

ADDENDUM TECHNICAL REPORT

52 West End Lane
London
NW6 2NE



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SUBSIDENCE CLAIM

DATE 6th December 2018



Chartered Loss Adjusters

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.

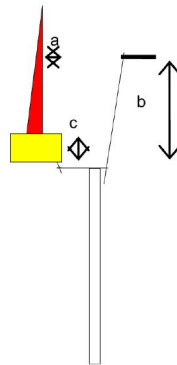
INVESTIGATIONS

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

TRIAL HOLES

Trial pits and Boreholes have been excavated to expose the foundations - see site plan for location and the diagram below for details.

Trial pit / Borehole 1 and 2 results presented in CET report 07/04/17 (409122).
 Borehole 3 results presented in CET report 17/02/18 (494024).



FOUNDATION DETAILS

No.	Borehole Depth	Footing (a)	Underside (b)	Thickness (c)
TH1/BH1	3.00 m.	260 mm.	1,000 mm.	620 mm.
TH2/BH2	3.00 m.	100 mm.	1,000 mm.	600 mm.
BH3	3.00 m.			

AUGERED BOREHOLES

50mm diameter hand augers were sunk at the base of the trial pits - see site plan for location(s).

Trial pit 1 / Borehole 1

A stiff clay soil was encountered to a depth of 3m.

Trial pit 2 / Borehole 2

A stiff clay soil was encountered to a depth of 3m.

Borehole 3

A stiff clay soil was encountered to a depth of 3m.



SOIL SAMPLES

Atterberg Limits

Results indicate that the clay subsoil can be classified as very high plasticity clay in accordance with the Casagrande chart.

ROOTS

Trial pit / Borehole 1

Roots identified as Acer were discovered below the foundation.

Trial pit / Borehole 2

Roots identified as Salix and Tilia (Lime) were discovered below the foundation and to a depth of 1.7m.

Borehole 3

Roots identified as Leguminosae (False Acaica), Jasminum and probably Acer were discovered below the foundation and to a depth of 2.5m

DRAINS

Soil erosion via leaking drains has been dismissed as a possible cause. The trial pit / borehole investigations did not reveal any suggestion that potential leakage is adversely affecting the property. The monitoring shows a seasonal pattern of movement which is consistent with root induced clay shrinkage ground movement, rather than progressive downward movement consistent with leaking drains. On a precautionary basis, the property owner has been advised to repair the drains.

ARBORICULTURAL REPORT

Independent arboricultural experts at MWA provided a report and consider T1 Lime, T2 Lime and T3 False Acacia are the principal cause of movement and damage.

