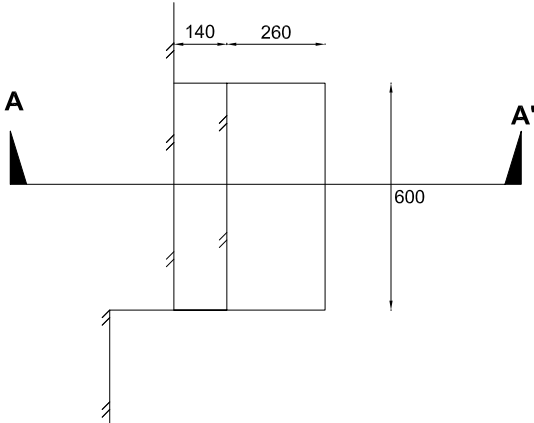
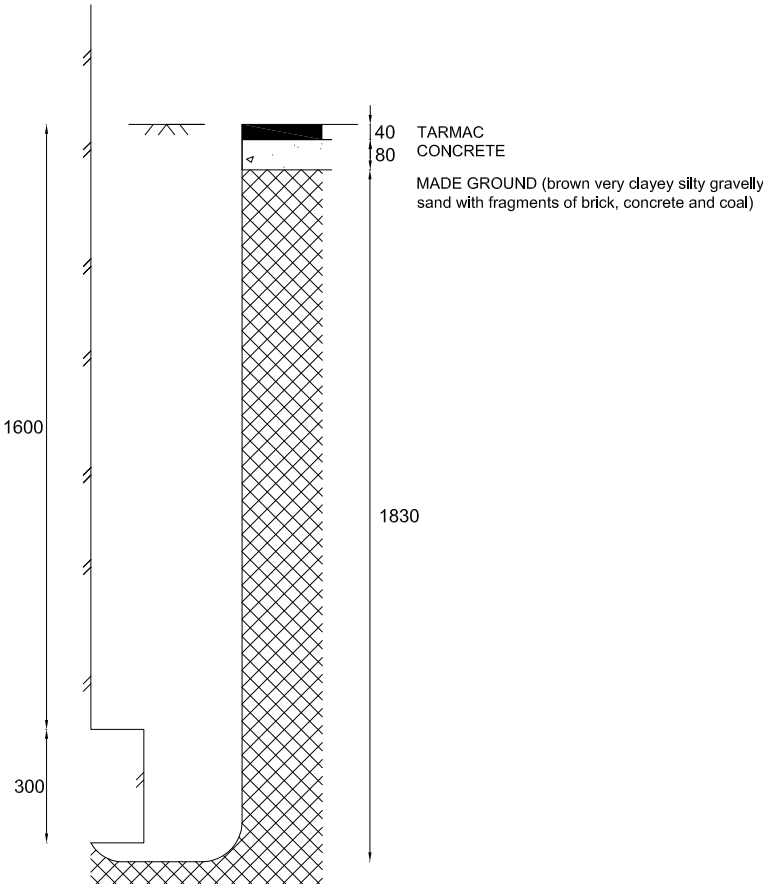


GEA Geotechnical & Environmental Associates Widbury Barn Widbury Hill Ware Herts SG12 7QE		Site 159-163 Kings Cross Road, London WC1X 9BN			Trial Pit Number	
Excavation Method Manual	Dimensions 400 x 600 x 1950 mm	Ground Level (m OD)	Client Balcap RE	Job Number J16180	TP2A	
	Location	Date 31/08/16 to 01/09/16	Engineer Parmarbrook	Sheet Number 1 of 1		

Plan



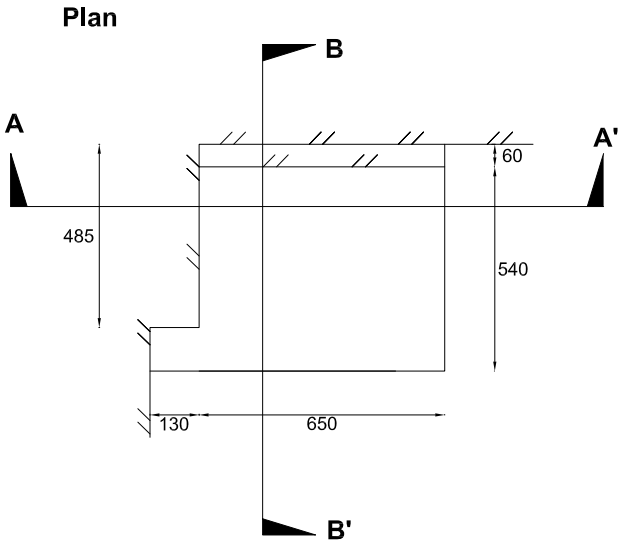
Section A - A'



