

Site Investigation Report

Auger Ref:

145212.1.USI

**Job Information**

Client	-
Client ref	QGIS1210326
Visit date	10/02/2023
Report date	23/03/2023

Job Summary

- ✓ CCTV survey undertaken. [Read more.](#)
- ❗ Drainage repairs required. [Read more.](#)
- ✓ 1 trial hole undertaken. [Read more.](#)



Job Information

Overview

Brief

Auger were commissioned by - 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 was completed in the proposed location and the footing was determined, soil and root samples were taken. Please note the footing was determined by probing to a depth below 1m therefore exact depth cannot be guaranteed.

We carried out high pressure water jetting in order to clear an unknown blockage from within the underground drainage system. Our jetting was successful and we were able to restore full flow to the system.

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 SVP1

Our survey of line 1 revealed root ingress at 0.6m and cracking at 4.1m.

Line 2 - From MH1 upstream to SVP2

Our survey of line 2 revealed root ingress at 1m and 3.8m and joint displacements at 1.5m, 2m 2.5m and 3m.

Line 3 - From MH1 upstream to WG1

Our survey of line 3 revealed joint displacements at 2m and cracking at 1m.

Line 4 - From RWP1 downstream to Out of AOC

Our survey of line 4 revealed root ingress through the pipe.

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

Drain Survey

Recommendations

Refer Back to Client	<p>It is recommended that the following repairs are carried out to prevent an escape of water from the system:</p> <p>Line 1 Install 4.5m of 100mm liner directly upstream of MH1.</p> <p>Line 2 Excavate and replace SVP2 restbend and 1m 100mm pipework at a depth no greater than 1m through block paving. Install 2m 100mm liner directly downstream of the excavation.</p> <p>Line 3 Excavate and replace WG1 and 1m of 100mm pipework at a depth no greater than 1.0m through block paving. Install 1m of 100mm liner directly downstream of excavation.</p> <p>Line 4 Excavate and replace the RWP1 restbend and 3m of 100mm pipework at a depth no greater than 1.0m through block paving.</p> <p>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.</p> <p>During the clean-up/reinstatement process we will endeavour to leave the area we are working in clean and tidy and as close to how we found it as possible. There will always be an element of general debris/mud/waste that will build up in the area which cannot be prevented. There may however be elements of this process that are outside our remit i.e., Repainting or cleaning. If this is the case, then we will need to speak to the customer's insurer to help in this regard.</p> <p>We will now refer the claim back to the client in order to progress the claim.</p>
Repair Caveats	<p><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></p> <p><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></p> <p><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></p> <p><i>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. The relining of a severe joint displacement is normally unadvised due to the potential for complications in the future.</i></p> <p><i>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.</i></p> <p><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></p>

