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# Site Investigation Technical Report: Subsidence Investigation



*Front Elevation*

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| **Property Address** | 55 Hulmes Road, Clayton, Manchester M40 1GP |
| **Client** | [redacted] |
| **Client Reference** | 2872 |
| **Consultant** | Paul Clifford BSc CEng MIStructE ACILA |
| **Date of Inspection** | 23rd September 2025 |
| **Date of Site Investigation Report** | 20th January 2026 |

**1.**

## 2. Introduction

Claimstech are instructed by James Fairbairn of Solace Loss Adjusters to comment on potential subsidence at the above property. We initially inspected the property in late September and confirmed that damage was due to subsidence. Subsequently, instructions were received to proceed with site investigations and these are now complete and were undertaken by Bradgate Surveying.

All directions are given relative to an observer facing the front of the property from the public road. Slopes and leans are measured over the length of a 1m digital spirit level.

## 3. Property Description

The property is described in our previous report. In summary it is a three storey end of terrace with partial cellar under the front reception room and of traditional construction. The site is level and geological maps indicate that the subsoil is likely to be clay.

There are a number of trees present together with extensive shrubs in the gardens of the policyholder to the front and left. The main trees belong to the policyholder and run along the front left boundary where Cherries were noted and also a young Poplar tree. There are a couple of other trees of unknown species. Further away in the garden of the property to the left is an Ash tree, but this is at a distance where it is unlikely to influence the foundations. There is a small Sycamore tree to the rear in third party gardens at a distance of around 10 metres from the main house rear elevation.

## Circumstances of Discovery

It is understood that in the summer damage was reported in the property that was not present previously. A structural engineer’s report was commissioned and even in the timescale between the original inspection and the engineers visit in late August damage apparently worsened in the late summer. Engineers concluded that damage was likely to be due to shrinkage of the clay soils as affected by the trees in the hot dry summer of 2025. This led to a claim for subsidence on the insurance policy and our involvement.

## 4. Site Investigation Results

Please refer to the attached site investigation report with trial pits excavated on 24th November 2025 and subsequent laboratory testing. Monitoring is ongoing with no readings to report to date. These should be updated shortly.

Bradgate Surveying excavated a trial pit at the front left corner of the property in the cellar. This exposed a brick footing at 150mm below the cellar floor. There is no spread to the footing.

Beneath the footing was a very stiff clay with a shear strength of 131kN/$m^2$. This increased to over 140kN/$m^2$ at 1.0 metre depth. At a depth of 2.7m the clay was sufficiently hard that hand augering could not continue. The trial pit did not reveal any roots.

Soil samples were sent for testing in a laboratory. This revealed that the clay soil has a plasticity index of 29. The plasticity index will give an indication of degree of potential volume change the clay will suffer with changing moisture contents. A result of 29 indicates that the clay is of medium shrinkage potential when moisture content is varied. Moisture content was reasonably consistent throughout the borehole. The ground might be fully hydrated given that the excavation was in the late autumn.

A second trial pit was excavated at the rear left corner of the property externally. This exposed a brick footing at 650mm below ground level. There is no spread to the footing.

Beneath the footing was a stiff clay with a shear strength of 94kN/$m^2$. This increased to over 140kN/$m^2$ at 1.0 metre depth. At a depth of 2.2m the clay was sufficiently hard that hand augering could not continue. The trial pit revealed roots of up to 2mm diameter.

Soil samples were sent for testing in a laboratory. This revealed that the clay soil has a plasticity index of 31. A result of 31 indicates that the clay is of medium shrinkage potential when moisture content is varied. Moisture content was highest at 23.9% below the footing decreasing with depth to 17.7% at 2m. The ground is possibly fully hydrated below the footing given that the excavation was in the late autumn. The lower moisture contents at depth might suggest some desiccation as they are less than in the front borehole.

Root testing showed the presence of *prunus,* which are such as cherry, laurel and other related fruit trees. A further root was from *hedera or fatsia,* which is ivy or shrubs closely related to ivy.

A CCTV survey of the drains showed that they are intact and free of any issues. Thus, drain leaks can be ruled out as a cause of damage.

Crack width monitoring is set up and will continue for the time being to help confirm patterns of ongoing movement.

## 5. Discussion

The summer of 2025 has been quite hot and dry following a dry spring. As a consequence, any clay soils present are susceptible to shrinkage with reducing moisture content. Previous experience of the area suggests that medium shrinkable clay soils will be present. There is extensive vegetation around the property that will have caused uneven drying of the subsoil and therefore uneven shrinkage.

Given that it is reported that damage started in the mid to late summer and worsened rapidly over the late summer, clay shrinkage is the most likely cause. The reported rate of deterioration in the property is what might be expected from clay shrinkage subsidence. Rapid deterioration in the later stages of a dry summer is a typical characteristic of such a mechanism. Rapid movement does not tend to occur in other types of subsidence.

Site investigation results confirm our diagnosis. The trial pits were excavated where movement is at its most and cracking is most severe. Clay soil was found to be stiff to very stiff and therefore has more than sufficient load bearing capacity to support the weight of the foundation. This is despite the lack of spread to the footings. Thus, other factors such as drain leaks can be ruled out because these would show as a softening of the clay soil.

As clay soil dries it becomes stiffer and therefore the load bearing capacity can significantly increase. However, the problem is that the clay also undergoes a volume reduction with reducing moisture content. Where trees dry clay soils unevenly by drying the clay closest to the tree to a greater extent differential foundation movements occurs. This then leads to cracking in the superstructure.

The simplest method of dealing with subsidence is to remove the offending vegetation. This will prevent drying of the clay soil in future summers and therefore prevent recurring damage. Regardless of removal of the trees, it is expected that there will be a degree of ground recovery over the autumn and winter as the soil rehydrates. It is quite common for clay soils to swell and lift foundations as they rehydrate, giving an upward movement. The consequence is then a degree of closure of cracks in the property. However, this does not always happen.

The trees in this case are mostly on the land of the owners. There is a large Ash in the public park to the front and a further Ash in the gardens of the house to the left. These are believed to be far enough away that they will not influence foundations. Similarly, the small Sycamore in the third party garden to the rear is unlikely to be of influence. In the absence of positive root identification from these trees there is no basis for approaching the third party owners.

It is proposed that a sensible schedule of vegetation management is compiled to reduce vegetation in the risk property garden. Given the extensive vegetation we recommend that an arboriculturist is appointed to advise. Control of vegetation will not be an exact science, especially as none of the larger trees have a positive root identification. As an outline it is considered appropriate to remove some of the front boundary trees that include Poplar and Cherry. Some of the more significant trees at the rear left will require removal.

Given the shrinkable clay soils and the surrounding vegetation, risk of future subsidence cannot be entirely eliminated. However, the above steps will allow risk to be reduced to a sensible level.

If trees can be successfully removed as soon as possible then we can proceed to prepare a specification for the repair of the damage. By the time the specification is drawn up and builders are able to start work soils will have had some time to rehydrate and swell. Hopefully this will be demonstrated by the crack monitoring.

## 6. Recommendations

It is proposed that crack monitoring proceeds for the time being to verify that ground is recovering and also further confirm or otherwise the mechanism of clay shrinkage.

We recommend that an arboriculturist is appointed to advise on tree management.

Subject to satisfactory progress with the above it is anticipated that repairs to the house can be confined to structural repair of cracks followed by decoration.

**For Claimstech**
**Paul Clifford BSc CEng MIStructE**
**Chartered Structural Engineer**