

TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: [REDACTED]

**Flat 18
Holmefield Court
Belsize Grove
London
NW3 4TT**



Prepared for

Allianz Commercial

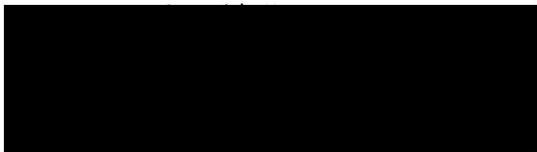
SUBSIDENCE CLAIM

21st January 2019



Crawford[®]

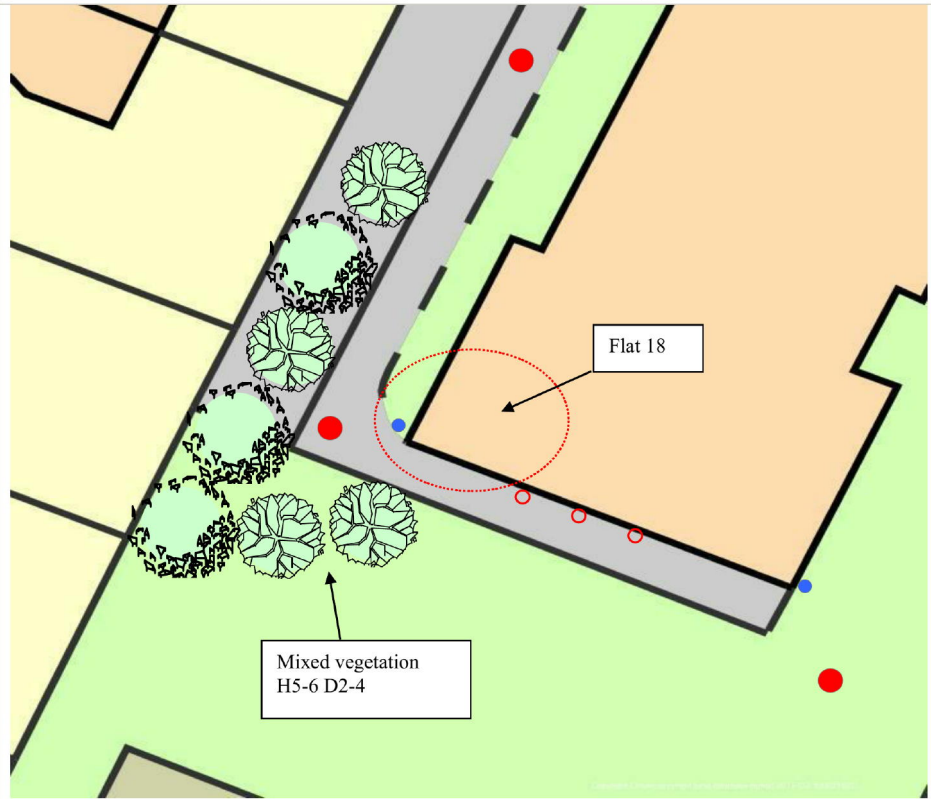
Specialist Property Services – Subsidence Division



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



















Site Plan **This plan is Not to Scale**

This plan is diagrammatic only and has been prepared to illustrate the general position of the property and its relationship to nearby trees etc. The boundaries are not accurate, and do not infer or confer any rights of ownership or right of way. Position of utilities is only indicative and contractors must satisfy themselves regarding actual location before commencing works.



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Key:

	Tree: Deciduous		Tree: Conifer		Shrub
	Hedge		Area of Damage		Bore Hole
	Trial Hole		Trial & Bore Hole		Level Monitoring
	Rain Water Manhole		Rain Water Gully		Rain Water Pipe
	Waste Water Manhole		Waste Water Gully		Toilet Pipe
	Rain Water Drain		Waste Water Drain		Electricity Cable
	Water Supply Pipe		Gas Supply Pipe		Incoming Gas Pipe
	Incoming Water		Incoming Electrics		

INTRODUCTION

We have been asked by Allianz 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

We met with Leo, the porter for Holmefield Court at our initial visit and he provided access into flat 18. Leo advised that there was a previous subsidence problem affecting flat 18 around 6/7 years ago but had no further details regarding this previous problem. The current cracking was notified to him recently by the tenant and insurers were contacted regarding a possible claim.

PROPERTY

The risk address is a large, four storey purpose built block of flats of traditional construction with part rendered brick walls surmounted by a flat roof.

HISTORY & TIMESCALE

We have requested some further information from the insured regarding the history and timing of the damage in order that we may complete our initial enquiries.

