Appendix 1 to Matter 4: Reply to Council's Response to Arboricultural Issues [BAS 05/14]

1. The Council's main contention in BAS 05/14 is that the gardens above basements are at risk of being containerised leading to potential rooting or drainage constraints. Notwithstanding that this perceived problem could be overcome by design we provide evidence below that large, mature trees can be successfully grown in restricted conditions.
2. We had shown this condition previously, see Basement Force submission responses Ref 14, page 10, Fig 8 but this was ignored. We include this picture again below but with estimated dimension added this time.

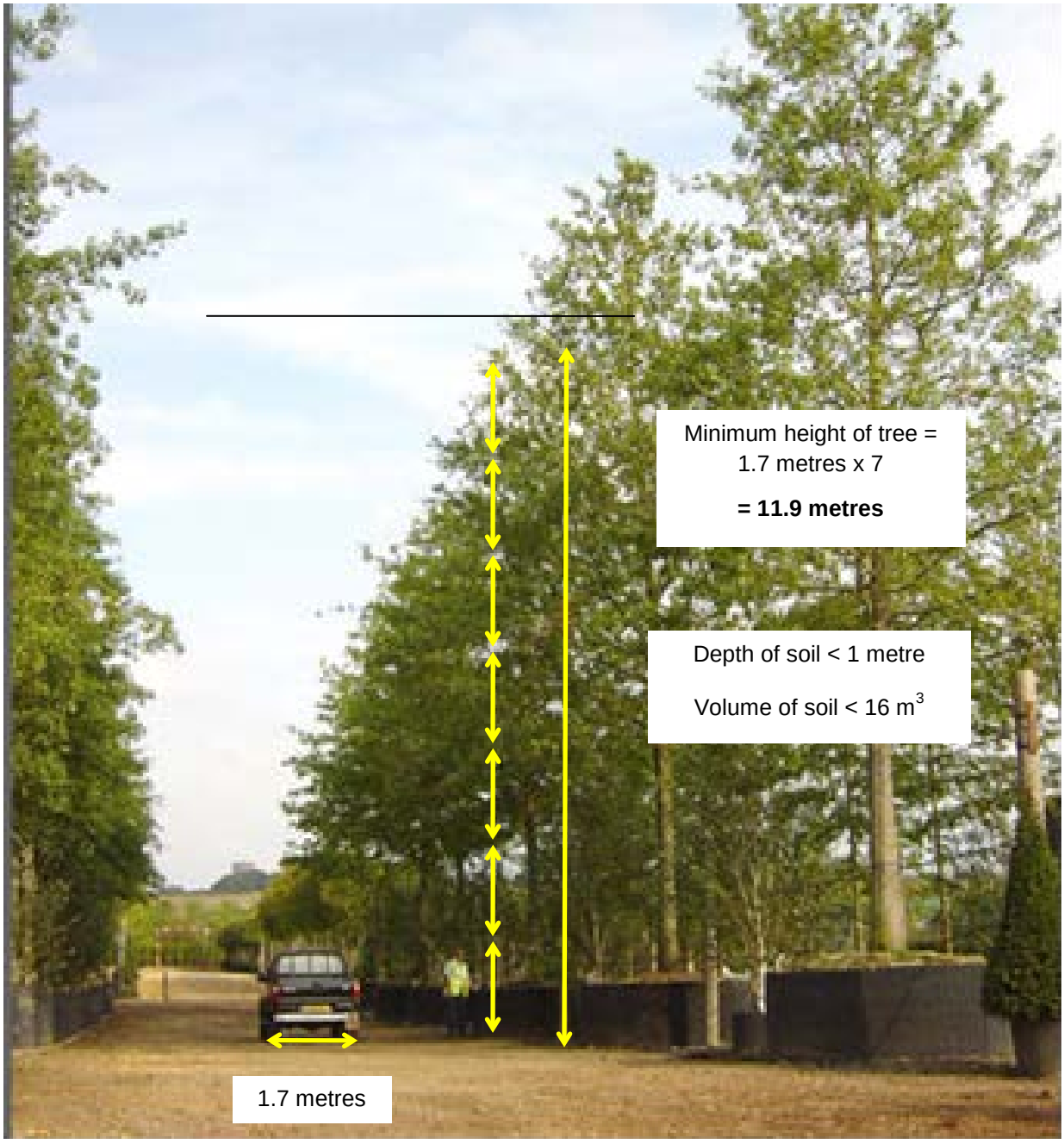

Fig 8: Mature tree growth in planters

3. We also include two further examples of large trees successfully grown in limited soil volumes. These trees have been grown in the restricted soil volumes shown in these pictures. Our expert witnesses will be able to confirm that trees of this size will be expected to grow to full size and maturity in these restricted rooting conditions given the correct water, nutrients, oxygen.

Quercus palustris 140-160cm girth

4. The volume of soil in a garden on top of basement of any area will be considerably greater than shown above.

5. The Council also contends that no evidence had been provided in our submission that trees of any size will grow on top of a basement. The Council has ignored Table 1 on page 6 of our submission Ref 14 which gives the area of a garden over a basement (5 m x 9.6 m) that will support large tree growth. This area is based on the required soil volumes given in the study "Trees in the Urban Landscape: Site Assessment, Design and Installation. Trowbridge J & Bassuk N (2004).

6. In paragraph 29 the Council states that they would age the tree at Bedford Gardens at nearer 15 years old. The garden designer has confirmed that the tree is about 40 years old, see e mail below.

From: Luciano Giubbilei [mailto:garden@lucianogiubbilei.com]
Sent: 02 September 2014 16:19
To: Simon Haslam
Subject: Re: Age and any other information on the tree on the basement roof at Bedford Gardens

Simon

The tree is about 40 years old.

