

**TECHNICAL REPORT ON A SUBSIDENCE CLAIM**

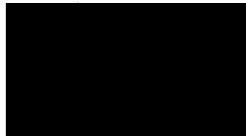
**Crawford Reference:** [REDACTED]

**Ms Miriam Jane Ramsey  
30B Croftdown Road  
Kentish Town  
London  
NW5 1EN**



Prepared for

**Zurich - Personal Lines  
Claims Department**

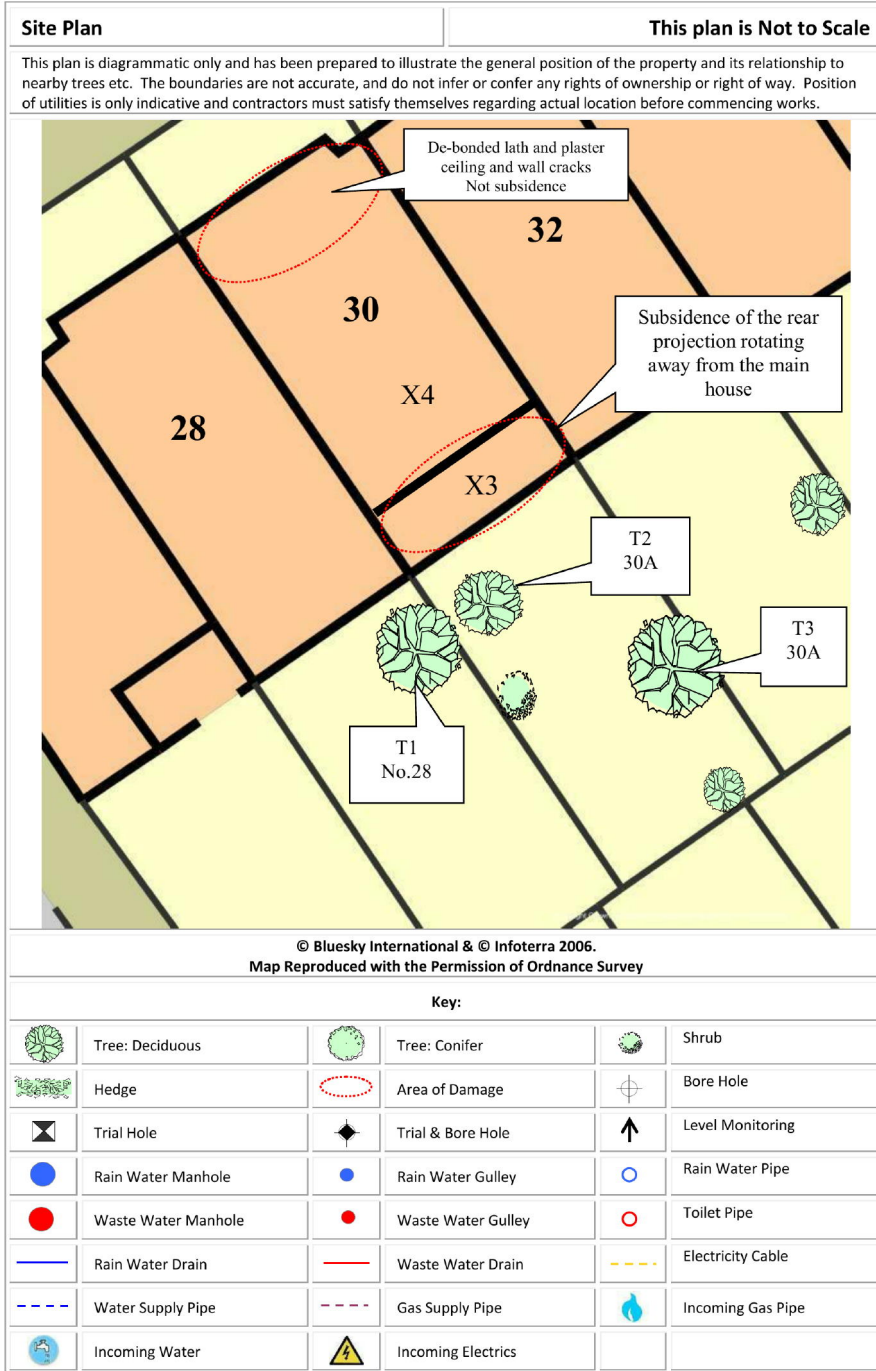


**SUBSIDENCE CLAIM**

26 April 2018

  
**Crawford**<sup>®</sup>  
Subsidence Division





## INTRODUCTION

We have been asked by Zurich - Personal Lines 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 leaseholder of the ground floor flat Ms Ramsey first noticed the crack damage to the rear five years ago but it was minor and no cause for concern. The crack damage recently worsened and insurers were notified of a claim for possible subsidence.

## PROPERTY

Ground floor flat in a four storey mid-terrace house of traditional construction with brick walls surmounted by a pitched tiled roof. The basement flat contains the rear garden.

The freehold is owned by Camden Council. The basement and ground floor flat is leasehold whilst the first and second floor flats are occupied by Camden Council Tenants.

## HISTORY & TIMESCALE

We are in the process of writing to the Third Parties regarding their trees.

