GREENFIELD RUNOFF

Catchment Area:	5075sqm	0.508ha
PO Code :	N6 6JA	
Hydrological Region:	6	*From Wallingford on-line tool*
SAAR:	625mm	*From Wallingford on-line tool*
SOIL type:	4	*From Wallingford on-line tool*
SPR:	0.47	*Derived as follows:*

SOIL	*Sand*	*Clayey Sand*	*Sandy Clay*	*Clay*	*Rock*
	1	*2*	*3*	*4*	*5*
SPR	*0.1*	*0.3*	*0.37*	*0.47*	*0.53*

From Wallingford on-line tool using IH 124 Method

Qbar: 216.97 *Calculated from SPR and SAAR*

Greenfield Peak Run-off Rate:		*Growth curve Factor*
1 in 1	*184.4 l/sec*	*0.85*
1 in 30	*520.7 l/sec*	*2.40*
1 in 100	*692.1 l/sec*	*3.19*
1 in 200	*811.5 l/sec*	*3.74*

Qbar:	**2.20 l/sec**
Greenfield Peak Run-off Rate:	
1 in 1	**1.87 l/sec**
1 in 30	**5.29 l/sec**
1 in 100	**7.03 l/sec**
1 in 200	**8.24 l/sec**

National Non-Statutory Guidance:
For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should never exceed the peak greenfield runoff rate for the same event.

For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event should be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

Where reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event should never exceed the greenfield runoff volume for the same event.

Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.

SuDs CALCULATIONS	
Project: 55 FITZROY PARK	
GREENFIELD RUNOFF	
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RAINFALL PEAK INTENSITY (i)

M5-60 :	20	*From Wallingford Fig A1*
r:	0.42	*From Wallingford Fig A2*

D Duration		Z1	M5-D
5min	5min	0.38	7.6mm
10min	10min	0.55	11.0mm
15min	15min	0.65	13.0mm
30min	30min	0.75	15.0mm
1hr	60min	1.00	20.0mm
2hr	120min	1.20	24.0mm
4hr	240min	1.40	28.0mm
6hr	360min	1.60	32.0mm
10hr	600min	1.70	34.0mm
24hr	1440min	2.20	44.0mm
48hr	2880min	2.50	50.0mm

						Z2				
D Duration		**M5-D**	**M1-D**	**M2-D**	**M3-D**	**M4-D**	**M5-D**	**M10-D**	**M20-D**	**M30-D**	**M100-D**
5min	5min	7.6mm	0.62	0.79	0.89	0.97	1.02	1.19	1.36	1.43	1.79
10min	10min	11.0mm	0.61	0.79	0.90	0.97	1.03	1.22	1.41	1.49	1.91
15min	15min	13.0mm	0.61	0.79	0.90	0.97	1.03	1.22	1.41	1.49	1.91
30min	30min	15.0mm	0.62	0.81	0.90	0.97	1.03	1.24	1.44	1.53	1.99
1hr	60min	20.0mm	0.64	0.81	0.90	0.97	1.03	1.24	1.45	1.54	2.03
2hr	120min	24.0mm	0.64	0.81	0.90	0.97	1.03	1.24	1.45	1.54	2.03
4hr	240min	28.0mm	0.66	0.82	0.91	0.97	1.03	1.24	1.44	1.53	2.01
6hr	360min	32.0mm	0.68	0.83	0.91	0.97	1.03	1.22	1.42	1.51	1.97
10hr	600min	34.0mm	0.68	0.83	0.91	0.97	1.03	1.22	1.42	1.51	1.97
24hr	1440min	44.0mm	0.70	0.84	0.92	0.97	1.02	1.19	1.38	1.47	1.89
48hr	2880min	50.0mm	0.72	0.85	0.93	0.98	1.02	1.17	1.34	1.42	1.81

						MT-D				
D Duration		**M5-D**	**M1-D**	**M2-D**	**M3-D**	**M4-D**	**M5-D**	**M10-D**	**M20-D**	**M30-D**	**M100-D**
5min	5min	7.6mm	4.7mm	6.0mm	6.8mm	7.4mm	7.8mm	9.0mm	10.3mm	10.8mm	13.6mm
10min	10min	11.0mm	6.7mm	8.7mm	9.9mm	10.7mm	11.3mm	13.4mm	15.5mm	16.4mm	21.0mm
15min	15min	13.0mm	7.9mm	10.3mm	11.7mm	12.6mm	13.4mm	15.9mm	18.3mm	19.4mm	24.8mm
30min	30min	15.0mm	9.3mm	12.2mm	13.5mm	14.6mm	15.5mm	18.6mm	21.6mm	22.9mm	29.9mm
1hr	60min	20.0mm	12.8mm	16.2mm	18.0mm	19.4mm	20.6mm	24.8mm	29.0mm	30.9mm	40.6mm
2hr	120min	24.0mm	15.4mm	19.4mm	21.6mm	23.3mm	24.7mm	29.8mm	34.8mm	37.0mm	48.7mm
4hr	240min	28.0mm	18.5mm	23.0mm	25.5mm	27.2mm	28.8mm	34.7mm	40.3mm	42.9mm	56.3mm
6hr	360min	32.0mm	21.8mm	26.6mm	29.1mm	31.0mm	33.0mm	39.0mm	45.4mm	48.4mm	63.0mm
10hr	600min	34.0mm	23.1mm	28.2mm	30.9mm	33.0mm	35.0mm	41.5mm	48.3mm	51.5mm	67.0mm
24hr	1440min	44.0mm	30.8mm	37.0mm	40.5mm	42.7mm	44.9mm	52.4mm	60.7mm	64.5mm	83.2mm
48hr	2880min	50.0mm	36.0mm	42.5mm	46.5mm	49.0mm	51.0mm	58.5mm	67.0mm	71.0mm	90.5mm

						Intensity i				
	D Duration		**M1-D**	**M2-D**	**M3-D**	**M4-D**	**M5-D**	**M10-D**	**M20-D**	**M30-D**	**M100-D**
5min	5min	0.08hr	56.5mm/hr	72.0mm/hr	81.2mm/hr	88.5mm/hr	93.0mm/hr	108.5mm/hr	124.0mm/hr	130.1mm/hr	163.2mm/hr
10min	10min	0.17hr	40.3mm/hr	52.1mm/hr	59.4mm/hr	64.0mm/hr	68.0mm/hr	80.5mm/hr	93.1mm/hr	98.3mm/hr	126.1mm/hr
15min	15min	0.25hr	31.7mm/hr	41.1mm/hr	46.8mm/hr	50.4mm/hr	53.6mm/hr	63.4mm/hr	73.3mm/hr	77.5mm/hr	99.3mm/hr
30min	30min	0.50hr	18.6mm/hr	24.3mm/hr	27.0mm/hr	29.1mm/hr	30.9mm/hr	37.2mm/hr	43.2mm/hr	45.8mm/hr	59.7mm/hr
1hr	60min	1.00hr	12.8mm/hr	16.2mm/hr	18.0mm/hr	19.4mm/hr	20.6mm/hr	24.8mm/hr	29.0mm/hr	30.9mm/hr	40.6mm/hr
2hr	120min	2.00hr	7.7mm/hr	9.7mm/hr	10.8mm/hr	11.6mm/hr	12.4mm/hr	14.9mm/hr	17.4mm/hr	18.5mm/hr	24.4mm/hr
4hr	240min	4.00hr	4.6mm/hr	5.7mm/hr	6.4mm/hr	6.8mm/hr	7.2mm/hr	8.7mm/hr	10.1mm/hr	10.7mm/hr	14.1mm/hr
6hr	360min	6.00hr	3.6mm/hr	4.4mm/hr	4.9mm/hr	5.2mm/hr	5.5mm/hr	6.5mm/hr	7.6mm/hr	8.1mm/hr	10.5mm/hr
10hr	600min	10.00hr	2.3mm/hr	2.8mm/hr	3.1mm/hr	3.3mm/hr	3.5mm/hr	4.1mm/hr	4.8mm/hr	5.1mm/hr	6.7mm/hr
24hr	1440min	24.00hr	1.3mm/hr	1.5mm/hr	1.7mm/hr	1.8mm/hr	1.9mm/hr	2.2mm/hr	2.5mm/hr	2.7mm/hr	3.5mm/hr
48hr	2880min	48.00hr	0.6mm/hr	0.8mm/hr	0.8mm/hr	0.9mm/hr	0.9mm/hr	1.1mm/hr	1.3mm/hr	1.3mm/hr	1.7mm/hr
48hr	2880min	48.00hr	0.8mm/hr	0.9mm/hr	1.0mm/hr	1.0mm/hr	1.1mm/hr	1.2mm/hr	1.4mm/hr	1.5mm/hr	1.9mm/hr

