

# SUBSIDENCE ENGINEER'S REPORT

Client Name Plum Underwriting

Reference PLUM-1567

Name of Insured Mr Simon Kilgour

Policy Number ALH/105514

Risk Address 13 Wilmot Place, London, NW1 9JP





**GHG Reference** 

L/2019/58972/S/RK

**Date of Report** 

31 December 2019

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#### 1. Introduction

We have been asked by Interested Underwriters per Plum Underwriting to inspect the subject property, 13 Wilmot Place, London, NW1 9JP which is the property of Mr Simon Kilgour, and comment upon cracking at the junction between the rear single storey extension and the main house.

Our site visit took place on 19 December 2019 and weather conditions were cloudy and raining.

This Report has been prepared on the instruction of Interested Underwriters per Plum Underwriting for their sole use in connection with a notification of a Claim under their Insurance Policy. Our comments are based on limited observations of the nature and suspected cause of the damage notified but we have not widened our brief to consider other structural matters.

Our Report does not consider questions of timber or damp, service installations or the general condition of the property. We have not inspected woodwork or other parts of the structure, which are covered, unexposed or inaccessible. We are therefore unable to report that any such part of the property is free from defect.

Comments on the causation of damage are based only on the limited investigations, which have been carried out at this stage and would be subject to review in the light of further information being made available at a later date.

This Report should not be used in the same way as a Pre-Purchase Report. It is limited to the damage, which forms the subject of a Claim made by the Policyholder against Interested Underwriters per Plum Underwriting.



### 2. The Property

Please note that all left-hand and right-hand directions within this Report are as though you are facing the front elevation of the property from the road.

A photograph of the front elevation of the property is shown on the cover of this Report.

The property on this occasion is a three storey, semi-detached house which appears to have been constructed around 1850.

The walls are of load bearing solid brick construction beneath a shallow hipped and tile covered roof.

To the rear of the building is a single storey extension constructed of cavity brick and block walls under a flat asphalt covered roof. The extension was built prior to the Policyholder's purchase of the property.



#### 3. The Site

The property stands in a mature residential area on the outskirts of Camden Town and amongst properties of a similar style and vintage.

The immediate site is broadly level and the area comes under the control of the London Borough of Camden.

We are not aware of any unusual features of the immediate site.

### 3.1 Vegetation

The vegetation which is considered most likely to be involved in this matter is shown on the attached sketch plan. The vegetation is generally the responsibility of your Policyholder. The most significant items of vegetation on this occasion are the large eucalyptus tree at the rear and the willow tree at the front. The eucalyptus tree stands in the rear garden of the property, has a height of approximately 18m, a diameter at breast height of 0.6m and stands approximately 9.5m from the nearest point of the building.

There is also a large willow tree which stands at the front right hand corner of the property and has a height of approximately 13m and stands approximately 3.5m from the nearest point of the building. There is also a large magnolia tree which stands at the front of the building and has a height of approximately 10m and stands approximately 2m from the nearest point of the building.

We have discussed with Mr Kilgour the necessary vegetation removal measures and would recommend these be implemented at the earliest possible time. On this occasion we believe it would be appropriate to remove both the willow tree and eucalyptus tree, subject to our review of the site investigation results once received.

### 3.2 Geology

From the local geological map for the area, we note that the solid geology is the London Clay Formation (clay, silt and sand).

From our investigations on site we have confirmed that the subsoil in the area is silty clay which is consistent with the London Clay Formation.

Soils with a clay content will generally have a propensity to shrink and swell with changes in moisture content. That is to say that as the clay is dried its volume will reduce and this can allow downward movement, or subsidence, of the foundations of properties.

The amount of shrinkage and swelling which takes place can vary quite dramatically between different types of soil and can only be quantified by soil testing techniques.



### 4. History

The precise date of the construction of the main building is not known but it is understood to have been around 1850 and it has been in the ownership of the Policyholder since October 2010.

The Policyholder has been aware of fine cracking to the building for some time, but this was attributed to normal plaster cracking in an old building. It was only when significant cracking occurred in September 2019 at the junction between the rear single storey extension and main building, that the Policyholder became concerned and sought advice from a local surveyor, who recommended that Insurers be notified.

On this occasion we have not been able to inspect a pre-purchase survey report as your Policyholder was unable to locate this prior to our visit. We have requested a copy as soon as possible.



