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STRUCTURAL ENGINEER'S REPORT

at

Royle House, All Saints R.C. Presbytery, Church Street, Glossop

Ref.19339-003SER

Date:16 June 2016

1. INTRODUCTION

1.1 Client

Parish Council of All Saints, c/o Mr Peter Greenhalgh, 10 Edward Street, Glossop SK13 7AF

1.2 Location of Property

Royle House, All Saints Presbytery, Church Street, Glossop

1.3 Purpose of Report

To inspect the property entirely with reference to recent cracking in the front wall reported by the Client, and to provide a Structural Engineer's Report.

1.4 Scope of Report

The inspection carried out was visual only and did not include any exploratory investigation of the property except for the trial holes described. Woodwork and other parts of the structure which were covered or inaccessible were not inspected and we are therefore unable to report that any such part of the property is free from defect. All crack widths are approximate.

All directions given in this report are as viewed from the front of the property.

Foundation depths, ground conditions, water levels and workmanship can vary even from one part of the property to another. Therefore the results of the trial hole investigations cannot be taken to absolutely represent the conditions across the whole property.

1.5 Summary of information obtained about recent reports and repairs

A drainage camera survey was undertaken by Dyno-Rod in October 2015. They subsequently carried-out a series of repairs that comprised renewing gulleys, some root cutting and patch lining.

We understand that there have also recently been extensive roof and guttering repairs carried out and that a large amount of water had been collecting in the roof space prior to this.

1.6 Date of Inspection

08 June 2016

1.7 Description of property

Stone-built presbytery with pitched roof, reportedly originally built separate from the church in the mid 19th Century. The building was extended at a later date by the formation of a two-storey infill link to the church.

All internal walls are masonry unless otherwise noted. The decorations are generally fairly recent.

The rooms in the rear of the property were not inspected in detail as they were remote from the structural cracking being investigated.

2. GROUND FLOOR INTERNAL INSPECTION

Vestibule

Over cellar. The stone tiled timber floor feels a little springy. There is a marked joint in the stones behind the threshold which steps down up to 10mm and widens by 7mm toward the right hand side.

Hall

Over cellar. Carpeted timber floor. No visible defects of structural significance.

Front Right Room

Not over cellar. Timber floor slopes down from doorway and generally slopes noticeably down to the right. There is a less significant slope in the floor down to the front, also. Inspection of the ceiling and walls is greatly hampered by heavily embossed wallpaper and bookcases.

Centre Right Room

Not over cellar. Timber floor slopes down to the right (worst at the front, least at the rear) and also slopes locally to the front adjacent the front crosswall. Inspection of the ceiling and walls is greatly hampered by heavily embossed wallpaper. Disruption to plaster coving on the front wall has been repaired. Door in rear wall swings open.

Centre Left Room (behind staircase)

Over cellar. Step in stone tiled floor immediately below window reveal in left wall.

Other Rooms

No visible defects of structural significance.

3. CELLAR INSPECTION

Stone flag floors. At the time of inspection there was a water leak through the ground floor into the front left corner from the water feed to the W.C. over. An adjacent floor joist has been cut to allow the fitting of a new section of soil pipe. Possible timber decay was present in the floor joists here and adjacent to the wall in the font left corner. The cellars do not extend below the right hand side or the rear of the house.

4. FIRST FLOOR INTERNAL INSPECTION

Stairwell and Landing

Minor slope in landing floor down to the right.

Front Right Bedroom

Water damage has caused unevenness in the ceiling. Concealed cracking along top of front wall is suspected from rucking of wallpaper

Bathrooms (front left & centre left)

No visible defects of structural significance.

Meeting Room (centre right)

The coving along the front wall is cracked and slightly displaced. The picture rail on the front wall is broken and sagging near the front right corner.

Centre Left Bedroom

Hairline crack left to right across ceiling.

Other Rooms

No visible defects of structural significance.

5. ROOF VOID INSPECTION

Not inspected

6. EXTERNAL INSPECTION

Front Elevation

Full height vertical crack up to 8mm wide located to right of front door and first floor window has a monitoring/gauge fixed, has been repaired, but has re-formed to a very minor degree. Two more cracks have formed further to the right which start each side of a sagging pediment stone, to the right of the door and progress diagonally upwards to the right. 3mm maximum width at the bottom. The stonework courses slope down generally to the right from the right hand side of the door. Rainwater downpipe between door and right hand corner. Two mature beech trees and mature maple tree opposite front corner, the nearest (beech) tree is 9m from the corner. Also two smaller holly trees about 5metres away have recently been cut down. There are a couple of unexplained patch repairs to the stonework.