SuDs CALCULATIONS	
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RAINFALL PEAK INTENSITY	
Sheet 2 of 8	
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GREENFIELD PEAK RUNOFF

Hydrological Region: 6 *From Wallingford on-line tool* **Qbar: 2.20 l/sec**

Run-Off Q

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
10min	10min	0.17hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
15min	15min	0.25hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
30min	30min	0.50hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
1hr	60min	1.00hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
2hr	120min	2.00hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
4hr	240min	4.00hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
6hr	360min	6.00hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
10hr	600min	10.00hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
24hr	1440min	24.00hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec
48hr	2880min	48.00hr	1.87 l/sec	1.94 l/sec	2.23 l/sec	2.53 l/sec	2.82 l/sec	3.57 l/sec	4.33 l/sec	5.29 l/sec	7.03 l/sec

Run-Off Volume

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	0.6 m3	0.6 m3	0.7 m3	0.8 m3	0.8 m3	1.1 m3	1.3 m3	1.6 m3	2.1 m3
10min	10min	0.17hr	1.1 m3	1.2 m3	1.3 m3	1.5 m3	1.7 m3	2.1 m3	2.6 m3	3.2 m3	4.2 m3
15min	15min	0.25hr	1.7 m3	1.7 m3	2.0 m3	2.3 m3	2.5 m3	3.2 m3	3.9 m3	4.8 m3	6.3 m3
30min	30min	0.50hr	3.4 m3	3.5 m3	4.0 m3	4.5 m3	5.1 m3	6.4 m3	7.8 m3	9.5 m3	12.6 m3
1hr	60min	1.00hr	6.7 m3	7.0 m3	8.0 m3	9.1 m3	10.1 m3	12.8 m3	15.6 m3	19.0 m3	25.3 m3
2hr	120min	2.00hr	13.5 m3	14.0 m3	16.1 m3	18.2 m3	20.3 m3	25.7 m3	31.2 m3	38.1 m3	50.6 m3
4hr	240min	4.00hr	27.0 m3	27.9 m3	32.1 m3	36.4 m3	40.6 m3	51.4 m3	62.4 m3	76.1 m3	101.2 m3
6hr	360min	6.00hr	40.4 m3	41.9 m3	48.2 m3	54.5 m3	60.9 m3	77.1 m3	93.6 m3	114.2 m3	151.7 m3
10hr	600min	10.00hr	67.4 m3	69.8 m3	80.3 m3	90.9 m3	101.5 m3	128.4 m3	155.9 m3	190.3 m3	252.9 m3
24hr	1440min	24.00hr	161.7 m3	167.4 m3	192.8 m3	218.2 m3	243.6 m3	308.2 m3	374.2 m3	456.7 m3	607.0 m3
48hr	2880min	48.00hr	323.5 m3	334.9 m3	385.6 m3	436.4 m3	487.1 m3	616.5 m3	748.4 m3	913.3 m3	1213.9 m3

SuDs CALCULATIONS

Project: 55 FITZROY PARK

GREENFIELD PEAK RUNOFF

Sheet 3 of 8

Project Reference: LBH 4599

Date: 14/08/2020 Rev: 1

Client: Turner Stokes / Springer

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EXISTING PEAK RUNOFF

C_V: 0.48 *Volumetric Run-Off Coefficient*

C_R: 1.3 *Routing Coefficient*

Run-Off Q

	D Duration		**M1-D**	**M2-D**	**M3-D**	**M4-D**	**M5-D**	**M10-D**	**M20-D**	**M30-D**	**M100-D**
5min	5min	0.08hr	49.7 l/sec	63.4 l/sec	71.4 l/sec	77.8 l/sec	81.8 l/sec	95.5 l/sec	109.1 l/sec	114.5 l/sec	143.6 l/sec
10min	10min	0.17hr	35.4 l/sec	45.9 l/sec	52.3 l/sec	56.3 l/sec	59.8 l/sec	70.8 l/sec	81.9 l/sec	86.5 l/sec	110.9 l/sec
15min	15min	0.25hr	27.9 l/sec	36.1 l/sec	41.2 l/sec	44.4 l/sec	47.1 l/sec	55.8 l/sec	64.5 l/sec	68.2 l/sec	87.4 l/sec
30min	30min	0.50hr	16.4 l/sec	21.4 l/sec	23.8 l/sec	25.6 l/sec	27.2 l/sec	32.7 l/sec	38.0 l/sec	40.3 l/sec	52.5 l/sec
1hr	60min	1.00hr	11.3 l/sec	14.3 l/sec	15.8 l/sec	17.1 l/sec	18.1 l/sec	21.8 l/sec	25.5 l/sec	27.2 l/sec	35.7 l/sec
2hr	120min	2.00hr	6.8 l/sec	8.6 l/sec	9.5 l/sec	10.2 l/sec	10.9 l/sec	13.1 l/sec	15.3 l/sec	16.3 l/sec	21.4 l/sec
4hr	240min	4.00hr	4.1 l/sec	5.0 l/sec	5.6 l/sec	6.0 l/sec	6.3 l/sec	7.6 l/sec	8.9 l/sec	9.4 l/sec	12.4 l/sec
6hr	360min	6.00hr	3.2 l/sec	3.9 l/sec	4.3 l/sec	4.6 l/sec	4.8 l/sec	5.7 l/sec	6.7 l/sec	7.1 l/sec	9.2 l/sec
10hr	600min	10.00hr	2.0 l/sec	2.5 l/sec	2.7 l/sec	2.9 l/sec	3.1 l/sec	3.6 l/sec	4.2 l/sec	4.5 l/sec	5.9 l/sec
24hr	1440min	24.00hr	1.1 l/sec	1.4 l/sec	1.5 l/sec	1.6 l/sec	1.6 l/sec	1.9 l/sec	2.2 l/sec	2.4 l/sec	3.0 l/sec
48hr	2880min	48.00hr	0.7 l/sec	0.8 l/sec	0.9 l/sec	0.9 l/sec	0.9 l/sec	1.1 l/sec	1.2 l/sec	1.3 l/sec	1.7 l/sec

