



TECHNICAL REPORT ON A SUBSIDENCE CLAIM



9 Willoughby Road
London
NW3 1RT

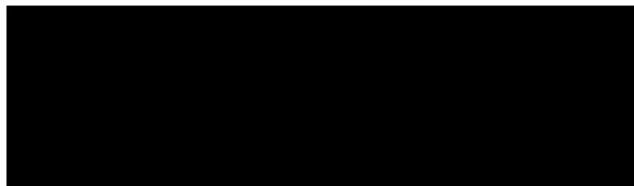


Prepared for



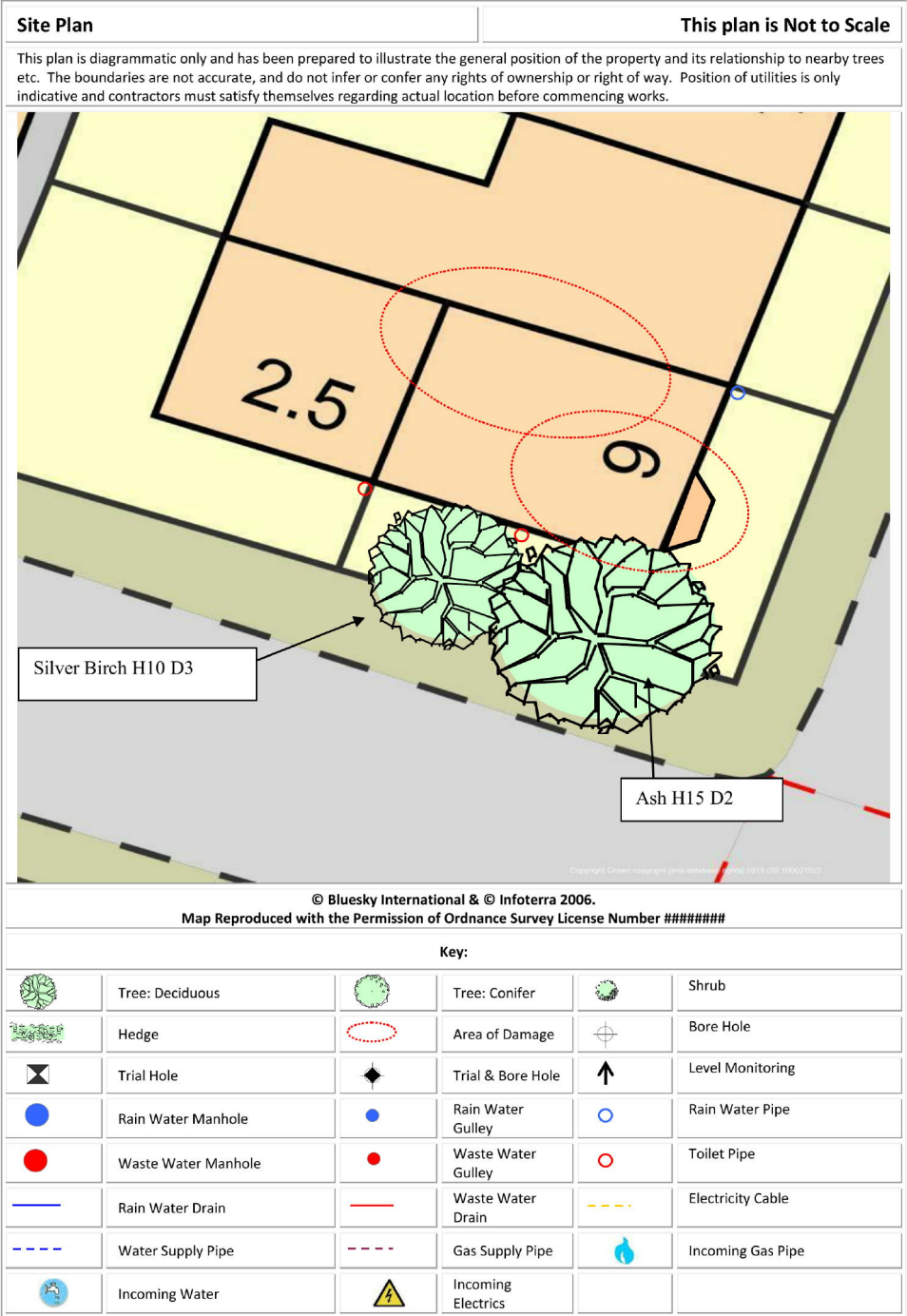
SUBSIDENCE CLAIM

DATE 14th November 2019



Chartered Loss Adjusters





INTRODUCTION

We have been asked by RSA - Commercial 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