Luciano

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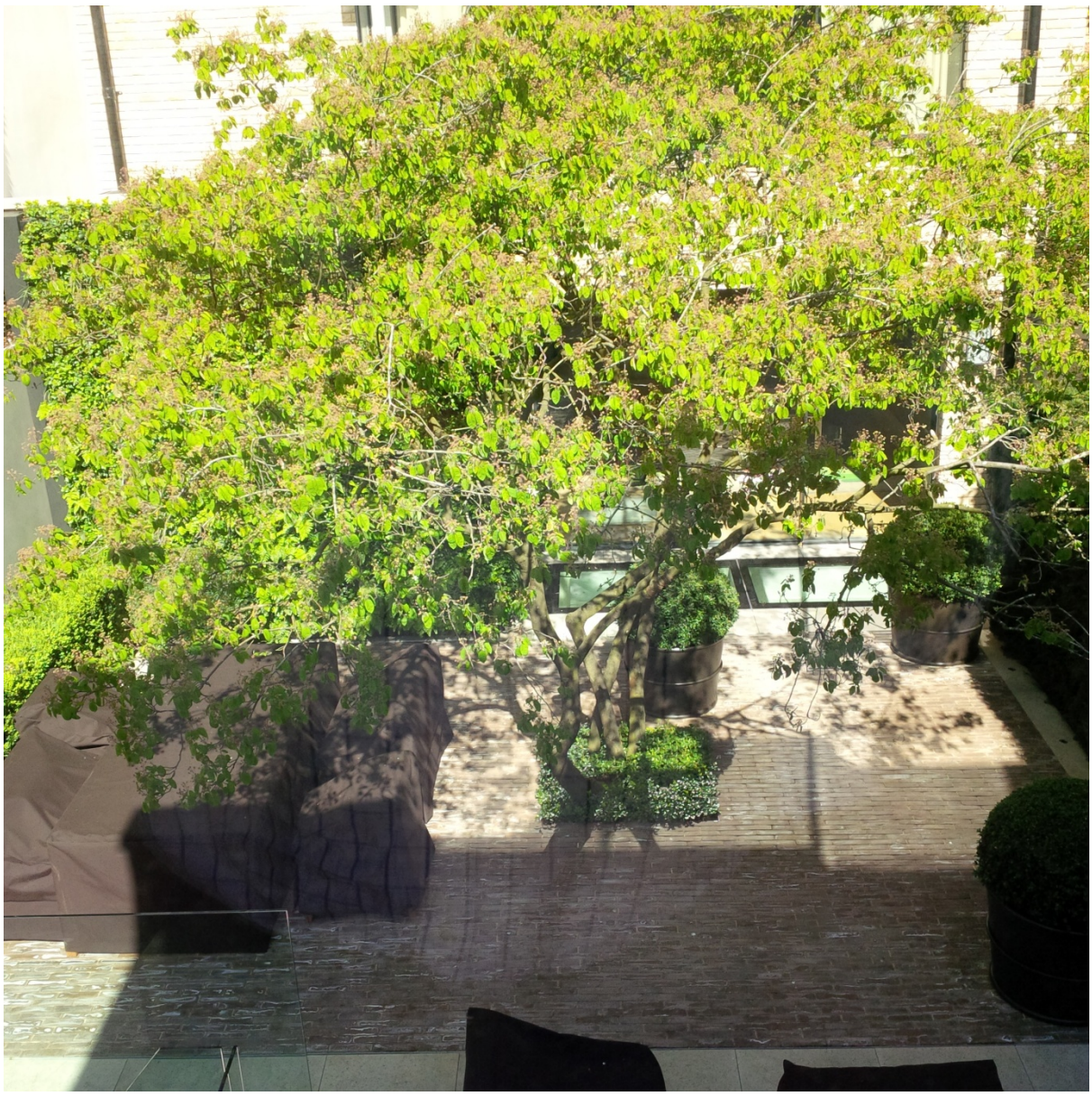
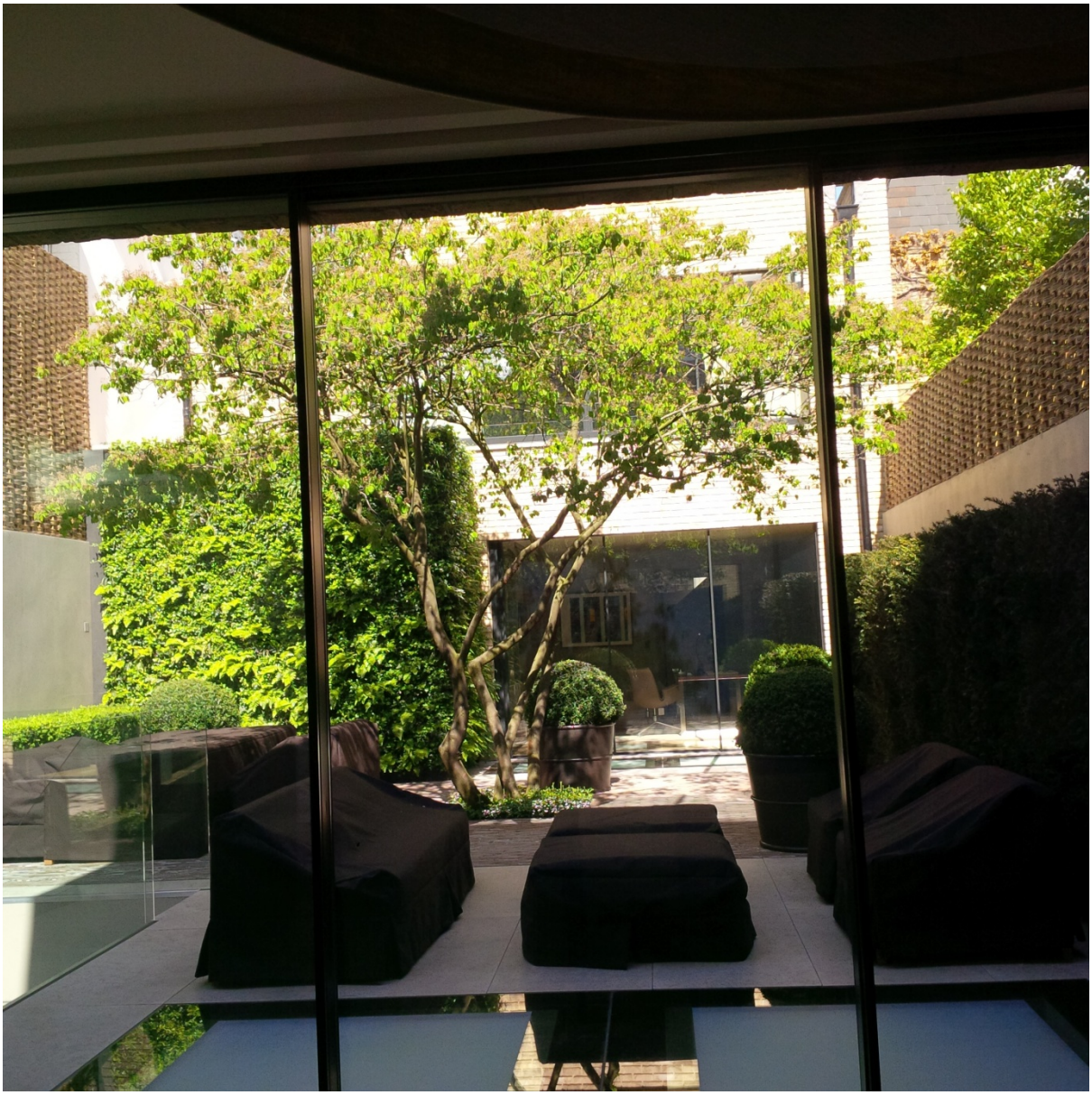
7. The tree at Bedford Garden has had nine months to establish since planting and can be seen in the pictures below to be healthy and establishing well. The pictures were taken in July 2014.



