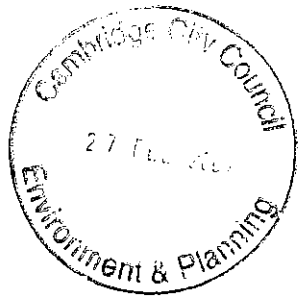
Cambridge City Council
Department of Environment and Planning
The Guildhall
Cambridge
CB2 3QJ



25/02/2009

Our ref: [redacted]
Contact: [redacted]
Direct Dial: [redacted]

Dear Sirs,

Ref: **Subsidence Damage due to Tree Root Nuisance**
Loss at: [redacted] **Cambridge,** [redacted]
Insured: [redacted]

Further to your correspondence in 2005 (Copy enclosed) we can confirm that the subsidence problems at the above property are continuing.

Insurers have now asked Infront Innovation to handle the engineering aspect and we enclose results of the investigations that they have completed and the latest level monitoring readings.

In view of the evidence can you please confirm whether you will kindly arrange to complete the vegetation works recommended in our original Arboricultural Report (copy enclosed).

As you will be aware damage caused by tree roots does constitute a nuisance in law, and action can be taken to recover costs and damages if that nuisance is not abated. Our Principals' reserve the right to seek recovery of costs associated with the claim and should vegetation management not be implemented promptly then these costs are likely to escalate significantly. Please take this letter as the first notification of your possible implication in the damage and your first opportunity to abate any nuisance.

We look forward to hearing from you.

Yours faithfully

Mitigation Department
Marishal Thompson & Co

Marishal Thompson Group
Subsidence Mitigation Unit
Bank Chambers, 29 High Street
Ewell, Epsom, Surrey, KT17 1SB
t 08702 416180 f 08702 414339
office@marishalthompson.co.uk
www.marishalthompson.co.uk

For ***Marishal Thompson & Co.*** Internal Use Only
Not for distribution

Miscellaneous Query

Date	26/01/2005	Reply By	02/02/2005	Case Ref	[redacted]	Misc. Ref	[redacted]
Insured	[redacted]						
Address	[redacted]						
Client	Crawford & Company	Contact	Karrina Hogan	Office	30 St Pauls Square	Tel	08704000475
Reply To	office@marishalthompson.co.uk	Case Handler			Sarah Venners		

CONSULTANCY	
Incorporate SI information	
Change Management Recommendations	
Comment on heave	

MITIGATION	
Identify Ownership of trees	
Confirm Tree Protection Status	
Apply for Consent	
Liaise with 3rd. Party	
Additional info. from client for Consent App.	

TREE SURGERY	
Provide Quotation	
Modification to Reserve price	
Provide Update on Surgery progress	

RECOVERY	
Pursue 3rd. Party	
Pursue Local Authority	
Serve Injunction	
Appeal to Secretary of State	
Provision of Additional Investigations	

ADDITIONAL INFORMATION

Please see attached and act accordingly.

SIGN OFF		DATE	

NL- Mit misc Sarah V.

In case of enquiry contact Mrs Diana Oviatt-Ham
Direct Dial 01223457145
Fax 01223457139
E-mail: dianao@cambridge.gov.uk

20 JAN 2005

CAMBRIDGE CITY COUNCIL

Environment and Planning

Marishal Thompson & Co.
Bank Chambers
29 High Street
Ewell
Epsom
Surrey
KT17 1SB

13 January 2005

Your Ref M03666

Dear Sarah Venners

[redacted]

Thank you for your letter dated 26 October 2004 concerning structural damage to this property. In your letter you request the Council carry out works to trees in Alexandra Gardens. At present, from the information you have supplied I can see no justification to fell one tree or to reduce the height of two adjacent trees to 16m. I can see no evidence linking the trees with the structural damage occurring at [redacted]

You have supplied monitoring records of the cracks at the property. I have no level or distortion monitoring, no reports on these aspects, no details of a drainage survey. Only one trial pit appears to have been dug, the details are forwarded but there are no comparative readings from trial pits where there is no desiccation attributable to vegetation. More importantly, I can see no evidence that live tree roots were found in the trial hole which links the damage to the trees.

The trees will be managed in accordance with the Council's Arboricultural Strategy, which is adopted policy.

Yours sincerely

Diana Oviatt Ham.

Mrs Diana Oviatt-Ham
Principal Arboricultural Officer

Arboricultural Consultancy for Royal & Sun Alliance

Note: This reduced format report is an initial appraisal only and may have been produced without the benefit of site investigations. It is intended for use between the client, Marishal Thompson & Co. and any parties detailed within the report. It is based on the assumption that Engineers are satisfied that current damage is due to clay shrinkage subsidence attributable to vegetation.

Case Details

[redacted]	[redacted]	[redacted]	
Crawford & Company		Karrina Hogan	[redacted]
[redacted]		Peter Wilkins	07778 379205.

Scope of Report: To survey the property and determine significant vegetation contributing to subsidence damage, make recommendation for remedial action, initiate mitigation action and assess recovery prospects. The survey does not make an assessment for decay or hazard evaluation.

Damage Description

Damage has been observed to the rear single-storey extension.

Technical Reports

In preparing our report we have had the benefit of the following technical investigations:

☒ Engineers Report

Action Plan

Insured informed of work required?	Yes
Local Authority involved?	Yes
Other third party Mitigation involved?	No
Is there a potential recovery action?	Yes

Is there any statutory protection?	No

Mitigation Commencing.

Technical Synopsis

Notwithstanding their location on the far side of the highway the London planes T1 and T2 have the theoretical potential to be influencing soil moisture content at depth to the flank of the property. This influence has not been confirmed by investigations to date and with reference to their Local Authority ownership we recommend that further investigations should be considered. The London planes have not been subject to any significant management and we have been informed by the insured that a nearby property has been underpinned apparently due to the influence of these trees. We recommend that the Local Authority are requested to undertake necessary works to prevent further damage and our recommendations are outlined in Table 1

Is vegetation likely to be a contributory factor in the current damage?	See Above
Is vegetation management likely to contribute to the future stability of the property?	See Above
Is replacement planting considered appropriate?	No
Does the potential of ground heave need to be assessed by Consulting Engineers before management recommendations are implemented?	No
Will implementation of the management recommendations result in significant amenity loss?	No
Would DNA profiling be of assistance in this case?	No

Marishal Thompson & Co.
Clarendon House, Shenley Road, Borehamwood, Herts. WD6 1AG
t: 08702 416180 f: 08702 414339 e: office@marishalthompson.co.uk w: www.tree-iq.com

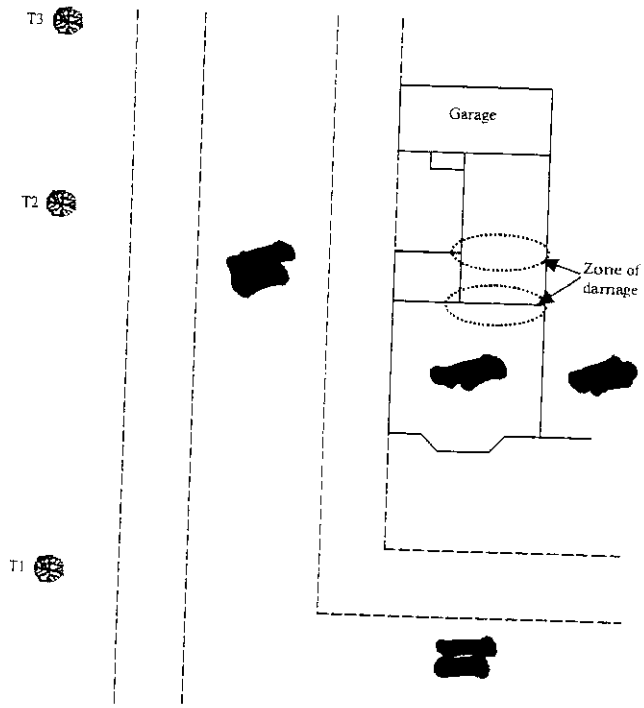
Arboricultural Consultancy for Royal & Sun Alliance

Recommendations (Table 1)

These recommendations may be subject to review following additional site investigations

T1	Plane (London)	1	24.0	16.0	B - Local Authority	Maintain as detailed	Reduce and maintain below 16m.
T2	Plane (London)	1	24.0	14.5	B - Local Authority	Maintain as detailed	Remove
T3	Plane (London)	1	24.0	18.0	B - Local Authority	Maintain as detailed	Reduce and maintain below 16m.

CAD and Images



Arboricultural Consultancy for Royal & Sun Alliance

Date: 19/07/2004 **Property:** [redacted]

Tree Works Reserve - Does not include recommendations for future risk.

Insured Property Tree Works	N/a
Third Party Tree Works	N/a
Provisional Sum	

- The above prices are based on works being performed as separate operations.
- The above is a reserve estimate only.
- Ownerships are assumed to be correct and as per table 1
- A fixed charge is made for Tree Preservation Order/Conservation Area searches unless charged by the Local Authority in which case it is cost plus £25.
- Should treeworks be prevented due to statutory protection then we will automatically proceed to seek consent for the works and Appeal to the Secretary of State if appropriate.
- All prices will be subject to V.A.T., which will be charged at the rate applying when the invoice is raised.
- Stump removal is not included within the above price, and would be an additional charge if required. Where this is requested please note that responsibility cannot be accepted for damage to underground services unless these are identified prior to the works being undertaken.
- Where chemical application is made to stumps it cannot always be guaranteed that this will prevent future re-growth. Should this occur we would be pleased to provide advice to the insured on the best course of action available to them at that time. Where there is a risk to other trees of the same species due to root fusion, chemical control may not be appropriate.

Limitations

This report is intended as a preliminary appraisal of vegetation influence on the property and assumes that engineers suspect or have confirmed that vegetation is contributing to clay shrinkage subsidence, which is impacting upon the building. Recommendations for remedial tree works and future management are made to meet the primary objective of assisting in the restoration of stability to the property. In achieving this, it should be appreciated that recommendations may in some cases be contrary to best Arboricultural practice for tree pruning/management and is a necessary compromise between competing objectives.

Any connection between the structural damage to the property and trees will require the clear identification of shrinkable clay soils below foundation depths. Following tree works we recommended that the building be monitored to establish the effectiveness of the works. Should sufficient stability not be achieve this may be indicative of the fact that an Arboricultural solution is not possible in isolation.

The influence of trees on soils and building is dynamic and vegetation in close proximity to vulnerable structure should be inspected annually.

The presence of Tree Preservation Orders (TPO) or Conservation Area status must be determined prior to any tree works being implemented, failure to do so can result in fines in excess of £20,000.

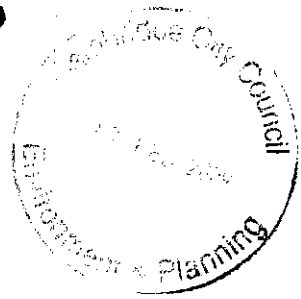
A legal Duty of Care requires that all works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried out according to British Standard 3998 (1989) "*Recommendations for Tree Work*".

