2 The Boulevard, City West One Office Park, Gelderd Road, Leeds, LS12 6NY
01924 428691



Policyholder: [redacted]

Subject Property Address:

3 Elm Close
Kings Ripton
HUNTINGDON
Cambridgeshire
PE28 2NN

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: 01/05/2024

Our Ref: 9617748

INTRODUCTION

This report has been prepared by our Building Consultant, [redacted] 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 main property is a semi-detached house constructed circa 1947 in a village location on a plot that is considered generally to be gently sloping down from rear to the front.

The property benefits from having a rear extension.

There is an Elm tree within influencing distance of the property.

CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The Insured noticed the damage to the property in March 2022 but was minor and no cause for concern.

Damage worsened and became a concern in July 2022 whilst in the process of selling the property and therefore notified Insurers.

NATURE AND EXTENT OF DAMAGE

Description and Mechanism

The main area of damage is to the front right corner of the house and takes the form of slight vertical and diagonal cracking above and below window openings located to the front left bedroom, front right bedroom and lounge which are all located towards the front and right of the property. Further cracking is noted above and below the landing window.

Externally, a slight to moderate tapered horizontal crack is noted along the brickwork at damp proof course level. The crack is at its widest to the front right corner. The start of a vertical crack is noted below the damp proof course estimated 3m from the right corner.

The extent and pattern of the damage indicates a downward rotational movement of foundations towards the front right corner of the house.

Significance

The level of damage is moderate and is classified as category 3 in accordance with BRE Digest 251 - Assessment of damage in low-rise buildings.

Onset and Progression

[redacted] has advised that damage first commenced in July 2022.

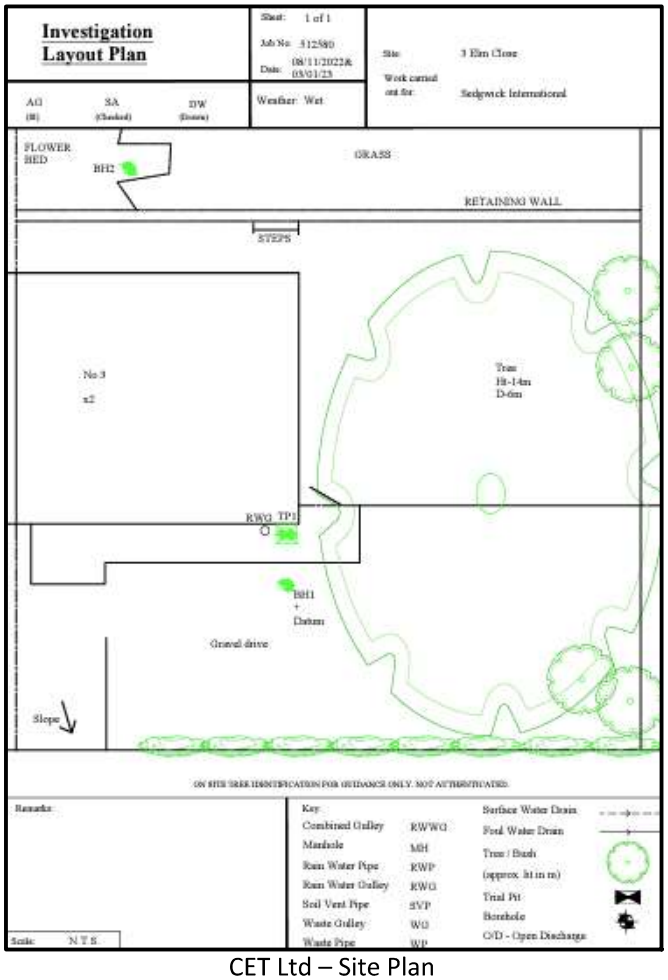
We consider that the damage has occurred recently. It is likely that movement will be of a cyclical nature with cracks opening in the summer and closing in the winter.

SITE INVESTIGATIONS

Reference to the solid and drift geological survey map shows the anticipated subsoil is clay overlying Oxford clay.

The ground investigation was carried out by CET Ltd on 13th December 2022. For details of the trial pit and borehole locations, together with test results, please refer to the attached CET factual report.

The investigations included trial pit and borehole investigations to the front right side of the house. With an additional remote bore hole to the rear for comparison.



CET Ltd – Site Plan

The results of the ground investigation indicate the following:

- The foundations of the main house towards the front right corner of the house are 500mm deep.
- The foundations bear onto stiff brown silty sandy clay with gravel and chalk with adequate bearing capacity.
- Live roots were recovered from beneath the foundations of the property to a depth of 2000mm below ground level which were identified from the Ulmus spp. include elm trees.
- The soils testing has indicated the potential to display medium to high shrink and swell characteristics in relation to changes in the moisture content. The soil tests have shown that the clay to be deficient in moisture.
- A heave calculation has indicated that the risk of heave or ground recovery if the elm tree is removed is acceptable.
- No drainage investigations have been carried out however, it is evident that sub-soil has adequate bearing capacity and has not been softened by any leaking drains.

MONITORING

Level monitoring has been carried out over a period from February 2023 to April 2024. The results indicate downward movement in the area of damage over the Summer period (maximum 4.6mm) and upward movement over the Winter period (maximum 3.8mm). This is characteristic of the seasonal pattern of foundation movement where vegetation is involved. No other cause produces a similar pattern.

For details of the monitoring results, together with the station locations, please refer to the attached CET Ltd monitoring report.

ARBORICULTURAL INVESTIGATIONS

Arboricultural consultants, PRI Ltd, were appointed to deal with mitigation measures.

The resultant mitigation recommendation is for T1 Elm tree in ownership of the Policyholder, to be removed. We understand the Elm is subject to a Tree Preservation Orders.

For details of the Aboricultural findings, please refer to the attached PRI Ltd report.

CAUSE OF DAMAGE

Taking an overview of all the site investigation and monitoring results referred to above, it is our opinion that the cause of damage results from clay shrinkage subsidence brought about by the action of roots from the Elm tree located in the Homeowner’s garden.

We 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 depth of the foundations is expected given the age of the house.

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. Elm tree roots are present in the clay subsoil beneath the foundations to a depth of 2000mm below ground level. In this case, we are satisfied that the damage has therefore been caused by clay shrinkage subsidence following moisture extraction by the Elm tree.

We are satisfied that there is no factor, other than the Elm tree, that is causing the damage.

Fortunately, the cause of the problem (dehydration) is reversible. Provided the cause of movement is dealt with (in this case, removal of the Elm tree) there should not be a recurrence of movement.

RECOMMENDATIONS

It is recommended that the Elm tree located in the Homeowner's garden is removed to mitigate against further movement. Sedgwick Mitigation Centre will liaise with the Local Authority and Homeowner in this regard. A detailed scope of building repairs would then be finalised.

It is fully anticipated that stability will return after removal of the Elm tree and as such we shall proceed to repair immediately once mitigation is complete.

HEAVE ASSESSMENT

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 and/or ground recovery will not occur should the vegetation management described above be undertaken.

REPAIRS

If the Elm tree is 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 Elm tree is not removed then it may be necessary to consider either:

- 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 £85,000.00.
- Root Barrier, if root severance is approved, in addition to structural crack repair and redecoration needed to repair the damage. The total cost of this option is estimated at £60,000.00.

[redacted]
Building Consultant

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