



TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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



Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

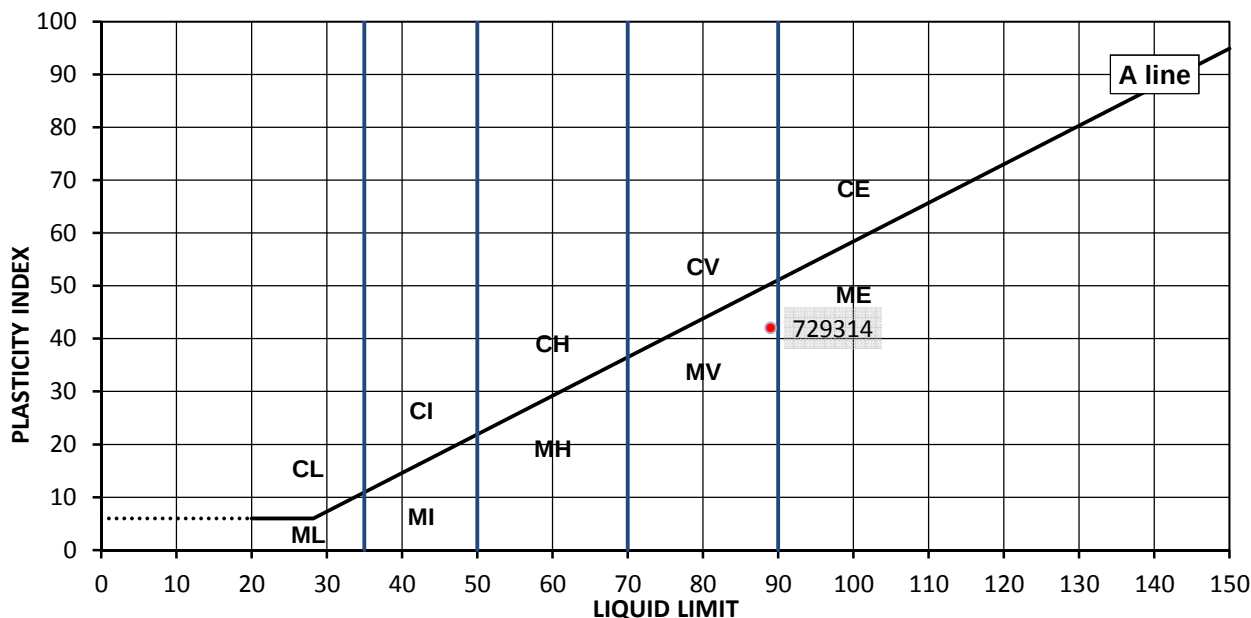
TEST RESULTS

Laboratory Reference: 729314
Sample Reference: 1

Description: Dark brown slightly gravelly organic CLAY
Location: TP27C
Sample Preparation: Tested after >425um removed by hand

Sample Type: D
Depth Top [m]: 2.5
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
65	89	47	42	99



Remarks

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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Sampled By: Not Given

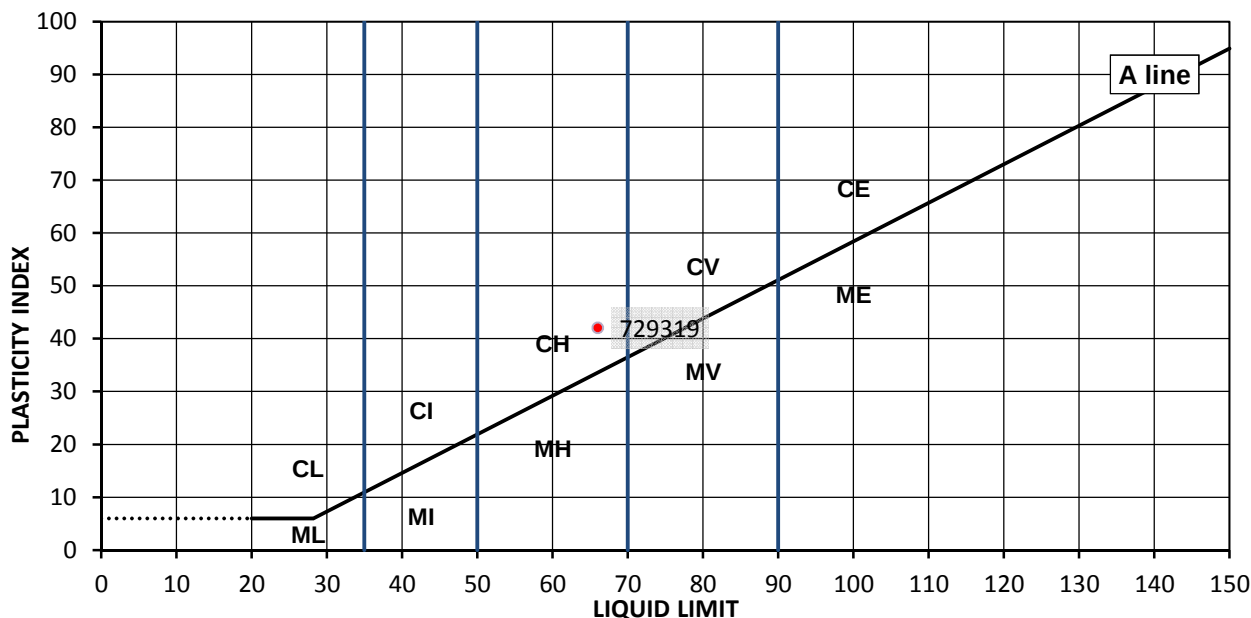
TEST RESULTS

Laboratory Reference: 729319
Sample Reference: 2

Description: Brown slightly sandy CLAY
Location: TP33C
Sample Preparation: Tested in natural condition

Sample Type: B
Depth Top [m]: 2.2
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
21	66	24	42	100



Legend, based on BS 5930:2015 Code of practice for site investigations

	Plasticity	Liquid Limit
C	Clay	below 35
M	Silt	35 to 50
	L Low	50 to 70
	I Medium	70 to 90
	H High	exceeding 90
	V Very high	
	E Extremely high	
Organic	O	append to classification for organic material (eg CHO)

Remarks

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

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Technical Manager
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Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729320
Sample Reference: Not Given

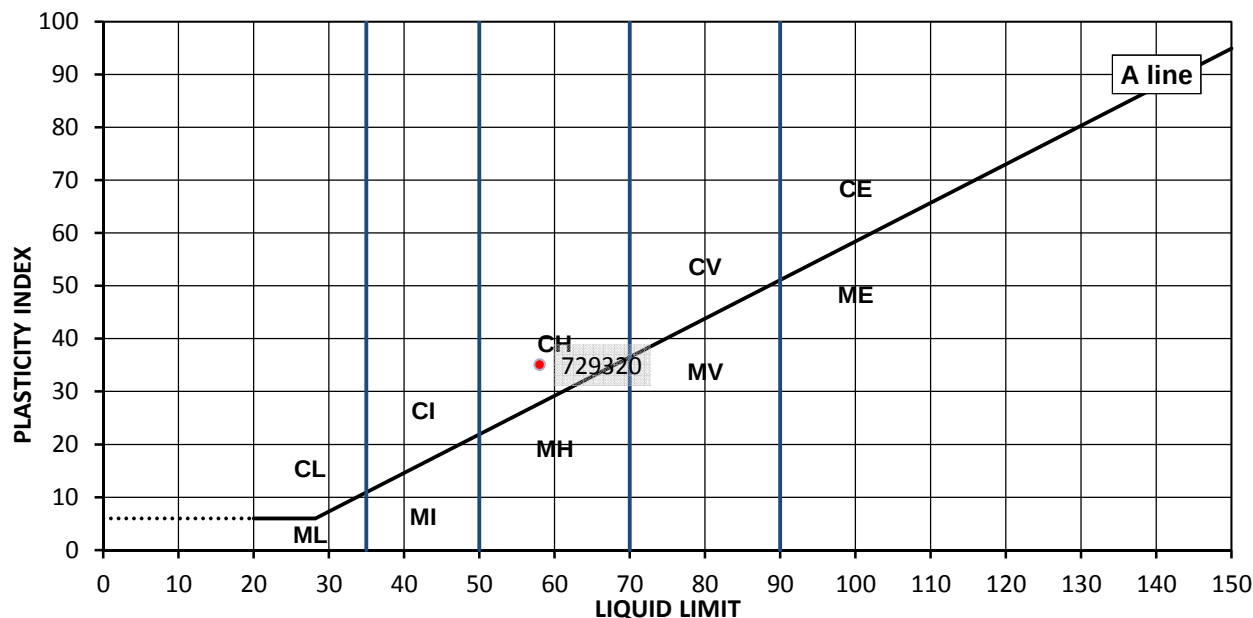
Description: Brown slightly sandy CLAY

Location: TP21C

Sample Preparation: Tested after >425um removed by hand

Sample Type: B
Depth Top [m]: 0.7
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	58	23	35	99



Legend, based on BS 5930:2015 Code of practice for site investigations

	Plasticity	Liquid Limit
C	Clay	below 35
M	Silt	35 to 50
	L	Low
	I	Medium
	H	High
	V	Very high
	E	Extremely high
Organic	O	append to classification for organic material (eg CHO)

Remarks

Approved:

Mirosława Pytlík
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TEST CERTIFICATE

Summary of Classification Test Results

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Surrey GU7 1XW
Amir Abbasi
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017 - 11/04/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk	dry		% Passing 425um	LL	PL	PI	
							Mg/m3	Mg/m3		%	%	%	%	
729302	TP11C	3	1.50	Not Given	B	Brownish grey CLAY			31	100	80	28	52	
729304	TP12C	3	1.40	Not Given	B	Grey slightly gravelly slightly sandy CLAY			29	94	68	27	41	
729307	TP14C	2	1.20	Not Given	D	Brown slightly gravelly CLAY			32	98	83	28	55	
729309	TP20C	2	1.40	Not Given	B	Yellowish brown slightly gravelly slightly sandy CLAY			44	85	68	32	36	
729320	TP21C	Not Given	0.70	Not Given	B	Brown slightly sandy CLAY			29	99	58	23	35	
729310	TP22C	1	0.40	Not Given	D	Yellowish brown slightly gravelly slightly sandy CLAY			26	68	63	27	36	
729314	TP27C	1	2.50	Not Given	D	Dark brown slightly gravelly organic CLAY			65	99	89	47	42	
729319	TP33C	2	2.20	Not Given	B	Brown slightly sandy CLAY			21	100	66	24	42	
729291	TP3C	1	1.00	Not Given	B	Yellowish brown slightly gravelly slightly sandy CLAY			28	70	80	29	51	
729296	TP6C	1	0.50	Not Given	B	Brown gravelly silty CLAY			18	71	45	20	25	

Comments:

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

Signed:

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Technical Manager (Geotechnical
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Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Density		M/C	Atterberg				PD
		Reference	Top depth [m]	Base depth [m]	Type		bulk	dry		% Passing 425um	LL	PL	PI	
							Mg/m3	Mg/m3		%	%	%	%	%
729297	TP6C	2	1.85	Not Given	D	Brown slightly gravelly CLAY			28	98	78	27	51	
729299	TP7C	3	1.60	Not Given	D	Brown CLAY			23	100	71	26	45	

Comments:

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PL Snr Quality Specialist
Geotechnical Section

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4041

TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



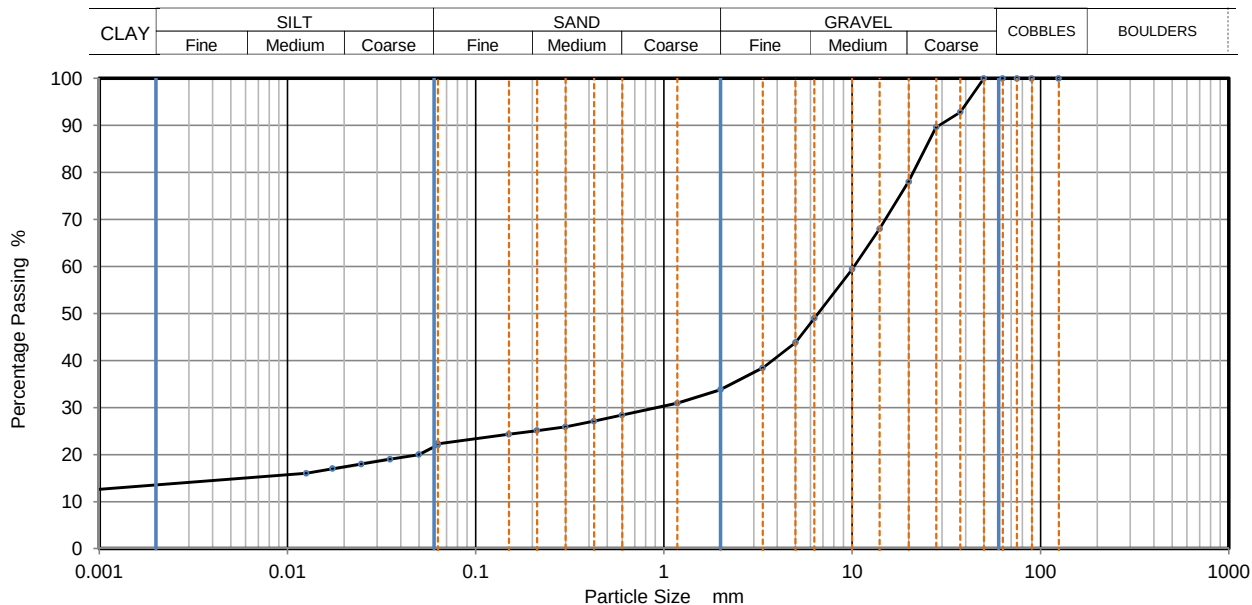
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729290
Sample description: Yellowish brown clayey sandy GRAVEL
Location: TP1C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1
Depth Base [m]: Not Given



Dry Mass of sample [g]: 5672

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	22
90	100	0.0500	20
75	100	0.0352	19
63	100	0.0247	18
50	100	0.0174	17
37.5	93	0.0126	16
28	90	0.0066	12
20	78		
14	68		
10	59		
6.3	49		
5	44		
3.35	38		
2	34		
1.18	31		
0.6	28	Particle density (assumed) 2.65 Mg/m ³	
0.425	27		
0.3	26		
0.212	25		
0.15	24		
0.063	22		

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		66.20
Sand		11.40
Silt		8.70
Clay		13.70

Grading Analysis		
D100	mm	50
D60	mm	10.3
D30	mm	0.933
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below
The material submitted, fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729291

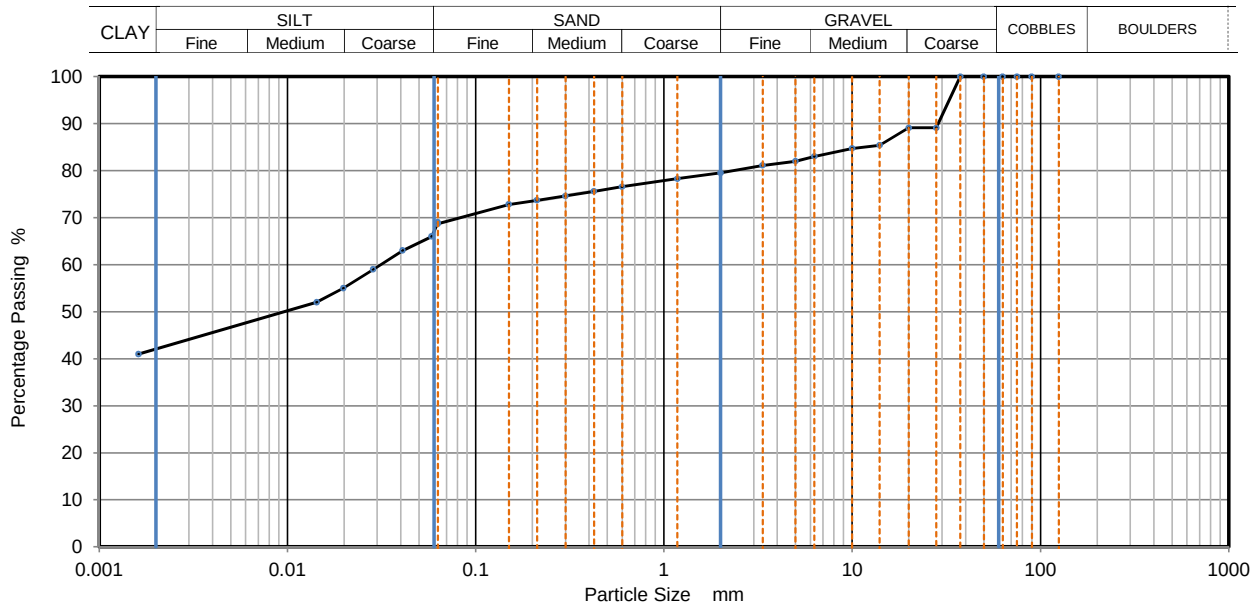
Sample Reference: 1

Sample description: Yellowish brown slightly gravelly slightly sandy
CLAY

Sample Type: B

Location: TP3C
Supplier: Not Given

Depth Top [m]: 1
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	69
90	100	0.0585	66
75	100	0.0409	63
63	100	0.0285	59
50	100	0.0199	55
37.5	100	0.0144	52
28	89	0.0016	41
20	89		
14	85		
10	85		
6.3	83		
5	82		
3.35	81		
2	80		
1.18	78		
0.6	77	Particle density (assumed) 2.65 Mg/m ³	
0.425	76		
0.3	75		
0.212	74		
0.15	73		
0.063	69		

Dry Mass of sample [g]: 523

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	20.50
Sand	10.70
Silt	26.50
Clay	42.30

Grading Analysis	
D100	mm 37.5
D60	mm 0.0309
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below
The material submitted, fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved:

Signed:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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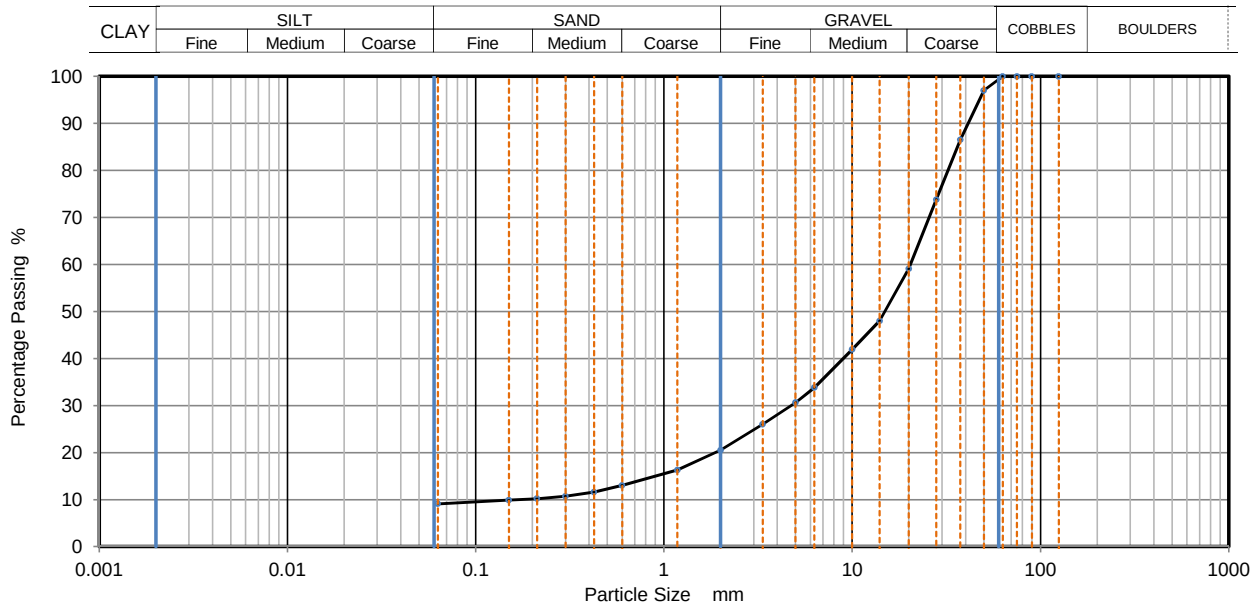
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Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729292
Sample description: Brown sandy clayey GRAVEL
Location: TP3C
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 1.7
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	97		
37.5	87		
28	74		
20	59		
14	48		
10	42		
6.3	34		
5	31		
3.35	26		
2	21		
1.18	16		
0.6	13		
0.425	12		
0.3	11		
0.212	10		
0.15	10		
0.063	9		