Date of Construction	Circa 1936
Damage First Noticed	December 2018
Date of our Inspection.....	14/01/2019
Issue of Report	21/01/2019

TOPOGRAPHY

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

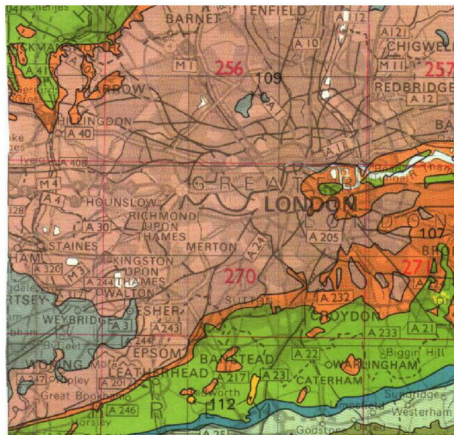
GEOLOGY

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.



Geology. Reproduced with consent of The British Geological Survey at Keyworth.
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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.

VEGETATION

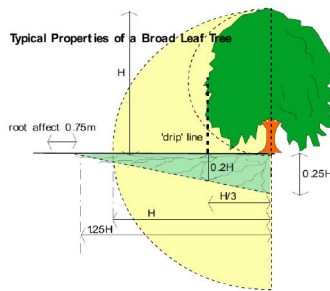
There are several trees and shrubs nearby, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
Ash	5 m	2 m	Owners
Shrubs	6 m	4 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.

Ash (*Fraxinus*) are deciduous and can reach heights between 20-30m depending on health, environment and soil conditions. They have a fast growth rate of around 500mm per year, medium root activity⁴ and medium water demand.

It is naturally vigorous and large growing, preferring light, fertile soils, but will grow on heavy clay. The maximum tree-to-damage distance recorded in the Kew survey was 21mtrs, and 50% of recorded cases occurred within 6mtrs⁵.



Typical proportions of an Ash. Note the potential root zone.

Young and old trees are tolerant of quite heavy pruning and crown reduction, but the timber is not particularly decay resistant and re-growth will need periodic cutting to keep weight and wind resistance down. Life expectancy > 100years. Root pruning can leave tree vulnerable to disease.

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.

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

⁵ Cutler & Richardson (1991) "Tree Roots & Buildings" Longman Scientific



OBSERVATIONS

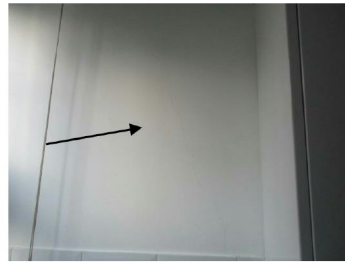
The movement to the rear left hand corner of flat 18 is the focal point of the Insured's concerns.

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

INTERNAL



Cracking to tiles in flat 18 kitchen



Cracking to bedroom partition in flat 18 kitchen

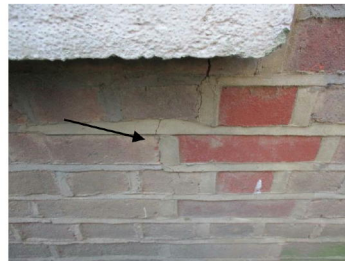
Flat 18 - Kitchen - Hairline vertical crack in wall and tiles above worktop level to bedroom partition, 3mm vertical crack to bedroom partition below worktop level.

Bedroom - Hairline diagonal crack to kitchen partition.

EXTERNAL



Cracking below kitchen window on left hand flank



Cracking below bedroom window on rear elevation

Left Hand Flank - 2mm vertical crack below left hand side of flat 18 kitchen window, 2mm stepped crack below right hand side of flat 18 kitchen window, unrelated diagonal cracking to render above left hand side of top floor left hand window.

Rear Elevation - 1mm vertical crack below left hand side of flat 18 bedroom window.



CATEGORY

In structural terms the damage falls into Category 2 of Table 1, Building Research Establishment⁶ Digest 251, which describes it as "slight".

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 cracking 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.

At the time of our visit we noted some cracking to the rendered section of the left hand flank at high level. The location and pattern of this particular isolated section of cracking was not indicative of that associated with foundation movement. We consider this cracking to be wear and tear related, the repair of which will fall outside the scope of this claim.

⁶ Building Research Establishment, Garston, Watford

RECOMMENDATIONS

Subject to a valid claim arising, the cause of the movement needs to be dealt with first. We have completed a soil risk analysis (VISCAT Assessment) and we are satisfied that your trees and shrubs growing around the area of the rear left hand corner of flat 18 can be removed.

We can obtain a quotation for the recommended tree works and undertake statutory checks for Preservation Orders or whether the trees are in a Conservation Area however, the actual cost of the tree works is not covered by the policy.

Following completion of the tree management works, we will undertake a suitable period of monitoring to confirm stability has been achieved before undertaking repairs to the property.

In the first instance, we have requested some further information from the insured regarding the history and timing of the damage in order that we may complete our initial enquiries.

Matt Deller BSc (Hons) MCI0B Dip CII
Specialist Property Services - Subsidence Division

PHOTOGRAPHS



View of general area of damage



View of trees / shrubs close to area of damage



Unrelated high level render damage to left hand flank



Cracking below kitchen window on left hand flank

