

# **DRAINAGE SURVEY REPORT**

**DR WILLIAMS LIBRARY  
14 GORDON SQUARE  
LONDON  
WC1H 0AR**

**On behalf of**

**Dr David Wykes  
Director  
Dr Williams Library  
14 Gordon Square  
London  
WC1H 0AR**

**Date: 4<sup>th</sup> June 2019**

**Job No: 190524 / db /pb**

**Prepared by: Steve Fidler**

**C J Uden & Co.**

**Drainage Consultants & Surveyors**

**The Old Builders Yard, 52 – 53 Dene Street, Dorking, Surrey, RH4 2DP**

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Dear Sir

**Re: Dr Williams Library, 14 Gordon Square, London, WC1H 0AR**

Further to your recent instructions we attended at the above on the 14<sup>th</sup> & 15<sup>th</sup> May 2019 to carry out a CCTV survey of the drainage as detailed on the enclosed sketch plan.

We would report as follows; all measurements in metric and approximate all materials assumed to be clay unless noted otherwise.

**Foul Water  
Manhole 1  
(Interceptor  
Trap)**

Depth 960 Face Brickwork / Render  
150 White Glazed Channel

1 No Outlet	Clay	150mm-100mm	Downstream – Main Sewer – IL 960
6 No Inlets	Clay	100mm	Left Hand Branch 1 – Disused – IL 780
	Clay	100mm	Left Hand Branch 2 – Waste Gully – IL 820
	Clay	100mm	Right Hand Branch 1 – Yard Gully 1 – IL 760
	Clay	100mm	Right Hand Branch 2 – Rainwater Gully 1 – IL 840
	Clay	150mm	High Level – Disused Catchpit – IL 280
	Cast Iron	150mm	Upstream – Foul Water Manhole 7 – IL 930

Blocked on inspection and re-inspection. Large amount of gravel noted causing operational problems. 150 channel – 100 trap.  
Manhole size: 1120 x 690. Cover size: 640 x 580

**Overview  
Run 1**

REM The overview of this manhole highlights the channel to be 150mm white glazed that reduces to a 100mm clayware interceptor trap

**Run 1** Foul Water Manhole 1 – Downstream to Foul Water Manhole 1A (In Gordon Square)

0.04	REM	Start point camera docked on rodding eye of interceptor trap
0.33	CC	Circumferential crack
0.66	JN	Junction 6 o'clock (interceptor trap)
0.90	REM	Passes over trap
1.23	DER	Settled deposits scale
2.54	DER	Settled deposits, heavy scale 7 – 9 o'clock
2.54	WL	Water retention starts
3.24	CUW	Loss of vision
3.60	JN	Junction 2 o'clock (unable to confirm its use)
4.00	REM	Approximate point where run passes beyond assumed boundary
6.81	LD	Bend down
8.41	LD	Bend down
9.68	MHF	Enters foul water manhole 1A downstream

**Run 2** Foul Water Manhole 1 – Left Hand Branch 1 (Assumed Disused)

0.37	LL	Line of drain bends left
1.64	CC	Circumferential crack
3.49	LU	Line of drain bends up
4.00	OBX	Run capped off with mortar

**Run 3** Foul Water Manhole 1 – Left Hand Branch 2 to Waste Gully

0.16	DER	Settled deposits, gravel / large shingle
2.05	DES	Settled deposits, heavy silt
2.58	DES	Settled deposits, heavy silt
4.35	DES	Settled deposits, 25% silt
5.04	JN	Junction 1 o'clock (unable to confirm what this run serves)
5.37	DES	Settled deposits 50%
5.37	SA	Survey abandoned unable to survey beyond this point

**Run 4** Foul Water Manhole 1 – Right Hand Branch 1 to Yard Gully 1

0.98	LD	Bend down to yard gully
1.07	REM	Trap of yard gully 1

**Run 5** Foul Water Manhole 1 – Right Hand Branch 2 to Rainwater Gully 1

1.56	B	Pipe broken on joint to gully
1.60	GYF	Enters rainwater gully 1

**Run 6** Foul Water Manhole 1 – High Level to Disused Catchpit / Gully

0.00	FM	Multiple fractures start
0.66	DER	Settled deposits, heavy scale / mortar
0.70	REM	Enters disused catchpit / gully

**Run 7** Foul Water Manhole 1 – Upstream to Foul Water Manhole 7

0.00	DER	Settled deposits starts
0.25	REM	Mild oxidation to cast iron starts
6.36	DER	Settled deposits, heavy scale starts
13.37	MHF	Enters foul water manhole 7
	<b>Note:</b>	Mild oxidation and scale, heavy in places throughout