Dry Mass of sample [g]: 14943

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		79.50
Sand		11.40
Fines <0.063mm		9.10

Grading Analysis		
D100	mm	63
D60	mm	20.4
D30	mm	4.75
D10	mm	0.173
Uniformity Coefficient		120
Curvature Coefficient		6.4

Remarks

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The material submitted, fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

Signed:

Mark Beastall
Geotechnical Commercial
Manager

for and on behalf of i2 Analytical Ltd

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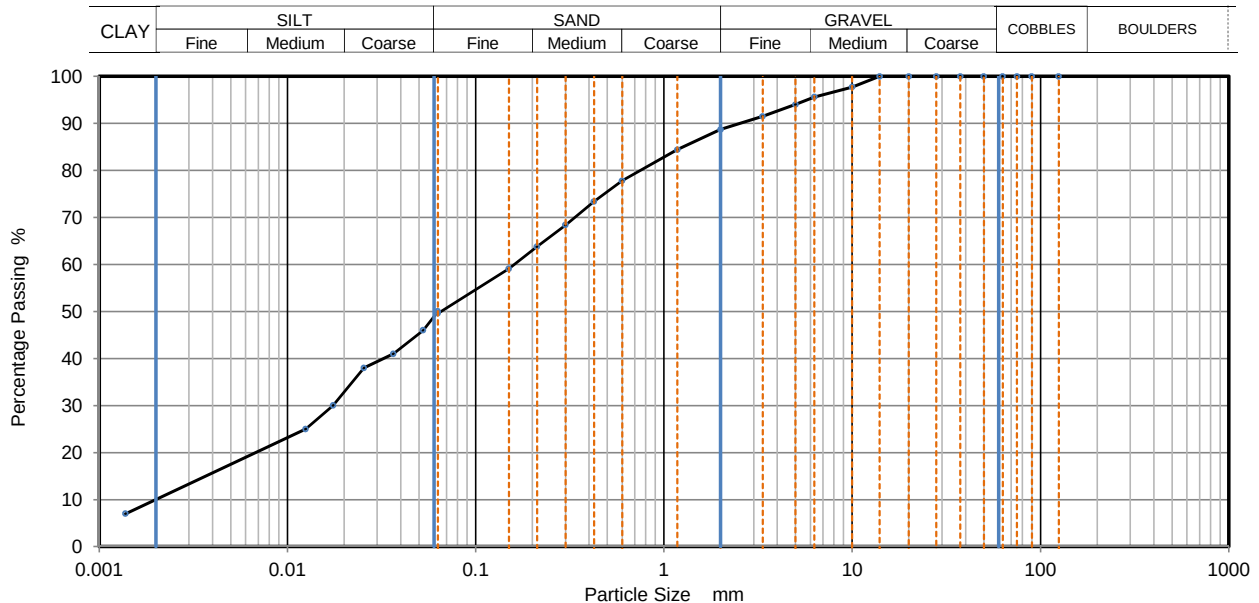
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Site Address: Not Given

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Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729293
Sample description: Dark brown sandy clayey SILT
Location: TP4C
Supplier: Not Given

Sample Reference: 1
Sample Type: D
Depth Top [m]: 0.4
Depth Base [m]: Not Given



Dry Mass of sample [g]: 517

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	50
90	100	0.0525	46
75	100	0.0365	41
63	100	0.0255	38
50	100	0.0175	30
37.5	100	0.0125	25
28	100	0.0075	7
20	100		
14	100		
10	98		
6.3	96		
5	94		
3.35	92		
2	89		
1.18	84		
0.6	78	Particle density (assumed) 2.65 Mg/m ³	
0.425	73		
0.3	68		
0.212	64		
0.15	59		
0.063	50		

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		11.30
Sand		39.00
Silt		40.00
Clay		9.70

Grading Analysis		
D100	mm	14
D60	mm	0.16
D30	mm	0.0177
D10	mm	0.00208
Uniformity Coefficient		77
Curvature Coefficient		0.94

Remarks
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Geotechnical Section

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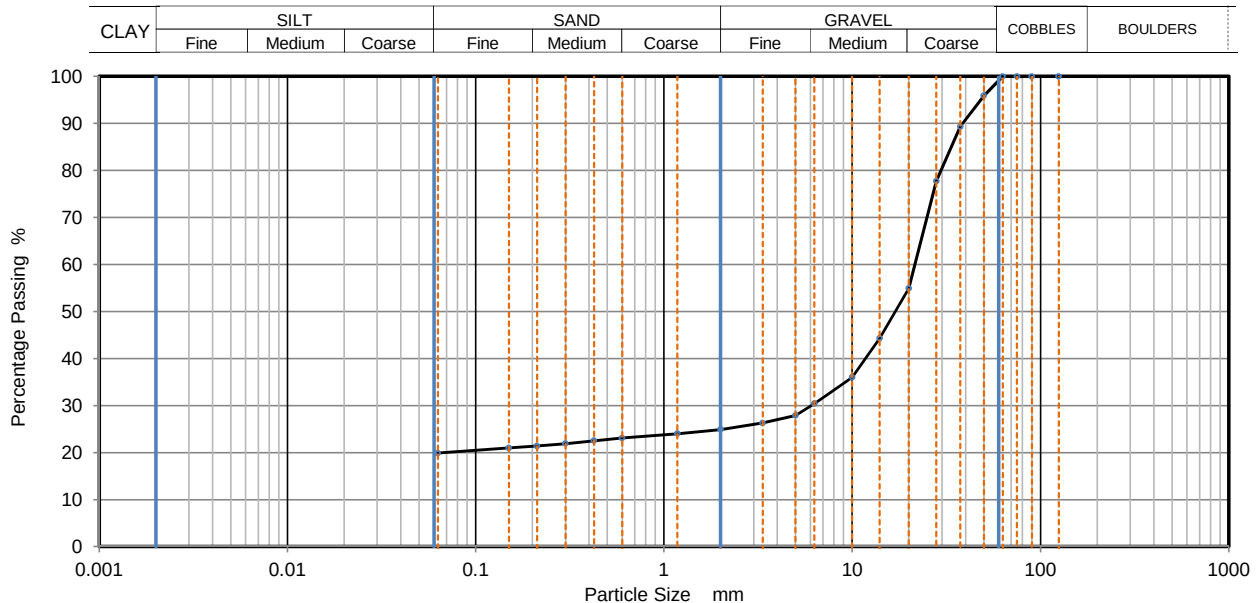
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Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729294
Sample description: Grey slightly sandy clayey GRAVEL
Location: TP4C
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 2
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	96		
37.5	89		
28	78		
20	55		
14	44		
10	36		
6.3	30		
5	28		
3.35	26		
2	25		
1.18	24		
0.6	23		
0.425	23		
0.3	22		
0.212	21		
0.15	21		
0.063	20		

Dry Mass of sample [g]: 13847

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		75.10
Sand		4.90
Fines <0.063mm		19.90

Grading Analysis		
D100	mm	63
D60	mm	21.6
D30	mm	6.08
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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TEST CERTIFICATE**Determination of Particle Size Distribution**

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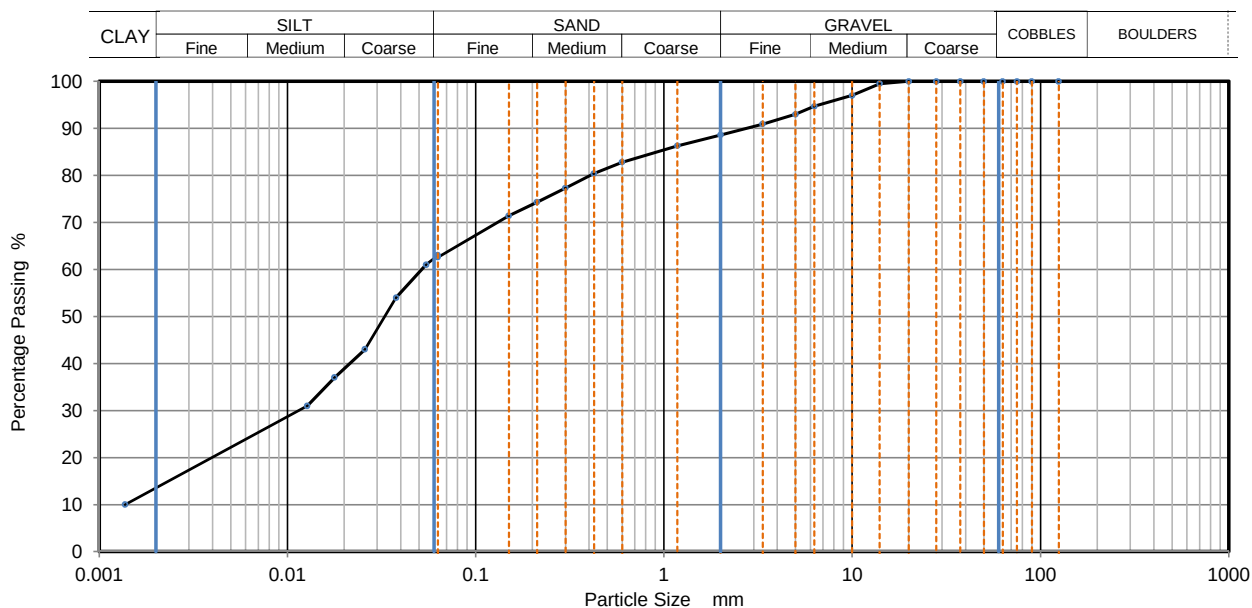
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Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729295
Sample description: Brown slightly sandy silty CLAY
Location: TP5C
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 0.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	63
90	100	0.0546	61
75	100	0.0378	54
63	100	0.0258	43
50	100	0.0178	37
37.5	100	0.0128	31
28	100	0.0014	10
20	100		
14	100		
10	97		
6.3	95		
5	93		
3.35	91		
2	89		
1.18	86		
0.6	83	Particle density (assumed) 2.65 Mg/m ³	
0.425	80		
0.3	77		
0.212	74		
0.15	71		
0.063	63		

Dry Mass of sample [g]: 516

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		11.40
Sand		26.00
Silt		48.60
Clay		14.00

Grading Analysis		
D100	mm	20
D60	mm	0.0521
D30	mm	0.0111
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



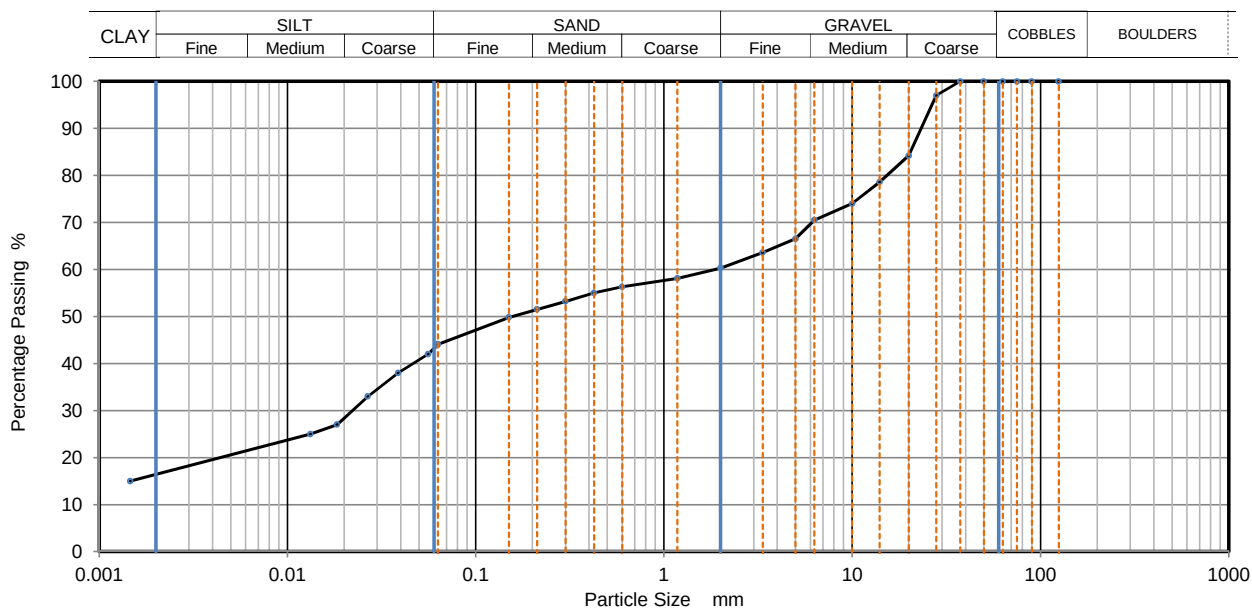
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729296
Sample description: Brown gravelly silty CLAY
Location: TP6C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 0.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	44
90	100	0.0560	42
75	100	0.0388	38
63	100	0.0267	33
50	100	0.0184	27
37.5	100	0.0132	25
28	97	0.0015	15
20	84		
14	79		
10	74		
6.3	71		
5	67		
3.35	64		
2	60		
1.18	58		
0.6	56	Particle density (assumed) 2.65 Mg/m ³	
0.425	55		
0.3	53		
0.212	52		
0.15	50		
0.063	44		

Dry Mass of sample [g]: 2661

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	39.70
Sand	16.10
Silt	28.00
Clay	16.20

Grading Analysis	
D100	mm 37.5
D60	mm 1.87
D30	mm 0.0223
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Mark Beastall
Geotechnical Commercial
Manager

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



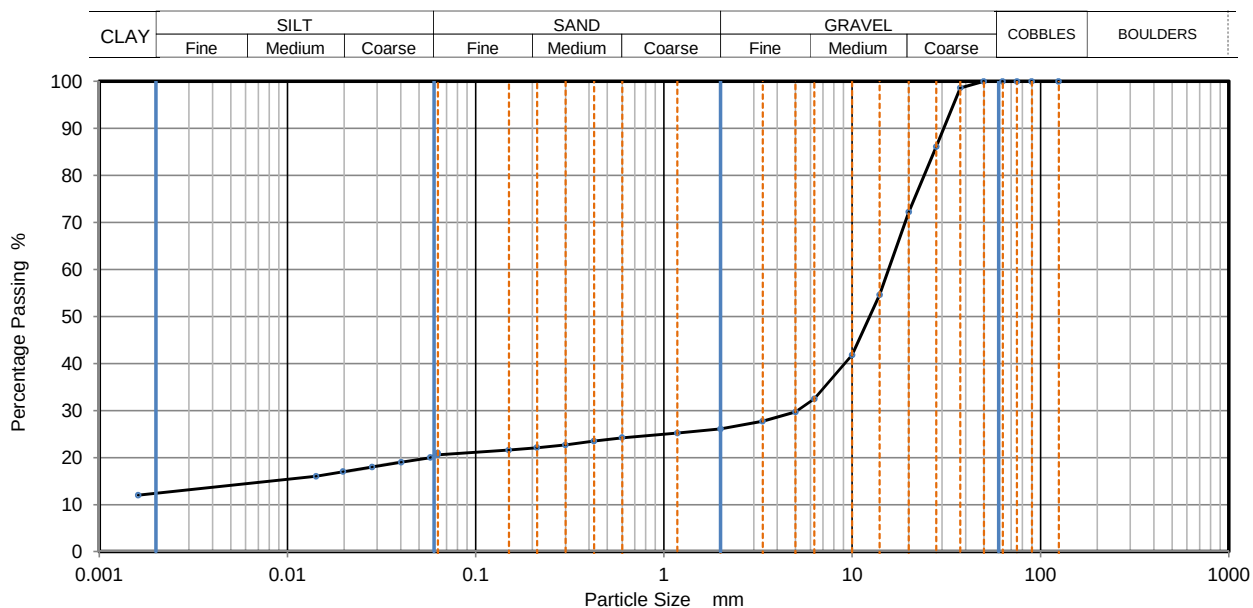
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729298
Sample description: Grey slightly sandy clayey GRAVEL
Location: TP6C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 0.4
Depth Base [m]: Not Given



Dry Mass of sample [g]: 7650

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	21
90	100	0.0576	20
75	100	0.0403	19
63	100	0.0282	18
50	100	0.0198	17
37.5	99	0.0142	16
28	86	0.0016	12
20	72		
14	55		
10	42		
6.3	33		
5	30		
3.35	28		
2	26		
1.18	25		
0.6	24	Particle density (assumed) 2.65 Mg/m ³	
0.425	24		
0.3	23		
0.212	22		
0.15	22		
0.063	21		

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		73.90
Sand		5.40
Silt		8.20
Clay		12.50

Grading Analysis		
D100	mm	50
D60	mm	15.6
D30	mm	5.14
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
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Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Mark Beastall
Geotechnical Commercial
Manager

Date Reported: 20/04/2017

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TEST CERTIFICATE**Determination of Particle Size Distribution**

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i2 Analytical Ltd
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Croxley Green Business Park
Watford Herts WD18 8YS



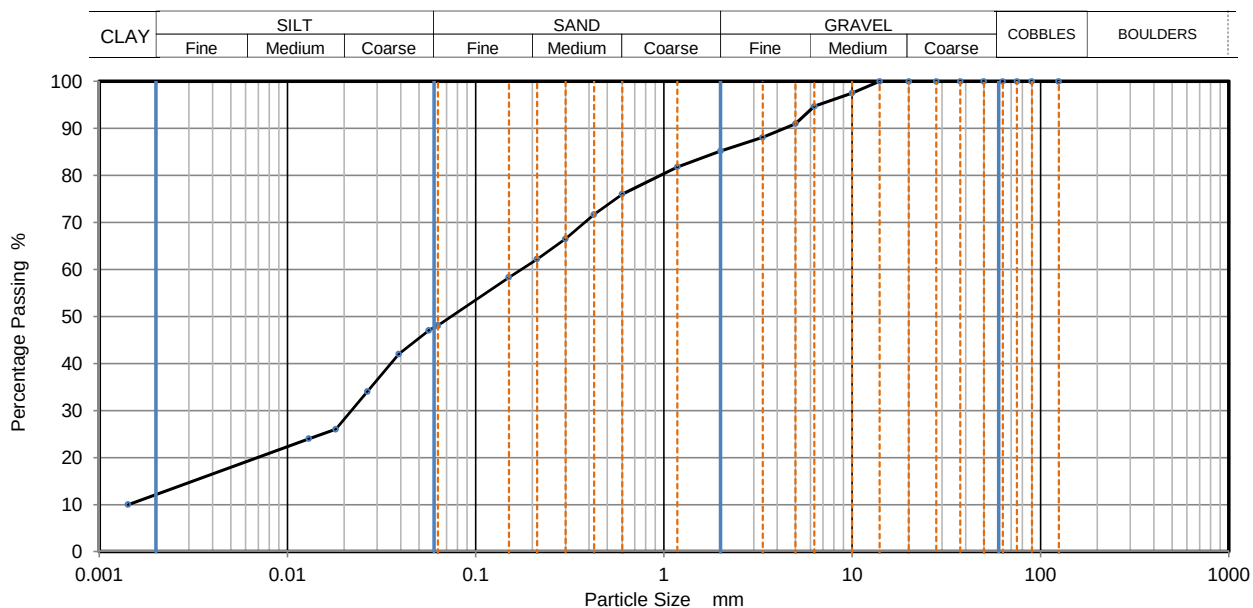
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729300
Sample description: Dark brown sandy silty CLAY
Location: TP8C
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 0.45
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	48
90	100	0.0563	47
75	100	0.0390	42
63	100	0.0266	34
50	100	0.0180	26
37.5	100	0.0130	24
28	100	0.0014	10
20	100		
14	100		
10	98		
6.3	95		
5	91		
3.35	88		
2	85		
1.18	82		
0.6	76	Particle density (assumed) 2.65 Mg/m ³	
0.425	72		
0.3	67		
0.212	62		
0.15	58		
0.063	48		

