Geotechnical & Environmental Associates

Widbury Barn
Widbury Hill
Ware,Herts
SG12 7QE

Standard Penetration Test Results

Site : 41 Frognal, Hampstead, NW3 6YD

Client : BTP Group

Engineer : Elliot Wood

Job Number J15019

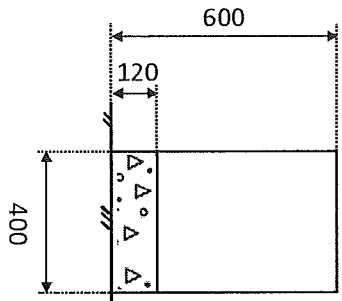
Sheet 1 / 1

Borehole Number	Base of Borehole (m)	End of Seating Drive (m)	End of Test Drive (m)	Test Type	Seating Blows per 75mm		Blows for each 75mm penetration				Result	Comments
					1	2	1	2	3	4		
BH01	1.20	1.35	1.65	CPT	2	1	2	1	2	2	N=7	
BH01	2.00	2.15	2.45	CPT	1	1	2	2	2	2	N=8	
BH01	4.00	4.15	4.45	SPT	1	2	2	3	2	3	N=10	
BH01	6.00	6.15	6.45	SPT	2	2	3	3	4	4	N=14	
BH01	9.00	9.15	9.45	SPT	3	4	4	5	5	6	N=20	
BH01	12.00	12.15	12.45	SPT	4	5	6	6	7	7	N=26	
BH01	15.00	15.15	15.45	SPT	5	5	6	6	7	8	N=27	
BH01	18.00	18.15	18.45	SPT	6	7	8	8	9	10	N=35	
BH02	1.20	1.35	1.65	CPT	1	1	1	2	2	3	N=8	
BH02	3.00	3.15	3.45	SPT	2	3	3	3	2	3	N=11	
BH02	5.00	5.15	5.45	SPT	2	2	2	3	4	4	N=13	
BH02	7.50	7.65	7.95	SPT	3	3	4	4	4	5	N=17	
BH02	10.50	10.65	10.95	SPT	4	5	5	6	6	7	N=24	
BH02	13.50	13.65	13.95	SPT	5	5	6	6	7	8	N=27	
BH02	16.50	16.65	16.95	SPT	6	7	7	8	9	9	N=33	
BH02	19.50	19.65	19.95	SPT	7	7	8	9	10	10	N=37	
BH03	1.00	1.15	1.45	SPT	1	2	2	2	2	3	N=9	
BH03	2.00	2.15	2.45	SPT	1	2	1	2	3	3	N=9	
BH03	3.00	3.15	3.45	SPT	2	1	3	2	4	4	N=13	
BH03	4.00	4.15	4.45	SPT	2	1	2	3	2	4	N=11	
BH03	5.00	5.15	5.45	SPT	2	2	2	3	4	4	N=13	
BH03	6.00	6.15	6.45	SPT	2	2	3	4	4	5	N=16	
BH03	7.00	7.15	7.45	SPT	3	3	4	5	5	6	N=20	
BH03	8.00	8.15	8.45	SPT	3	3	4	4	5	6	N=19	
BH03	9.00	9.15	9.45	SPT	2	3	3	4	5	5	N=17	
BH03	10.00	10.15	10.45	SPT	3	3	4	5	6	6	N=21	

Geotechnical & Environmental Associates	Widbury Barn Widbury Hill Ware Herts SG12 7QE	Site 41 Frognal, Hampstead, NW3 6YD	Trial Pit Number 1

Excavation Method	Dimensions	Ground Level (mOD)	Client	Job Number
Manual	400x600x550	87.88	BTP Group	J15008
	Location	**Dates**	**Engineer**	**Sheet**
	Trial Pit Number 1	22/01/2015	Elliot Wood	1 / 1

