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Site Investigation Report

Auger Ref:

97316.1.USI

Job Information	
Client	Crawford & Co
Client ref	SU1903345
Visit date	16/09/2019
Report date	17/09/2019

Job Summary

- CCTV survey undertaken. Read more.
- 2 trial holes undertaken. Read more.
- Requested soil samples taken. Read more.
- Requested root samples taken. Read more.

Job Information

Overview

Brief	Auger were commissioned by Crawford & Co to undertake a site investigation and CCTV inspection of the underground drainage within the area of concern at the property.

Findings

Drain Survey	**CCTV Survey** Line 3 - Manhole 1 downstream to manhole 2 Our survey revealed cracking and root ingress in the pipework. Line 4 - Manhole 2 downstream to manhole 3 Our survey revealed extensive water retention throughout the pipework. Line 5 - Manhole 3 downstream to manhole 4 Our survey revealed a severe joint displacement approximately 0.2m downstream from manhole 3. **Further Comments** 1) Our survey of lines 1 and 2 revealed no significant defects which could be allowing water to escape in the area of concern.
Refer Back	We will now refer this claim back to Crawford & Co and await your further instruction on how to proceed.

Recommendations	
Repairs	We believe repairs are needed on lines 3 and 5. Please see the proposed layout below for details of our repair recommendations. **PLEASE NOTE - The small tree located next to manhole 3 (please see Fig 3.1 below) may need to be cut back in order to facilitate access for the repair works.**
Maintain System	We noted root ingress within the chambers of manhole 2 and manhole 3 (please see Fig 3.4 below). However, this is not currently affecting the function of the drains. We recommend that the customer undertakes regular inspections of all manholes and removes any roots which could potentially obstruct the flow of waste in the future. Please note that this is classed as a maintenance issue and would not normally be covered under policy terms.
Water Retention on Line 3	**Please note that due to the relatively constant level of water retention on line 4, we believe that this could be the result of an underlying issue of poor fall in the pipework. Any works to resolve a falls issue would be classed as betterment and would not normally be covered under policy terms.** **The customer may wish to undertake private works to have the pipework on line 4 re-laid to try and achieve adequate fall. However, this issue does not currently appear to be affecting the function of the drain. Furthermore, since the line is holding water, it therefore cannot be escaping in the area of concern.**
Caveats	Once repairs have been undertaken the customer should ensure the drainage system is periodically inspected in the future for any deterioration and kept free flowing / free of blockages. Any damage noted during future inspections should be repaired immediately in accordance with current Building Regulations. With any repair process, complications and unforeseen circumstances can arise. These scenarios will be reported whilst on-site and could potentially cause an increase in repair costs and inconvenience. All recommendations are in assumption that there is clear access to excavate without any issues arising such as gas or electric mains in the area of the recommended repairs. If during the excavation of these lines, issues such as gas or electric mains do arise, extra costs will be incurred if a third party is required to attend or alterations to the recommendations are required. Where any excavation reinstatement of the surface is required, the reinstatement will always attempt to match the previous surface patterns and colouring, however we cannot guarantee an exact match. If any of the patch lining recommendations fail then excavation and replacement of the pipework would be required. This would severely increase the cost of repairs and would provide greater inconvenience to the residents. The proposed repairs will require radio detection in order to confirm the location of the defects. Although this is usually very accurate, a number of factors such as depth of pipework and presence of other services below ground can have an effect on the signal. This can result in a change of the location of the proposed excavation as well as the assumed depth and this may impact the scope of works. Costs may be subject to change due to the potential of excavating to a different depth and/or through different surfaces.

