

Addendum Arboricultural Report

Subsidence Damage Investigation at:

Flats 1 & 3 Uplands Court
19 Frithwood Avenue
Northwood
HA6 3LY



CLIENT:	Crawford & Company
CLIENT REF:	SU1903345
MWA REF:	SUB200116-6580 REV01
INITIAL REPORT DATE:	12/02/2020
ADENDUM REPORT DATE:	28/09/2021

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes – T1, T2	Policy Holder	Yes
TPO future risk	Yes - T3, T4, T6	3 rd Party	Yes
Cons. Area	Yes	Local Authority	No
Trusts schemes	No	Other	No
Local Authority: -	London Borough of Hillingdon		

Introduction

This is an addendum to our initial report dated 12/02/2020 following receipt of additional root identification results and level monitoring results.

Acting on instructions from Crawford & Company, the insured property was visited on 22/01/2020 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.

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 2/3 storey detached house originally constructed in the 1930s; the house has subsequently been converted into a number of flats. It has been extended with a two-storey addition to the right-flank, with a conservatory to the rear, built in 1985.

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 elevation and the rear elevation of Flats 1 & 3 and was initially noted over the summer of 2018.

At the time of the engineer's inspection (15/08/2019) 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

The first site investigations were carried out by Auger on 16/09/2019, when 2 trial pits were hand excavated to reveal the foundations of the original building, with a borehole sunk through the base of each trial pit to determine subsoil conditions. A second site investigation was carried out by Auger on 26/03/2021 when a single trial pit/borehole excavated slightly offset from the front right corner of the original building.

Summary of Site Investigation 16/09/2019:

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TH1	Concrete	1000
TH2	Concrete	1000

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TH1	Brown fine to medium gravelly silty CLAY	28-35	Medium
TH2	Brown fine to medium gravelly silty CLAY	44-53	High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TH2	1000	Acer	Not known

Acer includes Maples, Sycamores

Drains: The drains have been surveyed and defects identified although leaking drains are concluded not to be a cause of the current damage.

Monitoring: Level monitoring has recorded an uplift in the building between 26th September 2019 and 22nd November 2019 indicative of swelling of the clay from a shrunken state.

Summary of Site Investigation 26/03/2021:

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TH1	Concrete	1000

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TH1	Moist stiff mottled silty CLAY	N/A	N/A

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
BH1	2100	Aesculus (horse chestnut) Quercus (oak) or the related Castanea (sweet chestnut)	Present Present

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.

The Acer roots noted at a depth of 1m in TH2 (first site investigation) will originate from the trees within TG2.

Our initial report noted that despite no positive identification of roots from T2, due to its size and proximity to the area of damage, its roots were also likely to be present below foundation level in proximity to the area of movement/damage and influencing soil moisture and volumes.

The second site investigation recovered Aesculus roots to 2.1m depth and whilst the borehole was slightly offset from the building, it is highly likely that the roots from this tree are present below the foundations.

Trees T3 and T4 (chestnut) are also within influencing distance of the original house and the Aesculus roots identified may originate from one or both these trees. However, on balance we consider it likely that T2 is the most significant of the chestnuts with respect to the damage at the front right of the original house.

The oak roots recovered in the second site investigation will originate from T1. This tree was originally recommended for reduction as a future risk. In view of the positive root identification works to this tree are now moved to current claim works.

Level monitoring recorded significant downward movement during the summer of 2020 followed by uplift (recovery). This pattern of movement is consistent with the seasonal influence of vegetation on soil moisture and volumes. In view of the movement to the right of the original house the recommended removal of T5 is now moved to current claim works.

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 we now recommend that T2, T5 and TG2 are removed and T1 reduced.

There are numerous well managed smaller trees and shrubs surrounding the property that are not noted within the report; these should continue to be managed at their current dimensions.

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.
- Monitoring will assist in assessing the effects of the tree removals.

