

AJH Associates 21 Deanfield Court, Clitheroe

Oak hill housing plot 4

Section: **SUDS drainage scheme attenuation tank size**

Job No: **3440**

Prepared By: **TH**

Revision

Page:

Date:

C/01

30/11/2018

GENERAL DATA

site location: **England and Wales**

60 min rainfall depth of 5 year return period 'R' [mm] = **20**

M5-60 to M5-2d rainfall ratio 'r' = **0.50**

proposed discharge rate 'v₁' [litre/s] = **3.50**

proposed discharge rate 'v₂' [litre/s] = **10.00**

allowance for climate change: **40%**

SUMMARY OF CALCULATIONS

required storage volume for discharge rate 'v₁' = **51.54** m³

required storage volume for discharge rate 'v₂' = **40.22** m³

AREA DATA

impermeability
[%]

effective area
[m²]

impermeable area 'A₁' [m²] = **349**

100.00

349

landscaping and/or green roof area 'A₂' [m²] = **1341**

80.00

1072.8

other partially permeable area 'A₃' [m²] = **312**

20.00

62.4

AREA DRAINED TO ATTENUATION TANK = 1484.2 m²

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₁

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M20-D			M30-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	19.56	1.39	15.16	22.50	1.46	15.97	23.70	1.05	22.65
10	0.54	10.80	1.22	18.49	27.45	1.41	21.39	31.75	1.50	22.62	33.57	2.10	31.47
15	0.65	13.00	1.23	22.42	33.28	1.43	25.99	38.57	1.51	27.52	40.84	3.15	37.69
30	0.82	16.40	1.24	28.47	42.26	1.44	33.13	49.17	1.53	35.16	52.18	6.30	45.88
60	1.00	20.00	1.24	34.72	51.53	1.45	40.60	60.26	1.54	43.21	64.14	12.60	51.54
120	1.19	23.80	1.24	41.32	61.32	1.44	48.06	71.33	1.54	51.17	75.95	25.20	50.75
240	1.38	27.60	1.23	47.51	70.52	1.43	55.24	81.99	1.52	58.85	87.34	50.40	36.94
360	1.51	30.20	1.22	51.56	76.52	1.42	60.00	89.06	1.51	63.94	94.91	75.60	19.31
600	1.68	33.60	1.21	56.88	84.42	1.41	66.12	98.13	1.50	70.40	104.48	126.00	0.00
1440	2.03	40.60	1.19	67.57	100.29	1.38	78.30	116.22	1.46	83.21	123.49	302.40	0.00

* Z2 is a growth factor from M5 rainfalls

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₂

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M30-D			M50-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	19.56	1.46	15.97	23.70	1.61	17.59	26.10	3.00	23.10
10	0.54	10.80	1.22	18.49	27.45	1.50	22.62	33.57	1.66	25.07	37.21	6.00	31.21
15	0.65	13.00	1.23	22.42	33.28	1.51	27.52	40.84	1.68	30.58	45.38	9.00	36.38
30	0.82	16.40	1.24	28.47	42.26	1.53	35.16	52.18	1.71	39.22	58.22	18.00	40.22
60	1.00	20.00	1.24	34.72	51.53	1.54	43.21	64.14	1.73	48.44	71.89	36.00	35.89
120	1.19	23.80	1.24	41.32	61.32	1.54	51.17	75.95	1.72	57.39	85.18	72.00	13.18
240	1.38	27.60	1.23	47.51	70.52	1.52	58.85	87.34	1.71	66.06	98.04	144.00	0.00
360	1.51	30.20	1.22	51.56	76.52	1.51	63.94	94.91	1.70	71.83	106.60	216.00	0.00
600	1.68	33.60	1.21	56.88	84.42	1.50	70.40	104.48	1.68	78.95	117.18	360.00	0.00
1440	2.03	40.60	1.19	67.57	100.29	1.46	83.21	123.49	1.64	93.01	138.05	864.00	0.00