MAT LAB

SITE INVESTIGATION REPORT

Client's Name: [redacted]

Address: [redacted]



Report Date: 16-Dec-08
Job No.: [redacted]

(If _R suffix appears after Job No., this indicates Revision Number)

Insurance Co.: Infront Innovation
Claim Ref. No.: [redacted]

Project Engineer: S. Brown
From: Infront Innovation,
Engineers Ref.:

Contents: Foundation Exploratory Hole Records

Address: Mat Lab Ltd
The Dell
Bickenhill Lane
Catherine-De-Barnes
Solihull
B92 0DE

Phone No.: 0121 704 3339
Fax No.: 0121 711 4829
E-mail: post@mat-lab.com

Checked By :
Date :

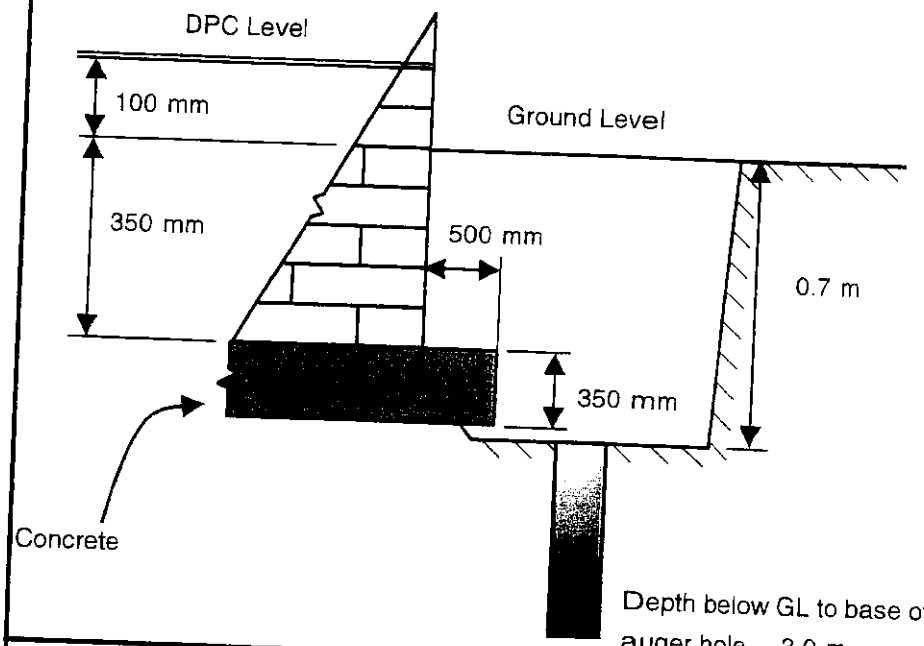
FOUNDATION PIT RECORD

MAT LAB

Location: **Left Hand Elevation of Rear Conservatory**

Ground Surface: Dry | Weather: Dry | E/H No. 1 | Date: 08-Dec-08

Foundation Cross Section (Not to Scale)



Depth below GL to base of auger hole 3.0 m

Roots Depth & Dia:
Down to 3.0m,
up to 2mm diameter

Water Depth Hit & Rise:
None observed on-site

Reason for Termination :
Hole at instructed depth

Depth (m)	Soil Descriptions (NB:Field crew description only)	Test Type	Depth (m) From	Depth (m) To
G.L.				
0.7	Firm brown CLAY with gravel (including chalk)	V(n) 95	1.000	
1.0	Firm/stiff brown CLAY with gravel (including chalk)	V(n) 85	1.500	
2.0	Stiff grey/brown CLAY	V(n) 130	2.000	
3.0	End of Borehole	V(n) 128	2.500	

General Comments :

Key: Mac=Macintosh Probe Blow Count, V(n)=Natural Shear Vane (kN/m²)

Address: [redacted]

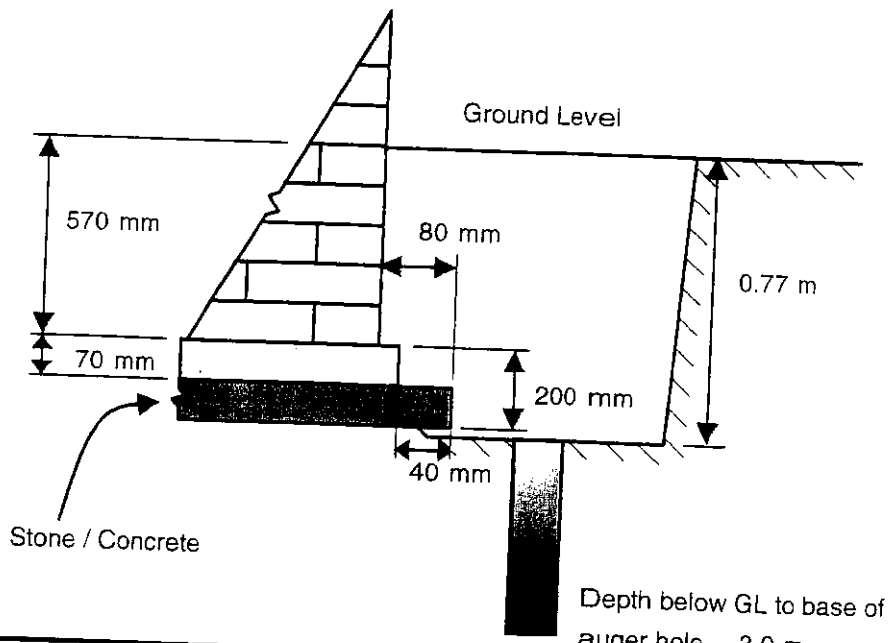
Job No. [redacted]

FOUNDATION PIT RECORD

Location: **Rear Left Hand Corner of House**

Ground Surface : Dry | Weather : Dry | E/H No. 2 | Date: 08-Dec-08

Foundation Cross Section (Not to Scale)



Depth below GL to base of auger hole 3.0 m

Roots Depth & Dia:
None observed on-site

Water Depth Hit & Rise:
None observed on-site

Reason for Termination :
Hole at instructed depth

Depth (m)	Soil Descriptions (NB:Field crew description only)	Test Type	Depth (m) From	Depth (m) To
G.L.				
0.77	Firm/stiff brown-grey CLAY	V(n) 130+	0.770	
1.0	Firm/stiff brown-grey CLAY with gravel (including chalk)	V(n) 102	1.000	
2.0	Stiff grey CLAY	V(n) 100	1.500	
3.0	End of Borehole	V(n) 130+	2.000	
		V(n) 108	2.500	
		V(n) 114	3.000	

General Comments :

Key: Mac=Macintosh Probe Blow Count, V(n)=Natural Shear Vane (kN/m²)

Address: [redacted]

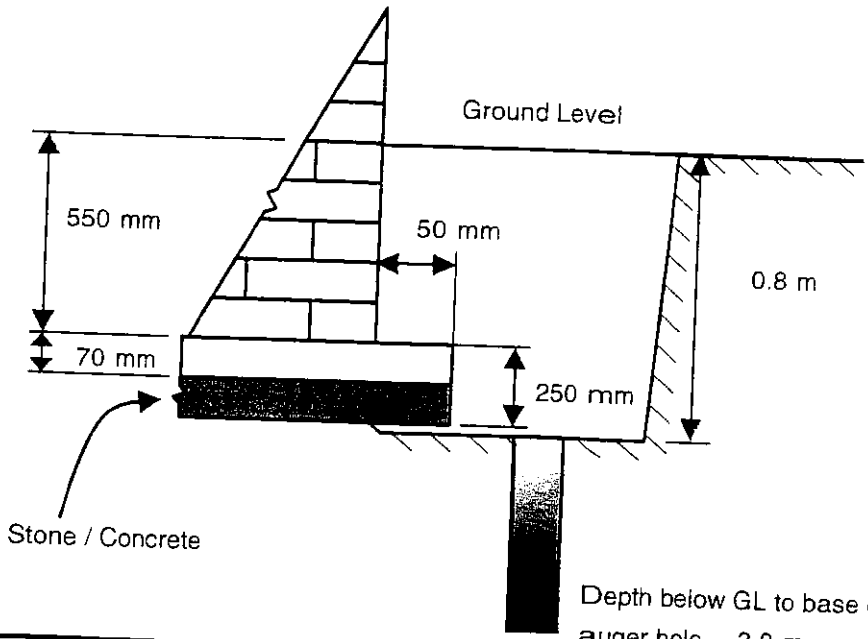
Job No. [redacted]

FOUNDATION PIT RECORD

Location: **Left Hand Elevation, Front Left Hand Corner of House**

Ground Surface : Dry | Weather : Dry | E/H No. 3 | Date: 08-Dec-08

Foundation Cross Section (Not to Scale)



Roots Depth & Dia:
Down to 3.0m,
up to 2mm diameter

Water Depth Hit & Rise:
None observed on-site

Reason for Termination :
Hole at instructed depth

Depth (m)	Soil Descriptions (NB:Field crew description only)	Test Type	Depth (m) From	Depth (m) To
G.L.				
0.80	Soft/firm brown/grey CLAY with gravel (including chalk)	V(n) 100	0.800	
1.0	Firm brown/grey CLAY with gravel	V(n) 115	1.000	
2.0	Stiff grey CLAY	V(n) 108	1.500	
3.0	End of Borehole	V(n) 106	2.000	
		V(n) 106	2.500	
		V(n) 100	3.000	

General Comments :

Key: Mac=Macintosh Probe Blow Count, V(n)=Natural Shear Vane (kN/m²)

Address: [redacted]

Job No. [redacted]

FOUNDATION PIT RECORD

Location: **Remote : Right Hand Side of Front Garden**

B/H No. 4

Ground Surface : Dry | Weather : Dry

Date: 08-Dec-08

Depth (m)	Soil Descriptions (NB:Field crew description only)	Sample Type	Depth (m) From	Depth (m) To
G.L.				
0.7	Soft/firm dark brown/grey CLAY with gravel (including chalk)	V(n) 70	0.700	
1.0	Firm brown-grey CLAY with gravel (including chalk)	V(n) 46	1.000	
1.5	Firm/stiff grey CLAY	V(n) 80	1.500	
2.0	Stiff grey CLAY	V(n) 115	2.000	
3.0	End of Borehole	V(n) 110	2.500	

Roots Depth & Dia.: Down to 3.0m, up to 2mm diameter

Water Strikes Depth & Rise : None observed on-site

Reason for Termination : Hole at instructed depth

General Comments :

Key: R=Root, B=Bag, U= Undisturbed, W= Water, CPT / SPT= Standard Penetration Test (C-cone, S-split spoon)

Address: [redacted]

Job No. [redacted]

MAT LAB

LABORATORY REPORT

Client's Name: [redacted]

Address: [redacted]

Report Date: 29-Jan-09
Job No.: [redacted] (If _R suffix appears after Job No., this indicates Revision Number)
Insurance Co.: Infront Innovation
Claim Ref. No.: [redacted]

Project Engineer: S. Brown
From: Infront Innovation,
Engineers Ref.:

Contents:
Root Analysis
Moisture Content
Atterberg Limits
Suction Tests

Address: Mat Lab Ltd
The Dell
Bickenhill Lane
Catherine-De-Barnes
Solihull B92 0DE
E-mail: post@mat-lab.com

Phone No.: 0121 704 3339 **Fax No.:** 0121 711 4829

Authorised By:
JC - Technical Manager
Date Authorised: 29/01/2009

ROOT IDENTIFICATION

Analysis subcontracted to European Plant Science Laboratory

Job No: [redacted]

Re: Root Identification
Sample Origin: [redacted]

The sample of roots taken from the above property and received by us on 17 December 2008, has been examined and identification appears to be as follows:

Reference	Depth	Species Identified		Root Diameter	Starch
TH1	0.7-3m	*Platanus* spp.		1.5 mm	Moderate
TH3	0.8-3m	*Platanus* spp.	1	1.5 mm	Moderate
TH3	0.8-3m	*Ligustrum* spp.	2	1 mm	Moderate

Comments:

1 - Plus 1 other also identified as *Platanus* spp.
2 - Plus 1 other also identified as *Ligustrum* spp.

