

TECHNICAL REPORT ON A SUBSIDENCE CLAIM



**29 Elsworthy Road
London
NW3 3BT**



Prepared for

LV= Commercial

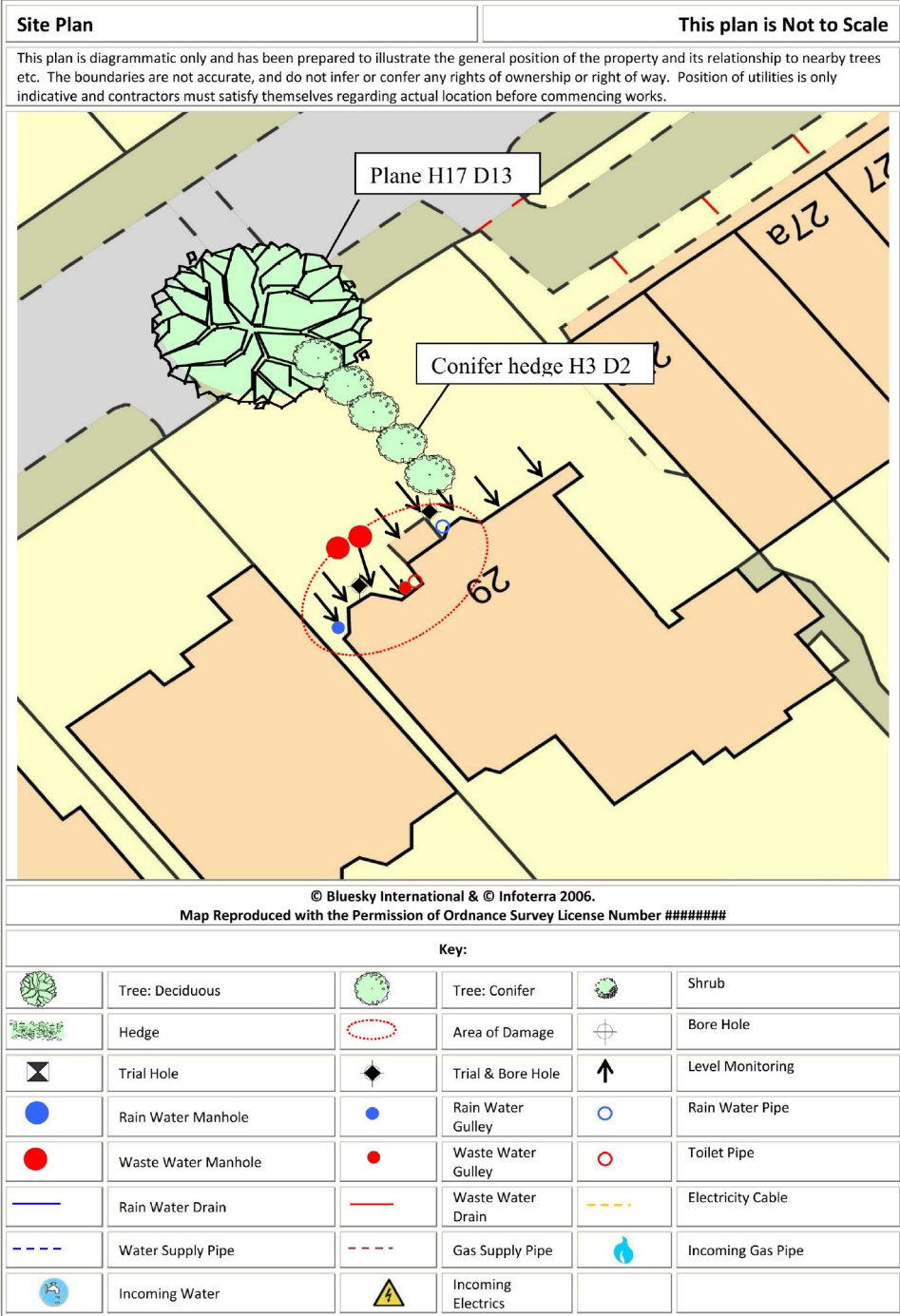
SUBSIDENCE CLAIM

DATE 17 December 2018



Crawford®





INTRODUCTION

We have been asked by LV= Commercial 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

The property was the subject of a previous claim in 2016 which affected the front bay. The bay was repaired in Summer 2017 however the tenant noted the cracking returning around June 2018. Insurers were then notified.

PROPERTY

The building comprises a two storey large detached house of traditional construction with brick walls surmounted by a hipped, tiled roof. No 29, the risk address, includes the ground floor only. 4 further flats (nos 29A-29D) comprise the upper floor plus rooms in the roof structure. No 29 has a large bay extension, added at an unknown date, towards the right hand side. At the centre of the front elevation is a portico, with a smaller bay to the left side.

