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PROJECT No. RML 4750

**FACTUAL REPORT
ON A
SITE INVESTIGATION
AT
WOODCROFT FARM, WATERLOOVILLE**

**ON BEHALF OF
GRAINGER PLC**



Risk Management Limited

Registered Office: 344 Croydon Road, Beckenham, Kent BR3 4EX Registered in England 3752505

CONTENTS

- 1.0 INTRODUCTION & SCOPE OF WORKS
- 2.0 FIELDWORK
- 3.0 GROUND CONDITIONS
- 4.0 LABORATORY TESTING

APPENDICES

- *Cable Percussion Borehole Records (BH01-BH04)*
- *Dynamic Probe Records (P1-P10)*
- *Trial Pit Records (TP01, TP02, TP03, TP04, TP09, TP10, TP11, TP13, TP14, TP17, TP18, TP19, TP20, TP21 & TP22)*
- *Trial Pit Photographs*
- *Laboratory Test Results*
- *Site Layout Plan, Figure 2*

1.0 INTRODUCTION & SCOPE OF WORKS

- 1.1 This report has been prepared by Risk Management Limited to the instructions of the Engineers for the project, Messrs. Peter Brett Associates LLP.
- 1.2 The client for the work was Grainger plc and the work was carried out under cover of their Letter of Appointment, reference AC/WCF/008, dated 17th August 2011.
- 1.3 The site under consideration was Woodcroft Farm, Woodcroft Lane, Waterlooville, Hampshire PO8 9QA.
- 1.4 It is understood that a residential development is proposed at this site.
- 1.5 This report presents the work carried out in FACTUAL format only.

2.0 FIELDWORK

- 2.1 All fieldwork was generally executed in accordance with the recommendations given in British Standard BS 5930:1999, "Code of Practice for Site Investigations".
- 2.2 Contamination sampling was undertaken from the exploratory holes by Peter Brett Associates LLP.
- 2.3 Borehole, Trial Pit and Dynamic Probe locations were chosen by the Engineers and are shown on the appended Site Layout Plan, Figure 2.
- 2.4 Fieldwork was undertaken between the 22nd and 31st August 2011 and comprised the following elements:

Cable Percussion Boreholes

- 2.5 Four cable percussion boreholes (BH01-BH04) have been carried out at this site, to depths as follows:

BH01	-	5.00m
BH02	-	15.00m
BH03	-	15.00m
BH04	-	7.35m

- 2.6 Boreholes BH1 and BH4 were terminated due to slow progress after recording SPT 'N' values in excess of 50 and after chiselling.
- 2.7 Small disturbed and bulk samples were taken from the boreholes at regular depth intervals within each stratum and when a change of strata was encountered.
- 2.8 Similarly, 'thin walled' undisturbed (U102) samples were taken within the more cohesive deposits encountered.
- 2.9 In addition to the above, Standard Penetration Tests (SPT's) were carried out within the cable percussion boreholes in order to provide additional information on the consistency of the material encountered.
- 2.10 Upon completion of each borehole, a combined groundwater/gas monitoring standpipe was installed to the following depths:

BH01	-	5.00m
BH02	-	7.00m
BH03	-	7.00m
BH04	-	7.00m

- 2.11 The gas monitoring installations each comprised a 1 metre length of plain 50mm diameter HDPE pipe followed by slotted geotextile wrapped HDPE pipe, capped at the base. A cement/bentonite seal was installed from 1.00m to ground level and each installation was finished with a gas valve on top of the pipe and a lockable stopcock cover concreted in flush with ground level.
- 2.12 Full details of the cable percussion borehole findings are given on the appended cable percussion borehole record sheets.

Window Sampler Boreholes

- 2.13 A total of eleven window sampler boreholes were drilled across the site to the following depths:

WS01	-	4.00m
WS02	-	6.00m
WS03	-	4.00m
WS04	-	3.00m
WS05	-	4.00m
WS05a	-	2.50m
WS06	-	2.60m
WS07	-	8.00m
WS08	-	8.00m
WS09	-	5.00m
WS10	-	2.80m
WS11	-	4.00m

- 2.14 Borehole WS05a was moved over to the location of WS05 after encountering an obstruction at 2.50m depth
- 2.15 Boreholes WS07-WS10 were drilled in the area of two suspected solution features. Borehole WS11 was added in Field 3, close to the in-filled pit.
- 2.16 Boreholes WS01-WS06 were drilled around the existing farm buildings with boreholes WS01-WSS04, again located close to, or within, the area of the in-filled landfill.
- 2.17 The window sampler comprises a series of 1 and 2 metre long metal tubes, varying in diameter from 80 mm down to 35 mm, driven into the ground using a mini-hydraulic breaker unit. The tubes are subsequently jacked out of the ground and side windows enable the tubes to be cleaned and small, disturbed, samples to be taken at regular intervals within each stratum.

- 2.18 Upon completion boreholes WS01-WS06 and WS11, combined groundwater/gas monitoring standpipes were installed to the following depths:

WS01	-	3.00m
WS02	-	4.00m
WS03	-	4.00m
WS04	-	3.00m
WS05	-	4.00m
WS11	-	2.50m

- 2.19 The gas monitoring installations comprised a 1 metre length of plain 50mm diameter HDPE pipe followed by slotted geotextile wrapped HDPE pipe, capped at the base. A cement/bentonite seal was installed from 1.00m to ground level and the installation was finished with a gas valve on top of the pipe and a lockable stopcock cover concreted in flush with ground level, except borehole WS05 which had a locked steel casing left proud of the ground.
- 2.20 The window sampler boreholes were logged by a representative of Peter Brett Associates LLP for inclusion on their own borehole records.

Dynamic Probe Tests

- 2.21 Ten Dynamic Probe tests (P1-P10) have been carried out at this site to the following depths:

P1	-	8.80m
P2	-	9.80m
P3	-	7.10m
P4	-	9.80m
P5	-	9.80m
P6	-	4.50m
P7	-	8.10m
P8	-	2.90m
P9	-	3.60m
P10	-	7.40m

- 2.22 The Dynamic Probe employed at this site is classified as 'heavy' (DPH) and comprises a weight of 50 kg dropping through a free-fall height of 500mm in accordance with British Standard BS 1377 : Part 9. The weight drives a solid 90° cone which has a surface area of 15 cm² and is attached to 32mm diameter driving rods. The resistance to penetration is recorded as the number of hammer blows required to drive the cone through successive 100mm increments.
- 2.23 Torque readings were taken at 0.50m depth intervals during driving of each Probe and these are presented on the appended Dynamic Probe Tests results sheets which include a plot of blow counts versus depth.

Mechanically Excavated Trial Pits

- 2.24 Fifteen mechanically excavated trial pits were also carried out across the site using a wheeled JCB excavator, to the following depths:

TP01	-	2.60m
TP02	-	3.60m
TP03	-	3.40m
TP04	-	2.00m
TP09	-	3.50m
TP10	-	3.30m
TP11	-	4.00m
TP13	-	2.50m
TP14	-	2.50m
TP17	-	2.00m
TP18	-	2.00m
TP19	-	2.20m
TP20	-	2.00m
TP21	-	3.10m
TP22	-	3.20m

- 2.25 A geotechnical engineer was in attendance at all times during excavation of the trial pits in order to log the material encountered and take samples for subsequent laboratory testing.
- 2.26 Disturbed samples were taken from the trial pits at regular depth intervals within each stratum and when a change of strata was encountered.
- 2.27 Hand Shear Vane tests were undertaken within the more cohesive deposits encountered and the readings are given on the appended trial pit records.
- 2.28 Contamination samples were taken and retained by a representative from Messrs. Peter Brett Associates LLP. Details of these samples are included on the appended trial pit records.
- 2.29 Each trial pit was photographed and these are presented on the appended trial pit photographs sheets.

Ordnance Datum Levels and Co-Ordinates

- 2.30 Ordnance Datum Levels and Co-Ordinates were supplied by Messrs. Peter Brett Associates LLP and are included on the appended Borehole, Dynamic Probe and Trial Pit records.

3.0 GROUND CONDITIONS

3.1 According to information published by the British Geological Survey (1:50,000 Series Sheet 316, Farnham) the underlying geology at this site is shown as being generally Reading Formation of the Lambeth Group, from the Palaeocene Period, overlying the Tarrant Chalk Member of the Upper Chalk from the Cretaceous Period. Recent Head Deposits are shown overlying the above noted deposits at the western end of the current site.

3.2 The Lambeth Group is complex but generally comprises a clay mottled in part with beds of sand, pebbles and shells and can be summarised as follows:

Reading Beds	-	"upper mottled clay"
Woolwich Formation	-	"laminated clay, silt and sand beds"
	-	"shelly clay"
Reading Formation	-	"Lower mottled clay and sand beds"
Upnor Formation	-	"Sand and flint Gravel"
Thanet Sand Formation	-	"Silty fine Sand"

3.3 The Chalk Group is composed predominantly of chalk, a very fine grained pure limestone. Up to 90% of the carbonate sediment is composed of minute calcite crystals a few microns across, derived from the disintegration of coccoliths which are the skeletons of algae that thrived in the Late Cretaceous seas.

3.4 The Upper Chalk succession in the South-East is relatively thin because it is condensed over the London Platform and also because the youngest beds have been removed by post-Cretaceous erosion.

3.5 Full details of the ground conditions encountered are presented on the borehole and trial pit records appended to this report and will be discussed in more detail in Messrs. Peter Brett Associates LLP's report.

4.0 *LABORATORY TESTING*

4.1 The following geotechnical tests have been carried out on samples recovered from the boreholes and trial pits at this site, as scheduled by Messrs. Peter Brett Associates LLP.

4.2 The geotechnical tests have generally been carried out in accordance with the recommendations given in British Standard 1377:1990, "Methods of Test for Soils for Civil Engineering Purposes" at a UKAS accredited laboratory.

4.3 Atterberg Limits and Natural Moisture Content Tests

The Atterberg Limit and natural moisture contents have been determined for eight samples using the four point cone method.

4.4 Particle Size Distribution

The particle size distribution has been determined for four samples, extended into the fine grained fraction by the sedimentation by pipette method.

The results are presented as grading curves in the appendix to this report.

4.5 Quick Undrained Triaxial Compression Tests.

The undrained shear strength has been determined in single-stage triaxial compression for six, 104mm diameter, nominally undisturbed samples taken from the boreholes at this site.

4.6 pH and Sulphate Tests

The pH and sulphate content has been determined for three samples at this site.

The pH was found to vary between 7.9 and 8.2 and the sulphate content, on a 2:1 water:soil extract, between 0.022 g/l and 0.038 g/l.

4.7 *California Bearing Ration Tests*

The California Bearing Ratio (CBR) has been determined for two samples selected from trial pits TP14 and TP17.

4.8 *Moisture Content/Dry Density Tests*

Four Moisture Content/Dry Density relationship tests have been carried out on samples obtained from the trial pits at this site.

The method employed a 2.5kg rammer with maximum dry density, optimum dry density and natural moisture contents recorded.

SOIL SAMPLES

- 4.9 All soil samples will be kept for a period of 28 days after the date of the invoice for this project unless otherwise notified to Risk Management Limited in writing. Should samples be required to be stored for longer than 28 days then a storage charge will be levied.

for and on behalf of Risk Management Limited

Malcolm S. Price B.Sc., M.Sc., M.I.C.E., C.Eng.
Director

Distribution : Peter Brett Associates - 1 bound copy & 1 loose leaf

The recommendations made and the opinions expressed in this report are based on the borehole and/or trial pit records, examination of samples and the results of site and laboratory tests.

The report is issued on the condition that Risk Management Limited will under no circumstances be liable for any loss arising directly or indirectly from ground conditions between the boreholes or trial pits which have not been shown by the boreholes, trial pits or other tests carried out during the investigation.

In addition, Risk Management Limited will not be liable for any loss whatsoever arising directly or indirectly from any opinion given on the possible configuration of strata both between the borehole and/or trial pit positions and/or below the maximum depth of the investigation. Such opinions, where given, are for guidance only.

Groundwater levels may also vary with time from those reported during our site investigation due to factors such as tidal conditions, heavy pumping from nearby wells or seasonal changes.

No person other than the client to whom this report is addressed, shall rely on it in any respect and no duty of care shall be owed to any such third party.

Copyright of this Report remains with Risk Management Limited and in addition we will not accept any responsibility for the report and recommendations given until our invoice is settled in full.



BOREHOLE NO. BH01

Site : Woodcroft Farm, Waterloooville

Job No. : RML 4750

Method : Cable Percussion

Date : 24th/25th August 2011

Casing : 150mm to 1.50m.

Level (A.O.D) : 58.90m

Co-Ordinates : 468065.26 E, 111907.63 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Sample Depth (m)	Sample Type	Test	Remarks
0	Ground Level		58.9						
	Grass over TOPSOIL (Drillers Description only)	0.30	58.6						
1	Soft to firm brown mottled orange-brown and grey CLAY. Occasional pockets of grey and orange-brown silt. (Head Deposits)					0.30-0.80	B1		
						0.80-1.20	B2		
						1.20-1.65	U3		(10 blows - 100%)
2						1.65	D4		
		2.20	56.7			2.20-2.65	D5	SPT	N = 9 (2/2/2/2/3)
3	Firm to stiff mottled grey and red-brown CLAY. Occasional pockets and lenses of silt. (Lambeth Group)					3.20-3.65	U6		(41 blows - 100%)
						3.65	D7		
4		4.20	54.7			4.20-4.50	D8	SPT	N > 50 (11/26/41/9)
	High density brown and off-white CHALK with occasional gravel sized flints recovered as angular fine to coarse fragments of strong chalk. (Upper Chalk Grade Dc)	4.80	54.1			4.80-5.00	D9	SPT	N > 50 (40/10/50)
5	Very high density white CHALK recovered as angular fine to coarse fragments of strong chalk. (Upper Chalk Grade Dm)	5.00	53.9						
6	End of Borehole								Borehole terminated at 5.00m depth due to slow progress.
7									
8									
9									
10									

Remarks : Groundwater not noted during boring.
: 0-1m - 50mm plain pipe/bentonite seal
: 1-5m - 50mm slotted pipe/gravel pack
: Gas tap and stopcock cover at g.l.
: Chisel 4.80m-5.00m - 1 Hr.