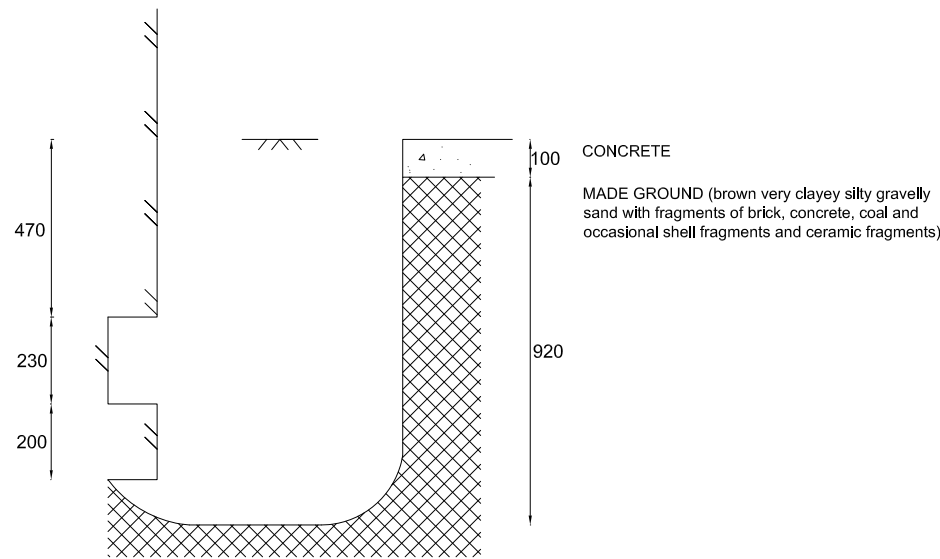
Notes:
Groundwater not encountered

Scale
1 : 20
Logged By
CA

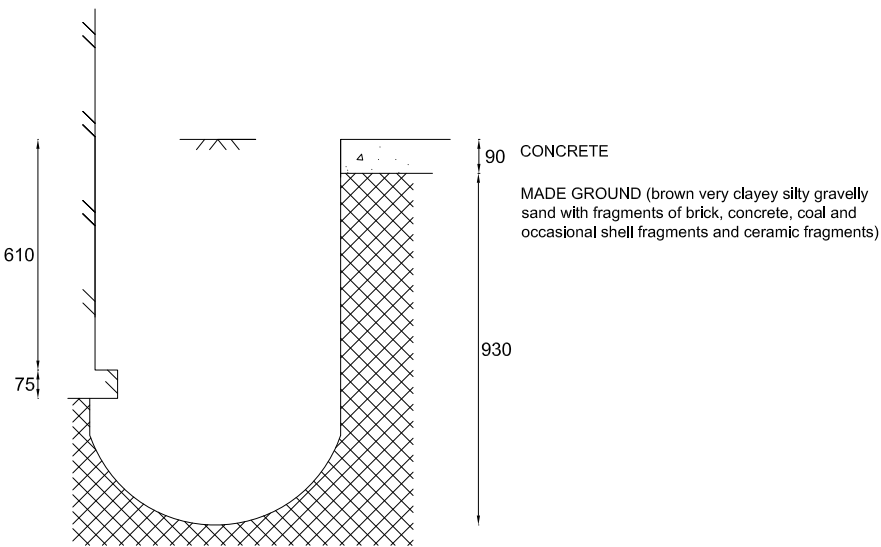
Excavation Method Manual	Widbury Barn Widbury Hill Ware Herts SG12 7QE		Site 159-163 Kings Cross Road, London WC1X 9BN		Trial Pit Number TP3
	Dimensions 780 x 600 x 1020 mm	Ground Level (m OD)	Client Balcap RE	Job Number J16180	
	Location	Date 31/08/16 to 01/09/16	Engineer Parmarbrook	Sheet Number 1 of 1	



Section A - A'



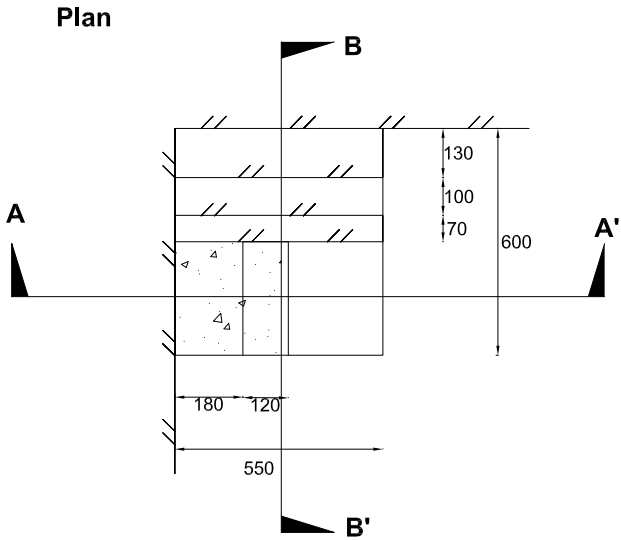
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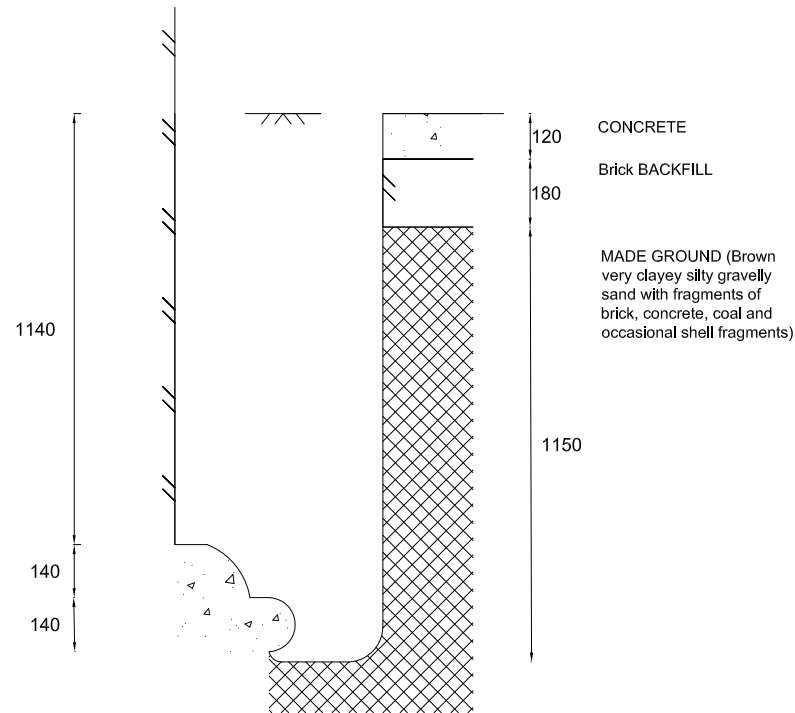
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Scale
1 : 20
Logged By
CA

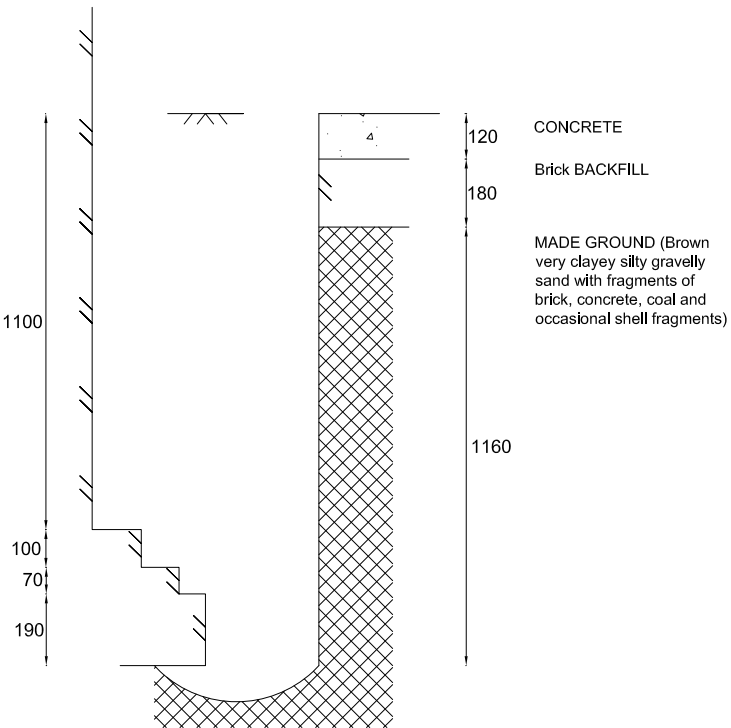
GEA Geotechnical & Environmental Associates	Widbury Barn Widbury Hill Ware Herts SG12 7QE				Site 159-163 Kings Cross Road, London WC1X 9BN		Trial Pit Number TP4
	Excavation Method	Dimensions	Ground Level (m OD)	Client	Job Number		
	Manual	550 x 600 x 1460 mm		Balcap RE	J16180		
		Location	Date	Engineer	Sheet Number		
			31/08/16 to 01/09/16	Parmarbrook	1 of 1		



Section A - A'



