

TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: SU2005239

23 Three Oaks Close

Ickenham

Uxbridge

UB10 8DU



Prepared for

AXA Household

PO Box 7073, Willenhall, WV1 9ZW

Claim Reference 12392371F

SUBSIDENCE CLAIM



Crawford Claims Solutions – Subsidence

Cartwright House,

Tottle Road,

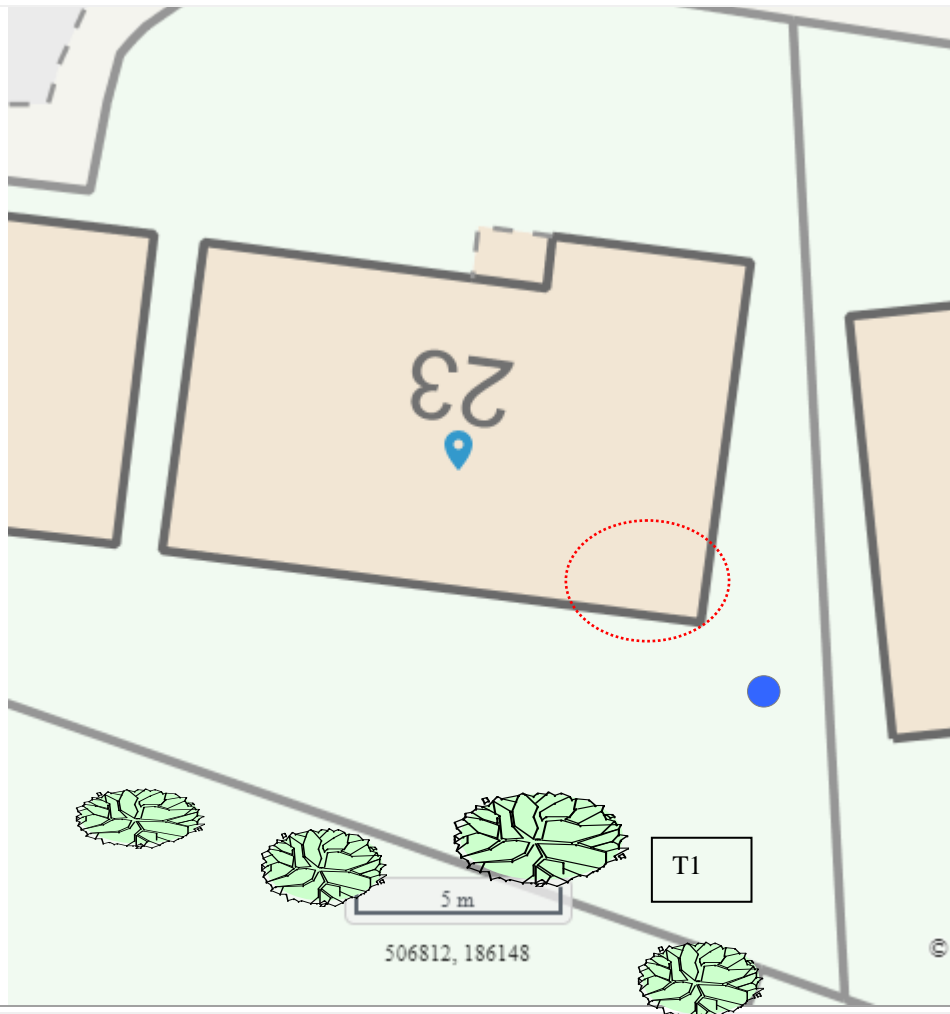
Riverside Business Park, Nottingham, NG2 1RT

Tel: 0115 943 8266

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

This is an Aerial Photograph of the property and the immediate surrounding area. The positions of utilities etc are only indicative and contractors must satisfy themselves regarding actual location before commencing works.



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Map Reproduced with the Permission of Ordnance Survey License Number #####

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		

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INTRODUCTION

We have been asked by AXA Household 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 insured noticed crack damage during the summer period of 2020, which increased in magnitude prompting a claim to be submitted for subsidence.

PROPERTY

Two storey detached bungalow of traditional construction with brick walls surmounted by a pitched tiled roof.

HISTORY & TIMESCALE

Reviewing tree management works.

