P&M STRUCTURAL
Design

Structural Inspection

Survey Details

Client:	Philip Pearce
Address:	1 Church Hill, Royston, Barnsley, S71 4NG
Prepared By:	Peter Stokoe BEng (Hons) CEng MIStructE
Date of Inspection:	13 December 2023
Revision:	01

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Survey Rating

3 Defects that are serious and require repair, replacement or further investigation urgently

2 Defects that need repairing or replacing, but are not considered serious or urgent

1 No repair is currently needed

1.0 Summary

1.1. Purpose of Report

To address Homeowner concerns with specific reference to severe subsidence and damage to the property.

1.2. Conclusions

The building is tilting towards the right-hand side most likely as a result of historic mining subsidence which may have occurred many years. There are signs of more recent movement, and this may have been caused by the large trees that are adjacent to the front and right-hand gable or defective underground drainage.

The Building Research Establishment guidance report, BRE Digest 475, considers buildings with an overall tilt such as this to be dangerous and suggests either re-levelling or demolition as remedial actions.

It would be prudent to monitor this building and remove the adjacent trees if demolition is not carried out in the short term.

Demolition will require Planning and Building Regulation approval prior to this being carried out.

It should be appreciated that this report has been prepared on the basis of a single visual inspection of the property and that we have not, to date, undertaken any monitoring, long-term investigation or testing of the material construction. We cannot, therefore, categorically state that future movement will not occur.

2.0 Survey Instruction & Limitations

2.1. Survey Instruction

To investigate and report on the structural integrity of the property and to make recommendations on any structural remedial works considered necessary to maintain future stability and integrity.

Client

Philip Pearce

Client Address:

Willow Farm, Everill Gate Lane, Barnsley, S73 0YJ

Survey Property Address:

1 Church Hill, Royston, Barnsley, S71 4NG

2.2. Limitations

This report has been prepared solely for the private and confidential use of the client and shall not be relied upon by any third party without the express written permission of P&M Structural Design Ltd. The Contracts Act (Rights of Third Parties) 1999 does not apply to this contract.

Our report will cover the main load-bearing elements of the property and the inspection will however be limited to the main building and exclude any detached garages, outbuildings, walls, and fences etc. unless specifically instructed otherwise.

The survey is limited to visual observations of safely accessible parts of the structure such as the roof, floors and walls. Any concealed, hidden or inaccessible parts of the structure cannot be confirmed as free from defect. Observations of the roof are made with the benefit of binoculars from ground level and from within the roof space via a ladder and entered if the area is boarded and safe to so so. Furniture has not been moved and floor coverings have not been lifted nor have exploratory holes been made during the inspection.

Our report does not include those aspects normally dealt with in a Building Surveyor's report, including but not limited to: utilities or services, valuation, decorations and finishes, roof coverings and the like, the position of the property with respect to local amenities, the condition of the property with regard to dry rot, timber infestation, dampness and the like. Non-structural elements such as doors, windows, rainwater goods and the services to the building such as the heating system, plumbing, electrical systems, water and gas or underground services are beyond the scope of this survey and not included.

No comment is made on contamination/pollution in any form or mould and asbestos, underground mine workings, tunnelling, sink holes etc, ground gases, springs, and watercourses.

Surveys such as those for dampness including damp-proof membranes/courses, underground CCTV drainage, timber or invasive plant identification are not within our remit.

2.3. Terms and Conditions

Association of Consultancy and Engineering, ACE 2009, Agreement No.2 (Advisory and Investigatory Services).

3.0 The Property

3.1. Description

The property is located approximately 4 miles north of the centre of Barnsley.

It is a traditional, brick built, detached house with a pitched roof and the age of the original property is thought to be around 140 years old.

All directions contained in this report are stated as facing the front door of the property unless noted otherwise.

Photo 2: Front of Property

3.2. Geological Survey Maps and Mining

British Geological Survey (BGS) maps and historical borehole data indicates the immediate superficial deposits, which are likely to be supporting the building foundations, are clays. The bedrock below this is the Pennine Middle Coal Measures Formation, comprising of sandstone.

