Arboricultural Consultancy for Co-operative Insurance Society

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 Mary Merion	Address	26 Church Avenue, Ruislip, Middlesex, HA4 7HT		
Client	Subsidence Management Services	Contact	Kellie Ball	Claim No.	IFS-CIS-SUB-18-0080277
ES Ref	SA-242832	Consultant	Andrew Cayley	Contact No.	0330 380 1036
Report Date	04/01/2019 **Revised:** 02/05/2019				

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. This is a revised report following receipt of root analysis results.

2. Property and Damage Description

The insured structure is a 2 storey detached house. It has been extended with a conservatory addition to the rear. The property occupies a level site with no adverse topographical features.

Damage relates to the front elevation of the insured dwelling and the rear right-hand corner of the insured dwelling. Please refer to the engineers report for a full description of the claim history and damage.

3. Technical Reports

In preparing our report we have had the benefit of the following technical investigations:

Drain Report	☑	Foundation Detail	☑	Root Analysis	☑
Borehole Log	☑	Engineers Report	☑		

4. Action Plan

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

Treeworks	
Local Authority	Hillingdon London Borough
TPO / Conservation Area / Planning Protection Searches	Insured: TPO and Conservation Area Adjacent & Adjoining properties: TPO and Conservation Area
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' engineers are satisfied that damage is due to clay shrinkage subsidence exacerbated by vegetation.

The footings of the subject property are within the normally accepted influencing distance of vegetation on site
.
We have therefore been instructed to advise on the causal vegetation and to deliver management proposals which will provide on-going and long term stability allowing repairs to be undertaken.

In assessing the potential drying influence of the vegetation on site, we have considered species profile, normally accepted influencing distance and the position of vegetation relative to the observed damage.

Based on our observations on site and with due regards to species profile, T1 (Cypress) and T2 (Ash) are considered the dominant features proximate to the rear of the property and accordingly we have identified them as the principal cause of the subsidence damage in this area.

With due regards to species profile, size and proximity, T3 (Oak) will, also be contributing to the overall level of soil drying proximate to the front of the property and is therefore also considered to retain a significant contributory influence to the current movement / damage.

The size and proximity of this vegetation is consistent with the location of damage and advised mechanism of movement; 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.

Considering engineers conclusions, results of site investigations and our observations on site, vegetation management is considered appropriate with a view to restoring stability.

Please refer to Section 6 for management prescriptions.

In order to mitigate the current damage and allow soils beneath the property to recover to a position such that an effective engineering repair solution can be implemented we recommend a program of management as listed by this report.

Vegetation management in the form of selective removal and appropriate stump treatment will help to promote the restoration of long-term stability to the insured property; pruning alone should not be considered as representing an effective or reliable long-term alternative solution given the size and proximity of the vegetation.

Pruning in isolation is generally ineffective and in the context of the current claim we consider the above vegetation is simply too large and/or close for pruning to be effective.

Removal of T1 (Cypress), T2 (Ash) and T3 (Oak) will offer the most certain and reliable arboricultural solution likely to restore long-term stability.

Replacement planting is considered appropriate however 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 ultimate / managed tree height should not exceed 75% of the available distance to built structures.

We recommend the efficacy of the management recommendations be qualified by means of further monitoring to confirm stability.

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.

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	Cypress (Lawson)	1	3.4	3.7	C - Insured	Remove	Remove close to ground level.
T2	Ash	3	18	18	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.
T3	Oak	2	19.5	17	A - Third Party	Remove	Remove close to ground level and treat 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

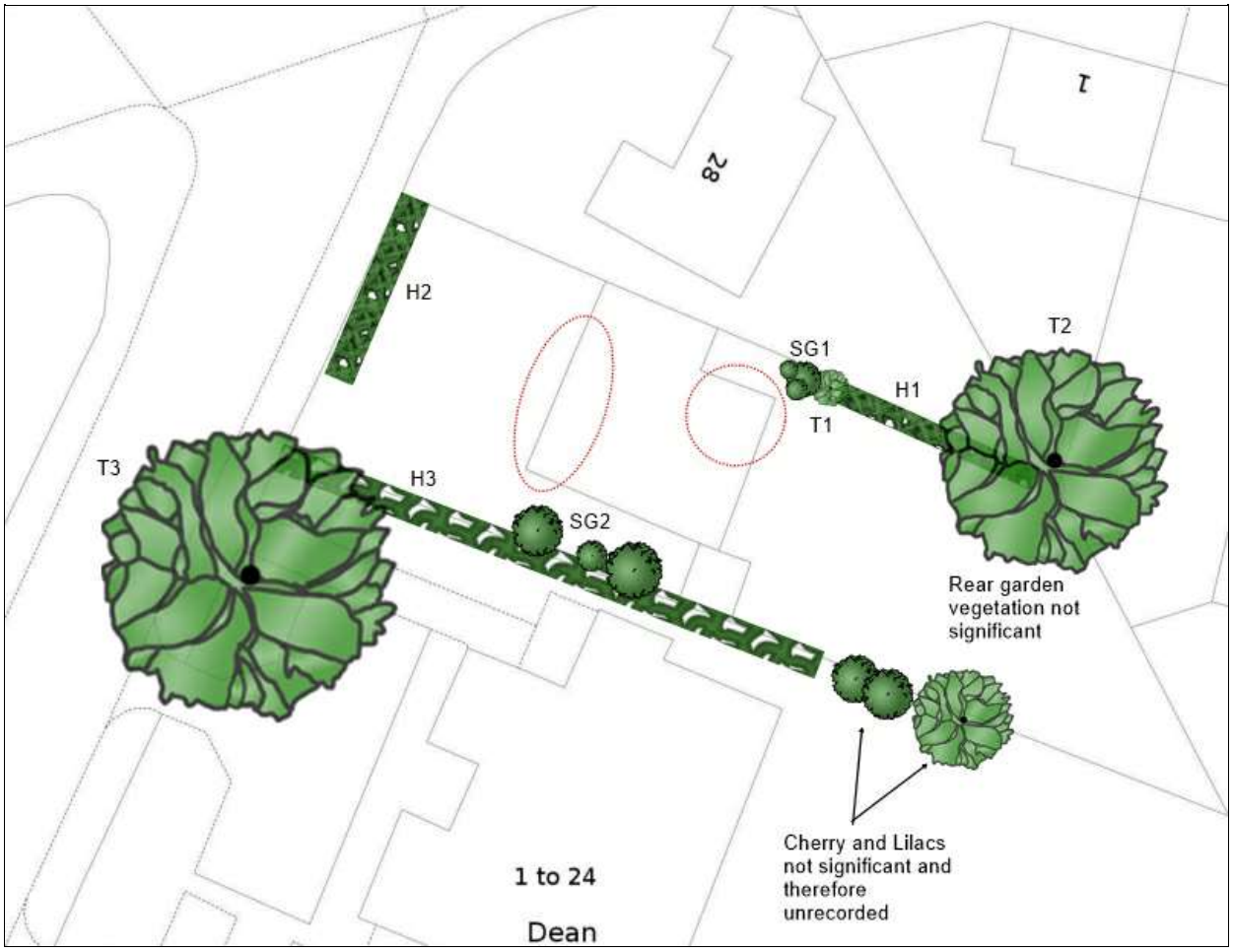
These recommendations may be subject to review following additional site investigations.