Photographs

Trial Hole 1

Fig 1.1: Trial Hole 1 Location



Fig 1.2: Trial Hole 1 Footing



CCTV Stills

Fig 2.1: Line 1 Roots



Fig 2.2: Line 2 Displacement

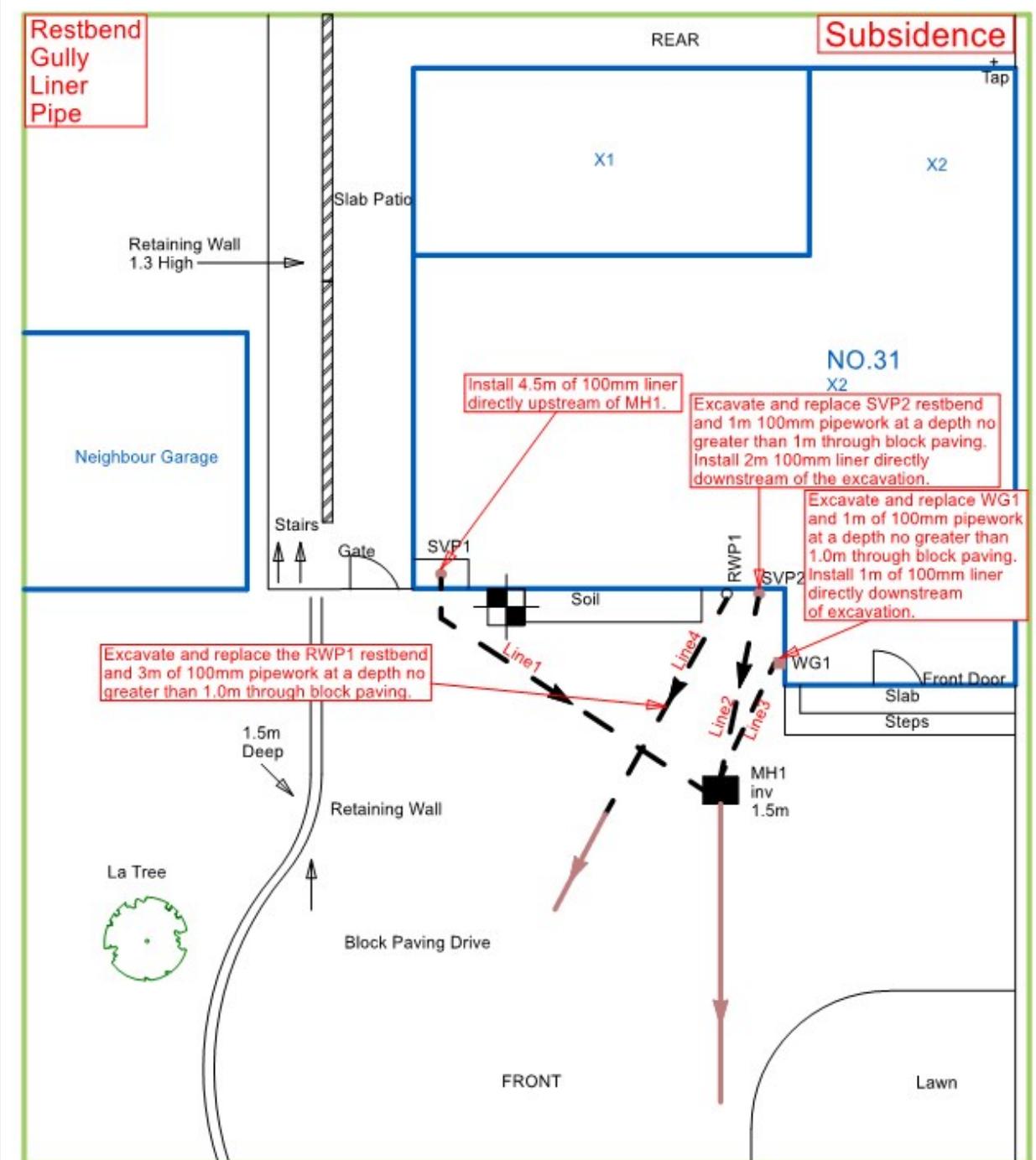


Fig 2.3: Line 3 Cracking



Fig 2.4: Line 4 Roots





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.

LEGEND

	= Manhole (MH)		= Blockage / Collapse		= Lines not to be repaired
	= Inspection Chamber (IC)		= Soil Vent Pipe (SVP) / WC		= Lines to be repaired
	= Inspection Point (IP)		= Combined Waste Gully (CWG) / Foul Waste Gully (FWG)		= Assumed water mains feed
					= Walls
					= Fences
					= Building Outline
					= Shrubs / Bush
					= Tree
					= Gate / Door



Trial Hole Log No.1

Location: Front Left hand corner of house

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Depth (m)	Symbolic Log	Strata Description	Insitu Tests		Soil Sample	Root Sample
			SV(19)			
0.0						
0.0		Soil (Border)				
0.0		Brickwork				
0.5						
0.5		Concrete				
1.0						
1.0		Moist very stiff Brown fine to medium gravelly silty CLAY	84kpa		Soil @ 1.3m	Root @ 1.3m
1.5			86kpa		Soil @ 1.8m	
2.0			86kpa		Soil @ 2.3m	
2.5			90kpa		Soil @ 2.8m	
3.0			90kpa			
3.0		TRIAL HOLE TERMINATED				
3.5						

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	
GSTL Job Reference	64565
SI Date	10/02/2023
Issue Date	10/02/2023
Report Date	28/02/2023
Auger Reference	145212.1.3.RSS
Insurance Company	Direct Line
LA Claim Reference	QG1S1210326
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	28/02/2023	Wayne Honey	
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GEOTECHNICAL SITE & TESTING LABORATORIES

LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX

(BS 1377:1990 - Part 2 : 4.4 & 5.3)

DESCRIPTIONS



environmental
claims mgmt
subsidence
drainage

GSTL Contract Number	64565	
Report Date	28/02/2023	
Auger Reference	145212.1.3.RSS	

Test Operator



LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.4 & 5.3)