Plan: -



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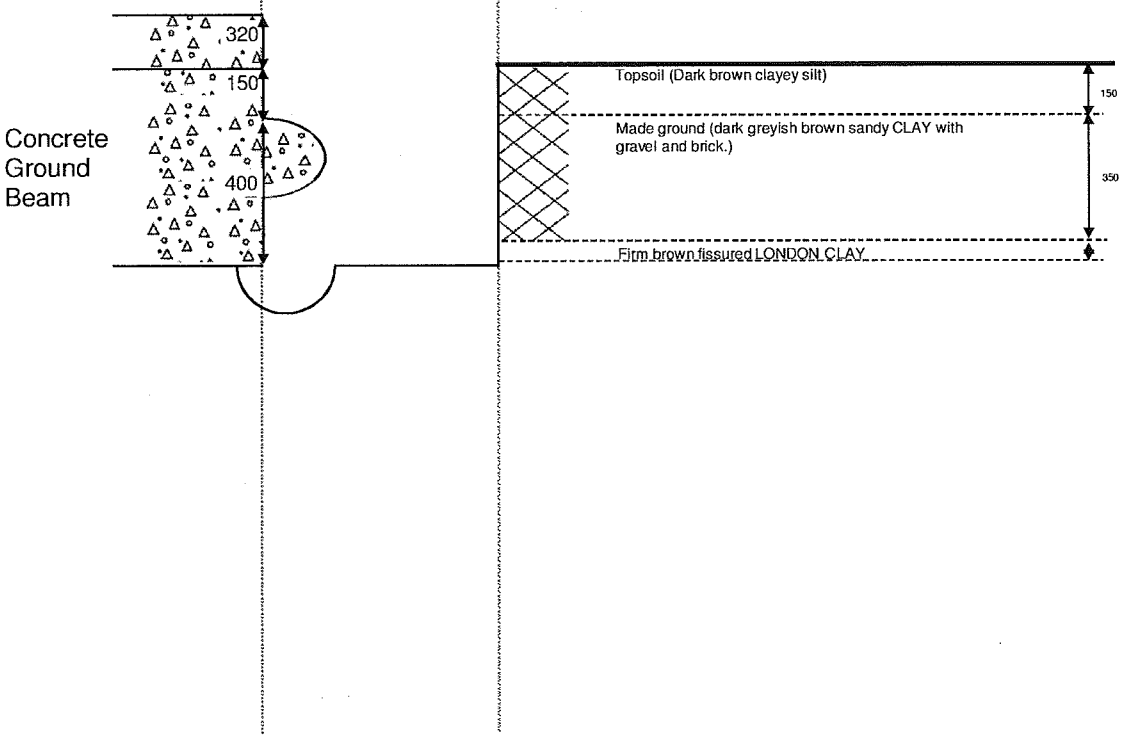


Remarks:

All dimensions in millimetres

Sides of trial pit remained stable during excavation

Groundwater: Perched water at concrete footing.

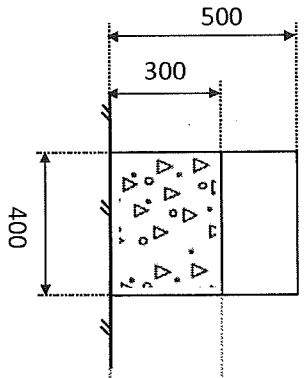
Scale: 1:20

Logged by: KB

Geotechnical & Environmental Associates	Widbury Barn Widbury Hill Ware Herts SG12 7QE	**Site** 41 Frognal, Hampstead, NW3 6YD	**Trial Pit Number** 2

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Manual	400x500x1400	87.51	BTP Group	J15008
	Location	**Dates**	**Engineer**	**Sheet**
	Trial Pit Number 2	22/01/2015	Elliot Wood	1 / 1

