

Engineers Report

Risk Address 7 Rogers Ruff
Northwood
Middlesex
HA6 2FD

360 Reference DLG-SN-19-001049
Claim Refence 067361337
Policy Holder Mrs. B.M. Whitehead

Date Notified 24.09.19
Date Instructed 24.09.19
Report Date 03.10.19



Description of Premises

The insured's property is a large, 4-bedroom detached two storey house, constructed in 1973 from cavity brick walls with a hipped, tiled roof. There is a garage attached to the right-hand side of the house. This is also of brick construction with a flat roof. The insured has owned the property since 1976.

The property is in a residential area and the site is gently sloping down from left to right.

Discovery of Damage

The insured noticed some minor cracking to the rear of the garage during the summer of 2018 but was not too concerned as the cracks closed up. However, during the summer of 2019 the cracking has become much worse and therefore an engineer was consulted. He confirmed that there had been foundation movement affecting the rear left-hand corner of the garage. Consequently, insurers were notified, and a subsidence claim was progressed.

Focus of Damage and Report

This document addresses damage notified to insurers in relation to cracking, focussed mainly to the attached garage. It should not be considered to be an exhaustive list. All directions are stated when viewing the property from the front.

Internal Damage

Garage

The main damage is to the rear left-hand corner where the brickwork has rotated away from the rear personnel door by around 10mm. The door frame has bowed, and the door is difficult to operate.

Utility Room

There is minor cracking along the right-hand ceiling junction, and this extends down the front and rear corners.

External Damage

Garage

The brickwork to the rear left-hand corner has rotated significantly to the left-hand side, with severe cracking and displacement of the brickwork by up to 20mm, extending through the coping to the flat roof. The paving slabs and steps to the rear door have rotated away severely.

There is some minor cracking to the brickwork where the garage wall abuts the main house wall.

There are minor cracks around the beam bearings over the front door and a vertical crack above the centre of the door opening. There is minor cracking to the concrete at the front of the floor slab where the previous repairs have spalled. The paving around the garage is generally uneven.



Front View on Garage



Rear View on Garage



Tree in Rear Garden



Cracking to Rear Left-Hand Corner



Movement Away from Rear Door



Cracking to Utility Room

Site Geology and Ground Conditions

Indicative Site Geology and Soils Data for:

7 Rogers Ruff, Northwood, Middlesex, HA6 2FD

No of SI's within 0.91km from address on identical lithology. (See comments)	9
Closest - Furthest distance of a site investigation from the address (km).	0.31 - 0.91
Total number of boreholes.	13
Percentage of site investigations where root samples were taken.	89%
Percentage of site investigations where drainage was recorded.	22%
Number of samples tested at greater than 1m depth.	59
BRE Digest 240. "Volume change potential" from Av. Modified Plasticity Index (I _p) of 34%.	Medium

Previous Soils Data nr = Non recorded	Depth m.	M.C. (%)	L.L. (%)	P.I. (%)	P.L. (%)	425um (%)	Suction kPa	Oed Strain
Sample population	59	58	10	10	10	10	8	30
~ Minimum (Av - 1 StdDiv)	1.0	18	48	31	16	97	18	0.0132
~ Maximum (Av + 1 StdDiv)	4.2	30	64	41	24	99	903	0.0339
Average	2.3	24	56	36	20	98	413	0.0132
General soils description	Firm light brown/grey sandy CLAY with some fine-medium gravel/ silt							
BGS 1:50 000 maps as a: Bedrock Geology	1:50 000 scale bedrock geology description: Lambeth Group - Clay, Silt And Sand. Sedimentary Bedrock formed in the Palaeogene period. Local environment previously dominated by swamps, estuaries and deltas. Setting: Swamps, estuaries and deltas with shallow seas. These sedimentary rocks are fluvial, palustrine and shallow-marine in origin. They are detrital, forming deposits reflecting the channels, floodplains and deltas of a river in a coastal setting (with periodic inundation from the sea).							
BGS 1km Hexagonal Superficial Deposit Depth Data	1:50 000 scale superficial geology description: None recorded. Mean Depth = 1m Max Depth = 2m Coverage = 2% Note: The BGS only record superficial deposits greater than 1m in depth							
BGS 1:50,000 Artificial Ground	Non recorded							

BGS "GeoSure" 5km Hexagonal Hazard Ratings	
Shrink/Swell	Significant with areas of localised significant rating.
Collapsible Deposits	Low
Compressible Ground	Low with areas of localised significant rating.
Landslides	Low
Running Sand	Low
Soluble Rocks	Low with areas of localised significant rating.
Mining (not incl coal) 1km hex	No record of activity.

Government Coal Authority Data	No data recorded for this location.
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Comments: The location is in a high SI density area. The nine SIs reported above are on exactly the same Bedrock Geology with no overlying Superficial deposits.

Evidence of External Influences

Trees

The property is surrounded by numerous large trees, both within the insured's garden and also in the gardens of neighbouring properties. The closest tree to the area of damage is a 15-metre-tall Hornbeam tree approximately 3.5 metres from the rear of the garage. There is a density of trees along the right-hand boundary with 26 Links Way and these are within 3.5 metres of the garage. There are further trees along the rear boundary which is 10 metres away.

Drains

The property is served by a domestic drainage system which is located at the rear of the property.

Summary and Conclusions

It is clear that there has been some localised foundation movement affecting the rear left-hand corner of the property and therefore a valid subsidence claim arises, subject to the policy excess of £1000.00.

Given the sudden nature and timing of the damage, it is clear that the cause of the damage is clay shrinkage due to the moisture demand of the vegetation adjacent to the garage. The damage has occurred during a dry summer, following an extremely dry summer and winter in 2018. The trees have grown over the years and this leads to a progressive drying of the soil and then when dry summers occur, as 2018 and 2019, the tree roots will extend further to obtain moisture, desiccating the clay over a wider area. Unfortunately, this has now been sufficient to cause the rear left-hand corner to drop and cause the brickwork to rotate away from the rear personnel door.

The damage will stabilise as the clay rehydrates over the winter and spring and hopefully some of the cracking will close up. However, there is a very high risk of further damage occurring during future dry periods of weather and therefore it is recommended that the vegetation removed / reduced, subject to the agreement of the respective owners and any planning constraints. It is suspected that the dominant influence will be the Hornbeam tree at the rear of the garage, and it is likely that this will need to be removed. The influence of the other trees along the right-hand boundary is less clear and the recommendations of an arborist will be required.

Provided that the implicated trees can be removed, the extension will stabilise over the winter / spring and repairs can be implemented in spring 2020. Some of the cracks may close up as the clay rehydrates, which will make the repairs simpler. A detailed repair schedule will be agreed at repair stage, although some localised rebuilding of the brickwork will be required.

It is noted that the drains run close to the area of movement and therefore it is possible that the tree roots have also damaged the drains, allowing water to escape. This can also cause foundation movement to occur by softening the soil. A site investigation will therefore be carried out to confirm the foundation and soil conditions and to confirm any defects to the drains.

The minor cracking at the front of the garage is not thought to be related to foundation movement. Minor cracking around beam bearings and above the centre of the beam is the result of normal thermal movement / flexing of the beam. This is not of any structural concern.

Next Steps

- Carry out site investigation to confirm foundation depth, ground conditions and any root growth. Check drainage.
- Instruct arborist to inspect and make recommendations for immediate works and future risk management works – liaise with neighbouring owner
- Arrange removal of implicated vegetation subject to any planning constraints
- Allow property to stabilise over the winter / spring
- Instruct a contractor to carry out repairs in spring 2020 or agree a cash settlement with the insured
- Update all parties on a regular basis

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