Reference to the Coal Authority Maps, indicates that this property may lie within influencing distance of past or current coal or mineral workings, or that there are workable coal or mineral reserves in the locality of the property, which could be mined in the future. The Coal Authority recommends that a Mining Report (CON 29M) is obtained for this property to confirm the current status of associated surface ground movement or to confirm whether there are proposals to mine these reserves in the future.

4.0 External Observations

4.1. Topography

The building sits on a level plateau whilst the public highway to the LHS rises towards the rear is retained against the attached outbuilding and then beyond the levels are graded down into the rear of the property.

1

There are no visible signs of slope instability.

Photo 3: Front of Property

Photo 4: Rear of Property

4.2. Trees

There are trees growing within potential influencing distance of the property, which could adversely affect the stability of the foundations. Where the sub-soils are cohesive, clay soils, trees will draw moisture from the clay, resulting in shrinkage of the clay and associated subsidence.

3

As a general rule of thumb, based on a high-water demand category of trees, growing in a highly shrinkable clay, the safe distance between the house and the tree would be the anticipated maximum height of that tree species.

In this instance the following trees were noted to be within influencing distance of the property:

- A Conifer and Holly trees to circa 9 m in height and 2.5 m from the front and RHS gable elevations.

Photo 5: Trees to Front of Property

4.3. Drainage

3

The drainage system appears to be a combined storm water and foul water system. It is not known if this discharges into the public sewer. A property of this age is likely to have the original, vitrified clay pipes, which are brittle and susceptible to damage. Ground movements throughout the lifetime of the property can cause cracking of the pipes and also displacement of the pipe joints. Both forms of damage will allow escape of water into the surrounding soils, which in turn can cause localised softening of clay soils below adjacent foundations, or washing away of granular soils such as sand, if present.

In view of this, it is recommended that the condition and integrity of the underground drainage system is further investigated by a specialist CCTV survey.

Photo 6: Roof and Foul Drainage to Rear

Photo 7: Yy

4.4. Roof

3

The main roof is a traditional pitched design with the ridge running parallel to the front elevation and a roof covering slate tiles.

Both the front and rear of the roof slope significantly to the right-hand side from about the mid point of the building. Disruption to the tiles is evident at the mid point of the building at the front and rear of the roof.

If the roof was to be maintained, then it is likely that a replacement covering would be needed.

Both chimney stacks tilt to the RHS but the RHS chimney is more significant and follows the line of tilt of the RHS gable.

As the chimney was viewed from ground level visibility was limited so there may be concealed and unseen defects which require repair.

There is weathering to the brickwork, vegetation growing out of the flaunching, cracked flaunching and weathering to the mortar joints to both chimneys.

Photo 8: Front Roof Slope

Photo 9: Rear Roof Slope

4.5. Walls

The external walls are of solid brick construction, with regular rows of header bricks tying the inner and outer leaves together. With this type of construction, there will be no embedded metal wall ties, as the header bricks are performing the function of ties.

3

4.6. Front Wall

Measurements taken with the aid of a spirit level, taken on external face of the front elevation indicate the elevation to tilt inwards by approximately 10mm over a height of 1200mm or a gradient of 1:120.

3

Measurements taken with the aid of a spirit level, on the external face of the front elevation indicate the brick coursing falls to the right by up to 55mm past the mid point over a horizontal distance of 1200mm or a gradient of 1: 22. Prior to the midpoint the building slopes by 20mm or a gradient of 1:60.

There is noted to be localised lateral distortion to the external brickwork just below eaves level on the front elevation at the midpoint.

Signs of previous repointing are noted above the central first floor window and between this window and the front door opening which seem to have reopened by an estimated 10 to 15mm.

Stepped repointing over the RHS ground floor window is evident but this appears stable albeit weathered.

In terms of severity of damage, the Building Research Establishment (BRE), Digest 251 - Assessment of Damage in Low-Rise Buildings, provides classifications for visible damage to buildings to gauge the severity of such damage and to determine appropriate, practical structural remedial works. Categories of damage were developed, ranging from Category 0 - Hairline, cosmetic cracks (less than 0.1mm) through to Category 5 - Major structural damage (cracks greater than 25mm).