Platanus spp. include London plane and Oriental plane.

Ligustrum spp. are privets.

2 species were identified.

Signed MDM **Checked** MPD

Unless we are otherwise instructed in writing, the above sample material will normally be disposed of 3 years after the date of this report.

Address: [redacted] Job No. [redacted]

Notes relating to Soils Report

Date Soil Samples Received in Laboratory: 10-Dec-08
Date Testing Requirements Approved: N/A

This Soils Report contains results for 4 borehole(s) on 4 page(s)

General

Soils were prepared in accordance with BS1377:Part 1:1990 Section 7

Laboratory soil sample descriptions in general accordance with BS5930:1999

Where samples are not tested on same date for a particular test type, Test Date quoted refers to the day of testing of final sample

All samples will be disposed of within 1 month of presentation of this report unless otherwise advised

Natural Moisture Content

Test Date: 15-Dec-08

Tested in accordance to BS1377:Part 2:1990 Section 3.2

A sample quantity of 100g is used for fine-grained soils, where available

Where sample quantity is critical, a minimum of 50g may be used, in accordance with BS1377:Part 2:1990

A sample quantity of 300g to 350g is used for medium-grained soils, 3kg is used for coarse-grained soils.

Atterberg Limits

Test Date: 26-Jan-09

Tested in accordance to BS1377:Part 2:1990; Section 4.4 for the Liquid Limit, Section 5 for the determination of the Plastic Limit and Plasticity Index

Suction Tests

Test Date: 22-Dec-08 (Q)*

Suction Test carried out in accordance to the accredited in-house Procedure MTLB001 with reference to the BRE paper IP4/93 (Corrected) 'A Method of Determining the State of Desiccation in Clay Soils'

(Unless otherwise stated the filter paper moisture content was determined after 5 to 10 days contact and the test was prepared from a remoulded disturbed sample in accordance with in-house procedures)

** Where denoted by '(Q)' following Test Date above, the test has been performed using 2 soil discs and quartered filter papers. The filter paper tests are conducted in a controlled environment within a temperature range of 16oC to 24oC. Average Suction values (in kPa) calculated using the BRE paper IP4/93 calibration are quoted with the maximum and minimum suction obtained, as indicated by error bars either side of plotted point. Where possible, suction values should be compared with remote borehole values, to determine relative desiccation.*

Each new batch of filter papers used for testing is checked for its consistancy against the standard BRE calibration curve using a pressure membrane extractor. The current filter paper batch, J113976969, shows good consistancy against the BRE curve, more information is available upon request. Studies on in-house calibrations using a pressure membrane extractor continue.

UKAS TESTING 2093

Address: [redacted]

Job No. [redacted]

SOILS LABORATORY RESULTS.

Opinions and interpolations expressed herein are outside the scope of UKAS accreditation.

MAT LAB LTD. 0121 704 3339

JOB No.:- [redacted]

DATE SAMPLES EXTRACTED:- 08 Dec 08

CLIENT/INSURED NAME:- [redacted]

ADDRESS:- [redacted]

INSURANCE COMPANY Infront Innovation [redacted]

ENGINEER:- S. Brown

FROM :- Infront Innovation,

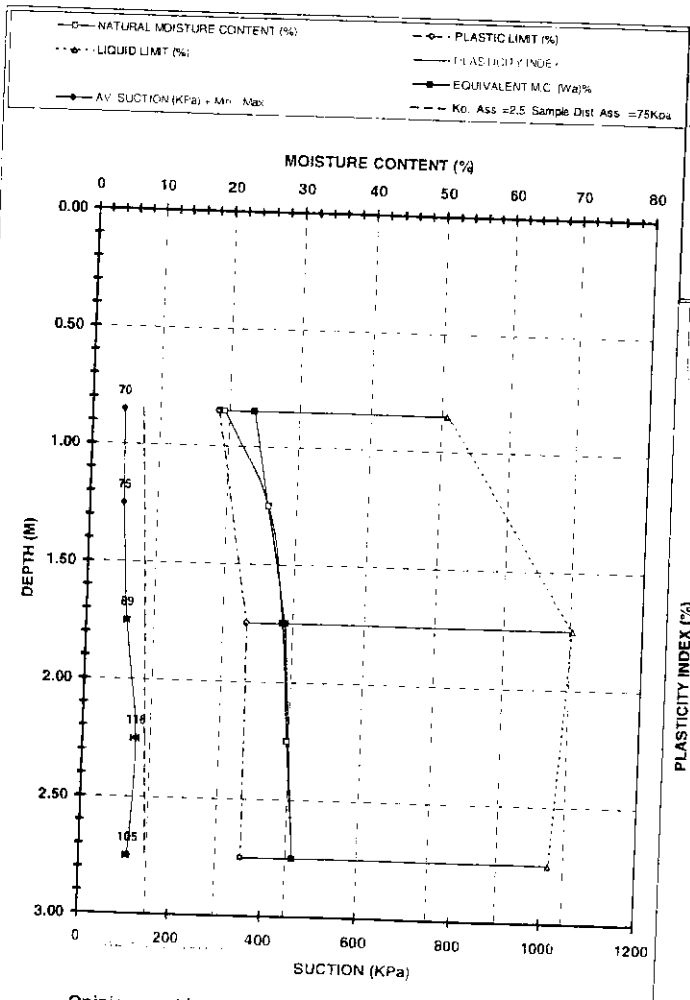
B.H. No. :- 1 of 4 No. Bore Holes

LOCATION:- Rear Left-Hand Side of Conservatory

REPORT DATE:- 29 Jan 09

2093

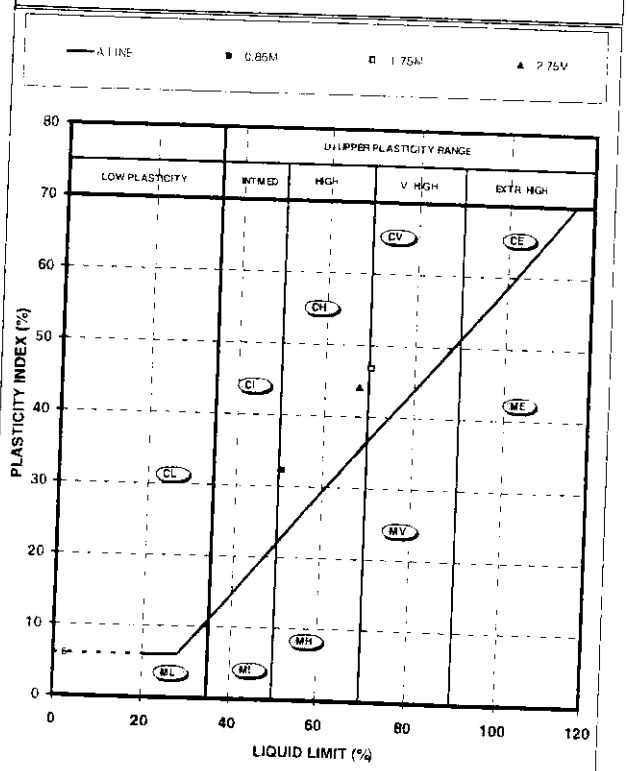
		ATTERBERG LIMITS.						NOTE - Column "dh" below is outside of UKAS accreditation and is an inference based on the heave analysis
DEPTH. M.	M.C. (%)	L.L (%)	P.L (%)	P.I. (%)	425um (%)	AV. Filter Paper M.C.(%) & No.	dh (mm)	BRIEF SOIL DESCRIPTION
0.85	19	51	19	32	80	49.4786 (3)	0.0	Firm brown slightly sandy CLAY with occasional silt veinings, fine/medium gravel (inc. cinders & chalk), rare grey veinings, roots & rootlets
1.25	26	-	-	-	-	48.2541 (3)	0.0	Firm/stiff banded brown/grey CLAY with occasional silt veinings, rare fine/medium gravel (inc. chalk), sand veinings, roots & rootlets
1.75	29	70	24	46	100	46.4605 (3)	0.0	Firm/stiff banded brown/grey CLAY with occasional silt veinings, rare fine/medium gravel (inc. chalk), sand veinings, roots & rootlets
2.25	30	-	-	-	-	44.6102 (3)	0.0	Firm/stiff banded grey/brown CLAY with rare silt veinings, sand veinings & rootlets.
2.75	31	68	24	44	100	45.2993 (3)	0.0	Firm/stiff banded grey/brown CLAY with rare silt veinings, sand veinings, rootlets & root fibres.



Opinions and interpretations expressed in the chart above are outside the scope of UKAS accreditation.

The interpretations below are outside of UKAS accreditation.

A Heave Potential Analysis is not possible due to the low magnitude of the Suction values.



[redacted]

SOILS LABORATORY RESULTS.

MAT LAB LTD. 0121 704 3339

Opinions and interpolations expressed herein are outside the scope of UKAS accreditation.

JOB No.:- [redacted]

DATE SAMPLES EXTRACTED:- 08 Dec 08

CLIENT/INSURED NAME:- [redacted]

ADDRESS:- [redacted]

INSURANCE COMPANY Infront Innovation [redacted]

ENGINEER:- S. Brown

FROM :- Infront Innovation,

B.H. No. :- 2 of 4 No. Bore Holes

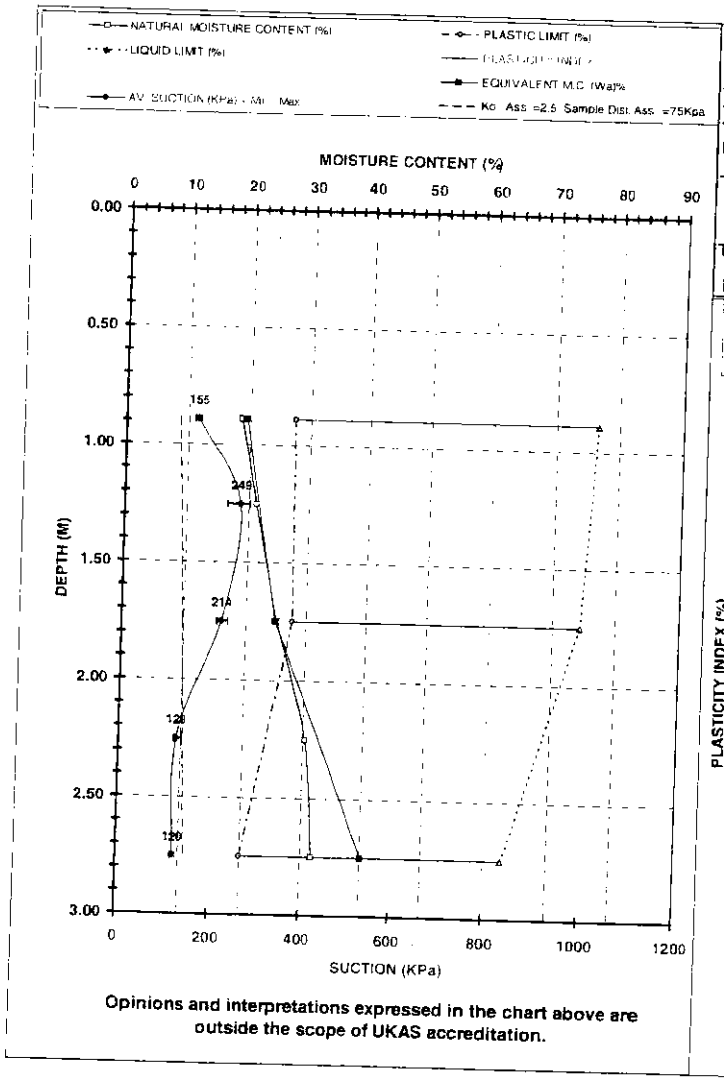
LOCATION:- Rear Left-Hand Corner of House