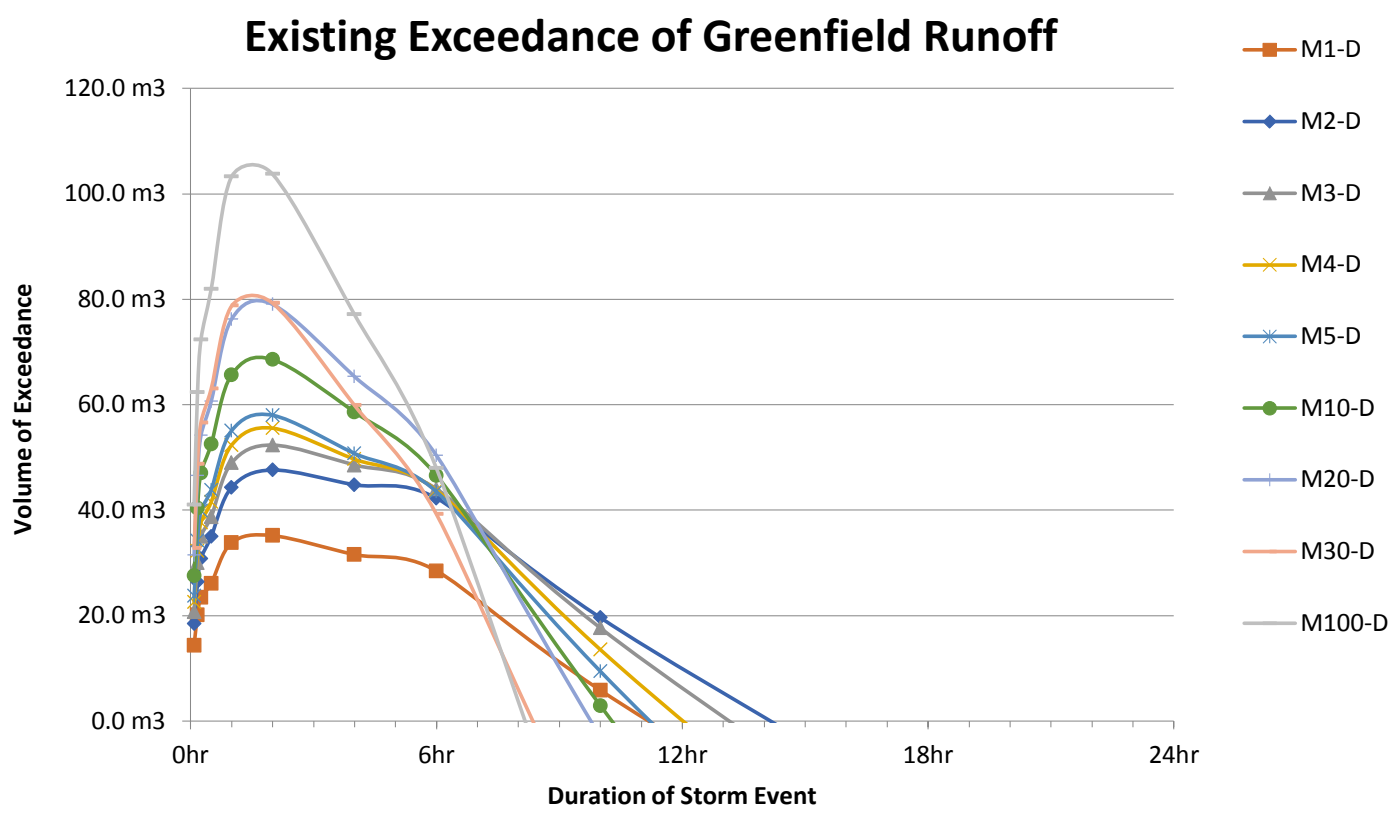
Run-Off Volume

	D Duration		**M1-D**	**M2-D**	**M3-D**	**M4-D**	**M5-D**	**M10-D**	**M20-D**	**M30-D**	**M100-D**
5min	5min	0.08hr	14.9 m3	19.0 m3	21.4 m3	23.3 m3	24.5 m3	28.6 m3	32.7 m3	34.3 m3	43.1 m3
10min	10min	0.17hr	21.2 m3	27.5 m3	31.4 m3	33.8 m3	35.9 m3	42.5 m3	49.1 m3	51.9 m3	66.5 m3
15min	15min	0.25hr	25.1 m3	32.5 m3	37.1 m3	39.9 m3	42.4 m3	50.2 m3	58.0 m3	61.3 m3	78.6 m3
30min	30min	0.50hr	29.5 m3	38.5 m3	42.8 m3	46.1 m3	48.9 m3	58.9 m3	68.4 m3	72.5 m3	94.5 m3
1hr	60min	1.00hr	40.5 m3	51.3 m3	57.0 m3	61.4 m3	65.2 m3	78.5 m3	91.8 m3	97.7 m3	128.6 m3
2hr	120min	2.00hr	48.6 m3	61.6 m3	68.4 m3	73.7 m3	78.3 m3	94.2 m3	110.2 m3	117.3 m3	154.3 m3
4hr	240min	4.00hr	58.5 m3	72.7 m3	80.7 m3	86.0 m3	91.3 m3	110.0 m3	127.7 m3	136.0 m3	178.2 m3
6hr	360min	6.00hr	68.9 m3	84.1 m3	92.2 m3	98.3 m3	104.4 m3	123.6 m3	143.9 m3	153.4 m3	199.6 m3
10hr	600min	10.00hr	73.2 m3	89.4 m3	98.0 m3	104.4 m3	110.9 m3	131.4 m3	152.9 m3	162.9 m3	212.1 m3
24hr	1440min	24.00hr	97.5 m3	117.0 m3	128.2 m3	135.2 m3	142.1 m3	165.8 m3	192.3 m3	204.4 m3	263.3 m3
48hr	2880min	48.00hr	114.0 m3	134.6 m3	147.3 m3	155.2 m3	161.5 m3	185.3 m3	212.2 m3	224.8 m3	286.6 m3

Exceedance of Greenfield Run-Off Volume

	D Duration		**M1-D**	**M2-D**	**M3-D**	**M4-D**	**M5-D**	**M10-D**	**M20-D**	**M30-D**	**M100-D**
5min	5min	0.08hr	14.4 m3	18.4 m3	20.8 m3	22.6 m3	23.7 m3	27.6 m3	31.4 m3	32.8 m3	41.0 m3
10min	10min	0.17hr	20.1 m3	26.4 m3	30.0 m3	32.3 m3	34.2 m3	40.4 m3	46.5 m3	48.7 m3	62.3 m3
15min	15min	0.25hr	23.4 m3	30.8 m3	35.0 m3	37.7 m3	39.9 m3	47.0 m3	54.1 m3	56.6 m3	72.3 m3
30min	30min	0.50hr	26.1 m3	35.0 m3	38.7 m3	41.5 m3	43.9 m3	52.5 m3	60.6 m3	63.0 m3	81.9 m3
1hr	60min	1.00hr	33.8 m3	44.3 m3	49.0 m3	52.3 m3	55.1 m3	65.7 m3	76.2 m3	78.7 m3	103.3 m3
2hr	120min	2.00hr	35.2 m3	47.6 m3	52.3 m3	55.5 m3	58.0 m3	68.6 m3	79.0 m3	79.2 m3	103.7 m3
4hr	240min	4.00hr	31.6 m3	44.8 m3	48.6 m3	49.6 m3	50.7 m3	58.6 m3	65.3 m3	59.9 m3	77.1 m3
6hr	360min	6.00hr	28.5 m3	42.2 m3	44.0 m3	43.8 m3	43.5 m3	46.6 m3	50.3 m3	39.2 m3	47.9 m3
10hr	600min	10.00hr	5.8 m3	19.6 m3	17.6 m3	13.5 m3	9.4 m3	2.9 m3	-3.0 m3	-27.3 m3	-40.8 m3
24hr	1440min	24.00hr	-64.2 m3	-50.4 m3	-64.6 m3	-83.0 m3	-101.4 m3	-142.4 m3	-181.9 m3	-252.3 m3	-343.6 m3
48hr	2880min	48.00hr	-209.5 m3	-200.3 m3	-238.4 m3	-281.2 m3	-325.6 m3	-431.2 m3	-536.2 m3	-688.5 m3	-927.4 m3

			C_V:
Catchment Area:	5075sqm	100%	
Permeable:	3983sqm	78%	0.40
Impermeable:	1092sqm	22%	0.77
			0.48



SuDs CALCULATIONS	
Project: 55 FITZROY PARK	
EXISTING PEAK RUNOFF	
Sheet 4 of 8	
Project Reference: LBH 4599	
Date: 14/08/2020	Rev: 1
Client: Turner Stokes / Springer	

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POST- DEVELOPMENT PEAK RUNOFF

C_V: 0.47 *Volumetric Run-Off Coefficient* Climate Change Allowance: 0%

C_R: 1.3 *Routing Coefficient*

Run-Off Q

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	48.6 l/sec	62.0 l/sec	69.8 l/sec	76.1 l/sec	80.0 l/sec	93.4 l/sec	106.7 l/sec	111.9 l/sec	140.4 l/sec
10min	10min	0.17hr	34.6 l/sec	44.9 l/sec	51.1 l/sec	55.1 l/sec	58.5 l/sec	69.3 l/sec	80.1 l/sec	84.6 l/sec	108.4 l/sec
15min	15min	0.25hr	27.3 l/sec	35.3 l/sec	40.3 l/sec	43.4 l/sec	46.1 l/sec	54.6 l/sec	63.1 l/sec	66.7 l/sec	85.4 l/sec
30min	30min	0.50hr	16.0 l/sec	20.9 l/sec	23.2 l/sec	25.0 l/sec	26.6 l/sec	32.0 l/sec	37.2 l/sec	39.4 l/sec	51.4 l/sec
1hr	60min	1.00hr	11.0 l/sec	13.9 l/sec	15.5 l/sec	16.7 l/sec	17.7 l/sec	21.3 l/sec	24.9 l/sec	26.6 l/sec	34.9 l/sec
2hr	120min	2.00hr	6.6 l/sec	8.4 l/sec	9.3 l/sec	10.0 l/sec	10.6 l/sec	12.8 l/sec	15.0 l/sec	15.9 l/sec	21.0 l/sec
4hr	240min	4.00hr	4.0 l/sec	4.9 l/sec	5.5 l/sec	5.8 l/sec	6.2 l/sec	7.5 l/sec	8.7 l/sec	9.2 l/sec	12.1 l/sec
6hr	360min	6.00hr	3.1 l/sec	3.8 l/sec	4.2 l/sec	4.5 l/sec	4.7 l/sec	5.6 l/sec	6.5 l/sec	6.9 l/sec	9.0 l/sec
10hr	600min	10.00hr	2.0 l/sec	2.4 l/sec	2.7 l/sec	2.8 l/sec	3.0 l/sec	3.6 l/sec	4.2 l/sec	4.4 l/sec	5.8 l/sec
24hr	1440min	24.00hr	1.1 l/sec	1.3 l/sec	1.5 l/sec	1.5 l/sec	1.6 l/sec	1.9 l/sec	2.2 l/sec	2.3 l/sec	3.0 l/sec
48hr	2880min	48.00hr	0.6 l/sec	0.8 l/sec	0.8 l/sec	0.9 l/sec	0.9 l/sec	1.0 l/sec	1.2 l/sec	1.3 l/sec	1.6 l/sec

