INNOVATION GROUP

Engineering Final Report

This report sets out in concise terms the nature of the evidence collected and the consultant's conclusions and recommendations

Policyholder, Property & Event Details

Policyholder	Mrs Dawn Linington	**Date of Discovery**	01/08/2022
Risk Address	19 Beechwood Rise Southampton Hampshire SO18 3PW	**Our Ref**	IFS-ESU-SUB-22-0103393
		Date Affected Area(s) Constructed	1984 (Addition/Conservatory); Circa 1984 (Main House/Original Building)
Location of Damage	Right hand side of building - Garage, Porch and Rear Extension	**Property Type**	Detached House
Nature of Damage	Step cracking, separation between walls and ceilings, drop in floor levels.	**Indicated Mechanism of Movement**	Rotational and downward movement to the right hand side of the building, towards nearby vegetation.
Crack Widths	Cat 2, 1mm to 5mm - slight.	**BRE Classification**	Category 2
Occupiers' Observations	None	**Previous Relevant Movement**	None
Comments	N/A		

Site Investigation & Monitoring Evidence

Examination by Building Professional	Yes	Richard Bryant	BSc (Hons) MRICS					
Arboriculture Assessment	Yes	**Report Ref(s):**	SA-252874. S1 (Laurel), T1 (Beech), T3 (Cypress), T5 (Maple)				**Date(s)**	03/05/2023
Geotechnical TP/BH Logs & Pens	Yes	**Report Ref(s):**	C70823G32316				**Date(s)**	02/06/2023
Soil Laboratory Testing	Yes	**Ref:**	L26085	**Plasticity**	Medium	**Desiccated?** Borderline	**Date(s)**	31/05/2023
Root Analysis	Yes	**Report Ref(s):**	R51090	Beech & Laurel Roots			**Date(s)**	31/05/2023
Drainage Survey	No	**Ref(s):**	N/A	Drains are not within influential distance			**Date(s)**	18/11/2024
Heave Risk after Tree Removal	Low/None	**Assessed By**	Richard Bryant	BSc (Hons) MRICS				
Building Monitoring	Level	**Crack Width (+/- mm)**	N/a	**Level/Dist (+/- mm)**	10		**Date of last reading**	07/08/2024

Monitoring Confirms: Seasonal movement. Recovery over winter 23/24 and downward movement over summer 2024. Highest amplitude to the rear right corner closest to vegetation.

Supporting Comments: We have obtained all necessary evidence to confirm causality, demonstrate property damage and implicate the outlined vegetation without a reasonable doubt. Seasonal movement can only be caused by the effect of moisture extraction and rehydration within Clay soils.

Mitigation Actions / Scope of Repair

Previous Mitigation? Yes

Ownership	Species	Label	Action	Date Completed
Policyholder	Maple	T5	Removed	15/04/2024
DTP	Laurel	S1	Removed	15/04/2024

Date Drain Repairs Completed/ No Defects Confirmed: 03/05/2023

Ongoing Seasonal Movement? Yes

If Effective Mitigation is REFUSED Stabilisation scheme PLUS enhanced Superstructure repairs will be required.

'Stabilisation' costs (excl. Superstructure) £ 101,376.00

or

Is a Root Barrier Possible? (All Estimated & Subject to Feasibility Study) Yes | **Location** Policyholder (Ownership of land for potential install) | **Estimated Depth (m)** 2.6 (Depth of Deepest Root +0.5m) | **Length (m)** 12 (Across Zone of Influence) | **Estimate** £ 32,760.00 + VAT

Mitigation Statement: Should the effective mitigation, or the funding/installation of a root barrier be refused, we will have no other option but to stabilise the building with a scheme of traditional mass concrete underpinning (stabilisation), and pursue the local authority for a recovery of these significant costs as noted above.

Conclusion & Recommendations

Building/Construction:
The affected building is a 4 bedroom detached house, constructed circa 1984 under a pitched and tiled roof with a solid concrete ground bearing floor slab. The building is constructed of traditional design, with external masonry cavity walls and masonry single skin partition walling with a suspended timber first floor. There is a single storey extension located to the rear elevation. The date of construction for this addition is unknown.

Circumstances & Damage:
The damage was first noticed in late summer/early autumn of 2022. The addition has suffered separation and cracking to the abutments and floor connections with the main building, and diagonal cracking and distortion to some of the door and window openings. At the time this damage was noted to be less than 5mm in width but has worsened since, on a seasonal and progressive basis.

Site Investigations & Monitoring:
Foundations to the garage were measured at 800mm BGL. Foundations to the rear extension were measured at just over 1m BGL. This is below the depth of naturally occurring moisture evaporation and as such any influence on soil moisture content can only be caused by the seasonal effects of vegetation. Shrinkable, medium plasticity Clay soils were encountered, and Penetrometer testing below foundation depth confirmed these soils to hold an adequate bearing capacity. Beech and Laurel roots were found to 2.1m deep. The discovery of these roots has assisted the Arboriculturalist with the identification of the causal vegetation. The roots are of the same species as the trees identified within the Arboricultural report, located to the rear right of the subject building and closest to the area of damage.
There is no drainage located within the areas of potential influence.
Monitoring has evidenced ongoing seasonal movement following partial mitigation by way of removal of S1 (Laurel) and T5 (Maple) in April 2024.

Conclusion:
Our investigations have confirmed that the cause of the property damage is clay shrinkage subsidence. Remaining causal vegetation has been identified as Beech and Cypress trees, labelled T1 & T3 in the Arboriculturalist report mentioned above. These trees are located within influencing distance of the areas of damage and geotechnical investigations have confirmed Beech roots penetrate underneath affected foundations.
Drainage has no possibility of being contributory or causal.
In order to prevent any further and progressive damage to the building, we now require you to mitigate the effects that your vegetation is having on our insured's property. As experts in subsidence, we have outlined what will resolve the issue in our Arboriculturalist report (noted above).
Should you ignore this letter or fail to mitigate the cause of the ongoing property damage, we will have no other option but to stabilise the building using a traditional underpinning scheme and pursue a recovery of these costs from you by legal means.

Report Prepared By	Richard Bryant	BSc (Hons) MRICS	**Date**	18/11/2024

Classification: General