

Mr Andreas Stavrou Antonaides
6 Hornsey Park Road
N8 0JP

Surveying Services
QuestGates Ltd
Benchmark House
Folds Point
Bolton
BL1 2RZ
Tel: 01204 869806
Fax: 01204 869813
Email: hub@questgates.co.uk

Our Ref: QG1S1154303
Your Ref:
Date: 8 June 2021

Dear Mr Antonaides

Re: Your Insurance Claim

We refer to all recent correspondence in relation to your claim and note that we have now completed our initial investigations.

We have identified that on this occasion, further action is required to progress your claim. We enclose our Initial Customer Appraisal report detailing our findings and recommendations of steps we will now take.

Without prejudice to liability, we have now instructed our site investigation contractor Auger Ltd who will contact you and arrange a convenient time to attend.

We trust this updates you to the present position and will continue to update you as matter progress. Should you have any further queries in the meantime, please do not hesitate to contact this office.

Yours sincerely

Richard Glover
QuestGates Ltd
Chartered Loss Adjusters & Claim Specialists

Initial Customer Appraisal Report

Description of Premises:

Property comprises a detached two storey house, plus rooms in the roof, with an attached garage. The building is brick built with a pitched, tiled roof and is approximately 100 years old. It has an original single storey rear addition on the right side plus a more recent extension to match, which also includes the garage.

The building comprises the PH office and living space on the ground floor and flats above.

There is vegetation of note belonging to the policyholder to the front and left flank, plus a substantial tree in the rear garden of 112 Turnpike Lane

There is a drain run along the right-side pathway.

The exterior of the building is in reasonable condition, but it is poor internally.

Anticipated geology from the BGS map is London Clay

Discovery of Damage:

We understand that you made a claim for subsidence in March 2021.

Nature & Extent of Damage:

At the time of our initial inspection, (of the ground floor only), damage was recorded as follows:

Within the entrance hall, front (office) room, lounge and rear kitchen, there are numerous historic cracks, marks and signs of ageing. It is possible that some damage in the rear left of the ground floor is of more recent origin.

Externally, there is evidence of more recent movement above the rear kitchen door and over the rear of the garage.

Overall, the subsidence related damage would appear to be of the order of Category 2 to 3 according to the scale of 0 to 5 described within the BRE Digest 251.

Damage comprises both recent and historic movement, with the recent damage being at the rear left side as viewed from the front.

Cause:

The combination of ground conditions and the presence of nearby third party trees would indicate that the damage is the result of clay drying shrinkage.

Recommendations:

We will carry out a series of trial pits and a CCTV survey initially, to establish the cause of movement.

Site Investigation Report

Auger Ref:

123525.1.BSI



Job Information

Client	Questgates
Client ref	QG1S1154303
Visit date	23/06/2021
Report date	25/06/2021

Job Summary

- ✓ CCTV survey undertaken. [Read more.](#)
- ! Drainage repairs required. [Read more.](#)
- ! 2 trial holes undertaken. [Read more.](#)
- ✓ Requested soil samples taken. [Read more.](#)
- ✓ Requested root samples taken. [Read more.](#)



Job Information

Overview

Brief

Auger were commissioned by Questgates to undertake a site investigation and CCTV inspection of the underground drainage within the area of concern at the property.

Findings

Trial Hole Findings

We were unable to carry out TH2 as we discovered asbestos containing material within the trial hole, we therefore terminated the trial hole and attempted it in another location, however, we encountered more asbestos. If the loss adjuster wishes for this trial hole to be undertaken, an asbestos specialist will be required to remove the asbestos found on site and to remove any further asbestos.

Due to the depths of the foundations, the undersides of the footings were probed.

Drain Survey

Line 1 - From MH1 upstream to WG1

There were no defects noted within the line which could be allowing an escape of water. The line was seen to be free flowing and serviceable.

Line 2 - From MH1 upstream to RWG1

Our CCTV survey revealed joint displacements throughout the line, this will be resulting in an escape of water.

Line 3 - From MH1 upstream

Our CCTV survey revealed joint displacements and a mass build up of waste within this line, due to this we were unable to complete an accurate survey.

Line 4 - From MH1 downstream to MH2

Our CCTV survey revealed joint displacements to a branch connection 10.4m downstream, and cracking 14.0m downstream where a connection running through the manhole has been connection into Line 4 (see fig. 4.1), we then discovered the channelling and benching within the manhole to have failed and caused waste to spill from Line 4 into MH2's channelling. We also discovered displacements from MH2 downstream to Line 7. The aforementioned defects will be resulting in an escape of water.

Line 5 - From SVP2 downstream to Line 6

There were no defects noted within the line which could be allowing an escape of water. The line was seen to be free flowing and serviceable.

Line 6 - From MH2 upstream to MH1

Our CCTV survey revealed a hole in the pipework on the branch connection to SVP2/Line 5, this will be resulting in an escape of water

Line 7 - From MH2 downstream

There were no defects noted within the line which could be allowing an escape of water. The line was seen to be free flowing and serviceable.

Line 8 - From MH2 upstream to SVP4

There were no defects noted within the line which could be allowing an escape of water. The line was seen to be free flowing and serviceable.

SVP1

We were unable to survey this line due to the line being routed across the manhole into Line 4, however, we discovered this line to be of plastic construction and appeared to not result in an escape of water.

SVP3

We were unable to survey this line due to access restrictions, however, from the survey of Line 6, we discovered the branch connection and upstream pipework to be of plastic construction.

The above mentioned defects to the below ground drainage system have been caused by ground movement.

Recommendations

It is recommended that the following repairs are carried out to prevent an escape of water from the system:

Line 2 - Auger recommend to excavate and replace RWG1 and 2.0m of 100mm pipework downstream to MH1 at a depth no greater than 1.0m through block paving

Refer Back to Client

Line 3 - Auger recommend to extensively jet line clear and determine if line is redundant, dye test internal services

Line 4 - Auger recommend to excavate and replace an isolated 1.0m of 100mm pipework and the branch connection 10.4m downstream from MH1 at a depth no greater than 1.0m through block paving then CCTV up the blind connection and allow for 3.0m of 100mm liner upstream while the excavation is open

Line 6 - Auger recommend to excavate and replace an isolated 1.0m of 100mm pipework and the branch connection to Line 5 8.4m upstream from MH2 at a depth no greater than 1.0m through block paving.

Auger recommend to break through the concrete benching within MH2 and remove the clay connection onto Line 6 running across the manhole then install a 100mm patch to cover the cracking upstream, re-bench and re-channel the manhole to make good of the poor arrangement. Cut the clay connection running across the manhole and install a 90 bend so it expels into the channelling, CCTV the line while we have access.

Please Note: The appearance of the pipework within MH2 will change to result in the system being repaired and it will have better serviceability, however, the arrangement will still not be ideal due to the initial poor installation.

Auger have not allowed or will not be held responsible for any alteration or modification to the above ground drainage following the removal of the existing gully and reinstatement of a new gully. The customer must ensure that the above ground drainage correctly expels into the gully pot and avoids overcrowding the gully with numerous downpipes which could lead to the gully overflowing.

The excavations will be through block paving.

We will now refer the claim back to the client in order to progress.

Repair Caveats

Once repairs have been undertaken the customer should ensure the drainage system is periodically inspected in the future for any deterioration and kept free flowing / free of blockages. Any damage noted during future inspections should be repaired immediately in accordance with current Building Regulations.

With any repair process, complications and unforeseen circumstances can arise. These scenarios will be reported whilst on-site and could potentially cause an increase in repair costs and inconvenience.

The proposed repairs will require radio detection in order to confirm the location of the defects. Although this is usually very accurate, a number of factors such as depth of pipework and presence of other services below ground can have an effect on the signal. This can result in a change of the location of the proposed excavation as well as the assumed depth and this may impact the scope of works. Costs may be subject to change due to the potential of excavating to a different depth and/or through different surfaces.

Where any excavation reinstatement of the surface is required, the reinstatement will always attempt to match the previous surface patterns and colouring, however we cannot guarantee an exact match.

