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 Mark Christie	Address	Oakfield, Saint Johns Avenue, Thorner, West Yorkshire, LS14 3BZ		
Client	Subsidence Management Services	Contact	Delroy Brown	Claim No.	IFS-ESU-SUB-18-0078349
ES Ref	SA-245362	Consultant	Jim Richardson	Contact No.	0330 380 1036
Report Date	17/12/2019				

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.

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 and a single-storey extension to the left-flank. The property occupies a level site with no adverse topographical features.

Engineers advise that damage affects the front left-hand corner of main property and garage; 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	☑	Monitoring	☑

4. Action Plan

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

Treeworks	
Local Authority	Leeds City Council
TPO / Conservation Area / Planning Protection Searches	Insured: TPO and Conservation Area Adjacent & Adjoining properties: Conservation Area
Additional Comments	
Awaiting Further Instructions.	

5. Technical Synopsis

This report is based upon our understanding at the time of visiting the property that engineers are satisfied that damage is due to clay shrinkage subsidence exacerbated by vegetation.

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.

Foundations are noted to extend to a depth below ambient soil drying and bear onto subsoil described within the borehole log as containing clay, thereby indicating the potential for the observed damage to be the result of clay shrinkage subsidence exacerbated by the influence of vegetation.

A survey of the drainage system at the property has been undertaken and some defects noted.

However, the footings of the subject property are within the normally accepted influencing distance of vegetation on site, whilst site Investigations revealed the presence of roots in Trial Pit / Borehole 1.

Samples of these roots were recovered from underside of foundations and throughout the borehole, these roots were identified (using anatomical analysis) as probably either Quercus spp. or Castanea spp.

Given the above, where engineers confirm that they do not consider damaged or leaking drains to be a material cause of the current subsidence then vegetation is deemed to retain the capacity to be causal to the current movement / damage.

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

With regards to the roots recovered, no obvious source could be ascertained and we must therefore conclude that these are vestigial from previously removed vegetation.

However, whilst not positively implicated by root analysis, the Beech (T1) is considered the dominant feature proximate to the area of movement and accordingly we have identified is as the primary cause of the subsidence damage.

The size and proximity of the above 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 and 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.

The recommendations contained within this arboricultural report are prescribed to give the most reliable arboricultural solution likely to restore long-term stability.

Consequently, complete removal of T1 will offer the most certain arboricultural solution likely to restore long-term stability.

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

Please note that the footings 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.

Some of this vegetation was found to be at such proximities to the insured property that pruning to reduce the risk of future subsidence is not deemed viable (with a view to achieving long term stability).

The only option in respect of mitigating future risk would be to remove as recommended.

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 ultimate tree height should not exceed 75% of the available distance to built structures.

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	Beech	3	12.5	8	C - Insured	Remove	Remove close to ground level.
Age Cat: 1 = Younger than property; 2 = Similar age to the property; 3 = Significantly older than property							

