Arboricultural Consultancy for Esure

Note: This report is intended for use between the client, Environmental Services and any parties detailed within the report. It is based on the understanding at the time of visiting the property that Engineers are satisfied that damage is attributable to clay shrinkage subsidence exacerbated by vegetation.

1. Case Details

Insured	Mr Duncan Young	Address	5 Cavendish Close, Waterlooville, Hampshire, PO7 7PP		
Client	Subsidence Management Services	Contact	Peter Hughes	Claim No.	IFS-ESU-SUB-22-0102199
ES Ref	SA-251518	Consultant	Giles Mercer	Contact No.	0330 380 1036
Report Date	08/02/2023				

Scope of Report: To survey the property and determine significant vegetation contributing to subsidence damage, make recommendation for remedial action and assess initial mitigation and recovery prospects. The survey does not make an assessment for decay or hazard evaluation.

2. Property and Damage Description

The insured structure is a 2 storey semi-detached house. The property occupies a site that slopes gently uphill from front to rear.

We have been advised that the current damage relates to the rear elevation of the insured dwelling, where cracking indicates downwards movement.

3. Technical Reports

No technical investigations are available at the time of reporting, therefore assumptions outlined in Note above apply: recommendations may be subject to change following evaluation of any investigations that may be forthcoming.

4. Action Plan

Mitigation	
Insured involved?	No
Local Authority involved?	Yes
Other third party Mitigation involved?	Yes
Recovery	
Is there a potential recovery action?	Yes

Treeworks	
Local Authority	Havant Borough Council
TPO / Conservation Area / Planning Protection Searches	Awaiting Searches from LA
Additional Comments	
Awaiting Further Instructions. A potential recovery action has been identified. Engineers should consider focusing investigations to strengthen factual evidence for disclosure to third party tree owners.	

5. Technical Synopsis

This report is based upon our understanding at the time of visiting the property that Subsidence Management Services have concluded, on a preliminary basis, that the current damage is due to differential foundation movement exacerbated by moisture abstraction from vegetation growing adjacent to the property's foundations.

We have therefore been instructed to assess the potential for vegetation to be influencing soil moisture levels beneath the foundations of the property and, if deemed appropriate provide management proposals which will return long-term stability and allow effective repairs to be undertaken.

The potential drying influence of the vegetation on site, has been considered based on an assessment of overall size, species profile and the proximity of vegetation relative to the advised area of damage.

Based on our observations on site, it is our opinion that the footings of the subject property are within the normally accepted influencing distance of vegetation on site, thereby indicating the potential for the advised damage to be the result of clay shrinkage subsidence exacerbated by the moisture abstracting influence of vegetation.

With due regards to species profile, size and proximity, the Oak trees (T1-T8 inclusive) are clearly the dominant feature(s) proximate to the focal area of movement and accordingly, where vegetation is confirmed as being causal, we have identified them as the primary cause of the current subsidence damage.

The size and proximity of the above vegetation is consistent with the advised location(s) of damage and it is our opinion, on balance of probability, that roots from the above vegetation will be in proximity to the footings of the insured property.

Note: additional minor vegetation has been noted on site and, depending on trial-pit location may be identified within future site investigations; however, unless specifically identified within this report, these plants are not deemed material to the current claim nor pose a significant future risk.

Given the above and considering the suspected mechanism of movement, in order to mitigate the current damage thereby allowing soils beneath the property to recover to a position such that an effective engineering repair solution can be implemented, we recommend a program of vegetation management as detailed by this report.

Please refer to Section 6 for management prescriptions.

Preliminary recommendations contained within this report are prescribed on the basis that site investigations confirm vegetation to be causal; management advice is designed to offer the most reliable arboricultural solution likely to restore long-term stability and also facilitate liaison with third-party owners and/or Local Authorities where necessary.

Consequently, we have advocated the complete removal of the Oak trees (T1, T4 & T7), in conjunction with crown management of T2, T3, T5, T6 & T8 in line with BRE IP7/06 as it will offer the most certain / proportionate arboricultural solution likely to restore long-term stability.

Replacement planting is considered appropriate with regards mitigating the impact of the works suggested; however, species selection should be appropriate for the chosen site and consideration must be given to the ultimate size of the replacement species and any future management requirements.

