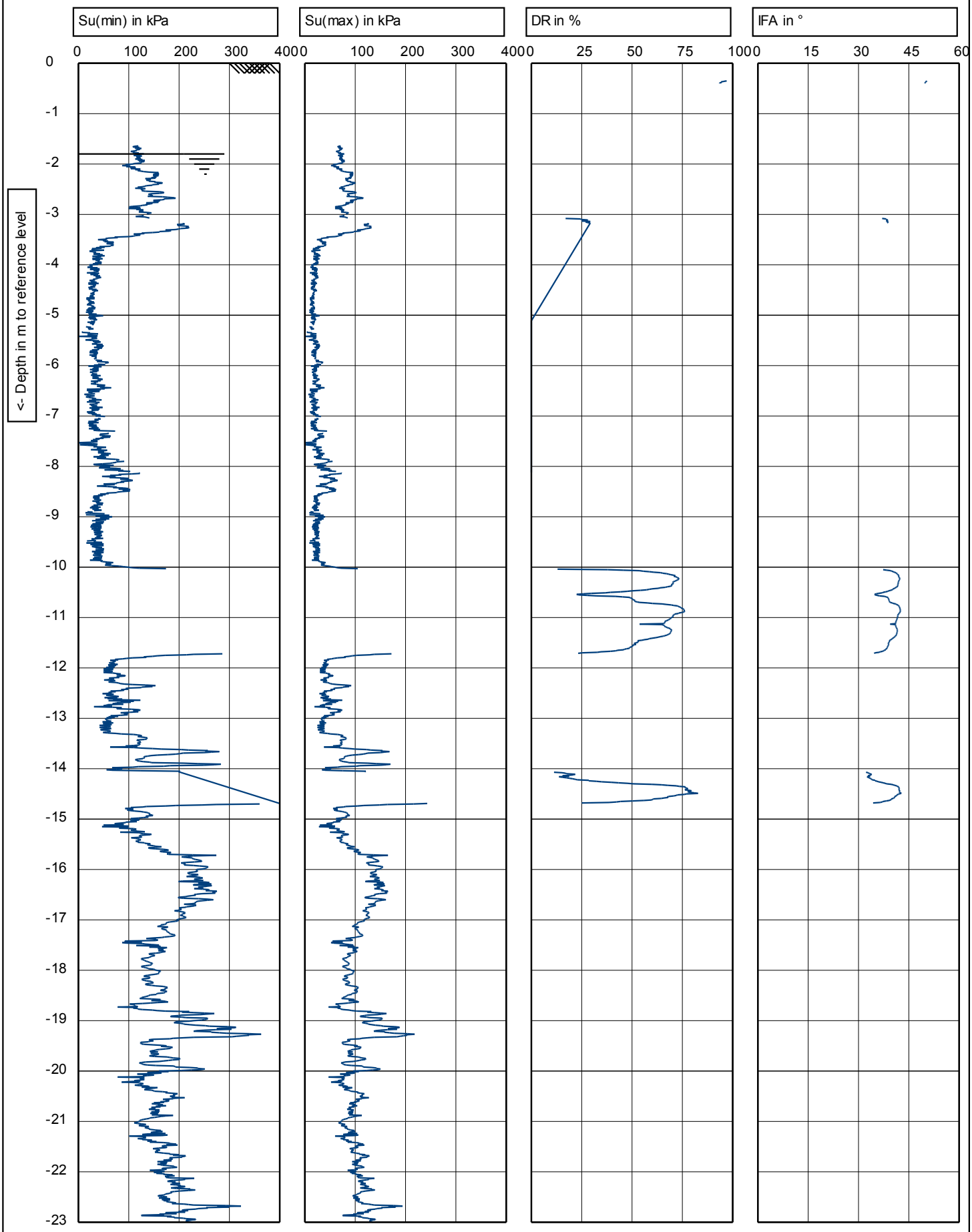
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



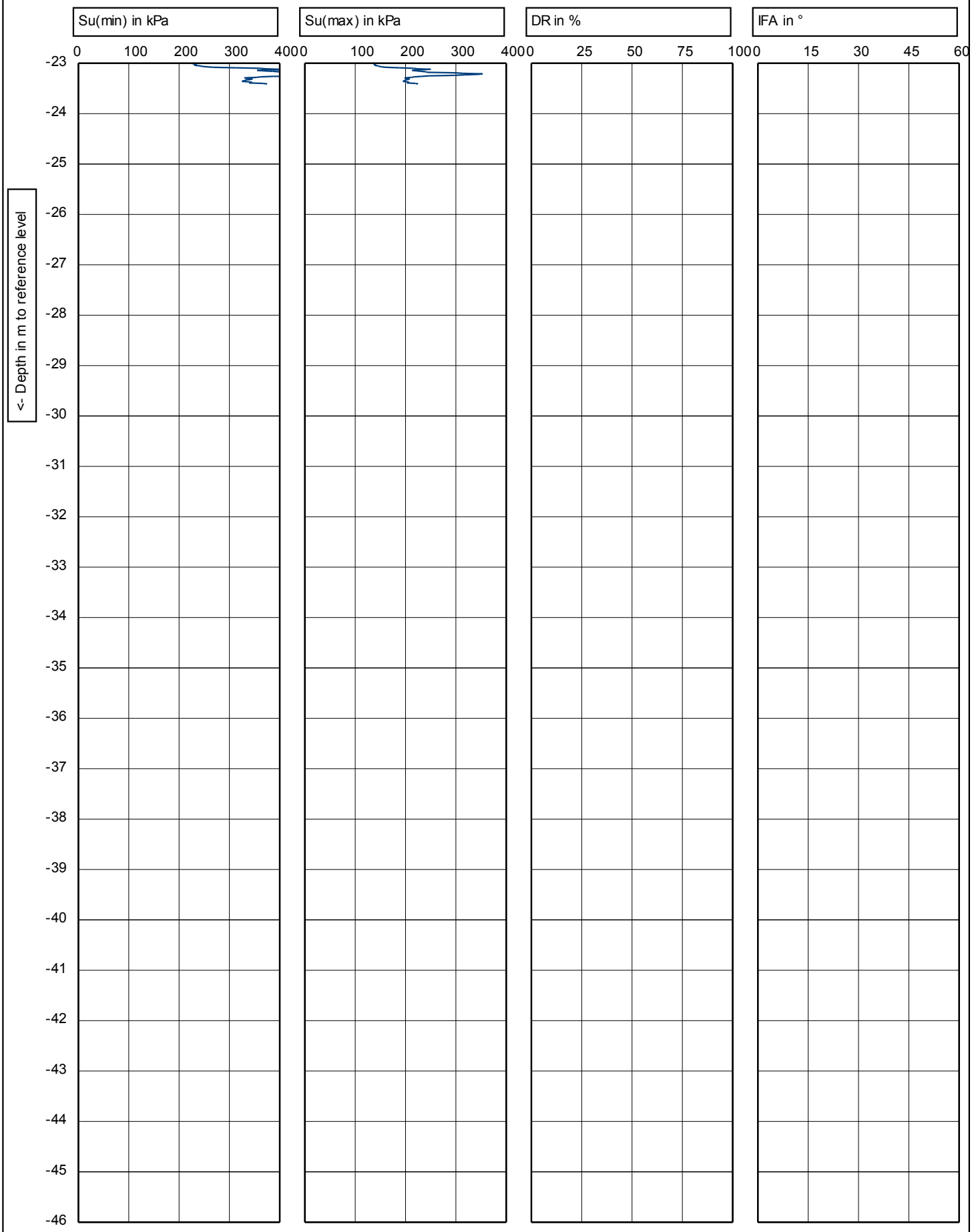
r u1 L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: **-1.8**	Date: **01/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT316** **4/6**

CPTask V1.33



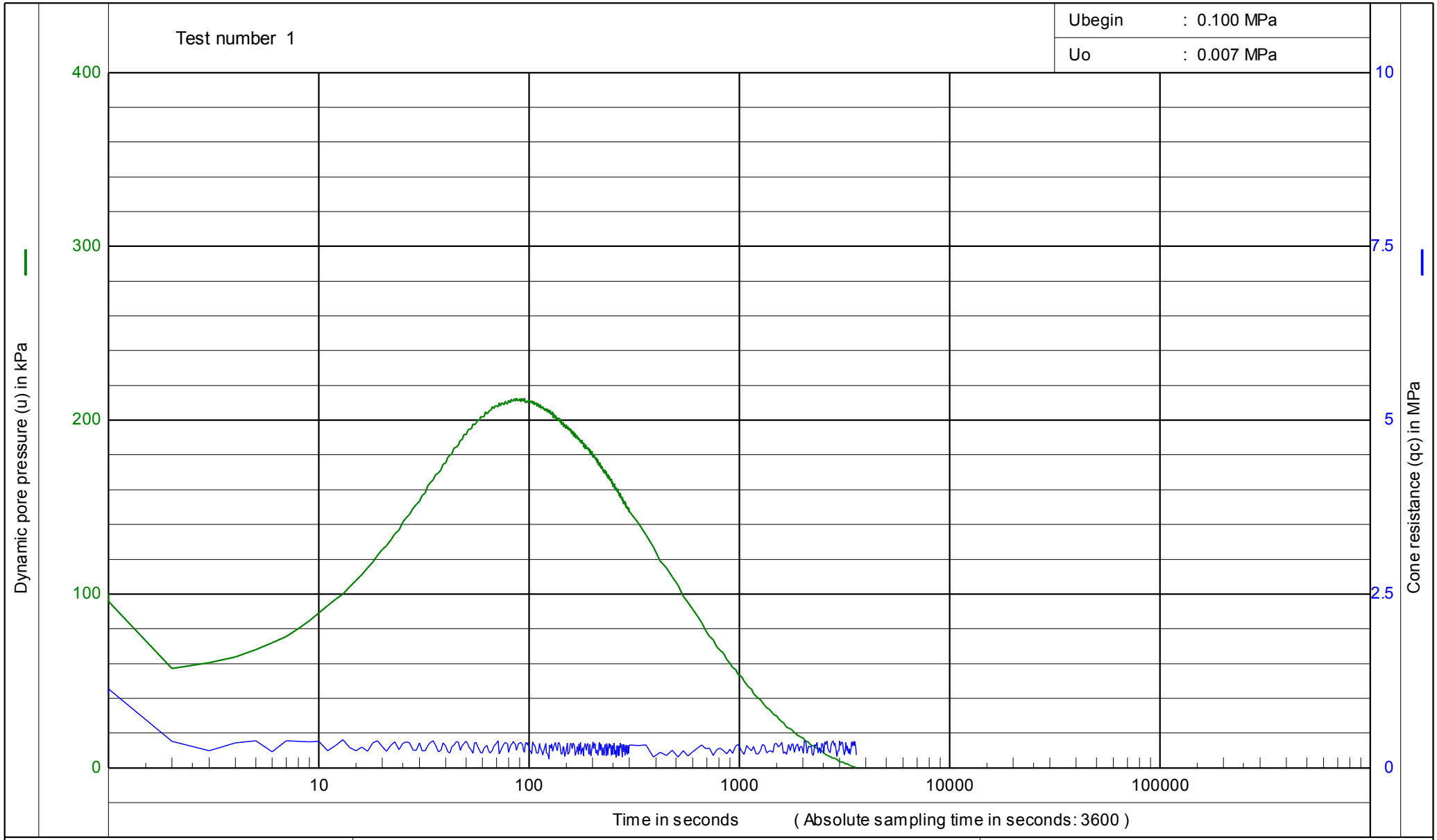
	Test Method BS1377 : Part 9 : 1990 :3.1	Predrill :	**0**
	G.L. 0 NAP / W.L.: **-1.8**	Date:	**01/06/2015**
Project: **A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location: **Trinity Burial Ground**		Project no.:	**A5049-15**
Position:		CPT no.:	**CPT316** 5/6

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / L 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-1.8**	Date: **01/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT316** **6/6**

CPTask V1.33

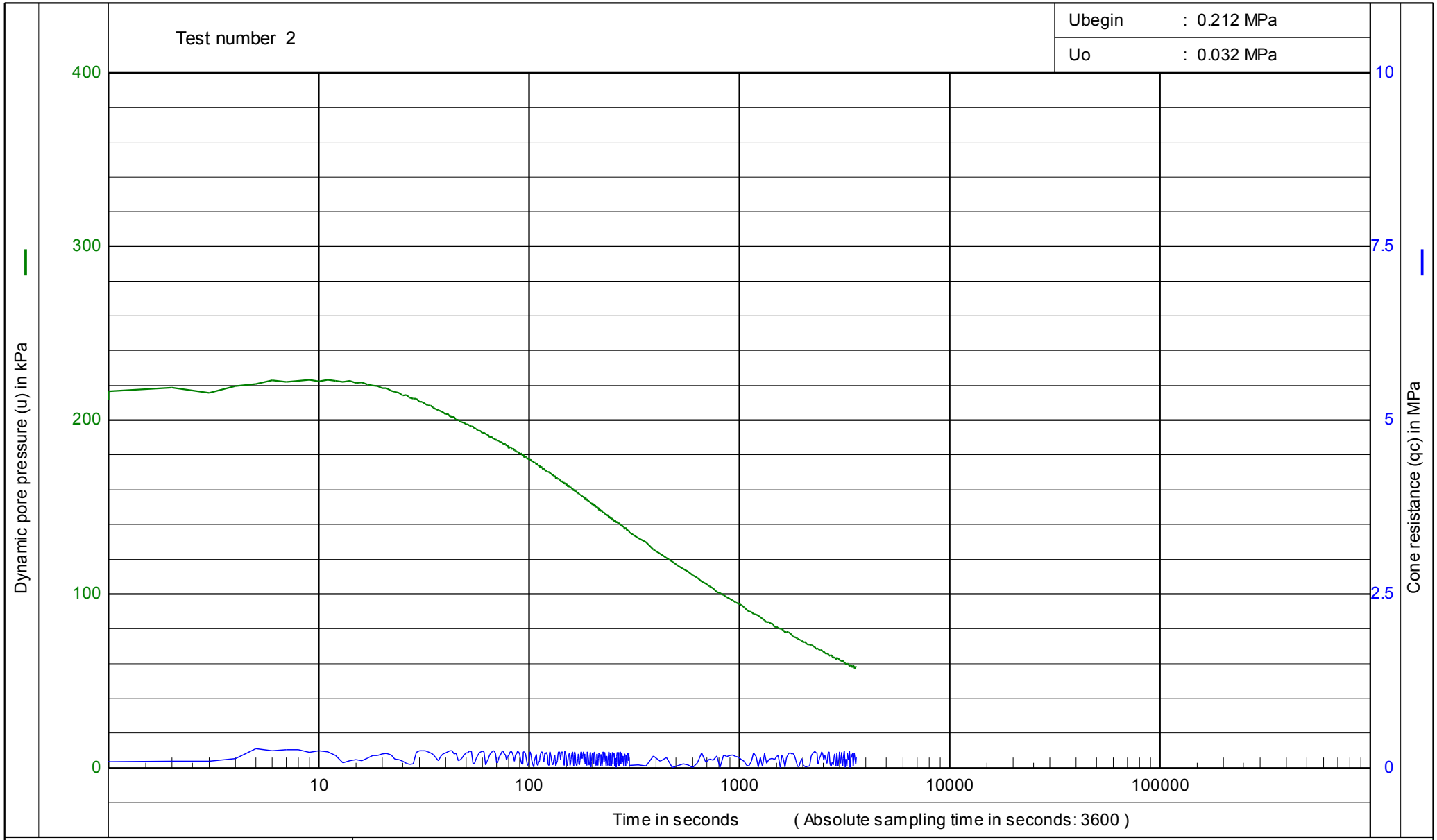


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	01/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT316
Test depth	:	-2.54 [m] - G.L.
Water level	:	-1.8 [m] - G.L.

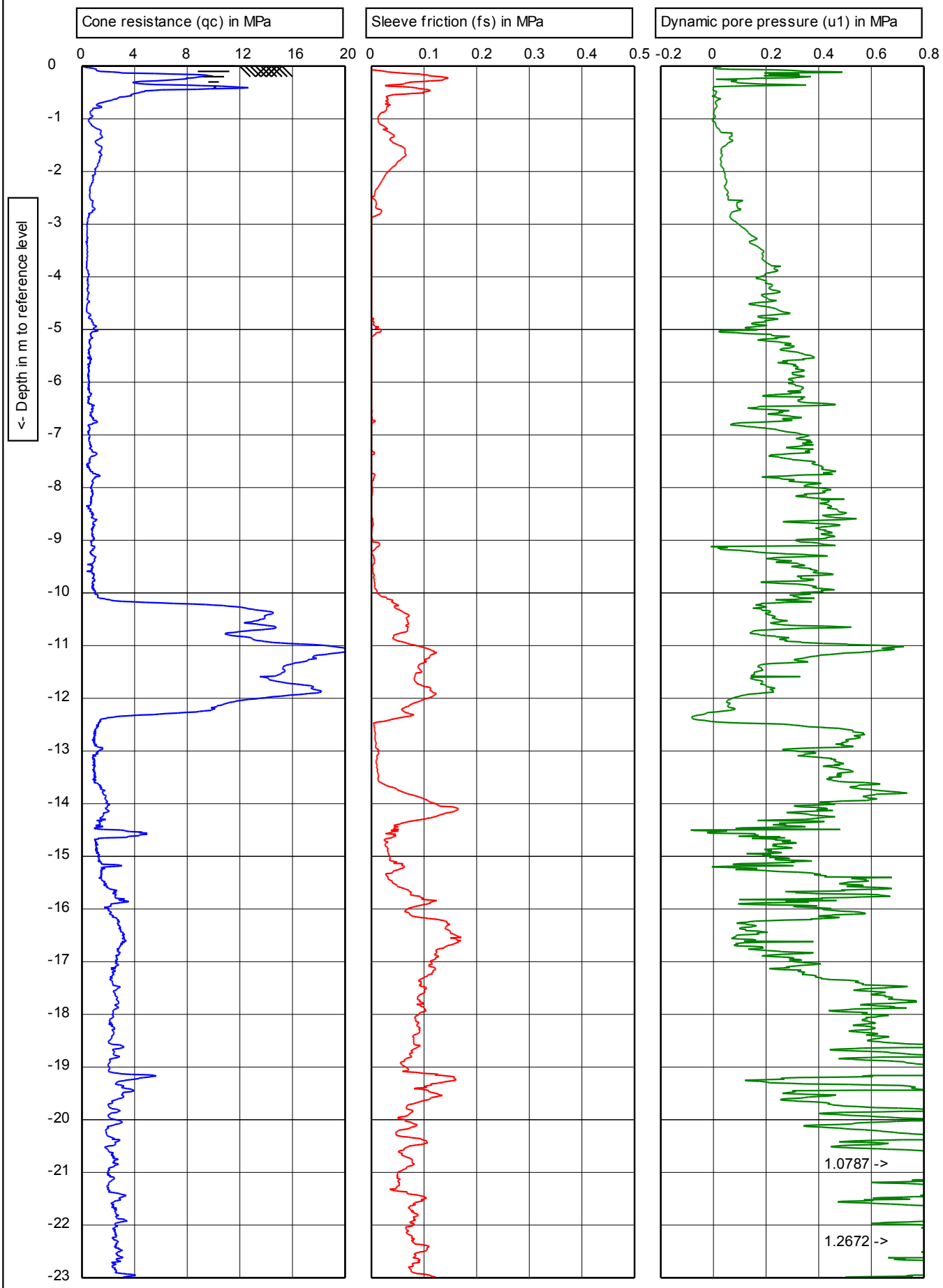


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

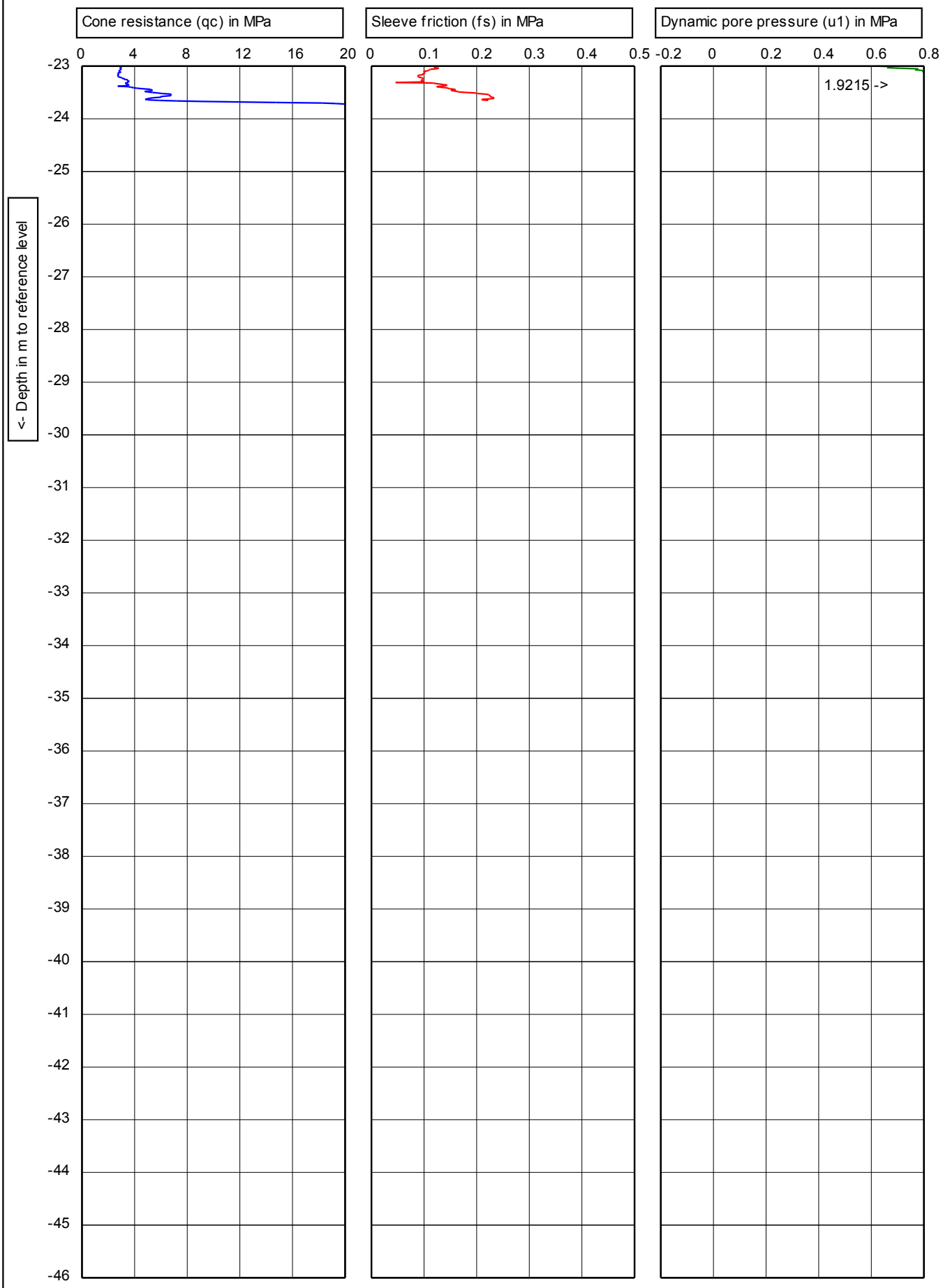
Location : Trinity Burial Ground

Date	:	01/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT316
Test depth	:	-5 [m] - G.L.
Water level	:	-1.8 [m] - G.L.



u1 / 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: 0	Date: 02/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT317 1/6

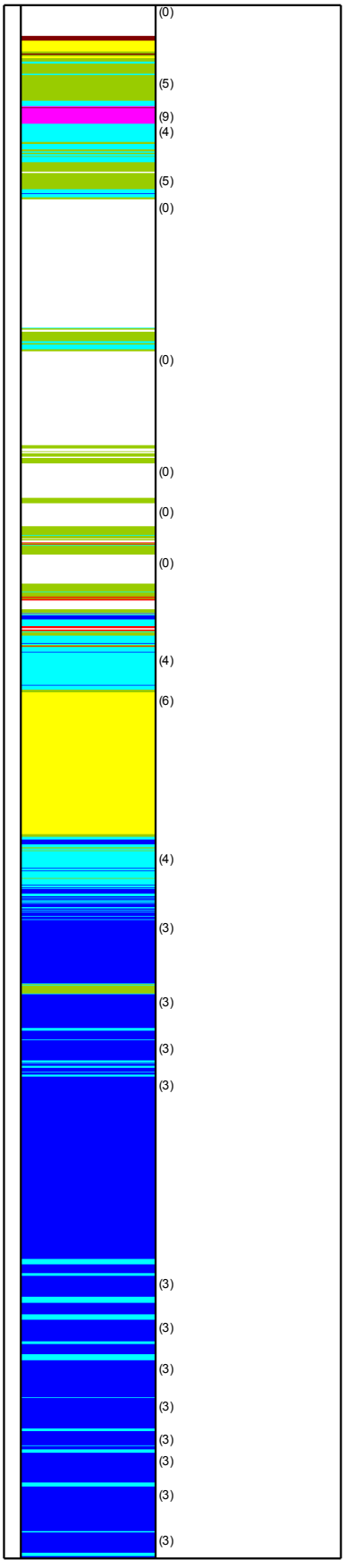
CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **0**	Date: **02/06/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT317** **2/6**

CPTask V1.33

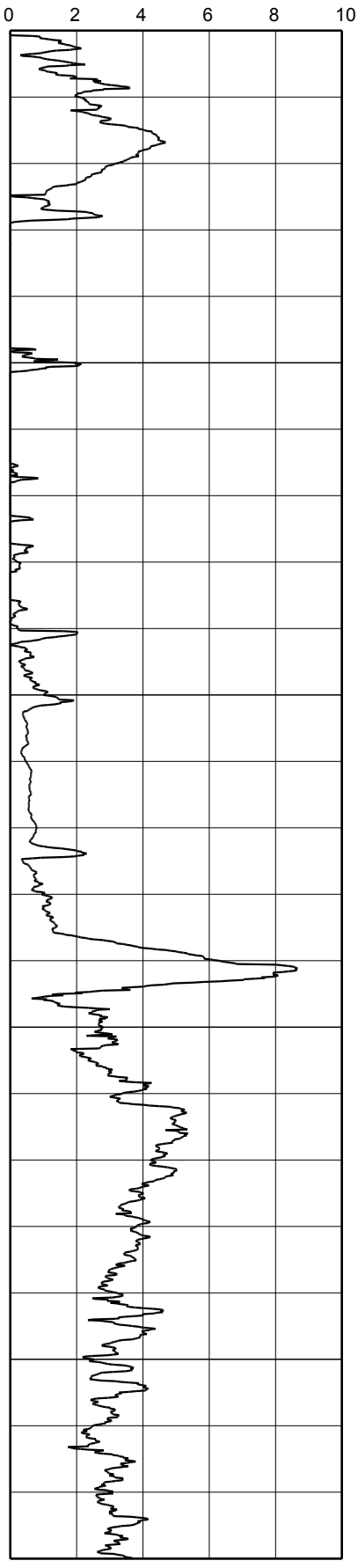
Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

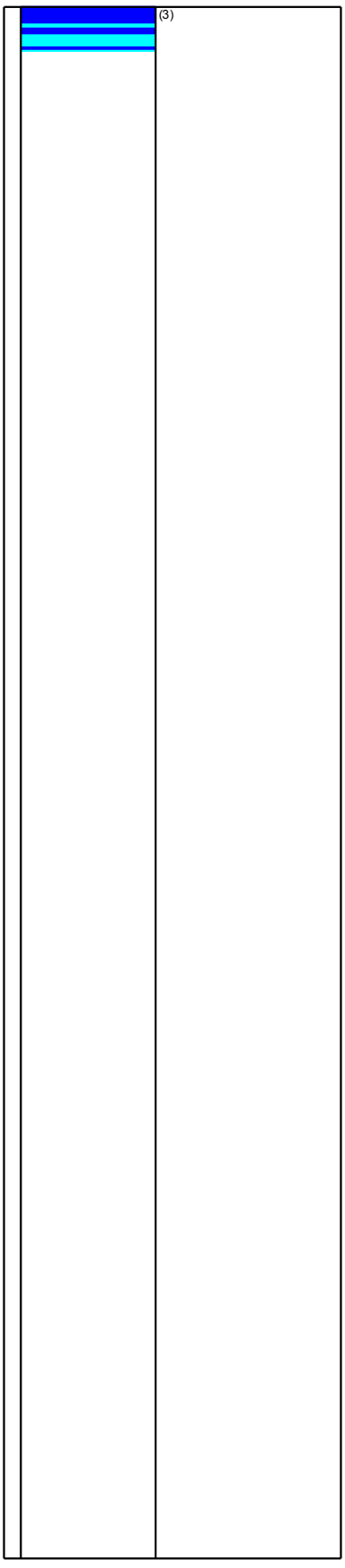
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: 0	Date: 02/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT317 3/6

CPTask V1.33

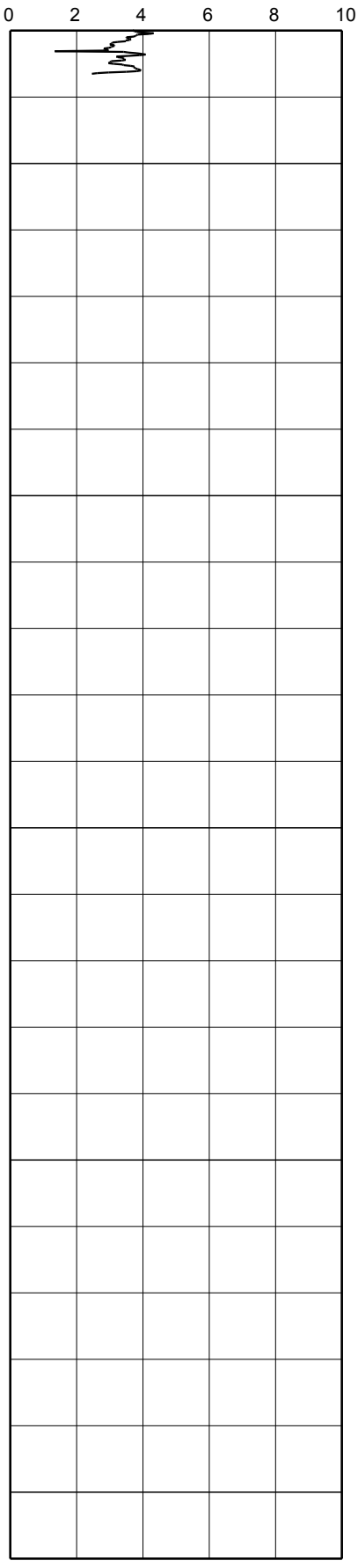
Soil Classification (using Fr)



<- Depth in m to reference level

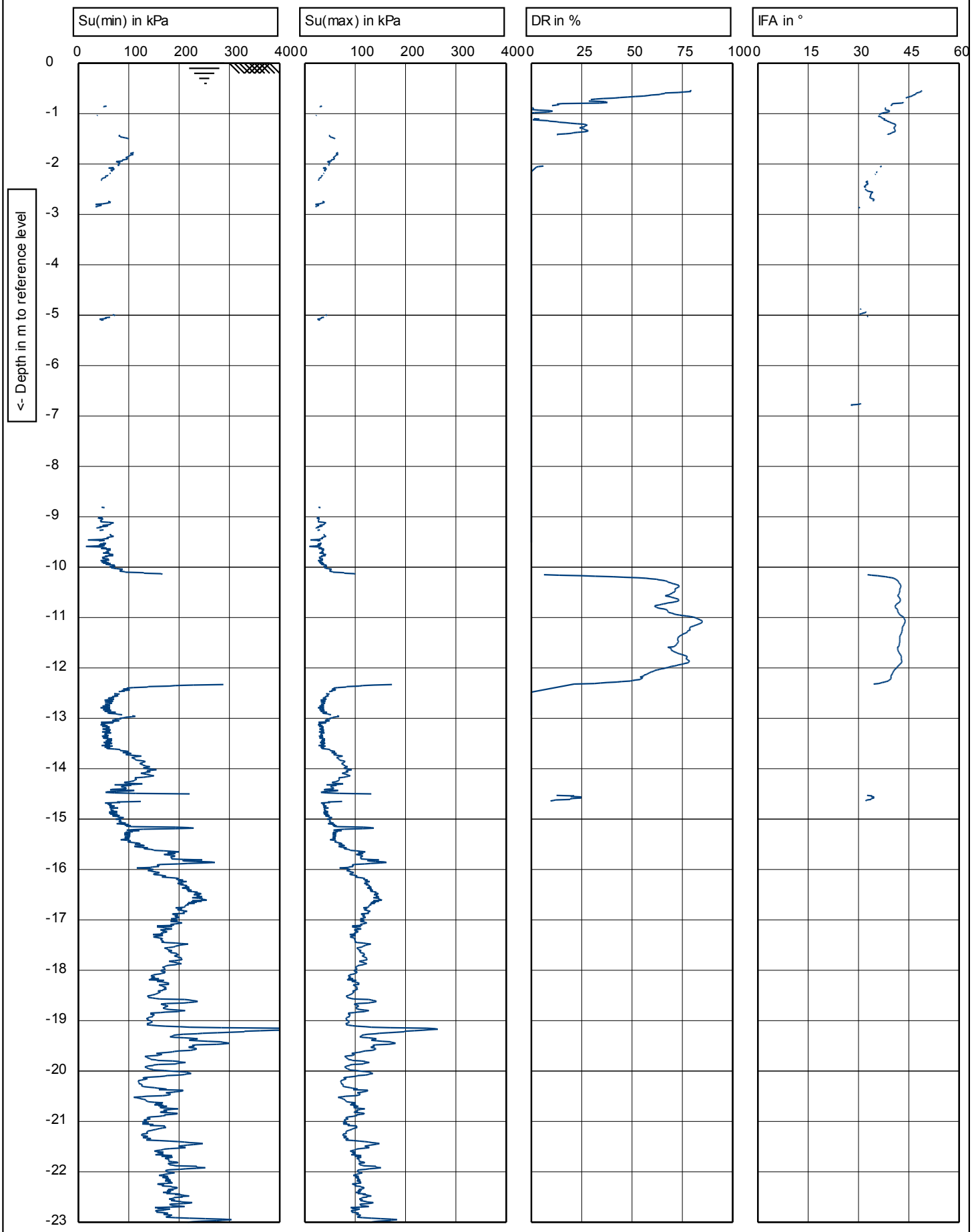
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



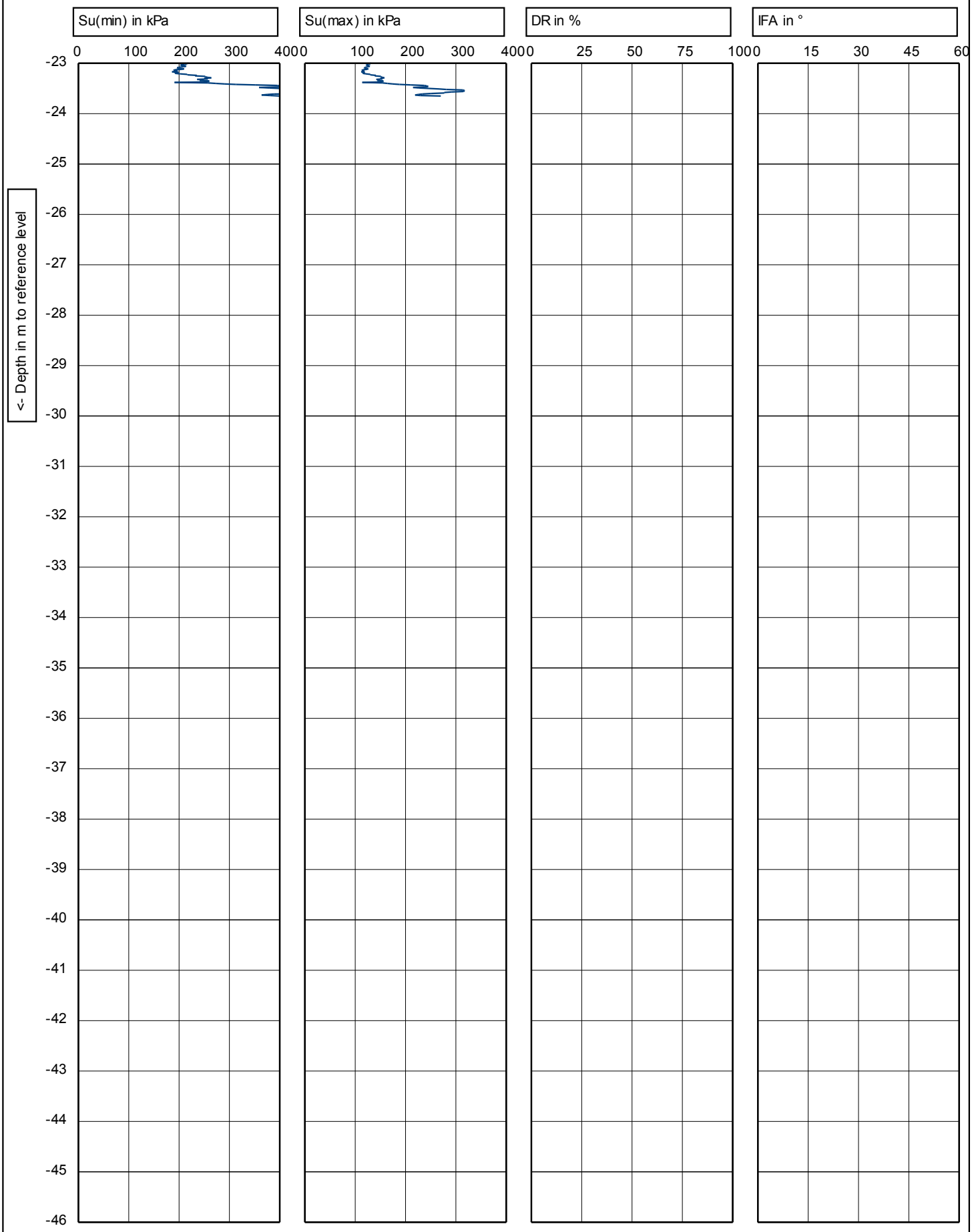
r u1 L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: 0	Date: 02/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT317 4/6

CPTask V1.33



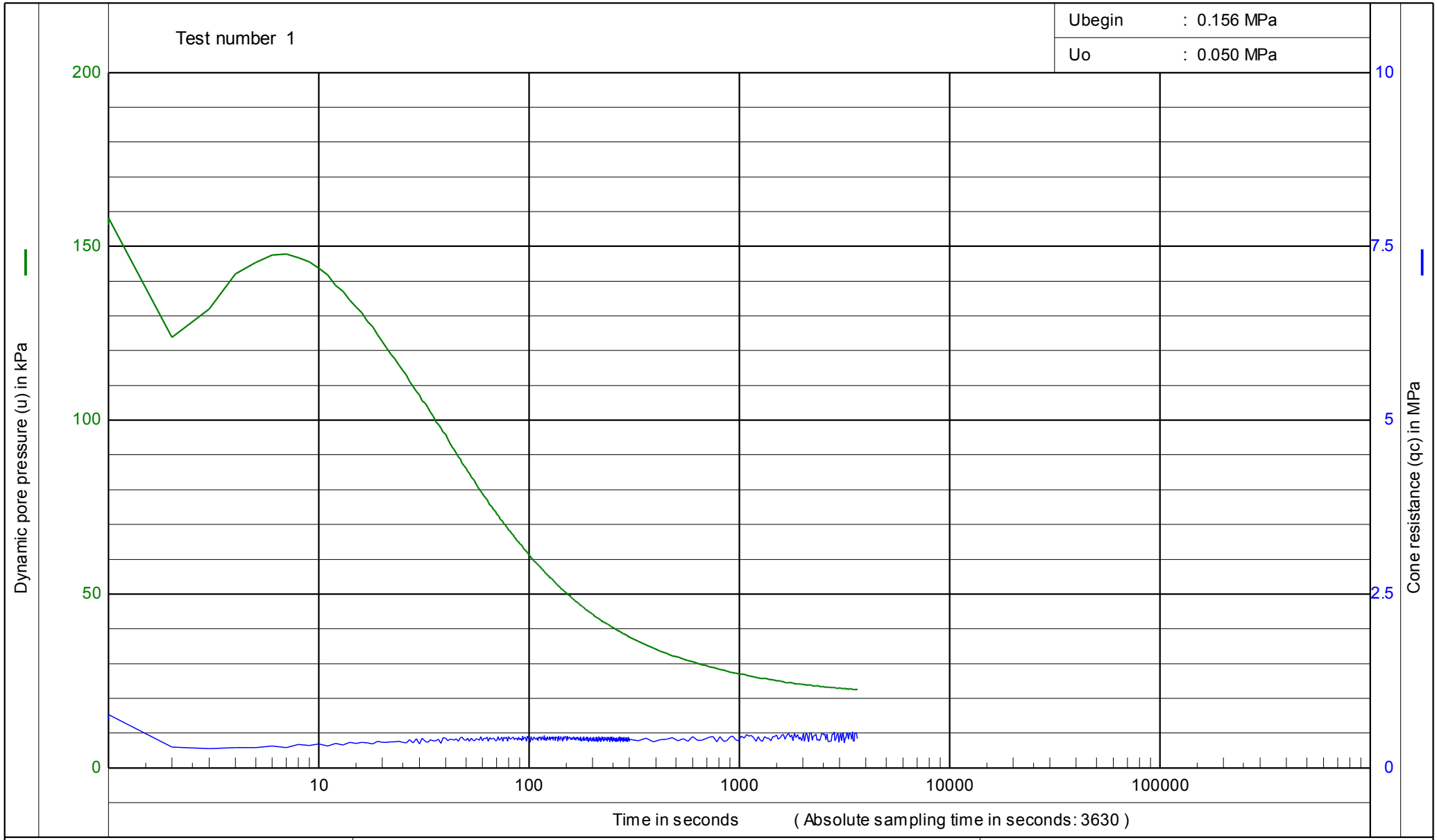
	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: 0	Date: 02/06/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT317 5/6

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1	Predrill :	**0**
r u1 / 150 cm² / 10 cm²	G.L. 0 NAP — W.L.: **0**	Date:	**02/06/2015**
Project: **A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location: **Trinity Burial Ground**		Project no.:	**A5049-15**
Position:		CPT no.:	**CPT317** — **6/6**

CPTask V1.33

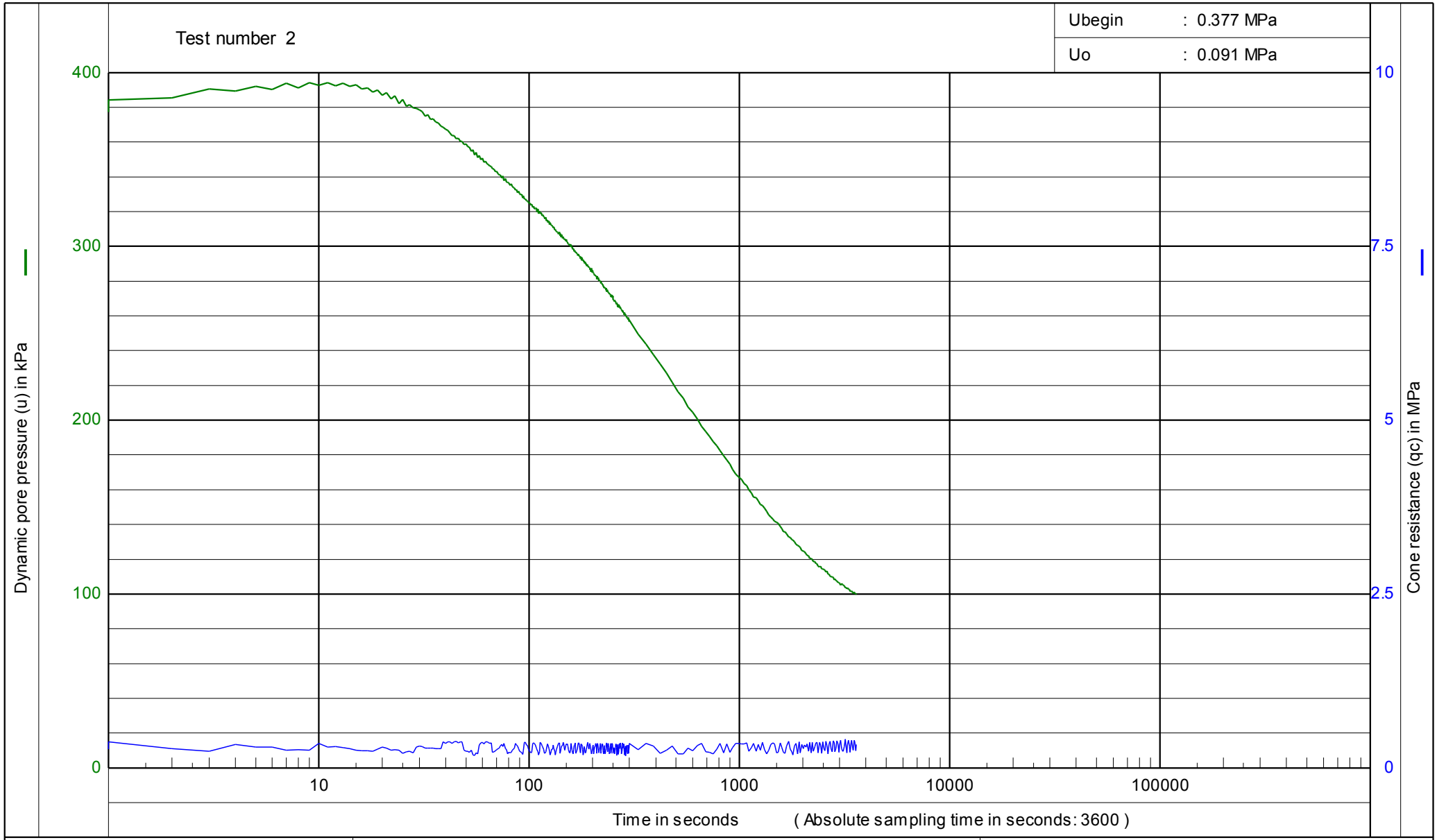


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	02/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT317
Test depth	:	-5.01 [m] - G.L.
Water level	:	0 [m] - G.L.

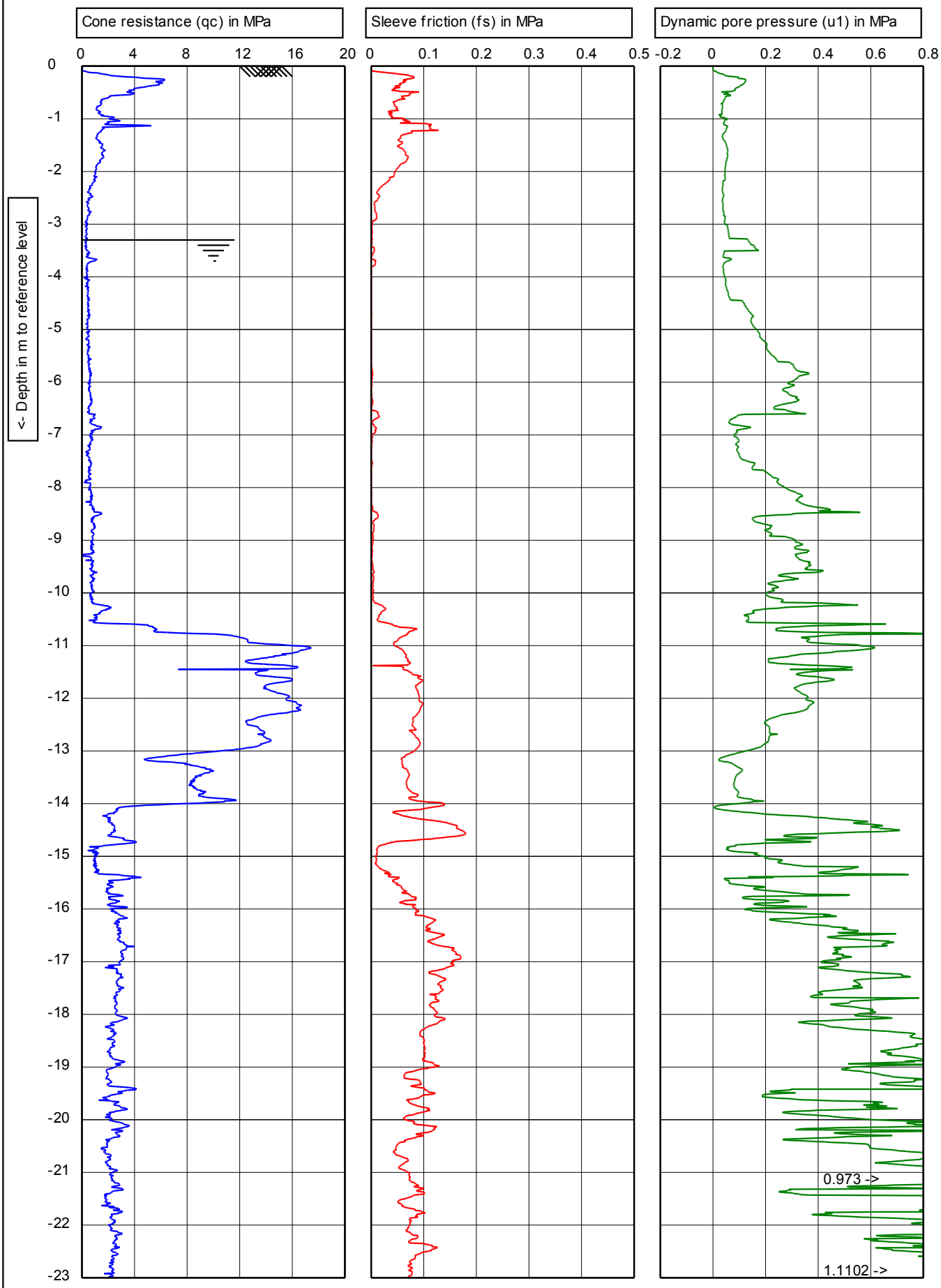


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

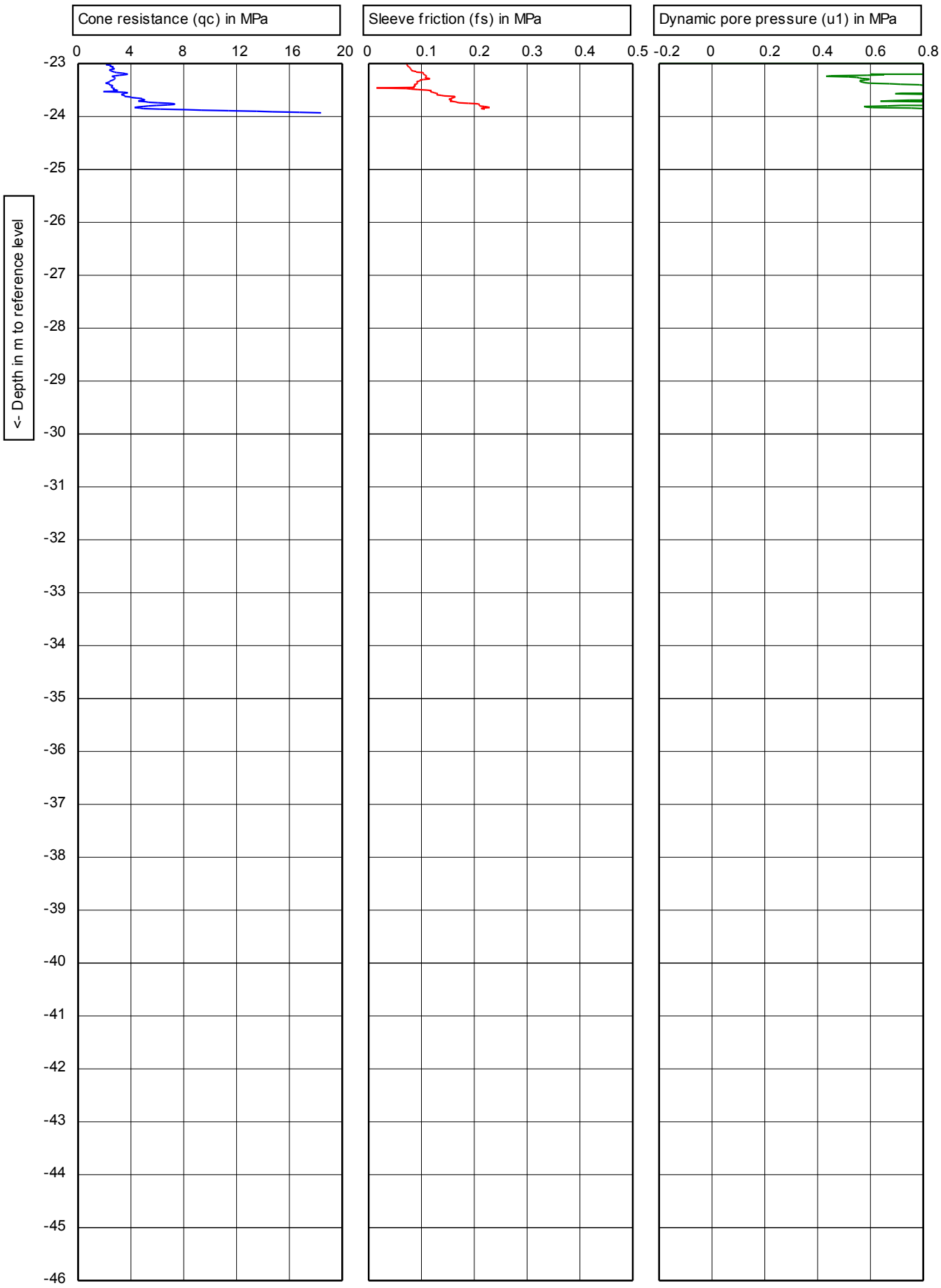
Date	:	02/06/2015
Project no.	:	A5049-15
CPT no.	:	CPT317
Test depth	:	-9.1 [m] - G.L.
Water level	:	0 [m] - G.L.



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-3.3**	Date: **29/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT318** **1/6**

u1 150 cm² 10 cm²

CPTask V1.33



u1
150 cm²
10 cm²

Test Method BS1377 : Part 9 : 1990 :3.1

G.L. 0 NAP | W.L.: **-3.3**

Project: **A63 Castle Street Improvement**

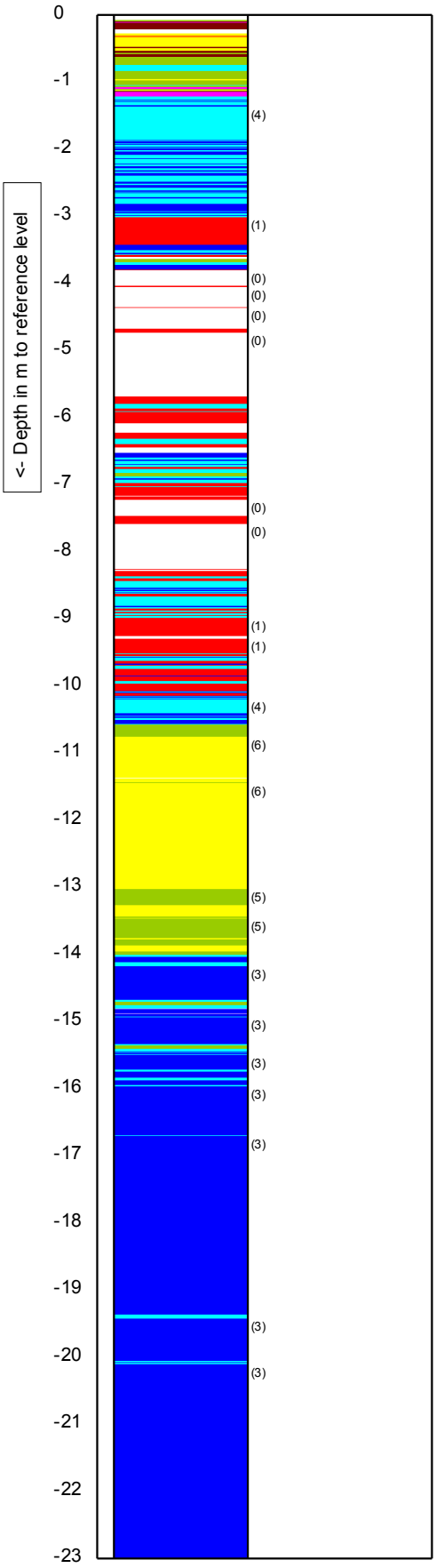
Location: **Trinity Burial Ground**

Position:

Predrill :	**0**
Date:	**29/05/2015**
Cone no.:	**C10CFIP.125**
Project no.:	**A5049-15**
CPT no.:	**CPT318** **2/6**

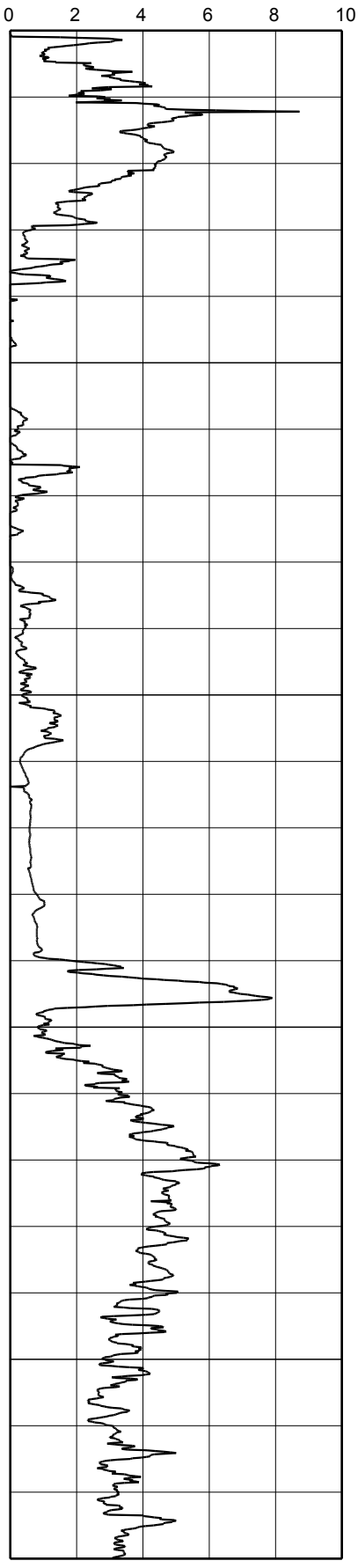
CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

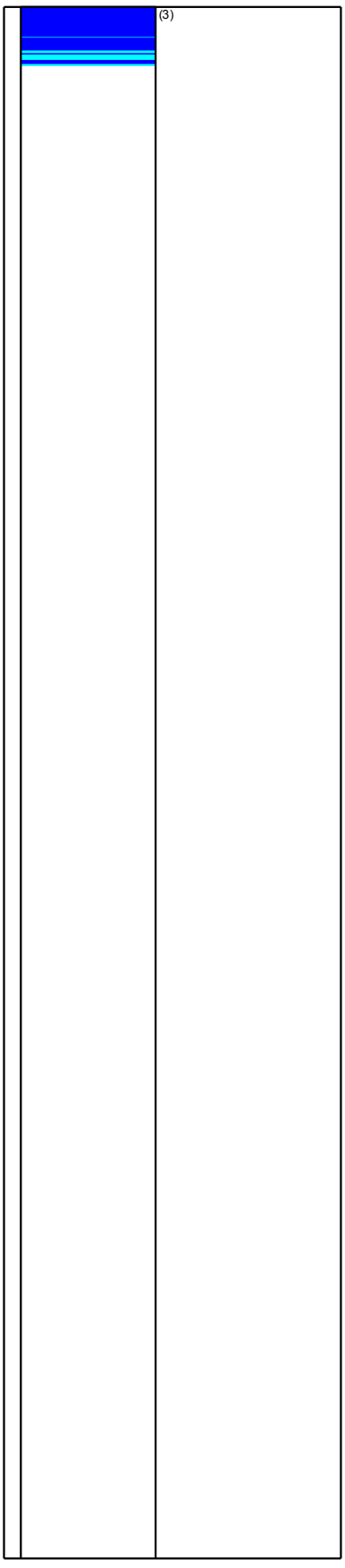
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -3.3	Date: 29/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT318 3/6

CPTask V1.33

Soil Classification (using Fr)



<- Depth in m to reference level

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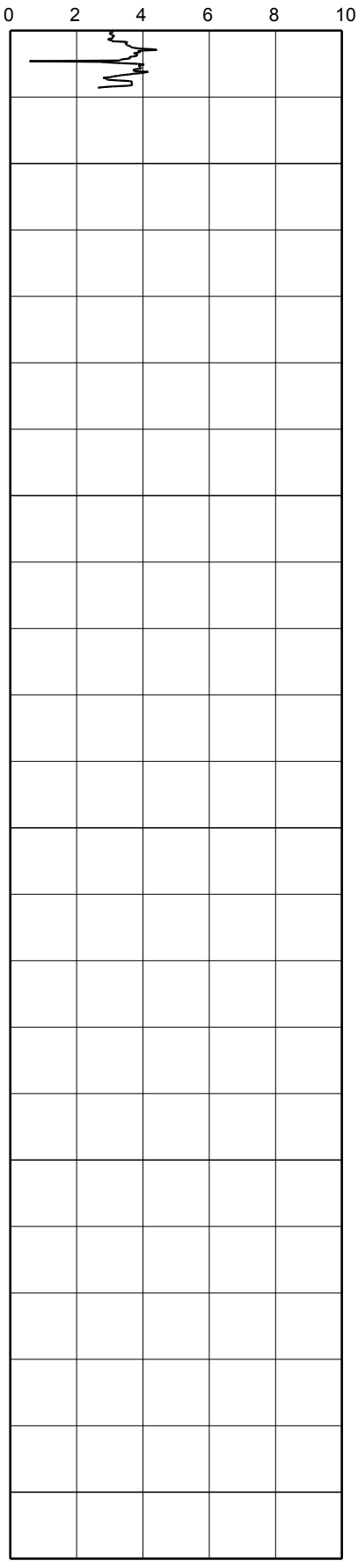
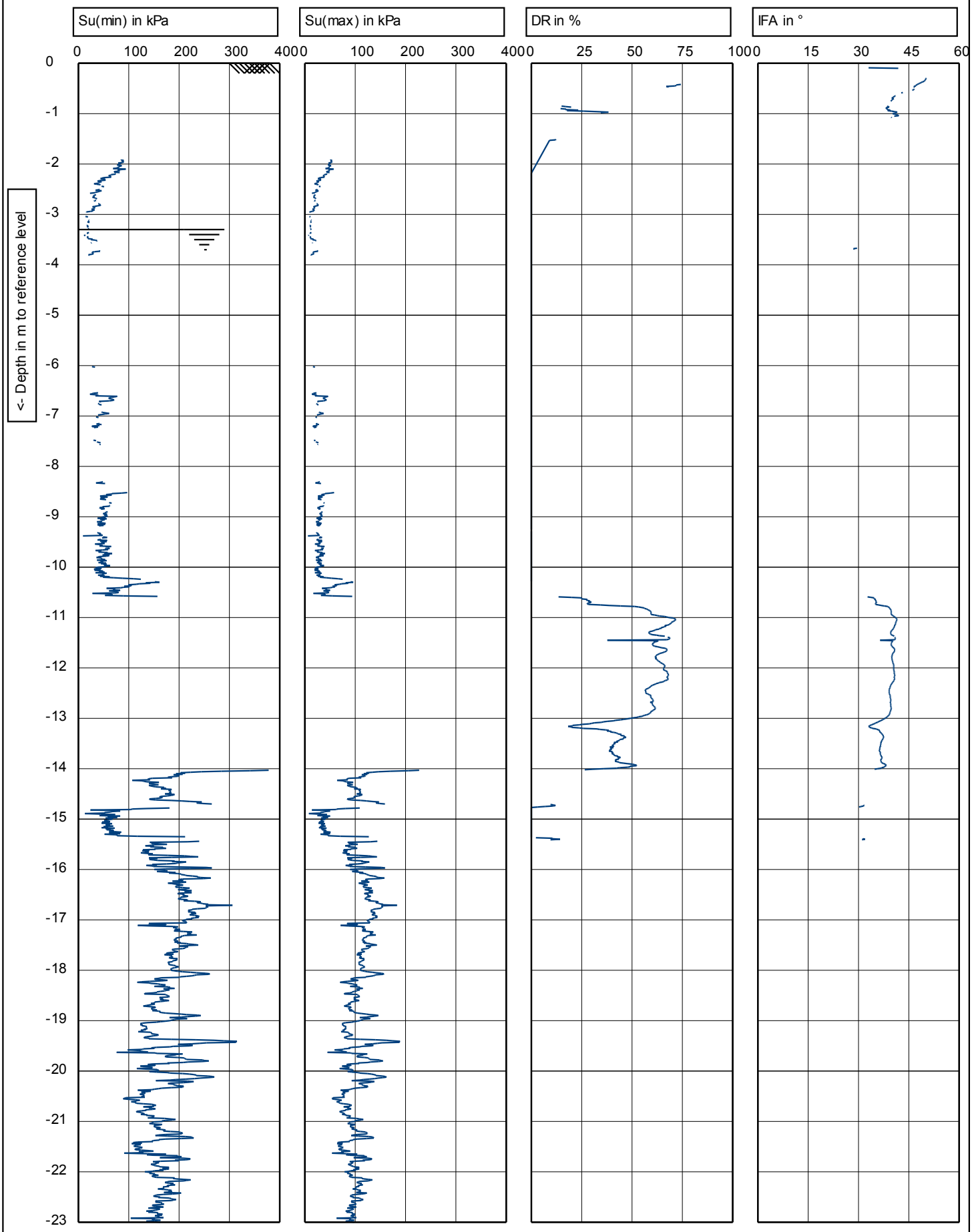
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



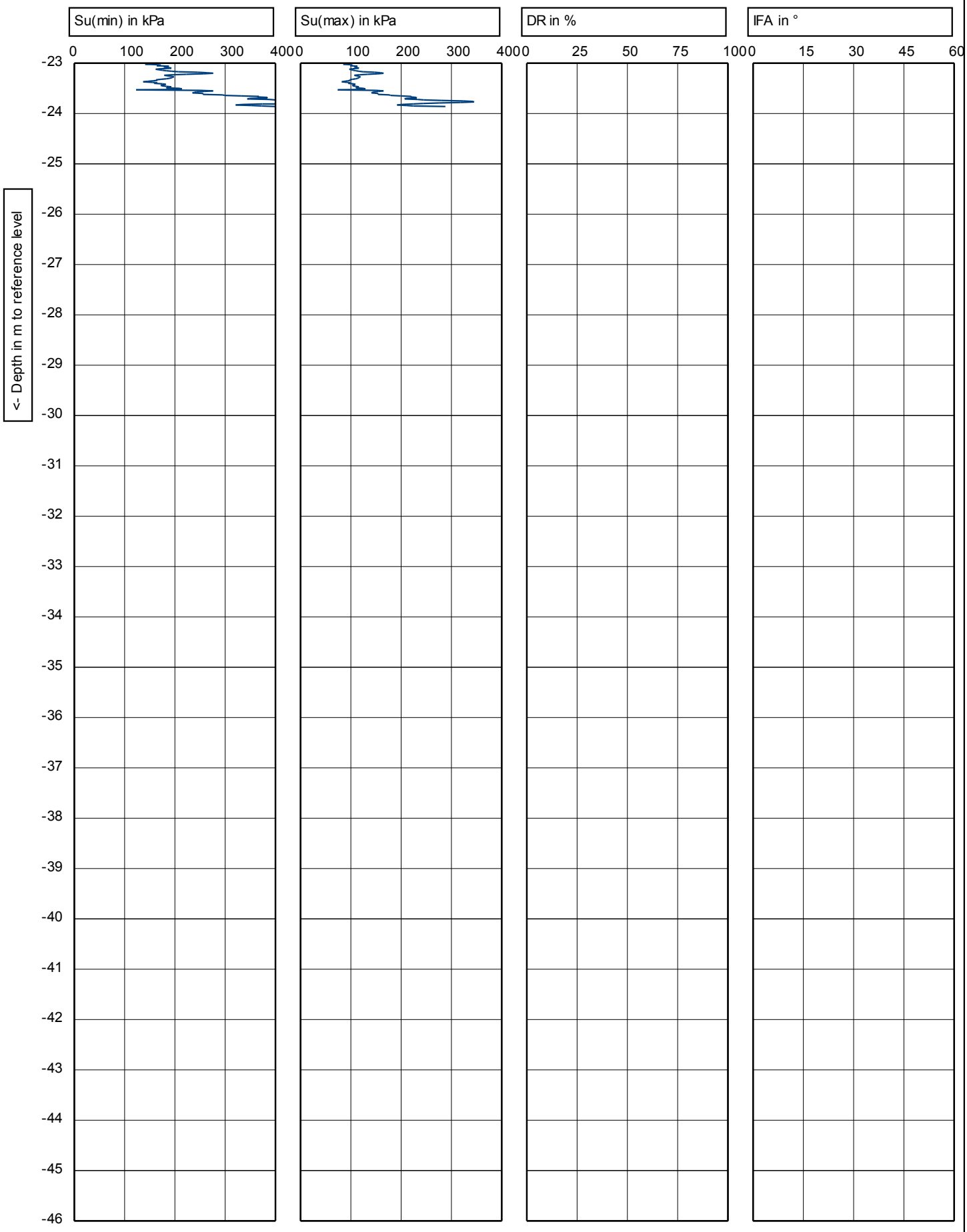
┌ u1 └ 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-3.3**	Date: **29/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT318** **4/6**

CPTask V1.33



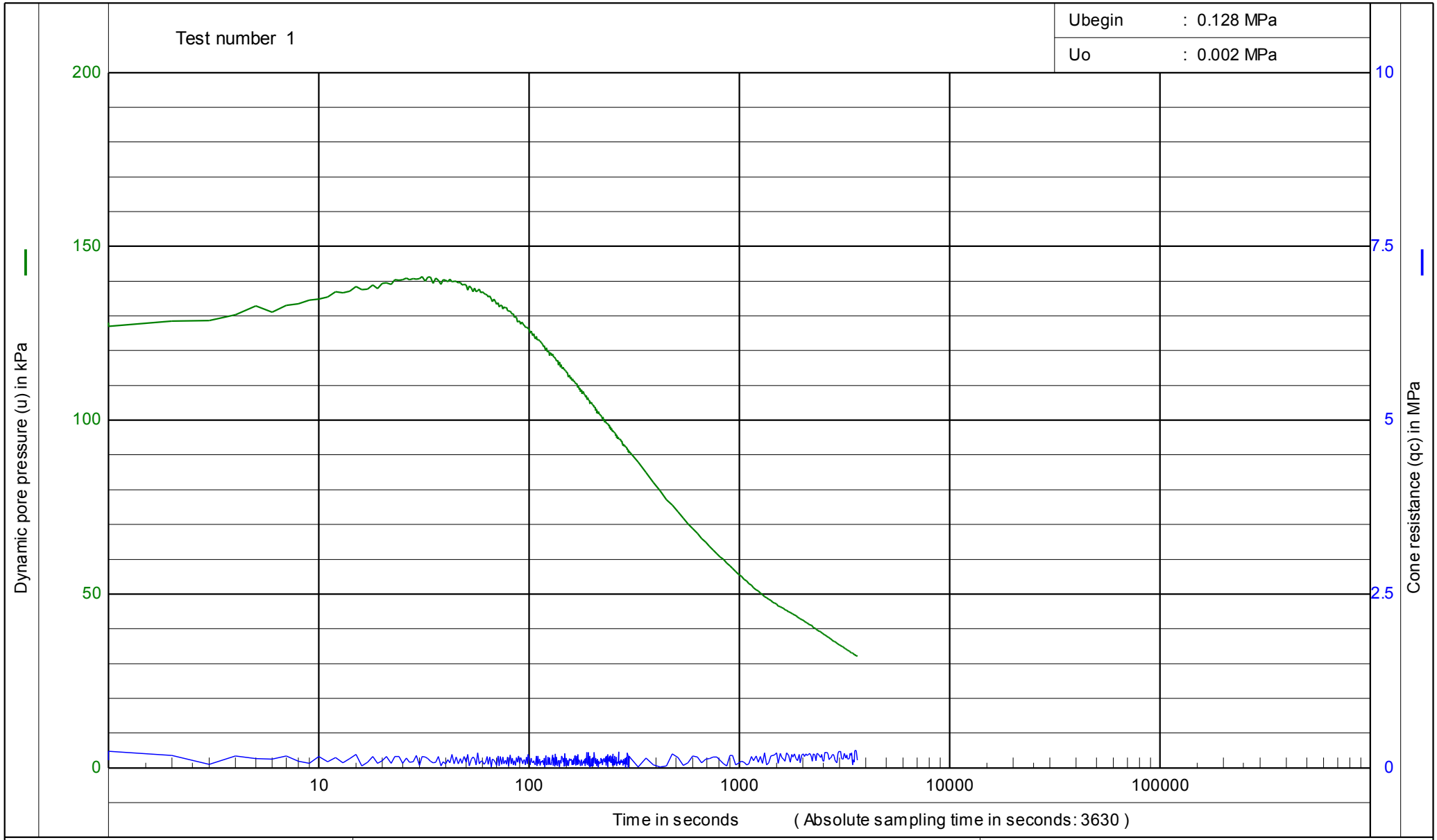
	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-3.3**	Date: **29/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT318** **5/6**

CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1	Predrill :	**0**
r u1 / 150 cm² / 10 cm²	G.L. 0 NAP — W.L.: **-3.3**	Date:	**29/05/2015**
Project: **A63 Castle Street Improvement**		Cone no.:	**C10CFIP.125**
Location: **Trinity Burial Ground**		Project no.:	**A5049-15**
Position:		CPT no.:	**CPT318** **6/6**

CPTask V1.33



Test Method BS1377 : Part 9 : 1990 :3.1

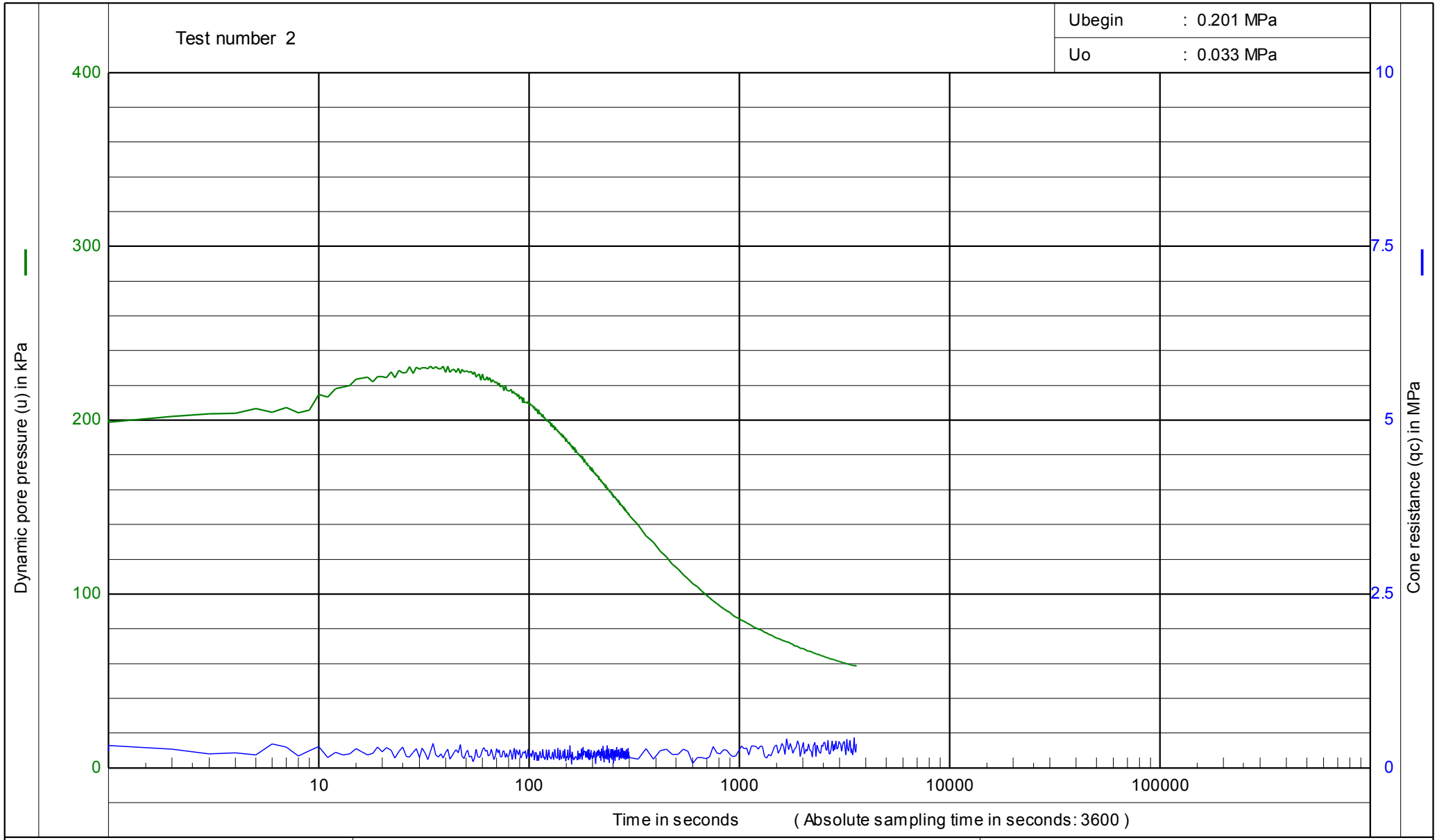
Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	29/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT318
Test depth	:	-3.5 [m] - G.L.
Water level	:	-3.3 [m] - G.L.

Test number 2

Ubegin	: 0.201 MPa
Uo	: 0.033 MPa

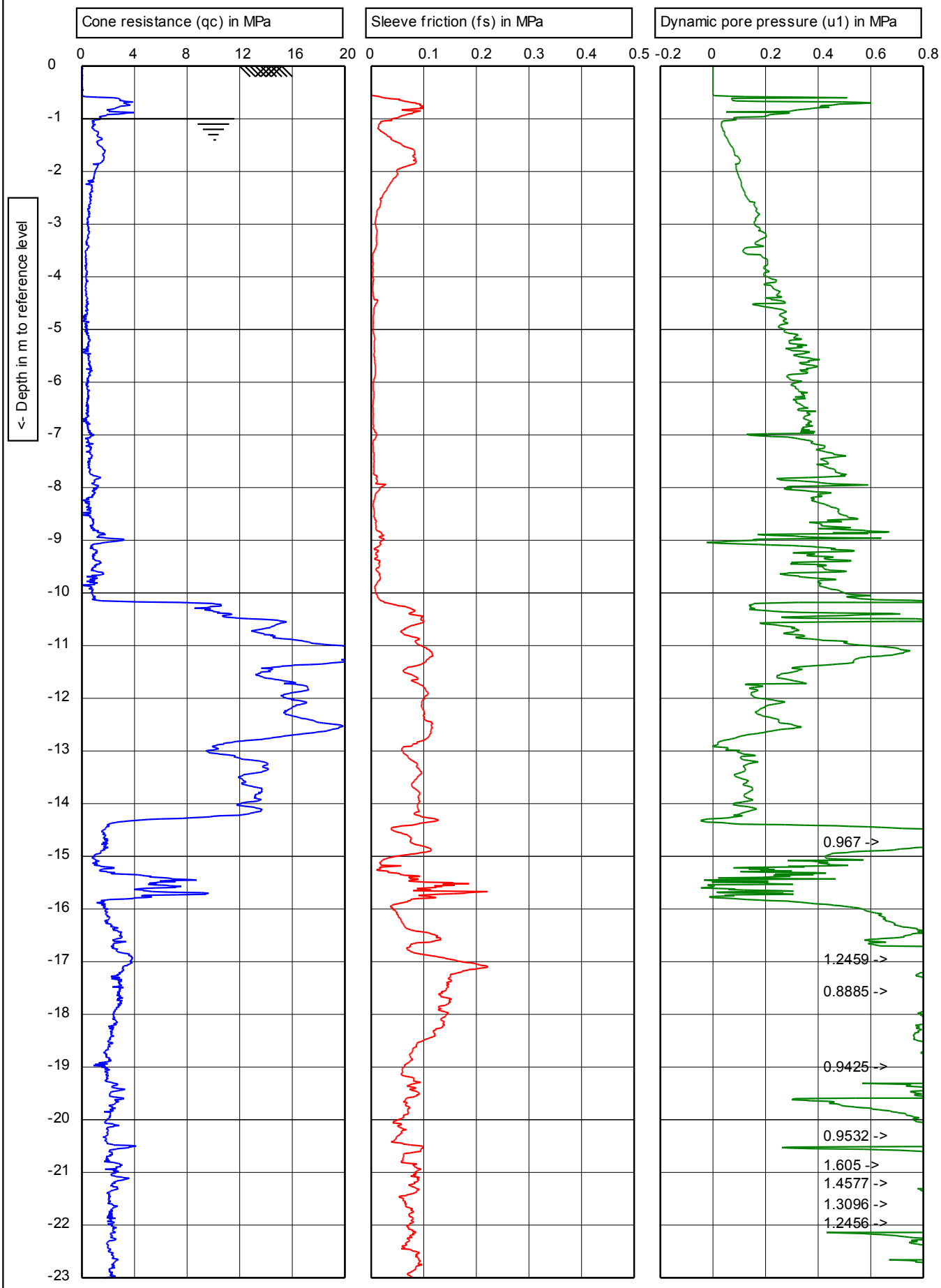


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

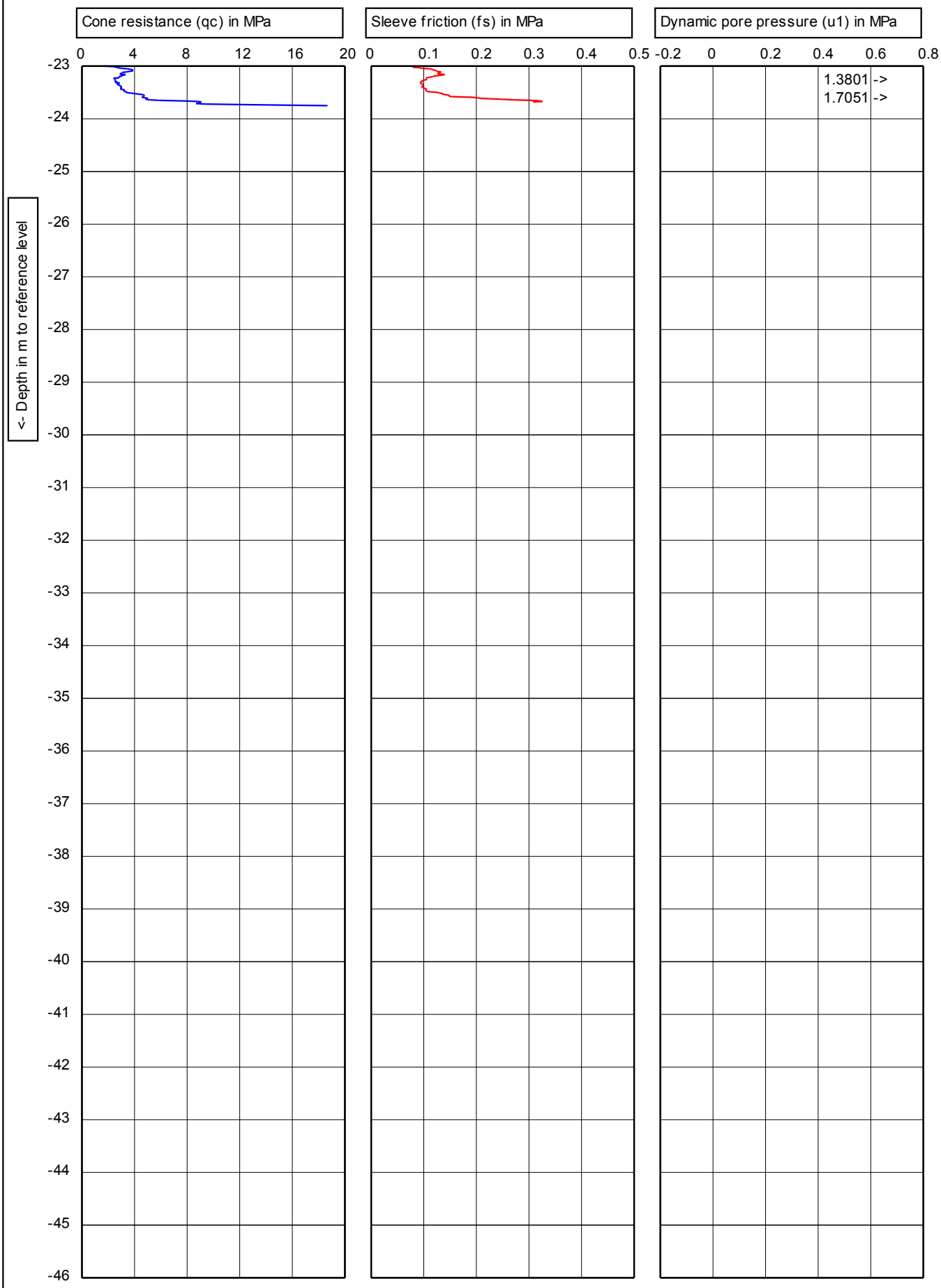
Location : Trinity Burial Ground

Date	: 29/05/2015	
Project no.	: A5049-15	
CPT no.	: CPT318	
Test depth	: -6.6	[m] - G.L.
Water level	: -3.3	[m] - G.L.



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1	Date: 27/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT319 1/6

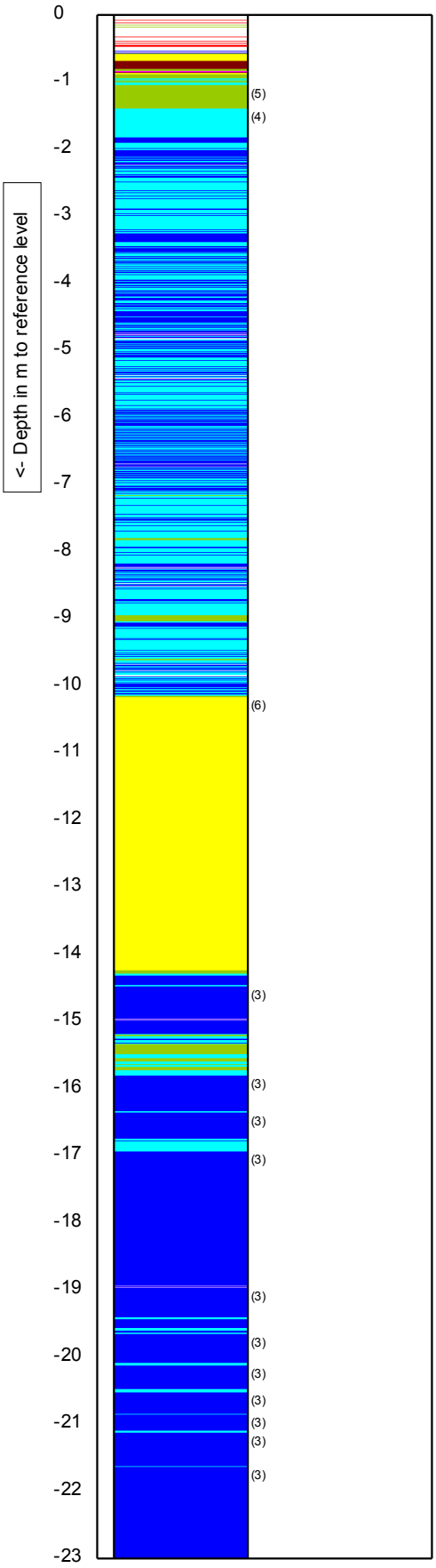
CPTask V1.33



	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
u1 150 cm² 10 cm²	G.L. 0 NAP	W.L.: **-1**	Date: **27/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT319** **2/6**

CPTask V1.33

Soil Classification (using Fr)



(0) Not defined
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(6) Sands
(7) Gravelly sand to sand
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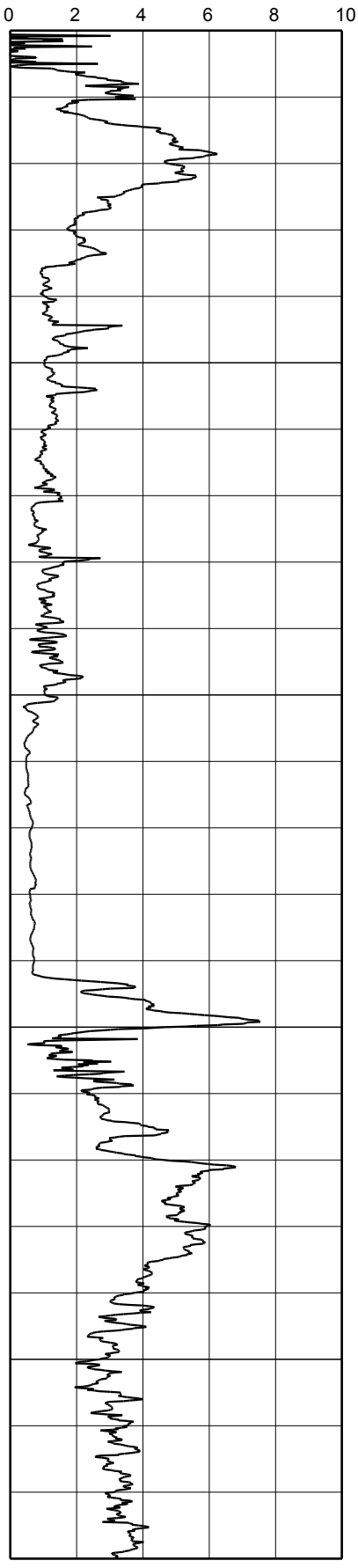
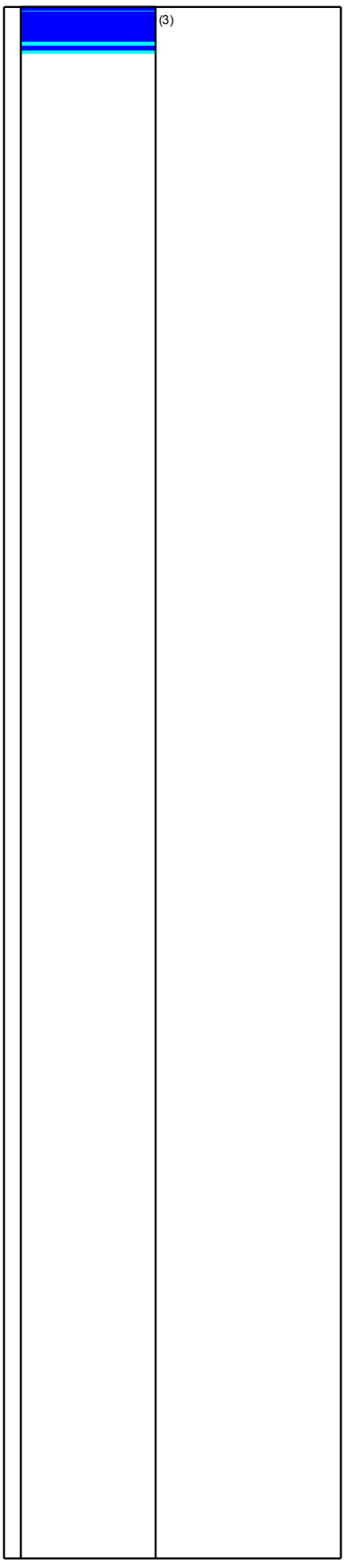
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1	Date: 27/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT319 3/6

CPTask V1.33

Soil Classification (using Fr)



<- Depth in m to reference level

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(2) Organic soils-peats
(3) Clays-clay to silty clay
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(6) Sands
(7) Gravelly sand to sand
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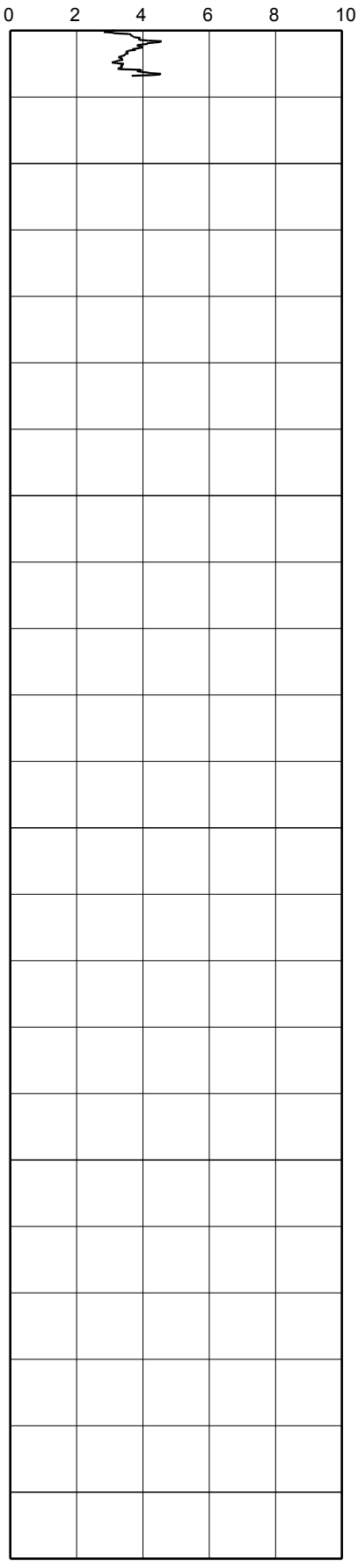
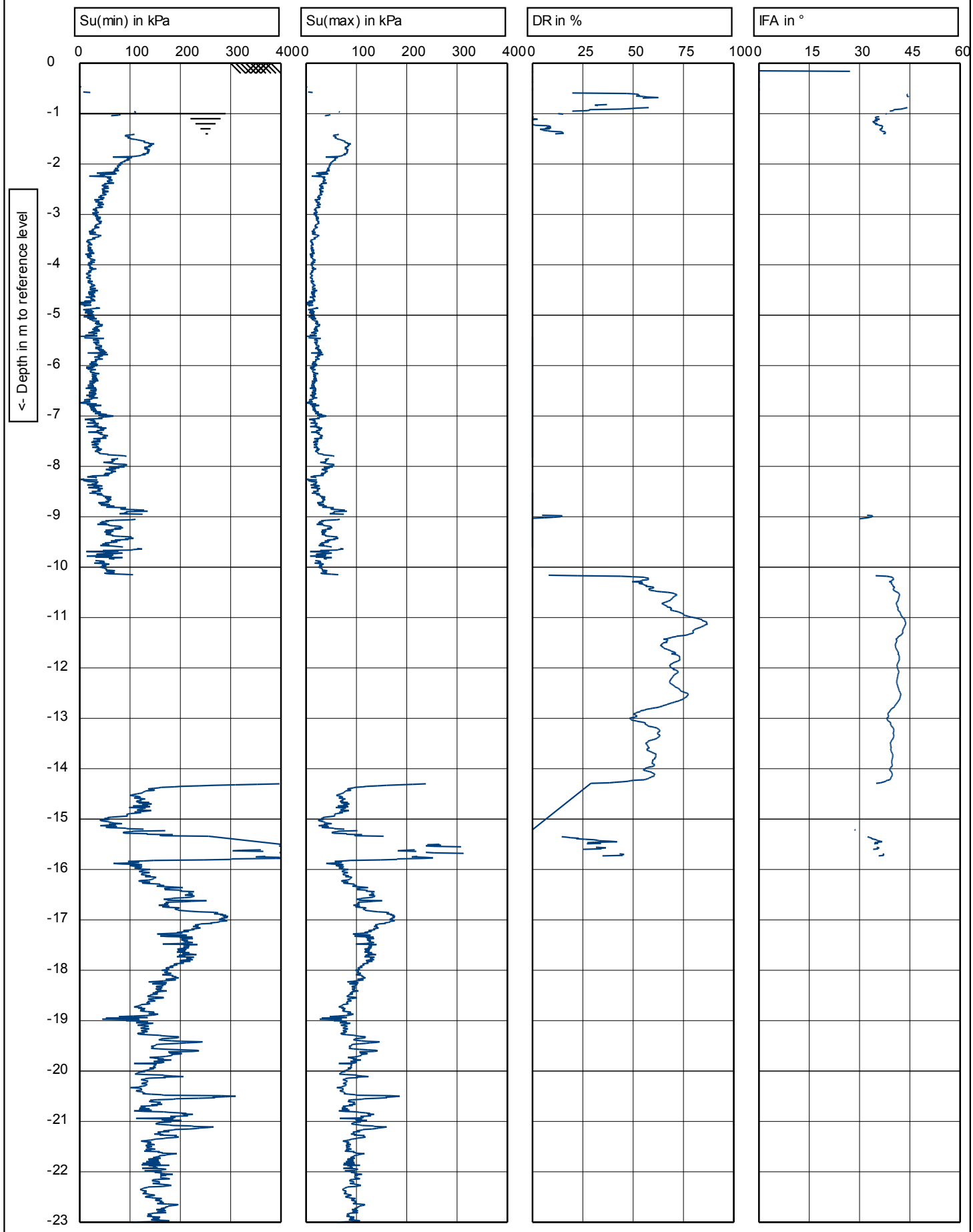
(9) Very stiff fine grained

Friction ratio (Rf) in %



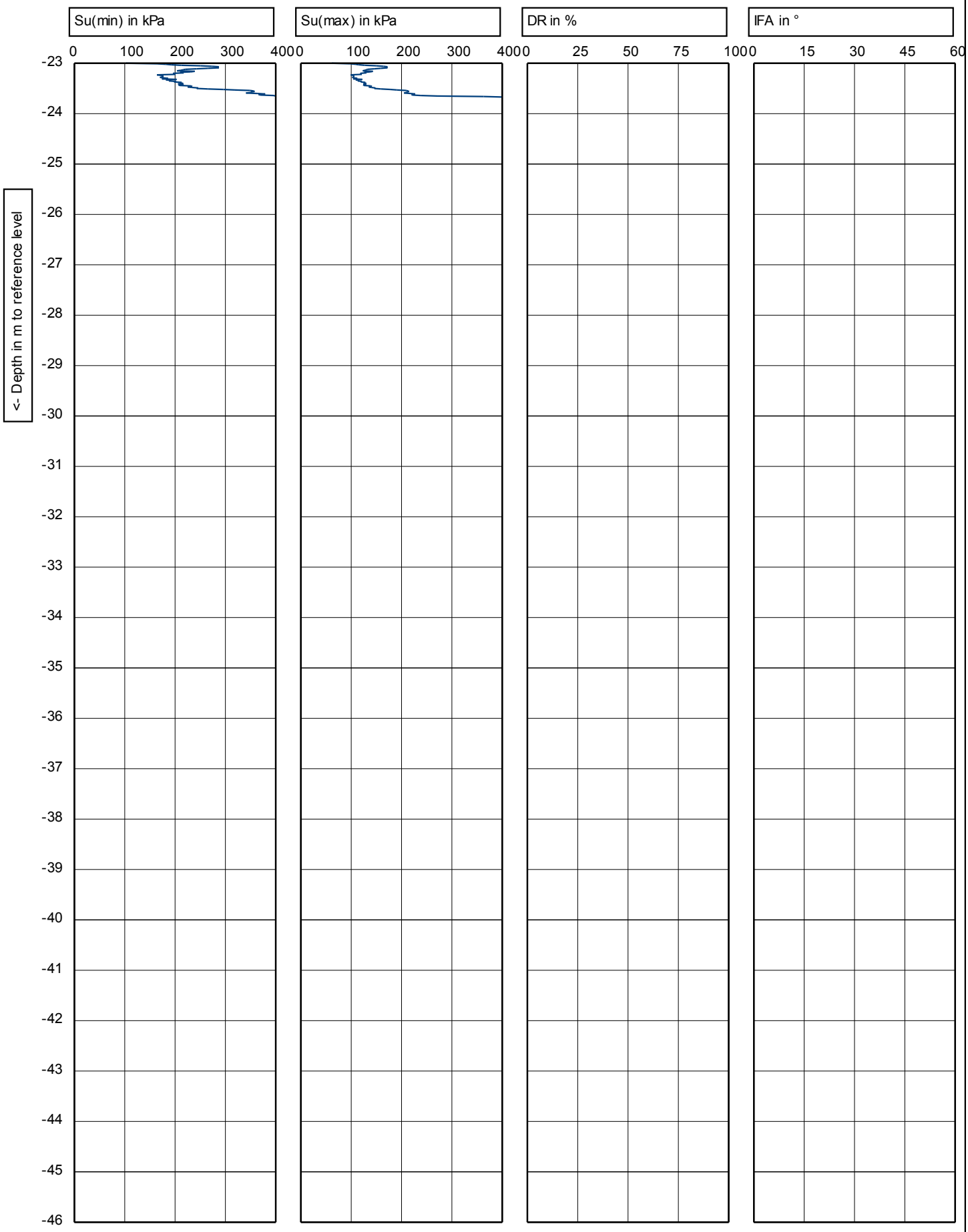
r u1 / L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1	Date: 27/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT319 4/6

CPTask V1.33



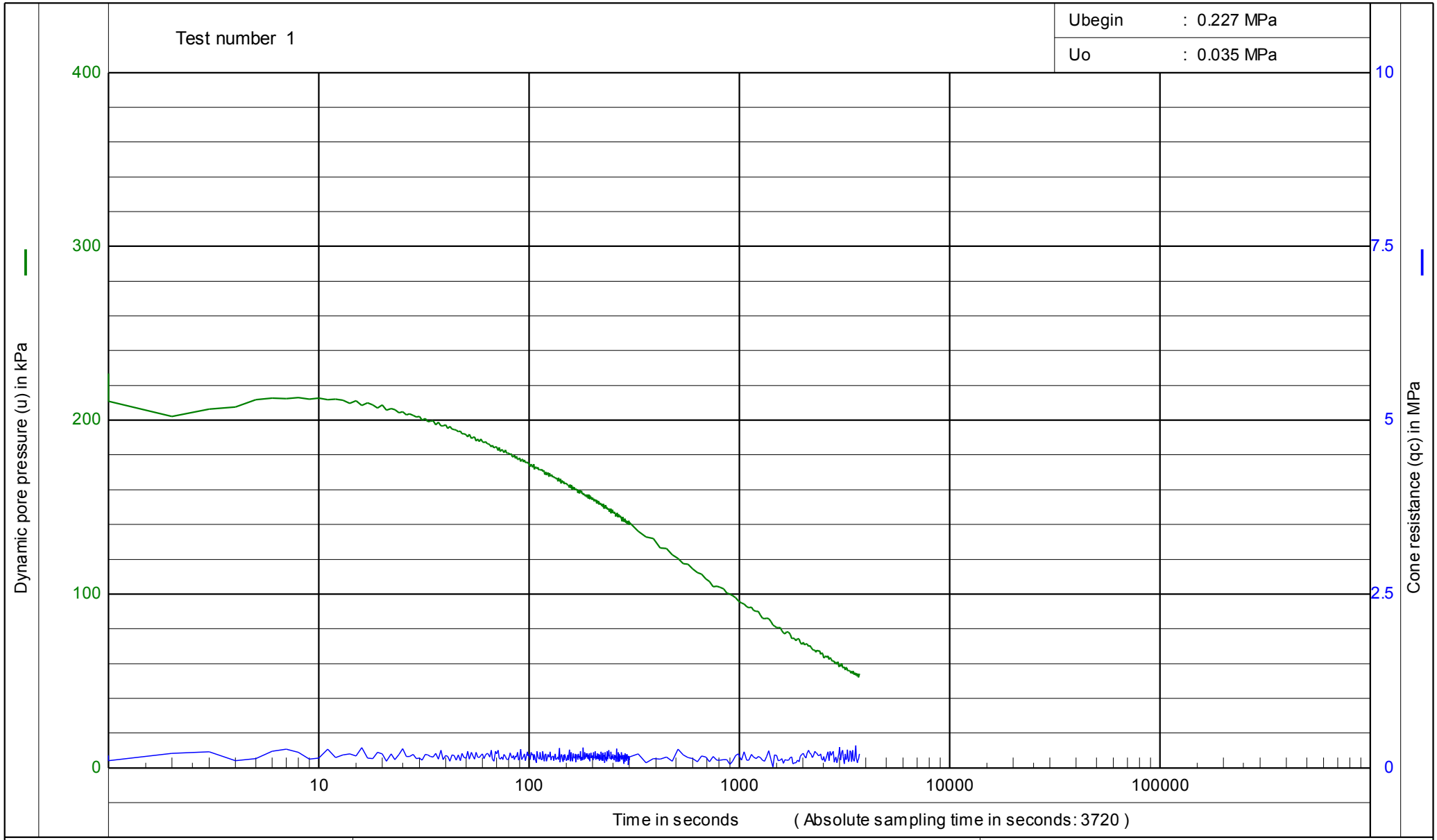
ru1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1**	Date: **27/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT319** **5/6**

CPTask V1.33

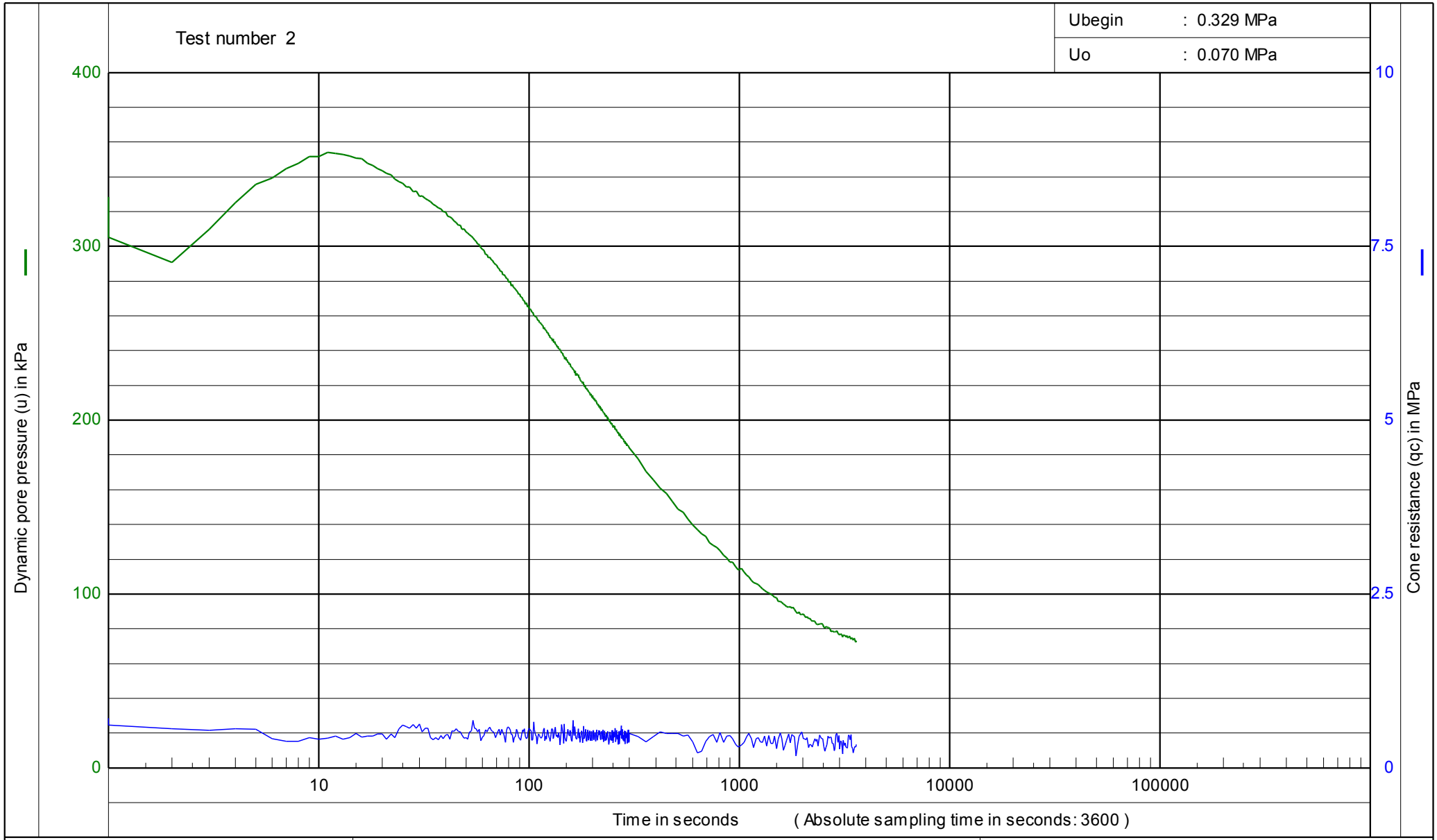


	Test Method BS1377 : Part 9 : 1990 :3.1		Predrill : **0**
r u1 / 150 cm² / 10 cm²	G.L. 0 NAP	W.L.: **-1**	Date: **27/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT319** **6/6**

CPTask V1.33



Test Method BS1377 : Part 9 : 1990 :3.1	
Project : A63 Castle Street Improvement	Date : 27/05/2015
Location : Trinity Burial Ground	Project no. : A5049-15
	CPT no. : CPT319
	Test depth : -4.5 [m] - G.L.
	Water level : -1 [m] - G.L.

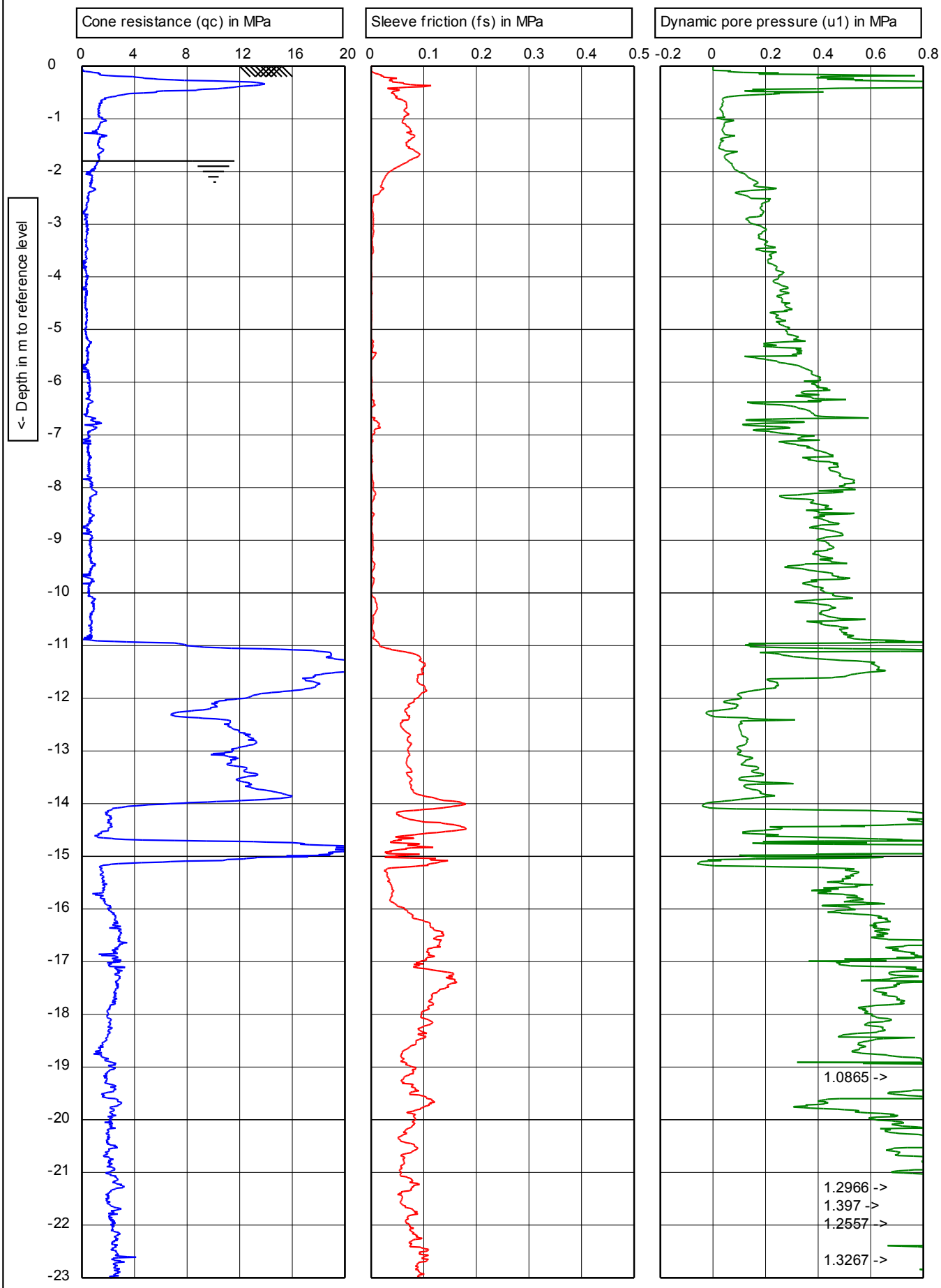


Test Method BS1377 : Part 9 : 1990 :3.1

Project : A63 Castle Street Improvement

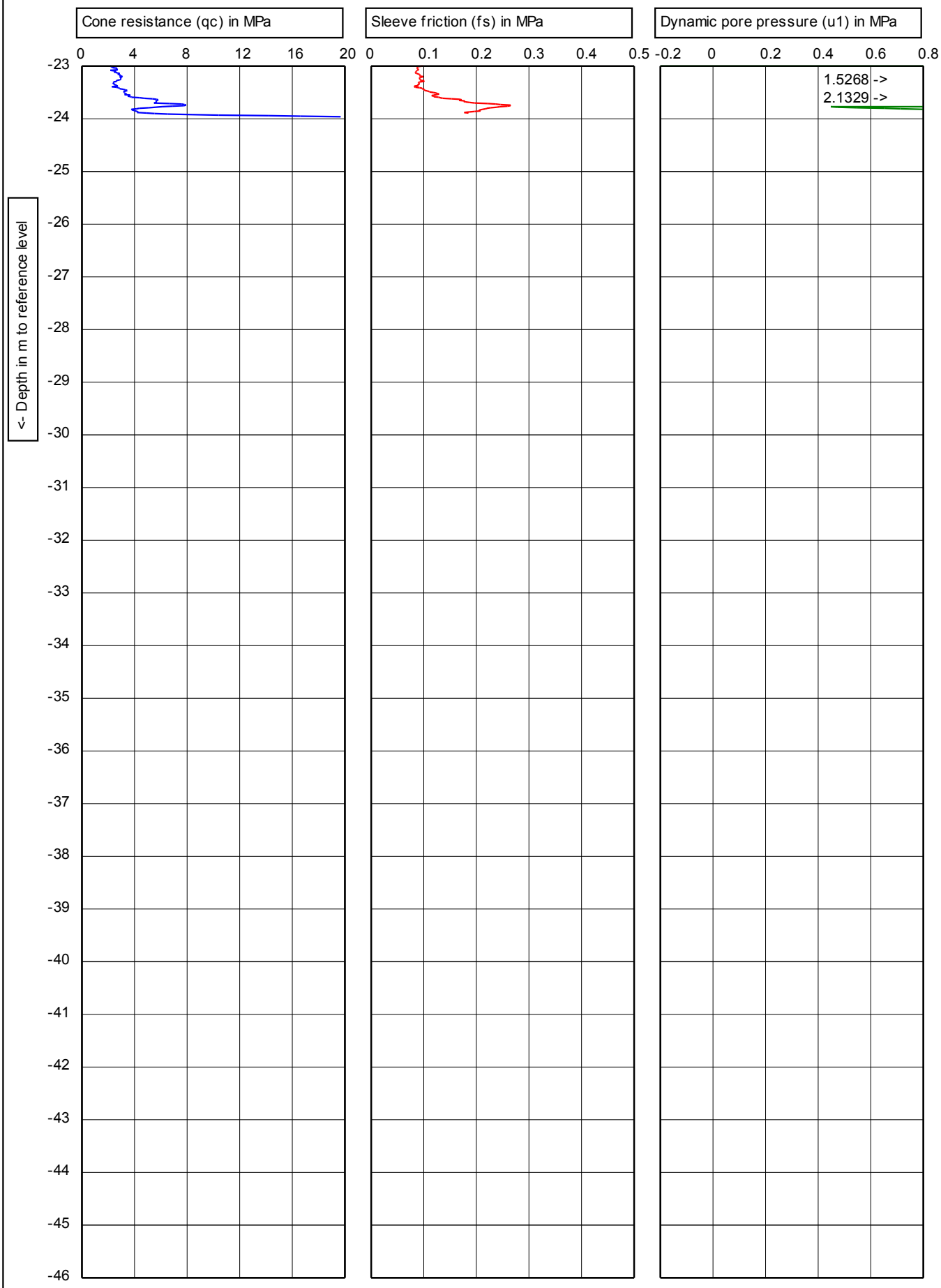
Location : Trinity Burial Ground

Date	:	27/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT319
Test depth	:	-8 [m] - G.L.
Water level	:	-1 [m] - G.L.



	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT320** **1/6**

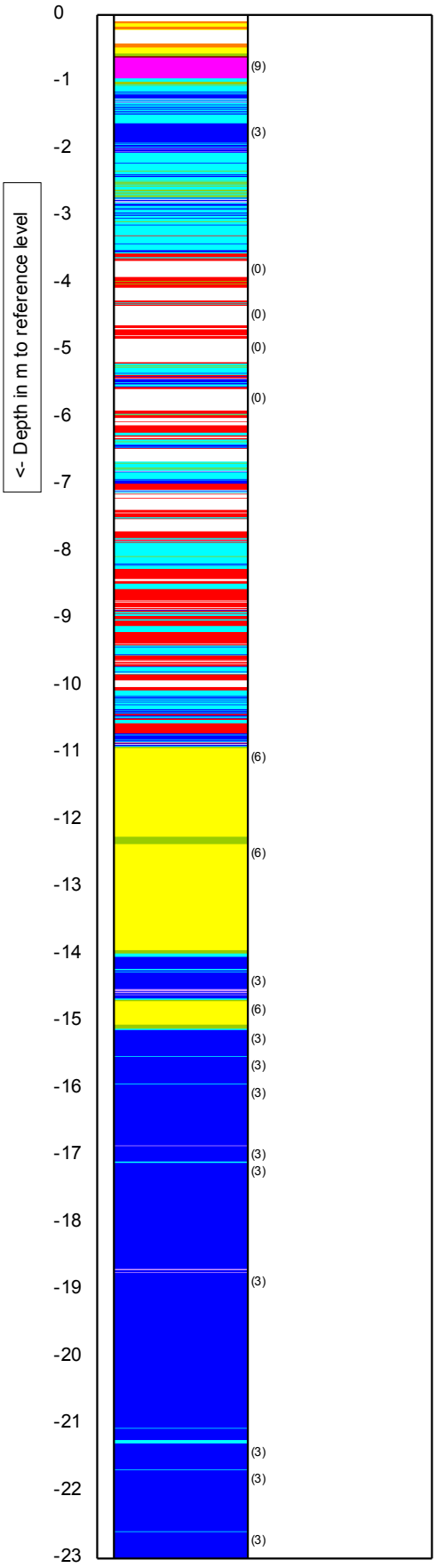
CPTask V1.33



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT320** **2/6**

CPTask V1.33

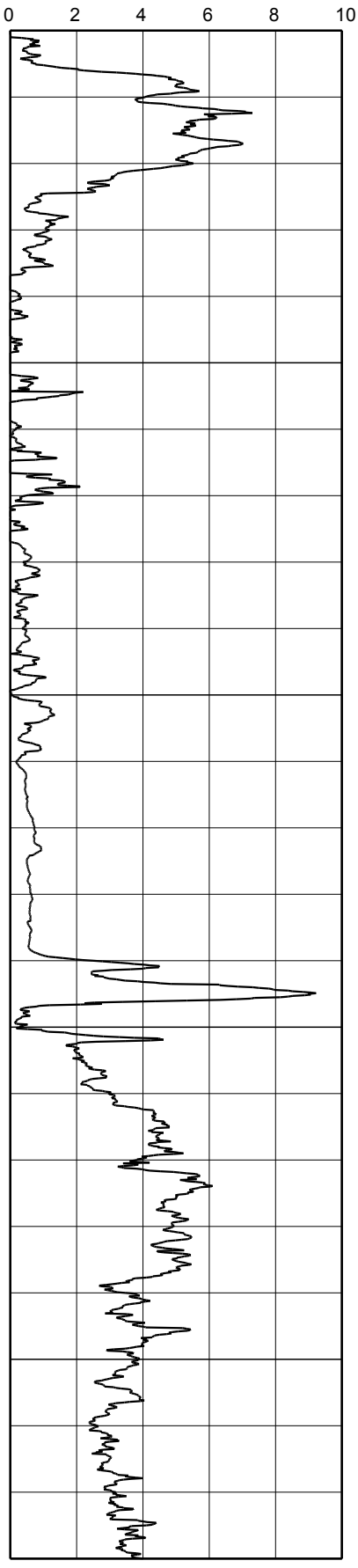
Soil Classification (using Fr)



<- Depth in m to reference level

(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

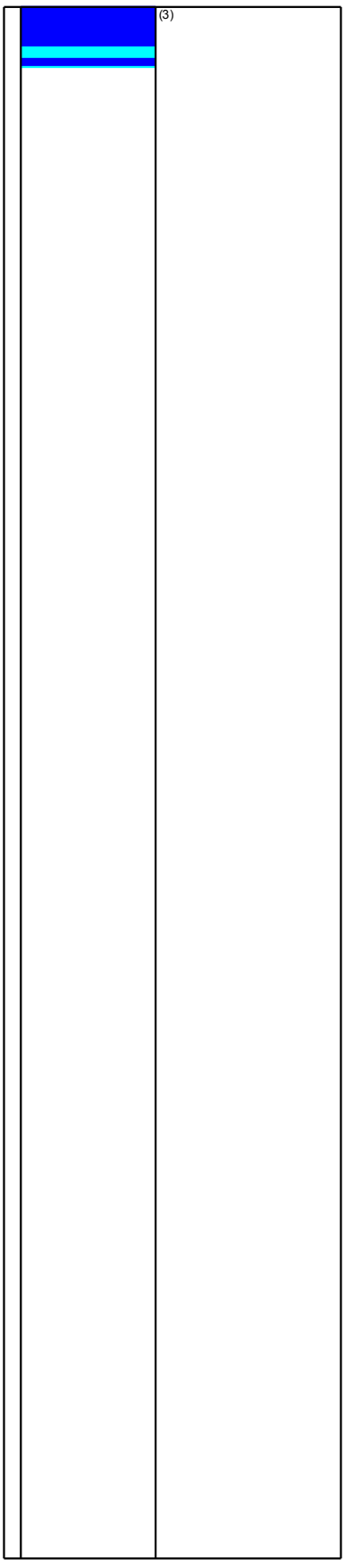
Friction ratio (Rf) in %



u1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : 0
	G.L. 0 NAP	W.L.: -1.8	Date: 26/05/2015
Project: A63 Castle Street Improvement			Cone no.: C10CFIP.125
Location: Trinity Burial Ground			Project no.: A5049-15
Position:			CPT no.: CPT320 3/6

CPTask V1.33

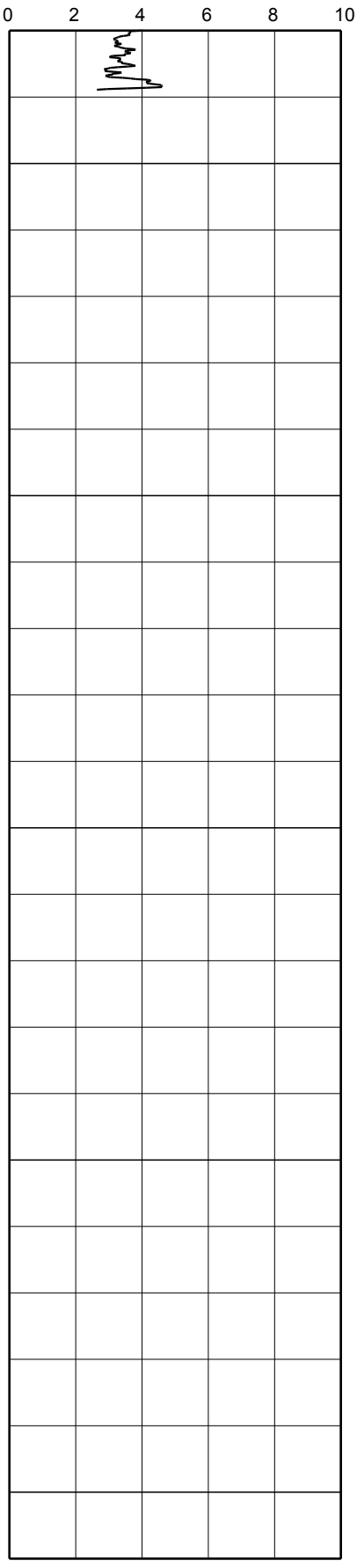
Soil Classification (using Fr)



<- Depth in m to reference level

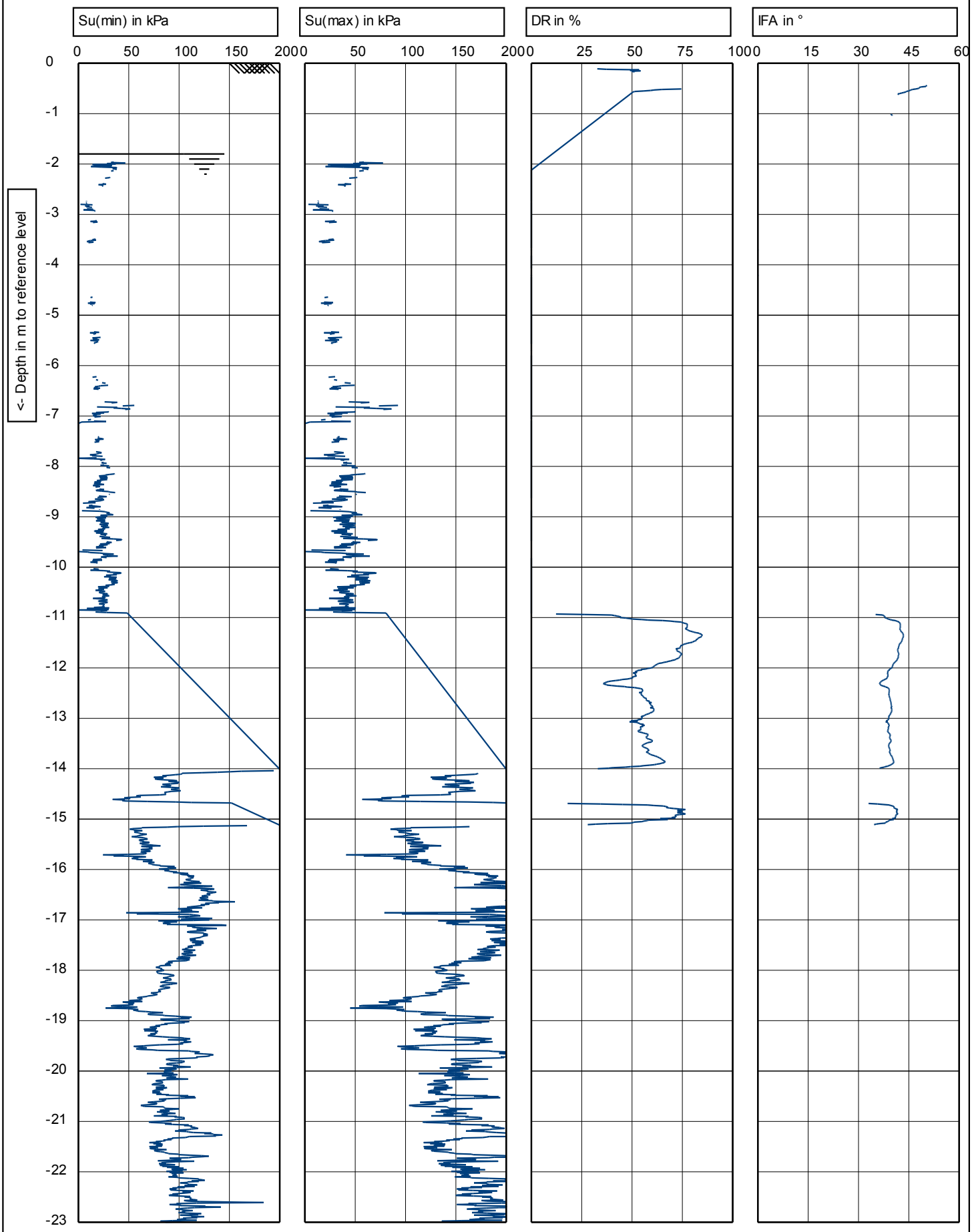
(0) Not defined
(1) Sensitive, fine grained
(2) Organic soils-peats
(3) Clays-clay to silty clay
(4) Clayey silt to silty clay
(5) Sand mixtures
(6) Sands
(7) Gravelly sand to sand
(8) Very stiff sand to clayey sand
(9) Very stiff fine grained

Friction ratio (Rf) in %



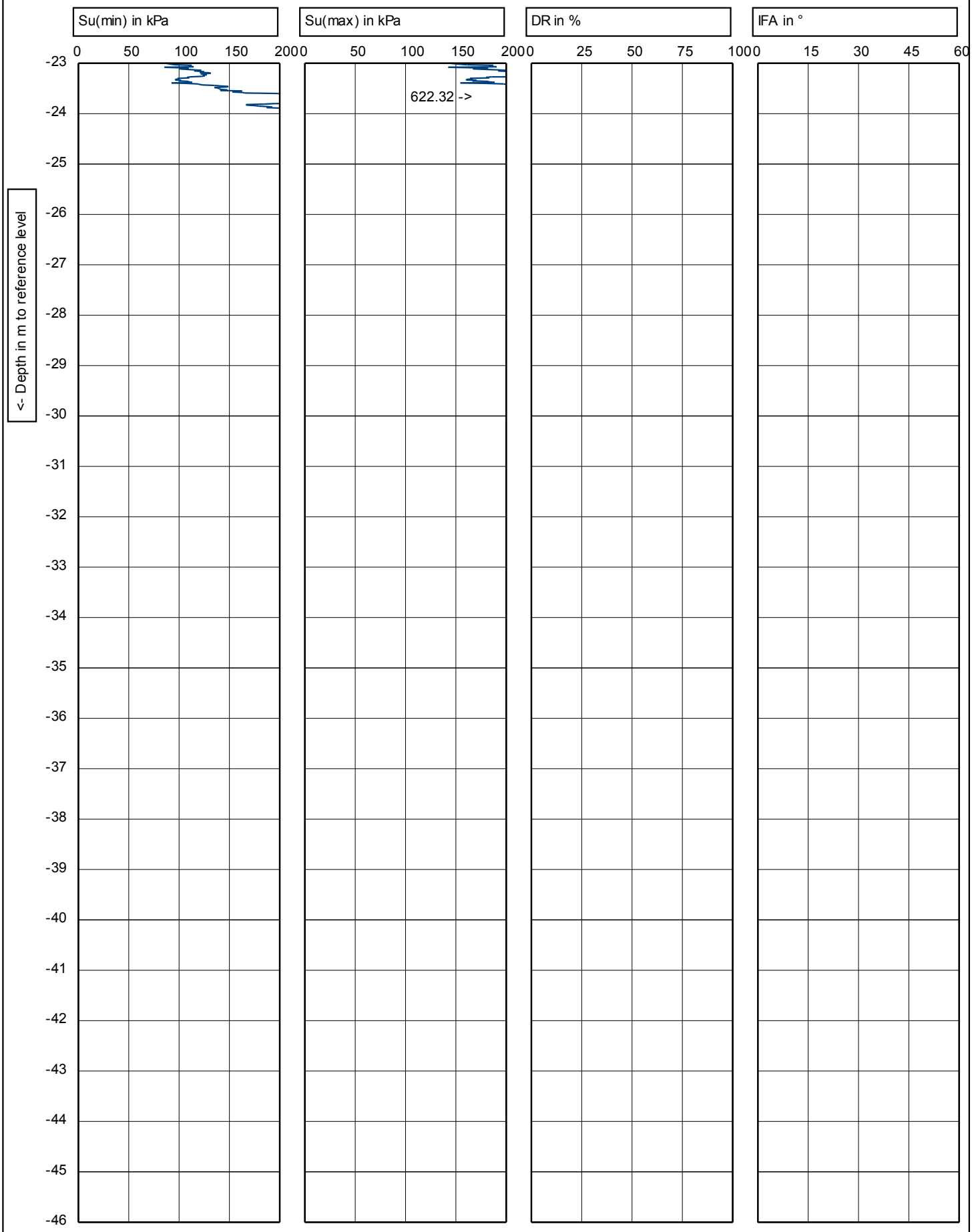
r u1 / L 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT320** **4/6**

CPTask V1.33



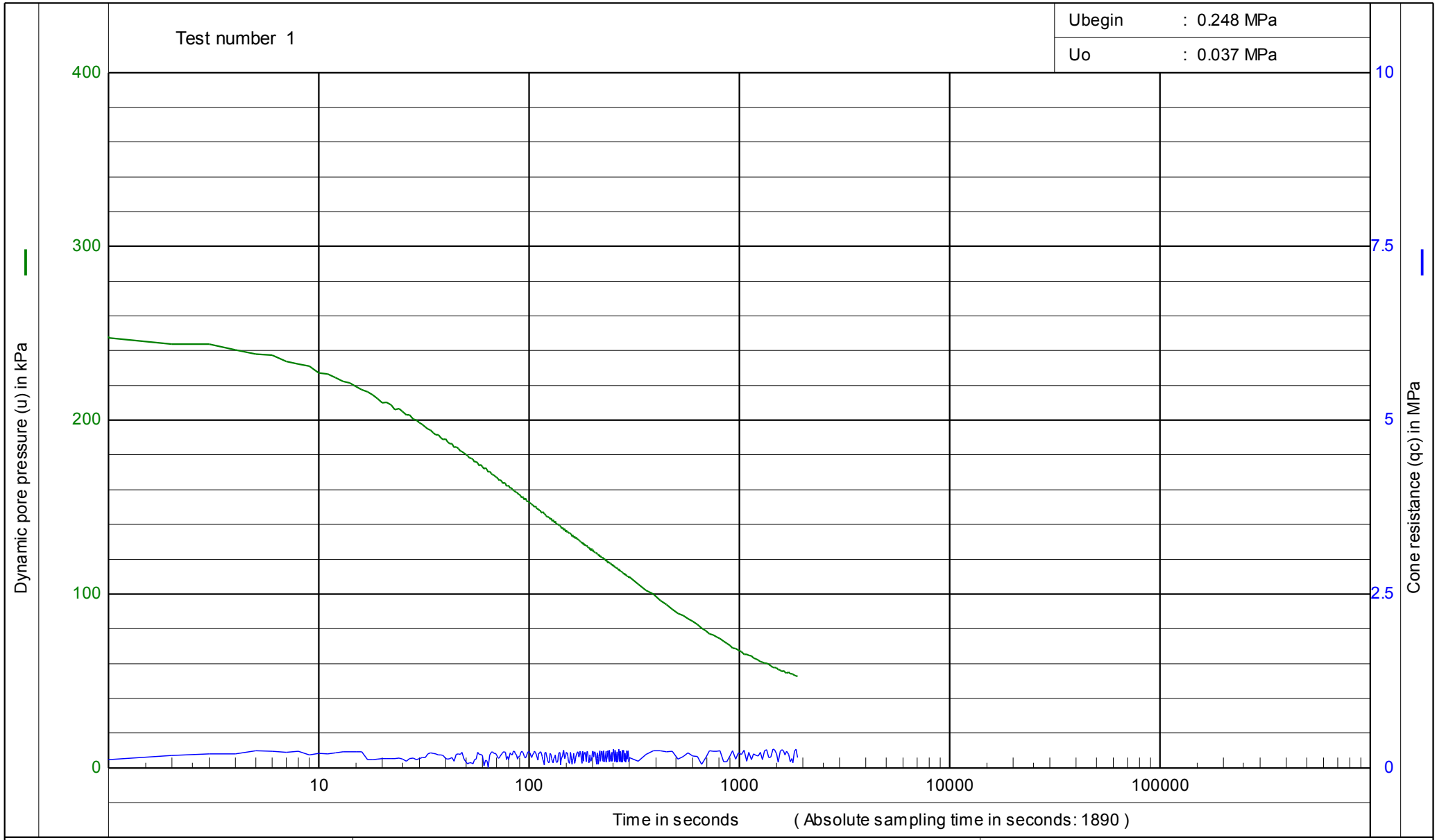
qu1 150 cm² 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT320** **5/6**

CPTask V1.33



r u1 / L 150 cm² / 10 cm²	Test Method BS1377 : Part 9 : 1990 : 3.1		Predrill : **0**
	G.L. 0 NAP	W.L.: **-1.8**	Date: **26/05/2015**
Project: **A63 Castle Street Improvement**			Cone no.: **C10CFIP.125**
Location: **Trinity Burial Ground**			Project no.: **A5049-15**
Position:			CPT no.: **CPT320** **6/6**

CPTask V1.33

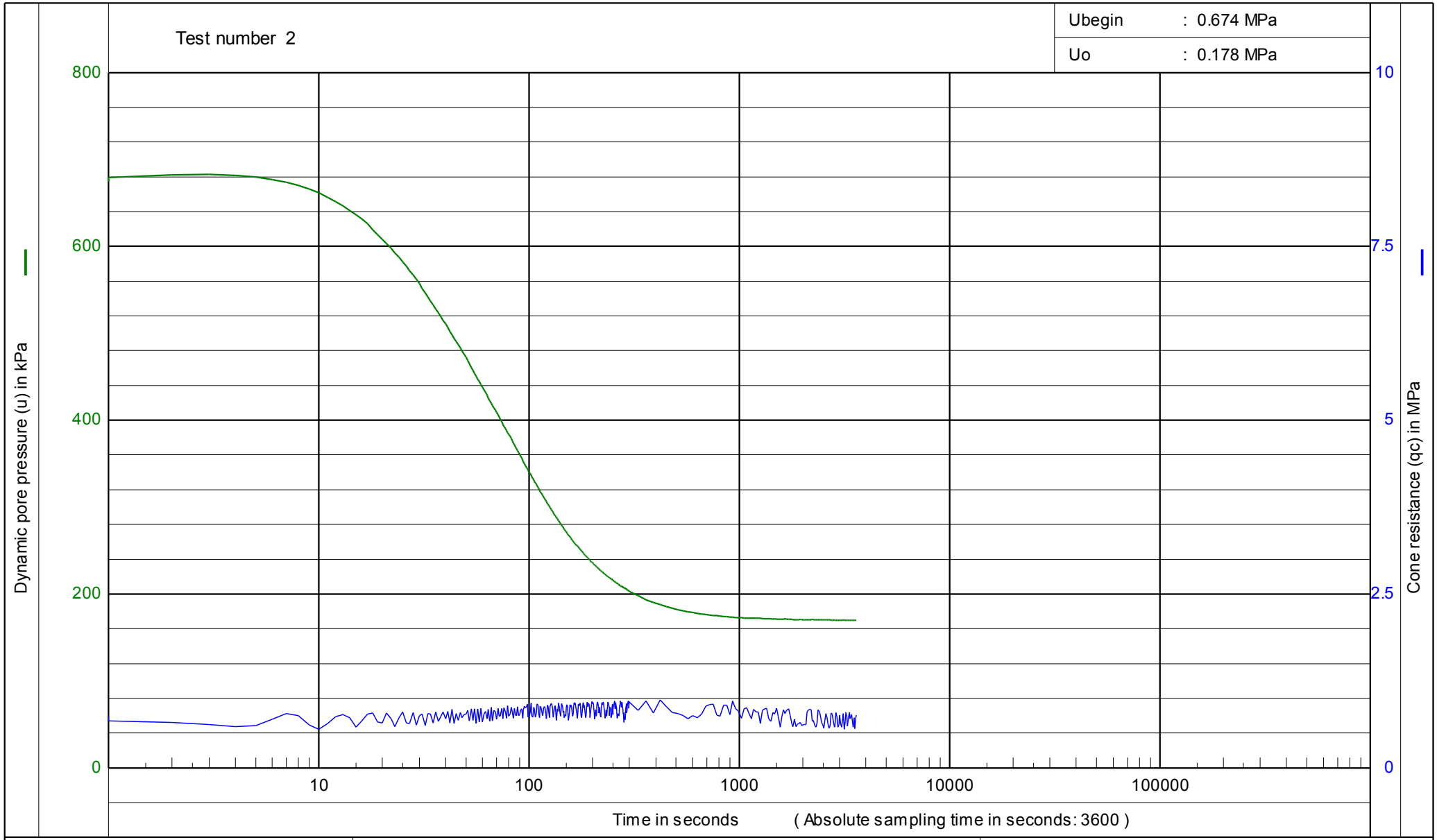


Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	26/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT320
Test depth	:	-5.5 [m] - G.L.
Water level	:	-1.8 [m] - G.L.



Test Method BS1377 : Part 9 : 1990 : 3.1

Project : A63 Castle Street Improvement

Location : Trinity Burial Ground

Date	:	26/05/2015
Project no.	:	A5049-15
CPT no.	:	CPT320
Test depth	:	-19.59 [m] - G.L.
Water level	:	-1.8 [m] - G.L.

APPENDIX E

GEOTECHNICAL LABORATORY TEST RESULTS

Index Properties – Summary of Results	INDX 1 to 3
Saturated Moisture Content of Chalk – Summary of Results	SMCSUM 1
Particle Size Distribution Analyses	PSD 1 to 68
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Dry Density/Moisture Content Relationship (Light 2.5kg Compaction)	COMPL 1 to 9
Dry Density/Moisture Content Relationship (Heavy 4.5kg Compaction)	COMPH 1 and 2
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Point Load Index Test	PLT 1

INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	p Mg/m^3	p_d Mg/m^3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	p_s Mg/m^3	Remarks
BH301	6	2.00		CS	Brown slightly sandy slightly gravelly silty CLAY.			31						
BH301	7	4.00		CS	Brown slightly sandy slightly gravelly silty CLAY.			31						
BH301	8	4.80		CS	Brown mottled grey slightly sandy silty CLAY.			40						
BH301	9	8.00		CS	Brown silty SAND.			28						
BH301	10	9.60		CS	Black slightly sandy slightly gravelly organic CLAY.			115						
BH301	11	10.10		CS	Black slightly sandy SILT.			58						
BH301	12	11.90		CS	Black slightly sandy slightly gravelly CLAY.			136						
BH301	13	12.90		CS	Greyish brown sandy silty CLAY.			23						
BH301	20	13.50		B	Black mottled white SAND.								2.69-g	
BH301	14	15.60		CS	Brown very gravelly SAND.			9.4						
BH301	15	16.20		CS	Brown sandy silty CLAY.			19						
BH301	16	20.10		CS	Brown slightly sandy silty CLAY.			30						
BH301	18	24.00		B	Brown slightly sandy SILT.			25					2.69-p	
BH301	17	24.40		CS	Brown sandy SILT.			17						
BH301	19	24.90		B	Reddish brown slightly gravelly CLAY.								2.65-g	
BH302	8	2.50		P	Dark grey laminated slightly sandy SILT.			43	100	45 a	23	22		
BH302	11	4.00		P	Greyish brown slightly sandy SILT.			40	100	35 a	24	11		
BH302	20	9.00		U	Black slightly sandy CLAY.			35	100	33 a	19	14		
BH302	22	9.50		U	Soft brown slightly sandy CLAY.			36						
BH302	33	13.00		U	Soft to firm greyish brown sandy silty CLAY.			20						
BH302	41	16.50		U	Firm brown slightly sandy slightly gravelly CLAY.			22	97	37 a	18	19		
BH302	49	18.50		U	Firm brown slightly sandy CLAY with occasional sand partings.			27						
BH302	51	19.00		U	Firm brown slightly sandy slightly gravelly CLAY.			23						
BH302	57	20.50		U	Firm brown CLAY.			27	100	42 a	22	20		
BH302	65	22.50		U	Firm dark brown slightly sandy CLAY.			25	100	37 a	20	17		
BH303	6A	0.80		D	Dark brown slightly gravelly CLAY.			23	99	47 a	28	19		
BH303	1	2.20		U	Firm to stiff brown slightly sandy CLAY with silt partings.			29						
BH303	6	4.20		U	Firm brown slightly sandy silty CLAY.			32	99	33 a	20	13		
BH303	10	5.20		U	Firm brown sandy clayey SILT.			31	100	33 a	21	12		
BH303	18	7.70		B	Black slightly sandy CLAY.			38	100	36 a	25	11		
BH303	19	8.20		P	Dark grey organic slightly sandy SILT.			22	100	41 a	23	18		
BH303	32	13.20		U	Firm brown slightly sandy CLAY.			23	100	44 a	23	21		
BH303	39	15.20		U	Firm brown slightly gravelly CLAY.			28	99	44 a	23	21		
BH303	53	19.20		U	Firm brown silty CLAY.			29	100	40 a	21	19		
BH303	71	24.50		D	Brown slightly gravelly silty SAND.			20						

General notes: All above tests carried out to BS1377 : 1990 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

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	p Mg/m^3	p_d Mg/m^3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	p_s Mg/m^3	Remarks
BH303	77	27.50		D	Light grey and cream sandy silty GRAVEL. Gravel is chalk.			27						
BH304	7	1.20		D	Brown slightly sandy CLAY with rare rootlets.			19	100	46 a	23	23		
BH304	8	1.20		B	Brown slightly sandy CLAY.			26	100	47 a	23	24		
BH304	10	2.20		P	Soft brown sandy CLAY.			37	100	49 a	23	26		
BH304	11	3.20		U	Dark grey mottled brown sandy SILT.			39	100	41 a	22	19		
BH304	33	11.50		D	Dark brownish grey silty CLAY.			47	99	44 a	25	19		
BH304	36	13.00		U	Firm brown organic slightly sandy CLAY.			205	100	123 a	78	45		
BH304	45	23.00		B	Brown slightly gravelly sandy SILT.								2.64-g	
BH304	43	24.00		B	Brown slightly gravelly sandy CLAY.								2.66-p	
BH304	44	25.00		B	Brown slightly sandy SILT.								2.60-p	
BH305	8	2.10		CS	Brown slightly sandy silty CLAY.			26						
BH305	9	2.60		CS	Brown slightly sandy slightly gravelly CLAY.			30						
BH305	10	4.00		CS	Brown and dark grey organic slightly sandy CLAY			34						
BH305	11	5.20		CS	Brown slightly sandy CLAY.			46						
BH305	12	6.40		CS	Brown slightly sandy CLAY.			45						
BH305	13	7.90		CS	Brown and dark grey slightly sandy silty CLAY.			30						
BH305	14	9.60		CS	Dark brown slightly sandy silty CLAY.			30						
BH305	15	11.00		CS	Orange brown mottled black SAND with occasional shells.			18						
BH305	20	11.00		B	Brown slightly gravelly SAND.								2.67-g	
BH305	16	12.10		CS	Dark grey slightly sandy silty CLAY.			42						
BH305	17	15.30		CS	Dark brown slightly sandy slightly gravelly CLAY.			15						
BH305	18	19.80		CS	Dark brown slightly sandy silty CLAY.			25						
BH305	19	24.50		CS	Orange brown sandy clayey SILT.			14						
BH305	21	24.50		B	Brown sandy gravelly CLAY.								2.67-p	
BH305	22	25.50		B	Brown slightly sandy SILT.								2.68-p	
BH305	23	26.25		B	Brown sandy SILT.								2.62-g	
BH306	3	0.50		B	Brown slightly sandy slightly gravelly CLAY with frequent rootlets.			22						
BH306	6	1.20		B	Brown slightly sandy gravelly CLAY with occasional rootlets.			22	55	43 a	22	21		
BH306	9	2.00		U	Firm reddish brown CLAY.			31	100	55 a	26	29		
BH306	19	5.00		U	Soft brownish grey sandy silty CLAY.			43	100	46 a	25	21		
BH306	27	8.50		U	Soft greyish brown SILT.			35						
BH306	34	11.00		U	Soft to firm greyish brown slightly sandy silty CLAY.			41						
BH306	36	11.50		P	Firm brownish grey slightly sandy SILT.			43						
BH306	45	14.50		U	Stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is gravel and chalk.			15	93	30 a	15	15		
BH306	60	18.00		U	Firm brown sandy CLAY.			28	100	35 a	20	15		

General notes: All above tests carried out to BS1377 : 1990 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

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	p Mg/m^3	p_d Mg/m^3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	p_s Mg/m^3	Remarks
BH307	6A	0.70		D	Brown slightly gravelly CLAY.			24	99	53 a	26	27		
BH307	2	1.20		B	Brown slightly sandy CLAY.			26	99	48 a	23	25		
BH307	3	2.00		UT	Frim to stiff brown slightly sandy CLAY with silt partings.			29	100	52 a	24	28		
BH307	16	5.35		UT	Soft to firm greyish brown slightly sandy CLAY.			33	100	36 a	21	15		
BH307	18	6.20		P	Firm brownish grey slightly silty CLAY.			42	100	40 a	24	16		
BH307	21	8.30		D	Dark greyish brown silty CLAY.			35	100	36 a	24	12		
BH307	30	12.00		D	Dark brownish grey slightly sandy CLAY.			48	99	42 a	25	17		
BH307	38	14.50		UT	Stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is gravel and chalk.			16	93	32 a	16	16		
BH307	46	16.90		UT	Stiff brown slightly gravelly CLAY.			26	90	40 a	19	21		
BH307	50	18.20		UT	Firm greyish brown slightly sandy CLAY with sand pockets and partings.			27	100	35 a	16	19		
BH308	5A	0.50		B	Brownish grey slightly sandy slightly gravelly CLAY with occasional rootlets.			25	97	57 a	27	30	2.55-g	
BH308	9	4.00		P	Brownish grey slightly sandy SILT.			35	100	33 a	23	10		
BH308	10	5.00		P	Dark grey slightly sandy SILT.			26	100	30 a	21	9		
BH308	12	6.00		UT	Soft grey slightly sandy CLAY.			28	100	39 a	22	17	2.34-p	
BH308	28	13.65		UT	Dark brownish grey slightly sandy clayey PEAT with wood fragments.			132	100	277 a	176	101		
BH308	34	15.80		UT	Stiff brown slightly gravelly CLAY.			19	86	37 a	18	19		
BH308	43	18.40		D	Brownish grey slightly gravelly CLAY.			26	100	44 a	23	21		
BH309	5A	0.70		D	Brown CLAY with occasional rootlets.			23	100	44 a	23	21		
BH309	2	1.90		UT	Firm to stiff brown slightly sandy CLAY with occasional sand partings			32	100	56 a	25	31		
BH309	8	3.20		UT	Firm dark grey slightly sandy CLAY.			38	100	49 a	24	25		
BH309	12	4.80		UT	Greyish brown slightly sandy SILT.			40	100	37 a	21	16		
BH309	14	5.30		UT	Soft to firm greyish brown silty CLAY.			34	100	36 a	22	14		
BH309	17	5.95		UT	Soft brown slightly sandy silty CLAY.			29	100	32 a	21	11		
BH309	21	7.15		UT	Soft brownish grey silty CLAY.			33	100	33 a	21	12		
BH309	25	8.50		P	Firm greyish brown silty CLAY.			31	100	34 a	22	12		
BH309	39	12.10		P	Firm brownish grey organic slightly sandy CLAY with sand partings.			52	100	72 a	36	36		
BH309	45	14.40		UT	Firm brown slightly sandy slightly gravelly CLAY.			17	93	32 a	16	16		
BH309	51	16.35		UT	Firm to stiff brown slightly sandy CLAY.			24	100	49 a	24	25		
BH309	63	19.85		UT	Firm brown slightly sandy silty CLAY.			21	100	35 a	21	14		
BH310	2A	0.30		B	Greyish brown clayey SAND AND GRAVEL.			11						
BH310	17	4.50		U	Soft dark grey silty CLAY.			36	100	39 a	22	17		
BH310	19	5.00		U	Soft dark grey SILT.			36	100	37 a	23	14		
BH310	21	5.50		P	Soft dark brownish grey organic slightly sandy silty CLAY.			34	100	41 a	21	20		
BH310	29	9.00		U	Soft brown dark grey clayey SILT.			31	100	34 a	23	11		
BH310	38	14.00		U	Soft to firm slightly sandy slightly gravelly CLAY.			19	70	28 a	18	10		

General notes: All above tests carried out to BS1377 : 1990 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	

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	ρ Mg/m^3	ρ_d Mg/m^3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	ρ_s Mg/m^3	Remarks
BH310	42	19.00		CS	Brown laminated SILT.			27	100	36 a	17	19		
BH310	43	19.60		CS	Firm brown laminated sandy CLAY with sand on laminae.			30	100	42 a	23	19		
BH310	52	22.50		B	Dark brown slightly gravelly silty CLAY.								2.70-p	

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

Key :

ρ	bulk density, linear	W_L Liquid limit	W_P	Plastic limit	<425um preparation	ρ_s	particle density
ρ_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	

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

SATURATED MOISTURE CONTENT OF CHALK - SUMMARY OF RESULTS

Hole No.	Sample				Specimen details			Saturation Moisture Content (3)	Porosity (4)	Remarks
	No.	Depth (m)		type	Moisture Content (1)	Bulk density (2)	Dry density			
		from	to		%	Mg/m³	Mg/m³	%	%	
BH304	50	29.10		CS	14	2.11	1.96	8	27.0	
BH304	51	34.50		CS	13	2.18	2	9	26.0	
BH304	52	39.90		CS	21	1.82	1.71	6	37.0	
BH310	55	33.53		CS	15	2.17	1.92	13	29.0	
BH310	56	36.10		CS	14	2	1.94	3	28.0	

Notes:

Test Specification : British Standard 1377 : Part 2 : 1990 clause 3.3

(1) Specimen dried at 105 - 110 °C

(2) Derived as part of standard test by immersion in water (buoyancy)

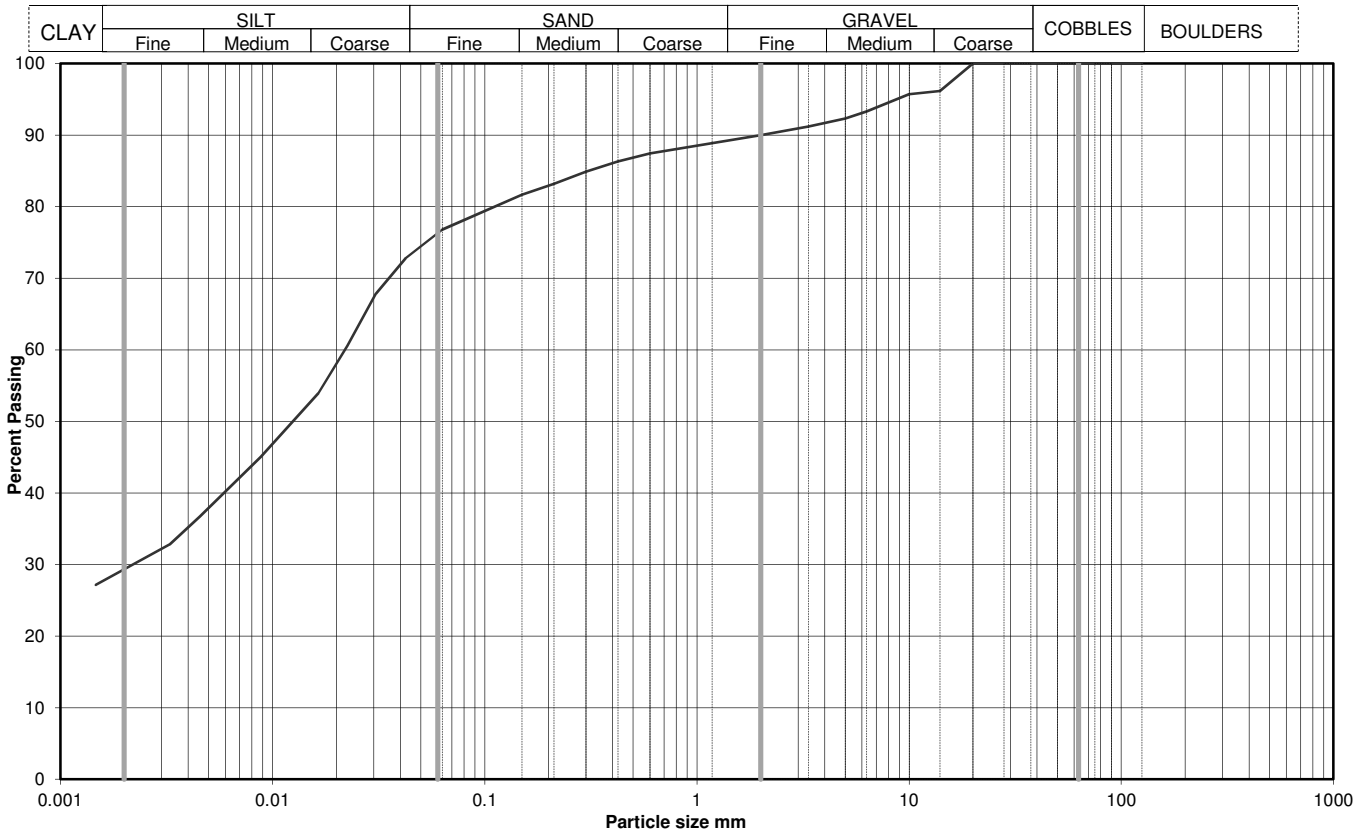
(3) SMC derived using particle density 2.70 Mg/m^3

(4) Porosity (%) = 100 x (1 - (dry density / particle density))

above notes apply unless annotated otherwise in the remarks

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH301
		Sample Depth (m BGL)	2.00
	A5049-1520150630110231	Sample Type and No	CS6
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	77
90	100	0.0424	73
75	100	0.0308	68
63	100	0.0225	61
50	100	0.0164	54
37.5	100	0.0088	45
28	100	0.0046	37
20	100	0.0033	33
14	96	0.0015	27
10	96		
6.3	93		
5.0	92		
3.35	91		
2.00	90		
1.18	89	Particle density, Mg/m3	
0.600	87		
0.425	86	2.65 assumed	
0.300	85	Dry mass of sample, kg	
0.212	83		
0.150	82	0.5	
0.063	77		

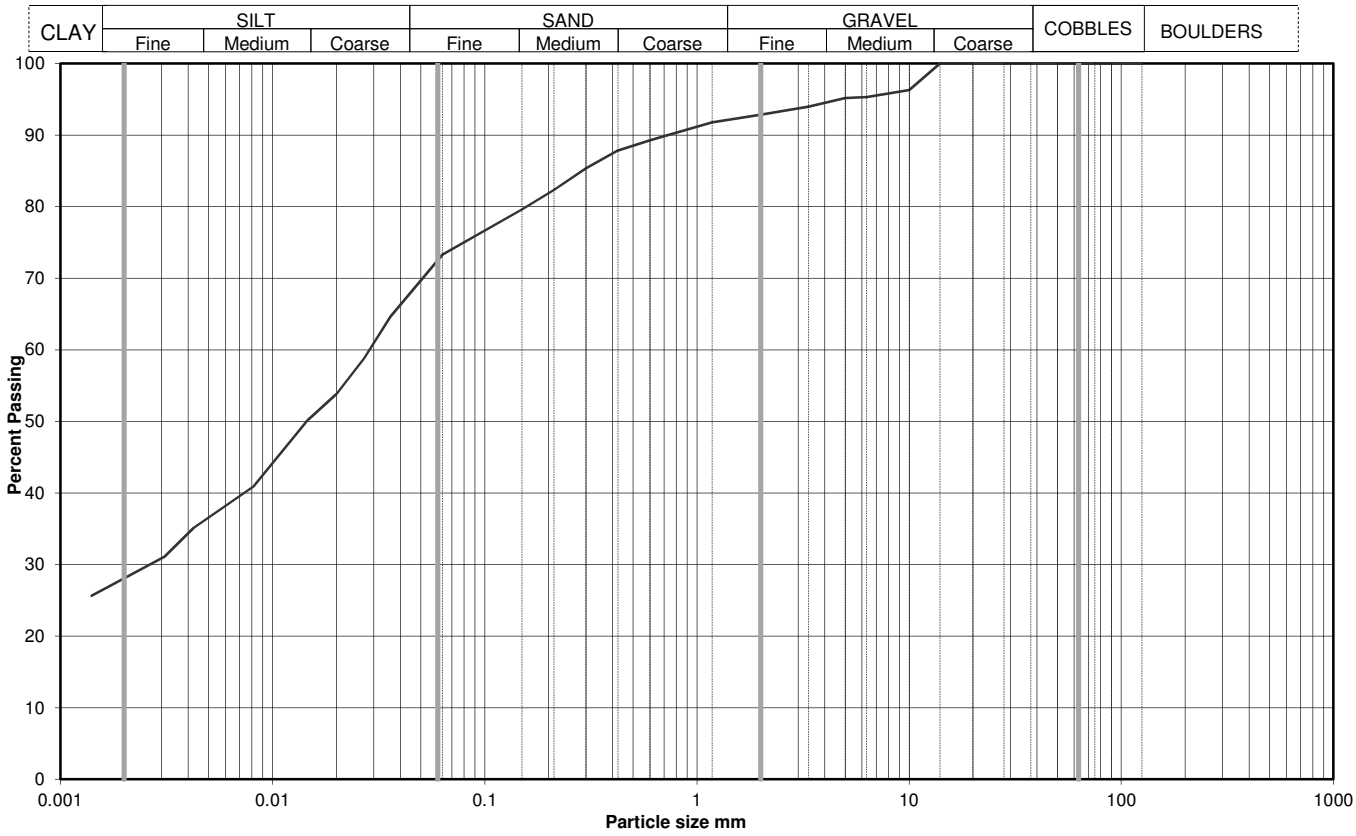
Soil description	Brown slightly sandy slightly gravelly silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	10	10
	Sand	14	14
	Silt	47	47
	Clay	29	29

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH301
		Sample Depth (m BGL)	4.00
	A5049-1520150630110306	Sample Type and No	CS7
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	73
90	100	0.0360	65
75	100	0.0271	59
63	100	0.0201	54
50	100	0.0146	50
37.5	100	0.0081	41
28	100	0.0042	35
20	100	0.0031	31
14	100	0.0014	26
10	96		
6.3	95		
5.0	95		
3.35	94		
2.00	93		
1.18	92	Particle density, Mg/m3	
0.600	89		
0.425	88	2.65 assumed	
0.300	85	Dry mass of sample, kg	
0.212	82		
0.150	80	0.4	
0.063	73		

Soil description	Brown slightly sandy slightly gravelly silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	7	7
	Sand	20	20
	Silt	45	45
	Clay	28	28

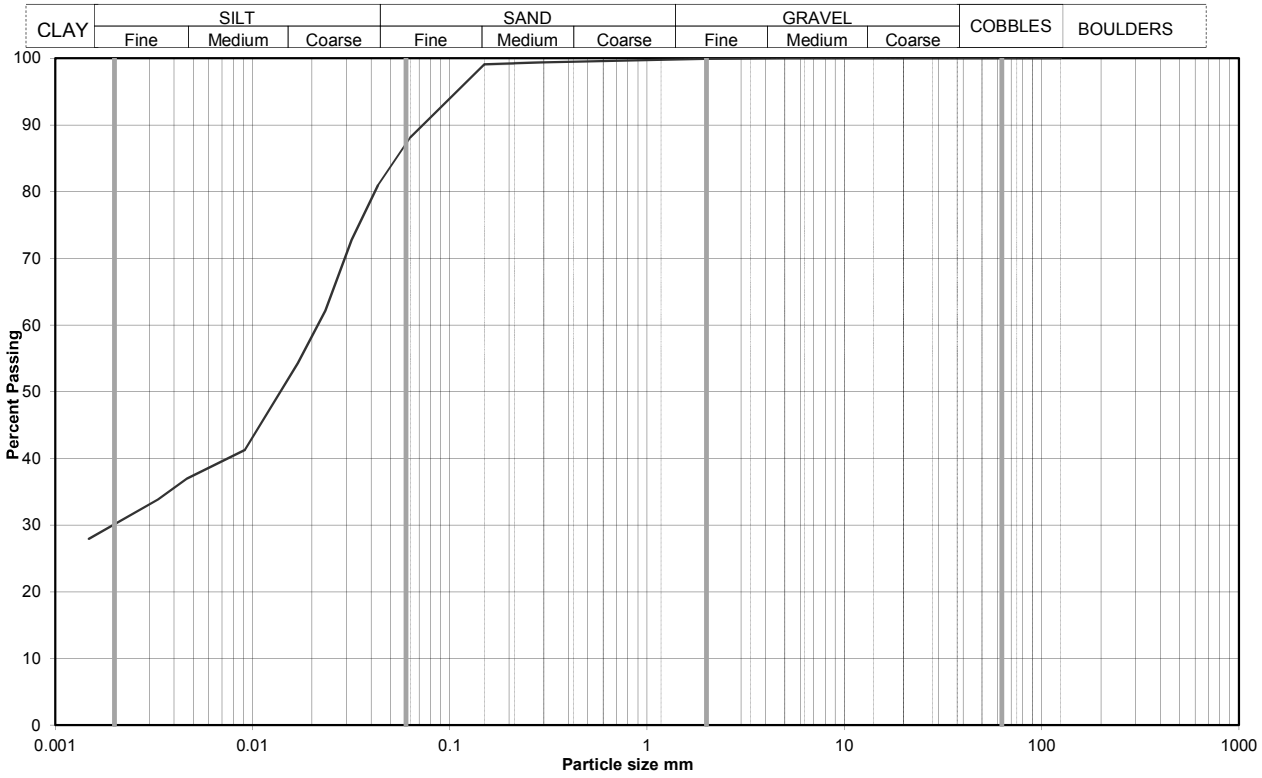
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110344

Hole No	BH301
Sample Depth (m BGL)	4.80
Sample Type and No	CS8
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	88
90	100	0.0434	81
75	100	0.0318	73
63	100	0.0234	62
50	100	0.0170	54
37.5	100	0.0092	41
28	100	0.0046	37
20	100	0.0033	34
14	100	0.0015	28
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	99	Dry mass of sample, kg	
0.212	99		
0.150	99	0.4	
0.063	88		

Soil description	Brown mottled grey slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	13	13
	Silt	57	57
	Clay	30	30

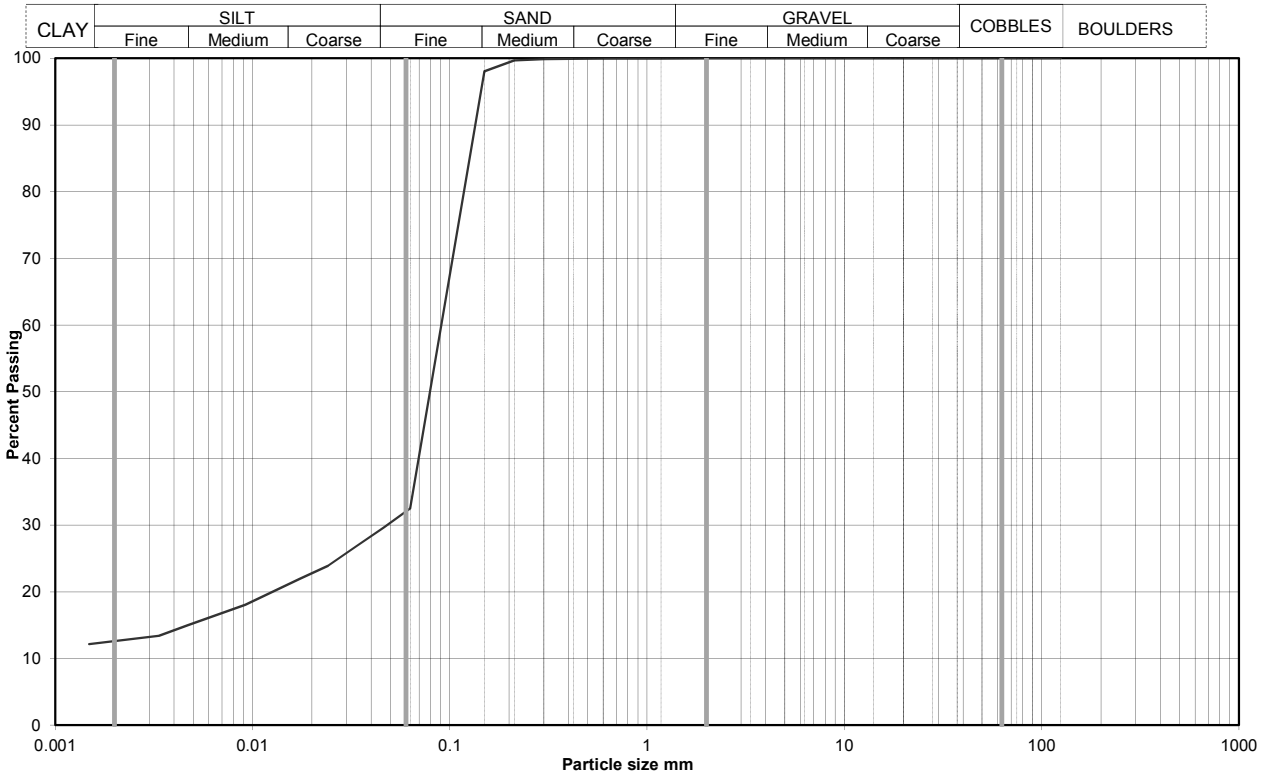
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110426

Hole No	BH301
Sample Depth (m BGL)	8.00
Sample Type and No	CS9
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	33
90	100	0.0463	30
75	100	0.0335	27
63	100	0.0242	24
50	100	0.0174	22
37.5	100	0.0092	18
28	100	0.0047	15
20	100	0.0034	13
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	100	Dry mass of sample, kg	
0.212	100		
0.150	98	0.6	
0.063	33		

Soil description	Brown silty SAND.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	68	68
	Silt	19	19
	Clay	13	13

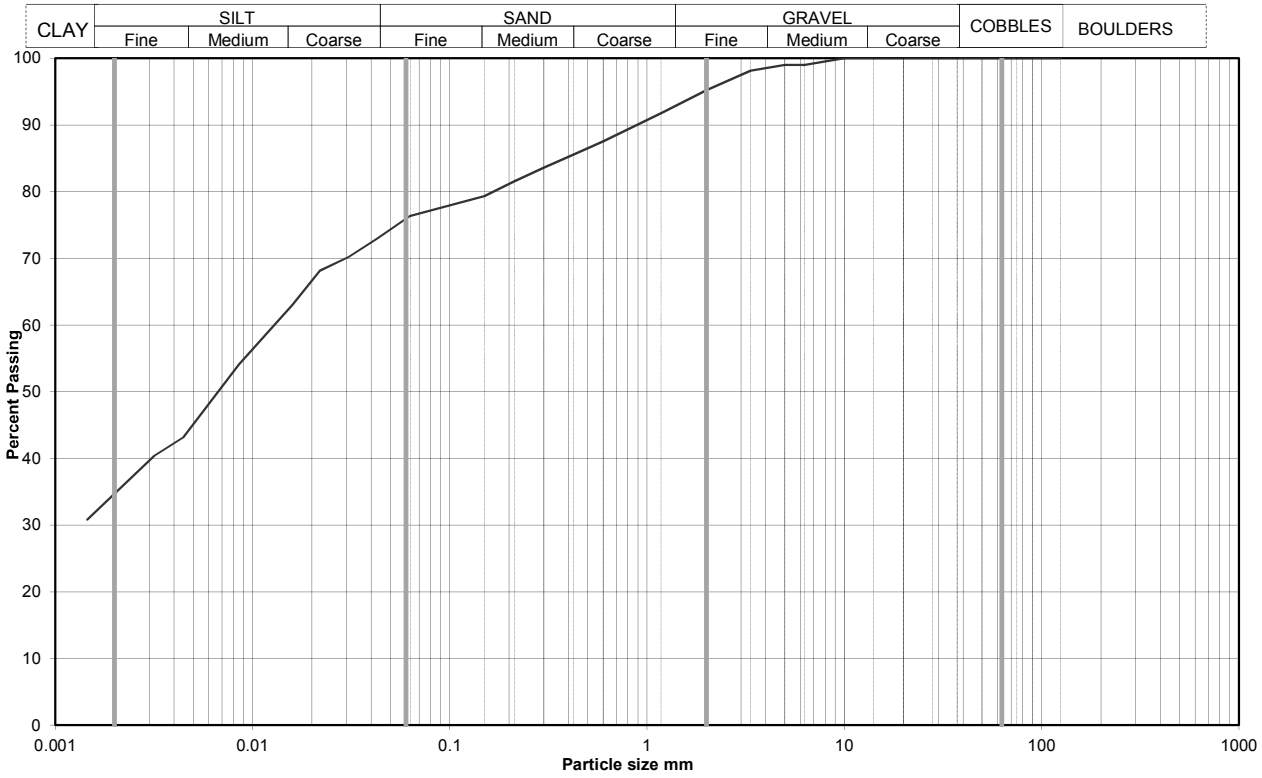
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110458

Hole No	BH301
Sample Depth (m BGL)	9.60
Sample Type and No	CS10
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	76
90	100	0.0429	73
75	100	0.0308	70
63	100	0.0220	68
50	100	0.0159	63
37.5	100	0.0085	54
28	100	0.0045	43
20	100	0.0032	40
14	100	0.0015	31
10	100		
6.3	99		
5.0	99		
3.35	98		
2.00	95		
1.18	92	Particle density, Mg/m3	
0.600	88		
0.425	86	2.65 assumed	
0.300	84	Dry mass of sample, kg	
0.212	82		
0.150	79	0.2	
0.063	76		

Soil description	Black slightly sandy slightly gravelly organic CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	5	5
	Sand	19	19
	Silt	41	41
	Clay	35	35

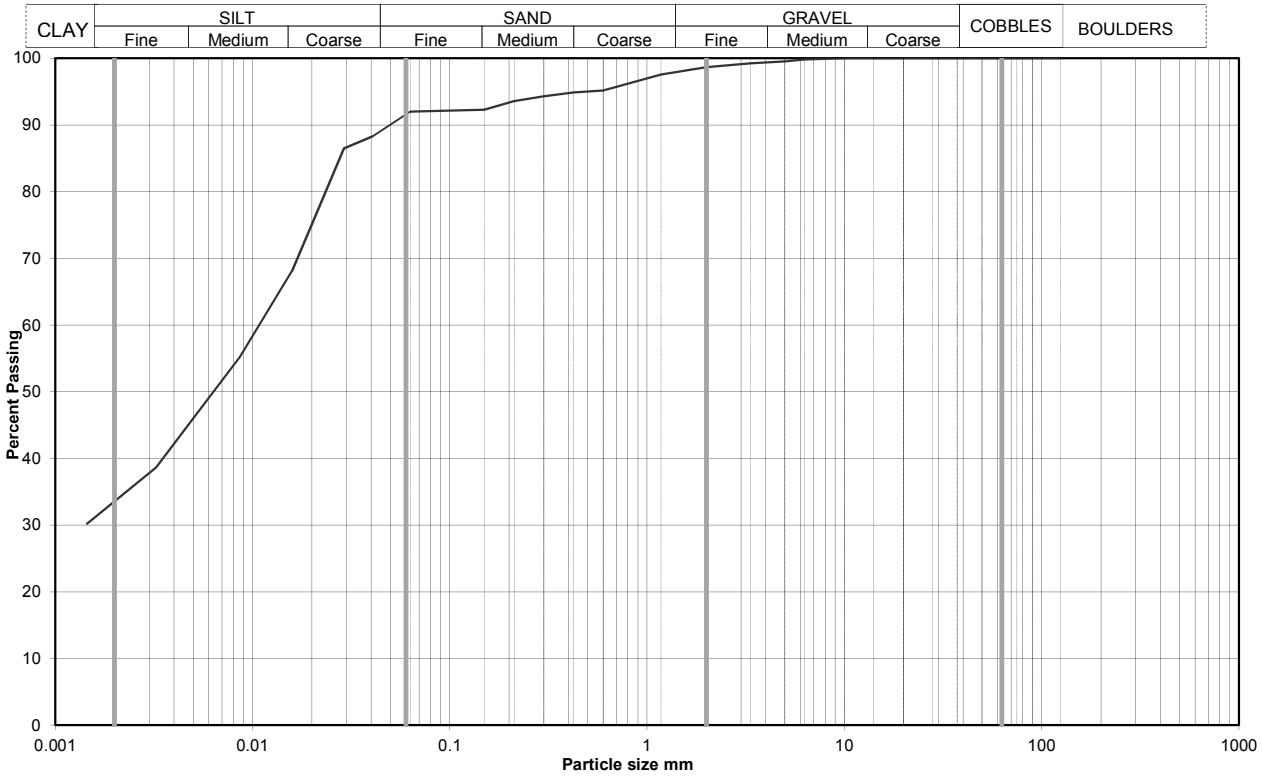
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110538

Hole No	BH301
Sample Depth (m BGL)	10.10
Sample Type and No	CS11
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	92
90	100	0.0407	88
75	100	0.0290	86
63	100	0.0215	77
50	100	0.0159	68
37.5	100	0.0086	55
28	100	0.0045	44
20	100	0.0032	39
14	100	0.0014	30
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	99		
1.18	98	Particle density, Mg/m3	
0.600	95		
0.425	95	2.65 assumed	
0.300	94	Dry mass of sample, kg	
0.212	94		
0.150	92	0.4	
0.063	92		

Soil description	Black slightly sandy SILT.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	7	7
	Silt	58	58
	Clay	34	34

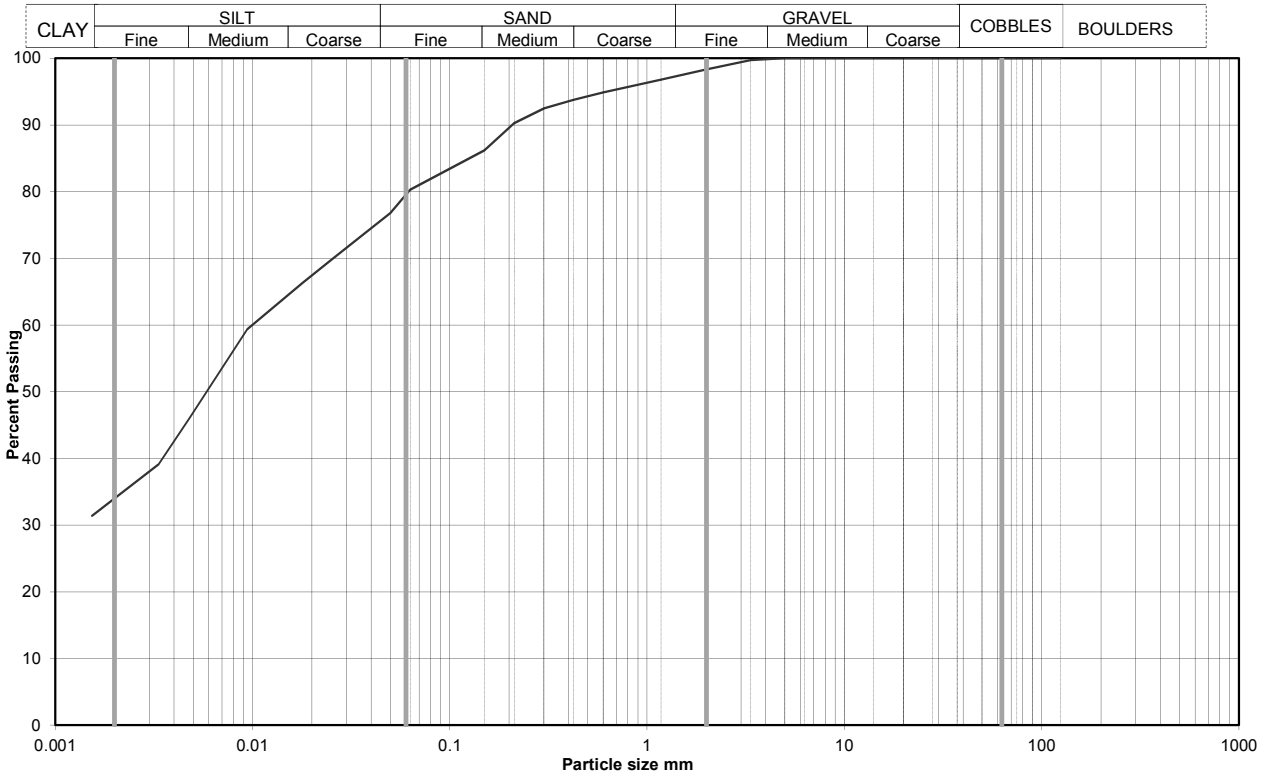
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110719

Hole No	BH301
Sample Depth (m BGL)	11.90
Sample Type and No	CS12
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	80
90	100	0.0499	77
75	100	0.0355	73
63	100	0.0253	70
50	100	0.0180	66
37.5	100	0.0094	59
28	100	0.0048	46
20	100	0.0033	39
14	100	0.0015	31
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	98		
1.18	97	Particle density, Mg/m3	
0.600	95		
0.425	94	2.65 assumed	
0.300	92	Dry mass of sample, kg	
0.212	90		
0.150	86	0.1	
0.063	80		

Soil description	Black slightly sandy slightly gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	2	2
	Sand	19	19
	Silt	45	45
	Clay	34	34

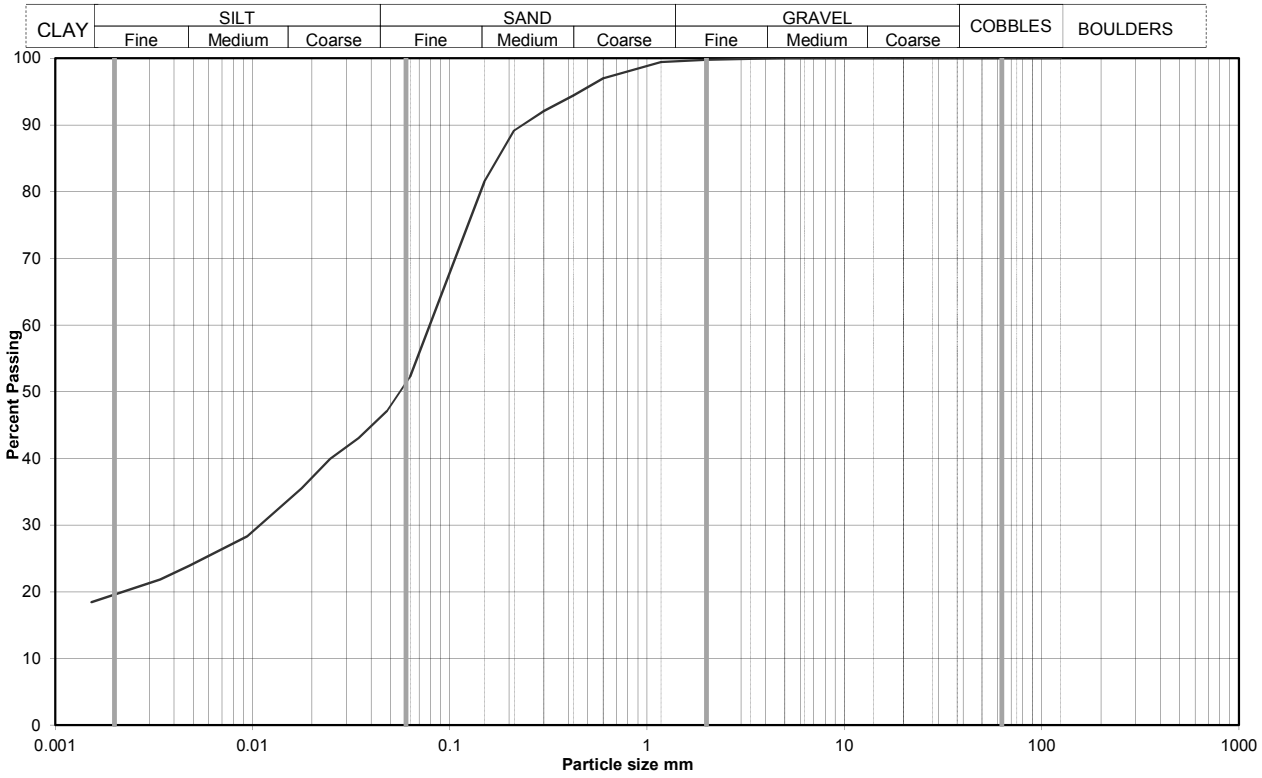
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110738

Hole No	BH301
Sample Depth (m BGL)	12.90
Sample Type and No	CS13
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	52
90	100	0.0481	47
75	100	0.0346	43
63	100	0.0247	40
50	100	0.0178	36
37.5	100	0.0094	28
28	100	0.0048	24
20	100	0.0034	22
14	100	0.0015	18
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	99	Particle density, Mg/m3	
0.600	97		
0.425	94	2.65 assumed	
0.300	92	Dry mass of sample, kg	
0.212	89		
0.150	82	0.6	
0.063	52		

Soil description	Greyish brown sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	48	48
	Silt	32	32
	Clay	20	20

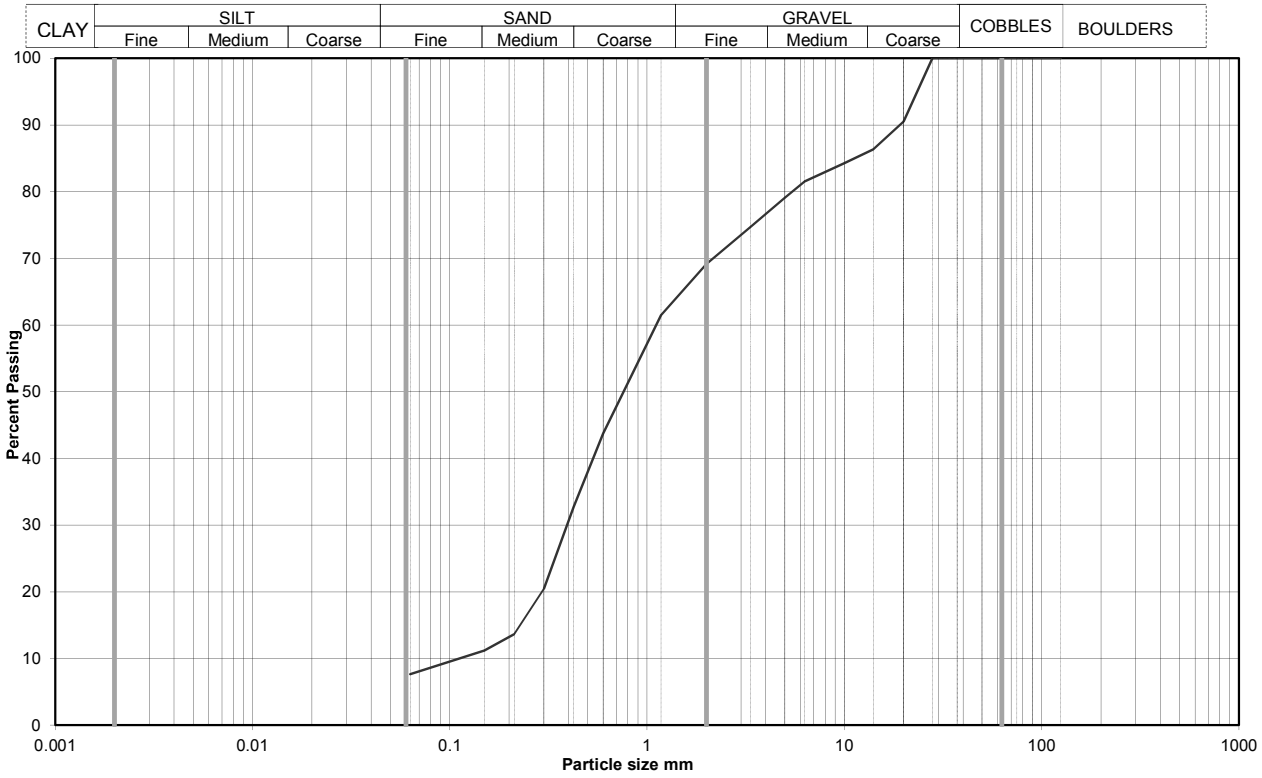
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110855

Hole No	BH301
Sample Depth (m BGL)	15.60
Sample Type and No	CS14
Specimen 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	91		
14	86		
10	84		
6.3	82		
5.0	79		
3.35	75		
2.00	69		
1.18	61		
0.600	44		
0.425	33		
0.300	20	Dry mass of sample, kg	
0.212	14		
0.150	11	0.8	
0.063	8		

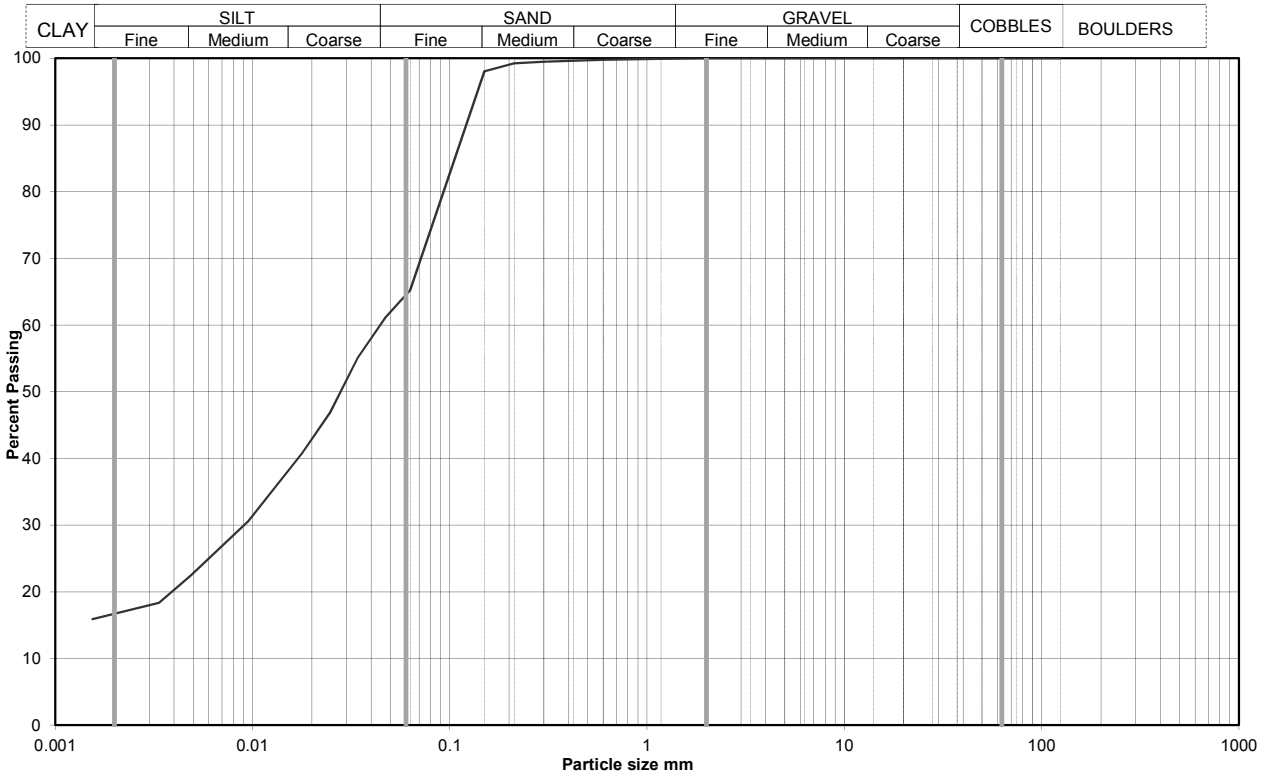
Soil description	Brown very gravelly SAND.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	31	31
	Sand	61	61
	Silt	silt+clay =	
	Clay	8	8

Uniformity Coefficient	D_{60} / D_{10}	12

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH301
		Sample Depth (m BGL)	16.20
	A5049-1520150630110917	Sample Type and No	CS15
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	65
90	100	0.0473	61
75	100	0.0342	55
63	100	0.0248	47
50	100	0.0179	41
37.5	100	0.0095	31
28	100	0.0049	22
20	100	0.0034	18
14	100	0.0015	16
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	98	8.0	
0.063	65		

Soil description	Brown sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	35	35
	Silt	48	48
	Clay	17	17

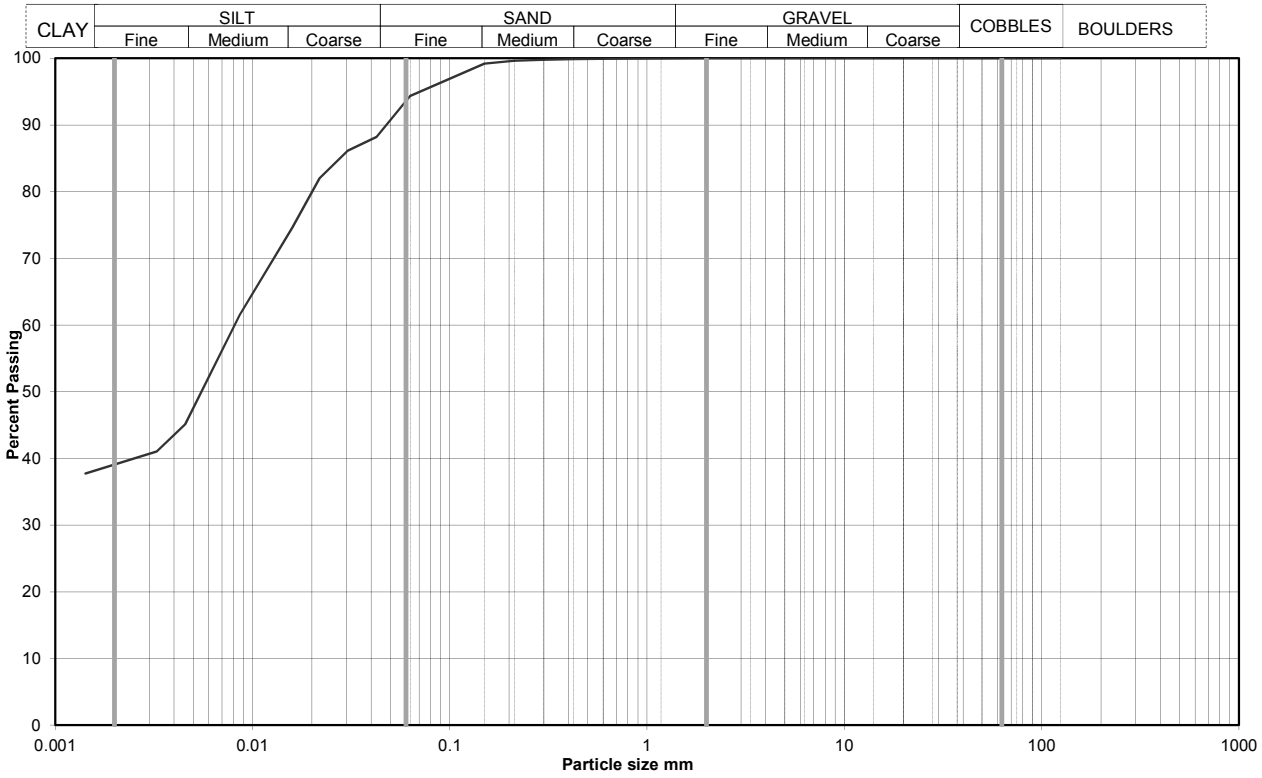
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630110947

Hole No	BH301
Sample Depth (m BGL)	20.10
Sample Type and No	CS16
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	94
90	100	0.0426	88
75	100	0.0304	86
63	100	0.0219	82
50	100	0.0159	75
37.5	100	0.0086	62
28	100	0.0046	45
20	100	0.0033	41
14	100	0.0014	38
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	0.6	
0.063	94		

Soil description	Brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	6	6
	Silt	55	55
	Clay	39	39

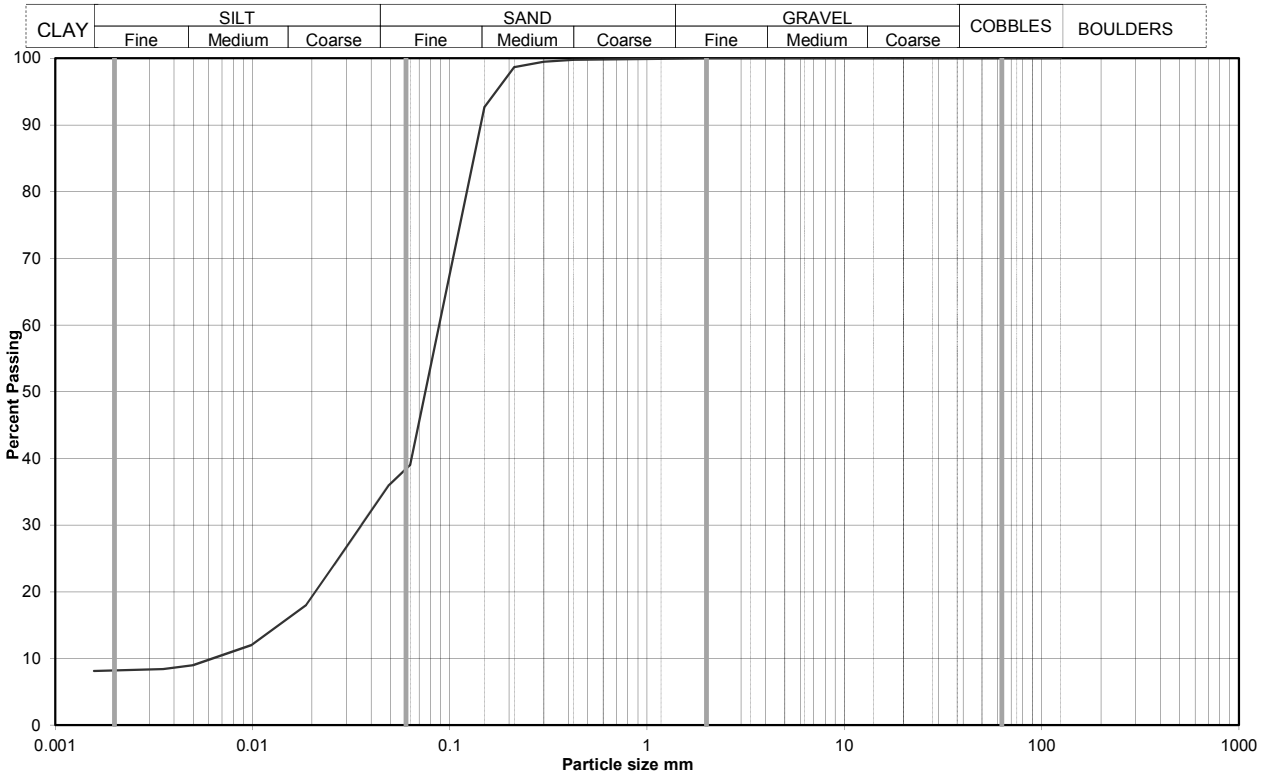
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111011

Hole No	BH301
Sample Depth (m BGL)	24.40
Sample Type and No	CS17
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	39
90	100	0.0493	36
75	100	0.0357	30
63	100	0.0259	24
50	100	0.0187	18
37.5	100	0.0099	12
28	100	0.0050	9
20	100	0.0035	8
14	100	0.0016	8
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	93	0.7	
0.063	39		

Soil description	Brown sandy SILT.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	62	62
	Silt	30	30
	Clay	8	8

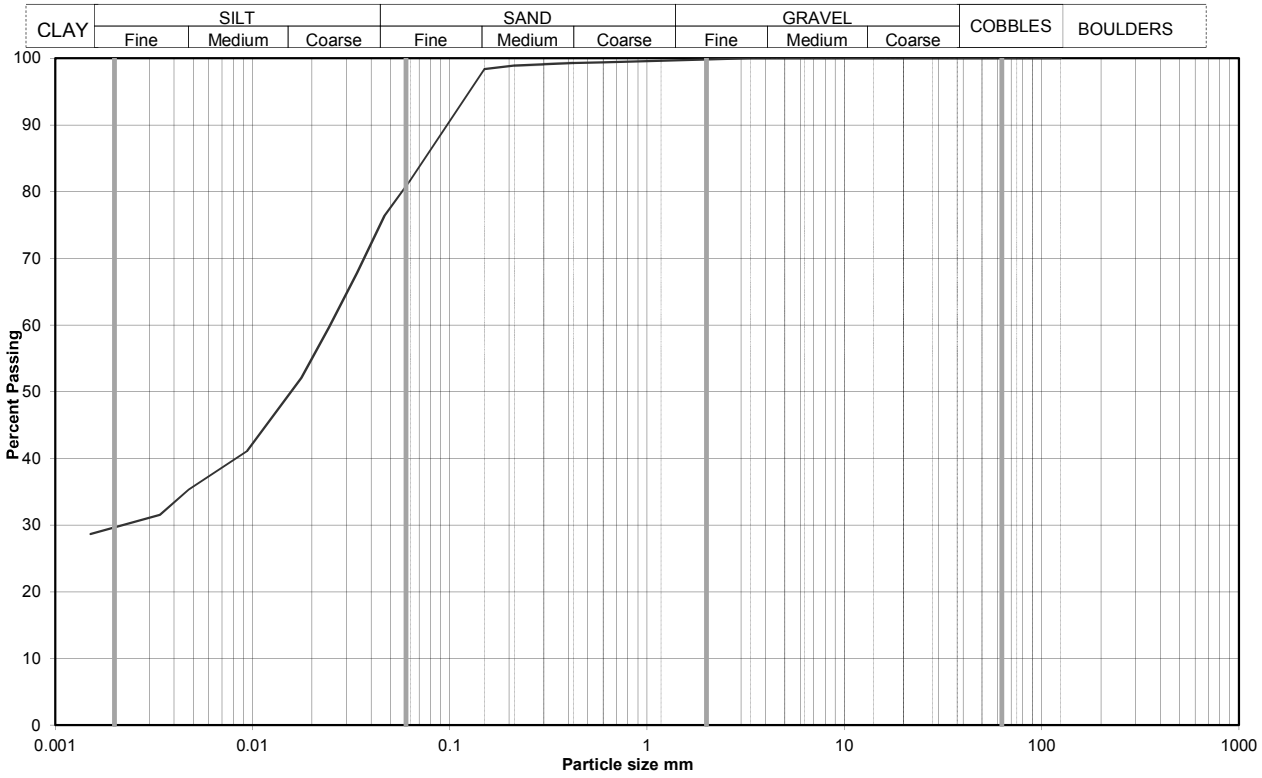
Uniformity Coefficient	D_{60} / D_{10}	14

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150622101025

Hole No	BH302
Sample Depth (m BGL)	3.50
Sample Type and No	U9
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	82
90	100	0.0467	76
75	100	0.0338	68
63	100	0.0245	60
50	100	0.0177	52
37.5	100	0.0094	41
28	100	0.0048	35
20	100	0.0034	32
14	100	0.0015	29
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	98	4.6	
0.063	82		

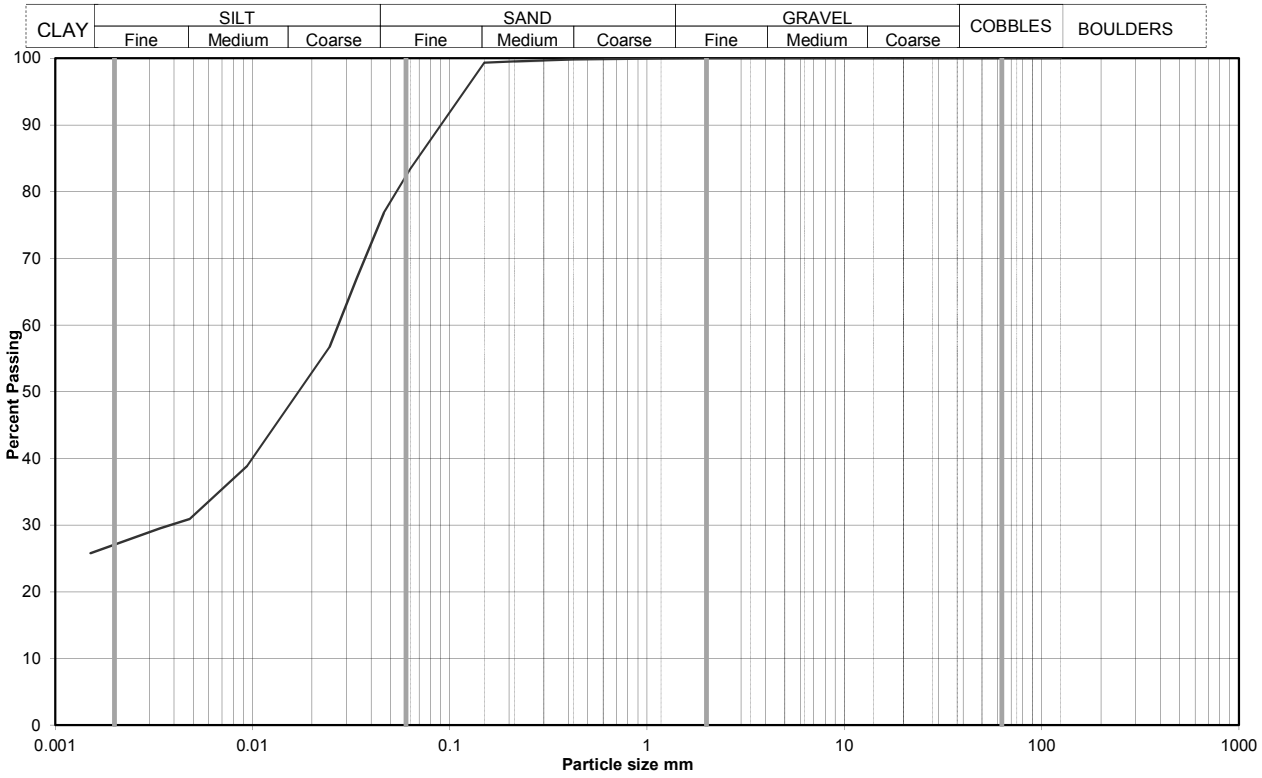
Soil description	Soft brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	19	19
	Silt	51	51
	Clay	30	30

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH302
		Sample Depth (m BGL)	9.50
	A5049-1520150622101441	Sample Type and No	U22
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	83
90	100	0.0464	77
75	100	0.0338	67
63	100	0.0246	57
50	100	0.0177	51
37.5	100	0.0094	39
28	100	0.0048	31
20	100	0.0034	30
14	100	0.0015	26
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	1.8	
0.063	83		

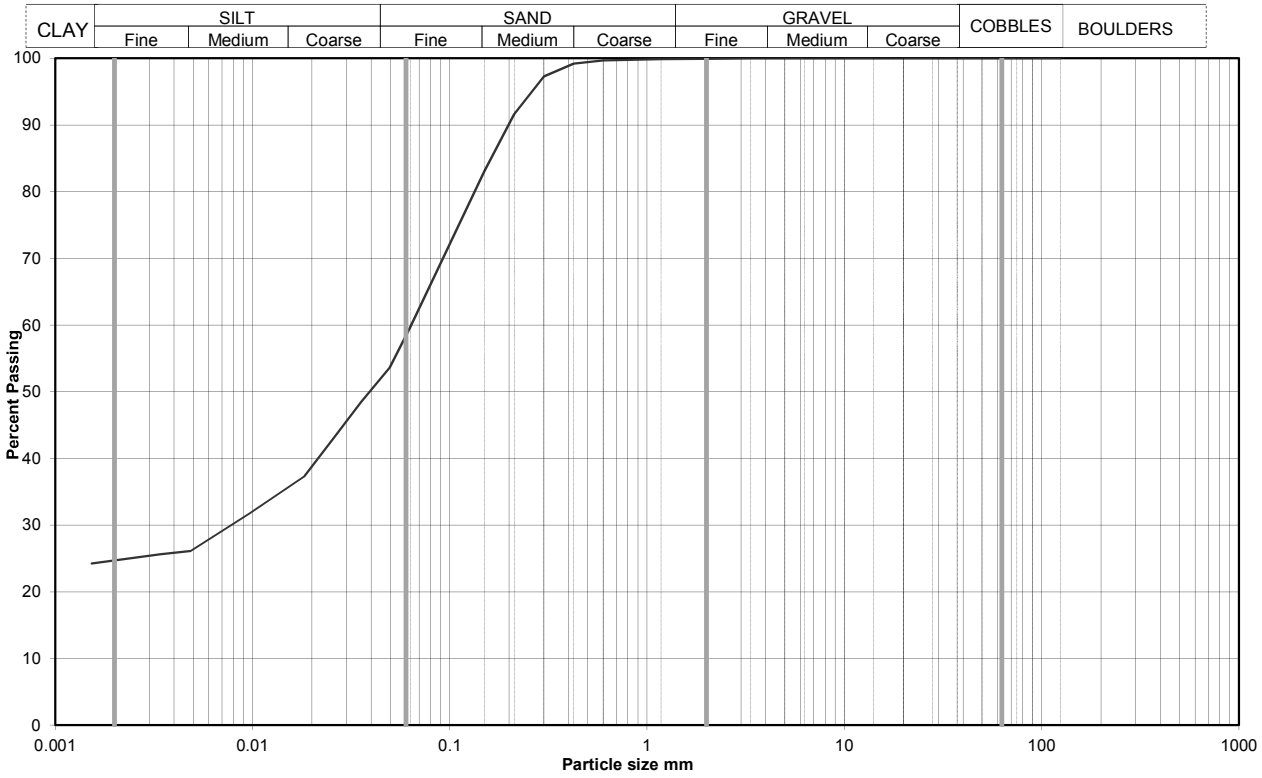
Soil description	Soft brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	18	18
	Silt	55	55
	Clay	27	27

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH302
		Sample Depth (m BGL)	13.00
	A5049-1520150622101659	Sample Type and No	U33
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	60
90	100	0.0496	54
75	100	0.0356	48
63	100	0.0255	43
50	100	0.0183	37
37.5	100	0.0096	32
28	100	0.0049	26
20	100	0.0034	26
14	100	0.0015	24
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	92		
0.150	83	5.6	
0.063	60		

Soil description	Soft to firm greyish brown sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	42	42
	Silt	34	34
	Clay	24	24

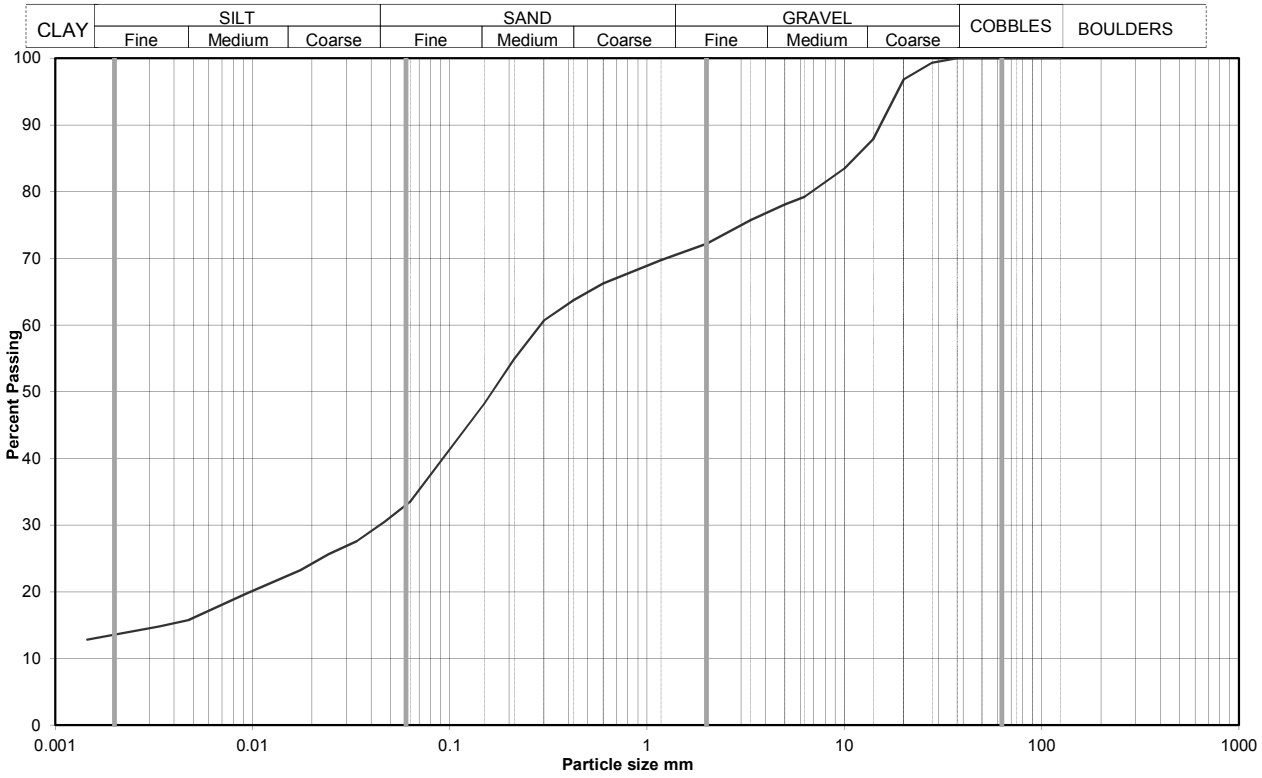
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150622101745

Hole No	BH302
Sample Depth (m BGL)	14.00
Sample Type and No	B36
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	34
90	100	0.0470	31
75	100	0.0339	28
63	100	0.0243	26
50	100	0.0175	23
37.5	100	0.0092	20
28	99	0.0047	16
20	97	0.0034	15
14	88	0.0015	13
10	83		
6.3	79		
5.0	78		
3.35	76		
2.00	72		
1.18	70	Particle density, Mg/m3	
0.600	66		
0.425	64	2.65 assumed	
0.300	61	Dry mass of sample, kg	
0.212	55		
0.150	48	8.8	
0.063	34		

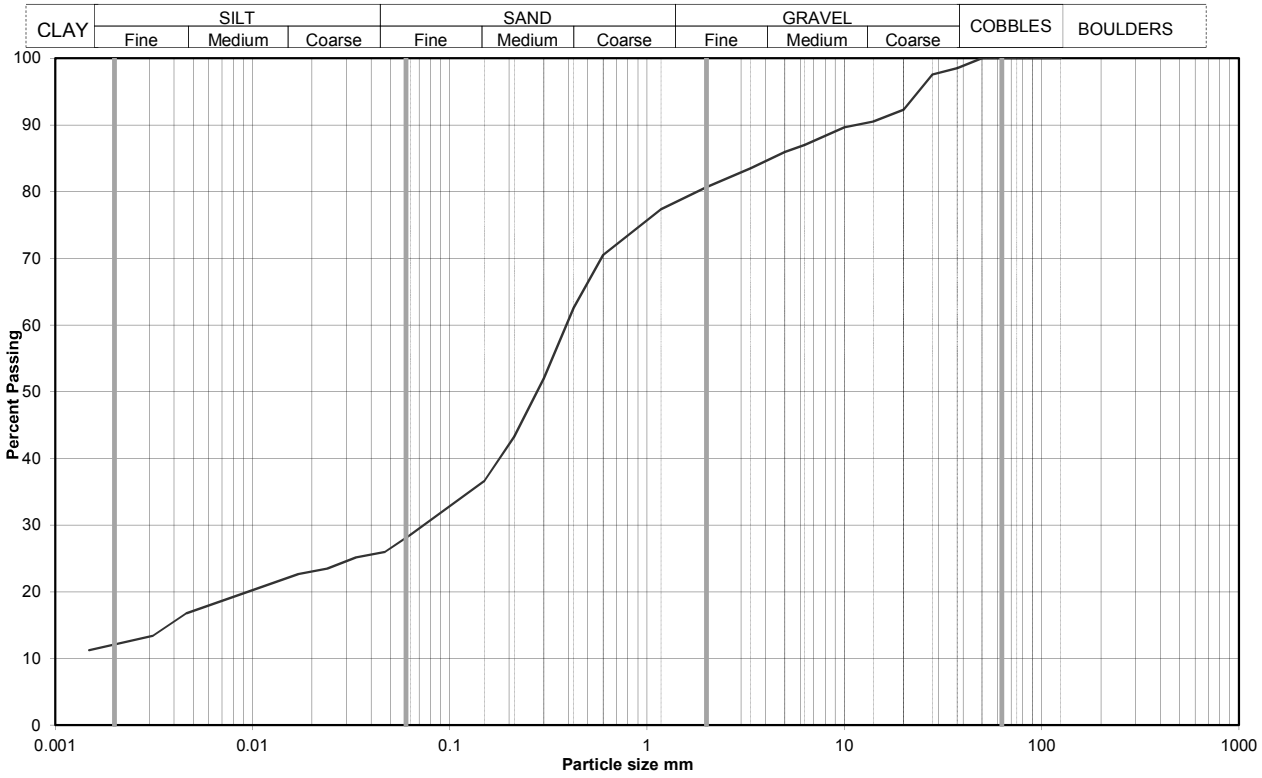
Soil description	Brownish grey slightly sandy slightly gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	28	28
	Sand	39	39
	Silt	19	19
	Clay	14	14

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH302
		Sample Depth (m BGL)	16.00
	A5049-1520150622101908	Sample Type and No	B40
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	29
90	100	0.0470	26
75	100	0.0335	25
63	100	0.0240	23
50	100	0.0171	23
37.5	99	0.0090	20
28	98	0.0046	17
20	92	0.0031	13
14	91	0.0015	11
10	90		
6.3	87		
5.0	86		
3.35	84		
2.00	81		
1.18	77	Particle density, Mg/m3	
0.600	71		
0.425	63	2.65 assumed	
0.300	52	Dry mass of sample, kg	
0.212	43		
0.150	37	7.4	
0.063	29		

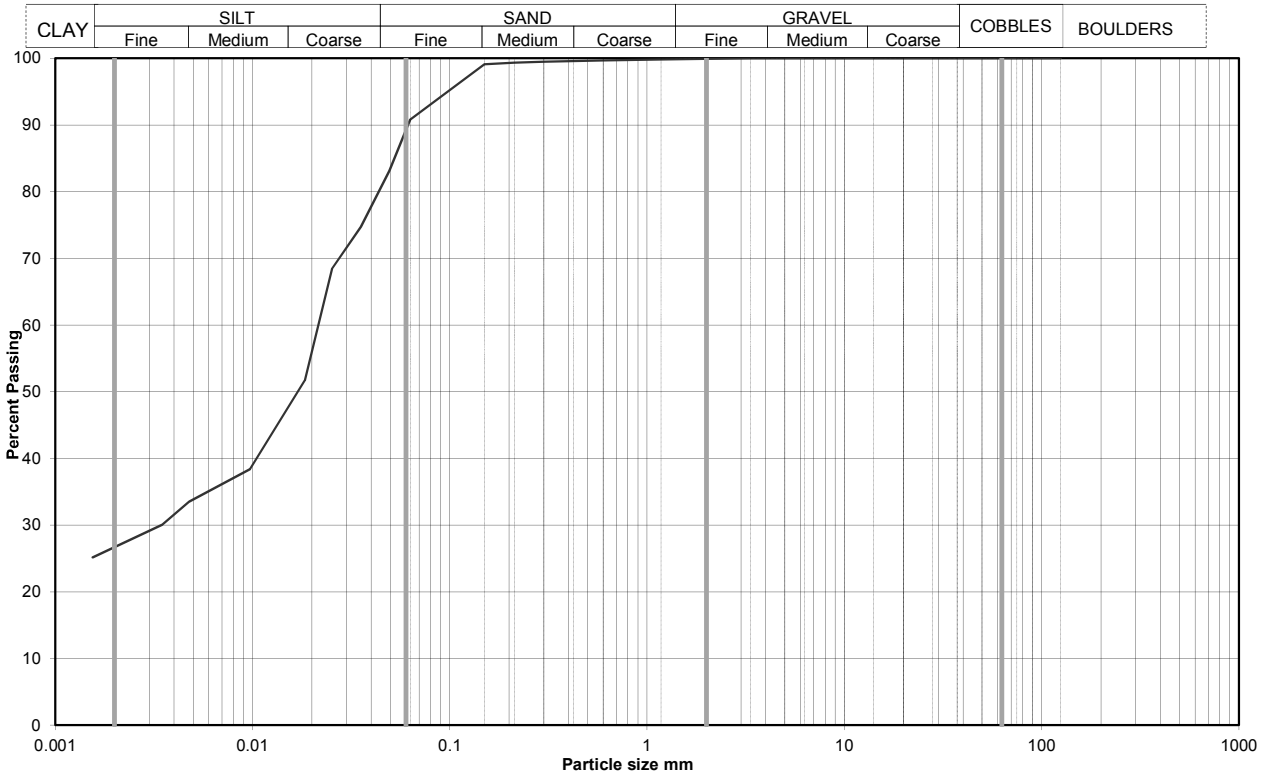
Soil description	Brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	19	19
	Sand	53	53
	Silt	16	16
	Clay	12	12

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH303
		Sample Depth (m BGL)	2.20
	A5049-1520150604102537	Sample Type and No	U1
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	91
90	100	0.0494	83
75	100	0.0354	75
63	100	0.0253	68
50	100	0.0184	52
37.5	100	0.0097	38
28	100	0.0048	34
20	100	0.0035	30
14	100	0.0015	25
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	1.5	
0.063	91		

Soil description	Firm to stiff 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	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	11	11
	Silt	62	62
	Clay	27	27

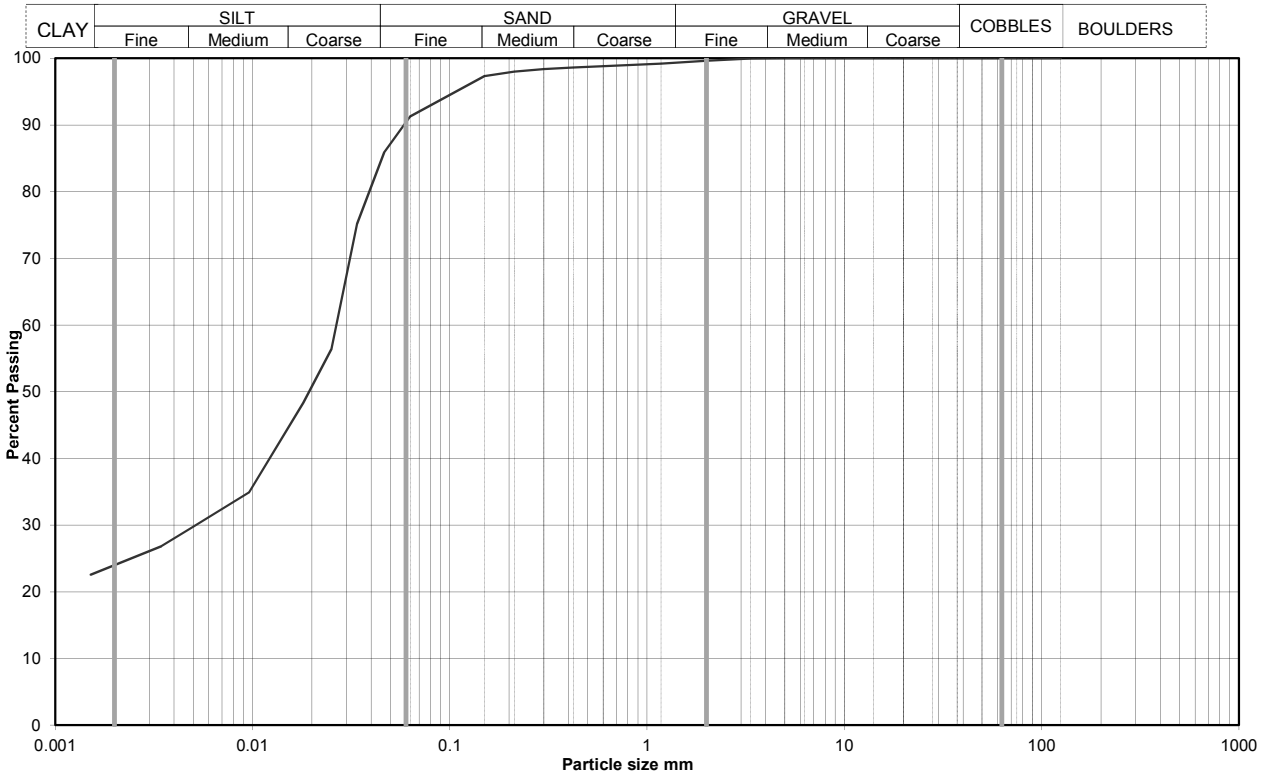
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150604102755

Hole No	BH303
Sample Depth (m BGL)	4.20
Sample Type and No	U6
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	91
90	100	0.0466	86
75	100	0.0339	75
63	100	0.0251	56
50	100	0.0181	48
37.5	100	0.0096	35
28	100	0.0049	30
20	100	0.0035	27
14	100	0.0015	23
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	98		
0.150	97	4.7	
0.063	91		

Soil description	Firm brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	9	9
	Silt	67	67
	Clay	24	24

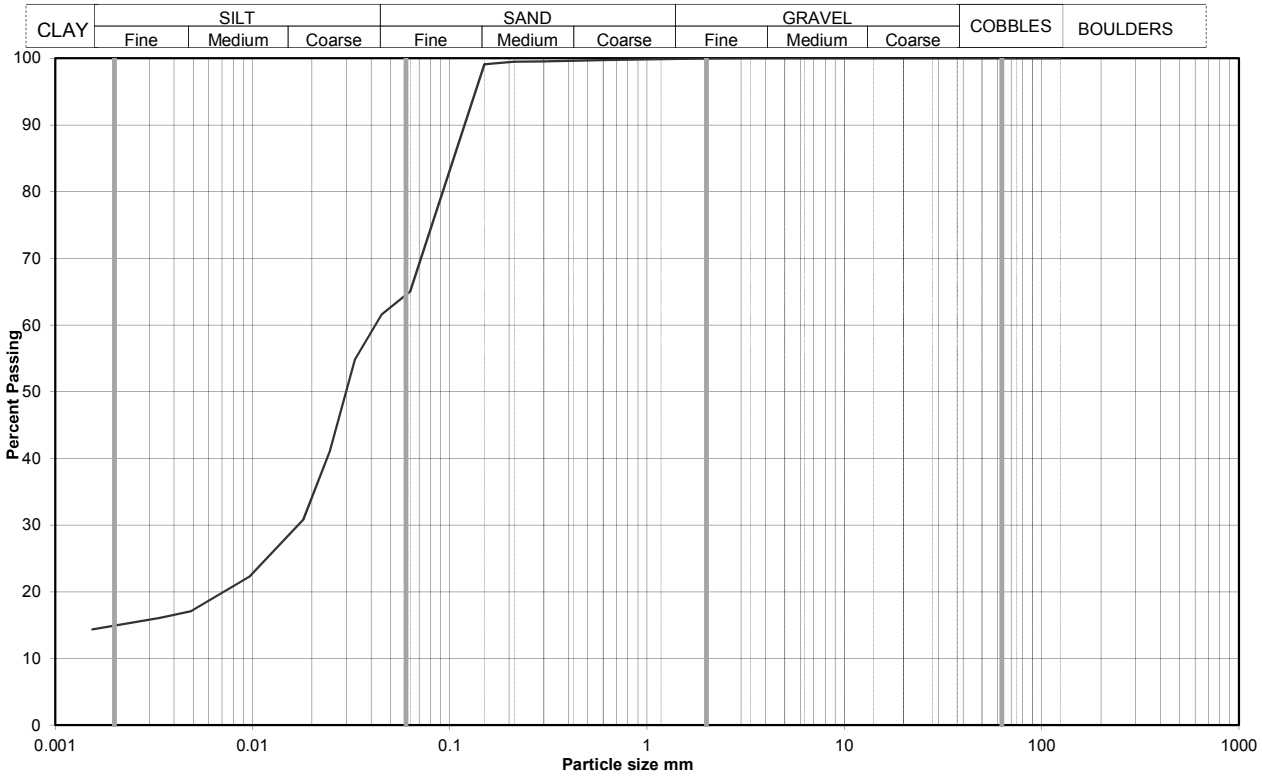
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150604102858

Hole No	BH303
Sample Depth (m BGL)	5.20
Sample Type and No	U10
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	65
90	100	0.0453	62
75	100	0.0330	55
63	100	0.0246	41
50	100	0.0181	31
37.5	100	0.0096	22
28	100	0.0049	17
20	100	0.0034	16
14	100	0.0015	14
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	99	4.7	
0.063	65		

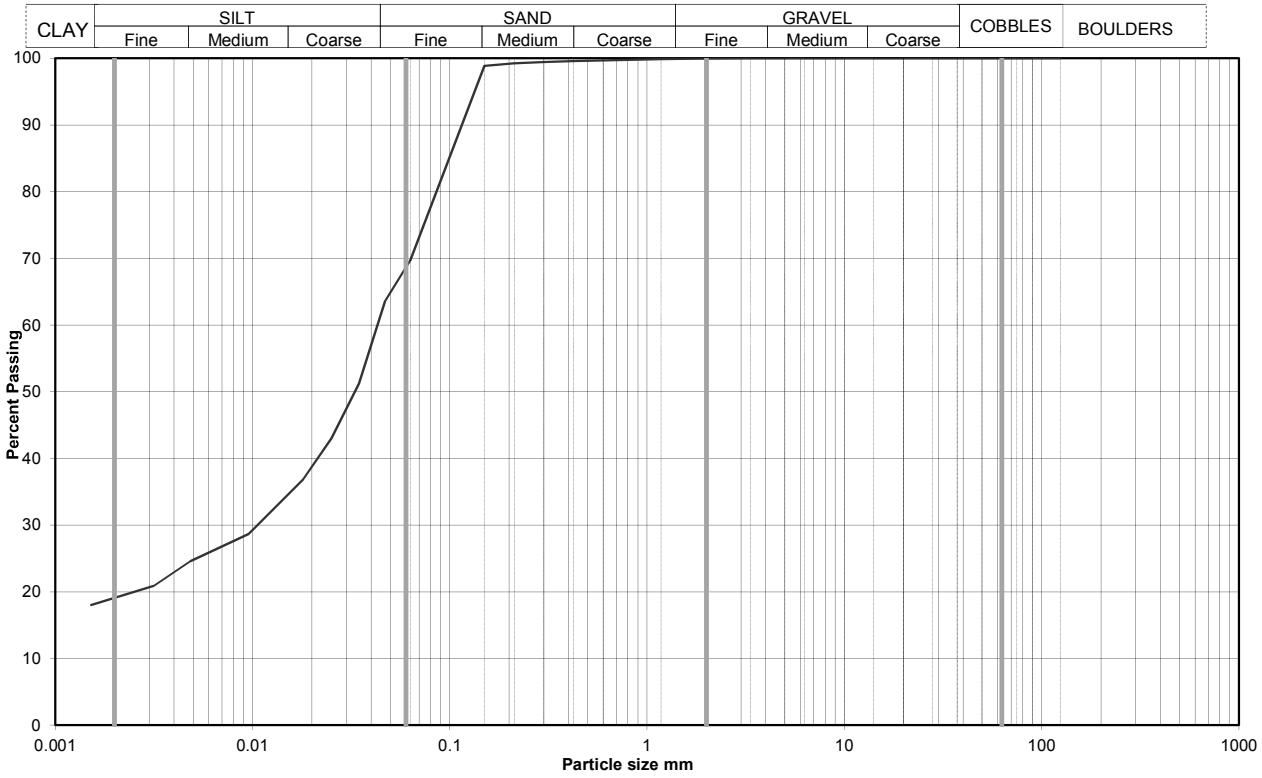
Soil description	Firm brown sandy clayey SILT.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	35	35
	Silt	50	50
	Clay	15	15

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH303
		Sample Depth (m BGL)	7.70
	A5049-1520150604111908	Sample Type and No	B18
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	70
90	100	0.0470	63
75	100	0.0346	51
63	100	0.0251	43
50	100	0.0181	37
37.5	100	0.0096	29
28	100	0.0048	25
20	100	0.0032	21
14	100	0.0015	18
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	4.6	
0.063	70		