Tree No.	Species	Age Cat	Approx. Height (m)	Distance to Building (m) *	Ownership	Action	Requirement
H1	Cypress	1	3.2	5	C - Insured	Action to avoid future risk	Subject to regular management; maintain at current dimensions by way of regular pruning.
H2	Laurel (Cherry)	1	2.2	12	C - Insured	No action	No works.
H3	Ivy	1	3.2	0.7	A - Third Party	Action to avoid future risk	Subject to regular management; maintain at current dimensions by way of regular pruning.
SG1	Mixed species shrubs: Group includes Aucuba, Ceanothus, Pyracantha and standing dead Lilac or Buddleia.	1	2.3	1.7	C - Insured	Action to avoid future risk	Subject to regular management; maintain at current dimensions by way of regular pruning.
SG2	Mixed species shrubs: Rhododendron and Buddleia.	1	2.8	2.2	C - Insured	Action to avoid future risk	Subject to regular management; maintain at 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

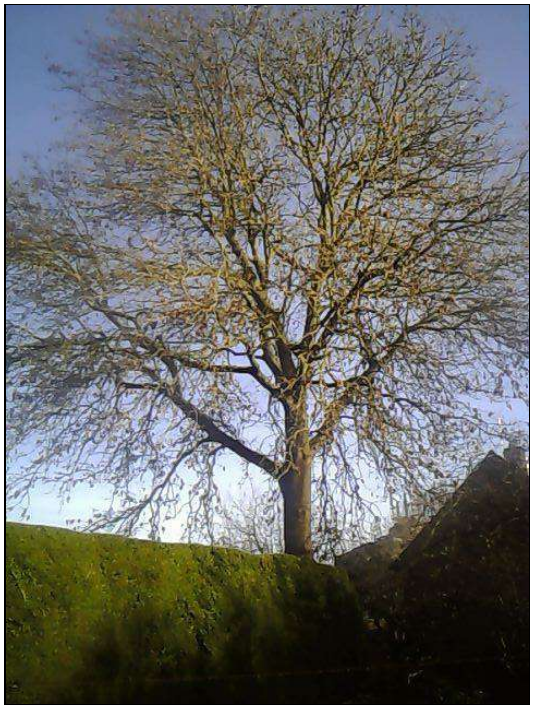
Third party property addresses should be treated as indicative only, should precise detail be required then Environmental Services can undertake Land Registry Searches

7. Site Plan



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

8. Photographs



T2 - Ash

SG1 - Mixed species shrubs

H1 - Cypress

T1 - Cypress (Lawson)

Arboricultural Consultancy for Co-operative Insurance Society

Insured Garden - Back

H2 - Laurel (Cherry)

T3 - Oak

SG2 - Mixed species shrubs

H3 - Ivy

Date: 02/05/2019 Property: 26 Church Avenue, Ruislip, Middlesex, HA4 7HT

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

Insured Property Tree Works	£720.00
Third Party Tree Works	£4800.00
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.

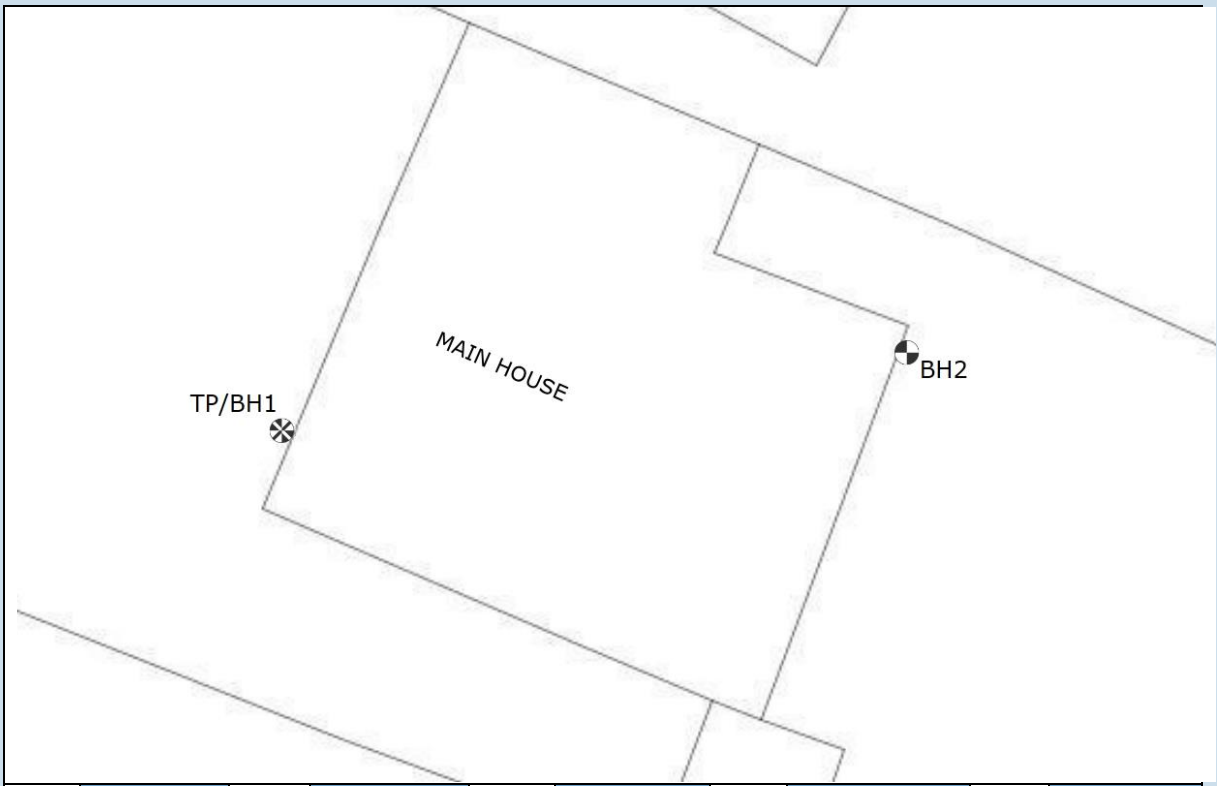
A legal Duty of Care requires that all works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried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

GEOTECHNICAL
for Subsidence Management Services

26 Church Avenue, Ruislip, Middlesex, HA4 7HT

Client:	Subsidence Management Services
Client Contact:	Alun Dwyer
Client Ref:	IFS-CIS-SUB-18-0080277
Policy Holder:	Mrs Mary Merion
Report Date:	1 April 2019
Our Ref:	C44426G20769

