



***ADDENDUM *TECHNICAL REPORT ON A SUBSIDENCE CLAIM**

Crawford Reference: SU2205333

**113 North Street
Crowland
Peterborough
Cambridgeshire
PE6 0EG**



Prepared for

**AXA Retail - Avantia
PO Box 7073, Willenhall, WV1 9ZW**

Claim Reference 12569096D

SUBSIDENCE CLAIM

DATE 28 April 2023



**Crawford Claims Solutions – Subsidence
Cartwright House, Tottle Road,
Riverside Business Park, Nottingham, NG2 1RT
Tel: 0115 943 8260
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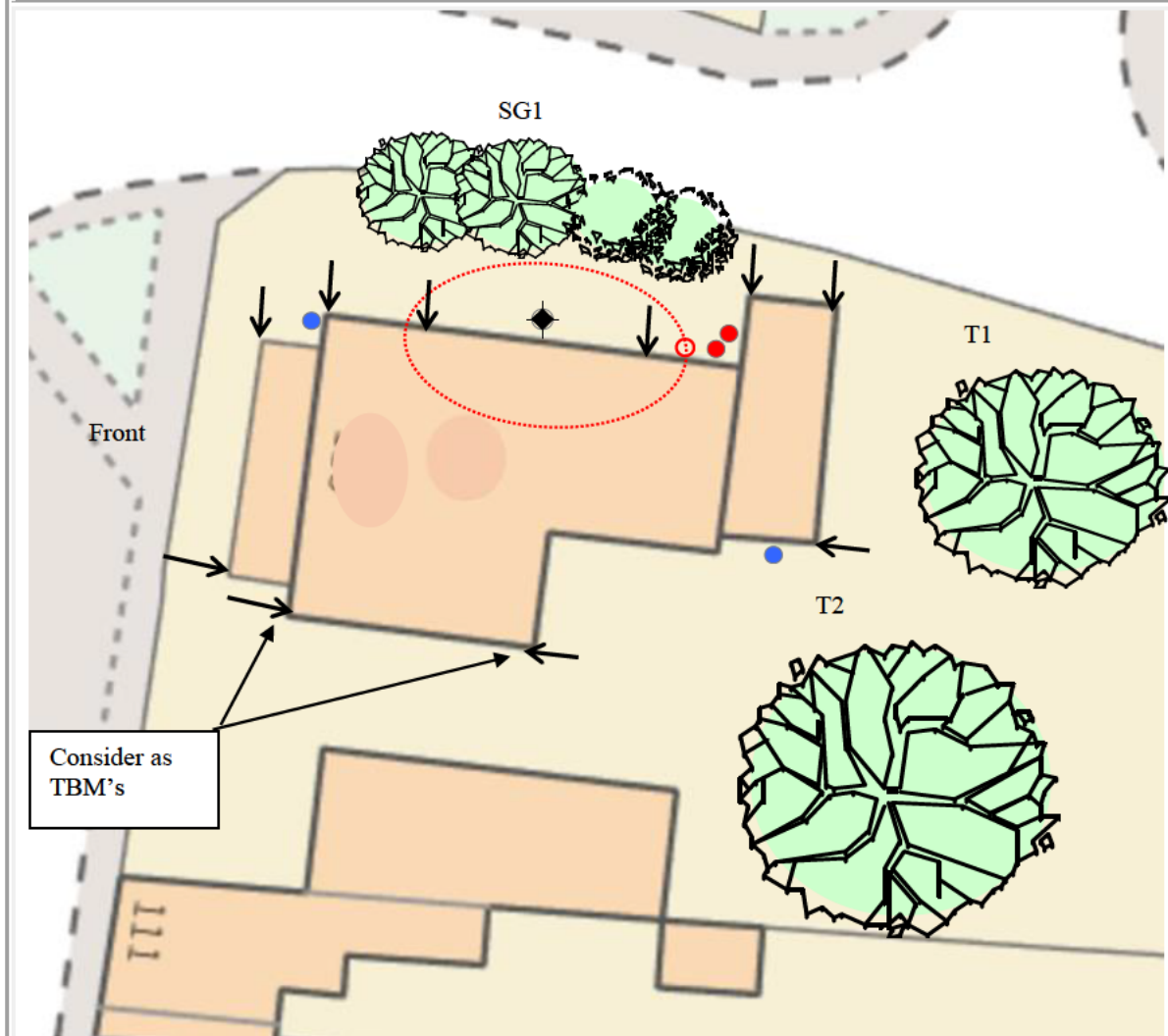
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Site Plan

