

Engineers Report

Risk Address 62 Thistle Road
Hedge End
Southampton
SO30 0TT

360 Reference LIV-SN-22-004886
Claim Reference 100-50-192954
Policy Holder Mr. Antony Marsh

Date Notified 22/08/2022
Date Instructed 22/08/2022
Report Date 26/09/2022



Description of premises

The insured's property is a 4-bedroom detached house, constructed in 1991 from masonry walls under a tiled pitched roof and purchased by the policyholder from new. There have been no major alterations since the property was purchased.

The property resides on a level site on the perimeter of a housing development. At the rear of the property is a conservation area and woodland, containing large deciduous trees.

Discovery of Damage

Damage was first noticed on the 1st of August 2022, when an initially small crack in the upstairs bedroom grew substantially prompting the notification to insurers. Following a call with the policyholder on 24/09/2022, it is understood that more cracks have been discovered around the front of the property.

Focus of Damage and Report

The cracking and evidence of movement is focused on the rear left hand side of the property. On the ground and first floors there are cracks that tend to suggest subsidence of the rear left hand corner of the property. The patio paving slabs also appear to have dropped and dip towards the rear left corner.



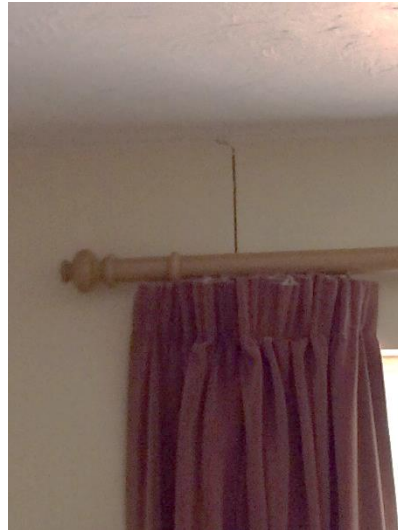
Please note that in this report all reported directions (e.g. "on the right") are relative to when facing the front of the property

Internal Damage

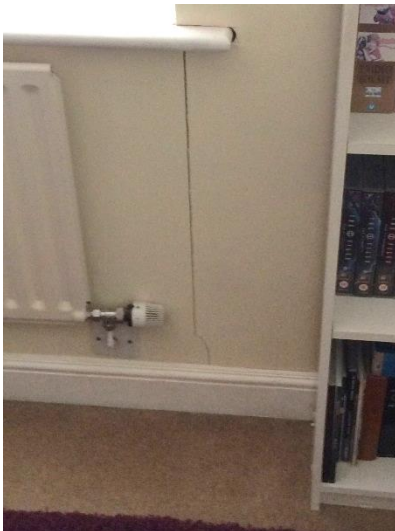
There is evidence of movement internally in the rear left first floor bedroom and at the rear of the lounge below this around the patio doors, which have also become stiff and difficult to close. The nature of the cracks suggests subsidence of the rear left-hand corner of the property. It is also understood that cracks have been discovered more recently towards the front of the property.



Picture 1: Very slight vertical cracking internally on left hand side above patio doors



Picture 2: Vertical tapered crack extends to ceiling level in first floor bedroom above patio doors and reflective of cracking observed externally



Picture 3: Vertical tapered crack in first floor bedroom on rear left-hand side reflective of that seen externally above patio doors



Picture 4: Vertical tapered cracking in first floor middle bedroom above the front door on left side of window



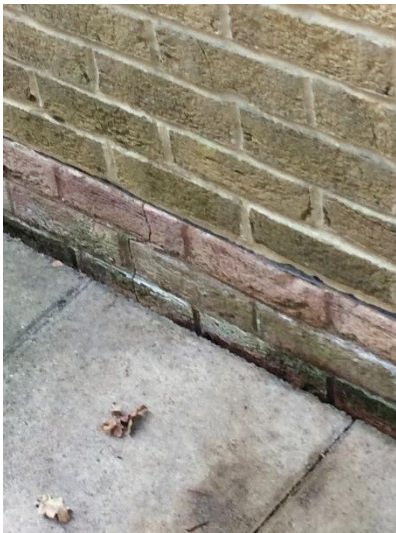
Picture 5: Vertical cracks noted around radiator beneath window in first floor bedroom on front right-hand side



Picture 6: Cracks up to ceiling level near window in first floor bedroom on front right-hand side

External damage

Externally there is evidence of movement around the patio doors. The paving slabs in this area appear to have dropped and are dipping towards the rear left-hand corner. There are diagonal cracks above the patio door that further suggest movement of the rear left-hand corner. More recently some minor cracking to the front of the property has also been noticed.



