Arboricultural Appraisal Report

Subsidence Damage Investigation at:

16 Fairhazel Gardens
London
NW6 3SJ

CLIENT:	Crawford & Company
CLIENT REF:	[redacted]
MWA REF:	
MWA CONSULTANT:	Andy Clark
REPORT DATE:	16/10/2023

SUMMARY

Statutory Controls			Mitigation (Current claim tree works)	
TPO current claim	Yes – TG1		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 15/06/2023 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 mid-terrace house of traditional construction, subdivided into self-contained flats.

External areas comprise gardens to the front and rear.

The site is generally level with no adverse topographical features.

Damage Description & History

Damage relates to the front entrance steps and porch area where cracking indicates downward movement. 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.

Site Investigations

Site investigations were carried out by Auger on 21/02/2023, when a single trial pit was excavated to reveal the foundations, with a borehole sunk through the base of the trial pit to determine subsoil conditions. A drains survey was also undertaken. Please refer to the Site Investigation report for further details.

[redacted]

Discussion

Opinion and recommendations in this report are made on the understanding that Crawford & Company have identified clay shrinkage subsidence as a cause of building movement and damage.

Site investigations and soil test results have confirmed a plastic clay subsoil susceptible to undergoing volumetric change in relation to changes in soil moisture.

Roots were observed to a depth of 1.45m bgl in TP/BH1 and recovered samples have been positively identified (using anatomical analysis) as Tilia spp.; the origin of which will likely be the Limes of TG2 group.

Irrespective of the identification of recovered root samples, 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 in relation to the current damage is the vegetation of TG1 group directly adjacent to the right-hand side of the steps.

Based on the technical reports currently available, engineering opinion and our own site assessment we conclude the damage is consistent with shrinkage of the clay subsoil related to moisture abstraction by vegetation.

If an arboricultural solution is to be implemented to mitigate the influence of the implicated trees/vegetation we recommend that the nearby elements of TG1 group are removed, combined with re-pollarding of the limes of TG2 group.

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.

[redacted]

Conclusions

- Conditions necessary for clay shrinkage subsidence to occur related to moisture abstraction by vegetation have been confirmed by site investigations and the testing of soil and root samples.
- 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.
- Roots have been observed underside of foundations and identified samples correspond to vegetation identified on site.

[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
TG1	Mixed spp. group of mostly Aucuba, Privet, Lime [T2] and Sycamore [T3]	4.5	350 Ms *	2.5	0.4	Younger than Property	Third Party Fairhazel Mansions NW6 3SH
Management history		Subject to past management/pruning - appears regularly trimmed.					
Recommendation		Remove (fell) all growth adjacent to right hand flank of steps to near ground level and treat stump to inhibit regrowth. Re-pollard Lime [T2] and Sycamore [T3] to previous points and re-pollard thereafter on a biennial cycle to retain at reduced dimensions.					
TG2	Lime [x2]	5.5	450 Ms *	5.5	6.0	Younger than Property	Policy Holder
Management history		Subject to past management/pruning - previously pollarded at approx. 3.5m.					
Recommendation		Re-pollard to previous points at approx. 3.5m and re-pollard thereafter annually.					

Ms: multi-stemmed * Estimated value

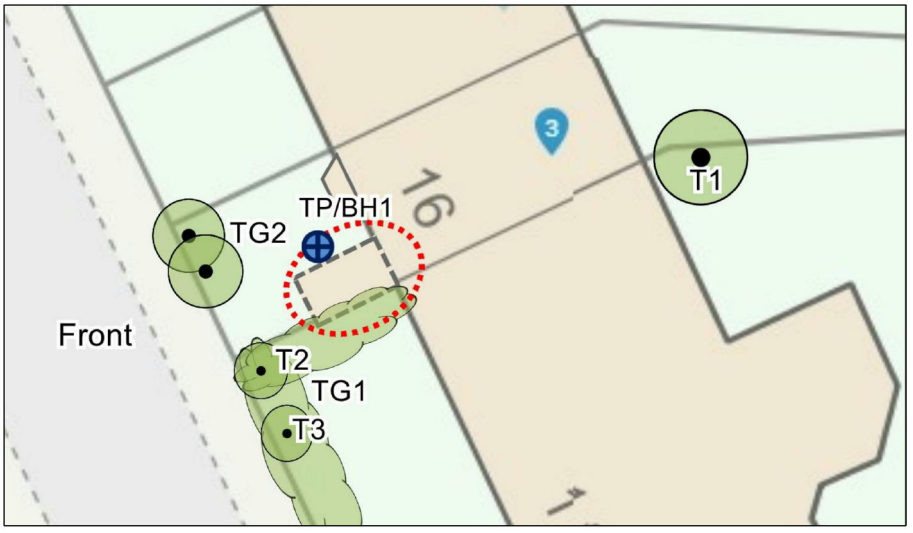
Table 2 **Future Risk** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Sycamore	16.0 *	650 *	9.0	5.4	Younger than Property	Third Party Fairhazel Mansions NW6 3SH
Management history		Subject to past management/pruning - previously crown reduced. No access to rear – tree only viewed through ground floor rear bedroom window					
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 from porch of TG1 group adjacent to right-hand flank of steps

View from property frontage of TG1 and TG2 groups

[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.

[redacted]