REPORT DATE:- 29 Jan 09

2093

NOTE :- Column "dh" below is outside of UKAS accreditation and is an inference based on the heave analysis (dh (Blue) extrapolated). "N.P." in the plastic limit column ="Non-Plastic"

		ATTERBERG LIMITS.						
DEPTH. M.	M.C (%)	L.L (%)	P.L (%)	P.I. (%)	425um (%)	AV. Filter Paper M.C.(%) & No.	dh (mm)	BRIEF SOIL DESCRIPTION
0.89	19	77	28	49	98	42.6077 (3)	0.0	Firm/stiff banded brown/grey slightly sandy CLAY with occasional silt veinings & rare fine/medium gravel.
1.25	21	-	-	-	-	39.3099 (3)	2.4	Firm/stiff banded brown/grey CLAY with occasional silt veinings, rare fine/medium gravel (mainly chalk) & sand veinings.
1.75	25	74	28	46	100	40.3467 (3)	3.5	Firm/stiff banded brown/grey CLAY with rare silt veinings, sand veinings & fine/medium gravel (inc. chalk).
2.25	30	-	-	-	-	44.2385 (3)	1.1	Firm/stiff grey CLAY with rare silt veinings, sand veinings & fine gravel.
2.75	32	63	20	43	80	44.4048 (3)	0.0	Firm/stiff grey CLAY



Opinions and interpretations expressed in the chart above are outside the scope of UKAS accreditation.

The interpretations below are outside of UKAS accreditation.

Heave Potential Analysis :-

Total of Column dh (potential heave increment per layer)

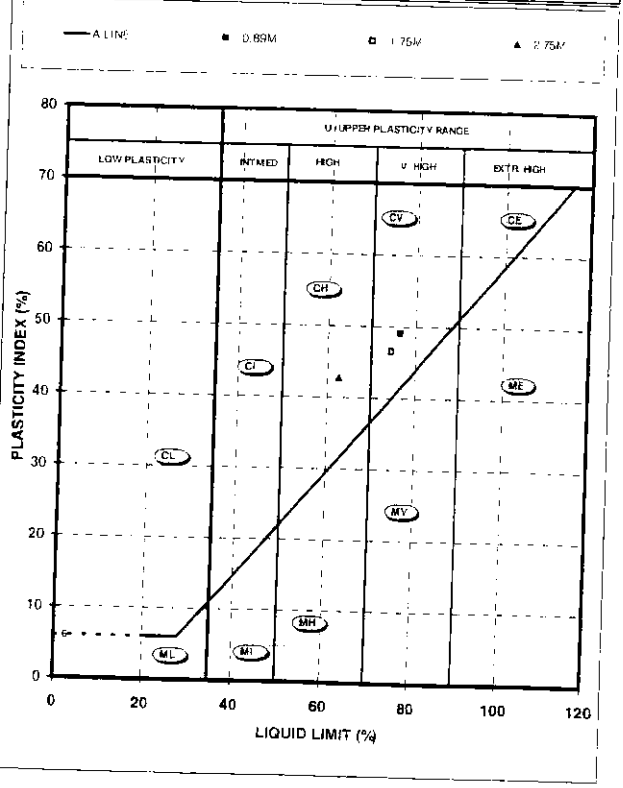
Is Approx. : 7 mm.

Therefore the Total Surface Heave Potential over the B/H depth is about :-

0cm. to 2cm.

The Above Heave Analysis is based upon :-

BRE Digest 412 Feb 1996 'Using Suction Profiles'



SOILS LABORATORY RESULTS.

MAT LAB LTD. 0121 704 3339

Opinions and interpolations expressed herein are outside the scope of UKAS accreditation.

JOB No.:- [redacted]

DATE SAMPLES EXTRACTED:- 08 Dec 08

CLIENT/INSURED NAME:- [redacted]

ADDRESS:- [redacted]

INSURANCE COMPANY Infront Innovation [redacted]

ENGINEER:- S. Brown

FROM :- Infront Innovation,

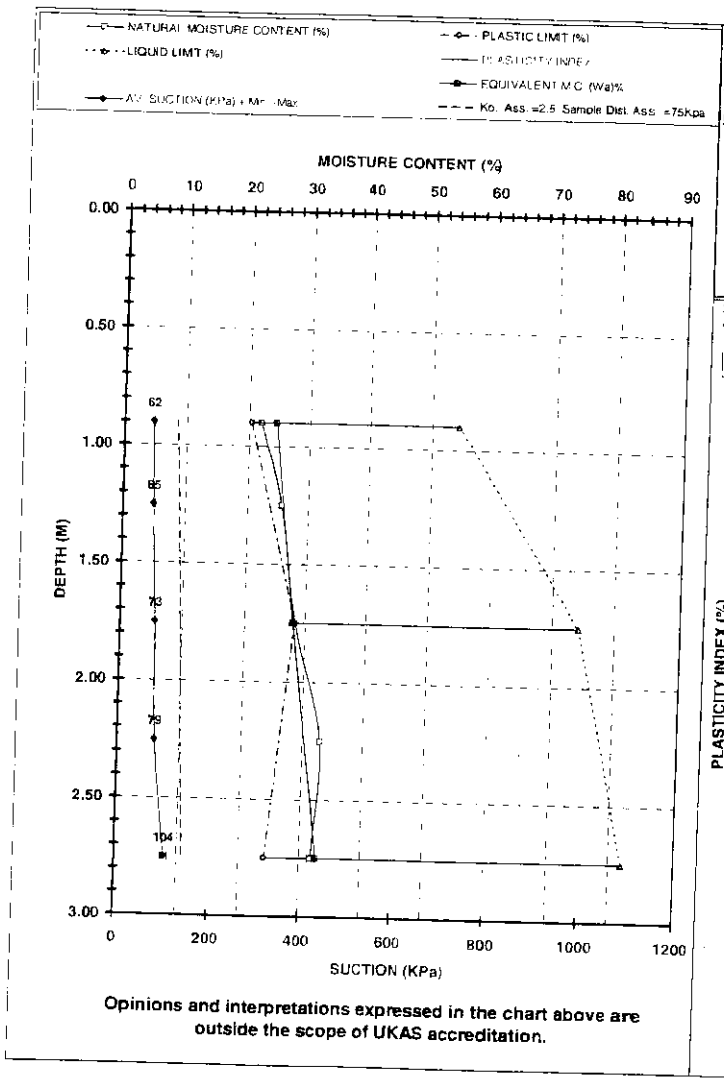
B.H. No. :- 3 of 4 No. Bore Holes

LOCATION:- Front Left-Hand Corner of House

REPORT DATE:- 29 Jan 09

2093

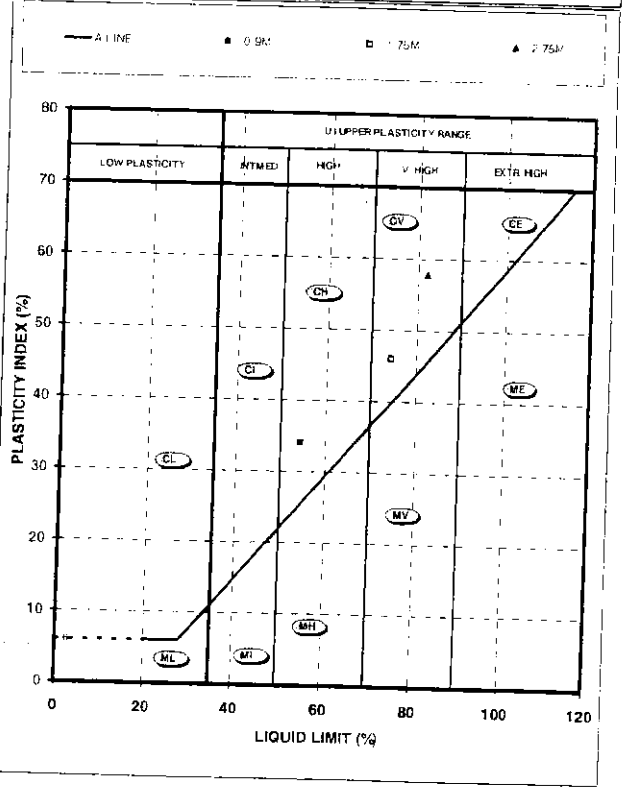
		ATTERBERG LIMITS.					NOTE :- Column "dh" below is outside of UKAS accreditation and is an inference based on the heave analysis [dh (Blue) extrapolated] "N.P." in the plastic limit column ="Non-Plastic"	
DEPTH. M.	M.C. (%)	L.L. (%)	P.L. (%)	P.I. (%)	425um (%)	AV. Filter Paper M.C.(%) & No.	dh (mm)	BRIEF SOIL DESCRIPTION
0.90	22	54	20	34	90	52.2213 (3)	0.0	Soft/firm banded brown/grey slightly sandy CLAY with occasional silt vernings, rare fine/medium gravel (inc. chalk), roots, rootlets & root fibres
1.25	26	-	-	-	-	51.1165 (3)	0.0	Firm banded brown/grey slightly sandy CLAY with occasional silt vernings, rare fine/medium gravel (inc. chalk), roots, rootlets & root fibres.
1.75	28	74	28	46	100	48.6962 (3)	0.0	Firm/stiff banded grey/brown CLAY with occasional silt vernings, rare sand vernings, fine/medium gravel (inc. chalk), roots rootlets & root fibres
2.25	33	-	-	-	-	47.2369 (3)	0.0	Firm/stiff grey CLAY with rare silt vernings, rootlets & root fibres.
2.75	32	82	24	58	98	45.3969 (3)	0.0	Firm/stiff grey CLAY with rare dustings of sand, rootlets & root fibres



Opinions and interpretations expressed in the chart above are outside the scope of UKAS accreditation.

The interpretations below are outside of UKAS accreditation.

A Heave Potential Analysis is not possible due to the low magnitude of the Suction values.



SOILS LABORATORY RESULTS.

MATLAB LTD. 0121 704 3339

Opinions and interpolations expressed herein are outside the scope of UKAS accreditation.