Photographs

Trial Hole 1

Fig 1.1: Trial Hole 1 Location	Fig 1.2: Trial Hole 1 Footing

Trial Hole 2

Fig 2.1: Trial Hole 2 Location	Fig 2.2: Trial Hole 2 Footing

Other Photos

Fig 3.1: Location of manhole 3 (small tree in corner may need to be cut back)

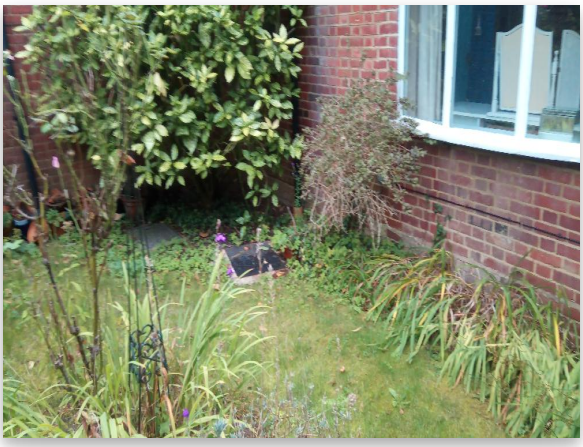

Fig 3.2: Manhole 1

Fig 3.3: Manhole 2

Fig 3.4: Manhole 3 (root ingress in chamber)

Fig 3.5: Root samples collected

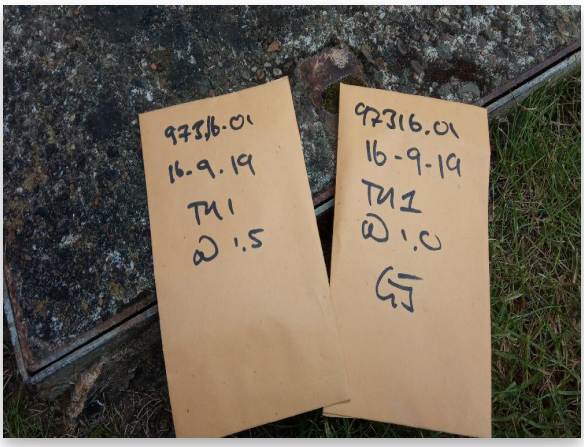

Fig 3.6: Soil samples collected

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PROPOSED LAYOUT

Job Ref: 97316.1

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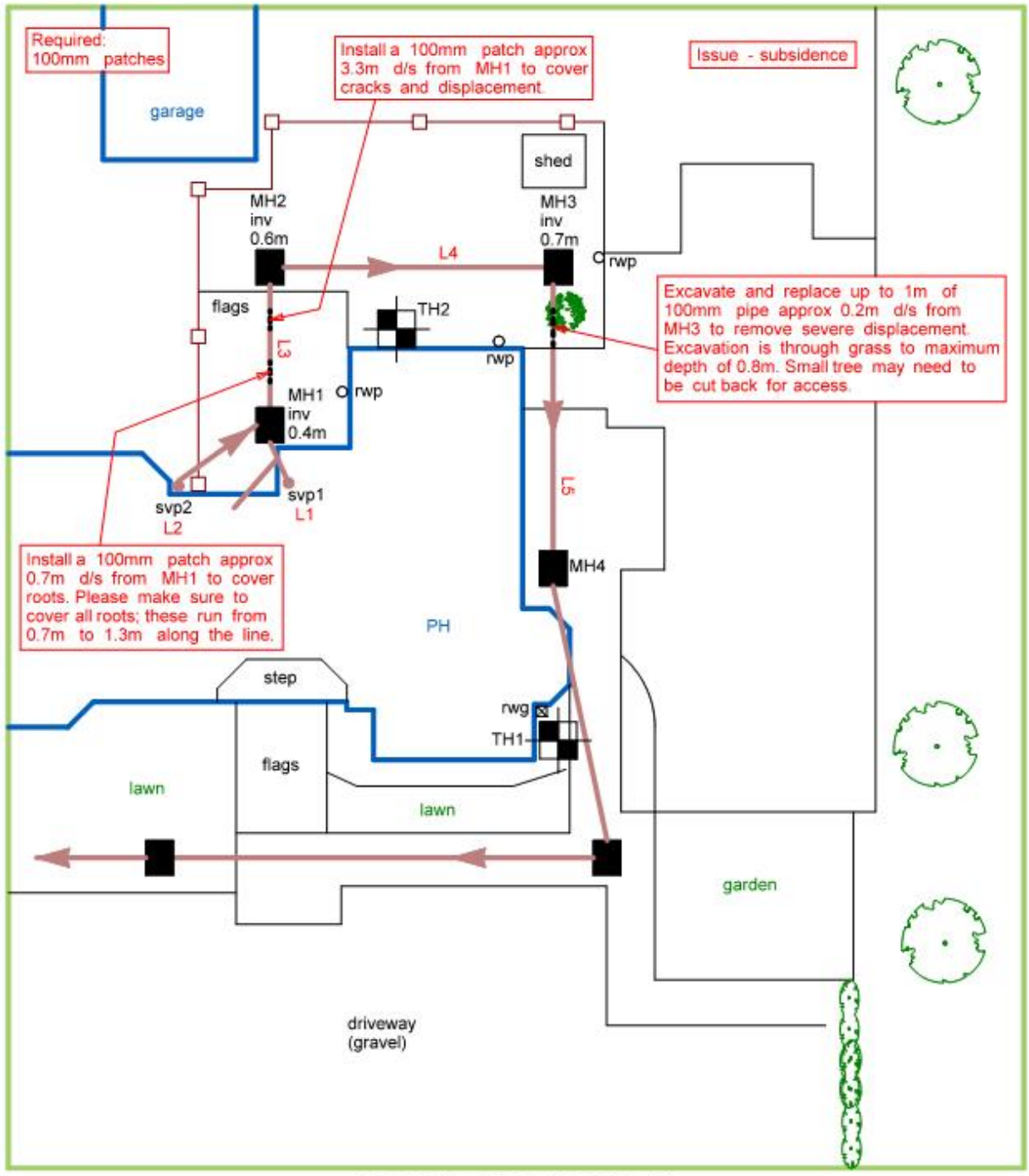