* Z2 is a growth factor from M5 rainfalls

AJH Associates 21 Deanfield Court, Clitheroe

Oak hill housing plot 5

Revision

Job No:

3440

Page:

C/01

Section: **SUDS drainage scheme attenuation tank size**

Prepared By:

TH

Date:

30/11/2018

GENERAL DATA

site location: **England and Wales**

60 min rainfall depth of 5 year return period 'R' [mm] = **20**

M5-60 to M5-2d rainfall ratio 'r' = **0.50**

proposed discharge rate 'v₁' [litre/s] = **3.50**

proposed discharge rate 'v₂' [litre/s] = **10.00**

allowance for climate change: **40%**

SUMMARY OF CALCULATIONS

required storage volume for discharge rate 'v₁' = **30.62** m³

required storage volume for discharge rate 'v₂' = **21.58** m³

AREA DATA

impermeability
[%]

effective area
[m²]

impermeable area 'A₁' [m²] = **349**

100.00

349

landscaping and/or green roof area 'A₂' [m²] = **768**

80.00

614.4

other partially permeable area 'A₃' [m²] = **184**

20.00

36.8

AREA DRAINED TO ATTENUATION TANK = 1000.2 m²

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₁

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M20-D			M30-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	13.18	1.39	15.16	15.16	1.46	15.97	15.97	1.05	14.92
10	0.54	10.80	1.22	18.49	18.50	1.41	21.39	21.40	1.50	22.62	22.62	2.10	20.52
15	0.65	13.00	1.23	22.42	22.43	1.43	25.99	25.99	1.51	27.52	27.52	3.15	24.37
30	0.82	16.40	1.24	28.47	28.48	1.44	33.13	33.13	1.53	35.16	35.17	6.30	28.87
60	1.00	20.00	1.24	34.72	34.73	1.45	40.60	40.61	1.54	43.21	43.22	12.60	30.62
120	1.19	23.80	1.24	41.32	41.33	1.44	48.06	48.07	1.54	51.17	51.18	25.20	25.98
240	1.38	27.60	1.23	47.51	47.52	1.43	55.24	55.25	1.52	58.85	58.86	50.40	8.46
360	1.51	30.20	1.22	51.56	51.57	1.42	60.00	60.02	1.51	63.94	63.96	75.60	0.00
600	1.68	33.60	1.21	56.88	56.89	1.41	66.12	66.13	1.50	70.40	70.41	126.00	0.00
1440	2.03	40.60	1.19	67.57	67.58	1.38	78.30	78.32	1.46	83.21	83.22	302.40	0.00

* Z2 is a growth factor from M5 rainfalls

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₂

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M30-D			M50-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	13.18	1.46	15.97	15.97	1.61	17.59	17.59	3.00	14.59
10	0.54	10.80	1.22	18.49	18.50	1.50	22.62	22.62	1.66	25.07	25.07	6.00	19.07
15	0.65	13.00	1.23	22.42	22.43	1.51	27.52	27.52	1.68	30.58	30.58	9.00	21.58
30	0.82	16.40	1.24	28.47	28.48	1.53	35.16	35.17	1.71	39.22	39.23	18.00	21.23
60	1.00	20.00	1.24	34.72	34.73	1.54	43.21	43.22	1.73	48.44	48.45	36.00	12.45
120	1.19	23.80	1.24	41.32	41.33	1.54	51.17	51.18	1.72	57.39	57.40	72.00	0.00
240	1.38	27.60	1.23	47.51	47.52	1.52	58.85	58.86	1.71	66.06	66.07	144.00	0.00
360	1.51	30.20	1.22	51.56	51.57	1.51	63.94	63.96	1.70	71.83	71.84	216.00	0.00
600	1.68	33.60	1.21	56.88	56.89	1.50	70.40	70.41	1.68	78.95	78.97	360.00	0.00
1440	2.03	40.60	1.19	67.57	67.58	1.46	83.21	83.22	1.64	93.01	93.03	864.00	0.00

