

TECHNICAL REPORT ON A SUBSIDENCE CLAIM

Crawford Reference: SU2003608

**27 Woodfield Way
London, N11 2NP**



prepared for

RSA - Nationwide

SUBSIDENCE CLAIM

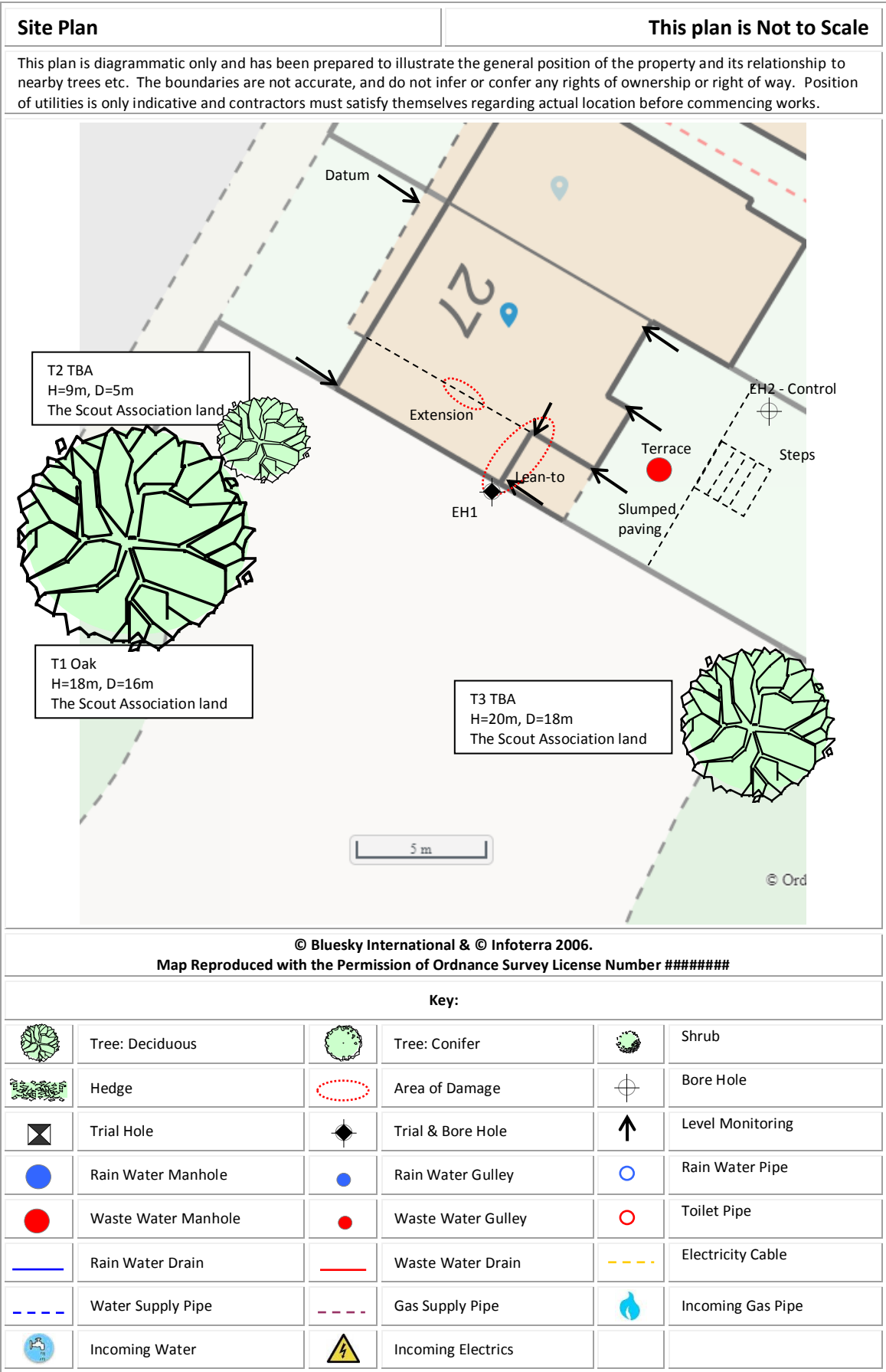
DATE 10 October 2020



Crawford Claims Solutions – Subsidence
Cartwright House, Tottle Road,
Riverside Business Park, Nottingham, NG2 1RT
Tel: 0115 943 8260

