

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

16 Belsize Park Gardens
London
NW3 4LD



CLIENT:	Crawford & Company
CLIENT REF:	[REDACTED]
MWA REF:	[REDACTED]
MWA CONSULTANT:	Steve Swinburne
REPORT DATE:	02/12/2019

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	No	Policy Holder	No
TPO future risk	Yes T4	Domestic 3 rd Party	Yes
Cons. Area	Yes	Local Authority	No
Trusts schemes	No	Other	No
Local Authority: -	London Borough of Camden		



Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 25/11/2019 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 5-storey semi-detached house, built c. 1880. The property has been converted into five, 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 rear section of the insured dwelling. The building surveyor's report advises that the owners of the upper flats noticed cracking over 2017/2018 whilst the owner of Flat 2 (at ground level) noticed and reported the damage to the managing agents over the summer of 2018.

For a more detailed synopsis of the damage please refer to the building surveyor's technical report.

At the time of the engineers' inspection (02/05/2019) the structural significance of the damage was found to fall within Category 2 (slight) of Table 1 of BRE Digest 251.

We have not been made aware of any previous claims.



Site Investigations

Site investigations were carried out by Auger on 12/09/2019, when 2 trial pits were hand excavated to reveal the foundations, with a borehole sunk through the base of each trial pit to determine subsoil conditions.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TH1	Concrete	500
TH2	Concrete	300

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TH1	Brown sandy fine to medium gravelly silty CLAY.	50-59	High
TH2	Brown sandy fine to medium gravelly silty CLAY.	52-57	High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TH1	500	Platanus spp	Positive
TH2	1300	Platanus spp	Positive

Platanus spp include London Plane

Drains: No information available at the time of writing.

Monitoring: No information available at the time of writing.

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.

Site investigations and soil test results have confirmed a plastic clay subsoil susceptible to undergoing volumetric change in relation to changes in soil moisture. A comparison between moisture content and the plastic and liquid limits suggests moisture depletion at the time of sampling in TH1 & TH2 at depths beyond normal ambient soil drying processes such as evaporation indicative of the soil drying effects of vegetation.

Platanus roots were observed to a depth of 500mm in TH1 and 1.3m in TH2 the origin of which will be T1, thus confirming its influence on the soils below the foundations.

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. Having considered the information currently available, it is our opinion that T1 is the principal cause of the current subsidence damage with a likely contribution from T2.

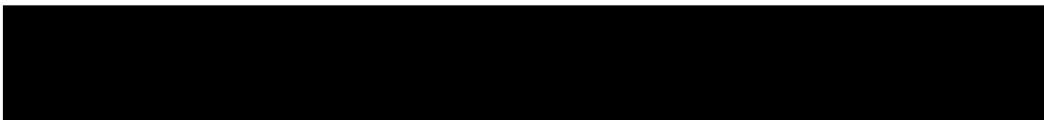
If an arboricultural solution is to be implemented to mitigate the influence of the implicated trees we recommend that T1 is removed. The roots of T2 have the potential to extend to the building although given that no Acer roots have been identified we recommend T2 is reduced in height by 1.5m – 2.0m and the radius by ~ 1.0m – 1.5m and managed on a biennial cycle.

Other vegetation recorded presents a potential future risk to building stability and management is therefore recommended.

Consideration has been given to pruning alone as a means of mitigating the vegetative influence of T1, however in this case, this is not considered to offer a viable long-term solution due to the proximity of the responsible vegetation.

There are several well managed shrubs and small trees in both the front and rear garden; this vegetation should continue to be managed at its current dimensions by periodic pruning.

Recommended tree works may be subject to change upon receipt of additional information.



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.

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	Plane (London)	18*	750*	19*	14*	Younger than Property	Third Party 28a Glenilla Road NW3 4AN
Management history		No recent management noted.					
Recommendation		Remove (fell) to near ground level. Owner to physically remove any regrowth.					
T2	Acer	16.5*	600*	16*	16*	Younger than Property	Third Party 28b Glenilla Road NW3 4AN
Management history		No recent management noted.					
Recommendation		Reduce height by 2m and crown radius by 1m (back to previous pruning points) leaving balanced crown. Prune on a biennial cycle to maintain at broadly reduced dimensions.					