Site Plan



	Borehole		Foul Water Drain	FMH	Foul Manhole		Foul Rodding Point		Foul Vent Pipe
	Trial Pit / Borehole		Surface Water Drain	RMH	Rain Water Manhole		Surface Rodding Point		Rain Water Gully
	Trial Pit		Combined Drain	MH	Combined Manhole				

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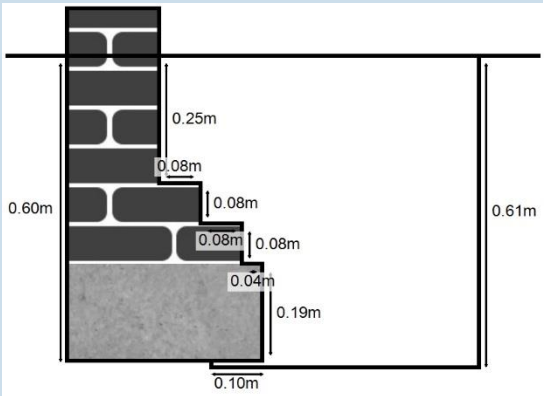
TP/BH1 Foundation Detail and Borehole Log

Foundation Detail

House foundation comprised of brick wall to 0.25mm bgl, bearing on stepped brickwork to 0.41mm bgl, bearing on stepped concrete to 0.60mm blg,with a total projection of 0.20mm from the elevation. Underside of foundation (USF) was exposed to 0.10mm back from the face of the foundation and probed 0.50mm 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	MADE GROUND: cream GRAVEL. Gravel is coarse gravel.
							MADE GROUND: Soft dark brown CLAY.
						0.5	
	D	0.60 - 1.20	SV	0.60	52		Firm light brown slightly gravelly slightly silty CLAY with numerous fine flint.
	R	0.60 - 1.80	SV	0.60	51		
						1.0	
	D	1.20 - 1.80					Stiff light brown mottled orange CLAY.
			SV	1.60	Above 120kPa	1.5	
	D	1.80 - 2.30					
						2.0	
	D	2.30 - 2.80					
						2.5	
	D	2.80 - 3.30					
						3.0	
	D	3.30 - 4.00					
						3.5	
	D	4.00				4.0	-- End of borehole at 4.00m --
							Trial pit excavated to 0.61m bgl. Borehole completed by mech window sampler.

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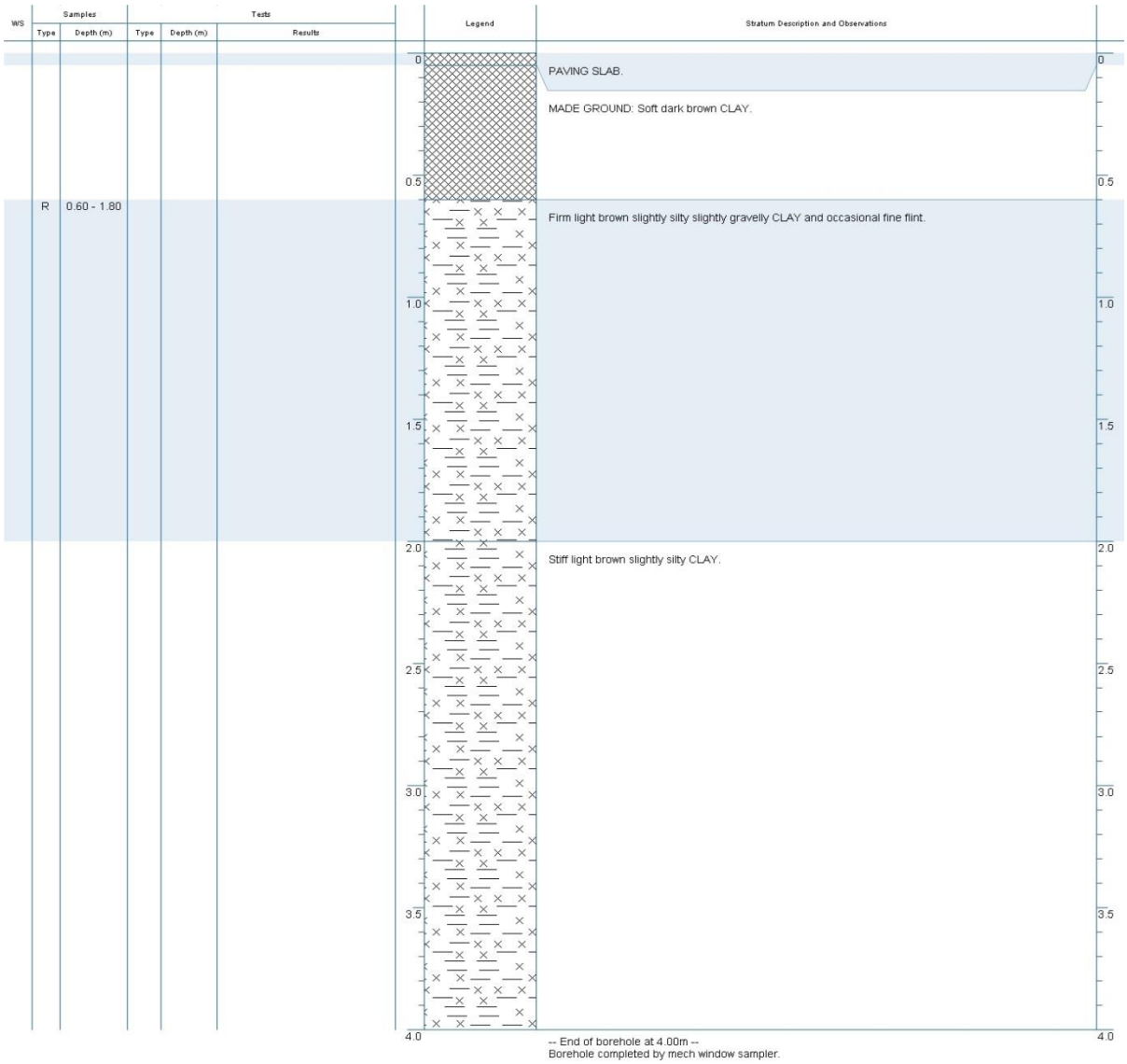
BH2 Borehole Log



Site Observations

GENERAL:
Site Investigation works (TP/BH1 and BH2) undertaken on 18 March 2019 during intermittent rain showers.

HEALTH AND SAFETY:
Negative signal obtained in Power, Radio and Genny mode on the Cable Avoidance Tool (CAT) (TP/BH1 and BH2).

FOUNDATIONS:
House foundation was exposed and the underside of foundation (USF) recorded to be .60m bgl (TP/BH 1).

IN SITU TESTING:
Hand Shear Vane (SV) undertaken at 0.60m bgl (TP/BH 1) within the borehole and thereafter in the borehole at maximum 1.0m intervals.

