

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

61 Park Avenue
Ruislip
Middlesex
HA4 7UL



CLIENT:	Crawford & Company
CLIENT REF:	SU1803352
MWA REF:	SUB190822-5507
MWA CONSULTANT:	George Peters BSc. (Hons) M.Arbor.A
REPORT DATE:	18/09/2019

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes – T2	Policy Holder	No
TPO future risk	Yes – T3	Domestic 3 rd Party	Yes
Cons. Area	No	Local Authority	Yes
Trusts schemes	No	Other	No
Local Authority: -	London Borough of Hillingdon		

Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 17/09/19 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 2-storey detached house built circa 1920. It has been extended with a single-storey extension to the rear (built 1988) and a two-storey extension to the left-flank (built in 1986). 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 right-hand corner, the rear extension and the internal wall between the rear lounge and hall where cracking indicates downward movement. Cracking has been noted to the exterior masonry and internally within the rear lounge, hall, front lounge, kitchen, porch, left hand office, bathroom, rear left bedroom, rear right bedroom and front bedroom. Damage was first noticed in June 2018.

At the time of the engineer's inspection (30/08/2018) the structural significance of the damage was found to fall within Category 3 (moderate) of Table 1 of BRE Digest 251.

The property was the subject of a previous subsidence claim in circa 1990 which resulted in the traditional mass concrete underpinning (see site plan).

Site Investigations

Site investigations were carried out by CET on 29/10/2018, when one trial pit was hand excavated to reveal the foundations, with a borehole sunk through the base of the trial pit to determine subsoil conditions, a further borehole was also sunk at the property. 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 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 2200mm and 1700mm bgl in TP/BH1 and TP/BH2 respectively. Recovered samples have been positively identified (using anatomical analysis) as Pomoideae gp. and Quercus spp., the origin of which will be T1 (Apple) and T2 (Oak) confirming their influence on the soils below the foundations.

Level monitoring from 06/02/2019 to 22/07/2019 records further subsidence focused around the front right of the building which is indicative of the soil drying effects of T1 and T2.

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 T2 is the principal cause of the current subsidence damage, with a secondary contribution from T1.

Due to the size and proximity of T2 and in view of the previous subsidence event, removal offers the most predictable arboricultural solution. The apple T1 should be reduced.

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, however in this case, this is not considered to offer a viable long-term solution due to the proximity of the responsible vegetation.

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	Apple	6	280	6.5 *	12	Younger than Property	Local Authority
Management history		No recent management noted.					
Recommendation		Reduce height by 2m and crown radius by 1.5m leaving balanced crown. Prune on a biennial cycle to maintain at broadly reduced dimensions.					
T2	Oak	16.5	1000 *	13 *	6	Similar age or older than Property	Third Party: 59 Park Avenue HA4 7UL
Management history		No recent management noted. T1 is considered significantly older than both property extensions.					
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
T3	Oak	13	700	10	17.5	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
T4	Amelanchier	7	120 Ms *	3	13	Younger than Property	Third Party: 63 Park Avenue HA4 7UL
Management history		No recent management noted.					
Recommendation		None at present.					
T5	Oak	6	250 *	3	14	Younger than Property	Third Party: 63 Park Avenue HA4 7UL
Management history		No recent management noted.					
Recommendation		Do not allow to exceed 8m height					
SG1	Species include Juniper	2.1	60 *	3.7	2.8	Younger than Property	Third Party: 63 Park Avenue HA4 7UL
Management history		No recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
ST1	Hawthorn	-	-	-	-	-	Policy Holder
Management history		Removed early 2019.					
Recommendation		N/A					

Ms: multi-stemmed * Estimated value

Images



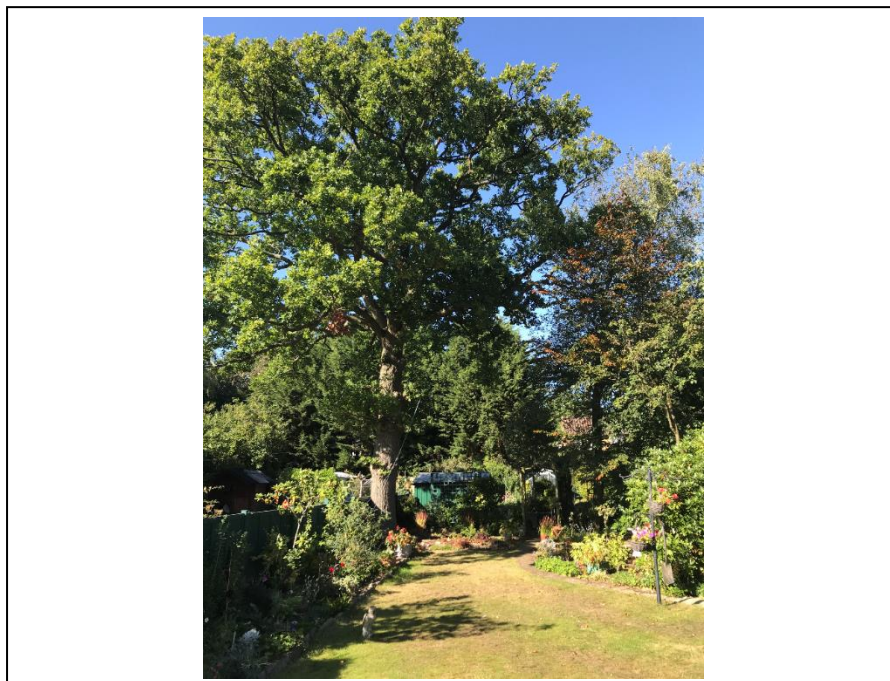
View of T1 Apple, current claim.



View of T2 Oak, current claim.



View of SG1 mixed species, future risk.



View of T3 Oak, future risk.