Plan: -



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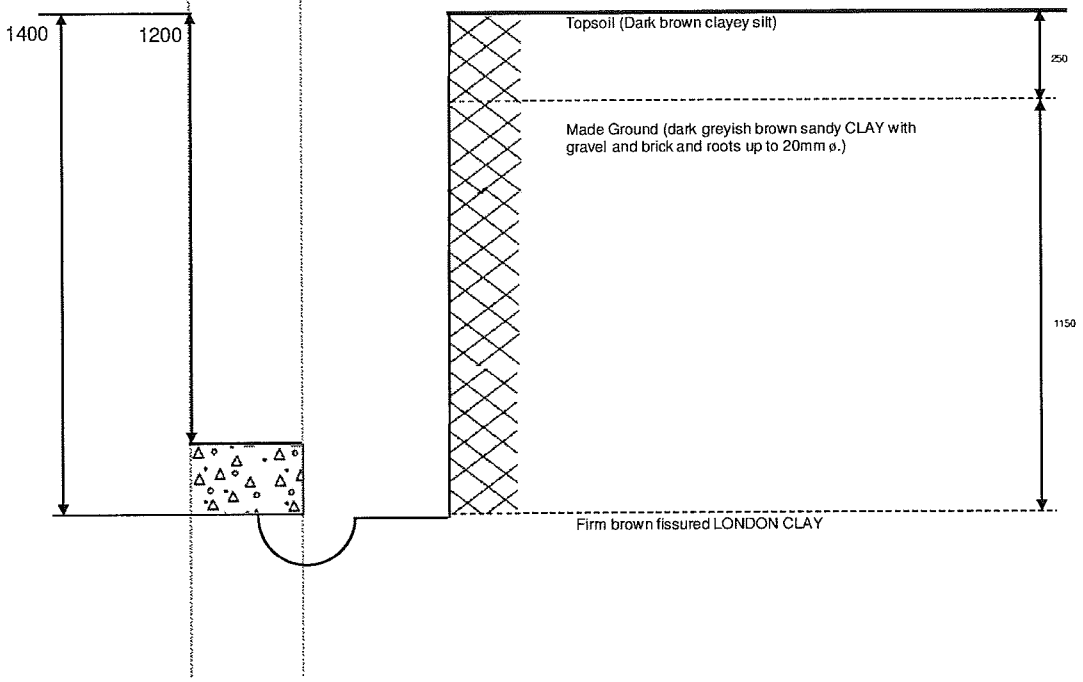


Remarks:

All dimensions in millimetres

Sides of trial pit remained stable during excavation

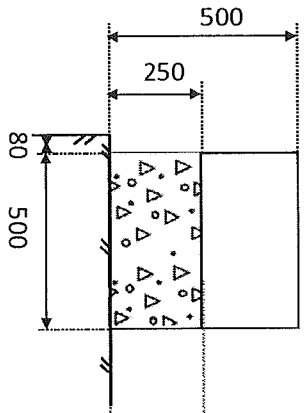
Groundwater: Perched water at concrete footing

Scale: 1:20

Logged by: KB

GEA Geotechnical & Environmental Associates	Widbury Barn Widbury Hill Ware Herts SG12 7QE	Site 41 Frognal, Hampstead, NW3 6YD	Trial Pit Number 3
Excavation Method Manual	**Dimensions** 500x500x1200	**Ground Level (mOD)** 87.80	**Client** BTP Group	**Job Number** J15008
	Location Trial Pit Number 3	**Dates** 22/01/2015	**Engineer** Elliot Wood	**Sheet** 1 / 1