SOIL ANALYSIS

for Subsidence Management Services

26 Church Avenue, Ruislip, Middlesex, HA4 7HT

Client:	Subsidence Management Services
Client Contact:	Alun Dwyer
Claim Number:	2354965184
Policy Holder:	Mrs Mary Merion
Report Date:	29 May 2019
Our Ref:	C15081S44426
Laboratory Ref:	L16204

Compiled By:

Checked By:

Date samples received:	28 March 2019
Moisture Content Test Date:	16 April 2019
Atterberg Limits Test Date:	17 May 2019
Oedometer Test Date:	19 June 2019

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9265

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Notes relating to soils testing

Unless otherwise stated, all soils testing was undertaken at Environmental Services' soils laboratory at unit 10H Maybrook Business Park, B76 1AL.

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 have been shortened to remove tertiary components for ease of reference.

Following the issue of this soil analysis report, samples will be retained for 1 month 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.

Natural Moisture 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

The Plastic Limit test and the determination of the Plasticity Index is undertaken in accordance with BS1377:Part 2:1990 Section 5

Note

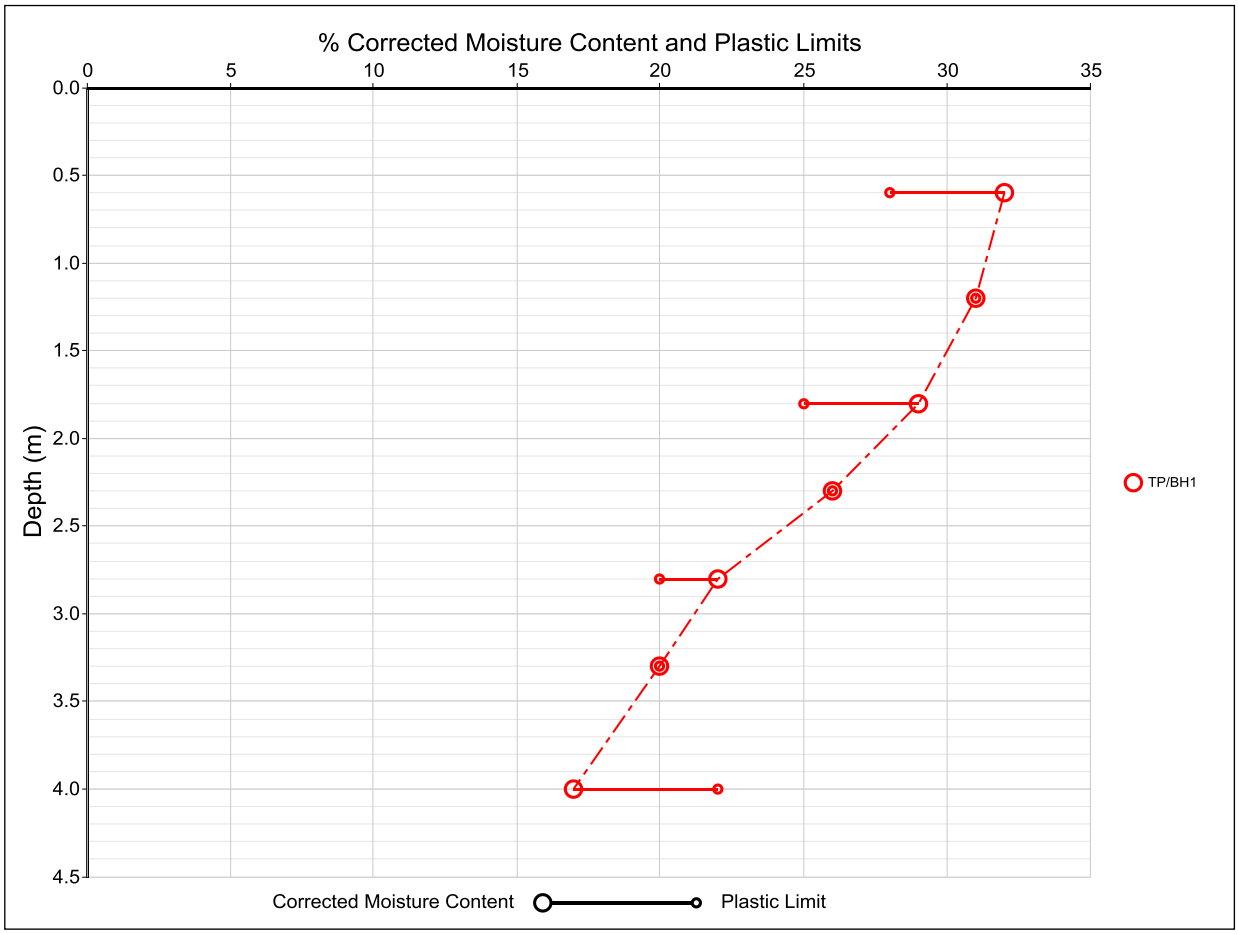
Where appropriate moisture contents have been corrected to demonstrate the equivalent moisture content following the sample being passed through a .425 mm sieve for comparison with the Liquid & Plastic Limit. Where this is not available, uncorrected moisture contents have been used in the graph on the following page.

Deviations to testing schedule:

All testing has been undertaken in line with the soils testing schedule provided

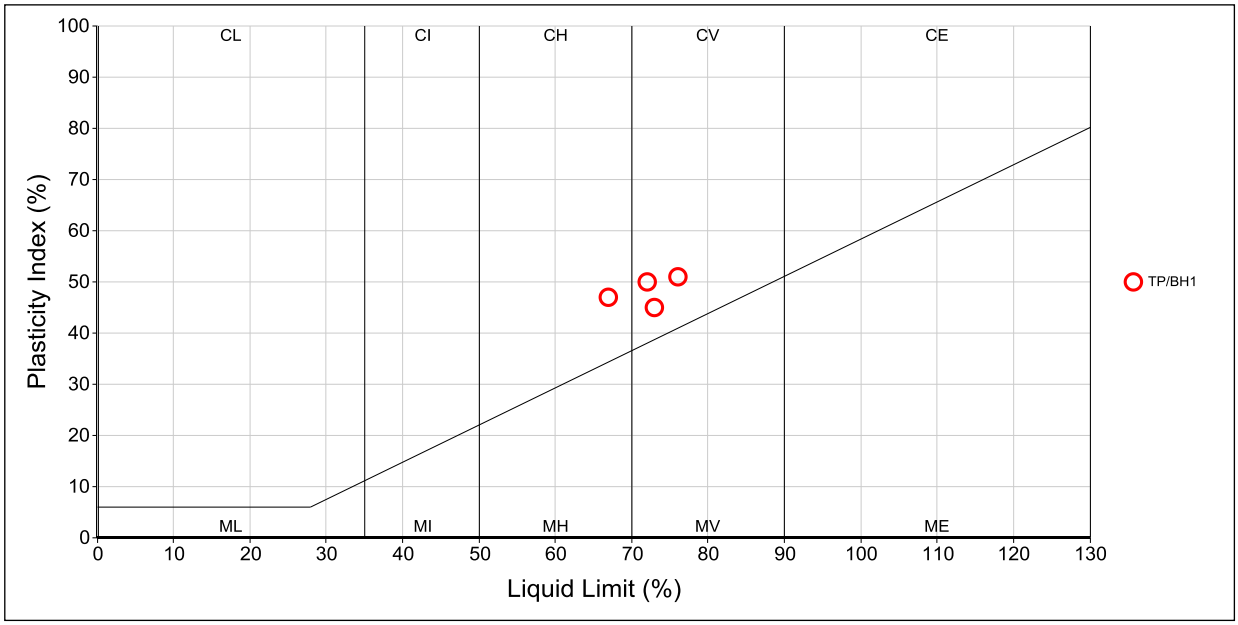
Lab Ref	Depth (m)	MC (%)	Corr MC (%)	LL (%)	PL (%)	PI (%)	% Passing .425mm
Samples from TP/BH1							
001	0.60	32	32	73	28	45	100
002	1.20	31					
003	1.80	29	29	76	25	51	100
004	2.30	26					
005	2.80	22	22	67	20	47	100
006	3.30	20					
007	4.00	17	17	72	22	50	100