**Foul Water  
Manhole 2  
(Interceptor  
Trap)**

Depth 1030 Face Brickwork  
100 White Glazed Chancel

1 No Outlet	Clay	100mm	Downstream – Main Sewer – IL 1030
5 No Inlets	Clay	100mm	Left Hand Branch 1 – Yard Gully 2 – IL 900
	Clay	100mm	High Level Left Hand – Vent Pipe – IL 380
	Clay	100mm	Right Hand Branch 1 – Disused WC – IL 920
	Clay	100mm	Right Hand Branch 2 – Foul Water Manhole 3 – IL 930
	Clay	150mm	Upstream – Foul Water Manhole 4 – IL 1000

Scale to channel. Blocked on inspection with large amount of gravel / shingle within trap.

Manhole size: 1300 x 600. Cover size: 510 x 440

**Run 8**

Foul Water Manhole 2 – Downstream to Foul Water Manhole 2A

0.00	REM	Start point rodding eye of interceptor trap
0.08	JN	Junction 6 o'clock interceptor trap
0.30	REM	Passes over trap
0.37	DES	Settled deposits, heavy silt and debris lodged in invert
0.94	DES	Settled deposits, heavy debris / shingle lodged in invert
2.21	JN	Junction 12 o'clock (unable to confirm use, possible test branch)
3.03	CUW	Loss of vision
3.57	REM	Vision restored
3.98	LD	Bend down
4.00	REM	Approximate point where run passes beyond assumed boundary line
4.84	JDL	Joint displaced large
7.87	MHF	Enters foul water manhole 2A

**Run 9**

Foul Water Manhole 2 - Left Hand Branch 1 to Yard Gully 2

0.00	DER	Settled deposits, scale starts
0.37	LU	Line of drain bends up
1.56	LR	Line of drain bends right
2.01	GYF	Enters yard gully 2

**Run 10**

Foul Water Manhole 2 – Left Hand High Level to Vent Pipe

0.10	CC	Circumferential crack
0.21	CC	Circumferential crack
0.94	CC	Circumferential crack
1.27	FM	Multiple fractures
2.99	LU	Line of drain bends up to vent pipe

**Run 11** Foul Water Manhole 2 – Right Hand Branch 1 to Disused WC

0.08	LR	Line of drain bends right slight
0.94	LU	Line of drain bends up
1.15	REM	In vertical section of pipe to disused wc

**Run 12** Foul Water Manhole 2 – Right Hand Branch 2 to Foul Water Manhole 3

0.01	DER	Settled deposits, heavy scale deposits start
1.89	MHF	Enters foul water manhole 3

**Run 13** Foul Water Manhole 2 – Upstream to Foul Water Manhole 4

0.00	DER	Settled deposits starts
4.67	DER	Settled deposits, very heavy scale
6.52	DER	Settled deposits, vent heavy scale
8.45	DER	Settled deposits, very heavy scale on joint
8.57	WL	Water retention noted
9.72	WL	Water level 50%
9.72	JN	Junction 2 o'clock (unable to confirm its use)
12.01	OJL	Open joint large
12.59	CC	Circumferential crack
14.00	CM	Multiple cracks
14.60	MHF	Enters foul water manhole 4

**Foul Water Manhole 3** Depth 600 Face Brickwork  
100 White Glazed Channel

1 No Outlet	Clay	100mm	Downstream – Foul Water Manhole 2 – IL 600
3 No Inlets	uPVC	100mm	Left Hand Branch – Stub Stack – IL 440
	Clay	100mm	High Level Upstream – Disused – IL 450
	Clay	100mm	Upstream – Disused – IL 580

Generally satisfactory.  
Manhole size: 600 x 290. Cover size: 610 x 310

**Run 14** Foul Water Manhole 3 – Left Hand Branch to Stub Stack

2.42	LU	Line of drain bends up
2.66	REM	In vertical section of stub stack

**Run 15** Foul Water Manhole 3 – High Level Upstream (Assumed Disused)

0.70	DER	Settled deposits, heavy scale
0.94	LL	Line of drain bends left
1.10	CC	Circumferential crack
1.31	REM	Run appears disused and incorrectly capped off

**Run 16** Foul Water Manhole 3 – Upstream

1.60	DES	Settled deposits 50% starts
4.02	H	Large hole at 12 o'clock
4.14	DES	Settled deposits 90% debris and silt

**Note:** Run is assumed to be disused

**Yard Gully 2** Depth 400 Back Inlet Gully  
Clay Trapped Back Inlet Gully

1 No Outlet	Clay	100mm	Downstream – Foul Water Manhole 2 – IL 400
1 No Inlet	Cast Iron	100mm	Upstream – Rainwater Gully 2 – IL 210

Generally satisfactory. Grid broken in halve.