Plan: -



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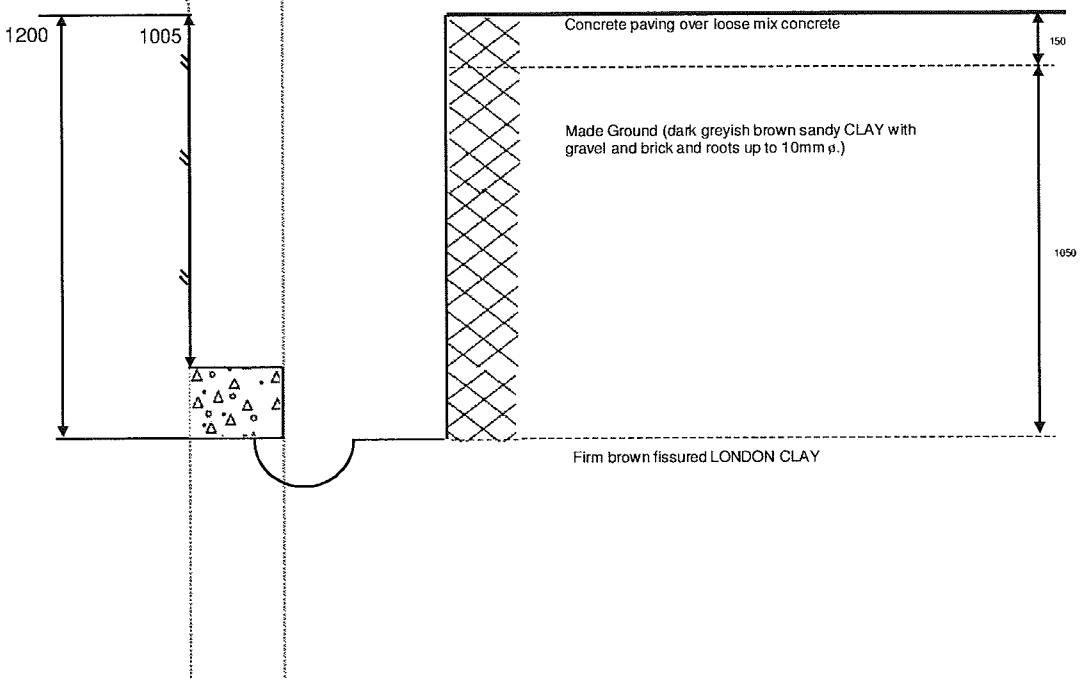
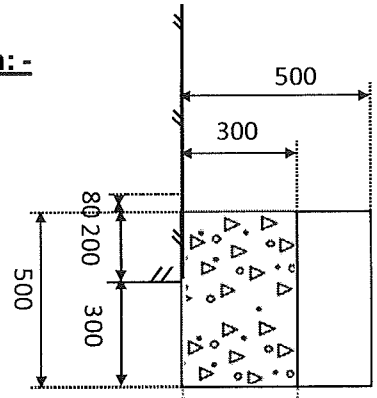


Remarks:	Scale:
All dimensions in millimetres	1:20
Sides of trial pit remained stable during excavation	Logged by:
Groundwater: Perched water at concrete footing	KB

Geotechnical & Environmental Associates	Widbury Barn Widbury Hill Ware Herts SG12 7QE	**Site** 41 Frognal, Hampstead, NW3 6YD	**Trial Pit Number** 4

Excavation Method	**Dimensions**	**Ground Level (mOD)**	**Client**	**Job Number**
Manual	500x500x1200	87.83	BTP Group	J15008
	Location	**Dates**	**Engineer**	**Sheet**
	Trial Pit Number 4	22/01/2015	Elliot Wood	1 / 1