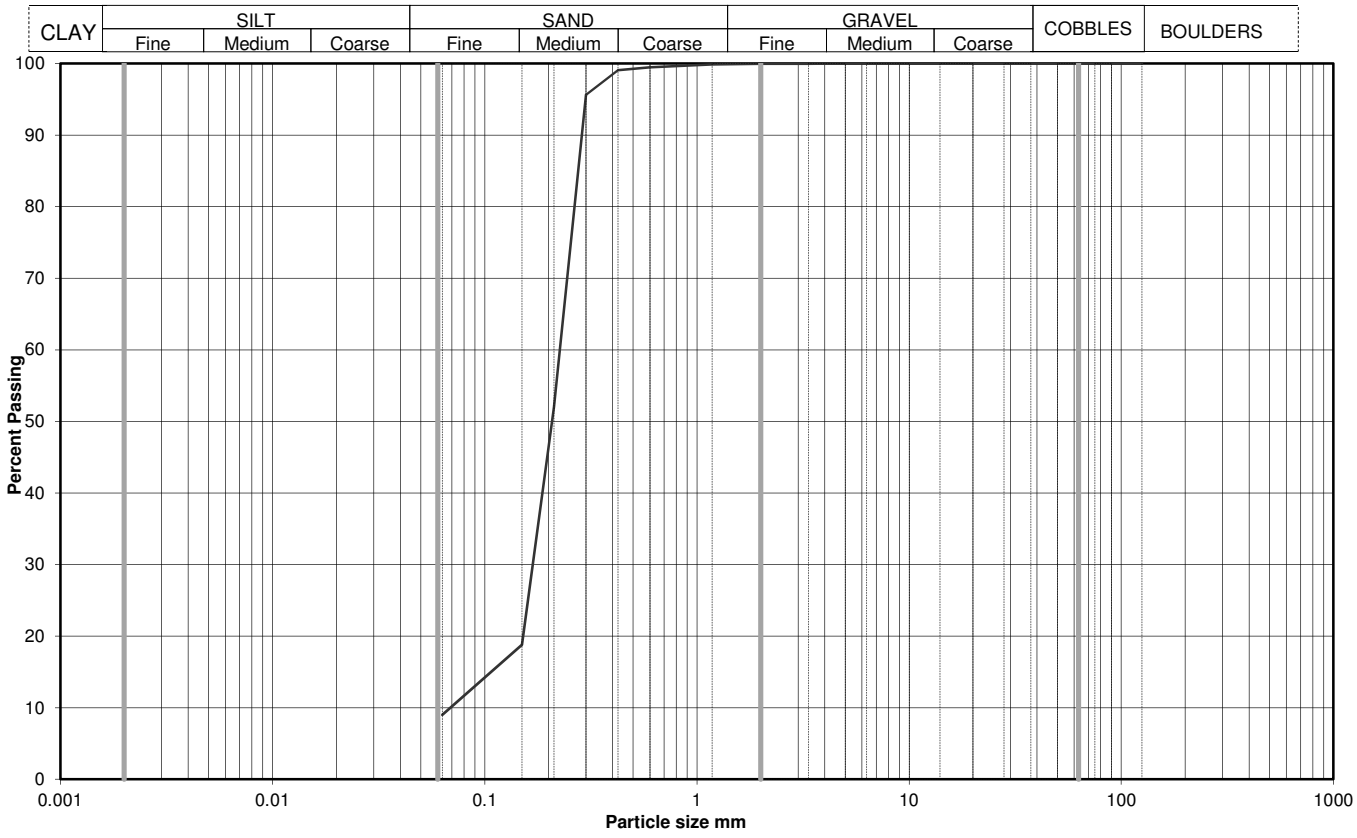
Soil description	Black slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	31	31
	Silt	50	50
	Clay	19	19

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH303
		Sample Depth (m BGL)	9.70
	A5049-1520150604112007	Sample Type and No	U22
		Specimen 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	99		
0.425	99		
0.300	96	Dry mass of sample, kg	
0.212	52		
0.150	19	2.3	
0.063	9		

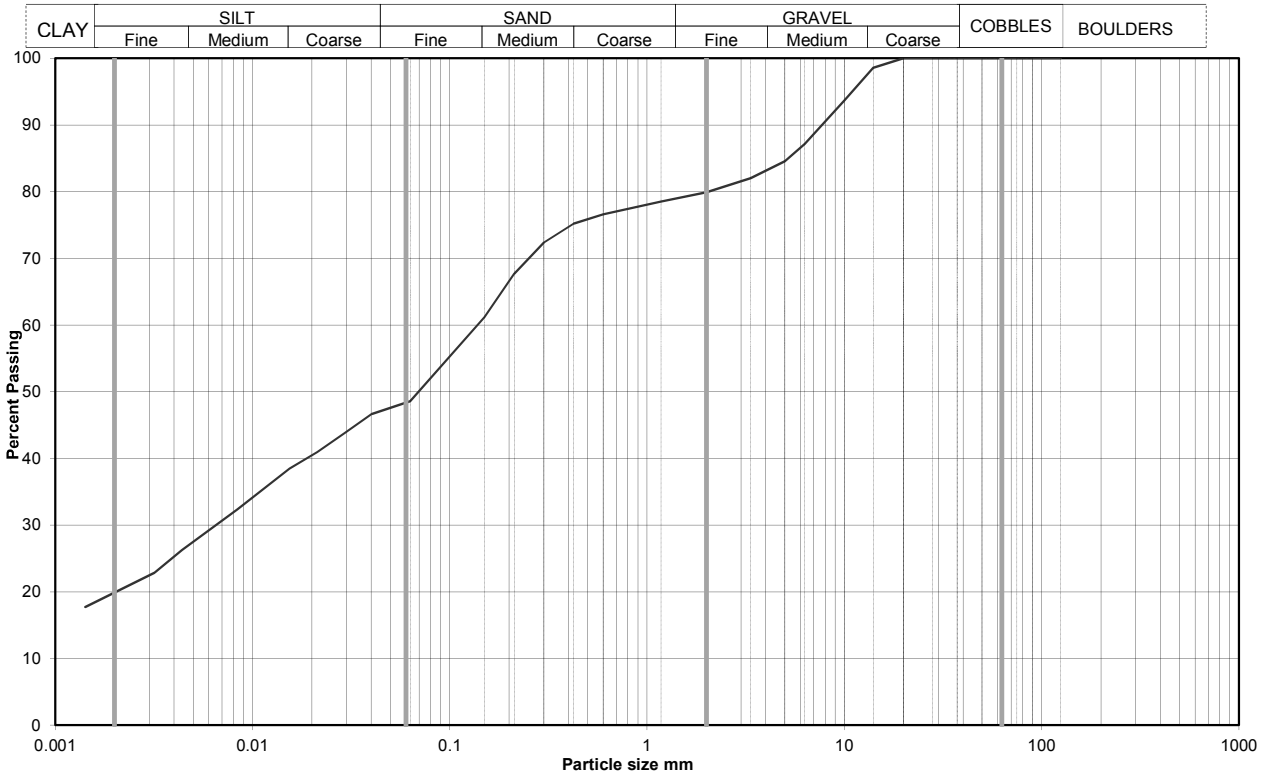
Soil description	Black mottled brown SAND.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	91	91
	Silt	silt+clay =	
	Clay	9	9

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH303
		Sample Depth (m BGL)	12.70
	A5049-1520150604112152	Sample Type and No	U30
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	49
90	100	0.0403	47
75	100	0.0293	44
63	100	0.0213	41
50	100	0.0154	38
37.5	100	0.0084	32
28	100	0.0044	26
20	100	0.0032	23
14	99	0.0014	18
10	94		
6.3	87		
5.0	85		
3.35	82		
2.00	80		
1.18	79	Particle density, Mg/m3	
0.600	77		
0.425	75	2.65 assumed	
0.300	72	Dry mass of sample, kg	
0.212	68		
0.150	61	4.5	
0.063	49		

Soil description	Firm brown slightly sandy slightly gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	20	20
	Sand	32	32
	Silt	28	28
	Clay	20	20

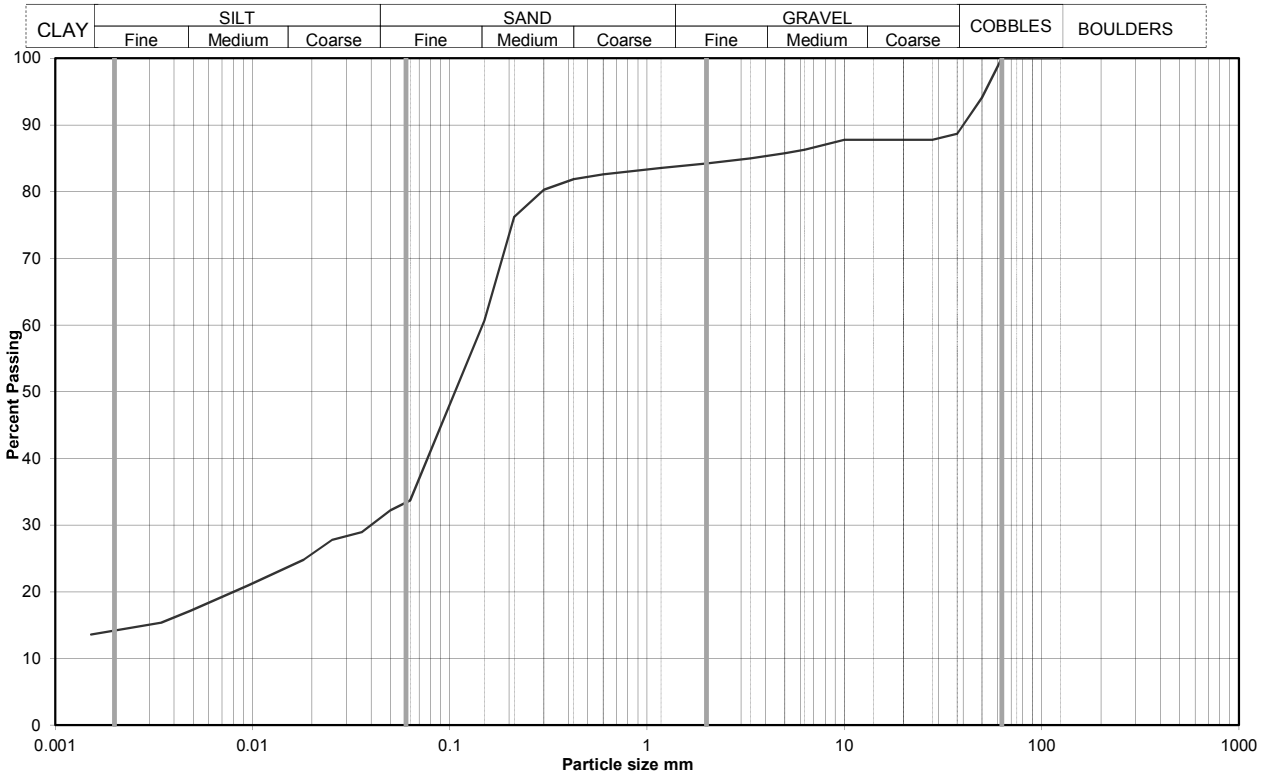
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150604113153

Hole No	BH303
Sample Depth (m BGL)	24.50
Sample Type and No	B72
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	34
90	100	0.0500	32
75	100	0.0358	29
63	100	0.0255	28
50	94	0.0182	25
37.5	89	0.0096	21
28	88	0.0048	17
20	88	0.0035	15
14	88	0.0015	14
10	88		
6.3	86		
5.0	86		
3.35	85		
2.00	84		
1.18	84	Particle density, Mg/m3	
0.600	83		
0.425	82	2.65 assumed	
0.300	80	Dry mass of sample, kg	
0.212	76		
0.150	61	8.9	
0.063	34		

Soil description	Grey slightly gravelly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	16	16
	Sand	51	51
	Silt	19	19
	Clay	14	14

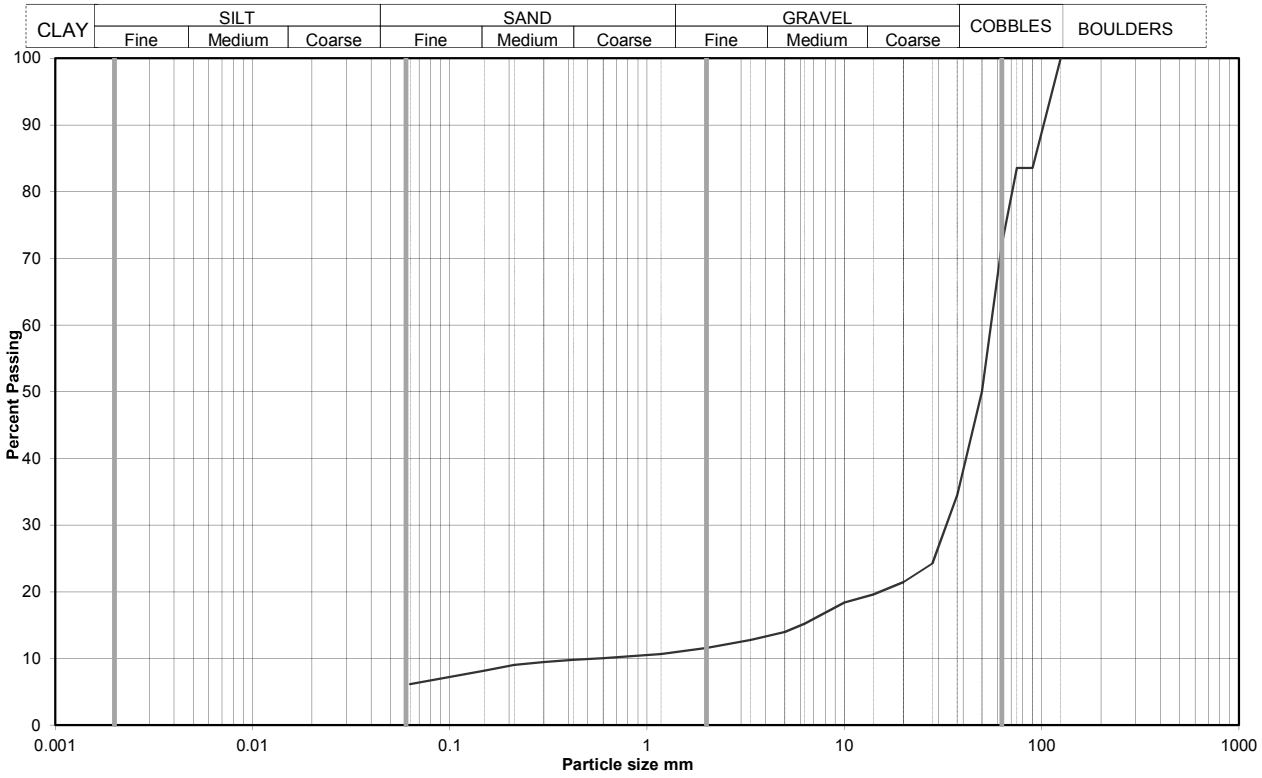
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150604113244

Hole No	BH303
Sample Depth (m BGL)	27.50
Sample Type and No	B78
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	84		
75	84		
63	72		
50	50		
37.5	35		
28	24		
20	21		
14	20		
10	18		
6.3	15		
5.0	14		
3.35	13		
2.00	12		
1.18	11		
0.600	10		
0.425	10		
0.300	9	Dry mass of sample, kg	
0.212	9		
0.150	8	7.5	
0.063	6		

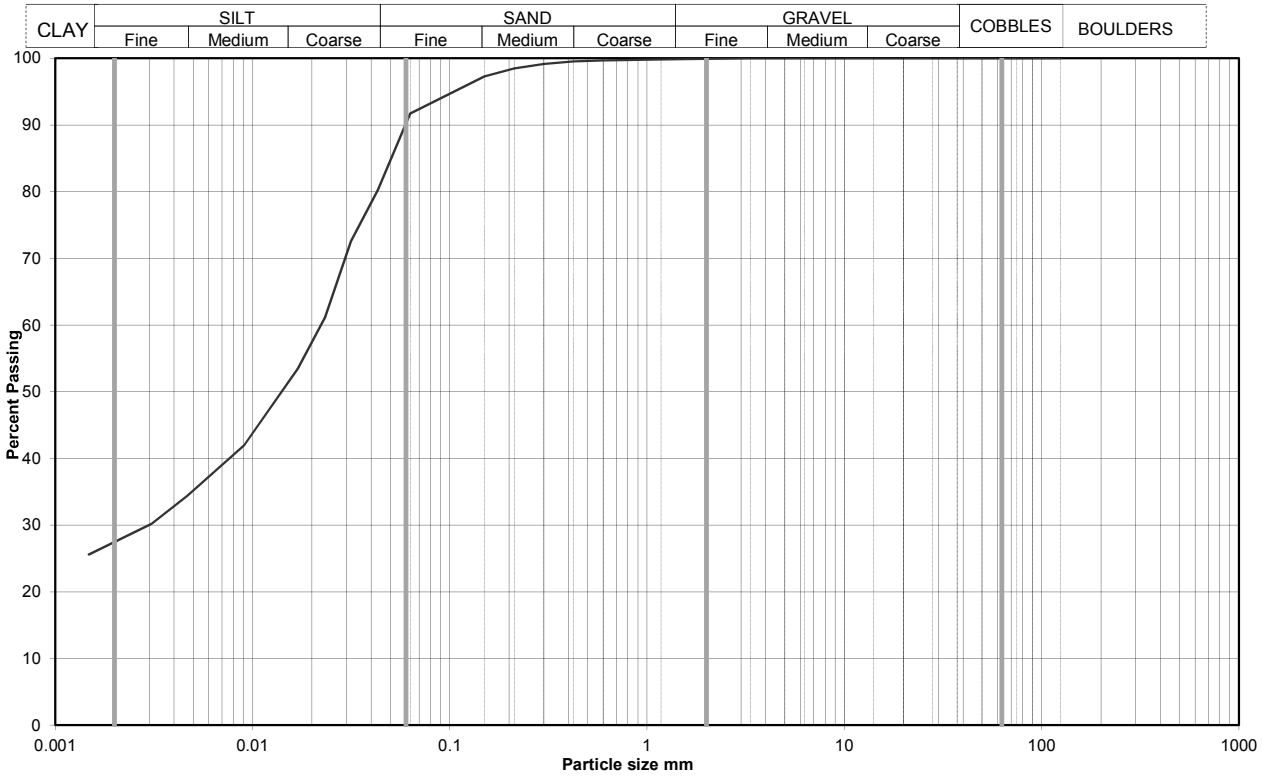
Soil description	Brown sandy clayey GRAVEL with one cobble.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	28	0
	Gravel	60	83
	Sand	5	7
	Silt	silt+clay =	
	Clay	7	10

Uniformity Coefficient	D_{60} / D_{10}	99

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH304
		Sample Depth (m BGL)	1.20
	A5049-1520150609103557	Sample Type and No	D7
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	92
90	100	0.0431	80
75	100	0.0315	73
63	100	0.0233	61
50	100	0.0170	53
37.5	100	0.0091	42
28	100	0.0047	34
20	100	0.0031	30
14	100	0.0015	26
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	97	0.2	
0.063	92		

Soil description	Brown slightly sandy CLAY with rare rootlets.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	10	10
	Silt	63	63
	Clay	27	27

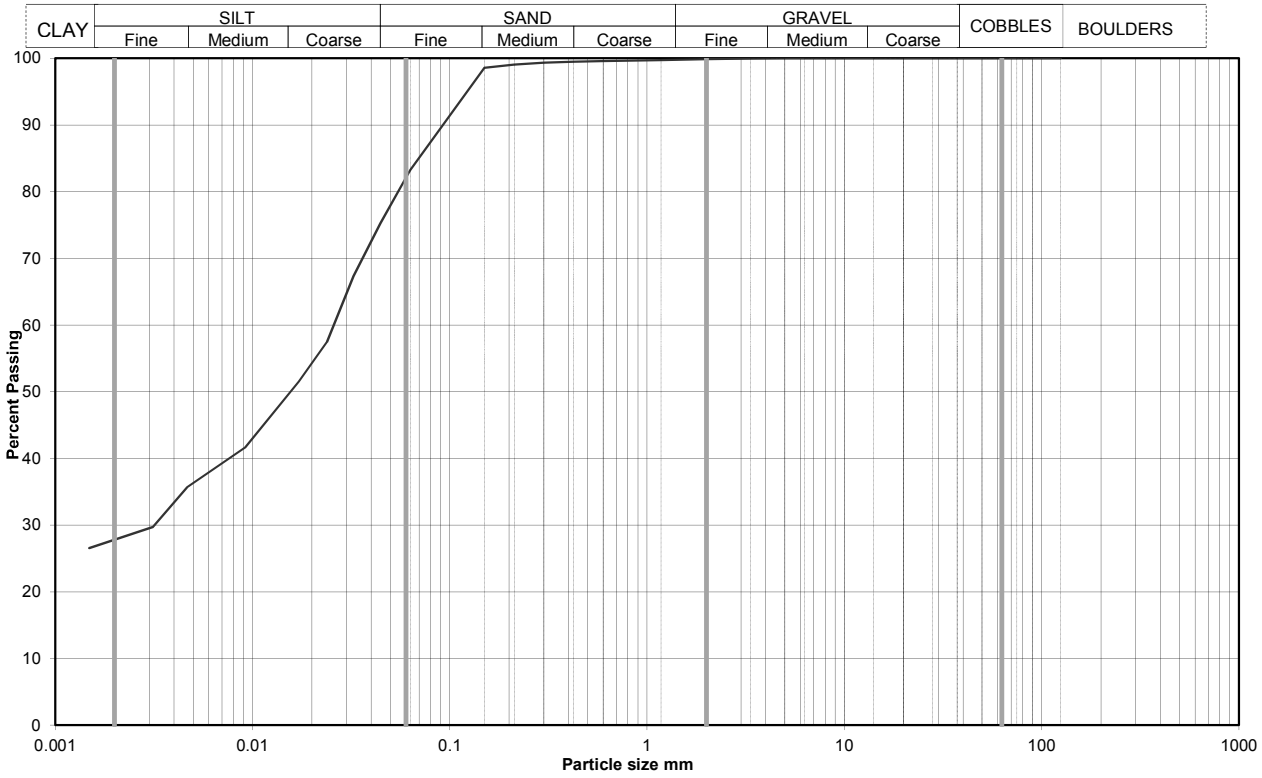
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150609103747

Hole No	BH304
Sample Depth (m BGL)	5.50
Sample Type and No	UNR
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	83
90	100	0.0446	75
75	100	0.0325	67
63	100	0.0238	57
50	100	0.0172	52
37.5	100	0.0092	42
28	100	0.0047	36
20	100	0.0031	30
14	100	0.0015	27
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	99	Dry mass of sample, kg	
0.212	99		
0.150	99	8.0	
0.063	83		

Soil description	Brownish grey slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	18	18
	Silt	54	54
	Clay	28	28

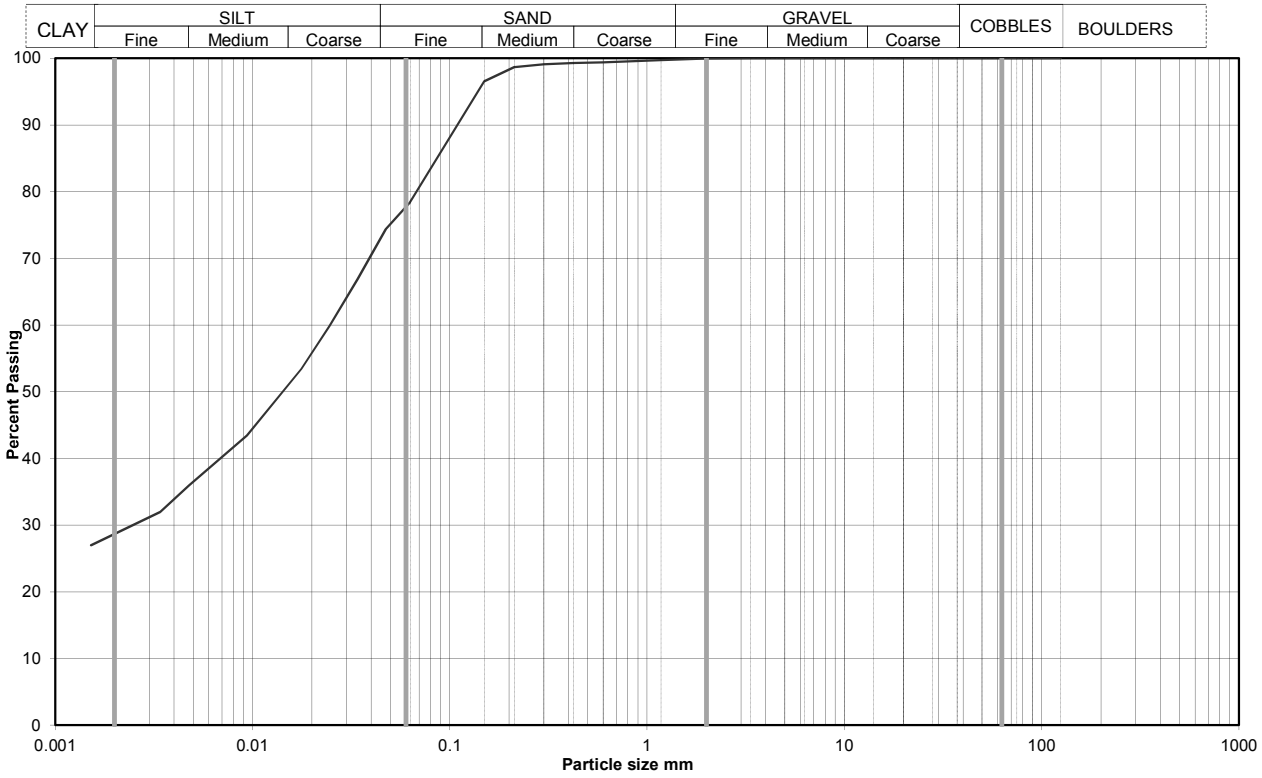
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150611121121

Hole No	BH304
Sample Depth (m BGL)	10.50
Sample Type and No	D30
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	78
90	100	0.0474	74
75	100	0.0342	67
63	100	0.0246	60
50	100	0.0177	53
37.5	100	0.0094	43
28	100	0.0048	36
20	100	0.0034	32
14	100	0.0015	27
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	97	0.3	
0.063	78		

Soil description	Greyish brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	22	22
	Silt	49	49
	Clay	29	29

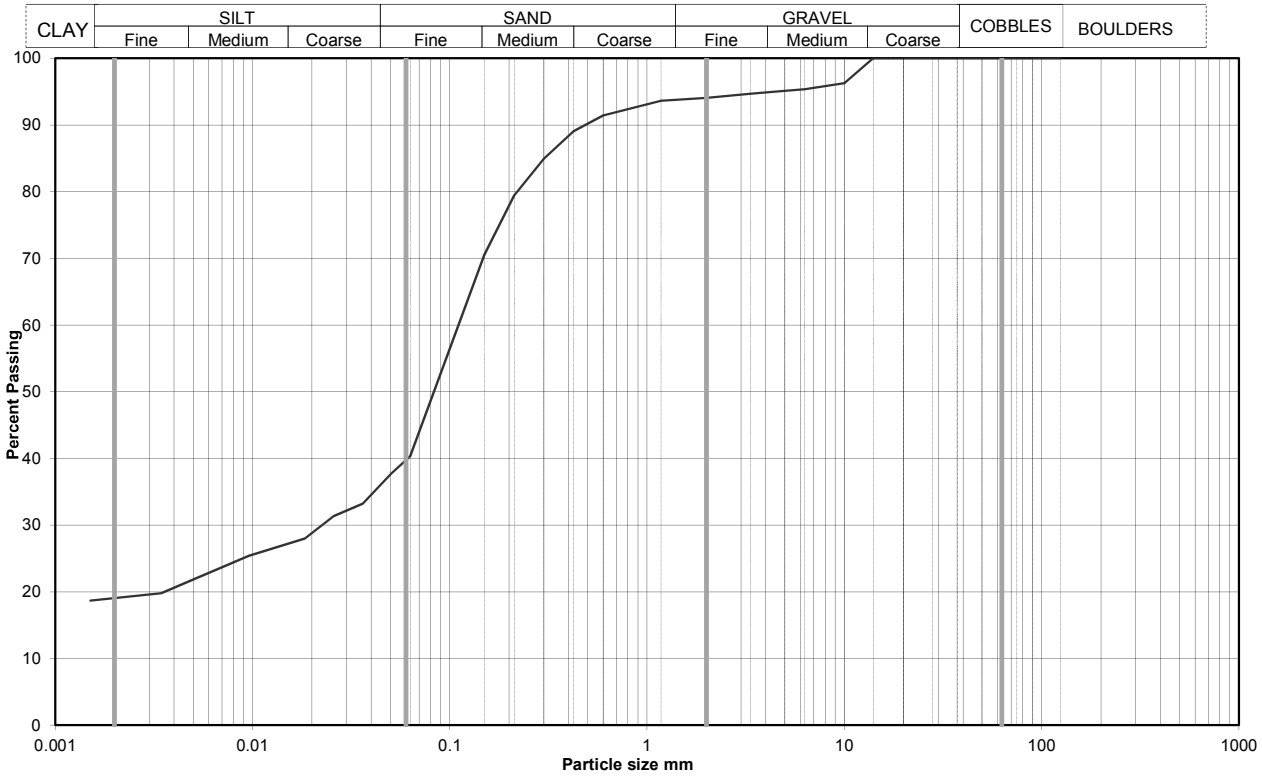
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150611121353

Hole No	BH304
Sample Depth (m BGL)	13.50
Sample Type and No	D37
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	40
90	100	0.0505	38
75	100	0.0362	33
63	100	0.0258	31
50	100	0.0184	28
37.5	100	0.0096	25
28	100	0.0048	22
20	100	0.0034	20
14	100	0.0015	19
10	96		
6.3	95		
5.0	95		
3.35	95		
2.00	94		
1.18	94	Particle density, Mg/m3	
0.600	91		
0.425	89	2.65 assumed	
0.300	85	Dry mass of sample, kg	
0.212	79		
0.150	71	1.0	
0.063	40		

Soil description	Dark greyish brown slightly gravelly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	6	6
	Sand	54	54
	Silt	21	21
	Clay	19	19

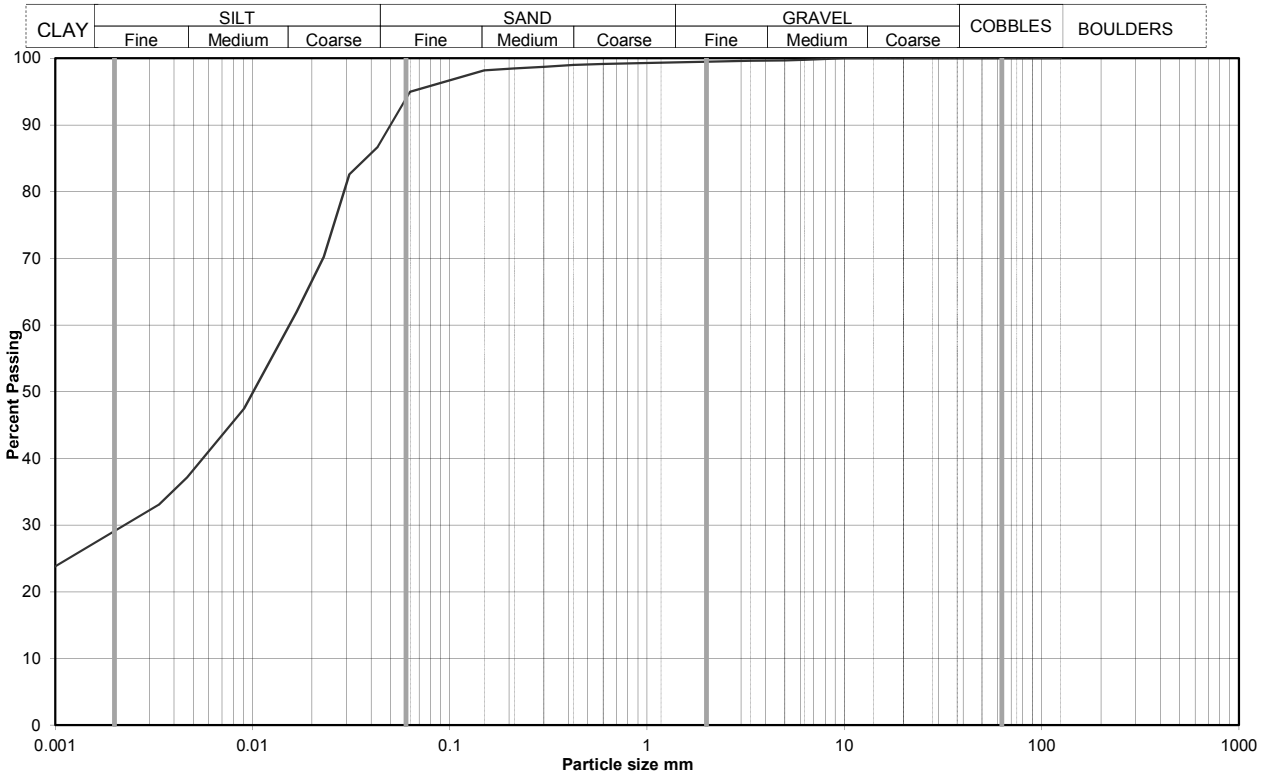
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111113

Hole No	BH305
Sample Depth (m BGL)	2.10
Sample Type and No	CS8
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	95
90	100	0.0431	87
75	100	0.0310	83
63	100	0.0230	70
50	100	0.0167	62
37.5	100	0.0091	47
28	100	0.0047	37
20	100	0.0033	33
14	100	0.0008	22
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	98		
0.150	98	0.6	
0.063	95		

Soil description	Brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	6	6
	Silt	64	64
	Clay	29	29

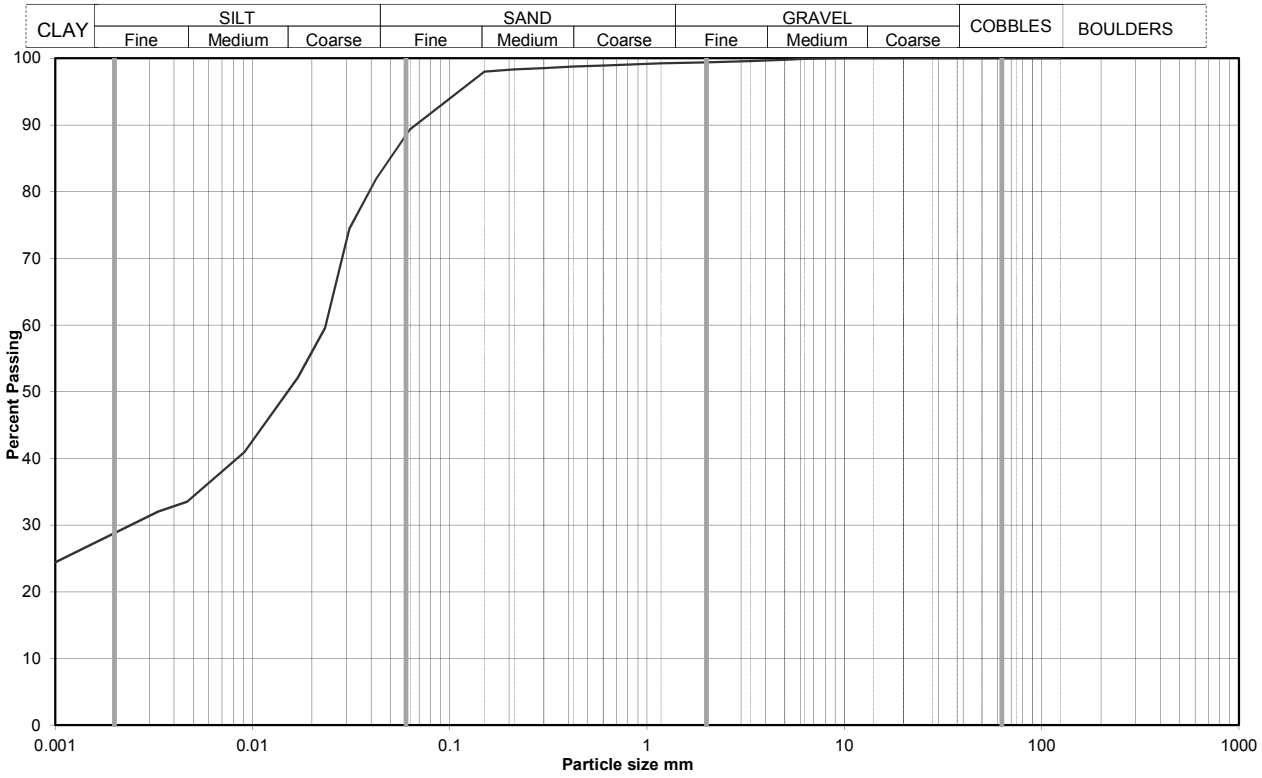
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111148

Hole No	BH305
Sample Depth (m BGL)	2.60
Sample Type and No	CS9
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	89
90	100	0.0424	82
75	100	0.0310	74
63	100	0.0233	60
50	100	0.0170	52
37.5	100	0.0091	41
28	100	0.0047	34
20	100	0.0033	32
14	100	0.0008	23
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	98		
0.150	98	0.6	
0.063	89		

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	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	11	11
	Silt	59	59
	Clay	29	29

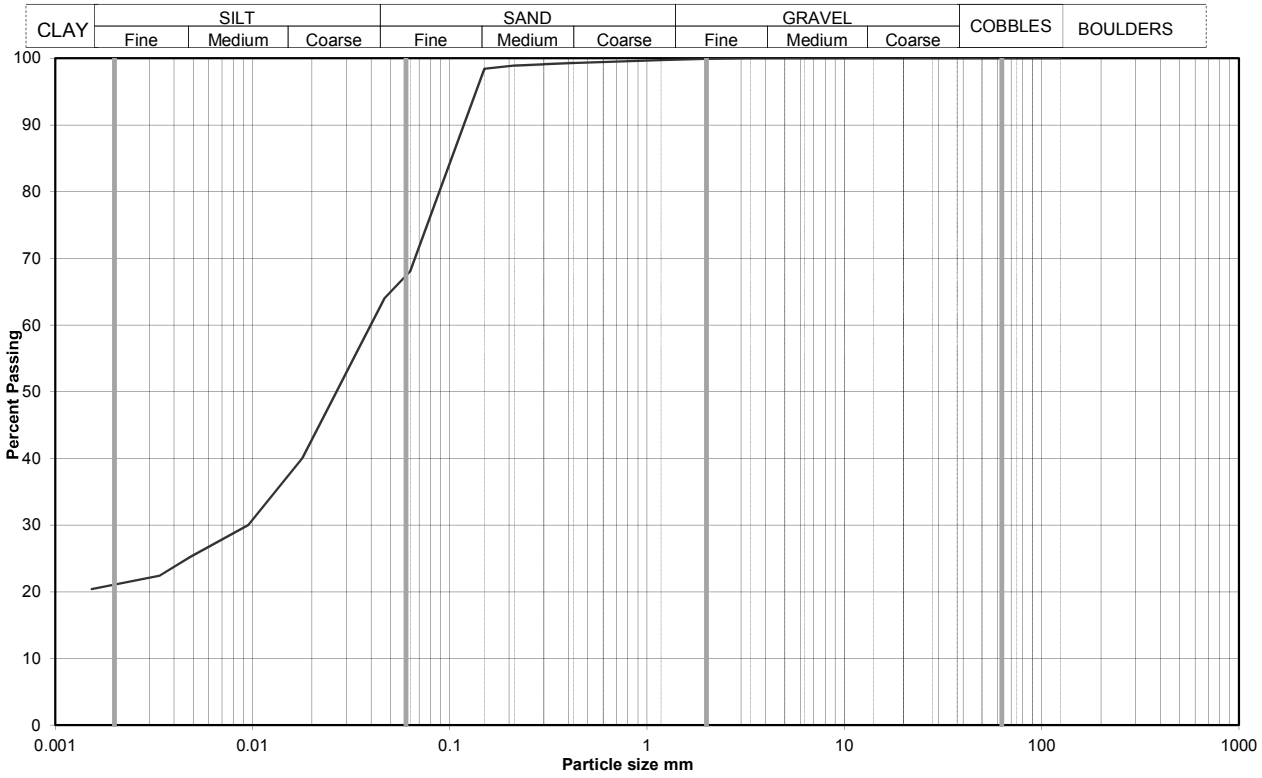
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111205

Hole No	BH305
Sample Depth (m BGL)	4.00
Sample Type and No	CS10
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	68
90	100	0.0467	64
75	100	0.0339	56
63	100	0.0246	48
50	100	0.0179	40
37.5	100	0.0095	30
28	100	0.0048	25
20	100	0.0034	22
14	100	0.0015	20
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	98	0.5	
0.063	68		

Soil description	Brown and dark grey organic slightly sandy CLAY		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	33	33
	Silt	46	46
	Clay	21	21

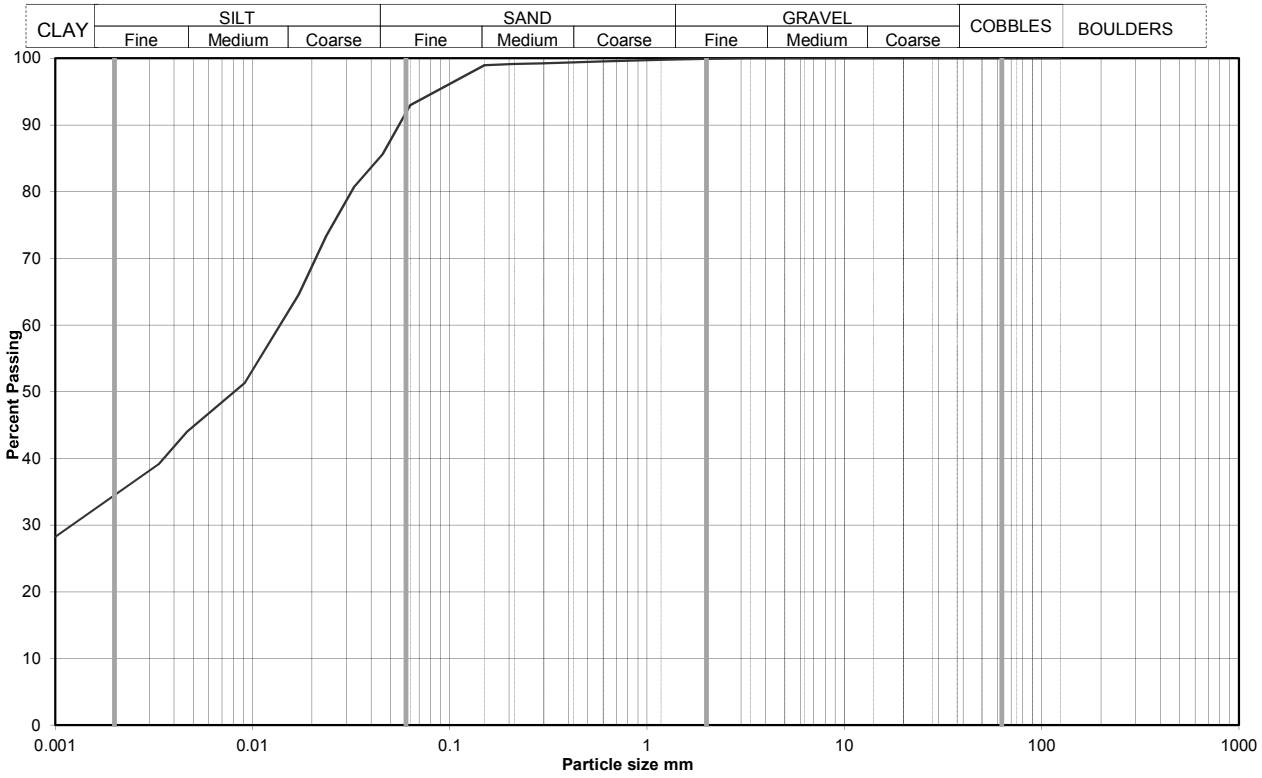
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111227

Hole No	BH305
Sample Depth (m BGL)	5.20
Sample Type and No	CS11
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	93
90	100	0.0456	86
75	100	0.0328	81
63	100	0.0237	73
50	100	0.0172	65
37.5	100	0.0092	51
28	100	0.0047	44
20	100	0.0033	39
14	100	0.0008	26
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	99	Dry mass of sample, kg	
0.212	99		
0.150	99	0.5	
0.063	93		

Soil description	Brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	8	8
	Silt	57	57
	Clay	35	35

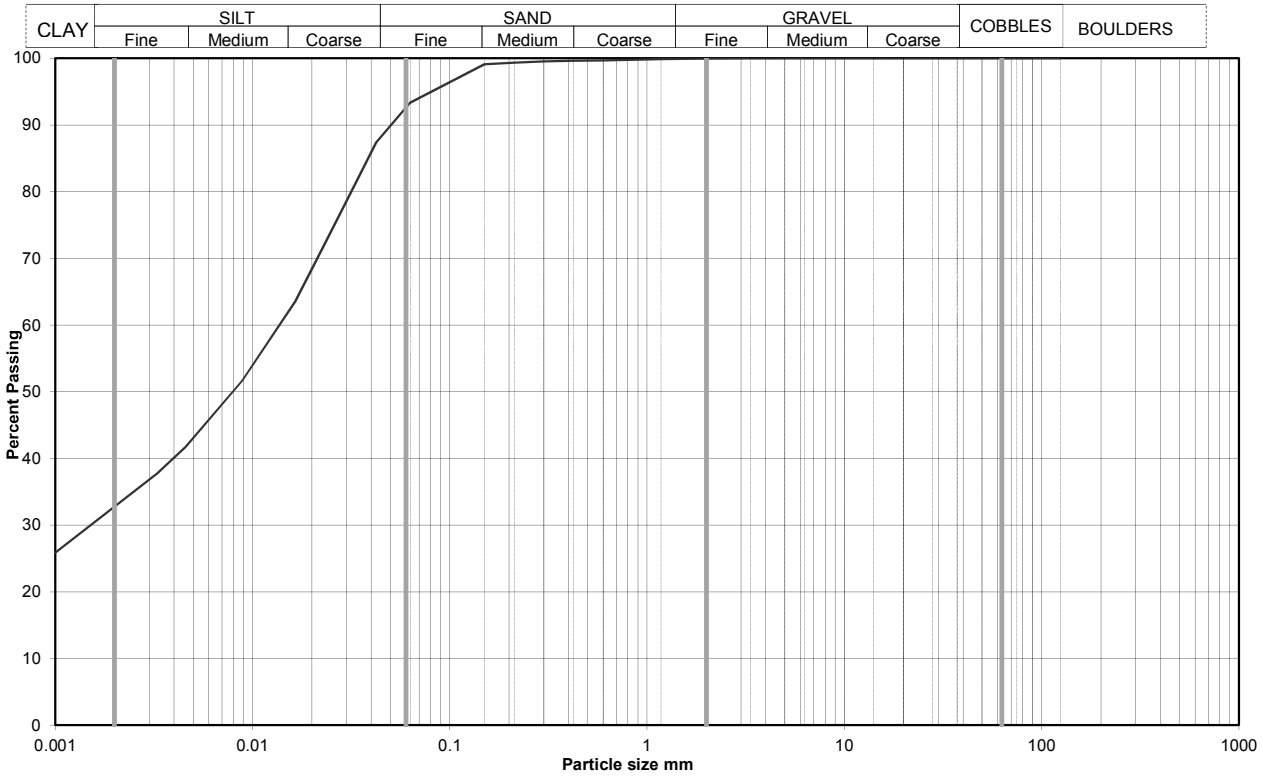
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111345

Hole No	BH305
Sample Depth (m BGL)	6.40
Sample Type and No	CS12
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	93
90	100	0.0424	87
75	100	0.0310	79
63	100	0.0226	71
50	100	0.0165	64
37.5	100	0.0089	52
28	100	0.0046	42
20	100	0.0033	38
14	100	0.0008	24
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	99	0.3	
0.063	93		

Soil description	Brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	7	7
	Silt	60	60
	Clay	33	33

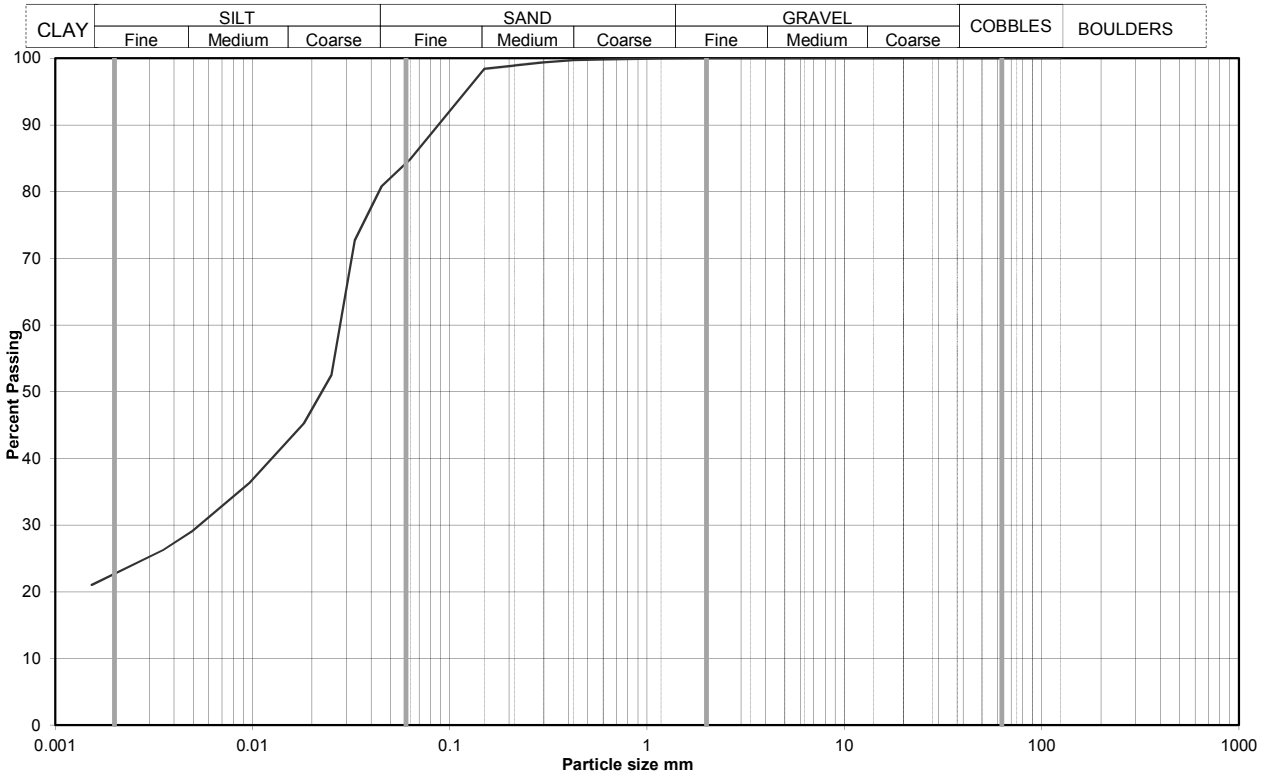
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111409

Hole No	BH305
Sample Depth (m BGL)	7.90
Sample Type and No	CS13
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	85
90	100	0.0453	81
75	100	0.0331	73
63	100	0.0252	53
50	100	0.0182	45
37.5	100	0.0097	36
28	100	0.0049	29
20	100	0.0035	26
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	2.54 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	98	0.3	
0.063	85		

Soil description	Brown and dark grey slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	16	16
	Silt	61	61
	Clay	23	23

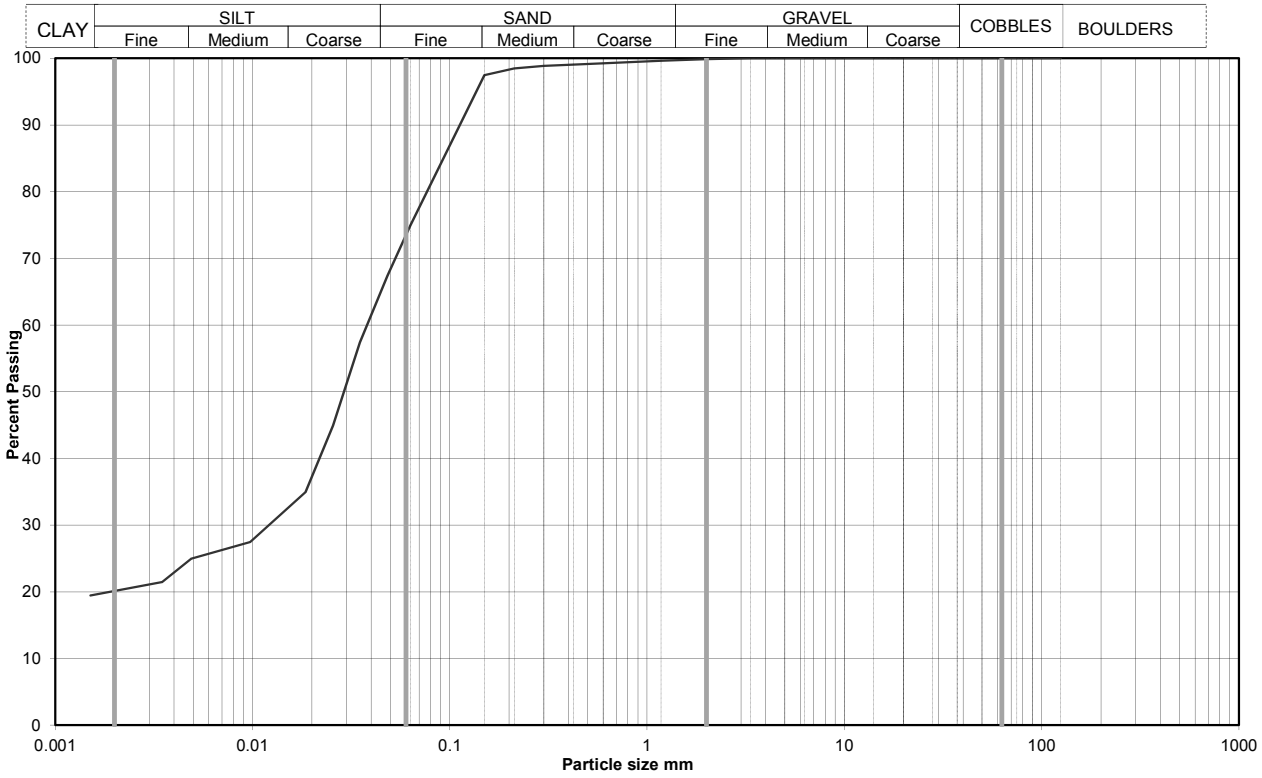
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111434

Hole No	BH305
Sample Depth (m BGL)	9.60
Sample Type and No	CS14
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	75
90	100	0.0483	67
75	100	0.0351	57
63	100	0.0256	45
50	100	0.0186	35
37.5	100	0.0097	27
28	100	0.0049	25
20	100	0.0035	21
14	100	0.0015	19
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	98		
0.150	97	0.6	
0.063	75		

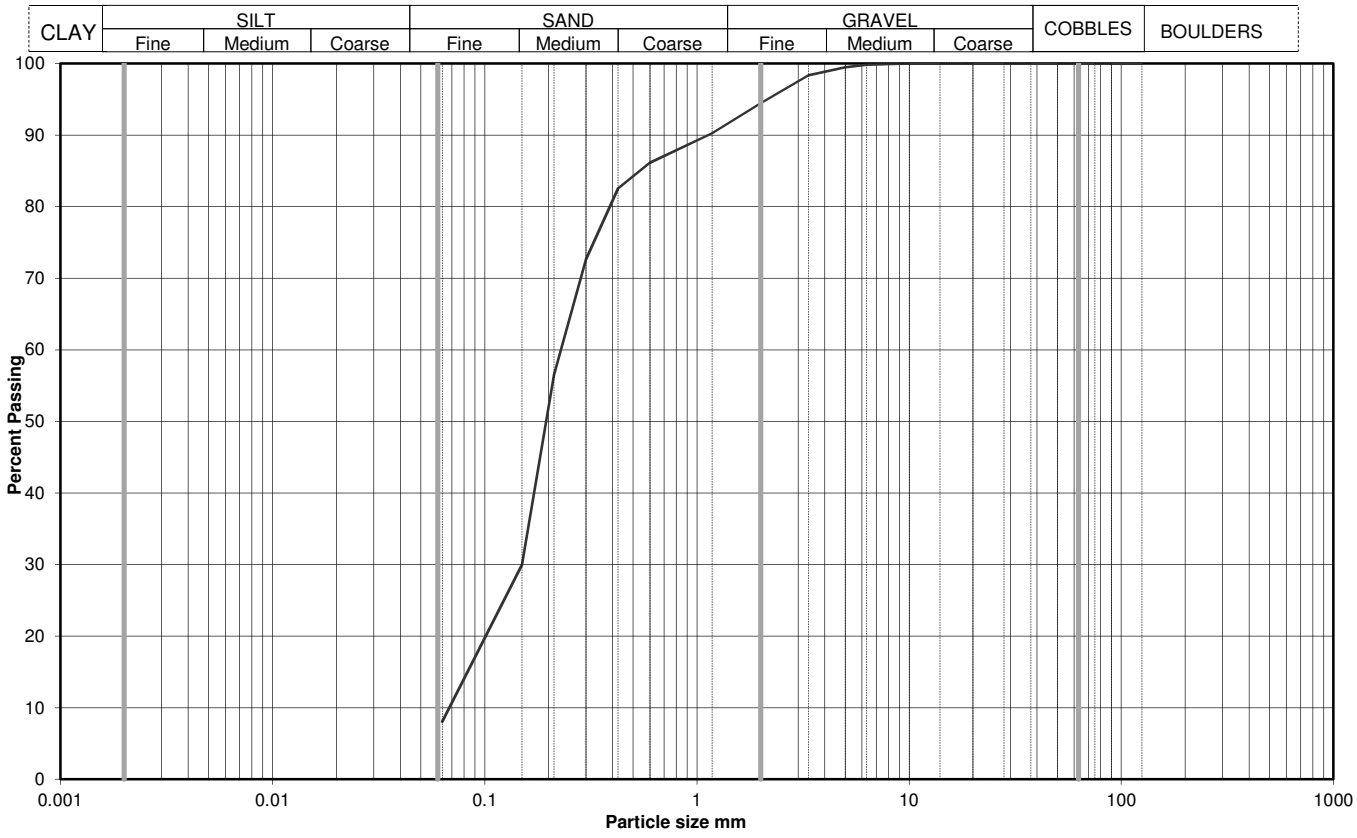
Soil description	Dark brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	26	26
	Silt	54	54
	Clay	20	20

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH305
		Sample Depth (m BGL)	11.00
	A5049-1520150630111457	Sample Type and No	CS15
		Specimen 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	99		
3.35	98		
2.00	94		
1.18	90		
0.600	86		
0.425	83		
0.300	73	Dry mass of sample, kg	
0.212	57		
0.150	30	0.7	
0.063	8		

Soil description	Orange brown mottled black SAND with occasional shells.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	6	6
	Sand	86	86
	Silt	silt+clay =	
	Clay	8	8

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

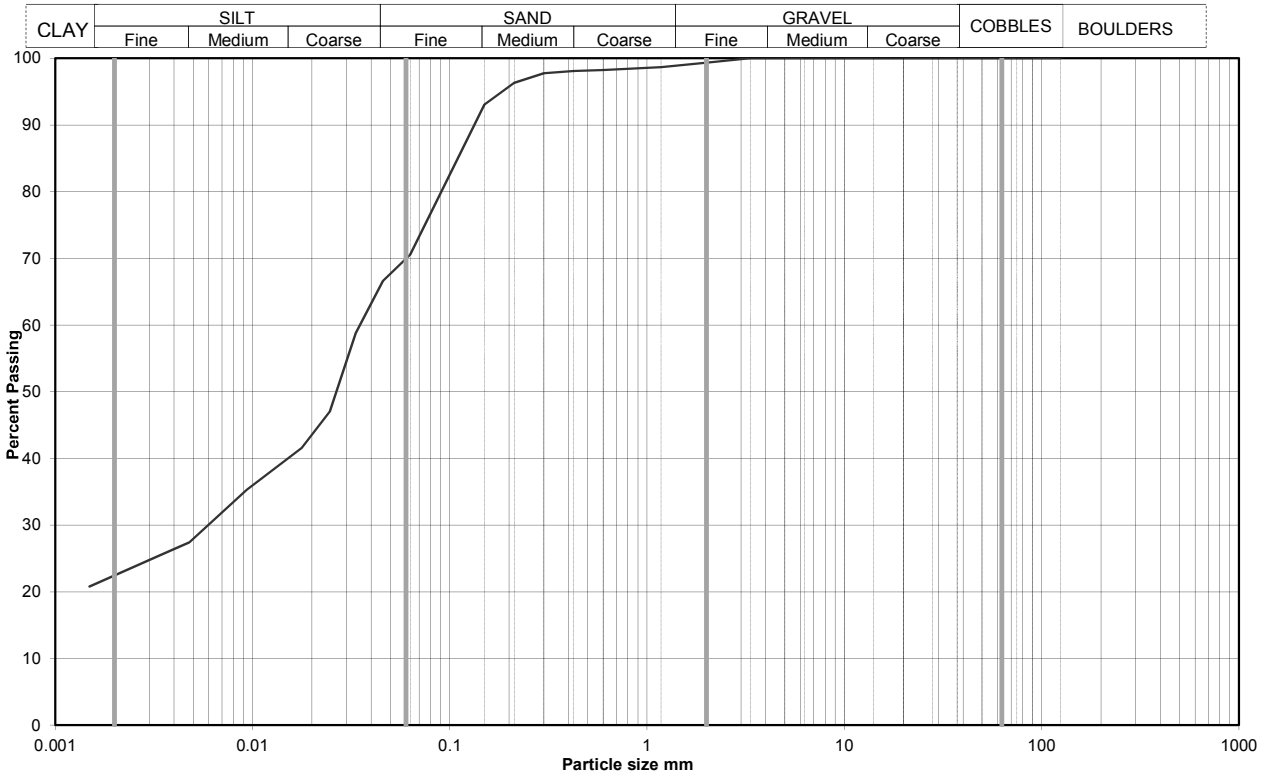
Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111520

Hole No	BH305
Sample Depth (m BGL)	12.10
Sample Type and No	CS16
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	71
90	100	0.0459	67
75	100	0.0334	59
63	100	0.0247	47
50	100	0.0178	42
37.5	100	0.0094	35
28	100	0.0048	27
20	100	0.0034	25
14	100	0.0015	21
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	98		
0.425	98	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	96		
0.150	93	0.4	
0.063	71		

Soil description	Dark grey slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	29	29
	Silt	48	48
	Clay	22	22

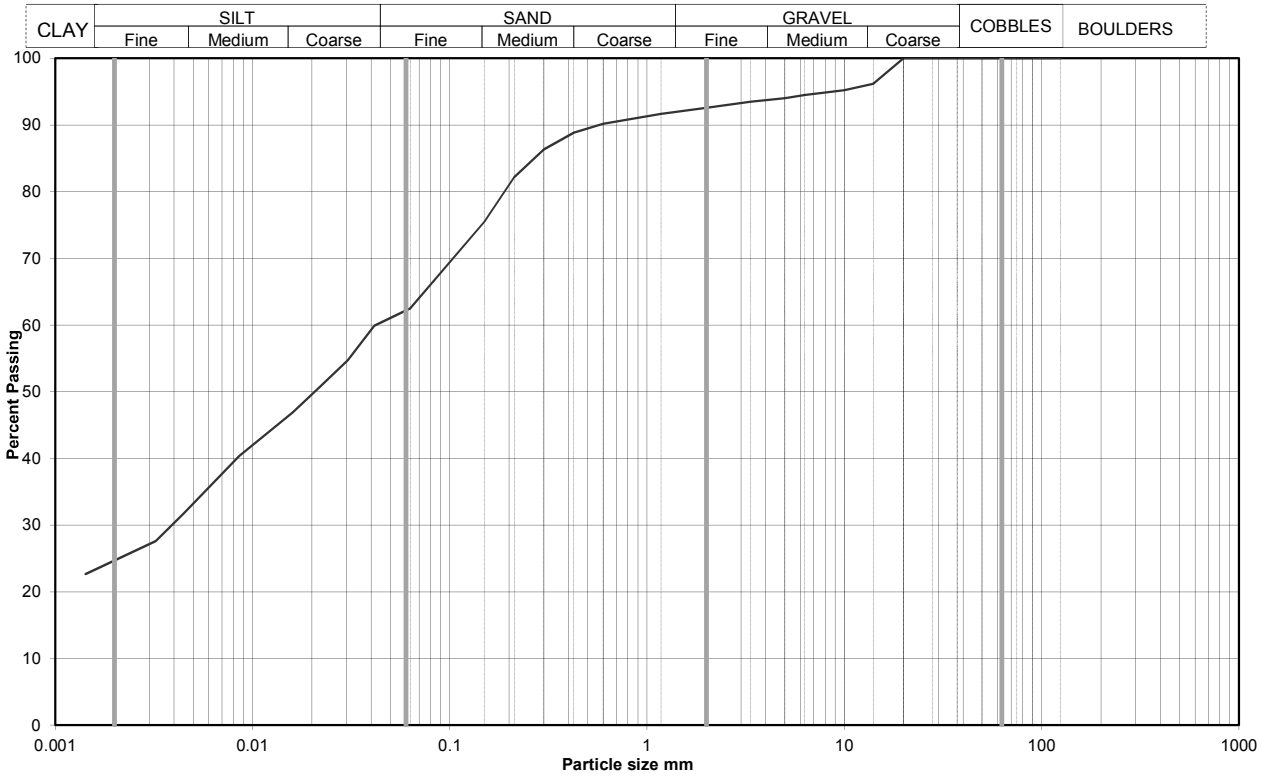
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111608

Hole No	BH305
Sample Depth (m BGL)	15.30
Sample Type and No	CS17
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	63
90	100	0.0415	60
75	100	0.0304	55
63	100	0.0221	51
50	100	0.0160	47
37.5	100	0.0086	40
28	100	0.0045	32
20	100	0.0032	28
14	96	0.0014	23
10	95		
6.3	94		
5.0	94		
3.35	93		
2.00	93		
1.18	92	Particle density, Mg/m3	
0.600	90		
0.425	89	2.65 assumed	
0.300	86	Dry mass of sample, kg	
0.212	82		
0.150	75	0.6	
0.063	63		

Soil description	Dark brown slightly sandy slightly gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	7	7
	Sand	30	30
	Silt	38	38
	Clay	25	25

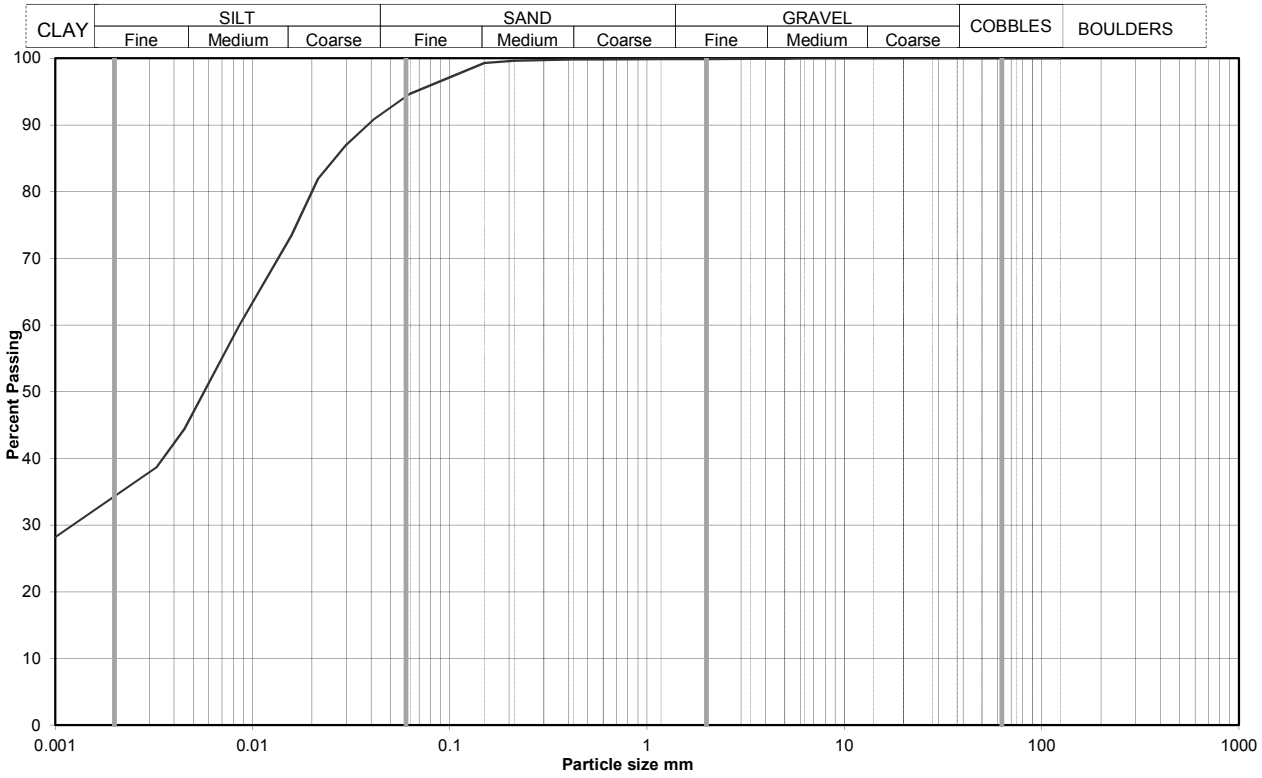
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111652

Hole No	BH305
Sample Depth (m BGL)	19.80
Sample Type and No	CS18
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	95
90	100	0.0413	91
75	100	0.0297	87
63	100	0.0215	82
50	100	0.0158	73
37.5	100	0.0086	60
28	100	0.0045	44
20	100	0.0033	39
14	100	0.0008	26
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	0.6	
0.063	95		

Soil description	Dark brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	6	6
	Silt	60	60
	Clay	34	34

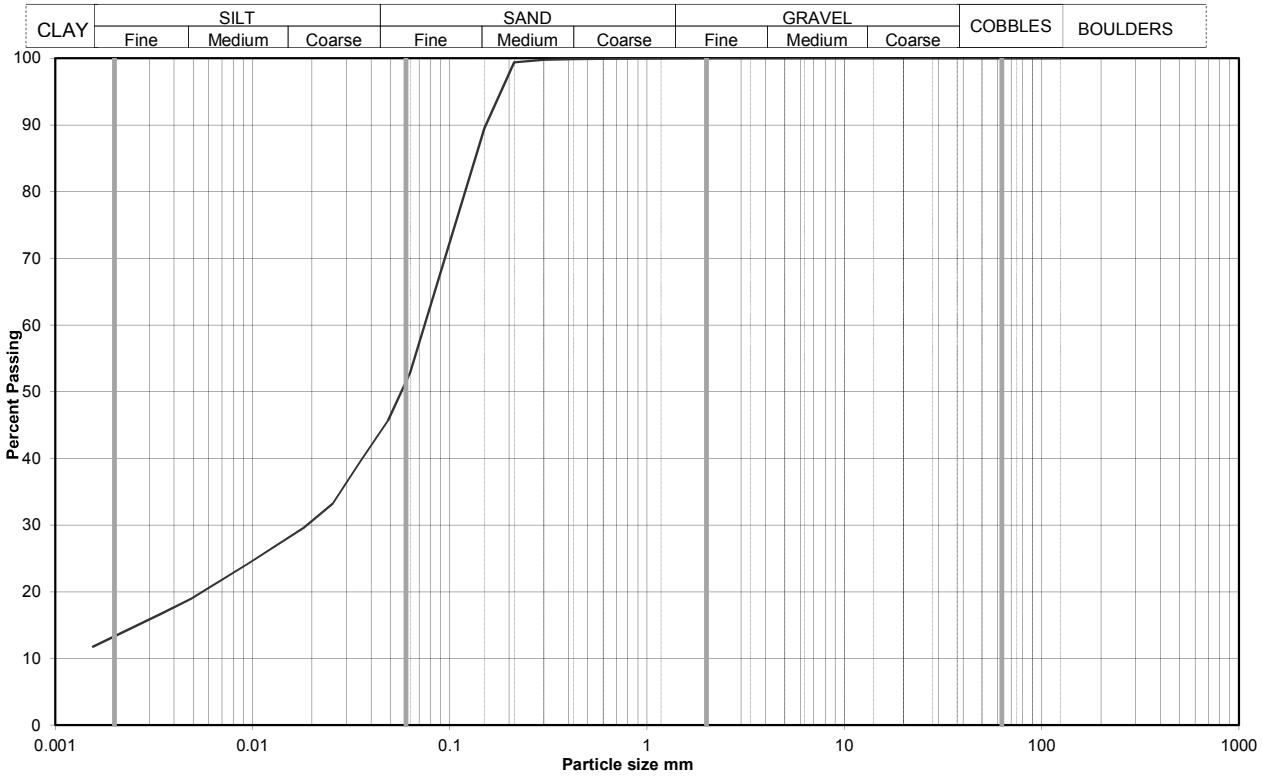
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150630111715

Hole No	BH305
Sample Depth (m BGL)	24.50
Sample Type and No	CS19
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	53
90	100	0.0488	46
75	100	0.0353	40
63	100	0.0255	33
50	100	0.0182	30
37.5	100	0.0096	24
28	100	0.0049	19
20	100	0.0035	17
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	100	Dry mass of sample, kg	
0.212	99		
0.150	89	0.6	
0.063	53		

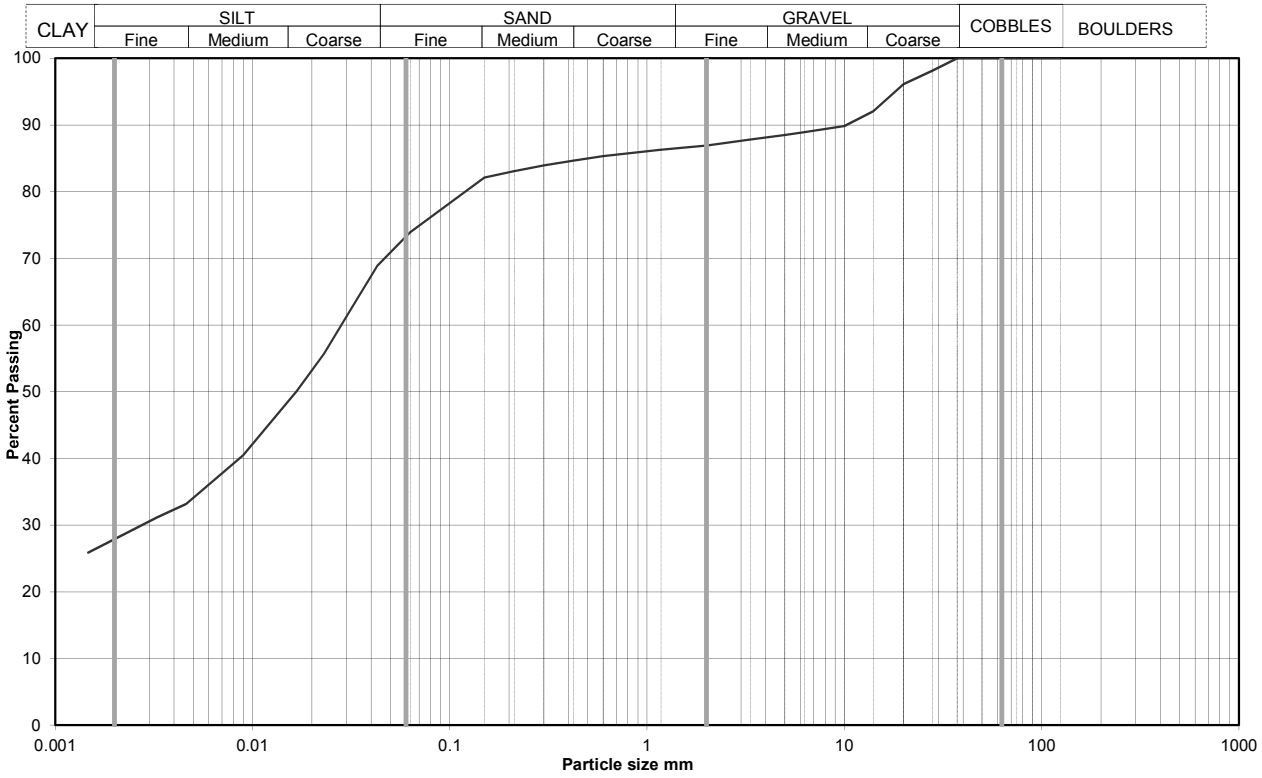
Soil description	Orange brown sandy clayey SILT.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	49	49
	Silt	38	38
	Clay	13	13

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH306
		Sample Depth (m BGL)	0.50
	A5049-15BH306B320150519113230	Sample Type and No	B3
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	74
90	100	0.0433	69
75	100	0.0316	62
63	100	0.0231	56
50	100	0.0167	50
37.5	100	0.0090	40
28	98	0.0046	33
20	96	0.0033	31
14	92	0.0015	26
10	90		
6.3	89		
5.0	88		
3.35	88		
2.00	87		
1.18	86	Particle density, Mg/m3	
0.600	85		
0.425	85	2.65 assumed	
0.300	84	Dry mass of sample, kg	
0.212	83		
0.150	82	8.5	
0.063	74		

Soil description	Brown slightly sandy slightly gravelly CLAY with frequent rootlets.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	13	13
	Sand	14	14
	Silt	45	45
	Clay	28	28

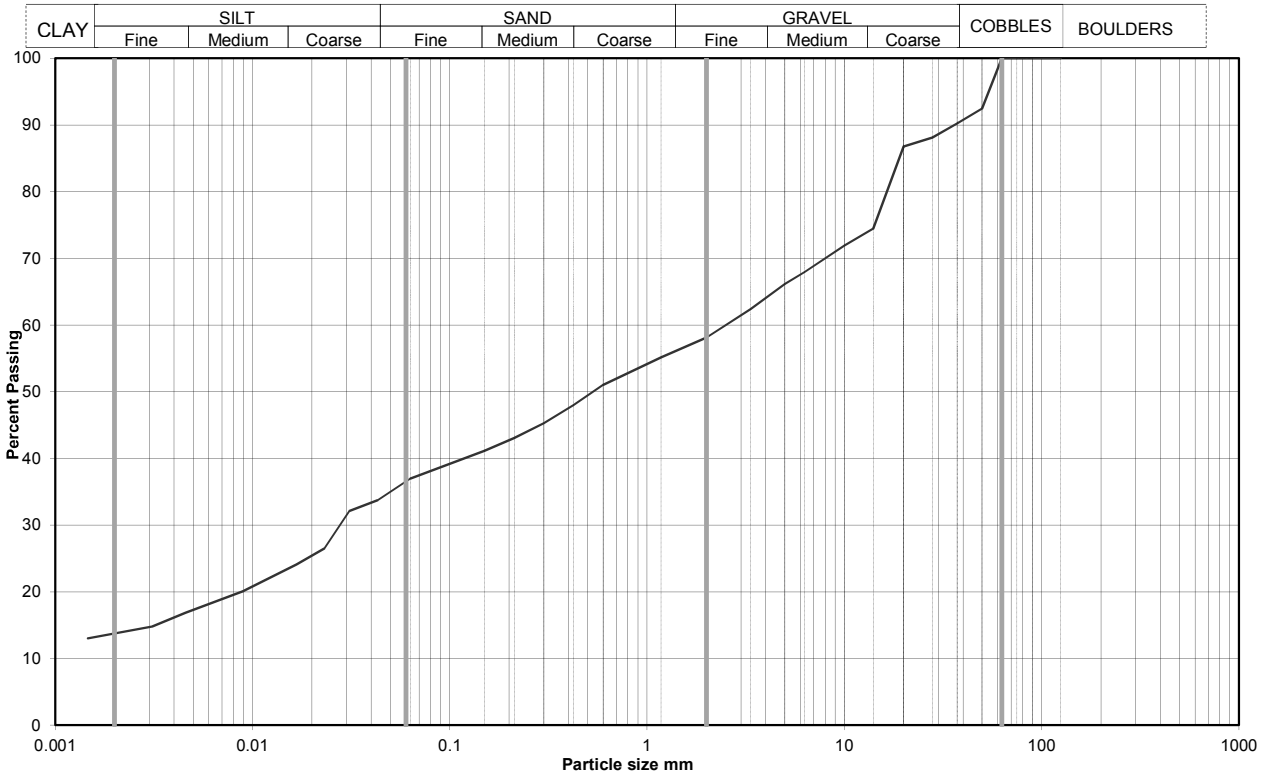
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150609054313

Hole No	BH306
Sample Depth (m BGL)	1.20
Sample Type and No	B6
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	37
90	100	0.0431	34
75	100	0.0310	32
63	100	0.0232	27
50	92	0.0167	24
37.5	90	0.0089	20
28	88	0.0046	17
20	87	0.0031	15
14	74	0.0015	13
10	72		
6.3	68		
5.0	66		
3.35	62		
2.00	58		
1.18	55	Particle density, Mg/m3	
0.600	51		
0.425	48	2.65 assumed	
0.300	45	Dry mass of sample, kg	
0.212	43		
0.150	41	10.4	
0.063	37		

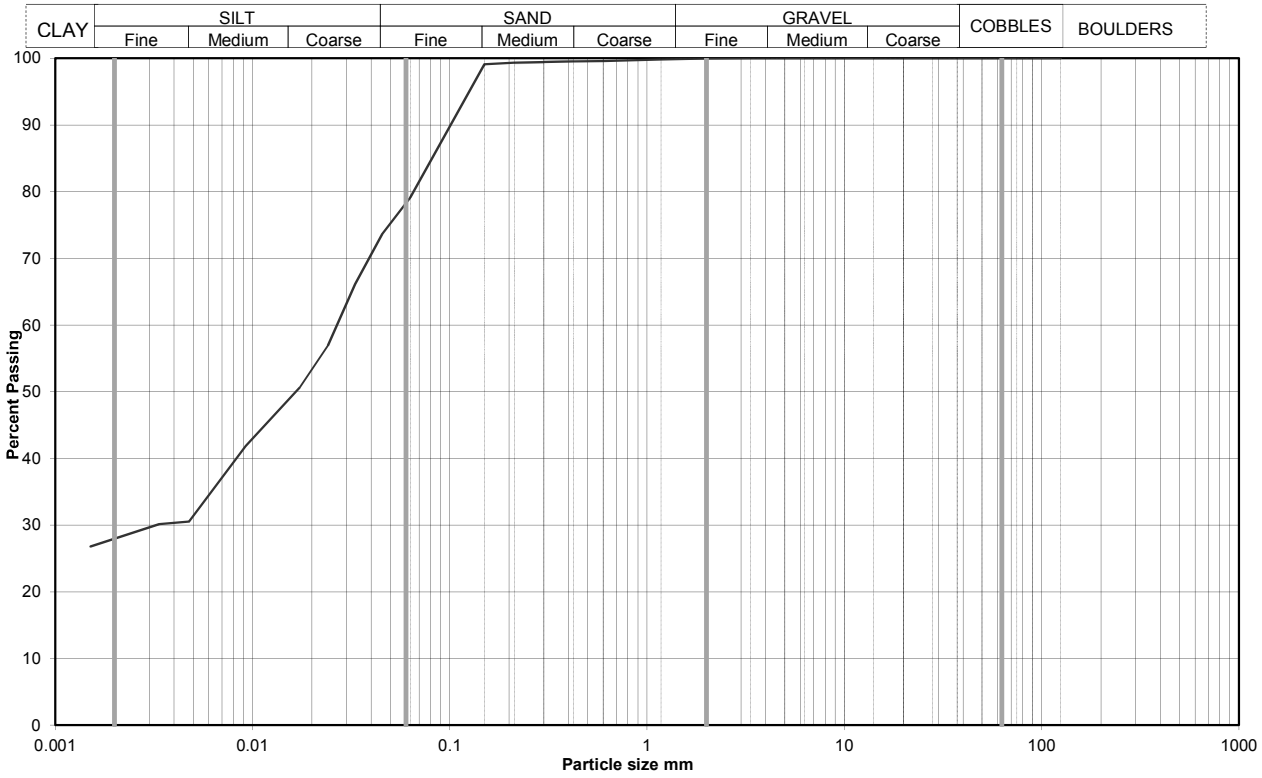
Soil description	Brown slightly sandy gravelly CLAY with occasional rootlets.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	42	42
	Sand	22	22
	Silt	23	23
	Clay	13	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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH306
		Sample Depth (m BGL)	5.00
	A5049-1520150609054640	Sample Type and No	U19
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	79
90	100	0.0456	74
75	100	0.0331	66
63	100	0.0241	57
50	100	0.0174	51
37.5	100	0.0092	42
28	100	0.0048	31
20	100	0.0034	30
14	100	0.0015	27
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	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	99	3.1	
0.063	79		

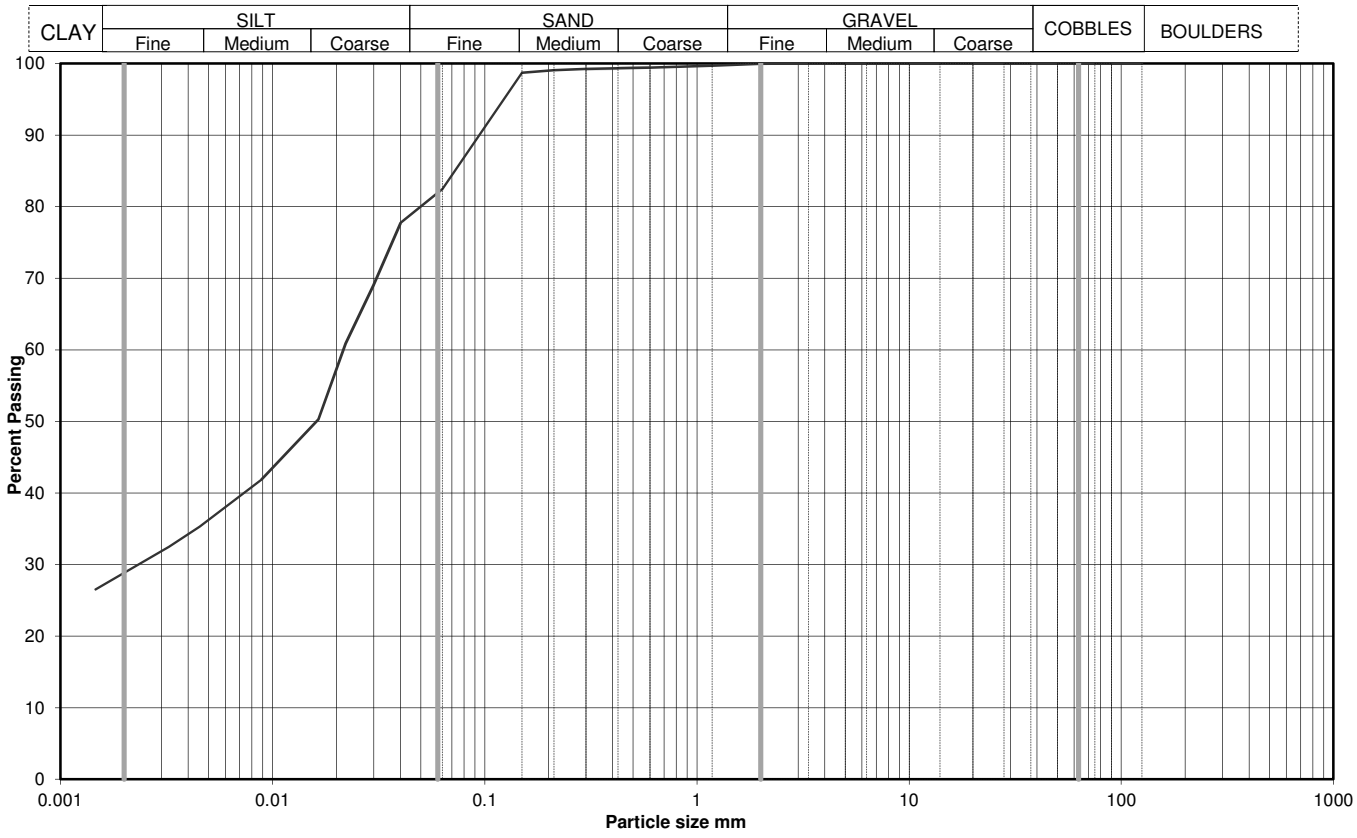
Soil description	Soft brownish grey sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	22	22
	Silt	50	50
	Clay	28	28

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH306
		Sample Depth (m BGL)	8.50
	A5049-1520150611123515	Sample Type and No	U27
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	82
90	100	0.0402	78
75	100	0.0299	69
63	100	0.0221	61
50	100	0.0165	50
37.5	100	0.0088	42
28	100	0.0045	35
20	100	0.0032	32
14	100	0.0015	27
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	99	0.7	
0.063	82		

Soil description	Soft greyish brown SILT.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	18	18
	Silt	53	53
	Clay	29	29

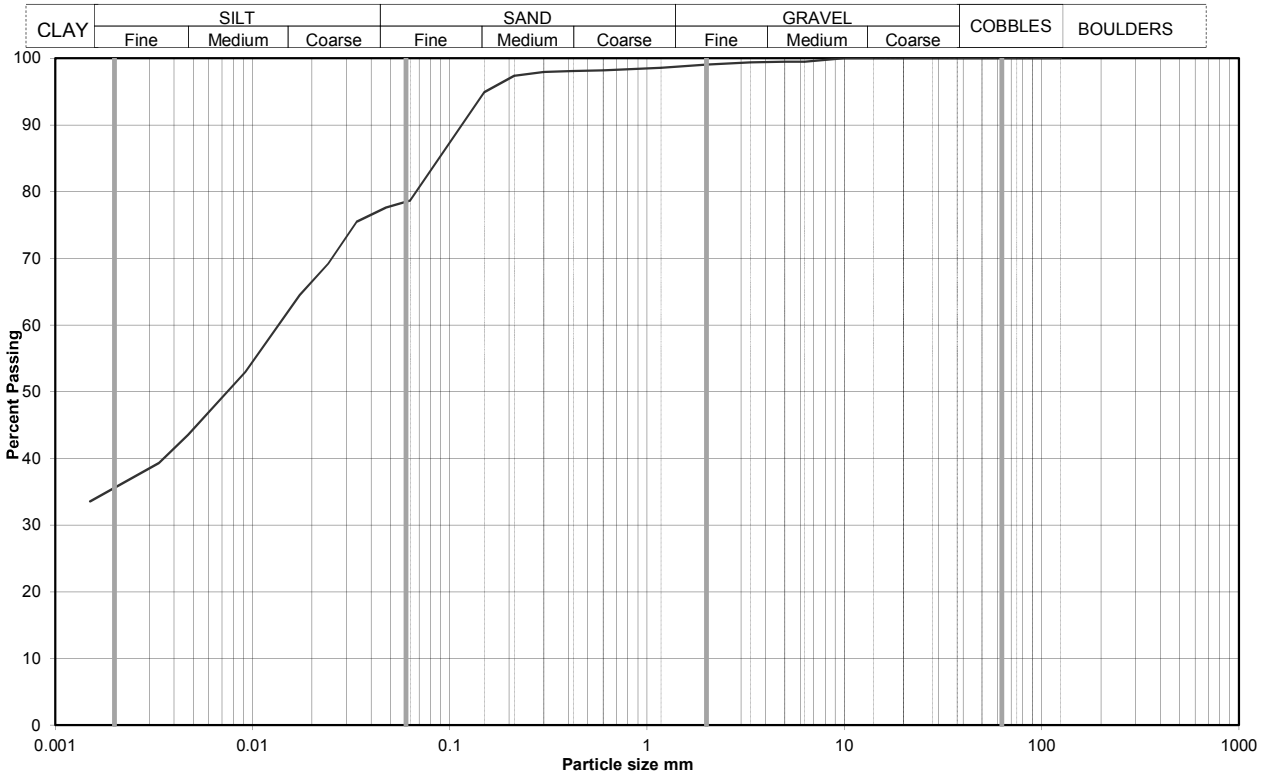
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150611123805

Hole No	BH306
Sample Depth (m BGL)	11.00
Sample Type and No	U34
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	79
90	100	0.0475	78
75	100	0.0338	75
63	100	0.0243	69
50	100	0.0174	64
37.5	100	0.0092	53
28	100	0.0047	44
20	100	0.0034	39
14	100	0.0015	34
10	100		
6.3	99		
5.0	99		
3.35	99		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	98		
0.425	98	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	97		
0.150	95	3.6	
0.063	79		

Soil description	Soft to firm greyish brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	21	21
	Silt	43	43
	Clay	35	35

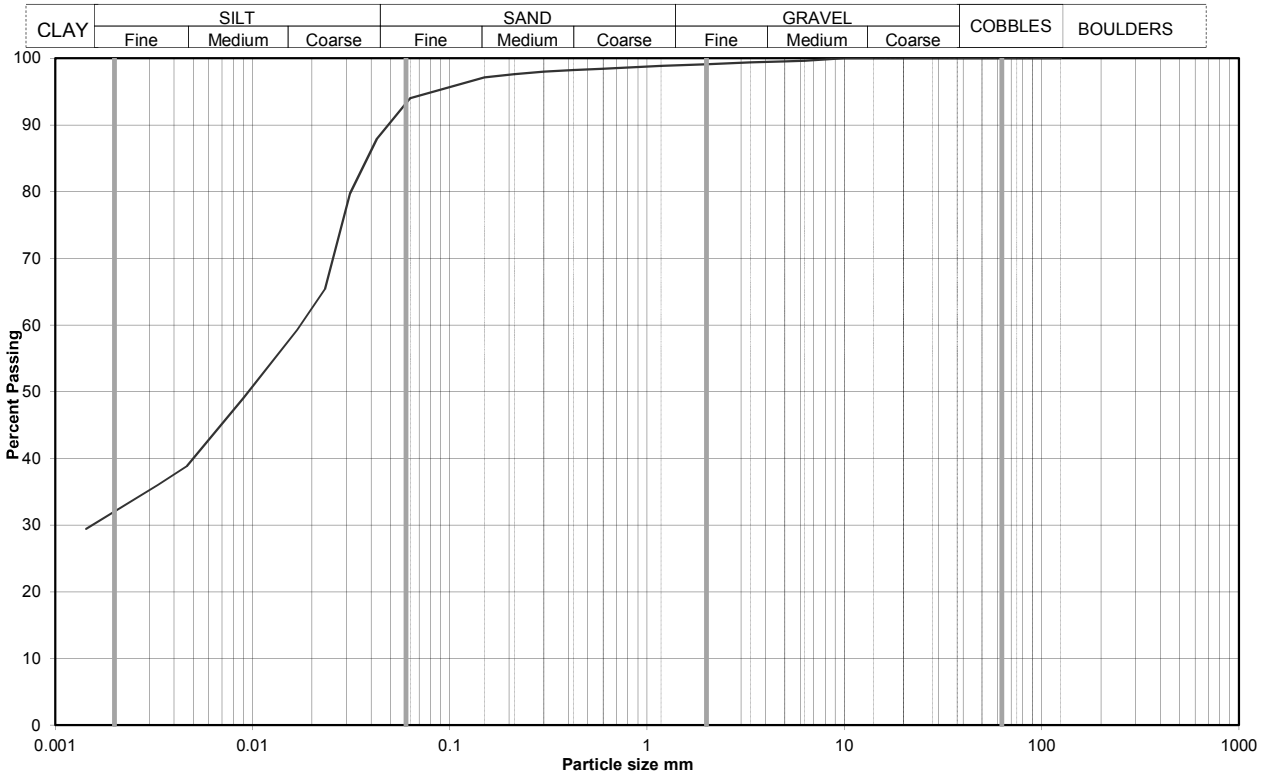
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150609111605

Hole No	BH307
Sample Depth (m BGL)	1.20
Sample Type and No	B2
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	94
90	100	0.0428	88
75	100	0.0313	80
63	100	0.0233	65
50	100	0.0169	59
37.5	100	0.0090	49
28	100	0.0046	39
20	100	0.0033	36
14	100	0.0014	29
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	98		
0.425	98	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	98		
0.150	97	7.1	
0.063	94		

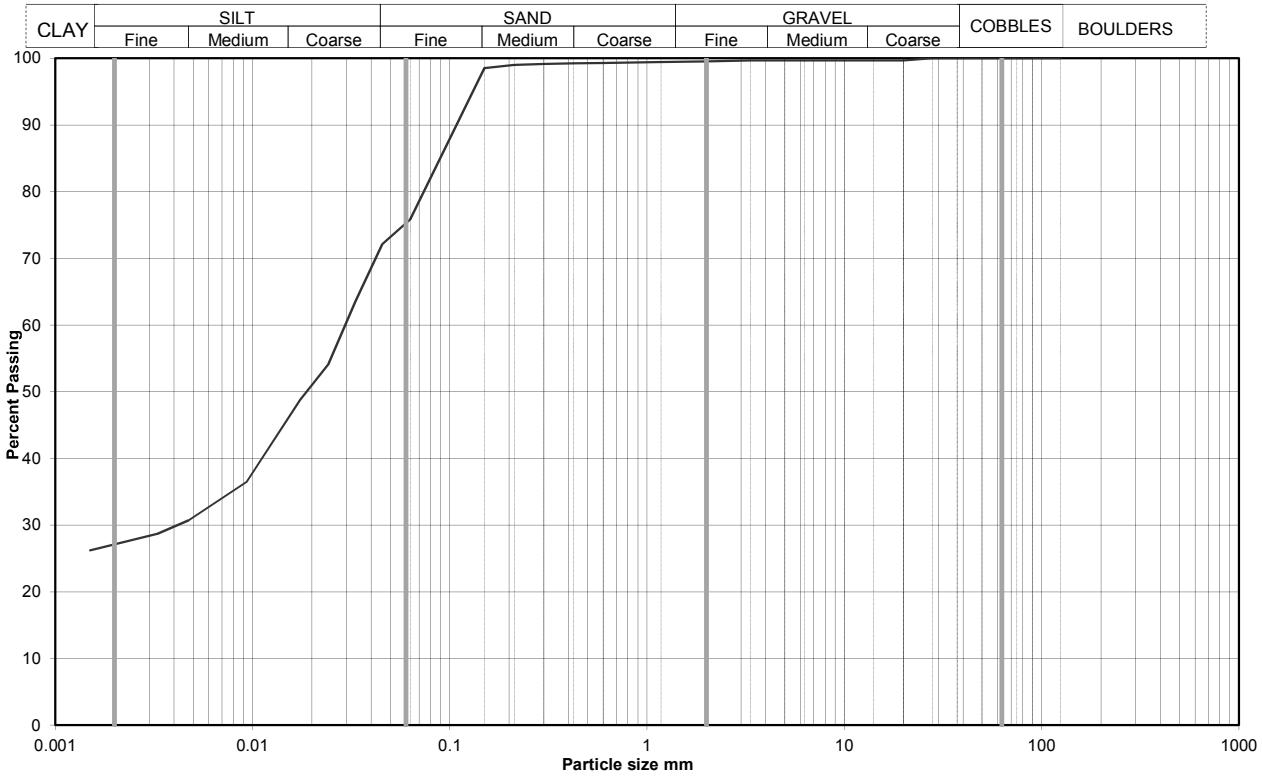
Soil description	Brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	6	6
	Silt	61	61
	Clay	32	32

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH307
		Sample Depth (m BGL)	4.20
	A5049-1520150609111840	Sample Type and No	B11
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	76
90	100	0.0456	72
75	100	0.0332	64
63	100	0.0243	54
50	100	0.0175	49
37.5	100	0.0094	36
28	100	0.0048	31
20	100	0.0033	29
14	100	0.0015	26
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	99	11.8	
0.063	76		

Soil description	Dark brown slightly sandy slightly gravelly silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	24	24
	Silt	49	49
	Clay	27	27

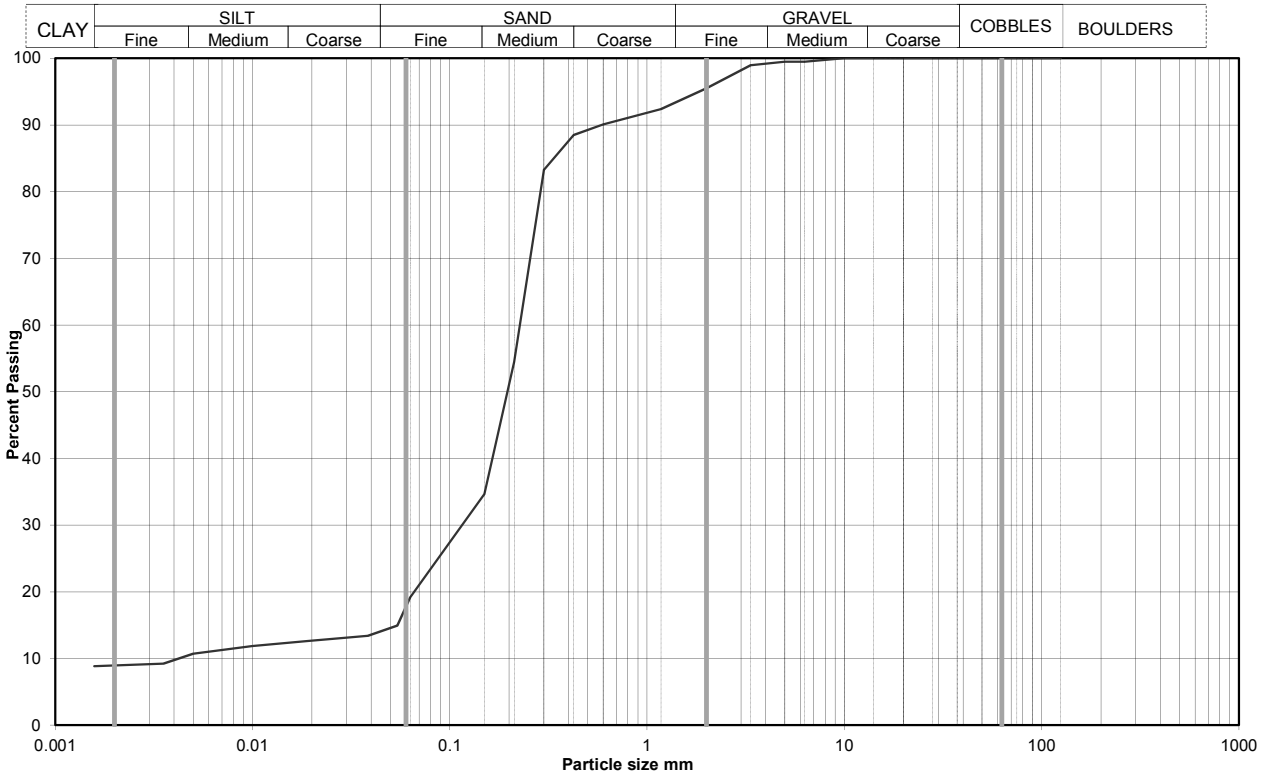
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150609112301

Hole No	BH307
Sample Depth (m BGL)	10.50
Sample Type and No	B27
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	19
90	100	0.0542	15
75	100	0.0385	13
63	100	0.0273	13
50	100	0.0193	13
37.5	100	0.0100	12
28	100	0.0050	11
20	100	0.0035	9
14	100	0.0016	9
10	100		
6.3	99		
5.0	99		
3.35	99		
2.00	96		
1.18	92	Particle density, Mg/m3	
0.600	90		
0.425	88	2.65 assumed	
0.300	83	Dry mass of sample, kg	
0.212	54		
0.150	35	6.9	
0.063	19		

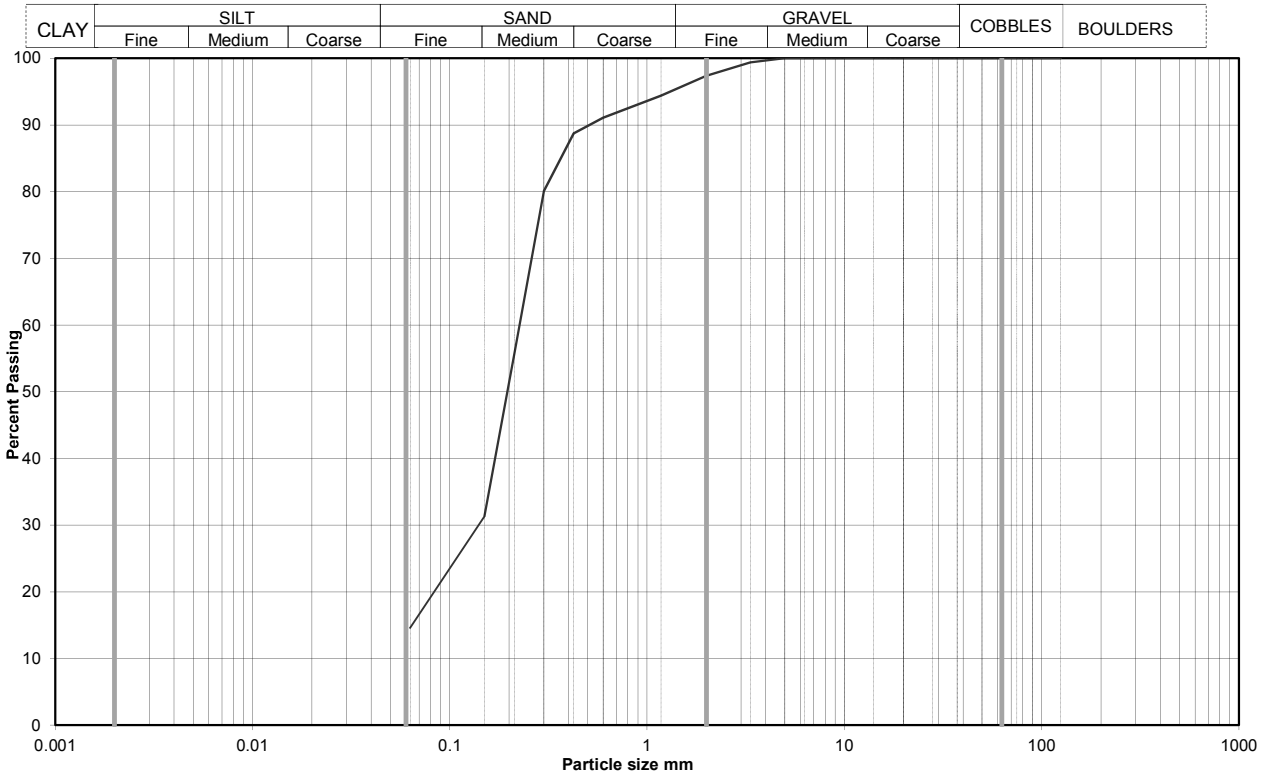
Soil description	Dark grey slightly gravelly clayey SAND with occasional shell fragments.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	4	4
	Sand	78	78
	Silt	9	9
	Clay	9	9

Uniformity Coefficient	D_{60} / D_{10}	54

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH307
		Sample Depth (m BGL)	11.30
	A5049-1520150609112315	Sample Type and No	B29
		Specimen 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	99		
2.00	97		
1.18	94		
0.600	91		
0.425	89		
0.300	80	Dry mass of sample, kg	
0.212	56		
0.150	31	14.2	
0.063	15		

Soil description	Black slightly gravelly sandy SILT.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	3	3
	Sand	83	83
	Silt	silt+clay =	
	Clay	14	14

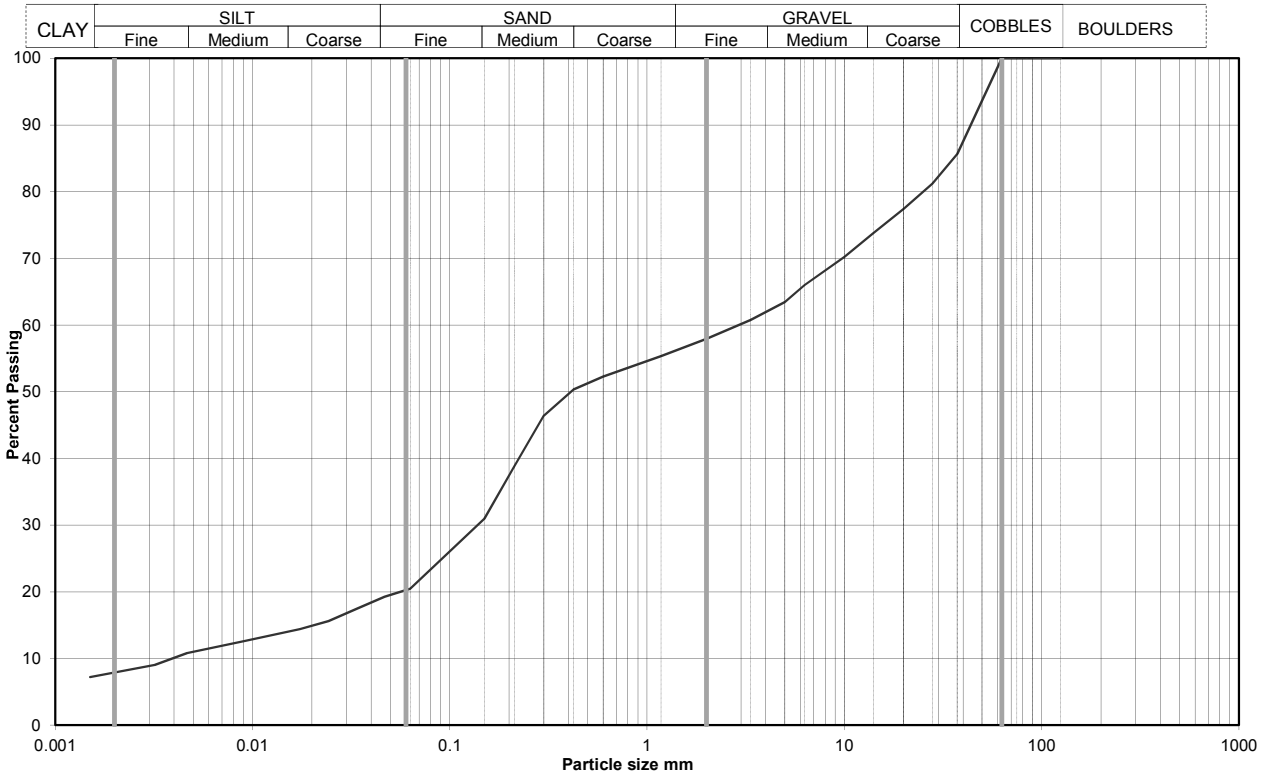
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150609112420

Hole No	BH307
Sample Depth (m BGL)	13.50
Sample Type and No	B35
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	20
90	100	0.0467	19
75	100	0.0337	17
63	100	0.0243	16
50	94	0.0174	14
37.5	86	0.0092	13
28	81	0.0047	11
20	77	0.0032	9
14	74	0.0015	7
10	70		
6.3	66		
5.0	63		
3.35	61		
2.00	58		
1.18	55	Particle density, Mg/m3	
0.600	52		
0.425	50	2.65 assumed	
0.300	46	Dry mass of sample, kg	
0.212	39		
0.150	31	11.8	
0.063	20		

Soil description	Black sandy gravelly CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	42	42
	Sand	38	38
	Silt	12	12
	Clay	8	8

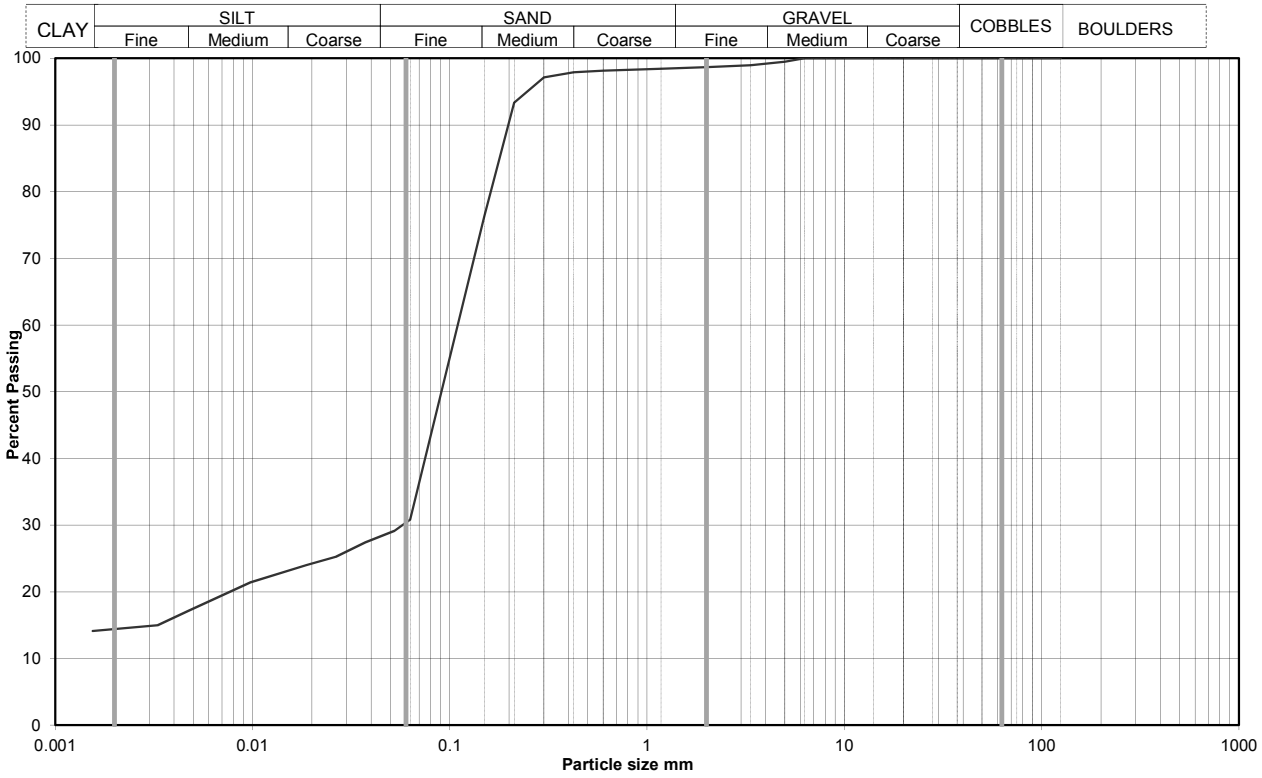
Uniformity Coefficient	D_{60} / D_{10}	719

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150611010100

Hole No	BH307
Sample Depth (m BGL)	23.30
Sample Type and No	B65
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	31
90	100	0.0525	29
75	100	0.0373	27
63	100	0.0265	25
50	100	0.0188	24
37.5	100	0.0098	21
28	100	0.0047	17
20	100	0.0033	15
14	100	0.0015	14
10	100		
6.3	100		
5.0	99		
3.35	99		
2.00	99		
1.18	98	Particle density, Mg/m3	
0.600	98		
0.425	98	2.65 assumed	
0.300	97	Dry mass of sample, kg	
0.212	93		
0.150	76	4.0	
0.063	31		

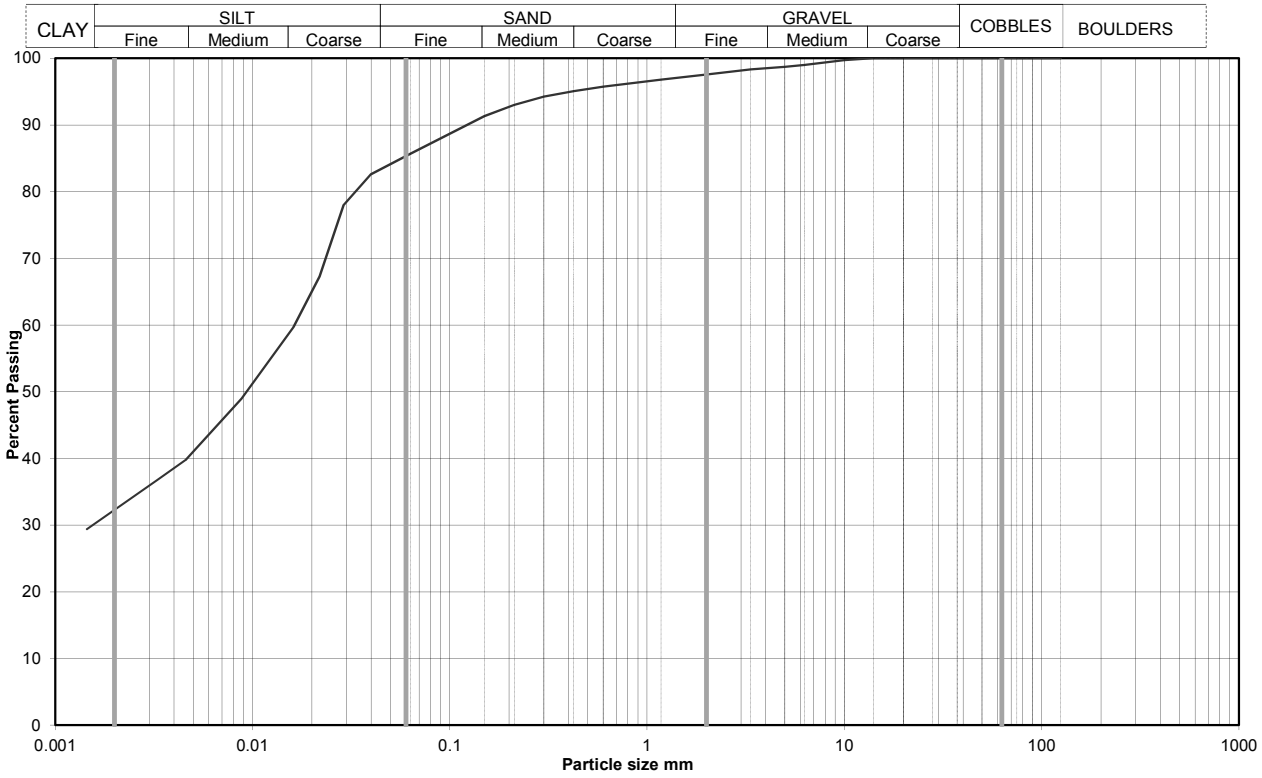
Soil description	Brownish grey very sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	68	68
	Silt	16	16
	Clay	15	15

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH308
		Sample Depth (m BGL)	0.50
	A5049-15BH308B520150519113231	Sample Type and No	B5A
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	86
90	100	0.0397	83
75	100	0.0290	78
63	100	0.0219	67
50	100	0.0161	60
37.5	100	0.0088	49
28	100	0.0046	40
20	100	0.0033	37
14	100	0.0014	29
10	100		
6.3	99		
5.0	99		
3.35	98		
2.00	98		
1.18	97	Particle density, Mg/m3	
0.600	96		
0.425	95	2.55 measured	
0.300	94	Dry mass of sample, kg	
0.212	93		
0.150	91	7.5	
0.063	86		

Soil description	Brownish grey slightly sandy slightly gravelly CLAY with occasional rootlets.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	2	2
	Sand	12	12
	Silt	53	53
	Clay	33	33

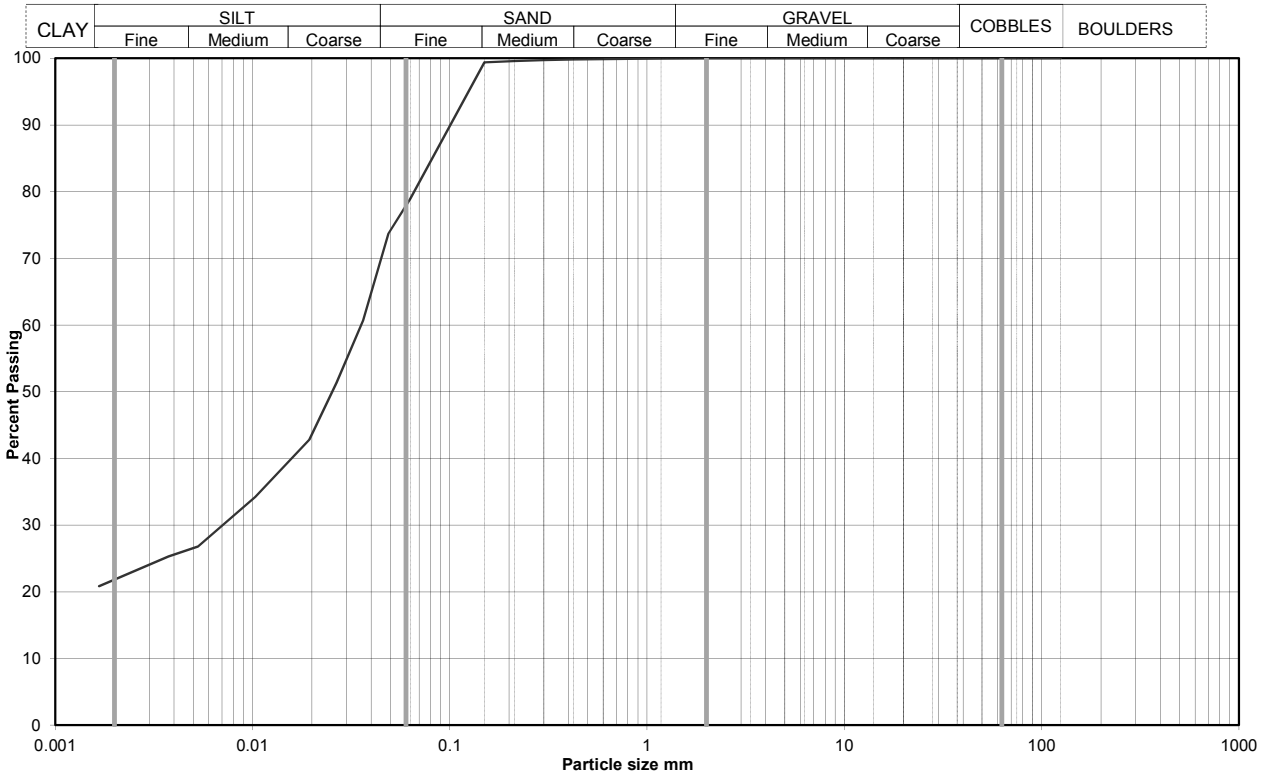
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150624013221

Hole No	BH308
Sample Depth (m BGL)	6.00
Sample Type and No	UT12
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	79
90	100	0.0488	74
75	100	0.0365	61
63	100	0.0267	51
50	100	0.0195	43
37.5	100	0.0103	34
28	100	0.0053	27
20	100	0.0038	25
14	100	0.0017	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	2.34 measured	
0.300	100	Dry mass of sample, kg	
0.212	100		
0.150	99	5.7	
0.063	79		

Soil description	Soft grey slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	22	22
	Silt	56	56
	Clay	22	22

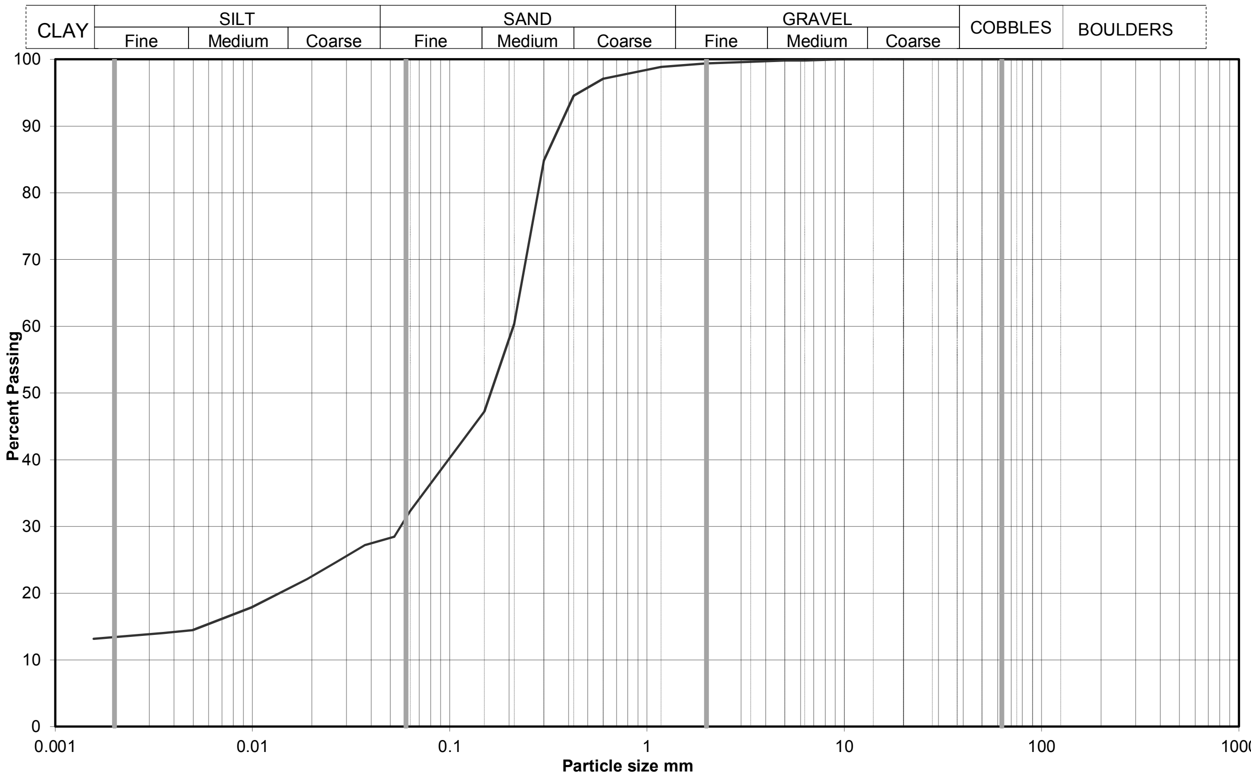
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

ESG

Sample Details:	SAMPLE ID: A5049-1520150624014129
Hole No	BH308
Sample Depth (m BGL)	9.75
Sample Type and No	B20
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0526	28
75	100	0.0373	27
63	100	0.0266	25
50	100	0.0189	22
37.5	100	0.0099	18
28	100	0.0050	14
20	100	0.0035	14
14	100	0.0016	13
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	97		
0.425	95	2.65	assumed
0.300	85	Dry mass of sample, kg	
0.212	60		
0.150	47	9.1	
0.063	32		

Soil description	Black very sandy CLAY.
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<63mm
*<60mm values to aid description only	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	68	68
	Silt	18	18
	Clay	13	13

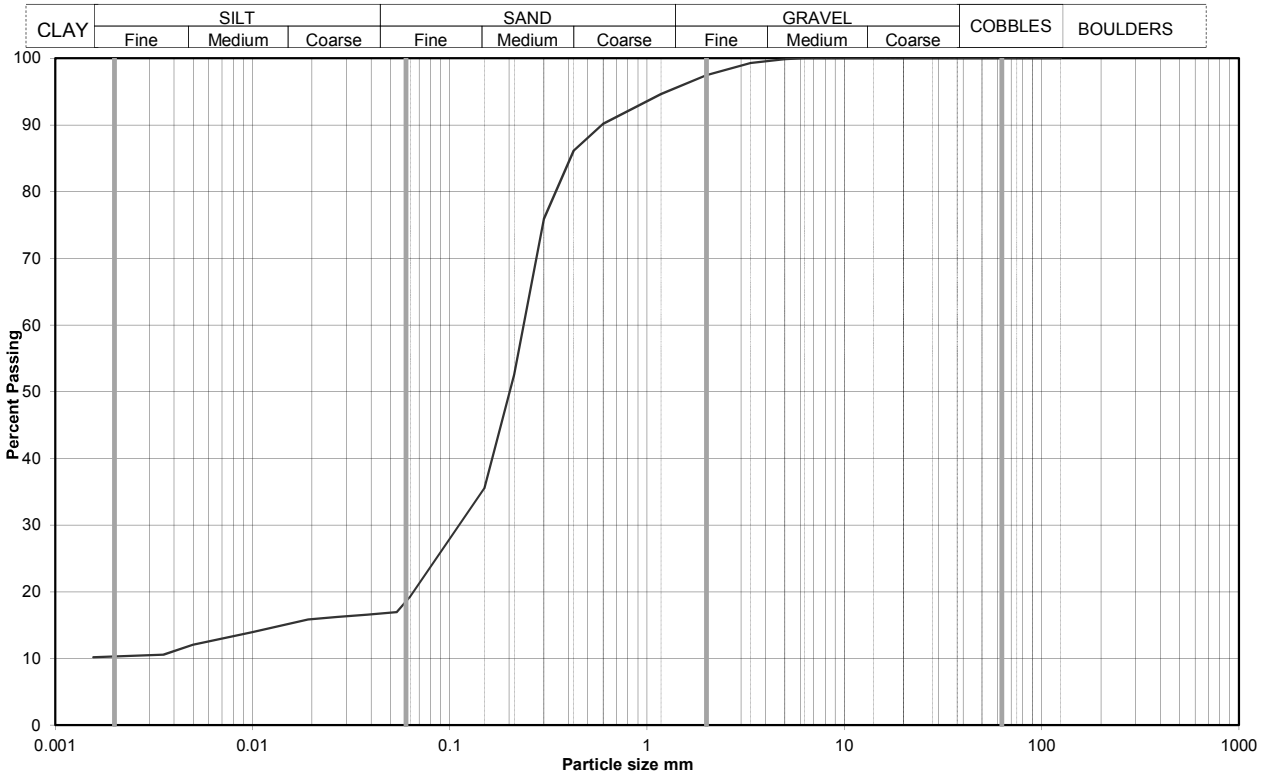
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150624014156

Hole No	BH308
Sample Depth (m BGL)	10.75
Sample Type and No	B22
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	19
90	100	0.0539	17
75	100	0.0381	17
63	100	0.0270	16
50	100	0.0191	16
37.5	100	0.0099	14
28	100	0.0050	12
20	100	0.0035	11
14	100	0.0016	10
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	97		
1.18	95	Particle density, Mg/m3	
0.600	90		
0.425	86	2.65 assumed	
0.300	76	Dry mass of sample, kg	
0.212	53		
0.150	36	10.5	
0.063	19		

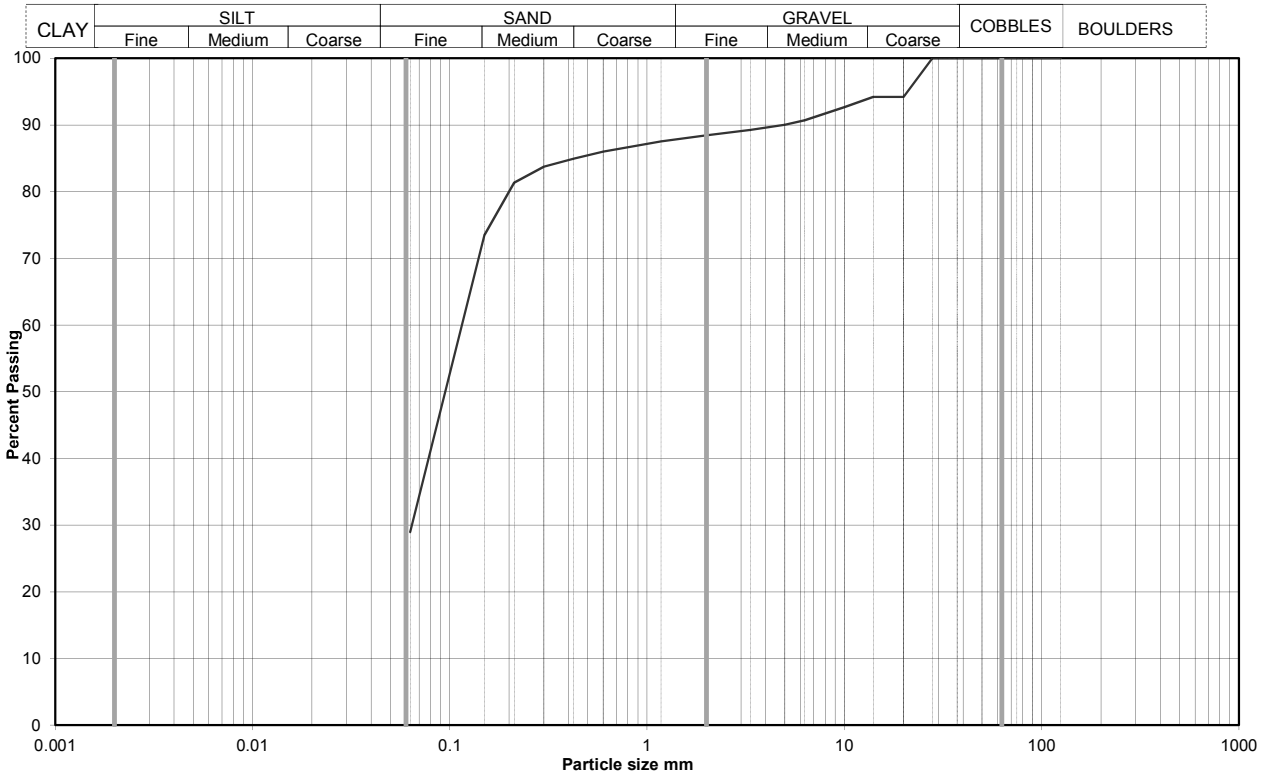
Soil description	Black slightly gravelly clayey SAND. .		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	3	3
	Sand	79	79
	Silt	8	8
	Clay	10	10

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH308
		Sample Depth (m BGL)	24.10
	A5049-1520150701010129	Sample Type and No	D58
		Specimen 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	94		
14	94		
10	93		
6.3	91		
5.0	90		
3.35	89		
2.00	88		
1.18	88		
0.600	86		
0.425	85		
0.300	84	Dry mass of sample, kg	
0.212	81		
0.150	73	0.5	
0.063	29		

Soil description	Brown slightly gravelly sandy SILT.		
Preparation / Pretreatment	Sieve: pre dried,		
Remarks	Sieve: Inufficient material for sedimentation.		
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	12	12
	Sand	59	59
	Silt	silt+clay =	
	Clay	29	29

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

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.3 dry sieve
	Sedimentation	none

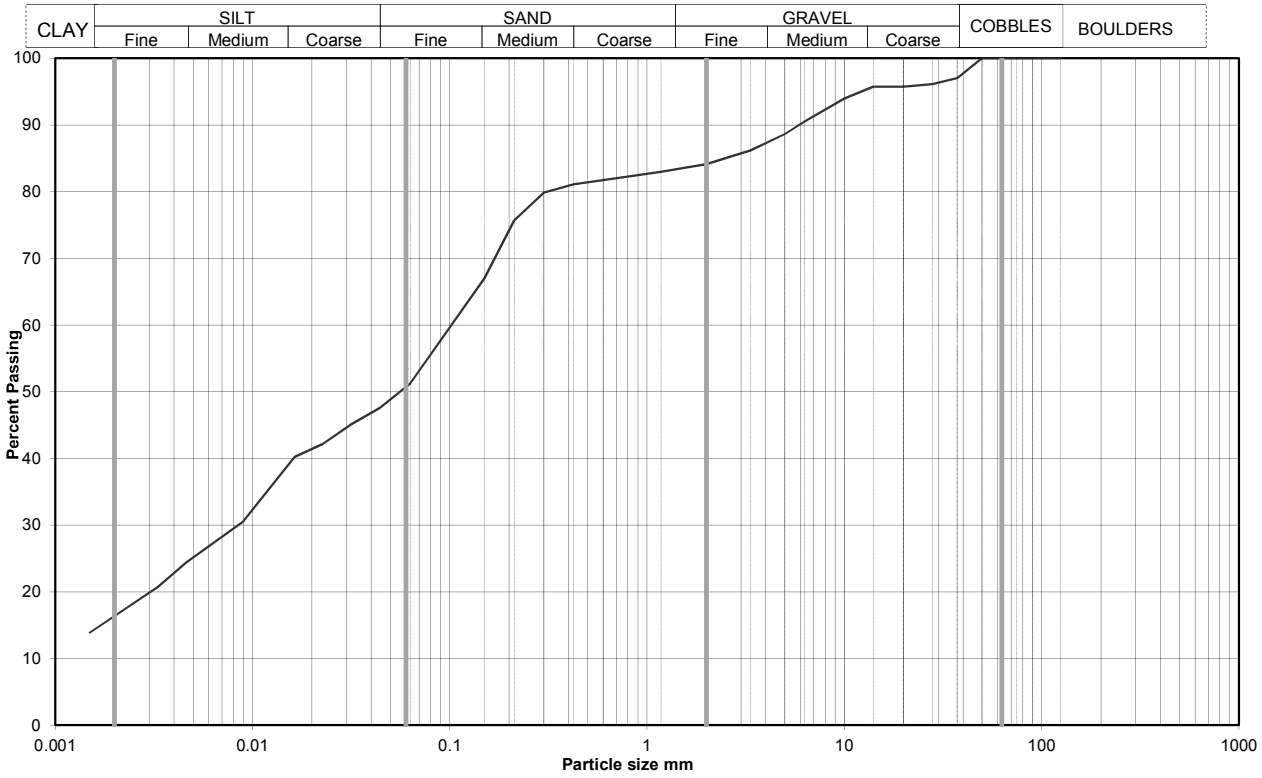
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

QA Ref SLR 2,9 Rev 2.13 May 15	#VAL UKAS TESTING	Project No A5049-15 Project Name TRINITY BURIAL GROUND	Printed: 18/08/2015 14:10	**Figure** **PSD**

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150701010145

Hole No	BH308
Sample Depth (m BGL)	25.10
Sample Type and No	B60
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	51
90	100	0.0441	48
75	100	0.0317	45
63	100	0.0228	42
50	100	0.0164	40
37.5	97	0.0089	30
28	96	0.0046	24
20	96	0.0033	21
14	96	0.0015	14
10	94		
6.3	91		
5.0	89		
3.35	86		
2.00	84		
1.18	83	Particle density, Mg/m3	
0.600	82		
0.425	81	2.65 assumed	
0.300	80	Dry mass of sample, kg	
0.212	76		
0.150	67	10.9	
0.063	51		

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	*<63mm
	Cobbles / boulders	0	0
	Gravel	16	16
	Sand	33	33
	Silt	34	34
	Clay	17	17

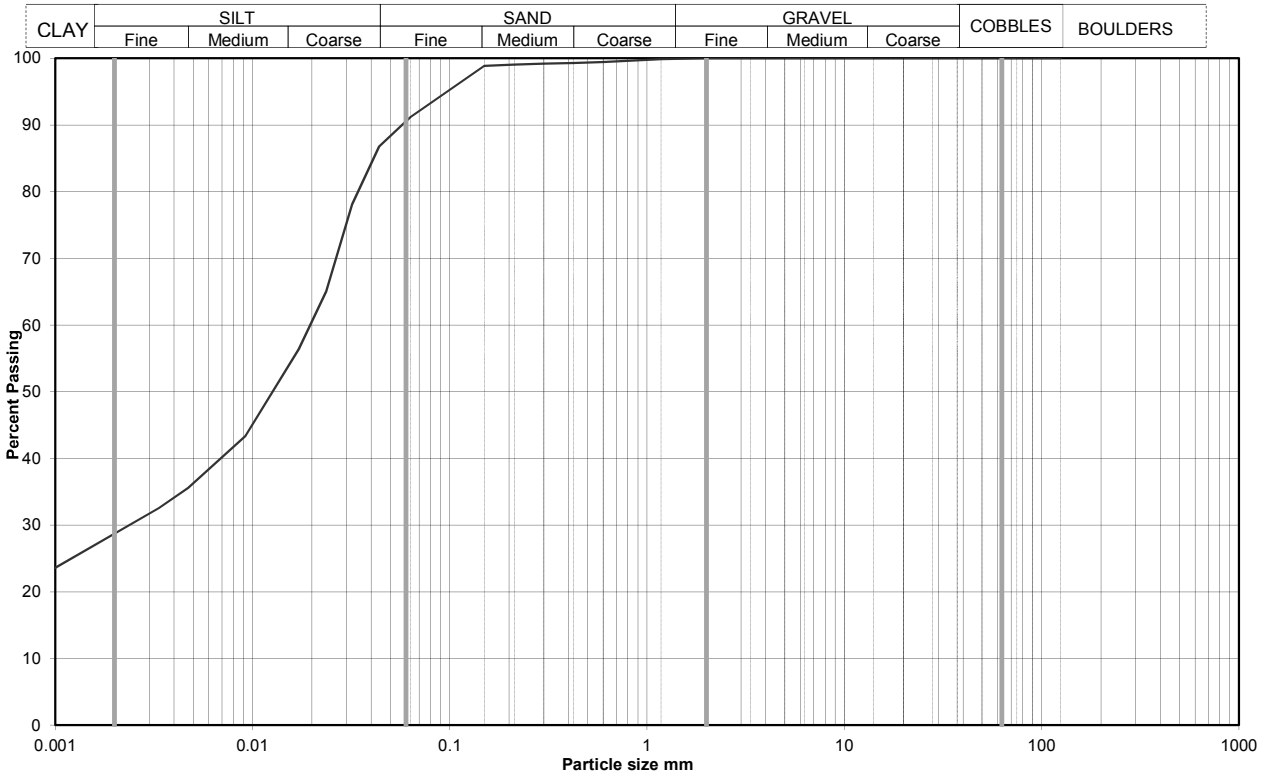
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150521041713

Hole No	BH309
Sample Depth (m BGL)	3.20
Sample Type and No	UT8
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	91
90	100	0.0439	87
75	100	0.0320	78
63	100	0.0237	65
50	100	0.0172	56
37.5	100	0.0092	43
28	100	0.0047	36
20	100	0.0034	33
14	100	0.0008	22
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	100		
1.18	100	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	99	Dry mass of sample, kg	
0.212	99		
0.150	99	4.3	
0.063	91		

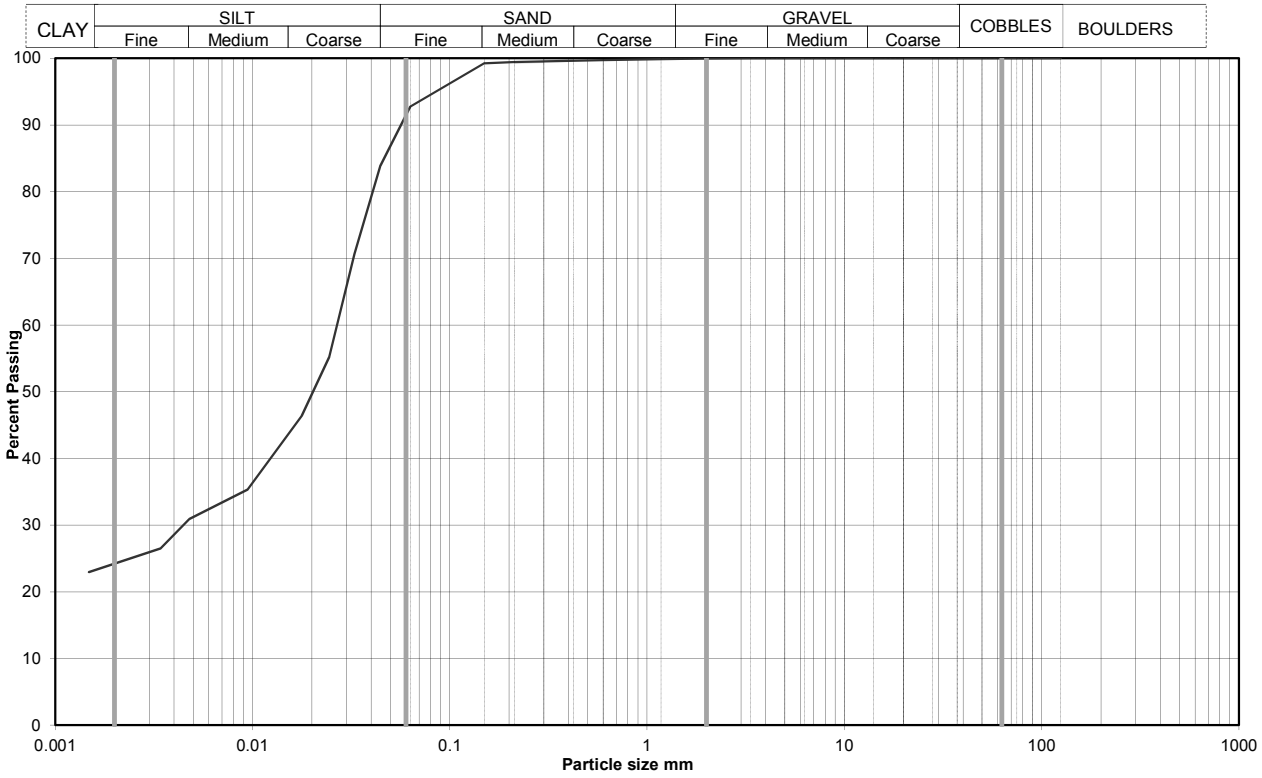
Soil description	Firm dark grey slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	9	9
	Silt	62	62
	Clay	29	29

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH309
		Sample Depth (m BGL)	5.95
	A5049-1520150521042020	Sample Type and No	UT17
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	93
90	100	0.0445	84
75	100	0.0330	71
63	100	0.0245	55
50	100	0.0178	46
37.5	100	0.0095	35
28	100	0.0048	31
20	100	0.0034	26
14	100	0.0015	23
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	99	2.6	
0.063	93		

Soil description	Soft brown slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	8	8
	Silt	68	68
	Clay	24	24

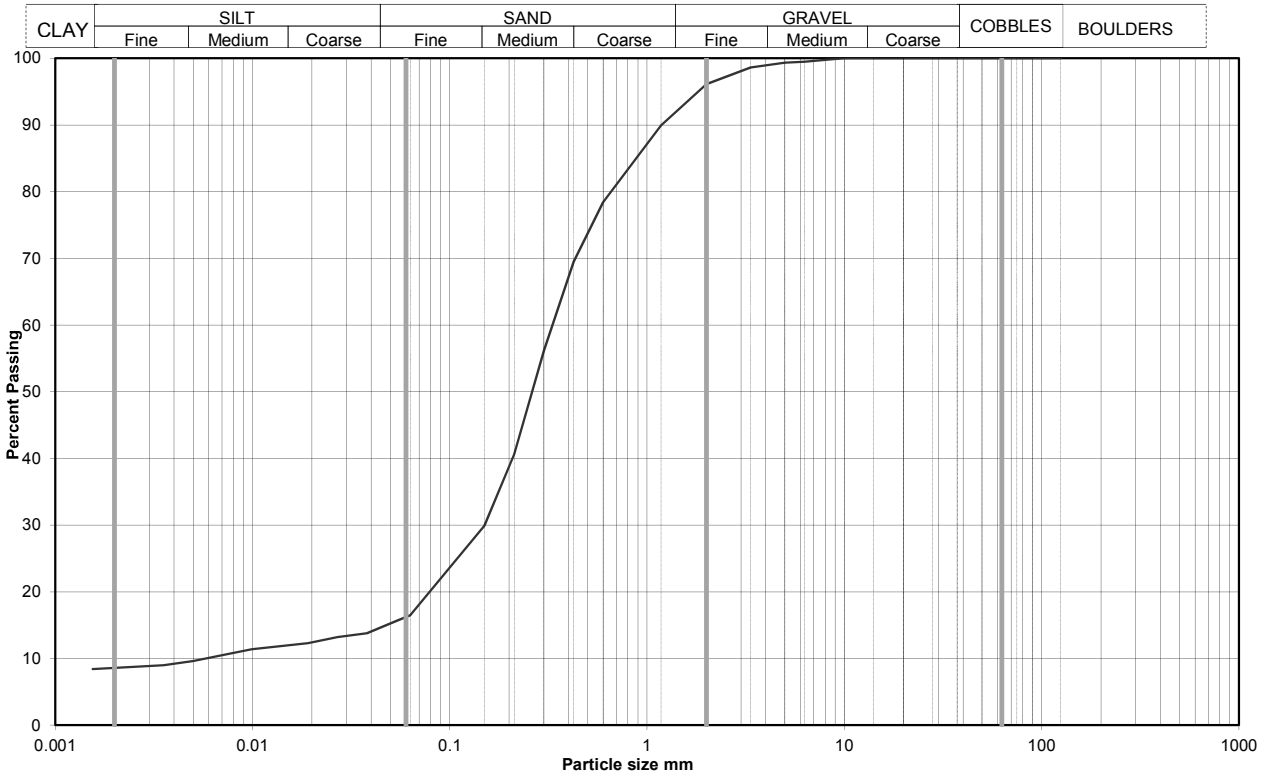
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150521042517

Hole No	BH309
Sample Depth (m BGL)	10.20
Sample Type and No	B31
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	16
90	100	0.0535	16
75	100	0.0381	14
63	100	0.0270	13
50	100	0.0191	12
37.5	100	0.0099	11
28	100	0.0050	10
20	100	0.0035	9
14	100	0.0015	8
10	100		
6.3	100		
5.0	99		
3.35	99		
2.00	96		
1.18	90	Particle density, Mg/m3	
0.600	78		
0.425	70	2.65 assumed	
0.300	56	Dry mass of sample, kg	
0.212	41		
0.150	30	6.3	
0.063	16		

Soil description	Black slightly gravelly very sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	4	4
	Sand	80	80
	Silt	8	8
	Clay	8	8

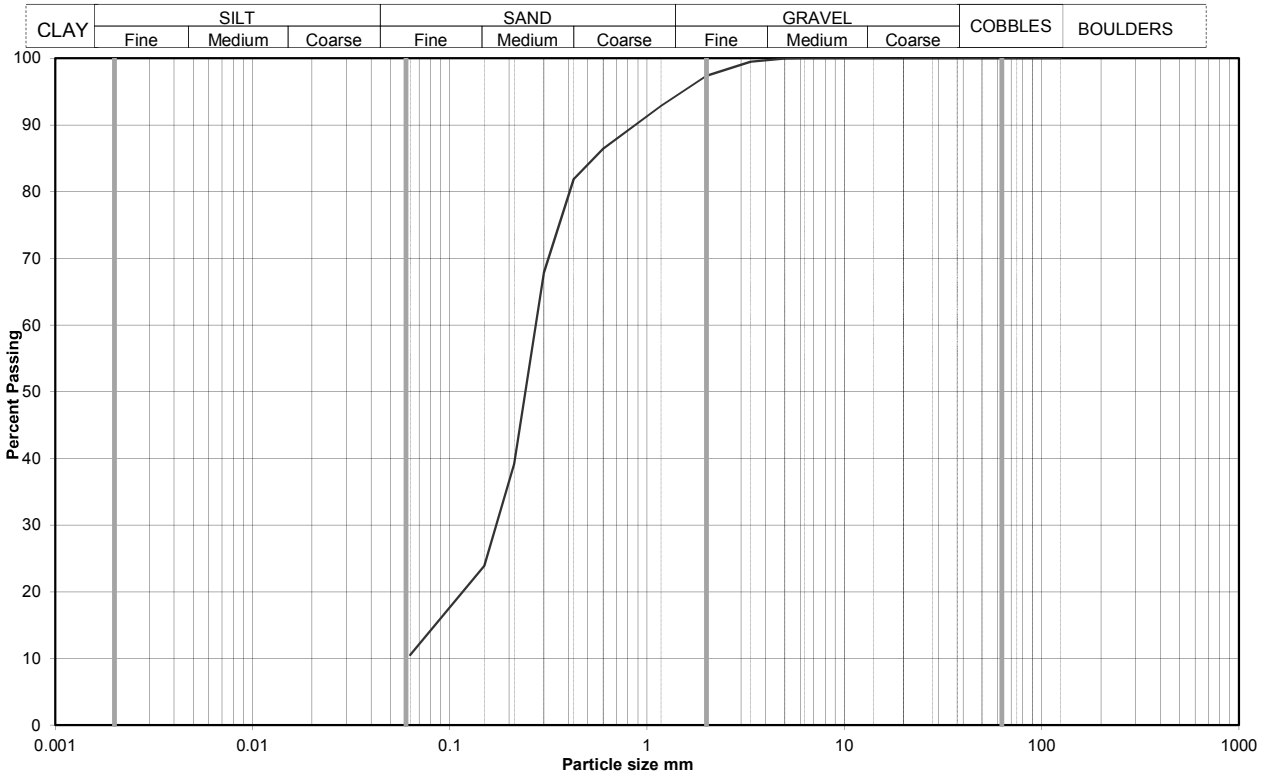
Uniformity Coefficient	D_{60} / D_{10}	57

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150522015445

Hole No	BH309
Sample Depth (m BGL)	11.20
Sample Type and No	B35
Specimen 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	97		
1.18	93		
0.600	86		
0.425	82		
0.300	68	Dry mass of sample, kg	
0.212	39		
0.150	24	10.9	
0.063	11		

Soil description	Black slightly gravelly very sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	3	3
	Sand	87	87
	Silt	silt+clay =	
	Clay	10	10

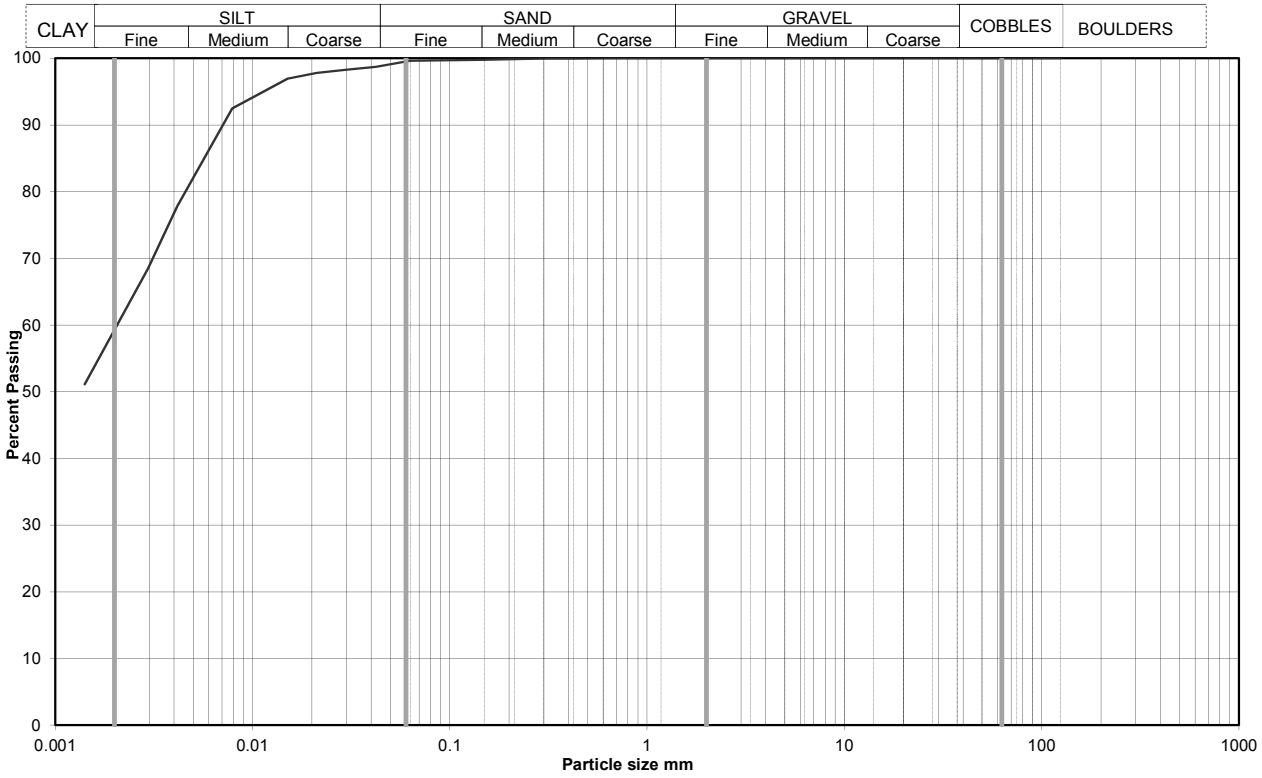
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150522020131

Hole No	BH309
Sample Depth (m BGL)	17.45
Sample Type and No	UT55
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	100
90	100	0.0423	99
75	100	0.0299	98
63	100	0.0212	98
50	100	0.0150	97
37.5	100	0.0079	92
28	100	0.0041	78
20	100	0.0030	68
14	100	0.0014	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	100	2.7	
0.063	100		

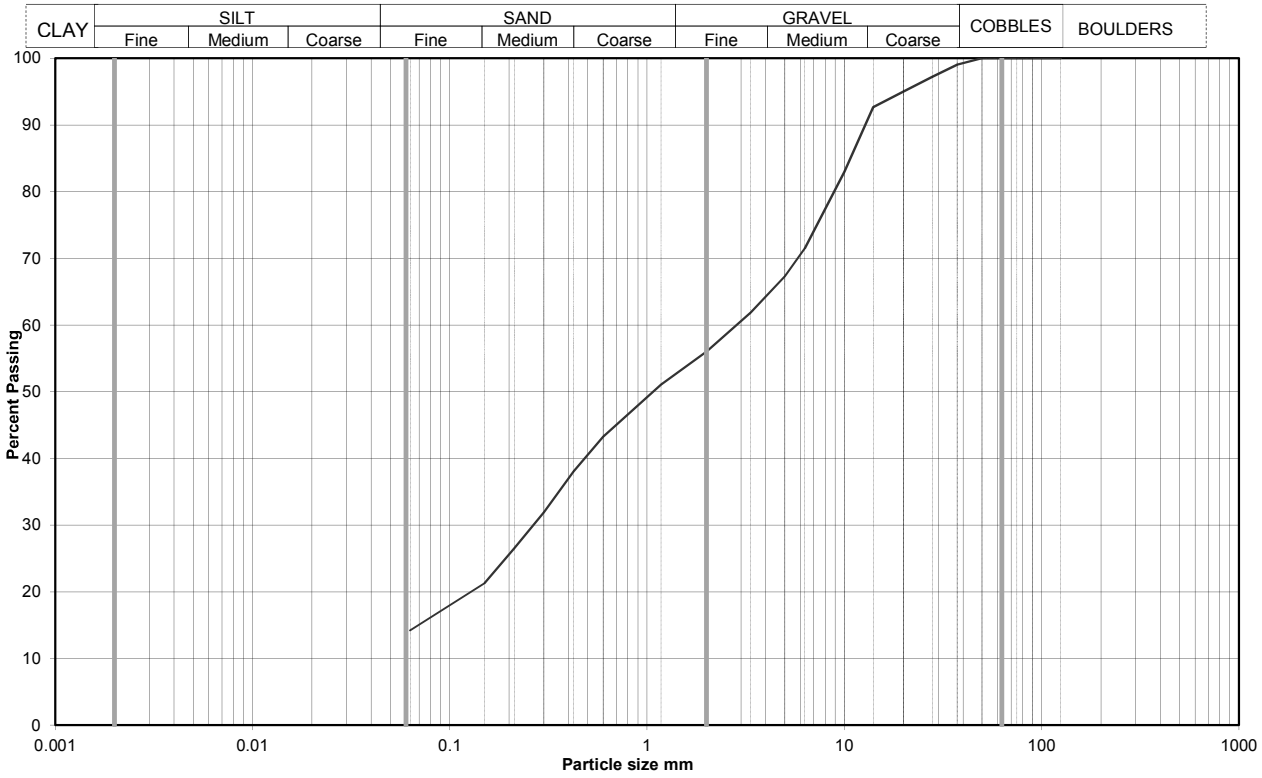
Soil description	Firm brown CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	1	1
	Silt	40	40
	Clay	59	59

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH310
		Sample Depth (m BGL)	0.30
	A5049-15BH310B220150519113231	Sample Type and No	B2A
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	99		
28	97		
20	95		
14	93		
10	83		
6.3	71		
5.0	67		
3.35	62		
2.00	56		
1.18	51		
0.600	43		
0.425	38		
0.300	32	Dry mass of sample, kg	
0.212	26		
0.150	21	9.3	
0.063	14		

Soil description	Greyish brown clayey SAND AND GRAVEL.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	44	44
	Sand	42	42
	Silt	silt+clay =	
	Clay	14	14

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

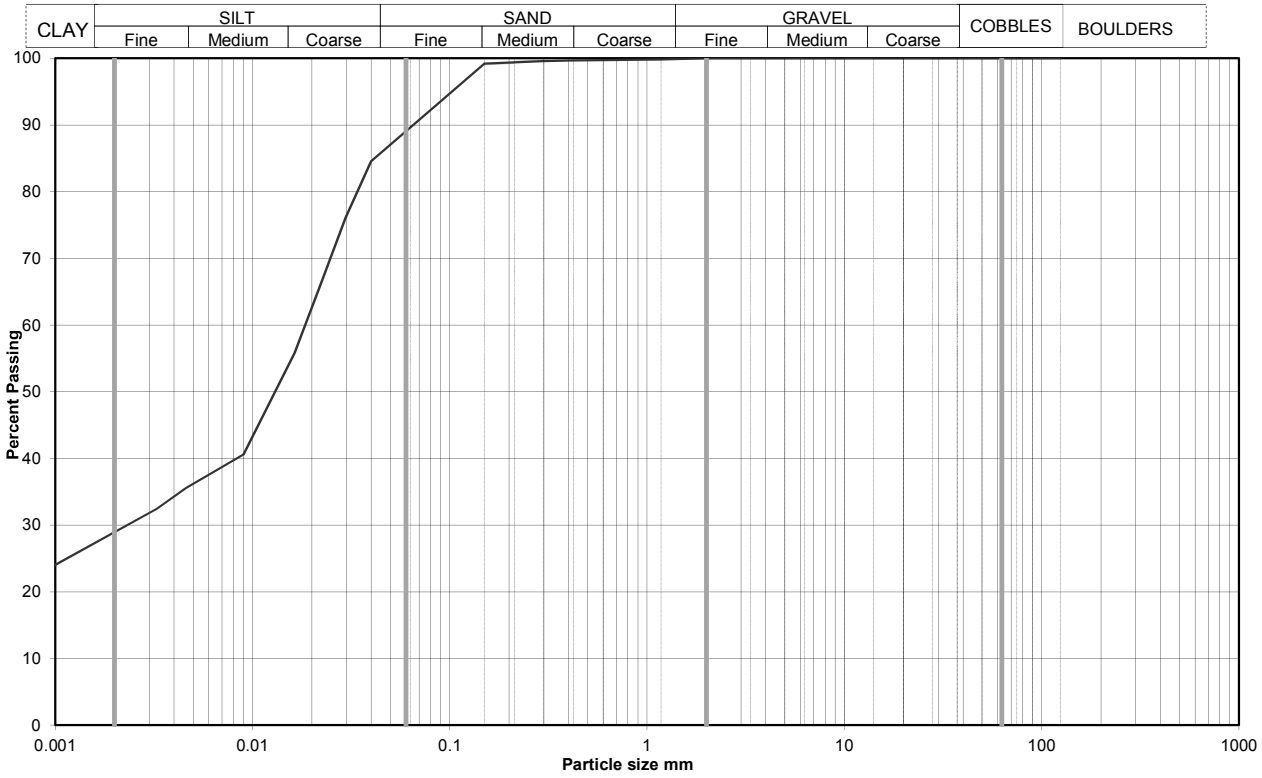
Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

QA Ref SLR 2,9 Rev 2.13 May 15	#VAL!	Project No A5049-15 Project Name TRINITY BURIAL GROUND	Printed: 18/08/2015 14:19	**Figure** **PSD**

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH310
		Sample Depth (m BGL)	5.50
	A5049-1520150609051406	Sample Type and No	P21
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	90
90	100	0.0399	85
75	100	0.0296	76
63	100	0.0221	66
50	100	0.0164	56
37.5	100	0.0090	41
28	100	0.0046	36
20	100	0.0033	32
14	100	0.0008	23
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	99	1.7	
0.063	90		

Soil description	Soft dark brownish grey organic slightly sandy silty CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	0	0
	Sand	11	11
	Silt	60	60
	Clay	29	29

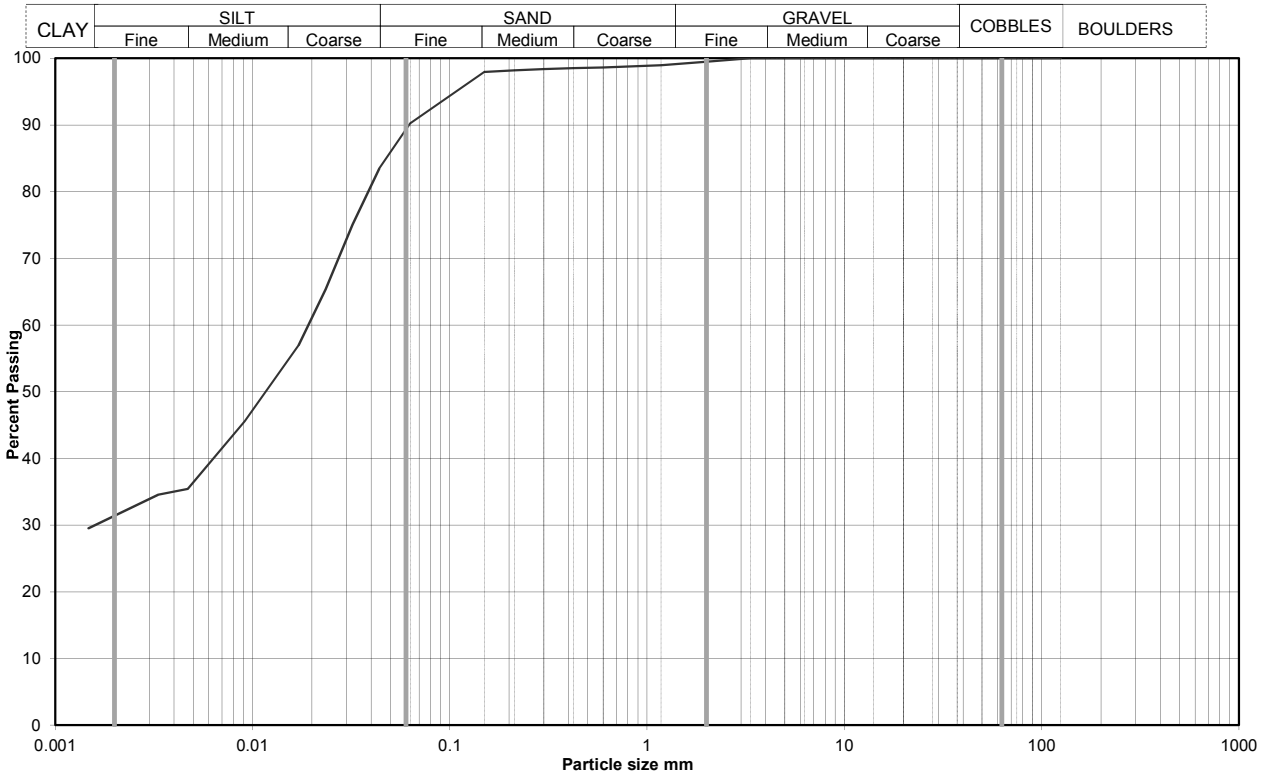
Uniformity Coefficient	D_{60} / D_{10}	Not applicable

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A5049-1520150609051627

Hole No	BH310
Sample Depth (m BGL)	8.50
Sample Type and No	U27
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	90
90	100	0.0440	83
75	100	0.0321	75
63	100	0.0235	65
50	100	0.0171	57
37.5	100	0.0091	46
28	100	0.0047	35
20	100	0.0033	35
14	100	0.0015	30
10	100		
6.3	100		
5.0	100		
3.35	100		
2.00	99		
1.18	99	Particle density, Mg/m3	
0.600	99		
0.425	99	2.65 assumed	
0.300	98	Dry mass of sample, kg	
0.212	98		
0.150	98	1.9	
0.063	90		

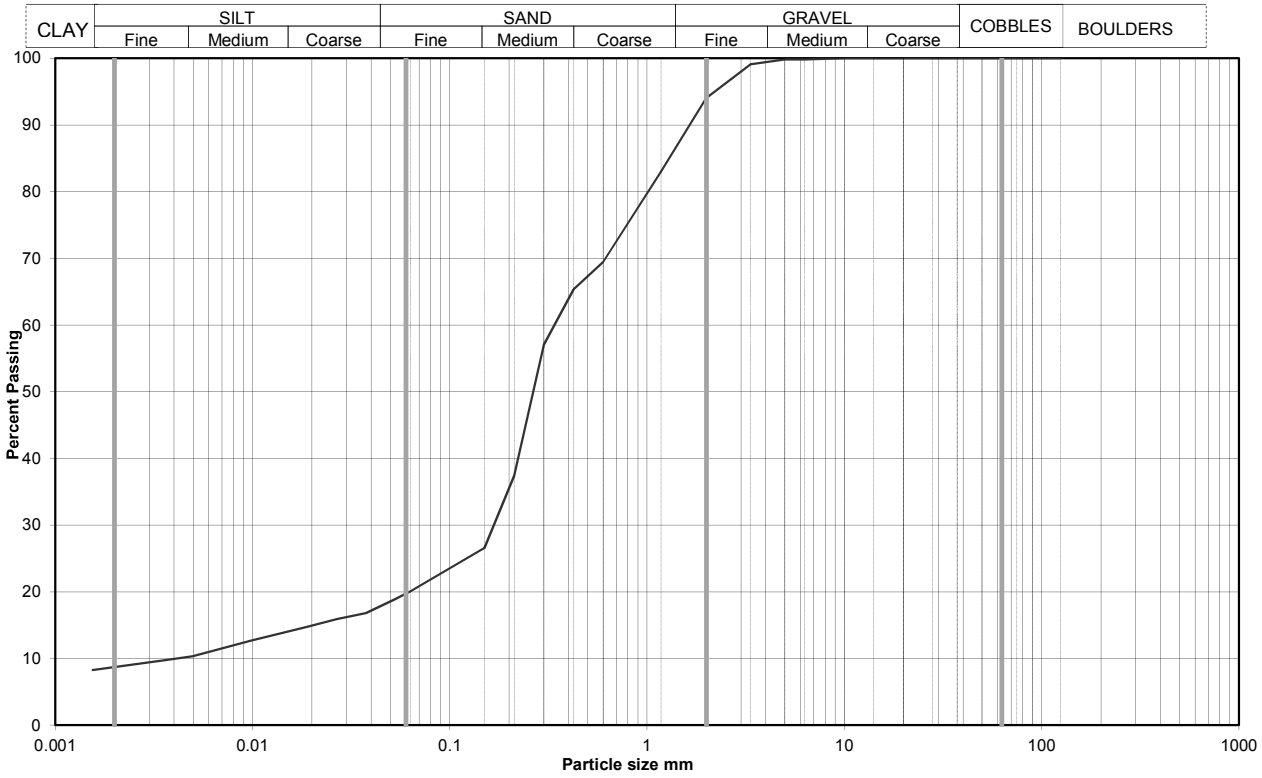
Soil description	Soft brown slightly sandy CLAY.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	1	1
	Sand	10	10
	Silt	58	58
	Clay	31	31

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

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH310
		Sample Depth (m BGL)	12.00
	A5049-1520150609051932	Sample Type and No	B35
		Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	20
90	100	0.0528	19
75	100	0.0376	17
63	100	0.0267	16
50	100	0.0189	15
37.5	100	0.0099	13
28	100	0.0050	10
20	100	0.0035	10
14	100	0.0016	8
10	100		
6.3	100		
5.0	100		
3.35	99		
2.00	94		
1.18	83	Particle density, Mg/m3	
0.600	69		
0.425	65	2.65 assumed	
0.300	57	Dry mass of sample, kg	
0.212	37		
0.150	27	6.3	
0.063	20		

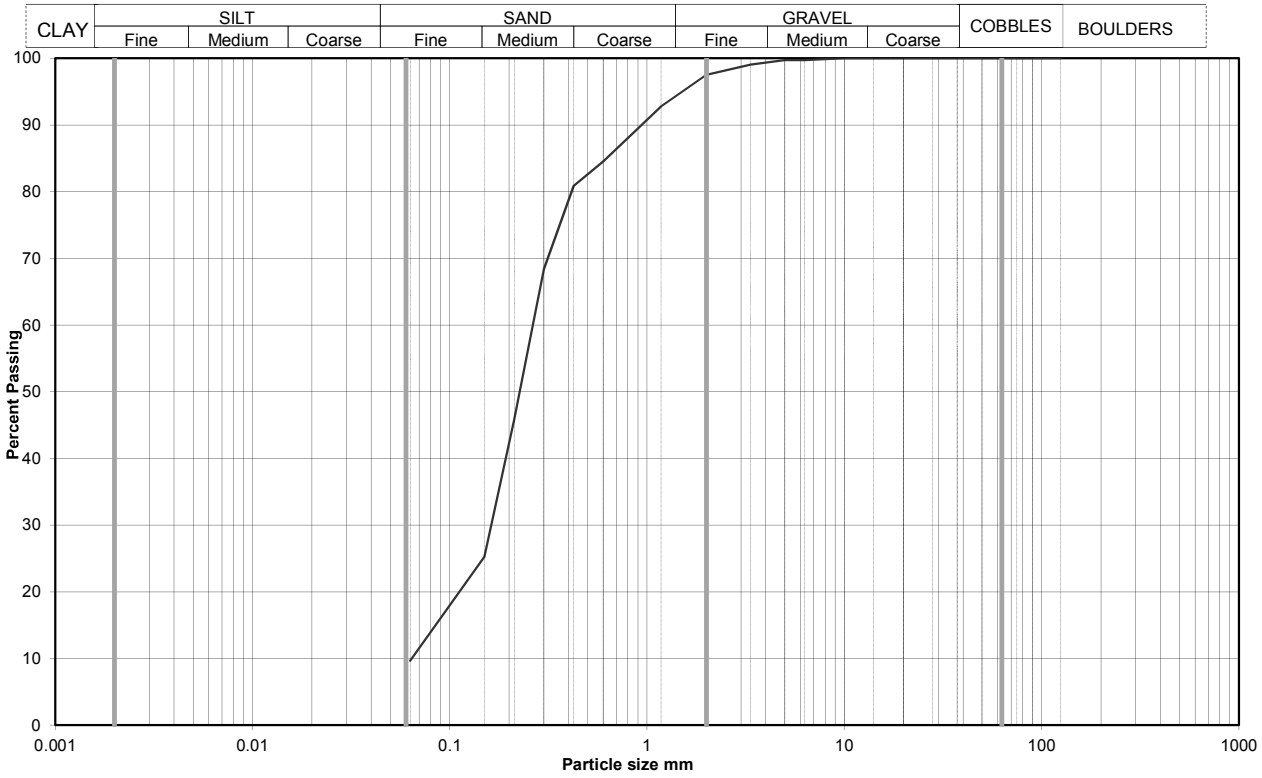
Soil description	Dark greyish brown gravelly silty SAND.		
Preparation / Pretreatment	Sieve: natural material Hydro: as BS1377		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	6	6
	Sand	74	74
	Silt	11	11
	Clay	9	9

Uniformity Coefficient	D_{60} / D_{10}	82

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

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:	Hole No	BH310
		Sample Depth (m BGL)	13.00
	A5049-1520150609051956	Sample Type and No	B37
		Specimen 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	99		
2.00	98		
1.18	93		
0.600	85		
0.425	81		
0.300	68	Dry mass of sample, kg	
0.212	46		
0.150	25	7.7	
0.063	10		

Soil description	Dark greyish brown silty SAND with occasional clay pockets.		
Preparation / Pretreatment	Sieve: natural material		
Remarks			
Sample Proportions *<60mm values to aid description only		Whole	*<63mm
	Cobbles / boulders	0	0
	Gravel	2	2
	Sand	88	88
	Silt	silt+clay =	
	Clay	10	10

Uniformity Coefficient	D_{60} / D_{10}	4

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

CHEMICAL TESTS - SUMMARY OF RESULTS

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
BH301	6	2.00		CS	Brown slightly sandy slightly gravelly silty CLAY	3.5												90	
BH301	7	4.00		CS	Brown slightly sandy slightly gravelly silty CLAY	3.5 c												93	
BH301	9	8.00		CS	Brown silty SAND	0.7 c												100	
BH301	11	10.10		CS	Brown slightly sandy SILT	9.0 c												99	
BH301	13	12.90		CS	Greyish brown sandy silty CLAY	0.8 c												100	
BH301	15	16.20		CS	Brown sandy silty CLAY	0.8 c												100	
BH302	27	11.50		U				6.9		1.240		0.315	1.51						
BH302	31	12.50		U				7.0		3.470		1.190	2.72						
BH302	27	11.50		U				6,9		1.240		0.315	1.51						
BH303	19	8.20		P				7.6		0.759		0.190	1.05						
BH303	25	10.70		D				7.5		1.150		0.310	0.56						
BH303	26	10.70		U	Dark grey organic slightly sandy CLAY	5.2												86	
BH303	29	12.20		U				8.4		0.057		0.033	0.09						
BH303	31	13.20		D	Brownish grey slightly gravelly CLAY	0.6 c												43	
BH303	33	13.70		D				8.3		0.120		0.054	0.07						
BH303	40	15.70		D				8.0		0.308		0.100	0.12						
BH304	12	3.70		D	Brown and black slightly sandy silty CLAY	3.3		7.5		0.970		0.240	0.31						
BH304	21	6.50		D				8.0		0.460		0.120	0.15						
BH304	26	8.50		D				7.9		0.450		0.120	0.21						
BH304	32	11.00		U	Soft to firm brownish grey slightly sandy silty CLAY	3.8 s c												100	
BH304	35	12.00		B				7.7		0.350		0.110	0.96						
BH305	8	2.10		CS	Brown slightly sandy silty CLAY	1.5 c												99	
BH305	10	4.00		CS	Brown and dark grey organic slightly sandy CLAY	1.4 c												100	
BH305	12	6.40		CS	Brown slightly sandy CLAY	1.3 c												100	
BH305	13	7.90		CS	Brown and dark grey slightly sandy silty CLAY	1.1 s c												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

CHEMICAL TESTS - SUMMARY OF RESULTS

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
BH305	14	9.60		CS	Dark brown slightly sandy silty CLAY	1.5 c												100	
BH305	15	11.00		CS	Orange brown mottled black SAND with occasional shells	0.2 c												94	
BH305	16	12.10		CS	Dark grey slightly sandy silty CLAY	4.2 c												99	
BH306	3	0.50		B				7.8		0.056		0.044	0.05						
BH306	6	1.20		B				8.0		0.110		0.088	0.06						
BH306	36	11.50		P	Firm brownish grey slightly sandy SILT	3.2 c												100	
BH307	5A	0.50		B				7.9		0.030		0.055	0.06						
BH307	2	1.20		B				7.8		0.300		0.100	0.07						
BH307	12	4.65		D				7.5		0.610		0.160	0.33						
BH307	17	5.80		D				8.0		0.230		0.082	0.15						
BH307	20	7.65		D				8.0		0.260		0.090	0.19						
BH307	23	9.50		D				7.6		0.798		0.196	0.16						
BH307	29	11.30		B				7.6		0.360		0.101	0.13						
BH307	30	12.00		D	Dark brownish grey slightly sandy CLAY	3.4 c												39	
BH307	31	12.30		UT	Black pseudofibrous PEAT with frequent wood fragments		34											100	
BH307	32	12.75		D				5.8		7.810		1.900	3.08						
BH307	34	13.00		UT	Firm brown slightly sandy slightly gravelly CLAY	1.3 c												27	
BH307	41	15.60		D				8.1		0.056		0.030	0.04						
BH307	47	17.35		D				7.8		0.170		0.070	0.12						
BH307	57	20.40		D				7.8		0.210		0.080	0.10						
BH307	64	23.30		D				7.9		0.140		0.050	0.08						
BH308	27	13.45		D	Black SILT	16.8 c												100	
BH308	28	13.65		UT				6.9		0.410		0.210	3.42						
BH309	2A	0.30		D				8.2		0.030		0.068	0.06						

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

CHEMICAL TESTS - SUMMARY OF RESULTS

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
BH309	39	12.10		P	Firm brownish grey organic slightly sandy CLAY with sand partings	3.7 c													
BH309	40	13.30		UT	Black fibrous PEAT		36												

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

TEST REPORT

1252

Report No. EFS/155207 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 19 samples described in this report were registered for analysis by ESG on 04-Aug-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 10-Aug-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 10-Aug-2015

Tests marked '^' have been subcontracted to another laboratory.
Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.
ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	%	pH Units											
Method Codes :			ICPACIDS	ICPWSS	ORGMAT	TSBRE1	WSLM50											
Method Reporting Limits :			20	10	0.1	0.005												
UKAS Accredited :			Yes	Yes	No	No	No											
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Organic Matter %**	**Total Sulphur.**	**pH (BS1377)**											
1557503	BH303 D 25 10.70		3110	1150		0.558	7.5											
1557504	BH303 D 33 13.70		547	129		0.066	8.3											
1557505	BH303 D 40 15.7		1000	308		0.122	8.0											
1557506	BH309A D 2A 0.3		685	26		0.055	8.2											
1557507	BH307 B 5A 0.5		555	34		0.060	7.9											
1557508	BH307 B 2 1.2		1020	301		0.065	7.8											
1557509	BH307 D 12 4.65		1640	612		0.333	7.5											
1557510	BH307 D 17 5.8		823	232		0.153	8.0											
1557511	BH307 D 20 7.65		945	264		0.194	8.0											
1557512	BH307 D 23 9.5		1960	798		0.162	7.6											
1557513	BH307 B 29 11.30		1010	364		0.130	7.6											
1557514	BH307 D 32 12.75		19000	7809		3.08	5.8											
1557515	BH307 D 41 15.6		297	56		0.045	8.1											
1557516	BH307 D 47 17.35		708	172		0.120	7.8											
1557517	BH307 D 57 20.40		820	214		0.102	7.8											
1557518	BH307 D 64 23.3		539	137		0.076	7.9											
1557519	BH306 B 3 0.5		442	56		0.046	7.8											
1557520	BH306 B 6 1.2		886	107		0.056	8.0											
1557521	BH304 D 12 3.70		2410	973	3.3	0.305	7.5											

ESG

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**10-Aug-2015**
Report Number	**EFS/155207**
Table Number	**1**

Where individual results are flagged see report notes for status.

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S155207

Consignment No S49705
Date Logged 04-Aug-2015
Report Due 10-Aug-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	ORGMAT	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Organic Matter %	Total Sulphur.	pH (BS1377)
							✓		✓					
CL/1557503	BH303 10.70	D	D	D	D	D	D	D	D	D	D		D	D
CL/1557504	BH303 13.70	D	D				D	D	D	D	D		D	D
CL/1557505	BH303 15.7	D	D				D	D	D	D	D		D	D
CL/1557506	BH309A 0.3	D	D				D	D	D	D	D		D	D
CL/1557507	BH307 0.5-0.8	D	D				D	D	D	D	D		D	D
CL/1557508	BH307 1.2-1.7	D	D				D	D	D	D	D		D	D
CL/1557509	BH307 4.65	D	D				D	D	D	D	D		D	D
CL/1557510	BH307 5.8-6.0	D	D				D	D	D	D	D		D	D
CL/1557511	BH307 7.65-7.85	D	D				D	D	D	D	D		D	D
CL/1557512	BH307 9.5-9.95	D	D				D	D	D	D	D		D	D
CL/1557513	BH307 11.30-11.80	D	D				D	D	D	D	D		D	D
CL/1557514	BH307 12.75-12.95	D	D				D	D	D	D	D		D	D
CL/1557515	BH307 15.6-15.8	D	D				D	D	D	D	D		D	D
CL/1557516	BH307 17.35-17.55	D	D				D	D	D	D	D		D	D
CL/1557517	BH307 20.40-20.60	D	D				D	D	D	D	D		D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S155207

Consignment No S49705
Date Logged 04-Aug-2015

Report Due 10-Aug-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	ORGMAT	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Organic Matter %	Total Sulphur.	pH (BS1377)
							✓		✓					
CL/1557518	BH307 23.3-23.75	D	D				D	D	D	D	D		D	D
CL/1557519	BH306 0.5-1.0	D	D				D	D	D	D	D		D	D
CL/1557520	BH306 1.2-2.0	D	D				D	D	D	D	D		D	D
CL/1557521	BH304 3.70	D	D				D	D	D	D	D	D	D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35℃	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35℃	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	ORGMAT	Oven Dried @ < 35℃	Acid Dichromate oxidation of the sample followed by colorimetric analysis of the extract
Soil	TSBRE1	Oven Dried @ < 35℃	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35℃	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : Trinity Burial Ground

Report Number : S15_5207

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1557503	BH303 D 25 10.70	SILT
CL/1557504	BH303 D 33 13.70	CLAY
CL/1557505	BH303 D 40 15.7	CLAY
CL/1557506	BH309A D 2A 0.3	MADE GROUND
CL/1557507	BH307 B 5A 0.5	SILT
CL/1557508	BH307 B 2 1.2	SILT
CL/1557509	BH307 D 12 4.65	CLAY
CL/1557510	BH307 D 17 5.8	SILT
CL/1557511	BH307 D 20 7.65	CLAY
CL/1557512	BH307 D 23 9.5	SAND
CL/1557513	BH307 B 29 11.30	SILT
CL/1557514	BH307 D 32 12.75	SILT
CL/1557515	BH307 D 41 15.6	CLAY
CL/1557516	BH307 D 47 17.35	CLAY
CL/1557517	BH307 D 57 20.40	CLAY
CL/1557518	BH307 D 64 23.3	SILT
CL/1557519	BH306 B 3 0.5	SILT
CL/1557520	BH306 B 6 1.2	MADE GROUND
CL/1557521	BH304 D 12 3.70	SILT

TEST REPORT

1252

Report No. EFS/155209 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 4 samples described in this report were registered for analysis by ESG on 04-Aug-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 10-Aug-2015

Tests where the accreditation is set to N or No, and any individual data items marked with a * are not UKAS accredited.
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The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 10-Aug-2015

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

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	pH Units												
Method Codes :			ICPACIDS	ICPWSS	TSBRE1	WSLM50												
Method Reporting Limits :			20	10	0.005													
UKAS Accredited :			Yes	Yes	No	No												
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Total Sulphur.**	**pH (BS1377)**												
1557523	BH304 D 21 6.5		1240	460	0.152	8.0												
1557524	BH304 D 26 8.5		1220	449	0.214	7.9												
1557525	BH304 B 35 12.0		1100	354	0.963	7.7												
1557526	BH308 UT 28 13.65		2090	414	3.42	6.9												

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**10-Aug-2015**
Report Number	**EFS/155209**
Table Number	**1**

Where individual results are flagged see report notes for status.

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S155209

Consignment No S49717
Date Logged 04-Aug-2015

Report Due 10-Aug-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1557523	BH304 6.5	D	D	D	D	D	D	D	D	D	D	D	D
CL/1557524	BH304 8.5	D	D				D	D	D	D	D	D	D
CL/1557525	BH304 12.0-12.5	D	D				D	D	D	D	D	D	D
CL/1557526	BH308 13.65 14.1	D	D				D	D	D	D	D	D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35℃	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35℃	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35℃	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35℃	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : Trinity Burial Ground

Report Number : S15_5209

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1557523	BH304 D 21 6.5	CLAY
CL/1557524	BH304 D 26 8.5	CLAY
CL/1557525	BH304 B 35 12.0	CLAY
CL/1557526	BH308 UT 28 13.65	SILT

TEST REPORT

1252

Report No. EFS/155288 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 1 sample described in this report were registered for analysis by ESG on 07-Aug-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 12-Aug-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns [redacted]
Managing Director
Multi-Sector Services

Date of Issue: 12-Aug-2015

Tests marked '^' have been subcontracted to another laboratory.
Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	pH Units												
Method Codes :			ICPACIDS	ICPWSS	TSBRE1	WSLM50												
Method Reporting Limits :			20	10	0.005													
UKAS Accredited :			Yes	Yes	No	No												
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Total Sulphur.**	**pH (BS1377)**												
1557859	BH303 U 29 12.20		331	57	0.090	8.4												

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**12-Aug-2015**
Report Number	**EFS/155288**
Table Number	**1**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S155288

Customer **ESG Doncaster**
Site **Trinity Burial Ground**
Report No **S155288**

Consignment No S49799
Date Logged 07-Aug-2015

Report Due 13-Aug-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1557859	BH303 12.20-12.65	D	D	D	D	D	D	D	D	D	D	D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35℃	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35℃	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35℃	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35℃	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_5288

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1557859	BH303 U 29 12.20	CLAY

TEST REPORT

1252

Report No. EFS/155574 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 2 samples described in this report were registered for analysis by ESG on 19-Aug-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 25-Aug-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 25-Aug-2015

Tests marked '^' have been subcontracted to another laboratory.
Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.
ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	%	pH Units												
Method Codes :			ICPACIDS	ICPWSS	TSBRE1	WSLM50												
Method Reporting Limits :			20	10	0.005													
UKAS Accredited :			Yes	Yes	No	No												
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Total Sulphur.**	**pH (BS1377)**												
1559295	BH302 U 27 11.50		3150	1240	1.51	6.9												
1559296	BH303 P 19 8.20		1920	759	1.05	7.6												

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**25-Aug-2015**
Report Number	**EFS/155574**
Table Number	**1**

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S155574

Customer **ESG Doncaster**
Site **Trinity Burial Ground**
Report No **S155574**

Consignment No S50029
Date Logged 19-Aug-2015

Report Due 25-Aug-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1559295	BH302 11.50-11.95	D	D	D	D	D	D	D	D	D	D	D	D
CL/1559296	BH303 8.20-9.20	D	D				D	D	D	D	D	D	D

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_5574

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1559295	BH302 U 27 11.50	CLAY
CL/1559296	BH303 P 19 8.20	SILT

TEST REPORT

1252

Report No. EFS/157528 (Ver. 2)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 1 sample described in this report were registered for analysis by ESG on 04-Nov-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 11-Nov-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 11-Nov-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/l	g/l	%	pH Units											
Method Codes :			ICPACIDS	ICPWSS	ICPBRE	TSBRE1	WSLM50											
Method Reporting Limits :			20	10	0.0001	0.005												
UKAS Accredited :			Yes	Yes	No	No	No											
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**SO4-- (acid sol)**	**SO4-- (H2O sol) mg/l**	**Magnesium (BRE)**	**Total Sulphur.**	**pH (BS1377)**											
1568374	BH302 U 31 12.50		11900	3470	0.3020	2.72	7.0											

ESG

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**11-Nov-2015**
Report Number	**EFS/157528**
Table Number	**1**

Analytical and Deviating Sample Overview

Customer **ESG Doncaster**
Site **Trinity Burial Ground**
Report No **S157528**

Consignment No S50430
Date Logged 04-Nov-2015

Report Due 12-Nov-2015

ID Number	Description	MethodID	CustServ	Dep.Opt			ICPACIDS	ICPBRE	ICPWSS	KONECL	KoneNO3	TSBRE1	WSLM50
		Sampled	REPORT A	DO Cl if pH<5.5	DO Mg if SO4(W)>3000	DO NO3 if pH<5.5	SO4-- (acid sol)	Magnesium (BRE)	SO4-- (H2O sol) mg/l	Chloride:(2:1)	Nitrate (BRE 2:1): mg/l	Total Sulphur.	pH (BS1377)
							✓		✓				
CL/1568374	BH302 12.50-12.95												

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	ICPACIDS	Oven Dried @ < 35°C	Determination of Total Sulphate in soil samples by Hydrochloric Acid extraction followed by ICPOES detection
Soil	ICPBRE	Oven Dried @ < 35°C	Determination of Magnesium (BRE) in soil samples by water extraction followed by ICPOES detection
Soil	ICPWSS	Oven Dried @ < 35°C	Determination of Water Soluble Sulphate in soil samples by water extraction followed by ICPOES detection
Soil	TSBRE1	Oven Dried @ < 35°C	Determination of Total Carbon and/or Total Sulphur in solid samples by high temperature combustion/infrared detection
Soil	WSLM50	Oven Dried @ < 35°C	Determination of pH of 2.5:1 deionised water to soil extracts using pH probe.

Where individual results are flagged see report notes for status.

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
Req Analysis requested, see attached sheets for results
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‡ MCERTS accreditation has been removed for this result
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

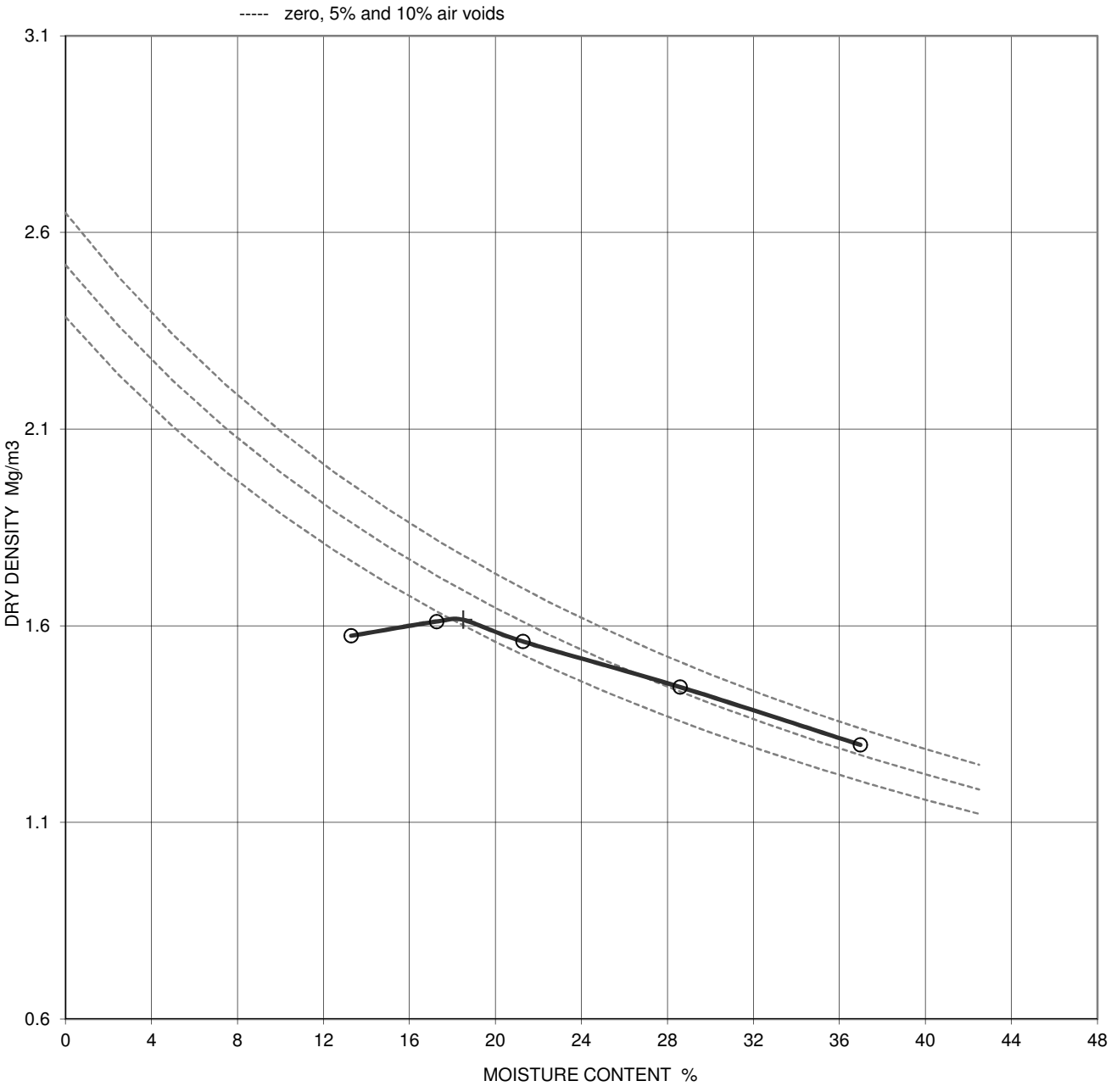
Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_7528

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1568374	BH302 U 31 12.50	CLAY

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH302
		Sample Depth (m BGL)	3.50
	A5049-1520150622101025	Sample Type and No	U9
		Specimen Ref	



Soil description	Soft brown slightly sandy CLAY.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.62

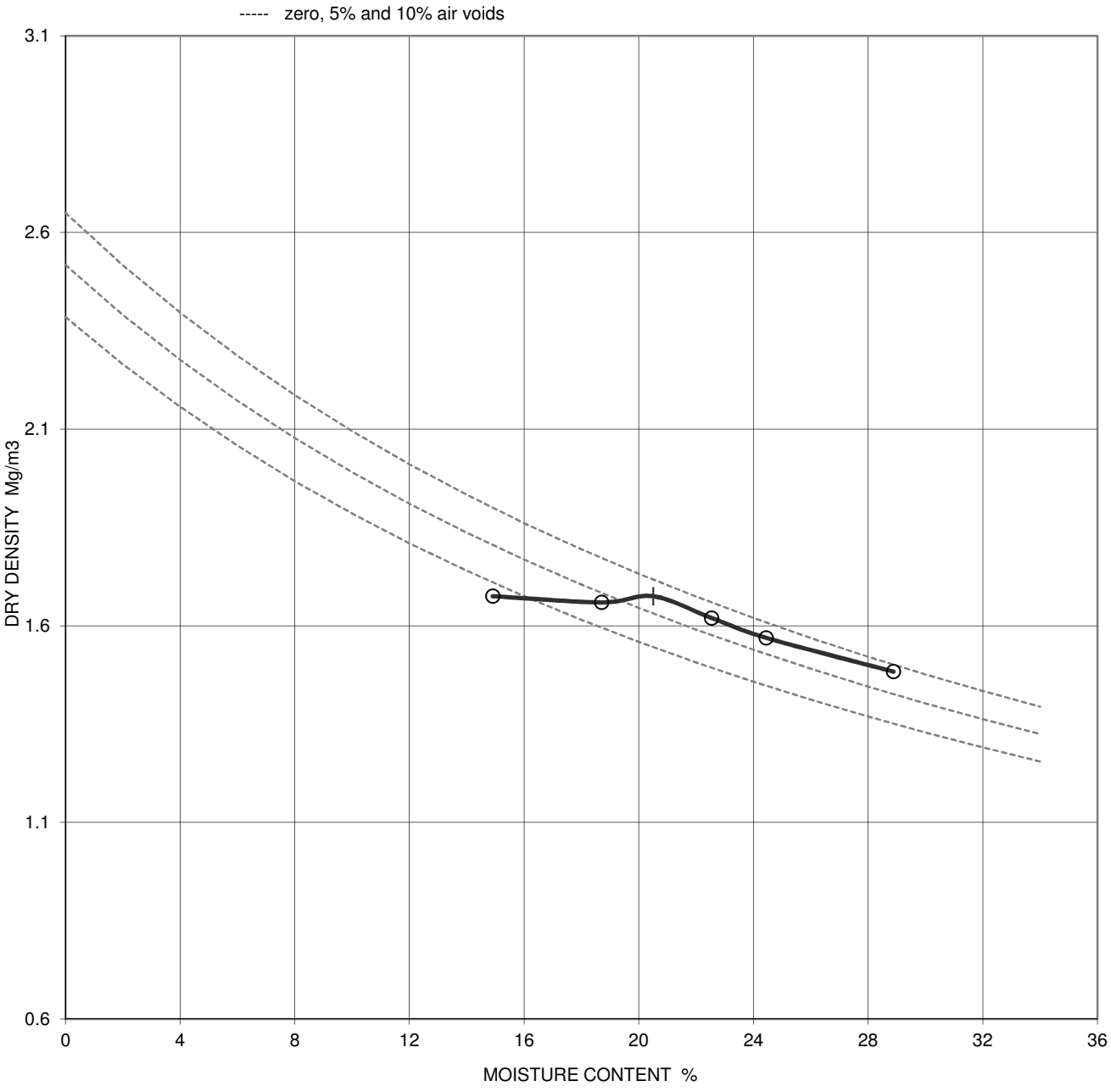
Optimum moisture content, %

19

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH303
		Sample Depth (m BGL)	5.20
	A5049-1520150604102858	Sample Type and No	U10
		Specimen Ref	



Soil description	Firm brown sandy clayey SILT.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.68

Optimum moisture content, %

21

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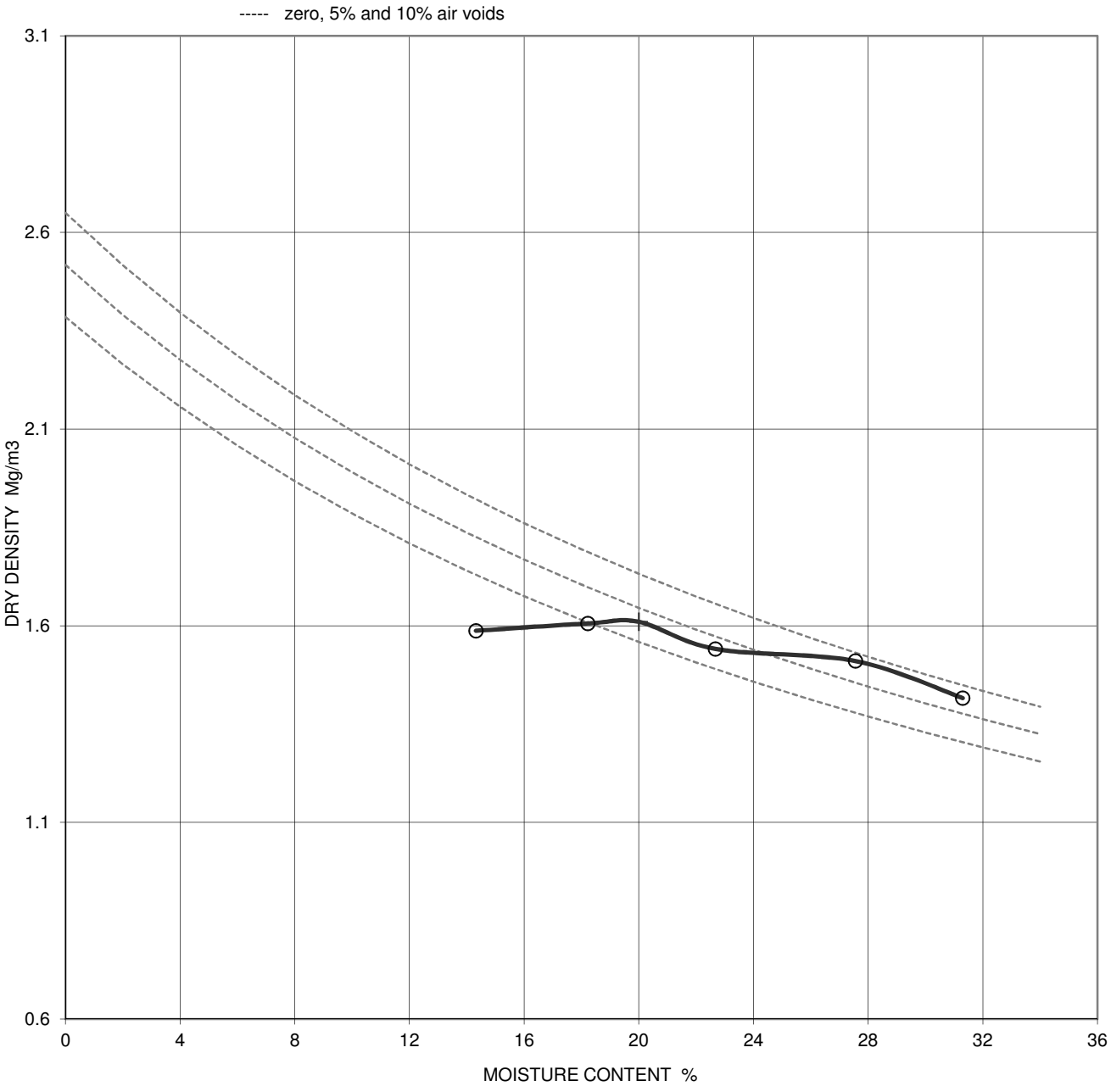
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH304
		Sample Depth (m BGL)	1.20
	A5049-1520150609103603	Sample Type and No	B8
		Specimen Ref	



Soil description	Brown slightly sandy CLAY.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.61

Optimum moisture content, %

20

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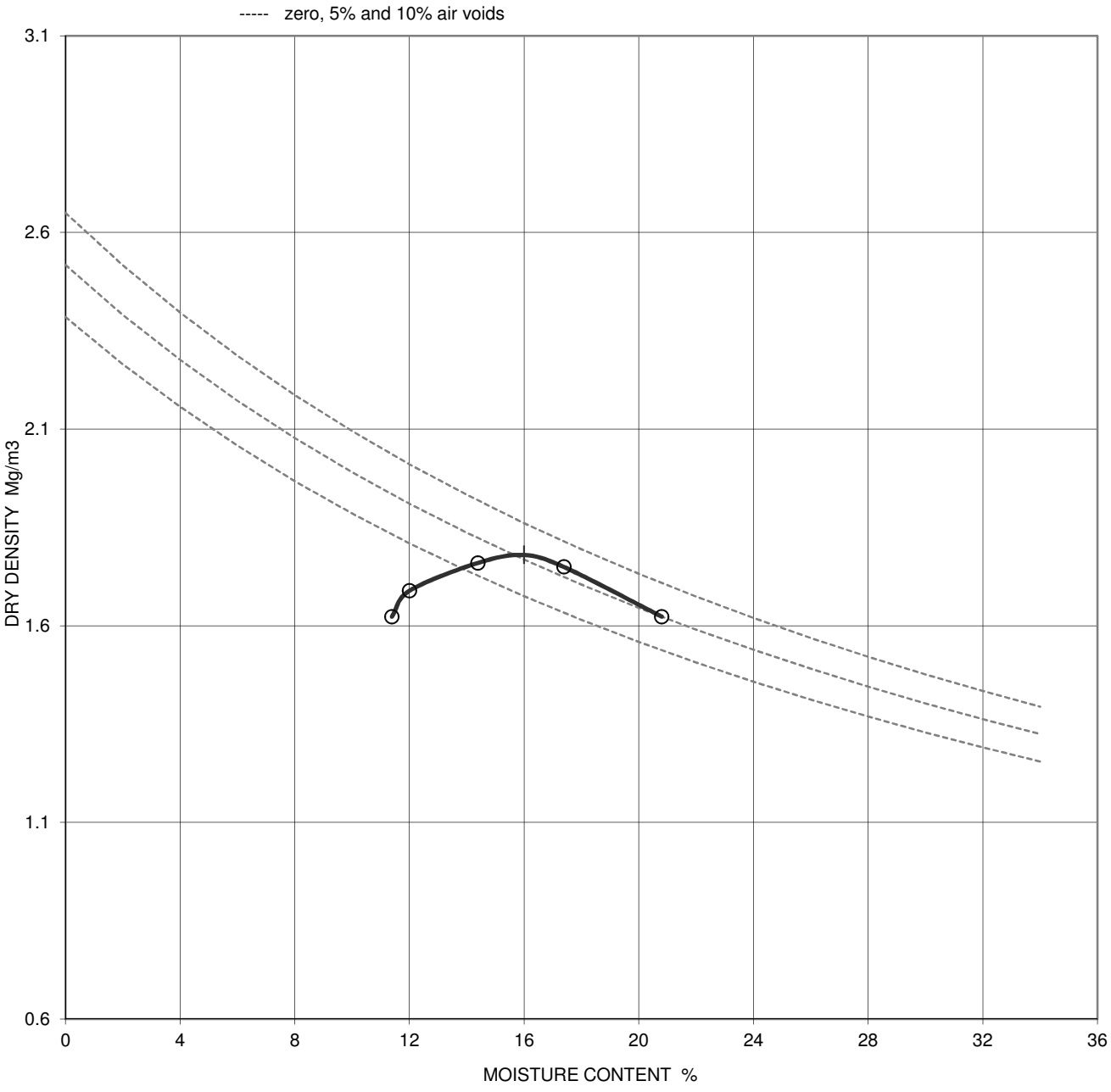
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH306
		Sample Depth (m BGL)	1.20
	A5049-1520150609054313	Sample Type and No	B6
		Specimen Ref	



Soil description	Brown slightly sandy gravelly CLAY with occasional rootlets.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	10	%	
Material < 37.5mm > 20mm	3	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.78

Optimum moisture content, %

16

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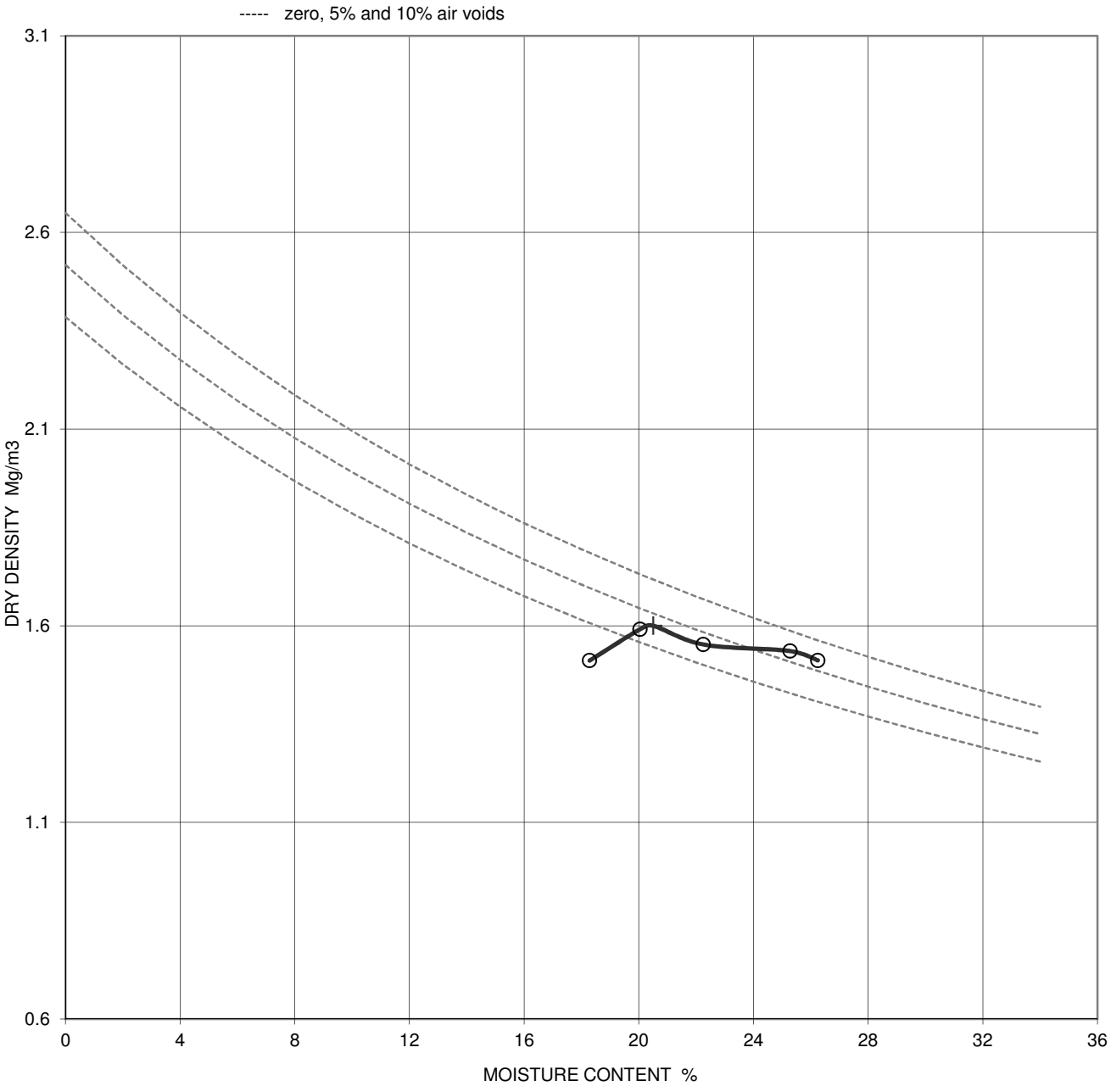
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH307
		Sample Depth (m BGL)	1.20
	A5049-1520150609111605	Sample Type and No	B2
		Specimen Ref	



Soil description	Brown slightly sandy CLAY.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.60

Optimum moisture content, %

21

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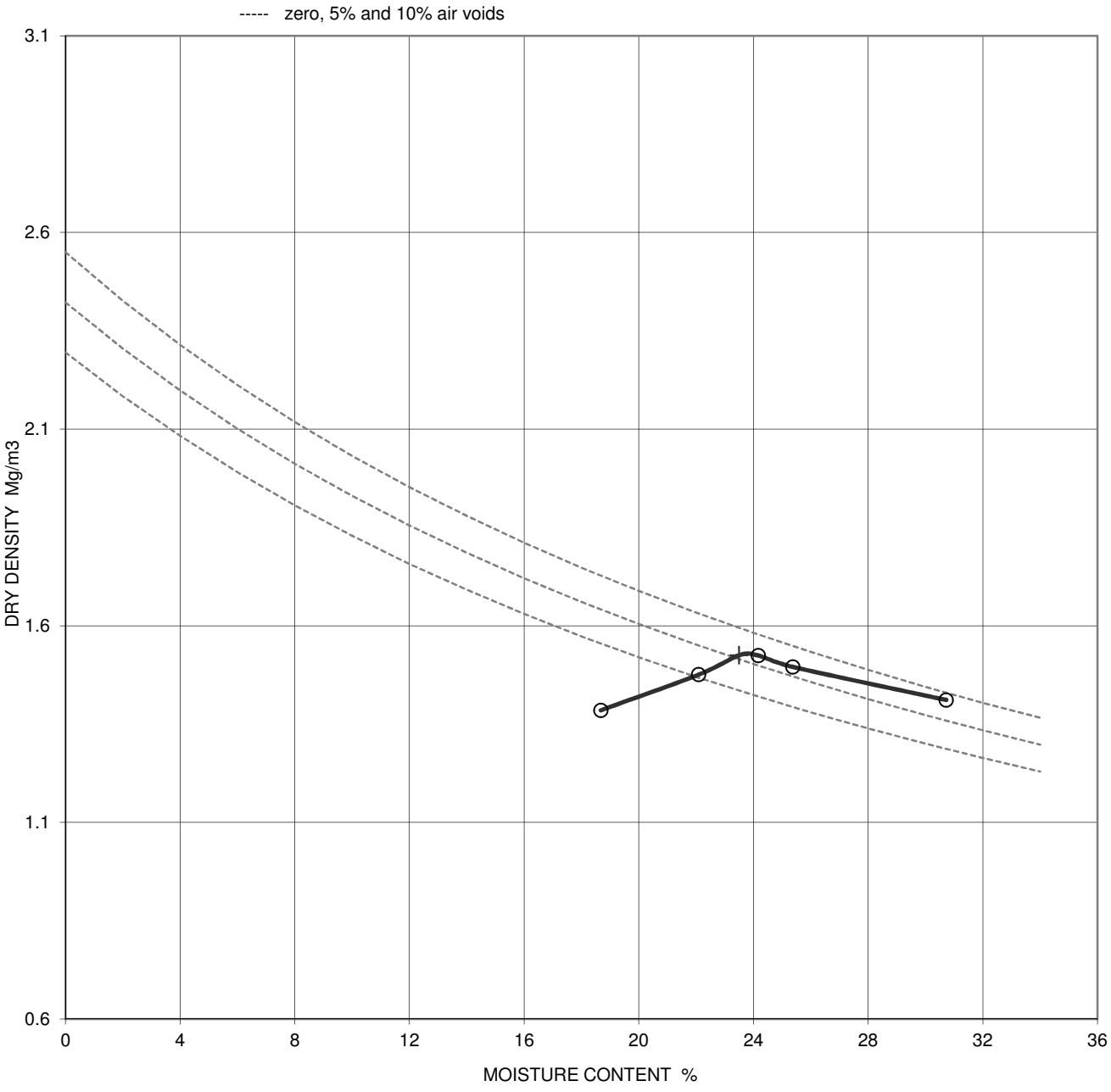
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH308
		Sample Depth (m BGL)	0.50
	A5049-15BH308B520150519113231	Sample Type and No	B5A
		Specimen Ref	



Soil description	Brownish grey slightly sandy slightly gravelly CLAY with occasional rootlets.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.55	measured - gas jar	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.53

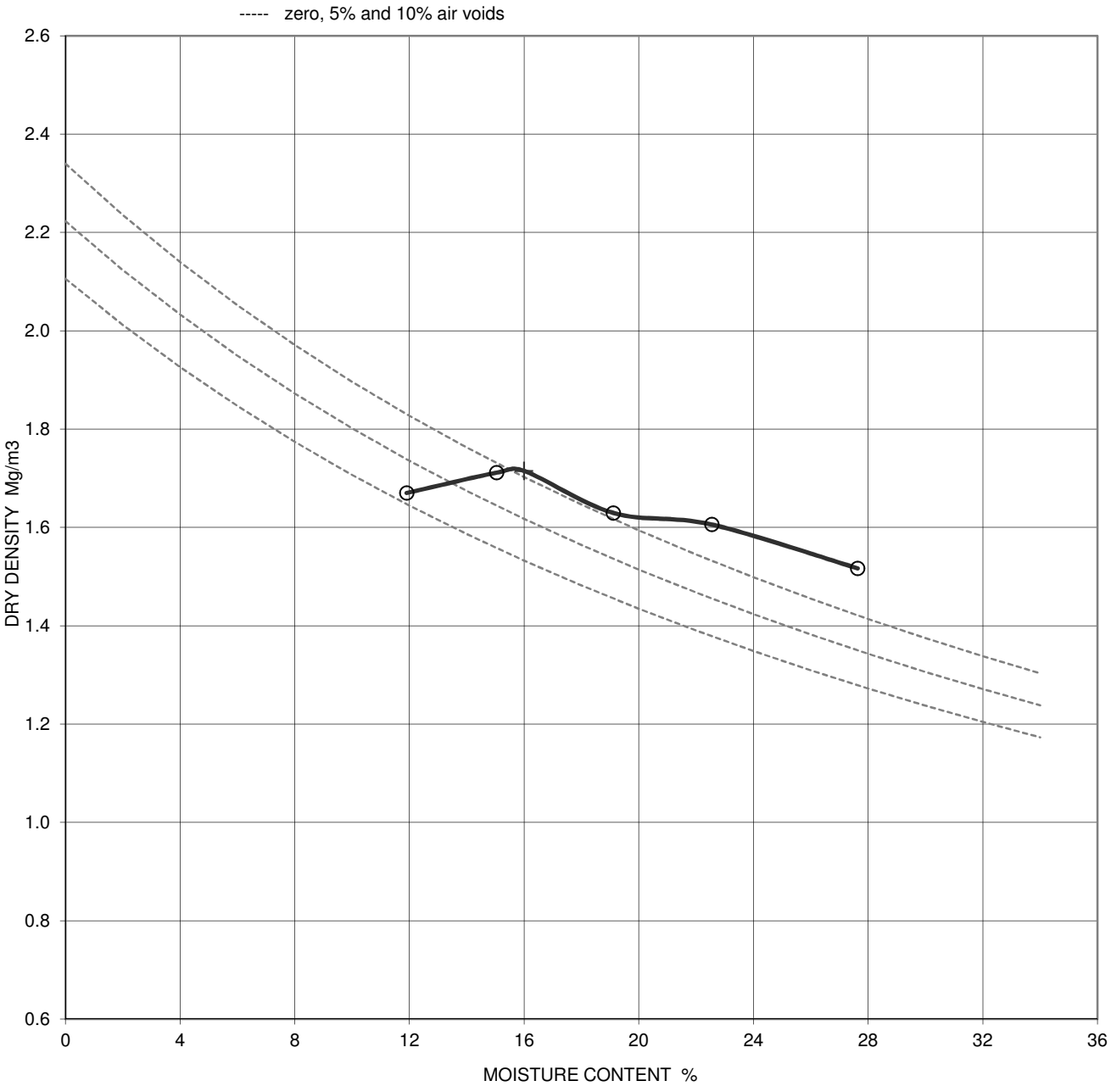
Optimum moisture content, %

24

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH308
		Sample Depth (m BGL)	6.00
	A5049-1520150624013221	Sample Type and No	UT12
		Specimen Ref	



Soil description	Soft grey slightly sandy CLAY.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.34	measured - small pyknometer	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.72

Optimum moisture content, %

16

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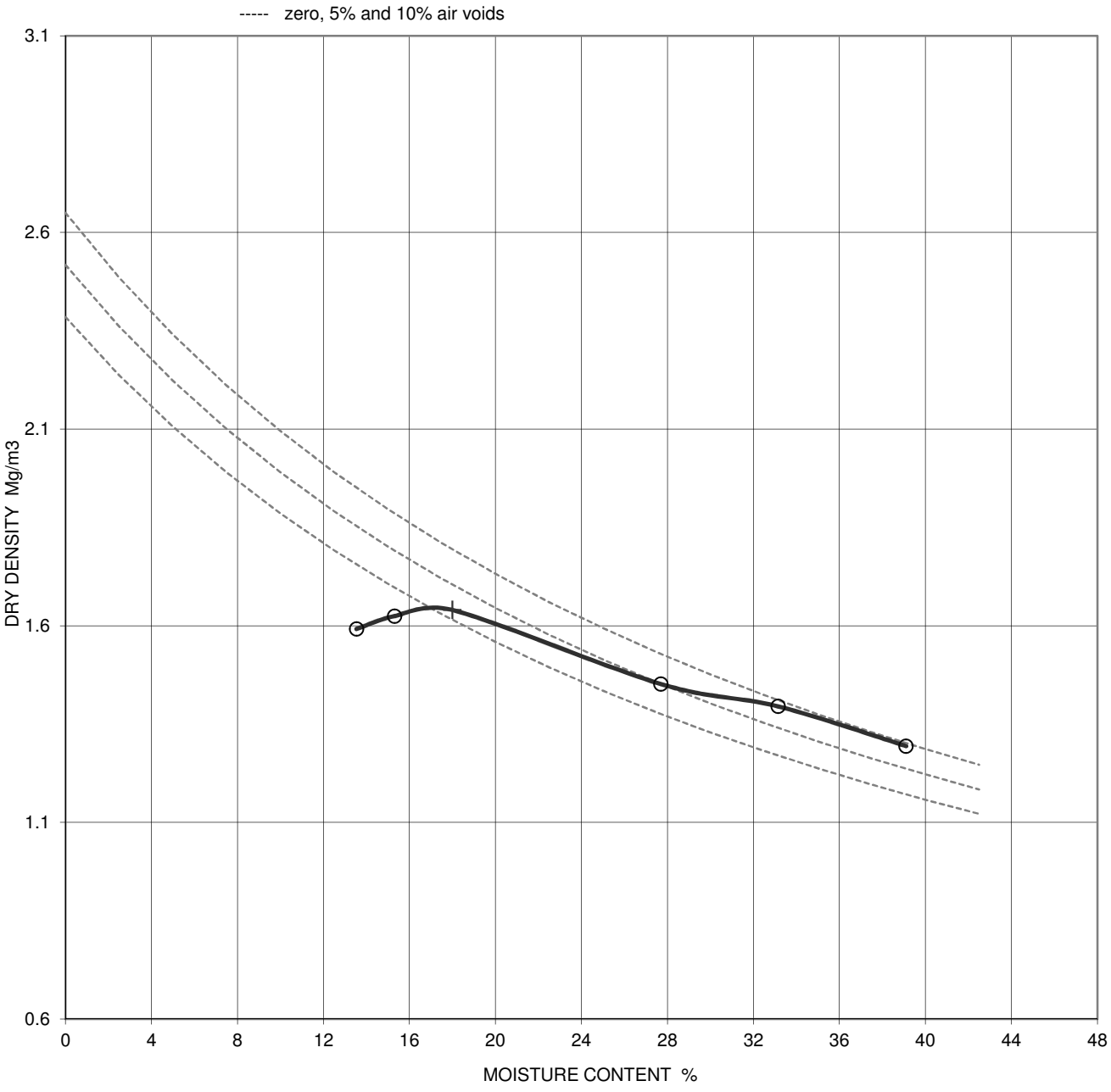
DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : LIGHT COMPACTION, 2.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH309
		Sample Depth (m BGL)	3.20
	A5049-1520150521041713	Sample Type and No	UT8
		Specimen Ref	



Soil description	Firm dark grey slightly sandy CLAY.		
Test method	BS 1377:part 4:1990: clause 3.3, 2.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.64

Optimum moisture content, %

18

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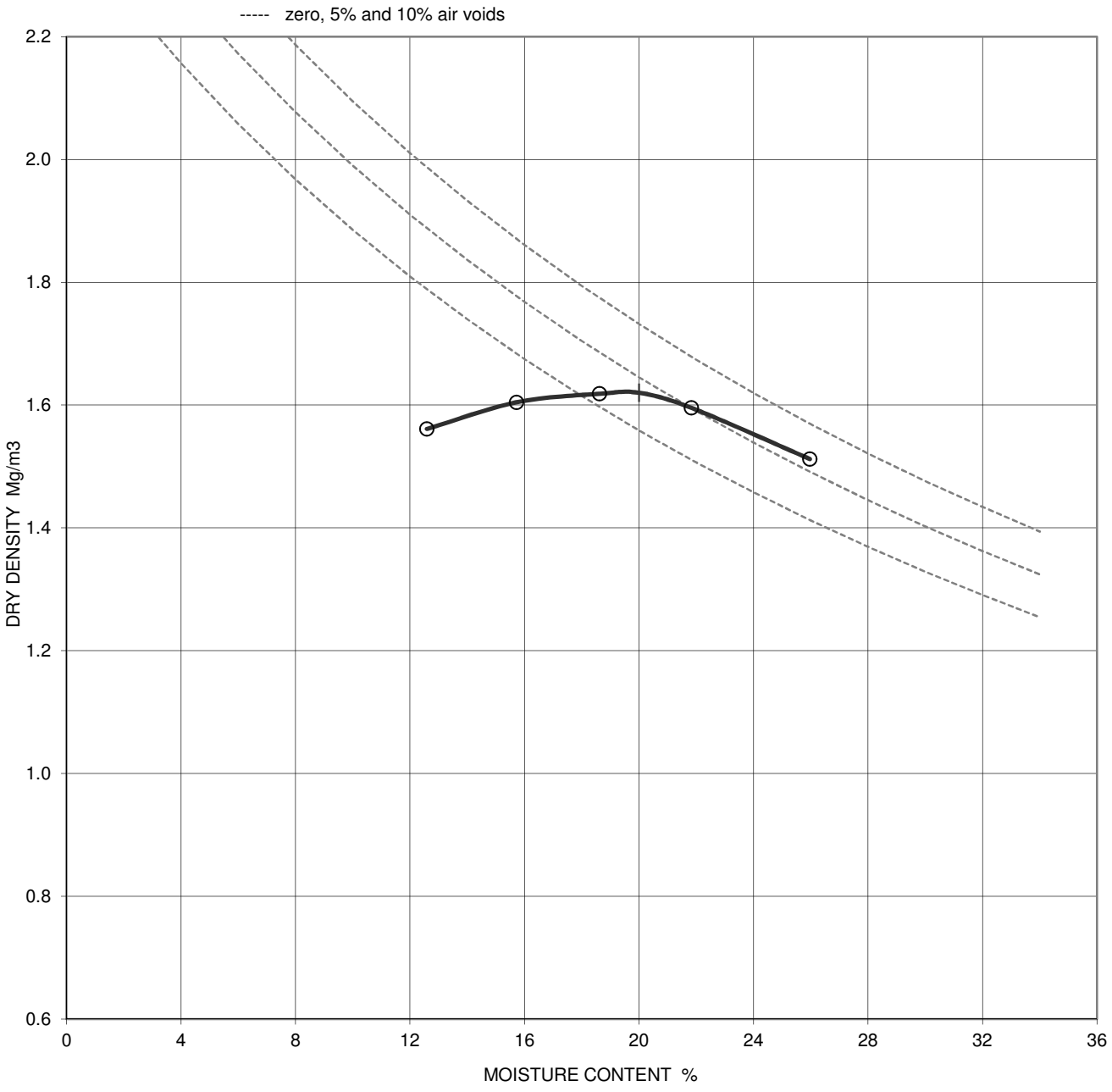
QA Ref				
SLD 4, 3.3/4 Rev 2.6 Jun 15	#VAL UEL	Project No A5049-15 Project Name TRINITY BURIAL GROUND	Printed:17/08/20 15 14:09	Figure COMPL

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : HEAVY COMPACTION, 4.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH306
		Sample Depth (m BGL)	0.50
	A5049-15BH306B320150519113230	Sample Type and No	B3
		Specimen Ref	



Soil description	Brown slightly sandy slightly gravelly CLAY with frequent rootlets.		
Test method	BS 1377:part 4:1990: clause 3.5, 4.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, composite specimens tested		
Material > 37.5mm	0	%	
Material < 37.5mm > 20mm	0	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.62

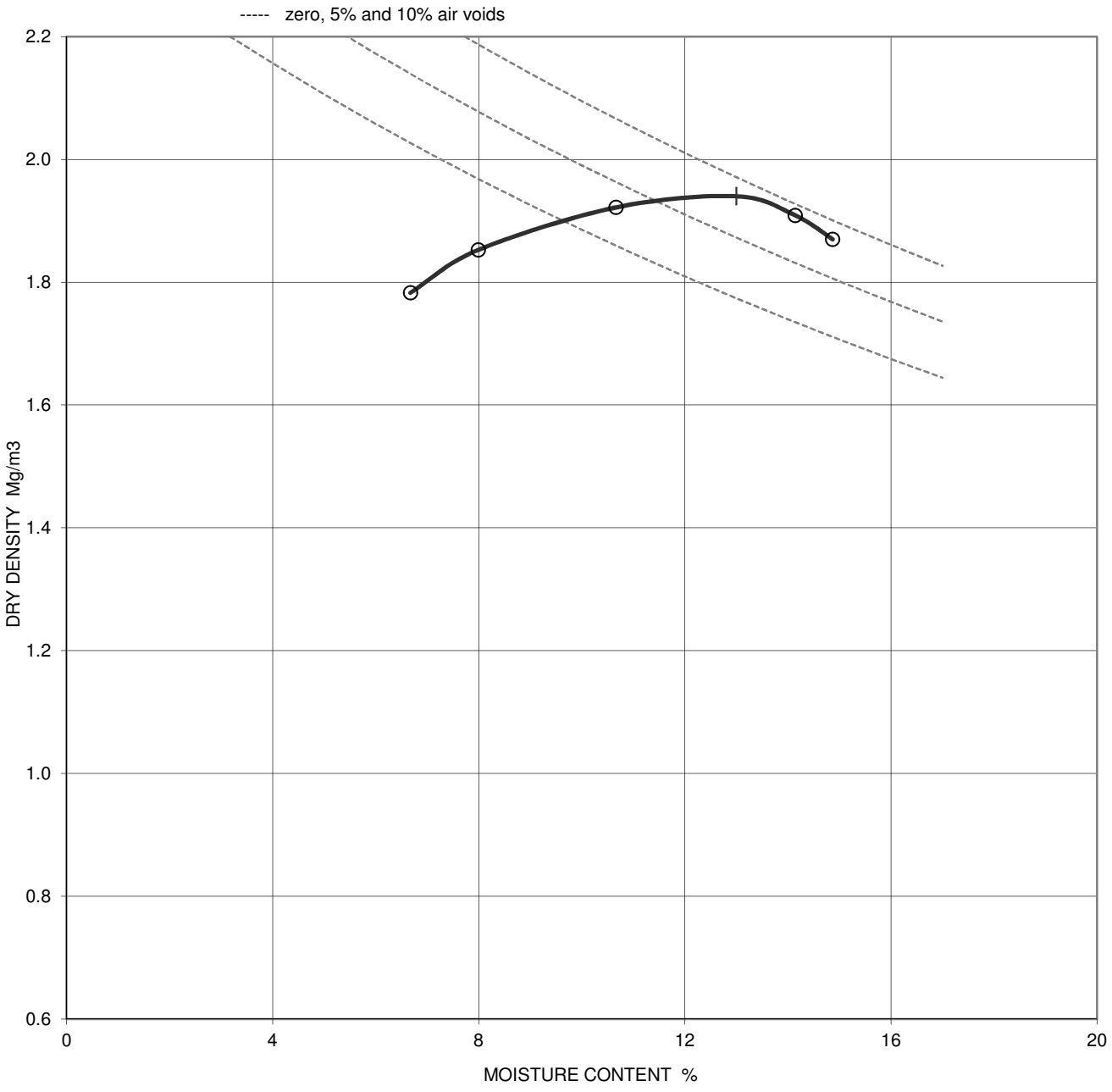
Optimum moisture content, %

20

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

DRY DENSITY / MOISTURE CONTENT RELATIONSHIP
BS1377 : PART 4 : 1990 : HEAVY COMPACTION, 4.5 kg rammer

Sample Details:	SAMPLE ID:	Hole No	BH310
		Sample Depth (m BGL)	0.30
	A5049-15BH310B220150519113231	Sample Type and No	B2A
		Specimen Ref	