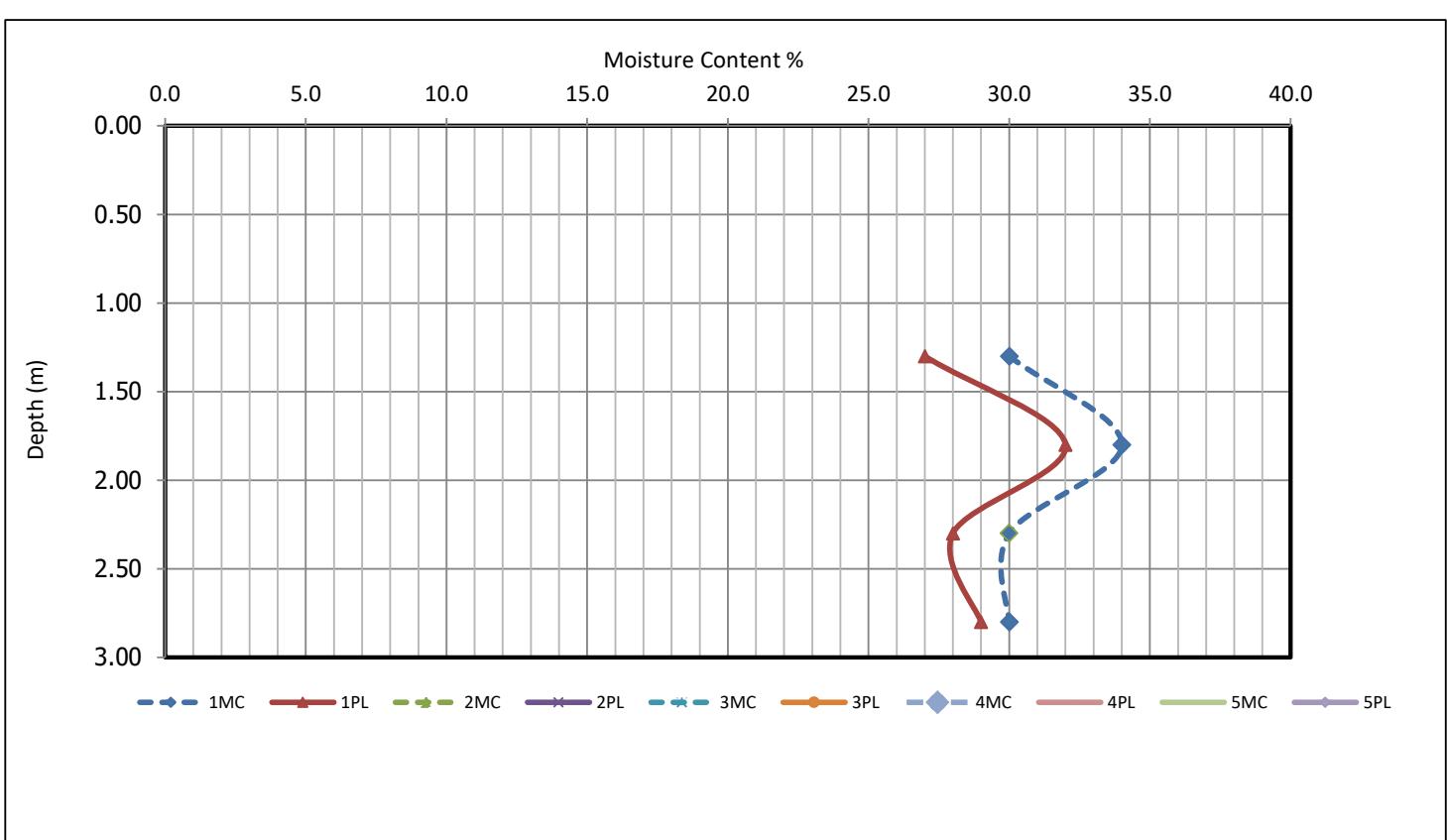
- environmental +
- claims mgmt +
- subsidence +
- drainage +

GEOTECHNICAL SITE & TESTING LABORATORIES	
GSTL Contract Number	64565
Report Date	28/02/2023
Auger Reference	145212.1.3.RSS
Remarks	NP - (Non-Plastic), # - (Liquid Limit and Plastic Limit Wet Sieved)