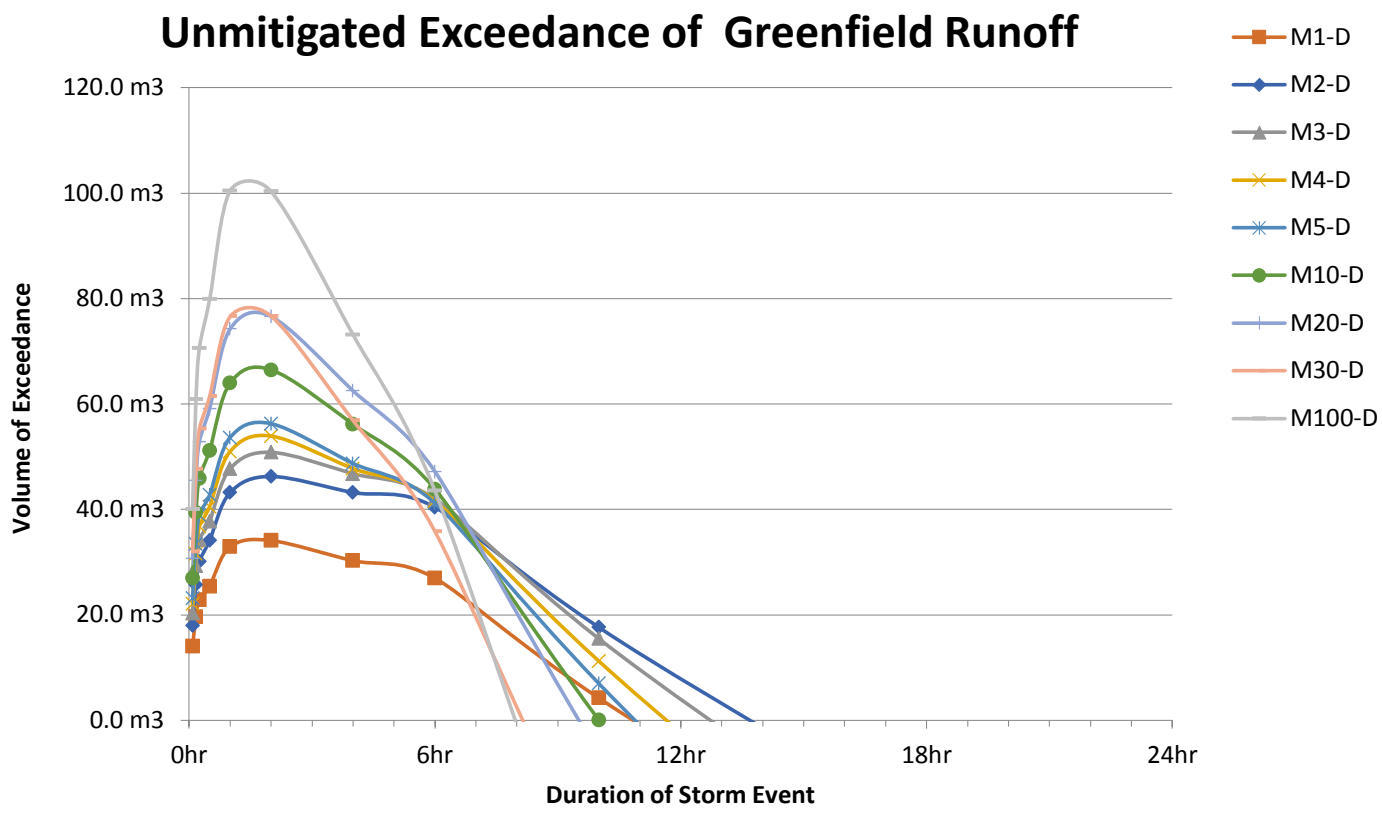
Run-Off Volume

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	14.6 m3	18.6 m3	20.9 m3	22.8 m3	24.0 m3	28.0 m3	32.0 m3	33.6 m3	42.1 m3
10min	10min	0.17hr	20.8 m3	26.9 m3	30.7 m3	33.0 m3	35.1 m3	41.6 m3	48.0 m3	50.8 m3	65.1 m3
15min	15min	0.25hr	24.6 m3	31.8 m3	36.2 m3	39.1 m3	41.5 m3	49.1 m3	56.8 m3	60.0 m3	76.9 m3
30min	30min	0.50hr	28.8 m3	37.6 m3	41.8 m3	45.1 m3	47.8 m3	57.6 m3	66.9 m3	70.9 m3	92.4 m3
1hr	60min	1.00hr	39.6 m3	50.2 m3	55.7 m3	60.1 m3	63.8 m3	76.8 m3	89.8 m3	95.6 m3	125.7 m3
2hr	120min	2.00hr	47.6 m3	60.2 m3	66.9 m3	72.1 m3	76.6 m3	92.2 m3	107.8 m3	114.7 m3	150.9 m3
4hr	240min	4.00hr	57.2 m3	71.1 m3	78.9 m3	84.1 m3	89.3 m3	107.5 m3	124.9 m3	133.0 m3	174.3 m3
6hr	360min	6.00hr	67.4 m3	82.3 m3	90.2 m3	96.1 m3	102.1 m3	120.9 m3	140.7 m3	150.0 m3	195.2 m3
10hr	600min	10.00hr	71.6 m3	87.4 m3	95.8 m3	102.1 m3	108.5 m3	128.5 m3	149.5 m3	159.4 m3	207.4 m3
24hr	1440min	24.00hr	95.4 m3	114.5 m3	125.4 m3	132.2 m3	139.0 m3	162.2 m3	188.0 m3	199.9 m3	257.5 m3
48hr	2880min	48.00hr	111.5 m3	131.6 m3	144.0 m3	151.8 m3	157.9 m3	181.2 m3	207.5 m3	219.9 m3	280.3 m3

Exceedance of Greenfield Run-Off Volume

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	14.0 m3	18.0 m3	20.3 m3	22.1 m3	23.2 m3	26.9 m3	30.7 m3	32.0 m3	40.0 m3
10min	10min	0.17hr	19.7 m3	25.7 m3	29.3 m3	31.5 m3	33.4 m3	39.4 m3	45.4 m3	47.6 m3	60.9 m3
15min	15min	0.25hr	22.9 m3	30.1 m3	34.2 m3	36.8 m3	38.9 m3	45.9 m3	52.9 m3	55.2 m3	70.6 m3
30min	30min	0.50hr	25.4 m3	34.1 m3	37.8 m3	40.5 m3	42.8 m3	51.2 m3	59.1 m3	61.4 m3	79.8 m3
1hr	60min	1.00hr	32.9 m3	43.2 m3	47.7 m3	51.0 m3	53.6 m3	64.0 m3	74.2 m3	76.6 m3	100.4 m3
2hr	120min	2.00hr	34.1 m3	46.3 m3	50.8 m3	53.9 m3	56.3 m3	66.5 m3	76.6 m3	76.7 m3	100.3 m3
4hr	240min	4.00hr	30.3 m3	43.2 m3	46.8 m3	47.8 m3	48.7 m3	56.2 m3	62.5 m3	56.9 m3	73.1 m3
6hr	360min	6.00hr	27.0 m3	40.4 m3	42.0 m3	41.6 m3	41.2 m3	43.8 m3	47.2 m3	35.8 m3	43.5 m3
10hr	600min	10.00hr	4.2 m3	17.6 m3	15.5 m3	11.2 m3	7.0 m3	0.0 m3	-6.4 m3	-30.9 m3	-45.5 m3
24hr	1440min	24.00hr	-66.3 m3	-53.0 m3	-67.4 m3	-86.0 m3	-104.6 m3	-146.1 m3	-186.2 m3	-256.8 m3	-349.4 m3
48hr	2880min	48.00hr	-212.0 m3	-203.3 m3	-241.6 m3	-284.6 m3	-329.2 m3	-435.3 m3	-540.9 m3	-693.4 m3	-933.7 m3
			34.1 m3							**76.7 m3**	**100.4 m3**