**Run 17** Yard Gully 2 – Upstream to Rainwater Gully 2

0.10	OBB	80% blocked with masonry / deposits
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**Note:** Run length approximately 1200mm. Unable to inspect for condition of this run due to solids in invert

**Foul Water Manhole 4** Depth 530 Gully Rendered  
150 White Glazed Channel

1 No Outlet	Clay	150mm	Downstream – Foul Water Manhole 2 – IL 530
3 No Inlets	Clay	100mm	Right Hand Branch 1 – Rainwater Gully 3 – IL 515
	Clay	100mm	Right Hand Branch 2 – Soil Vent Pipe – IL 510
	Clay	150mm	Upstream – Foul Water Manhole 5 – IL 500

Hole in channel section. Scale to channel.  
Manhole size: 1080 x 520. Cover size: 680 x 530

**Run 18** Foul Water Manhole 4 – Right Hand Branch 1 to Rainwater Gully 3

0.16	DER	Settled deposits, large scale deposits start
0.78	DER	Settled deposits, very heavy scale
1.19	GYF	Enters rainwater gully 3

**Run 19** Foul Water Manhole 4 – Right Hand Branch 2 to Soil Vent Pipe

0.62	LR	Line of drain bends right
1.19	LR	Line of drain bends right
1.60	LU	Line of drain bends up
1.89	REM	In vertical section of cast iron soil vent pipe

**Run 20** Foul Water Manhole 4 – Upstream to Foul Water Manhole 5

0.00	CUW	Loss of vision
4.51	MHF	Enters foul water manhole 5
<b>Note:</b> Severe ponding issues throughout this run		

**Foul Water Manhole 5** Depth 420 Rendered  
150 White Glazed Channel

1 No Outlet	Clay	150mm	Downstream – Foul Water Manhole 4 – IL 420
1 No Inlet	Clay	150mm	Upstream – Foul Water Manhole 6 – IL 395

25% ponding noted in channel.  
Manhole size: 640 x 495. Cover size: 680 x 530

**Run 21** Foul Water Manhole 5 – Downstream to Foul Water Manhole 4

0.00	CUW	Loss of vision
4.51	MHF	Enters foul water manhole 4
<b>Note:</b> Severe ponding throughout this run		

**Run 22** Foul Water Manhole 5 – Upstream to Foul Water Manhole 6

0.25	DER	Settled deposits, scale starts
3.69	CUW	Loss of vision
6.15	REM	Vision restored
14.19	JN	Junction 2 o'clock (discharge from foul water manhole 6A)
17.92	MHF	Enters foul water manhole 6
<b>Note:</b> Scale and ponding issues throughout this run		

**Foul Water Manhole 6** Depth 360 Rendered  
150 White Glazed Channel

1 No Outlet	Clay	150mm	Downstream – Foul Water Manhole 5 – IL 360
1 No Inlet	Clay	150mm	Upstream (Not Inspected) – Serves UCL Building – IL 350

Generally satisfactory.  
Manhole size: 640 x 350. Cover Size: 530 x 380

**Foul Water Manhole 7 & 7a (Double Chamber)**

Depth 580 Fully Rendered  
150 White Glazed Channel

1 No Outlet	Cast Iron	150mm	Downstream – Foul Water Manhole 1 – IL 580
4 No Inlets	Clay	100mm	Left Hand Branch 1 – Rainwater Gully 4 – IL 575
	Clay	100mm	Left Hand Branch 2 – Foul Water Manhole 8 – IL 550
	Clay	100mm	Right Hand Branch 1 – Waste Gully – IL 545
	Clay	100mm	High Level Upstream – Soil Vent Pipe – IL 440

Benching worn and missing. Scale to channel.  
Manhole size: 900 x 920. Cover size: 740 x 580

