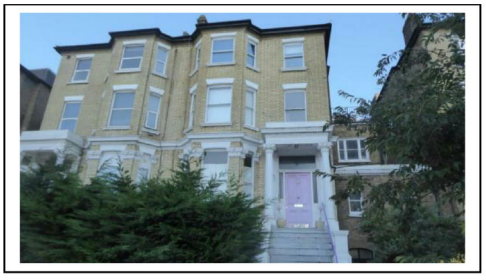
Arboricultural Appraisal Report

Subsidence Damage Investigation at:

52 Fellows Road
London
NW3 3LJ



CLIENT:	Crawford & Company
CLIENT REF:	[redacted]
MWA REF:	
MWA CONSULTANT:	Andy Clark
REPORT DATE:	04/10/2021

SUMMARY

Statutory Controls			Mitigation (Current claim tree works)	
TPO current claim	No		Policy Holder	Yes
TPO future risk	No		Domestic 3rd Party	Yes
Cons. Area	Yes		Local Authority	No
Trusts schemes	No		Other	No
Local Authority: -	London Borough of Camden			

[redacted]

Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 24/09/2021 to assess the potential role of vegetation in respect of subsidence damage.

We are instructed to provide opinion on whether moisture abstraction by vegetation is a causal factor in the damage to the property and give recommendations on what vegetation management, if any, may be carried out with a view to restoring stability to the property. The scope of our assessment includes opinion relating to mitigation of future risk. Vegetation not recorded is considered not to be significant to the current damage or pose a significant risk in the foreseeable future.

This is an initial appraisal report and recommendations are made with reference to the technical reports and information currently available and may be subject to review upon receipt of additional site investigation data, monitoring, engineering opinion or other information.

This report does not include a detailed assessment of tree condition or safety. Where indications of poor condition or health in accessible trees are observed, this will be indicated within the report. Assessment of the condition and safety of third-party trees is excluded and third-party owners are advised to seek their own advice on tree health and stability of trees under their control.

Property Description

The property comprises a 4-storey semi-detached house of traditional construction, built C.1870/1890 and since converted into four self-contained flats. External areas comprise gardens to the front and rear.

The site is generally level with no adverse topographical features. The rear gardens however step up and are approx. 1.0m higher than ground level of the house.

Damage Description & History

Damage relates to the rear of the insured dwelling, with internal and external cracking evident. Damage is reported to have first been observed during July 2021.

At the time of the engineer's inspection (30/07/2021) the structural significance of the damage was found to fall within Category 2 (Slight) of Table 1 of BRE Digest 251. For a more detailed synopsis of the damage please refer to the building surveyor's technical report.

We have not been made aware of any previous claims.

Geology / Soils

The online 1:50 000 scale British Geological Survey map records the bedrock geology as London Clay Formation - Clay, silt and sand. No superficial deposits are recorded.

[redacted]

Discussion

Opinion and recommendations are made on the understanding that Crawford & Company are satisfied that the current building movement and the associated damage is the result of clay shrinkage subsidence and that other possible causal factors have been discounted.

Published soil maps indicate the underlying soils include or are likely to include a clay component susceptible to undergoing volumetric change with changes in soil moisture. Moisture abstraction by vegetation has the potential to cause soil shrinkage and consequent subsidence of the building.

Our survey has identified vegetation within influencing distance of the building with a current potential to influence soil volumes below foundation level; the most significant of which in relation to the current damage are T1 Beech, T2 Poplar and T3 Ash.

Based on the information currently available, engineering opinion and our own site assessment we conclude the damage appears consistent with shrinkage of the clay fraction due to the soil drying effects of vegetation.

If an arboricultural solution is to be implemented to mitigate the influence of the trees/shrubs considered to be responsible for the damage we recommend that T1 Beech, T2 Poplar and T3 Ash are removed. Other vegetation recorded presents a potential future risk to building stability and management is therefore recommended. Recommended tree works may however be subject to change upon receipt of additional information.