Soil description	Greyish brown clayey SAND AND GRAVEL.		
Test method	BS 1377:part 4:1990: clause 3.5, 4.5kg rammer in a 1 litre mould		
Preparation	Original material was natural, single sample tested		
Material > 37.5mm	1	%	
Material < 37.5mm > 20mm	4	%	
Particle density	2.65	assumed	
Remarks			

Derived Parameters +

Maximum dry density, Mg/m3

1.94

Optimum moisture content, %

13

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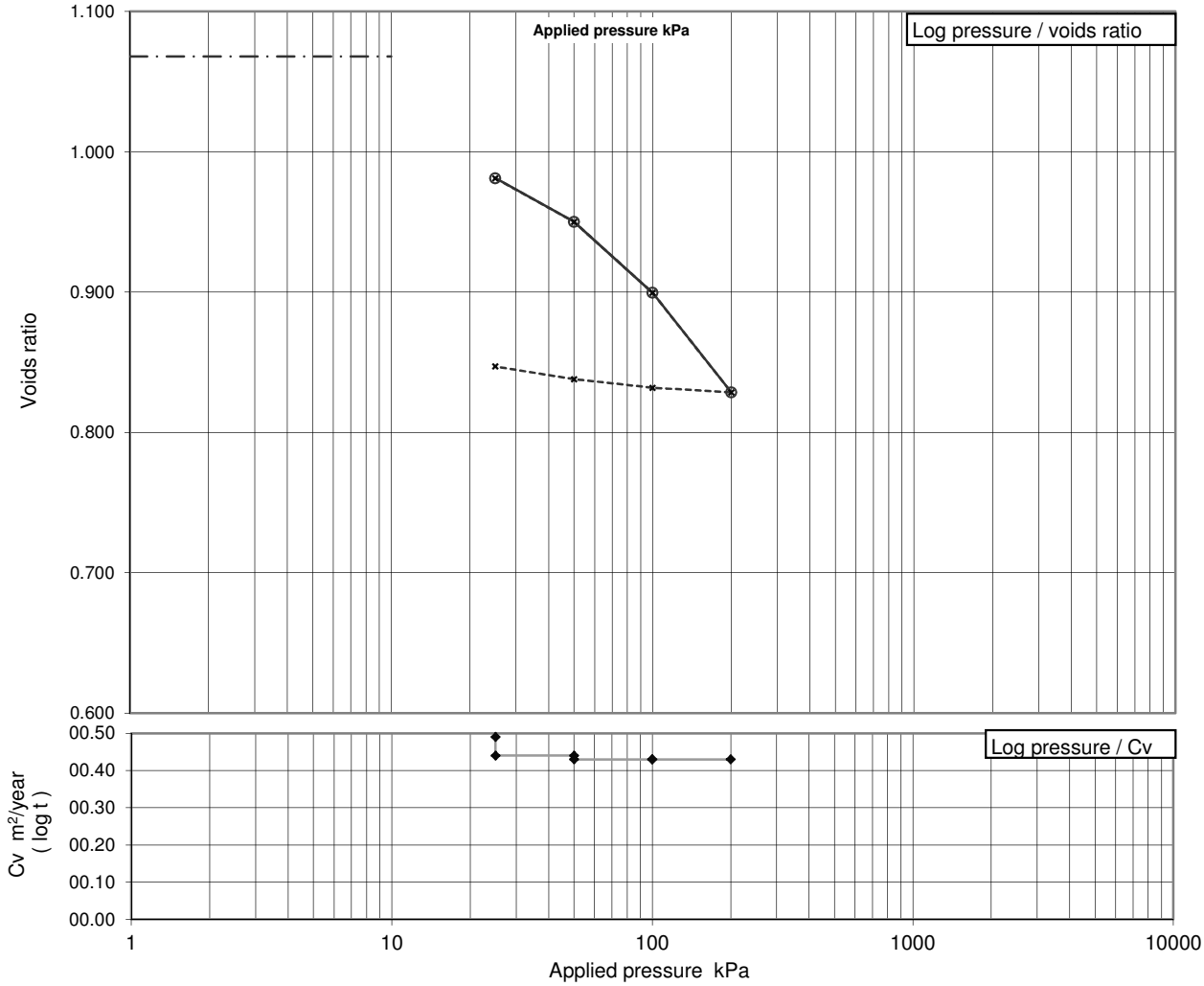
ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH302
		Sample Depth (m BGL)	6.00
	A5049-1520150622101237	Sample Type and No	P16
		Specimen Ref	



Soil description	Soft dark greyish brown organic slightly sandy silty CLAY.
Preparation	Undisturbed
Index properties (if available)	Liquid limit % : Plastic limit % :

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	75.02		mm
Height	18.95	16.93	mm
Voids ratio	1.068	0.847	
Moisture content	39	30	%
Bulk density	1.78	1.87	Mg/m^3
Dry density	1.28	1.43	Mg/m^3
Saturation	96	95	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) $m^2/year$	C_v ($t_{90, root}$) $m^2/year$	
0	1.0679				
25	0.9811	1.678	0.49	0.52	
50	0.9501	0.626	0.44	0.47	
100	0.8995	0.519	0.43	0.46	
200	0.8286	0.373	0.43	0.46	
100	0.8318	0.018	-	-	
50	0.8379	0.067	-	-	
25	0.8470	0.197	-	-	

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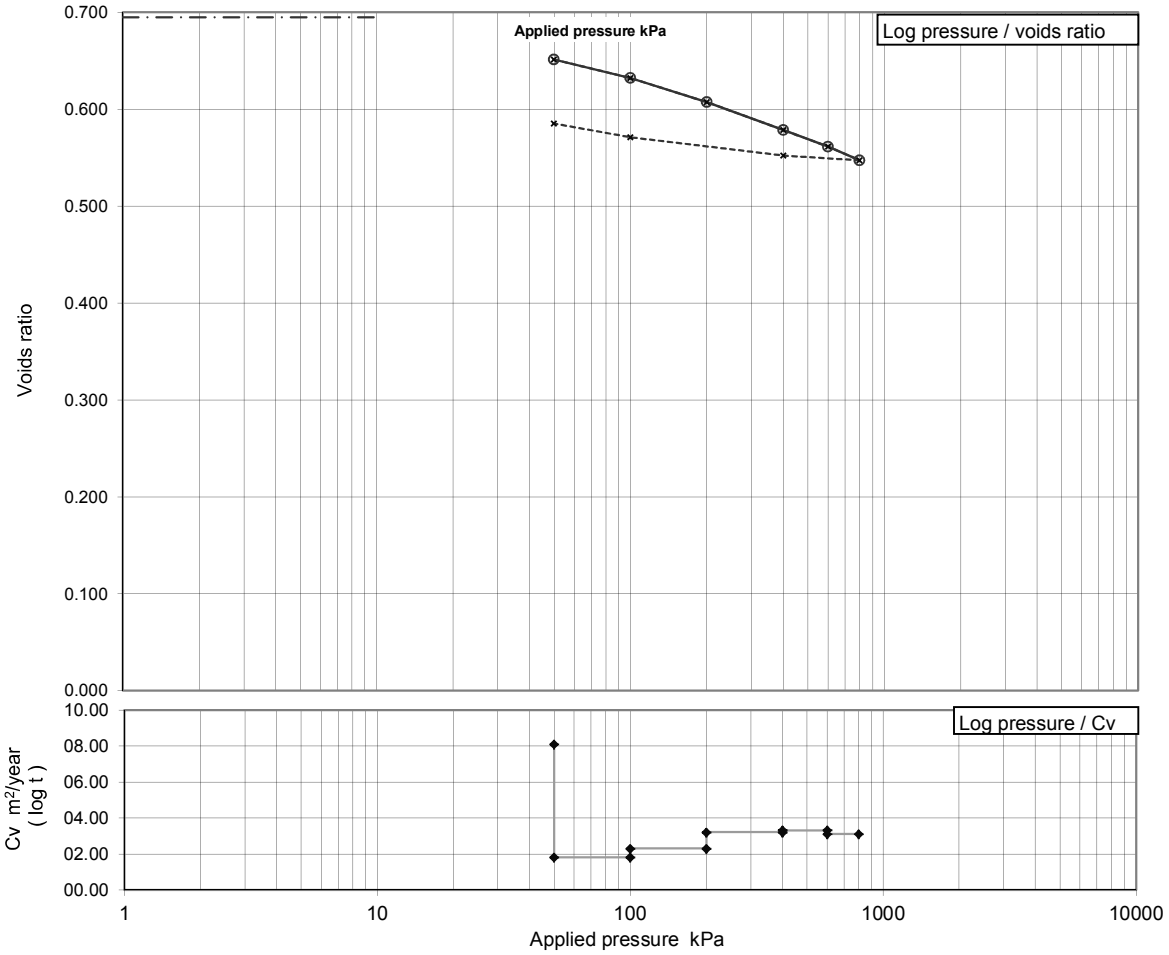
ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

ESG

Sample Details:	SAMPLE ID:	Hole No	BH302
		Sample Depth (m BGL)	16.50
	A5049-1520150622101917	Sample Type and No	U41
		Specimen Ref	



Soil description	Firm brown slightly sandy slightly gravelly CLAY.				
Preparation	Undisturbed				
Index properties (if available)	Liquid limit %	37	Plastic limit %	18	

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	75.00		mm
Height	18.94	17.72	mm
Voids ratio	0.694	0.585	
Moisture content	25	23	%
Bulk density	1.96	2.05	Mg/m³
Dry density	1.56	1.67	Mg/m³
Saturation	96	103	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

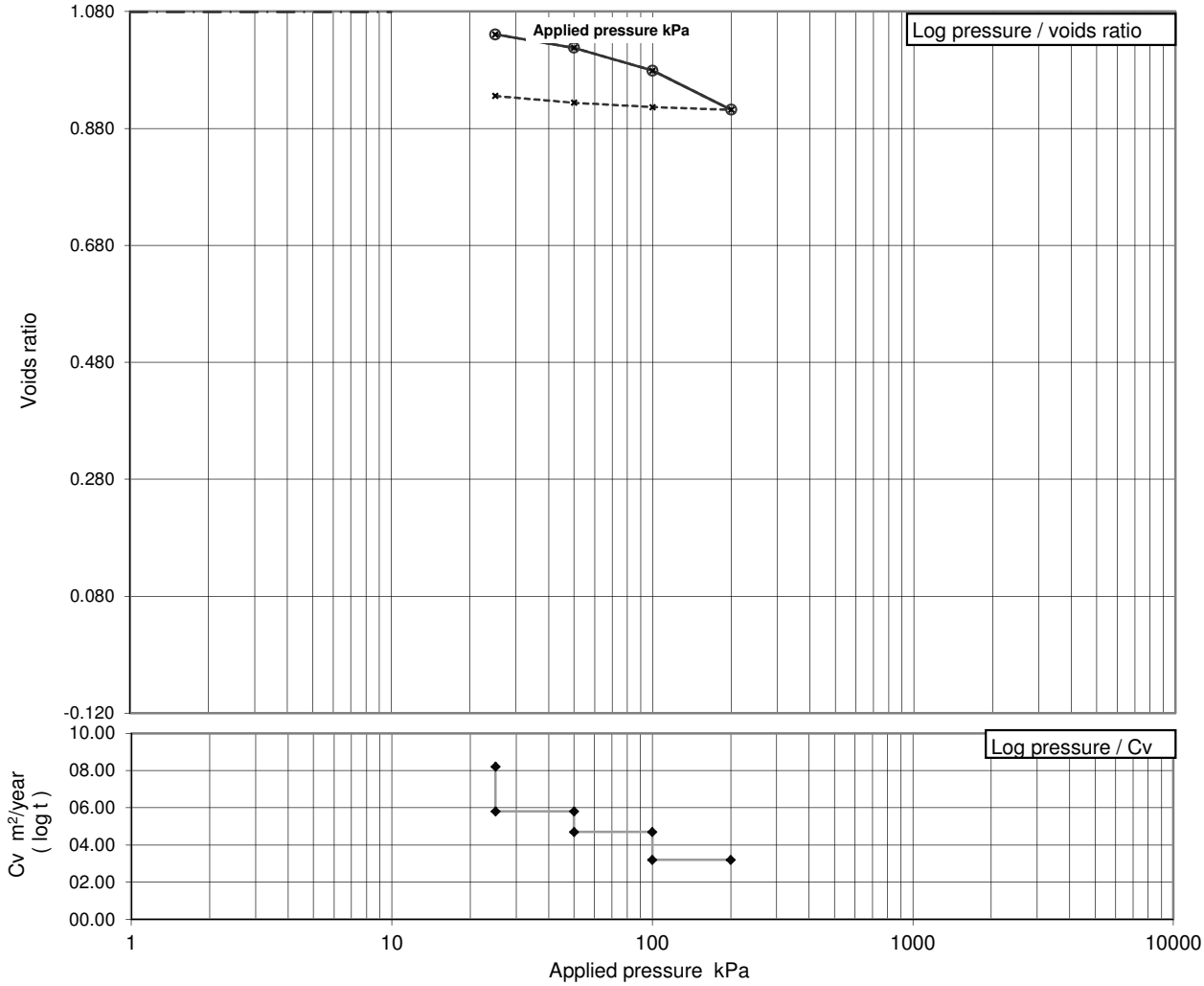
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	0.6944				
50	0.6511	0.511	8.1	8.7	
100	0.6322	0.230	1.8	1.9	
200	0.6074	0.152	2.3	2.5	
400	0.5784	0.090	3.2	3.3	
600	0.5612	0.054	3.3	3.6	
800	0.5471	0.045	3.1	3.2	
400	0.5522	0.008	-	-	
100	0.5710	0.040	-	-	
50	0.5851	0.180	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH304
		Sample Depth (m BGL)	8.50
	A5049-1520150611121007	Sample Type and No	P27
		Specimen Ref	



Soil description	Firm brownish grey organic sandy CLAY.
Preparation	Undisturbed
Index properties (if available)	Liquid limit % : Plastic limit % :

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	75.01		mm
Height	18.93	17.62	mm
Voids ratio	1.079	0.935	
Moisture content	37	33	%
Bulk density	1.74	1.82	Mg/m^3
Dry density	1.27	1.37	Mg/m^3
Saturation	90	94	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) $m^2/year$	C_v ($t_{90, root}$) $m^2/year$	
0	1.0792				
25	1.0407	0.740	8.2	8.7	
50	1.0180	0.446	5.8	6.2	
100	0.9789	0.388	4.7	5	
200	0.9119	0.339	3.2	3.4	
100	0.9163	0.023	-	-	
50	0.9240	0.080	-	-	
25	0.9355	0.240	-	-	

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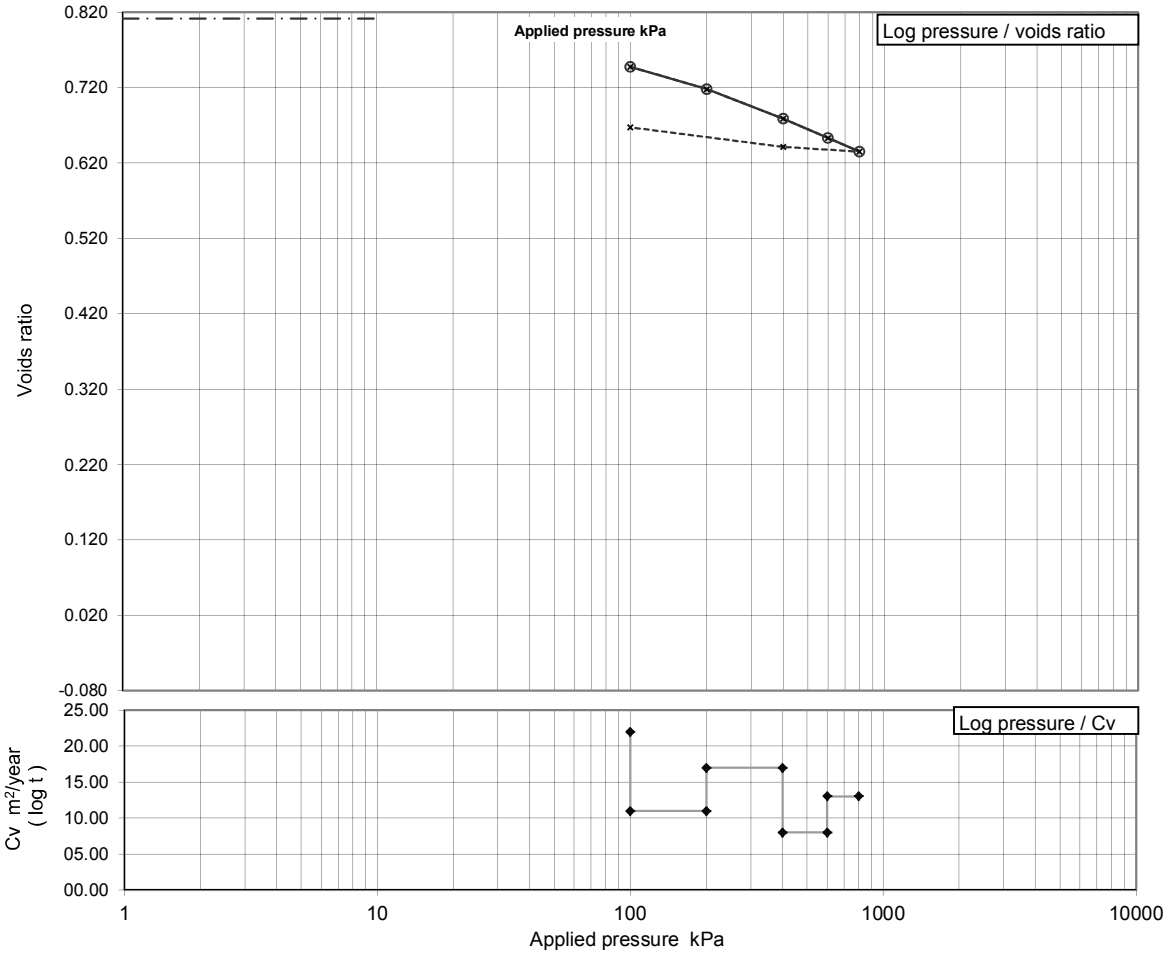
ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH306
		Sample Depth (m BGL)	18.00
	A5049-1520150611124721	Sample Type and No	U60
		Specimen Ref	



Soil description	Firm brown sandy CLAY.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	35	Plastic limit %	20

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	75.01		mm
Height	18.99	17.48	mm
Voids ratio	0.812	0.667	
Moisture content	28	26	%
Bulk density	1.88	2.00	Mg/m³
Dry density	1.46	1.59	Mg/m³
Saturation	92	102	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

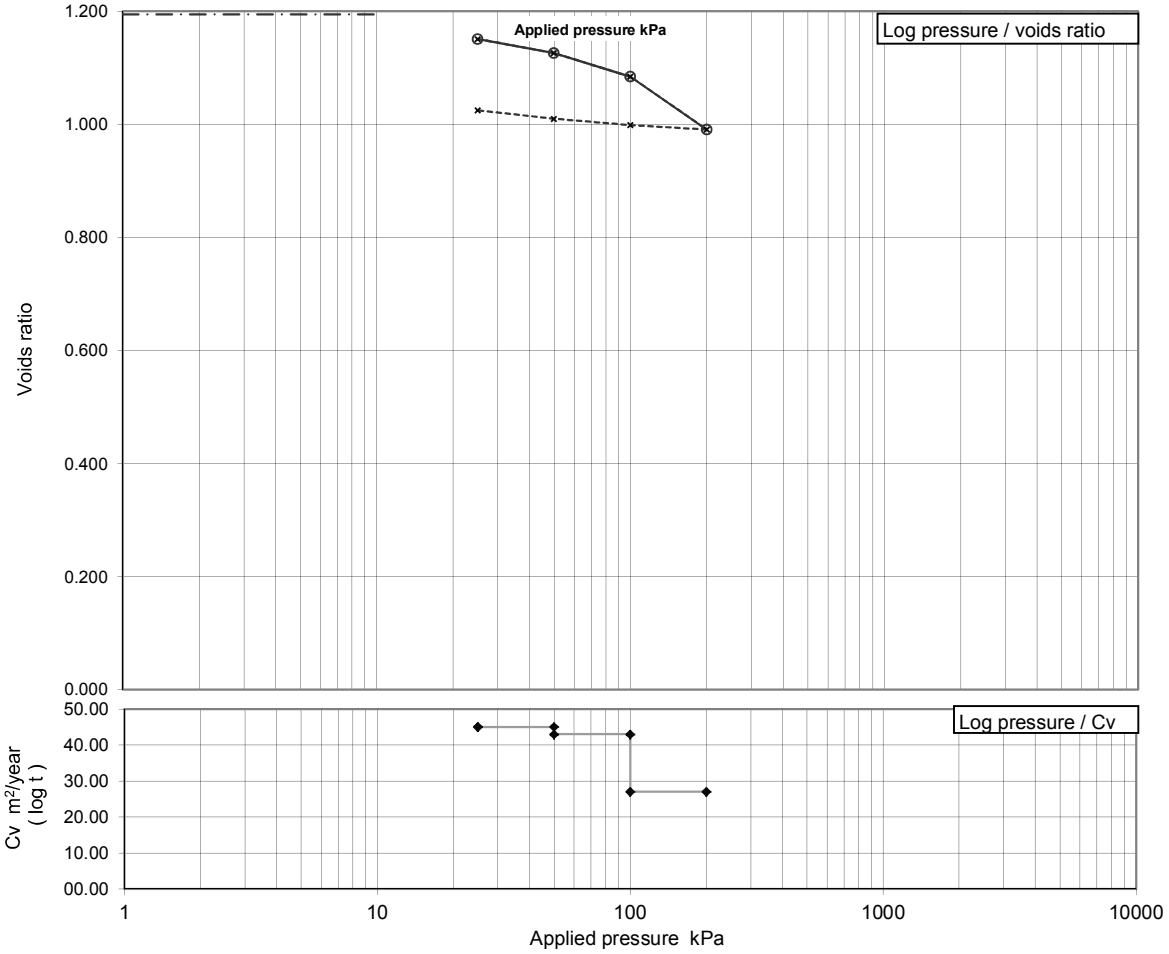
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	0.8117				
100	0.7476	0.354	22	24	
200	0.7180	0.169	11	12	
400	0.6787	0.114	17	18	
600	0.6532	0.076	8	8.4	
800	0.6350	0.055	13	14	
400	0.6414	0.010	-	-	
100	0.6672	0.052	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH308
		Sample Depth (m BGL)	6.65
	A5049-1520150624013401	Sample Type and No	P14
		Specimen Ref	



Soil description	Black organic slightly sandy SILT.
Preparation	Undisturbed
Index properties (if available)	Liquid limit % | Plastic limit %

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	74.99		mm
Height	18.94	17.48	mm
Voids ratio	1.194	1.025	
Moisture content	44	39	%
Bulk density	1.74	1.83	Mg/m^3
Dry density	1.21	1.31	Mg/m^3
Saturation	97	102	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

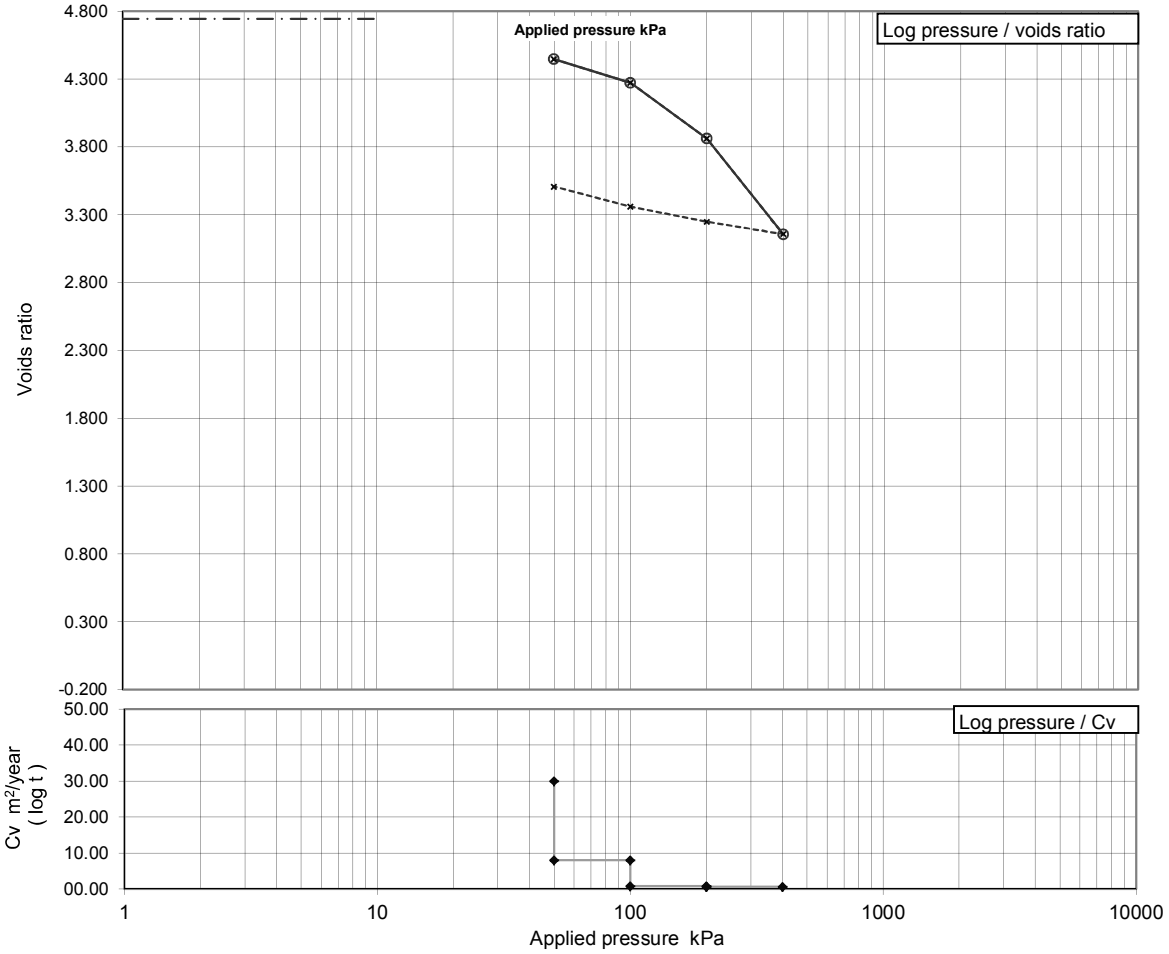
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) $m^2/year$	C_v ($t_{90, root}$) $m^2/year$	
0	1.1942				
25	1.1507	0.794	45	48	
50	1.1258	0.463	45	48	
100	1.0843	0.390	43	46	
200	0.9908	0.449	27	29	
100	0.9988	0.040	-	-	
50	1.0097	0.109	-	-	
25	1.0248	0.302	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH308
		Sample Depth (m BGL)	13.65
	A5049-1520150624014959	Sample Type and No	UT28
		Specimen Ref	



Soil description	Dark brownish grey slightly sandy clayey PEAT with wood fragments.				
Preparation	Undisturbed				
Index properties (if available)	Liquid limit %	277	Plastic limit %	176	

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	75.01		mm
Height	18.93	14.86	mm
Voids ratio	4.741	3.508	
Moisture content	139	113	%
Bulk density	1.10	1.25	Mg/m^3
Dry density	0.46	0.59	Mg/m^3
Saturation	78	85	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) m^2/year	C_v ($t_{90, root}$) m^2/year	
0	4.7415				
50	4.4467	1.027	30	32	
100	4.2720	0.641	8	8.3	
200	3.8614	0.779	0.81	0.85	
400	3.1560	0.725	0.64	0.68	
200	3.2488	0.112	-	-	
100	3.3592	0.260	-	-	
50	3.5075	0.680	-	-	

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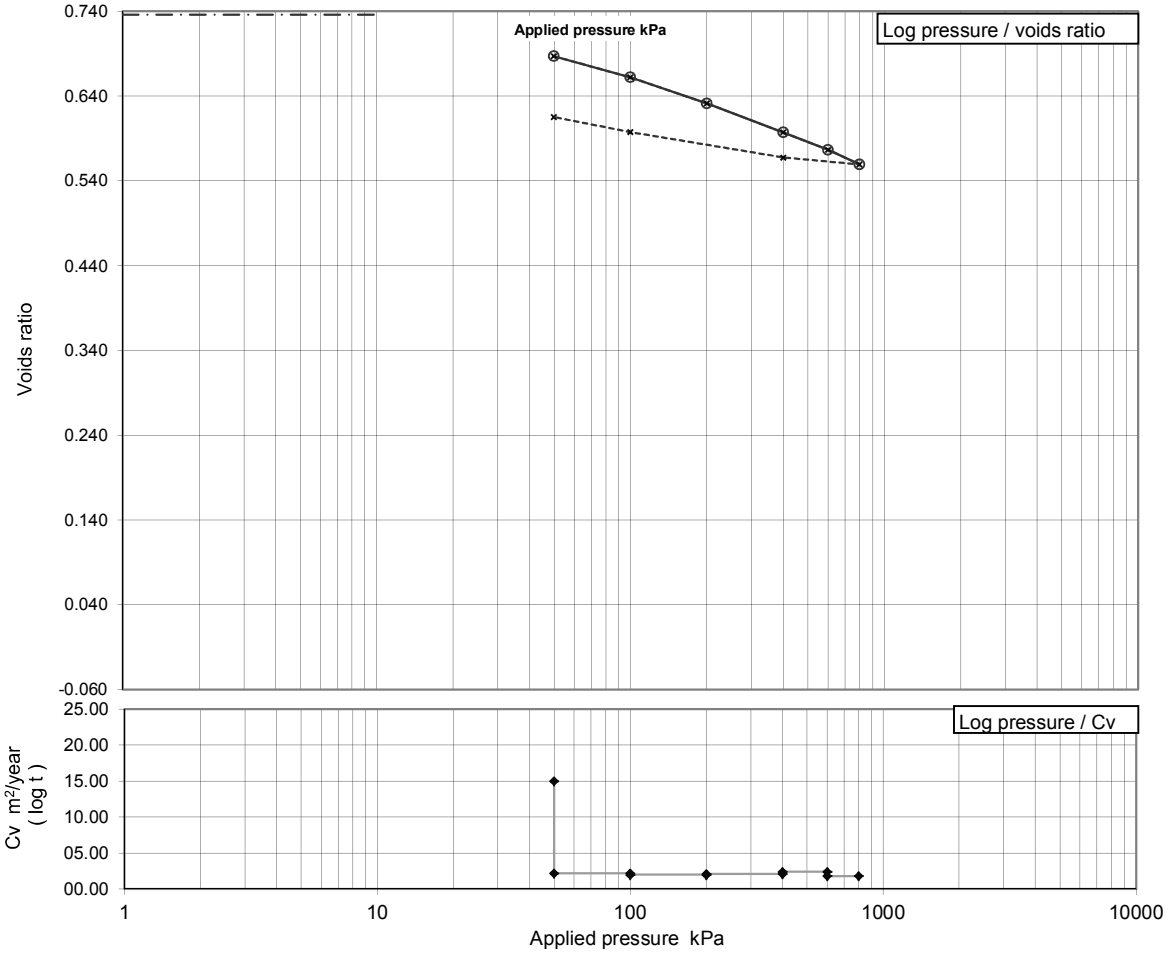
ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH308
		Sample Depth (m BGL)	16.85
	A5049-1520150624015939	Sample Type and No	UT38
		Specimen Ref	



Soil description	Firm brown slightly sandy CLAY.
Preparation	Undisturbed
Index properties (if available)	Liquid limit % | Plastic limit %

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	74.98		mm
Height	18.92	17.60	mm
Voids ratio	0.736	0.615	
Moisture content	26	24	%
Bulk density	1.93	2.04	Mg/m^3
Dry density	1.53	1.64	Mg/m^3
Saturation	95	105	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

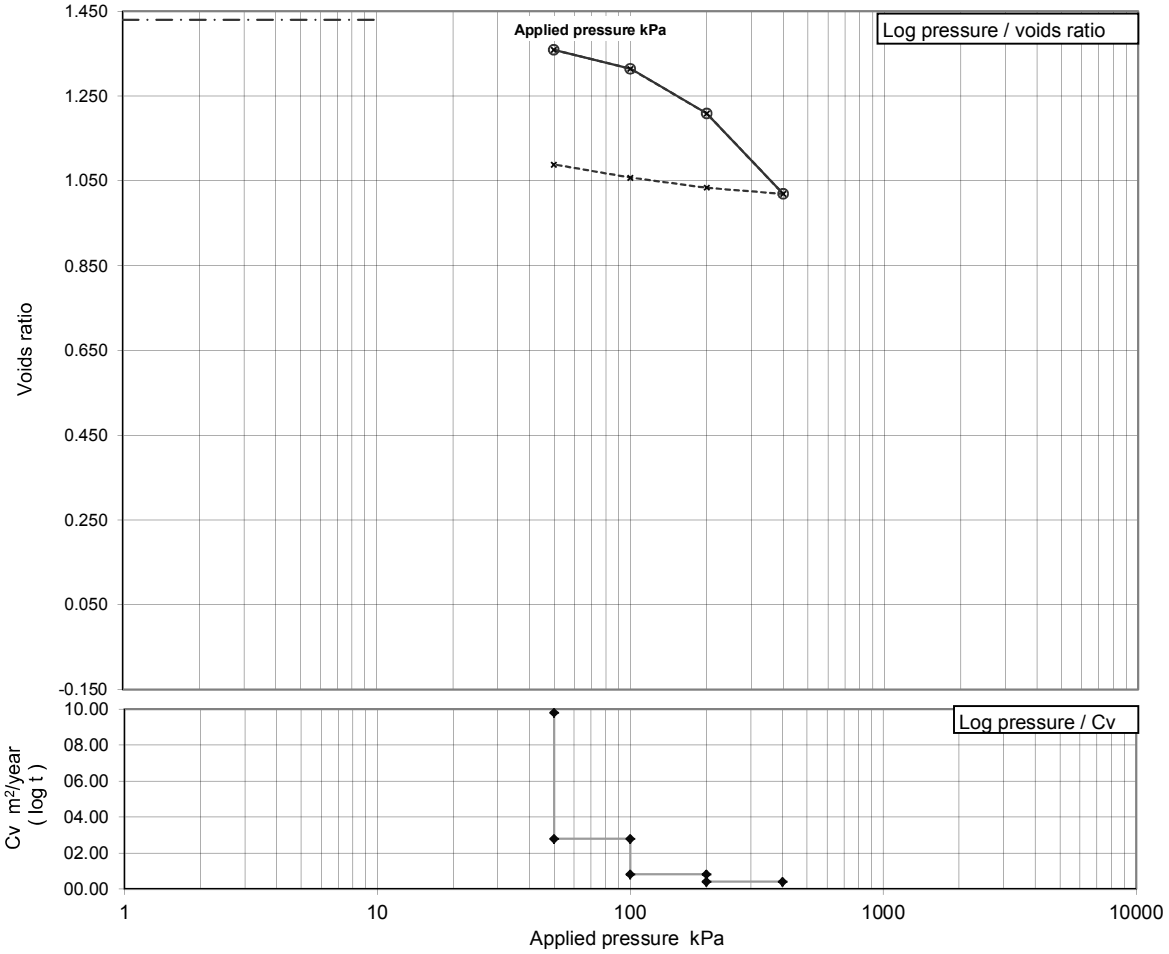
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) m^2/year	C_v ($t_{90, root}$) m^2/year	
0	0.7358				
50	0.6870	0.563	15	16	
100	0.6621	0.295	2.2	2.3	
200	0.6315	0.184	2	2.1	
400	0.5971	0.105	2.1	2.2	
600	0.5765	0.065	2.4	2.5	
800	0.5594	0.054	1.8	2	
400	0.5676	0.013	-	-	
100	0.5975	0.064	-	-	
50	0.6151	0.221	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH309
		Sample Depth (m BGL)	12.10
	A5049-1520150522015628	Sample Type and No	P39
		Specimen Ref	



Soil description	Firm brownish grey organic slightly sandy CLAY with sand partings.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	72	Plastic limit %	36

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	75.02		mm
Height	18.91	16.25	mm
Voids ratio	1.430	1.088	
Moisture content	50	40	%
Bulk density	1.64	1.78	Mg/m³
Dry density	1.09	1.27	Mg/m³
Saturation	93	98	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

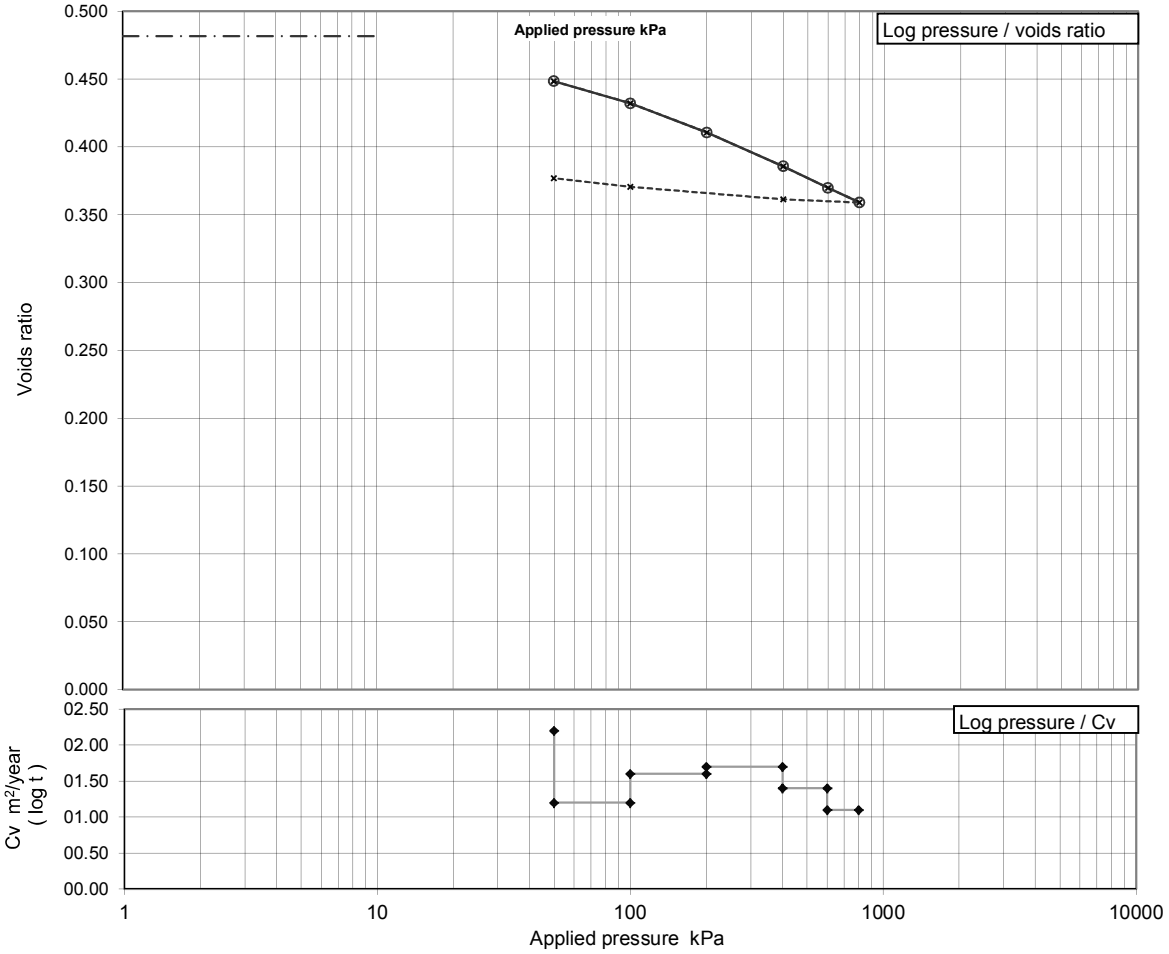
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	1.4297				
50	1.3589	0.583	9.8	10	
100	1.3140	0.380	2.8	2.9	
200	1.2085	0.456	0.82	0.88	
400	1.0193	0.428	0.41	0.44	
200	1.0338	0.036	-	-	
100	1.0575	0.116	-	-	
50	1.0883	0.300	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH309
		Sample Depth (m BGL)	14.40
	A5049-1520150522015842	Sample Type and No	UT45
		Specimen Ref	



Soil description	Firm brown slightly sandy slightly gravelly CLAY.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	32	Plastic limit %	16

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	74.99		mm
Height	18.94	17.60	mm
Voids ratio	0.482	0.377	
Moisture content	17	14	%
Bulk density	2.09	2.20	Mg/m^3
Dry density	1.79	1.92	Mg/m^3
Saturation	93	100	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

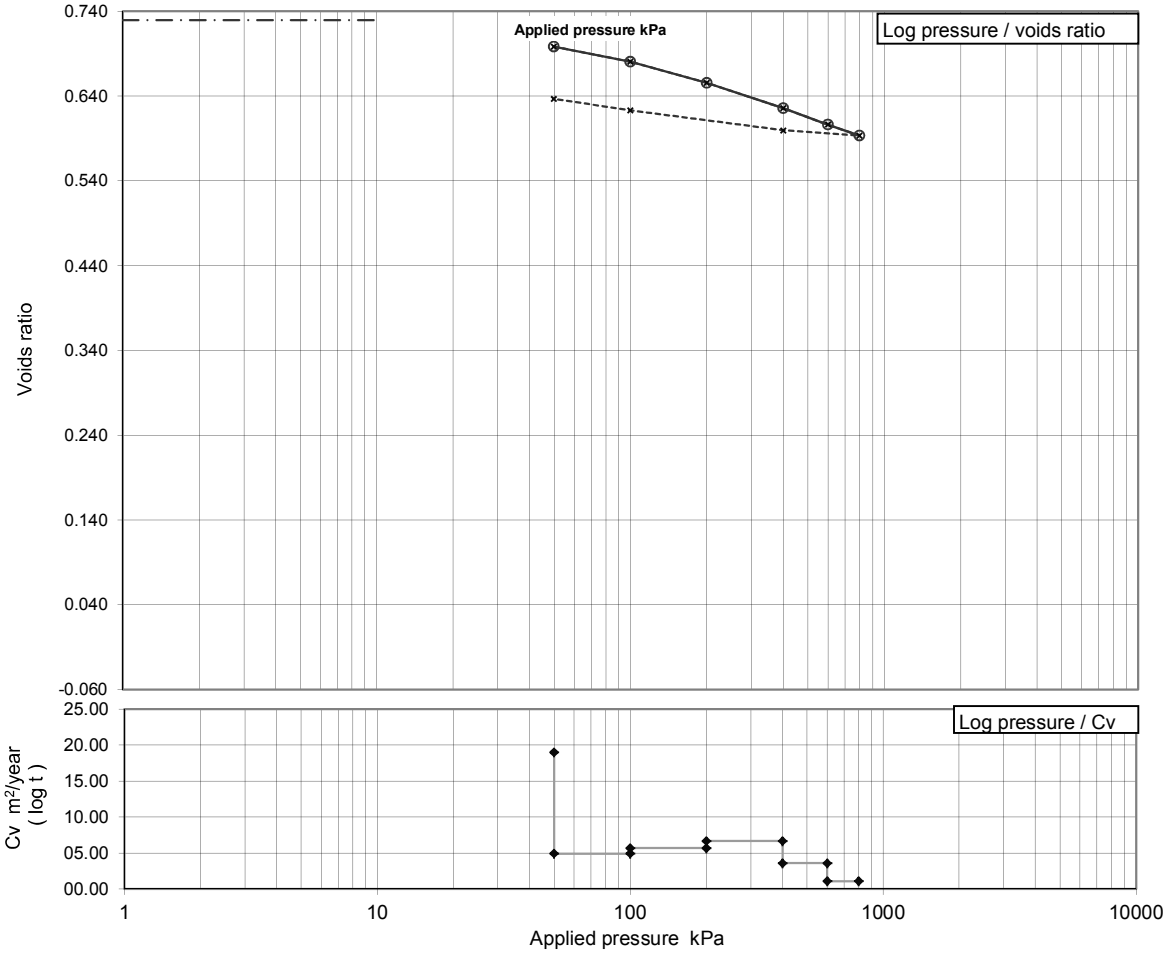
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) $m^2/year$	C_v ($t_{90, root}$) $m^2/year$	
0	0.4815				
50	0.4484	0.447	2.2	2.3	
100	0.4320	0.227	1.2	1.3	
200	0.4106	0.149	1.6	1.7	
400	0.3858	0.088	1.7	1.8	
600	0.3698	0.058	1.4	1.5	
800	0.3591	0.039	1.1	1.2	
400	0.3613	0.004	-	-	
100	0.3706	0.023	-	-	
50	0.3770	0.094	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH309
		Sample Depth (m BGL)	16.35
	A5049-1520150522020026	Sample Type and No	UT51
		Specimen Ref	



Soil description	Firm to stiff brown slightly sandy CLAY.				
Preparation	Undisturbed				
Index properties (if available)	Liquid limit %	49	Plastic limit %	24	

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	74.99		mm
Height	18.98	17.96	mm
Voids ratio	0.729	0.637	
Moisture content	26	25	%
Bulk density	1.93	2.03	Mg/m^3
Dry density	1.53	1.62	Mg/m^3
Saturation	95	105	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

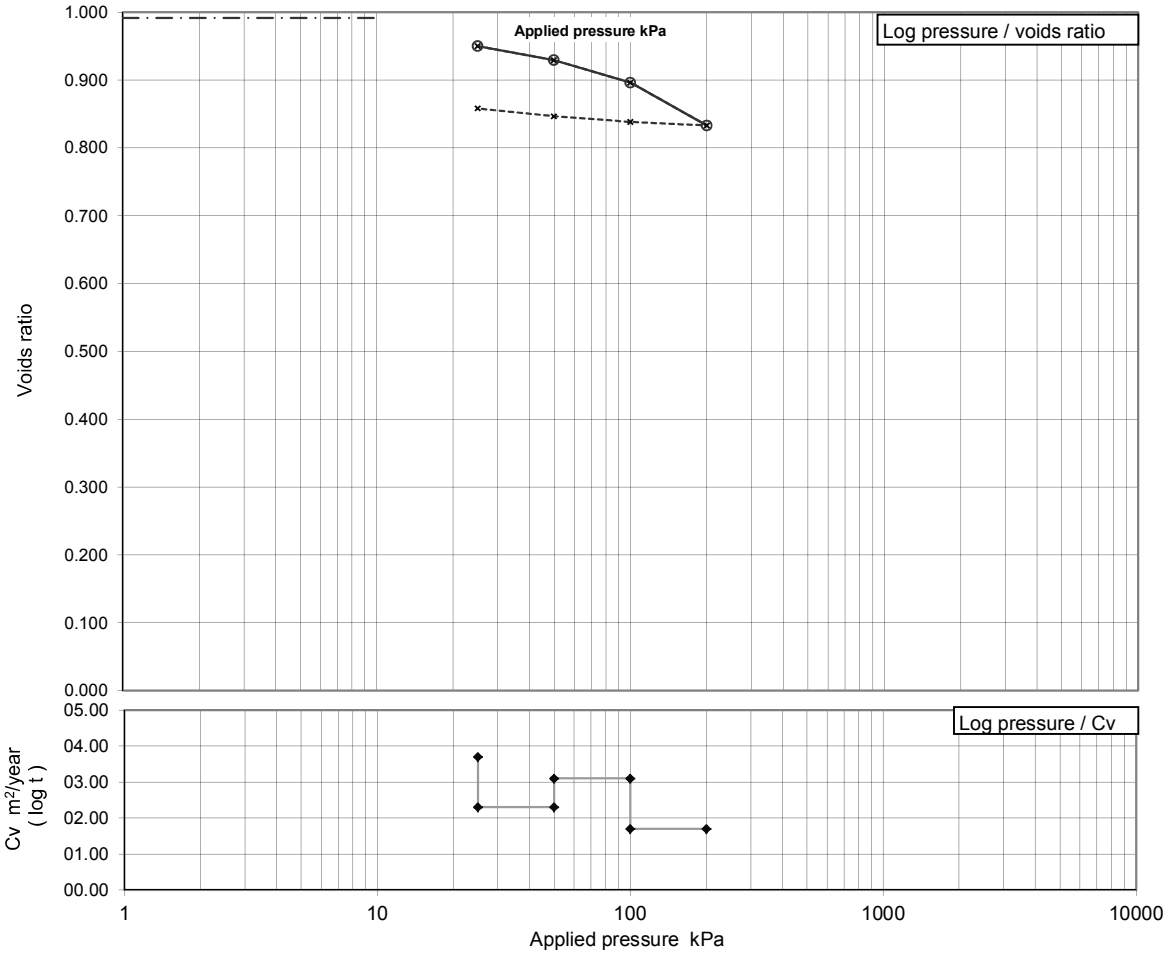
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) $m^2/year$	C_v ($t_{90, root}$) $m^2/year$	
0	0.7292				
50	0.6982	0.359	19	20	
100	0.6804	0.209	4.9	5	
200	0.6554	0.149	5.7	6	
400	0.6256	0.090	6.7	7.3	
600	0.6062	0.059	3.6	4	
800	0.5933	0.040	1.1	1.2	
400	0.5995	0.010	-	-	
100	0.6231	0.049	-	-	
50	0.6366	0.166	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH310
		Sample Depth (m BGL)	5.50
	A5049-1520150609051406	Sample Type and No	P21
		Specimen Ref	



Soil description	Soft dark brownish grey organic slightly sandy silty CLAY.
Preparation	Undisturbed
Index properties (if available)	Liquid limit % 41 Plastic limit % 21

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m^3
Diameter	74.98		mm
Height	18.90	17.64	mm
Voids ratio	0.992	0.858	
Moisture content	36	32	%
Bulk density	1.81	1.89	Mg/m^3
Dry density	1.33	1.43	Mg/m^3
Saturation	96	100	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

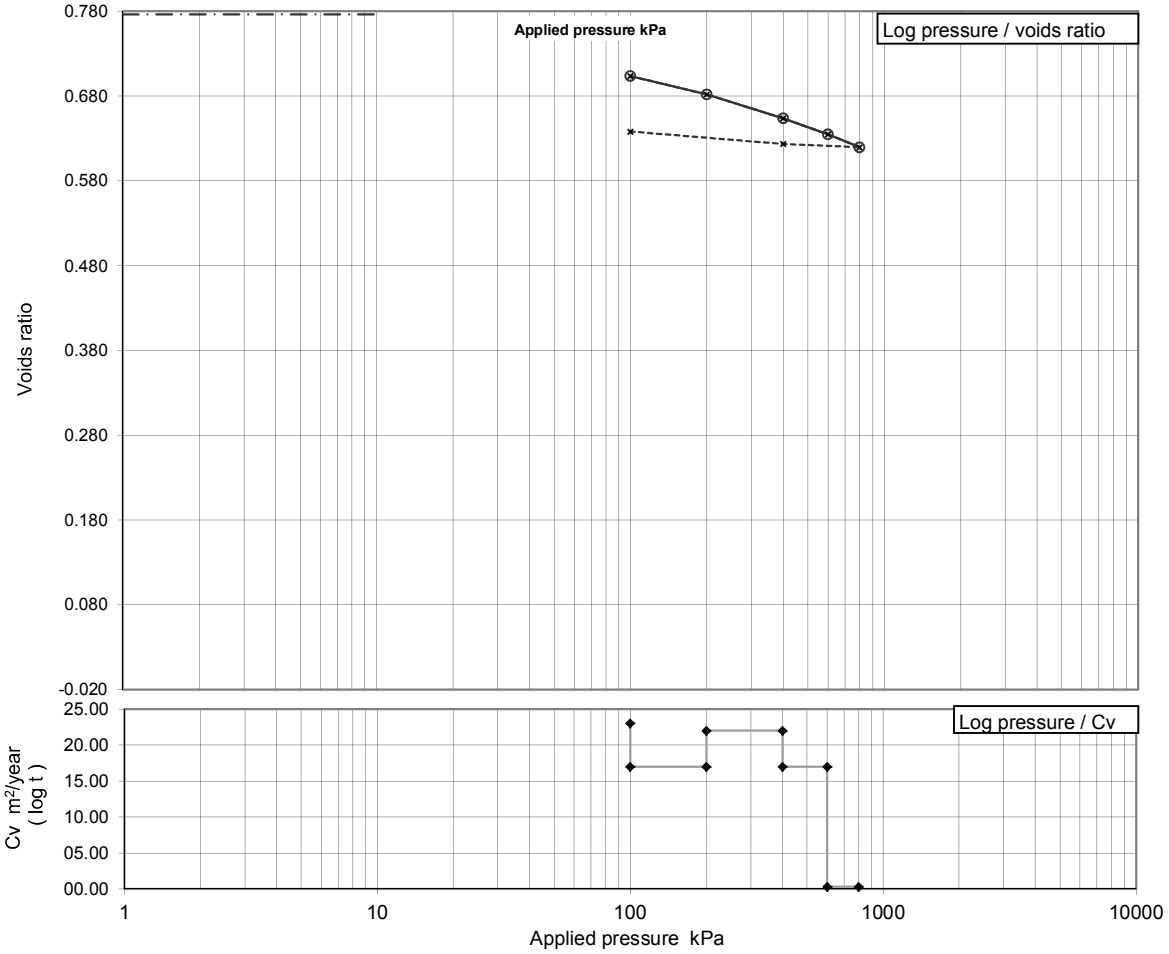
Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m^2/MN	C_v ($t_{50, log}$) m^2/year	C_v ($t_{90, root}$) m^2/year	
0	0.9916				
25	0.9499	0.838	3.7	4.1	
50	0.9295	0.419	2.3	2.5	
100	0.8963	0.344	3.1	3.3	
200	0.8330	0.334	1.7	1.9	
100	0.8383	0.029	-	-	
50	0.8468	0.092	-	-	
25	0.8582	0.249	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:	Hole No	BH310
		Sample Depth (m BGL)	19.60
	A5049-1520150626031013	Sample Type and No	CS43
		Specimen Ref	



Soil description	Firm brown laminated sandy CLAY with sand on laminae.			
Preparation	Undisturbed			
Index properties (if available)	Liquid limit %	42	Plastic limit %	23

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m³
Diameter	74.98		mm
Height	18.97	17.49	mm
Voids ratio	0.776	0.638	
Moisture content	27	25	%
Bulk density	1.90	2.02	Mg/m³
Dry density	1.49	1.62	Mg/m³
Saturation	93	104	%
Average temperature for test	20		°C

Swelling pressure: not measured kPa

Notes :

Specimen taken 10 mm from base of sample

Applied Pressure kPa	Voids ratio	M_v m²/MN	C_v ($t_{50, log}$) m²/year	C_v ($t_{90, root}$) m²/year	
0	0.7763				
100	0.7036	0.409	23	30	
200	0.6818	0.128	17	18	
400	0.6538	0.083	22	23	
600	0.6347	0.058	17	18	
800	0.6195	0.046	0.34	0.37	
400	0.6236	0.006	-	-	
100	0.6381	0.030	-	-	

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

ESG

Hole No.	Sample				Soil Description	Density		w	Test type	Dia.	σ_3	At failure / end of stage				Remarks
	No.	Depth (m)		type		bulk	dry					Axial strain	$\sigma_1 - \sigma_3$	c_u	MODE	
		from	to			Mg/m^3		%		mm	kPa	%	kPa	kPa		
BH302	27	11.50		U	Firm greyish brown organic CLAY.	1.49	0.87	71	UU	103.1	130	12.4	58	29	P	
BH302	49	18.50		U	Firm brown slightly sandy CLAY with occasional sand partings.	2.02	1.59	27	UU	103.0	195	14.5	113	57	C	
BH302	51	19.00		U	Firm brown slightly sandy slightly gravelly CLAY.	2.04	1.65	23	UU	103.8	200	19.9	146	73	P	
BH303	1	2.20		U	Firm to stiff brown slightly sandy CLAY with silt partings.	1.84	1.42	29	UU	103.0	40	17.3	142	71	C	
BH303	5	3.20		P	Soft greyish brown silty CLAY.	1.73	1.23	41	UU	98.9	55	12.4	30	15	C	
BH303	5	3.20		P	Soft greyish brown silty CLAY.	1.62	1.09	49	UU	100.4	55	5.0	55	28	B	CQU TEST. Sat B val = 0.89. Consol Dissipation = 86%
BH303	29	12.20		U	Firm greyish brown slightly sandy slightly gravelly CLAY.	2.30	2.05	12	UU	102.3	125	16.9	144	72	P	
BH303	38	14.70		U	Stiff brown slightly sandy CLAY with occasional sand and silt pockets.	2.05	1.65	24	UU	103.4	165	19.9	115	58	C	
BH303	59	21.00		U	Firm brown slightly sandy CLAY with sand partings.	1.97	1.55	27	UU	103.7	220	19.8	53	27	C	
BH304	20	6.00		U	Soft greyish brown sandy silty CLAY.	1.90	1.43	33	UU	103.7	80	19.4	11	6	P	
BH306	36	11.50		P	Firm brownish grey slightly sandy SILT.	1.73	1.19	45	UU	98.5	135	8.4	40	20	P	
BH306	45	14.50		U	Stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is gravel and chalk.	2.18	1.89	15	UU	104.2	160	19.8	271	136	P	
BH307	3	2.00		UT	Frim to stiff brown slightly sandy CLAY with silt partings.	1.87	1.45	29	UU	102.5	45	15.3	170	85	P	
BH307	16	5.35		UT	Soft to firm greyish brown slightly sandy CLAY.	1.92	1.44	33	UU	103.7	75	19.9	34	17	P	
BH307	38	14.50		UT	Stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is gravel and chalk.	2.20	1.89	16	UU	103.8	160	19.8	222	111	P	
BH307	50	18.20		UT	Firm greyish brown slightly sandy CLAY with sand pockets and partings.	2.03	1.60	27	UU	104.0	195	9.5	89	45	P	
BH307	58	20.60		UT	Firm to stiff greyish brown slightly sandy CLAY with sand and silt partings.	1.97	1.56	26	UU	103.9	210	15.8	183	92	P	
BH309	2	1.90		UT	Firm to stiff brown slightly sandy CLAY with occasional sand partings	1.87	1.42	32	UU	103.1	40	9.9	140	70	B	
BH309	11	3.85		P	Greyish brown slightly sandy SILT.	1.79	1.34	34	UU	99.4	60	8.1	76	38	B	CQU TEST. Sat B val = 0.94 Consol dissipation = 98%
BH309	14	5.30		UT	Soft to firm greyish brown silty CLAY.	1.88	1.40	34	UU	104.0	75	19.8	39	20	P	
BH309	21	7.15		UT	Soft brownish grey silty CLAY.	1.90	1.43	33	UU	102.7	90	19.8	16	8	P	
BH309	25	8.50		P	Firm greyish brown silty CLAY.	1.92	1.46	31	UU	97.7	105	18.2	82	41	P	
BH309	39	12.10		P	Firm brownish grey organic slightly sandy CLAY with sand partings.	1.68	1.10	52	UU	98.4	140	9.4	99	50	P	
BH309	47	15.05		UT	Stiff greyish brown slightly sandy slightly gravelly CLAY.	2.21	1.88	18	UU	103.2	160	19.9	215	108	P	

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

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

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

ESG

Hole No.	Sample				Soil Description	Density		*w*	Test type	Dia.	σ_3	At failure / end of stage				Remarks
	No.	Depth (m)		type		bulk	dry					Axial strain	$\sigma_1 - \sigma_3$	c_u	MODE	
		from	to			Mg/m^3		%		mm	kPa	%	kPa	kPa		
BH309	49	15.70		UT	Stiff greyish brown slightly sandy slightly gravelly CLAY.	2.18	1.84	18	UU	103.3	165	19.8	232	116	P	
BH310	31	9.50		P	Firm greyish brown slightly sandy CLAY.	1.90	1.43	33	UU	97.3	115	11.0	74	37	P	

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

Mode of failure: P plastic; B brittle; C compound

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

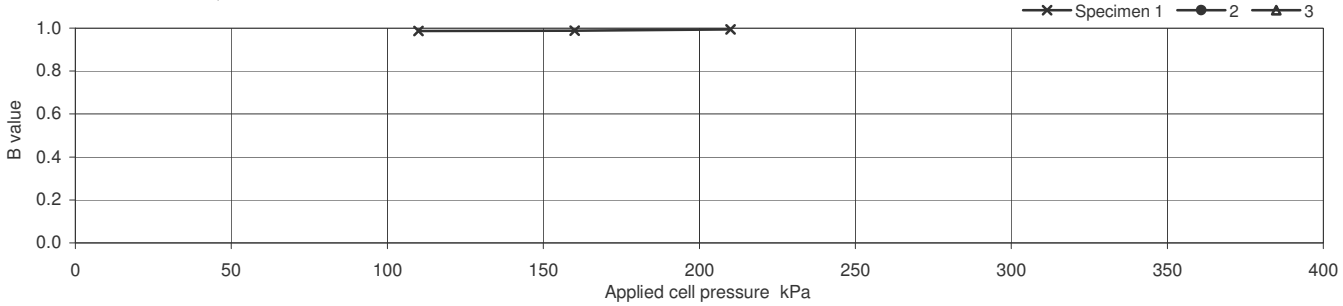
Project No	A5049-15	Sample Details:	Hole No	BH302	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	2.5-3.5	
			No	8	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	184.22		
	Diameter	mm	98.88		
	Bulk Density	Mg/m³	1.80		
	Water Content	%	43		
	Dry density	Mg/m³	1.26		
After consolidation	Length	mm	180.07		
	Diameter	mm	96.62		
	Bulk Density*	Mg/m³	1.86		
	Water Content*	%	38		
	Dry density*	Mg/m³	1.34		

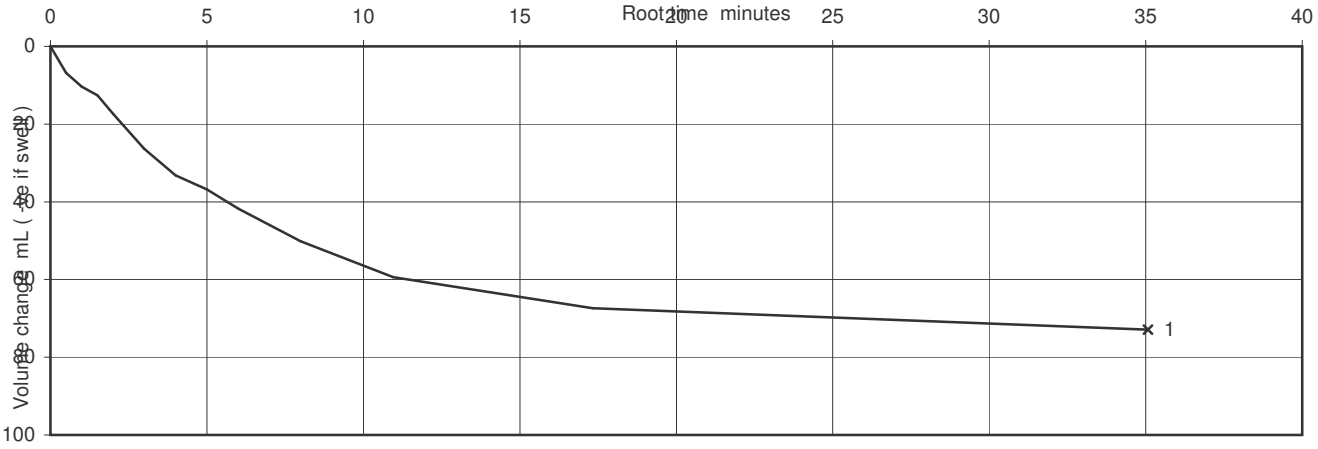
* for undrained test, after consolidation and after test are the same.

Soil Description	Dark grey slightly sandy laminated SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	202.1		
Final B Value		0.99		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		350			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		50			kPa
	Pore pressure at start of consolidation		346			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.88			m^2/year
	Coefficient of Compressibility	M_{vi}	1.14			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.0E-09			m/s

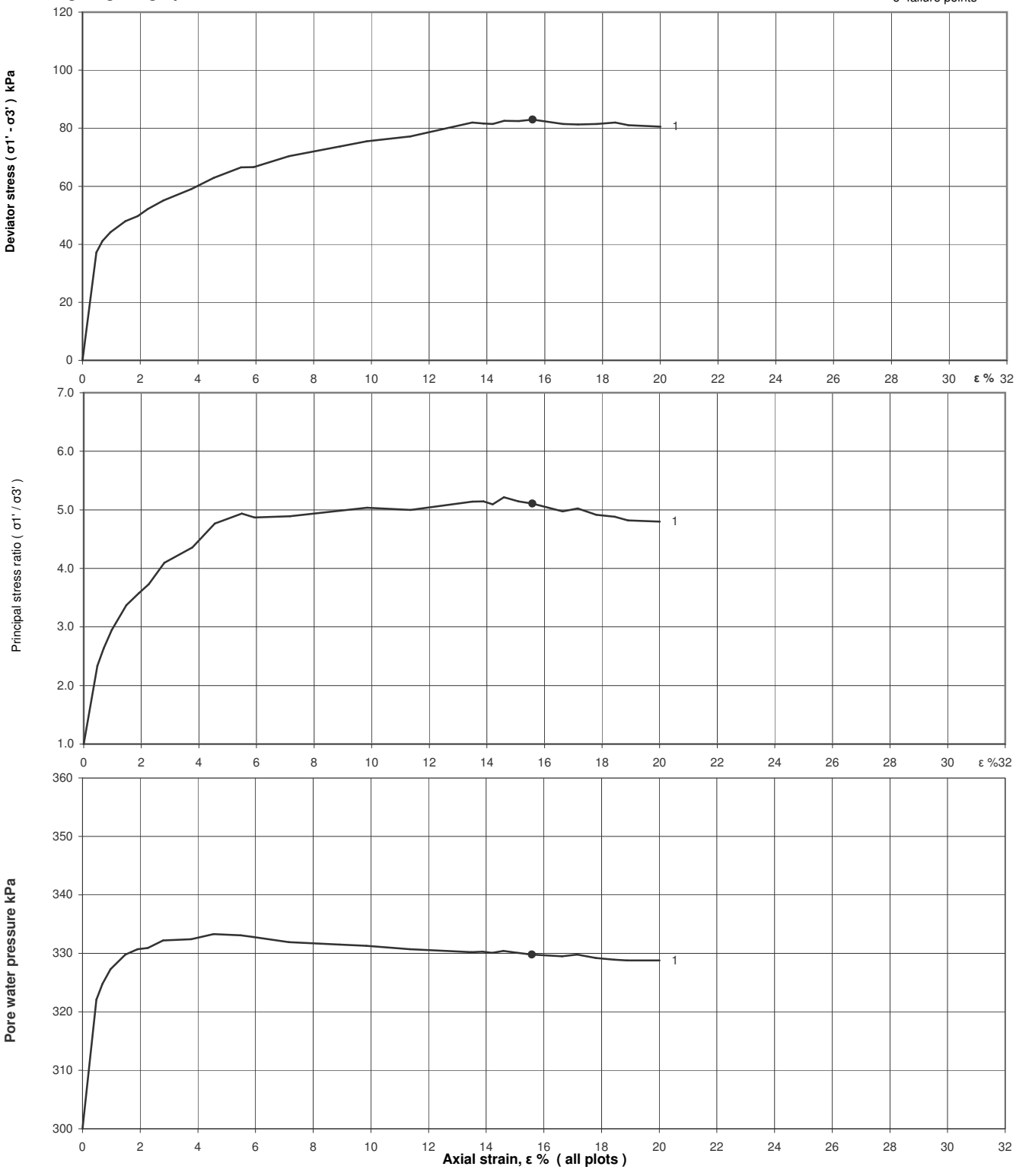


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	2.5-3.5		
			No	8	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

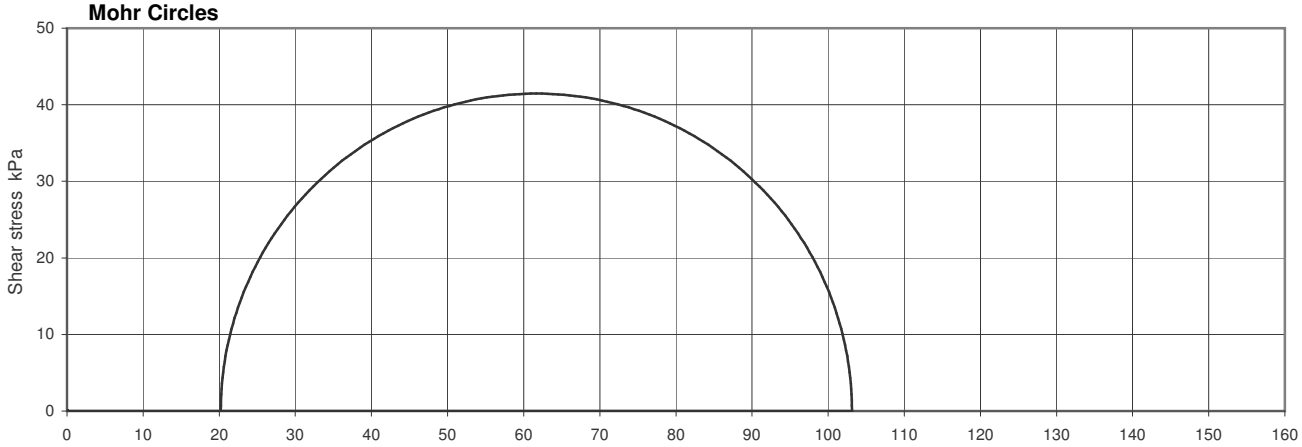


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:51	**CU** sheet 2 of 3

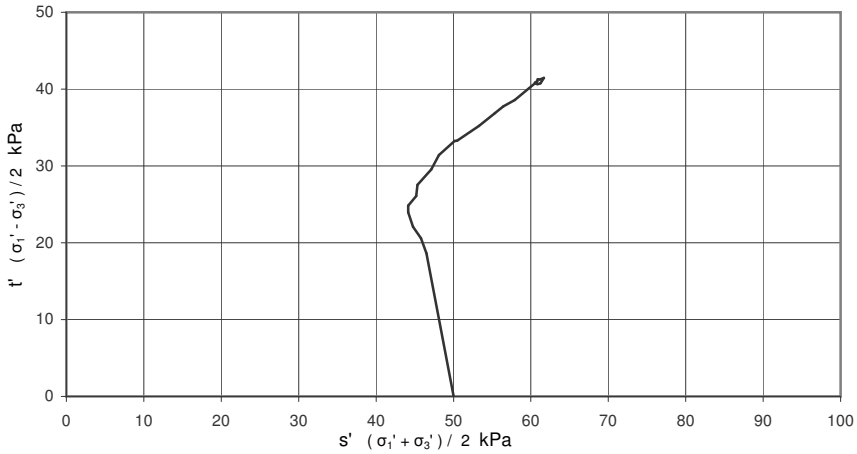
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	2.5-3.5		
			No	8	Type	P
			ID			
			Spec Ref			

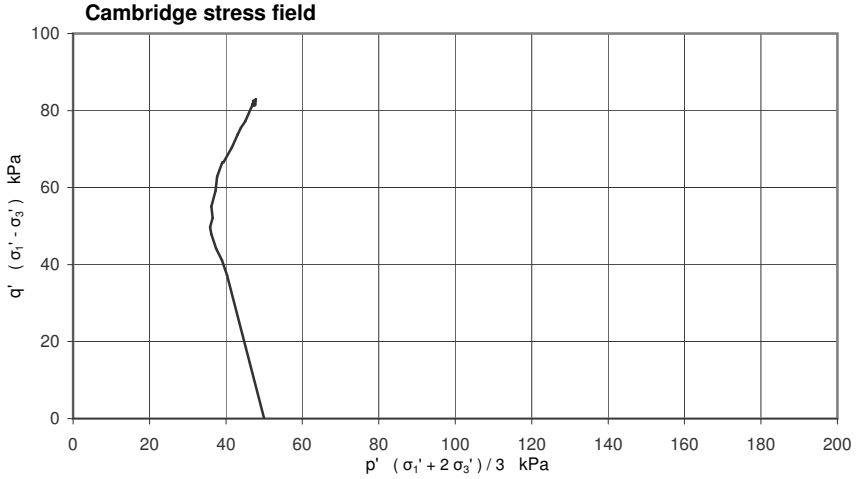
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	350			kPa
Initial pwp	300			kPa
Initial σ_3'	50			kPa
Rate of strain	2.00			%/hr

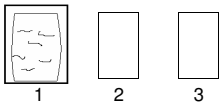
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	15.58			%
$(\sigma_1' / \sigma_3')_f$	5.105			
$(\sigma_1' - \sigma_3')_f$	82.9			kPa
u_f	330			kPa
$\sigma_3'_f$	20			kPa
$\sigma_1'_f$	103			kPa
A_f	0.36			
Time to failure	7.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.315 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

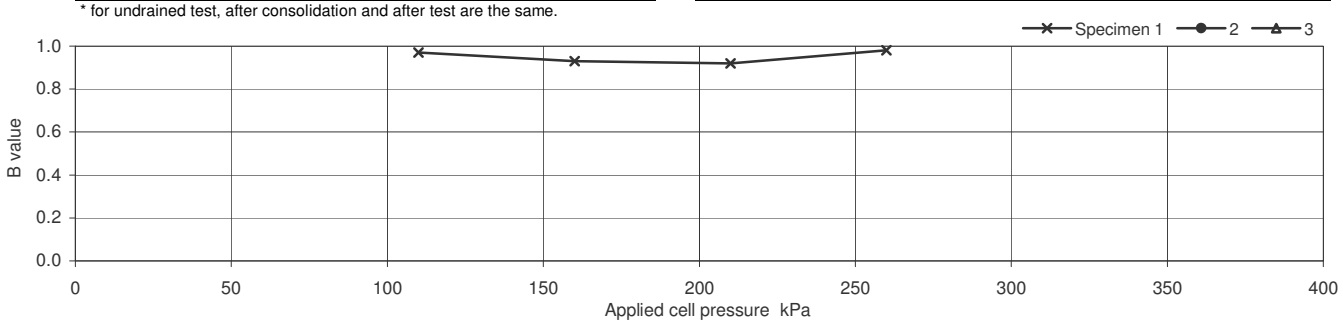
Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.0-5.0		
			No	11	Type	P
			ID			
			Spec Ref			

Specimen Details			1	2	3
Initial	Length	mm	203.34		
	Diameter	mm	97.02		
	Bulk Density	Mg/m³	1.83		
	Water Content	%	40		
	Dry density	Mg/m³	1.31		
After consolidation	Length	mm	200.64		
	Diameter	mm	95.72		
	Bulk Density*	Mg/m³	1.86		
	Water Content*	%	37		
	Dry density*	Mg/m³	1.36		

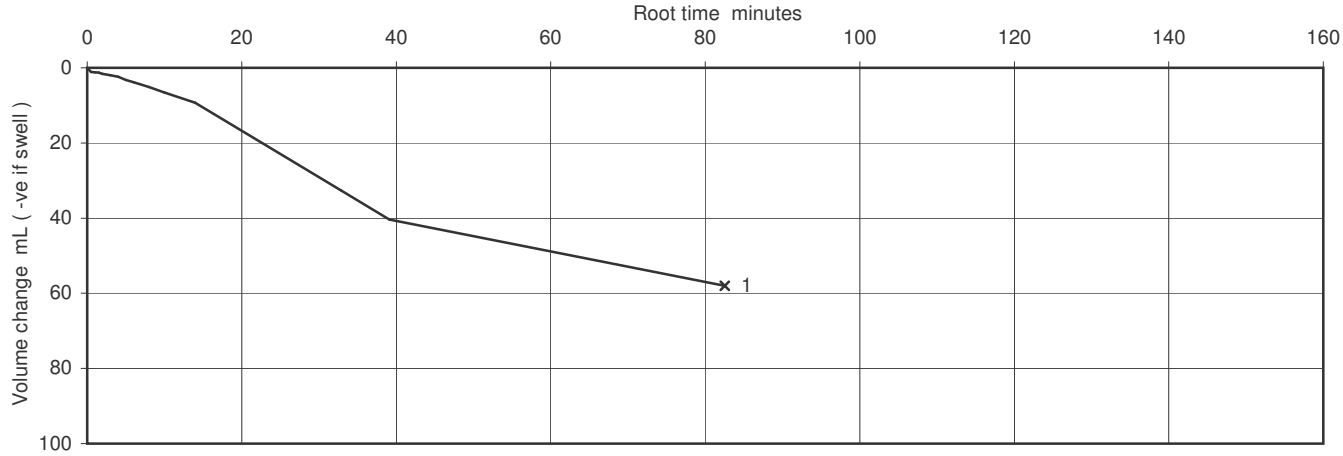
* for undrained test, after consolidation and after test are the same.

Soil Description	Greyish brown slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	245		
Final B Value		0.98		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		365			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		65			kPa
	Pore pressure at start of consolidation		352			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.06			m^2/year
	Coefficient of Compressibility	M_{vi}	0.73			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.4E-11			m/s

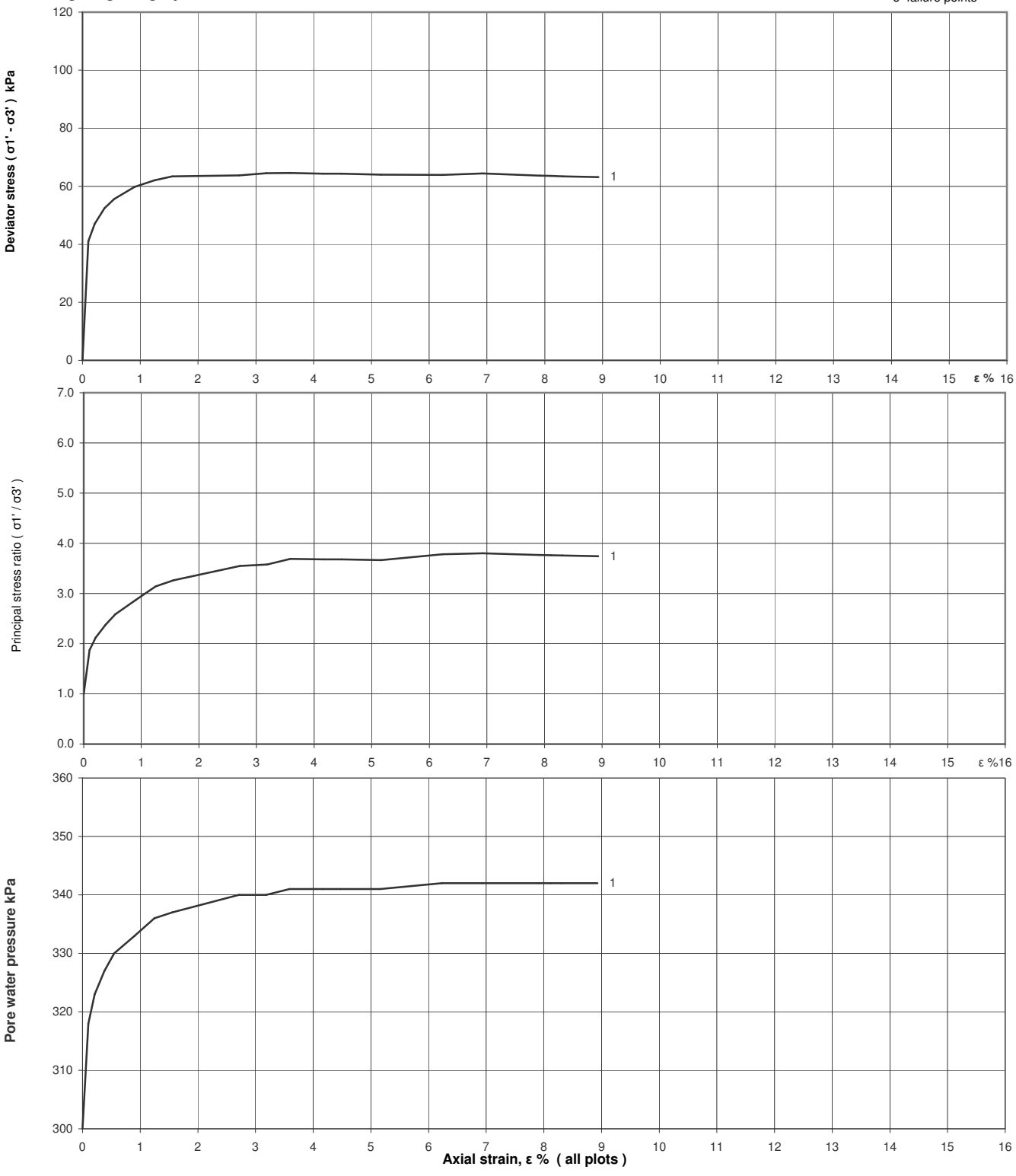


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.0-5.0		
			No	11	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

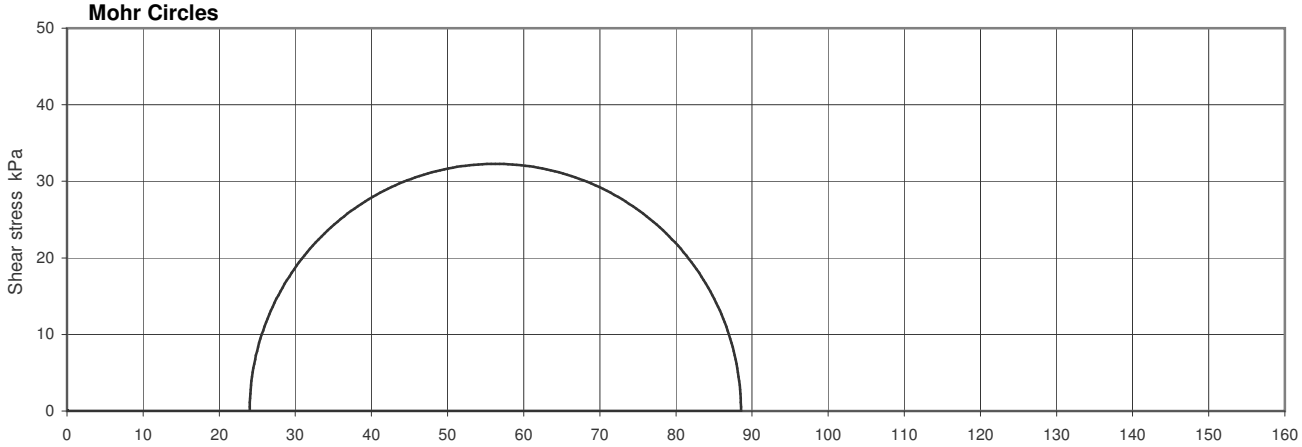


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:14	**CU** sheet 2 of 3

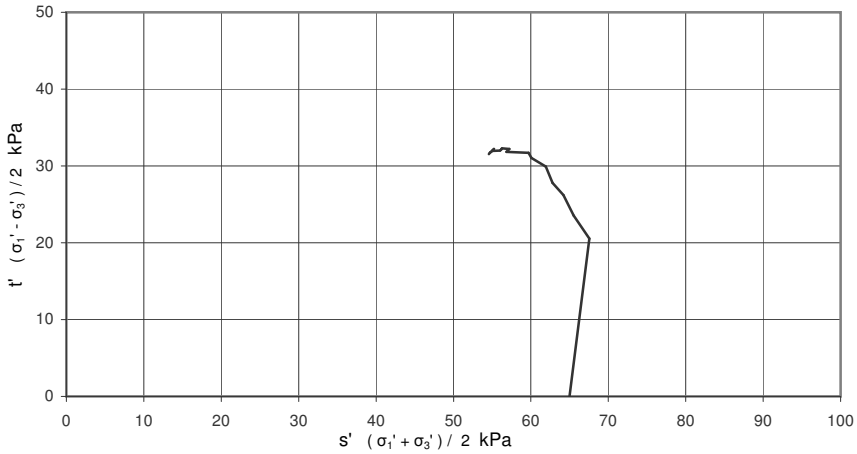
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.0-5.0		
			No	11	Type	P
			ID			
			Spec Ref			

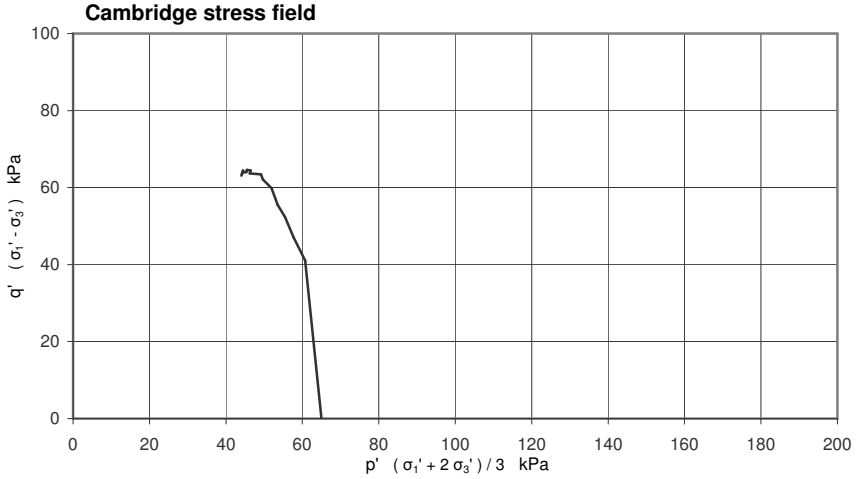
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	365			kPa
Initial pwp	300			kPa
Initial σ_3'	65			kPa
Rate of strain	0.89			%/hr

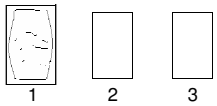
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	3.59			%
$(\sigma_1' / \sigma_3')_f$	3.690			
$(\sigma_1' - \sigma_3')_f$	64.6			kPa
u_f	341			kPa
$\sigma_3'_f$	24			kPa
$\sigma_1'_f$	89			kPa
A_f	0.64			
Time to failure	4.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.315 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

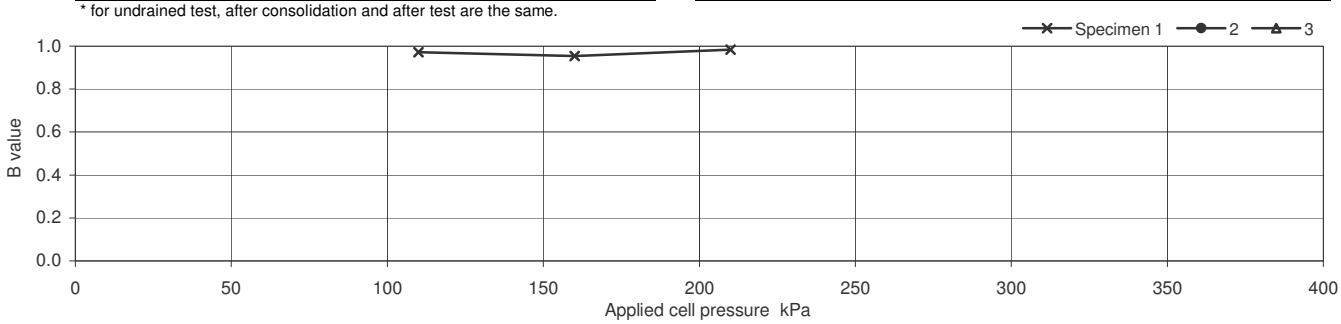
Project No	A5049-15	Sample Details:	Hole No	BH302	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.75-8.75	
			No	19	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	201.92		
	Diameter	mm	98.53		
	Bulk Density	Mg/m³	1.93		
	Water Content	%	32		
	Dry density	Mg/m³	1.46		
After consolidation	Length	mm	199.28		
	Diameter	mm	97.23		
	Bulk Density*	Mg/m³	1.96		
	Water Content*	%	29		
	Dry density*	Mg/m³	1.52		

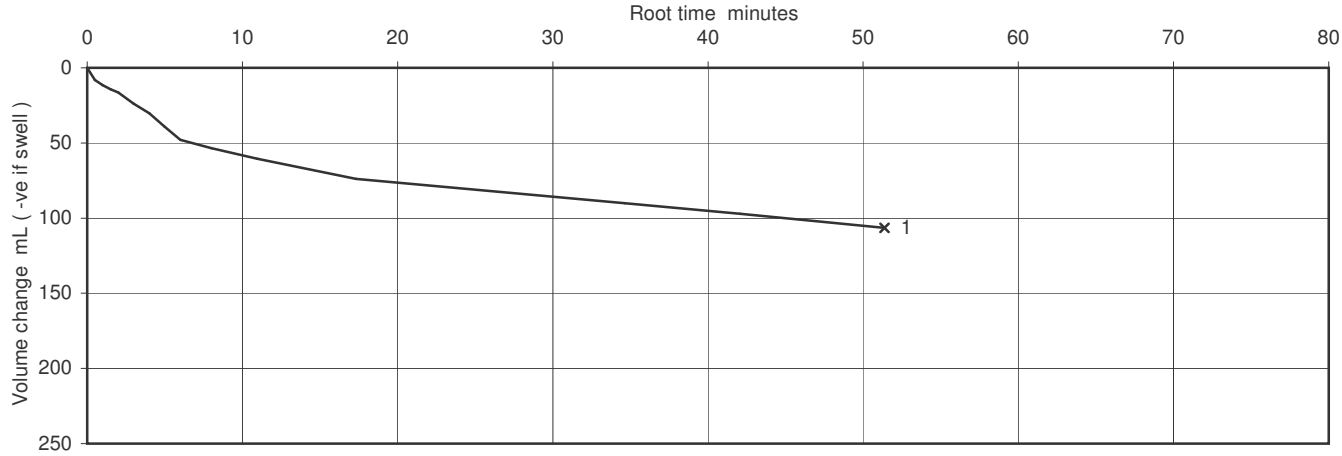
* for undrained test, after consolidation and after test are the same.

Soil Description	Greyish brown slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	202.7		
Final B Value		0.98		



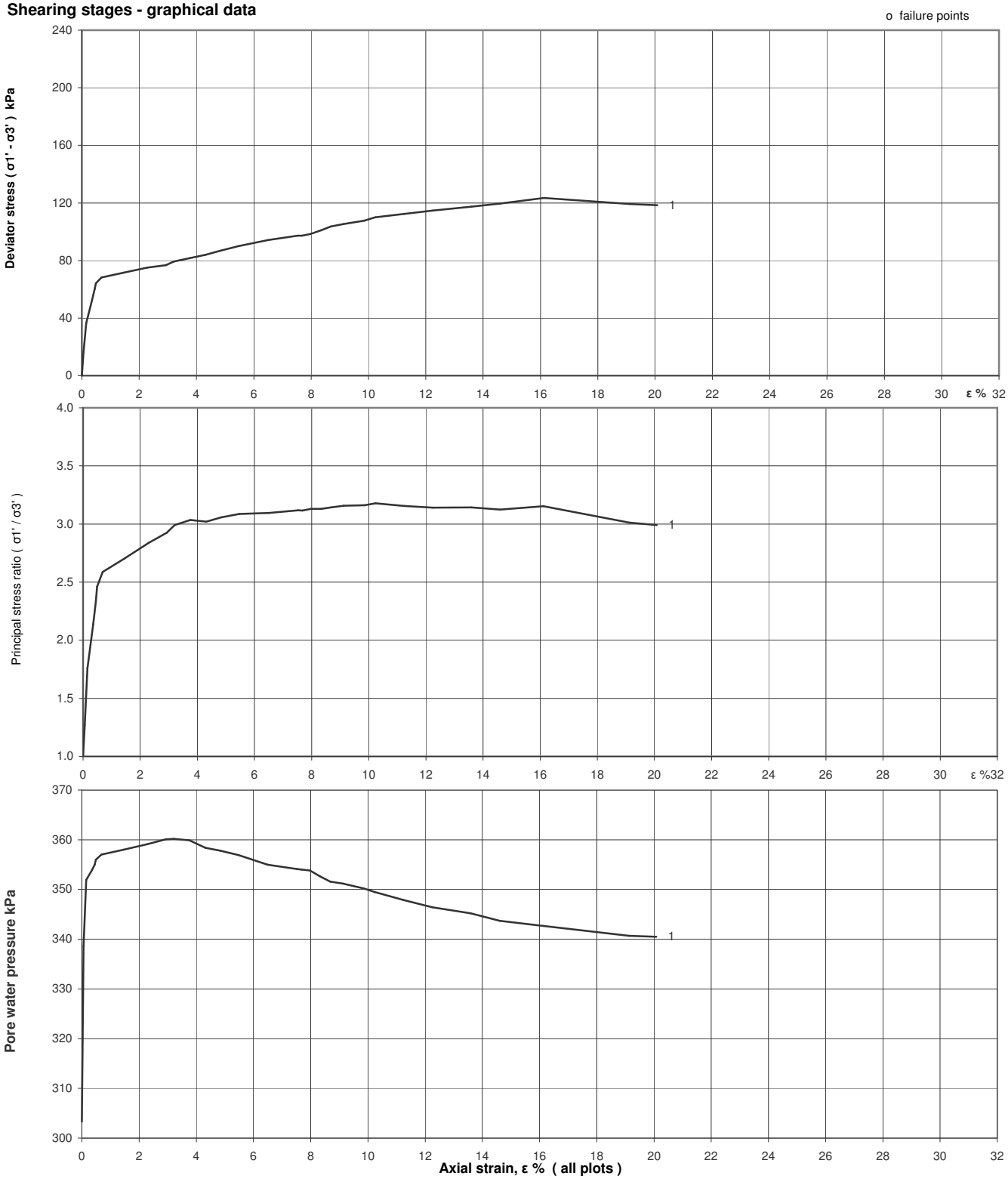
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		389			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		96			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.91			m^2/year
	Coefficient of Compressibility	M_{vi}	0.78			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.2E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.75-8.75		
			No	19	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

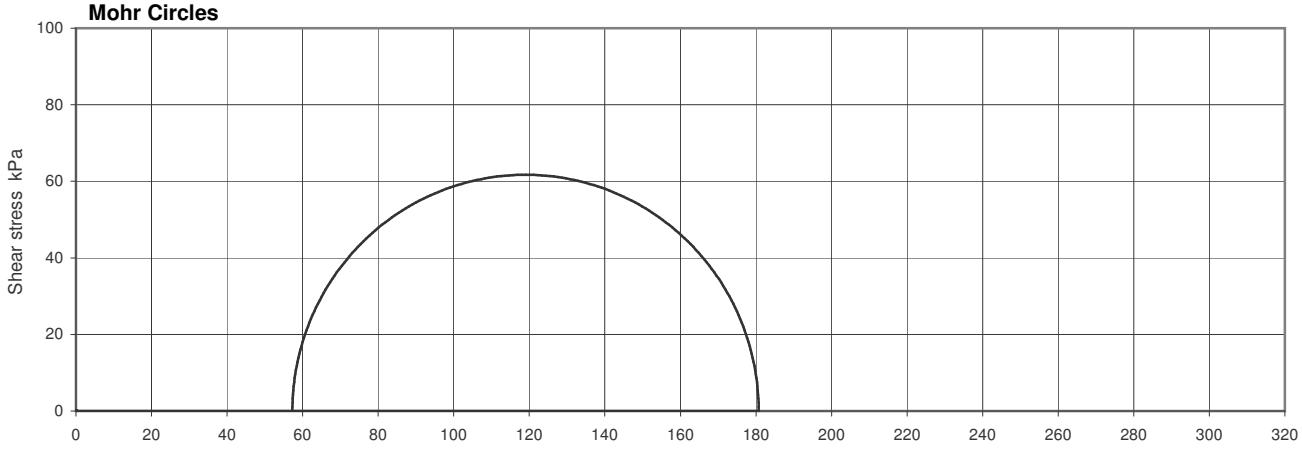


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:15	**CU** sheet 2 of 3

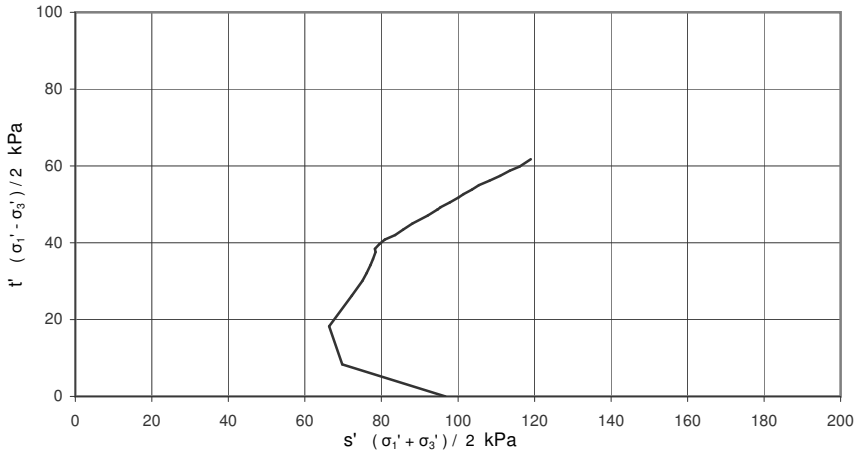
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.75-8.75		
			No	19	Type	P
			ID			
			Spec Ref			

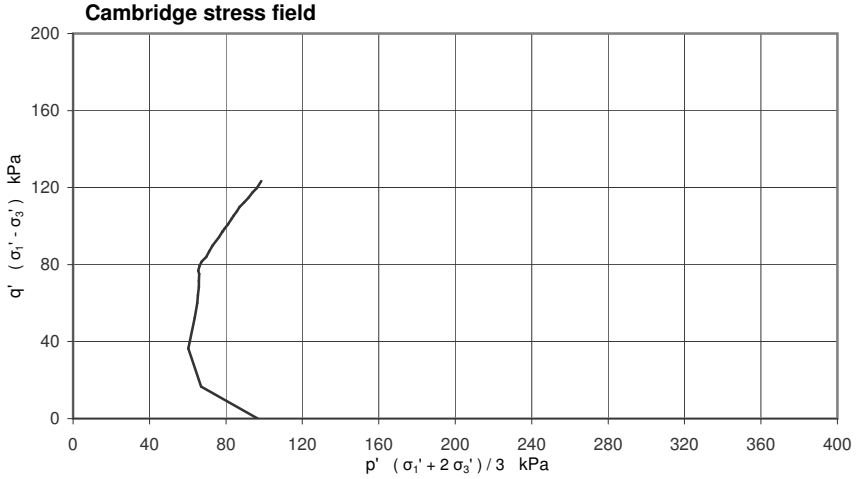
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	303			kPa
Initial σ_3'	97			kPa
Rate of strain	1.00			%/hr

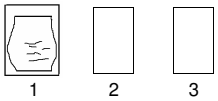
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	16.12			%
$(\sigma_1' / \sigma_3')_f$	3.154			
$(\sigma_1' - \sigma_3')_f$	123.4			kPa
u_f	343			kPa
$\sigma_3'_f$	57			kPa
$\sigma_1'_f$	181			kPa
A_f	0.32			
Time to failure	16.1			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.293 mm thick rubber membrane(s)

Rate of strain is to b half that determined during consolidation

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:15	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

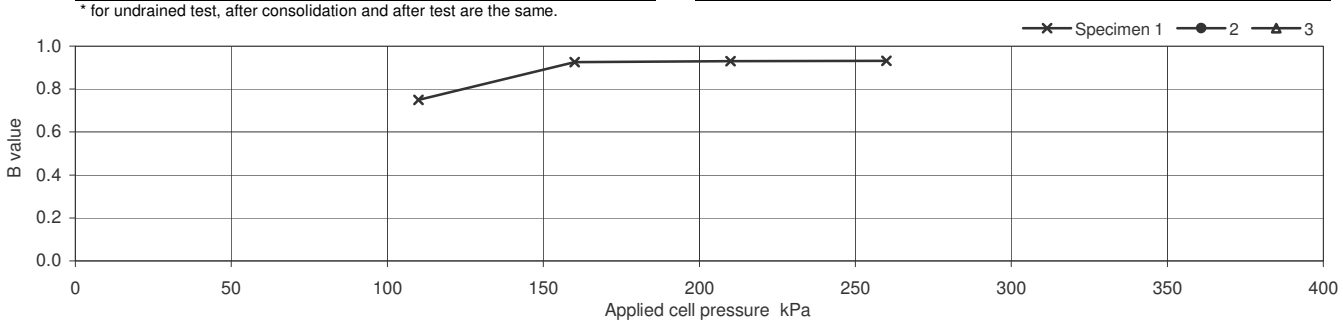
Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.00-12.45		
			No	29	Type	U
			ID			
			Spec Ref			

Specimen Details			1	2	3
Initial	Length	mm	197.49		
	Diameter	mm	101.38		
	Bulk Density	Mg/m³	1.34		
	Water Content	%	120		
	Dry density	Mg/m³	0.61		
After consolidation	Length	mm	190.74		
	Diameter	mm	97.86		
	Bulk Density*	Mg/m³	1.42		
	Water Content*	%	110		
	Dry density*	Mg/m³	0.67		

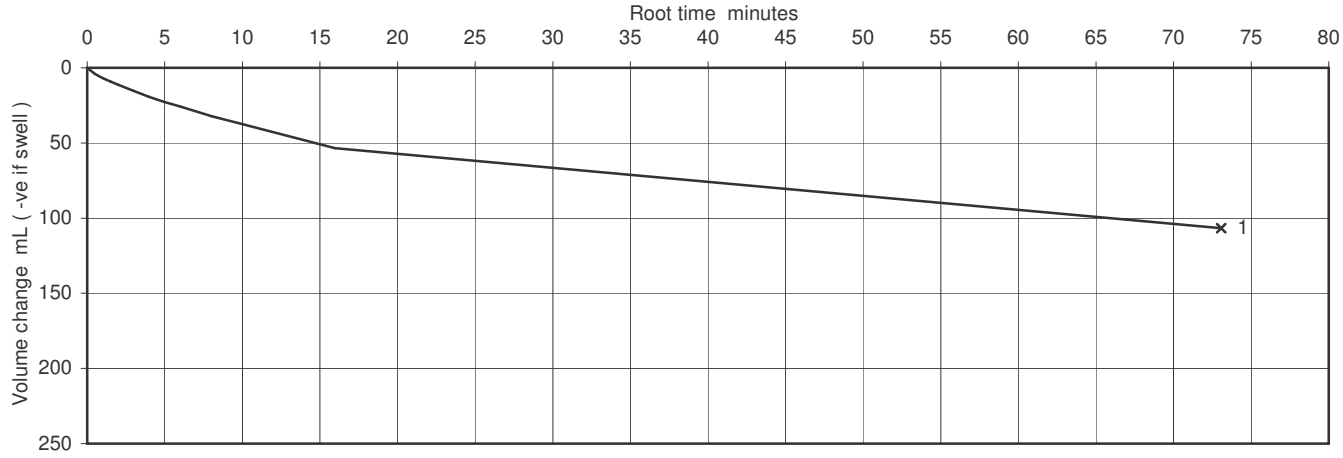
* for undrained test, after consolidation and after test are the same.

Soil Description	Plastic black amorphous PEAT.Contains rare wood fragments.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	248.3		
Final B Value		0.93		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		435			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		135			kPa
	Pore pressure at start of consolidation		423			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.24			m^2/year
	Coefficient of Compressibility	M_{vi}	0.56			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	4.2E-11			m/s

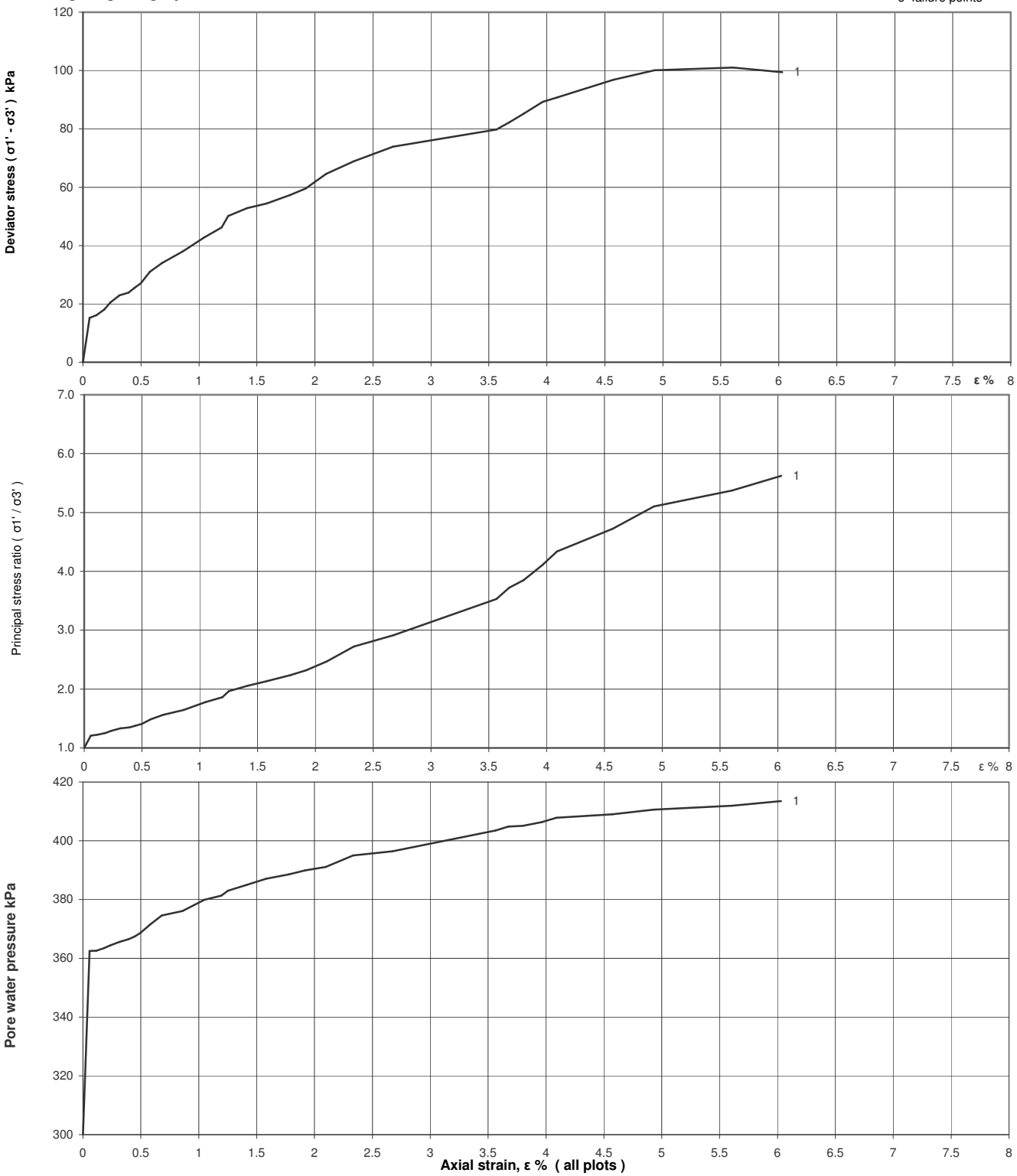


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.00-12.45		
			No	29	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

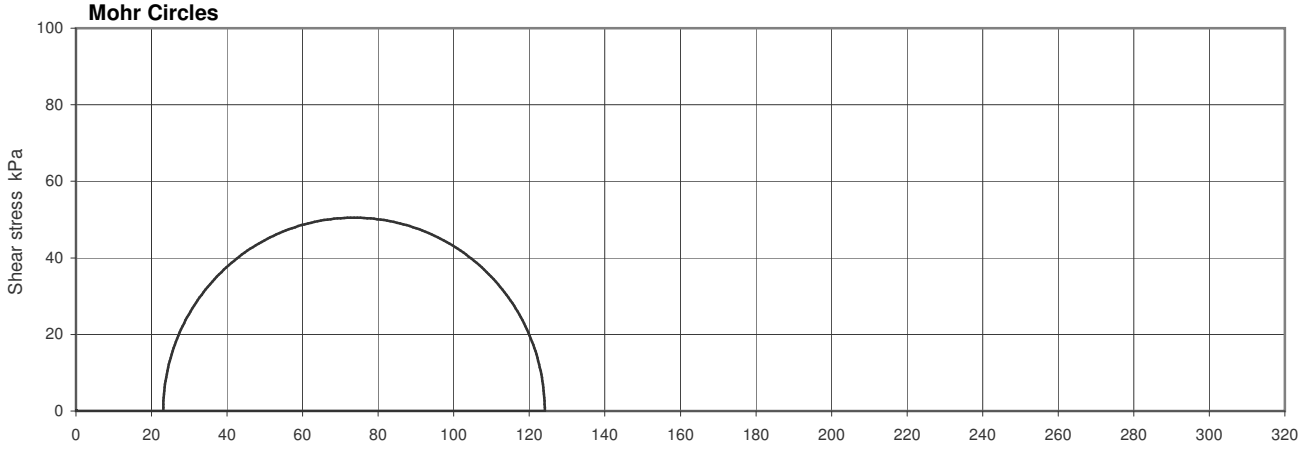


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:16	**CU** sheet 2 of 3

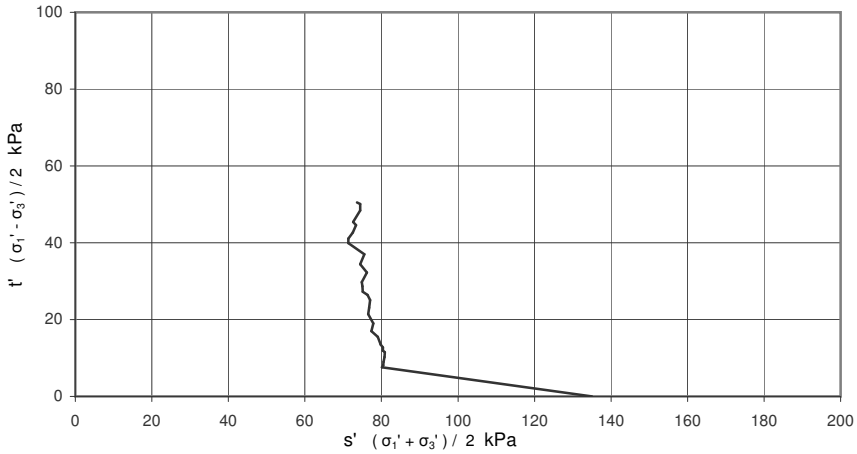
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH302		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.00-12.45		
			No	29	Type	U
			ID			
			Spec Ref			

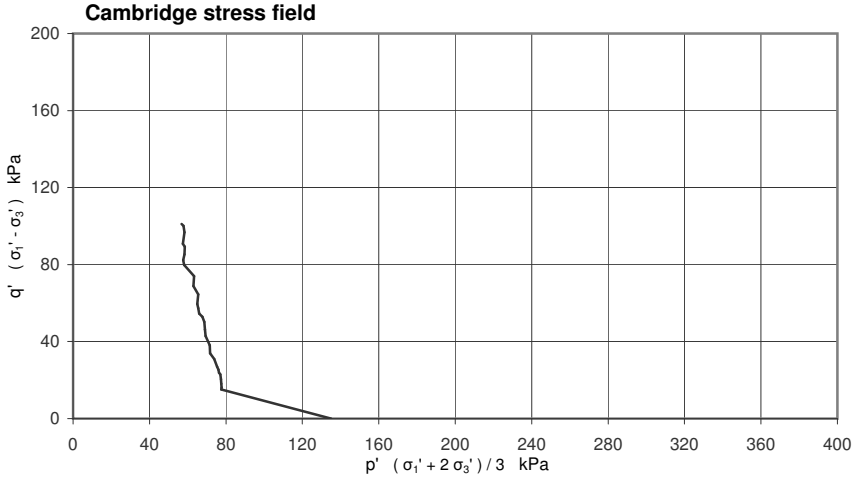
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	435			kPa
Initial pwp	300			kPa
Initial σ_3'	135			kPa
Rate of strain	0.37			%/hr

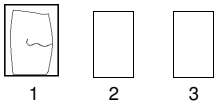
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	5.60			%
$(\sigma_1' / \sigma_3')_f$	5.372			
$(\sigma_1' - \sigma_3')_f$	101.0			kPa
u_f	412			kPa
$\sigma_3'_f$	23			kPa
$\sigma_1'_f$	124			kPa
A_f	1.11			
Time to failure	15.1			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.293 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

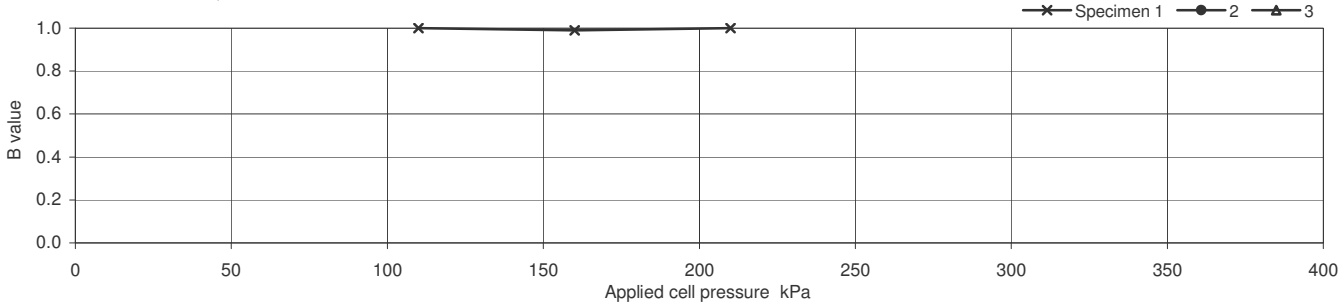
Project No	A5049-15	Sample Details:	Hole No	BH303	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.70-5.15	
			No	8	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.25		
	Diameter	mm	104.22		
	Bulk Density	Mg/m³	1.88		
	Water Content	%	33		
	Dry density	Mg/m³	1.42		
After consolidation	Length	mm	197.35		
	Diameter	mm	101.15		
	Bulk Density*	Mg/m³	1.96		
	Water Content*	%	27		
	Dry density*	Mg/m³	1.55		

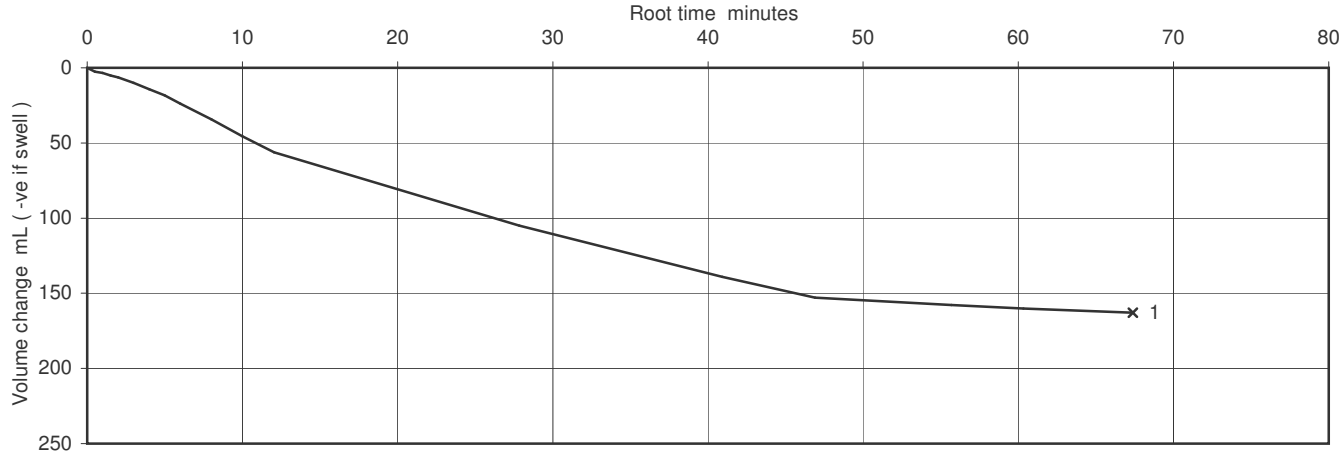
* for undrained test, after consolidation and after test are the same.

Soil Description	brownish grey SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	205.4		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		370			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		70			kPa
	Pore pressure at start of consolidation		368			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		95			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.23			m^2/year
	Coefficient of Compressibility	M_{vi}	1.44			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.0E-10			m/s

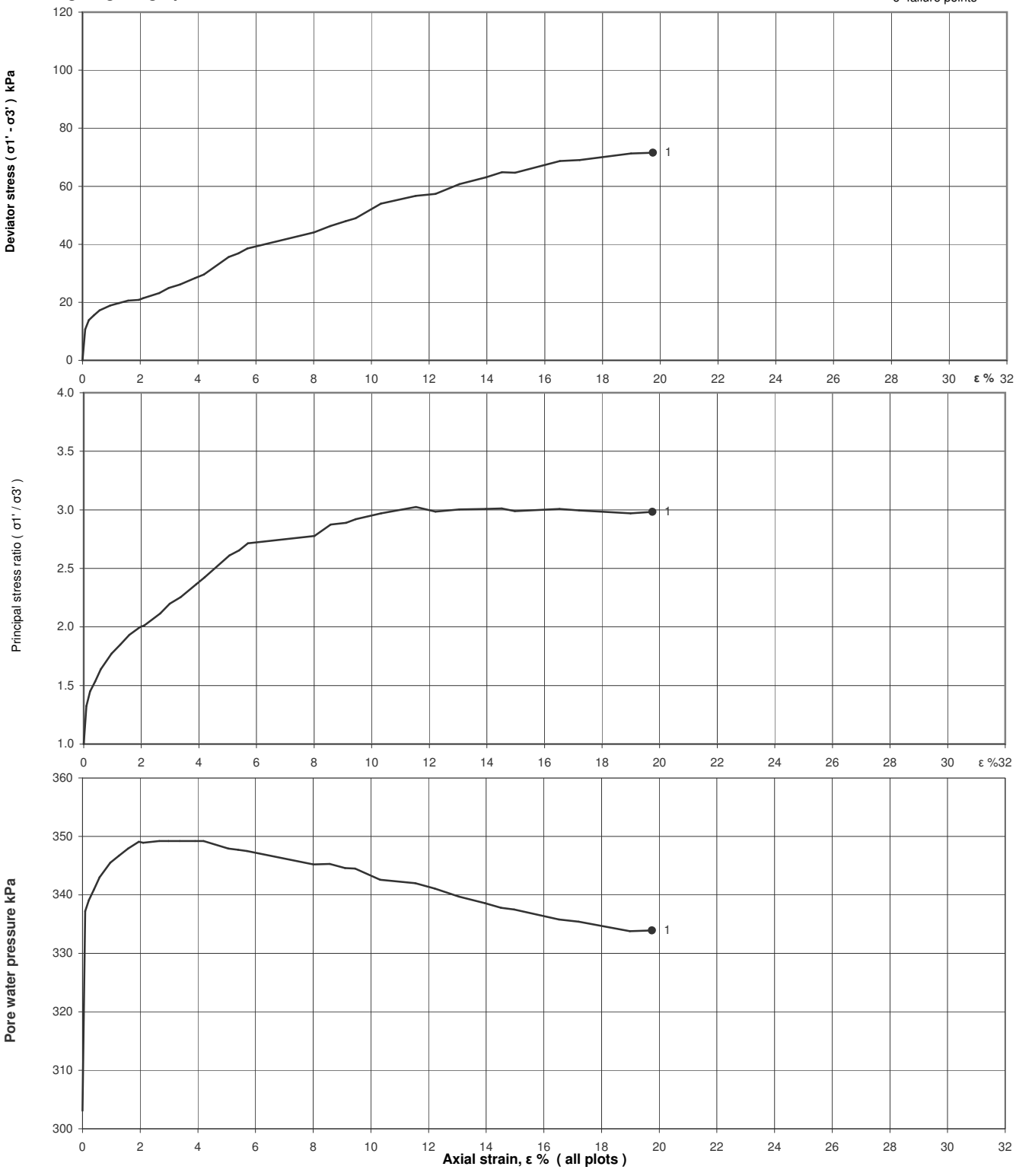


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.70-5.15		
			No	8	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

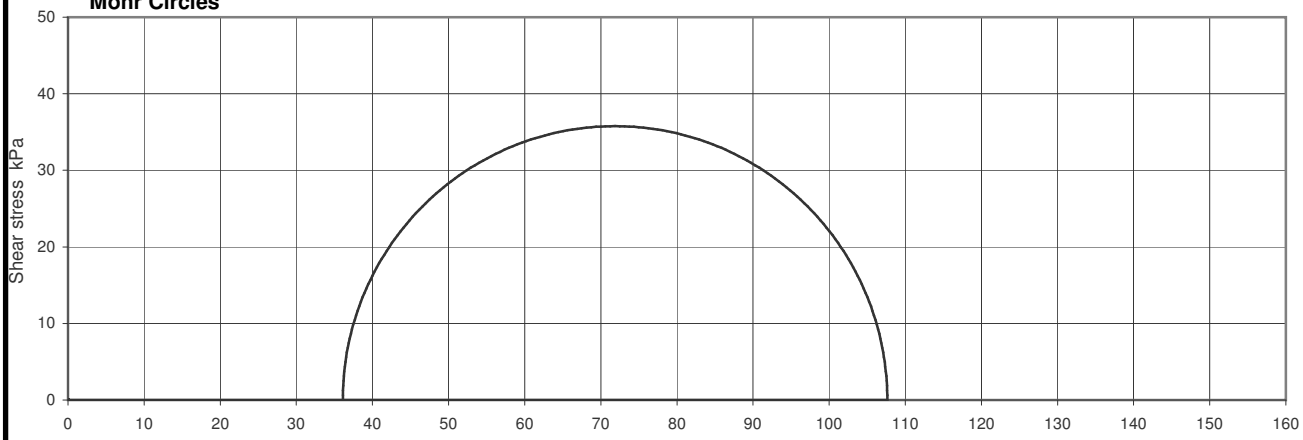


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:19/09/2015 09:42	**CU** sheet 2 of 3

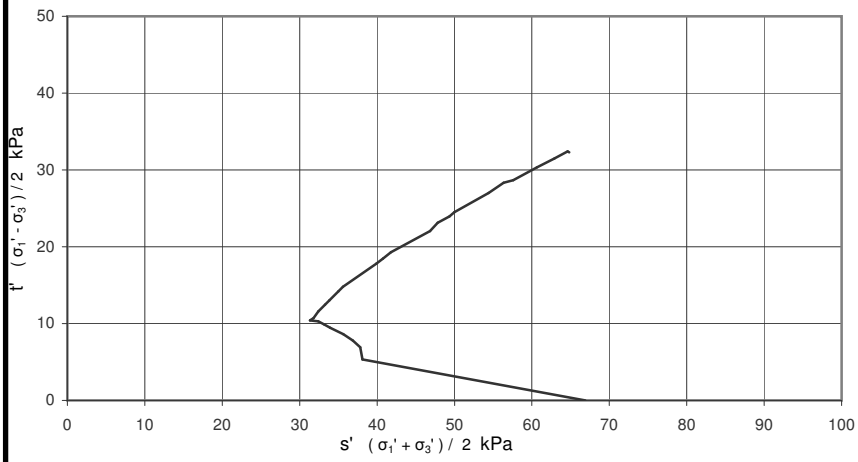
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.70-5.15		
			No	8	Type	U
			ID			
			Spec Ref			

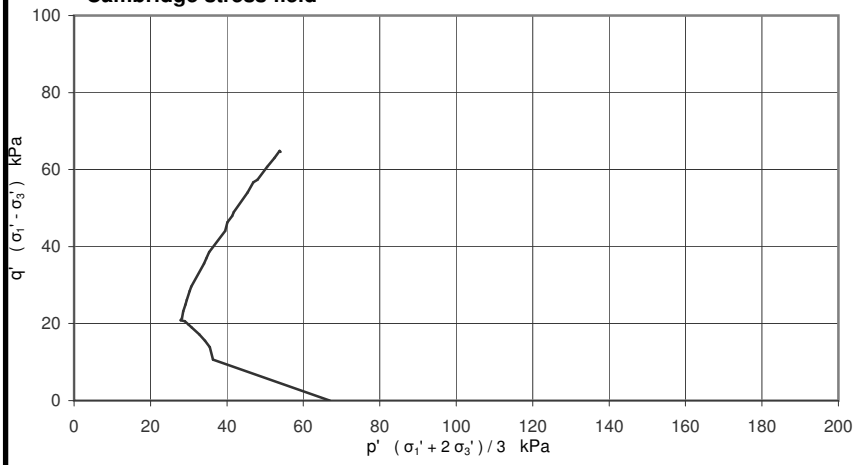
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	370			kPa
Initial pwp	303			kPa
Initial σ_3'	67			kPa
Rate of strain	0.25			%/hr

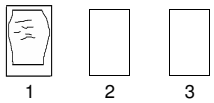
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	19.75			%
$(\sigma_1' / \sigma_3')_f$	2.982			
$(\sigma_1' - \sigma_3')_f$	71.5			kPa
u_f	334			kPa
$\sigma_3'_f$	36			kPa
$\sigma_1'_f$	108			kPa
A_f	0.43			
Time to failure	79.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.586 mm thick rubber membrane(s)

The rate of strain is half of that determined during consolidation.

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

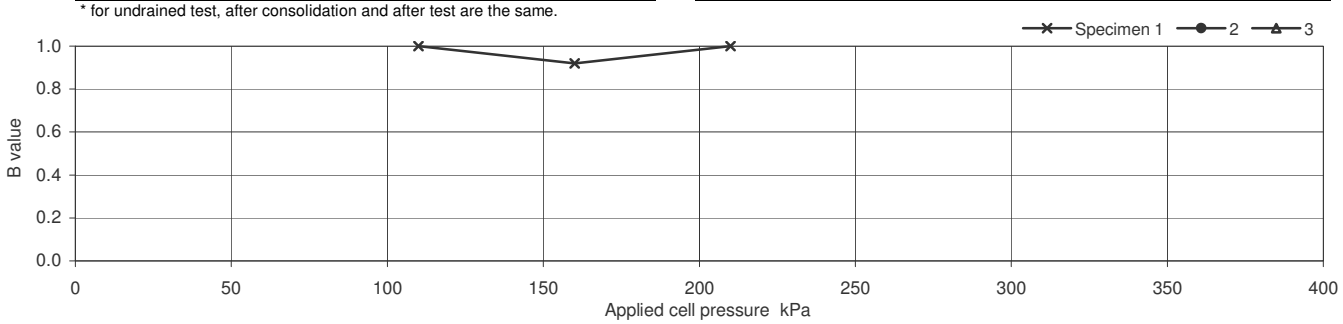
Project No	A5049-15	Sample Details:	Hole No	BH303	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.70-6.70	
			No	12	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.46		
	Diameter	mm	97.87		
	Bulk Density	Mg/m³	1.97		
	Water Content	%	29		
	Dry density	Mg/m³	1.53		
After consolidation	Length	mm	202.44		
	Diameter	mm	97.38		
	Bulk Density*	Mg/m³	1.99		
	Water Content*	%	28		
	Dry density*	Mg/m³	1.56		

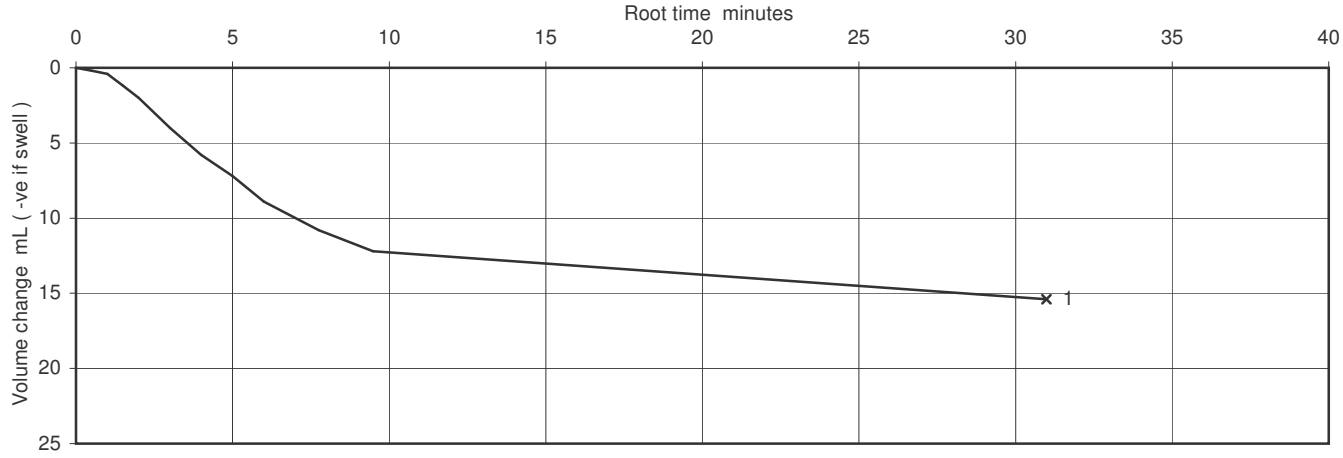
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft dark brown slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	194		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		340			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		40			kPa
	Pore pressure at start of consolidation		325			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.99			m^2/year
	Coefficient of Compressibility	M_{vi}	0.40			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.5E-10			m/s

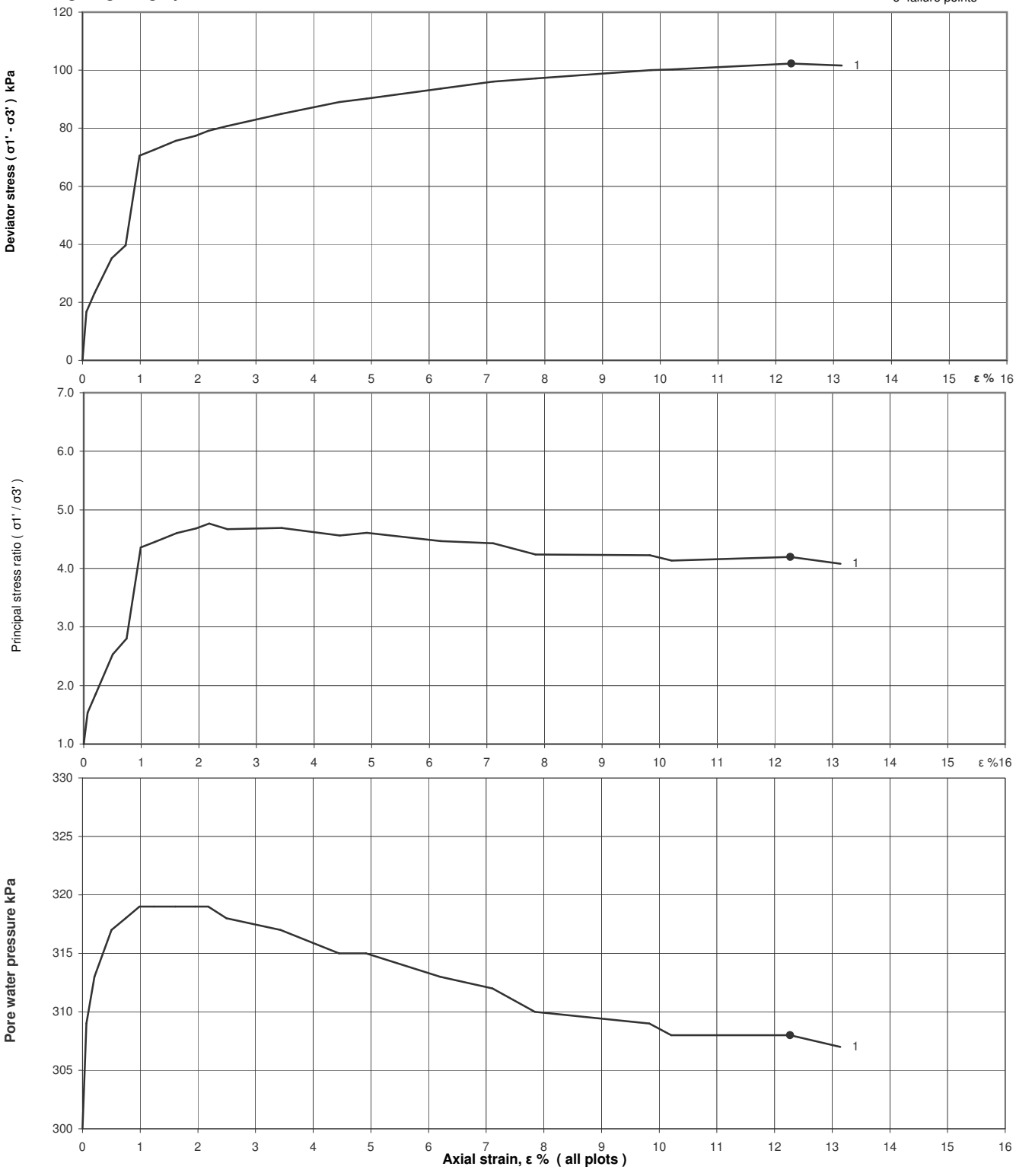


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.70-6.70		
			No	12	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

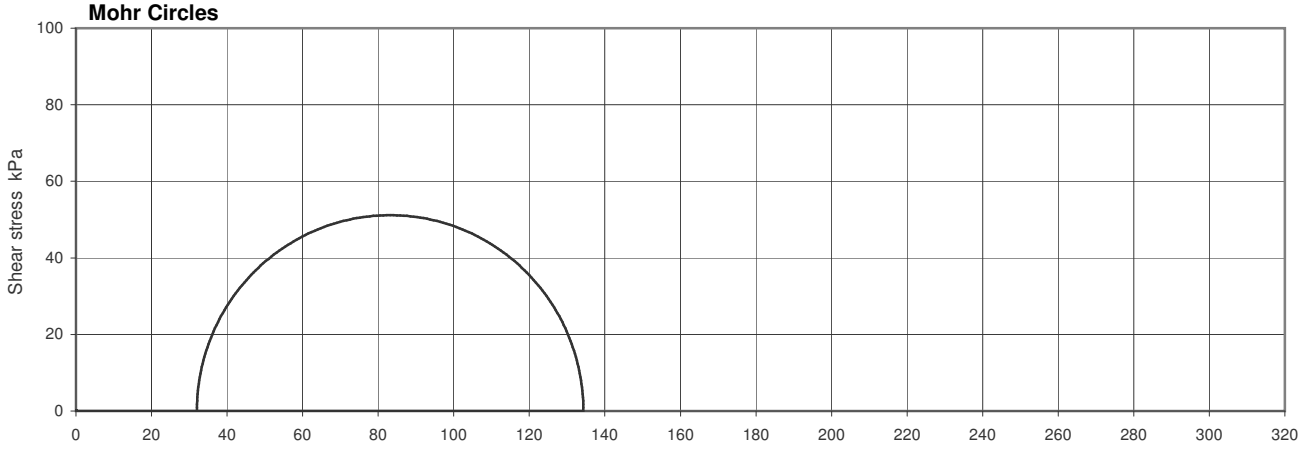


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:49	**CU** sheet 2 of 3

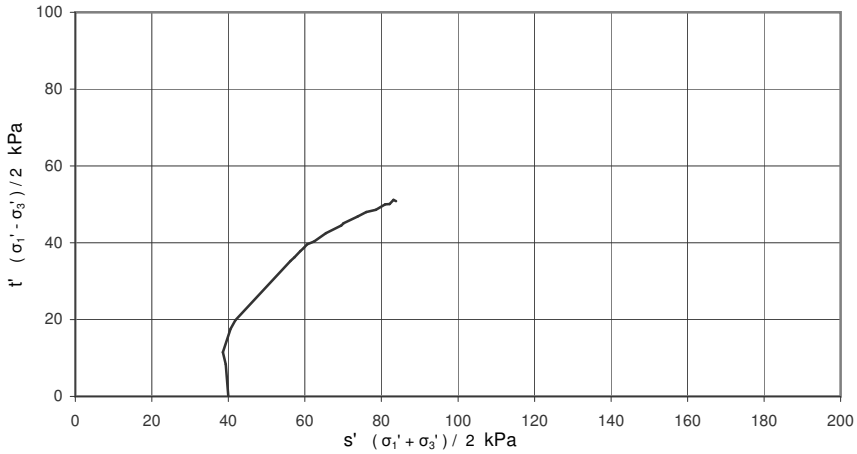
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.70-6.70		
			No	12	Type	P
			ID			
			Spec Ref			

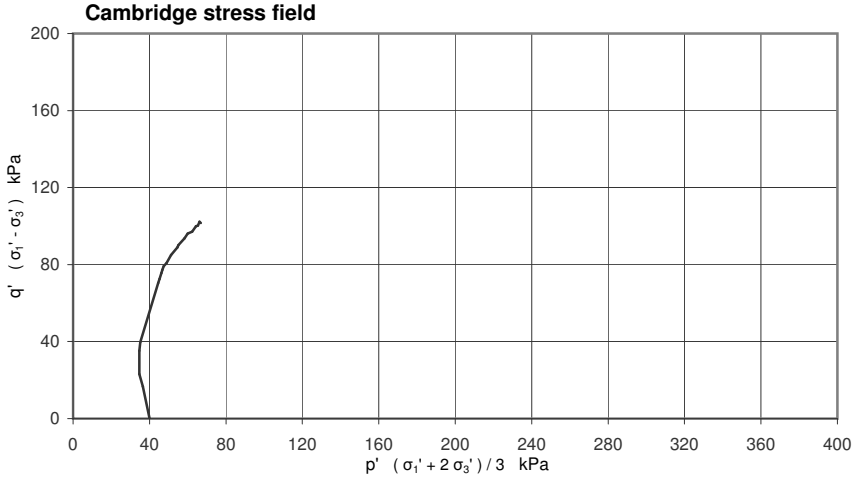
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	340			kPa
Initial pwp	300			kPa
Initial σ_3'	40			kPa
Rate of strain	1.79			%/hr

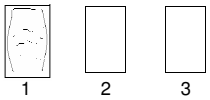
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.27			%
$(\sigma_1' / \sigma_3')_f$	4.197			
$(\sigma_1' - \sigma_3')_f$	102.3			kPa
u_f	308			kPa
$\sigma_3'_f$	32			kPa
$\sigma_1'_f$	134			kPa
A_f	0.08			
Time to failure	6.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.254 mm thick rubber membrane(s)

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:49	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

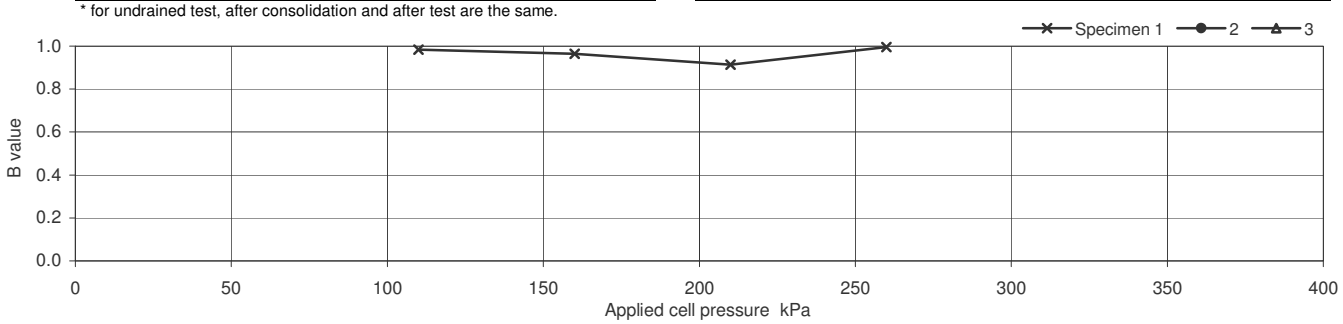
Project No	A5049-15	Sample Details:	Hole No	BH303	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.70-6.70	
			No	12	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	201.84		
	Diameter	mm	97.33		
	Bulk Density	Mg/m³	1.99		
	Water Content	%	27		
	Dry density	Mg/m³	1.57		
After consolidation	Length	mm	198.66		
	Diameter	mm	95.79		
	Bulk Density*	Mg/m³	2.04		
	Water Content*	%	24		
	Dry density*	Mg/m³	1.64		

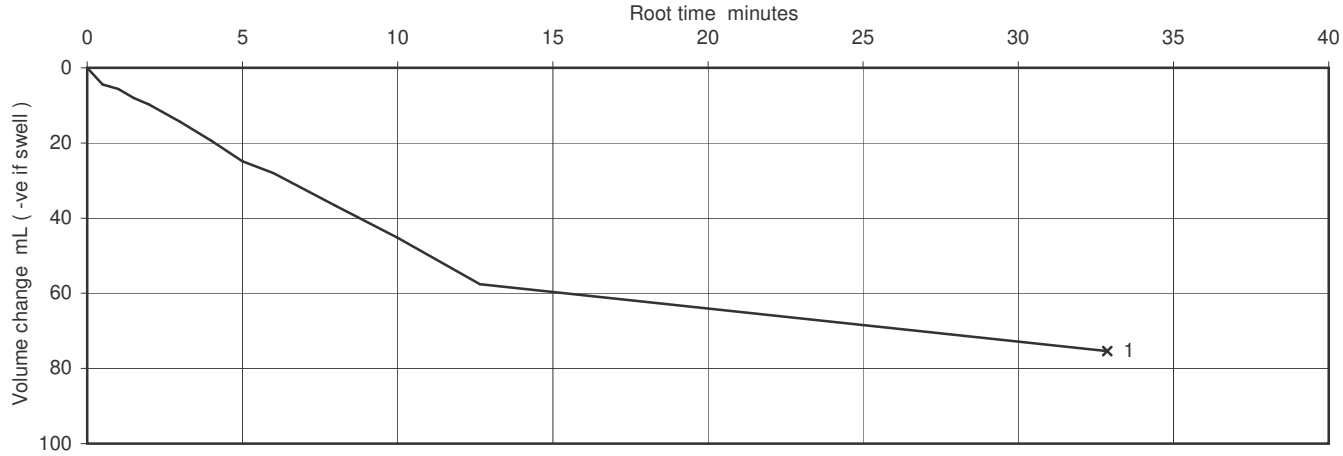
* for undrained test, after consolidation and after test are the same.

Soil Description	Brown mottled dark grey SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	245.7		
Final B Value		1.00		



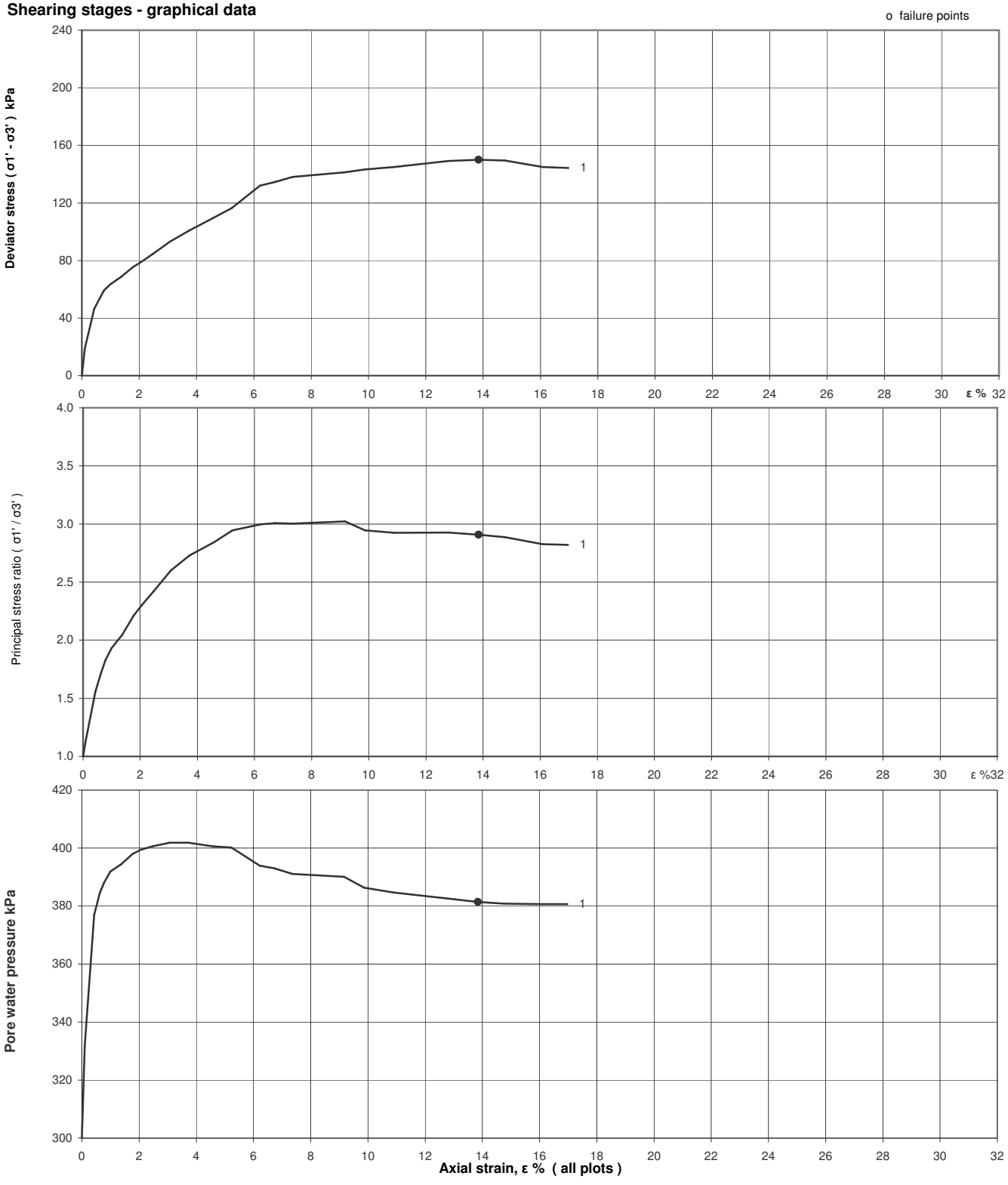
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		460			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		160			kPa
	Pore pressure at start of consolidation		445			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.74			m^2/year
	Coefficient of Compressibility	M_{vi}	0.35			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	8.0E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.70-6.70		
			No	12	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

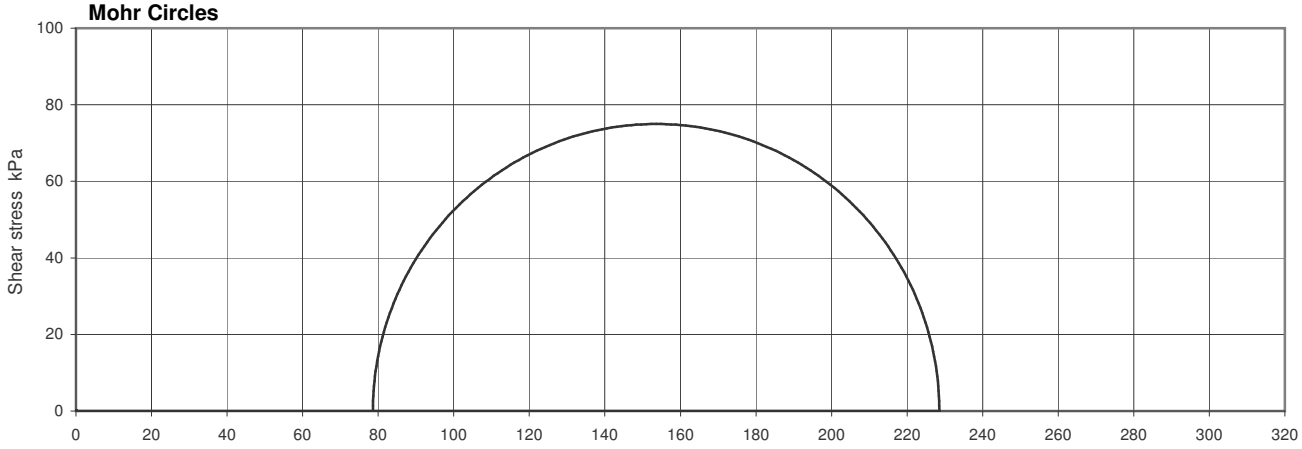


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:50	**CU** sheet 2 of 3

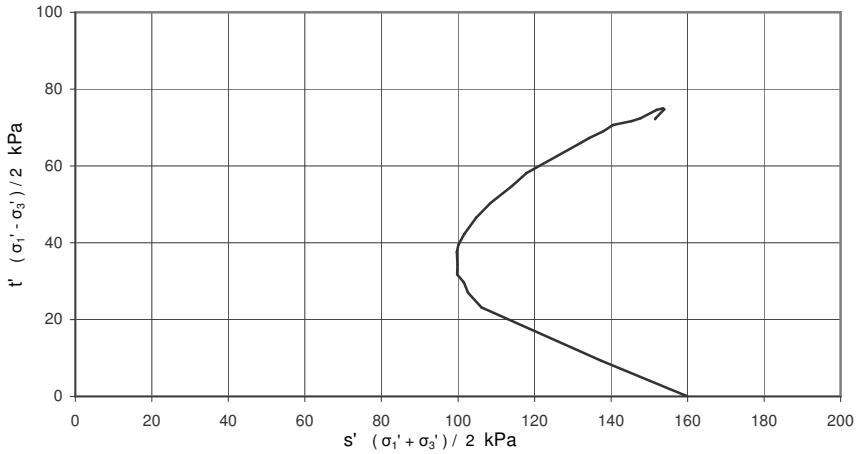
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.70-6.70		
			No	12	Type	P
			ID			
			Spec Ref			

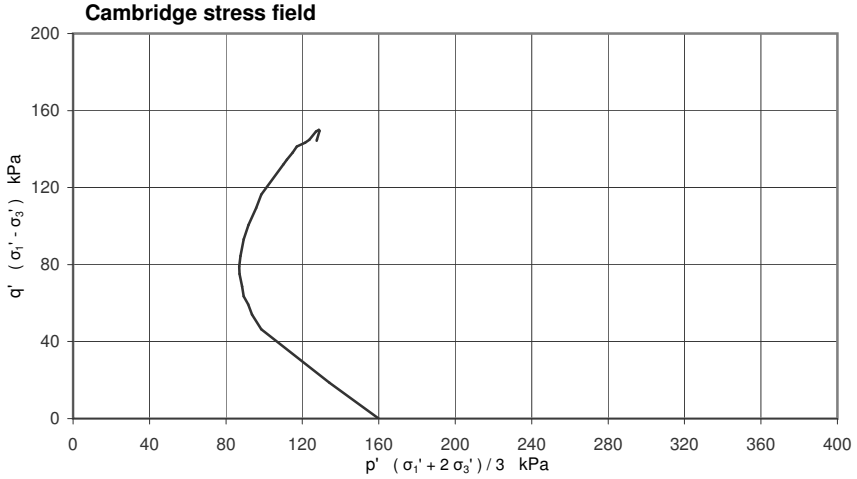
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	460			kPa
Initial pwp	300			kPa
Initial σ_3'	160			kPa
Rate of strain	0.67			%/hr

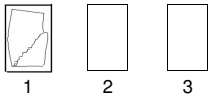
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	13.85			%
$(\sigma_1' / \sigma_3')_f$	2.908			
$(\sigma_1' - \sigma_3')_f$	150.0			kPa
u_f	381			kPa
$\sigma_3'_f$	79			kPa
$\sigma_1'_f$	229			kPa
A_f	0.54			
Time to failure	20.7			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.316 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

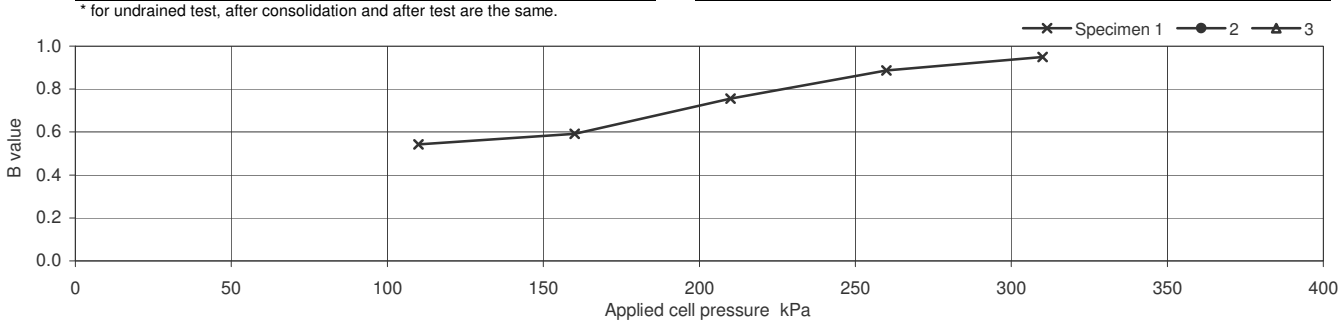
Project No	A5049-15	Sample Details:	Hole No	BH303	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.20-9.20	
			No	19	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	188.52		
	Diameter	mm	97.68		
	Bulk Density	Mg/m³	1.82		
	Water Content	%	22		
	Dry density	Mg/m³	1.49		
After consolidation	Length	mm	181.83		
	Diameter	mm	94.15		
	Bulk Density*	Mg/m³	2.03		
	Water Content*	%	22		
	Dry density*	Mg/m³	1.66		

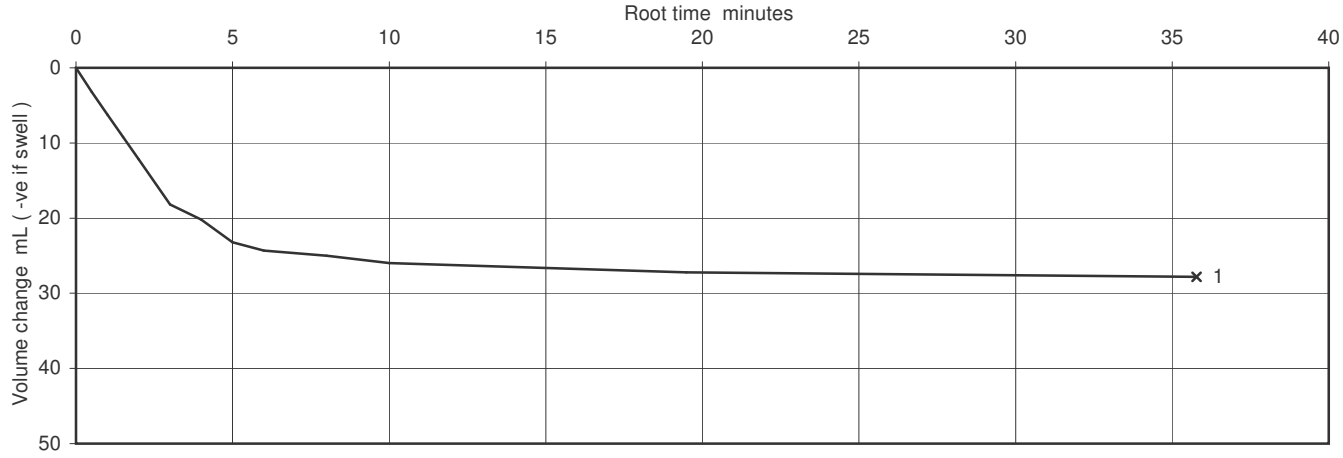
* for undrained test, after consolidation and after test are the same.

Soil Description	Dark grey slightly sady SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	310		
Final pore water pressure	kPa	296.4		
Final B Value		0.95		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		389			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	8.88			m^2/year
	Coefficient of Compressibility	M_{vi}	0.24			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.7E-10			m/s

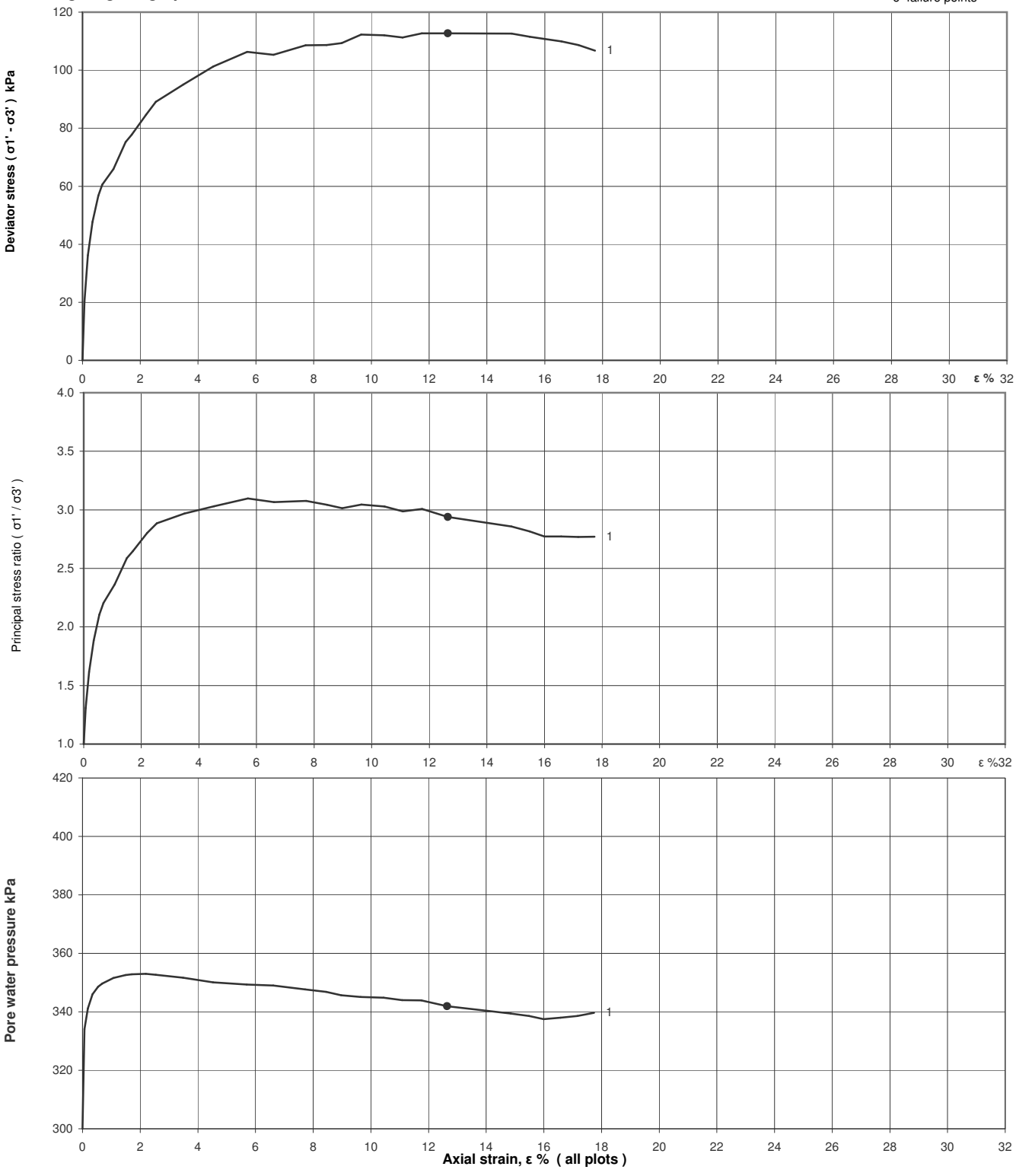


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.20-9.20		
			No	19	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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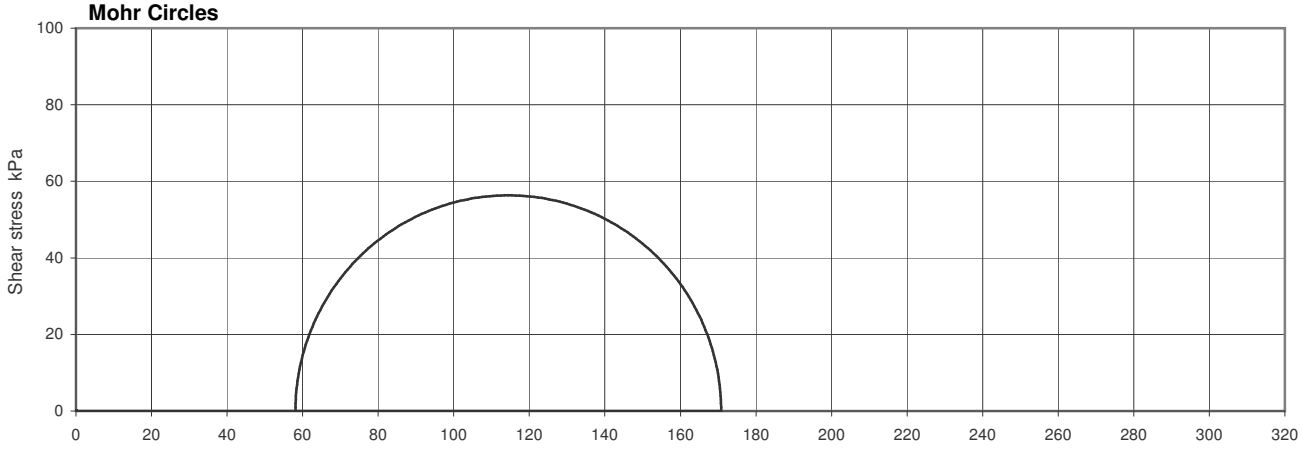
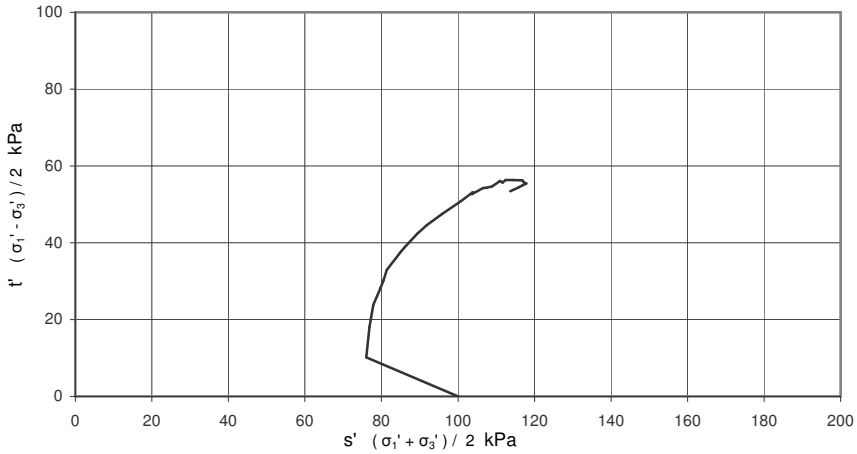
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.20-9.20		
			No	19	Type	P
			ID			
			Spec Ref			

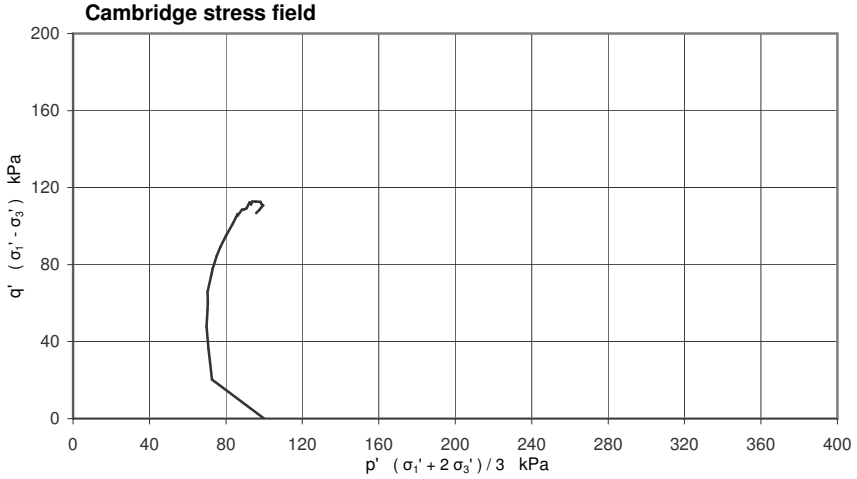
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	300			kPa
Initial σ_3'	100			kPa
Rate of strain	2.00			%/hr

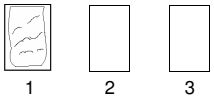
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.65			%
$(\sigma_1' / \sigma_3')_f$	2.940			
$(\sigma_1' - \sigma_3')_f$	112.7			kPa
u_f	342			kPa
$\sigma_3'_f$	58			kPa
$\sigma_1'_f$	171			kPa
A_f	0.37			
Time to failure	6.3			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.346 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

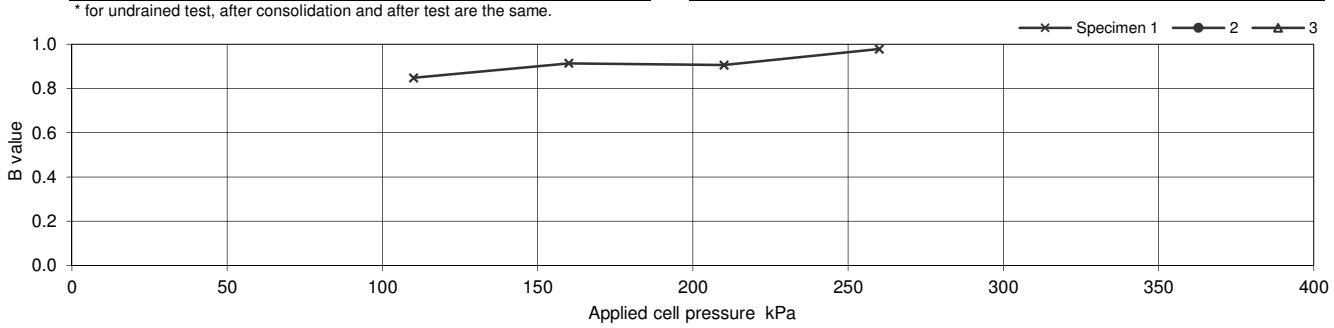
Project No	A5049-15	Sample Details:	Hole No	BH303	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.20-13.65	
			No	32	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.03		
	Diameter	mm	104.28		
	Bulk Density	Mg/m³	2.05		
	Water Content	%	23		
	Dry density	Mg/m³	1.66		
After consolidation	Length	mm	201.46		
	Diameter	mm	103.47		
	Bulk Density*	Mg/m³	2.07		
	Water Content*	%	22		
	Dry density*	Mg/m³	1.70		

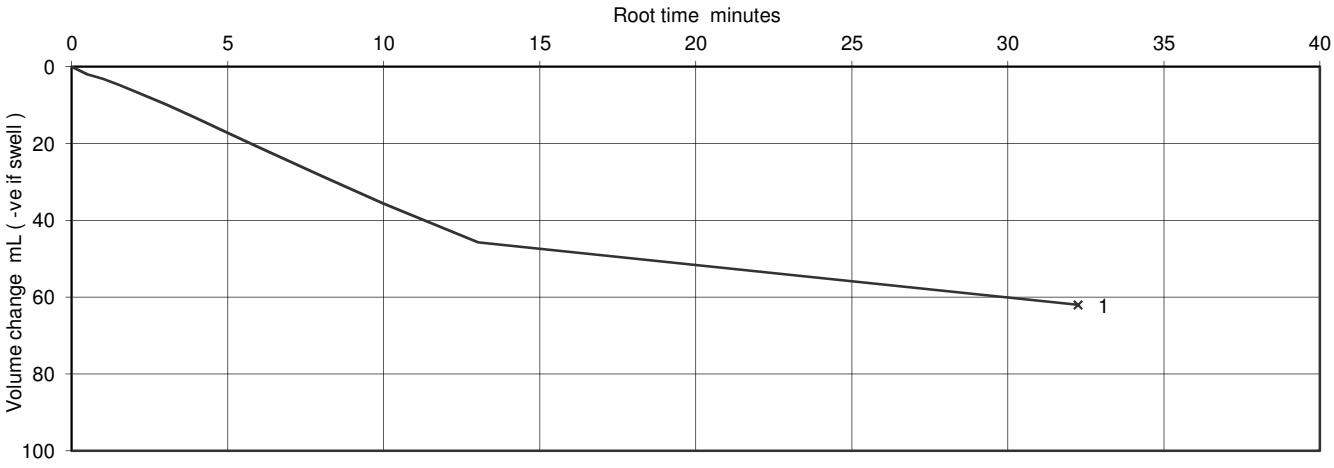
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm brown slightly gravelly CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	243		
Final B Value		0.98		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		435			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		135			kPa
	Pore pressure at start of consolidation		416			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.79			m^2/year
	Coefficient of Compressibility	M_{vi}	0.30			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	7.5E-11			m/s

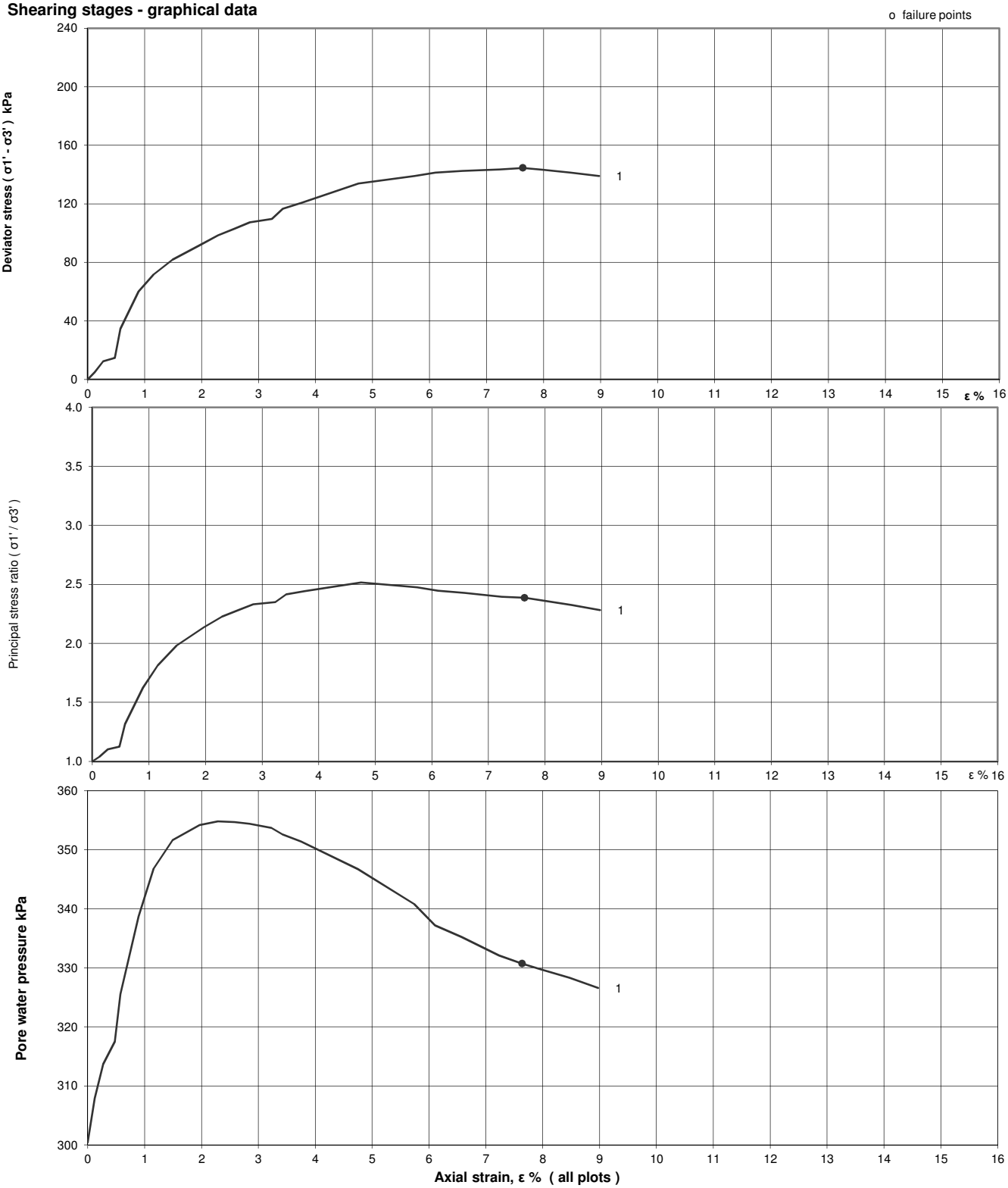


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.20-13.65		
			No	32	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

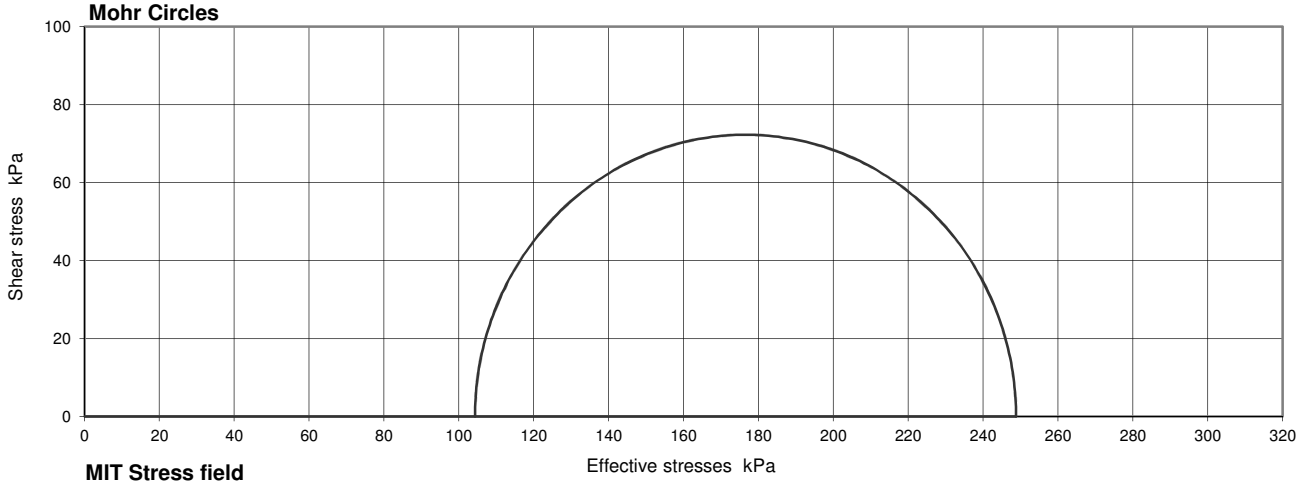


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:18/08/2015 14:49	**CU** sheet 2 of 3

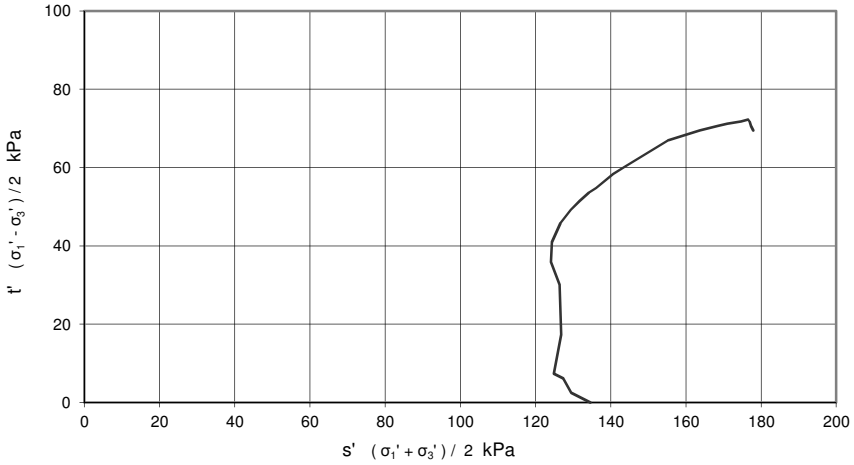
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.20-13.65		
			No	32	Type	U
			ID			
			Spec Ref			

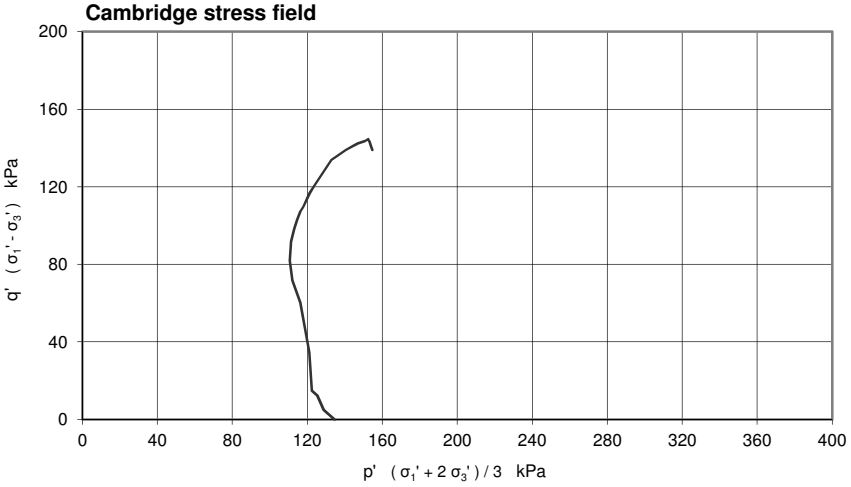
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	435			kPa
Initial pwp	300			kPa
Initial σ_3'	135			kPa
Rate of strain	0.56			%/hr

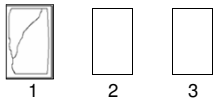
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	7.64			%
$(\sigma_1' / \sigma_3')_f$	2.386			
$(\sigma_1' - \sigma_3')_f$	144.5			kPa
u_f	331			kPa
$\sigma_3'_f$	104			kPa
$\sigma_1'_f$	249			kPa
A_f	0.21			
Time to failure	13.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.312 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

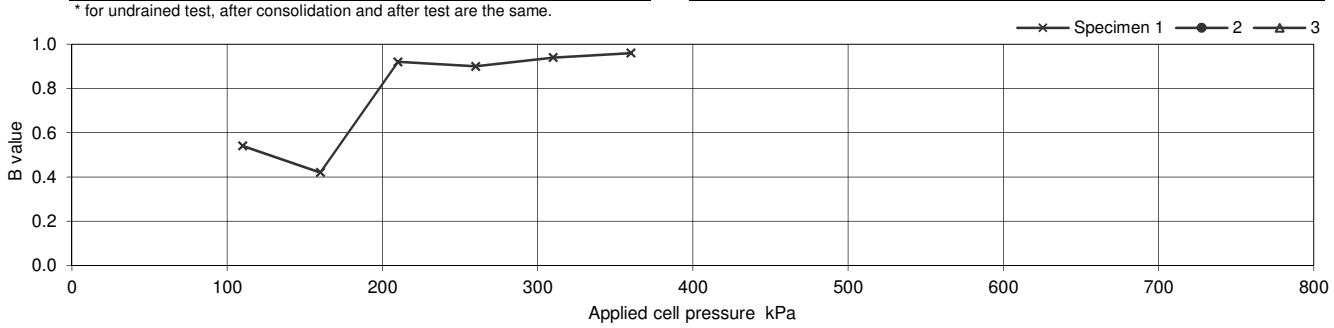
Project No	A5049-15	Sample Details:	Hole No	BH303	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.70 - 16.15	
			No	41	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.91		
	Diameter	mm	104.20		
	Bulk Density	Mg/m³	2.00		
	Water Content	%	26		
	Dry density	Mg/m³	1.59		
After consolidation	Length	mm	203.52		
	Diameter	mm	104.51		
	Bulk Density*	Mg/m³	1.99		
	Water Content*	%	26		
	Dry density*	Mg/m³	1.58		

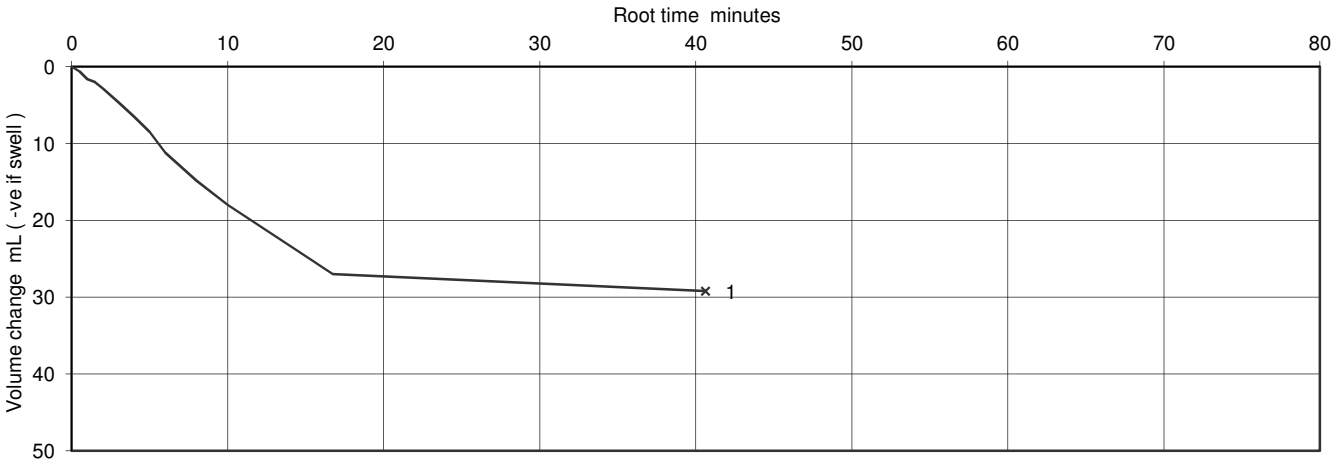
* for undrained test, after consolidation and after test are the same.

Soil Description	Stiff to very stiff brown CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	360		
Final pore water pressure	kPa	353		
Final B Value		0.96		



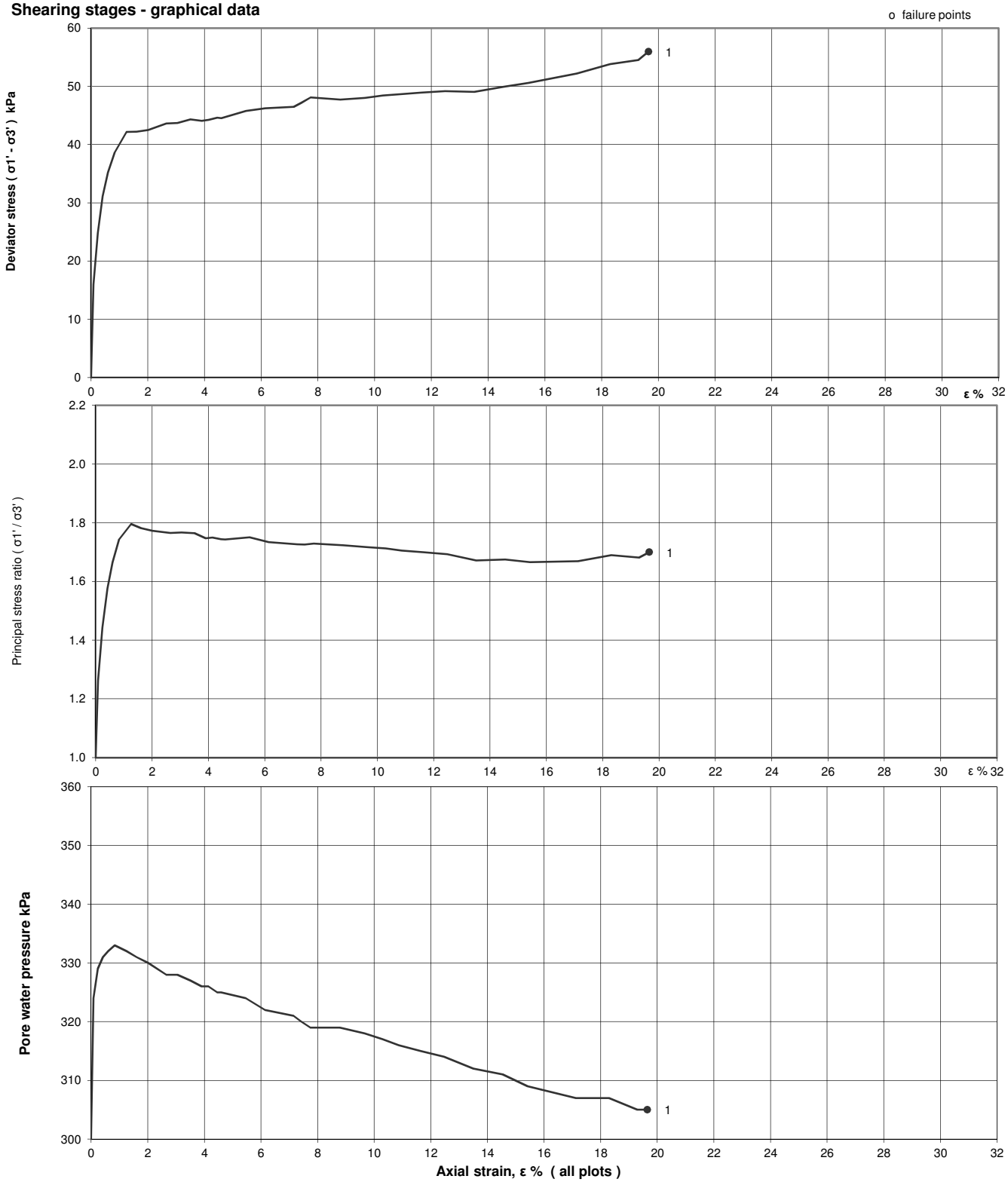
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		385			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		85			kPa
	Pore pressure at start of consolidation		380			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.97			m^2/year
	Coefficient of Compressibility	M_{vi}	0.21			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.2E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.70 - 16.15		
			No	41	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

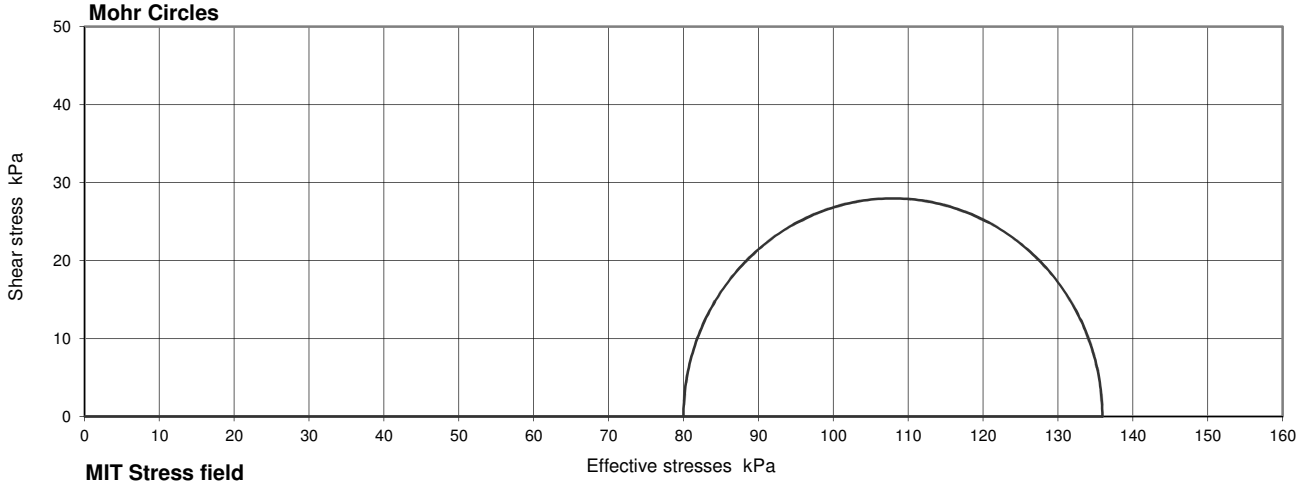


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:18/08/2015 14:50	**CU** sheet 2 of 3

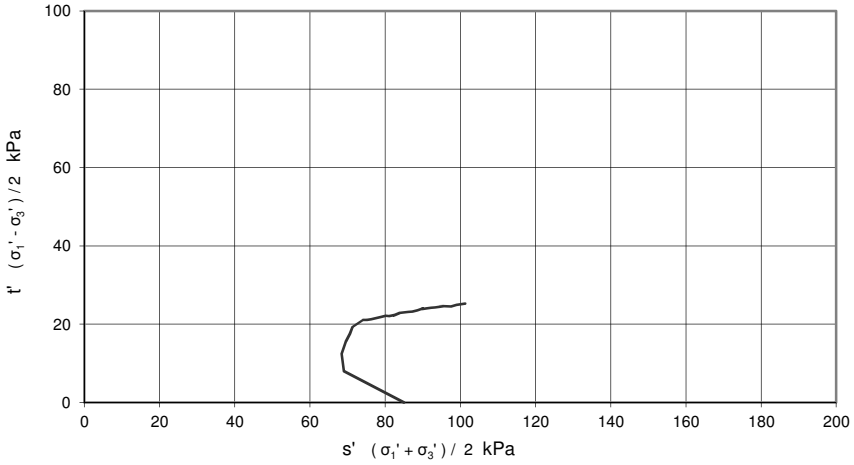
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.70 - 16.15		
			No	41	Type	U
			ID			
			Spec Ref			

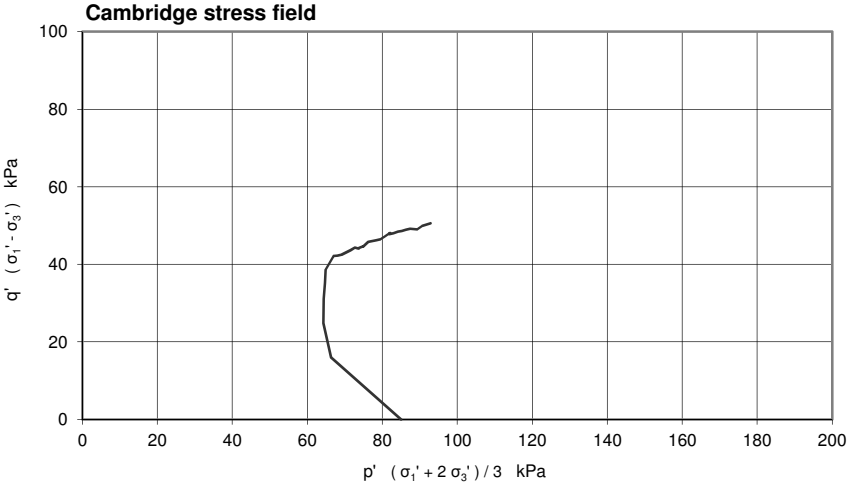
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	385			kPa
Initial pwp	300			kPa
Initial σ_3'	85			kPa
Rate of strain	0.68			%/hr

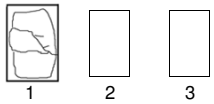
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	19.65			%
$(\sigma_1' / \sigma_3')_f$	1.699			
$(\sigma_1' - \sigma_3')_f$	55.9			kPa
u_f	305			kPa
$\sigma_3'_f$	80			kPa
$\sigma_1'_f$	136			kPa
A_f	0.09			
Time to failure	28.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.316 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

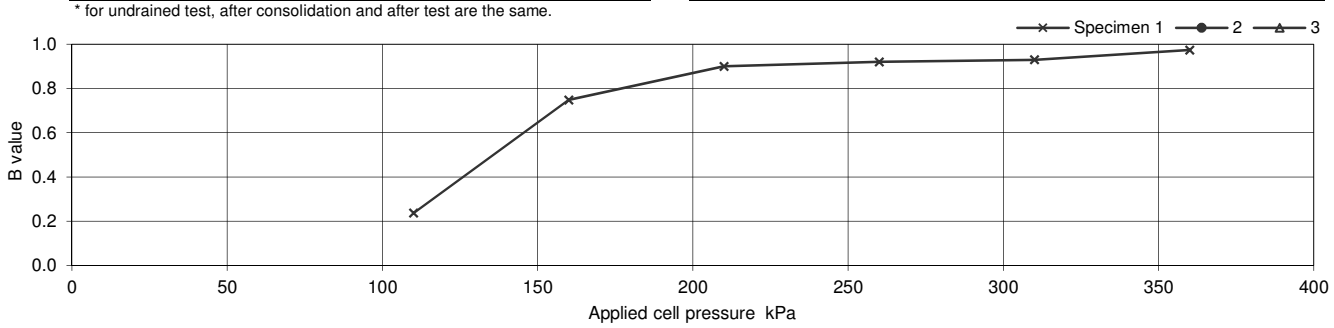
Project No	A5049-15	Sample Details:	Hole No	BH303	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	17.20-17.65	
			No	45	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.13		
	Diameter	mm	103.95		
	Bulk Density	Mg/m³	1.97		
	Water Content	%	28		
	Dry density	Mg/m³	1.53		
After consolidation	Length	mm	202.91		
	Diameter	mm	103.83		
	Bulk Density*	Mg/m³	1.97		
	Water Content*	%	28		
	Dry density*	Mg/m³	1.54		

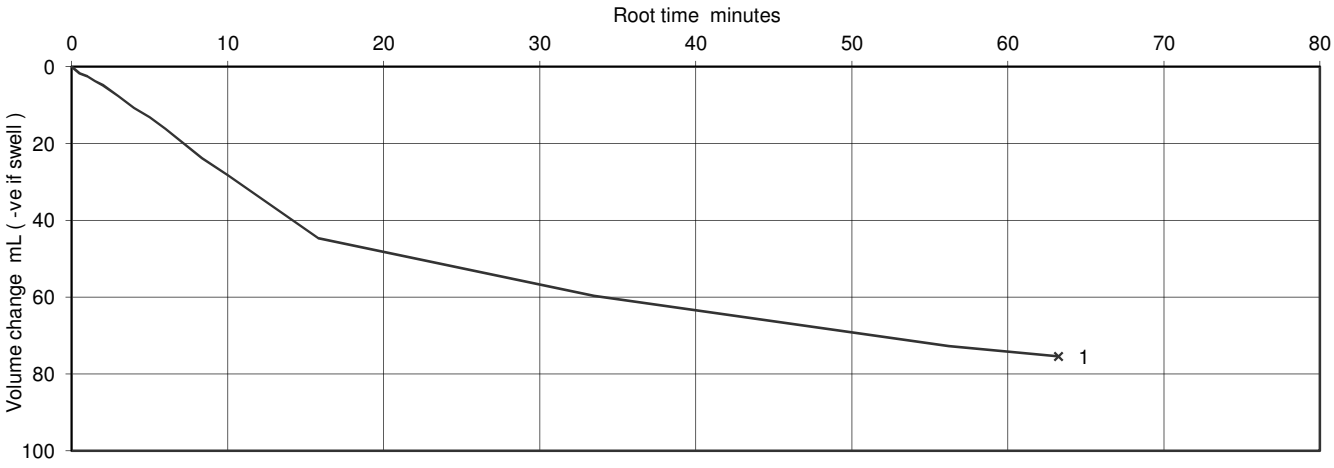
* for undrained test, after consolidation and after test are the same.

Soil Description	Stiff brown laminated CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	360		
Final pore water pressure	kPa	346.8		
Final B Value		0.97		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		475			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		175			kPa
	Pore pressure at start of consolidation		465			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.35			m^2/year
	Coefficient of Compressibility	M_{vi}	0.25			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.8E-11			m/s

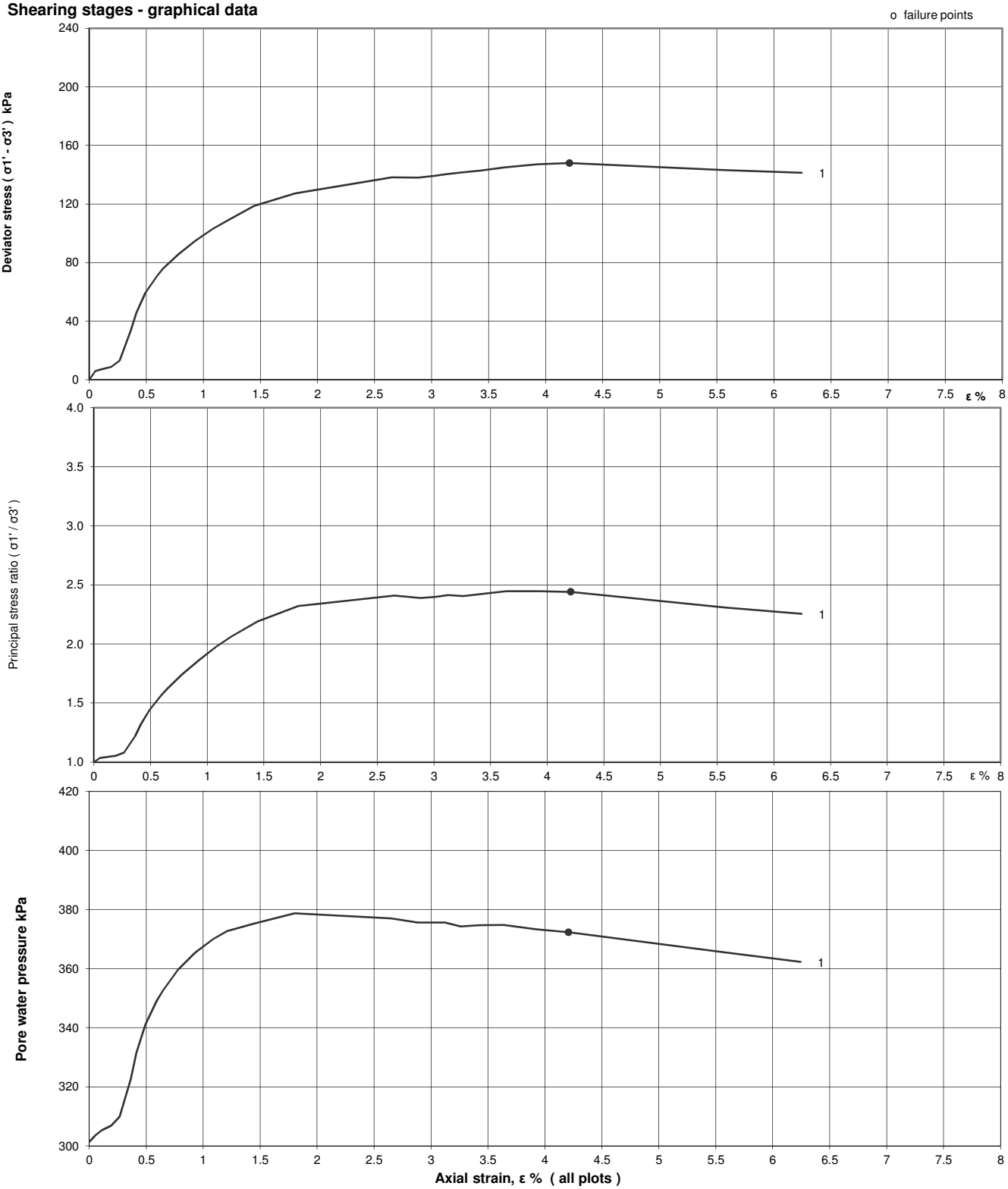


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	17.20-17.65		
			No	45	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

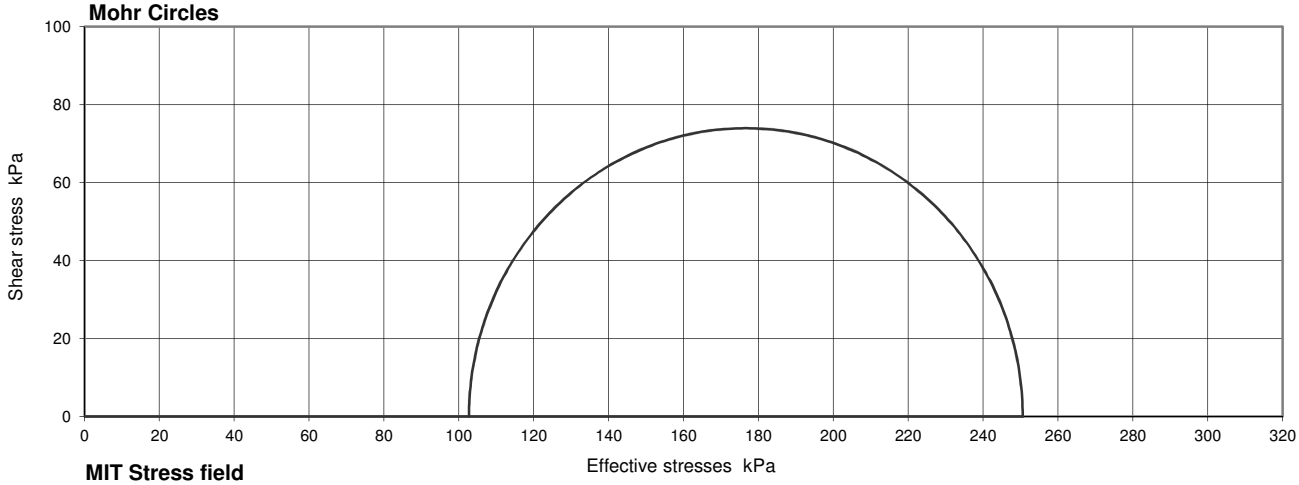


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:18/08/2015 14:53	**CU** sheet 2 of 3

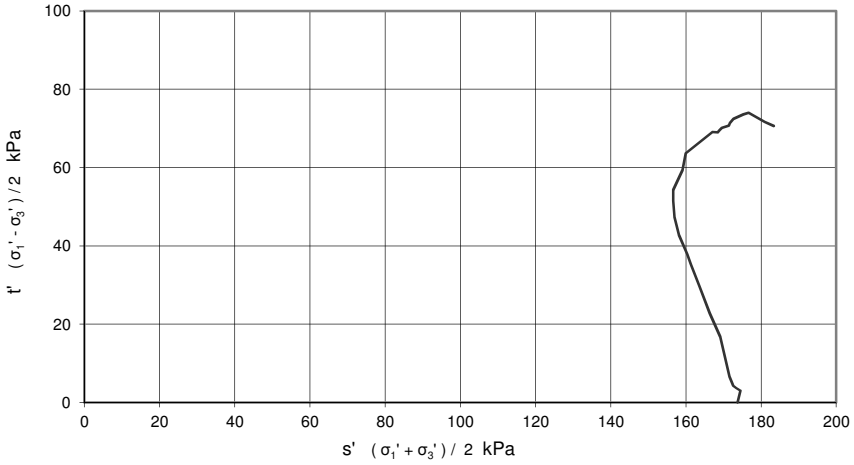
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH303		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	17.20-17.65		
			No	45	Type	U
			ID			
			Spec Ref			

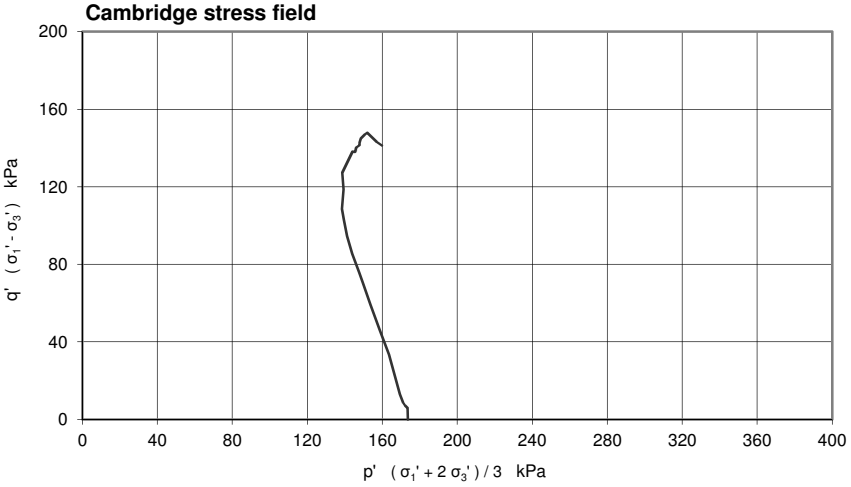
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	475			kPa
Initial pwp	301			kPa
Initial σ_3'	174			kPa
Rate of strain	0.25			%/hr

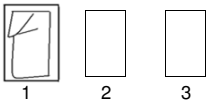
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	4.21			%
$(\sigma_1' / \sigma_3')_f$	2.440			
$(\sigma_1' - \sigma_3')_f$	147.9			kPa
u_f	372			kPa
$\sigma_3'_f$	103			kPa
$\sigma_1'_f$	251			kPa
A_f	0.48			
Time to failure	17.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.312 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

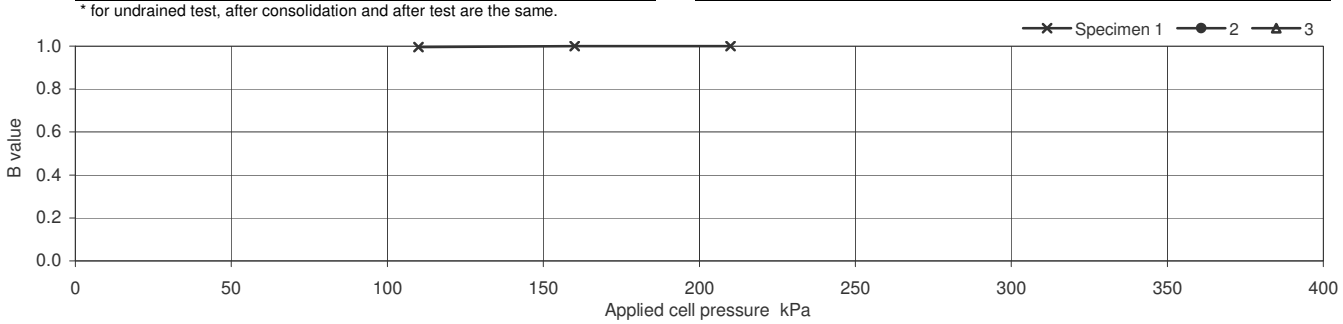
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.20-3.65	
			No	11	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.27		
	Diameter	mm	101.36		
	Bulk Density	Mg/m³	1.82		
	Water Content	%	44		
	Dry density	Mg/m³	1.27		
After consolidation	Length	mm	198.02		
	Diameter	mm	99.21		
	Bulk Density*	Mg/m³	1.88		
	Water Content*	%	39		
	Dry density*	Mg/m³	1.35		

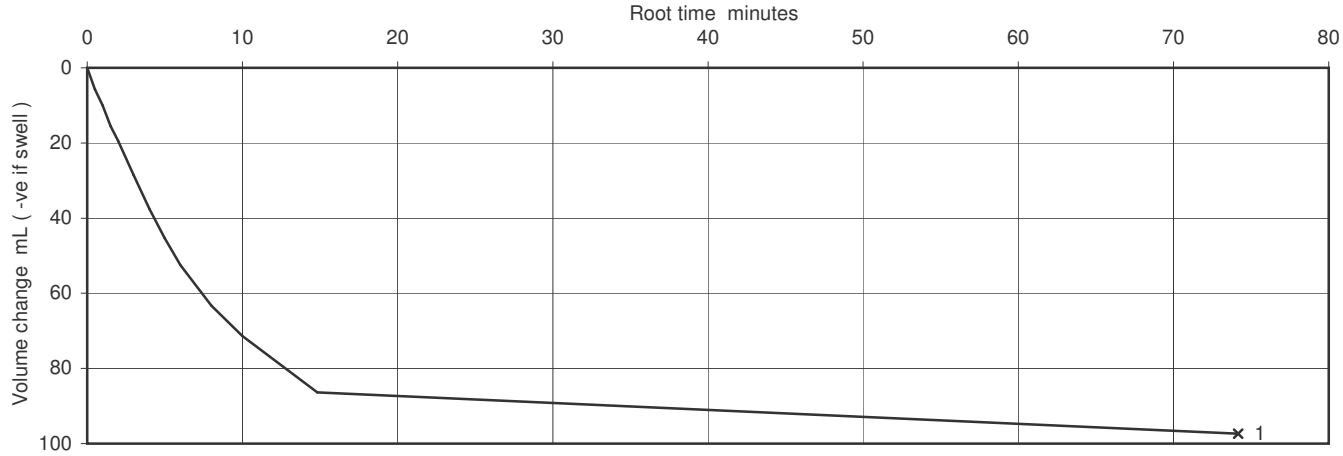
* for undrained test, after consolidation and after test are the same.

Soil Description	Dark grey mottled brown sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	204.7		
Final B Value		1.00		



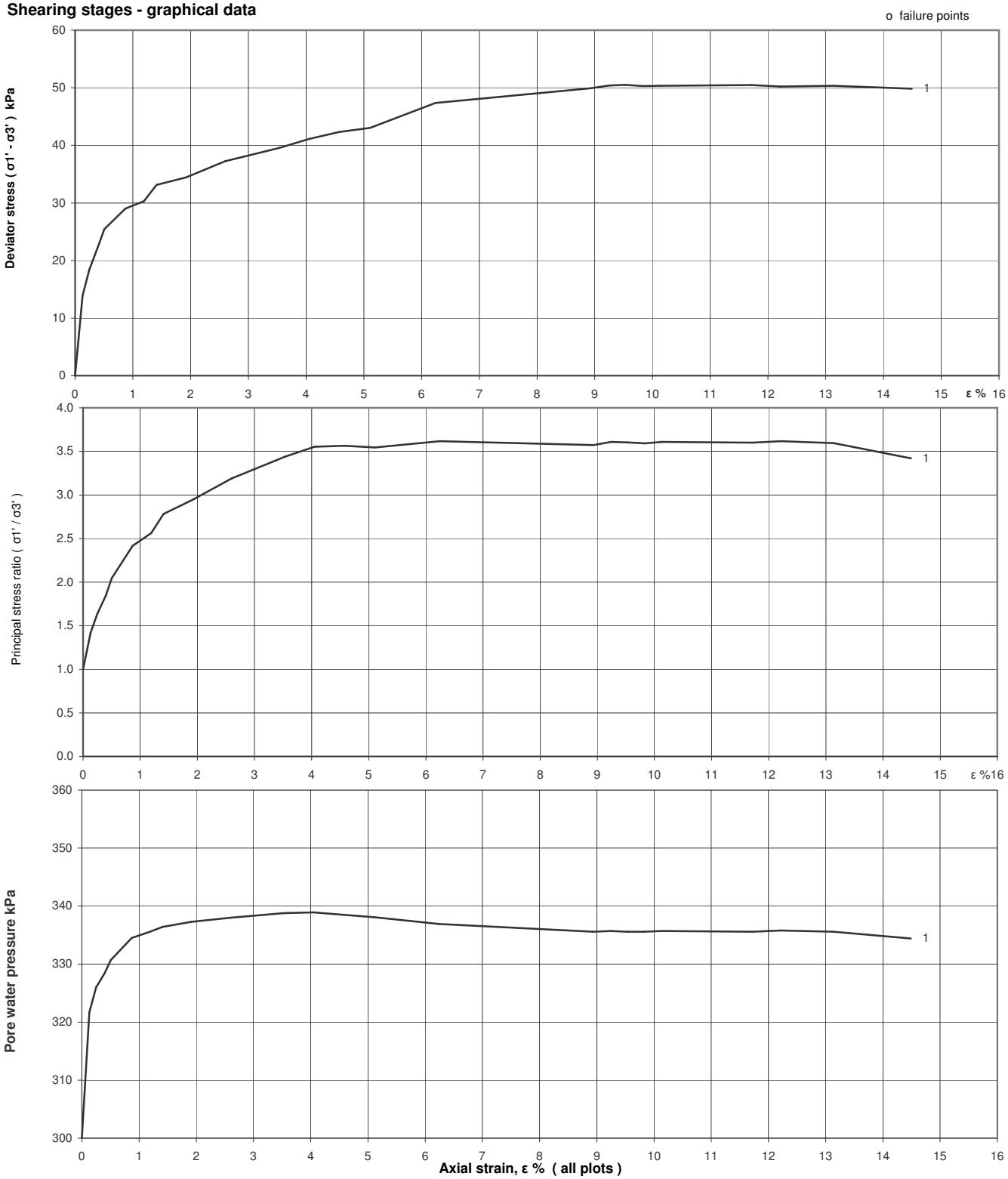
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		355			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		55			kPa
	Pore pressure at start of consolidation		350			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.82			m^2/year
	Coefficient of Compressibility	M_{vi}	1.10			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.2E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.20-3.65		
			No	11	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

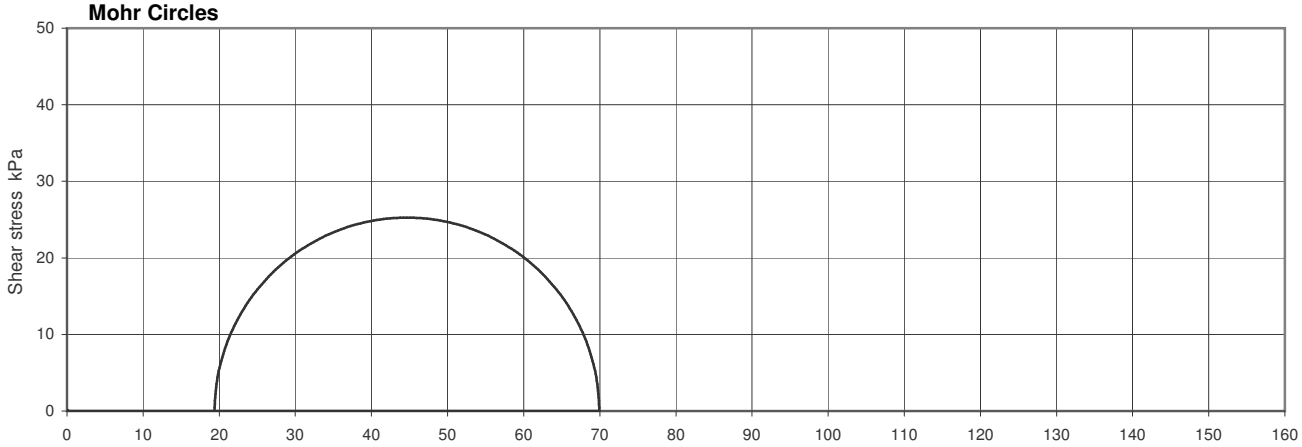


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:17	**CU** sheet 2 of 3

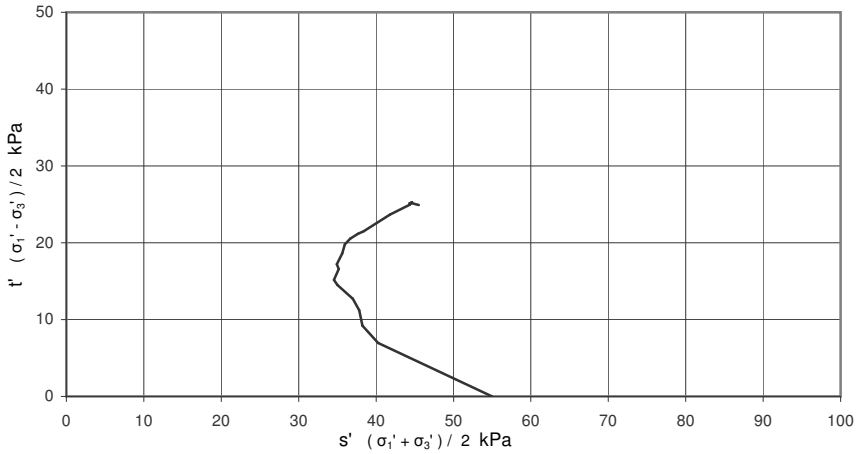
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.20-3.65		
			No	11	Type	U
			ID			
			Spec Ref			

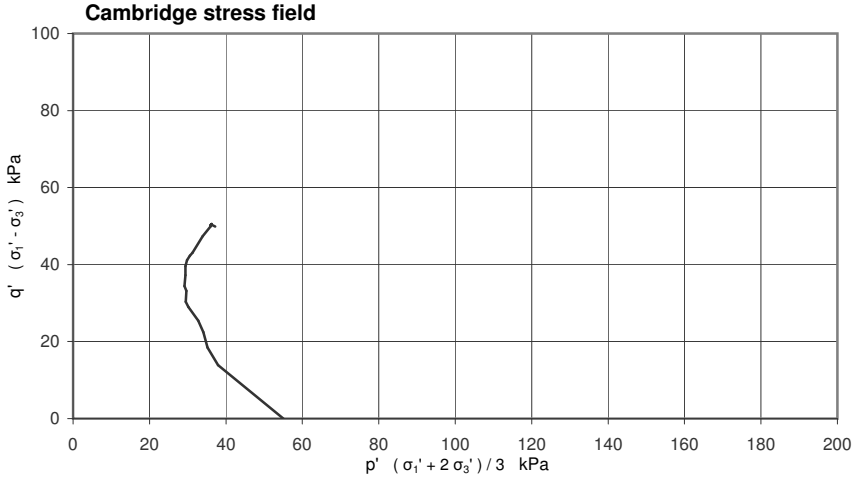
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	355			kPa
Initial pwp	300			kPa
Initial σ_3'	55			kPa
Rate of strain	1.00			%/hr

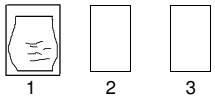
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	9.52			%
$(\sigma_1' / \sigma_3')_f$	3.604			
$(\sigma_1' - \sigma_3')_f$	50.5			kPa
u_f	336			kPa
$\sigma_3'_f$	19			kPa
$\sigma_1'_f$	70			kPa
A_f	0.70			
Time to failure	9.5			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.293 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

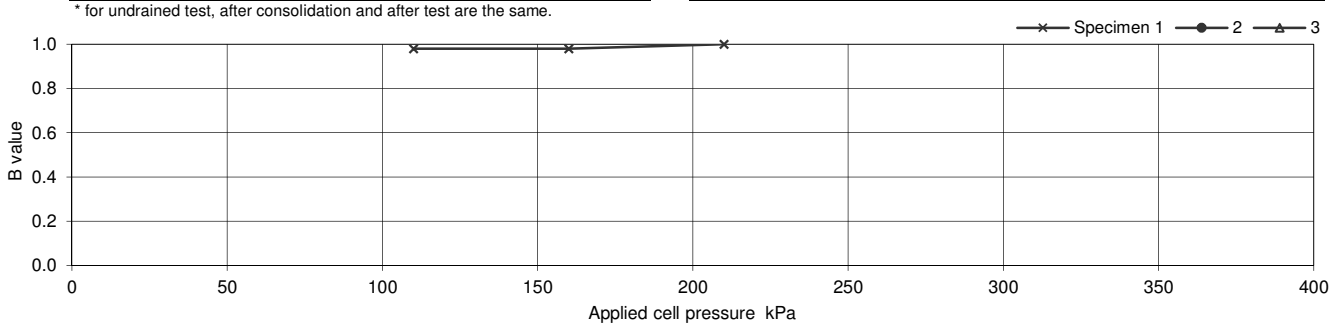
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.70-4.15	
			No	13	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	200.58		
	Diameter	mm	103.31		
	Bulk Density	Mg/m³	1.78		
	Water Content	%	42		
	Dry density	Mg/m³	1.25		
After consolidation	Length	mm	192.76		
	Diameter	mm	99.20		
	Bulk Density*	Mg/m³	1.88		
	Water Content*	%	33		
	Dry density*	Mg/m³	1.41		

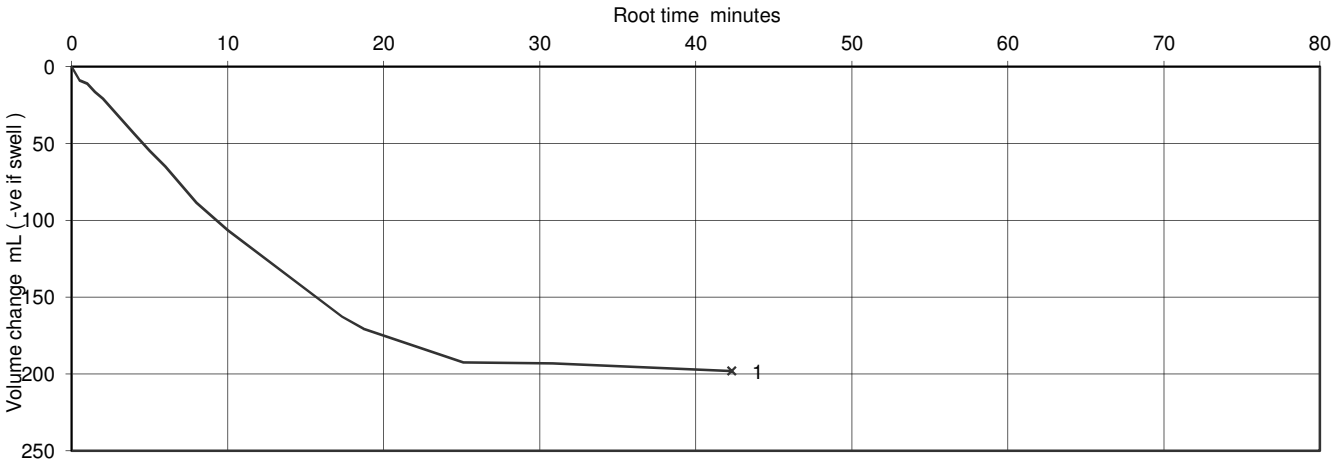
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft black laminated SILT with occasional wood fragments.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	201		
Final B Value		1.00		



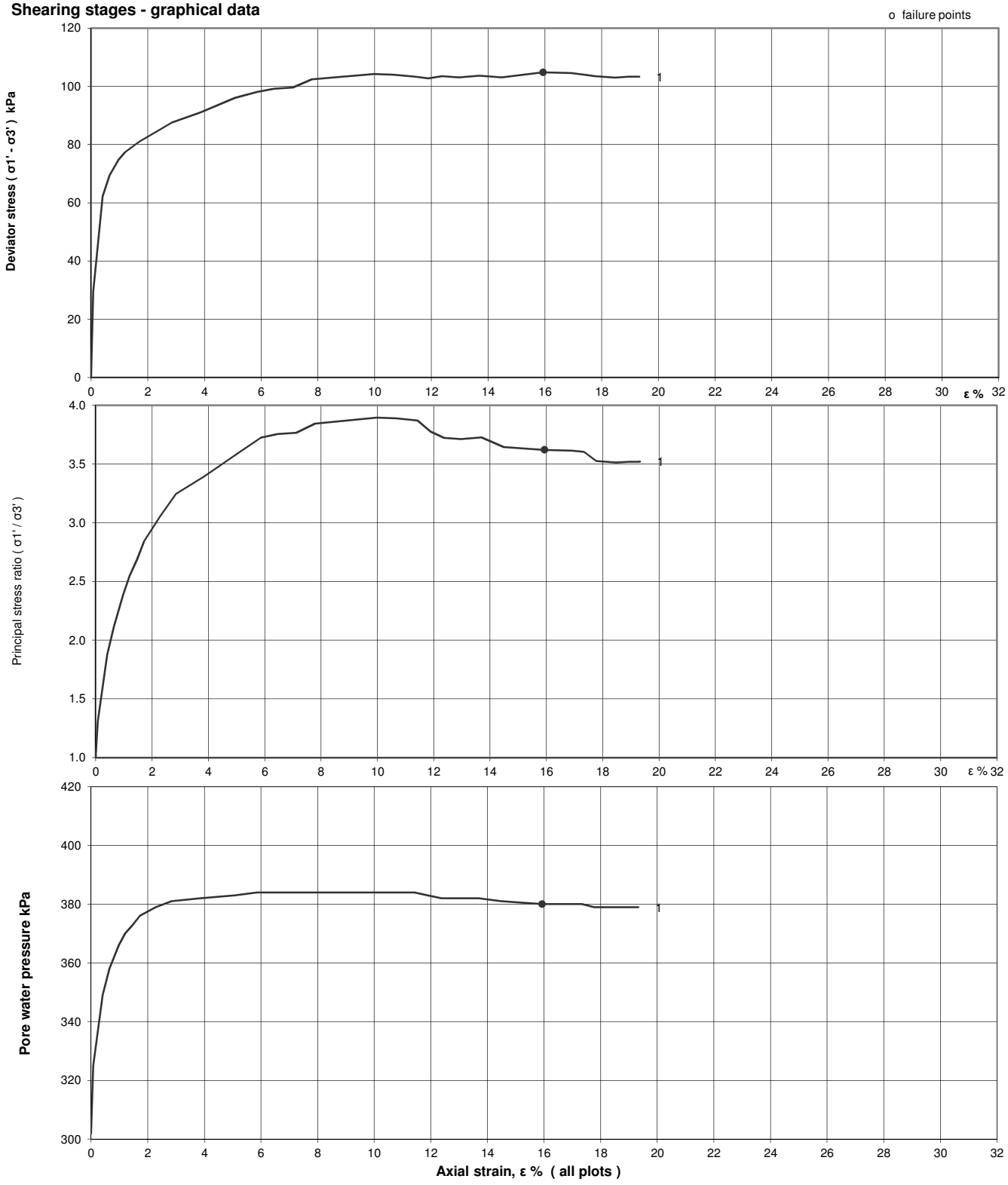
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		420			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		120			kPa
	Pore pressure at start of consolidation		305			kPa
	Pore pressure at end of consolidation		305			kPa
	Pore pressure dissipation at end of consolidation		0			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.68			m^2/year
	Coefficient of Compressibility	M_{vi}	1.06			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.2E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.70-4.15		
			No	13	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

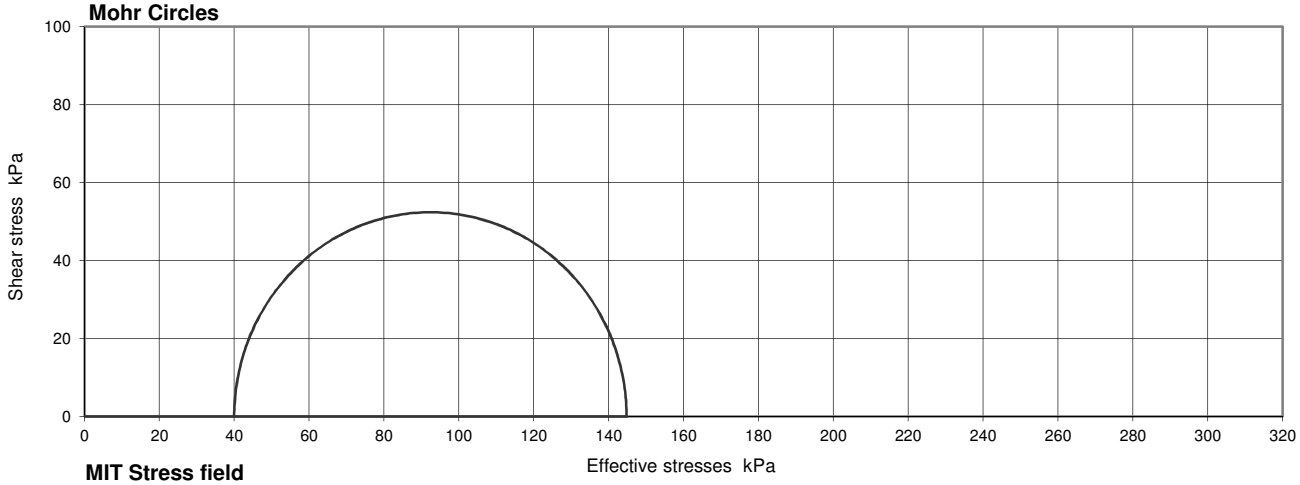


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	157	Printed:18/08/2015 14:54	**CU** sheet 2 of 3

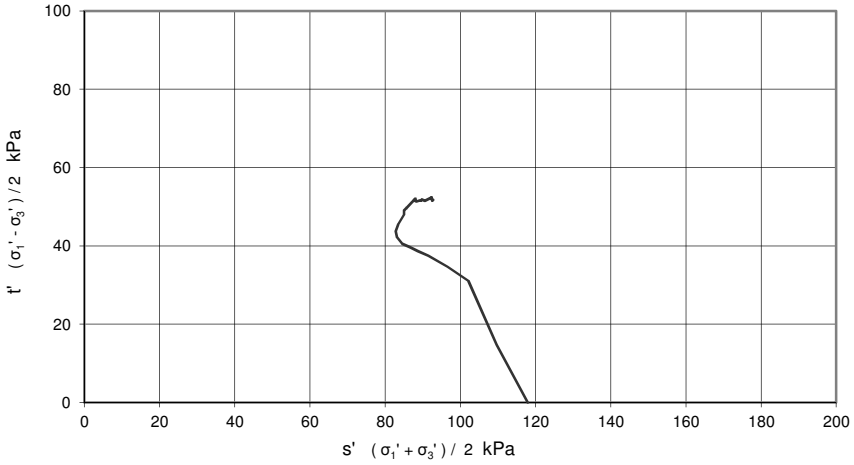
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.70-4.15		
			No	13	Type	U
			ID			
			Spec Ref			

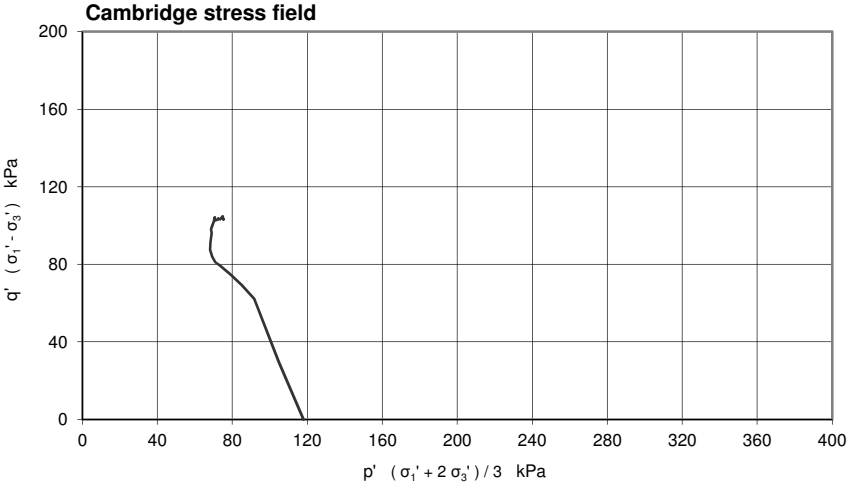
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	420			kPa
Initial pwp	302			kPa
Initial σ_3'	118			kPa
Rate of strain	0.49			%/hr

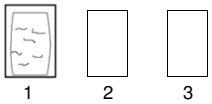
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	15.94			%
$(\sigma_1' / \sigma_3')_f$	3.620			
$(\sigma_1' - \sigma_3')_f$	104.8			kPa
u_f	380			kPa
$\sigma_3'_f$	40			kPa
$\sigma_1'_f$	145			kPa
A_f	0.74			
Time to failure	32.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.316 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

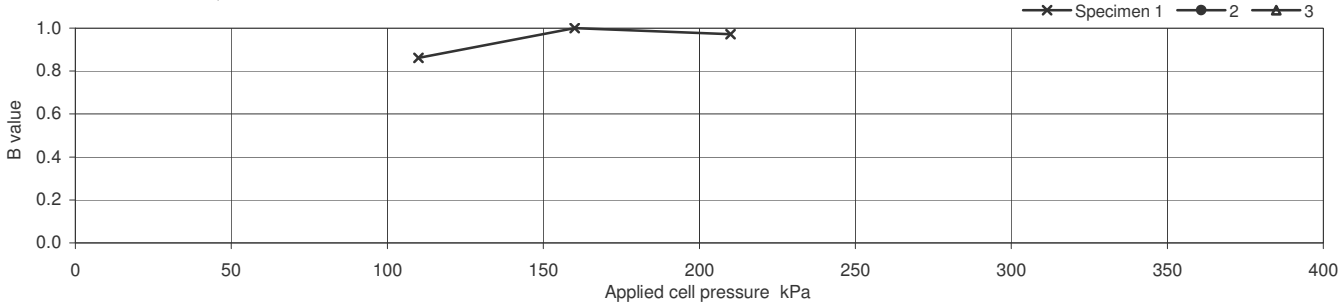
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.5-5.5	
			No	17	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	200.67		
	Diameter	mm	97.60		
	Bulk Density	Mg/m³	1.79		
	Water Content	%	42		
	Dry density	Mg/m³	1.26		
After consolidation	Length	mm	198.66		
	Diameter	mm	96.61		
	Bulk Density*	Mg/m³	1.81		
	Water Content*	%	39		
	Dry density*	Mg/m³	1.30		

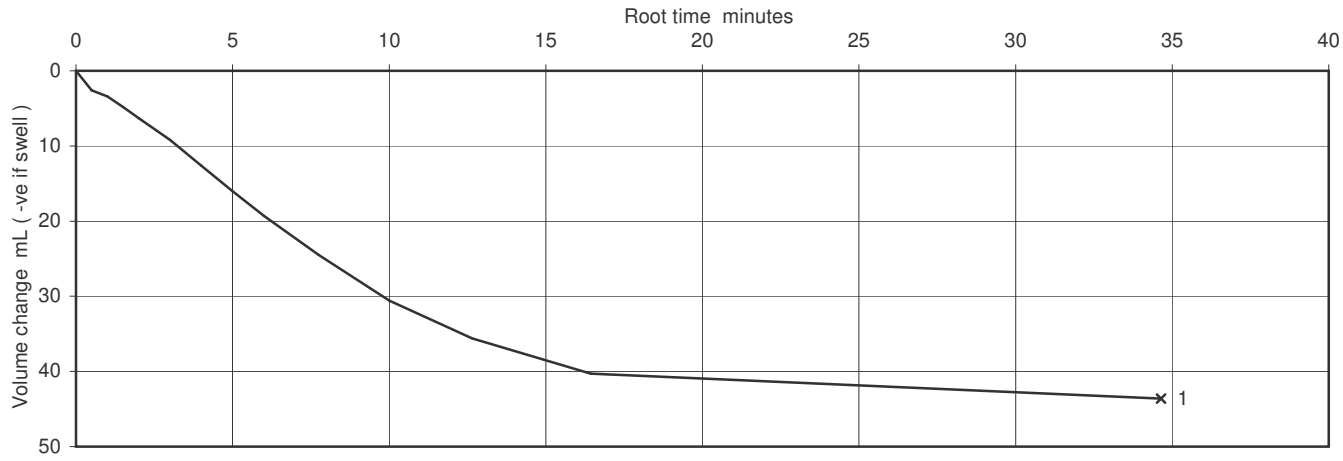
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft greyish brown SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	199.3		
Final B Value		0.97		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		335			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		35			kPa
	Pore pressure at start of consolidation		328			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		91			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.02			m^2/year
	Coefficient of Compressibility	M_{vi}	1.16			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.7E-10			m/s

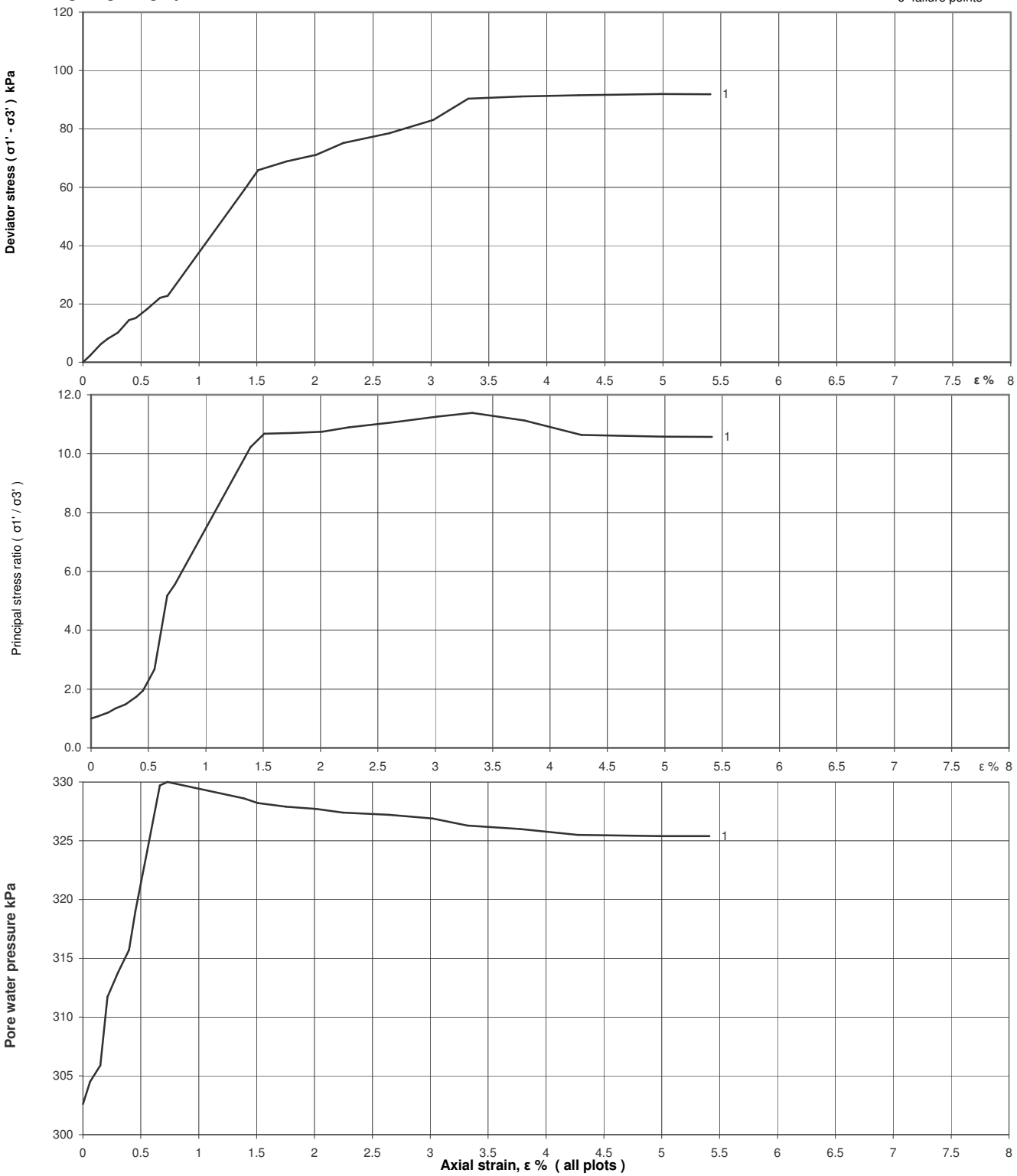


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.5-5.5		
			No	17	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

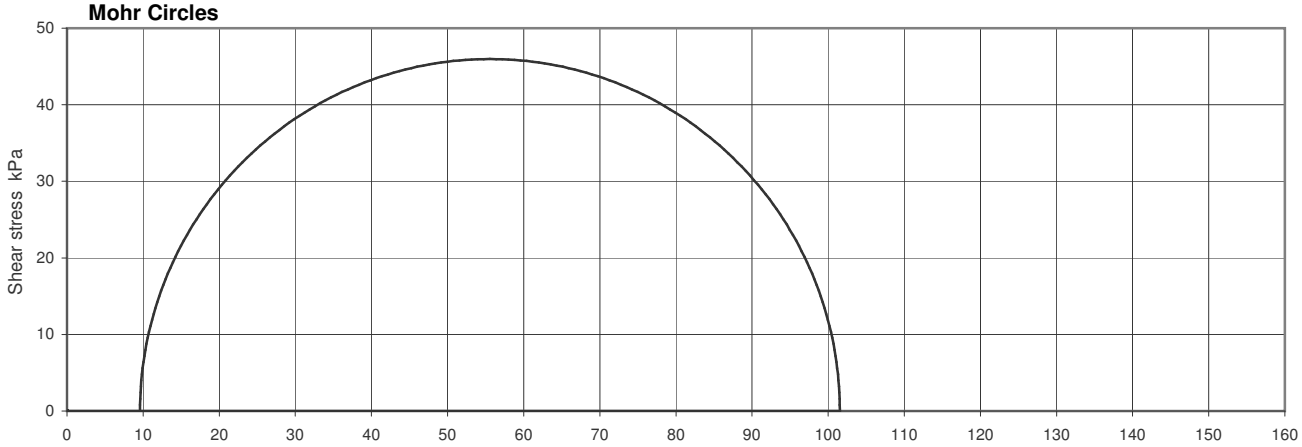


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 14:48	**CU 0** sheet 2 of 3

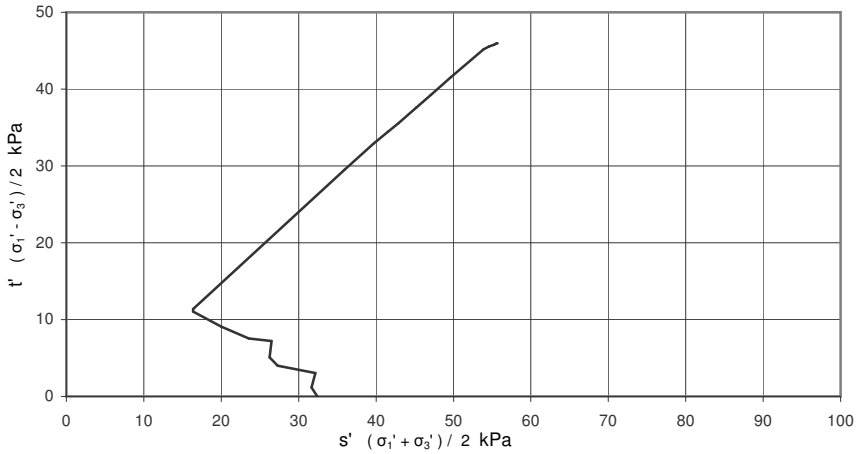
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.5-5.5		
			No	17	Type	P
			ID			
			Spec Ref			

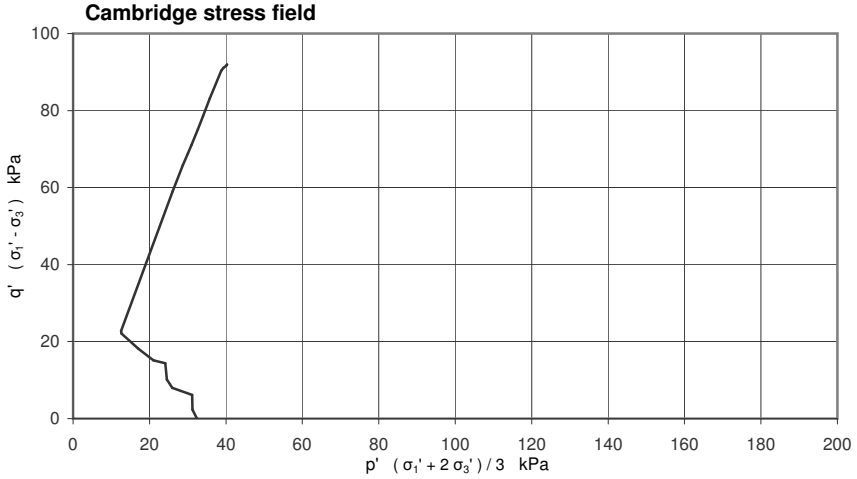
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	335			kPa
Initial pwp	303			kPa
Initial σ_3'	32			kPa
Rate of strain	2.00			%/hr

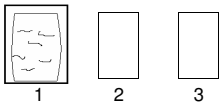
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	4.98			%
$(\sigma_1' / \sigma_3')_f$	10.577			
$(\sigma_1' - \sigma_3')_f$	91.9			kPa
u_f	325			kPa
$\sigma_3'_f$	10			kPa
$\sigma_1'_f$	102			kPa
A_f	0.25			
Time to failure	2.5			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.299 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

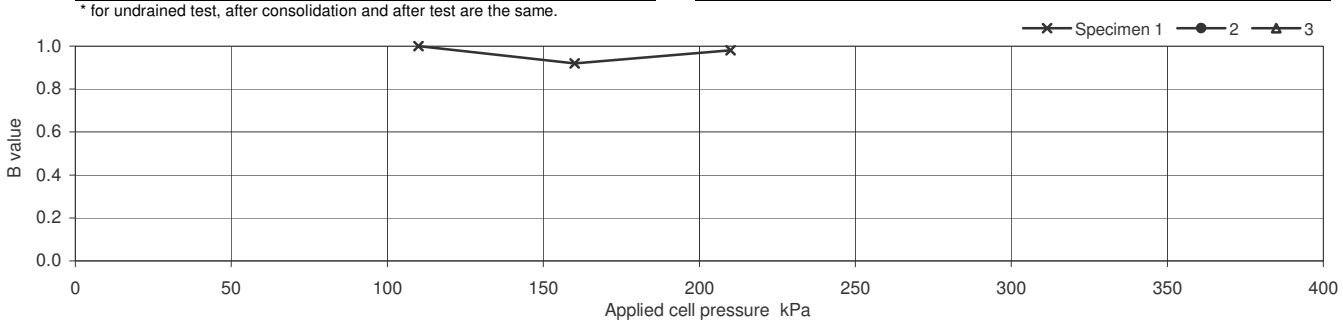
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.5-5.5	
			No	17	Type P
			ID		
			Spec Ref	Sample 2	

Specimen Details			1	2	3
Initial	Length	mm	202.08		
	Diameter	mm	97.14		
	Bulk Density	Mg/m³	1.78		
	Water Content	%	44		
	Dry density	Mg/m³	1.23		
After consolidation	Length	mm	198.83		
	Diameter	mm	95.56		
	Bulk Density*	Mg/m³	1.82		
	Water Content*	%	40		
	Dry density*	Mg/m³	1.30		

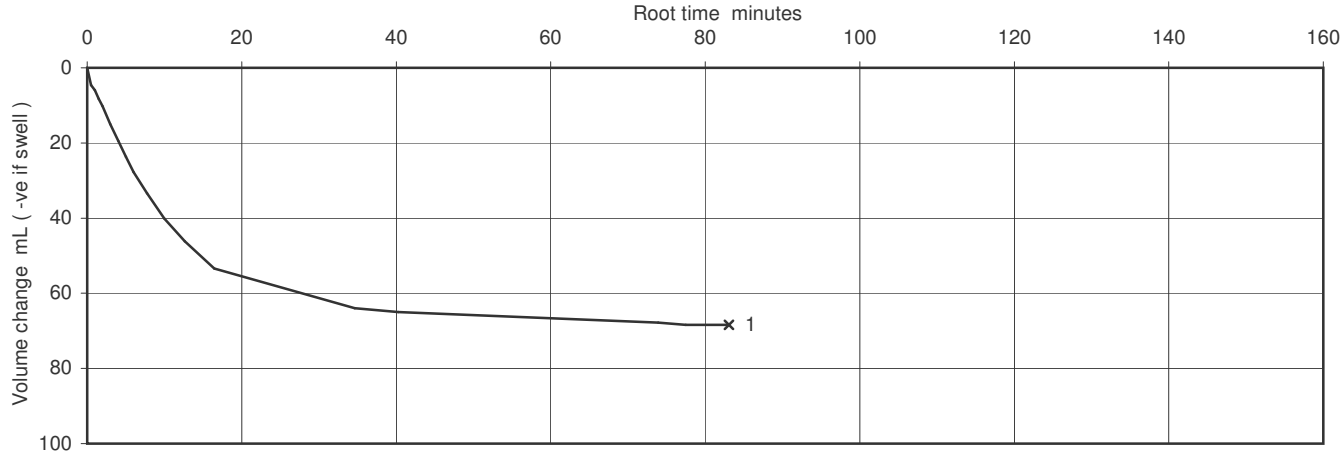
* for undrained test, after consolidation and after test are the same.