* Z2 is a growth factor from M5 rainfalls

AJH Associates 21 Deanfield Court, Clitheroe

Oak hill housing plot 6

Section: SUDS drainage scheme attenuation tank size	Revision		
	Job No:	3440	Page: C/01
	Prepared By:	TH	Date: 30/11/2018

GENERAL DATA

site location:	England and Wales
60 min rainfall depth of 5 year return period 'R' [mm] =	20
M5-60 to M5-2d rainfall ratio 'r' =	0.50
proposed discharge rate 'v ₁ ' [litre/s] =	3.50
proposed discharge rate 'v ₂ ' [litre/s] =	10.00
allowance for climate change:	40%

SUMMARY OF CALCULATIONS

required storage volume for discharge rate 'v ₁ ' =	21.05	m ³
required storage volume for discharge rate 'v ₂ ' =	14.78	m ³

AREA DATA

	impermeability [%]	effective area [m ²]
impermeable area 'A ₁ ' [m ²] =	100.00	349
landscaping and/or green roof area 'A ₂ ' [m ²] =	80.00	388
other partially permeable area 'A ₃ ' [m ²] =	20.00	40.8
AREA DRAINED TO ATTENUATION TANK =		777.8 m ²

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₁

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M20-D			M30-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	10.25	1.39	15.16	11.79	1.46	15.97	12.42	1.05	11.37
10	0.54	10.80	1.22	18.49	14.39	1.41	21.39	16.64	1.50	22.62	17.59	2.10	15.49
15	0.65	13.00	1.23	22.42	17.44	1.43	25.99	20.21	1.51	27.52	21.40	3.15	18.25
30	0.82	16.40	1.24	28.47	22.14	1.44	33.13	25.77	1.53	35.16	27.35	6.30	21.05
60	1.00	20.00	1.24	34.72	27.01	1.45	40.60	31.58	1.54	43.21	33.61	12.60	21.01
120	1.19	23.80	1.24	41.32	32.14	1.44	48.06	37.38	1.54	51.17	39.80	25.20	14.60
240	1.38	27.60	1.23	47.51	36.95	1.43	55.24	42.97	1.52	58.85	45.77	50.40	0.00
360	1.51	30.20	1.22	51.56	40.10	1.42	60.00	46.67	1.51	63.94	49.74	75.60	0.00
600	1.68	33.60	1.21	56.88	44.24	1.41	66.12	51.43	1.50	70.40	54.75	126.00	0.00
1440	2.03	40.60	1.19	67.57	52.56	1.38	78.30	60.90	1.46	83.21	64.72	302.40	0.00

* Z2 is a growth factor from M5 rainfalls

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₂

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M30-D			M50-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	10.25	1.46	15.97	12.42	1.61	17.59	13.68	3.00	10.68
10	0.54	10.80	1.22	18.49	14.39	1.50	22.62	17.59	1.66	25.07	19.50	6.00	13.50
15	0.65	13.00	1.23	22.42	17.44	1.51	27.52	21.40	1.68	30.58	23.78	9.00	14.78
30	0.82	16.40	1.24	28.47	22.14	1.53	35.16	27.35	1.71	39.22	30.51	18.00	12.51
60	1.00	20.00	1.24	34.72	27.01	1.54	43.21	33.61	1.73	48.44	37.68	36.00	1.68
120	1.19	23.80	1.24	41.32	32.14	1.54	51.17	39.80	1.72	57.39	44.64	72.00	0.00
240	1.38	27.60	1.23	47.51	36.95	1.52	58.85	45.77	1.71	66.06	51.38	144.00	0.00
360	1.51	30.20	1.22	51.56	40.10	1.51	63.94	49.74	1.70	71.83	55.87	216.00	0.00
600	1.68	33.60	1.21	56.88	44.24	1.50	70.40	54.75	1.68	78.95	61.41	360.00	0.00
1440	2.03	40.60	1.19	67.57	52.56	1.46	83.21	64.72	1.64	93.01	72.35	864.00	0.00