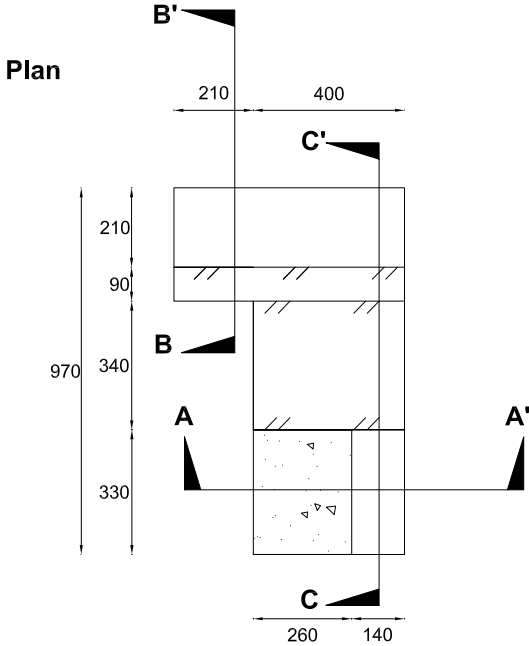
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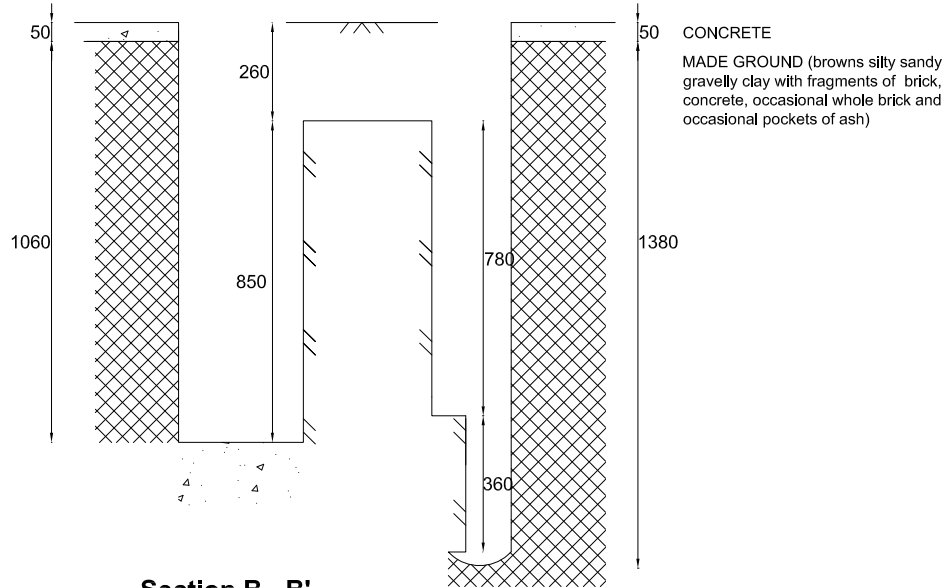
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Scale
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Logged By
CA

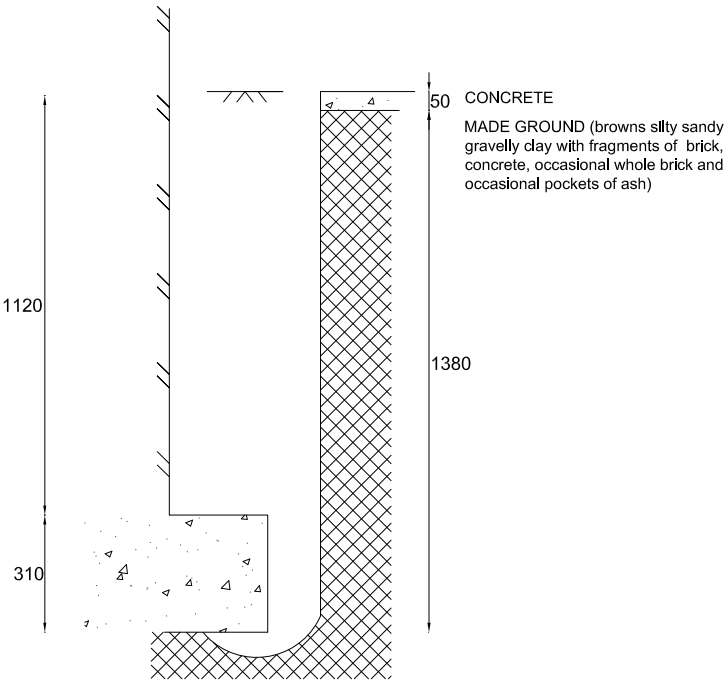
Excavation Method Manual	GEA Geotechnical & Environmental Associates Widbury Barn Widbury Hill Ware Herts SG12 7QE		Site 159-163 Kings Cross Road, London WC1X 9BN		Trial Pit Number TP5
	Dimensions 610 x 970 x 1430 mm	Ground Level (m OD)	Client Balcap RE	Job Number J16180	
	Location	Date 31/08/16 to 01/09/16	Engineer Parmarbrook	Sheet Number 1 of 1	



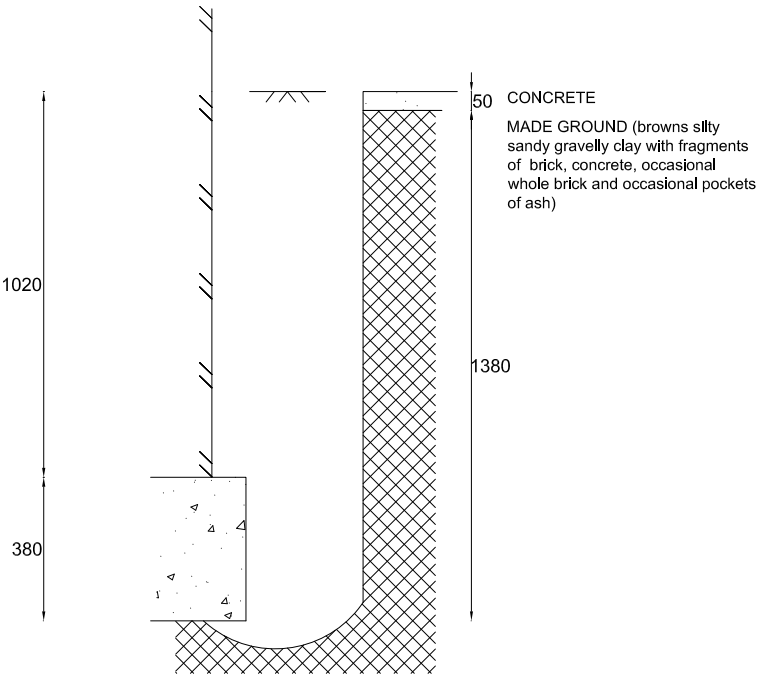
Section C C'



Section A - A'



Section B - B'

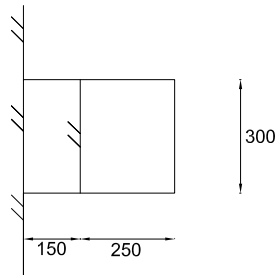


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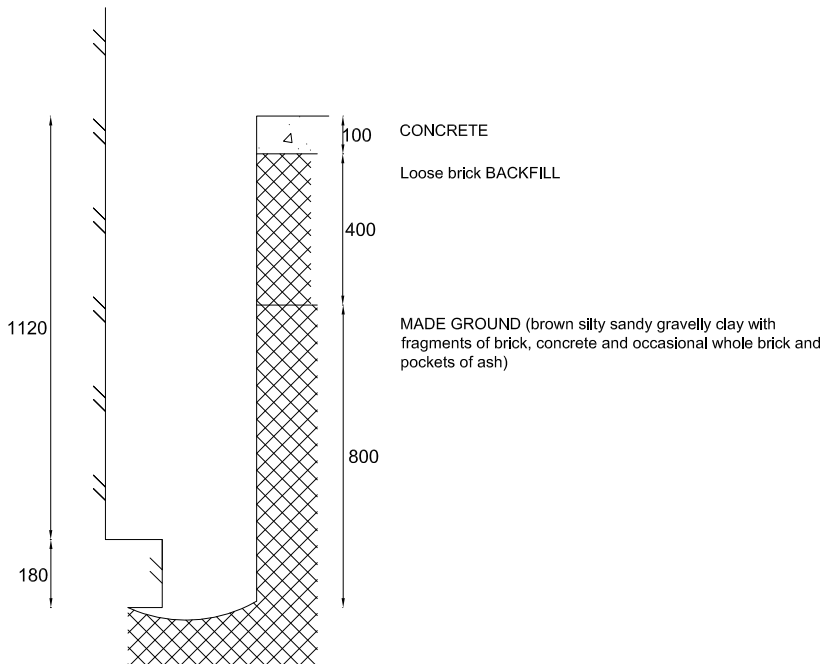
Scale
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Logged By
CA

