



# Structural Report

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Property Address	8, Greenside, Waterbeach, Cambridge, CB25 9HP
Client	Mr Theo Anderson
Date of Report	14 November 2023
Project Nr	192603 (23-1009)

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## 2. BRIEF AND SCOPE

- a. Cambridge Building Surveyors Ltd were instructed by Mr Anderson to undertake a visual inspection of the above property, to confirm the adequacy of the outbuilding structure due to recent movement. The causes of the movement are to be investigated within this report.
- b. No destructive or intrusive testing was undertaken, and no trial holes excavated at the time of the visit.
- c. The inspection was carried out both internally and externally of the existing building structure.
- d. The weather was overcast and wet for the site visit.
- e. The property was visited by Nigel Hills on Friday 20<sup>th</sup> October 2023.
- f. This report is to make observations and recommendations based on the structure only. Other areas of potential issue were not commented on as this lies outside our expertise as Structural Engineers. This report is solely concerned with the aspects highlighted and our liability is limited to yourselves and our clients. No liability is intended to be conferred for the purposes of the contracts act 1999 (Rights of Third Parties).

### 3. DISCUSSION

The Outbuilding Structure is currently used as storage for the large garden to the rear of 8, Greenside, Waterbeach. The Outbuilding structure is formed from a timber frame in the form of Timber Posts, Timber Beams and a lean-to roof structure covered in a brown pantile roof finish. The outbuilding is formed from 3 bays, with the middle bay having barn style doors for the only closed bay. Low level plinth brickwork is in place to the flank walls with timber cladding at higher level. Behind the outbuilding structure is a blockwork garden wall which predates the outbuilding structure. The garden wall has been built on the boundary line to the southeast.

In front of the outbuilding to the northwest is four large trees. The trees in place have been identified as a mature Eucalyptus, a mature Walnut, a mature Maple and a Bird Cherry. The trees vary in distance from the outbuilding but are all within 1m to the side/front elevations. The trees are shown in Fig 1.0 below –



Fig 1.0 Existing Outbuilding with existing trees in the foreground

The local geology seems to be of a clay nature. Drift maps would suggest that clay is in place below the existing outbuilding. This can be seen in Fig 1.1 below.

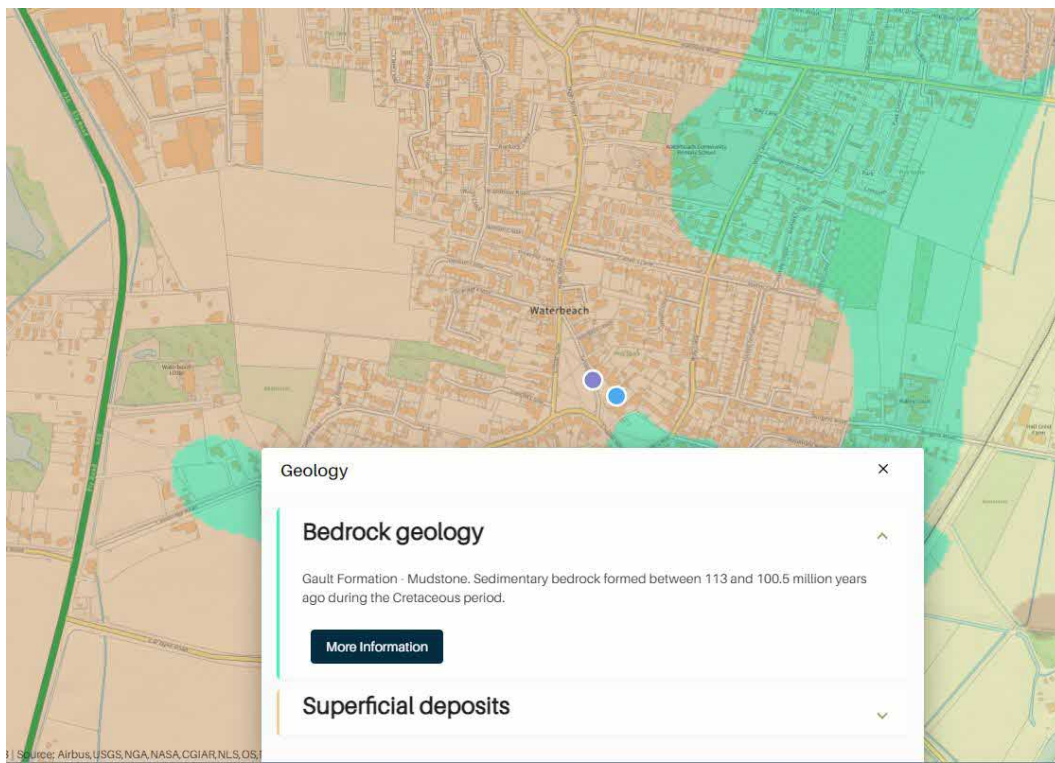


Fig 1.1 Existing Drift map to show likely soil conditions (Source Geology of Britain viewer) Ref: <https://geologyviewer.bgs.ac.uk/>