We recommend the role of vegetation and the efficacy of management recommendations be qualified by means of monitoring.

Please note that the footing of the insured property fall within the anticipated rooting distance of additional vegetation which we believe presents a foreseeable risk of future damage and accordingly we have made recommendations in respect of this.

The extent / impact of vegetation management required to restore and maintain long-term stability at this property is acknowledged. However, we consider the impact on the wider public amenity from the proposed tree works is mitigated by the presence/ retention of additional trees and the scope for replacement planting.

Is vegetation likely to be a contributory factor in the current damage?	Yes
Is vegetation management likely to contribute to the future stability of the property?	Yes
Is replacement planting considered appropriate?	Yes
Would DNA profiling be of assistance in this case?	No

6.0 Recommendations

6.1 Current Claim Requirements

These recommendations may be subject to review following additional site investigations.

Tree No.	Species	Age Cat	Approx. Height (m)	Distance to Building (m) *	Ownership	Action	Requirement
T1	Oak	1	19.1	9.6	A - Third Party	Remove	Remove close to ground level; do not treat stump due to translocation risk. Where such a risk exists, we advise that any emergent regrowth is removed annually.
T2	Oak	1	16.6	16.3	B - Local Authority	Maintain as detailed	Crown reduce overall canopy by 30% (minimum) to achieve a crown volume reduction in line with BRE IP7/06. Maintain at reduced dimensions by re-pruning back to points of previous reduction on a 3 year (max) cycle.
T3	Oak	1	16.6	13.6	B - Local Authority	Maintain as detailed	Re-pollard back to points of previous reduction; maintain in line with BRE IP7/06 by re-pruning back to points of previous reduction on a 3 year (max) cycle.
T4	Oak	1	17	8.7	B - Local Authority	Remove	Remove close to ground level; do not treat stump due to translocation risk. Where such a risk exists, we advise that any emergent regrowth is removed annually.
T5	Oak	1	17	15.5	B - Local Authority	Maintain as detailed	Crown reduce overall canopy by 30% (minimum) to achieve a crown volume reduction in line with BRE IP7/06. Maintain at reduced dimensions by re-pruning back to points of previous reduction on a 3 year (max) cycle.
T6	Oak	1	17	16.2	B - Local Authority	Maintain as detailed	Re-pollard back to points of previous reduction; maintain in line with BRE IP7/06 by re-pruning back to points of previous reduction on a 3 year (max) cycle.
T7	Oak	1	17	11.4	B - Local Authority	Remove	Re-pollard back to points of previous reduction; maintain in line with BRE IP7/06 by re-pruning back to points of previous reduction on a 3 year (max) cycle.
T8	Oak	1	17	13.2	B - Local Authority	Maintain as detailed	Re-pollard back to points of previous reduction; maintain in line with BRE IP7/06 by re-pruning back to points of previous reduction on a 3 year (max) cycle.
Age Cat: 1 = Younger than property; 2 = Similar age to the property; 3 = Significantly older than property							

* Estimated

6.2 Future Risk Recommendations

These recommendations may be subject to review following additional site investigations.

Tree No.	Species	Age Cat	Approx. Height (m)	Distance to Building (m) *	Ownership	Action	Requirement
H1	Euonymus	1	1.7	1.3	A - Third Party	Action to avoid future risk	Maintain at broadly current dimensions by way of regular pruning.
Age Cat: 1 = Younger than property; 2 = Similar age to the property; 3 = Significantly older than property							

* Estimated

Third party property addresses should be treated as indicative only, should precise detail be required then Environmental Services can undertake Land Registry Searches

