

Arboricultural Consultancy for Lloyds Bank

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	Mrs Lynda Harkus	Address	1 AVONDALE TERRACE, WEST BOLDON EAST, BOLDON, TYNE AND WEAR, NE36 0PS		
Client	Subsidence Management Services	Contact	Steven Sargent	Claim No.	IFS-LBG-SUB-23-0108295
ES Ref	SA-253575	Consultant	Nigel Chopping	Contact No.	0330 380 1036
Report Date	23/08/2023				

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 end-terrace house. The property occupies a level site with no adverse topographical features.

We understand that the current damage relates to the left-hand flank 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		Treeworks	
Insured involved?	Yes	Local Authority	South Tyneside Metropolitan Borough Council
Local Authority involved?	No	TPO / Conservation Area / Planning Protection Searches	Awaiting Searches from LA
Other third party Mitigation involved?	Yes	Additional Comments	
Recovery		Awaiting Further Instructions.	
Is there a potential recovery action?	No		

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 proximate 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, T2 (Maple (Silver)), T3 (Maple (Silver)) and T4 (Maple (Silver)) are considered the dominant features proximate to the focal area(s) of movement and accordingly, where vegetation is confirmed as being causal, we have identified them as the primary cause of the current subsidence damage.

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Due to the high probability that T3 and T4 retain conjoined root systems with T5 (Maple (Silver)) and T6 (Maple (Silver)), these trees are also considered significant; it is in our opinion that stability is unlikely to be achieved if works are restricted to T2, T3 and T4 only.

Given the above, we have identified the collective / cohesive influence of T2, T3, T4, T5 & T6 as the primary cause of the subsidence damage.

The size and proximity of the above vegetation is consistent with the advised locations 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.

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 T2 (Maple (Silver)), T3 (Maple (Silver)), T4 (Maple (Silver)), T5 (Maple (Silver)) and T6 (Maple (Silver)) as it will offer the most certain arboricultural solution likely to restore long-term stability.

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 of further trees and the scope for replacement planting.

Whilst replacement planting is considered appropriate, due consideration must be given to the ultimate size of the replacement and future management requirements. 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.

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

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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
T2	Maple (Silver)	1	14.5	11.6	F - Commercial Third Party	Remove	Remove close to ground level and manage stump to inhibit regrowth.
T3	Maple (Silver)	1	16	9.5	F - Commercial Third Party	Remove	Remove close to ground level and manage stump to inhibit regrowth.
T4	Maple (Silver)	1	14.5	8.9	F - Commercial Third Party	Remove	Remove close to ground level and manage stump to inhibit regrowth.
T5	Maple (Silver)	1	15	8.9	F - Commercial Third Party	Remove	Remove close to ground level and manage stump to inhibit regrowth.
T6	Maple (Silver)	1	15	8.6	F - Commercial Third Party	Remove	Remove close to ground level and manage stump to inhibit regrowth.
Age Cat: 1 = Younger than property; 2 = Similar age to the property; 3 = Significantly older than property							