Categories 0, 1, 2 will generally require simple cosmetic repair. Category 3 typically will require re-pointing and re-stitching of the brickwork, and doors and windows easing. Category 4 damage may require localised rebuilding of walls. Category 5 typically would include the need for underpinning or

even total **rebuilding**.

In this property, the observed damage would be categorised as Category 2 (cracks up to 5mm).

Photo 10: Front Wall

Photo 11: Central Window Gaps in Repointing adjacent to Lintel

Photo 12: Cracking under Central Window

Photo 13: Old Poiting over RHS GF Window

Photo 14: Tapered Infill to Front Door Frame

4.7. Right Hand Wall

3

Measurements taken with the aid of a spirit level, taken on external face of the right hand side elevation indicate the elevation to tilt outwards by approximately 60mm over a height of 1200mm or a gradient of 1:20.

The Institution of Structural Engineers publication 'Subsidence of Low Rise Buildings' and the Building Research Establishment in BRE Digest 475 provide advice that covers both the tilt or slope of individual elements such as a wall or floor and of the building in its entirety. Tiling or sloping may be a symptom of structural movement such as subsidence, roof spread or other structural defect.

Where walls tilt their stability is rarely in question provided that they are adequately tied back into the structure at roof and floor levels. Walls which are unacceptably tilting at 1 in 40 may need to be rebuilt but again tying in may be all that is required. Rebuilding should be considered as a last resort as the aesthetics of building a new wall in an otherwise sloping building may be poor. Where it is recognised that the building is tiling as a whole then remedial works may need to be considered at around 1 in 100 and the building would be considered to be in a serious or dangerous condition at gradients of 1 in 50 or less.

There are two Pattress plates to this elevation at about eaves level and both are corroding. The brickwork around the rear plate has dished around this plate and there are vertical cracks nearby to widths of circa 3 to 4 mm. There is some degree of distortion around the front plate but not as significant as the rear plate.

There is a single air brick towards the rear wall.

Photo 15: RHS Gable

Photo 16: Rear Pattress Plate

Photo 17: Front Pattress Plate

4.8. Left Hand Wall

3

Measurements taken with the aid of a spirit level, taken on external face of the left hand side elevation indicate the elevation to tilt inwards by approximately 20mm over a height of 1200mm or a gradient of 1:60.

Measurements taken with the aid of a spirit level, on the brick coursing on external face of the left hand side elevation indicate no significant falls.

There are two corroded pattress plates on the LHS gable which mirror those on the RHS gable. The brickwork around around the rear and front pattress plate dishes inwards and there are a number of stepped cracks in the brickwork although significantly more pronounced around the rear plate.

Photo 18: Oh wall

Photo 19: Rear Pattress

Photo 20: Cracking

Photo 21: Front Pattress

Photo 22: Cracking

Photo 23: Deformation Rear

4.9. Rear Wall

3

Measurements taken with the aid of a spirit level, taken on external face of the rear elevation indicate the elevation to tilt outwards by approximately 15mm over a height of 1200mm or a gradient of 1:80.

Measurements taken with the aid of a spirit level, on the on external face of the rear elevation indicate the brick coursing falls to the right by approximately 40mm over a horizontal distance of 1200mm or a gradient of 1: 30. Prior to the midpoint the building slopes by 20mm or a gradient of 1:60.

There is noted to be localised lateral distortion to the external brickwork just below eaves level on the front elevation at the midpoint.

Photo 24: Rear Wall

Photo 25: Cracking

4.10. LHS Attached Outbuilding

2

The front and rear walls tilt towards the RHS of the main building by 30mm over a distance of 1200mm or a gradient of 1 in 40.

Cracking and gapping are evident over the rear wall lintel although this appears to be of a historic nature.

Photo 26: Front Wall

Photo 27: LHS Wall

Photo 28: Front

Photo 29: Rear Wall

Photo 30: Rear Wall

5.0 Internal Observations

5.1. Ground Floors

3

The floors are noted to slope downward over a horizontal distance of 1200**mm as follows:**

- Front RHS reception: 45 mm to the right and level front to back.
- Front LHS reception: 30 mm to the right and 20 mm to the front.
- Rear LHS kitchen: 15 mm to the right and 20 mm to the rear.
- Rear RHS room: 15 to right and level front to back.