This document and information provided relate to personal claim information and therefore should not be circulated or placed anywhere to make this freely available. By doing so, you will be in breach of GDPR

Chartered Loss Adjusters



Chartered Loss Adjusters

INTRODUCTION

We have been asked by RSA - Nationwide 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 property was subject to a previous subsidence claim dating back to 2004. We note from documentation supplied by your Member that a claim was prepared against The Scout Association who own the neighbouring land on which an Oak tree is sited. This Oak tree was determined as the cause of movement. The Claim was in the sum of £25,613.11 and included for investigations, repairs and professional fees but did not include for underpinning, which was completed in February 2010 by Messrs Concrete Foundations Ltd and carried a 12 year insurance-backed guarantee. We understand from your Member that the original claim against the Scout Association followed some pruning of the tree and repairs/decorations to the property. However, the damage re-appeared in Summer 2009 and hence the decision to underpin. It is not known whether there was a further claim against The Scout Association for the further underpinning and repair costs. The house remained stable thereafter until Summer 2019 when your Member noticed some slight cracks occurring. He realised the weather was very hot and decided to wait and see if the damage returned in Summer 2020. It did and had worsened, so he therefore submitted a claim.

PROPERTY

Two storey semi-detached house of traditional construction with part rendered brick walls surmounted by a gabled and hipped tiled roof. There is a two storey extension to the right side and a single storey extension to the front of this. At the rear, there is a lean-to. The property was subject to a previous subsidence claim which resulted in underpinning the flank wall of the side extension. The underpinning is shown on the drawings to be mass concrete to a depth of 3m.

HISTORY & TIMESCALE

Next Steps: Site Investigations

Date of Construction.....	c.1930s
Purchased.....	pre-2003
Damage First Noticed	12/03/2020
Claim Notified to Insurer.....	27/08/2020
Date of our Inspection	01/10/2020

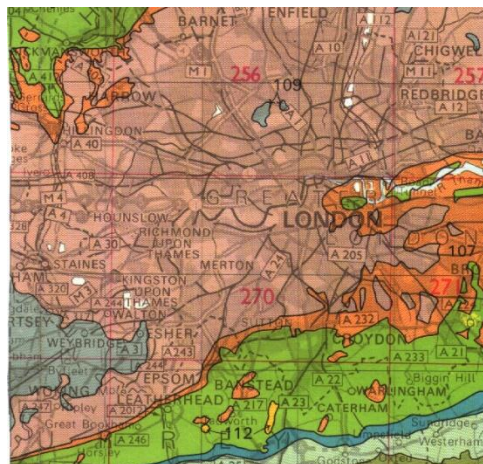
TOPOGRAPHY

The property occupies a site which slopes gently down from front to rear. The rear patio is on a raised terrace with steps leading down to the garden. A blockwork retaining wall supports the terrace.

GEOLOGY

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

London Clays are marine deposits characterised by their silty, sandy composition. They are typically stiff, dark or bluish grey, weathered dark to mid-brown superficially with fine particle size (less than 0.002mm). Tomlinson¹ describes it as a 'fat' clay with high loadbearing characteristics due to pre-consolidation pressures in its geological history. The upper horizon is often encountered at shallow depth, sometimes just below ground level. They have high shrink/swell potentials^{2,3} and can be troublesome in the presence of vegetation. The solid geology appears to outcrop in this location, although we cannot rule out the presence of superficial deposits at shallow depth.



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:-

¹ Tomlinson M.J. (1991) *"Foundations Design & Construction"* Longman Scientific Publishing.

¹ B.S. 5930 (1981) *"Site Investigations"*

² Driscoll R. (1983) *"Influence of Vegetation on Clays"* Geotechnique. Vol 33.