Soil Description	Greyish brown slightly sandy laminated SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	200		
Final B Value		0.98		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		370			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		70			kPa
	Pore pressure at start of consolidation		365			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		95			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.74			m^2/year
	Coefficient of Compressibility	M_{vi}	0.74			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.7E-10			m/s

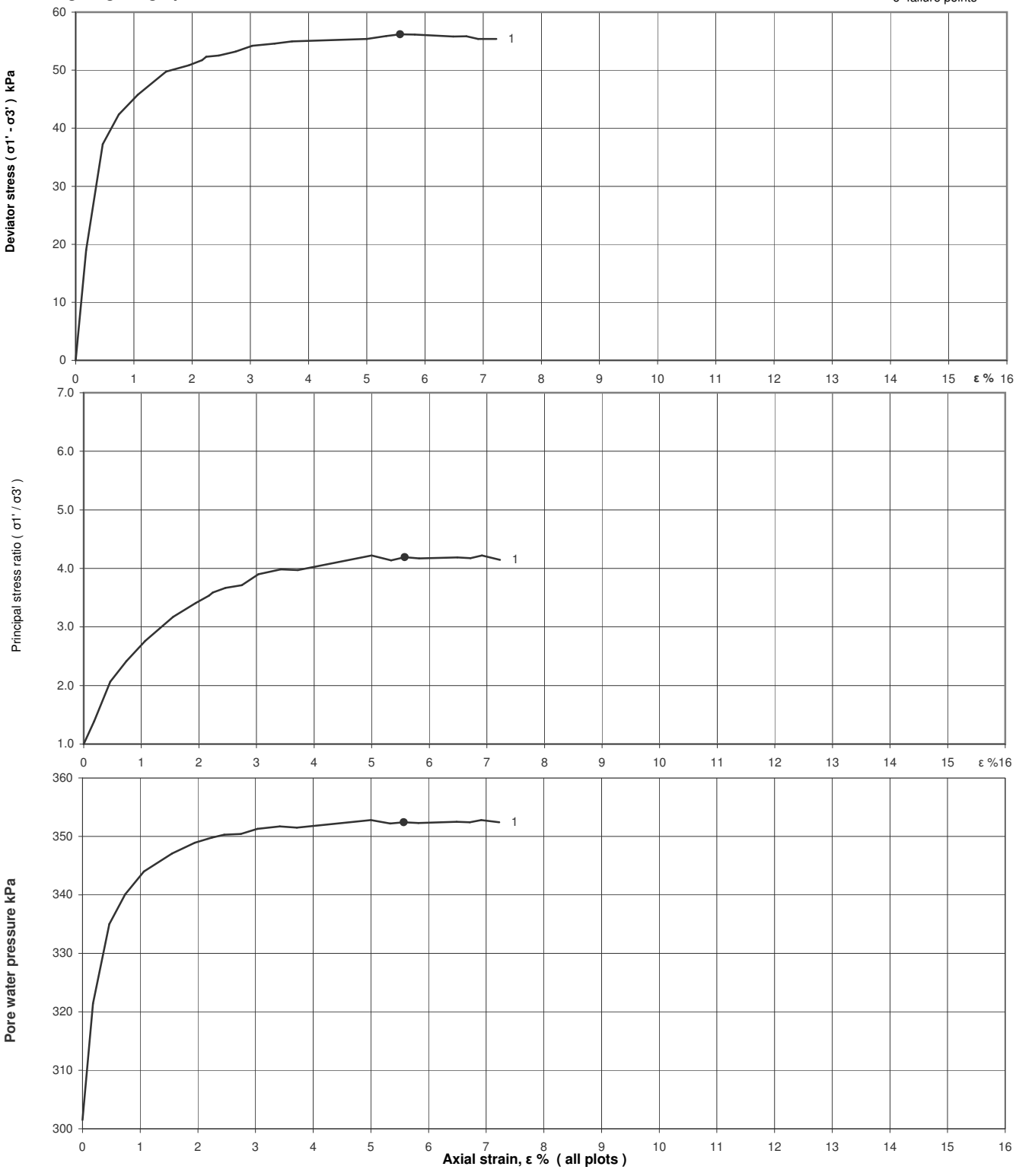


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.5-5.5		
			No	17	Type	P
			ID			
			Spec Ref	Sample 2		

Shearing stages - graphical data

o failure points

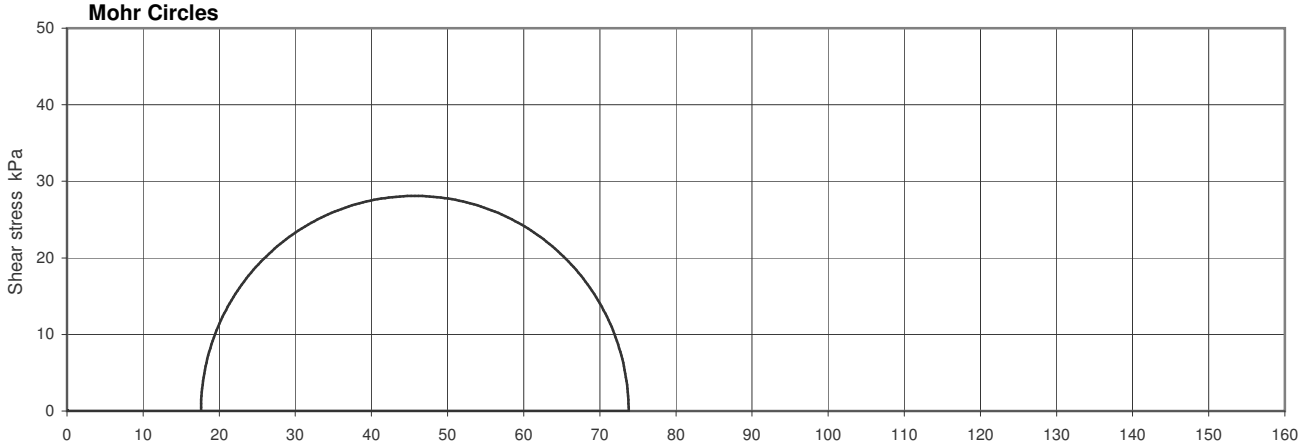


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 14:49	**CU** sheet 2 of 3

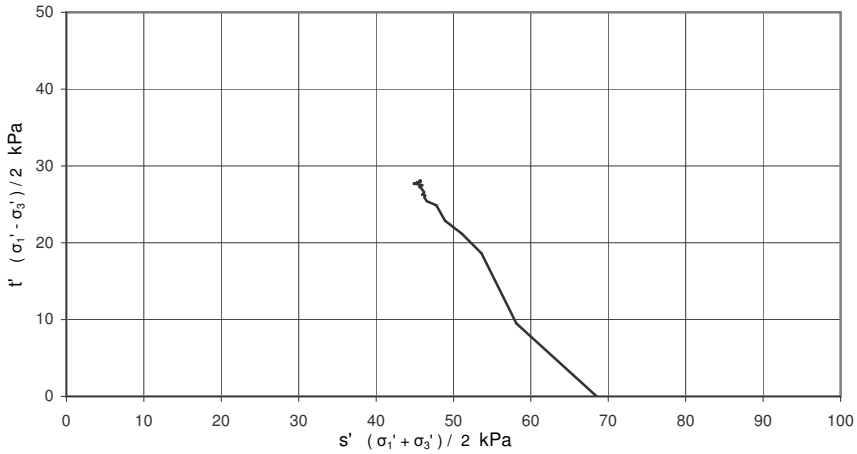
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.5-5.5		
			No	17	Type	P
			ID			
			Spec Ref	Sample 2		

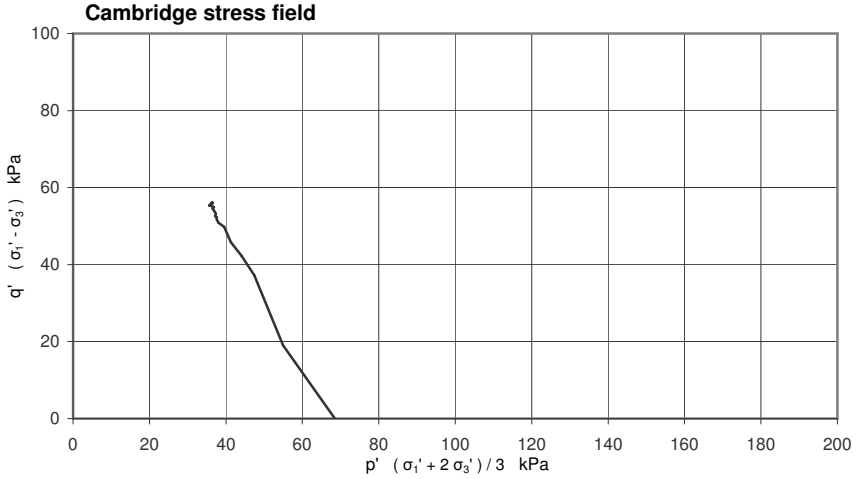
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	370			kPa
Initial pwp	302			kPa
Initial σ_3'	69			kPa
Rate of strain	0.67			%/hr

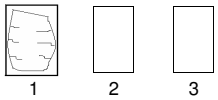
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	5.57			%
$(\sigma_1' / \sigma_3')_f$	4.192			
$(\sigma_1' - \sigma_3')_f$	56.2			kPa
u_f	352			kPa
$\sigma_3'_f$	18			kPa
$\sigma_1'_f$	74			kPa
A_f	0.91			
Time to failure	8.3			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.299 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

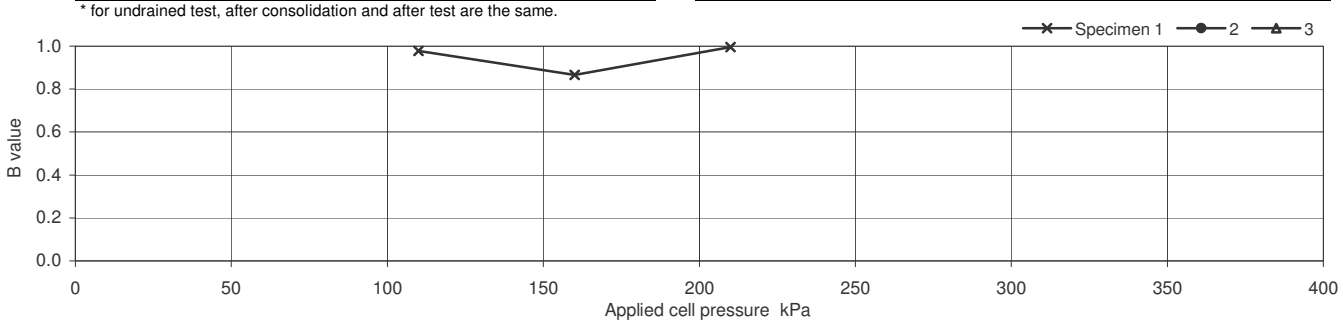
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.50-7.50	
			No	22	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	204.24		
	Diameter	mm	97.86		
	Bulk Density	Mg/m³	1.88		
	Water Content	%	32		
	Dry density	Mg/m³	1.43		
After consolidation	Length	mm	201.62		
	Diameter	mm	96.60		
	Bulk Density*	Mg/m³	1.92		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.48		

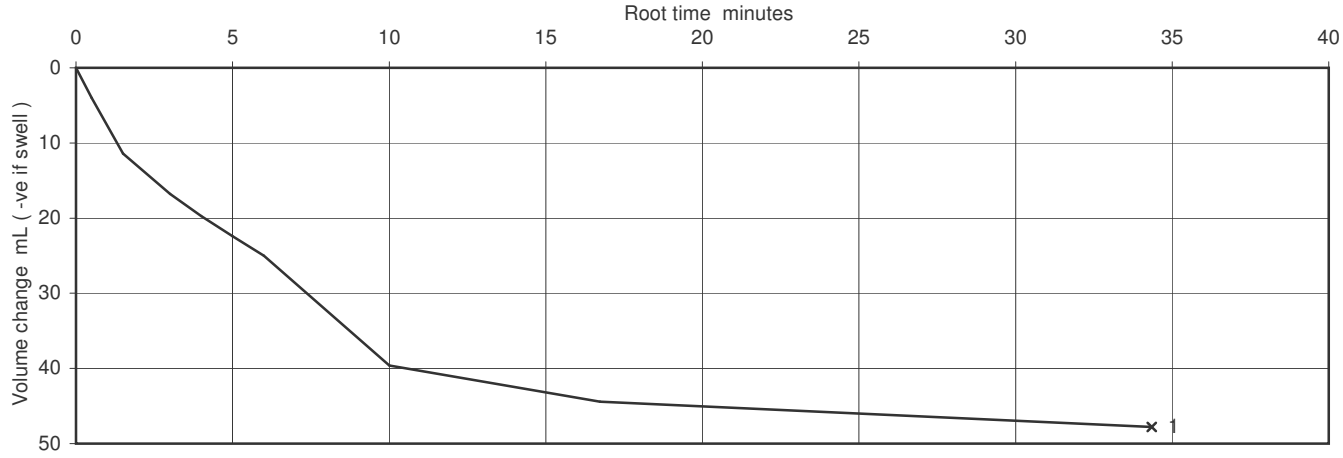
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm dark grey SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	150		
Final B Value		1.00		



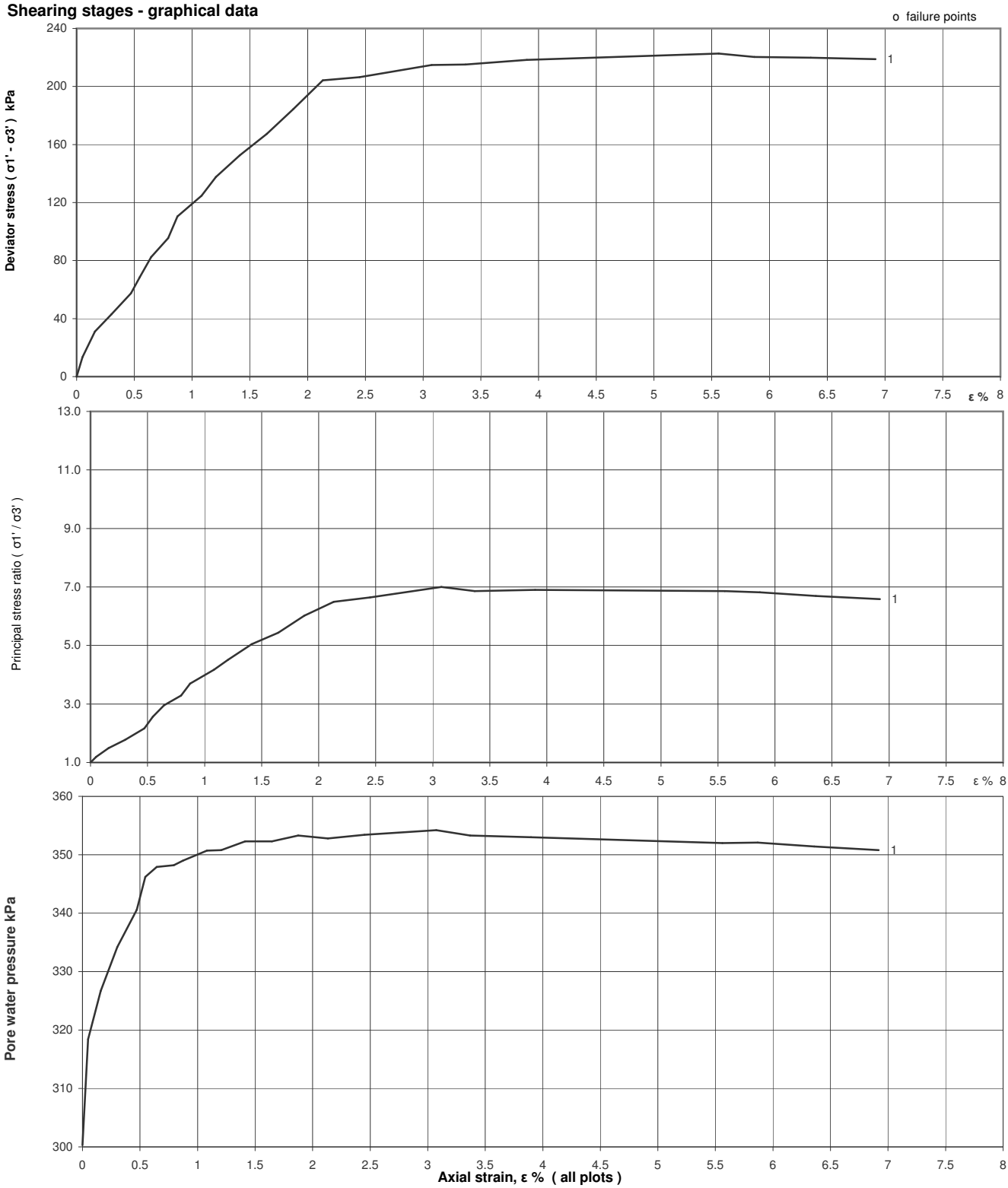
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		390			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		90			kPa
	Pore pressure at start of consolidation		374			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.37			m^2/year
	Coefficient of Compressibility	M_{vi}	0.42			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.1E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.50-7.50		
			No	22	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data



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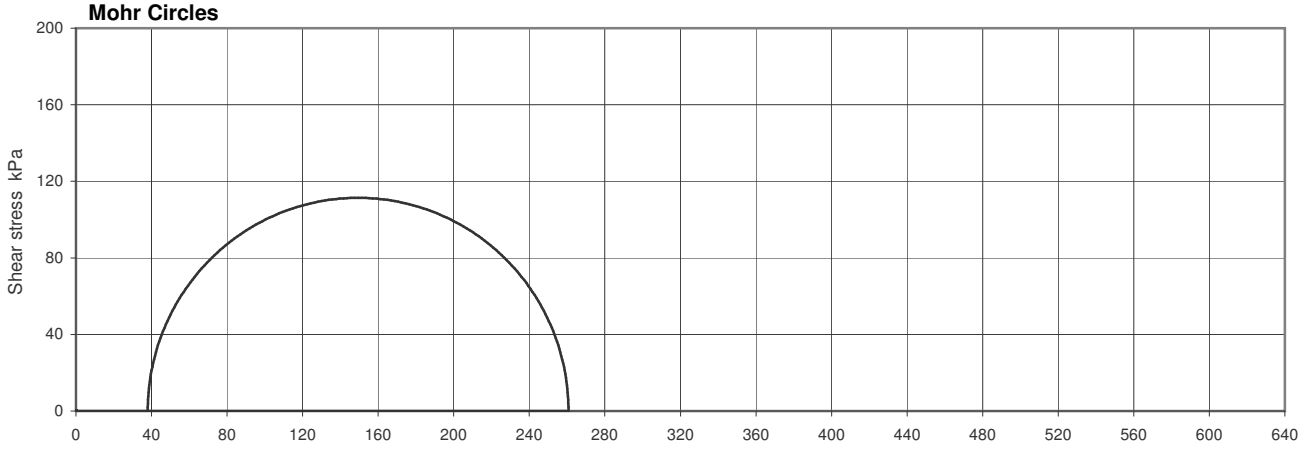
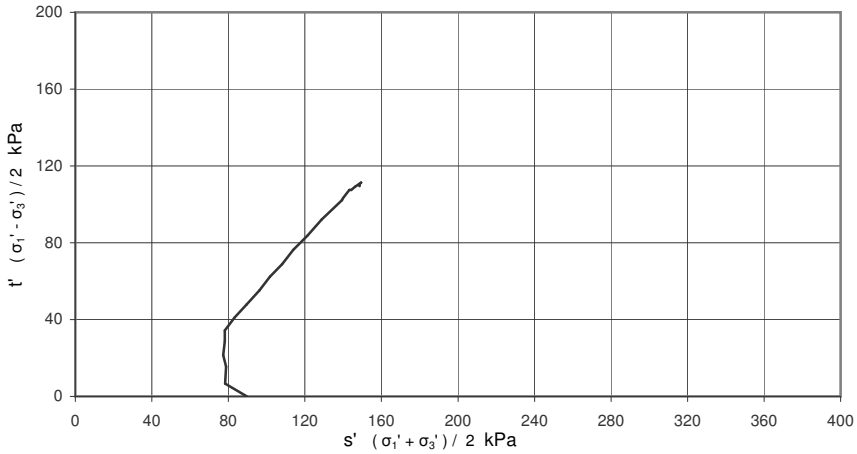
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.50-7.50		
			No	22	Type	P
			ID			
			Spec Ref			

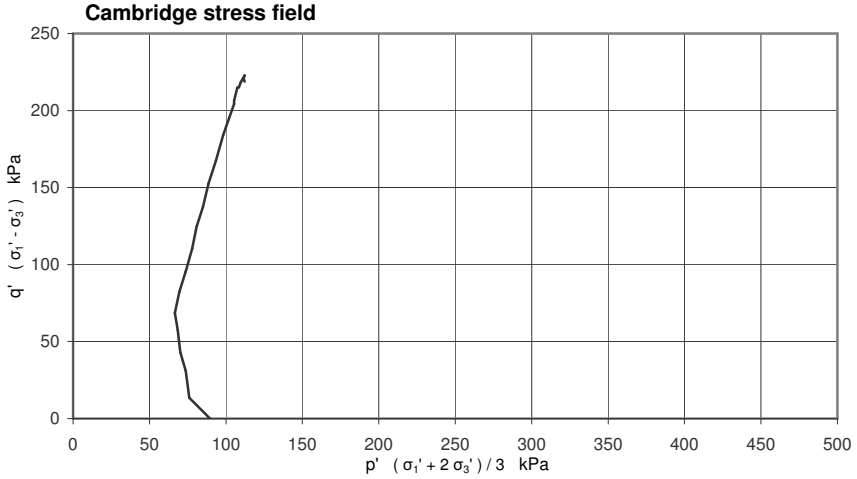
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	390			kPa
Initial pwp	300			kPa
Initial σ_3'	90			kPa
Rate of strain	2.00			%/hr

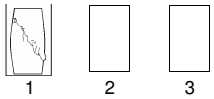
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	5.56			%
$(\sigma_1' / \sigma_3')_f$	6.862			
$(\sigma_1' - \sigma_3')_f$	222.8			kPa
u_f	352			kPa
$\sigma_3'_f$	38			kPa
$\sigma_1'_f$	261			kPa
A_f	0.23			
Time to failure	2.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.316 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

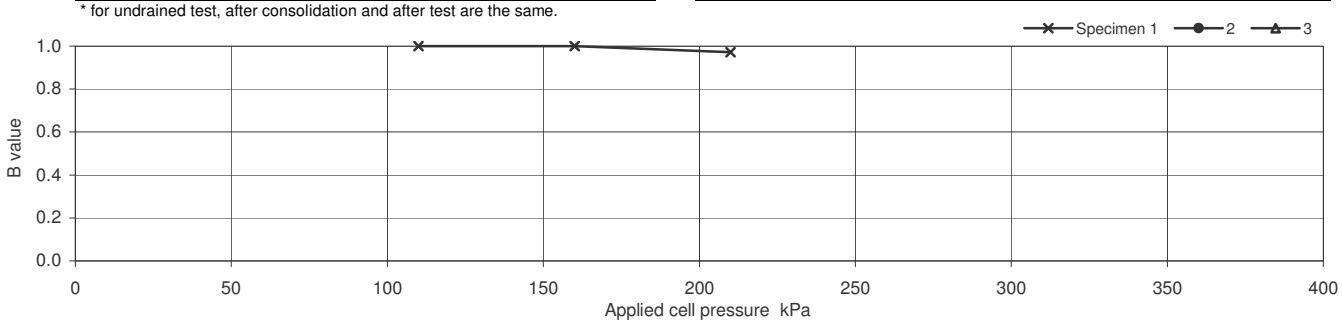
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-7.95	
			No	23	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.23		
	Diameter	mm	103.67		
	Bulk Density	Mg/m³	1.89		
	Water Content	%	33		
	Dry density	Mg/m³	1.42		
After consolidation	Length	mm	195.33		
	Diameter	mm	99.55		
	Bulk Density*	Mg/m³	2.00		
	Water Content*	%	25		
	Dry density*	Mg/m³	1.60		

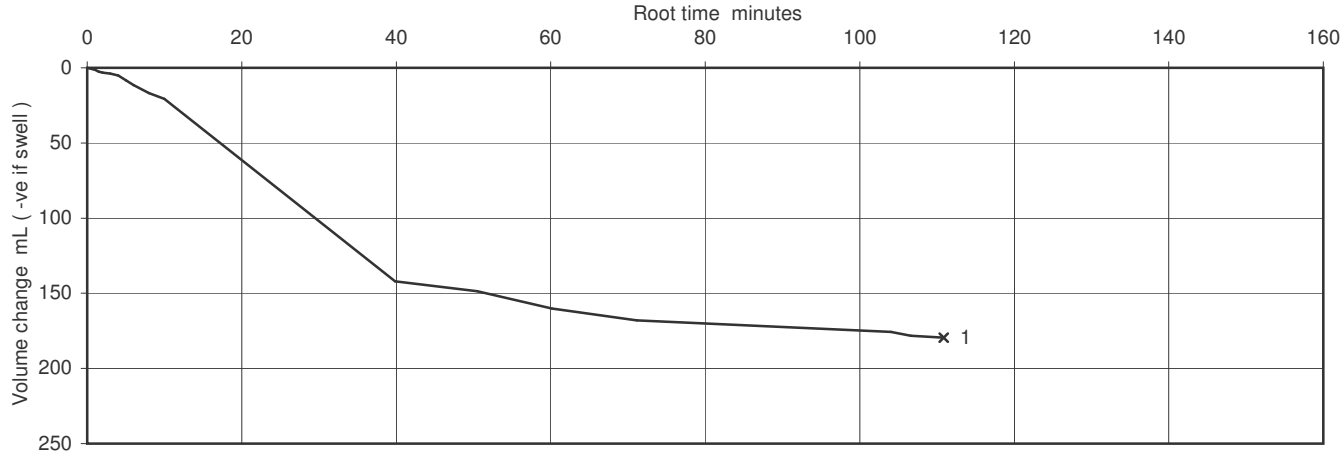
* for undrained test, after consolidation and after test are the same.

Soil Description	Brown SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	211.8		
Final B Value		0.97		



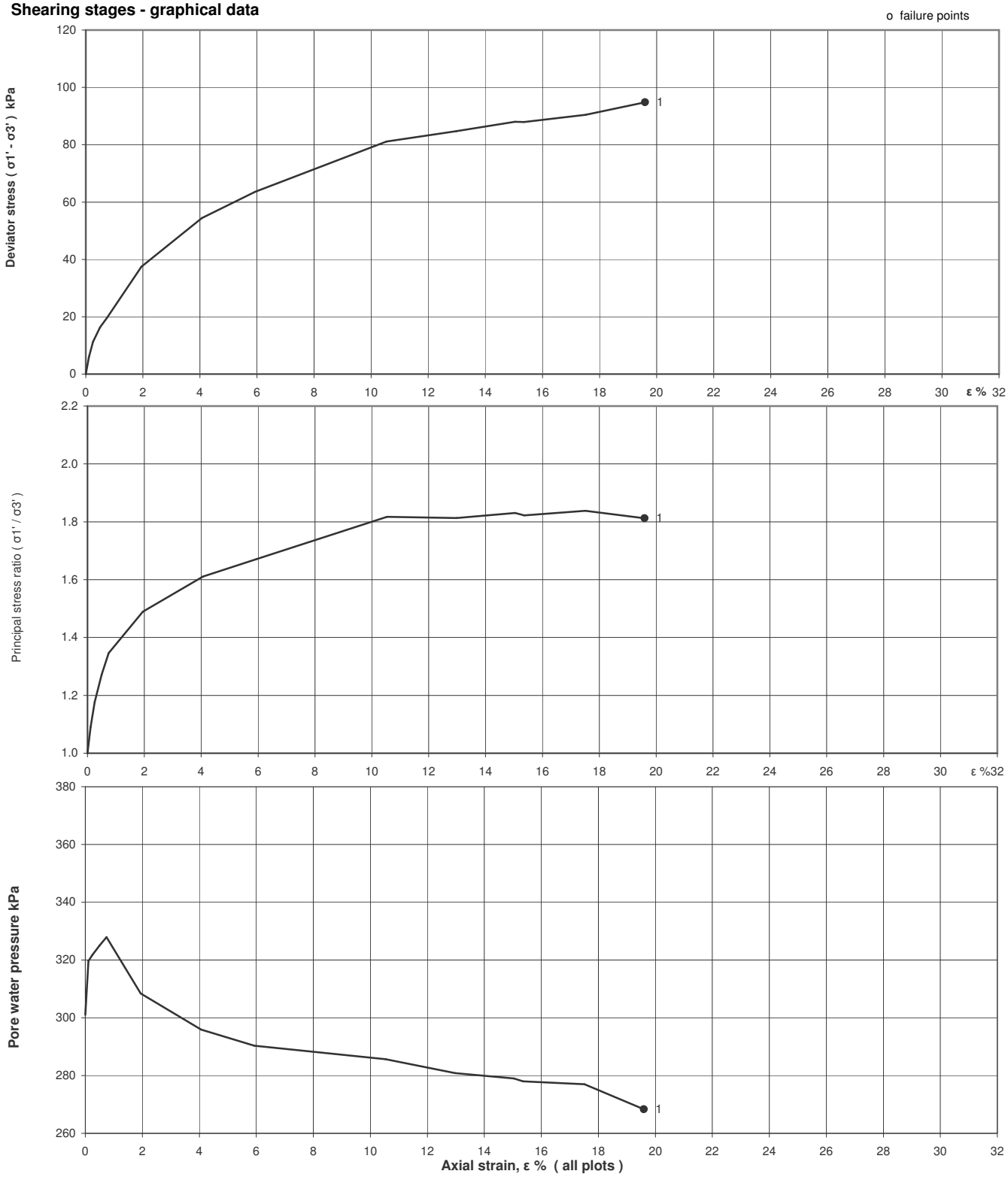
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		385			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		85			kPa
	Pore pressure at start of consolidation		361			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		98			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.08			m^2/year
	Coefficient of Compressibility	M_{vi}	1.77			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	4.5E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-7.95		
			No	23	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data



Ref			Figure
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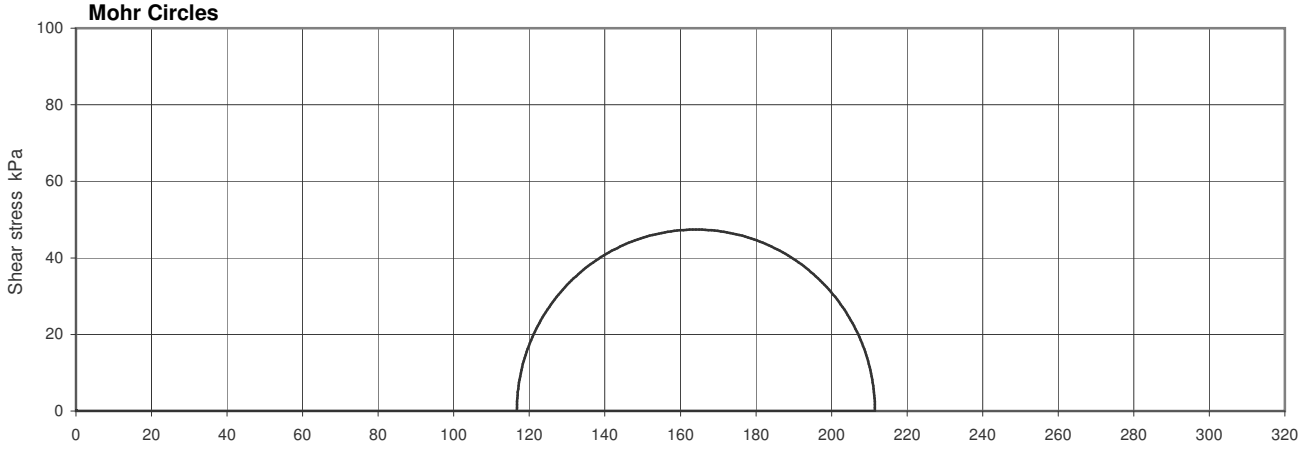
			sheet 2 of 3

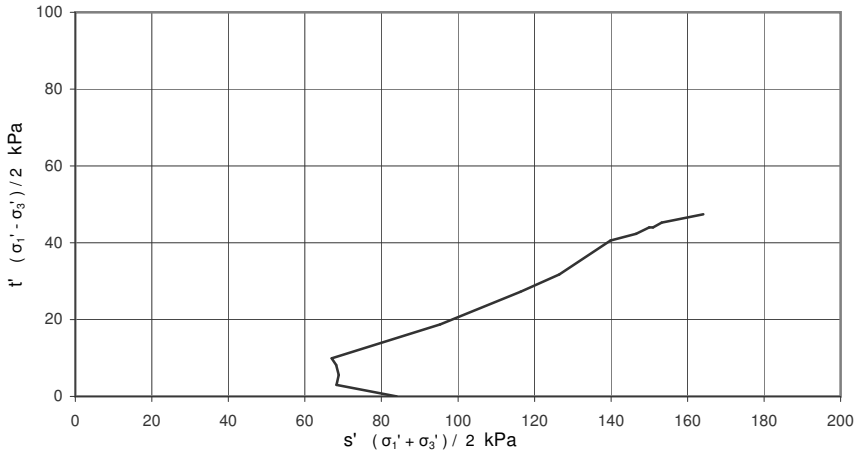
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-7.95		
			No	23	Type	U
			ID			
			Spec Ref			

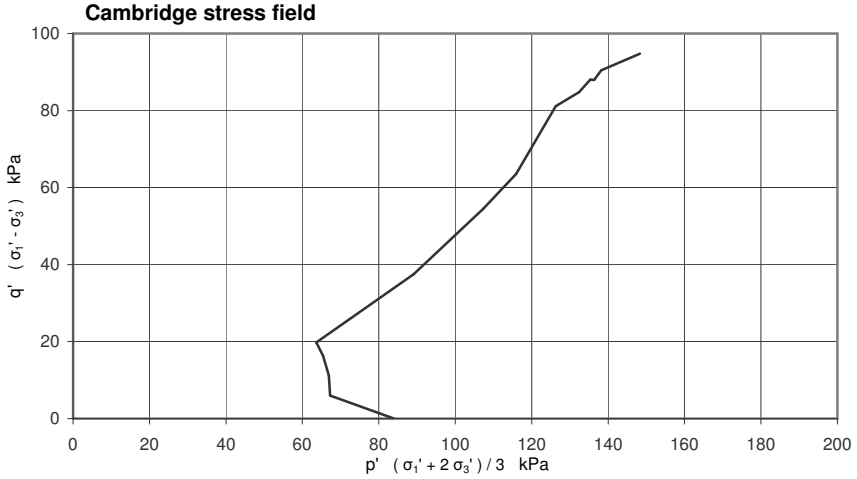
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	385			kPa
Initial pwp	301			kPa
Initial σ_3'	84			kPa
Rate of strain	0.18			%/hr

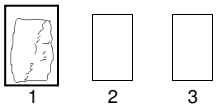
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	19.60			%
$(\sigma_1' / \sigma_3')_f$	1.812			
$(\sigma_1' - \sigma_3')_f$	94.8			kPa
u_f	268			kPa
$\sigma_3'_f$	117			kPa
$\sigma_1'_f$	211			kPa
A_f	-0.34			
Time to failure	108.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.256 mm thick rubber membrane(s)

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:02	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

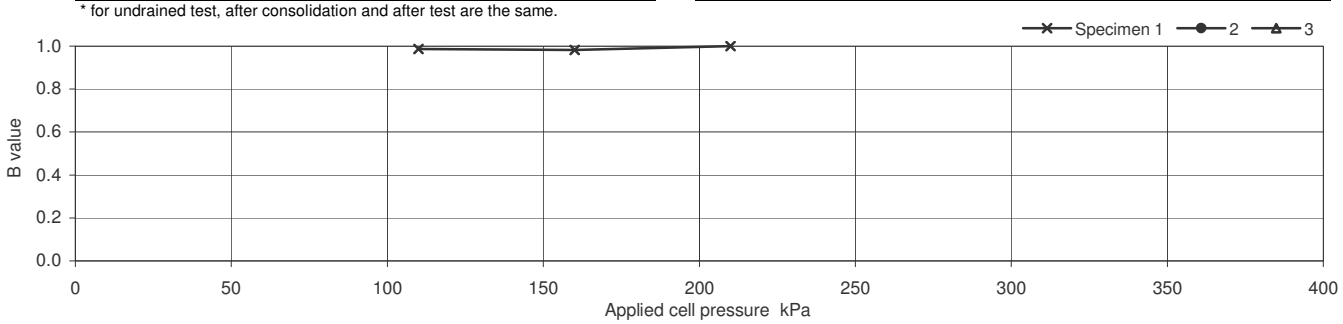
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.00-8.45	
			No	25	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	201.08		
	Diameter	mm	103.38		
	Bulk Density	Mg/m³	1.83		
	Water Content	%	37		
	Dry density	Mg/m³	1.34		
After consolidation	Length	mm	194.85		
	Diameter	mm	100.12		
	Bulk Density*	Mg/m³	1.92		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.48		

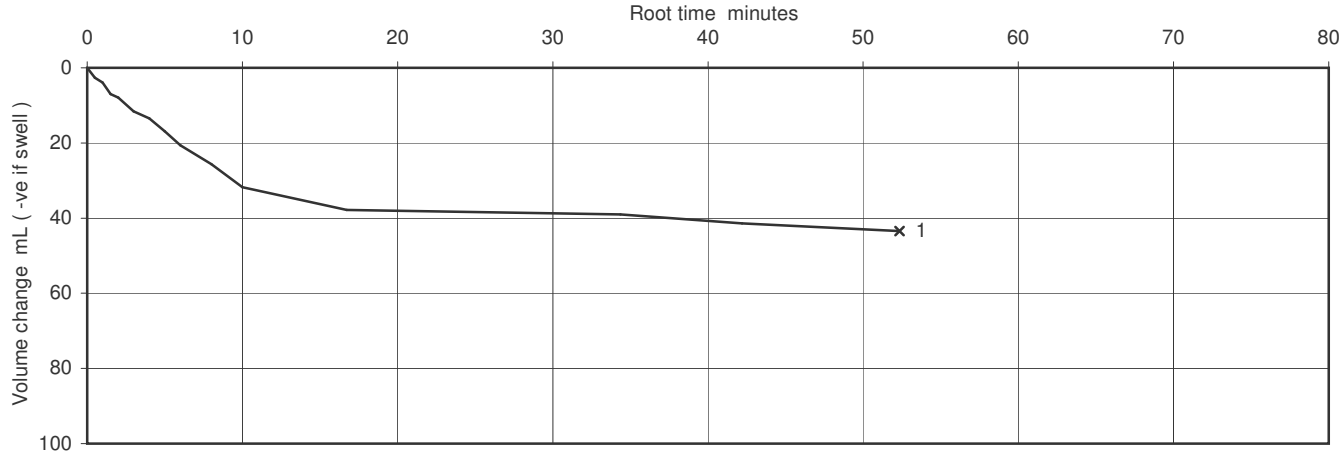
* for undrained test, after consolidation and after test are the same.

Soil Description	Dark grey mottled brown slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	203.5		
Final B Value		1.00		



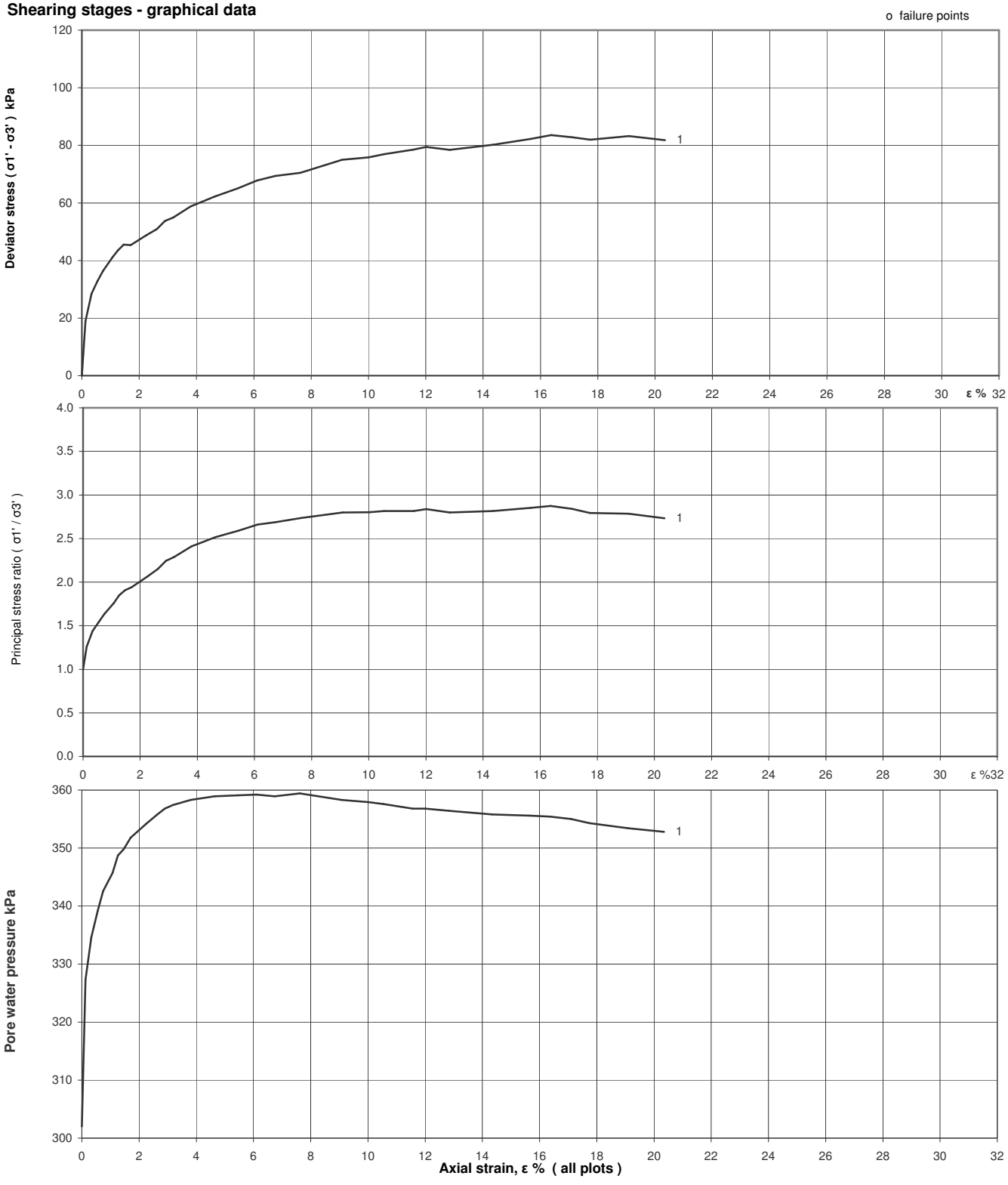
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		393			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.14			m^2/year
	Coefficient of Compressibility	M_{vi}	0.29			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.0E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.00-8.45		
			No	25	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

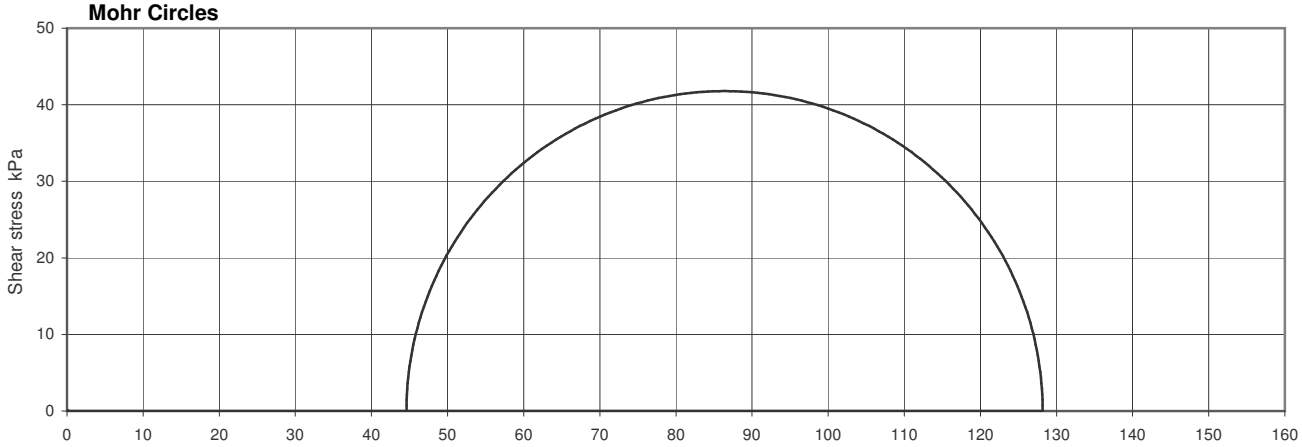


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:18	**CU** sheet 2 of 3

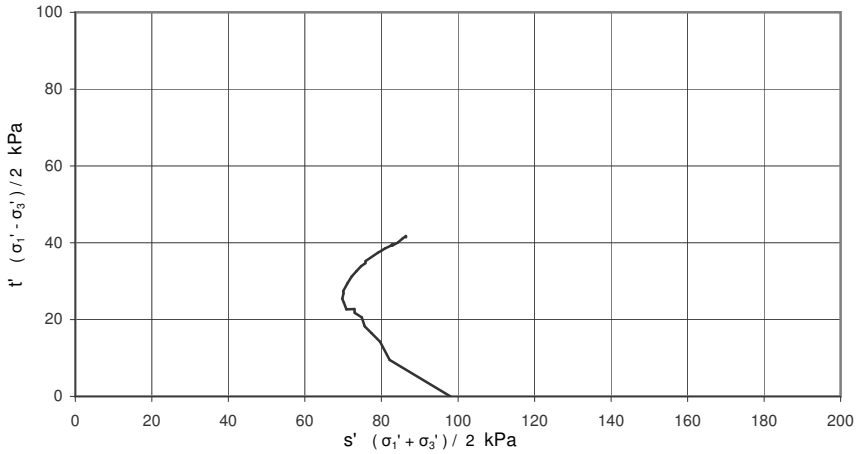
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.00-8.45		
			No	25	Type	U
			ID			
			Spec Ref			

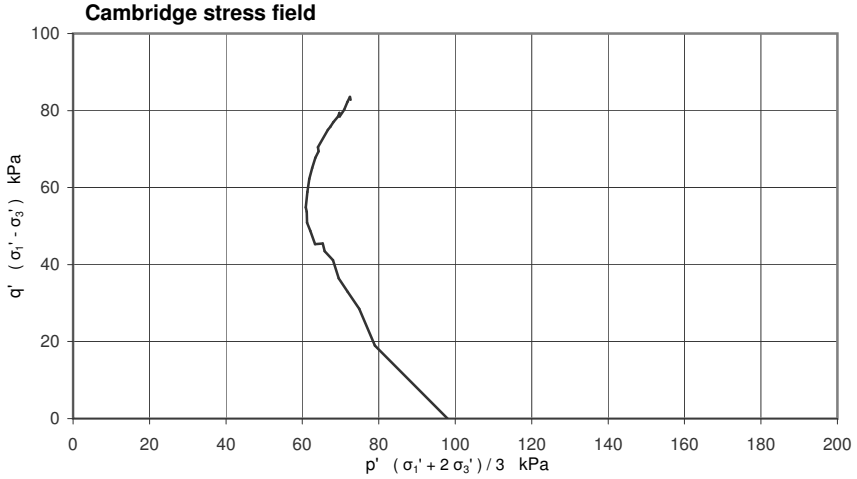
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	302			kPa
Initial σ_3'	98			kPa
Rate of strain	1.77			%/hr

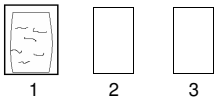
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	16.37			%
$(\sigma_1' / \sigma_3')_f$	2.874			
$(\sigma_1' - \sigma_3')_f$	83.6			kPa
u_f	355			kPa
$\sigma_3'_f$	45			kPa
$\sigma_1'_f$	128			kPa
A_f	0.64			
Time to failure	9.2			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.273 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

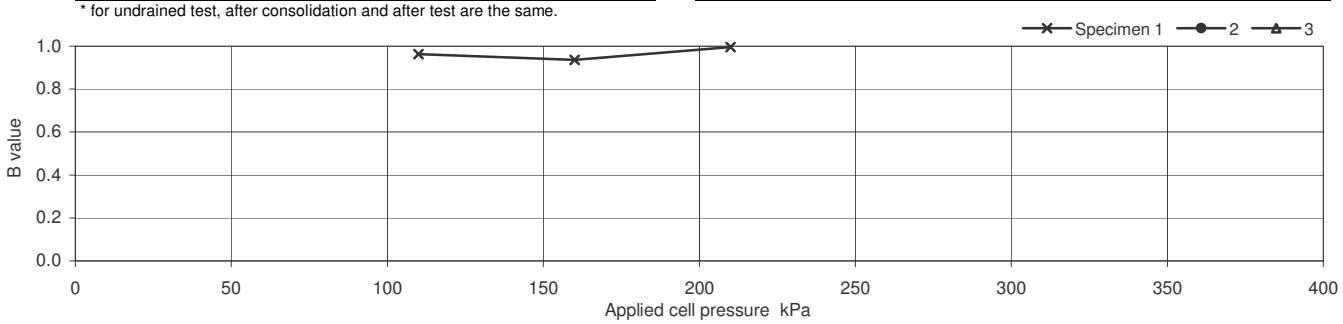
Project No	A5049-15	Sample Details:	Hole No	BH304	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	11.00-11.45	
			No	32	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.58		
	Diameter	mm	86.77		
	Bulk Density	Mg/m³	2.42		
	Water Content	%	43		
	Dry density	Mg/m³	1.69		
After consolidation	Length	mm	198.73		
	Diameter	mm	84.68		
	Bulk Density*	Mg/m³	2.53		
	Water Content*	%	39		
	Dry density*	Mg/m³	1.82		

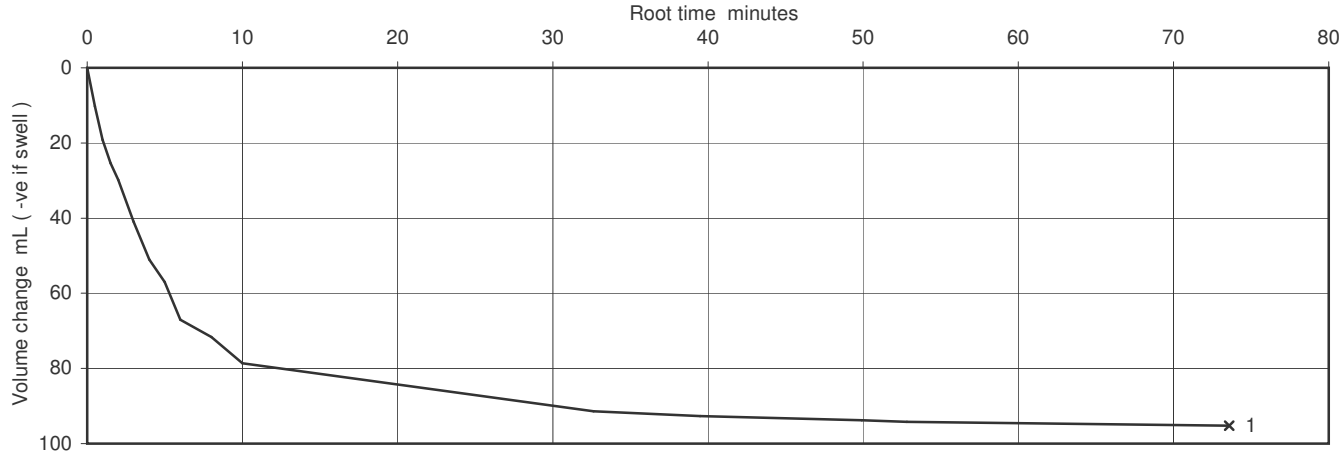
* for undrained test, after consolidation and after test are the same.

Soil Description	Brownish grey slightly sandy slightly clayey SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	205.2		
Final B Value		1.00		



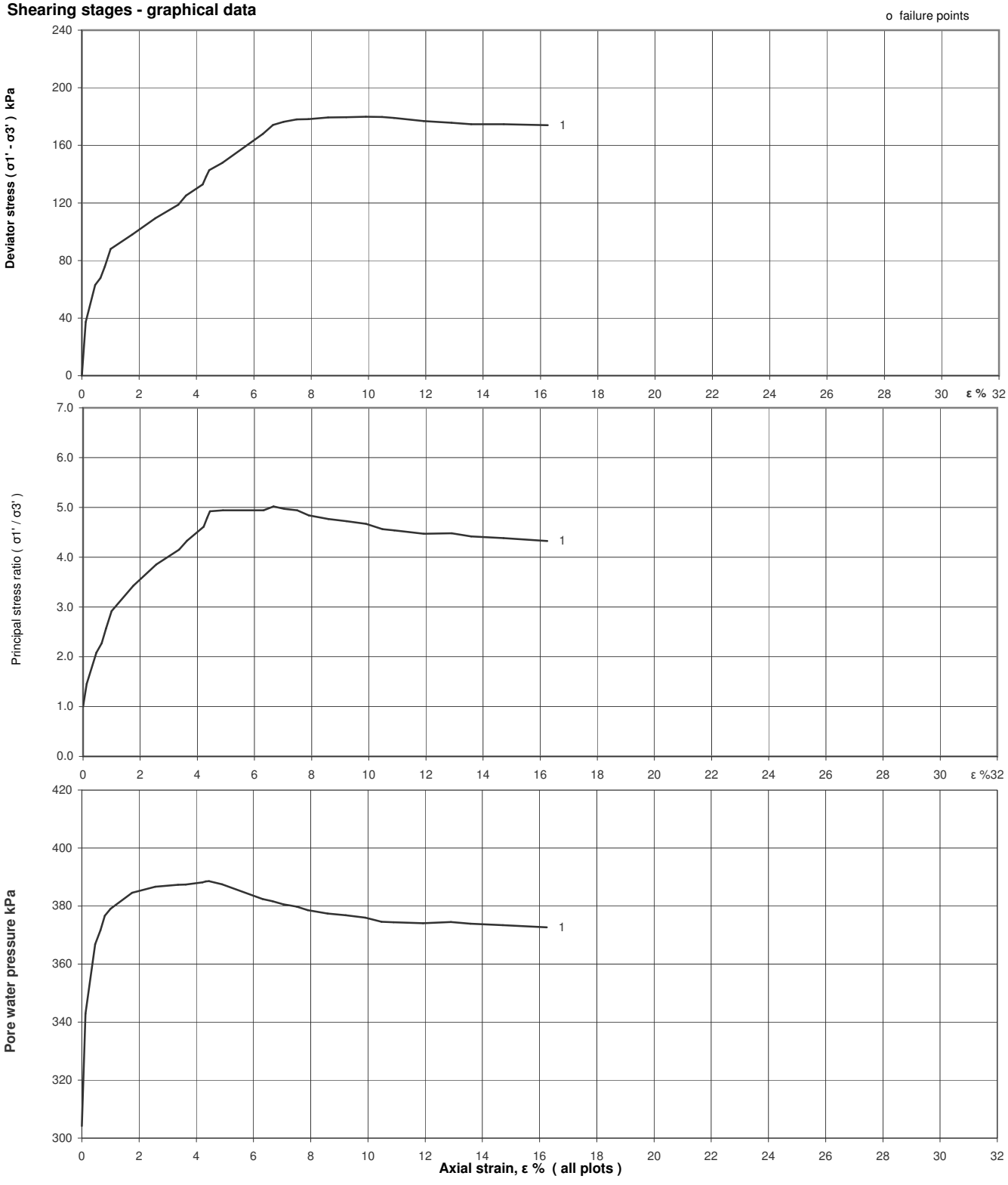
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		425			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		125			kPa
	Pore pressure at start of consolidation		411			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.71			m^2/year
	Coefficient of Compressibility	M_{vi}	0.69			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.6E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	11.00-11.45		
			No	32	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data



Ref			Figure
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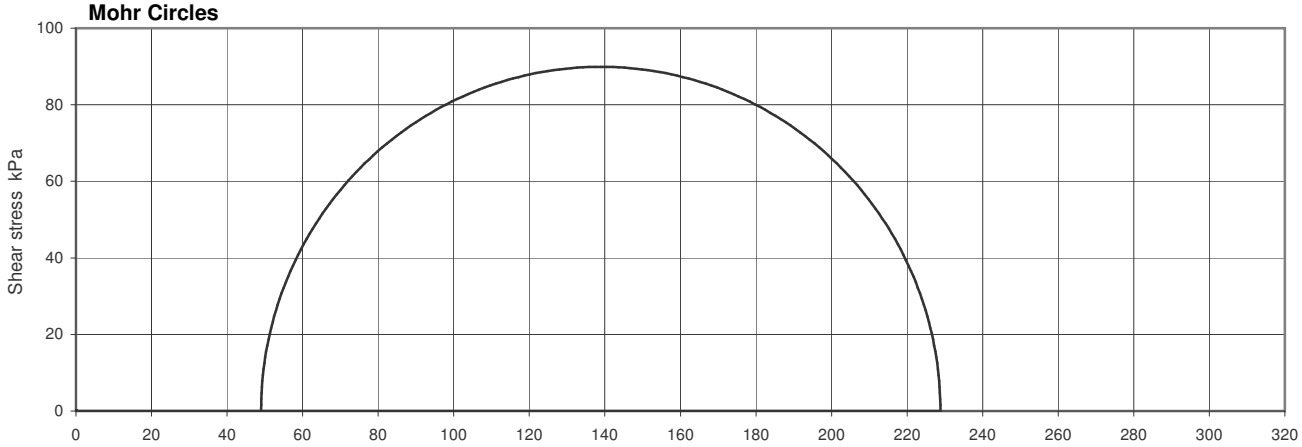
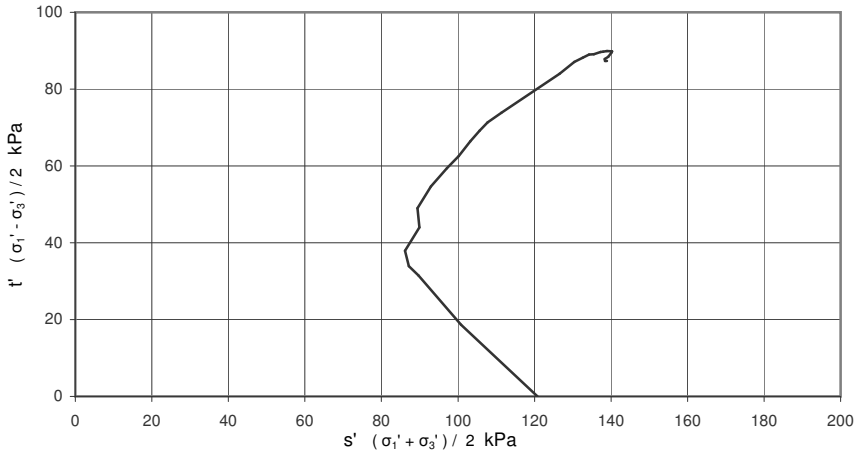
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH304		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	11.00-11.45		
			No	32	Type	U
			ID			
			Spec Ref			

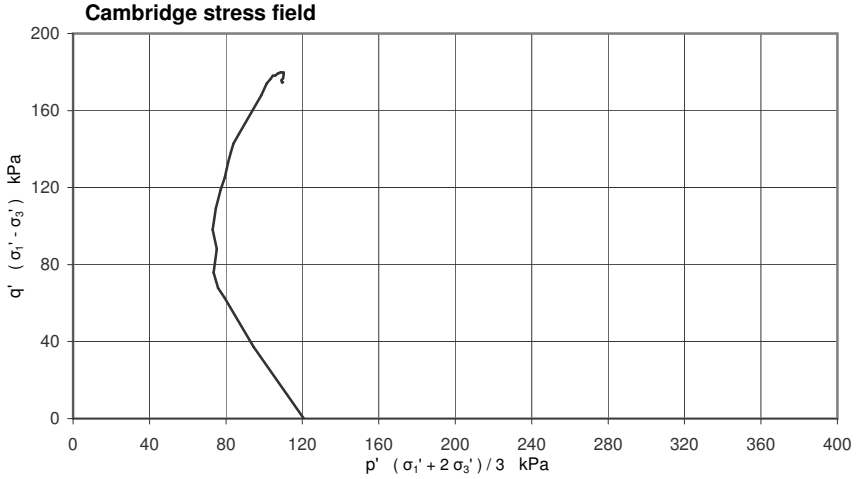
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	425			kPa
Initial pwp	304			kPa
Initial σ_3'	121			kPa
Rate of strain	2.00			%/hr

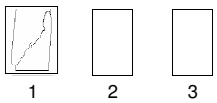
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	9.91			%
$(\sigma_1' / \sigma_3')_f$	4.670			
$(\sigma_1' - \sigma_3')_f$	179.8			kPa
u_f	376			kPa
$\sigma_3'_f$	49			kPa
$\sigma_1'_f$	229			kPa
A_f	0.40			
Time to failure	5.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.275 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

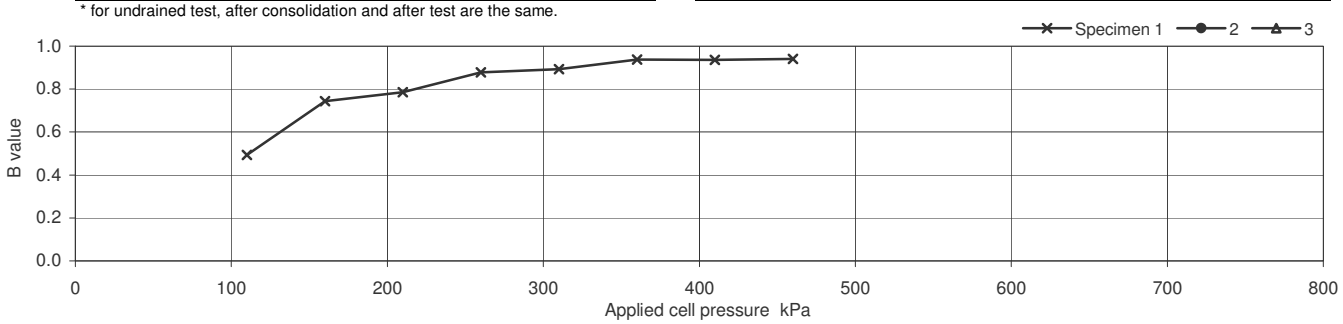
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	2.50-2.95	
			No	11	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	204.86		
	Diameter	mm	102.94		
	Bulk Density	Mg/m³	1.79		
	Water Content	%	32		
	Dry density	Mg/m³	1.36		
After consolidation	Length	mm	203.03		
	Diameter	mm	102.01		
	Bulk Density*	Mg/m³	1.87		
	Water Content*	%	34		
	Dry density*	Mg/m³	1.40		

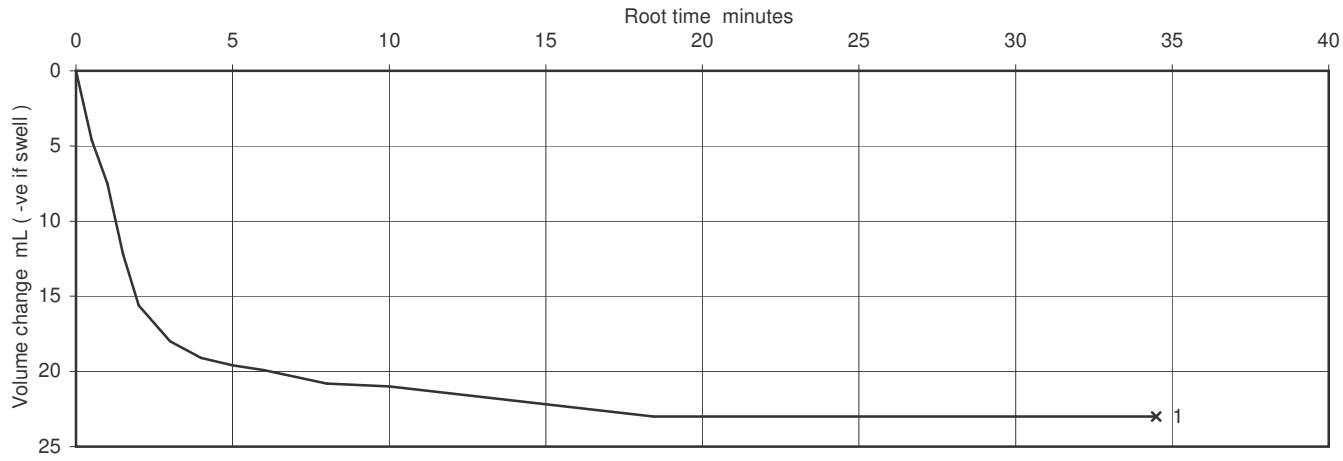
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm brown CLAY with rare rootlets.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	460		
Final pore water pressure	kPa	445.8		
Final B Value		0.94		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		500			kPa
	Back Pressure applied		450			kPa
	Effective Pressure		50			kPa
	Pore pressure at start of consolidation		491			kPa
	Pore pressure at end of consolidation		450			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	29.95			m^2/year
	Coefficient of Compressibility	M_{vi}	0.33			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.1E-09			m/s

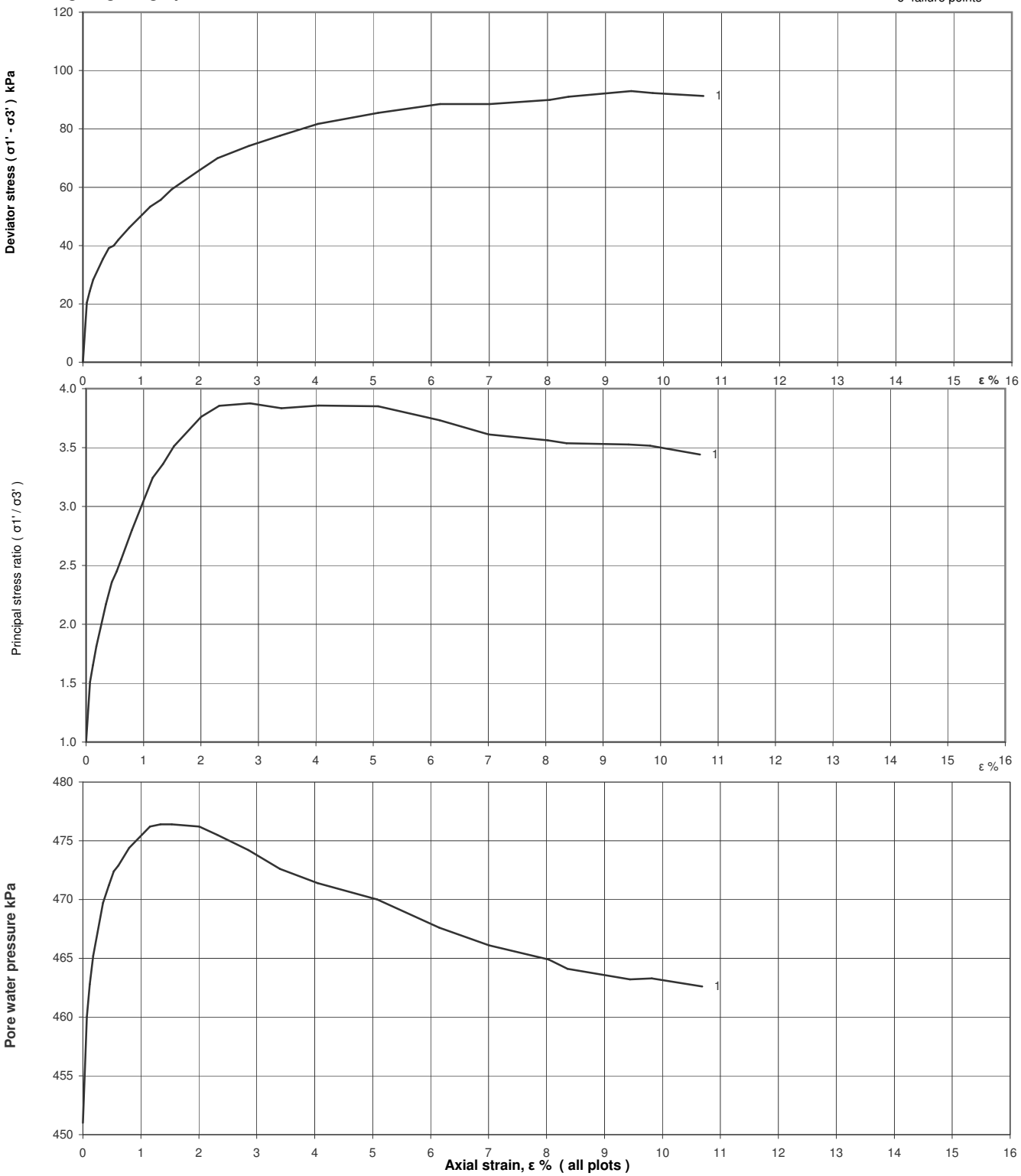


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	2.50-2.95		
			No	11	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

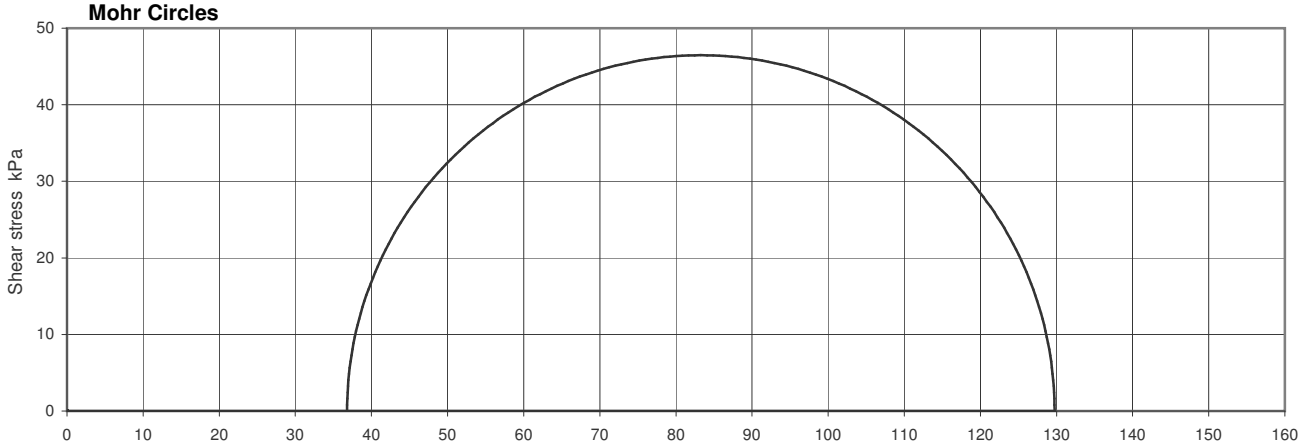


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:19/09/2015 09:41	**CU** sheet 2 of 3

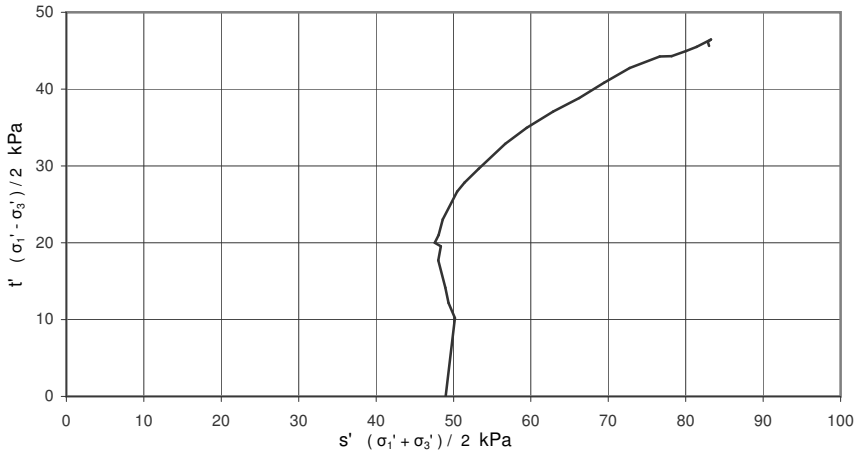
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	2.50-2.95		
			No	11	Type	U
			ID			
			Spec Ref			

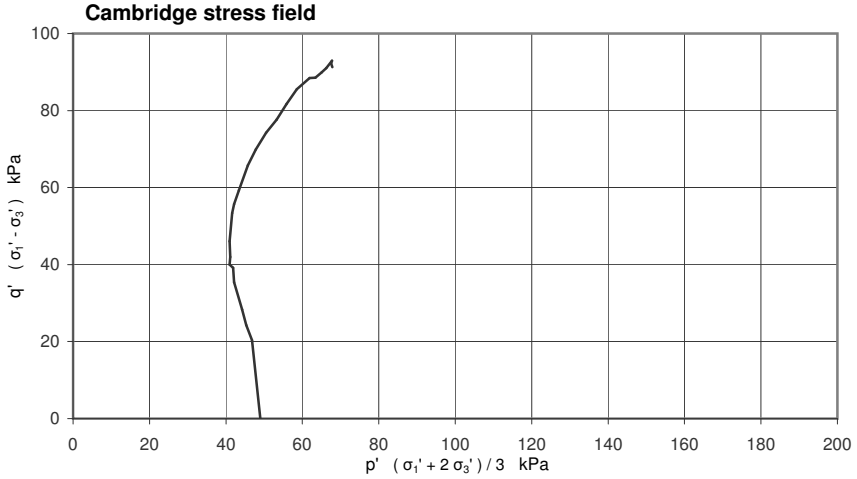
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	500			kPa
Initial pwp	451			kPa
Initial σ_3'	49			kPa
Rate of strain	1.00			%/hr

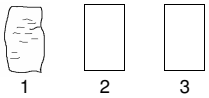
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	9.44			%
$(\sigma_1' / \sigma_3')_f$	3.526			
$(\sigma_1' - \sigma_3')_f$	92.9			kPa
u_f	463			kPa
$\sigma_3'_f$	37			kPa
$\sigma_1'_f$	130			kPa
A_f	0.13			
Time to failure	9.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.73 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation.

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

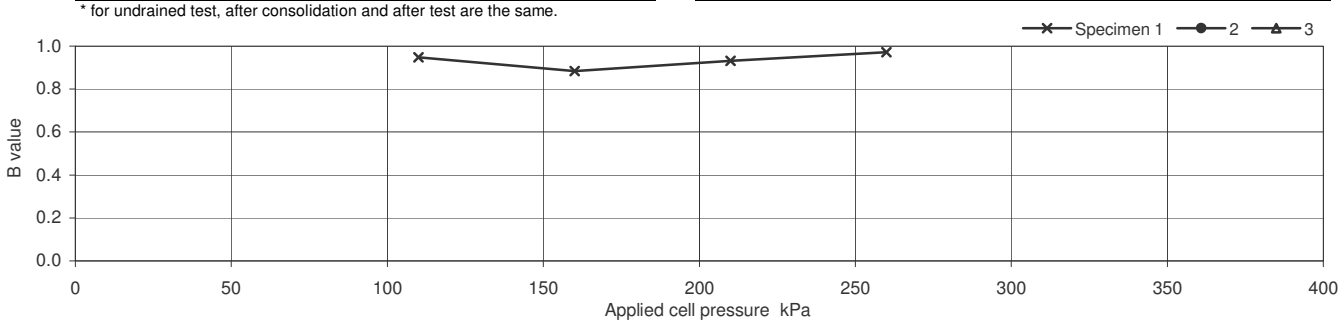
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.50-4.50	
			No	15	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.74		
	Diameter	mm	97.73		
	Bulk Density	Mg/m³	1.87		
	Water Content	%	35		
	Dry density	Mg/m³	1.39		
After consolidation	Length	mm	202.06		
	Diameter	mm	96.93		
	Bulk Density*	Mg/m³	1.89		
	Water Content*	%	33		
	Dry density*	Mg/m³	1.42		

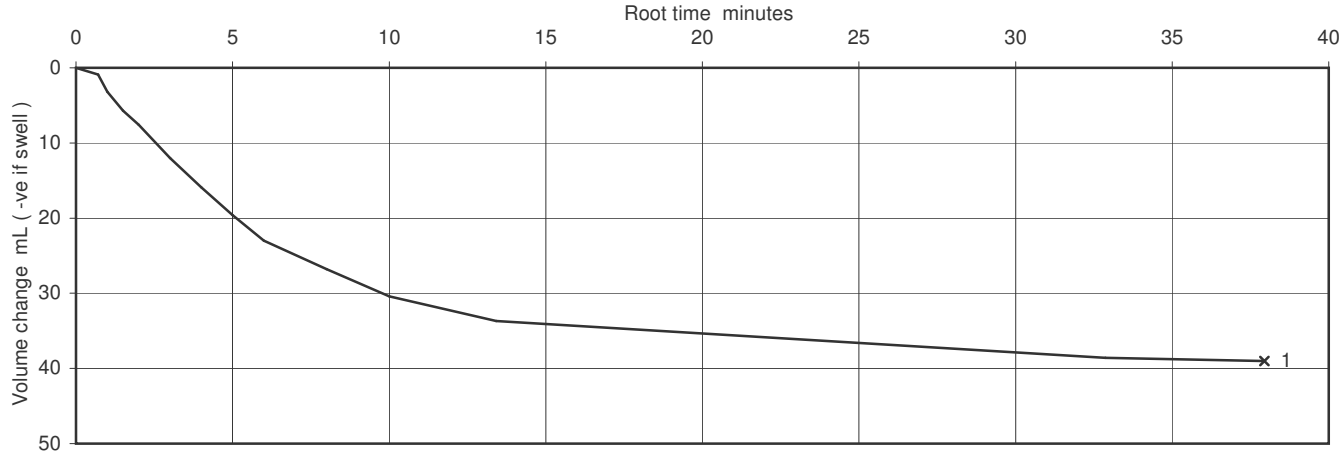
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm dark grey mottled brown SILT. Organic odour.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	244.8		
Final B Value		0.97		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		360			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		60			kPa
	Pore pressure at start of consolidation		347			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.88			m^2/year
	Coefficient of Compressibility	M_{vi}	0.52			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.0E-10			m/s

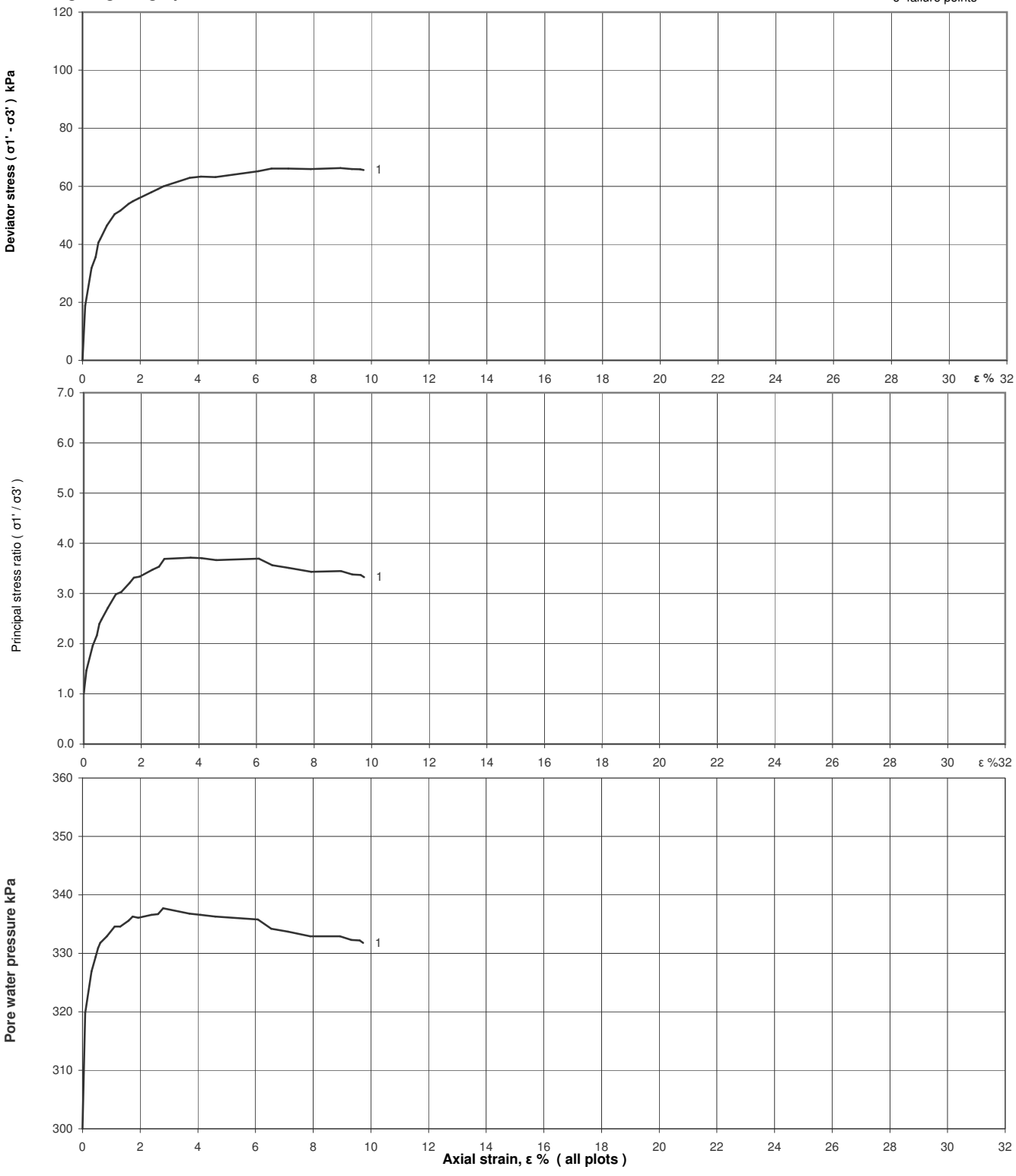


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.50-4.50		
			No	15	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

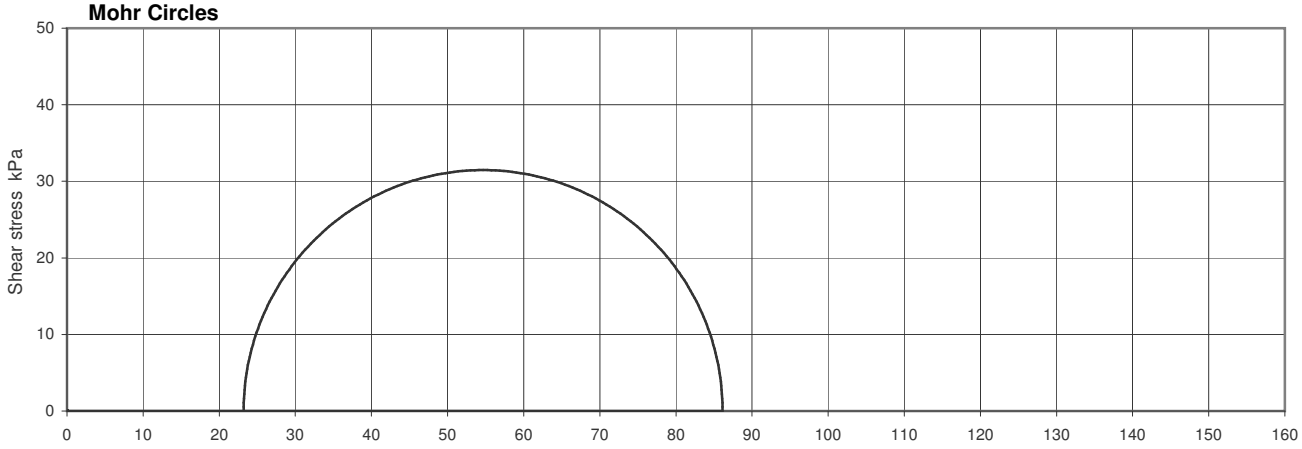


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:19	**CU** sheet 2 of 3

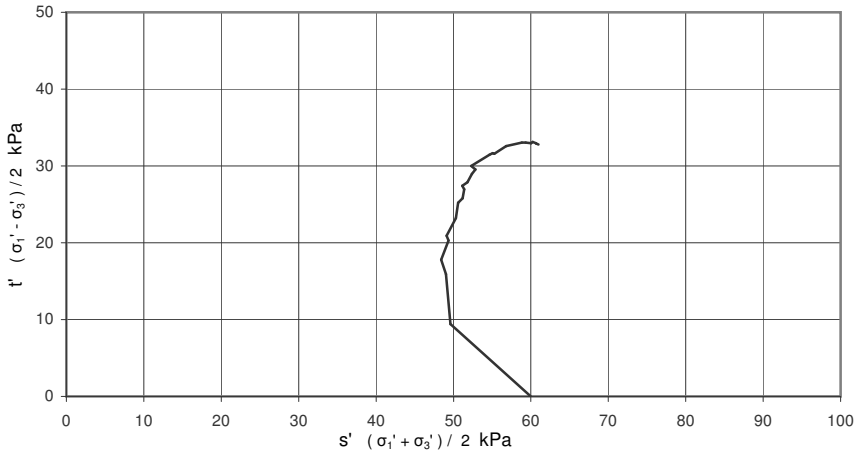
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.50-4.50		
			No	15	Type	P
			ID			
			Spec Ref			

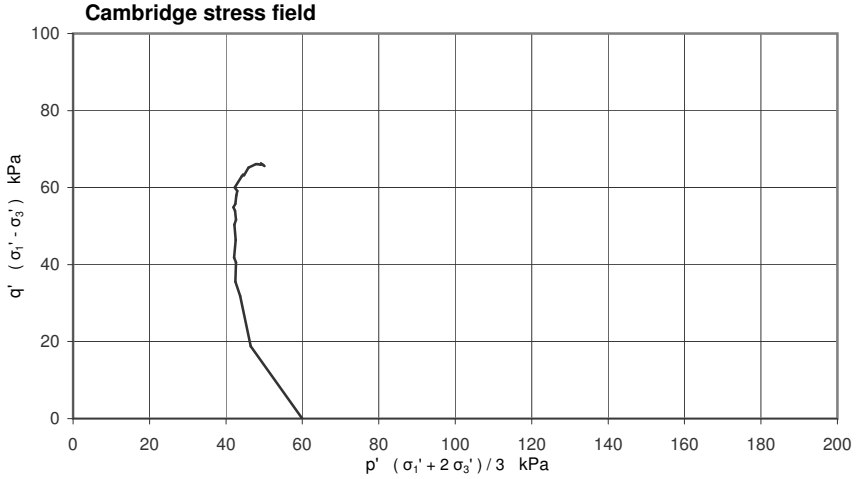
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	360			kPa
Initial pwp	300			kPa
Initial σ_3'	60			kPa
Rate of strain	0.85			%/hr

Failure conditions

Criterion				
Axial strain	3.71			%
$(\sigma_1' / \sigma_3')_f$	3.713			
$(\sigma_1' - \sigma_3')_f$	62.9			kPa
u_f	337			kPa
$\sigma_3'_f$	23			kPa
$\sigma_1'_f$	86			kPa
A_f	0.58			
Time to failure	4.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø	rees	-

Mode of failure

1	2	3

Notes : Deviator stresses corrected for area change, vertical side drains and 0.293 mm thick rubber membrane(s)

The rate os train is to be half that determined during consolidation

Ref			Figure
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Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

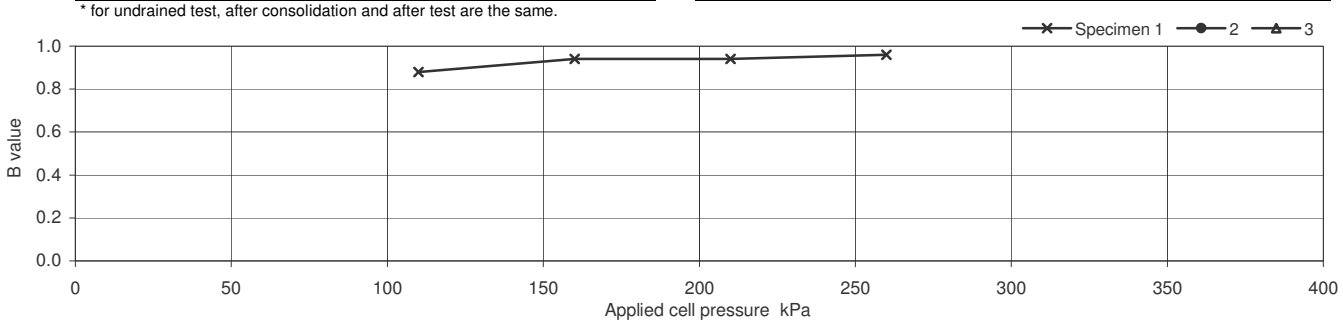
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.50-6.50	
			No	21	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.21		
	Diameter	mm	97.38		
	Bulk Density	Mg/m³	1.84		
	Water Content	%	38		
	Dry density	Mg/m³	1.33		
After consolidation	Length	mm	201.01		
	Diameter	mm	96.80		
	Bulk Density*	Mg/m³	1.85		
	Water Content*	%	37		
	Dry density*	Mg/m³	1.36		

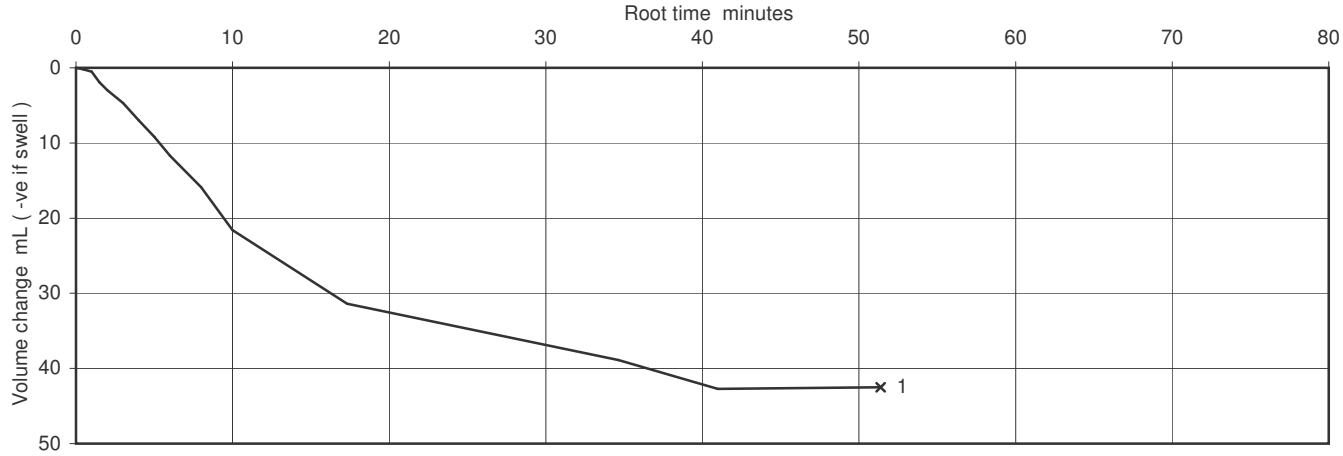
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft to firm brown slightly sandy CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	244		
Final B Value		0.96		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		390			kPa
	Back Pressure applied		350			kPa
	Effective Pressure		40			kPa
	Pore pressure at start of consolidation		378			kPa
	Pore pressure at end of consolidation		351			kPa
	Pore pressure dissipation at end of consolidation		96			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.52			m^2/year
	Coefficient of Compressibility	M_{vi}	1.03			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.7E-10			m/s

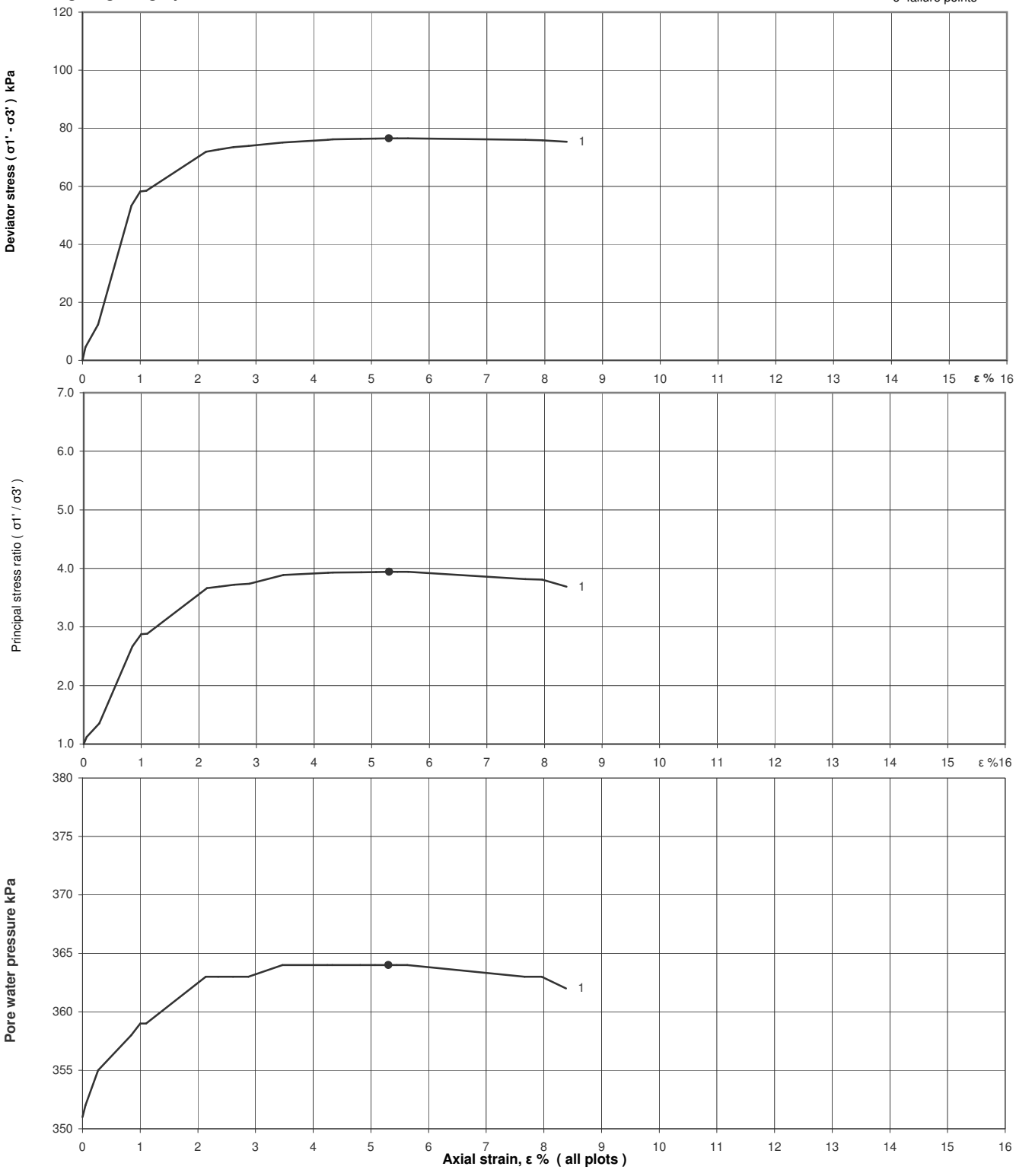


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.50-6.50		
			No	21	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

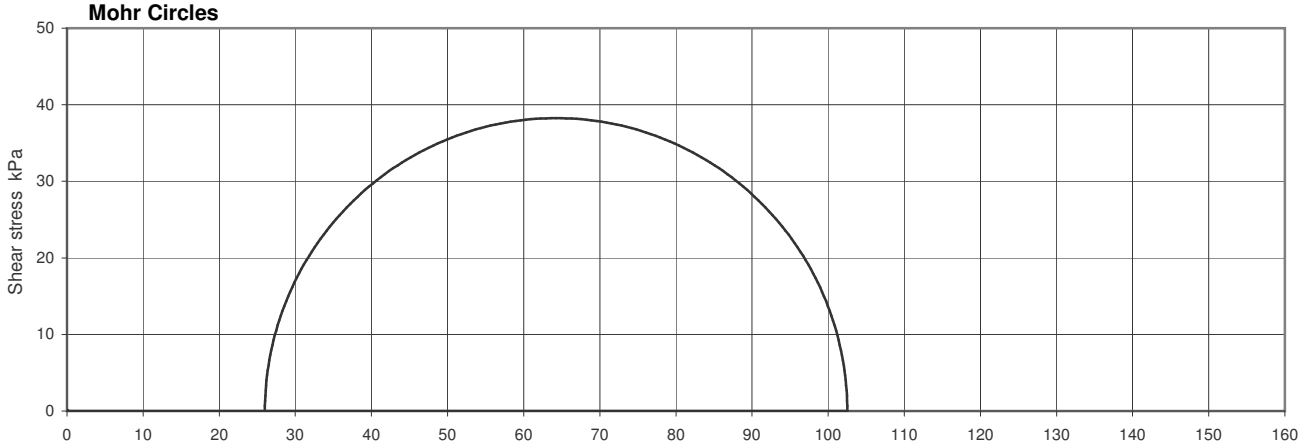


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:25	**CU** sheet 2 of 3

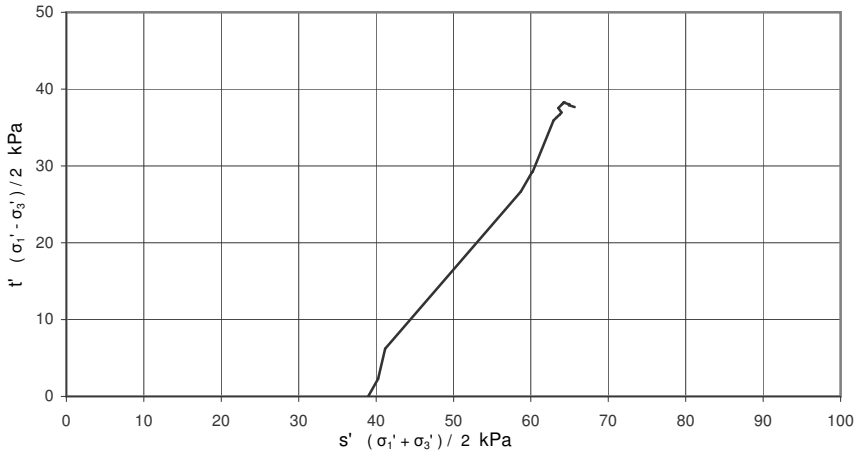
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.50-6.50		
			No	21	Type	P
			ID			
			Spec Ref			

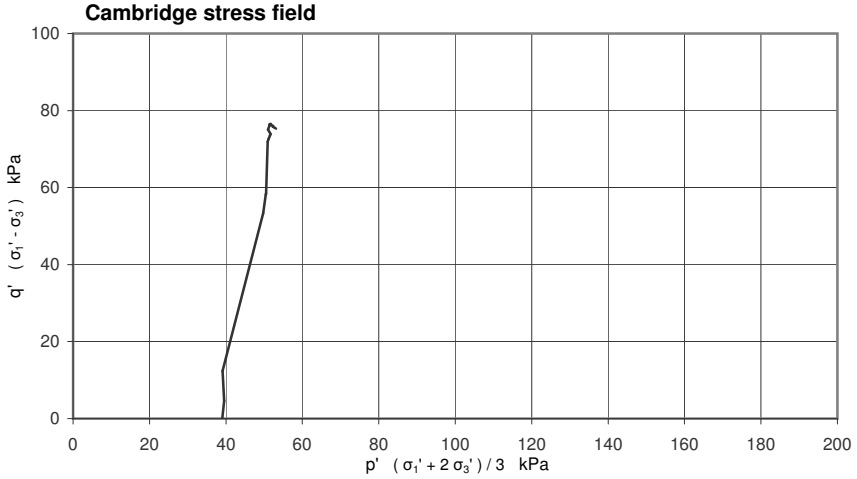
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	390			kPa
Initial pwp	351			kPa
Initial σ_3'	39			kPa
Rate of strain	0.46			%/hr

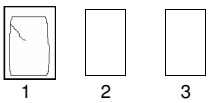
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	5.30			%
$(\sigma_1' / \sigma_3')_f$	3.943			
$(\sigma_1' - \sigma_3')_f$	76.5			kPa
u_f	364			kPa
$\sigma_3'_f$	26			kPa
$\sigma_1'_f$	103			kPa
A_f	0.17			
Time to failure	11.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.254 mm thick rubber membrane(s)

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:25	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

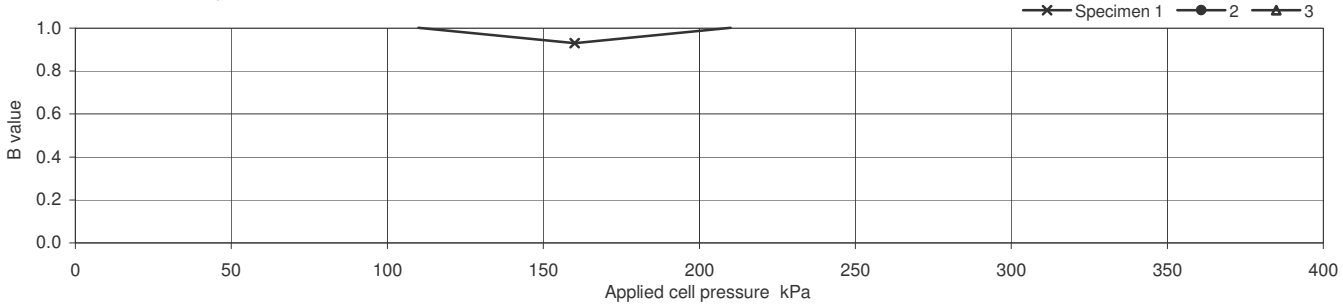
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.50-6.95	
			No	22	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	200.10		
	Diameter	mm	103.17		
	Bulk Density	Mg/m³	1.87		
	Water Content	%	37		
	Dry density	Mg/m³	1.36		
After consolidation	Length	mm	193.80		
	Diameter	mm	99.87		
	Bulk Density*	Mg/m³	1.95		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.50		

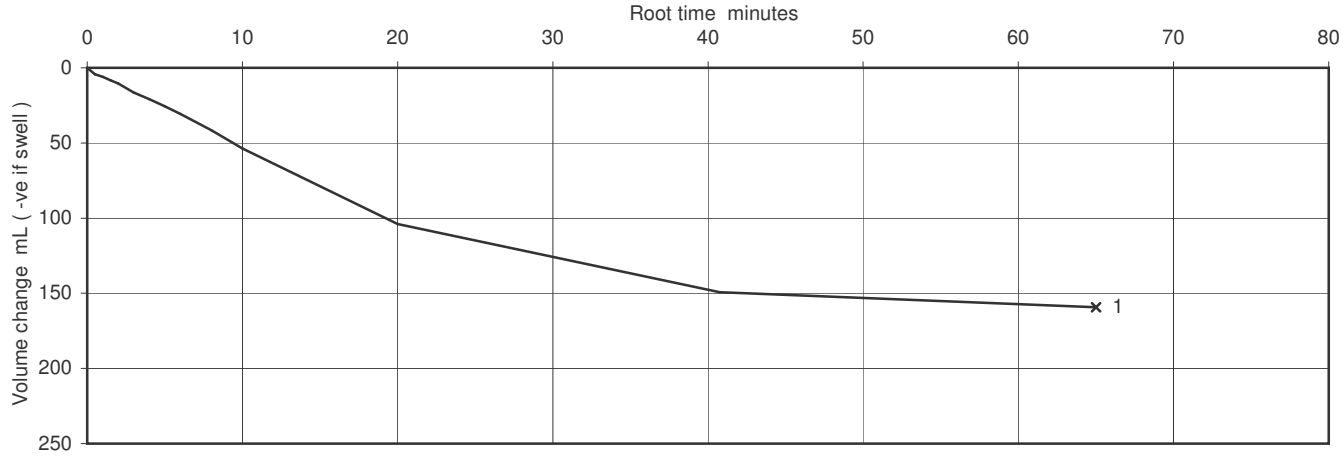
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft greyish brown slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	200.1		
Final B Value		1.00		



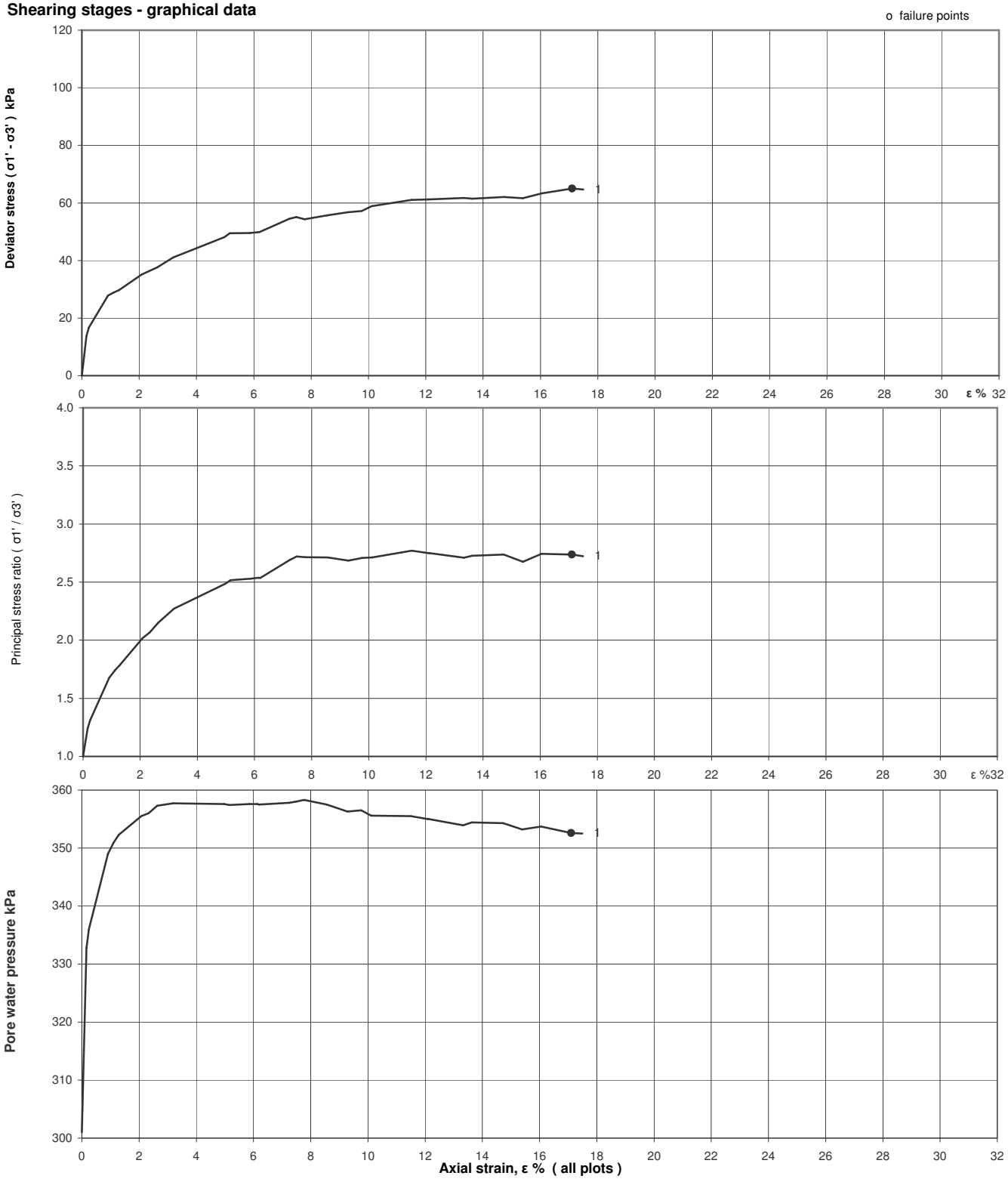
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		390			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		90			kPa
	Pore pressure at start of consolidation		381			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.25			m^2/year
	Coefficient of Compressibility	M_{vi}	1.19			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	9.3E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.50-6.95		
			No	22	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data



Ref			Figure
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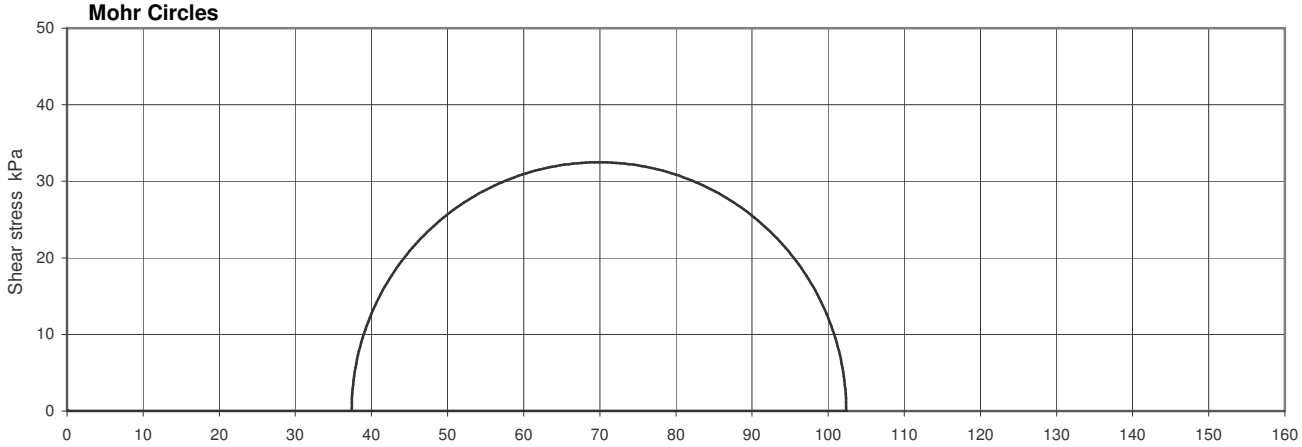
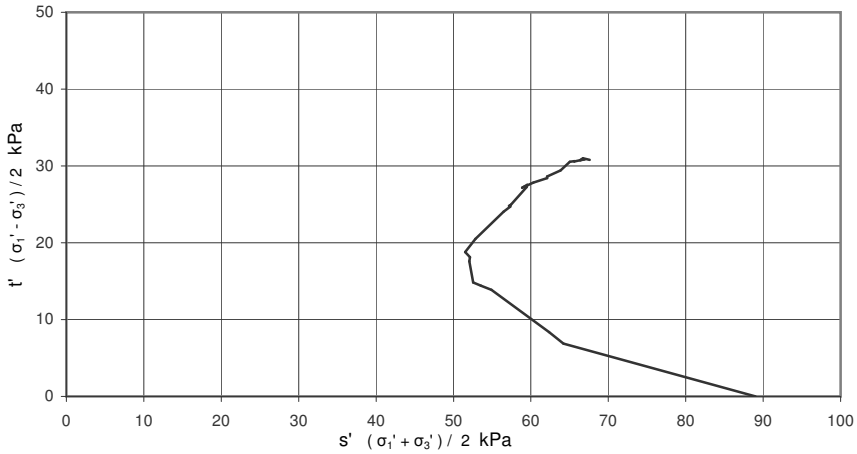
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.50-6.95		
			No	22	Type	U
			ID			
			Spec Ref			

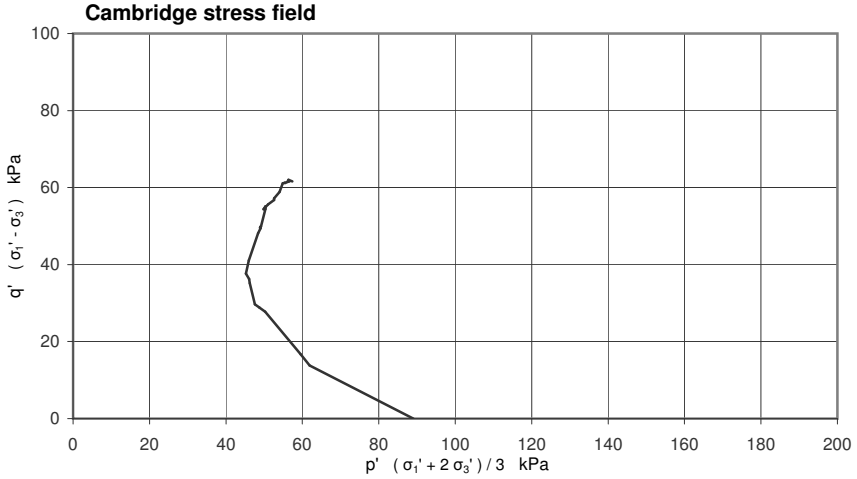
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	390			kPa
Initial pwp	301			kPa
Initial σ_3'	89			kPa
Rate of strain	0.09			%/hr

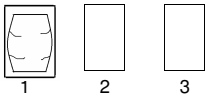
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	17.11			%
$(\sigma_1' / \sigma_3')_f$	2.737			
$(\sigma_1' - \sigma_3')_f$	65.0			kPa
u_f	353			kPa
$\sigma_3'_f$	37			kPa
$\sigma_1'_f$	102			kPa
A_f	0.79			
Time to failure	187.1			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.293 mm thick rubber membrane(s)

The rate of strain is half that determined during consolidation

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

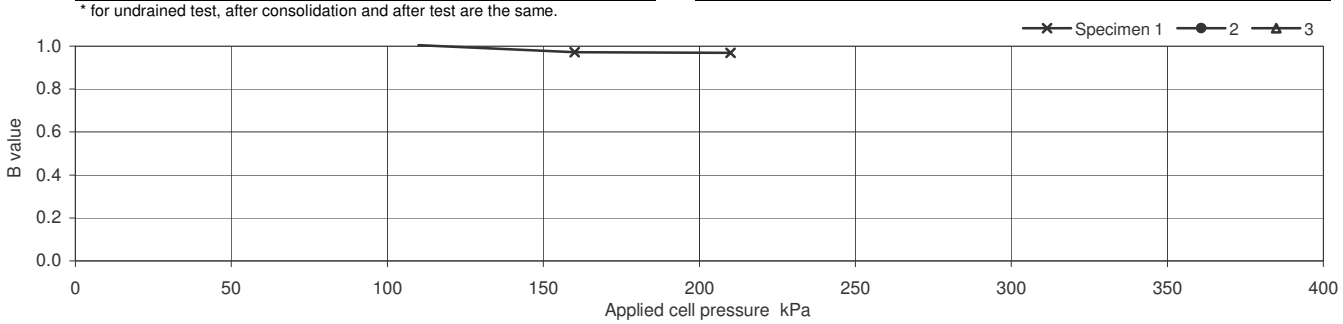
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-8.95	
			No	27	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	199.73		
	Diameter	mm	104.14		
	Bulk Density	Mg/m³	1.83		
	Water Content	%	37		
	Dry density	Mg/m³	1.34		
After consolidation	Length	mm	193.07		
	Diameter	mm	100.61		
	Bulk Density*	Mg/m³	1.92		
	Water Content*	%	29		
	Dry density*	Mg/m³	1.49		

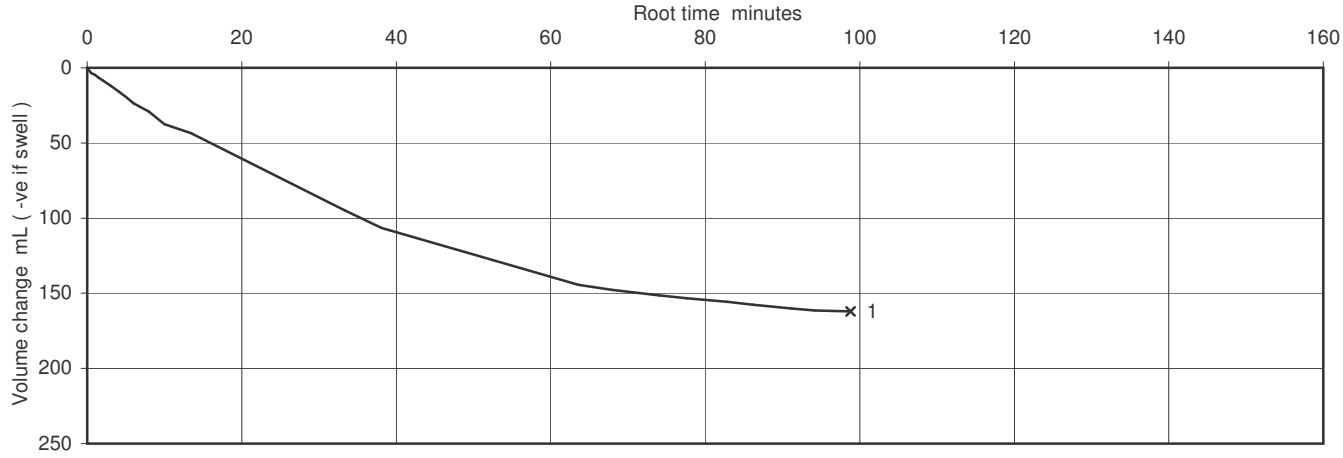
* for undrained test, after consolidation and after test are the same.

Soil Description	Greyish brown SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	0		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	208.8		
Final B Value		0.97		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		405			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		105			kPa
	Pore pressure at start of consolidation		403			kPa
	Pore pressure at end of consolidation		306			kPa
	Pore pressure dissipation at end of consolidation		95			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.07			m^2/year
	Coefficient of Compressibility	M_{vi}	0.98			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.2E-11			m/s

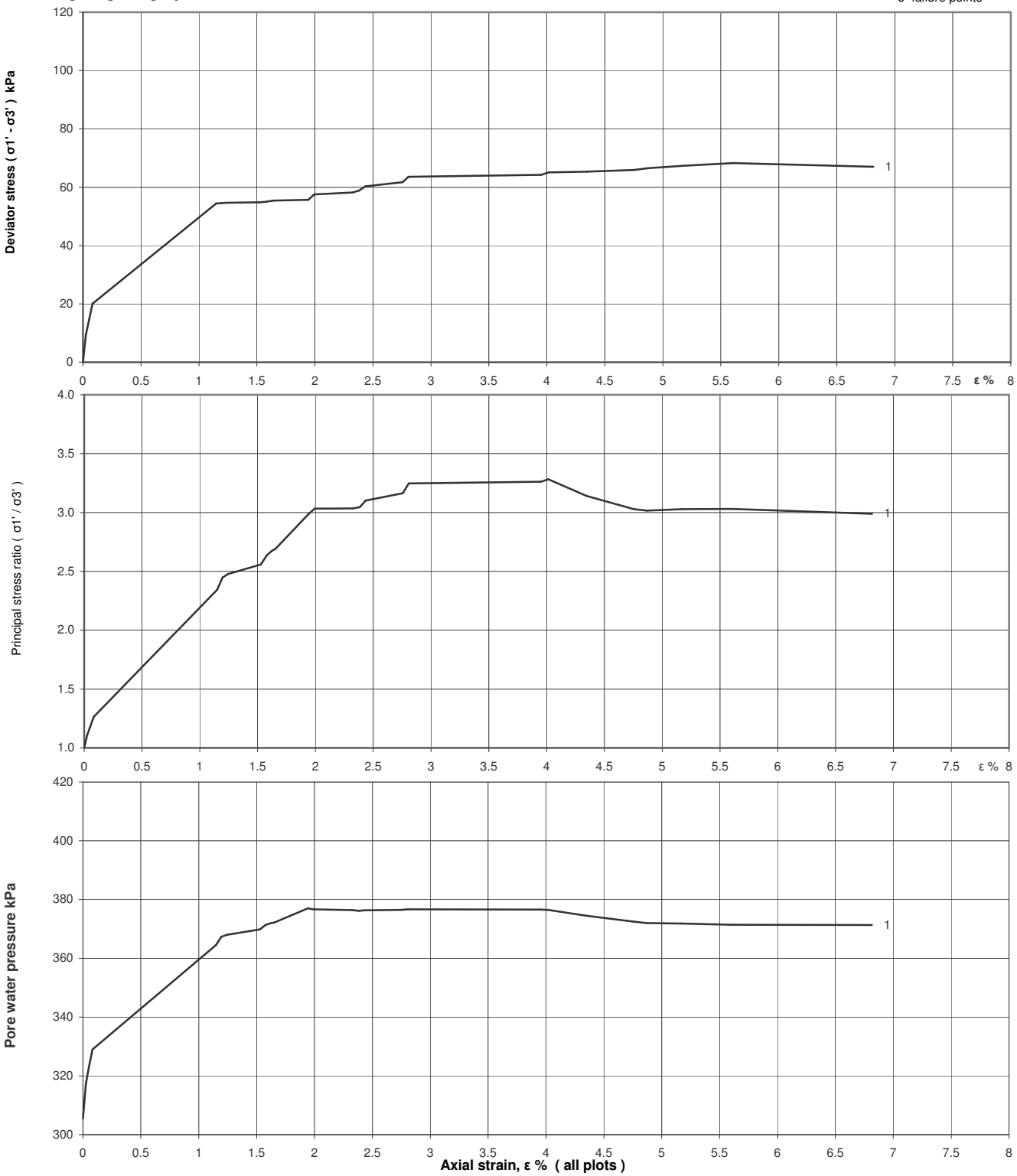


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-8.95		
			No	27	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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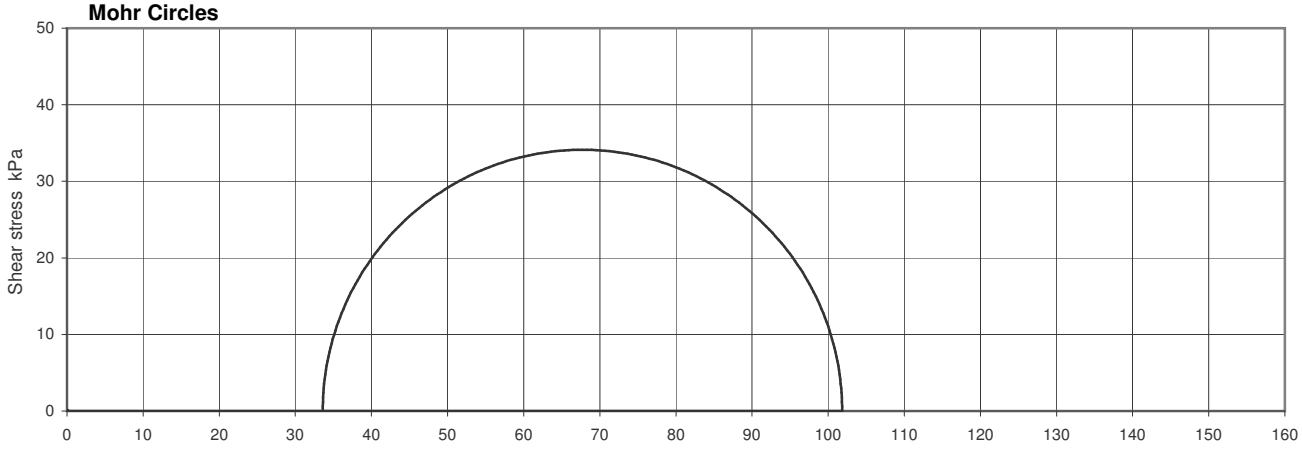
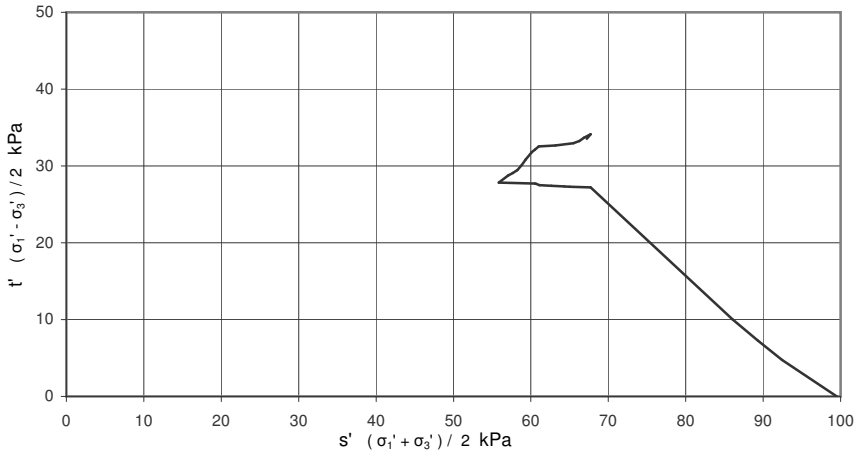
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-8.95		
			No	27	Type	U
			ID			
			Spec Ref			

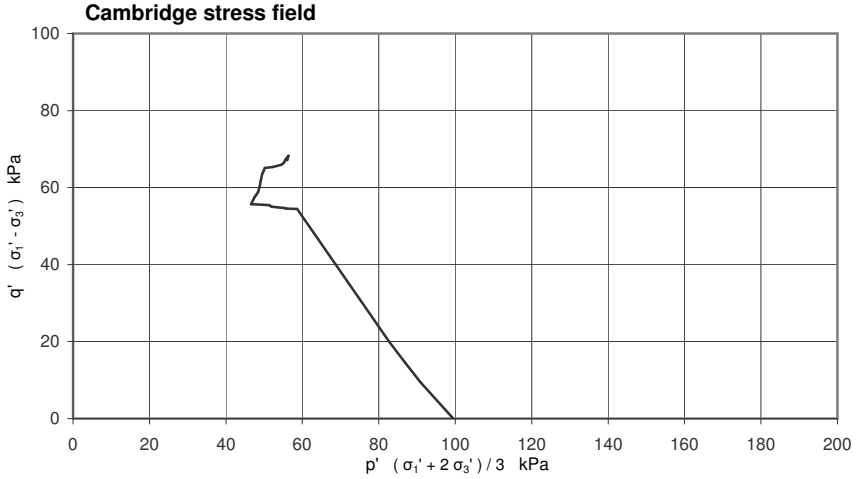
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	405			kPa
Initial pwp	306			kPa
Initial σ_3'	100			kPa
Rate of strain	0.25			%/hr

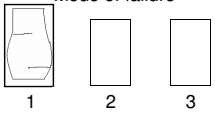
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	5.60			%
$(\sigma_1' / \sigma_3')_f$	3.031			
$(\sigma_1' - \sigma_3')_f$	68.2			kPa
u_f	371			kPa
$\sigma_3'_f$	34			kPa
$\sigma_1'_f$	102			kPa
A_f	0.97			
Time to failure	22.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.293 mm thick rubber membrane(s)

The rate of strain is half that determined during consolidation

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/10/2015 13:22	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

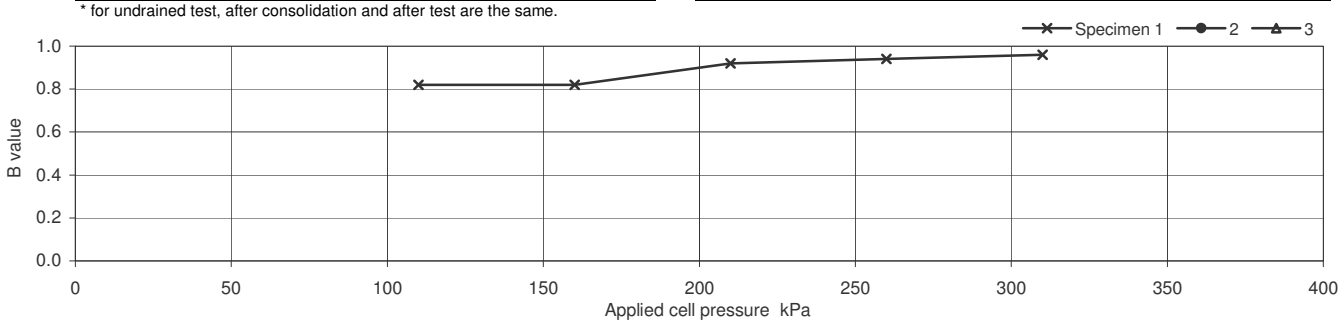
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	11.50-12.50	
			No	36	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	204.49		
	Diameter	mm	97.59		
	Bulk Density	Mg/m³	1.76		
	Water Content	%	43		
	Dry density	Mg/m³	1.23		
After consolidation	Length	mm	201.99		
	Diameter	mm	96.39		
	Bulk Density*	Mg/m³	1.80		
	Water Content*	%	41		
	Dry density*	Mg/m³	1.28		

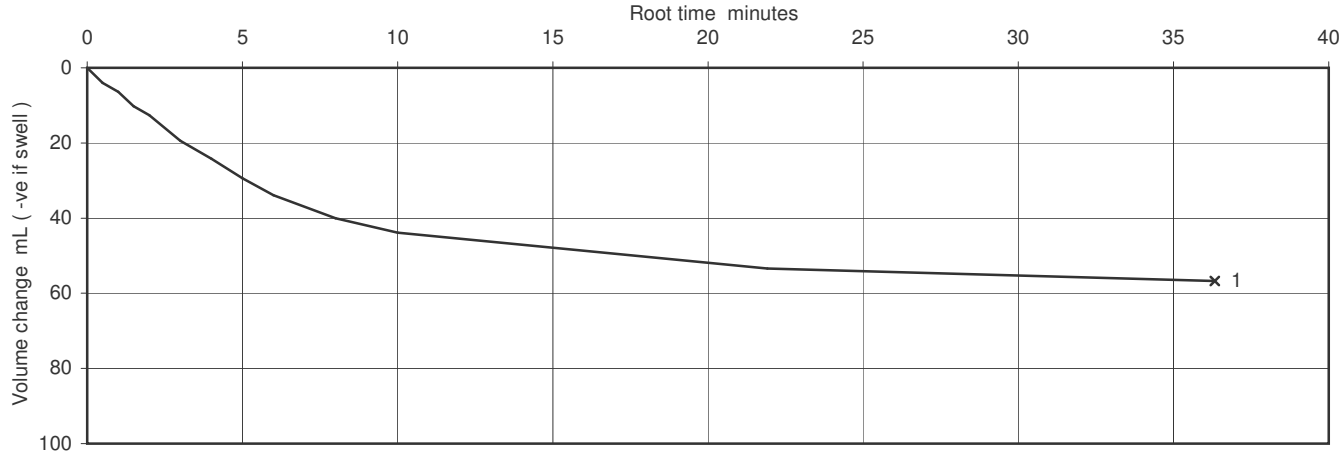
* for undrained test, after consolidation and after test are the same.

Soil Description	Brownish grey slightly sandy SILT. Laminated.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	310		
Final pore water pressure	kPa	297		
Final B Value		0.96		



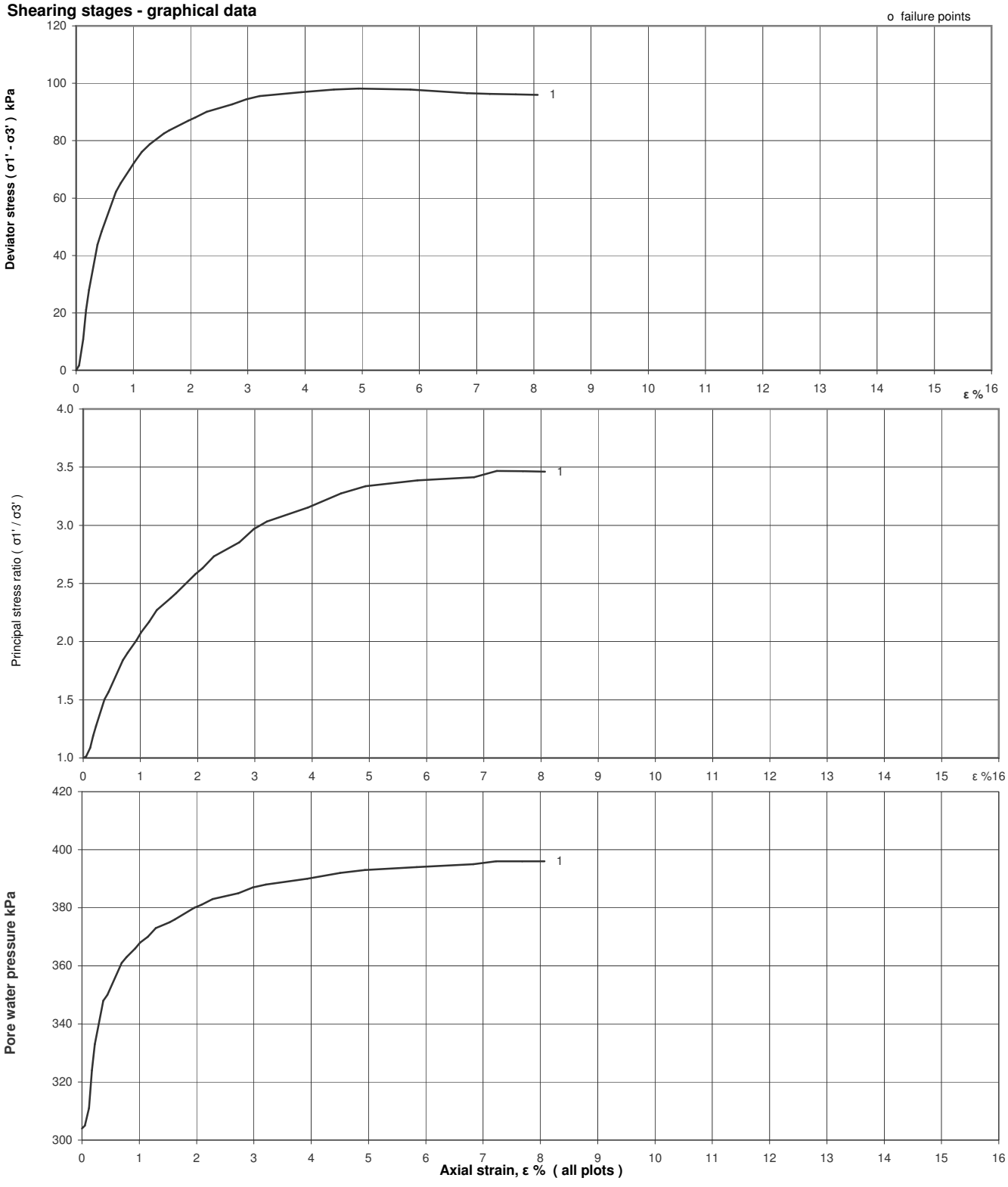
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		435			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		135			kPa
	Pore pressure at start of consolidation		421			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.94			m^2/year
	Coefficient of Compressibility	M_{vi}	0.31			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.8E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	11.50-12.50		
			No	36	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

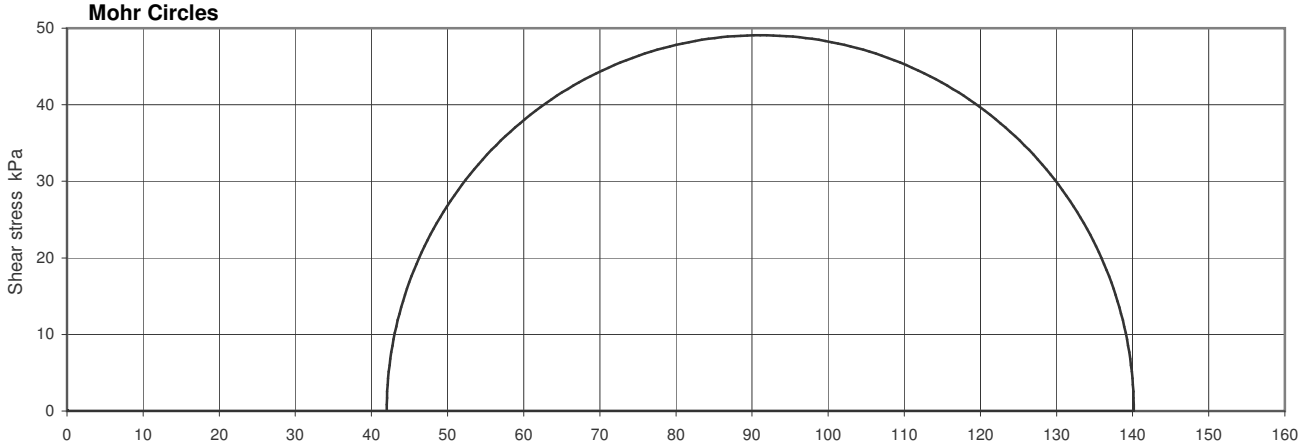


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:20	**CU** sheet 2 of 3

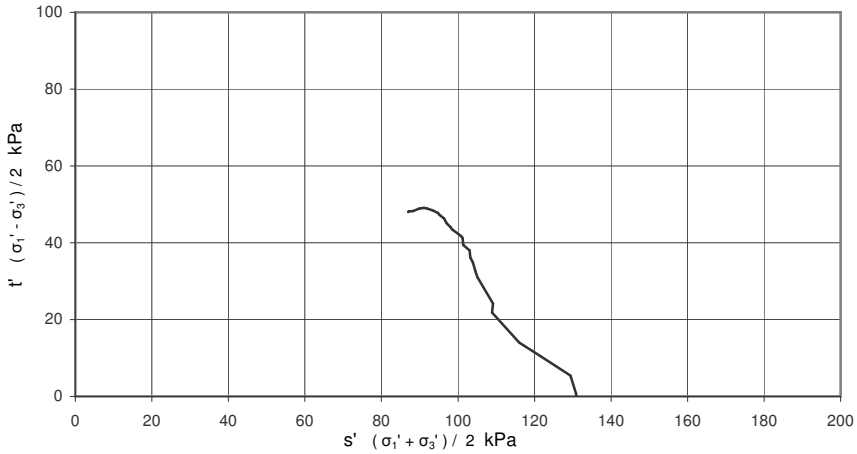
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	11.50-12.50		
			No	36	Type	P
			ID			
			Spec Ref			

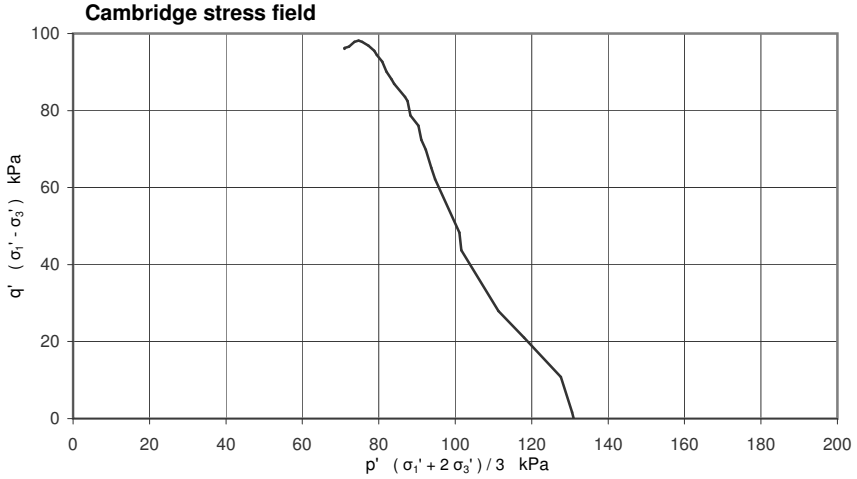
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	435			kPa
Initial pwp	304			kPa
Initial σ_3'	131			kPa
Rate of strain	1.77			%/hr

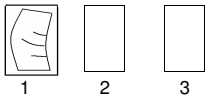
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	4.94			%
$(\sigma_1' / \sigma_3')_f$	3.337			
$(\sigma_1' - \sigma_3')_f$	98.2			kPa
u_f	393			kPa
$\sigma_3'_f$	42			kPa
$\sigma_1'_f$	140			kPa
A_f	0.91			
Time to failure	2.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.273 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

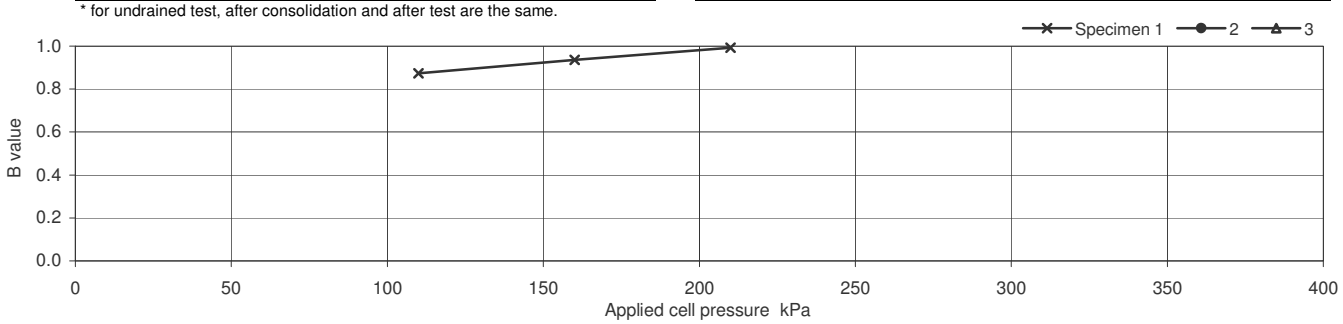
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.50-12.95	
			No	37	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.53		
	Diameter	mm	102.79		
	Bulk Density	Mg/m³	1.64		
	Water Content	%	57		
	Dry density	Mg/m³	1.05		
After consolidation	Length	mm	198.34		
	Diameter	mm	100.14		
	Bulk Density*	Mg/m³	1.70		
	Water Content*	%	51		
	Dry density*	Mg/m³	1.13		

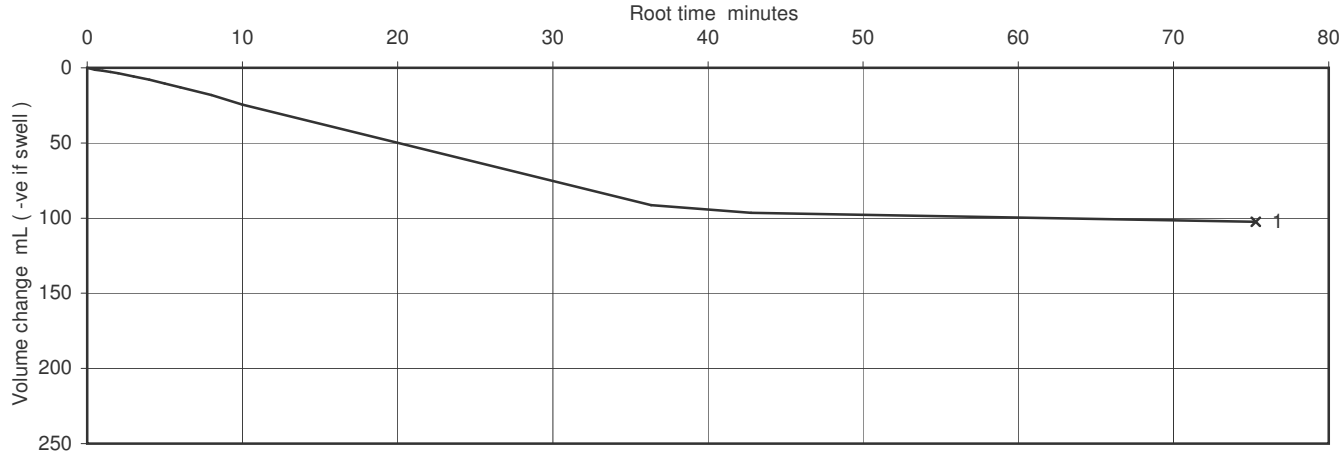
* for undrained test, after consolidation and after test are the same.

Soil Description	Greyish brown SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	196.5		
Final B Value		0.99		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		440			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		140			kPa
	Pore pressure at start of consolidation		426			kPa
	Pore pressure at end of consolidation		302			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.13			m^2/year
	Coefficient of Compressibility	M_{vi}	0.48			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.0E-11			m/s

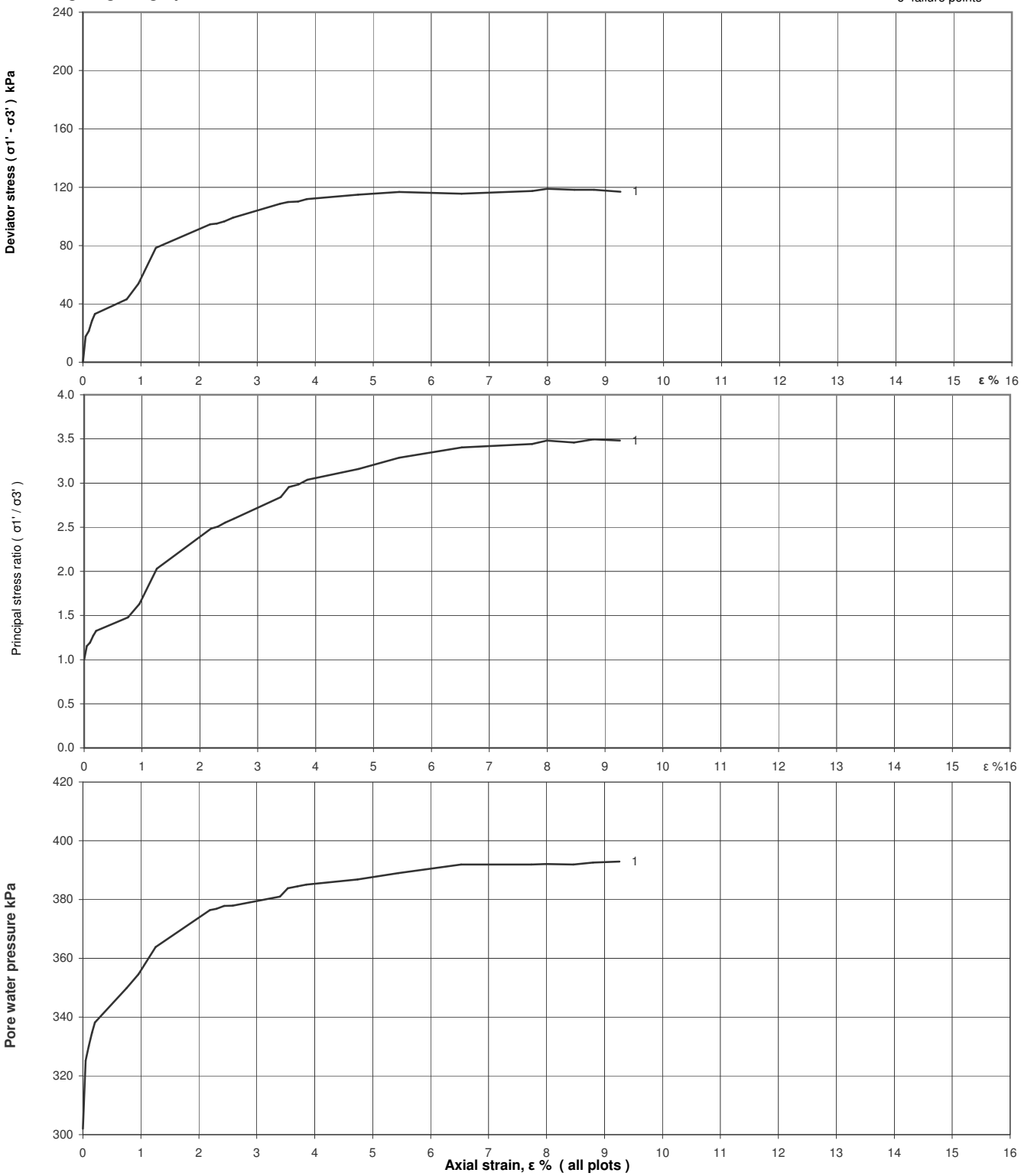


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.50-12.95		
			No	37	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

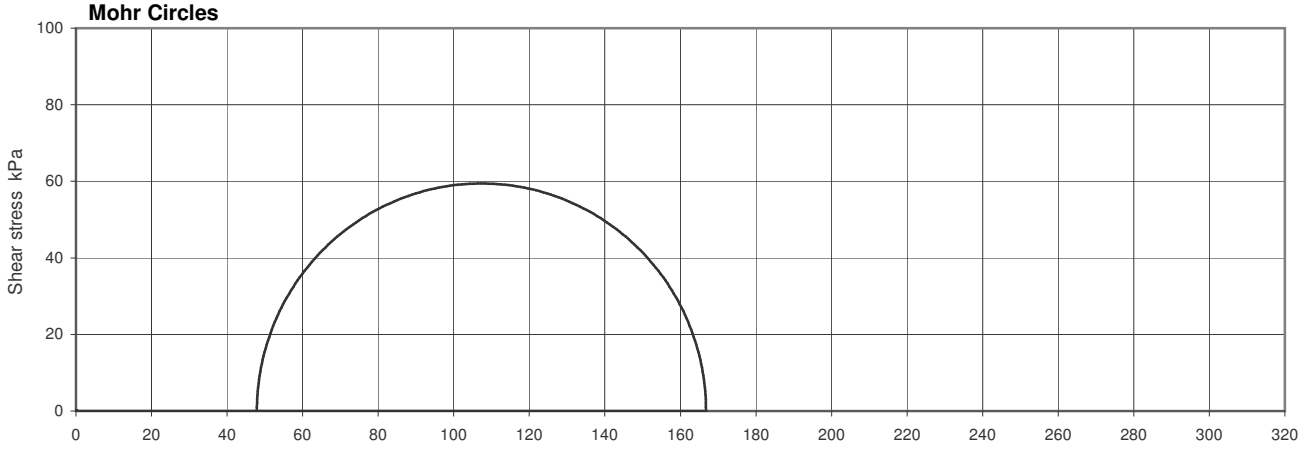


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/10/2015 13:29	**CU** sheet 2 of 3

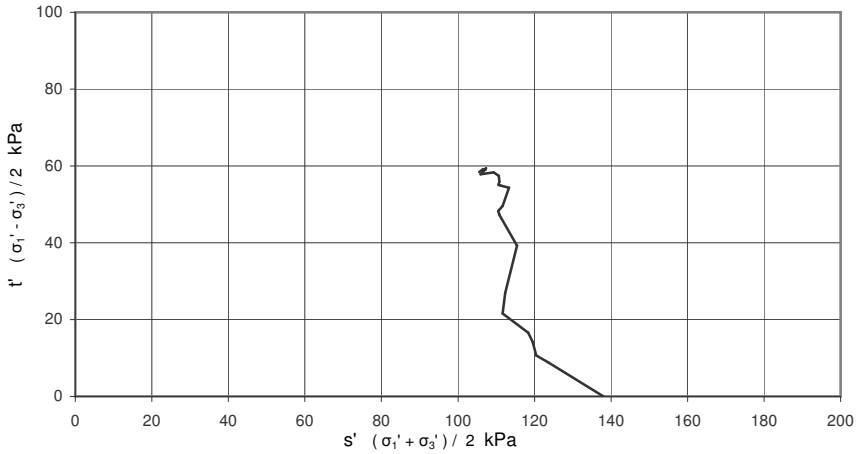
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.50-12.95		
			No	37	Type	U
			ID			
			Spec Ref			

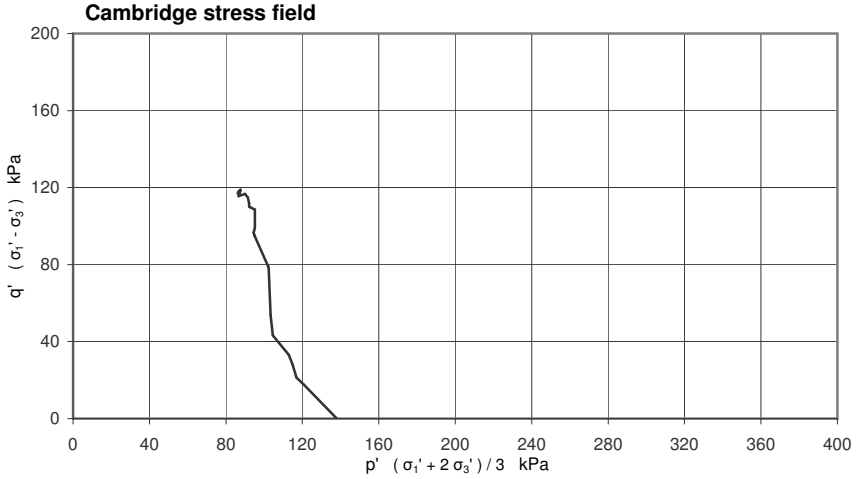
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	440			kPa
Initial pwp	302			kPa
Initial σ_3'	138			kPa
Rate of strain	0.05			%/hr

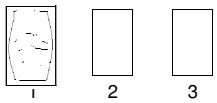
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	8.00			%
$(\sigma_1' / \sigma_3')_f$	3.482			
$(\sigma_1' - \sigma_3')_f$	118.9			kPa
u_f	392			kPa
$\sigma_3'_f$	48			kPa
$\sigma_1'_f$	167			kPa
A_f	0.76			
Time to failure	156.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.38 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

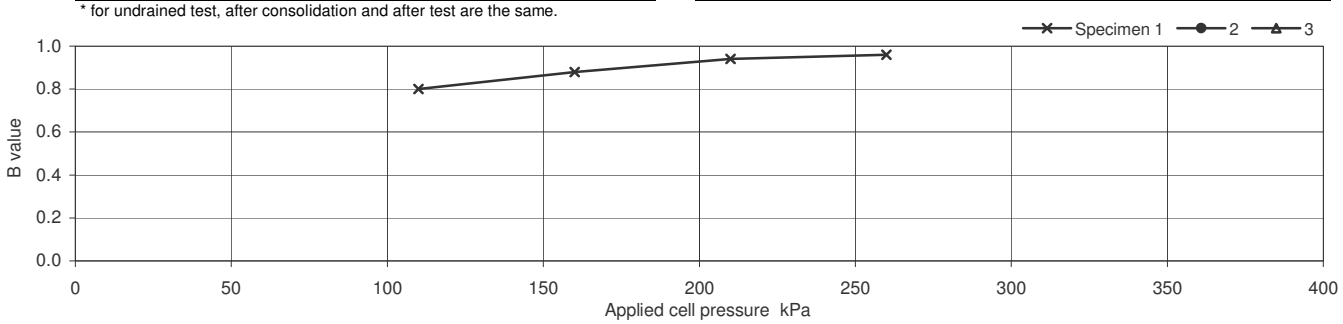
Project No	A5049-15	Sample Details:	Hole No	BH306	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15-15.45	
			No	48	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.27		
	Diameter	mm	101.54		
	Bulk Density	Mg/m³	2.16		
	Water Content	%	45		
	Dry density	Mg/m³	1.49		
After consolidation	Length	mm	184.94		
	Diameter	mm	91.93		
	Bulk Density*	Mg/m³	2.37		
	Water Content*	%	19		
	Dry density*	Mg/m³	2.00		

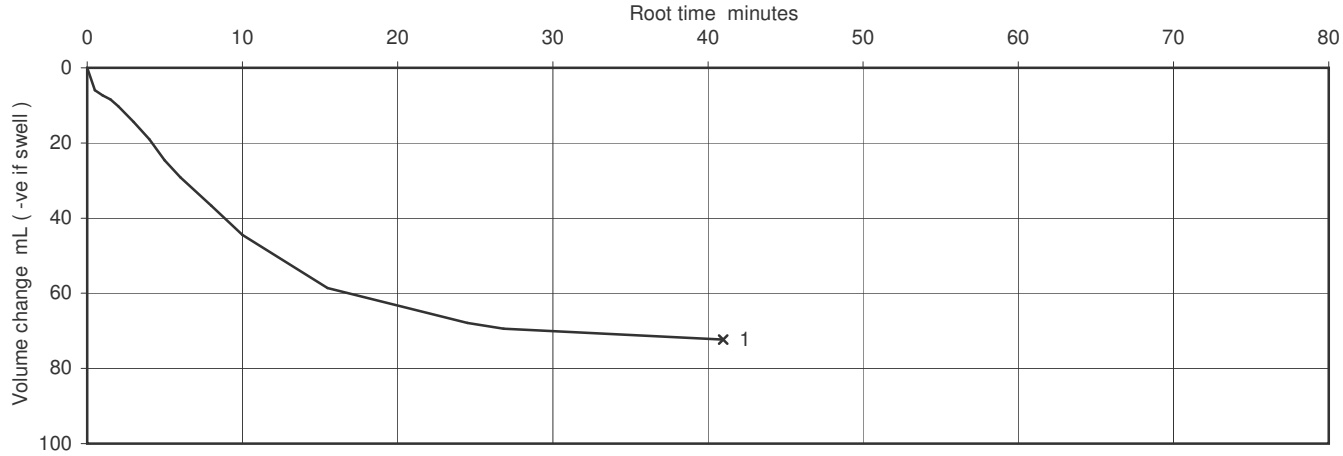
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm brown slightly sandy slightly gravelly CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	241		
Final B Value		0.96		



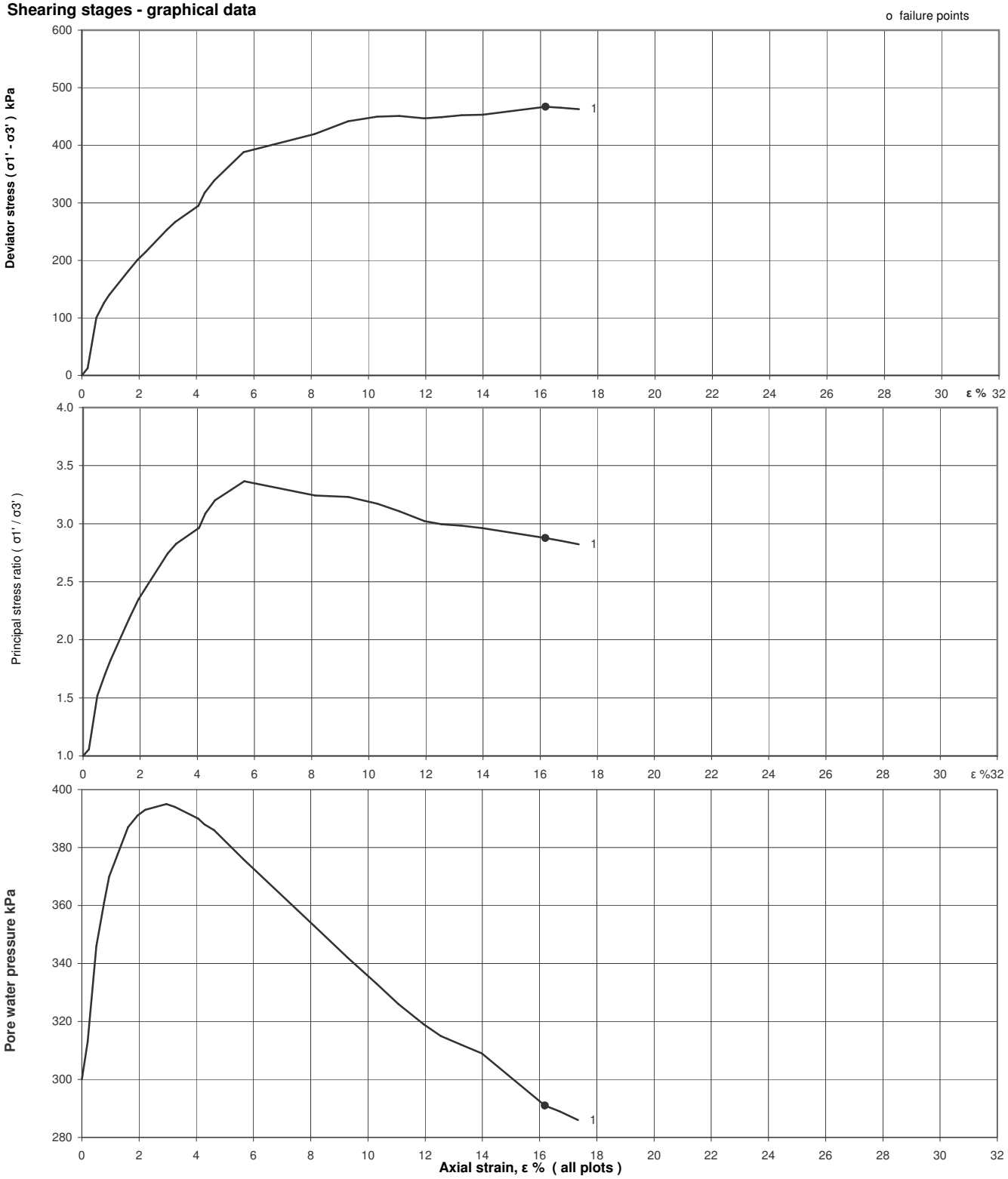
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		540			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		240			kPa
	Pore pressure at start of consolidation		519			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.67			m^2/year
	Coefficient of Compressibility	M_{vi}	0.26			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	5.3E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15-15.45		
			No	48	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

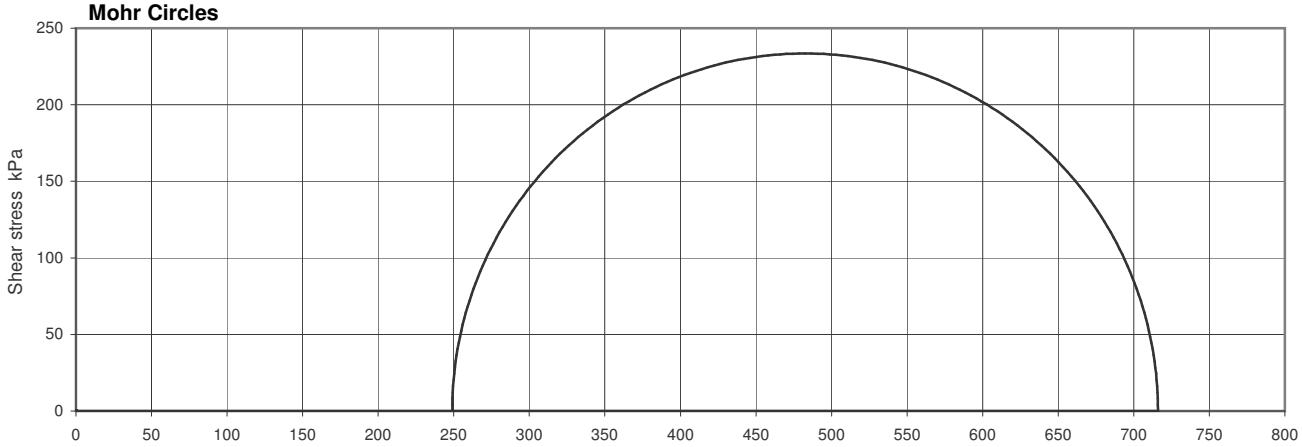


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:20/11/2015 12:26	**CU** sheet 2 of 3

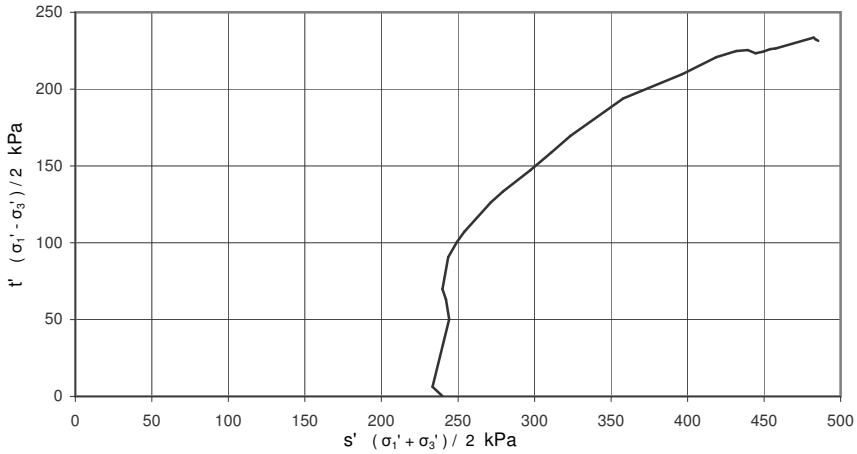
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15-15.45		
			No	48	Type	U
			ID			
			Spec Ref			

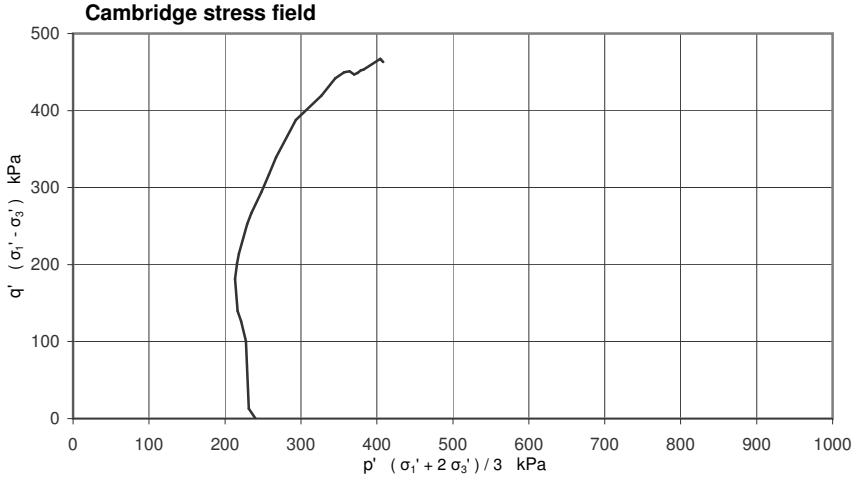
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	540			kPa
Initial pwp	300			kPa
Initial σ_3'	240			kPa
Rate of strain	1.87			%/hr

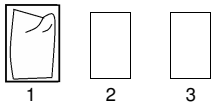
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	16.18			%
$(\sigma_1' / \sigma_3')_f$	2.876			
$(\sigma_1' - \sigma_3')_f$	467.0			kPa
u_f	291			kPa
$\sigma_3'_f$	249			kPa
$\sigma_1'_f$	716			kPa
A_f	-0.02			
Time to failure	8.7			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.246 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

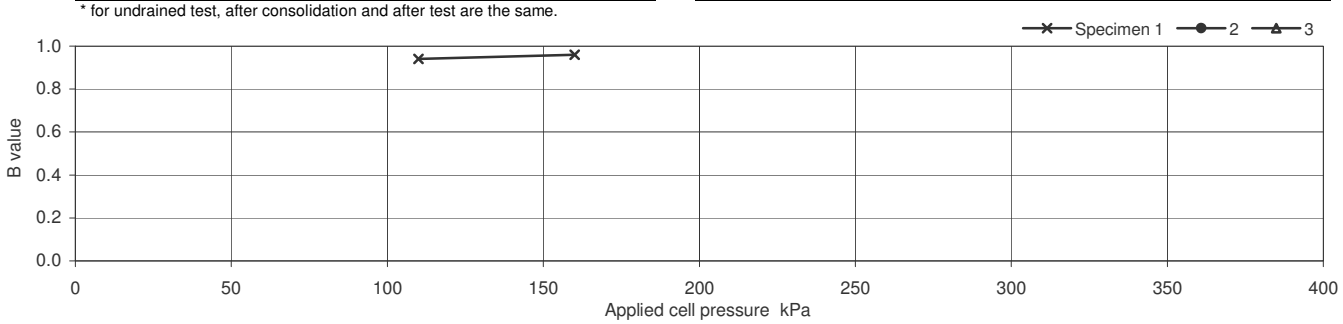
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.15-4.15	
			No	9	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.16		
	Diameter	mm	97.35		
	Bulk Density	Mg/m³	1.82		
	Water Content	%	39		
	Dry density	Mg/m³	1.31		
After consolidation	Length	mm	199.72		
	Diameter	mm	96.16		
	Bulk Density*	Mg/m³	1.85		
	Water Content*	%	37		
	Dry density*	Mg/m³	1.35		

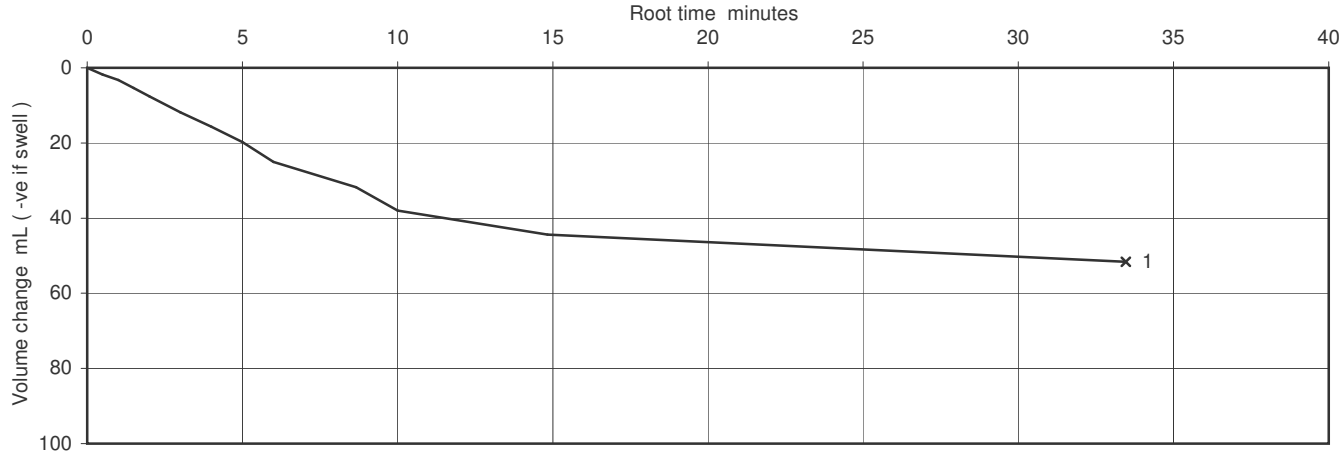
* for undrained test, after consolidation and after test are the same.

Soil Description	Greyish brown slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	146		
Final B Value		0.96		



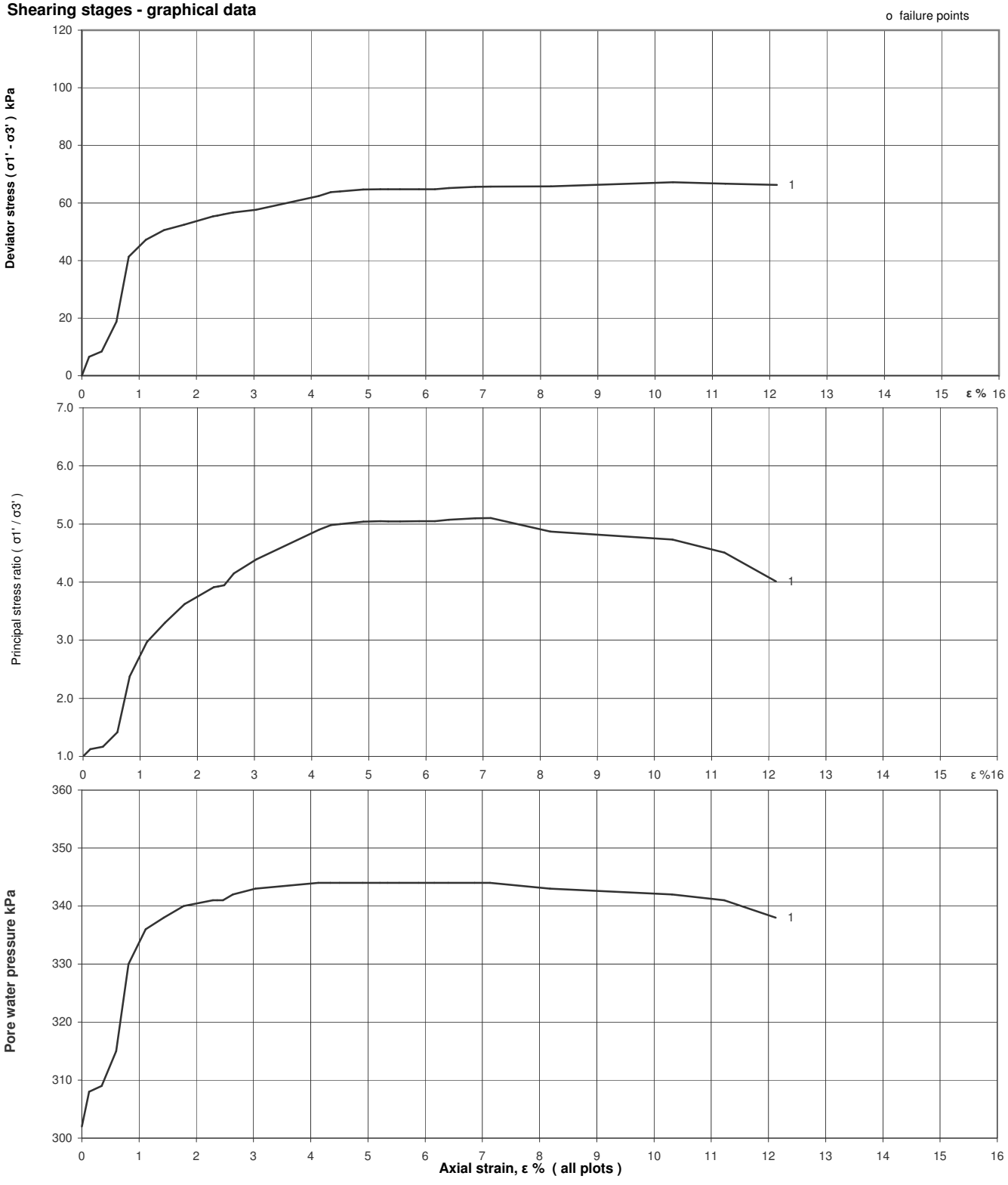
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		360			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		60			kPa
	Pore pressure at start of consolidation		349			kPa
	Pore pressure at end of consolidation		302			kPa
	Pore pressure dissipation at end of consolidation		96			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.09			m^2/year
	Coefficient of Compressibility	M_{vi}	0.73			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.5E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.15-4.15		
			No	9	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

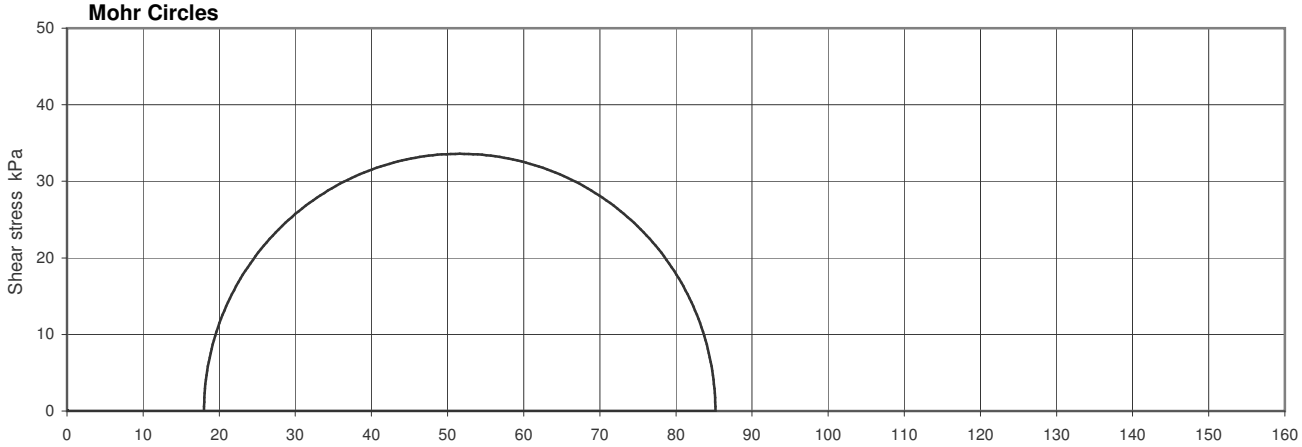


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:04	**CU** sheet 2 of 3

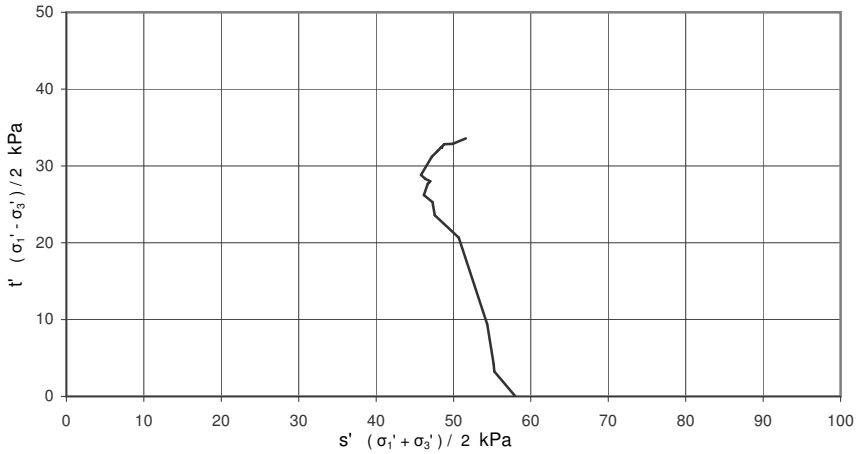
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.15-4.15		
			No	9	Type	P
			ID			
			Spec Ref			

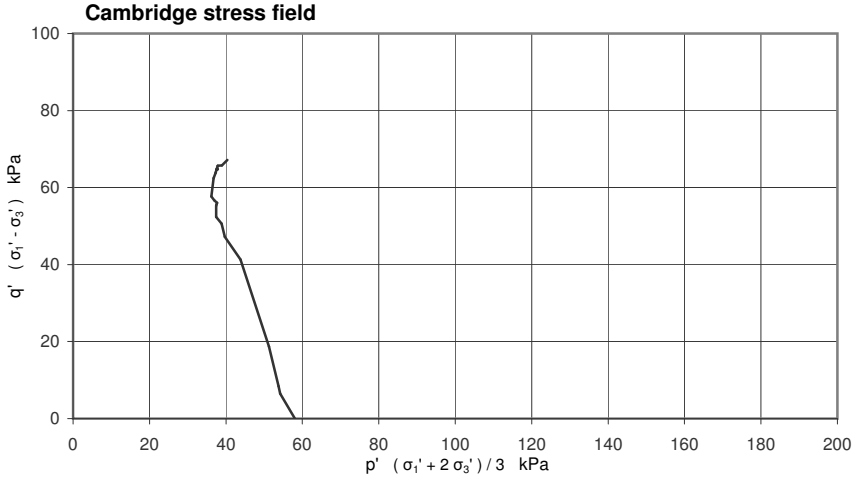
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	360			kPa
Initial pwp	302			kPa
Initial σ_3'	58			kPa
Rate of strain	0.49			%/hr

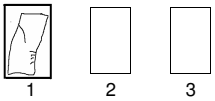
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	10.31			%
$(\sigma_1' / \sigma_3')_f$	4.733			
$(\sigma_1' - \sigma_3')_f$	67.2			kPa
u_f	342			kPa
$\sigma_3'_f$	18			kPa
$\sigma_1'_f$	85			kPa
A_f	0.60			
Time to failure	20.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.322 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

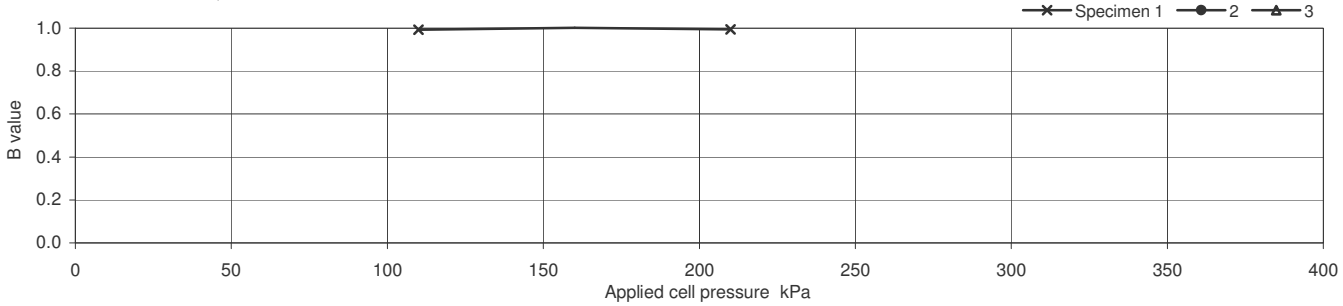
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.15-4.15	
			No	9	Type P
			ID		
			Spec Ref	Sample 2	

Specimen Details			1	2	3
Initial	Length	mm	202.62		
	Diameter	mm	96.75		
	Bulk Density	Mg/m³	1.79		
	Water Content	%	46		
	Dry density	Mg/m³	1.23		
After consolidation	Length	mm	200.11		
	Diameter	mm	95.54		
	Bulk Density*	Mg/m³	1.82		
	Water Content*	%	43		
	Dry density*	Mg/m³	1.27		

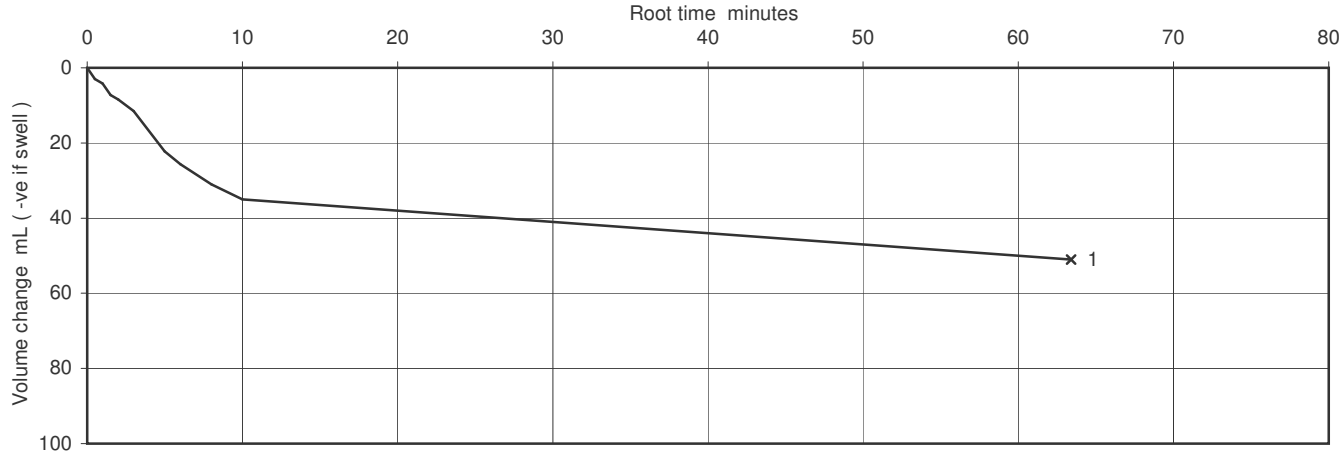
* for undrained test, after consolidation and after test are the same.

Soil Description	Brown laminated slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	202.4		
Final B Value		0.99		



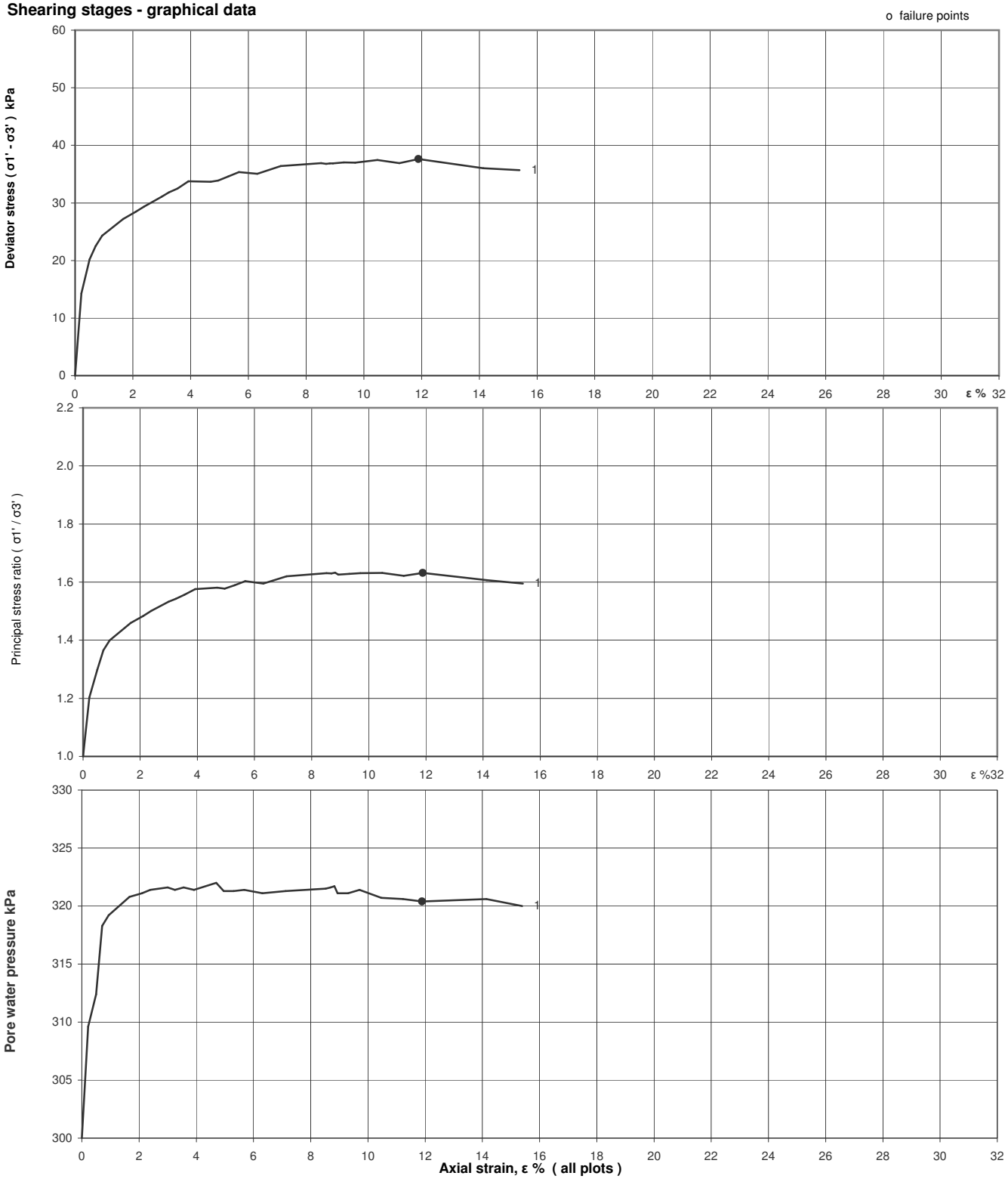
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		380			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		30			kPa
	Pore pressure at start of consolidation		329			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.09			m^2/year
	Coefficient of Compressibility	M_{vi}	1.18			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	4.0E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.15-4.15		
			No	9	Type	P
			ID			
			Spec Ref	Sample 2		

Shearing stages - graphical data

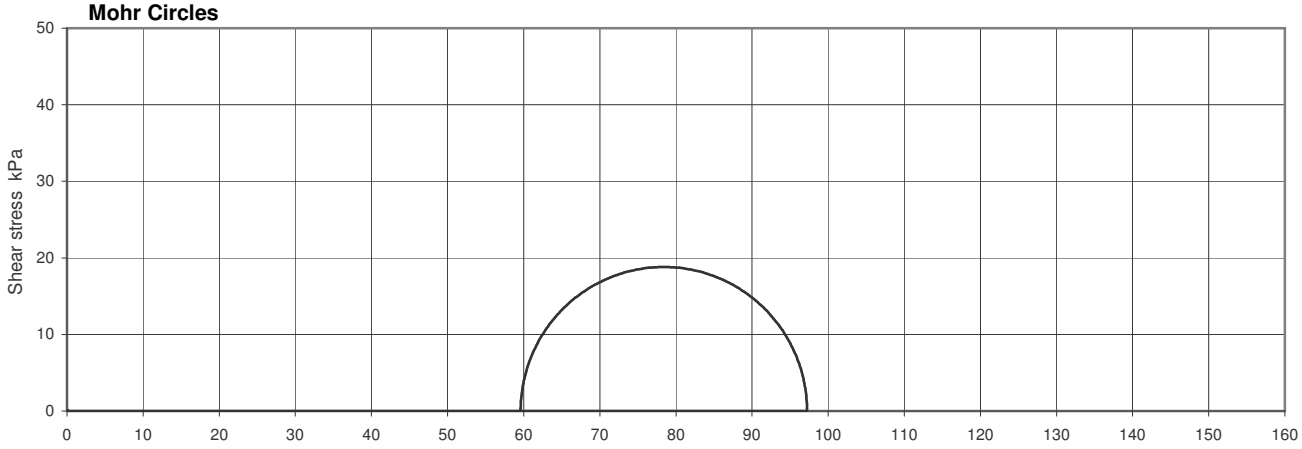


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	1157	Printed:29/09/2015 15:00	**CU** sheet 2 of 3

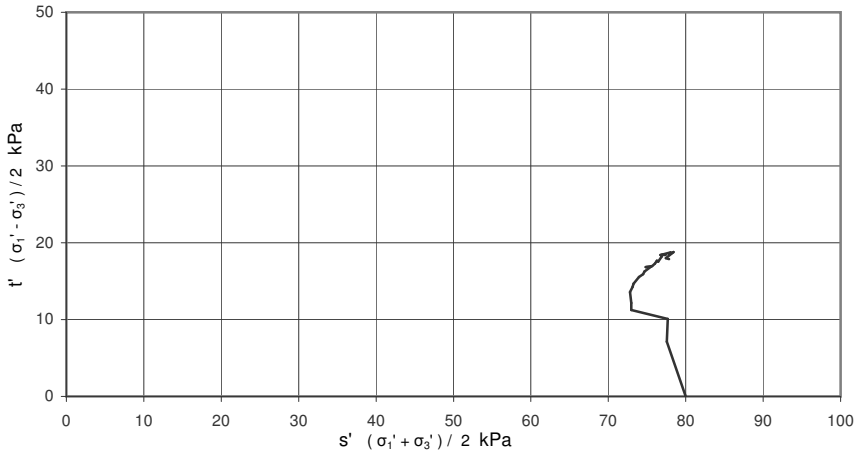
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.15-4.15		
			No	9	Type	P
			ID			
			Spec Ref	Sample 2		

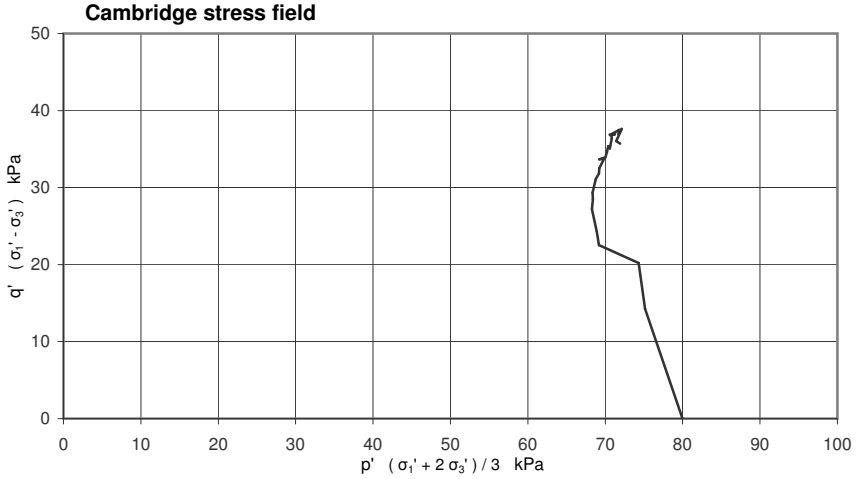
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	380			kPa
Initial pwp	300			kPa
Initial σ_3'	80			kPa
Rate of strain	1.02			%/hr

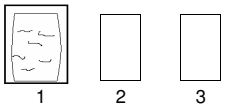
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	11.89			%
$(\sigma_1' / \sigma_3')_f$	1.631			
$(\sigma_1' - \sigma_3')_f$	37.6			kPa
u_f	320			kPa
$\sigma_3'_f$	60			kPa
$\sigma_1'_f$	97			kPa
A_f	0.54			
Time to failure	11.7			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.314 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

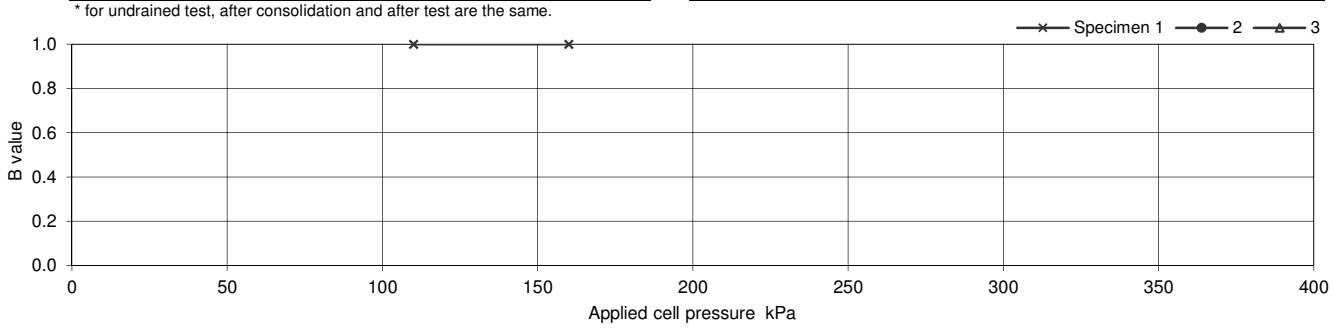
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.70-5.15	
			No	13	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	200.21		
	Diameter	mm	103.38		
	Bulk Density	Mg/m³	1.87		
	Water Content	%	38		
	Dry density	Mg/m³	1.35		
After consolidation	Length	mm	193.49		
	Diameter	mm	99.85		
	Bulk Density*	Mg/m³	1.96		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.50		

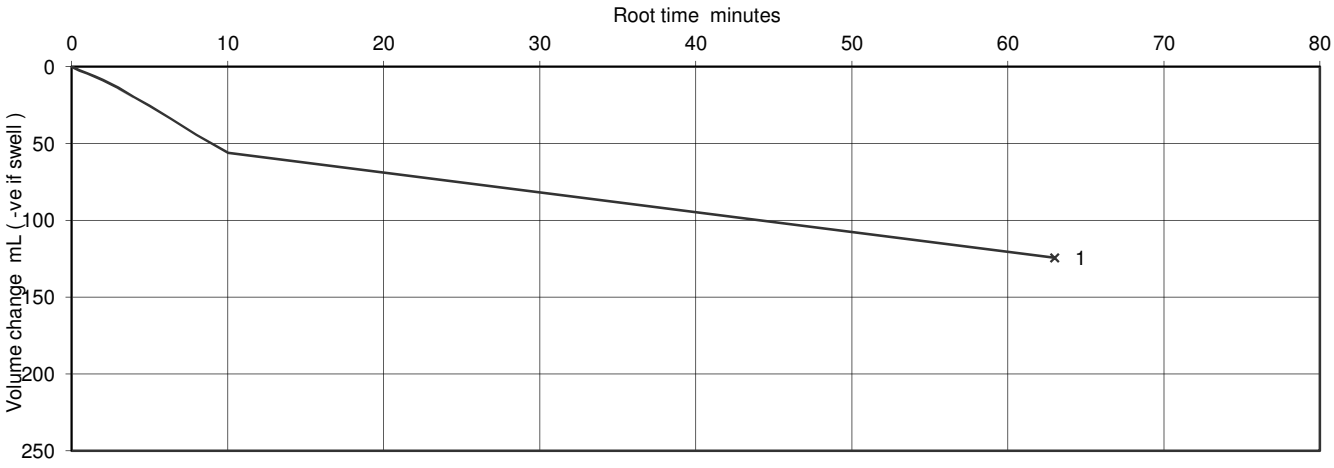
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	150		
Final B Value		1.00		



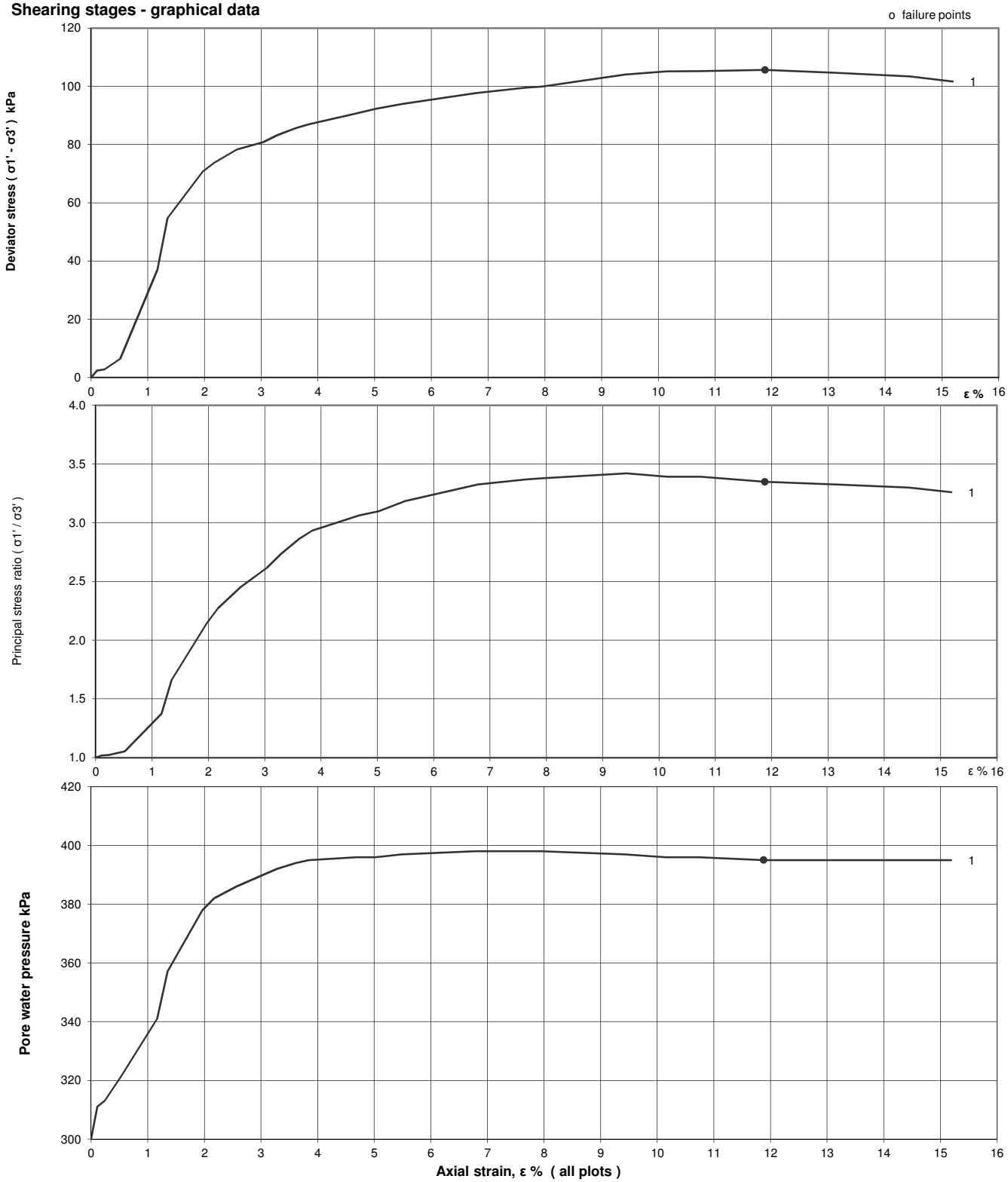
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		440			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		140			kPa
	Pore pressure at start of consolidation		435			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.45			m^2/year
	Coefficient of Compressibility	M_{vi}	0.56			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	7.9E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.70-5.15		
			No	13	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

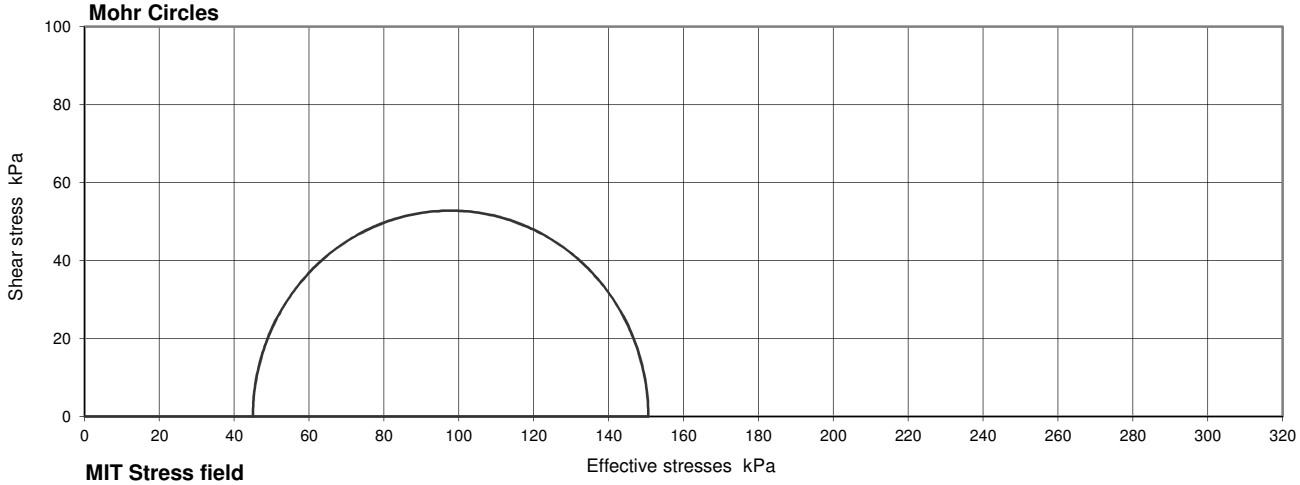


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:18/08/2015 14:55	**CU** sheet 2 of 3

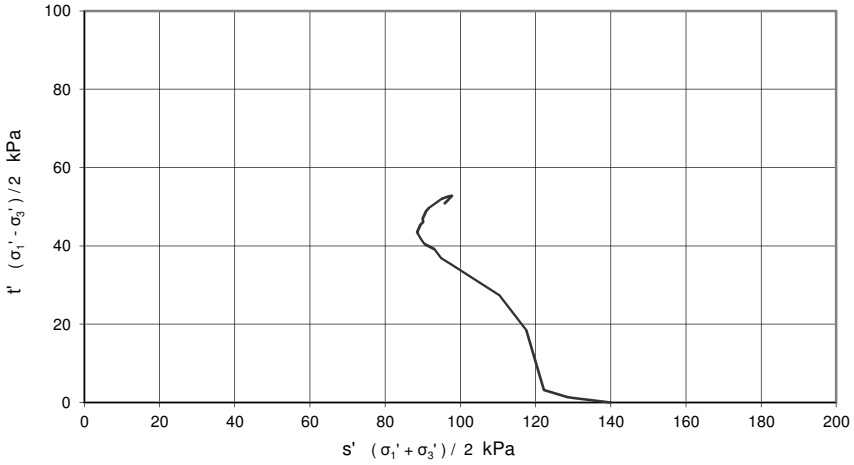
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.70-5.15		
			No	13	Type	U
			ID			
			Spec Ref			

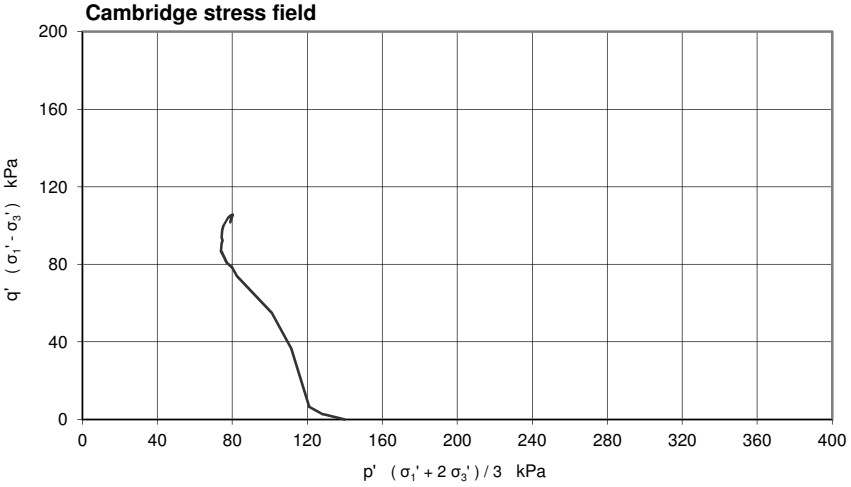
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	440			kPa
Initial pwp	300			kPa
Initial σ_3'	140			kPa
Rate of strain	1.00			%/hr

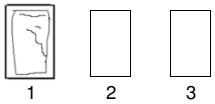
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	11.88			%
$(\sigma_1' / \sigma_3')_f$	3.347			
$(\sigma_1' - \sigma_3')_f$	105.6			kPa
u_f	395			kPa
$\sigma_3'_f$	45			kPa
$\sigma_1'_f$	151			kPa
A_f	0.90			
Time to failure	11.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.312 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

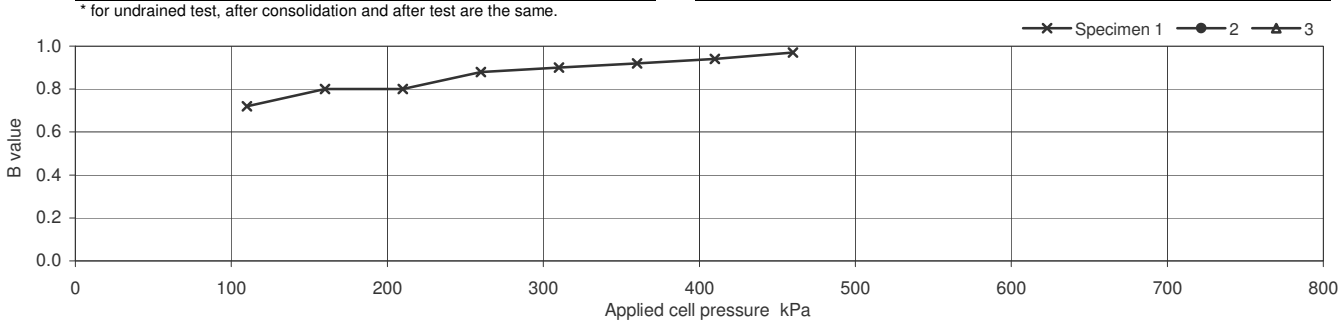
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.20-7.20	
			No	18	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	201.81		
	Diameter	mm	97.83		
	Bulk Density	Mg/m³	1.86		
	Water Content	%	35		
	Dry density	Mg/m³	1.39		
After consolidation	Length	mm	200.06		
	Diameter	mm	96.97		
	Bulk Density*	Mg/m³	1.89		
	Water Content*	%	33		
	Dry density*	Mg/m³	1.42		

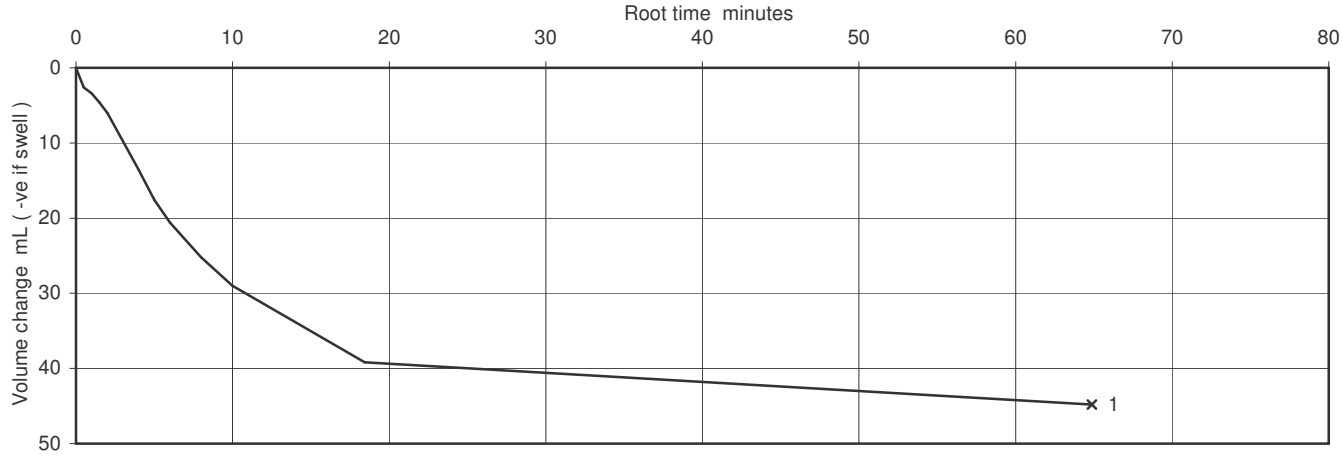
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm brownish grey slightly silty CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	460		
Final pore water pressure	kPa	447		
Final B Value		0.97		



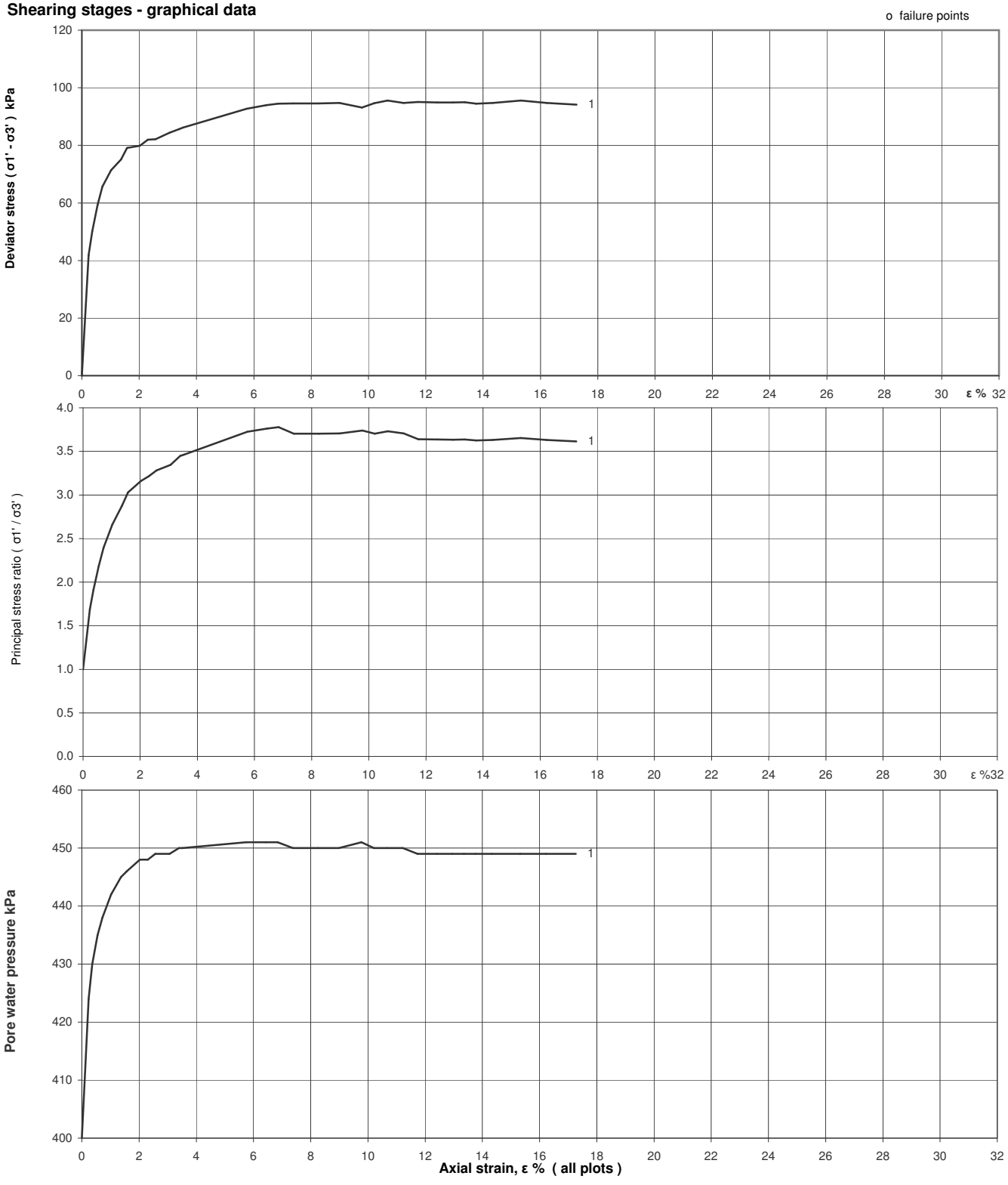
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		485			kPa
	Back Pressure applied		400			kPa
	Effective Pressure		85			kPa
	Pore pressure at start of consolidation		473			kPa
	Pore pressure at end of consolidation		400			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.17			m^2/year
	Coefficient of Compressibility	M_{vi}	0.40			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.5E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.20-7.20		
			No	18	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

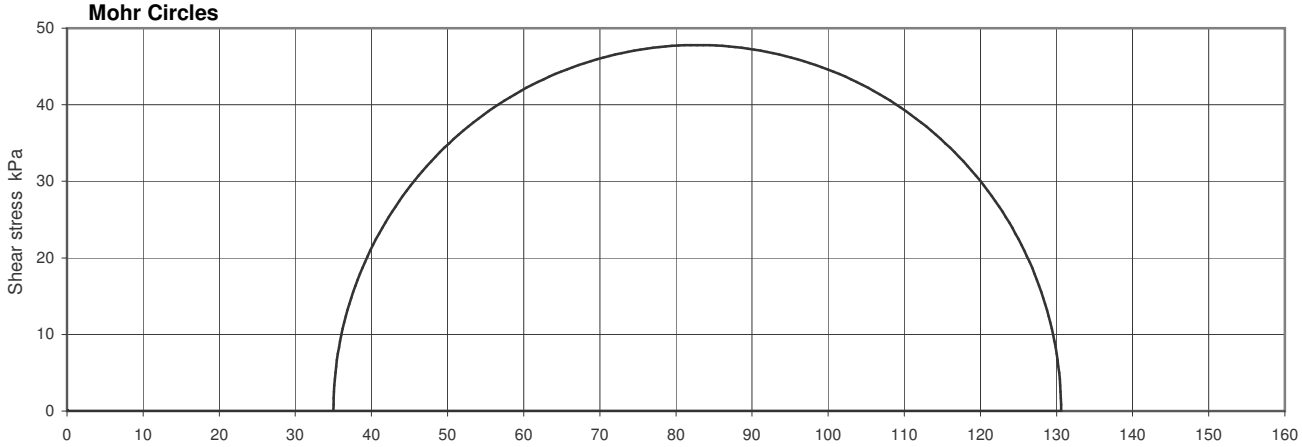


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 14:44	**CU** sheet 2 of 3

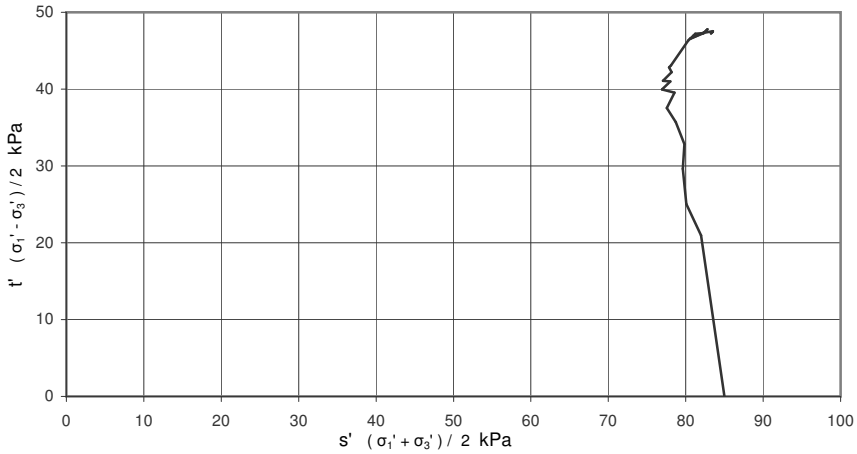
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.20-7.20		
			No	18	Type	P
			ID			
			Spec Ref			

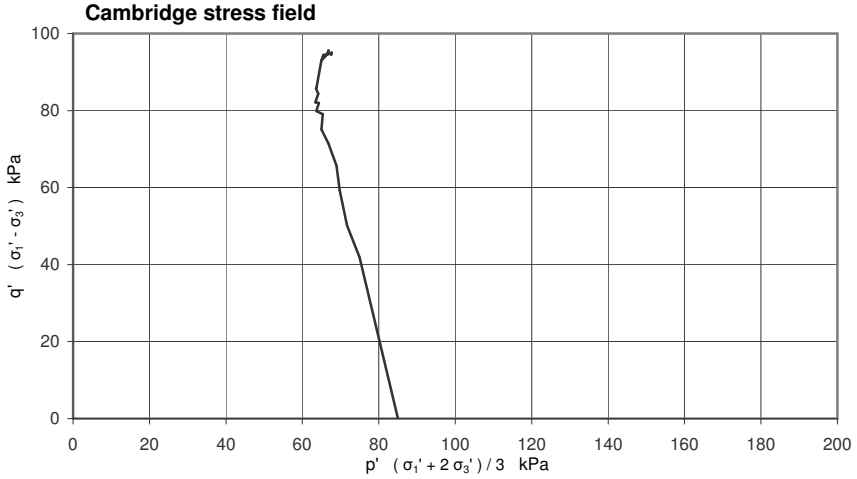
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	485			kPa
Initial pwp	400			kPa
Initial σ_3'	85			kPa
Rate of strain	0.51			%/hr

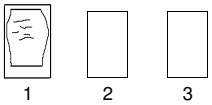
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	10.67			%
$(\sigma_1' / \sigma_3')_f$	3.732			
$(\sigma_1' - \sigma_3')_f$	95.6			kPa
u_f	450			kPa
$\sigma_3'_f$	35			kPa
$\sigma_1'_f$	131			kPa
A_f	0.52			
Time to failure	20.8			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.322 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 14:44	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

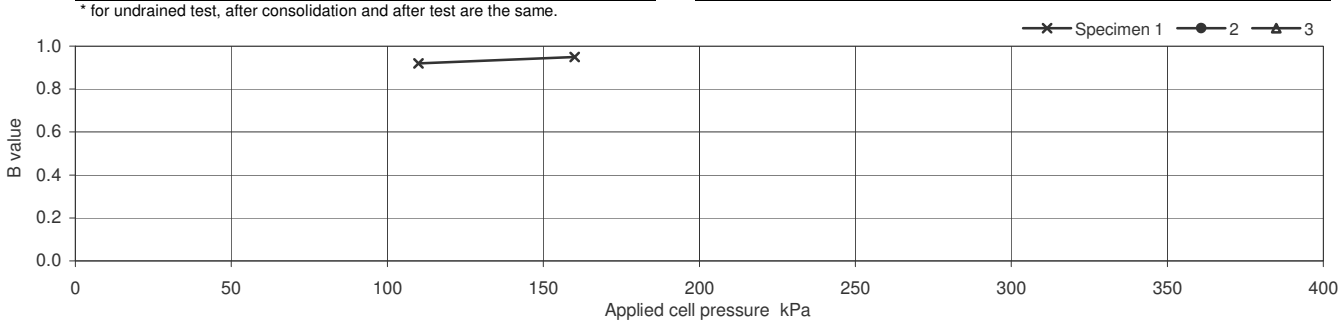
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.2-7.2	
			No	18	Type P
			ID		
			Spec Ref	Sample 2	

Specimen Details			1	2	3
Initial	Length	mm	203.47		
	Diameter	mm	98.00		
	Bulk Density	Mg/m³	1.87		
	Water Content	%	34		
	Dry density	Mg/m³	1.40		
After consolidation	Length	mm	199.78		
	Diameter	mm	96.20		
	Bulk Density*	Mg/m³	1.92		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.48		

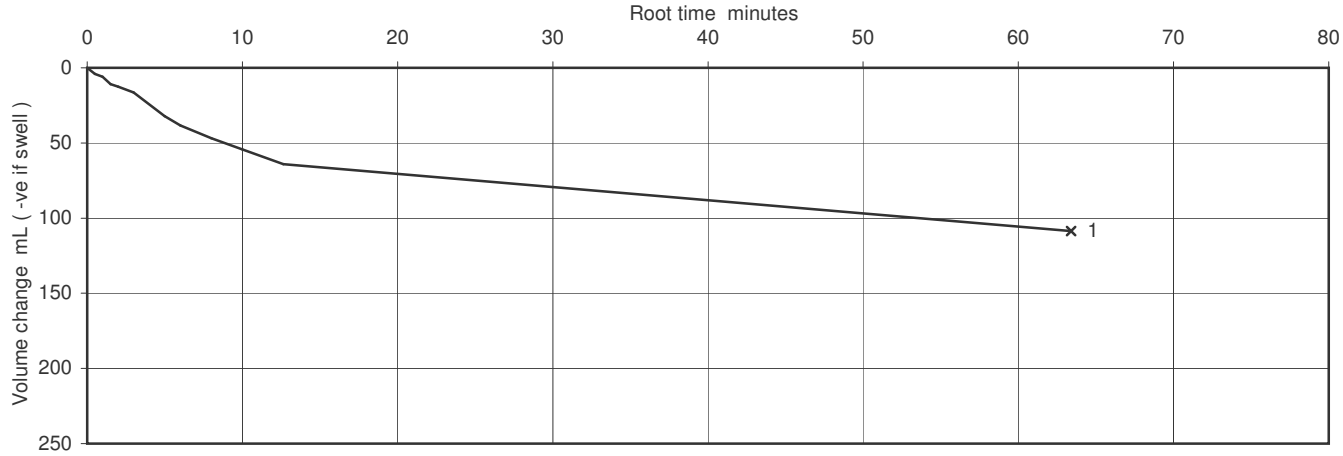
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown mottled black CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	149.5		
Final B Value		0.95		



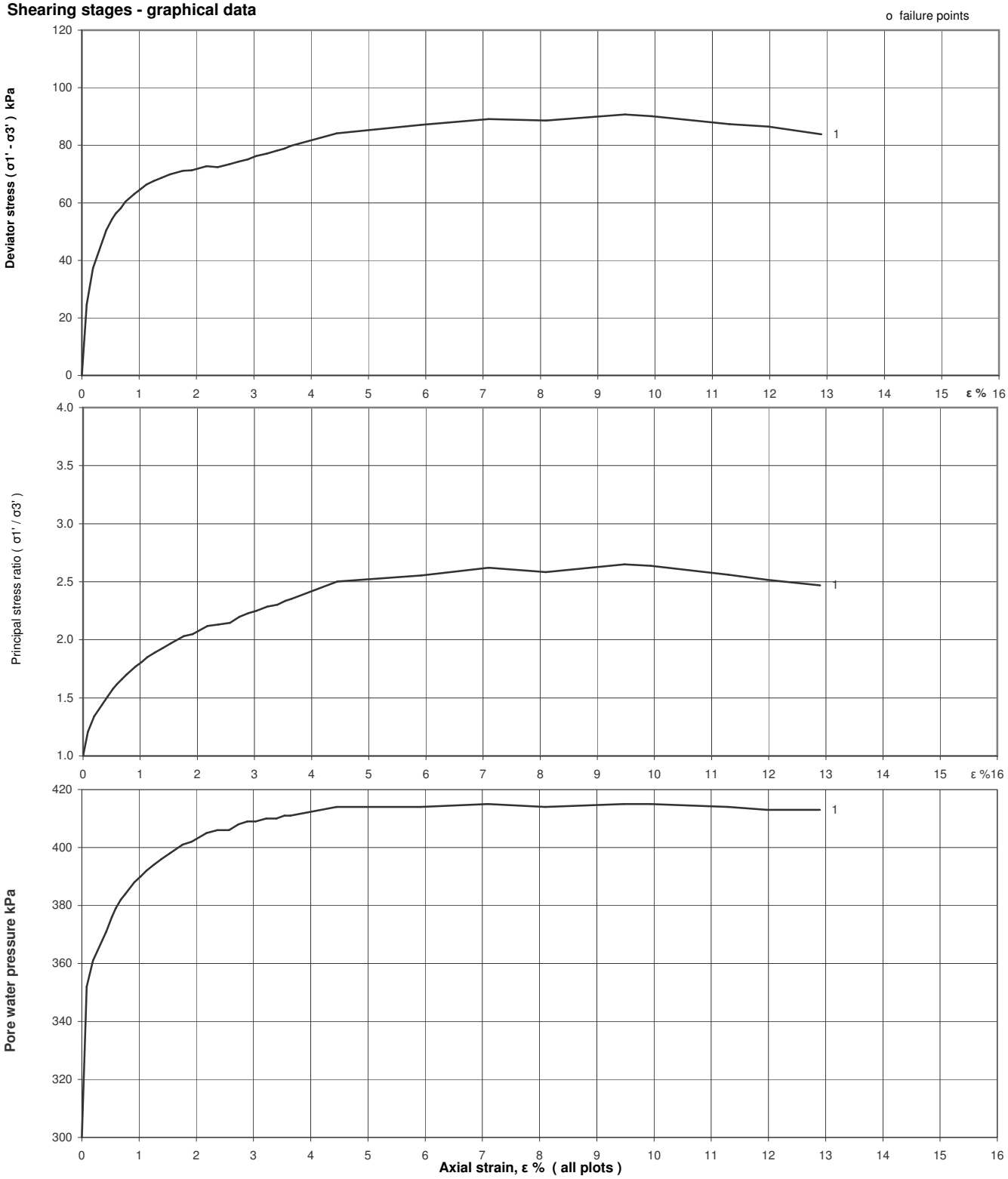
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		470			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		170			kPa
	Pore pressure at start of consolidation		463			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.52			m^2/year
	Coefficient of Compressibility	M_{vi}	0.43			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.9E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.2-7.2		
			No	18	Type	P
			ID			
			Spec Ref	Sample 2		

Shearing stages - graphical data

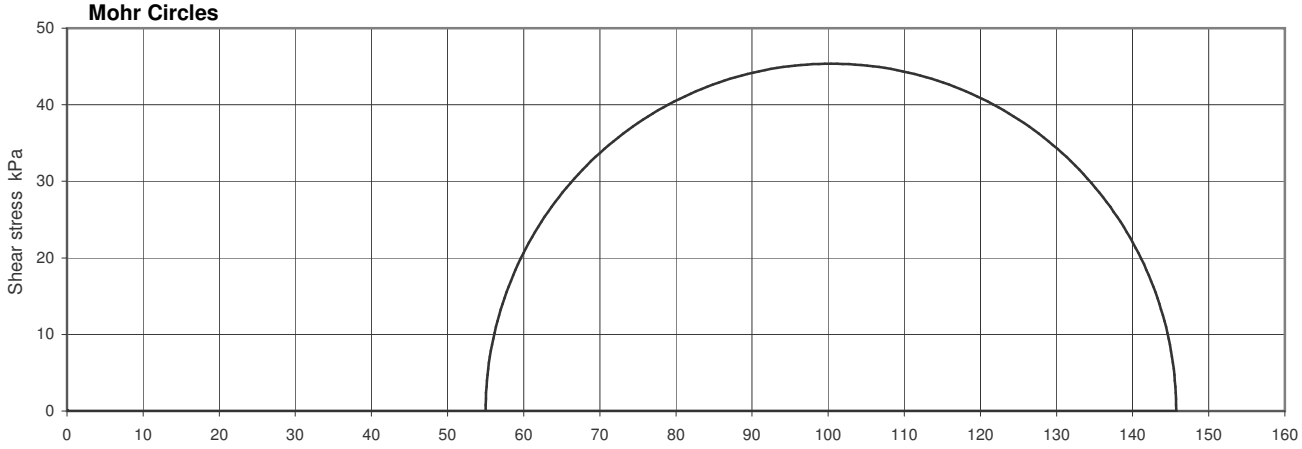


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 14:46	**CU** sheet 2 of 3

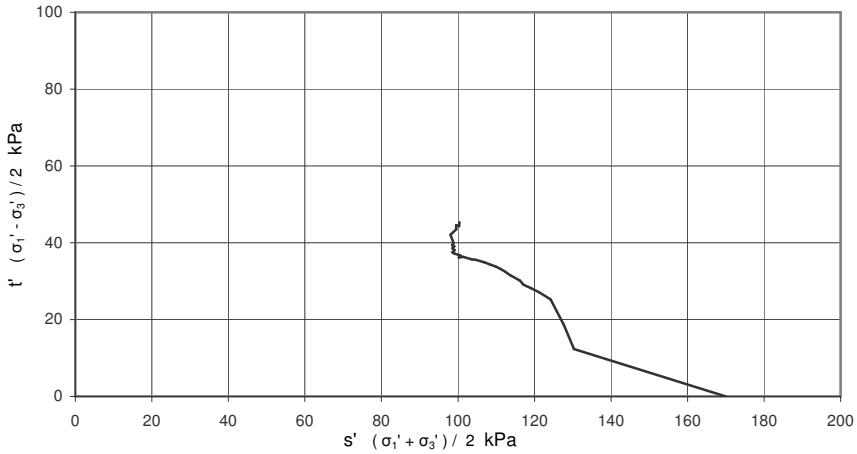
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.2-7.2		
			No	18	Type	P
			ID			
			Spec Ref	Sample 2		

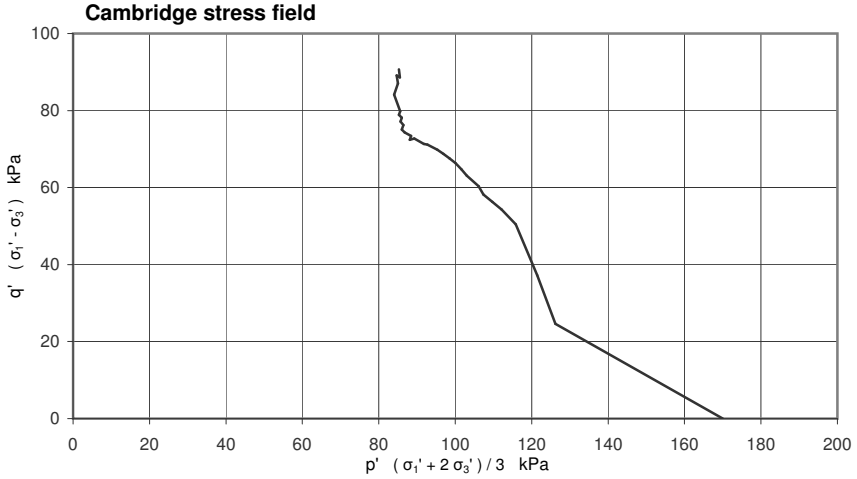
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	470			kPa
Initial pwp	300			kPa
Initial σ_3'	170			kPa
Rate of strain	0.46			%/hr

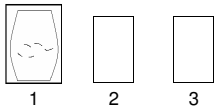
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	9.48			%
$(\sigma_1' / \sigma_3')_f$	2.650			
$(\sigma_1' - \sigma_3')_f$	90.7			kPa
u_f	415			kPa
$\sigma_3'_f$	55			kPa
$\sigma_1'_f$	146			kPa
A_f	1.27			
Time to failure	20.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.314 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

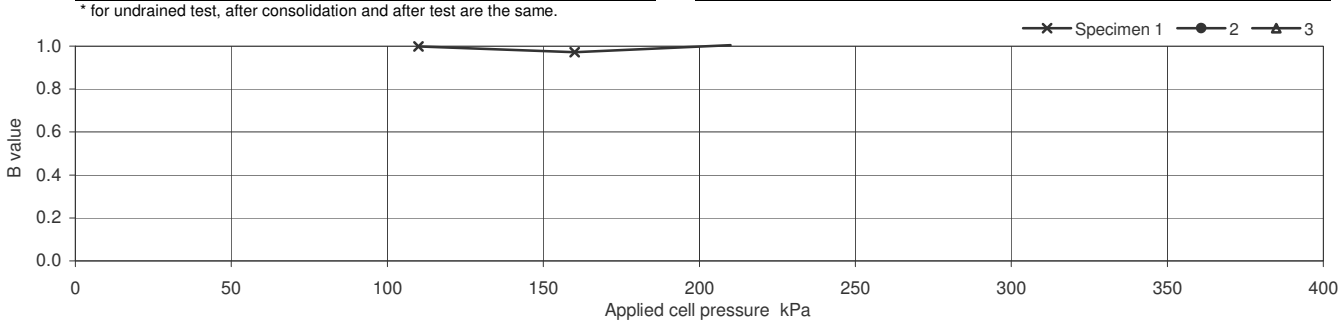
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.20-7.65	
			No	19	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.56		
	Diameter	mm	103.83		
	Bulk Density	Mg/m³	1.90		
	Water Content	%	33		
	Dry density	Mg/m³	1.43		
After consolidation	Length	mm	200.13		
	Diameter	mm	102.06		
	Bulk Density*	Mg/m³	1.95		
	Water Content*	%	29		
	Dry density*	Mg/m³	1.51		

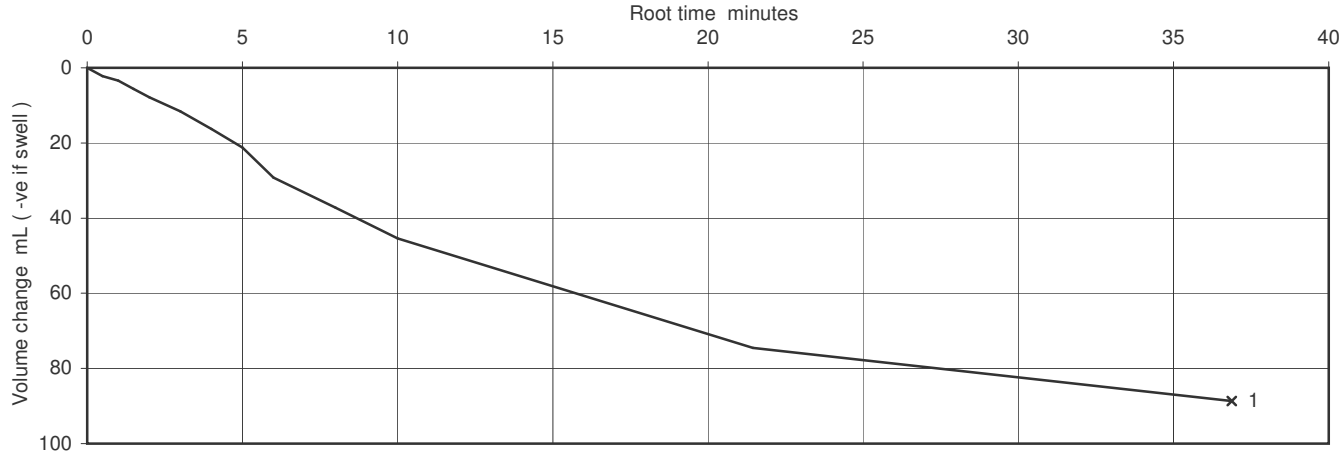
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brownish grey slightly sandy slightly silty CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	197.5		
Final B Value		1.00		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		390			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		90			kPa
	Pore pressure at start of consolidation		379			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		97			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.62			m^2/year
	Coefficient of Compressibility	M_{vi}	0.66			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.3E-10			m/s

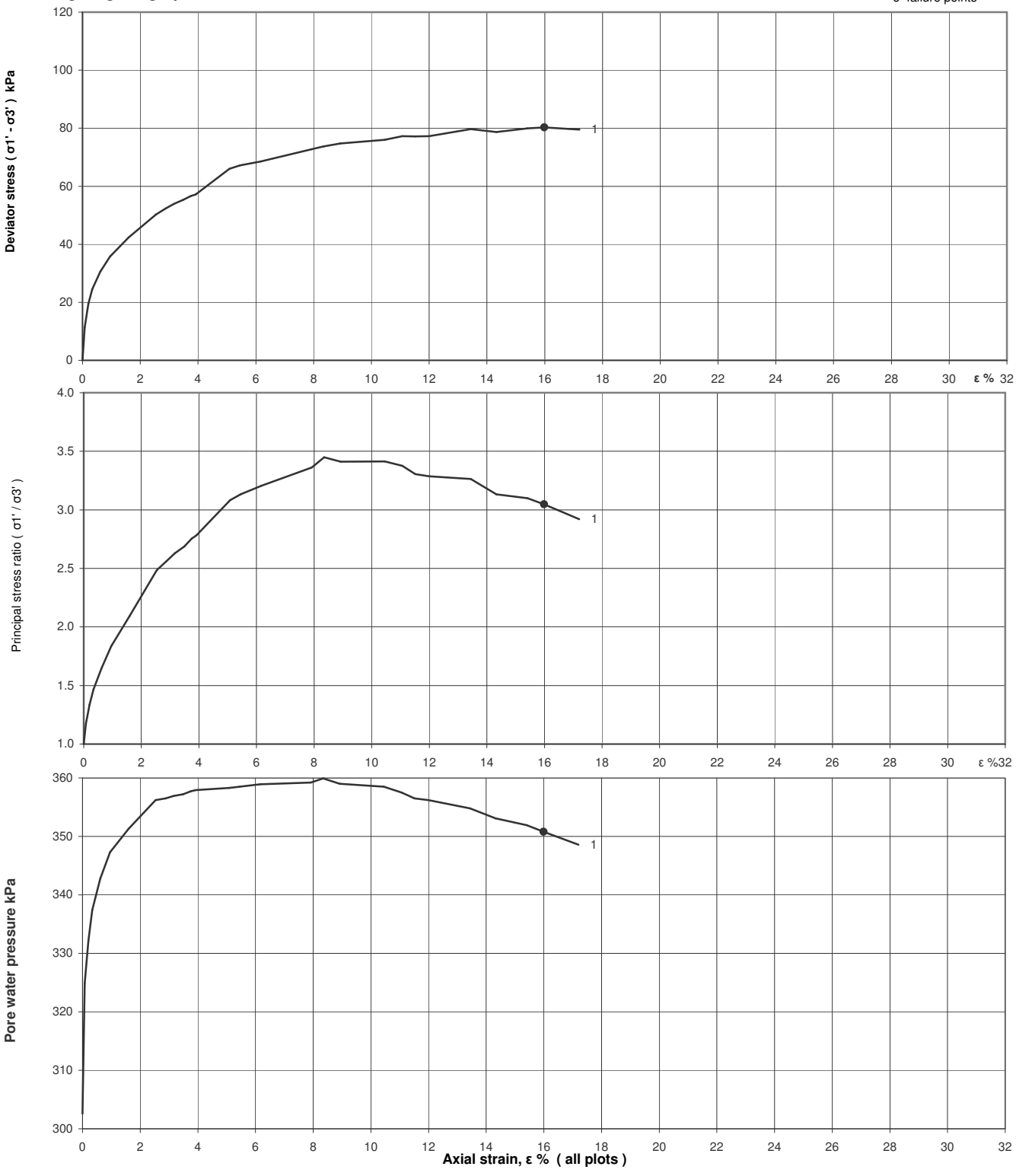


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No		BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)		7.20-7.65	
			No	19	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

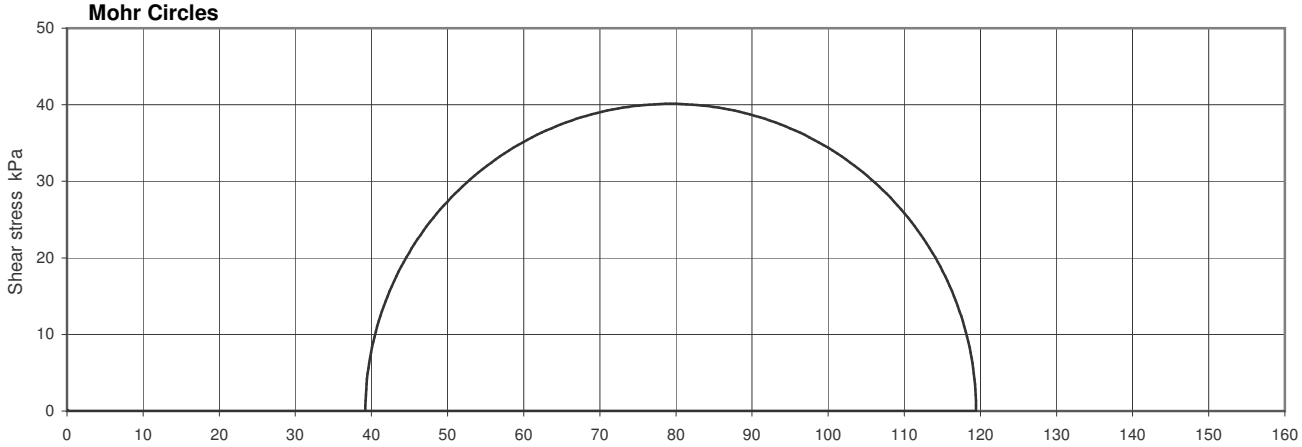


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 14:59	**CU** sheet 2 of 3

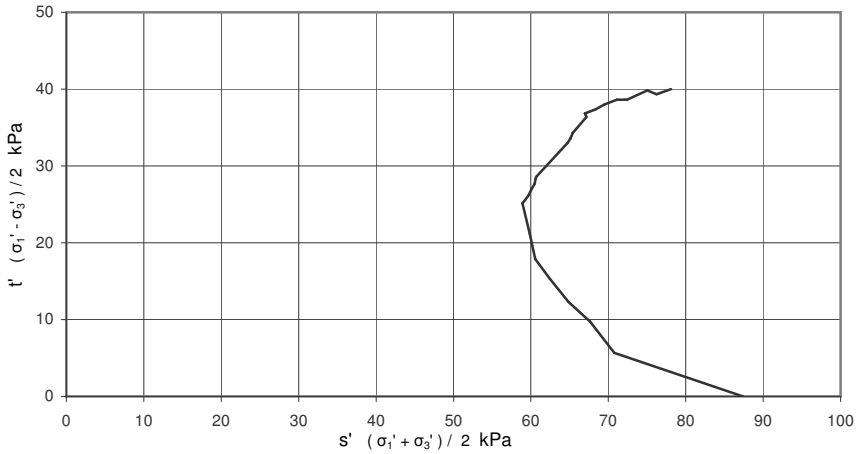
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.20-7.65		
			No	19	Type	UT
			ID			
			Spec Ref			

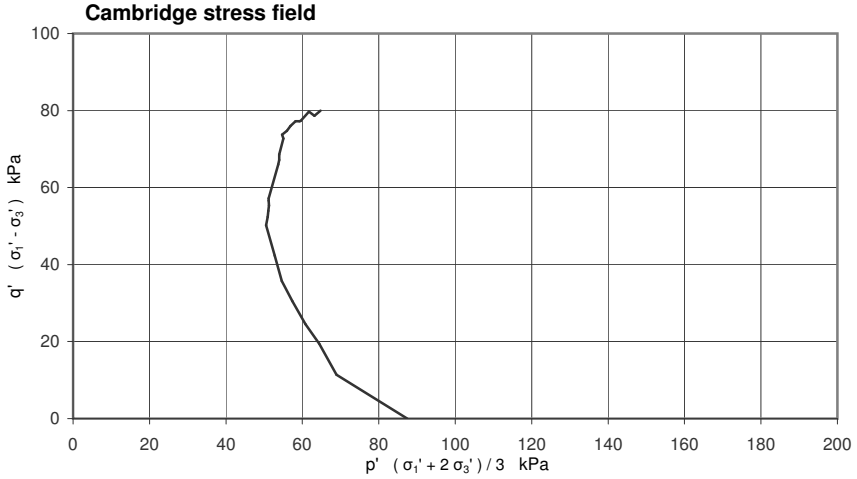
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	390			kPa
Initial pwp	303			kPa
Initial σ_3'	87			kPa
Rate of strain	0.22			%/hr

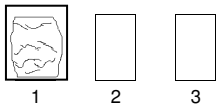
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	15.99			%
$(\sigma_1' / \sigma_3')_f$	3.047			
$(\sigma_1' - \sigma_3')_f$	80.2			kPa
u_f	351			kPa
$\sigma_3'_f$	39			kPa
$\sigma_1'_f$	119			kPa
A_f	0.60			
Time to failure	71.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.322 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation.

