

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

5 Moor Place
East Grinstead
RH19 2EY



CLIENT:	Crawford & Company
CLIENT REF:	SU2005303
MWA REF:	SUB210423-8869
MWA CONSULTANT:	Giles Mercer (B.Sc Hons)
REPORT DATE:	20/05/2021

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	LA Trees	Policy Holder	No
TPO future risk	LA Trees	Domestic 3 rd Party	No
Cons. Area	No	Local Authority	Yes
Trusts schemes	No	Other	No
Local Authority: -	Mid Sussex District Council		

Introduction

Acting on instructions from Crawford & Company, the insured property was visited on 6th May 2021 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 single storey detached bungalow of traditional construction with assumed cavity brick walls surmounted by a pitched tiled roof.

The property was extended to the rear prior to the existing ownership (i.e. prior to 1991). The kitchen is situated within the rear extension. This extension was altered slightly in 2018 and at the same time an extension was constructed to the side of the house to form an annex.

The side extension/annex was constructed off a piled foundation.

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 extension, which was constructed prior to 1991 and structurally altered in 2018. Damage takes the form of cracking which is visible both internally and externally.

At the time of the engineer's inspection (09/11/2020) the structural significance of the damage was found to fall within Category 2 (slight) of Table 1 of BRE Digest 251. For a more detailed synopsis of the damage please refer to the surveyor's technical report.

We have not been made aware of any previous claims.

Site Investigations

Site investigations were carried out by CET on 26/01/2021, when a single 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 remote borehole was also sunk.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP/BH1	Concrete	1300
BH2	n/a	n/a

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TP/BH1	Firm orange brown silty CLAY	15 - 31	Low-Medium
BH2	Stiff brown-grey silty CLAY	13 - 19	Low

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP/BH1	1300	Acer spp.	Absent
TP/BH1	2000	either Quercus spp. or Castanea spp.	Present
TP/BH1	2000	Acer spp.	Absent
BH2	No Roots Observed	-	-

*Acer spp. are maples, including sycamore, Norway maple, and Japanese maples.
Quercus spp. are oaks. Castanea spp. include sweet chestnut.*

Drains: No information available at the time of writing.

Monitoring: Level monitoring is in progress. Only the initial reading is 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 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 2.0m bgl in TP/BH1 and recovered samples have been positively identified (using anatomical analysis) as *Acer* spp. (Maples) and *Quercus* spp. (Oak) or *Castanea* spp. (Sweet Chestnut).

Our survey of the site identified the Sycamore (T1), and the Oaks (T2 & T3) and we are confident (in the absence of Sweet Chestnut on site) that these are the respective sources of the recovered roots.

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 the Sycamore (T1), and the Oaks (T2 & T3) are the principal cause of or are materially contributing to the current subsidence damage.

If an arboricultural solution is to be implemented to mitigate the influence of the implicated trees/vegetation we recommend that the Sycamore (T1), and the Oaks (T2 & T3) are removed. 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.

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	Sycamore	15	500 *	13.5	10	Older than extension(s)	East Grinstead Town Council
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
T2	Oak	15	500 *	15	11	Older than extension(s)	East Grinstead Town Council
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
T3	Oak	16	500 *	15	12	Older than extension(s)	East Grinstead Town Council
Management history		No significant recent management noted.					
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
T4	Acer	5.8	180	7.5	9.1	Similar Age to Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
T5	Malus sylvestris (flowering crab)	6	170	7.6	11.6	Similar Age to Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
T6	Acer	6	180	7.5	12.5	Similar Age to Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
T7	Maple (Field)	16	600 *	12	7	Older than Property	East Grinstead Town Council
Management history		No significant recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					
T8	Oak	10	300 *	11 *	7	Older than extension(s)	East Grinstead Town Council
Management history		No significant recent management noted.					
Recommendation		Do not allow to exceed current dimensions.					