			C_V:
Catchment Area:	5075sqm	100%	
Permeable Garden	4128sqm	81%	0.40
Impermeable:	947sqm	19%	0.77
			0.47



SuDs CALCULATIONS

Project: 55 FITZROY PARK

POST-DEV. PEAK RUNOFF

Sheet 5 of 8

Project Reference: LBH 4599

Date: 14/08/2020 Rev: 1

Client: Turner Stokes / Springer

LBHGEO

POST- DEVELOPMENT PEAK RUNOFF + CC

C_V: 0.47 *Volumetric Run-Off Coefficient* Climate Change Allowance: 40%

C_R: 1.3 *Routing Coefficient*

Run-Off Q

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	68.1 l/sec	86.8 l/sec	97.8 l/sec	106.5 l/sec	112.0 l/sec	130.7 l/sec	149.4 l/sec	156.7 l/sec	196.6 l/sec
10min	10min	0.17hr	48.5 l/sec	62.8 l/sec	71.5 l/sec	77.1 l/sec	81.9 l/sec	97.0 l/sec	112.1 l/sec	118.4 l/sec	151.8 l/sec
15min	15min	0.25hr	38.2 l/sec	49.5 l/sec	56.4 l/sec	60.7 l/sec	64.5 l/sec	76.4 l/sec	88.3 l/sec	93.3 l/sec	119.6 l/sec
30min	30min	0.50hr	22.4 l/sec	29.3 l/sec	32.5 l/sec	35.0 l/sec	37.2 l/sec	44.8 l/sec	52.0 l/sec	55.2 l/sec	71.9 l/sec
1hr	60min	1.00hr	15.4 l/sec	19.5 l/sec	21.7 l/sec	23.4 l/sec	24.8 l/sec	29.9 l/sec	34.9 l/sec	37.2 l/sec	48.9 l/sec
2hr	120min	2.00hr	9.2 l/sec	11.7 l/sec	13.0 l/sec	14.0 l/sec	14.9 l/sec	17.9 l/sec	21.0 l/sec	22.3 l/sec	29.3 l/sec
4hr	240min	4.00hr	5.6 l/sec	6.9 l/sec	7.7 l/sec	8.2 l/sec	8.7 l/sec	10.5 l/sec	12.1 l/sec	12.9 l/sec	16.9 l/sec
6hr	360min	6.00hr	4.4 l/sec	5.3 l/sec	5.8 l/sec	6.2 l/sec	6.6 l/sec	7.8 l/sec	9.1 l/sec	9.7 l/sec	12.7 l/sec
10hr	600min	10.00hr	2.8 l/sec	3.4 l/sec	3.7 l/sec	4.0 l/sec	4.2 l/sec	5.0 l/sec	5.8 l/sec	6.2 l/sec	8.1 l/sec
24hr	1440min	24.00hr	1.5 l/sec	1.9 l/sec	2.0 l/sec	2.1 l/sec	2.3 l/sec	2.6 l/sec	3.0 l/sec	3.2 l/sec	4.2 l/sec
48hr	2880min	48.00hr	0.9 l/sec	1.1 l/sec	1.2 l/sec	1.2 l/sec	1.3 l/sec	1.5 l/sec	1.7 l/sec	1.8 l/sec	2.3 l/sec

