BLOCKED PIPES/DRAINS
PRESSURE WATER JETTING
PREVENTATIVE MAINTENANCE
COLOUR CCTV SURVEYS
GRAFITTI REMOVAL
SLUDGE GULPERS
HYGIENIC CLEAN UP
OF FLOOD DAMAGE

MG DRAINAGE LTD
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REF: CV1165

DATE: 4 Mar 2011

CCTV SURVEY / REPORT

F.A.O: **SITE:** **WORKS DATE:**

PAGES: 1 to 5
+ diagram

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SURVEY DESCRIPTION:

Survey of below ground drainage – part of

SUMMARY:

The survey and investigation was instructed further to rodent problems at the property internally that have been on-going for approx. 3years. Pest control had advised a check on the below ground drainage system to look for an entry/exit point for rats into the property because no other external sources had been confirmed. It is common for rats to be able to access internal parts of a property via the drainage system to enter the fabric of a building. Once inside they can then work their way through floor voids, pipe/cable ducts or cavities looking for food and warmth. Access from the drainage system into a property could be via structural defects such as fractures or holes in pipe sections, redundant lines or imperfections in manhole chamber walls/benchings or inadequately sealed pipes, manhole covers or access points.

When we arrived on site we were shown to a plan drawing of the property and a previous CCTV survey completed last year by a separate drainage contractor. The information from this was not conclusive but showed the accessible manhole covers and route/connectivity of the system. The plan drawing showed a previously completed extension to the RH side of the property and as a result all manhole covers were now internal. MH 01 is located below the carpet in the front room, MH 02 is located under the washing machine in the utility room, MH 03 is not visible, but suspected to be within the kitchen, and MH 04 is external in the rear garden.

We commenced with our CCTV survey via MH 01 (Run no 01) and proved that the main line downstream runs towards the rear of the property and junctions with (slightly upstream of MH 04) the external sewer line running parallel with the house. There were no structural defects found and the internal manholes MH 02 and MH 03 were proved. Measurements confirmed that MH 03 was located within the kitchen below the Aga range cooker. On this surveyed run we also proved there was an incoming branch within MH 03 and a junction in the soffit of the pipe at 7.9m upstream of its connection to the external sewer. Tests confirmed that both the branch into MH 03 and the junction (which is internal to the property) did not appear to have a use. Therefore we would assume that these are redundant.

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We then surveyed through both the incoming branches into MH 01. Connection 01 (Run no 02) was found to have a tight 90 degree bend fitted which proved its route was from under the RH wall of the property possibly from the external side access. Due to the tight bend we were unable to pass through it with the camera, investigations were carried out into its use but none could be found. Therefore we would assume this is redundant. Connection 02 (Run no 03) was found to serve the ground floor WC and no structural defects were found.

The washing machine and tumble drier were then disconnected and removed in order to access MH 02 and we surveyed through connection 01 (Run no 04). This serves the internal stack ST 01 and no structural defects were found.

The remaining runs surveyed were via the external manhole MH 04. Connection 02 (Run no 05) serves the external gully G 01 which carries the kitchen sink. No structural defects were found. Both the line downstream (Run no 06) and the run upstream (Run no 07) were surveyed and again no structural defects were found.

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RECOMMENDATIONS:

Generally the drainage system is in good condition and no structural defects were found.

Although there were a few droppings found on the benching of MH 01 and MH 02 there are no excessive signs of rat activity.

Due to the fact that this problem has been occurring for approx. 3years and so far it has not been resolved, consideration now has to be given to the possible areas that could potentially allow rat access. Based on the results of our survey there are 3 points of concern.

The first is the incoming branch to MH 01 (Run no 02). We were unable to survey it completely but because of its route we have to assume that it is a redundant line that was probably in use before the extension was constructed. Therefore, we have installed an expandable plug at its entry point to MH 01 to seal it. We have left the 'test nipple' open to allow for a restricted passage of water in case it is in use and this should be monitored, but the plug will stop the passage of rats if this is their entry and exit point.

The second and third areas are the incoming branch to MH 03 and the junction prior to the external main sewer. It is not possible to survey through the junction prior to the main sewer and ideally we should inspect the incoming branch to MH 03 using CCTV, however this chamber is concealed below the Aga and it is not accessible. To access it requires removing the Aga and excavating its foundation slab just to be able to access the floor below. The cost and inconvenience of which will be excessive. Therefore, as a solution to prevent this we would suggest that a CIP liner is installed downstream of MH 02 through MH 03 and ending just past the junction before the main external sewer.

This will seal off the manhole chamber MH 03, the incoming branch and the junction therefore preventing the chance of rat access should either of these be their entry and exit points. To install a CIP liner as described above will cost £680.00 + VAT.

We would stress that the installation of a liner is not the complete solution to this problem as we still do not know that rat access is definitely via the drainage system. In cases such as this the object is to remove any potential areas of concern on the assumption that elimination will eventually resolve the problem.

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RUN SHEETS:

"t" denotes the thickness of the pipewall.
"t". Medium = 1-1.5 "t". Large = over 1.5 "t".