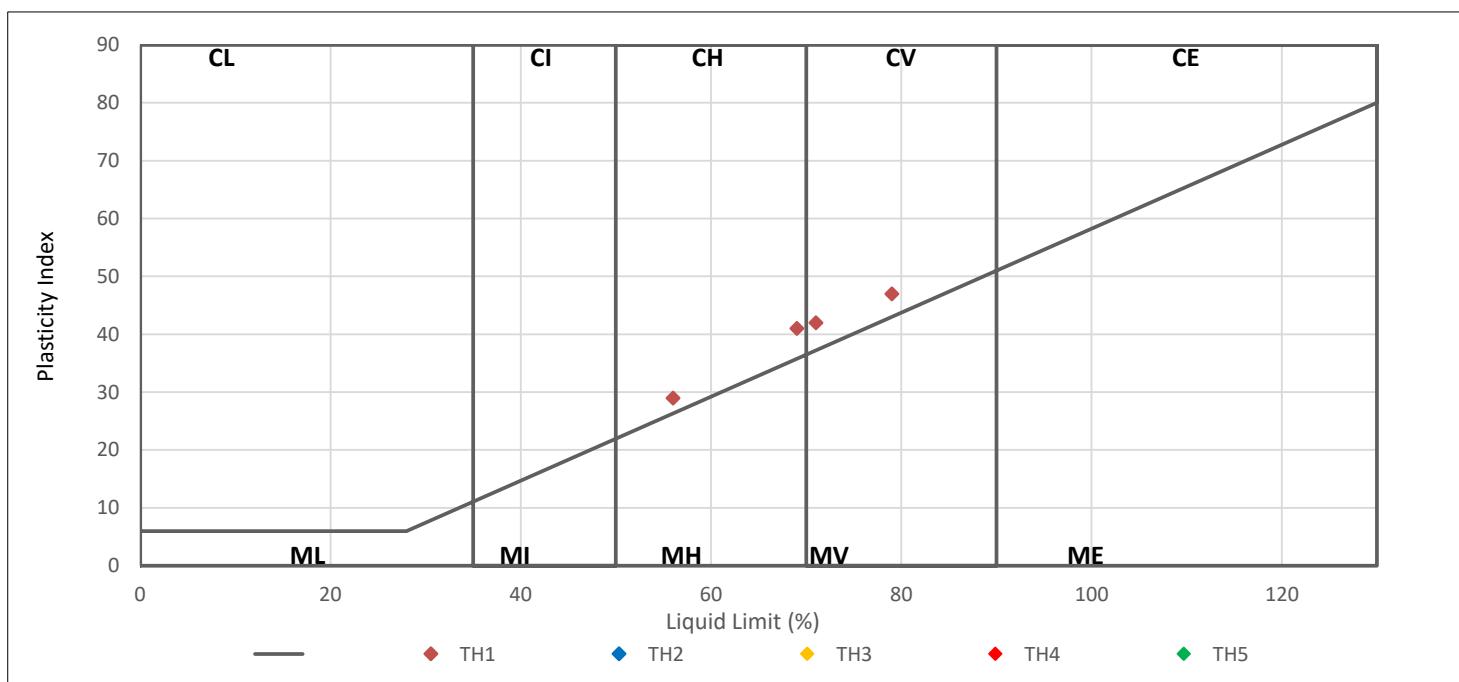
Modified Plasticity Index (PI) <10	: Non Classified
Modified PI = 10 to <20	: Low volume change potential (LOW VCP)
Modified PI = 20 to <40	: Medium volume change potential (Med VCP)
Modified PI = 40 or greater	: High volume change potential (HIGH VCP)