**Run 23** Foul Water Manhole 7 & 7A – Left Hand Branch 1 to Rainwater Gully 4

0.29	LL	Line of drain bends left
0.82	GYF	Enters rainwater gully 4

**Run 24** Foul Water Manhole 7 & 7A – Left Hand Branch 2 to Foul Water Manhole 8

0.37	DER	Settled deposits scale
0.98	FM	Multiple fractures
1.27	MHF	Enters foul water manhole 8

**Run 25** Foul Water Manhole 7 – Right Hand Branch to Waste Gully A

1.02	GYF	Enters waste gully
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**Run 26** Foul Water Manhole 7 – High Level Upstream to Soil Vent Pipe

0.00	DER	Settled deposits, scale starts
0.33	LL	Line of drain bends left
0.98	LU	Line of drain bends up
1.23	REM	In vertical section of cast iron soil vent pipe

**Foul Water Manhole 8**

Depth 420 Rendered  
100 Clayware Channel

1 No Outlet	Clay	100mm	Downstream – Foul Water Manhole 7 – IL 420
4 No Inlets	Clay	100mm	Left Hand Branch 1 – Disused – IL 360
	Clay	100mm	Left Hand Branch 2 – Disused – IL 350
	Clay	100mm	Left Hand Branch 3 – Disused – IL 350
	Clay	100mm	Upstream – Waste Gully – IL 410

Generally satisfactory.  
Manhole size: 900 x 410. Cove size: 440 x 660



**Run 27** Foul Water Manhole 8 – Left Hand Branch 1 (Run Disused)

0.16	OBB	Rubble / stones lodged in invert
0.53	OBB	Run capped off with mortar

**Run 28** Foul Water Manhole 8 – Left Hand Branch 2 (Run Disused)

0.37	OBB	Brick / masonry in invert 50%
0.50	OBB	Brick / masonry in invert 90%
	SA	Survey abandoned unable to remove solidified deposits to inspect run in full

**Note:** This run appears to be disused

**Run 29** Foul Water Manhole 8 – Left Hand Branch 3 (Run Disused)

0.62	OBB	00% blocked / capped off with mortar
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**Run 30** Foul Water Manhole 8 – Upstream to Waste Gully B

1.07	LL	Line of drain bends left
1.37	GYF	Enters waste gully B

## Surface Water

**Surface Water Silt Pit / Catchpit 1** Depth 500 Face Brickwork Catchpit

1 No Outlet	Clay	100mm	Downstream – Rainwater Gully 3 – IL 250
2 No Inlets	Clay	100mm	Left Hand Branch – Rainwater Downpipe – IL 245
	Clay	100mm	Upstream – Assumed Silt Pit 2 (Unable to inspect due to extreme volumes of silt throughout runs) – IL 250

Full of heavy silt. Grid broken in two.

**Run 31** Catchpit 1 – Downstream to Rainwater Gully 3

0.00	DES	Settled deposits, 100% full of heavy silty deposits. We were unable to carry out a meaningful inspection
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**Run 32** Catchpit 1 – Left Hand Branch to Rainwater Downpipe A

0.00	DES	Settled deposits, 80% blocked with heavy silty deposits. We were unable to inspect this run to determine its condition due to high silt levels within this run and catchpit 1 and run 31 / 33
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**Run 33****Rainwater Gully 3 – Upstream to Catchpit 1**

0.00      DES      Settled deposits, 100% full of heavy silty deposits  
We were unable to carry out a meaningful inspection

**Silt Pit /  
Catchpit 2**

Unable to inspect due to high silt levels

**Conclusions:** The results of the CCTV survey highlight areas where the drainage requires attention. We would therefore recommend the following in accordance with our standard definitions.

		<b>Priority</b>
<b>Run 1</b>	We would recommend that the interceptor trap is excavated / removed and replaced using a straight section of uPVC pipe in an attempt at improving flow (the trap blocked on both of the days that we carried out our survey, even after extensive jetting). The remainder of the run down to foul water manhole 1A then requires scour / jetting works in an attempt to remove large scale deposits.	HIGH
<b>Run 2</b>	No works necessary.	
<b>Run 3</b>	This run serves a gully that is hidden below the crumbling steps. This run ideally requires extensive jetting works in attendance with a jet-vac tanker unit whilst attempting to remove the large volume of silt / ballast type material that is currently lodge in the invert.  Once these works are complete the run should be re-inspected in an attempt to confirm its condition and report back our findings along with any further recommendations.	HIGH
<b>Run 4</b>	No works.	
<b>Run 5</b>	Excavate the rainwater gully at the head of the run and replace in modern materials.	MEDIUM
<b>Run 6</b>	Appears disused. Cap off correctly within the manhole.	MEDIUM
<b>Run 7</b>	Extensive scour / jetting works necessary in an attempt to improve flow.	HIGH
<b>Run 8</b>	Excavate and remove the interceptor trap and	