* Estimated

6.2 Future Risk Recommendations

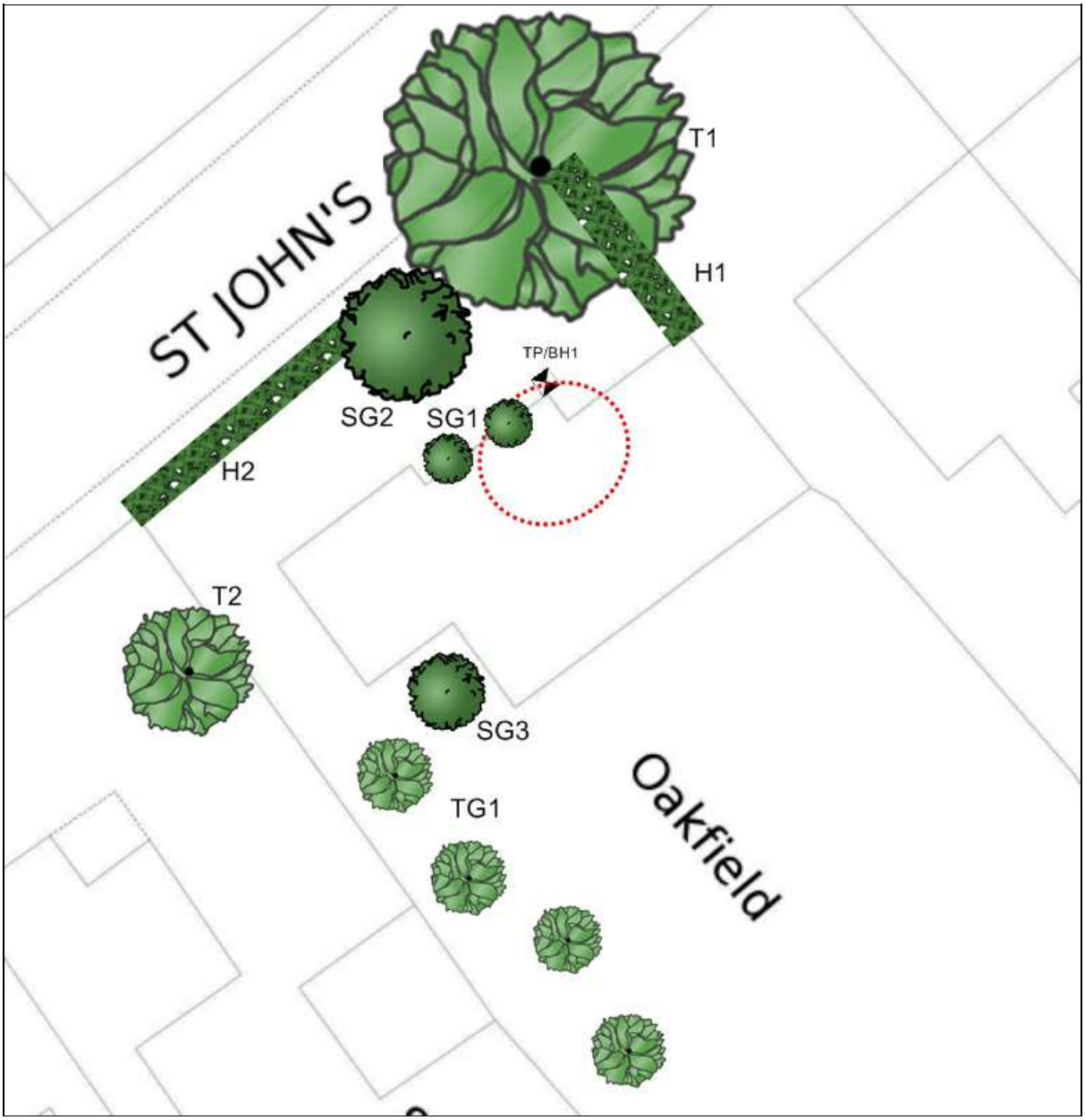
These recommendations may be subject to review following additional site investigations.

Tree No.	Species	Age Cat	Approx. Height (m)	Distance to Building (m) *	Ownership	Action	Requirement
H1	Beech	2	2.5	1	C - Insured	Action to avoid future risk	Do not allow to exceed current dimensions by way of regular pruning.
H2	Privet	1	2	3	C - Insured	Action to avoid future risk	Maintain at current dimensions by way of regular pruning.
SG1	Mixed Species Group: Includes Ivy, Holly, Forsythia and Hebe.	1	2	0	C - Insured	Action to avoid future risk	Remove close to ground level; do not treat stumps due to translocation risk. Where such a risk exists, we advise that any emergent regrowth is removed annually.
SG2	Mixed species shrubs: includes Cypress, Photinia and Holly.	2	2.5	2	B - Local Authority	Action to avoid future risk	Maintain at current dimensions by way of regular pruning.
SG3	Mixed Species Group: Includes Holly, Juniper and Rhododendron.	1	3.5	2	C - Insured	Action to avoid future risk	Maintain at current dimensions by way of regular pruning.
T2	Spruce (Norway)	2	12	5	A - Third Party	Action to avoid future risk	Remove close to ground level.
TG1	Mixed Species Group: Includes Apple and Rowan	2	7	3	C - Insured	Action to avoid future risk	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

H1 left & T1 centre

H2 right, T2 right background, SG1 & SG2 centre

IMG_20191128_153451_6

TG1 & SG3

Date: 17/12/2019 Property: Oakfield, Saint Johns Avenue, Thorner, West Yorkshire, LS14 3BZ

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

Insured Property Tree Works	£1800.00
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.