Picture 7: Close up showing where paving slabs appear to have dropped



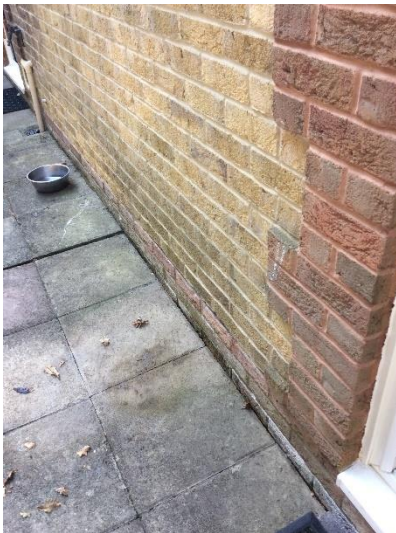
Picture 8: Cracking on left hand side of rear patio doors



Picture 9: Diagonal crack extends up from left hand corner of rear left patio doors towards rear left corner



Picture 10: Diagonal crack above patio doors on rear left hand side going up to first floor bedroom window (with respective vertical internal cracking seen in picture 3)



Picture 11: Patio paving slabs appear to have dropped towards rear left corner



Picture 12: Patio paving slabs appear to have dropped towards rear left-hand corner (view 2)

Site Geology and ground conditions

Indicative Site Geology and Soils Data for: 62 Thistle Road, Hedge End, Southampton, SO30 0TT

No of SI's within 2.5km from address on identical lithology. (See comments)	5
Closest - Furthest distance of a site investigation from the address (km).	0.31 - 2.4
Total number of boreholes.	6
Percentage of site investigations where root samples were taken.	100%
Percentage of site investigations where drainage was recorded.	20%
Number of samples tested at greater than 0.5m depth.	23
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	23	23	11	11	11	11	0	7
~ Minimum (Av - 1 StdDiv)	0.7	25	37	18	18	92	nr	0.0087
~ Maximum (Av + 1 StdDiv)	3.5	36	69	44	26	100	nr	0.0160
Average	1.9	31	53	31	22	96	nr	0.0087
General soils description	Soft/Firm dark brown/grey sandy CLAY with some fine gravel / silt							
BGS 1:50 000 maps as a: Bedrock Geology	1:50 000 scale bedrock geology description: Wittering Formation - Sand, Silt And Clay. Sedimentary Bedrock formed in the Palaeogene period. Local environment previously dominated by shallow seas. Setting: Shallow seas and shorelines. 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 Hexagonal Superficial Deposit Depth Data Mean Depth = 1m Max Depth = 2m Coverage = 3% Note: 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 with areas of localised significant rating.
Soluble Rocks	Low
Mining (not coal) 1km hx grid	No record of activity.

Government Coal Authority Data (<25m = found within 25m)	No data recorded for this location.
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Comments: The location is in a medium SI density area. The five SIs reported above are on exactly the same Bedrock Geology with no overlying Superficial deposits.
Contains British Geological Survey materials © NERC [2022]
22-08-22

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 falls into Category 2 "Slight".

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

Evidence of external influences

Trees/Vegetation

There is a conservation area containing numerous large deciduous trees approximately 12m from the rear. These are very large and thus very old trees. It is therefore likely that their roots were already beneath the property when it was built.

Large mature trees like this are usually less of a concern as their root growth and influence in desiccating the surrounding soils has had a long time to occur before the house was built. However, given the recent historically significant drought experienced in August, it is possible that these trees have exerted a greater water demand on the ground than has previously been experienced in the history of the property, causing further shrinkage and possibly subsidence.