* Estimated

6.2 Future Risk Recommendations

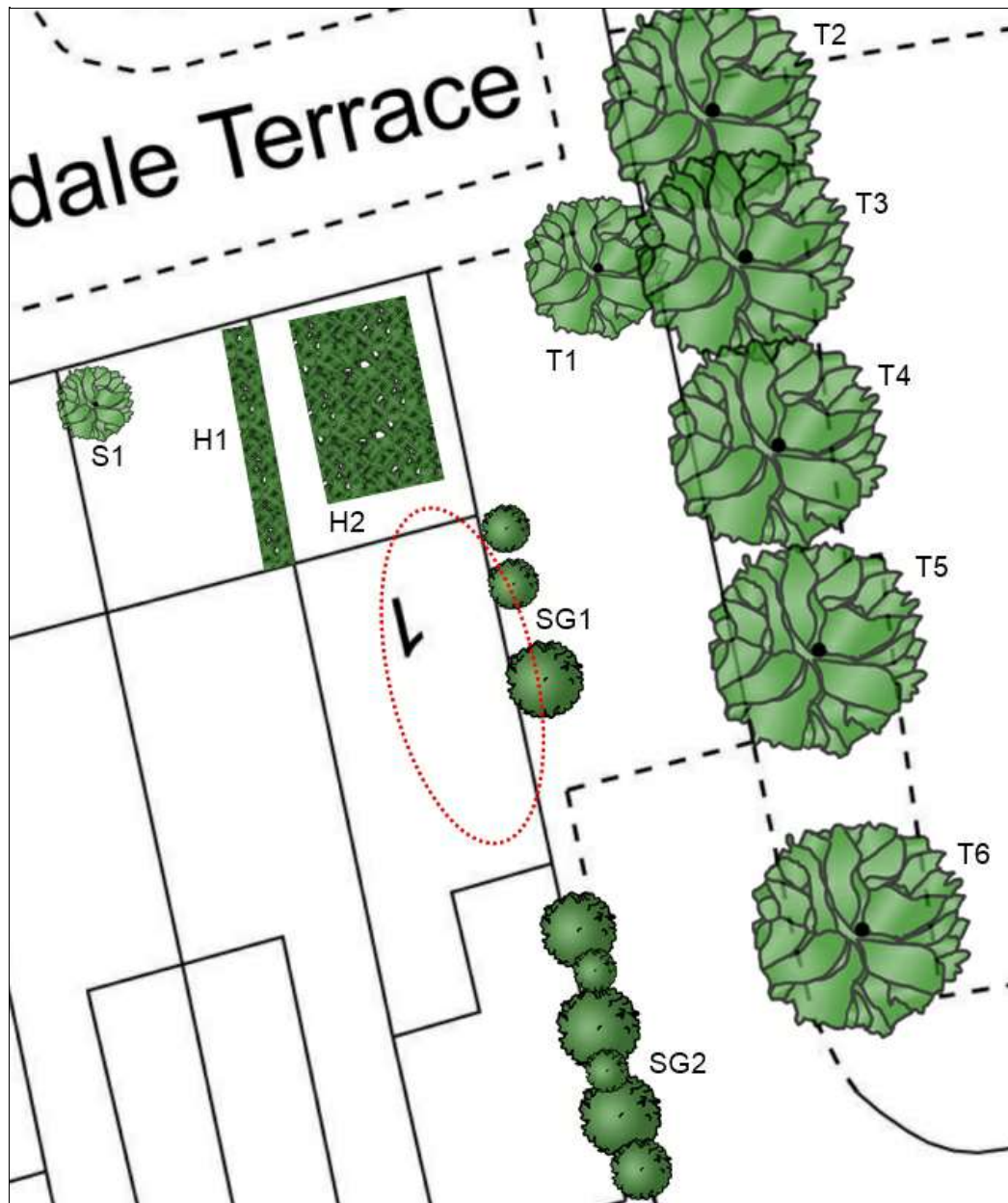
These recommendations may be subject to review following additional site investigations.

Tree No.	Species	Age Cat	Approx. Height (m)	Distance to Building (m) *	Ownership	Action	Requirement
H1	Privet	1	1.2	1.6	A - Third Party	Action to avoid future risk	Maintain at broadly current dimensions by way of regular pruning.
H2	Privet	1	0.4	1.1	C - Insured	Action to avoid future risk	Maintain at broadly current dimensions by way of regular pruning.
S1	Lilac	1	2.5	9	A - Third Party	No action	No works.
SG1	Mixed species shrubs	1	2	0.3	D - Unknown	Action to avoid future risk	Maintain at broadly current dimensions by way of regular pruning.
SG2	Mixed species shrubs	1	2.5	2	D - Unknown	Action to avoid future risk	Maintain at broadly current dimensions by way of regular pruning.
T1	Cherry	1	8	6.5	D - Unknown	Action to avoid future risk	Maintain at, or below 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