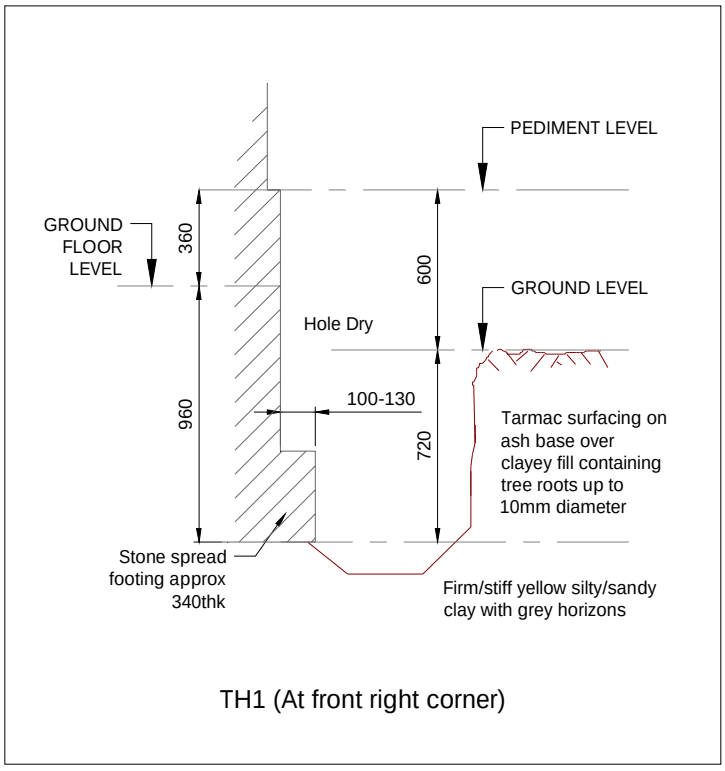
Right Elevation (viewed from front)

Stone courses slope down local to the front corner (by up to 6 in 1000). Vertical stepped crack between ground and first floor window at second set of window with monitoring gauge fixed. The crack has been repaired. There is minor cracking and spalling mortar at the perpend joint with the link building stonework.

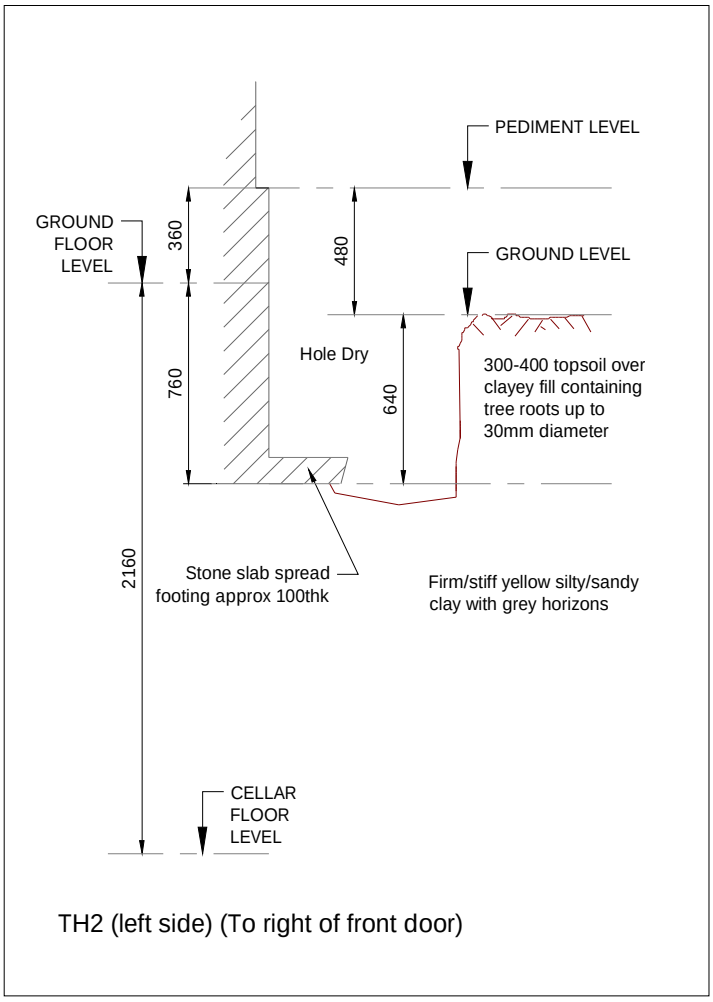
Left Elevation (viewed from front)

There is a minor crack at low level to the front of the kitchen door at the joint to the front building, which progresses upwards to the rear.