	replace with a straight section of pipe in modern materials. This run also requires extensive forward high pressure jetting works in an attempt to remove / reduce a large volume of ballast type debris lodged in invert that is causing poor flow.	HIGH
<b>Run 9</b>	No works.	
<b>Run 10</b>	Although defects noted this run serves as a vent pipe only. No works proposed at this time.	
<b>Run 11</b>	This run serves a wc that appears disused. No works proposed.	
<b>Run 12</b>	Although heavy scale noted within this short section the run only accepts grey waste. No works proposed.	
<b>Run 13</b>	Scour / jetting works are recommended in an attempt at reducing / removing heavy scale deposits and improve flow. Further works would be to re-inspect (12.00 – 14.60m) to confirm suitability for lining. If suitable an attempt should be made to line this section and cover defects.	HIGH
<b>Run 14</b>	No works.	
<b>Run 15</b>	This run would appear to be disused. We would recommend that it is capped off correctly within foul water manhole 3.	MEDIUM
<b>Run 16</b>	This run would appear to be disused. We would recommend that it is capped off correctly within foul water manhole 3.	MEDIUM
<b>Run 17</b>	Relay this run in modern materials.	HIGH
<b>Run 18</b>	Scour / jet in an attempt to improve flow.	LOW
<b>Run 19</b>	No works.	
<b>Runs 20, 21 &amp; 22</b>	<p>These runs (between foul water manhole 4 through to foul water manhole 6) are experiencing serious ponding issues that are causing very poor flow conditions. It is our understanding they block on a regular basis.</p> <p>Initially we would recommend a laser level survey is carried out in an attempt to confirm the amount of fall between foul water manhole 4 and foul water manhole 6.</p> <p>The results of this level survey will determine the</p>	

	extent of any recommendations that need to be proposed to correct the issues.	HIGH
<b>Run 23</b>	No works.	
<b>Run 24</b>	Scour / jet and re-inspect to confirm suitability for a patch line repair at 0.98m. If suitable attempt to install patch liner to cover defects.	HIGH
<b>Run 25</b>	No works.	
<b>Run 26</b>	No works.	
<b>Run 27</b>	Appears to be disused. Cap off correctly within foul water manhole 8.	LOW
<b>Run 28</b>	Appears to be disused. Cap off correctly within foul water manhole 8.	LOW
<b>Run 29</b>	Appears to be disused. Cap off correctly within foul water manhole 8.	LOW
<b>Run 30</b>	No works.	
	<b>Surface Water Runs</b>	
<b>Runs 31, 32 &amp; 33 and Catchpit 1</b>	<p>All of these runs combine and discharge via rainwater gully 3 which then outfalls into the foul system at (foul water manhole 4).</p> <p>The entire system is clogged with heavy silty deposits that is causing operational problems.</p> <p>The extent of any recommendations would be dependent on both the level survey results for runs 21, 22 &amp; 23 and any proposed extension / building works to this rear courtyard area.</p>	
	<b>Manholes</b>	
<b>Foul Water Manhole 1</b>	Although blocked on each inspection during out survey this is due to the interceptor trap , works have been proposed in run 1. Otherwise the manhole is generally satisfactory.	
<b>Foul Water Manhole 2</b>	This manhole was also blocked on inspection and works proposed in run 8.	
	The channel section should be descaled to improve flow.	LOW
<b>Foul Water Manhole 3</b>	No works.	
<b>Foul Water</b>	Attempt to repair a large hole to part of the channel	

<b>Manhole 4</b>	using rapid hardening cement and epoxy putty. Descale the remainder of the channel section.	HIGH
<b>Foul Water Manhole 5</b>	Although ponding is noted in the channel section (caused by issues to runs 21, 22 & 23) the overall condition is generally satisfactory.	
<b>Foul Water Manhole 6</b>	No works.	
<b>Foul Water Manhole 7 &amp; 7A</b>	Overhaul as necessary and descale channel.	LOW
<b>Foul Water Manhole 8</b>	No works.	
<b>Catchpit 1 &amp; 2</b>	Both catchpits 1 & 2 are full of heavy silty deposits. Any works to these catchpits will be incorporated in any recommendations made for runs 31, 32 and 33.	

We trust the above meets with your requirements and look forward to receiving your further instructions. If we can be of any further assistance, please do not hesitate to contact us.