JOB No.:- [redacted]

DATE SAMPLES EXTRACTED:- 08 Dec 08

CLIENT/INSURED NAME:- [redacted]

ADDRESS:- [redacted]

INSURANCE COMPANY Infront Innovation [redacted]

ENGINEER:- S. Brown

FROM :- Infront Innovation,

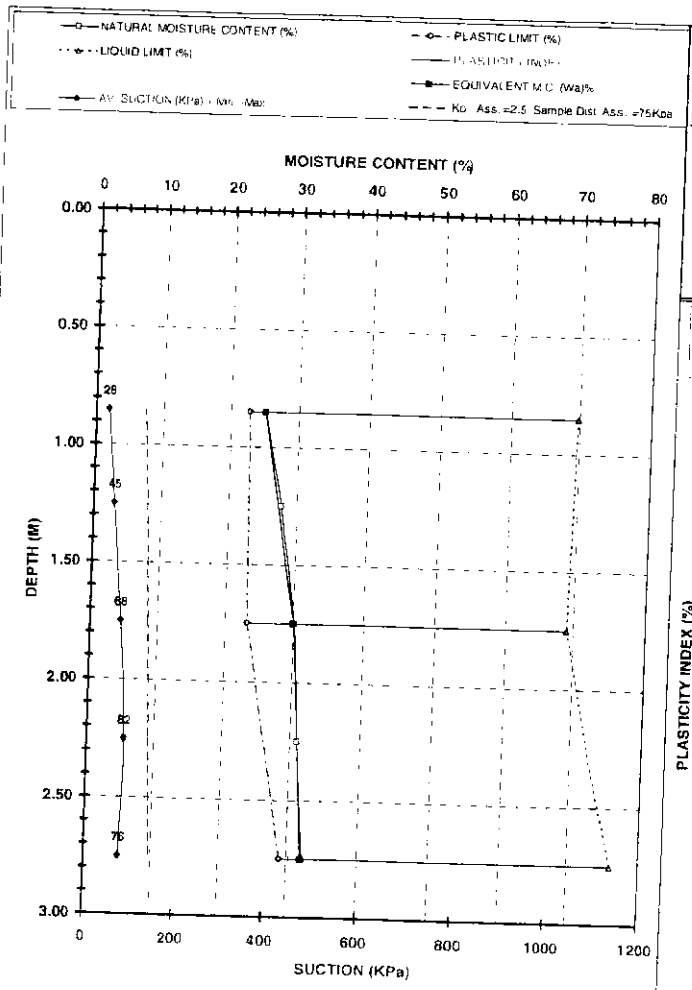
B.H. No. :- 4 of 4 No. Bore Holes

LOCATION:- Remote - Front Garden

REPORT DATE:- 29 Jan 09

UKAS TESTING 2093

		ATTERBERG LIMITS.						NOTE :- Column "dh" below is outside of UKAS accreditation and is an inference based on the heave analysis (dh (Blue) extrapolated ; "N.P." in the plastic limit column = "Non-Plastic"
DEPTH. M.	M.C. (%)	L.L. (%)	P.L. (%)	P.I. (%)	425um (%)	AV. Filter Paper M.C.(%) & No.	dh (mm)	BRIEF SOIL DESCRIPTION
0.85	25	70	23	47	99	71.6331 (3)	0.0	Soft/firm banded dark brown/grey slightly sandy CLAY with occasional silt veinings, fine/medium gravel (inc. chalk & brick fragments), rare roots & rootlets
1.25	26	-	-	-	-	59.2933 (3)	0.0	Firm banded brown/grey CLAY with occasional silt veinings, rare sand veinings, fine gravel (inc. chalk), roots & rootlets.
1.75	30	69	23	46	100	50.2547 (3)	0.0	Firm/stiff grey CLAY with rare silt veinings, fine gravel (inc. chalk), rootlets & root fibres.
2.25	31	-	-	-	-	46.9238 (3)	0.0	Firm/stiff grey CLAY with rare rootlets & root fibres.
2.75	32	76	29	47	100	47.991 (3)	0.0	Firm/stiff grey CLAY with rare rootlets & root fibres.



Opinions and interpretations expressed in the chart above are outside the scope of UKAS accreditation.

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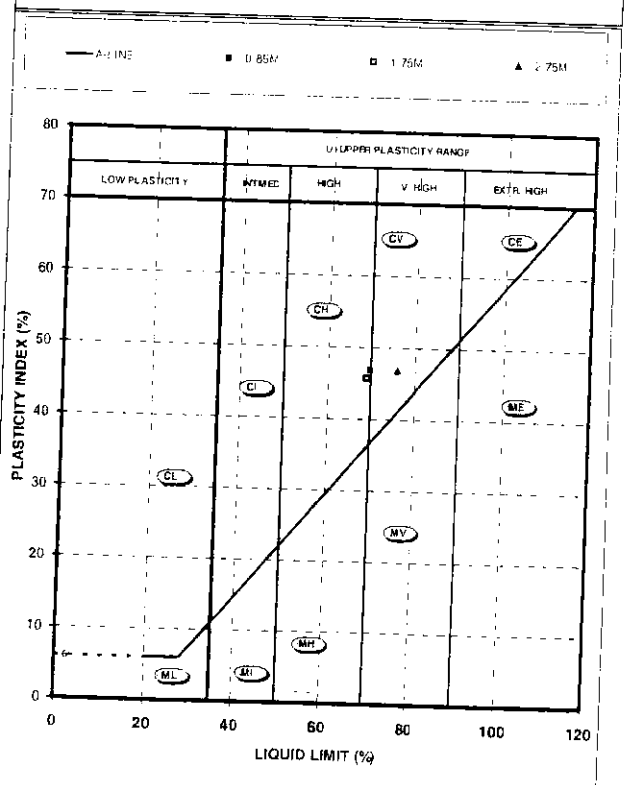
A Heave Potential Analysis is not possible due to the low magnitude of the Suction values.



Geo-Serv Limited
17 Hoveden Road
London NW2 3XE

Consulting Civil and Geotechnical Engineers

GEO-SERV

Your ref: [redacted]

Our ref: OM960INF

monitoring 020 8208 0343 ⇦

general enquiries 020 82084476

e-mail: mon@geo-serv.com

date: 7 January, 2009

Infront Innovation
Yarmouth House
1300 Parkway
Solent Business Park
Whiteley,
Hants PO15 7AE

Monitoring Report

[redacted]

[redacted]

09/06/07

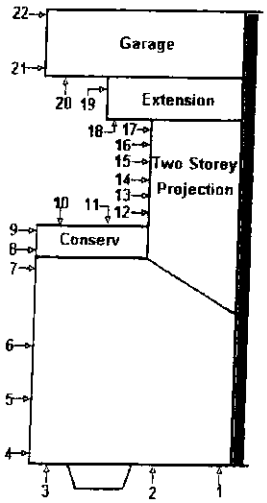
Every 8 weeks

open

01223 366203

15/12/08 – Point 7 probably a rogue reading

Sketch showing approximate location of monitoring points



Front Elevation

5 Ft away

Datum (in garden)

[redacted]

Results of: ***precise levelling*** . ***crack monitoring*** . ***distortion survey*** . ***verticality monitoring***

Survey: Date: Point ID	2008/1 09-Jun levels mm	2008/2 11-Aug levels mm	2008/3 20-Oct levels mm	2008/4 15-Dec levels mm	2008/5 date #5 levels mm
Datum	**1000.00**	**1000.00**	**1000.00**	**1000.00**	
1	1243.30	1241.70	1239.00	1242.27	
2	1270.70	1268.54	1266.10	1269.83	
3	1236.42	1233.83	1229.32	1233.31	
4	996.68	993.73	989.70	993.62	
5	1062.54	1059.24	1054.99	1059.09	
6	1141.60	1138.44	1133.66	1137.52	
7	1147.51	1144.62	1139.41	1136.39	
8	1141.89	1138.14	1132.81	1133.00	
9	1136.80	1131.94	1126.34	1130.58	
10	1299.32	1294.37	1289.03	1297.20	
11	1308.02	1304.89	1300.67	1306.42	
12	1105.60	1101.09	1097.73	1102.83	
13	1116.22	1111.89	1109.65	1114.25	
14	1232.76	1229.57	1226.88	1232.22	
15	1240.86	1237.02	1233.94	1239.63	
16	2195.80	2191.40	2189.69	2194.47	
17	2356.38	2352.84	2350.74	2354.90	
18	1104.52	1099.91	1097.07	1102.30	
19	1660.94	1656.96	1654.05	1659.79	
20	1472.93	1467.89	1464.94	1471.14	
21	1373.30	1366.14	1362.71	1370.20	
22	1333.41	1326.61	1324.21	1330.37	
Datum	999.53	999.68	1000.32	1000.27	

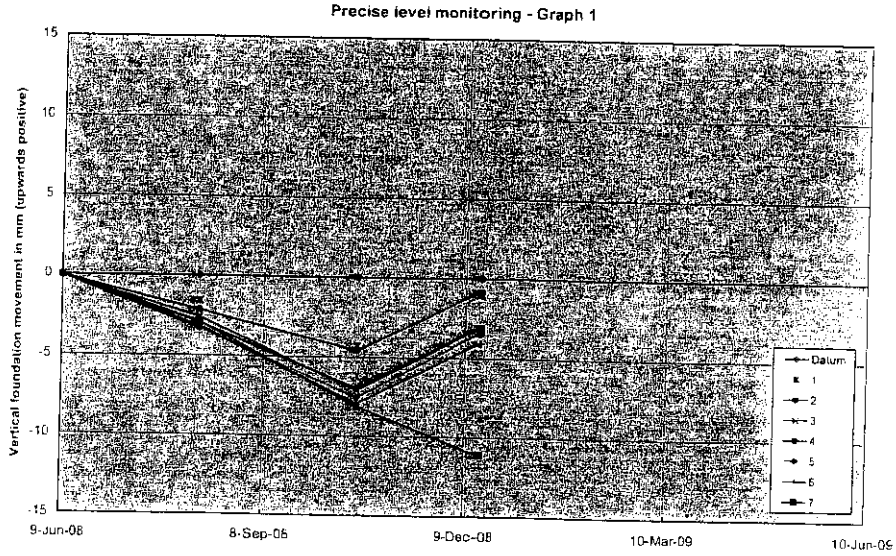
Results are changes in level relative to baseline survey performed and assume that point marked with an asterisk remains static

Closing errors (mm)

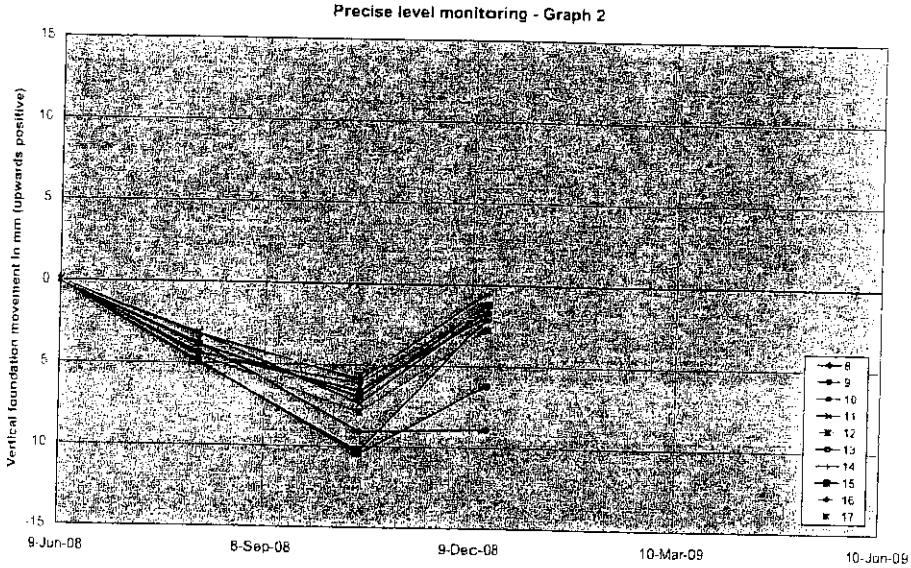
Start					
Datum					

[redacted]

