

FACTUAL REPORT

OF

INVESTIGATION

AT:- 4, Keats Close
London

ON:- 26 October 2009

FOR:-
c/o Norwich Union
Cunningham Lindsey - St Albans

REF:- 3336947-R Posner

JOB NO:- 74680

REPORT ISSUED:- 15/11/2009

SPECIALIST CONTRACTING DIVISION

CET SAFEHOUSE LIMITED

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Investigation Layout Plan

Sheet: 1 of 1

Job No: 74680E

Date: 05/10/09
& 26/10/09

Site: 4 Keats Close, London
NW3

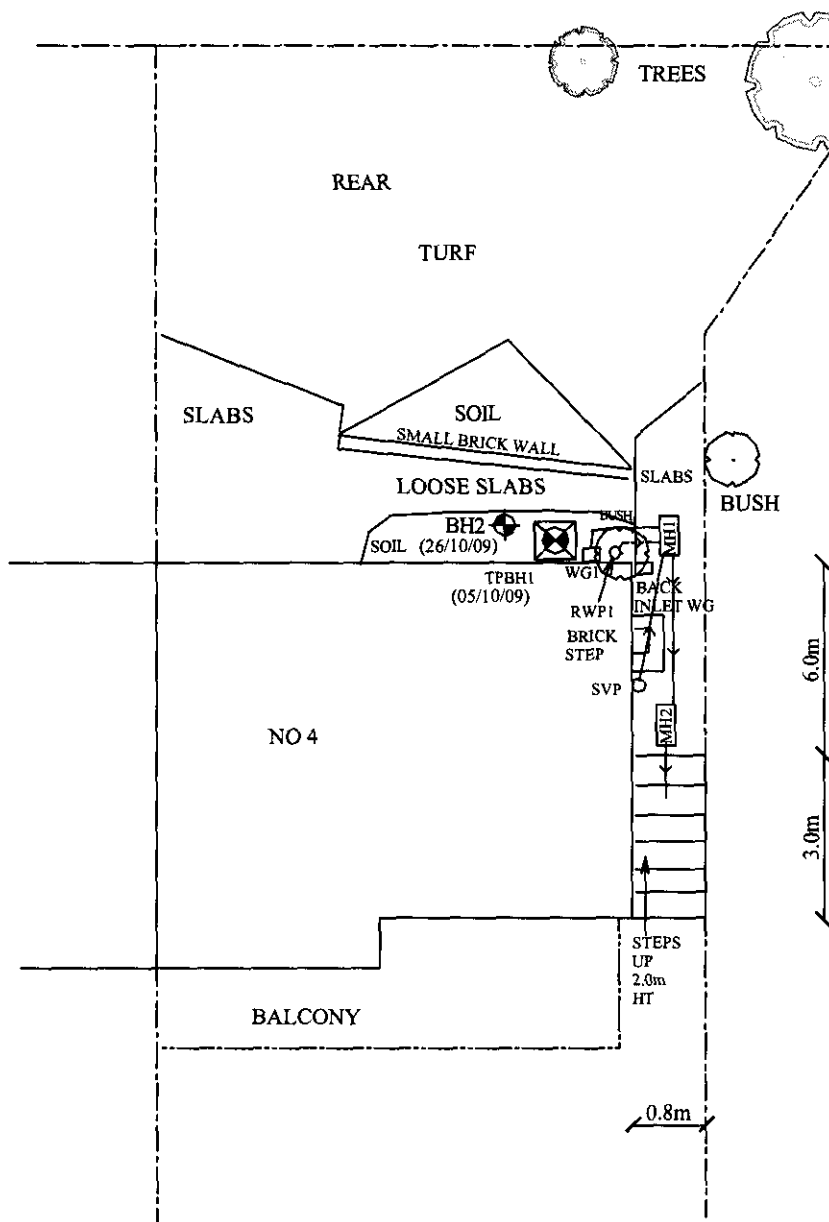
DG / IC
(SI)

PB
(Checked)

VW
(Drawn)

Weather: Dry

Work carried
out for: Cunningham Lindsey



ON SITE TREE IDENTIFICATION FOR GUIDANCE ONLY. NOT AUTHENTICATED.

