

Site Investigation Report

Auger Ref:

140472.1.1.BSI



Job Information

Client	Quadra
Client ref	16475986
Visit date	28/09/2022
Report date	29/09/2022

Job Summary

- ✓ CCTV survey undertaken. [Read more.](#)
- ! Drainage repairs required. [Read more.](#)
- ✓ 3 trial holes undertaken. [Read more.](#)



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Job Information

Overview

Brief

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

Findings

Trial Hole Findings

TH1 and TH2 were completed to the required depth and the requested soil and root samples were collected whilst on site.

TH3 was moved to front elevation on same corner because of a gas mains box and drainage within originally proposed area (Fig 5.3). TH3 was completed to the required depth and the requested soil and root samples were collected whilst on site.

Drain Survey

We carried out high pressure water jetting in order to clear silt/debris from within the underground drainage system on lines 8 and 9. Our jetting was unsuccessful and we were unable to restore full flow to the system on these lines. We also dye tested several lines to confirm lateral connections on the runs.

We carried out a CCTV survey of the below ground drainage system, our findings of which are as follows:

Line 1 - From MH1 upstream to WC

Our survey of line 1 revealed no significant defects to the pipework on this line which could be allowing an escape of water.

Line 2 - From MH1 upstream to WG1

Our survey of line 2 revealed no significant defects to the pipework on this line which could be allowing an escape of water.

Line 3 - From MH1 upstream to IC

Our survey of line 3 revealed joint displacements and cracking (see Fig 4.1). However, these defects were noted to be outside the area of concern.

Line 4 - From MH1 downstream to MH2

Our survey of line 4 revealed joint displacements and cracking (see Fig 4.2). However, these defects were noted to be outside the area of concern.

Line 5 - From MH1 upstream to Catch Pit

Our survey of line 5 revealed no significant defects to the pipework on this line which could be allowing an escape of water.

Line 6 - From MH1 upstream to RWP

Our survey of line 6 revealed no significant defects to the pipework on this line which could be allowing an escape of water.

Line 7 - From MH2 upstream to FWG

Our survey of line 7 revealed bellied pipework causing slight water retention (see Fig 4.3). However, this defect is not allowing an escape of water.

Line 8 - From RWG1 downstream to Obstruction

We were unable to complete a full CCTV survey of line 8 due to silt/debris in the pipework. We performed an excavation to access the pipework downstream of the gully which was also revealed to be heavily silted up (see Fig 5.1). We performed high pressure water jetting in order to clear the line which was unsuccessful.

Line 9 - From RWG2 downstream to Obstruction

We were unable to complete a full CCTV survey of line 9 due to silt/debris in the pipework. We performed an excavation to access the pipework downstream of the gully which was also revealed to be heavily silted up (see Fig 5.2). We performed high pressure water jetting in order to clear the line which was unsuccessful.

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

Recommendations

Refer Back to Client	It is recommended that the following repairs are carried out to prevent an escape of water from the system: Line 8 Excavate and replace RWG1 and install new 3m of 100mm pipework directly downstream to MH1 at a depth no greater than 1.0m through tarmac. This will required breaking through wall of MH1 to make a new connection. The surface will be temporarily reinstated with cold lay tarmac to leave the area safe and tidy. A specialist contractor will be required to reinstate the hot lay tarmac which would incur additional costs. A specialist will also be required to alter the above ground pipework, including the guttering, in order to redirect all rain water into this new gully. This is the most cost effective option. The alternative, more costly option, would be to excavate and further investigate downstream of RWG1 and RWG2 which likely lead to failed soakaways. Please Note: 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. We would like to note that the gully we are proposing to replace has a large concrete surround. When installing the new gully Auger will install a type 3 gully at ground level with a smaller surround. We would therefore like to make the customer aware that the newly installed gully will aesthetically differ from the current arrangement. It should be noted that our drainage survey revealed defects which were outside the area of concern. We would therefore recommend that the customer opens a separate claim for accidental damage to underground services as these works would not be covered as part of a subsidence claim. We will now refer the claim back to the client in order to progress the claim.
Repair Caveats	<i>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.</i> <i>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.</i> <i>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.</i> <i>The relining of a severe joint displacement is normally unadvised due to the potential for complications in the future.</i> <i>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.</i>