Ms: multi-stemmed

* Estimated value

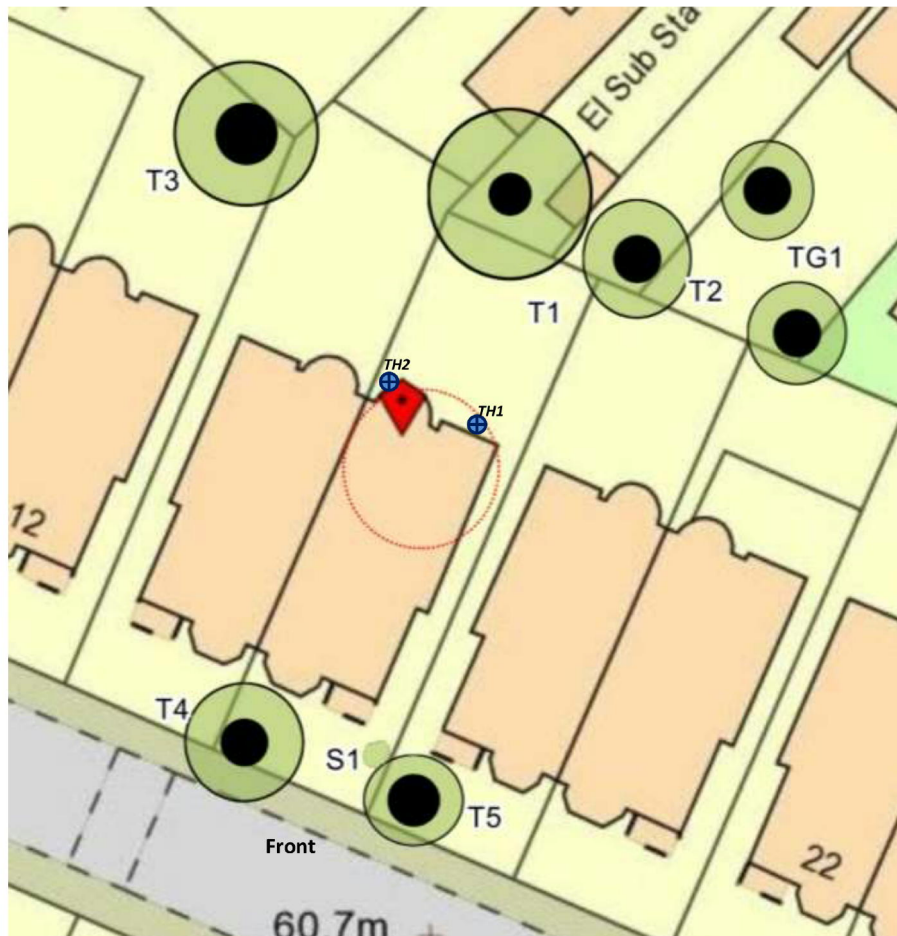


Table 2 **Future Risk - Tree Details & Recommendations**


Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T3	Acer	18*	650*	20*	19*	Younger than Property	Third Party 12 Belsize Park Gardens NW3 4LD
Management history		Subject to past management/pruning.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
T4	Lime	17*	700	8*	5.5*	Younger than Property	Policy Holder
Management history		Subject to past management/pruning.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning by continuation of the existing cyclical management programme.					
T5	Plane (London)	12.5*	800*	12*	8*	Younger than Property	Third Party 18 Belsize Park Gardens NW3 4LD
Management history		Subject to past management/pruning.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning by continuation of the existing cyclical management programme.					
TG1	Acer x 2	17*	650*	12*	19*	Younger than Property	Third Party 30 Glenilla Road NW3 4AN
Management history		Subject to past management/pruning.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
S1	Laurel	2.25	Ms	2	3.5*	Younger than Property	Policy Holder
Management history		Subject to regular management/pruning.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					

Ms: multi-stemmed * Estimated value

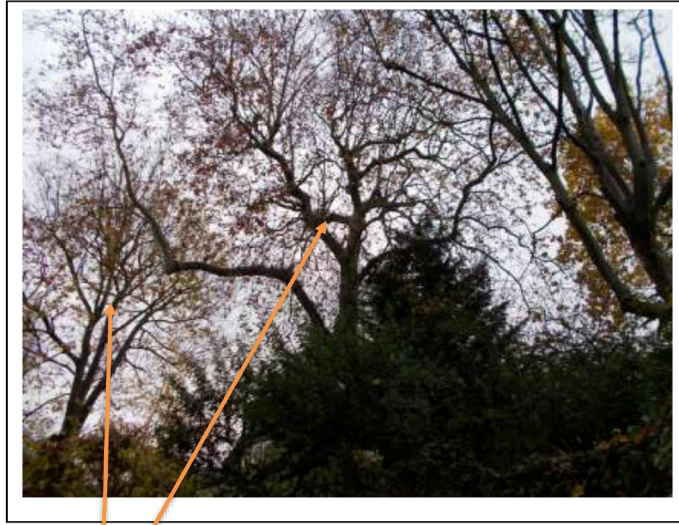
Site Plan



Plan not to scale – indicative only


 Approximate areas of damage

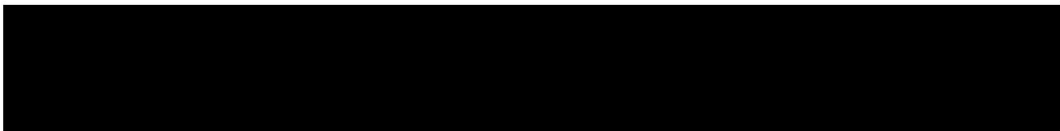
Images



View of T3 & T1



View of T2





View of T4 & T5