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

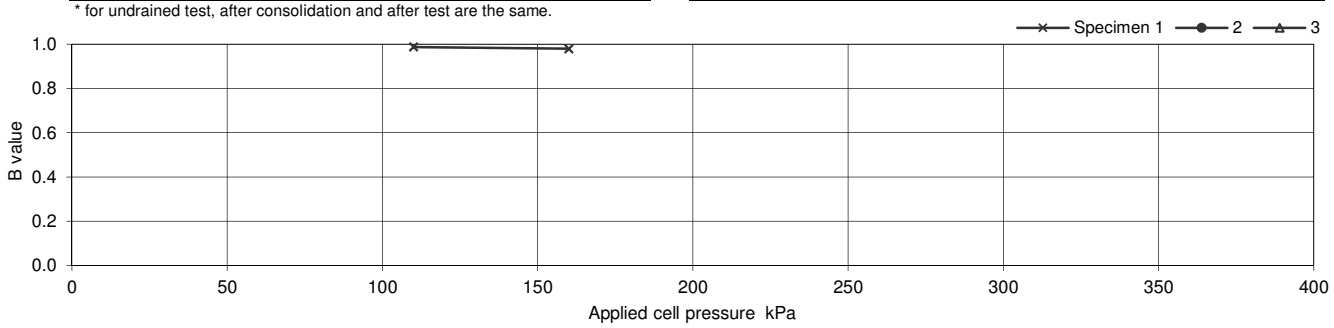
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.85-8.30	
			No	20	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.65		
	Diameter	mm	103.28		
	Bulk Density	Mg/m³	1.93		
	Water Content	%	32		
	Dry density	Mg/m³	1.46		
After consolidation	Length	mm	199.40		
	Diameter	mm	101.10		
	Bulk Density*	Mg/m³	1.99		
	Water Content*	%	28		
	Dry density*	Mg/m³	1.56		

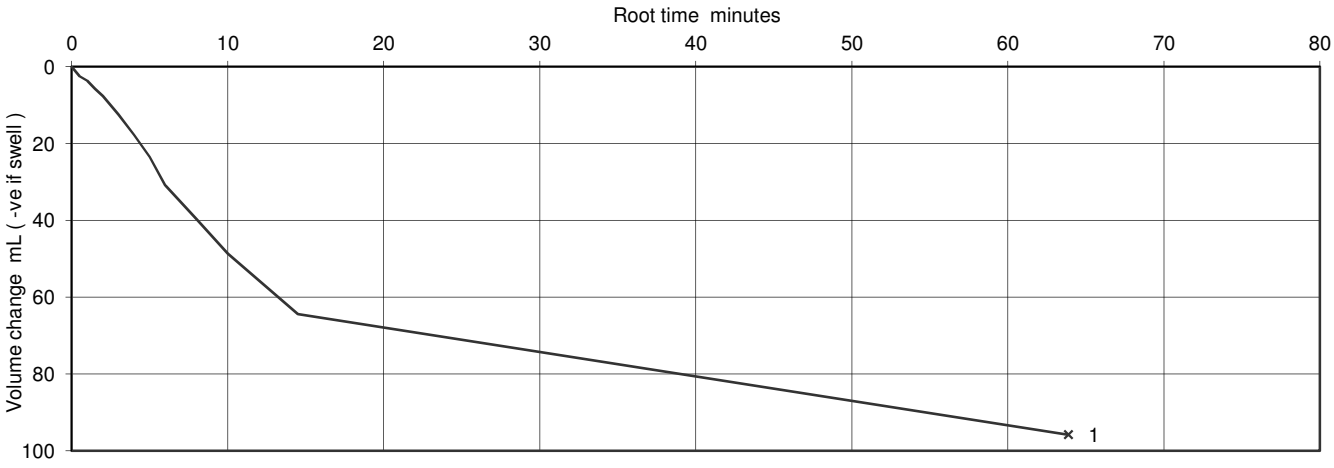
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft dark brown SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	154.3		
Final B Value		0.98		



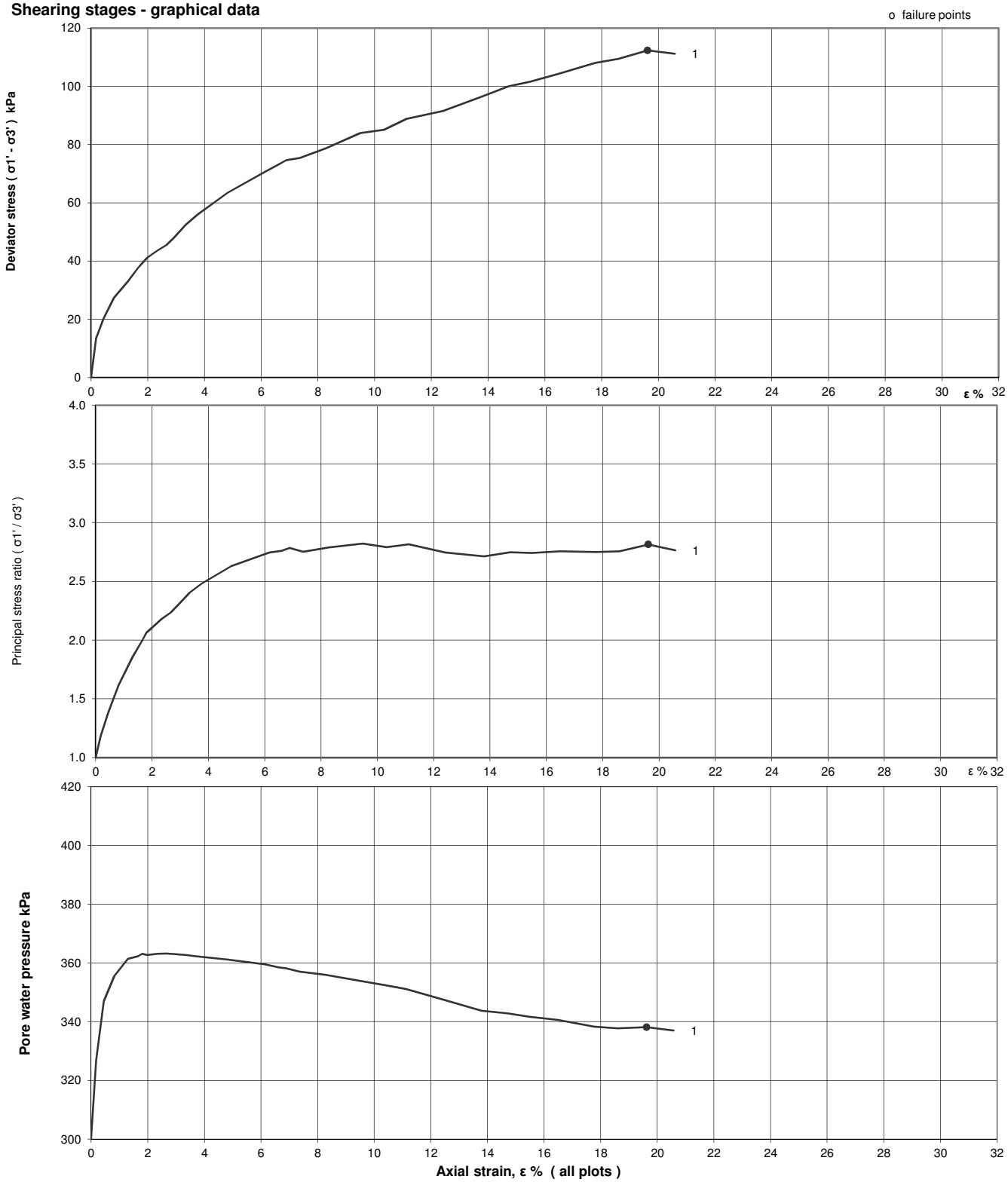
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		388			kPa
	Pore pressure at end of consolidation		302			kPa
	Pore pressure dissipation at end of consolidation		97			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.74			m^2/year
	Coefficient of Compressibility	M_{vi}	0.66			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.5E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.85-8.30		
			No	20	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

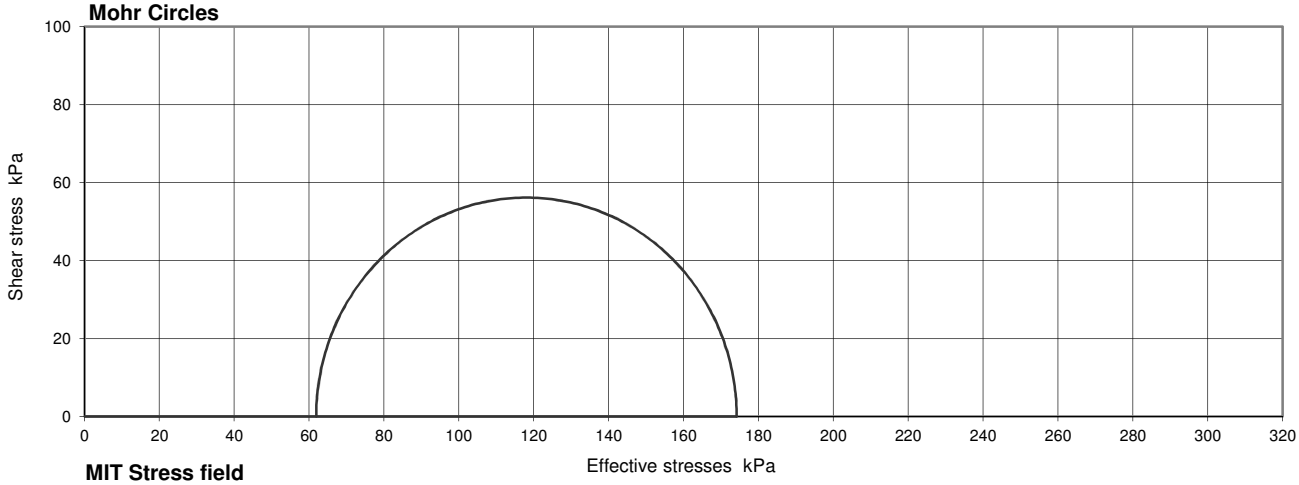


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:18/08/2015 14:55	**CU** sheet 2 of 3

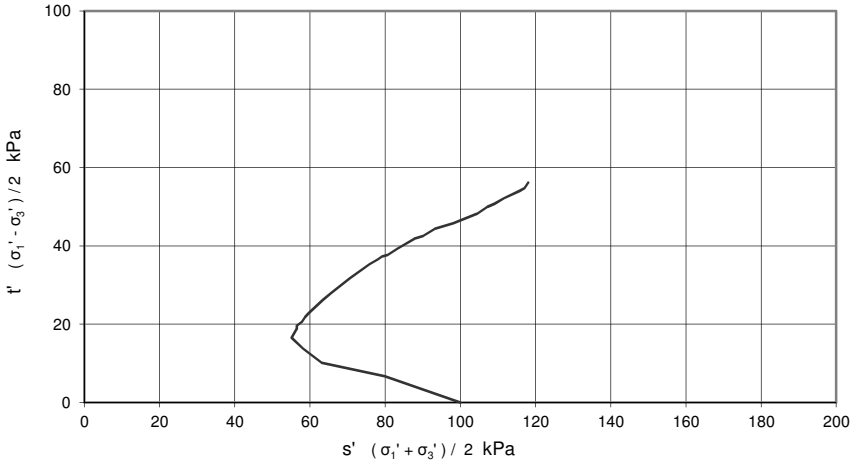
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.85-8.30		
			No	20	Type	U
			ID			
			Spec Ref			

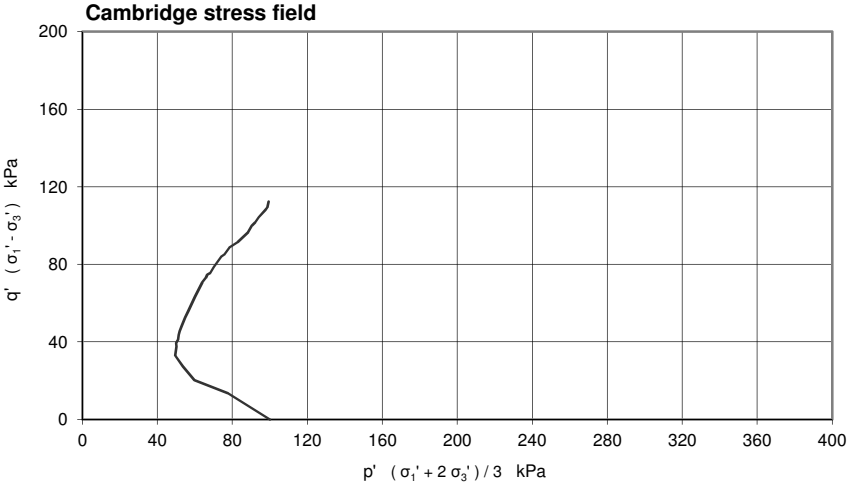
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	300			kPa
Initial σ_3'	100			kPa
Rate of strain	1.64			%/hr

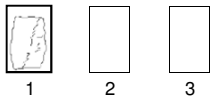
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	19.62			%
$(\sigma_1' / \sigma_3')_f$	2.814			
$(\sigma_1' - \sigma_3')_f$	112.3			kPa
u_f	338			kPa
$\sigma_3'_f$	62			kPa
$\sigma_1'_f$	174			kPa
A_f	0.34			
Time to failure	12.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.312 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

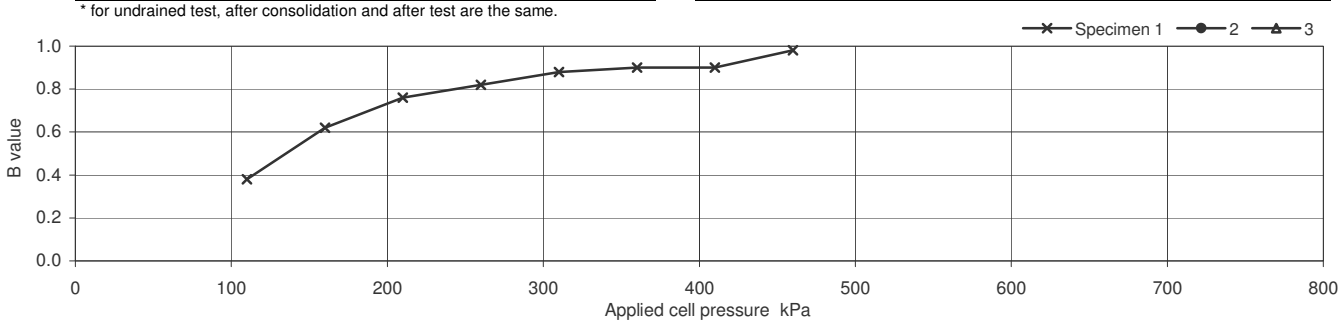
Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-9.50		
			No	22	Type	P
			ID			
			Spec Ref			

Specimen Details			1	2	3
Initial	Length	mm	203.72		
	Diameter	mm	100.66		
	Bulk Density	Mg/m³	1.76		
	Water Content	%	31		
	Dry density	Mg/m³	1.34		
After consolidation	Length	mm	197.61		
	Diameter	mm	97.60		
	Bulk Density*	Mg/m³	1.91		
	Water Content*	%	30		
	Dry density*	Mg/m³	1.47		

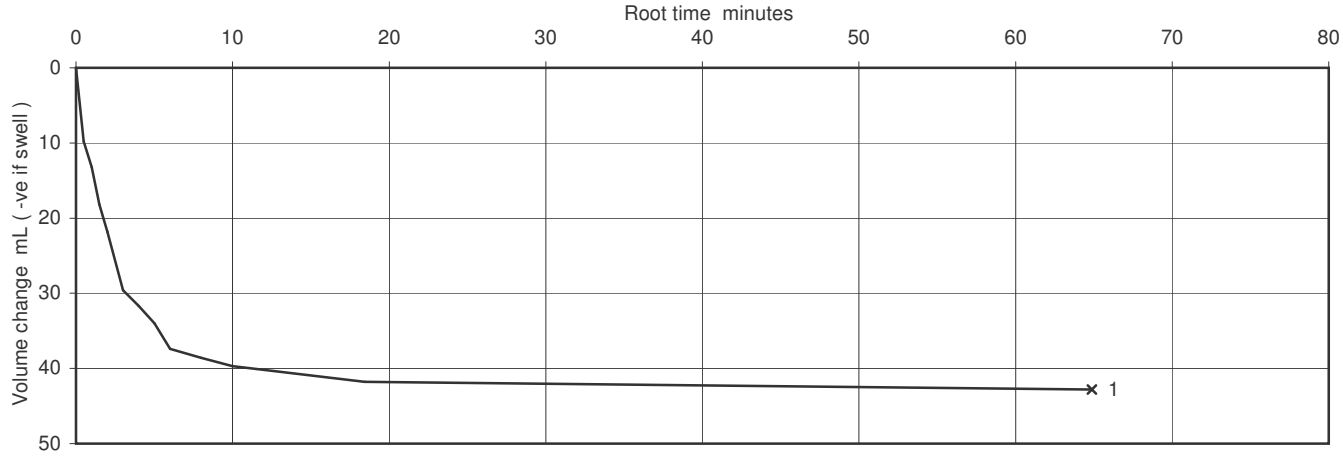
* for undrained test, after consolidation and after test are the same.

Soil Description	Dark grey slightly clayey sandy SILT stone.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	460		
Final pore water pressure	kPa	448		
Final B Value		0.98		



Consolidation Details							
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		405			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		105			kPa
	Pore pressure at start of consolidation		392			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	13.18			m^2/year
	Coefficient of Compressibility	M_{vi}	0.31			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.3E-09			m/s

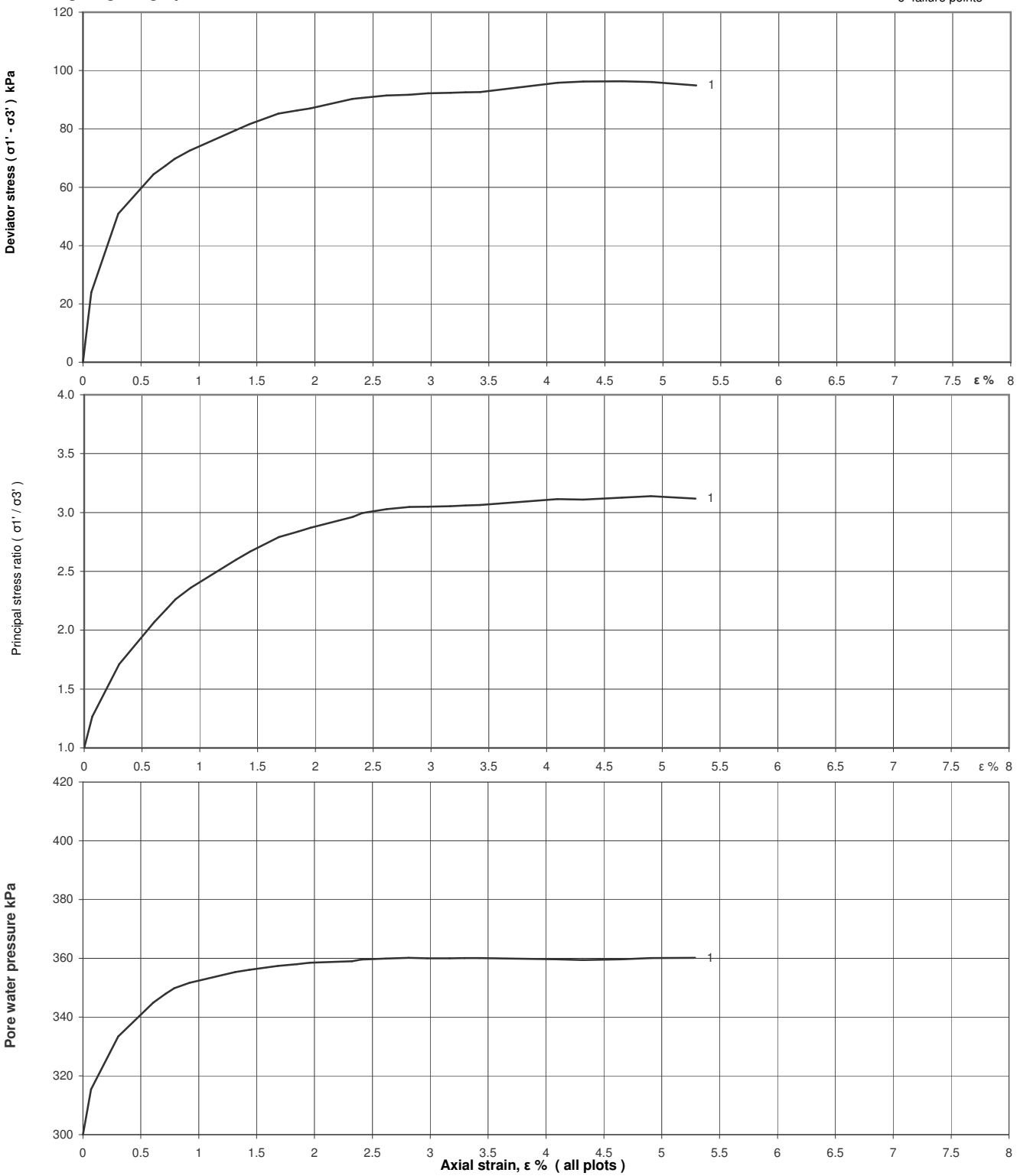


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-9.50		
			No	22	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

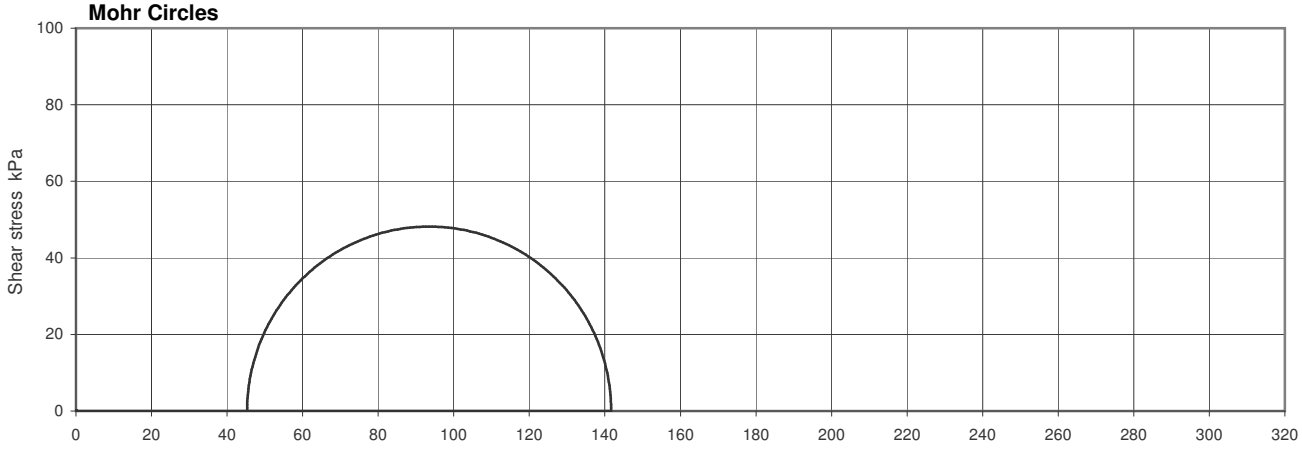


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:04	**CU** sheet 2 of 3

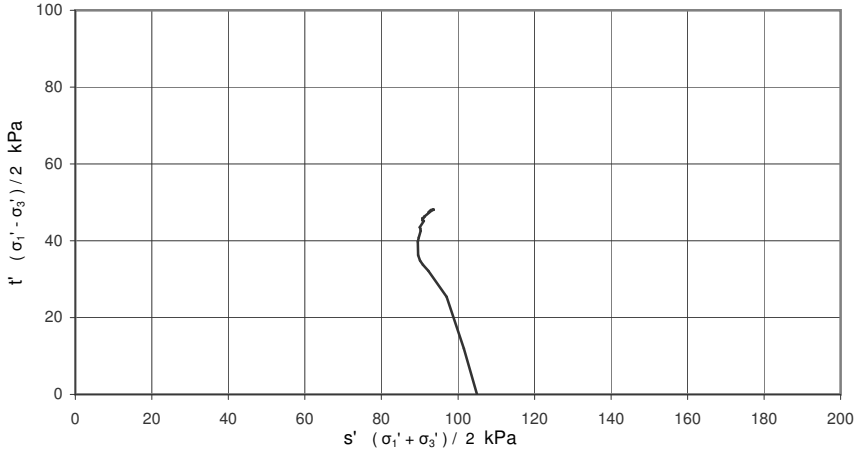
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-9.50		
			No	22	Type	P
			ID			
			Spec Ref			

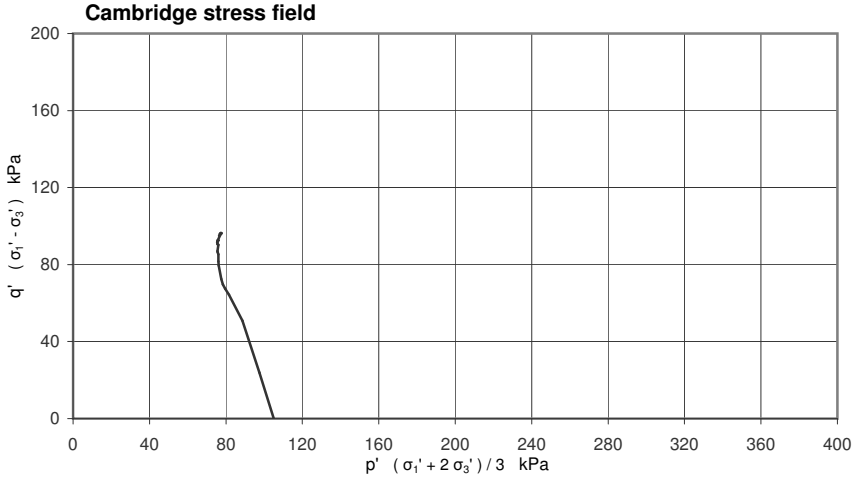
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	405			kPa
Initial pwp	300			kPa
Initial σ_3'	105			kPa
Rate of strain	1.00			%/hr

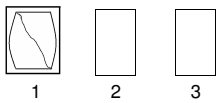
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	4.65			%
$(\sigma_1' / \sigma_3')_f$	3.127			
$(\sigma_1' - \sigma_3')_f$	96.4			kPa
u_f	360			kPa
$\sigma_3'_f$	45			kPa
$\sigma_1'_f$	142			kPa
A_f	0.62			
Time to failure	4.7			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.721 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

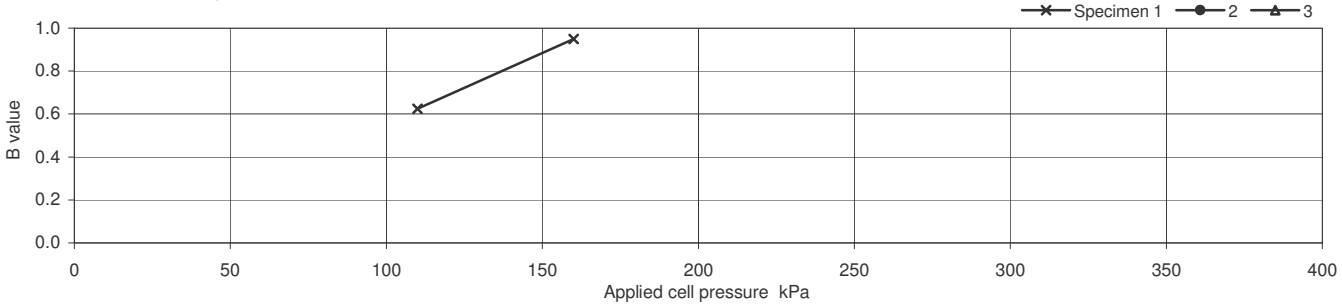
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.30-12.75	
			No	31	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	175.20		
	Diameter	mm	102.82		
	Bulk Density	Mg/m³	1.17		
	Water Content	%	160		
	Dry density	Mg/m³	0.44		
After consolidation	Length	mm	162.25		
	Diameter	mm	94.92		
	Bulk Density*	Mg/m³	1.34		
	Water Content*	%	140		
	Dry density*	Mg/m³	0.56		

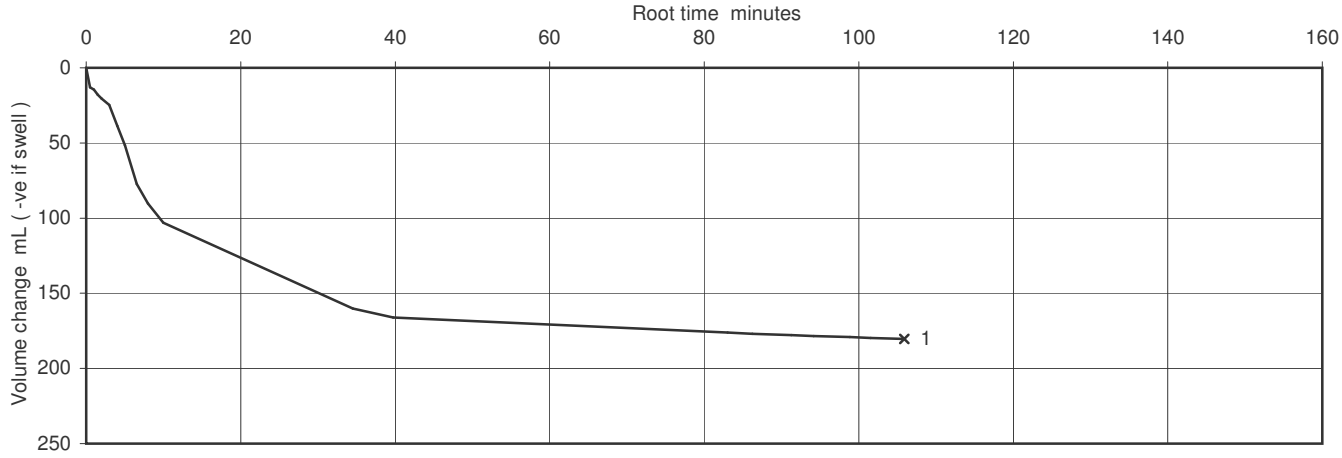
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm black pseudo fibrous PEAT with frequent wood fragments.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	110		
Final B Value		0.95		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		580			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		280			kPa
	Pore pressure at start of consolidation		349			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.29			m^2/year
	Coefficient of Compressibility	M_{vi}	2.84			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.1E-09			m/s

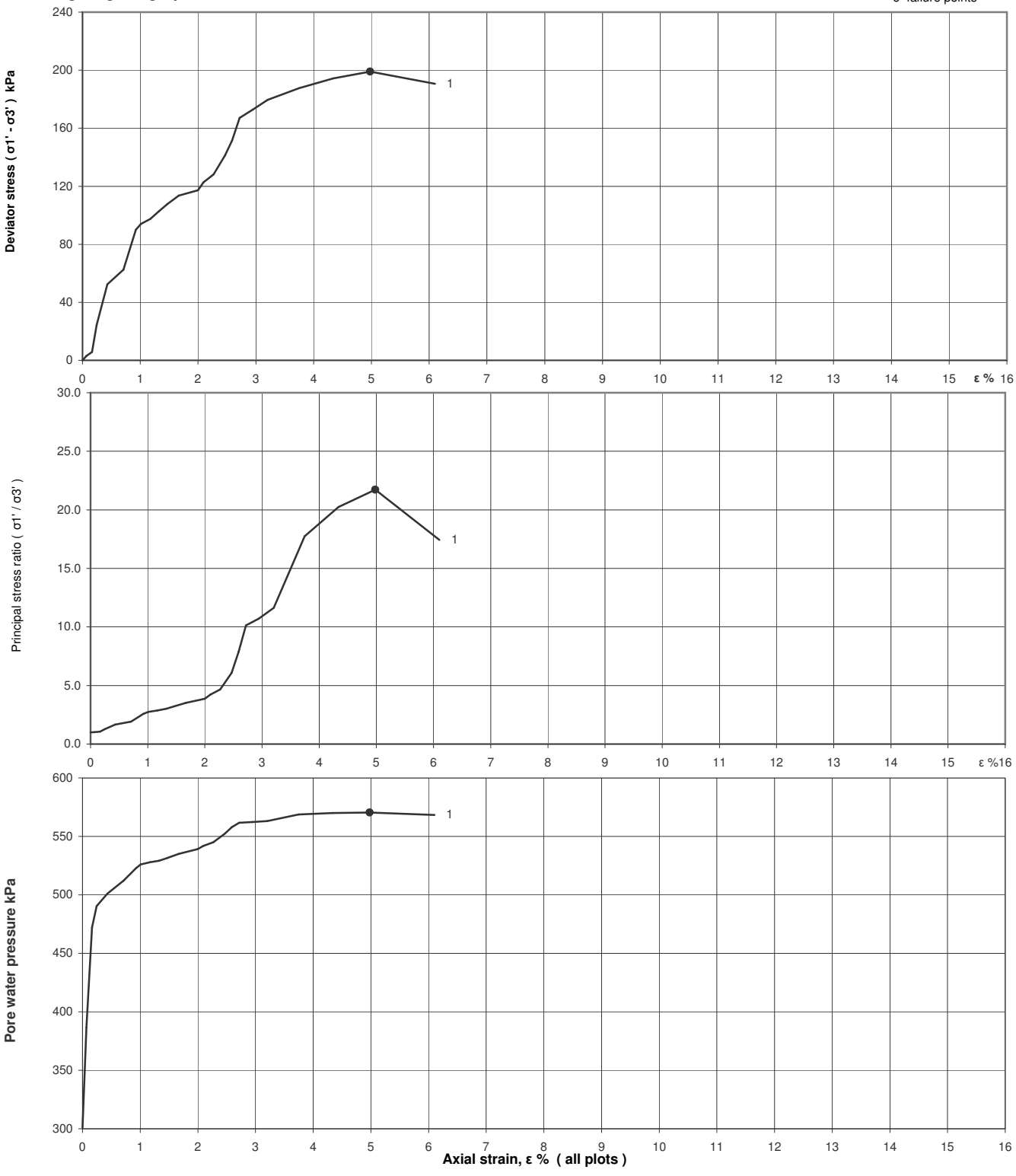


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.30-12.75		
			No	31	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

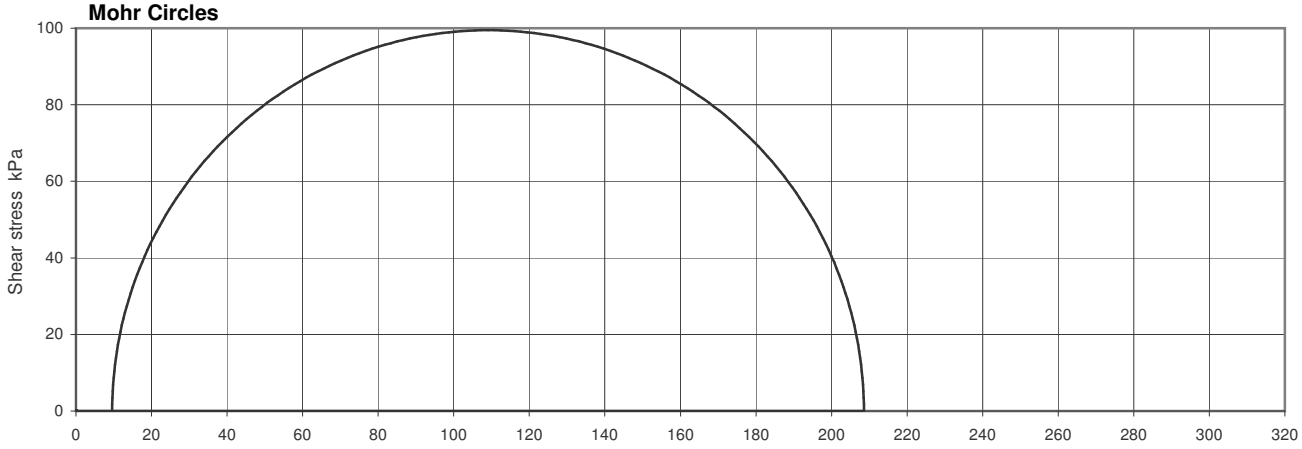


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:46	**CU** sheet 2 of 3

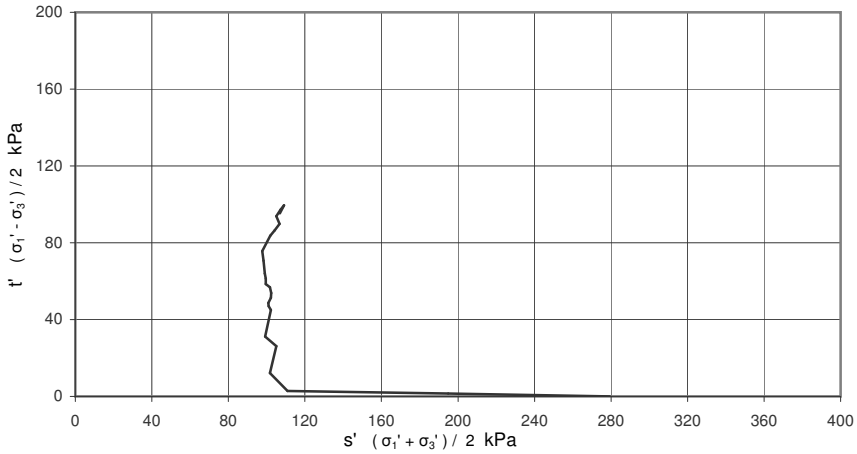
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	12.30-12.75		
			No	31	Type	U
			ID			
			Spec Ref			

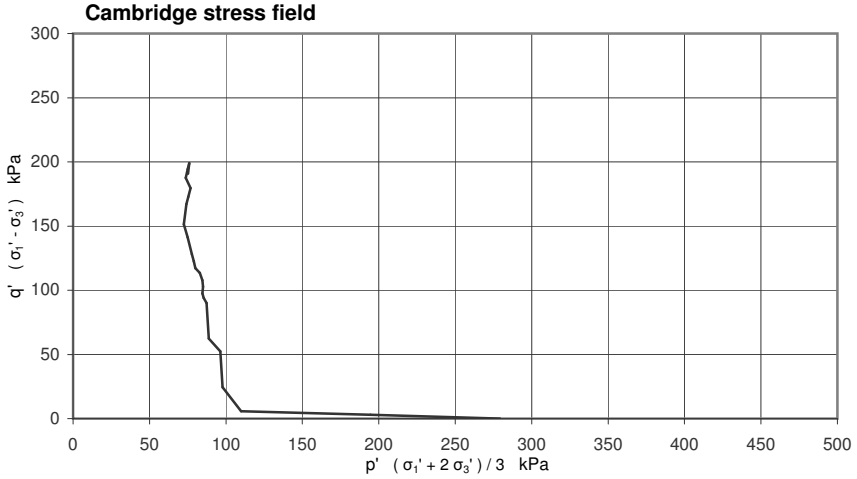
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	580			kPa
Initial pwp	301			kPa
Initial σ_3'	279			kPa
Rate of strain	1.64			%/hr

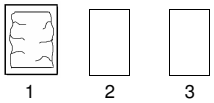
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	4.98			%
$(\sigma_1' / \sigma_3')_f$	21.727			
$(\sigma_1' - \sigma_3')_f$	199.0			kPa
u_f	570			kPa
$\sigma_3'_f$	10			kPa
$\sigma_1'_f$	209			kPa
A_f	1.36			
Time to failure	3.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.32 mm thick rubber membrane(s)

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:46	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

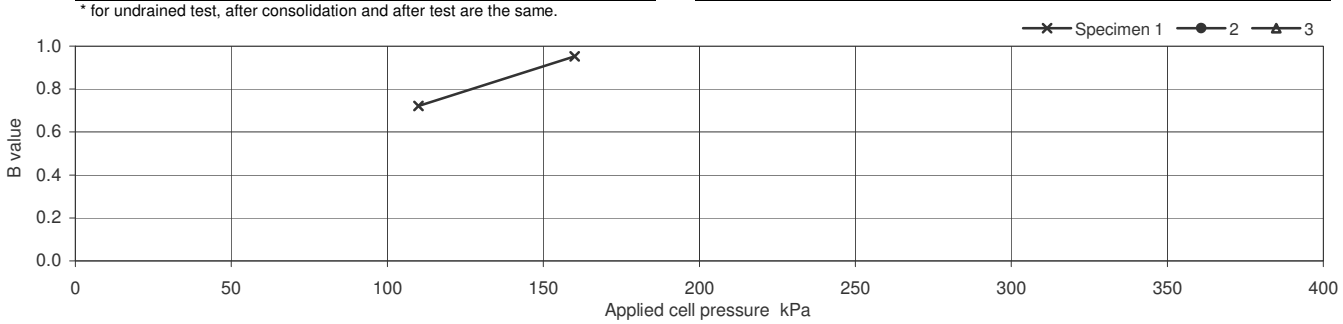
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.00-13.45	
			No	34	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.27		
	Diameter	mm	103.21		
	Bulk Density	Mg/m³	2.19		
	Water Content	%	16		
	Dry density	Mg/m³	1.89		
After consolidation	Length	mm	202.09		
	Diameter	mm	102.61		
	Bulk Density*	Mg/m³	2.21		
	Water Content*	%	15		
	Dry density*	Mg/m³	1.92		

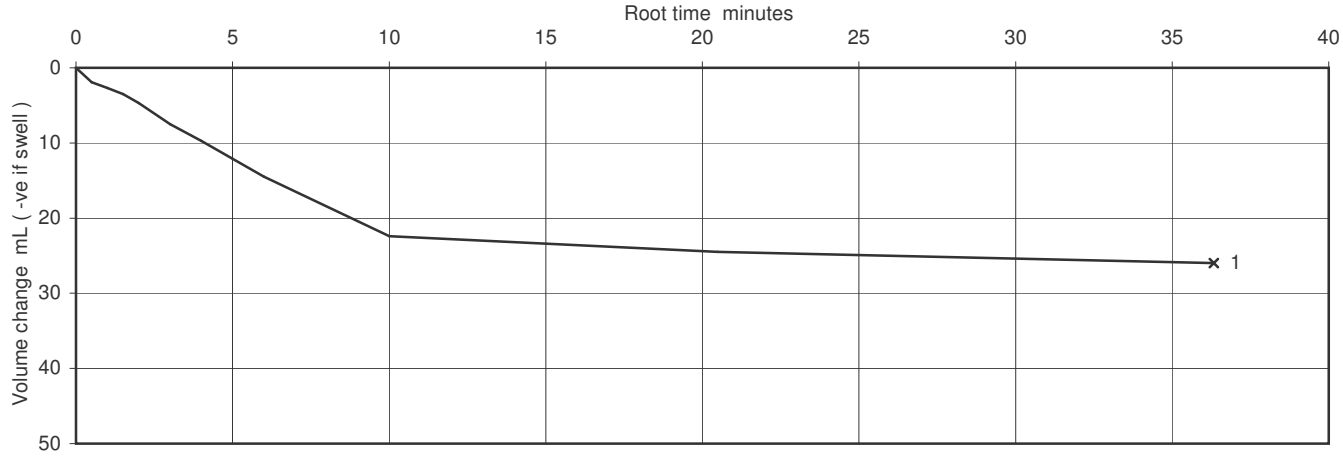
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm brown slightly gravelly CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	147		
Final B Value		0.95		



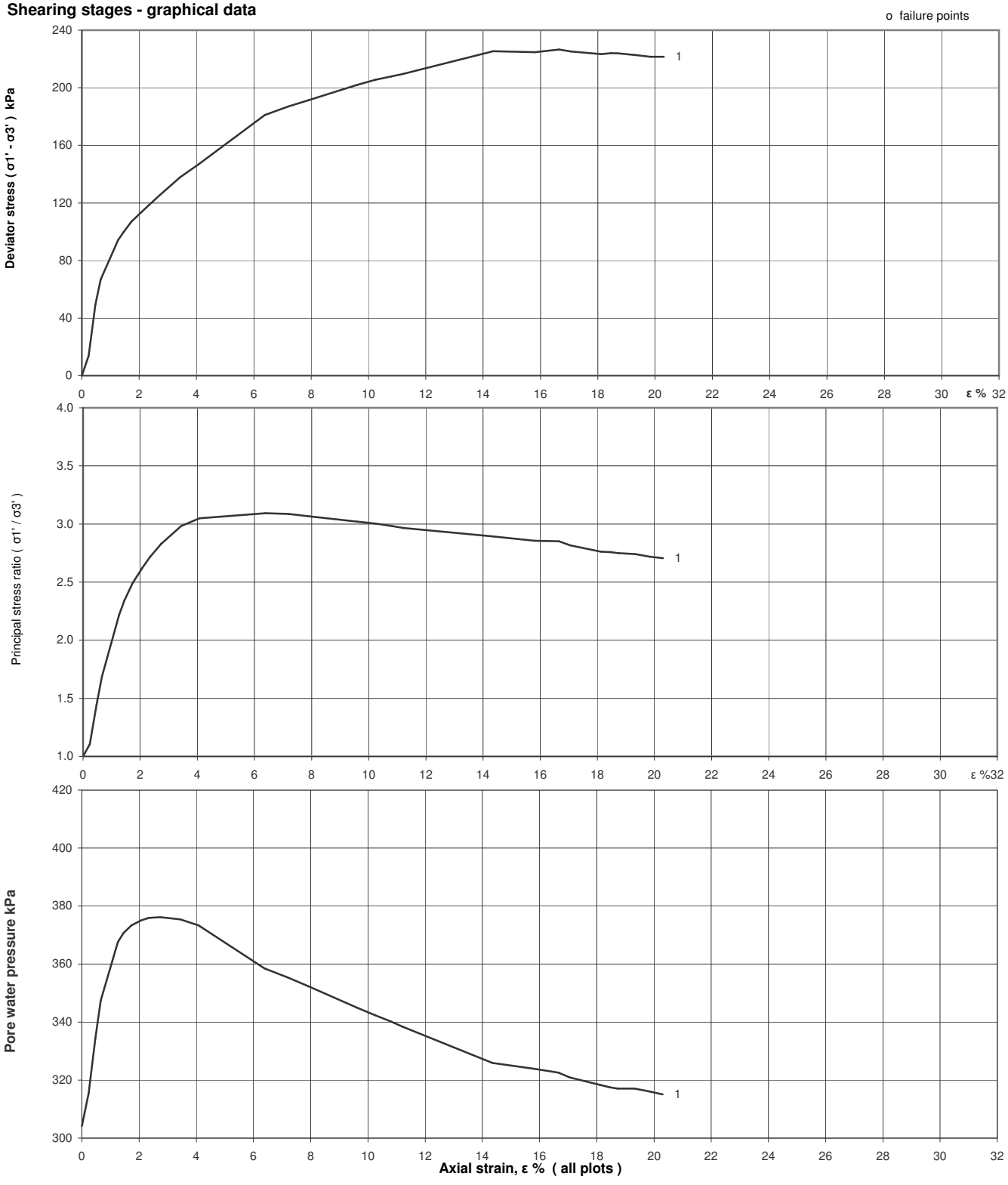
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		445			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		145			kPa
	Pore pressure at start of consolidation		432			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.83			m^2/year
	Coefficient of Compressibility	M_{vi}	0.12			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.6E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.00-13.45		
			No	34	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

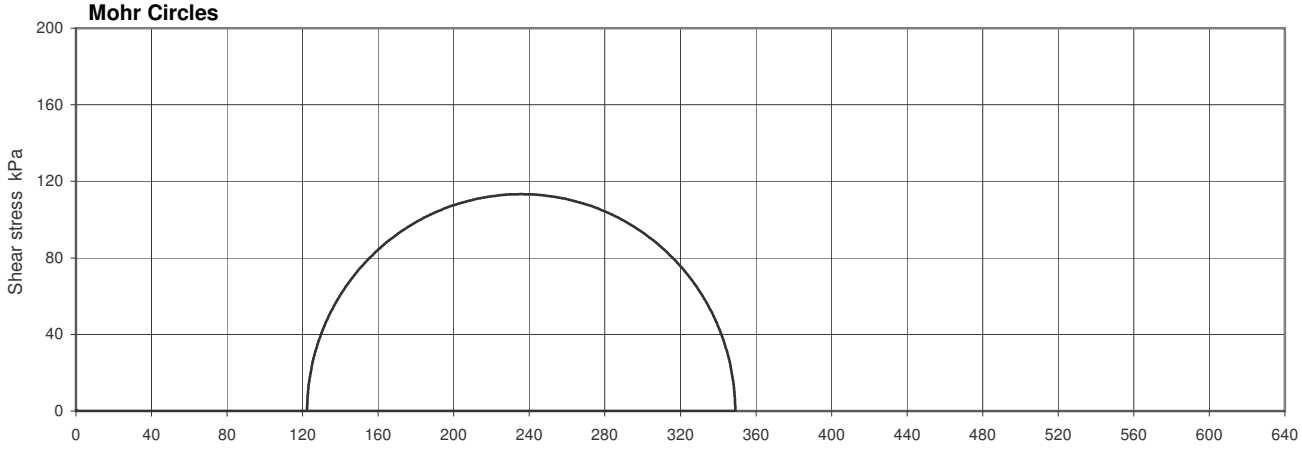


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:05	**CU** sheet 2 of 3

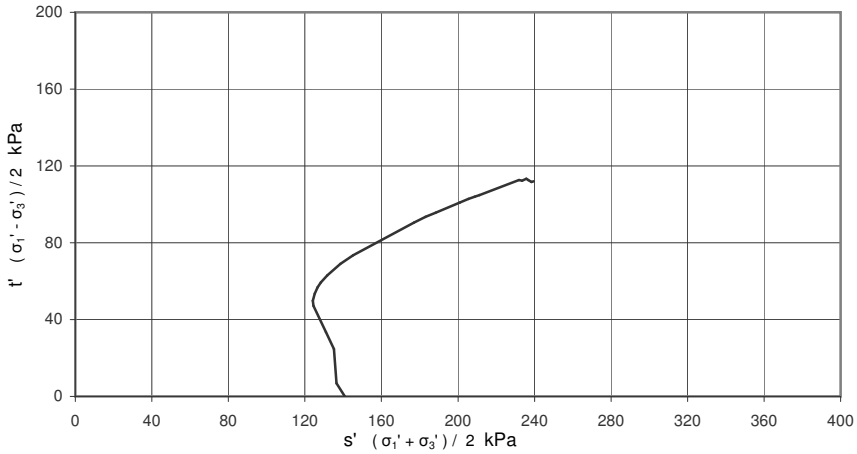
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.00-13.45		
			No	34	Type	UT
			ID			
			Spec Ref			

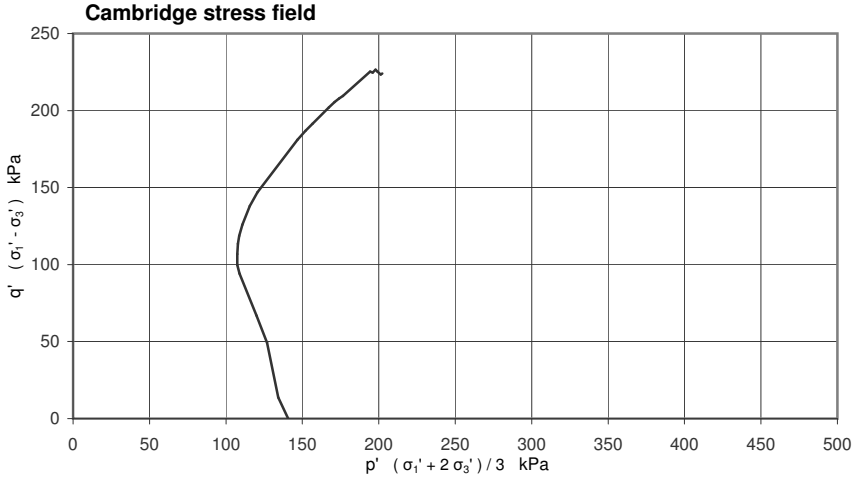
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	445			kPa
Initial pwp	304			kPa
Initial σ_3'	141			kPa
Rate of strain	0.68			%/hr

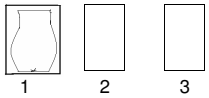
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	16.66			%
$(\sigma_1' / \sigma_3')_f$	2.851			
$(\sigma_1' - \sigma_3')_f$	226.6			kPa
u_f	323			kPa
$\sigma_3'_f$	122			kPa
$\sigma_1'_f$	349			kPa
A_f	0.08			
Time to failure	24.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.276 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:05	**CU** sheet 3 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

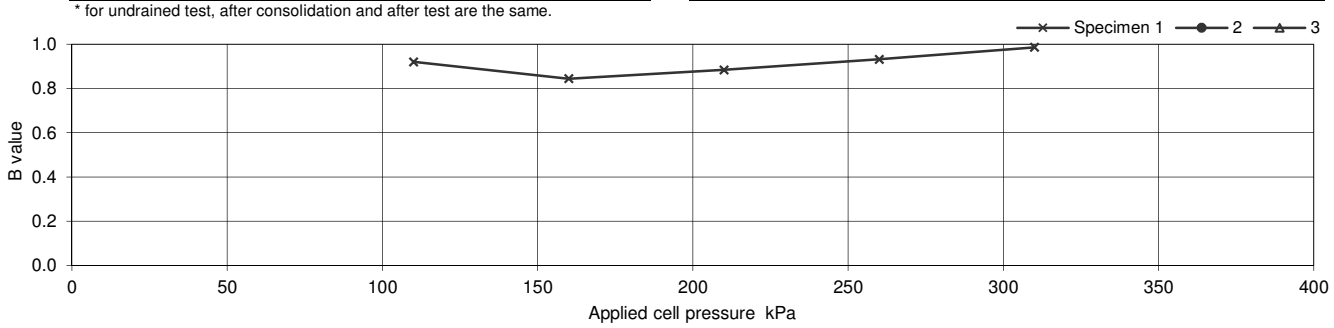
Project No	A5049-15	Sample Details:	Hole No	BH307	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.15-15.60	
			No	40	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	203.15		
	Diameter	mm	104.12		
	Bulk Density	Mg/m³	2.20		
	Water Content	%	15		
	Dry density	Mg/m³	1.91		
After consolidation	Length	mm	201.01		
	Diameter	mm	103.02		
	Bulk Density*	Mg/m³	2.24		
	Water Content*	%	14		
	Dry density*	Mg/m³	1.97		

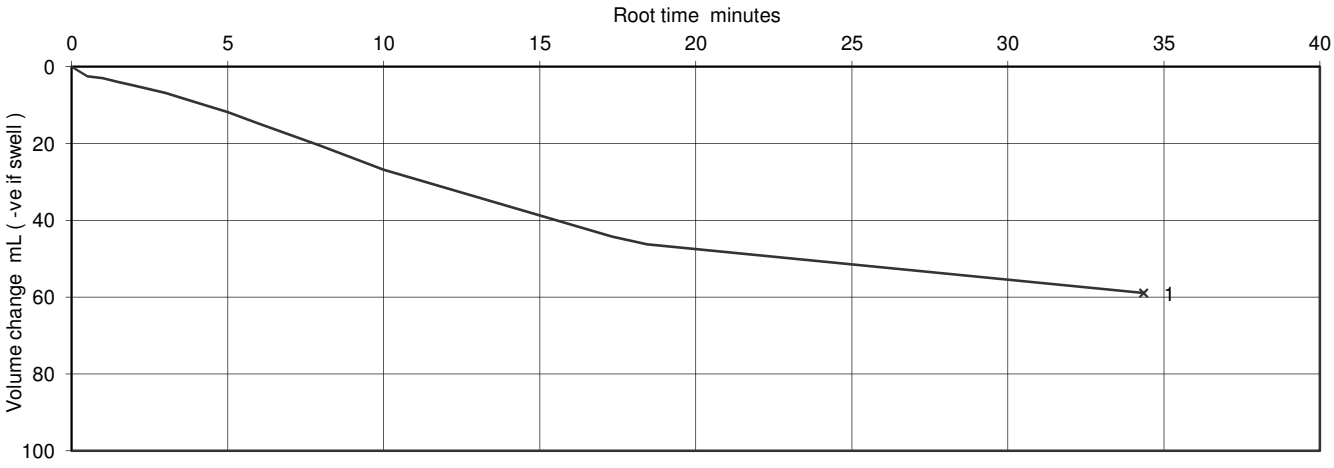
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm to stiff brown slightly gravelly CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	310		
Final pore water pressure	kPa	296.4		
Final B Value		0.99		



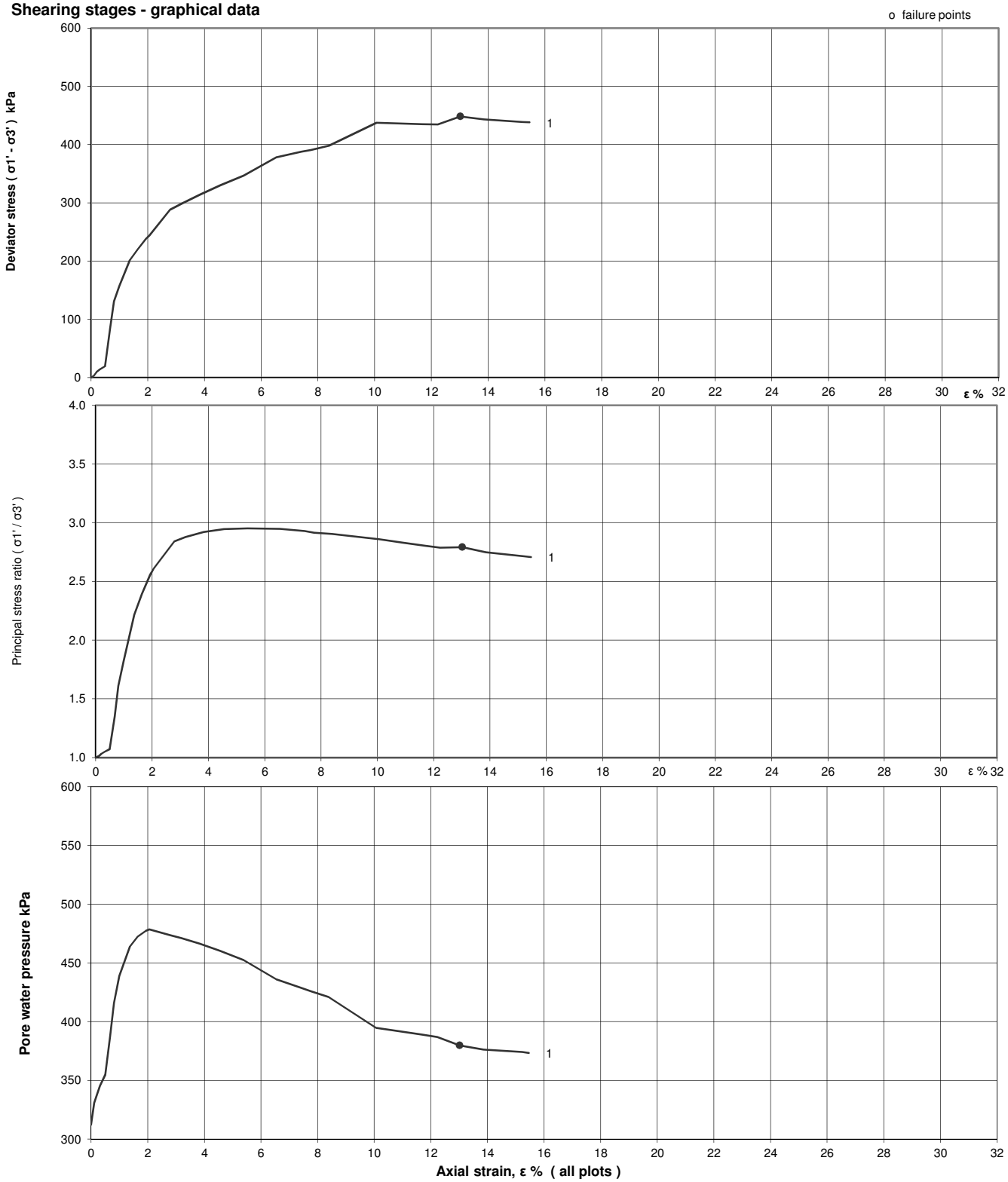
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		630			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		330			kPa
	Pore pressure at start of consolidation		605			kPa
	Pore pressure at end of consolidation		312			kPa
	Pore pressure dissipation at end of consolidation		96			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.45			m^2/year
	Coefficient of Compressibility	M_{vi}	0.12			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.6E-11			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.15-15.60		
			No	40	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

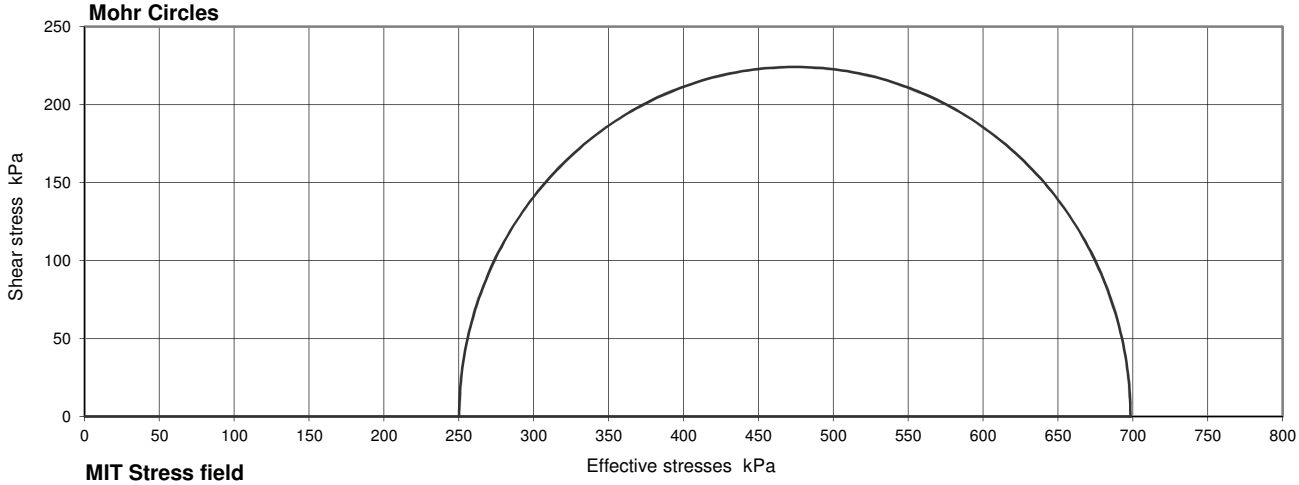


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:18/08/2015 14:56	**CU** sheet 2 of 3

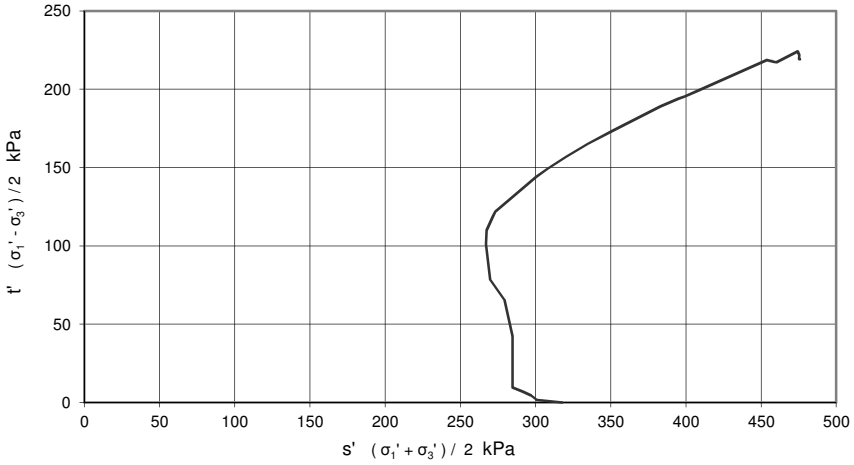
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.15-15.60		
			No	40	Type	U
			ID			
			Spec Ref			

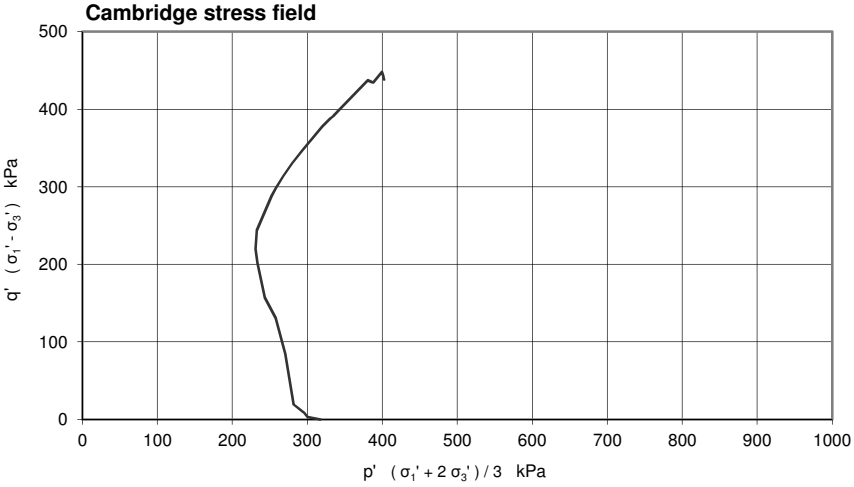
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	630			kPa
Initial pwp	312			kPa
Initial σ_3'	318			kPa
Rate of strain	0.32			%/hr

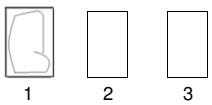
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	13.02			%
$(\sigma_1' / \sigma_3')_f$	2.792			
$(\sigma_1' - \sigma_3')_f$	448.3			kPa
u_f	380			kPa
$\sigma_3'_f$	250			kPa
$\sigma_1'_f$	698			kPa
A_f	0.15			
Time to failure	40.6			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.32 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

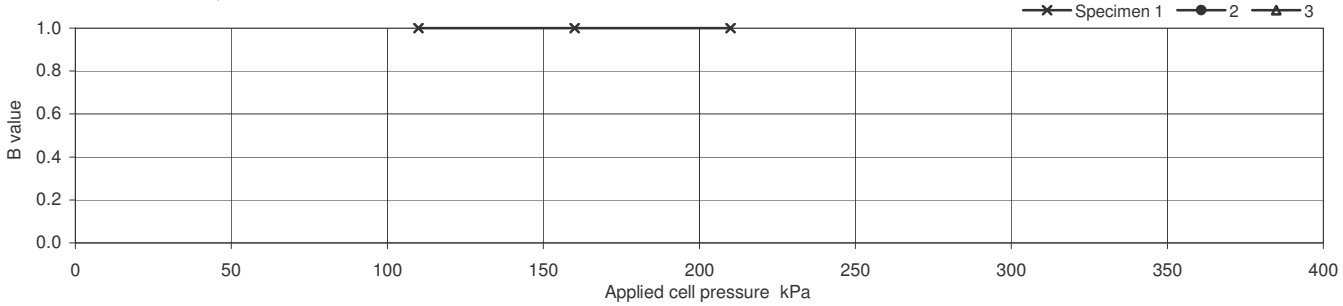
Project No	A5049-15	Sample Details:	Hole No	BH308	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.00-5.00	
			No	9	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	204.06		
	Diameter	mm	98.18		
	Bulk Density	Mg/m³	1.90		
	Water Content	%	35		
	Dry density	Mg/m³	1.41		
After consolidation	Length	mm	201.27		
	Diameter	mm	96.83		
	Bulk Density*	Mg/m³	1.93		
	Water Content*	%	32		
	Dry density*	Mg/m³	1.47		

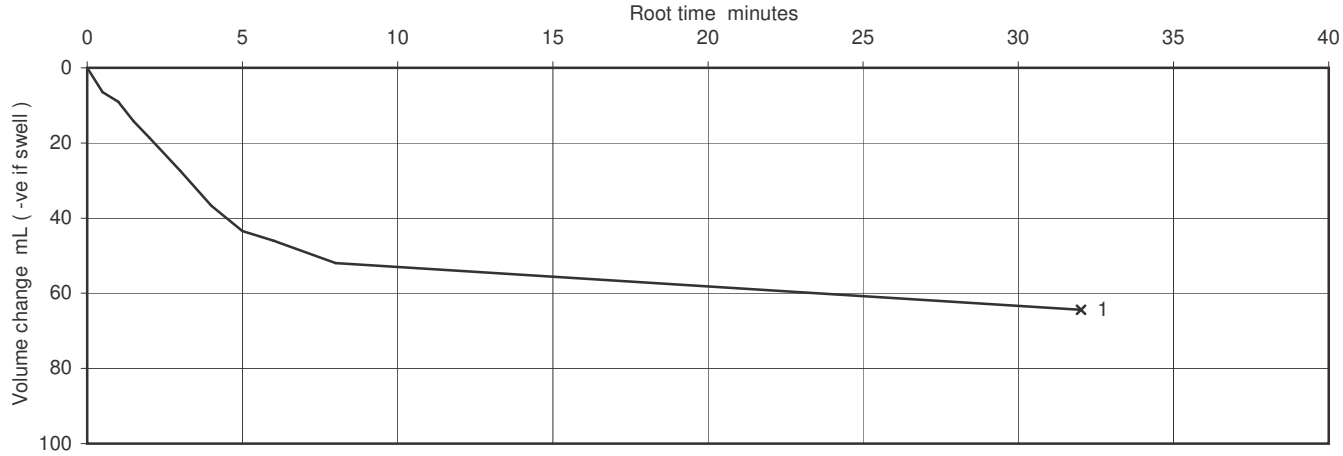
* for undrained test, after consolidation and after test are the same.

Soil Description	Brownish grey slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	208		
Final B Value		1.00		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		365			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		65			kPa
	Pore pressure at start of consolidation		363			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	3.79			m^2/year
	Coefficient of Compressibility	M_{vi}	0.66			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	7.7E-10			m/s

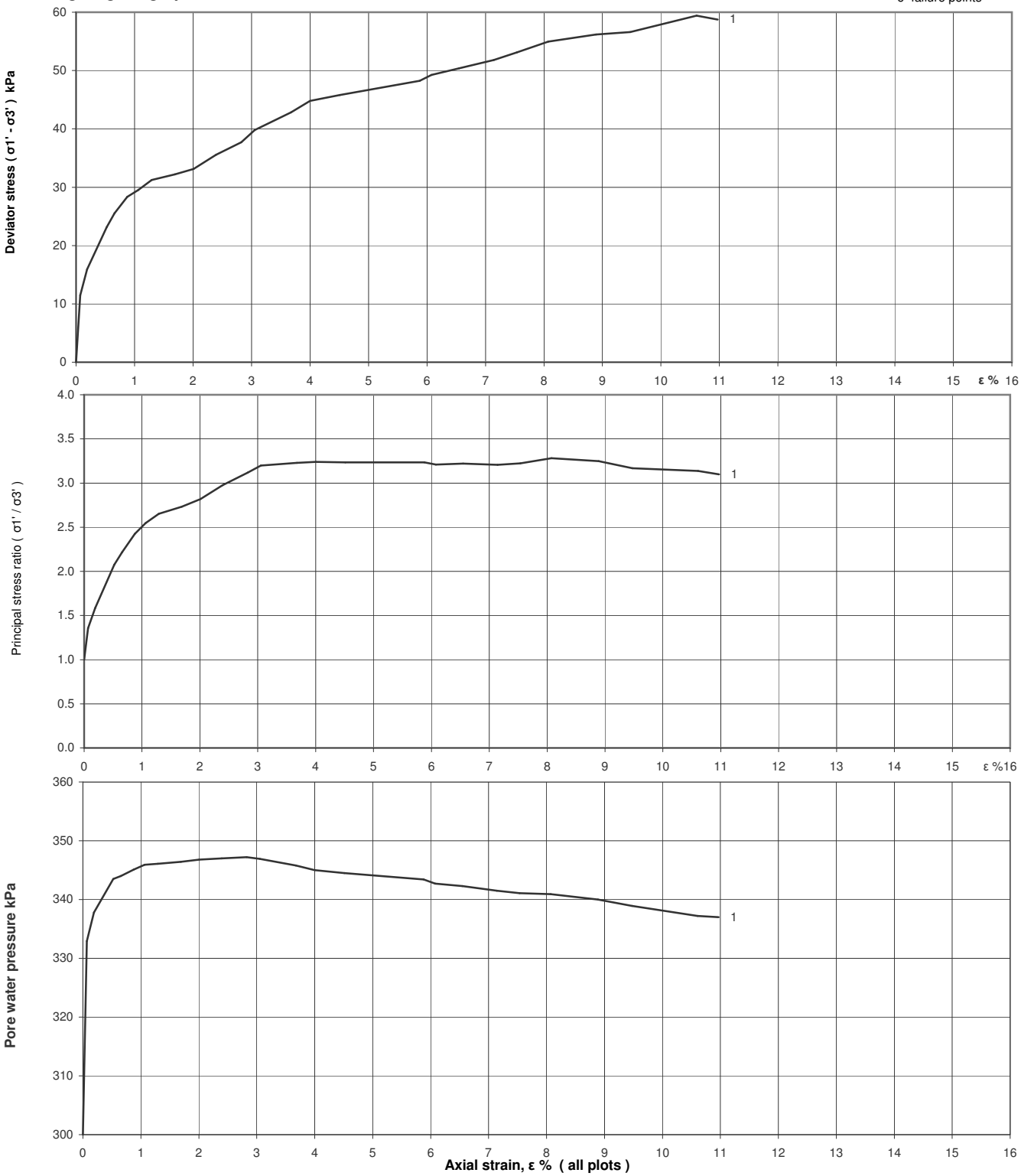


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.00-5.00		
			No	9	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

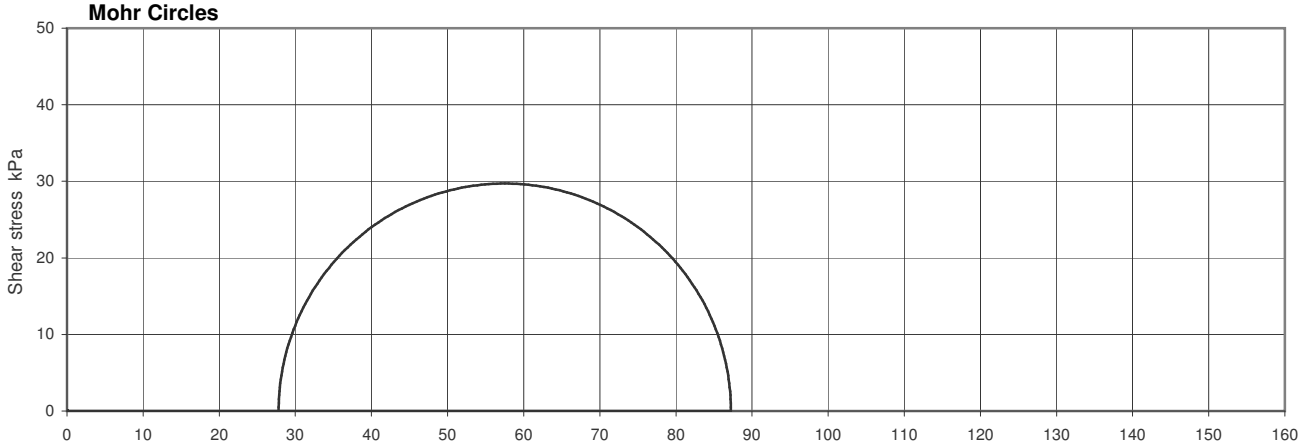


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:22	**CU** sheet 2 of 3

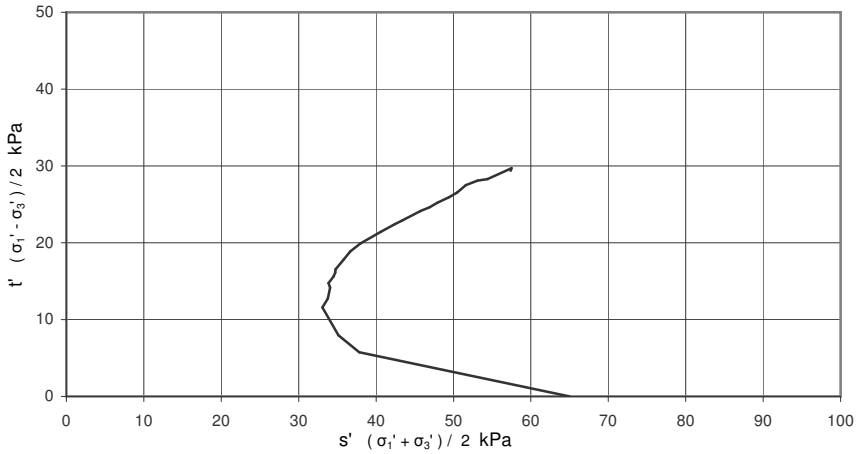
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.00-5.00		
			No	9	Type	P
			ID			
			Spec Ref			

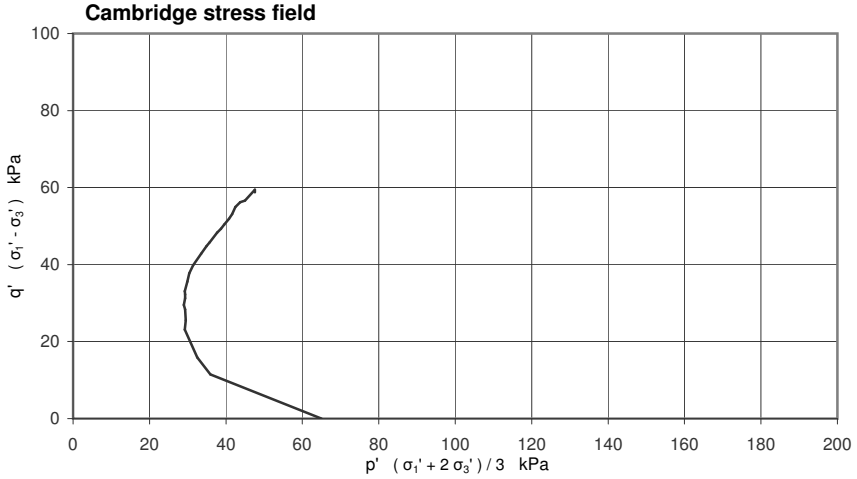
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	365			kPa
Initial pwp	300			kPa
Initial σ_3'	65			kPa
Rate of strain	2.00			%/hr

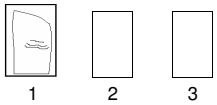
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	10.61			%
$(\sigma_1' / \sigma_3')_f$	3.138			
$(\sigma_1' - \sigma_3')_f$	59.4			kPa
u_f	337			kPa
$\sigma_3'_f$	28			kPa
$\sigma_1'_f$	87			kPa
A_f	0.63			
Time to failure	5.3			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



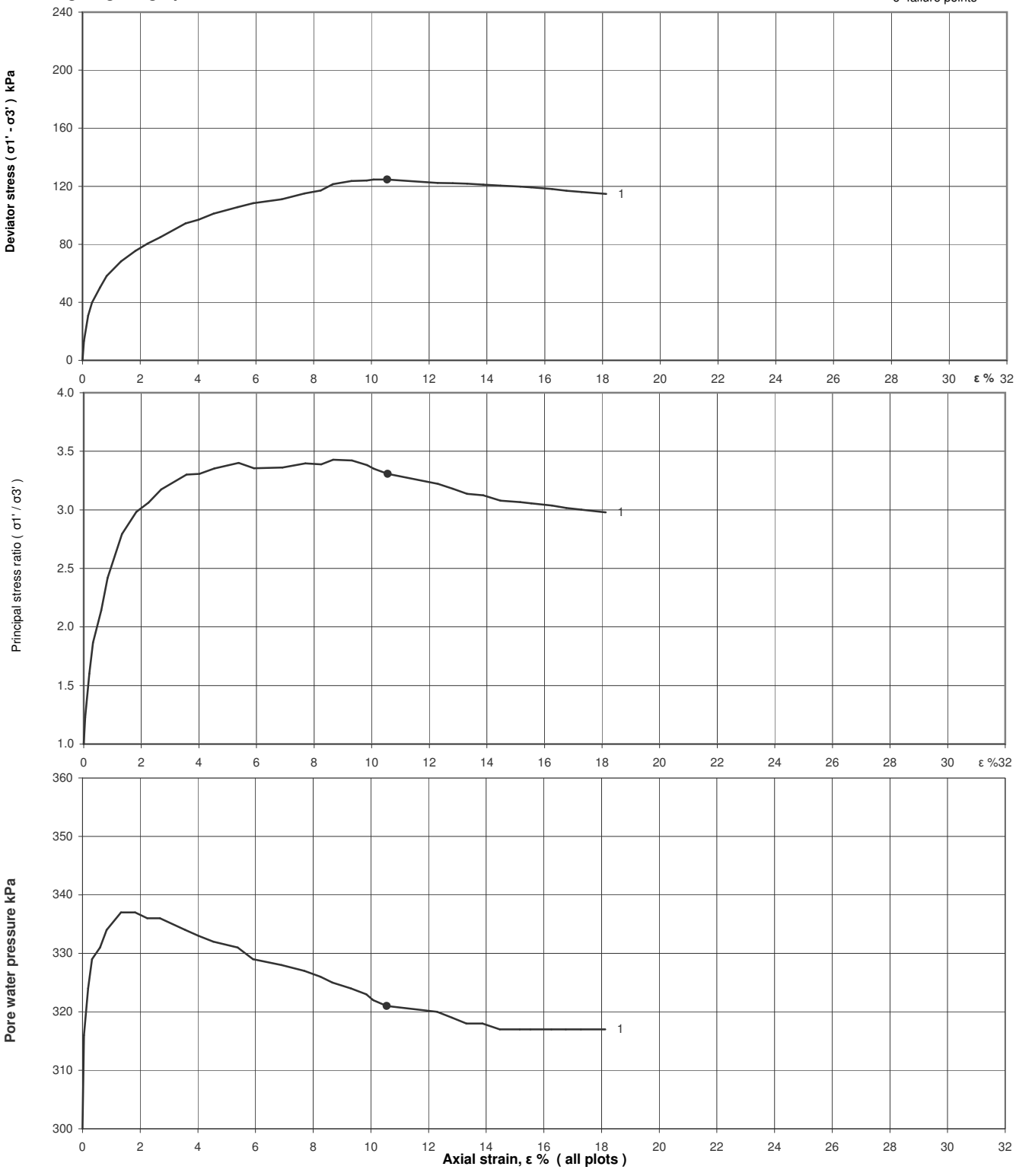
Notes : Deviator stresses corrected for area change, vertical side drains and 0.293 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.00-6.00		
			No	10	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:31	**CU** sheet 2 of 3

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

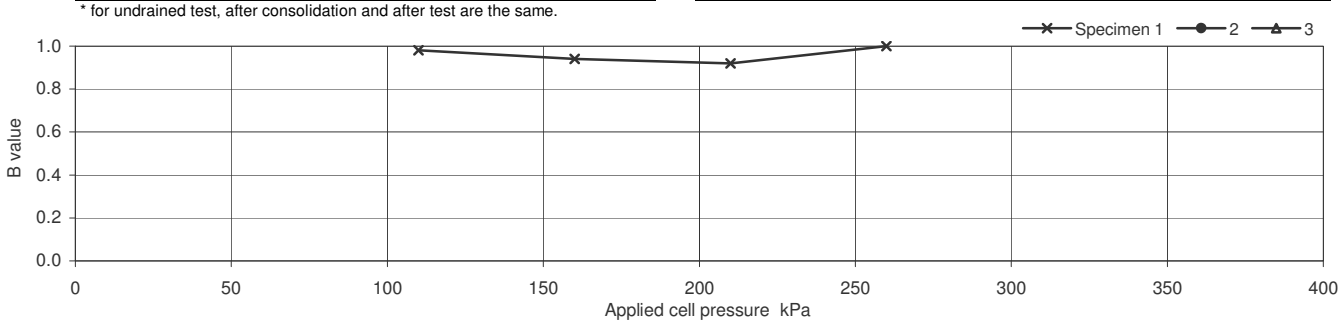
Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.00-6.00		
			No	10	Type	P
			ID			
			Spec Ref			

Specimen Details			1	2	3
Initial	Length	mm	203.10		
	Diameter	mm	97.45		
	Bulk Density	Mg/m³	1.93		
	Water Content	%	26		
	Dry density	Mg/m³	1.53		
After consolidation	Length	mm	202.89		
	Diameter	mm	97.35		
	Bulk Density*	Mg/m³	1.96		
	Water Content*	%	27		
	Dry density*	Mg/m³	1.54		

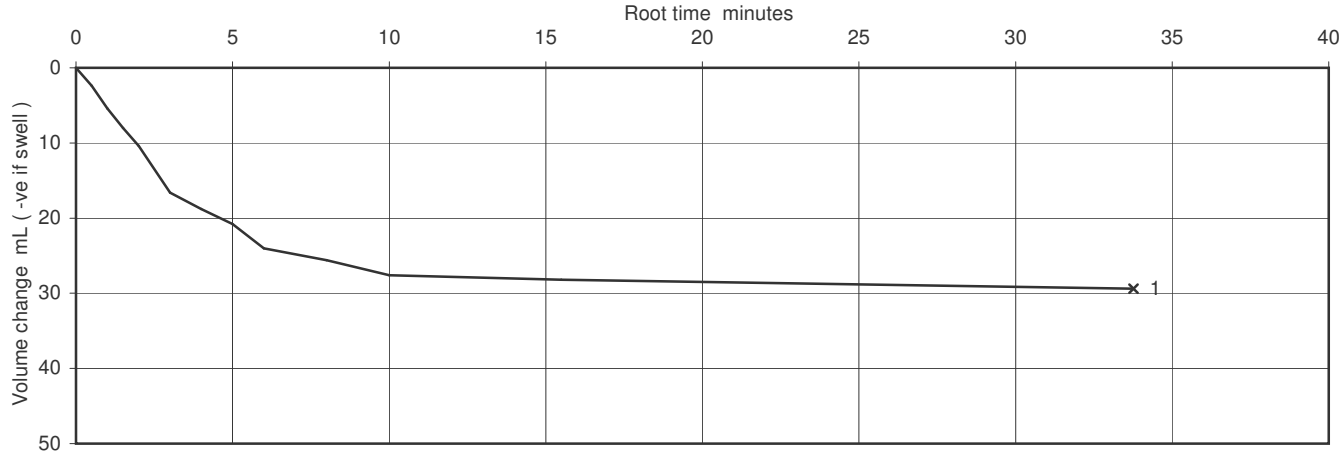
* for undrained test, after consolidation and after test are the same.

Soil Description	Dark grey slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	246		
Final B Value		1.00		



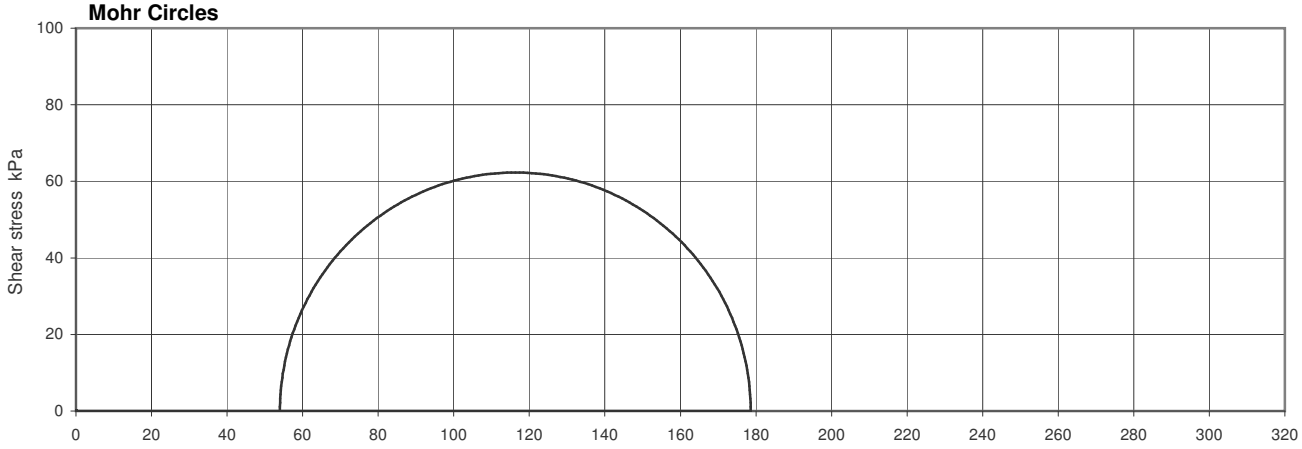
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		375			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		75			kPa
	Pore pressure at start of consolidation		373			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	6.13			m^2/year
	Coefficient of Compressibility	M_{vi}	0.26			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	5.0E-10			m/s



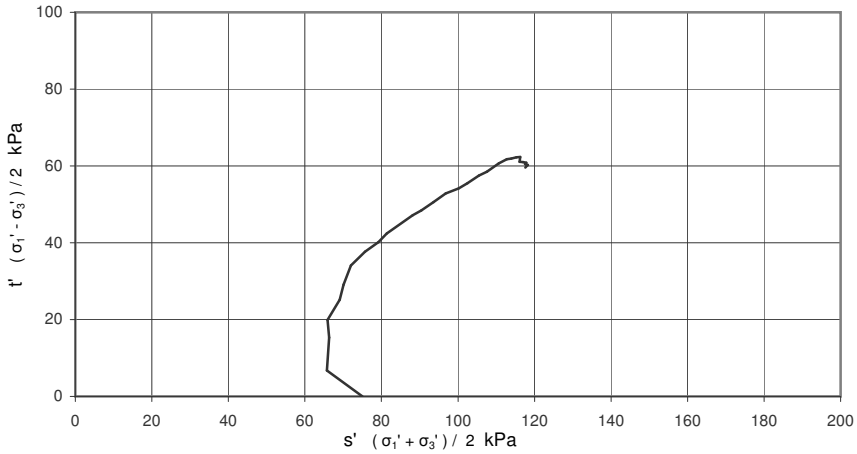
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	5.00-6.00		
			No	10	Type	P
			ID			
			Spec Ref			

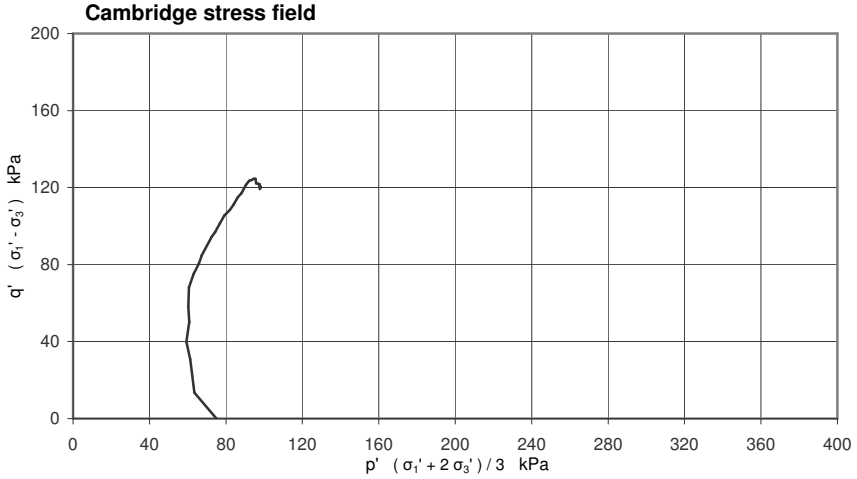
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	375			kPa
Initial pwp	300			kPa
Initial σ_3'	75			kPa
Rate of strain	2.00			%/hr

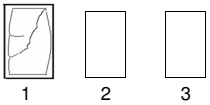
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	10.55			%
$(\sigma_1' / \sigma_3')_f$	3.307			
$(\sigma_1' - \sigma_3')_f$	124.6			kPa
u_f	321			kPa
$\sigma_3'_f$	54			kPa
$\sigma_1'_f$	179			kPa
A_f	0.17			
Time to failure	5.3			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.346 mm thick rubber membrane(s)

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

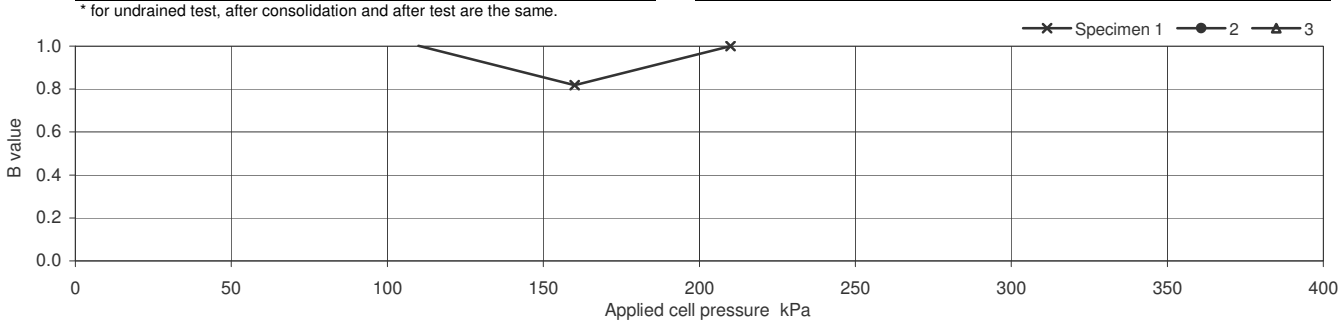
Project No	A5049-15	Sample Details:	Hole No	BH308	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.65-7.65	
			No	14	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.72		
	Diameter	mm	97.04		
	Bulk Density	Mg/m³	1.86		
	Water Content	%	37		
	Dry density	Mg/m³	1.36		
After consolidation	Length	mm	199.06		
	Diameter	mm	95.27		
	Bulk Density*	Mg/m³	1.91		
	Water Content*	%	33		
	Dry density*	Mg/m³	1.43		

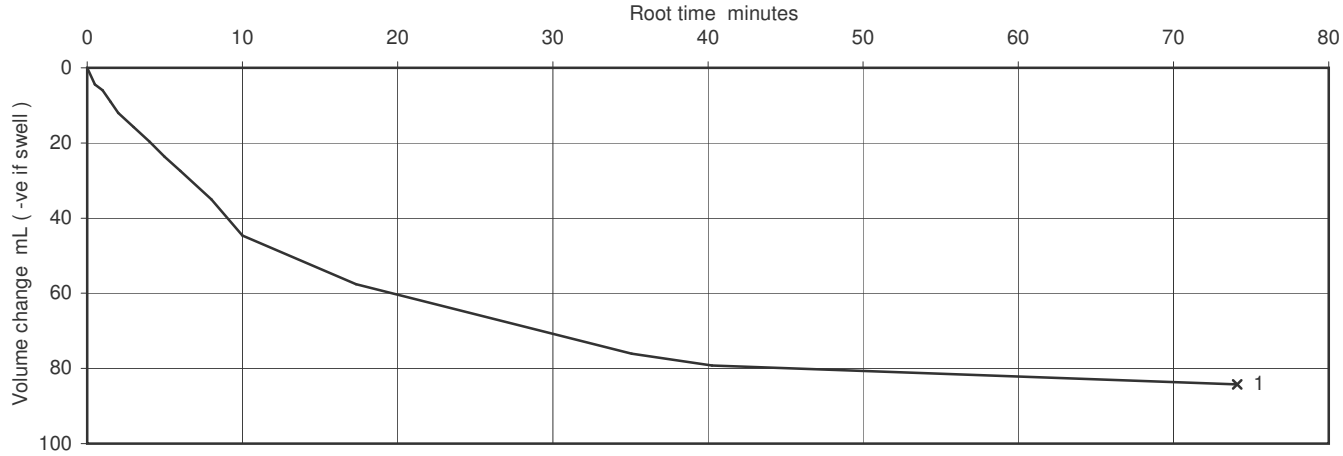
* for undrained test, after consolidation and after test are the same.

Soil Description	Black slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	195.8		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		480			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		180			kPa
	Pore pressure at start of consolidation		464			kPa
	Pore pressure at end of consolidation		302			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.45			m^2/year
	Coefficient of Compressibility	M_{vi}	0.35			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	4.9E-11			m/s

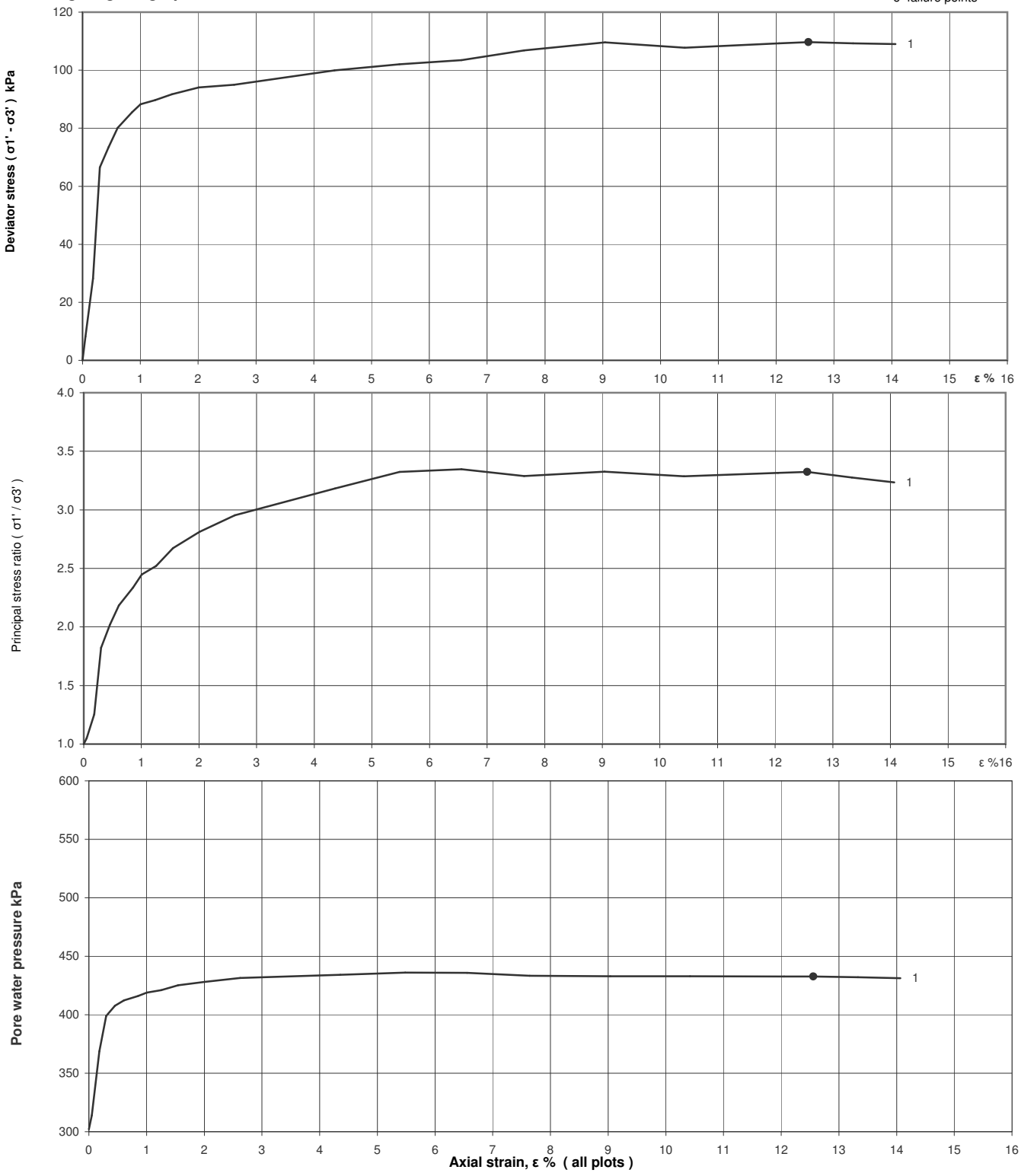


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.65-7.65		
			No	14	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

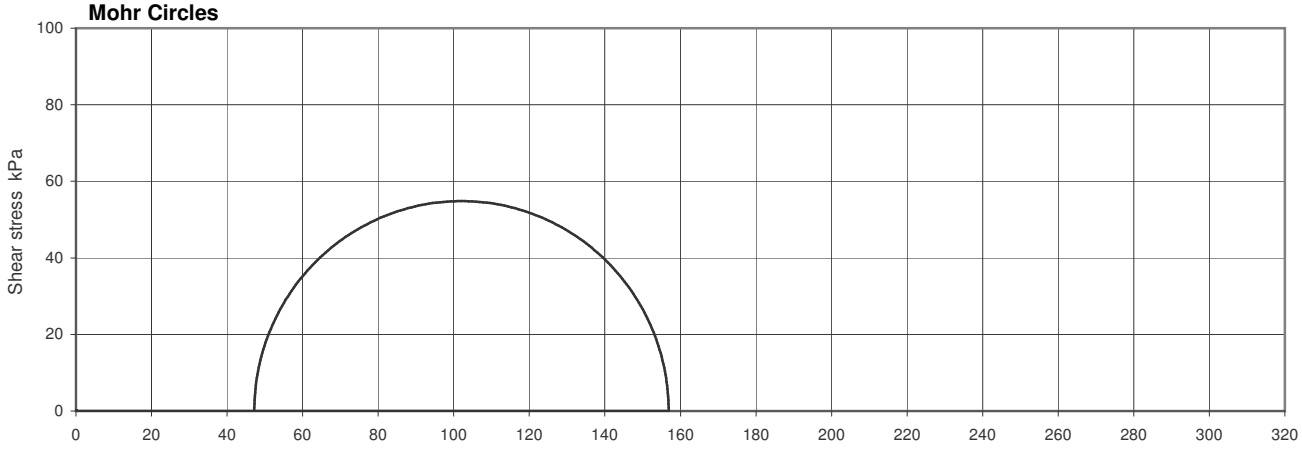


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:32	**CU** sheet 2 of 3

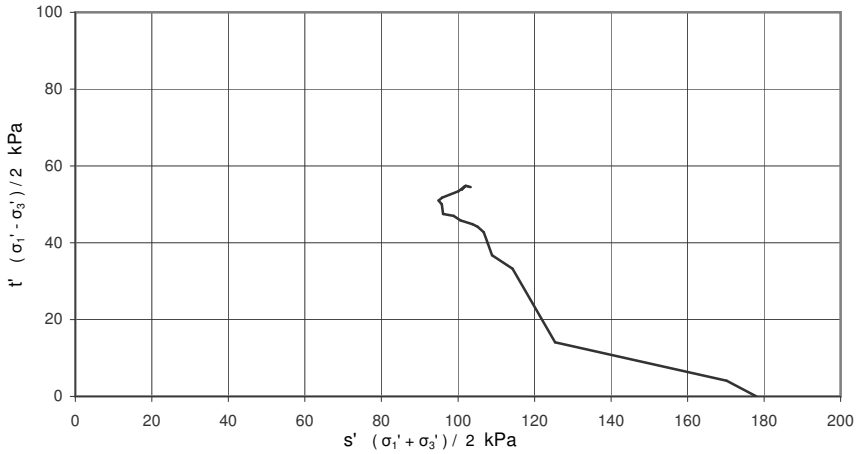
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	6.65-7.65		
			No	14	Type	P
			ID			
			Spec Ref			

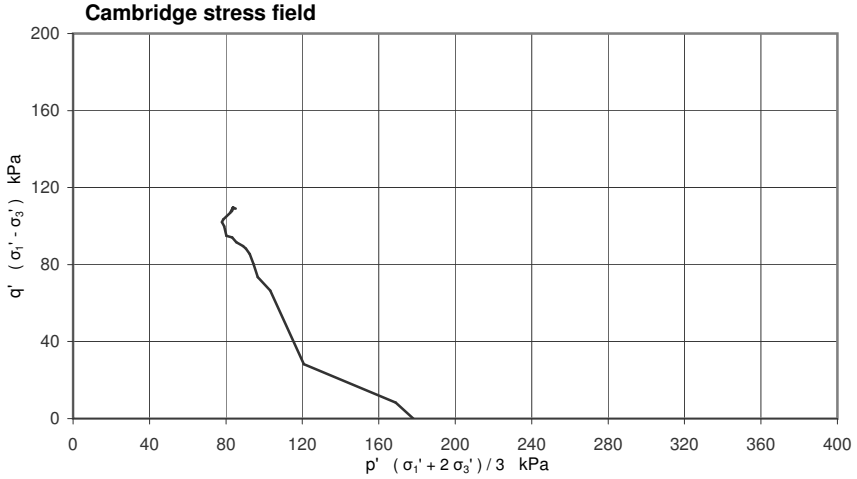
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	480			kPa
Initial pwp	302			kPa
Initial σ_3'	178			kPa
Rate of strain	1.25			%/hr

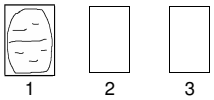
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.56			%
$(\sigma_1' / \sigma_3')_f$	3.324			
$(\sigma_1' - \sigma_3')_f$	109.7			kPa
u_f	433			kPa
$\sigma_3'_f$	47			kPa
$\sigma_1'_f$	157			kPa
A_f	1.19			
Time to failure	10.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.346 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

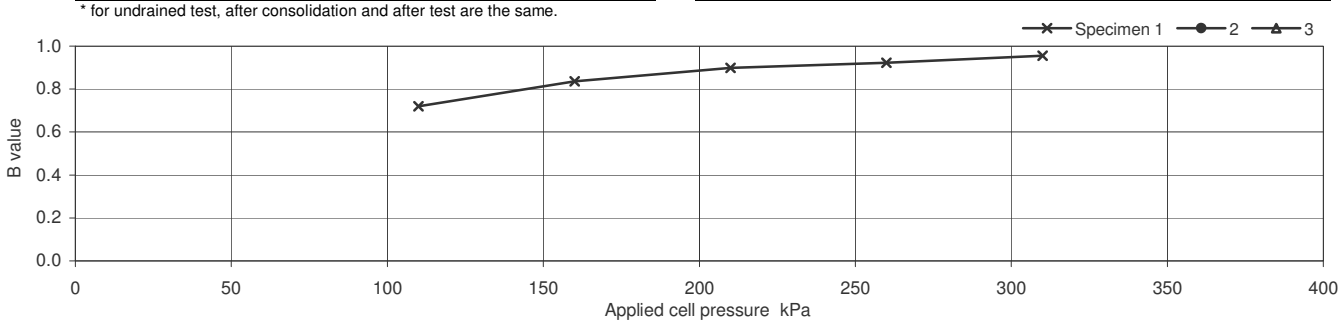
Project No	A5049-15	Sample Details:	Hole No	BH308	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.75-9.75	
			No	18	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	190.51		
	Diameter	mm	97.42		
	Bulk Density	Mg/m³	1.81		
	Water Content	%	39		
	Dry density	Mg/m³	1.31		
After consolidation	Length	mm	186.53		
	Diameter	mm	95.36		
	Bulk Density*	Mg/m³	1.87		
	Water Content*	%	34		
	Dry density*	Mg/m³	1.39		

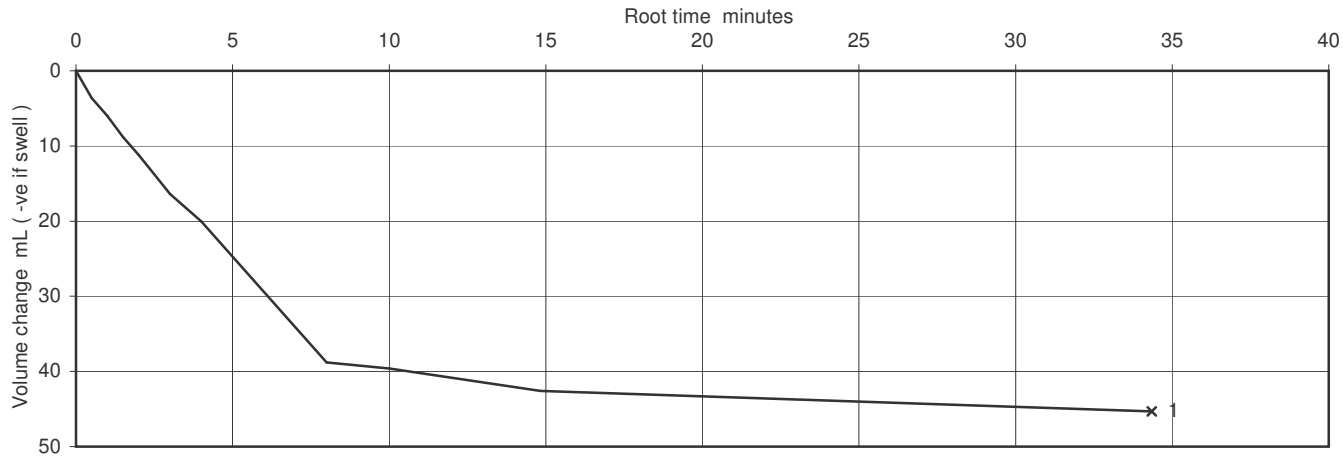
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft black slightly sandy organic SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	310		
Final pore water pressure	kPa	298.9		
Final B Value		0.96		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		405			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		105			kPa
	Pore pressure at start of consolidation		390			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.40			m^2/year
	Coefficient of Compressibility	M_{vi}	0.37			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.7E-10			m/s

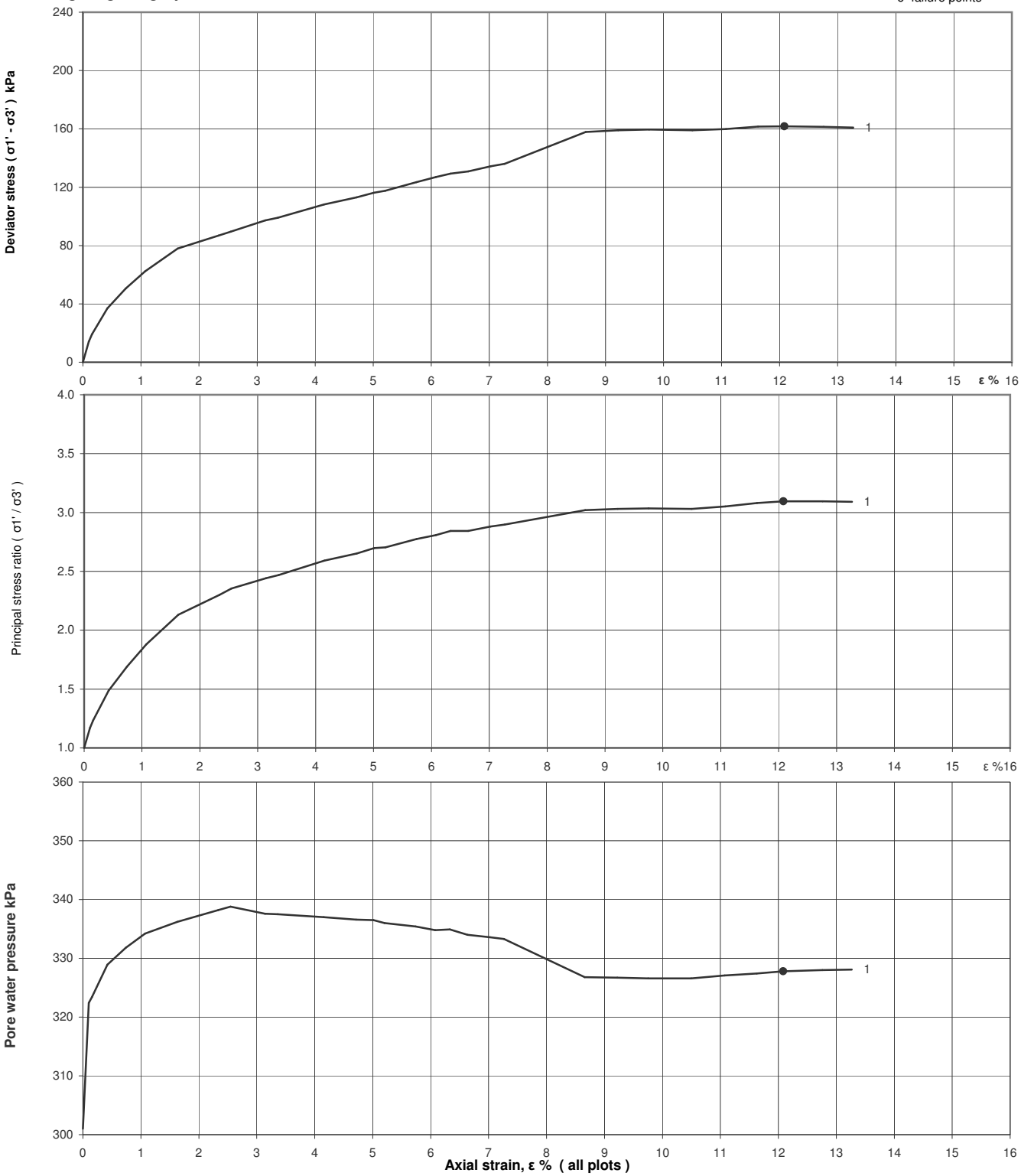


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.75-9.75		
			No	18	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

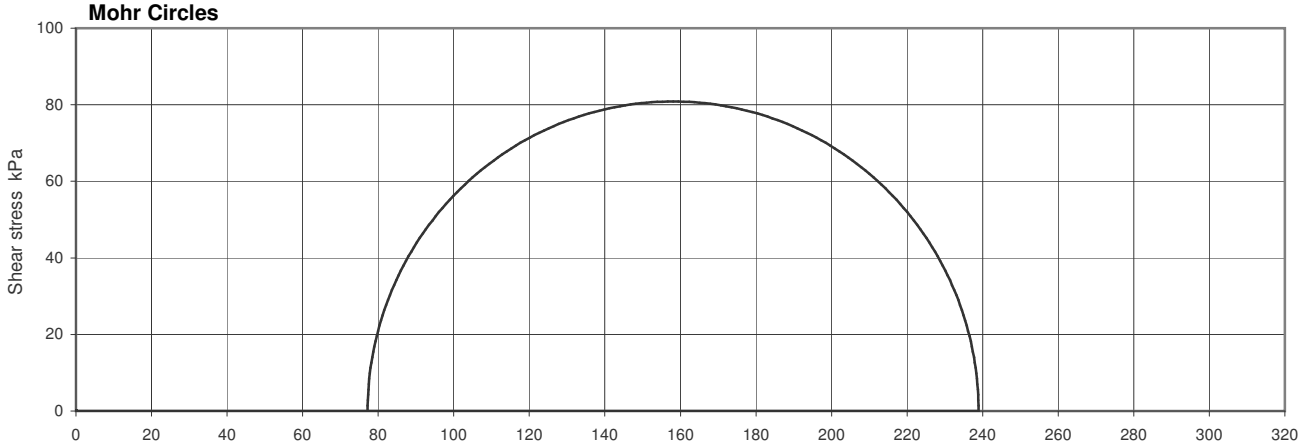


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 15:03	**CU** sheet 2 of 3

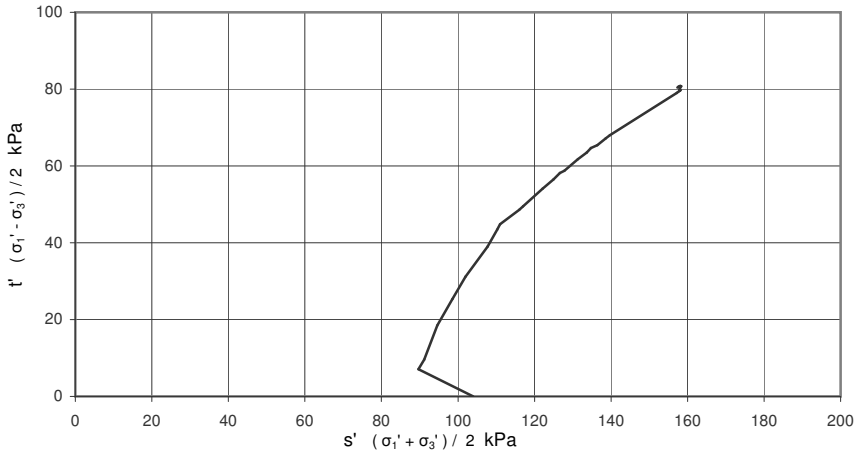
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.75-9.75		
			No	18	Type	P
			ID			
			Spec Ref			

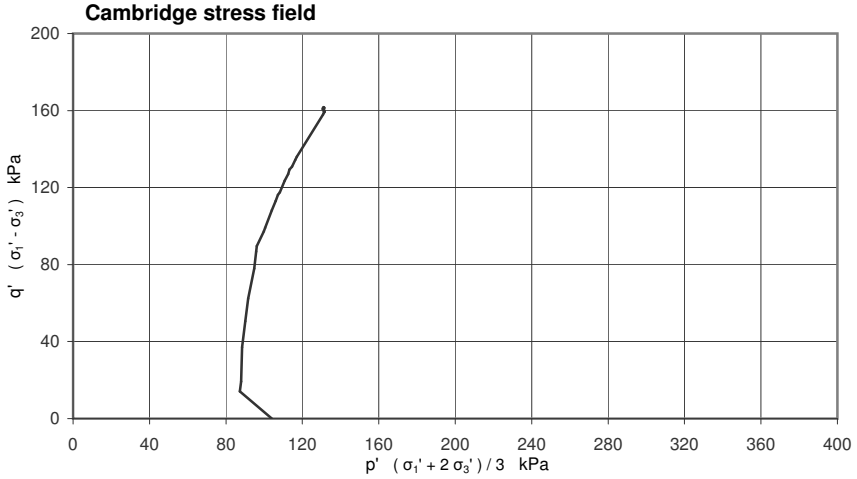
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	405			kPa
Initial pwp	301			kPa
Initial σ_3'	104			kPa
Rate of strain	1.00			%/hr

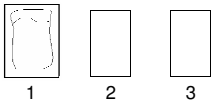
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.08			%
$(\sigma_1' / \sigma_3')_f$	3.095			
$(\sigma_1' - \sigma_3')_f$	161.7			kPa
u_f	328			kPa
$\sigma_3'_f$	77			kPa
$\sigma_1'_f$	239			kPa
A_f	0.17			
Time to failure	12.1			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.279 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation

UKAS TESTING 1157

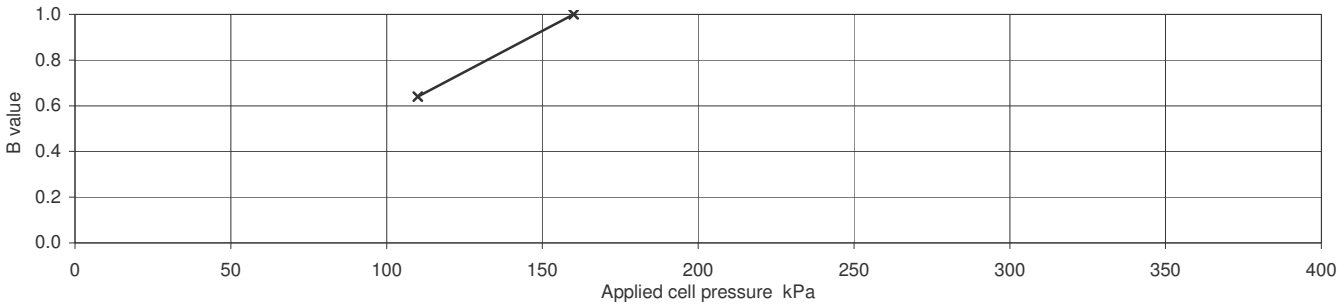
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.80-16.25		
			No	34	Type	U
			ID			
			Spec Ref			

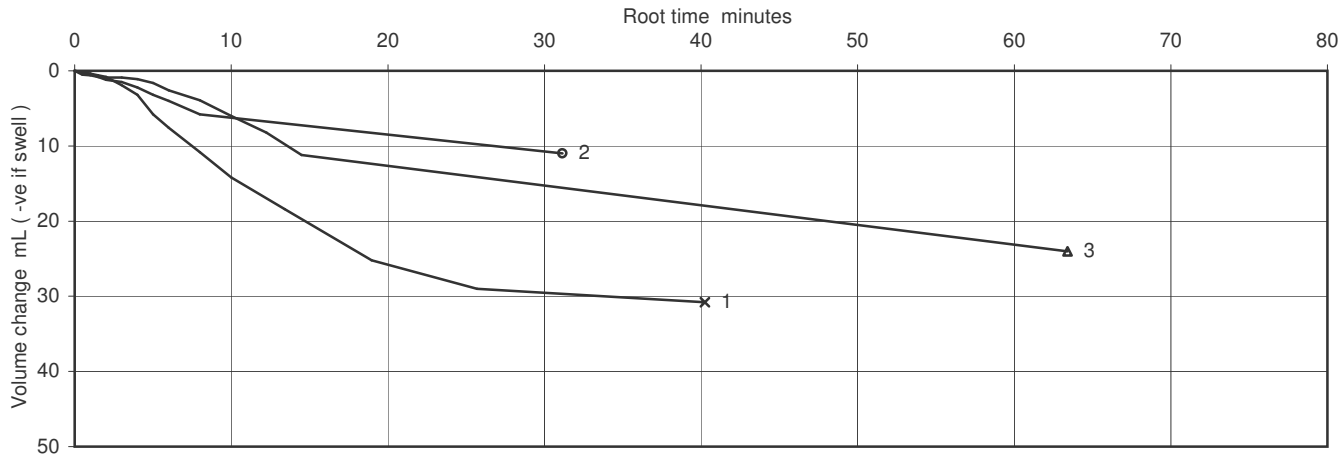
Specimen Details		
Initial		
Length	mm	203.99
Diameter	mm	104.26
Bulk Density	Mg/m³	2.11
Water Content	%	19
Dry density	Mg/m³	1.78
After test		
Bulk Density	Mg/m³	2.13
Water Content	%	18
Dry density	Mg/m³	1.81

Soil Description	Stiff brown slightly gravely slightly sandy CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation
Cell pressure increments	kPa	50
Differential Pressure	kPa	110
Final Cell Pressure	kPa	160
Final pore water pressure	kPa	147
Final B Value		1



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Stage No.		1	2	3	
	Cell Pressure applied		383	465	630	kPa
	Back Pressure applied		300	300	300	kPa
	Effective Pressure		83	165	330	kPa
	Pore pressure at start of consolidation		366	393	508	kPa
	Pore pressure at end of consolidation		300	303	301	kPa
	Pore pressure dissipation at end of consolidation		100	97	100	%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.45	1.12	0.23	m^2/year
	Coefficient of Compressibility	M_{vi}	0.26	0.07	0.07	m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.6E-11	2.4E-11	4.9E-12	m/s

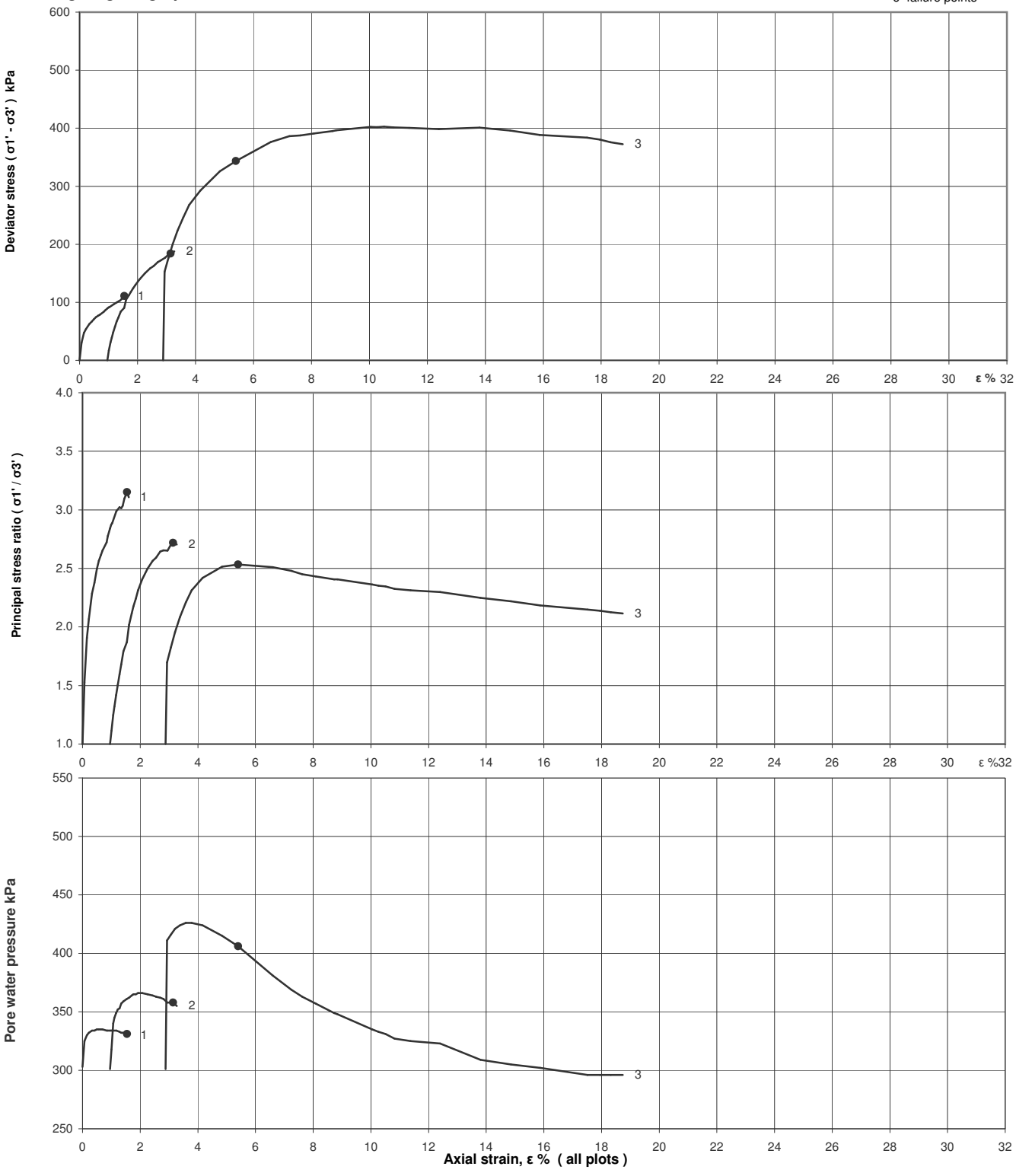


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.80-16.25		
			No	34	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

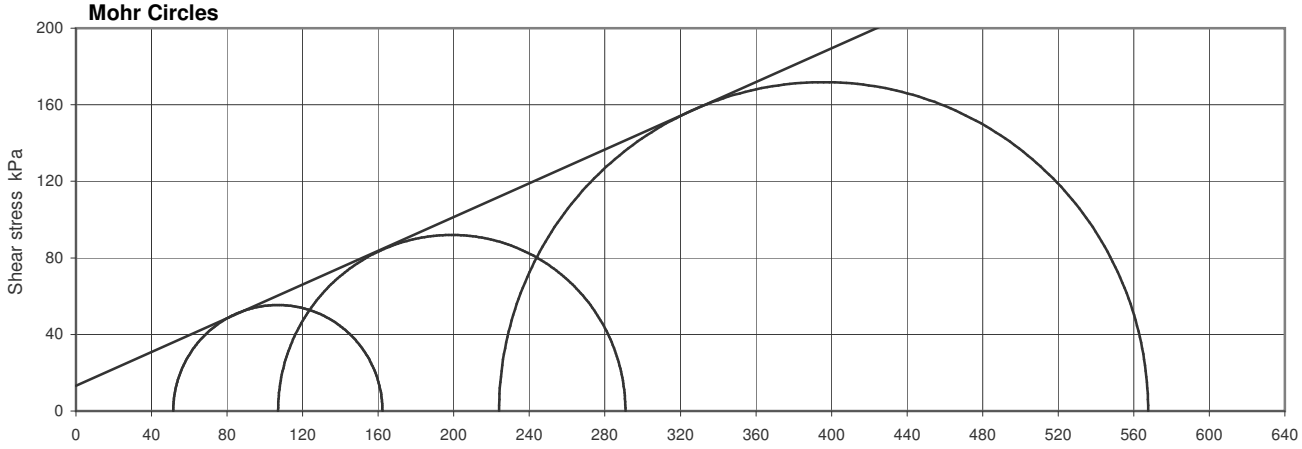


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:47	**CUM** sheet 2 of 3

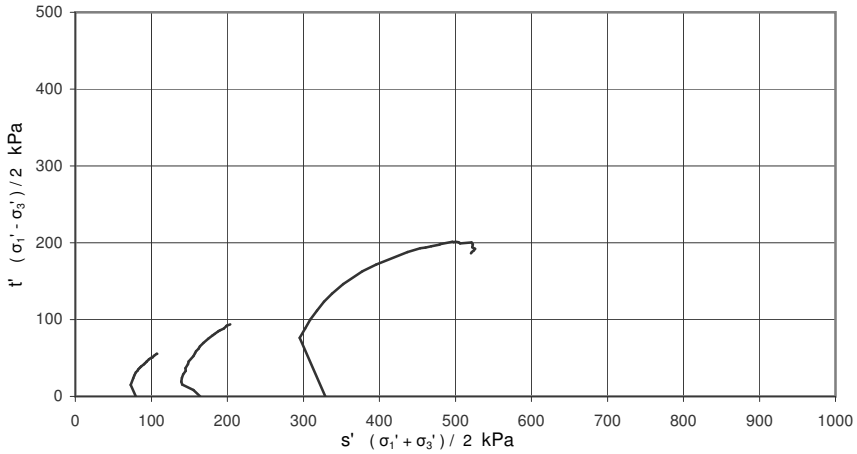
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	15.80-16.25		
			No	34	Type	U
			ID			
			Spec Ref			

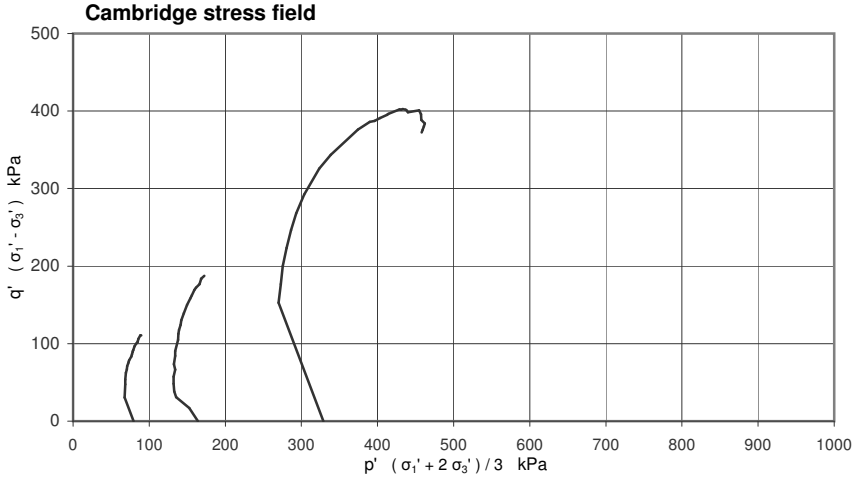
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Stage	1	2	3	
Cell pressure	382.5	465	630	kPa
Initial pwp	303	301	301	kPa
Initial σ_3'	80	164	329	kPa
Rate of strain	0.32	0.32	0.32	%/hr

Failure conditions

Criterion				
Axial strain	1.55	3.15	5.40	%
$(\sigma_1' / \sigma_3')_f$	3.151	2.719	2.534	
$(\sigma_1' - \sigma_3')_f$	110.8	183.9	343.6	kPa
u_f	331	358	406	kPa
$\sigma_3'_f$	52	107	224	kPa
$\sigma_1'_f$	162	291	568	kPa
A_f	0.25	0.31	0.31	
Time to failure	4.9	9.9	16.9	hrs

Shear Strength Parameters

		Linear regression
c '	kPa	13.1
Ø '	degrees	23.8
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure

Notes : Deviator stresses corrected for area change, vertical side drains and 0.319 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

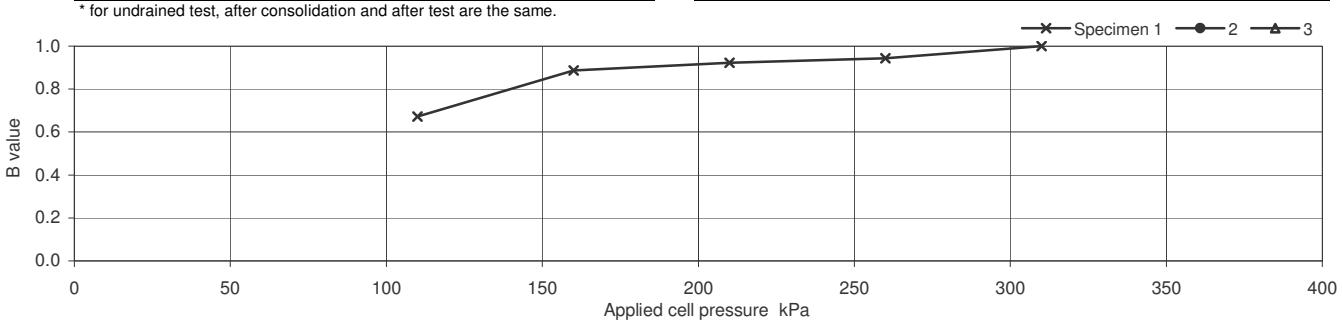
Project No	A5049-15	Sample Details:	Hole No	BH308	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	17.40-17.85	
			No	40	Type U
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.82		
	Diameter	mm	103.84		
	Bulk Density	Mg/m³	2.03		
	Water Content	%	24		
	Dry density	Mg/m³	1.63		
After consolidation	Length	mm	200.99		
	Diameter	mm	102.89		
	Bulk Density*	Mg/m³	2.06		
	Water Content*	%	23		
	Dry density*	Mg/m³	1.68		

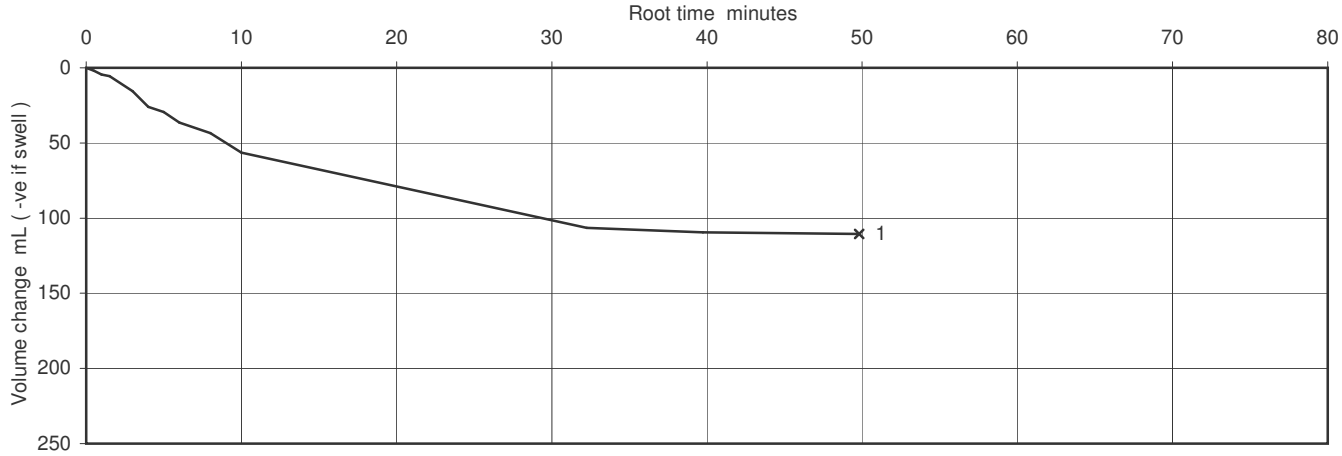
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm dark brown slightly sandy CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	310		
Final pore water pressure	kPa	301.3		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		670			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		370			kPa
	Pore pressure at start of consolidation		658			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.61			m^2/year
	Coefficient of Compressibility	M_{vi}	0.17			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.3E-11			m/s

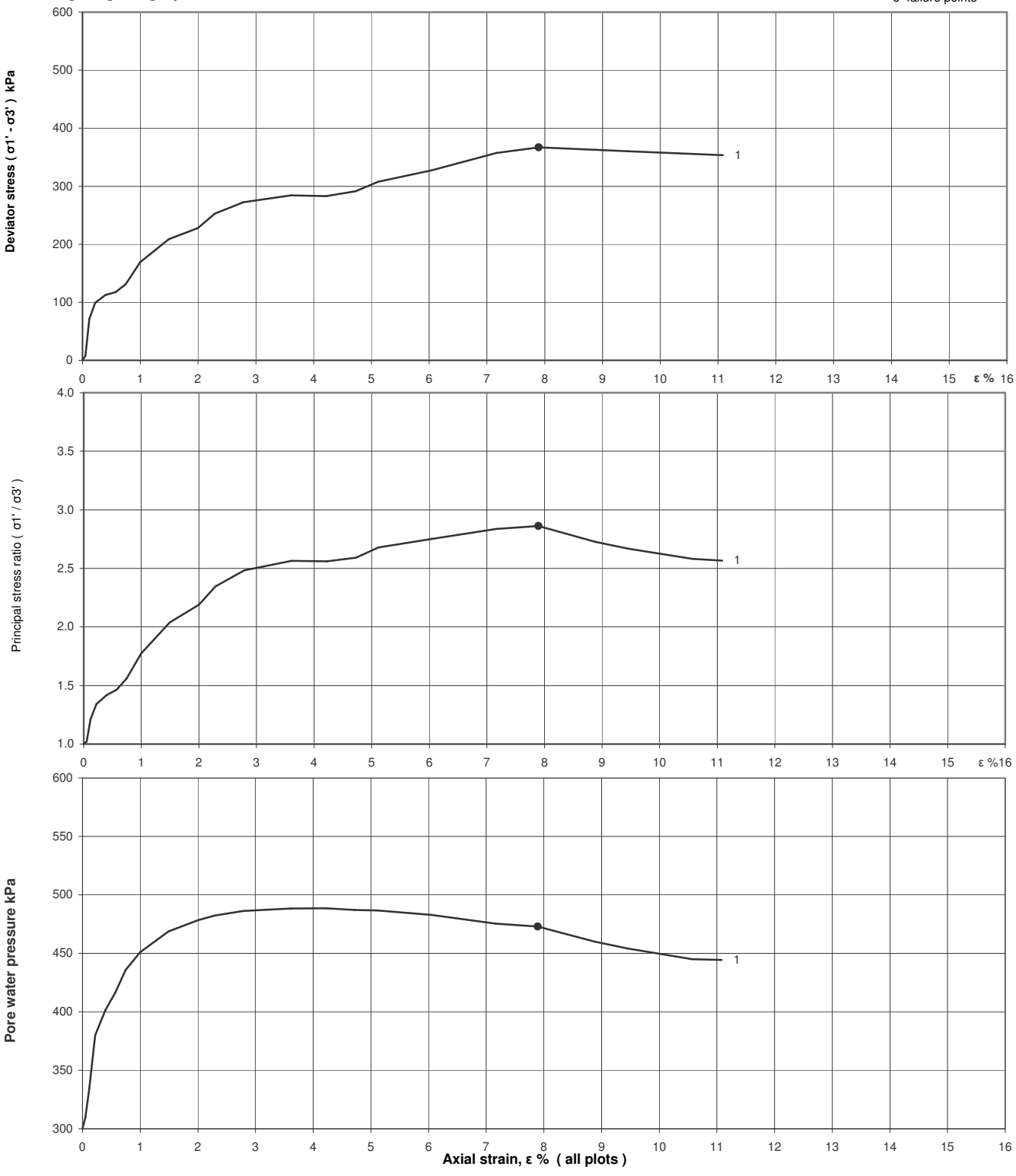


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	17.40-17.85		
			No	40	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

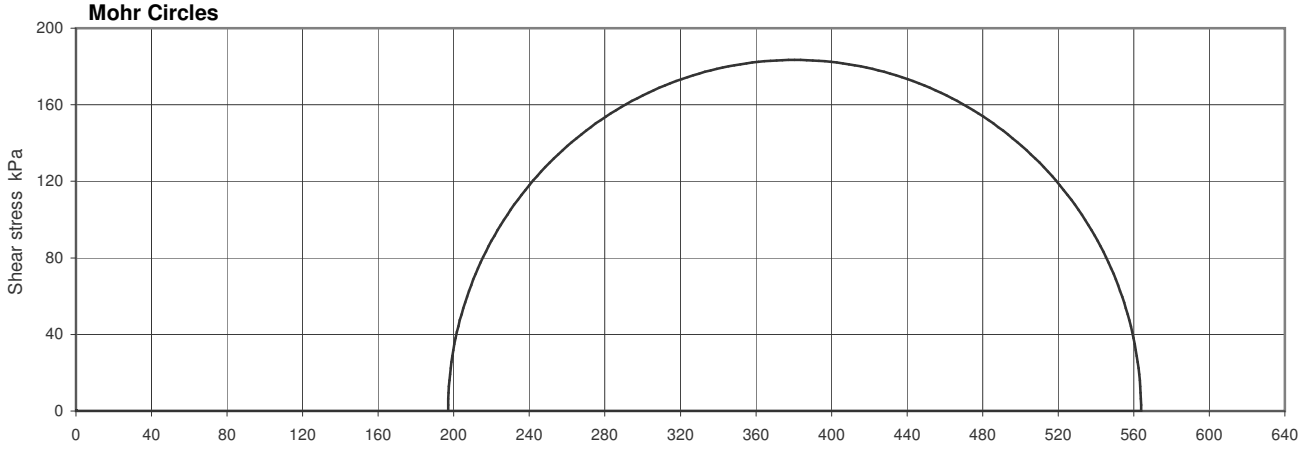


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:48	**CU** sheet 2 of 3

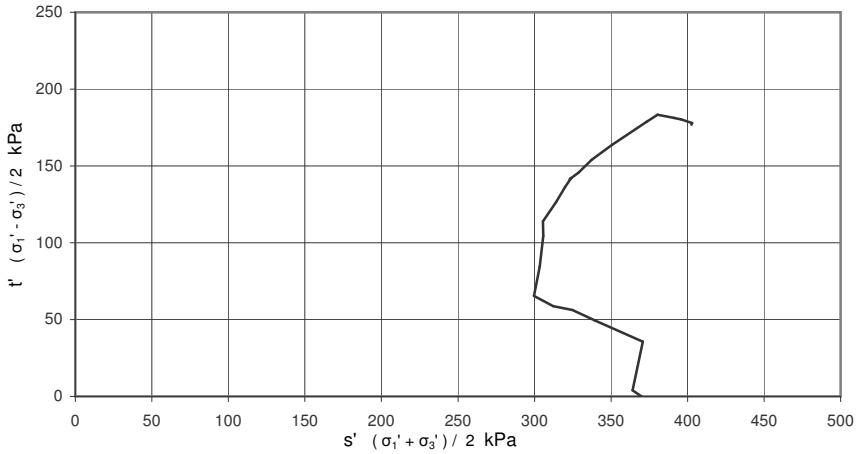
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH308		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	17.40-17.85		
			No	40	Type	U
			ID			
			Spec Ref			

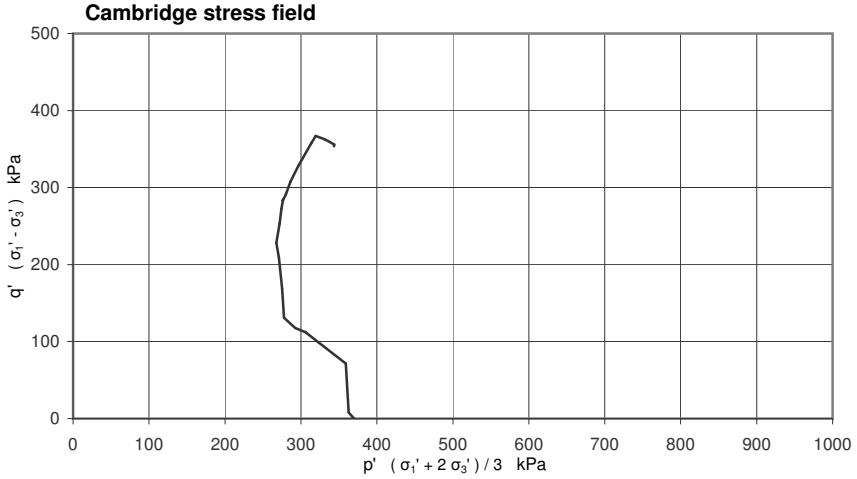
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	670			kPa
Initial pwp	300			kPa
Initial σ_3'	370			kPa
Rate of strain	0.86			%/hr

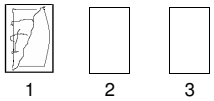
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	7.90			%
$(\sigma_1' / \sigma_3')_f$	2.862			
$(\sigma_1' - \sigma_3')_f$	366.9			kPa
u_f	473			kPa
$\sigma_3'_f$	197			kPa
$\sigma_1'_f$	564			kPa
A_f	0.47			
Time to failure	9.2			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.346 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

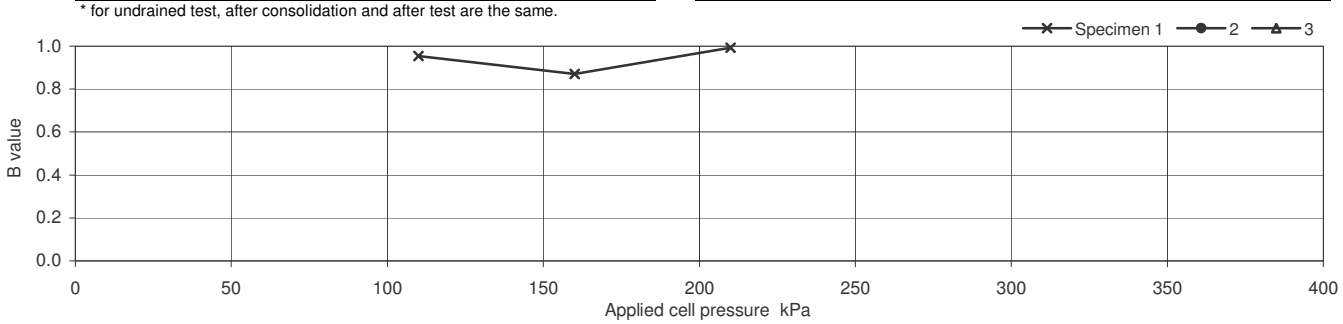
Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.85-4.80		
			No	11	Type	P
			ID			
			Spec Ref			

Specimen Details			1	2	3
Initial	Length	mm	202.55		
	Diameter	mm	97.97		
	Bulk Density	Mg/m³	1.78		
	Water Content	%	41		
	Dry density	Mg/m³	1.26		
After consolidation	Length	mm	198.63		
	Diameter	mm	96.06		
	Bulk Density*	Mg/m³	1.83		
	Water Content*	%	37		
	Dry density*	Mg/m³	1.34		

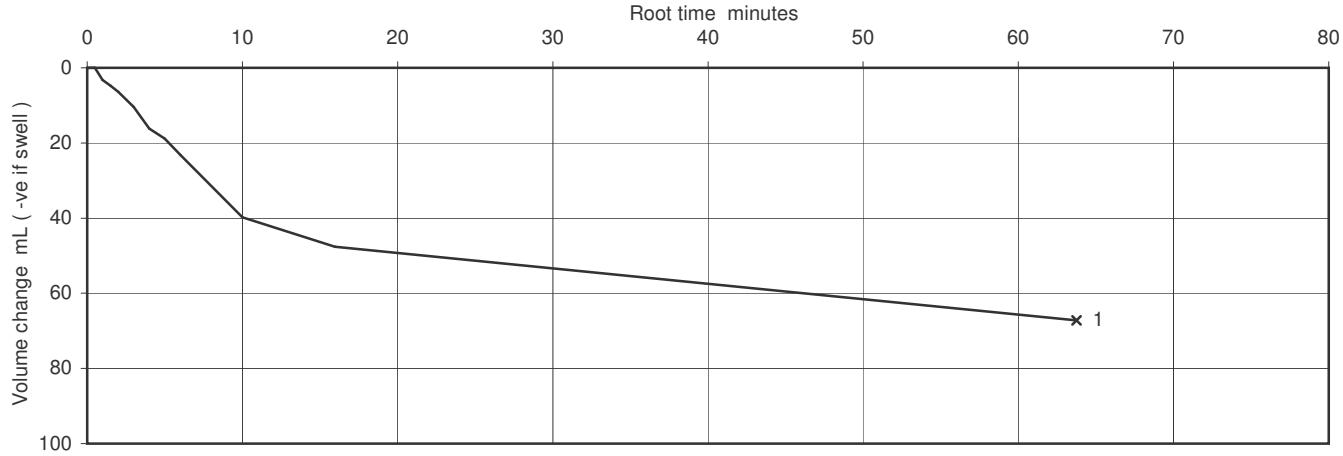
* for undrained test, after consolidation and after test are the same.

Soil Description	Brownish grey slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	200.3		
Final B Value		0.99		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		360			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		60			kPa
	Pore pressure at start of consolidation		349			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.65			m^2/year
	Coefficient of Compressibility	M_{vi}	0.92			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.8E-10			m/s

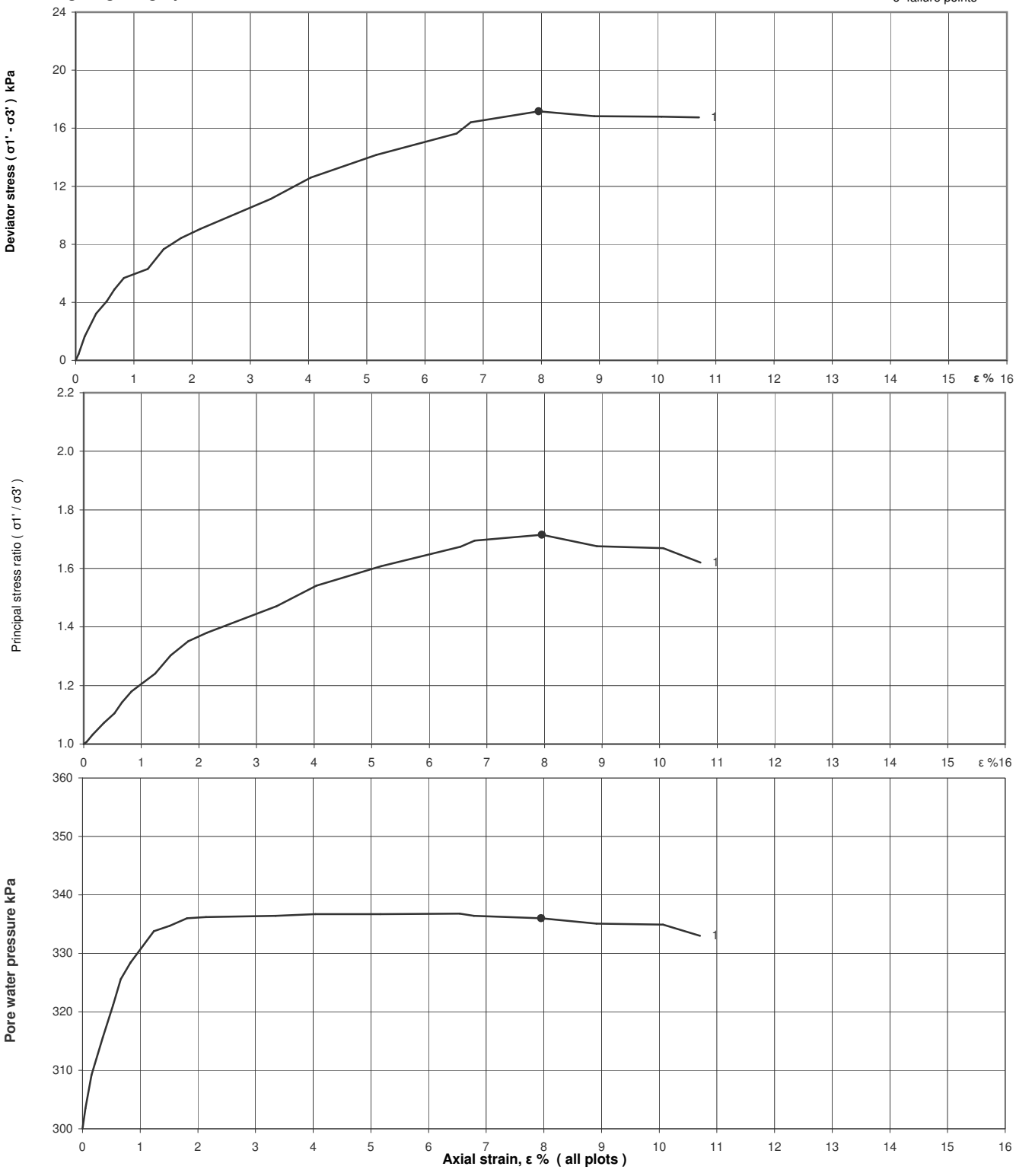


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.85-4.80		
			No	11	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

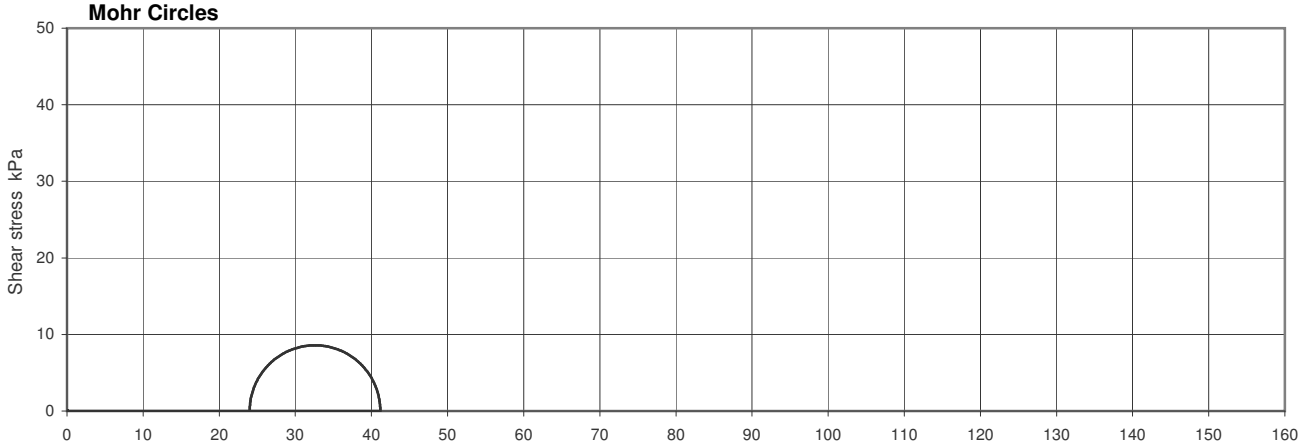


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:52	**CU** sheet 2 of 3

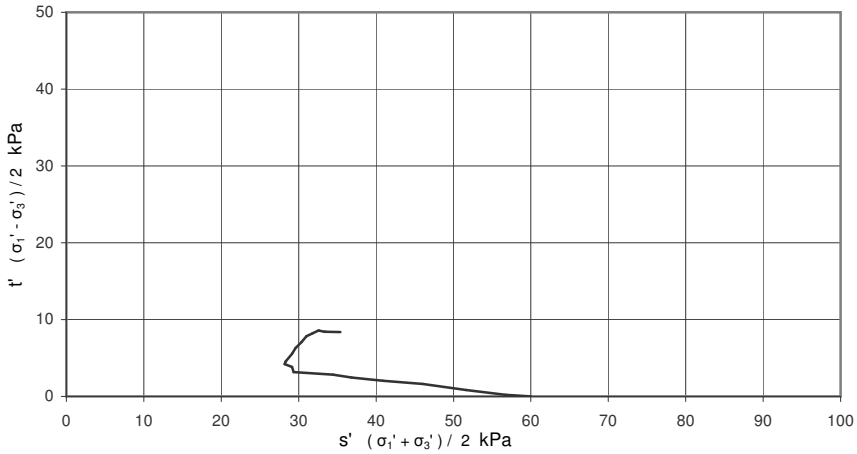
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.85-4.80		
			No	11	Type	P
			ID			
			Spec Ref			

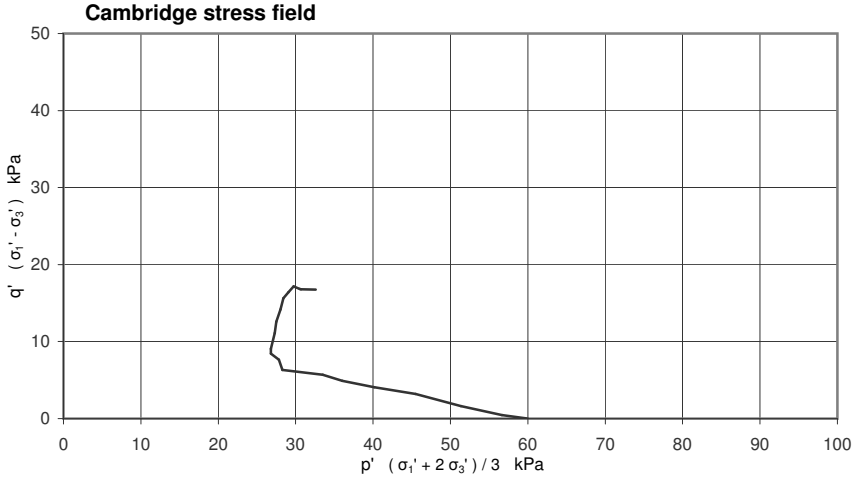
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	360			kPa
Initial pwp	300			kPa
Initial σ_3'	60			kPa
Rate of strain	1.75			%/hr

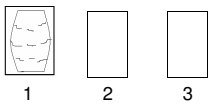
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	7.95			%
$(\sigma_1' / \sigma_3')_f$	1.715			
$(\sigma_1' - \sigma_3')_f$	17.2			kPa
u_f	336			kPa
$\sigma_3'_f$	24			kPa
$\sigma_1'_f$	41			kPa
A_f	2.10			
Time to failure	4.5			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.361 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

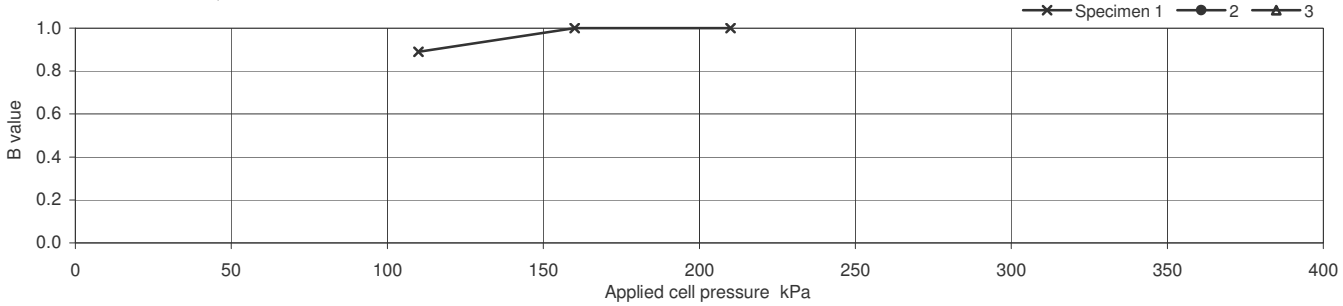
Project No	A5049-15	Sample Details:	Hole No	BH309	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.80-5.25	
			No	12	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	201.13		
	Diameter	mm	103.58		
	Bulk Density	Mg/m³	1.91		
	Water Content	%	33		
	Dry density	Mg/m³	1.43		
After consolidation	Length	mm	197.03		
	Diameter	mm	101.45		
	Bulk Density*	Mg/m³	1.97		
	Water Content*	%	29		
	Dry density*	Mg/m³	1.53		

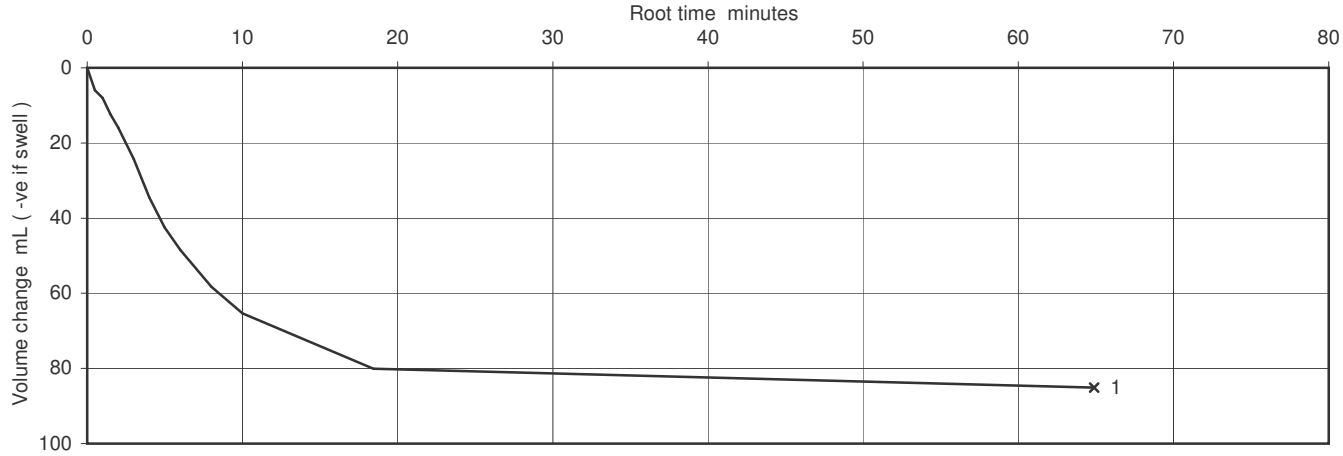
* for undrained test, after consolidation and after test are the same.

Soil Description	Greyish brown slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell pressure only		
Cell pressure increments	kPa	50		
Differential Pressure	kPa			
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	202		
Final B Value		1.00		



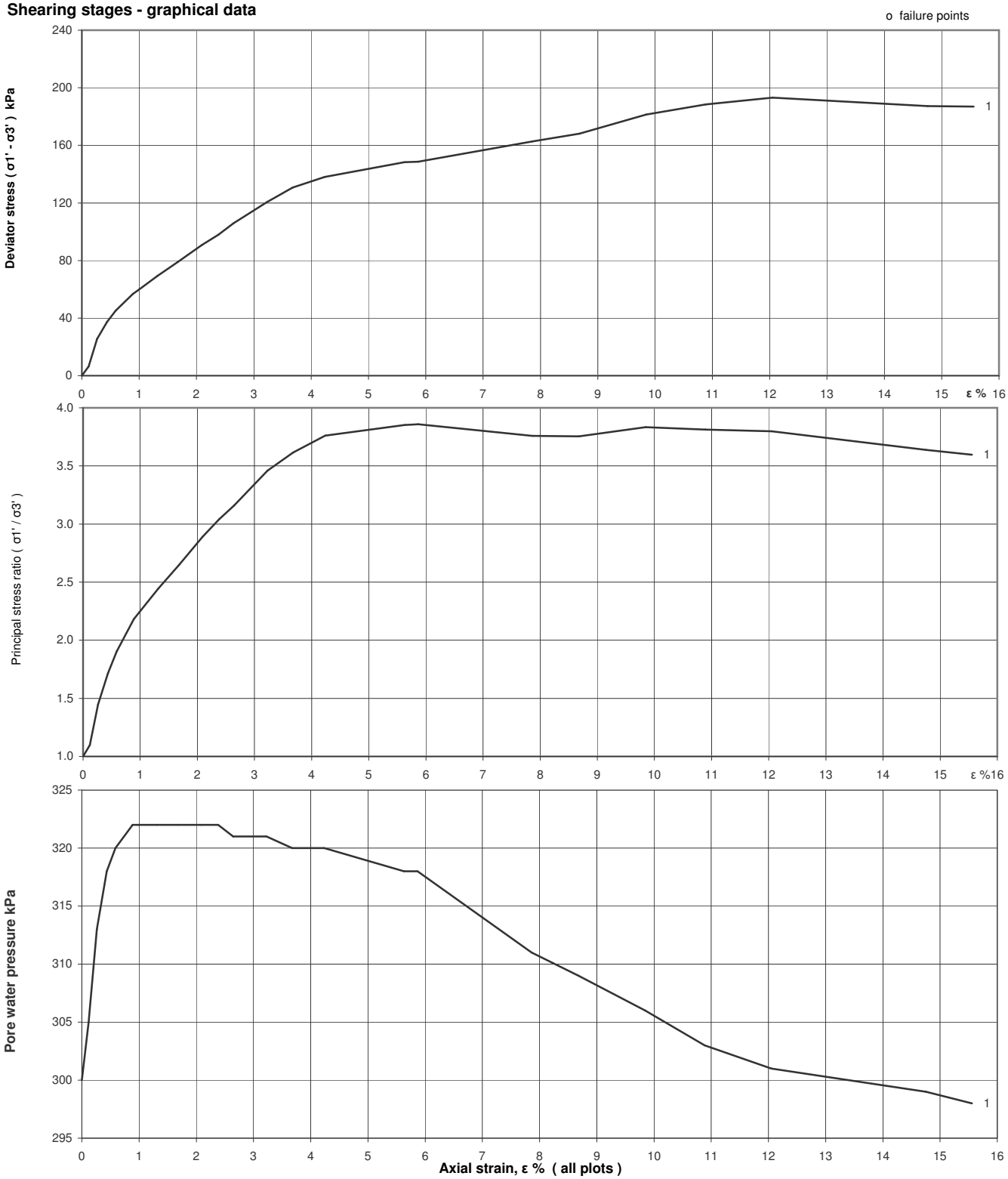
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		370			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		70			kPa
	Pore pressure at start of consolidation		367			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.47			m^2/year
	Coefficient of Compressibility	M_{vi}	0.76			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	5.8E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No		BH309	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)		4.80-5.25	
			No	12	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

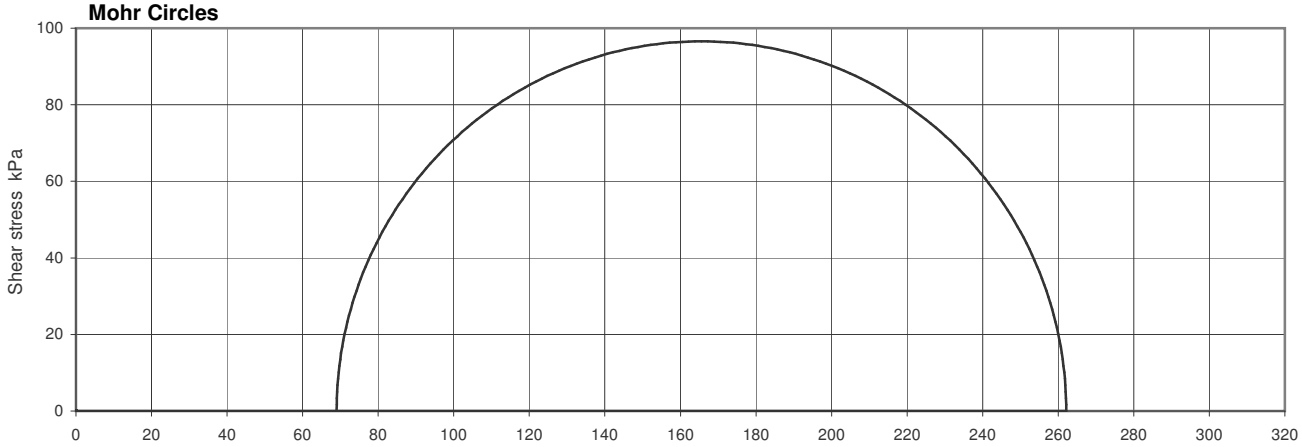


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:07	**CU** sheet 2 of 3

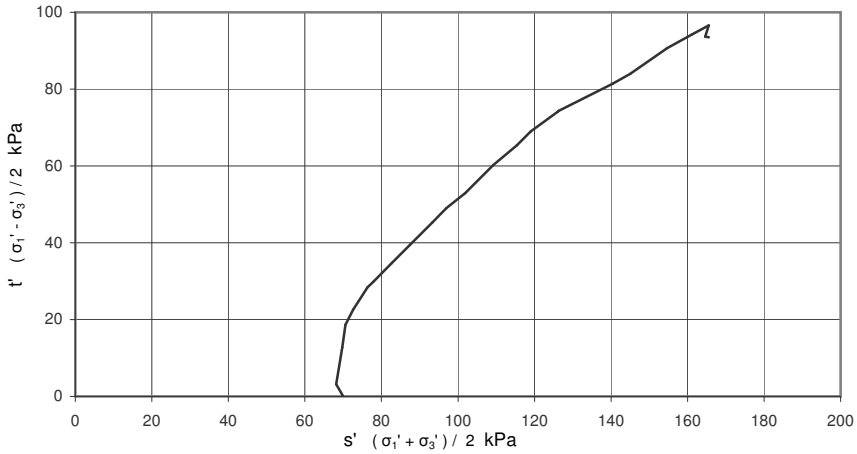
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	4.80-5.25		
			No	12	Type	UT
			ID			
			Spec Ref			

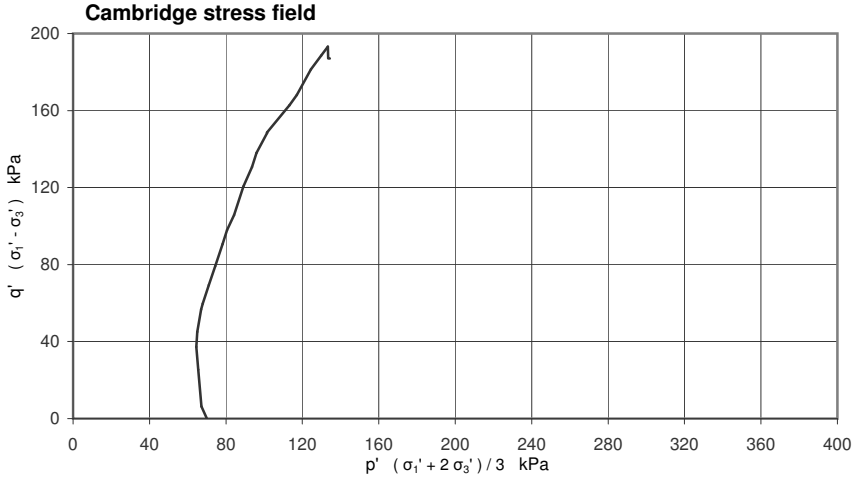
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	370			kPa
Initial pwp	300			kPa
Initial σ_3'	70			kPa
Rate of strain	0.90			%/hr

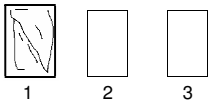
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.05			%
$(\sigma_1' / \sigma_3')_f$	3.799			
$(\sigma_1' - \sigma_3')_f$	193.1			kPa
u_f	301			kPa
$\sigma_3'_f$	69			kPa
$\sigma_1'_f$	262			kPa
A_f	0.01			
Time to failure	13.5			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.322 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation

Ref			Figure
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UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

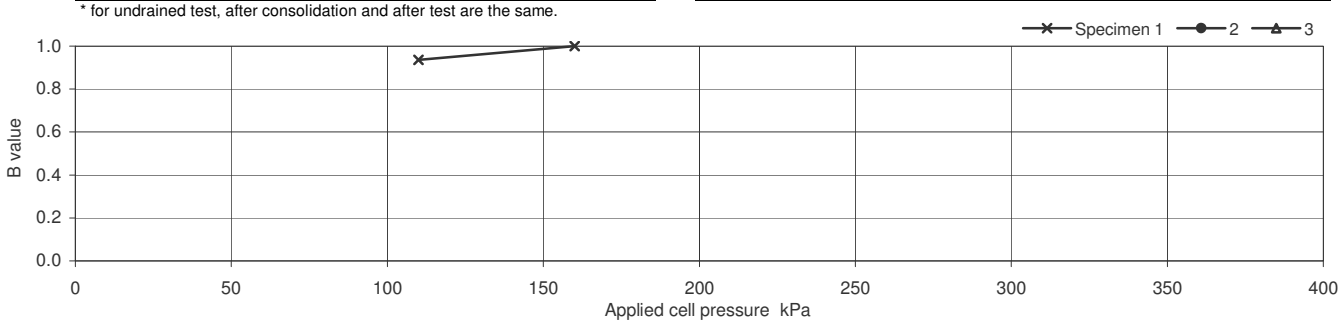
Project No	A5049-15	Sample Details:	Hole No	BH309	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-9.50	
			No	25	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.63		
	Diameter	mm	97.30		
	Bulk Density	Mg/m³	1.93		
	Water Content	%	31		
	Dry density	Mg/m³	1.48		
After consolidation	Length	mm	200.36		
	Diameter	mm	96.20		
	Bulk Density*	Mg/m³	1.97		
	Water Content*	%	29		
	Dry density*	Mg/m³	1.53		

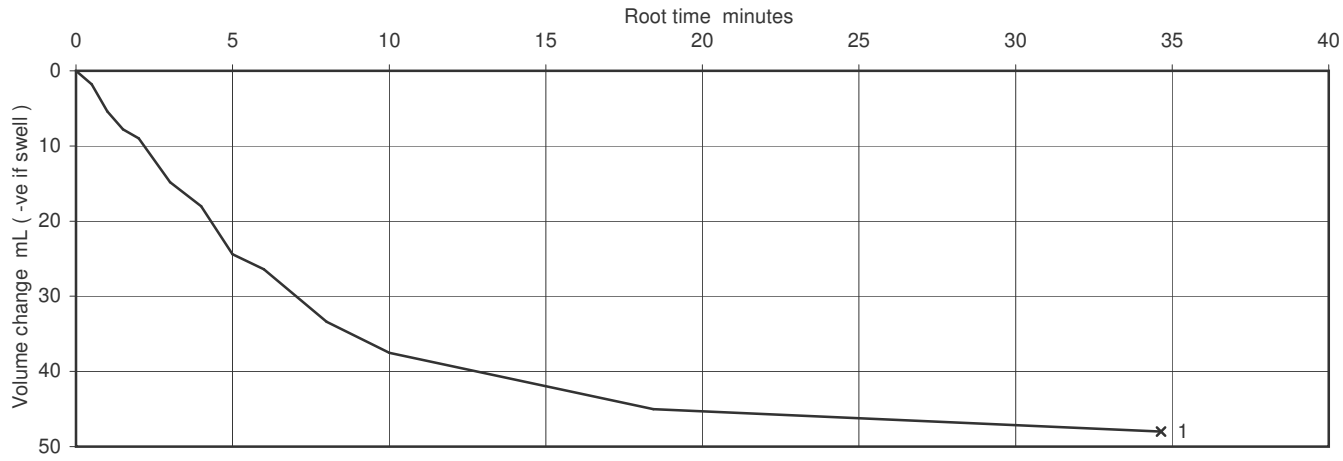
* for undrained test, after consolidation and after test are the same.

Soil Description	Brown slightly sandy SILT.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	147		
Final B Value		1.00		



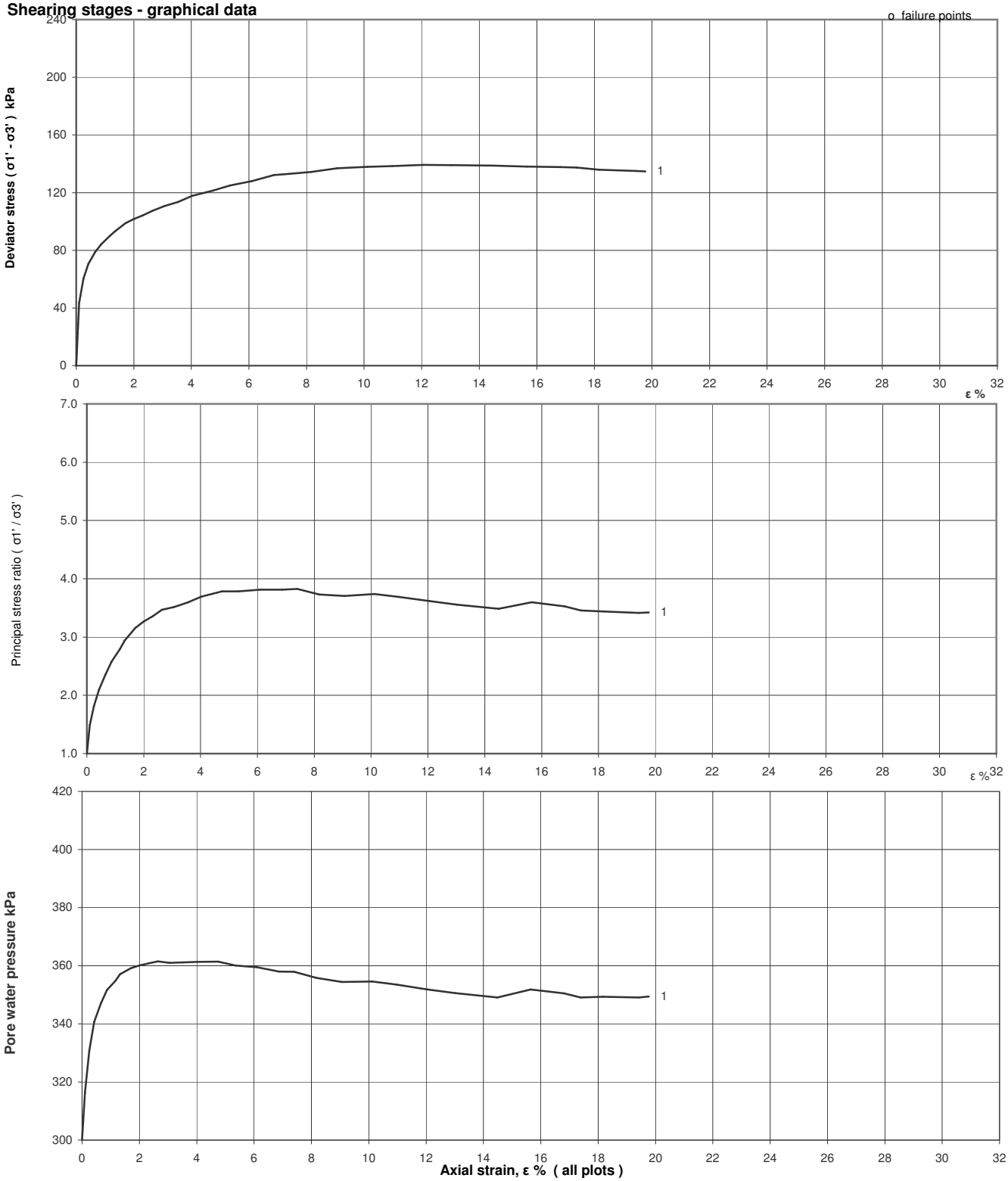
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		405			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		105			kPa
	Pore pressure at start of consolidation		381			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.25			m^2/year
	Coefficient of Compressibility	M_{vi}	0.39			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.5E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-9.50		
			No	25	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

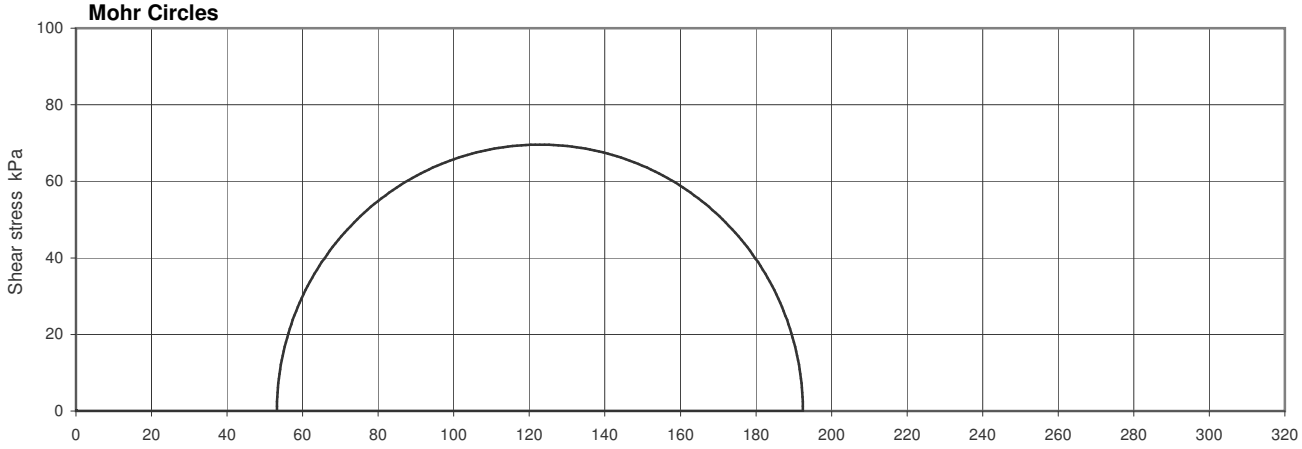


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:53	**CU** sheet 2 of 3

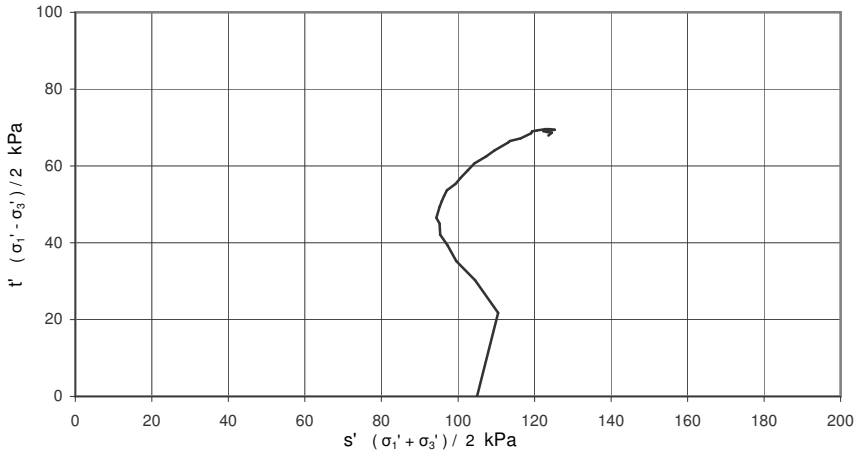
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	8.50-9.50		
			No	25	Type	P
			ID			
			Spec Ref			

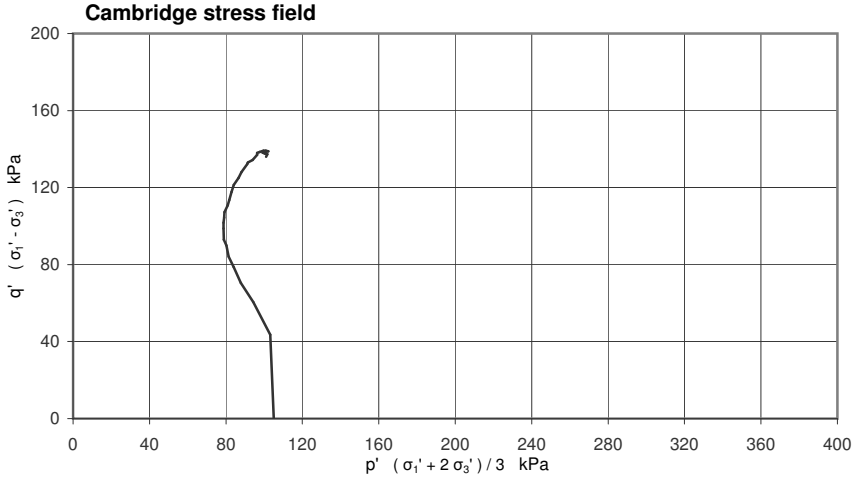
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	405			kPa
Initial pwp	300			kPa
Initial σ_3'	105			kPa
Rate of strain	2.00			%/hr

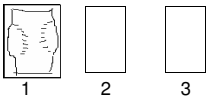
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	12.05			%
$(\sigma_1' / \sigma_3')_f$	3.617			
$(\sigma_1' - \sigma_3')_f$	139.2			kPa
u_f	352			kPa
$\sigma_3'_f$	53			kPa
$\sigma_1'_f$	192			kPa
A_f	0.37			
Time to failure	6.0			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.315 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

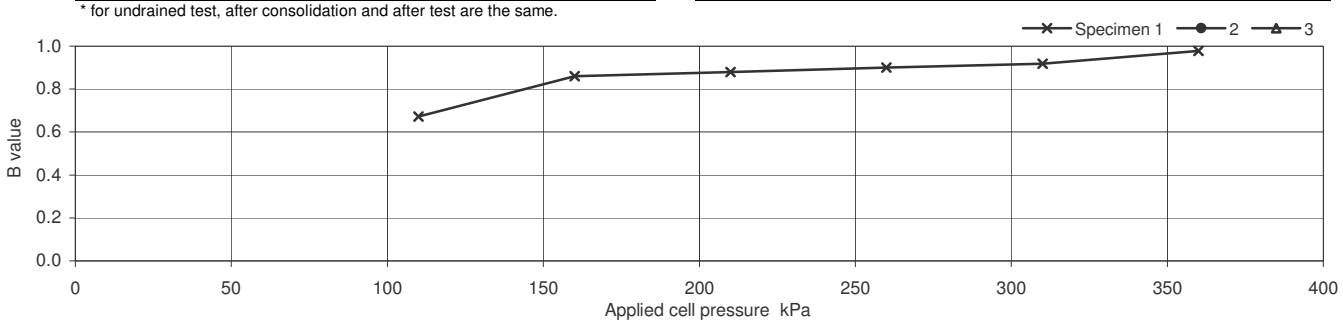
Project No	A5049-15	Sample Details:	Hole No	BH309	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.30-13.75	
			No	40	Type UT
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	204.54		
	Diameter	mm	103.10		
	Bulk Density	Mg/m³	1.17		
	Water Content	%	170		
	Dry density	Mg/m³	0.44		
After consolidation	Length	mm	195.68		
	Diameter	mm	98.53		
	Bulk Density*	Mg/m³	1.31		
	Water Content*	%	160		
	Dry density*	Mg/m³	0.50		

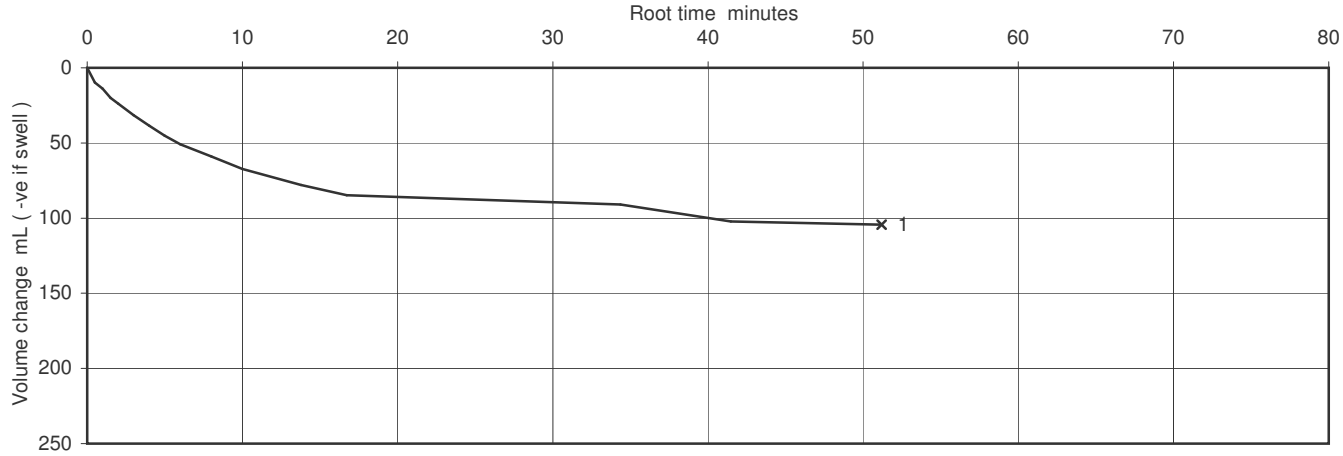
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm black fibrous PEAT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	360		
Final pore water pressure	kPa	346.6		
Final B Value		0.98		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		445			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		145			kPa
	Pore pressure at start of consolidation		431			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.69			m^2/year
	Coefficient of Compressibility	M_{vi}	0.50			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.6E-10			m/s

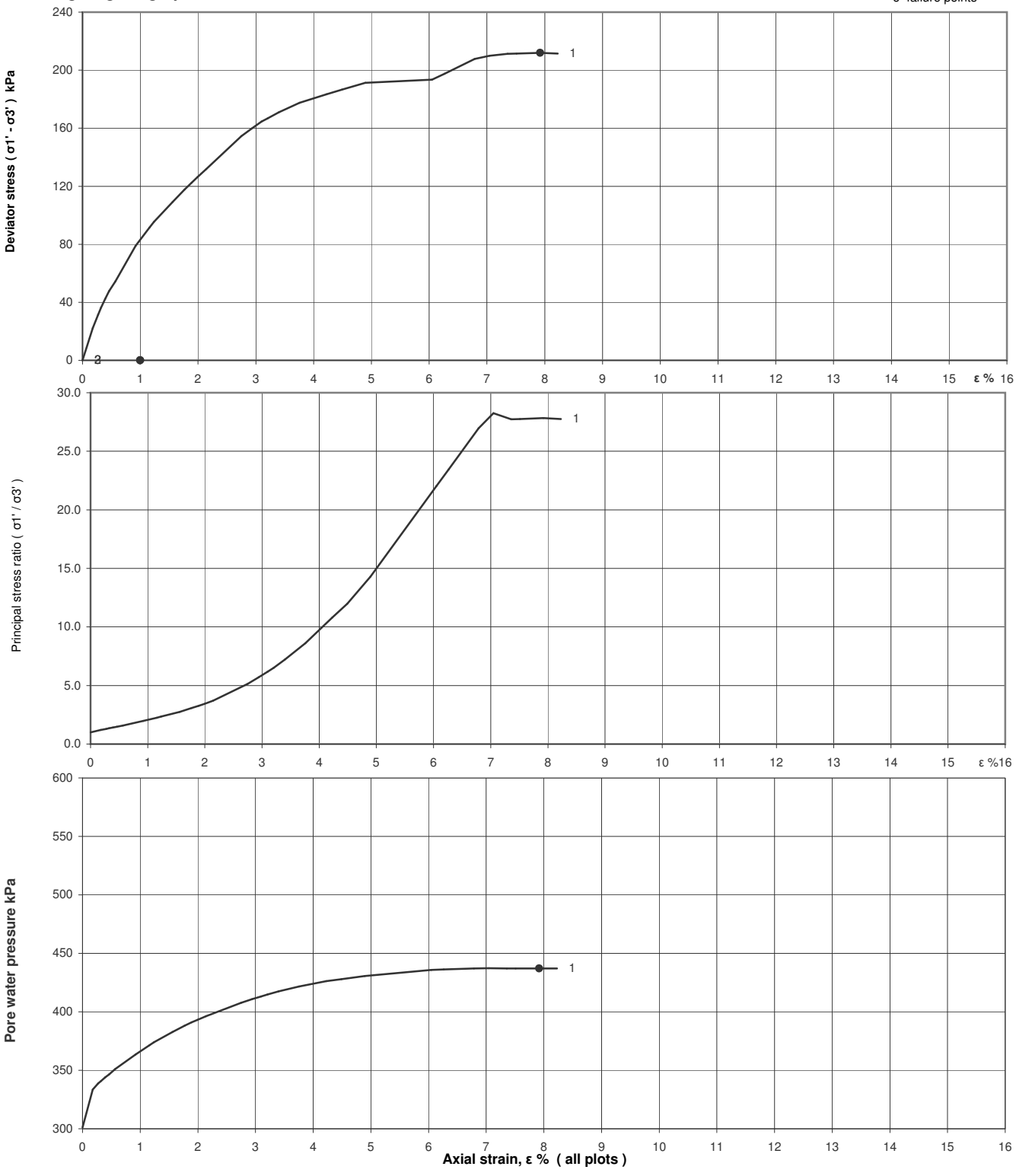


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.30-13.75		
			No	40	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

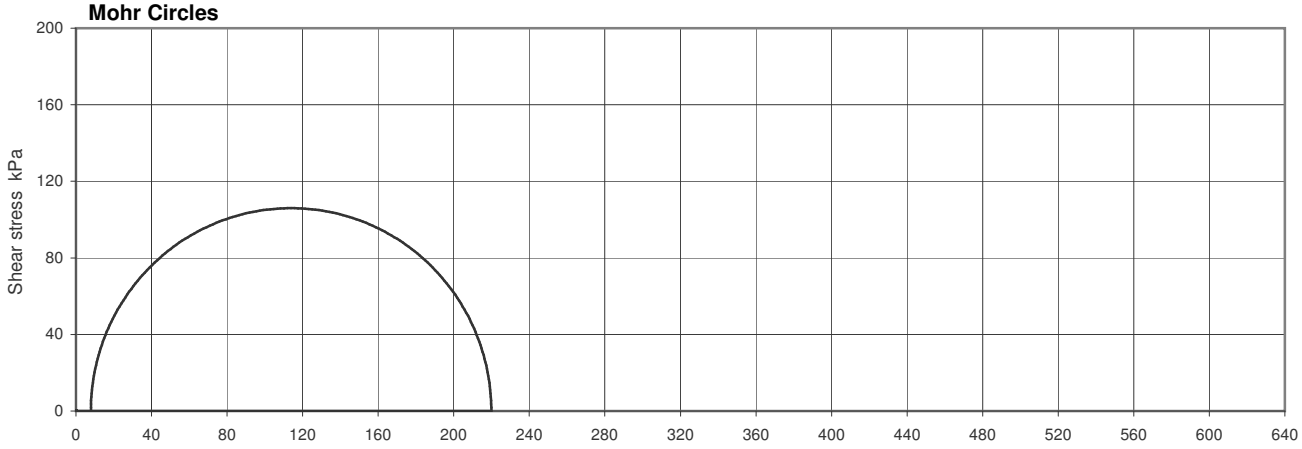


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 15:02	**CU** sheet 2 of 3

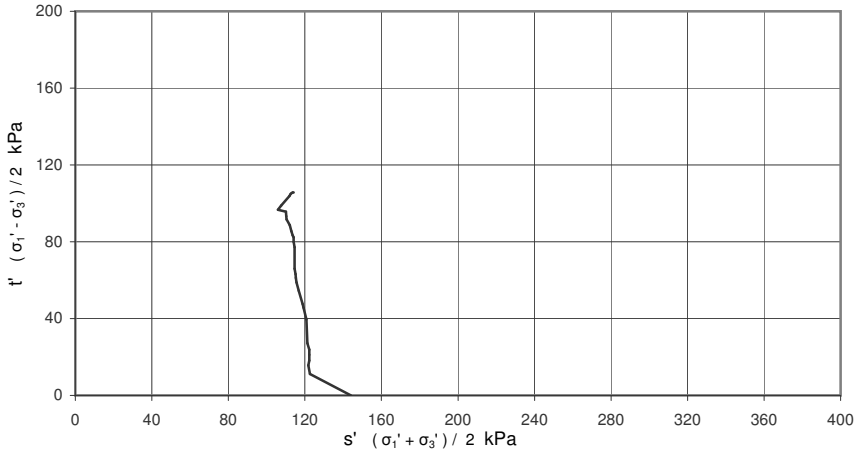
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH309		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	13.30-13.75		
			No	40	Type	UT
			ID			
			Spec Ref			

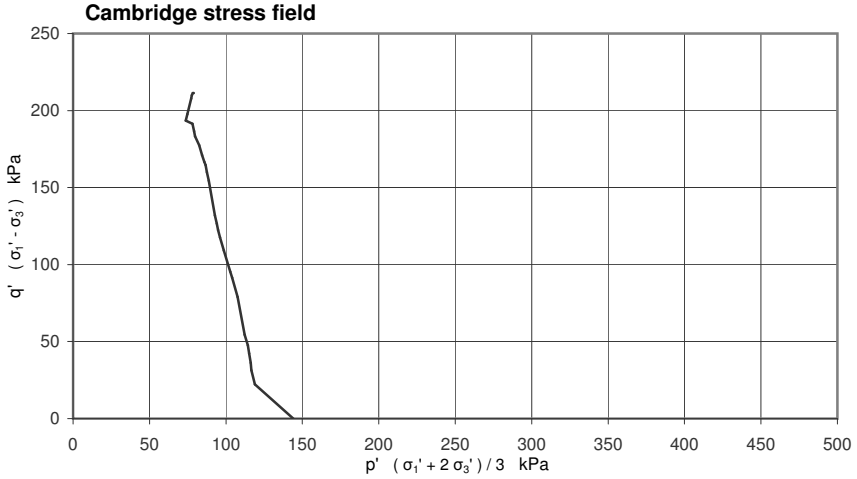
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	445			kPa
Initial pwp	301			kPa
Initial σ_3'	144			kPa
Rate of strain	0.67			%/hr

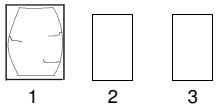
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	7.92			%
$(\sigma_1' / \sigma_3')_f$	27.835			
$(\sigma_1' - \sigma_3')_f$	212.0			kPa
u_f	437			kPa
$\sigma_3'_f$	8			kPa
$\sigma_1'_f$	220			kPa
A_f	0.64			
Time to failure	11.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.322 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

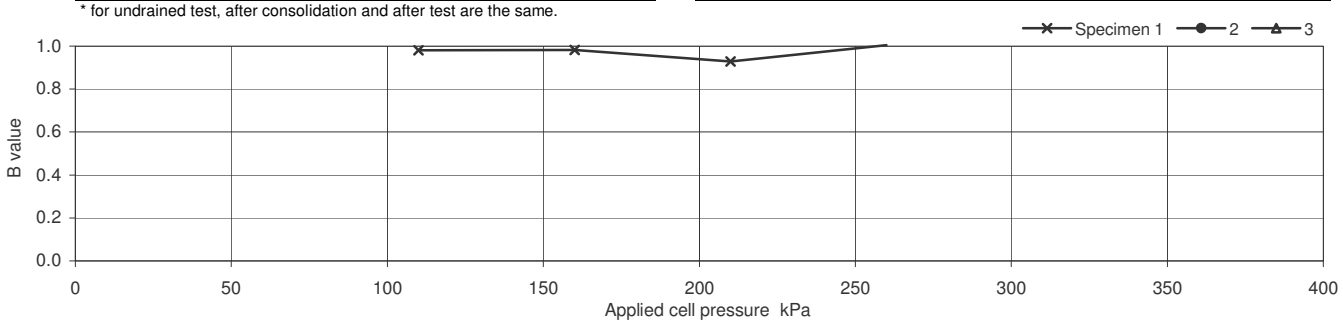
Project No	A5049-15	Sample Details:	Hole No	BH310	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.00-4.00	
			No	25	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.93		
	Diameter	mm	97.30		
	Bulk Density	Mg/m³	1.80		
	Water Content	%	42		
	Dry density	Mg/m³	1.26		
After consolidation	Length	mm	201.51		
	Diameter	mm	96.62		
	Bulk Density*	Mg/m³	1.81		
	Water Content*	%	41		
	Dry density*	Mg/m³	1.29		

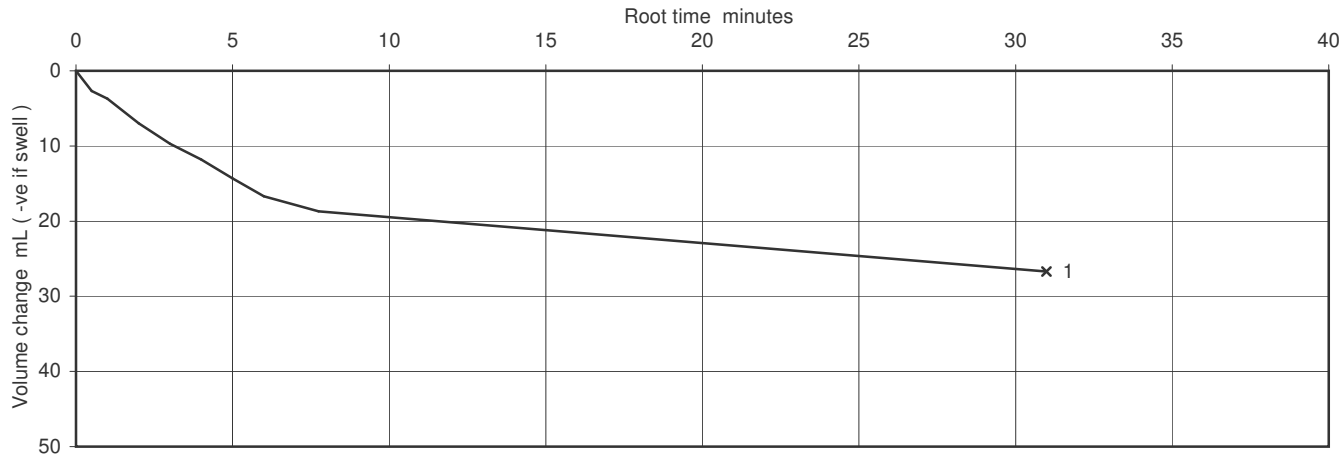
* for undrained test, after consolidation and after test are the same.

