

Subject Property Address:

70-72  
70-72, Crediton Hill  
London  
NW6 1HR

**INSURANCE CLAIM**

**CONCERNING SUBSIDENCE DAMAGE**

**ENGINEERING APPRAISAL REPORT**

This report is prepared on behalf of NIG 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: 20/05/2015

## INTRODUCTION

This report has been prepared by our Building Consultant, Mr Yiu-Shan Wong BSc ACIAT C.Build E MCABE MCIOB RMaPS Cert CII, 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 mid terraced building converted into flats constructed in a residential area on a plot that is level.

The general layout of the site is shown on the attached sketch plan.

There are trees within influencing distance of the property. This includes the following:

A Willow within the front garden - approximately 6m in height and only 3m away.

A Lime within the public pavement to the front – approximately 8m in height and only 5.0m away.

## CIRCUMSTANCES OF DISCOVERY OF DAMAGE

The policyholder discovered the damage to the steps and informed insurers.

## NATURE AND EXTENT OF DAMAGE

### Description and Mechanism

Damage is in the form of tapering diagonal cracking to both side walls of the main entrance step.

The indicated mechanism of movement is downwards movement towards the front, dipping downwards towards the trees.

### Significance

The damage would be placed in category 2 of the BRE Digest 251 classification i.e. Slight.

### Onset and Progression

The damage has occurred recently and movement is likely to be of a cyclical nature where the crack will widen over the warmer drier summer months and recovery over the wetter winter months.

## SITE INVESTIGATIONS

Reference to the solid and drift geological survey map shows the anticipated subsoil as clay.

Site investigations were undertaken by CET Safehouse Ltd on 7 January 2015 and comprised of an exploratory excavation together with a CCTV drainage survey. They have revealed typical foundation depths of a 225mm ash & clinker foundation, extending down to an overall depth of 980mm below ground level and bearing onto a clay subsoil.

The results show that the ground is desiccated down to 2m depth, where the soil moisture content has been reduced whilst the soil suction profile is high.

Roots are present down to 2.3m depth and having extracted samples to be analysed, it appears to be identified as originating from either a Willow or Poplar tree as the two types of roots are indistinguishable.

CCTV survey of the drains confirms that they are in working order and that no recommendations are required.

From the above results we have been able to confirm the cause of damage. It is recommended that vegetation close to the property is removed to mitigate against further movement and given the amount of vegetation in close proximity, an arboricultural report has therefore been prepared.

## MONITORING

A programme of crack width and level monitoring will be undertaken to confirm any pattern of movement.

We anticipate that the results will show crack closure over the wetter winter period of re-hydration of the clay soil and crack opening during the warmer and drier summer months.

## CAUSE OF DAMAGE

Taking an overview of all the site investigation results referred to above, it is my opinion that the cause of damage results from clay shrinkage subsidence brought about by the action of roots from these trees located within close proximity of the front section of the building.

I 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 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. Poplar/Willow tree roots are present in the clay subsoil beneath the foundations. In this case, I am satisfied that the damage has therefore been caused by clay shrinkage subsidence following moisture extraction by the Willow tree situated within the front garden of the risk address.

Due to the size and close proximity of the LA street tree, this tree will also need to be removed.

## RECOMMENDATIONS

It is recommended that the trees as highlighted within the report prepared by OCA arboriculturist are removed to mitigate against further movement. The Mitigation Centre of Oriel Services Ltd will liaise with the Local Authority in this regard and a copy of OCA UK Limited's report is attached herewith.

Crack width and level monitoring will continue after removal of the trees in order to check for stability and whether any remaining trees are still continue to cause movement. A detailed scope of repairs will be finalised upon conclusion of the monitoring.

## REPAIRS

If the Willow and street tree are removed, then I consider that works including structural crack repair and redecoration at an approximate cost of £6,000.00 will be appropriate in order to repair the damage in this case.

However, if these trees are not removed or only pruned and the monitoring is showing continual movement, then it may be necessary to consider underpinning of the foundations of the steps 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 £60,000.00.

For Cunningham Lindsey

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