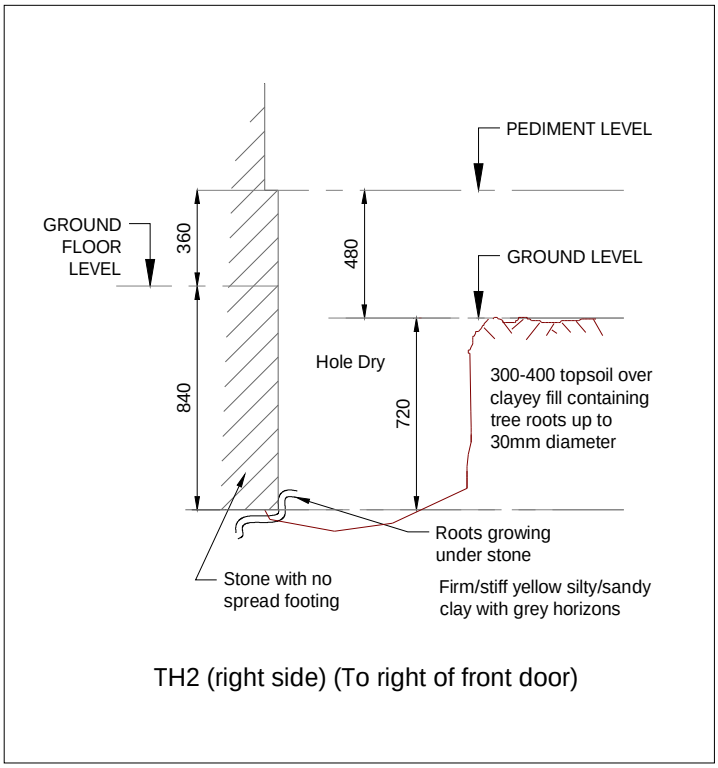
7. TRIAL HOLE INSPECTION



TH1 (At front right corner)



TH2 (left side) (To right of front door)



TH2 (right side) (To right of front door)

8. CONCLUSIONS

8.1 The front right hand side, (and to a lesser extent the rear), of the presbytery not built over the cellar have settled away from the part built over the cellar. The trial holes have confirmed that the cause of the major differential movement along the front wall is primarily a result of the foundations not over the cellar being shallow and affected by root penetration. The water demand of the nearby mature trees will, as a result of rainfall variations, cause shrinkage and swelling of the clay soil beneath the shallow foundations. It is also very likely that leaking drainage has caused softening of the bearing strata in places.

8.2 In order to guard against root damage, the recommended depth for foundations in this situation is a minimum of 1350mm below ground. The foundation depth found in the trial holes is only about 700 to 650mm below ground. This depth is also less than recommended to guard against frost heave in clay soils.

8.3 The spread of the foundations found in the trial holes was very inconsistent, and in some places non-existent. This creates an increased risk of differential foundation movement.

8.4 The timber ground floor has had heavy stone tiles laid on it in places and appears a little springy and needs to be checked for decay.

8.5 The drainage repair that has been carried out at the base of the downpipe on the front wall appears to have been limited to replacing the gulley. The camera in the October 2015 survey could not enter the sub-soil drainage pipe, and there does not appear to have been any attempt to check its condition when the gulley was replaced. The contractor merely indicated that “it appeared to be running ok”. It is considered highly likely that this drain remains defective.

8.6 Despite the recent movement, the cracking and deformations are not sufficiently severe to render the building unsafe, however, without underpinning, it is likely that the movement will be progressive.

8.7 The slope of the floors in the front right and middle right rooms raises a doubt about whether the internal crosswall between them is also suffering from foundation movement. Further intrusive investigation would be required to establish this.