7. Site Plan

Please note that this plan is not to scale. OS Licence No. 100043218

8. Photographs

H1 - Euonymus

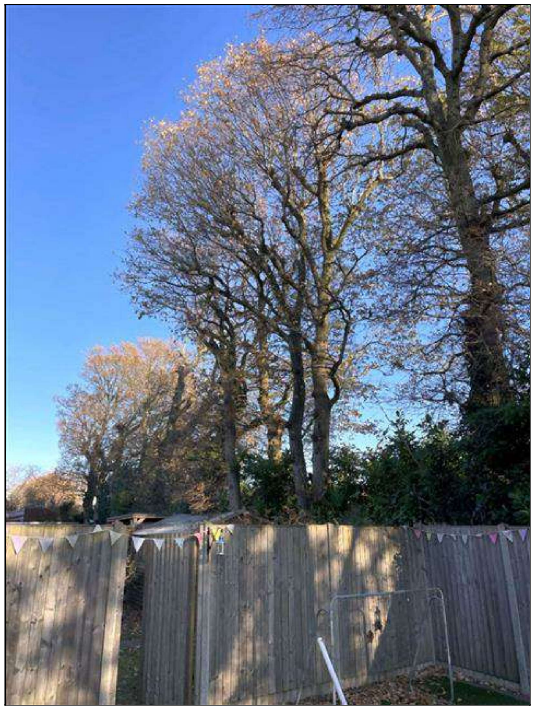
T1 - Oak

T2 & T3 (Oak)

T4 - Oak

Arboricultural Consultancy for Esure

T5 - Oak



T7 & T8 - Oak

T6 - Oak

Rear

Arboricultural Consultancy for Esure

Front

Date: 08/02/2023 Property: 5 Cavendish Close, Waterlooville, Hampshire, PO7 7PP

9. Tree Works Reserve - Does not include recommendations for future risk.

Insured Property Tree Works	£0.00
Third Party Tree Works	£1850.00
Provisional Sum	£0.00

- The above prices are based on works being performed as separate operations.
- The above is a reserve estimate only.
- Ownerships are assumed to be correct and as per Section 6.
- A fixed charge is made for Tree Preservation Order/Conservation Area searches unless charged by the Local Authority in which case it is cost plus 25%.
- Should tree works be prevented due to statutory protection then we will automatically proceed to seek consent for the works and Appeal to the Secretary of State if appropriate.
- All prices will be subject to V.A.T., which will be charged at the rate applying when the invoice is raised.
- Trees are removed as near as possible to ground level, stump and associated roots are not removed or included in the price.
- Where chemical application is made to stumps it cannot always be guaranteed that this will prevent future regrowth. Should this occur we would be pleased to provide advice to the insured on the best course of action available to them at that time. Where there is a risk to other trees of the same species due to root fusion, chemical control may not be appropriate.

10. Limitations

This report is an appraisal of vegetation influence on the property and is made on the understanding that that engineers suspect or have confirmed that vegetation is contributing to clay shrinkage subsidence, which is impacting upon the building. Recommendations for remedial tree works and future management are made to meet the primary objective of assisting in the restoration of stability to the property. In achieving this, it should be appreciated that recommendations may in some cases be contrary to best Arboricultural practice for tree pruning/management and is a necessary compromise between competing objectives.

Following tree surgery we recommended that the building be monitored to establish the effectiveness of the works in restoring stability.

The influence of trees on soils and building is dynamic and vegetation in close proximity to vulnerable structure should be inspected annually.

The statutory tree protection status as notified by the Local Authority was correct at the time of reporting. It should be noted however that this may be subject to change and we therefore advise that further checks with the Local Authority MUST be carried out prior to implementation of any tree works. Failure to do so can result in fines in excess of £20,000.

Our flagging of a possible recovery action is based on a broad approach that assume all third parties with vegetation contributing to the current claim have the potential for a recovery action (including domestic third parties). This way opportunities do not “fall through the net”; it is understood that domestic third parties with no prior knowledge may be difficult to recover against but that decision will be fully determined by the client.