### 5. Damage

### 5.1 Description of Damage

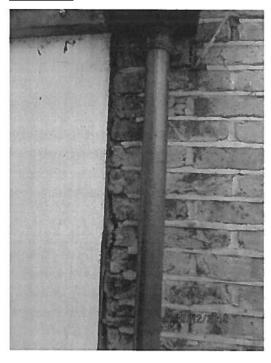
The damage to this property which forms the subject of this claim relates to cracking at the junction between the rear single storey extension and the main body of the building.

We would suggest that the extent of damage falls within Category 3 (Moderate) according to BRE Digest 251 Assessment of Damage to Low Rise Buildings (August 1990).

<u>Category</u>	<u>Definition</u>	Crack Width
0	Negligible	Less than 0.1mm
1	Very slight	Up to 1mm
2	Slight	Up to 5mm
3	Moderate	5mm to 15mm
4	Severe	15mm to 25mm
5	Very Severe	Greater than 25mm

We would ask you to appreciate that on this occasion we are dealing with a property which is as a result of its age and history of its construction / use it is showing signs of historic distortion. We do not believe these are as a result of current subsidence and these have been largely excluded from the description of damage below.

### **Externally**



This photograph shows vertical cracking at the junction between the rear extension and main house, with water staining to the brickwork at high level.



### **Front Elevation**

The front elevation of the building is constructed with solid brickwork under a shallow hipped and tiled roof. The ground floor section of the front elevation has a painted ashlar-effect render finish, with fair face brickwork at first and second floor levels. There is a fair faced brick pediment wall at roof level with a rendered cornice detail.

We noted significant distortion to the windows to the front elevation indicating historic structural movement whereby the building has a general slope down towards the right hand side.

We noted fine cracking up to 1mm in width at the bottom left hand corner of the front kitchen window together with fine cracking around the other three corners.

There is a crack up to 0.5mm in width to the right hand reveal of the kitchen window which travels up in an arc pattern towards the bottom right hand corner of the first floor window to bedroom 01. The cracking has been repaired in the past but fine cracking has returned along the line of the filler.

The cracks above the window do not increase with height indicating that the cracking is not due to recent subsidence movement. Instead, we consider that the cracking has returned primarily due to the previous cracking just being filled and not being properly structurally repaired.

We also noted fine cracking at the top corners of the front entrance door, rising up to the first floor bathroom window. Again, the cracks followed the line of previous repairs and are not indicative of recent subsidence movement.

We also noted evidence of previous movement and cracking at the bottom left hand corner of the front window to bedroom 01, together with vertical cracking to the brickwork above adjacent to the rendered window surround. The cracking to the rendered section has been repaired in the past but the cracking in the brickwork has not and appears well weathered indicating that it is historic in origin.

Inspection of the first and second floor brickwork is restricted somewhat by the large magnolia tree in the front garden but nonetheless, we noted evidence of vertical cracking between the top left hand corner of bedroom 01 at first floor level and the bottom left hand corner of bedroom 04 at second floor level. Again, the cracking appears well weathered and historic in origin. The cracking is at the edge of a panel of new brickwork installed between the first and second floor windows, most likely due to the replacement of the lintel over the first floor bedroom window.

To the right hand side of the first floor window to bedroom 01, there is a vertical crack running up the side of the rendered window surround and continues up around the right hand junction between the new panel of brickwork between the first and second floor windows and the original brickwork, up towards the bottom right hand corner of the second floor window. Again, the cracking is very weathered and blackened indicating that it is historic in origin.

At the bottom right hand corner of the right hand second floor window, there is evidence of stepped cracking up to 1-2mm in width, but the appearance of the cracking is exaggerated by missing pointing.



At the top left hand corner of the second floor window to bedroom 04, there is a tapering crack which steps up vertically and diagonally towards the right-hand side and through the rendered cornice detail and pediment brickwork. We estimate the cracking is approximately 10mm in width at high level.

We also noted cracking to the underside of the window lintel. Internally, there is a distinct sag to the soffit of this window reveal indicating the failure of the lintel above the window. Lintel failure could cause cracking to the above pediment brickwork, but in view of the historic distortion and previous repairs to the front elevation brickwork, this cracking is most likely associated with previous historic downward movement of the front right hand corner of the building.

The absence of any significant cracking internally to bedroom 01 at first floor level and bedroom 04 at second floor level, would indicate that the cracking generally to the front elevation is historic in origin.