SU2205333

This plan is Not to Scale

This plan is diagrammatic only and has been prepared to illustrate the general position of the property and its relationship to nearby trees etc. The boundaries are not accurate, and do not infer or confer any rights of ownership or right of way. Position of utilities is only indicative and contractors must satisfy themselves regarding actual location before commencing works.



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Key:

	Tree: Deciduous		Tree: Conifer		Shrub
	Hedge		Area of Damage		Bore Hole
	Trial Hole		Trial & Bore Hole		Level Monitoring
	Rain Water Manhole		Rain Water Gulley		Rain Water Pipe
	Waste Water Manhole		Waste Water Gulley		Toilet Pipe
	Rain Water Drain		Waste Water Drain		Electricity Cable
	Water Supply Pipe		Gas Supply Pipe		Incoming Gas Pipe
	Incoming Water		Incoming Electrics		

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INTRODUCTION

We have been asked by AXA Retail - Avantia to comment on movement that has taken place to the above property. We are required to briefly describe the damage, establish a likely cause and list any remedial measures that may be needed.

Our report should not be used in the same way as a pre-purchase survey. It has been prepared specifically in connection with the present insurance claim and should not be relied on as a statement of structural adequacy. It does not deal with the general condition of the building, decorations, timber rot or infestation etc.

The report is made on behalf of Crawford & Company and by receiving the report and acting on it, the client - or any third party relying on it - accepts that no individual is personally liable in contract, tort or breach of Statutory duty. Where works address repairs **that are not covered** by the insurance policy we recommend that you seek professional advice on the repair methodology and whether the works will involve the Construction (Design & Management) Regulations 2015. Compliance with these Regulations is compulsory; failure to do so may result in prosecution. We have not taken account of the regulations and you must take appropriate advice.

We have not commented on any part of the building that is covered or inaccessible.

TECHNICAL CIRCUMSTANCES

The Insured have owned and occupied the property since 2015. We understand cracking was identified by a surveyor undertaking an inspection for valuation purposes in July / August 2022. We understand some plaster repairs were undertaken over the Summer. A potential subsidence claim was then reported to Insurers.

PROPERTY

The property is a two storey detached house of traditional construction with solid masonry walls surmounted by a pitched slate roof.

HISTORY & TIMESCALE

Following referral with insurers, site investigations to be undertaken.

Date of Construction	Circa 1830
Purchased	2015
Policy Inception Date.....	08/03/2020
Damage First Noticed	05/10/2022
Claim Notified to Insurer.....	05/10/2022
Date of our Inspection.....	14/12/2022
Issue of Report.....	15/02/2023
Anticipated Completion of Claim	Summer 2023

TOPOGRAPHY

The property occupies a reasonably level site (viewed from front).

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GEOLOGY

Reference to the 1:625,000 scale British Geological Survey Map (solid edition) OS Tile number TFSW suggests the underlying geology to be Oxford Clay.

Oxford Clay is a bluish or grey clay weathering to brown superficially¹. Selenite (crystallised hydrated sulphate of lime, i.e. gypsum) and iron-pyrites are abundant

Usually highly shrinkable, Oxford clay is troublesome when vegetation is present² and has a Plasticity Index of 50% and above in many cases, placing it in the high shrink/swell category³.