RUN NO 01 FROM MANHOLE No. MH 01 CONN.X
THE PIPEWORK IS 100mm VITRIFIED CLAY
DIRECTION OF RUN DOWNSTREAM, DEPTH OF INVERT: n/a
USE – COMBINED, WEATHER: DRY, PIPEWORK AS FOUND

00.0	START OF SURVEY
00.0	WATER LEVEL 05%
00.8	MANHOLE No.02 (UTILITY ROOM)
01.7	END OF MANHOLE CHAMBER
01.8	CIRCUMFERENTIAL CRACK FROM 07-10 O'CLOCK
01.8	CIRCUMFERENTIAL CRACK FROM 01-02 O'CLOCK
02.1	CIRCUMFERENTIAL CRACK FROM 07-10 O'CLOCK
02.9	CIRCUMFERENTIAL CRACK FROM 07-02 O'CLOCK
03.0	LIGHT SCALE FROM 05-07 O'CLOCK
03.4	CIRCUMFERENTIAL CRACK FROM 11-02 O'CLOCK
03.7	LIGHT SCALE FROM 05-07 O'CLOCK
04.0	CIRCUMFERENTIAL CRACK FROM 11-02 O'CLOCK
04.0	LONGITUDINAL CRACK AT 12 O'CLOCK
05.0	MULTIPLE CRACKS FROM 08-04 O'CLOCK
05.6	MANHOLE No.03 (KITCHEN, UNDER AGA)
06.2	END OF MANHOLE CHAMBER
07.9	JUNCTION 100mm AT 12 O'CLOCK. UNKNOWN
08.5	CIRCUMFERENTIAL CRACK AT JOINT FROM 12-12 O'CLOCK
08.6	SEWER DEVIATES LEFT
08.6	SEWER DEVIATES DOWNWARDS
08.8	JUNCTION WITH SEWER
09.4	FINISH OF SURVEY LENGTH – ENTRY TO MH 04

RUN NO 02 FROM MANHOLE No. MH 01 CONN.01
THE PIPEWORK IS 100mm VITRIFIED CLAY
DIRECTION OF RUN UPSTREAM, DEPTH OF INVERT: n/a
USE – COMBINED, WEATHER: DRY, PIPEWORK AS FOUND

00.0	START OF SURVEY
00.0	WATER LEVEL 05%
00.1	JOINT DISPLACED MEDIUM
00.3	SEWER DEVIATES LEFT SHARP
00.5	SURVEY ABANDONED – UNABLE TO PASS BEND

RUN NO 03 FROM MANHOLE No. MH 01 CONN.02
THE PIPEWORK IS 100mm UPVC
DIRECTION OF RUN UPSTREAM, DEPTH OF INVERT: n/a
USE – COMBINED, WEATHER: DRY, PIPEWORK AS FOUND

00.0	START OF SURVEY
00.0	WATER LEVEL 05%
00.1	JUNCTION 100mm AT 06 O'CLOCK (BACK DROP)

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05.3 SEWER DEVIATES UPWARDS
05.5 FINISH OF SURVEY LENGTH - WC

RUN NO 04 FROM MANHOLE No. MH 02 CONN.01
THE PIPEWORK IS 100mm UPVC
DIRECTION OF RUN UPSTREAM, DEPTH OF INVERT: n/a
USE – COMBINED, WEATHER: DRY, PIPEWORK AS FOUND

00.0 START OF SURVEY
00.0 WATER LEVEL 05%
00.3 SEWER DEVIATES UPWARDS VERTICALLY. ST 01
01.0 JUNCTION 40mm AT 05 O'CLOCK (WASHING MACHINE WASTE)
01.1 FINISH OF SURVEY LENGTH – EXTENT OF SURVEY

RUN NO 05 FROM MANHOLE No. MH 04 CONN.02
THE PIPEWORK IS 100mm VITRIFIED CLAY
DIRECTION OF RUN UPSTREAM, DEPTH OF INVERT: n/a
USE – COMBINED, WEATHER: DRY, PIPEWORK AS FOUND

00.0 START OF SURVEY
00.0 WATER LEVEL 05%
00.2 SEWER DEVIATES UPWARDS SHARP
01.3 SEWER DEVIATES DOWNWARDS
01.5 FINISH OF SURVEY LENGTH – GULLY - G 01

RUN NO 06 FROM MANHOLE No. MH 04 CONN.X
THE PIPEWORK IS 150mm VITRIFIED CLAY
DIRECTION OF RUN DOWNSTREAM, DEPTH OF INVERT: n/a
USE – COMBINED, WEATHER: DRY, PIPEWORK AS FOUND

00.0 START OF SURVEY
00.0 WATER LEVEL 05%
04.5 LONGITUDINAL CRACK AT JOINT AT 12 O'CLOCK
20.5 CIRCUMFERENTIAL CRACK AT JOINT FROM 09-11 O'CLOCK
21.9 FINISH OF SURVEY LENGTH – ENTRY TO MH 05

RUN NO 07 FROM MANHOLE No. MH 04 CONN.01
THE PIPEWORK IS 150mm VITRIFIED CLAY
DIRECTION OF RUN UPSTREAM, DEPTH OF INVERT: n/a
USE – COMBINED, WEATHER: DRY, PIPEWORK AS FOUND

00.0 START OF SURVEY
00.0 WATER LEVEL 05%
00.2 CONNECTION 100mm AT 01 O'CLOCK (FROM PROPERTY)
00.2 LONGITUDINAL FRACTURE AT 09 O'CLOCK
27.2 FINISH OF SURVEY LENGTH – MH 06

END