Dry Mass of sample [g]: 646

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		14.80
Sand		37.10
Silt		35.70
Clay		12.40

Grading Analysis		
D100	mm	14
D60	mm	0.174
D30	mm	0.0215
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

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



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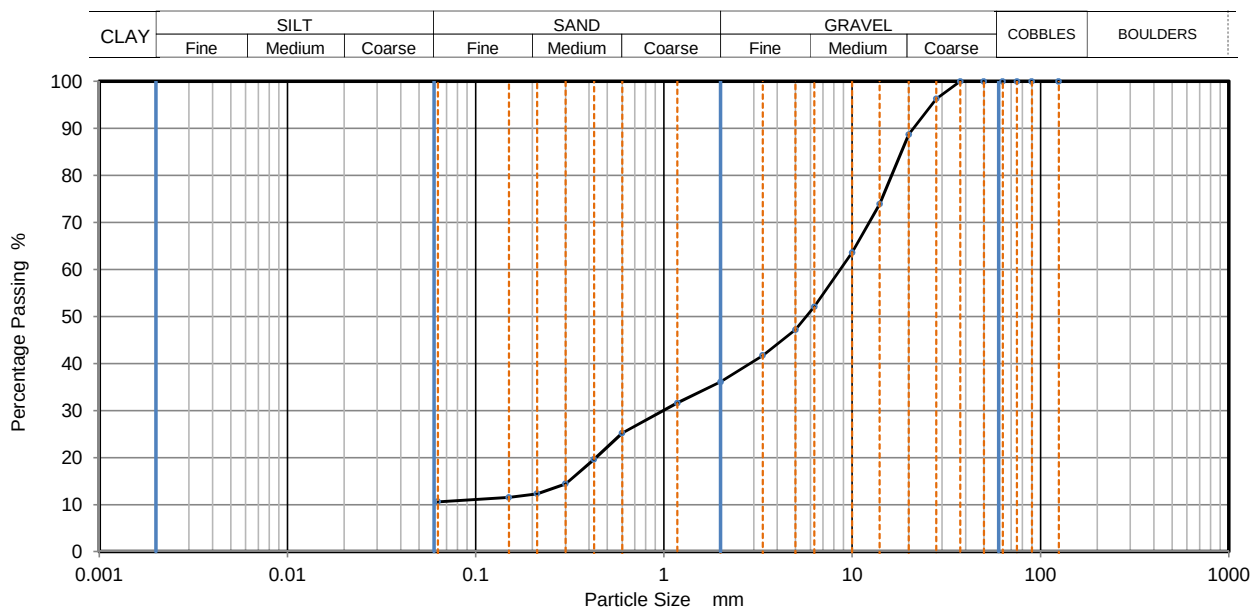
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729301
Sample description: Brown clayey very sandy GRAVEL
Location: TP8C
Supplier: Not Given

Sample Reference: 3
Sample Type: B
Depth Top [m]: 0.8
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	96		
20	89		
14	74		
10	64		
6.3	52		
5	47		
3.35	42		
2	36		
1.18	32		
0.6	25		
0.425	20		
0.3	14		
0.212	12		
0.15	12		
0.063	11		

Dry Mass of sample [g]: 1241

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	63.90
Sand	25.50
Fines <0.063mm	10.60

Grading Analysis	
D100	mm 37.5
D60	mm 8.64
D30	mm 0.997
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks
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Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

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TEST CERTIFICATE

Determination of Particle Size Distribution

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



Tested in Accordance with BS1377:Part 2:1990, clause 9.2

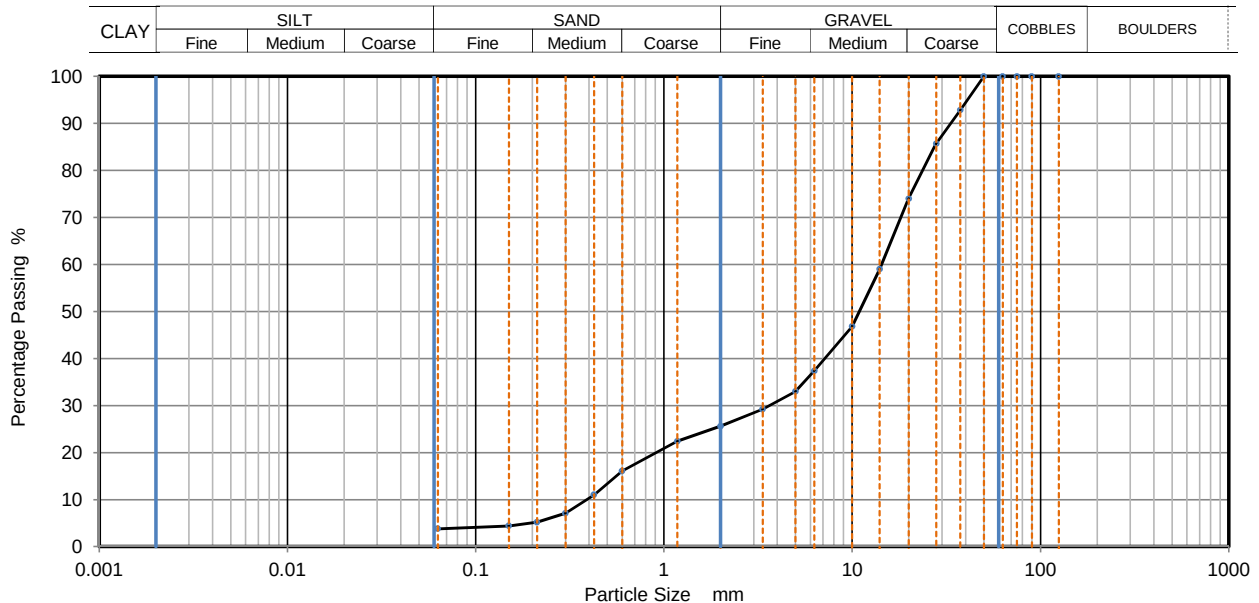
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729303
Sample description: Brown slightly clayey very sandy GRAVEL
Location: TP12C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 0.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	86		
20	74		
14	59		
10	47		
6.3	37		
5	33		
3.35	29		
2	26		
1.18	22		
0.6	16		
0.425	11		
0.3	7		
0.212	5		
0.15	4		
0.063	4		

Dry Mass of sample [g]: 18912

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	74.40
Sand	21.80
Fines <0.063mm	3.80

Grading Analysis	
D100	mm 50
D60	mm 14.3
D30	mm 3.63
D10	mm 0.388
Uniformity Coefficient	37
Curvature Coefficient	2.4

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



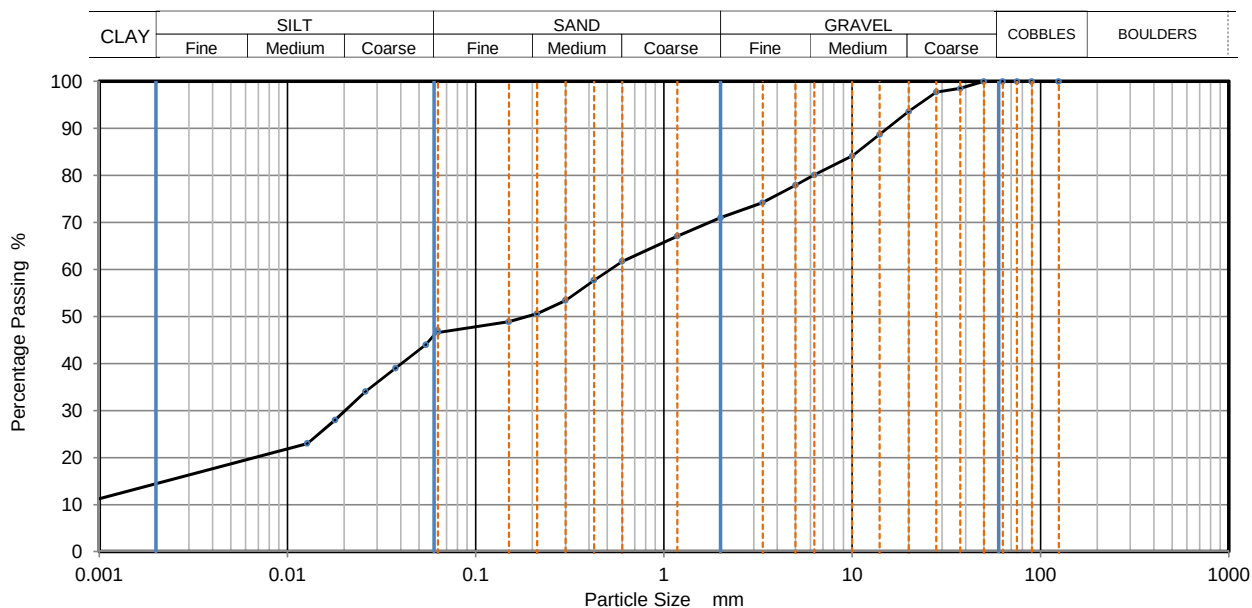
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729305
Sample description: Greyish brown slightly sandy silty CLAY
Location: TP13C
Supplier: Not Given

Sample Reference: 1
Sample Type: D
Depth Top [m]: 0.3
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	47
90	100	0.0544	44
75	100	0.0376	39
63	100	0.0260	34
50	100	0.0179	28
37.5	99	0.0127	23
28	98	0.006	9
20	94		
14	89		
10	84		
6.3	80		
5	78		
3.35	74		
2	71		
1.18	67		
0.6	62	Particle density (assumed) 2.65 Mg/m ³	
0.425	58		
0.3	53		
0.212	51		
0.15	49		
0.063	47		

Dry Mass of sample [g]: 5292

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	29.00
Sand	24.40
Silt	32.00
Clay	14.60

Grading Analysis		
D100	mm	50
D60	mm	0.518
D30	mm	0.02
D10	mm	0.000753
Uniformity Coefficient		690
Curvature Coefficient		1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Particle Size Distribution

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



Tested in Accordance with BS1377:Part 2:1990, clause 9.2

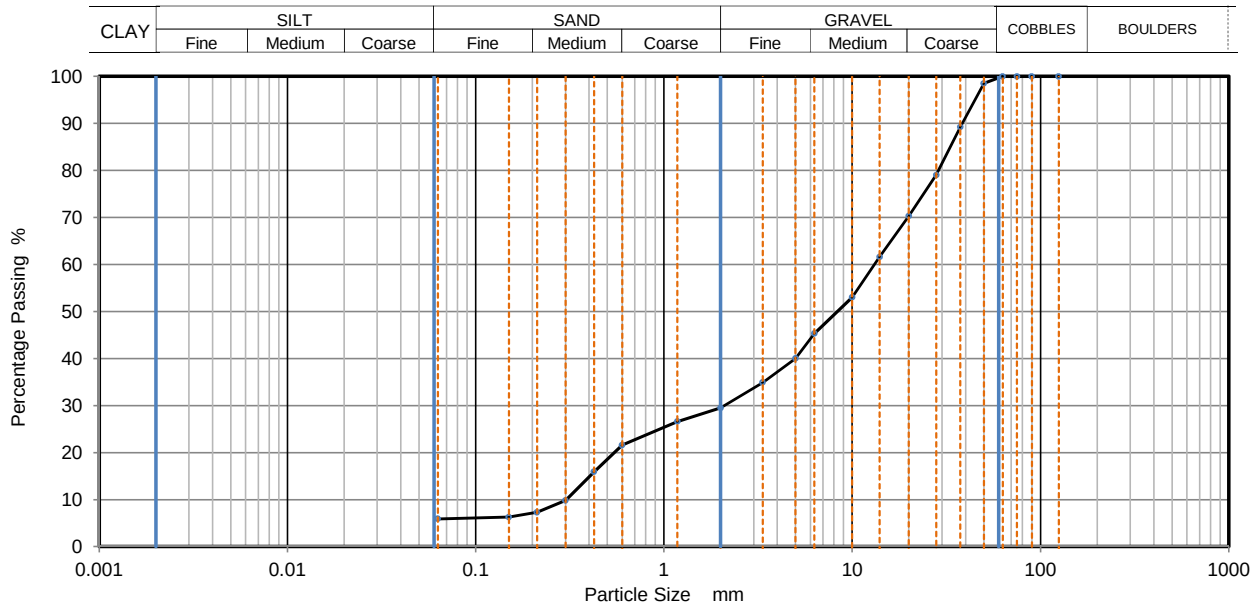
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729306
Sample description: Yellowish brown clayey very sandy GRAVEL
Location: TP13C
Supplier: Not Given

Sample Reference: 3
Sample Type: B
Depth Top [m]: 1.4
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	89		
28	79		
20	70		
14	62		
10	53		
6.3	45		
5	40		
3.35	35		
2	30		
1.18	27		
0.6	22		
0.425	16		
0.3	10		
0.212	7		
0.15	6		
0.063	6		

Dry Mass of sample [g]: 21351

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	70.50
Sand	23.60
Fines <0.063mm	5.90

Grading Analysis	
D100	63
D60	13.1
D30	2.1
D10	0.304
Uniformity Coefficient	43
Curvature Coefficient	1.1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Mirosława Pytlík

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Sushil Sharda

Date Reported: 20/04/2017

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TEST CERTIFICATE**Determination of Particle Size Distribution**

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



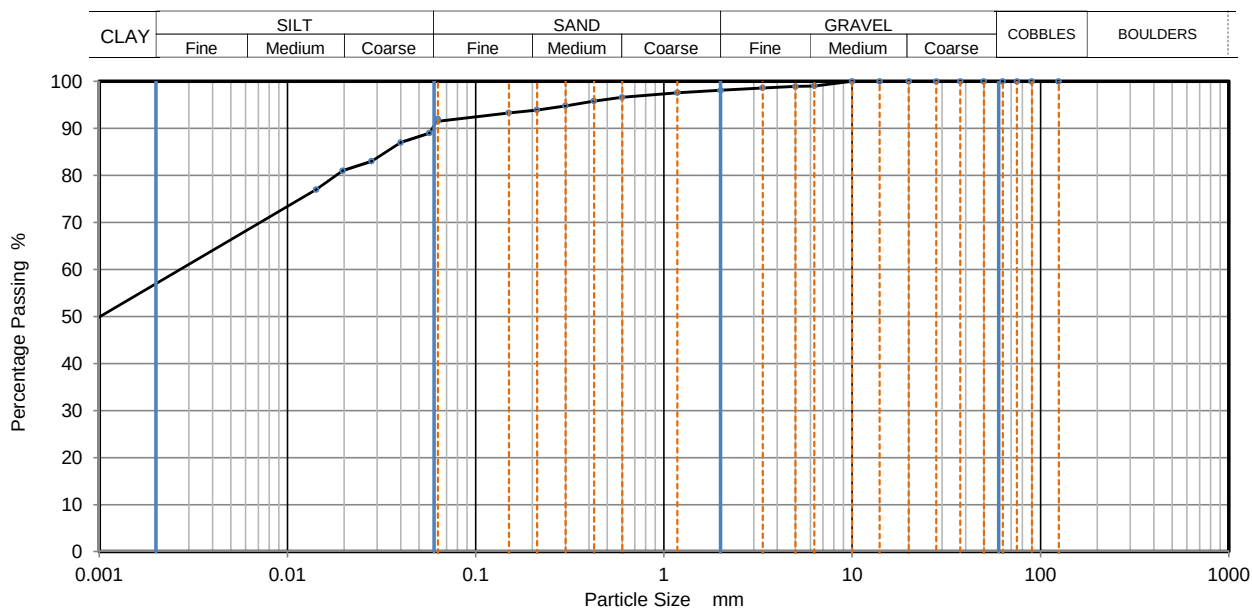
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729308
Sample description: Brown slightly gravelly slightly sandy CLAY
Location: TP16C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	92
90	100	0.0569	89
75	100	0.0400	87
63	100	0.0280	83
50	100	0.0197	81
37.5	100	0.0142	77
28	100	0.0007	46
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	98		
1.18	98		
0.6	97	Particle density (assumed) 2.65 Mg/m ³	
0.425	96		
0.3	95		
0.212	94		
0.15	93		
0.063	92		

Dry Mass of sample [g]: 230

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	1.90
Sand	6.60
Silt	34.70
Clay	56.80

Grading Analysis	
D100	mm 10
D60	mm 0.00274
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

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



Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

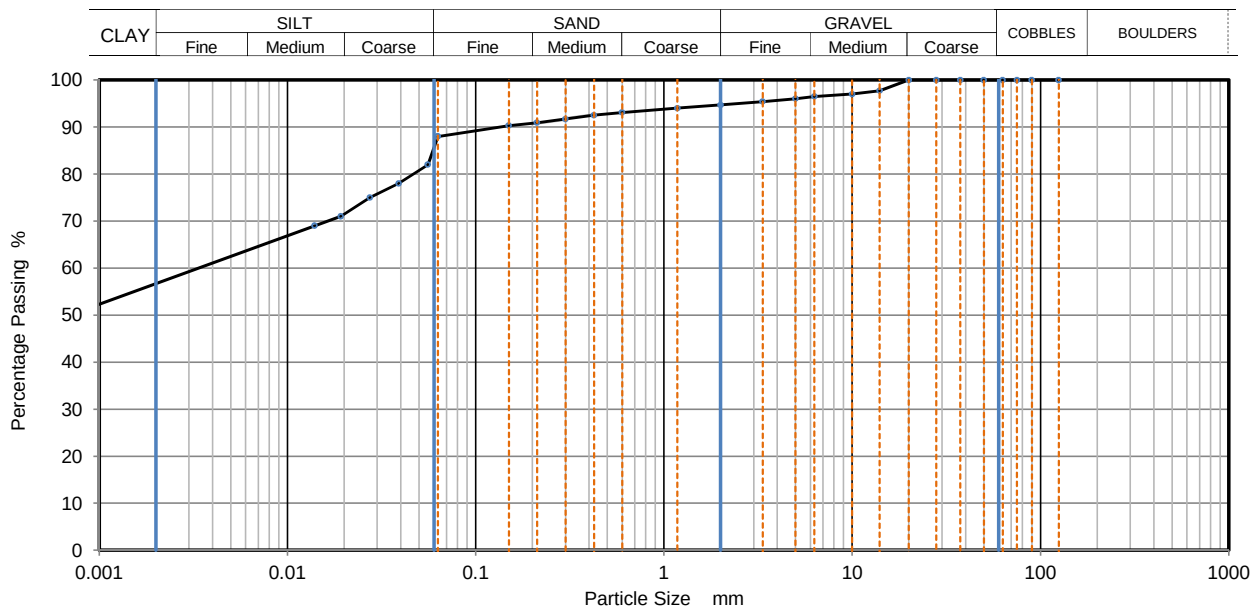
Laboratory Reference: 729309
Sample description: Yellowish brown slightly gravelly slightly sandy
CLAY

