

Arboricultural Report



SUBSIDENCE INVESTIGATION AT:

5 Clausentum Close
Chandlers Ford,
Hampshire SO53
2AQ

Client:	Crawford & Company
Reference No:	SU2207095
Enviro Trees UK Ref No:	TM66
Report Date:	12 th of May 2023

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Introduction

Enviro Trees UK was instructed by Crawford & Company to visit the insured property to:

- identify all trees and shrubs within the potential distance of influencing building structures at the insured property
- provide an opinion on the trees and shrubs being a causal factor in the damage to the insured property

- make recommendations on the immediate and future management of the trees and shrubs

The property was attended and assessed on 20th February 2023.

Limitations

This report assumes engineers are satisfied that the damage to the insured property is attributable to clay soil shrinkage resulting from moisture abstraction by vegetation.

The report may be subject to review upon receipt of additional site investigation data, monitoring, engineering or other information.

The trees were inspected from ground level. Trees and shrubs that are not recorded are considered to be beyond the range of influence and/or are not significant in the context of the current damage or expected to pose a threat in the foreseeable future. Our assessment was made externally (no entry into the building required).

The report does not include a detailed assessment of tree condition or safety. The health, condition and safety of trees should be checked on a regular basis – best practice recommends that trees are inspected every 18 months when they are alternately in and out of leaf and following extreme weather events. Third-party owners are advised to seek their own advice on tree health, structural integrity and risk. Conclusions and recommendations are valid for a period of one year and validity may be reduced in the case of any change in conditions in proximity to the trees/shrubs or built structures.

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Property details

Single story detached bungalow of traditional construction with brick walls surmounted by a hipped, tiled roof. There is a conservatory to the rear. Date of construction c.1958.

The property occupies a reasonably level site with no unusual or adverse topographic features. Our assessment was made externally (no entry into the building required)

Council area

Eastleigh Borough Council

Details of damage

The cracking was first noticed summer 2021, the area of damage is the rear left corner of the bungalow (southerly corner), at five internal locations. The pattern and nature of the cracks is indicative of an episode of subsidence. The cause of movement has been diagnosed to be clay shrinkage.

Recorded information

The following details were recorded for each tree or shrub and tabulated in the schedule of findings:

- Species

- Height in metres
- The radius of the canopy spread in metres
- Trunk diameter measured 1.5m above ground level (diameter at breast height – DBH) and number of stems (# denotes estimated measurement where trunk is inaccessible)
- The life stage
 - Young: establishing, usually with good vitality but as yet of limited significance in the landscape.
 - Semi-mature: established, normally vigorous, increasing in height and of increasing landscape significance.
 - Early-mature: established; approaching mature height with crown spreading.
 - Mature: fully established trees around the middle of their typical life expectancy; generally retaining good vitality and achieving full height but their crowns still spreading.
 - Over-mature: fully established trees toward the end of their typical life expectancy with declining vitality.
- Age relative to property
- Distance from property in metres (# denotes estimated distance)
- Tree owner/location
- Vitality, condition and previous works
- Statutory protection (Tree Preservation Order or Conservation Area)

Data for subsidence risk

Arboricultural assessment considered the Crawford Subsidence Site Note Pack.

Underlying geology

Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number SUSW suggests the underlying geology to be Bracklesham.

Previously grouped along with the Bagshot beds being termed the Lower Bagshot, and the Bracklesham referred to as the Middle Bagshot1. Sandy and loamy superficially, sandier with depth and then containing laminations of green clay.

The superficial deposits are thought to be River Terrace.

