

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: PLOT 1/2

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 286 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1300 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.91E-05 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	8.23	8.21
30	0.795	14.15		17.26	21.37	36.24	10.36	10.36
1	1.000	17.80		20.65	24.56	39.80	11.38	11.31
2	1.215	21.63		24.33	27.47	42.17	12.06	11.92
4	1.470	26.17		28.78	32.18	46.94	13.43	13.15
6	1.645	29.28		31.48	34.84	47.58	13.61	13.20
8	1.820	32.40		33.21	36.28	46.75	13.37	12.82

Storage Volume required (one hour)=

13.20 cu.m.

Storage Volume designed=

12.65 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

32

Time of emptying half storage volume =

7.59 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: PLOT 3

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 100 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1300 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.91E-05 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	2.88	2.86
30	0.795	14.15		17.26	21.37	36.24	3.62	3.62
1	1.000	17.80		20.65	24.56	39.80	3.98	3.91
2	1.215	21.63		24.33	27.47	42.17	4.22	4.08
4	1.470	26.17		28.78	32.18	46.94	4.69	4.42
6	1.645	29.28		31.48	34.84	47.58	4.76	4.35
8	1.820	32.40		33.21	36.28	46.75	4.67	4.12

Storage Volume required (one hour)=

4.42 cu.m.

Storage Volume designed=

4.74 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

12

Time of emptying half storage volume =

6.78 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: PLOT 4

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 167 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1950 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 2.07E-06 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

	WIDTH 4000	LENGTH 3200	DEPTH 1950
No. BLOCKS	5	4	3
		23.71	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	4.81	4.80
30	0.795	14.15		17.26	21.37	36.24	6.05	6.05
1	1.000	17.80		20.65	24.56	39.80	6.65	6.64
2	1.215	21.63		24.33	27.47	42.17	7.04	7.03
4	1.470	26.17		28.78	32.18	46.94	7.84	7.81
6	1.645	29.28		31.48	34.84	47.58	7.95	7.90
8	1.820	32.40		33.21	36.28	46.75	7.81	7.75

Storage Volume required (one hour)=

7.90 cu.m.

Storage Volume designed=

23.71 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

60

Time of emptying half storage volume =

22.36 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: PLOT 5

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 142 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1950 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 2.07E-06 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

	WIDTH 3200	LENGTH 3200	DEPTH 1950
No. BLOCKS	4	4	3
		18.97	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	4.09	4.08
30	0.795	14.15		17.26	21.37	36.24	5.15	5.15
1	1.000	17.80		20.65	24.56	39.80	5.65	5.64
2	1.215	21.63		24.33	27.47	42.17	5.99	5.97
4	1.470	26.17		28.78	32.18	46.94	6.67	6.64
6	1.645	29.28		31.48	34.84	47.58	6.76	6.71
8	1.820	32.40		33.21	36.28	46.75	6.64	6.58

Storage Volume required (one hour)=

6.71 cu.m.

Storage Volume designed=

18.97 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

48

Time of emptying half storage volume =

23.74 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

PRIVATE

SCHEME

1261

GARDENS: CELLULAR BLOCKS: PLOT 6 /7

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 301 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1950 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.94E-06 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377 with rainfalls from Modified Rational Method 100 year								CELLULAR BLOCK [square] - mm BLOCKS = 800 x 800 X 650mm SINGLE BLOCK m3 0.395 Storage Volume in block beneath invert - cu.m.					WIDTH 4800	LENGTH 4800	DEPTH 1950
												No. BLOCKS	6	6	3
														42.68	
Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.							
15	0.625	11.13	off sheet	13.80	17.02	28.78	8.66	8.66							
30	0.795	14.15		17.26	21.37	36.24	10.91	10.91							
1	1.000	17.80		20.65	24.56	39.80	11.98	11.97							
2	1.215	21.63		24.33	27.47	42.17	12.69	12.68							
4	1.470	26.17		28.78	32.18	46.94	14.13	14.10							
6	1.645	29.28		31.48	34.84	47.58	14.32	14.28							
8	1.820	32.40		33.21	36.28	46.75	14.07	14.02							

Storage Volume required (one hour)=

14.28 cu.m.

Storage Volume designed=

42.68 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

108

Time of emptying half storage volume =

23.95 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

CHESTNUT COURT, SUMMERHILL, WREXHAM
KANE DESIGN

Calculation of Soakaway Requirements

SCHEME 1261

ADOPTABLE ROAD: Pre-cast RINGS: PLOTS 8/9

ALAN KANE

06-Oct-15

Rainfall Ratio(r) = 0.350
 Assume M5-60 rain = 18.000 mm
Assumed Impermeable Area = 237 m2. (from drawings)
 TOTAL AREA=
Soil Infiltration Rate = 6.75E-05 m/sec

Assume PCC ring in square hole oversized by - 1000 mm
Assume effective depth = 2250 mm
 (Depth beneath invert)
 Assume voids ratio of stone surround = 0.35

