ADDENDUM TECHNICAL REPORT

Crawford Reference: SU1304166

2 Oakfields
Eastleigh
Hampshire
SO50 4RP



prepared for

RSA
3rd Floor
Bowling Mill
Dean Clough
Halifax
HX3 5WA

SUBSIDENCE CLAIM

Crawford and Company
Cartwright House,
Tottle Road,
Riverside Business Park,
Nottingham, NG2 1RT
Tel: 0115 943 8260
Fax: 0121 200 0309
E Mail subsidence@crawco.co.uk

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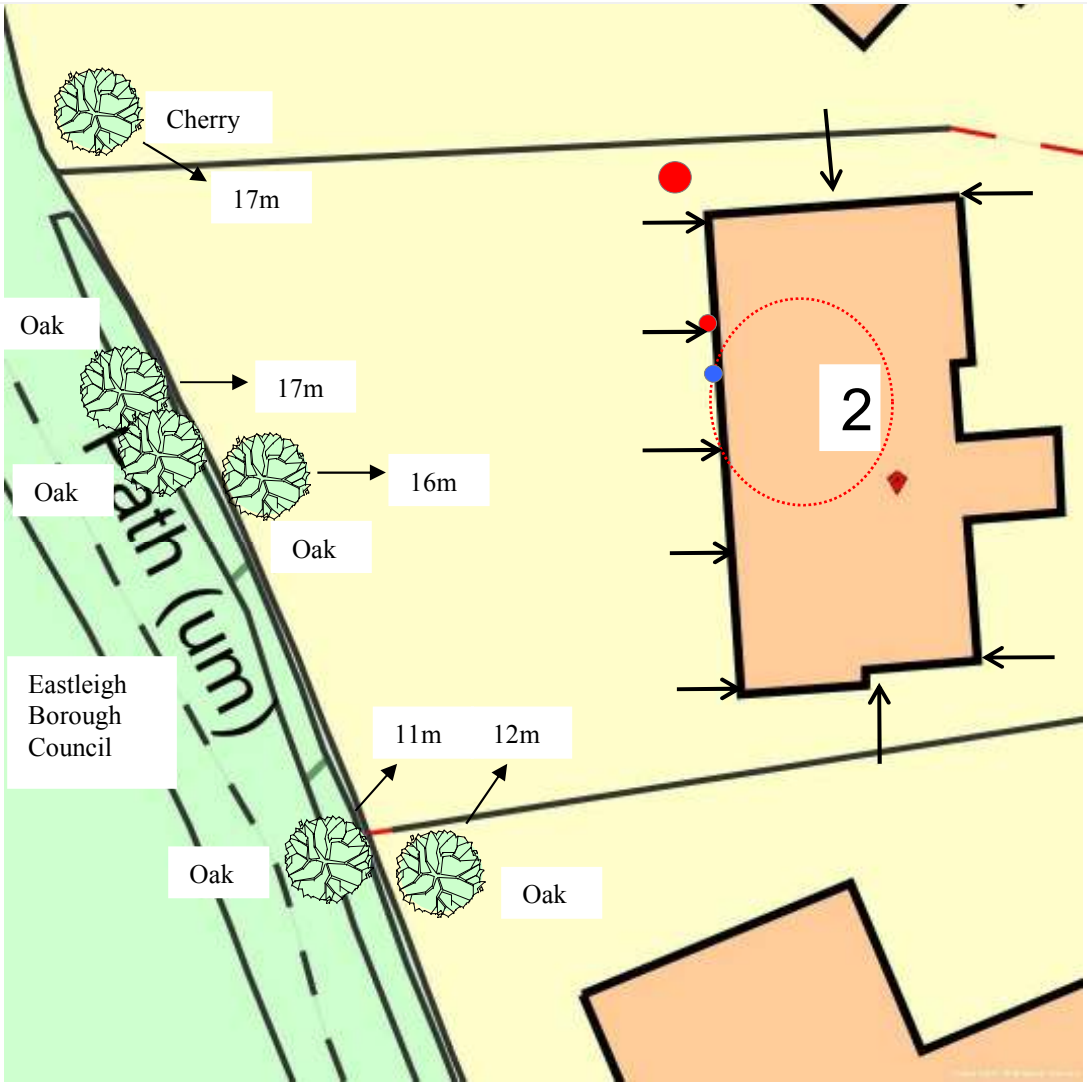
Site Plan	This plan is Not to Scale

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.