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8. Photographs



T6 - Silver Maple



SG1 - Mixed Shrub Group



SG2 - Mixed Shrub Group



Insured property front with S1 H1 and H2

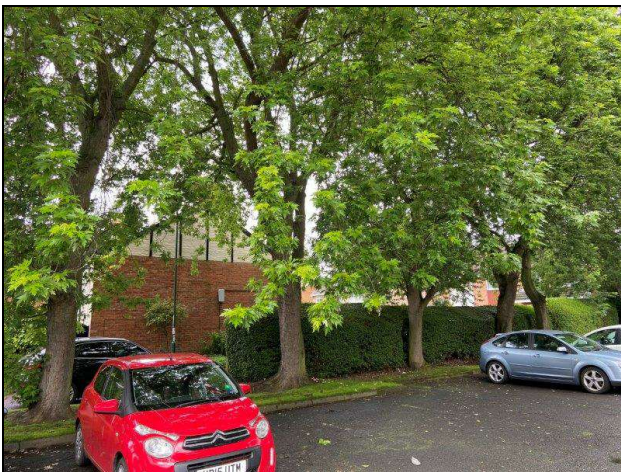
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T1 - Cherry



T1 T2 T3 T4 T5 and T6



Stems of T2 T3 T4 T5 and T6

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Date: 23/08/2023

Property: 1 AVONDALE TERRACE, WEST BOLDON EAST, BOLDON, TYNE AND WEAR, NE36 0PS

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

Insured Property Tree Works	£0.00
Third Party Tree Works	£0.00
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".