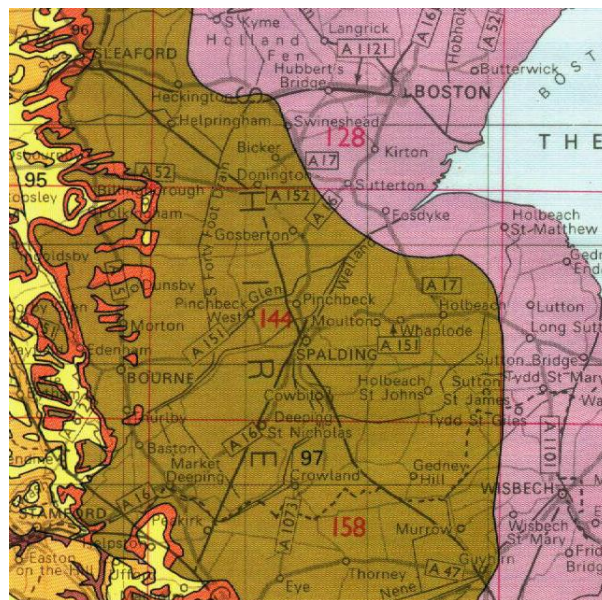
Any buried concrete should be designed with the former in mind, and a minimum specification would require Class II protection.

The superficial deposits are thought to be Sand and Gravel.

Sand is a detrital sedimentary rock (arenaceous - sandy) with a grain size in the range of 0.06 - 2mm in diameter. Individual [particles are mainly mineral fragments, and quart grains predominate⁴. Gravels on the other hand have particles in the range of 2 - 60mm in diameter. Above this, in size, are cobbles (60 - 200mm diameter) and boulders (200mm in dia. and above).

Generally a good bearing medium, but finer grained soils can suffer erosion in flowing water, and liquify when under the water table (quicksand). They can also be troublesome in earthquakes at shallow depth, and when loosely compacted.

Sands and gravels are termed non-cohesive soils, and apart from the above problems, tend to be stable. They do not suffer the shrink/swell problems of cohesive (clay) soils, and plants and trees are rarely troublesome when near to a property - apart from root infiltration to drains and services.



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¹ Sherlock R.L. (1962) "LONDON & THAMES VALLEY" H.M.S.O.

² Driscoll R. (1983) "Influence of Vegetation on Clays" Geotechnique. Vol. 33.

³ Table 1, Chapter 4.2, Para. 2.3 of N.H.B.C. Standards, 1986.

⁴ B.S. 5930 (1981) "Site Investigations"

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VEGETATION

There are several trees and shrubs nearby, some with roots that may extend beneath the house foundations. The following are of particular interest:-

Type	Height	Distance	Ownership
T1 Apple	12	5	Owner
T2 Tree of Heaven	12	5	Owner
SG1 Mixed	10	5	Owner

Tree roots can be troublesome in cohesive (clay) soils because they can induce volumetric change. They are rarely troublesome in non-cohesive soils (sands and gravels etc.) other than when they enter drains, in which case blockages can ensue.

OBSERVATIONS

Damage is to the left hand side of property.

The following is an abbreviated description. Photographs accompanying this report illustrate the nature and extent of the problem.

INTERNAL

Front left bedroom

Slight to moderate cracking was noted to the left-hand external wall which extends onto the rear dividing wall.

Slight cracking was seen above the landing door and above the window.

Landing / stairs

Slight to moderate diagonal cracking was noted to the dividing wall with the front left bedroom.

To the left wall, slight cracking was noted to the rear side of the window.

Front left dining room

Slight to moderate cracking was noted to the left wall which extends into the rear corner. Cracking was also noted to the rear wall which extends to the rear left corner. The floor slopes to the left by 27mm in 1m (taken local to the rear of the room).

Cellar/sunken room

To the front wall, 10mm wide cracking was noted adjacent to the front left corner.

EXTERNAL

Left elevation

Slight stepped cracking was noted below the cellar floor window. Past re-pointing and heli bar repairs were noted adjacent to the cellar window.

CATEGORY

In structural terms the damage falls into Category 3 of Table 1, Building Research Establishment⁵ Digest 251, which describes it as "moderate".

Category 0	"negligible"	< 0.1mm
Category 1	"very slight"	0.1 - 1mm
Category 2	"slight"	>1 but < 5mm
Category 3	"moderate"	>5 but < 15mm
Category 4	"severe"	>15 but < 25mm
Category 5	"very severe"	>25 mm

Extract from Table 1, B.R.E. Digest 251
Classification of damage based on crack widths.