To the top left hand corner of the right hand second floor bedroom (bedroom 05) we noted a crack up to 3mm in width around the end of the lintel, the crack however reduces in width to between hairline to 1mm as it passes through the above cornice detail, indicating that the cracking to the brickwork is historic in origin.

There is a large willow tree located 3.5m from the front right hand corner of the building. The trunk of the willow tree is in contact with the brick pier at the front of the right-hand boundary wall and is pushing the brick pier over causing significant cracking up to 80mm in width between the brick pier and the right hand boundary wall.

### Right Hand Elevation

The right hand elevation of the main building is constructed of solid brickwork under a hipped tiled roof. The ground floor section of the main building has a painted ashlar-style render finish, with fair face brickwork at first and second floor levels.

We noted that the right hand elevation brickwork bows outwards at first floor level due to a lack of lateral restraint. This movement appears to be historic in origin and has been addressed in the past with tie-bars to provide additional restraint to the masonry.

The drains serving the property run along the passage at the right hand side of the building. The right-hand passageway is covered with polycarbonate roof sheets.

At the rear of the building is a single storey extension with fair face cavity brick walls under a flat asphalt covered roof.

There is a tapering vertical crack up to 15mm in width at the junction between the right hand flank wall of the rear extension and the right hand flank wall of the original building. At high level, the cracking steps up diagonally towards the rear through the extension brickwork. The brickwork in this area is stained green due to water leaking from the rainwater hopper.



### **Left Hand Elevation**

The left-hand elevation forms the party wall with the adjoining left-hand semi-detached property.

### **Rear Elevation**

The rear elevation of the main building is of fair-faced solid brick construction under a shallow hipped and tile covered roof. The brickwork around the first floor window to bedroom 02 and the second floor window to bedroom 03 has been replaced in the past, most likely due to the installation of new lintels and window frames. WE noted some minor cracking up to 1mm in width at the junction between the old and new brickwork in this area.

To the first floor window to the stairwell, we noted that the soffit of the window reveal has dropped causing horizontal cracking between the render and brick arch. There is a dip in the brick courses immediately above the brick arch indicating previous movement/failure of the brickwork arch. There is also evidence of stepped vertical cracking running approximately 15 courses up from the archway. The crack is blackened and weathered indicating that it is longstanding in origin. There is a further crack up to 1mm in width at the bottom right-hand corner of the window. We do not consider that the damage around the stairwell window this is associated with the current subsidence movement, but is more likely related to slight outward movement of the right hand flank wall due to a lack of lateral restraint and a general a weakness in the brickwork in this area brought about by the previous outward lateral movement

There is slight cracking internally around the stairwell window and along the junction between the right hand flank wall and ceiling, which is consistent with slight outward movement of the right hand flank wall.

At the top left hand corner of the rear elevation, adjacent to the party wall, there is evidence of cracking up to approximately 10mm in width just below the soffit stepping down approximately 15-16 courses. The cracking appears much wider at high level where the mortar is missing and the brickwork appears loose. This cracking has a very darkened and weathered appearance indicating that it is longstanding in origin. We could not detect any evidence of internal cracking in this area which confirms that the cracking is historic and not due to recent movement.

Further cracking up to 1mm in width was noted vertically at the party wall line, just above the extension parapet wall. Again, this cracking appears longstanding in origin

At ground floor level, there is a single storey extension with fair- faced cavity brick walls under an asphalt covered roof with a parapet wall to the rear and left-hand elevations.

We noted cracking up to 1mm in width at the top left and top right hand corners of the right-hand French doors, with horizontal cracking up to 3mm in width between the top corner of the right-hand door and central French door.

Further cracking up to 3mm in width was noted between the top corner of the central French door and left-hand French door. The horizontal cracking is located at the level of the steel lintels above the door openings and may be associated with corrosion of the lintels, although foundation movement is likely to be at least a contributory factor.



The central set of French doors is significantly distorted whereby the left hand frame has dropped in relation to the right hand frame causing the doors to become misaligned. The Policyholder advised that he could not close the doors in September 2019, but the situation has since improved such that the doors can now be closed, which indicates that the problem is associated with seasonal clay shrinkage subsidence movement.

There is a large tapering gap at the junction between the top of the doorframe and the steel lintel above. However, the size of the tapering gap between the central doorframe and the lintel is much greater than the cracking to the adjacent brickwork.

## **Internally**



This photograph shows tapering cracking at the junction between the right hand flank wall of the lounge extension and the rear wall of the main house.