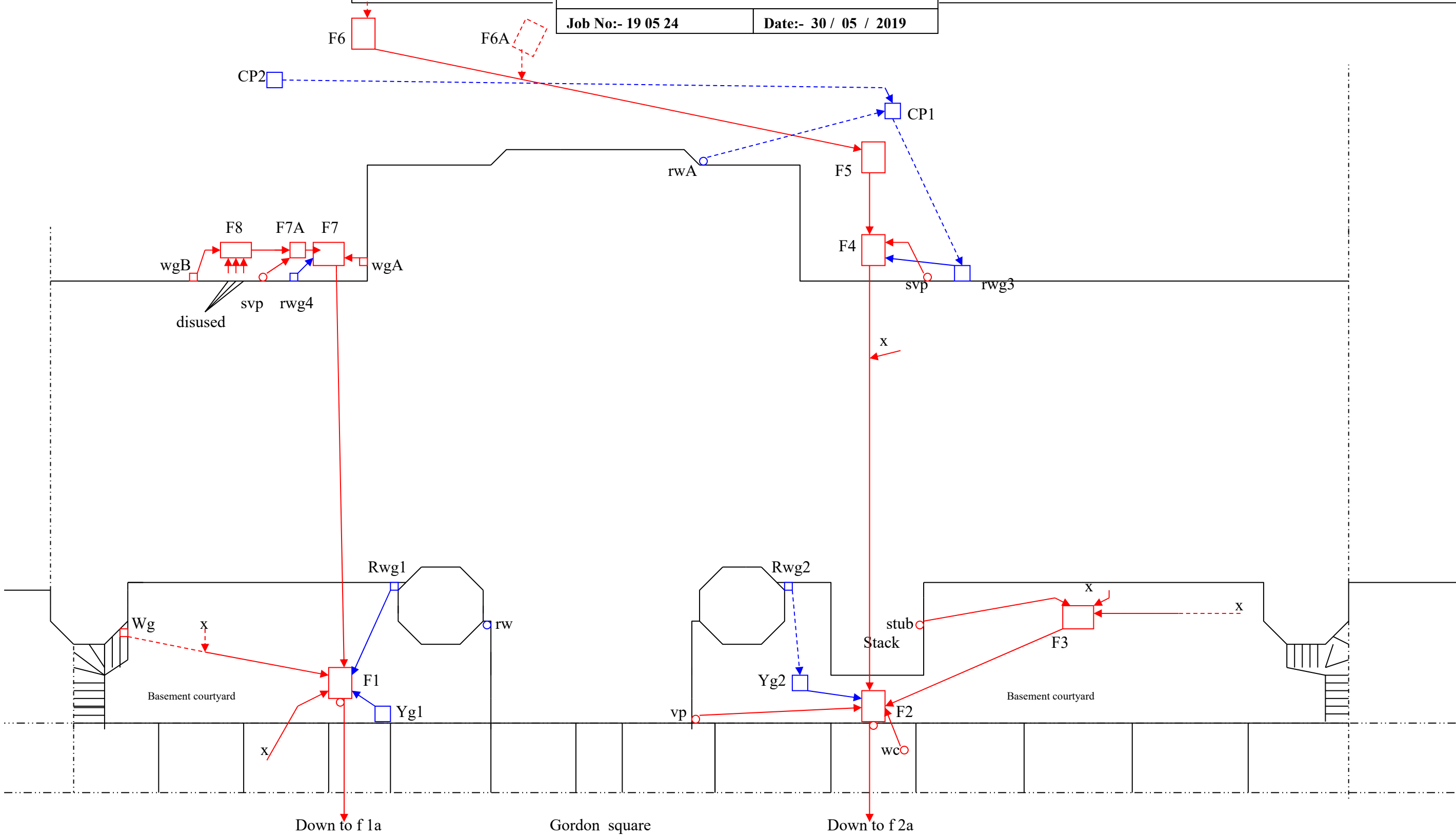
Yours sincerely

**Steve Fidler**  
For and on behalf of  
C J Uden & Co

**C J Uden & Co**  
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**Job No:- 19 05 24**

**Date:- 30 / 05 / 2019**



NOT TO SCALE FOR IDENTIFICATION ONLY E & OE

**Site Address:- DR WILLIAMS LIBRARY  
14 GORDON SQUARE  
LONDON  
WC1H 0AR**

**KEY**

MH	Manhole	AV	Air Vent
WG	Waste gully	VP	Vent Pipe
YG	Yard Gully	SVP	Soil Vent Pipe
RWG	Rain Water	TP	Trap
Gulley		I	Interceptor
RW	Rain Water		