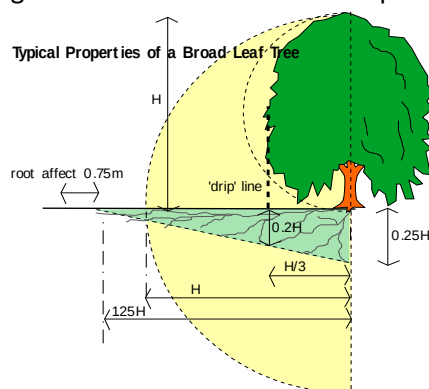
³ Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

Chartered Loss Adjusters

Type	Height	Distance	Ownership
T1 Oak	18 m	16 m	The Scout Association
T2 Deciduous	9 m	5 m	The Scout Association
T3 Deciduous	20 m	18 m	The Scout Association

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.

Oak trees (*Quercus*) are deciduous and native to Europe. They can reach heights in excess of 35m, but more typically grow to between 18 - 25m, depending on health, environment and soil conditions. They have a medium growth rate of around 250mm per year and strong root activity⁴.



Typical proportions of an Oak showing the potential root zone. They have by far the most aggressive of root systems, often spreading considerable distances (1.5 x height or more).

Maximum tree-to-damage distance recorded in the Kew survey was 30mtrs, with 50% of all cases occurring within 9.5mtrs⁵. Life expectancy > 100 years, although they are vulnerable to insect and fungal attack. Old and young trees are tolerant of quite heavy pruning and crown reduction, although re-growth can be an ongoing problem.

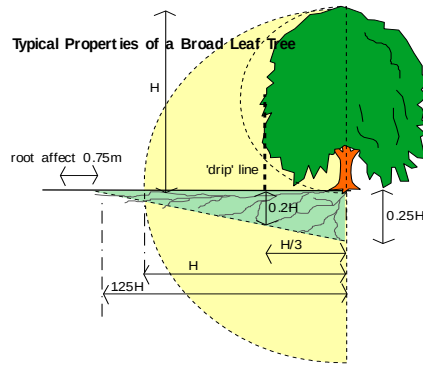
Oaks are, in my experience, worthy of considerable respect when dealing with subsidence claims. Their root system extends for surprising distances and can be associated with particularly high soil suctions.

Because of difficulties in controlling the oak, and its vigorous root system, I regard it as being far more significant (in terms of a subsidence league table) than either the willow or poplar tree.

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

⁴ Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications

⁵ Cutler & Richardson (1991) "Tree Roots & Buildings" Longman Scientific



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.

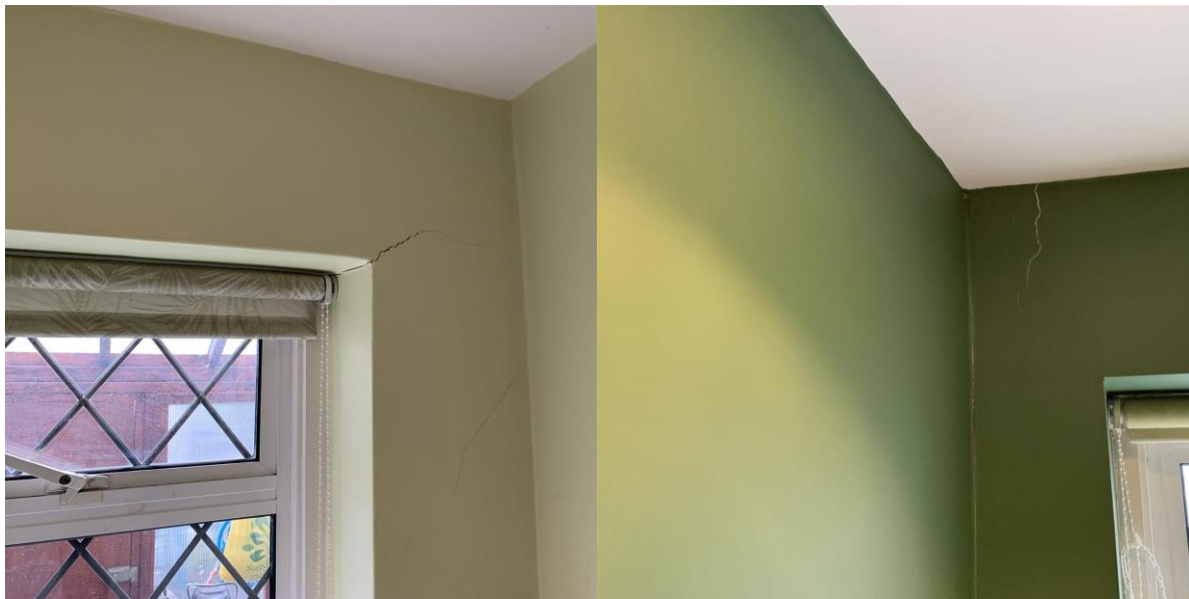
However heavy pruning of any tree should be avoided if possible, as it stimulates the formation of dense masses of weakly attached new branches which can become dangerous if not re-cut periodically to keep their weight down.