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	Oak	15.5 *	1000 *	11 *	15 *	Older than Property	Third Party 21 Frithwood Ave HA6 3LY
Management history		Subject to past management/pruning.					
Recommendation		Reduce height by 1.5m and crown radius by 1m to previous pruning points. Prune on a triennial cycle to maintain at broadly reduced dimensions.					
T2	Horse Chestnut	15	750	12 *	5	Older than extension	Third Party 21 Frithwood Ave HA6 3LY
Management history		No recent management noted. 5m to nearest point of building & 10m to the area of damage to the front of the property.					
Recommendation		Remove (fell) to near ground level. Owner to physically remove any regrowth (no chemical treatment due to translocation risk).					
T5	Sycamore	11 *	Ms 250 *	7 *	3	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
TG2	Sycamore	12.5 *	Ms 300 *	12	10 *	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					

Ms: multi-stemmed * Estimated value

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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	Horse Chestnut	12 *	650 *	11 *	2.75 *	Older than extension	Third Party 21 Frithwood Ave HA6 3LY
Management history		No recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions					
T4	Horse Chestnut	13 *	750 *	9 *	3 *	Older than extension	Third Party 21 Frithwood Ave HA6 3LY
Management history		No recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions					
T6	Lime	17 *	800 *	14	4 *	Older than extension	Policy Holder
Management history		Recently subject to significant reduction. 12m to area of damage					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning. Remove regrowth from recent reduction on a biennial cycle.					
TG1	Prunus	8	Ms 250 *	5	6.5 *	Younger than Property	Policy Holder
Management history		No recent management noted. Infested with Ivy.					
Recommendation		Do not allow to exceed current dimensions.					
TG3	Birch	13 *	250 *	7 *	14 *	Younger than Property	Policy Holder
Management history		No recent management noted.					
Recommendation		None at present					