Soil Description	Brownish grey slightly sandy SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	260		
Final pore water pressure	kPa	245.4		
Final B Value		1.00		



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		328			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		28			kPa
	Pore pressure at start of consolidation		329			kPa
	Pore pressure at end of consolidation		300			kPa
	Pore pressure dissipation at end of consolidation		100			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.96			m^2/year
	Coefficient of Compressibility	M_{vi}	0.61			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	3.7E-10			m/s

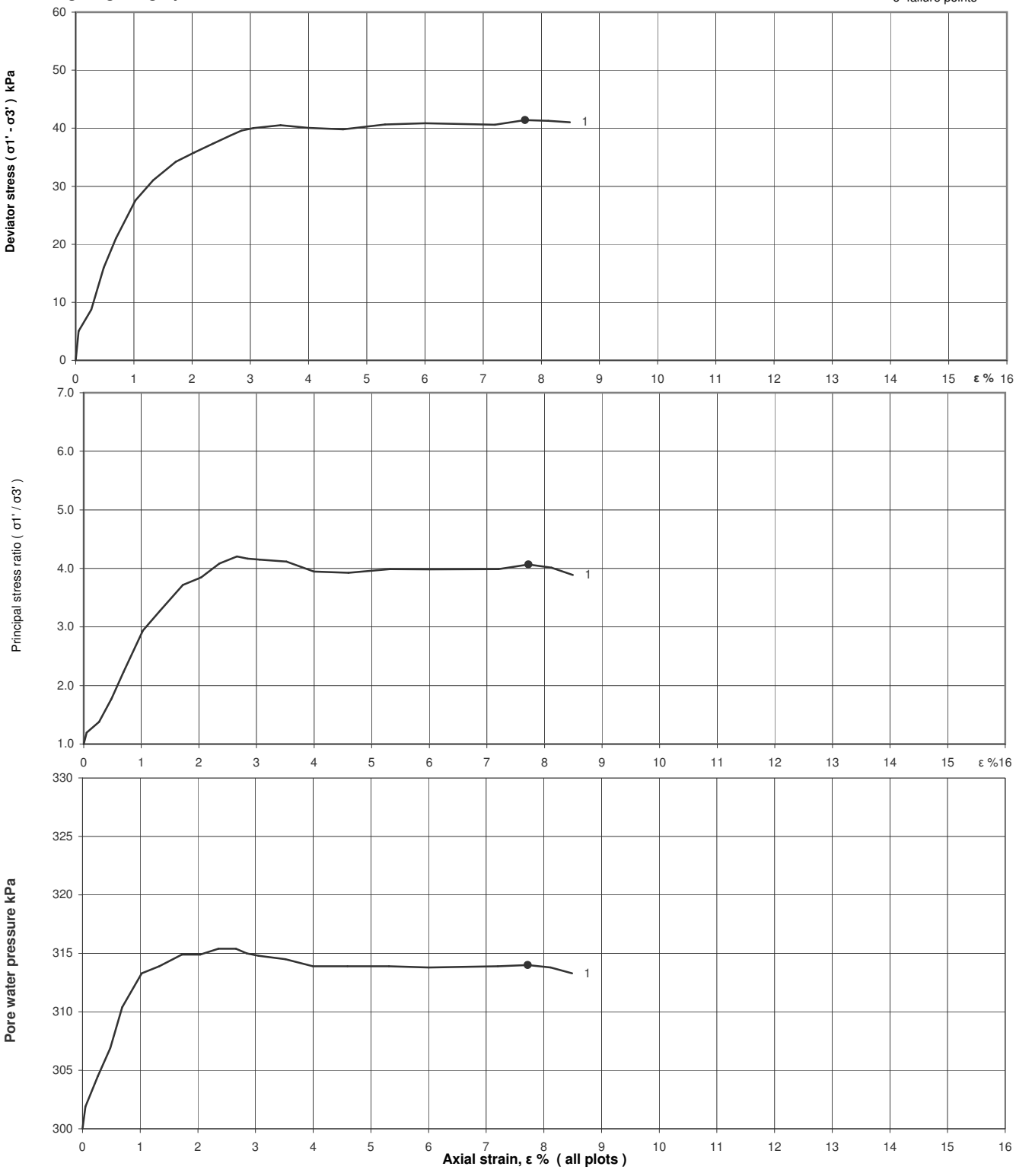


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.00-4.00		
			No	25	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

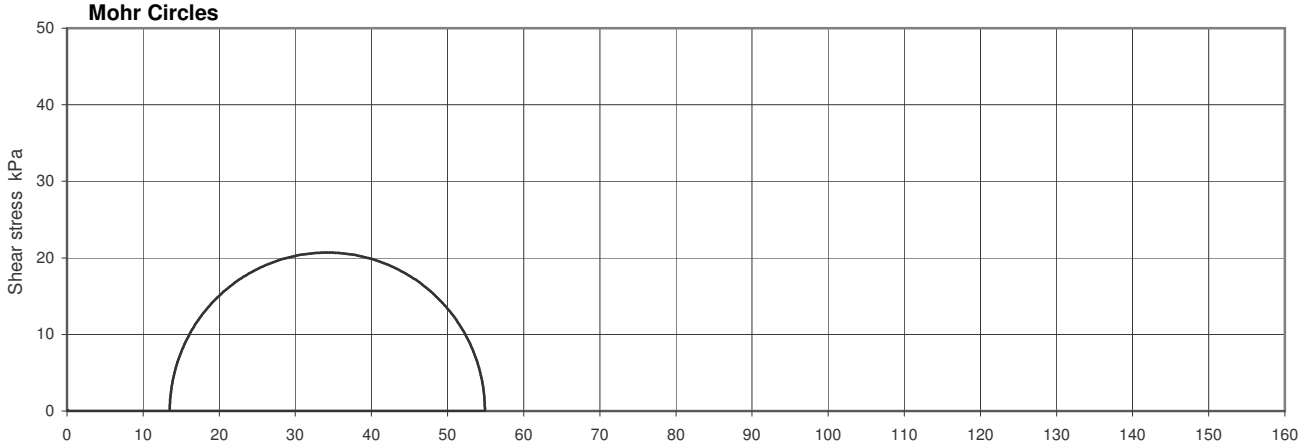


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:08/09/2015 09:54	**CU** sheet 2 of 3

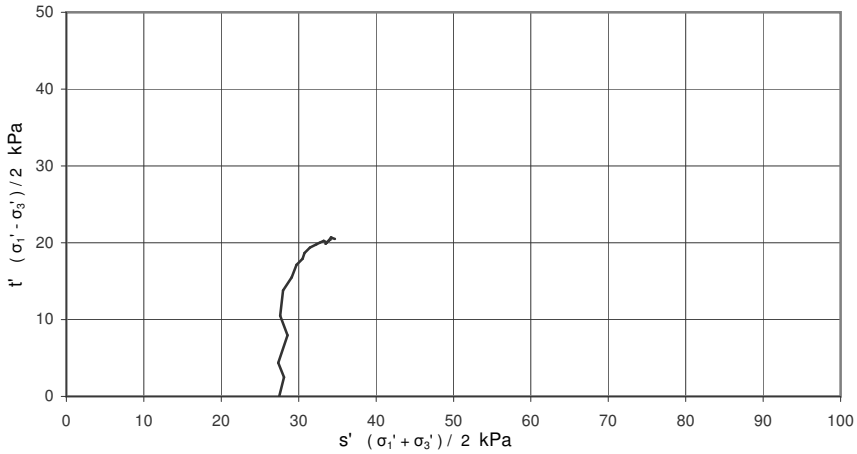
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.00-4.00		
			No	25	Type	P
			ID			
			Spec Ref			

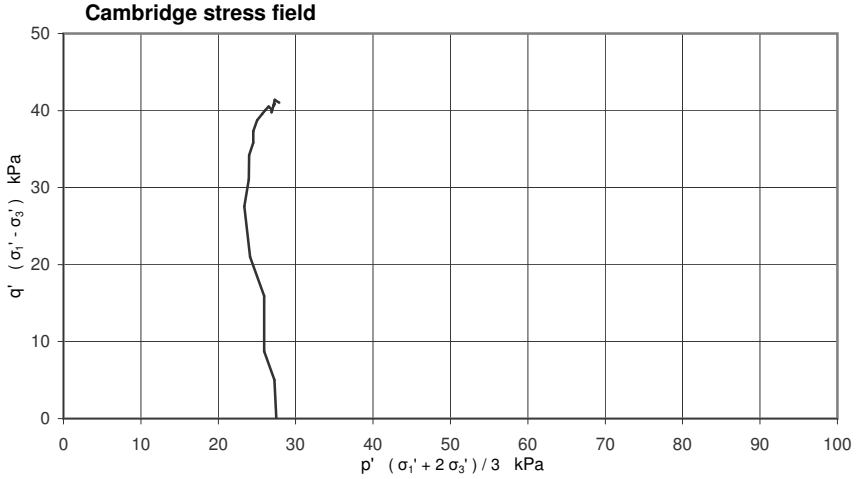
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	327.5			kPa
Initial pwp	300			kPa
Initial σ_3'	28			kPa
Rate of strain	2.00			%/hr

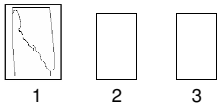
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	7.72			%
$(\sigma_1' / \sigma_3')_f$	4.067			
$(\sigma_1' - \sigma_3')_f$	41.4			kPa
u_f	314			kPa
$\sigma_3'_f$	14			kPa
$\sigma_1'_f$	55			kPa
A_f	0.34			
Time to failure	3.9			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.315 mm thick rubber membrane(s)

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

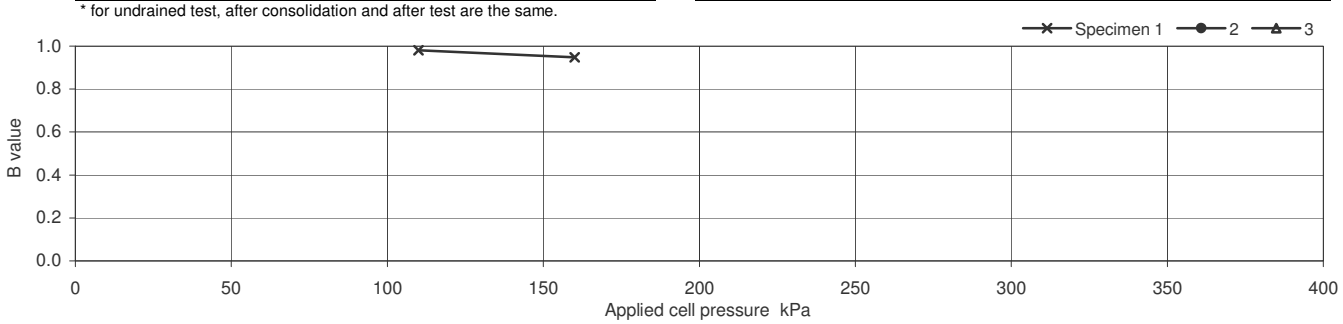
Project No	A5049-15	Sample Details:	Hole No	BH310	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.00-4.00	
			No	14	Type P
			ID		
			Spec Ref	Sample 2	

Specimen Details			1	2	3
Initial	Length	mm	203.27		
	Diameter	mm	97.26		
	Bulk Density	Mg/m³	1.81		
	Water Content	%	64		
	Dry density	Mg/m³	1.11		
After consolidation	Length	mm	186.49		
	Diameter	mm	88.86		
	Bulk Density*	Mg/m³	1.98		
	Water Content*	%	37		
	Dry density*	Mg/m³	1.45		

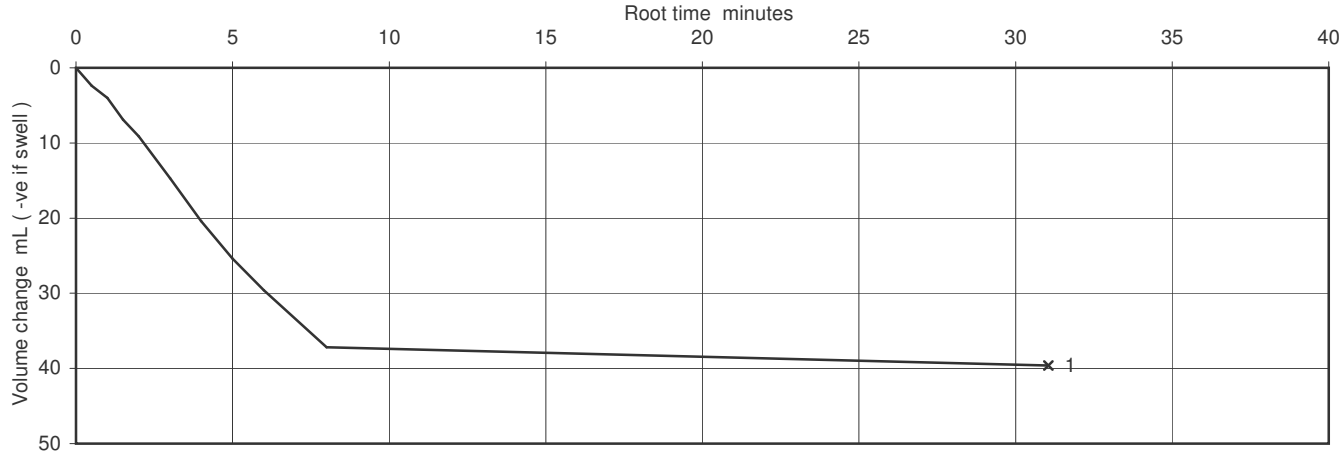
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft brown mottled dark grey organic CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	160		
Final pore water pressure	kPa	147		
Final B Value		0.95		



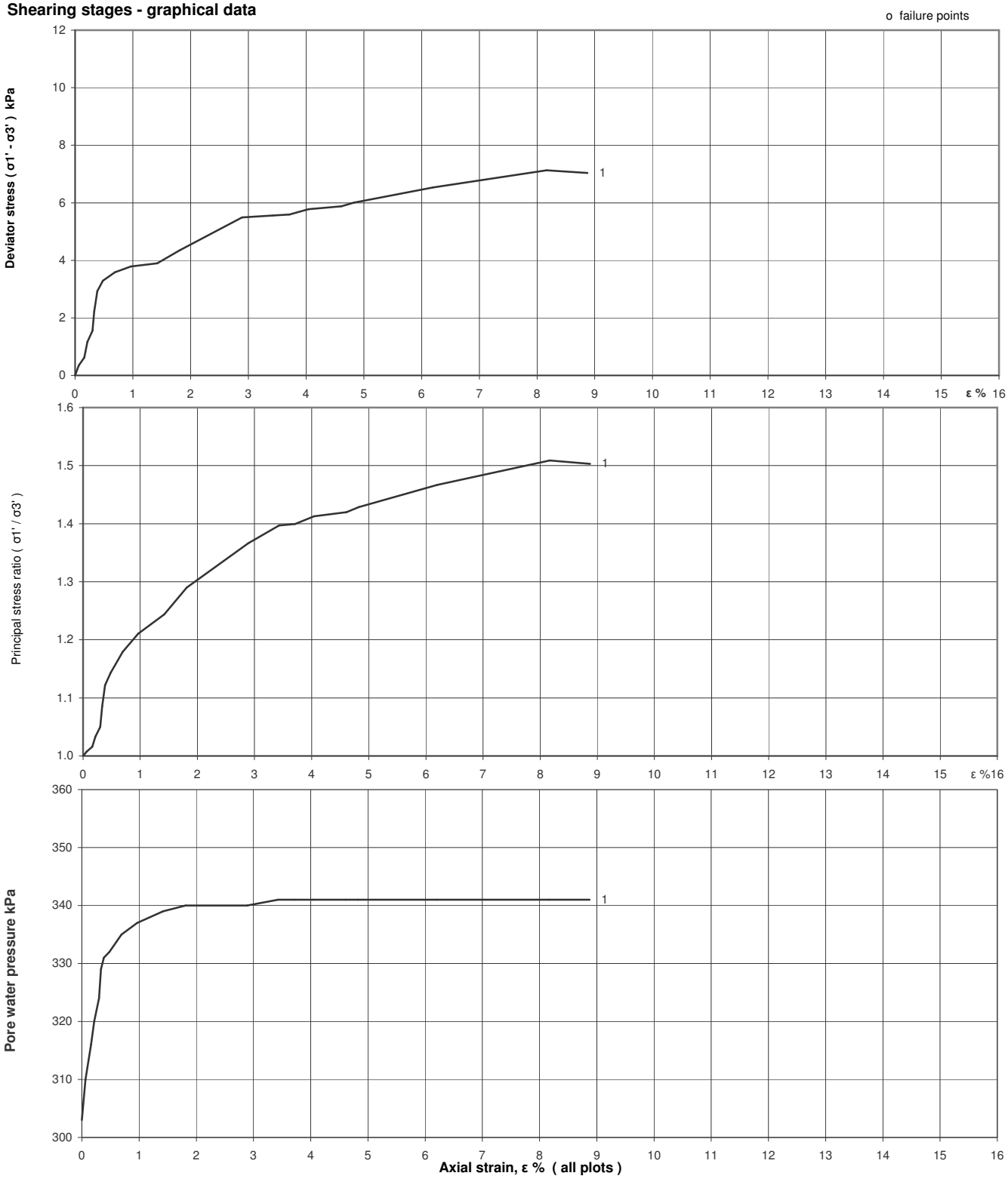
Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		355			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		55			kPa
	Pore pressure at start of consolidation		351			kPa
	Pore pressure at end of consolidation		308			kPa
	Pore pressure dissipation at end of consolidation		84			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	2.56			m^2/year
	Coefficient of Compressibility	M_{vi}	0.77			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	6.1E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.00-4.00		
			No	14	Type	P
			ID			
			Spec Ref	Sample 2		

Shearing stages - graphical data

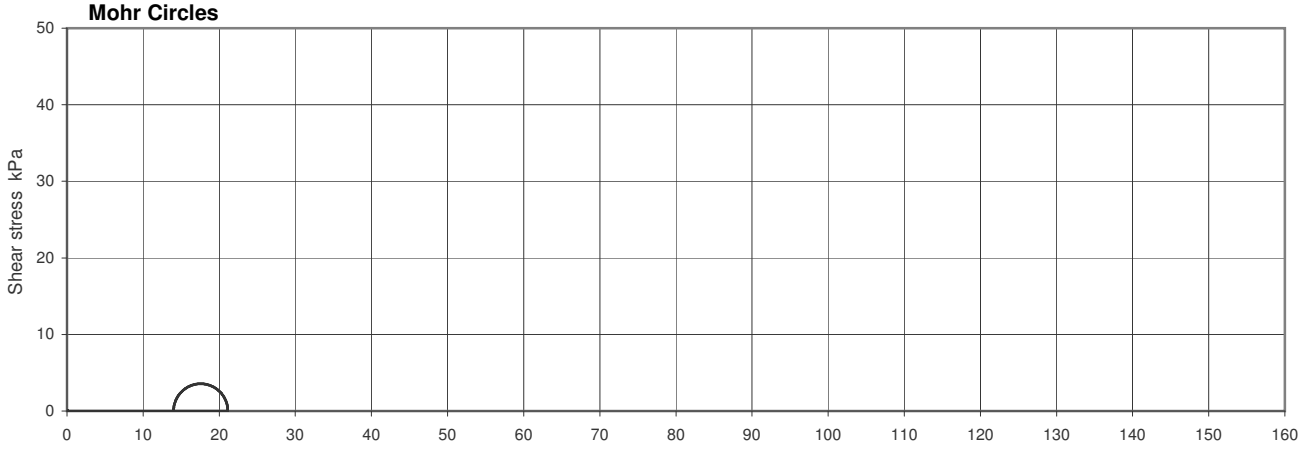


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:29/09/2015 14:55	**CU** sheet 2 of 3

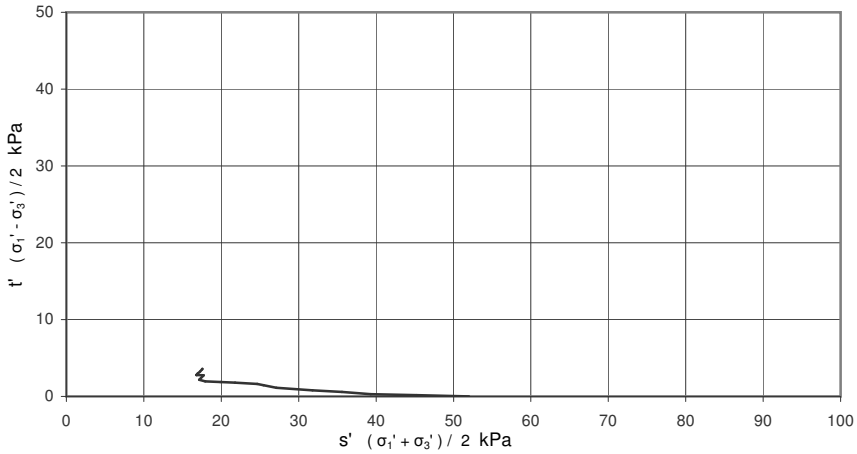
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	3.00-4.00		
			No	14	Type	P
			ID			
			Spec Ref	Sample 2		

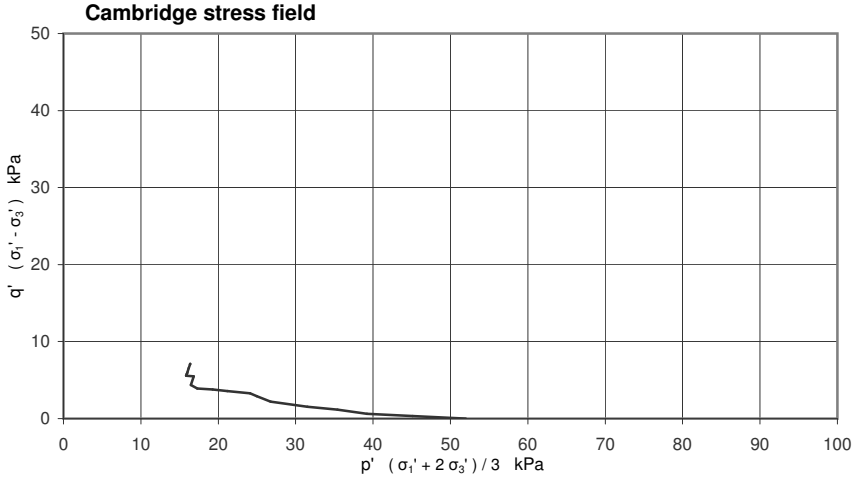
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	355			kPa
Initial pwp	303			kPa
Initial σ_3'	52			kPa
Rate of strain	1.00			%/hr

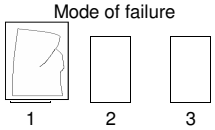
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	8.17			%
$(\sigma_1' / \sigma_3')_f$	1.509			
$(\sigma_1' - \sigma_3')_f$	7.1			kPa
u_f	341			kPa
$\sigma_3'_f$	14			kPa
$\sigma_1'_f$	21			kPa
A_f	5.33			
Time to failure	8.2			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.299 mm thick rubber membrane(s)

The rate of strain is to be half that determined during consolidation.

UKAS TESTING 1157

Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

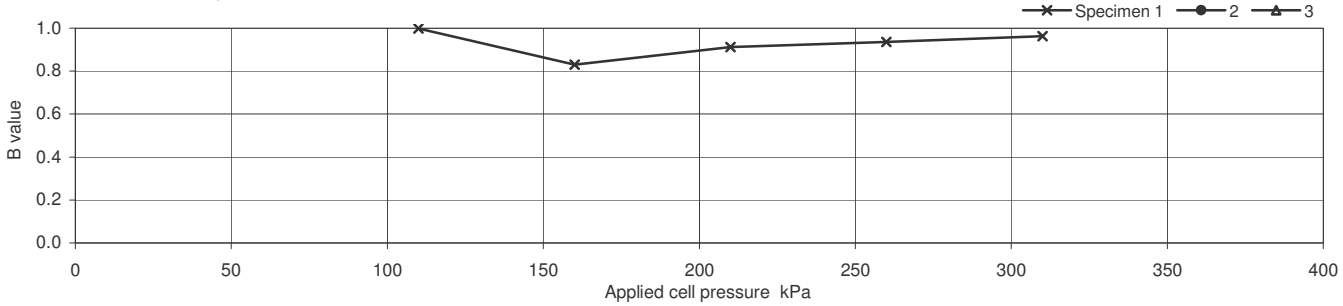
Project No	A5049-15	Sample Details:	Hole No	BH310	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-8.50	
			No	26	Type P
			ID		
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	202.84		
	Diameter	mm	97.40		
	Bulk Density	Mg/m³	1.90		
	Water Content	%	33		
	Dry density	Mg/m³	1.43		
After consolidation	Length	mm	201.05		
	Diameter	mm	96.54		
	Bulk Density*	Mg/m³	1.93		
	Water Content*	%	32		
	Dry density*	Mg/m³	1.46		

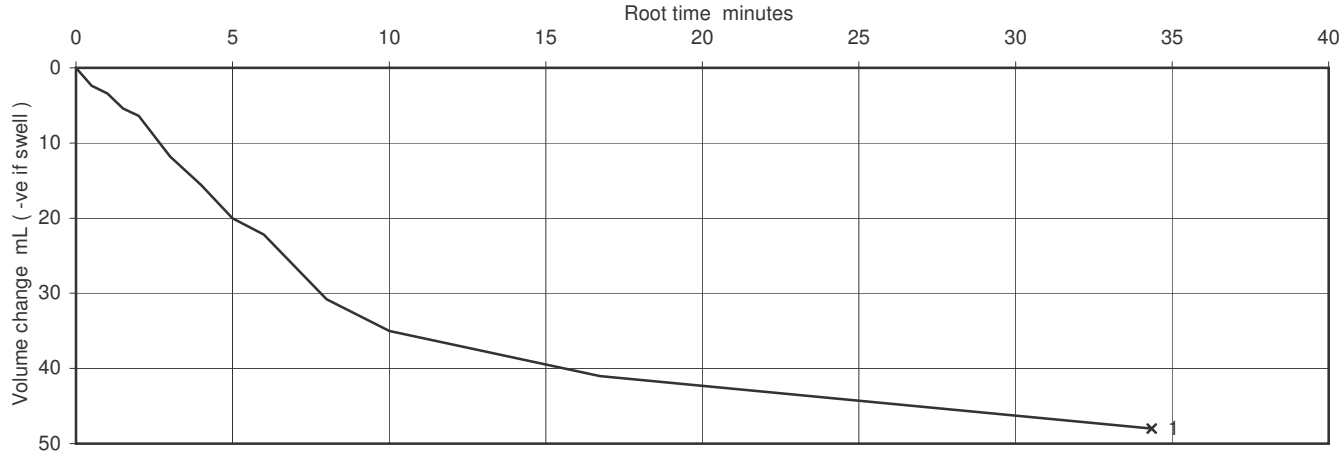
* for undrained test, after consolidation and after test are the same.

Soil Description	Firm greyish brown slightly sandy CLAY. Laminated throughout.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	310		
Final pore water pressure	kPa	300.1		
Final B Value		0.96		



Consolidation Details						
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		400			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		100			kPa
	Pore pressure at start of consolidation		392			kPa
	Pore pressure at end of consolidation		303			kPa
	Pore pressure dissipation at end of consolidation		97			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.14			m^2/year
	Coefficient of Compressibility	M_{vi}	0.36			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	1.3E-10			m/s

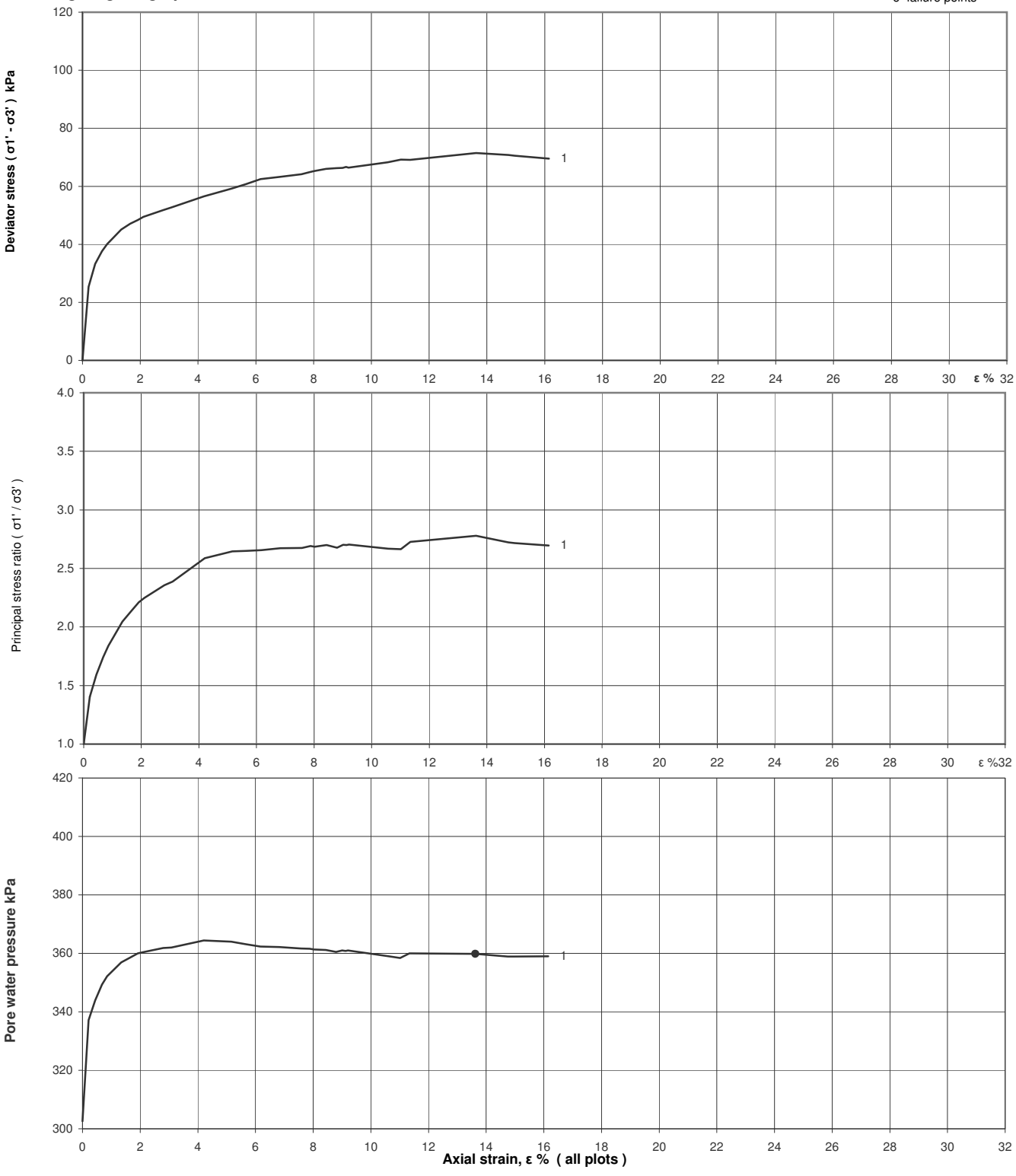


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-8.50		
			No	26	Type	P
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



Ref			Figure
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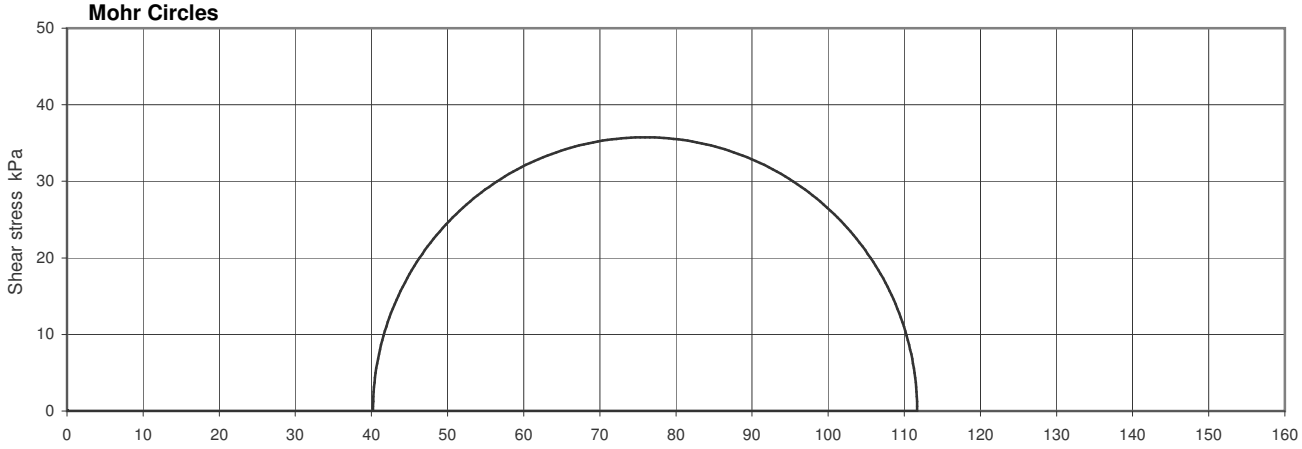
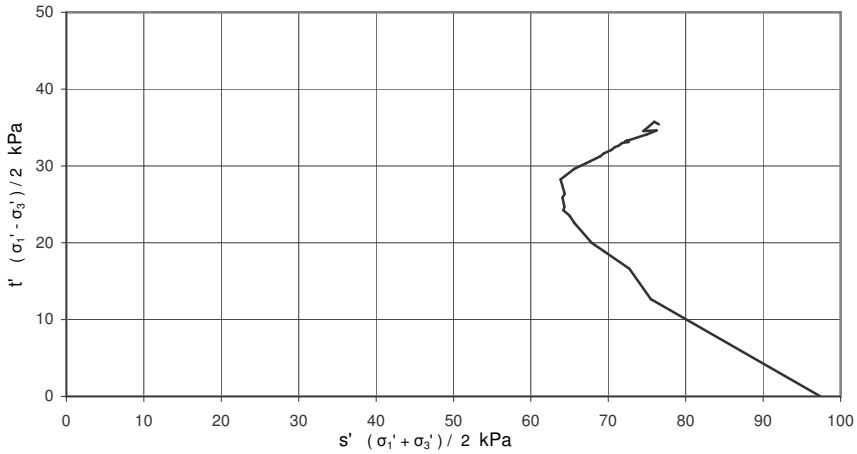
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-8.50		
			No	26	Type	P
			ID			
			Spec Ref			

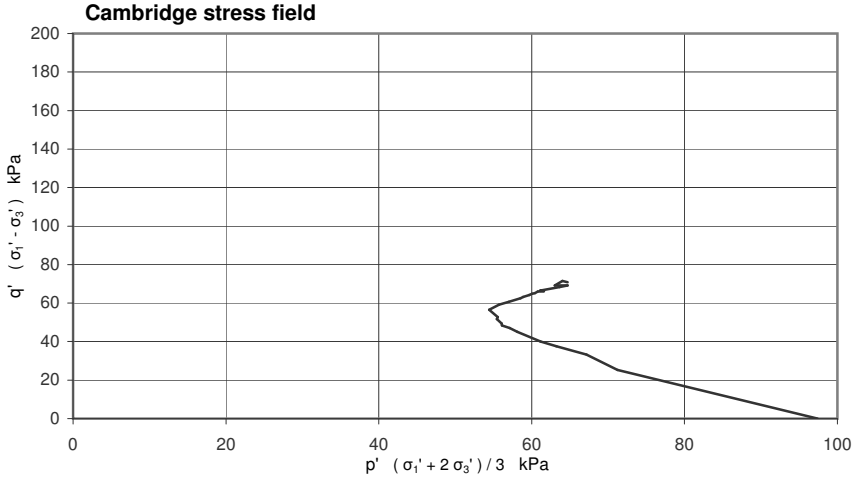
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	400			kPa
Initial pwp	303			kPa
Initial σ_3'	97			kPa
Rate of strain	0.52			%/hr

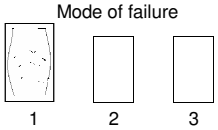
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	13.63			%
$(\sigma_1' / \sigma_3')_f$	2.778			
$(\sigma_1' - \sigma_3')_f$	71.5			kPa
u_f	360			kPa
$\sigma_3'_f$	40			kPa
$\sigma_1'_f$	112			kPa
A_f	0.80			
Time to failure	26.4			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.322 mm thick rubber membrane(s)

The rate of strain is to be half the rate determined during consolidation.

Ref			Figure
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Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

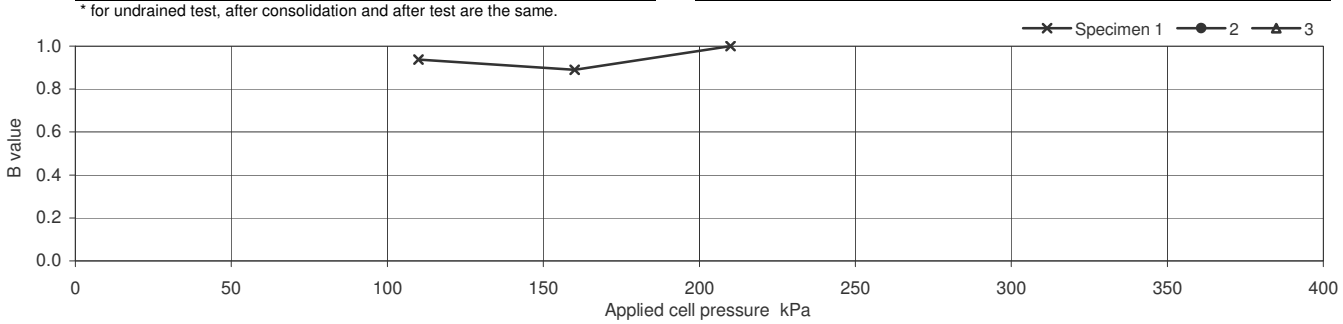
Project No	A5049-15	Sample Details:	Hole No	BH310	
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-8.50	
			No	26	Type P
			ID	Sample 2	
			Spec Ref		

Specimen Details			1	2	3
Initial	Length	mm	200.09		
	Diameter	mm	97.27		
	Bulk Density	Mg/m³	1.86		
	Water Content	%	37		
	Dry density	Mg/m³	1.35		
After consolidation	Length	mm	197.98		
	Diameter	mm	96.24		
	Bulk Density*	Mg/m³	1.89		
	Water Content*	%	35		
	Dry density*	Mg/m³	1.40		

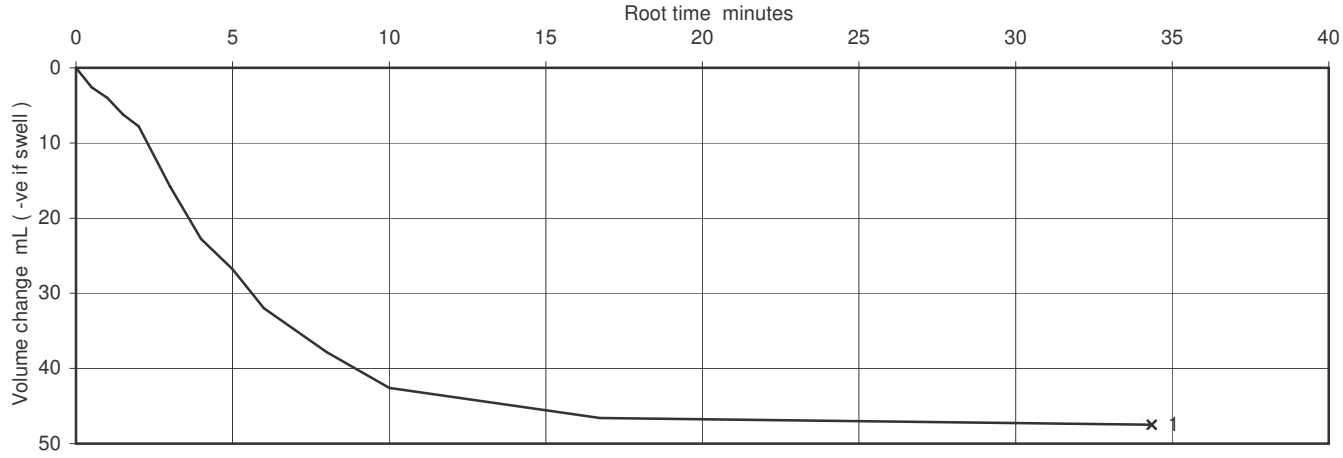
* for undrained test, after consolidation and after test are the same.

Soil Description	Soft to firm greyish brown CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation		
		Increments of cell and back pressure		
Cell pressure increments	kPa	50		
Differential Pressure	kPa	10		
Final Cell Pressure	kPa	210		
Final pore water pressure	kPa	200.8		
Final B Value		1.00		



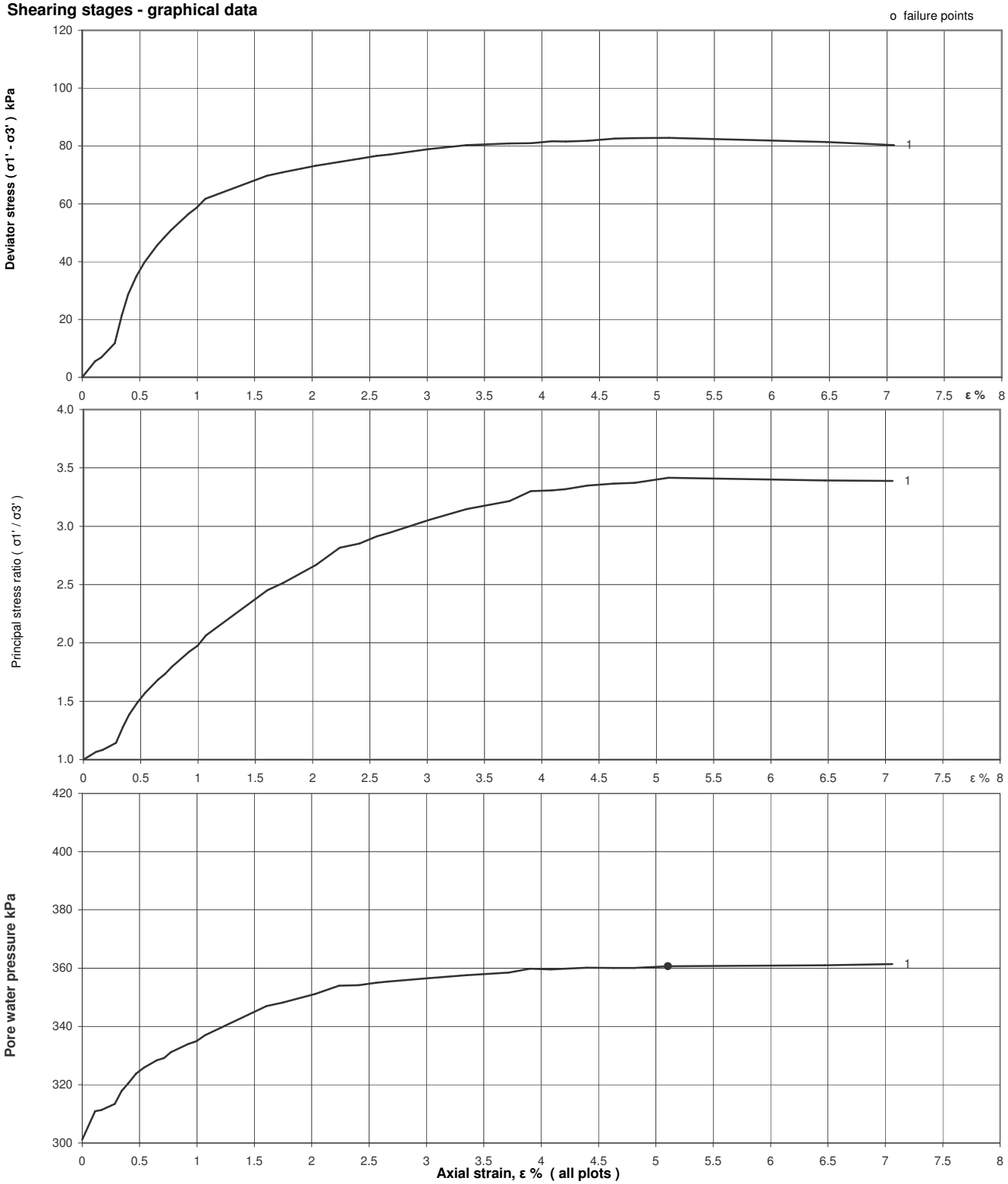
Consolidation Details							
	Drainage Conditions		From radial boundary and one end			
	Specimen No.		1	2	3	
	Cell Pressure applied		395			kPa
	Back Pressure applied		300			kPa
	Effective Pressure		95			kPa
	Pore pressure at start of consolidation		390			kPa
	Pore pressure at end of consolidation		301			kPa
	Pore pressure dissipation at end of consolidation		99			%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	1.87			m^2/year
	Coefficient of Compressibility	M_{vi}	0.36			m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.1E-10			m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-8.50		
			No	26	Type	P
			ID	Sample 2		
			Spec Ref			

Shearing stages - graphical data

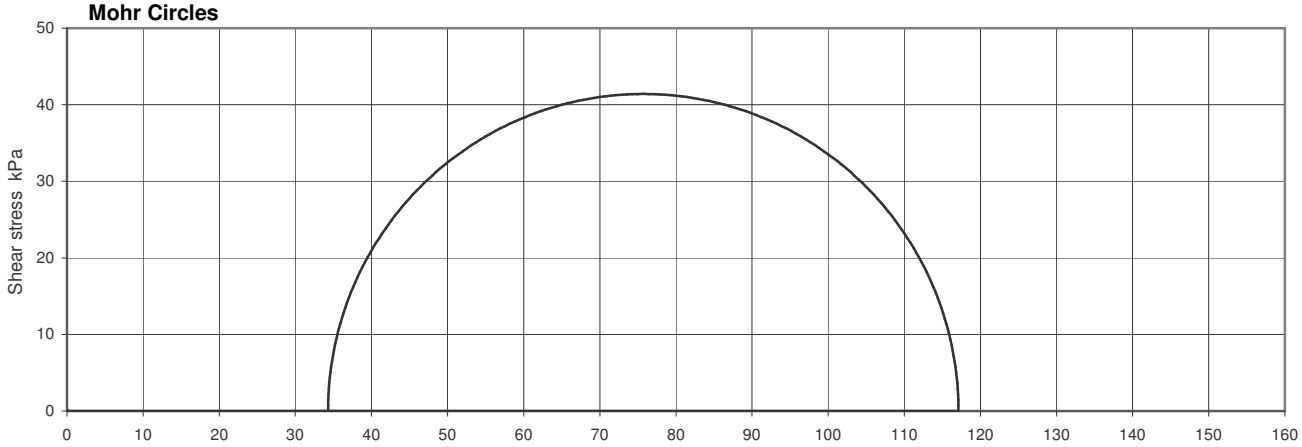


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:08	**CU** sheet 2 of 3

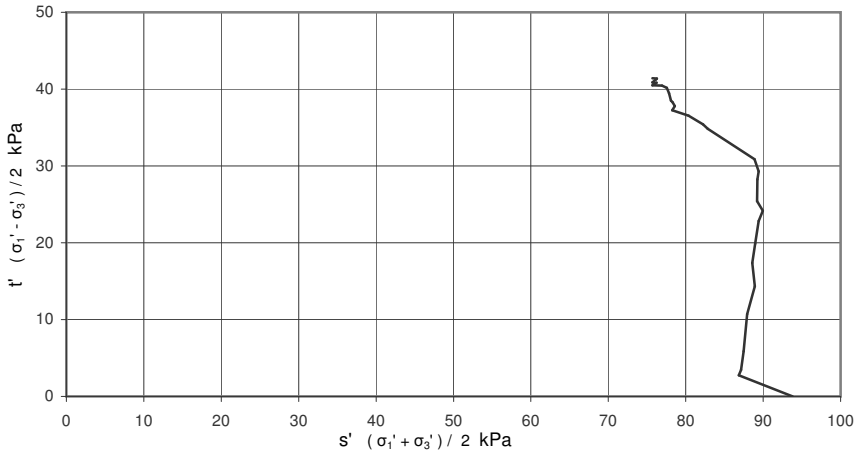
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990)

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	TRINITY BURIAL GROUND		Depth (m BGL)	7.50-8.50		
			No	26	Type	P
			ID	Sample 2		
			Spec Ref			

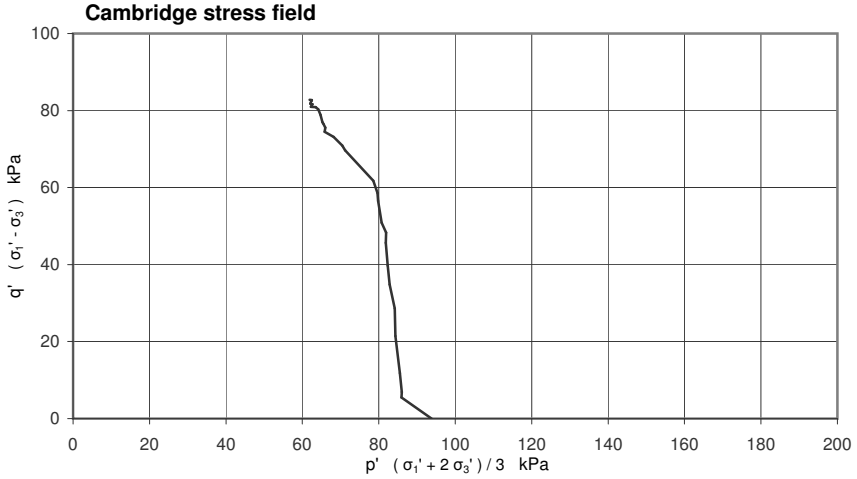
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Specimen	1	2	3	
Cell pressure	395			kPa
Initial pwp	301			kPa
Initial σ_3'	94			kPa
Rate of strain	1.66			%/hr

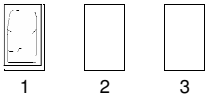
Failure conditions

Criterion	Maximum deviator stress			
Axial strain	5.11			%
$(\sigma_1' / \sigma_3')_f$	3.415			
$(\sigma_1' - \sigma_3')_f$	82.8			kPa
u_f	361			kPa
$\sigma_3'_f$	34			kPa
$\sigma_1'_f$	117			kPa
A_f	0.72			
Time to failure	3.1			hrs

Shear Strength Parameters

		Linear regression
c '	kPa	not assessed
Ø '	degrees	not assessed
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure



Notes : Deviator stresses corrected for area change, vertical side drains and 0.299 mm thick rubber membrane(s)

Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:23/09/2015 10:08	**CU** sheet 3 of 3

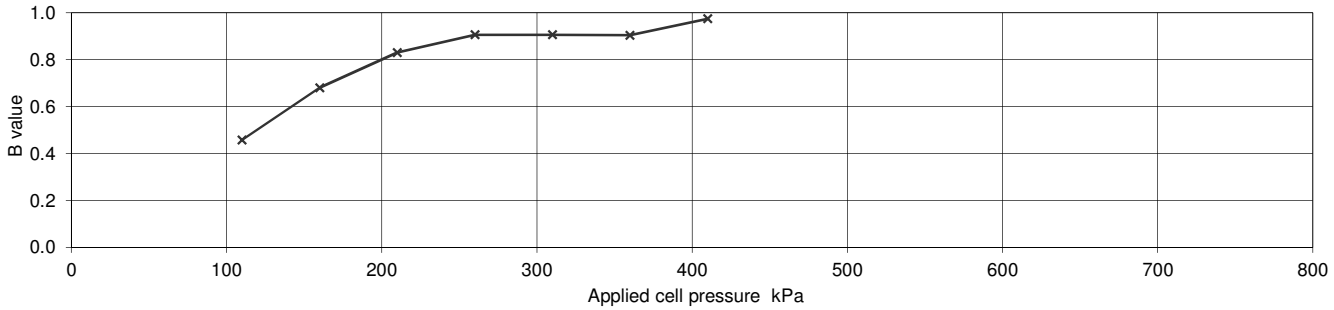
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	Trinity Burial Ground		Depth (m BGL)	2.00-2.45		
			No	9	Type	U
			ID			
			Spec Ref			

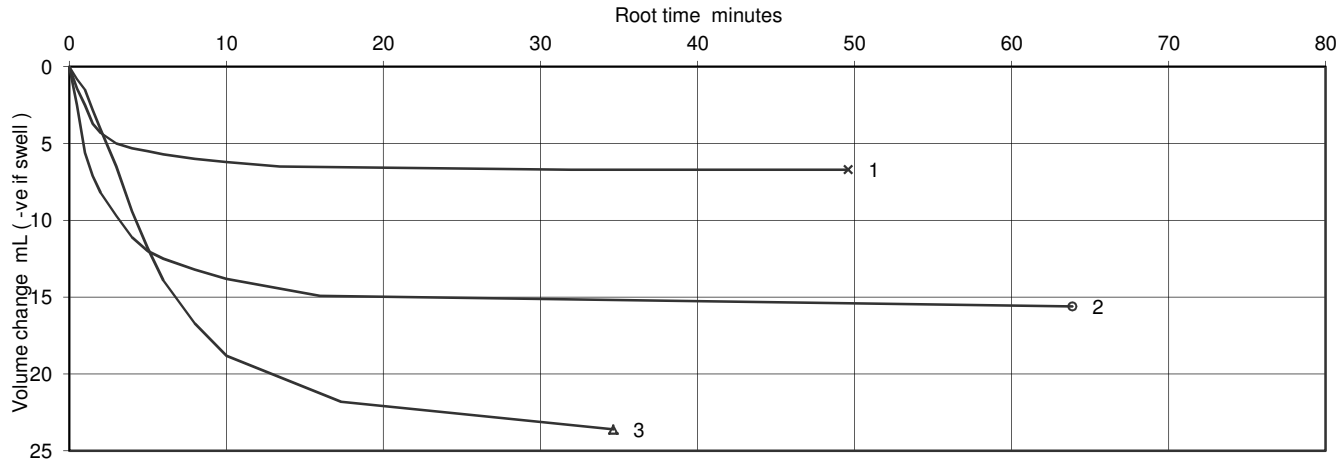
Specimen Details		
Initial		
Length	mm	203.20
Diameter	mm	102.80
Bulk Density	Mg/m³	1.81
Water Content	%	31
Dry density	Mg/m³	1.37
After test		
Bulk Density	Mg/m³	1.88
Water Content	%	33
Dry density	Mg/m³	1.41

Soil Description	Firm reddish brown slightly sandy CLAY.
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation
Cell pressure increments	kPa	50
Differential Pressure	kPa	10
Final Cell Pressure	kPa	410
Final pore water pressure	kPa	396.8
Final B Value		0.97



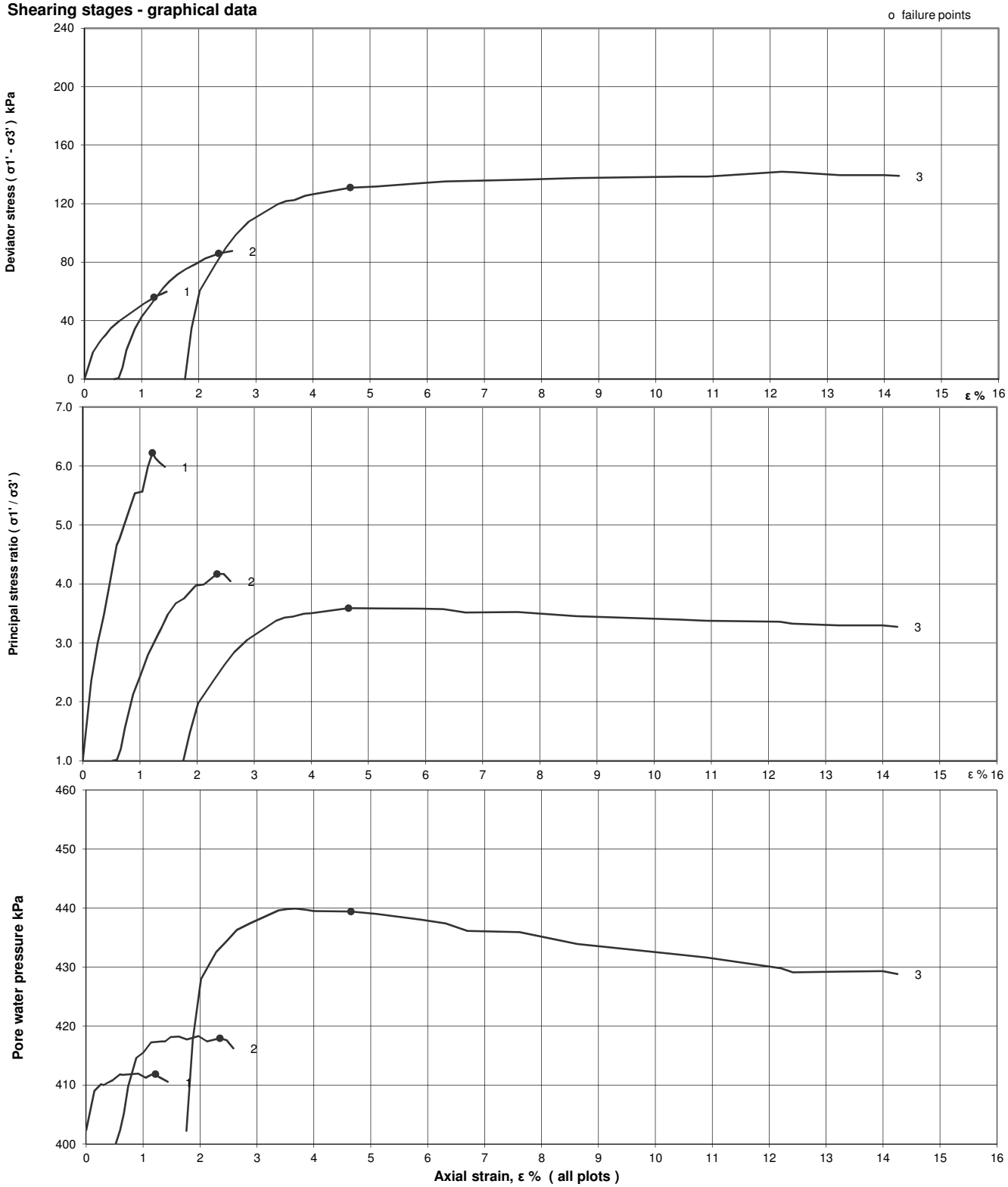
Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Stage No.		1	2	3	
	Cell Pressure applied		423	445	490	kPa
	Back Pressure applied		400	400	400	kPa
	Effective Pressure		23	45	90	kPa
	Pore pressure at start of consolidation		410	427	457	kPa
	Pore pressure at end of consolidation		400	400	401	kPa
	Pore pressure dissipation at end of consolidation		100	100	99	%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	44.41	20.39	2.55	m^2/year
	Coefficient of Compressibility	M_{vi}	0.38	0.34	0.25	m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	5.2E-09	2.2E-09	2.0E-10	m/s



Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	Trinity Burial Ground		Depth (m BGL)	2.00-2.45		
			No	9	Type	U
			ID			
			Spec Ref			

Shearing stages - graphical data

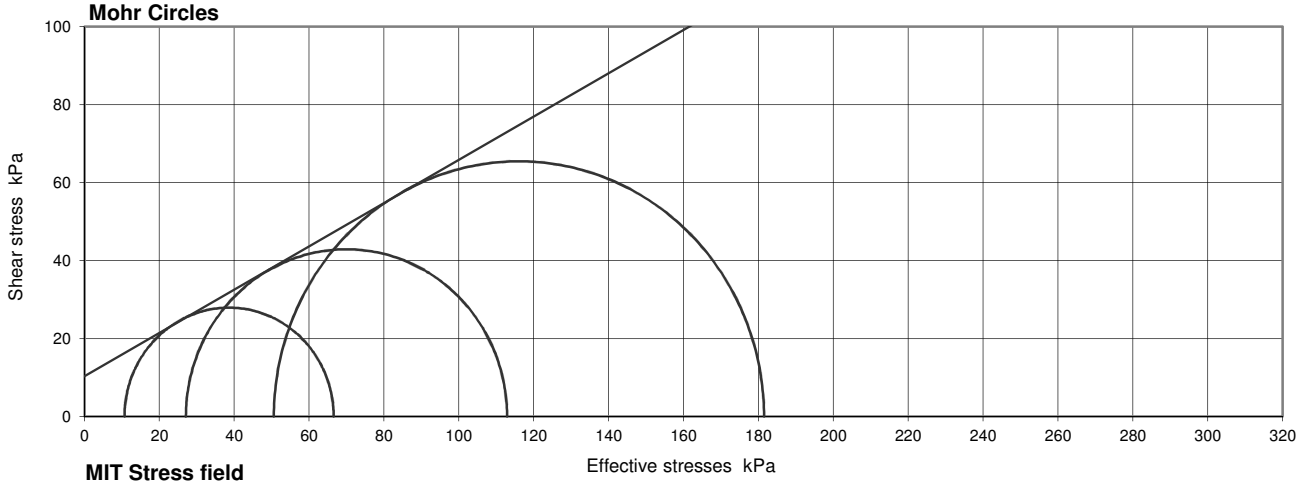


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:18/08/2015 14:54	**CUM** sheet 2 of 3

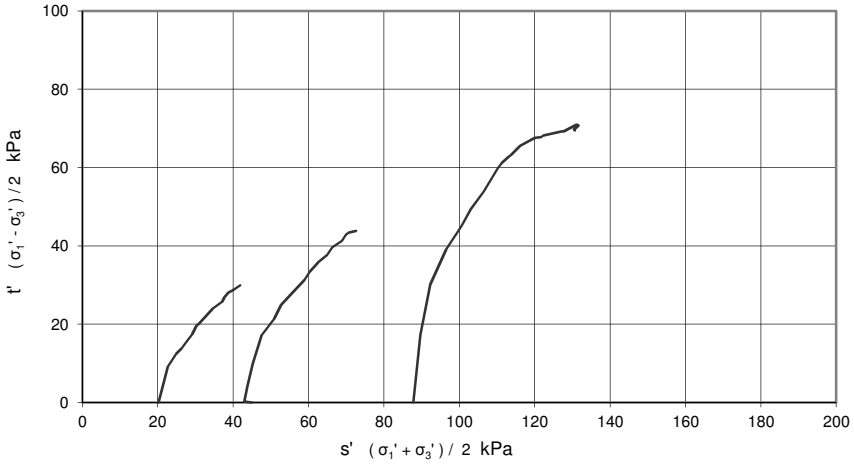
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH306		
Project Name	Trinity Burial Ground		Depth (m BGL)	2.00-2.45		
			No	9	Type	U
			ID			
			Spec Ref			

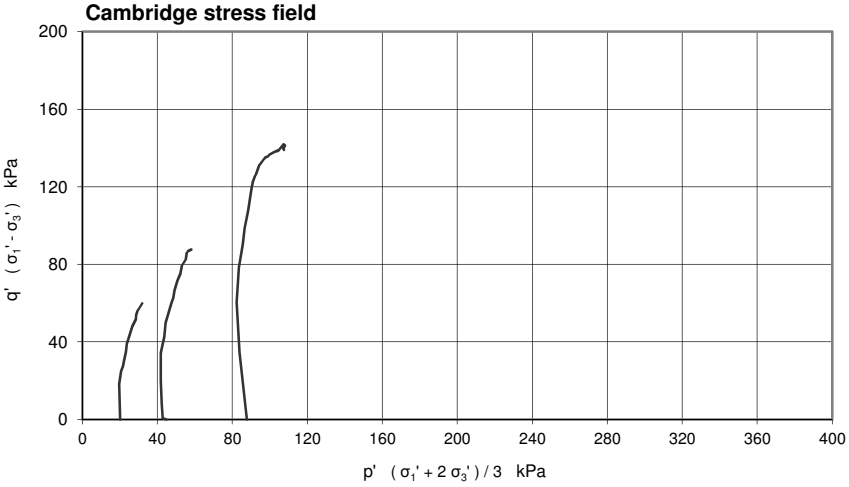
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Stage	1	2	3	
Cell pressure	422.5	445	490	kPa
Initial pwp	402	400	402	kPa
Initial σ_3'	20	45	88	kPa
Rate of strain	2.00	2.00	2.00	%/hr

Failure conditions

Criterion	Maximum effective principal stress ratio			
Axial strain	1.22	2.35	4.65	%
$(\sigma_1' / \sigma_3')_f$	6.220	4.166	3.587	
$(\sigma_1' - \sigma_3')_f$	55.9	85.8	130.9	kPa
u_f	412	418	439	kPa
$\sigma_3'_f$	11	27	51	kPa
$\sigma_1'_f$	67	113	182	kPa
A_f	0.17	0.21	0.28	
Time to failure	0.6	1.2	2.3	hrs

Shear Strength Parameters

at peak stress ratio

		Linear regression
c '	kPa	10.4
Ø '	degrees	29.0
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure

Notes : Deviator stresses corrected for area change, vertical side drains and 0.316 mm thick rubber membrane(s)

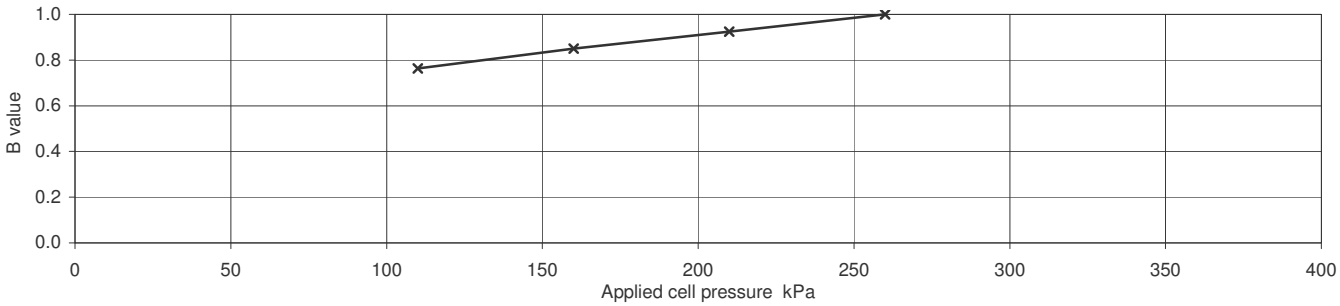
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	Trinity Burial Ground		Depth (m BGL)	16.90-17.35		
			No	46	Type	UT
			ID			
			Spec Ref			

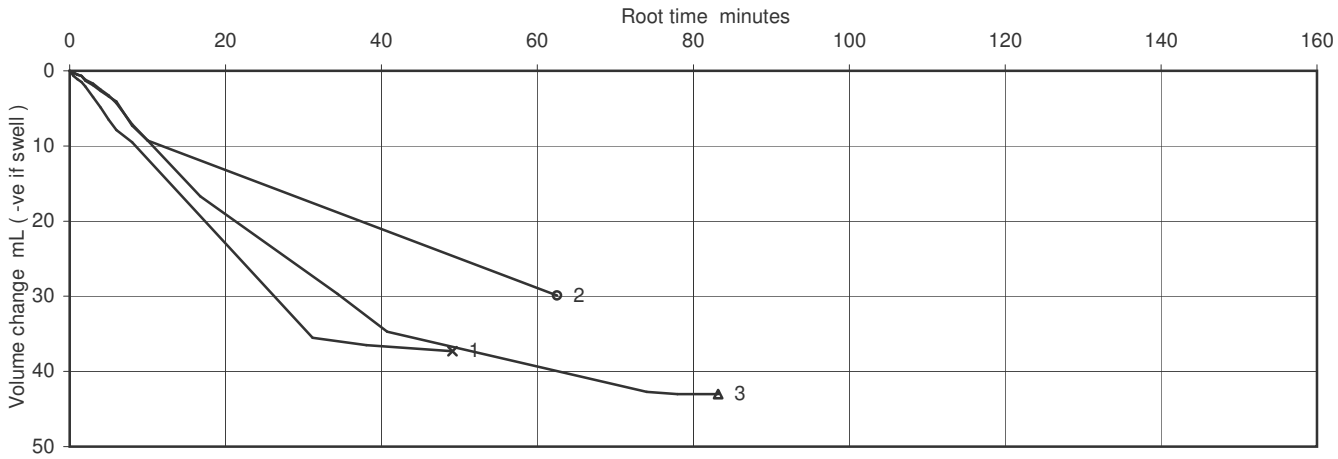
Specimen Details		
Initial		
Length	mm	202.62
Diameter	mm	104.41
Bulk Density	Mg/m³	2.01
Water Content	%	26
Dry density	Mg/m³	1.60
After test		
Bulk Density	Mg/m³	2.07
Water Content	%	22
Dry density	Mg/m³	1.69

Soil Description	Stiff brown slightly gravelly CLAY
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation
		Increments of cell and back pressure
Cell pressure increments	kPa	50
Differential Pressure	kPa	10
Final Cell Pressure	kPa	260
Final pore water pressure	kPa	250.1
Final B Value		0.98



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Stage No.		1	2	3	
	Cell Pressure applied		390	480	660	kPa
	Back Pressure applied		300	300	300	kPa
	Effective Pressure		90	180	360	kPa
	Pore pressure at start of consolidation		379	421	540	kPa
	Pore pressure at end of consolidation		303	303	309	kPa
	Pore pressure dissipation at end of consolidation		96	98	96	%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.23	0.28	0.08	m^2/year
	Coefficient of Compressibility	M_{vi}	0.28	0.15	0.11	m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	2.0E-11	1.3E-11	2.8E-12	m/s

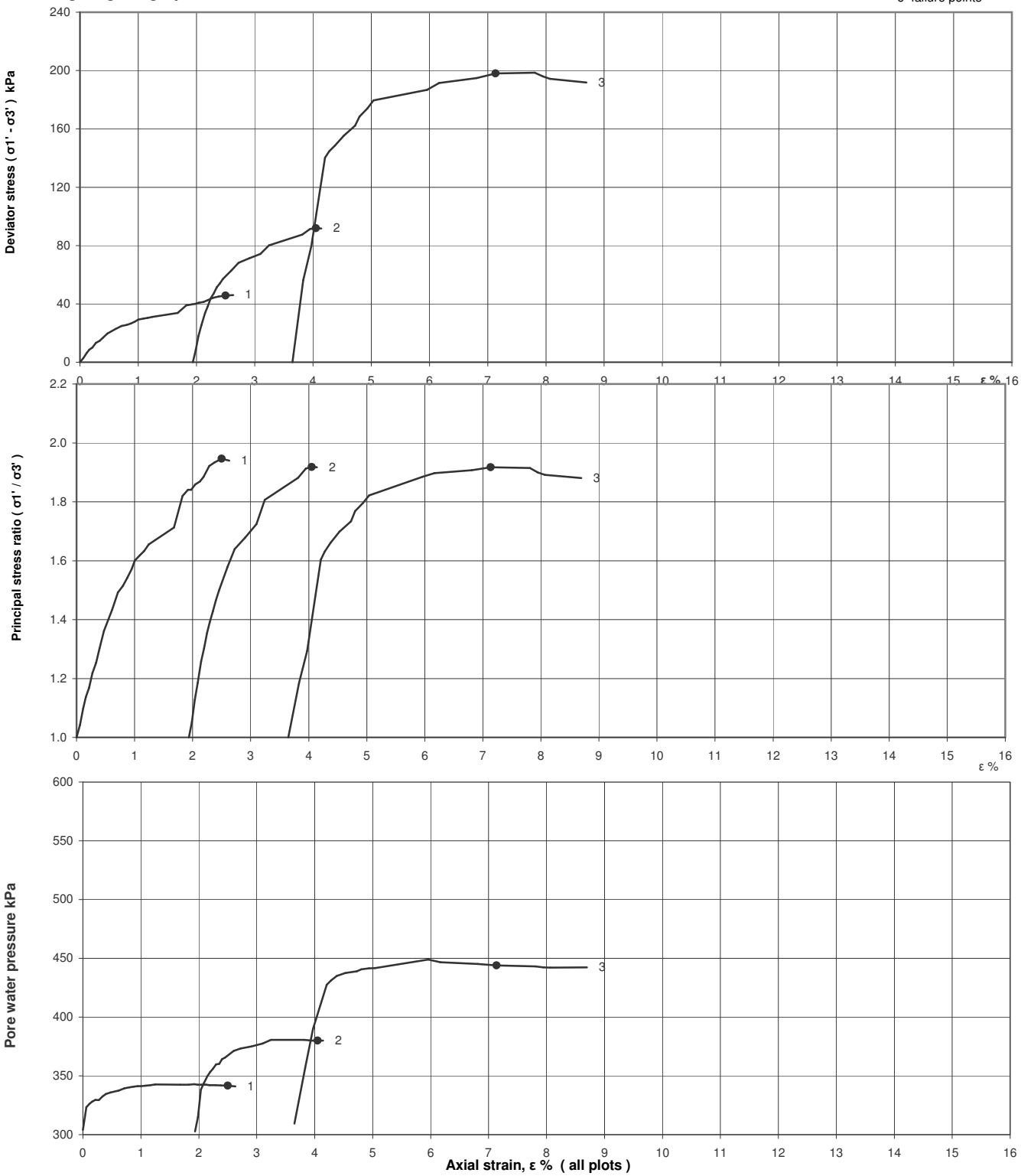


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	Trinity Burial Ground		Depth (m BGL)	16.90-17.35		
			No	46	Type	UT
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points

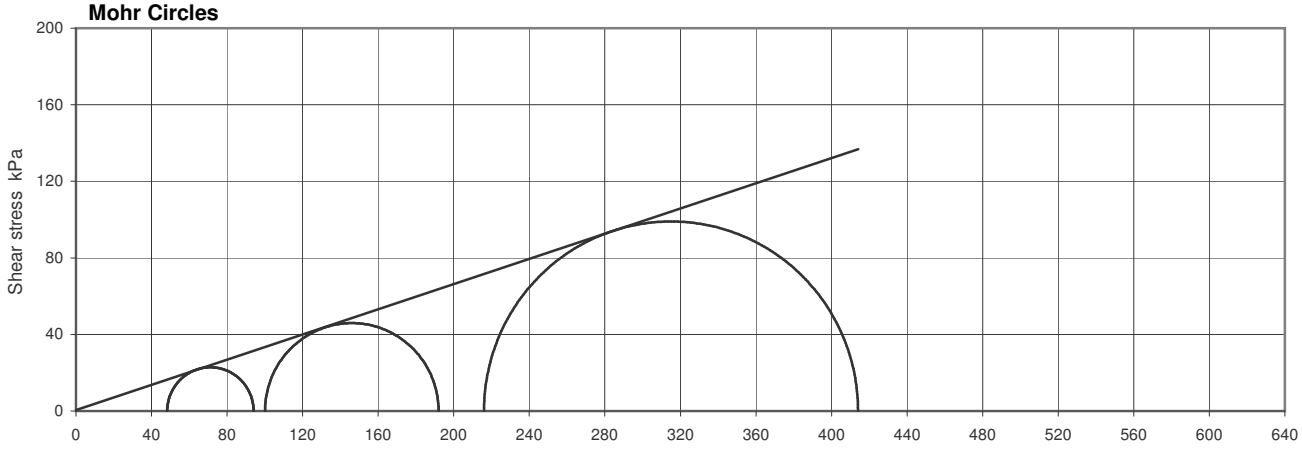


Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:21	**CUM** sheet 2 of 3

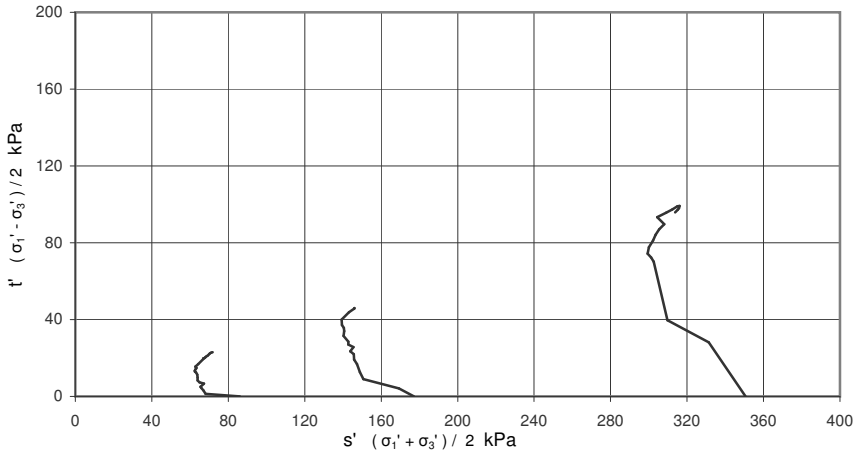
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure
(BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH307		
Project Name	Trinity Burial Ground		Depth (m BGL)	16.90-17.35		
			No	46	Type	UT
			ID			
			Spec Ref			

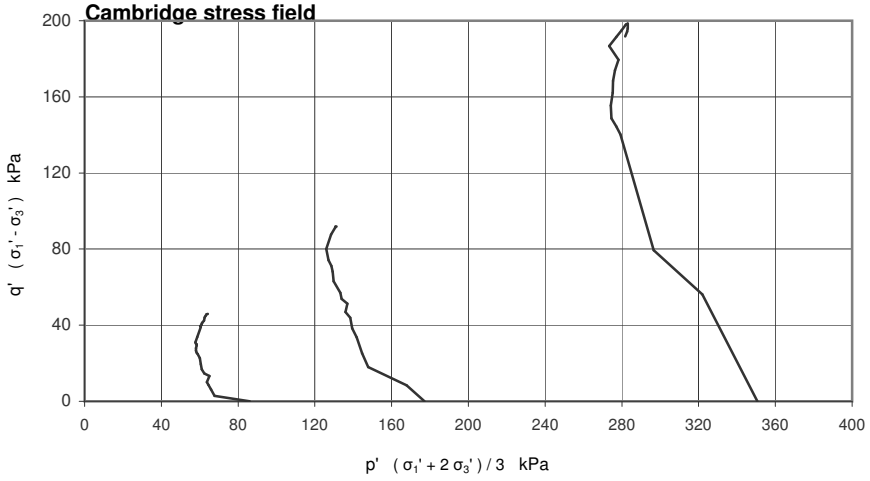
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Stage	1	2	3	
Cell pressure	390	480	660	kPa
Initial pwp	304	303	309	kPa
Initial σ_3'	86	177	351	kPa
Rate of strain	0.16	0.16	0.16	%/hr

Failure conditions

Criterion	Maximum effective principal stress ratio			
Axial strain	2.50	4.05	7.14	%
$(\sigma_1' / \sigma_3')_f$	1.947	1.918	1.917	
$(\sigma_1' - \sigma_3')_f$	45.7	91.9	198.0	kPa
u_f	342	380	444	kPa
$\sigma_3'_f$	48	100	216	kPa
$\sigma_1'_f$	94	192	414	kPa
A_f	0.82	0.84	0.68	
Time to failure	15.4	25.0	44.1	hrs

Shear Strength Parameters

at peak stress ratio

		Linear regression
c '	kPa	0.5
Ø '	degrees	18.2
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure

Notes : Deviator stresses corrected for area change, vertical side drains and 0.316 mm thick rubber membrane(s)

UKAS TESTING 1157

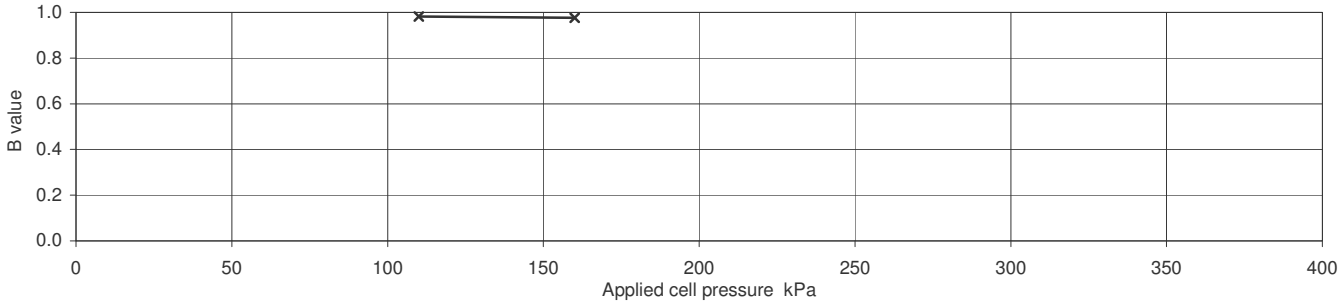
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	Trinity Burial Ground		Depth (m BGL)	19.00-19.40		
			No	42	Type	CS
			ID			
			Spec Ref			

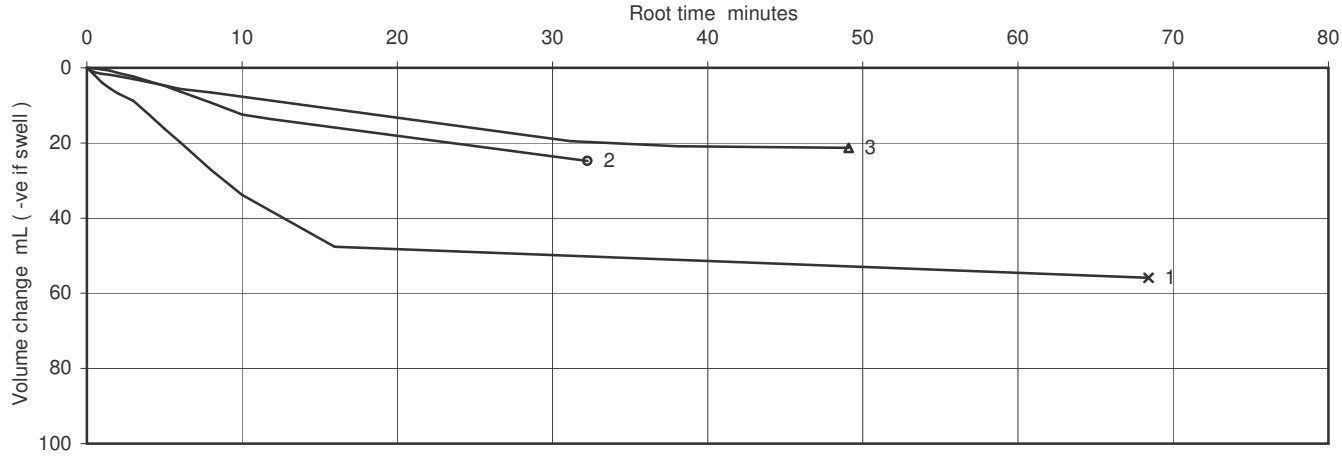
Specimen Details		
Initial		
Length	mm	203.68
Diameter	mm	102.35
Bulk Density	Mg/m³	1.97
Water Content	%	27
Dry density	Mg/m³	1.55
After test		
Bulk Density	Mg/m³	2.02
Water Content	%	24
Dry density	Mg/m³	1.63

Soil Description	Firm brown slightly gravelly laminated SILT
Specimen Type /Preparation	UNDISTURBED

Saturation Details		Method of Saturation
		Increments of cell and back pressure
Cell pressure increments	kPa	50
Differential Pressure	kPa	10
Final Cell Pressure	kPa	160
Final pore water pressure	kPa	150.4
Final B Value		0.98



Consolidation Details	Drainage Conditions		From radial boundary and one end			
	Stage No.		1	2	3	
	Cell Pressure applied		400	500	600	kPa
	Back Pressure applied		300	300	300	kPa
	Effective Pressure		100	200	300	kPa
	Pore pressure at start of consolidation		390	416	452	kPa
	Pore pressure at end of consolidation		300	303	302	kPa
	Pore pressure dissipation at end of consolidation		100	98	99	%
Consolidation parameters (see note to BS1377 : pt 8, clause 6.3.4)	Coefficient of Consolidation	C_{vi}	0.84	0.58	0.25	m^2/year
	Coefficient of Compressibility	M_{vi}	0.37	0.13	0.09	m^2/MN
	Coefficient of Permeability (calculated)	k_{vi}	9.5E-11	2.4E-11	6.9E-12	m/s

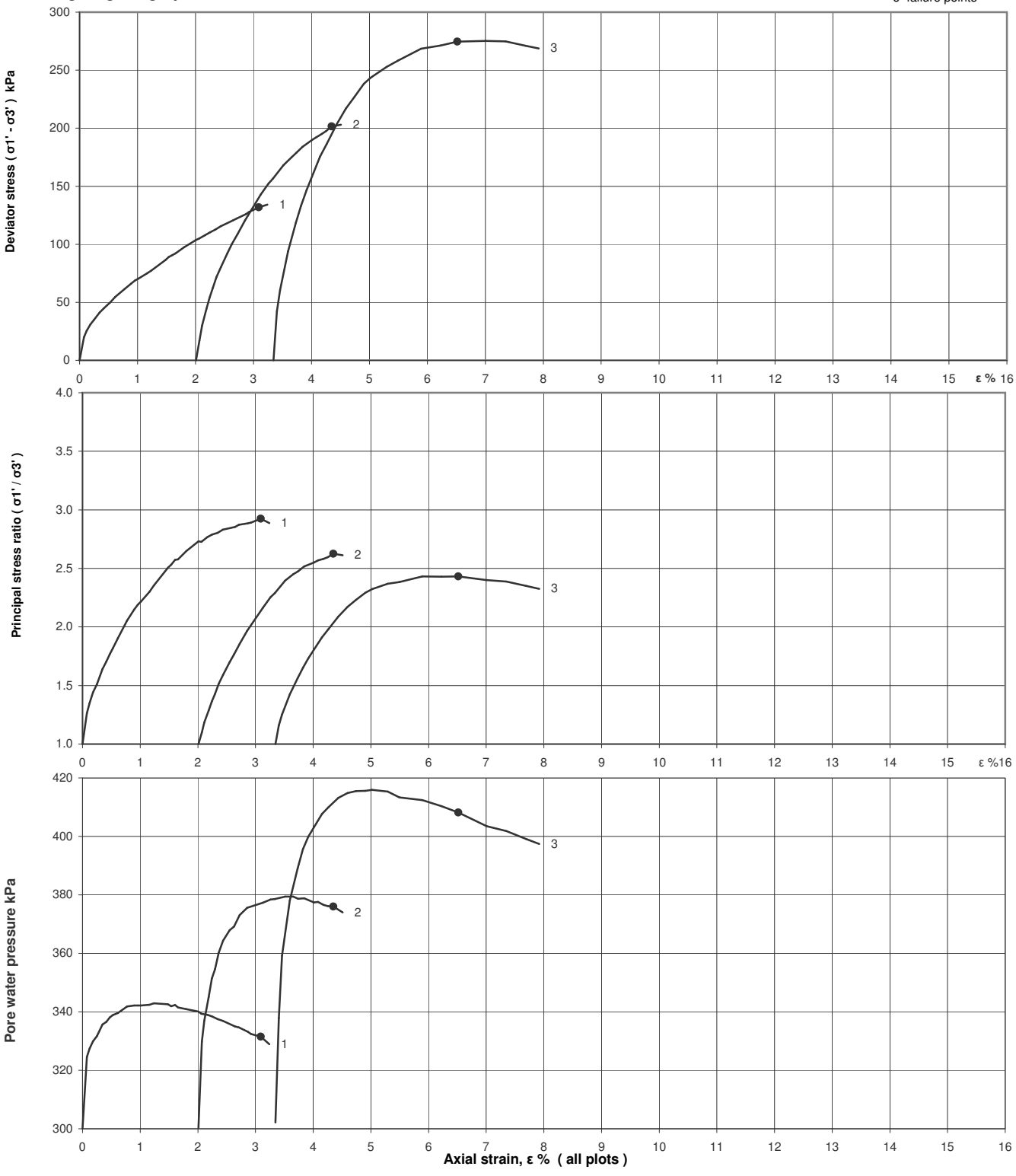


Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	Trinity Burial Ground		Depth (m BGL)	19.00-19.40		
			No	42	Type	CS
			ID			
			Spec Ref			

Shearing stages - graphical data

o failure points



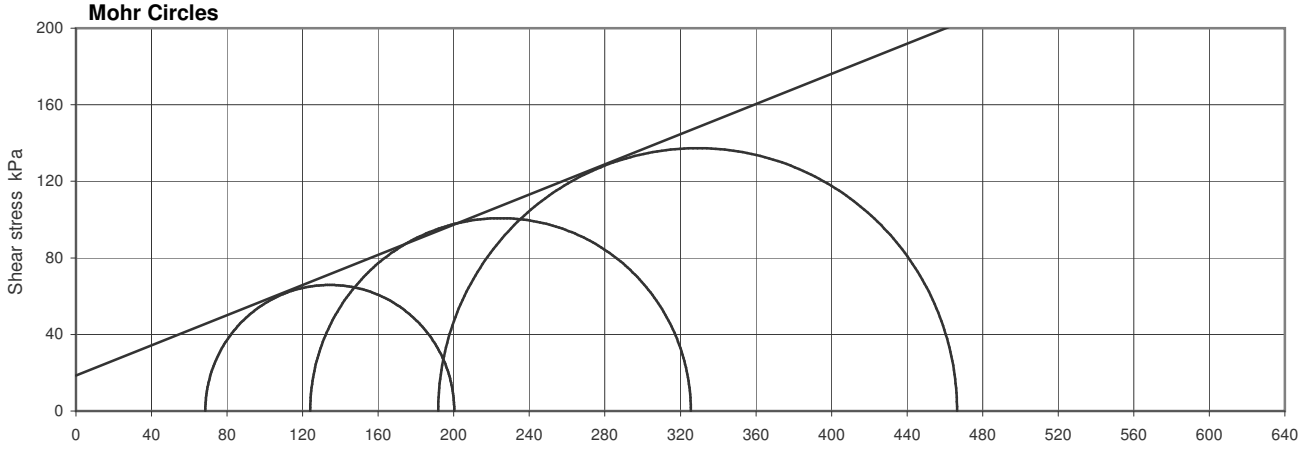
Ref			Figure
SLR8.1 Rev 85 May 09	ESG	Printed:15/09/2015 16:33	**CUM** sheet 2 of 3

UKAS TESTING 1157

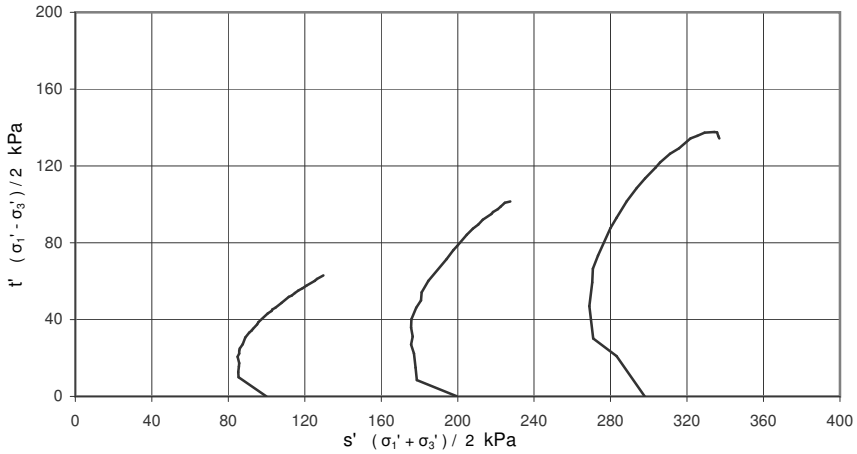
Consolidated Undrained Triaxial Compression test with Measurement of Pore Water Pressure (BS1377 : Part 8 : 1990) - Multistage test on a single specimen

Project No	A5049-15	Sample Details:	Hole No	BH310		
Project Name	Trinity Burial Ground		Depth (m BGL)	19.00-19.40		
			No	42	Type	CS
			ID			
			Spec Ref			

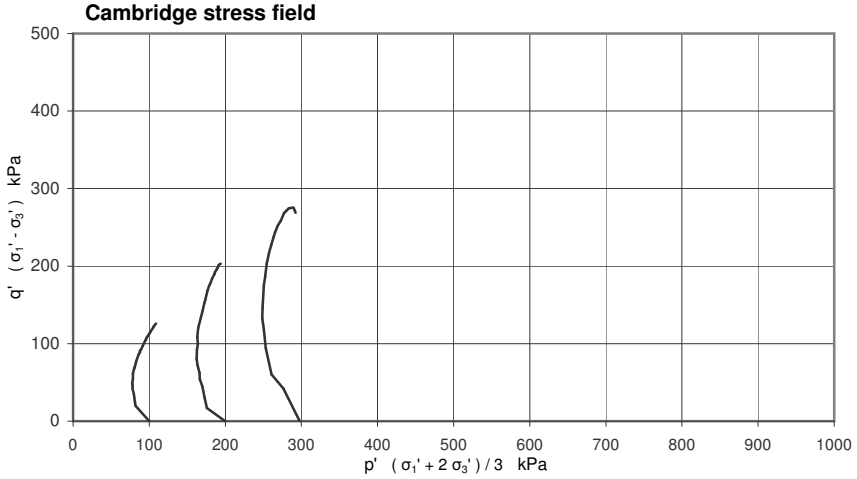
Mohr Circles



MIT Stress field



Cambridge stress field



Compression stages

Stage	1	2	3	
Cell pressure	400	500	600	kPa
Initial pwp	300	300	302	kPa
Initial σ_3'	100	200	298	kPa
Rate of strain	0.64	0.64	0.64	%/hr

Failure conditions

Criterion	Maximum effective principal stress ratio			
Axial strain	3.09	4.35	6.52	%
$(\sigma_1' / \sigma_3')_f$	2.924	2.625	2.432	
$(\sigma_1' - \sigma_3')_f$	131.8	201.5	274.7	kPa
u_f	332	376	408	kPa
$\sigma_3'_f$	69	124	192	kPa
$\sigma_1'_f$	200	326	466	kPa
A_f	0.24	0.38	0.39	
Time to failure	4.9	6.9	10.3	hrs

Shear Strength Parameters

at peak stress ratio

		Linear regression
c '	kPa	18.5
Ø '	degrees	21.5
		Manual re-assessment
c '	kPa	-
Ø '	degrees	-

Mode of failure

Notes : Deviator stresses corrected for area change, vertical side drains and 0.254 mm thick rubber membrane(s)

MC, L+P

Uniaxial Compressive Strength Of Rock - Summary of Results

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	
BH304	46	35.73		CS	CHALK	100.2	192.3		2.19	12.2	10	0	S	8.29	
BH304	47	36.63		CS	CHALK	99.6	210.9		2.18	10.8	10	1	MS	15.7	

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

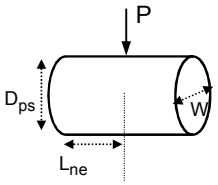
AC - Axial cleavage F - Fragmented

Point Load Index Test
ISRM:1985

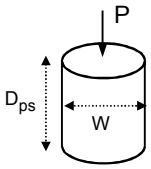
All specimens tested at **as received water content** unless shown otherwise

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction (U = unknown or random)
L - parallel to planes of weakness
P - perpendicular to planes of weakness
Dimensions
D_{ps} - Distance between platens (platen separation)
D_{ps}' - at failure
L_{ne} - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P

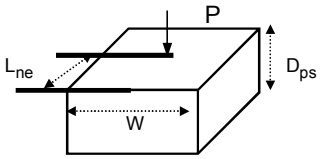
Diametral



Axial



Block/irregular lump



Borehole	Depth, m	Sample Ref	Sample Type	Specimen Ref	Specimen Depth	Rock type	Test Type see ISRM Fig 5 and 8		Failure Valid (Y/N)	Dimensions				LOAD P	De equivalent diameter, mm	Point Load Index MPa $F = (De/50)^{0.45}$		Remarks
							Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN		I_s	$I_{s(50)}$	
BH304	35.32	48	CS			CHALK	A	U	Y		100.3	54.0	53.0	0.30	82.27	0.04	0.06	
BH304	38.00	49	CS			CHALK	A	U	Y		101.3	73.0	66.0	6.60	92.26	0.78	1.02	
BH310	34.35	53	CS			CHALK	I	U	Y	35.0	41.0	53.0	51.0	2.40	51.60	0.90	0.91	
BH310	36.80	54	CS			CHALK	A	U	Y		74.4	56.0	51.0	4.20	69.51	0.87	1.01	

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

APPENDIX F

GEOENVIRONMENTAL LABORATORY TEST RESULTS

Test Reports

EFS/153389
EFS/153468
EFS/153569M
EFS/153908M
EFS/153915M
EFS/153954
EFS/154012
EFS/154083
EFS/154213

TEST REPORT

1252

Report No. EFS/153389 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 3 samples described in this report were registered for analysis by ESG on 15-May-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 29-May-2015

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

The following tables are contained in this report:

On behalf of ESG :
Declan Burns
Managing Director
Multi-Sector Services

Date of Issue: 29-May-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	pH Units	mg/kg	mg/kg
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL	SFAPI	SFAPI
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	0.1	0.5	0.5	3	0.1		0.5	0.5
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Mercury (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**
1549010	BH306 ES 3 0.3	13-May-15	Req	1.4	1.2	15	0.25	27.2	31.4	179.4	0.18	31.5	<0.5	73.9	0.82	8.6	0.68	<0.5
1549011	BH309 ES 3 0.4	13-May-15	Req	2	0.7	12.3	0.18	30	16.2	29.3	<0.1	29.8	<0.5	67.2	0.829	8.7	0.86	<0.5
1549012	BH309 ES 6 0.8	13-May-15	Req	1.2	2.6	16.4	0.41	27.4	41	169.1	0.12	27.2	<0.5	114.5	1.09	8.5	<0.5	<0.5

ESG

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**29-May-2015**
Report Number	**EFS/153389**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	µg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	
Method Codes :			Sub020	TPHFIDUS	TPHFIDUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	PCBUSECDAR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	
Method Reporting Limits :				10	10	10		0.6	0.1		0.02	5	1	2	6	4	2	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**^Asbestos ID & Quan**	**TPH Band (>C10-C40)**	**TPH by GCFID (AR)**	**TPH by GCFID (Si-UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**PCB-7 Congeners Analysis**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	
1549010	BH306 ES 3 0.3	**13-May-15**	NADIS	566	567	Req	Req	44	<0.1	Req	3.5	<5	<1	<2	11	7	4	
1549011	BH309 ES 3 0.4	**13-May-15**	NADIS			Req		44.2	<0.1		1.74	<5	<1	<2	<6	<4	<2	
1549012	BH309 ES 6 0.8	**13-May-15**	NADIS			Req		48.9	<0.1		0.90	<5	<1	<2	<6	<4	<2	

ESG

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**29-May-2015**
Report Number	**EFS/153389**
Table Number	**1**

Where individual results are flagged see report notes for status.

		Units :	mg/kg	mg/kg															
		Method Codes :	PAHMSUS	PAHMSUS															
		Method Reporting Limits :																	
		UKAS Accredited :	Yes	Yes															
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**PAH (16) by GCMS**	**PAH (17) by GCMS**															
1549010	BH306 ES 3 0.3	**13-May-15**		Req															
1549011	BH309 ES 3 0.4	**13-May-15**	Req																
1549012	BH309 ES 6 0.8	**13-May-15**	Req																

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**29-May-2015**
Report Number	**EFS/153389**
Table Number	**1**

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH306 ES 3 0.3	**Job Number:**	S15_3389
LIMS ID Number:	CL1549010	**Date Booked in:**	15-May-15
QC Batch Number:	150488	**Date Extracted:**	19-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	19-May-15
Directory:	1915PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.84	1.34	99
Acenaphthylene	208-96-8	3.88	0.58	98
Acenaphthene	83-32-9	3.99	0.97	98
Fluorene	86-73-7	4.32	1.16	99
Phenanthrene	85-01-8	5.07	11.80	100
Anthracene	120-12-7	5.11	3.71	97
Fluoranthene	206-44-0	6.29	22.40	95
Pyrene	129-00-0	6.55	18.00	95
Benzo[a]anthracene	56-55-3	8.17	10.40	95
Chrysene	218-01-9	8.22	9.30	99
Benzo[b]fluoranthene	205-99-2	9.67	9.00	100
Benzo[k]fluoranthene	207-08-9	9.70	3.70	100
Benzo[a]pyrene	50-32-8	10.08	7.30	96
Indeno[1,2,3-cd]pyrene	193-39-5	11.45	4.56	95
Dibenzo[a,h]anthracene	53-70-3	11.48	1.06	94
Benzo[g,h,i]perylene	191-24-2	11.73	3.24	96
Coronene	191-07-1	13.42	0.87	85
Total (USEPA16) PAHs	-	-	108.52	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	96
Acenaphthene-d10	98
Phenanthrene-d10	102
Chrysene-d12	118
Perylene-d12	137

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	95
Terphenyl-d14	70

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH309 ES 3 0.4	**Job Number:**	S15_3389
LIMS ID Number:	CL1549011	**Date Booked in:**	15-May-15
QC Batch Number:	150488	**Date Extracted:**	19-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	19-May-15
Directory:	1915PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	5.07	0.32	99
Anthracene	120-12-7	5.11	0.09	98
Fluoranthene	206-44-0	6.29	0.59	96
Pyrene	129-00-0	6.55	0.50	96
Benzo[a]anthracene	56-55-3	8.17	0.31	95
Chrysene	218-01-9	8.22	0.34	98
Benzo[b]fluoranthene	205-99-2	9.67	0.40	96
Benzo[k]fluoranthene	207-08-9	9.70	0.13	96
Benzo[a]pyrene	50-32-8	10.08	0.27	98
Indeno[1,2,3-cd]pyrene	193-39-5	11.44	0.22	70
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	11.73	0.18	97
Total (USEPA16) PAHs	-	-	< 3.75	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	102
Acenaphthene-d10	102
Phenanthrene-d10	105
Chrysene-d12	106
Perylene-d12	110

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
Terphenyl-d14	70

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH309 ES 6 0.8	**Job Number:**	S15_3389
LIMS ID Number:	CL1549012	**Date Booked in:**	15-May-15
QC Batch Number:	150488	**Date Extracted:**	19-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	19-May-15
Directory:	1915PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	94
Acenaphthene-d10	92
Phenanthrene-d10	90
Chrysene-d12	81
Perylene-d12	78

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	98
Terphenyl-d14	68

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_3389
QC Batch Number: 150484
Directory: 0518PCB.GC8
Method: Ultrasonic

Matrix: SOIL
Date Booked in: 15-May-15
Date Extracted: 18-May-15
Date Analysed: 19-May-14

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

			Concentration, (µg/kg)						
Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
* CL1549010	BH306 ES 3 0.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Where individual results are flagged see report notes for status.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3389
Directory: D:\TES\DATA\Y2015\0520HSA_GC12\150520 2015-05-20 14-53-50\046F4601.D
Method: HEADSPACE GCFID

Matrix: Soil
Date Booked in: 15-May-15
Date extracted: 20-May-15
Date Analysed: 21-May-15, 06:02:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1549010	BH306 ES 3 0.3	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549011	BH309 ES 3 0.4	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549012	BH309 ES 6 0.8	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3389
QC Batch Number: 150488
Directory: D:\TES\DATA\Y2013\02\052015TPH_GC3\033F4701.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

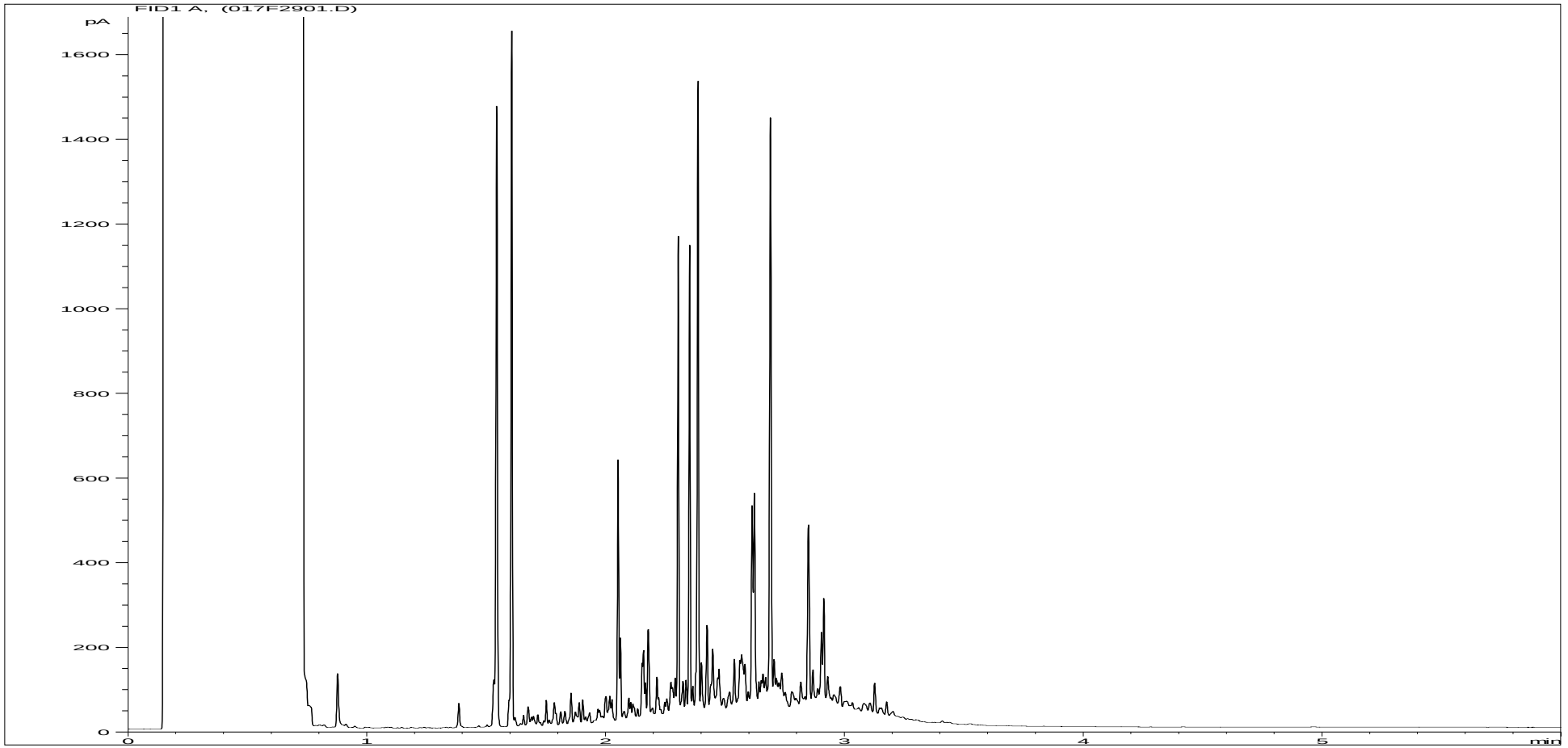
Matrix: Soil
Date Booked in: 15-May-15
Date Extracted: 19-May-15
Date Analysed: 20-May-15

Bands marked with a ' * ' are not UKAS Accredited

		Concentration, (mg/kg) - as wet weight												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1549010	BH306 ES 3 0.3	<4	Not Found	<4	Not Found	5.61	Not Found	27.6	Not Found	<5.62	Not Found	Not Found	36.6	Not Found
CL1549011	BH309 ES 3 0.4	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found
CL1549012	BH309 ES 6 0.8	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found	Not Found

Where individual results are flagged see report notes for status.

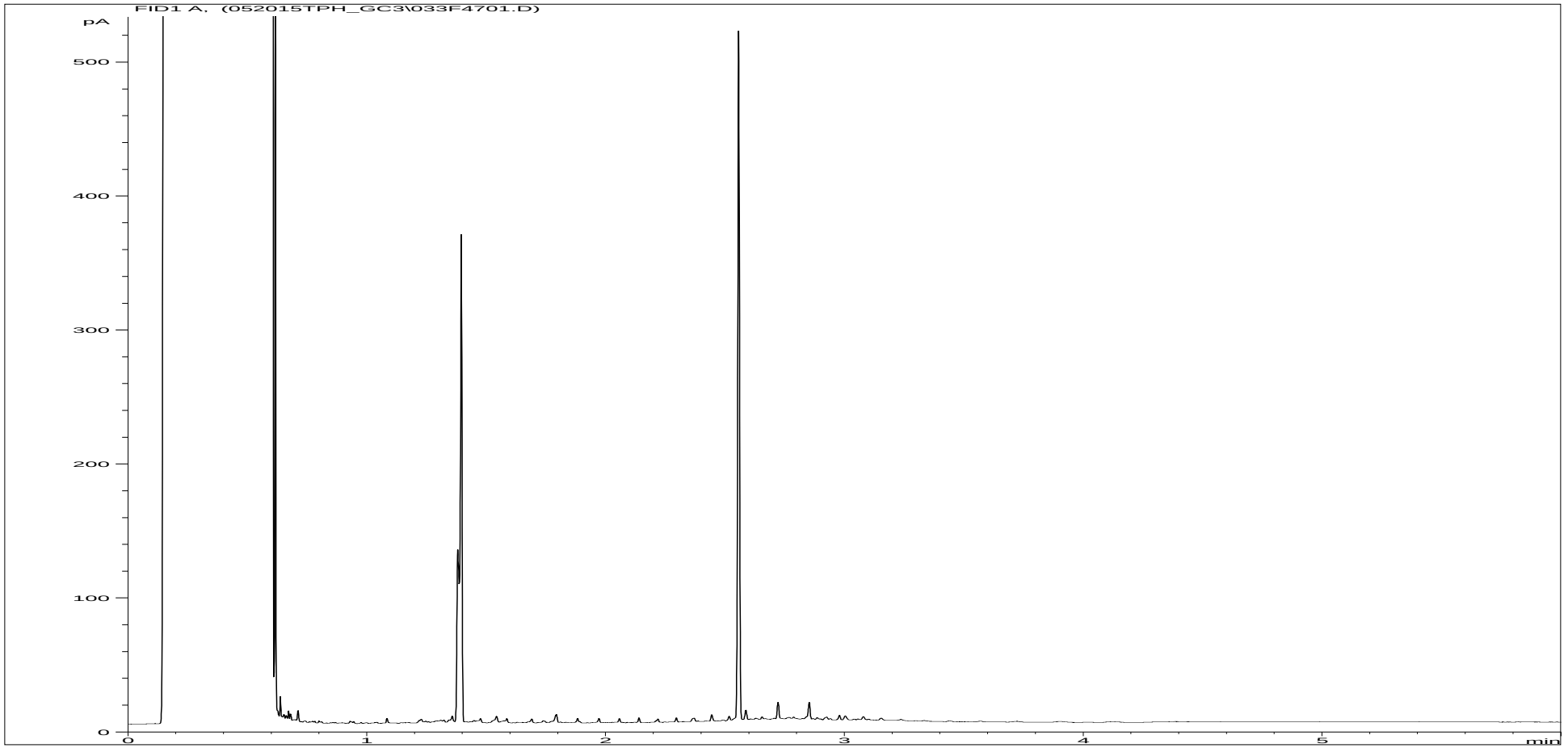
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549010	**Job Number:**	S15_3389
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 3 0.3
Acquisition Date/Time:	19-May-15, 16:20:44		
Datafile:	D:\TES\DATA\Y2015\051915TPH_GC4\051915 2015-05-19 09-23-15\017F2901.D		

Where individual results are flagged see report notes for status.

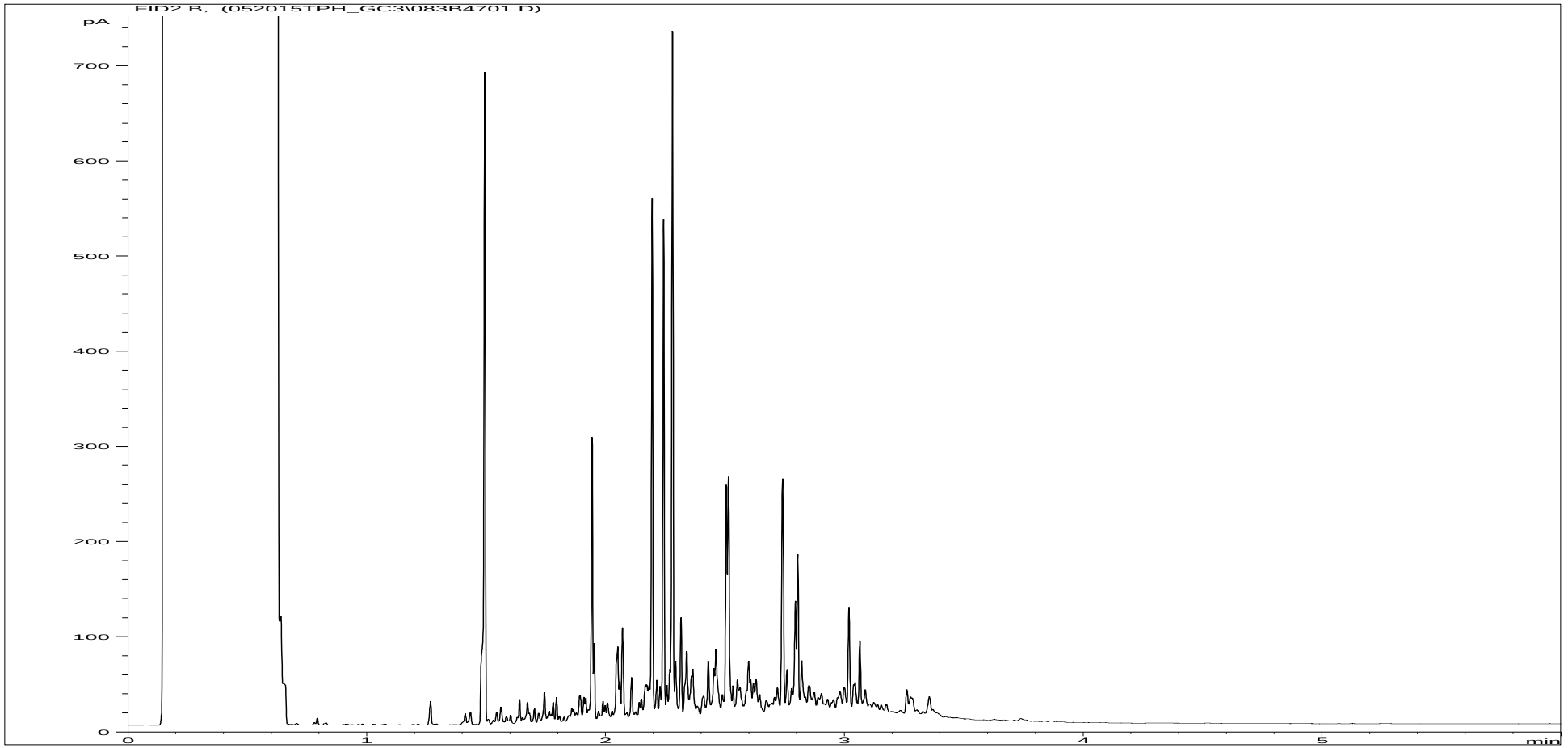
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549010ALI	**Job Number:**	S15_3389
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 3 0.3
Acquisition Date/Time:	20-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052015TPH_GC3\033F4701.D		

Where individual results are flagged see report notes for status.

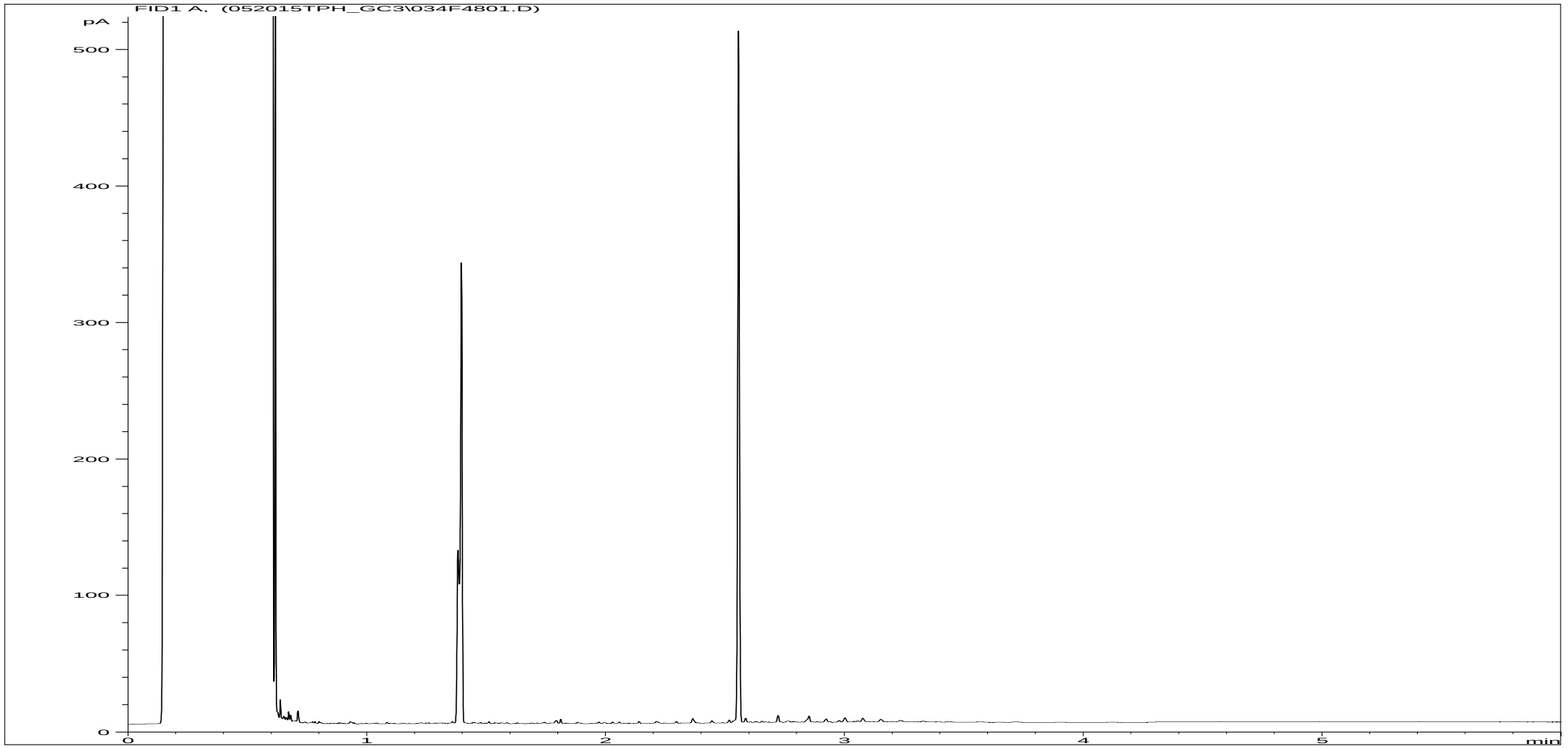
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549010ARO	**Job Number:**	S15_3389
Multiplier:	12.16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 3 0.3
Acquisition Date/Time:	20-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052015TPH_GC3\083B4701.D		

Where individual results are flagged see report notes for status.

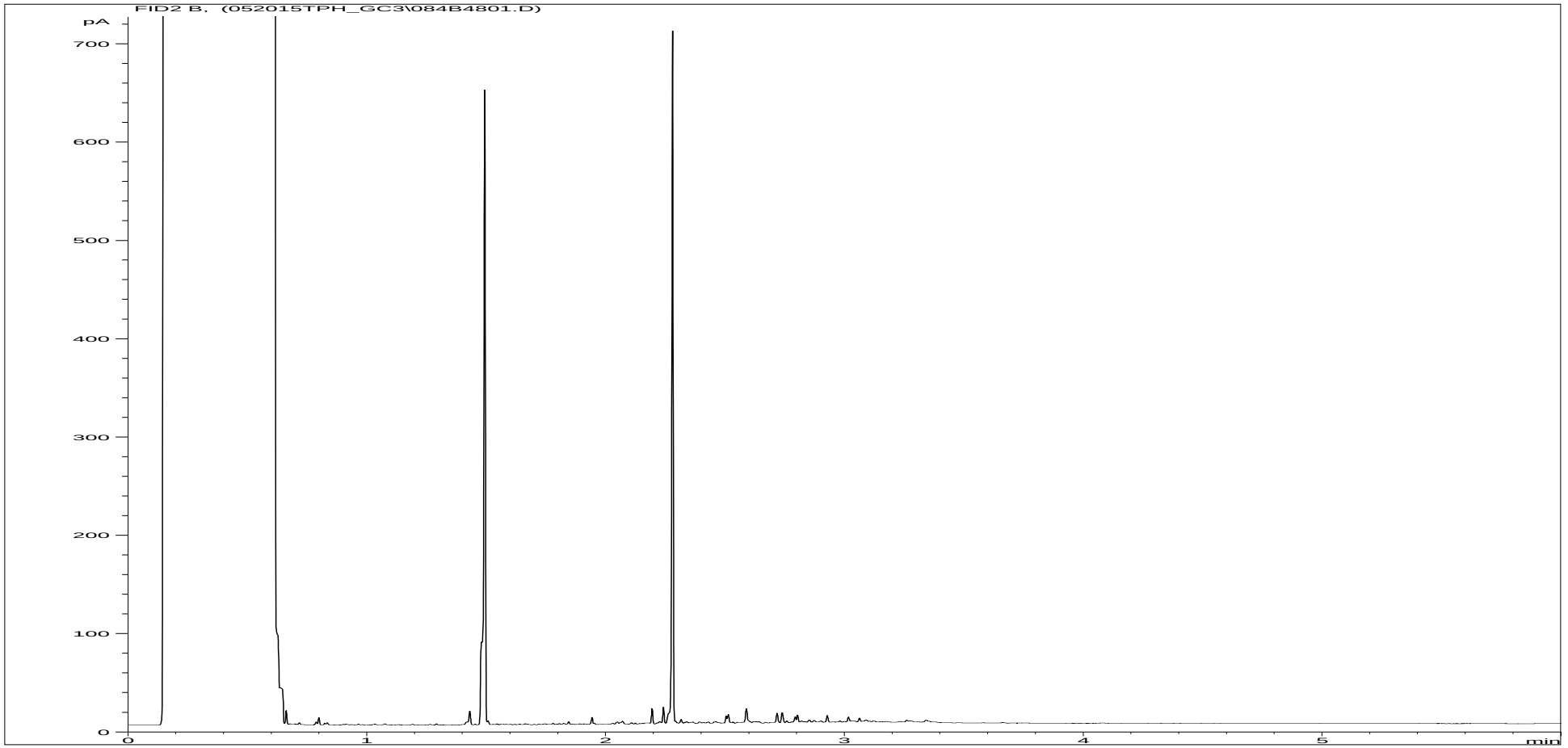
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549011ALI	**Job Number:**	S15_3389
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 3 0.4
Acquisition Date/Time:	20-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052015TPH_GC3\034F4801.D		

Where individual results are flagged see report notes for status.

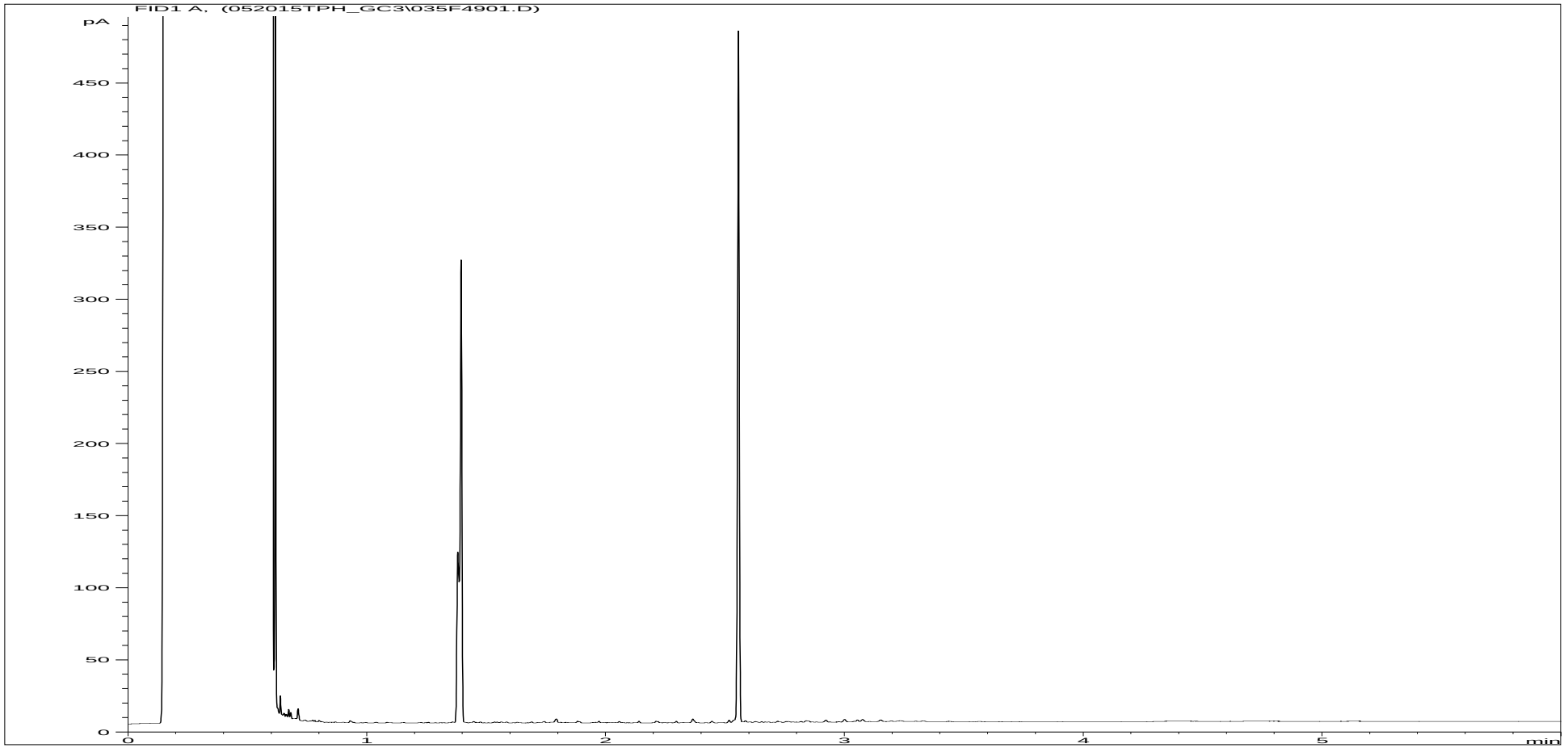
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549011ARO	**Job Number:**	S15_3389
Multiplier:	12.32	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 3 0.4
Acquisition Date/Time:	20-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052015TPH_GC3\084B4801.D		

Where individual results are flagged see report notes for status.

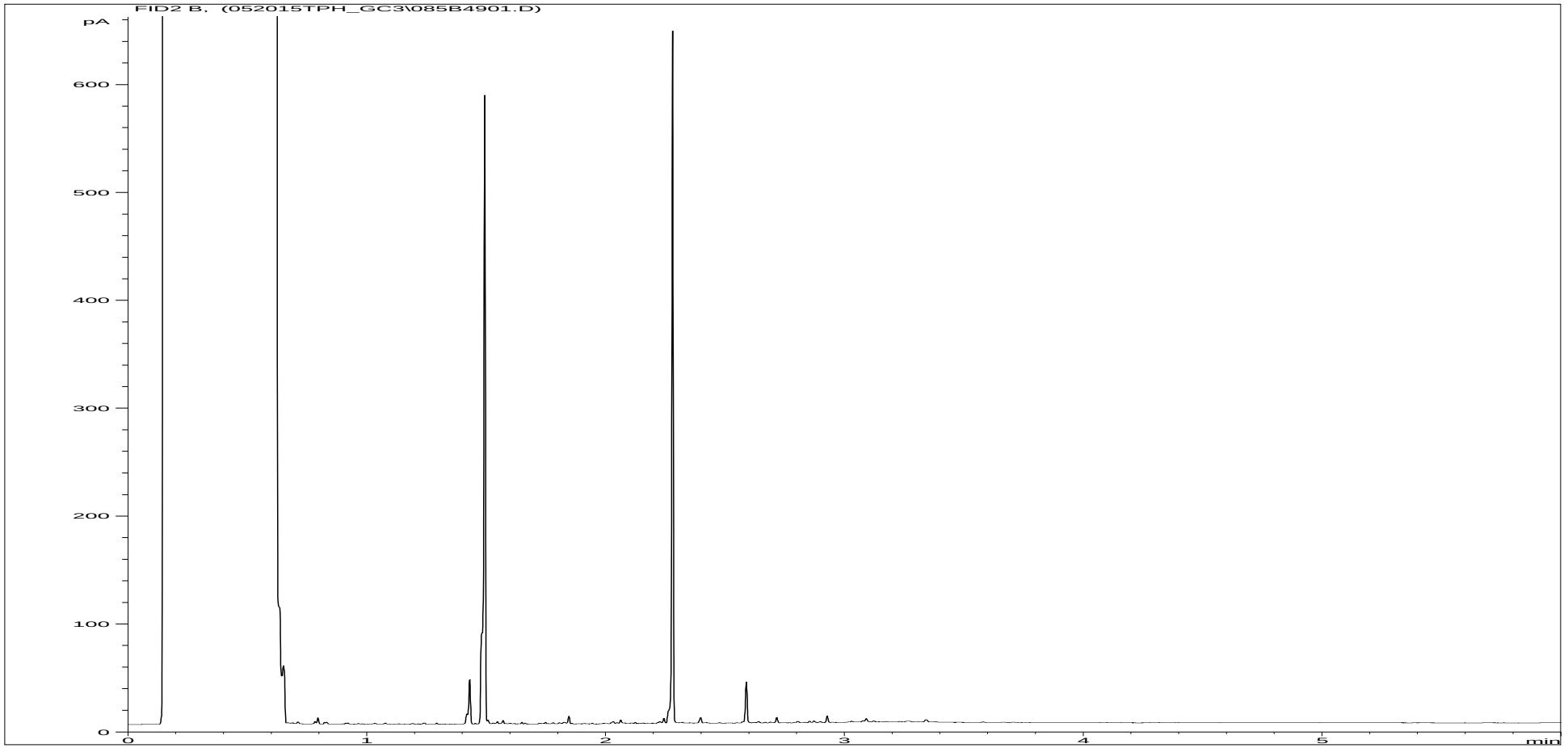
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549012ALI	**Job Number:**	S15_3389
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 6 0.8
Acquisition Date/Time:	20-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052015TPH_GC3\035F4901.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1549012ARO	**Job Number:**	S15_3389
Multiplier:	12.8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 6 0.8
Acquisition Date/Time:	20-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052015TPH_GC3\085B4901.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	519VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH306 ES 3 0.3	**Date Booked in:**	15-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549010	**Date Analysed:**	20-May-15	**Multiplier:**	1.01
Job Number:	S15_3389	**Operator:**	PR	**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	-	< 5	-
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	5.62	7	M

Target Compounds	CAS #	R.T. (min.)	Concentration µg/kg	% Fit
o-Xylene	95-47-6	5.76	4	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	7.24	57	M
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	4.11	74	Dibromofluoromethane	112
1,4-Difluorobenzene	4.45	68	Toluene-d8	97
Chlorobenzene-d5	5.56	55		
Bromofluorobenzene	5.96	42		
1,4-Dichlorobenzene-d4	6.35	32		
Naphthalene-d8	7.22	11		

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.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.271
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	17.0
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.404
					Fraction of sample above 4 mm %	41.200
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH306 ES 3 0.3		s15_3389	CL/1549010	29-May-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	3.6	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.022	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	682	500		
U	PAHMSUS	PAH Sum of 17 (mg/kg)	131.8	100		
U	PHSOIL	pH (pH units)	8.6		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	8.1	8.2	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	370	163					
U	ICPMSW	Arsenic	0.035	0.039	0.07	0.38	0.5	2	25
U	ICPWATVAR	Barium	0.11	0.11	0.22	1.1	20	100	300
U	ICPMSW	Cadmium	0.0002	0.0004	0.0004	0.004	0.04	1	5
U	ICPMSW	Chromium	0.008	0.006	0.016	0.06	0.5	10	70
U	ICPMSW	Copper	0.028	0.05	0.056	0.47	2	50	100
U	ICPMSW	Mercury	0.0003	<0.0001	0.0006	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.027	0.004	0.054	0.07	0.5	10	30
U	ICPMSW	Nickel	0.006	0.007	0.012	0.07	0.4	10	40
U	ICPMSW	Lead	0.03	0.261	0.06	2.3	0.5	10	50
U	ICPMSW	Antimony	0.009	0.003	0.018	0.04	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.001	0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.062	0.19	0.124	1.73	4	50	200
U	KONENS	Chloride	17	9	34	101	800	15000	25000
U	ISEF	Fluoride	1.5	0.7	3	8	10	150	500
U	ICPWATVAR	Sulphate as SO4	57	8	114	145	1000	20000	50000
N	WSLM27	Total Dissolved Solids	289	127	578	1486	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	14	18	28	175	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153389

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153389

Consignment No S48147
Date Logged 15-May-2015

Report Due 21-May-2015

ID Number	Description	MethodID	CEN Leachate		CustServ	GROHSA	ICPBOR	ICPMSS											ICPSOIL	KONECR	PAHMSUS		PCBUSECOAR	PHSOIL	SFAPI		Sub020
		Sampled	CEN Leac(P)1	CEN Leac(P)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Mercury (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	PAH (17) by GCMS	PCB-7 Congeners Analysis	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos ID & Quan
						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓	✓	✓
CL/1549010	BH306 0.3	13/05/15																									
CL/1549011	BH309 0.4	13/05/15																									
CL/1549012	BH309 0.8	13/05/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153389

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153389

Consignment No S48147
Date Logged 15-May-2015

Report Due 21-May-2015

ID Number	Description	MethodID	TPHFIDUS		TPHUSSI	VOCHSAS			WSLM59
		Sampled	TPH Band (>C10-C40)	TPH by GCFID (AR)	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	
CL/1549010	BH306 0.3	13/05/15							
CL/1549011	BH309 0.4	13/05/15							
CL/1549012	BH309 0.8	13/05/15							

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

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F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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/1549010	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBUSECDAR	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclors by hexane/acetone extraction followed by GCECD detection
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	SubCon*	*	Contact Laboratory for details of the methodology used by the sub-contractor.
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID 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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
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	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
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 the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : Trinity Burial Ground

Report Number : S15_3389

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1549010	BH306 ES 3 0.3	MADE GROUND
CL/1549011	BH309 ES 3 0.4	MADE GROUND
CL/1549012	BH309 ES 6 0.8	SILT

TEST REPORT

1252

Report No. EFS/153468 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 17 samples described in this report were registered for analysis by ESG on 19-May-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 01-Jun-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 01-Jun-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	pH Units	mg/kg	mg/kg
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL	SFAPI	SFAPI
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	0.1	0.5	0.5	3	0.1		0.5	0.5
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Mercury (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**
1549337	BH301 ES 1 0.15	15-May-15	Req	2.6	4.8	33.6	0.66	33.8	95.1	242.2	0.67	39.2	0.7	183.4	1.21	8.1	0.5	<0.5
1549338	BH301 ES 5 0.50	15-May-15	Req	2.5	0.7	13	0.28	31.2	29.4	62.3	0.17	30.2	<0.5	91.3	0.944	7.9	<0.5	<0.5
1549339	BH302 ES 1 0.20	15-May-15	Req	1.7	3.1	27.3	0.64	32.9	107.9	258.2	0.77	33.2	0.8	174.8	1.24	8.0	<0.5	<0.5
1549340	BH302 ES 4 0.40	15-May-15																
1549341	BH302 ES 6 0.70	15-May-15	Req	1.9	0.6	13	0.27	30.3	20.3	63.3	0.18	29.8	<0.5	77.4	0.857	8.2	<0.5	<0.5
1549342	BH303 ES 1 0.20	15-May-15	Req	1.7	4.7	34.2	0.85	30	143.4	373.6	0.94	30.5	1	217.5	1.3	8.1	0.6	<0.5
1549343	BH303 ES 4 0.50	15-May-15	Req	2.4	1.2	15.8	0.32	33.3	32.6	99.5	1.18	32.8	<0.5	96.8	1.03	8.3	<0.5	<0.5
1549344	BH304 ES 1 0.20	15-May-15	Req	1.2	2	17	0.55	17.1	39.3	248	0.22	18.1	<0.5	99.8	0.588	8.5	<0.5	<0.5
1549345	BH305 ES 1 0.20	15-May-15	Req	2.1	10.1	19.4	0.84	35.7	94	744.7	0.53	28.9	0.8	169.4	1.35	8.4	<0.5	<0.5
1549346	BH305 ES 4 0.40	15-May-15	Req	2.5	2.6	17.2	0.34	30.3	274.4	131.2	0.31	31	<0.5	173.6	0.988	8.3	<0.5	<0.5
1549347	BH306 ES 4 0.70	15-May-15	Req	2	1.1	12.1	0.26	29.3	24.1	120.3	0.2	28.3	<0.5	85	0.832	8.3	<0.5	<0.5
1549348	BH307 ES 1 0.20	15-May-15	Req	3.1	6.7	27.9	1.37	33.7	232.6	763.8	1.4	33.7	1.5	276.1	1.32	8.2	<0.5	<0.5
1549349	BH307 ES 4 0.50	15-May-15	Req	2.1	1.1	15.8	0.32	34.7	35.6	121	0.27	34.2	<0.5	108.3	1.08	8.4	<0.5	<0.5
1549350	BH308 ES 1 0.20	15-May-15	Req	2.8	3.9	28.7	0.97	36.9	89.4	357.7	1.85	37.7	1	287.4	1.35	8.1	<0.5	<0.5
1549351	BH308 ES 4 0.40	15-May-15	Req	2.7	9.1	13.5	0.31	31.9	27.4	451.5	0.12	32.8	<0.5	90.6	0.944	8.2	<0.5	<0.5
1549352	BH310 ES 1 0.20	15-May-15	Req	0.5	0.7	12.8	0.34	10.8	15.1	73.6	<0.1	14.7	<0.5	37.8	0.369	8.7	<0.5	<0.5
1549353	BH310 ES 3 0.55	15-May-15	Req	1.2	1.2	13.4	0.27	23.7	28.7	185.6	0.57	23.5	<0.5	63.9	0.697	8.5	<0.5	<0.5

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**01-Jun-2015**
Report Number	**EFS/153468**
Table Number	**1**

Units :				mg/kg	%	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	µg/kg	µg/kg	% M/M	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Method Codes :			Sub002a	SVOCMSUS	TMSS	TPHFIDUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	PCBUSECDAR	PCBUSECDAR	WSLM59	BTEXHSA	BTEXHSA	BTEXHSA	BTEXHSA	BTEXHSA
Method Reporting Limits :					0.2	10	10		0.6	0.1			0.02	10	10	10	30	20
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**^Asbestos Screen**	**SVOC by GCMS (AR)**	**Tot.Moisture @ 105C**	**TPH by GCFID (AR)**	**TPH by GCFID (Si-UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**PCB-12 Congeners Analysis**	**PCB-7 Congeners Analysis**	**Total Organic Carbon**	**Benzene**	**Toluene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**
1549337	BH301 ES 1 0.15	15-May-15			21.4	242	Req	Req	61.7	<0.1		Req	3.57					
1549338	BH301 ES 5 0.50	15-May-15	NAIIS	Req			Req	Req	46.7	<0.1	Req		1.42					
1549339	BH302 ES 1 0.20	15-May-15					Req		63.3	<0.1			3.21					
1549340	BH302 ES 4 0.40	15-May-15			20.5	88		Req				Req	2.13	<10	<10	<10	<30	<20
1549341	BH302 ES 6 0.70	15-May-15	NAIIS		20.7	39	Req	Req	46.4	<0.1		Req	1.22					
1549342	BH303 ES 1 0.20	15-May-15					Req		63.4	<0.1			6.43					
1549343	BH303 ES 4 0.50	15-May-15		Req			Req	Req	53.8	<0.1			1.66					
1549344	BH304 ES 1 0.20	15-May-15			13.5	97	Req	Req	36.7	<0.1		Req	2.17					
1549345	BH305 ES 1 0.20	15-May-15	NAIIS	Req			Req	Req	65.4	<0.1	Req		5.20					
1549346	BH305 ES 4 0.40	15-May-15			19.7	120	Req	Req	50.2	<0.1		Req	2.05					
1549347	BH306 ES 4 0.70	15-May-15					Req		46.1	<0.1			1.20					
1549348	BH307 ES 1 0.20	15-May-15					Req		68.8	<0.1			6.82					
1549349	BH307 ES 4 0.50	15-May-15	NAIIS	Req	19.6	27	Req	Req	56.1	<0.1	Req	Req	2.29					
1549350	BH308 ES 1 0.20	15-May-15			21.1	225	Req	Req	69.1	<0.1		Req	4.15					
1549351	BH308 ES 4 0.40	15-May-15		Req			Req	Req	47.1	<0.1			1.59					
1549352	BH310 ES 1 0.20	15-May-15					Req		28.5	<0.1			0.67					
1549353	BH310 ES 3 0.55	15-May-15	NAIIS		19.1	58	Req	Req	40.7	<0.1	Req	Req	1.15					

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Trinity Burial Ground

Sample Analysis

Date Printed	**01-Jun-2015**
Report Number	**EFS/153468**
Table Number	**1**

Units :			µg/kg	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Method Codes :			BTEXHSA	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS	PAHMSUS	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	
Method Reporting Limits :			10	5	1	2	6	4	2				0.3	0.3	0.3	0.3		
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**o Xylene**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**BTEX-HSA GCMS analysis**	**PAH (16) by GCMS**	**PAH (17) by GCMS**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**	
1549337	BH301 ES 1 0.15	15-May-15		<5	1	<2	<6	<4	<2	Req		Req						
1549338	BH301 ES 5 0.50	15-May-15		<5	<1	<2	<6	<4	<2	Req	Req		<0.3	<0.3	<0.3	<0.3	<1.2	
1549339	BH302 ES 1 0.20	15-May-15		<5	<1	<2	<6	<4	<2	Req	Req							
1549340	BH302 ES 4 0.40	15-May-15	<10									Req						
1549341	BH302 ES 6 0.70	15-May-15		<5	<1	<2	<6	<4	<2	Req		Req						
1549342	BH303 ES 1 0.20	15-May-15		<5	2	<2	<6	<4	<2	Req	Req							
1549343	BH303 ES 4 0.50	15-May-15		<5	1	<2	<6	<4	<2	Req	Req		<0.3	<0.3	<0.3	<0.3	<1.2	
1549344	BH304 ES 1 0.20	15-May-15		<5	<1	<2	<6	<4	<2	Req		Req						
1549345	BH305 ES 1 0.20	15-May-15		<5	<1	<2	<6	<4	<2	Req	Req							
1549346	BH305 ES 4 0.40	15-May-15		<5	<1	<2	<6	<4	<2	Req		Req						
1549347	BH306 ES 4 0.70	15-May-15		<5	<1	<2	<6	<4	<2	Req	Req							
1549348	BH307 ES 1 0.20	15-May-15		<5	<1	<2	<6	<4	<2	Req	Req							
1549349	BH307 ES 4 0.50	15-May-15		<5	<1	<2	<6	<4	<2	Req		Req						
1549350	BH308 ES 1 0.20	15-May-15		<5	<1	<2	<6	<4	<2	Req		Req						
1549351	BH308 ES 4 0.40	15-May-15		<5	<1	<2	<6	<4	<2	Req	Req		<0.3	<0.3	<0.3	<0.3	<1.2	
1549352	BH310 ES 1 0.20	15-May-15		<5	<1	<2	<6	<4	<2	Req	Req							
1549353	BH310 ES 3 0.55	15-May-15		<5	<1	<2	<6	<4	<2	Req		Req						

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**01-Jun-2015**
Report Number	**EFS/153468**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH301 ES 1 0.15	**Job Number:**	S15_3468
LIMS ID Number:	CL1549337	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.15	99
Acenaphthylene	208-96-8	3.72	0.08	99
Acenaphthene	83-32-9	3.83	0.30	98
Fluorene	86-73-7	4.16	0.20	87
Phenanthrene	85-01-8	4.85	3.18	100
Anthracene	120-12-7	4.89	0.75	91
Fluoranthene	206-44-0	6.00	5.83	92
Pyrene	129-00-0	6.25	4.96	94
Benzo[a]anthracene	56-55-3	7.82	2.84	96
Chrysene	218-01-9	7.86	2.97	100
Benzo[b]fluoranthene	205-99-2	9.29	3.67	94
Benzo[k]fluoranthene	207-08-9	9.31	1.29	93
Benzo[a]pyrene	50-32-8	9.69	2.79	97
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	2.21	94
Dibenzo[a,h]anthracene	53-70-3	11.07	0.48	86
Benzo[g,h,i]perylene	191-24-2	11.30	1.85	89
Coronene	191-07-1 *	12.87	0.65	63
Total (USEPA16) PAHs	-	-	33.55	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	104
Acenaphthene-d10	103
Phenanthrene-d10	112
Chrysene-d12	151
Perylene-d12	174

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	76

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH301 ES 5 0.50	**Job Number:**	S15_3468
LIMS ID Number:	CL1549338	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.85	0.15	98
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	6.01	0.20	92
Pyrene	129-00-0	6.26	0.20	92
Benzo[a]anthracene	56-55-3	7.82	0.13	93
Chrysene	218-01-9	7.87	0.13	94
Benzo[b]fluoranthene	205-99-2	9.29	0.14	91
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	9.69	0.09	93
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.76	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	106
Acenaphthene-d10	104
Phenanthrene-d10	112
Chrysene-d12	134
Perylene-d12	154

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	98
Terphenyl-d14	72

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH302 ES 1 0.20	**Job Number:**	S15_3468
LIMS ID Number:	CL1549339	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.43	99
Acenaphthylene	208-96-8	3.72	0.14	96
Acenaphthene	83-32-9	3.83	0.42	100
Fluorene	86-73-7	4.15	0.33	93
Phenanthrene	85-01-8	4.85	4.09	100
Anthracene	120-12-7	4.89	0.90	96
Fluoranthene	206-44-0	6.00	6.02	92
Pyrene	129-00-0	6.25	4.91	94
Benzo[a]anthracene	56-55-3	7.82	2.87	96
Chrysene	218-01-9	7.87	2.99	97
Benzo[b]fluoranthene	205-99-2	9.28	3.70	82
Benzo[k]fluoranthene	207-08-9	9.31	1.50	97
Benzo[a]pyrene	50-32-8	9.69	2.82	96
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	2.05	76
Dibenzo[a,h]anthracene	53-70-3	11.07	0.48	85
Benzo[g,h,i]perylene	191-24-2	11.31	1.76	89
Total (USEPA16) PAHs	-	-	35.41	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	105
Acenaphthene-d10	104
Phenanthrene-d10	115
Chrysene-d12	149
Perylene-d12	159

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
Terphenyl-d14	71

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH302 ES 4 0.40	**Job Number:**	S15_3468
LIMS ID Number:	CL1549340	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.10	96
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	3.83	0.10	95
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.85	1.12	99
Anthracene	120-12-7	4.89	0.23	93
Fluoranthene	206-44-0	6.00	1.84	93
Pyrene	129-00-0	6.26	1.58	94
Benzo[a]anthracene	56-55-3	7.82	0.96	96
Chrysene	218-01-9	7.87	1.04	99
Benzo[b]fluoranthene	205-99-2	9.28	1.24	74
Benzo[k]fluoranthene	207-08-9	9.31	0.50	77
Benzo[a]pyrene	50-32-8	9.69	0.90	98
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	0.59	96
Dibenzo[a,h]anthracene	53-70-3	11.07	0.15	88
Benzo[g,h,i]perylene	191-24-2	11.30	0.56	86
Coronene	191-07-1 *	12.87	0.19	73
Total (USEPA16) PAHs	-	-	< 11.07	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	101
Acenaphthene-d10	100
Phenanthrene-d10	108
Chrysene-d12	140
Perylene-d12	147

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	99
Terphenyl-d14	73

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH302 ES 6 0.70	**Job Number:**	S15_3468
LIMS ID Number:	CL1549341	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.85	0.13	98
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	6.00	0.18	78
Pyrene	129-00-0	6.25	0.16	94
Benzo[a]anthracene	56-55-3	7.82	0.10	93
Chrysene	218-01-9	7.86	0.10	91
Benzo[b]fluoranthene	205-99-2	9.29	0.10	68
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Coronene	191-07-1 *	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.57	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	105
Acenaphthene-d10	103
Phenanthrene-d10	110
Chrysene-d12	135
Perylene-d12	142

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	98
Terphenyl-d14	72

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH303 ES 1 0.20	**Job Number:**	S15_3468
LIMS ID Number:	CL1549342	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.45	99
Acenaphthylene	208-96-8	3.72	0.12	85
Acenaphthene	83-32-9	3.83	1.38	100
Fluorene	86-73-7	4.15	0.74	90
Phenanthrene	85-01-8	4.85	11.10	100
Anthracene	120-12-7	4.89	2.52	96
Fluoranthene	206-44-0	6.00	15.40	93
Pyrene	129-00-0	6.26	13.20	94
Benzo[a]anthracene	56-55-3	7.82	7.80	97
Chrysene	218-01-9	7.86	8.19	96
Benzo[b]fluoranthene	205-99-2	9.28	8.63	99
Benzo[k]fluoranthene	207-08-9	9.31	2.76	97
Benzo[a]pyrene	50-32-8	9.69	6.72	95
Indeno[1,2,3-cd]pyrene	193-39-5	11.02	4.31	91
Dibenzo[a,h]anthracene	53-70-3	11.07	1.02	92
Benzo[g,h,i]perylene	191-24-2	11.30	3.82	89
Total (USEPA16) PAHs	-	-	88.16	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	106
Acenaphthene-d10	105
Phenanthrene-d10	113
Chrysene-d12	136
Perylene-d12	149

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
Terphenyl-d14	67

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH303 ES 4 0.50	**Job Number:**	S15_3468
LIMS ID Number:	CL1549343	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	3.83	0.24	99
Fluorene	86-73-7	4.15	0.20	91
Phenanthrene	85-01-8	4.85	3.60	100
Anthracene	120-12-7	4.89	0.81	94
Fluoranthene	206-44-0	6.00	4.74	92
Pyrene	129-00-0	6.26	3.64	94
Benzo[a]anthracene	56-55-3	7.82	2.26	97
Chrysene	218-01-9	7.87	2.11	97
Benzo[b]fluoranthene	205-99-2	9.28	2.30	81
Benzo[k]fluoranthene	207-08-9	9.31	0.88	93
Benzo[a]pyrene	50-32-8	9.69	1.68	97
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	1.05	90
Dibenzo[a,h]anthracene	53-70-3	11.07	0.26	79
Benzo[g,h,i]perylene	191-24-2	11.31	0.83	89
Total (USEPA16) PAHs	-	-	< 24.76	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	104
Acenaphthene-d10	103
Phenanthrene-d10	114
Chrysene-d12	146
Perylene-d12	154

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	101
Terphenyl-d14	74

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH304 ES 1 0.20	**Job Number:**	S15_3468
LIMS ID Number:	CL1549344	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.08	98
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	3.83	0.12	100
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.85	1.13	99
Anthracene	120-12-7	4.89	0.29	98
Fluoranthene	206-44-0	6.00	1.88	92
Pyrene	129-00-0	6.25	1.57	94
Benzo[a]anthracene	56-55-3	7.82	0.95	97
Chrysene	218-01-9	7.87	1.04	98
Benzo[b]fluoranthene	205-99-2	9.28	1.20	78
Benzo[k]fluoranthene	207-08-9	9.31	0.44	81
Benzo[a]pyrene	50-32-8	9.69	0.90	97
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	0.67	75
Dibenzo[a,h]anthracene	53-70-3	11.07	0.15	86
Benzo[g,h,i]perylene	191-24-2	11.31	0.63	90
Coronene	191-07-1 *	12.87	0.22	53
Total (USEPA16) PAHs	-	-	< 11.21	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	104
Acenaphthene-d10	103
Phenanthrene-d10	111
Chrysene-d12	146
Perylene-d12	153

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
Terphenyl-d14	72

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH305 ES 1 0.20	**Job Number:**	S15_3468
LIMS ID Number:	CL1549345	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.21	99
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	3.83	0.39	98
Fluorene	86-73-7	4.16	0.28	85
Phenanthrene	85-01-8	4.85	3.62	100
Anthracene	120-12-7	4.89	0.86	93
Fluoranthene	206-44-0	6.00	6.14	92
Pyrene	129-00-0	6.25	5.08	94
Benzo[a]anthracene	56-55-3	7.82	3.09	97
Chrysene	218-01-9	7.86	3.30	96
Benzo[b]fluoranthene	205-99-2	9.28	3.79	98
Benzo[k]fluoranthene	207-08-9	9.31	1.51	96
Benzo[a]pyrene	50-32-8	9.69	2.94	95
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	2.21	92
Dibenzo[a,h]anthracene	53-70-3	11.07	0.49	93
Benzo[g,h,i]perylene	191-24-2	11.30	1.92	89
Total (USEPA16) PAHs	-	-	< 35.91	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	104
Acenaphthene-d10	103
Phenanthrene-d10	114
Chrysene-d12	144
Perylene-d12	163

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	98
Terphenyl-d14	73

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH305 ES 4 0.40	**Job Number:**	S15_3468
LIMS ID Number:	CL1549346	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	1.09	99
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	3.83	0.62	100
Fluorene	86-73-7	4.15	0.37	91
Phenanthrene	85-01-8	4.85	3.38	100
Anthracene	120-12-7	4.89	0.74	93
Fluoranthene	206-44-0	6.00	3.44	92
Pyrene	129-00-0	6.25	2.76	94
Benzo[a]anthracene	56-55-3	7.82	1.53	94
Chrysene	218-01-9	7.86	1.60	96
Benzo[b]fluoranthene	205-99-2	9.29	1.67	93
Benzo[k]fluoranthene	207-08-9	9.32	0.68	92
Benzo[a]pyrene	50-32-8	9.69	1.20	96
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	0.78	76
Dibenzo[a,h]anthracene	53-70-3	11.07	0.19	70
Benzo[g,h,i]perylene	191-24-2	11.30	0.75	91
Coronene	191-07-1 *	12.87	0.22	79
Total (USEPA16) PAHs	-	-	< 20.88	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	106
Acenaphthene-d10	105
Phenanthrene-d10	114
Chrysene-d12	138
Perylene-d12	160

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	94
Terphenyl-d14	69

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH306 ES 4 0.70	**Job Number:**	S15_3468
LIMS ID Number:	CL1549347	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.85	0.08	99
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	102
Acenaphthene-d10	100
Phenanthrene-d10	106
Chrysene-d12	129
Perylene-d12	134

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
Terphenyl-d14	71

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH307 ES 1 0.20	**Job Number:**	S15_3468
LIMS ID Number:	CL1549348	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.26	97
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	3.83	0.27	94
Fluorene	86-73-7	4.15	0.20	93
Phenanthrene	85-01-8	4.85	2.88	100
Anthracene	120-12-7	4.89	0.55	96
Fluoranthene	206-44-0	6.00	4.92	92
Pyrene	129-00-0	6.25	4.04	94
Benzo[a]anthracene	56-55-3	7.82	2.47	96
Chrysene	218-01-9	7.86	2.72	97
Benzo[b]fluoranthene	205-99-2	9.28	3.26	92
Benzo[k]fluoranthene	207-08-9	9.31	1.01	93
Benzo[a]pyrene	50-32-8	9.69	2.42	95
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	1.79	92
Dibenzo[a,h]anthracene	53-70-3	11.06	0.40	96
Benzo[g,h,i]perylene	191-24-2	11.30	1.58	89
Total (USEPA16) PAHs	-	-	< 28.85	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	103
Acenaphthene-d10	102
Phenanthrene-d10	112
Chrysene-d12	143
Perylene-d12	155

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	97
Terphenyl-d14	72

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH307 ES 4 0.50	**Job Number:**	S15_3468
LIMS ID Number:	CL1549349	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Coronene	191-07-1 *	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	94
Acenaphthene-d10	93
Phenanthrene-d10	98
Chrysene-d12	118
Perylene-d12	121

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	110
Terphenyl-d14	82

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH308 ES 1 0.20	**Job Number:**	S15_3468
LIMS ID Number:	CL1549350	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	2.69	0.17	98
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	3.83	0.23	99
Fluorene	86-73-7	4.15	0.16	89
Phenanthrene	85-01-8	4.85	2.62	100
Anthracene	120-12-7	4.89	0.63	94
Fluoranthene	206-44-0	6.00	5.03	92
Pyrene	129-00-0	6.25	4.14	94
Benzo[a]anthracene	56-55-3	7.82	2.58	96
Chrysene	218-01-9	7.86	2.69	96
Benzo[b]fluoranthene	205-99-2	9.28	3.29	94
Benzo[k]fluoranthene	207-08-9	9.31	1.11	94
Benzo[a]pyrene	50-32-8	9.69	2.47	97
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	1.87	92
Dibenzo[a,h]anthracene	53-70-3	11.07	0.40	93
Benzo[g,h,i]perylene	191-24-2	11.30	1.65	89
Coronene	191-07-1 *	12.87	0.55	91
Total (USEPA16) PAHs	-	-	< 29.12	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	106
Acenaphthene-d10	104
Phenanthrene-d10	113
Chrysene-d12	149
Perylene-d12	166

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
Terphenyl-d14	72

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH308 ES 4 0.40	**Job Number:**	S15_3468
LIMS ID Number:	CL1549351	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.85	0.41	98
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	6.00	0.66	91
Pyrene	129-00-0	6.26	0.56	93
Benzo[a]anthracene	56-55-3	7.82	0.33	94
Chrysene	218-01-9	7.86	0.33	98
Benzo[b]fluoranthene	205-99-2	9.28	0.43	77
Benzo[k]fluoranthene	207-08-9	9.31	0.16	81
Benzo[a]pyrene	50-32-8	9.69	0.29	97
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	0.23	88
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	11.30	0.20	88
Total (USEPA16) PAHs	-	-	< 4.08	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	103
Acenaphthene-d10	101
Phenanthrene-d10	108
Chrysene-d12	137
Perylene-d12	144

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	98
Terphenyl-d14	74

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH310 ES 1 0.20	**Job Number:**	S15_3468
LIMS ID Number:	CL1549352	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.85	0.29	99
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	6.00	0.50	91
Pyrene	129-00-0	6.26	0.41	94
Benzo[a]anthracene	56-55-3	7.82	0.31	94
Chrysene	218-01-9	7.87	0.31	93
Benzo[b]fluoranthene	205-99-2	9.28	0.35	74
Benzo[k]fluoranthene	207-08-9	9.31	0.15	77
Benzo[a]pyrene	50-32-8	9.69	0.26	95
Indeno[1,2,3-cd]pyrene	193-39-5	11.03	0.15	75
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	11.31	0.15	72
Total (USEPA16) PAHs	-	-	< 3.36	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	100
Acenaphthene-d10	100
Phenanthrene-d10	106
Chrysene-d12	129
Perylene-d12	133

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	101
Terphenyl-d14	73

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH310 ES 3 0.55	**Job Number:**	S15_3468
LIMS ID Number:	CL1549353	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	22-May-15
Directory:	115PAH.MS14\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Coronene	191-07-1 *	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	102
Acenaphthene-d10	101
Phenanthrene-d10	106
Chrysene-d12	125
Perylene-d12	122

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	73

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_3468
QC Batch Number: 150500
Directory: 0521PCB.GC8
Method: Ultrasonic

Matrix: SOIL
Date Booked in: 19-May-15
Date Extracted: 21-May-15
Date Analysed: 21-May-15

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

			Concentration, (µg/kg)						
	Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
*	CL1549337	BH301 ES 1 0.15	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549340	BH302 ES 4 0.40	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549341	BH302 ES 6 0.70	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549344	BH304 ES 1 0.20	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549346	BH305 ES 4 0.40	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549349	BH307 ES 4 0.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549350	BH308 ES 1 0.20	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549353	BH310 ES 3 0.55	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00

Where individual results are flagged see report notes for status.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_3468
QC Batch Number: 150500
Directory: 0521PCB.GC8
Method: Ultrasonic

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

			Concentration, (µg/kg)						
Sample ID	**Customer ID**	**PCB 81**	**PCB 77**	**PCB 123**	**PCB 118**	**PCB 114**	**PCB 105**	**PCB 126**
* CL1549338	BH301 ES 5 0.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
* CL1549345	BH305 ES 1 0.20	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
* CL1549349	BH307 ES 4 0.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
* CL1549353	BH310 ES 3 0.55	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00

Where individual results are flagged see report notes for status.

Polychlorinated Biphenyls (congeners)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Matrix:**	SOIL
Job Number:	S15_3468	**Date Booked in:**	19-May-15
QC Batch Number:	150500	**Date Extracted:**	21-May-15
Directory:	0521PCB.GC8	**Date Analysed:**	21-May-15
Method:	Ultrasonic		

Soil

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

			Concentration, (µg/kg)						
	Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
*	CL1549337	BH301 ES 1 0.15	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549340	BH302 ES 4 0.40	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549341	BH302 ES 6 0.70	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549344	BH304 ES 1 0.20	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549346	BH305 ES 4 0.40	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549349	BH307 ES 4 0.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549350	BH308 ES 1 0.20	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
*	CL1549353	BH310 ES 3 0.55	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00

Where individual results are flagged see report notes for status.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_3468
QC Batch Number: 150500
Directory: 0521PCB.GC8
Method: Ultrasonic

Matrix: Soil Soil
Date Booked in: 19-May-15
Date Extracted: 21-May-15
Date Analysed: 21-May-15

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

		Concentration, (µg/kg)											
Sample ID	**Customer ID**	**PCB 81**	**PCB 77**	**PCB 123**	**PCB 118**	**PCB 114**	**PCB 105**	**PCB 126**	**PCB 167**	**PCB 156**	**PCB 157**	**PCB 169**	**PCB 189**
* CL1549338	BH301 ES 5 0.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
* CL1549345	BH305 ES 1 0.20	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
* CL1549349	BH307 ES 4 0.50	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00
* CL1549353	BH310 ES 3 0.55	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: 621-64-7Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	107
Sample Details:	BH301 ES 5 0.50	**Date Booked in:**	19-May-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1549338	**Date Extracted:**	21-May-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3468	**Date Analysed:**	22-May-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3*	-	< 0.5	-
Isophorone	78-59-1	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 0.2	-
4-Nitroaniline	100-01-6	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5	-	< 0.5	-
Phenanthrene	85-01-8	10.39	0.2	98
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	12.18	1.4	96
Pyrene	129-00-0	12.52	2.4	96
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1	-	< 0.3	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	85
Naphthalene-d8	88
Acenaphthene-d10	89
Phenanthrene-d10	100
Chrysene-d12	118
Perylene-d12	129

Surrogates	% Rec
2-Fluorophenol	99
Phenol-d5	99
Nitrobenzene-d5	91
2-Fluorobiphenyl	93
2,4,6-Tribromophenol	83
Terphenyl-d14	93

Semi-Volatile Organic Compounds

UKAS accredited?: 621-64-7Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	107
Sample Details:	BH303 ES 4 0.50	**Date Booked in:**	19-May-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1549343	**Date Extracted:**	21-May-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3468	**Date Analysed:**	22-May-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3*	-	< 0.5	-
Isophorone	78-59-1	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	7.20	0.1	97
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	8.40	0.2	95
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5	-	< 0.5	-
Dibenzofuran	132-64-9	8.62	0.1	88
4-Nitrophenol	100-02-7	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	9.06	0.1	96
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 0.2	-
4-Nitroaniline	100-01-6	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5	-	< 0.5	-
Phenanthrene	85-01-8	10.39	1.3	100
Anthracene	120-12-7	10.46	0.3	100
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	12.18	2.0	96
Pyrene	129-00-0	12.52	2.3	96
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	14.42	0.8	92
Chrysene	218-01-9	14.47	0.8	97
3,3'-Dichlorobenzidine	91-94-1	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	16.01	0.9	72
Benzo[k]fluoranthene	207-08-9	16.05	0.3	68
Benzo[a]pyrene	50-32-8	16.45	0.7	97
Indeno[1,2,3-cd]pyrene	193-39-5	17.84	0.5	84
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1	-	< 0.3	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	91
Naphthalene-d8	93
Acenaphthene-d10	94
Phenanthrene-d10	105
Chrysene-d12	126
Perylene-d12	144

Surrogates	% Rec
2-Fluorophenol	94
Phenol-d5	97
Nitrobenzene-d5	88
2-Fluorobiphenyl	93
2,4,6-Tribromophenol	90
Terphenyl-d14	90

Semi-Volatile Organic Compounds

UKAS accredited?: 621-64-7Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	107
Sample Details:	BH305 ES 1 0.20	**Date Booked in:**	19-May-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1549345	**Date Extracted:**	21-May-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3468	**Date Analysed:**	22-May-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3*	-	< 0.5	-
Isophorone	78-59-1	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	6.51	0.2	99
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	7.20	0.2	97
1-Methylnaphthalene	90-12-0	7.31	0.2	94
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	8.40	0.4	95
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5	-	< 0.5	-
Dibenzofuran	132-64-9	8.62	0.2	85
4-Nitrophenol	100-02-7	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	9.06	0.3	95
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 0.2	-
4-Nitroaniline	100-01-6	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5	-	< 0.5	-
Phenanthrene	85-01-8	10.40	4.1	100
Anthracene	120-12-7	10.47	1.0	93
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	12.19	5.8	96
Pyrene	129-00-0	12.53	5.2	97
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	14.43	3.2	95
Chrysene	218-01-9	14.49	3.1	93
3,3'-Dichlorobenzidine	91-94-1	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	16.03	3.8	72
Benzo[k]fluoranthene	207-08-9	16.06	1.2	68
Benzo[a]pyrene	50-32-8	16.46	2.9	97
Indeno[1,2,3-cd]pyrene	193-39-5	17.85	2.4	81
Dibenzo[a,h]anthracene	53-70-3	17.88	0.6	95
Benzo[g,h,i]perylene	191-24-2	18.14	2.0	97
Coronene	191-07-1	20.1016	0.7	86

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	77
Naphthalene-d8	78
Acenaphthene-d10	79
Phenanthrene-d10	88
Chrysene-d12	111
Perylene-d12	130

Surrogates	% Rec
2-Fluorophenol	93
Phenol-d5	96
Nitrobenzene-d5	89
2-Fluorobiphenyl	93
2,4,6-Tribromophenol	94
Terphenyl-d14	86

Semi-Volatile Organic Compounds

UKAS accredited?: 621-64-7Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	107
Sample Details:	BH307 ES 4 0.50	**Date Booked in:**	19-May-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1549349	**Date Extracted:**	21-May-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3468	**Date Analysed:**	22-May-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3*	-	< 0.5	-
Isophorone	78-59-1	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 0.2	-
4-Nitroaniline	100-01-6	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5	-	< 0.5	-
Phenanthrene	85-01-8	10.39	0.1	97
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	12.18	0.3	98
Pyrene	129-00-0	12.52	0.6	96
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1	-	< 0.3	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	83
Naphthalene-d8	85
Acenaphthene-d10	86
Phenanthrene-d10	96
Chrysene-d12	118
Perylene-d12	133

Surrogates	% Rec
2-Fluorophenol	95
Phenol-d5	97
Nitrobenzene-d5	89
2-Fluorobiphenyl	90
2,4,6-Tribromophenol	83
Terphenyl-d14	89

Semi-Volatile Organic Compounds

UKAS accredited?: 621-64-7Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	107
Sample Details:	BH308 ES 4 0.40	**Date Booked in:**	19-May-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1549351	**Date Extracted:**	21-May-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3468	**Date Analysed:**	22-May-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3*	-	< 0.5	-
Isophorone	78-59-1	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1	-	< 0.2	-
4-Nitroaniline	100-01-6	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5	-	< 0.5	-
Phenanthrene	85-01-8	10.39	0.3	100
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	12.18	0.4	96
Pyrene	129-00-0	12.52	0.6	97
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	14.42	0.2	97
Chrysene	218-01-9	14.47	0.2	93
3,3'-Dichlorobenzidine	91-94-1	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	16.01	0.2	72
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1	-	< 0.3	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	101
Naphthalene-d8	105
Acenaphthene-d10	105
Phenanthrene-d10	115
Chrysene-d12	138
Perylene-d12	153

Surrogates	% Rec
2-Fluorophenol	94
Phenol-d5	97
Nitrobenzene-d5	88
2-Fluorobiphenyl	91
2,4,6-Tribromophenol	91
Terphenyl-d14	87

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3468
Directory: D:\TES\DATA\Y2015\0526HSA_GC12\150526 2015-05-26 10-44-31\034F3401.D
Method: HEADSPACE GCFID

Matrix: Soil
Date Booked in: 19-May-15
Date extracted: 26-May-15
Date Analysed: 26-May-15, 21:34:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1549337	BH301 ES 1 0.15	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549338	BH301 ES 5 0.50	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549339	BH302 ES 1 0.20	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549341	BH302 ES 6 0.70	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549342	BH303 ES 1 0.20	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549343	BH303 ES 4 0.50	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549344	BH304 ES 1 0.20	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549345	BH305 ES 1 0.20	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549346	BH305 ES 4 0.40	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549347	BH306 ES 4 0.70	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549348	BH307 ES 1 0.20	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549349	BH307 ES 4 0.50	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549350	BH308 ES 1 0.20	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549351	BH308 ES 4 0.40	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549352	BH310 ES 1 0.20	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1549353	BH310 ES 3 0.55	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3468
QC Batch Number: 150500
Directory: D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\071B2701.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

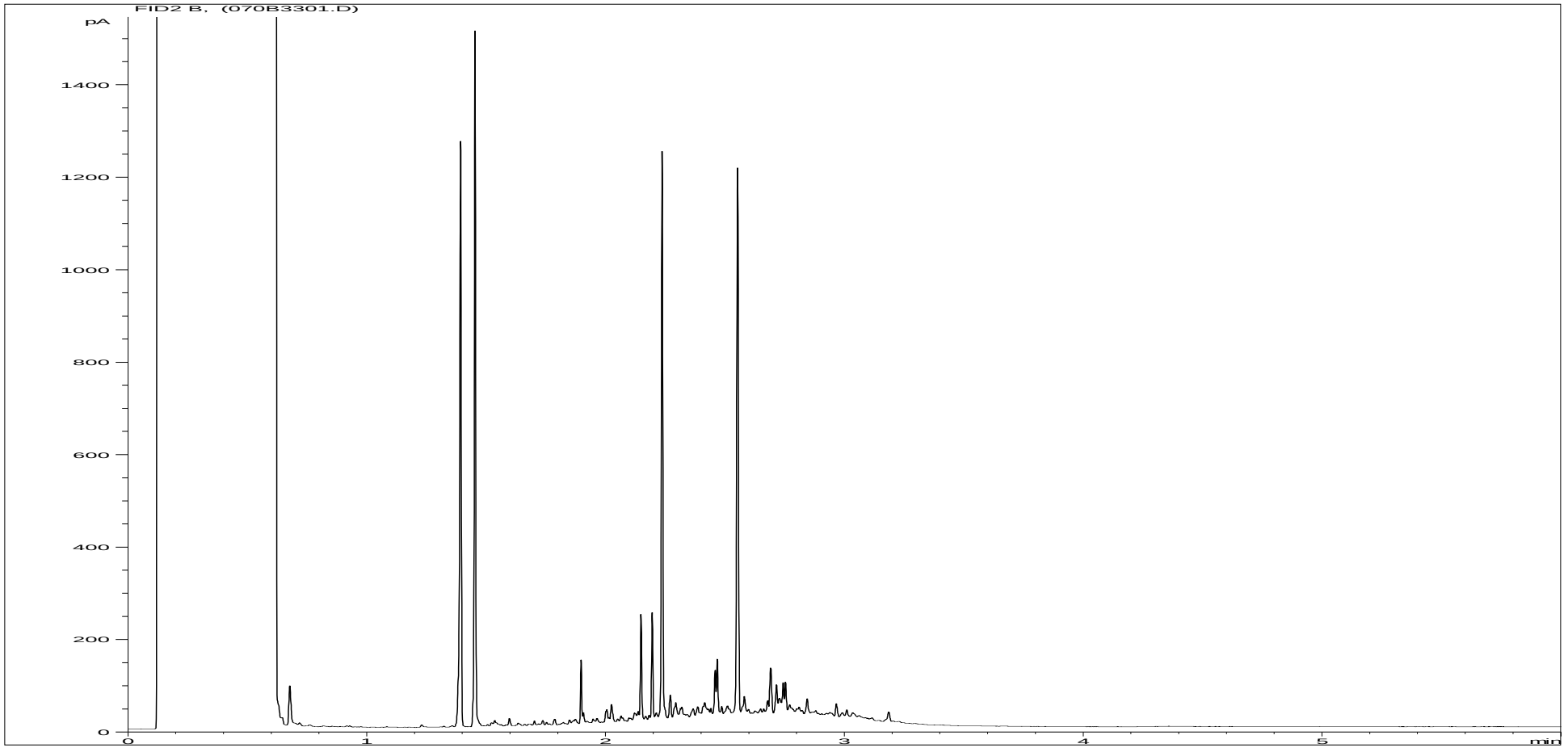
Matrix: Soil
Date Booked in: 19-May-15
Date Extracted: 21-May-15
Date Analysed: 22-May-15, 17:52:03

Bands marked with a ' * ' are not UKAS Accredited

		Concentration, (mg/kg) - as wet weight												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1549337	BH301 ES 1 0.15	<4	<4	<4	<4	<4	5.59	21.6	23.7	<5.62	115	15.7	25.7	162
CL1549338	BH301 ES 5 0.50	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	13.5	<5.62	<20	<20
CL1549339	BH302 ES 1 0.20	<4	<4	<4	<4	<4	6.76	15.6	26.8	<5.62	97.7	8.94	<20	142
CL1549341	BH302 ES 6 0.70	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	<8.76	<5.62	<20	<20
CL1549342	BH303 ES 1 0.20	<4	<4	<4	<4	<4	16.2	29	76.7	<5.62	274	38.2	33.8	407
CL1549343	BH303 ES 4 0.50	<4	5.25	<4	<4	<4	<4	16.7	15.8	<5.62	50.8	<5.62	21.6	76.9
CL1549344	BH304 ES 1 0.20	<4	<4	<4	<4	4.3	<4	39.4	4.64	<5.62	31	<5.62	47.6	42.3
CL1549345	BH305 ES 1 0.20	<4	<4	<4	<4	<4	6.43	28.6	27.8	<5.62	125	19.6	30.8	180
CL1549346	BH305 ES 4 0.40	<4	<4	<4	<4	<4	5.96	<11.9	14.3	<5.62	49.3	<5.62	<20	74.3
CL1549347	BH306 ES 4 0.70	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	<8.76	<5.62	<20	<20
CL1549348	BH307 ES 1 0.20	<4	<4	<4	<4	<4	5.14	21	21.6	<5.62	103	11.8	24.5	143
CL1549349	BH307 ES 4 0.50	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	<8.76	<5.62	<20	<20
CL1549350	BH308 ES 1 0.20	<4	<4	<4	<4	<4	4.25	21.4	19.4	<5.62	95	10.4	25.1	132
CL1549351	BH308 ES 4 0.40	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	12.5	<5.62	<20	20.1
CL1549352	BH310 ES 1 0.20	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	10.4	<5.62	<20	<20
CL1549353	BH310 ES 3 0.55	<4	<4	<4	<4	<4	7.87	<11.9	4.14	<5.62	11.3	<5.62	<20	24.7

Where individual results are flagged see report notes for status.

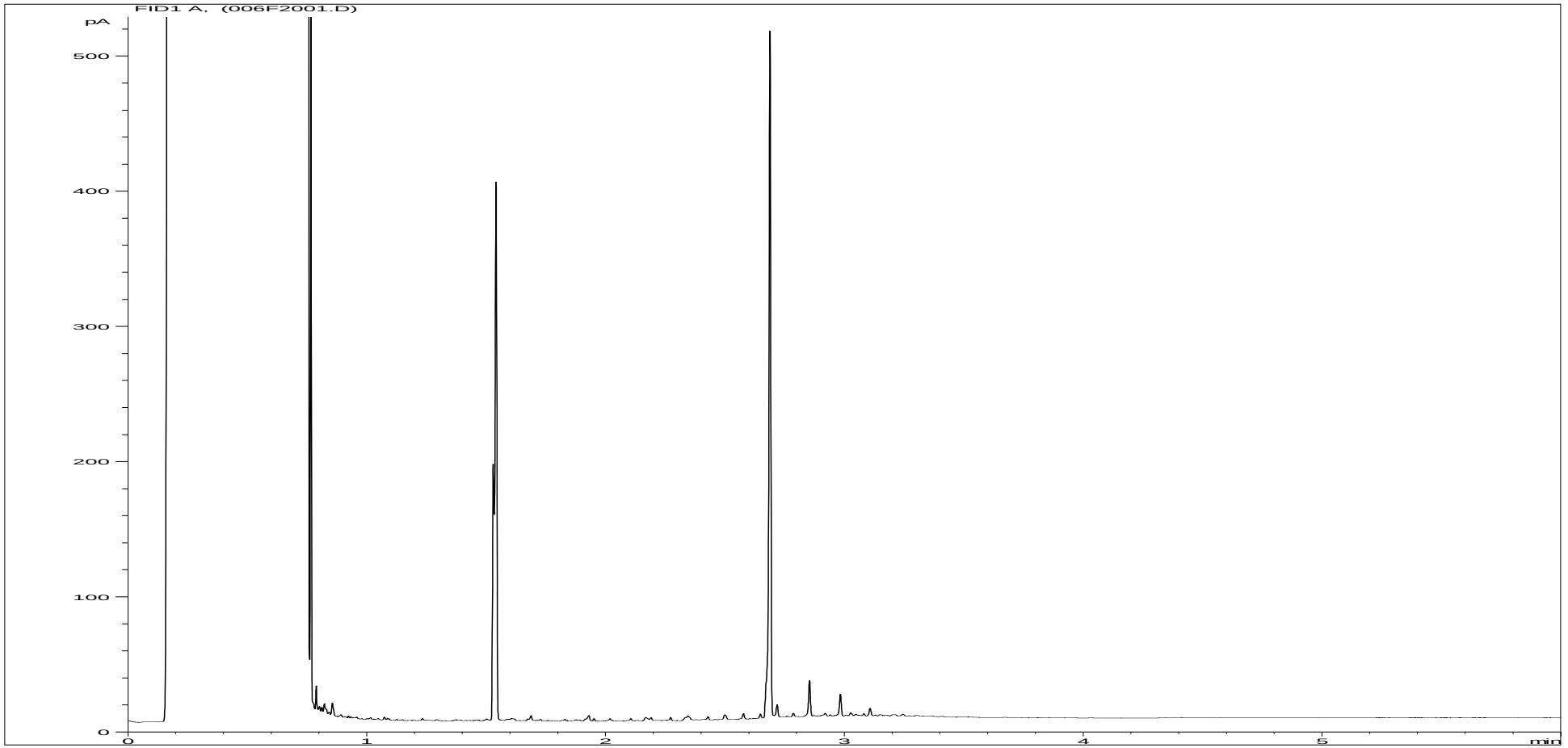
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549337	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH301 ES 1 0.15
Acquisition Date/Time:	21-May-15, 17:58:48		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\070B3301.D		

Where individual results are flagged see report notes for status.

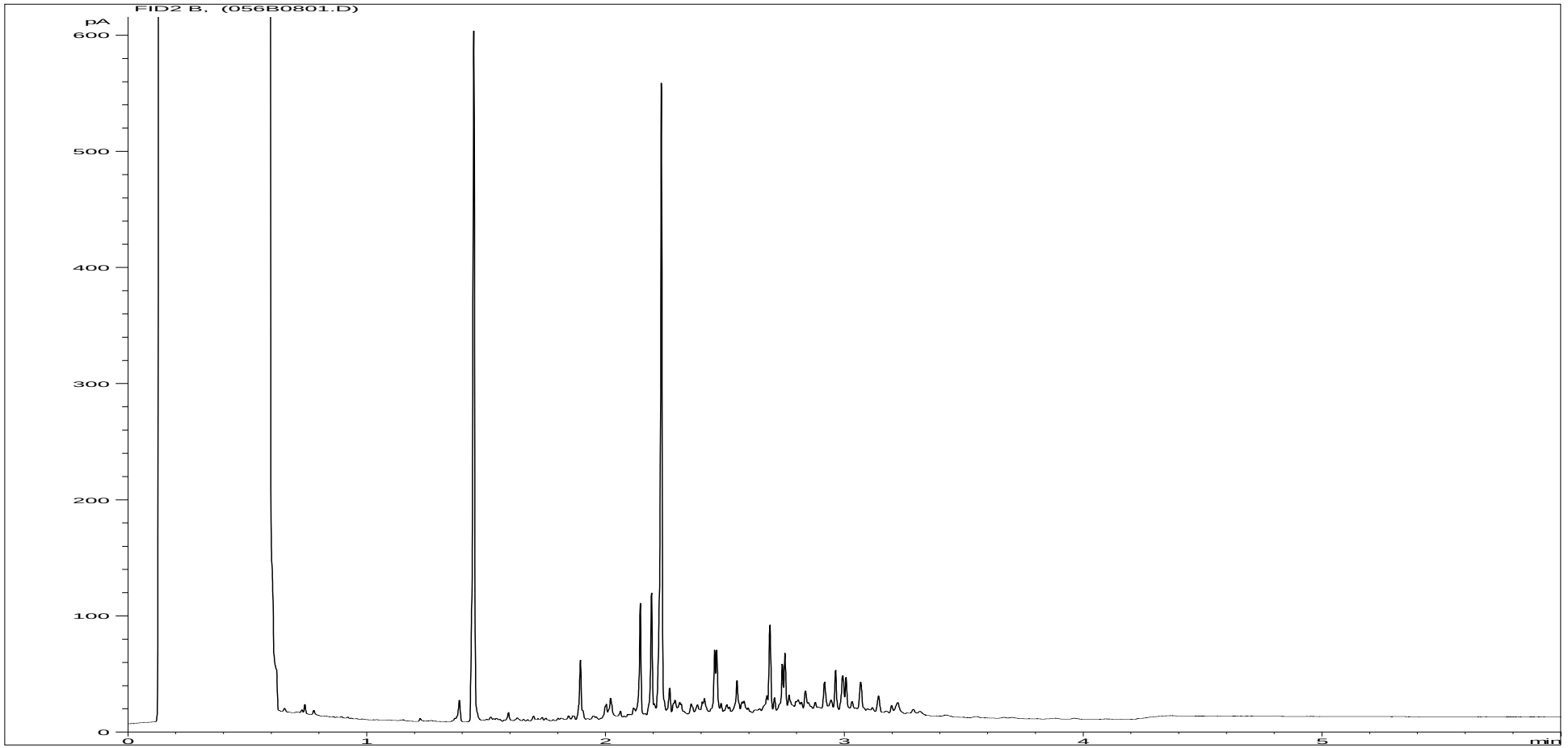
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549337ALI	**Job Number:**	S15_3468
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH301 ES 1 0.15
Acquisition Date/Time:	22-May-15, 13:58:08		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\006F2001.D		

Where individual results are flagged see report notes for status.

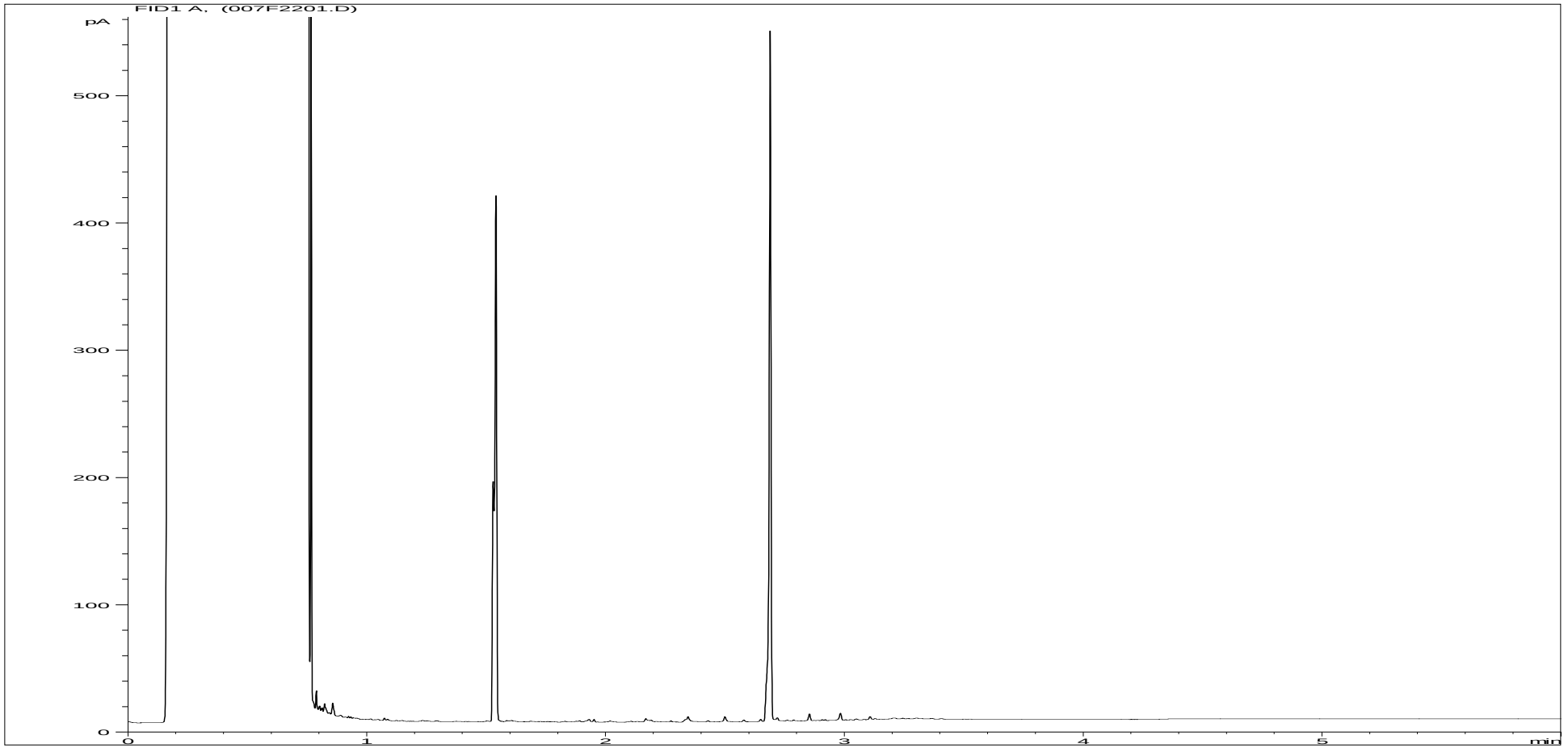
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549337ARO	**Job Number:**	S15_3468
Multiplier:	12	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH301 ES 1 0.15
Acquisition Date/Time:	22-May-15, 11:12:54		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\056B0801.D		

Where individual results are flagged see report notes for status.

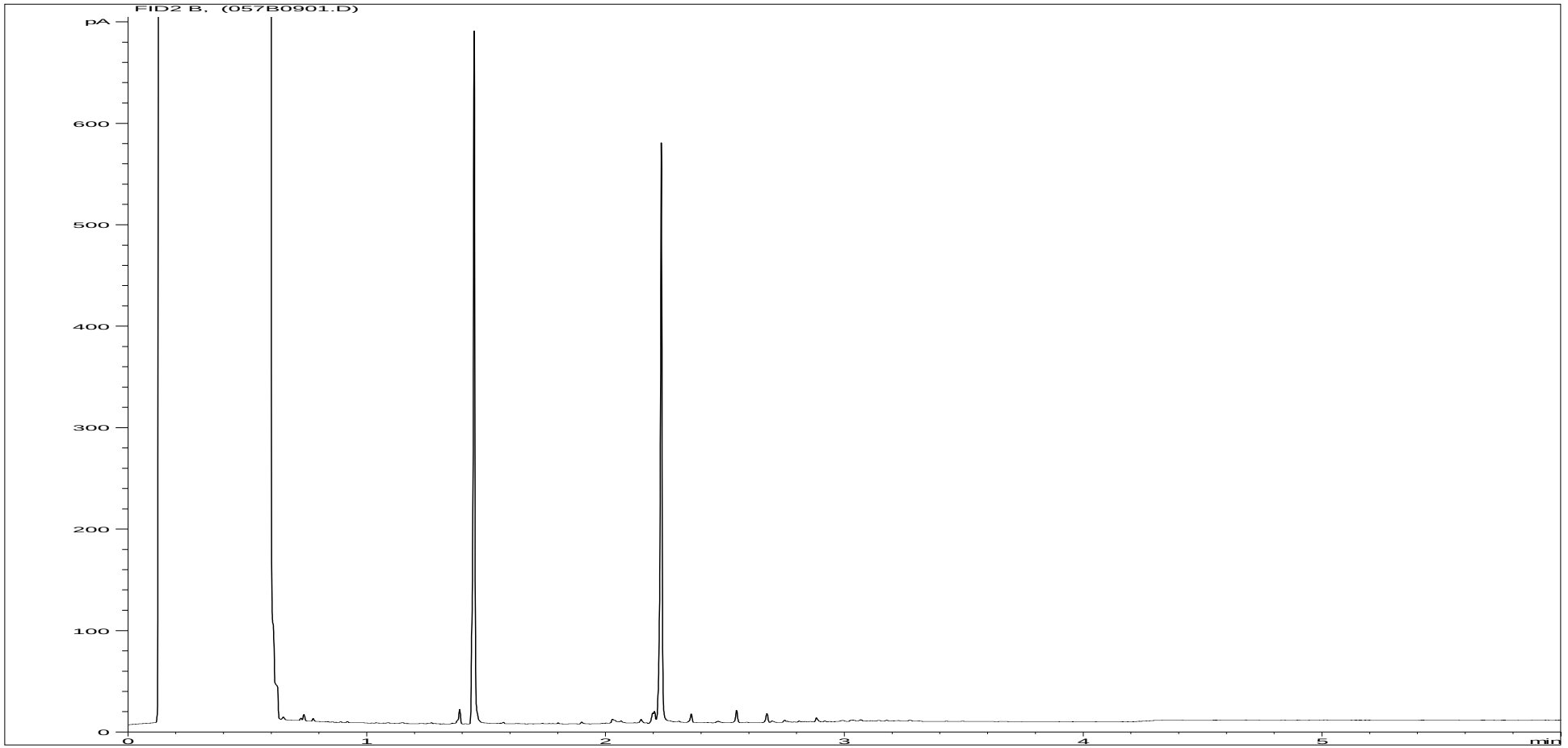
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549338ALI	**Job Number:**	S15_3468
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH301 ES 5 0.50
Acquisition Date/Time:	22-May-15, 14:25:59		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\007F2201.D		

Where individual results are flagged see report notes for status.

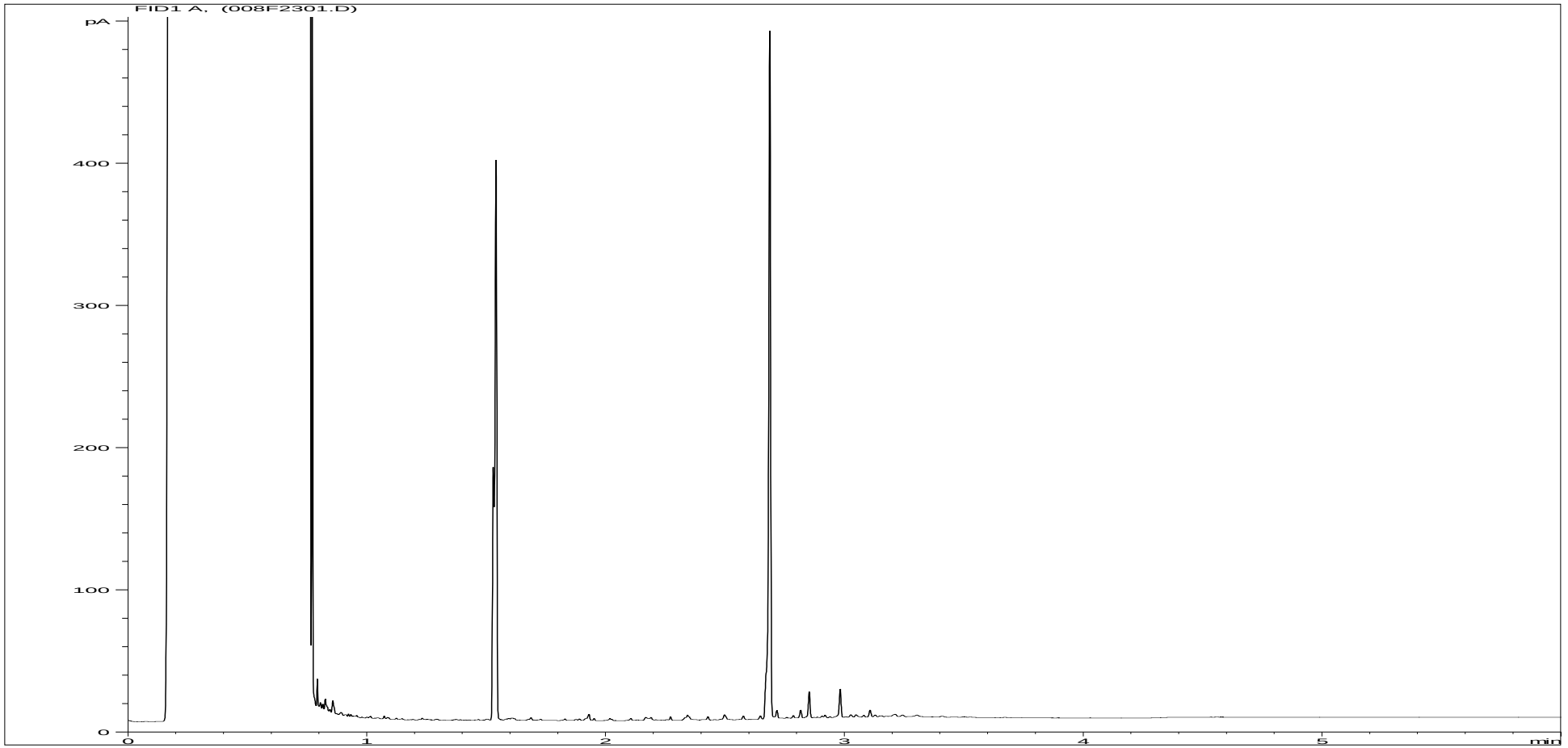
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549338ARO	**Job Number:**	S15_3468
Multiplier:	11.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH301 ES 5 0.50
Acquisition Date/Time:	22-May-15, 11:26:32		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\057B0901.D		

Where individual results are flagged see report notes for status.

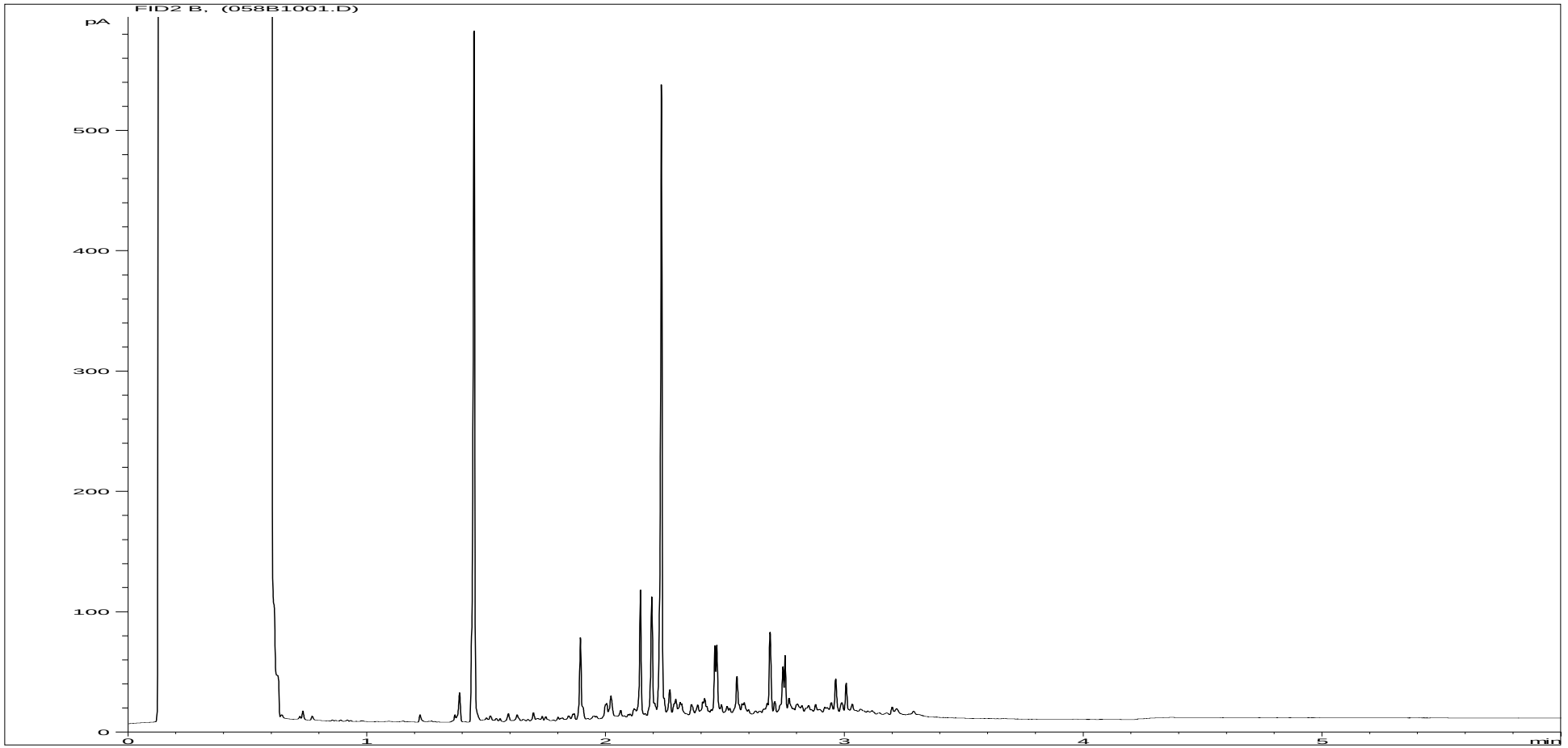
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549339ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 1 0.20
Acquisition Date/Time:	22-May-15, 14:39:56		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\008F2301.D		

Where individual results are flagged see report notes for status.

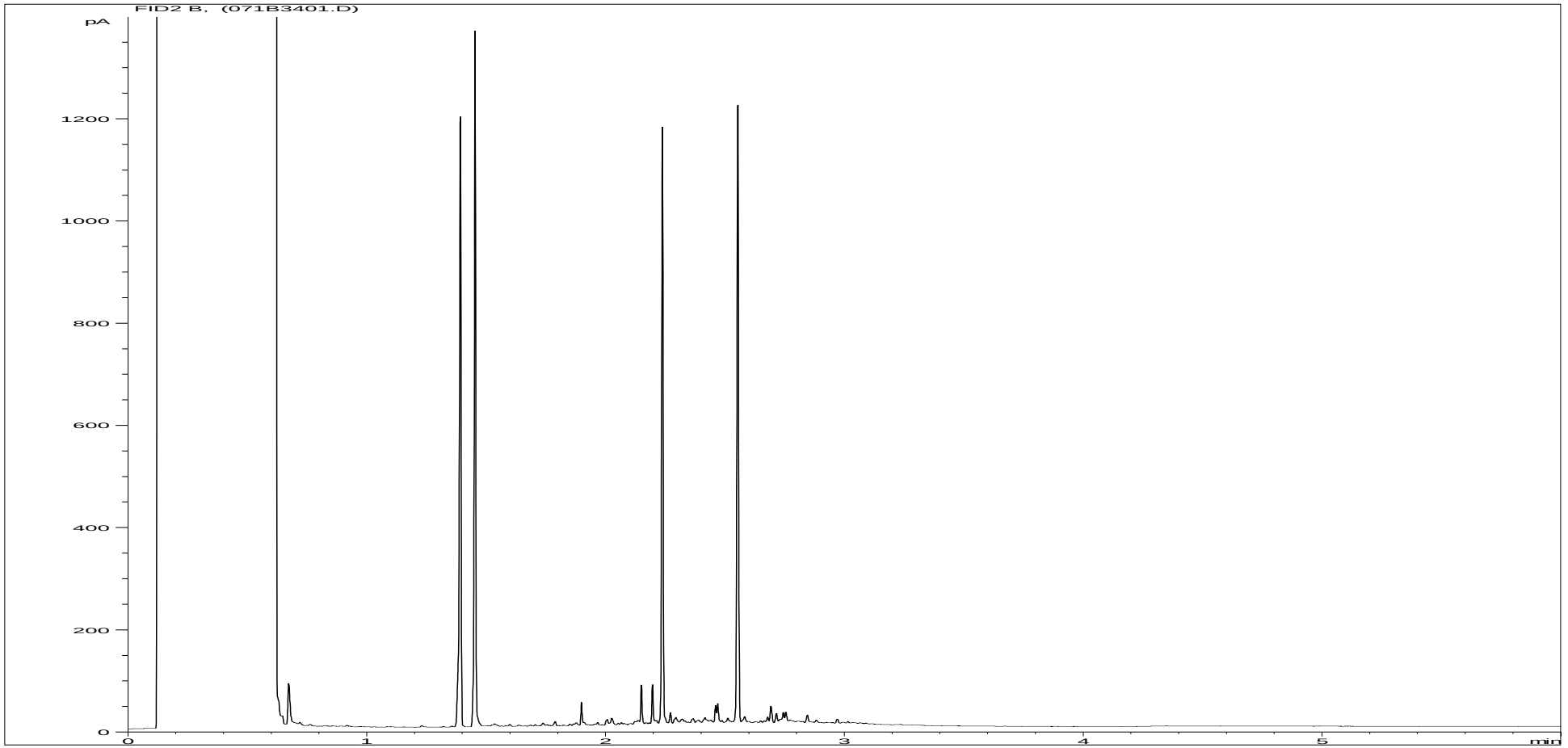
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549339ARO	**Job Number:**	S15_3468
Multiplier:	12.16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 1 0.20
Acquisition Date/Time:	22-May-15, 11:40:17		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\058B1001.D		

Where individual results are flagged see report notes for status.

Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549340	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 4 0.40
Acquisition Date/Time:	21-May-15, 18:12:36		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\071B3401.D		

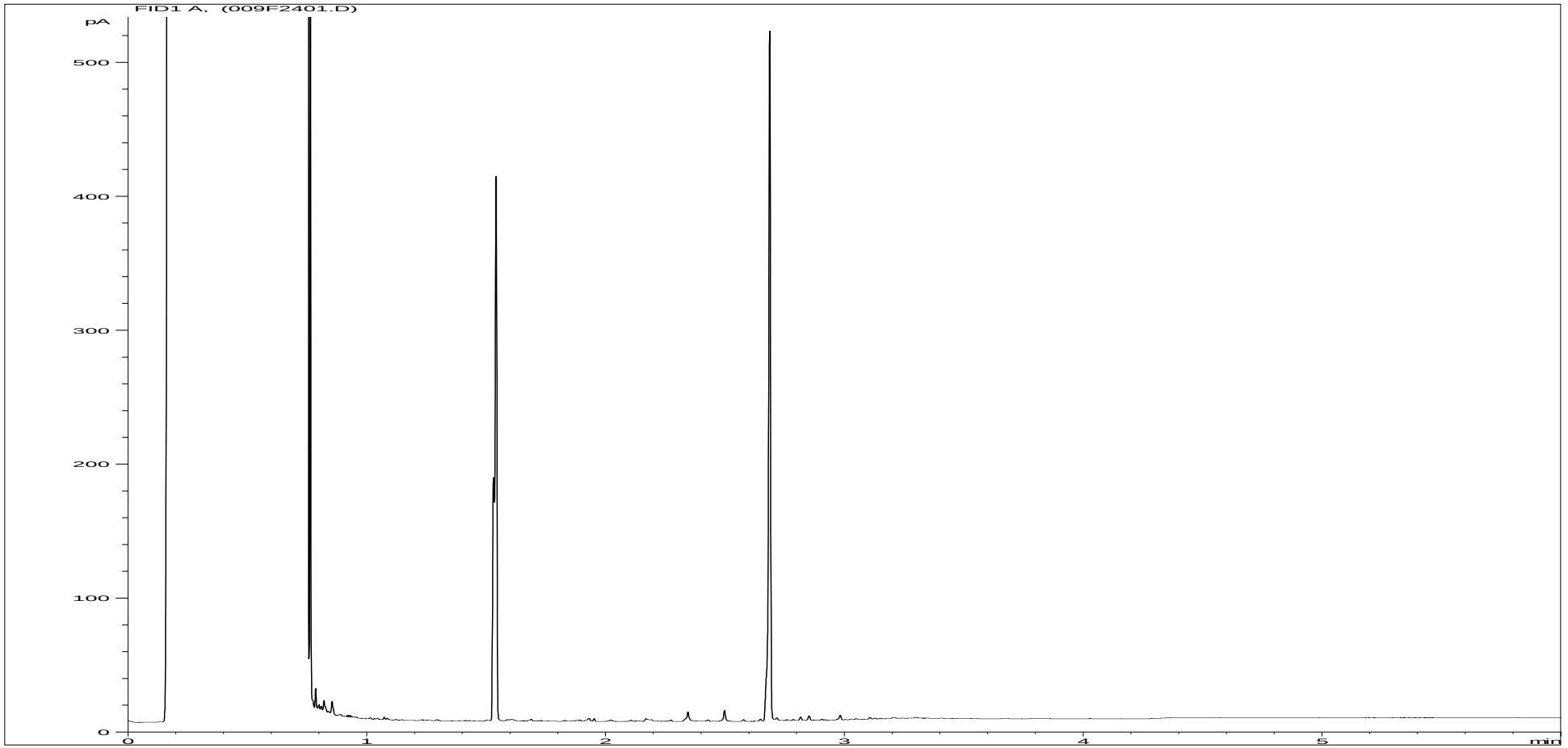
Where individual results are flagged see report notes for status.

Petroleum Hydrocarbons (C8 to C40) by GC/FID

Sample ID:	CL1549341	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 6 0.70
Acquisition Date/Time:	21-May-15, 18:26:26		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\072B3501.D		

Where individual results are flagged see report notes for status.

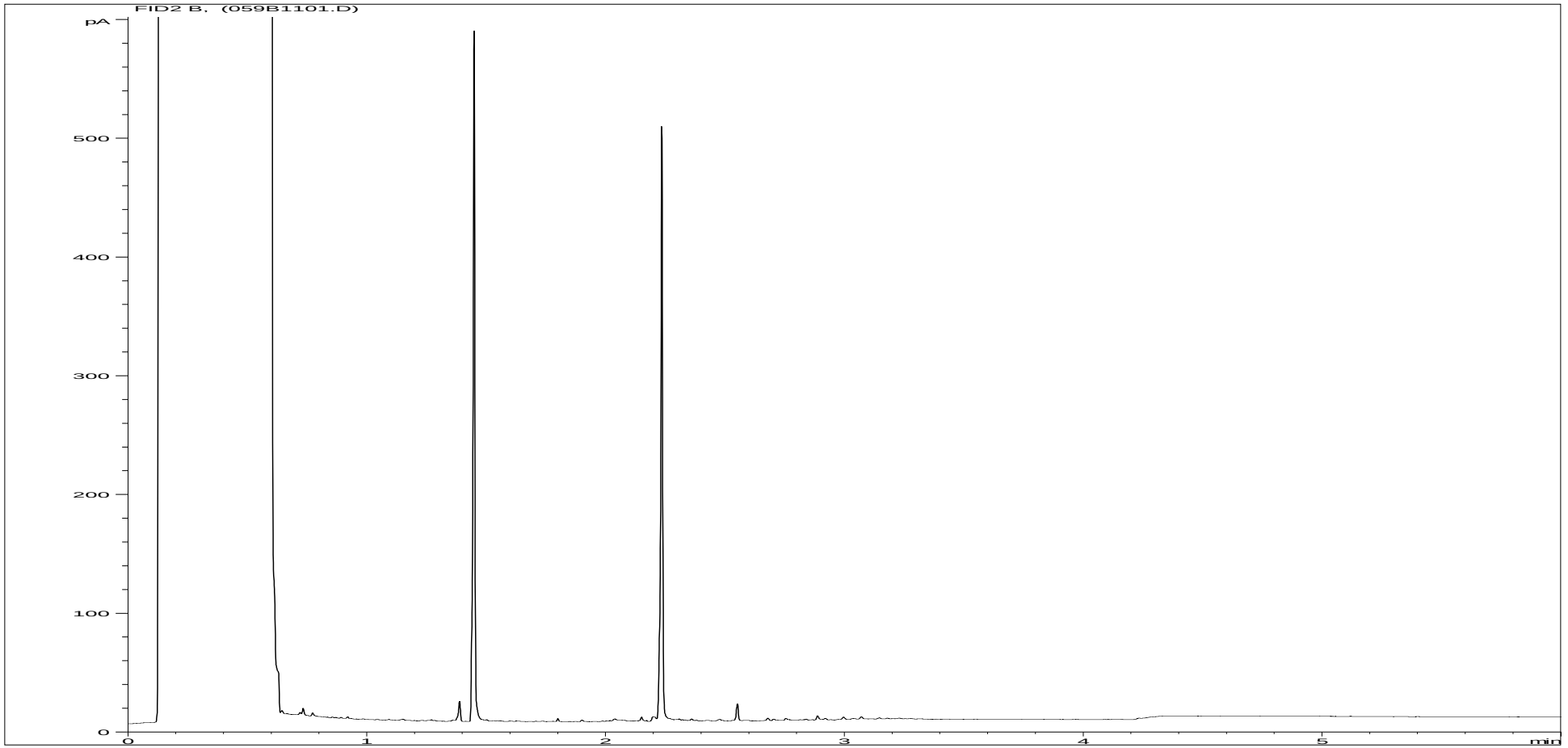
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549341ALI	**Job Number:**	S15_3468
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 6 0.70
Acquisition Date/Time:	22-May-15, 14:53:34		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\009F2401.D		

Where individual results are flagged see report notes for status.

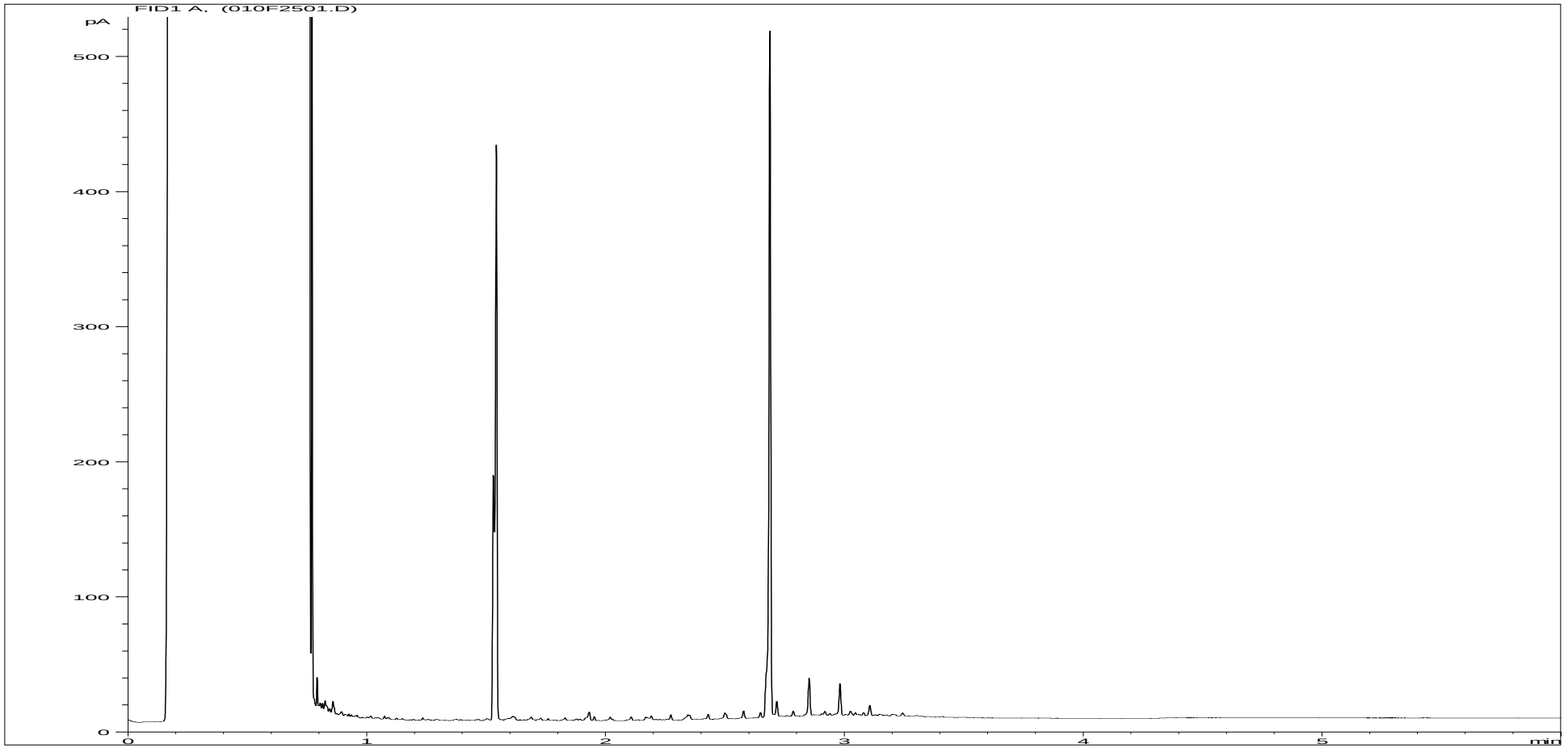
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549341ARO	**Job Number:**	S15_3468
Multiplier:	12.16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 6 0.70
Acquisition Date/Time:	22-May-15, 11:54:08		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\059B1101.D		

Where individual results are flagged see report notes for status.

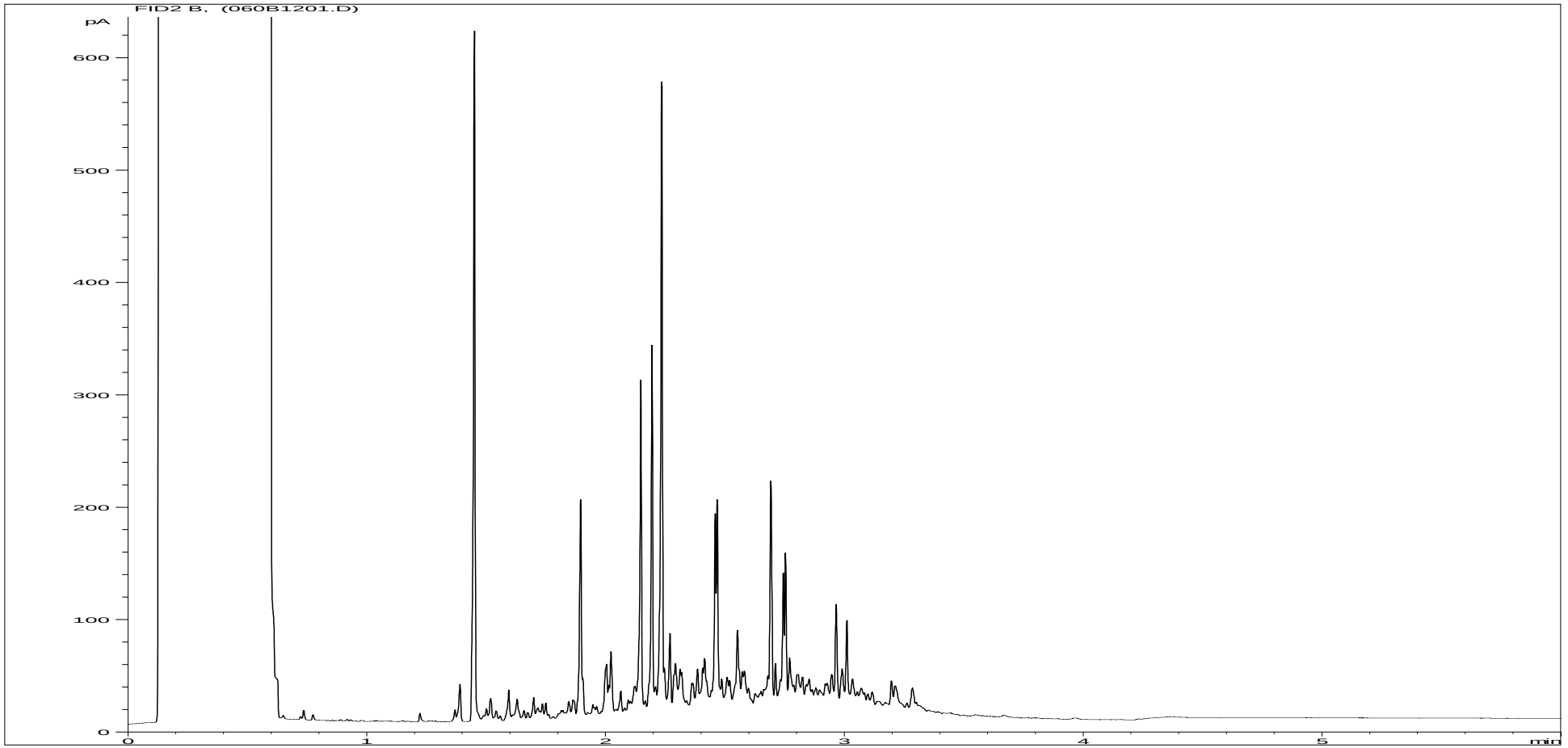
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549342ALI	**Job Number:**	S15_3468
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 1 0.20
Acquisition Date/Time:	22-May-15, 15:07:31		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\010F2501.D		

Where individual results are flagged see report notes for status.

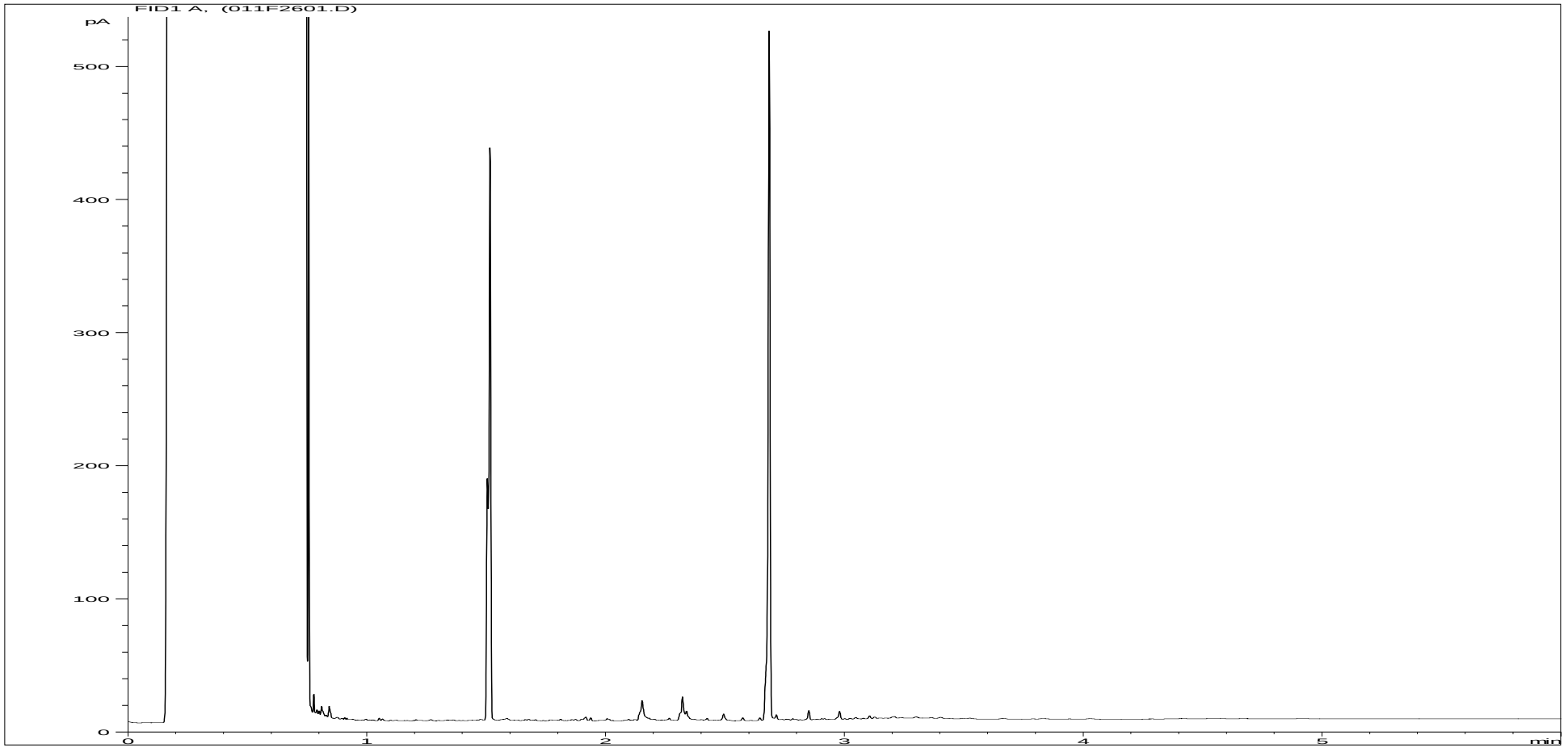
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549342ARO	**Job Number:**	S15_3468
Multiplier:	12.16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 1 0.20
Acquisition Date/Time:	22-May-15, 12:07:51		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\060B1201.D		

Where individual results are flagged see report notes for status.

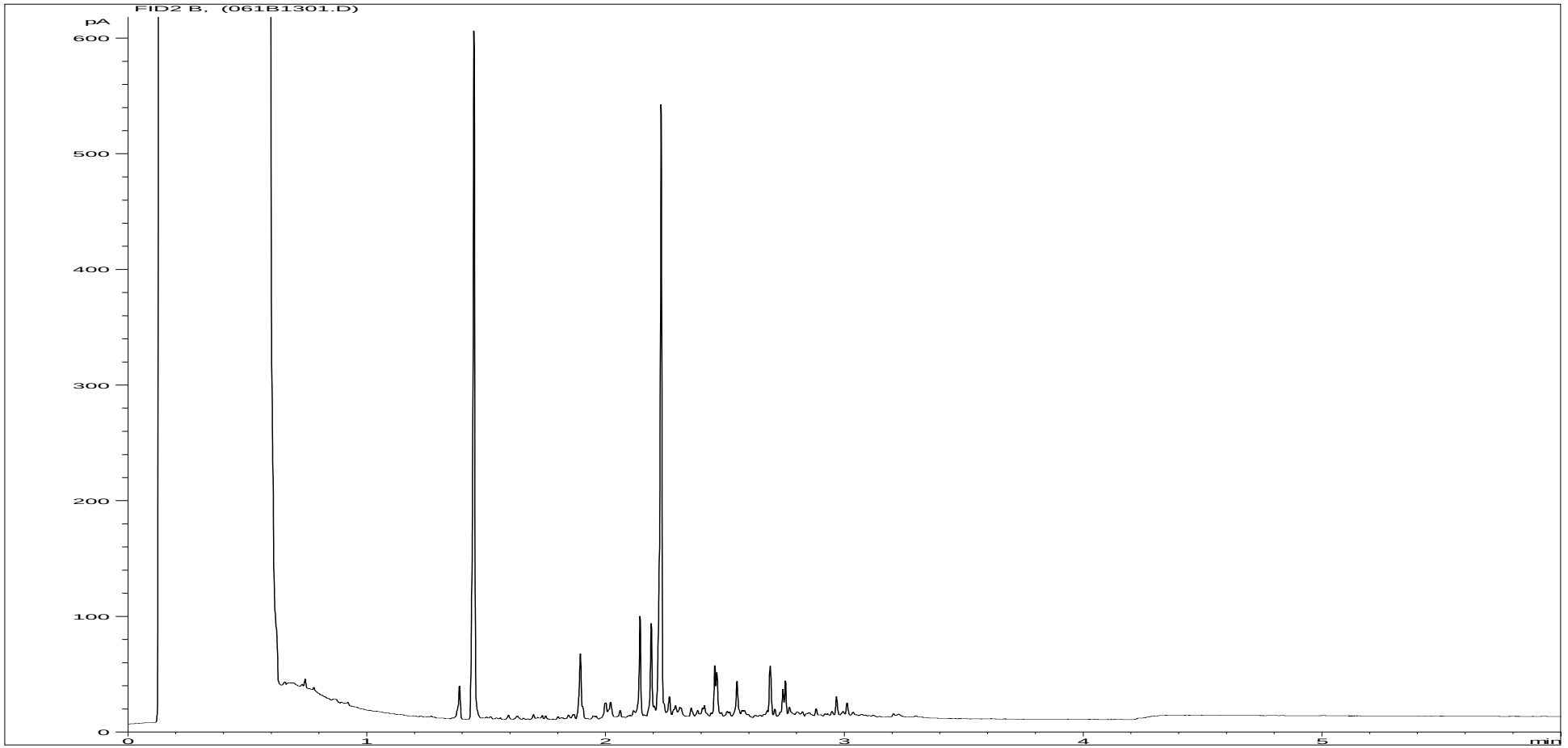
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549343ALI	**Job Number:**	S15_3468
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 4 0.50
Acquisition Date/Time:	22-May-15, 15:51:55		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\011F2601.D		

Where individual results are flagged see report notes for status.

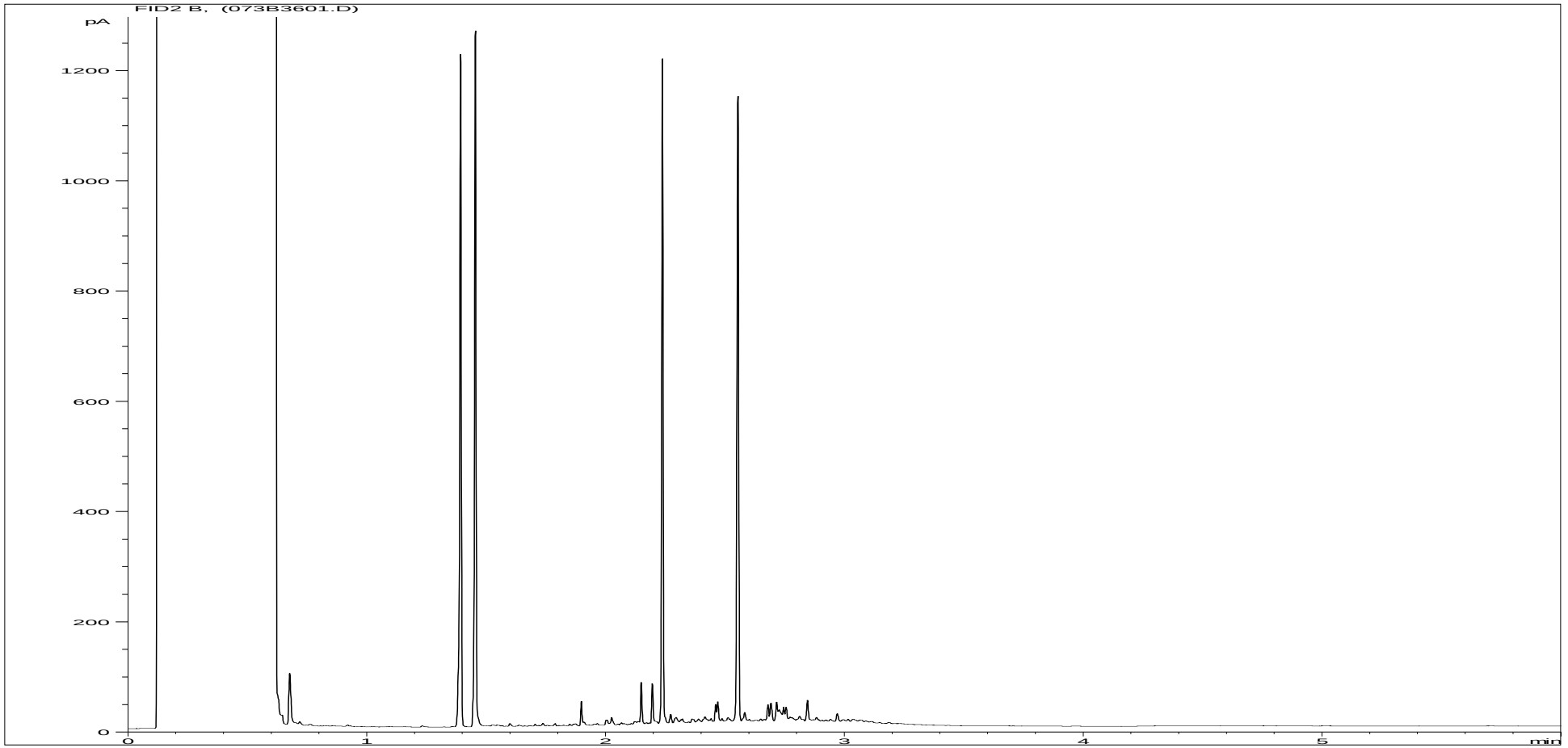
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549343ARO	**Job Number:**	S15_3468
Multiplier:	12.16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 4 0.50
Acquisition Date/Time:	22-May-15, 12:21:43		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\061B1301.D		

Where individual results are flagged see report notes for status.

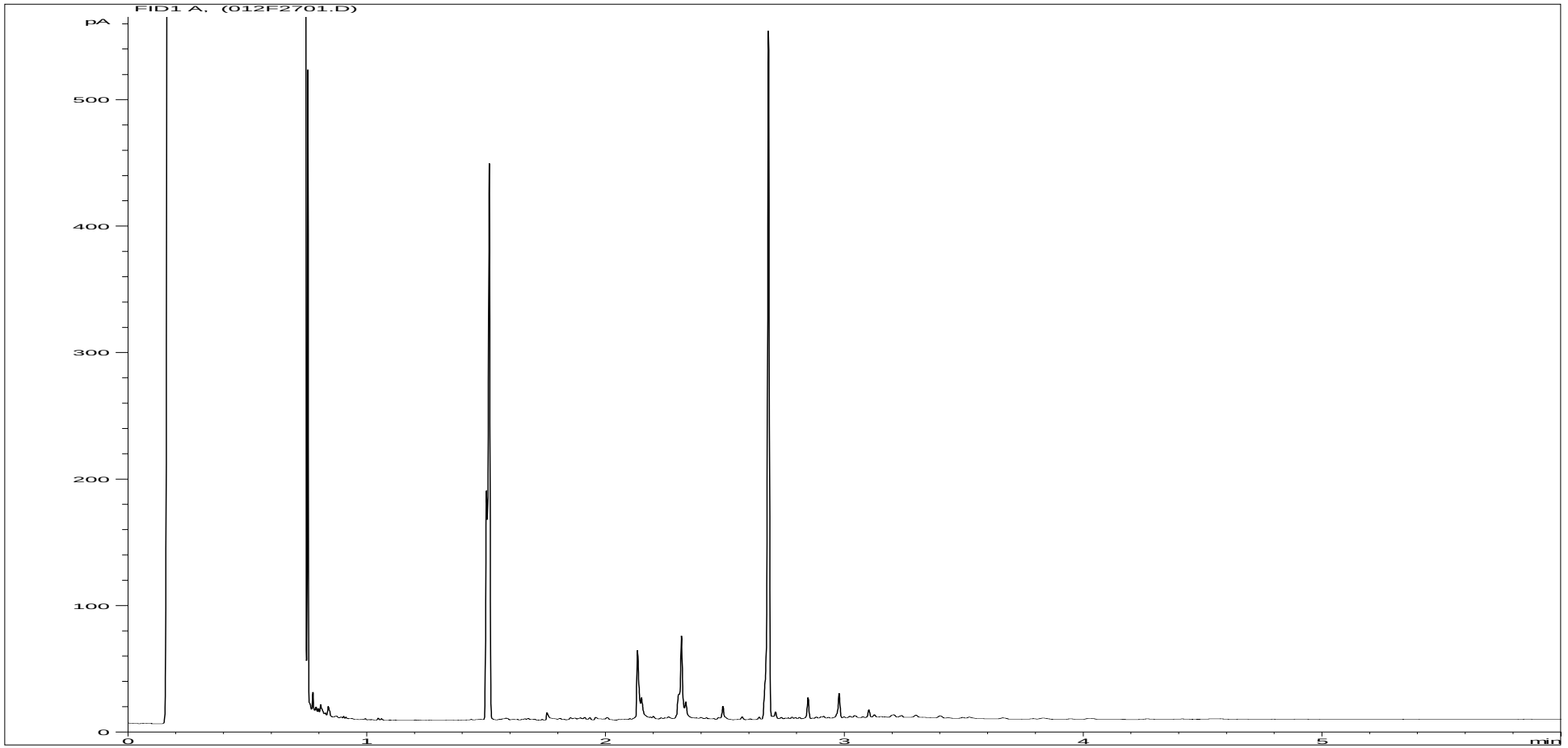
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549344	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 1 0.20
Acquisition Date/Time:	21-May-15, 18:40:10		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\073B3601.D		

Where individual results are flagged see report notes for status.

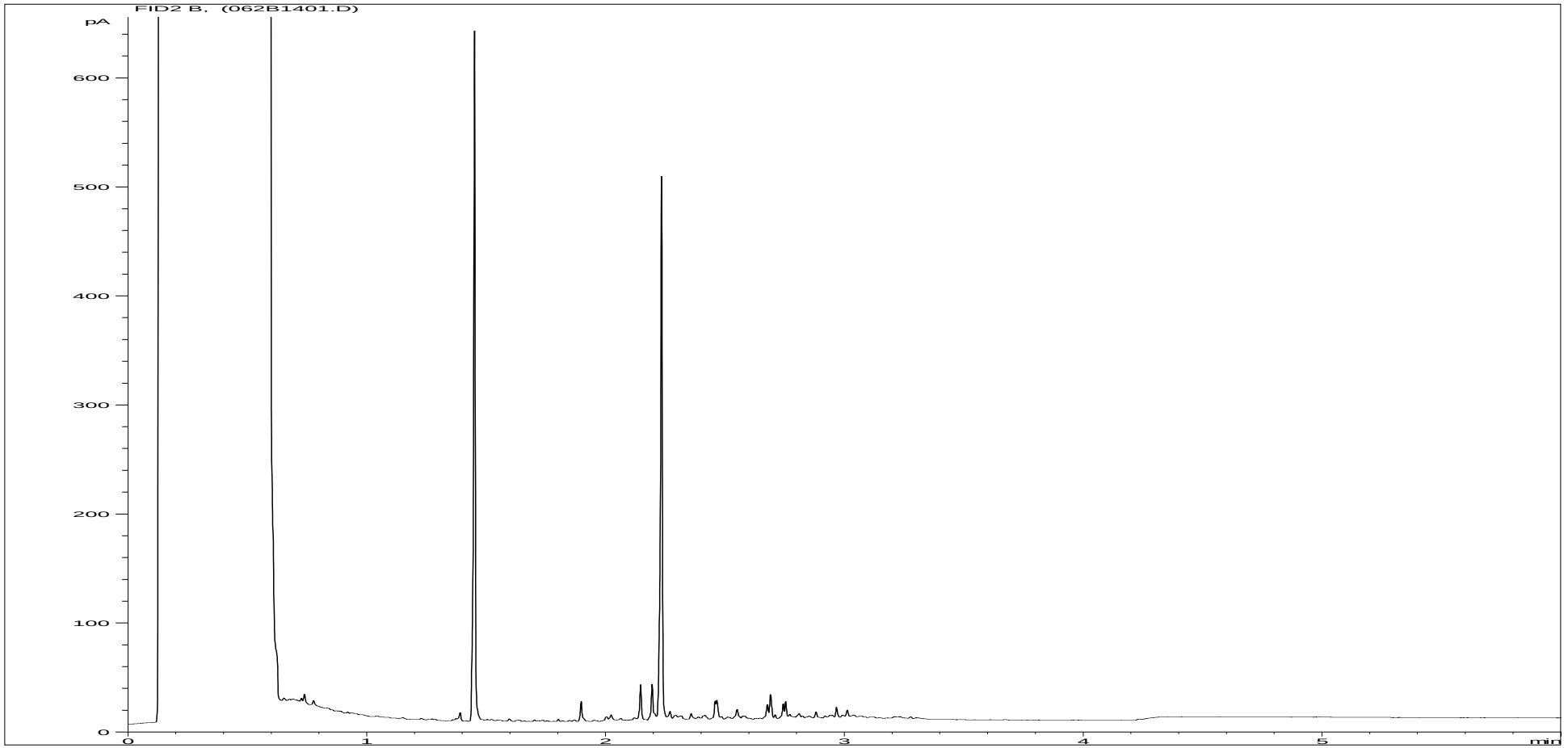
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549344ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 1 0.20
Acquisition Date/Time:	22-May-15, 17:52:02		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\012F2701.D		

Where individual results are flagged see report notes for status.

