



## TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: SU2202775

The Joseph Rowntree Foundation  
1 Western Terrace  
York  
YO32 4BW



prepared for

Broadspire  
Broadspire UK, Tempus, 249 Midsummer Boulevard, Milton Keynes, MK9 1YA

Claim Reference 5300690

SUBSIDENCE CLAIM  
28 August 2022



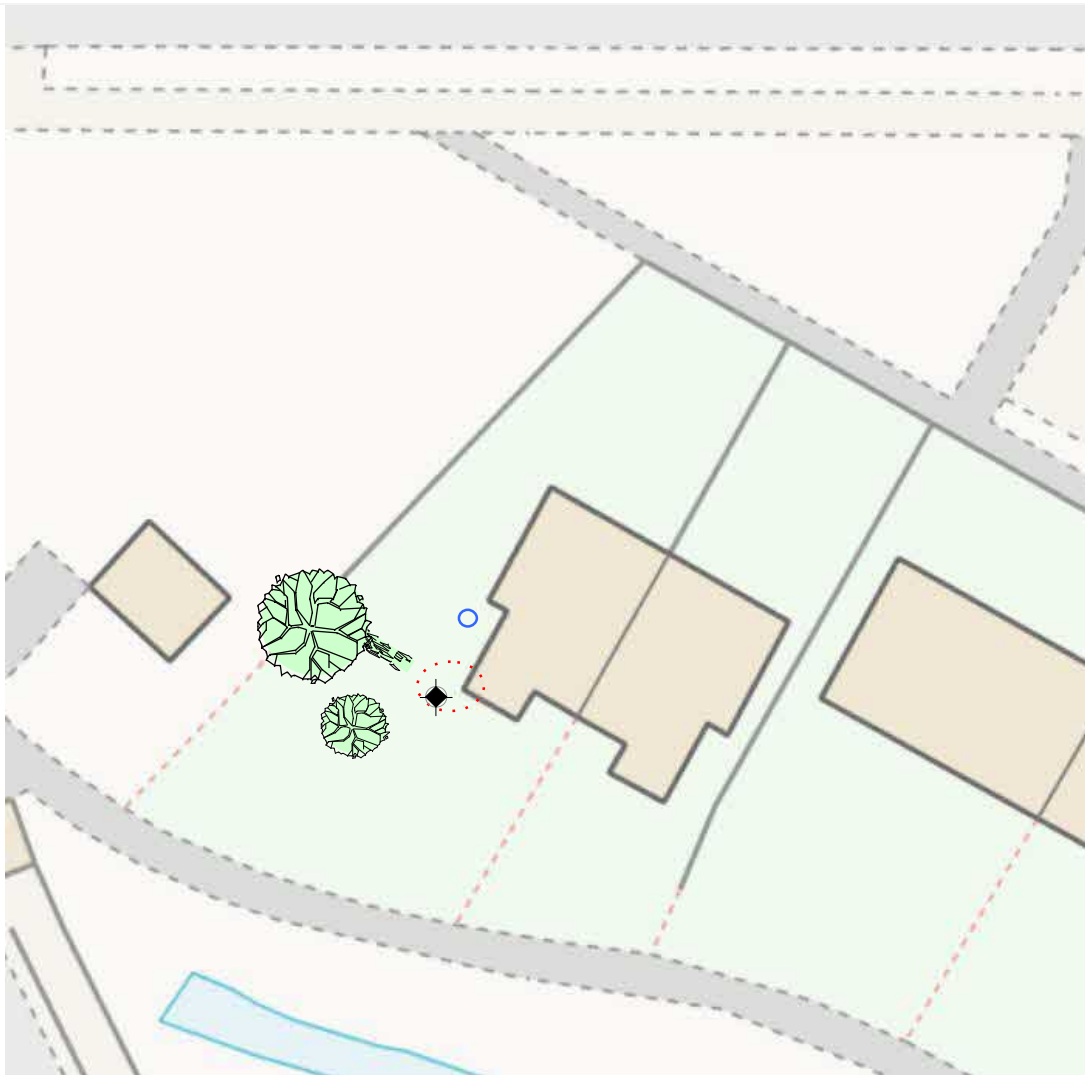
Crawford Claims Solutions – Subsidence  
Cartwright House,  
Tottle Road,  
Riverside Business Park, Nottingham, NG2 1RT  
Tel: 0115 943 8203