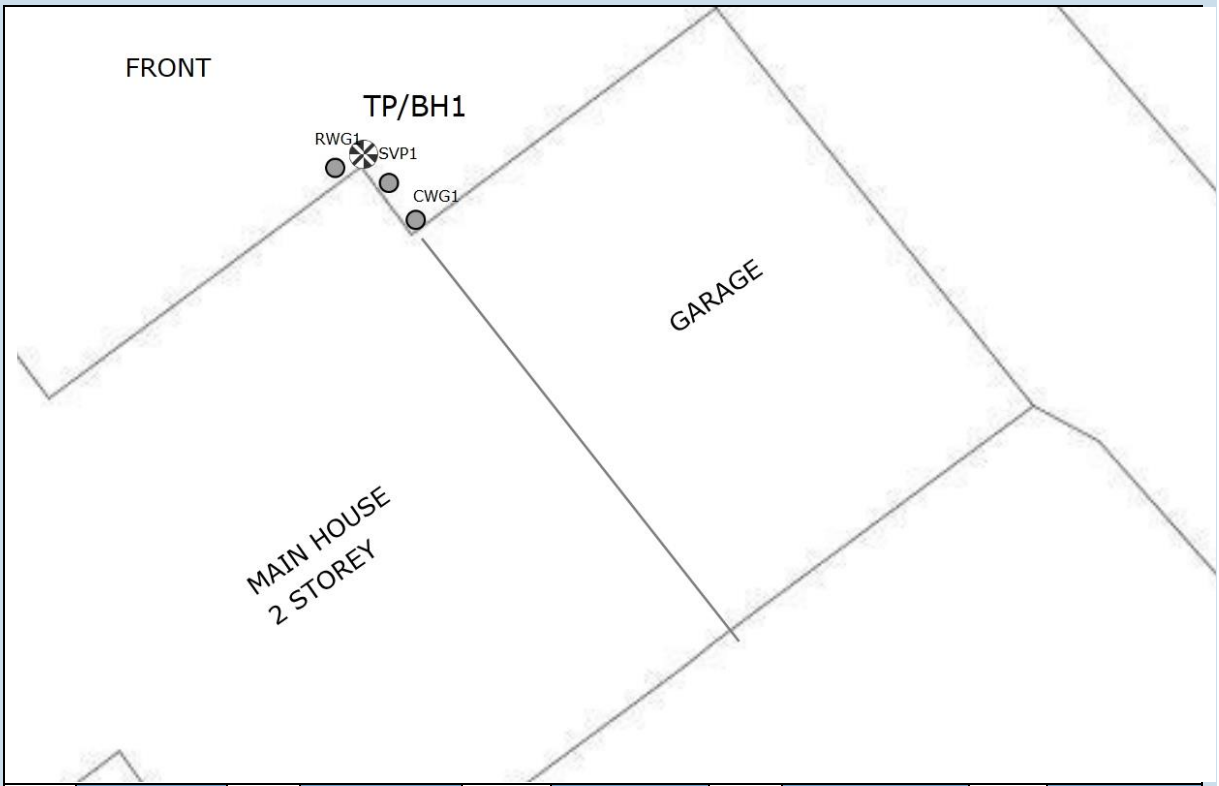
A legal Duty of Care requires that all works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried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

GEOTECHNICAL
for Subsidence Management Services

Oakfield, Saint John's Avenue, Thorner, West Yorkshire, LS14 3BZ

Client:	Subsidence Management Services
Client Contact:	Michael Yuill
Client Ref:	IFS-ESU-SUB-18-0078349
Policy Holder:	Mr Mark Christie
Report Date:	9 December 2019
Our Ref:	C47078G23510

Site Plan

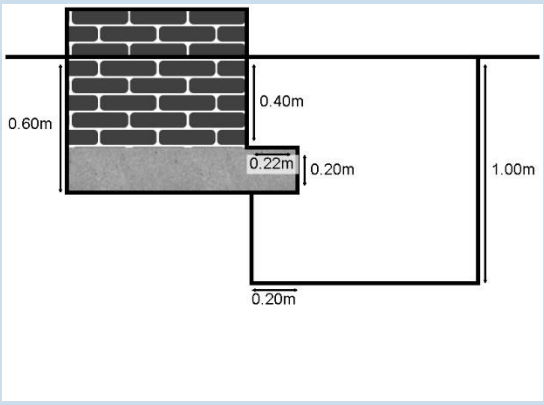


	Borehole		Foul Water Drain	FMH	Foul Manhole		Foul Rodding Point		Foul Vent Pipe
	Trial Pit / Borehole		Surface Water Drain	RMH	Rain Water Manhole		Surface Rodding Point		Rain Water Gully
	Trial Pit		Combined Drain	MH	Combined Manhole				

TP/BH1 Foundation Detail and Borehole Log

Foundation Detail

House foundation comprised of brick wall to 400mm bgl, bearing on concrete to 600mm bgl, with a total projection of 220mm from the elevation. Underside of foundation (USF) was exposed to 200mm back from the face of the foundation and probed 250mm 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	20mm DECORATIVE GRAVEL Firm dark brown silty CLAY with numerous coarse brick. ...at 0.10m bgl becoming firm. ...at 0.10m to 0.60m bgl numerous roots of live appearance encountered.
	R D	0.60 - 1.60 0.60 - 1.10	PEN	0.60	HP=1.0 (1.0,1.0,1.0,1.0,1.0)	0.5	Soft light orange sandy silty CLAY with occasional fine to medium sandstone. ...at 0.60m to 1.60m bgl occasional roots of live appearance encountered and sampled. ...at 0.60m bgl UNDERSIDE OF HOUSE FOUNDATION.
			PEN	1.00	HP=4.0 (4.0,4.0,4.0,4.0,4.0)	1.0	...at 1.00m bgl base of hand excavated trial pit. ...at 1.00m bgl switched to Hand Held Percussive Window Sampler.
	D	1.10 - 1.60					Stiff dark greyish brown mottled orange sandy silty CLAY with occasional fine sandstone. ...at 1.10m bgl becoming stiff.
			PEN	1.50	HP=4.0 (4.0,4.0,4.0,4.0,4.0)	1.5	
	D	1.60 - 2.00					Stiff dark reddish brown mottled grey slightly sandy silty CLAY with occasional fine sandstone. ...at 1.60m to 2.00m bgl no roots encountered. Extensive inspection of soil samples encountered no roots.
			PEN	2.00	HP=5.0 (5.0,5.0,5.0,5.0,5.0)	2.0	...at 2.00m bgl borehole terminated due to Hand Held Percussive Window Sampler refusal.

