Appendix B Site Investigation Data

GEA Geotechnical & Environmental Associates Widbury Barn | Widbury Hill | Ware | SG12 7QE	Site 135 Shaftesbury Avenue, London WC2H 8AH	Borehole Number **BH1**

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	200mm cased to 6.00m 150mm cased to 6.50m		Capital Start Ltd	J17183
	Location	**Dates** 11/10/2017- 12/10/2017	**Engineer** Price & Myers	**Sheet** 1/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(3.50)	MADE GROUND (dark brown silty sandy very gravelly clay with brick and concrete fragments and occasional coal fragments)		
3.00-3.45 3.00	SPT(C) N60=3 D	3.00	1.90	3,2/1,1,0,1					
						3.50			
						(1.20)	Medium dense orange-brown coarse gravelly SAND with abundant fine to medium subangular to angular flint gravel		
4.00-4.45 4.00	SPT(C) N60=17 B	4.00	2.60	2,4/3,4,5,4					
						4.70			
5.00-5.45 5.00	SPT N60=10 D	5.00	DRY	2,1/2,2,3,2			Firm becoming stiff at 12.50 m and very stiff from 16.00 m dark brownish grey silty slightly sandy becoming very sandy CLAY with frequent fine selenite crystals, occasional partings of light brown and orange-brown fine sand and silt, claystones, lignite, trace fossils, shell fragments and pyrite nodules. Sand is fine.		
6.00	D						Claystone		
6.50-6.95	U								
7.00-7.45 7.00	SPT N60=12 D	6.50	DRY	2,3/3,2,3,3					
8.00-8.45 8.00	SPT N60=20 D	6.50	DRY	3,4/4,4,5,5					
9.00	D								
9.50-9.95	U								

Remarks
Piezometer installed to 20 m depth with response zone at 19.21 m depth
50 mm diameter groundwater monitoring standpipe installed to 5 m depth
Please see separate sheet for accrued standing time
Water added during drilling through the gravel to assist drilling
Trial pit excavated to 2.5 m to facilitate borehole due to infilled brick vaults present at borehole location
Groundwater monitoring visit (06/11/17): 19 mm piezometer: 5.25 m
Groundwater monitoring visit (30/11/17): 19 mm piezometer: 5.28 m, 50 mm standpipe: 4.39 m

Scale (approx)	Logged By
1:50	LB/CA

Figure No.
J17183.BH1

GEA	Geotechnical & Environmental Associates Widbury Barn | Widbury Hill | Ware | SG12 7QE	Site 135 Shaftesbury Avenue, London WC2H 8AH	Borehole Number **BH1**

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	200mm cased to 6.00m 150mm cased to 6.50m		Capital Start Ltd	J17183
	Location	**Dates** 11/10/2017- 12/10/2017	**Engineer** Price & Myers	**Sheet** 2/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.00	D								
11.00-11.45 11.00	SPT N60=30 D	6.50	DRY	4,4/5,6,8,8					
12.00	D								
12.50-12.95	U								
13.00	D								
14.00-14.45 14.00	SPT N60=30 D	6.50	DRY	4,4/5,6,8,8					
15.00	D								
16.00 16.00-16.45	D U								
16.50-16.95	U								
17.00	D								
18.00-18.45 18.00	SPT N60=32 D	6.50	DRY	4,4/6,7,8,8					
19.00	D								
19.50-19.95	U			11/10/2017:DRY 12/10/2017:12.30m		(29.70)			

Remarks
Piezometer installed to 20 m depth with response zone at 19.21 m depth
50 mm diameter groundwater monitoring standpipe installed to 5 m depth
Please see separate sheet for accrued standing time
Water added during drilling through the gravel to assist drilling
Trial pit excavated to 2.5 m to facilitate borehole due to infilled brick vaults present at borehole location
Groundwater monitoring visit (06/11/17): 19 mm piezometer: 5.25 m
Groundwater monitoring visit (30/11/17): 19 mm piezometer: 5.28 m, 50 mm standpipe: 4.39 m

Scale (approx)	Logged By
1:50	LB/CA

Figure No.
J17183.BH1

GEA Geotechnical & Environmental Associates Widbury Barn | Widbury Hill | Ware | SG12 7QE	Site 135 Shaftesbury Avenue, London WC2H 8AH	Borehole Number **BH1**