Excavation Method Manual	Widbury Barn Widbury Hill Ware Herts SG12 7QE		Site 159-163 Kings Cross Road, London WC1X 9BN		Trial Pit Number TP6
	Dimensions 400 x 300 x 1300 mm	Ground Level (m OD)	Client Balcap RE	Job Number J16180	
	Location	Date 31/08/16 to 01/09/16	Engineer Parmarbrook	Sheet Number 1 of 1	

Plan



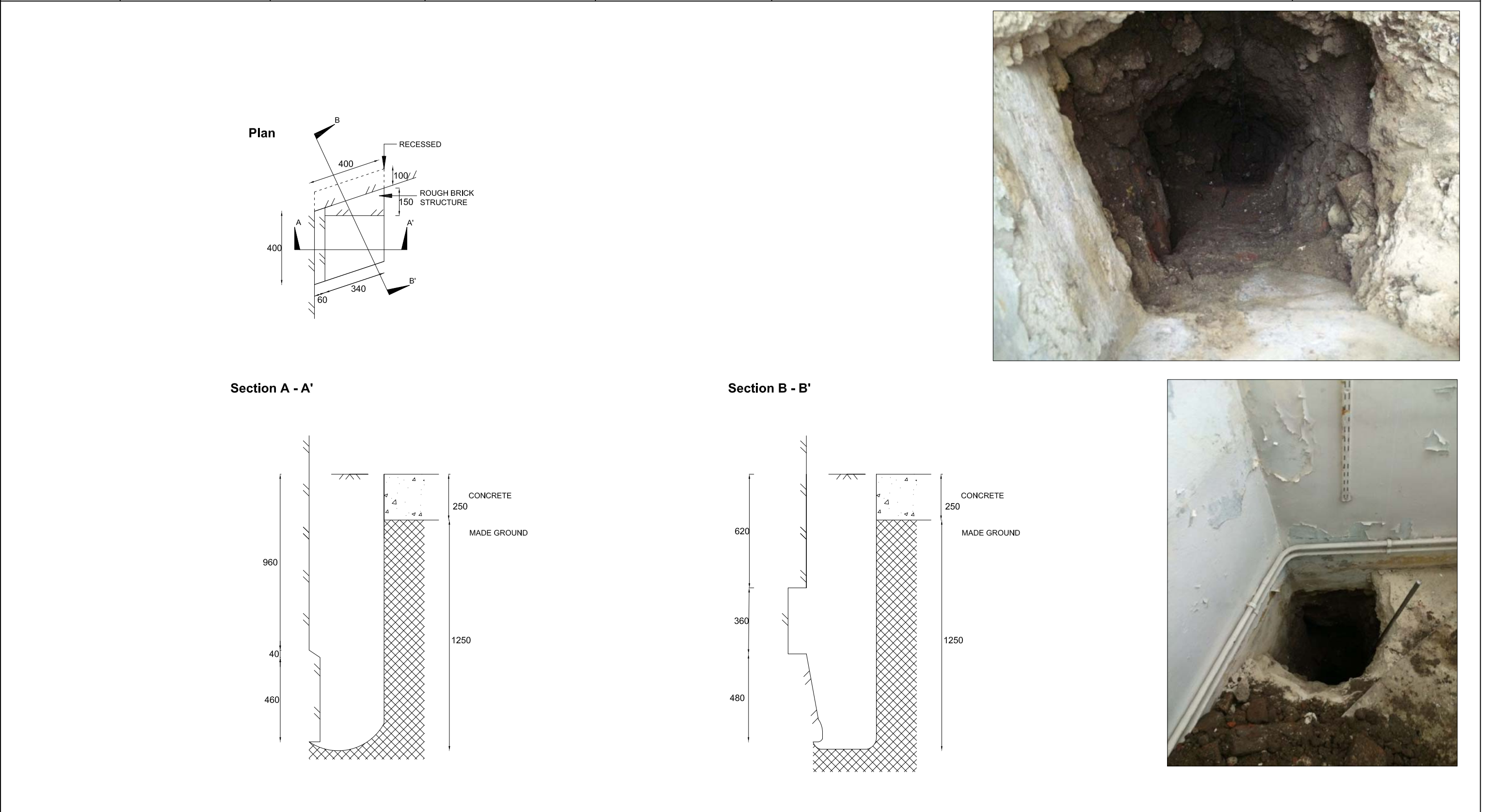
Section A - A'



Notes:
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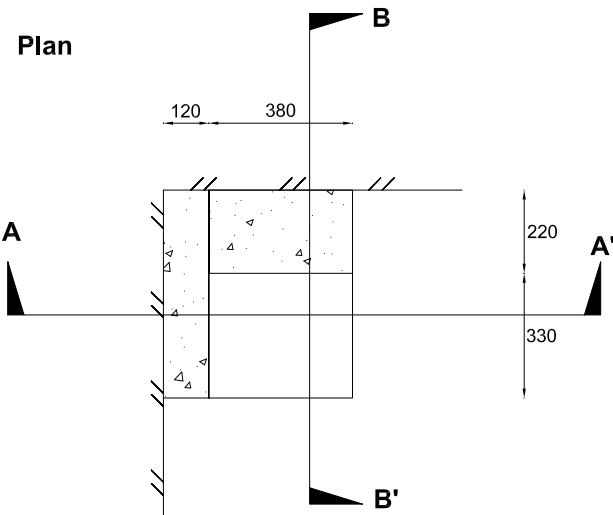
Scale
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Logged By
CA

GEA Geotechnical & Environmental Associates Widbury Barn Widbury Hill Ware Herts SG12 7QE	Site 159-163 Kings Cross Road, London WC1X 9BN				Trial Pit Number TP7
	Excavation Method	Dimensions	Ground Level (m OD)	Client	
	Manual	400 x 400 x 1500 mm		Balcap RE	
		Location	Date	Engineer	Job Number
			27/09/2016	Parmarbrook	J16180
					Sheet Number
					1 of 1