Remarks:

Key:

Combined Gully	RWWG	Surface Water Drain	---
Manhole	MH	Foul Water Drain	---
Rain Water Pipe	RWP	Tree / Bush	(approx. ht in m)
Rain Water Gully	RWG	Trial Pit	
Soil Vent Pipe	SVP	Borehole	
Waste Gully	WG		
Waste Pipe	WP		

Scale: N.T.S.

<h2 style="margin: 0;">Trial Pit No: 1</h2>		Sheet: 1 of 1 Job No: 74680E Date: 5.10.09		Site: 4 Keats Close, London NW3 Work carried out for: Cunningham Lindsey	
Excavation Method: Hand Tools		Drawn by: JT			
Weather: Dry		Ground Level mOD:			

The diagram shows a cross-section of an excavation. On the left, a brick wall with a DPC (Damp Proof Course) is shown. Below the wall is a concrete foundation. The pit is 800 x 500 mm. The soil profile on the right is divided into layers with the following descriptions and dimensions:

- MADE GROUND:** loose dark brown, sandy, silty topsoil. Several roots to 20mm Ø. (150 mm)
- MADE GROUND:** medium compact, dark brown, clayey, sandy silt with occasional brick rubble. Several roots to 10mm Ø. (200 mm)
- CLAY:** Very stiff, mid brown, mottled orange, grey veined, silty CLAY with partings of orange and brown silt and fine sand and several carbon flecks. Occasional roots to 4mm Ø. (525 mm)
- CONCRETE FOUNDATION:** (200 mm)

Dimensions on the left side of the pit: 150, 200, 500, 75, 75, 75, 200.

Labels in the diagram include: DPC, BRICK, CONCRETE FOUNDATION, DV 140+, 140+, 50, 50, 50, 800 x 500, Ground Level, and various soil descriptions.

FOR STRATA BELOW 1125mm SEE BH LOG 1

Remarks: All measurements in millimetres.			Key: <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">D Small disturbed sample</td> <td style="width: 33%;">J Jar sample</td> </tr> <tr> <td>B Bulk disturbed sample</td> <td>V Pilcon Vane (kPa)</td> </tr> <tr> <td>W Water sample</td> <td>M Mackintosh probe</td> </tr> <tr> <td colspan="2">TDTD Too dense to drive</td> </tr> </table>			D Small disturbed sample	J Jar sample	B Bulk disturbed sample	V Pilcon Vane (kPa)	W Water sample	M Mackintosh probe	TDTD Too dense to drive	
D Small disturbed sample	J Jar sample												
B Bulk disturbed sample	V Pilcon Vane (kPa)												
W Water sample	M Mackintosh probe												
TDTD Too dense to drive													
Logged: DG	Checked: PS	Approved:	Scale: N.T.S.										

Borehole No: 1		Sheet: 1 of 1		Site: 4 Keats Close, London NW3							
Boring Method: Hand Auger		Job No: 74680E								Date: 05/10/2009	
Diameter: 75mm	Coordinates:	Ground Level mOD:								Work Carried out for: Cunningham Lindsey	
Depth (m)	Description of Strata	Thick-ness (m)	Legend	Sample	Test Type	Result	Depth (m)	Field Records/Comments	Depth to water (m)		
1.125	As Trial Pit 1	1.125									
1.30	Very stiff, mid brown, mottled orange, grey veined, silty CLAY with partings of orange & brown silt & fine sand & carbon flecks.	0.175	—,x								
1.90	Very stiff, fragmented, mid brown, mottled orange, grey veined, silty CLAY with partings of orange and brown silt and fine sand.	0.60	x —	D	V	140+ 140+	1.50	Occasional roots to 2mm diameter to 1.5m			
			—					Occasional hair and fibrous roots from 1.5m to 2.0m			
			x								
			—	D	V	90 92	2.00	No roots observed below 2.0m			
			x								
			—								
			—	D	V	90 94	2.50				
			x								
3.00			—								
			—	D	V	100 102	3.00				
	Borehole ends at 3.0m										
Remarks: Borehole dry and open on completion.					Key: T.D.T.D. Too Dense to Drive D Small disturbed sample J Jar sample B Bulk disturbed sample V Pilcon Vane (kPa) W Water sample M Mackintosh Probe						
Logged: DG	Checked: PS	Drawn by: JT			Scale: NTS		Weather:				