FRONT OF PROPERTY

LEGEND

- = Manhole
- = Inspection Chamber
- = Inspection Pot
- X = Blockage
- = svp/w/c
- = wg/fwg
- = rwg
- = rwp
- = Lines not for repair
- = Lines to be repaired
- = Assumed water mains feed
- = Walls
- = Fences
- = Building Outline
- = Steps
- = gate / door
- = Trial hole
- = Borehole
- = Direction of flow
- = Shrubs/bush
- = Hedge
- = Tree

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Trial Hole Log No.1

Location: Front right-hand corner of flats 1-5

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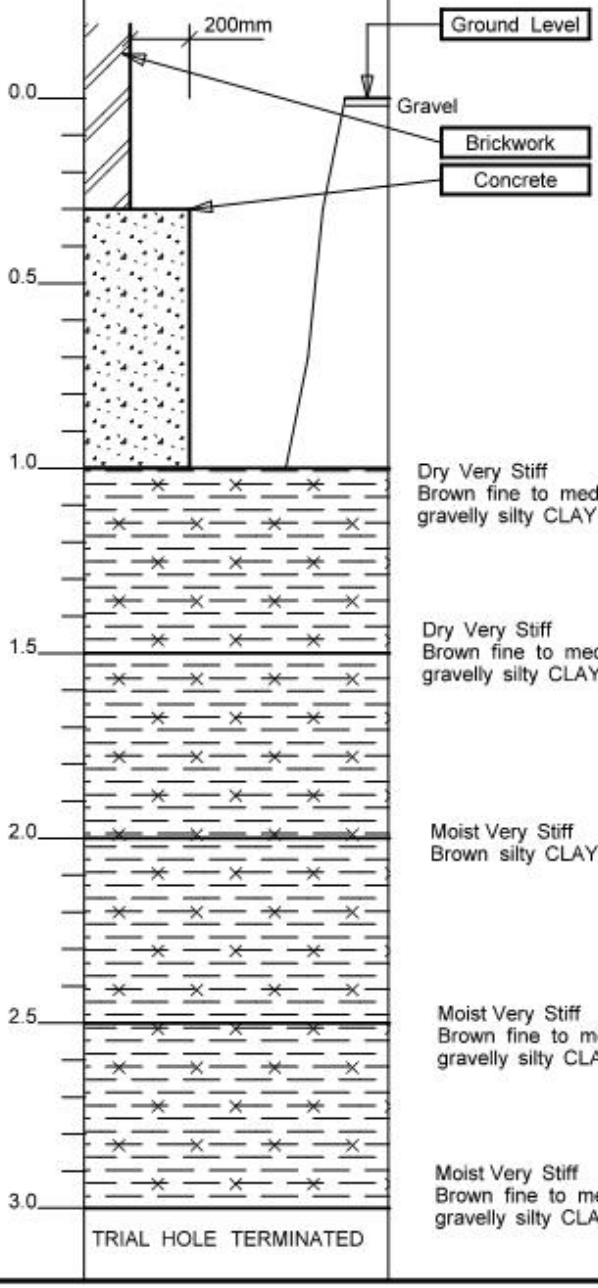