Sample Reference: 2

Sample Type: B

Location: TP20C
Supplier: Not Given

Depth Top [m]: 1.4
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	88
90	100	0.0558	82
75	100	0.0390	78
63	100	0.0275	75
50	100	0.0192	71
37.5	100	0.0140	69
28	100	0.0007	50
20	100		
14	98		
10	97		
6.3	97		
5	96		
3.35	95		
2	95		
1.18	94		
0.6	93	Particle density (assumed) 2.65 Mg/m3	
0.425	93		
0.3	92		
0.212	91		
0.15	90		
0.063	88		

Dry Mass of sample [g]: 317

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	5.30
Sand	6.70
Silt	31.10
Clay	56.90

Grading Analysis	
D100	mm 20
D60	mm 0.00326
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

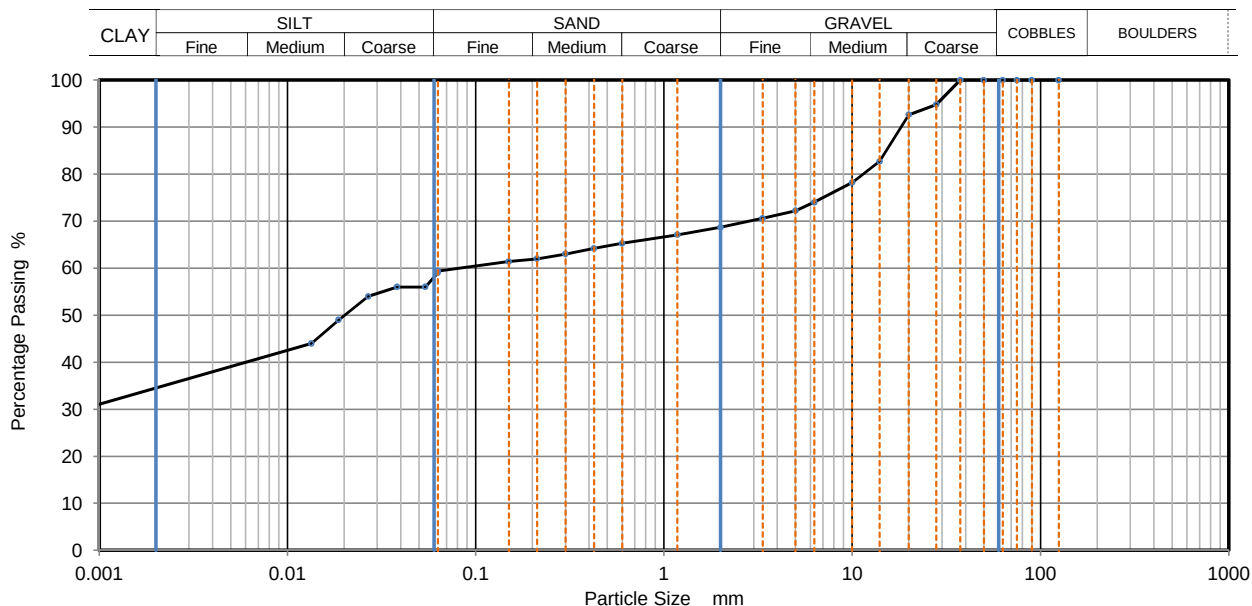
Laboratory Reference: 729310
Sample description: Yellowish brown slightly gravelly slightly sandy
CLAY

Sample Reference: 1

Sample Type: D

Location: TP22C
Supplier: Not Given

Depth Top [m]: 0.4
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	59
90	100	0.0541	56
75	100	0.0382	56
63	100	0.0269	54
50	100	0.0187	49
37.5	100	0.0134	44
28	95	0.007	29
20	93		
14	83		
10	78		
6.3	74		
5	72		
3.35	71		
2	69		
1.18	67		
0.6	65	Particle density (assumed) 2.65 Mg/m3	
0.425	64		
0.3	63		
0.212	62		
0.15	61		
0.063	59		

Dry Mass of sample [g]: 971

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	31.30
Sand	9.30
Silt	24.90
Clay	34.50

Grading Analysis	
D100	mm 37.5
D60	mm 0.0825
D30	mm 0.000831
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below
The material submitted, fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

i2 Analytical Ltd
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Croxley Green Business Park
Watford Herts WD18 8YS



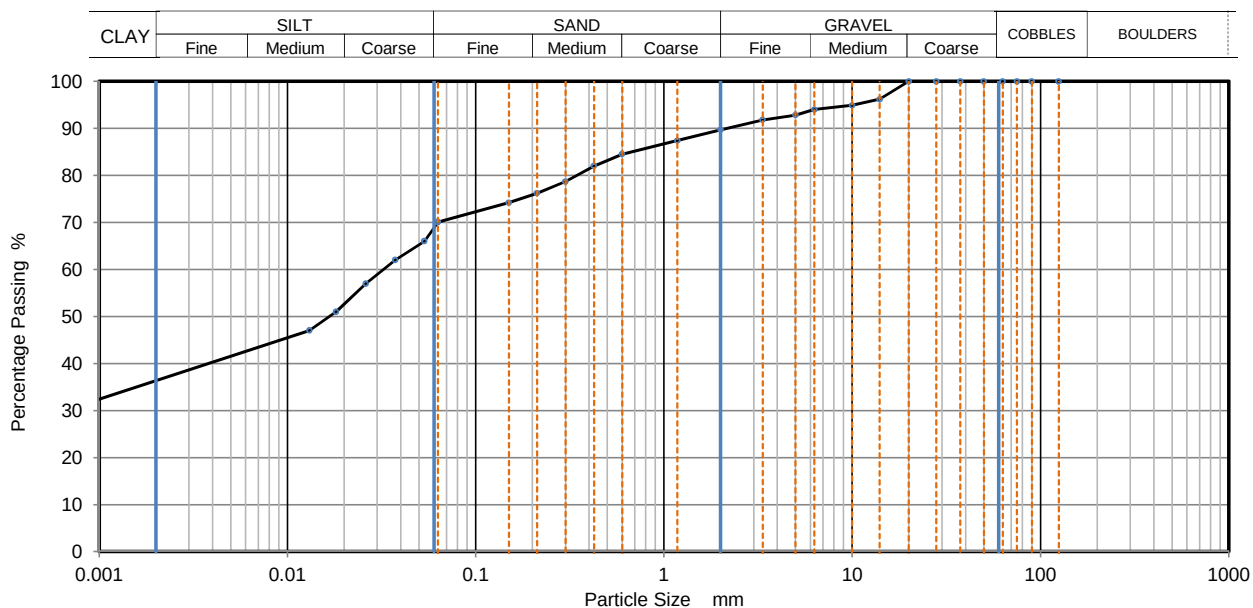
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729311
Sample description: Brown slightly gravelly slightly sandy CLAY
Location: TP23C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 0.4
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	70
90	100	0.0534	66
75	100	0.0373	62
63	100	0.0261	57
50	100	0.0181	51
37.5	100	0.0131	47
28	100	0.0066	30
20	100		
14	96		
10	95		
6.3	94		
5	93		
3.35	92		
2	90		
1.18	87		
0.6	85	Particle density (assumed) 2.65 Mg/m ³	
0.425	82		
0.3	79		
0.212	76		
0.15	74		
0.063	70		

Dry Mass of sample [g]: 566

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	10.30
Sand	19.70
Silt	33.90
Clay	36.10

Grading Analysis	
D100	mm 20
D60	mm 0.0326
D30	mm 0.000681
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729312

Sample Reference: 1

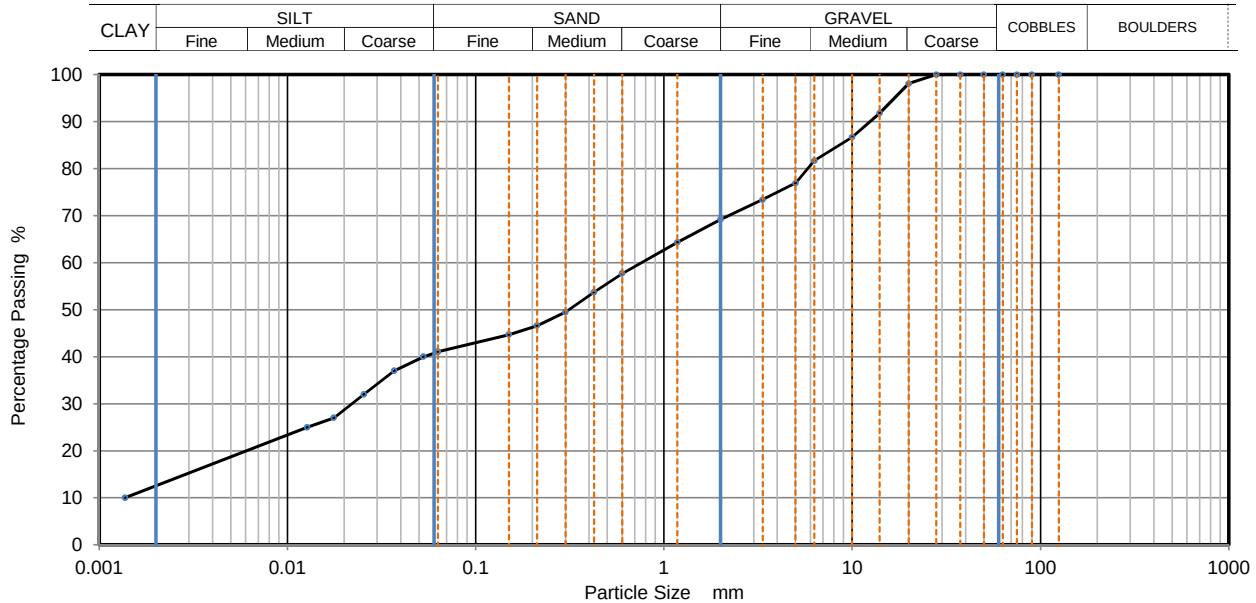
Sample description:

Brownish grey slightly gravelly slightly sandy CLAY

Sample Type: B

Location: TP24C
Supplier: Not Given

Depth Top [m]: 1
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	41
90	100	0.0528	40
75	100	0.0369	37
63	100	0.0255	32
50	100	0.0177	27
37.5	100	0.0127	25
28	100	0.0014	10
20	98		
14	92		
10	87		
6.3	82		
5	77		
3.35	73		
2	69		
1.18	64		
0.6	58	Particle density (assumed) 2.65 Mg/m ³	
0.425	54		
0.3	50		
0.212	47		
0.15	45		
0.063	41		

Dry Mass of sample [g]: 1613

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		30.80
Sand		28.20
Silt		28.90
Clay		12.10

Grading Analysis		
D100	mm	28
D60	mm	0.76
D30	mm	0.0223
D10	mm	0.00146
Uniformity Coefficient		520
Curvature Coefficient		0.45

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Signed:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

i2 Analytical Ltd
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Croxley Green Business Park
Watford Herts WD18 8YS



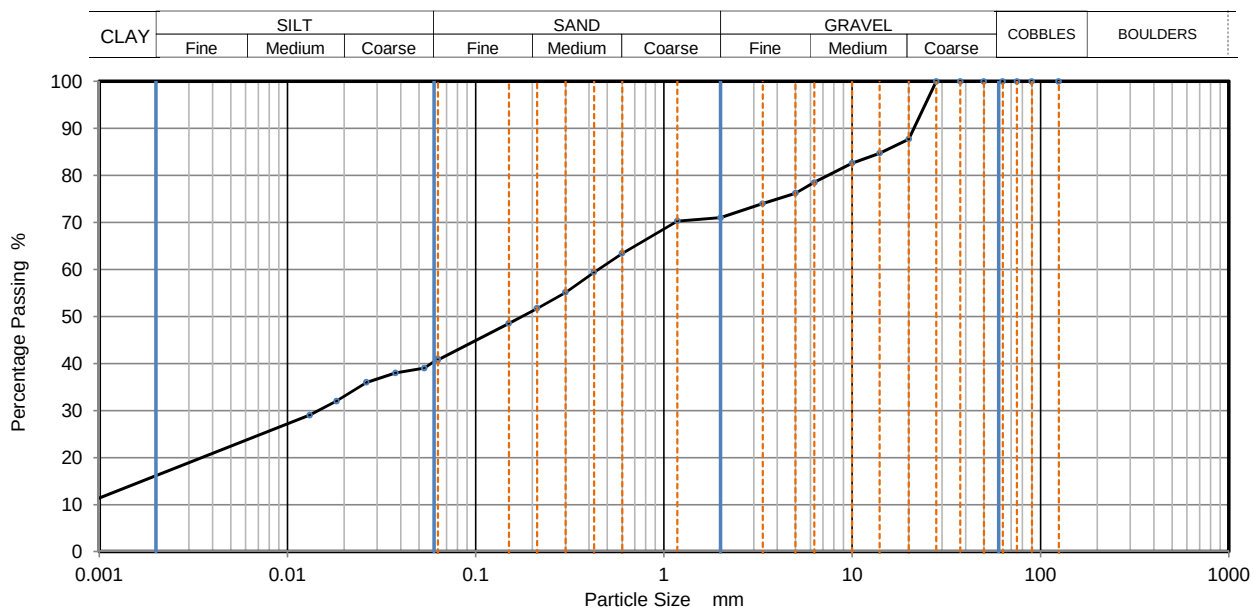
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729313
Sample description: Dark brown slightly gravelly slightly sandy CLAY
Location: TP25C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	41
90	100	0.0535	39
75	100	0.0376	38
63	100	0.0263	36
50	100	0.0182	32
37.5	100	0.0132	29
28	100	0.006	8
20	88		
14	85		
10	83		
6.3	79		
5	76		
3.35	74		
2	71		
1.18	70		
0.6	63	Particle density (assumed) 2.65 Mg/m ³	
0.425	59		
0.3	55		
0.212	52		
0.15	49		
0.063	41		

Dry Mass of sample [g]: 1308

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		29.00
Sand		30.40
Silt		24.60
Clay		16.00

Grading Analysis		
D100	mm	28
D60	mm	0.448
D30	mm	0.0145
D10	mm	0.000852
Uniformity Coefficient		530
Curvature Coefficient		0.55

Remarks

Preparation and testing in accordance with BS1377 unless noted below
The material submitted, fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



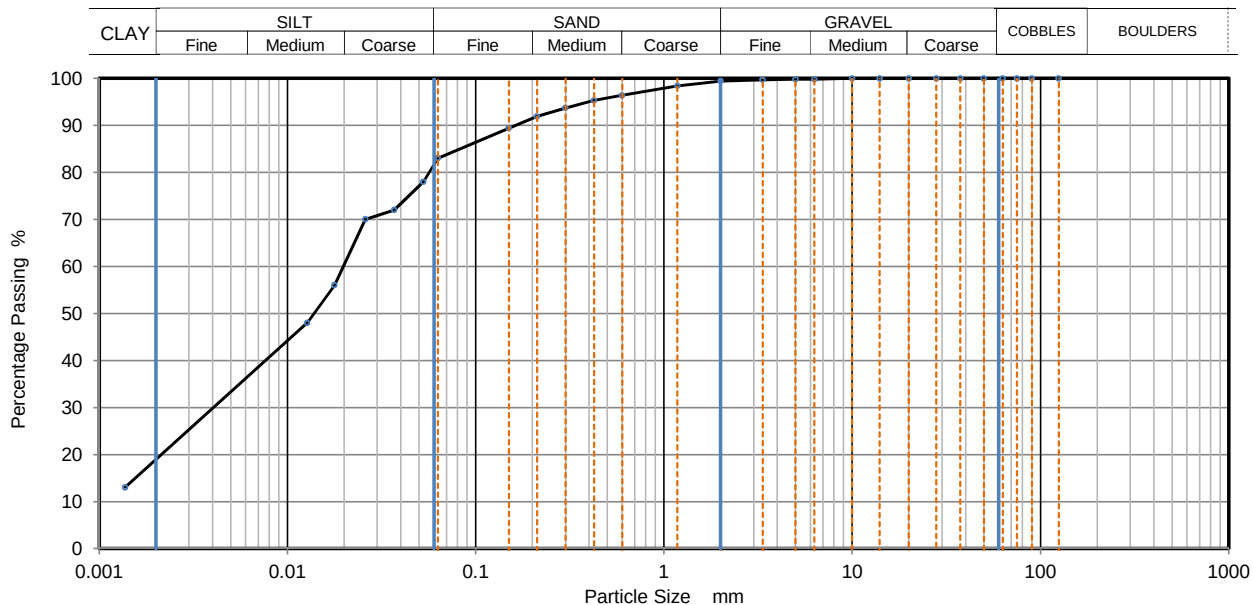
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729314
Sample description: Dark brown slightly gravelly organic CLAY
Location: TP27C
Supplier: Not Given

Sample Reference: 1
Sample Type: D
Depth Top [m]: 2.5
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	83
90	100	0.0528	78
75	100	0.0369	72
63	100	0.0259	70
50	100	0.0178	56
37.5	100	0.0127	48
28	100	0.0014	13
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	98		
0.6	96	Particle density (assumed) 2.65 Mg/m ³	
0.425	95		
0.3	94		
0.212	92		
0.15	89		
0.063	83		

Dry Mass of sample [g]: 198

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		0.60
Sand		16.40
Silt		63.70
Clay		19.30

Grading Analysis		
D100	mm	10
D60	mm	0.0198
D30	mm	0.00397
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

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



Tested in Accordance with BS1377:Part 2:1990, clause 9.2

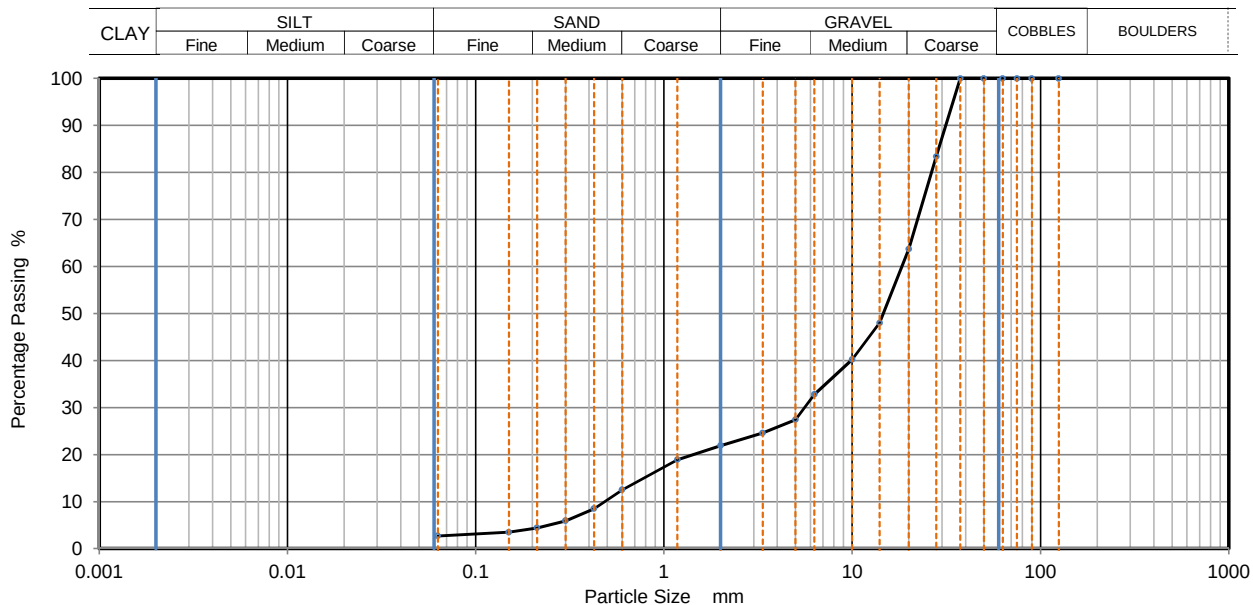
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729315
Sample description: Brown slightly clayey sandy GRAVEL
Location: TP30C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1
Depth Base [m]: Not Given