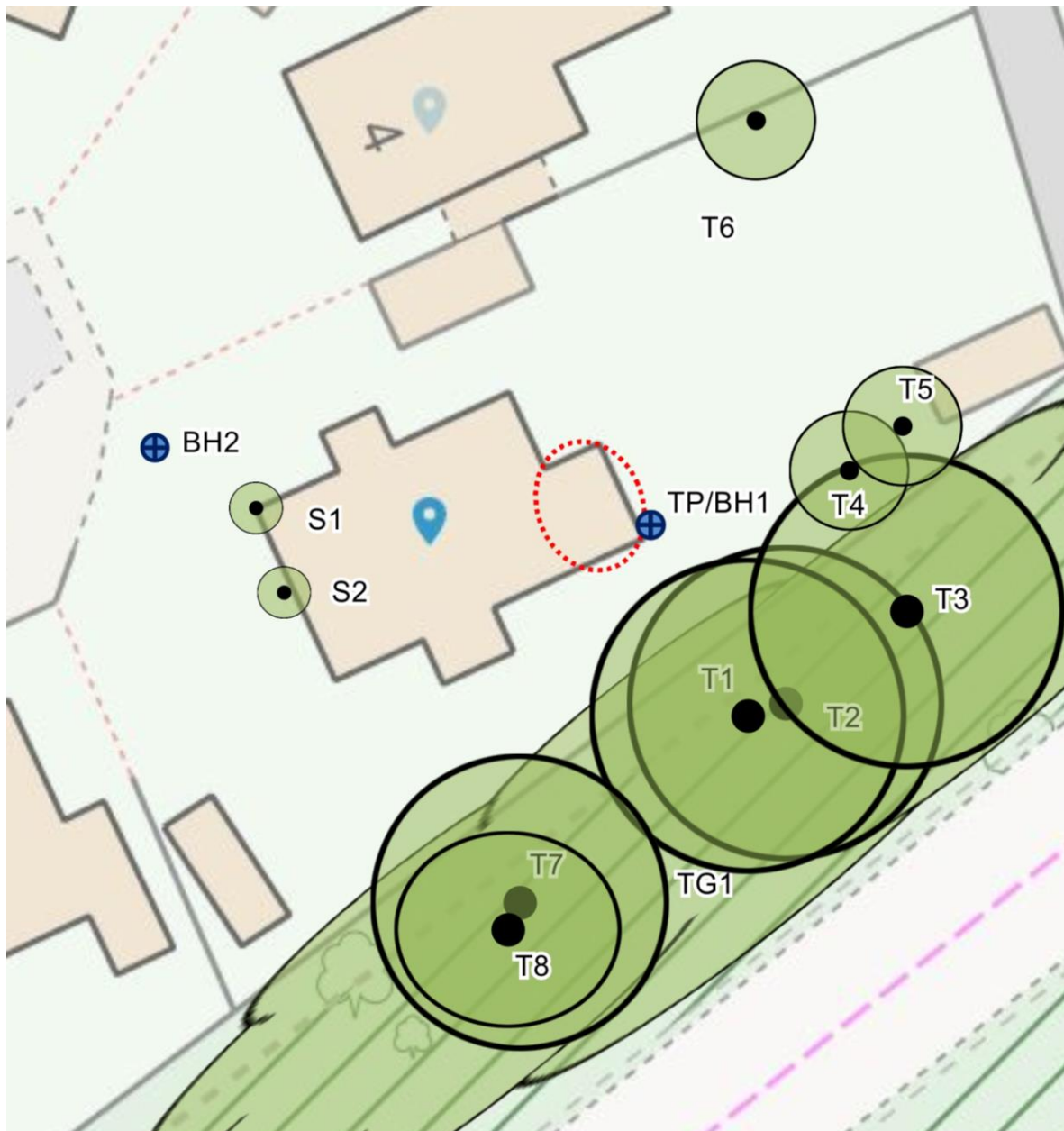
Ms: multi-stemmed * Estimated value

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
S1	Privet	1.9	25 Ms *	1.5	0.5	Younger than Property	Policy Holder
Management history		Managed shrubs.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
S2	Jasmine	1.9	10 Ms *	1.3	0.2	Younger than Property	Policy Holder
Management history		Managed shrubs.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
TG1	Mixed species group	7	150 Ms *	6	1	Older than extension(s)	East Grinstead Town Council
Management history		Unmanaged shrubs dominated by Laurel.					
Recommendation		Do not allow to exceed current dimensions.					