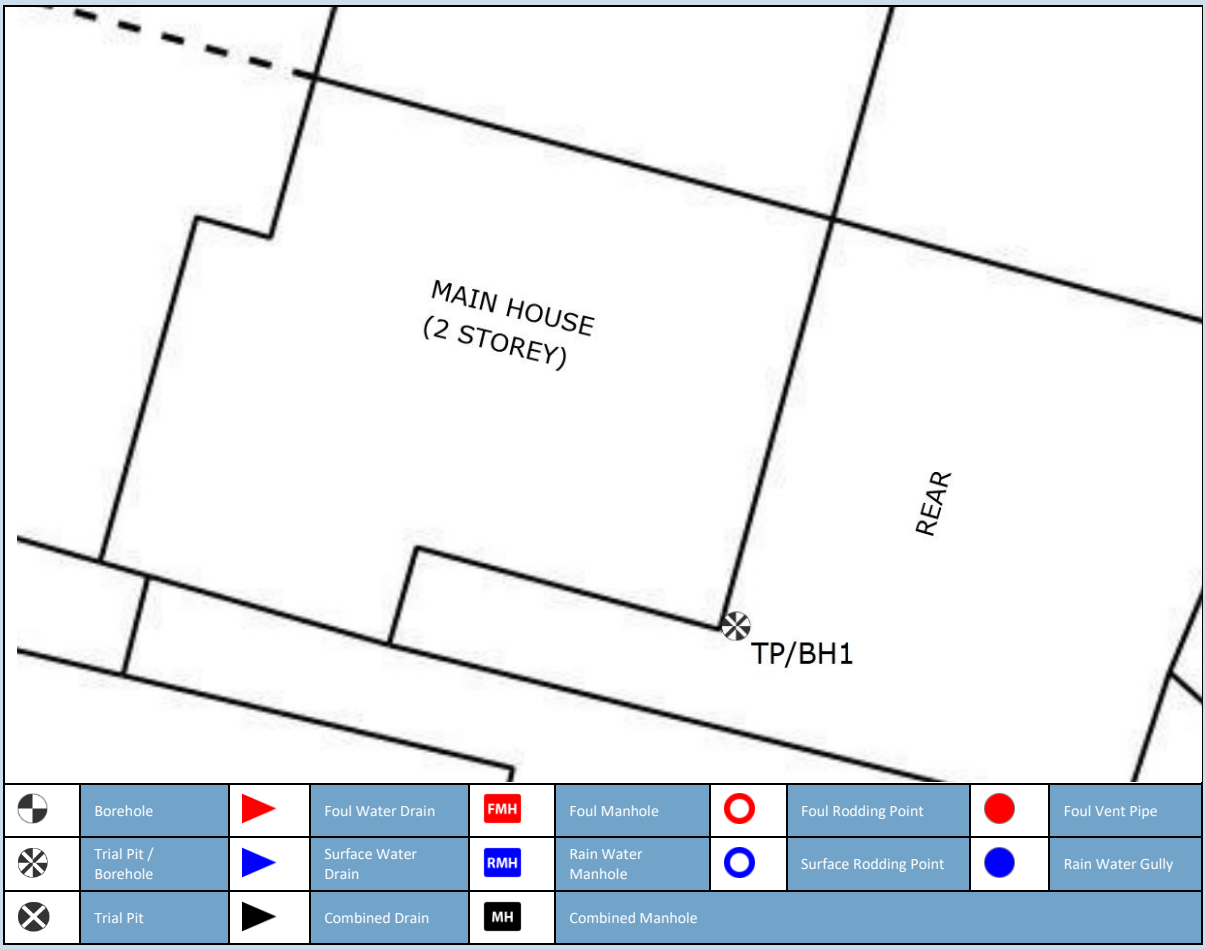
A legal Duty of Care requires that all works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried out according to British Standard 3998:2010 *“Tree Work. Recommendations”*.

GEOTECHNICAL
for Subsidence Management Services

5 Cavendish Close, Waterlooville, Hampshire, PO7 7PP

Client:	Subsidence Management Services
Client Contact:	Peter Hughes
Client Ref:	IFS-ESU-SUB-22-0102199
Policy Holder:	Mr Duncan Young
Report Date:	5 December 2022
Our Ref:	C67320G30768

Site Plan



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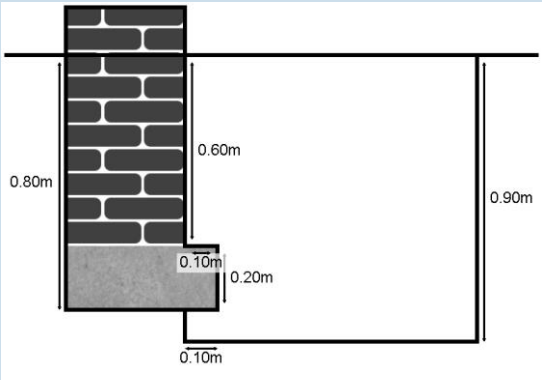
TP/BH1 Foundation Detail and Borehole Log

Foundation Detail

House foundation comprised of brick wall to 600mm bgl, bearing on concrete to 800mm bgl, with a total projection of 100mm from the elevation. Underside of foundation (USF) was exposed to 100mm back from the face of the foundation and probed 500mm back from the face of the foundation.