Photographs

Trial Hole 1

Fig 1.1: Trial Hole 1 Location



Fig 1.2: Trial Hole 1 Footing



Trial Hole 2

Fig 2.1: Trial Hole 2 Location



Fig 2.2: Trial Hole 2 Footing



Trial Hole 3

Fig 3.1: Trial Hole 3 Location



Fig 3.2: Trial Hole 3 Footing

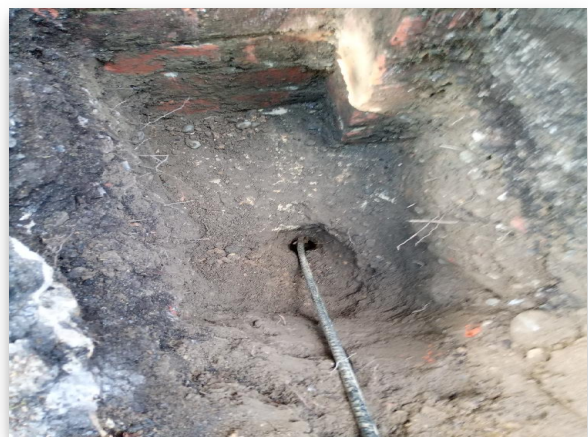


Fig 4.1: Line 3 Joint Displacements and Cracking



Fig 4.2: Line 4 Joint Displacement and Cracking



Fig 4.3: Line 7 Water Retention



Site Photos

Fig 5.1: RWG1 Break in point



Fig 5.2: RWG2 Break in point



Fig 5.3: TH3 Proposed location



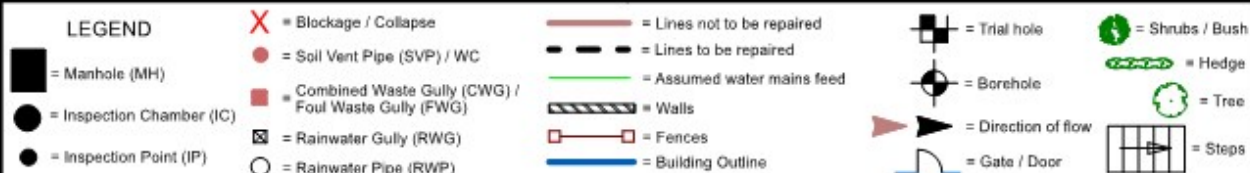
CCTV Survey – Inspection Listings *(WRc Guidelines Applied)*

1			
Direction	Upstream	From	MH1
Pipe Size (mm)	100	Depth (m)	500
Pipe Material	PVC	To	WC
0.5m	Line of Sewer Deviates Left		
0.9m	Material Change (PVC)		
3.8m	Finish of Survey Length (WC)		
2			
Direction	Upstream	From	MH1
Pipe Size (mm)	100	Depth (m)	500
Pipe Material	PVC	To	WG
0.8m	Finish of Survey Length		
3			
Direction	Upstream	From	MH1
Pipe Size (mm)	100	Depth (m)	500

Pipe Material		PVC	To		INTERNAL IC
3.4m		Joint Displacement - Medium (SLIGHT CRACK) Connection Finish of Survey Length (INTERNAL IC)			
3.9m					
5.7m					
4					
Direction		Downstream	From		MH1
Pipe Size (mm)		100	Depth (m)		500
Pipe Material		PVC	To		MH2
1.8m		Material Change (VC) Joint Displacement - Medium Crack - Circumferential Finish of Survey Length (MH2)			
2.5m					
2.6m					
6.4m					
5					
Direction		Upstream	From		MH1
Pipe Size (mm)		100	Depth (m)		500
Pipe Material		PVC	To		CATCH PIT
1.8m		Finish of Survey Length (CATCH PIT)			
6					
Direction		Upstream	From		CATCH PIT
Pipe Size (mm)		100	Depth (m)		500
Pipe Material		PVC	To		RWP
0.5m		Finish of Survey Length (RWP)			
7					
Direction		Upstream	From		MH2
Pipe Size (mm)		100	Depth (m)		600
Pipe Material		PVC	To		FWG
6.3m		Water Level 10% Camera Underwater Water Level 10% Finish of Survey Length (FWG)			
7.1m					
8.5m					
9.7m					
8					
Direction		Downstream	From		RWG1
Pipe Size (mm)		100	Depth (m)		200
Pipe Material		VC	To		Obstruction
0.6m		Survey Abandoned (DUE TO SILT AND DEBRIS)			
9					
Direction		Downstream	From		RWG2
Pipe Size (mm)		100	Depth (m)		200

Pipe Material	VC	To	Obstruction
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0.2m	Survey Abandoned (DUE TO SILT AND DEBRIS)
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Trial Hole Log No.1