### **Ground Floor Level**

### **Entrance Hallway**

The walls and ceiling in this area are finished with emulsioned plaster, with an ornate cornice to the perimeter of the ceiling.

We noted evidence of damp to the right hand flank wall at the foot of the stairs together with an area to the left hand side of the front door.

We also noted evidence of water staining to the walls following a leak from the first floor bathroom.

There is a hairline crack at the bottom rear corner of the windows to the right hand elevation together with a fine crack at the top left hand corner of the front door.

Fine vertical cracking was also noted at the junction between the front elevation wall and the left hand internal partition stud wall.

We could not detect any evidence of subsidence damage to this room.



### **Ground Floor WC**

The ground floor WC is located to the rear of the ground floor hallway, at the rear right hand corner of the original building. The floor of the WC is situated at a slightly lower level than the rest of the building. The walls are finished with floor to ceiling mosaic tiling with an emulsioned plastered ceiling and recessed downlighters.

We noted issues with damp and debonded wall tiles to the rear wall at low level, but we could not detect any evidence of subsidence damage.

### Kitchen/Dining Room

The kitchen is located at the front left hand corner of the building and, following the removal of the rear kitchen wall and the installation of an RSJ, the kitchen is now open plan onto the dining room. The walls are finished with emulsioned plaster. The ceiling is finished with emulsioned plaster with recessed downlighters.

We noted evidence of vertical cracking less than 1mm in width at the bottom left and bottom right hand corners of the large front window, together with minor cracking at the top corners.

There is a vertical crack up to 1.5mm in width at the junction between the front elevation and left hand party wall, which continues along the junction between the front wall and ceiling before curving down towards the front window.

Cracking up to 1.5mm in width was also noted around the perimeter of the right hand internal stud partition wall.

Cracking was also noted along the junction between the left hand party wall and ceiling, together with fine cracking to the middle of the left-hand flank wall of the kitchen.

A diagonal crack up to 1mm in width was also noted to the rear wall of the kitchen around the left hand bearing point of the lintel separating the kitchen and dining room. However, this crack is not reflected on the dining room side of the wall.

In the rear dining room section, the main damage is located to the rear of the ceiling above the rear arched doorway leading into the rear living room extension.

Tapering cracking up to 10mm in width is present to the ceiling running from right to left above the rear internal doorway and running down into the coving at the top left hand corner of the door opening. This cracking is indicative of the lintel above the rear door opening being pulled towards the rear of the property by the rear extension.

We also noted fine cracking to the plasterboard joints at the left hand side of the room.

### **Rear Living Room**

The living room is located in the single storey extension at the rear of the building. The walls are finished with emulsioned plaster. The ceiling is finished with emulsioned plaster with a perimeter cornice and recessed lighting.

There is a tapering vertical crack up to 6mm in width at the junction between the left hand flank wall of the extension and the rear wall of the main building. The cracking continues along the junction between the rear wall of the main house and the ceiling, with cracking up to 9mm in width.



A tapering vertical crack up to 15mm in width was noted at the junction between the right hand wall of the extension and the rear wall of the main house, which connects to the cracking along the wall/ceiling junction.

Fine cracking was also noted to the front wall of the living room by a blocked up window/doorway, together with minor cracking less than 1mm in width around each of the three sets of French doors to the rear elevation.

## **First Floor Level**

### Bedroom 01

Bedroom 01 is located at the front left hand corner of the building. The walls and ceiling are finished with emulsioned plaster, with an ornate cornice to the perimeter of the ceiling.

We noted fine vertical cracking at the bottom left and bottom right hand corners of the front window, together with cracking to the joints of the skirting board to the front elevation.

Minor cracking was also noted at the junction between the front elevation wall and the right hand internal partition wall.

A diagonal crack up to 1mm in width was noted to the ceiling and cornice at the rear corner of the chimneybreast to the left hand wall.

We could not detect any evidence of recent subsidence damage to this room.

## Bedroom 02 (Office)

Bedroom 02 is located at the rear left hand corner of the building and is currently used as an office. The walls and ceiling are finished with emulsioned plaster.

In this room we noted fine cracking along the joints of the plasterboard ceiling, together with a fine hairline crack at the bottom right hand corner of the rear window.

There is a tapering crack up to 4mm in width at the junction between the rear elevation wall and the boxing to the built-in cupboard at the rear right hand corner of the room.

We could not detect any evidence of recent subsidence damage to this room.