⁵ Building Research Establishment, Garston, Watford. Tel: 01923.674040

DISCUSSION

The pattern and nature of the cracks is indicative with an episode of subsidence to the left hand side of the main house.

We suspect movement is related to clay shrinkage induced subsidence most likely brought about by the water demand of adjacent trees and vegetation.

Further investigations are now required which will assist in determining the cause of movement.

These investigations will include a trial pit to determine the depth and type of footing, a borehole to determine the nature of the subsoil at depth.

An investigation will also be undertaken to establish the condition of the drains in the vicinity of the subsidence damage.

RECOMMENDATIONS

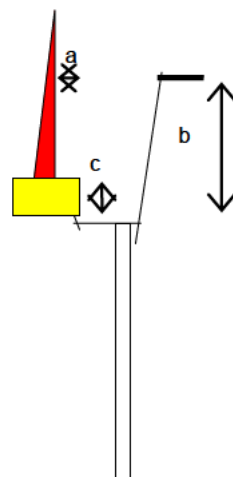
We will report further once these investigations have been completed.

INVESTIGATIONS

The following investigations were undertaken to identify the cause of movement.

TRIAL HOLES

A trial hole was excavated to expose the foundations - see site plan for location and the diagram below for details.



Foundation Details

No.	Borehole Depth	Footing (a)	Underside (b)	Thickness (c)
TH1	3.00 m.	40 mm.	1,000 mm.	450 mm.

Mid brown silty sandy CLAY.

AUGERED BOREHOLES

A 50mm diameter hand auger was sunk - see site plan for location(s).

1.00m depth - Mid brown silty sandy CLAY

2.00m depth - Dark grey sandy CLAY

3.00m depth - Borehole closed; noted to be dry on completion.

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SOIL SAMPLES

Soil samples were retrieved from the bore, wrapped in clingfilm before being bagged and deposited with a testing laboratory the same day. The laboratory have instructions to test the samples to determine if there is evidence of root induced desiccation.

ROOTS

Roots were retrieved from the trial hole and have been submitted to a botanist for identification: *Hedera spp.* include ivy; *Fatsia spp.* are shrubs closely related to ivy.

DRAINS

All 4No runs surveyed and found to be running free and clear of defects/obstructions.

Conclusions

The results of the site investigations confirm that the cause of subsidence is root-induced clay shrinkage. The clay is plastic and thus will shrink and swell with changes in moisture content. Roots have extracted moisture below the depth of the footings, thus causing differential foundation movement to occur.

Recommendations/Actions Required

The cause of the movement needs to be dealt with first. From the results of the site investigation, we are satisfied that your *Hedera spp.* (include ivy; *Fatsia spp.* are shrubs closely related to ivy) (T1, T2 & SG1 shown on the site plan) can be removed. Based on our analysis, we are satisfied there is no adverse heave risk to the property.

We will obtain a quotation for the recommended tree works and undertake statutory checks for Preservation Orders or whether the tree(s) are in a Conservation Area.

Once tree works have been completed, we are satisfied that repairs to the property may be undertaken.

A schedule of remedial works will be obtained and works may commence once the scope has been approved.

The following target dates are **provided as a guide** and may be subject to policy considerations or circumstances outside our control. Later dates are generally dependent upon earlier dates being achieved.

ACTION PLAN	TARGET DATES
Completion of Site Investigations	Complete
Completion of Mitigation	October 2023
Completion of Monitoring	November 2023
Start of Repairs	December 2023
Completion of Repairs	January 2024

I am pleased to confirm that **AXA Retail - Avantia Insurance** have accepted your claim under the subsidence, heave or landslip section of your policy. This means they will pay for the cost of investigating and repairing the damage to the property less the policy excess, which is £1,250.

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I trust I have provided an overview of how your claim is likely to progress. If you have any further questions regarding your claim, please do not hesitate to contact me.

If you have any queries, please contact Carmen Kaviza on 0115 678 4360 or by email at subsidence@crawlco.co.uk

Yours sincerely,

Andrew Mason MCIOB MCMI
Subsidence Division
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