Location: Rear Corner of Left Elevation

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Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0		Ground Level				
		Black Tarmac				
		Brickwork				
0.5		Concrete				
		Brown fine to medium gravelly silty CLAY	145kpa		Soil @ 0.65m	Root @ 0.65m
1.0		Brown fine to medium gravelly silty CLAY	150kpa		Soil @ 1.15m	Root @ 1.15m
1.5		Brown slightly sandy fine to medium gravelly silty CLAY	150kpa		Soil @ 1.65m	
2.0		Brown fine to medium gravelly silty CLAY	150kpa		Soil @ 2.15m	
2.5		Brown slightly sandy fine to medium gravelly silty CLAY	150kpa		Soil @ 2.65m	
3.0		TRIAL HOLE TERMINATED	150kpa			



Trial Hole Log No.2

Location: Left Corner of Front Elevation

Job Ref:
140472.1.1.BSI

Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0		Ground Level				
		Black Tarmac				
		Brickwork				
0.5		Concrete				
		Brown fine to medium gravelly silty CLAY	140kpa		Soil @ 0.6m	Root @ 0.6m
1.0		Brown fine to medium gravelly silty CLAY	150kpa		Soil @ 1.1m	
1.5		Brown fine to medium gravelly silty CLAY	150kpa		Soil @ 1.6m	
2.0		Brown fine to medium gravelly silty CLAY	150kpa		Soil @ 2.1m	
2.5		Brown fine to medium gravelly silty CLAY	150kpa		Soil @ 2.6m	
3.0		TRIAL HOLE TERMINATED	150kpa			



Trial Hole Log No.3

Location: Right Corner of Front Elevation

Job Ref:
140472.1.1.BSI

Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0		Ground Level				
		Black Tarmac				
		Brickwork				
0.5		Concrete				
1.0		Brown fine to medium gravelly silty CLAY	130kpa		Soil @ 0.8m	Root @ 0.8m
1.5		Brown fine to medium gravelly silty CLAY	148kpa		Soil @ 1.3m	
2.0		Brown fine to medium gravelly silty CLAY	130kpa		Soil @ 1.8m	
2.5		Brown fine to medium gravelly silty CLAY	138kpa		Soil @ 2.3m	
3.0		Brown fine to medium gravelly silty CLAY	132kpa		Soil @ 2.8m	
		TRIAL HOLE TERMINATED	128kpa			

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

***The testing results contained within this report have been performed by GSTL a UKAS accredited laboratory on behalf of Auger.**

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

Summary Of Claim Details

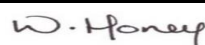
Policy Holder	Unknown
Risk Address	Unknown
SI Date	11/10/2022
Issue Date	20/08/2021
Report Date	18/10/2022
Auger Reference	140472.1.4.RSS
Insurance Company	Ecclesiastical Insurance Group
LA Claim Reference	16475986
LA Co. Reference	Unknown