We met with the owner of the top floor flat (flat D) at our initial visit. Mr Longden advised that the cracking was reported to him by his tenant in September 2019 and insurers were subsequently notified of a potential claim.

PROPERTY

The risk address is a four storey end-terrace property of traditional construction with brick walls surmounted by a ridged tiled roof. The property has been converted into four, self-contained flats.

HISTORY & TIMESCALE

We have recommended removal of the insured's vegetation to the left hand side of the property. The property is located in a conservation area and arborists will be appointed to assist with this process.

Date of Construction	Circa 1900
Purchased	Flat D 1982
Policy Inception Date.....	10/05/2017
Damage First Noticed	September 2019
Claim Notified to Insurer.....	27/09/2019
Date of our Inspection.....	04/11/2019
Issue of Report.....	14/11/2019
Anticipated Completion of Claim	November 2020

TOPOGRAPHY

The property occupies a site sloping from the left down to the right.

GEOLOGY

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

Claygate Beds are a sandy transition strata at the top of the London Clays and derive their name from Claygate in Surrey¹. They are well defined alternations of sand and clay, with sand predominating above the clay below.

The formation, where present is about 45m thick. It forms much of the elevated ground in the middle of the London Basin, including Brentwood, Kelvedon Hatch and Havering-atte-Bower.

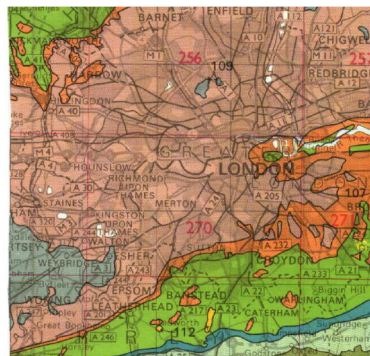
To determine the index properties of a heterogenous soil, it is recommended² that the index property of the clay sample should be multiplied by the clay fraction (that is, soil particles finer than 0.075mm^3) of the sample.

The modified Plasticity Index would therefore be:-

$$I_p = I_{pX} (\% < 0.075\text{mm} / 100)$$

If the soil sample contains 50% clay (by dry weight), and that clay sample has an index property of 40%, the modified value for I_p would be $40\% \times 50\% = 20\%$.

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.

¹ SHERLOCK R.L. (1962) "LONDON & THAMES VALLEY" H.M.S.O.

² B.R.E. Digest 240 (1993). H.M.S.O.

³ B.S. 1377 (1990) "Method of tests for Soils for Civil Engineering Purposes" H.M.S.O.

VEGETATION

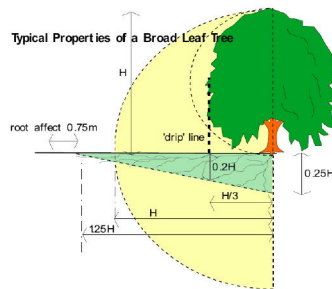
There are several trees and shrubs nearby, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
Ash	15 m	2 m	Owners
Birch	10 m	3 m	Owners

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.

Ash (*Fraxinus*) are deciduous and can reach heights between 20-30m depending on health, environment and soil conditions. They have a fast growth rate of around 500mm per year, medium root activity⁴ and medium water demand.

It is naturally vigorous and large growing, preferring light, fertile soils, but will grow on heavy clay. The maximum tree-to-damage distance recorded in the Kew survey was 21mtrs, and 50% of recorded cases occurred within 6mtrs⁵.



Typical proportions of an Ash. Note the potential root zone.

