

ADDENDUM TECHNICAL REPORT

Crawford Reference: SU1803352

**61 Park Avenue
Ruislip
Middlesex
HA4 7UL**



Prepared for

Ageas - SAGA

SUBSIDENCE CLAIM

DATE 24 July 2020



Crawford[®]
Crawford and Company

Cartwright House,
Tottle Road,
Riverside Business Park,
Nottingham, NG2 1RT
Tel: 0115 943 8260
Fax: 0121 200 0309

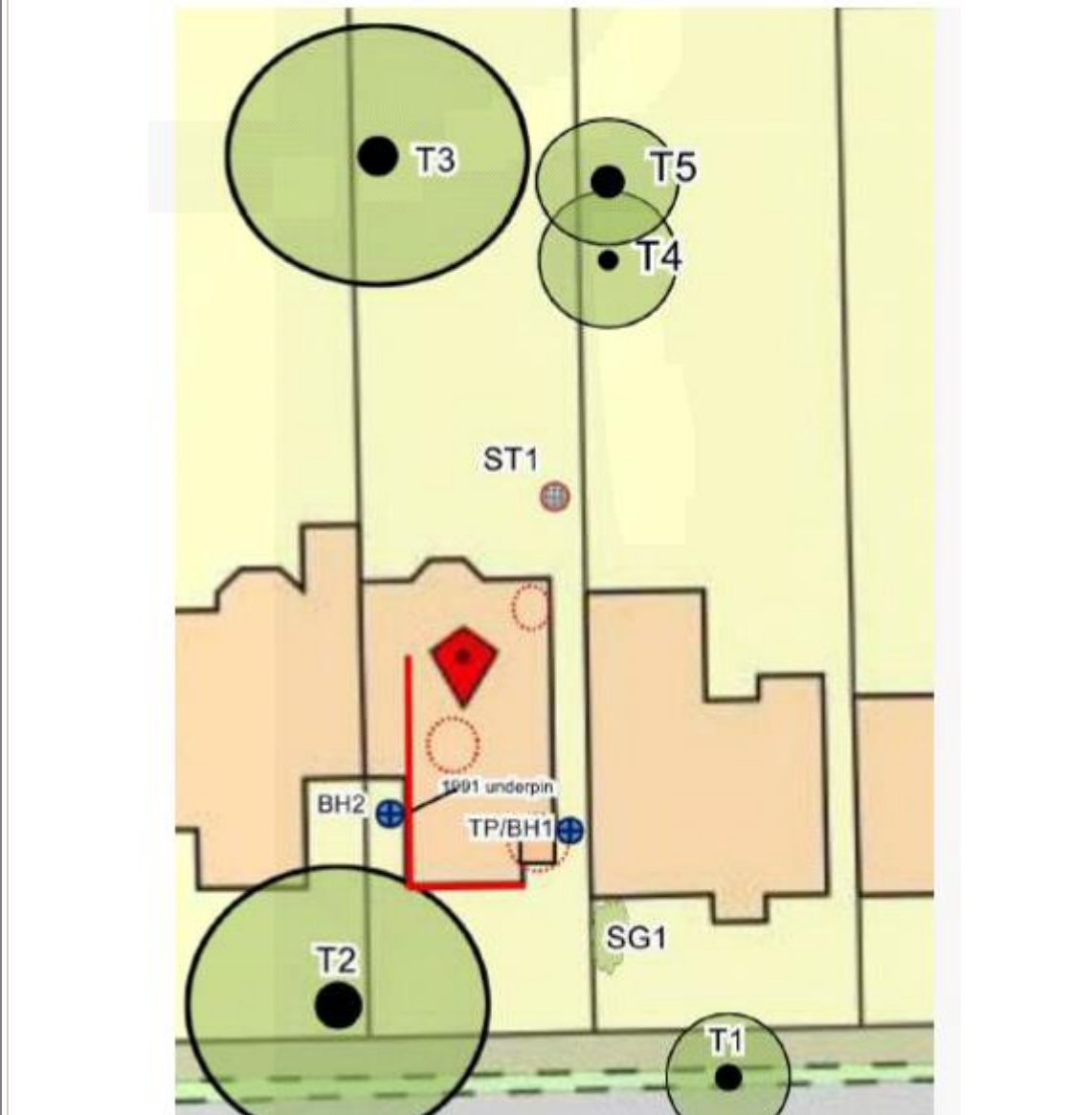
This document and information provided relate to personal claim information and therefore should not be circulated or placed anywhere to make this freely available. By doing so, you will be in breach of GDPR

Chartered Loss Adjusters

Site Plan –Overview

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.