Key: D - Disturbed sample
W - Water sample
B - Bulk sample

SPT Standard Penetration test
CPT- Solid Cone SPT
U - Undisturbed sample



BOREHOLE NO. BH02

Site : Woodcroft Farm, Waterloooville

Job No. : RML 4750

Method : Cable Percussion

Date : 22nd/23rd August 2011

Casing : 150mm to 4.50m.

Level (A.O.D) : 60.80m

Co-Ordinates : 468154.82 E, 112135.33 N

Sheet 1 of 2

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Sample Depth (m)	Sample Type	Test	Remarks
0	Ground Level		60.8						
0.15	Grass over Topsoil (Drillers Description only)								
1	Soft to firm brown, mottled orange-brown in parts, sandy CLAY with frequent angular fine to coarse flint gravel. Pockets and lenses of fine sand (10mm-20mm). (Head Deposits)					0.50-1.00	B1		
						1.20-1.70	D2	SPT	N = 4 (2/1/1/1/1/1)
						1.20-1.70	B3		
2						2.00-2.45	D4	SPT	N = 4 (1/0/1/0/1/2)
2.20	Highly weathered off-white and white structureless CHALK with fine to coarse flint gravel. Occasional partings of brown sandy clay. (Upper Chalk Grade Dc)		58.6						
3						3.00-3.45	D5	SPT	N = 1 (1/0/0/1/0/0)
3.15			57.65			3.00-3.50	B6		
4	Very loose light brown silty SAND with occasional chalk gravel. (Solution Feature In-Fill)					4.00-4.45	D7	SPT	N = 3 (1/1/0/1/1/1)
4.30			56.5			4.50	D8		
5						5.00-5.45	D9	SPT	N = 7 (1/1/1/2/2/2)
6						6.00	D10		
						6.50-6.95	D11	SPT	N = 12 (4/4/3/3/3/3)
7									
						7.70	D12		
8						8.00-8.45	D13	SPT	N = 11 (2/2/2/3/3/3)
9						9.00	D14		
						9.50-9.95	D15	SPT	N = 13 (3/2/3/3/3/4)
10									

Remarks : Groundwater not noted during boring.
: 0-1m - 50mm plain pipe/bentonite seal
: 1-7m - 50mm slotted pipe/gravel pack
: Gas tap and stopcock cover at g.l.
:

Key: D - Disturbed sample
W - Water sample
B - Bulk sample

SPT Standard Penetration test
CPT- Solid Cone SPT
U - Undisturbed sample



BOREHOLE NO. BH02

Site : Woodcroft Farm, Waterloooville

Job No. : RML 4750

Method : Cable Percussion

Date : 22nd/23rd August 2011

Casing : 150mm to 4.50m.

Level (A.O.D) : 60.80m

Co-Ordinates : 468154.82 E, 112135.33 N

Sheet 2 of 2

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Sample Depth (m)	Sample Type	Test	Remarks
11	Highly weathered, becoming weathered to moderately sound with depth, off-white and white CHALK with occasional gravel sized flints. Recovered as low density chalk and angular fine to coarse fragments of strong chalk. (Upper Chalk Grade Dc)					10.50	D16	SPT	N =>50 (18/36/50)
						11.00-11.20	D17		
12						12.00	D18	SPT	N = 21 (3/3/4/6/6/5)
						12.50-12.95	D19		
13						13.50	D20	SPT	N = 31 (3/3/6/6/8/11)
						14.00-14.45	D21		
14									
15									
15									
15									
15	End of Borehole	15.00	45.8						
16									
17									
18									
19									
20									

Remarks : Groundwater not noted during boring.
: 0-1m - 50mm plain pipe/bentonite seal
: 1-7m - 50mm slotted pipe/gravel pack
: Gas tap and stopcock cover at g.l.
:

Key: D - Disturbed sample
W - Water sample
B - Bulk sample

SPT Standard Penetration test
CPT- Solid Cone SPT
U - Undisturbed sample



BOREHOLE NO. BH03

Site : Woodcroft Farm, Waterloooville

Job No. : RML 4750

Method : Cable Percussion

Date : 23rd/24th August 2011

Casing : 150mm to 4.50m.

Level (A.O.D) : 71.90m

Co-Ordinates : 468441.06 E, 112178.07 N

Sheet 1 of 2

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Sample Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.30	71.9						
	Grass over Topsoil (Drillers Description only)		71.6						
1	Soft brown CLAY with fint gravel (Head Deposits)	1.80	70.1			0.30-0.60	B1		
2						1.20-1.70	B2	CPT	N = 15 (4/6/5/4/3/3)
3						1.80	D3		
4						2.20-2.65	U4		(17 blows - 100%)
5						2.65	D5		
6						3.20-3.65	D6	SPT	N = 12 (2/2/3/3/3)
7						4.20-4.65	U7		(36 blows - 100%)
8						4.65	D8		
9						5.20-5.65	D9	SPT	N = 22 (4/5/5/5/6/6)
10						6.50	D10		
						6.70-7.15	U11		(47 blows - 100%)
						7.15	D12		
						8.20-8.65	D13	SPT	N = 19 (4/4/4/5/5/5)
						8.65	D14		
						9.70-10.15	U15		(57 blows - 100%)

Remarks : Groundwater not noted during boring.
: 0-1m - 50mm plain pipe/bentonite seal
: 1-7m - 50mm slotted pipe/gravel pack
: Gas tap and stopcock cover at g.l.
: Chisel 14.00m-15.00m - 1 Hr.

Key: D - Disturbed sample
W - Water sample
B - Bulk sample

SPT Standard Penetration test
CPT- Solid Cone SPT
U - Undisturbed sample



BOREHOLE NO. BH03

Site : Woodcroft Farm, Waterloooville

Job No. : RML 4750

Method : Cable Percussion

Date : 23rd/24th August 2011

Casing : 150mm to 4.50m.

Level (A.O.D) : 71.90m

Co-Ordinates : 468441.06 E, 112178.07 N

Sheet 2 of 2

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Sample Depth (m)	Sample Type	Test	Remarks
11	High to very high density brown and off-white CHALK with occasional gravel sized flints recovered as angular fine to coarse fragments of strong chalk. (Upper Chalk Grade Dc)	12.70	59.2			10.15	D16		N = 25 (4/4/5/6/6/8)
						11.20-11.65	D17	SPT	
12						12.00	D18		
						12.70-13.00	D19	SPT	
13						13.60	D20		
14	End of Borehole	15.00	56.9			14.20-14.50	D21	SPT	N > 50 (10/13/17/33)
15									
16									
17									
18									
19									
20									

Remarks : Groundwater not noted during boring.
: 0-1m - 50mm plain pipe/bentonite seal
: 1-7m - 50mm slotted pipe/gravel pack
: Gas tap and stopcock cover at g.l.
: Chisel 14.00m-15.00m - 1 Hr.

Key: D - Disturbed sample
W - Water sample
B - Bulk sample

SPT Standard Penetration test
CPT- Solid Cone SPT
U - Undisturbed sample



BOREHOLE NO. BH04

Site : Woodcroft Farm, Waterloooville

Job No. : RML 4750

Method : Cable Percussion

Date : 25th/26th August 2011

Casing : 150mm to 1.50m.

Level (A.O.D) : 57.90m

Co-Ordinates : 468036.72 E, 111925.85 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Sample Depth (m)	Sample Type	Test	Remarks
0	Ground Level		57.9						
	Grass over Topsoil (Drillers Description only)	0.15				0.15-0.60	B1		
	Soft to firm brown sandy CLAY.	0.60	57.3			0.60-1.20	B2		
1						1.20-1.70	B3	CPT	N = 8 (1/1/2/2/2/2)
2						2.20-2.65	D4	SPT	N = 7 (2/2/1/2/2/2)
3						3.20-3.65	U5		(18 blows - 100%)
4						3.65	D6		
5						4.20-4.40	D7	SPT	N > 50 (46/4/50)
6						4.70-5.00	D8	SPT	N > 50 (9/13/17/19/20)
7						4.70-5.20	B9		
8						6.00-6.45	B10	CPT	N > 50 (11/11/16/27/26)
9						7.00-7.35	D11	SPT	N > 50 (11/8/6/47/3)
10	End of Borehole	7.35	50.55						Borehole terminated at 7.35m depth due to slow progress

Remarks : Groundwater not noted during boring.
: 0-1m - 50mm plain pipe/bentonite seal
: 1-7m - 50mm slotted pipe/gravel pack
: Gas tap and stopcock cover at g.l.
: Chisel 4.20m-7.00m - 2 Hrs.

Key: D - Disturbed sample
W - Water sample
B - Bulk sample

SPT Standard Penetration test
CPT- Solid Cone SPT
U - Undisturbed sample



DYNAMIC PROBE PENETRATION TEST

Location :	Woodcroft Farm, Waterloooville.	Co-ordinates : 468213.70 E, 112131.35 N	Level m (AOD) : 61.50m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 1 of 2
			Probe No. P1

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	3		
0.20	3		
0.30	3		
0.40	2		
0.50	1		
0.60	1		
0.70	2		
0.80	1		
0.90	2		
1.00	1	<5	
1.10	2		
1.20	2		
1.30	2		
1.40	1		
1.50	2		
1.60	3		
1.70	2		
1.80	2		
1.90	2		
2.00	3	<5	
2.10	3		
2.20	4		
2.30	4		
2.40	4		
2.50	5		
2.60	5		
2.70	3		
2.80	2		
2.90	2		
3.00	2	<5	
3.10	4		
3.20	2		
3.30	2		
3.40	2		
3.50	2		
3.60	3		
3.70	2		
3.80	4		
3.90	3		
4.00	4	5	
4.10	3		
4.20	2		
4.30	4		
4.40	2		
4.50	2		
4.60	3		
4.70	3		
4.80	2		
4.90	2		
5.00	2	20	

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location :	Woodcroft Farm, Waterloooville.	Co-ordinates : 468213.70 E, 112131.35 N	Level m (AOD) : 61.50m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 2 of 2
			Probe No. P1

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
5.10	1		
5.20	2		
5.30	4		
5.40	8		
5.50	8		
5.60	6		
5.70	5		
5.80	7		
5.90	9		
6.00	6	<5	
6.10	4		
6.20	3		
6.30	15		
6.40	28		
6.50	14		
6.60	10		
6.70	6		
6.80	5		
6.90	5		
7.00	5	7	
7.10	5		
7.20	8		
7.30	9		
7.40	7		
7.50	7		
7.60	7		
7.70	6		
7.80	11		
7.90	9		
8.00	7	7	
8.10	5		
8.20	7		
8.30	19		
8.40	25		
8.50	30		
8.60	29		
8.70	38		
8.80	50	11	
8.90			
9.00			
9.10			
9.20			
9.30			
9.40			
9.50			
9.60			
9.70			
9.80			
9.90			
10.00			
10.10			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468211.57 E, 112126.74 N		Level m (AOD) : 60.70m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 1 of 2	Probe No. P2

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	3		
0.20	4		
0.30	5		
0.40	5		
0.50	4		
0.60	4		
0.70	2		
0.80	3		
0.90	3		
1.00	3	<5	
1.10	3		
1.20	3		
1.30	3		
1.40	4		
1.50	4		
1.60	3		
1.70	4		
1.80	3		
1.90	3		
2.00	3	<5	
2.10	3		
2.20	3		
2.30	3		
2.40	3		
2.50	3		
2.60	3		
2.70	3		
2.80	3		
2.90	3		
3.00	3	<5	
3.10	3		
3.20	3		
3.30	3		
3.40	4		
3.50	3		
3.60	3		
3.70	4		
3.80	4		
3.90	3		
4.00	3	<5	
4.10	3		
4.20	6		
4.30	6		
4.40	5		
4.50	5		
4.60	4		
4.70	3		
4.80	6		
4.90	9		
5.00	9	<5	

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468211.57 E, 112126.74 N		Level m (AOD) : 60.70m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 2 of 2	Probe No. P2

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
5.10	6		
5.20	3		
5.30	5		
5.40	5		
5.50	4		
5.60	5		
5.70	5		
5.80	6		
5.90	7		
6.00	6	<5	
6.10	5		
6.20	4		
6.30	2		
6.40	4		
6.50	8		
6.60	8		
6.70	6		
6.80	8		
6.90	6		
7.00	5	5	
7.10	4		
7.20	4		
7.30	4		
7.40	4		
7.50	4		
7.60	5		
7.70	2		
7.80	3		
7.90	2		
8.00	3	5	
8.10	3		
8.20	3		
8.30	3		
8.40	4		
8.50	4		
8.60	3		
8.70	2		
8.80	3		
8.90	3	<5	
9.00	4		
9.10	4		
9.20	3		
9.30	2		
9.40	3		
9.50	2		
9.60	6		
9.70	22	5	
9.80	10		
9.90			
10.00			
10.10			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468209.19 E, 112122.08 N		Level m (AOD) : 60.80m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 1 of 2	Probe No. P3