Bedford Gardens from first floor facing to rear



Bedford Gardens from ground floor facing to rear

8. The Council has dismissed the evidence provided on the poor quality of soils in RBKC, Basement Force response Ref 3, which provides 11 boreholes from across the borough all showing poor soil conditions. The Council has provided no evidence to show good soil conditions but has instead relied on historical anecdote of agricultural conditions from the 17th to 19th century.

9. The RBKC planning website has tens, if not hundreds, of boreholes from across the borough - all basement planning applications have had to provide a site specific borehole for several years. During our previous submission preparation we had searched to find examples of good quality, deep soils in order to show balance and to understand better any variation of the soils across the borough however we were unable to find any boreholes showing good quality soils.

10. We have demonstrated that the soils in the borough are often poor quality. Basement development in gardens therefore allows the Council, by planning condition, to improve the long term medium for planting of trees and other plants.

11. The Council states in paragraph 19 that we have made an assumption that the soil type at Egerton Crescent is poor and is conducive to deep rooting without us providing evidence as support. We now provide a trial pit and a borehole from 46 Egerton Crescent below that show that the soil is poor quality and that are assumption was correct.

HERTS & ESSEX SITE INVESTIGATIONS

The Old Post Office, Wellpond Green, Standon, Ware, SG11 1NJ
Telephone: Ware (01920) 822233
Fax: Ware (01920) 822200

Appendix No. 2
Sheet No. 6
Job No. 8323
Date Jan 2008

47 Egerton Cresent, London, SW3

Window Sampler Two

DEPTH BELOW G.L.	THICKNESS OF STRATA	DESCRIPTION OF STRATA	LEGEND	Installation installed	NO.	TYPE	DEPTH	WATER LEVELS	CASING LEVELS
0.10	0.10	Concrete		NONE INSTALLED	1	U	G.L–0.50m	DRY	
0.70	0.60	Loose light brown silty gravely fine to medium sand FILL. Gravel consists of fine to coarse angular brick, concrete, flint and tile. Some cobble size fragments of brick			2	U	0.50–1.00m		
2.50		Medium dense becoming dense orange brown gravely fine to coarse SAND. Gravel consists of fine to coarse sub angular flint			3	U	1.00–2.00m N=23		
					4	U	2.00–2.50m N=50+		
		Window Sampler closed at 2.50m					2.50m N=50+		