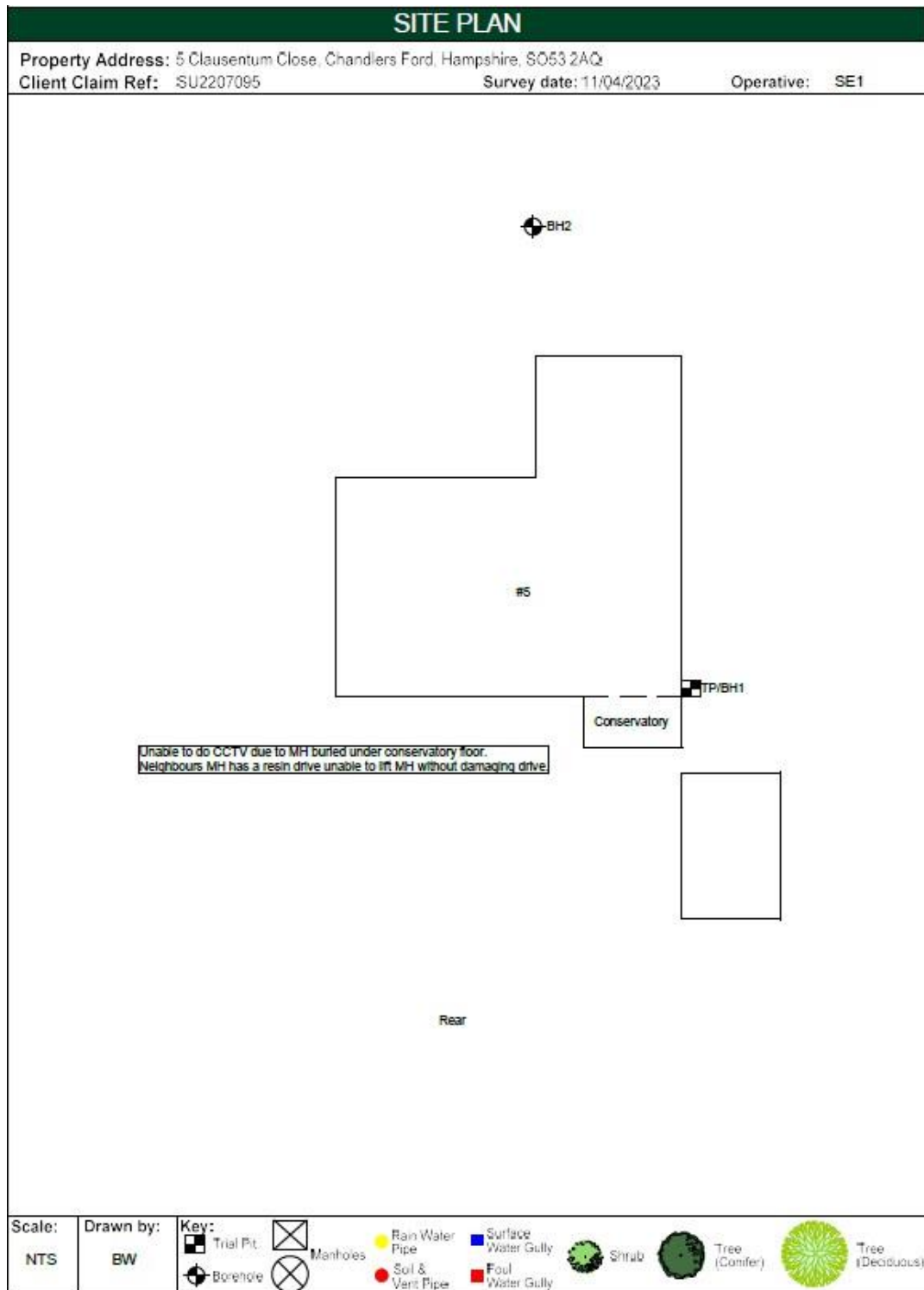
River terrace is another name for the flood plain deposits. The description covers a mixture of gravels and sands, sometimes with clay intermixed. They are often numbered (River Terrace 1, 2, ..., with the lowest number being the lowest deposit) to follow their period of deposition. Formerly known by their location (Boyn Hill Gravels, Taplow Gravels or Plateau Gravels for example), this terminology has largely been abandoned. In this area, they tend to be thin and not the dominant geology.

Site Investigations

Site investigations were carried out by FASTTRACK on 11/04/23 where a trial pit was excavated to reveal the foundations, with a borehole sunk through the base of the trial pit to determine

subsoil conditions. A second borehole was also sunk at the front of the property. The results are summarised in the plan and tables below.