-- End of borehole at 2.00m --
Trial pit excavated to 1.00m bgl. Borehole completed by hand held percussive window sampler. Roots encountered to 1.60m bgl. Groundwater strikes not encountered. PEN = Hand Penetrometer (kg/sq cm).

SubsNetUK

Site Observations

GENERAL:
Site Investigation works (TP/BH 1) undertaken on 15 November 2019 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 0.60m bgl UNDERSIDE OF HOUSE FOUNDATION in TP/BH1.

BOREHOLE:
Hand Held Percussive Window Sampler refusal at 2.00m bgl due to stiffness within the rock (TP/BH 1). Borehole terminated. No further works undertaken.

ROOTS:
At 0.10m to 0.60m bgl numerous roots of live appearance encountered in TP/BH1.
At 0.60m to 1.60m bgl occasional roots of live appearance encountered and sampled in TP/BH1.
At 1.60m to 2.00m bgl no roots encountered. Extensive inspection of soil samples encountered no roots in TP/BH1.

IN SITU TESTING:
Hand Penetrometer (PEN) undertaken at 0.60m bgl (TP/BH 1) within the hand excavated trial pit and thereafter in the window sampler at maximum 0.50m intervals.

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.

SubsNetUK

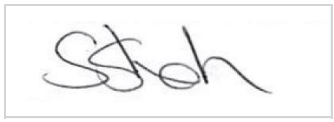
SOIL ANALYSIS

for Subsidence Management Services

Oakfield, Saint John's Avenue, Thorner, West Yorkshire, LS14 3BZ

Client:	Subsidence Management Services
Client Contact:	Michael Yuill
Claim Number:	4004419529
Policy Holder:	Mr Mark Christie
Report Date:	17 December 2019
Our Ref:	C17423S47078
Laboratory Ref:	L17803

Compiled By:

Name	Position	Signature
Saira Dougan	Laboratory Technician	

Checked By:

Name	Position	Signature
Bob Walker	Laboratory Manager	

Date samples received:	22-Nov-19
Water Content Test Date:	09-Dec-19
Atterberg Limits Test Date:	01-Dec-19
Oedometer Test Date:	10-Dec-19

UKAS TESTING
9265

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

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.

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.