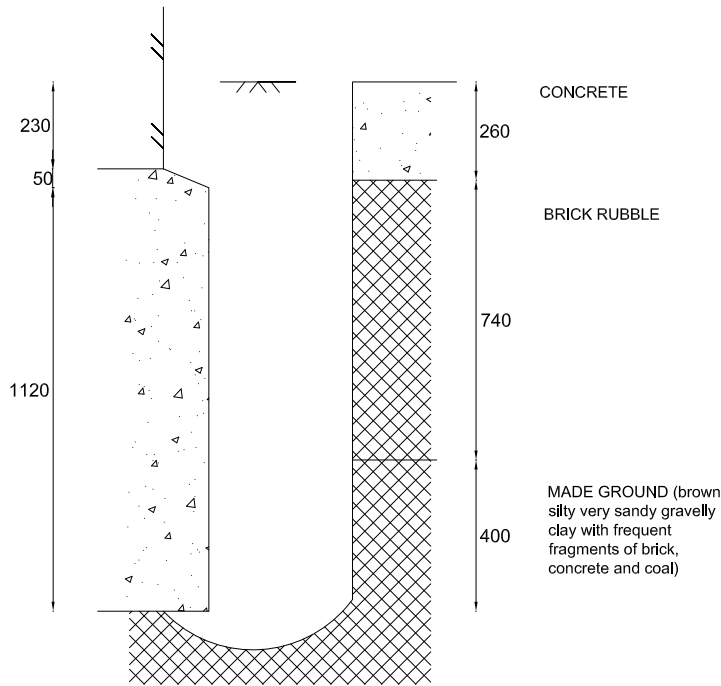


Notes: Groundwater not encountered	Scale
	1 : 20
	Logged By
	CA

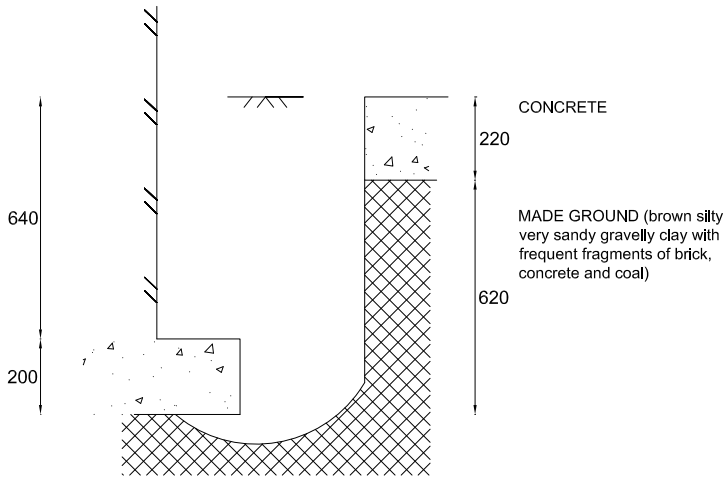
GEA Geotechnical & Environmental Associates	Widbury Barn Widbury Hill Ware Herts SG12 7QE				Site 159-163 Kings Cross Road, London WC1X 9BN		Trial Pit Number TP8
	Excavation Method	Dimensions	Ground Level (m OD)	Client	Job Number		
	Manual	650 x 300 x 1300 mm		Balcap RE	J16180		
		Location	Date	Engineer	Sheet Number		
			31/08/16 to 01/09/16	Parmarbrook	1 of 1		



Section A - A'



Section B - B'

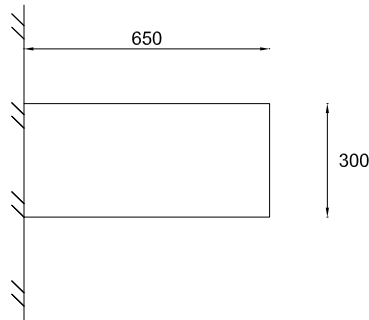


Notes:
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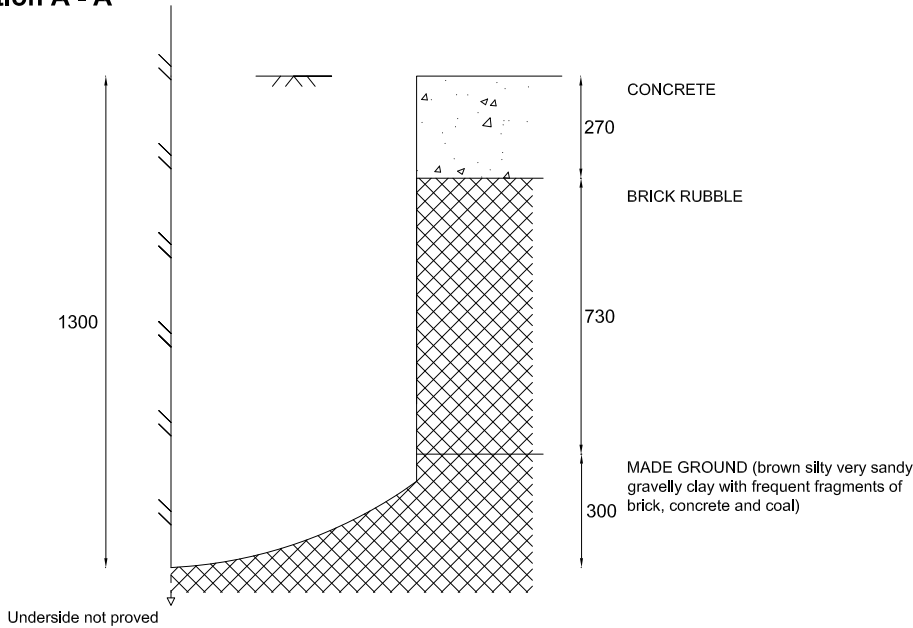
Scale
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Logged By
CA

Excavation Method Manual	GEA Geotechnical & Environmental Associates Widbury Barn Widbury Hill Ware Herts SG12 7QE		Site 159-163 Kings Cross Road, London WC1X 9BN		Trial Pit Number TP9
	Dimensions 650 x 300 x 1300 mm	Ground Level (m OD)	Client Balcap RE	Job Number J16180	
	Location	Date 31/08/16 to 01/09/16	Engineer Parmarbrook	Sheet Number 1 of 1	

Plan



Section A - A'