Borehole No: 2		Sheet: 1 of 1		Site: 4 Keats Close, London NW3							
Boring Method: Hand Auger		Job No: 74680E								Date: 26/10/2009	
Diameter: 75mm	Coordinates:	Ground Level mOD:								Work Carried out for: Cunningham Lindsey	
Depth (m)	Description of Strata	Thick-ness (m)	Legend	Sample	Type	Test Result	Depth (m)	Field Records/Comments	Depth to water (m)		
G.L.	MADE GROUND: Loose, dark brown, sandy, silty topsoil.	0.50									
0.50	MADE GROUND: Medium compact, dark brown, clayey, sandy silt with occasional brick & clinker pieces.	0.30									
0.80	Stiff, mid brown, grey veined, silty CLAY with partings of orange & brown silt & fine sand, occasional claystone nodules & crystals.	0.80	—x	D	V	76 80	1.00	Roots to 2mm diameter to 2m			
1.60			x—	D	V	120+ 120+	1.50				
			—x	D	V	100 98	2.00	No roots observed below 2m			
			x—	D	V	90 86	2.50				
			—x	D	V	110 112	3.00				
	Stiff, moist, as above.	3.40	x—	D	V	114 116	3.50				
			—x	D	V	120+ 120+	4.00				
			x—	D	V	120+ 120+	4.50				
5.00			—x	D	V	120+ 120+	5.00				
	Borehole ends at 5m										
Remarks: Borehole moist at base and open on completion Water bearing claystone at 1.6m				Key: T.D.T.D. Too Dense to Drive D Small disturbed sample J Jar sample B Bulk disturbed sample V Pilcon Vane (kPa) W Water sample M Mackintosh Probe							
Logged: IC	Checked: PS	Typed by: DVC		Scale: NTS		Weather: DRY					

Our Ref : 74680

Location : 4, Keats Close

Work carried out for: Cunningham Lindsey - St Albans

Laboratory Testing Results

Date Sampled: 26/10/2009

Date Received : 27/10/2009

Date Tested : 02/11/2009

Date of Report : 12/11/2009

Sample Ref		Type	Moisture Content (%) [1]	Soil Fraction > 0.425mm (%) [2]	Liquid Limit (%) [3]	Plastic Limit (%) [4]	Plasticity Index (%) [5]	Liquidity Index [5]	Modified Plasticity Index (%) [6]	Soil Class [7]	Filter Paper Contact Time (h) [8]	Soil Sample Suction (kPa)	In situ Shear Vane Strength (kPa) [9]	Organic Content (%) [10]	pH Value [11]	Sulphate Content (g/l)		Class [14]
TP/BH No	Depth (m)															SO ₃ [12]	SO ₄ [13]	
BH2	1.0	D	29	<5	74	24	50	0.09	50	CV	168	257	78					
	1.5	D	29	<5									> 120					
	2.0	D	31	<5	74	25	49	0.11	49	CV	168	167	99					
	2.5	D	33	<5									88					
	3.0	D	33	<5	76	28	47	0.09	47	CV	168	187	111					
	3.5	D	31	<5									115					
	4.0	D	27	<5							168	259	> 120					
	4.5	D	29	<5									> 120					
	5.0	D	30	<5							168	249	> 120					

Test Methods / Notes

[1] BS 1377 : Part 2 : 1990, Test No 3.2

[2] Estimated if <5%, otherwise measured

[3] BS 1377 : Part 2 : 1990, Test No 4.4

[4] BS 1377 : Part 2 : 1990, Test No 5.3

[5] BS 1377 : Part 2 : 1990, Test No 5.4

[6] BRE Digest 240 : 1993

[7] BS 5930 : 1981 : Figure 31 - Plasticity Chart for the classification of fine soils

[8] In-house method S9a adapted from BRE IP 4/93

[9] Values of shear strength were determined in situ by CET Safehouse using

a Picon hand vane or Geonor vane (GV).