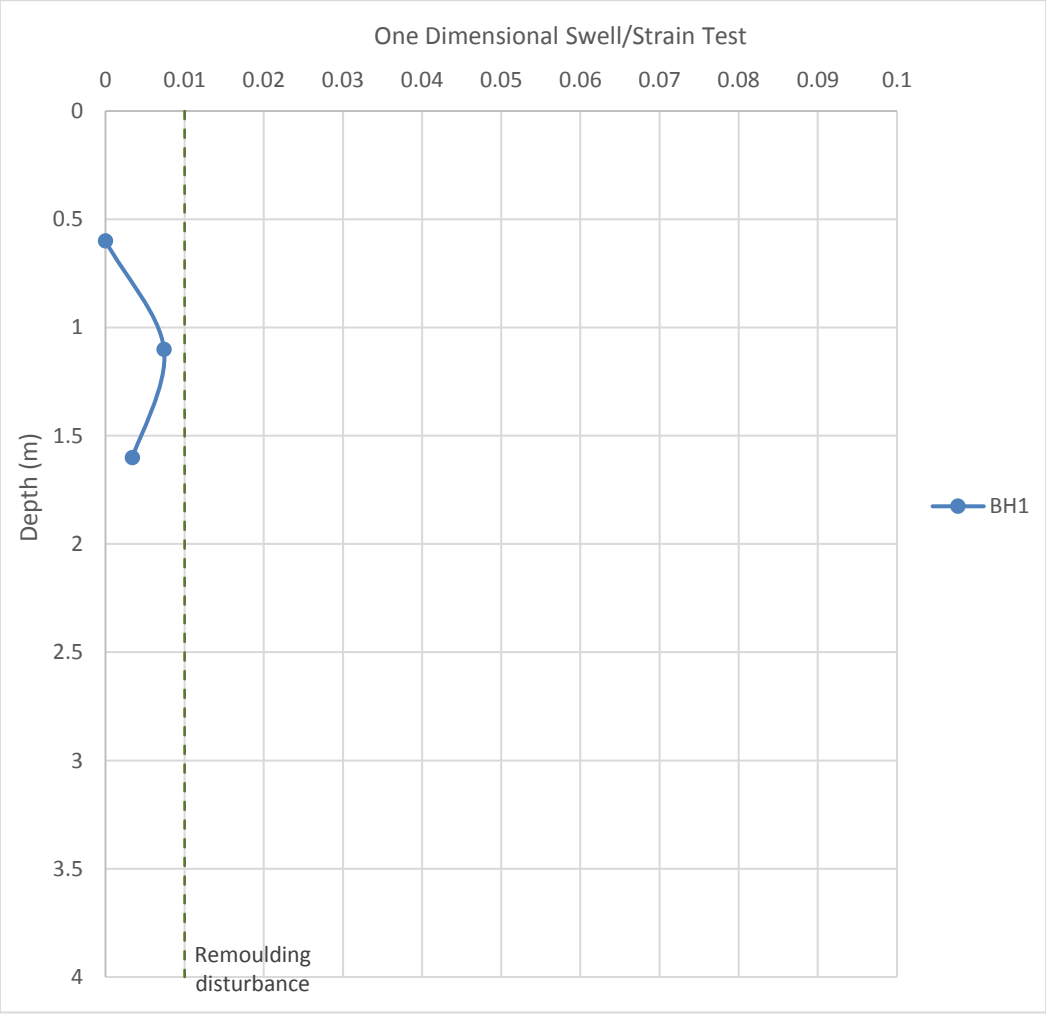
The Plastic Limit test and the determination of the Plasticity Index is undertaken in accordance with BS1377:Part 2:1990. Where a plastic limit has been denoted with an asterisk (*) then it has been derived from the liquid limit and has not been tested.

The Oedometer swell/strain test method is based upon BS1377:Part 5:1990 Section 4.4 'Determination of swelling and collapse characteristics' and unless otherwise stated is undertaken on a remoulded, disturbed, sample.

The Oedometer Swell/Strain Test is undertaken in a controlled environment within a temperature range of 16°C and 24°C

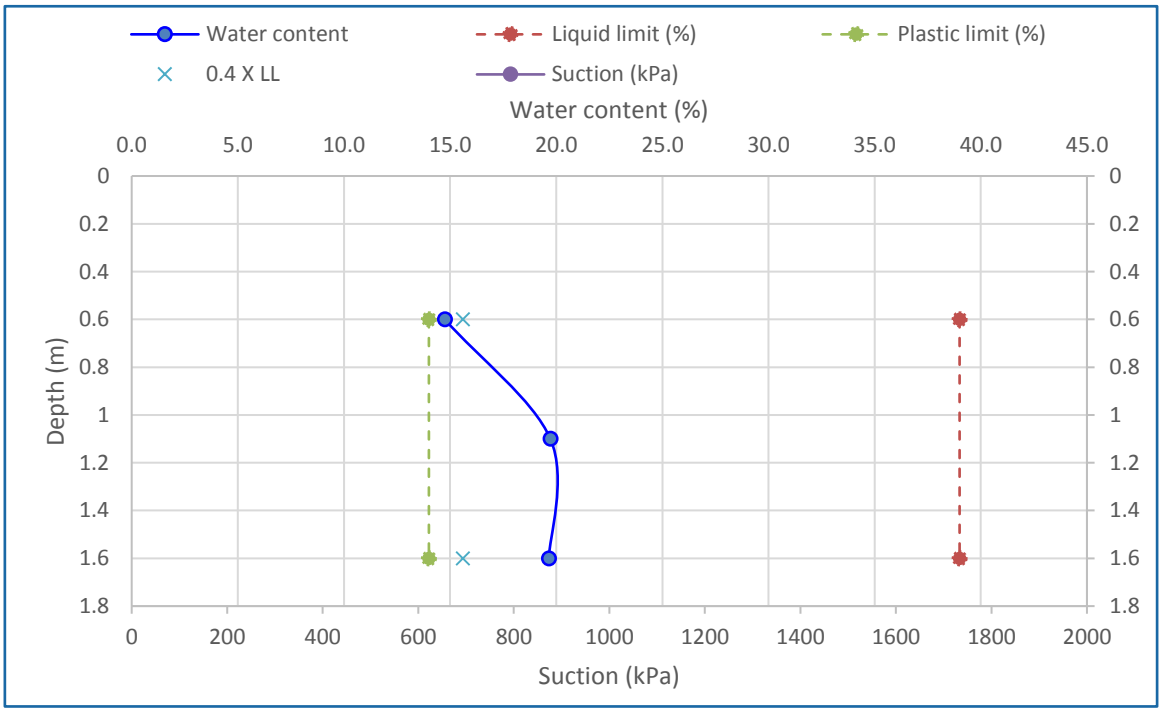
Summary of Oedometer Testing

Lab Ref	Depth (m)	Strain	Heave (mm)	Remarks
1	0.6			
2	1.1	0.0074	0	
3	1.6	0.0034	0	