Dry Mass of sample [g]: 2994

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	83		
20	64		
14	48		
10	40		
6.3	33		
5	27		
3.35	25		
2	22		
1.18	19		
0.6	13		
0.425	9		
0.3	6		
0.212	4		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	78.10
Sand	19.20
Fines <0.063mm	2.70

Grading Analysis	
D100	mm 37.5
D60	mm 18.4
D30	mm 5.59
D10	mm 0.483
Uniformity Coefficient	38
Curvature Coefficient	3.5

Remarks

Preparation and testing in accordance with BS1377 unless noted below
The material submitted, fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



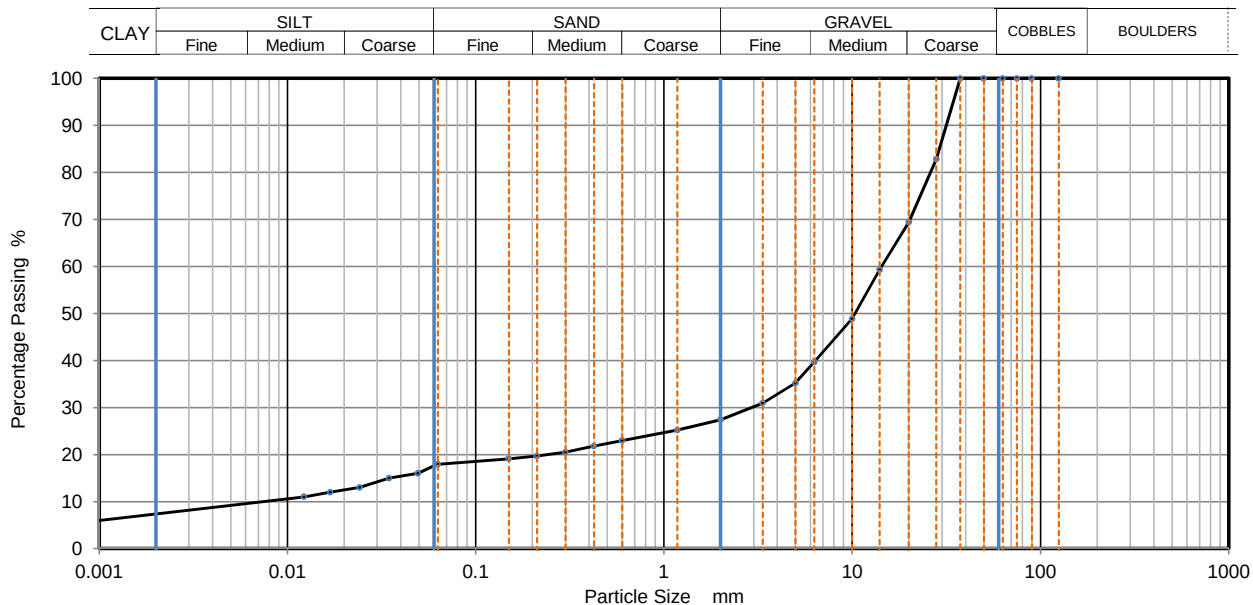
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729316
Sample description: Brown sandy clayey GRAVEL
Location: TP31C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1.4
Depth Base [m]: Not Given



Dry Mass of sample [g]: 7496

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	18
90	100	0.0494	16
75	100	0.0347	15
63	100	0.0242	13
50	100	0.0169	12
37.5	100	0.0123	11
28	83	0.006	5
20	69		
14	59		
10	49		
6.3	40		
5	35		
3.35	31		
2	27		
1.18	25		
0.6	23	Particle density (assumed) 2.65 Mg/m ³	
0.425	22		
0.3	21		
0.212	20		
0.15	19		
0.063	18		

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		72.60
Sand		9.50
Silt		10.40
Clay		7.50

Grading Analysis		
D100	mm	37.5
D60	mm	14.3
D30	mm	2.93
D10	mm	0.00811
Uniformity Coefficient		1800
Curvature Coefficient		74

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Mark Beastall
Geotechnical Commercial
Manager

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



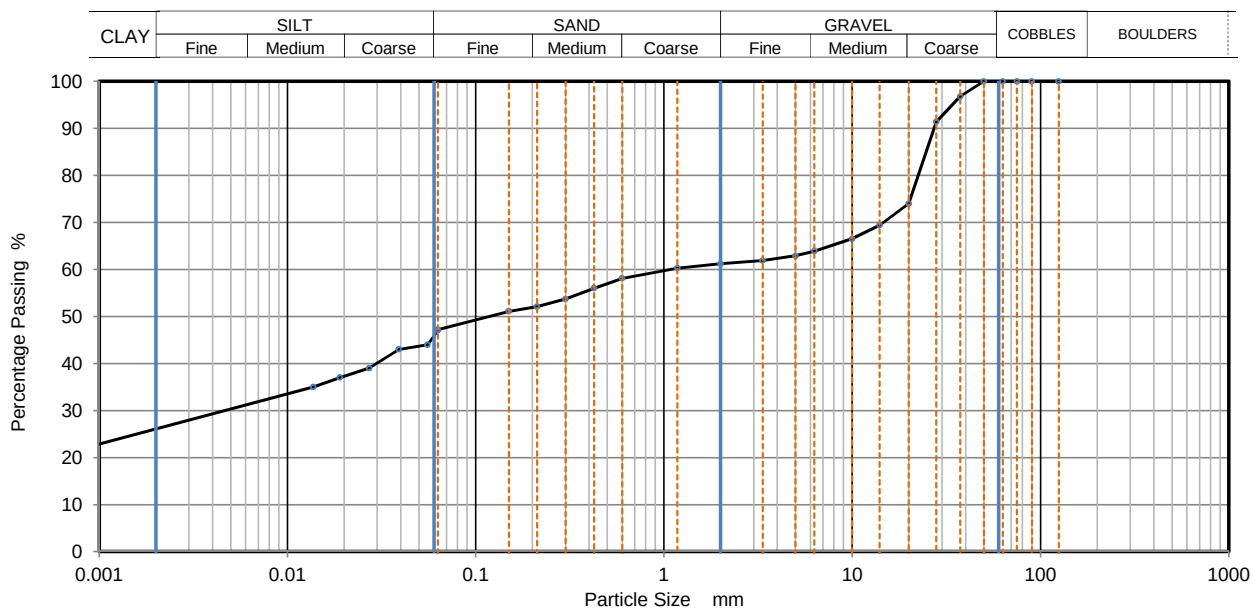
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729317
Sample description: Yellowish brown slightly sandy gravelly CLAY
Location: TP32C
Supplier: Not Given

Sample Reference: 1
Sample Type: B
Depth Top [m]: 1
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	47
90	100	0.0556	44
75	100	0.0391	43
63	100	0.0272	39
50	100	0.0190	37
37.5	97	0.0137	35
28	91	0.0007	21
20	74		
14	69		
10	67		
6.3	64		
5	63		
3.35	62		
2	61		
1.18	60		
0.6	58	Particle density (assumed) 2.65 Mg/m ³	
0.425	56		
0.3	54		
0.212	52		
0.15	51		
0.063	47		

Dry Mass of sample [g]: 5205

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	38.80
Sand	13.90
Silt	21.60
Clay	25.70

Grading Analysis	
D100	mm 50
D60	mm 1.07
D30	mm 0.00508
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Particle Size Distribution

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



Tested in Accordance with BS1377:Part 2:1990, clause 9.2

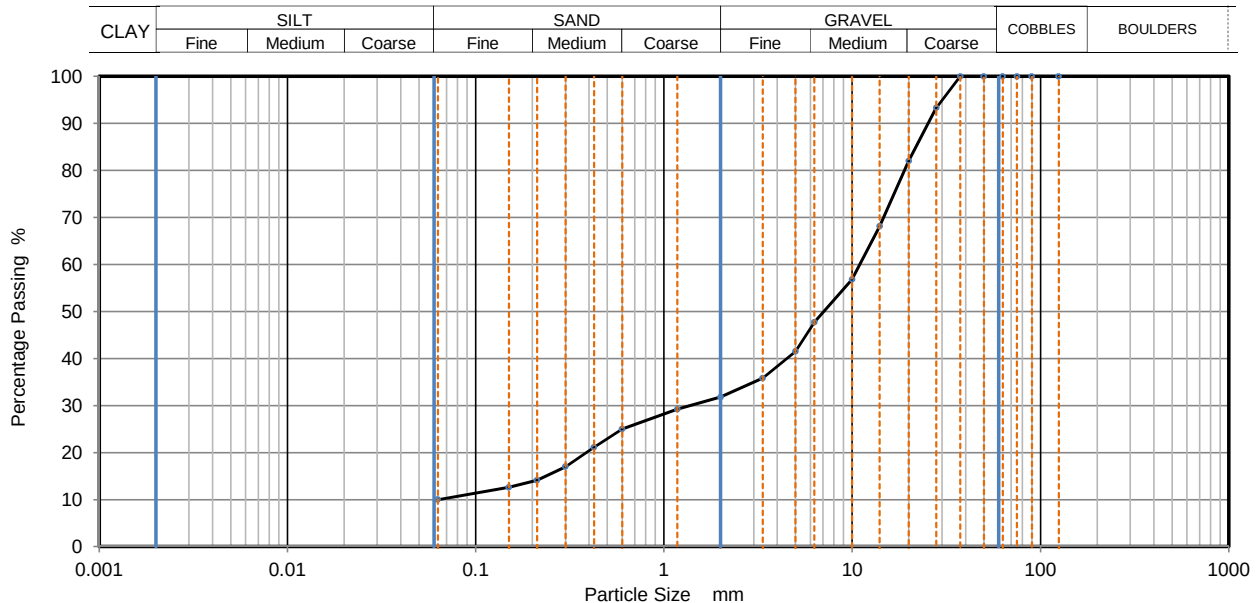
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729318
Sample description: Brown clayey very sandy GRAVEL
Location: TP32C
Supplier: Not Given

Sample Reference: 2
Sample Type: B
Depth Top [m]: 2
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	93		
20	82		
14	68		
10	57		
6.3	48		
5	42		
3.35	36		
2	32		
1.18	29		
0.6	25		
0.425	21		
0.3	17		
0.212	14		
0.15	13		
0.063	10		

Dry Mass of sample [g]: 6275

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	68.20
Sand	21.90
Fines <0.063mm	10.00

Grading Analysis	
D100	mm 37.5
D60	mm 11
D30	mm 1.39
D10	mm 0.0639
Uniformity Coefficient	170
Curvature Coefficient	2.7

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Śląska, Poland."



4041

TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



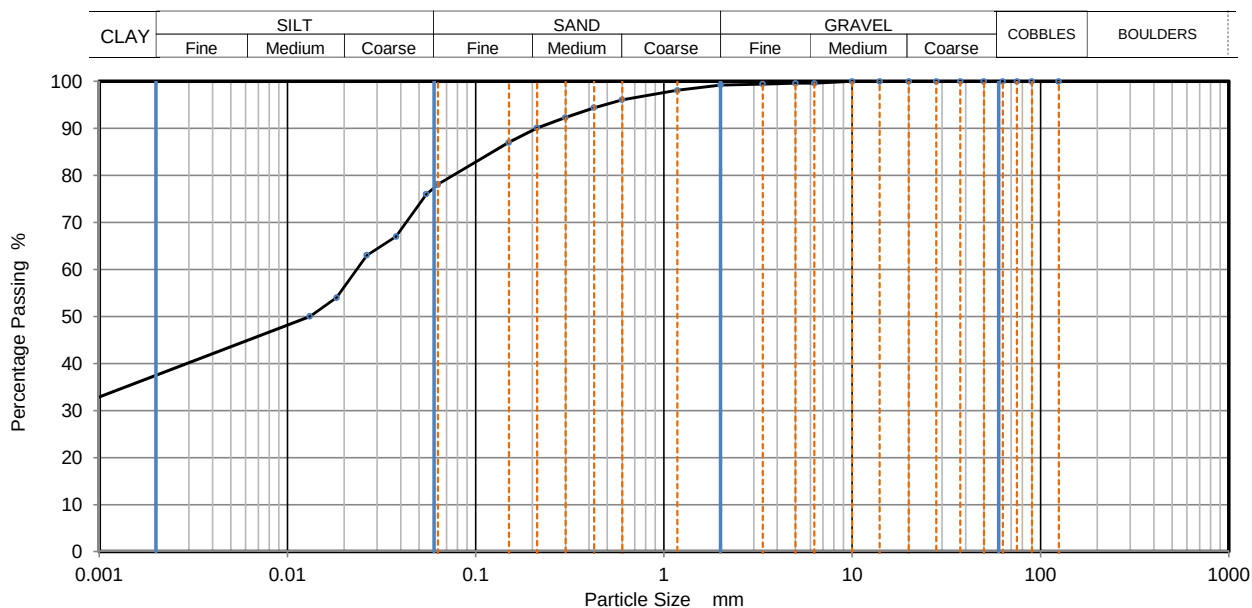
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729320
Sample description: Brown slightly sandy CLAY
Location: TP21C
Supplier: Not Given

Sample Reference: Not Given
Sample Type: B
Depth Top [m]: 0.7
Depth Base [m]: Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	78
90	100	0.0547	76
75	100	0.0378	67
63	100	0.0264	63
50	100	0.0182	54
37.5	100	0.0132	50
28	100	0.0066	30
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	96	Particle density (assumed) 2.65 Mg/m ³	
0.425	94		
0.3	92		
0.212	90		
0.15	87		
0.063	78		

Dry Mass of sample [g]: 184

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.80
Sand	21.10
Silt	40.40
Clay	37.70

Grading Analysis	
D100	mm 10
D60	mm 0.0233
D30	mm
D10	mm
Uniformity Coefficient	
Curvature Coefficient	

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlík
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Determination of Particle Size Distribution**

Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

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



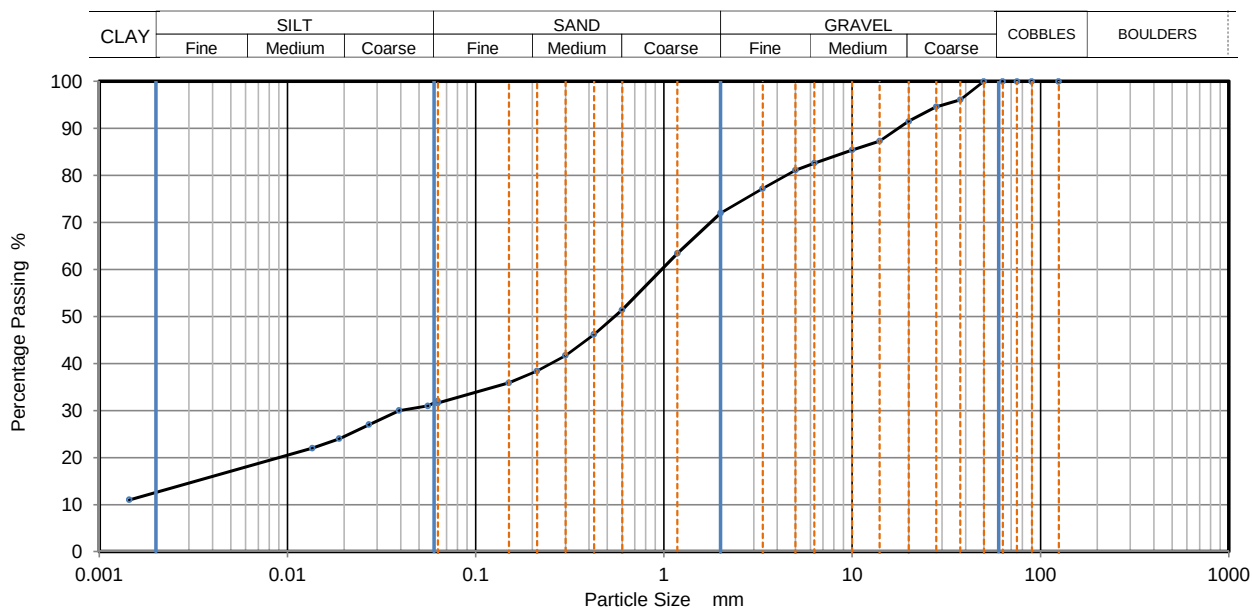
Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729321
Sample description: Dark brown clayey very gravelly SAND
Location: TP27
Supplier: Not Given

Sample Reference: Not Given
Sample Type: B
Depth Top [m]: 0.5
Depth Base [m]: Not Given



Dry Mass of sample [g]: 3218

Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0557	31
75	100	0.0392	30
63	100	0.0271	27
50	100	0.0189	24
37.5	96	0.0136	22
28	95	0.0014	11
20	92		
14	87		
10	85		
6.3	83		
5	81		
3.35	77		
2	72		
1.18	63		
0.6	51	Particle density (assumed) 2.65 Mg/m ³	
0.425	46		
0.3	42		
0.212	38		
0.15	36		
0.063	32		

Sample Proportions		% dry mass
Very coarse		0.00
Gravel		28.00
Sand		40.40
Silt		18.90
Clay		12.70

Grading Analysis		
D100	mm	50
D60	mm	0.973
D30	mm	0.0391
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

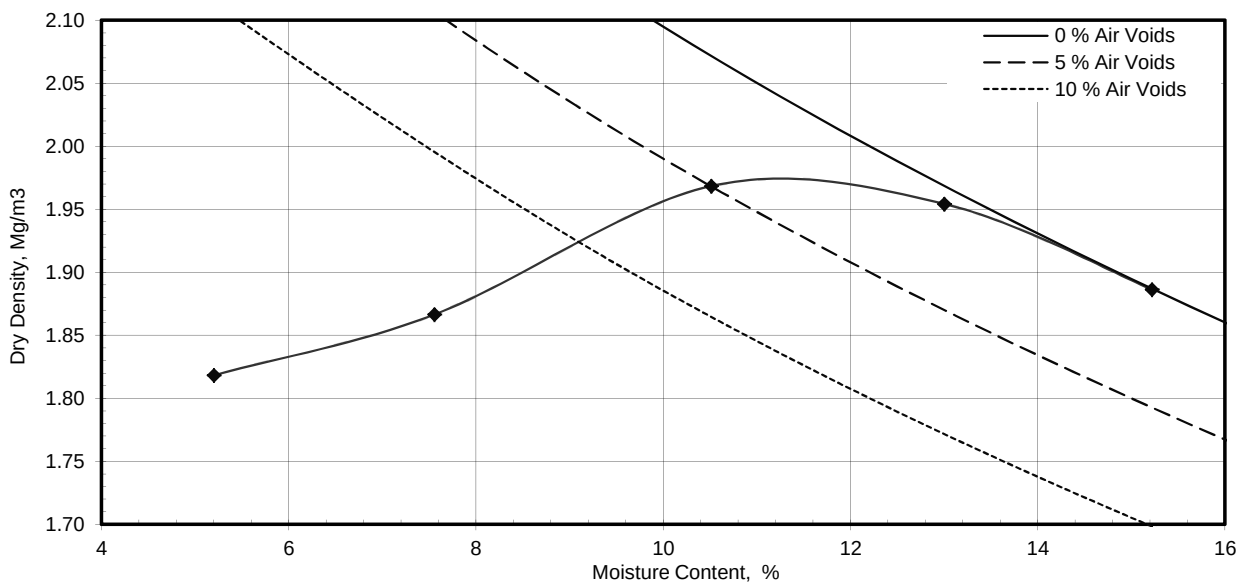
Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