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Site Plan
























This plan is Not to Scale

This plan is diagrammatic only and has been prepared to illustrate the general position of the property and its relationship to nearby trees etc. The boundaries are not accurate, and do not infer or confer any rights of ownership or right of way. Position of utilities is only indicative and contractors must satisfy themselves regarding actual location before commencing works.



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Key:

	Tree: Deciduous		Tree: Conifer		Shrub
	Hedge		Area of Damage		Bore Hole
	Trial Hole		Trial & Bore Hole		Level Monitoring
	Rain Water Manhole		Rain Water Gulley		Rain Water Pipe
	Waste Water Manhole		Waste Water Gulley		Toilet Pipe
	Rain Water Drain		Waste Water Drain		Electricity Cable
	Water Supply Pipe		Gas Supply Pipe		Incoming Gas Pipe
	Incoming Water		Incoming Electrics		

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## INTRODUCTION

We have been asked by Broadspire to comment on movement that has taken place to the above property. We are required to briefly describe the damage, establish a likely cause and list any remedial measures that may be needed.

Our report should not be used in the same way as a pre-purchase survey. It has been prepared specifically in connection with the present insurance claim and should not be relied on as a statement of structural adequacy. It does not deal with the general condition of the building, decorations, timber rot or infestation etc.

The report is made on behalf of Crawford & Company and by receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of Statutory duty. Where works address repairs that are not covered by the insurance policy we recommend that you seek professional advice on the repair methodology and whether the works will involve the Construction (Design & Management) Regulations 2015. Compliance with these Regulations is compulsory; failure to do so may result in prosecution. We have not taken account of the regulations and you must take appropriate advice.

We have not commented on any part of the building that is covered or inaccessible.

## TECHNICAL CIRCUMSTANCES

The tenant moved into the property in May 2017. About one month ago the tenant noted cracks to the wall in the rear bay and telephoned the Managing Agent. The Managing Agent arrived and checked the drains adjacent to the rear right. They reportedly have CCTV surveyed the drains and reported that there were no defects found.

## PROPERTY

The property is a two storey end of terraced house of traditional construction with cavity brick walls and a hipped tiled roof.

## HISTORY & TIMESCALE

We will proceed to site investigations to identify the implicated tree.

Date of Construction .....	1902
Purchased .....	Not known
Policy Inception Date.....	01/01/2022
Damage First Noticed .....	June 2022
Claim Notified to Insurer.....	02/08/2022
Date of our Inspection.....	22/08/2022
Issue of Report.....	28/08/2022
Anticipated Completion of Claim .....	Spring 2023

## TOPOGRAPHY

The property occupies a site sloping slightly from front gently down to rear with no unusual or adverse topographic features.

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GEOLOGY

Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number SENE suggests the underlying geology to be Sandstone.

Sandstones comprise cemented sand particles. They have an average porosity of around 30% or more, depending on the degree and nature of the cementitious material that binds the grains. Although not shrinkable, the superficial weathered deposits may be.

The superficial deposits are thought to be Clay Soils.

Clay soil superficial deposits are a cohesive soil characterised by their fine particle size and are usually derived from weathering of an underlying “solid geology” clay soil such as London Clay or Oxford Clay.

Like the solid geology sub-soil from which they are derived they shrink when dry, and swell when wet and can be troublesome when there is vegetation<sup>1</sup> nearby and Gypsum and selenite crystals can be encountered (particularly in the south east). Protection using Class II Sulphate Resisting cement is therefore recommended for buried concrete.