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	2		
0.20	3		
0.30	2		
0.40	2		
0.50	2		
0.60	3		
0.70	2		
0.80	1		
0.90	2		
1.00	1	<5	
1.10	2		
1.20	1		
1.30	2		
1.40	1		
1.50	2		
1.60	1		
1.70	2		
1.80	1		
1.90	2		
2.00	3	<5	
2.10	4		
2.20	2		
2.30	1		
2.40	2		
2.50	3		
2.60	2		
2.70	3		
2.80	3		
2.90	2		
3.00	2	<5	
3.10	7		
3.20	5		
3.30	2		
3.40	2		
3.50	2		
3.60	2		
3.70	3		
3.80	3		
3.90	2		
4.00	2	<5	
4.10	2		
4.20	3		
4.30	3		
4.40	3		
4.50	2		
4.60	3		
4.70	5		
4.80	7		
4.90	4		
5.00	3	5	

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468209.19 E, 112122.08 N		Level m (AOD) : 60.80m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 2 of 2	Probe No. P3

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
5.10	4	5	
5.20	14		
5.30	12		
5.40	7		
5.50	5		
5.60	5		
5.70	2		
5.80	2		
5.90	2		
6.00	6		
6.10	5	5	
6.20	3		
6.30	3		
6.40	4		
6.50	5		
6.60	6		
6.70	9		
6.80	8		
6.90	10		
7.00	29		
7.10	50		
7.20			
7.30			
7.40			
7.50			
7.60			
7.70			
7.80			
7.90			
8.00			
8.10			
8.20			
8.30			
8.40			
8.50			
8.60			
8.70			
8.80			
8.90			
9.00			
9.10			
9.20			
9.30			
9.40			
9.50			
9.60			
9.70			
9.80			
9.90			
10.00			
10.10			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468206.45 E, 112116.59 N		Level m (AOD) : 61.70m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 1 of 2	Probe No. P4

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	3		
0.20	3		
0.30	3		
0.40	2		
0.50	2		
0.60	2		
0.70	2		
0.80	2		
0.90	2		
1.00	3	<5	
1.10	3		
1.20	4		
1.30	3		
1.40	3		
1.50	3		
1.60	6		
1.70	3		
1.80	4		
1.90	3		
2.00	4	<5	
2.10	3		
2.20	3		
2.30	3		
2.40	3		
2.50	3		
2.60	3		
2.70	3		
2.80	3		
2.90	3		
3.00	3	<5	
3.10	3		
3.20	3		
3.30	2		
3.40	3		
3.50	3		
3.60	3		
3.70	2		
3.80	2		
3.90	3		
4.00	2	<5	
4.10	3		
4.20	3		
4.30	3		
4.40	3		
4.50	3		
4.60	4		
4.70	4		
4.80	3		
4.90	4		
5.00	5	6	

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location :	Woodcroft Farm, Waterloooville.	Co-ordinates :	468206.45 E, 112116.59 N	Level m (AOD) :	61.70m
Date :	24th August 2011	Job No :	RML 4750	Standard :	BS 1377 : 1990
				Sheet 2 of 2	Probe No. P4

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
5.10	6		
5.20	9		
5.30	10		
5.40	9		
5.50	6		
5.60	7		
5.70	6		
5.80	6		
5.90	7		
6.00	6	6	
6.10	8		
6.20	7		
6.30	8		
6.40	8		
6.50	8		
6.60	7		
6.70	7		
6.80	8		
6.90	8		
7.00	9	6	
7.10	9		
7.20	8		
7.30	7		
7.40	7		
7.50	8		
7.60	10		
7.70	13		
7.80	20		
7.90	9		
8.00	12	5	
8.10	9		
8.20	10		
8.30	10		
8.40	9		
8.50	8		
8.60	9		
8.70	8		
8.80	9		
8.90	8		
9.00	8	6	
9.10	8		
9.20	8		
9.30	8		
9.40	8		
9.50	8		
9.60	9		
9.70	9		
9.80	9	7	
9.90			
10.00			
10.10			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468215.93 E, 112136.33 N		Level m (AOD) : 63.00m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 1 of 2	Probe No. P5

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	3		
0.20	3		
0.30	3		
0.40	4		
0.50	4		
0.60	3		
0.70	4		
0.80	3		
0.90	4		
1.00	3	<5	
1.10	4		
1.20	4		
1.30	3		
1.40	3		
1.50	3		
1.60	2		
1.70	2		
1.80	3		
1.90	4		
2.00	3	<5	
2.10	3		
2.20	3		
2.30	4		
2.40	4		
2.50	6		
2.60	4		
2.70	4		
2.80	3		
2.90	3		
3.00	3	<5	
3.10	4		
3.20	3		
3.30	3		
3.40	4		
3.50	5		
3.60	5		
3.70	5		
3.80	6		
3.90	5		
4.00	6	<5	
4.10	6		
4.20	7		
4.30	5		
4.40	4		
4.50	4		
4.60	4		
4.70	5		
4.80	4		
4.90	5		
5.00	6	<5	

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468215.93 E, 112136.33 N		Level m (AOD) : 63.00m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 2 of 2	Probe No. P5

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
5.10	6		
5.20	7		
5.30	7		
5.40	5		
5.50	3		
5.60	2		
5.70	2		
5.80	1		
5.90	2		
6.00	1	<5	
6.10	2		
6.20	3		
6.30	2		
6.40	2		
6.50	3		
6.60	3		
6.70	3		
6.80	6		
6.90	4		
7.00	3	<5	
7.10	4		
7.20	5		
7.30	5		
7.40	5		
7.50	5		
7.60	6		
7.70	4		
7.80	3		
7.90	3		
8.00	2	<5	
8.10	2		
8.20	4		
8.30	4		
8.40	4		
8.50	2		
8.60	3		
8.70	2		
8.80	5		
8.90	4		
9.00	4	<5	
9.10	4		
9.20	5		
9.30	6		
9.40	4		
9.50	5		
9.60	6		
9.70	8		
9.80	7	<5	
9.90			
10.00			
10.10			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468101.40 E, 112123.53 N		Level m (AOD) : 59.90m
Date : 24th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	1 of 1	Probe No. P6

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	4		
0.20	5		
0.30	4		
0.40	5		
0.50	4		
0.60	4		
0.70	4		
0.80	2		
0.90	2		
1.00	2	<5	
1.10	2		
1.20	1		
1.30	4		
1.40	7		
1.50	7		
1.60	4		
1.70	4		
1.80	4		
1.90	4		
2.00	6	5	
2.10	7		
2.20	7		
2.30	16		
2.40	13		
2.50	15		
2.60	19		
2.70	14		
2.80	12		
2.90	11		
3.00	11	<5	
3.10	8		
3.20	6		
3.30	11		
3.40	12		
3.50	17		
3.60	14		
3.70	13		
3.80	10		
3.90	8		
4.00	15	5	
4.10	32		
4.20	29		
4.30	18		
4.40	20		
4.50	50		
4.60			
4.70			
4.80			
4.90			
5.00			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468098.11 E, 112119.44 N		Level m (AOD) : 58.20m
Date : 25th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 1 of 2	Probe No. P7

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	3		
0.20	3		
0.30	2		
0.40	2		
0.50	3		
0.60	3		
0.70	3		
0.80	4		
0.90	4		
1.00	3	<5	
1.10	4		
1.20	5		
1.30	3		
1.40	4		
1.50	4		
1.60	4		
1.70	4		
1.80	5		
1.90	4		
2.00	3	<5	
2.10	2		
2.20	3		
2.30	2		
2.40	7		
2.50	8		
2.60	6		
2.70	8		
2.80	2		
2.90	3		
3.00	11	<5	
3.10	10		
3.20	18		
3.30	9		
3.40	8		
3.50	8		
3.60	6		
3.70	8		
3.80	11		
3.90	9		
4.00	5	5	
4.10	5		
4.20	5		
4.30	4		
4.40	6		
4.50	6		
4.60	5		
4.70	5		
4.80	5		
4.90	9		
5.00	10	<5	

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468098.11 E, 112119.44 N		Level m (AOD) : 58.20m
Date : 25th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 2 of 2	Probe No. P7

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
5.10	15	5	
5.20	8		
5.30	5		
5.40	5		
5.50	9		
5.60	9		
5.70	7		
5.80	14		
5.90	9		
6.00	9		
6.10	6	<5	
6.20	5		
6.30	4		
6.40	4		
6.50	6		
6.60	6		
6.70	9		
6.80	9		
6.90	11		
7.00	6		
7.10	8	5	
7.20	8		
7.30	9		
7.40	11		
7.50	13		
7.60	20		
7.70	21		
7.80	29		
7.90	37		
8.00	46		
8.10	50		
8.20			
8.30			
8.40			
8.50			
8.60			
8.70			
8.80			
8.90			
9.00			
9.10			
9.20			
9.30			
9.40			
9.50			
9.60			
9.70			
9.80			
9.90			
10.00			
10.10			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468094.27 E, 112115.60 N		Level m (AOD) : 57.40m
Date : 25th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	1 of 1	Probe No. P8

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	2		
0.20	2		
0.30	14		
0.40	7		
0.50	6		
0.60	8		
0.70	6		
0.80	3		
0.90	3		
1.00	3	<5	
1.10	3		
1.20	2		
1.30	3		
1.40	3		
1.50	6		
1.60	7		
1.70	6		
1.80	12		
1.90	7		
2.00	4	<5	
2.10	3		
2.20	3		
2.30	5		
2.40	4		
2.50	3		
2.60	4		
2.70	14		
2.80	28		
2.90	50	<5	
3.00			
3.10			
3.20			
3.30			
3.40			
3.50			
3.60			
3.70			
3.80			
3.90			
4.00			
4.10			
4.20			
4.30			
4.40			
4.50			
4.60			
4.70			
4.80			
4.90			
5.00			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location :	Woodcroft Farm, Waterloooville.	Co-ordinates :	468090.00 E, 112110.97 N	Level m (AOD) :	57.90m
Date :	25th August 2011	Job No :	RML 4750	Standard :	BS 1377 : 1990
				1 of 1	Probe No. P9

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	5		
0.20	10		
0.30	3		
0.40	3		
0.50	2		
0.60	3		
0.70	2		
0.80	6		
0.90	6		
1.00	4	<5	
1.10	3		
1.20	4		
1.30	3		
1.40	3		
1.50	3		
1.60	5		
1.70	6		
1.80	4		
1.90	5		
2.00	6	<5	
2.10	9		
2.20	10		
2.30	14		
2.40	18		
2.50	12		
2.60	8		
2.70	10		
2.80	12		
2.90	13	<5	
3.00	11		
3.10	13		
3.20	15		
3.30	20		
3.40	21		
3.50	18		
3.60	50		
3.70			
3.80			
3.90			
4.00			
4.10			
4.20			
4.30			
4.40			
4.50			
4.60			
4.70			
4.80			
4.90			
5.00			

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location : Woodcroft Farm, Waterloooville.		Co-ordinates : 468086.15 E, 112106.78 N		Level m (AOD) : 59.20m
Date : 25th August 2011	Job No : RML 4750	Standard : BS 1377 : 1990	Sheet 1 of 2	Probe No. P10

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
0.00			
0.10	2		
0.20	3		
0.30	3		
0.40	2		
0.50	2		
0.60	7		
0.70	6		
0.80	3		
0.90	2		
1.00	4	<5	
1.10	4		
1.20	4		
1.30	2		
1.40	3		
1.50	4		
1.60	3		
1.70	3		
1.80	2		
1.90	2		
2.00	3	<5	
2.10	2		
2.20	1		
2.30	4		
2.40	3		
2.50	4		
2.60	5		
2.70	4		
2.80	5		
2.90	5		
3.00	5	<5	
3.10	5		
3.20	5		
3.30	4		
3.40	2		
3.50	2		
3.60	4		
3.70	10		
3.80	10		
3.90	6		
4.00	4	<5	
4.10	4		
4.20	5		
4.30	5		
4.40	5		
4.50	4		
4.60	3		
4.70	3		
4.80	5		
4.90	5		
5.00	5	<5	

Remarks :



DYNAMIC PROBE PENETRATION TEST

Location :	Woodcroft Farm, Waterloooville.	Co-ordinates :	468086.15 E, 112106.78 N	Level m (AOD) :	59.20m
Date :	25th August 2011	Job No :	RML 4750	Standard :	BS 1377 : 1990
				Sheet 2 of 2	Probe No. P10

Depth (m)	Probe Blow Counts	Torque Reading (kgm)	Blow Counts versus depth Profile.
5.10	5		
5.20	4		
5.30	8		
5.40	9		
5.50	11		
5.60	14		
5.70	11		
5.80	10		
5.90	10		
6.00	9	<5	
6.10	11		
6.20	15		
6.30	16		
6.40	17		
6.50	15		
6.60	9		
6.70	7		
6.80	9		
6.90	16		
7.00	20	<5	
7.10	29		
7.20	34		
7.30	41		
7.40	50		
7.50			
7.60			
7.70			
7.80			
7.90			
8.00			
8.10			
8.20			
8.30			
8.40			
8.50			
8.60			
8.70			
8.80			
8.90			
9.00			
9.10			
9.20			
9.30			
9.40			
9.50			
9.60			
9.70			
9.80			
9.90			
10.00			
10.10			

Remarks :

Site : Woodcroft Farm, Waterloooville

Job No. : RML 4750

Equipment : JCB 3CX Excavator

Date : 25th August 2011

Dimensions : 0.50m x 3.00m

Level (A.O.D) : 56.50m

Co-Ordinates : 468030.60 E, 112003.10 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.15	56.5						
	Grass over Topsoil		56.35						
	MADE GROUND : soft to firm brown clay with bricks, brick fragments, crushed concrete and gravel. large pieces of concrete at 0.90m-1.10m depth (largest piece excavated 1.20m x 0.70m x 0.15m)	1.10	55.4			0.50 0.50	D1 C2	V1	38kPa (35/46/32)
1						1.10 1.10	D3 C4		
2	MADE GROUND : soft to firm grey mottled orange-brown clay with whole bricks, brick fragments, crushed concrete, gravel, timber, plastic and polyurethane sheeting with organic odour.	2.50 2.60	54			2.20	C5		Trial pit terminated at 2.60m due to small gap between obstructions.
	MADE GROUND : soft to firm brown and black clay with much discolouration and brick fragments.		53.9			2.60 2.60	D6 B7		
3	End of Trial Pit								
4									

Notes : Water seepage at 2.20m depth.
: Seepage stopped after 10 minutes.
: Trial pit sides slightly unstable.
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP02

Site : Woodcroft Farm, Waterloooville
Equipment : JCB 3CX Excavator
Dimensions : 0.50m x 3.80m
Co-Ordinates : 468063.50 E, 111985.73 N.

