

STRUCTURAL ENGINEER'S REPORT

IN REGARD TO BOUNDARY RETAINING WALL

WEST HILL COURT / FERN LODGE, N6



FOR

FARADAY PROPERTY MANAGEMENT LTD.

PREPARED BY

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1. Introduction

- 1.1. Howe Chartered Surveyors were appointed by Faraday Property Management Ltd to carry out a survey of the boundary wall between West Hill Court and Fern Lodge to determine whether the wall was stable and the most appropriate short term solution to ensure stability.
- 1.2. A visual inspection with no opening up was carried out on 26 June 2015. There was significant, well-established ivy covering the wall; this was not removed prior to the inspection.
- 1.3. The conclusions are based on the visible surface evidence; there may be other hidden factors that would materially affect the conclusions of this report that would not be evident in a report of this nature.

2. Observations

- 2.1. The wall forming the boundary between West Hill Court and Fern Lodge was built in brickwork in 2 distinct sections: the lower (approximately) 1.2m formed a retaining wall supporting the perched ground level in Fern Lodge, the upper (approximately) 2m formed a traditional boundary wall.
- 2.2. The top boundary wall was built in 225mm thick (9") brickwork with 338mm x 450mm brick piers (13.5" x 18") at approximately 2.5m centres.
- 2.3. The upper brick wall extended approximately 25m from the road entrance gate towards the back. Farther back, it was a timber fence.
- 2.4. The upper portion had been rendered over in cement mortar; this was cracked and crazed and had peeled off in several areas, revealing significantly weathered brickwork.
- 2.5. The lean on the wall was checked near the piers and ranged between 4° to 5.5° towards West Hill Court.
- 2.6. Some cracks were evident behind the ivy, however, much of the wall could not be seen; these were generally adjacent piers.
- 2.7. The retaining wall portion appeared to be 13.5" thick with occasional sloped buttresses; these might be original.
- 2.8. The lower portion of the wall did not have a significant lean.
- 2.9. There were few significant cracks in the lower wall masonry.

- 2.10. A portion of the lower wall just past the change from brick upper wall to wooden fence had slipped along a bed joint.
- 2.11. There were several mature trees and bushes in close proximity to the wall, on the Fern Lodge side.
- 2.12. The ivy covered the wall; many of the roots had penetrated into the fabric of the brickwork, resulting in the bed joints being lifted, especially near the top.
- 2.13. We understand that a portion of the wall farther back had been rebuilt.

3. Discussion & Conclusions

- 3.1. There is a dense growth of well-established ivy on the face of the wall, this has limited the inspection of the wall and has started growing into the joints, further accelerating the deterioration of the wall.
- 3.2. The maximum lean that can be tolerated in a 2m high 225mm (9") wall without loss of overall stability is 2.2°. The lean in the upper wall is significantly in excess of that and there is therefore a risk of failure.
- 3.3. Buttresses have been installed in the past, but these do not appear to have arrested the lean in the wall. Further, there is active tree / bush growth on the Fern Lodge side of the wall which will continue to affect the wall.
- 3.4. The wall should be dismantled in the near future to minimise the risk of collapse, especially as this is immediately adjacent a highly trafficked access route. This should be taken down to the top level of the lower wall.
- 3.5. The upper wall could either be rebuilt back to vertical on top of the existing lower wall or could be replaced with a timber fence anchored into the brickwork, as has been done farther back.
- 3.6. A scheme has been proposed to prop the wall as it stands. This would entail blocking or significantly restricting the main access to the garages and the rear of the property and is not advisable, as clear access should always be maintained for emergency services.

4. Recommendations

- 4.1. The ivy should be cut back and treated with a biocide to ensure this does not recur.
- 4.2. The upper portion of the wall should be dismantled down to the level where the wall is retaining ground. Any bricks in a reasonable condition should be set aside for re-use elsewhere.
- 4.3. A further inspection should be carried out once the lower portion of the wall has been exposed and any remedial work carried out to ensure stability.
- 4.4. A new timber fence should be built along the top of the retaining wall portion.
- 4.5. Based on Spons rates, our initial estimate for the cost of removing the upper wall portion and replacing with a timber fence is £7,500. We recommend that a contractor be approached to provide an accurate figure.