OBSERVATIONS

The area of damage is the side extension.

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

INTERNAL



Utility Room - rear wall

Toilet rear wall

Landing

Vertical crack above door to front right bedroom.

Front Right Bedroom (Extension)

Vertical crack above door to Landing.

Pulling of paper at internal wall/ceiling junction.

Chartered Loss Adjusters

Utility Room (Extension)

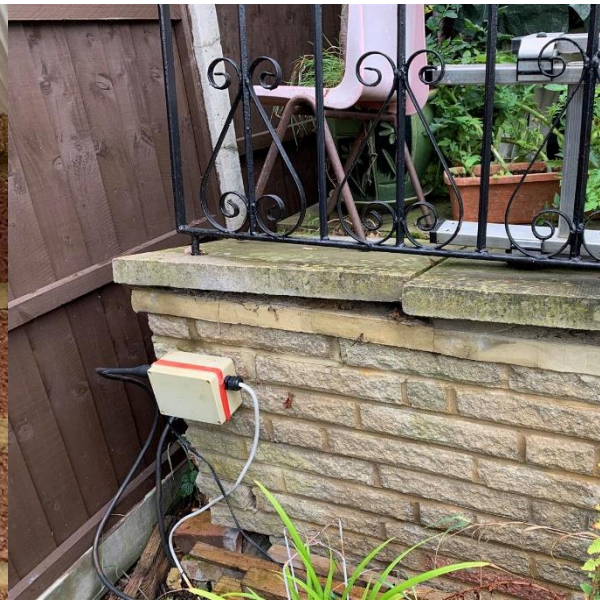
Vertical crack below and diagonal crack above right side of window.
Crack in floor tiles at junction of extension with original house.
Cracking at internal wall/ceiling junction.
Window frame out of square and window sticking when trying to open.

Toilet (Extension)

Vertical crack above rear window.
Vertical crack at rear left corner.

EXTERNAL

Above toilet window on rear wall



Slumped paving

Store Room Lean-To (abuts rear extension)

Stepped and horizontal cracks above and below Utility and Toiler windows.

Rear Terrace

Slumping of paving slabs adjacent to retaining wall.
Slight tilting outwards of retaining wall.
Vertical and stepped cracking to retaining wall (in line with previous repairs)
Cracks to side of steps leading down from patio.

Note that the patio was re-laid and pointed as part of the previous subsidence repairs, together with repairs to the retaining wall and steps.

CATEGORY

In structural terms the damage falls into Category 2 of Table 1, Building Research Establishment⁶ Digest 251, which describes it as “slight”.

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 beneath the existing underpinning of the side extension.

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.

The paving/retaining wall/steps have been affected by general clay shrinkage caused by the dry weather and shallow foundations, rather than a direct results of the influence of the trees. In addition, the paving has slumped due to poor compaction of backfill and poor/non-existent pointing allowing rainfall to erode beneath.

RECOMMENDATIONS

Although the cause of the movement needs to be dealt with, we note the vegetation is subject to a Preservation Order. Current legislation requires certain investigations to be carried out to support an application for the tree works.

Typically, these investigations would involve trial pit(s) to determine the depth and type of footings, boreholes to determine the nature of the subsoil/influence of any roots and monitoring to establish the rate and pattern of movement. The monitoring data provided must be sufficient to show a pattern of movement consistent with the influence of the vegetation and therefore it may be necessary to carry out the monitoring for up to a 12 month period. It will also be necessary to obtain a specialist Arboricultural Report.

We will report further once these investigations have been completed.