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	200mm cased to 6.00m 150mm cased to 6.50m		Capital Start Ltd	J17183
	Location	**Dates** 11/10/2017- 12/10/2017	**Engineer** Price & Myers	**Sheet** 3/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
20.00	D						Claystone		
21.00-21.45 21.00	SPT N60=30 D	6.50	DRY	5,6/7,7,6,7					
22.00	D								
22.50-22.95	U						Claystone		
23.00	D								
24.00-24.45 24.00	SPT N60=33 D	6.50	DRY	5,6/7,8,7,8					
25.00	D								
25.50-25.95	U								
26.00	D								
27.00-27.45 27.00	SPT N60=37 D	6.50	DRY	4,6/7,8,9,10					
28.00	D								
28.50-28.95	U								
29.00	D								
30.00-30.45	SPT N60=38	6.50	DRY	5,7/7,8,9,11					

Remarks
Piezometer installed to 20 m depth with response zone at 19.21 m depth
50 mm diameter groundwater monitoring standpipe installed to 5 m depth
Please see separate sheet for accrued standing time
Water added during drilling through the gravel to assist drilling
Trial pit excavated to 2.5 m to facilitate borehole due to infilled brick vaults present at borehole location
Groundwater monitoring visit (06/11/17): 19 mm piezometer: 5.25 m
Groundwater monitoring visit (30/11/17): 19 mm piezometer: 5.28 m, 50 mm standpipe: 4.39 m

Scale (approx)	Logged By
1:50	LB/CA

Figure No.
J17183.BH1

GEA	Geotechnical & Environmental Associates Widbury Barn | Widbury Hill | Ware | SG12 7QE	Site 135 Shaftesbury Avenue, London WC2H 8AH	Borehole Number **BH1**

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
Cable Percussion	200mm cased to 6.00m 150mm cased to 6.50m		Capital Start Ltd	J17183
	Location	**Dates** 11/10/2017- 12/10/2017	**Engineer** Price & Myers	**Sheet** 4/4

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
30.00	D								
31.00	D						Frequent pyrite nodules from 31.00 m to 34.00 m		
31.50-31.95	U								
32.00	D								
33.00-33.45	SPT N60=43	6.50	DRY	5,6/8,8,11,12					
33.00	D								
34.00	D								
34.50-34.95	U					34.40			
						(0.60)	Very stiff greenish bluish grey mottled reddish brown and brown very silty slightly sandy CLAY. Sand is fine.		
				12/10/2017:DRY		35.00			
							Complete at 35.00m		

Remarks
Piezometer installed to 20 m depth with response zone at 19.21 m depth
50 mm diameter groundwater monitoring standpipe installed to 5 m depth
Please see separate sheet for accrued standing time
Water added during drilling through the gravel to assist drilling
Trial pit excavated to 2.5 m to facilitate borehole due to infilled brick vaults present at borehole location
Groundwater monitoring visit (06/11/17): 19 mm piezometer: 5.25 m
Groundwater monitoring visit (30/11/17): 19 mm piezometer: 5.28 m, 50 mm standpipe: 4.39 m

Scale (approx)	Logged By
1:50	LB/CA

Figure No.
J17183.BH1

GEA
Geotechnical & Environmental Associates
Widbury Barn | Widbury Hill | Ware | SG12 7QE

Standard Penetration Test Results

Site : 135 Shaftesbury Avenue, London WC2H 8AH

Client : Capital Start Ltd

Engineer : Price & Myers

Job Number J17183

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		
BH1	3.00	3.15	3.45	CPT	3	2	1	1	0	1	N60=3	
BH1	4.00	4.15	4.45	CPT	2	4	3	4	5	4	N60=17	
BH1	5.00	5.15	5.45	SPT	2	1	2	2	3	2	N60=10	
BH1	7.00	7.15	7.45	SPT	2	3	3	2	3	3	N60=12	
BH1	8.00	8.15	8.45	SPT	3	4	4	4	5	5	N60=20	
BH1	11.00	11.15	11.45	SPT	4	4	5	6	8	8	N60=30	
BH1	14.00	14.15	14.45	SPT	4	4	5	6	8	8	N60=30	
BH1	18.00	18.15	18.45	SPT	4	4	6	7	8	8	N60=32	
BH1	21.00	21.15	21.45	SPT	5	6	7	7	6	7	N60=30	
BH1	24.00	24.15	24.45	SPT	5	6	7	8	7	8	N60=33	
BH1	27.00	27.15	27.45	SPT	4	6	7	8	9	10	N60=37	
BH1	30.00	30.15	30.45	SPT	5	7	7	8	9	11	N60=38	
BH1	33.00	33.15	33.45	SPT	5	6	8	8	11	12	N60=43	

