

ADDENDUM TECHNICAL REPORT

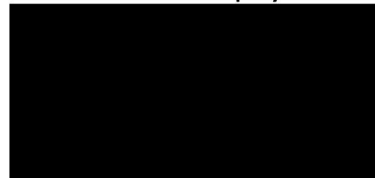
[REDACTED]  
**94 Greencroft Gardens Freehold Ltd**  
**94 Greencroft Gardens**  
**London**  
**NW6 3PH**



Prepared for

**Allianz Commercial**  
**SUBSIDENCE CLAIM**

DATE 26 February 2020



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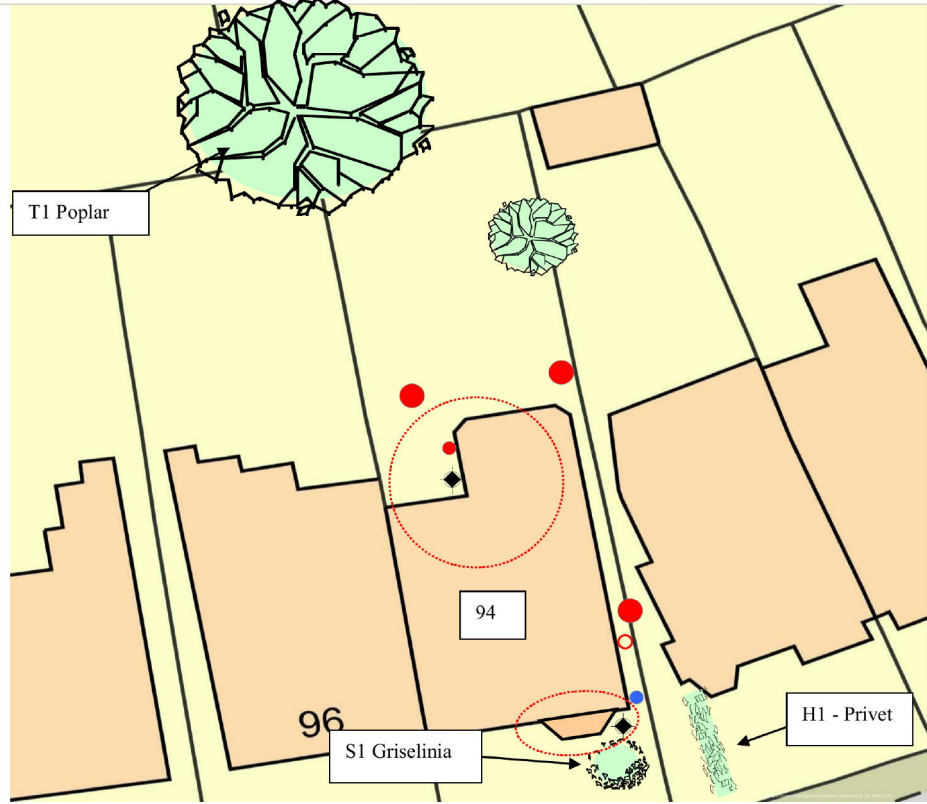
Chartered Loss Adjusters



**Site Plan**
























**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 Gully		Rain Water Pipe
	Waste Water Manhole		Waste Water Gully		Toilet Pipe
	Rain Water Drain		Waste Water Drain		Electricity Cable
	Water Supply Pipe		Gas Supply Pipe		Incoming Gas Pipe
	Incoming Water		Incoming Electrics		



### INTRODUCTION

We have been instructed by insurers to investigate a claim for subsidence at the above property. The area of damage, timescale and circumstances are outlined in our initial Technical Report. This report should be read in conjunction with that report.

To establish the cause of damage, further investigations have been undertaken and these are described below.

### INVESTIGATIONS

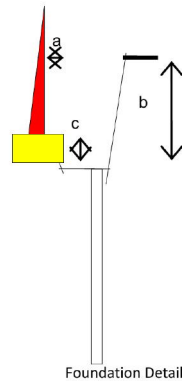
The following investigations were undertaken to identify the cause of movement.

### TRIAL HOLES

Trial holes were excavated to expose the foundations - see site plan for location and the diagram below for details. Trial Hole 1 to the front of the property revealed a brick corbel on a concrete strip footing founded at a depth of 1.3m below ground level which bears onto stiff, mid brown / orange silty CLAY.

Trial Hole 2 to the rear of the property revealed a brick corbel on a concrete strip footing founded at a depth of 1.3m below ground level which bears onto very stiff, mid brown / orange silty CLAY.

Root activity of live appearance was noted to the underside of the foundations.



No.	Borehole Depth	Footing (a)	Underside (b)	Thickness (c)
TH1	2.40 m.	300 mm.	1,300 mm.	300 mm.
TH2	3.70 m.	400 mm.	1,300 mm.	750 mm.

### AUGERED BOREHOLES

A 50mm diameter hand auger was sunk - see site plan for locations. Both boreholes confirmed the continuation of the clay subsoil encountered within the trial pits, with roots to a depth of 2.4m in borehole 1 and to 2.0m in borehole 2. Borehole 1 was open with standing water at 2.2m on completion. Borehole 2 remained dry and open upon completion.





#### 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 borehole 1 and were identified as the species Ligustrum which are privets. Roots in borehole 2 were identified as the species Populus which includes poplars.

