Engineers Report

Risk Address	**1 Ivydene Gardens** **Dorrita Avenue** **Waterlooville** **PO8 8NP**

Claim Refence	**084431824**
Policy Holder	**Mr R Davison**
Date Notified	**30 August 2022**
Date Instructed	**30 August 2022**
Report Date	**19 October 2022**

Description of premises

The risk address is a two-storey, detached, 4-bedroom house, built in traditional cavity wall construction, clad in brickwork, surmounted by a pitched and hipped tiled roof. The ground floor construction detail is believed to be block and beam, with the first-floor believed to be suspended timber. There is a large brick and uPVC conservatory to the rear elevation of the main building. There is a large outbuilding to the rear of the site.

The original construction of the property was circa 1997 and the property was purchased by the Policyholder as a new-build. The Policyholder has confirmed that the conservatory was built in approximately 1999, and has been underpinning during a previous claim approximately 20 years ago.

The property is situated on a site which is relatively level, with there being no unusually adverse features. The property is located on a small, quiet street, as part of a large residential housing estate to the north of the town of Waterlooville.

Discovery of Damage

The Policyholder first noted the damage at the end of August 2022, with it being noted that the conservatory had moved away at the joint with the main house.

As a result of their concern, the Policyholder decided to submit a claim for potential subsidence under their Home Insurance Policy for consideration and assistance.

A 'virtual' inspection was undertaken, with the Policyholder 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 Policyholder.

Focus of Damage and Report

This document discusses the damage noted during the course of our review. All comments and references to the building are made by looking at the property from the front. We have noted the following areas of potential concern:

Internal Damage

Ground floor

Conservatory

There is a vertical gap of approximately 10-12mm noted at the junction of the right-hand side dwarf brickwork with the main property. This gap extends through the tiled window board to this junction also.

There is a tapering vertical gap of approximately 3-15mm noted at the junction of the left-hand side dwarf brickwork with the main property. The previous mortar joint to this area has partially fallen out, which has created the approximately 15mm gap at the top of the dwarf wall. This gap extends through the tiled window board to this junction also. There is a minor diagonal hairline crack to the left-hand wall close to the junction with the main property.

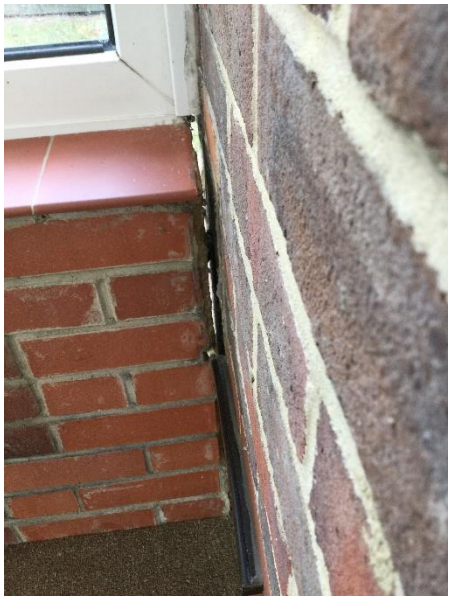
External damage

Conservatory

There is a relatively uniform vertical gap of approximately 10-12mm noted at the junction of the right-hand side dwarf brickwork with the main property. This gap extends through the uPVC window sill to this junction also. There is a reverse tapering gap of approximately 1-6mm at the junction of the uPVC window trim and the main property.

There is a tapering vertical gap of approximately 3-12mm noted at the junction of the left-hand side dwarf brickwork with the main property. This gap extends through the uPVC window sill to this junction also.