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	WC (%)	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		3.00	D	Greyish brown sandy gravelly silty CLAY														Particle Size Distribution
BH1		4.00	B	Greyish brown sandy GRAVEL														Particle Size Distribution
BH1		5.00	D	Yellow brown and brown CLAY with rare fine to medium gravel	22.7	60	26	34	98						8.5	0.06		
BH1		8.00	D	Dark brown CLAY	30.2	79	27	52	100						8.3	0.20		
BH1		9.50	U	Firm fissured dark brown silty CLAY	30.6					1.96	1.50	190	197	98				
BH1		12.50-12.95	U	Very stiff fissured dark brown silty CLAY	25.8					2.03	1.61	250	267	134				
BH1		14.00	D	Dark brown CLAY	25.6	71	24	47	100						8.6	0.12		
BH1		16.50	U	Very stiff fissured dark brown silty CLAY	26.2					1.99	1.58	330	361	180				
BH1		19.50	U	Very stiff fissured dark brown silty CLAY with rare medium gravel	29.3					1.98	1.53	390	213	106				
BH1		21.00	D	Dark brown CLAY	33.1	79	28	51	100						8.6	0.22		

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

Checked and Approved by

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH
J17183

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	WC (%)	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		22.50	U	Very stiff fissured dark brown silty CLAY	26.0					2.00	1.59	450	327	163				
BH1		25.50	U	Very stiff fissured dark brown silty CLAY	24.4					1.98	1.59	510	492	246				
BH1		28.50	U	Very stiff fissured dark brown silty CLAY	21.9					1.99	1.63	570	548	274				
BH1		31.50	U	Very stiff fissured dark brown silty CLAY	22.4					1.99	1.63	630	688	344				
BH1		34.50	U	Very stiff fissured mottled red and light grey silty CLAY	19.2					2.06	1.72	690	637	319				

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

Checked and Approved by

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH
J17183

GEOLABS®

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

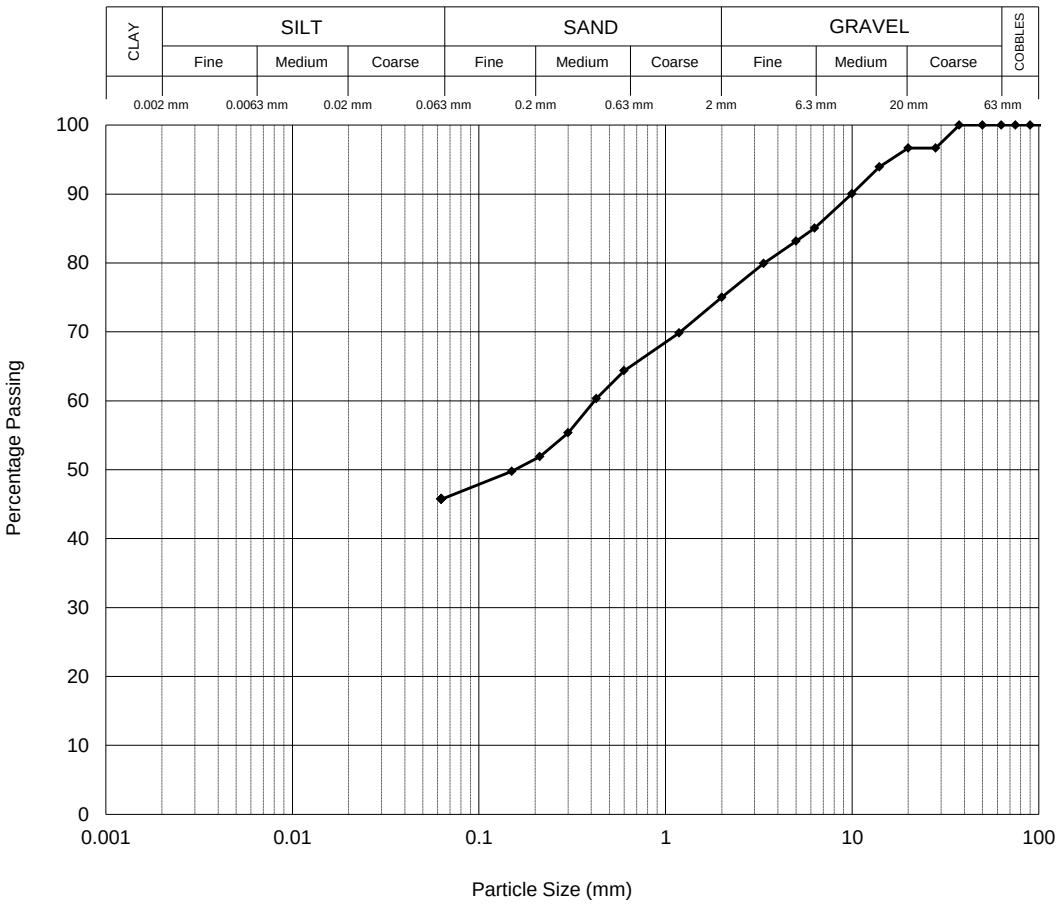
BH / TP No.	BH1
Depth (m)	3.00
Sample Type	D