Table 1 Current Claim - Tree Details & Recommendations

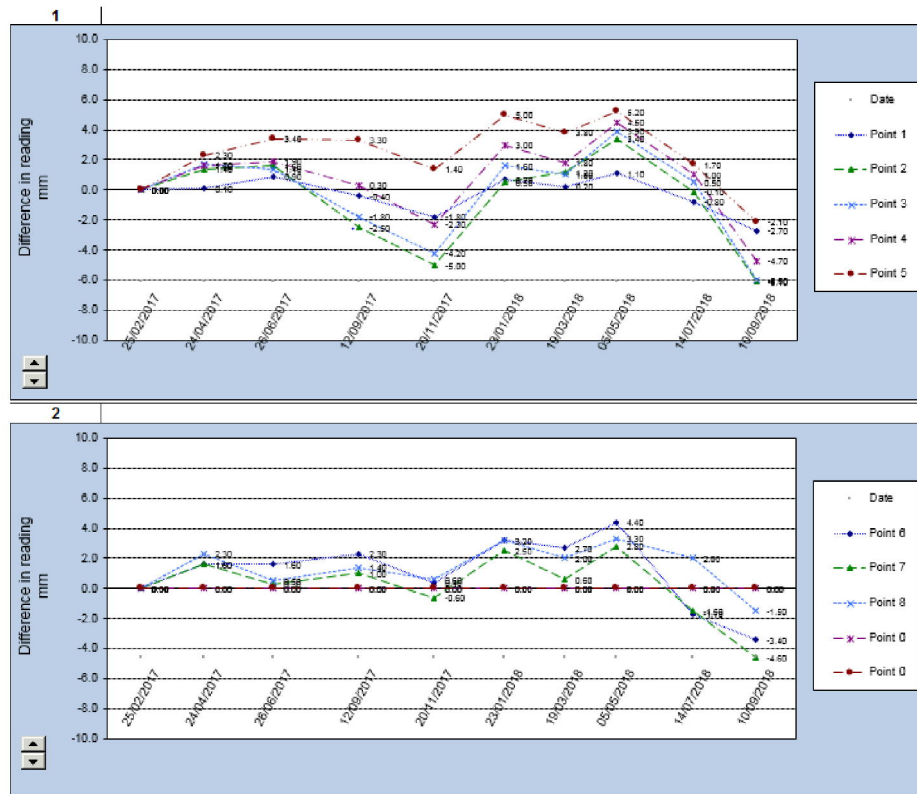
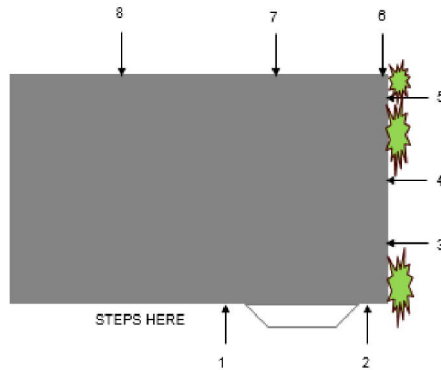
Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T1	Lime	10.5	420	4.5	8.5	Younger than property	Policy Holder
Management history		Pollarded in recent past at approx. 8m – regrowth appears <5yrs					
Recommendation		Fell to ground level and treat stump to inhibit regrowth					
T2	Lime	10.5	450*	5.0	10.5	Younger than property	Policy Holder
Management history		Pollarded in recent past at approx. 8m – regrowth appears <5yrs					
Recommendation		Fell to ground level and treat stump to inhibit regrowth					
T3	False Acacia	14.5	420	9.0	4.8	Younger than property	Policy Holder
Management history		No signs of significant past management					
Recommendation		Fell to ground level and treat stump to inhibit regrowth					

M3: multi-stemmed * Estimated value



LEVEL MONITORING

Cyclical movement has been recorded from February 2017 to September 2018, with the damaged area of the property moving downward through the dry summer period of 2017, upward during the winter period of 2017 / 2018 and downward during the summer period of 2018. The upward recovery movement can only be created by rehydration of the clay soil following clay shrinkage subsidence.





DISCUSSION

The results of the site investigations confirm that the cause of the subsidence is due to root-induced clay shrinkage. T1 Lime and T3 False Acacia have been identified as the principle cause of the movement and damage. This view is supported by the following investigation results:-

- The foundations are at a depth of at least 1m which is below the level that normal seasonal movement would occur.
- Atterberg limit testing indicates that the soil can be classed as very high plasticity and hence will shrink and swell with changes in moisture content.
- False Acacia were found below the foundation of the property to a depth of 2.5m and Lime roots to a depth of 1.7m.
- Level monitoring between February 2017 and September 2018 indicates seasonal cyclical movement with downward movement during the summer months (as the clay shrinks) and upward movement in the winter months (as the clay swells).

RECOMMENDATION

Property stability is expected following the removal of T1 Lime and T3 False Acacia.

Arboricultural experts at MWA have considered the efficacy of reduction works and confirmed that such measures will not be sufficient to create property stability. Based on our analysis, we are satisfied there is no adverse heave risk to the property.

Repairs are estimated to be in the region of £6,000 provided that the tree work is completed promptly, before the vegetation is able to cause more damage. A root barrier scheme to counter the reach and influence of the tree will be considered if the tree work is avoided, however, we suspect that there is insufficient space for a barrier to be installed safely. In the event that a root barrier is not feasible, a localised underpinning scheme will need to be considered. The cost of underpinning would be substantially greater than a root barrier and is expected to exceed £40,000.

Crawford & Company

Subsidence Division



6th December 2018