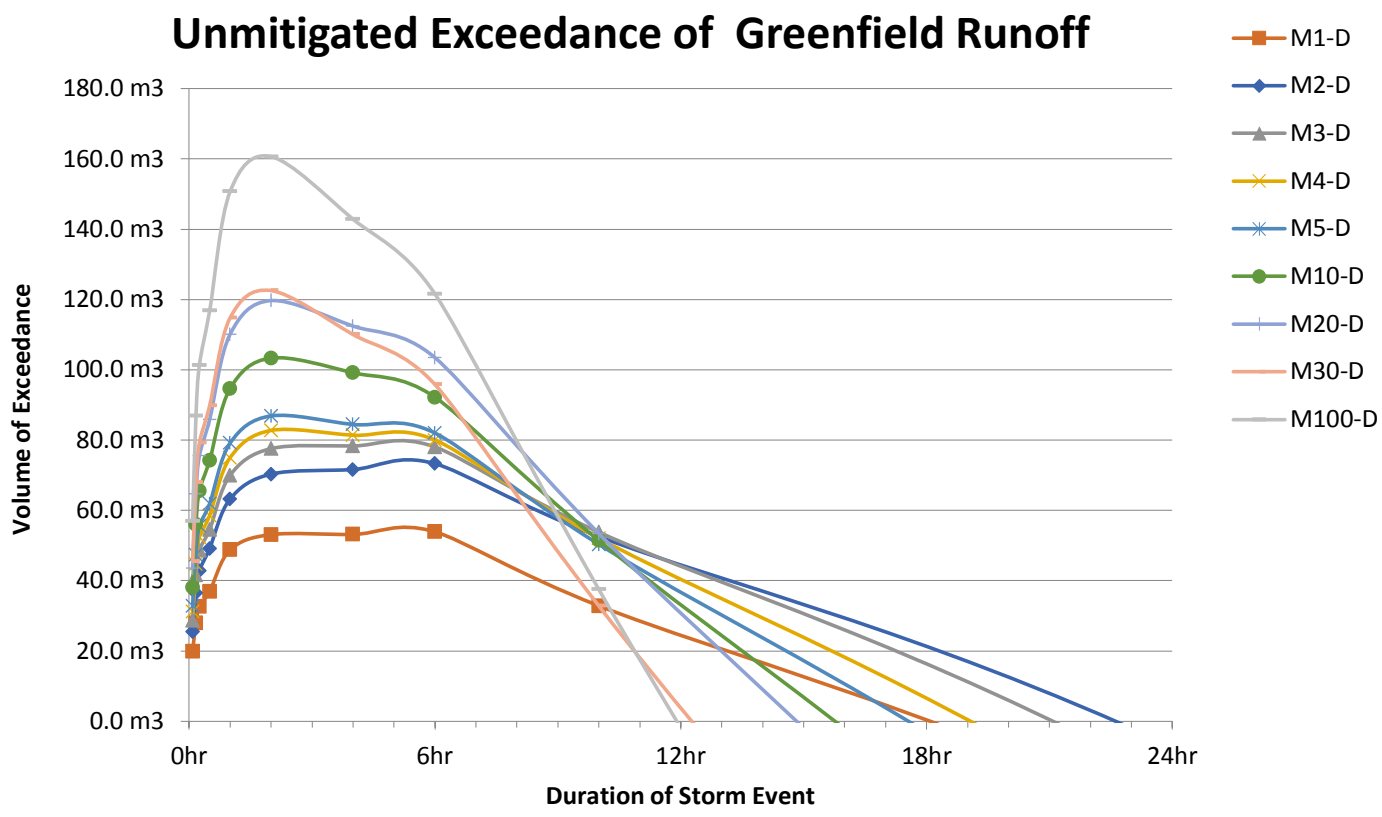
Run-Off Volume

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	20.4 m3	26.0 m3	29.3 m3	32.0 m3	33.6 m3	39.2 m3	44.8 m3	47.0 m3	59.0 m3
10min	10min	0.17hr	29.1 m3	37.7 m3	42.9 m3	46.3 m3	49.1 m3	58.2 m3	67.2 m3	71.1 m3	91.1 m3
15min	15min	0.25hr	34.4 m3	44.5 m3	50.7 m3	54.7 m3	58.1 m3	68.8 m3	79.5 m3	84.0 m3	107.7 m3
30min	30min	0.50hr	40.3 m3	52.7 m3	58.5 m3	63.1 m3	67.0 m3	80.6 m3	93.7 m3	99.3 m3	129.4 m3
1hr	60min	1.00hr	55.5 m3	70.2 m3	78.0 m3	84.1 m3	89.3 m3	107.5 m3	125.7 m3	133.8 m3	176.0 m3
2hr	120min	2.00hr	66.6 m3	84.3 m3	93.7 m3	100.9 m3	107.2 m3	129.0 m3	150.9 m3	160.6 m3	211.2 m3
4hr	240min	4.00hr	80.1 m3	99.5 m3	110.5 m3	117.8 m3	125.0 m3	150.5 m3	174.8 m3	186.1 m3	244.0 m3
6hr	360min	6.00hr	94.3 m3	115.2 m3	126.3 m3	134.6 m3	142.9 m3	169.3 m3	197.0 m3	210.0 m3	273.3 m3
10hr	600min	10.00hr	100.2 m3	122.4 m3	134.1 m3	143.0 m3	151.8 m3	179.8 m3	209.3 m3	223.1 m3	290.4 m3
24hr	1440min	24.00hr	133.5 m3	160.3 m3	175.5 m3	185.1 m3	194.6 m3	227.0 m3	263.3 m3	279.8 m3	360.6 m3
48hr	2880min	48.00hr	156.1 m3	184.3 m3	201.6 m3	212.5 m3	221.1 m3	253.6 m3	290.5 m3	307.8 m3	392.4 m3

Exceedance of Greenfield Run-Off Volume

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	19.9 m3	25.5 m3	28.7 m3	31.2 m3	32.8 m3	38.1 m3	43.5 m3	45.4 m3	56.9 m3
10min	10min	0.17hr	28.0 m3	36.5 m3	41.6 m3	44.7 m3	47.4 m3	56.0 m3	64.6 m3	67.9 m3	86.9 m3
15min	15min	0.25hr	32.7 m3	42.8 m3	48.7 m3	52.4 m3	55.5 m3	65.6 m3	75.6 m3	79.2 m3	101.3 m3
30min	30min	0.50hr	37.0 m3	49.2 m3	54.5 m3	58.5 m3	61.9 m3	74.2 m3	85.9 m3	89.8 m3	116.8 m3
1hr	60min	1.00hr	48.8 m3	63.3 m3	70.0 m3	75.0 m3	79.2 m3	94.7 m3	110.1 m3	114.8 m3	150.7 m3
2hr	120min	2.00hr	53.1 m3	70.3 m3	77.6 m3	82.8 m3	86.9 m3	103.3 m3	119.7 m3	122.5 m3	160.7 m3
4hr	240min	4.00hr	53.2 m3	71.6 m3	78.3 m3	81.4 m3	84.5 m3	99.2 m3	112.5 m3	110.0 m3	142.9 m3
6hr	360min	6.00hr	53.9 m3	73.3 m3	78.1 m3	80.0 m3	82.0 m3	92.2 m3	103.5 m3	95.8 m3	121.6 m3
10hr	600min	10.00hr	32.9 m3	52.6 m3	53.8 m3	52.1 m3	50.4 m3	51.4 m3	53.4 m3	32.8 m3	37.5 m3
24hr	1440min	24.00hr	-28.2 m3	-7.2 m3	-17.3 m3	-33.1 m3	-49.0 m3	-81.2 m3	-110.9 m3	-176.9 m3	-246.4 m3
48hr	2880min	48.00hr	-167.4 m3	-150.6 m3	-184.0 m3	-223.9 m3	-266.0 m3	-362.8 m3	-457.9 m3	-605.5 m3	-821.6 m3
											160.7 m3

			C_V:
Catchment Area:	5075sqm	100%	
Permeable Garden	4128sqm	81%	0.40
Impermeable:	947sqm	19%	0.77
			0.47



SuDs CALCULATIONS

Project: 55 FITZROY PARK	
POST-DEV. PEAK RUNOFF+CC	
Sheet 6 of 8	
Project Reference: LBH 4599	
Date: 14/08/2020	Rev: 1
Client: Turner Stokes / Springer	

LBHGEO

POST- DEVELOPMENT & SOURCE MITIGATION PEAK RUN-OFF + CC STORAGE

Proposed Discharge Rates: Greenfield x 1

INFLOW

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	20.4 m3	26.0 m3	29.3 m3	32.0 m3	33.6 m3	39.2 m3	44.8 m3	47.0 m3	59.0 m3
10min	10min	0.17hr	29.1 m3	37.7 m3	42.9 m3	46.3 m3	49.1 m3	58.2 m3	67.2 m3	71.1 m3	91.1 m3
15min	15min	0.25hr	34.4 m3	44.5 m3	50.7 m3	54.7 m3	58.1 m3	68.8 m3	79.5 m3	84.0 m3	107.7 m3
30min	30min	0.50hr	40.3 m3	52.7 m3	58.5 m3	63.1 m3	67.0 m3	80.6 m3	93.7 m3	99.3 m3	129.4 m3
1hr	60min	1.00hr	55.5 m3	70.2 m3	78.0 m3	84.1 m3	89.3 m3	107.5 m3	125.7 m3	133.8 m3	176.0 m3
2hr	120min	2.00hr	66.6 m3	84.3 m3	93.7 m3	100.9 m3	107.2 m3	129.0 m3	150.9 m3	160.6 m3	211.2 m3
4hr	240min	4.00hr	80.1 m3	99.5 m3	110.5 m3	117.8 m3	125.0 m3	150.5 m3	174.8 m3	186.1 m3	244.0 m3
6hr	360min	6.00hr	94.3 m3	115.2 m3	126.3 m3	134.6 m3	142.9 m3	169.3 m3	197.0 m3	210.0 m3	273.3 m3
10hr	600min	10.00hr	100.2 m3	122.4 m3	134.1 m3	143.0 m3	151.8 m3	179.8 m3	209.3 m3	223.1 m3	290.4 m3
24hr	1440min	24.00hr	133.5 m3	160.3 m3	175.5 m3	185.1 m3	194.6 m3	227.0 m3	263.3 m3	279.8 m3	360.6 m3
48hr	2880min	48.00hr	156.1 m3	184.3 m3	201.6 m3	212.5 m3	221.1 m3	253.6 m3	290.5 m3	307.8 m3	392.4 m3