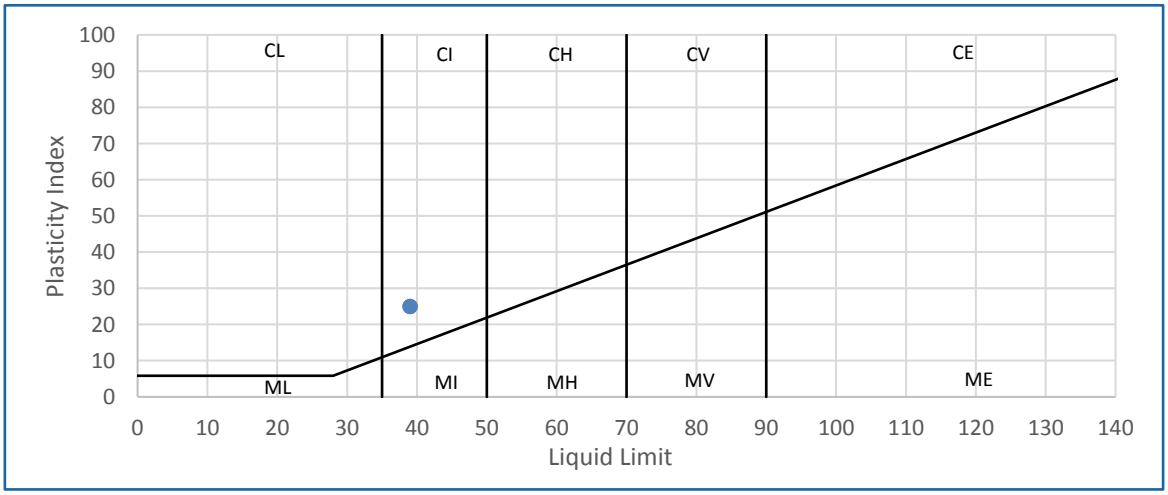


Samples from BH1

Lab Ref	Depth (m)	MC (%)	LL (%)	PL (%)	PI (%)	.425 mm(%)	mod. PI (%)	Av. Suc. (kPa)	Description
1	0.6	14.7	39	14	25	62	16		Soft orange-brown very sandy gravelly CLAY . Gravel is fine, medium and coarse.
2	1.1	19.7							Firm to stiff brown/reddish-brown slightly sandy slightly gravelly CLAY . Gravel is fine and medium.
3	1.6	19.6	39	14	25	87	22		Soft reddish-brown sandy gravelly CLAY . 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					S & G
2					
3					

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)
I	Insufficient sample
O	Too much organic content (unsuitable for testing)
V	Sample too soft (unsuitable for preparation)
N	Non-standard procedure used

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

Oakfield, Saint John's Avenue, Thorner, West Yorkshire, LS14 3BZ

Client:	Subsidence Management Services
Client Contact:	Michael Yuill
Claim Number:	4004419529
Client Reference:	IFS-ESU-SUB-18-0078349
Policy Holder:	Mr Mark Christie
Report Date:	21 November 2019
Our Ref:	R34064

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

Sub Sample	Species Identified		Root Diameter	Starch
TP/BH1:				
0.5-1.6m	probably either *Quercus* spp. or *Castanea* spp.	1	<1 mm	Low

Comments:

1 - Plus 3 others the same. All small and juvenile.

Quercus spp. are oaks. *Castanea* spp. include sweet chestnut.

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.

Registered in England No. 295427 Registered Office: Unit 4 Linnet Court, Cawledge Business Park, Alnwick, NE66 2GD

SubsNetUK

Drainage Investigation Report

For Subsidence Management Services

Client Esure

Risk Address: Oakfield, Saint John's Avenue, West Yorkshire, LS14 3BZ

Visit Date: 21/11/2019

Client Reference: IFS-ESU-SUB-18-0078349

Our Reference: C47078 D17129

Report Date: 28/11/2019

Report Content:

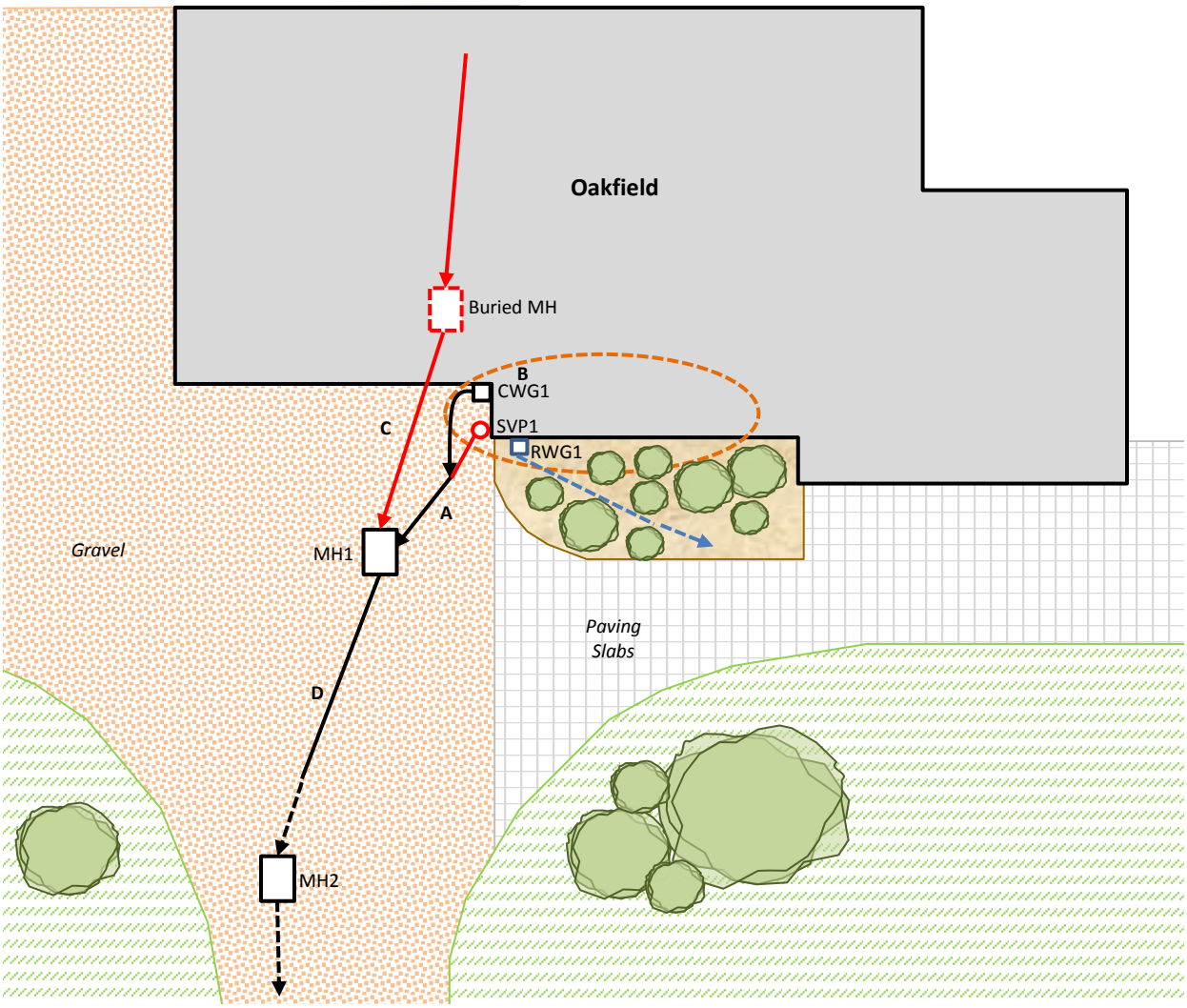
Front Page
Site Plan
CCTV Coding
Drain Overview
Quote