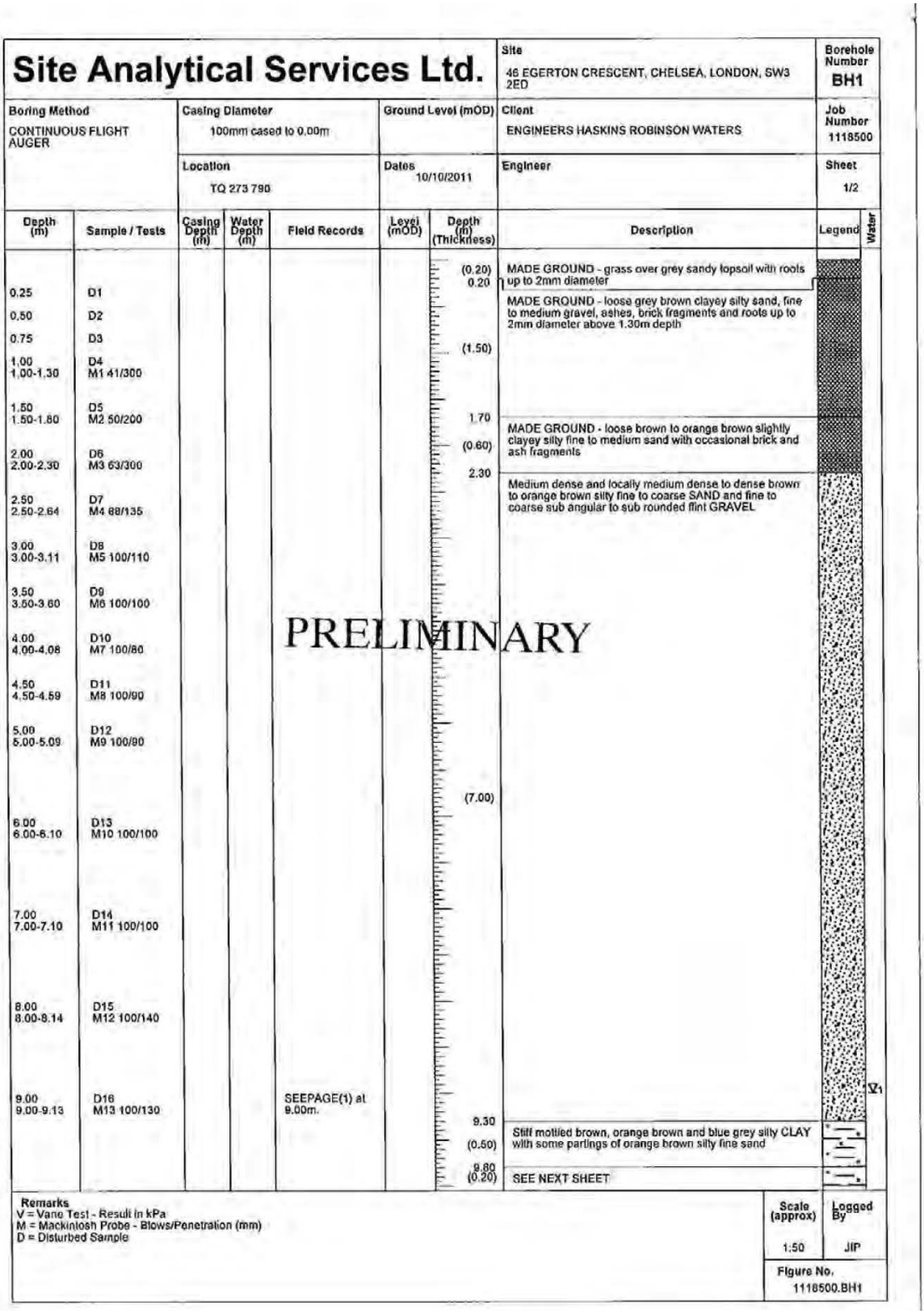
SCALE: 1:20

B BULK SAMPLE
D DISTURBED SAMPLE
U UNDISTURBED SAMPLE
V SHEAR VANE TEST (Kn/m²)

WATER STRUCK
WATER STANDING
W WATER SAMPLE
N SPT 'N' VALUE

3047

Trial pit – showing no soil present. Ground is 700mm of loose light brown silty gravely fine to medium sand fill. Gravel of coarse angular brick, concrete, flint and tile. Some cobble size fragments of brick.