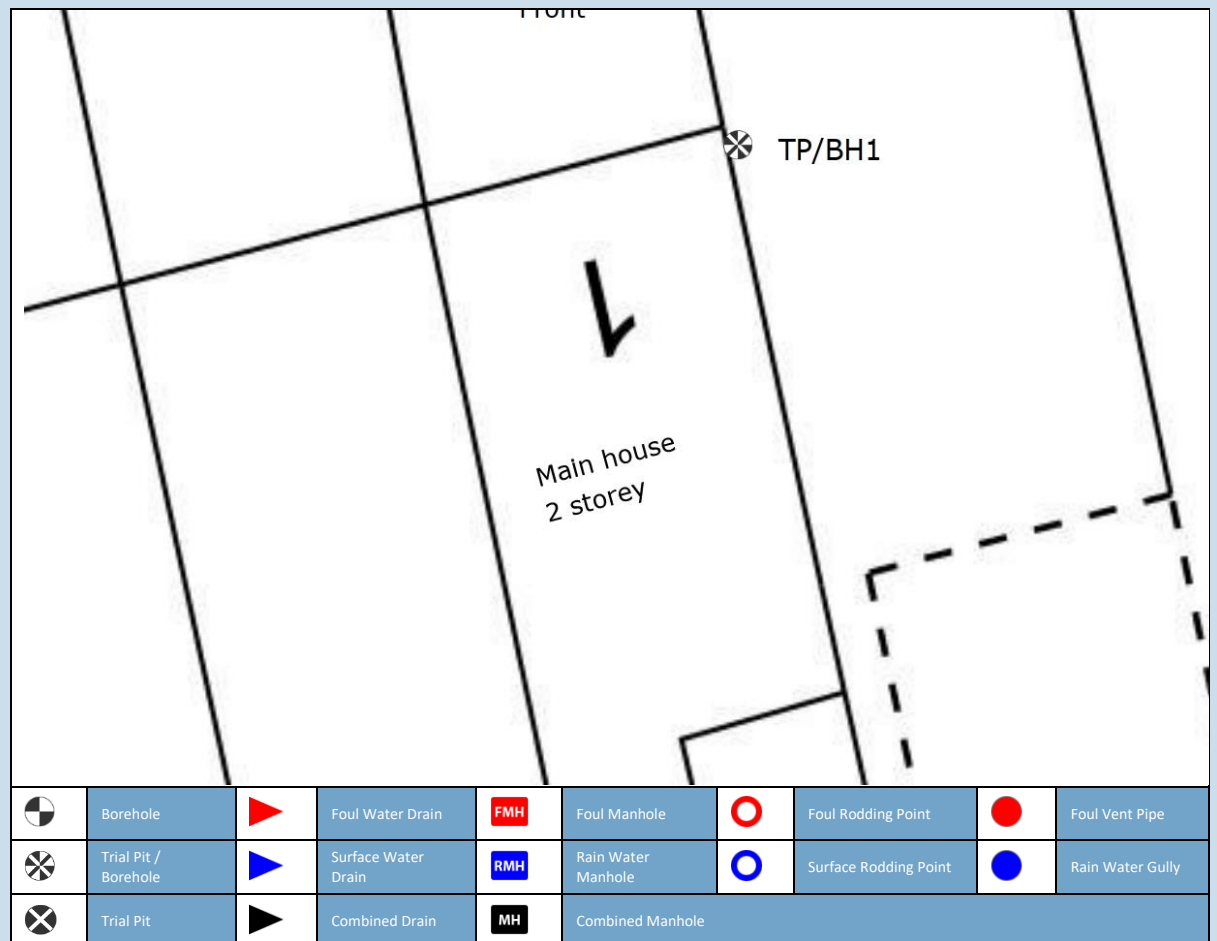
GEOTECHNICAL

for Subsidence Management Services

1 Avondale Terrace, West Boldon, East Boldon, Tyne and Wear, NE36 0PS

Client: Subsidence Management Services
Client Contact: Steven Sargent
Client Ref: IFS-LBG-SUB-23-0108295
Policy Holder: Mrs Lynda Harkus
Report Date: 10 August 2023
Our Ref: C74025G33080

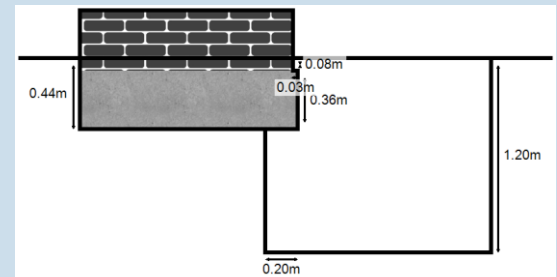
Site Plan



TP/BH1 Foundation Detail and Borehole Log

Foundation Detail

House foundation comprised of brick wall to 80mm bgl, bearing on concrete to 440mm bgl, with a total projection of 30mm from the elevation. Underside of foundation (USF) was exposed to 200mm back from the face of the foundation and probed 200mm back from the face of the foundation.



WS	Samples		Tests		Legend	Stratum Description and Observations
	Type	Depth (m)	Type	Depth (m)		
					0	TOPSOIL. ...at 0.00m to 0.44m bgl numerous roots of live appearance encountered.
					0.44	Firm dark brown silty CLAY with occasional fine to medium brick.
	R	0.44 - 1.60	PEN	0.44		
	D	0.44 - 0.90			0.5	Firm dark brown silty CLAY with numerous fine coal. ...at 0.44m to 1.60m bgl numerous roots of live appearance encountered and sampled. ...at 0.44m bgl UNDERSIDE OF HOUSE FOUNDATION.
					1.0	Stiff dark orangish brown sandy silty CLAY with occasional fine to medium sandstone.
	D	0.90 - 1.40	PEN	1.00		
					1.5	...at 1.20m bgl switched to Hand Held Percussive Window Sampler. ...at 1.20m bgl base of hand excavated trial pit.
	D	1.40 - 1.90	PEN	1.50		
					2.0	...at 1.60m to 3.00m bgl no roots encountered. Extensive inspection of soil samples encountered no roots.
	D	1.90 - 2.40	PEN	2.00		
					2.5	
	D	2.40 - 3.00	PEN	2.50		
					3.0	...at 3.00m bgl borehole terminated due to Hand Held Percussive Window Sampler refusal.
	MP	3.00				
	PEN	3.00				
						Refusal 50 for 30mm HP=3.5 (3.5,3.5,3.5,3.5,3.5)

-- End of borehole at 3.00m --
Trial pit excavated to 1.20m bgl. Borehole completed by mech window sampler. Roots encountered to 1.60m bgl. Groundwater strikes not encountered. PEN = Hand Penetrometer (kg/sq cm).