Corrected Moisture Content and Plastic Limits Graph



Lab Ref	Depth (m)	Description	BS:5930	NHBC Chapter 4.2
Samples from TP/BH1				
001	0.60	Soft to firm brown/orange-brown mottled slightly silty CLAY	CV	High
002	1.20	Firm brown/orange-brown mottled slightly silty CLAY		
003	1.80	Firm brown/orange-brown/grey mottled silty CLAY	CV	High
004	2.30	Firm to stiff brown/orange-brown/grey mottled silty CLAY		
005	2.80	Firm to stiff brown/orange-brown/grey mottled silty CLAY	CH	High
006	3.30	Firm to stiff brown/reddish-brown/orange-brown mottled silty CLAY		
007	4.00	Stiff brown/reddish-brown/orange-brown mottled silty CLAY	CV	High

Plasticity Chart for Casagrande Classification

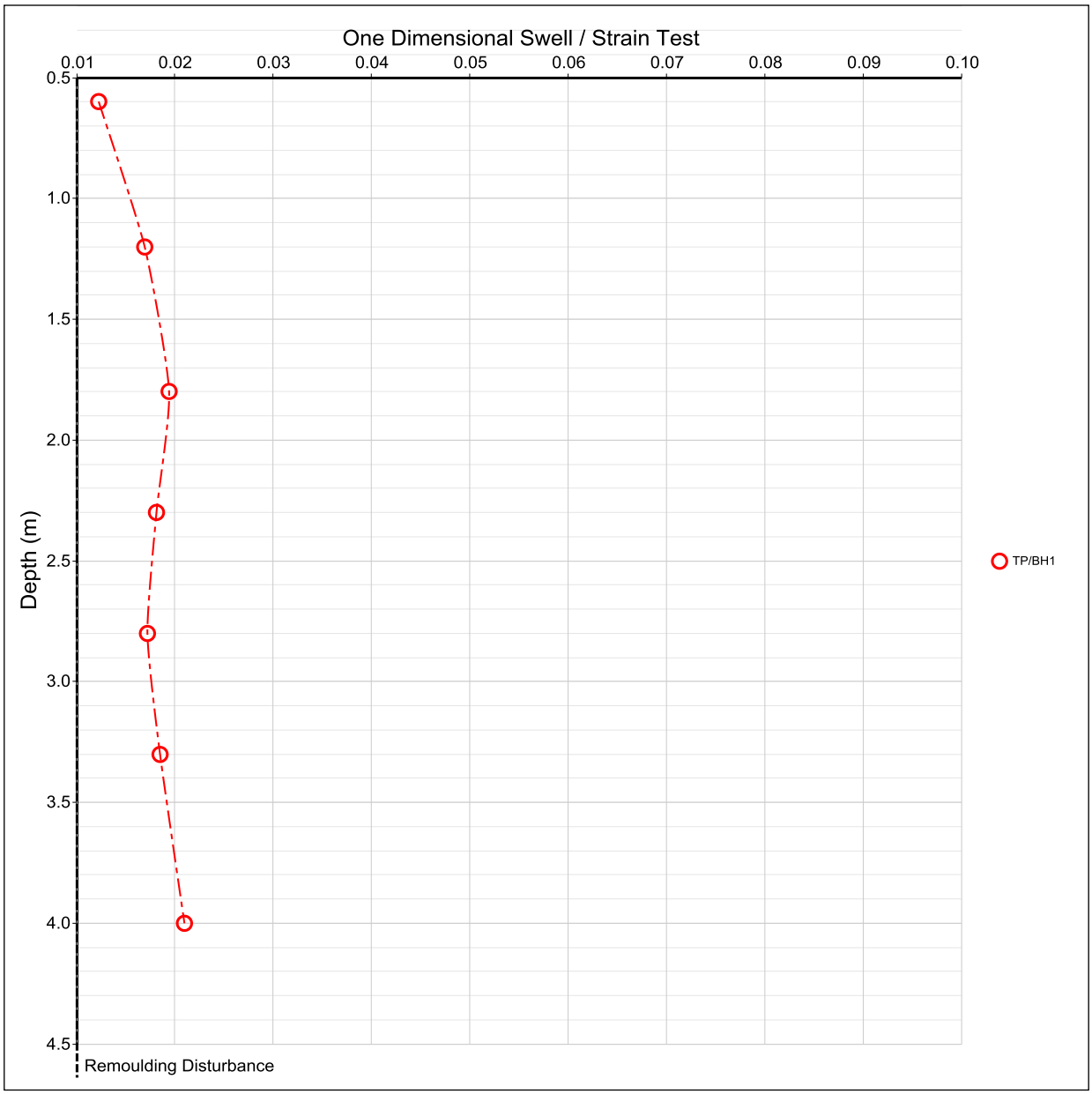


Summary of Oedometer Testing

Lab Ref	Depth (m)	Strain	Dd (mm)	Remarks
Samples from TP/BH1				
001	0.60	0.0123	3.7	
002	1.20	0.0170	5.1	
003	1.80	0.0194	5.8	
004	2.30	0.0181	4.5	
005	2.80	0.0172	4.3	
006	3.30	0.0185	4.6	
007	4.00	0.0209	7.3	

TP/BH1 Dd Total: 35.4mm

Oedometer Strain



References and Interpretation

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 BS5930:1999 "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

26 Church Avenue, Ruislip, Middlesex, HA4 7HT

Client:	Subsidence Management Services
Client Contact:	Alun Dwyer
Claim Number:	2354965184
Client Reference:	IFS-CIS-SUB-18-0080277
Policy Holder:	Mrs Mary Merion
Report Date:	11 April 2019
Our Ref:	R26482

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

Sub Sample	Species Identified		Root Diameter	Starch
TP/BH1:				
0.6-1.8m	*Quercus* spp.	1	1 mm	Moderate
BH2:				
0.6-1.8m	Cupressaceae spp.	2	2 mm	Abundant

Comments:

1 - Plus 2 others also identified as *Quercus* spp.
2 - Plus 3 others also identified as Cupressaceae spp.