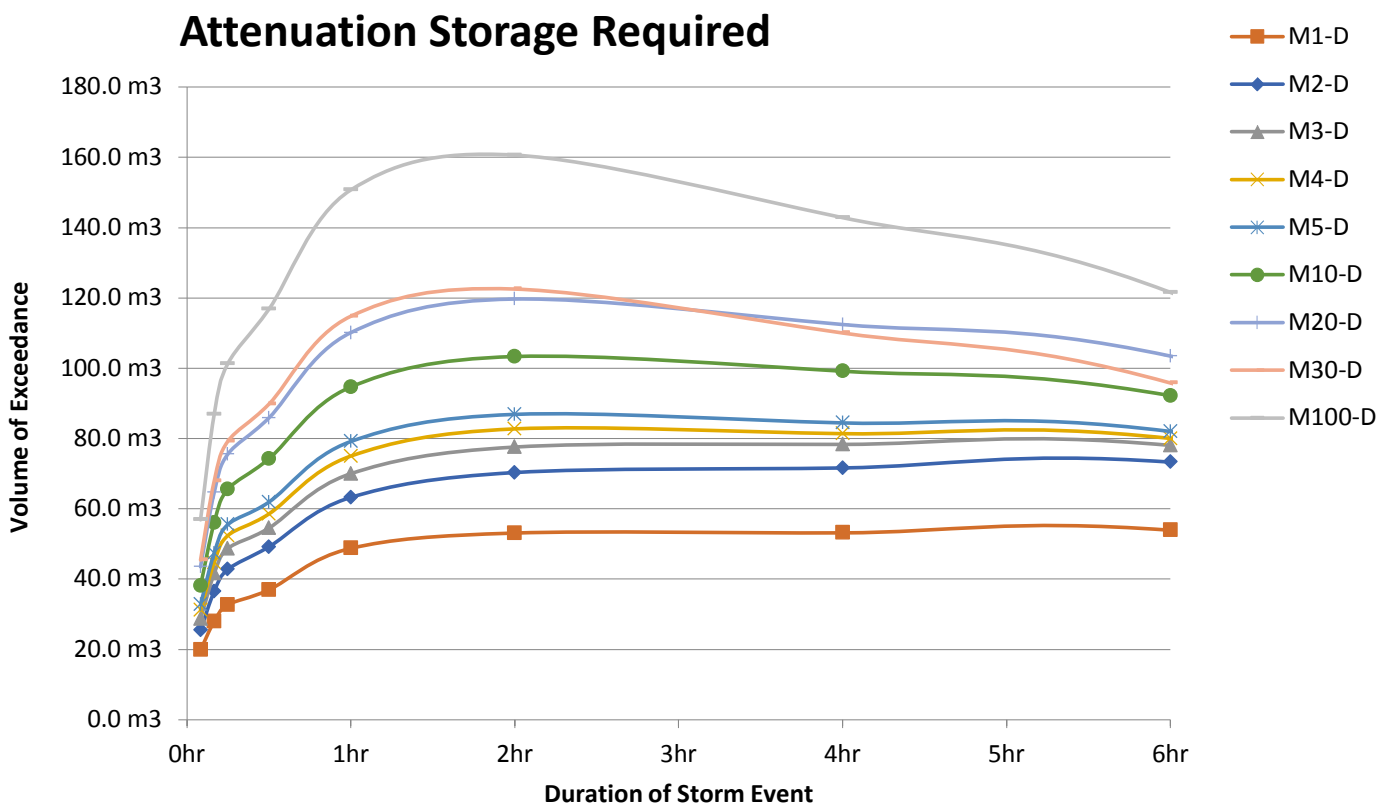
OUTFLOW

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	0.6 m3	0.6 m3	0.7 m3	0.8 m3	0.8 m3	1.1 m3	1.3 m3	1.6 m3	2.1 m3
10min	10min	0.17hr	1.1 m3	1.2 m3	1.3 m3	1.5 m3	1.7 m3	2.1 m3	2.6 m3	3.2 m3	4.2 m3
15min	15min	0.25hr	1.7 m3	1.7 m3	2.0 m3	2.3 m3	2.5 m3	3.2 m3	3.9 m3	4.8 m3	6.3 m3
30min	30min	0.50hr	3.4 m3	3.5 m3	4.0 m3	4.5 m3	5.1 m3	6.4 m3	7.8 m3	9.5 m3	12.6 m3
1hr	60min	1.00hr	6.7 m3	7.0 m3	8.0 m3	9.1 m3	10.1 m3	12.8 m3	15.6 m3	19.0 m3	25.3 m3
2hr	120min	2.00hr	13.5 m3	14.0 m3	16.1 m3	18.2 m3	20.3 m3	25.7 m3	31.2 m3	38.1 m3	50.6 m3
4hr	240min	4.00hr	27.0 m3	27.9 m3	32.1 m3	36.4 m3	40.6 m3	51.4 m3	62.4 m3	76.1 m3	101.2 m3
6hr	360min	6.00hr	40.4 m3	41.9 m3	48.2 m3	54.5 m3	60.9 m3	77.1 m3	93.6 m3	114.2 m3	151.7 m3
10hr	600min	10.00hr	67.4 m3	69.8 m3	80.3 m3	90.9 m3	101.5 m3	128.4 m3	155.9 m3	190.3 m3	252.9 m3
24hr	1440min	24.00hr	161.7 m3	167.4 m3	192.8 m3	218.2 m3	243.6 m3	308.2 m3	374.2 m3	456.7 m3	607.0 m3
48hr	2880min	48.00hr	323.5 m3	334.9 m3	385.6 m3	436.4 m3	487.1 m3	616.5 m3	748.4 m3	913.3 m3	1213.9 m3

ATTENUATION STORAGE REQUIRED TO MEET PROPOSED DISCHARGE RATE

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	19.9 m3	25.5 m3	28.7 m3	31.2 m3	32.8 m3	38.1 m3	43.5 m3	45.4 m3	56.9 m3
10min	10min	0.17hr	28.0 m3	36.5 m3	41.6 m3	44.7 m3	47.4 m3	56.0 m3	64.6 m3	67.9 m3	86.9 m3
15min	15min	0.25hr	32.7 m3	42.8 m3	48.7 m3	52.4 m3	55.5 m3	65.6 m3	75.6 m3	79.2 m3	101.3 m3
30min	30min	0.50hr	37.0 m3	49.2 m3	54.5 m3	58.5 m3	61.9 m3	74.2 m3	85.9 m3	89.8 m3	116.8 m3
1hr	60min	1.00hr	48.8 m3	63.3 m3	70.0 m3	75.0 m3	79.2 m3	94.7 m3	110.1 m3	114.8 m3	150.7 m3
2hr	120min	2.00hr	53.1 m3	70.3 m3	77.6 m3	82.8 m3	86.9 m3	103.3 m3	119.7 m3	122.5 m3	160.7 m3
4hr	240min	4.00hr	53.2 m3	71.6 m3	78.3 m3	81.4 m3	84.5 m3	99.2 m3	112.5 m3	110.0 m3	142.9 m3
6hr	360min	6.00hr	53.9 m3	73.3 m3	78.1 m3	80.0 m3	82.0 m3	92.2 m3	103.5 m3	95.8 m3	121.6 m3
10hr	600min	10.00hr	32.9 m3	52.6 m3	53.8 m3	52.1 m3	50.4 m3	51.4 m3	53.4 m3	32.8 m3	37.5 m3
24hr	1440min	24.00hr	-28.2 m3	-7.2 m3	-17.3 m3	-33.1 m3	-49.0 m3	-81.2 m3	-110.9 m3	-176.9 m3	-246.4 m3
48hr	2880min	48.00hr	-167.4 m3	-150.6 m3	-184.0 m3	-223.9 m3	-266.0 m3	-362.8 m3	-457.9 m3	-605.5 m3	-821.6 m3

ATTENUATION STORAGE REQUIRED:	**53.9 m3**	**73.3 m3**	**78.3 m3**	**82.8 m3**	**86.9 m3**	**103.3 m3**	**119.7 m3**	**122.5 m3**	**160.7 m3**



SuDs CALCULATIONS

Project: 55 FITZROY PARK

STORAGE REQUIREMENTS

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Project Reference: LBH 4599

Date: 14/08/2020 | Rev: 1

Client: Turner Stokes / Springer

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POST- DEVELOPMENT & SOURCE MITIGATION PEAK RUN-OFF + CC STORAGE

Proposed Discharge Rate: **Existing x 50%** **(or greenfield where this is greater)**

INFLOW

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	20.4 m3	26.0 m3	29.3 m3	32.0 m3	33.6 m3	39.2 m3	44.8 m3	47.0 m3	59.0 m3
10min	10min	0.17hr	29.1 m3	37.7 m3	42.9 m3	46.3 m3	49.1 m3	58.2 m3	67.2 m3	71.1 m3	91.1 m3
15min	15min	0.25hr	34.4 m3	44.5 m3	50.7 m3	54.7 m3	58.1 m3	68.8 m3	79.5 m3	84.0 m3	107.7 m3
30min	30min	0.50hr	40.3 m3	52.7 m3	58.5 m3	63.1 m3	67.0 m3	80.6 m3	93.7 m3	99.3 m3	129.4 m3
1hr	60min	1.00hr	55.5 m3	70.2 m3	78.0 m3	84.1 m3	89.3 m3	107.5 m3	125.7 m3	133.8 m3	176.0 m3
2hr	120min	2.00hr	66.6 m3	84.3 m3	93.7 m3	100.9 m3	107.2 m3	129.0 m3	150.9 m3	160.6 m3	211.2 m3
4hr	240min	4.00hr	80.1 m3	99.5 m3	110.5 m3	117.8 m3	125.0 m3	150.5 m3	174.8 m3	186.1 m3	244.0 m3
6hr	360min	6.00hr	94.3 m3	115.2 m3	126.3 m3	134.6 m3	142.9 m3	169.3 m3	197.0 m3	210.0 m3	273.3 m3
10hr	600min	10.00hr	100.2 m3	122.4 m3	134.1 m3	143.0 m3	151.8 m3	179.8 m3	209.3 m3	223.1 m3	290.4 m3
24hr	1440min	24.00hr	133.5 m3	160.3 m3	175.5 m3	185.1 m3	194.6 m3	227.0 m3	263.3 m3	279.8 m3	360.6 m3
48hr	2880min	48.00hr	156.1 m3	184.3 m3	201.6 m3	212.5 m3	221.1 m3	253.6 m3	290.5 m3	307.8 m3	392.4 m3