If any of the above lining recommendations fail then excavation and replacement of the pipework would be required. This would severely increase the cost of repairs and would provide greater inconvenience to the residents.

*Recommendations have been made to reline or patch reline sections of the drainage system at the property. This process combines a number of chemicals in a resin, which then harden in a fibreglass matting to create a new section of drain within the original. The reaction creates **a strong smell which can linger for up to 72 hours** once works are completed - this is not harmful. It is recommended that any areas where smells are experienced are kept well ventilated until the odour subsides.*

The above recommendations allow for the replacement of gullies & connected underground drainage only. The insured should be made aware that the aesthetic appearance of this gully may be different from what is currently in place.

Photographs

Trial Hole 1

Fig 1.1: Trial Hole 1 Location



Fig 1.2: Trial Hole 1 Footing



Fig 1.3: Trial Hole 1 Footing



Trial Hole 3

Fig 2.1: Trial Hole 3 Location



Fig 2.2: Trial Hole 3 Footing



Fig 3.1: Line 6, hole in pipework



Fig 3.2: Line 6, hole in pipework



Fig 3.3: Line 3, joint displacement



Fig 3.4: Line 4, joint displacement



Fig 3.5: Line 4, cracking (Connection from clay pipe in MH2)



Fig 3.6: Line 4, joint displacement downstream from MH2



Other Photos

Fig 4.1: MH2



Fig 4.2: MH1



Fig 4.3: Side of property



Fig 4.4: Potential asbestos containing material

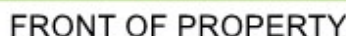


Fig 4.5: Soil samples collected



Fig 4.6: Root samples collected





This drawing should be used for diagrammatic purposes only. Auger are not responsible or liable for any 3rd party works undertaken using the details outlined in this drawing. Confirmation of the drainage configuration can only be confirmed by excavation or detailed technical survey.

 = Tree

= gate / door



Trial Hole Log No.1

Location: Front middle of bay

Job Ref:
123525.1.BSI

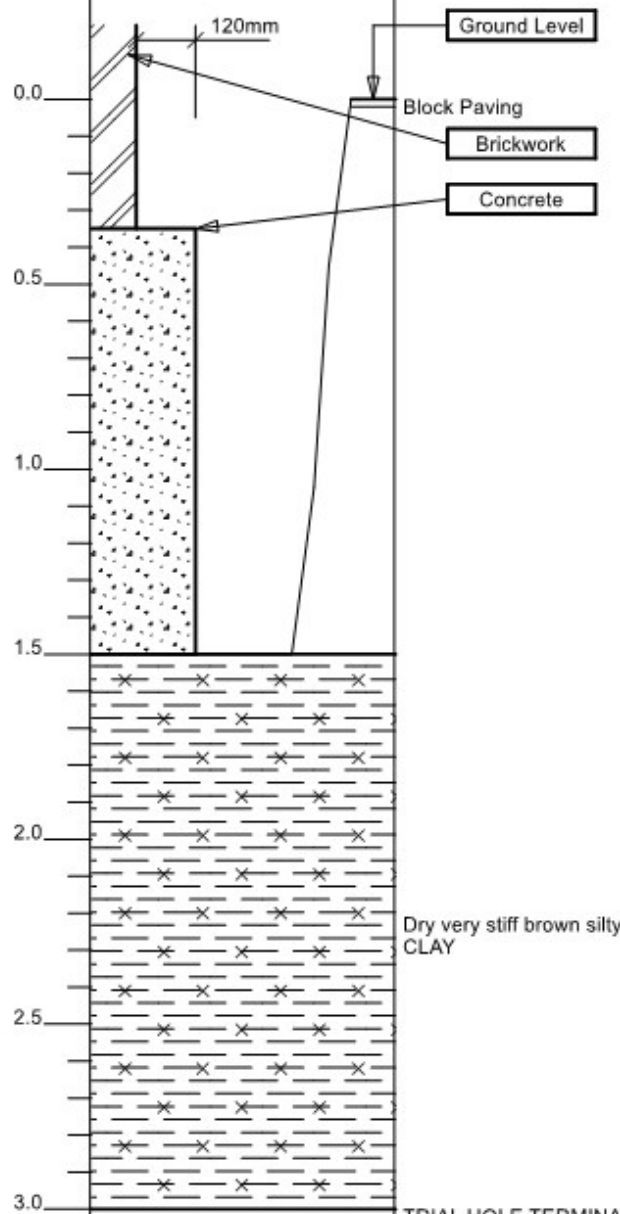
Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0		Ground Level				
		Block Paving				
		Brickwork				
0.5						
1.0		Double Step				
1.1			78kpa		Soil @ 1.1m	Root @ 1.1m
1.6			88kpa		Soil @ 1.6m	Root @ 1.6m
2.1		Dry very stiff Brown sandy fine to medium gravelly silty CLAY	116kpa		Soil @ 2.1m	Root @ 2.1m
2.6			120kpa		Soil @ 2.6m	
3.0		Dry very stiff Brown fine to medium gravelly silty CLAY	126kpa		Soil @ 3m	
		TRIAL HOLE TERMINATED				



Trial Hole Log No.3

Location: Front left corner of rear extension

Job Ref:
123525.1.BSI

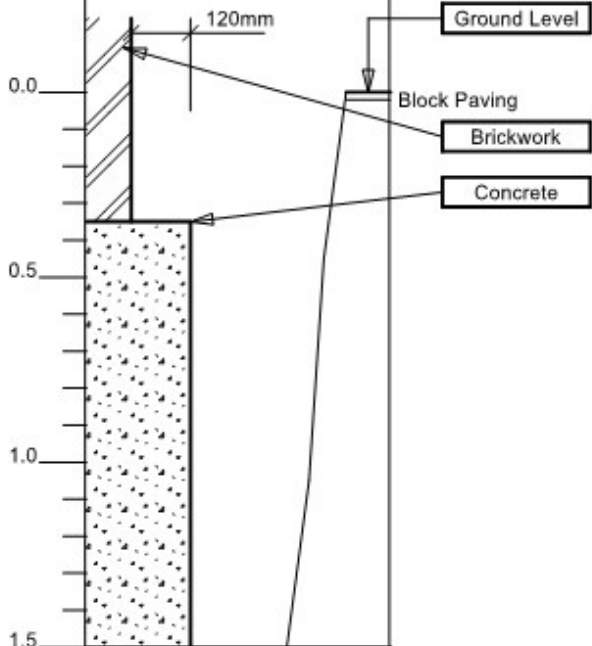
Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0		Ground Level				
		Block Paving				
		Brickwork				
		Concrete				
0.5						
1.0						
1.5			86kpa		Soil @ 1.5m	Root @ 1.5m
2.0			102kpa		Soil @ 2m	Root @ 2m
2.5		Dry very stiff brown silty CLAY	122kpa		Soil @ 2.5m	Root @ 2.5m
3.0		TRIAL HOLE TERMINATED	134kpa		Soil @ 3m	Root @ 3m



Trial Hole Log No.2

Location: Front left corner of rear extension

Job Ref:
123525.1.BSI

Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0		Ground Level				
		Block Paving				
		Brickwork				
		Concrete				
0.5						
1.0						
1.5			86kpa		Soil @ 1.5m	Root @ 1.5m
2.0			102kpa		Soil @ 2m	Root @ 2m
2.5		Dry very stiff Brown sandy fine to medium gravelly silty CLAY	122kpa		Soil @ 2.5m	Root @ 2.5m
3.0		TRIAL HOLE TERMINATED	134kpa		Soil @ 3m	Root @ 3m



Geotechnical Testing Analysis Report



auger

environmental +
claims mgmt +
subsidence +
drainage +

Unit 3 & 4,
Heol Aur,
Dafen Ind Estate,
Dafen
Llanelli,
Carmarthenshire,
SA14 8QN