© Bluesky International & © Infoterra 2006.
Map Reproduced with the Permission of Ordnance Survey

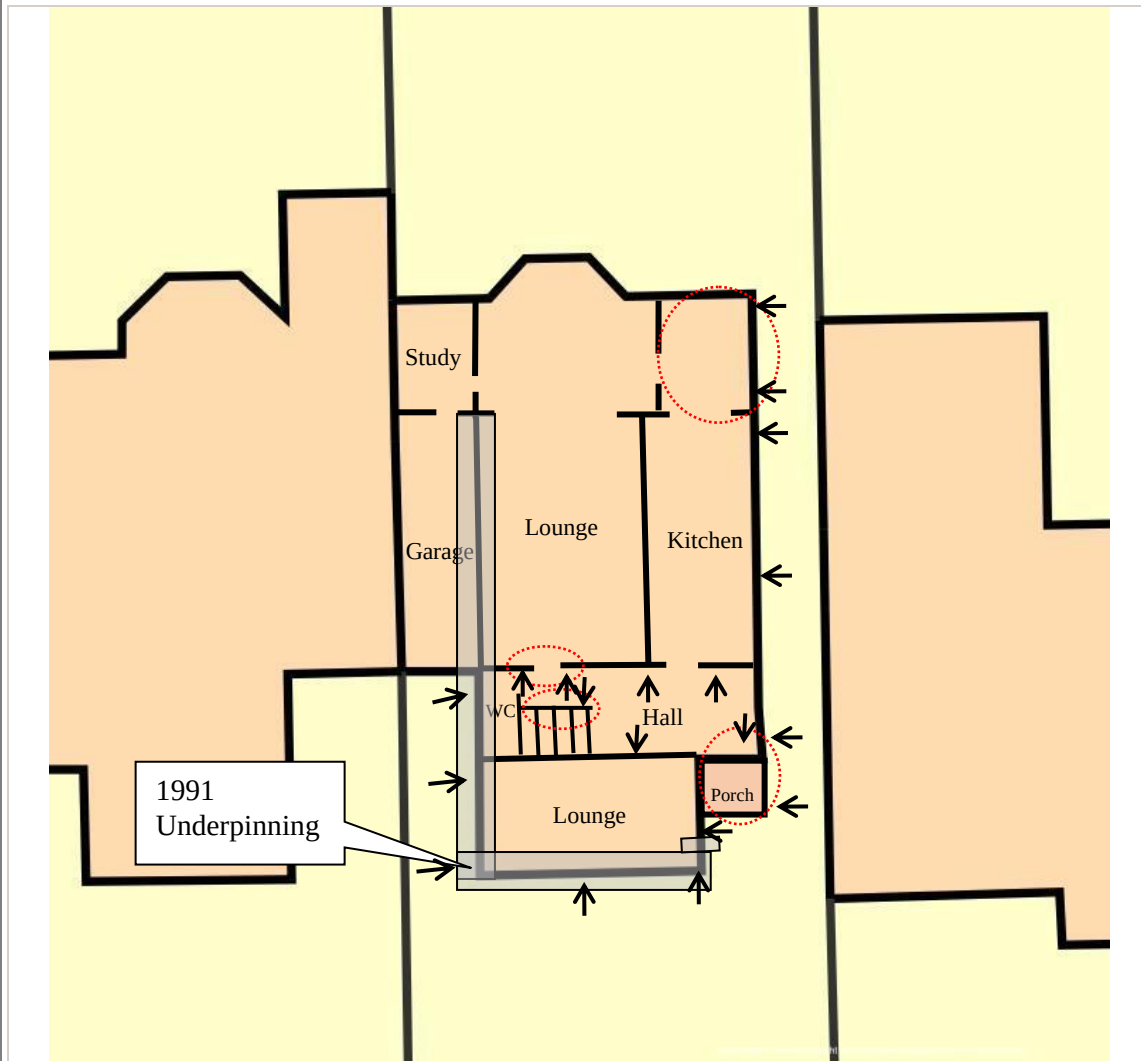
Key:

	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 Adjusters		Incoming Gas Pipe

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.



© Bluesky International & © Infoterra 2006.
Map Reproduced with the Permission of Ordnance Survey

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		

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

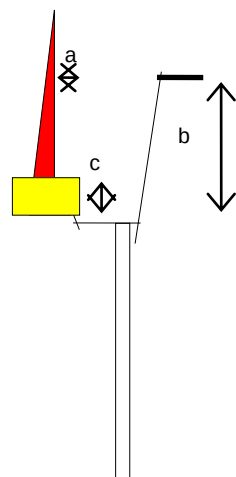
The following investigations were undertaken to identify the cause of movement.