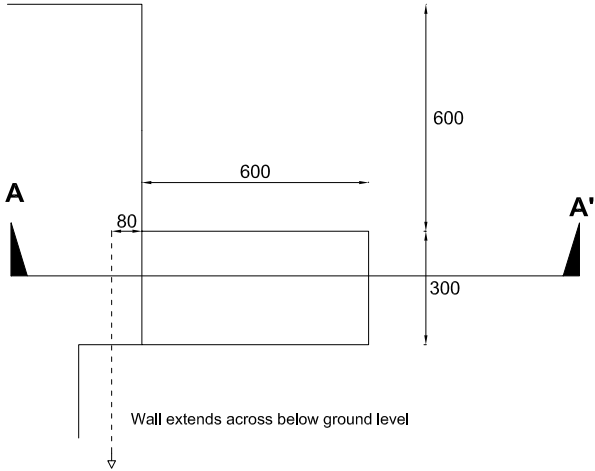


Notes:
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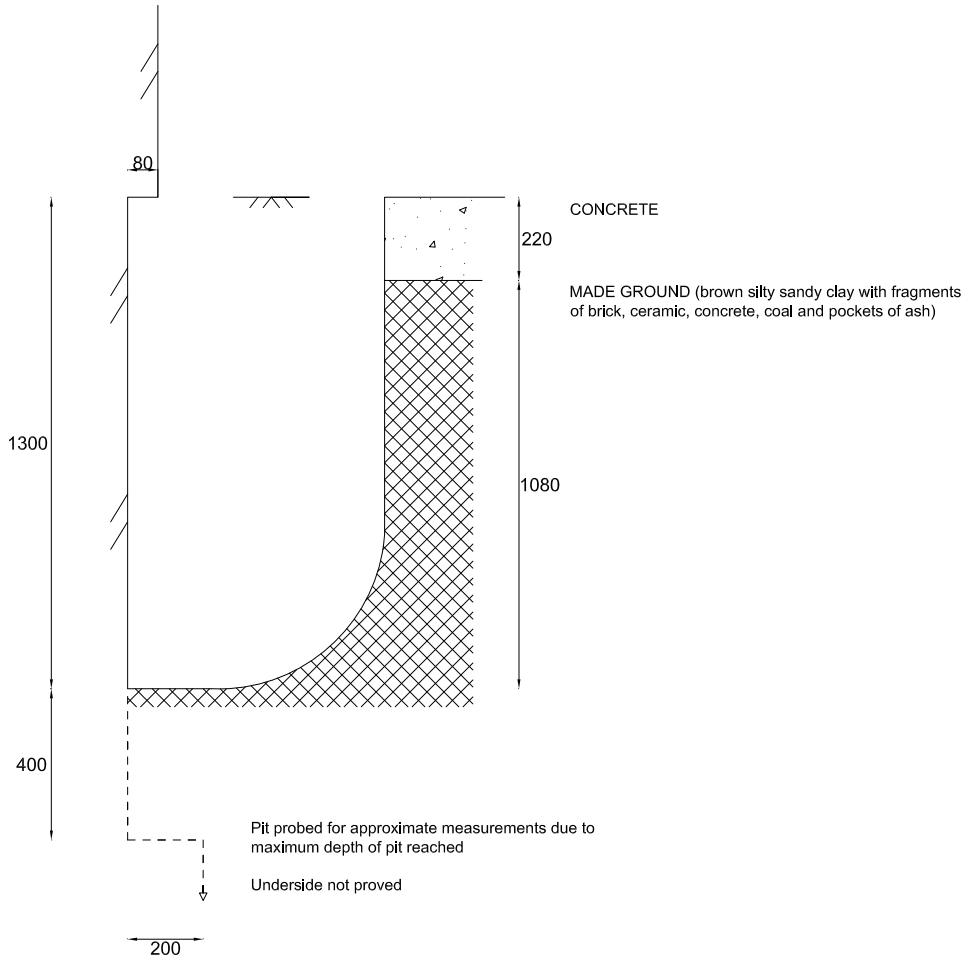
Scale
1 : 20
Logged By
CA

GEA Geotechnical & Environmental Associates Widbury Barn Widbury Hill Ware Herts SG12 7QE	Site 159-163 Kings Cross Road, London WC1X 9BN				Trial Pit Number TP9A
	Excavation Method Manual	Dimensions 600 x 300 x 1300 mm	Ground Level (m OD)	Client Balcap RE	
	Location	Date 27/09/2016	Engineer Parmarbrook	Job Number J16180	
				Sheet Number 1 of 1	

Plan



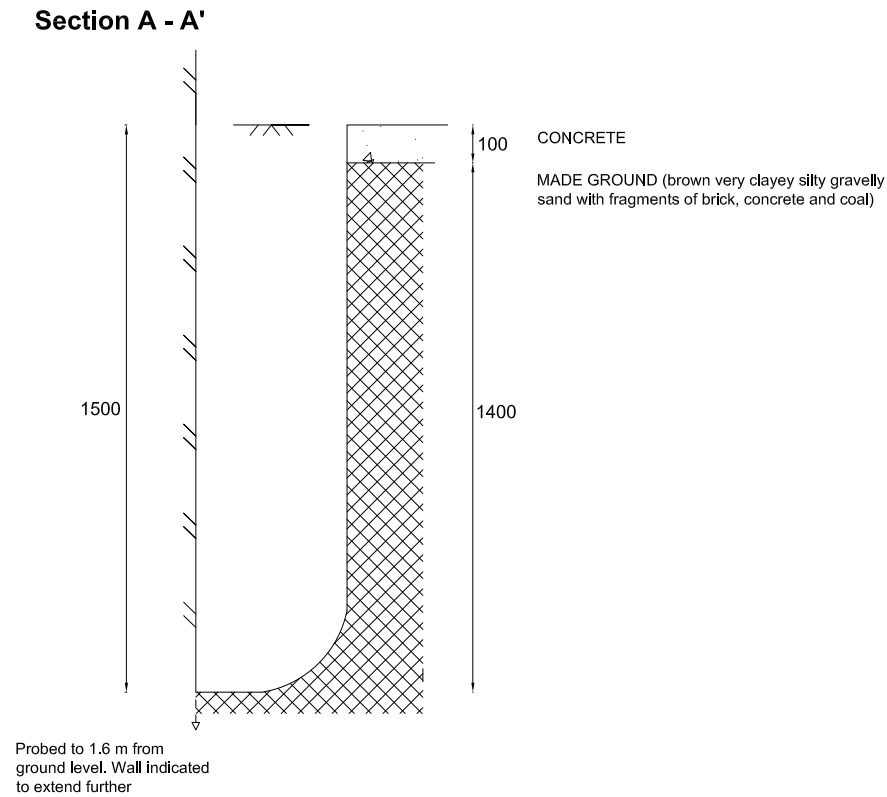
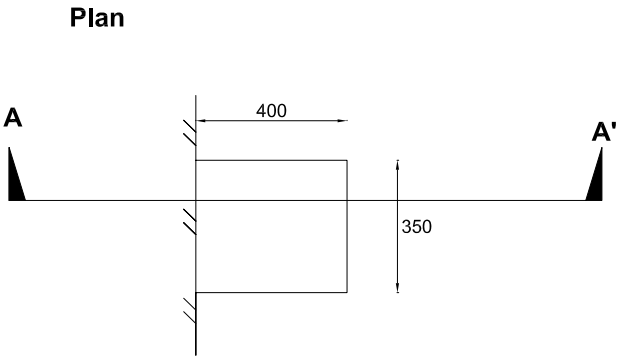
Section A - A'



Notes:
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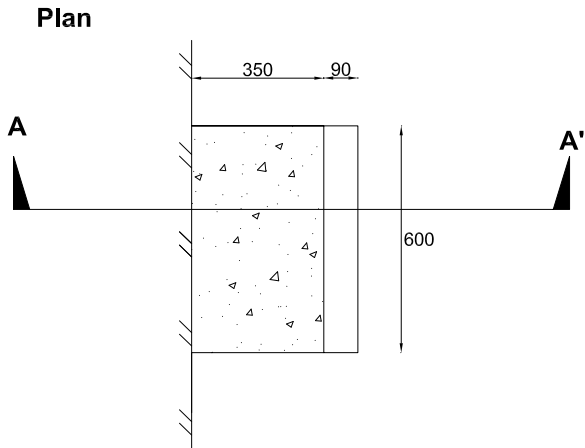
Scale
1 : 20
Logged By
CA

GEA Geotechnical & Environmental Associates	Widbury Barn Widbury Hill Ware Herts SG12 7QE			Site 159-163 Kings Cross Road, London WC1X 9BN		Trial Pit Number TP10	
	Excavation Method	Dimensions	Ground Level (m OD)	Client	Job Number		
	Manual	400 x 350 x 1500 mm		Balcap RE	J16180		
		Location	Date	Engineer	Sheet Number		
			31/08/16 to 01/09/16	Parmarbrook	1 of 1		