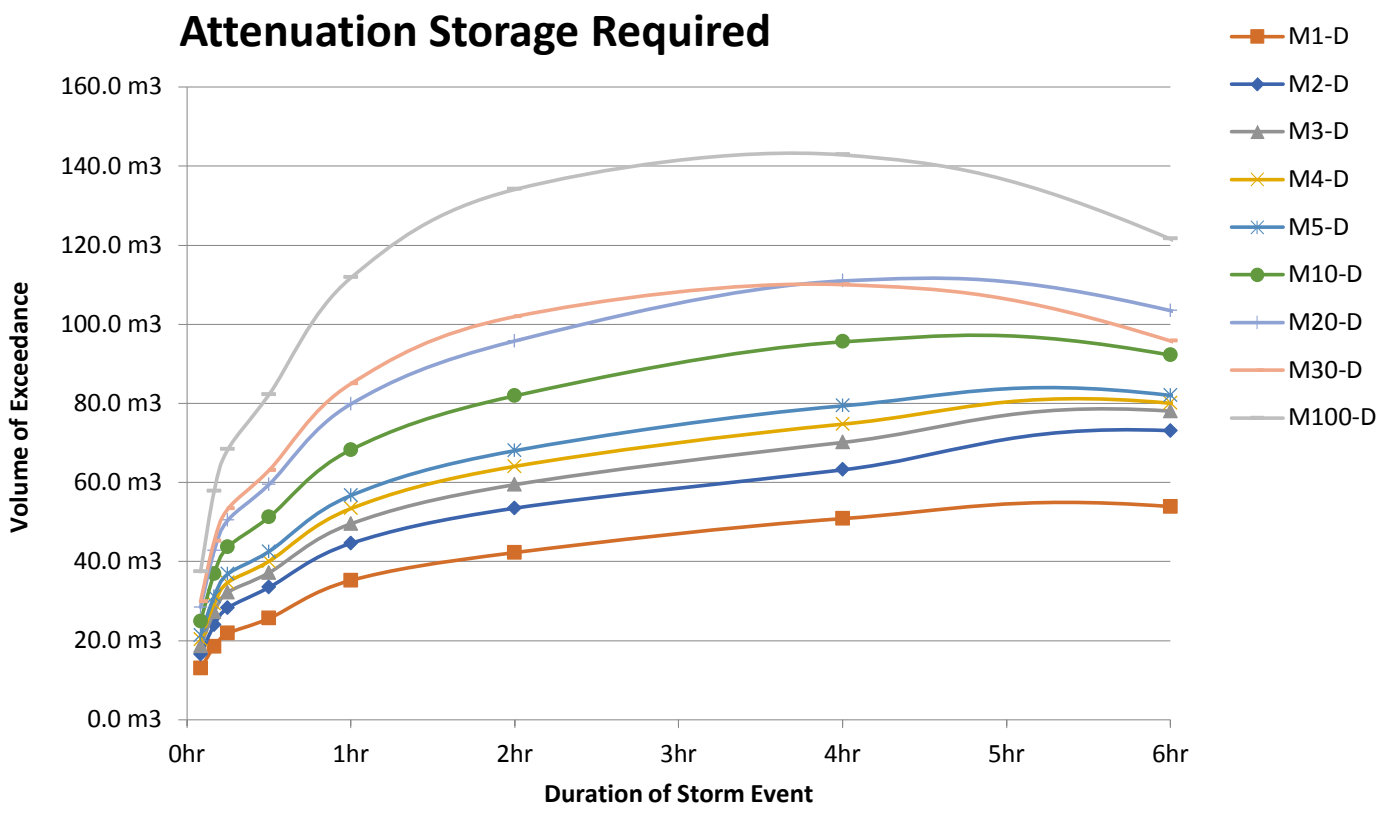
OUTFLOW

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	7.5 m3	9.5 m3	10.7 m3	11.7 m3	12.3 m3	14.3 m3	16.4 m3	17.2 m3	21.5 m3
10min	10min	0.17hr	10.6 m3	13.8 m3	15.7 m3	16.9 m3	17.9 m3	21.2 m3	24.6 m3	26.0 m3	33.3 m3
15min	15min	0.25hr	12.6 m3	16.3 m3	18.5 m3	20.0 m3	21.2 m3	25.1 m3	29.0 m3	30.7 m3	39.3 m3
30min	30min	0.50hr	14.7 m3	19.2 m3	21.4 m3	23.0 m3	24.5 m3	29.5 m3	34.2 m3	36.3 m3	47.3 m3
1hr	60min	1.00hr	20.3 m3	25.7 m3	28.5 m3	30.7 m3	32.6 m3	39.3 m3	45.9 m3	48.9 m3	64.3 m3
2hr	120min	2.00hr	24.3 m3	30.8 m3	34.2 m3	36.9 m3	39.1 m3	47.1 m3	55.1 m3	58.6 m3	77.1 m3
4hr	240min	4.00hr	29.3 m3	36.4 m3	40.3 m3	43.0 m3	45.7 m3	55.0 m3	63.8 m3	76.1 m3	101.2 m3
6hr	360min	6.00hr	40.4 m3	42.1 m3	48.2 m3	54.5 m3	60.9 m3	77.1 m3	93.6 m3	114.2 m3	151.7 m3
10hr	600min	10.00hr	67.4 m3	69.8 m3	80.3 m3	90.9 m3	101.5 m3	128.4 m3	155.9 m3	190.3 m3	252.9 m3
24hr	1440min	24.00hr	161.7 m3	167.4 m3	192.8 m3	218.2 m3	243.6 m3	308.2 m3	374.2 m3	456.7 m3	607.0 m3
48hr	2880min	48.00hr	323.5 m3	334.9 m3	385.6 m3	436.4 m3	487.1 m3	616.5 m3	748.4 m3	913.3 m3	1213.9 m3

ATTENUATION STORAGE REQUIRED TO MEET PROPOSED DISCHARGE RATE

D Duration			M1-D	M2-D	M3-D	M4-D	M5-D	M10-D	M20-D	M30-D	M100-D
5min	5min	0.08hr	13.0 m3	16.5 m3	18.6 m3	20.3 m3	21.3 m3	24.9 m3	28.4 m3	29.8 m3	37.4 m3
10min	10min	0.17hr	18.5 m3	23.9 m3	27.2 m3	29.4 m3	31.2 m3	36.9 m3	42.7 m3	45.1 m3	57.8 m3
15min	15min	0.25hr	21.8 m3	28.3 m3	32.2 m3	34.7 m3	36.9 m3	43.7 m3	50.5 m3	53.3 m3	68.3 m3
30min	30min	0.50hr	25.6 m3	33.4 m3	37.2 m3	40.0 m3	42.5 m3	51.2 m3	59.5 m3	63.0 m3	82.2 m3
1hr	60min	1.00hr	35.2 m3	44.6 m3	49.5 m3	53.4 m3	56.7 m3	68.3 m3	79.8 m3	85.0 m3	111.7 m3
2hr	120min	2.00hr	42.3 m3	53.5 m3	59.5 m3	64.1 m3	68.0 m3	81.9 m3	95.8 m3	101.9 m3	134.1 m3
4hr	240min	4.00hr	50.9 m3	63.2 m3	70.1 m3	74.8 m3	79.4 m3	95.6 m3	111.0 m3	110.0 m3	142.9 m3
6hr	360min	6.00hr	53.9 m3	73.1 m3	78.1 m3	80.0 m3	82.0 m3	92.2 m3	103.5 m3	95.8 m3	121.6 m3
10hr	600min	10.00hr	32.9 m3	52.6 m3	53.8 m3	52.1 m3	50.4 m3	51.4 m3	53.4 m3	32.8 m3	37.5 m3
24hr	1440min	24.00hr	-28.2 m3	-7.2 m3	-17.3 m3	-33.1 m3	-49.0 m3	-81.2 m3	-110.9 m3	-176.9 m3	-246.4 m3
48hr	2880min	48.00hr	-167.4 m3	-150.6 m3	-184.0 m3	-223.9 m3	-266.0 m3	-362.8 m3	-457.9 m3	-605.5 m3	-821.6 m3

ATTENUATION STORAGE REQUIRED:			**53.9 m3**	**73.1 m3**	**78.1 m3**	**80.0 m3**	**82.0 m3**	**95.6 m3**	**111.0 m3**	**110.0 m3**	**142.9 m3**



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