Job No. : RML 4750
Date : 26th August 2011
Level (A.O.D) : 57.10m
Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level		57.1						
	Grass over Topsoil	0.15	56.95						
1	MADE GROUND : firm to stiff, brown clay with flint gravel, bricks, brick fragments, crushed concrete, gravel, timber, broken tiles, metal, broken glass, and plastic. 1 no. fragment ,100 mm long of corrugated cement bound tile possible containing asbestos.					0.50 0.50	D1 C2	V1	99kPa (112/90/96)
2						1.00 1.00	D3 C4		
3	MADE GROUND : soft to firm blue-grey and red-brown clay matrix, containing some organic matter with organic odour.	2.80	54.3			2.00 2.00	B5 C6		
4	Structureless CHALK composed of white and off-white sandy silty GRAVEL and COBBLES. Clasts are low density and white. (Upper Chalk Grade Dc)	3.50 3.60	53.6 53.5			2.00-2.80	C7		
						3.00 3.00	D8 C9		

Notes : Groundwater not noted during excavation
: Trial pit sides unstable from
: 0.50m-2.60m depth.
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP03

Site : Woodcroft Farm, Waterlooille

Job No. : RML 4750

Equipment : JCB 3CX Excavator

Date : 25th August 2011

Dimensions : 0.50m x 3.00m

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.10						
	Grass over Topsoil							
	MADE GROUND : soft to firm brown clay with occasional fine to coarse gravel and brick fragments.	1.10			0.50 0.50	D1 C2	V1	44kPa (36/38/57)
1					1.00 1.10	B3 C4		
	MADE GROUND : Soft to firm brown and grey clay with black discolouration, flint gravel, bricks, brick fragments, crushed concrete, timber and with organic odour.	2.70			2.00 2.00	B5 C6		
2								
	Soft to firm, brown and orange-brown CLAY with grey and black flecks and fine to coarse angular flint gravel. Occasional partings of sand. (Head Deposits)	3.40						
3	 from 3.10m depth chalk gravel in evidence.							
	End of Trial Pit				3.40 3.40	D7 C8	V2	41kPa (36/38/57)
4								

Notes : Groundwater not noted during excavation
: Trial pit sides slightly unstable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer

Site : Woodcroft Farm, Waterlooille

Equipment : JCB 3CX Excavator

Dimensions : 0.50m x 3.20m

Co-Ordinates : 468065.11 E, 111959.82 N

Job No. : RML 4750

Date : 25th August 2011

Level (A.O.D) : 56.80m

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level		56.8						
	Grass over Topsoil	0.10							
	MADE GROUND ; firm to stiff brown clay with occasional fine to coarse flint gravel, brick fragments, roots and fragments of chalk.	0.60	56.2			0.50	D1 C2	V1	76kPa (67/79/82)
	Firm brown sandy CLAY (Head Deposits)	0.80	56						
1	Firm grey mottled orange-brown sandy CLAY with much fine to coarse angular flint gravel. (Head Deposits)					1.00 1.00	B3 C4		
		1.50	55.3						
	Firm to stiff, mottled light brown, orange-brown and grey CLAY with fine to coarse angular flint gravel. Occasional partings of sand. (Head Deposits)					1.80		V2	73kPa (68/80/70)
2		2.00	54.8			2.00 2.00	B5 C6	V3	75kPa (77/74/74)
	End of Trial Pit								
3									
4									

Notes : Groundwater not noted during excavation
: Trial pit sides slightly unstable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer

Site : Woodcroft Farm, Waterlooille

Equipment : JCB 3CX Excavator

Dimensions : 0.50m x 3.70m

Co-Ordinates : 468142.01 E, 112083.14 N

Job No. : RML 4750

Date : 24th August 2011

Level (A.O.D) : 69.60m

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.15	69.6						56kPa (54/56/57) Clay below 0.70m too gravelly for vane tests.
	Grass over Topsoil		69.45						
	Soft to firm, brown sandy CLAY. Occasional pockets of silt and fine sand. (Head Deposits)	0.70	68.9			0.50 0.50	D1 C2	V1	
1	Orange-brown and grey sandy CLAY and angular to sub-angular fine to coarse flint GRAVEL. Pockets of fine sand. (Head Deposits)					1.00 1.10	B3 C4		
2	Orange-brown and grey sandy CLAY and angular to sub-angular fine to coarse flint GRAVEL. Pockets and lesnes of fine sand. (Head Deposits)	2.00	67.6			2.00	B5		
3	from 2.00m depth, pockets of chalk and coarse gravel and cobble sized flints in one corner of trial pit.					3.00	B6		
	End of Trial Pit	3.50	66.1			3.50	D7		
4									

Notes : Groundwater not noted during excavation
: Trial pit sides slightly unstable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer

Site : Woodcroft Farm, Waterlooille

Job No. : RML 4750

Equipment : JCB 3CX Excavator

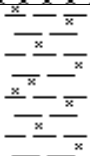
Date : 24th August 2011

Dimensions : 0.60m x 3.00m

Level (A.O.D) : 64.6

Co-Ordinates : 468242.71 E, 112101.31 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks	
0	Ground Level	0.20	64.6							
	Grass over Topsoil		64.4							
	Soft to firm, mottled grey, light brown and orange-brown CLAY. Occasional 10-30mm pockets of silt and fine sand. (Lambeth Group)	0.90	63.7			0.50 0.50	D1 C2	V1		37kPa (37/36/37)
1						1.00 1.10	B3 C4	V2		61kPa (52/60/70)
2	Firm to stiff, laminated, multicoloured, CLAY. Slightly sandy in parts. (Lambeth Group)	3.10	61.5			2.00	B5	V3		100kPa (118/102/80)
						3.00	D6	V4		106kPa (102/106/110)
3	Stiff, grey mottled orange-brown CLAY with pockets and laminations of fine sand. (Lambeth Group)	3.30	61.3			3.30	D7	V5		89kPa (92/90/85)
	End of Trial Pit									
4										

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP11

Site : Woodcroft Farm, Waterlooille

Equipment : JCB 3CX Excavator

Dimensions : 0.50m x 3.50m

Co-Ordinates : 468219.11 E, 111963.80 N

Job No. : RML 4750

Date : 24th August 2011

Level (A.O.D) : 62.00m

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.20	62						
	Grass over Topsoil		61.8						
1	Soft to firm, light brown and orange-brown CLAY. Partings and pockets of silty fine sand and occasional fine to coarse angular gravel. (Head Deposits)	1.20	60.8			0.50 0.50	D1 C2	V1	61kPa (60/48/74)
2	Firm to stiff, multicoloured, CLAY. Slightly sandy in parts. (Lambeth Group) between 2.20m and 2.40m depth discrete pocket of clayey gravel.					1.00 1.00	B3 C4	V2	59kPa (106/100/78)
3		3.40	58.6			2.00	B5	V3	94kPa (96/92/94)
	Firm to stiff, mottled orange-brown, grey and brown sandy CLAY. (Lambeth Group)					3.00	D6	V4	83kPa (88/62/100)
4	Firm to stiff, orange-brown and grey sandy CLAY with partings of silt. (Lambeth Group)	3.80	58.2			3.50	D7		
	End of Trial Pit	4.00	58			4.00	D8		

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer

Site : Woodcroft Farm, Waterlooville

Job No. : RML 4750

Equipment : JCB 3CX Excavator

Date : 25th August 2011

Dimensions : 0.50m x 3.70m

Level (A.O.D) : 68.60m

Co-Ordinates : 468323.54 E, 112122.77 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.15	68.6						
	Grass over Topsoil		68.45						
	Firm, mottled grey, light brown and orange-brown CLAY with some chalk gravel. Occasional pockets of silt and fine sand. (Head Deposits)		68.25						
1	Firm to stiff, laminated, multicoloured, CLAY. Slightly sandy in parts. (Lambeth Group) between 0.35m and 0.60m depth some gravel in evidence.	0.35				0.50	D1	V1	50kPa (45/54/50)
						0.50	C2		
						1.00	B3	V2	57kPa (62/54/51)
						1.10	C4		
2						2.00	B5		
		2.50	66.1			2.50	D6		
3	End of Trial Pit								
4									

Notes : Groundwater not noted during excavation
: Trial pit sides generally stable.
: Slightly unstable in upper 0.50m
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP14

Site : Woodcroft Farm, Waterlooille

Job No. : RML 4750

Equipment : JCB 3CX Excavator

Date : 25th August 2011

Dimensions : 0.50m x 3.60m

Level (A.O.D) : 65.50m

Co-Ordinates : 468313.01 E, 112016.30 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.15 0.30	115.2						
	Grass over Topsoil		115						
	Firm, mottled grey, light brown and orange-brown CLAY with roots.		114.9						
1	Firm to stiff, laminated, multicoloured, CLAY. Slightly sandy in parts. (Lambeth Group)	2.50				0.50 0.50	D1 C2	V1	77kPa (66/60/86)
	 from 1.80m depth slightly sandy.					1.00 1.10	B3 C4	V2	68kPa (70/68/66)
	 roots in evidence to at least 2.00m depth.					2.00	B5	V3	101kPa (96/104/102)
2	End of Trial Pit		112.7			2.50	D6		
3									
4									

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP17

Site : Woodcroft Farm, Waterlooville

Job No. : RML 4750

Equipment : JCB 3CX Excavator

Date : 26th August 2011

Dimensions : 0.50m x 2.80m

Level (A.O.D) : 70.30m

Co-Ordinates : 468527.32 E, 112179.23 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.15	70.3						
	Grass over Topsoil		70.15						
	Soft to firm mottled orange-brown, light brown and grey, CLAY. Flecks and partings of orange-brown sand and occasional fine chalk gravel. (Head Deposits)	1.30	69			0.50	D1	V1	31kPa (24/50/20)
1						1.00	B2	V2	28kPa (31/26/28)
	Firm to stiff, laminated, multicoloured, CLAY. Slightly sandy in parts. (Lambeth Group)	2.00	68.3			2.00	B3	V3	47kPa (42/55/44)
2	End of Trial Pit								
3									
4									

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP18

Site : Woodcroft Farm, Waterlooville

Equipment : JCB 3CX Excavator

Dimensions : 0.50m x 3.00m

Co-Ordinates : 468411.86 E, 112217.48 N

Job No. : RML 4750

Date : 26th August 2011

Level (A.O.D) : 72.20m

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks				
0	Ground Level	0.20	72.2										
	Grass over Topsoil		72							0.50 0.50	D1 C2	V1	26kPa (24/25/28)
	Soft to firm mottled orange-brown, light brown and grey, CLAY. Flecks and partings of orange-brown and grey sand. (Lambeth Group)		71										
1													
	Firm to stiff, laminated, multicoloured, CLAY. Slightly sandy in parts. (Lambeth Group)	1.20	70.2			1.40	D4						
2													
	End of Trial Pit	2.00				2.00	B5	V3	47kPa (40/48/52)				
3													
4													

Notes : Groundwater not encountered.

: Trial pit sides stable.

