TECHNICAL REPORT ON A SUBSIDENCE CLAIM

[redacted]

Fivecourts Limited
22A Harley Road
Hampstead
London
NW3 3BN

Prepared for

RSA - Commercial
1st Floor, 17 York Street, Manchester, M2 3RS

[redacted]

SUBSIDENCE CLAIM

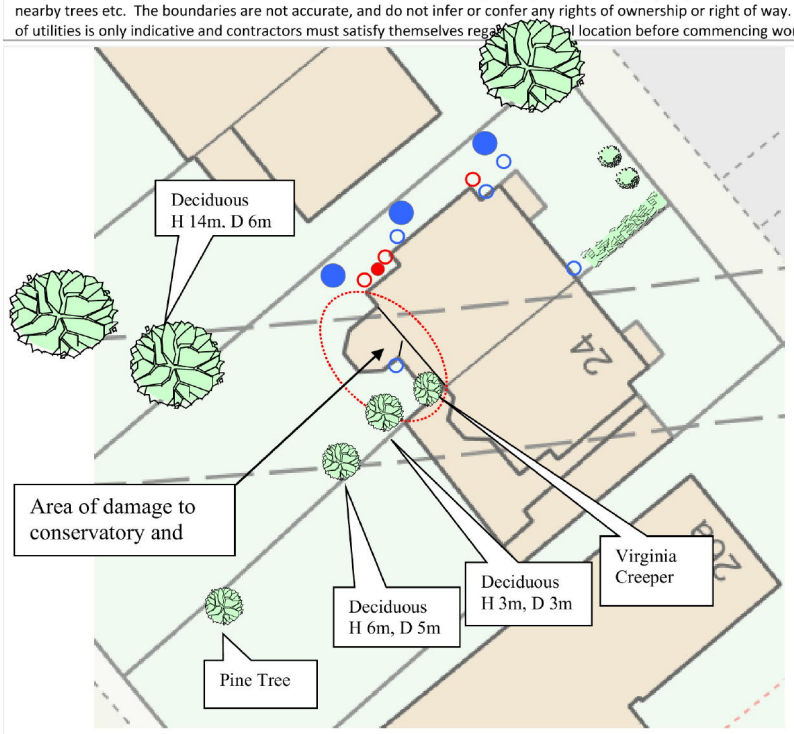
13th April 2022

[redacted]

[redacted]

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.



Key:

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

[redacted]

INTRODUCTION

We have been asked by RSA - 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

At the time of our inspection we met with the leaseholder of the basement flat, 22a Harley Road, and her respective purchaser. We were advised that the purchaser recently commissioned a survey which identified a number of issues with possible subsidence at the rear of the house. On reviewing the report advised the management company who notified insurers of a possible claim.

PROPERTY

The subject property comprises a basement flat within a four storey multi-occupied semi-detached house of traditional construction with masonry walls surmounted by a hipped, slated roof. To the front of the property is a small grassed garden and the main access staircase. To the right side of this is a pathway leading to the front door to the basement flat. At the rear of the property is a garden comprising paving and grass.

HISTORY & TIMESCALE

We will now instruct site investigations to confirm the cause of the problem and determine any mitigation measures that are required.

Date of Construction	1900
Purchased	1985
Policy Inception Date	27/01/2001
Damage First Noticed	23/09/2020
Claim Notified to Insurer	14/02/2022
Date of our Inspection	16/03/2022
Issue of Report	13/04/2022
Anticipated Completion of Claim	Autumn 2022

[redacted]

TOPOGRAPHY

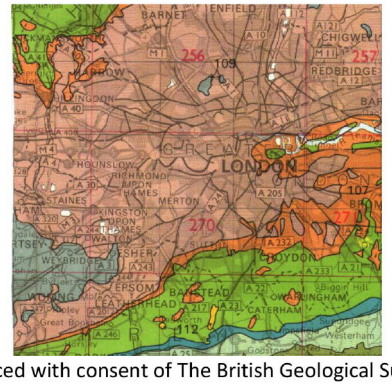
The property occupies a sloping site down from the front to the rear with no unusual or adverse topographic features.

GEOLOGY

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

Clay soil superficial deposits are a cohesive soil characterised by their fine particle size and are usually derived from weathering of an underlying "solid geology" clay soil such as London Clay or Oxford Clay.

Like the solid geology sub-soil from which they are derived they shrink when dry, and swell when wet and can be troublesome when there is vegetation[1] nearby and Gypsum and selenite crystals can be encountered (particularly in the south east). Protection using Class II Sulphate Resisting cement is therefore recommended for buried concrete.



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:-

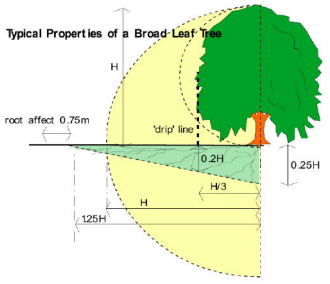
Type	Height	Distance	Ownership
Climber	3 m	1 m	Owners
Deciduous	14 m	6 m	Neighbour 1
Deciduous	3 m	3 m	Owners

[1] DriscollL R. (1983) *"Influence of Vegetation on Clays"* Geotechnique. Vol 33.