WS	Samples Type	Samples Depth (m)	Tests Type	Tests Depth (m)	Tests Results	Legend	Stratum Description and Observations
						0	PAVING SLAB.
							CONCRETE.
							Soft orangish brown very sandy very silty CLAY with numerous fine to medium flint.
						0.5	
	R D	0.90 - 1.90 0.90 - 1.40	PEN	0.90	HP=1.4 (1.0,1.5,1.5,1.5,1.5)	1.0	
	D	1.40 - 1.90	PEN	1.40	HP=2.1 (2.0,2.0,2.0,2.5,2.0)	1.5	Firm orangish brown mottled grey very sandy very silty CLAY.
	D	1.90 - 2.40	PEN	1.90	HP=2.3 (2.5,2.5,2.0,2.0,2.5)	2.0	
							Firm orangish brown mottled grey very sandy very silty CLAY with occasional fine chalk.
	D	2.40 - 2.90	PEN	2.40	HP=2.3 (2.5,2.5,2.5,2.0,2.0)	2.5	Firm orangish brown mottled grey very sandy very silty CLAY.
	D	2.90 - 3.40	PEN	2.90	HP=1.9 (2.0,2.0,2.0,2.0,1.5)	3.0	
▼	D	3.40 - 3.90	PEN	3.40	HP=2.0 (1.5,2.0,2.0,2.0,2.5)		Soft orangish brown mottled grey very sandy very silty CLAY with ocassional fine to medium sandstone.
						3.5	Firm orangish brown mottled grey very sandy very silty CLAY.
	D	3.90 - 4.00	PEN	3.90	HP=2.5 (2.5,,,,)	4.0	

-- End of borehole at 4.00m --
Trial pit excavated to 0.90m bgl. Borehole completed by mech window sampler. Roots encountered to 1.9m bgl. Groundwater encountered at 3.4m bgl. Standing water level within the exploratory hole at 3.4m bgl on completion. PEN = Hand Penetrometer (kg/sq cm).

SubsNetUK

Site Observations

GENERAL:
Site Investigation works (TP/BH 1) undertaken on 1 December 2022 during dry weather (i.e. no rain).

HEALTH AND SAFETY:
Negative signal obtained in Power, Radio and Genny mode on the Cable Avoidance Tool (CAT) (TP/BH1).

FOUNDATIONS:
House foundation was exposed and the underside of foundation (USF) recorded to be 0.8m bgl (TP/BH 1).

ROOTS:
Roots encountered to 1.9m bgl (TP/BH 1).

IN SITU TESTING:
Hand Penetrometer (PEN) undertaken at 0.9m bgl (TP/BH 1) within the window sampler and thereafter in the window sampler at maximum 0.5m intervals.

WATER STRIKES:
A water strike (WS) was encountered in the clay at 3.4m bgl (TP/BH 1), with a standing water level (SWL) recorded at 3.4m bgl after 2 minutes (TP/BH 1). Standing water level within the exploratory hole at 3.4m bgl (TP/BH 1) on completion.