Plan: -



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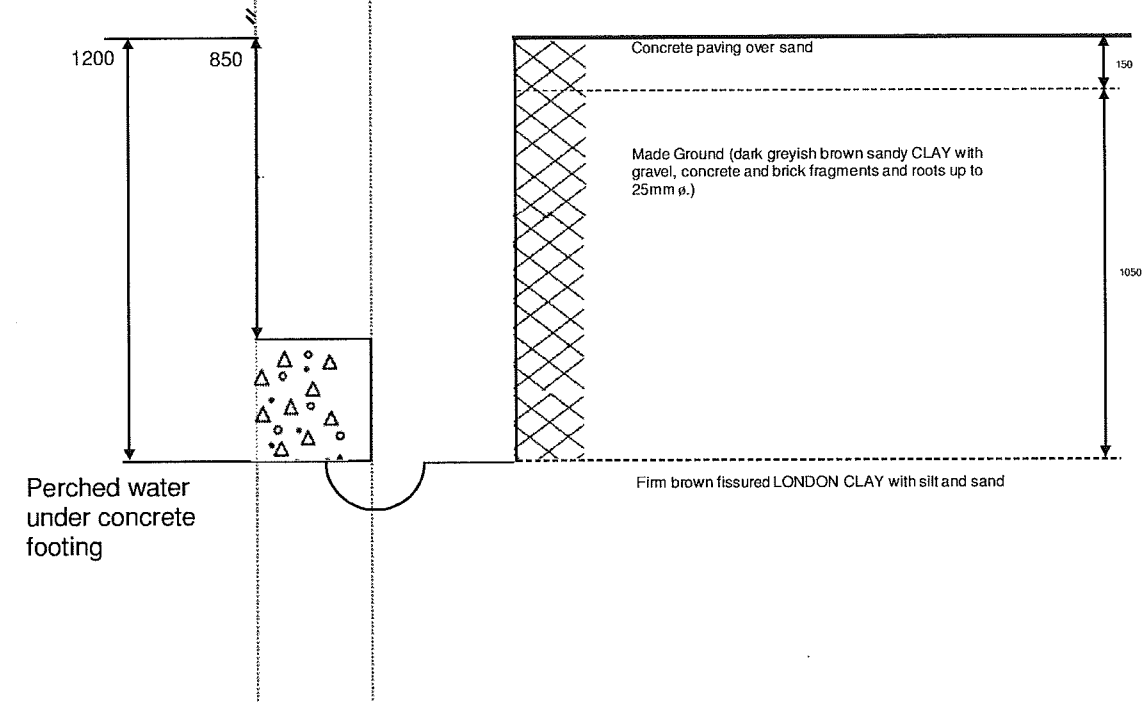


Remarks:

All dimensions in millimetres

Sides of trial pit remained stable during excavation

Groundwater: Perched water at concrete footing

Scale: 1:20

Logged by: KB

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 µm (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH1	D3	2.70	D	Dark orange mottled dark grey slightly fine sandy CLAY	29	69	24	45	100									
BH1	U1	3.00	U	Firm brown silty CLAY with occasional lenses of fine orange sand	26					2.00	1.59	60	171	86				
BH1	D4	3.50	D	Mottled brown, orange and rare grey silty CLAY	28	67	22	45	100									
BH1	D5	3.80	D												7.7	0.58		
BH1	U2	5.00	U	Firm to stiff brown CLAY with rare black staining	30					1.93	1.48	100	157	78				
BH1	U3	7.50	U	Stiff brown CLAY	28					1.96	1.53	150	233	116				
BH1	U4	10.50	U	Stiff fissured dark brown CLAY with rare orange fine sand and gypsum	29					1.94	1.50	210	202	101				
BH1	D9	11.00	D												7.9	2.70		
BH1	U5	13.50	U	Stiff dark grey brown CLAY	27					1.97	1.55	270	258	129				
BH1	U6	16.50	U	Stiff fissured dark grey silty CLAY	27					1.97	1.55	330	240	120				
BH1	U7	18.50	U	Stiff dark grey CLAY	27					2.00	1.57	370	297	148				
BH2	D3	1.80	D	Mottled brown, orange and rare grey silty CLAY	18	55	20	35	100									

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

Checked and Approved by

S Burke

Senior Technician
11/03/2015

Project Number: GEO / 22271

Project Name: 41 FROGNAL, HEMPSTEAD, NW3 6YD
J15019

GEOLABS

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 µm (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH2	U1	2.00	U	Stiff brown silty CLAY	24					1.92	1.55	40	295	148	8.2	0.13		
BH2	D4	2.50	D	Mottled brown and orange silty CLAY	24													
BH2	D5	2.80	D	Mottled orange-brown and orange silty CLAY with rare black staining	24	69	21	48	100									
BH2	S1	3.00	D	Mottled orange-brown and orange with rare grey silty CLAY	27													
BH2	D6	3.70	D	Orange-brown silty CLAY with rare orange silt and gypsum	31	68	22	46	100									
BH2	U2	4.00	U	Stiff brown CLAY with rare fine sand and gypsum	29					1.94	1.50	80	163	82				
BH2	D7	4.50	D	Dark orange-brown silty CLAY with rare orange silt and gypsum	30	69	25	44	100									
BH2	U3	6.00	U	Stiff brown fine sandy CLAY	28					1.92	1.50	120	179	90				
BH2	U4	9.00	U	Stiff dark grey brown CLAY	28					2.00	1.56	180	242	121				
BH2	U5	12.00	U	Stiff fissured dark grey brown CLAY	28					2.00	1.56	240	290	145				
BH2	U6	15.80	U	Stiff dark grey brown CLAY	28					2.00	1.56	316	283	141				
BH2	U7	18.00	U	Stiff fissured dark brownish grey CLAY with rare pyrite nodules	28					1.92	1.50	360	187	94				