:

:

Key: C - Contamination Sample

D - Disturbed sample

J - Jar sample

B - Bulk sample

W - water sample

V - vane test

PP - Pocket Penetrometer

RISK MANAGEMENT LIMITED

Unit 8 Paddock Barn Farm, Godstone Road, Caterham, Surrey CR3 6SF



TRIAL PIT NO. TP19

Site : Woodcroft Farm, Waterlooville

Job No. : RML 4750

Equipment : JCB 3CX Excavator

Date : 24th August 2011

Dimensions : 0.50m x 4.00m

Level (A.O.D) : 61.90m

Co-Ordinates : 468198.49 E, 112038.24 N

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level		61.9						
	Topsoil	0.10	61.7						
	Soft to firm, light brown sandy CLAY with roots and occasional fine gravel.	0.20						V1	121Pa (116/120/128)
1	Firm, orange-brown and red-brown CLAY. Slightly sandy in parts. (Lambeth Group)							V2	128kPa (118/126/140)
	 becoming very sandy from 1.50m depth.								Below 1.10m soil too friable for vane tests.
2									
	End of Trial Pit	2.20	59.7						
3									
4									

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
: Approx 300mm drop across pit.
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP20

Site : Woodcroft Farm, Waterloooville

Equipment : JCB 3CX Excavator

Dimensions : 0.50m x 4.00m

Co-Ordinates : 468219.27 E, 112043.58 N

Job No. : RML 4750

Date : 24th August 2011

Level (A.O.D) : 61.70m

Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.40	61.7					V1	61kPa (60/64/60)
	Topsoil/Subsoil		61.3						
1	Firm to stiff, orange-brown and red-brown CLAY with occasional fine to coarse angular flint gravel. Slightly sandy in parts. (Lambeth Group)	1.40	60.3					V2	130kPa (114/136/>140)
	Firm to stiff, orange-brown, grey and red-brown very sandy CLAY. (Lambeth Group)		59.7						
2	End of Trial Pit	2.00							Soil too friable for vane tests below 1.00m.
3									
4									

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
: Approx 200mm drop across pit.
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



TRIAL PIT NO. TP21

Site : Woodcroft Farm, Waterlooille

Equipment : JCB 3CX Excavator

Dimensions : 0.50m x 3.20m

Co-Ordinates : 468096.97 E, 112018.84 N

Job No. : RML 4750

Date : 25th August 2011

Level (A.O.D) : 57.70m

Sheet 1 of 1

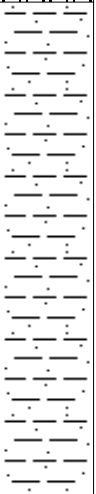
(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.20	57.7						
	Topsoil		57.5						
1	Firm to stiff, brown CLAY with fine to coarse angular flint gravel and chalk fragments. Slightly sandy in parts with black flecks. (Solution Feature In-Fill)	2.80				0.50	D1	V1	103kPa (114/91/104)
	 to 0.4m roots in evidence.					1.00	D2		
	 from 1.1m stiff chalk gravel					1.10			
	 from 1.3m more sandy								
2	 1.6m-1.8m chalk in one side of pit	3.10				2.00	D3		
	 from 1.9m frequent stiff chalk gravel								
3	Firm to stiff, brown silty CLAY with frequent stiff to very stiff chalk gravel and fine to medium angular flint gravel. (Solution Feature In-Fill)	2.80	54.9			2.90	D4		
	End of Trial Pit	3.10	54.6			3.10	B5		
4									

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer

Site : Woodcroft Farm, Waterloooville
Equipment : JCB 3CX Excavator
Dimensions : 0.50m x 3.20m
Co-Ordinates : 468078.65 E, 112113.83 N

Job No. : RML 4750
Date : 25th August 2011
Level (A.O.D) : 58.00m
Sheet 1 of 1

(m)	Description	Strata Depth (m)	Level (m)	Legend	Ground water	Depth (m)	Sample Type	Test	Remarks
0	Ground Level	0.40	58						
	Topsoil with roots up to 50mm dia.		57.6						
1	Firm to stiff, light brown CLAY with fine to coarse angular flint gravel and chalk fragments. Slightly sandy in parts. (Solution Feature In-Fill) to 0.70m roots in evidence.	2.80				0.50	D1	V1	86kPa (105/76/78)
2	 from 1.80m frequent stiff to very stiff chalk gravel in west face of pit.					1.00	D2	V2	94 (72/84/127)
3	Firm to stiff, brown silty CLAY with frequent stiff chalk gravel and fine to medium angular flint gravel. (Solution Feature In-Fill)	3.20	55.2			2.90	B4		
4	 in east and west faces of pit structureless CHALK composed of white and off-white sandy silty GRAVEL and COBBLES. Clasts low density and white (Upper Chalk Grade Dc)		54.8						
	End of Trial Pit								

Notes : Groundwater not noted during excavation
: Trial pit sides stable.
:
:

Key: C - Contamination Sample
D - Disturbed sample
J - Jar sample
B - Bulk sample
W - water sample
V - vane test
PP - Pocket Penetrometer



	Title : TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP1
		Job No : RML 4750



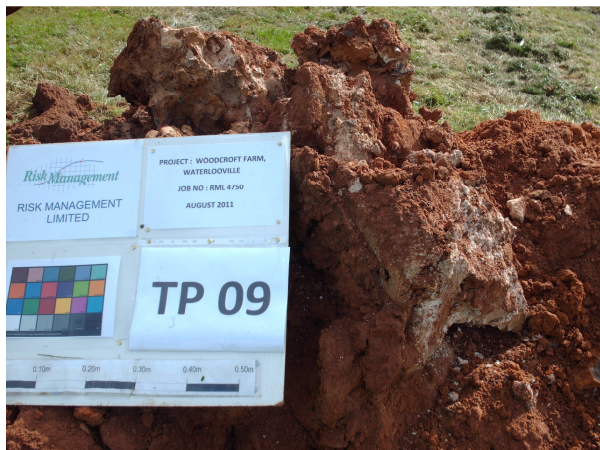
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		Date : August 2011
	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP2
		Job No : RML 4750



	Title : TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP3
		Job No : RML 4750



 RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Title :	TRIAL PIT PHOTOGRAPHS		Scale : NTS
				Date : August 2011
	Project Location :			Trial Pit TP4
		Woodcroft Farm, Waterloooville.		Job No : RML 4750



	Title :		Scale : NTS
	TRIAL PIT PHOTOGRAPHS		Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location :		Trial Pit TP9
	Woodcroft Farm, Waterloooville.		Job No : RML 4750



 RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Title : TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP10
		Job No : RML 4750



	Title : TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP11
		Job No : RML 4750



 RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Title : TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP13
		Job No : RML 4750



 RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Title : TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP14
		Job No : RML 4750



	TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location : Woodcroft Farm, Waterlooville.	Trial Pit TP17
		Job No : RML 4750



	Title :		Scale : NTS
	TRIAL PIT PHOTOGRAPHS		Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location :		Trial Pit TP18
	Woodcroft Farm, Waterloooville.		Job No : RML 4750



	Title :	Scale : NTS
	TRIAL PIT PHOTOGRAPHS	Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location :	Trial Pit TP19
	Woodcroft Farm, Waterloooville.	Job No : RML 4750



	Title : TRIAL PIT PHOTOGRAPHS		Scale : NTS
			Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location : Woodcroft Farm, Waterloooville.		Trial Pit TP20
			Job No : RML 4750



	Title : TRIAL PIT PHOTOGRAPHS		Scale : NTS
			Date : August 2011
RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Project Location : Woodcroft Farm, Waterloooville.		Trial Pit TP21
			Job No : RML 4750



 RISK MANAGEMENT LIMITED Tel : 01883 343572 Fax : 01883 344060	Title : TRIAL PIT PHOTOGRAPHS	Scale : NTS
		Date : August 2011
	Project Location : Woodcroft Farm, Waterloooville.	Trial Pit TP22
		Job No : RML 4750

PROJECT NAME	WOODCROFT FARM, WATERLOOVILLE	Date	03/10/2011
	RML 4750	Approved	<i>J Sturges</i>
PROJECT NO:	GEO / 17377	Page	1 of 2

Sample details				Description	Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			Other tests and comments
Borehole	Depth	No.	Type		MC	LL	PL	PI	<425 mic	Bulk	Dry	Cell Pressure	Deviator Stress	Shear Stress	pH	2:1 W/S SO4	Ground Water SO4	
No.	(m)				(%)	(%)	(%)		(%)	(Mg/m³)	(Mg/m³)	(kPa)	(kPa)	(kPa)		(g/l)	(g/l)	
TP9	1.00	-	B	Brown GRAVEL in a slightly clayey sandy silt matrix	11	25	13	12	48									2.5kg Compaction Test Particle Size Distribution Test
TP11	1.00	-	B	Orange brown silty CLAY with rare fine sand and traces of roots and fine to medium gravel	21	63	22	41	100									2.5kg Compaction Test Particle Size Distribution Test
TP13	1.00	-	B	Orange brown mottled pale grey fine sandy silty CLAY	19	53	15	38	100									2.5kg Compaction Test Particle Size Distribution Test
TP14	2.50	-	D	Brown, grey and red silty CLAY														California Bearing Ratio Test
TP17	1.00	-	B	Orange, grey and brown silty CLAY with rare rootlets	43	104	24	80	100									California Bearing Ratio Test
TP18	1.00	-	B	Pale grey mottled light brown silty CLAY with rare rootlets	43	108	24	84	100									2.5kg Compaction Test Particle Size Distribution Test
BH1	1.20	3	U	Firm mottled grey and brown silty CLAY	41					1.81	1.28	30	39	19				
BH1	1.65	4	D	Multicoloured slightly fine sandy silty CLAY	44	95	27	68	100									
BH1	3.20	6	U	Stiff mottled grey and orange brown silty CLAY with rare fine to medium gravel	22					2.08	1.70	60	202	101				
BH2	5.00	9	D												8.2	0.022		
BH2	7.70	12	D												8.1	0.033		
BH3	2.20	4	U	Stiff mottled reddish brown and grey silty CLAY	21					2.14	1.77	40	191	96				

SUMMARY OF GEOTECHNICAL TESTING

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

Authorised Signatories: • J R Masters (Qual Mgr) • C F Wallace (Tech Mgr) [X] J Sturges (Ops Mgr) • Simon Burke (Snr Tech) • J J M Powell (Tech Dir)

Client: Risk Management Limited, Unit 8, Paddock Barn Farm, Godstone Road, Caterham, Surrey CR3 6RE

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PROJECT NAME PROJECT NO:	WOODCROFT FARM, WATERLOOVILLE RML 4750 GEO / 17377	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Date</td> <td>03/10/2011</td> </tr> <tr> <td>Approved</td> <td><i>J Sturges</i></td> </tr> <tr> <td>Page</td> <td>2 of 2</td> </tr> </table>	Date	03/10/2011	Approved	<i>J Sturges</i>	Page	2 of 2
Date	03/10/2011							
Approved	<i>J Sturges</i>							
Page	2 of 2							

Sample details				Description	Classification Tests					Density Tests		Undrained Triaxial Compression Tests			Chemical Tests			Other tests and comments
Borehole	Depth	No.	Type		MC	LL	PL	PI	<425 mic	Bulk	Dry	Cell Pressure	Deviator Stress	Shear Stress	pH	2:1 W/S SO4	Ground Water SO4	
No.	(m)				(%)	(%)	(%)		(%)	(Mg/m³)	(Mg/m³)	(kPa)	(kPa)	(kPa)		(g/l)	(g/l)	
BH3	2.65	5	D	Multicoloured Slightly fine sandy silty CLAY with rare rootlets	29	78	21	57	100									
BH3	3.20	6	D												7.9	0.038		
BH3	4.20	7	U	Very stiff mottled reddish brown and grey silty CLAY	15					2.24	1.94	80	551	275				
BH3	4.70	8	D	Multicoloured slightly fine sandy silty CLAY	14	43	15	28	100									
BH3	6.70	11	U	Very stiff mottled reddish brown and grey silty CLAY	23					2.12	1.72	140	247	124				
BH4	3.20	5	U	Stiff grey and orange silty CLAY	28					2.00	1.57	60	146	73				

SUMMARY OF GEOTECHNICAL TESTING

Determination of Particle Size Distribution

Borehole Number: TP9
 Sample Number: -
 Depth (m): 1.00

Description:
 Brown GRAVEL in a slightly clayey sandy silt matrix

BS1377 : Part 2 : Clause 9.2 : 1990 Wet Sieving Method

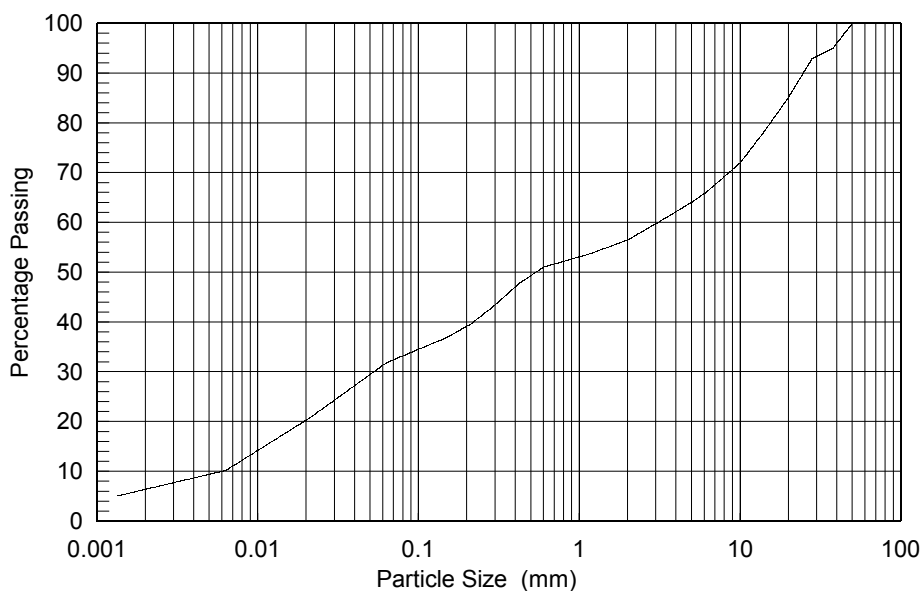
BS1377 : Part 2 : Clause 9.4 : 1990 Sedimentation by the Pipette Method

SIEVE	
Sieve	% pass
200 mm	100
125 mm	100
90 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	95
28 mm	93
20 mm	85
14 mm	78
10 mm	72
6.3 mm	66
5 mm	64
3.35 mm	61
2 mm	56
1.18 mm	54
600 µm	51
425 µm	48
300 µm	43
212 µm	40
150 µm	37
63 µm	32

