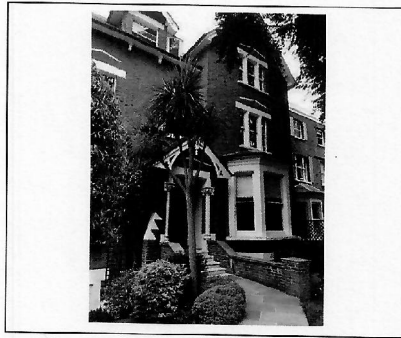


## Arboricultural Appraisal Report

### Subsidence Damage Investigation at:

37 Lancaster Grove  
London  
NW3 4HB



CLIENT:	Crawford & Company
CLIENT REF:	[REDACTED]
MWA REF:	[REDACTED]
MWA CONSULTANT:	George Peters BSc. (Hons), M.Arbor.A
REPORT DATE:	18/07/2019

### SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes	Policy Holder	Yes
TPO future risk	No	Domestic 3 <sup>rd</sup> Party	No
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 13/07/19 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 detached house with partial basement built in circa 1880. 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 porch, steps and retaining boundary walls where cracking indicates downward movement. Cracking has been noted to the exterior brickwork and was first noticed October 2018.

At the time of the engineer's inspection (05/02/2019) the structural significance of the damage was found to fall within Category 3 (moderate) 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 CET on 16/05/2019, when 2 trial pits were hand excavated to reveal the foundations, with a borehole sunk through the base of the trial pit to determine subsoil conditions. Please refer to the Site Investigation report for further details.



## 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 TP/BH1 at depths beyond normal ambient soil drying processes such as evaporation indicative of the soil drying effects of vegetation.

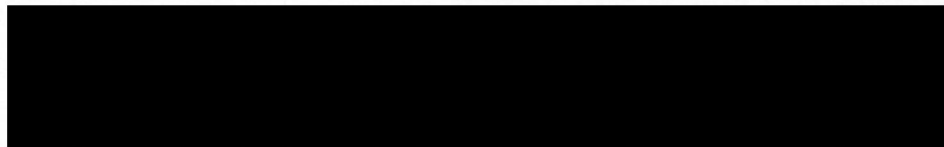
Roots were observed to a depth of 1200mm bgl in TP/BH1 and TP/BH2 and recovered samples have been positively identified (using anatomical analysis) as *Fagus spp* the origin of which will be T1 (Beech) confirming its influence on the soils below the foundations. The Monocotyledon roots originate from T2 (Cordyline) although this plant is not considered significant to the current claim.

Level monitoring at the property shows a minor recovery of levels between 07/03/19 and 14/05/19 around the front right of the building. Crack monitoring has recorded closing of cracks between 05/02/19 and 14/05/19. Both suggest movement associated with an expanding clay soil from a root induced shrunken (desiccated) state.

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.

Beech do not tolerate or respond well to heavy crown reductions and if the influence of the tree is to be mitigated removal therefore offers the most predictable solution.

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.
- Replacement planting may be considered subject to species choice and planting location.



**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	18 *	1200 *	18	5	Younger than Property	Policy Holder
Management history		No recent management noted. Ganoderma at base.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					

Ms: multi-stemmed \* Estimated value

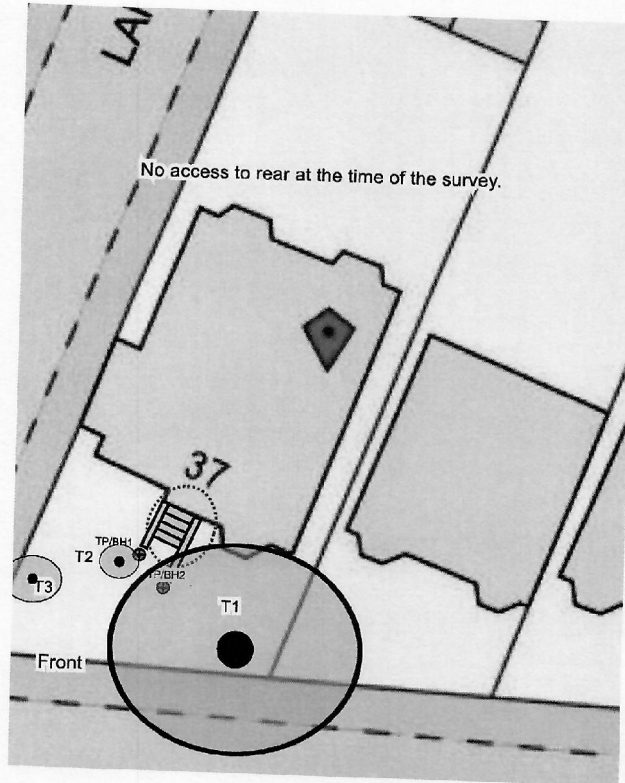
**Table 2 Future Risk - Tree Details & Recommendations**