Site Analytical Services Ltd.

Site: 46 EGERTON CRESCENT, CHELSEA, LONDON, SW3 2ED

Borehole Number: BH1

Boring Method	Casing Diameter	Ground Level (mOD)	Client	Job Number
CONTINUOUS FLIGHT AUGER	100mm cased to 0.00m		ENGINEERS HASKINS ROBINSON WATERS	1118500
	Location TQ 273 790	**Dates** 10/10/2011	**Engineer**	**Sheet** 1/2

Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
						(0.20) 0.20	MADE GROUND - grass over grey sandy topsoil with roots up to 2mm diameter		
0.25	D1						MADE GROUND - loose grey brown clayey silty sand, fine to medium gravel, ashes, brick fragments and roots up to 2mm diameter above 1.30m depth		
0.50	D2								
0.75	D3					(1.50)			
1.00 1.00-1.30	D4 M1 41/300								
1.50 1.50-1.80	D5 M2 50/200					1.70			
2.00 2.00-2.30	D6 M3 63/300					(0.60)	MADE GROUND - loose brown to orange brown slightly clayey silty fine to medium sand with occasional brick and ash fragments		
2.50 2.50-2.64	D7 M4 88/135					2.30	Medium dense and locally medium dense to dense brown to orange brown silty fine to coarse SAND and fine to coarse sub angular to sub rounded flint GRAVEL		
3.00 3.00-3.11	D8 M5 100/110								
3.50 3.50-3.60	D9 M6 100/100								
4.00 4.00-4.08	D10 M7 100/80								
4.50 4.50-4.59	D11 M8 100/90								
5.00 5.00-5.09	D12 M9 100/90								
						(7.00)			
6.00 6.00-6.10	D13 M10 100/100								
7.00 7.00-7.10	D14 M11 100/100								
8.00 8.00-8.14	D15 M12 100/140								
9.00 9.00-9.13	D16 M13 100/130			SEEPAGE(1) at 9.00m.					▽1
						9.30			
						(0.50)	Stiff mottled brown, orange brown and blue grey silty CLAY with some partings of orange brown silty fine sand		
						9.80 (0.20)	SEE NEXT SHEET		

PRELIMINARY

Remarks
V = Vane Test - Result in kPa
M = Mackintosh Probe - Blows/Penetration (mm)
D = Disturbed Sample

Scale (approx): 1:50

Logged By: JIP

Figure No. 1118500.BH1

Borehole in rear garden – 200mm of grass over grey sandy topsoil with roots up to 2mm in diameter. Underlain by 1.5 metres of made ground over sands and gravels, likely to be Kempton Park Gravels.

12. The Council's paragraph 41 states that our input to the Basement Working Group Meeting 1 on Thu 14 Feb 2013 was incorrect when we said that clay is impermeable. The Council makes this assertion based on a supposed link between clay permeability and subsidence being associated with water absorption in clays. There is no link between the two, clay is impermeable.

13. The Council's own technical experts Alan Baxter Associates state this in the RBKC Residential Basement Study Report, December 2012, Alan Baxter Associates, Section 6.0 Groundwater, Paragraph 6.1, line three:.

    > *"However, because of the **impermeable London Clay** which lies beneath the gravel terraces there is a local perched water table which is fed by precipitation within the Thames Valley."* [Emphasis added]

14. Our view on surface water drainage is supported by the Alan Baxter report, reports by Arup for us [Basement Force response, Ref 15] and the Council's RBKC Arup Geotechnics January 2008 study.

- END OF APPENDIX -