Depth (m)	Strata Description	Insitu Tests SV(19)	Soil Sample	Root Sample
1.0	Dry Very Stiff Brown fine to medium gravelly silty CLAY	120kpa	Soil @ 1m	Root @ 1m
1.5	Dry Very Stiff Brown fine to medium gravelly silty CLAY	120kpa	Soil @ 1.5m	Root @ 1.5m
2.0	Moist Very Stiff Brown silty CLAY	120kpa	Soil @ 2m	
2.5	Moist Very Stiff Brown fine to medium gravelly silty CLAY	120kpa	Soil @ 2.5m	
3.0	Moist Very Stiff Brown fine to medium gravelly silty CLAY	120kpa	Soil @ 3m	

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Trial Hole Log No.2

Location: Rear elevation of flat 1

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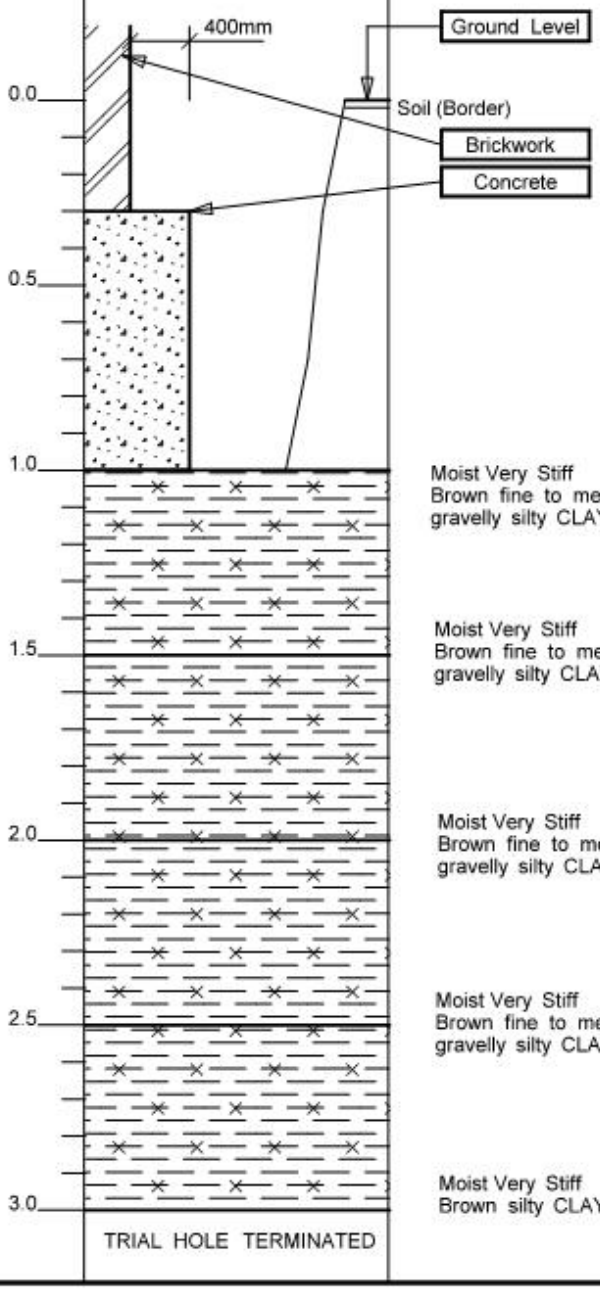

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2.5	Moist Very Stiff Brown fine to medium gravelly silty CLAY	120kpa	Soil @ 2.5m	
3.0	Moist Very Stiff Brown silty CLAY	120kpa	Soil @ 3m	