Geology. Reproduced with consent of The British Geological Survey at Keyworth. Licence IPR/34-7C CSL British Geological Survey. ©NERC. All rights Reserved.

VEGETATION

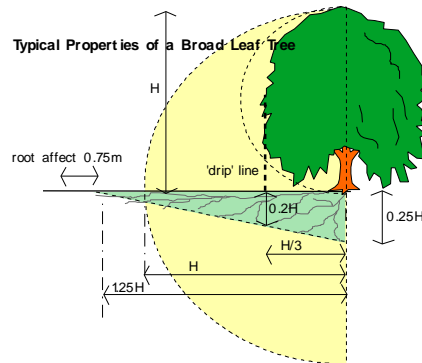
There are several trees and shrubs nearby, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
Deciduous	20 m	8 m	Owners
Deciduous	6 m	7 m	Owners
Privet	2 m	2 m	Owners

<sup>1</sup> Driscoll R. (1983) “Influence of Vegetation on Clays” Geotechnique. Vol 33.  
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See sketch. Tree roots can be troublesome in cohesive (clay) soils because they can induce volumetric change. They are rarely troublesome in non-cohesive soils (sands and gravels etc.) other than when they enter drains, in which case blockages can ensue.

Broadleaf trees typically have wider spreading roots and higher water demands than coniferous species and many are better adapted to growing roots on heavy clay soils. Some are capable of sprouting from cut stumps or bare wood and most will tolerate pruning better than conifers.



Typical proportions of a broadleaf tree. Note the potential root zone. It must be noted that every tree is different, and the root zone will vary with soil type, health of the tree and climatic conditions.

However heavy pruning of any tree should be avoided if possible, as it stimulates the formation of dense masses of weakly attached new branches which can become dangerous if not re-cut periodically to keep their weight down.

Privet (*Ligustrum*). Commonly encountered as a boundary definition hedge. Evergreen with medium root activity<sup>2</sup>. Can be associated with damage when situated close to a property. Tolerant of heavy pruning with quick regrowth. Along with other members of the Oleaceae (*Forsythia*, *Jasmin*, *Privet* and *Lilac*) family accounted for 354 enquiries, or 35% of the cards completed in the Kew Survey<sup>3</sup> between 1979 - 86.

## OBSERVATIONS

The area of damage affects the rear right hand corner of the house.

The following is an abbreviated description. Photographs accompanying this report illustrate the nature and extent of the problem.

<sup>2</sup> Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications

<sup>3</sup> Cutler & Richardson (1991) "Tree Roots & Buildings" Longman Scientific

INTERNAL



Lounge at join with bay to right elevation. Dry lining split.



Gaps to sill above lining split.

Lounge

4mm vertical crack to dry lined wall below sill to right hand rear wall.

Joint gap to sill 5mm to 6mm wide.

1mm vertical crack to top left hand side of window.

Loose window sill with joint gaps around it to left hand side of bay.

EXTERNAL



Previously cracked concrete path



Detritus etc within crack

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#### Left Hand Side

Large 10mm to 12mm wide crack to concrete pathway adjacent to front door. Crack aged with detritus within cracking, however, may have got worse recently.

Stepped 2mm to 3mm wide crack lower left hand corner of bay window, stepping down to ground level.

Cracking around infilled brickwork above UPVC window to lounge on right hand corner.

#### Rear Elevation of Bay Window

Stepped 1mm wide crack to previously repaired section of brickwork from centre of sill running downwards for approximately 10 courses.

No other damage noted.

#### CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment<sup>4</sup> Digest 251, which describes it as "moderate".

Category 0	"negligible"	< 0.1mm
Category 1	"very slight"	0.1 - 1mm
Category 2	"slight"	>1 but < 5mm
Category 3	"moderate"	>5 but < 15mm
Category 4	"severe"	>15 but < 25mm
Category 5	"very severe"	>25 mm

Extract from Table 1, B.R.E. Digest 251  
Classification of damage based on crack widths.