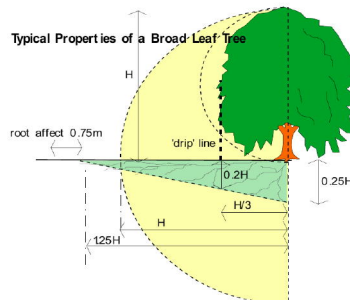
Young and old trees are tolerant of quite heavy pruning and crown reduction, but the timber is not particularly decay resistant and re-growth will need periodic cutting to keep weight and wind resistance down. Life expectancy > 100years. Root pruning can leave tree vulnerable to disease.

Birches, (*Betula* species) are fast growing when young, but short lived, typically declining after 50 - 80 years.

Water demand is low and they are generally a low risk species near buildings. They will tolerate heavy pruning when immature, but not when older and the timber does not resist decay which can lead to structural weakness.

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

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



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

They bleed profusely if cut in late winter or spring, but although this is unsightly, it does not normally do lasting harm. They reach heights of between 15 - 25mtrs, growing at a rate of 400mm⁶ per year. They have weak root activity generally.

OBSERVATIONS

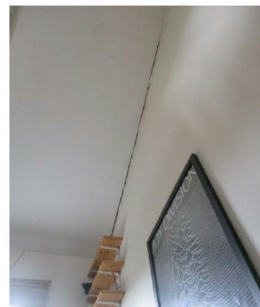
The movement, predominantly around the right hand party wall area is the focal point of the Insured's concerns.

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

INTERNAL



Cracking in flat d above rear window



Cracking in flat D along party wall junction

Flat D - Stairs Area - 10mm tapering separation along right hand party wall, 6mm diagonal tapering cracking above and below rear window.

Bathroom - 5mm tapering separation along right hand party wall.

Front Bedroom - 2mm diagonal cracking above and below front window, cracking to ceiling.

Communal Hall, Stairs and Landing - 2mm tapering separation along right hand party wall at 2nd floor level, hairline diagonal crack to left hand partition at ground floor level.

Note: No access was available to the other flats at the time of our inspection.

⁶ Richardson & Gale (1994) "Tree Recognition" Richardson's Botanical Identifications
Chartered Loss Adjusters

EXTERNAL

Cracking to rear elevation



Cracking to rear elevation

Rear Elevation - 10mm cracking and movement to brick arch above flat D landing window, 9mm stepped crack below window.

Front Elevation - Stepped crack below right hand side of top floor window.

Front Bay - 7mm vertical crack below right hand side of ground floor middle window, tapering separation down left hand side bay junction at ground floor level, vertical cracking to lintel above 1st floor left hand window.

Left Hand Flank - 5mm vertical tapering crack above right hand side of door.

CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment⁷ 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.

⁷ Building Research Establishment, [REDACTED]

We were advised that there is an issue with the guttering to the front of the property. We do not consider that this issue is related to the movement to the property which affects the rear section predominantly. This is likely to be a wear and tear issue, the repair of which will fall outside the scope of this insurance claim.

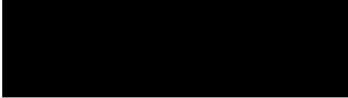
RECOMMENDATIONS

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 ash and silver birch trees can be removed.

We will undertake statutory checks for Preservation Orders or whether the trees are in a Conservation Area. The actual cost of the tree removal is not covered by insurers.

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

Matt Deller BSc (Hons) MCIOB Dip CII
Subsidence Division



PHOTOGRAPHS



View of rear of property



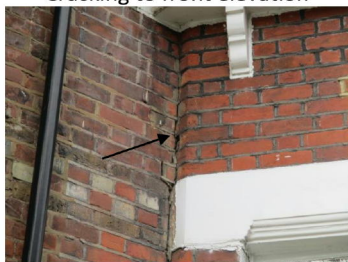
View of trees to left hand side of property



Cracking to front elevation



Cracking to front bay



Cracking to front bay



Cracking in flat D bathroom



Cracking in flat D front bedroom



Cracking in flat D front bedroom