9 RECOMMENDATIONS

9.1 Although cutting down the three mature trees would reduce future movement at the front of the building, we feel this course of action would be disproportionate to the nature of the problem and could be seen as unreasonable in environmental terms.

9.2 The only sure way of preventing future settlement movement would be to underpin the front right walls of the house not built over the cellar, and the left wall immediately behind the cellar. The firm/stiff clay found in the trial holes would be very difficult and labour intensive to hand dig traditional underpinning pads, and they would need to be stepped-up gradually from cellar level, which creates a safety risk from excavation at depth.

We therefore recommend that if underpinning is undertaken, it should be done using augered mini-piles and needle ground beams.

If further investigations indicate that the internal cross wall does not need underpinning, it may be possible to design a scheme that can be done largely from the outside of the building thus minimising internal disruption. However the stone walls are very heavy and this would either require specialist site investigation and tension pile design, or large ground beams to act as a counterbalance. This could negate any savings that would be gained from less internal disruption. Small mini-piling machines are available that can enter a building through a normal door.

9.3 The external cracks should be repaired by stitching with stainless steel “Helibars”, in accordance with the manufacturer’s recommendations This will prevent the external cracks widening due to thermal movement/ frost attack in the future.

9.4 We recommend that thorough investigation of the drainage in the vicinity of the building that has not already been subject to a CCTV survey is undertaken- creating access points where necessary. This is necessary because we are only proposing to underpin the foundation in areas of visible distortion. Assuming that all the foundations (other than in the cellar area) are relatively shallow, they will remain vulnerable to damage from leaking underground drainage, and it is therefore important to set up an appropriate means of monitoring this.

9.5 In view of the water damage to the building, and the perceived springiness in the ground floor, we recommend that it is inspected by a specialist timber decay company such as TRACE in Glossop (Tel: 01457 865165)

Sheila MacLaren MA. B Sc. C Eng. MICE MWES

For and on behalf of R Rhodes & Partners (Consulting) Ltd

Appended:

Client's Guide to a Structural Engineer's Report (SER House Guide)

CLIENT'S GUIDE TO A STRUCTURAL ENGINEER'S REPORT
BY
R. RHODES & PARTNERS (CONSULTING) LTD

'The Client' The person signing the Instruction To Proceed.

'The Company' R Rhodes & Partners (Consulting) Ltd.

'The Property' The house or property which is to be inspected and on which the Client has instructed the Company to report.

The Report is a written document which describes the results of an inspection of the Property carried out by a Chartered Structural or Civil Engineer working for the Company. The Report is prepared on the instructions of the Client and is solely for the use of the Client and their professional advisors (e.g. solicitor, chartered surveyor or estate agent). Liability to third parties for all or any part of the Report is specifically excluded.

The inspection will be visual and will cover only the load-bearing elements of the Property and only those which are reasonably accessible. Woodwork and roof coverings will not be inspected and neither will any parts of the Property which are inaccessible or in the ground. Services (such as drains, gas, water and electricity etc.) are not included in the inspection.

The Company will not inspect every square inch of the Property otherwise the fee payable by the Client would have to be substantially bigger. When instructed by the Client, the scope of the inspection will be limited to faults identified by the Client or identified in a previous chartered surveyor's survey, in which case the remainder of the Property will only be briefly inspected and reported on by the Company.

It is not always possible to discover defects which are concealed, the Company's Chartered Structural or Civil Engineer will use intuition and experience regarding inaccessible areas but does not possess X-ray vision!

No tests or exploratory investigations will be carried out but an informed opinion will be given in the Report as to whether faults may exist and whether tests should subsequently be carried out to obtain further information. The detailed design of remedial works is not included in the fee.

When the Company is inspecting a Property which is not owned by the Client, the Company must exercise a degree of care to the occupier. If the occupier of the Property refuses to move obstructions or refuses access to any part of the Property, then the Company must abide by his decision and will record the occupier's refusal in the Report.

The Report will be set out in sections: Introduction, Internal Ground Floor, Internal First Floor, Other Floors, Roof Space, External Elevations, Outbuildings (only where particularly requested), Conclusions, Recommendations.

The Report is not an Insurance or a Warranty regarding the condition of the Property; it is a considered professional opinion given by the Company using reasonable skill, care and diligence, based on their experience in such matters.