Google Earth imagery showing large trees at the rear of the property



Notably, there is an approximately 5m tall tree/hedge growing approximately 3m from the rear left hand corner of the property, belonging to the neighbour, as has been highlighted below. This is more likely to be causing root induced shrinkage of the underlying soils if they are susceptible.

More juvenile tree/shrub present within close proximity to the area of suspected subsidence



The geology report suggests the area to be underlain with medium volume change potential clay, which is susceptible to root induced subsidence.

A trial hole shall be instructed on the rear left hand corner to see what roots if any may be present beneath the foundations. This investigation shall also seek to confirm the depth of the foundations and the types of soil present. The investigation shall include root identification to help in discussions with the neighbour if their tree is found to be involved in the apparent movement.

Drainage

There is notably a rainwater downpipe on the rear left-hand corner of the property, where the movement appears to be occurring. This downpipe covers a large area of roof and thus may be more likely to cause problems.

The timing of the event suggests the damage to be more likely due to clay shrinkage, however this will be surveyed as part of an investigation to ensure it is in sound condition and hasn't encouraged roots beneath the area or caused washout of material.



Picture 4: Rainwater down pipe located on rear left-hand corner, which appears to have dropped

Summary and Conclusions

It is evident that there has been movement affecting predominantly the rear left-hand corner of the property. The nature of the cracking is indicative of an episode of possible subsidence. Therefore a valid subsidence claim is accepted subject to the policy excess of £1000.

Rarely does new movement develop or accelerate without a new external influence such as advancing root growth or a drainage issue. The cause of movement appears to be possible clay shrinkage, likely due to the nearby water demanding trees at the rear of the property, but also possibly more likely the neighbour's tree, which is near the rear left corner.

The timing of the event (the summer months), the presence of suspected shrinkable clay beneath the foundations and the proximity of tree(s)/vegetation suggests the shrinkage may be root induced. This is a commonly encountered problem, and probably accounts for around 70% of subsidence claims notified to insurers.

Fortunately, the cause of the problem (dehydration) is reversible. Clay soils will rehydrate in the winter months, causing the clays to swell and the cracks to close. Provided the cause of movement is dealt with, this should resolve the present problem.

A site investigation will include root identification to establish if roots are present beneath the areas of movement and to identify their source if so. The investigation will also seek to understand the foundations present beneath the areas of damage and shall confirm the shrink/swell potential of the underlying soils.

The optimum solution in this instance would be to remove the cause of the problem, allowing the property to recover stability thereafter.

The removal of trees or vegetation belonging to third parties can be problematic and the success of securing any agreement can vary depending on the individual circumstances. Steps to engage with the Third Party should commence once further evidence as to the cause is established through a site investigation.

It is also a possibility that there is an issue with the nearby drainage given its proximity. Subsidence due to leaking drains is a common problem in older properties. However, movement is rarely progressive once the defective drains have been repaired and the property stabilises.

To determine the extent of any influence from leaking drains, a survey of the surrounding drainage runs will be carried out. Any damage to the drains which fall within your responsibility can be addressed, allowing stability to be restored to the structure.

Following this investigation, the cause shall hopefully become clear and successful mitigation repair works can commence based on the schedule of repairs, a copy of which you will receive.

Next Steps

- Contact policyholder and arrange for site investigations to be undertaken at a suitable date.
- Undertake a site investigation and survey of the drains and report back on any evident damage and repair works necessary.
- If required initiate conversation with local authority and neighbour regarding removal of implicated vegetation following site investigation.

- If required, obtain sufficient information to enable an application to remove any offending vegetation to be submitted.
- If required as evidence instruct a 12 month period of level monitoring to commence.
- Provide a schedule of work for repairs to be considered.
- Obtain and programme start dates for drainage and repair works to commence from approved contractors if required.
- Validate and programme the superstructure works in conjunction with the policyholders requirements.
- Update all parties on a regular basis.