Auger House,
Cross Lane,
Wallasey,
Wirral,
CH45 8RH

Summary Of Claim Details

Policy Holder	Unknown
Risk Address	Unknown
SI Date	23/06/2021
Issue Date	23/06/2021
Report Date	03/07/2021
Auger Reference	123525.1.2.RSS
Insurance Company	Axa Commerical
LA Claim Reference	QG1S1154303
LA Co. Reference	Questgates Subsidence

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

	Checked	03/07/2021	Wayne Honey	
	Approved	03/07/2021	Paul Evans	



2788



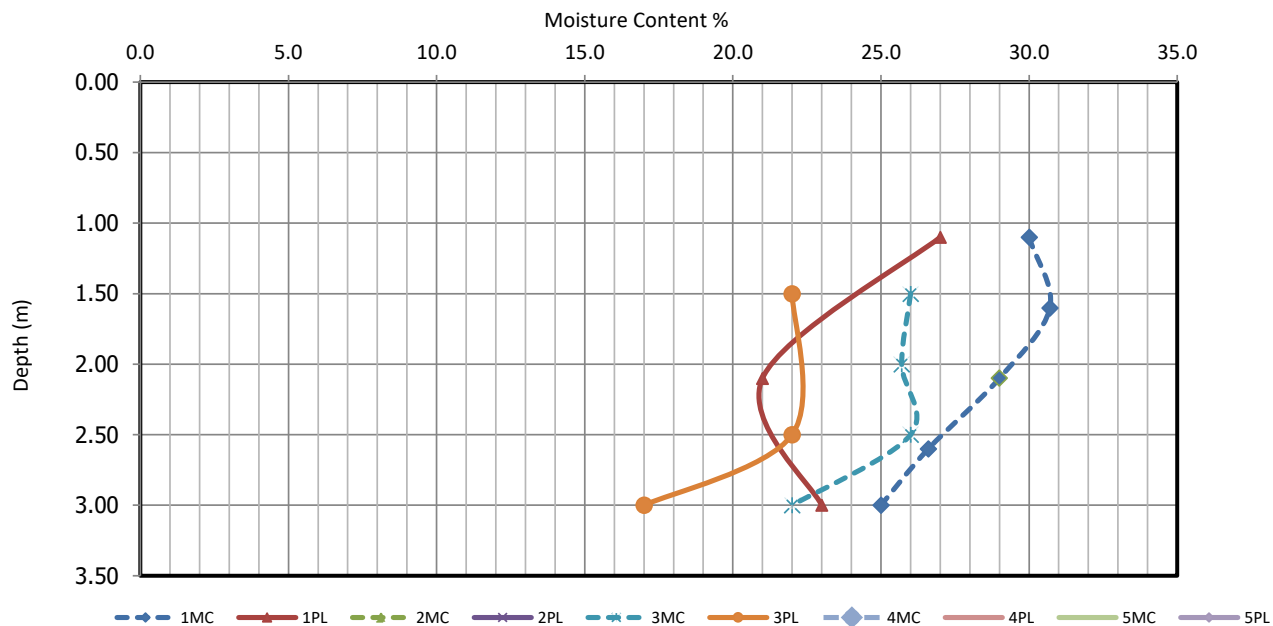
GSTL Contract Number	54684	
Risk Address	Unknown	
Auger Reference	123525.1.2.RSS	
Remarks	NP - (Non-Plastic), # - (Liquid Limit and Plastic Limit Wet Sieved)	

[illegible]

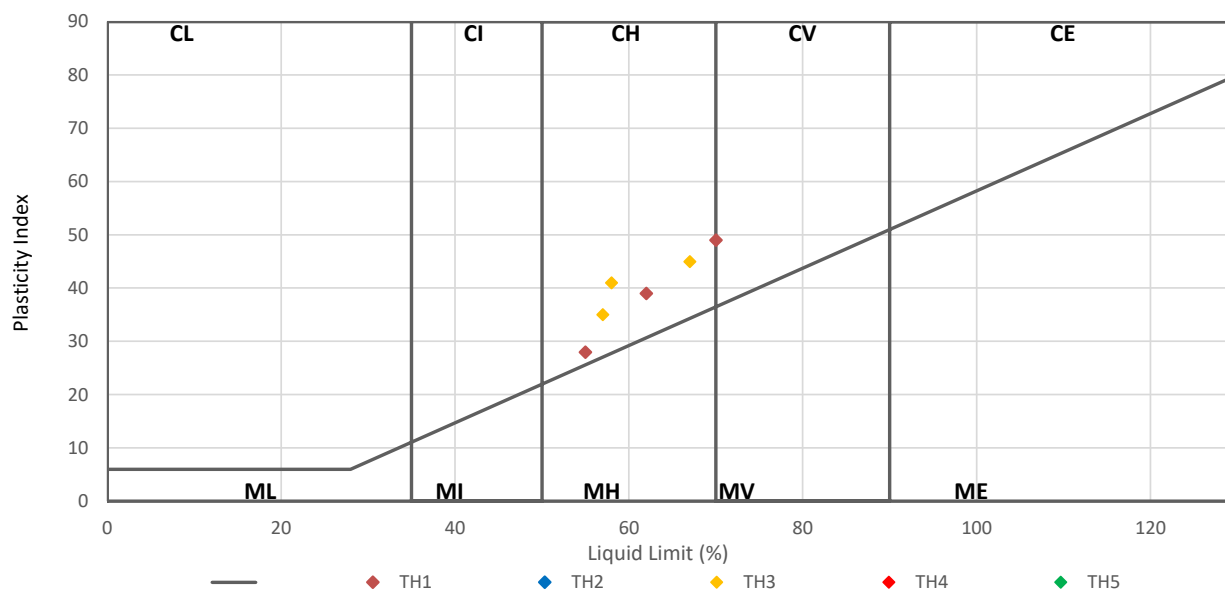
Modified Plasticity Index (PI) <10	: Non Classified
Modified PI = 10 to <20	: Low volume change potential (LOW VCP)
Modified PI = 20 to <40	: Medium volume change potential (Med VCP)
Modified PI = 40 or greater	: High volume change potential (HIGH VCP)

The Atterberg Limits May also be used to classify the volume change potential of fine soils using the National House building system, as given in the NHBC's Standards Chapter 4.2 (2003) "Building Near Trees"

Test Operator	Checked	03/07/2021	Wayne Honey	<i>W. Honey</i>
Luke Williams	Approved	03/07/2021	Paul Evans	<i>P. Evans</i>



PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Modified Plasticity Index (PI) <10 : Non Classified
 Modified PI = 10 to <20 : Low volume change potential (LOW VCP)
 Modified PI = 20 to <40 : Medium volume change potential (Med VCP)
 Modified PI = 40 or greater : High volume change potential (HIGH VCP)

The Atterberg Limits May also be used to classify the volume change potential of fine soils using the National House building system, as given in the NHBC's Standards Chapter 4.2 (2003) "Building Near Trees"

Test Operator	Checked	03/07/2021	Wayne Honey	W. Honey
Luke Williams	Approved	03/07/2021	Paul Evans	P. Evans





Root identification
Vegetation surveys
Tree/Building investigations
Plant taxonomy

Richardson's Botanical Identifications

Dr Ian B K Richardson
BSc, MSc, PhD, MRSB, FLS
James Richardson
BSc (Hons. Biology)

Auger Solutions

Auger House

Cross Lane

WALLASEY

Wirral CH45 8RH

Enterprise House
49-51 Whiteknights Road
Reading
RG6 7BB

Tel: (0118) 986 9552 *(Direct line)*

E-mail: richardsons@botanical.net

Web: www.botanical.net

Your ref: **123525-1-1**

Our ref: **82/5901**

12/07/2021

Dear Sirs

Root ID

The samples you sent in relation to the above on 23/06/2021 have been examined. Their structures were referable as follows:

TH1, 1.10m		
2 no.	Examined root: essentially too immature for a confident identification although similar in some ways to the family MAGNOLIACEAE (Magnolia and Liriodendron (Tulip Tree)) and also LAURUS (Bay). In their absences, we would tentatively suggest the family SALICACEAE (Salix (Willows) and Populus (Poplars)).	Alive, recently*.
TH1, 1.60m		
1 no.	Examined root: again, extremely THIN, could be the family MAGNOLIACEAE, LAURUS, or, in their absences, tentatively the family SALICACEAE (see above).	Dead*.
TH1, 2.10m		
3 no.	Examined root: the family SALICACEAE (Salix (Willows) and Populus (Poplars)).	Alive, recently*.
TH2, 1.50m		
2 no.	Examined root: the family SALICACEAE (as listed above).	Dead*.
TH2, 2.00m		
2 no.	Examined root: the family Rosaceae, subfamily POMOIDEAE (a group of closely related trees: Malus (Apple), Pyrus (Pear), Crataegus (Hawthorn), Sorbus (Rowan, Whitebeam, Service tree), Mespilus (Medlar), and some shrubs (Pyracantha (Firethorn), Chaenomeles (Japonica), Cydonia (Quince), Amelanchier, Cotoneaster)).	Alive, recently*.
TH2, 2.50m		
3 no.	Examined root: the family Rosaceae, subfamily POMOIDEAE (as listed above).	Dead*.