#### DRAINS

The drainage is remote from the area of current damage and trial pit/ borehole investigations did not reveal any suggestion that leakage from drainage is adversely affecting the property. As such, a drainage investigation was not warranted.

#### ARBORICULTURAL REPORT

Independent arboricultural experts at MWA Arboriculture provided a report and identified T1, S1 and H1 as the principle causes of movement and damage.

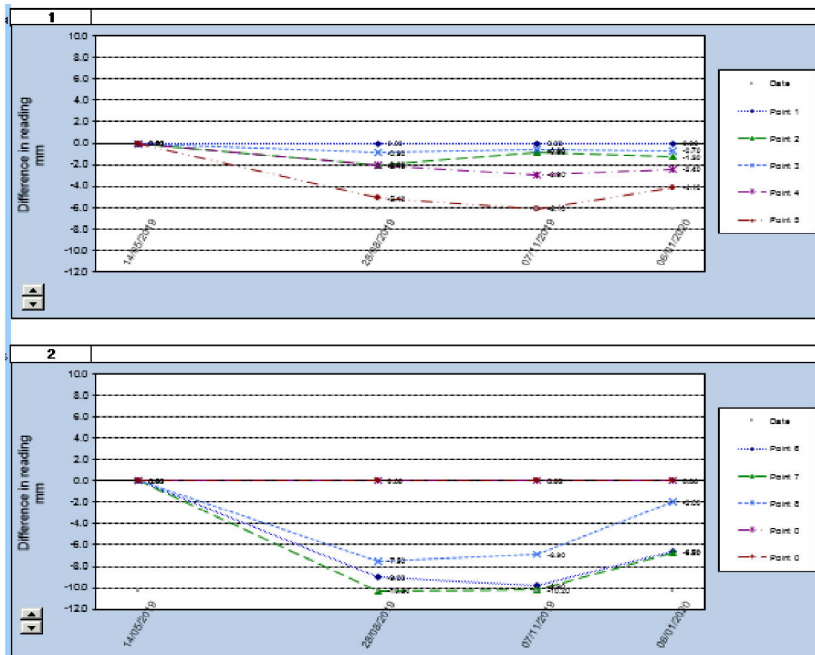
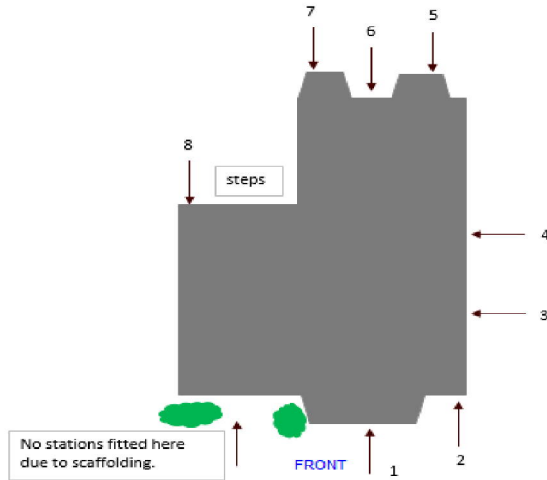
Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Poplar	25 *	1000	16 *	17 *	Younger than Property	Third Party: 91 Canfield Gardens NW6 3EA
Management history		Managed as a high pollard.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
S1	Griselinia	4	Ms	3	1	Younger than Property	Policy Holder
Management history		Subject to past management/pruning.					
Recommendation		Remove (fell) to near ground level. Owner to physically remove any regrowth (no chemical treatment due to translocation risk).					
H1	Privet	2.75	Ms	8.5 *	3	Younger than Property	Third Party: 92 Greencroft Gardens NW6 3PH
Management history		Subject to past management/pruning.					
Recommendation		Reduce height by 0.75m. Prune on an annual cycle to maintain at broadly reduced dimensions.					

Ms: multi-stemmed \* Estimated value



**LEVEL MONITORING**

Level monitoring has been completed over the period from May 2019 to January 2020. Over this period, downward movement has been recorded over the summer months of 2019 followed by upward movement over the winter months of 2019/20. This seasonal movement confirms a clay shrinkage mechanism. No other type of movement produces these results.





#### **DISCUSSION**

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. This is supported by the following investigation results:-

- The foundations are at a depth of 1.3m which is below the level that normal seasonal movement would occur.
- The moisture content profile indicates a reduction in moisture content at the underside of the foundation which is indicative of desiccation at this level. This is also co-incident with the depth of root activity.
- Atterberg limit testing indicates that the soil has a very high plasticity and hence will shrink and swell with changes in moisture content.
- Roots in borehole 1 were identified as the species Ligustrum which are privets. Roots in borehole 2 were identified as the species Populus which includes poplars. Starch was present which indicates that the roots were alive at the time of retrieval.
- Level monitoring indicates seasonal cyclical movement with downward movement in the summer months (as the clay shrinks) and upward movement in the winter months (as the clay swells).

#### **RECOMMENDATION**

The cause of the movement needs to be dealt with first. From the results of the site investigation, the arborist has recommended removal of the T1, S1 and H1. Based on our analysis, we are satisfied there is no adverse heave risk to the property.

If trees remain localised underpinning will be required to stabilise the property. [REDACTED]

**Matt Deller BSc (Hons) MCIQB Dip CII**  
**Crawford Claims Solutions – Subsidence**

26 February 2020