TRIAL HOLES

A trial hole was excavated to expose the foundations - see site plan for location and the diagram below for details. Trial Hole 1a (house) revealed a concrete strip footing founded at a depth of 0.575m below ground level which bears onto firm mid brown/orange grey veined silty CLAY with gravel.

Trial Hole 1b (porch) revealed a concrete strip footing founded at a depth of 0.10 m below ground level which bears onto firm mid brown/orange grey veined silty CLAY with gravel.

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



Foundation Details

No.	Borehole Depth	Footing (a)	Underside (b)	Thickness (c)
TH1a	2.70 m.	200 mm.	575 mm.	250 mm.
TH1b	0.00 m.	20 mm.	100 mm.	74 mm.

AUGERED BOREHOLES

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

Borehole 1 confirmed the continuation of the clay subsoil encountered within the trial pit down to 2.4m below ground level, with roots to a depth of 2.2m below ground level. The soil between 2.4m and 2.7m was found to be medium dense to dense wet orange-brown silty sand. The borehole collapsed to 2.4m with standing water at 2.3m upon completion.

Chartered Loss Adjusters

Borehole 2 confirmed made ground down to a depth of 0.6m over stiff mid brown/orange grey veined silty CLAY to a depth of 2.5m below ground level. Below this and to a depth of 4.0m was medium dense wet orange-brown silty SAND. Thereafter was stiff wet orange-brown grey veined silty CLAY to 5.5m depth. Below this was medium dense wet orange-brown silty SAND. The borehole was terminated at 6.0m depth and collapsed to 2.9m with standing water level at 2.8m on completion. No roots were observed below 2.3m. Unable to extract clean sample and no insitu strength tests carried out below 2.5m. Unable to install Datum

In-situ shear vane testing confirmed the clay subsoil to range from soft/firm to stiff in nature.

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.

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

Moisture Content

Values ranged from 17% to 31% over the depth of Borehole 1

Values ranged from 20% to 33% over the depth of Borehole 2

Atterberg Limits

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

The results of the site investigations do not indicate that there is any risk of adverse heave, should the trees be removed.

ROOTS

Roots were retrieved from the trial hole and have been submitted to a botanist for identification.

Roots in Trial Pit 1 were identified as the Species Pomoideae and either, Quercus or Castanea. There were also roots of a broadleaf species which were too juvenile for positive identification. Starch was present which indicates that the roots were alive at the time of retrieval.

Roots in Borehole 1 were identified either the Species Quercus or Castanea. Starch was present which indicates that the roots were alive at the time of retrieval.

Roots in Borehole 2 were identified as the Species Quercus. Starch was present which indicates that the roots were alive at the time of retrieval.

The species identified contain the following:

- Pomoideae - Apple, Cotoneaster, Hawthorn, Pear, Pyracantha, Quince, Rowan, Snowy Mespil and Whitebeam.
- Quercus – Oaks
- Castanea - sweet chestnut.

MONITORING

Level monitoring has been undertaken with the last reading taken on 19th February 2020. This indicates that the right-hand side of the house has been subject to ongoing seasonal movement throughout, consistent with root induced clay shrinkage.

DRAINS

No drainage investigations were undertaken.

DISCUSSION

The pattern and nature of the cracks is indicative of an episode of subsidence. The cause of movement appears to be clay shrinkage.

The timing of the event, the presence of shrinkable clay beneath the foundations and the proximity of vegetation where there is damage indicates the shrinkage to be root induced. This is a commonly encountered problem and probably accounts for around 70% of subsidence claims notified to insurers.

Fortunately, the cause of the problem (dehydration) is reversible. Clay soils will re-hydrate in the winter months, causing the clays to swell and the cracks to close. Provided the cause of movement is dealt with (in this case, vegetation) there should not be a recurrence of movement.

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.

RECOMMENDATION

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

Provided the tree management is approved and works are carried out expeditiously, we anticipate that superstructure repairs and decorations only will be required. If tree management is not carried out, it may be necessary to consider a much more costly and disruptive scheme of stabilisation, such as underpinning. Budget estimates are presently as follows :-

Superstructure repairs and decorations - £17,000

Underpinning & Repairs and Alternative accommodation - £120,000

Yours faithfully,

Anthony Rose MRICS

Crawford Claims Solutions – Subsidence

subsidence@crawco.co.uk

Chartered Loss Adjusters