HISTORY & TIMESCALE

Site investigations are being organised and level monitoring is to be established. We have written to the Local Authority regarding their tree.

Date of Construction	Circa 1910
Claim Notified to Insurer.....	10/10/2018
Date of our Inspection.....	13/12/2018
Issue of Report	20/12/2018

TOPOGRAPHY

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

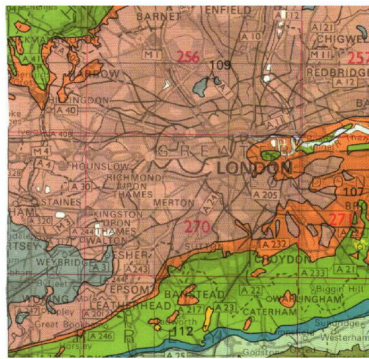
GEOLOGY

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.

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



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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
Plane	17 m	13 m	Council
Conifers	3 m	2 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.

Planes (Platanus) are deciduous and can reach heights in excess of 30m depending on health, environment and soil conditions. They have a medium growth rate of around 300mm per year and medium root activity⁴.

Maximum tree-to-damage distance recorded in the Kew survey was 15mtrs, with 50% of all cases occurring within 5.5mtrs⁵. Planes are moderately deep rooted, and are predominantly street trees.

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

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

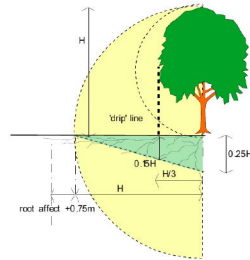
³ Driscoll L.R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.

⁴ Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

⁵ Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications

⁶ Cutler & Richardson (1991) "Tree Roots & Buildings" Longman Scientific

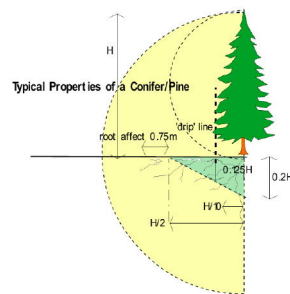




Typical proportions of a Plane tree, showing the potential root zone.

Life expectancy > 100 years and both young and old trees tolerant of pruning and crown thinning. Urban trees are prone to infection by anthracnose, a fungal foliage disease, which can be disfiguring, if not lethal. There is also concern about canker stain disease, which can also be lethal, spreading from Europe into Britain.

Conifers ~ The term is usually used to refer to cypresses and close relatives, but in the broader sense includes any trees that bear cones and nearly all of them have simple needle or scale like leaves, sometimes arranged into fronds as in the cypresses.



Typical tree proportions showing the root zone. This is a conservative estimate, as the zone can equal the height of the tree.

Generally they have less invasive roots and lower water demands than broadleaved species, but cypresses are often associated with subsidence as they are very fast growing, popular hedge plants that are frequently planted near houses.



OBSERVATIONS

The movement to the front right hand bay and entrance portico are the focal points of the Insured's concerns.

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

INTERNAL



Cracking to right hand side of bay



Cracking to left hand side of bay

Front Bedroom - 3mm vertical tapering separation down right hand side bay junction, 1mm vertical tapering separation down left hand side bay junction, 4mm horizontal tapering cracking between window cill and frames, 3mm horizontal tapering crack below cill on left hand side, historic distortion noted to window frames, historic slope to floor down towards front of property, side windows are difficult to open.

EXTERNAL



Cracking to bay



Cracking to bay

Front Bay - 5mm vertical tapering separation to left and right hand side junctions, historic distortions noted to bay structure.

Portico - 15mm vertical cracking above left hand column, 9mm diagonal cracking above right hand column, 23mm tapering gap across stone step front section junction, 1mm crack to underside of portico roof on right hand side, tarmac cracked and dropped in front of portico.



CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment⁶ 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.

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.

Matt Deller BSc (Hons) MCIQB Dip CII
Specialist Property Services - Subsidence Division

⁶ Building Research Establishment, [REDACTED]

PHOTOGRAPHS



Cracking to bay



Cracking to bay



View of council plane tree to front of property



View of bay window



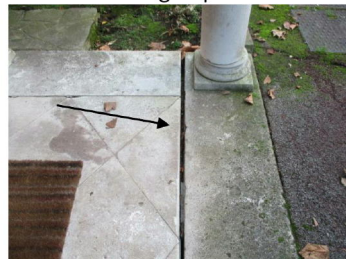
View of portico



Cracking to portico



View of portico step



Cracking to portico step