/ continued overleaf

TH2, 3.00m		
3 no.	Examined root: the family Rosaceae, subfamily POMOIDEAE (as listed above).	Alive, recently* .

All bar one of the roots described above were under 0.15mm in diameter. Please note that the 'dead' results of those thinner samples could well be unreliable.

Click here for more information: [LAURUS](#) [MAGNOLIACEAE](#) [POMOIDEAE](#) [SALICACEAE](#)

I trust this is of help. Please call us if you have any queries; our Invoice is enclosed.

Yours faithfully



Dr Ian B K Richardson

* Based mainly on the Iodine test for starch. Starch is present in some cells of a living woody root, but is more or less rapidly broken down by soil micro-organisms on death of the root, sometimes before decay is evident. This result need not reflect the state of the parent tree.

** Try out our web site on www.botanical.net **

Mr Andreas Stavrou Antonaides
6 Hornsey Park Road
N8 0JP

Surveying Services
QuestGates Ltd
Benchmark House
Folds Point
Bolton
BL1 2RZ
Tel: 01204 869806
Fax: 01204 869813
Email: hub@questgates.co.uk

Our Ref: QG1S1154303
Your Ref:
Date: 26 August 2021

Dear Mr Antonaides,

Re: Your Insurance Claim

We refer to all recent correspondence in relation to your claim and write to confirm the current position. Please find a copy of the site investigation report enclosed for your attention. The engineer has now reviewed the site investigation findings and his conclusion report is copied overleaf.

Having assessed the investigations results and circumstances of your claim, we are satisfied that the damage results from subsidence during the term of the policy and consequently liability is accepted subject to the application of the £2,000 policy excess and any other relevant policy limit.

We trust the enclosed updates you to the present position and will of course continue to update you as matters progress. Should you have any queries in the meantime, please do not hesitate to contact this office.

Yours sincerely,

Ryan Bradshaw
QuestGates Ltd
Chartered Loss Adjusters & Claims Specialists

ENGINEER SITE INVESTIGATION CONCLUSION REPORT

Auger Investigation report

Trial Hole/Borehole 1 - located at the front right side of the bay.

This was excavated to 1.1m and revealed that the brickwork of the original house extends to a depth of 1.1m below ground level including corbelling out two steps. The soil immediately beneath the foundation is dry, very stiff brown sandy and gravelly clay where it changes to sandy clay proven to a depth of 3.0 metres to the base of the borehole.

Roots were also encountered between 1.1m and 2.1 metre and these were retrieved and sent for laboratory analysis showing them to be of the magnolia or, more likely, salix family corresponding to willow or poplar.

Trial Hole/Borehole 2 - abandoned due to the presence of potential asbestos material.

Trial Hole/Borehole 3 - located adjacent to the more recent rear extension of the building on the front left.

This was excavated to 1.5m and revealed that the brickwork extends to 350mm below ground level where it sits on a concrete trench fill foundation which is 1250mmmm thick with a projection of 120mm. Hence the underside of the foundation is 1.5m below ground level. The soil immediately beneath the foundation is sandy clay proven to a depth of 3.0 metres.

Roots were also encountered between 1.5 and 3 metres and these were retrieved and sent for laboratory analysis showing them to be of the pomoideae family.

Soil Testing

Samples were taken from the trial hole/borehole and laboratory analysed. This showed the soil to be generally of intermediate to high plasticity to 1.5m with medium volume change potential changing to high plasticity and high-volume change potential from 2.5m to 3ml.

Analysis of moisture contents versus plastic and liquid limit results suggests that there is near onset of desiccation in the clay soils at the front of the building from 2m down, but evidence of onset at foundation level and actual desiccation of the subsoil at 2m below the extension. (The moisture content is also very low at 3m depth, but this may be desiccation, or it may be natural over-consolidation of the clay where it has been crushed by the soil above).

Drainage

The CCTV survey indicated that the majority of the (clay) pipe work laid along the flank of the property was defective with cracks, holes, or joint displacement.

Conclusion

The above findings would confirm that the cause of the property movement/damage is likely to be shrinkage of the clay soil below foundation level exacerbated by the presence of tree roots, the roots extracting excessive moisture from the soil during the drier summer months. There is also evidence of damage and disruption to the drainage system which can result in leakage and undesirable effects on the building.

Accordingly, a valid claim is proven within the subsidence section of the insurance policy. This will be subject to an excess payment of £2,000.00, although this will only be payable at the property repair phase of the claim. We have also noted that some of the damage affecting the property is the result of age and lack of redecoration over the long term, these include the front lounge/office, hallway and the rear accommodation of the main house. These areas do not appear to have been decorated or maintained for some time. We have not had the opportunity to inspect the other accommodation and will need to do so at some point to determine whether any subsidence related damage has occurred there.

Next Steps

On the basis of the Site Investigation evidence, we will now instruct MWA Arboriculture to attend site and assess the management work that is needed to mitigate the effect of the vegetation. In doing so they will also verify if any statutory controls are in place that may have implications in respect of the necessary vegetation works.

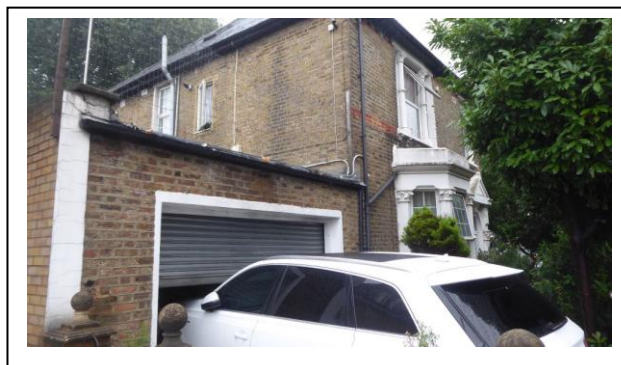
We further recommend the repair of the drainage to eliminate the effect of leaks on potential movement. Please expect contact from Auger in this regard shortly.

We will confirm the outcome of the arboriculture report once to hand but anticipate that it will be up to 4 weeks before the report is received, and we can then advise further.

Arboricultural Appraisal Report

Subsidence Damage Investigation at:

6 Hornsey Park Road
London
N8 0JP



CLIENT:	QuestGates
CLIENT REF:	QG1S1154303
MWA REF:	SUB210827-9401
MWA CONSULTANT:	Andy Clark
REPORT DATE:	22/09/2021

SUMMARY

Statutory Controls		Mitigation (Current claim tree works)	
TPO current claim	Yes -T1	Policy Holder	Yes
TPO future risk	No	Domestic 3 rd Party	Yes
Cons. Area	No	Local Authority	No
Trusts schemes	No	Other	No
Local Authority: -	London Borough of Haringey		

Introduction

Acting on instructions from QuestGates, the insured property was visited on 14/09/2021 to assess the potential role of vegetation in respect of subsidence damage.