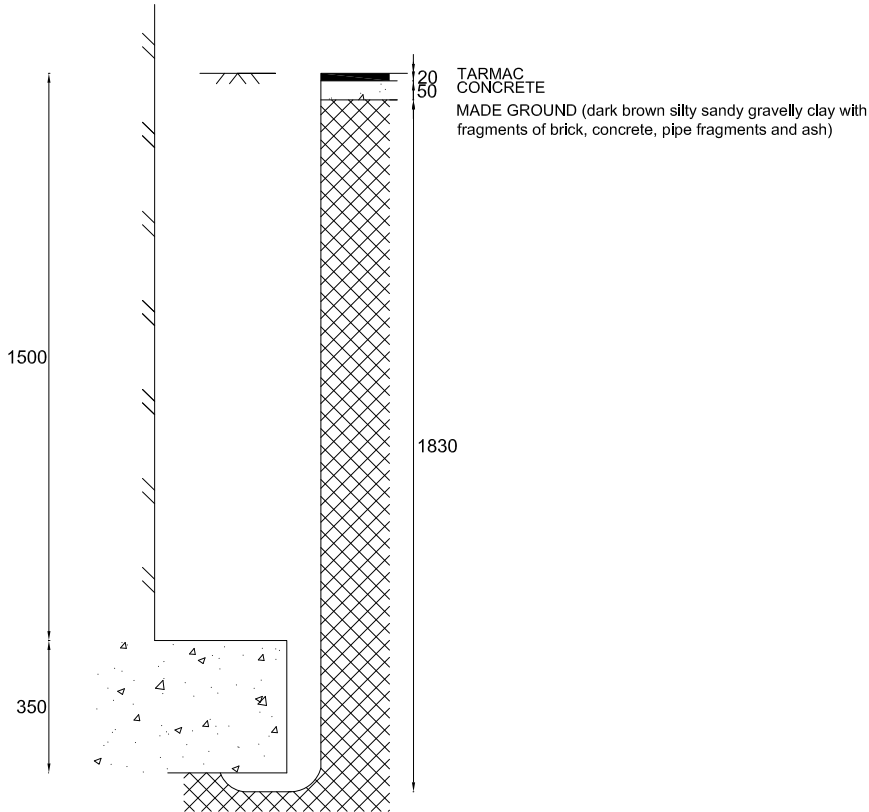


Notes: Groundwater not encountered	Scale 1 : 20
	Logged By CA

GEA Geotechnical & Environmental Associates Widbury Barn Widbury Hill Ware Herts SG12 7QE	Site 159-163 Kings Cross Road, London WC1X 9BN				Trial Pit Number TP10A
	Excavation Method Manual	Dimensions 440 x 600 x 1850 mm	Ground Level (m OD)	Client Balcap RE	
	Location	Date 27/09/2016	Engineer Parmarbrook	Job Number J16180	
				Sheet Number 1 of 1	



Section A - A'



Notes:

Groundwater not encountered

Scale

1 : 20

Logged By

CA



Geotechnical &
Environmental
Associates

Widbury Barn
Widbury Hill
Ware, Herts
SG12 7QE

Standard Penetration Test Results

Site : 159-163 Kings Cross Road, London WC1X 9BN

Client : Balcap RE

Engineer : Parmarbrook

Job Number
J16180

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	1.00	1.15	1.45	CPT	1	1	1	1	2	2	N60=7	
BH1	3.00	3.15	3.45	SPT	1	1	1	2	2	2	N60=8	
BH1	5.00	5.15	5.45	SPT	1	2	2	3	3	3	N60=13	
BH1	8.00	8.15	8.45	SPT	2	2	3	3	4	4	N60=17	
BH1	11.00	11.15	11.45	SPT	2	2	3	4	5	6	N60=21	
BH1	14.00	14.15	14.45	SPT	2	3	4	5	7	8	N60=28	
BH2	1.00	1.15	1.45	SPT	0	0	1	1	0	1	N=3	
BH2	2.00	2.15	2.45	SPT	0	0	0	0	0	1	N=1	
BH2	3.00	3.15	3.45	SPT	0	0	1	0	1	1	N=3	
BH2	4.00	4.15	4.45	SPT	9	4	3	1	0	1	N=5	
BH2	5.00	5.15	5.45	SPT	0	0	0	1	0	1	N=2	
BH2	6.00	6.15	6.45	SPT	3	2	2	3	4	3	N=12	

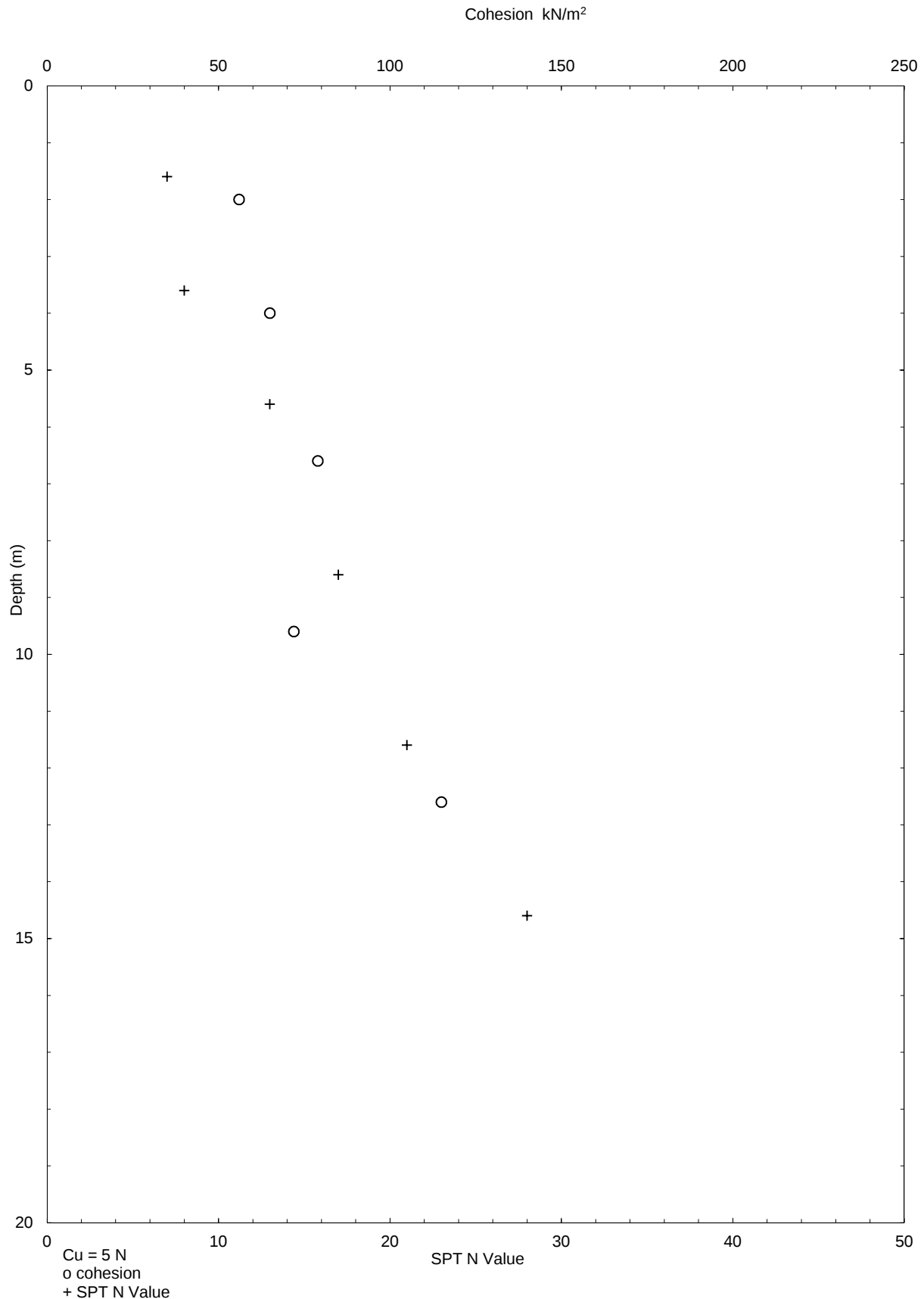
Site Rear of 159-163 King's Cross Road, London WC1X 9BN