Quercus spp. are oaks (both deciduous and evergreen).
Cupressaceae spp. include Lawson cypress, western red cedar, Monterey cypress, Leyland cypress and junipers.

Signed: R J 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

Drainage Investigation Report

For Subsidence Management Services

Policy Holder: Mrs Mary Merion

Risk Address: 26 Church Avenue, Middlesex, HA4 7HT

Visit Date: 7th December 2018

Client Reference: IFS-CIS-SUB-18-0080277

Our Reference: C44426 D15033

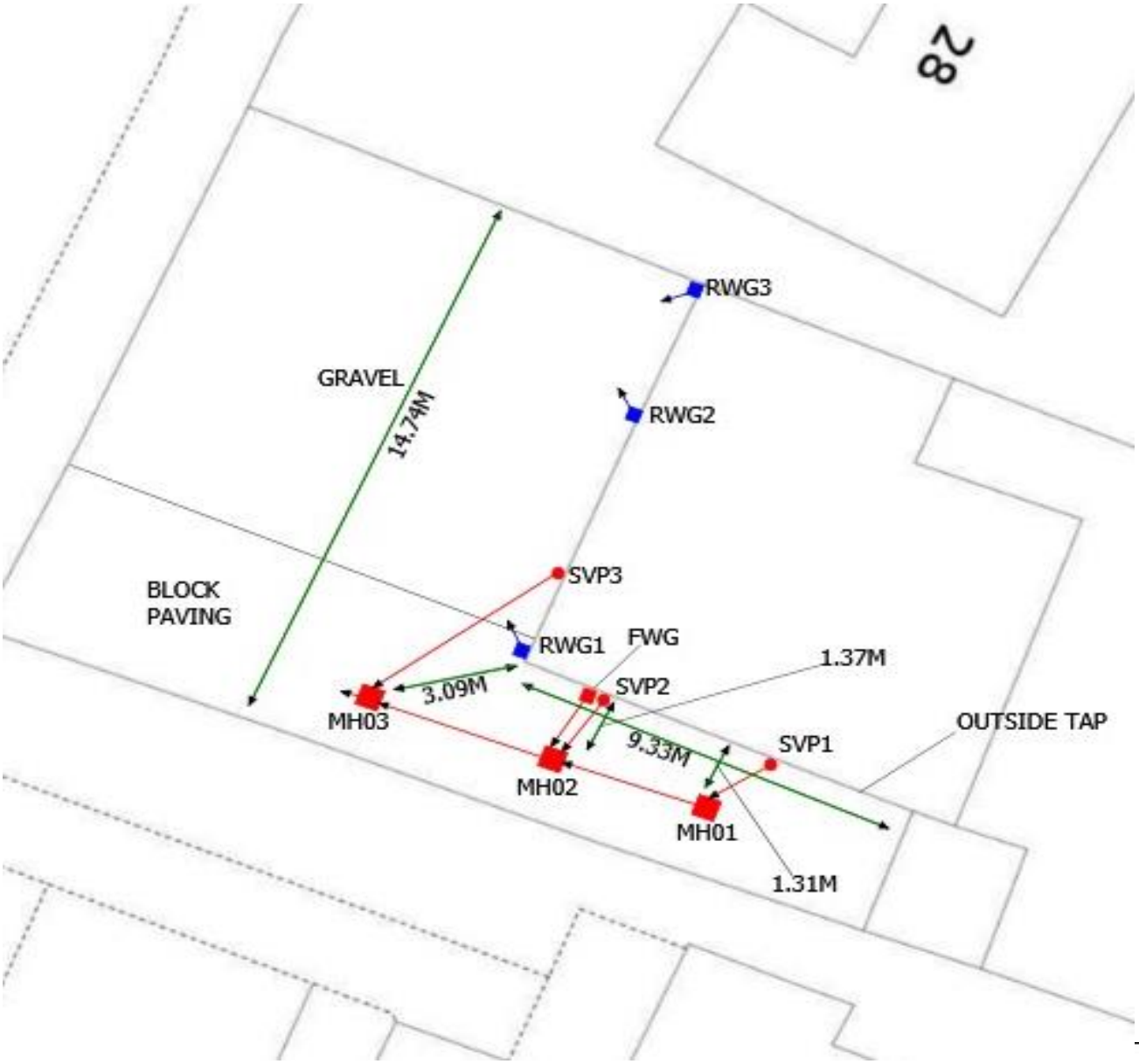
Report Date: 17th January 2019

Report Content:

SubsNetUK

Site Plan

SubsNetUK



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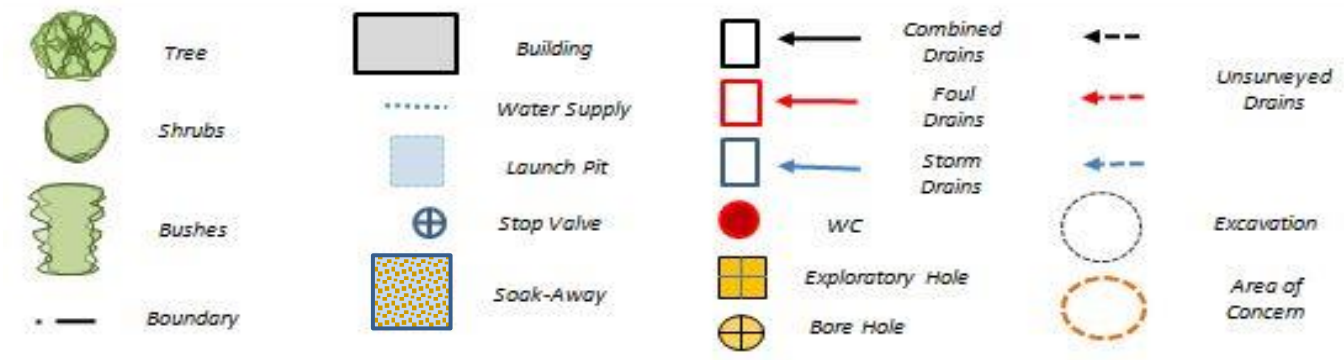

Notes:	

Address: 26 Church Avenue, Middlesex, HA4 7HT

CCTV Survey

RUN	Start From :	MH1	Finish at :	MH3	Pipe Ø:	100mm
A	Invert Level (m):	0.58	Invert Level (m):	N/A	Material:	Clay
FOUL	Condition grade:	C	Direction:	Downstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Fail*				
0.00	SN	Start Node from MH1				
0.00	WL	Water Level 5%				
0.18	JDM	Joint Displaced (Medium)				
0.18	CC	Crack Circumferential				
2.71	REM	Remark - Line enters MH2				
6.07	FC	Fracture Circumferential				
8.92	FN	Finish Node at MH3				