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 and approved

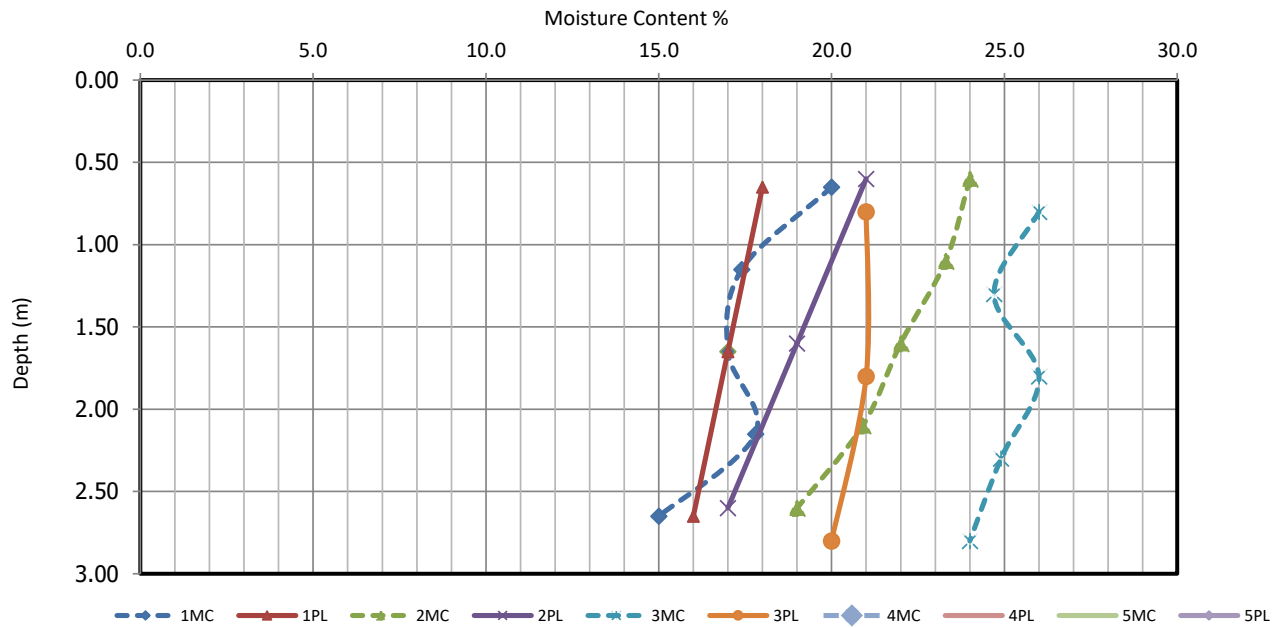
19/10/2022

Wayne Honey

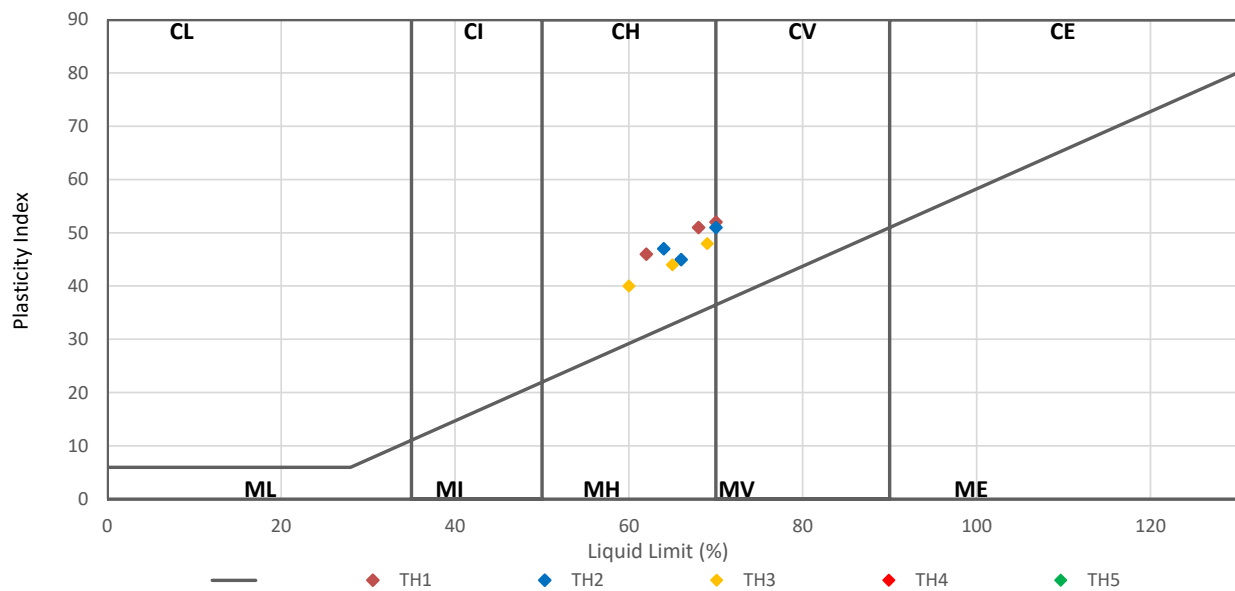




Test Operator
Jason Smith



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

Jason Smith



Root identification
Vegetation surveys
Tree/Building investigations
Plant taxonomy

Richardson's Botanical Identifications

Auger Solutions

Auger House

Cross Lane

WALLASEY

Wirral CH45 8RH

Dr Ian B K Richardson
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James Richardson
BSc (Hons. Biology)

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RG6 7BB

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E-mail: richardsons@botanical.net
Web: www.botanical.net

14/10/2022

Your ref: 140472-1-3

Our ref: 84/2308

Dear Sirs

Root ID

The samples you sent in relation to the above on 28/09/2022 have been examined. Their structures were referable as follows:

TH1, 0.65-1.15m		
4 no.	Examined root: QUERCUS (Oak).	Alive, recently*.
TH1, 1.15-1.65m		
3 no.	Although we carried out extensive laboratory work, unfortunately all samples proved to be too immature to identify.	Alive, recently*.
TH2, 0.60-1.10m		
2 no.	Examined root: QUERCUS (Oak).	Alive, recently*.
2 no.	Both pieces of BARK only - insufficient material for recognition.	
TH3, 0.80-1.30m		
1 no.	Examined root: QUERCUS (Oak).	Alive, recently*.
1 no.	A piece of BARK only, insufficient material for identification.	

Click here for more information: [QUERCUS](#)

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.

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