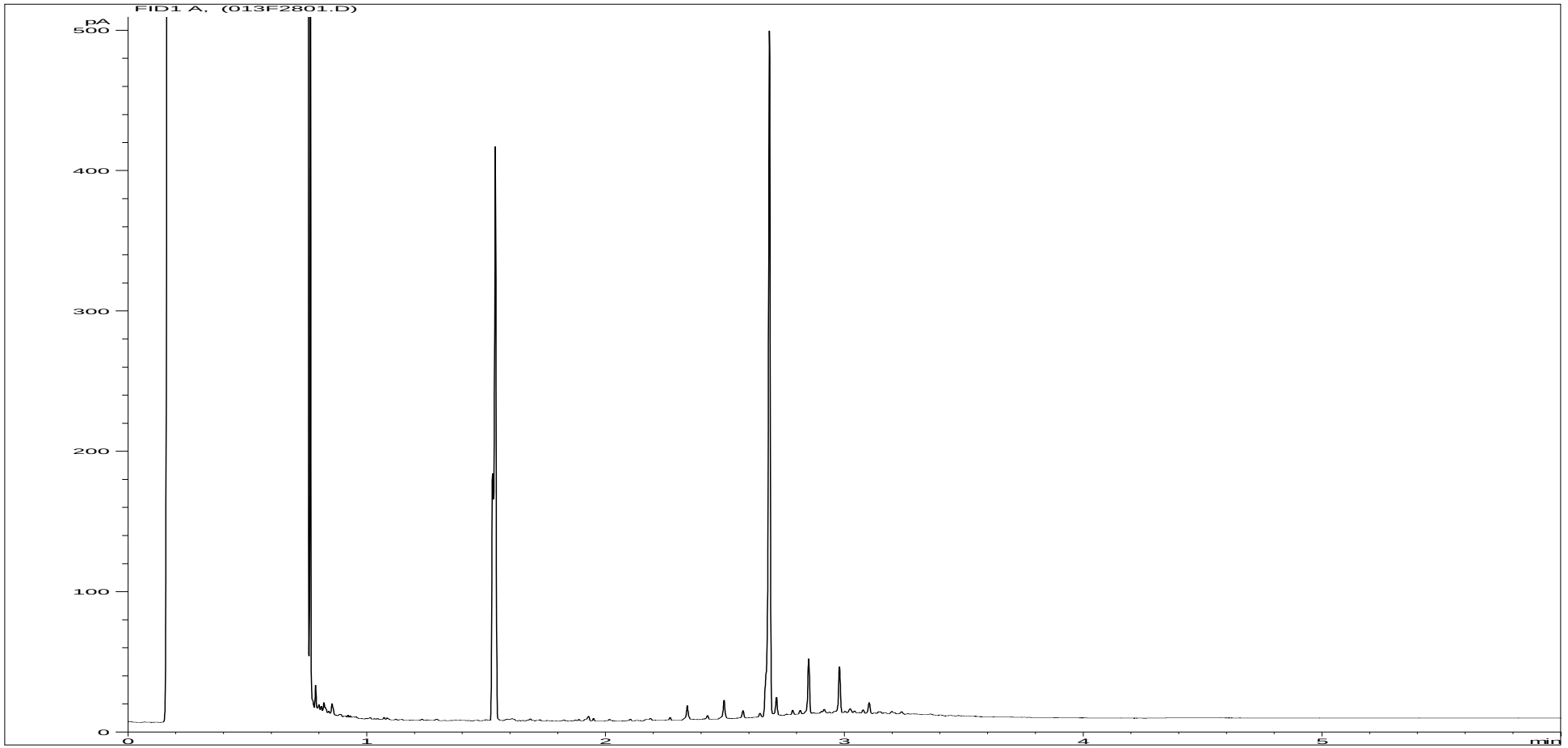
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549344ARO	**Job Number:**	S15_3468
Multiplier:	11.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 1 0.20
Acquisition Date/Time:	22-May-15, 12:35:27		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\062B1401.D		

Where individual results are flagged see report notes for status.

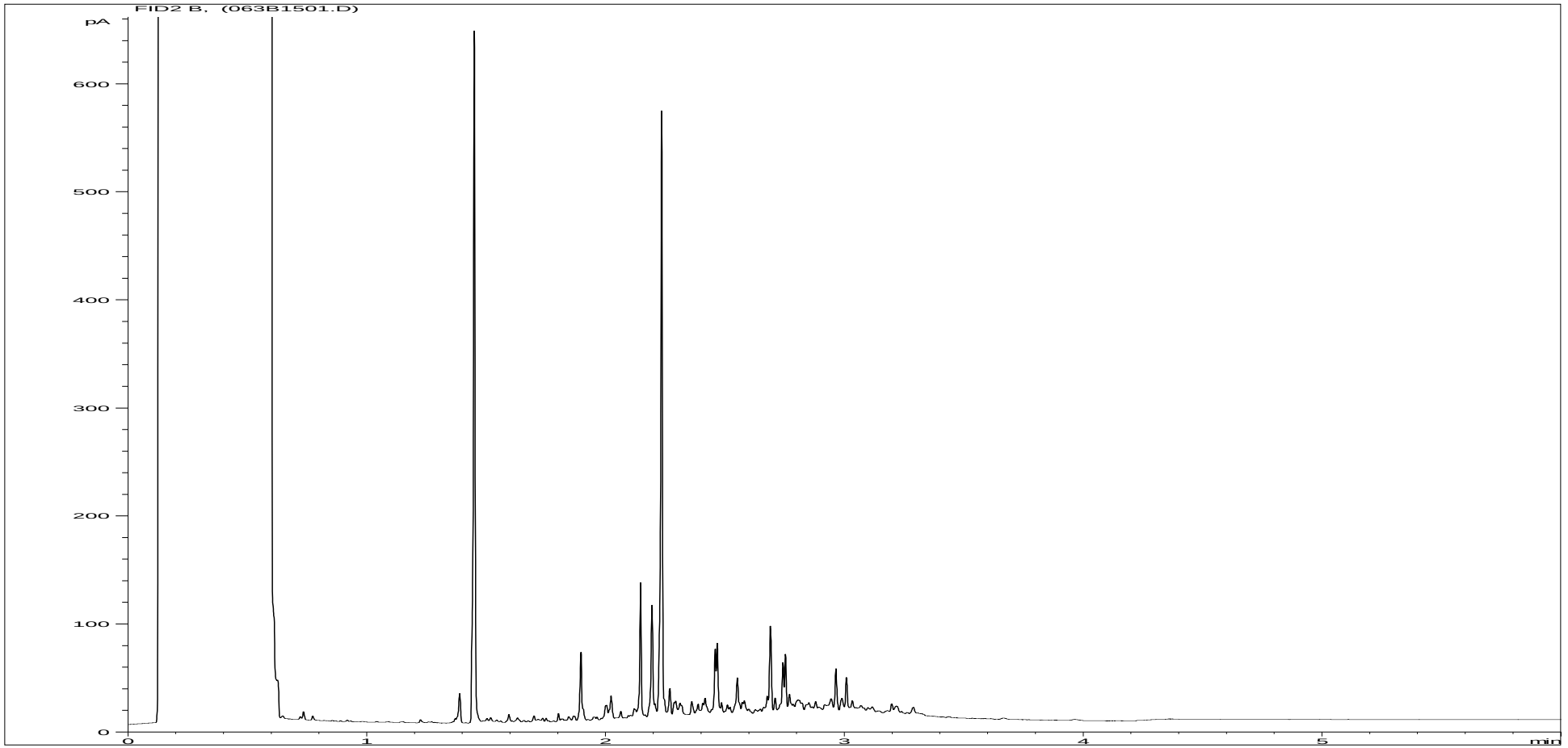
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549345ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH305 ES 1 0.20
Acquisition Date/Time:	22-May-15, 18:05:45		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\013F2801.D		

Where individual results are flagged see report notes for status.

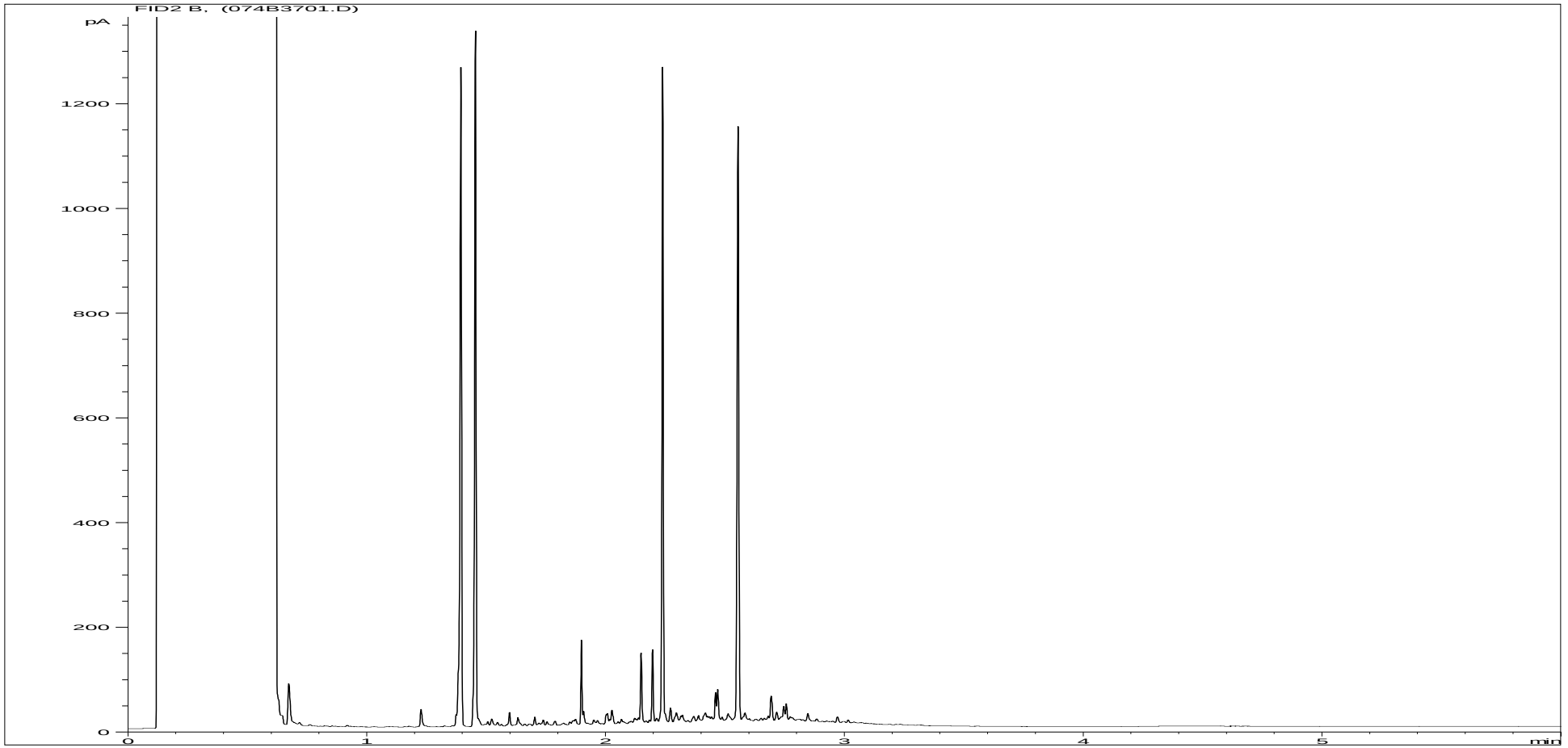
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549345ARO	**Job Number:**	S15_3468
Multiplier:	12.16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH305 ES 1 0.20
Acquisition Date/Time:	22-May-15, 12:49:13		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\063B1501.D		

Where individual results are flagged see report notes for status.

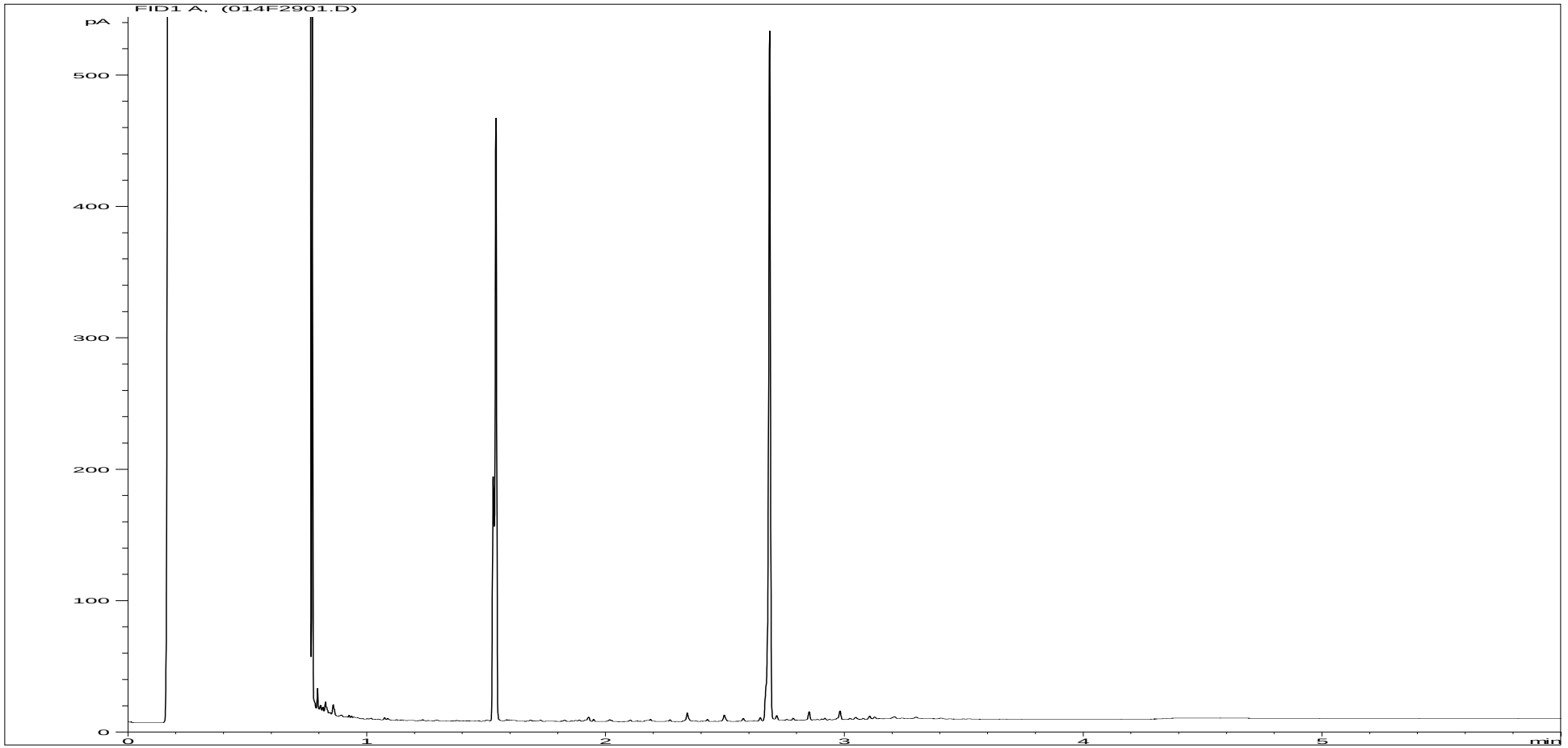
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549346	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH305 ES 4 0.40
Acquisition Date/Time:	21-May-15, 18:53:59		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\074B3701.D		

Where individual results are flagged see report notes for status.

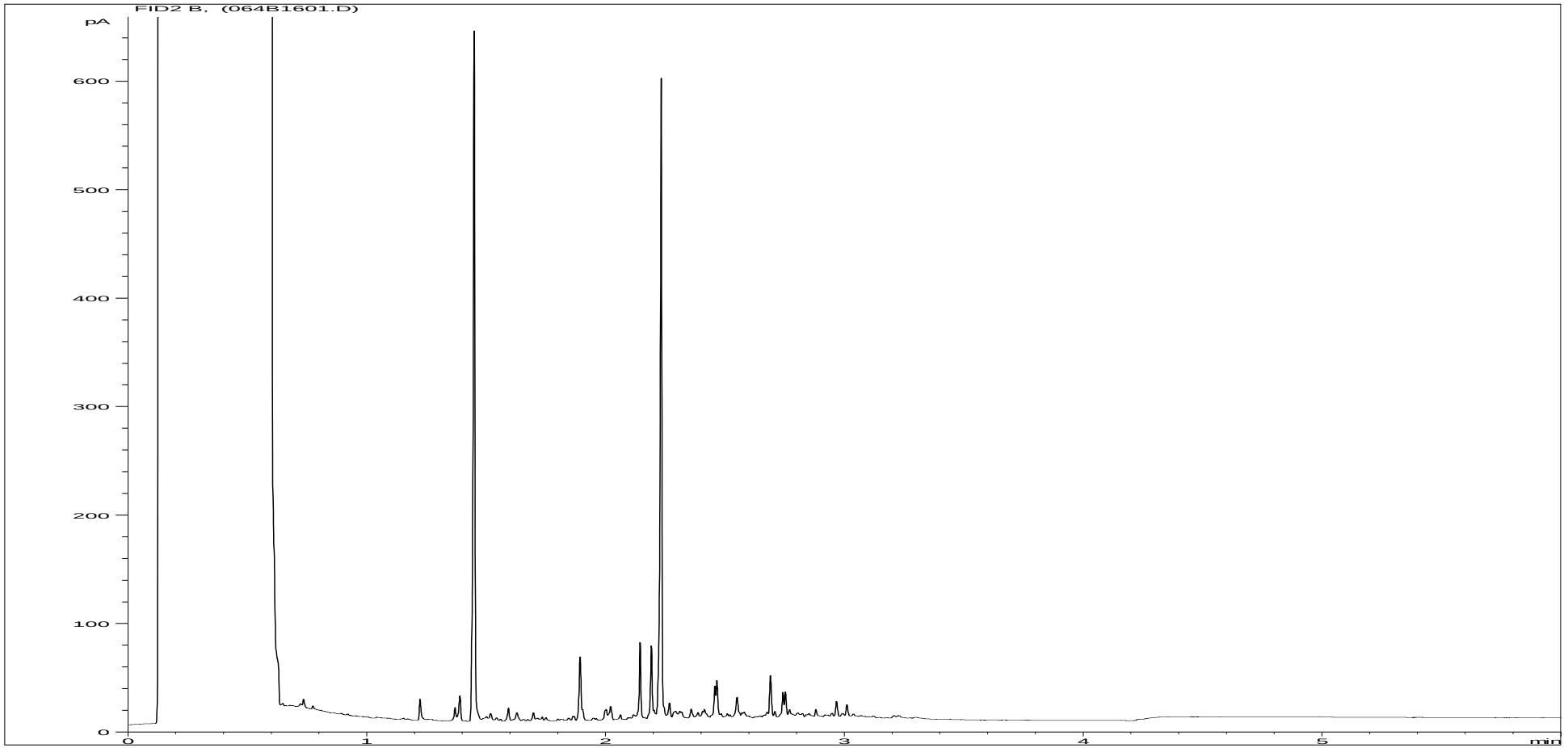
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549346ALI	**Job Number:**	S15_3468
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH305 ES 4 0.40
Acquisition Date/Time:	22-May-15, 18:19:31		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\014F2901.D		

Where individual results are flagged see report notes for status.

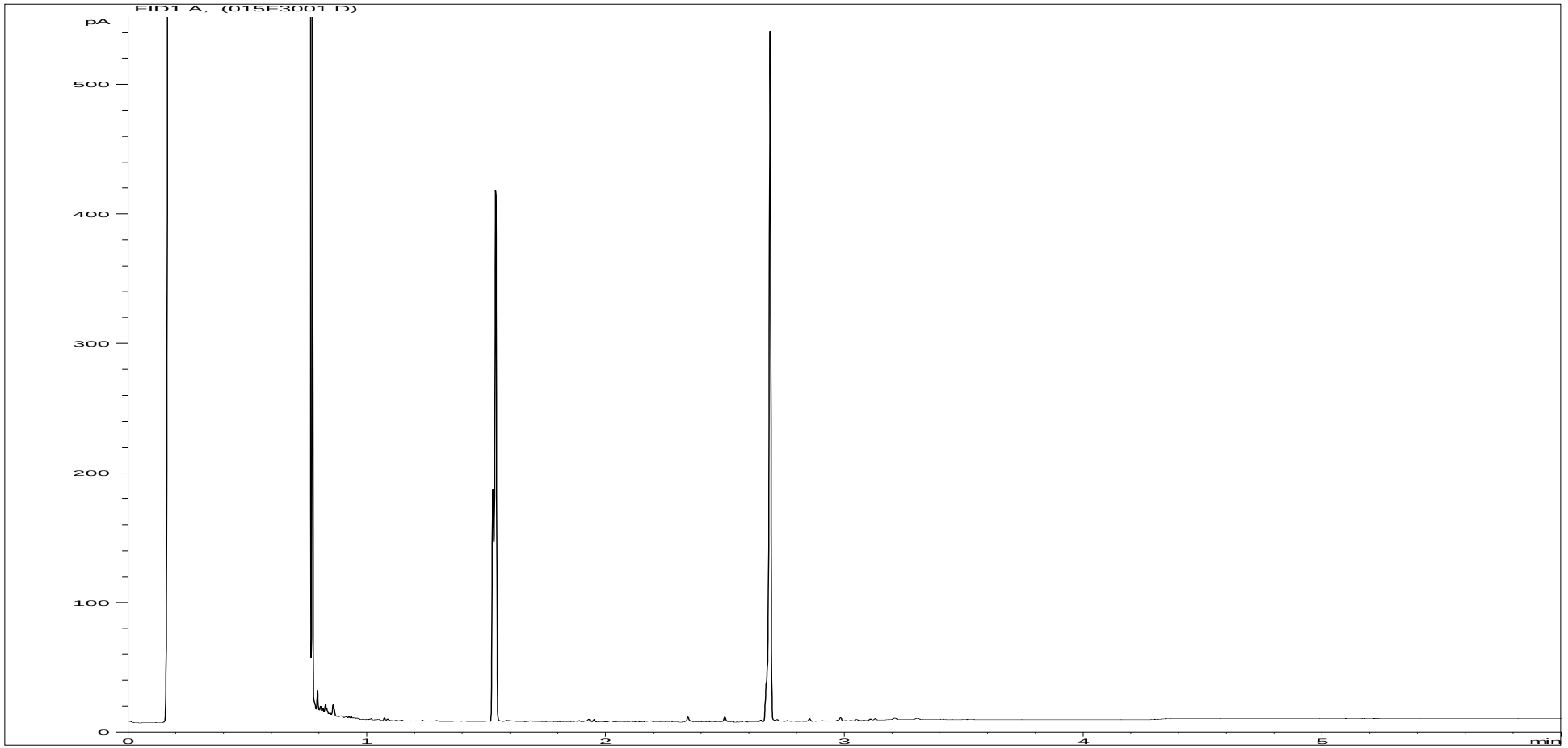
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549346ARO	**Job Number:**	S15_3468
Multiplier:	11.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH305 ES 4 0.40
Acquisition Date/Time:	22-May-15, 13:03:06		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\064B1601.D		

Where individual results are flagged see report notes for status.

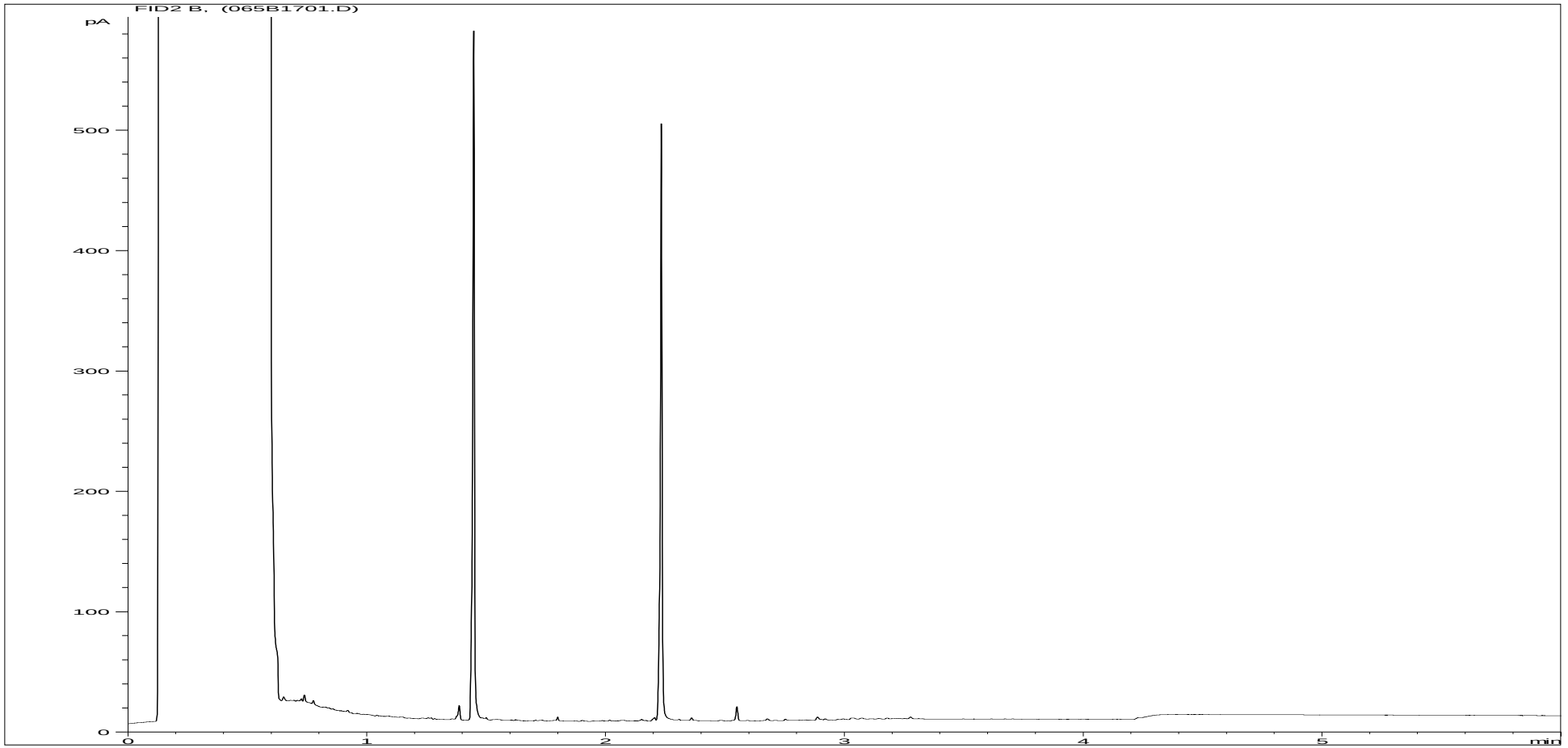
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549347ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 4 0.70
Acquisition Date/Time:	22-May-15, 18:33:19		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\015F3001.D		

Where individual results are flagged see report notes for status.

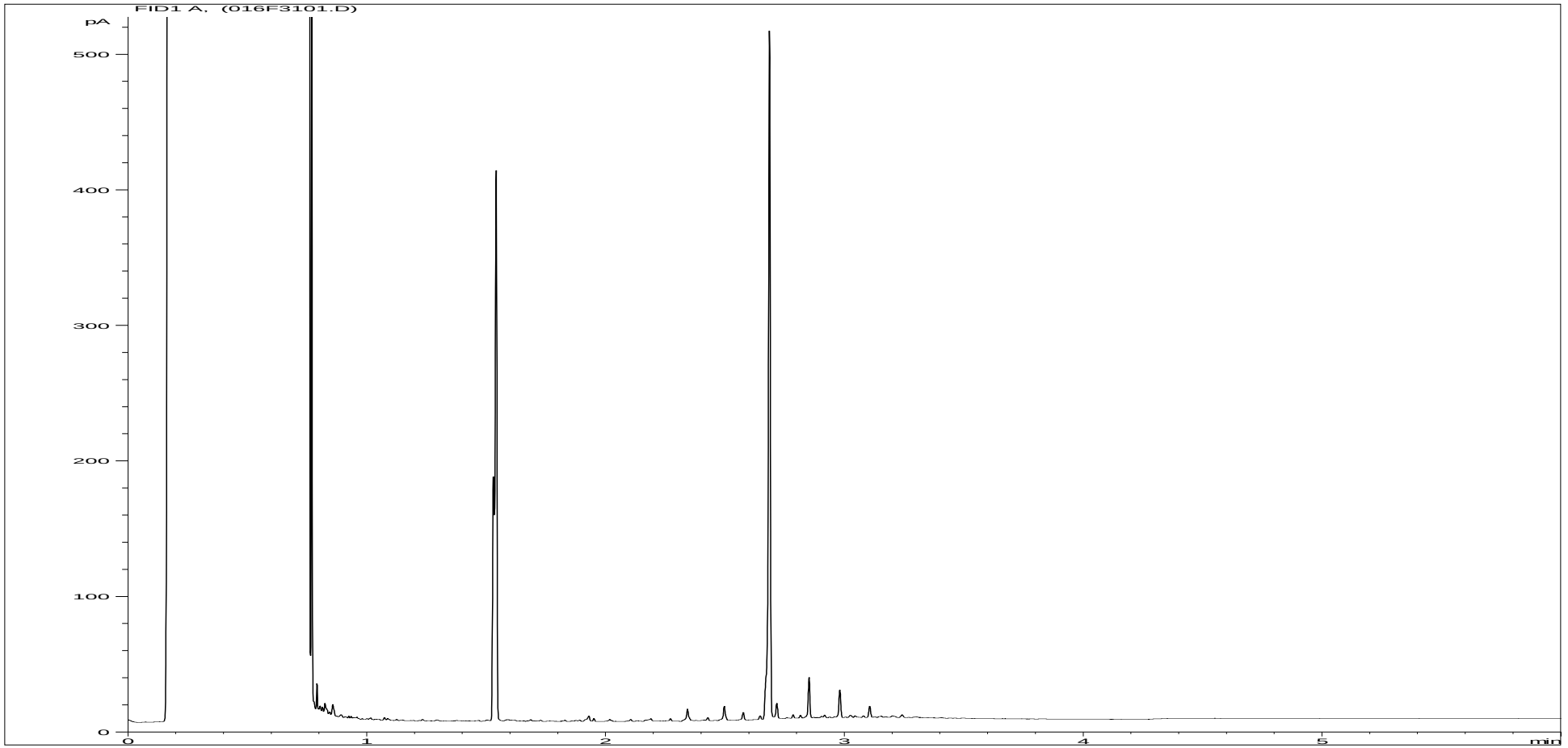
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549347ARO	**Job Number:**	S15_3468
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 4 0.70
Acquisition Date/Time:	22-May-15, 13:16:34		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\065B1701.D		

Where individual results are flagged see report notes for status.

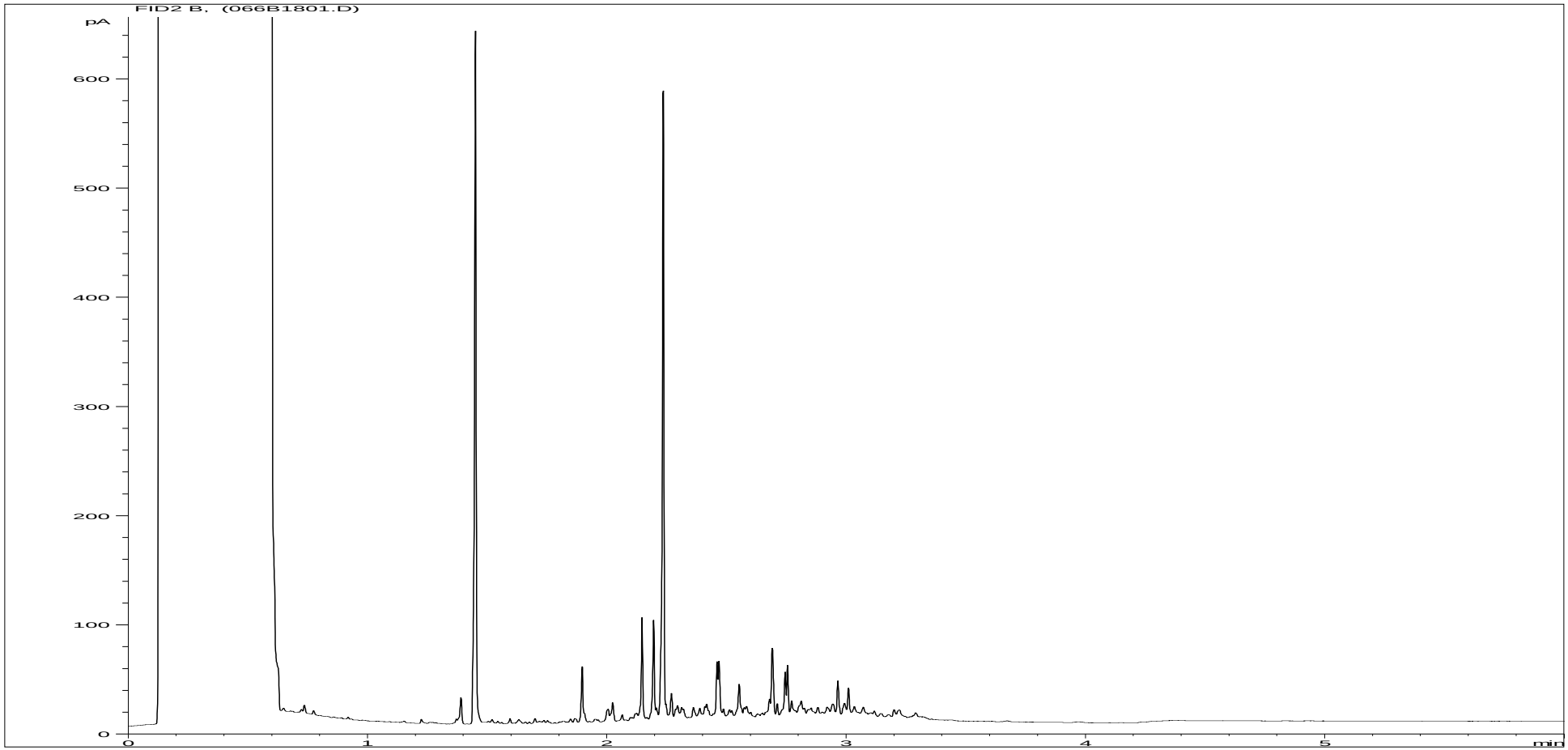
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549348ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 1 0.20
Acquisition Date/Time:	22-May-15, 18:47:03		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\016F3101.D		

Where individual results are flagged see report notes for status.

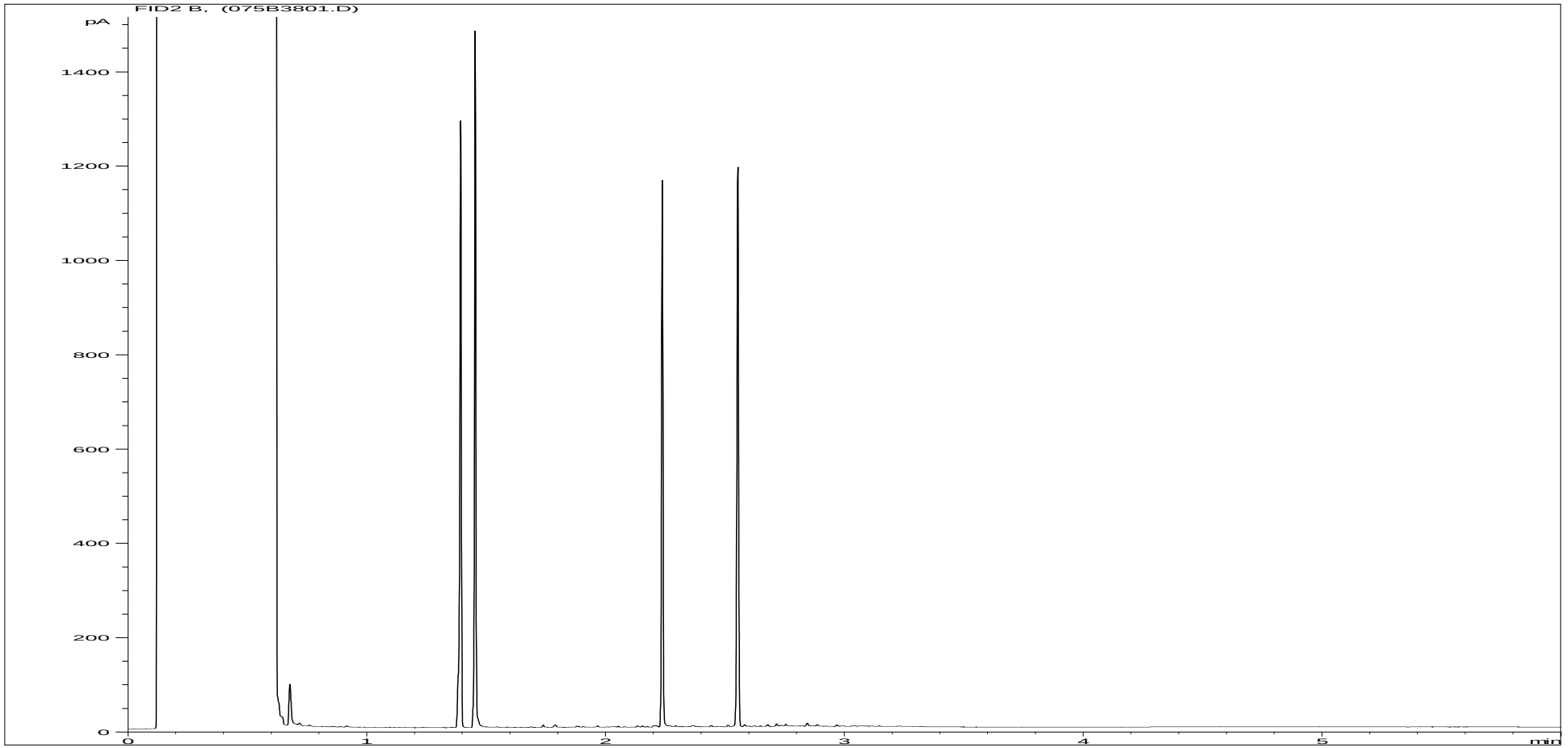
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549348ARO	**Job Number:**	S15_3468
Multiplier:	12.32	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 1 0.20
Acquisition Date/Time:	22-May-15, 13:30:28		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\066B1801.D		

Where individual results are flagged see report notes for status.

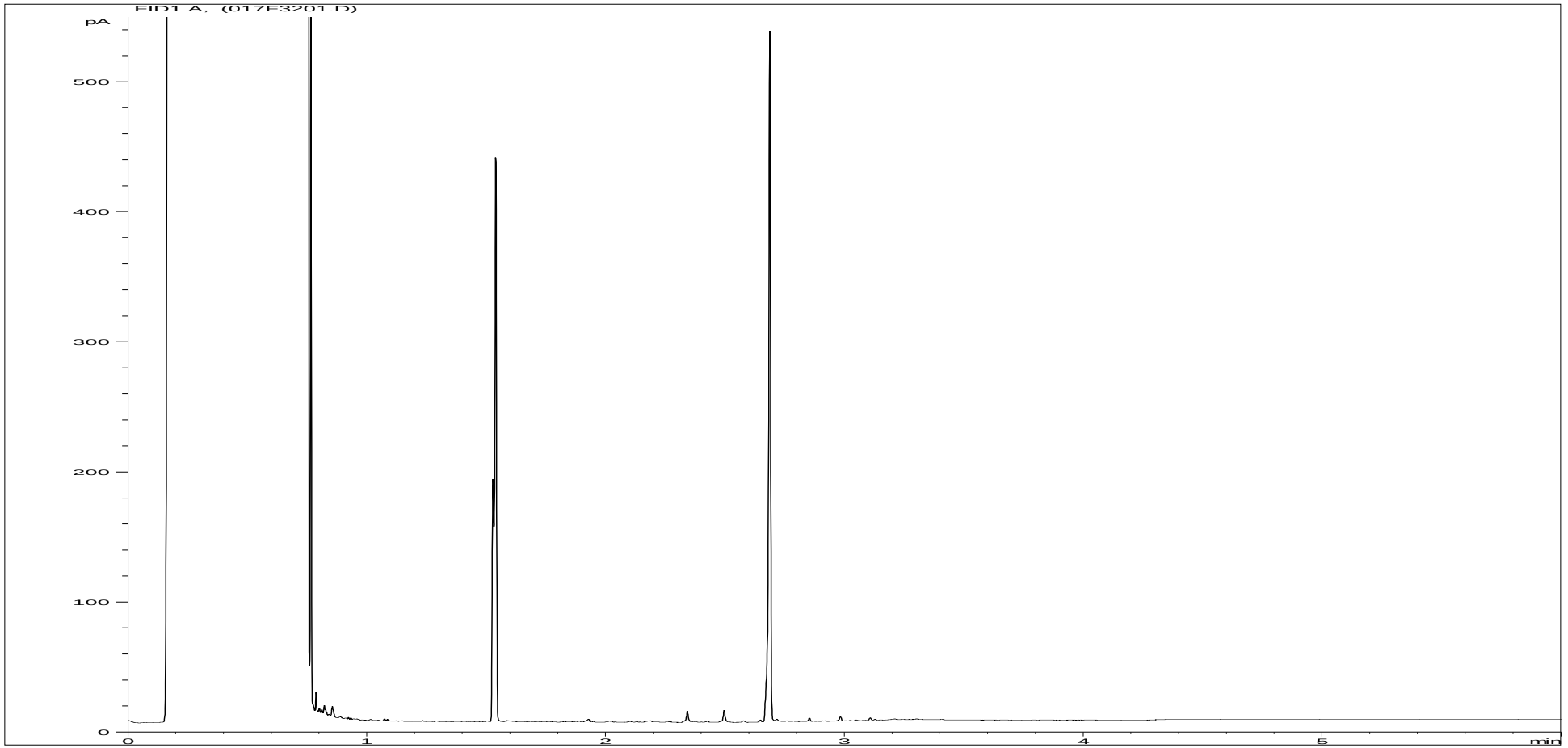
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549349	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 4 0.50
Acquisition Date/Time:	21-May-15, 19:07:41		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\075B3801.D		

Where individual results are flagged see report notes for status.

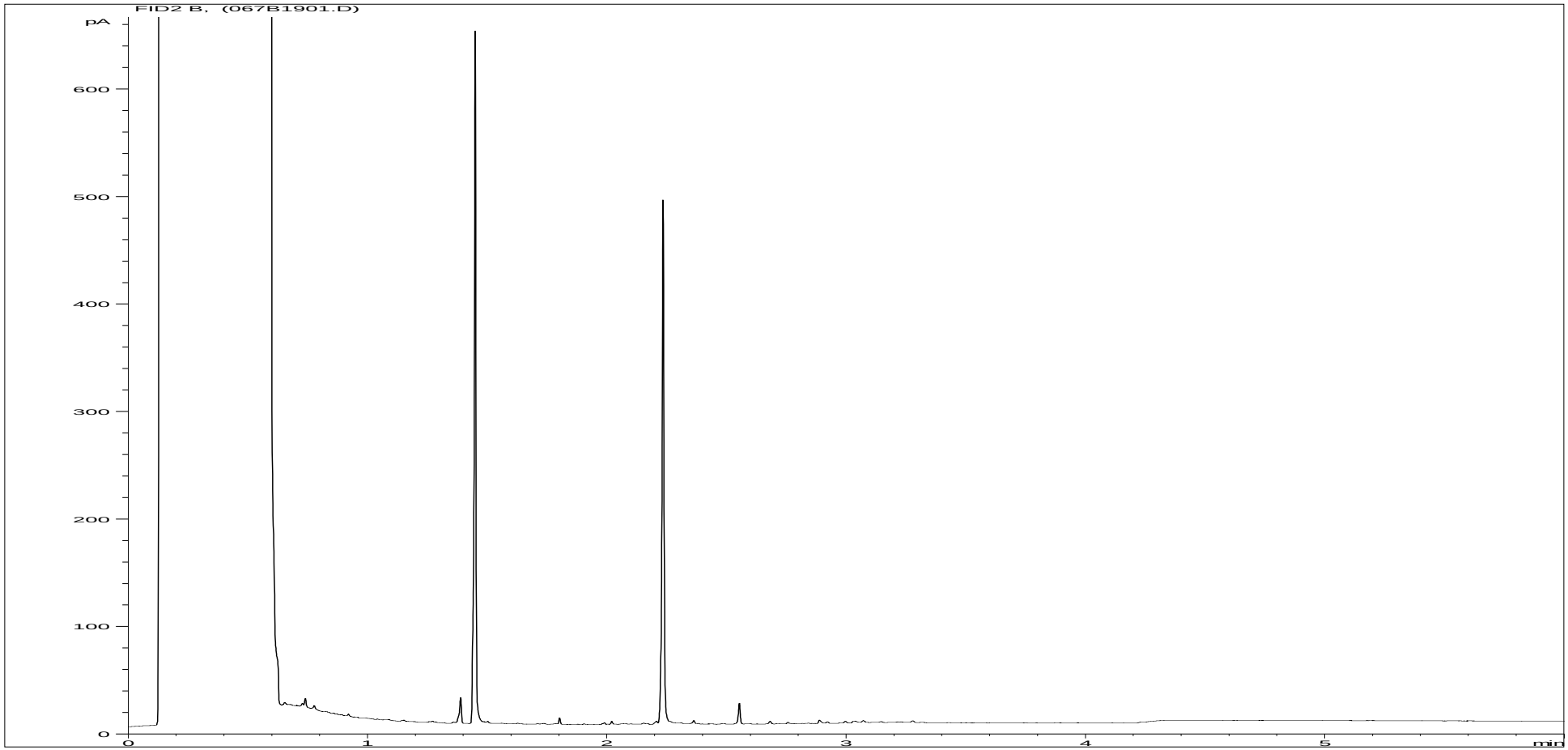
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549349ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 4 0.50
Acquisition Date/Time:	22-May-15, 19:01:00		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\017F3201.D		

Where individual results are flagged see report notes for status.

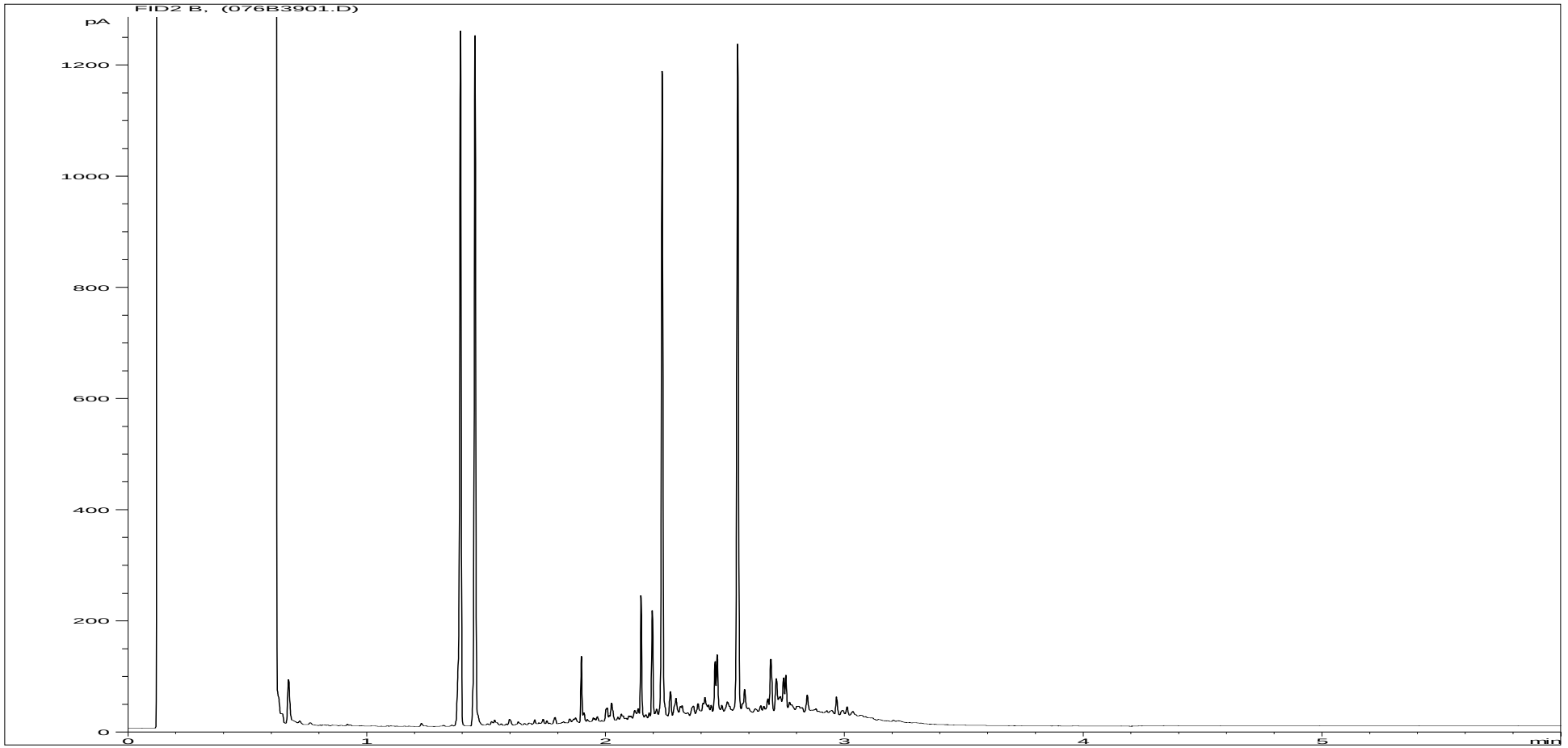
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549349ARO	**Job Number:**	S15_3468
Multiplier:	11.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 4 0.50
Acquisition Date/Time:	22-May-15, 13:44:17		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\067B1901.D		

Where individual results are flagged see report notes for status.

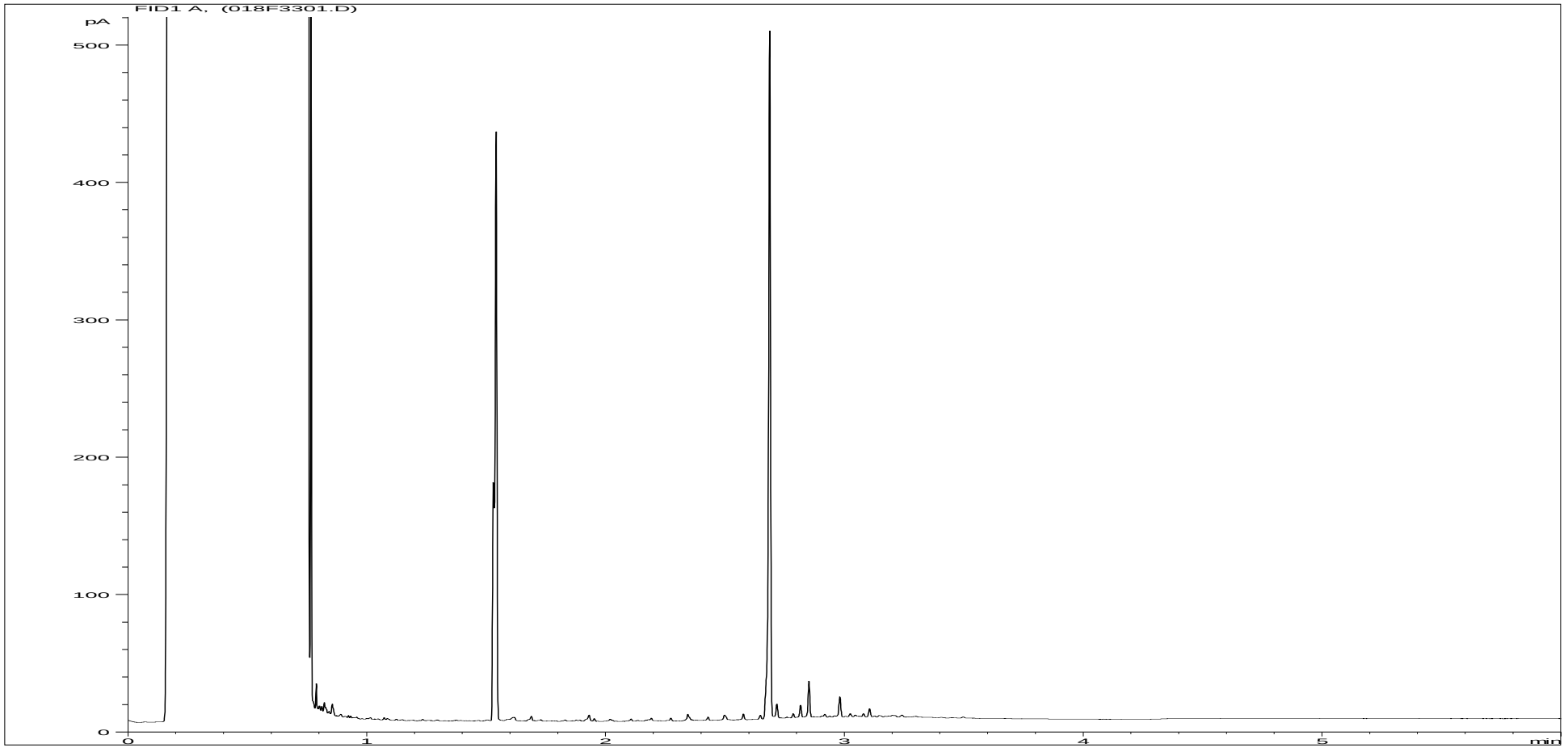
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549350	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 1 0.20
Acquisition Date/Time:	21-May-15, 19:21:26		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\076B3901.D		

Where individual results are flagged see report notes for status.

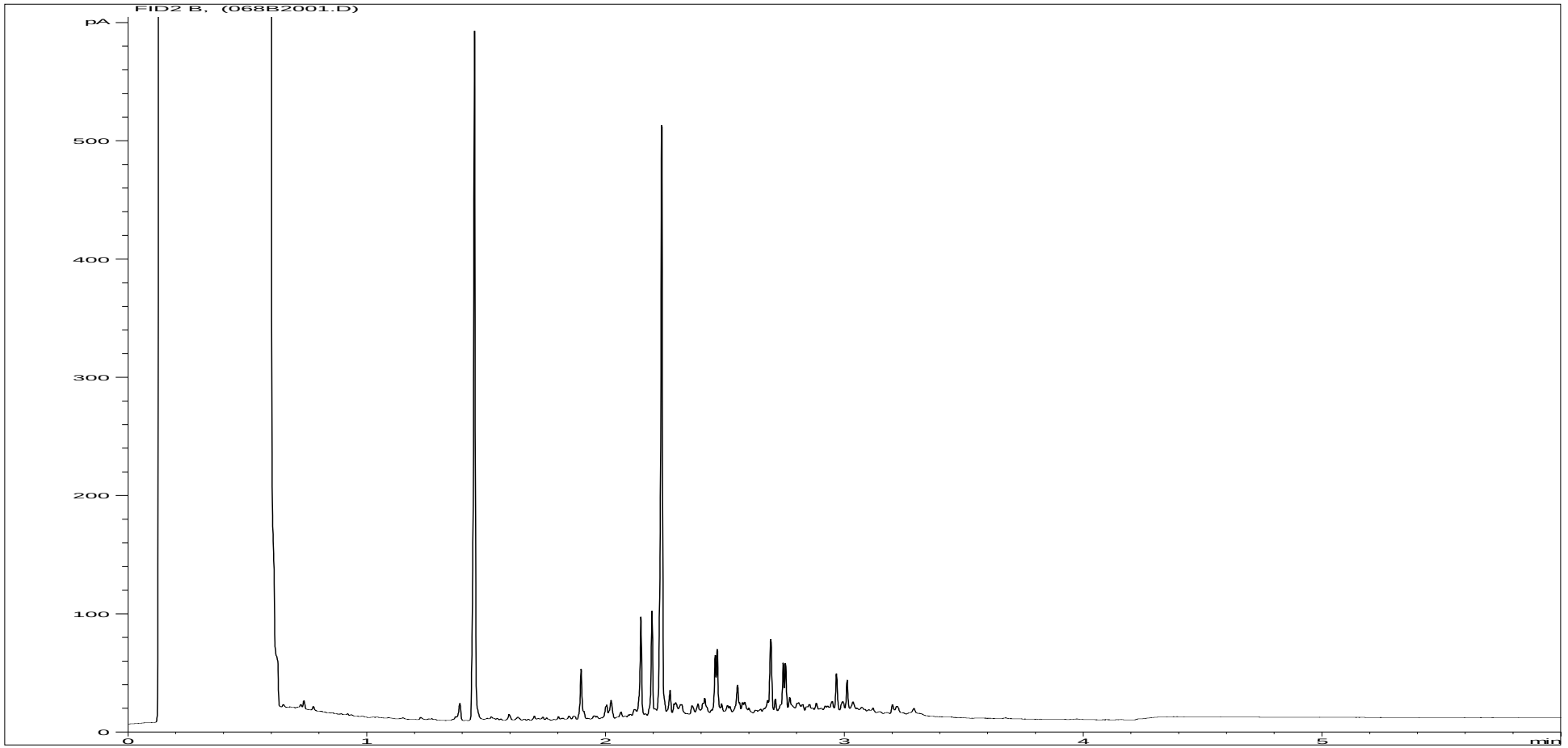
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549350ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 1 0.20
Acquisition Date/Time:	22-May-15, 19:14:41		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\018F3301.D		

Where individual results are flagged see report notes for status.

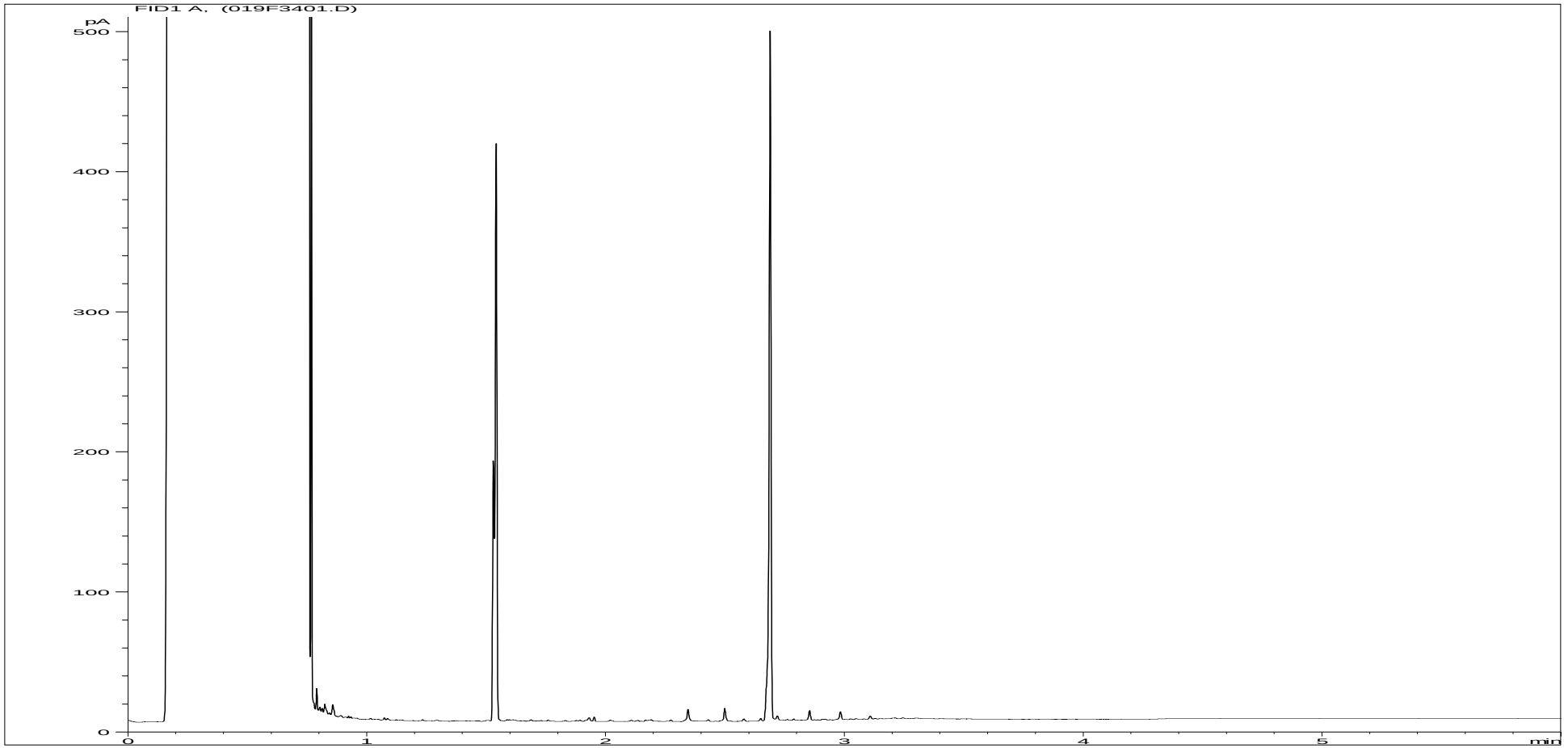
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549350ARO	**Job Number:**	S15_3468
Multiplier:	11.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 1 0.20
Acquisition Date/Time:	22-May-15, 13:58:08		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\068B2001.D		

Where individual results are flagged see report notes for status.

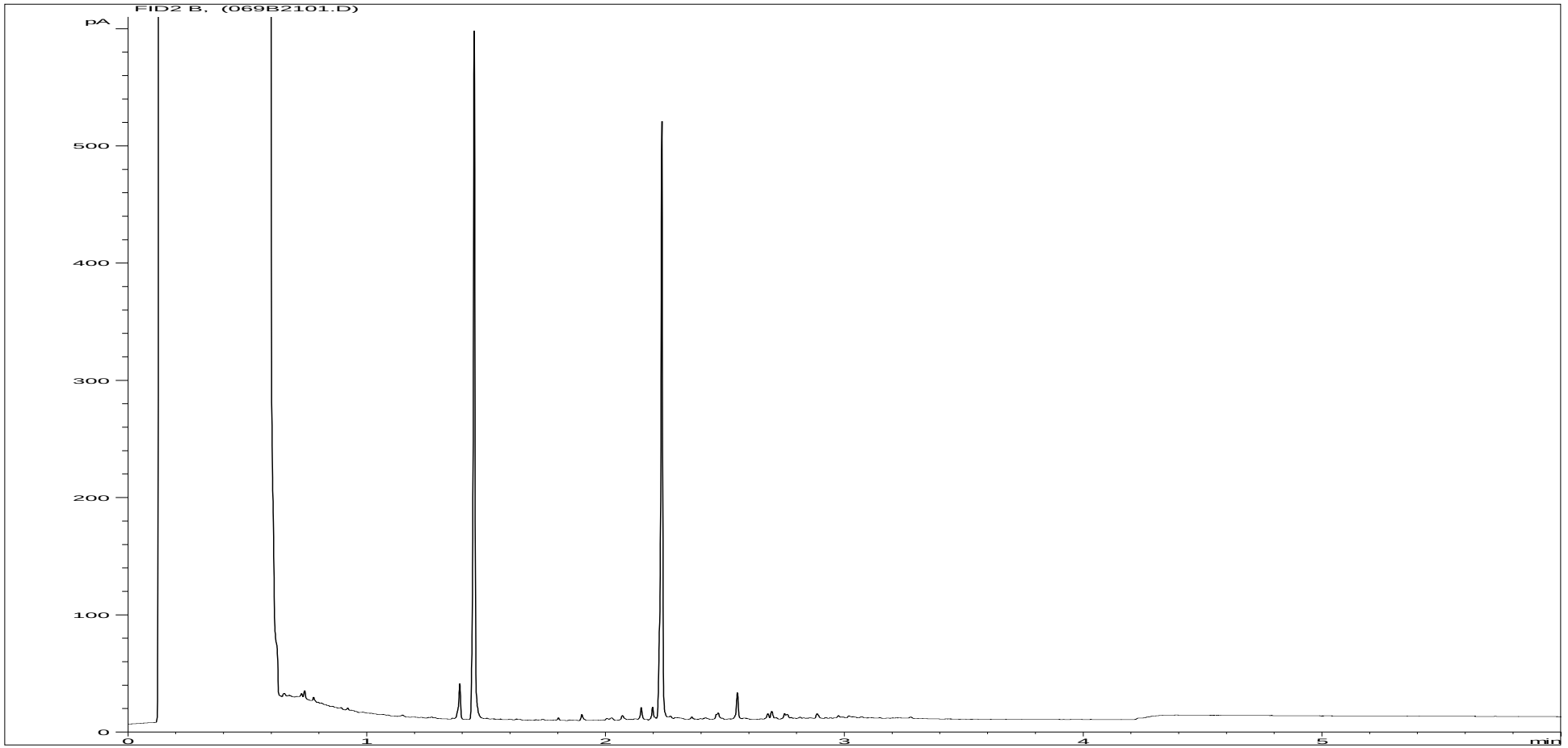
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549351ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 4 0.40
Acquisition Date/Time:	22-May-15, 19:28:26		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\019F3401.D		

Where individual results are flagged see report notes for status.

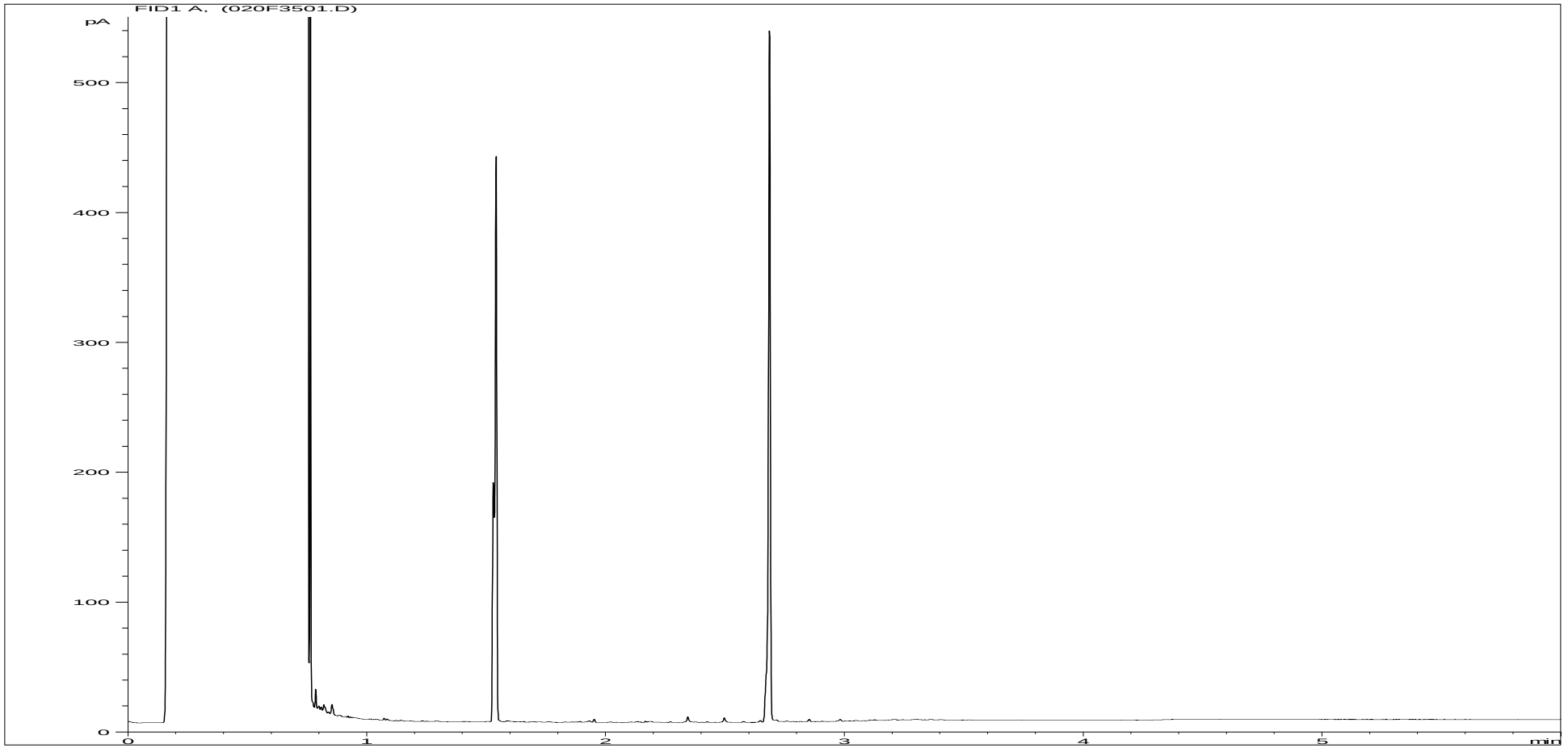
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549351ARO	**Job Number:**	S15_3468
Multiplier:	12	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 4 0.40
Acquisition Date/Time:	22-May-15, 14:12:00		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\069B2101.D		

Where individual results are flagged see report notes for status.

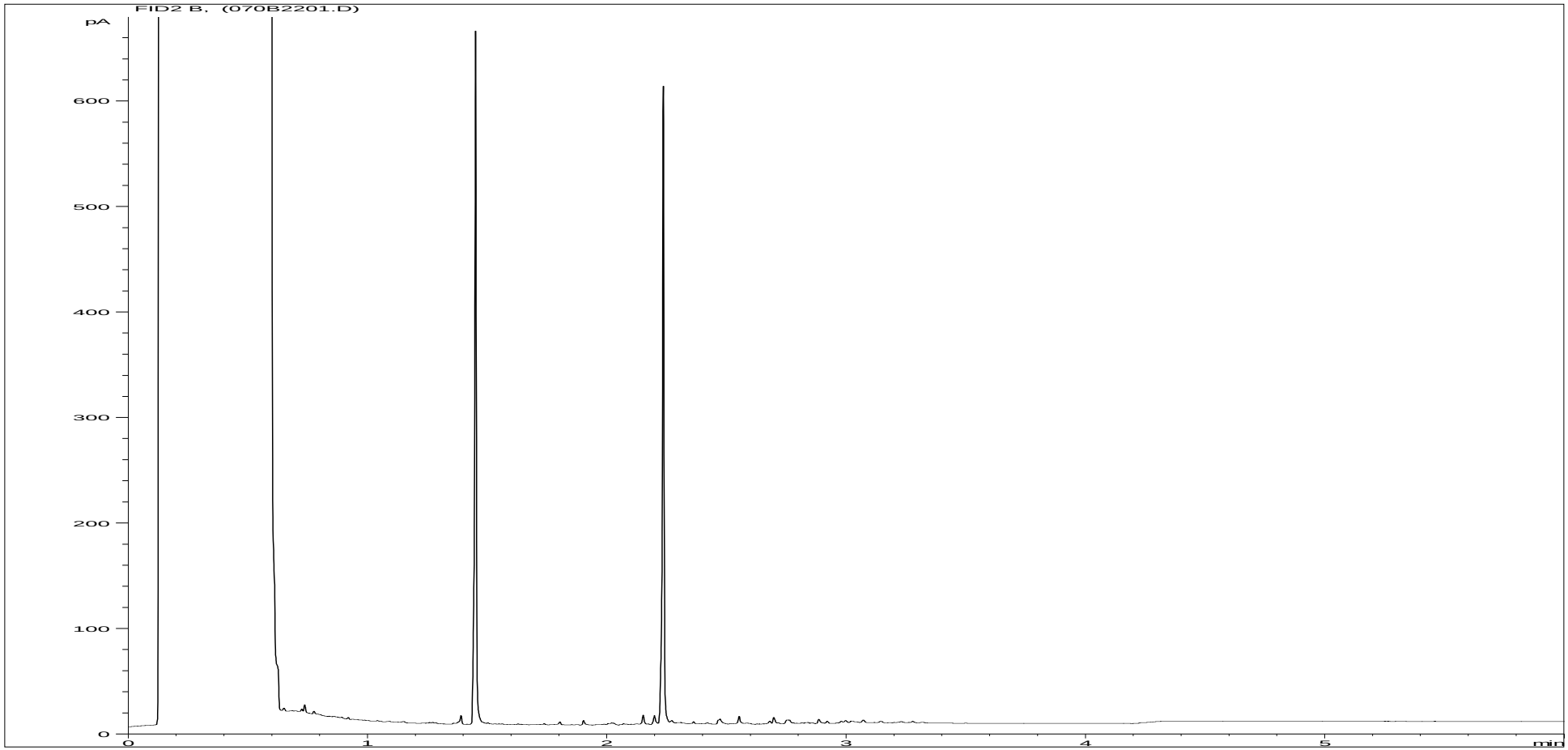
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549352ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 1 0.20
Acquisition Date/Time:	22-May-15, 19:42:09		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\020F3501.D		

Where individual results are flagged see report notes for status.

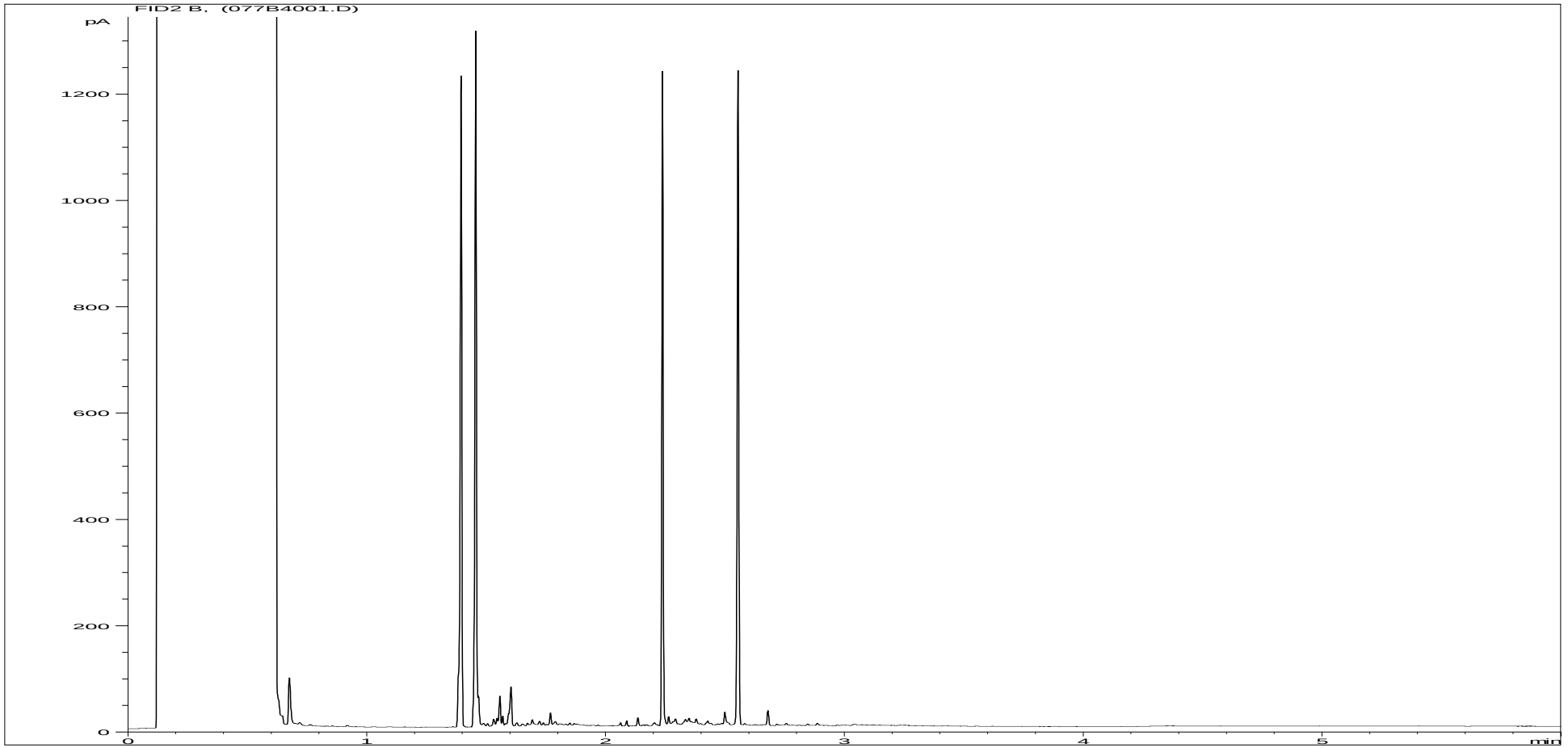
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549352ARO	**Job Number:**	S15_3468
Multiplier:	12.48	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 1 0.20
Acquisition Date/Time:	22-May-15, 14:25:59		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\070B2201.D		

Where individual results are flagged see report notes for status.

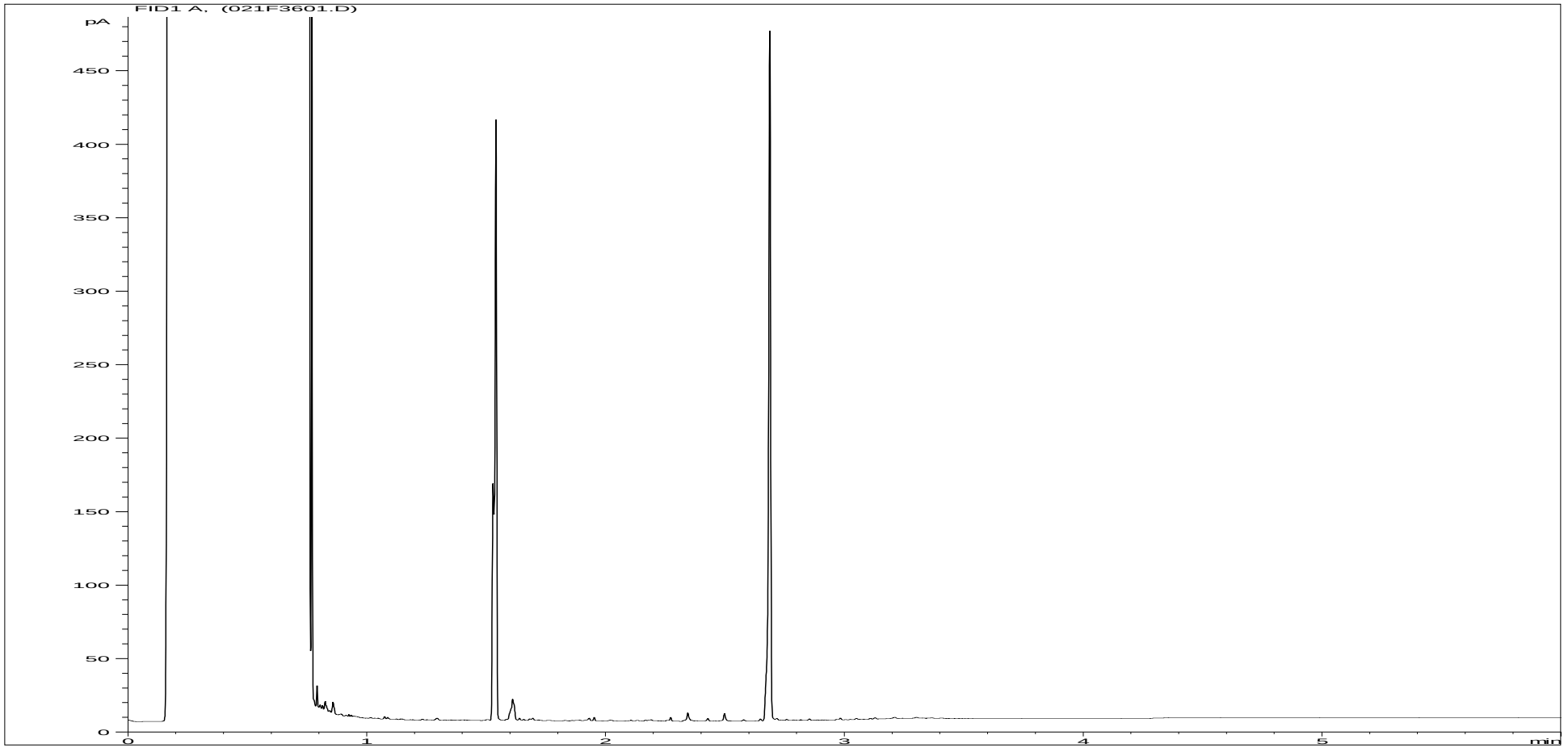
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549353	**Job Number:**	S15_3468
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 3 0.55
Acquisition Date/Time:	21-May-15, 19:35:13		
Datafile:	D:\TES\DATA\Y2015\052115TPH_GC4\052115 2015-05-21 09-37-13\077B4001.D		

Where individual results are flagged see report notes for status.

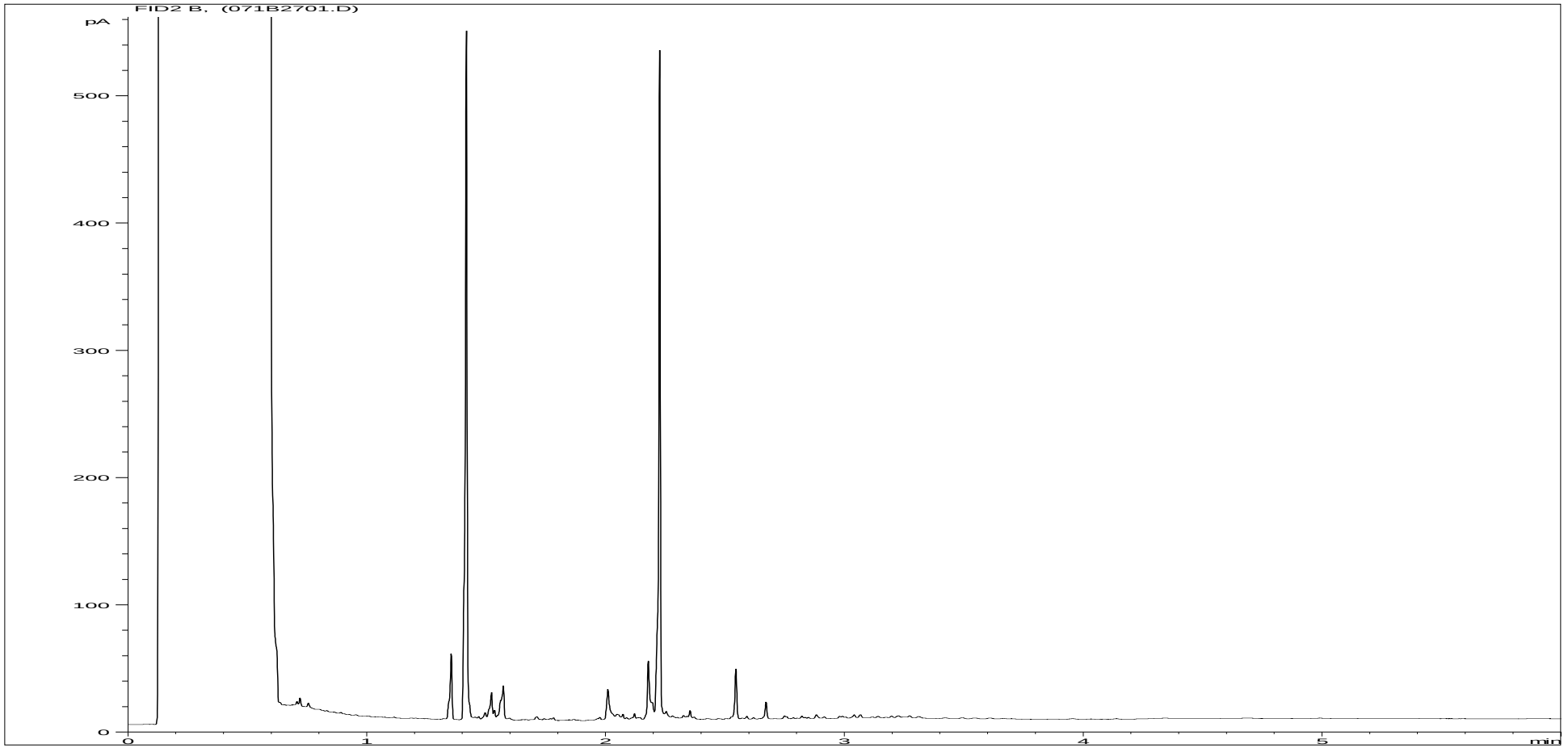
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549353ALI	**Job Number:**	S15_3468
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 3 0.55
Acquisition Date/Time:	22-May-15, 19:55:52		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\021F3601.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1549353ARO	**Job Number:**	S15_3468
Multiplier:	12.48	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 3 0.55
Acquisition Date/Time:	22-May-15, 17:52:03		
Datafile:	D:\TES\DATA\Y2015\052215TPH_GC4\052215 2015-05-22 09-31-54\071B2701.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH301 ES 1 0.15	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549337	**Date Analysed:**	22-May-15	**Multiplier:**	1.04
Job Number:	S15_3468	**Operator:**	PR	**Position:**	3

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	-	< 5	-
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	4.29	1	M
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	4.11	49	Dibromofluoromethane	101
1,4-Difluorobenzene	4.45	46	Toluene-d8	104
Chlorobenzene-d5	5.56	42		
Bromofluorobenzene	5.96	35		
1,4-Dichlorobenzene-d4	6.36	25		
Naphthalene-d8	7.22	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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH301 ES 5 0.50	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549338	**Date Analysed:**	22-May-15	**Multiplier:**	0.99
Job Number:	S15_3468	**Operator:**	PR	**Position:**	4

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	-	< 5	-
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	4.11	85	Dibromofluoromethane	104
1,4-Difluorobenzene	4.45	83	Toluene-d8	97
Chlorobenzene-d5	5.56	71		
Bromofluorobenzene	5.96	56		
1,4-Dichlorobenzene-d4	6.36	41		
Naphthalene-d8	7.22	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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH302 ES 4 0.40	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549340	**Date Analysed:**	22-May-15	**Multiplier:**	0.91
Job Number:	S15_3468	**Operator:**	PR	**Position:**	6

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	-	< 5	-
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	-

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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	4.11	87	Dibromofluoromethane	111
1,4-Difluorobenzene	4.45	85	Toluene-d8	95
Chlorobenzene-d5	5.56	67		
Bromofluorobenzene	5.96	48		
1,4-Dichlorobenzene-d4	6.35	34		
Naphthalene-d8	7.22	11		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH302 ES 6 0.70	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549341	**Date Analysed:**	22-May-15	**Multiplier:**	0.95
Job Number:	S15_3468	**Operator:**	PR	**Position:**	7

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	-	< 5	-
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	4.11	92	Dibromofluoromethane	105
1,4-Difluorobenzene	4.45	90	Toluene-d8	96
Chlorobenzene-d5	5.56	74		
Bromofluorobenzene	5.96	56		
1,4-Dichlorobenzene-d4	6.35	42		
Naphthalene-d8	7.22	13		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH303 ES 4 0.50	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549343	**Date Analysed:**	22-May-15	**Multiplier:**	0.95
Job Number:	S15_3468	**Operator:**	PR	**Position:**	9

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	-	< 5	-
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	4.29	1	M
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	-

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"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.11	43	Dibromofluoromethane	92
1,4-Difluorobenzene	4.45	37	Toluene-d8	102
Chlorobenzene-d5	5.56	35		
Bromofluorobenzene	5.96	31		
1,4-Dichlorobenzene-d4	6.35	25		
Naphthalene-d8	7.22	10		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH304 ES 1 0.20	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549344	**Date Analysed:**	22-May-15	**Multiplier:**	1.03
Job Number:	S15_3468	**Operator:**	PR	**Position:**	10

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	-	< 5	-
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	4.11	80	Dibromofluoromethane	110
1,4-Difluorobenzene	4.45	78	Toluene-d8	97
Chlorobenzene-d5	5.56	62		
Bromofluorobenzene	5.96	47		
1,4-Dichlorobenzene-d4	6.35	34		
Naphthalene-d8	7.22	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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH305 ES 1 0.20	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549345	**Date Analysed:**	22-May-15	**Multiplier:**	1.08
Job Number:	S15_3468	**Operator:**	PR	**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	-	< 5	-
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	4.11	81	Dibromofluoromethane	113
1,4-Difluorobenzene	4.45	77	Toluene-d8	97
Chlorobenzene-d5	5.56	55		
Bromofluorobenzene	5.96	37		
1,4-Dichlorobenzene-d4	6.35	26		
Naphthalene-d8	7.22	7		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH305 ES 4 0.40	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549346	**Date Analysed:**	22-May-15	**Multiplier:**	0.95
Job Number:	S15_3468	**Operator:**	PR	**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	-	< 5	-
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	-

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"M" denotes that % fit has been manually interpreted

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.11	61	Dibromofluoromethane	109
1,4-Difluorobenzene	4.45	59	Toluene-d8	99
Chlorobenzene-d5	5.56	54		
Bromofluorobenzene	5.96	44		
1,4-Dichlorobenzene-d4	6.36	33		
Naphthalene-d8	7.22	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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH307 ES 4 0.50	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549349	**Date Analysed:**	22-May-15	**Multiplier:**	1
Job Number:	S15_3468	**Operator:**	PR	**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	-	< 5	-
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	4.11	87	Dibromofluoromethane	113
1,4-Difluorobenzene	4.45	87	Toluene-d8	97
Chlorobenzene-d5	5.56	71		
Bromofluorobenzene	5.96	56		
1,4-Dichlorobenzene-d4	6.36	41		
Naphthalene-d8	7.22	13		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH308 ES 1 0.20	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549350	**Date Analysed:**	22-May-15	**Multiplier:**	1.04
Job Number:	S15_3468	**Operator:**	PR	**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	-	< 5	-
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	4.11	80	Dibromofluoromethane	111
1,4-Difluorobenzene	4.45	75	Toluene-d8	97
Chlorobenzene-d5	5.56	53		
Bromofluorobenzene	5.96	35		
1,4-Dichlorobenzene-d4	6.35	24		
Naphthalene-d8	7.22	6		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH308 ES 4 0.40	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549351	**Date Analysed:**	22-May-15	**Multiplier:**	0.96
Job Number:	S15_3468	**Operator:**	PR	**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	-	< 5	-
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	4.11	82	Dibromofluoromethane	114
1,4-Difluorobenzene	4.45	81	Toluene-d8	93
Chlorobenzene-d5	5.56	62		
Bromofluorobenzene	5.96	45		
1,4-Dichlorobenzene-d4	6.36	32		
Naphthalene-d8	7.22	10		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	521VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH310 ES 3 0.55	**Date Booked in:**	19-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549353	**Date Analysed:**	22-May-15	**Multiplier:**	1
Job Number:	S15_3468	**Operator:**	PR	**Position:**	19

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	-	< 5	-
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	4.11	71	Dibromofluoromethane	107
1,4-Difluorobenzene	4.45	70	Toluene-d8	96
Chlorobenzene-d5	5.56	63		
Bromofluorobenzene	5.96	52		
1,4-Dichlorobenzene-d4	6.36	42		
Naphthalene-d8	7.22	18		

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.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.285
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	21.4
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.390
					Fraction of sample above 4 mm %	6.400
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH301 ES 1 0.15		s15_3468	CL/1549337	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	3.72	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.018	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	43.5	100		
U	PHSOIL	pH (pH units)	8.1		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.8	8.1	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	513	221					
U	ICPMSW	Arsenic	0.011	0.013	0.022	0.13	0.5	2	25
U	ICPWATVAR	Barium	0.13	0.09	0.26	1	20	100	300
U	ICPMSW	Cadmium	0.0002	0.0002	0.0004	0.002	0.04	1	5
U	ICPMSW	Chromium	<0.001	0.004	<0.002	<0.04	0.5	10	70
U	ICPMSW	Copper	0.055	0.037	0.11	0.39	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.007	0.005	0.014	0.05	0.5	10	30
U	ICPMSW	Nickel	0.006	0.008	0.012	0.08	0.4	10	40
U	ICPMSW	Lead	0.04	0.065	0.08	0.62	0.5	10	50
U	ICPMSW	Antimony	0.012	0.007	0.024	0.08	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.001	0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.106	0.061	0.212	0.67	4	50	200
U	KONENS	Chloride	37	10	74	136	800	15000	25000
U	ISEF	Fluoride	1.1	1	2.2	10	10	150	500
U	ICPWATVAR	Sulphate as SO4	60	11	120	175	1000	20000	50000
N	WSLM27	Total Dissolved Solids	401	173	802	2034	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	29	18	58	195	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.285
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	20.5
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.390
					Fraction of sample above 4 mm %	6.500
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH302 ES 4 0.40		s15_3468	CL/1549340	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	2.17	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.07	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<14.16	100		
	PHSOIL	pH (pH units)			>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.8	8	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	304	167					
U	ICPMSW	Arsenic	0.007	0.01	0.014	0.1	0.5	2	25
U	ICPWATVAR	Barium	0.1	0.09	0.2	0.9	20	100	300
U	ICPMSW	Cadmium	0.0001	<0.0001	0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	0.003	<0.002	<0.03	0.5	10	70
U	ICPMSW	Copper	0.035	0.026	0.07	0.27	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.003	0.002	0.006	0.02	0.5	10	30
U	ICPMSW	Nickel	0.003	0.006	0.006	0.06	0.4	10	40
U	ICPMSW	Lead	0.036	0.049	0.072	0.47	0.5	10	50
U	ICPMSW	Antimony	0.007	0.004	0.014	0.04	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.042	0.049	0.084	0.48	4	50	200
U	KONENS	Chloride	11	6	22	67	800	15000	25000
U	ISEF	Fluoride	1.2	0.9	2.4	9	10	150	500
U	ICPWATVAR	Sulphate as SO4	14	3	28	45	1000	20000	50000
N	WSLM27	Total Dissolved Solids	237	130	474	1443	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	21	12	42	132	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.292
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	20.7
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.383
					Fraction of sample above 4 mm %	7.200
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH302 ES 6 0.70		s15_3468	CL/1549341	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1.26	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.018	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<2.08	100		
U	PHSOIL	pH (pH units)	8.2		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.8	8	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	279	139					
U	ICPMSW	Arsenic	0.004	0.005	0.008	0.05	0.5	2	25
U	ICPWATVAR	Barium	0.13	0.1	0.26	1	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	0.003	<0.002	<0.03	0.5	10	70
U	ICPMSW	Copper	0.019	0.014	0.038	0.15	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.019	0.011	0.038	0.12	0.5	10	30
U	ICPMSW	Nickel	0.003	0.007	0.006	0.06	0.4	10	40
U	ICPMSW	Lead	0.02	0.03	0.04	0.29	0.5	10	50
U	ICPMSW	Antimony	0.002	0.002	0.004	0.02	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.042	0.036	0.084	0.37	4	50	200
U	KONENS	Chloride	11	6	22	67	800	15000	25000
U	ISEF	Fluoride	2.4	1.3	4.8	14	10	150	500
U	ICPWATVAR	Sulphate as SO4	15	3	30	46	1000	20000	50000
N	WSLM27	Total Dissolved Solids	217	109	434	1234	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	8.2	17	16.4	158	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.274
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	13.5
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.401
					Fraction of sample above 4 mm %	20.800
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH304 ES 1 0.20		s15_3468	CL/1549344	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	2.17	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.016	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<13.21	100		
U	PHSOIL	pH (pH units)	8.5		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	8	7.9	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	479	226					
U	ICPMSW	Arsenic	0.013	0.016	0.026	0.16	0.5	2	25
U	ICPWATVAR	Barium	0.13	0.17	0.26	1.6	20	100	300
U	ICPMSW	Cadmium	0.0003	0.0003	0.0006	0.003	0.04	1	5
U	ICPMSW	Chromium	0.001	0.004	0.002	0.04	0.5	10	70
U	ICPMSW	Copper	0.051	0.042	0.102	0.43	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.004	0.002	0.008	0.02	0.5	10	30
U	ICPMSW	Nickel	0.004	0.007	0.008	0.07	0.4	10	40
U	ICPMSW	Lead	0.124	0.256	0.248	2.38	0.5	10	50
U	ICPMSW	Antimony	0.006	0.003	0.012	0.03	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.067	0.141	0.134	1.31	4	50	200
U	KONENS	Chloride	17	8	34	92	800	15000	25000
U	ISEF	Fluoride	0.7	0.5	1.4	5	10	150	500
U	ICPWATVAR	Sulphate as SO4	23	5	46	74	1000	20000	50000
N	WSLM27	Total Dissolved Solids	374	176	748	2024	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	24	15	48	162	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.281
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	19.7
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.394
					Fraction of sample above 4 mm %	8.300
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH305 ES 4 0.40		s15_3468	CL/1549346	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	2.08	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.016	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<26.3	100		
U	PHSOIL	pH (pH units)	8.3		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.9	8	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	763	178					
U	ICPMSW	Arsenic	0.01	0.02	0.02	0.19	0.5	2	25
U	ICPWATVAR	Barium	0.11	0.22	0.22	2.1	20	100	300
U	ICPMSW	Cadmium	<0.0001	0.0003	<0.0002	<0.003	0.04	1	5
U	ICPMSW	Chromium	<0.001	0.009	<0.002	<0.08	0.5	10	70
U	ICPMSW	Copper	0.024	0.057	0.048	0.53	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.02	0.004	0.04	0.06	0.5	10	30
U	ICPMSW	Nickel	0.003	0.014	0.006	0.13	0.4	10	40
U	ICPMSW	Lead	0.013	0.153	0.026	1.34	0.5	10	50
U	ICPMSW	Antimony	0.005	0.003	0.01	0.03	0.06	0.7	5
U	ICPMSW	Selenium	0.002	0.001	0.004	0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.055	0.126	0.11	1.17	4	50	200
U	KONENS	Chloride	133	23	266	377	800	15000	25000
U	ISEF	Fluoride	2.4	1.2	4.8	14	10	150	500
U	ICPWATVAR	Sulphate as SO4	48	5	96	107	1000	20000	50000
N	WSLM27	Total Dissolved Solids	595	139	1190	1998	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	23	33	46	317	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.281
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	19.6
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.394
					Fraction of sample above 4 mm %	7.900
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH307 ES 4 0.50		s15_3468	CL/1549349	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	2.4	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.016	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.69	100		
U	PHSOIL	pH (pH units)	8.4		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.9	7.9	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	380	166					
U	ICPMSW	Arsenic	0.003	0.006	0.006	0.06	0.5	2	25
U	ICPWATVAR	Barium	0.09	0.16	0.18	1.5	20	100	300
U	ICPMSW	Cadmium	<0.0001	0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.004	0.005	0.008	0.05	0.5	10	70
U	ICPMSW	Copper	0.016	0.025	0.032	0.24	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.013	0.005	0.026	0.06	0.5	10	30
U	ICPMSW	Nickel	0.005	0.008	0.01	0.08	0.4	10	40
U	ICPMSW	Lead	0.028	0.179	0.056	1.59	0.5	10	50
U	ICPMSW	Antimony	0.003	0.002	0.006	0.02	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.001	0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.037	0.064	0.074	0.6	4	50	200
U	KONENS	Chloride	28	12	56	141	800	15000	25000
U	ISEF	Fluoride	2.2	1.1	4.4	12	10	150	500
U	ICPWATVAR	Sulphate as SO4	25	4	50	68	1000	20000	50000
N	WSLM27	Total Dissolved Solids	296	130	592	1521	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	16	17	32	169	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.285
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	21.1
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.390
					Fraction of sample above 4 mm %	0.000
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH308 ES 1 0.20		s15_3468	CL/1549350	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	4.23	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.018	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<37.60	100		
U	PHSOIL	pH (pH units)	8.1		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.8	7.9	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	427	199					
U	ICPMSW	Arsenic	0.016	0.019	0.032	0.19	0.5	2	25
U	ICPWATVAR	Barium	0.15	0.13	0.3	1.3	20	100	300
U	ICPMSW	Cadmium	0.0005	0.0004	0.001	0.004	0.04	1	5
U	ICPMSW	Chromium	0.001	0.004	0.002	0.04	0.5	10	70
U	ICPMSW	Copper	0.083	0.067	0.166	0.69	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.004	0.003	0.008	0.03	0.5	10	30
U	ICPMSW	Nickel	0.007	0.009	0.014	0.09	0.4	10	40
U	ICPMSW	Lead	0.152	0.178	0.304	1.75	0.5	10	50
U	ICPMSW	Antimony	0.007	0.005	0.014	0.05	0.06	0.7	5
U	ICPMSW	Selenium	0.001	0.001	0.002	0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.132	0.15	0.264	1.48	4	50	200
U	KONENS	Chloride	34	13	68	158	800	15000	25000
U	ISEF	Fluoride	1.2	0.9	2.4	9	10	150	500
U	ICPWATVAR	Sulphate as SO4	21	3	42	54	1000	20000	50000
N	WSLM27	Total Dissolved Solids	333	155	666	1787	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	39	23	78	251	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.281
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	19.1
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.394
					Fraction of sample above 4 mm %	18.800
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH310 ES 3 0.55		s15_3468	CL/1549353	01-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1.18	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.016	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
	TPHFIDUS	Mineral Oil (mg/kg)		500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.68	100		
U	PHSOIL	pH (pH units)	8.5		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.9	7.9	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	272	145					
U	ICPMSW	Arsenic	0.004	0.007	0.008	0.07	0.5	2	25
U	ICPWATVAR	Barium	0.09	0.13	0.18	1.2	20	100	300
U	ICPMSW	Cadmium	0.0001	<0.0001	0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.002	0.004	0.004	0.04	0.5	10	70
U	ICPMSW	Copper	0.017	0.029	0.034	0.27	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.016	0.006	0.032	0.07	0.5	10	30
U	ICPMSW	Nickel	0.002	0.006	0.004	0.05	0.4	10	40
U	ICPMSW	Lead	0.051	0.122	0.102	1.13	0.5	10	50
U	ICPMSW	Antimony	0.003	0.002	0.006	0.02	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.036	0.044	0.072	0.43	4	50	200
U	KONENS	Chloride	11	9	22	93	800	15000	25000
U	ISEF	Fluoride	0.5	0.5	1	5	10	150	500
U	ICPWATVAR	Sulphate as SO4	9	<3	18	<38	1000	20000	50000
N	WSLM27	Total Dissolved Solids	212	113	424	1262	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	11	14	22	136	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

UKAS TESTING 1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0488-10243**
For the attention of:	ESG Doncaster	**Report Date:**	**29/05/2015**
Site Address:	Trinity Burial Ground	**Project Number:**	**S153468**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1549338	15/05/15	BH301 0.5	28/05/2015					Screen Only	NAIIS
CL/1549341	15/05/15	BH302 0.7	29/05/2015					Screen Only	NAIIS
CL/1549345	15/05/15	BH305 0.2	29/05/2015					Screen Only	NAIIS
CL/1549349	15/05/15	BH307 0.5	29/05/2015					Screen Only	NAIIS
CL/1549353	15/05/15	BH310 0.55	29/05/2015					Screen Only	NAIIS

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Screens Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name:	Marta Studzinska	Authorised Signatory:
Position:	Lab Analyst	

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153468

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153468

Consignment No S48209
Date Logged 19-May-2015

Report Due 26-May-2015

ID Number	Description	Sampled	MethodID	BTEXHSA	CEN Leachate		CustServ	GROHSA	ICPBOR	ICPMSS										ICPSOIL	KONECR	PAHMSUS		PCBUSECDAR		PHENPLC	PHSOIL
				BTEX-HSA Analysis	CEN Leac(PJ)1	CEN Leac(PJ)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Mercury (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	PAH (17) by GCMS	PCB-12 Congeners Analysis	PCB-7 Congeners Analysis	Phenol - HPLC	pH units (AR)
				✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓			✓	✓
CL/1549337	BH301 0.15	15/05/15																									
CL/1549338	BH301 0.5	15/05/15																									
CL/1549339	BH302 0.2	15/05/15																									
CL/1549340	BH302 0.4	15/05/15																									
CL/1549341	BH302 0.7	15/05/15																									
CL/1549342	BH303 0.2	15/05/15																									
CL/1549343	BH303 0.5	15/05/15																									
CL/1549344	BH304 0.2	15/05/15																									
CL/1549345	BH305 0.2	15/05/15																									
CL/1549346	BH305 0.4	15/05/15																									
CL/1549347	BH306 0.7	15/05/15																									
CL/1549348	BH307 0.2	15/05/15																									
CL/1549349	BH307 0.5	15/05/15																									
CL/1549350	BH308 0.2	15/05/15																									
CL/1549351	BH308 0.4	15/05/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153468

Consignment No S48209
Date Logged 19-May-2015

Report Due 26-May-2015

ID Number	Description	MethodID	SFAPI		Sub002a	SVOCMSUS	TMSS	TPHFIDUS	TPHUSSI	VOCHSAS			WSLM59
		Sampled	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos Screen	SVOC by GCMS (AR)	Tot.Moisture @ 105C	TPH by GCFID (AR)	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1549337	BH301 0.15	15/05/15								E	E	E	
CL/1549338	BH301 0.5	15/05/15								E	E	E	
CL/1549339	BH302 0.2	15/05/15								E		E	
CL/1549340	BH302 0.4	15/05/15									E		
CL/1549341	BH302 0.7	15/05/15								E	E	E	
CL/1549342	BH303 0.2	15/05/15								E		E	
CL/1549343	BH303 0.5	15/05/15								E	E	E	
CL/1549344	BH304 0.2	15/05/15								E	E	E	
CL/1549345	BH305 0.2	15/05/15								E	E	E	
CL/1549346	BH305 0.4	15/05/15								E	E	E	
CL/1549347	BH306 0.7	15/05/15								E		E	
CL/1549348	BH307 0.2	15/05/15								E		E	
CL/1549349	BH307 0.5	15/05/15								E	E	E	
CL/1549350	BH308 0.2	15/05/15								E	E	E	
CL/1549351	BH308 0.4	15/05/15								E	E	E	

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153468

Consignment No S48209
Date Logged 19-May-2015

Report Due 26-May-2015

ID Number	Description	MethodID	BTEXHSA	CEN Leachate		CustServ	GROHSA	ICPBOR	ICPMSS										ICPSOIL	KONECR	PAHMSUS		PCBUSECOAR		PHENPLC	PHSOIL
		Sampled	BTEX-HSA Analysis	CEN Leac(P)1	CEN Leac(P)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Mercury (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Berylium.	Chromium vi:	PAH (16) by GCMS	PAH (17) by GCMS	PCB-12 Congeners Analysis	PCB-7 Congeners Analysis	Phenol - HPLC	pH units (AR)
			✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓			✓	✓
CL/1549352	BH310 0.2	15/05/15																									
CL/1549353	BH310 0.55	15/05/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153468

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153468

Consignment No S48209
Date Logged 19-May-2015

Report Due 26-May-2015

ID Number	Description	MethodID	SFAPI		Sub002a	SVOCMSUS	TMSS	TPHFIDUS	TPHUSSI	VOCHSAS			WSLM59
		Sampled	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos Screen	SVOC by GCMS (AR)	Tot.Moisture @ 105C	TPH by GCFID (AR)	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1549352	BH310 0.2	15/05/15								E		E	
CL/1549353	BH310 0.55	15/05/15								E	E	E	

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBUSECDAR	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclors by hexane/acetone extraction followed by GCECD detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
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	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 Dichloromethane/Acetone extraction followed by GCMS detection
Soil	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID 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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
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 the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : Trinity Burial Ground

Report Number : S15_3468

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1549337	BH301 ES 1 0.15	Brown SILT Root Fibres
CL/1549338	BH301 ES 5 0.50	SILT
CL/1549339	BH302 ES 1 0.20	SILT
CL/1549340	BH302 ES 4 0.40	Brown Stone SILT Root Fibres
CL/1549341	BH302 ES 6 0.70	Brown Stone SILT Root Fibres
CL/1549342	BH303 ES 1 0.20	SILT
CL/1549343	BH303 ES 4 0.50	SILT
CL/1549344	BH304 ES 1 0.20	Brown Stone SILT Root Fibres
CL/1549345	BH305 ES 1 0.20	SILT
CL/1549346	BH305 ES 4 0.40	Brown SILT Root Fibres
CL/1549347	BH306 ES 4 0.70	SILT
CL/1549348	BH307 ES 1 0.20	SILT
CL/1549349	BH307 ES 4 0.50	Brown Clay SILT
CL/1549350	BH308 ES 1 0.20	Brown SILT Root Fibres
CL/1549351	BH308 ES 4 0.40	SILT
CL/1549352	BH310 ES 1 0.20	SILT
CL/1549353	BH310 ES 3 0.55	Brown Stone SILT

TEST REPORT

1252

Report No. EFS/153569M (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 2 samples described in this report were registered for analysis by ESG on 26-May-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 03-Jun-2015

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

The following tables are contained in this report:

On behalf of ESG :
Declan Burns

[redacted]
Managing Director
Multi-Sector Services

Date of Issue: 03-Jun-2015

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)
Tests marked '^' have been subcontracted to another laboratory.
(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.
All results are reported on a dry weight basis at 105^{o}C unless otherwise stated. (except QC samples)
ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.2	1.2	1.6	0.7	6	0.5	0.5	2	0.5	16	0.1	
Accreditation Code:				UM	U	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1549929	BH309 ES 4 2.35	21-May-15	Req	3.8	0.3	11.0	<0.20	36.8	15.4	21.0	531.9	<0.5	0.6	37.3	<0.5	81	1.10	7.7
1549930	BH309 ES 10 3.65	21-May-15	Req	4.0	0.3	9.7	<0.20	29.0	13.0	16	609	<0.5	0.6	28.1	<0.5	66.3	0.829	8.3

ESG

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**03-Jun-2015**
Report Number	**EFS/153569M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105°C where appr opriate, in accordance with the MCERTS standard.

Units :			mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	µg/kg	% M/M	µg/kg	µg/kg	µg/kg	ug/kg
Method Codes :			SFAPI	SFAPI	SVOCMSUS	TMSS	TPHFIDUS	TPHFIDUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	PCBUSECDAR	WSLM59	BTEXHSA	VOCHSAS	VOCHSAS	VOCHSAS
Method Reporting Limits :			0.5	0.5		0.2	10	10	10		0.6	0.1		0.02	20	5	1	2
Accreditation Code:			UM	U		U	N	UM			N	N		N	U	UM	UM	UM
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**SVOC by GCMS (AR)**	**Tot.Moisture @ 105C**	**TPH Band (>C10-C40)**	**TPH by GCFID (AR)**	**TPH by GCFID (Si-UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**PCB-7 Congeners Analysis**	**Total Organic Carbon**	**MTBE**	**Toluene**	**Benzene**	**Ethyl Benzene**
1549929	BH309 ES 4 2.35	21-May-15	<0.7	<0.7	Req	26.7	52	52	Req	Req	50.9	<0.1	Req	1.18	<27	<7	<1	<3
1549930	BH309 ES 10 3.65	21-May-15	<0.7	<0.7		26.6	26	27	Req	Req	40.3	<0.1	Req	1.23	<27	<7	<1	<3

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**03-Jun-2015**
Report Number	**EFS/153569M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105°C where appr opriate, in accordance with the MCERTS standard.

Units :			µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg							
Method Codes :			VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC							
Method Reporting Limits :			6	4	2		0.3	0.3	0.3	0.3								
Accreditation Code:			UM	UM	UM		UM	U	U	U	U							
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**PAH (17) by GCMS**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**							
1549929	BH309 ES 4 2.35	**21-May-15**	<8	<5	<3	Req	<0.4	<0.4	<0.4	<0.4	<1.6							
1549930	BH309 ES 10 3.65	**21-May-15**	<8	<5	<3	Req												

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**03-Jun-2015**
Report Number	**EFS/153569M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH309 ES 4 2.35	**Job Number:**	S15_3569M
LIMS ID Number:	CL1549929	**Date Booked in:**	26-May-15
QC Batch Number:	150528	**Date Extracted:**	29-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	29-May-15
Directory:	2915PAHMS20\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Coronene	191-07-1 *	-	< 0.11	-	N
Total (USEPA16) PAHs	-	-	< 1.75	-	N

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	105
Acenaphthene-d10	98
Phenanthrene-d10	87
Chrysene-d12	113
Perylene-d12	108

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	98
Terphenyl-d14	76

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH309 ES 10 3.65	**Job Number:**	S15_3569M
LIMS ID Number:	CL1549930	**Date Booked in:**	26-May-15
QC Batch Number:	150528	**Date Extracted:**	29-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	29-May-15
Directory:	2915PAHMS20\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Coronene	191-07-1 *	-	< 0.11	-	N
Total (USEPA16) PAHs	-	-	< 1.74	-	N

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	67
Acenaphthene-d10	91
Phenanthrene-d10	79
Chrysene-d12	97
Perylene-d12	81

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	112
Terphenyl-d14	89

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polychlorinated Biphenyls (congeners)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Matrix:**	SOIL
Job Number:	S15_3569M	**Date Booked in:**	26-May-15
QC Batch Number:	150528	**Date Extracted:**	29-May-15
Directory:	0529PCB.GC8	**Date Analysed:**	29-May-15
Method:	Ultrasonic		
Accreditation code:	N		

			Concentration, (µg/kg)						
	Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
*	CL1549929	BH309 ES 4 2.35	<7.16	<7.16	<7.16	<7.16	<7.16	<7.16	<7.16
*	CL1549930	BH309 ES 10 3.65	<7.15	<7.15	<7.15	<7.15	<7.15	<7.15	<7.15

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where approp riate, in accordance with the MCERTS standard.

Semi-Volatile Organic Compounds

Accredited?: 621-64-7Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	112
Sample Details:	BH309 ES 4 2.35	**Date Booked in:**	26-May-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1549929	**Date Extracted:**	29-May-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3569M	**Date Analysed:**	29-May-15	**Directory/Quant File:**	15SVOC.MS16\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 0.1	-	U
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-	U
2-Chlorophenol	95-57-8	-	< 0.1	-	U
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-	U
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-	U
Benzyl alcohol	100-51-6	-	< 0.7	-	U
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-	U
2-Methylphenol	95-48-7	-	< 0.1	-	U
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.7	-	U
Hexachloroethane	67-72-1	-	< 0.1	-	U
N-Nitroso-di-n-propylamine	621-64-7*	-	< 1.2	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-	U
Nitrobenzene	98-95-3*	-	< 0.7	-	N
Isophorone	78-59-1	-	< 0.1	-	N
2-Nitrophenol	88-75-5	-	< 0.1	-	U
2,4-Dimethylphenol	105-67-9	-	< 0.1	-	U
Benzoic Acid	65-85-0*	-	< 0.7	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-	U
2,4-Dichlorophenol	120-83-2	-	< 0.1	-	U
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-	N
Naphthalene	91-20-3	-	< 0.1	-	U
4-Chlorophenol	106-48-9	-	< 0.7	-	U
4-Chloroaniline	106-47-8*	-	< 0.7	-	N
Hexachlorobutadiene	87-68-3*	-	< 0.1	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-	U
2-Methylnaphthalene	91-57-6	-	< 0.1	-	U
1-Methylnaphthalene	90-12-0	-	< 0.1	-	U
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-	U
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-	U
2-Chloronaphthalene	91-58-7	-	< 0.1	-	U
Biphenyl	92-52-4	-	< 0.1	-	U
Diphenyl ether	101-84-8	-	< 0.1	-	U
2-Nitroaniline	88-74-4*	-	< 0.7	-	N
Acenaphthylene	208-96-8	-	< 0.1	-	U
Dimethylphthalate	131-11-3	-	< 0.1	-	U
2,6-Dinitrotoluene	606-20-2	-	< 0.7	-	U
Acenaphthene	83-32-9	-	< 0.1	-	U
3-Nitroaniline	99-09-2*	-	< 19.8	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5	-	< 0.7	-	N
Dibenzofuran	132-64-9	-	< 0.1	-	U
4-Nitrophenol	100-02-7	-	< 0.7	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.3	-	U
Fluorene	86-73-7	-	< 0.1	-	U
Diethylphthalate	84-66-2	-	< 0.1	-	U
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-	U
4,6-Dinitro-2-methylphenol	534-52-1	-	< 0.3	-	N
4-Nitroaniline	100-01-6	-	< 0.8	-	N
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-	U
Hexachlorobenzene	118-74-1	-	< 0.1	-	U
Pentachlorophenol	87-86-5	-	< 0.7	-	N
Phenanthrene	85-01-8	-	< 0.1	-	U
Anthracene	120-12-7	-	< 0.1	-	U
Di-n-butylphthalate	84-74-2	-	< 0.1	-	U
Fluoranthene	206-44-0	-	< 0.3	-	U
Pyrene	129-00-0	-	< 0.3	-	U
Butylbenzylphthalate	85-68-7	-	< 0.3	-	U
Benzo[a]anthracene	56-55-3	-	< 0.3	-	U
Chrysene	218-01-9	-	< 0.3	-	U
3,3'-Dichlorobenzidine	91-94-1	-	< 0.7	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.3	-	U
Di-n-octylphthalate	117-84-0	-	< 0.3	-	U
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	U
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	U
Benzo[a]pyrene	50-32-8	-	< 0.3	-	U
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.7	-	U
Dibenzo[a,h]anthracene	53-70-3	-	< 0.7	-	U
Benzo[g,h,i]perylene	191-24-2	-	< 0.7	-	U
Coronene	191-07-1	-	< 0.3	-	

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	129
Naphthalene-d8	132
Acenaphthene-d10	131
Phenanthrene-d10	143
Chrysene-d12	230
Perylene-d12	283

Surrogates	% Rec
2-Fluorophenol	99
Phenol-d5	99
Nitrobenzene-d5	100
2-Fluorobiphenyl	91
2,4,6-Tribromophenol	73
Terphenyl-d14	84

This analysis was conducted on an 'As Received' basis.

Concentrations are reported on a dry weight basis.

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3569M
Directory: D:\TES\DATA\Y2015\0529HSA_GC12\150529 2015-05-29 12-51-30\134B2801.D
Method: HEADSPACE GCFID
Accreditation Code: UM

Matrix: Soil
Date Booked in: 26-May-15
Date extracted: 29-May-15
Date Analysed: 29-May-15, 21:50:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1549929	BH309 ES 4 2.35	<0.014	<0.014	<0.014	<0.027	<0.01	<0.01	<0.3	<0.3	<0.3
CL1549930	BH309 ES 10 3.65	<0.014	<0.014	<0.014	<0.027	<0.01	<0.01	<0.3	<0.3	<0.3

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3569M
QC Batch Number: 150528
Directory: D:\TES\DATA\Y2013\02\052915TPH_GC3\084B3901.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

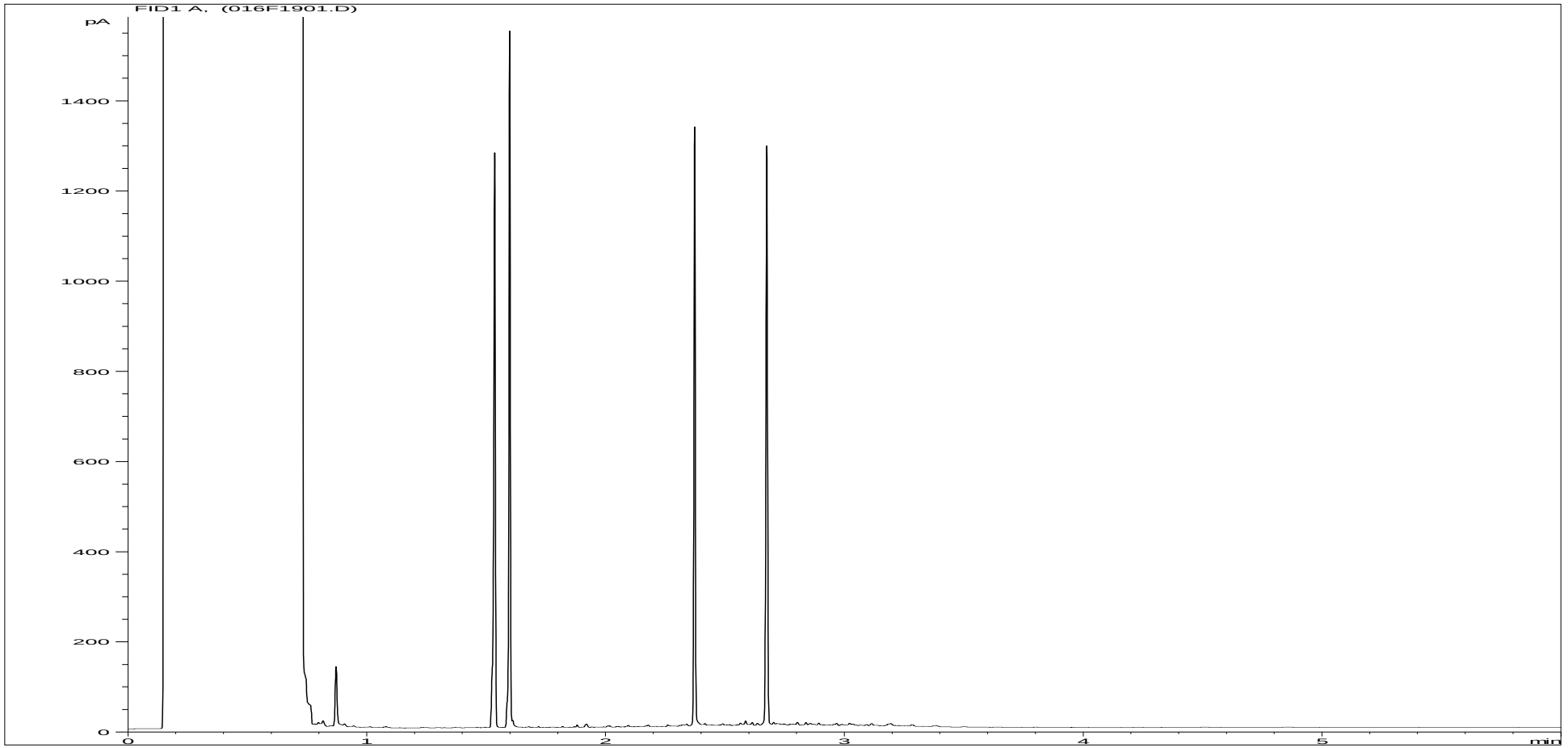
Matrix: Soil
Date Booked in: 26-May-15
Date Extracted: 29-May-15
Date Analysed: 29-May-15

This sample data is not MCERTS accredited.
Ba * This sample data is not ISO17025 accredited.

		Concentration, (mg/kg) - as dry weight.												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1549929	BH309 ES 4 2.35	<5	<5	<5	<5	<5	<5	<16.2	<5	<7.67	<11.95	<7.67	<27	<27
CL1549930	BH309 ES 10 3.65	<5	<5	<5	<5	<5	<5	<16.2	<5	<7.66	<11.93	<7.66	<27	<27

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

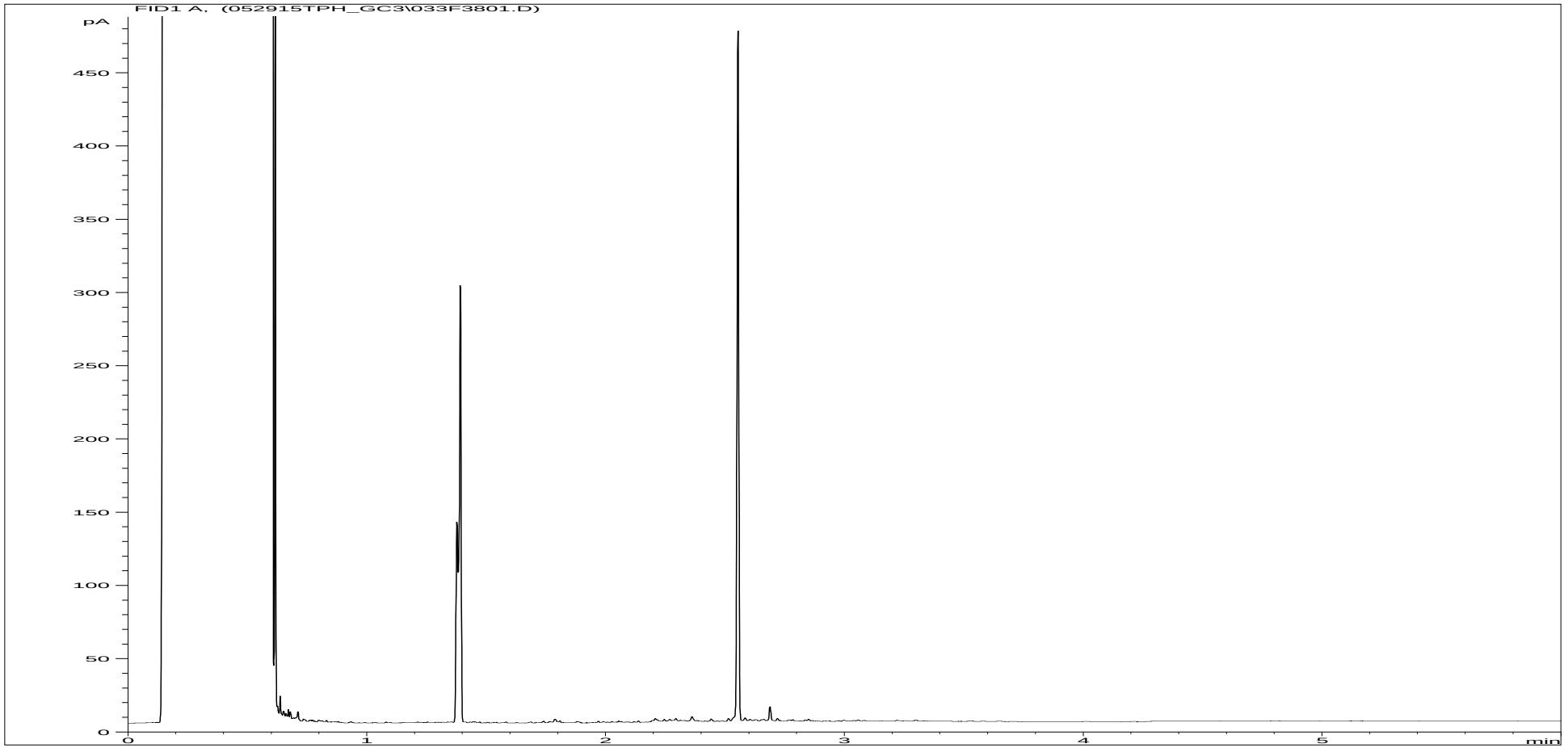
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549929	**Job Number:**	S15_3569M
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 4 2.35
Acquisition Date/Time:	29-May-15, 15:07:58		
Datafile:	D:\TES\DATA\Y2015\052915TPH_GC4\052915 2015-05-29 10-59-01\016F1901.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

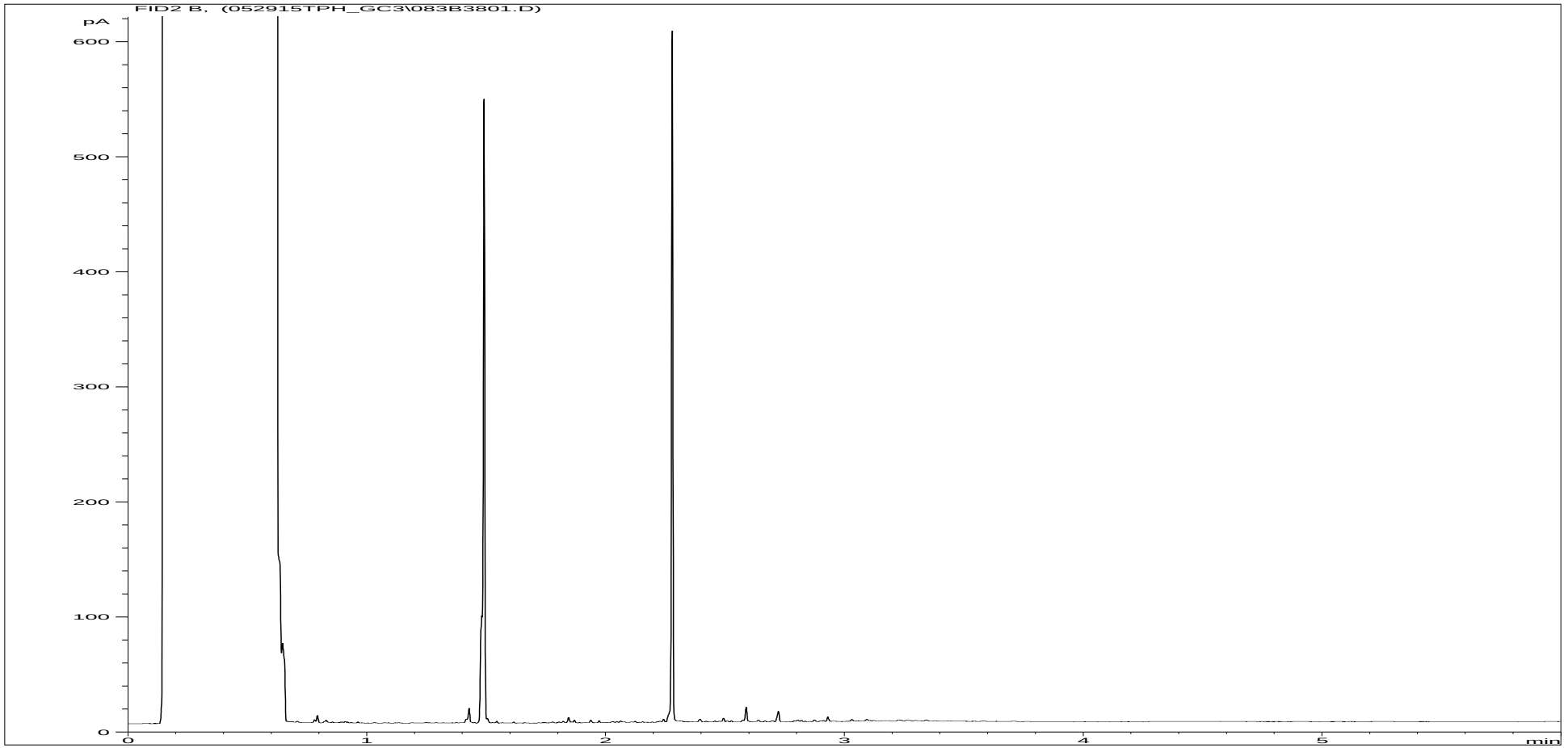
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549929ALI	**Job Number:**	S15_3569M
Multiplier:	15.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 4 2.35
Acquisition Date/Time:	29-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052915TPH_GC3\033F3801.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

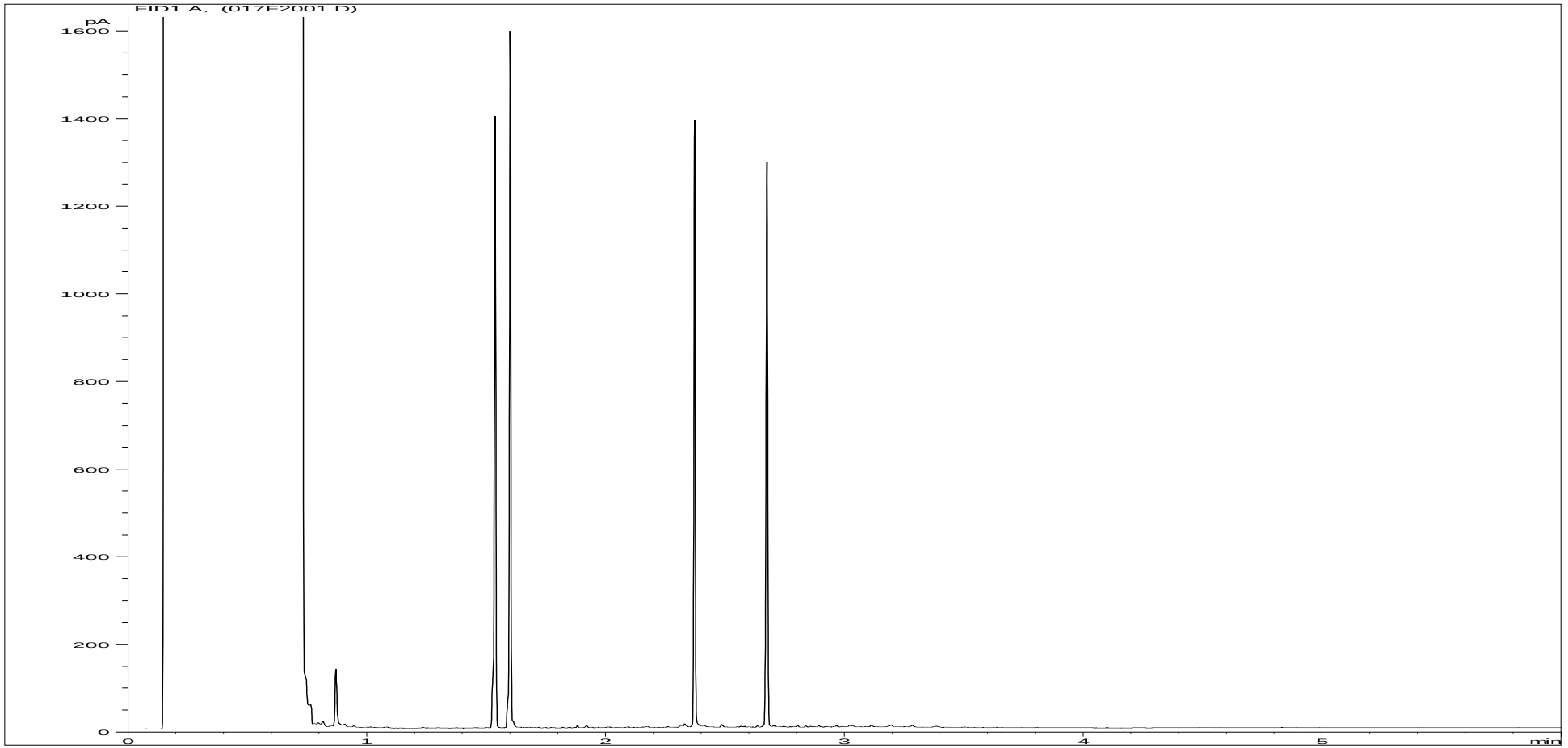
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1549929ARO	**Job Number:**	S15_3569M
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 4 2.35
Acquisition Date/Time:	29-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052915TPH_GC3\083B3801.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

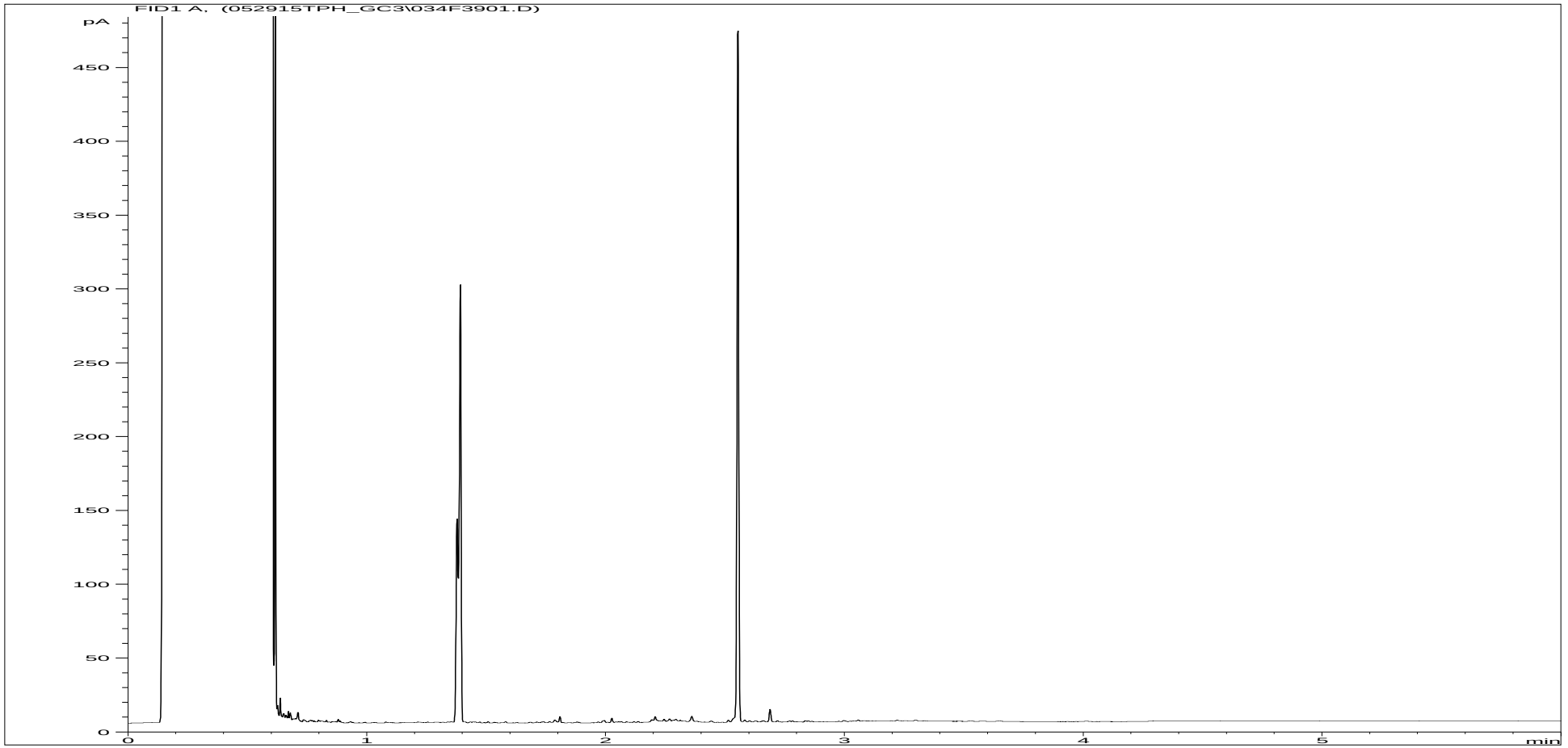
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1549930	**Job Number:**	S15_3569M
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 10 3.65
Acquisition Date/Time:	29-May-15, 15:21:35		
Datafile:	D:\TES\DATA\Y2015\052915TPH_GC4\052915 2015-05-29 10-59-01\017F2001.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

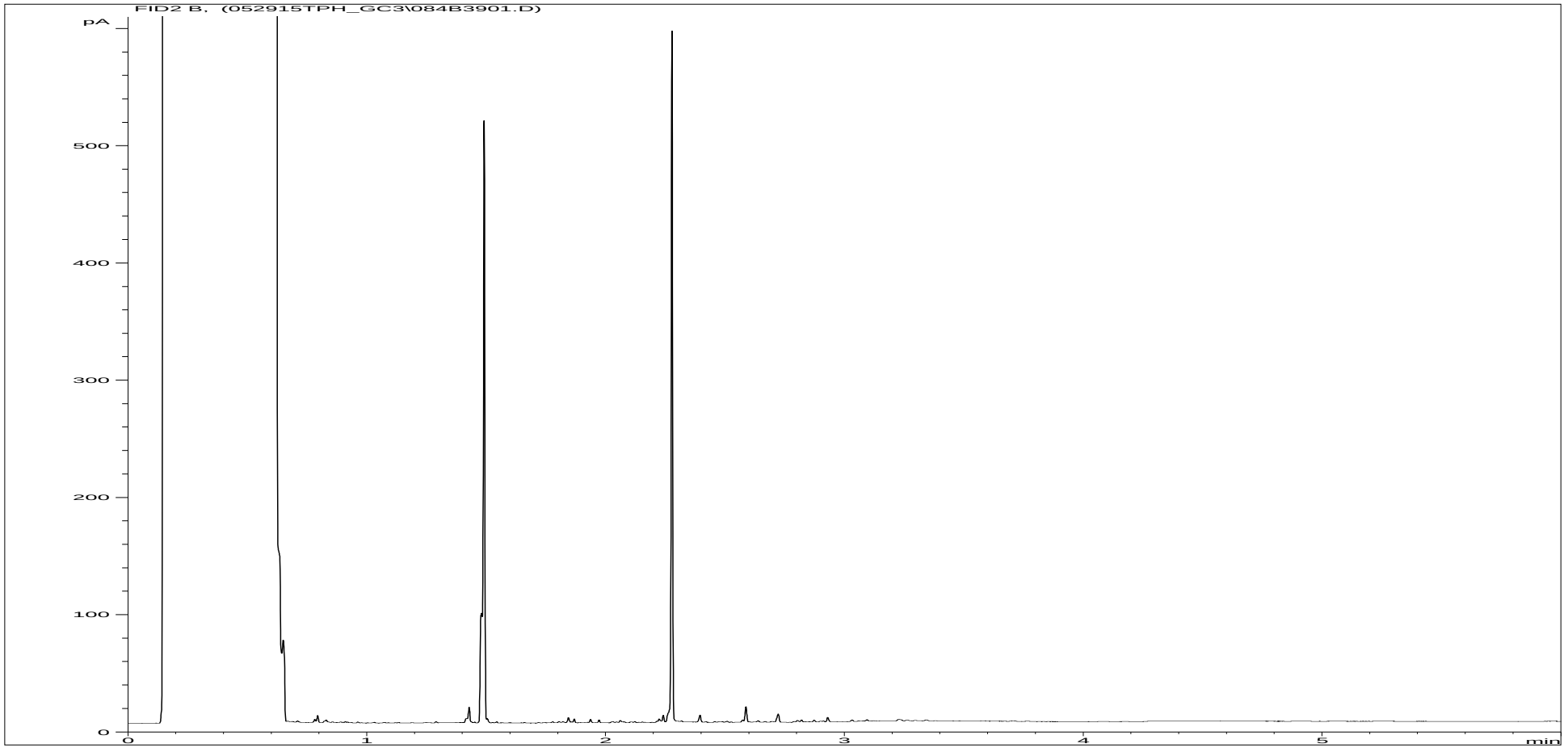
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1549930ALI	**Job Number:**	S15_3569M
Multiplier:	15.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 10 3.65
Acquisition Date/Time:	29-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052915TPH_GC3\034F3901.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

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



Sample ID:	CL1549930ARO	**Job Number:**	S15_3569M
Multiplier:	11.36	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH309 ES 10 3.65
Acquisition Date/Time:	29-May-15		
Datafile:	D:\TES\DATA\Y2013\02\052915TPH_GC3\084B3901.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Volatile Organic Compounds by HSA-GCMS

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	528VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH309 ES 4 2.35	**Date Booked in:**	26-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549929	**Date Analysed:**	28-May-15	**Multiplier:**	0.94
Job Number:	S15_3569M	**Operator:**	PR	**Position:**	21

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

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

Concentrations are reported on a dry weight basis
Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted
This analysis was conducted on an 'As Received' basis.

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.11	89	Dibromofluoromethane	103
1,4-Difluorobenzene	4.45	86	Toluene-d8	94
Chlorobenzene-d5	5.56	74		
Bromofluorobenzene	5.96	58		
1,4-Dichlorobenzene-d4	6.36	44		
Naphthalene-d8	7.22	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.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Volatile Organic Compounds by HSA-GCMS

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	528VOC_MS19\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH309 ES 10 3.65	**Date Booked in:**	26-May-15	**Method:**	Headspace
LIMS ID Number:	CL1549930	**Date Analysed:**	28-May-15	**Multiplier:**	0.96
Job Number:	S15_3569M	**Operator:**	PR	**Position:**	22

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

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

Concentrations are reported on a dry weight basis
Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted
This analysis was conducted on an 'As Received' basis.

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	4.11	88	Dibromofluoromethane	106
1,4-Difluorobenzene	4.45	86	Toluene-d8	95
Chlorobenzene-d5	5.56	71		
Bromofluorobenzene	5.96	56		
1,4-Dichlorobenzene-d4	6.36	42		
Naphthalene-d8	7.22	17		

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.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.321
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	26.7
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.354
					Fraction of sample above 4 mm %	0.000
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH309 ES 4 2.35		s15_3569M	CL/1549929	03-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1.18	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.019	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.0371	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	52	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.86	100		
U	PHSOIL	pH (pH units)	7.7		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.5	7.6	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	3830	737					
U	ICPMSW	Arsenic	<0.001	<0.001	<0.002	<0.01	0.5	2	25
U	ICPWATVAR	Barium	0.12	0.08	0.24	0.9	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	<0.001	0.001	<0.002	<0.01	0.5	10	70
U	ICPMSW	Copper	0.006	0.004	0.012	0.04	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	0.001	<0.002	<0.01	0.5	10	30
U	ICPMSW	Nickel	0.005	0.003	0.01	0.03	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.001	<0.002	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.001	<0.002	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.071	0.033	0.142	0.38	4	50	200
U	KONENS	Chloride	294	21	588	574	800	15000	25000
U	ISEF	Fluoride	0.4	0.4	0.8	4	10	150	500
U	ICPWATVAR	Sulphate as SO4	1850	255	3700	4677	1000	20000	50000
N	WSLM27	Total Dissolved Solids	3000	575	6000	8983	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	6.4	3.2	12.8	36	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.326
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	26.6
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.349
					Fraction of sample above 4 mm %	0.000
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH309 ES 10 3.65		s15_3569M	CL/1549930	03-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1.23	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.019	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.03731	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	26	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.85	100		
U	PHSOIL	pH (pH units)	8.3		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.9	7.9	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	1020	359					
U	ICPMSW	Arsenic	0.005	0.002	0.01	0.02	0.5	2	25
U	ICPWATVAR	Barium	0.17	0.08	0.34	0.9	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.002	0.001	0.004	0.01	0.5	10	70
U	ICPMSW	Copper	0.011	0.003	0.022	0.04	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.046	0.018	0.092	0.22	0.5	10	30
U	ICPMSW	Nickel	0.004	0.003	0.008	0.03	0.4	10	40
U	ICPMSW	Lead	0.013	0.002	0.026	0.03	0.5	10	50
U	ICPMSW	Antimony	0.002	0.002	0.004	0.02	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.038	0.008	0.076	0.12	4	50	200
U	KONENS	Chloride	128	10	256	257	800	15000	25000
U	ISEF	Fluoride	0.5	0.4	1	4	10	150	500
U	ICPWATVAR	Sulphate as SO4	68	24	136	299	1000	20000	50000
N	WSLM27	Total Dissolved Solids	790	280	1580	3480	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	20	7.4	40	91	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153569M

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153569M

Consignment No S48296
Date Logged 26-May-2015

Report Due 01-Jun-2015

ID Number	Description	MethodID	BTEXHSA	CEN Leachate		CustServ	GROHSA	ICPBOR	ICPMSS													ICPSOIL	KONECR	MCertS	PAHMSUS	PCBUSECOAR	PHEHPLC
		Sampled	MTBE (µg/kg)	CEN Leac(P)1	CEN Leac(P)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	MCertS Analysis	PAH (17) by GCMS	PCB-7 Congeners Analysis	Phenol - HPLC
			✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓		✓
CL/1549929	BH309 2.35	21/05/15																									
CL/1549930	BH309 3.65	21/05/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153569M

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153569M

Consignment No S48296
Date Logged 26-May-2015

Report Due 01-Jun-2015

ID Number	Description	MethodID	PHSOIL	SFAPI		SVOCMSUS	TMSS	TPHFIDUS		TPHUSSI	VOCHSAS			WSLM59
		Sampled	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	SVOC by GCMS (AR)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GCFID (AR)	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1549929	BH309 2.35	21/05/15												
CL/1549930	BH309 3.65	21/05/15												

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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
GROHSA	CL1549929/30	The Secondary process control result associated with this Test has not wholly met the requirements of the Laboratory Quality Management System (QMS). All other Process controls (including the Primary Process control) are within specification. The Laboratorybelieves that the validity of the data has not been affected however under these circumstances, the MCerts standard stipulates that MCerts accreditation is removed.
VOCHSAS	CL/1549929	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data
VOCHSAS	CL/1549930	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBUSECDAR	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclors by hexane/acetone extraction followed by GCECD detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
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	SVOCMSUS	As Received	Determination of Semi Volatile Organic Compounds in soil samples by Dichloromethane/Acetone extraction followed by GCMS detection
Soil	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID 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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
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

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
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 the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_3569

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1549929	BH309 ES 4 2.35	Brown CLAY
CL/1549930	BH309 ES 10 3.65	Grey CLAY

TEST REPORT

1252

Report No. EFS/153908M (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 4 samples described in this report were registered for analysis by ESG on 09-Jun-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 17-Jun-2015

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

The following tables are contained in this report:

On behalf of ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 17-Jun-2015

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)
Tests marked '^' have been subcontracted to another laboratory.
(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.
All results are reported on a dry weight basis at 105^{o}C unless otherwise stated. (except QC samples)
ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.2	1.2	1.6	0.7	6	0.5	0.5	2	0.5	16	0.1	
Accreditation Code:				UM	U	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1551442	BH304 ES 9 2.0	08-Jun-15	Req‡	2.6	0.6	10.7	<0.20	26.6	15.8	23.8	581.5	<0.5	1	26.4	0.6	64.0	0.716	8.1
1551443	BH304 ES 15 4.0	08-Jun-15	Req‡	3.8	0.4	9.5	<0.20	24.5	12.0	17	548.8	<0.5	0.7	23.6	0.6	60.9	0.656	8.5
1551444	BH310 ES 7 2.0	08-Jun-15	Req‡	2.5	3.3	13.9	<0.20	31.3	21.7	225.4	650.1	<0.51	1.3	29.8	0.7	78.5	0.994	9.0
1551445	BH310 ES 9 2.5	08-Jun-15	Req‡	2.1	0.5	10.3	<0.20	29	13.6	22.7	548.2	<0.5	0.8	27	<0.5	66.0	0.815	8.3

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**17-Jun-2015**
Report Number	**EFS/153908M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Units :			mg/kg	mg/kg	%	mg/kg	%	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	µg/kg	µg/kg	% M/M	µg/kg	µg/kg
Method Codes :			SFAPI	SFAPI	Sub002	SVOCMSUS	TMSS	TPHFIDUS	TPHFIDUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	PCBUSECDAR	PCBUSECDAR	WSLM59	BTEXHSA	VOCHSAS
Method Reporting Limits :			0.5	0.5			0.2	10	10	10		0.6	0.1			0.02	20	5
Accreditation Code:			UM	U	U		U	N	UM			N	N			N	U	UM
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos ID and Quantification**	**SVOC by GCMS (AR)**	**Tot.Moisture @ 105C**	**TPH Band (>C10-C40)**	**TPH by GCFID (AR)**	**TPH by GCFID (Si-UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**PCB-12 Congeners Analysis**	**PCB-7 Congeners Analysis**	**Total Organic Carbon**	**MTBE**	**Toluene**
1551442	BH304 ES 9 2.0	08-Jun-15	<0.6	<0.6		Req	22.8			Req	Req	35.7	<0.1	Req		1.20		<6
1551443	BH304 ES 15 4.0	08-Jun-15	<0.7	<0.7			29.0	39	39	Req	Req	33.7	<0.1		Req	1.35	<28	<7
1551444	BH310 ES 7 2.0	08-Jun-15	<0.6	<0.6	NADIS	Req	21.9	60	60	Req	Req	44	<0.1	Req	Req	1.00	<26	<6
1551445	BH310 ES 9 2.5	08-Jun-15	<0.7	<0.7	NADIS	Req	24.9			Req	Req	39.3	<0.1	Req		0.63		<7

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**17-Jun-2015**
Report Number	**EFS/153908M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105°C where appr opriate, in accordance with the MCERTS standard.

Units :			µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			
Method Codes :			VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS	PAHMSUS	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC			
Method Reporting Limits :			1	2	6	4	2			0.3	0.3	0.3	0.3				
Accreditation Code:			UM	UM	UM	UM	UM			UM	U	U	U	U			
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**PAH (16) by GCMS**	**PAH (17) by GCMS**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**			
1551442	BH304 ES 9 2.0	08-Jun-15	<1	<3	<8	<5	<3	Req		<0.4	<0.4	<0.4	<0.4	<1.6			
1551443	BH304 ES 15 4.0	08-Jun-15	<1	<3	<8	<6	<3		Req								
1551444	BH310 ES 7 2.0	08-Jun-15	<1	<3	<8	<5	<3		Req	<0.4	<0.4	<0.4	<0.4	<1.5			
1551445	BH310 ES 9 2.5	08-Jun-15	<1	<3	<8	<5	<3	Req									

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**17-Jun-2015**
Report Number	**EFS/153908M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH304 ES 9 2.0	**Job Number:**	S15_3908M
LIMS ID Number:	CL1551442	**Date Booked in:**	09-Jun-15
QC Batch Number:	150571	**Date Extracted:**	10-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	11-Jun-15
Directory:	1015PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.10	-	**UM**
Acenaphthylene	208-96-8	-	< 0.10	-	U
Acenaphthene	83-32-9	-	< 0.10	-	UM
Fluorene	86-73-7	-	< 0.10	-	UM
Phenanthrene	85-01-8	4.80	0.12	98	UM
Anthracene	120-12-7	-	< 0.10	-	U
Fluoranthene	206-44-0	5.96	0.12	97	UM
Pyrene	129-00-0	-	< 0.10	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.10	-	UM
Chrysene	218-01-9	-	< 0.10	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.10	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.10	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.10	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.10	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.10	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.10	-	UM
Total (USEPA16) PAHs	-	-	< 1.70	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	104
Acenaphthene-d10	102
Phenanthrene-d10	104
Chrysene-d12	102
Perylene-d12	97

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	74

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH304 ES 15 4.0	**Job Number:**	S15_3908M
LIMS ID Number:	CL1551443	**Date Booked in:**	09-Jun-15
QC Batch Number:	150571	**Date Extracted:**	10-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	11-Jun-15
Directory:	1015PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Coronene	191-07-1 *	-	< 0.11	-	N
Total (USEPA16) PAHs	-	-	< 1.80	-	N

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	105
Acenaphthene-d10	103
Phenanthrene-d10	109
Chrysene-d12	109
Perylene-d12	106

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	96
Terphenyl-d14	71

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH310 ES 7 2.0	**Job Number:**	S15_3908M
LIMS ID Number:	CL1551444	**Date Booked in:**	09-Jun-15
QC Batch Number:	150571	**Date Extracted:**	10-May-15
Quantitation File:	Initial Calibration	**Date Analysed:**	11-Jun-15
Directory:	1015PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.10	-	**UM**
Acenaphthylene	208-96-8	-	< 0.10	-	U
Acenaphthene	83-32-9	-	< 0.10	-	UM
Fluorene	86-73-7	-	< 0.10	-	UM
Phenanthrene	85-01-8	-	< 0.10	-	UM
Anthracene	120-12-7	-	< 0.10	-	U
Fluoranthene	206-44-0	-	< 0.10	-	UM
Pyrene	129-00-0	-	< 0.10	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.10	-	UM
Chrysene	218-01-9	-	< 0.10	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.10	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.10	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.10	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.10	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.10	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.10	-	UM
Coronene	191-07-1 *	-	< 0.10	-	N
Total (USEPA16) PAHs	-	-	< 1.64	-	N

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

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

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	99
Terphenyl-d14	73

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH310 ES 9 2.5	**Job Number:**	S15_3908M
LIMS ID Number:	CL1551445	**Date Booked in:**	09-Jun-15
QC Batch Number:	150571	**Date Extracted:**	10-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	11-Jun-15
Directory:	1015PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.70	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	101
Acenaphthene-d10	98
Phenanthrene-d10	100
Chrysene-d12	98
Perylene-d12	92

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	103
Terphenyl-d14	75

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polychlorinated Biphenyls (congeners)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Matrix:**	SOIL
Job Number:	S15_3908M	**Date Booked in:**	09-Jun-15
QC Batch Number:	150571	**Date Extracted:**	10-Jun-15
Directory:	0610PCB.GC8	**Date Analysed:**	11-Jun-15
Method:	Ultrasonic		
Accreditation code:	N		

			Concentration, (µg/kg)						
	Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
*	CL1551443	BH304 ES 15 4.0	<7.6	<7.6	<7.6	<7.6	<7.6	<7.6	<7.6
*	CL1551444	BH310 ES 7 2.0	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9	<6.9

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where approp riate, in accordance with the MCERTS standard.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_3908M
QC Batch Number: 150571
Directory: 0610PCB.GC8
Method: Ultrasonic
Accreditation code:

Matrix: Soil Soil
Date Booked in: 09-Jun-15
Date Extracted: 10-Jun-15
Date Analysed: 11-Jun-15

		Concentration, (µg/kg)											
Sample ID	**Customer ID**	**PCB 81**	**PCB 77**	**PCB 123**	**PCB 118**	**PCB 114**	**PCB 105**	**PCB 126**	**PCB 167**	**PCB 156**	**PCB 157**	**PCB 169**	**PCB 189**
* CL1541442	D (NVM)	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4
* CL1541444	D (NVM)	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4
* CL1541445	D (NVM)	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Semi-Volatile Organic Compounds

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	119
Sample Details:	BH304 ES 9 2.0	**Date Booked in:**	09-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1551442	**Date Extracted:**	10-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3908M	**Date Analysed:**	11-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 0.1	-	U
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-	U
2-Chlorophenol	95-57-8	-	< 0.1	-	U
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-	U
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-	U
Benzyl alcohol	100-51-6	-	< 0.6	-	U
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-	U
2-Methylphenol	95-48-7	-	< 0.1	-	U
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.6	-	U
Hexachloroethane	67-72-1	-	< 0.1	-	U
N-Nitroso-di-n-propylamine	621-64-7*	-	< 1.2	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-	U
Nitrobenzene	98-95-3	-	< 0.6	-	U
Isophorone	78-59-1*	-	< 0.1	-	N
2-Nitrophenol	88-75-5	-	< 0.1	-	U
2,4-Dimethylphenol	105-67-9	-	< 0.1	-	U
Benzoic Acid	65-85-0*	-	< 0.6	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-	U
2,4-Dichlorophenol	120-83-2	-	< 0.1	-	U
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-	N
Naphthalene	91-20-3	-	< 0.1	-	U
4-Chlorophenol	106-48-9	-	< 0.6	-	U
4-Chloroaniline	106-47-8*	-	< 0.6	-	N
Hexachlorobutadiene	87-68-3*	-	< 0.1	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-	U
2-Methylnaphthalene	91-57-6	-	< 0.1	-	U
1-Methylnaphthalene	90-12-0	-	< 0.1	-	U
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-	U
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-	U
2-Chloronaphthalene	91-58-7	-	< 0.1	-	U
Biphenyl	92-52-4	-	< 0.1	-	U
Diphenyl ether	101-84-8	-	< 0.1	-	U
2-Nitroaniline	88-74-4*	-	< 0.6	-	N
Acenaphthylene	208-96-8	-	< 0.1	-	U
Dimethylphthalate	131-11-3	-	< 0.1	-	U
2,6-Dinitrotoluene	606-20-2	-	< 0.6	-	U
Acenaphthene	83-32-9	-	< 0.1	-	U
3-Nitroaniline	99-09-2*	-	< 18.8	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5*	-	< 0.6	-	N
Dibenzofuran	132-64-9	-	< 0.1	-	U
4-Nitrophenol	100-02-7*	-	< 0.6	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.3	-	U
Fluorene	86-73-7	-	< 0.1	-	U
Diethylphthalate	84-66-2	-	< 0.1	-	U
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-	U
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.3	-	N
4-Nitroaniline	100-01-6*	-	< 0.8	-	N
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-	U
Hexachlorobenzene	118-74-1	-	< 0.1	-	U
Pentachlorophenol	87-86-5*	-	< 0.6	-	N
Phenanthrene	85-01-8	-	< 0.1	-	U
Anthracene	120-12-7	-	< 0.1	-	U
Di-n-butylphthalate	84-74-2	-	< 0.1	-	U
Fluoranthene	206-44-0	-	< 0.3	-	U
Pyrene	129-00-0	-	< 0.3	-	U
Butylbenzylphthalate	85-68-7	-	< 0.3	-	U
Benzo[a]anthracene	56-55-3	-	< 0.3	-	U
Chrysene	218-01-9	-	< 0.3	-	U
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.6	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.3	-	U
Di-n-octylphthalate	117-84-0	-	< 0.3	-	U
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	U
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	U
Benzo[a]pyrene	50-32-8	-	< 0.3	-	U
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.6	-	U
Dibenzo[a,h]anthracene	53-70-3	-	< 0.6	-	U
Benzo[g,h,i]perylene	191-24-2	-	< 0.6	-	U
Coronene	191-07-1*	-	< 0.4	-	N

Internal Standards	% Area
1,4-Dichlorobenzene-d4	80
Naphthalene-d8	82
Acenaphthene-d10	82
Phenanthrene-d10	90
Chrysene-d12	127
Perylene-d12	129

Surrogates	% Rec
2-Fluorophenol	95
Phenol-d5	105
Nitrobenzene-d5	91
2-Fluorobiphenyl	95
2,4,6-Tribromophenol	55
Terphenyl-d14	83

This analysis was conducted on an 'As Received' basis.

Concentrations are reported on a dry weight basis.

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Semi-Volatile Organic Compounds

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	119
Sample Details:	BH310 ES 7 2.0	**Date Booked in:**	09-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1551444	**Date Extracted:**	10-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3908M	**Date Analysed:**	11-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 0.1	-	U
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-	U
2-Chlorophenol	95-57-8	-	< 0.1	-	U
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-	U
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-	U
Benzyl alcohol	100-51-6	-	< 0.6	-	U
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-	U
2-Methylphenol	95-48-7	-	< 0.1	-	U
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.6	-	U
Hexachloroethane	67-72-1	-	< 0.1	-	U
N-Nitroso-di-n-propylamine	621-64-7*	-	< 1.2	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-	U
Nitrobenzene	98-95-3	-	< 0.6	-	U
Isophorone	78-59-1*	-	< 0.1	-	N
2-Nitrophenol	88-75-5	-	< 0.1	-	U
2,4-Dimethylphenol	105-67-9	-	< 0.1	-	U
Benzoic Acid	65-85-0*	-	< 0.6	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-	U
2,4-Dichlorophenol	120-83-2	-	< 0.1	-	U
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-	N
Naphthalene	91-20-3	-	< 0.1	-	U
4-Chlorophenol	106-48-9	-	< 0.6	-	U
4-Chloroaniline	106-47-8*	-	< 0.6	-	N
Hexachlorobutadiene	87-68-3*	-	< 0.1	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-	U
2-Methylnaphthalene	91-57-6	-	< 0.1	-	U
1-Methylnaphthalene	90-12-0	-	< 0.1	-	U
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-	U
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-	U
2-Chloronaphthalene	91-58-7	-	< 0.1	-	U
Biphenyl	92-52-4	-	< 0.1	-	U
Diphenyl ether	101-84-8	-	< 0.1	-	U
2-Nitroaniline	88-74-4*	-	< 0.6	-	N
Acenaphthylene	208-96-8	-	< 0.1	-	U
Dimethylphthalate	131-11-3	-	< 0.1	-	U
2,6-Dinitrotoluene	606-20-2	-	< 0.6	-	U
Acenaphthene	83-32-9	-	< 0.1	-	U
3-Nitroaniline	99-09-2*	-	< 18.6	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5*	-	< 0.6	-	N
Dibenzofuran	132-64-9	-	< 0.1	-	U
4-Nitrophenol	100-02-7*	-	< 0.6	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.3	-	U
Fluorene	86-73-7	-	< 0.1	-	U
Diethylphthalate	84-66-2	-	< 0.1	-	U
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-	U
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.3	-	N
4-Nitroaniline	100-01-6*	-	< 0.8	-	N
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-	U
Hexachlorobenzene	118-74-1	-	< 0.1	-	U
Pentachlorophenol	87-86-5*	-	< 0.6	-	N
Phenanthrene	85-01-8	-	< 0.1	-	U
Anthracene	120-12-7	-	< 0.1	-	U
Di-n-butylphthalate	84-74-2	-	< 0.1	-	U
Fluoranthene	206-44-0	-	< 0.3	-	U
Pyrene	129-00-0	-	< 0.3	-	U
Butylbenzylphthalate	85-68-7	-	< 0.3	-	U
Benzo[a]anthracene	56-55-3	-	< 0.3	-	U
Chrysene	218-01-9	-	< 0.3	-	U
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.6	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.3	-	U
Di-n-octylphthalate	117-84-0	-	< 0.3	-	U
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	U
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	U
Benzo[a]pyrene	50-32-8	-	< 0.3	-	U
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.6	-	U
Dibenzo[a,h]anthracene	53-70-3	-	< 0.6	-	U
Benzo[g,h,i]perylene	191-24-2	-	< 0.6	-	U
Coronene	191-07-1*	-	< 0.4	-	N

Internal Standards	% Area
1,4-Dichlorobenzene-d4	87
Naphthalene-d8	91
Acenaphthene-d10	91
Phenanthrene-d10	101
Chrysene-d12	136
Perylene-d12	136

Surrogates	% Rec
2-Fluorophenol	93
Phenol-d5	103
Nitrobenzene-d5	91
2-Fluorobiphenyl	92
2,4,6-Tribromophenol	88
Terphenyl-d14	83

This analysis was conducted on an 'As Received' basis.

Concentrations are reported on a dry weight basis.

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Semi-Volatile Organic Compounds

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	119
Sample Details:	BH310 ES 9 2.5	**Date Booked in:**	09-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1551445	**Date Extracted:**	10-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3908M	**Date Analysed:**	11-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Phenol	108-95-2	-	< 0.1	-	U
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-	U
2-Chlorophenol	95-57-8	-	< 0.1	-	U
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-	U
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-	U
Benzyl alcohol	100-51-6	-	< 0.7	-	U
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-	U
2-Methylphenol	95-48-7	-	< 0.1	-	U
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.7	-	U
Hexachloroethane	67-72-1	-	< 0.1	-	U
N-Nitroso-di-n-propylamine	621-64-7*	-	< 1.2	-	N
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-	U
Nitrobenzene	98-95-3	-	< 0.7	-	U
Isophorone	78-59-1*	-	< 0.1	-	N
2-Nitrophenol	88-75-5	-	< 0.1	-	U
2,4-Dimethylphenol	105-67-9	-	< 0.1	-	U
Benzoic Acid	65-85-0*	-	< 0.7	-	N
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-	U
2,4-Dichlorophenol	120-83-2	-	< 0.1	-	U
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-	N
Naphthalene	91-20-3	-	< 0.1	-	U
4-Chlorophenol	106-48-9	-	< 0.7	-	U
4-Chloroaniline	106-47-8*	-	< 0.7	-	N
Hexachlorobutadiene	87-68-3*	-	< 0.1	-	N
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-	U
2-Methylnaphthalene	91-57-6	-	< 0.1	-	U
1-Methylnaphthalene	90-12-0	-	< 0.1	-	U
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-	N
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-	U
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-	U
2-Chloronaphthalene	91-58-7	-	< 0.1	-	U
Biphenyl	92-52-4	-	< 0.1	-	U
Diphenyl ether	101-84-8	-	< 0.1	-	U
2-Nitroaniline	88-74-4*	-	< 0.7	-	N
Acenaphthylene	208-96-8	-	< 0.1	-	U
Dimethylphthalate	131-11-3	-	< 0.1	-	U
2,6-Dinitrotoluene	606-20-2	-	< 0.7	-	U
Acenaphthene	83-32-9	-	< 0.1	-	U
3-Nitroaniline	99-09-2*	-	< 19.3	-	N

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit	Accr. code
2,4-Dinitrophenol	51-28-5*	-	< 0.7	-	N
Dibenzofuran	132-64-9	-	< 0.1	-	U
4-Nitrophenol	100-02-7*	-	< 0.7	-	N
2,4-Dinitrotoluene	121-14-2	-	< 0.3	-	U
Fluorene	86-73-7	-	< 0.1	-	U
Diethylphthalate	84-66-2	-	< 0.1	-	U
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-	U
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.3	-	N
4-Nitroaniline	100-01-6*	-	< 0.8	-	N
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-	N
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-	U
Hexachlorobenzene	118-74-1	-	< 0.1	-	U
Pentachlorophenol	87-86-5*	-	< 0.7	-	N
Phenanthrene	85-01-8	-	< 0.1	-	U
Anthracene	120-12-7	-	< 0.1	-	U
Di-n-butylphthalate	84-74-2	-	< 0.1	-	U
Fluoranthene	206-44-0	-	< 0.3	-	U
Pyrene	129-00-0	-	< 0.3	-	U
Butylbenzylphthalate	85-68-7	-	< 0.3	-	U
Benzo[a]anthracene	56-55-3	-	< 0.3	-	U
Chrysene	218-01-9	-	< 0.3	-	U
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.7	-	N
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.3	-	U
Di-n-octylphthalate	117-84-0	-	< 0.3	-	U
Benzo[b]fluoranthene	205-99-2	-	< 0.3	-	U
Benzo[k]fluoranthene	207-08-9	-	< 0.3	-	U
Benzo[a]pyrene	50-32-8	-	< 0.3	-	U
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.7	-	U
Dibenzo[a,h]anthracene	53-70-3	-	< 0.7	-	U
Benzo[g,h,i]perylene	191-24-2	-	< 0.7	-	U
Coronene	191-07-1*	-	< 0.4	-	N

Internal Standards	% Area
1,4-Dichlorobenzene-d4	92
Naphthalene-d8	97
Acenaphthene-d10	95
Phenanthrene-d10	103
Chrysene-d12	144
Perylene-d12	141

Surrogates	% Rec
2-Fluorophenol	97
Phenol-d5	97
Nitrobenzene-d5	91
2-Fluorobiphenyl	93
2,4,6-Tribromophenol	90
Terphenyl-d14	80

This analysis was conducted on an 'As Received' basis.

Concentrations are reported on a dry weight basis.

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details:	ESG Doncaster : Trinity Burial Ground	**Matrix:**	Soil
Job Number:	S15_3908M	**Date Booked in:**	09-Jun-15
Directory:	D:\TES\DATA\Y2015\0609HSA_GC12\150609 2015-06-09 13-29-54\158B5501.D	**Date extracted:**	10-Jun-15
Method:	HEADSPACE GCFID	**Date Analysed:**	10-Jun-15, 07:01:3
Accreditation Code:	UM	**Units:**	mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1551442	BH304 ES 9 2.0	<0.013‡	<0.013‡	<0.013‡	<0.026‡	<0.01‡	<0.01‡	<0.3‡	<0.3‡	<0.3‡
CL1551443	BH304 ES 15 4.0	<0.014‡	<0.014‡	<0.014‡	<0.028‡	<0.01‡	<0.01‡	<0.3‡	<0.3‡	<0.3‡
CL1551444	BH310 ES 7 2.0	<0.013‡	<0.013‡	<0.013‡	<0.026‡	<0.01‡	<0.01‡	<0.3‡	<0.3‡	<0.3‡
CL1551445	BH310 ES 9 2.5	<0.013‡	<0.013‡	<0.013‡	<0.027‡	<0.01‡	<0.01‡	<0.3‡	<0.3‡	<0.3‡

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3908M
QC Batch Number: 150571
Directory: D:\TES\DATA\Y2013\02\061115TPH_GC3\081B5401.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

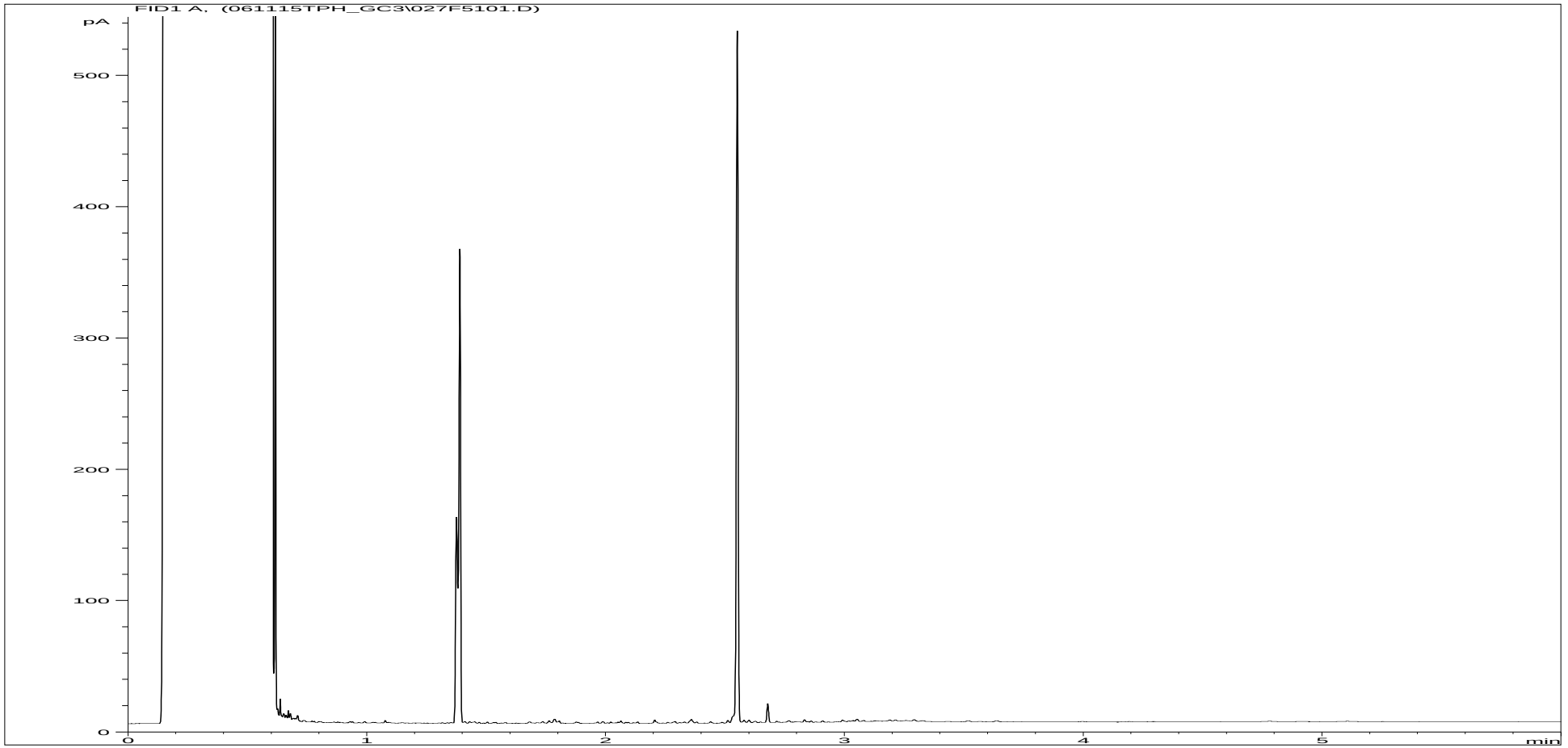
Matrix: Soil
Date Booked in: 09-Jun-15
Date Extracted: 10-Jun-15
Date Analysed: 11-Jun-15

This sample data is not MCERTS accredited.
Ba * This sample data is not ISO17025 accredited.

		Concentration, (mg/kg) - as dry weight.												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1551442	BH304 ES 9 2.0	<5	<5	<5	<5	<5	<5	<15.4	<5	<7.28	14	<7.28	<26	<26
CL1551443	BH304 ES 15 4.0	<6	<6	<6	<6	<6	<6	<16.8	7.5	<7.92	16.5	<7.92	<28	30.7
CL1551444	BH310 ES 7 2.0	<5	<5	<5	<5	<5	<5	<15.2	<5	<7.20	14.5	<7.20	<26	<26
CL1551445	BH310 ES 9 2.5	<5	<5	<5	<5	<5	<5	<15.8	<5	<7.48	<11.66	<7.48	<27	<27

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

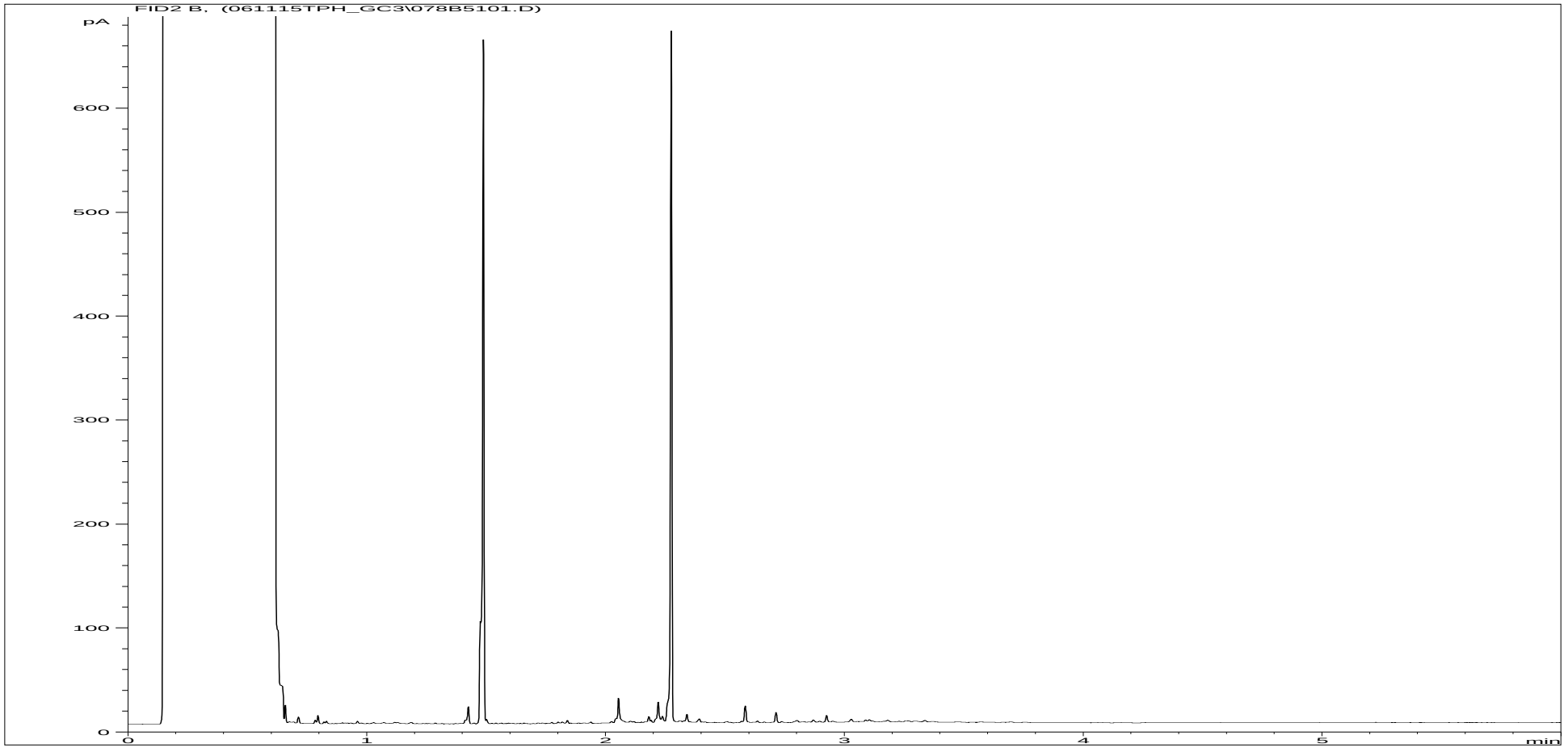
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551442ALI	**Job Number:**	S15_3908M
Multiplier:	15.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 9 2.0
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\027F5101.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

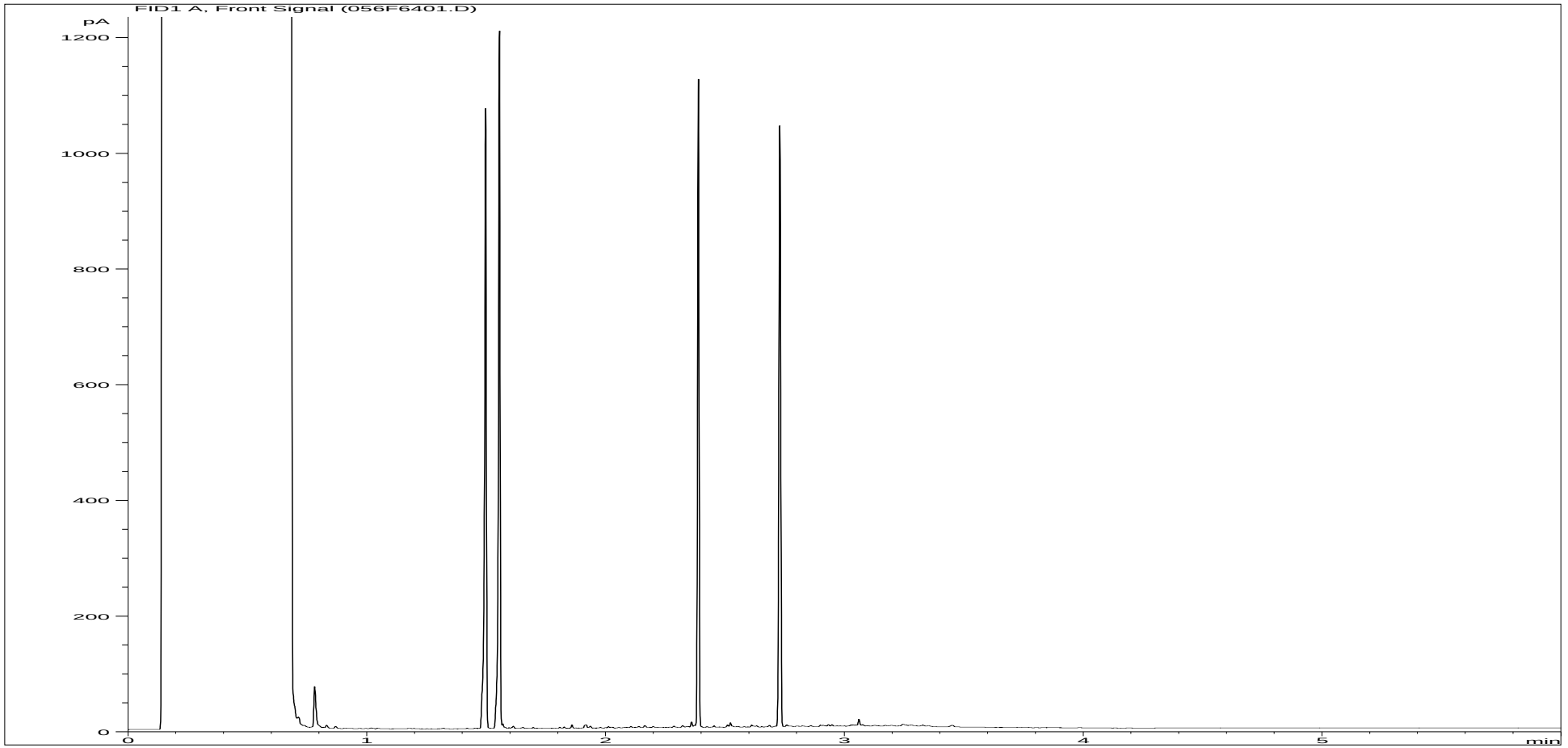
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1551442ARO	**Job Number:**	S15_3908M
Multiplier:	12	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 9 2.0
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\078B5101.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

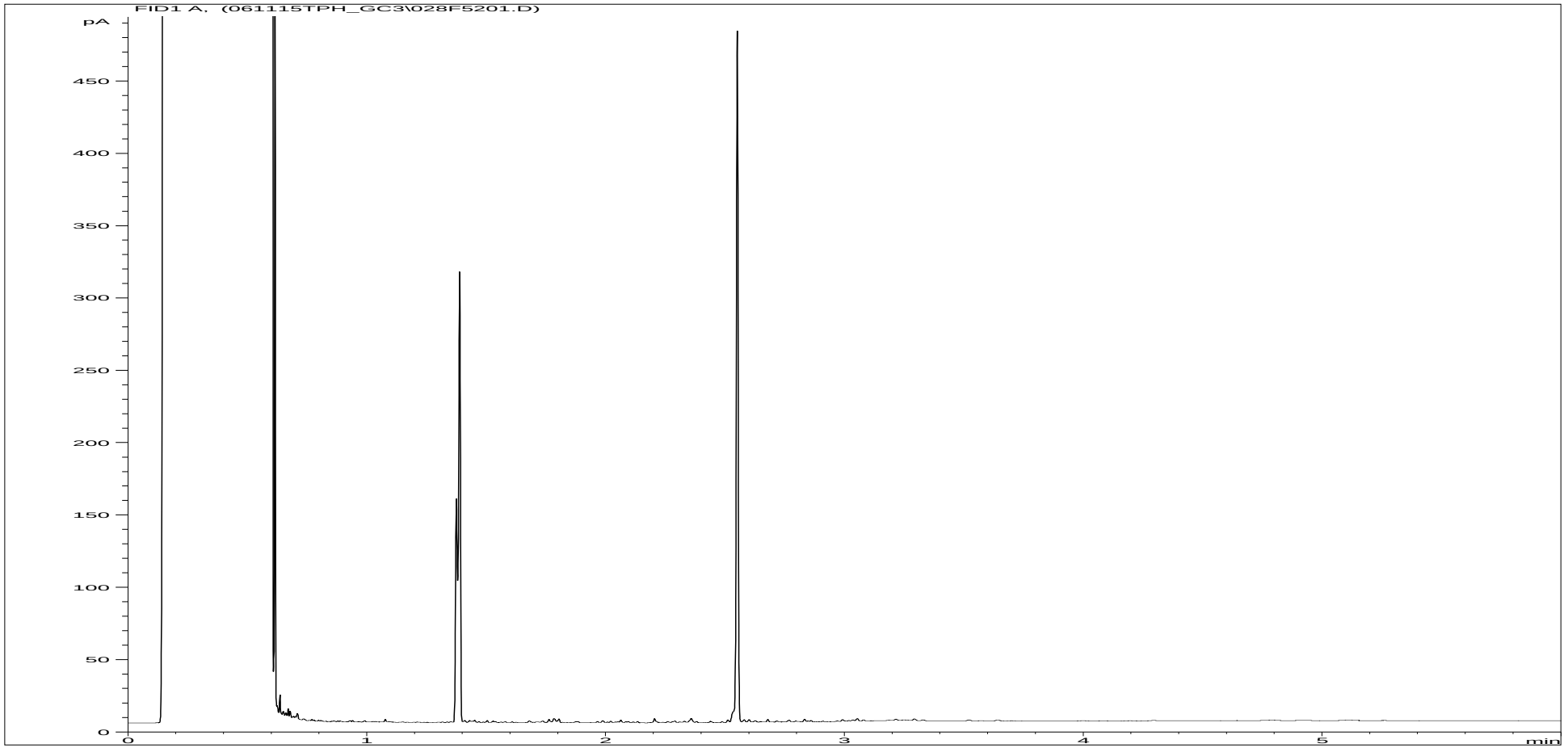
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1551443	**Job Number:**	S15_3908M
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 15 4.0
Acquisition Date/Time:	11-Jun-15, 04:20:49		
Datafile:	D:\TES\DATA\Y2015\061015TPH_GC14\061015 2015-06-10 16-13-01\056F6401.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

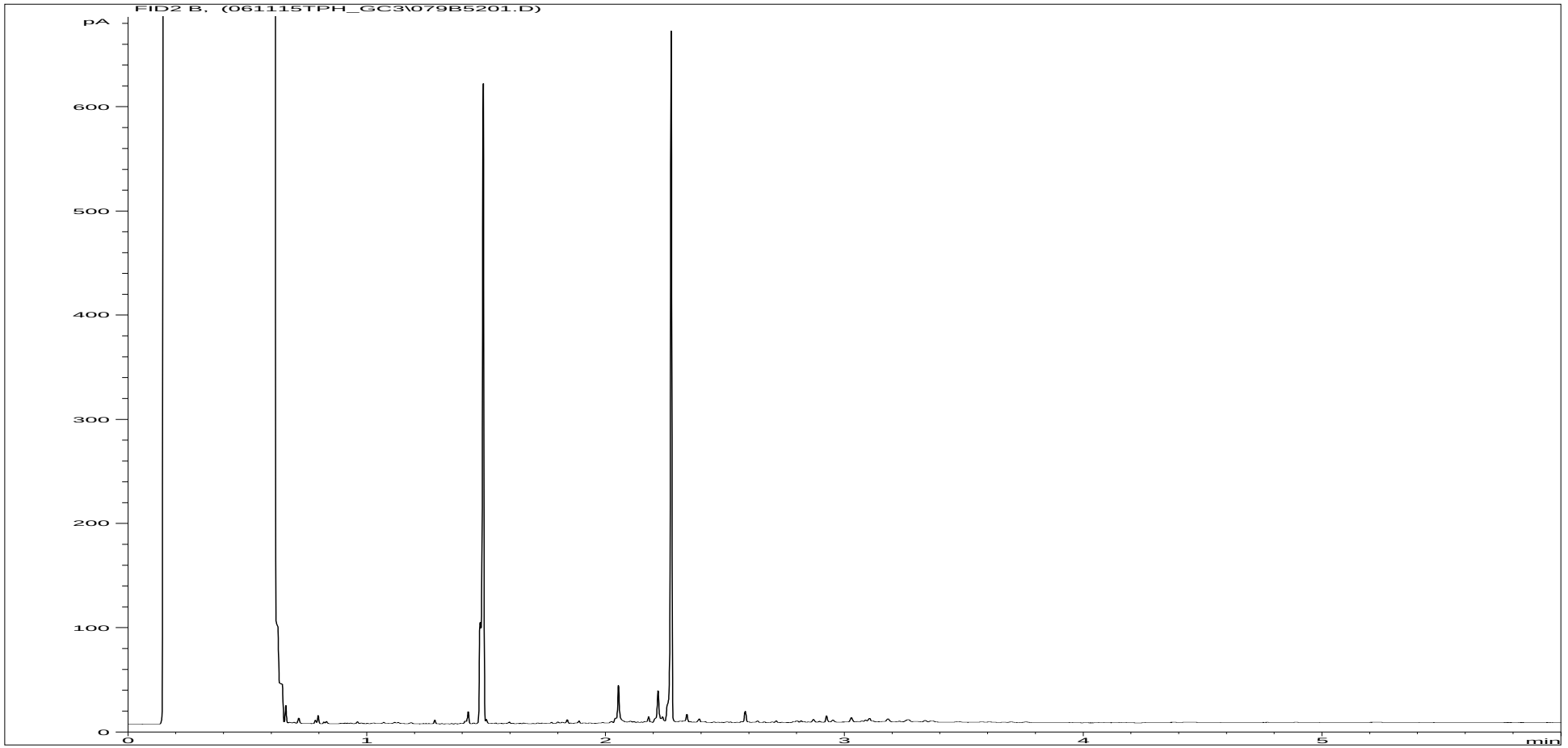
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551443ALI	**Job Number:**	S15_3908M
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 15 4.0
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\028F5201.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

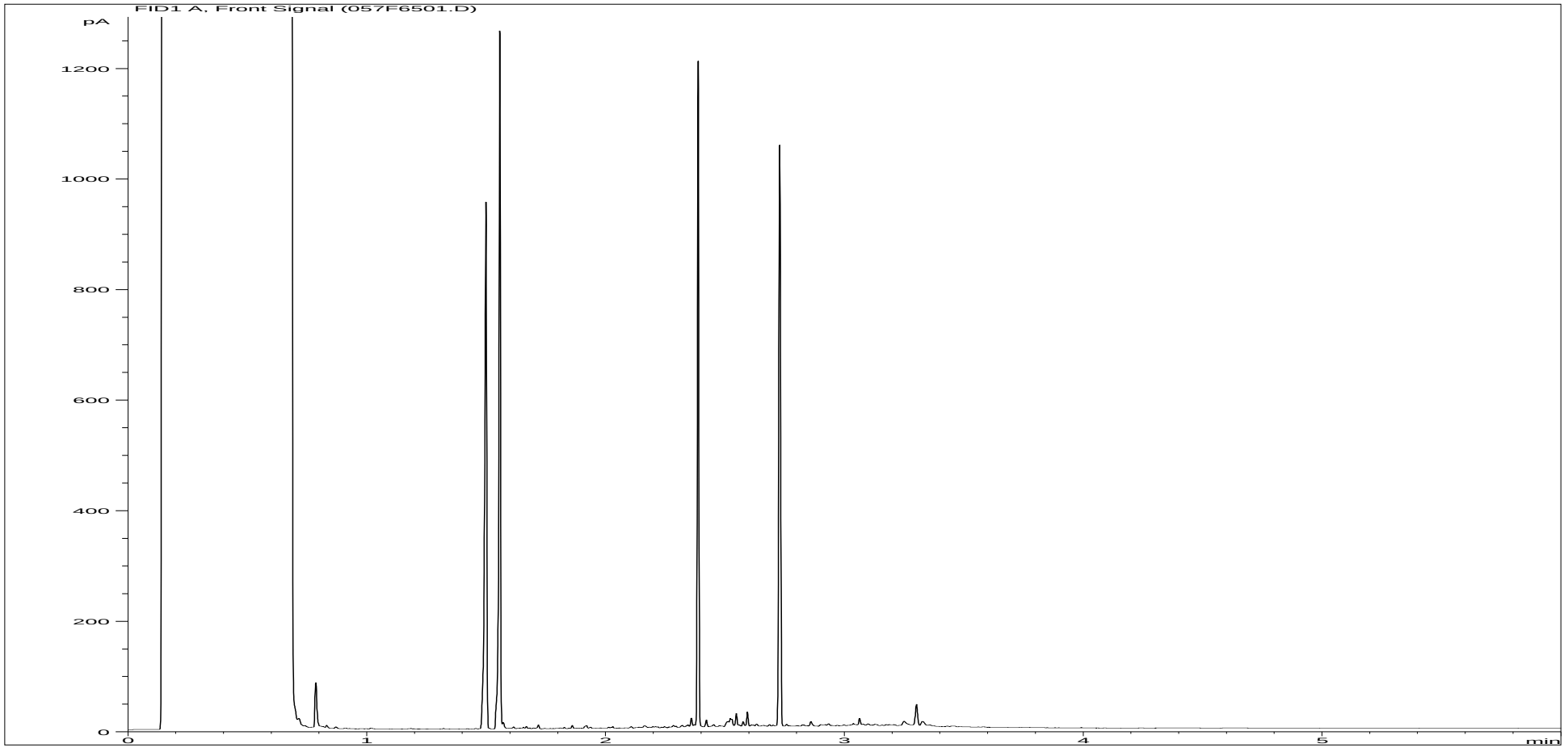
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1551443ARO	**Job Number:**	S15_3908M
Multiplier:	11.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH304 ES 15 4.0
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\079B5201.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

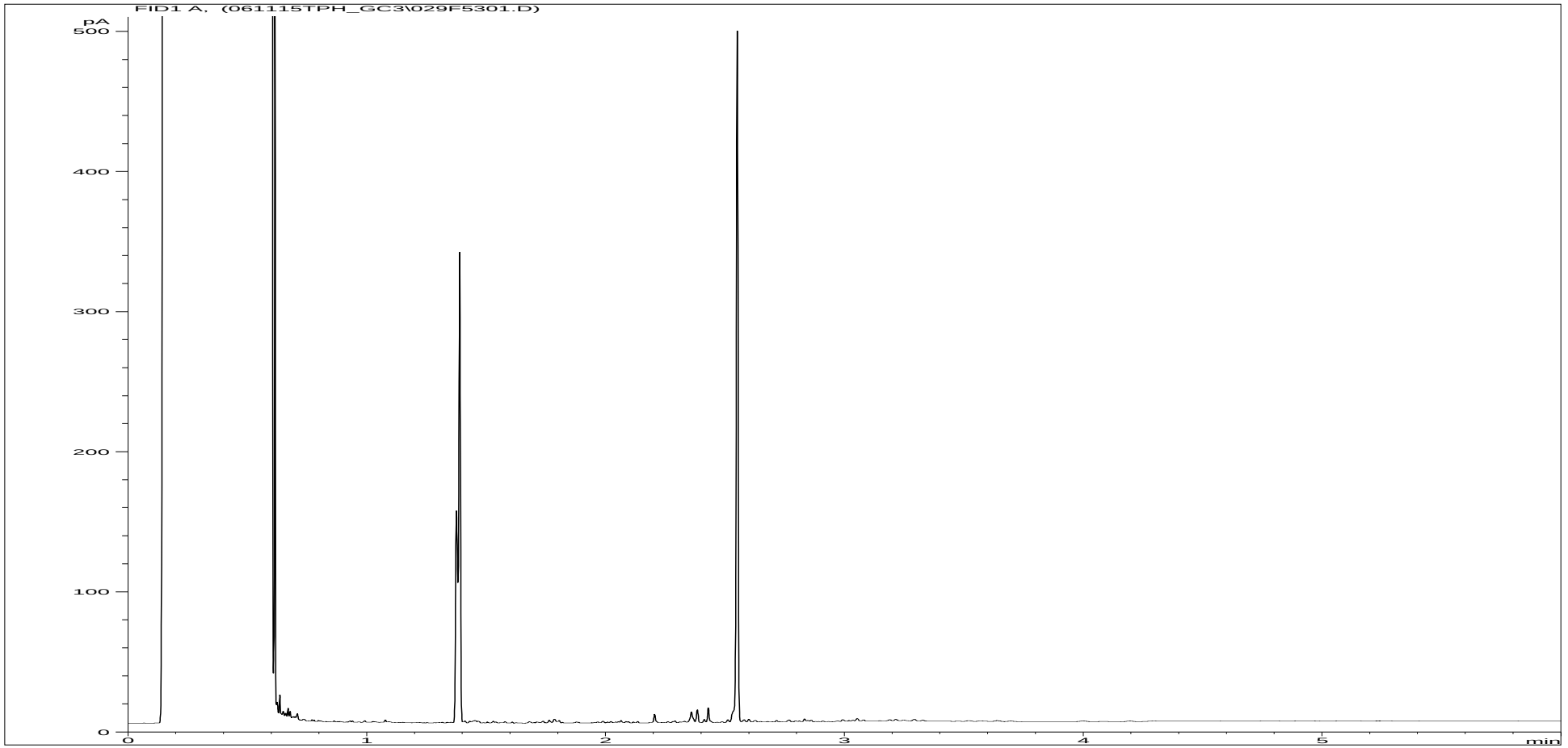
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1551444	**Job Number:**	S15_3908M
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 7 2.0
Acquisition Date/Time:	11-Jun-15, 04:32:16		
Datafile:	D:\TES\DATA\Y2015\061015TPH_GC14\061015 2015-06-10 16-13-01\057F6501.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

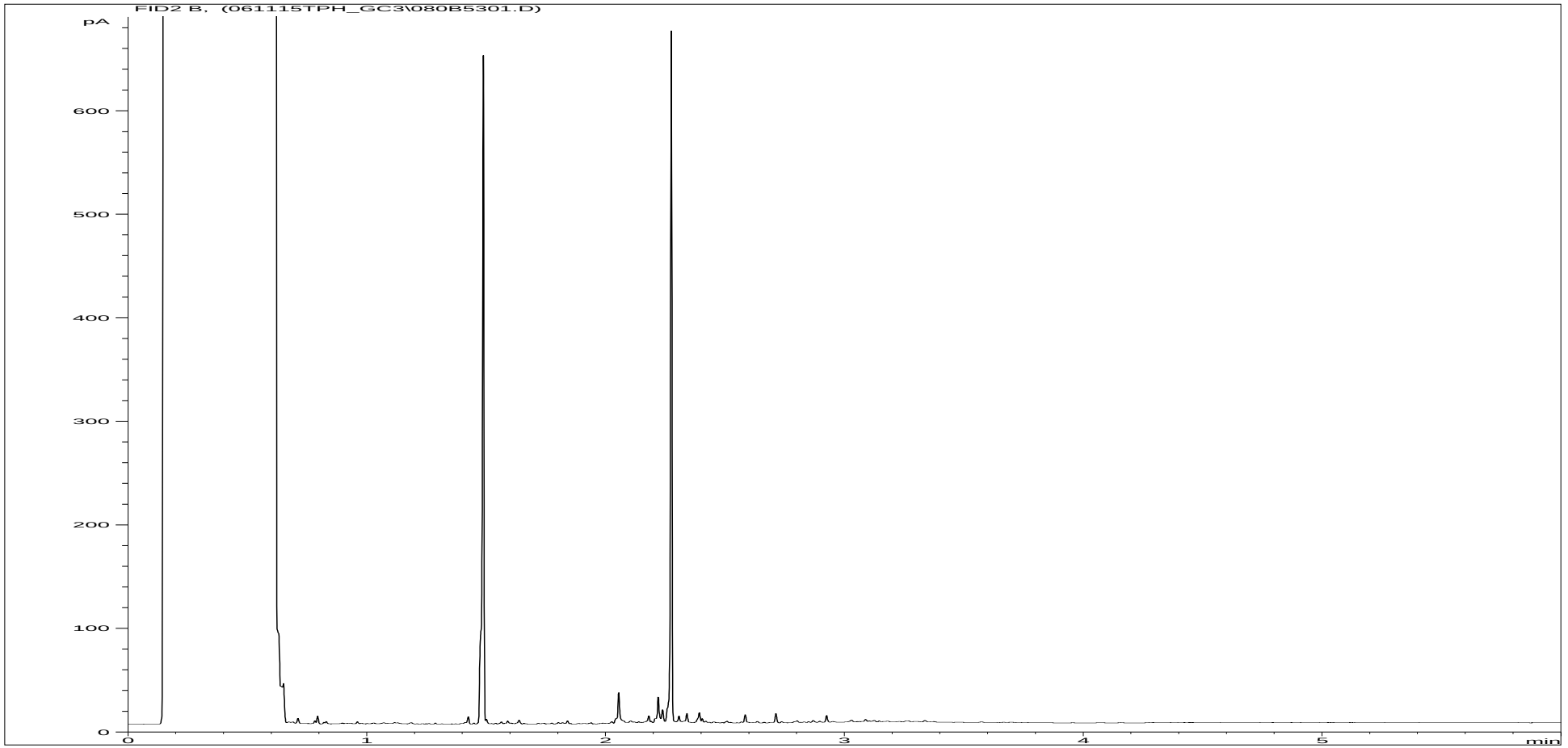
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551444ALI	**Job Number:**	S15_3908M
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 7 2.0
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\029F5301.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

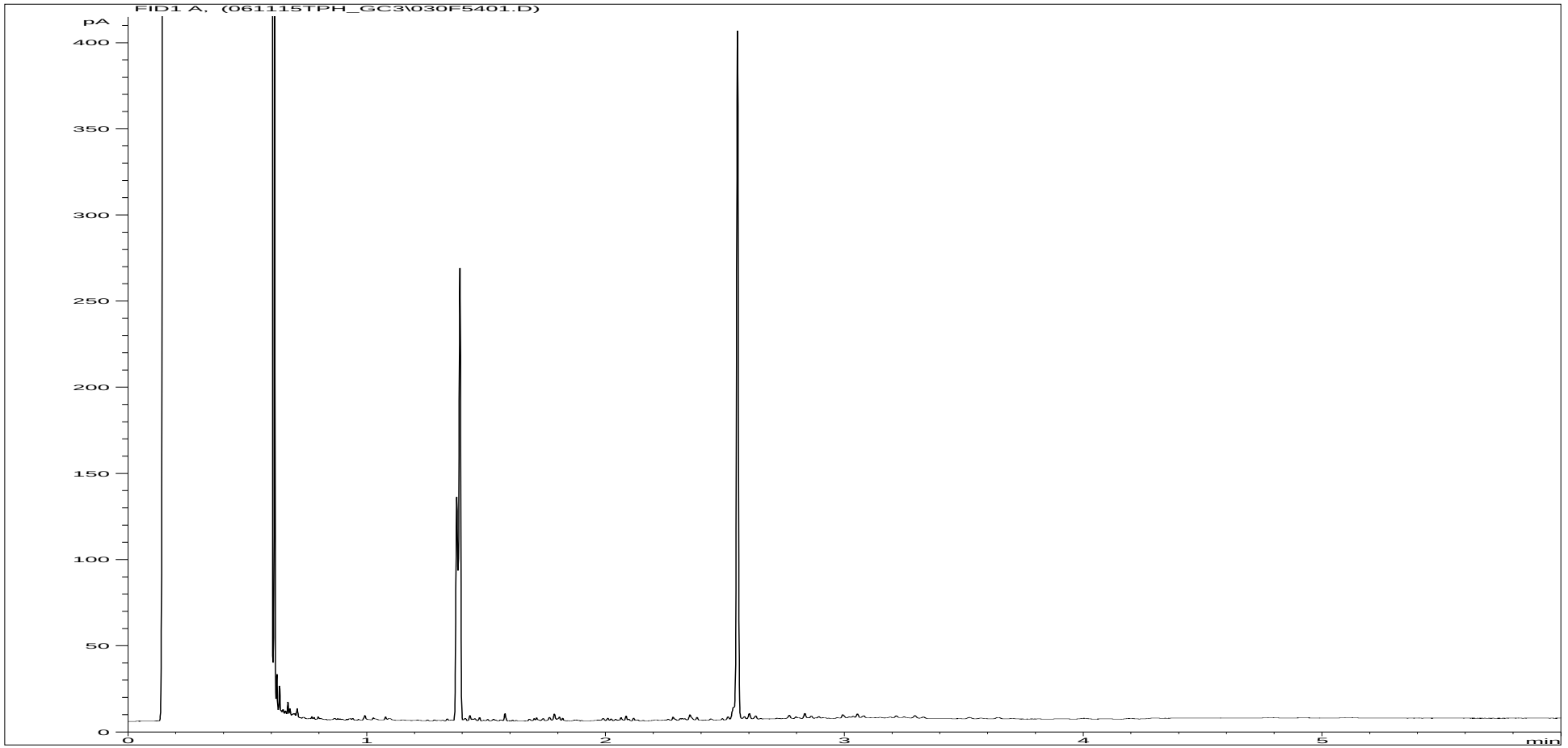
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1551444ARO	**Job Number:**	S15_3908M
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 7 2.0
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\080B5301.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

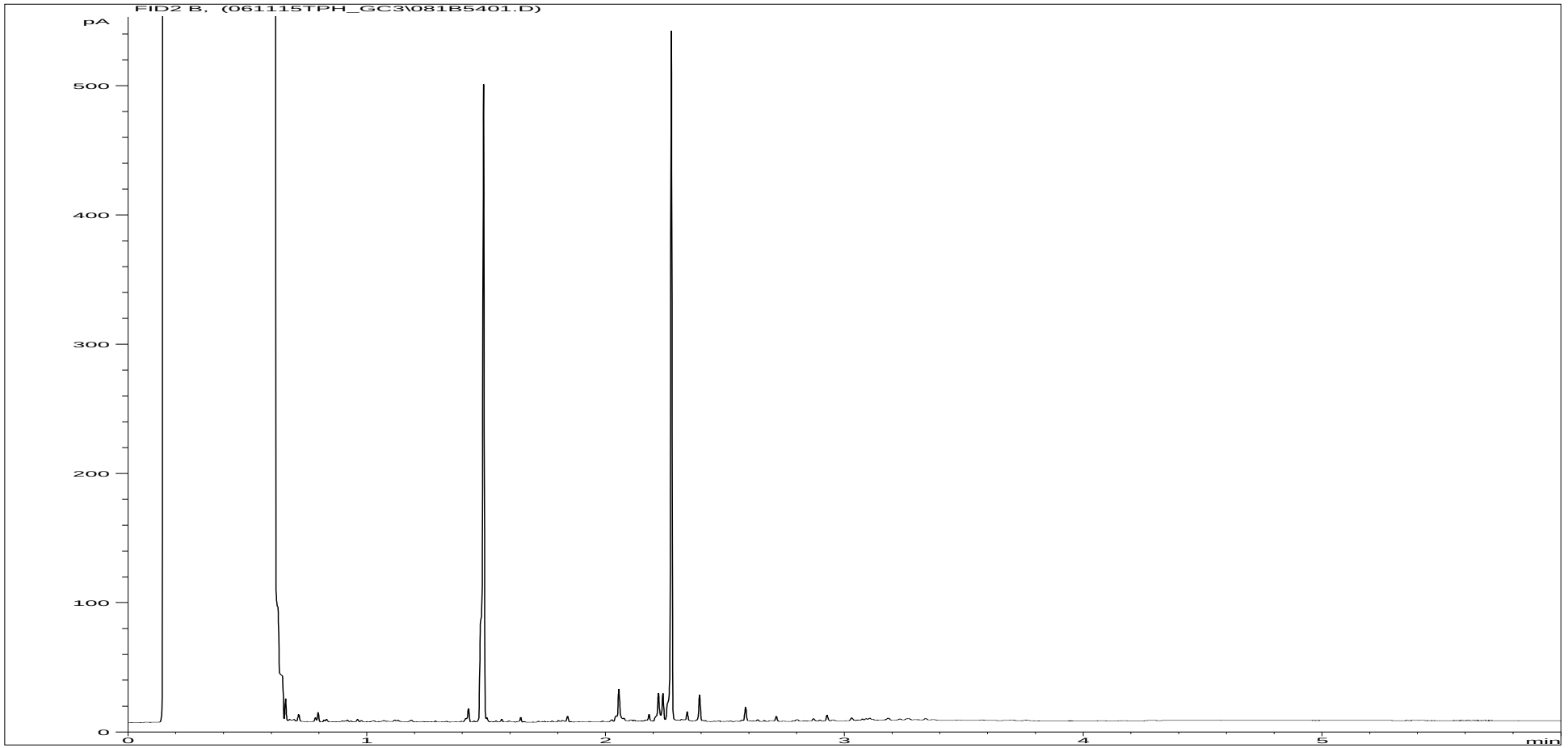
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551445ALI	**Job Number:**	S15_3908M
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 9 2.5
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\030F5401.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

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



Sample ID:	CL1551445ARO	**Job Number:**	S15_3908M
Multiplier:	12.16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH310 ES 9 2.5
Acquisition Date/Time:	11-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061115TPH_GC3\081B5401.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Volatile Organic Compounds by HSA-GCMS

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0615VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH304 ES 9 2.0	**Date Booked in:**	09-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551442	**Date Analysed:**	16-Jun-15	**Multiplier:**	1
Job Number:	S15_3908M	**Operator:**	PR	**Position:**	26

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

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

Concentrations are reported on a dry weight basis
Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted
This analysis was conducted on an 'As Received' basis.

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	3.44	88	Dibromofluoromethane	105
1,4-Difluorobenzene	3.79	88	Toluene-d8	94
Chlorobenzene-d5	4.94	73		
Bromofluorobenzene	5.35	54		
1,4-Dichlorobenzene-d4	5.75	37		
Naphthalene-d8	6.50	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.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Volatile Organic Compounds by HSA-GCMS

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0615VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH304 ES 15 4.0	**Date Booked in:**	09-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551443	**Date Analysed:**	16-Jun-15	**Multiplier:**	1
Job Number:	S15_3908M	**Operator:**	PR	**Position:**	27

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

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

Concentrations are reported on a dry weight basis
Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted
This analysis was conducted on an 'As Received' basis.

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	3.44	65	Dibromofluoromethane	115
1,4-Difluorobenzene	3.80	66	Toluene-d8	95
Chlorobenzene-d5	4.94	57		
Bromofluorobenzene	5.35	49		
1,4-Dichlorobenzene-d4	5.75	34		
Naphthalene-d8	6.49	15		

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.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Volatile Organic Compounds by HSA-GCMS

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0615VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH310 ES 7 2.0	**Date Booked in:**	09-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551444	**Date Analysed:**	16-Jun-15	**Multiplier:**	1
Job Number:	S15_3908M	**Operator:**	PR	**Position:**	28

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

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

Concentrations are reported on a dry weight basis
Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted
This analysis was conducted on an 'As Received' basis.

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	3.44	71	Dibromofluoromethane	101
1,4-Difluorobenzene	3.79	69	Toluene-d8	98
Chlorobenzene-d5	4.94	67		
Bromofluorobenzene	5.35	51		
1,4-Dichlorobenzene-d4	5.75	40		
Naphthalene-d8	6.49	14		

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.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

Volatile Organic Compounds by HSA-GCMS

Accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0615VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH310 ES 9 2.5	**Date Booked in:**	09-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551445	**Date Analysed:**	16-Jun-15	**Multiplier:**	1
Job Number:	S15_3908M	**Operator:**	PR	**Position:**	29

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

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

Concentrations are reported on a dry weight basis
Compounds marked ** are not UKAS or Mcerts accredited
"M" denotes that % fit has been manually interpreted
This analysis was conducted on an 'As Received' basis.

Internal standards	R.T.	Area %	Surrogates	% Rec
Pentafluorobenzene	3.44	75	Dibromofluoromethane	105
1,4-Difluorobenzene	3.79	71	Toluene-d8	97
Chlorobenzene-d5	4.94	62		
Bromofluorobenzene	5.35	56		
1,4-Dichlorobenzene-d4	5.75	38		
Naphthalene-d8	6.49	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.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.321
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	29.0
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.354
					Fraction of sample above 4 mm %	0.000
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH304 ES 15 4.0		s15_3908M	CL/1551443	17-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1.35	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.019	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.0378	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	39	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.92	100		
U	PHSOIL	pH (pH units)	8.5		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.9	7.5	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	1360	341					
U	ICPMSW	Arsenic	0.009	0.002	0.018	0.03	0.5	2	25
U	ICPWATVAR	Barium	0.14	0.06	0.28	0.7	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.005	0.003	0.01	0.03	0.5	10	70
U	ICPMSW	Copper	0.009	0.005	0.018	0.06	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.052	0.016	0.104	0.21	0.5	10	30
U	ICPMSW	Nickel	0.019	0.008	0.038	0.09	0.4	10	40
U	ICPMSW	Lead	0.003	0.002	0.006	0.02	0.5	10	50
U	ICPMSW	Antimony	0.002	0.001	0.004	0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.001	<0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.022	0.016	0.044	0.17	4	50	200
U	KONENS	Chloride	202	20	404	443	800	15000	25000
U	ISEF	Fluoride	0.6	0.3	1.2	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	57	21	114	258	1000	20000	50000
N	WSLM27	Total Dissolved Solids	1060	266	2120	3719	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	19	5.9	38	76	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.288
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	21.9
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.387
					Fraction of sample above 4 mm %	25.600
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH310 ES 7 2.0		s15_3908M	CL/1551444	17-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.018	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.0385	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	60	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.74	100		
U	PHSOIL	pH (pH units)	9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	8.4	7.9	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	585	159					
U	ICPMSW	Arsenic	0.003	0.006	0.006	0.06	0.5	2	25
U	ICPWATVAR	Barium	0.11	0.04	0.22	0.5	20	100	300
U	ICPMSW	Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.003	0.002	0.006	0.02	0.5	10	70
U	ICPMSW	Copper	0.009	0.01	0.018	0.1	2	50	100
U	ICPMSW	Mercury	<0.0001	0.0002	<0.0002	<0.002	0.01	0.2	2
U	ICPMSW	Molybdenum	0.054	0.01	0.108	0.16	0.5	10	30
U	ICPMSW	Nickel	0.012	0.007	0.024	0.08	0.4	10	40
U	ICPMSW	Lead	0.002	0.092	0.004	0.8	0.5	10	50
U	ICPMSW	Antimony	0.009	0.006	0.018	0.06	0.06	0.7	5
U	ICPMSW	Selenium	0.002	<0.001	0.004	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.007	0.011	0.014	0.1	4	50	200
U	KONENS	Chloride	53	9	106	149	800	15000	25000
U	ISEF	Fluoride	0.4	0.3	0.8	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	105	17	210	287	1000	20000	50000
N	WSLM27	Total Dissolved Solids	456	124	912	1683	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	15	12	30	124	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-10330**
For the attention of:	ESG Doncaster	**Report Date:**	**16/06/2015**
Site Address:	Trinity Burial Ground	**Project Number:**	**S153908**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1551444	08/06/15	BH310 2.0	16/06/2015	878	696	0.0000	0.0000		NADIS
CL/1551445	08/06/15	BH310 2.5	16/06/2015	1073	1073	0.0000	0.0000		NADIS

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Screens Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name: Rachel Howell

Authorised Signatory:

Position: Lab Technician

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153908M

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153908M

Consignment No S48564
Date Logged 09-Jun-2015

Report Due 15-Jun-2015

ID Number	Description	MethodID	BTEXHSA	CEN Leachate		CustServ	GROHSA	ICPBOR	ICPMSS												ICPSOIL	KONECR	MCertS	PAHMSUS		PCBUSECDAR
		Sampled	MTBE (µg/kg)	CEN Leac(P)1	CEN Leac(P)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	MCertS Analysis	PAH (16) by GCMS	PAH (17) by GCMS	PCB-12 Congeners Analysis
			✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			✓	✓	
CL/1551442	BH304 2.0	08/06/15																									
CL/1551443	BH304 4.0	08/06/15																									
CL/1551444	BH310 2.0	08/06/15																									
CL/1551445	BH310 2.5	08/06/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153908M

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153908M

Consignment No S48564
Date Logged 09-Jun-2015

Report Due 15-Jun-2015

ID Number	Description	MethodID	PCBUSECOAR	PHENHPLC	PHSOIL	SFAPI		SUB002	SVOCMSUS	TMSS	TPHFIDUS		TPHUSSI	VOCHSAS			WSLM59
		Sampled	PCB-7 Congeners Analysis	Phenol - HPLC	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos ID and Quantification	SVOC by GCMS (AR)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GCFID (AR)	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1551442	BH304 2.0	08/06/15															
CL/1551443	BH304 4.0	08/06/15															
CL/1551444	BH310 2.0	08/06/15															
CL/1551445	BH310 2.5	08/06/15															

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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
GROHSA	CL1551442-1445	The Secondary process control result associated with this Test has not wholly met the requirements of the Laboratory Quality Management System (QMS). All other Process controls (including the Primary Process control) are within specification. The Laboratorybelieves that the validity of the data has not been affected however under these circumstances, the MCerts standard stipulates that MCerts accreditation is removed.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBUSECDAR	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclors by hexane/acetone extraction followed by GCECD detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
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	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 Dichloromethane/Acetone extraction followed by GCMS detection
Soil	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID 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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
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 the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster

Site : Trinity Burial Ground

Report Number : S15_3908

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1551442	BH304 ES 9 2.0	Brown CLAY
CL/1551443	BH304 ES 15 4.0	Grey SILT
CL/1551444	BH310 ES 7 2.0	Brown MADE GROUND
CL/1551445	BH310 ES 9 2.5	Brown CLAY

TEST REPORT

1252

Report No. EFS/153915M (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 2 samples described in this report were registered for analysis by ESG on 09-Jun-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 16-Jun-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 16-Jun-2015

Accreditation Codes: **N** (Not Accredited), **U** (UKAS), **UM** (UKAS & MCERTS)
Tests marked '^' have been subcontracted to another laboratory.
(NVM) - denotes the sample matrix is dissimilar to matrices upon which the MCERTS validation was based, and is therefore not accredited for MCERTS.
All results are reported on a dry weight basis at 105^{o}C unless otherwise stated. (except QC samples)
ESG accepts no responsibility for any sampling not carried out by our personnel.

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.2	1.2	1.6	0.7	6	0.5	0.5	2	0.5	16	0.1	
Accreditation Code:				UM	U	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM	UM
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1551472	BH303 ES 7 2.7	01-Jun-15	Req‡	5.5	1.1	22.3	0.75	26	27.8	75.3	625.8	<0.5	1.5	21.1	1.1	170.9	0.663	8.7
1551473	BH303 ES 13 7.7	01-Jun-15	Req‡	5	0.4	12.1	0.52	24	12.7	14.2	521.8	<0.5	0.6	21.6	<0.5	54.8	0.63	8.7

ESG

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

Tel +44 (0) 1283 554400

Fax +44 (0) 1283 554422

Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**17-Jun-2015**
Report Number	**EFS/153915M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Units :			mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	mg/kg		
Method Codes :			SFAPI	SFAPI	TMSS	TPHUSSI	ICPMSS	KONECR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS		
Method Reporting Limits :			0.5	0.5	0.2	10	0.6	0.1	0.02	5	1	2	6	4	2			
Accreditation Code:			UM	U	U		N	N	N	UM	UM	UM	UM	UM	UM			
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**Tot.Moisture @ 105C**	**TPH by GCFID (Si-UKCWG)>44**	**Vanadium (MS)**	**Chromium vi:**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**PAH (16) by GCMS**		
1551472	BH303 ES 7 2.7	**01-Jun-15**	<0.7	<0.7	24.3	Req	46.1	<0.1	1.16	<7	<1	<3	<8	<5	<3	Req		
1551473	BH303 ES 13 7.7	**01-Jun-15**	<0.7	<0.7	26.9	Req	33	<0.1	0.88	<7	<1	<3	<8	<5	<3	Req		

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**17-Jun-2015**
Report Number	**EFS/153915M**
Table Number	**1**

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH303 ES 7 2.7	**Job Number:**	S15_3915M
LIMS ID Number:	CL1551472	**Date Booked in:**	09-Jun-15
QC Batch Number:	150574	**Date Extracted:**	11-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	12-Jun-15
Directory:	1215PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.69	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	108
Acenaphthene-d10	108
Phenanthrene-d10	108
Chrysene-d12	110
Perylene-d12	115

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	95
Terphenyl-d14	68

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH303 ES 13 7.7	**Job Number:**	S15_3915M
LIMS ID Number:	CL1551473	**Date Booked in:**	09-Jun-15
QC Batch Number:	150574	**Date Extracted:**	11-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	12-Jun-15
Directory:	1215PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

Accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit	Accr. code
Naphthalene	91-20-3	-	< 0.11	-	**UM**
Acenaphthylene	208-96-8	-	< 0.11	-	U
Acenaphthene	83-32-9	-	< 0.11	-	UM
Fluorene	86-73-7	-	< 0.11	-	UM
Phenanthrene	85-01-8	-	< 0.11	-	UM
Anthracene	120-12-7	-	< 0.11	-	U
Fluoranthene	206-44-0	-	< 0.11	-	UM
Pyrene	129-00-0	-	< 0.11	-	UM
Benzo[a]anthracene	56-55-3	-	< 0.11	-	UM
Chrysene	218-01-9	-	< 0.11	-	UM
Benzo[b]fluoranthene	205-99-2	-	< 0.11	-	UM
Benzo[k]fluoranthene	207-08-9	-	< 0.11	-	UM
Benzo[a]pyrene	50-32-8	-	< 0.11	-	UM
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.11	-	UM
Dibenzo[a,h]anthracene	53-70-3	-	< 0.11	-	UM
Benzo[g,h,i]perylene	191-24-2	-	< 0.11	-	UM
Total (USEPA16) PAHs	-	-	< 1.75	-	N

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	107
Acenaphthene-d10	107
Phenanthrene-d10	107
Chrysene-d12	107
Perylene-d12	108

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	93
Terphenyl-d14	67

Concentrations are reported on a dry weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details:	ESG Doncaster : Trinity Burial Ground	**Matrix:**	Soil
Job Number:	S15_3915M	**Date Booked in:**	09-Jun-15
Directory:	D:\TES\DATA\Y2015\0611HSA_GC12\150611 2015-06-11 16-15-05\119B1901.D	**Date extracted:**	11-Jun-15
Method:	HEADSPACE GCFID	**Date Analysed:**	11-Jun-15, 22:18:(
Accreditation Code:	UM	**Units:**	mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1551472	BH303 ES 7 2.7	<0.013‡	<0.013‡	<0.013‡	<0.026‡	<0.01‡	<0.01‡	<0.3‡	<0.3‡	<0.3‡
CL1551473	BH303 ES 13 7.7	<0.014‡	<0.014‡	<0.014‡	<0.027‡	<0.01‡	<0.01‡	<0.3‡	<0.3‡	<0.3‡

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3915M
QC Batch Number: 150574
Directory: D:\TES\DATA\Y2013\02\061215TPH_GC3\066B2101.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

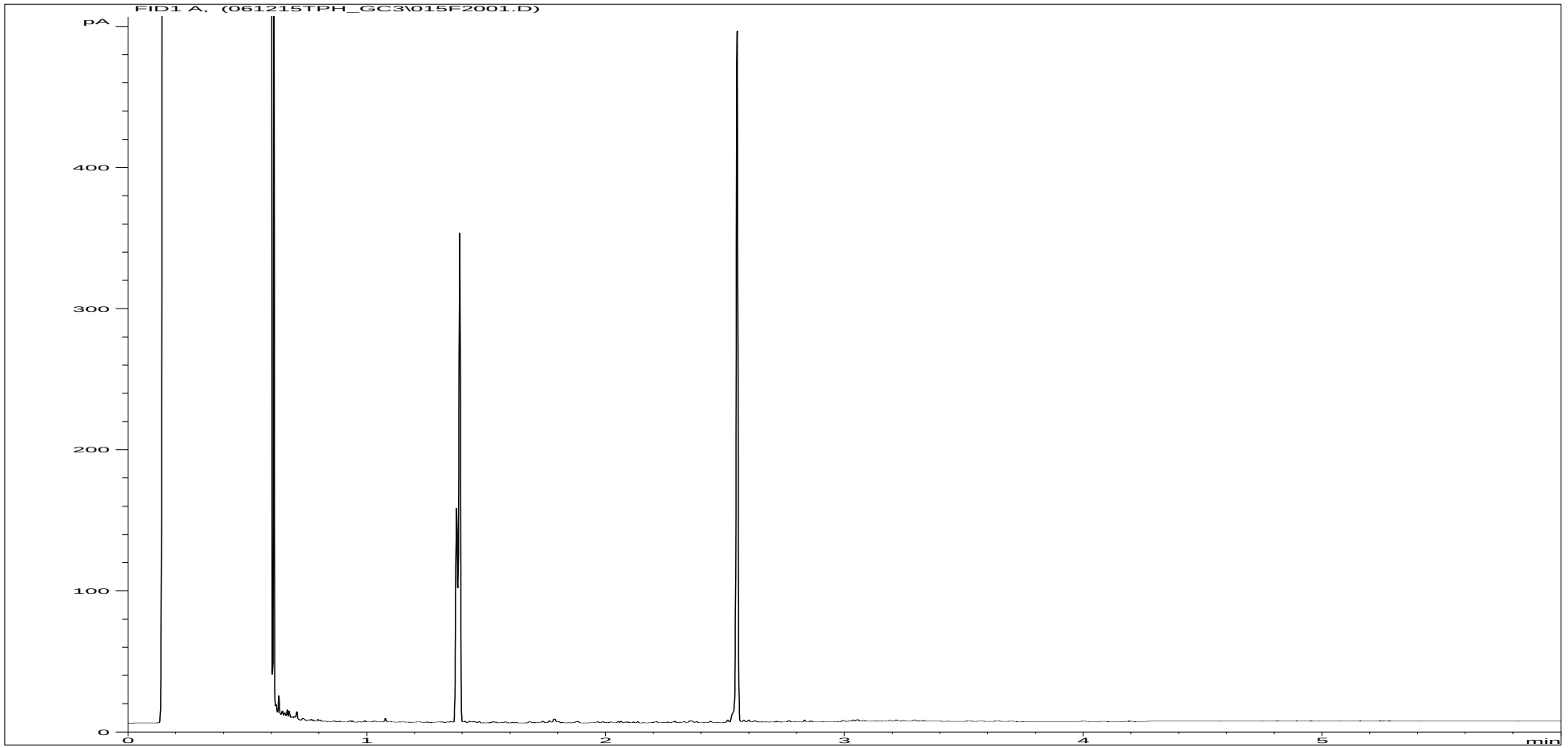
Matrix: Soil
Date Booked in: 09-Jun-15
Date Extracted: 11-Jun-15
Date Analysed: 12-Jun-15

This sample data is not MCERTS accredited.
Ba * This sample data is not ISO17025 accredited.

		Concentration, (mg/kg) - as dry weight.												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1551472	BH303 ES 7 2.7	<5	<5	<5	<5	<5	<5	<15.7	<5	<7.42	<11.57	<7.42	<26	<26
CL1551473	BH303 ES 13 7.7	<5	<5	<5	<5	<5	<5	<16.3	<5	<7.69	<11.98	<7.69	<27	<27

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appropriate, in accordance with the MCERTS standard.