The floors are of suspended timber construction except the kitchen which is solid ground bearing construction.

The Building Research Establishment (BRE) Digest 475 - Tilt of Low-Rise Buildings provides guidance for tilting to floors and walls of low-rise buildings. Sloping floors will typically become noticeable when it is in the region 1 in 250 to 1 in 200 and can be an issue for the re-sale value of a house. Serviceability issues such as swinging doors, placement of furniture or internal drainage issues do not occur until much larger slopes are encountered. The Institution of Structural Engineers publication 'Subsidence of Low-Rise Building' suggests a limit of 1 in 80 is probably acceptable to owners and occupiers of older properties provided that these are stable.

This distortion is considered structurally significant.

5.2. Ground Floor Walls

3

The walls are noted to tilt to some degree. Measurements taken with the aid of a spirit level indicate the tilt to be approximately as follows over a height of 1200mm.

- Front RHS wall: 55mm outwards or a gradient of 1 in 22.
- Front wall wall: Reasonably plumb.
- Rear wall wall: Reasonably plumb.
- LHS wall wall: 20mm inwards or a gradient of 1 in 60.
- Central Stairwell Walls: 55mm to the right or a gradient of 22.

The Building Research Establishment (BRE) Digest 475 - Tilt of Low-Rise Buildings, provides classifications for tilting to buildings. Tilting will generally become noticeable when it reaches around 1 in 250 to 1 in 200. Tilts of this magnitude are unlikely to have adversely affected the structural integrity of the house, however at the point of re-sale, they are likely to attract attention. Greater tilts than this are likely to affect the verticality of furniture, cause doors to swing open and possible issues with the falls to the internal plumbing and under ground drainage.

As a guide, Digest 475 indicates that remedial works may be necessary for tilts around 1 in 100. As the tilt approaches 1 in 50, the building may be regarded as being in a serious or dangerous condition.

The windowsill in the front RHS reception slopes significantly to the right and there are cracks to 1.5mm over the door to the central hallway. Further cracking to 1.0mm was evident in the RHS gable wall.

Cracking to **2.0mm** was noted in the LHS **reception wall to the central hall and over the pa**ntry door in the kitchen to 5.0mm.

Photo 31: Front RHS Sloping Windowsill

Photo 32: Cracking to 1.5 mm in Front Lounge near Door

Photo 33: Cracking to 1.0mm in RHS Gable.

Photo 34: LHS Reception 2 mm Cracking over Front Doorway

Photo 35: Kitchen Pantry under Stairs 5 mm Crack

5.3. Ground Floor Ceilings

2

The ceilings appear to be original plaster and lath construction. There is noted to be cracking in the ceilings within the bedrooms and bathroom.

The damage is considered to be related to general ageing and structural movement.

Some of the ceilings have a textured finish which may have asbestos content. Asbestos is dangerous and was banned from 1999, however, it was still occasionally used after this date. Asbestos is quite safe unless split or cracked when it becomes dangerous and should not be tampered with in any way. If repair or redecoration works are required, then these must be carried out by specialist contractors who will sample the finish to confirm if the finish contains asbestos prior to any disruptive works.

Removal of asbestos containing Artex is covered by the Control of Asbestos Regulations 2021 and is undertaken by licensed contractors. Asbestos is a hazardous waste and can only be disposed of to a licensed tip.

Photo 36: Front LHS 2 mm

Photo 37: Front LHS 1.0

Photo 38: RHS front 1.0 mm full width

Photo 39: Kitchen Water Damage

5.4. First Floors

2

The floors are noted to slope downward over a horizontal distance of 1200mm as follows:

- Front RHS: 20mm to the right and 20mm to the front or gradients of 1 in 60.
- Rear RHS: 20mm to the right and level front to back or a gradient of 1 in 60.