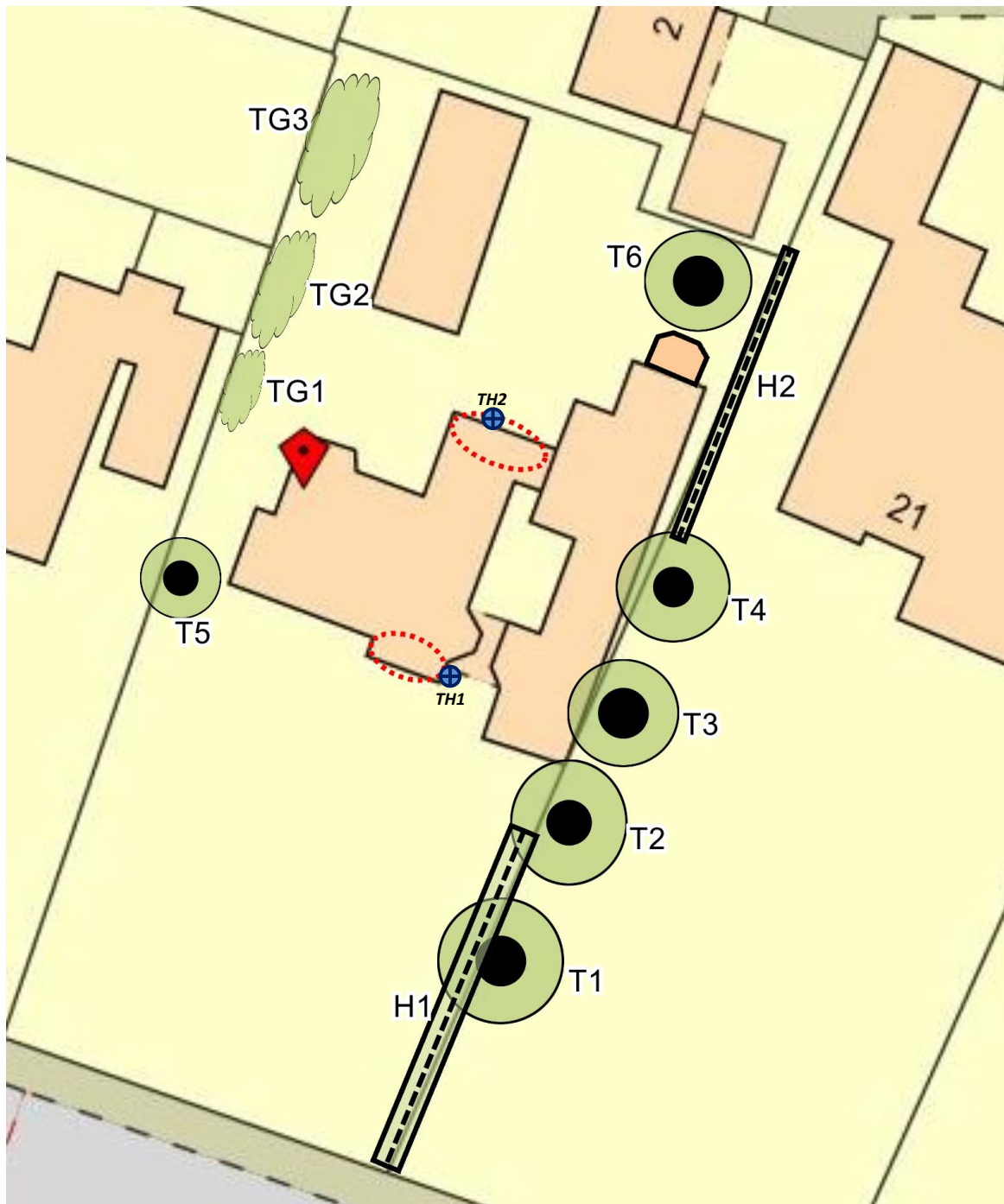
Ms: multi-stemmed * Estimated value

Table 2 **Future Risk - Tree Details & Recommendations cont'd**

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
H1	Cypress	4.25	Ms	2	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.					
H2	Privet	2	Ms	1.5 *	0.1	Younger than Property	Third Party 21 Frithwood Ave HA6 3LY
Management history		Subject to past 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

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Images



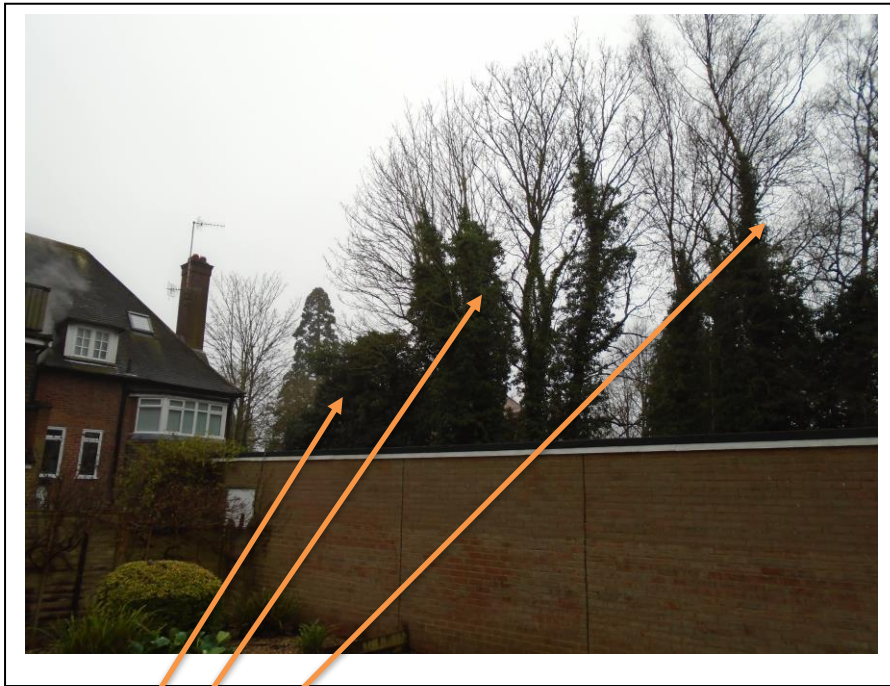
View of T2, T1 and H1



View of T2, T3 and T4

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View of TG1, TG2 and TG3



View of T5 and TG1