We are instructed to provide opinion on whether moisture abstraction by vegetation is a causal factor in the damage to the property and give recommendations on what vegetation management, if any, may be carried out with a view to restoring stability to the property. The scope of our assessment includes opinion relating to mitigation of future risk. Vegetation not recorded is considered not to be significant to the current damage or pose a significant risk in the foreseeable future.

This is an initial appraisal report and recommendations are made with reference to the technical reports and information currently available and may be subject to review upon receipt of additional site investigation data, monitoring, engineering opinion or other information.

This report does not include a detailed assessment of tree condition or safety. Where indications of poor condition or health in accessible trees are observed, this will be indicated within the report. Assessment of the condition and safety of third-party trees is excluded and third-party owners are advised to seek their own advice on tree health and stability of trees under their control.

Property Description

The property comprises a 2-storey detached house of traditional construction, built during the late 1800's / early 1900's and since extended with a single-storey addition on the rear right, with a more recent extension to the left which includes the garage.

External areas comprise gardens to the front and rear.

The site is generally level with no adverse topographical features.

Damage Description & History

Damage is noted throughout the property, particularly the entrance hall, front office room, lounge and rear kitchen, with external cracking above the rear kitchen door and the rear of the garage. Damage is reported to have first been observed during March 2021.

At the time of the engineers' inspection the structural significance of the damage was found to fall within Category 2 - 3 (Slight to Moderate) of Table 1 of BRE Digest 251. For a more detailed synopsis of the damage please refer to the surveyor's technical report.

We have not been made aware of any previous claims.

Site Investigations

Site investigations were carried out by Auger on 23/06/2021, when 3 trial pits were hand excavated to reveal the foundations with a borehole sunk through the base of the trial pit to determine subsoil conditions. A drains survey was also undertaken.

Foundations:

Ref	Foundation type	Depth at Underside (mm)
TP/BH1	Brick corbel	1100
TP/BH2	Abandoned	N/A
TP/BH3	Concrete	1500

Soils:

Ref	Description	Plasticity Index (%)	Volume change potential (NHBC)
TP/BH1	Dry, very stiff brown sandy fine to medium gravelly silty CLAY	28 – 49	Medium – High
TP/BH2	Abandoned	N/A	N/A
TP/BH3	Dry, very stiff brown sandy fine to medium gravelly silty CLAY	35 – 45	Medium – High

Roots:

Ref	Roots Observed to depth of (mm)	Identification	Starch content
TP/BH1	2100	Similar to either Magnoliaceae spp. and Laurus spp., or possibly Salicaceae spp. [too immature for confident identification] and Salicaceae spp.	Present
		Could be either Magnoliaceae spp. and Laurus spp., or possibly Salicaceae spp. [thin samples]	Absent
TP/BH3	3000	Pomoideae gp.	Present
		Salicaceae spp. and Pomoideae gp.	Absent

Magnoliaceae spp. includes Magnolia and Liriodendron

Laurus spp. are Bay

Salicaceae spp. includes Willows [Salix] and Poplars [Populus]

Pomoideae gp. includes Apple, Pear, Hawthorn, Rowan, Whitebeam, Service tree and Medlar, and some shrubs Pyracantha, Chaenomeles, Quince, Amelanchier and Cotoneaster

Drains:

The drains have been surveyed and defects have been identified, however leaking drains are concluded not to be a cause of the current damage.

Monitoring:

No information available at the time of writing.

Discussion

Opinion and recommendations are made on the understanding that QuestGates are satisfied that the current building movement and the associated damage is the result of clay shrinkage subsidence and that other possible causal factors have been discounted.

Site investigations and soil test results have confirmed a plastic clay subsoil susceptible to undergoing volumetric change in relation to changes in soil moisture.

Roots were observed to a depth of 2.1 m bgl in TP/BH1 and to 3.0m bgl in TP/BH3, and recovered live samples (positive Starch test) have been positively identified (using anatomical analysis) as Salicaceae spp. and Pomoideae gp.

Dead roots (negative Starch test) and juvenile/thin samples have also been tentatively identified as either Magnoliaceae spp. and Laurus spp., or possibly Salicaceae spp.

Irrespective of the identification of recovered root samples, our survey has identified vegetation within influencing distance of the building with a current potential to influence soil volumes below foundation level; the most significant of which in relation to the current damage is T1 Poplar. This large fully mature tree will have a high presence of roots below a large portion of the property and will account for the Salicaceae spp. roots retrieved. The smaller Poplar, T2, will also have roots below the property, albeit to a much lesser extent.

Nearby elements of the TG1 and SG1 groups will also exert a contributory influence, with several stems possibly relating to the other species of trees identified [Magnolia in TG1 and Bay in SG1].

The Pomoideae gp. roots retrieved at TP/BH3 will originate from nearby small young Pear trees and are not considered significant while T1 Poplar remains in situ, their soil drying effects being negligible by comparison.

Based on the technical reports currently available, engineering opinion and our own site assessment we conclude the damage is consistent with shrinkage of the clay subsoil related to moisture abstraction by vegetation.

Having considered the information currently available, it is our opinion that T1 Poplar is the principal cause of the current subsidence damage, combined with a localised contributory influence from the nearby larger elements of SG1 and TG1 groups.

In order to provide an Arboricultural solution to mitigate the influence of the implicated trees/vegetation, works recommendations are set out at Table 1 below. Other vegetation recorded presents a potential future risk to building stability and management is therefore recommended. Recommended tree works may however be subject to change upon receipt of additional information.

Consideration has been given to pruning alone as a means of mitigating the vegetative influence, however in this case, this is not considered to offer a viable long-term solution due to the proximity of the responsible vegetation.

Conclusions

- Conditions necessary for clay shrinkage subsidence to occur related to moisture abstraction by vegetation have been confirmed by site investigations and the testing of soil and root samples.
- Engineering opinion is that the damage is related to clay shrinkage subsidence.
- There is significant vegetation present with the potential to influence soil moisture and volumes below foundation level.
- Roots have been observed underside of foundations and identified samples correspond to vegetation identified on site.
- Replacement planting may be considered subject to species choice and planting location.

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	Poplar	26.5	1250 *	18.0	7.6	Younger than Property	Third Party 112 Turnpike Lane N8 0PH
Management history		Subject to past management/pruning - previously pollarded at approx. 13 - 14m.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
T2	Poplar	13.0	240 *	7.5 *	11.1	Younger than Property	Third Party 114 Turnpike Lane N8 0PH
Management history		No significant past management noted.					
Recommendation		Remove (fell) to near ground level and treat stump to inhibit regrowth.					
TG1	Mixed spp. group of mostly Laurel, Portuguese Laurel, Viburnum, Magnolia, Chinese Privet and Date Palm	7.0	230 Ms *	6.0	2.2	Younger than Property	Policy Holder
Management history		No significant past management noted. Individual stems labelled as T3 to T9 to aid identification.					
Recommendation		Remove (fell) Magnolia [T6] and Portuguese Laurel [T7] to near ground level and treat stumps to inhibit regrowth. Maintain remainder broadly at no more than current dimensions by periodic [annual] pruning.					
SG1	Mixed spp. group of mostly Viburnum, Bay and Laurel	6.0	140 Ms *	3.0	1.8	Younger than Property	Policy Holder
Management history		No significant past management noted.					
Recommendation		Reduce height to 2.0m and trim on an annual cycle to maintain at broadly reduced dimensions.					