Date of Construction .....	Circa 1876
Purchased .....	1999
Policy Inception Date .....	01/04/2007
Damage First Noticed .....	19/03/2013
Claim Notified to Insurer.....	19/03/2018
Date of our Inspection.....	23/03/2018
Issue of Report .....	26/04/2018
Anticipated Completion of Claim .....	Autumn 2018

**TOPOGRAPHY**

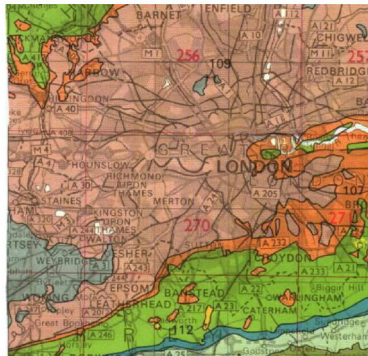
The property occupies a reasonably level site with no unusual or adverse topographic features.

**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). Tomlinson<sup>1</sup> 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<sup>2,3</sup> and can be troublesome in the presence of vegetation.



Geology.

**VEGETATION**

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

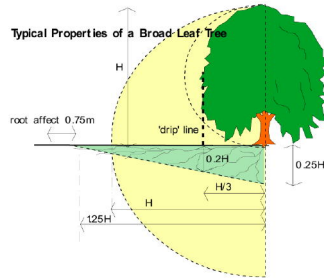
Type	Height	Distance	Ownership
T1 - Deciduous	7 m	3 m	No. 28
T2 - Cherry	3 m	3 m	30A
T3 - Deciduous	7 m	6 m	30A

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 on heavy clay soils. Some are capable of sprouting from cut stumps or bare wood and most will tolerate pruning better than conifers.

<sup>1</sup> Tomlinson M.J. (1991) "Foundations Design & Construction" Longman Scientific Publishing.  
<sup>2</sup> B.S. 5930 (1981) "Site Investigations"  
<sup>3</sup> Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol 33.  
<sup>3</sup> Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.



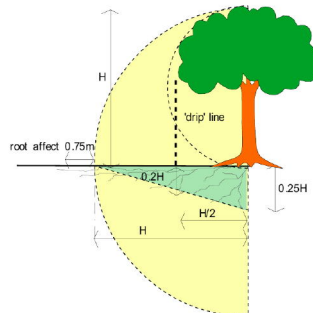


Typical proportions of a broadleaf tree. Note the potential root zone. It must be noted that every tree is different, and the root zone will vary with soil type, health of the tree and climatic conditions.

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.

**Cherries, Prunus** species, include Japanese flowering species, which are mainly small growing short lived moderate water demanders and the native wild cherry, *P. avium*, which is generally longer lived and capable of reaching over 20m.

The growth rate is 300mm a year and they have medium root activity. They can be associated with subsidence, although they are not regarded as a particularly aggressive tree.



Typical proportions of a Cherry tree. Note the potential root zone.

Most *Prunus* species have wide spreading roots and a tendency to send up sucker shoots, often a long way from the parent tree. The genus includes plums, laurels, Portugal laurel, the roots of which are indistinguishable from each other.



### OBSERVATIONS

The main area of damage affects the rear projection which has rotated away from the main house.

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

### INTERNAL



30B – Kitchen – Diagonal Crack to Left Wall



30B – Utility Room – Diagonal Crack to Right Wall

#### Flat B

##### Kitchen (1.87 x 2.37 x 3.04)

- Diagonal crack to left wall at high level - 7mm
- Vertical crack to left junction between main house and rear projection - 2mm
- Vertical crack to right wall to rear - 3mm
- Staining to ceiling
- Ceiling junction crack to left and rear wall - 2mm

##### Lounge (4.29 x 3.72 x 3.04)

- Crack in ornate cornice to rear left - 1mm
- Horizontal crack along beam to rear at high level - 1mm
- Vertical crack to front left corner - 1mm

##### Utility Room (2.19 x 1.09 x 3.02)

- Diagonal crack to right wall - 1mm
- Vertical crack to left wall to rear - 2mm

##### Front Bedroom (5.20 x 4.26 x 3.05)

- 2 x cracks in the ceiling to the front left - 1mm - not subsidence
- Hairline diagonal crack to right wall - blown plaster - not subsidence

#### Communal Hall

- Cracking/de-bonded plaster around door - not subsidence
- Vertical cracking around the main front door - 1mm - not subsidence

#### Flat C (Camden Council) - Eduardo

##### Kitchen

- Vertical tapering crack to the left junction between the main house and rear projection - 3mm
- De-bonded tile at the junction at low level

#### Communal Stairs - Second Floor

- Diagonal crack on rear wall below window - 2mm

**EXTERNAL**



View of Rear Projection Roof – Separation of Parapet from rear elevation of main house



Front Elevation – Crack above entrance porch (not subsidence)

**Front Elevation**

- Crack above entrance porch - 1mm - not subsidence

**Rear Elevation**

- Vertical separation of the rear projection from the main house - 8mm

**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 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.

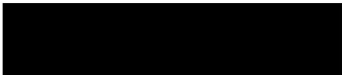


**RECOMMENDATIONS**

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 your neighbour's T2-T3 trees at 30A can be removed, along with your neighbours T1 at No.28. Our Mitigation Unit will liaise with your neighbours in this respect.

Provided the tree management works are completed expeditiously, consideration may then be given to carrying out the appropriate repairs to the property.

**Callan Harwood-Griffith BSc (Hons)**  
**Subsidence Division**





**PHOTOGRAPHS**



30C – Kitchen – Vertical Crack at junction



30C – Kitchen – Vertical Crack at Junction



Communal Stairs – Diagonal Crack below window



30B – Kitchen – Vertical Crack



30B – Front Bedroom – Crack in ceiling – not subsidence



View of No.28 - T1





View of 30A – T2 Cherry



View of 30A – T3