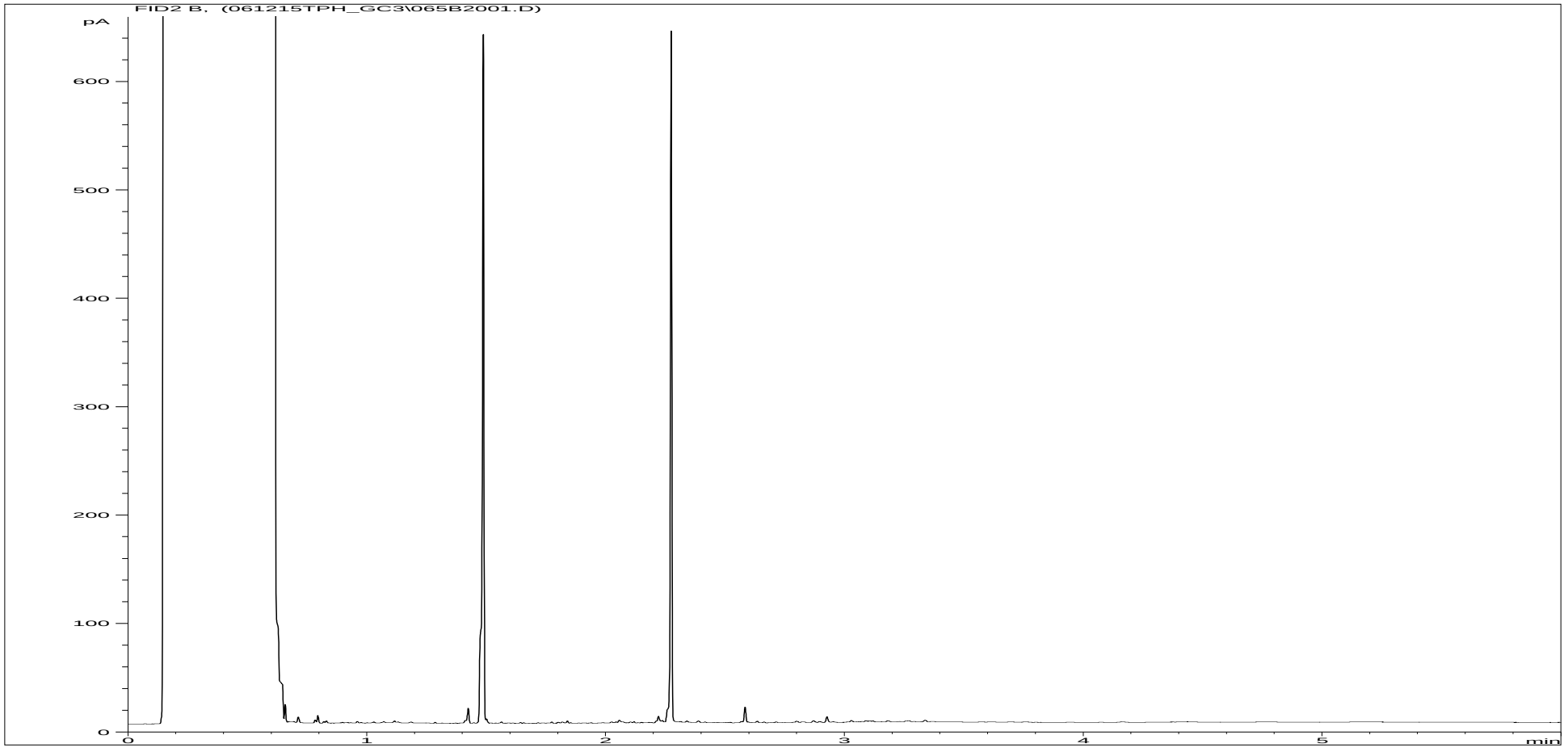
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551472ALI	**Job Number:**	S15_3915M
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 7 2.7
Acquisition Date/Time:	12-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061215TPH_GC3\015F2001.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

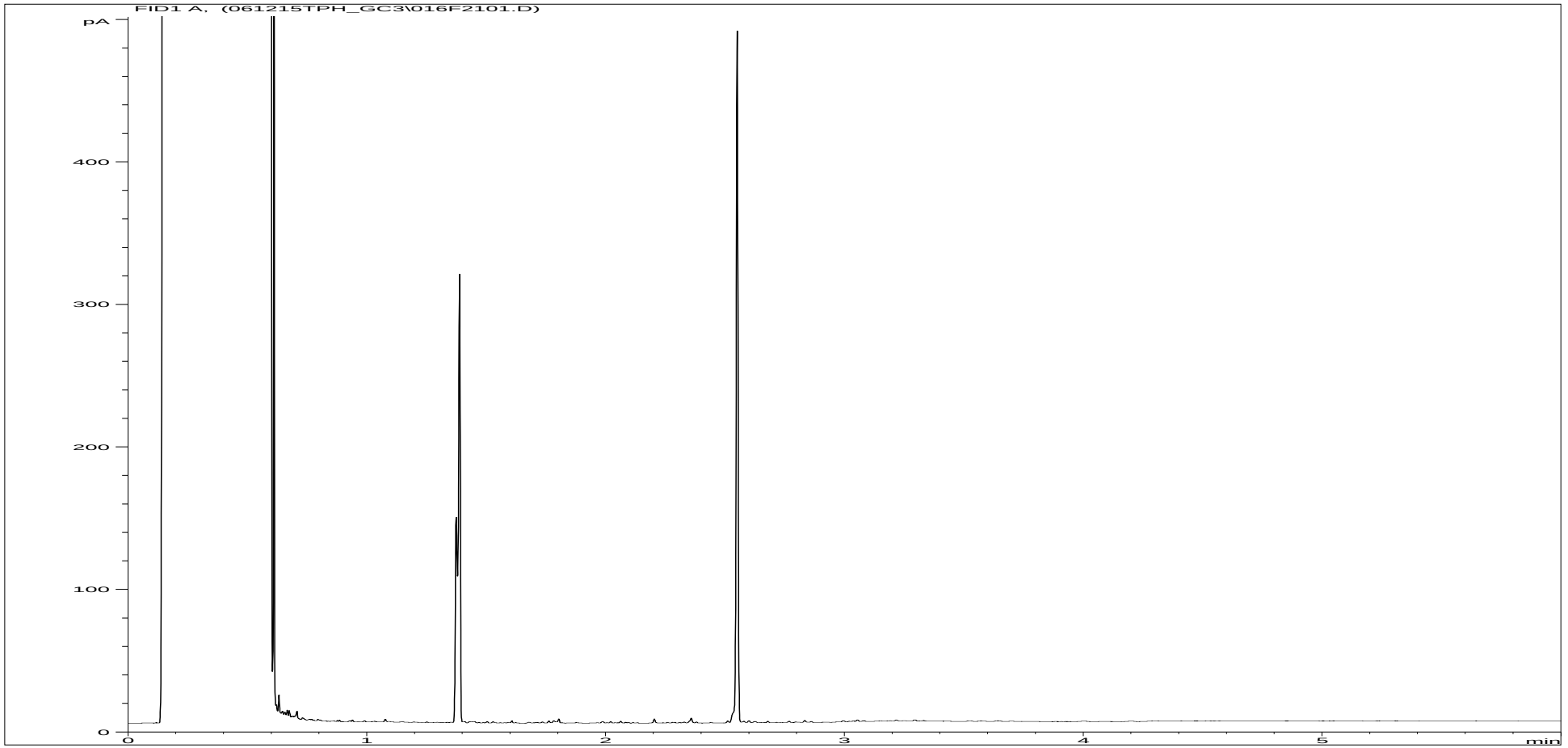
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1551472ARO	**Job Number:**	S15_3915M
Multiplier:	12.64	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 7 2.7
Acquisition Date/Time:	12-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061215TPH_GC3\065B2001.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

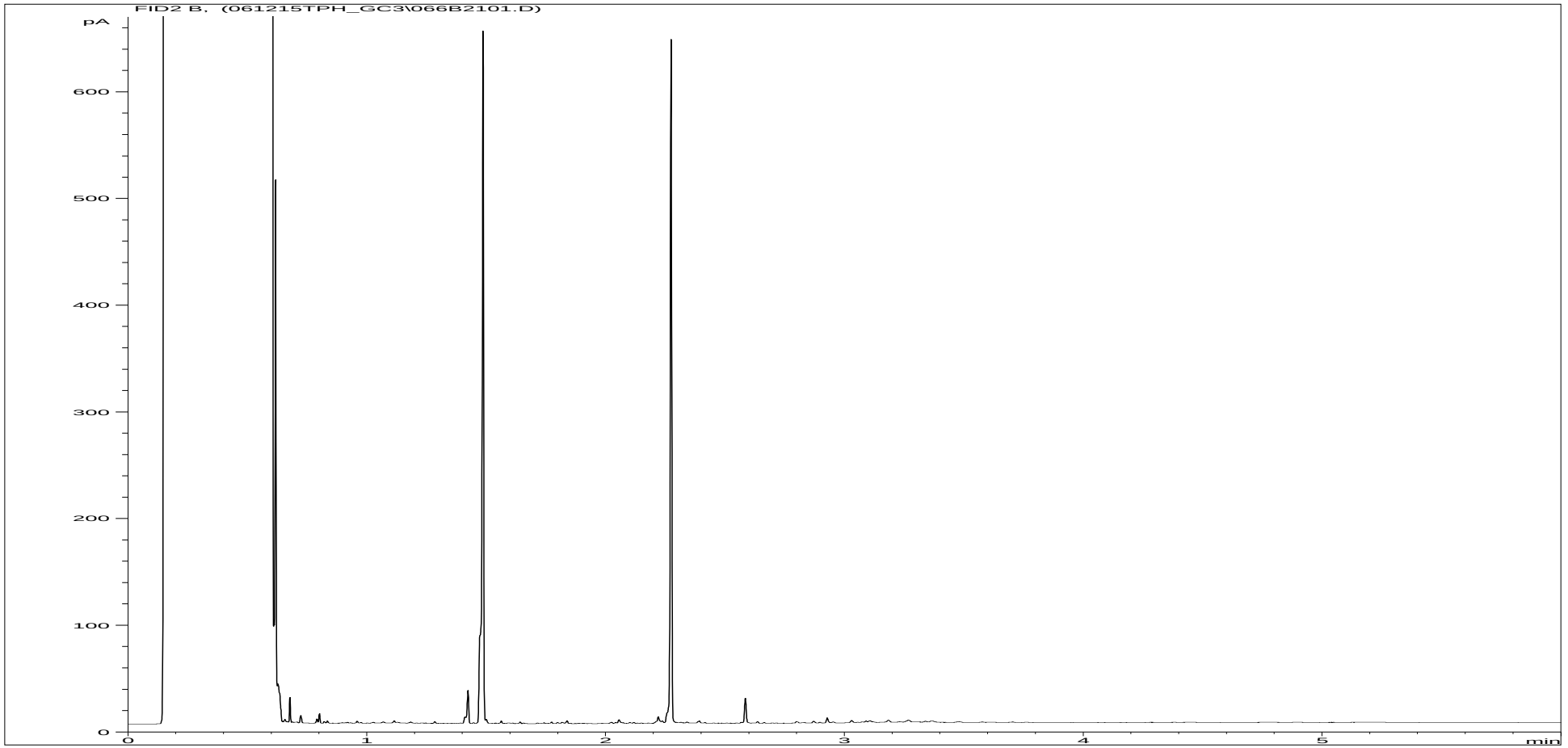
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551473ALI	**Job Number:**	S15_3915M
Multiplier:	15.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 13 7.7
Acquisition Date/Time:	12-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061215TPH_GC3\016F2101.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

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



Sample ID:	CL1551473ARO	**Job Number:**	S15_3915M
Multiplier:	12	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH303 ES 13 7.7
Acquisition Date/Time:	12-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061215TPH_GC3\066B2101.D		

Where individual results are flagged see report notes for status.
Results corrected to dry weight at 105℃ where appr opriate, in accordance with the MCERTS standard.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153915M

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153915M

Consignment No S48455
Date Logged 09-Jun-2015

Report Due 15-Jun-2015

ID Number	Description	MethodID	CustServ	GROHSA	ICPBOR	ICPMSS												ICPSOIL	KONECR	MCertS	PAHMSUS	PHSOIL	SFAPI		TMSS	TPHUSSI
		Sampled	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	MCertS Analysis	PAH (16) by GCMS	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	Tot.Moisture @ 105C	TPH by GCFID (Si-UKCWG)>44
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
CL/1551472	BH303 2.70	01/06/15																									
CL/1551473	BH303 7.70	01/06/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S153915M

Customer **ESG Doncaster**
Site **Trinity Burial Ground**
Report No **S153915M**

Consignment No S48455
Date Logged 09-Jun-2015

Report Due 15-Jun-2015

ID Number	Description	MethodID	VOCHSAS		WSLM59
		Sampled	BTEX-HSA GCMS analysis	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	
CL/1551472	BH303 2.70	01/06/15			
CL/1551473	BH303 7.70	01/06/15			

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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
GROHSA	CL1551472 CL1551473	The Secondary process control result associated with this Test has not wholly met the requirements of the Laboratory Quality Management System (QMS). All other Process controls (including the Primary Process control) are within specification. The Laboratorybelieves that the validity of the data has not been affected however under these circumstances, the MCerts standard stipulates that MCerts accreditation is removed.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
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	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis (% based upon wet weight)
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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_3915

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1551472	BH303 ES 7 2.7	Brown SILT Root Fibres
CL/1551473	BH303 ES 13 7.7	Brown SILT

TEST REPORT

1252

Report No. EFS/153954 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 2 samples described in this report were registered for analysis by ESG on 10-Jun-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 18-Jun-2015

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

The following tables are contained in this report:

On behalf of ESG :
Declan Burns — Managing Director, Multi-Sector Services

Date of Issue: 18-Jun-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1551635	BH306 ES 8 2.00	09-Jun-15	Req	1.7	3.2	12.4	0.2	24.3	20.1	281.6	519.2	0.16	1.3	23	<0.5	68	0.715	8.9
1551636	BH306 ES 16 4.50	09-Jun-15	Req	3.8	0.5	9.2	0.15	21.5	11.8	21.3	523.4	<0.1	0.6	23.2	<0.5	56.2	0.592	8.7

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**18-Jun-2015**
Report Number	**EFS/153954**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	%	mg/kg	%	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	µg/kg	µg/kg	% M/M	µg/kg	mg/kg
Method Codes :			SFAPI	SFAPI	Sub002	SVOCMSUS	TMSS	TPHFIDUS	TPHFIDUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	PCBUSECDAR	PCBUSECDAR	WSLM59	BTEXHSA	PAHMSUS
Method Reporting Limits :			0.5	0.5			0.2	10	10	10		0.6	0.1			0.02	20	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos ID and Quantification**	**SVOC by GCMS (AR)**	**Tot.Moisture @ 105C**	**TPH Band (>C10-C40)**	**TPH by GCFID (AR)**	**TPH by GCFID (Si-UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**PCB-12 Congeners Analysis**	**PCB-7 Congeners Analysis**	**Total Organic Carbon**	**MTBE**	**PAH (16) by GCMS**
1551635	BH306 ES 8 2.00	09-Jun-15	<0.5	<0.5	NADIS	Req	13.9	46	46	Req	Req	39.7	<0.1	Req	Req	1.00	<20	
1551636	BH306 ES 16 4.50	09-Jun-15	<0.5	<0.5		Req				Req	Req	31.1	<0.1			1.21		Req

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**18-Jun-2015**
Report Number	**EFS/153954**
Table Number	**1**

Units :			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg										
Method Codes :			PAHMSUS	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC										
Method Reporting Limits :				0.3	0.3	0.3	0.3											
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes										
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**PAH (17) by GCMS**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**										
1551635	BH306 ES 8 2.00	**09-Jun-15**	Req	<0.3	<0.3	<0.3	<0.3	<1.2										
1551636	BH306 ES 16 4.50	**09-Jun-15**																

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**18-Jun-2015**
Report Number	**EFS/153954**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH306 ES 8 2.00	**Job Number:**	S15_3954
LIMS ID Number:	CL1551635	**Date Booked in:**	10-Jun-15
QC Batch Number:	150581	**Date Extracted:**	14-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	15-Jun-15
Directory:	15AMS17.PAH\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	5.26	0.16	97
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	6.52	0.26	91
Pyrene	129-00-0	6.79	0.23	91
Benzo[a]anthracene	56-55-3	8.42	0.15	98
Chrysene	218-01-9	8.47	0.17	98
Benzo[b]fluoranthene	205-99-2	9.92	0.20	98
Benzo[k]fluoranthene	207-08-9	9.96	0.09	98
Benzo[a]pyrene	50-32-8	10.34	0.15	98
Indeno[1,2,3-cd]pyrene	193-39-5	11.70	0.10	90
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	11.98	0.10	85
Coronene	191-07-1 *	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 2.09	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	82
Acenaphthene-d10	100
Phenanthrene-d10	103
Chrysene-d12	101
Perylene-d12	101

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	93
Terphenyl-d14	65

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH306 ES 16 4.50	**Job Number:**	S15_3954
LIMS ID Number:	CL1551636	**Date Booked in:**	10-Jun-15
QC Batch Number:	150581	**Date Extracted:**	14-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	15-Jun-15
Directory:	15AMS17.PAH\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	107
Acenaphthene-d10	107
Phenanthrene-d10	111
Chrysene-d12	111
Perylene-d12	109

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	92
Terphenyl-d14	62

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polychlorinated Biphenyls (congeners)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Matrix:**	SOIL
Job Number:	S15_3954	**Date Booked in:**	10-Jun-15
QC Batch Number:	150581	**Date Extracted:**	14-Jun-15
Directory:	0615PCB.GC8	**Date Analysed:**	16-Jun-15
Method:	Ultrasonic		

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

			Concentration, (µg/kg)						
	Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
*	CL1551635	BH306 ES 8 2.00	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4

Where individual results are flagged see report notes for status.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_3954
QC Batch Number: 150581
Directory: 0615PCB.GC8
Method: Ultrasonic

Matrix: Soil Soil
Date Booked in: 10-Jun-15
Date Extracted: 14-Jun-15
Date Analysed: 16-Jun-15

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

		Concentration, (µg/kg)											
Sample ID	**Customer ID**	**PCB 81**	**PCB 77**	**PCB 123**	**PCB 118**	**PCB 114**	**PCB 105**	**PCB 126**	**PCB 167**	**PCB 156**	**PCB 157**	**PCB 169**	**PCB 189**
* CL1551635	BH306 ES 8 2.00	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	120
Sample Details:	BH306 ES 8 2.00	**Date Booked in:**	10-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1551635	**Date Extracted:**	12-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3954	**Date Analysed:**	15-Jun-15	**Directory/Quant File:**	15SVOC.MS16\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1*	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5*	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7*	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.2	-
4-Nitroaniline	100-01-6*	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5*	-	< 0.5	-
Phenanthrene	85-01-8	10.82	0.2	99
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	12.65	0.3	91
Pyrene	129-00-0	12.99	0.3	94
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	14.96	0.2	93
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
Di-n-octylphthalate	117-84-0	-	< 0.2	-
Benzo[b]fluoranthene	205-99-2	16.52	0.2	99
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1*	-	< 0.3	-

Internal Standards	% Area
1,4-Dichlorobenzene-d4	95
Naphthalene-d8	90
Acenaphthene-d10	90
Phenanthrene-d10	98
Chrysene-d12	127
Perylene-d12	169

Surrogates	% Rec
2-Fluorophenol	91
Phenol-d5	88
Nitrobenzene-d5	96
2-Fluorobiphenyl	92
2,4,6-Tribromophenol	87
Terphenyl-d14	89

"*" denotes compounds which are not UKAS accredited

Semi-Volatile Organic Compounds

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	120
Sample Details:	BH306 ES 16 4.50	**Date Booked in:**	10-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1551636	**Date Extracted:**	12-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_3954	**Date Analysed:**	15-Jun-15	**Directory/Quant File:**	15SVOC.MS16\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1*	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5*	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7*	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.2	-
4-Nitroaniline	100-01-6*	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5*	-	< 0.5	-
Phenanthrene	85-01-8	-	< 0.1	-
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1*	-	< 0.3	-

Internal Standards	% Area
1,4-Dichlorobenzene-d4	87
Naphthalene-d8	83
Acenaphthene-d10	83
Phenanthrene-d10	86
Chrysene-d12	98
Perylene-d12	111

Surrogates	% Rec
2-Fluorophenol	97
Phenol-d5	94
Nitrobenzene-d5	100
2-Fluorobiphenyl	91
2,4,6-Tribromophenol	86
Terphenyl-d14	96

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

"*" denotes compounds which are not UKAS accredited

Where individual results are flagged see report notes for status.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_3954
Directory: D:\TES\DATA\Y2015\0615HSA_GC12\150615 2015-06-15 12-13-52\044F3801.D
Method: HEADSPACE GCFID

Matrix: Soil
Date Booked in: 10-Jun-15
Date extracted: 15-Jun-15
Date Analysed: 16-Jun-15, 00:20:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1551635	BH306 ES 8 2.00	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1551636	BH306 ES 16 4.50	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: s15_3954
QC Batch Number: 150581
Directory: D:\TES\DATA\Y2013\02\061415TPH_GC3\057B1001.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

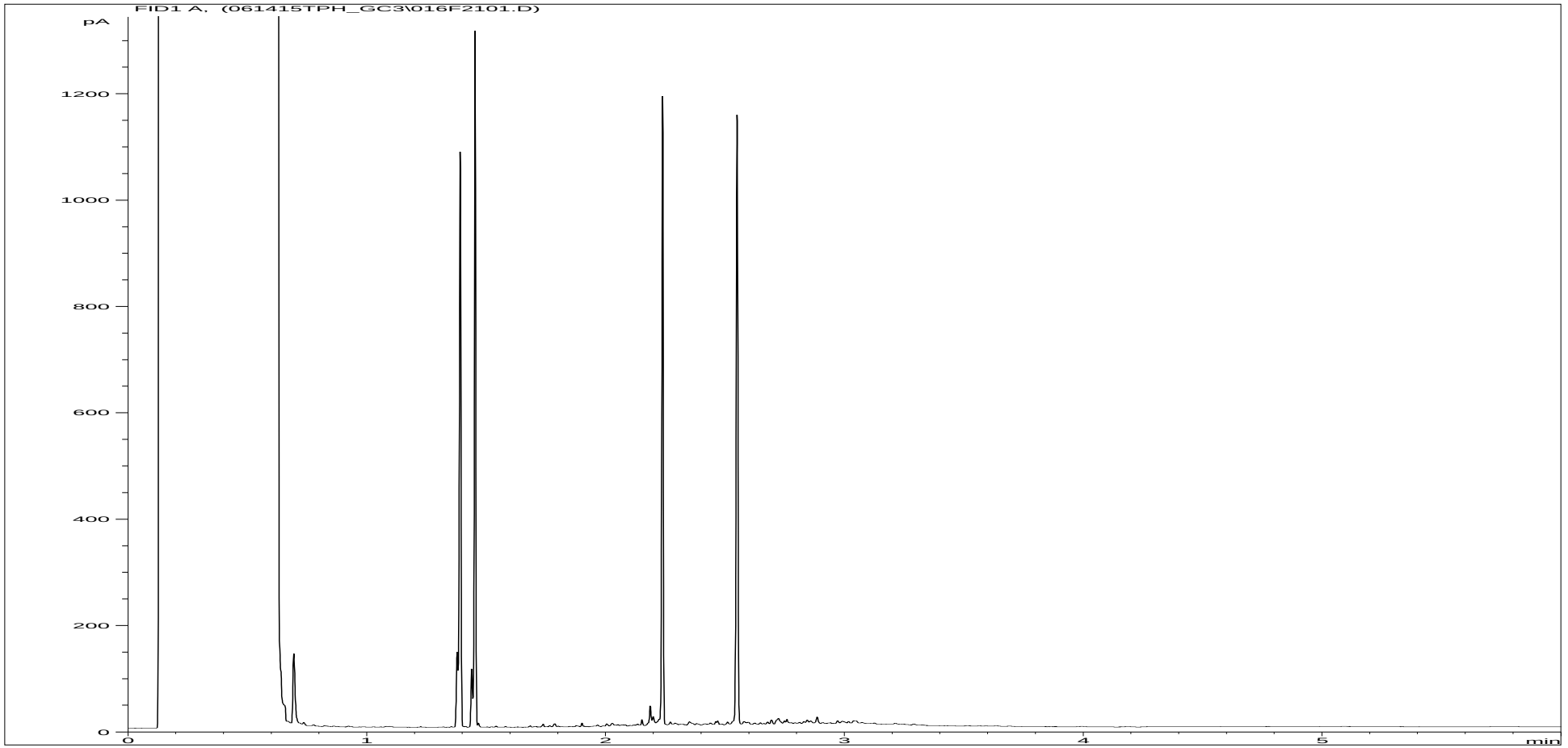
Matrix: Soil
Date Booked in: 10-Jun-15
Date Extracted: 14-Jun-15
Date Analysed: 14-Jun-15

Bands marked with a ' * ' are not UKAS Accredited

		Concentration, (mg/kg) - as wet weight												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1551635	BH306 ES 8 2.00	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	<8.76	<5.62	<20	<20
CL1551636	BH306 ES 16 4.50	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	<8.76	<5.62	<20	<20

Where individual results are flagged see report notes for status.

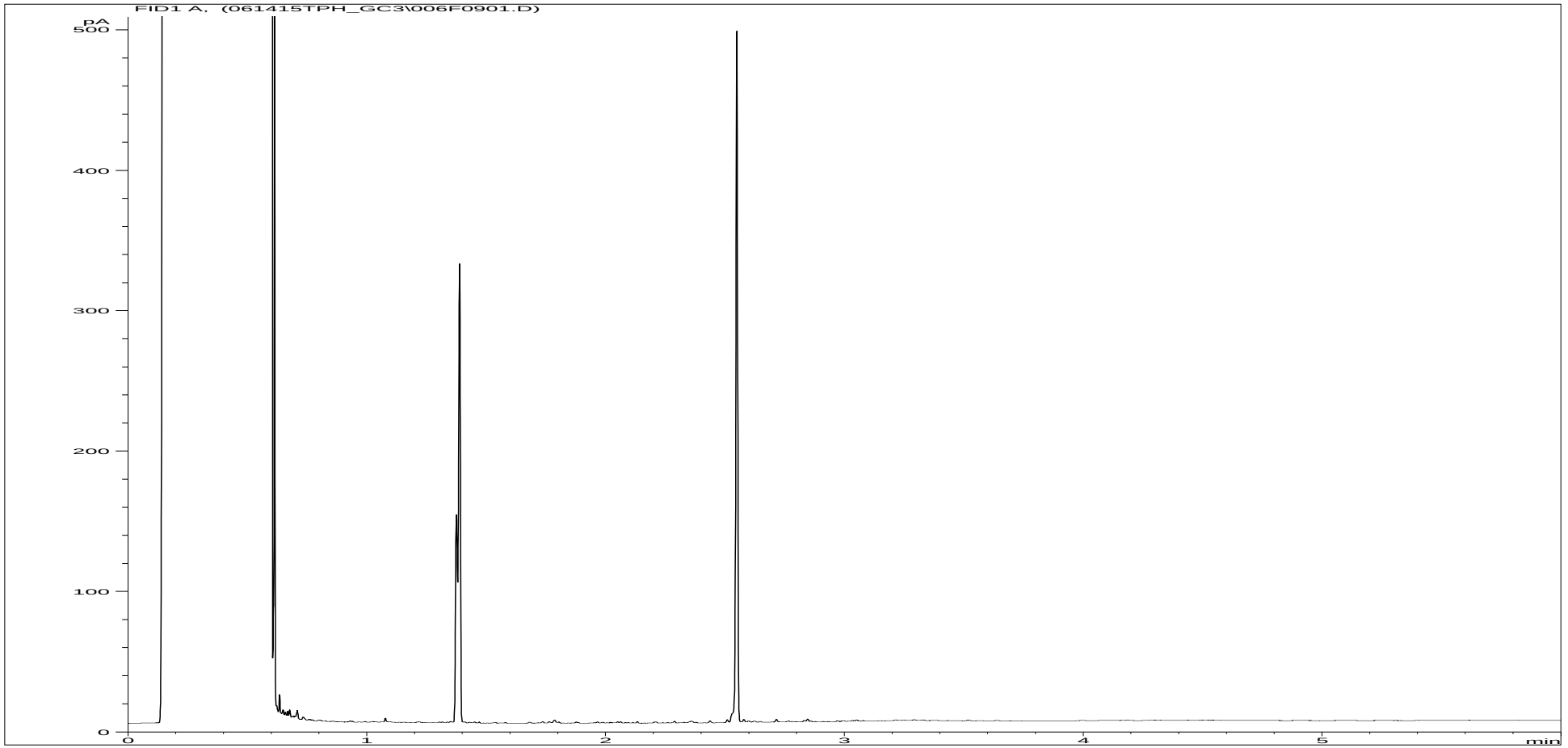
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1551635	**Job Number:**	S15_3954
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 8 2.00
Acquisition Date/Time:	14-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061415TPH_GC3\016F2101.D		

Where individual results are flagged see report notes for status.

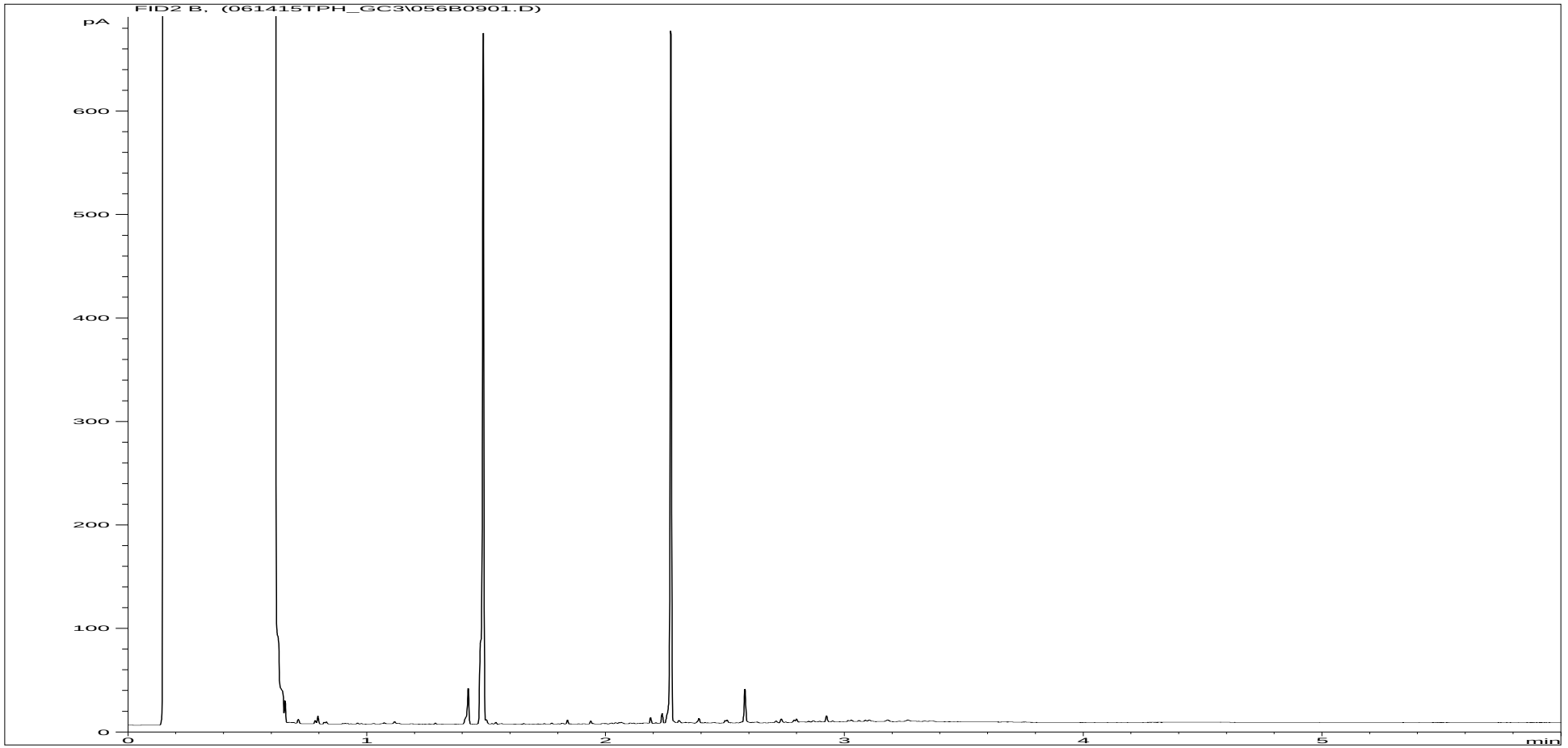
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551635ALI	**Job Number:**	s15_3954
Multiplier:	14.4	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 8 2.00
Acquisition Date/Time:	14-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061415TPH_GC3\006F0901.D		

Where individual results are flagged see report notes for status.

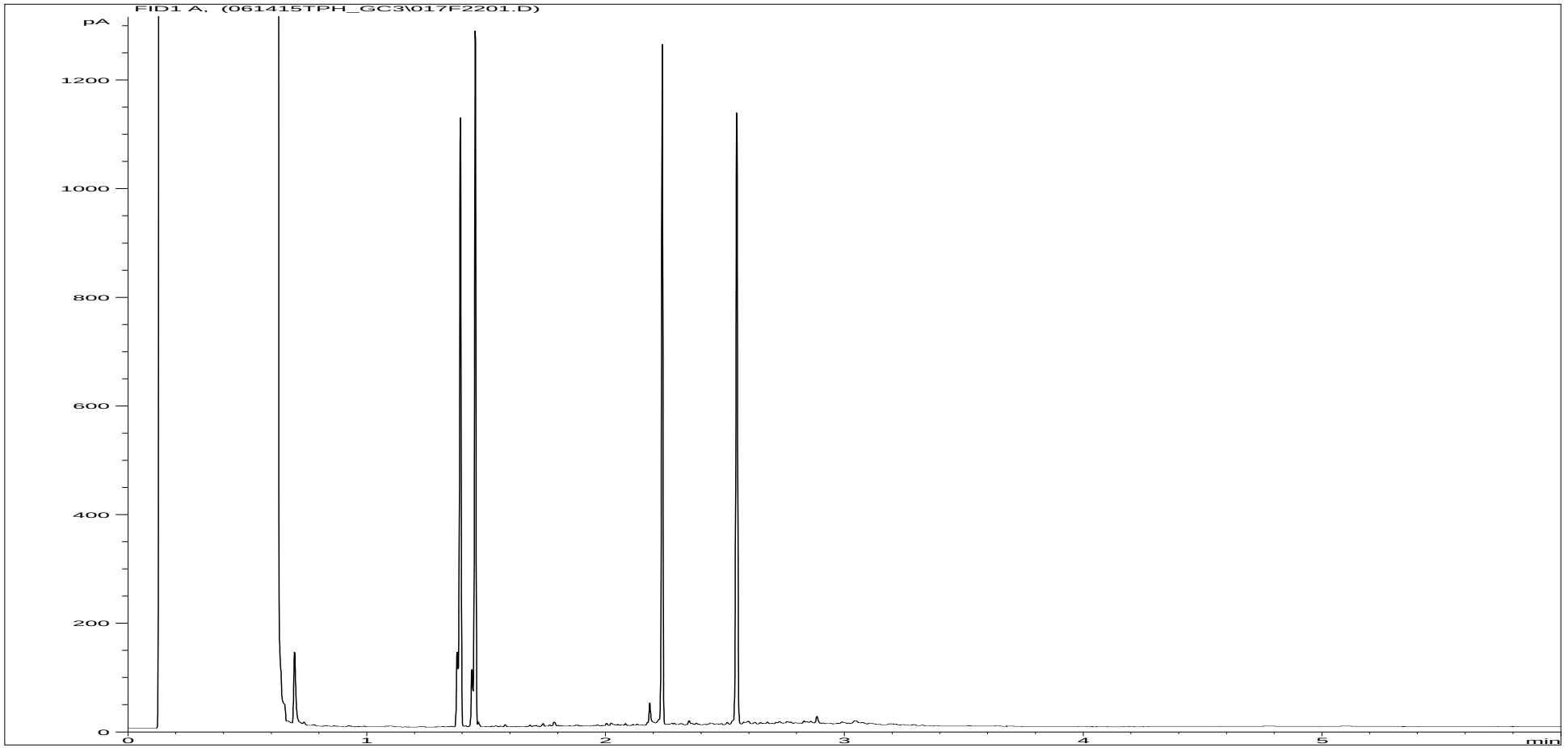
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1551635ARO	**Job Number:**	s15_3954
Multiplier:	11.36	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 8 2.00
Acquisition Date/Time:	14-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061415TPH_GC3\056B0901.D		

Where individual results are flagged see report notes for status.

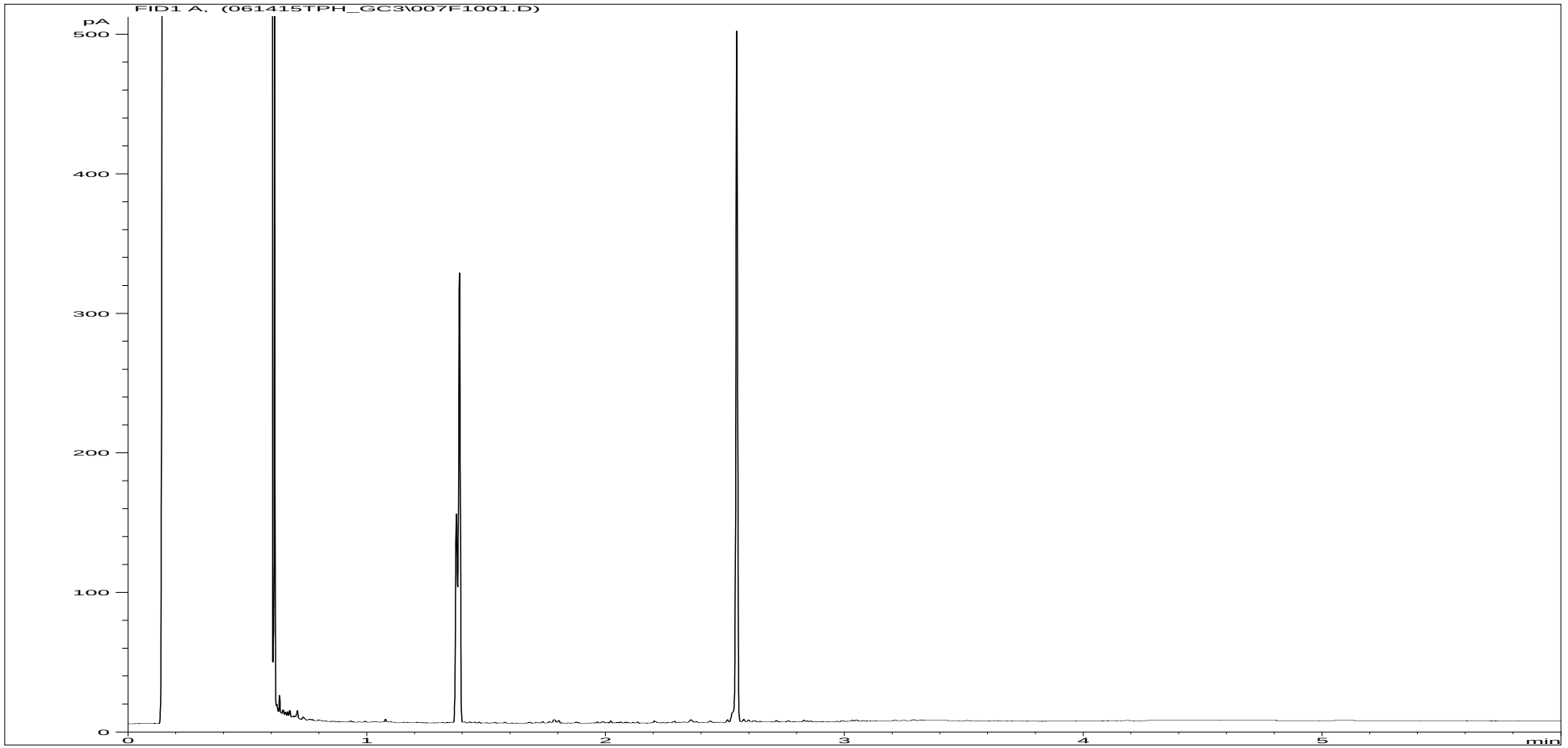
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1551636	**Job Number:**	S15_3954
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 16 4.50
Acquisition Date/Time:	14-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061415TPH_GC3\017F2201.D		

Where individual results are flagged see report notes for status.

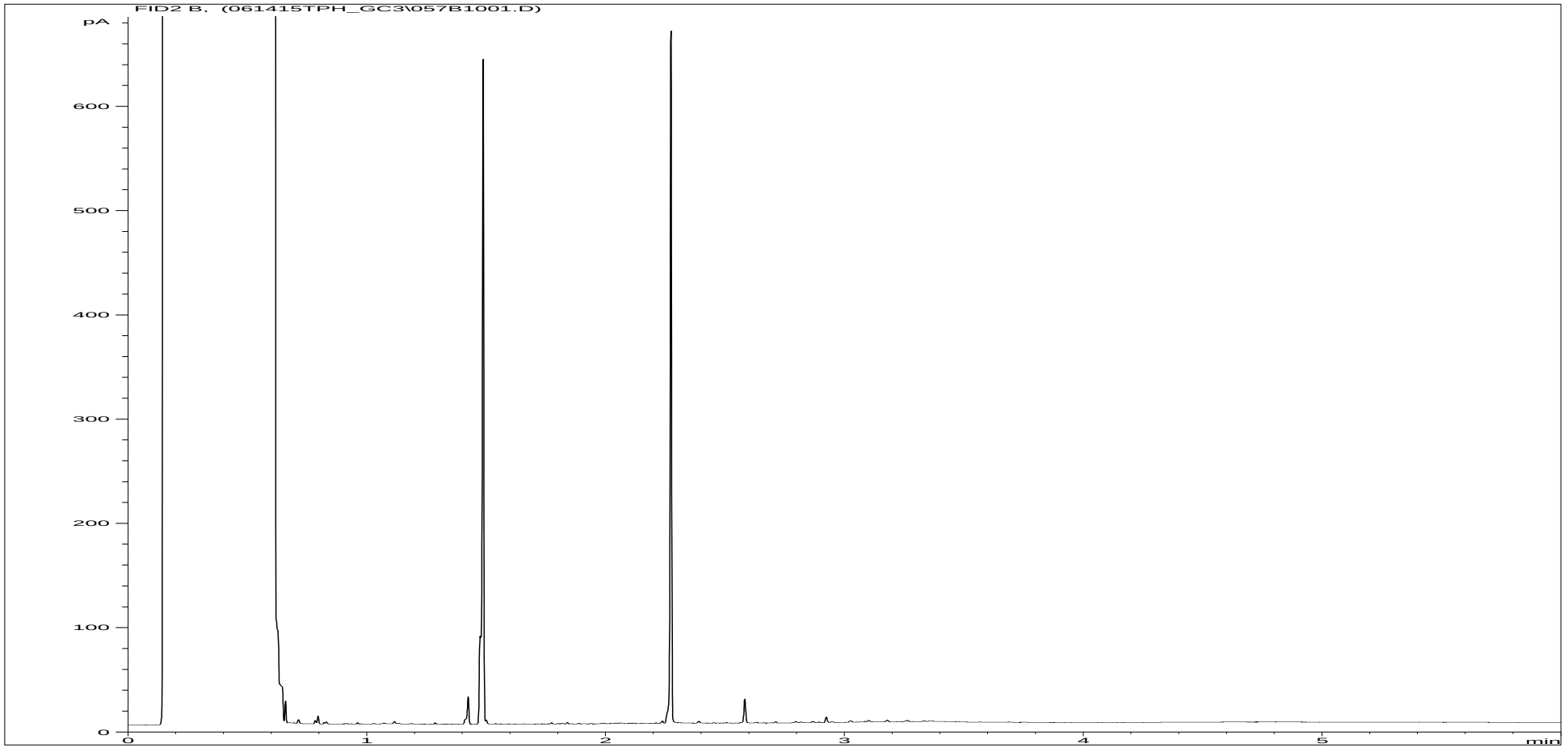
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551636ALI	**Job Number:**	s15_3954
Multiplier:	15.36	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 16 4.50
Acquisition Date/Time:	14-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061415TPH_GC3\007F1001.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1551636ARO	**Job Number:**	s15_3954
Multiplier:	11.36	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH306 ES 16 4.50
Acquisition Date/Time:	14-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061415TPH_GC3\057B1001.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0615VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH306 ES 8 2.00	**Date Booked in:**	10-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551635	**Date Analysed:**	16-Jun-15	**Multiplier:**	1
Job Number:	S15_3954	**Operator:**	PR	**Position:**	9

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	-	< 5	-
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	4.64	6	83
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	3.44	93	Dibromofluoromethane	103
1,4-Difluorobenzene	3.79	91	Toluene-d8	95
Chlorobenzene-d5	4.94	80		
Bromofluorobenzene	5.35	64		
1,4-Dichlorobenzene-d4	5.75	45		
Naphthalene-d8	6.50	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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0615VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH306 ES 16 4.50	**Date Booked in:**	10-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551636	**Date Analysed:**	16-Jun-15	**Multiplier:**	1
Job Number:	S15_3954	**Operator:**	PR	**Position:**	10

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	-	< 5	-
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	3.44	89	Dibromofluoromethane	105
1,4-Difluorobenzene	3.79	87	Toluene-d8	94
Chlorobenzene-d5	4.94	73		
Bromofluorobenzene	5.35	57		
1,4-Dichlorobenzene-d4	5.75	39		
Naphthalene-d8	6.50	14		

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.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.262
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	13.9
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.413
					Fraction of sample above 4 mm %	35.700
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH306 ES 8 2.00		s15_3954	CL/1551635	18-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1.03	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.059	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.0392	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	53	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<2.52	100		
U	PHSOIL	pH (pH units)	8.9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	7.9	7.7	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	412	167					
U	ICPMSW	Arsenic	0.003	0.005	0.006	0.05	0.5	2	25
U	ICPWATVAR	Barium	0.09	0.06	0.18	0.6	20	100	300
U	ICPMSW	Cadmium	<0.0001	0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.007	0.002	0.014	0.03	0.5	10	70
U	ICPMSW	Copper	0.012	0.008	0.024	0.09	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.03	0.009	0.06	0.12	0.5	10	30
U	ICPMSW	Nickel	0.009	0.003	0.018	0.04	0.4	10	40
U	ICPMSW	Lead	0.005	0.026	0.01	0.23	0.5	10	50
U	ICPMSW	Antimony	0.005	0.003	0.01	0.03	0.06	0.7	5
U	ICPMSW	Selenium	0.002	<0.001	0.004	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.02	0.015	0.04	0.16	4	50	200
U	KONENS	Chloride	33	6	66	96	800	15000	25000
U	ISEF	Fluoride	0.8	0.5	1.6	5	10	150	500
U	ICPWATVAR	Sulphate as SO4	41	7	82	115	1000	20000	50000
N	WSLM27	Total Dissolved Solids	528	130	1056	1831	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	13	10	26	104	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-10340**
For the attention of:	ESG Doncaster	**Report Date:**	**16/06/2015**
Site Address:	Trinity Burial Ground	**Project Number:**	**S153954**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1551635	09/06/15	BH306 2.0	16/06/2015	1395	878	0.0000	0.0000		NADIS

Keys

NAACR = Not Analysed at Clients Request

NAIIS = No Asbestos Identified in Sample (Screens Only)

*** visible to naked eye**

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name:	Tom Pratt	Authorised Signatory:
Position:	Lab Technician	[redacted]

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153954

Consignment No S48644
Date Logged 10-Jun-2015

Report Due 16-Jun-2015

ID Number	Description	MethodID	BTEXHSA	CEN Leachate		CustServ	GROHSA	ICPBOR	ICPMSS													ICPSOIL	KONECR	PAHMSUS		PCBUSECOAR	
		Sampled	MTBE (µg/kg)	CEN Leac(P)1	CEN Leac(P)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	PAH (17) by GCMS	PCB-12 Congeners Analysis	PCB-7 Congeners Analysis
			✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		
CL/1551635	BH306 2.0	09/06/15																									
CL/1551636	BH306 4.5	09/06/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S153954

Consignment No S48644
Date Logged 10-Jun-2015

Report Due 16-Jun-2015

ID Number	Description	MethodID	PHENHPLC	PHSOIL	SFAPI		Sub002	SVOCMSUS	TMSS	TPHFIDUS		TPHUSSI	VOCHSAS	WSLM59
		Sampled	Phenol - HPLC	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos ID and Quantification	SVOC by GCMS (AR)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GCFID (AR)	TPH by GCFID (Si-UKCWG)>44	VOC HSA-GCMS	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1551635	BH306 2.0	09/06/15												
CL/1551636	BH306 4.5	09/06/15												

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	BTEXHSA	As Received	Determination of Benzene, Toluene, Ethyl benzene and Xylenes (BTEX) by Headspace GCFID
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBUSECDAR	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclors by hexane/acetone extraction followed by GCECD detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
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	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 Dichloromethane/Acetone extraction followed by GCMS detection
Soil	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID 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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
Water	ICPMSW	As Received	Direct quantitative determination of Metals in water samples using ICPMS

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	ICPWATVAR	As Received	Direct determination of Metals and Sulphate in water samples using ICPOES
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
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 the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_3954

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1551635	BH306 ES 8 2.00	Brown MADE GROUND
CL/1551636	BH306 ES 16 4.50	SILT

TEST REPORT

1252

Report No. EFS/154012 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 2 samples described in this report were registered for analysis by ESG on 12-Jun-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 22-Jun-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 22-Jun-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
			Method Codes :	GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
			Method Reporting Limits :	0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
			UKAS Accredited :	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	Client Sample Description	Sample Date	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Zinc (MS)	Beryllium.	pH units (AR)	
1551955	BH307 ES 5 2.50	10-Jun-15	Req	2.7	0.4	10.6	0.21	29.7	14.2	19.1	616.8	<0.1	0.8	29.2	<0.5	78.6	0.813	7.8	
1551956	BH307 ES 15 5.35	10-Jun-15	Req	3.9	0.6	13	0.22	33.3	15.6	19.6	641	<0.1	1.1	32.8	<0.5	74.1	0.924	8.2	

ESG

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**22-Jun-2015**
Report Number	**EFS/154012**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	µg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg
Method Codes :			SFAPI	SFAPI	SVOCMSUS	TMSS	TPHFIDUS	TPHFIDUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	PCBUSECDAR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS
Method Reporting Limits :			0.5	0.5		0.2	10	10	10		0.6	0.1		0.02	5	1	2	6
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**SVOC by GCMS (AR)**	**Tot.Moisture @ 105C**	**TPH Band (>C10-C40)**	**TPH by GCFID (AR)**	**TPH by GCFID (Si:UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**PCB-7 Congeners Analysis**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**
1551955	BH307 ES 5 2.50	10-Jun-15	<0.5	<0.5	Req				Req	Req	40.6	<0.1		0.81	<5	<1	<2	<6
1551956	BH307 ES 15 5.35	10-Jun-15	<0.5	<0.5		27.9	47	48	Req	Req	45.8	<0.1	Req	1.00	<5	<1	<2	<6

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**22-Jun-2015**
Report Number	**EFS/154012**
Table Number	**1**

Where individual results are flagged see report notes for status.

		Units :	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg						
		Method Codes :	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS	PAHMSUS	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC						
		Method Reporting Limits :	4	2				0.3	0.3	0.3	0.3							
		UKAS Accredited :	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes						
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**m/p Xylenes**	**o Xylene**	**BTEX-HSA GCMS analysis**	**PAH (16) by GCMS**	**PAH (17) by GCMS**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**						
1551955	BH307 ES 5 2.50	**10-Jun-15**	<4	<2	Req	Req		<0.3	<0.3	<0.3	<0.3	<1.2						
1551956	BH307 ES 15 5.35	**10-Jun-15**	<4	<2	Req		Req											

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**22-Jun-2015**
Report Number	**EFS/154012**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH307 ES 5 2.50	**Job Number:**	S15_4012
LIMS ID Number:	CL1551955	**Date Booked in:**	12-Jun-15
QC Batch Number:	150590	**Date Extracted:**	16-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	16-Jun-15
Directory:	1615PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	102
Acenaphthene-d10	102
Phenanthrene-d10	99
Chrysene-d12	99
Perylene-d12	101

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	92
Terphenyl-d14	68

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH307 ES 15 5.35	**Job Number:**	S15_4012
LIMS ID Number:	CL1551956	**Date Booked in:**	12-Jun-15
QC Batch Number:	150590	**Date Extracted:**	16-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	16-Jun-15
Directory:	1615PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Coronene	191-07-1 *	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	99
Acenaphthene-d10	99
Phenanthrene-d10	99
Chrysene-d12	96
Perylene-d12	95

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	71

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_4012
QC Batch Number: 150590
Directory: 0616PCB.GC8
Method: Ultrasonic

Matrix: SOIL
Date Booked in: 12-Jun-15
Date Extracted: 16-Jun-15
Date Analysed: 17-Jun-15

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

			Concentration, (µg/kg)						
Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
* CL1551956	BH307 ES 15 5.35	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4	<5.4

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	124
Sample Details:	BH307 ES 5 2.50	**Date Booked in:**	12-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1551955	**Date Extracted:**	16-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_4012	**Date Analysed:**	17-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1*	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5*	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7*	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.2	-
4-Nitroaniline	100-01-6*	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5*	-	< 0.5	-
Phenanthrene	85-01-8	-	< 0.1	-
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1*	-	< 0.3	-

Internal Standards	% Area
1,4-Dichlorobenzene-d4	93
Naphthalene-d8	89
Acenaphthene-d10	86
Phenanthrene-d10	84
Chrysene-d12	88
Perylene-d12	85

Surrogates	% Rec
2-Fluorophenol	91
Phenol-d5	96
Nitrobenzene-d5	96
2-Fluorobiphenyl	95
2,4,6-Tribromophenol	79
Terphenyl-d14	95

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

"*" denotes compounds which are not UKAS accredited

Where individual results are flagged see report notes for status.

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_4012
Directory: D:\TES\DATA\Y2015\0615HSA_GC12\150615 2015-06-15 12-13-52\167B6101.D
Method: HEADSPACE GCFID

Matrix: Soil
Date Booked in: 12-Jun-15
Date extracted: 15-Jun-15
Date Analysed: 16-Jun-15, 07:37:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1551955	BH307 ES 5 2.50	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1551956	BH307 ES 15 5.35	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: s15_4012
QC Batch Number: 150590
Directory: D:\TES\DATA\Y2015\061715TPH_GC4\061715 2015-06-17 16-51-54\073B2701.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

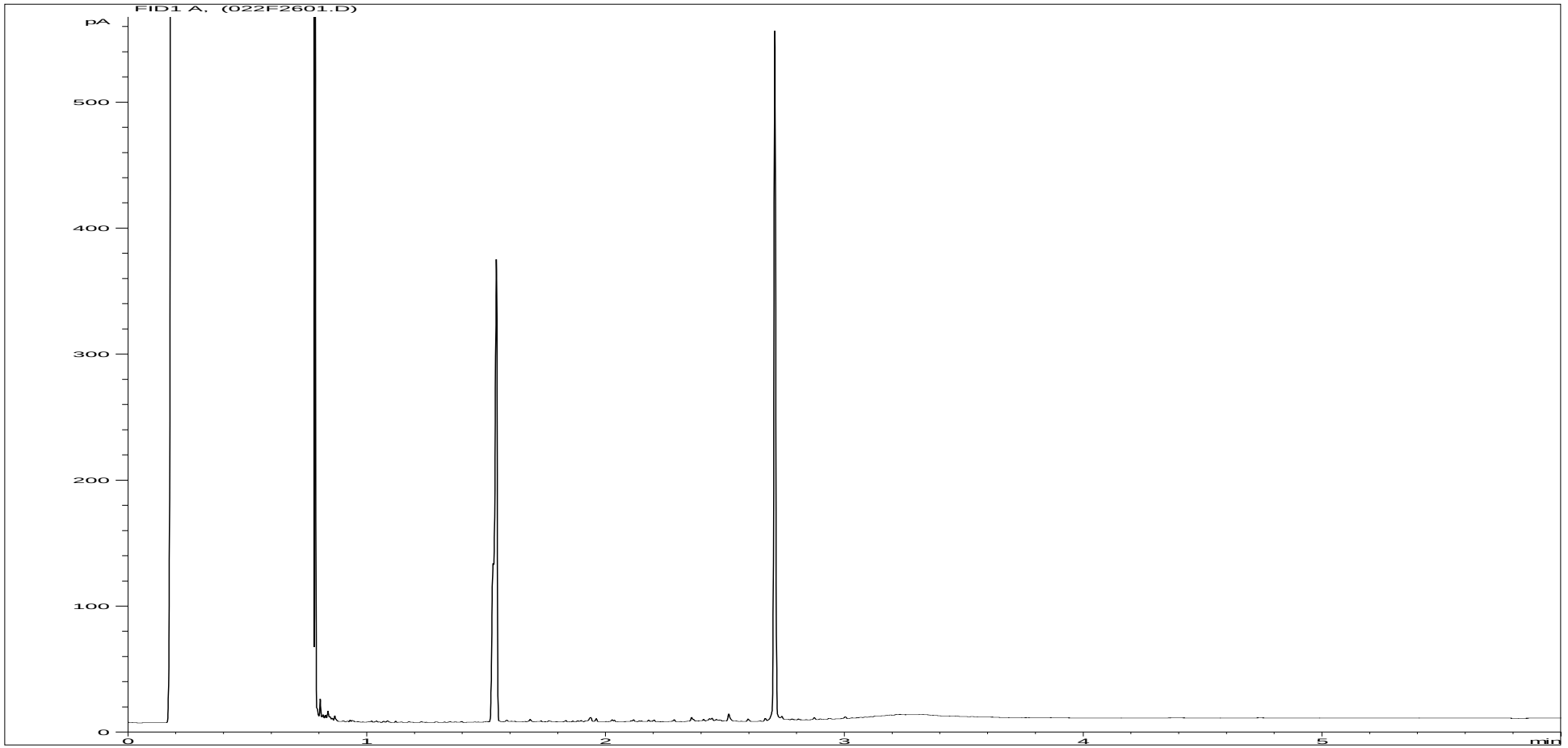
Matrix: Soil
Date Booked in: 12-Jun-15
Date Extracted: 16-Jun-15
Date Analysed: 17-Jun-15, 22:57:48

Bands marked with a ' * ' are not UKAS Accredited

		Concentration, (mg/kg) - as wet weight												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1551955	BH307 ES 5 2.50	<4	<4	<4	<4	<4	<4	16.7	<4	5.95	<8.76	18	27.8	25.1
CL1551956	BH307 ES 15 5.35	<4	<4	<4	<4	<4	<4	<11.9	<4	<5.62	<8.76	12.2	<20	<20

Where individual results are flagged see report notes for status.

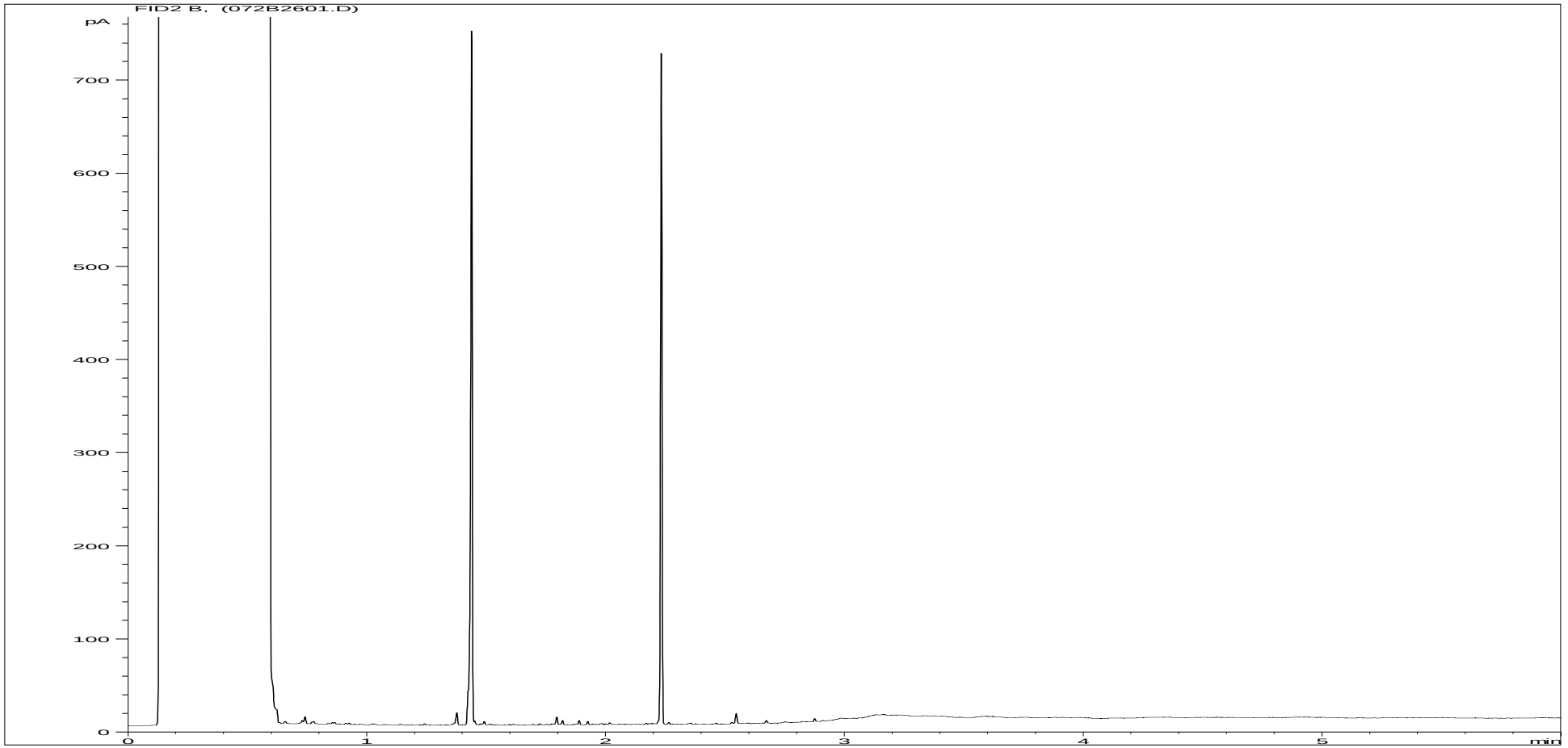
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551955ALI	**Job Number:**	s15_4012
Multiplier:	15.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 5 2.50
Acquisition Date/Time:	17-Jun-15, 22:44:11		
Datafile:	D:\TES\DATA\Y2015\061715TPH_GC4\061715 2015-06-17 16-51-54\022F2601.D		

Where individual results are flagged see report notes for status.

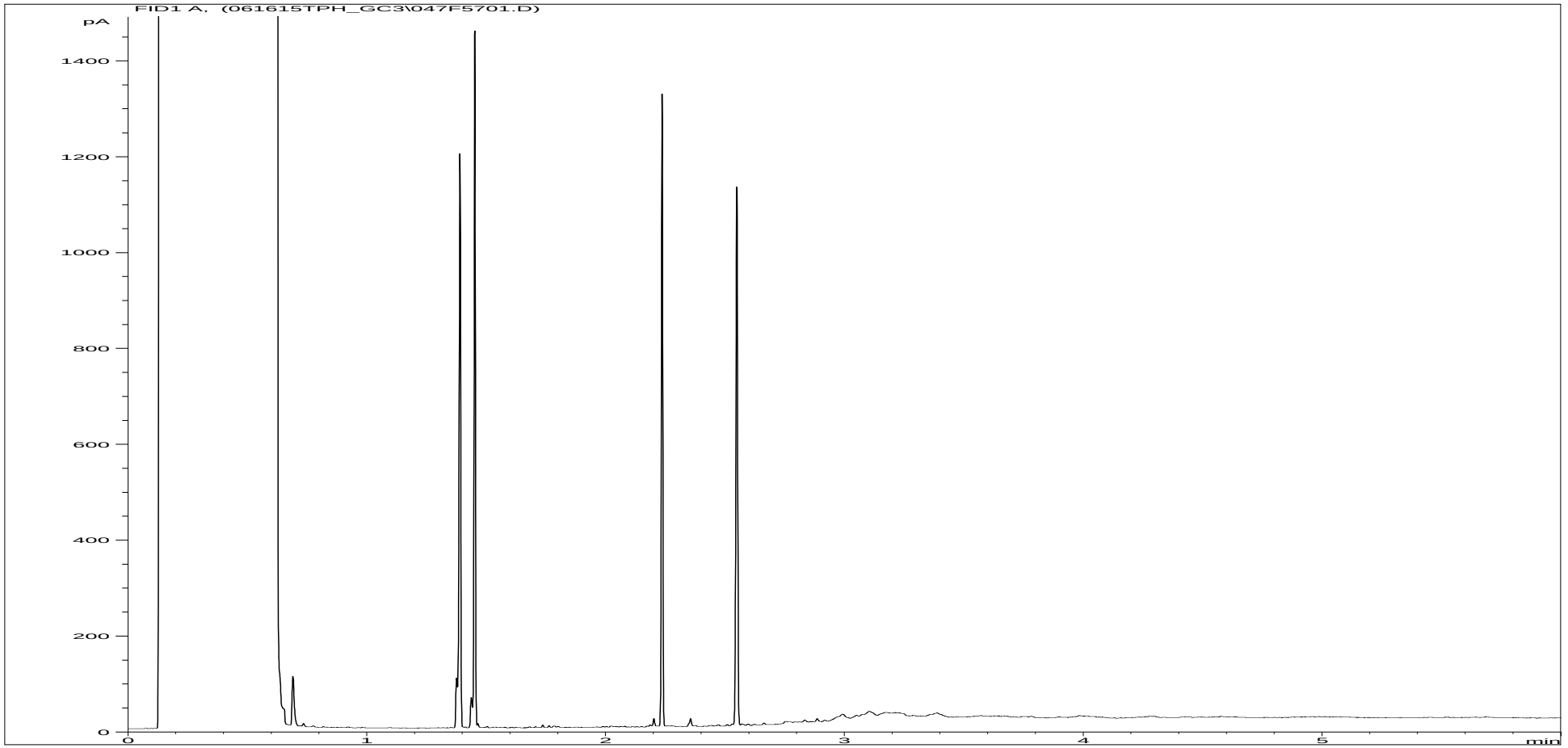
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1551955ARO	**Job Number:**	s15_4012
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 5 2.50
Acquisition Date/Time:	17-Jun-15, 22:44:11		
Datafile:	D:\TES\DATA\Y2015\061715TPH_GC4\061715 2015-06-17 16-51-54\072B2601.D		

Where individual results are flagged see report notes for status.

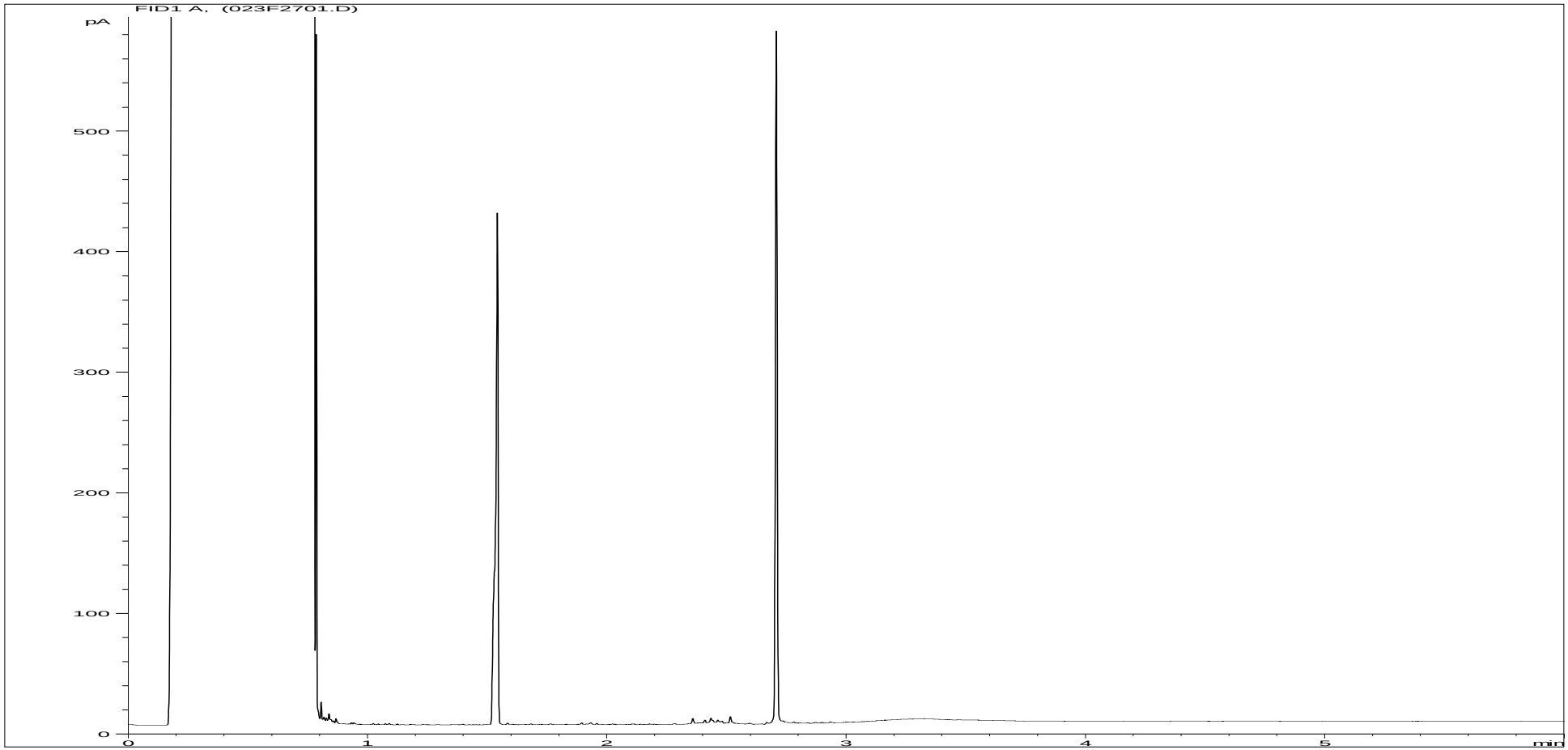
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1551956	**Job Number:**	S15_4012
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 15 5.35
Acquisition Date/Time:	16-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\061615TPH_GC3\047F5701.D		

Where individual results are flagged see report notes for status.

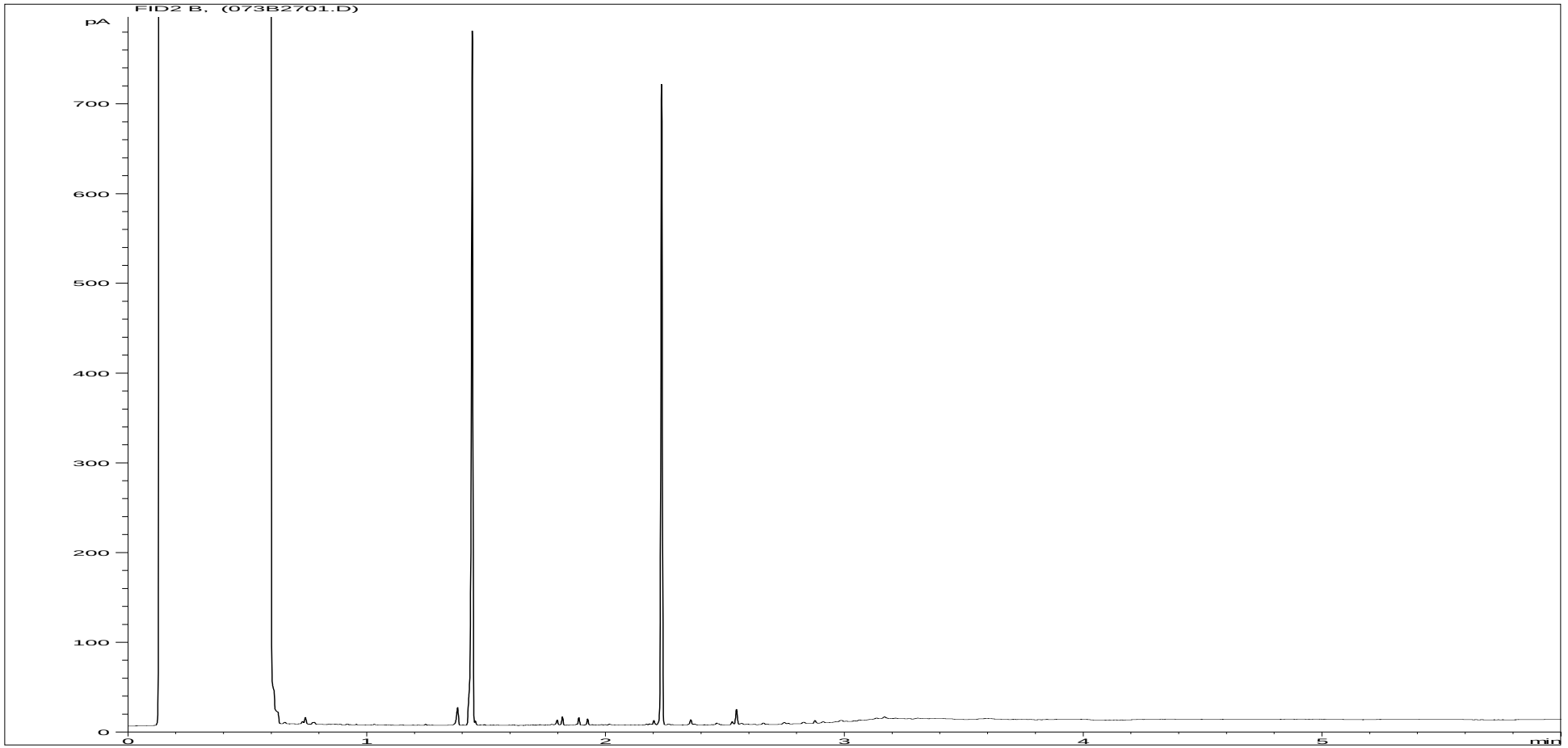
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1551956ALI	**Job Number:**	s15_4012
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 15 5.35
Acquisition Date/Time:	17-Jun-15, 22:57:48		
Datafile:	D:\TES\DATA\Y2015\061715TPH_GC4\061715 2015-06-17 16-51-54\023F2701.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1551956ARO	**Job Number:**	s15_4012
Multiplier:	12	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH307 ES 15 5.35
Acquisition Date/Time:	17-Jun-15, 22:57:48		
Datafile:	D:\TES\DATA\Y2015\061715TPH_GC4\061715 2015-06-17 16-51-54\073B2701.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0617VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH307 ES 5 2.50	**Date Booked in:**	12-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551955	**Date Analysed:**	17-Jun-15	**Multiplier:**	1
Job Number:	S15_4012	**Operator:**	PR	**Position:**	28

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	-	< 5	-
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	3.44	90	Dibromofluoromethane	105
1,4-Difluorobenzene	3.79	88	Toluene-d8	93
Chlorobenzene-d5	4.94	70		
Bromofluorobenzene	5.35	55		
1,4-Dichlorobenzene-d4	5.75	44		
Naphthalene-d8	6.50	14		

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0617VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH307 ES 15 5.35	**Date Booked in:**	12-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1551956	**Date Analysed:**	17-Jun-15	**Multiplier:**	1.05
Job Number:	S15_4012	**Operator:**	PR	**Position:**	29

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	-	< 5	-
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	3.44	93	Dibromofluoromethane	99
1,4-Difluorobenzene	3.79	89	Toluene-d8	94
Chlorobenzene-d5	4.94	71		
Bromofluorobenzene	5.35	62		
1,4-Dichlorobenzene-d4	5.75	50		
Naphthalene-d8	6.49	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.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

					Leaching Data	
Client	ESG Doncaster				Weight of sample (kg)	0.331
Contact	Mr N Cooke				Moisture content @ 105℃ (% of Wet Weight)	27.9
					Equivalent Weight based on drying at 105℃ (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.344
					Fraction of sample above 4 mm %	0.000
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH307 ES 15 5.35		s15_4012	CL/1551956	22-Jun-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.94	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.019	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.0357	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	65	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.89	100		
U	PHSOIL	pH (pH units)	8.2		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except ºº		mg/kg (dry weight)				
U	WSLM3	pH (pH units) ºº	8	8.1	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) ºº	1190	399					
U	ICPMSW	Arsenic	0.026	0.006	0.052	0.09	0.5	2	25
U	ICPWATVAR	Barium	0.2	0.04	0.4	0.6	20	100	300
U	ICPMSW	Cadmium	0.0002	<0.0001	0.0004	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.008	0.002	0.016	0.03	0.5	10	70
U	ICPMSW	Copper	0.02	0.007	0.04	0.09	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.04	0.016	0.08	0.19	0.5	10	30
U	ICPMSW	Nickel	0.008	0.003	0.016	0.04	0.4	10	40
U	ICPMSW	Lead	0.028	0.007	0.056	0.1	0.5	10	50
U	ICPMSW	Antimony	0.001	0.002	0.002	0.02	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.001	0.002	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.091	0.018	0.182	0.28	4	50	200
U	KONENS	Chloride	150	15.5	300	334	800	15000	25000
U	ISEF	Fluoride	0.6	0.2	1.2	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	71	39	142	433	1000	20000	50000
N	WSLM27	Total Dissolved Solids	925	303	1850	3859	4000	60000	100000
U	SFAPI	Phenol Index	0.05	<0.05	0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	55	12	110	177	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S154012

Consignment No S48534
Date Logged 12-Jun-2015

Report Due 18-Jun-2015

ID Number	Description	MethodID	CEN Leachate		CustServ	GROHSA	ICPBOR	ICPMSS												ICPSOIL	KONECR	PAHMSUS		PCBUSECDAR	PHEHPLC	PHSOIL
		Sampled	CEN Leac(P)1	CEN Leac(P)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	PAH (17) by GCMS	PCB-7 Congeners Analysis	Phenol - HPLC	pH units (AR)
						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓	✓
CL/1551955	BH307 2.5	10/06/15																									
CL/1551956	BH307 5.35	10/06/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154012

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S154012

Consignment No S48534
Date Logged 12-Jun-2015

Report Due 18-Jun-2015

ID Number	Description	MethodID	SFAPI		SVOCMSUS	TMSS	TPHFIDUS		TPHUSSI	VOCHSAS			WSLM59
		Sampled	Cyanide(Total) (AR)	Phenol Index.(AR)	SVOC by GCMS (AR)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GCFID (AR)	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1551955	BH307 2.5	10/06/15											
CL/1551956	BH307 5.35	10/06/15											

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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/1551955	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBUSECDAR	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclors by hexane/acetone extraction followed by GCECD detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
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	SVOCMSUS	As Received	Determination of Semi Volatile Organic Compounds in soil samples by Dichloromethane/Acetone extraction followed by GCMS detection
Soil	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID 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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
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	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
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 the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_4012

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1551955	BH307 ES 5 2.50	SILT
CL/1551956	BH307 ES 15 5.35	Brown CLAY

TEST REPORT

1252

Report No. EFS/154083 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 2 samples described in this report were registered for analysis by ESG on 17-Jun-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 23-Jun-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]

Managing Director
Multi-Sector Services

Date of Issue: 23-Jun-2015

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

Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected. ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
		Method Codes :	GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
		Method Reporting Limits :	0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
		UKAS Accredited :	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	Client Sample Description	Sample Date	GRO (AA) by HSA GC-FID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Zinc (MS)	Beryllium.	pH units (AR)
1552267	BH302 ES 6 2.00	12-Jun-15	Req	2.2	0.5	10.3	0.27	31.5	17.4	35.5	573.4	0.1	1	28.4	<0.5	138.7	0.855	8.1
1552268	BH302 ES 10 3.50	12-Jun-15	Req	3.1	0.4	10.1	0.25	29.8	15	27.5	675.8	<0.1	0.8	28.2	<0.5	114.4	0.799	8.0

ESG

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**23-Jun-2015**
Report Number	**EFS/154083**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	% M/M	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg
Method Codes :			SFAPI	SFAPI	SVOCMSUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	WSLM59	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS
Method Reporting Limits :			0.5	0.5		20		0.6	0.1	0.02	5	1	2	6	4	2		
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**SVOC by GCMS (AR)**	**TPH by GCFID (AR/Si)**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**Total Organic Carbon**	**Toluene**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**BTEX-HSA GCMS analysis**	**PAH (16) by GCMS**
1552267	BH302 ES 6 2.00	12-Jun-15	<0.5	<0.5	Req	Req	Req	43.5	<0.1	0.89	<5	<1	<2	<6	<4	<2	Req	Req
1552268	BH302 ES 10 3.50	12-Jun-15	<0.5	<0.5		Req		41.5	<0.1	1.03	<5	<1	<2	<6	<4	<2	Req	Req

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Client Name ESG Doncaster

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**23-Jun-2015**
Report Number	**EFS/154083**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg											
Method Codes :			PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC											
Method Reporting Limits :			0.3	0.3	0.3	0.3												
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes											
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**											
1552267	BH302 ES 6 2.00	**12-Jun-15**	<0.3	<0.3	<0.3	<0.3	<1.2											
1552268	BH302 ES 10 3.50	**12-Jun-15**	<0.3	<0.3	<0.3	<0.3	<1.2											

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**23-Jun-2015**
Report Number	**EFS/154083**
Table Number	**1**

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH302 ES 6 2.00	**Job Number:**	S15_4083
LIMS ID Number:	CL1552267	**Date Booked in:**	17-Jun-15
QC Batch Number:	150602	**Date Extracted:**	19-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	20-Jun-15
Directory:	15AMS17.PAH\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	97
Acenaphthene-d10	99
Phenanthrene-d10	104
Chrysene-d12	118
Perylene-d12	125

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	97
Terphenyl-d14	71

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH302 ES 10 3.50	**Job Number:**	S15_4083
LIMS ID Number:	CL1552268	**Date Booked in:**	17-Jun-15
QC Batch Number:	150602	**Date Extracted:**	19-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	20-Jun-15
Directory:	15AMS17.PAH\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	92
Acenaphthene-d10	91
Phenanthrene-d10	96
Chrysene-d12	110
Perylene-d12	117

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	100
Terphenyl-d14	71

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Semi-Volatile Organic Compounds

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	129
Sample Details:	BH302 ES 6 2.00	**Date Booked in:**	17-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1552267	**Date Extracted:**	19-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_4083	**Date Analysed:**	19-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7	-	< 0.1	-
Benzyl alcohol	100-51-6	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1*	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5*	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7*	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.2	-
4-Nitroaniline	100-01-6*	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1	-	< 0.1	-
Pentachlorophenol	87-86-5*	-	< 0.5	-
Phenanthrene	85-01-8	-	< 0.1	-
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2	-	< 0.1	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1*	-	< 0.3	-

Internal Standards	% Area
1,4-Dichlorobenzene-d4	70
Naphthalene-d8	72
Acenaphthene-d10	74
Phenanthrene-d10	77
Chrysene-d12	79
Perylene-d12	73

Surrogates	% Rec
2-Fluorophenol	94
Phenol-d5	103
Nitrobenzene-d5	96
2-Fluorobiphenyl	88
2,4,6-Tribromophenol	85
Terphenyl-d14	92

Concentrations are reported on a wet weight basis.

"M" denotes that % fit has been manually interpreted

"*" denotes compounds which are not UKAS accredited

Where individual results are flagged see report notes for status.

Gasoline Range Organics
(BTEX and Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_4083
Directory: D:\TES\DATA\Y2015\0618HSA_GC12\150618A 2015-06-18 13-54-23\022F1601.D
Method: Headspace GCFID

Matrix: Soil
Date Booked in: 17-Jun-15
Date extracted: 18-Jun-15
Date Analysed: 18-Jun-15, 19:0

*** Sample data with an asterisk are not UKAS accredited.**

		Concentration, (mg/kg) - as wet weight					Aliphatics				
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**m/p-Xylene**	**o-Xylene**	**C5 - C6**	**>C6 - C7**	**>C7 - C8**	**>C8 - C10**	**Total GRO**
CL1552267	BH302 ES 6 2.00	<0.010	<0.010	<0.010	<0.010	<0.010	<0.2	<0.2	<0.2	<0.2	<0.2
CL1552268	BH302 ES 10 3.50	<0.010	<0.010	<0.010	<0.010	<0.010	<0.2	<0.2	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_4083
QC Batch Number: 150602
Directory: D:\TES\DATA\Y2015\062015TPH_GC4\062015 2015-06-20 10-14-51\073B2801.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

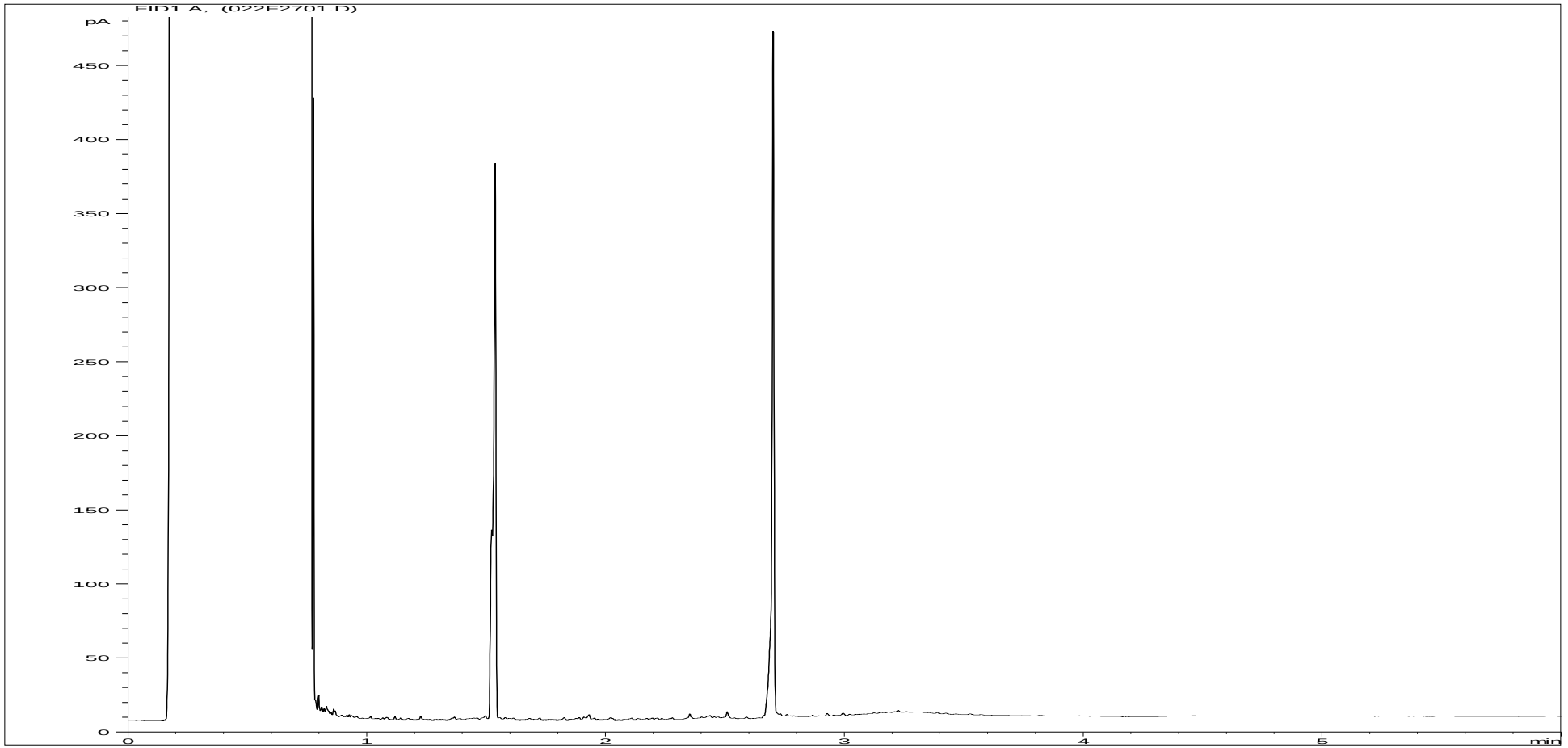
Matrix: Soil
Date Booked in 17-Jun-15
Date Extracted 19-Jun-15
Date Analysed: 20-Jun-15, 16:25:54

*** 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**
CL1552267	BH302 ES 6 2.00	<4	<4	<4	<4	<4	<4	<4	<4	<8.76	<8.76	<20	<20
CL1552268	BH302 ES 10 3.50	<4	<4	<4	<4	<4	<4	<4	<4	<8.76	<8.76	<20	<20

Where individual results are flagged see report notes for status.

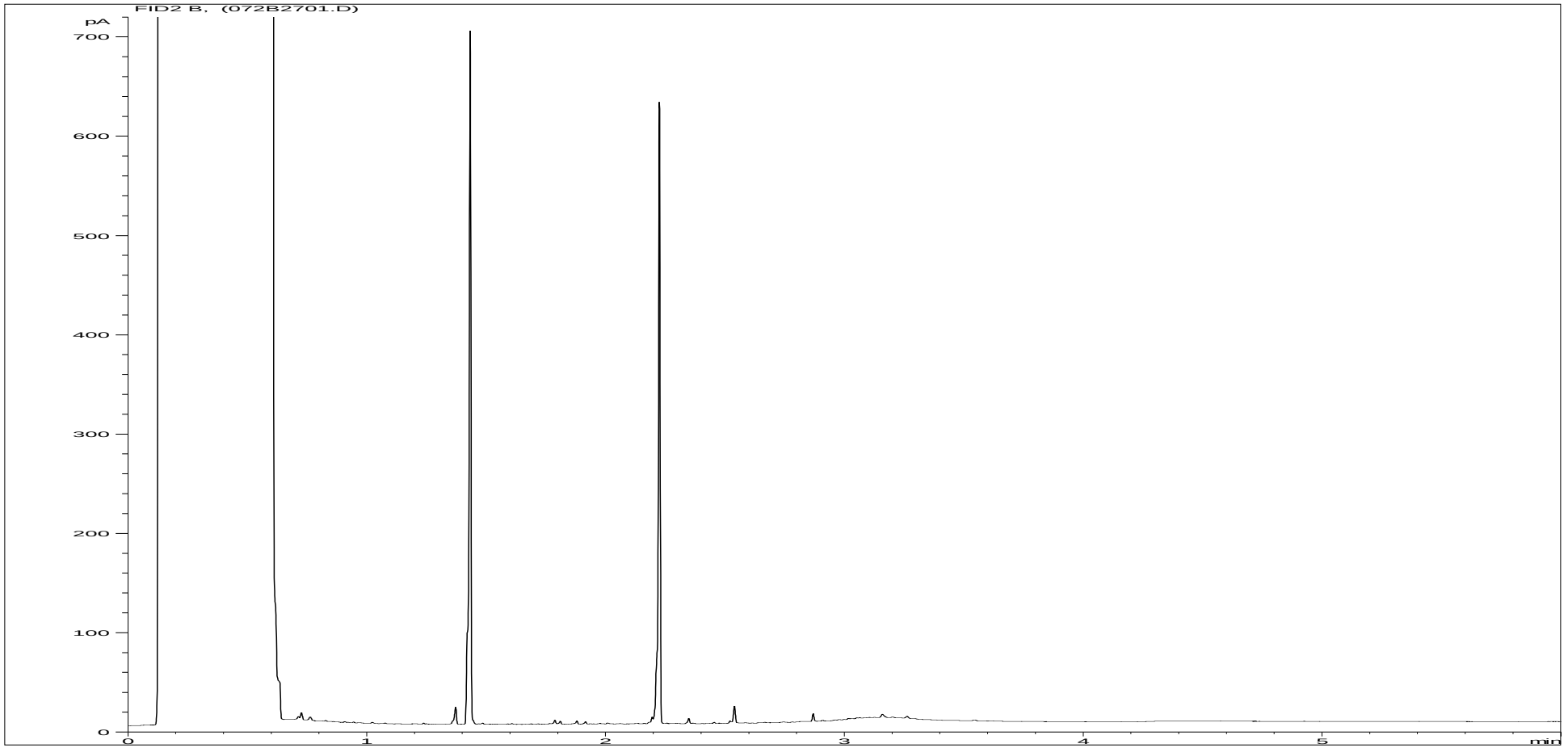
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1552267ALI	**Job Number:**	S15_4083
Multiplier:	15.36	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 6 2.00
Acquisition Date/Time:	20-Jun-15, 16:12:18		
Datafile:	D:\TES\DATA\Y2015\062015TPH_GC4\062015 2015-06-20 10-14-51\022F2701.D		

Where individual results are flagged see report notes for status.

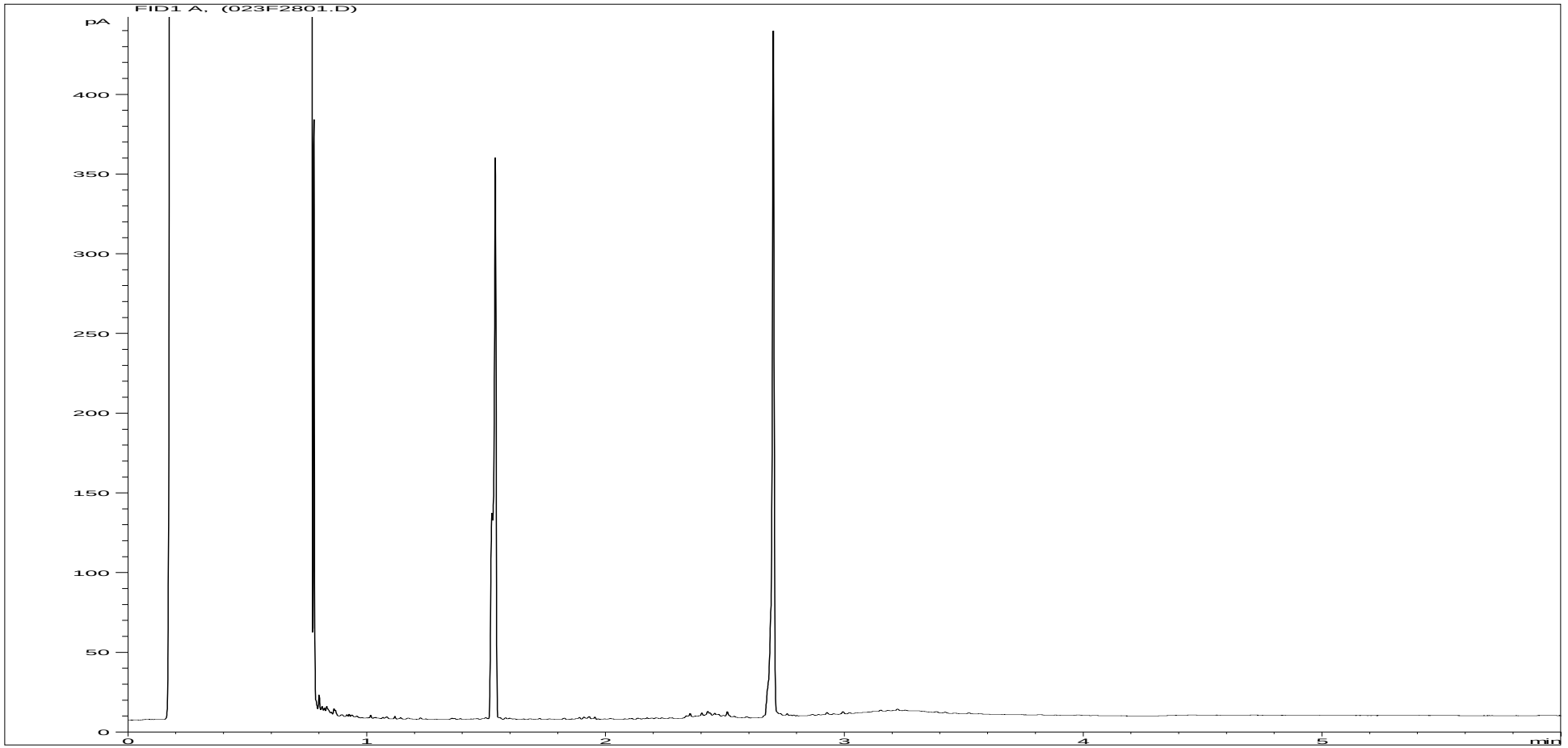
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1552267ARO	**Job Number:**	S15_4083
Multiplier:	11.52	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 6 2.00
Acquisition Date/Time:	20-Jun-15, 16:12:18		
Datafile:	D:\TES\DATA\Y2015\062015TPH_GC4\062015 2015-06-20 10-14-51\072B2701.D		

Where individual results are flagged see report notes for status.

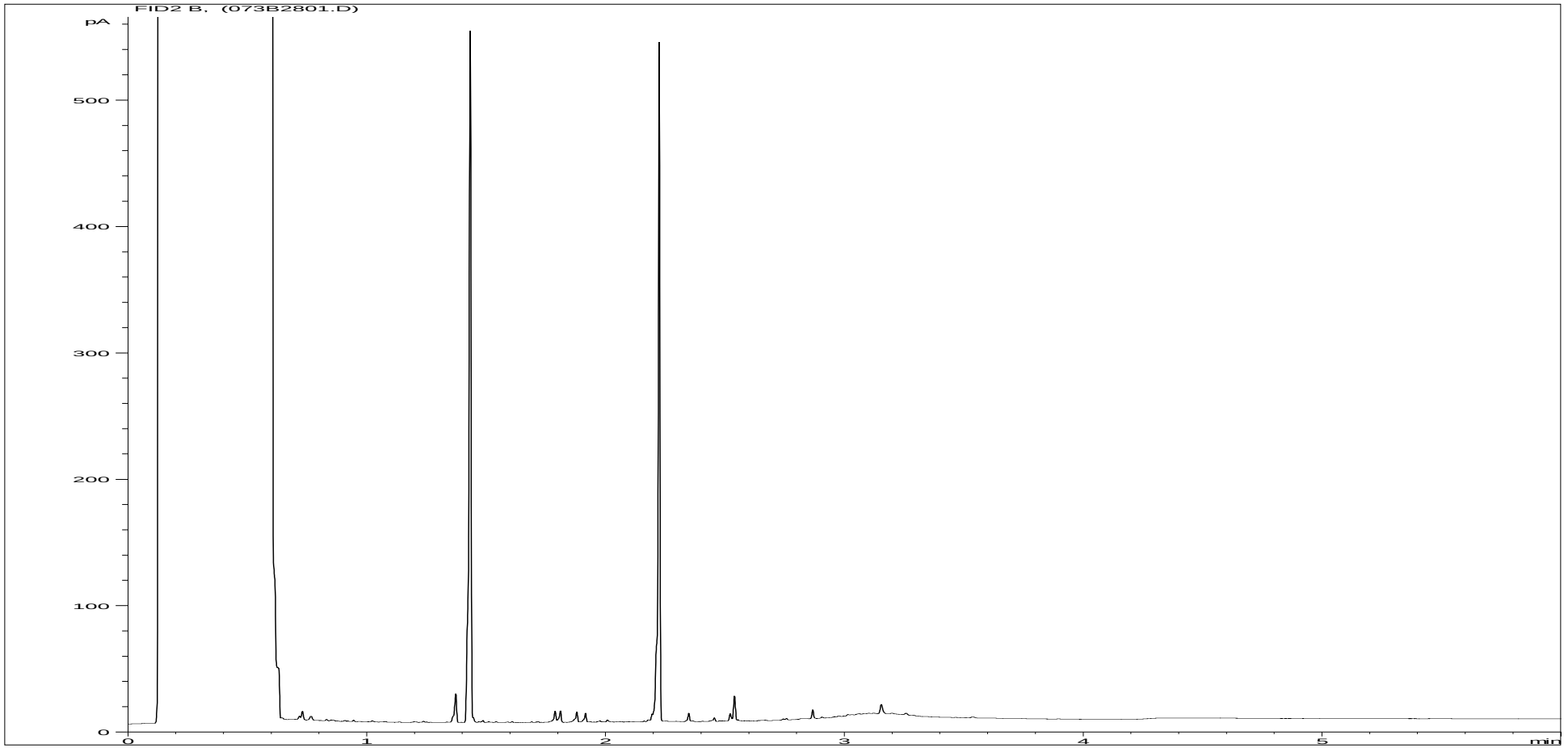
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1552268ALI	**Job Number:**	S15_4083
Multiplier:	15.36	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 10 3.50
Acquisition Date/Time:	20-Jun-15, 16:25:54		
Datafile:	D:\TES\DATA\Y2015\062015TPH_GC4\062015 2015-06-20 10-14-51\023F2801.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1552268ARO	**Job Number:**	S15_4083
Multiplier:	11.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH302 ES 10 3.50
Acquisition Date/Time:	20-Jun-15, 16:25:54		
Datafile:	D:\TES\DATA\Y2015\062015TPH_GC4\062015 2015-06-20 10-14-51\073B2801.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0617VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH302 ES 6 2.00	**Date Booked in:**	17-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1552267	**Date Analysed:**	18-Jun-15	**Multiplier:**	1.06
Job Number:	S15_4083	**Operator:**	PR	**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	-	< 5	-
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	3.44	94	Dibromofluoromethane	103
1,4-Difluorobenzene	3.79	92	Toluene-d8	94
Chlorobenzene-d5	4.94	81		
Bromofluorobenzene	5.35	69		
1,4-Dichlorobenzene-d4	5.75	59		
Naphthalene-d8	6.49	20		

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.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154083

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S154083

Consignment No S48732
Date Logged 17-Jun-2015

Report Due 23-Jun-2015

ID Number	Description	MethodID	CustServ	GROHSA	ICPBOR	ICPMSS											ICPSOIL	KONECR	PAHMSUS	PHEHPLC	PHSOIL	SFAPI		SVOCMSUS	TPHUSSI
		Sampled	REPORT A	GRO (AA) by HSA GC-FID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	Phenol - HPLC	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	SVOC by GCMS (AR)	TPH by GCFID (AR/Si)
				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
CL/1552267	BH302 2.0	12/06/15																									
CL/1552268	BH302 3.5	12/06/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154083

Customer **ESG Doncaster**
Site **Trinity Burial Ground**
Report No **S154083**

Consignment No S48732
Date Logged 17-Jun-2015

Report Due 23-Jun-2015

ID Number	Description	MethodID	VOCHSAS			WSLM59
		Sampled	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	✓	
CL/1552267	BH302 2.0	12/06/15				
CL/1552268	BH302 3.5	12/06/15				

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35℃	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35℃	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35℃	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
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	SVOCMSUS	As Received	Determination of Semi Volatile Organic Compounds in soil samples by Dichloromethane/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
Soil	WSLM59	Oven Dried @ < 35℃	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection

Report Notes

Generic Notes

Soil/Solid Analysis

Unless stated otherwise,
- Results expressed as mg/kg have been calculated on the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_4083

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1552267	BH302 ES 6 2.00	CLAY
CL/1552268	BH302 ES 10 3.50	CLAY

TEST REPORT

UKAS TESTING
1252

Report No. EFS/154213 (Ver. 1)

ESG Doncaster
ESG Doncaster
Askern Road
Carcroft
Doncaster
DN6 8DG

Site: Trinity Burial Ground

The 3 samples described in this report were registered for analysis by ESG on 23-Jun-2015. This report supersedes any versions previously issued by the laboratory.
The analysis was completed by: 01-Jul-2015

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

The following tables are contained in this report:

On behalf of
ESG :
Declan Burns

[redacted]
Managing Director
Multi-Sector Services

Date of Issue: 01-Jul-2015

Tests marked '^' have been subcontracted to another laboratory.
Where samples have been flagged as deviant on the Analytical and Deviating Sample Overview, for any reason, the data may not be representative of the sample at the point of sampling and the validity of the data may be affected.
ESG 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	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	pH Units
Method Codes :			GROHSA	ICPBOR	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPMSS	ICPSOIL	PHSOIL
Method Reporting Limits :			0.2	0.5	0.1	0.3	0.1	0.5	0.5	0.5	1	0.1	0.5	0.5	0.5	3	0.1	
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**GRO (AA-UK) HSA-GCFID**	**Boron (H20 Soluble)**	**Antimony (MS)**	**Arsenic (MS)**	**Cadmium (MS)**	**Chromium (MS)**	**Copper (MS)**	**Lead (MS)**	**Manganese (MS)**	**Mercury (MS)**	**Molybdenum (MS)**	**Nickel (MS)**	**Selenium (MS)**	**Zinc (MS)**	**Beryllium.**	**pH units (AR)**
1552893	BH308 ES 2 1.40	**19-Jun-15**	Req	4	0.6	11.8	0.25	38.5	25.9	53	630.8	<0.1	1.5	39.6	0.7	101.4	1.15	8.1
1552894	BH308 ES 11 6.00	**19-Jun-15**	Req	4.5	0.3	8.2	0.21	21.3	10.8	13.7	532.4	<0.1	0.6	21.6	0.6	52.3	0.554	8.2
1552895	BH308 ES 17 8.50	**19-Jun-15**	Req	6.5	0.4	11.7	0.24	24.4	12.8	15	618.7	<0.1	0.8	26.4	0.7	65.7	0.712	8.6

Bretby Business Park, Ashby Road

Burton-on-Trent, Staffordshire, DE15 0YZ

Tel +44 (0) 1283 554400

Fax +44 (0) 1283 554422

Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**01-Jul-2015**
Report Number	**EFS/154213**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			mg/kg	mg/kg	%	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	mg/kg	mg/kg	µg/kg	µg/kg	% M/M	µg/kg
Method Codes :			SFAPI	SFAPI	Sub002	SVOCMSUS	TMSS	TPHFIDUS	TPHFIDUS	TPHFIDUS	TPHUSSI	VOCHSAS	ICPMSS	KONECR	PCBUSECDAR	PCBUSECDAR	WSLM59	VOCHSAS
Method Reporting Limits :			0.5	0.5			0.2	10	10	10	10		0.6	0.1			0.02	5
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No	Yes
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Cyanide(Total) (AR)**	**Phenol Index.(AR)**	**^Asbestos ID and Quantification**	**SVOC by GCMS (AR)**	**Tot.Moisture @ 105C**	**TPH Band (>C10-C40)**	**TPH by GCFID (AR)**	**TPH Carbon Banding.**	**TPH by GCFID (Si-UKCWG)>44**	**VOC HSA-GCMS**	**Vanadium (MS)**	**Chromium vi:**	**PCB-12 Congeners Analysis**	**PCB-7 Congeners Analysis**	**Total Organic Carbon**	**Toluene**
1552893	BH308 ES 2 1.40	**19-Jun-15**	<0.5	<0.5	NADIS	Req	17.8	98	99	Req	Req	Req	54	<0.1	Req	Req	1.36	<5
1552894	BH308 ES 11 6.00	**19-Jun-15**	<0.5	<0.5		Req					Req	Req	31.3	<0.1			0.86	<5
1552895	BH308 ES 17 8.50	**19-Jun-15**	<0.5	<0.5		Req	30.5	37	38	Req	Req	Req	35.5	<0.1		Req	0.91	<5

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Client Name **ESG Doncaster**

Contact Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**01-Jul-2015**
Report Number	**EFS/154213**
Table Number	**1**

Where individual results are flagged see report notes for status.

Units :			µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	µg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			
Method Codes :			VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	VOCHSAS	PAHMSUS	PAHMSUS	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC	PHEHPLC			
Method Reporting Limits :			1	2	6	4	2				0.3	0.3	0.3	0.3				
UKAS Accredited :			Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
LAB ID Number CL/	**Client Sample Description**	**Sample Date**	**Benzene**	**Ethyl Benzene**	**Xylenes**	**m/p Xylenes**	**o Xylene**	**BTEX-HSA GCMS analysis**	**PAH (16) by GCMS**	**PAH (17) by GCMS**	**Phenol**	**Cresols**	**Xylenols**	**Trimethylphenols**	**Total Phenols**			
1552893	BH308 ES 2 1.40	**19-Jun-15**	<1	<2	<6	<4	<2	Req		Req	<0.3	<0.3	<0.3	<0.3	<1.2			
1552894	BH308 ES 11 6.00	**19-Jun-15**	<1	<2	<6	<4	<2	Req	Req									
1552895	BH308 ES 17 8.50	**19-Jun-15**	<1	<2	<6	<4	<2	Req		Req								

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Client Name	**ESG Doncaster**
Contact	Mr N Cooke

Trinity Burial Ground

Sample Analysis

Date Printed	**01-Jul-2015**
Report Number	**EFS/154213**
Table Number	**1**

Where individual results are flagged see report notes for status.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH308 ES 2 1.40	**Job Number:**	S15_4213
LIMS ID Number:	CL1552893	**Date Booked in:**	23-Jun-15
QC Batch Number:	150623	**Date Extracted:**	25-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	26-Jun-15
Directory:	2515PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	4.61	0.33	99
Anthracene	120-12-7	4.65	0.09	98
Fluoranthene	206-44-0	5.71	0.48	94
Pyrene	129-00-0	5.94	0.40	95
Benzo[a]anthracene	56-55-3	7.48	0.27	93
Chrysene	218-01-9	7.52	0.29	97
Benzo[b]fluoranthene	205-99-2	8.93	0.33	92
Benzo[k]fluoranthene	207-08-9	8.96	0.12	92
Benzo[a]pyrene	50-32-8	9.33	0.21	99
Indeno[1,2,3-cd]pyrene	193-39-5	10.68	0.16	93
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	10.95	0.16	84
Coronene	191-07-1 *	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 3.24	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	73
Acenaphthene-d10	104
Phenanthrene-d10	104
Chrysene-d12	103
Perylene-d12	109

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	102
Terphenyl-d14	70

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH308 ES 11 6.00	**Job Number:**	S15_4213
LIMS ID Number:	CL1552894	**Date Booked in:**	23-Jun-15
QC Batch Number:	150623	**Date Extracted:**	25-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	26-Jun-15
Directory:	2515PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	79
Acenaphthene-d10	108
Phenanthrene-d10	112
Chrysene-d12	115
Perylene-d12	127

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	103
Terphenyl-d14	75

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polycyclic Aromatic Hydrocarbons
GC/MS (SIM)

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground		
Sample Details:	BH308 ES 17 8.50	**Job Number:**	S15_4213
LIMS ID Number:	CL1552895	**Date Booked in:**	23-Jun-15
QC Batch Number:	150623	**Date Extracted:**	25-Jun-15
Quantitation File:	Initial Calibration	**Date Analysed:**	26-Jun-15
Directory:	2515PAH.GC5\	**Matrix:**	Soil
Dilution:	1.0	**Ext Method:**	Ultrasonic

UKAS accredited?: Yes

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Naphthalene	91-20-3	-	< 0.08	-
Acenaphthylene	208-96-8	-	< 0.08	-
Acenaphthene	83-32-9	-	< 0.08	-
Fluorene	86-73-7	-	< 0.08	-
Phenanthrene	85-01-8	-	< 0.08	-
Anthracene	120-12-7	-	< 0.08	-
Fluoranthene	206-44-0	-	< 0.08	-
Pyrene	129-00-0	-	< 0.08	-
Benzo[a]anthracene	56-55-3	-	< 0.08	-
Chrysene	218-01-9	-	< 0.08	-
Benzo[b]fluoranthene	205-99-2	-	< 0.08	-
Benzo[k]fluoranthene	207-08-9	-	< 0.08	-
Benzo[a]pyrene	50-32-8	-	< 0.08	-
Indeno[1,2,3-cd]pyrene	193-39-5	-	< 0.08	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.08	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.08	-
Coronene	191-07-1 *	-	< 0.08	-
Total (USEPA16) PAHs	-	-	< 1.28	-

* Denotes compound is not UKAS accredited

"M" denotes that % fit has been manually interpreted

Internal Standards	% Area
1,4-Dichlorobenzene-d4	NA
Naphthalene-d8	90
Acenaphthene-d10	107
Phenanthrene-d10	112
Chrysene-d12	108
Perylene-d12	103

Surrogates	% Rec
Nitrobenzene-d5	NA
2-Fluorobiphenyl	105
Terphenyl-d14	74

Concentrations are reported on a wet weight basis.

The Total PAH result is the sum of non-rounded individual PAH results and therefore may differ to the sum of the rounded individual PAH results printed above. By convention, where any one or more result is a "less than", the total is expressed as a "less than" and includes the "less than" concentration within the total.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_4213
QC Batch Number: 150625
Directory: 0626PCB.GC8
Method: Ultrasonic

Matrix: SOIL
Date Booked in: 23-Jun-15
Date Extracted: 26-Jun-15
Date Analysed: 29-Jun-15

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

			Concentration, (µg/kg)						
	Sample ID	**Customer ID**	**PCB28**	**PCB52**	**PCB101**	**PCB118**	**PCB153**	**PCB138**	**PCB180**
*	CL1552893	BH308 ES 2 1.40	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
*	CL1552895	BH308 ES 17 8.50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Where individual results are flagged see report notes for status.

Polychlorinated Biphenyls (congeners)

Customer and Site Details: ESG Doncaster: Trinity Burial Ground
Job Number: S15_4213
QC Batch Number: 150625
Directory: 0626PCB.GC8
Method: Ultrasonic

Matrix: Soil Soil
Date Booked in: 23-Jun-15
Date Extracted: 26-Jun-15
Date Analysed: 29-Jun-15

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

			Concentration, (µg/kg)										
Sample ID	**Customer ID**	**PCB 81**	**PCB 77**	**PCB 123**	**PCB 118**	**PCB 114**	**PCB 105**	**PCB 126**	**PCB 167**	**PCB 156**	**PCB 157**	**PCB 169**	**PCB 189**
* CL1552893	BH308 ES 2 1.40	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	150134
Sample Details:	BH308 ES 2 1.40	**Date Booked in:**	23-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1552893	**Date Extracted:**	25-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_4213	**Date Analysed:**	25-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7*	-	< 0.1	-
Benzyl alcohol	100-51-6*	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1*	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1*	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1*	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5*	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7*	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.2	-
4-Nitroaniline	100-01-6*	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1*	-	< 0.1	-
Pentachlorophenol	87-86-5*	-	< 0.5	-
Phenanthrene	85-01-8	-	< 0.1	-
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2*	-	< 0.1	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1*	-	< 0.3	-

Internal Standards	% Area
1,4-Dichlorobenzene-d4	179
Naphthalene-d8	171
Acenaphthene-d10	176
Phenanthrene-d10	190
Chrysene-d12	253
Perylene-d12	289

Surrogates	% Rec
2-Fluorophenol	92
Phenol-d5	92
Nitrobenzene-d5	83
2-Fluorobiphenyl	88
2,4,6-Tribromophenol	85
Terphenyl-d14	81

"*" denotes compounds which are not UKAS accredited

Where individual results are flagged see report notes for status.

Semi-Volatile Organic Compounds

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	150134
Sample Details:	BH308 ES 11 6.00	**Date Booked in:**	23-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1552894	**Date Extracted:**	25-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_4213	**Date Analysed:**	25-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7*	-	< 0.1	-
Benzyl alcohol	100-51-6*	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1*	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1*	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1*	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5*	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7*	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.2	-
4-Nitroaniline	100-01-6*	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1*	-	< 0.1	-
Pentachlorophenol	87-86-5*	-	< 0.5	-
Phenanthrene	85-01-8	-	< 0.1	-
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2*	-	< 0.1	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1*	-	< 0.3	-

Internal Standards	% Area
1,4-Dichlorobenzene-d4	181
Naphthalene-d8	177
Acenaphthene-d10	180
Phenanthrene-d10	197
Chrysene-d12	259
Perylene-d12	302

Surrogates	% Rec
2-Fluorophenol	89
Phenol-d5	92
Nitrobenzene-d5	79
2-Fluorobiphenyl	87
2,4,6-Tribromophenol	85
Terphenyl-d14	78

"*" denotes compounds which are not UKAS accredited

Semi-Volatile Organic Compounds

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground			**Matrix:**	Soil	**QC Batch Number:**	150134
Sample Details:	BH308 ES 17 8.50	**Date Booked in:**	23-Jun-15	**Ext Method:**	Ultrasonic	**Multiplier:**	0.2
LIMS ID Number:	CL1552895	**Date Extracted:**	25-Jun-15	**Operator:**	JO	**Dilution Factor:**	1
Job Number:	S15_4213	**Date Analysed:**	25-Jun-15	**Directory/Quant File:**	15SVOC.GC11\	**GPC (Y/N)**	N

Target Compounds	CAS #	R.T. (min)	Concentration mg/kg	% Fit
Phenol	108-95-2	-	< 0.1	-
bis(2-Chloroethyl)ether	111-44-4	-	< 0.1	-
2-Chlorophenol	95-57-8	-	< 0.1	-
1,3-Dichlorobenzene	541-73-1	-	< 0.1	-
1,4-Dichlorobenzene	106-46-7*	-	< 0.1	-
Benzyl alcohol	100-51-6*	-	< 0.5	-
1,2-Dichlorobenzene	95-50-1*	-	< 0.1	-
2-Methylphenol	95-48-7	-	< 0.1	-
bis(2-Chloroisopropyl)ether	108-60-1*	-	< 0.5	-
Hexachloroethane	67-72-1	-	< 0.1	-
N-Nitroso-di-n-propylamine	621-64-7*	-	< 0.9	-
3- & 4-Methylphenol	108-39-4/106-44-5	-	< 0.1	-
Nitrobenzene	98-95-3	-	< 0.5	-
Isophorone	78-59-1*	-	< 0.1	-
2-Nitrophenol	88-75-5	-	< 0.1	-
2,4-Dimethylphenol	105-67-9	-	< 0.1	-
Benzoic Acid	65-85-0*	-	< 0.5	-
bis(2-Chloroethoxy)methane	111-91-1	-	< 0.1	-
2,4-Dichlorophenol	120-83-2	-	< 0.1	-
1,2,4-Trichlorobenzene	120-82-1*	-	< 0.1	-
Naphthalene	91-20-3	-	< 0.1	-
4-Chlorophenol	106-48-9	-	< 0.5	-
4-Chloroaniline	106-47-8*	-	< 0.5	-
Hexachlorobutadiene	87-68-3*	-	< 0.1	-
4-Chloro-3-methylphenol	59-50-7	-	< 0.1	-
2-Methylnaphthalene	91-57-6	-	< 0.1	-
1-Methylnaphthalene	90-12-0	-	< 0.1	-
Hexachlorocyclopentadiene	77-47-4*	-	< 0.1	-
2,4,6-Trichlorophenol	88-06-2	-	< 0.1	-
2,4,5-Trichlorophenol	95-95-4	-	< 0.1	-
2-Chloronaphthalene	91-58-7	-	< 0.1	-
Biphenyl	92-52-4	-	< 0.1	-
Diphenyl ether	101-84-8	-	< 0.1	-
2-Nitroaniline	88-74-4*	-	< 0.5	-
Acenaphthylene	208-96-8	-	< 0.1	-
Dimethylphthalate	131-11-3	-	< 0.1	-
2,6-Dinitrotoluene	606-20-2	-	< 0.5	-
Acenaphthene	83-32-9	-	< 0.1	-
3-Nitroaniline	99-09-2*	-	< 14.5	-

Concentrations are reported on a wet weight basis.
"M" denotes that % fit has been manually interpreted

Target Compounds	CAS #	R.T.	Concentration mg/kg	% Fit
2,4-Dinitrophenol	51-28-5*	-	< 0.5	-
Dibenzofuran	132-64-9	-	< 0.1	-
4-Nitrophenol	100-02-7*	-	< 0.5	-
2,4-Dinitrotoluene	121-14-2	-	< 0.2	-
Fluorene	86-73-7	-	< 0.1	-
Diethylphthalate	84-66-2	-	< 0.1	-
4-Chlorophenyl-phenylether	7005-72-3	-	< 0.1	-
4,6-Dinitro-2-methylphenol	534-52-1*	-	< 0.2	-
4-Nitroaniline	100-01-6*	-	< 0.6	-
N-Nitrosodiphenylamine	86-30-6	-	< 0.1	-
4-Bromophenyl-phenylether	101-55-3	-	< 0.1	-
Hexachlorobenzene	118-74-1*	-	< 0.1	-
Pentachlorophenol	87-86-5*	-	< 0.5	-
Phenanthrene	85-01-8	-	< 0.1	-
Anthracene	120-12-7	-	< 0.1	-
Di-n-butylphthalate	84-74-2*	-	< 0.1	-
Fluoranthene	206-44-0	-	< 0.2	-
Pyrene	129-00-0	-	< 0.2	-
Butylbenzylphthalate	85-68-7	-	< 0.2	-
Benzo[a]anthracene	56-55-3	-	< 0.2	-
Chrysene	218-01-9	-	< 0.2	-
3,3'-Dichlorobenzidine	91-94-1*	-	< 0.5	-
bis(2-Ethylhexyl)phthalate	117-81-7	-	< 0.2	-
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	-	< 0.5	-
Dibenzo[a,h]anthracene	53-70-3	-	< 0.5	-
Benzo[g,h,i]perylene	191-24-2	-	< 0.5	-
Coronene	191-07-1*	-	< 0.3	-

Internal Standards	% Area
1,4-Dichlorobenzene-d4	179
Naphthalene-d8	173
Acenaphthene-d10	178
Phenanthrene-d10	189
Chrysene-d12	244
Perylene-d12	268

Surrogates	% Rec
2-Fluorophenol	88
Phenol-d5	88
Nitrobenzene-d5	77
2-Fluorobiphenyl	81
2,4,6-Tribromophenol	85
Terphenyl-d14	78

"*" denotes compounds which are not UKAS accredited

Gasoline Range Organics
(BTEX and Aromatic/Aliphatic Carbon Ranges)

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_4213
Directory: D:\TES\DATA\Y2015\0626HSA_GC12\150626 2015-06-26 10-13-28\032F3201.D
Method: HEADSPACE GCFID

Matrix: Soil
Date Booked in: 23-Jun-15
Date extracted: 26-Jun-15
Date Analysed: 26-Jun-15, 20:33:
Units: mg/kg

*** Sample data with an asterisk are not UKAS accredited.**

		BTEX				Aromatics		Aliphatics		Total GRO
Sample ID	**Client ID**	**Benzene**	**Toluene**	**Ethyl benzene**	**Xylenes**	**C5 - C7**	**>C7 - C8**	**C5 - C6**	**>C6 - C8**	**C5 - C10**
CL1552893	BH308 ES 2 1.40	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1552894	BH308 ES 11 6.00	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2
CL1552895	BH308 ES 17 8.50	<0.010	<0.010	<0.010	<0.020	<0.01	<0.01	<0.2	<0.2	<0.2

Where individual results are flagged see report notes for status.

ALIPHATIC / AROMATIC FRACTION BY GC/FID

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_4213
QC Batch Number: 150623
Directory: D:\TES\DATA\Y2013\02\062615TPH_GC3\090B4901.D
Method: Ultra Sonic

Separation: Silica gel
Eluents: Hexane, DCM

Matrix: Soil
Date Booked in: 23-Jun-15
Date Extracted: 25-Jun-15
Date Analysed: 27-Jun-15

Bands marked with a ' * ' are not UKAS Accredited

		Concentration, (mg/kg) - as wet weight												
		>C8 - C10	>C8 - C10	>C10 - C12	>C10 - C12	>C12 - C16	>C12 - C16	>C16 - C35	>C16 - C21	>C35 - C44*	>C21 - C35	>C35 - C44*	>C8 - C44*	>C8 - C44*
Sample ID	**Client ID**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aliphatics**	**Aromatics**	**Aromatics**	**Aliphatics**	**Aromatics**
CL1552893	BH308 ES 2 1.40	<4	<4	<4	<4	<4	<4	17.3	7.66	<5.62	33.7	9.5	21.2	56.1
CL1552894	BH308 ES 11 6.00	<4	<4	<4	<4	<4	<4	<11.9	4.28	<5.62	12.2	<5.62	<20	25
CL1552895	BH308 ES 17 8.50	<4	<4	<4	<4	<4	4.47	12.1	6.56	<5.62	22.2	8.29	<20	43.9

Where individual results are flagged see report notes for status.

Total Petroleum Hydrocarbons (TPH) Carbon Ranges

Customer and Site Details: ESG Doncaster : Trinity Burial Ground
Job Number: S15_4213
QC Batch Number: 150623
Directory: D:\TES\DATA\Y2013\02\062515TPH_GC3\077B4101.D
Method: Ultra Sonic

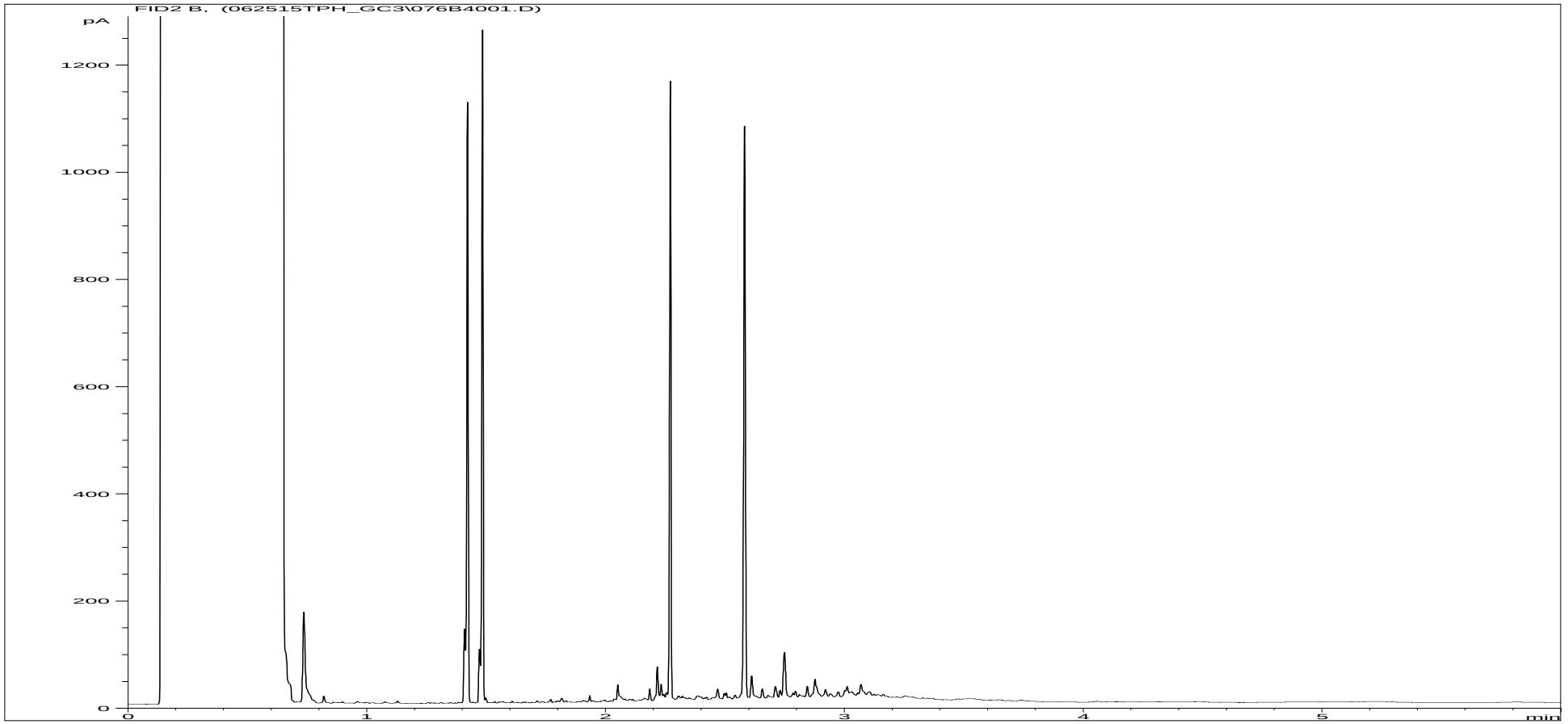
Matrix: Soil
Date Booked in: 23-Jun-15
Date Extracted: 25-Jun-15
Date Analysed: 25-Jun-15

*** Sample data with an asterisk are not UKAS accredited.**

		Concentration, (mg/kg) - as wet weight				
Sample ID	**Client ID**	**>C8 - C10**	**>C10 - C12**	**>C12 - C16**	**>C16 - C21**	**>C21 - C35**
CL1552893	BH308 ES 2 1.40	<2	<2	<2	9.2	72.4
CL1552895	BH308 ES 17 8.50	<2	<2	<2	5.99	23.6

Where individual results are flagged see report notes for status.

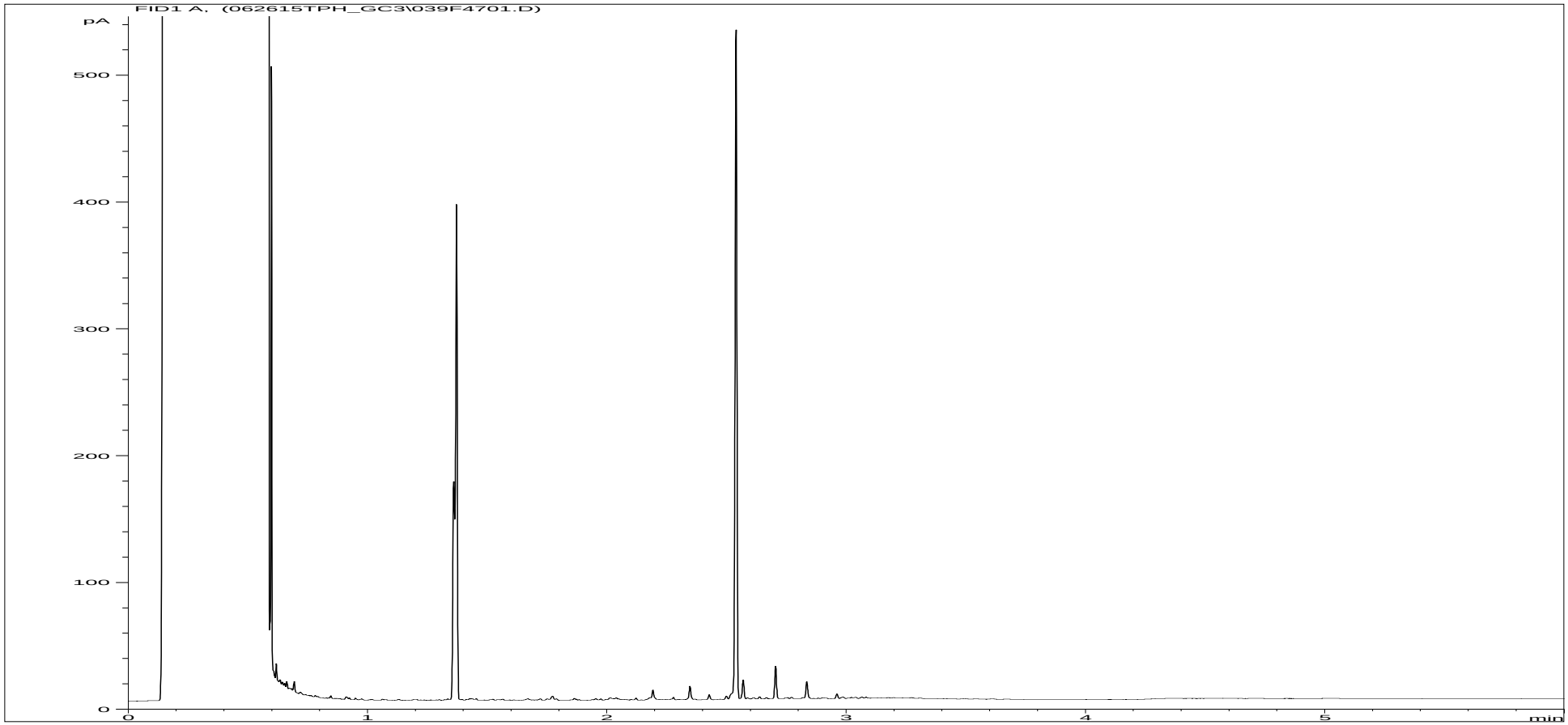
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1552893	**Job Number:**	S15_4213
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 2 1.40
Acquisition Date/Time:	25-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062515TPH_GC3\076B4001.D		

Where individual results are flagged see report notes for status.

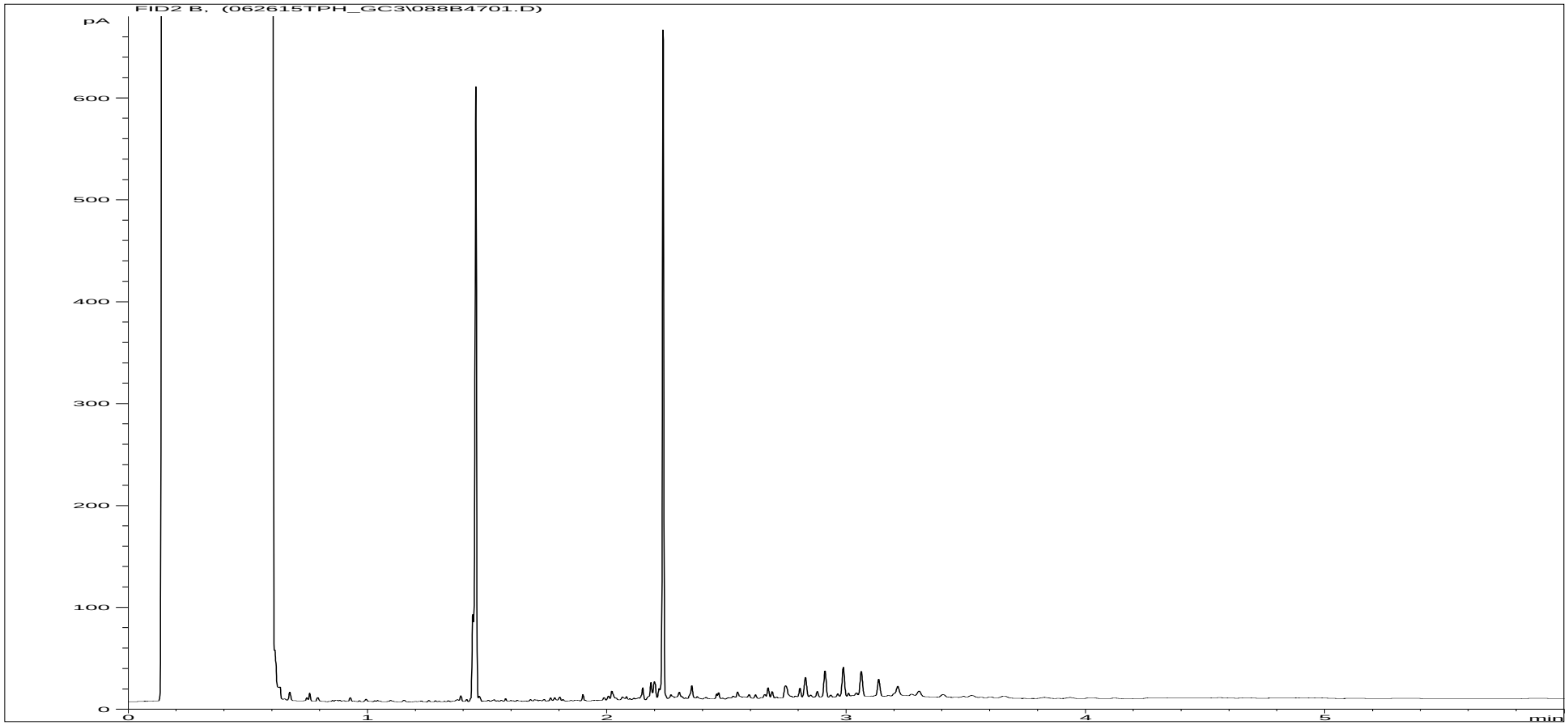
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1552893ALI	**Job Number:**	S15_4213
Multiplier:	16	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 2 1.40
Acquisition Date/Time:	27-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062615TPH_GC3\039F4701.D		

Where individual results are flagged see report notes for status.

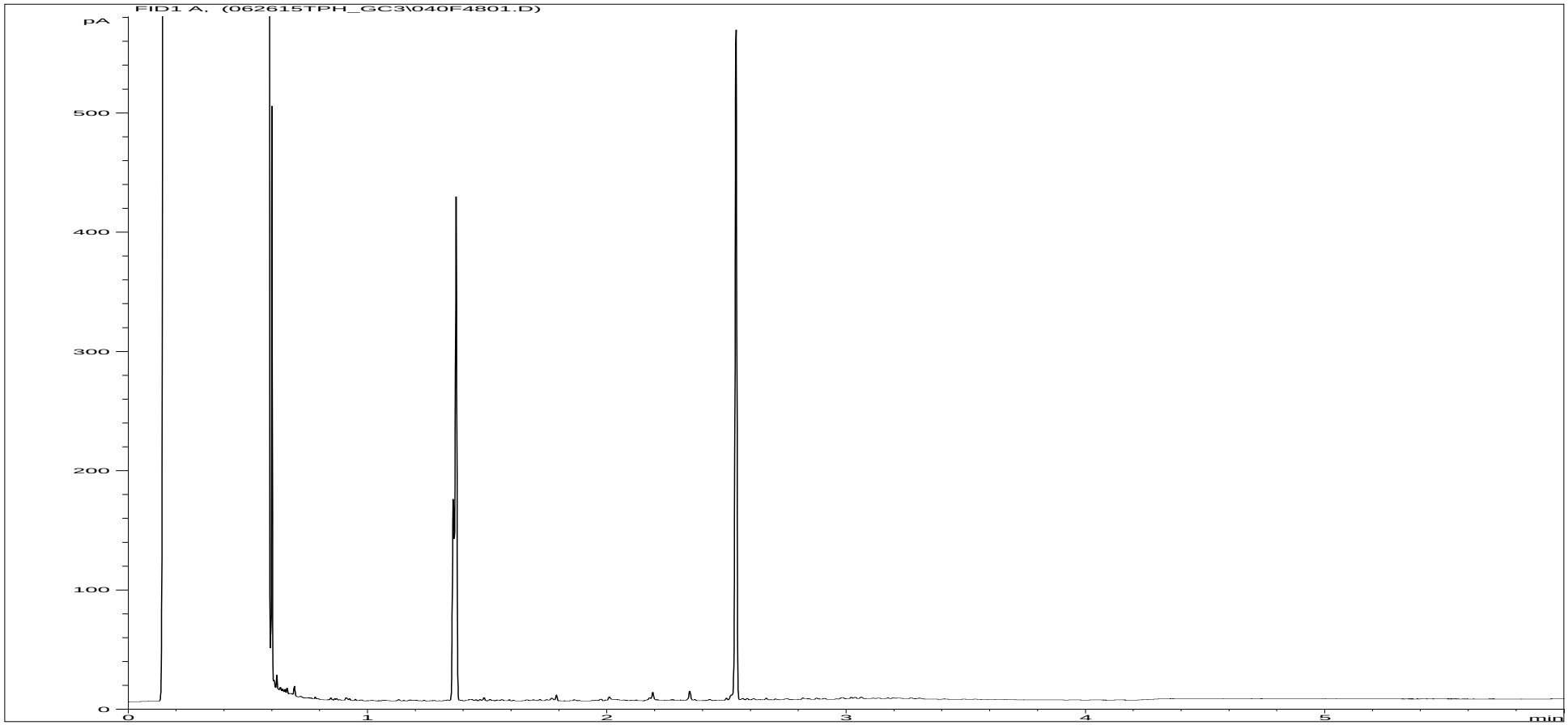
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1552893ARO	**Job Number:**	S15_4213
Multiplier:	12.32	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 2 1.40
Acquisition Date/Time:	27-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062615TPH_GC3\088B4701.D		

Where individual results are flagged see report notes for status.

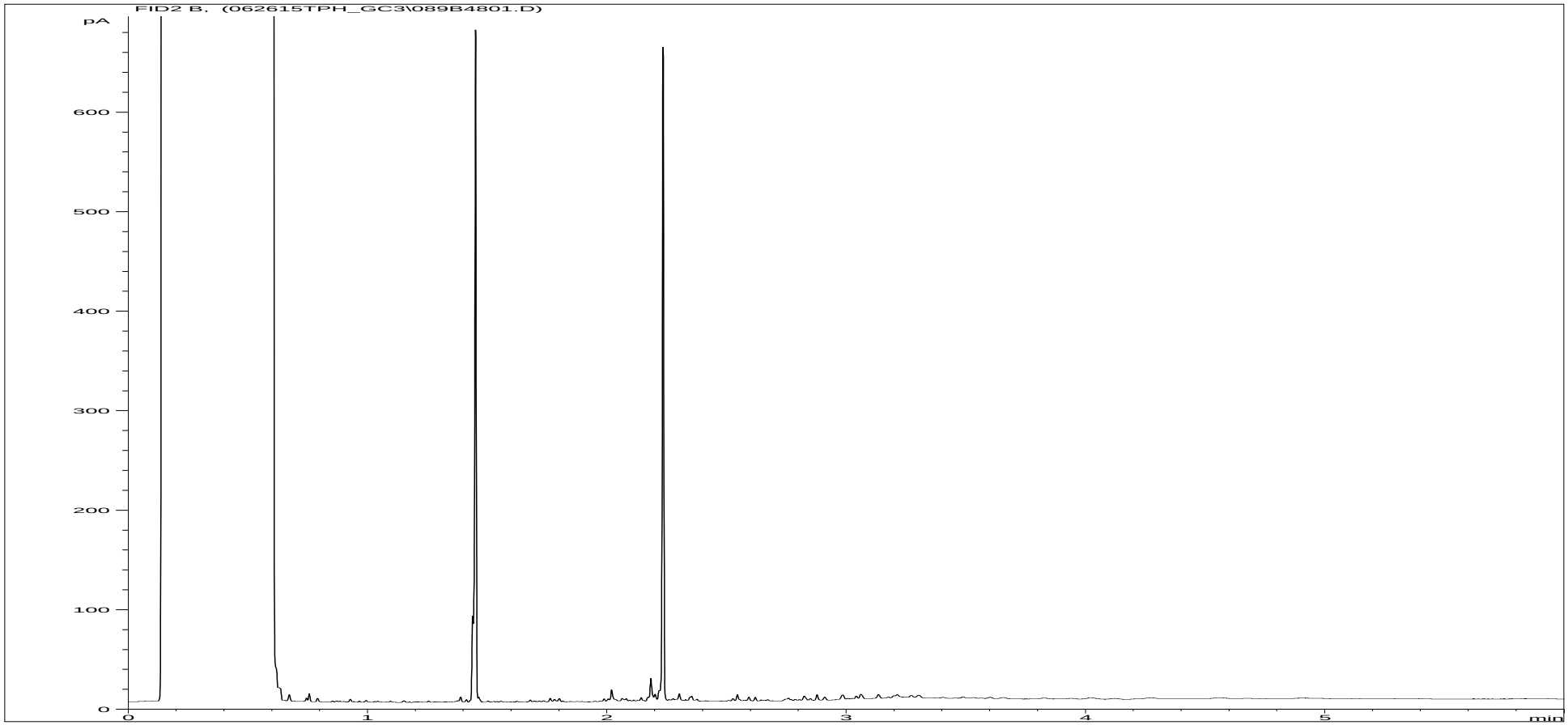
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1552894ALI	**Job Number:**	S15_4213
Multiplier:	15.84	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 11 6.00
Acquisition Date/Time:	27-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062615TPH_GC3\040F4801.D		

Where individual results are flagged see report notes for status.

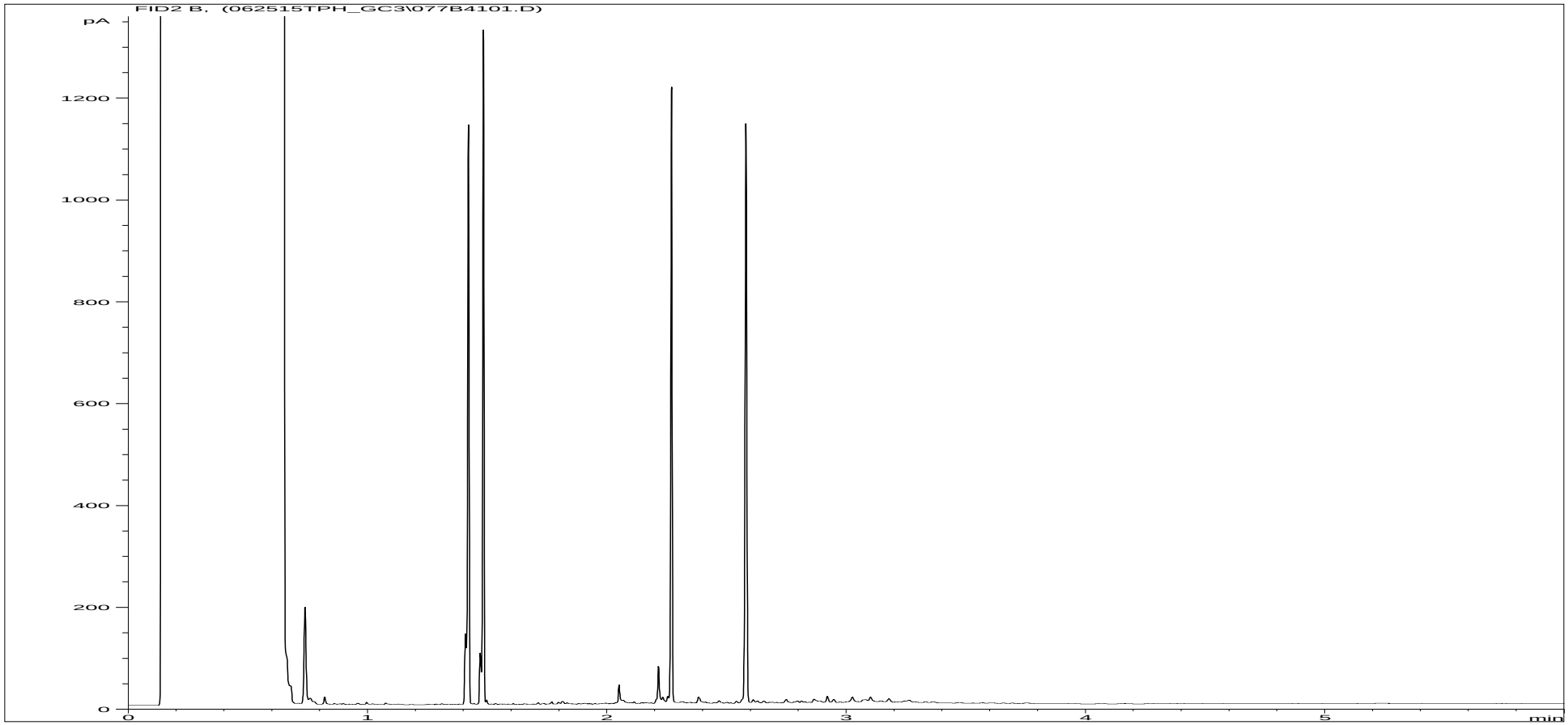
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aromatics Fraction.



Sample ID:	CL1552894ARO	**Job Number:**	S15_4213
Multiplier:	12.32	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 11 6.00
Acquisition Date/Time:	27-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062615TPH_GC3\089B4801.D		

Where individual results are flagged see report notes for status.

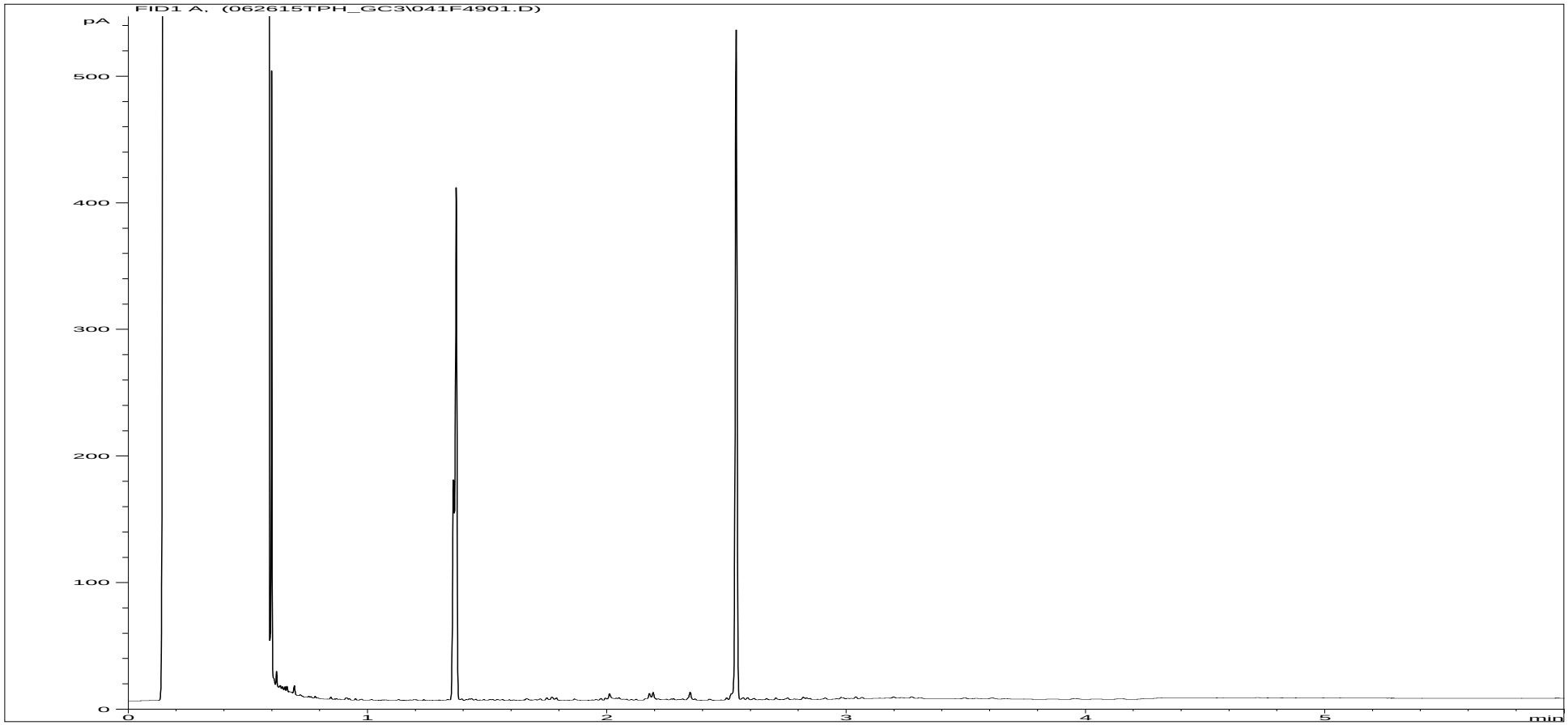
Petroleum Hydrocarbons (C8 to C40) by GC/FID



Sample ID:	CL1552895	**Job Number:**	S15_4213
Multiplier:	8	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 17 8.50
Acquisition Date/Time:	25-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062515TPH_GC3\077B4101.D		

Where individual results are flagged see report notes for status.

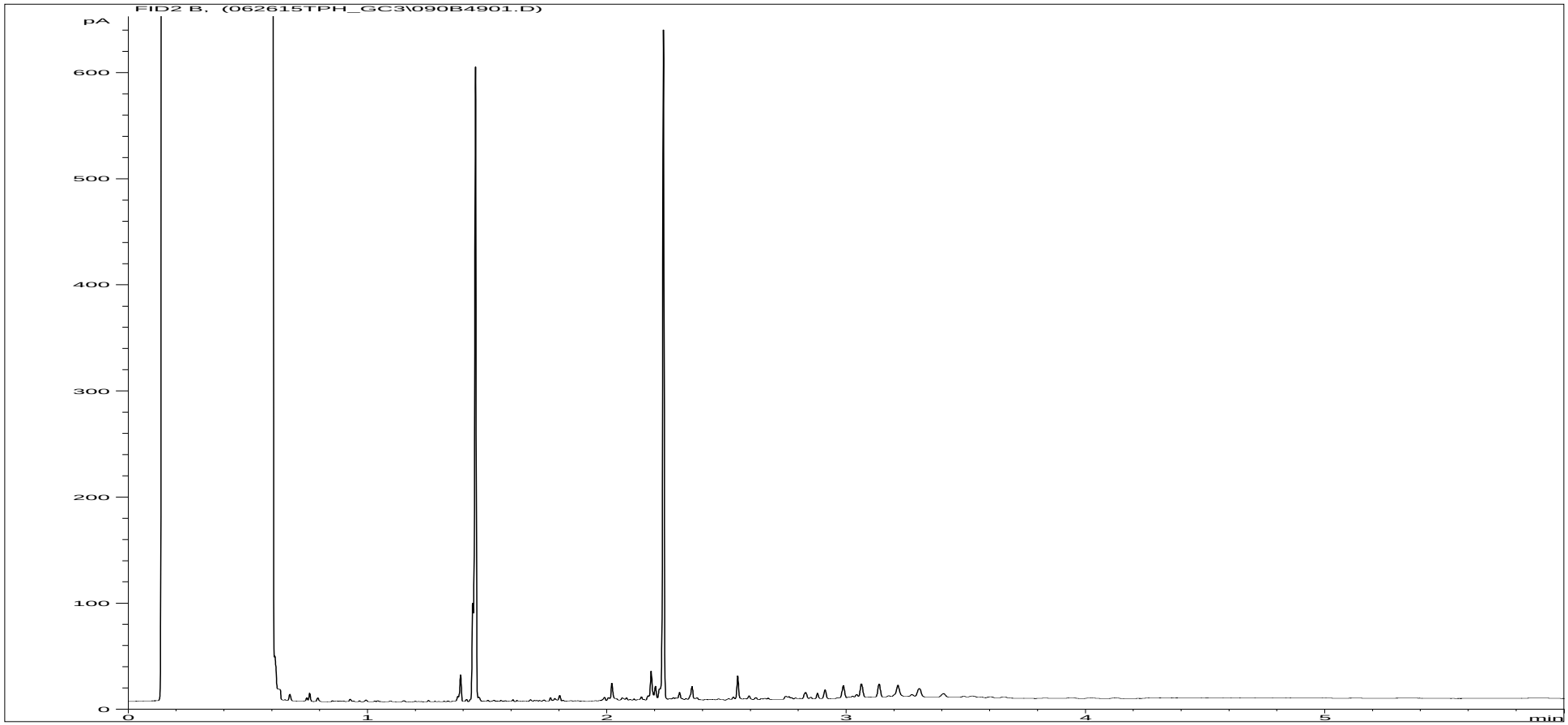
Petroleum Hydrocarbons (C8 to C40) by GC/FID Aliphatics Fraction.



Sample ID:	CL1552895ALI	**Job Number:**	S15_4213
Multiplier:	15.68	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 17 8.50
Acquisition Date/Time:	27-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062615TPH_GC3\041F4901.D		

Where individual results are flagged see report notes for status.

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



Sample ID:	CL1552895ARO	**Job Number:**	S15_4213
Multiplier:	12.96	**Client:**	ESG Doncaster
Dilution:	1	**Site:**	Trinity Burial Ground
Acquisition Method:	5UL_RUNF.M	**Client Sample Ref:**	BH308 ES 17 8.50
Acquisition Date/Time:	27-Jun-15		
Datafile:	D:\TES\DATA\Y2013\02\062615TPH_GC3\090B4901.D		

Where individual results are flagged see report notes for status.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0624VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH308 ES 2 1.40	**Date Booked in:**	23-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1552893	**Date Analysed:**	25-Jun-15	**Multiplier:**	1
Job Number:	S15_4213	**Operator:**	PR	**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	-	< 5	-
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 %
Pentafluorobenzene	3.44	77
1,4-Difluorobenzene	3.80	71
Chlorobenzene-d5	4.95	59
Bromofluorobenzene	5.35	51
1,4-Dichlorobenzene-d4	5.75	36
Naphthalene-d8	6.50	14

Surrogates	% Rec
Dibromofluoromethane	106
Toluene-d8	90

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:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0624VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH308 ES 11 6.00	**Date Booked in:**	23-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1552894	**Date Analysed:**	25-Jun-15	**Multiplier:**	1
Job Number:	S15_4213	**Operator:**	PR	**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	-	< 5	-
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 %
Pentafluorobenzene	3.43	80
1,4-Difluorobenzene	3.79	76
Chlorobenzene-d5	4.94	63
Bromofluorobenzene	5.35	50
1,4-Dichlorobenzene-d4	5.75	34
Naphthalene-d8	6.49	17

Surrogates	% Rec
Dibromofluoromethane	106
Toluene-d8	87

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.

Volatile Organic Compounds by HSA-GCMS

UKAS accredited?: Yes

Customer and Site Details:	ESG Doncaster: Trinity Burial Ground	**Directory/Quant file:**	0624VOC.MS8\ Initial Calibration	**Matrix:**	Soil
Sample Details:	BH308 ES 17 8.50	**Date Booked in:**	23-Jun-15	**Method:**	Headspace
LIMS ID Number:	CL1552895	**Date Analysed:**	25-Jun-15	**Multiplier:**	1
Job Number:	S15_4213	**Operator:**	PR	**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	-	< 5	-
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 %
Pentafluorobenzene	3.44	75
1,4-Difluorobenzene	3.80	72
Chlorobenzene-d5	4.94	60
Bromofluorobenzene	5.35	49
1,4-Dichlorobenzene-d4	5.75	32
Naphthalene-d8	6.50	15

Surrogates	% Rec
Dibromofluoromethane	101
Toluene-d8	94

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.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

Client	ESG Doncaster				**Leaching Data**	
					Weight of sample (kg)	0.274
Contact	Mr N Cooke				Moisture content @ 105°C (% of Wet Weight)	17.8
					Equivalent Weight based on drying at 105°C (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.401
					Fraction of sample above 4 mm %	0.000
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH308 ES 2 1.40		s15_4213	CL/1552893	01-Jul-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	1.37	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.016	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	119	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<4.04	100		
U	PHSOIL	pH (pH units)	8.1		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except oo		mg/kg (dry weight)				
U	WSLM3	pH (pH units) oo	7.9	7.7	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) oo	398	146					
U	ICPMSW	Arsenic	0.003	0.007	0.006	0.06	0.5	2	25
U	ICPWATVAR	Barium	0.09	0.13	0.18	1.2	20	100	300
U	ICPMSW	Cadmium	<0.0001	0.0001	<0.0002	<0.001	0.04	1	5
U	ICPMSW	Chromium	0.001	0.004	0.002	0.04	0.5	10	70
U	ICPMSW	Copper	0.017	0.024	0.034	0.23	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.023	0.007	0.046	0.09	0.5	10	30
U	ICPMSW	Nickel	0.003	0.007	0.006	0.06	0.4	10	40
U	ICPMSW	Lead	0.006	0.037	0.012	0.33	0.5	10	50
U	ICPMSW	Antimony	0.001	0.001	0.002	0.01	0.06	0.7	5
U	ICPMSW	Selenium	0.002	0.001	0.004	0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.019	0.039	0.038	0.36	4	50	200
U	KONENS	Chloride	26	12	52	139	800	15000	25000
U	ISEF	Fluoride	1.2	0.8	2.4	9	10	150	500
U	ICPWATVAR	Sulphate as SO4	49	6	98	117	1000	20000	50000
N	WSLM27	Total Dissolved Solids	311	114	622	1403	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	13	24	26	225	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/3

Client	ESG Doncaster				**Leaching Data**	
					Weight of sample (kg)	0.331
Contact	Mr N Cooke				Moisture content @ 105°C (% of Wet Weight)	30.5
					Equivalent Weight based on drying at 105°C (kg)	0.225
Site	Trinity Burial Ground				Volume of water required to carry out 2:1 stage (litres)	0.344
					Fraction of sample above 4 mm %	0.000
Sample Description		**Report No**	**Sample No**	**Issue Date**	Fraction of non-crushable material %	0.000
BH308 ES 17 8.50		s15_4213	CL/1552895	01-Jul-15	Volume to undertake analysis (2:1 Stage) (litres)	0.300
					Weight of Deionised water to carry out 8:1 stage (kg)	1.650

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.9	3	5	6
	LOI450	Loss on Ignition (%)				10
U	BTEXHSA	Sum of BTEX (mg/kg)	<0.02	6		
N	PCBUSECD	Sum of 7 Congener PCB's (mg/kg)	<0.035	1		
U	TPHFIDUS	Mineral Oil (mg/kg)	53	500		
N	PAHMSUS	PAH Sum of 17 (mg/kg)	<1.96	100		
U	PHSOIL	pH (pH units)	8.6		>6	
	ANC	Acid Neutralisation Capacity (mol/kg) @pH 7			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	2:1 Leachate	8:1 Leachate	Calculated amount leached @ 2:1	Calculated cumulative amount leached @ 10:1	Landfill Waste Acceptance Criteria Limit Values for BSEN 12457/3 @ L/S 10 litre kg-1 mg/kg (dry weight)		
			mg/l except oo		mg/kg (dry weight)				
U	WSLM3	pH (pH units) oo	8.4	7.8	Calculated data not UKAS Accredited				
U	WSLM2	Conductivity (µs/cm) oo	1992	515					
U	ICPMSW	Arsenic	0.051	0.014	0.102	0.19	0.5	2	25
U	ICPWATVAR	Barium	0.32	0.09	0.64	1.2	20	100	300
U	ICPMSW	Cadmium	0.0007	0.0002	0.0014	0.003	0.04	1	5
U	ICPMSW	Chromium	0.02	0.005	0.04	0.07	0.5	10	70
U	ICPMSW	Copper	0.047	0.025	0.094	0.28	2	50	100
U	ICPMSW	Mercury	<0.0001	<0.0001	<0.0002	<0.001	0.01	0.2	2
U	ICPMSW	Molybdenum	0.041	0.016	0.082	0.19	0.5	10	30
U	ICPMSW	Nickel	0.017	0.009	0.034	0.1	0.4	10	40
U	ICPMSW	Lead	0.123	0.014	0.246	0.29	0.5	10	50
U	ICPMSW	Antimony	0.001	0.001	0.002	0.01	0.06	0.7	5
U	ICPMSW	Selenium	0.002	0.001	0.004	0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.258	0.054	0.516	0.81	4	50	200
U	KONENS	Chloride	435	40	870	927	800	15000	25000
U	ISEF	Fluoride	1	0.4	2	5	10	150	500
U	ICPWATVAR	Sulphate as SO4	80	50	160	540	1000	20000	50000
N	WSLM27	Total Dissolved Solids	1554	402	3108	5556	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.05	<0.1	<0.5	1		
N	WSLM13	Dissolved Organic Carbon	120	30	240	420	500	800	1000

Template Ver. 1

Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited

Where individual results are flagged see report notes for status.

ASBESTOS ANALYSIS RESULTS - SOIL ANALYSIS

ESG Asbestos Limited Certificate of Analysis for Asbestos in Soils

1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

Client:	ESG Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-10430**
For the attention of:	ESG Doncaster	**Report Date:**	**30/06/2015**
Site Address:	Trinity Burial Ground	**Project Number:**	**S154213**

Sample Number	Sample Date	Sample Location	Test Date	Total Sample Dry Weight (g)	Weight of <2mm Fraction (g)	Asbestos(g) in >8mm+>2mm	Asbestos(g) in <2mm	% Asbestos by weight of Total Dried Sample	Asbestos Fibre Types Identified
CL/1552893	19/06/15	BH308 1.40	29/06/2015	912	896	0.0000	0.0000		NADIS

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Screens Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name:	Tom Pratt	Authorised Signatory: [redacted]
Position:	Lab Technician	

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 identification was carried out using ESG Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of fine fraction for asbestos content only includes fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at ESG Asbestos Laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, Staffordshire. DE15 0XD, UKAS Laboratory Number 1089.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154213

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S154213

Consignment No S48842
Date Logged 23-Jun-2015

Report Due 29-Jun-2015

ID Number	Description	MethodID	CEN Leachate		GuisServ	GROHSA	ICPBOR	ICPMSS												ICPSOIL	KONECR	PAHMSUS		PCBUSECDAR		PHEHPLC
		Sampled	CEN Leac(P)1	CEN Leac(P)2	REPORT A	GRO (AA-UK) HSA-GCFID	Boron (H20 Soluble)	Antimony (MS)	Arsenic (MS)	Cadmium (MS)	Chromium (MS)	Copper (MS)	Lead (MS)	Manganese (MS)	Mercury (MS)	Molybdenum (MS)	Nickel (MS)	Selenium (MS)	Vanadium (MS)	Zinc (MS)	Beryllium.	Chromium vi:	PAH (16) by GCMS	PAH (17) by GCMS	PCB-12 Congeners Analysis	PCB-7 Congeners Analysis	Phenol - HPLC
						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓			✓
CL/1552893	BH308 1.40	19/06/15																									
CL/1552894	BH308 6.00	19/06/15																									
CL/1552895	BH308 8.50	19/06/15																									

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

In this instance please contact the laboratory immediately should you wish to discuss how you would like us to proceed. If you do not respond within 24 hours, we will proceed as originally requested.

Deviating Sample Key

A	The sample was received in an inappropriate container for this analysis
B	The sample was received without the correct preservation for this analysis
C	Headspace present in the sample container
D	The sampling date was not supplied so holding time may be compromised - applicable to all analysis
E	Sample processing did not commence within the appropriate holding time
F	Sample processing did not commence within the appropriate handling time

Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

Where individual results are flagged see report notes for status.

Sample Analysis

ESG Environmental Chemistry
Analytical and Deviating Sample Overview

S154213

Customer ESG Doncaster
Site Trinity Burial Ground
Report No S154213

Consignment No S48842
Date Logged 23-Jun-2015

Report Due 29-Jun-2015

ID Number	Description	MethodID	PHSOIL	SFAPI		Sub002	SVOCMSUS	TMSS	TPHFIDUS			TPHUSSI	VOCHSAS			WSLM59
		Sampled	pH units (AR)	Cyanide(Total) (AR)	Phenol Index.(AR)	^Asbestos ID and Quantification	SVOC by GCMS (AR)	Tot.Moisture @ 105C	TPH Band (>C10-C40)	TPH by GCFID (AR)	TPH Carbon Banding.	TPH by GCFID (Si-UKCWG)>44	BTEX-HSA GCMS analysis	VOC HSA-GCMS	Ethyl Benzene (µg/kg)	Total Organic Carbon
			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
CL/1552893	BH308 1.40	19/06/15														
CL/1552894	BH308 6.00	19/06/15														
CL/1552895	BH308 8.50	19/06/15														

Note: For analysis where the scheduled turnaround is greater than the holding time we will do our utmost to prioritise these samples. However, it is possible that samples could become deviant whilst being processed in the laboratory.

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Requested Analysis Key

	Analysis Required
	Analysis dependant upon trigger result - **Note: due date may be affected if triggered**
	No analysis scheduled
^	Analysis Subcontracted - **Note: due date may vary**

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/1552893	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data
VOCHSAS	CL/1552894	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data
VOCHSAS	CL/1552895	Due to matrix interference, the Internal Standard recovery for this Test is below the required QMS specification. This has been confirmed by historical data. All other Laboratory Process Controls meet the requirements of the QMS. These circumstances should be taken into consideration when utilising the data

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Soil	GROHSA	As Received	Determination of Total Gasoline Range Organics Hydrocarbons (GRO) by Headspace GCFID
Soil	ICPBOR	Oven Dried @ < 35°C	Determination of Boron in soil samples by hot water extraction followed by ICPOES detection
Soil	ICPMSS	Oven Dried @ < 35°C	Determination of Metals in soil samples by aqua regia digestion followed by ICPMS
Soil	ICPSOIL	Oven Dried @ < 35°C	Determination of Metals in soil samples by aqua regia digestion followed by ICPOES detection
Soil	KONECR	Oven Dried @ < 35°C	Determination of Chromium vi in soil samples by water extraction followed by colorimetric detection
Soil	PAHMSUS	As Received	Determination of Polycyclic Aromatic Hydrocarbons (PAH) by hexane/acetone extraction followed by GCMS detection
Soil	PCBUSECDAR	As Received	Determination of Polychlorinated Biphenyl (PCB) congeners/aroclors by hexane/acetone extraction followed by GCECD detection
Soil	PHEHPLC	As Received	Determination of Phenols by methanol extraction followed by HPLC detection
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	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 Dichloromethane/Acetone extraction followed by GCMS detection
Soil	TMSS	As Received	Determination of the Total Moisture content at 105ºC by loss on oven drying gravimetric analysis (% based upon wet weight)
Soil	TPHFIDUS	As Received	Determination of hexane/acetone extractable Hydrocarbons in soil with GCFID 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
Soil	WSLM59	Oven Dried @ < 35°C	Determination of Organic Carbon in soil using sulphurous Acid digestion followed by high temperature combustion and IR detection
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

Method Descriptions

Matrix	MethodID	Analysis Basis	Method Description
Water	ISEF	As Received	Determination of Fluoride in water samples by Ion Selective Electrode (ISE)
Water	KONENS	As Received	Direct analysis using discrete colorimetric analysis
Water	SFAPI	As Received	Segmented flow analysis with colorimetric detection
Water	WSLM13	As Received	Instrumental analysis using acid/persulphate digestion and non-dispersive IR detection
Water	WSLM2	As Received	Determination of the Electrical Conductivity (µS/cm) by electrical conductivity probe.
Water	WSLM27	As Received	Gravimetric Determination
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 the basis indicated in the Method Description table.
  All results on MCERTS reports are reported on a 105ºC dry weight basis with the exception of pH and conductivity.
- 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

Nil: Where "Nil" has been entered against Total Alkalinity or Total Acidity this indicates that a measurement was not required due to the inherent pH of the sample.

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 **TR** Denotes Tremolite
CR Denotes Crocidolite **AC** Denotes Actinolite
AM Denotes Amosite **AN** Denotes Anthophylite
NAIIS No Asbestos Identified in Sample
NADIS No Asbestos Detected In Sample

Symbol Reference

^ Sub-contracted analysis.
$$ 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
N.F No Flow
NS Information Not Supplied
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
§ accreditation has been removed for this result as it is a non-accredited matrix

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.

Sample Descriptions

Client : ESG Doncaster
Site : Trinity Burial Ground
Report Number : S15_4213

Note: major constituent in upper case

Lab ID Number	Client ID	Description
CL/1552893	BH308 ES 2 1.40	Brown SILT
CL/1552894	BH308 ES 11 6.00	Brown SILT
CL/1552895	BH308 ES 17 8.50	Brown SILT

APPENDIX G

PHOTOGRAPHS

Split and Describe	Plates 1 to 80
Rotary Cores	BH301, BH304, BH305 and BH310

Split Sample Photographs

Notes:	Project	TRINITY BURIAL GROUND, HULL	Plate
	Project No.	A5049-15	1
	Carried out for	Balfour Beatty	

Split Sample Photographs

Notes:	Project	TRINITY BURIAL GROUND, HULL	Plate
	Project No.	A5049-15	2
	Carried out for	Balfour Beatty	

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Notes:	**Project** TRINITY BURIAL GROUND, HULL **Project No.** A5049-15 **Carried out for** Balfour Beatty	**Plate** 3

Split Sample Photographs

Notes:	Project	TRINITY BURIAL GROUND, HULL	Plate
	Proiect No.	A5049-15	4
	Carried out for	Balfour Beatty	

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Notes:	Project	TRINITY BURIAL GROUND, HULL	Plate
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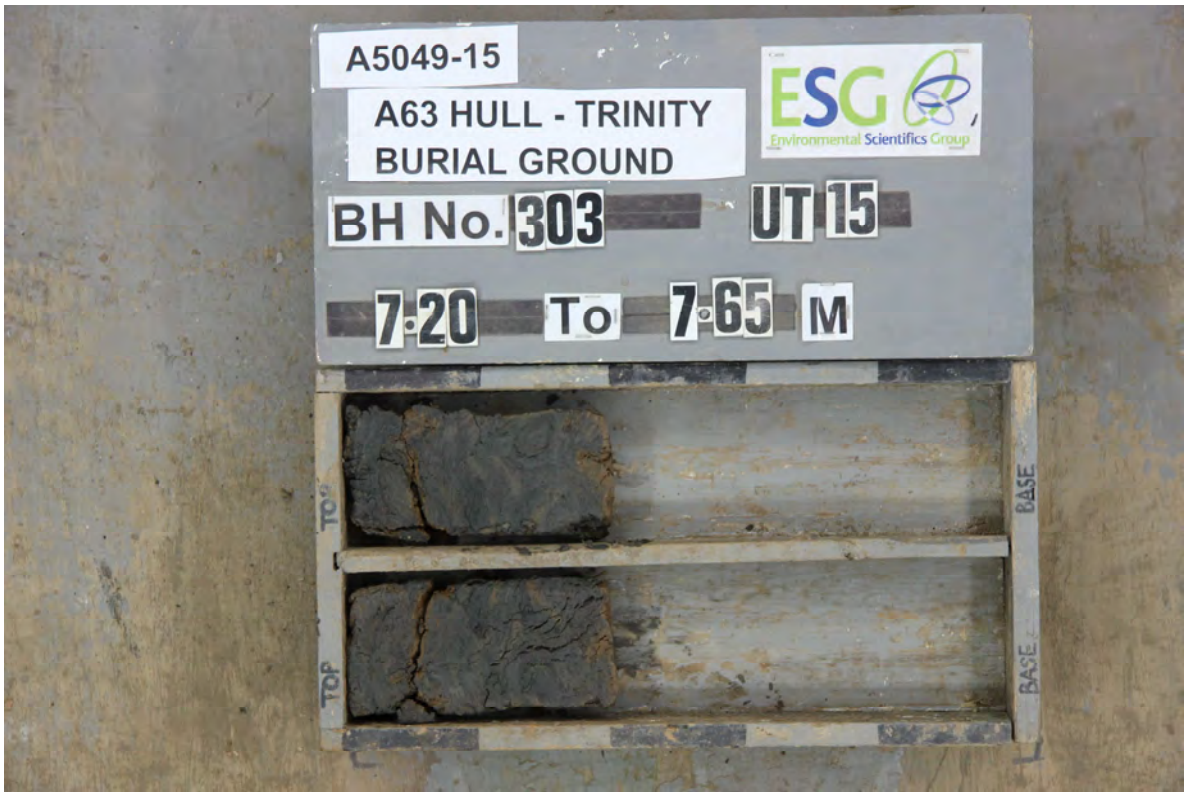

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Incorrect Sample No; Depth is correct

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Should read UT13

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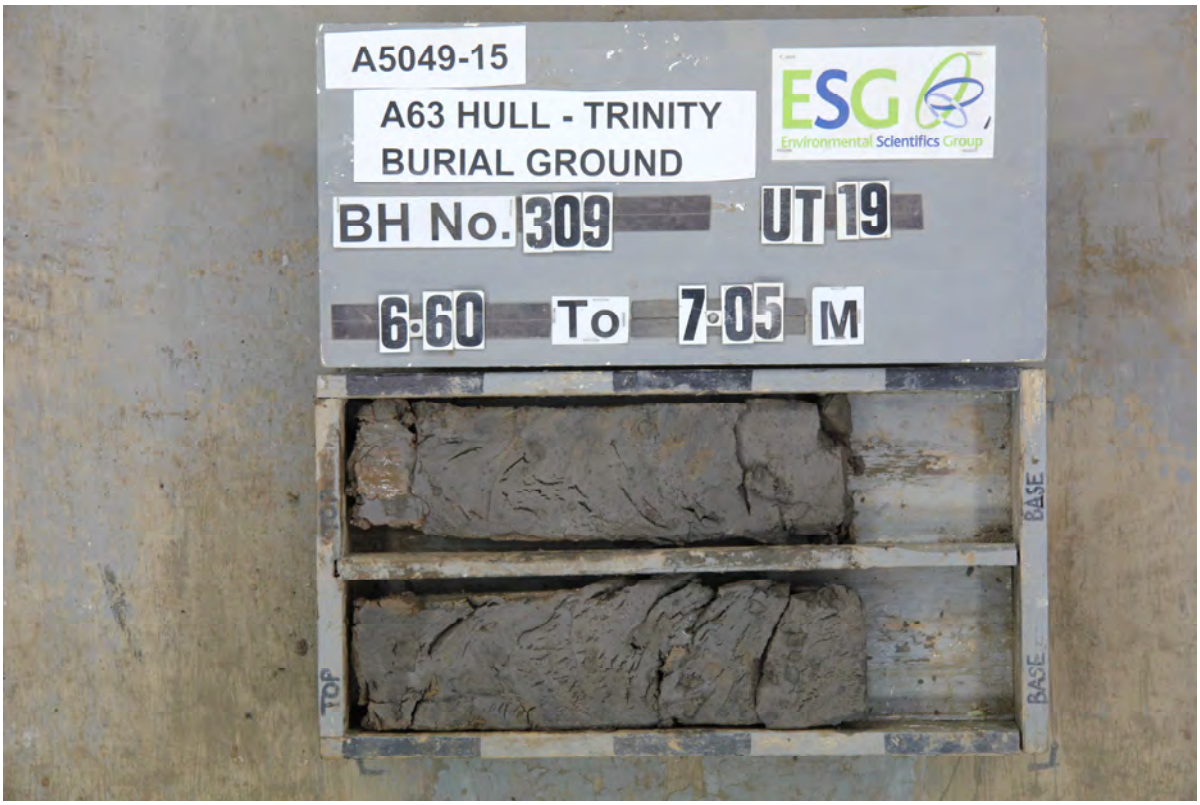

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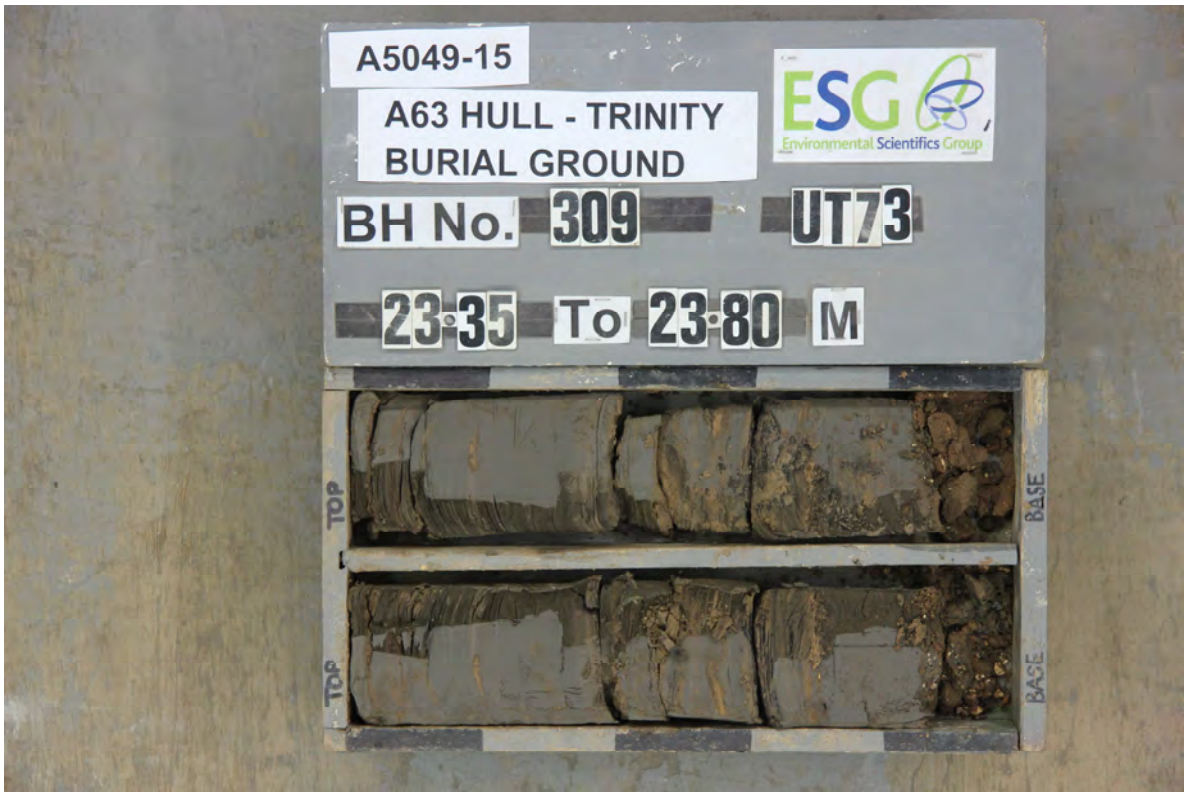

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Notes:	Project: A63 PRINCESS QUAY Project No.: A5066-15 Carried out for: Balfour Beatty Limited	Plate 77

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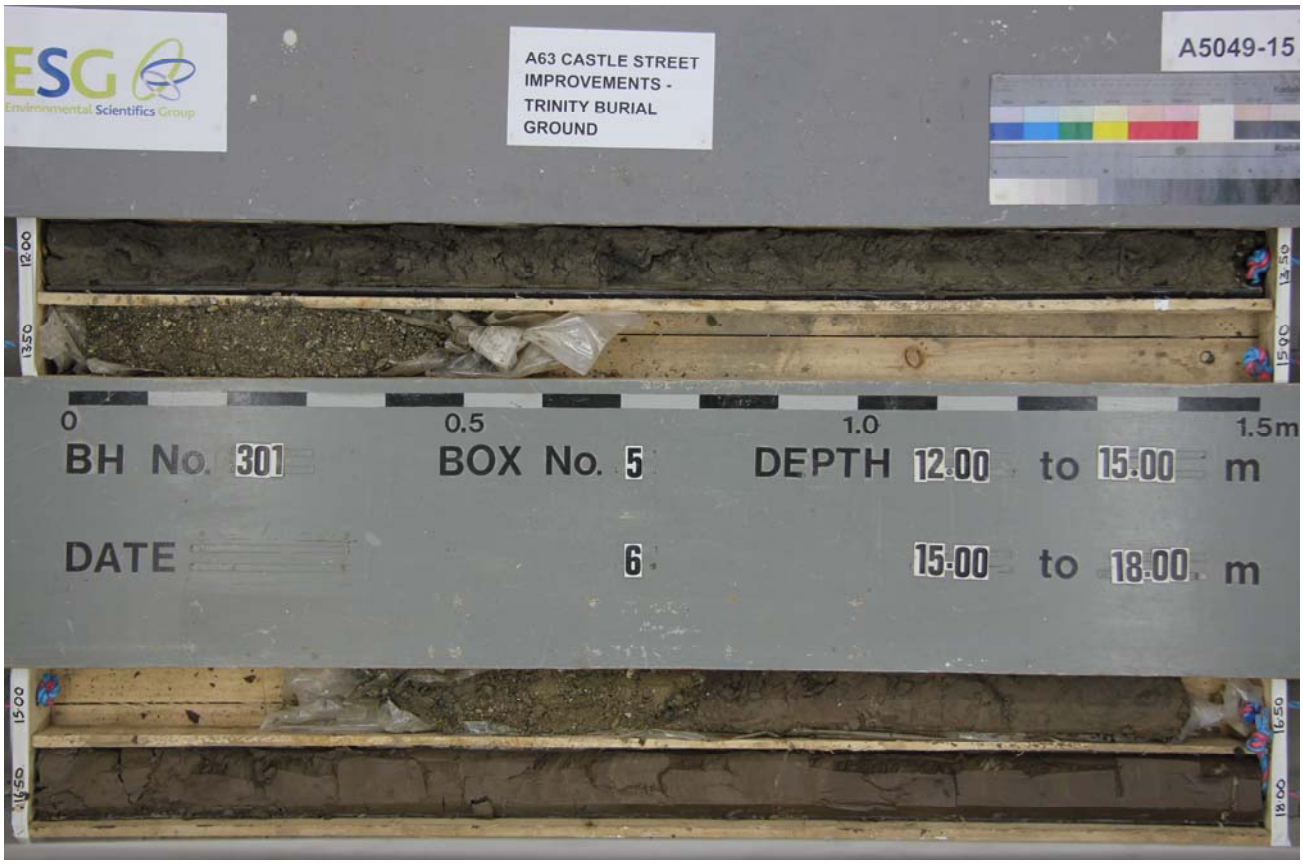
Core Photographs

Notes:	**Project** TRINITY BURIAL GROUND, HULL **Project No.** A5049-15 **Carried out for** Balfour Beatty	**BH301**

Core Photographs



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	Carried out for	Balfour Beatty	

Core Photographs

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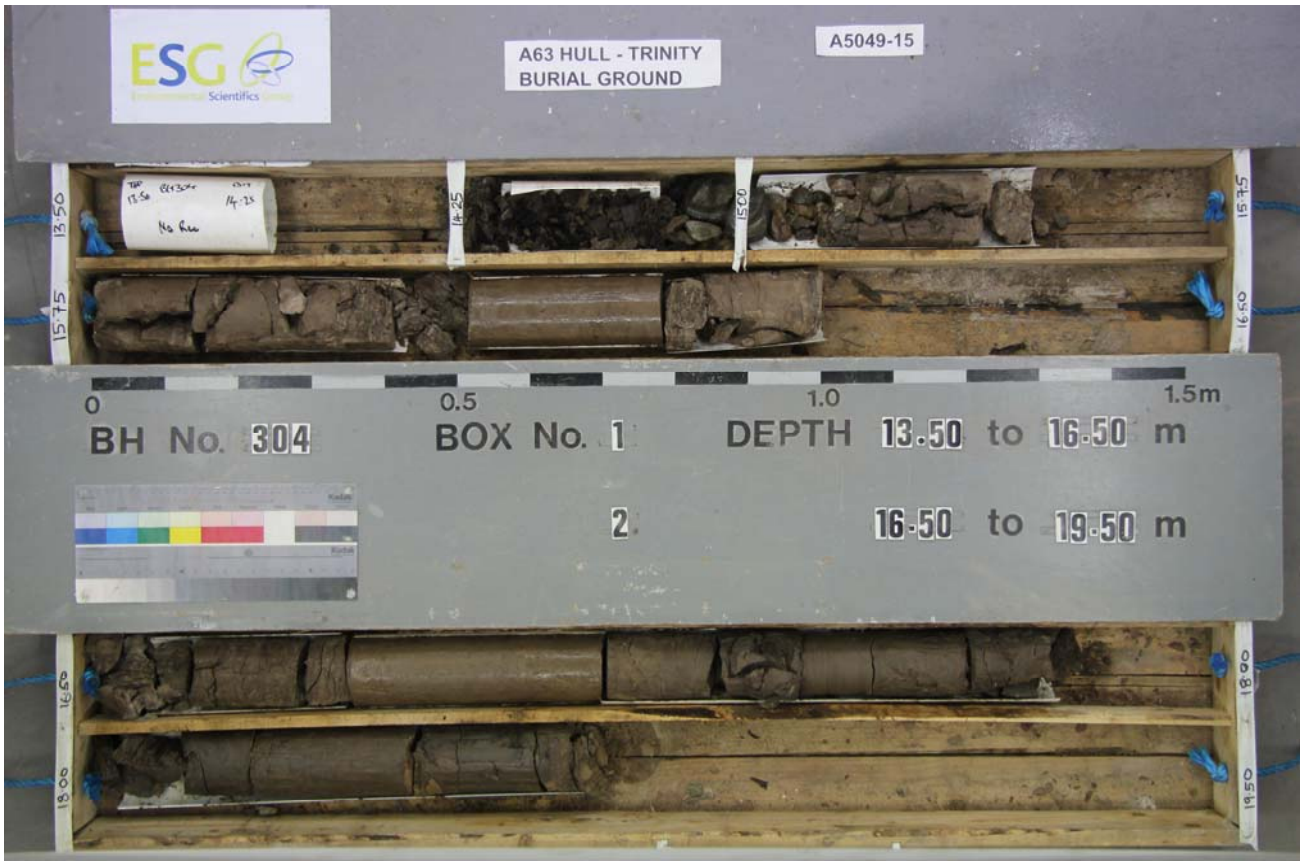
Core Photographs

Notes:	Project: TRINITY BURIAL GROUND, HULL Project No.: A5049-15 Carried out for: Balfour Beatty	BH301

Core Photographs



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Core Photographs

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	Proiect No.	A5049-15	
	Carried out for	Balfour Beatty	

Core Photographs

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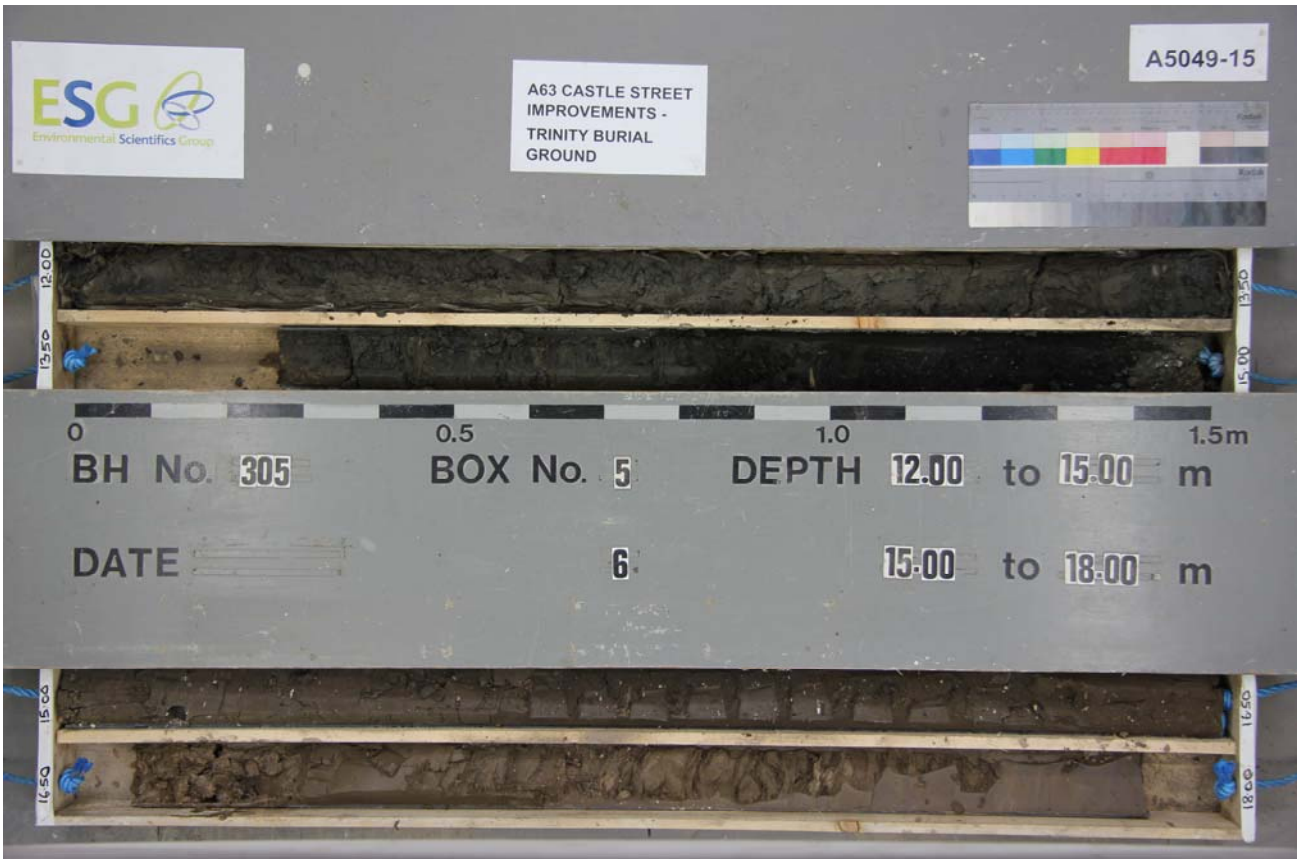
Core Photographs

Notes:	**Project** TRINITY BURIAL GROUND, HULL **Project No.** A5049-15 **Carried out for** Balfour Beatty	**BH305**

Core Photographs



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	Carried out for	Balfour Beatty	

Core Photographs

Notes:	Project	TRINITY BURIAL GROUND, HULL	BH305
	Project No.	A5049-15	
	Carried out for	Balfour Beatty	

Core Photographs

Notes:	Project	TRINITY BURIAL GROUND, HULL	BH305
	Project No.	A5049-15	
	Carried out for	Balfour Beatty	

Core Photographs

Notes:	Project: TRINITY BURIAL GROUND, HULL Project No.: A5049-15 Carried out for: Balfour Beatty	BH310

Core Photographs

Notes:	Project	TRINITY BURIAL GROUND, HULL	BH310
	Project No.	A5049-15	
	Carried out for	Balfour Beatty	

Annex E: Summary of geology and hydrogeology at site compounds

Site compound name	Summary of geological succession (thicknesses of units given)	Additional geological comments	Hydrogeology	Groundwater levels	Borehole reference
Land southeast of Mytongate Junction	1.8 – 3.75m made ground 10 – 13m cohesive alluvium Up to 1.4m granular alluvium 1.2 – 5.5m glacial till 6.4 – 7.65m glaciolacustrine deposits 3.2 – 4.3m fluvio-glacial deposits Chalk located at depths of between 27.95 and 28.6m	Granular alluvium absent in all but one borehole log	• Groundwater confirmed (by water strikes and seepages) in cohesive alluvium, granular alluvium (where present), glacial till, glaciolacustrine deposits and fluvio-glacial deposits. • Granular alluvium aquifer mostly absent. • Chalk aquifer assumed to be in hydraulic continuity with overlying fluvio-glacial deposits and confined by glaciolacustrine deposits. • Groundwater vulnerability classification of the Chalk is Low.	Cohesive alluvium: 0.5 – 1.75maOD (BH27) Glacial till: 0 – 1.6maOD (BH25, BH26) Chalk: -0.75 – 3maOD (BH24, LDBH01 rest water levels only)	BH24 BH25 BH26 BH27 LDBH01 LDBH02
Arco Site	Up to 5m made ground 6.5 – 9.3m cohesive deposits 4 – 6.3m glacial till 6.5 – 7.3m glaciolacustrine deposits 1.2 – 2.8m fluvio-glacial deposits Chalk located at depths of between 21.6 and 23.4mbGL	Granular alluvium absent	• Groundwater confirmed (by water strikes and seepages) in cohesive alluvium, glacial till, glaciolacustrine deposits and fluvio-glacial deposits. • Granular alluvium aquifer absent. • Chalk aquifer assumed to be in hydraulic continuity with the overlying fluvio-glacial deposits and confined by low permeability layers of the glaciolacustrine deposits.	(Cohesive alluvium: …. (!995 BH04) Glacial till: -0.68 – 0.41maOD (BH01) Glaciolacustrine deposits: -0.59 – 0.7maOD (BH03)	BH01 BH03 TA02NE626 TA02NE109
Staples Site	Up to 4m made ground 7.2 – 12m cohesive alluvium (including peat) 4.9 – 5.1m granular alluvium, where present 0.6 – 2.5m glacial till 2.1 – 6.9m glaciolacustrine deposits 0.4 – 4m fluvio-glacial deposits Chalk located at a depth of 23mbGL	Granular alluvium is absent from some borehole logs. Glacial till is granular in places	• Groundwater confirmed (by water strikes and seepages) in cohesive and granular alluvium, glacial till and Chalk • Granular alluvium aquifer present (confirmed by water level information). • Chalk aquifer likely to be in hydraulic continuity with overlying fluvio-glacial deposits (although not explicitly confirmed in borehole logs), and confined by overlying glaciolacustrine deposits. • Groundwater vulnerability classification of the Chalk is Low.	Cohesive alluvium: 0.4 – 0.7maOD (BH32) Granular alluvium: 0.3 – 0.6mAOD (BH34) Chalk: -1 – 2maOD (BH33)	BH32 BH33 BH34 TA02NE641 TA02NE647 TA02NE646 TA02NE644
Livingstone Road	Up to 5m made ground 4 – 6.7m cohesive alluvium Up to 9.6m glacial till (absent in some BHs) Up to 3.4m fluvio-glacial deposits (absent in some BHs) Chalk located at depths of between 9 and 12.95mbGL	Chalk rockhead at much shallower depths than seen elsewhere. Alluvium described as soft silty clays with pockets of sand and gravel horizons. Glaciolacustrine deposits largely absent, although narrow band (0.77 m) identified in one borehole. Fluvio-glacial deposits directly underlie the alluvium in two boreholes.	• Groundwater confirmed (by water strikes) in made ground, cohesive alluvium and Chalk • Granular alluvium aquifer absent. • Chalk aquifer at shallow depth and may be confined by glacial till, where present. Possible hydraulic connection between cohesive alluvium and Chalk aquifer, due to absence of confining layers. • Groundwater vulnerability classification of the Chalk is Medium-High, with soluble rock risk.	Chalk: 3.05 - 5.48mbDAT, Jul-47	TA02NW195 TA02NW196 TA02NW65/A TA02NW40
Myton Centre	2m cohesive alluvium 7.4m glacial till 5.3m glaciolacustrine deposits 5.1m fluvio-glacial deposits Chalk located at a depth of 20.7mbGL	Granular alluvium absent	• Groundwater confirmed (by water strikes) in glaciolacustrine deposits, fluvio-glacial deposits and Chalk. • Granular alluvium aquifer absent. • Chalk aquifer in hydraulic continuity with overlying fluvio-glacial deposits, and confined by glacial till above this. • Groundwater vulnerability classification of the Chalk is Low.	Chalk: -0.74 – 1.84mAOD (Aug-13 – Jul-14)	BH02

Wellington Street Island Wharf	Up to 10m made ground Up to 12.1m cohesive alluvium 3 – 6.5m glacial till 5.5 - 8.8m glaciolacustrine deposits 5.7 - 8.1m fluvio-glacial deposits Chalk located at depths of between 30 and 34.5mbGL	Greater thicknesses of made ground located adjacent to Humber Estuary and Albert Dock. Granular alluvium absent	• Groundwater confirmed (by water strikes) in made ground, cohesive alluvium, glacial till and Chalk. • Granular alluvium aquifer absent. • Chalk aquifer assumed to be in hydraulic continuity with overlying fluvio-glacial deposits, and confined by overlying glacial till and glaciolacustrine deposits. • Groundwater vulnerability classification of the Chalk is Low.	Chalk: 6.17mbDAT (~1.4mAOD), Feb-97	TA02NE954 TA02NE487 TA02NE617 TA02NE522 TA02NE489
A63 Eastbound Recovery Base	0 – 2m made ground 6m cohesive alluvium (described as soft laminated grey very silty clay, becoming soft clayey silt towards the base) 10m grey silty fine to medium sand with bands of firm dark grey laminated silty clay (assumed to be interbedded alluvium and glaciolacustrine deposits) Chalk gravel (fluvio-glacial deposits) at a depth of 18mbGL; Chalk not penetrated	Glacial till absent.	• Groundwater confirmed (by water strikes) in sand horizons of the alluvium. • Chalk aquifer not encountered • Groundwater vulnerability classification of the Chalk is Medium-High	No details	TA02NE120
A63 Westbound Recovery Base	5m made ground 15m cohesive alluvium 4m glacial till 8.8m glaciolacustrine deposits 7.7m fluvio-glacial deposits Chalk located at a depth of 35.5mbGL	Granular alluvium absent	• Groundwater confirmed (by water strikes) in cohesive alluvium. • Granular alluvium aquifer absent.	No details	TA12NW270
Neptune Street Set Down	Up to 4.4m made ground 3.8 – 9.4m alluvium 6.9 – 10.3m glacial till 6.2 - 6.7m glaciolacustrine deposits 7 - 8.7 m fluvio-glacial deposits Chalk located at depths of between 29.5 and 33mbGL	Granular alluvium absent 'warp clay' present in some BH logs	• Groundwater confirmed (by water strikes) in cohesive alluvium and fluvio-glacial deposits. • Granular alluvium aquifer absent.	Cohesive alluvium: 4.9mbDAT (0.14maOD), Feb-97	TA02NE101/P TA02NE950 TA02NE101/N TA02NE/521 TA02/209

British Geological Survey borehole records available at http://mapapps2.bgs.ac.uk/geoindex/home.html

Annex F: Borehole installation summary table

A63 Castle Street - Borehole Installations (2013 ground investigation)							
BH Number	Co-ordinates	Ground Level (mAOD)	Type of installation	Monitoring Horizon Depths		Monitored Horizon	Comments
				mbgl	mAOD		
BH01	508975, 428161	2.47	50 mm standpipe	8 to 12	-5.53 to -9.53	Glacial Till	
BH02	508996, 428214	2.91	50 mm standpipe	24 to 33.3	-21.09 to -30.39	Chalk	
BH03	509015, 428177	2.66	50 mm standpipe	18 to 20	-15.34 to -17.34	Glaciolacustrine	
BH04	509103, 428278	2.83	50 mm standpipe	11 to 14	-8.17 to -11.17	Glacial Till	
BH05	509160, 428250	2.75	50 mm standpipe	6 to 10	-3.25 to -7.25	Cohesive Alluvium	Installation in cohesive alluvium with a small layer of peat and granular alluvium (gravel).
BH06	509218, 428283	2.79	50 mm standpipe	17 to 21	-14.21 to -18.21	Glaciolacustrine	
BH07	509193, 428317	2.99	50 mm standpipe	4 to 8	-1.01 to -5.01	Cohesive Alluvium	
BH08	509250, 428291	2.76	Vibrating wire piezometer	6	-3.24	Cohesive Alluvium	
BH08	509250, 428291	2.76	Vibrating wire piezometer	18.05	-15.24	Glaciolacustrine	
BH08	509250, 428291	2.76	Vibrating wire piezometer	28	-25.24	Chalk	
BH09	509238, 428339	3.02	Vibrating wire piezometer	9.5	-6.48	Peat	
BH09	509238, 428339	3.02	Vibrating wire piezometer	19.2	-16.18	Glaciolacustrine	
BH09	509238, 428339	3.02	Vibrating wire piezometer	25.5	-22.48	Chalk	
BH10	509294, 428321	3.08	Vibrating wire piezometer	13	-9.92	Glacial Till	
BH10	509294, 428321	3.08	Vibrating wire piezometer	23	-19.92	Glaciolacustrine	
BH10	509294, 428321	3.08	Vibrating wire piezometer	35	-31.92	Chalk	
BH11	509279, 428374	3.23	50 mm standpipe	26.7 to 40.2	-23.47 to -36.97	Chalk	
BH12	509281, 428378	3.21	50 mm standpipe	5.3 to 8.3	-2.09 to -5.09	Cohesive Alluvium	
BH13	509283, 428381	3.17	50 mm standpipe	15.5 to 17.5	-12.33 to -14.33	Glacial Till	Glacial till is granular (sand), and bottom of installation

							protrudes into glaciolacustrine.
BH14	509361, 428391	3.6	50 mm standpipe	10.5 to 12.3	-6.9 to -8.7	Cohesive Alluvium	
BH15	509363, 428393	3.55	50 mm standpipe	13 to 16	-9.45 to -12.45	Glacial Till	Installation in glacial till, with top of installation in a small layer of cohesive alluvium.
BH16A	509326, 428409	3.59	Vibrating wire piezometer	6	-2.41	Cohesive Alluvium	
BH16A	509326, 428409	3.59	Vibrating wire piezometer	13.5	-9.91	Glacial Till	
BH16A	509326, 428409	3.59	Vibrating wire piezometer	19	-15.41	Glaciolacustrine	
BH17	509291, 428397	3.17	Vibrating wire piezometer	4	-0.83	Cohesive Alluvium	
BH17	509291, 428397	3.17	Vibrating wire piezometer	14.3	-11.13	Glacial Till	Glacial till is granular (sand).
BH17	509291, 428397	3.17	Vibrating wire piezometer	18	-14.83	Glaciolacustrine	
BH18A	509357, 428383	3.52	50 mm standpipe	27 to 40	-23.48 to -36.48	Chalk	
BH19A	509311, 428445	3.04	50 mm standpipe	10 to 11.3	-6.96 to -8.26	Granular Alluvium	
BH20	509300, 428489	2.7	50 mm standpipe	16.6 to 18.6	-13.9 to -15.9	Glaciolacustrine	
BH21	509299, 428493	2.67	50 mm standpipe	9.8 to 11.7	-7.13 to -9.03	Granular Alluvium	
BH22	509301, 428485	2.75	50 mm standpipe	24 to 37.3	-21.25 to -34.55	Chalk	
BH23	509351, 428375	3.49	Vibrating wire piezometer	8	-4.51	Cohesive Alluvium	
BH23	509351, 428375	3.49	Vibrating wire piezometer	15.5	-12.01	Glacial Till	
BH23	509351, 428375	3.49	Vibrating wire piezometer	19.5	-16.01	Glaciolacustrine	
BH24	509380, 428352	4.9	50 mm standpipe	34.5 to 47.2	-29.6 to -42.3	Chalk	
BH25	509376, 428332	4.65	50 mm standpipe	14.5 to 17.2	-9.85 to -12.55	Glacial Till	
BH26	509383, 428318	4.54	50 mm standpipe	13.5 to 15.5	-8.96 to -10.96	Glacial Till	Installation is in peat, cohesive alluvium, and glacial till.
BH27	509389, 428317	4.4	50 mm standpipe	6.2 to 10.2	-1.8 to -5.8	Cohesive Alluvium	
BH28	509391, 428289	4.48	50 mm standpipe	13.5 to 17	-9.02 to -12.52	Glacial Till	

BH29	509387, 428287	4.5	50 mm standpipe	36 to 50	-31.5 to -45.5	Chalk	
BH30	509474, 428343	4.4	50 mm standpipe	11.8 to 14.8	-7.4 to -10.4	Cohesive Alluvium	Installation in cohesive alluvium with a small layer of peat.
BH32	509415, 428465	3.17	50 mm standpipe	7.5 to 11.05	-4.33 to -7.88	Cohesive Alluvium	
BH33	509410, 428464	3.18	50 mm standpipe	28.5 to 40.5	-25.32 to -37.32	Chalk	
BH34	509420, 428467	3.17	50 mm standpipe	13.9 to 15.25	-10.73 to -12.08	Granular Alluvium	Installation in granular alluvium (gravel). Top of installation is in 5 mm of peat.
BH35 P1	509501, 428465	3.07	19 mm standpipe piezometer	10 to 11	-6.93 to -7.93	Granular Alluvium	
BH35 P2	509501, 428465	3.07	19 mm standpipe piezometer	16.5 to 17.5	-13.43 to -14.43	Granular Alluvium	Installation is in granular alluvium (gravel), and protrudes slightly into glacial till.
BH36	509488, 428423	3.31	Vibrating wire piezometer	10	-6.69	Cohesive Alluvium	
BH36	509488, 428423	3.31	Vibrating wire piezometer	22.7	-19.39	Glaciolacustrine	
BH36	509488, 428423	3.31	Vibrating wire piezometer	27.5	-24.19	Fluvio-glacial	
BH37	509639, 428485	4.98	50 mm standpipe	14 to 18	-9.02 to -13.02	Granular Alluvium	
BH38	509676, 428488	4.85	50 mm standpipe	12 to 15	-7.15 to -10.15	Granular Alluvium	
BH39	509673, 428472	4.99	Vibrating wire piezometer	10	-5.01	Cohesive Alluvium	
BH39	509673, 428472	4.99	Vibrating wire piezometer	16	-11.01	Granular Alluvium	
BH39	509673, 428472	4.99	Vibrating wire piezometer	37	-32.01	Chalk	
BH40A	509706, 428517	4.72	50 mm standpipe	20 to 22.5	-15.28 to -17.78	Granular Alluvium	
BH41A	509706, 428434	4.67	50 mm standpipe	2 to 5	2.67 to -0.33	Granular Made Ground	
BH42	509751, 428402	4.85	50 mm standpipe	25 to 32	-20.15 to -27.15	Fluvio-glacial	
BH43	509835, 428430	4.04	50 mm standpipe	12 to 17	-7.96 to -12.96	Granular Alluvium	
BH44	509966, 28445	4.4	50 mm standpipe	12.5 to 15.5	-8.1 to -11.1	Granular Alluvium	

BH45	509935, 428408	4.64	50 mm standpipe	25 to 31	-20.36 to -26.36	Fluvio-glacial	
BH46	510120, 428449	2.83	50 mm standpipe	10.8 to 13.5	-7.97 to -10.67	Granular Alluvium	Installation is in granular alluvium (sand), cohesive alluvium, and peat.
BH47	509454, 428422	3.28	50 mm standpipe	12 to 15	-8.72 to -11.72	Granular Alluvium	Installation is in granular alluvium (sand), cohesive alluvium, and peat.
SBP01	509315, 428392	3.44	50 mm standpipe	16 to 17	-12.56 to -13.56	Glacial Till	Glacial till is granular (sand).
SBP02	509382, 428459	3.21	50 mm standpipe	2 to 5	1.21 to -1.79	Cohesive Alluvium	Installation is in cohesive alluvium and made ground.
SBP03	509328, 428326	3.17	50 mm standpipe	16 to 17	-12.83 to -13.83	Glaciolacustrine	
SBP04	509330, 428359	3.49	50 mm standpipe	4 to 7	-0.51 to -3.51	Cohesive Alluvium	
WS01	509323, 428358	3.51	50 mm standpipe	3 to 5	0.51 to -1.49	Cohesive Alluvium	
WS03	509362, 428393	3.53	50 mm standpipe	3 to 5	0.53 to -1.47	Cohesive Alluvium	
WS05	509394, 428406	3	50 mm standpipe	2.5 to 5	0.5 to -2	Cohesive Alluvium	
WS10A	509342, 428473	3.14	50 mm standpipe	2.5 to 5	0.64 to -1.86	Cohesive Alluvium	
WS13	509465, 428458	3.19	50 mm standpipe	2.5 to 5	0.69 to -1.81	Cohesive Alluvium	
WS20	509289, 428509	2.78	50 mm standpipe	2.5 to 5	0.28 to -2.22	Cohesive Alluvium	
WS22	509305, 428469	2.88	50 mm standpipe	0.5 to 2.5	2.38 to 0.38	Cohesive Made Ground	Installation is in cohesive made ground, granular made ground, and cohesive alluvium.
WS25	509400, 428322	4.69	50 mm standpipe	1 to 4	3.69 to 0.69	Cohesive Made Ground	Installation is in cohesive made ground, granular made ground, and cohesive alluvium.
WS26	509445, 428429	3.2	50 mm standpipe	0.5 to 1.5	2.7 to 1.7	Cohesive Made Ground	Installation is in cohesive made ground and granular made ground.

A63 Castle Street – Borehole installations (2015-16 ground investigation)							
BH number	Coordinates	Ground level (mAOD)	Type of installation	Monitoring horizon depths		Monitored horizon	Comments
				mbgl	mAOD		
BH301	509383, 428372	3.01	50mm standpipe	6 to 8	-2.99 to -4.99	Cohesive Alluvium	
BH302	509396, 428365	3.08	50mm standpipe	2.5 to 5	0.58 to -1.92	Cohesive Alluvium	
BH303	509401, 428396	3.11	50mm standpipe	11 to 12.5	-7.89 to -9.39	Glacial Till	very narrow band of granular alluvium at this location
BH304	509410, 428390	3.03	Electronic Piezometer	0 to 1.2	3.03 to 1.83	Made Ground & Cohesive Alluvium	
BH305	509421, 428406	3.36	50mm standpipe	25 to 29	-21.64 to -25.64	Fluvio-Glacial Deposits	Base of installation is in Chalk (23.44 - 25.14mAOD)
BH306	509444, 428383	3.12	50mm standpipe	27.4 to 29.4	-24.28 to -26.28	Chalk	Top of installation is in Fluvio-Glacial Deposits (27.4 - 27.9mbGL)
BH307	509437, 428406	2.95	50mm standpipe	2 to 4	0.95 to -1.05	Cohesive Alluvium	
BH308	509424, 428418	3.23	50mm standpipe	10 to 11.8	-6.77 to -8.57	Granular Alluvium	Top ~1m may be base of Cohesive Alluvium.
BH309	509471, 428398	3.19	50mm standpipe	1.5 to 5	1.69 to -1.81	Cohesive Alluvium	
BH310	509499, 428410	3.54	Electronic Piezometer	0 to 1.2	3.54 to 2.34	Made Ground	
BH402	508938, 428177	2.64	50mm standpipe	5.5 to 9.4	-2.86 to -6.76	Cohesive Alluvium	
BH403	509209, 428324	2.98	Electronic Piezometer	0 to 6.5	2.98 to -3.52	Made Ground & Cohesive Alluvium	
BH404	509249, 428309	2.91	50mm standpipe	12 to 14	-9.09 to -11.09	Glacial Till	
BH405	509285, 428329	3.16	50mm standpipe	7 to 9	-3.84 to -5.84	Cohesive Alluvium	
BH406	509308, 428381	3.33	50mm standpipe	12 to 14.5	-8.67 to -11.17	Glacial Till	

BH407	509336, 428357	3.48	Electronic Piezometer	0 to 8.5	3.48 to -5.02	Made Ground & Cohesive Alluvium	
BH408	509360, 428406	3.61	50mm standpipe	9 to 11.5	-5.39 to -7.89	Cohesive Alluvium	
BH410	509545, 428423	4.39	50mm standpipe	5 to 8	-0.61 to -3.61	Cohesive Alluvium	
BH411	509574, 428472	4.24	50mm standpipe	13.5 to 17.1	-9.26 to -12.86	Granular Alluvium	
BH412	509610, 428414	4.84	50mm standpipe	21 to 23.5	-16.16 to -18.66	Glaciolacustrine Deposits	
BH413	509633, 428469	5.16	50mm standpipe	6.5 to 10	-1.34 to -4.84	Cohesive Alluvium	
BH414	509656, 428434	4.68	50mm standpipe	14 to 17	-9.32 to -12.32	Granular Alluvium	
BH415	509653, 428473	5.29	50mm standpipe	40.5 to 45	-35.21 to -39.71	Chalk	
BH416	509677, 428433	4.58	50mm standpipe	3.5 to 5.6	1.08 to -1.02	Made Ground	
BH417	510051, 428444	5.08	50mm standpipe	6.5 to 9	-1.42 to -3.92	Cohesive Alluvium	
BH501	509664, 428473	5.23	50mm standpipe	22.5 to 25	-17.27 to -19.77	Glaciolacustrine Deposits	
BH502	509737, 428422	4.87	50mm standpipe	16.5 to 18.5	-11.63 to -13.63	Granular Alluvium	

Annex G: Arup (2018) October 2017 Groundwater data issue memo

ARUP

Subject A63 Castle Street: October 2017 Groundwater Data Issue

Date 23 January 2018 **Job No/Ref** 237912

Introduction

This note presents the corrections applied by Arup to the groundwater data collected by the Contractor Socotec (formerly ESG). As documented previously, Arup have applied corrections to the groundwater data in the past due to a lack of confidence in the data provided. In order to gain confidence in the data, Arup have worked with Socotec to document a process for the monitoring of instruments. There has been an improvement in the quality of the groundwater data provided.

This note covers the monitoring period December 2016 and October 2017, which included monitoring visits in March, June and October 2017. The groundwater data provided for the March and June visits, when corrected to the manual dip, matched the historical groundwater data. For the latest round of monitoring (October 2017), a number of minor corrections have been applied, these are summarised in the tables below.

At the time of writing Arup are awaiting a response from the contractor on the following issues:

- BH415 – clarification on the software update, on the 16th June 2017;
- BH404 – missing data between 27/06/2017 and 05/07/2017;
- BH417 – 1 month of missing data between 26/06/2017 and 27/06/2017; and
- BH303 – a 7cm jump noted in the July and October data. We have asked the contractor to check the logger and determine whether it requires servicing.

Data Corrections

The following corrections have been applied to the groundwater data. When a borehole is not listed in the tables below, no correction was applied.

514508-ARP-XX-XX-CS-CG-00043 chalk

BH ID	Arup correction (m)	Comments
BH415	0	There is a jump in the data from the latest round of monitoring. The datalogger was extracted on the 26th June and taken to the Socotec lab for a software update and the diver was reinstalled on the 27th June 2017. Neither the 27th June or the 18th October dip match the historical data. Both dips are questionable, therefore the raw data is presented. The data will be checked against the next round of monitoring in Feb/March.

BH306 data-logger lost down the borehole. Socotec could not retrieve the data-logger, with their specialist equipment. The logger has not been replaced.

Subject A63 Castle Street: October 2017 Groundwater Data Issue

Date 23 January 2018 **Job No/Ref** 237912

514508-ARP-XX-XX-CS-CG-00044 cohesive alluvium

BH ID	Arup correction (m)	Comments
BH301	+0.54	There was a significant jump in the data which did not match the consistent trend of the historical data. The data has been matched to the June and March dips and will be checked against the next round of monitoring in Feb/Mar 2018.
BH405	+0.1	Adjusted by 0.1m to match the previous data.
BH417	0	1 month of missing data between 26/06 and 26/07. This has been queried with the GI contractor. The data also shows groundwater levels significantly higher, ~1m out. It appears the manual dip is incorrect. When the missing data is received a decision will be made. Currently the raw data is displayed.

A seasonal depression is noted in the loggers in boreholes BH307 and BH309, both located towards the eastern extent of the Trinity Burial Ground (TBG). The reason for the depression is not known.

514508-ARP-XX-XX-CS-CG-00045 fluvioglacial sand and gravel

No data correction required.

514508-ARP-XX-XX-CS-CG-00046 glacial till

BH ID	Arup correction (m)	Comments
BH303	0	Based upon the dips provided, there appears to be a 7cm offset in groundwater level recorded in each of the last 3 rounds of monitoring. We have asked the contractor to check the logger on the next visit, and if required it will be serviced. Each dataset presented is corrected to the dip taken before removal of data logger.
BH404	0	There is data missing between the 27th June and 5th July, this missing data has been queried with the GI contractor.
BH406	0.1	A 0.1m correction has been applied to the data. It is assumed that the latest dip is incorrect. The data has been matched to the June and March dips and will be checked against the next round of monitoring in Feb/Mar 2018.

514508-ARP-XX-XX-CS-CG-00047 glaciolacustrine deposits

No data corrections. However there is an unusual drawdown feature in the BH412 data. This borehole is located adjacent to the marina, and could be associated with changes in marina water level. Whilst it wouldn't be expected that the GLC deposits would be impacted by changes in water level in the marina.

Also the BH412 data appears to show a tidal response, it is considered that the seal around the instrument may be compromised and could be exhibiting a muted response to the changes in pressure in the chalk.

514508-ARP-XX-XX-CS-CG-00044 granular alluvium

No data corrections, all dip corrected data was within 3cm of the previous data set.

ARUP

Subject	A63 Castle Street: October 2017 Groundwater Data Issue		
Date	23 January 2018	**Job No/Ref**	237912

514508-ARP-XX-XX-CS-CG-00044 made ground

No installations within the made ground. The data-logger from BH416 disappeared and was not replaced.

Annex H: Purging record and wellhead multimeter readings

DATA SHEET

Project: A63 CASTLE STREET IMPROVEMENT, HULL
Project No.: PC135320

Table 4: Borehole Purging Record

Exploratory Hole	Date	pH	Temperature (Degrees C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/Litre)	Oxidation Redox Potential (mV)	Volume Purged (L)	Sheen	Odour	Turbidity
BH01	11/09/2013						80	None	None	High
BH01	03/10/2013	7.27	14.1	18.30	6.21	-81.5	60	None	None	Cloudy, Milky Grey
BH01	24/10/2013	7.27	13.3	11.14	1.28	-61.8	66	None	None	Cloudy, Milky Grey
BH02	09/09/2013						800	None	None	V. Low, Clear
BH02	01/10/2013	6.40	12.8	28.20	1.54	-62.5	200	None	None	Clear
BH02	21/10/2013	5.99	12.0	28.30	1.79	-56.6	180	None	None	Clear
BH02	16/12/2013 (10:20)	6.68	12.2	2.76	2.13	-14.9	176	None	None	Clear
BH03	11/09/2013						300	None	None	High
BH03	03/10/2013	6.94	13.3	27.00	1.03	-93.4	108	None	None	Cloudy, Milky Grey
BH03	24/10/2013	6.93	13.3	26.9	1.17	-89.0	146	None	None	Cloudy, Milky Grey
BH03	17/12/2013 (14:10)	8.06	10.5	2.88	1.75	-101.5	100	None	None	Slight Cloudy, Brown
BH04	09/09/2013						80	None	None	V. High
BH04	01/10/2013	6.68	13.3	20.44	1.59	-70.2	180	None	None	Slight, Grey
BH04	21/10/2013	6.49	12.5	20.55	0.23	-106.6	66	None	None	V. Murky, Grey
BH04	16/12/2013 (11:00)	7.23	11.6	2.28	8.04	40.5	76	None	None	V. Murky, Brown
BH05	10/09/2013						180	None	None	High
BH05	03/10/2013	7.22	13.5	19.23	2.16	-118.7	45	None	None	V. Murky, Brown
BH05	24/10/2013	7.23	13.8	15.91	0.86	-149.6	64	None	None	V. Murky, Brown
BH05	17/12/2013 (13:40)	8.17	11.1	1.324	0.97	-165.6	29	None	None	Murky, Grey Brown
BH06	11/09/2013						300	None	None	High
BH06	03/10/2013	6.94	13.5	23.10	0.41	-51.3	108	None	None	V. Murky, Brown
BH06	24/10/2013	6.90	13.7	20.98	0.72	-106.3	150	None	None	Murky, Brown
BH07	02/09/2013						30	None	None	V. High
BH07	01/10/2013	7.42	13.3	9.33	0.21	-172.9	30	None	None	V. Murky, Brown/Grey
BH07	21/10/2013	7.27	12.3	7.62	0.22	-195.3	33	None	None	V. Murky, Grey
BH07	16/12/2013 (13:10)	7.62	11.5	0.414	0.28	-124.2	36	None	None	V. Murky, Grey Brown
BH11	04/09/2013						1500	None	None	V. Low Clear
BH11	01/10/2013	7.69	13.5	27.70	0.82	-162.0	210	None	None	Slight
BH11	21/10/2013	7.28	12.6	27.80	2.08	-67.3	235	None	None	None
BH12	04/09/2013						300	None	None	Medium to High
BH12	01/10/2013	7.91	13.8	2.85	1.28	-143.8	36	None	None	Slight
BH12	21/10/2013	7.43	12.9	2.85	1.71	-70.3	36	None	Slightly Sulphurous	Murky, Grey
BH12	16/12/2013 (11:55)	7.79	11.4	0.297	1.62	-80.9	37	None	Slightly Sulphurous	Murky, Grey
BH13	04/09/2013						300	None	None	Low, Almost Clear
BH13	01/10/2013	7.22	13.9	19.50	5.44	-69.9	84	None	None	Slight
BH13	21/10/2013	7.30	13.1	16.55	2.28	-69.8	86	None	None	Murky, Grey
BH13	16/12/2013 (12:20)	7.14	11.9	2.18	1.30	-42.9	78	None	None	Cloudy, Brown
BH14	06/09/2013						130	None	None	V. High
BH14	03/10/2013	6.94	13.7	18.36	0.74	-12.0	55	None	None	V. Murky, Brown
BH14	25/10/2013	7.33	13.1	0.892	3.75	-13.7	54	None	None	V. Murky, Brown
BH14	18/12/2013 (9:00)	7.68	7.6	1.946	2.34	21	56	None	None	
BH15	06/09/2013						200	None	None	V. High, Brown
BH15	03/10/2013	7.34	13.0	16.49	7.80	-100.1	79	None	None	Murky, Brown
BH15	25/10/2013	7.32	12.9	0.863	3.77	24.4	80	None	None	Murky, Brown
BH15	18/12/2013 (10:30)	7.54	9.3	2.148	6.64	-55.9	78	None	None	Murky, Grey Brown
BH18A	06/09/2013						1000	None	None	Medium
BH18A	03/10/2013	7.06	13.6	27.60	6.12	-93.8	220	None	None	Clear
BH18A	25/10/2013	7.23	12.7	26.4	4.57	-118.2	220	None	None	Almost Clear
BH18A	18/12/2013 (10:00)	7.71	8.6	3.08	8.21	-96.7	210	None	None	Clear

Exploratory Hole	Date	pH	Temperature (Degrees C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/Litre)	Oxidation Redox Potential (mV)	Volume Purged (L)	Sheen	Odour	Turbidity
BH19A	10/09/2013						250	None	None	Low, Almost Clear
BH19A	01/10/2013	7.80	13.3	7.83	1.44	-96.8	60	None	Slightly Sulphurous	Murky, Grey
BH19A	21/10/2013	7.66	12.9	7.54	1.02	-166.3	60	None	None	Cloudy, Brown/Grey
BH20	29/08/2013						60	None	None	High, Brown
BH20	01/10/2013	7.15	12.8	17.75	2.95	-85.3	96	None	Slightly Sulphurous	Murky, Grey
BH20	21/10/2013	6.84	13.2	18.56	1.53	-88.3	96	None	None	Slight Cloudy, Grey
BH20	16/12/2013 (14:15)	7.27	10.7	1.995	1.32	-72.28	88	None	None	V. Murky, Brown
BH21	29/08/2013						340	None	None	V. High, Brown
BH21	01/10/2013	6.99	13.6	26.10	1.79	-130.6	208	None	None	Clear
BH21	16/12/2013 (14:30)	7.51	11.1	0.631	0.71	-142.1	42	None	None	Murky, Grey/Brown
BH22	03/09/2013						600	None	None	V. Low, Clear
BH22	01/10/2013	7.52	12.7	6.83	2.70	-86.3	86	None	Slightly Sulphurous	Murky, Grey
BH22	16/12/2013 (13:50)	7.41	11.0	2.97	2.38	-96.6	205	None	None	Clear
BH24	05/09/2013						1200	None	None	V. Low, Clear
BH24	02/10/2013	7.23	13.3	26.90	3.67	-97.9	250	None	None	Almost Clear
BH24	24/10/2013	7.84	11.3	27.4	1.78	-105.7	260	None	V Faint Sulphurous	Clear
BH24	17/12/2013 (14:45)	8.12	9.5	3.15	1.47	-119.3	252	None	None	Clear
BH25	05/09/2013						200	None	None	V. High, Brown
BH25	02/10/2013	6.94	12.5	17.98	0.81	-118.7	90	None	None	V. Murky, Grey
BH25	24/10/2013	7.12	11.3	3.95	1.21	-142.8	78	None	Slightly Sulphurous	Cloudy, Grey
BH25	17/12/2013 (15:05)	7.90	10.6	1.102	4.45	-100.6	78	None	Slightly Sulphurous	Murky, Brown
BH26	02/10/2013	7.01	12.8	18.55	2.75	-82.3	75	None	None	V. Murky, Grey
BH26	24/10/2013	6.73	12.0	19.49	1.42	-75.5	60	None	Slightly Sulphurous	V. Murky, Brown/Grey
BH26	17/12/2013 (15:20)	6.57	9.0	2.22	3.81	-109.1	68	None	None	Murky, Brown
BH27	05/09/2013						100	None	None	V. High, Brown
BH27	02/10/2013	7.54	12.1	2.61	0.65	-144.0	40	None	None	V. Murky, Brown/Grey
BH27	24/10/2013	7.21	11.9	3.57	1.81	-127.1	50	None	Slightly Sulphurous	V. Murky, Brown/Grey
BH28	09/09/2013						150	None	None	V. High, Mid Brown
BH28	02/10/2013	7.06	12.5	18.90	3.52	-63.4	90	None	None	V. Murky, Grey/Brown
BH28	17/12/2013 (10:25)	7.09	9.6	2.16	0.97	-18.1	86	None	None	Murky, Brown
BH29	09/09/2013						600	None	None	V. Low, Clear
BH29	03/10/2013	7.16	14.3	27.50	7.77	-78.6	280	None	None	Almost Clear
BH29	24/10/2013	9.08	10.9	20.36	1.57	-131.1	280	None	Faint Sulphurous	Clear
BH29	17/12/2013 (10:40)	7.84	10.6	2.95	1.29	-211.3	270	None	Slightly Sulphurous	Clear
BH30	09/09/2013						210	None	None	Low, Almost Clear
BH30	04/10/2013	7.06	13.3	18.74	2.01	139.4	64	None	None	Cloudy, Brown
BH30	17/12/2013 (9:30)	7.20	11.3	2.19	0.73	-126.5	45	None	None	Murky, Brown
BH32	28/08/2013						380	None	None	High, Heavy Sediment
BH32	01/10/2013	7.47	12.9	4.81	2.86	-69.3	48	None	None	Murky, Grey
BH33	30/08/2013						150	None	None	Low
BH33	01/10/2013	7.14	12.4	27.00	2.96	-114.6	240	None	None	V. Slight
BH33	16/12/2013 (15:00)	7.14	10.4	2.15	0.92	-121.1	68	None	None	Murky, Brown
BH34	28/08/2013						220	None	None	Almost Clear
BH34	01/10/2013	7.42	13.3	7.11	3.23	-89.1	20	None	None	Slight, Grey
BH34	21/10/2013	13.2	6.95	26.7	1.52	-163.4	220	None	None	Clear
BH35 (10.50m)	18/09/2013						20	None	None	V. Low, Clear
BH35 (10.50m)	04/10/2013	7.82	14.7	8.49	4.77	-22.2	Grab	None	None	Slight, Grey
BH35 (10.50m)	22/10/2013	8.17	14.4	1.398	9.62	-13.7	20	None	None	V. Murky, Grey
BH35 (17.00m)	18/09/2013						120	None	None	V. Low, Clear
BH35 (17.00m)	04/10/2013	7.12	14.0	19.80	3.46	-115.2	Grab	None	None	Slight, Grey
BH35 (17.00m)	22/10/2013	7.39	14.3	11.86	3.85	-70.6	35	None	None	V. Murky, Grey
BH35 (17.00m)	17/12/2013 (8:30)	7.22	9.1	2.121	2.76	-90.0	84	None	None	Murky, Brown
BH37	10/09/2013						280	None	None	V. High
BH37	02/10/2013	7.82	12.4	5.20	2.82	-78.4	90	None	Slightly Sulphurous	V. Murky, Grey
BH37	22/10/2013	7.73	14.0	4.34	7.10	-106.2	75	None	None	Murky, Grey

Exploratory Hole	Date	pH	Temperature (Degrees C)	Specific Conductivity (mS/cm)	Dissolved Oxygen (mg/Litre)	Oxidation Redox Potential (mV)	Volume Purged (L)	Sheen	Odour	Turbidity
BH38	10/09/2013						300	None	None	High
BH38	02/10/2013	7.83	12.9	4.61	3.74	-124.9	63	None	Slightly Sulphurous	Murky, Grey
BH38	22/10/2013	7.41	13.3	4.58	1.42	-171.8	63	None	None	Slightly Cloudy
BH40A	10/09/2013						250	None	None	High
BH40A	02/10/2013	7.21	12.6	6.44	2.49	-127.1	110	None	None	Slight
BH40A	22/10/2013	7.20	14.2	5.95	3.75	-97.9	115	None	None	Cloudy, Grey
BH41A	12/09/2013						70	None	None	V. Low, Clear
BH41A	02/10/2013	7.28	15.3	21.54	2.85	-25.6	17	None	None	Cloudy, Brown/Grey
BH41A	24/10/2013	7.23	11.5	22.3	4.45	43.5	17	None	None	Murky, Grey
BH41A	17/12/2013 (12:40)	8.36	10.0	2.27	5.67	133.8	19	None	None	Cloudy, Brown
BH42	10/09/2013						1000	None	None	Low, Almost Clear
BH42	03/10/2013	6.97	13.3	15.10	1.72	-120.5	144	None	None	Almost Clear
BH42	23/10/2013	6.99	12.9	5.04	1.79	-90.5	162	None	None	Cloudy, Brown/Grey
BH43	11/09/2013						100	None	None	V. High
BH43	02/10/2013	7.14	12.8	3.85	2.37	-118.0	85	None	None	Murky, Grey/Brown
BH43	23/10/2013	6.92	13.7	3.69	1.42	-148.7	95	None	None	Cloudy, Grey
BH44	02/10/2013	7.21	12.1	3.79	2.18	-158.8	72	None	None	Slightly Cloudy
BH44	22/10/2013	7.22	13.5	4.29	1.18	-158.0	75	None	Slightly Sulphurous	Slight Grey
BH45	12/09/2013						800	None	None	Medium/Low
BH45	02/10/2013	7.13	12.5	12.25	5.26	-100.2	150	None	None	Cloudy, Grey
BH45	24/10/2013	6.75	9.5	6.85	1.47	-88.70	155	None	None	Almost Clear
BH46	12/09/2013						180	None	None	V. High
BH46	02/10/2013	7.31	12.9	7.44	2.74	-137.6	66	None	None	Cloudy, Grey/Brown
BH46	22/10/2013	7.36	13.2	7.13	0.99	-171.4	69	None	None	Cloudy, Grey
BH47	12/09/2013						150	None	None	V. Low, Clear
BH47	03/10/2013	7.19	12.5	22.20	1.30	-152.5	72	None	None	Almost Clear
BH47	24/10/2013	6.92	10.0	21.29	1.11	-125.5	72	None	Slightly Sulphurous	Slight Cloudy, Grey
SBP01	02/09/2013						200	None	None	V. High, Mid Brown
SBP02	05/09/2013						300	None	None	V. High, Mid Brown
SBP02	24/10/2013	7.37	14.1	1.991	2.05	-98.1	18	None	None	V. Murky, Brown
SBP02	16/12/2013 (15:40)	7.56	11.6	0.416	0.24	-110.5	24	None	Slightly Sulphurous	V. Murky, Brown
SBP03	11/09/2013						80	None	None	V. High
SBP04	06/09/2013						180	None	None	V. High
WS01	25/10/2013	7.33	12.9	2.55	4.41	-69.1	15	None	Slightly Sulphurous	V. Murky, Brown
WS01	18/12/2013 (8:30)	8.05	7.0	0.406	4.99	-72	18	None	None	
WS03	25/10/2013	7.51	13.1	2.028	1.78	-132.9	12	None	Faint Sulphurous	V. Murky, Dark Grey
WS10A	21/10/2013	7.27	14.7	1.98	1.12	-136.2	15	None	None	Murky, Grey/Brown
WS10A	16/12/2013 (16:15)	7.56	10.5	0.212	0.23	-113.1	15	None	Slightly Sulphurous	Murky, Grey/Brown
WS13	22/10/2013	7.26	15.1	3.91	0.69	-127.0	14	None	None	V. Murky, Brown/Grey
WS20	24/10/2013	7.38	14.1	4.20	2.17	-122.2	15	None	V Faint Sulphurous	V. Murky, Brown
SW01	23/10/2013	6.84	13.3	0.0281	10.17	186.4	N/A	None	None	V. Murky, Grey
SW01	17/12/2013 (12:15)	8.07	6.4	2.41	12.13	107.8	N/A	None	None	Cloudy Brown
SW02	23/10/2013	6.87	14.3	0.0282	10.11	174.5	N/A	None	None	Colourless/Clear
SW02	17/12/2013 (11:50)	8.18	6.4	2.27	11.84	98.3	N/A	None	None	Clear
SW03	23/10/2013	6.66	13.6	0.0286	10.42	169.9	N/A	None	None	Colourless/Clear
SW03	17/12/2013 (11:40)	8.37	6.0	2.25	12.03	89.1	N/A	None	None	Clear
SW04	23/10/2013	6.97	13.7	27.90	9.84	191.4	N/A	None	None	Colourless/Clear
SW04	17/12/2013 (11:20)	8.37	5.8	2.25	11.91	76.2	N/A	None	None	Clear
SW05	23/10/2013	6.86	13.6	10.86	9.61	164.9	N/A	None	None	Milky Brown
SW05	17/12/2013 (10:45)	8.07	6.4	1.395	11.87	28.00	N/A	None	None	Murky, Brown
SW06	23/10/2013	7.13	14.4	12.76	10.22	177.4	N/A	None	None	Milky Brown
SW06	17/12/2013 (11:00)	8.58	6.6	1.673	12.08	36.3	N/A	None	None	Cloudy, Brown
LBH01	17/12/2013 (16:00)	8.74	10.0	2.014	2.06	-101-4	180	None	None	Clear

SW (Surface Water Sample)