Description

Greyish brown sandy gravelly silty CLAY

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Wet Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	100
28.0 mm	97
20.0 mm	97
14.0 mm	94
10.0 mm	90
6.30 mm	85
5.00 mm	83
3.35 mm	80
2.00 mm	75
1.18 mm	70
600 µm	64
425 µm	60
300 µm	55
212 µm	52
150 µm	50
63 µm	46



Particle Proportions	
Cobbles	0
Gravel	25
Sand	29
Silt & Clay	46

Checked and Approved by

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH
J17183

GEOLABS

UKAS TESTING 1982

BS EN ISO 17892-4 : 2016

PARTICLE SIZE DISTRIBUTION

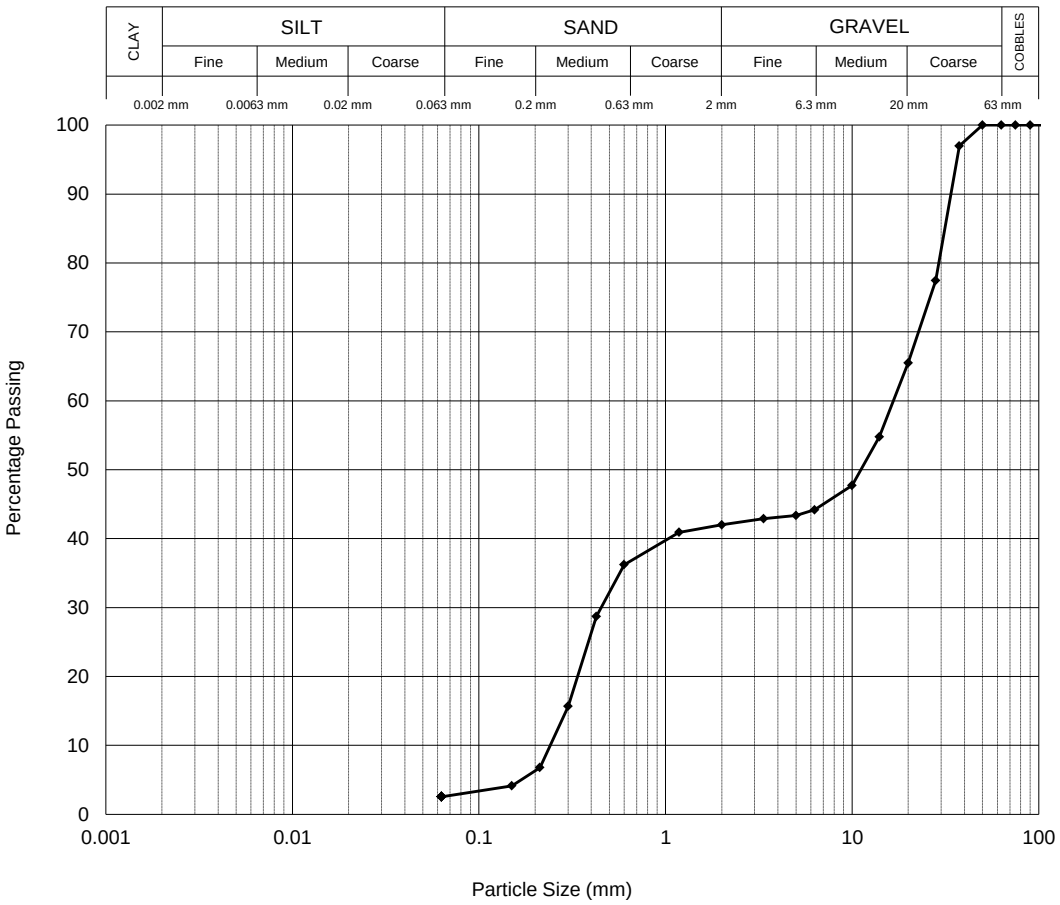
BH / TP No.	BH1
Depth (m)	4.00
Sample Type	B