Site Observations

GENERAL:

Site Investigation works (TP/BH 1) undertaken on 25 July 2023 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:

At 0.44m bgl UNDERSIDE OF HOUSE FOUNDATION in TP/BH1.

BOREHOLE:

Hand Held Percussive Window Sampler and Mackintosh Probe refusal at 3.00m bgl due to cobbles within the clay (TP/BH 1). Borehole terminated. No further works undertaken.

ROOTS:

At 0.00m to 0.44m bgl numerous roots of live appearance encountered in TP/BH1.

At 0.44m to 1.60m bgl numerous roots of live appearance encountered and sampled in TP/BH1.

At 1.60m to 3.00m bgl no roots encountered. Extensive inspection of soil samples encountered no roots in TP/BH1.

INSITU TESTING:

Hand Penetrometer (PEN) undertaken at 0.44m bgl (TP/BH 1) within the hand excavated trial pit and thereafter in the window sampler at maximum 0.50m intervals.

Mackintosh Probe (MP) test undertaken at 3.00m bgl (TP/BH 1) within the window sample borehole only with no further Mackintosh Probe (MP) testing undertaken.

WATER STRIKES:

No water strike/s (NWS) encountered (TP/BH 1).

The groundwater observations do not necessarily indicate equilibrium conditions. It should be appreciated that groundwater levels are subject to both seasonal and weather induced variations.

Other effects such as construction activities may also change groundwater levels.

SOIL ANALYSIS

for Subsidence Management Services

1 AVONDALE TERRACE, TYNE AND WEAR, NE36 OPS

Client: Subsidence Management Services
Claim Number: 700052403
Policy Holder: Mrs Lynda Harkus
Report Date: 15/08/2023
Our Ref: L26578

Compiled By:

Name	Position	Signature
Saira Dougan	Laboratory Supervisor	

Checked By:

Name	Position	Signature
Bob Walker	Laboratory Manager	

Date samples received: 28-Jul-23
Water Content Test Date: 28-Jul-23
Atterberg Limits Test Date: 11-Aug-23
Suction Test Date: 15-Aug-23



9265

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. 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 2:2022. 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.

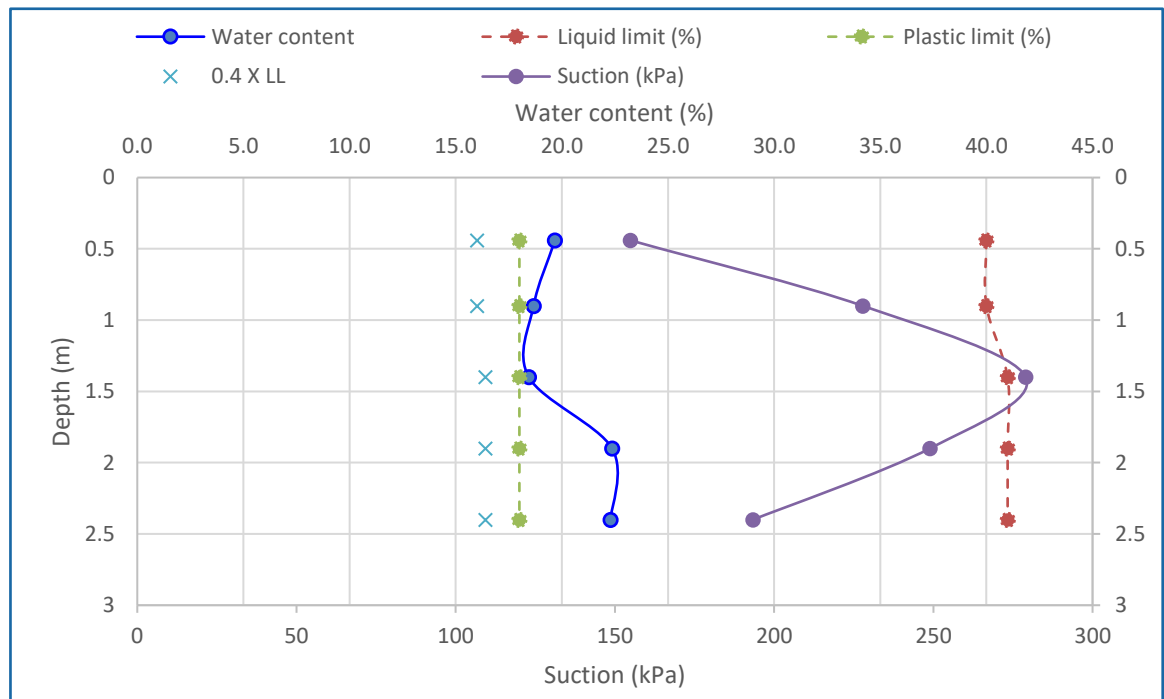
The Filter Paper Suction Tests are conducted in a controlled environment within a temperature range of 18°C and 22°C