PIPETTE	
Particle size	% pass
21.1 µm	21
6.3 µm	10
1.3 µm	5
Preparation:	
No Pre-treatment used	

Temp (°C)	20
-----------	----

CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	



Particle Proportions		
Cobbles	0.0	%
Gravel	43.5	%
Sand	24.6	%
Silt	26.7	%
Clay	5.1	%

Checked and
Approved

Initials:

JS

Date: 30/09/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

RML 4750



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Determination of Particle Size Distribution

Borehole Number: TP11
 Sample Number: -
 Depth (m): 1.0

Description:
 Orange brown silty CLAY with rare fine sand and
 traces of roots and fine to medium gravel

BS1377 : Part 2 : Clause 9.2 : 1990 Wet Sieving Method

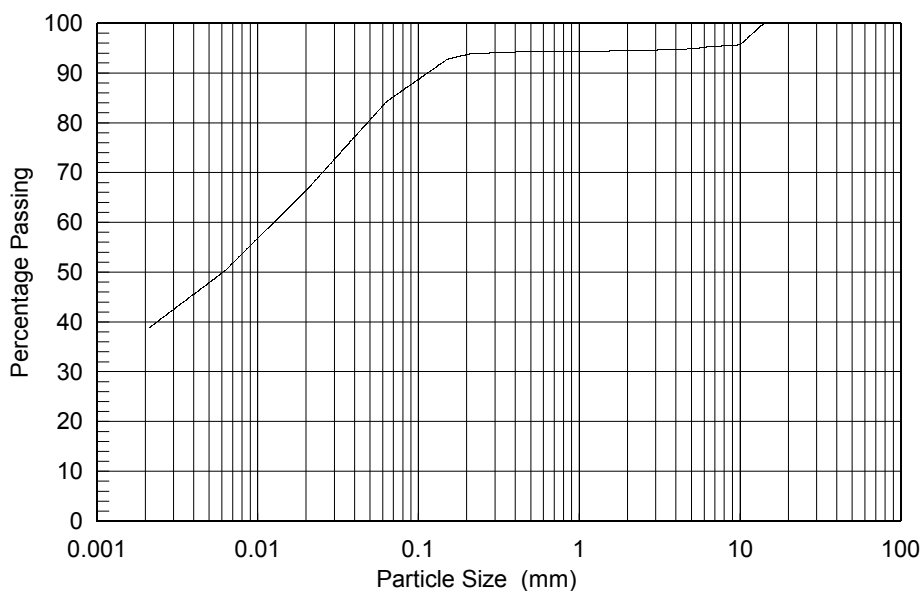
BS1377 : Part 2 : Clause 9.4 : 1990 Sedimentation by the Pipette Method

SIEVE	
Sieve	% pass
200 mm	100
125 mm	100
90 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
28 mm	100
20 mm	100
14 mm	100
10 mm	96
6.3 mm	95
5 mm	95
3.35 mm	95
2 mm	94
1.18 mm	94
600 µm	94
425 µm	94
300 µm	94
212 µm	94
150 µm	93
63 µm	84

PIPETTE	
Particle size	% pass
21.1 µm	67
6.3 µm	50
1.3 µm	39
Preparation:	
No Pre-treatment used	

Temp (°C)	20
-----------	----

CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	



Particle Proportions		
Cobbles	0.0	%
Gravel	5.5	%
Sand	10.2	%
Silt	45.4	%
Clay	38.9	%

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Determination of Particle Size Distribution

Borehole Number: TP13
 Sample Number: -
 Depth (m): 1.0

Description:
 Orange brown mottled pale grey fine sandy silty CLAY

BS1377 : Part 2 : Clause 9.2 : 1990 Wet Sieving Method

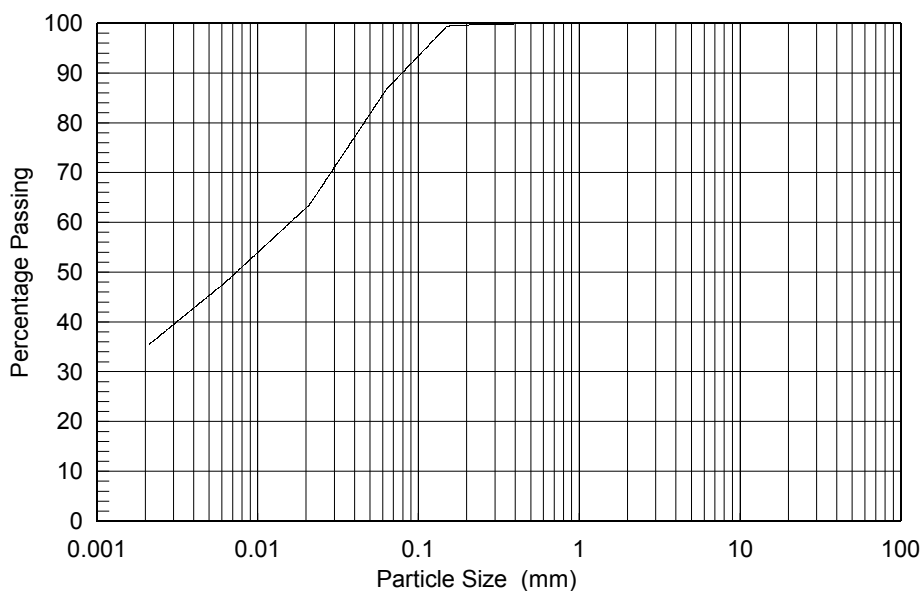
BS1377 : Part 2 : Clause 9.4 : 1990 Sedimentation by the Pipette Method

SIEVE	
Sieve	% pass
200 mm	100
125 mm	100
90 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
28 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
3.35 mm	100
2 mm	100
1.18 mm	100
600 µm	100
425 µm	100
300 µm	100
212 µm	100
150 µm	99
63 µm	87

PIPETTE	
Particle size	% pass
21.1 µm	64
6.3 µm	48
1.3 µm	35
Preparation:	
No Pre-treatment used	

Temp (°C)	20
-----------	----

CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	



Particle Proportions		
Cobbles	0.0	%
Gravel	0.0	%
Sand	13.2	%
Silt	51.3	%
Clay	35.5	%

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Determination of Particle Size Distribution

Borehole Number: TP18
 Sample Number: -
 Depth (m): 1.0

Description:
 Pale grey mottled light brown silty CLAY with
 rare rootlets

BS1377 : Part 2 : Clause 9.2 : 1990 Wet Sieving Method

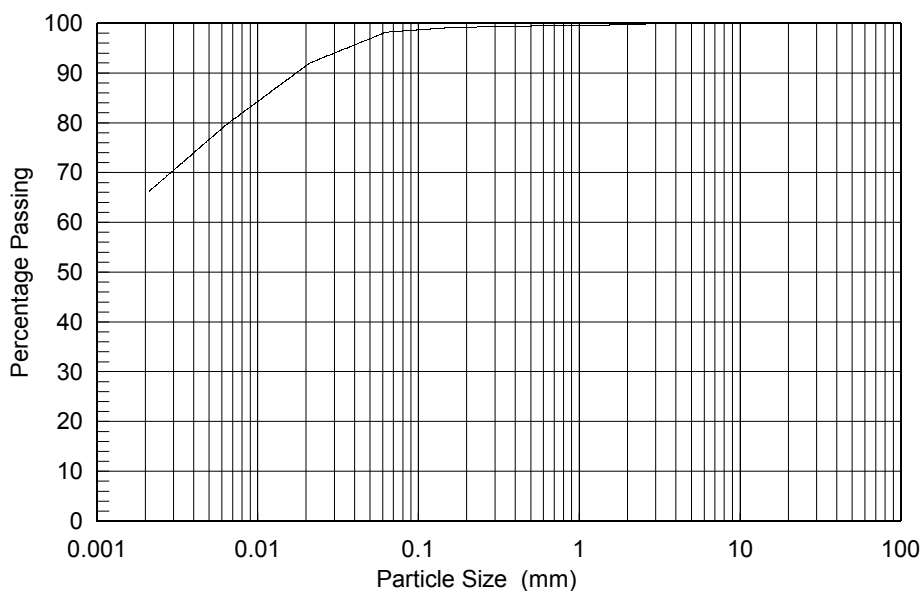
BS1377 : Part 2 : Clause 9.4 : 1990 Sedimentation by the Pipette Method

SIEVE	
Sieve	% pass
200 mm	100
125 mm	100
90 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
28 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
3.35 mm	100
2 mm	100
1.18 mm	100
600 µm	99
425 µm	99
300 µm	99
212 µm	99
150 µm	99
63 µm	98

PIPETTE	
Particle size	% pass
21.1 µm	92
6.3 µm	80
1.3 µm	66
Preparation:	
No Pre-treatment used	

Temp (°C)	20
-----------	----

CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	



Particle Proportions		
Cobbles	0.0	%
Gravel	0.2	%
Sand	1.6	%
Silt	32.0	%
Clay	66.3	%

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BS1377 : Part 7 : Clause 8 : 1990
Quick Undrained Triaxial Test

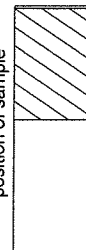
Borehole Number: BH1
 Sample Number: 3
 Depth (m): 1.20

Description:
 Firm mottled grey and brown silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.7
Diameter (mm):	103.7
Moisture Content (%):	41
Bulk Density (Mg/m³):	1.81
Dry Density (Mg/m³):	1.28
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.1
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	30
Strain at failure (%):	1.2
Maximum Deviator Stress (kPa):	39
Shear Stress τ_c (kPa):	19
Mode of failure:	

Orientation and
position of sample



Sample had a pre-existing shear plane

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Date: 30/09/2011

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Project Name:

WOODCROFT FARM, WATERLOOVILLE

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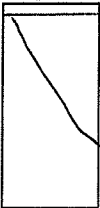
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BS1377 : Part 7 : Clause 8 : 1990
Quick Undrained Triaxial Test

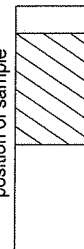
Borehole Number: BH1
Sample Number: 6
Depth (m): 3.20

Description:
Stiff mottled grey and orange brown silty CLAY
with rare fine to medium gravel

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.9
Diameter (mm):	104.3
Moisture Content (%):	22
Bulk Density (Mg/m³):	2.08
Dry Density (Mg/m³):	1.70
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.2
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	60
Strain at failure (%):	2.5
Maximum Deviator Stress (kPa):	202
Shear Stress τ_c (kPa):	101
Mode of failure:	

Orientation and
position of sample



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Project Name:

WOODCROFT FARM, WATERLOOVILLE

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BS1377 : Part 7 : Clause 8 : 1990
Quick Undrained Triaxial Test

Borehole Number: BH3
 Sample Number: 4
 Depth (m): 2.20

Description:
 Stiff mottled reddish brown and grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	182.4
Diameter (mm):	103.1
Moisture Content (%):	21
Bulk Density (Mg/m³):	2.14
Dry Density (Mg/m³):	1.77
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.3
Axial displacement rate (%/min):	2.2
Cell pressure (kPa):	40
Strain at failure (%):	3.6
Maximum Deviator Stress (kPa):	191
Shear Stress τ_c (kPa):	96
Mode of failure:	

Orientation and
position of sample



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Initials:

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GEO / 17377

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WOODCROFT FARM, WATERLOOVILLE

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BS1377 : Part 7 : Clause 8 : 1990
Quick Undrained Triaxial Test

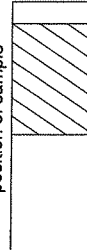
Borehole Number: BH3
Sample Number: 7
Depth (m): 4.20

Description:
Very stiff mottled reddish brown and grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.7
Diameter (mm):	103.6
Moisture Content (%):	15
Bulk Density (Mg/m ³):	2.24
Dry Density (Mg/m ³):	1.94
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.6
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	80
Strain at failure (%):	8.9
Maximum Deviator Stress (kPa):	551
Shear Stress Cu (kPa):	275
Mode of failure:	

Orientation and
position of sample



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Approved

Initials:
JS
Date: 30/09/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

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BS1377 : Part 7 : Clause 8 : 1990
Quick Undrained Triaxial Test

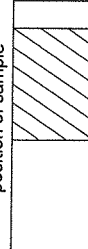
Borehole Number: BH3
Sample Number: 11
Depth (m): 6.70

Description:
Very stiff mottled reddish brown and grey silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.5
Diameter (mm):	102.8
Moisture Content (%):	23
Bulk Density (Mg/m ³):	2.12
Dry Density (Mg/m ³):	1.72
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.2
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	140
Strain at failure (%):	2.0
Maximum Deviator Stress (kPa):	247
Shear Stress Cu (kPa):	124
Mode of failure:	

Orientation and
position of sample



**Checked and
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Initials:
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Date: 30/09/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

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BS1377 : Part 7 : Clause 8 : 1990
Quick Undrained Triaxial Test

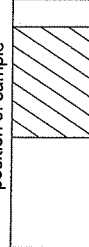
Borehole Number: BH4
Sample Number: 5
Depth (m): 3.20

Description:
Stiff grey and orange silty CLAY

Single Stage Specimen

Specimen details	Single Specimen
Specimen condition:	Undisturbed
Length (mm):	201.7
Diameter (mm):	104.5
Moisture Content (%):	28
Bulk Density (Mg/m ³):	2.00
Dry Density (Mg/m ³):	1.57
Test details	
Latex membrane thickness (mm):	0.3
Membrane correction (kPa):	0.4
Axial displacement rate (%/min):	2.0
Cell pressure (kPa):	60
Strain at failure (%):	5.5
Maximum Deviator Stress (kPa):	146
Shear Stress Cu (kPa):	73
Mode of failure:	