Ms: multi-stemmed * Estimated value

Site Plan



Plan not to scale – indicative only



Approximate areas of damage

Images



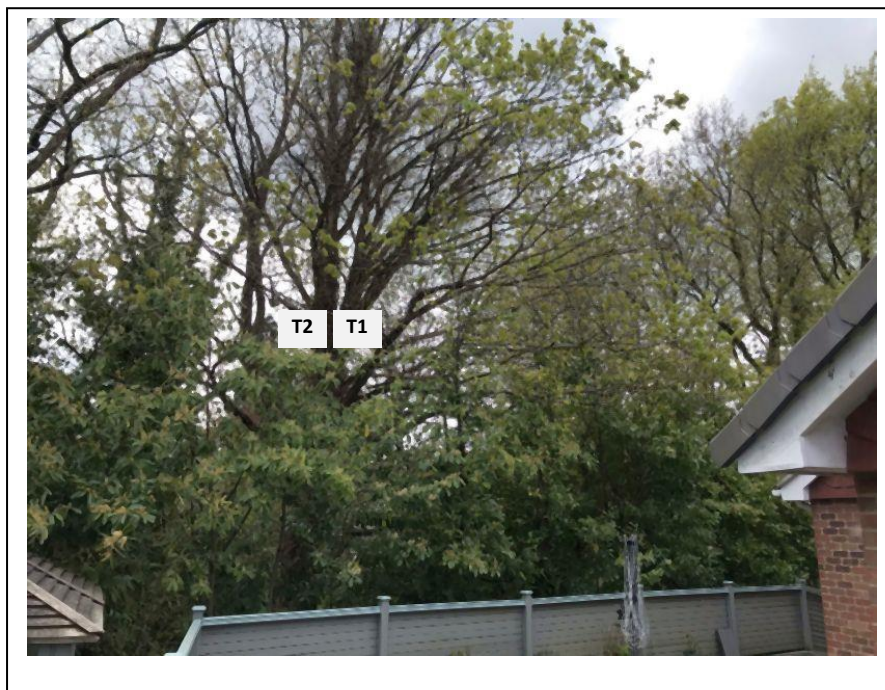
View of T1 & T2



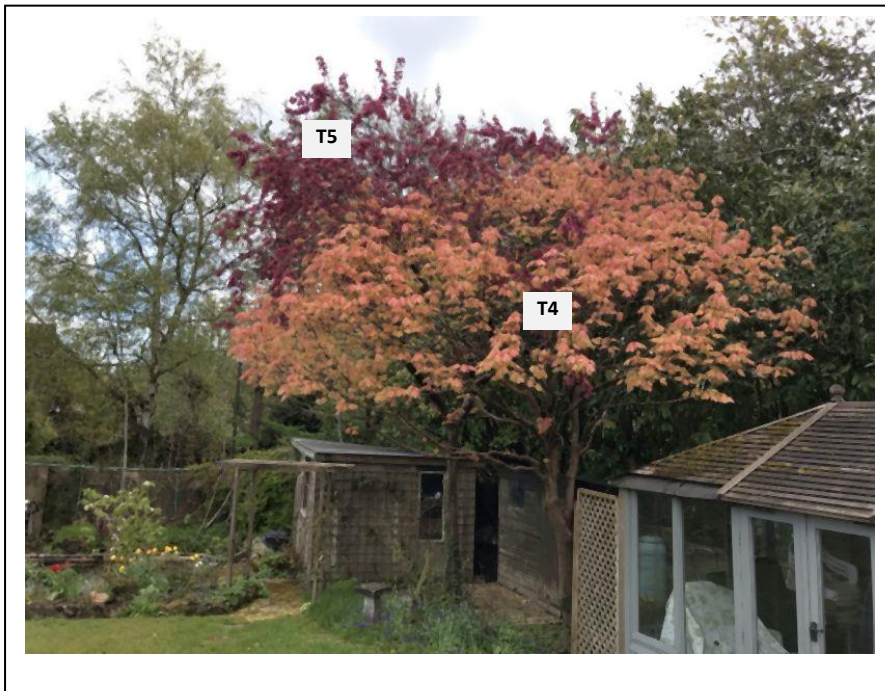
View of T1, T2 & T3



View of T1, T2, T3, T7 & T8



View of T1 & T2



View of T4 & T5



View of T6



View of T7 & T8



View of TG1