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.

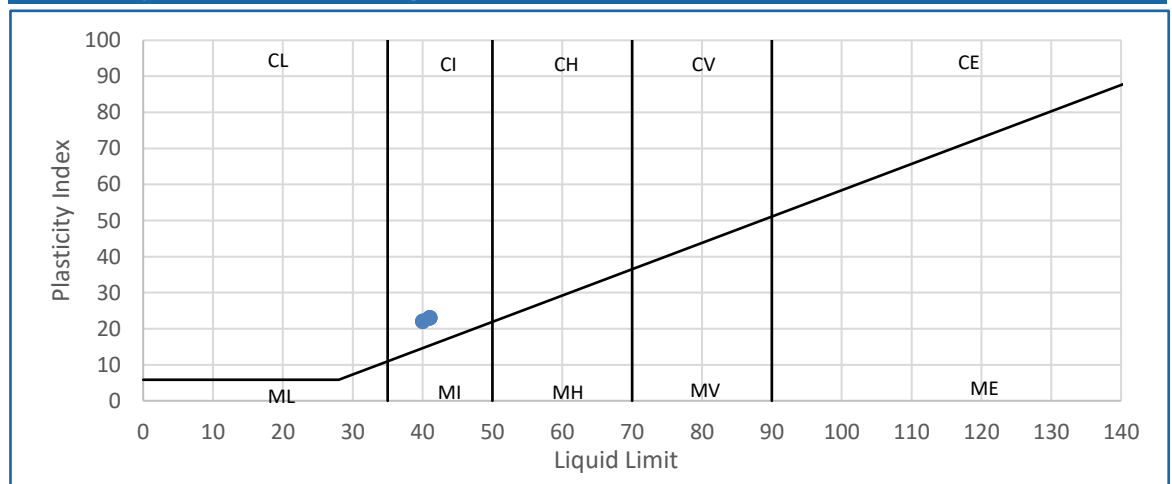
[Laboratory feedback form](#)

Samples from BH1

Lab Ref	Depth (m)	WC (%)	LL (%)	PL (%)	PI (%)	.425 mm(%)	mod. PI (%)	Av. Suc. (kPa)	Description
1	0.44	19.7	40	18	22	87	19	155	Firm brown slightly gravelly silty CLAY with rare sand. Gravel is fine and medium.
2	0.9	18.7	40	18	22	87	19	228	Firm brown slightly gravelly silty CLAY with rare sand. Gravel is fine and medium.
3	1.4	18.4	41	18	23	97	22	279	Firm brown silty CLAY with rare gravel and sand. Gravel is fine and medium.
4	1.9	22.4	41	18	23	97	22	249	Firm brown silty CLAY with rare gravel and sand. Gravel is fine and medium.
5	2.4	22.3	41	18	23	97	22	193	Firm brown silty CLAY with rare gravel and sand. Gravel is fine and medium.