Description

Greyish brown sandy GRAVEL

BS EN ISO 17892-4 : 2016 : Clause 5.2 - Dry Sieve

Sieve	
Size	% Pass
200.0 mm	100
125.0 mm	100
90.0 mm	100
75.0 mm	100
63.0 mm	100
50.0 mm	100
37.5 mm	97
28.0 mm	77
20.0 mm	66
14.0 mm	55
10.0 mm	48
6.30 mm	44
5.00 mm	43
3.35 mm	43
2.00 mm	42
1.18 mm	41
600 µm	36
425 µm	29
300 µm	16
212 µm	7
150 µm	4
63 µm	3



Particle Proportions	
Cobbles	0
Gravel	58
Sand	39
Silt & Clay	3

Checked and Approved by

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH
J17183

GEOLABS

UKAS TESTING 1962

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	9.50
Sample Type	U

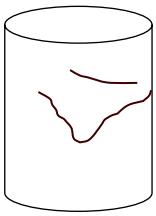
Description:

Firm fissured dark brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	192.8
Diameter	(mm)	103.2
Moisture Content	(%)	30.6
Bulk Density	(Mg/m³)	1.96
Dry Density	(Mg/m³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.5
Axial displacement rate	(%/min)	2.1
Cell pressure	(kPa)	190
Strain at failure	(%)	7.3
Maximum Deviator Stress	(kPa)	197
Shear Stress Cu	(kPa)	98

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	80

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

J17183

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UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	12.50-12.95
Sample Type	U

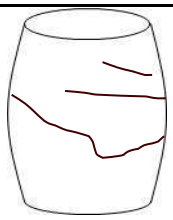
Description:

Very stiff fissured dark brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.8
Diameter	(mm)	102.7
Moisture Content	(%)	25.8
Bulk Density	(Mg/m³)	2.03
Dry Density	(Mg/m³)	1.61
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.8
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	250
Strain at failure	(%)	11.8
Maximum Deviator Stress	(kPa)	267
Shear Stress Cu	(kPa)	134

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	190

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

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UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

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

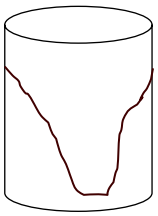
Description:

Very stiff fissured dark brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.9
Diameter	(mm)	103.2
Moisture Content	(%)	26.2
Bulk Density	(Mg/m³)	1.99
Dry Density	(Mg/m³)	1.58
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.4
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	330
Strain at failure	(%)	4.9
Maximum Deviator Stress	(kPa)	361
Shear Stress Cu	(kPa)	180

Mode of failure



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

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

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UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	19.50
Sample Type	U

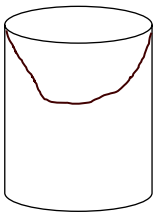
Description:

Very stiff fissured dark brown silty CLAY with rare medium gravel

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	203.4
Diameter	(mm)	103.3
Moisture Content	(%)	29.3
Bulk Density	(Mg/m³)	1.98
Dry Density	(Mg/m³)	1.53
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.5
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	390
Strain at failure	(%)	7.4
Maximum Deviator Stress	(kPa)	213
Shear Stress Cu	(kPa)	106