General view of rear conservatory



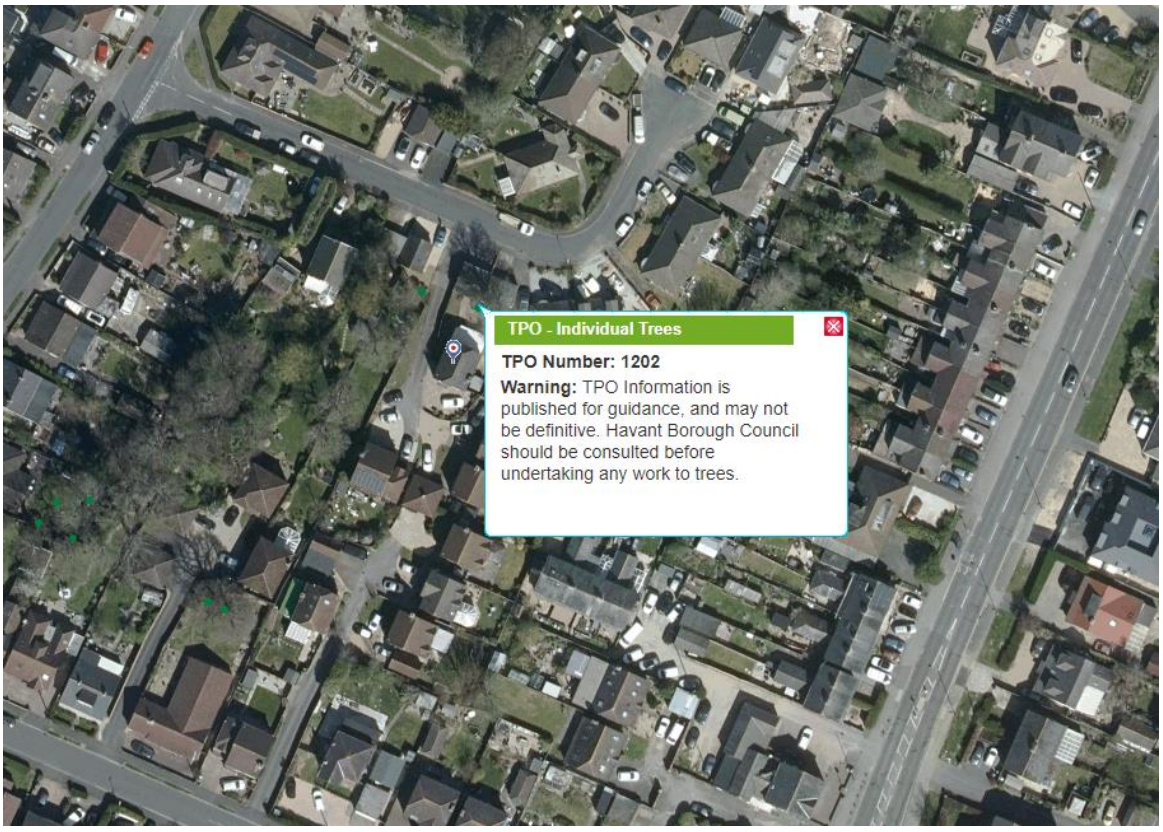
Gap at the junction of the right-hand wall and the main property

Gap at the junction of the right-hand wall and the main property

Gap at the junction of the left-hand wall and the main property

Gap at the junction of the left-hand wall and the main property

Map to show proximity of significant vegetation to the rear



Confirmation that the tree to the rear possesses a Tree Preservation Order

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 property 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

Non-Subsidence Related Damage

There was no other damage observed at the time of the inspection.

Evidence of external influences

Trees.

The following vegetation, was observed at the risk address and is a potential external influence, based on the pattern of damage, direction of movement and on the information in the table below.

Trees / vegetation	Distance to building (m)	Approx. height (m)	Mature height (m)	Water demand	Ownership	Action
Beech	5	15	10	Moderate-High	Neighbour	Remove

Drains.

There is drainage located within the vicinity of the damage, however given the timing and mechanism of the movement, we do not believe that any potential drainage defects are a contributory factor to the damage on this occasion. We recommend that the Policyholder conducts a survey of the underground drainage system every 2 years as part of their ongoing general maintenance of the services which support the property.

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Site Geology and ground conditions

Indicative Site Geology and Soils Data for:

1 Ivydene Gardens, Dorrita Avenue, Waterlooville, PO8 8NP

Ref: 084431824

No of SI's within 0.49km from address on identical lithology. **(See comments)**	**4**
Closest - Furthest distance of a site investigation from the address (km).	**0.25 - 0.49**
Total number of boreholes.	**5**
Percentage of site investigations where root samples where taken.	**75%**
Percentage of site investigations where drainage was recorded.	**25%**
Number of samples tested at greater than 0.5m depth.	**26**
BRE Digest 240. "Volume change potential" from Av. Modified Plasticity Index (I'p) of 40%.	**High**