Client Balcap RE

Engineer Parmarbrook

Job Number
J16180

Sheet
1 / 1



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	Dry	Cell Pressure	Deviator Stress	Shear Stress	pH	2:1 W/S SO4	W/S Mg	
					(%)	(%)	(%)	(%)	(%)	Mg/m³	Mg/m³	kPa	kPa	kPa		(g/L)	(mg/L)	
BH1	B2	1.00	B												8.7	0.04		
BH1	U5	2.00	U	Firm brown mottled light grey CLAY	32.9	74	25	49	100	1.95	1.47	40	112	56				
BH1	D6	2.45	D	Yellowish brown and light grey mottled CLAY	31.5	70	25	45	100									
BH1	D7	2.70	D												8.3	0.20		
BH1	D8	3.00	D	Yellowish brown silty CLAY	32.6	73	25	48	100									
BH1	U10	4.00	U	Stiff fissured brown mottled blue grey CLAY	31.1	73	26	47	100	1.94	1.48	80	131	65				
BH1	U16	6.50	U	Stiff fissured brownish dark grey CLAY	30.1					1.99	1.53	130	158	79				
BH1	D18	7.50	D												8.2	1.10		
BH1	U21	9.50	U	Very stiff fissured brownish dark grey CLAY	30.7					1.96	1.50	190	144	72				
BH1		12.50-12.95	U	Very stiff fissured dark grey CLAY	26.4					2.00	1.58	250	231	115				

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

Checked and Approved by



J Sturges - Operations Manager
03/10/2016

Project Number:

GEO / 24712

Project Name:

**159 - 163 KINGS CROSS ROAD, LONDON WC1X 9BN
J16180**

GEOLABS®

Quick Undrained Triaxial Compression Test

BH/TP No BH1
 Sample Ref U5
 Depth (m) 2.00
 Sample Type U

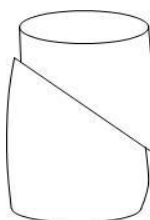
Description:

Firm brown mottled light grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.0
Diameter	(mm)	104.1
Moisture Content	(%)	32.9
Bulk Density	(Mg/m ³)	1.95
Dry Density	(Mg/m ³)	1.47
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.7
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	40
Strain at failure	(%)	10.4
Maximum Deviator Stress	(kPa)	112
Shear Stress Cu	(kPa)	56

Mode of failure



Orientation of the sample	Vertical
Distance from top of tube mm	240

Checked and Approved by:

J Sturges - Operations Manager
03/10/2016

Project Number:

GEO / 24712

Project Name:

**159 - 163 KINGS CROSS ROAD, LONDON WC1X 9BN
J16180**

GEOLABS



Quick Undrained Triaxial Compression Test

BH/TP No BH1
 Sample Ref U10
 Depth (m) 4.00
 Sample Type U

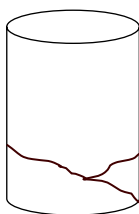
Description:

Stiff fissured brown mottled blue grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.5
Diameter	(mm)	104.2
Moisture Content	(%)	31.1
Bulk Density	(Mg/m ³)	1.94
Dry Density	(Mg/m ³)	1.48
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.4
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	80
Strain at failure	(%)	4.9
Maximum Deviator Stress	(kPa)	131
Shear Stress Cu	(kPa)	65

Mode of failure



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

Checked and Approved by:

J Sturges - Operations Manager
 03/10/2016

Project Number:

GEO / 24712

Project Name:

**159 - 163 KINGS CROSS ROAD, LONDON WC1X 9BN
 J16180**



Quick Undrained Triaxial Compression Test

BH/TP No BH1
 Sample Ref U16
 Depth (m) 6.50
 Sample Type U

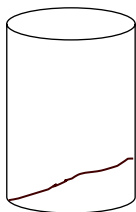
Description:

Stiff fissured brownish dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.5
Diameter	(mm)	104.4
Moisture Content	(%)	30.1
Bulk Density	(Mg/m ³)	1.99
Dry Density	(Mg/m ³)	1.53
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.3
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	130
Strain at failure	(%)	3.2
Maximum Deviator Stress	(kPa)	158
Shear Stress Cu	(kPa)	79

Mode of failure



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

Checked and Approved by:

J Sturges - Operations Manager
03/10/2016

Project Number:

GEO / 24712

Project Name:

**159 - 163 KINGS CROSS ROAD, LONDON WC1X 9BN
J16180**

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Quick Undrained Triaxial Compression Test

BH/TP No BH1
 Sample Ref U21
 Depth (m) 9.50
 Sample Type U

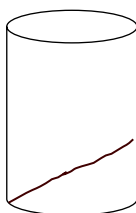
Description:

Very stiff fissured brownish dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.0
Diameter	(mm)	104.9
Moisture Content	(%)	30.7
Bulk Density	(Mg/m ³)	1.96
Dry Density	(Mg/m ³)	1.50
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.2
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	190
Strain at failure	(%)	2.2
Maximum Deviator Stress	(kPa)	144
Shear Stress Cu	(kPa)	72

Mode of failure



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

Checked and Approved by:

J Sturges - Operations Manager
03/10/2016

Project Number:

GEO / 24712

Project Name:

**159 - 163 KINGS CROSS ROAD, LONDON WC1X 9BN
J16180**

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Quick Undrained Triaxial Compression Test

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

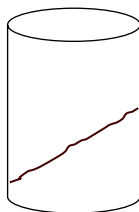
Description:

Very stiff fissured dark grey CLAY

Specimen Details

Specimen conditions		Undisturbed
Length	(mm)	202.5
Diameter	(mm)	104.5
Moisture Content	(%)	26.4
Bulk Density	(Mg/m ³)	2.00
Dry Density	(Mg/m ³)	1.59
Test Details		
Latex membrane thickness	(mm)	0.3
Membrane correction	(kPa)	0.2
Axial displacement rate	(%/min)	2.0
Cell pressure	(kPa)	250
Strain at failure	(%)	2.5
Maximum Deviator Stress	(kPa)	231
Shear Stress Cu	(kPa)	115

Mode of failure



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

Checked and Approved by:

J Sturges - Operations Manager
03/10/2016

Project Number:

GEO / 24712

Project Name:

**159 - 163 KINGS CROSS ROAD, LONDON WC1X 9BN
J16180**

GEOLABS



**Caroline Anderson**

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

Analytical Report Number : 16-27495

Project / Site name:	159-163 King's Cross Road	Samples received on:	12/09/2016
Your job number:	J16180	Samples instructed on:	12/09/2016
Your order number:	J16138	Analysis completed by:	19/09/2016
Report Issue Number:	1	Report issued on:	19/09/2016
Samples Analysed:	4 soil samples		

Signed:

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

Signed:

Emma Winter
Assistant 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

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