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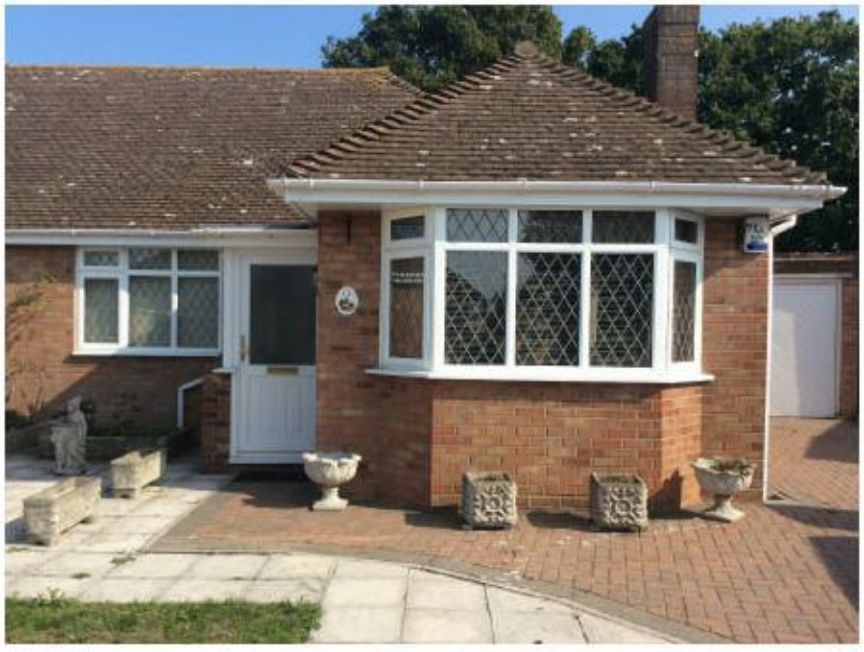
Engineers Report

Risk Address	**14 Buckfast Avenue** **Kirby Cross** **Frinton-on-Sea** **Essex** **CO13 0PU**

360 Reference	**DLG-SN-20-002040**
Claim Refence	**074640111**
Policy Holder	**Mrs. F. Kelman**

Date Notified	**22.09.20**
Date Instructed	**29.09.20**
Report Date	**05.10.20**



Description of Premises

The insured's property is a 2-bedroom, semi-detached bungalow built circa 1970 from cavity brick walls with a hipped, tiled roof. The bungalow projects to the front right where there is also a bay window. There is a detached single garage to the rear right, and this is of brick construction with a flat roof. The insured has owned the property since 1997.

The property is in a coastal residential area and the site is relatively flat with no unusual features. There is a public footpath beyond the rear boundary.

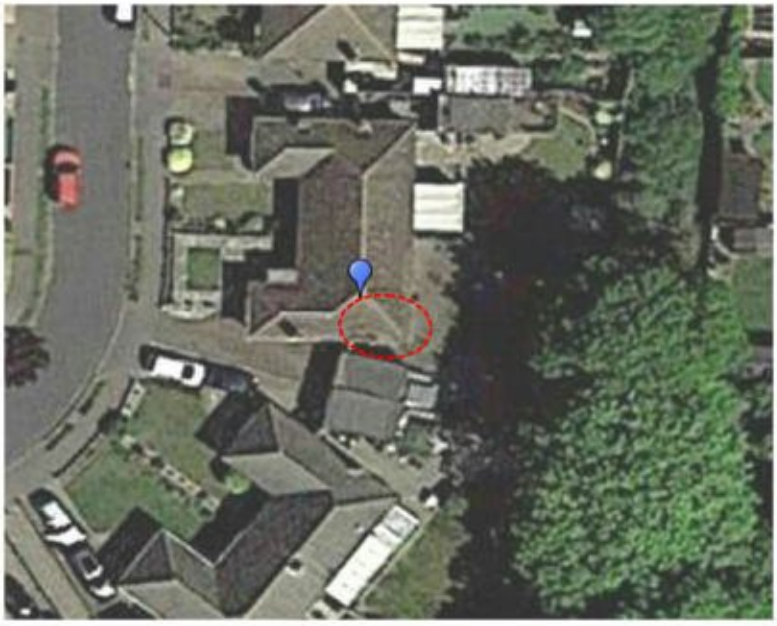
Discovery of Damage / Claim History

Significant cracking has occurred suddenly to the rear right-hand corner of the bungalow. Consequently, the buildings insurers were notified, and a subsidence claim was registered.

Due to current travel restrictions a 'virtual' inspection was undertaken, with the insured 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 and discussed in detail with the insured's son-in-law, Mr. G. Francis.

Focus of Damage and Report

This document addresses damage notified to insurers in relation to cracking, focussed mainly to the rear right-hand corner of the bungalow. It should not be considered to be an exhaustive list. All directions are stated when viewing the property from the front.



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External

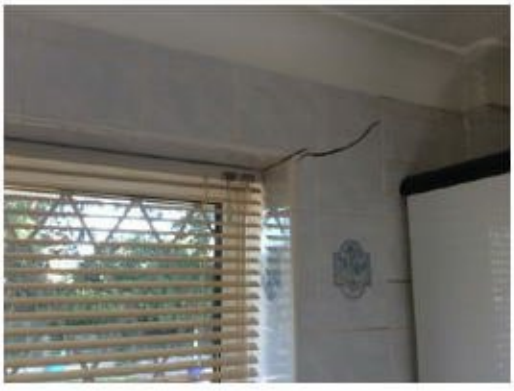
Rear Right-Hand Corner
There is a stepped cracking rising up from the rear kitchen door up to eaves level at the corner and the crack then returns around the rear wall down to the kitchen window. The cracking is around 5mm wide.