Previous Soils Data nr = Non recorded	***Depth m.***	***M.C. (%)***	***L.L. (%)***	***P.I. (%)***	***P.L. (%)***	***425um (%)***	***Suction kPa***	***Oed Strain***
Sample population	26	26	21	21	21	21	18	0
~ Minimum (Av - 1 StdDiv)	0.7	22	45	26	19	98	17	nr
~ Maximum (Av + 1 StdDiv)	3.8	35	77	50	27	100	199	nr
Average	2.2	28	61	38	23	99	76	nr
General soils description	Firm/Soft brown/grey CLAY with some sand / fine gravel							
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 Mean Depth = 1m Max Depth = 1m Coverage = 19% **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	Moderate
Compressible Ground	Low with areas of localised significant rating.
Landslides	Low with areas of localised significant rating.
Running Sand	Moderate with areas of localised significant rating.
Soluble Rocks	Significant
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 high SI density area. The four SIs reported above are on exactly the same Bedrock Geology with no overlying Superficial deposits.

 01-09-22

Summary and Conclusions

All the indications from the evidence obtained suggest that the damage to the conservatory results from subsidence of the site upon which the property stands. Live roots in firm active clays have led to cyclical shrinkage and expansion below the foundations of the property, which together have led to consequent building movement and damage.

This influence and movement is consistent season upon season, as the clay continues to change volume in the presence of the trees identified, thus the problem continues. Only when the cause of the movement is removed will the ground return to its equilibrium, allowing for stability to return, and thus enable the repair works to the property to be undertaken.

We note that there is the presence of the significant vegetation to the rear of the property, which is believed to be a Beech tree, within the grounds of 1 Dorrita Avenue. To abate any further foundation movement from occurring and provide long-term stability for the conservatory, it is recommended that this particular tree is removed in full.

We are aware that the conservatory was underpinned approximately 20 years ago, however, we do not know to what depth or the reasons for that. It is presumed that previous subsidence movement was recorded, and given the Preservation Order on the tree, the foundation was deepened to try to abate any further movement from occurring. We do not believe that this has any bearing on the current claim at hand.

In terms of Insurers' liability of the claim however, this is to be deferred pending a further review.. We understand that Insurers were not made aware of the previous underpinning claim at the inception of the Policy in February 2016. The non-disclosure of this information at that time could mean that Insurers choose to void the Policy in its entirety. We await Underwriters' decision on this aspect, before confirming the liability of the claim.

If the claim is accepted, given that the causative tree is protected by a Tree Preservation Order, a certain level of evidence is required in order to prove to Local Authority that this vegetation is having an adverse influence on the ground beneath the property. This will include an intrusive site investigation externally within the vicinity of the damage, as well as a level monitoring exercise to accurately reflect ongoing movement of the building. Readings at the property are to be undertaken every 8 weeks. In addition, a report from an arboriculturist will be sought, to confirm in their expert opinion that the Beech tree is the main factor in the damage to the conservatory.

We do note the presence of further significant vegetation to the left-hand side of the site, however, if this was having a current effect on the property, we would have expected to have seen more damage and rotation to the left-hand side of the conservatory. From the current damage, it suggests the mechanism of the movement is uniformly away from the main building, indicating a rotation towards the rear, rather than to the side. This therefore implicates the aforementioned Beech tree located to the rear of the property.

If the vegetation removal works are completed successfully, there is no requirement in this instance to undertake any stabilising of the structure below ground. Further subsidence movement can be prevented by completing mitigation works correctly, by removing the causative vegetation.

Once the necessary mitigation works have been completed successfully, a specification of works will be compiled listing the necessary repairs for the project, which will be verified by

an approved Insurance contractor. Once this verification process has been completed, the Policy excess will be requested from the Insured, prior to the works being programmed in.

We will confirm how the claim is to proceed in due course once Underwriters have completed their review.

Next Steps

- Await Underwriters instructions in terms of non-disclosure of previous underpinning claim.
- If the claim is accepted, proceed as per the following:
- Instruct site investigation.
- Instruct arboriculturist.
- Instruct level monitoring.
- Pursue removal of TPO on causative Beech tree once the necessary evidence has been gathered.
- Obtain agreement from Policyholder for the attached schedule of works once mitigation complete and the building has stabilised.
- Appoint a contractor and arrange suitable start date for the repair works to commence.
- Upon completion of the works issue the certificate of structural adequacy and close the file.

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