Consideration has been given to pruning alone as a means of mitigating the vegetative influence, however in this case, this is not considered to offer a viable long-term solution due to the proximity of the responsible vegetation.

Conclusions

- Conditions necessary for clay shrinkage subsidence to occur related to moisture abstraction by vegetation have been confirmed by reference to published soil maps.
- Engineering opinion is that the damage is related to clay shrinkage subsidence.
- There is significant vegetation present with the potential to influence soil moisture and volumes below foundation level.
- Replacement planting may be considered subject to species choice and planting location.

[redacted]

Table 1 **Current Claim** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Beech	16.0	650 *	9.5	6.2	Younger than Property	Third Party 50 Fellows Road NW3 3LJ
Management history		Subject to past management/pruning - previously partially crown reduced.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
T2	Poplar	16.0	500 *	10.5	16.9	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - previously partially crown reduced.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
T3	Ash	12.5	270	8.0	12.3	Younger than Property	Policy Holder
Management history		No significant past management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					

Ms: multi-stemmed * Estimated value

[redacted]

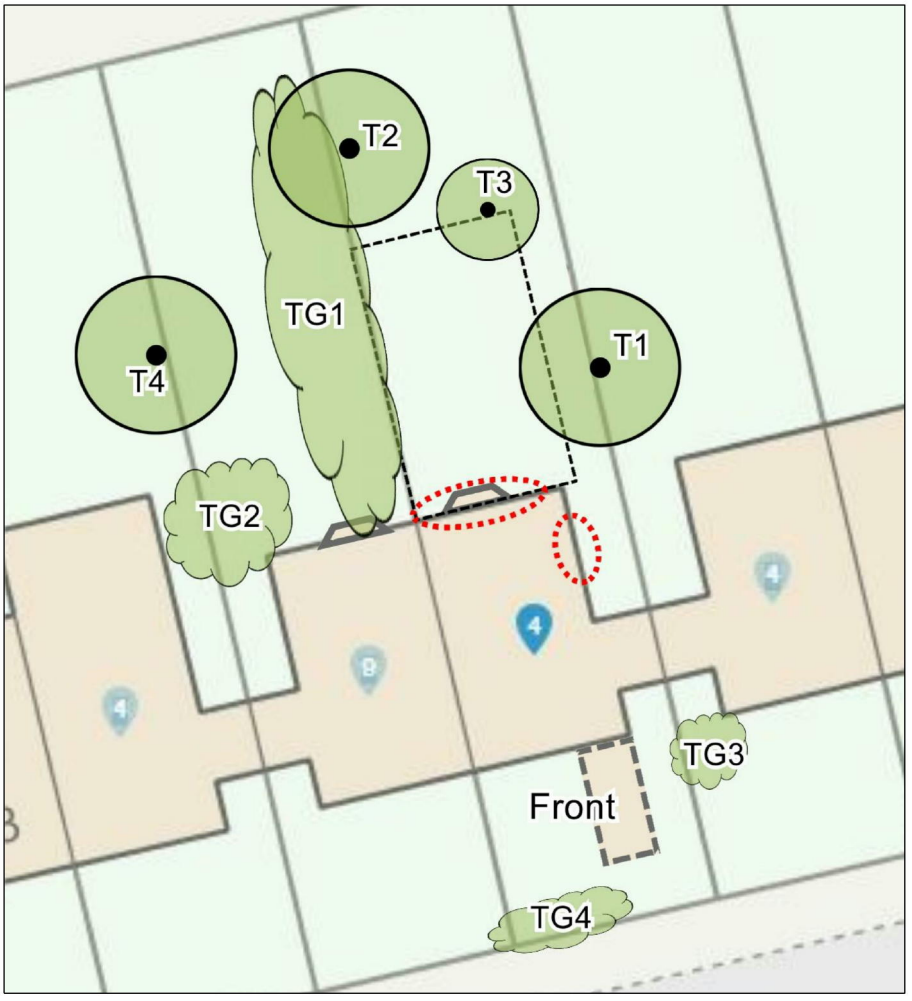
Table 2 **Future Risk** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T4	Ash	18.5 *	650 *	9.5	14.0	Younger than Property	Third Party 56 Fellows Road NW3 3LJ
Management history		Subject to past management/pruning - previously partially crown.					
Recommendation		No works required at present (subject to review if movement persists).					
TG1	Mixed spp. group of mostly Buddleia, Elder, Ash and Bramble	Up to 14.0	Up to 170 Ms *	Up to 5.5	3.2 closest stem	Younger than Property	Third Party 54 Fellows Road NW3 3LJ
Management history		No significant past management noted.					
Recommendation		Remove (fell) the ash to near ground level and treat stumps to inhibit regrowth. Maintain retained elements at broadly no more than current dimensions by regular pruning.					
TG2	Sycamore and Goat Willow group	12.5	150 Ms *	6.5	8.5	Younger than Property	Third Party 54 Fellows Road NW3 3LJ
Management history		No significant past management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
TG3	Buddleia and Holly group	4.5	60 Ms *	4.5	1.0	Younger than Property	Third Party 50 Fellows Road NW3 3LJ
Management history		No significant past management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
TG4	Cypress group	2.5	90 Ms *	1.5	1.8	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - appears regularly trimmed. Distance is to vaulted entrance steps.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					

