Arboricultural Appraisal Report

Subsidence Damage Investigation at:

Spinney House
Rusts Lane
Huntingdon
PE28 4DN



CLIENT:	360Globalnet
CLIENT REF:	087231999
MWA REF:	SUB230823-14085
MWA CONSULTANT:	Andy Clark
REPORT DATE:	17/11/2023

SUMMARY

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

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Introduction

Acting on instructions from 360Globalnet, the insured property was visited on 12/09/2023 to assess the potential role of vegetation in relation to 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 of traditional construction, built C.1875. The property includes a detached single storey double garage, which is also significantly damaged.

External surrounding areas comprise gardens and woodland. The site is generally level with no adverse topographical features.

Damage Description & History

Damage is evident throughout the property, with internal and external cracking first observed during the summer of 2022. At the time of the engineer's inspection (21/08/2023) 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 2008, which resulted in vegetation management works, superstructure repairs and decoration. For a more detailed synopsis of the damage please refer to the building surveyor's/engineer's technical report.

Site Investigations

Site investigations were carried out by the Drainage Repair Company on 01/09/20223, when two trial pits were hand excavated to reveal the foundations, with a borehole sunk through the base of the trial pit to determine subsoil conditions. A drain survey was also carried out. Please refer to the site investigation report for full details.

Discussion

Opinion and recommendations in this report are made on the understanding that 360 Globalnet are satisfied that clay shrinkage subsidence is a cause of the current building movement and associated damage.

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 indicates moisture depletion/desiccation at the time of sampling at depths beyond normal ambient soil drying processes, such as evaporation, which is indicative of the soil drying effects of vegetation.

Roots were observed below foundation depth in TP/BH1 & TP/BH2 and recovered samples have been positively identified (using anatomical analysis) as Acer spp., Fraxinus spp., Pomoideae gp. (tentative) and Cuprressaceae spp.

Our survey has identified vegetation within influencing distance of the building/area of movement with a current potential to affect soil volumes below foundation level; the most significant of which in relation to the current damage are recorded in Table 1 below. Survey records include multiple trees which correlate with the roots samples retieved from the TP/BH locations.

Based on the technical reports currently available, engineering opinion and our own site assessment we conclude there is damage 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 trees/vegetation considered to be responsible for the movement/damage, works set out at Table 1 below are recommended.

Consideration has been given to pruning as a means of mitigating vegetation influence, however in this case, this is not considered to offer a viable long-term solution due to the species characteristics, size and proximity of the responsible vegetation to the area of damage.

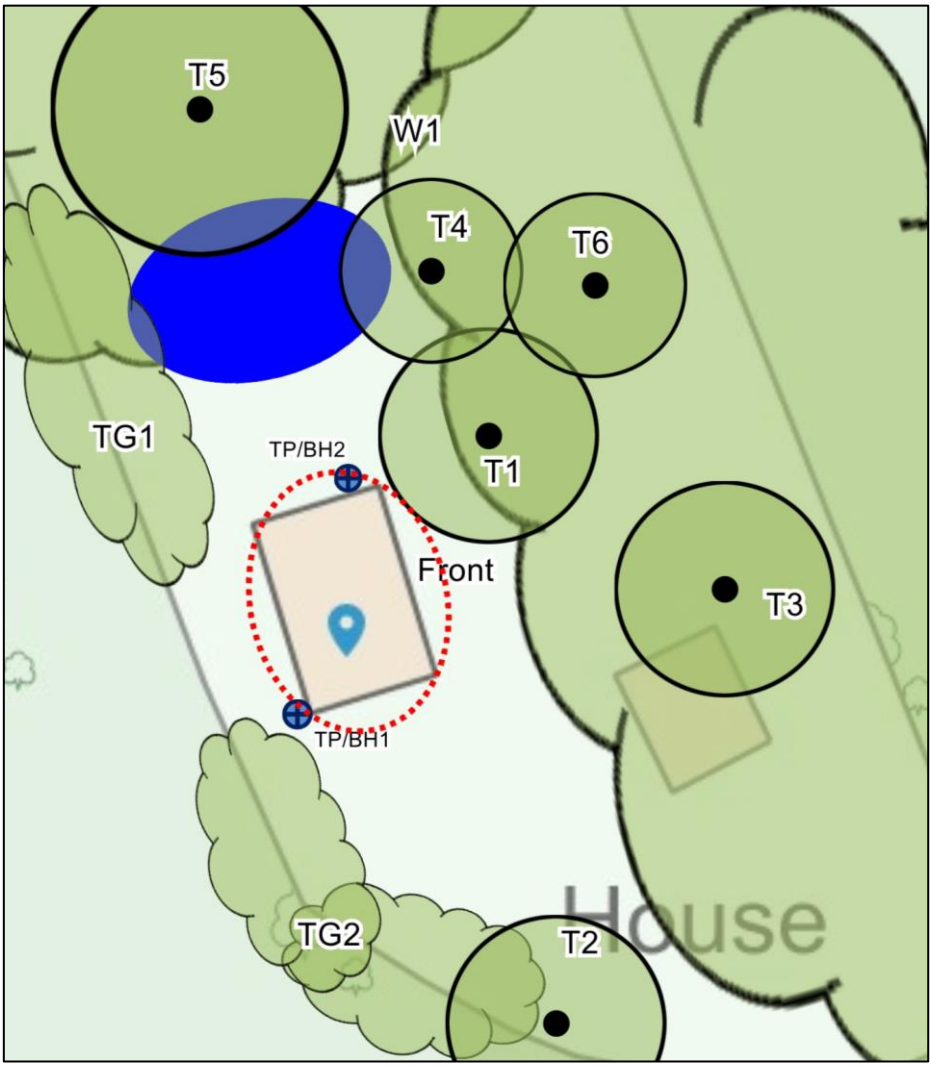
Table 1 **Current Claim** - Tree Details & Recommendations