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



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

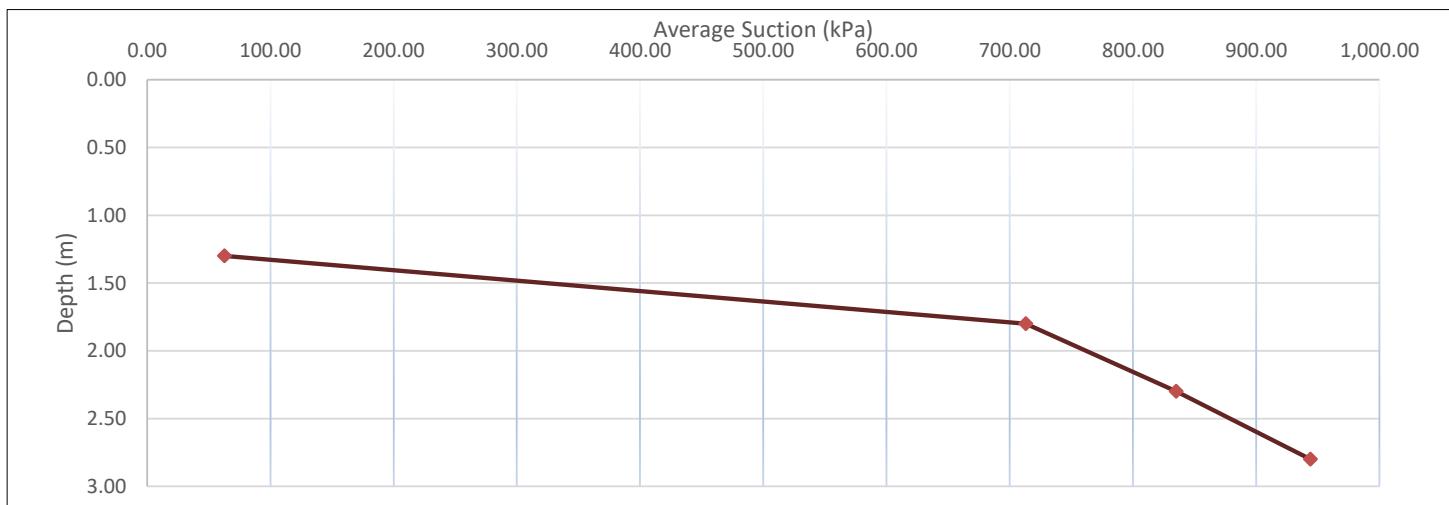
GSTL Contract Number	64565						
Report Date	28/02/2023						
Auger Reference	145212.1.3.RSS						
Remarks	D - Disturbed (Recompacted 2.5kg Rammer), U - Undisturbed Sample						

TH Trial Hole	Depth (m)	Filter Paper Location	Filter Paper	Sample Prep Method	Test Duration (Days)	Water Content (%)	Soil Suction Pk (kPa)	Average Soil Suction Pk (kPa)	Cumulative Heave Potential (mm) from bottom of the hole
TH1	1.30	Top	I	D	5	51.6	64	63	31
TH1		Middle	II	D	5	51.9	63		
TH1		Bottom	III	D	5	52.2	62		
TH1	1.80	Top	I	D	5	31.7	742	713	33
TH1		Middle	II	D	5	31.9	713		
TH1		Bottom	III	D	5	32.2	685		
TH1	2.30	Top	I	D	5	30.6	869	835	21
TH1		Middle	II	D	5	30.9	834		
TH1		Bottom	III	D	5	31.1	802		
TH1	2.80	Top	I	D	5	29.7	982	944	11
TH1		Middle	II	D	5	30.0	942		
TH1		Bottom	III	D	5	30.3	908		

Heave potential is calculated from the bottom of the hole and heaves above the bottom of the hole are reported as a cumulative value.

The values reported for heave above only apply to the strata the suction and plasticity have been performed on. The shallowest depth reported is assumed to be a strata thickness to GL and Heave is calculated based on that layer thickness, if the next sample is in 0.5m increments the heave is calculated based on the layer thickness of 0.5m and depths 1m from the sample above will include heave over 1m.

Consideration should be made for other stratas where values are not reported and when working out the heave potential over the entire trial hole.



Test Operator

Jason Smith



Richardson's Botanical Identifications

Root identification
Vegetation surveys
Tree/Building investigations
Plant taxonomy

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

Auger Solutions

Auger House

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Web: www.botanical.net

Your ref: 145212-1-2

22/03/2023

Our ref: 85/8615

Dear Sirs

Root ID

The samples you sent in relation to the above on 10/02/2023 have been examined. Their structures were referable as follows:

TH1, 1.3m		
1 no.	Examined root: a SHRUB, similar in many ways to CISTACEAE (includes CISTUS and HELIANTHEMUM (small shrubs with very delicate and short-lived pink, yellow or white-ish flowers)); also in some ways like LAVANDULA (Lavender). In their absence, another suggestion would be the family CAPRIFOLIACEAE (the most common members being Viburnum (Laurestinus and Guelder-rose), Weigela, Symphoricarpos (Snowberry), Lonicera (Honeysuckle)). This was a very IMMATURE sample.	Alive, recently*.
5 no.	Unfortunately all with insufficient cells for identification.	

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 * *