[10] BS 1377 : Part 3 : 1990, Test No 4

[11] BS 1377 : Part 3 : 1990, Test No 9

[12] BS 1377 : Part 3 : 1990, Test No 5.6

[13] $SO_4 = 1.2 \times SO_3$

[14] BRE Special Digest One (Concrete in Aggressive Ground) 2005

Note that if the SO_4 content falls into the DS-4 or DS-5 class, it would be prudent to consider the sample as falling into the DS-4m or DS-5m class respectively unless water soluble magnesium testing is undertaken to prove otherwise

Key

D Disturbed sample (small)
 B Disturbed sample (bulk)
 U Undisturbed sample
 W Groundwater sample
 ENP Essentially Non-Plastic by inspection
 U/S Underside of Foundation

Our Ref : 74680

Location : 4, Keats Close

Work carried out for: Cunningham Lindsey - St Albans

Moisture Content and Suction Profiles

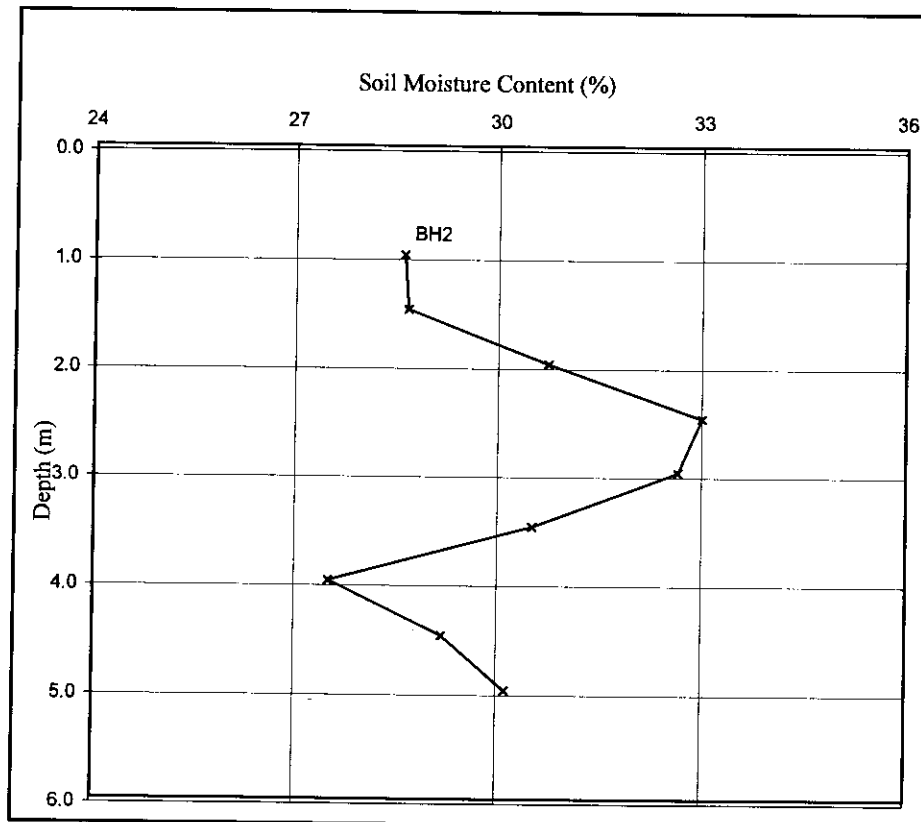
Note : Unless specifically noted the profiles have not been related to a site datum.