Mode of failure



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

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

J17183

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	22.50
Sample Type	U

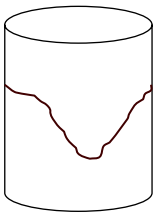
Description:

Very stiff fissured dark brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	203.0
Diameter	(mm)	103.5
Moisture Content	(%)	26.0
Bulk Density	(Mg/m³)	2.00
Dry Density	(Mg/m³)	1.59
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.5
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	450
Strain at failure	(%)	7.9
Maximum Deviator Stress	(kPa)	327
Shear Stress Cu	(kPa)	163

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	80

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

J17183

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	25.50
Sample Type	U

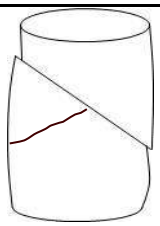
Description:

Very stiff fissured dark brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	203.7
Diameter	(mm)	103.6
Moisture Content	(%)	24.4
Bulk Density	(Mg/m³)	1.98
Dry Density	(Mg/m³)	1.59
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.6
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	510
Strain at failure	(%)	9.3
Maximum Deviator Stress	(kPa)	492
Shear Stress Cu	(kPa)	246

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	70

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

J17183

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	28.50
Sample Type	U

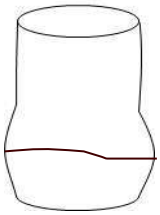
Description:

Very stiff fissured dark brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	203.4
Diameter	(mm)	103.2
Moisture Content	(%)	21.9
Bulk Density	(Mg/m³)	1.99
Dry Density	(Mg/m³)	1.63
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.9
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	570
Strain at failure	(%)	15.7
Maximum Deviator Stress	(kPa)	548
Shear Stress Cu	(kPa)	274

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	95

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

J17183

GEOLABS

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	31.50
Sample Type	U

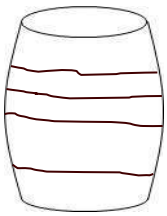
Description:

Very stiff fissured dark brown silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	203.1
Diameter	(mm)	103.4
Moisture Content	(%)	22.4
Bulk Density	(Mg/m³)	1.99
Dry Density	(Mg/m³)	1.63
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.9
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	630
Strain at failure	(%)	14.3
Maximum Deviator Stress	(kPa)	688
Shear Stress Cu	(kPa)	344

Mode of failure



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

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

J17183

GEOLABS®

UKAS TESTING 1982

BS 1377 : Part 7 : 1990 Clause 8

QUICK UNDRAINED TRIAXIAL COMPRESSION TEST

BH/TP No	BH1
Depth (m)	34.50
Sample Type	U

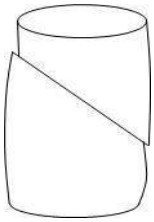
Description:

Very stiff fissured mottled red and light grey silty CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	203.0
Diameter	(mm)	103.5
Moisture Content	(%)	19.2
Bulk Density	(Mg/m³)	2.06
Dry Density	(Mg/m³)	1.72
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.5
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	690
Strain at failure	(%)	7.9
Maximum Deviator Stress	(kPa)	637
Shear Stress Cu	(kPa)	319

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	110

Checked and Approved by:

S Burke

S Burke - Senior Technician
03/11/2017

Project Number:

GEO / 26549

Project Name:

135 SHAFTSBURY AVENUE. LONDON WC2H 8AH

J17183

GEOLABS®

UKAS TESTING 1982

Caroline Anderson
Geotechnical & Environmental Associates
Widbury Barn
Widbury Hill
Ware
Hertfordshire
SG127QE

e: caroline@gea-ltd.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 17-62823

Project / Site name:	Odeon Cinema, Shaftsbury Avenue, London	**Samples received on:**	04/10/2017
Your job number:	J17183	**Samples instructed on:**	05/10/2017
Your order number:	J17183	**Analysis completed by:**	12/10/2017
Report Issue Number:	1	**Report issued on:**	12/10/2017
Samples Analysed:	1 soil sample		

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 17-62823

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London
Your Order No: J17183