Plasticity Chart for Casagrande Classification



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					

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

1 Avondale Terrace, West Boldon, East Boldon, Tyne and Wear, NE36 0

Client: Subsidence Management Services
Client Contact: Steven Sargent
Claim Number: 700052403
Client Reference: IFS-LBG-SUB-23-0108295
Policy Holder: Mrs Lynda Harkus
Report Date: 4 August 2023
Our Ref: R53963



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

Sub Sample	Species Identified	Root Diameter	Starch	
TP/BH1:				
0.44-1.6m	Acer spp.	1	3 mm	Moderate

Comments:

1 - Plus 3 others also identified as *Acer* spp.

Acer spp. are maples, including sycamore, Norway maple, and Japanese maples.

Signed: M D Mitchell

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

Drainage Investigation Report

For Subsidence Management Services

Client Lloyds Banking Group

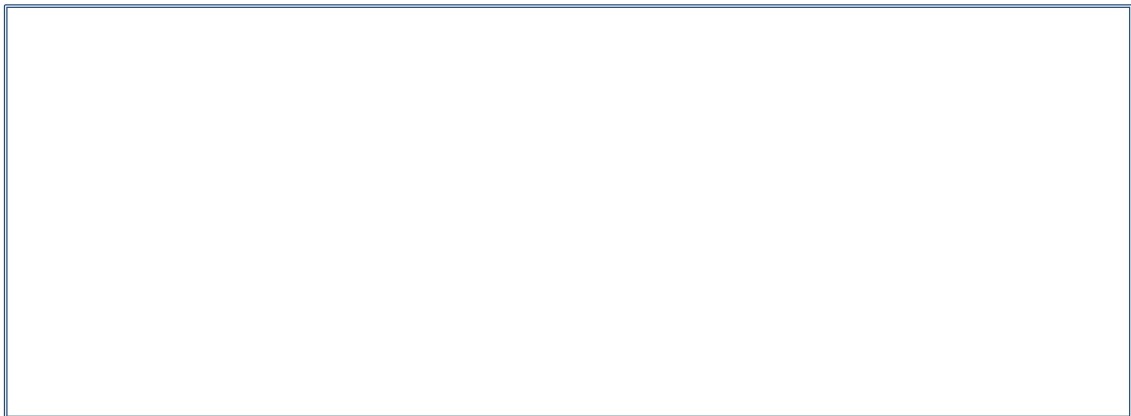
Risk Address: 1 Avondale Terrace, West Boldon, East Boldon, NE36 0PS

Visit Date: 19/07/2023

Client Reference: IFS-LBG-SUB-23-0108295

Our Reference: C74025 D25697

Report Date: 02/08/2023



Following the receipt of your instruction, we attended site to carry out a CCTV survey.

The CCTV survey was undertaken in general accordance with the Manual of Sewer Classification and the WRc Drain Repair Book.

The following presents a summary of the findings with recommendations to repair and/or return the drains to a serviceable state, where necessary.

Drain Run A: RWG1 Downstream to MH1

Pipe Diameter: 100mm

Responsibility: Home Owner

Hydraulic Pressure Test: Pass

CCTV Survey Result: No structural damage

Recommended Repair: No repairs have been recommended as the drain line was found to be free from defects.

Drain Run B: RWG2 Downstream to Run A

Pipe Diameter: 100mm

Responsibility: Home Owner

Hydraulic Pressure Test: Pass

CCTV Survey Result: No structural damage

Recommended Repair: No repairs have been recommended as the drain line was found to be free from defects.

Drain Run C: FWG1 Downstream to MH1

Pipe Diameter: 100mm

Responsibility: Home Owner

Hydraulic Pressure Test: Pass

CCTV Survey Result: No structural damage

Recommended Repair: No repairs have been recommended as the drain line was found to be free from defects.

Drain Run D: MH1 Upstream to SVP1

Pipe Diameter: 100mm

Responsibility: Home Owner

Hydraulic Pressure Test: Pass

CCTV Survey Result: No structural damage

Recommended Repair: No repairs have been recommended as the drain line was found to be free from defects.

Water Main Test	Result	Acoustic Test
	PASS	No noise could be heard which indicates that there is no leak

Address:

1 Avondale Terrace, West Boldon, East Boldon, NE36 0PS