- **Front** LHS :**10mm to the right and 10**mm **to the front or a gradient of 1 in 120**.
- Rear LHS bathroom: 15mm to the right and 15mm to the rear or gradients of 1 in 80.

The Building Research Establishment (BRE) Digest 475 - Tilt of Low-Rise Buildings provides guidance for tilting to floors and walls of low-rise buildings. Sloping floors will typically become noticeable when it is in the region 1 in 250 to 1 in 200 and can be an issue for the re-sale value of a house. Serviceability issues such as swinging doors, placement of furniture or internal drainage issues do not occur until much larger slopes are encountered. The Institution of Structural Engineers publication 'Subsidence of Low-Rise Building' suggests a limit of 1 in 80 is probably acceptable to owners and occupiers of older properties provided that these are stable.

This distortion is considered structurally significant.

5.5. First Floor Walls

3

The walls **are noted to tilt to** some degree. **Measurements taken** with the aid of a spi**rit level indicate** the tilt to be approximately as follows over a height of 1200mm.

- Front wall:10mm outwards or a gradient of 1 in 120.
- LHS wall: 30mm inwards or a gradient of 1 in 40.
- RHS wall:45mm outwards or a gradient of 1 in 27.
- Rear wall: reasonably plumb.

The Building Research Establishment (BRE) Digest 475 - Tilt of Low-Rise Buildings, provides classifications for tilting to buildings. Tilting will generally become noticeable when it reaches around 1 in 250 to 1 in 200. Tilts of this magnitude are unlikely to have adversely affected the structural integrity of the house, however at the point of re-sale, they are likely to attract attention. Greater tilts than this are likely to affect the verticality of furniture, cause doors to swing open and possible issues with the falls to the internal plumbing and under ground drainage.

As a guide, Digest 475 indicates that remedial works may be necessary for tilts around 1 in 100. As the tilt approaches 1 in 50, the building may be regarded as being in a serious condition.

Cracking to 2.0mm was noted over the central front window to the LHS and further cracking to 1.5mm to the RHS of the window in the RHS bedroom.

Distortion and cracking were noted over the interface of the rear bathroom and bedroom door with further cracking to 2.0mm in width on the internal face of the rear RHS bedroom.

Further cracking to 2.0 mm in width was evident in the rear bathroom and to 1.0mm in the front RHS bedroom.

The RHS of the stair stringer has been infilled.

Photo 40: 2.0 mm Central Front Window

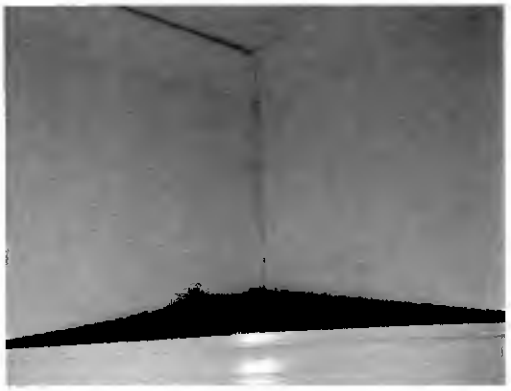

Photo 41: Cracking to 1.5 mm in Front Right Bedroom

Photo 42: 10 mm bath/rear door

Photo 43: Rear RHS Bedroom Cracking to 2 mm.

Photo 44: Rear Bedroom 1.5 mm Cracking below Window

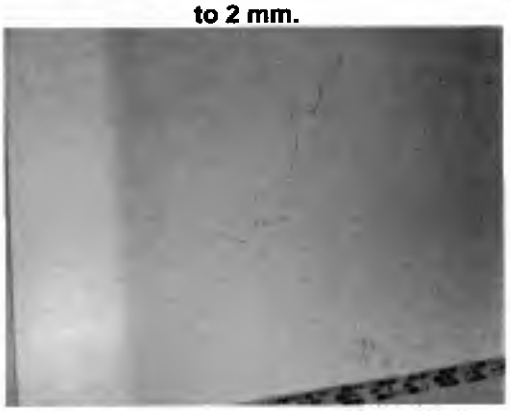

Photo 45: Bathroom 2 mm Rear Wall

Photo 46: 2 mm Rear Bathroom Window

Photo 47: RHS Bedroom 1.0 mm

Photo 48: Stair Gap to RHS Filled

5.6. First Floor Ceilings

2

The ceilings appear to be original plaster and lath construction. There is noted to be cracking in the ceilings within the bedrooms and bathroom.