SubsNetuk

Environmental Services

SOIL ANALYSIS
for Subsidence Management Services

5 Cavendish Close, Hampshire, PO7 7PP

Client:	Subsidence Management Services
Claim Number:	40005470957
Policy Holder:	Mr Duncan Young
Report Date:	11/01/2023
Our Ref:	L24310

Compiled By:

Name	Position	Signature
Saira Dougan	Laboratory Technician	

Checked By:

Name	Position	Signature
Bob Walker	Laboratory Manager	

Date samples received:	07-Dec-22
Water Content Test Date:	03-Jan-23
Atterberg Limits Test Date:	10-Jan-23
Suction Test Date:	11-Jan-23

UKAS TESTING
9265

Environmental Services

Notes relating to soils testing

Unless otherwise stated, all soil testing was undertaken by Environmental Services at unit 10H Maybrook Business Park, B76 1AL for SubsNetUK of Unit 4 Linnet Court, Cawledge Business Park, Alnwick, NE66 2GD

Soil samples have been prepared in accordance with BS1377:Part 1: 2016 Section 7

Descriptions of soil samples within the laboratory have been undertaken generally in accordance with BS5930:2015. Descriptions of soil samples fall outside of the scope of UKAS accreditation and may have been shortened to remove tertiary components for ease of reference.

The graphical representation of 40% of the LL and the numerical representation of the modified plasticity index (mod. PI) fall outside of the scope of UKAS accreditation.

Following the issue of this soil analysis report, samples will be retained for at least 28 days should additional testing, or referencing, be required. It should be noted that any tests undertaken on soils retained subsequent to the issue of this report may not give an accurate indication of the in-situ conditions of the sample.

This Soil Analysis Report may not be reproduced, in part or in full, without written approval of the laboratory.

The results contained herein relate only to items tested and no others. Additionally as the laboratory is not responsible for the sampling process it takes no responsibility for the condition of the samples and all samples are tested "as received".

Where samples of the same test type are not tested on the same day, or the testing spans multiple days, the test date states the day of the final test or the test date of the final sample.

All information above the laboratory reference on the cover page of this report are as provided by the customer and the laboratory is not responsible for any errors or omissions therein.

Water Content Tests are undertaken in accordance with ISO 17892:Part 1:2014

The Liquid Limit test is undertaken in accordance with BS1377:Part 2:1990 Section 4.4 using an 80g cone with a 30° tip. Sieve percentages reported in blue denote that the sample has been sieved otherwise it has been prepared from its natural state. Sieve percentage reported in BOLD denote that the sample has been oven-dried prior to testing.
Unless otherwise specified herein, the one-point cone penetrometer method has been used with increasing water content. Atterberg results depicted in green have not been tested and are duplicates of the preceding sample, included for reference only.

The Plastic Limit test and the determination of the Plasticity Index is undertaken in accordance with BS1377:Part 2:1990. Where a plastic limit has been denoted with an asterisk (*) then it has been derived from the liquid limit and has not been tested.

The Filter Paper Suction Test is undertaken in accordance with the BRE paper IP4/93 (corrected) 'A Method of Determining the State of Desiccation in Clay Soils'

Unless otherwise stated the moisture content of the filter paper was determined after 7 days contact with the sample and the test was prepared from a remoulded disturbed sample.

The Filter Paper Suction Tests are conducted in a controlled environment within a temperature range of 18°C and 22°C