Internal

Kitchen
There is cracking through the wall tiling above the rear of the external door and this is also evident below the adjacent wall unit. Cracking extends through the wall tiles and along the ceiling junction to the rear wall, where significant cracking is evident through the wall tiling down to the window frame. The cracking is around 8mm wide.

Stepped Crack to Side Wall

Stepped Crack to Rear Wall



Cracked Tiling Above Rear Window

Cracked Tiling Above Rear Door

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 localised damage to the rear right-hand corner falls into Category 3 "Moderate".

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

There are two mature Oak trees in the public footpath at the rear, close to the boundary. These are estimated to be 14 metres away and 15 metres tall. It is understood that the Local Authority deny ownership of the trees.

Drains

The foul and surface water drains are located to the right-hand side of the property.

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Site Geology and Ground Conditions

Indicative Site Geology and Soils Data for:

14 Buckfast Avenue, Kirby Cross, Frinton-On-Sea, CO13 0PU Ref: DLG-SN-20-002040

No of SI's within 0.7km from address on identical lithology. **(See comments)**	**7**
Closest - Furthest distance of a site investigation from the address (km).	**0.14 - 0.69**
Total number of boreholes.	**13**
Percentage of site investigations where root samples where taken.	**43%**
Percentage of site investigations where drainage was recorded.	**0%**
Number of samples tested at greater than 0.5m depth.	**18**
BRE Digest 240. "Volume change potential" from Av. Modified Plasticity Index (I'p) of 57%.	**High**

Previous Soils Data nr = Non recorded	*Depth m.*	*M.C. (%)*	*L.L. (%)*	*P.I. (%)*	*P.L. (%)*	*425um (%)*	*Suction kPa*	*Oed Strain*
Sample population	104	104	19	19	19	19	62	39
~ **Minimum** (Av - 1 StdDiv)	0.8	24	61	39	22	84	6	0.0318
~ **Maximum** (Av + 1 StdDiv)	6.4	36	93	65	28	100	858	0.0831
Average	3.1	30	77	52	25	95	382	0.0318
General soils description	Firm/Stiff dark brown/grey CLAY with some sand / fine-medium gravel and rare silt							

BGS 1:50 000 maps as a: Bedrock Geology	**1:50 000 scale bedrock geology description:** Thames Group - Clay, Silt And Sand. Sedimentary Bedrock formed in the Palaeogene period. Local environment previously dominated by deep seas. **Setting**: Deep seas. These sedimentary rocks are marine in origin. They are detrital and comprise coarse- to fine-grained slurries of debris from the continental shelf flowing into a deep-sea environment, forming distinctively graded beds.
BGS 1km Hexagonal Superficial Deposit Depth Data Mean Depth = 2m Max Depth = 4m Coverage = 8% **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 incl coal) 1km hex	No record of activity.

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

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

 01-10-20

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Summary and Conclusions

It is clear that there has been some localised foundation movement affecting the rear right-corner of the bungalow and therefore a valid subsidence claim arises, subject to the policy excess of £1000.

The cause of the subsidence is almost certainly clay shrinkage due to the moisture demand of the surrounding vegetation, notably the Oak trees to the rear. The property is built off a shrinkable clay soil and the last three years have been extremely dry, and this leads to a progressive drying of the sub-soil, causing the tree roots to extend further to obtain moisture and desiccating the clay over a wider area. This has now been sufficient to cause some movement to the right-hand side of the property.

Movement due to clay shrinkage is not progressive and movement will cease as the clay rehydrates over the winter and spring. However, unless the moisture demand of the vegetation is reduced, further movement will occur following the next period of prolonged, dry weather. It will therefore be necessary to remove, or at least reduce, the Oak trees. The ownership of the trees is unclear as the Local Authority have previously denied ownership when the insured has requested tree management to improve light etc. Ownership will need to be clarified before any tree management can be undertaken. If no owner is found then there is a legal process that can be followed to arrange removal.

In order to confirm the cause of the subsidence a site investigation will be undertaken. Trial pits will be excavated on the rear corner of the bungalow and the garage and any roots found will be analysed to confirm their species. The drains will also be surveyed to ensure that they have not been damaged.

An arborist will be instructed to review all of the vegetation and make recommendations for tree management. Level monitoring will also be required in order to provide the level of evidence require to obtain tree removal or reduction. Ultimately if tree works are not permitted then a root barrier or underpinning may be needed.

At this stage the damage is localised, and repairs will likely entail crack stitching and re-tiling of the affected walls. A detailed schedule of repairs will be prepared following an assessment by a contractor.

Next Steps

- Site investigation to be instructed, including drainage survey
- Level monitoring to be instructed
- Arborist to be instructed to recommend appropriate tree management
- If sufficient evidence is obtained, request tree removal by owner of the trees if they can be located
- Once property has stabilised, instruct a contractor to carry out repairs or agree a cash settlement with the insured
- Update all parties on a regular basis

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360Globalnet Subsidence Team