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

Checked and Approved by

S Burke

Senior Technician
11/03/2015

Project Number: GEO / 22271

Project Name: 41 FROGNAL, HEMPSTEAD, NW3 6YD
J15019

GEOLABS

SUMMARY OF GEOTECHNICAL TESTING

Sample details					Classification Tests					Density Tests		Undrained Triaxial Compression			Chemical Tests			Other tests and comments
Borehole / Trial Pit	Sample Ref	Depth (m)	Type	Description	MC (%)	LL (%)	PL (%)	PI (%)	<425 µm (%)	Bulk Mg/m³	Dry Mg/m³	Cell Pressure kPa	Deviator Stress kPa	Shear Stress kPa	pH	2:1 W/S SO4 (g/L)	W/S Mg (mg/L)	
BH3	D2	1.50	D	Dark orange-brown silty CLAY	34	70	25	45	100									
BH3	D3	2.50	D	Brown mottled rare grey silty CLAY	31										8.0	0.36		
BH3	D4	3.50	D	Mottled orange brown and rare grey silty CLAY with rare gypsum	31	71	24	47	100									
BH3	D5	4.50	D	Brown and grey silty CLAY with rare gypsum	30													

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

Checked and Approved by

S Burke

Senior Technician
11/03/2015

Project Number: GEO / 22271

Project Name: 41 FROGNAL, HEMPSTEAD, NW3 6YD
J15019

GEOLABS

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH1
Sample Ref	U1
Depth (m)	3.00
Sample Type	U

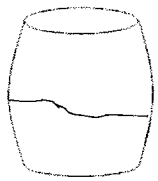
Description:

Firm brown silty CLAY with occasional lenses of fine orange sand

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.0
Diameter	(mm)	102.2
Moisture Content	(%)	26
Bulk Density	(Mg/m³)	2.00
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	1.1
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	60
Strain at failure	(%)	19.9
Maximum Deviator Stress	(kPa)	171
Shear Stress Cu	(kPa)	86

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	20

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH1
Sample Ref	U2
Depth (m)	5.00
Sample Type	U

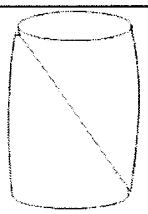
Description:

Firm to stiff brown CLAY with rare black staining

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.1
Diameter	(mm)	102.6
Moisture Content	(%)	30
Bulk Density	(Mg/m³)	1.93
Dry Density	(Mg/m³)	1.49
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.6
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	100
Strain at failure	(%)	8.0
Maximum Deviator Stress	(kPa)	157
Shear Stress Cu	(kPa)	78

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	20

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH1
Sample Ref	U3
Depth (m)	7.50
Sample Type	U

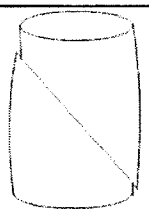
Description:

Stiff brown CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.0
Diameter	(mm)	103.8
Moisture Content	(%)	28
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.54
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.4
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	150
Strain at failure	(%)	6.0
Maximum Deviator Stress	(kPa)	233
Shear Stress Cu	(kPa)	116

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	40

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH1
Sample Ref	U4
Depth (m)	10.50
Sample Type	U

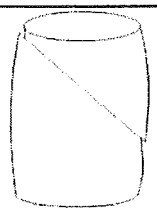
Description:

