sedgwick.

[redacted]

Subject Property Address:

76 Agar Grove
LONDON
NW1 9TL

INSURANCE CLAIM

CONCERNING SUBSIDENCE DAMAGE

ENGINEERING APPRAISAL REPORT

This report is prepared on behalf of [redacted] or the purpose of investigating a claim for subsidence. It is not intended to cover any other aspect of structural inadequacy or building defect that may otherwise have been in existence at the time of inspection.

Date: 06/08/2021

[redacted]

[redacted]

INTRODUCTION:

The technical aspects of this claim are being overseen by our Building Consultant Michael Whittington BSc(Hons) MCIOB AssocRICS, in accordance with our project managed service.

Due to the current Covid-19 Pandemic a physical site visit was not possible; as a result, a digital visit was arranged via 'Sightcall'.

The claim is primarily concerned with damage throughout the property. A sketch plan and photographs are attached and all references to the property are as observed facing the front of the building.

DESCRIPTION OF BUILDING

The subject property is a four level (including lower floor basement) semi-detached house constructed in circa 1900, in a main road on a plot that is level. The property is of traditional construction.

There are trees within influencing distance of the property.

T1 – Lime tree located within the policyholder's rear garden, this tree is approximately 15m high and 15m from the right-hand corner of the rear elevation.

CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The current tenant noticed cracking throughout the property approximately 6 years ago (2014), which appears to have got progressively worse. As a result, the damage was reported to One Housing. The tenant has also confirmed they have been living at the property for approximately 40 years, with no previous significant cracking noted prior to 2014.

Insurer has requested for a Sedgwick to attend and confirm if current damage is subsidence related.

NATURE AND EXTENT OF DAMAGE

Sketches showing the layout of the site and the damage are attached.

Description and Mechanism

The main area of damage is throughout the property and takes the form of tapered and separation cracking to walls and ceilings. There is no apparent mechanism of movement, however it has been noted that the cracking appears throughout the property including along the shared party wall and right-hand flank wall.

The indicated mechanism of movement is downwards towards foundations.

Significance

The level of damage is slight, and is classified as category 2 in accordance with BRE Digest 251 - Assessment of damage in low-rise buildings..

Onset and Progression

as advised that damage first commenced in 2014.

We consider that both the crack damage and distortions are historic.

It is likely that movement is progressive.

SITE INVESTIGATIONS

Reference to the geological survey map shows the anticipated subsoil as London Clay.

The site investigation was arranged to confirm the cause of damage and has been undertaken by CET Ltd on 3rd June 2020. For precise details of the trial pit and borehole location, together with test results, please refer to the attached CET 'Site Investigation Factual Report'.

A trial pit was excavated to the depth of 1.00m to the right-hand corner of the rear elevation, which revealed a brick corbel and crushed brick foundation to a depth of 700mm bearing upon stiff clay, which is classified as being highly shrinkable. A borehole was sunk within the trial pit to a depth of 5.00m, which confirmed firm clay (1.00m – 1.50m), stiff clay (1.50m – 3.50m) and very stiff clay (3.50m – 5.00m). The borehole was also noted as being dry and open upon completion with no roots observed below 2.00m.

In-situ soil testing was undertaken and a shear vane reading of 90 (Kpa) and 95 (Kpa) were measured at the underside of the foundation and down to a depth of 2.00m. This would indicate that the soil conditions at these levels are dry and stiff.

Roots up to 5mm in diameter were noted at the underside of the foundations (700mm). Four roots were analysed and found to be alive and originate from Tilia spp. Such roots are considered to originate from the Lime tree located within the rear garden of the subject property.

A CCTV survey was undertaken to the drainage located within close proximity to the right-hand side flank wall of the subject property. The survey revealed a Condition Grade B (cracks and fractures observed) and confirms that localised repairs have been recommended to Runs 1 and 2, which include high pressure water jetting to pipe work and patch / flexi liner repairs to an approximate length of 8.5LM. We would recommend that these localised repairs are undertaken and for CET to be appointed to carry out the repairs. These drainage repairs were completed September 2020.

MONITORING

Crack width and level monitoring have been instructed and readings are to be taken at eight-week intervals.

To date we have evidence of cyclical movement;

July 2020 – November 2020

Level monitoring confirmed slight downwards movement ranging from 2mm to 4mm between.

November 2020 – March 2021

Recovery / upwards movement (2mm – 7mm) was also noted.

We have instructed for a further x2 visits in order to determine if any further downward movement has been noted throughout the remaining months during summer 2021 (this year) and if any recovery is then noted towards Autumn 2021.

CAUSE OF DAMAGE

Taking an overview of all the site investigation results referred to above, it is my opinion that the cause of damage results from clay shrinkage subsidence brought about by the action of roots from the Lime tree located in the rear garden of the risk address.

I base this view on the fact that the foundations of the property in the area of damage have been built at a relatively shallow depth, bearing onto shrinkable clay subsoil. The soil is susceptible to movement as a result of changes in volume of the clay with variations in moisture content and analysis of the site investigation results indicates that the soil has been affected by shrinkage. Tree roots are present in the clay subsoil beneath the foundations. In this case, I am satisfied that the damage has therefore been caused by clay shrinkage subsidence following moisture extraction by the tree.

RECOMMENDATIONS

It is recommended that the Lime tree located in the rear garden and close to the property is removed to mitigate against further movement. The Mitigation Centre of Oriel Services Ltd will liaise with the Local Authority in this regard {and a copy of OCA UK Limited's report is attached herewith}.

As confirmed above the drains located close by the property have been repaired. Crack width/level monitoring will continue after severe pruning/removal of the tree in order to check for stability. A detailed scope of repairs will be finalised upon conclusion of the monitoring.

HEAVE ASSESSMENT

I have assessed whether significant heave/ground recovery will occur should the vegetation as referred to above be removed.

I conclude that this is not the case as no desiccation has been found in the soil samples. The reason for the lack of desiccation is that the clay subsoil has rehydrated over the wetter winter months such that the moisture deficit that would have existed last summer has been replenished, and equilibrium moisture content has returned. Consequently, as there is no desiccation then there cannot possibly be any heave/swelling of the clay subsoil.

In summary, based on the site investigation results, the timing of the investigation and the nature and extent of damage within the property, I have concluded that significant heave and/or ground recovery will not occur should the vegetation management described above be undertaken.

REPAIRS

If the Lime tree is removed, then I consider that works including structural crack repair and redecoration at an approximate [redacted] will be appropriate in order to repair the damage in this case.

If the Lime tree is not removed/severely pruned then it may be necessary to consider underpinning of the foundations of the property in the area of damage, in addition to structural crack repair and redecoration needed to repair the damage. The total cost of this option is estimated [redacted]

Michael Whittington BSc(Hons) MCIOB AssocRICS
Building Consultant

Esther Mulholland
Claims Technician
[redacted]