TEST RESULTS

Laboratory Reference: 729292
Hole No.: TP3C
Sample Reference: 2
Sample Description: Brown sandy clayey GRAVEL

Depth Top [m]: 1.7
Depth Base [m]: Not Given
Sample Type: B



Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Separate specimens tested	
Material Retained on 37.5 mm Sieve	%	10
Material Retained on 20.0 mm Sieve	%	30
Particle Density - Assumed	Mg/m³	2.65
As received Moisture Content	%	11
Maximum Dry Density	Mg/m³	1.97
Optimum Moisture Content	%	11

Remarks: Zone X - test carried out as per client request; Insufficient material - compacted in proctor mould

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Dry Density / Moisture Content Relationship Light Compaction

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

Client Reference: CGN-3732D

Job Number: 17-44724

Date Sampled: Not Given

Date Received: 28/03/2017

Date Tested: 11/04/2017

Sampled By: Not Given

Contact: Amir Abbasi

Site Name: Southall

Site Address: Not Given

TEST RESULTS

Laboratory Reference: 729296

Hole No.: TP6C

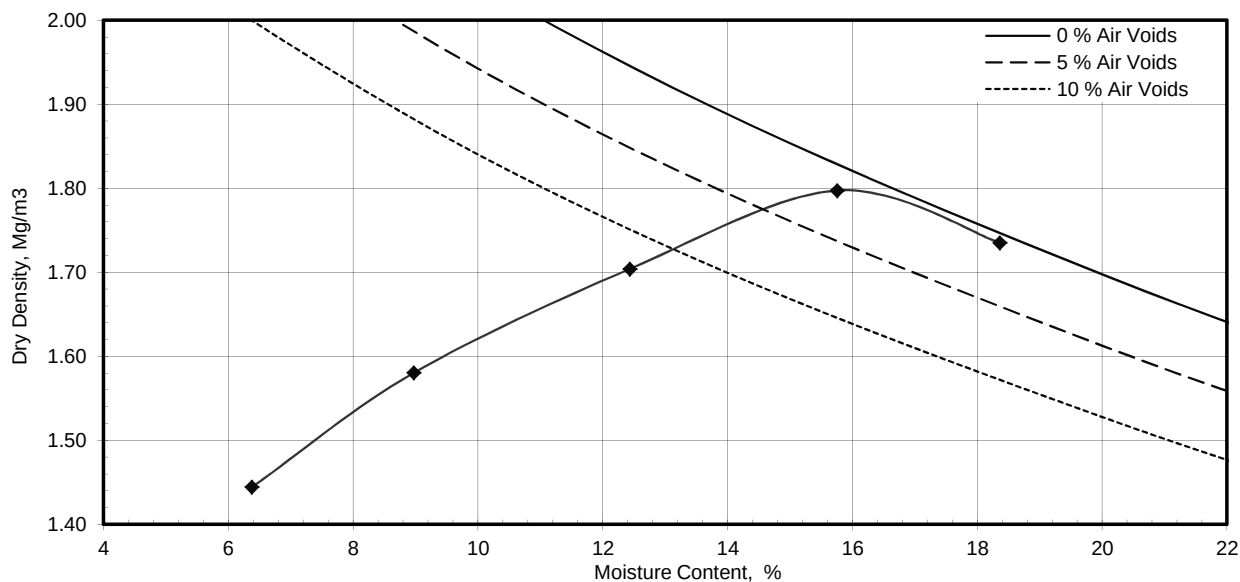
Sample Reference: 1

Sample Description: Brown gravelly silty CLAY

Depth Top [m]: 0.5

Depth Base [m]: Not Given

Sample Type: B



Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	2
Material Retained on 20.0 mm Sieve	%	7
Particle Density - Assumed	Mg/m³	2.57
As received Moisture Content	%	18
Maximum Dry Density	Mg/m³	1.80
Optimum Moisture Content	%	16

Remarks

Insufficient material - compacted in proctor mould

Approved:

Signed:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

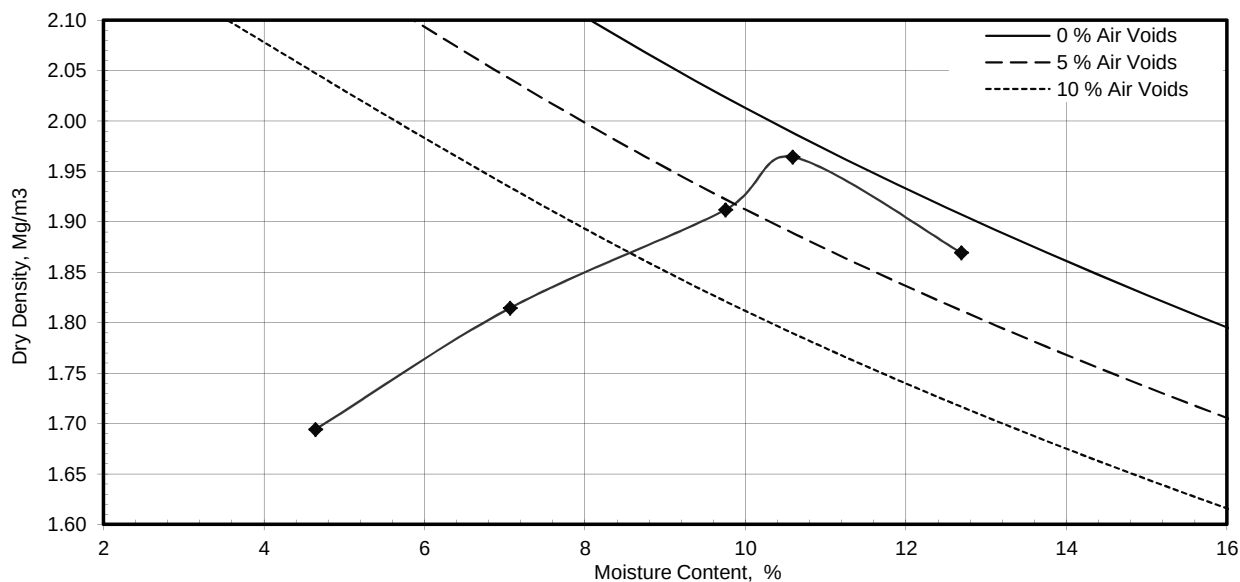
Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

TEST RESULTS

Laboratory Reference: 729298
Hole No.: TP6C
Sample Reference: 1
Sample Description: Grey slightly sandy clayey GRAVEL

Depth Top [m]: 0.4
Depth Base [m]: Not Given
Sample Type: B



Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Separate specimens tested	
Material Retained on 37.5 mm Sieve	%	6
Material Retained on 20.0 mm Sieve	%	37
Particle Density - Assumed	Mg/m³	2.52
As received Moisture Content	%	9.8
Maximum Dry Density	Mg/m³	1.96
Optimum Moisture Content	%	11

Remarks: Zone X - test carried out as per client request; Insufficient material - compacted in proctor mould

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE

Dry Density / Moisture Content Relationship Light Compaction

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

Client Reference: CGN-3732D

Job Number: 17-44724

Date Sampled: Not Given

Date Received: 28/03/2017

Date Tested: 10/04/2017

Sampled By: Not Given

Contact: Amir Abbasi

Site Name: Southall

Site Address: Not Given

TEST RESULTS

Laboratory Reference: 729302

Hole No.: TP11C

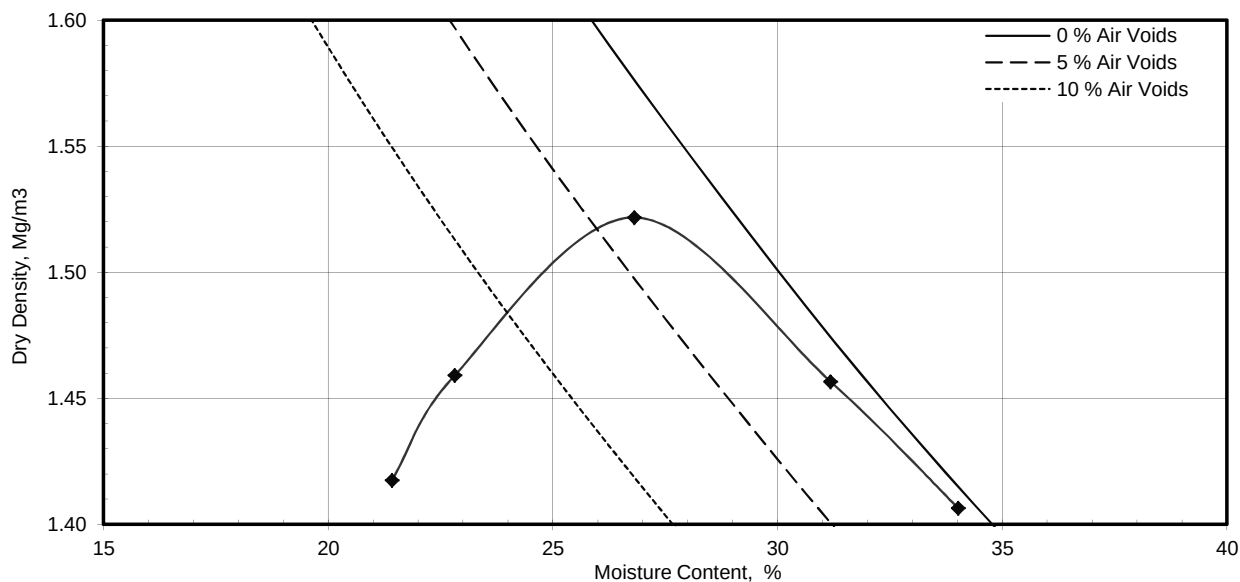
Sample Reference: 3

Sample Description: Brownish grey CLAY

Depth Top [m]: 1.5

Depth Base [m]: Not Given

Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.73
As received Moisture Content	%	31
Maximum Dry Density	Mg/m³	1.52
Optimum Moisture Content	%	27

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Environmental Science

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729310

Hole No.: TP22C

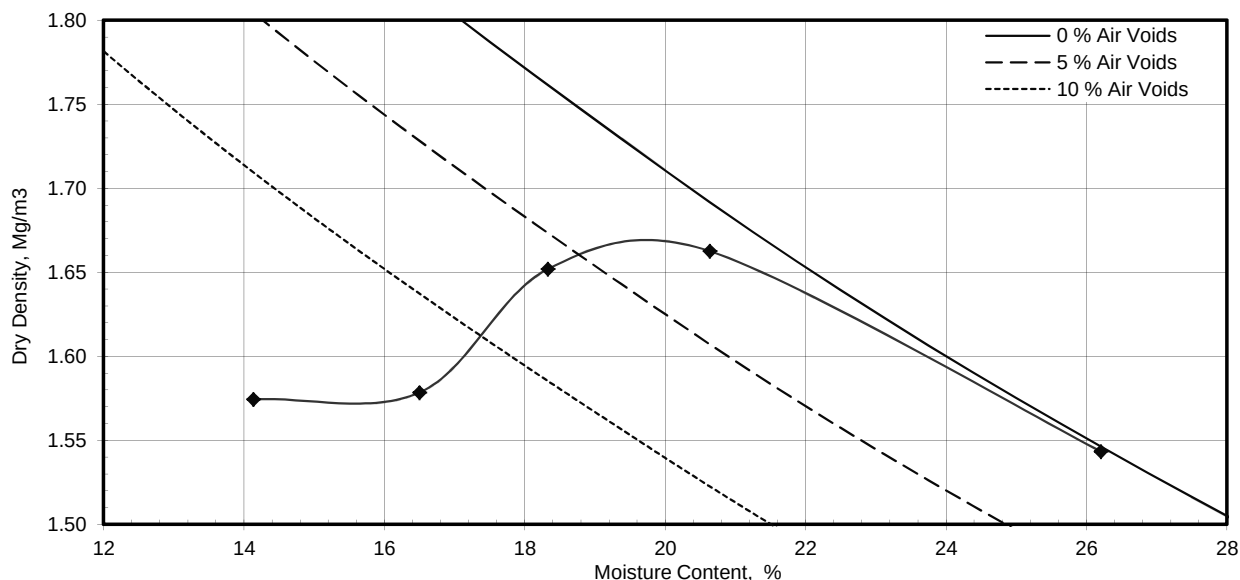
Sample Reference: 1

Sample Description: Yellowish brown slightly gravelly slightly sandy CLAY

Depth Top [m]: 0.4

Depth Base [m]: Not Given

Sample Type: D



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	9
Particle Density - Assumed	Mg/m³	2.60
As received Moisture Content	%	26
Maximum Dry Density	Mg/m³	1.67
Optimum Moisture Content	%	20

Remarks

Insufficient material - compacted in proctor mould

Approved:

Signed:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

Client Reference: CGN-3732D

Job Number: 17-44724

Date Sampled: Not Given

Date Received: 28/03/2017

Date Tested: 10/04/2017

Sampled By: Not Given

Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given**TEST RESULTS**

Laboratory Reference: 729312

Hole No.: TP24C

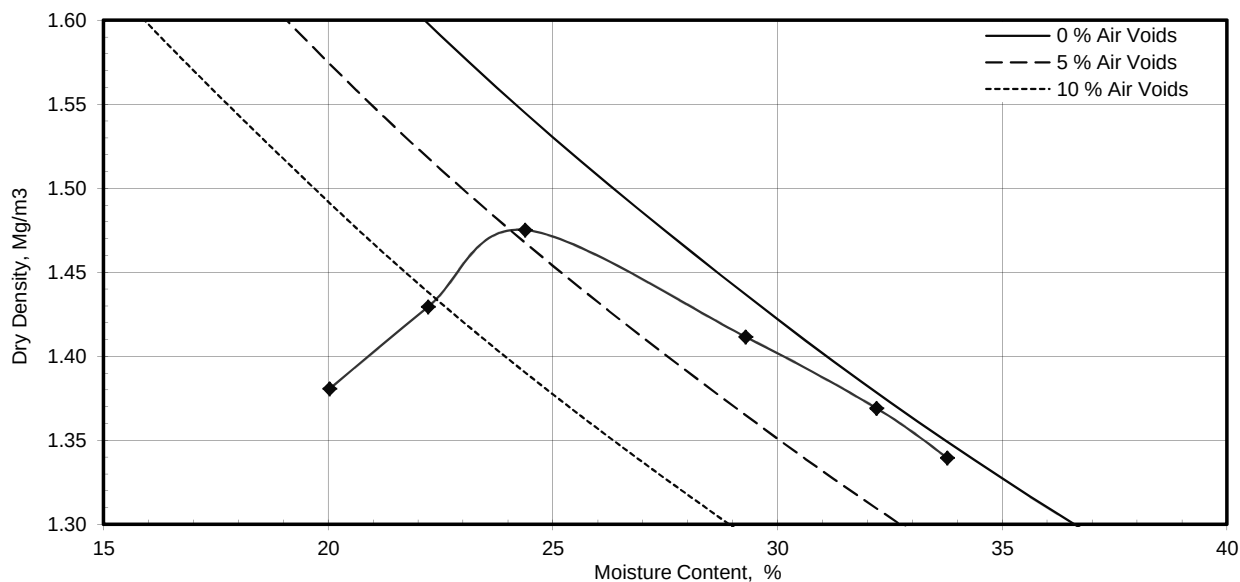
Sample Reference: 1

Sample Description: Brownish grey slightly gravelly slightly sandy CLAY

Depth Top [m]: 1

Depth Base [m]: Not Given

Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	9
Particle Density - Assumed	Mg/m³	2.48
As received Moisture Content	%	29
Maximum Dry Density	Mg/m³	1.48
Optimum Moisture Content	%	24

Remarks

Insufficient material - compacted in proctor mould

Approved:

Signed:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical SectionSushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Environmental Science

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

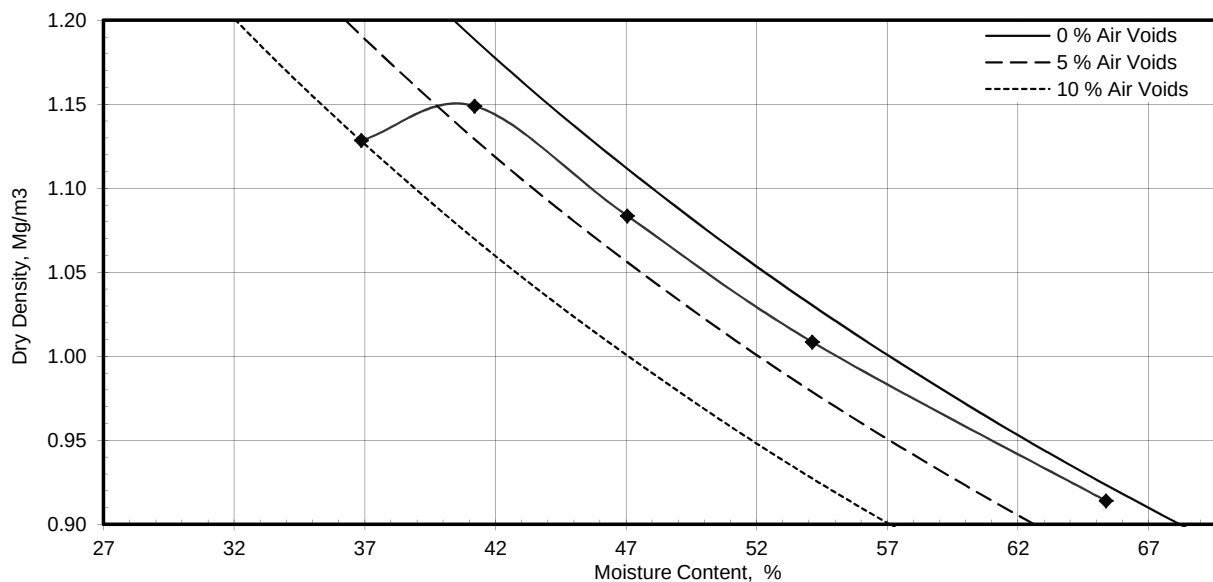
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

TEST RESULTS

Laboratory Reference: 729314
Hole No.: TP27C
Sample Reference: 1
Sample Description: Dark brown slightly gravelly organic CLAY

Depth Top [m]: 2.5
Depth Base [m]: Not Given
Sample Type: D



Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.33
As received Moisture Content	%	65
Maximum Dry Density	Mg/m³	1.15
Optimum Moisture Content	%	41