Ms: multi-stemmed

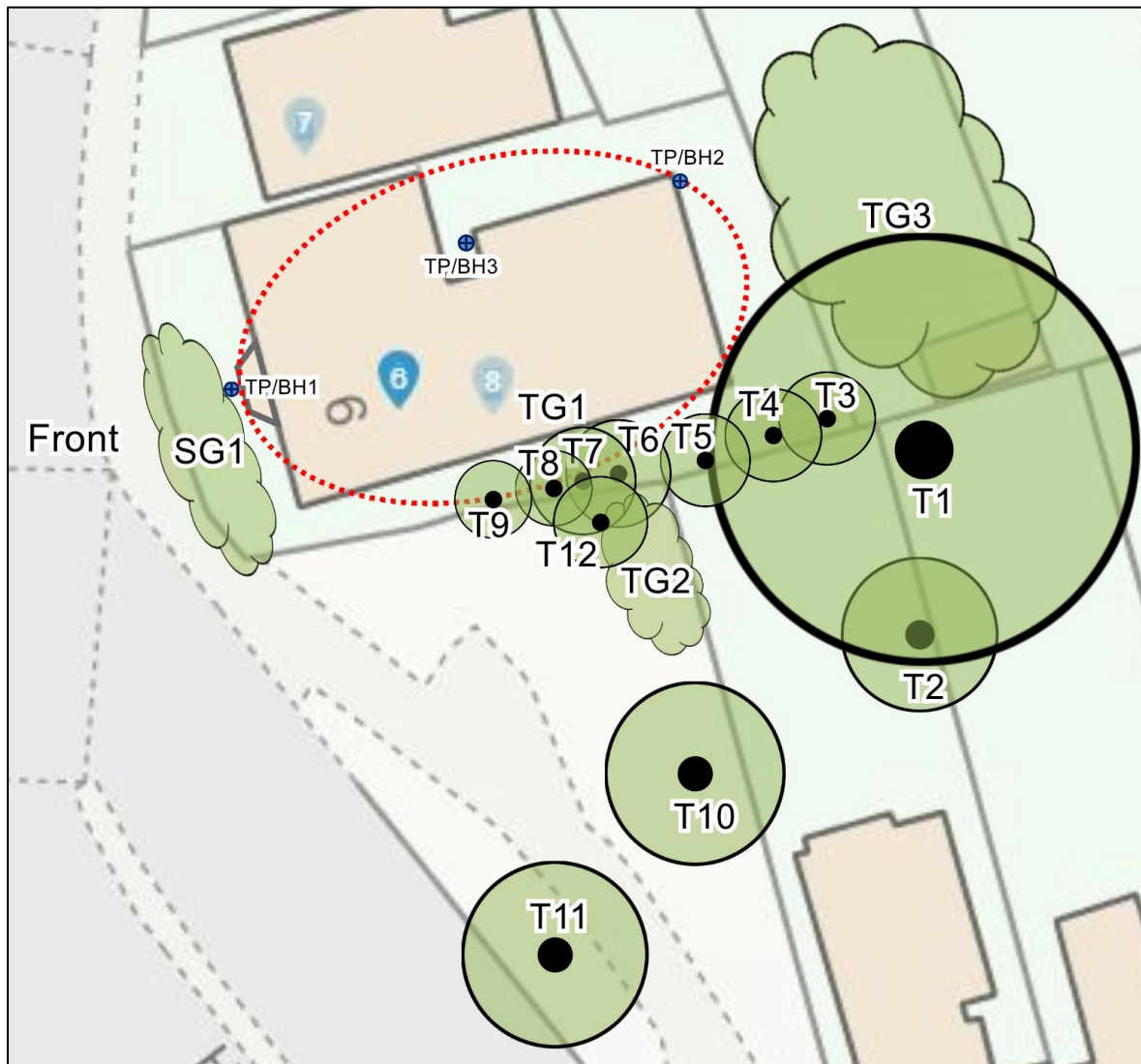
* Estimated value

Table 2 **Future Risk - Tree Details & Recommendations**

Tree No.	Species	Ht (m)	Dia (mm)	Crown Spread (m)	Dist. to building (m)	Age Classification	Ownership
T10	Plane (London)	17.5	630	10.0	14.6	Younger than Property	Local Authority
Management history		Subject to past management/pruning - previously crown reduced.					
Recommendation		None at present.					
T11	Plane (London)	16.0	520	9.0	22.6	Younger than Property	Local Authority
Management history		Subject to past management/pruning - previously crown reduced.					
Recommendation		None at present.					
TG2	Hawthorn and Hornbeam group	8.5	200	6.0	5.2	Younger than Property	Local Authority
Management history		No significant past management noted. Hornbeam annotated as T12.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					
TG3	Mixed spp. group of mostly Ash, Hazel and Bramble	4.5	70 Ms *	3.5	3.8	Younger than Property	Third Party 4 The Avenue N8 OJR
Management history		No significant past management noted - derelict garden.					
Recommendation		Maintain broadly at no more than current dimensions by periodic pruning.					