The damage is considered to be related to general ageing and structural movement.

Some of the ceilings have a textured finish which may have asbestos content. Asbestos is dangerous and was banned from 1999, however, it was still occasionally used after this date. Asbestos is quite safe unless split or cracked when it becomes dangerous and should not be tampered with in any way. If repair or redecoration works are required, then these must be carried out by specialist contractors who will sample the finish to confirm if the finish contains asbestos prior to any disruptive works.

Removal of asbestos containing Artex is covered by the Control of Asbestos Regulations 2021 and is undertaken by licensed contractors. Asbestos is a hazardous waste and can only be disposed of to a licensed tip.

Photo 49: LHS Front Bedroom Cracking to 1.0 mm.

Photo 50: Front RHS Cracking to 0.5mm

Photo 51: Rear LHS

Photo 52: Bathroom Cracking to 1.0mm

5.7. Loft

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Where the internal roof void is not safely boarded **out** and access is considered to be unsafe, our inspection of the internal roof structure has been carried out from the access hatch, directly from ladders. This is industry standard procedure.

Where roof void insulation or boarding is present, this has not been disturbed for health and safety reasons. Any timbers/ceiling joists concealed by such insulation or boarding cannot be reported on.

The internal roof structure is a traditional, timber purlin and rafter construction with a single line of purlins on each roof slope. Intermediate support is provided to the purlins via masonry piers, the arrangement of which appears to be providing adequate support.

Internal observations indicate greater than normal deflections to the main timber purlins where these have rotated about the central supporting masonry pier.

The LHS purlins appear to be supported by timbers attached to the gable rather than built into the gable as the RHS.

Tie rods were evident running between the left and right gables plus there appears to be a tie rod attached to the front and rear purlins adjacent to the LHS gable.

Photo 53: LHS Gable

Photo 54: RHS Gable

Photo 55: Central Supporting Pier Purlin Rotation

Photo 56: Front Roof Slope

Photo 57: Rear Roof Slope

6.0 Commentary

6.1. Structural Movement

The building front and rear walls slope to the right and the gables tilt likewise to the right. It is clear both visually and by approximate spirit level measurements that the building slopes and tilts to the right by a greater degree from the mid point of the building. Spirit level measurements indicate a 1 in 60 slope of the front and rear walls to the midpoint increasing to 1 in 22 towards the right. The left-hand gable tilts to the right by 1 in 60 and the right-hand gable by 1 in 20 to the right.

There are cracks at the midpoint of the building which are apparent internally and appear to have both a historic and more recent component of movement. The roof tiles are disturbed at the midpoint at the front and rear slopes plus the eaves brickwork particularly on the rear wall has displaced laterally.

There are pattress plates and tie rods attached to both gables, but the surrounding brickwork has cracked and dished around the rear ties and to a lesser extent around the front tie rod.

It seems likely that the cause of the majority of the movement has been caused by historic mining activity in the area. Potentially there has been an initial differential settlement to the right and then tie rods were installed which was followed by further settlement causing the building to effectively break in half and cause the tie rods to damage the gable brickwork and essentially become ineffective.

When coal mines are abandoned, the removal of the pillars and props within the workings will result in the ground above the voids collapsing into the voids. This will create a ripple of ground surface distortion, moving across an area, as the collapse progresses below. Buildings within that affected surface zone can be disturbed and will often tilt as the ripple passes below but will rarely return to their original plumb position.

The Building Research Establishment (BRE) Digest 475 - Tilt of Low-Rise Buildings, provides classifications for tilting to whole buildings. Tilting will generally become noticeable when it reaches around 1 in 250 to 1 in 200. Tilts of this magnitude are unlikely to have adversely affected the structural integrity of the house, however at the point of re-sale, they are likely to attract attention.

Greater tilts than these such tilts are likely to affect the verticality of furniture, cause doors to swing open and possible issues with the falls to the internal plumbing and underground drainage. As a guide, Digest 475 indicates that remedial works may be necessary for tilts around 1 in 100.

As the tilt approaches 1 in 50, the building may be regarded as being in a dangerous condition with remedial action to re-level or demolish the building.

Much of the movement is historic but there may be new movement as cracks have reopened internally and externally, possibly due to the proximity of the trees adjacent to the front and right-hand gable. It is also possible that there are nearby defective drain runs that are softening the foundation substrata leading to subsidence. Additional movement to a building which has already tilted to a degree that is classed as dangerous is of concern.

The option of releveling the building seems unlikely to be feasible as the foundations are probably shallow strip footings or corbelled brickwork that would be damaged by such remedial works.

6.2. Trees

All vegetation such as trees and shrubs require water to live, and this water is mostly taken from the soil within which the plant's roots grow.

If the soil is classified as clay soil, then it will hold much more water than sands, gravels and loam soils due to their respective particle sizes. Clay soils are susceptible to volumetric shrinkage due to the amount of water it holds if moisture is removed whereas granular sands and gravels are not.

As the trees and shrubs abstract water from the clay soil, the soil volume will 'shrink' and 'swell' during the summer as water is first removed and then added by summer rainfall. In years in which rainfall during the summer is less than the total amount of water taken from the soil by trees and shrubs, shrinkage will occur. This shrinkage may remove support from building foundations, leading to cracking in the fabric of the building.

Both the water demand of a tree from species to species and the potential for volume change or shrinkability for a particular soil varies. Hence, moisture extraction from a high-water demand tree in a high shrinkability soil will lead to the most severe foundation movement.

According to the Building Research Establishment Digest 298, a general rule of thumb, based on a high-water demand category of trees, growing in a highly shrinkable clay, the safe distance between the house and the tree, would be the anticipated maximum height of that tree species. The Digest provides typical maximum heights of trees in a clay stratum such as an Oak Tree at 23m, a Poplar at 24m, a Willow at 15m and a fruit tree at 12m.

Tree roots can also cause direct physical damage to foundations by growing directly below or against the foundation, sometimes lifting the foundation. This can occur in both cohesive and granular sub-soils.

7.0 Conclusions

7.1. Overall Opinion

The building is tilting towards the right-hand side most likely as a result of historic mining subsidence which may have occurred many years. There are signs of more recent movement, and this may have been caused by the large trees that are adjacent to the front and right-hand gable or defective underground drainage.

The Building Research Establishment guidance report, BRE Digest 475, considers buildings with an overall tilt such as this to be dangerous and suggests either re-levelling or demolition as remedial actions.

It would be prudent to monitor this building and remove the adjacent trees if demolition is not carried out in the short term.

Demolition will require Planning and Building Regulation approval prior to this being carried out.

It should be appreciated that this report has been prepared on the basis of a single visual inspection of the property and that we have not, to date, undertaken any monitoring, long-term investigation or testing of the material construction. We cannot, therefore, categorically state that future movement will not occur.

8.0 Recommendations

8.1. Trees	
It is recommended that the trees to the front of the property are removed completely, as it is a risk to the stability of the house foundations. Expert advice should be sought from an arboriculturist as to the most appropriate time to remove the tree, and whether removal needs to be carried out in stages. In certain circumstances, the removal of high-water demand, mature trees growing in cohesive, shrinkable clay sub-soils, can lead to rapid re-hydration and associated swelling of the clay, leading to lifting of the foundation which is known as heave.	3
8.2. Drainage	
Appoint a specialist drainage contractor to carry out a detailed CCTV survey of the underground drainage system to confirm the extent and location of any defects, and to carry out any associated repairs to eliminate the risk of escape of water from the drains into the surrounding sub-soils.	3
8.3. Roof	
A new roof covering would be required if the building were to be retained.	3
8.4. Walls	
Monitor the external elevations with optical levelling both horizontally and vertically to determine if there is any progressive movement. Contact the local authority to obtain both Planning and Building Regulation approval to demolish the building.	3