Lab Sample Number				830605				
Sample Reference				TP1				
Sample Number				None Supplied				
Depth (m)				0.50				
Date Sampled				04/10/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	19				
Total mass of sample received	kg	0.001	NONE	1.5				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.0				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO_4	mg/kg	50	MCERTS	1300				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.22				
Sulphide	mg/kg	1	MCERTS	1.2				
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	39				
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.8				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	74				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	160				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	1.0				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	58				
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	< 10				
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1				
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0				
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0				
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0				

Analytical Report Number: 17-62823

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London
Your Order No: J17183

Lab Sample Number				830605				
Sample Reference				TP1				
Sample Number				None Supplied				
Depth (m)				0.50				
Date Sampled				04/10/2017				
Time Taken				None Supplied				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0				

Analytical Report Number : 17-62823

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
830605	TP1	None Supplied	0.50	Grey clay and sand with gravel and brick.

The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 17-62823

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding.	L076-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Caroline Anderson
Geotechnical & Environmental Associates
Widbury Barn
Widbury Hill
Ware
Hertfordshire
SG127QE

e: caroline@gea-ltd.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 17-66625

Project / Site name:	Odeon Cinema, Shaftsbury Avenue, London	**Samples received on:**	02/11/2017
Your job number:	J17183	**Samples instructed on:**	02/11/2017
Your order number:	J17183	**Analysis completed by:**	09/11/2017
Report Issue Number:	1	**Report issued on:**	09/11/2017
Samples Analysed:	1 soil sample		

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-66625

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London
Your Order No: J17183

Lab Sample Number				852011				
Sample Reference				TP1				
Sample Number				None Supplied				
Depth (m)				0.40				
Date Sampled				01/11/2017				
Time Taken				1400				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1				
Moisture Content	%	N/A	NONE	29				
Total mass of sample received	kg	0.001	NONE	2.0				
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected				
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	10.8				
Total Cyanide	mg/kg	1	MCERTS	< 1				
Total Sulphate as SO_4	mg/kg	50	MCERTS	1800				
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.17				
Sulphide	mg/kg	1	MCERTS	34				
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	260				
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.6				
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0				
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05				
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05				
Fluorene	mg/kg	0.05	MCERTS	< 0.05				
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05				
Anthracene	mg/kg	0.05	MCERTS	< 0.05				
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Pyrene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Chrysene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05				
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05				
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05				
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80				
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11				
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2				
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	53				
Copper (aqua regia extractable)	mg/kg	1	MCERTS	42				
Lead (aqua regia extractable)	mg/kg	1	MCERTS	19				
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3				
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	41				
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0				
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	89				
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	< 10				
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1				
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0				
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0				
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0				

Analytical Report Number: 17-66625

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London
Your Order No: J17183

Lab Sample Number				852011				
Sample Reference				TP1				
Sample Number				None Supplied				
Depth (m)				0.40				
Date Sampled				01/11/2017				
Time Taken				1400				
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0				

Analytical Report Number : 17-66625

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
852011	TP1	None Supplied	0.40	Brown clay.

The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 17-66625

Project / Site name: Odeon Cinema, Shaftsbury Avenue, London

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests""	L009-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding.	L076-PL	W	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

GEA

Widbury Barn
Widbury Hill
Ware
Herts SG12 7QE

Generic Risk-Based Soil Screening Values

Site	135 Shaftsbury Avenue, London WC2H 8AH	**Job Number**	J17183
Client	Capital Start Limited	**Sheet**	1 / 1
Engineer	Price & Myers		