* Z2 is a growth factor from M5 rainfalls

GENERAL DATA

site location: **England and Wales**

60 min rainfall depth of 5 year return period 'R' [mm] = **20**

M5-60 to M5-2d rainfall ratio 'r' = **0.50**

proposed discharge rate 'v₁' [litre/s] = **3.50**

proposed discharge rate 'v₂' [litre/s] = **10.00**

allowance for climate change: **40%**

SUMMARY OF CALCULATIONS

required storage volume for discharge rate 'v₁' = **21.05** m³

required storage volume for discharge rate 'v₂' = **14.78** m³

AREA DATA

impermeability
[%]

effective area
[m²]

impermeable area 'A₁' [m²] = **349**

100.00

349

landscaping and/or green roof area 'A₂' [m²] = **485**

80.00

388

other partially permeable area 'A₃' [m²] = **204**

20.00

40.8

AREA DRAINED TO ATTENUATION TANK = **777.8 m²**

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₁

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M20-D			M30-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	10.25	1.39	15.16	11.79	1.46	15.97	12.42	1.05	11.37
10	0.54	10.80	1.22	18.49	14.39	1.41	21.39	16.64	1.50	22.62	17.59	2.10	15.49
15	0.65	13.00	1.23	22.42	17.44	1.43	25.99	20.21	1.51	27.52	21.40	3.15	18.25
30	0.82	16.40	1.24	28.47	22.14	1.44	33.13	25.77	1.53	35.16	27.35	6.30	21.05
60	1.00	20.00	1.24	34.72	27.01	1.45	40.60	31.58	1.54	43.21	33.61	12.60	21.01
120	1.19	23.80	1.24	41.32	32.14	1.44	48.06	37.38	1.54	51.17	39.80	25.20	14.60
240	1.38	27.60	1.23	47.51	36.95	1.43	55.24	42.97	1.52	58.85	45.77	50.40	0.00
360	1.51	30.20	1.22	51.56	40.10	1.42	60.00	46.67	1.51	63.94	49.74	75.60	0.00
600	1.68	33.60	1.21	56.88	44.24	1.41	66.12	51.43	1.50	70.40	54.75	126.00	0.00
1440	2.03	40.60	1.19	67.57	52.56	1.38	78.30	60.90	1.46	83.21	64.72	302.40	0.00

* Z2 is a growth factor from M5 rainfalls

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₂

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M30-D			M50-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	10.25	1.46	15.97	12.42	1.61	17.59	13.68	3.00	10.68
10	0.54	10.80	1.22	18.49	14.39	1.50	22.62	17.59	1.66	25.07	19.50	6.00	13.50
15	0.65	13.00	1.23	22.42	17.44	1.51	27.52	21.40	1.68	30.58	23.78	9.00	14.78
30	0.82	16.40	1.24	28.47	22.14	1.53	35.16	27.35	1.71	39.22	30.51	18.00	12.51
60	1.00	20.00	1.24	34.72	27.01	1.54	43.21	33.61	1.73	48.44	37.68	36.00	1.68
120	1.19	23.80	1.24	41.32	32.14	1.54	51.17	39.80	1.72	57.39	44.64	72.00	0.00
240	1.38	27.60	1.23	47.51	36.95	1.52	58.85	45.77	1.71	66.06	51.38	144.00	0.00
360	1.51	30.20	1.22	51.56	40.10	1.51	63.94	49.74	1.70	71.83	55.87	216.00	0.00
600	1.68	33.60	1.21	56.88	44.24	1.50	70.40	54.75	1.68	78.95	61.41	360.00	0.00
1440	2.03	40.60	1.19	67.57	52.56	1.46	83.21	64.72	1.64	93.01	72.35	864.00	0.00