### <u>Bathroom</u>

The bathroom is located at the front right hand corner of the building. The walls are finished with mosaic tiles from floor to ceiling. The ceiling is finished with emulsioned plaster with recessed downlighters.

We noted fine cracking along the junction between the right hand flank wall and the ceiling, together with water staining to the ceiling due to a leak from the bathroom above.

We could not detect any evidence of recent subsidence damage to this room.



### **First Floor Landing**

The landing and stairwell are located generally at the rear right hand corner of the building. The walls and ceiling are finished with emulsioned plaster.

We noted fine cracking along the wall/ceiling junctions, together with minor cracking along the stair stringer in the stairwell.

We noted vertical cracking less than 1mm in width to the frame at the left hand side of the window, together with cracking varying between hairline and 0.5mm in width to the right hand side of the window frame.

Fine cracking up to 0.5mm in width was also noted at the bottom right hand corner of the rear window. The cracking has been repaired in the past but has returned.

Cracking up to 1mm in width was also noted along the junction between the right hand flank wall in the stairwell and the sloping ceiling below the stairs.

We could not detect any evidence of recent subsidence damage to this room but the cracking in the stairwell appears consistent with very slight outward lateral movement of the right-hand flank wall.

### **Second Floor Level**

### Second Floor Landing

The walls and ceiling in this area are finished with emulsioned plaster.

We noted hairline cracking at the top corners of the door to the second floor bathroom, together with cracking at the top left hand corner of the door to bedroom 03.

We also noted cracking around the loft hatch and along the wall/ceiling junctions.

To the stairwell located at the rear right hand corner of the building, we noted tapering vertical cracking up to 2mm in width to the rear right hand corner of the stairwell, extending along the junction between the right hand flank wall and ceiling.

We also noted slight vertical cracking less than 1mm in width to the rear left hand corner of the stairwell.

We could not detect any evidence of recent subsidence damage to this room but the cracking in the stairwell appears consistent with very slight outward lateral movement of the right-hand flank wall.

#### **Bathroom**

The bathroom is located centrally to the right hand side of the building. The walls are finished with wall tiles from floor to ceiling, with an emulsioned plastered ceiling with recessed downlighters.

We noted vertical cracking to the internal stud partition wall at the top corners of the door together with minor cracking around the wall/ceiling junctions.



### Bedroom 03

Bedroom 03 is located at the rear left hand corner of the building. The walls and ceiling are finished with emulsioned plaster.

We noted a tapering vertical crack up to 1.5mm in width to the front section of the left hand flank wall. The crack is at the junction between the plastered masonry of the chimney breast and the plasterboard cladding used to box in the front alcove. There is evidence of previous repairs in this location.

We also noted cracking less than 1mm in width to the joints of the plasterboard ceiling, emanating from the rear corner of the chimneybreast.

A fine hairline crack was also noted at the top left hand corner of the rear wall, together with fine cracking at the top left and top right hand corners of the rear window.

We do not consider that the cracking in this room is associated with the current subsidence movement.

#### Bedroom 04

Bedroom 04 is located at the front left hand corner of the building at second floor level. The walls and ceiling are finished with emulsioned plaster.

We noted cracking less than 1mm in width at the bottom left and bottom right hand corners of the front window, together with vertical cracking at the junction between the front elevation wall and right hand internal partition wall.

We also noted cracking and bowing to the soffit of the window opening indicative of sagging/failure of the lintel.

There is evidence of significant distortion to the window frame indicative of previous movement.

There is cracking up to 1mm in width generally around the perimeter of the ceiling with fine vertical cracking at the junction between the left hand party wall and built-in wardrobe structure.

We could not detect any evidence of recent subsidence damage to this room.

### Bedroom 05

Bedroom 05 is located at the front right hand corner of the building at second floor level. The walls are finished with emulsioned plaster with an emulsioned plastered ceiling.

We noted a hairline crack along the board joints of the ceiling, together with a fine vertical crack at the bottom right hand corner of the front window.

We also noted a vertical crack at the junction between the right hand flank wall and the rear internal stud partition wall, which continues along the junction between the ceiling and rear wall.

We could not detect any evidence of recent subsidence damage to this room.



#### 6. Investigations

Two trial pits extended by hand auger were excavated at the property which revealed the depth of foundation and subsoil beneath.

A CCTV survey of the drains was also undertaken where accessible.