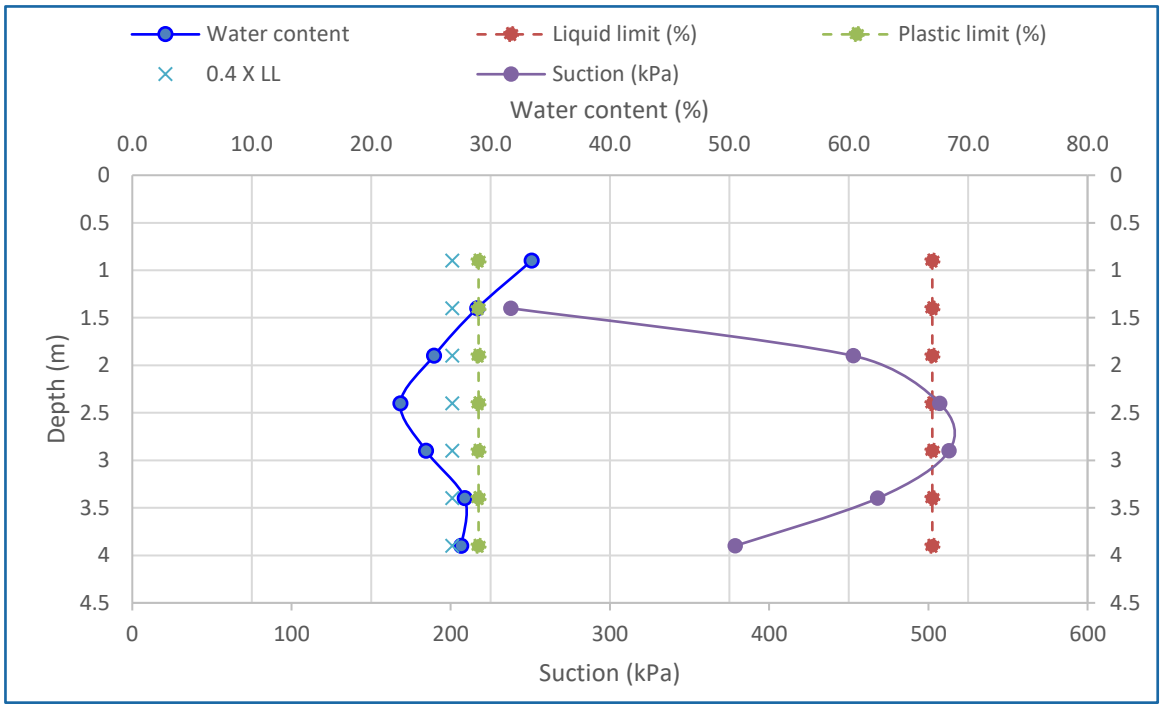
If you would like to provide feedback on this report or any laboratory services or performance, please complete the form below. All appropriate feedback will be used in the continual improvement of laboratory services.

Laboratory feedback form

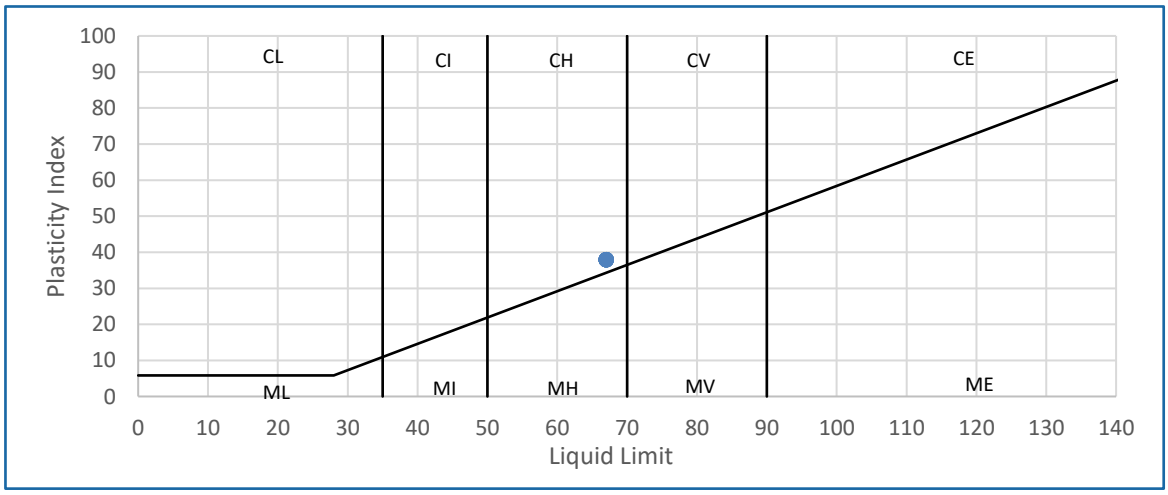
Environmental Services

Samples from BH1

Lab Ref	Depth (m)	WC (%)	LL (%)	PL (%)	PI (%)	.425 mm(%)	mod. PI (%)	Av. Suc. (kPa)	Description
1	0.9	33.4	67	29	38	98	37		Soft to firm orange-brown/grey mottled silty CLAY with rare gravel. Gravel is fine
2	1.4	28.9	67	29	38	98	37	238	Firm brown/orange-brown/grey mottled silty CLAY with rare gravel. Gravel is fine
3	1.9	25.3	67	29	38	98	37	453	Firm to stiff brown/grey mottled silty CLAY with rare gravel. Gravel is fine and medium.
4	2.4	22.5	67	29	38	98	37	507	Stiff brown/grey mottled silty CLAY with rare gravel. Gravel is fine and medium.
5	2.9	24.6	67	29	38	98	37	513	Stiff brown/grey mottled silty CLAY with rare gravel. Gravel is fine and medium.
6	3.4	27.8	67	29	38	98	37	468	Firm to stiff brown/grey mottled silty CLAY with rare gravel. Gravel is fine and medium.
7	3.9	27.5	67	29	38	98	37	379	Firm to stiff brown/grey mottled silty CLAY with rare gravel. Gravel is fine and medium.