⁶ Building Research Establishment, Garston, Watford. Tel: 01923.674040

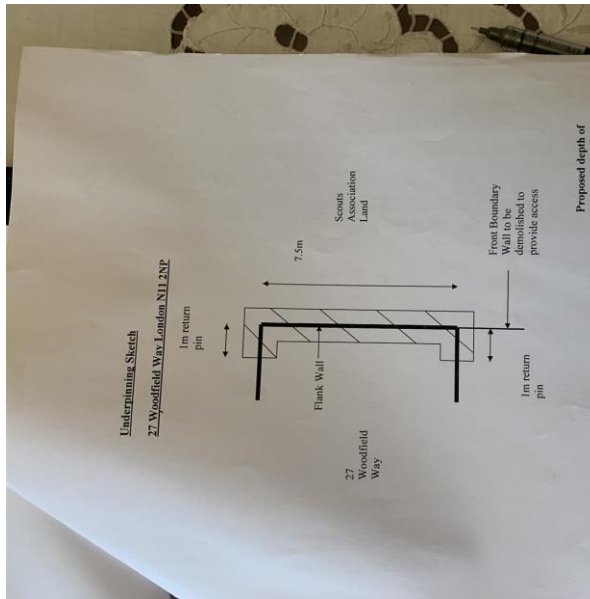
In addition, a claim should be lodged under the ASUC Underpinning Guarantee in the event that further site investigations find that the previous underpinning was not carried out correctly to specification.

Neil Crawford CEng BEng (Hons) MICE
Crawford Claims Solutions – Subsidence
Direct Dial : 0115 943 8260
subsidence@crawco.co.uk

10 October 2020

Chartered Loss Adjusters

PHOTOGRAPHS



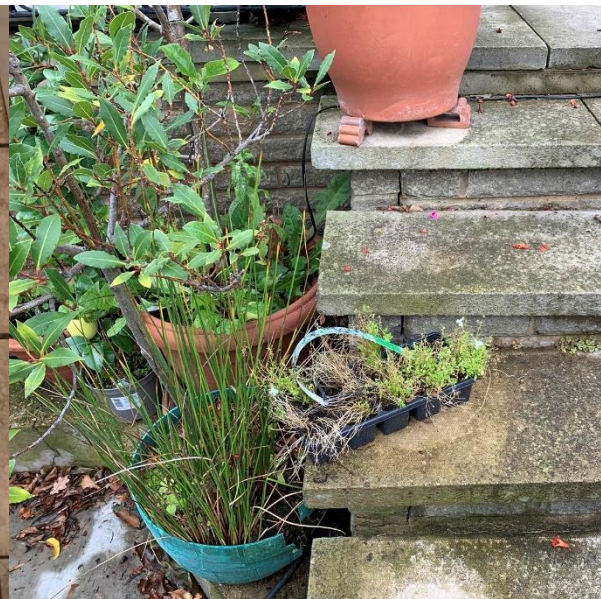
Previous underpinning plan



Landing - vertical crack above bedroom door

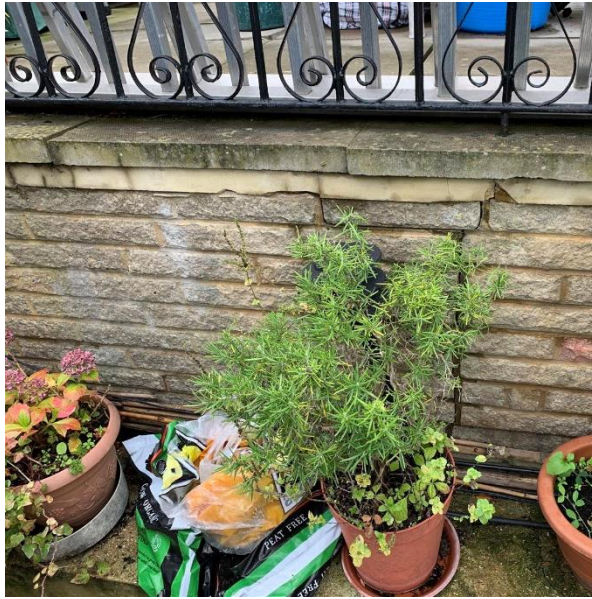


Utility Room Floor



Steps

Chartered Loss Adjusters



Retaining wall



T1 Oak



T3 Deciduous



T1 Oak and T2 Deciduous

Chartered Loss Adjusters