Ms: multi-stemmed * Estimated value

Site Plan

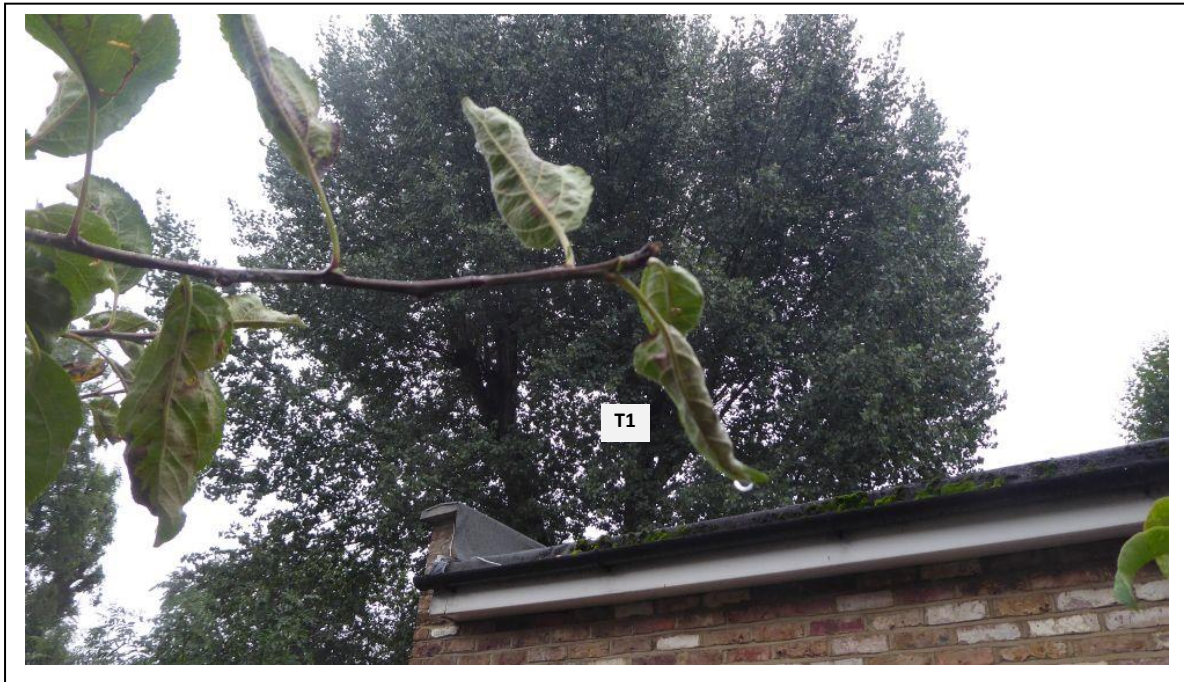


Plan not to scale – indicative only

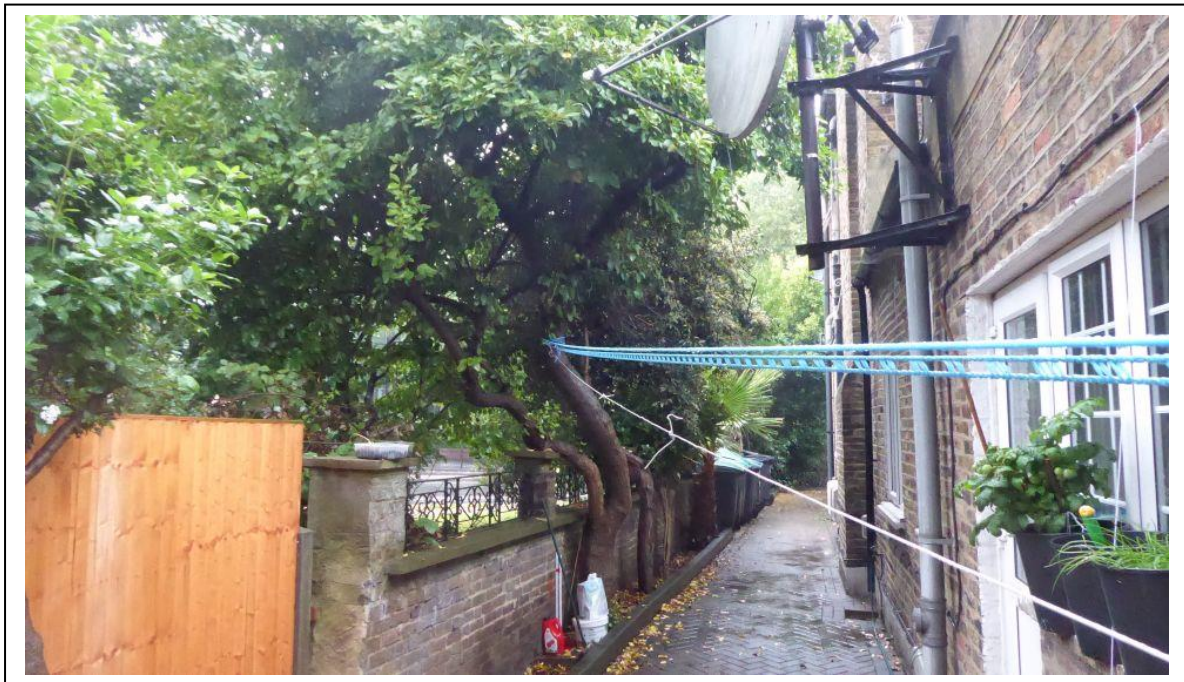


Approximate areas of damage

Images



View of T1 Poplar



View of TG1 group



Overview from roadside of T1 Poplar, TG1 and SG1 groups



View of TG1 group – stems T6 and T7 to be removed

Monitoring Details

Provider Name: My Home Needs Ltd

Instruction Date: 05/10/2021

Reading Date: 13/07/2022

Date of Issue: 20/07/2022

Monitoring Interval: 6 Weekly

Number of Visits: 9

Visits Completed: 7

Visits Outstanding: 2

Client Details

Client: Questgates

Job Reference: QG1S1154303

Engineer / Handler: Richard Glover

Monitored Address

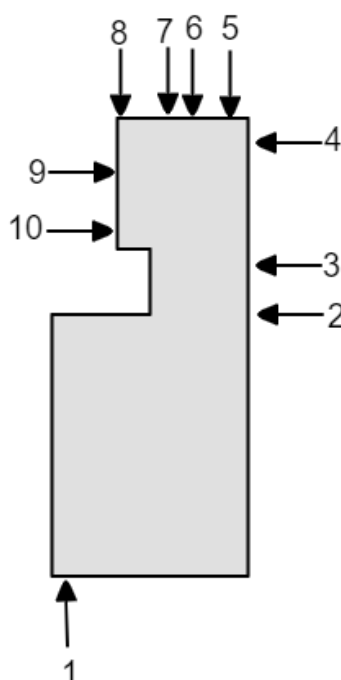
Occupier: Mr Andreas
Stavrou Antonaides

Address: 6 Hornsey Park Road,
London, N8 0JP

Telephone: 02088 897736

Email: antoniades1946@yahoo.co.uk

Site Plan



Level Readings (Displayed in metres)

Visits	1	2	3	4	5	6	7	8
19/10/2021	10.5142	10.3809	10.3786	10.2816	10.2907	10.3822	10.4015	10.4875
09/12/2021	10.5151	10.3852	10.3833	10.2900	10.2981	10.3863	10.4045	10.4882
19/01/2022	10.5145	10.3867	10.3847	10.2920	10.3004	10.3876	10.4046	10.4873
02/03/2022	10.5145	10.3891	10.3873	10.2963	10.3038	10.3915	10.4079	10.4892
15/04/2022	10.5155	10.3923	10.3903	10.2995	10.3070	10.3940	10.4104	10.4902
26/05/2022	10.5146	10.3942	10.3922	10.3002	10.3081	10.3949	10.4112	10.4902
13/07/2022	10.5132	10.3884	10.3859	10.2853	10.2939	10.3849	10.4052	10.4880

Visits	9	10	📌 DATUM
19/10/2021	10.4813	10.4669	10.0000
09/12/2021	10.4819	10.4681	10.0000
19/01/2022	10.4791	10.4662	10.0000
02/03/2022	10.4823	10.4699	10.0000
15/04/2022	10.4832	10.4712	10.0000
26/05/2022	10.4828	10.4711	10.0000
13/07/2022	10.4812	10.4670	10.0000

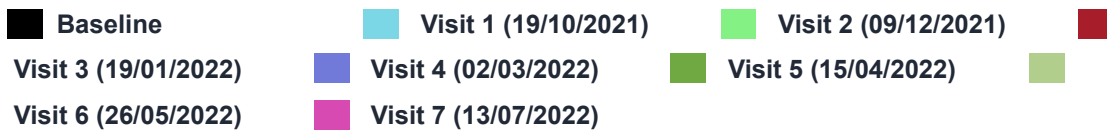
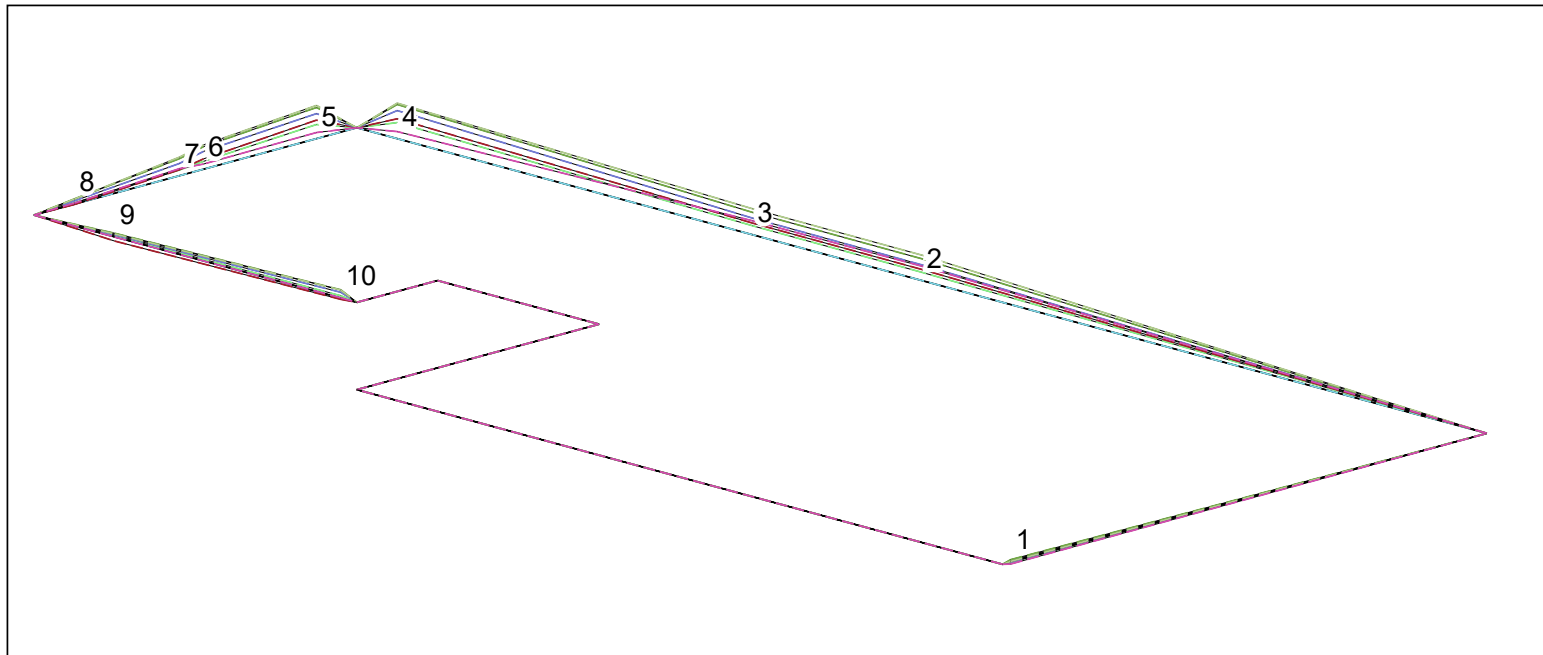
DATUM: Datum is a manhole in road, it has an assumed value of 10,0000m. No suitable secondary datum available. If this is not suitable please advise if a deep datum is required.