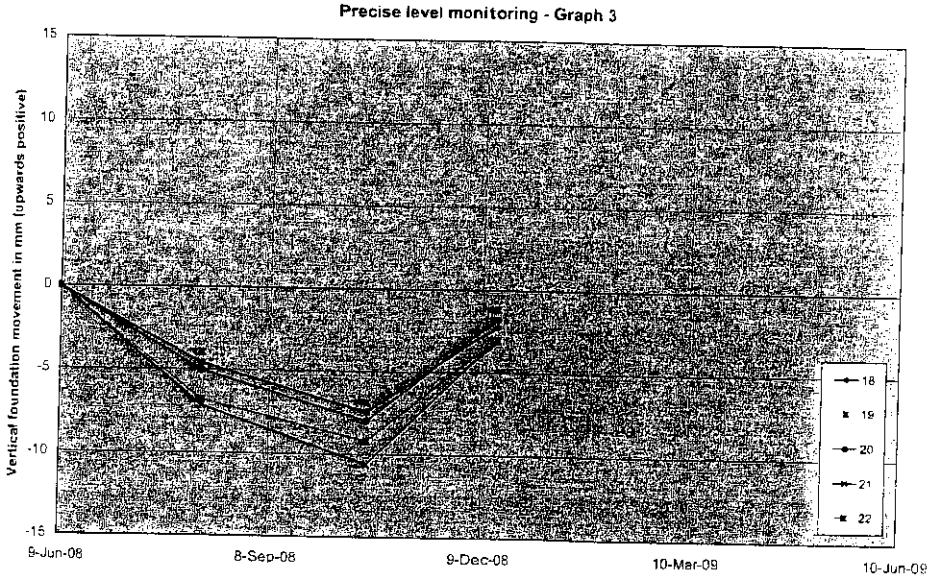
Precise level monitoring - Graph 1



Precise level monitoring - Graph 2



Precise level monitoring - Graph 3



Director T J Freeman MA CEng MICE
Registered Office Risborough House 38 / 40 S

InFront
innovation

Subsidence Claim

Update Following Completion of Site Investigations

IFS Reference [redacted]

Claim Reference [redacted]

Prepared for [redacted]

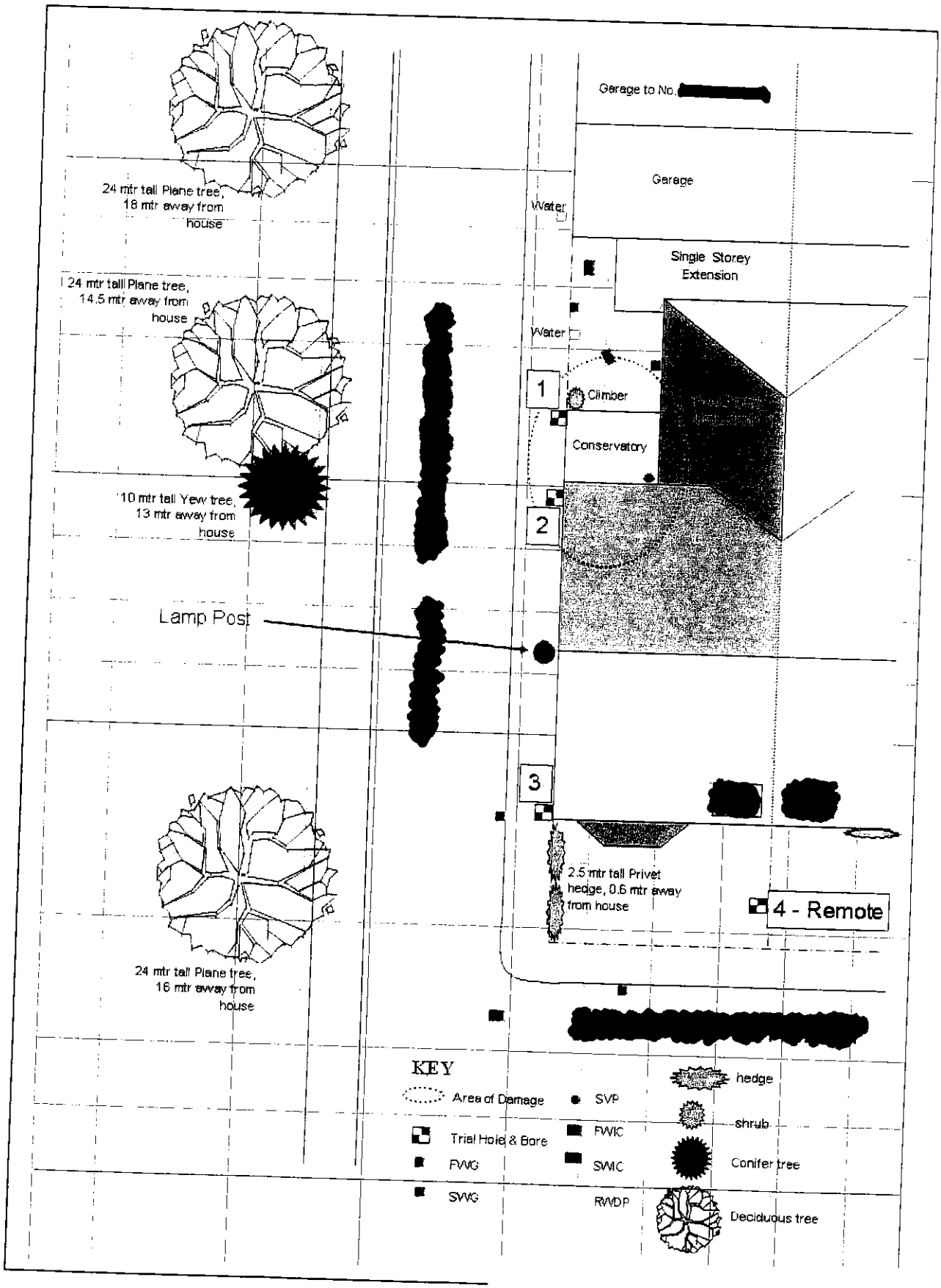
Claim Details:

Report Date **2 February 2009**

Policyholder [redacted]

Claim address [redacted]

SITE PLAN



SUMMARY OF CLAIM

This is a long-running claim. The owner first noticed cracking following the dry summer of 2003 and submitted a claim to insurers in May 2004. Crawford and Company were appointed to investigate the claim and following their investigations they concluded that subsidence had occurred due to root induced shrinkage of the clay sub-soil, as a result of the moisture demand of the plane trees adjacent to the property in Alexandra Gardens. Full details of the claim are not available however, the owner was not aware of any significant tree management being carried out, although a section of the drains at the rear of the house were repaired. Superstructure repairs were completed in the early summer of 2006 at a cost in excess of £13,000. However, by the autumn the cracks had recurred and the owner notified his insurers again. Since then insurers appear to have dealt with matters themselves however, no progress has been made, causing the owner to make a complaint. Following this complaint, insurers appointed InFront Innovation to inspect the property and handle the claim. Following our inspection in May 2008 level monitoring was initiated and a site investigation was instructed. Due to the permission necessary from the Local Authority to excavate within the public footpath the site investigation could not be carried out until 8th December 2008.

RESULTS OF LEVEL MONITORING

Four sets of readings have been taken in June, August, October and December 2008. For full details refer to Geo-Serv report dated 7th January 2009 [redacted]

The readings show that the property is experiencing differential seasonal movement and that the seasonal movement is most severe to the left hand side of the house. The most severe movement has occurred at points 9, 10 and 21 where the downwards movement has been in excess of 10mm. These points are concentrated to the rear left hand corner of the house and the front corner of the garage. This compares with downwards movement of less than 5mm affecting the front right hand corner of the house (point 1). The December readings show that the house has now recovered substantially.

RESULTS OF SITE INVESTIGATION

Full details of the site investigation are contained in Mat-Lab Ltd. Site Investigation Report dated 16th December 2008 [redacted]

In summary all of the three trial pits to the house and conservatory revealed foundations bearing at depths of 700 too 800mm below ground level on firm to stiff clay soil. Stiff clay soil continued to a depth of 3 metres in all bore holes.

In all bore holes, except bore hole 2 to the rear left hand corner of the house, roots were evident for the full depth of the bore hole and were up to 2mm in diameter.

LABORATORY TEST RESULTS

Full details of the laboratory testing are contained in Mat-Lab Ltd. Laboratory Report dated 29th January 2009 [redacted]

In summary, the roots from bore hole one (rear left hand corner of conservatory) were identified as emanating from Plane trees whilst in bore hole three (front left hand corner of the house) they were identified as emanating from Plane trees and privet shrubs.

The soil testing has proven that the clay sub-soil is of medium to high shrinkage potential. Moisture contents were variable but were generally at or just above the plastic limit at the shallower depths. Suction readings were generally low except in bore hole 2 where a reading of 249 kPa was recorded and a heave potential of up to 20mm was estimated.

CONCLUSIONS

The results of the level monitoring prove clearly that the property is experiencing seasonal movement that is exacerbated by the moisture demand of the adjacent vegetation. Downwards movement of over 10mm has been recorded, despite the last two years being regarded as "wet" periods. The site investigation has proven that roots from the Plane trees extend beneath the left hand side of the property and that the clay soil remains desiccated to the rear left hand corner, despite the soil samples not being recovered until December.

It is considered inevitable that further damage will occur to the property when dry weather returns. There is significant potential for more severe desiccation of the clay soil and differential movement will be increased well beyond the capacity of the house structure.

The monitoring and site investigation therefore substantiate the previous requests for removal of the offending Plane trees, in particular the central tree which is considered to be the primary cause.

If the trees are not removed by the Local Authority then the only method of preventing further damage to the house would be to carry out underpinning of the foundations to a depth below the influence of the tree roots. This will require mini-piling to be undertaken and, due to the constraints of the site around the house, this would be impractical and therefore disproportionately expensive.

ACTIONS RECOMMENDED

The following actions are recommended to progress the claim;

- Submit the level monitoring and site investigation reports (including this one) to Marishal Thompson in order that they can review their recommendations for tree removal and reduction
- Submit the same evidence to Cambridge City Council (or via MT) and reiterate the request for tree removal in line with MT recommendations
- Continue with the level monitoring until claim resolved
- If no co-operation from the Council within a reasonable period then obtain estimates for an underpinning scheme with a view to recovering costs from Council

PAYMENT RECOMMENDED

Mat-Lab invoice no. [redacted] in the sum of £2432.25.

