



2 The Boulevard, City West One Office Park, Gelderd Road, Leeds, LS12 6NY
01622 608810

Policyholder:



Subject Property Address:

Flats 2 & 4
18 St Peters Hill
Caversham
Reading
Berkshire
RG4 7AX

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: 11/01/2025

Our Ref: 9660381

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 detached house, constructed c1917, which has been converted into self-contained flats, in a main road location and on a plot that is gently sloping down from left to right.

The claim concerns damage to the front right corner of the building.

CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The policyholder and property owner, [REDACTED], first discovered the damage in Summer 2022.

The owner of the leasehold flats 2 and 4 has been aware of cracking since purchase of the flats in 2017. Previous assessment revealed that the cracks were not of any structural importance and the policyholder arranged repairs. The cracks have recently reappeared in areas of previous repair and new areas generally towards the front right corner of the building and the front right bay window and porch. Insurers were subsequently notified.

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 the front right corner.

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

[REDACTED] has advised that damage first commenced in Summer 2022.

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 22nd December 2022 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 adjacent to the front right corner of the main building, within the area of damage and this revealed a brick foundation with an overall founding depth of 650mm below ground level. The founding subsoil is described as very stiff, brown, silty, gravelly CLAY with partings of orange silt and fine sand. Numerous roots up to 8mm in diameter were observed beneath the foundations. The very stiff, silty, gravelly clay subsoil with roots extended throughout the borehole to a depth of 1.8m where an obstruction was encountered thought to be dense gravel. Further roots were observed within the subsoil samples throughout the borehole to a depth of 1.8m. The borehole was dry and open on completion.

The subsoil samples retrieved from borehole 01 were sent to a laboratory for analysis. This has revealed that the clay subsoil is of 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 and soil suction values indicate that the subsoil in borehole 01, within the area of damage has a moisture deficit at foundation 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 *Aesculus* – which are horse chestnuts. Other roots were identified as *Fagus* - which include common beech and copper beech. These roots clearly emanate from the horse chestnut and beech trees close to the front right corner of the building.

A CCTV survey of the drains to the front and right-hand side of the property was also carried out as part of the site investigations. This has revealed numerous defects to the clay pipe sections of the drains including medium displaced joints, medium open joints and root intrusion. Such defects can often be found in this type and age of drainage system and may be of little consequence under normal use of the drains. However, the drains should be repaired to prevent the damage from getting worse as recommended in the drainage survey report from CET. The condition of the subsoil in trial pit 01/borehole 01 does not indicate that the subsoil has been adversely affected by leakage from the drains.

MONITORING

Precise level monitoring has been undertaken over the period 15/02/2023 to 30/09/2024 and the results are attached for your assistance.

The results of the monitoring confirm a cyclical movement trend with the building within the area of damage moving downward in the summer and recovering upward in the winter.

This pattern of movement is consistent with the operation of a tree root exacerbated clay shrinkage subsidence mechanism.

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

It is recommended that the Beech and Horse Chestnut trees located close to the front right corner of the property are removed to mitigate against further movement.

We attach the Arboricultural Report which identifies the following trees as being implicated in the current damage and that they should be removed to restore stability.

T1 – Horse Chestnut – 10m high, 5.13m distance from building

T2 – Beech – 16.6m high, 3.18m distance from building

T3 – Horse Chestnut – 13.5m high, 4m distance from building

T4 – Horse Chestnut – 12.6m high, 5.18m from building

Crack width/level monitoring will continue after removal of the trees in order to check for stability. A detailed scope of repairs will be finalised upon conclusion of the monitoring.

HEAVE ASSESSMENT

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

The site investigation has been undertaken during December 2022 with desiccation suggested by the soil suction and moisture content readings at foundation level. The amount of desiccation is minor and, in our opinion, represents purely seasonal desiccation rather than a persistent soil moisture deficit.

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.

REPAIR COSTS

If the trees are removed, then we consider that works including structural crack repair and redecoration at an approximate cost of £15,000.00 will be appropriate in order to repair the damage in this case.

If the trees are 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 £150,000.00.

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