SubsNetUK

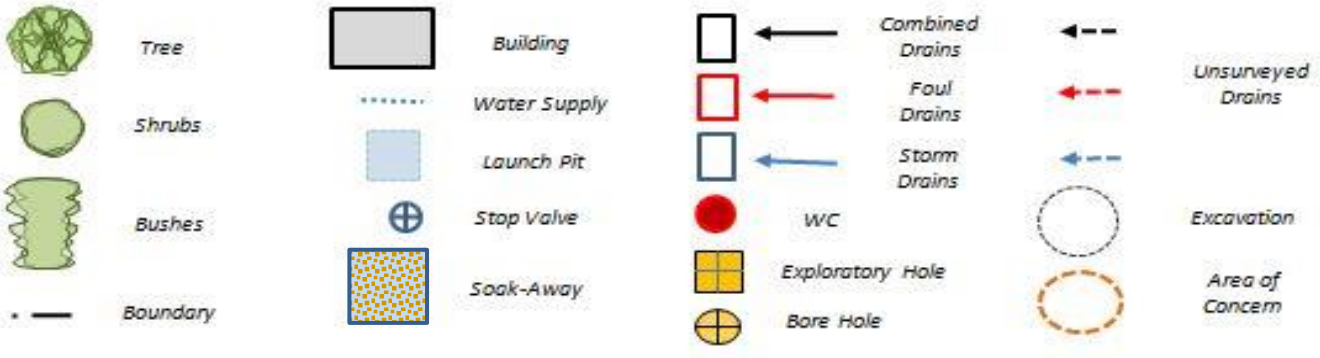
Site Plan

SubsNetUK

REAR



Key



Notes:	
Address:	Oakfield, Saint John's Avenue, West Yorkshire, LS14 3BZ

SubsNetUK

CCTV Survey

SubsNetUK

RUN	Start From :	MH1	Finish at :	SVP1	Pipe Ø:	100mm
A	Invert Level (m):	0.7	Invert Level (m):	N/A	Material:	Plastic
COMBINED	Condition grade:	A	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from MH1				
0.91	JN	Junction at 9 o'clock from CWG1				
1.29	LU	Line of drain deviates up 90°				
1.76	FN	Finish Node at SVP1				

RUN	Start From :	CWG1	Finish at :	RUN A	Pipe Ø:	100mm
B	Invert Level (m):	0.2	Invert Level (m):	N/A	Material:	Plastic
COMBINED	Condition grade:	A	Direction:	Downstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from CWG1				
0.11	LR	Line of drain deviates right				
0.93	FN	Finish Node at Run A				

RUN	Start From :	MH1	Finish at :	Upstream Node	Pipe Ø:	100mm
C	Invert Level (m):	0.7	Invert Level (m):	N/A	Material:	Clay
FOUL	Condition grade:	B	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from MH1				
0.12	FL	Fracture Longitudinal				
0.12	RFJ	Roots Fine at Joint				
1.96	RFJ	Roots Fine at Joint				
1.96	REM	Remark - Camera enters Buried MH				
7.24	FN	Finish Node - Beyond Area of Concern				

RUN	Start From :	MH1	Finish at :	Downstream Node	Pipe Ø:	100mm
D	Invert Level (m):	0.7	Invert Level (m):	N/A	Material:	Clay
COMBINED	Condition grade:	B	Direction:	Downstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from MH1				
1.10	CC	Crack Circumferential				
2.10	CC	Crack Circumferential				
3.74	JDM	Joint Displaced (Medium)				
4.37	FN	Finish Node - Beyond Area of Concern				

Address: Oakfield, Saint John's Avenue, West Yorkshire, LS14 3BZ

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.

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 Upstream to SVP1
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
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: CWG1 Downstream to Run A
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
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: MH1 Upstream
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: Structural Damage
Recommended Repair: FN Finish Node - Beyond Area of Concern

1) Expose buried MH internally and remove roots from the manhole.
2) To prepare the drain line using mechanical root cutting and insert 2m of structural liner to cover defects between MH's.

Note: There was no one home to enter the property so unable to inform if the buried MH is accessible or not. We will have to check on the day of repairs but we will still be able to insert the liner between manholes.

Drain Run D: MH1 Downstream
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: Structural Damage
Recommended Repair:

1) To prepare the drain line and insert 5m of structural liner to cover defects.

Drainage Overview 2

RWG1: This line was full of water and unable to survey. We pushed rods down to 2.8m to a solid stop within the flower bed. Therefore we would recommend the following repairs:

1) To excavate and install new gully including 1m of adjacent pipe work and connecting into MH1 combined system.
2) To break through the side of MH1 to allow for the connection of new pipework.

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

SubsNetUK

Quote

SubsNetUK

RUN / LOCATION: RUN C

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK10051	Drain Tracing - Electronic, with report plotting location & depth	nr	£90.02	1.00	£90.02
UK0561	Mechanical Root Cutting	m	£4.35	2.00	£8.69
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
				Total (Excl VAT)	£579.80

RUN / LOCATION: RUN D

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK1140	Drain Lining - 100mm. Install Structural liner into existing 100mm underground drain. 2mm Wall	m	£55.52	5.00	£277.58
				Total (Excl VAT)	£277.58

RUN / LOCATION: RWG1

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK0010	Remove existing UPVC pipework in isolated lengths, refix with new 68mm UPVC pipework (incl. brackets)	nr	£14.25	1.00	£14.25
UK0015	Extra over for bends.	nr	£8.31	1.00	£8.31
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
UK1045	Removal, set aside and reinstatement of concrete slab paving n.e 100mm thick	m2	£24.61	1.00	£24.61
UK1080	Cut out & replace drainage channel including reforming manhole benching	nr	£109.00	1.00	£109.00
				Total (Excl VAT)	£562.50

REPAIR ESTIMATE TOTALS:

Run / Location		Amount (£)
RUN C		£579.80
RUN D		£277.58
RWG1		£562.50
	Total (Excl VAT)	£1,419.88

Address: Oakfield, Saint John's Avenue, West Yorkshire, LS14 3BZ