Steve Brown

Engineer

InFront Innovation

InFront Innovation

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Solent Business Park
Whiteley
Hampshire
PO15 7AE
United Kingdom

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www.infront-innovation.com

InFront innovation

UNITED KINGDOM

By recorded delivery

RECEIVED IN LION HOUSE
11 JUN 2008

Cambridge City Council
Environment & Planning
11 JUN 2008

Cambridge City Council
Insurance Division
The Guildhall
Cambridge
CB2 3QJ

27 May 2008

Dear Sirs

Our Reference: [redacted]
Our Principal's Insured: [redacted]
Subsidence damage at: [redacted]

InFront Innovation have been appointed by RSA to investigate the cause of structural damage at the above property.

Investigations carried out by our engineer on 19 May 2008 confirm the damage is indicative of subsidence. Our engineer has noted the presence of significant vegetation, which we believe is your responsibility. This vegetation stands in close proximity to the properties left hand elevation and may be a significant influencing factor given the clay nature of the subsoil in the area of damage.

We understand that you are the relevant authority responsible for maintenance of trees in this area and of the vegetation referred to above. Please confirm to us **by return,** if this is the case, if not please advise to the best of your knowledge which authority is responsible for the vegetation in question.

We have arranged to carry out further investigations including root and soil analysis to confirm if a nuisance is occurring. The results of these investigations will be sent to you.

An arboriculturist has been instructed to report on appropriate vegetation management. Their recommendation will also be sent on to you. A period of level monitoring has also been instructed and results will be made available in the near future.

We are seeking your co-operation in this matter, as further damage to the property, due to a lack of vegetation management, is likely to result in the need for more expensive repairs including underpinning. Should you wish to inspect the current damage please contact the

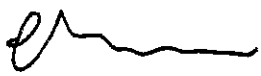
originator of this letter in order that an appointment can be arranged with our principals' insured.

We suggest that you immediately pass a copy of this letter to your insurers and note our intention to pursue a recovery of our principals and their insured's financial outlay in regard to this matter

Please confirm within 21 days the course of action that you propose to take to abate the nuisance.

We look forward to hearing from you and thank you in advance for your co-operation.

Yours faithfully



Stuart Reynolds
InFront Innovation
Direct Dial.: 0845 3670511

In case of enquiry contact Mrs Diana Oviatt-Ham
Direct Dial 01223457145
Fax 01223457139
E-mail: dianao@cambridge.gov.uk

Infront Innovation
Yarmouth House
1300 Parkway
Solent Business Park
Whiteley
Hampshire
PO15 7AE

Environment and Planning

16 June 2008

Our Ref Mrs Diana Oviatt-Ham

Dear Mr Reynolds
[redacted]

Thank you for your letter dated 27 May 2008 concerning structural damage at the above property. I acknowledge receipt of your letter as notification of the problem.

Your engineer has noted the presence of trees on land nearby. The Council is responsible for the management of trees in Alexandra Gardens. The trees have been managed by the City Council, in response to your letter the trees will be inspected and the Council will consider their current management regime.

Meanwhile, if you believe a tree or trees to be implicated the Council will require further information of the case. This should include the following:

- Plan of the location showing the property and tree or trees and other vegetation nearby
- Plan of the property showing where the damage occurs and the position of trial holes and boreholes
- Samples of the soil, their analysis, content and desiccation to at least 3-5m
- Root sample analysis
- Details of level monitoring
- Details of crack monitoring
- Photographs

I look forward to hearing from you,

Yours sincerely

Mrs Diana Oviatt-Ham
Arboricultural Officer

Innovation Group
Yarmouth House
1300 Parkway
Solent Business Park
Whiteley
Hampshire
PO15 7AE
United Kingdom

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E: solent.subsidenceunit@uk.innovation-group.com
www.uk.innovation-group.com

innovation group

Cambridge City Council
17 MAY 2010
Environment & Planning

Mr John Preston
Cambridge City Council
The Guildhall
Cambridge
Cambridgeshire
CB2 3QJ

12 May 2010

Dear Mr Preston

Insured's Name: [redacted]
Insured's Address: [redacted]
Our Reference: [redacted]
Your Reference: TBC

Innovation Group has been appointed by RSA, to investigate subsidence damage to the above property.

We understand that Marishal Thompson, have been in discussions with you regarding the above property, concerning the nearby tree[s] *which under a tree preservation order,* and are causing damage to the above property.

Following on from our engineer, Steve Brown's, site meeting on 28th April 2010, with our Principals insured and Adrian Mudge of Peter Dann Consulting Engineers, we would like to advise you that it has been agreed that we will allow you a further 4 weeks to review your files and confirm how you will be proceeding.

Our engineer has explained to Adrian Mudge that if the trees remain then the house will be underpinned, however if the trees are removed then there will be no underpinning. If there is any intermediate proposal i.e. vegetation management, then this will need to be reviewed.

We can confirm that if we do not hear from you by 4th June 2010, we will assume that you will not be co-operating with us and we will proceed to move forward with the underpinning works.
We look forward to hearing from you soon, however if you have any queries, please do not hesitate to contact me on the telephone number below.

Yours sincerely

Paul Berriman
Subsidence Management Services
Direct Dial: 0845 3670511

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CAMBRIDGE ROAD
BARTON
CAMBRIDGE
CB23 7WJ

Tel: 01223 264688
Fax: 01223 264680
pd@peterdann.com
www.peterdann.com

PETER DANN LIMITED

Our Ref: [redacted]
07 May 2010

Department of Environment and Planning
Cambridge City Council
The Guildhall
Market Square
Cambridge
CB2 3QJ

For the Attention of Mr John Preston

Dear Sir

Re: [redacted]

Further to your recent discussions with my colleague David Gaillard I visited the site on 28 April 2010 to meet with the owners of the property [redacted] and Steven Brown the engineer working for InFront Innovation. The object of the meeting was to examine the property and to clarify, as necessary, any matters arising from the report and test results submitted by InFront Innovation. My thoughts are as follows.

Initial damage to the property was noted in 2003 and an insurance claim was made. The conclusion of the investigations carried out at that time was that movement to the property was as a result of subsidence caused by moisture extraction from the adjoining trees resulting in shrinkage of the clay subsoil. A remedial scheme was prepared and this was completed in 2006. I understand from [redacted] that the local authority were notified that the trees in the park to the south side of [redacted] were the cause of the subsidence and that they would be regularly managed. Since that time we understand that there has been no regular tree management regime.

Subsequently the movement recurred resulting in the further investigations and reporting which has been submitted to date as a result of the latest insurance claim. These investigations have consisted of:

1. Trial pits excavated around the south and east side of the building. These generally show that the foundations are founded at approximately 700mm to 800mm below ground level on a stiff grey clay (gault clay). This material is known to be very susceptible to volumetric change due to changes in moisture content.

2. Boreholes were excavated on the south side of the property to obtain soil and root samples at depth which were sent for laboratory analysis.

3. Soil samples were tested under laboratory conditions and show that the clay formation material is of a high plasticity index and will therefore be very susceptible to shrinkage and swelling movements.

4. Roots samples were found to a depth of approximately 2.75m below ground level, well below the level of the foundations and the samples were identified as belonging

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Directors: Peter Chapman BSc CEng MIStructE | Guy Dolby BSc(Hons) CEng MIStructE | David Gaillard IEng AMIStructE MIED
Associate Directors: Kevin Short MEng CEng MICE | Matthew Whitelegg BSc CEng MIStructE
Associates: John Bowstead BEng(Hons) CEng MIStructE | Andrew Gilbertson IEng AMIStructE | Adrian Mudge
Ben Paget BEng(Hons) | Ian Sargent IEng AMIStructE

Registered in England No: 2004511

REGISTERED OFFICE:
Newton House, Cambridge Road
Barton, Cambridge CB23 7WJ

VAT No: 432104211

to plane trees. Some roots of privet were identified in trial hole 3. Plane trees are defined under the NHBC classification as a species with moderate water demands.

5. Precision level monitoring was carried out over a period of approximately 15 months to determine a rate and pattern of movement of the property. This has been converted into graph form which clearly shows a seasonal pattern of movement of up to 10mm.

Having reviewed the information supplied we can only concur with the conclusion that damage to the property is as a result of subsidence caused by moisture extraction by the vegetation in the adjoining park. As such we feel that there are only 3 possible options available in terms of minimising the risk of movement to the property and these are as follows:

1. To remove the central tree and undertake a significant reduction of the plane trees either side of the central tree as defined in the recommendations by Marishal Thompson & Co. This may lead to some heave of the underlying ground as the clay recovers. The period over which this recovery takes place can be very significant and is largely dependant upon future weather patterns. It would be possible to continue monitoring through this period until such time as the building becomes sufficiently stable to allow remedial works to be limited to superstructure repairs only. However the time frame over which this monitoring would need to be carried out cannot be predicted. Alternatively the building could be underpinned to resist any heave forces that occur as a result of the tree removal/management. We would expect insurers to recover the costs of these remedial works from the local authority.

2. To retain the trees but accept that a major underpinning scheme will be required for the property. Again we would anticipate that the insurance company would recover the cost of this resolution from the local authority.

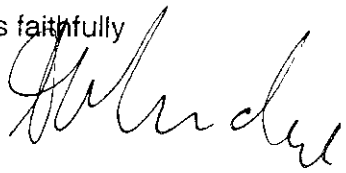
3. To obtain independent arboricultural advice and attempt to agree with the insurance company to retain all trees but enter into a strict and regular tree management programme on all of the trees to maintain their size to a level which maintains stability within the property. Any such management regime would need to be strictly adhered to and would not guarantee that there is no further movement but would reduce the risk of further movements as much as reasonably possible. We would expect that insurers would insist that the local authority would carry the risk of any further repair costs in the event of further movement occurring. However bearing in mind anecdotal evidence suggesting that the local authority were made aware of the initial claim in 2003 and that maintenance of the trees does not appear to have been carried out, we would anticipate that insurers are unlikely to accept this proposal.

We understand from the meeting on site that the adjoining property [redacted] is also experiencing some structural damage and that an insurance claim has been set in motion by the owners of that property. Bearing in mind that any underpinning of number [redacted] will require a party wall agreement with [redacted] it seems likely that the insurance companies of both properties will be in correspondence and the Council should consider the possibility of a further claim being made them with regard to the trees in the adjoining park.

[redacted]

I trust the foregoing is helpful but should you wish to discuss the matter in further detail please do not hesitate to contact this office.

Yours faithfully



A Mudge
for
PETER DANN LIMITED

[redacted]

From: John Preston
To: a.mudge@peterdann.com
CC: David Gaillard <d.gaillard@peterdann.com>
Date: 12/05/2010 09:28
Subject: [redacted]

Dear Adrian and David

Thank you for your report following your site visit. I have a number of queries in relation to it.

1. I am concerned that the report makes reference twice what is claimed to be "no responsive LA tree management to this issue", when the 3 trees were reduced by 30% of their crown volume last March, and will be maintained at those dimensions every two years. You may wish to revise your comments in light of this knowledge.

2. I believe the movement is to an extension, not the main house. I am assuming the foundations founded at 700mm-800mm below ground level referred to in the report relate to this and not the original house. Are these foundations in line with NHBC guidance at the time of construction? If not, would you describe them as 'inadequate' and as such what would your assessment of the likelihood of foundation movement in the absence of significant vegetation?

3. You have partially commented on the 'rate and pattern of movement' as determined by the precision level monitoring. Is the degree of movement at the individual monitoring stations consistent with the plane being an effective and substantive cause i.e. I would have expected the greatest movement at the monitoring stations closest to the subject tree. If this is not the case is there another plausible explanation?