Orientation and
position of sample



**Checked and
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Initials:

JS

Date: 30/09/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

RML 4750



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Determination of California Bearing Ratio

Trial Pit Number: TP 14
 Sample Number: -
 Depth (m): 2.50

Description: Brown, grey and red silty CLAY

Preparation Details

The specimen was soaked for 4 days, after which swelling equilibrium had been reached

The specimen was tested at its existing moisture content

The specimen was prepared by dynamic compaction using a 2.5 kg rammer

Specimen bulk density 1.90 Mg/m³ (1.86 Mg/m³ after soaking)

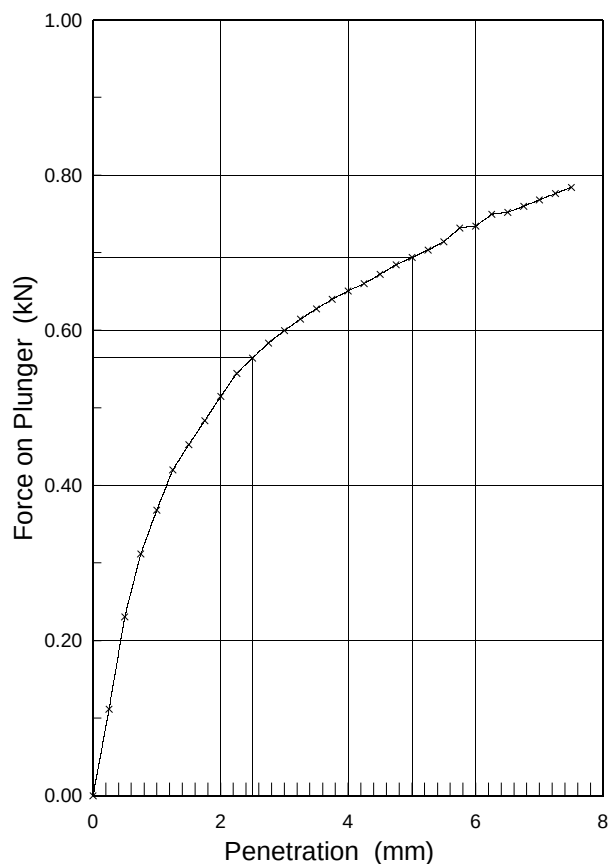
Specimen dry density 1.48 Mg/m³ (1.44 Mg/m³ after soaking)

0.0 % of the sample was retained on a 20mm sieve

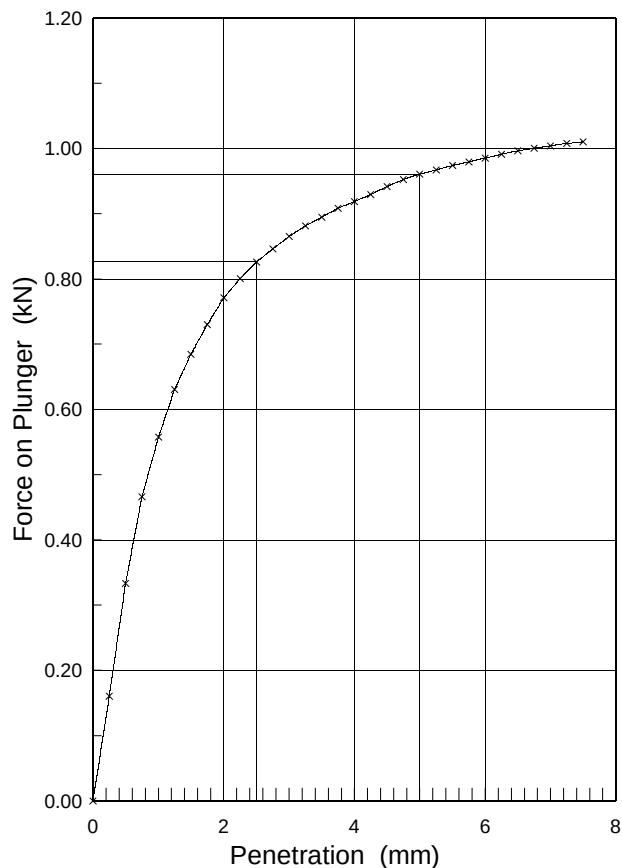
Test Details	Top	Base
Surcharge	10.0 kg	10.0 kg
Seating load	10 N	10 N
Moisture content	26 %	31 %

CBR Value	4.3 %	6.3 %
-----------	-------	-------

Top of Specimen



Base of Specimen



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Initials:

SB

Date: 03/10/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

RML 4750



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Determination of California Bearing Ratio

Trial Pit Number: TP 17
 Sample Number: -
 Depth (m): 1.00

Description: Orange, grey and brown silty CLAY with rare rootlets

Preparation Details

The specimen was soaked for 4 days, after which swelling equilibrium had been reached

The specimen was tested at its existing moisture content

The specimen was prepared by dynamic compaction using a 2.5 kg rammer

Specimen bulk density 1.77 Mg/m³ (1.76 Mg/m³ after soaking)

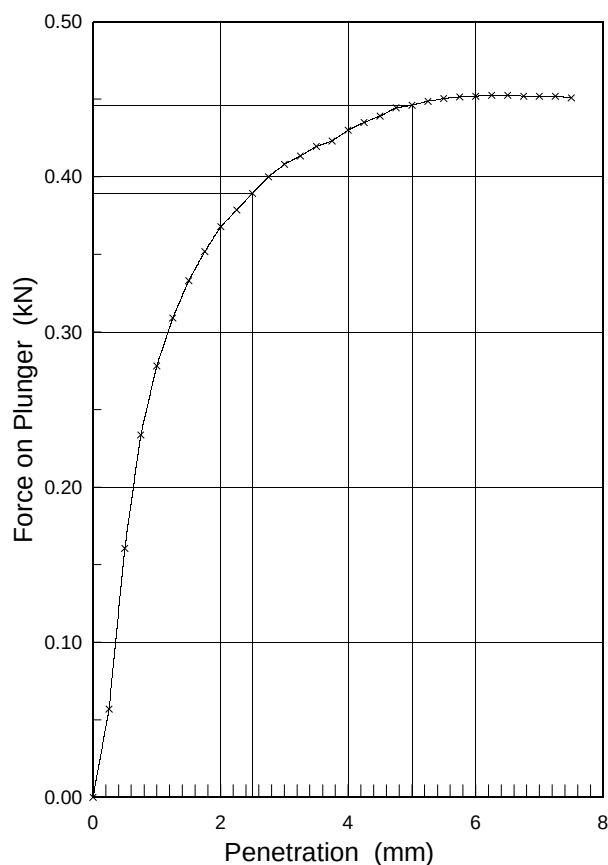
Specimen dry density 1.25 Mg/m³ (1.25 Mg/m³ after soaking)

0.0 % of the sample was retained on a 20mm sieve

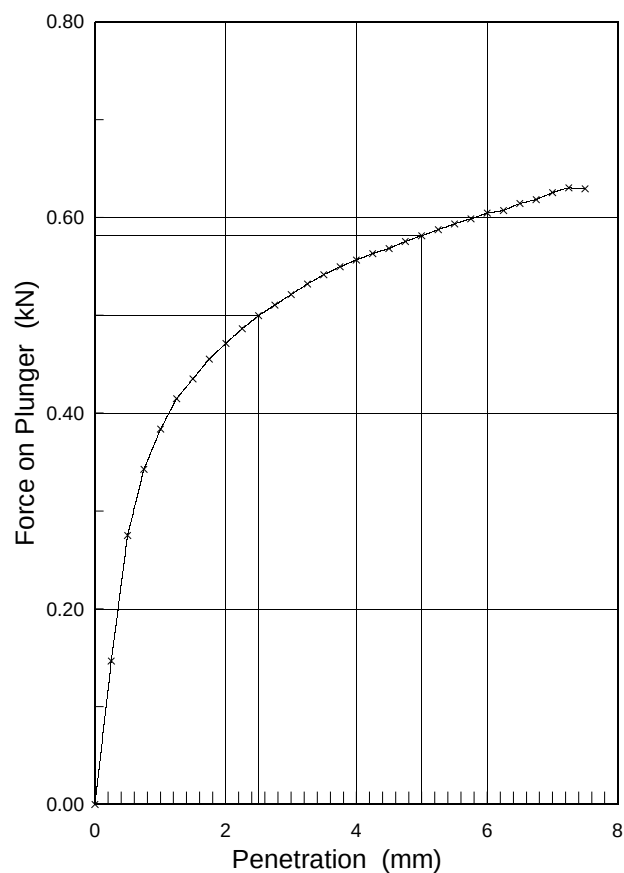
Test Details	Top	Base
Surcharge	10.0 kg	10.0 kg
Seating load	10 N	10 N
Moisture content	41 %	41 %

CBR Value	2.9 %	3.8 %
-----------	-------	-------

Top of Specimen



Base of Specimen



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Initials:

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Date: 03/10/2011

Project Number:

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Project Name:

WOODCROFT FARM, WATERLOOVILLE

RML 4750



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Moisture Content / Dry Density Relationship

Trial Pit No: TP9
 Sample No: -
 Depth: 1.00

Description:
 Brown GRAVEL in a slightly clayey sandy silt matrix

BS1377 : Part 4 : Clause 3.4.4.1 : 1990 2.5 kg Compaction Test

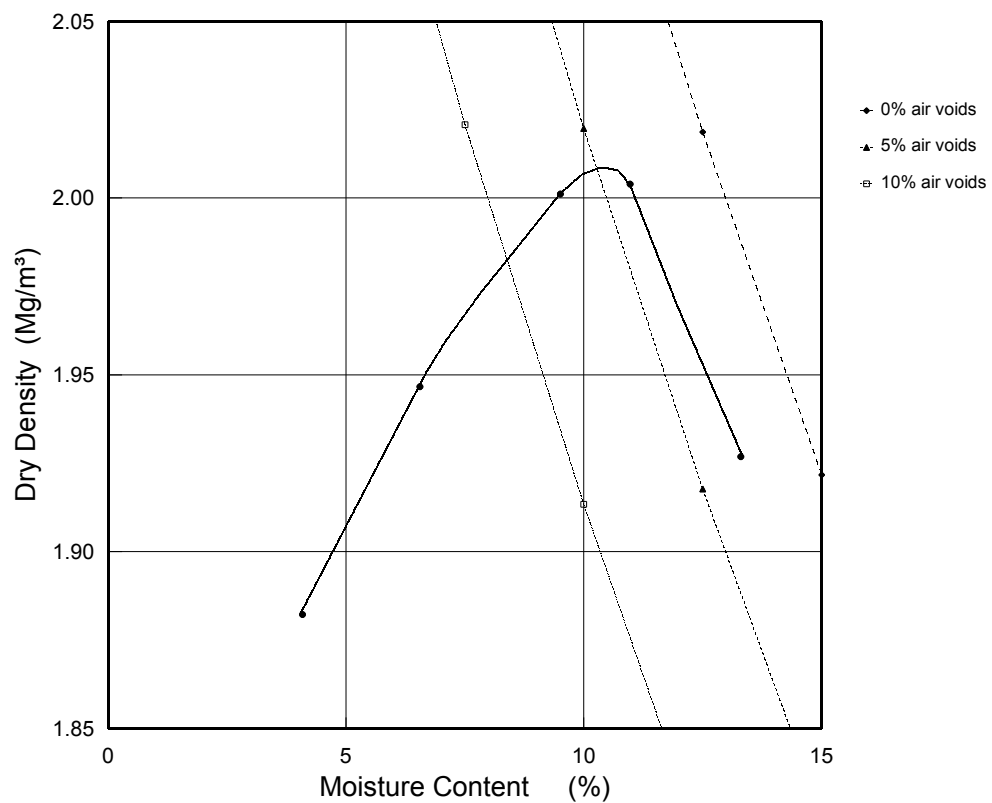
Sample Preparation: Material was air dried. Single sample
 Particles greater than 37.5mm were replaced by 20 to 37.5mm material.