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T5	Oak	19.5	750	20.0	25.5	Similar Age to Property	Policy Holder
Management history		No significant past management noted.					
Recommendation		Reduce height to 15.0m and crown radius to 6.0m [12.0m spread] leaving balanced crown. Re-prune thereafter on a triennial cycle to maintain at broadly reduced dimensions.					
TG1	Cypress group [x5]	10.0	500	9.5	6.0	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level.					
TG2	Cypress group [x12]	15.0	490	10.0	2.6	Younger than Property	Policy Holder
Management history		No significant recent management noted.					
Recommendation		Remove (fell) to near ground level.					
W1	Mixed spp. woodland of mostly Sycamore, Ash and Oak with shrub and scrub understorey	18.0	800 *	18.5	8.2	Similar Age to Property	Policy Holder
Management history		No significant past management noted. Relevant trees individually plotted and annotated as Sycamore T1, Ash T2, Sycamore T3, Ash T4 and Oak T6.					
Recommendation		Remove (fell) Sycamore T1, Ash T2, Sycamore T3, Ash T4 and Oak T6 to near ground level and remove any regrowth as it emerges [Herbicide translocation risk].					

Ms: multi-stemmed * Estimated or approximate value

Distances to building measurements are to the nearest point of the building unless otherwise stated.
Tree dimensions may be estimated or approximate based on accessibility.
Crown spread values are normally an estimate of the maximum spread but note tree crowns may be asymmetrical.

Site Plan



Tree/vegetation locations are indicative Approximate areas of damage

Tree/vegetation locations are based on what could be determined at the time of the survey.
It should be noted that this is not always clear and may be disputed by property owners.

Images



View of TG1 Cypress group



View of TG2 Cypress group and T2 Ash



View of T5 Oak with TG1 group to left of frame and W1 woodland to right



Overview of W1 woodland

Management of vegetation to alleviate clay shrinkage subsidence.

All vegetation requires water to survive which is accessed from the soil. Clay soils shrink when water abstracted by vegetation exceeds inputs from rainfall, which typically occurs during the summer months. When deciduous vegetation enters dormancy and loses its leaves, and rainfall increases during the winter months, soil moisture increases and the clay swells. (Evergreen trees and shrubs use minimal/negligible amounts of soil water during the winter).

Buildings founded on clay soils are susceptible to movement as the clay shrinks and swells which can result in cracking or other damage.

Where damage does occur, pruning (reducing leaf area) can in some circumstances be effective in restoring stability however, removal of the influencing vegetation (trees, shrubs, climbers) causing the ground movement offers the most reliable and quickest solution in reducing seasonal volumetric changes in the clay and restoring building stability and for this reason is frequently initially recommended as the most appropriate solution.

Often this is unavoidable due to the size or number of influencing trees, shrubs etc and their proximity to the building. Very heavy pruning of some species to a level required to effectively control its water use can result in the trees decline and ultimately death and is one factor considered when making recommendations for remedial and future management of tree. Pruning alone, whilst reducing soil moisture uptake is often an unpredictable and unreliable management option in restoring building stability, either in the short or long term.

In some circumstances however, where vegetation initially recommended for removal is subsequently pruned and monitoring indicates the building has stabilised, removal becomes unnecessary with decisions based on best evidence available at the time.