Site investigation plan showing location of boreholes



Drilling Report

Date	11/04/2023
Service Provider	Fastrack
Number of Trial pits (TP)	1
Number of Bore Holes (BH)	2

Foundations

TP/BH Number	Type	Depth at Underside (mm)
TP1	Concrete	550
BH1	Concrete	550
BH2	NA	NA

Roots

TP/BH Number	Roots observed to depth (mm)	Identification	Starch
TP1	No roots observed	NA	NA
BH1	550	either Quercus spp. or Castanea spp.	Low
BH2	No roots observed	NA	NA

Soils

TP/BH Number	Description	Plasticity Index %	Volume Change Potential (NHBC)
TP1	Light brown, brown sandy clay	40-45	High
BH1	Light brown, brown sandy clay		
BH2	Light brown, brown sandy clay	45-51	High

Drains

MH buried under conservatory floor

Neighbours MH has a resin drive unable to lift MH without damaging drive.

Monitoring

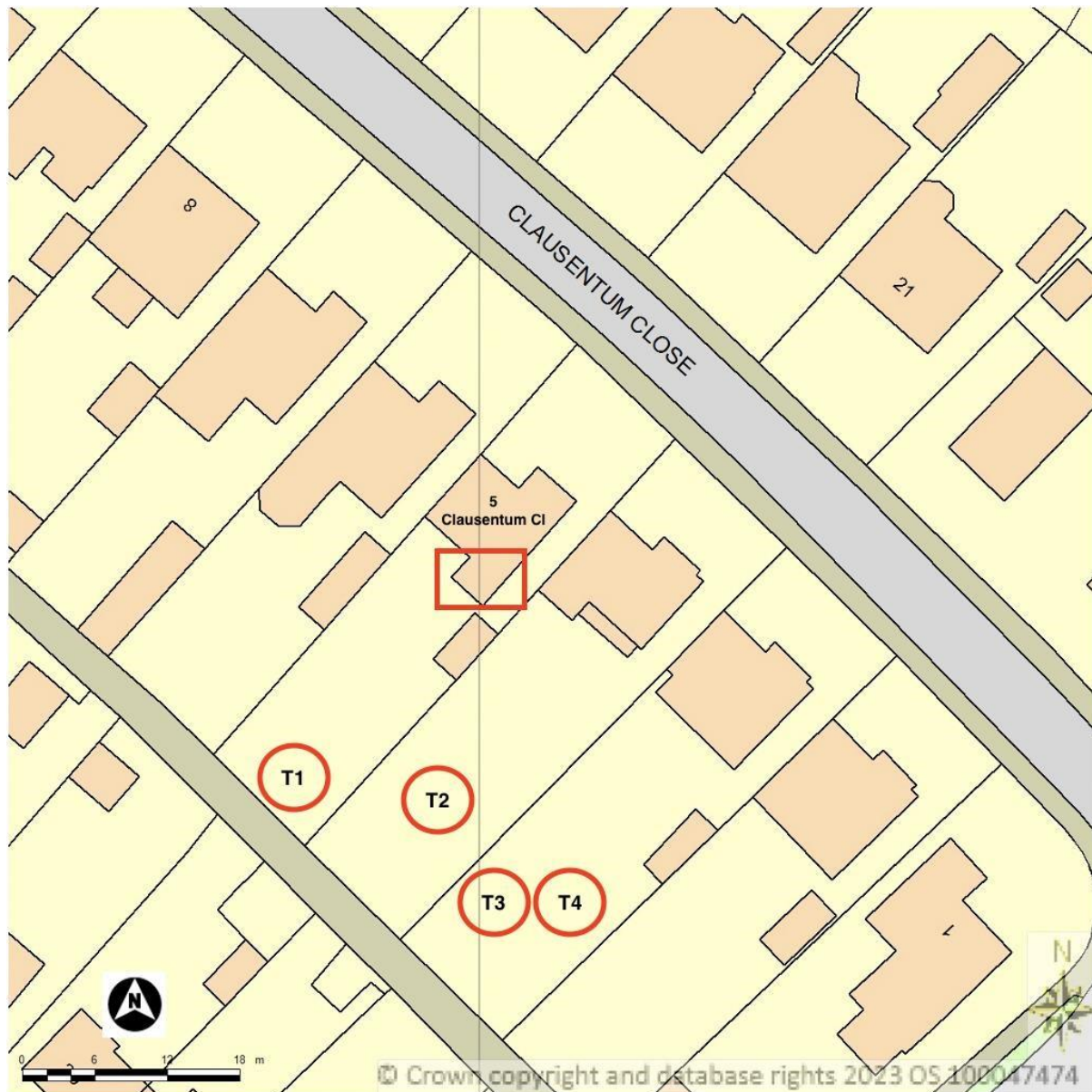
No information available at time of writing.