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T2	Cordyline	4	150	2.5	1	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		None.					
T3	Willow Leaved Pear	3	120 *	2.8	4.5	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					

Ms: multi-stemmed \* Estimated value

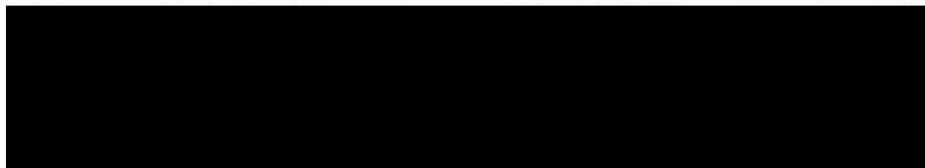


Site Plan

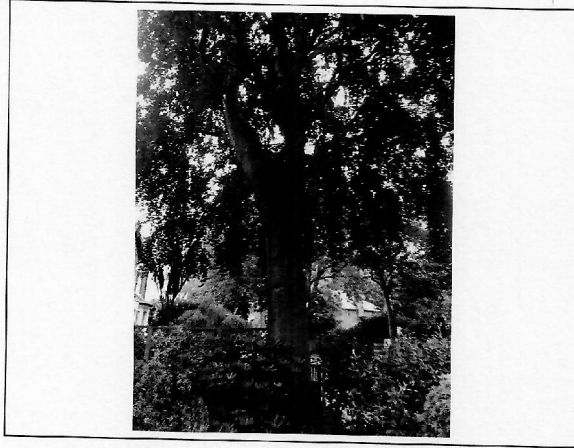


Plan not to scale - indicative only

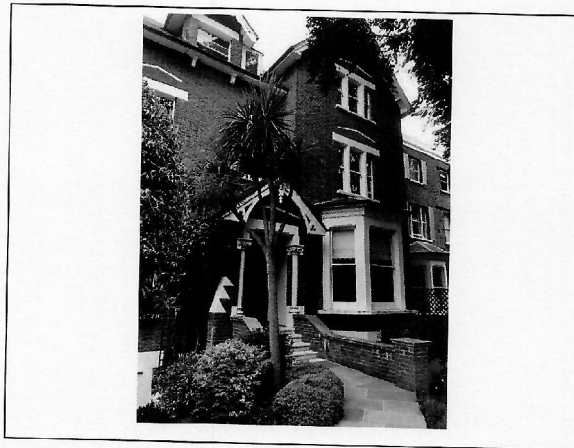
○ Approximate areas of damage



Images

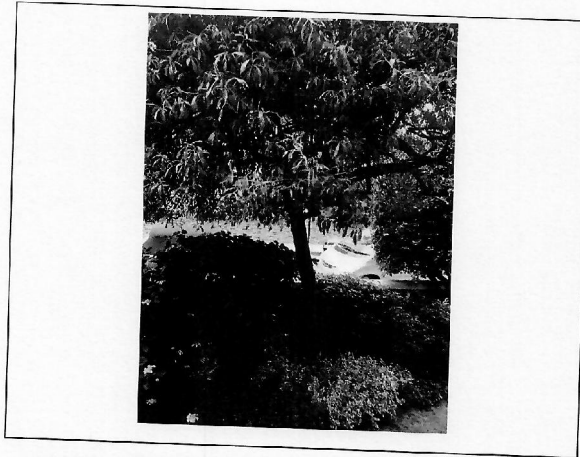


View of T1 Beech, current claim.



View of T2 Cordyline, future risk.





View of T2 Willow leaves pear, future risk.

