



TECHNICAL REPORT ON A SUBSIDENCE CLAIM



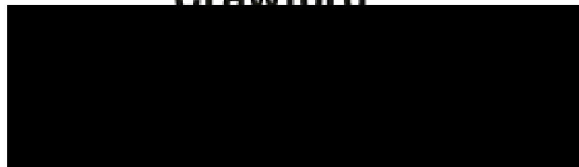
**Ross-Gower Limited
134 Abbey Road
London
NW6 4SN**



**AXA Commercial - London Property Team
Email to: Lpclaims@axa-insurance.co.uk**

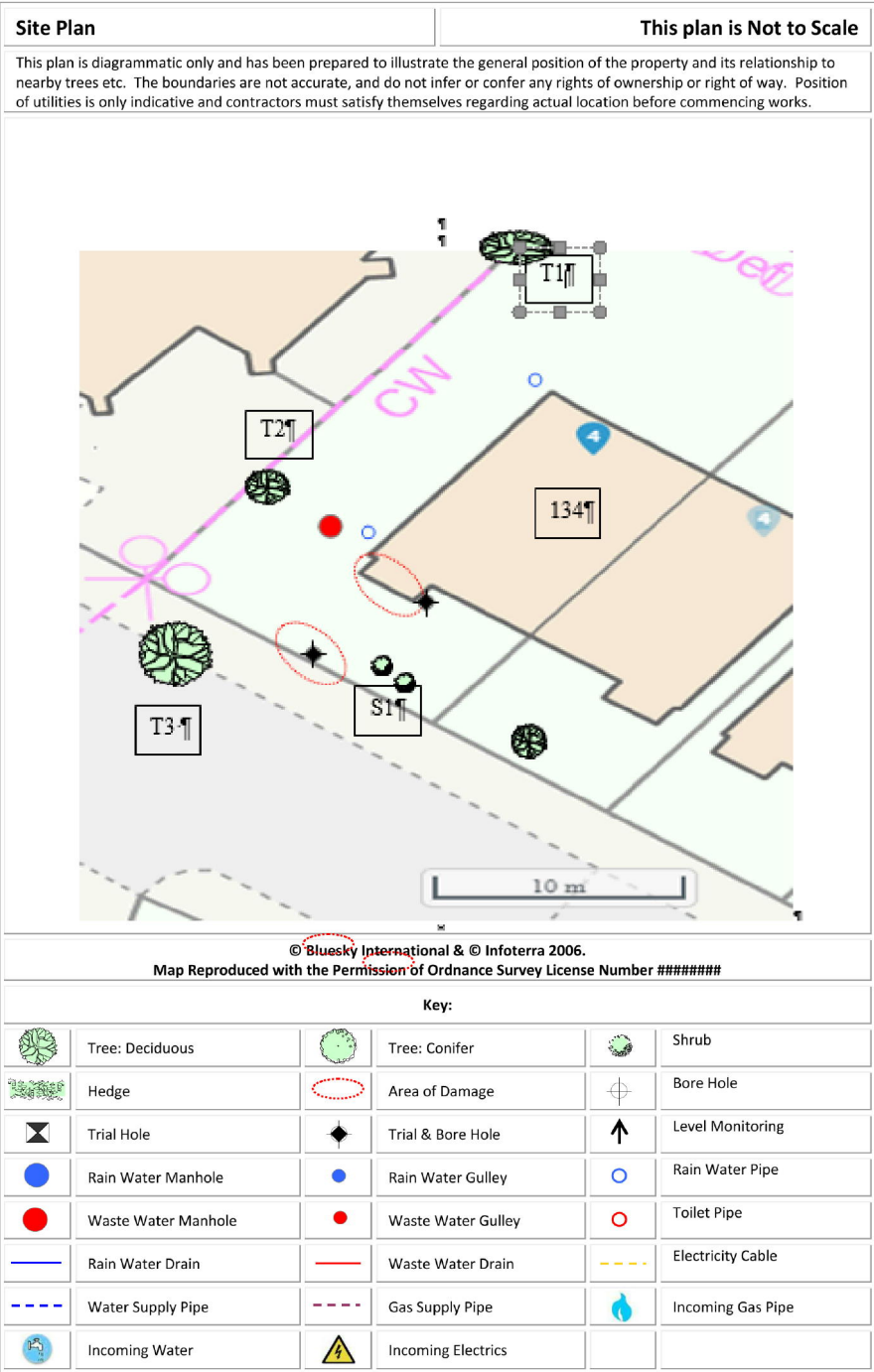


20th November 2020



Chartered Loss Adjusters





INTRODUCTION

We have been asked by AXA Commercial - London Property Team to comment on movement that has taken place to the above property. We are required to briefly describe the damage, establish a likely cause and list any remedial measures that may be needed.

