

16th October 2023
TDB/456318/tdb

Helen Oliver
5 Coultas Road
Chandlers Ford
Eastleigh
Hampshire
SO53 5BA

Dear Helen

Structural Inspection of garden walls at 5 Coultas Road, Chandlers Ford.

I refer to your instructions for us to undertake an inspection of masonry garden walls at this property, in respect of suspected structural movement.

1.0 Introduction

1.1 Our brief was set out via an email on 8th September 2023. This was to undertake a structural inspection with regards to suspected structural movement to the freestanding and retaining masonry walls within the gardens of the property. You have raised concerns about the effects that a tree within close proximity may be having on the structures.

1.2 Accordingly, I attended the property on Thursday 12th October 2023.

2.0 Limitations

2.1 This report is based on the findings of an inspection by visual means only. No opening up or other exposure of the building fabric has been undertaken.

2.2 No inspections were made of woodwork or other items which were covered, unexposed or otherwise inaccessible and I am therefore unable to report whether any such items are free from defect.

2.3 This report focusses only on the risk to the structure of the masonry walls from the items noted in section 1.1. We did not carry out a full structural inspection of the entire property.

3.0 Geology

3.1 Reference to the British Geological Survey suggests that the site is underlain by bedrock of London Clay Formation with no superficial deposits present.

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4.0 Masonry Walls

- 4.1** The freestanding masonry wall forms a screening wall within the property boundary, which divides the front driveway and the rear garden. The wall is approximately 2m in height and 3.5m in length. The wall is a half-brick thick (102mm) and built of stretcher bond, with brickwork piers of one brick thickness (225mm). There is an opening within the wall which contains a timber gate, there is a pier at each side of the opening. One end of the wall is fully bonded into the external skin of the house and the other end is a brick pier with no return wall.
- 4.2** The freestanding wall abuts a low-level brickwork retaining wall. This is approximately 12m in length and 0.6m high, but reduces in height along its length towards the rear garden. The construction is of half-brick masonry laid in stretcher bond. The retaining wall forms the boundary between 5 Coultas Road & 3 Coultas Road.
- 4.3** There is a mature Beech tree directly adjacent to the masonry walls. This tree is approximately 12m in height with a trunk diameter estimated to be 450mm.
- 4.4** I believe the property to have been built C. 1950 and the freestanding and retaining masonry walls are assumed to be later additions.
- 4.5** For the purposes of description within this report the elevation containing the masonry wall being inspected is assumed to face south and all observations are made from this perspective. Wherever the terms RHS (right hand side), LHS (left hand side) etc are used these should be assumed as if facing the element under observation.
- 4.6** To the front and rear of the freestanding masonry wall is hardstanding for driveway and pathway areas. In front of the retaining wall is hardstanding and the retained ground behind is just unmade ground.
- 4.7** The property is located on a slope which runs from east to west.

5.0 Inspection of the Masonry Walls

5.1 Freestanding Wall

- 5.1.1** The wall is very clearly out of plumb, placing a 600mm long level against the wall showed it to be out of plumb by 40mm (1:15 gradient). **Figure 1** shows the wall is out of plumb, but it can be seen that the wall also bends outwards at the top.
- 5.1.2** A spirit level placed along a bed joint of the wall shows that the wall is out of level, sloping from west to east, in the direction of where the tree is located.
- 5.1.3** I was informed on site that the wall has very recently been repointed due to significant loss of mortar within the joints. No new cracking has appeared since.
- 5.1.4** **Figure 2** shows the freestanding wall abutting the retaining wall. It can be seen that that the walls are not bonded together.



Figure 1



Figure 2

5.2 Retaining Wall

5.2.1 The retaining wall has suffered from extensive movement. A level placed on the wall showed it to be significantly out of plumb, out of level and bulging along its length.

5.2.2 There are vertical cracks running the full height of the wall in numerous locations.

5.2.3 There are several loose bricks along the wall.

6.0 Conclusions & Recommendations

6.1 It is apparent that both walls have been subject to quite severe degradation. This is probably in relation to various causes; the age of the walls, their suspected insufficient foundation depth bearing within shrinkable soil, and the close proximity to a mature tree.

6.2 A beech tree has a moderate water demand and the soils of the London Clay Formation are likely to be of High volume change potential. Referencing the NHBC 'building near trees' tables, a Beech tree is suspected to have an effect on High shrinkable soils up to a depth of > 2m, at a distance of 1m away. This is likely the cause of why the walls are out of plumb; the foundations have failed due to the effect of tree roots.

6.3 A quick assessment shows that the centreline of the freestanding wall at the top is outside the face of the wall width at the base, and therefore risk associated with failure is very high. It is advised that the freestanding wall is taken down to safeguard people and property against the risk of sudden collapse.

6.4 The degradation of the retaining wall and freestanding wall is likely to progress due to the ongoing effects of the beech tree. Also, if both walls were to be rebuilt in a similar

construction, the likelihood of the tree causing structural damage in the near future is highly probable. To safeguard the rebuilt walls against future structural damage, due to the tree, would involve incorporating specialist foundations into the design. Due to the disproportionate costs associated with such a design, it is unlikely that this would be implemented.

6.5 The beech tree is situated approximately 3m from the external wall of the house. It is likely that due to the age of the house, that the foundations are relatively shallow. Referencing the NHBC 'building near trees' tables, states that foundations at 3m distance to a beech tree within high shrinkable soils, should be at depths > 2m. Therefore, the main house foundations could be at risk due to the beech tree. Due to this then I would suggest some soil sampling is undertaken to determine the volume change potential of the underlying soils. If testing results show the soil to be cohesive with volume change potential, then it is worth considering the removal of the beech tree to safeguard your property. It should be noted that the removal of trees within such soils can also have structural implications as the clay has the potential to heave, thus adversely affecting the foundation it is supporting.

I trust this report is suitable for your present purposes and look forward to hearing from you, should you require any further assistance.

Yours sincerely



TIM BUTTON, Associate. B.Sc
For and on behalf of Cowan Consultancy Ltd.



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