RUN	Start From :	MH1	Finish at :	SVP1	Pipe Ø:	100mm
B	Invert Level (m):	0.58	Invert Level (m):	N/A	Material:	Clay
FOUL	Condition grade:	C	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Not tested*				
0.00	SN	Start Node from MH1				
0.00	WL	Water Level 5%				
0.41	FC	Fracture Circumferential				
1.01	JN	Junction at 3 o'clock to				
2.16	RF	Roots Fine				
2.16	LL	Line of drain deviates left				
2.71	LU	Line of drain deviates up - rest bend				
3.31	FN	Finish Node at SVP1				

RUN	Start From :	MH2	Finish at :	SVP2	Pipe Ø:	100mm
C	Invert Level (m):	0.62	Invert Level (m):	N/A	Material:	Clay
FOUL	Condition grade:	C	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Fail*				
0.00	SN	Start Node from MH2				
0.00	WL	Water Level 5%				
0.01	FC	Fracture Circumferential				
0.74	CC	Crack Circumferential				
1.29	OJM	Open Joint (medium)				
1.29	SV	Soil visable				
1.47	LU	Line of drain deviates up - rest bend				
1.75	FN	Finish Node at SVP2				

RUN	Start From :	MH2	Finish at :	FWG	Pipe Ø:	100mm
D	Invert Level (m):	0.62	Invert Level (m):	N/A	Material:	Clay
FOUL	Condition grade:	B	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Fail*				
0.00	SN	Start Node from MH2				
0.00	WL	Water Level 5%				
1.29	OJM	Open Joint (medium)				
1.29	CC	Crack Circumferential				
1.38	FN	Finish Node at FWG				

Address: 26 Church Avenue, Middlesex, HA4 7HT

SubsNetUK

CCTV Survey

SubsNetUK

RUN	Start From :	MH3	Finish at :	SVP3	Pipe Ø:	100mm
E	Invert Level (m):	0.67	Invert Level (m):	N/A	Material:	Clay
FOUL	Condition grade:	A	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Pass*				
0.00	SN	Start Node from MH3				
0.00	WL	Water Level 5%				
1.66	LL	Line of drain deviates left				
8.46	LR	Line of drain deviates right				
8.92	LU	Line of drain deviates up - Rest bend				
9.34	FN	Finish Node at SVP3				

RUN	Start From :	RWG1	Finish at :	Soak away	Pipe Ø:	100mm
F	Invert Level (m):	0.4	Invert Level (m):	N/A	Material:	Clay
STORM	Condition grade:	A	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Not tested*				
0.00	SN	Start Node from RWG1				
0.00	WL	Water Level 5%				
0.10	CUW	Camera Under Water (loss of vision)				
1.79	OB	Obstruction				
1.79	SA	Survey Abandoned - Unable to push past obstruction				

RUN	Start From :	RWG2	Finish at :	Soak away	Pipe Ø:	100mm
G	Invert Level (m):	0.4	Invert Level (m):	N/A	Material:	Clay
STORM	Condition grade:	A	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Not tested*				
0.00	SN	Start Node from RWG2				
0.00	WL	Water Level 5%				
0.10	CUW	Camera Under Water (loss of vision)				
0.83	OB	Obstruction				
0.83	SA	Survey Abandoned - Unable to push past obstruction				

RUN	Start From :	RWG3	Finish at :	Soak away	Pipe Ø:	100mm
H	Invert Level (m):	0.4	Invert Level (m):	N/A	Material:	Clay
STORM	Condition grade:	A	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic test - Not tested*				
0.00	SN	Start Node from RWG2				
0.00	WL	Water Level 5%				
0.10	CUW	Camera Under Water (loss of vision)				
1.20	OB	Obstruction				
1.20	SA	Survey Abandoned - Unable to push past obstruction				

Address: 26 Church Avenue, Middlesex, HA4 7HT

Drainage Overview

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.

All runs were cleaned by high pressure water jetting prior to the CCTV survey.

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: MH1 – Downstream – MH3
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Fail
CCTV Survey Result: Structural damage

Recommended remedial works
- Cover area in protected sheeting
- Pre lining CCTV/HPWJ
- Install two x 100mm patch liners at 0.18m and 6.07m
- Post lining CCTV (recorded)
- Disinfect area and leave site tidy

Drain Run B: MH1 – Upstream – SVP1
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not tested - No access
CCTV Survey Result: Structural damage

Recommended remedial works
- Cover area in protected sheeting
- Pre lining CCTV/HPWJ
- Install two x 100mm patch liners at 0.41m and 2.16m
- Post lining CCTV (recorded)
- Disinfect area and leave site tidy

Drain Run C: MH2 – Upstream – SVP2
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Fail
CCTV Survey Result: Structural damage

Recommended remedial works
- Cover area in protected sheeting
- Remove section of SVP
- Pre lining CCTV/HPWJ
- Install a CIPP Super flexi liners from MH2 - Upstream
- Post lining CCTV (recorded)
- Disinfect area and leave site tidy

Drain Run D: MH2 – Upstream – FWG
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Fail
CCTV Survey Result: Structural damage

Recommended remedial works
- Cover area in protected sheeting
- Excavate and replace FWG1 including 1m of pipe
- Bed new pipe, backfill, compact and reinstate block pavers
- Disinfect area and leave site tidy

Drain Run E: MH3 – Upstream – SVP3
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Pass
CCTV Survey Result: No structural damage

No remedial works recommended on Run E.

Drain Run F: RWG1 – Downstream – D/S node
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not tested – No access
CCTV Survey Result: Structural damage
The drain has an obstruction at 1.79m downstream. This could be the soak away. We recommend an excavation to remove the obstruction/check if this is a soak away.

Recommended remedial works
- Cover area in protective sheeting
- Excavate and replace 1m of pipe at 1.79m downstream
- CCTV Upstream/Downstream, if this is a soak away check if its functioning
- Bed new pipe, backfill, compact and reinstate concrete under gravel
- Disinfect area and leave site tidy

Drain Run G: RWG2 – Downstream – D/S node
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not tested – No access
CCTV Survey Result: Structural damage
The drain has an obstruction at 1.79m downstream. This could be the soak away. We recommend an excavation to remove the obstruction/check if this is a soak away.

Recommended remedial works
- Cover area in protective sheeting
- Excavate and replace 1m of pipe at 0.81m downstream
- CCTV Upstream/Downstream, if this is a soak away check if its functioning
- Bed new pipe, backfill, compact and reinstate concrete under gravel
- Disinfect area and leave site tidy

Drain Run H: RWG3 – Downstream – D/S node
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not tested – No access
CCTV Survey Result: Structural damage
The drain has an obstruction at 1.79m downstream. This could be the soak away. We recommend an excavation to remove the obstruction/check if this is a soak away.