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

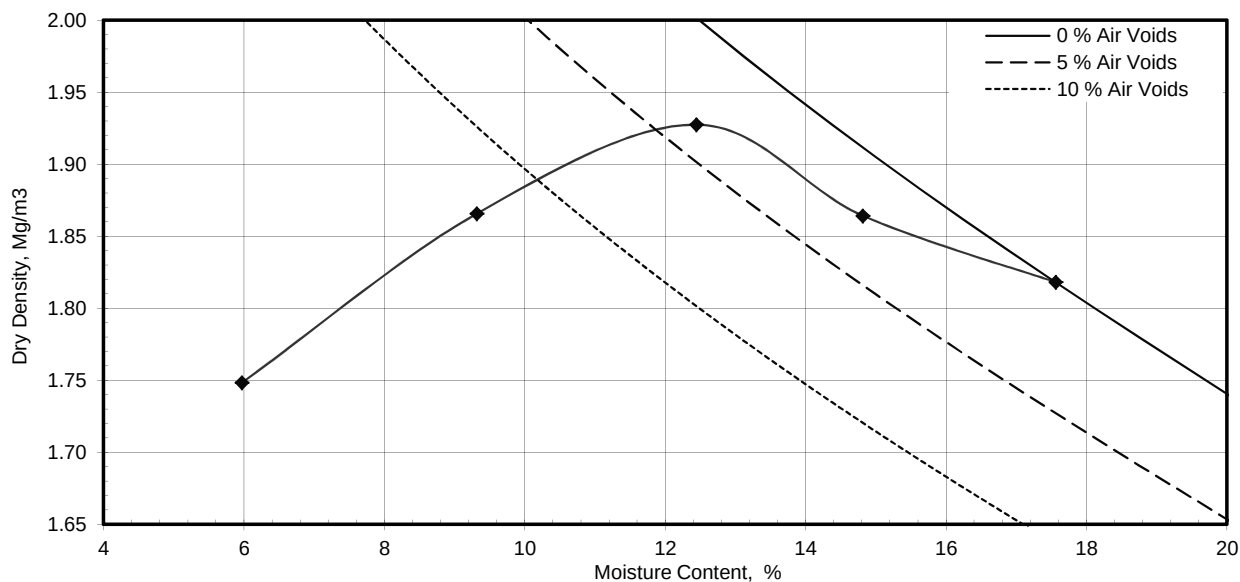
Client Reference: CGN-3732D
Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04/2017
Sampled By: Not Given

Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

TEST RESULTS

Laboratory Reference: 729316
Hole No.: TP31C
Sample Reference: 1
Sample Description: Brown sandy clayey GRAVEL

Depth Top [m]: 1.4
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Separate specimens tested
Material Retained on 37.5 mm Sieve	%	6
Material Retained on 20.0 mm Sieve	%	25
Particle Density - Assumed	Mg/m³	2.67
As received Moisture Content	%	12
Maximum Dry Density	Mg/m³	1.93
Optimum Moisture Content	%	12

Remarks: Zone X - test carried out as per client request; Insufficient material - compacted in proctor mould

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE

Dry Density / Moisture Content Relationship Light Compaction

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



Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

Client Reference: CGN-3732D

Job Number: 17-44724

Date Sampled: Not Given

Date Received: 28/03/2017

Date Tested: 10/04/2017

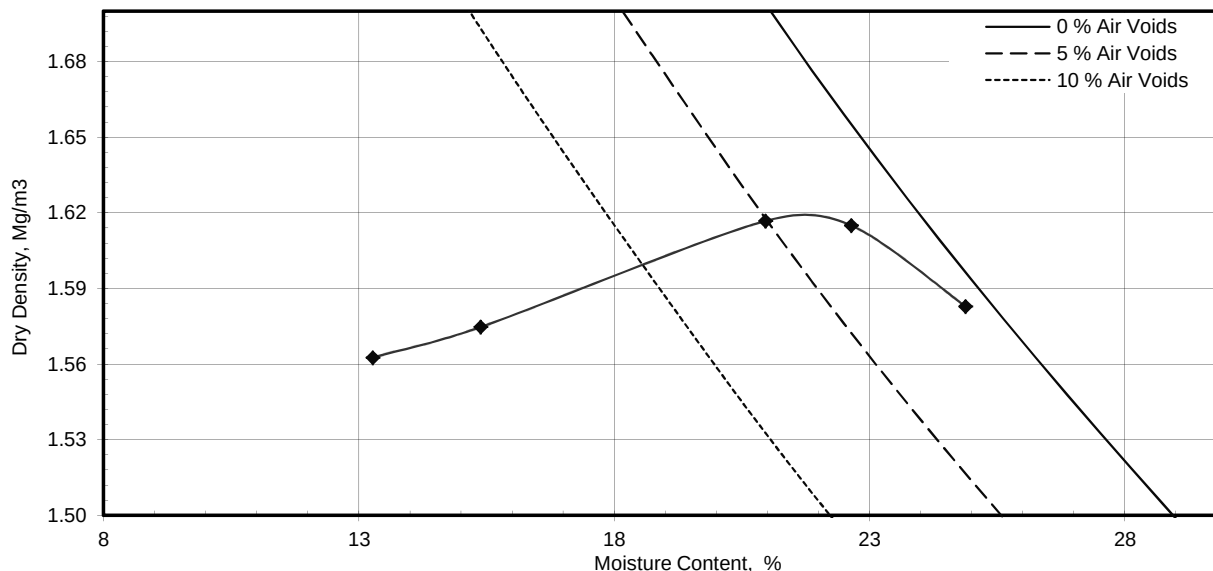
Sampled By: Not Given

Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

TEST RESULTS

Laboratory Reference: 729319
Hole No.: TP33C
Sample Reference: 2
Sample Description: Brown slightly sandy CLAY

Depth Top [m]: 2.2
Depth Base [m]: Not Given
Sample Type: B



Preparation		Material used was natural
Mould Type		1 Litre
Samples Used		Composite specimens tested
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.65
As received Moisture Content	%	21
Maximum Dry Density	Mg/m³	1.62
Optimum Moisture Content	%	22

Remarks

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Dry Density / Moisture Content Relationship
Light Compaction**i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Tested in accordance with BS 1377-4:1990: Clause 3.3 using 2.5kg[light] Rammer

Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW

Client Reference: CGN-3732D

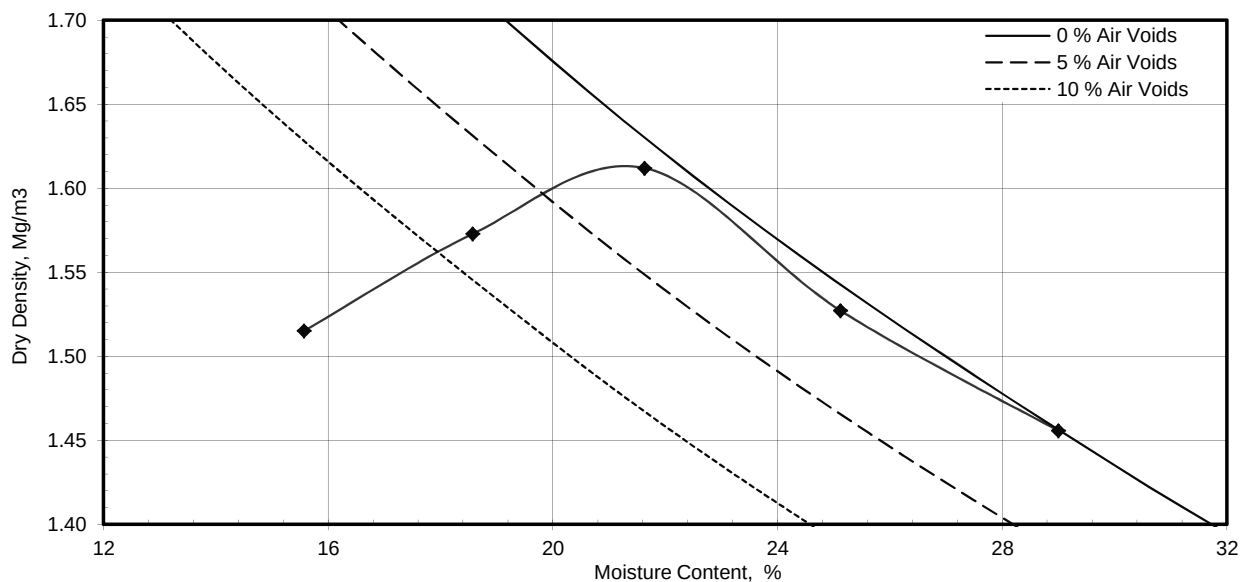
Job Number: 17-44724

Date Sampled: Not Given

Date Received: 28/03/2017

Date Tested: 10/04/2017

Sampled By: Not Given

Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given**TEST RESULTS**Laboratory Reference: 729320
Hole No.: TP21C
Sample Reference: Not Given
Sample Description: Brown slightly sandy CLAYDepth Top [m]: 0.7
Depth Base [m]: Not Given
Sample Type: B

Preparation	Material used was natural	
Mould Type	1 Litre	
Samples Used	Composite specimens tested	
Material Retained on 37.5 mm Sieve	%	0
Material Retained on 20.0 mm Sieve	%	0
Particle Density - Assumed	Mg/m³	2.52
As received Moisture Content	%	29
Maximum Dry Density	Mg/m³	1.61
Optimum Moisture Content	%	22

Remarks

Approved:

Miroslawa Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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Moisture Condition Value / Moisture Content Relationship

Job Ref 17-44724

Borehole/Pit No. TP6C

Site Name	Southall			Sample No.	1
Soil Description	Brown gravelly silty CLAY			Depth	0.5
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	729296
Test Method	BS1377:Part4:1990:clause 5.5			Date started	11/04/2017

Sample preparation

Amount of material larger than 20mm sieve removed	9	%
Natural Moisture Content of sample	18	%
Initial Moisture Content of test sample below 20mm	18	%
Composite of fresh and reused material tested		

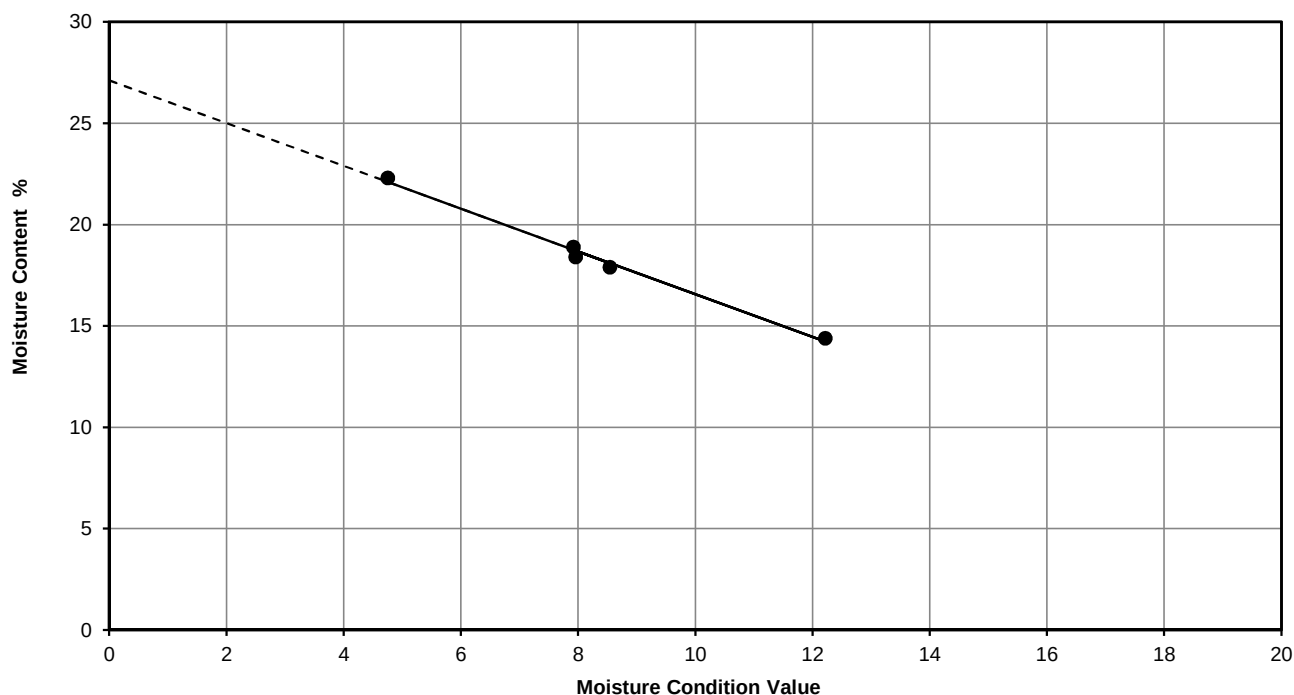
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
18.4	14.4	18.9	17.9	22.3
8.0	12.2	7.9	8.5	4.8
8	12.2	7.9	8.5	4.8
YES	YES	YES	YES	YES

● valid points × invalid points - - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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Moisture Condition Value / Moisture Content Relationship

Job Ref	17-44724
Borehole/Pit No.	TP11C
Sample No.	3
Depth	1.5
Sample Type	B
KeyLAB ID	729302
Date started	13/04/2017

Site Name Southall

Soil Description Brownish grey CLAY

Specimen Reference Specimen Depth m

Specimen Description KeyLAB ID 729302

Test Method BS1377:Part4:1990:clause 5.5 Date started 13/04/2017

Sample preparation

Amount of material larger than 20mm sieve removed	0	%
Natural Moisture Content of sample	31	%
Initial Moisture Content of test sample below 20mm	31	%
Composite of fresh and reused material tested		

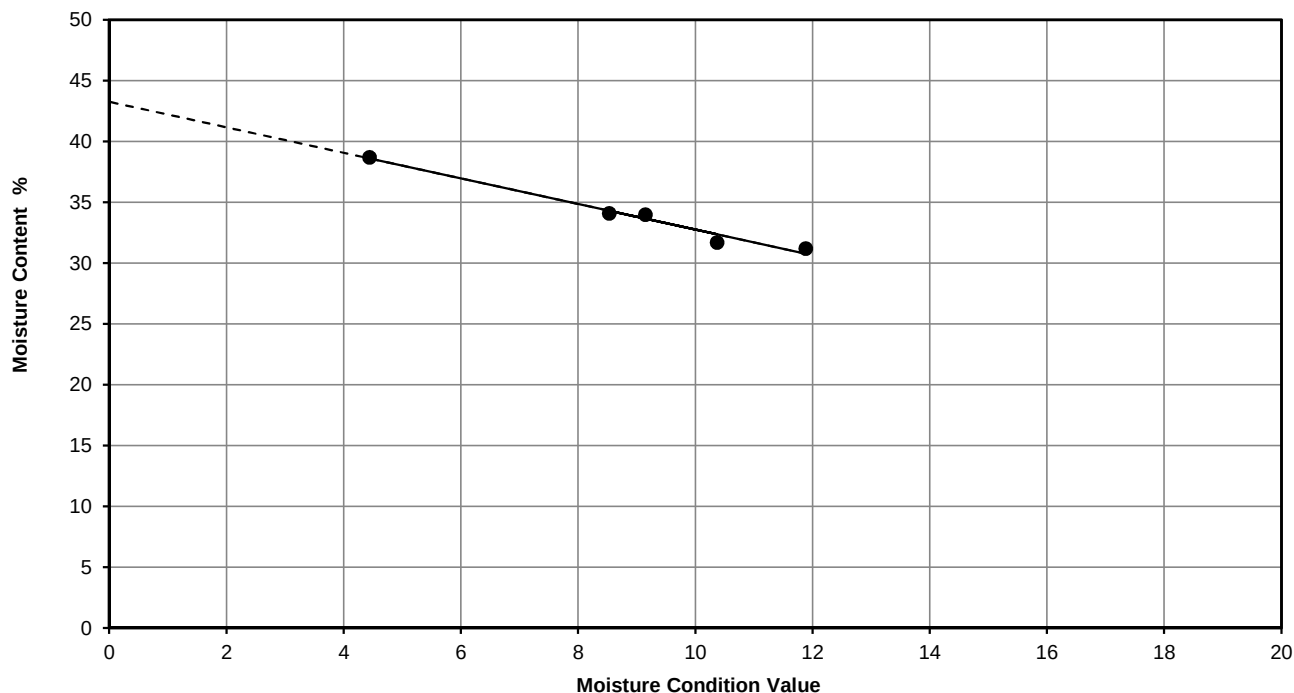
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
31.2	34.0	34.1	31.7	38.7
11.9	9.1	8.5	10.4	4.4
11.9	9.1	8.5	10.4	4.4
YES	YES	YES	YES	YES

● valid points × invalid points - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
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Moisture Condition Value / Moisture Content Relationship

Job Ref 17-44724

Borehole/Pit No. TP22C

Environmental Science

Site Name	Southall			Sample No.	1
Soil Description	Yellowish brown slightly gravelly slightly sandy CLAY			Depth	0.4
Specimen Reference		Specimen Depth	m	Sample Type	D
Specimen Description				KeyLAB ID	729310
Test Method	BS1377:Part4:1990:clause 5.5			Date started	10/04/2017

Sample preparation

Amount of material larger than 20mm sieve removed	9	%
Natural Moisture Content of sample	26	%
Initial Moisture Content of test sample below 20mm	26	%
Composite of fresh and reused material tested		

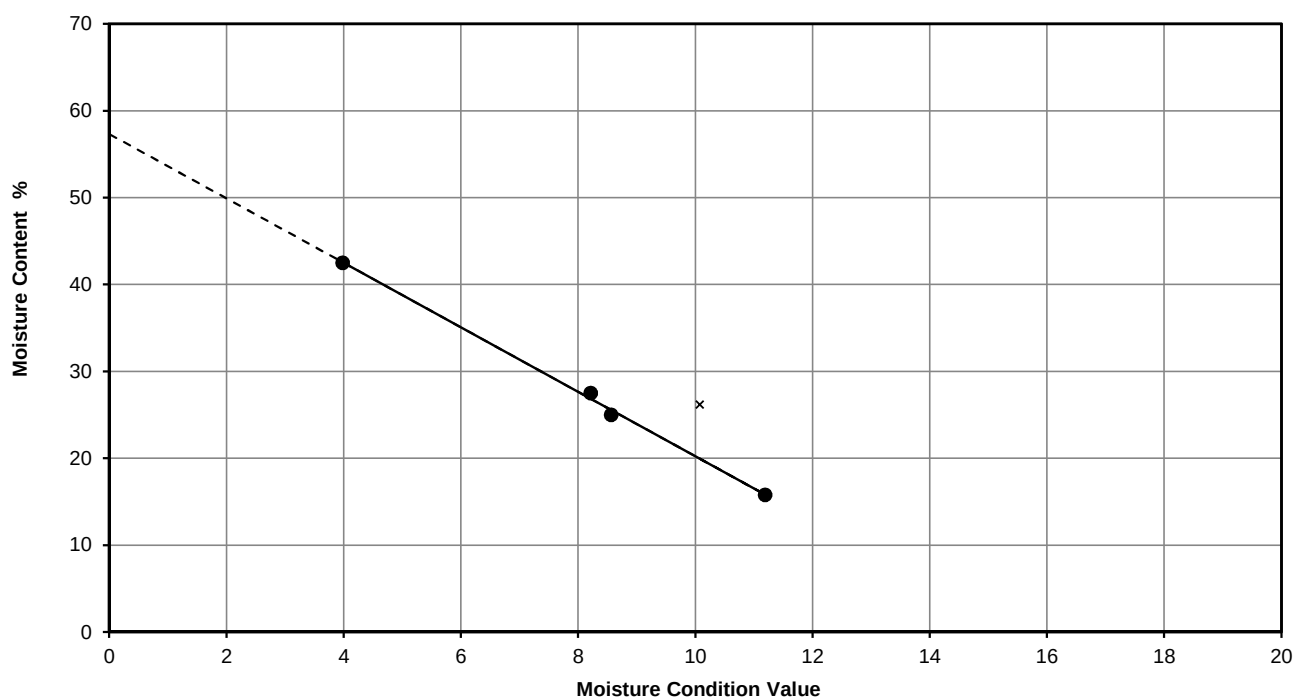
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
26.2	15.8	25.0	27.5	42.5
10.1	11.2	8.6	8.2	4.0
10.1	11.2	8.6	8.2	4
NO	YES	YES	YES	YES