4. No comment has been made about the relative influence of the climbing plant (wisteria?) in relation to foundation movement, soil drying, level monitoring results.

5. With reference to your alternative remedial option 1. What is the likelihood of heave occurring if the tree where removed? Is there likely to be any significant differences in cost between underpinning to resist heave as suggested if the tree were removed, or underpinning to resist further subsidence if the tree were retained?

I look forward to receiving your response.

regards

John

John Preston
Historic Environment Manager
Cambridge City Council

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CAMBRIDGE ROAD
BARTON
CAMBRIDGE
CB23 7WJ

Tel: 01223 264688
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PETER DANN LIMITED

Our Ref: [redacted]
21 May 2010

Department of Environment and Planning
Cambridge City Council
The Guildhall
Market Square
Cambridge
CB2 3QJ

For the Attention of Mr John Preston

Dear Sir

Re: [redacted]

I am writing to confirm our recent telephone conversation and to clarify the points raised in your email dated 12 May 2010 in response to my letter of the 7 May 2010. Referring to the points raised in your emails my comments are as follows:

1. The points made in my letter with regard to there having been no tree management works carried out were based on anecdotal evidence provided by the owners of the property. It is unfortunate that a member of the Council staff could not have been present at that meeting to clarify and refute that information but I have subsequently revisited the site and some evidence of trimming of some small branches can be observed. The extent of the tree reduction would need to be assessed by an arboriculturalist but I presume that you could provide evidence of the extent and frequency of trimming if necessary. However your email notes that the three trees were reduced by 30% of their crown volume last March (2009) and will be maintained every 2 years. I would expect the insurers' engineers would question why this work had not been carried out earlier, bearing in mind that the first notification of this claim was in 2003 and also that the insurers' arboricultural advisers are proposing a complete removal of one tree and a very significant reduction of the other two trees to approximately two thirds of their current height. I would expect an argument to be put forward that the amount of maintenance carried out has clearly not been sufficient to prevent movements of the property during the last year.

2. The movements recorded are not solely to an extension but occur to the whole of the gable wall, the rear wall of the property and the side wall of the original rear projection. The movements are reasonably consistent along the length of the gable wall and the side wall of the rear projection, in the order of 6mm to 8mm. It is significant that the monitoring of the front elevation shows that the degree of movement decreases as the distance from the trees increases. At the point of the party wall between this and the adjoining property the movement has reduced to approximately 4mm. This indicates rotation of the building towards the trees and, as noted in the penultimate paragraph of my letter of the 7 May 2010, the adjoining property [redacted] is also allegedly suffering movement.

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Bearing in mind that the sections of building discussed are part of the original fabric of the property the issue of NHBC guidance will not come into play as I suspect the property predates the trees.

3. The rate and pattern of movement clearly shows a seasonal variation and the precision level monitoring also clearly shows that the sections of wall closest to the tree positions are those which have suffered high and consistent subsidence. There are three monitoring points which have suffered marginally higher movement (9mm and 10mm). These are associated with the corner of the conservatory closest to the footpath boundary and therefore the trees. However notwithstanding this movement to the more recent conservatory structure, the main body of the building is clearly suffering from significant subsidence movements as previously described.

4. The climbing plant (wisteria) is rooted near the corner of the conservatory and it may be that this had some marginal effect on the additional movement to the conservatory in the location previously mentioned. However at the time of my initial visit the wisteria had been cut back to essentially a bare trunk and my understanding is that this would need to be carried out on an annual basis in order to encourage flowering. At the time of my subsequent visit some re-growth has occurred with new shoots in the order of 150mm to 200mm in length. Bearing in mind that the wisteria appears to be regularly maintained to encourage flowering it is unlikely that this would be a significant influence on the subsidence observed and cannot reasonably be considered as a significant factor on subsidence on the main body of the property. There is also no evidence of Wisteria roots occurring in the trial holes

5. The three options for dealing with this problem as noted in my previous letter were discussed to give some indication as to the possible ways forward and the risks that would be associated with each option.

Option 1 (tree removal and reduction) is the option being proposed by the insurers and their aboricultural consultants. The risk with this form of solution is of heave of the formation material as the ground recovers. This is usually recognized and dealt with by accepting that a significant period of time may elapse before the building is sufficiently stable to allow repairs to be limited to superstructure repairs only. During this period regular monitoring of the property is carried out to establish at which point the building becomes sufficiently stable to allow remedial works to be limited as much as possible. However this can be a very significant period and if this length of time is not acceptable to either insurers or the owners of the property then underpinning of the property would be required immediately to allow superstructure repairs to be carried out. The form of underpinning in this instance would be very similar to the form of underpinning required under Option 2 which retains the trees. Option 1, without underpinning, is presumably only acceptable providing the Council can agree with the owner of the property and the insurers that the potential time frame involved can be accepted. If the time frame is unacceptable and insurers insist on underpinning in any event (presumably looking to recover costs from the Council) I would expect Option 2 to be a preferred option for you.

Clearly the situation is very difficult and the trees have a high amenity value, however we believe that there is little doubt that movement to the property is as a result of the moisture extraction by the trees to the south of [redacted] No doubt you will wish to consider this matter further and we look forward to hearing from you in due course, but in the meantime if we can be of further assistance please do not hesitate to contact this office.

Yours faithfully

A Mudge
for
PETER DANN LIMITED

[redacted]

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Consulting Civil and Geotechnical Engineers

GEO-SERV

Your ref: [redacted]

Our ref: [redacted]

Infront Innovation
Yarmouth House
1300 Parkway
Solent Business Park
Whiteley,
Hants PO15 7AE

date: 26 July, 2010

Monitoring Report

Owners name [redacted]

Address [redacted]

Home telephone 01223

Work telephone

Correspondence address

Suspected cause

Principal area of damage «Area of damage»

Damage Category

Surface geology «SurfGeolgov»

Monitoring type «Monitoring type»

Installed 09/06/07

Frequency Every 8 weeks

Status open

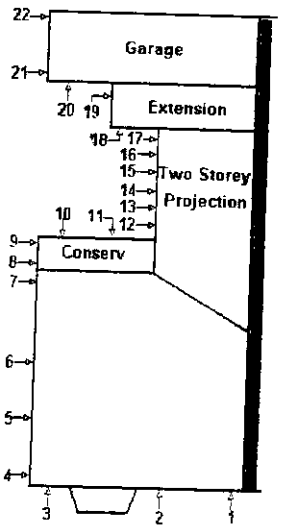
Feedback from last visit

16/06/09 – point 7 gone, replaced as new in new rawl plug

Sketch showing approximate location of monitoring points

Comment

15/12/08 – Point 7 probably a rogue reading «comment»



Front Elevation

5 Ft away

Datum (in garden)

Results of: ***precise levelling*** . ***crack monitoring*** . ***distortion survey*** . ***verticality monitoring***

Survey:	2008/1	2008/2		2008/3		2008/4		2008/5	
Date:	09-Jun	11-Aug		20-Oct		15-Dec		16-Jun	
	levels	levels	*chngs*	levels	*chngs*	levels	*chngs*	levels	*chngs*
Point ID	mm	mm	*mm*	mm	*mm*	mm	*mm*	mm	*mm*
Datum	**1000.00**	**1000.00**	***0.0***	**1000.00**	***0.0***	**1000.00**	***0.0***	**1000.00**	***0.0***
1	1243.30	1241.70	*-1.6*	1239.00	*-4.3*	1242.27	*-1.0*	1242.14	*-1.2*
2	1270.70	1268.54	*-2.2*	1266.10	*-4.6*	1269.83	*-0.9*	1269.74	*-1.0*
3	1236.42	1233.83	*-2.6*	1229.32	*-7.1*	1233.31	*-3.1*	1235.54	*-0.9*
4	996.68	993.73	*-3.0*	989.70	*-7.0*	993.62	*-3.1*	995.94	*-0.7*
5	1062.54	1059.24	*-3.3*	1054.99	*-7.6*	1059.09	*-3.5*	1063.04	*0.5*
6	1141.60	1138.44	*-3.2*	1133.66	*-7.9*	1137.52	*-4.1*	1142.75	*1.1*
7	1147.51	1144.62	*-2.9*	1139.41	*-8.1*	1136.39	*-11.1*	1149.06	*New*
8	1141.89	1138.14	*-3.8*	1132.81	*-9.1*	1133.00	*-8.9*	1142.84	*0.9*
9	1136.80	1131.94	*-4.9*	1126.34	*-10.5*	1130.58	*-6.2*	1138.74	*1.9*
10	1299.32	1294.37	*-5.0*	1289.03	*-10.3*	1297.20	*-2.1*	1301.53	*2.2*
11	1308.02	1304.89	*-3.1*	1300.67	*-7.4*	1306.42	*-1.6*	1309.41	*1.4*
12	1105.60	1101.09	*-4.5*	1097.73	*-7.9*	1102.83	*-2.8*	1106.21	*0.6*
13	1116.22	1111.89	*-4.3*	1109.65	*-6.6*	1114.25	*-2.0*	1116.45	*0.2*
14	1232.76	1229.57	*-3.2*	1226.88	*-5.9*	1232.22	*-0.5*	1232.82	*0.1*
15	1240.86	1237.02	*-3.8*	1233.94	*-6.9*	1239.63	*-1.2*	1240.23	*-0.6*
16	2195.80	2191.40	*-4.4*	2189.69	*-6.1*	2194.47	*-1.3*	2195.41	*-0.4*
17	2356.38	2352.84	*-3.5*	2350.74	*-5.6*	2354.90	*-1.5*	2356.12	*-0.3*
18	1104.52	1099.91	*-4.6*	1097.07	*-7.5*	1102.30	*-2.2*	1103.41	*-1.1*
19	1660.94	1656.96	*-4.0*	1654.05	*-6.9*	1659.79	*-1.1*	1660.63	*-0.3*
20	1472.93	1467.89	*-5.0*	1464.94	*-8.0*	1471.14	*-1.8*	1472.10	*-0.8*
21	1373.30	1366.14	*-7.2*	1362.71	*-10.6*	1370.20	*-3.1*	1371.65	*-1.7*
22	1333.41	1326.61	*-6.8*	1324.21	*-9.2*	1330.37	*-3.0*	1331.16	*-2.3*
Datum	999.53	999.68		1000.32		1000.27		1000.14	

Results are changes in level relative to baseline survey performed and assume that point marked with an asterisk remains static

Closing errors (mm)

Sum	-0.47	-0.32	0.32	0.27	0.14
Datum	-0.47	-0.32	0.32	0.27	0.14

From: John Preston
To: a.mudge@peterdann.com
CC: David Gaillard <d.gaillard@peterdann.com>
Date: 19/05/2010 16:23
Subject: [redacted] additional information

Dear Adrian and David

Further to my conversation with Adrian yesterday, I have now had the chance to discuss with Diana Oviatt-Ham. We wonder if the fact that the Gardens were once used for extraction for brick working could have an influence on any structural movement related to possible ground movement? [redacted] Below is an extract from Victoria County History.

Between 1900 and 1910 the urban district council converted the site of the last brickyard in New Chesterton into Alexandra Gardens. (http://www.british-history.ac.uk/report.aspx?compid=15307).
regards

John

John Preston
Historic Environment Manager
Cambridge City Council