

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

12 Linda Grove
Waterlooville
Hants
PO8 8UX



CLIENT:	CET Property Assurance
CLIENT REF:	246191 / B1426672
MWA REF:	PO060115.01TW
MWA CONSULTANT:	Tom Wawman
REPORT DATE:	14 January 2015

SUMMARY

Statutory Controls		Mitigation (current claim)	
TPO	Yes – T1	Insured	No
Cons. Area	No	3 rd Party	Yes
Trusts schemes	No	Local Authority	No
Planning	No	Other	No
Local Authority: -	Havant Borough Council		

Introduction

Acting on instructions received from CET Property Assurance, the insured property was visited on 13 January 2015 for the purpose of assessing 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 given 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 semi-detached bungalow built in 1955. There is a conservatory to the rear the construction date of which is unknown at this time.

External areas comprise gardens to the front and rear with a driveway and to the right of the property leading to a garage to the rear.

The site is generally level with no adverse topographical features.

Damage Description & History

The current damage affects the conservatory with vertical cracks evident where the conservatory meets the house and the garage with cracks noticed externally to the left hand flank wall. The damage was first noticed in July 2014.

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Site investigations

Site investigations were carried out on 15th October 2014 when a single trial pit was excavated to reveal the foundations, with a borehole being sunk through the base of the trial pit to determine subsoil conditions. A second control borehole was sunk in the front garden.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TH1	Concrete	590

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
BH1	Firm to very stiff mid brown, grey veined silty CLAY	20-51	Medium-High
BH2	Soft to very stiff mid brown, grey veined silty CLAY	30-45	Medium-High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP1	590	Quercus	Present
BH1	3000	Broadleaved species, too decayed for positive identification (probably Quercus)	-

Drains: The drains have been tested and defects are identified.

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Discussion

Opinion and recommendations are made on the understanding that CET Property Assurance are satisfied that the current building movement to the conservatory and the associated damage is the result of clay shrinkage subsidence and that other possible causal factors have been discounted. It is noted from the GAB Robins technical report (25th September 2014) that the damage to the garage is historic in nature and has been present for some time.

Site investigations and soil test results have confirmed a plastic clay subsoil of medium to high volume change potential (NHBC Classification) susceptible to undergoing volumetric change in relation to changes in soil moisture. Based on a comparison between moisture content and the plastic and liquid limits there is evidence of significant desiccation in borehole 1.

The desiccation is at depths beyond normal ambient soil drying processes such as evaporation and is indicative of the soil drying effects of vegetation.

Roots were observed to 590mm bgl in trial pit 1 and recovered samples have been positively identified (using anatomical analysis) as Quercus (Oak). Roots were also observed in borehole 1 to 3000mm bgl which have been identified as probably Quercus the origin of which will be T1 confirming the influence of this vegetation on the soils below the foundations.

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 available information, it is our opinion that T1 is the material cause of the current subsidence damage. If an arboricultural solution is to be implemented to mitigate the current damage and allow the soils beneath the property to recover to a position such that an effective repair solution can be implemented we recommend that T1 is removed.

We have given consideration to pruning as a means of mitigating the vegetative influence, however due to the proximity of the tree to the property we do not consider pruning to offer a viable long term solution.

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

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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.
- Removal of one tree is recommended together with future management of retained vegetation.

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

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Oak	18*	75*	16*	11.5	Older than property	3 rd Party:- 27b Durley Avenue
Recommendation		Remove and treat stump to inhibit regrowth					

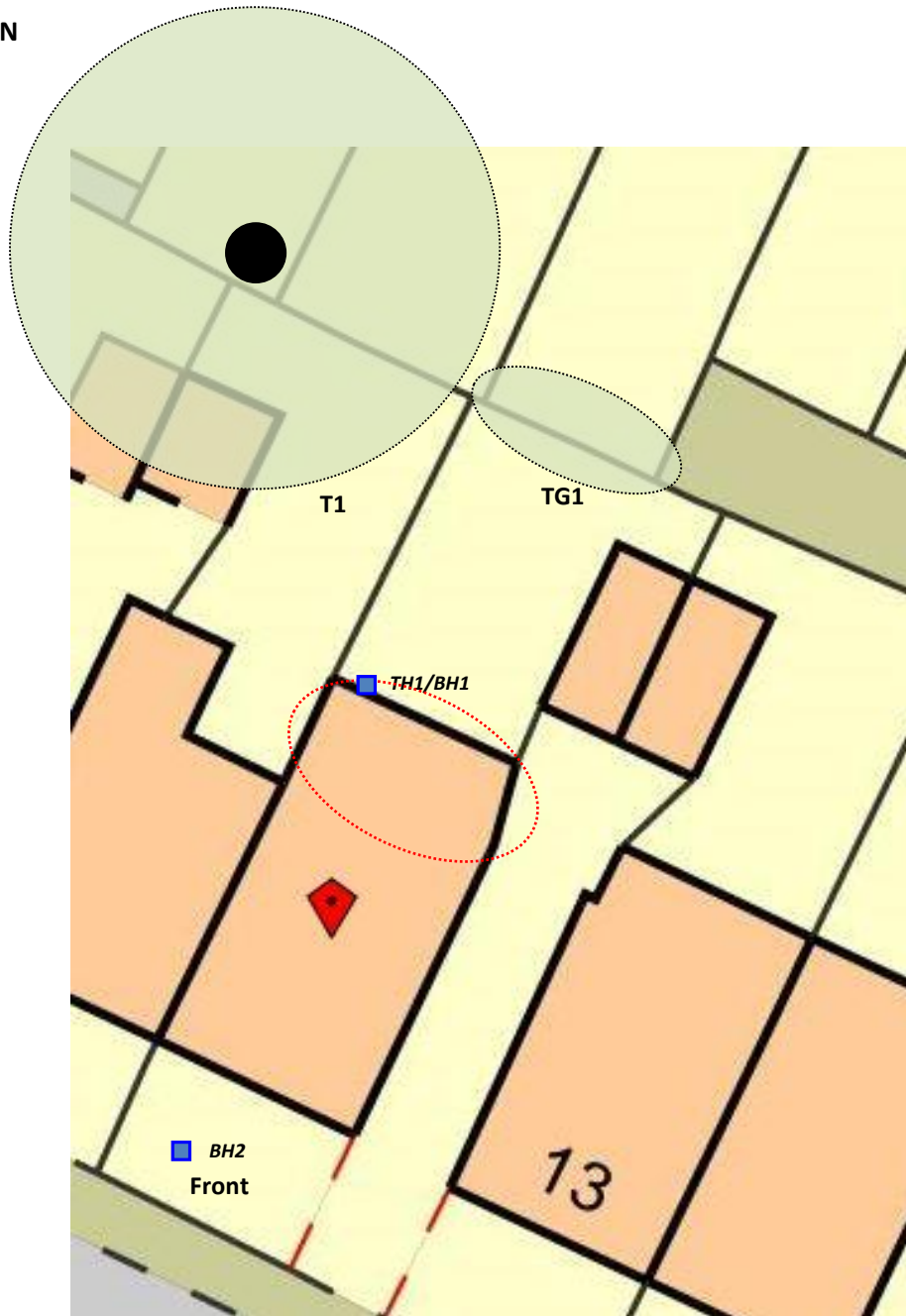
Ms: multi-stemmed * Estimated value

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

Tree No.	Species	Ht (m)	Dia (cm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
TG1	Holly	8	20*	4	9	Younger than property	3 rd Party:- 25 Durley Avenue
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

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Images



View of T1



View of TG1

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