ADDENDUM TECHNICAL REPORT

Crawford Reference [redacted]

Welford House
13 Arkwright Road
London
NW3 6AA

Prepared for

[redacted]

SUBSIDENCE CLAIM

DATE 05 June 2019

Crawford®
Crawford and Company

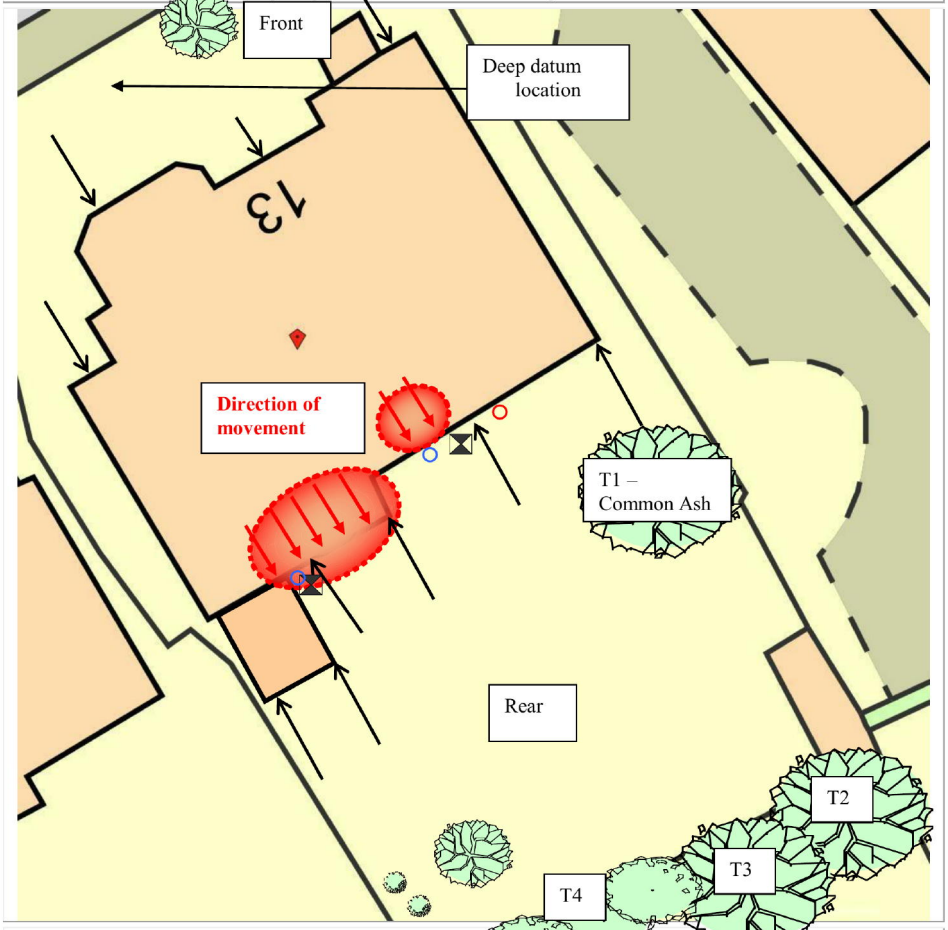
[redacted]

Chartered Loss Adjusters

[redacted]

Site Plan	This plan is Not to Scale

This is an Aerial Photograph of the property and the immediate surrounding area. The positions of utilities etc are only indicative and contractors must satisfy themselves regarding actual location before commencing works.



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

[redacted]

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.

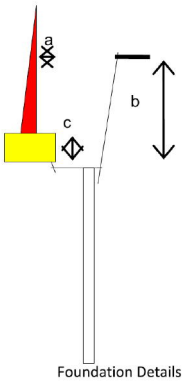
To establish the cause of damage, further investigations have been undertaken and these are described below.

INVESTIGATIONS

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

TRIAL HOLES

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.	120 mm.	1,280 mm.	750 mm.
TH2	3.00 m.	120 mm.	1,900 mm.	1,800 mm.

Trial Hole 1 revealed a brick corbel footing founded at a depth of 1.28m below ground level which bears onto made ground comprising dark brown silty sandy clay containing brick.

Trial Hole 2 revealed a concrete strip footing founded at a depth of 1.9m below ground level which bears onto mid brown/orange silty CLAY containing grey mottle.

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

AUGERED BOREHOLES

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

Borehole 1 confirmed the continuation of the made ground subsoil encountered within the trial pit changing to a mid brown/orange silty sandy CLAY at 2.0m below ground level, with roots to a depth of 2.5m below ground level. The borehole remained dry and open upon completion with 1-2mm diameter roots found to a depth of 2.5m.

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Borehole 2 confirmed the continuation of the clay subsoil encountered within the trial pit, with roots to a depth of 2.5m below ground level. The borehole remained dry and open upon completion.

In-situ shear vane testing confirmed the clay subsoil to be stiff in nature.

SOIL SAMPLES

The following laboratory tests were carried out on soil samples retrieved from the boreholes:-

Moisture Content

Values ranged from 27.2% to 29.4% over the depth of Borehole 1
Values ranged from 24.6% to 28.7% over the depth of Borehole 2

Atterberg Limits

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

Suction Tests

Suction tests on disturbed samples is a recognised method of assessing clay desiccation. The results in Borehole 1 indicate evidence of very slight desiccation between a depth 1.28m and 3m. The results in Borehole 2 indicate evidence of slight, increasing to moderate desiccation between a depth of 1.9m and 3m.

ROOTS

Roots in Borehole 1 were identified as the Species Fraxinus which includes common ash. Roots in Borehole 2 were also identified as the Species Fraxinus. Starch was present which indicates that the roots were alive at the time of retrieval.

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.

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 1.28m and 1.9m which is below the level that normal seasonal movement would occur.
- The moisture content profile indicates a reduction in moisture content between a depth of 1.9m and 2.5m in borehole 2which 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 high plasticity and hence will shrink and swell with changes in moisture content.
- Suction tests indicate moderate desiccation between a depth of 2.5m and 3.0 m coincident with the depth of root activity.
- Roots were found to a depth of 2.5m.

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- Shear vane readings indicate an increase in shear strength of the clay between a depth of 1.28 m and 3 m indicating desiccation at this depth

RECOMMENDATION

The cause of the movement needs to be dealt with first. From the results of the site investigation, we are satisfied that the Ash can be removed. Based on our analysis, we are satisfied there is no adverse heave risk to the property.

Our Mitigation Unit will liaise with the Local Authority to arrange a TPO application to be submitted and advise of the outcome when it is received. We will instruct MWA Arboriculture to provide us with an Arborist report to support our application to the council.

Following completion of the tree management works, we will undertake a suitable period of monitoring to confirm stability has been achieved before undertaking repairs to the property.

HISTORY & TIMESCALE

Date of Construction	1900
Policy Inception Date	14/06/2013
Damage First Noticed	27 August 2018
Claim Notified to Insurer	31/10/2018
Date of our Inspection	12/11/2018
Issue of Report	20/12/2018
Anticipated Completion of Claim	September 2020

Yours faithfully,

Matin Abdul BSC (Hons)
Specialist Property Services - Subsidence Division
[redacted]