Plasticity Chart for Casagrande Classification



Environmental Services

Deviating Samples

The table below details any samples deviating from laboratory procedure or deviating in condition to an extent whereby the validity of results may be affected. A test denoted "I" is likely to have had testing abandoned but where a test result has been provided a non-standard procedure may have been used, details of which will be provided upon request.

LAB REF	CONDITION	WC	ATT	SUC	OED
1					
2					
3					
4					
5					
6					
7					

Key

D	Delay in sample receipt
C	Contaminated sample
B	Sample not bagged correctly
S	Sample too sandy (unsuitable for testing)
G	Sample too gravelly (unsuitable for testing)
V	Sample too soft (unsuitable for preparation)
L	Sample too silty
I	Insufficient sample
O	Too much organic content (unsuitable for testing)
N	Non-standard procedure used
H	Sample depth too shallow
X	Testing result too similar to above sample

References

The following provides a brief interpretation of the test results by comparison of the results to published classifications. The Atterberg Limit test may be used to classify the plasticity of soils; the plasticity classes defined in BS5930:2015 "Code of Practice for Site Investigations" are as follows.

CL (ML)	CLAY and CLAY/SILT of Low plasticity
CI (MI)	CLAY and CLAY/SILT of Intermediate plasticity
CH (MH)	CLAY and CLAY/SILT of High plasticity
CV (MV)	CLAY and CLAY/SILT of Very High plasticity
CE (ME)	CLAY and CLAY/SILT of Extremely High plasticity
O	The letter O is added to prefixes to symbolise a significant proportion of organic matter.
NP	Non-plastic

The Plasticity Index (PI) Result obtained from the Atterberg Limit tests may also be used to classify the potential for volume change of fine soils, in accordance with the National House Building Council's standards - Chapter 4.2 (2003) "Building Near Trees", as summarised below.

Modified PI < 10	Non Classified.
Modified PI = 10 to <20	Low volume change potential.
Modified PI = 20 to <40	Medium volume change potential.
Modified PI = 40 or greater	High volume change potential.

The 2003 edition of Chapter 4.2 also permits use of the Plasticity Index without modification. The classifications for this are grouped by soil type (soils with similar visual soils description and using unmodified Plasticity Indices.

ROOT IDENTIFICATION

for Subsidence Management Services

5 Cavendish Close, Waterlooville, Hampshire, PO7 7PP

Intec
Parc Menai, Bangor,
Gwynedd, North Wales
LL57 4FG
Tel: 01248 672652

Client:	Subsidence Management Services
Client Contact:	Peter Hughes
Claim Number:	40005470957
Client Reference:	IFS-ESU-SUB-22-0102199
Policy Holder:	Mr Duncan Young
Report Date:	4 January 2023
Our Ref:	R48032

Sub Sample	Species Identified		Root Diameter	Starch
TP/BH1:				
0.9-1.9m	*Prunus* spp.	1	1.5 mm	Abundant
0.9-1.9m	either *Quercus* spp. or *Castanea* spp.	2	<1 mm	Absent
0.9-1.9m	broadleaved species, too decayed for positive identification		<1 mm	Absent

Comments:

1 - Plus 1 other also identified as *Prunus* spp.
2 - Juvenile and in a state of decay.

Prunus spp. include blackthorn, cherry, cherry-laurel, Portuguese laurel, peach, plum, and related species. *Quercus* spp. are oaks. *Castanea* spp. include sweet chestnut.

Signed: R. Shaw

Unless we are otherwise instructed in writing, the above sample material will normally be disposed of 6 years after the date of this report.

SubsNetUK