Recommended remedial works
- Cover area in protective sheeting
- Excavate and replace 1m of pipe at 1.2m downstream
- CCTV Upstream/Downstream, if this is a soak away check if its functioning
- Bed new pipe, backfill, compact and reinstate concrete under gravel
- Disinfect area and leave site tidy

A visual inspection of the manholes revealed them to be in a good condition.

NOTE: The re-instatement will be carried out on a like-for-like basis but where concrete or tarmac has been re-instated these surfaces will not match to the existing surface and will be seen as its new material.

Water Main Test	From	To	Result	Notes
	ESV	Tap	**PASS**	No drop in 10 minutes

SubsNetUK

Quote

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RUN / LOCATION: Run A

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK0025	Protection Temporary works to floors, 1000 gauge polythene	m2	£1.79	2.00	£3.59
UK1133	Van pack HPWJ & CCTV in preparation of lining	nr	£148.44	1.00	£148.44
UK1180	Patch Lining. Up to 2 m x 100mm diameter	nr	£290.94	2.00	£581.88
UK006	1 Litre of disinfectant.	nr	£3.03	1.00	£3.03
				Total (Excl VAT)	£736.93

RUN / LOCATION: Run B

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK0025	Protection Temporary works to floors, 1000 gauge polythene	m2	£1.79	2.00	£3.59
UK1133	Van pack HPWJ & CCTV in preparation of lining	nr	£148.44	1.00	£148.44
UK1180	Patch Lining. Up to 2 m x 100mm diameter	nr	£290.94	2.00	£581.88
UK006	1 Litre of disinfectant.	nr	£3.03	1.00	£3.03
				Total (Excl VAT)	£736.93

RUN / LOCATION: Run C

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK0025	Protection Temporary works to floors, 1000 gauge polythene	m2	£1.79	2.00	£3.59
UK1133	Van pack HPWJ & CCTV in preparation of lining	nr	£148.44	1.00	£148.44
UK1135	Drain Lining - Initial Set-Up Fee (0-3.0m)	nr	£332.64	1.00	£332.64
*	Extra over for super flexi liner	m2	£45.00	2.00	£90.00
UK006	1 Litre of disinfectant.	nr	£3.03	1.00	£3.03
				Total (Excl VAT)	£577.69

Address: 26 Church Avenue, Middlesex, HA4 7HT

SubsNetUK

Quote

SubsNetUK

RUN / LOCATION: Run D

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK1120155	32/40mm waste pipes. Remove existing and replace with new PVCu. Fixed to masonry.	m	£9.60	1.00	£9.60
UK1120165	32/40mm waste pipes. Shoes / bends.	nr	£10.81	2.00	£21.61
UK0595	Gully, 225mm x 225mm. Remove existing and replace with new PVCu item. Bed, surround and backfill.	nr	£146.43	1.00	£146.43
UK0605	Excavate & remove isolated length. Replace in new 110mm PVCu. Bed, surround & backfill. n.e. 1000mm.	nr	£131.47	1.00	£131.47
UK0880	Short Radius Bend. Remove existing item and replace with new 110mm PVCu.	nr	£14.89	2.00	£29.78
UK1060	Extra over pipework for surrounding drain run in 100mm thick concrete.	m	£14.40	1.00	£14.40
UK0025	Protection Temporary works to floors, 1000 gauge polythene.	m2	£1.79	2.00	£3.59
UK8120300	Hardcore Filling to excavations over 250 mm average thick.	m	£35.35	1.00	£35.35
UK2050005	Disposal by hand excavated contaminated/saturated material off site.	m3	£45.30	1.00	£45.30
UK1040	Removal, set aside and reinstatement of block paving n.e.100mm thick.	m2	£39.10	1.00	£39.10
UK006	1 Litre of disinfectant.	nr	£3.03	1.00	£3.03
				Total (Excl VAT)	£479.67

RUN / LOCATION: Run F

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK0025	Protection Temporary works to floors, 1000 gauge polythene.	m2	£1.79	2.00	£3.59
UK0605	Excavate & remove isolated length. Replace in new 110mm PVCu. Bed, surround & backfill. n.e. 1000mm.	nr	£131.47	1.00	£131.47
*	CCTV survey of underground drainage & report (where undertaken as part of other drainage works on	nr	£165.00	1.00	£165.00
UK8120300	Hardcore Filling to excavations over 250 mm average thick.	m	£35.35	1.00	£35.35
UK2050005	Disposal by hand excavated contaminated/saturated material off site.	m3	£45.30	1.00	£45.30
UK1050	Removal, disposal and reinstatement of concrete path / hardstanding n.e.100mm thick.	m2	£54.19	1.00	£54.19
UK006	1 Litre of disinfectant.	nr	£3.03	1.00	£3.03
				Total (Excl VAT)	£437.92

RUN / LOCATION: Run G

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK0025	Protection Temporary works to floors, 1000 gauge polythene.	m2	£1.79	2.00	£3.59
UK0605	Excavate & remove isolated length. Replace in new 110mm PVCu. Bed, surround & backfill. n.e. 1000mm.	nr	£131.47	1.00	£131.47
*	CCTV survey of underground drainage & report (where undertaken as part of other drainage works on	nr	£165.00	1.00	£165.00
UK8120300	Hardcore Filling to excavations over 250 mm average thick.	m	£35.35	1.00	£35.35
UK2050005	Disposal by hand excavated contaminated/saturated material off site.	m3	£45.30	1.00	£45.30
UK1050	Removal, disposal and reinstatement of concrete path / hardstanding n.e.100mm thick.	m2	£54.19	1.00	£54.19
UK006	1 Litre of disinfectant.	nr	£3.03	1.00	£3.03
				Total (Excl VAT)	£437.92

Address: 26 Church Avenue, Middlesex, HA4 7HT

SubsNetUK

Quote

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RUN / LOCATION: Run H

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK0025	Protection Temporary works to floors, 1000 gauge polythene	m2	£1.79	2.00	£3.59
UK0605	Excavate & remove isolated length. Replace in new 110mm PVCu Pod, surround & backfill, n.e. 1000mm	nr	£131.47	1.00	£131.47
*	CCTV survey of underground drainage & report (where undertaken as part of other drainage works on	nr	£165.00	1.00	£165.00
UK8120300	Hardcore Filling to excavations over 250 mm average thick	m	£35.35	1.00	£35.35
UK2050005	Disposal by hand excavated contaminated/saturated material off site	m3	£45.30	1.00	£45.30
UK1050	Removal, disposal and reinstatement of concrete path / hardstanding n.e 100mm thick	m2	£54.19	1.00	£54.19
UK006	1 Litre of disinfectant.	nr	£3.03	1.00	£3.03
				Total (Excl VAT)	£437.92

REPAIR ESTIMATE TOTALS:

Run / Location		Amount (£)
Run A		£736.93
Run B		£736.93
Run C		£577.69
Run D		£479.67
Run F		£437.92
Run G		£437.92
Run H		£437.92
	Total (Excl VAT)	£3,844.98

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