

REPORT  
on  
Retaining wall between gardens  
of  
22 Hilltop Road  
and  
6 & 8 Gladys Road

PETER KELSEY & ASSOCIATES  
17 HIGH STREET  
STANFORD LE HOPE  
ESSEX, SS17 0HD

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## CONTENTS

1. INTRODUCTION
2. INSPECTION
3. DISCUSSION
4. CONCLUSION
5. RECOMMENDATIONS

Please note:

*This report is an Engineer's structural report and as such does not deal with those matters such as wood rot, ingress of damp, adequacy of services, etc., which are normally the province of a building surveyor, except insofar as these aspects affect the structural stability of the building or foundations.*

*We have not inspected the woodwork or other parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the property is free from defect.*

*All references to 'left' and 'right' are as seen by an observer standing in front and looking towards the building.*

1. **INTRODUCTION**

We were instructed by Genesis Housing Association to inspect a retaining wall which forms the rear boundary of this property, No. 22 Hilltop Road, following concerns of its stability.

We visited the property on 12<sup>th</sup> September 2013 and inspected the wall from within the garden of No. 6, Gladys Road, the lower side.

2. **INSPECTION**

The developments of Hilltop Road and Gladys Road are typical late Victorian developments of the period 1860 to 1900.

The topography of the area is such that there is a natural slope from the East down to the West.

The properties in Gladys Road have lower ground floors which access the rear garden on the level. To accommodate the lower level and the natural slope, a retaining wall forms the rear boundary to No. 22 Hilltop Road with a measured retained height of 1.75m.

During the lifetime of the wall, it has been extended to an overall height of 3.3m.

The condition of the masonry can be described as typical for the era of construction. Within No. 4, the mortar has deteriorated where the binder has broken down. With the loss of adhesion, the mortar is now falling out. The condition within No. 6 is better as there is evidence of re-pointing in the past. It is visually obvious that the wall is leaning outwards however, there is a pronounced bulge in the wall towards its Southern end within the garden of No. 6.

On the retained side, we noted several trees and in particular, one Conifer and a substantial deciduous which were coincident with the localised bulging of the wall.

3. **DISCUSSION**

The retaining height of the wall is some 1.75m and of the time of construction, the stability of the wall would have relied on the adhesive properties of the mortar. However, it is evident, certainly within the garden of No. 4 Gladys Road, that the mortar has deteriorated and the wall is now acting as a gravity retaining wall. At 1.75m high, this is beyond the theoretical maximum for a gravity retaining wall in brickwork but with the additional height above upper ground level some improvement in performance can be expected. However, it is clearly evident that the wall is now failing.

3. **DISCUSSION** Contd/-

Within the garden of No. 6, there is some evidence of maintenance of the mortar with some surface re-pointing, old crack repairs and possibly one section of facing having been rebuilt. However, as the wall is monolithic with the section next door, and unless the re-pointing was carried out full depth, we can assume that the mortar on the retained face is likely to be in a similar deteriorated condition albeit possibly to a lesser extent.

The localised bulging to the wall in the garden of No. 6 is not typical of wall failing due to the condition of the mortar, but more indicative of a mechanical failure such as root action.

4. **CONCLUSION**

There are two causes of failure of the boundary retaining wall being:-

- 1) Loss of adhesion in the mortar joints, reducing the capacity of the retaining wall and;
- 2) Mechanical action through the root action of nearby vegetation.

We would apportion the causes as:-

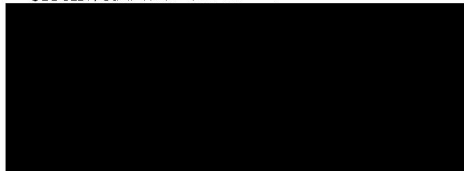
- 1) 60%
- 2) 40%

We do not consider the surcharge by garden sheds or the like as significant in this case.

5. **RECOMMENDATIONS**

The overall condition of the wall is such that repair is not an option. Soil nailing has been used on other similar walls but as the mortar deteriorates further the wall often fails between the nails.

Therefore, our only recommendation is for the wall to be reconstructed with a reinforced concrete cantilever wall. This can be constructed using hollow blockwork with bar reinforcement and filled with 10mm aggregate concrete.



**Andrew R Martin I.Eng., A.M.I.Struct.E.**