Level Readings Difference (Displayed in millimetres)

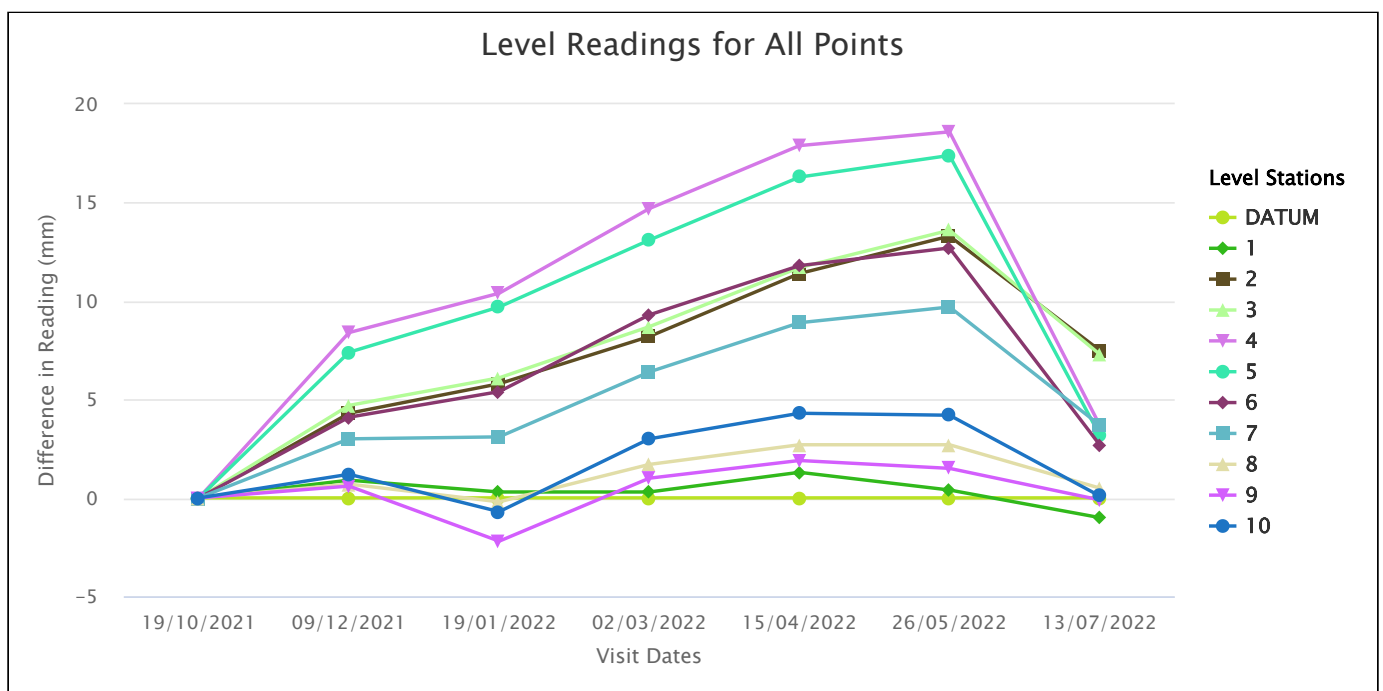
Visits	1	2	3	4	5	6	7	8
19/10/2021	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
09/12/2021	0.90 ↑	4.30 ↑	4.70 ↑	8.40 ↑	7.40 ↑	4.10 ↑	3.00 ↑	0.70 ↑
19/01/2022	-0.60 ↓	1.50 ↑	1.40 ↑	2.00 ↑	2.30 ↑	1.30 ↑	0.10 ↑	-0.90 ↓
02/03/2022	0.00 =	2.40 ↑	2.60 ↑	4.30 ↑	3.40 ↑	3.90 ↑	3.30 ↑	1.90 ↑
15/04/2022	1.00 ↑	3.20 ↑	3.00 ↑	3.20 ↑	3.20 ↑	2.50 ↑	2.50 ↑	1.00 ↑
26/05/2022	-0.90 ↓	1.90 ↑	1.90 ↑	0.70 ↑	1.10 ↑	0.90 ↑	0.80 ↑	0.00 =
13/07/2022	-1.40 ↓	-5.80 ↓	-6.30 ↓	-14.90 ↓	-14.20 ↓	-10.00 ↓	-6.00 ↓	-2.20 ↓

Visits	9	10	 DATUM
19/10/2021	N/A	N/A	N/A
09/12/2021	0.60 	1.20 	0.00 
19/01/2022	-2.80 	-1.90 	0.00 
02/03/2022	3.20 	3.70 	0.00 
15/04/2022	0.90 	1.30 	0.00 
26/05/2022	-0.40 	-0.10 	0.00 
13/07/2022	-1.60 	-4.10 	0.00 

Relative Movement (Relative Survey, for illustration purposes only)



Level Readings Chart



Homeowner Notes

Visit	Homeowner Notes
19/10/2021	No concerns raised.
09/12/2021	No concerns raised.
19/01/2022	No concerns raised.
02/03/2022	No concerns raised.
15/04/2022	No concerns raised.
26/05/2022	No concerns raised.
13/07/2022	No concerns raised.

Keoghs Solicitors
2 The Parklands Lostock
Bolton
BL6 4SE

Surveying Services
QuestGates Ltd
Benchmark House
Folds Point
Bolton
BL1 2RZ
Tel: 01204 869806
Fax: 01204 869813
Email: hub@questgates.co.uk

Our Ref: QG1S1154303
Your Ref:
Date: 19 June 2023

Engineering Report

As the latest monitoring results show movement is still ongoing at the property, and the vegetation removal so far has not stopped movement, further steps need to be taken in order to stabilise the foundations, so that remedial works and repairs can be undertaken, however until movement has stopped, repairs cannot take place and damage to the property continues.

The ongoing monitoring highlights a seasonal movement pattern, confirming that the clay soil shrinkage is related to the influence of nearby trees. With all other potential causal vegetation removed, the only remaining tree of significant influence is the nearby mature Poplar, referred to as T1 in the Arborists report which is currently protected by a TPO. The level monitoring chart shows significant differences in movement noted, as points 4 & 5 closest to the remaining Poplar have a total movement (highest to lowest point) of over 30mm resulting in significant damage to the structure.

This T1 poplar has a zone of influence, according to NHBC 4.2.4 – The effects of trees on shrinkable soils of 35 metres from the trunk, based on a mature height of 28m with a zone influence factor of 1.25 x height.

With the monitoring showing ongoing seasonal movement, the options remaining are to pursue a TPO application to remove T1, as this is a substantially sized tree in close proximity to the property, or alternatively look into costly underpinning works, which would need to encompass most of the property, as the zone of influence from the Poplar is very large and extends well beyond this property.

We would recommend a reserve for the potential cost of underpinning works at approx. £60,000, however, this has the scope to increase during design as the Poplar T1 is within 10m of the property, so there will be extensive roots below, as identified during the Soil Investigations.

Conclusion

To prevent further movement and damage to the property, the T1 Poplar needs to be removed. If this is rejected due to the TPO protection, then we recommend moving to an underpinning solution, although this will be disruptive and costly. We would hold the current underpinning reserve at £60,000.00 but this may increase during design.

ACTIONS/NEXT STEPS

Pursue removal the remaining Poplar T1



Malcolm Baldwyn

Structural Engineer (Surveying)

www.structuralsurveys.com