Our report should not be used in the same way as a pre-purchase survey. It has been prepared specifically in connection with the present insurance claim and should not be relied on as a statement of structural adequacy. It does not deal with the general condition of the building, decorations, timber rot or infestation etc.

The report is made on behalf of Crawford & Company and by receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of Statutory duty. Where works address repairs **that are not covered** by the insurance policy we recommend that you seek professional advice on the repair methodology and whether the works will involve the Construction (Design & Management) Regulations 2015. Compliance with these Regulations is compulsory; failure to do so may result in prosecution. We have not taken account of the regulations and you must take appropriate advice.

We have not commented on any part of the building that is covered or inaccessible.

TECHNICAL CIRCUMSTANCES

We met with Jane Mosses the Lessee of flat 132A advised that there is cracking of the Portico entrance at first floor level which was discovered in July 2020. Concerned they notified Insurers.

PROPERTY

The risk address is a pair of four storey Victorian semi-detached properties of traditional construction with brick walls surmounted by a pitched tiled roof. The property is divided up into eight self contained Leaseholder flats with shared freehold interest.

HISTORY & TIMESCALE

Arranging site investigations.

Date of Construction	Circa 1870
Purchased	Not advised
Policy Inception Date.....	09/04/2009
Damage First Noticed	July 2020
Claim Notified to Insurer.....	21/09/2020
Date of our Inspection.....	20/10/2020
Issue of Report.....	20/11/2020
Anticipated Completion of Claim	Summer 2022

TOPOGRAPHY

The property occupies a reasonably level site with no unusual or adverse topographic features.

GEOLOGY

Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number TQNW suggests the underlying geology to be London Clay.

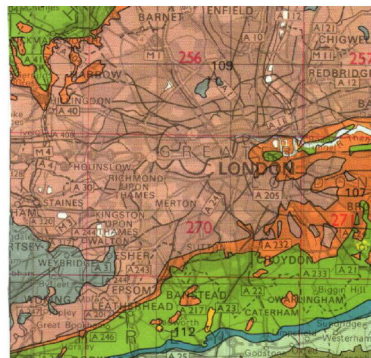
Chartered Loss Adjusters

London Clays are marine deposits characterised by their silty, sandy composition. They are typically stiff, dark or bluish grey, weathered dark to mid-brown superficially with fine particle size (less than 0.002mm). Tomlinson¹ describes it as a 'fat' clay with high loadbearing characteristics due to pre-consolidation pressures in its geological history.

The upper horizon is often encountered at shallow depth, sometimes just below ground level. They have high shrink/swell potentials^{2,3} and can be troublesome in the presence of vegetation.

The superficial deposits are thought to be none - Solid Outcropping.

The solid geology appears to outcrop in this location, although we cannot rule out the presence of superficial deposits at shallow depth.



Geology. Reproduced with consent of The British Geological Survey at Keyworth.
Licence IPR/34-7C CSL British Geological Survey. ©NERC. All rights Reserved.

VEGETATION

There are several trees and shrubs nearby, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
T1 Beech	13 m	6 m	Not known
T2 Deciduous	8 m	5 m	Not known
T3 Deciduous	9 m	2 m	Council
S1 Shrubs	1 m	1 m	Owners

See sketch. Tree roots can be troublesome in cohesive (clay) soils because they can induce volumetric change. They are rarely troublesome in non-cohesive soils (sands and gravels etc.) other than when they enter drains, in which case blockages can ensue.

Beech, (*Fagus sylvatica*) is a large growing deciduous species. Water demand is low, but its size can lead to problems. It will tolerate pruning when young and can be a useful hedge species. However

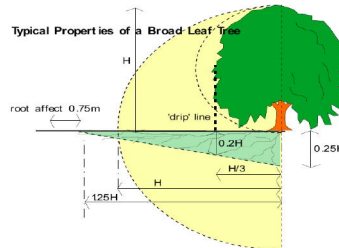
¹ Tomlinson M.J. (1991) "Foundations Design & Construction" Longman Scientific Publishing.

² B.S. 5930 (1981) "Site Investigations"

³ Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.

³ Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

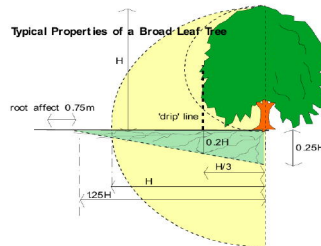
mature and older trees will not stand heavy pruning and can be killed by it. Lifespan is typically up to about 200 years after which they often decline rapidly.



Typical proportions of a Beech tree. Note the potential root zone.

The beech grows at a rate of 300mm a year to reach heights of between 20 - 28mtrs depending on soil and climate etc. It is regarded as having weak root activity⁴.

Broadleaf trees typically have wider spreading roots and higher water demands than coniferous species and many are better adapted to growing on heavy clay soils. Some are capable of sprouting from cut stumps or bare wood and most will tolerate pruning better than conifers.



Typical proportions of a broadleaf tree. Note the potential root zone. It must be noted that every tree is different, and the root zone will vary with soil type, health of the tree and climatic conditions.

However heavy pruning of any tree should be avoided if possible, as it stimulates the formation of dense masses of weakly attached new branches which can become dangerous if not re-cut periodically to keep their weight down.

Shrubs. Sometimes even small shrubs can cause localised subsidence damage. In the Kew Garden Survey data was collected between 1979 - 86 to record the number of roots of each species received for identification. Of the 1009 roots identified, 367 (36%) belonged to the family *Rosoideae* or Rose. Next came the family *Oleaceae* (Forsythia, Jasmin, Privet and Lilac) with 354 (35%) enquiries. *Berberis*, *Viburnum*, *Hedera* (ivy), *Hydrangea* and *Pyracanthus* are also regularly associated with foundation movement, the latter having surprisingly large roots on occasions.

OBSERVATIONS

Portico entrance and front boundary walls

The following is an abbreviated description. Photographs accompanying this report illustrate the nature and extent of the problem.

⁴ Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications
Chartered Loss Adjusters

INTERNAL

- No structural damaged noted.

EXTERNAL



Rear



8mm full height wall crack extending through capping

Front

- The front gate pillar is leaning to the left with slight separation from the wall.

Portico at First Floor Level

- The right side of the Portico structure at junction with building front elevation there is 7mm separation crack narrowing lower down.

Front Steps Ground Floor Level

- To the left side of the Portico and steps there is a low level crack which has been previously patch repaired - 5mm
- There is cracking half way down the steps which look historical.

Front Boundary Wall

- There is an 8mm full height wall crack extending through capping.
- There is a separation gap to the gate pillar - 6mm.

CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment⁵ Digest 251, which describes it as "moderate".

Category 0	"negligible"	< 0.1mm
------------	--------------	---------

Category 1	"very slight"	0.1 - 1mm
Category 2	"slight"	>1 but < 5mm
Category 3	"moderate"	>5 but < 15mm
Category 4	"severe"	>15 but < 25mm
Category 5	"very severe"	>25 mm

Extract from Table 1, B.R.E. Digest 251
Classification of damage based on crack widths.

DISCUSSION

The pattern and nature of the cracks is indicative of an episode of subsidence. The cause of movement appears to be clay shrinkage.

The timing of the event, the presence of shrinkable clay beneath the foundations and the proximity of vegetation where there is damage indicates the shrinkage to be root induced. This is a commonly encountered problem and probably accounts for around 70% of subsidence claims notified to insurers.

Fortunately, the cause of the problem (dehydration) is reversible. Clay soils will re-hydrate in the winter months, causing the clays to swell and the cracks to close. Provided the cause of movement is dealt with (in this case, vegetation) there should not be a recurrence of movement.

No structural changes to the building have been carried out which has contributed to the current subsidence related damage under investigation. Furthermore, we are not aware of any previous underpinning.

RECOMMENDATIONS

Although the cause of the movement needs to be dealt with, we note the involvement of a Local Authority tree. Unfortunately, they will require certain investigations to be carried out to demonstrate the influence of their vegetation.

Typically, these investigations would involve trial pit(s) to determine the depth and type of footings, boreholes to determine the nature of the subsoil/influence of any roots and monitoring to establish the rate and pattern of movement. It may also be necessary to obtain a specialist Arboricultural Report.

We will report further once these investigations have been completed.

David Watt BSc Hons
Crawford Claims Solutions – Subsidence

PHOTOGRAPHS



Crack widens to 5 mm as it reaches Portico



Front garden



Gate pillar - wall movement around joint



Gate pillar - wall separation - 6 mm



Left side of Portico and steps evidence of low level crack



Left side of house from front



Pillar at front leaning to the left and towards pavement, gate will not close



Portico Column separating slightly from stairwell