Schedule of findings

Ref.	Species	Height (m)	Canopy radius (m)	DBH (mm) No. of stems	Life stage	Age relative to property	Distance to property (m)	Tree owner/ location	Vitality, condition, previous works	TPO/ CA
T1	Oak	20	7	560 1	Mature	Older	23	Insured	Good. Previous light pruning	TPO
T2	Oak	24	8.5	600	Mature	Older	17	Neighbour at number 4	Tree is a dominant species across the 2 properties. The tree has had previous pruning works undertaken to remove lower limbs and reduce back from house.	TPO
T3	Oak	18	6	No Access	Mature	Older	28	Neighbour at number 3	No Access	TPO
T4	Oak	17	6	No Access	Mature	Older	28	Neighbour at number 3	No Access	TPO

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Tree plan



Tree plan showing area of damage inside red box.

Photographs



Front of house



T1



Rear lane. T1, T3 & T4



T2, T3 & T4



T3 & T4



T3 & T4 on left T2 middle & T1 right

Analysis

Trees T1, and T2 are both within influencing distance of the property (the radius of the zone of influence is taken from “Tree Roots & Buildings” Cutler, D.F. and I.B.K. Richardson, (1989) or determined in accordance with NHBC Standards Chapter 4 (2021)). English Oak are well recognised as having a high-water demand (NHBC Standards Chapter 4 (2021)) and are capable of causing subsidence damage during drought conditions.

Trees (T3), and (T4) both also Oak are close to, but outside of the zone of influence but they are high water demand species capable of causing subsidence damage during drought conditions.

Conclusions

- The site investigations have shown the presence of shrinkable clay soil.
- Engineers are satisfied that the damage to the insured property is attributable to clay soil shrinkage resulting from moisture abstraction by vegetation.
- The site investigations have found roots at the foundation level which have been matched to the vegetation identified in the schedule of trees and shrubs in this report however, it is not possible to determine which of the four oaks is/are the source of the roots.

Current claim

Consideration has been given for pruning as a means of mitigating the vegetation impact. However, in this case this is not considered a viable long-term solution.

Ref.	Species	Tree owner/ location	Dist. to prop. (m)	Zone of influence (m)	Recommendation
T1	Oak	Insured	23	30	Installation of a root barrier to isolate the insured property from all the oaks across several gardens. Removal is unlikely to be effective as there is another closer oak in the neighbouring garden.
T2	Oak	Neighbour at Number 4	17	30	Installation of a root barrier to isolate the insured property from all the oaks across several gardens OR as the closest oak, Remove close to ground level and treat stump with systemic herbicide to inhibit regrowth.

Note: the radius of the zone of influence is taken from “Tree Roots & Buildings” Cutler, D.F. and I.B.K. Richardson, (1989) or determined in accordance with NHBC Standards Chapter 4 (2021).

Future risk

Ref.	Species	Tree owner/ location	Dist. to prop. (m)	Zone of influence (m)	Recommendation
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T3	Oak	Neighbour at number 3	28	30	Maintain the tree within $\pm 10\%$ of its current size through periodic pruning.
T4	Oak	Neighbour at number 3	28	30	Maintain the tree within $\pm 10\%$ of its current size through periodic pruning.

Statutory protection

The presence of Tree Preservation Orders (TPO) or Conservation Area status should be confirmed prior to any tree works being implemented. Failure to do so can result in fines in excess of £20,000.

Trees and wildlife

Trees are hosts to nesting birds and mammals. Under the Wildlife and Countryside Act it is an offence to disturb any nesting bird or bat. Before carrying out any works it is important to ensure that there are no birds or bats in residence.

Implementation of tree works

Tree work is skilled and potentially dangerous. Work should be carried out by trained and certificated contractors working to BS 3998: 2010 *Recommendations for Tree work*.