STORAGE VOLUME SUPPLIED											
DESIGNED TO BS 1377 with rainfalls from Modified Rational Method DESIGN to 1 in 10 YEAR STORM, BUT CONSIDER 100 YEAR EVENT CLIMATE CHANGE = 30 % Total Storage Volume Provided - cu.m.								Concrete Ring Diameter - mm	1200	1500	
								Wall thickness - mm	90	95	TOTAL
								Side Length of square pit - mm	2380	2690	DEPTH -450mm
								Storage Volume in Chamber - cu.m.	2.55	3.98	USED FOR 100
								Storage Volume in stone backfill - cu.m.	3.28	3.93	YEAR VALUE
									5.83	7.91	
									10 YEAR	10 YEAR	100 YEAR
											100 YEAR
Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm	M30-D rain mm	M100-D rain mm	Inflow to Soakaway = I cu.m.	Storage Volume Required = S cu.m.	Storage Volume Required = S cu.m.	Inflow to Soakaway = I cu.m. plus 30%	Storage Volume Required = S cu.m. overall depth used*
				10 year storm	30 year storm	100 year storm					
15	0.625	11.25	off	13.95	17.21	22.39	10 YEAR		10 year	100 year	
30	0.795	14.31	sheet	17.46	21.61	28.19	3.31	2.95	2.83	6.90	6.54
1	1.000	18.00		20.88	24.84	30.96	4.14	3.43	3.18	8.69	7.98
2	1.215	21.87		24.60	27.77	32.81	4.95	3.53	3.03	9.54	8.12
4	1.470	26.46		29.11	32.55	36.51	5.83	3.00	1.99	10.11	7.27
6	1.645	29.61		31.83	35.24	37.01	6.90	1.23	-0.79	11.25	5.59
8	1.820	32.76		33.58	36.69	36.36	7.54	-0.95	-3.99	11.40	2.91
							7.96	-3.37	-7.42	11.20	-0.13
Storage Volume required (peak value)= 8.12 cu.m.								Negative value denotes "no storage time required: Rainwater dispersing within storm duration"			
Storage Volume designed= 8.14 OKAY								* Overall depth used for 100 year: allowance for pipe / gully filling to road level			
Peak Design storm 1 hours /minutes								1200 mm diameter rings used			
Time of emptying half storage volume = 2.05 hours								OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]			

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: SINGLE HOUSE PLOT 10

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 124 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1300 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 6.75E-04 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377 with rainfalls from Modified Rational Method 100 year								CELLULAR BLOCK [square] - mm BLOCKS = 800 x 800 X 650mm SINGLE BLOCK m3 0.395 Storage Volume in block beneath invert - cu.m.					WIDTH 2400	LENGTH 1600	DEPTH 1300
												No. BLOCKS	3	2	2
														4.74	
Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.							
15	0.625	11.13	off	13.80	17.02	28.78	3.57	2.96							
30	0.795	14.15	sheet	17.26	21.37	36.24	4.49	4.49							
1	1.000	17.80		20.65	24.56	39.80	4.94	2.51							
2	1.215	21.63		24.33	27.47	42.17	5.23	0.37							
4	1.470	26.17		28.78	32.18	46.94	5.82	-3.90							
6	1.645	29.28		31.48	34.84	47.58	5.90	-8.68							
8	1.820	32.40		33.21	36.28	46.75	5.80	-13.64							

Storage Volume required (one hour)=

4.49 cu.m.

Storage Volume designed=

4.74 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

12

Time of emptying half storage volume =

0.19 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: SINGLE HOUSE PLOT 11

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 278 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1950 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.91E-05 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	8.00	7.98
30	0.795	14.15		17.26	21.37	36.24	10.07	10.07
1	1.000	17.80		20.65	24.56	39.80	11.06	11.00
2	1.215	21.63		24.33	27.47	42.17	11.72	11.59
4	1.470	26.17		28.78	32.18	46.94	13.05	12.77
6	1.645	29.28		31.48	34.84	47.58	13.23	12.82
8	1.820	32.40		33.21	36.28	46.75	13.00	12.45

Storage Volume required (one hour)=

12.82 cu.m.

Storage Volume designed=

14.23 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

36

Time of emptying half storage volume =

6.55 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: SINGLE HOUSE PLOT 12

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 251 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1950 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.91E-05 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	7.22	7.21
30	0.795	14.15		17.26	21.37	36.24	9.10	9.10
1	1.000	17.80		20.65	24.56	39.80	9.99	9.92
2	1.215	21.63		24.33	27.47	42.17	10.59	10.45
4	1.470	26.17		28.78	32.18	46.94	11.78	11.51
6	1.645	29.28		31.48	34.84	47.58	11.94	11.53
8	1.820	32.40		33.21	36.28	46.75	11.73	11.18

Storage Volume required (one hour)=

11.53 cu.m.