● valid points × invalid points - - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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Moisture Condition Value / Moisture Content Relationship

Job Ref 17-44724
Borehole/Pit No. TP27C

Environmental Science					
Site Name	Southall			Sample No.	1
Soil Description	Dark brown slightly gravelly organic CLAY			Depth	2.5
Specimen Reference		Specimen Depth	m	Sample Type	D
Specimen Description				KeyLAB ID	729314
Test Method	BS1377:Part4:1990:clause 5.5			Date started	10/04/2017

Sample preparation

Amount of material larger than 20mm sieve removed	0	%
Natural Moisture Content of sample	65.4	%
Initial Moisture Content of test sample below 20mm	65.4	%
Composite of fresh and reused material tested		

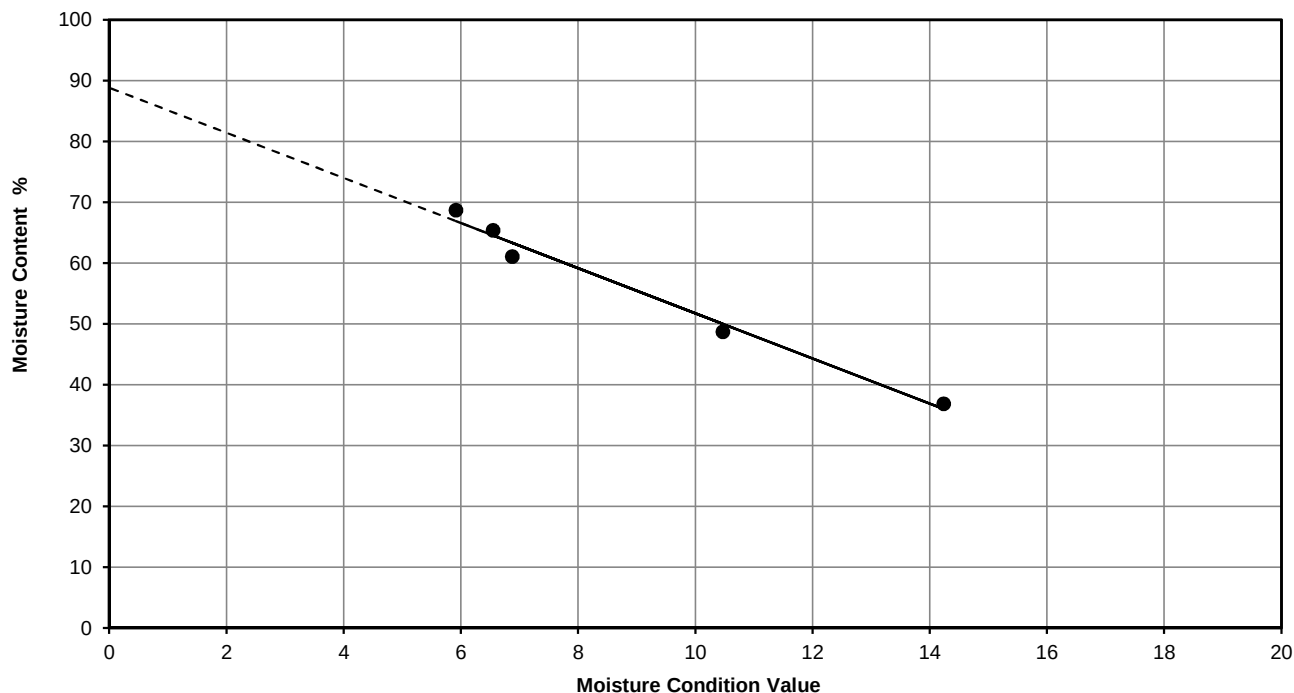
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
65.4	36.9	61.1	48.7	68.7
6.5	14.2	6.9	10.5	5.9
6.5	14.2	6.9	10.5	5.9
YES	YES	YES	YES	YES

● valid points × invalid points - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 20/04/2017

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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Moisture Condition Value / Moisture Content Relationship

Job Ref 17-44724

Borehole/Pit No. TP33C

Environmental science

Site Name	Southall			Sample No.	2
Soil Description	Brown slightly sandy CLAY			Depth	2.2
Specimen Reference		Specimen Depth	m	Sample Type	B
Specimen Description				KeyLAB ID	729319
Test Method	BS1377:Part4:1990:clause 5.5			Date started	10/04/2017

Sample preparation

Amount of material larger than 20mm sieve removed	0	%
Natural Moisture Content of sample	21	%
Initial Moisture Content of test sample below 20mm	21	%
Composite of fresh and reused material tested		

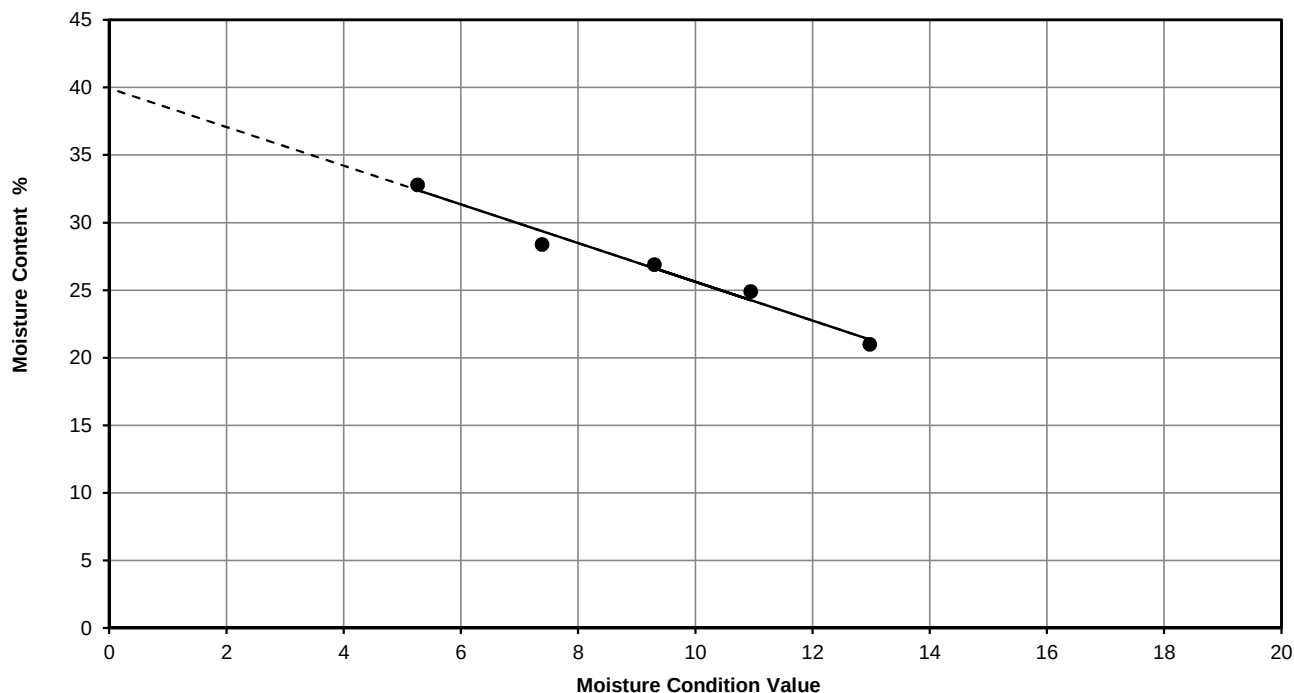
General remarks

Table of results

MCV Test Number
Moisture Content, %
Moisture Condition Value
MCV report
Effective / Valid data point
Specimen remarks

1	2	3	4	5
21.0	26.9	24.9	28.4	32.8
13.0	9.3	10.9	7.4	5.3
13	9.3	10.9	7.4	5.3
YES	YES	YES	YES	YES

● valid points × invalid points - - - - - extended regression — linear regression



Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section
Date Reported: 20/04/2017

Mirosława Pytlik

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

S. Sharda

for and on behalf of i2 Analytical Ltd

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Moisture Condition Value / Moisture Content Relationship

Job Ref 17-44724

Borehole/Pit No. TP21C

Site Name Southall Sample No. Not Given

Soil Description Brown slightly sandy CLAY Depth 0.7

Specimen Reference Specimen Depth m Sample Type B

Specimen Description KeyLAB ID 729320

Test Method BS1377:Part4:1990:clause 5.5 Date started 10/04/2017

Sample preparation

Amount of material larger than 20mm sieve removed 0 %
 Natural Moisture Content of sample 29 %
 Initial Moisture Content of test sample below 20mm 29 %
 Composite of fresh and reused material tested

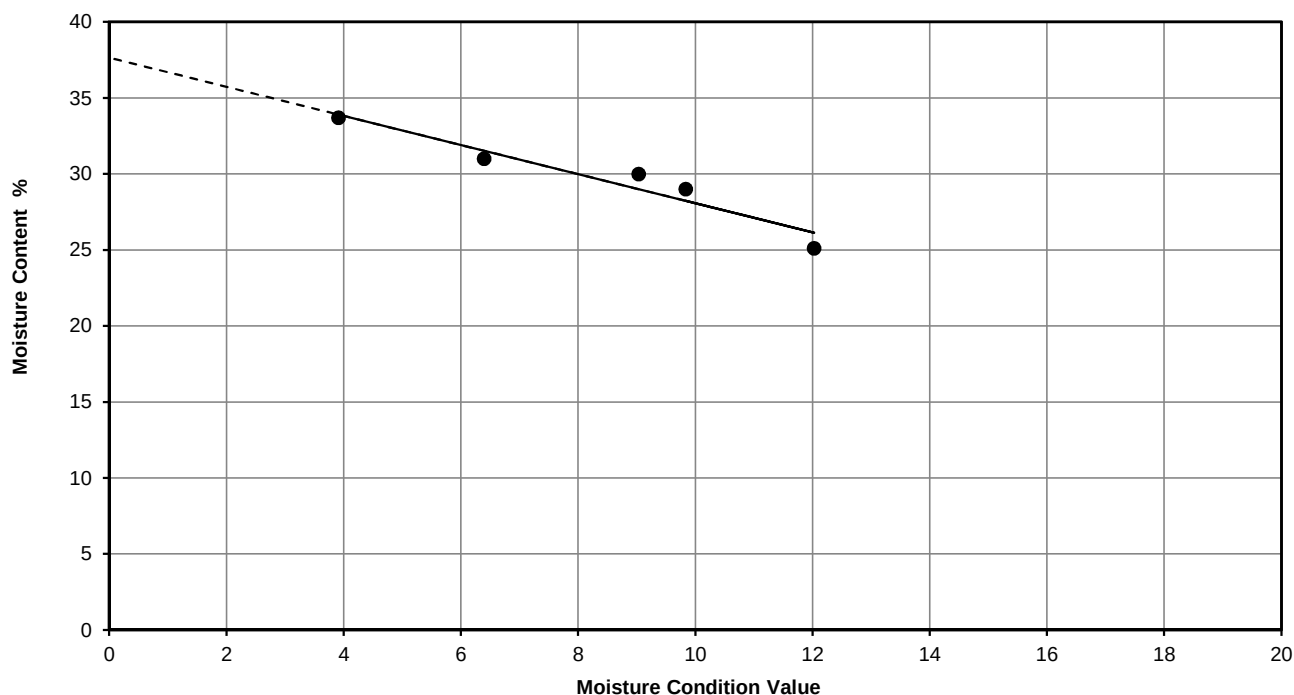
General remarks

Table of results

MCV Test Number
 Moisture Content, %
 Moisture Condition Value
 MCV report
 Effective / Valid data point
 Specimen remarks

1	2	3	4	5
29.0	25.1	30.0	31.0	33.7
9.8	12.0	9.0	6.4	3.9
9.8	12	9	6.4	3.9
YES	YES	YES	YES	YES

● valid points × invalid points - - - - extended regression — linear regression



Approved:

Mirosława Pytlík
 PL Snr Quality Specialist
 Geotechnical Section

Date Reported: 20/04/2017

Signed:

Sushil Sharda
 Technical Manager
 (Geotechnical Division)

for and on behalf of i2 Analytical Ltd

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4041

TEST CERTIFICATE**Determination of Moisture Condition Value**

Tested in Accordance with BS 1377-4: 1990: Clause 5.4

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Lab Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 10/04 - 13/04/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
		Reference	Depth Top [m]	Depth Base [m]	Type						
729302	TP11C	3.00	1.5	Not Given	B	Brownish grey CLAY	0	31	11.9	Steepest straight line	
729290	TP1C	1.00	1.0	Not Given	B	Yellowish brown clayey sandy GRAVEL	21	15	11.2	Steepest straight line	
729309	TP20C	2.00	1.4	Not Given	B	Yellowish brown slightly gravelly slightly sandy CLAY	0	44	10.1	Steepest straight line	
729320	TP21C	Not Given	0.7	Not Given	B	Brown slightly sandy CLAY	0	29	9.8	Steepest straight line	
729310	TP22C	1.00	0.4	Not Given	D	Yellowish brown slightly gravelly slightly sandy CLAY	9	26	10.1	Steepest straight line	
729314	TP27C	1.00	2.5	Not Given	D	Dark brown slightly gravelly organic CLAY	0	65	6.5	Steepest straight line	
729316	TP31C	1.00	1.4	Not Given	B	Brown sandy clayey GRAVEL	31	12	11.8	Steepest straight line	
729319	TP33C	2.00	2.2	Not Given	B	Brown slightly sandy CLAY	0	21	14.9	Steepest straight line	
729291	TP3C	1.00	1.0	Not Given	B	Yellowish brown slightly gravelly slightly sandy CLAY	12	28	10.3	Steepest straight line	
729292	TP3C	2.00	1.7	Not Given	B	Brown sandy clayey GRAVEL	9	18	15.1	Steepest straight line	

Comments:**Approved:**

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Moisture Condition Value

Tested in Accordance with BS 1377-4: 1990: Clause 5.4

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



Client: Card Geotechnics Ltd
Client Address: 4 Godalming Business Centre
Woolsack Way
Godalming
Surrey GU7 1XW
Contact: Amir Abbasi
Site Name: Southall
Site Address: Not Given

Client Reference: CGN-3732D
Lab Job Number: 17-44724
Date Sampled: Not Given
Date Received: 28/03/2017
Date Tested: 11/04/2017
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	Retained on 20mm sieve %	Moisture Content <20mm %	Moisture Condition Value	Method of Interpretation	Remarks
		Reference	Depth Top [m]	Depth Base [m]	Type						
729298	TP6C	1.00	0.4	Not Given	B	Grey slightly sandy clayey GRAVEL	42	9.8	12.5	Steepest straight line	
729296	TP6C	1.00	0.5	Not Given	B	Brown gravelly silty CLAY	9	18	8	Steepest straight line	

Comments:

Approved:

Mirosława Pytlik
PL Snr Quality Specialist
Geotechnical Section

Signed:

Sushil Sharda
Technical Manager
(Geotechnical Division)

Date Reported: 20/04/2017

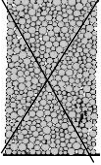
for and on behalf of i2 Analytical Ltd

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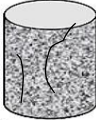
Total Stress Triaxial Compression

Unconsolidated Undrained (Single Stage)

Summary Report

Sample Details  <i>sketch showing specimen location in original sample</i>	Depth 1.00		
	Description Yellowish brown slightly gravelly slightly sandy CLAY		
	Type	B	
	Initial Sample Length	L ₀	(mm) 69.5
	Initial Sample Diameter	D ₀	(mm) 37.5
	Initial Sample Weight	W ₀	(gr) 134.8
	Bulk Density	ρ ₀	(Mg/m ³) 1.76
	Particle Density	ρ _s	(Mg/m ³) 2.65

Initial Conditions			
Initial Cell Pressure	σ ₃	(kPa)	20
Strain Rate	m _s	(mm/min)	1.38980
Membrane Thickness	m _b	(mm)	0.24
Displacement Input	L _{IP}	(mm)	CH 2
Load Input	N _{IP}	(N)	CH 1
Initial Moisture	ω _i %	(%)	35
Initial Dry Density	ρ _{d0}	(Mg/m ³)	1.30
Initial Voids Ratio	e ₀	.	1.03
Initial Degree of Saturation	S _o	(%)	90

Final Conditions			
Max Deviator Stress	(σ ₁ - σ ₃) _f	(kPa)	154
Membrane Correction	m _c	(kPa)	1.846
Strain At Max Stress	ε _f %	(%)	10.61
Shear Strength	c _u	(kPa)	77
Final Moisture	ω _f %	(%)	35
Final Dry Density	ρ _{df}	(Mg/m ³)	1.30
Final Voids Ratio	e _f	.	1.03
Final Degree of Saturation	S _f	(%)	89.9
Notes			
 Failure Sketch (surface inclination) 			

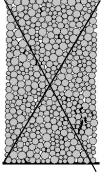
 Environmental Science	Test Method BS1377-7 : 1990 Clause 8		Test Name 729291	
	Database: .\SQLEXPRESS \ 6171-I2 Analytical		Test Date 12/04/2017	
	Site Reference Southall		Borehole TP3C	
	Jobfile 17-44724		Sample 1	
	Client Card		Depth 1.00	
	Operator palmowska	Checked pytlkm	Approved pytlkm	

i2 Analytical Limited, 7 Woodshots Meadow, Croxley Green Business Park, Herts WD18 8YS
 i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Total Stress Triaxial Compression

Unconsolidated Undrained (Single Stage)

Summary Report

Sample Details  <i>sketch showing specimen location in original sample</i>	Depth	0.50		
	Description	Brown gravelly silty CLAY		
	Type	B		
	Initial Sample Length	L ₀	(mm)	68.6
	Initial Sample Diameter	D ₀	(mm)	37.2
	Initial Sample Weight	W ₀	(gr)	143.2
	Bulk Density	ρ ₀	(Mg/m ³)	1.92
	Particle Density	ρ _s	(Mg/m ³)	2.65

Initial Conditions				
Initial Cell Pressure	σ ₃	(kPa)	10	
Strain Rate	m _s	(mm/min)	1.37120	
Membrane Thickness	m _b	(mm)	0.28	
Displacement Input	L _{IP}	(mm)	CH 2	
Load Input	N _{IP}	(N)	CH 1	
Initial Moisture	ω _i %	(%)	20	
Initial Dry Density	ρ _{d0}	(Mg/m ³)	1.60	
Initial Voids Ratio	e ₀	.	0.65	
Initial Degree of Saturation	S _o	(%)	80	

Final Conditions			
Max Deviator Stress	$(\sigma_1 - \sigma_3)_f$ (kPa)	95	
Membrane Correction	m_c (kPa)	2.263	
Strain At Max Stress	$\epsilon_f\%$ (%)	10.69	
Shear Strength	c_u (kPa)	47	
Final Moisture	$\omega_f\%$ (%)	20	
Final Dry Density	ρ_{df} (Mg/m ³)	1.60	
Final Voids Ratio	e_f .	0.65	
Final Degree of Saturation	S_f (%)	79.6	
Notes			
			Failure Sketch (surface inclination)

	Test Method		BS1377-7 : 1990 Clause 8		Test Name		729296				
	Database:		.\SQLEXPRESS \ 6171-I2 Analytical		Test Date		12/04/2017				
	Site Reference		Southall		Borehole		TP6C				
	Jobfile		17-44724		Sample		1				
	Client		Card		Depth		0.50				
	Operator		palmowska		Checked		pytlikm		Approved		pytlikm

i2 Analytical Limited, 7 Woodshots Meadow, Croxley Green Business Park, Herts WD18 8YS

i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland