Engineers Report

Risk Address	**Spinney House, Rusts Lane, Huntingdon PE28 4DN**
Insurer Reference	**087231999**
Policy Holder	**Mr Roland Ash**
Date Notified	**26/07/2023**
Date of Assessment	**21/08/2023**
Report Date	**21/08/2023**



Description of Premises

The risk address is a 4-bedroom detached 2-storey house, built in Circa 1875. The property is constructed of part rendered masonry external walls built with a concrete ground floor. suspended timber upper floors, all enclosed by a pitched tiled roof. There is a detached single storey double Garage constructed of a concrete floor, rendered brickwork walls , all enclosed by a flat felted roof. The Garage is dilapidated with significant distortions noted to the floor and walls.

The Policyholder has owned the property for approximately 30years with a previous subsidence claim in Circa 2008 being resolved with vegetation management works and superstructure crack repairs and decoration.

The property is located in a semi-rural environment on a level site within a spinney on the edge of a village.

We understand that all drainage appears to run to the front of the property with the mature trees surrounding the property being owned by the Policyholder or a domestic third party.

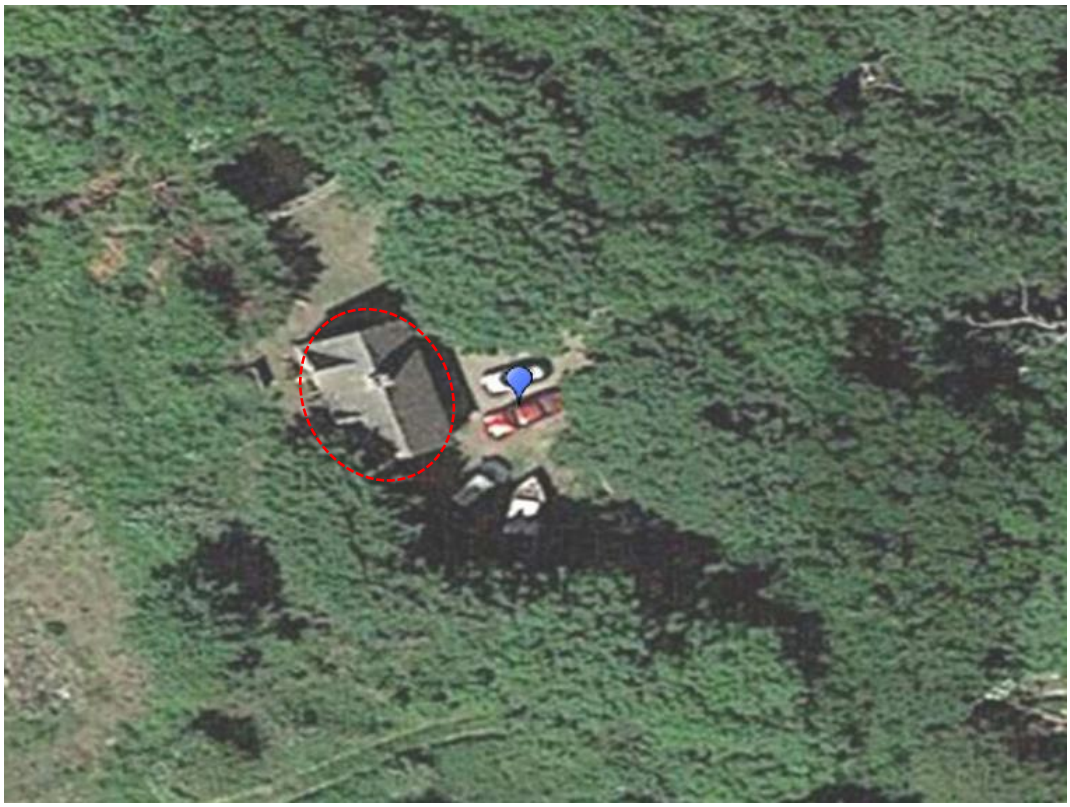
Discovery of Damage

We understand the policyholder discovered cracking last year however due to treatment for a serious illness has only recently been in a position to notify Insurers.

A ‘virtual’ inspection was undertaken, with you in 5 Agent providing details and imagery of the damage via 360 Globalnet’s Site View digital claims system. All information supplied was subsequently reviewed by our Engineer.

Focus of Damage and Report

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



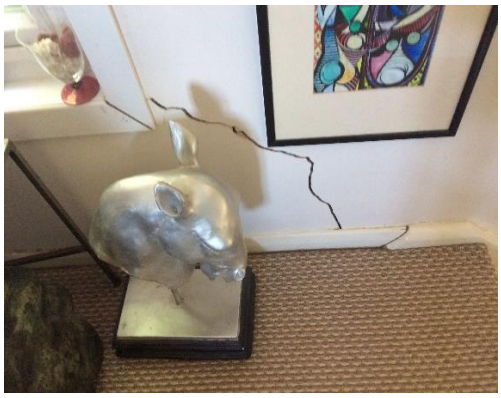
Internal Damage

The principal damage affected all rooms within the property with the exception of the 1st floor Bathroom, all recorded as follows:-

- Tapering vertical and diagonal cracks up to 5mm in width above and below window and door openings. Predominantly to the rear left and right hand corners of the property.
- Cracking up to 3mm in width was noted to the ceilings., predominantly at 1st floor level.
- Cracking to the floor slab was recorded within the Hallway up to approximately 10mm in width.



Bedroom 1 – Crack top right hand side of internal door



Stairwell – Crack to front elevation



Bedroom 4 – High level crack damage



Hall – Cracking above entrance door.



Hall – Cracking to Vinyl Floor Tiles and concrete ground slab

External Damage

The principal damage was recorded as follows:-

- Tapering diagonal cracking to the front elevation of the property up to approximately 5mm in width
- Tapering vertical, horizontal and diagonal stepped cracking to the rear left hand right hand corners of the property up to approximately 10mm in width.,
- 50mm cracking to the wall and floor slabs within the Garage



Front Elevation



Rear Elevation



Rear Elevation – Low level crack damage right hand corner.



Rear Elevation – Low level crack damage left hand corner.



Right Hand Elevation – Cracking below window.

Other damage noted

The Policyholder is currently considering if to claim for the damage to the Garage as well as the main building. We have seen cracking to the floor slab but are informed buy the Policyholder that there are unseen cracks up to 50mm in width to the main walls. The Garage is however in poor condition and in all probability beyond economic repair. However, if the Garage is to be included within the claim the Policyholder will need to contribute to the cost of the re-build (we estimate approximately 50% contribution).

Classification of Damage

It is common practice to categorise the damage in accordance with B.R.E. Digest 251 "Assessment of Damage in Low-Rise Buildings". In this case, the damage to the main house falls into Category 3 "Moderate" while damage to the Garage falls into Category 5 "Very Severe".

Category	Crack Width	Degree of Damage
0	Hairline cracks of less than 0.1 mm	Negligible
1	Typical crack widths are 0.1 to 1mm.	Very slight
2	Typical crack widths are 1 to 5mm.	Slight
3	**Typical crack widths are 5 to 15mm, or several of, say, 3 mm.**	**Moderate**
4	Typical crack widths are 15 to 25mm, but also depends on number of cracks.	Severe
5	**Typical crack widths are greater than 25mm but depends on number of cracks.**	**Very Severe**

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Site Geology and Ground Conditions

Indicative Site Geology and Soils Data for:

Spinney House, Rusts Lane, Huntingdon, PE28 4DN Ref: 136795461

No of SI's within 5.2km from address on identical lithology. **(See comments)**	4
Closest - Furthest distance of a site investigation from the address (km).	4.6 - 5.2
Total number of boreholes.	6
Percentage of site investigations where root samples where taken.	50%
Percentage of site investigations where drainage was recorded.	25%
Number of samples tested at greater than 0.5m depth.	19
BRE Digest 240. "Volume change potential" from Av. Modified Plasticity Index (I'p) of 33%.	Medium

Previous Soils Data nr = Non recorded	*Depth m.*	*M.C. (%)*	*L.L. (%)*	*P.I. (%)*	*P.L. (%)*	*425um (%)*	*Suction kPa*	*Oed Strain*
Sample population	19	19	13	13	13	13	9	1
~ Minimum (Av - 1 StdDev)	1.1	18	46	28	18	64	88	0.0010
~ Maximum (Av + 1 StdDev)	3.4	29	62	38	24	100	644	0.0010
Average	2.1	23	54	33	21	86	295	0.0010
General soils description	Brown/grey CLAY with some fine-medium gravel / sand							
BGS 1:50 000 maps as a: Bedrock Geology	**1:50 000 scale bedrock geology description:** Oxford Clay Formation - Mudstone. Sedimentary Bedrock formed in the Jurassic period. Local environment previously dominated by shallow seas. **Setting**: Shallow seas. These sedimentary rocks are shallow-marine in origin. They are detrital, ranging from coarse- to fine-grained (locally with some carbonate content) forming interbedded sequences.							
BGS 1km Hex. Superficial Deposit Depth Data Mean Depth = 2m Max Depth = 10m Coverage = 47% The BGS only record superficial deposits greater than 1m in depth.	**1:50 000 scale superficial geology description:** None recorded.							
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 with areas of localised significant rating.
Running Sand	Low
Soluble Rocks	Low
Mining (not coal) 1km hx grid	Localised small scale mining may have occurred in the area.

Government Coal Authority Data (<25m = found within 25m)	No data recorded for this location.

Comments: The location is in a very low SI density area. The four SIs reported above are on exactly the same Bedrock Geology with no overlying Superficial deposits.

Contains British Geological Survey materials © NERC [2023] 02-08-23

Evidence of External Influences

Trees

The property is located within a spinney and as such the house and Garage are surrounded by significant mature vegetation. We understand this vegetation is owned by both the Policyholder and a domestic third party. We expect this vegetation to be implicated in the current subsidence damage to the property.

Drains

We do not anticipate the drainage system being implicated in the current damage. However we note rainwater discharging to the left and right hand side of the property while all foul appears to discharge to the front of the property.

Summary and Conclusions

It is our opinion that the main house and Garage have suffered some recent foundation movement and therefore a valid subsidence claim arises, subject to the policy excess of £1,000.

The pattern and nature of the cracks is indicative of an episode of subsidence. The cause of movement appears to be root induced clay shrinkage.

Clay soils shrink and swell seasonally, and this can cause damage following particularly dry spells of weather.

Although the cause of the movement needs to be dealt with, we note significant amounts of mature vegetation surrounding the property.

It will be necessary to undertake certain investigations to confirm the cause of the movement.

Typically, these investigations would involve trial pits to determine the depth and type of footings, boreholes to determine the nature of the subsoil/influence of any roots and monitoring to establish the rate and pattern of movement.

A trial pit and borehole will be undertaken to confirm the depth of the foundation, as well as assessing the content and condition of the sub-soil beneath the foundation.

This will provide a good indicator as to whether the ground has been affected by an external influence and allowed some slight downward movement of the foundation to occur.

A course of level monitoring may need to be introduced over a 6-month period to obtain evidence that will support our request to the local authority or third-party owner for tree removal, along with any further site investigations deemed necessary.

An Arborist report is being obtained, in order to assist discussions with the neighbours, where applicable.

If the investigations reveal evidence of subsidence and influencing factors, then the most appropriate mitigation measures to assist with the structure stabilising will be considered.

This may simply involve carrying out removal of the nearby vegetation.

Once we are satisfied with a diagnosis in respect of the cause of the damage then we will advise further.

Next Steps

The key steps required to progress the claim are as follows:

- Contact policyholder and arrange for site investigations to be undertaken at a suitable date. These will include
- Trial pit(s) to determine the depth and type of footings, boreholes to determine the nature of the subsoil/influence of any roots.
- Arrange for an Arboricultural report.
- Arrange for crack and level monitoring for up to a 12-month period.
- On receipt of the Site Investigation / Arborist report, we will advise on causation and the scope of mitigation works required.
- A repair schedule has been drawn up, although this will be finalised following completion of any mitigation measures, as applicable.

Howard Nash BSc (Hons)
360Globalnet Subsidence Team