#### 6.1 Drains

A CCTV survey of the drainage along the right hand flank wall of the building was undertaken and we are currently awaiting receipt of the results.

#### 6.2 Trial Holes

Trial hole number one was excavated at the rear right hand corner of the rear single storey extension and revealed that the foundations in this location were a 400mm thick concrete strip foundation extending a total of 0.86m below ground level. The foundation bears onto stiff silty clay which was seen to be dry at the time of our inspection.

Slight water seepage was noted within the borehole at high level which left standing water at a depth of 2.7m below ground level upon completion.

Surprisingly, we did not identify any roots below the level of the foundation despite the close proximity of the large eucalyptus tree and various shrubs.

Trial hole 02 was excavated at the right hand side of the main building and revealed that the foundation in this location was corbelled brickwork on a 100mm thick concrete strip footing extending a total of 0.495m below ground level, bearing onto silty gravelly clay, becoming increasingly gravelly with depth. The soil was seen to be moist at the time of our inspection.

Once again, we were surprised that no roots were identified below the level of the foundation.

#### 6.3 Boreholes

Borehole 01 was sunk through the base of trial hole 01 and to an overall depth of 3000mm below ground level.

Borehole 02 was sunk through the base of trial hole 02 but was terminated at a depth of 1.2m below ground level due to the gravel within the subsoil preventing sample retrieval. The soil appeared to be moist at the time of our testing.

Due to the premature termination of the borehole, the borehole was relocated to the front of the building but unfortunately, the borehole at this location was terminated at 1.6m below ground level due to the gravelly clay soil preventing sample retrieval. The soil in this location appeared to be dry at the time of our testing.



### 6.4 Soil Testing

Samples of the subsoil have been taken and sent to the laboratory for analysis. On receipt of this data we will advise further.

The purpose of the testing on this occasion is to try to determine some of the physical characteristics of the soil which will include, amongst other tests, the clay content and plasticity index of the soil, and if appropriate the extent of any desiccation. This test gives an indication of the likely degree by which the soil will shrink and swell with changes in moisture content, and the extent of any deficiencies.

### **6.5 Roots Analysis**

surprisingly, despite the size and proximity of the nearby trees, no roots were identified below the foundations, although further analysis of the soil samples will take place in the laboratory to see if any roots are present.

#### 6.6 Ground Water

No ground water was identified but slight water seepage was noted in trial hole/borehole 01. The seepage appeared to be occurring at high level, creating standing water within the borehole at a depth of 2.5m below ground level on completion. Despite the seepage, the clay samples retrieved from the borehole were stiff and dry in appearance.



#### 7. Discussion

On this occasion we are dealing with a large semi-detached, three storey house constructed circa 1850, with a modern single storey extension to the rear.

Due to its age and construction, the property is showing signs of historic distortion whereby the building has a general downwards slope towards the right hand side, with corresponding distortions to the floors and window frames etc and evidence of outward bowing of the right-hand flank wall.

The current damage which is of concern relates to cracking at the junction between the rear single storey extension and the main body of the building. The cracking is indicative of downward rotation of the rear single storey extension away from the main body of the building.

We have not been able to inspect the Policyholder's pre-purchase survey report as it was not available at the time of our inspection and therefore, we have requested that a copy be forwarded to us.

Given the timing of the damage, the pattern and orientation of the cracking together with the subsoil characteristics and nearby trees, we conclude that the damage on this occasion has been caused by clay shrinkage subsidence exacerbated by moisture extraction from the subsoil by roots from the nearby trees. The main trees within influencing distance of the property are the large eucalyptus tree at the rear right hand corner of the building and the willow tree at the front right hand corner of the building. There is also a large magnolia tree located immediately in front of the building.

It is likely that all these trees will be exerting an adverse influence over the foundations of the building.



### 8. Recommendations

In view of the size and proximity of the eucalyptus tree, willow tree and magnolia, it is likely that we will recommend these trees be removed in order to minimise the moisture extraction from the subsoil under the foundations. However, we shall await the results of the site investigation before confirming our recommendation.

We have instigated a period of crack width monitoring in order to establish if any ongoing seasonal movement is present and to confirm once stability has returned.

# Robert Kelso BSc (Hons) ICIOB

For THE GRAHAM HIGH GROUP LIMITED

Email to: GHGresponse@highgroup.co.uk

Encs:

Site Sketch

Trial Pit Sketches
Photograph Pages

Copy to:

Mr Kilgour