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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

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

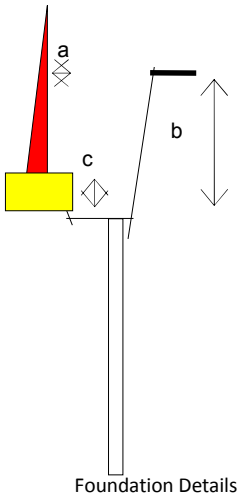
The following investigations were undertaken to identify the cause of movement.

TRIAL HOLES

A trial hole was excavated to expose the foundations - see site plan for location and the diagram below for details. A trial hole was excavated to expose the foundations - see site plan for location and the diagram below for details. Trial Hole 1 revealed a medium compact dark brown/orange, mottled grey, silty clay with occasional brick pieces and fine to medium gravel 1.0m below ground level which bears onto firm, mid brown/orange grey veined silty CLAY with partings of orange silt and fine sand and very occasional fine to medium gravel.

Trial Hole 2 revealed medium compact, dark brown/orange, mottled orange, silty clay with brick fragments, occasional timber pieces and fine to medium gravel 0.87m below ground level which bears onto firm, mid brown/orange, grey veined, silty CLAY with partings of orange silt and fine sand and occasional fine to medium gravel.

Root activity of live appearance was noted to the underside of the foundations of trial hole 2.



Foundation Details

No.	Borehole Depth	Footing (a)	Underside (b)	Thickness (c)
TH1	3.00 m.	250 mm.	1,950 mm.	800 mm.
TH2	3.00 m.	230 mm.	1,630 mm.	630 mm.

AUGERED BOREHOLES

A 50mm diameter hand auger was sunk - see site plan for location(s). A 50mm diameter auger was sunk at the base of each trial pit. Clay was found to depth of each borehole and no water rise was found, suggesting that there is no escape of water in operation.

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.

DRAINS

No drainage investigations were undertaken as these are not thought to be implicated with the damage under investigation.

DISCUSSION

The movement recorded is cyclical with the property moving upward and downward through wet and dry periods. This sort of movement only occurs when a clay shrinkage effect is in operation.

Although the movement appears to be slight significant damages have been created. There is underpinning to the rear left corner of the property which is helping it to combat the influence of the nearby Oaks, and explains the 'slight' amount of movement. The underpinning was implemented in 1993 to a depth of 3m toward the front right corner of the property, leaving the remainder of the front exposed to root influence, as found in the investigation results. The underpinning was implemented in 1993 in this location in response to a subsidence claim of that time.

It is our view that the Oak tree, T4, is seen as the effective and substantive cause of the claim. This view is supported by the following:-

- The foundations are at a depth of between 1950mm (Borehole 1) and 1630mm (Borehole 2), which is below the level that nominal clay shrinkage would occur.
- The moisture content profile indicates a reduction in moisture content between a depth of 2.0m and 2.5m which is indicative of desiccation at this level. This is also co-incident with the depth of root activity.
- Roots were found to a depth of between 150mm and 1.3m in Borehole 1, and between 130mmand 2.2m in Borehole 2.

RECOMMENDATION

The Oak T4 tree needs to be crown reduced to allow the property to stabilise. An application shall be submitted to reduce the tree, which we hope the Council are more willing to accept instead of tree felling. The Oak tree can be reduced without risk of heave related damage occurring.

Property repairs shall proceed following the reduction of the trees at a cost of circa £12,200k. Underpinning may be required to arrest the movement, should the tree not be reduced, with costs rising over £40,000.

Yours faithfully,

Hugh Yeats-Edwards ABEng
Specialist Property Services - Subsidence Division
Direct Dial : 07802 590 954
subsidence@crawco.co.uk

6 October 2015