Date Sampled : 26/10/2009

Date Received : 27/10/2009

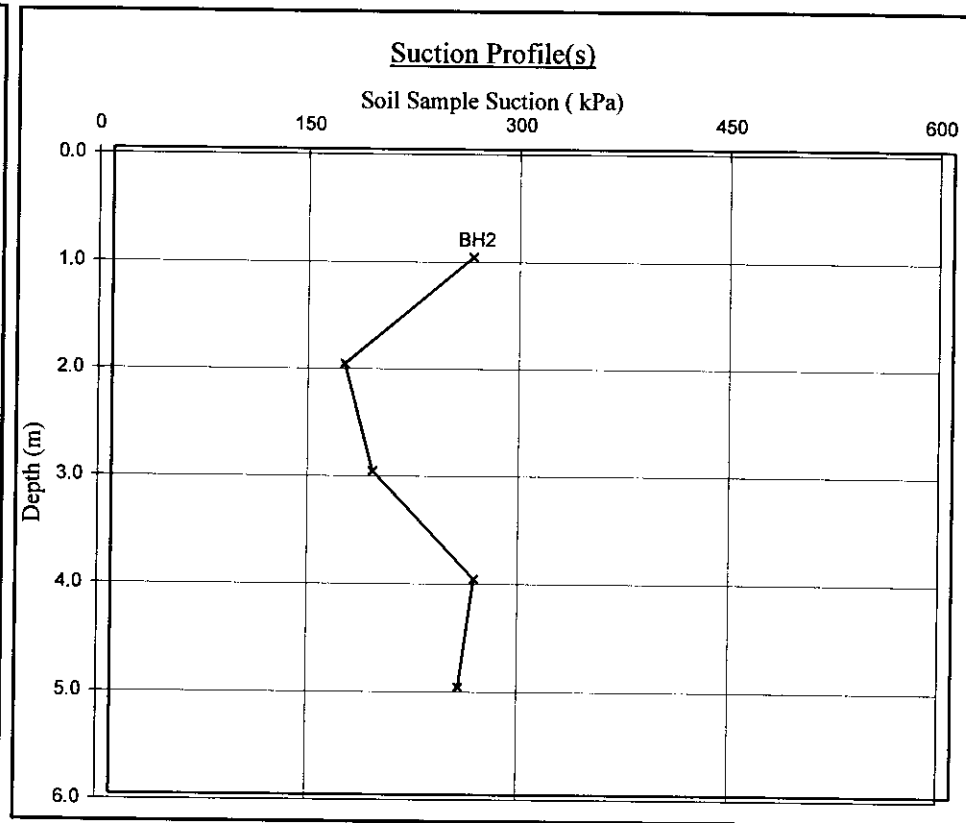
Date Tested : 02/11/2009

Date of Report : 12/11/2009



Note

If plotted, 0.4 LL and PL+2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clays) at shallow depths.



Note

When shown, the theoretical equilibrium suction profiles are based on conventional assumptions associated with London Clay (and similarly overconsolidated clays) at shallow depths. Note that the sample disturbance component is dependant on the method of sampling and any subsequent recompaction. The above plots show this to be 100kPa which is the value suggested by the BRE on the basis of their limited number of tests on recompacted samples. This may or may not be appropriate in this instance and judgement should be exercised.

Our Ref: 74680

Location: 4, Keats Close

Work carried out for: Cunningham Lindsey - St Albans

Moisture Content and Shear Strength Profiles

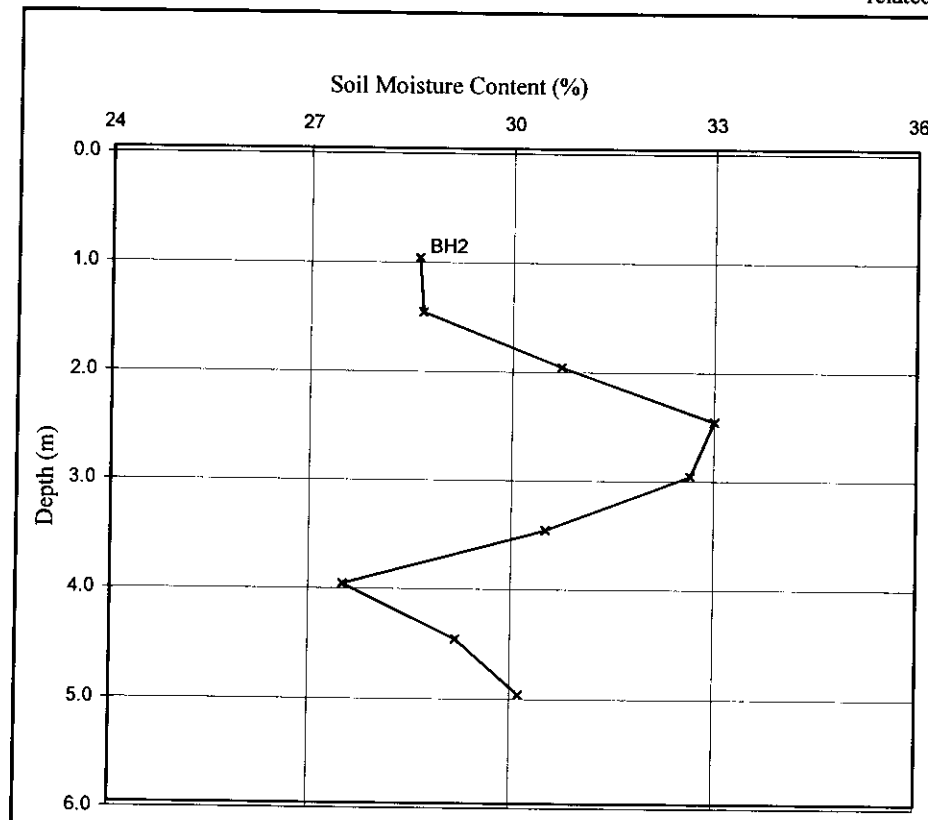
Note : Unless specifically noted the profiles have not been related to a site datum.

