

Cunningham Lindsey t/as Sedgwick



Subject Property Address:

Flat A, 53 Oakley Square  
London  
NW1 1NJ

**INSURANCE CLAIM**

**CONCERNING SUBSIDENCE DAMAGE**

**ENGINEERING APPRAISAL REPORT**

This report is prepared on behalf of Zurich Personal Lines for 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: 06/07/2018

Cunningham Lindsey Ref: 6711155



## INTRODUCTION

Technical aspects of this claim are being overseen by our Building Consultant, Gavin Catheline MCIOB, in accordance with our project managed service.

## DESCRIPTION OF BUILDING

The subject property is a flat within a converted terrace house originally constructed c.1850, in a mature residential area and on a plot that is generally level.

The claim concerns damage to the rear three storey projection.

## CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The policyholder and homeowner, Mrs Kathleen O Boyle, first discovered the damage in approximately 2012.

The damage has been seen to get worse over the last 6 years. The Local Authority is responsible for the freehold have been investigating the damage.

## NATURE AND EXTENT OF DAMAGE

### Description and Mechanism

The principal damage takes the form of vertical tapered cracking which has formed at the junction between the main house and rear projection.

The indicated mechanism of movement is downward towards the rear of the projection.

### Significance

The level of damage is severe, and is classified as category 4 in accordance with BRE Digest 251 - Assessment of damage in low-rise buildings.

### Onset and Progression

██████████ advised that damage first commenced in 2012.

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

It is likely that movement will be of a cyclical nature with cracks opening in the summer and closing in the winter, until the necessary mitigation measures are undertaken to address the cause of damage.

## SITE INVESTIGATIONS

Site investigations were undertaken by CET Property Assurance Ltd on 23<sup>rd</sup> March 2018 and comprised the excavation of a single trial pit extended by hand auger.

Trial pit / borehole 01 was excavated adjacent to the rear right corner of the rear three storey projection and revealed a 250mm thick brick rubble and clinker foundation with an overall founding depth of 550mm below ground level. The founding subsoil is a stiff brown, grey veined silty CLAY. This clay subsoil extended throughout the borehole to a depth of 5000mm below ground level becoming very stiff from 2000mm. Numerous live roots were observed within the subsoil samples to a depth of 2500mm below ground level. A deep datum was installed at the base of the borehole at 5000mm for the purpose of level monitoring.

The subsoil and root samples were sent to a laboratory for analysis. The clay subsoil has been found to be of high and very high plasticity index meaning that the material is very susceptible to movement due to shrinkage and swelling with variations in moisture content. This is to say that the clay subsoil is plastic and will reduce in volume if water is extracted from the ground by the action of roots, particularly during dry weather conditions. The moisture content and soil suction profiles indicate that there is a moisture deficit at approximately 1500mm below ground level, indicating that the subsoil has been affected by moisture extraction by the roots present.

The roots that were found in the subsoil samples to a depth of 2500mm below ground level were analysed in the laboratory and have been identified as *Platanus* – commonly known as London Plane and were alive.

## MONITORING

We consider that level and crack width monitoring is required. This is to confirm the operation of a clay shrinkage subsidence mechanism.

This information will be required to assist negotiations for removal of the nearby London Plane tree.

Monitoring will also be used to determine when relative stability has been regained.

## CAUSE OF DAMAGE

Based on the information detailed above, we are of the opinion that damage has occurred due to clay shrinkage subsidence. This has been caused by moisture extraction by roots altering the moisture content of the clay subsoil, resulting in volume changes, which in turn have affected the foundations.

## RECOMMENDATIONS

Our recommendation is that mitigation measures are undertaken to remove the cause of damage. This will allow the subsoil and building foundations to regain stability. Consideration can then be given to appropriate building repairs.

### MITIGATION

We consider the damage will not progress if appropriate measures are taken to remove the cause. In this instance it is likely that vegetation for which the policyholder is responsible is contributing toward the cause of damage.

We recommend that the large London Plane tree opposite the rear right corner of the building is removed. We will obtain an Arboricultural Report to confirm the extent of vegetation removal works required to restore long term stability.

It is noted that the London Plane tree is in the risk address rear garden and that it appears to be the responsibility of the freeholder owner, in the is case a Local Authority. It will therefore be necessary to obtain strong evidence to demonstrate a causal link between the London Plane tree and the damage to the property.

### REPAIR

We have not decided on the final type of repair required as our investigations have not yet been concluded. This involves undertaking superstructure strengthening, repairs and redecoration. This decision will be taken based on our knowledge and experience of dealing with similar claims. In addition the results of the site investigation, laboratory testing and monitoring will be taken into account.

### 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.

#### REPAIR COSTS

If the London Plane tree is removed then I consider that works including structural crack repair and redecoration [REDACTED] in order to repair the damage in this case.

If the London Plane tree is not removed 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. [REDACTED]  
For Cunningham Lindsey:

Gavin Catheline MCIOB  
*Building Consultant*

Laura Dyke  
*Claims Technician*