The structure was assessed during the visit and the following aspects noted in regard to the existing structure –

- a) The property was inspected internally, and it was noted that a large vertical crack is in place to the rear of the outbuilding. The vertical crack is through the southeast blockwork boundary wall and measured between 1-3mm in width. The crack was reported to have become apparent over the last few years. The crack location is the bay closest to the existing mature Eucalyptus tree.
- b) The existing outbuilding structure is significantly out of level as shown in Fig 1.3. A long vertical level was placed on the existing timber post and rear wall and a significant lean was recorded. The structure seems to be approximately 10mm out of level at the head of the wall and posts respectively.
- c) Further vertical movement was noted externally of the outbuilding, again through the boundary wall. The location of the movement through the boundary wall is behind the existing Eucalyptus Tree. The movement measured approx. 1-2mm in width and was noted to full height of the existing wall. Similarly, to the other movements noted, cracking has become apparent over the last few years.





Vertical crack to the boundary wall

Fig 1.2 Existing cracking to the rear of the Outbuilding



Fig 1.3 Movement to the rear wall and Timber Post structure

Vertical crack to the  
boundary wall

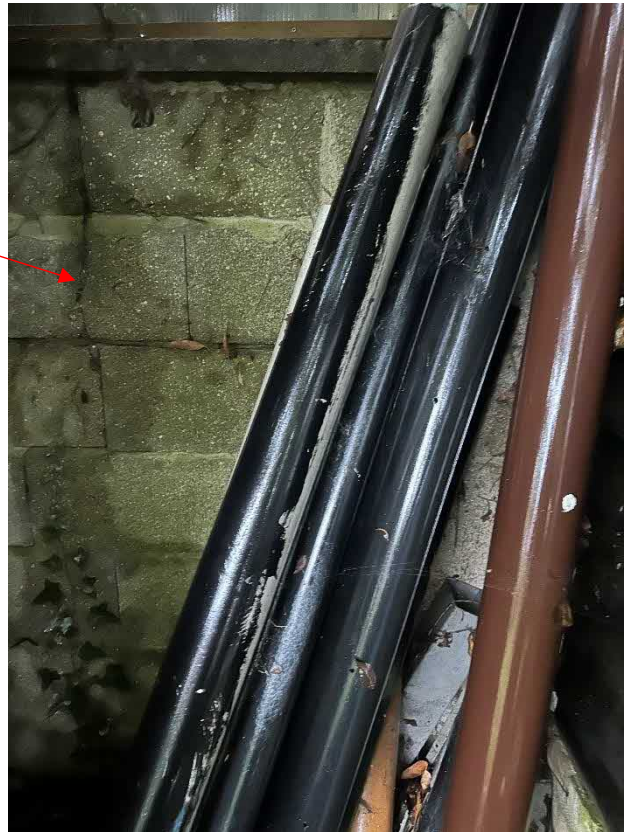


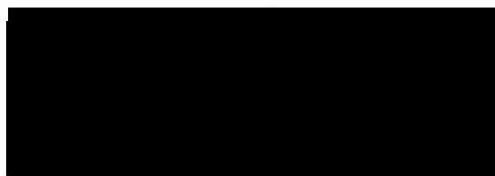
Fig 1.4 Movement to the rear boundary wall

## 4. CONCLUSIONS

The existing structure has shown significant movement. The location of the mature height trees is extremely close to the outbuilding front and flank elevations respectively. Mature trees this close in Clay soils are very likely to have had a detrimental effect on the structure. The Eucalyptus in particular, is a high-water demand tree. The Walnut and Maple trees are medium water demand and similarly to the Eucalyptus, have a significant effect on structures when positioned so close to build lines. The rear wall and outbuilding seem to show signs of subsidence where a loss of support has meant that the outbuilding is out of plumb. In conjunction to the subsidence, tree roots may have pushed the outbuilding front elevation posts up causing more exaggerated movement as a result. The movement is likely to be linked to the exceptionally dry summers of 2019, 2020 and 2021. In conjunction with the dry summers, we have had very wet winters. This has meant that excess water has been taken from the ground by the large mature trees meaning a contraction of the clays which would likely explain the drop in the outbuilding/rear wall structures.

In order to prevent further damage to the structure, we would recommend that the existing mature trees are significantly reduced in height and then removed in stages. The proposal would be to remove the tree in stages to prevent the effects of ground heave on the outbuilding and any surrounding structures. We would advise that a Arbiculturist confirms how much of the mature trees to remove in the first phase, and then when to remove them completely to negate further movement to the existing Outbuilding. The four existing trees are all likely to have an effect on the structure until they are reduced in height and removed.

We trust this is satisfactory although if you need any further clarification then please do not hesitate to contact us.



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For and on behalf of Cambridge Building Surveyors