Proposed End Use Commercial

Soil pH 8

Soil Organic Matter content % 1.0

Contaminant	Screening Value mg/kg	Data Source
Metals		
Arsenic	640	C4SL
Cadmium	410	C4SL
Chromium (III)	30400	LQM/CIEH
Chromium (VI)	49	C4SL
Copper	71,700	LQM/CIEH
Lead	2330	C4SL
Elemental Mercury	170	SGV
Inorganic Mercury	3600	SGV
Nickel	1350	LQM/CIEH
Selenium	13000	SGV
Zinc	665,000	LQM/CIEH
Hydrocarbons		
Benzene	27	C4SL
Toluene	870	SGV
Ethyl Benzene	48000	SGV
Xylene	475	SGV
Aliphatic C5-C6	3400	LQM/CIEH
Aliphatic C6-C8	8300	LQM/CIEH
Aliphatic C8-C10	2100	LQM/CIEH
Aliphatic C10-C12	10000	LQM/CIEH
Aliphatic C12-C16	61000	LQM/CIEH
Aliphatic C16-C35	1,600,000	LQM/CIEH
Aromatic C6-C7	See Benzene	LQM/CIEH
Aromatic C7-C8	See Toluene	LQM/CIEH
Aromatic C8-C10	3700	LQM/CIEH
Aromatic C10-C12	17000	LQM/CIEH
Aromatic C12-C16	36000	LQM/CIEH
Aromatic C16-C21	28000	LQM/CIEH
Aromatic C21-C35	28000	LQM/CIEH
PRO (C_5 –C_{10})	18397	Calc
DRO (C_{12} –C_{28})	1,725,000	Calc
Lube Oil (C_{28} –C_{44})	1,628,000	Calc
TPH	**1000**	Trigger for speciated testing

Contaminant	Screening Value mg/kg	Data Source
Anions		
Soluble Sulphate	500 mg/l	Structures
Sulphide	50	Structures
Chloride	400	Structures
Others		
Organic Carbon (%)	10	Methanogenic potential
Total Cyanide	12000	WRAS
Total Mono Phenols	3200	SGV
PAH		
Naphthalene	200.00	C4SL exp & LQM/CIEH
Acenaphthylene	84,000	LQM/CIEH
Acenaphthene	85,000	LQM/CIEH
Fluorene	64,000	LQM/CIEH
Phenanthrene	22,000	LQM/CIEH
Anthracene	530,000	LQM/CIEH
Fluoranthene	23,000	LQM/CIEH
Pyrene	54,000	LQM/CIEH
Benzo(a) Anthracene	90.0	C4SL exp & LQM/CIEH
Chrysene	140	C4SL exp & LQM/CIEH
Benzo(b) Fluoranthene	100.0	C4SL exp & LQM/CIEH
Benzo(k) Fluoranthene	140.0	C4SL exp & LQM/CIEH
Benzo(a) pyrene	42.00	C4SL
Indeno(1 2 3 cd) Pyrene	60.0	C4SL exp & LQM/CIEH
Dibenzo(a h) Anthracene	13.00	C4SL exp & LQM/CIEH
Benzo (g h i) Perylene	650	C4SL exp & LQM/CIEH
Screening value for PAH	**600.0**	B(a)P / 0.15
Chlorinated Solvents		
1,1,1 trichloroethane (TCA)	552	LQM/CIEH
tetrachloroethane (PCA)	150	LQM/CIEH
tetrachloroethene (PCE)	63.1	LQM/CIEH
trichloroethene (TCE)	6.42	LQM/CIEH
1,2-dichloroethane (DCA)	0.71	LQM/CIEH
vinyl chloride (Chloroethene)	0.0587	LQM/CIEH
tetrachloromethane (Carbon tetra	3	LQM/CIEH
trichloromethane (Chloroform)	79.4	LQM/CIEH

Notes

Concentrations measured below the above values may be considered to represent 'uncontaminated conditions' which pose 'LOW' risk to human health. Concentrations measured in excess of these values indicate a potential risk which require further, site specific risk assessment.

SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009

LQM/CIEH - Generic Assessment Criteria for Human Health Risk Assessment 2nd edition (2009)derived using CLEA 1.04 model 2009

C4SL - Defra Category 4 Screening value based on Low Level of Toxicological Risk

C4SL exp & LQM/CIEH calculated using C4SL revisions to exposure assessment but LQM/CIEH health criteria values

Calc - sum of nearest available carbon range specified including BTEX for PRO fraction

B(a)P / 0.15 - GEA experience indicates that Benzo(a) pyrene (one of the most common and most carcinogenic of the PAHs) rarely exceeds 15% of the total PAH concentration, hence this Total PAH threshold is regarded as being conservative

GEA
www.gea-ltd.co.uk
Herts | 01727 824666 Notts | 01509 674888

SPT & Cohesion / Depth Graph

Site	135 Shaftsbury Avenue, London WC2H 8AH
Client	Capital Start Limited
Engineer	Price & Myers

Job Number J17183

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