Date of Construction	Not known
Purchased	2014
Policy Inception Date.....	31/01/2020
Damage First Noticed	20/10/2020
Claim Notified to Insurer.....	26/10/2020
Date of our Desktop Assessment	17/11/2020
Issue of Report.....	20/11/2020
Anticipated Completion of Claim	Spring 2021

TOPOGRAPHY

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

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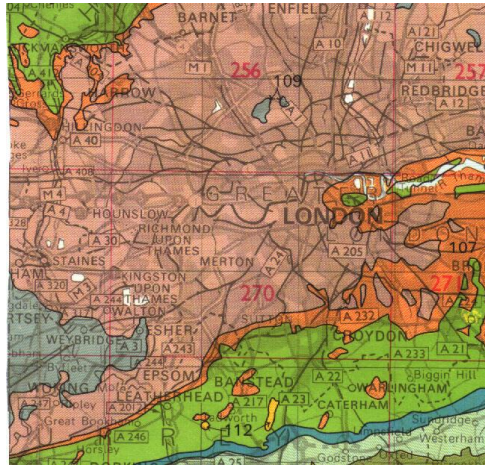
Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number TQNW suggests the underlying geology to be London Clay.

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 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.



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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
T1 Oak	15 m	5 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.

Oak trees (*Quercus*) are deciduous and native to Europe. They can reach heights in excess of 35m, but more typically grow to between 18 - 25m, depending on health, environment and soil conditions. They have a medium growth rate of around 250mm per year and strong root activity⁴.

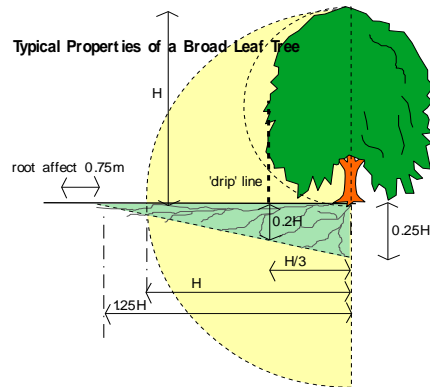
¹ Tomlinson M.J. (1991) *"Foundations Design & Construction"* Longman Scientific Publishing.

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

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

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

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



Typical proportions of an Oak showing the potential root zone. They have by far the most aggressive of root systems, often spreading considerable distances (1.5 x height or more).

Maximum tree-to-damage distance recorded in the Kew survey was 30mtrs, with 50% of all cases occurring within 9.5mtrs⁵. Life expectancy > 100 years, although they are vulnerable to insect and fungal attack. Old and young trees are tolerant of quite heavy pruning and crown reduction, although re-growth can be an ongoing problem.

Oaks are, in my experience, worthy of considerable respect when dealing with subsidence claims. Their root system extends for surprising distances and can be associated with particularly high soil suctions.

Because of difficulties in controlling the oak, and its vigorous root system, I regard it as being far more significant (in terms of a subsidence league table) than either the willow or poplar tree.

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

Rear left-hand corner of the property is the focal point of the movement.

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

INTERNAL

Bedroom

**REAR BEDROOM**

- Vertical crack noted both sides of the door opening.
- Diagonal cracking above and below the rear window.

EXTERNAL

Flank wall cracking



Rear wall cracking

REAR ELEVATION

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- Minor cracking below the rear window.

LEFTHAND SIDE FLANK ELEVATION

- Diagonal cracking extending from the top of window up to the intersection with the sloping roof.

LEFTHAND SIDE BRICK BOUNDARY WALL

- Opening noted between the sections of the wall that is not tied into the vertical brick column. (Not subsidence related)

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.

⁶ Building Research Establishment, Garston, Watford. Tel: 01923.674040

DISCUSSION

The pattern and nature of the cracks is indicative of an episode of subsidence to the rear left-hand corner. The cause of movement appears to be root induced 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

The cause of the movement needs to be dealt with first. However, in view of the extent of vegetation that is within influencing distance, particularly the Oak tree. We are obtaining an Arboricultural Report to provide recommendations on the extent of tree mitigation works warranted.

Provided the tree management works are completed expeditiously, consideration may then be given to carrying out the appropriate repairs to the property.

David Watt BSc (Hons)
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PHOTOGRAPHS



Rear Oak tree



Note location of Oak tree behind the risk address



Leaning boundary wall



Leaning boundary wall

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Bedroom

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