Particle Density: 2.70 (assumed)

Material Retained

on 20 mm test sieve: 20 %

on 37.5 mm test sieve: 5 %



Maximum Dry Density **2.01 Mg/m³**

Optimum Moisture Content **10 %**

Natural Moisture Content **11 %**

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Initials:

JS
 Date: 30/09/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

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Moisture Content / Dry Density Relationship

Trial Pit No: TP11
 Sample No: -
 Depth: 1.00

Description:
 Orange brown silty CLAY with rare fine sand and
 traces of roots and fine to medium gravel

BS1377 : Part 4 : Clause 3.3.4.1 : 1990 2.5 kg Compaction Test

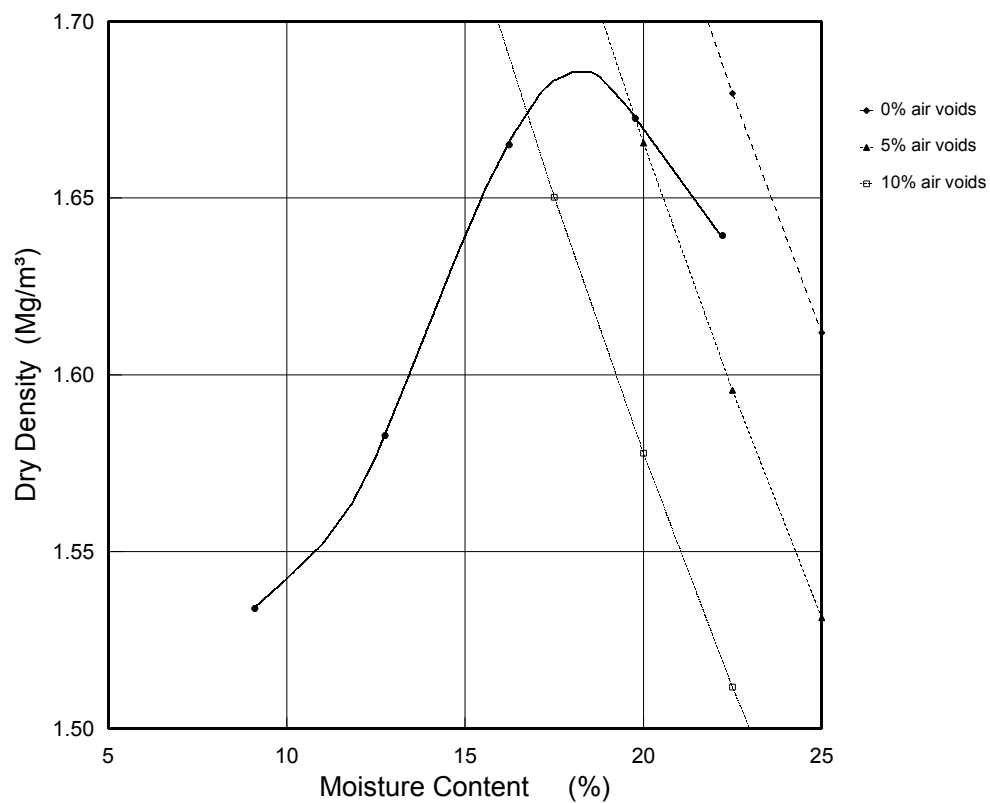
Sample Preparation: Material was air dried. Single sample
 No particles were removed

Particle Density: 2.70 (assumed)

Material Retained

on 20 mm test sieve: 0 %

on 37.5 mm test sieve: 0 %



Maximum Dry Density **1.68 Mg/m³**

Optimum Moisture Content **18 %**

Natural Moisture Content **21 %**

Checked and
Approved

Initials:

JS

Date: 30/09/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

RML 4750



GEOLABS®

Moisture Content / Dry Density Relationship

Trial Pit No: TP13
 Sample No: -
 Depth: 1.00

Description:
 Orange brown mottled pale grey fine sandy silty CLAY

BS1377 : Part 4 : Clause 3.3.4.1 : 1990 2.5 kg Compaction Test

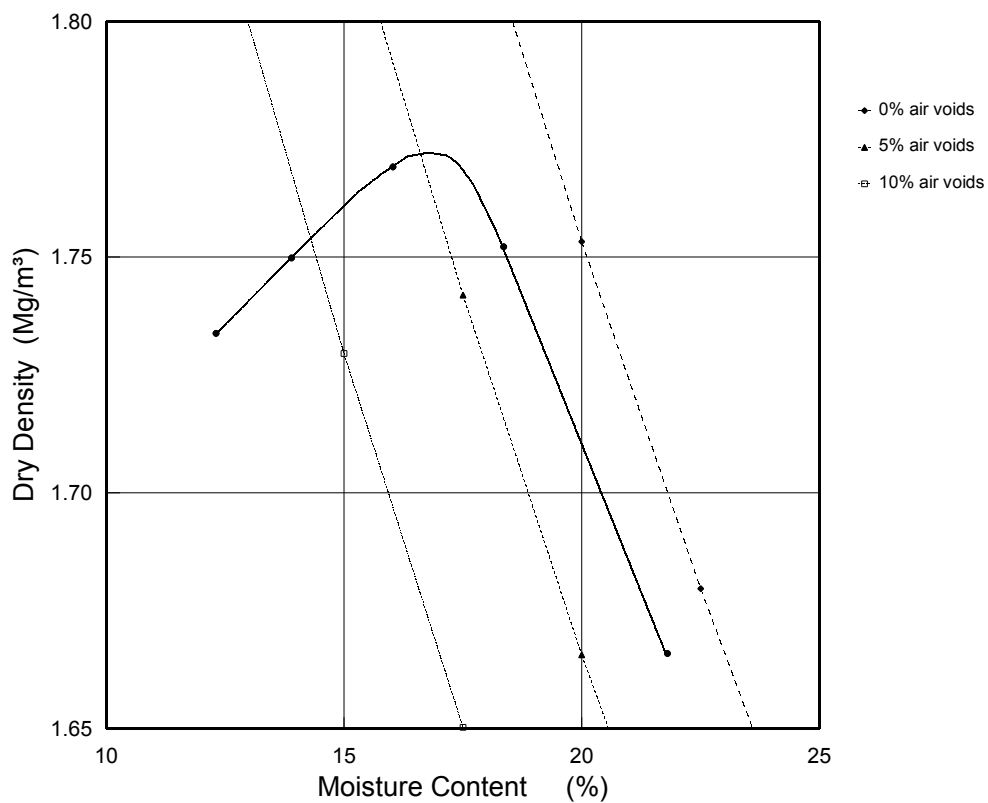
Sample Preparation: Material was air dried. Single sample
 No particles were removed

Particle Density: 2.70 (assumed)

Material Retained

on 20 mm test sieve: 0 %

on 37.5 mm test sieve: 0 %



Maximum Dry Density **1.77 Mg/m³**

Optimum Moisture Content **17 %**

Natural Moisture Content **19 %**

Checked and
Approved

Initials:

JS

Date: 30/09/2011

Project Number:

GEO / 17377

Project Name:

WOODCROFT FARM, WATERLOOVILLE

RML 4750



GEOLABS®

Moisture Content / Dry Density Relationship

Trial Pit No: TP18
 Sample No: -
 Depth: 1.00

Description:
 Pale grey mottled light brown silty CLAY with
 rare rootlets

BS1377 : Part 4 : Clause 3.3.4.1 : 1990 2.5 kg Compaction Test

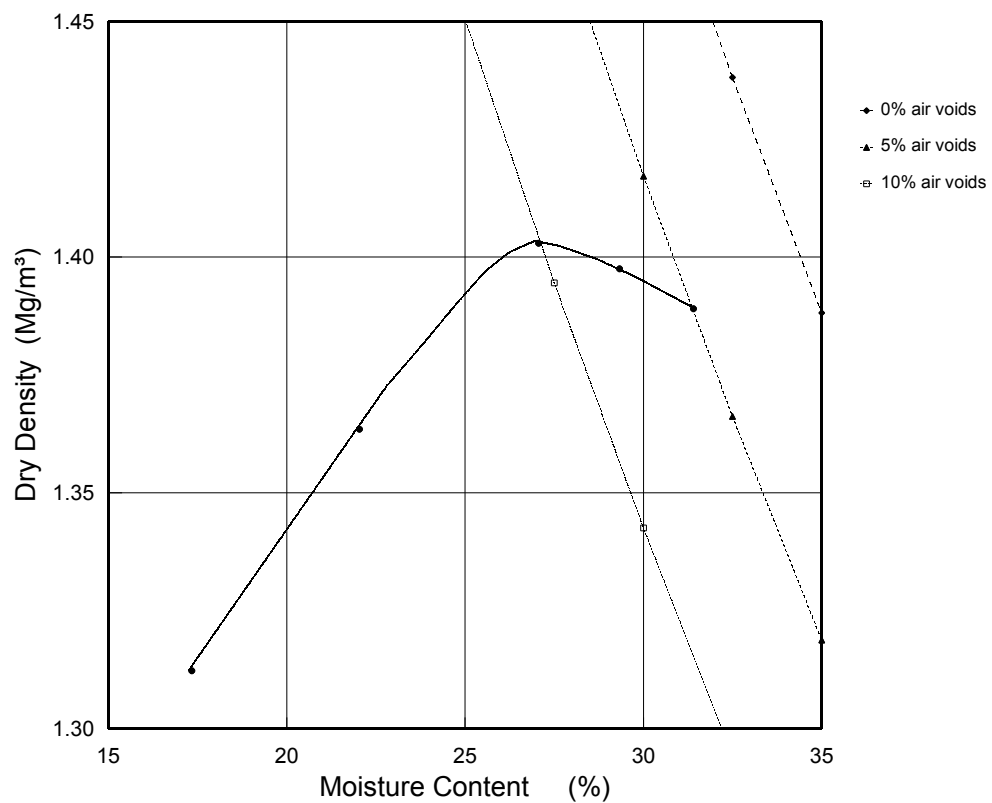
Sample Preparation: Material was air dried. Single sample
 No particles were removed

Particle Density: 2.70 (assumed)

Material Retained

on 20 mm test sieve: 0 %

on 37.5 mm test sieve: 0 %



Maximum Dry Density **1.41 Mg/m³**

Optimum Moisture Content **27 %**

Natural Moisture Content **43 %**

Checked and
Approved

Initials:

JS

Date: 30/09/2011

Project Number:

GEO / 17377

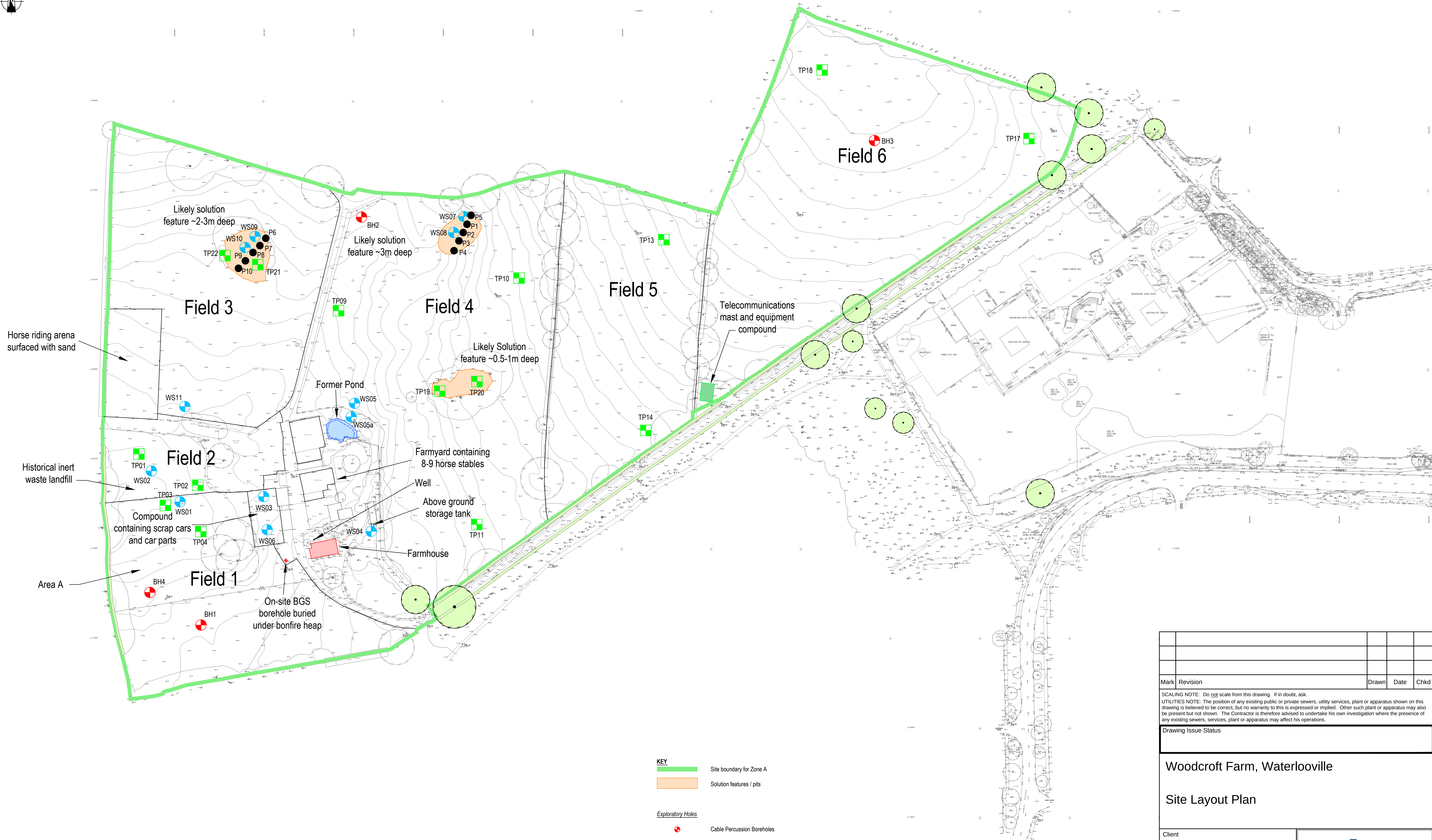
Project Name:

WOODCROFT FARM, WATERLOOVILLE

RML 4750



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- KEY**
- Site boundary for Zone A
 - Solution features / pits
- Exploratory Holes**
- Cable Percussion Boreholes
 - Trial Pits
 - Window Sample
 - Dynamic Probe

Mark	Revision		Drawn	Date
SCALING NOTE: Do not scale from this drawing. If in doubt, ask.				
UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing sewers, services, plant or apparatus may affect his operations.				
Drawing Issue Status				
Woodcroft Farm, Waterlooville				
Site Layout Plan				
Client				
grainger				
Date of 1st Issue	19.09.2011	Drawn by	DJM	
A1 Scale	1:1000	Checked by	AZ	
Drawing Number	Figure 2	Revision	-	
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