#### DISCUSSION

The pattern and nature of the cracks is indicative of an episode of subsidence. The cause of movement appears to be clay shrinkage.

The timing of the event, the presence of shrinkable clay beneath the foundations and the proximity of vegetation where there is damage indicates the shrinkage to be root induced. This is a commonly encountered problem and probably accounts for around 70% of subsidence claims notified to insurers.

Fortunately, the cause of the problem (dehydration) is reversible. Clay soils will re-hydrate in the winter months, causing the clays to swell and the cracks to close. Provided the cause of movement is dealt with (in this case, vegetation) there should not be a recurrence of movement.

No structural changes to the building have been carried out which has contributed to the current subsidence related damage under investigation. We are not aware of any previous underpinning.

The damage appears to have reoccurred in the last couple of months most likely due to the heatwave. There is evidence that there has been some historical cracking where the repairs were undertaken but have now reopened. We believe that the damage has been caused by two nearby trees owned by the policyholder which we need to identify if the causation is to be mitigated.

<sup>4</sup> Building Research Establishment, Garston, Watford. Tel: 01923.674040

## RECOMMENDATIONS

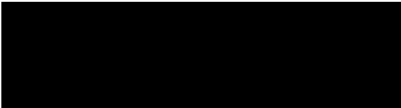
The cause of the movement needs to be dealt with first. We have completed a soil risk analysis (VISCAT Assessment) and we are satisfied that these trees can be removed.

VISCAT models ground movement taking into account seasons, soil type, tree species, tree height and distance between the tree and the building. To accomplish this it refers to a database of investigations and soil results.

A quotation for the recommended tree works should be obtained and statutory checks for Preservation Orders or whether the tree(s) are in a Conservation Area should be undertaken.

Following completion of the tree management works, we will undertake a suitable period of monitoring to confirm stability has been achieved before undertaking repairs to the property.

Edward Browne BSc (Hons) MRICS  
Crawford Claims Solutions – Subsidence



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PHOTOGRAPHS



Smaller tree near bay



Loose sill to left side of bay



Rear view of bay



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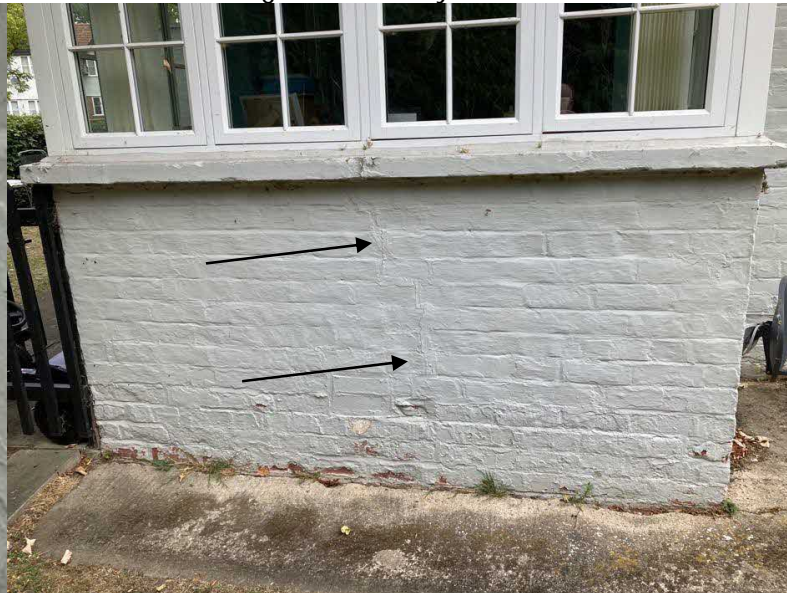
Previous repairs re-opened



Crack to right side of bay



Aged and poorly applied mastic intact to left side of bay



Crack to rear of bay

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