Date Sampled: 26/10/2009

Date Received: 27/10/2009

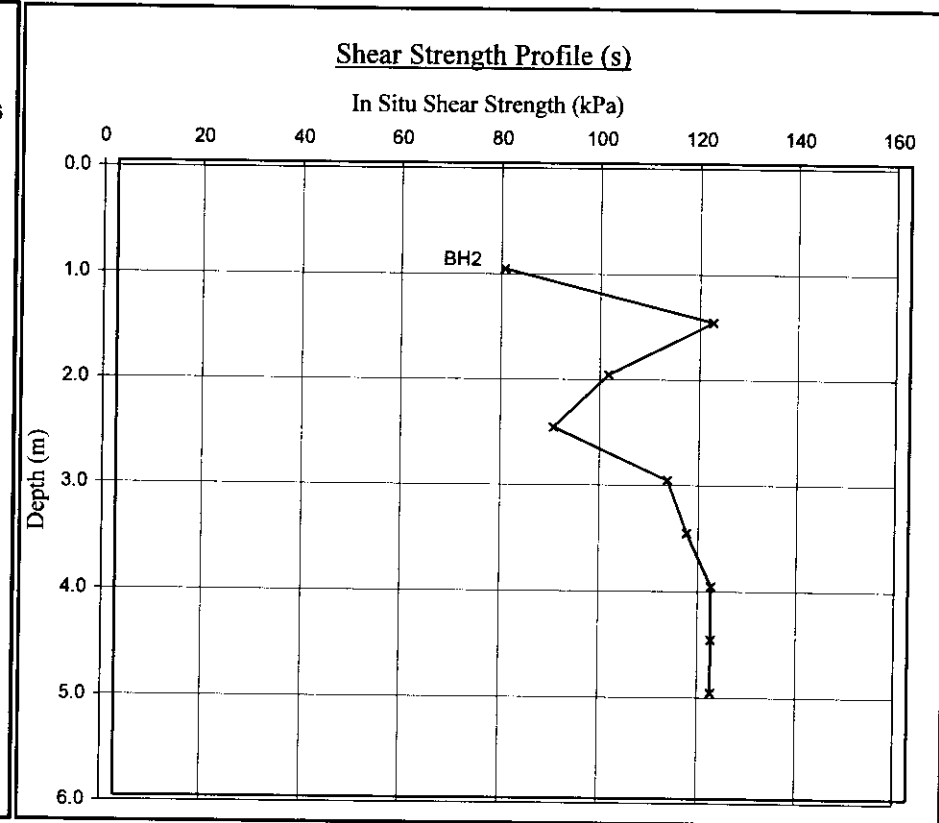
Date Tested: 02/11/2009

Date of Report: 12/11/2009



Note

If plotted, 0.4 LL and PL+2 (after Driscoll, 1983) should only be applied to London Clay (and similarly overconsolidated clays) at shallow depths.



Note

Unless otherwise stated, values of Shear Strength were determined in situ by CET Safehouse using a Pilcon Hand Vane the calibration of which is limited to a maximum reading of 150 kPa.

Tree Root Identification Ltd

Sheet: 1 of 1

Job No: 74680
Date: 08/10/2009
Order No: 273564/E3
Our Ref: CET081009

Site: 4 Keats Close,
London, NW3 2RP.
Work carried
out for: Cunningham Lindsey.

Certificate of Analysis

The following work was commissioned by CET Safehouse Limited on behalf of their client. Root samples were obtained in sealed packets from the above site with no reference given as to the types of tree or shrub from which they may have originated.

The results were as follows -

<u>Trial pit/ Borehole number</u>	<u>Root diameter (mm)</u>	<u>Tree, shrub or climber from which root originates</u>	<u>Result of starch test#</u>
TP1 (underside)	3.0	<u>Fraxinus</u> (ash) (4 roots)	positive
BH1 (depth: 1125 to 1500mm)	1.0	<u>Fraxinus</u> (ash) (3 roots)	positive

The presence of starch indicates that the root was alive in the recent past.

Ronald MacLeod

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Principal Scientist

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