



Policyholder: [REDACTED]

Subject Property Address:

70 - 75 Auden Place
LONDON
NW1 8ND

INSURANCE CLAIM

CONCERNING SUBSIDENCE DAMAGE

ENGINEERING APPRAISAL REPORT

This report is prepared on behalf of [REDACTED] 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: 20/07/2022

[REDACTED]

[REDACTED]



INTRODUCTION

This report has been prepared by our Chartered Builder, Gavin Catheline MCIOB, and is being investigated in accordance with our Project Managed Service.

Unless stated otherwise all directions are referred to as looking towards the front door from the outside the property.

DESCRIPTION OF BUILDING

The subject property is a 3-storey block of purpose-built flats constructed c.1970, in a residential estate location and on a plot that is generally level.

The claim concerns damage to the right-hand side elevation of the block 70-75 Auden Place.

CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The policyholder and homeowner, One Housing Group, first discovered the damage in 2020.

Cracking reported by tenant at 70 Auden Place.

NATURE AND EXTENT OF DAMAGE

Description and Mechanism

The principal damage takes the form of vertical and diagonal tapered cracking.

The indicated mechanism of movement is downward towards right hand side.

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

One Housing Group has advised that damage first commenced in Summer 2020.

We consider that the crack damage has occurred recently, but that 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.



SITE INVESTIGATIONS

Site investigations were carried out by CET Property Assurance Ltd on 9th March 2021 and for details of the trial pit and borehole locations, together with test results, please refer to the attached CET factual report.

Trial Pit 01/Borehole 01

This was located mid-way along the right-hand side elevation of the block 70-75 Auden Place, within the area of damage and this revealed a concrete foundation with an overall founding depth of 1600mm below ground level. The founding subsoil is described as stiff, orange / brown, silty CLAY. Numerous roots up to 3mm in diameter were observed beneath the foundations. The clay subsoil became very stiff from 2.0m which extended throughout the remainder of the borehole to a depth of 6.0m below ground level with further roots being observed within the subsoil samples to a depth of 3.5m. A datum was installed at the base of the borehole at 6.0m as a reference point for level monitoring.

The subsoil samples retrieved from borehole 01 were sent to a laboratory for analysis. This has revealed that the clay subsoil is 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 if moisture is withdrawn from the subsoil, for example due the action of roots, then shrinkage i.e. a volumetric reduction will occur. Analysis of the subsoil moisture content profiles indicates that the subsoil in borehole 01, within the area of damage has a moisture deficit at a depth of approximately 2.5m below ground level. This indicates that the subsoil in borehole 01 has been affected by shrinkage due to the action of the roots found beneath the foundations.

The roots have been analysed in the laboratory and have been identified as *Platanus* – which include London plane and Oriental Plane. These roots clearly emanate from the large Plane tree in the adjacent property garden at 52 Regents Park Road, London, NW1 directly opposite the subject right-hand side elevation.

MONITORING

Precise level monitoring has been undertaken over the period 17/03/2021 to 06/07/2022 and the readings are appended to this report.

The most recent readings taken on 06/07/2022 indicate significant downward movement of up to approximately -5mm at points 1, 2, 3 and 4 all within the area of damage to the building.

Previous level monitoring readings at the same points had shown upward movement indicative of recovery of the subsoil during the wetter winter and spring months.

The results of the level monitoring confirm the operation of a root exacerbated clay shrinkage subsidence mechanism with the building moving downward in the summer/autumn and recovery upward in the winter/spring months.

This cyclical movement is being caused by the ongoing water demand of the nearby Plane tree close to the area of damage and is additional evidence of this tree's involvement in the damage to the property.



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 address the cause of damage and restore stability to the subsoil and building foundations. Consideration can then be given to the required 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 a Private Third Party is responsible is contributing toward the cause of damage.

We recommend that the Plane tree in the adjacent property garden at 52 Regents Park Road, London, NW1 opposite the right-hand side elevation of the block 70-75 Auden Place is removed.

T1 – Plane tree – approximately 25m high, 6m distance from the right-hand side elevation of block 70-75 Auden Place – owned by private third party at 52 Regents Park Road, London, NW1.

REPAIR

We have not yet decided on the final type of repair required but have produced an outline of the most likely requirements. This involves undertaking superstructure repairs and redecoration. This decision has been taken based on our knowledge and experience of dealing with similar claims. In addition, the results of the site investigation, laboratory testing and monitoring have been taken into account.

HEAVE ASSESSMENT

We have assessed whether significant heave will occur should the vegetation as referred to above be removed.

We 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 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, we have concluded that significant heave will not occur should the vegetation management described above be undertaken.

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REPAIR COSTS

If the Plane tree is removed, then we consider that works including structural crack repair and redecoration at an approximate cost of £20,000.00 will be appropriate in order to repair the damage in this case.

If the 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. The total cost of this option is estimated at £250,000.00.

Gavin Catheline MCIOB
Building Consultant

Andrew Peck
Claims Technician