Stiff fissured dark brown CLAY with rare orange fine sand and gypsum

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.3
Diameter	(mm)	102.4
Moisture Content	(%)	29
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.4
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	210
Strain at failure	(%)	5.0
Maximum Deviator Stress	(kPa)	202
Shear Stress Cu	(kPa)	101

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	20

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1582

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH1
Sample Ref	U5
Depth (m)	13.50
Sample Type	U

Description:

Stiff dark grey brown CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.1
Diameter	(mm)	103.1
Moisture Content	(%)	27
Bulk Density	(Mg/m³)	1.97
Dry Density	(Mg/m³)	1.55
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.4
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	270
Strain at failure	(%)	5.0
Maximum Deviator Stress	(kPa)	258
Shear Stress Cu	(kPa)	129

Mode of failure

Orientation of the sample	Vertical
Distance from top of tube mm	20

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH1
Sample Ref	U6
Depth (m)	16.50
Sample Type	U

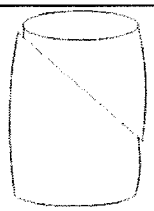
Description:

Stiff fissured dark grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.3
Diameter	(mm)	103.4
Moisture Content	(%)	27
Bulk Density	(Mg/m³)	1.97
Dry Density	(Mg/m³)	1.55
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.2
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	330
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	240
Shear Stress Cu	(kPa)	120

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	10

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH1
Sample Ref	U7
Depth (m)	18.50
Sample Type	U

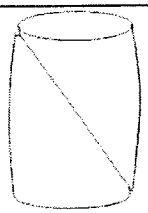
Description:

Stiff dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.2
Diameter	(mm)	101.9
Moisture Content	(%)	27
Bulk Density	(Mg/m³)	2.00
Dry Density	(Mg/m³)	1.57
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.3
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	370
Strain at failure	(%)	4.2
Maximum Deviator Stress	(kPa)	297
Shear Stress Cu	(kPa)	148

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	60

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1962

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH2
Sample Ref	U1
Depth (m)	2.00
Sample Type	U

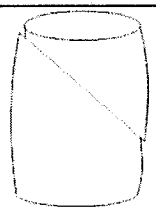
Description:

Stiff brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.0
Diameter	(mm)	101.7
Moisture Content	(%)	24
Bulk Density	(Mg/m³)	1.92
Dry Density	(Mg/m³)	1.54
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.2
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	40
Strain at failure	(%)	2.0
Maximum Deviator Stress	(kPa)	295
Shear Stress Cu	(kPa)	148

Mode of failure



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

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

J15019

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH2
Sample Ref	U2
Depth (m)	4.00
Sample Type	U

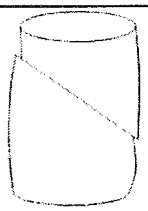
Description:

Stiff brown CLAY with rare fine sand and gypsum

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.0
Diameter	(mm)	102.5
Moisture Content	(%)	29
Bulk Density	(Mg/m³)	1.94
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.8
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	80
Strain at failure	(%)	12.9
Maximum Deviator Stress	(kPa)	163
Shear Stress Cu	(kPa)	82

Mode of failure



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

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

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GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

Quick Undrained Triaxial Compression Test

BH/TP No	BH2
Sample Ref	U3
Depth (m)	6.00
Sample Type	U

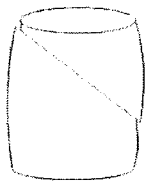
Description:

Stiff brown fine sandy CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	201.2
Diameter	(mm)	103.4
Moisture Content	(%)	28
Bulk Density	(Mg/m^3)	1.92
Dry Density	(Mg/m^3)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	1.0
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	120
Strain at failure	(%)	16.9
Maximum Deviator Stress	(kPa)	179
Shear Stress Cu	(kPa)	90

Mode of failure



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

Checked and Approved by:

S Burke

Senior Technician
11/03/2015

Project Number:

GEO / 22271

Project Name:

41 FROGNAL, HEMPSTEAD, NW3 6YD

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