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.

Climbers: Can be significant in subsidence cases as they are frequently planted close to the property, trained up house walls. As their roots do not need to spread to provide support they are frequently compact, and can have an intense but localised desiccation effect. Most tolerate pruning well, but respond by sprouting vigorously and need regular maintenance. Pyracantha or firethorn is common and has roots which cannot be distinguished anatomically from apple, pear and other members of the Pomoideae group of the rose family. Wistyeria roots are similar to those of other members of the pea family, including laburnum and false acacia.

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.

OBSERVATIONS

The single storey rear bay and conservatory are the focal point of concern.

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

INTERNAL

Cracking in the living room over the rear bay reveal

Crack at the right side of the conservatory at the junction with the main building

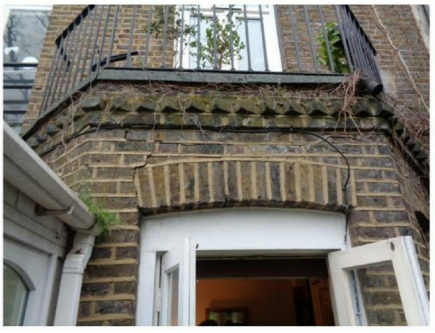
Living Room (5.4 x 4.0 x 2.5)

- Hairline crack over the right corner of the opening through to the kitchen area which appears longstanding and not related to subsidence.
- Hairline cracks either side of the archway through to the rear bay area.
- 1mm wide cracks over both corners of the French doors in the rear bay.

Conservatory (3.5 x 3.1 x 2.5)

- Vertical 3mm wide crack to the right hand side of the conservatory at the junction with the main house.
- 2mm wide crack to the left hand side of the conservatory alongside the door through to the living room at the same junction.

EXTERNAL



The damaged arch over the French doors in the single storey rear bay

Cracking where the arch has failed

Rear Elevation

- 10mm wide crack over the left corner of the arch over the French doors to the rear bay. The arch has slipped and requires re-setting.
- Vertical cracks either side of the conservatory at the junction with the main rear elevation up to approximately 2mm width.
- Stepped crack over the left corner of the first floor window which did not extend any further upwards or downwards. This appeared longstanding and had been previously repaired and was not consistent with subsidence.
- An historic bow in the brickwork both to the rear and left hand elevations at first floor level which is not related to subsidence.

CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment[2] 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 cracking evident to the single storey rear bay and to the conservatory is consistent with slight subsidence of the foundations. Timing of damage is not known, but it is likely to have developed since some repointing of the rear elevation was undertaken, we understand in 2016/2017.

The property is known to be founded on a clay soil and there are trees within the vicinity, therefore, the most likely cause is shrinkage of the clay substrata during dry weather conditions aggravated by the trees. We are also aware of the proximity of underground drains which may extend beneath the conservatory. Water leaking from underground drains and the like can cause localised softening/erosion of clay soils and this will need further investigations.

Further site investigations will be required. Typically, these involve trial pits to determine the nature of the footings and subsoil and a localised drainage survey.

We will report further once these investigations have been completed.

We understand that no structural changes to the building have been carried out which would have contributed to the current subsidence related damage under investigation. Furthermore we are not aware of any previous underpinning.

[2] Building Research Establishment [redacted]

[redacted]

RECOMMENDATIONS

The cause of the movement needs to be dealt with first.

We will arrange for trial pits and boreholes to be excavated beneath the foundations of the conservatory and rear bay and soil and root samples will be retrieved for laboratory analysis. We will also arrange a CCTV survey of the underground drains.

Should vegetation be implicated in the cause of the problem then a specialist report will be obtained from an Arboricultural Consultant to comment on the most appropriate reduction/removal to stabilise ground conditions.

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.

On receipt of the Site Investigation report, we will advise on causation and the scope of mitigation works required.

Mark Lacy BSc (Hons) MCIOB C.Build E FCABE BDMA Tech (Ins)
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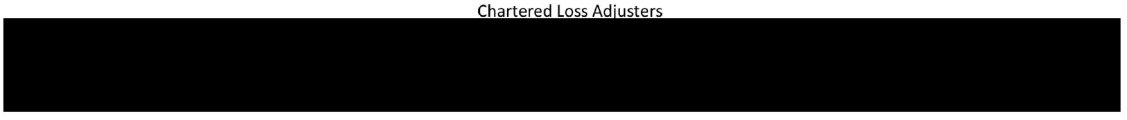


PHOTOGRAPHS

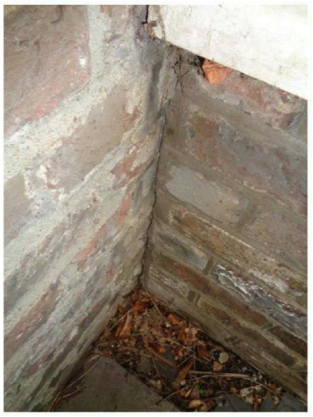
A remote view of the front elevation

A general view of the living room

A general view of the conservatory

The rear elevation

Cracking in the conservatory over the door to the living room



Crack to the left side of the conservatory

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