Ms: multi-stemmed * Estimated value

[redacted]

Site Plan

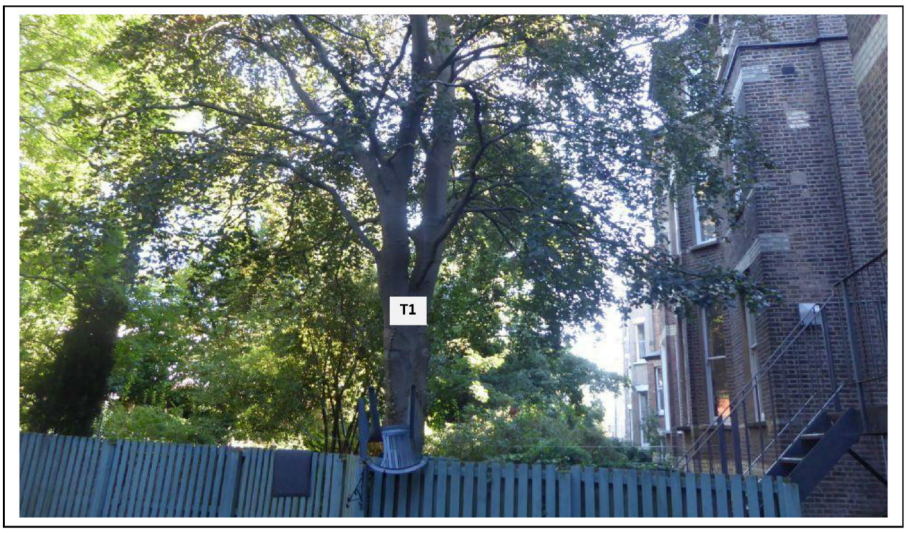


Plan not to scale – indicative only

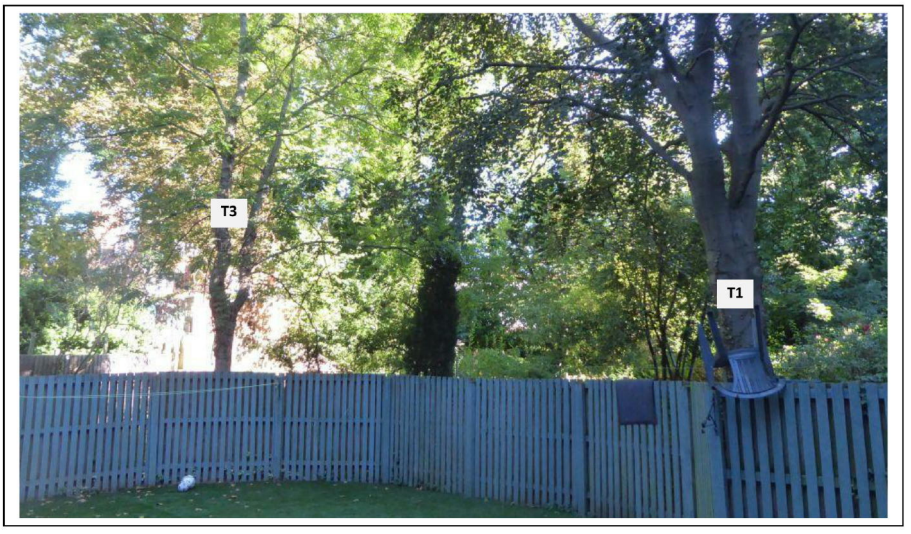
Approximate areas of damage

[redacted]

Images

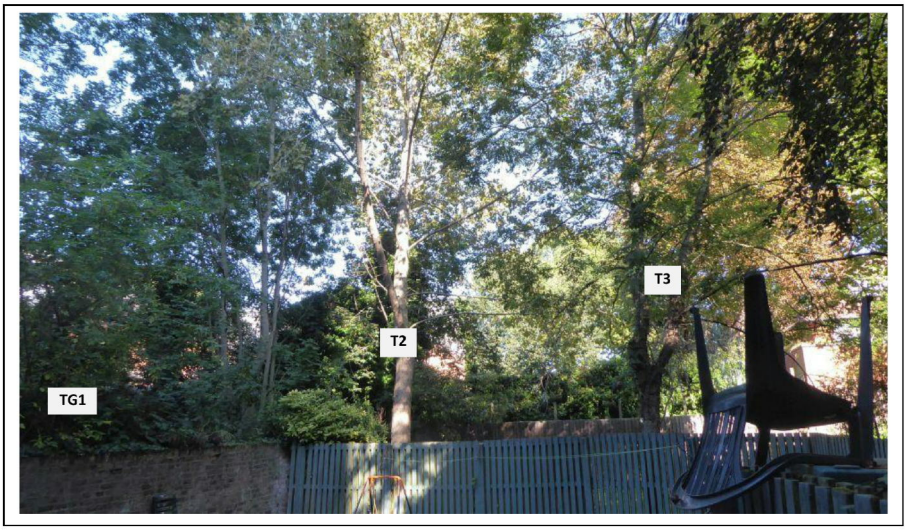


View of T1 Beech



View of T1 Beech and T3 Ash

[redacted]



View of T2 Poplar, T3 Ash, with TG1 group visible to left of frame

View of T4 Ash and TG2 group, with TG1 group visible to foreground

[redacted]

Management of vegetation to alleviate clay shrinkage subsidence.

All vegetation requires water to survive which is accessed from the soil. Clay soils shrink when water abstracted by vegetation exceeds inputs from rainfall, which typically occurs during the summer months. When deciduous vegetation enters dormancy and loses its leaves and rainfall increases during the winter months, soil moisture increases and the clay swells. (Evergreen trees and shrubs use minimal/negligible amounts of soil water during the winter).

Buildings founded on clay are susceptible to movement as the clay shrinks and swells which can result in cracking or other damage.

Where damage does occur, pruning (reducing leaf area) can in some circumstances be effective in restoring stability however, removal of the influencing vegetation (trees, shrubs, climbers) causing the ground movement offers the most predictable and quickest solution in stabilising the clay and hence the building and for this reason is frequently initially recommended as the most appropriate solution.

Often this is unavoidable due to the size or number of influencing trees, shrubs etc and their proximity to the building. Very heavy pruning of some species to a level required to effectively control its water use can result in the trees decline and ultimately death and is one factor considered when making recommendations for remedial tree works. Pruning alone, whilst reducing soil moisture uptake is often an unpredictable management option in restoring building stability either in the short or long term.

In some circumstances however, where vegetation initially recommended for removal is subsequently pruned and monitoring indicates the building has stabilised, removal becomes unnecessary with decisions based on best evidence available at the time.