* Z2 is a growth factor from M5 rainfalls

GENERAL DATA

site location: **England and Wales**

60 min rainfall depth of 5 year return period 'R' [mm] = **20**

M5-60 to M5-2d rainfall ratio 'r' = **0.50**

proposed discharge rate 'v₁' [litre/s] = **3.50**

proposed discharge rate 'v₂' [litre/s] = **10.00**

allowance for climate change: **40%**

SUMMARY OF CALCULATIONS

required storage volume for discharge rate 'v₁' = **83.13** m³

required storage volume for discharge rate 'v₂' = **66.55** m³

AREA DATA

impermeability
[%]

effective area
[m²]

impermeable area 'A₁' [m²] = **349**

100.00

349

landscaping and/or green roof area 'A₂' [m²] = **2112**

80.00

1689.6

other partially permeable area 'A₃' [m²] = **392**

20.00

78.4

AREA DRAINED TO ATTENUATION TANK = 2117 m²

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₁

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M20-D			M30-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	27.90	1.39	15.16	32.09	1.46	15.97	33.80	1.05	32.75
10	0.54	10.80	1.22	18.49	39.15	1.41	21.39	45.29	1.50	22.62	47.88	2.10	45.78
15	0.65	13.00	1.23	22.42	47.47	1.43	25.99	55.02	1.51	27.52	58.26	3.15	55.11
30	0.82	16.40	1.24	28.47	60.27	1.44	33.13	70.13	1.53	35.16	74.43	6.30	68.13
60	1.00	20.00	1.24	34.72	73.50	1.45	40.60	85.95	1.54	43.21	91.48	12.60	78.88
120	1.19	23.80	1.24	41.32	87.47	1.44	48.06	101.74	1.54	51.17	108.33	25.20	83.13
240	1.38	27.60	1.23	47.51	100.58	1.43	55.24	116.94	1.52	58.85	124.58	50.40	74.18
360	1.51	30.20	1.22	51.56	109.14	1.42	60.00	127.03	1.51	63.94	135.37	75.60	59.77
600	1.68	33.60	1.21	56.88	120.42	1.41	66.12	139.97	1.50	70.40	149.03	126.00	23.03
1440	2.03	40.60	1.19	67.57	143.05	1.38	78.30	165.77	1.46	83.21	176.15	302.40	0.00

* Z2 is a growth factor from M5 rainfalls

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₂

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M30-D			M50-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	27.90	1.46	15.97	33.80	1.61	17.59	37.23	3.00	34.23
10	0.54	10.80	1.22	18.49	39.15	1.50	22.62	47.88	1.66	25.07	53.07	6.00	47.07
15	0.65	13.00	1.23	22.42	47.47	1.51	27.52	58.26	1.68	30.58	64.73	9.00	55.73
30	0.82	16.40	1.24	28.47	60.27	1.53	35.16	74.43	1.71	39.22	83.04	18.00	65.04
60	1.00	20.00	1.24	34.72	73.50	1.54	43.21	91.48	1.73	48.44	102.55	36.00	66.55
120	1.19	23.80	1.24	41.32	87.47	1.54	51.17	108.33	1.72	57.39	121.50	72.00	49.50
240	1.38	27.60	1.23	47.51	100.58	1.52	58.85	124.58	1.71	66.06	139.85	144.00	0.00
360	1.51	30.20	1.22	51.56	109.14	1.51	63.94	135.37	1.70	71.83	152.05	216.00	0.00
600	1.68	33.60	1.21	56.88	120.42	1.50	70.40	149.03	1.68	78.95	167.14	360.00	0.00
1440	2.03	40.60	1.19	67.57	143.05	1.46	83.21	176.15	1.64	93.01	196.91	864.00	0.00

* Z2 is a growth factor from M5 rainfalls

AJH Associates 21 Deanfield Court, Clitheroe

**Oak hill housing car parking
and roads**

Revision

Job No:

3440

Page:

C/01

Section: **SUDS drainage scheme attenuation tank size**

Prepared By:

TH

Date:

30/11/2018

GENERAL DATA

site location: **England and Wales**

60 min rainfall depth of 5 year return period 'R' [mm] = **20**

M5-60 to M5-2d rainfall ratio 'r' = **0.50**

proposed discharge rate 'v₁' [litre/s] = **3.50**

proposed discharge rate 'v₂' [litre/s] = **10.00**

allowance for climate change: **40%**

SUMMARY OF CALCULATIONS

required storage volume for discharge rate 'v₁' = **201.20** m³

required storage volume for discharge rate 'v₂' = **173.38** m³

AREA DATA

impermeability
[%]

effective area
[m²]

impermeable area 'A₁' [m²] = **4046**

100.00

4046

landscaping and/or green roof area 'A₂' [m²] = **287**

80.00

229.6

other partially permeable area 'A₃' [m²] = **0**

20.00

0

AREA DRAINED TO ATTENUATION TANK = 4275.6 m²

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₁

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M20-D			M30-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	56.34	1.39	15.16	64.81	1.46	15.97	68.27	1.05	67.22
10	0.54	10.80	1.22	18.49	79.08	1.41	21.39	91.46	1.50	22.62	96.70	2.10	94.60
15	0.65	13.00	1.23	22.42	95.87	1.43	25.99	111.12	1.51	27.52	117.66	3.15	114.51
30	0.82	16.40	1.24	28.47	121.73	1.44	33.13	141.64	1.53	35.16	150.33	6.30	144.03
60	1.00	20.00	1.24	34.72	148.45	1.45	40.60	173.59	1.54	43.21	184.76	12.60	172.16
120	1.19	23.80	1.24	41.32	176.65	1.44	48.06	205.49	1.54	51.17	218.79	25.20	193.59
240	1.38	27.60	1.23	47.51	203.14	1.43	55.24	236.18	1.52	58.85	251.60	50.40	201.20
360	1.51	30.20	1.22	51.56	220.43	1.42	60.00	256.55	1.51	63.94	273.40	75.60	197.80
600	1.68	33.60	1.21	56.88	243.20	1.41	66.12	282.70	1.50	70.40	300.99	126.00	174.99
1440	2.03	40.60	1.19	67.57	288.91	1.38	78.30	334.79	1.46	83.21	355.76	302.40	53.36

* Z2 is a growth factor from M5 rainfalls

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v₂

rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M30-D			M50-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.39	7.80	1.21	13.18	56.34	1.46	15.97	68.27	1.61	17.59	75.19	3.00	72.19
10	0.54	10.80	1.22	18.49	79.08	1.50	22.62	96.70	1.66	25.07	107.18	6.00	101.18
15	0.65	13.00	1.23	22.42	95.87	1.51	27.52	117.66	1.68	30.58	130.73	9.00	121.73
30	0.82	16.40	1.24	28.47	121.73	1.53	35.16	150.33	1.71	39.22	167.71	18.00	149.71
60	1.00	20.00	1.24	34.72	148.45	1.54	43.21	184.76	1.73	48.44	207.11	36.00	171.11
120	1.19	23.80	1.24	41.32	176.65	1.54	51.17	218.79	1.72	57.39	245.38	72.00	173.38
240	1.38	27.60	1.23	47.51	203.14	1.52	58.85	251.60	1.71	66.06	282.44	144.00	138.44
360	1.51	30.20	1.22	51.56	220.43	1.51	63.94	273.40	1.70	71.83	307.10	216.00	91.10
600	1.68	33.60	1.21	56.88	243.20	1.50	70.40	300.99	1.68	78.95	337.57	360.00	0.00
1440	2.03	40.60	1.19	67.57	288.91	1.46	83.21	355.76	1.64	93.01	397.69	864.00	0.00

* Z2 is a growth factor from M5 rainfalls