Storage Volume designed=

14.23 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

36

Time of emptying half storage volume =

5.89 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: SINGLE HOUSE PLOT 13

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 173.5 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

2600 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 2.07E-06 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377 with rainfalls from Modified Rational Method 100 year								CELLULAR BLOCK [square] - mm BLOCKS = 800 x 800 X 650mm SINGLE BLOCK m3 0.395 Storage Volume in block beneath invert - cu.m.					WIDTH 4000	LENGTH 2400	DEPTH 2600
												No. BLOCKS	5	3	4
														23.71	
Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.							
15	0.625	11.13	off sheet	13.80	17.02	28.78	4.99	4.99							
30	0.795	14.15		17.26	21.37	36.24	6.29	6.29							
1	1.000	17.80		20.65	24.56	39.80	6.91	6.90							
2	1.215	21.63		24.33	27.47	42.17	7.32	7.30							
4	1.470	26.17		28.78	32.18	46.94	8.14	8.11							
6	1.645	29.28		31.48	34.84	47.58	8.26	8.21							
8	1.820	32.40		33.21	36.28	46.75	8.11	8.05							

Storage Volume required (one hour)=

8.21 cu.m.

Storage Volume designed=

23.71 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

60

Time of emptying half storage volume =

23.23 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: SINGLE HOUSE PLOT 14

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 173.5 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

2600 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 2.07E-06 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377 with rainfalls from Modified Rational Method 100 year								CELLULAR BLOCK [square] - mm BLOCKS = 800 x 800 X 650mm SINGLE BLOCK m3 0.395 Storage Volume in block beneath invert - cu.m.					WIDTH 3200	LENGTH 3200	DEPTH 2600
												No. BLOCKS	4	4	4
														25.29	
Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.							
15	0.625	11.13	off sheet	13.80	17.02	28.78	4.99	4.99							
30	0.795	14.15		17.26	21.37	36.24	6.29	6.29							
1	1.000	17.80		20.65	24.56	39.80	6.91	6.90							
2	1.215	21.63		24.33	27.47	42.17	7.32	7.30							
4	1.470	26.17		28.78	32.18	46.94	8.14	8.11							
6	1.645	29.28		31.48	34.84	47.58	8.26	8.21							
8	1.820	32.40		33.21	36.28	46.75	8.11	8.05							

Storage Volume required (one hour)=

8.21 cu.m.

Storage Volume designed=

25.29 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

64

Time of emptying half storage volume =

21.78 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: SINGLE HOUSE PLOT 15

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 109 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1300 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 2.17E-04 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

	WIDTH 1600	LENGTH 1600	DEPTH 1300
No. BLOCKS	2	2	2
		3.16	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off	13.80	17.02	28.78	3.14	2.94
30	0.795	14.15	sheet	17.26	21.37	36.24	3.95	3.95
1	1.000	17.80		20.65	24.56	39.80	4.34	3.56
2	1.215	21.63		24.33	27.47	42.17	4.60	3.03
4	1.470	26.17		28.78	32.18	46.94	5.12	1.99
6	1.645	29.28		31.48	34.84	47.58	5.19	0.50
8	1.820	32.40		33.21	36.28	46.75	5.10	-1.15

Storage Volume required (one hour)=

3.95 cu.m.

Storage Volume designed=

3.16 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

8

Time of emptying half storage volume =

0.80 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: SINGLE HOUSE PLOT 16

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 131 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1300 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 2.17E-04 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

	WIDTH 2400	LENGTH 1600	DEPTH 1300
No. BLOCKS	3	2	2
		4.74	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off	13.80	17.02	28.78	3.77	3.57
30	0.795	14.15	sheet	17.26	21.37	36.24	4.75	4.75
1	1.000	17.80		20.65	24.56	39.80	5.21	4.43
2	1.215	21.63		24.33	27.47	42.17	5.52	3.96
4	1.470	26.17		28.78	32.18	46.94	6.15	3.02
6	1.645	29.28		31.48	34.84	47.58	6.23	1.55
8	1.820	32.40		33.21	36.28	46.75	6.12	-0.13

Storage Volume required (one hour)=

4.75 cu.m.

Storage Volume designed=

4.74 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

12

Time of emptying half storage volume =

0.64 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: PLOT 17

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 138.5 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1950 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.94E-06 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

	WIDTH 3200	LENGTH 3200	DEPTH 1950
No. BLOCKS	4	4	3
		18.97	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off	13.80	17.02	28.78	3.99	3.98
30	0.795	14.15	sheet	17.26	21.37	36.24	5.02	5.02
1	1.000	17.80		20.65	24.56	39.80	5.51	5.51
2	1.215	21.63		24.33	27.47	42.17	5.84	5.83
4	1.470	26.17		28.78	32.18	46.94	6.50	6.47
6	1.645	29.28		31.48	34.84	47.58	6.59	6.55
8	1.820	32.40		33.21	36.28	46.75	6.47	6.42

Storage Volume required (one hour)=

5.02 cu.m.

Storage Volume designed=

18.97 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

48

Time of emptying half storage volume =

18.94 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

PRIVATE

SCHEME

1261

GARDENS: CELLULAR BLOCKS: PLOT 18

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 138.5 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1950 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.94E-06 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377

with rainfalls from Modified Rational Method

100 year

CELLULAR BLOCK [square] - mm
BLOCKS = 800 x 800 X 650mm
SINGLE BLOCK m3 0.395
Storage Volume in block beneath invert - cu.m.

	WIDTH 3200	LENGTH 3200	DEPTH 1950
No. BLOCKS	4	4	3
		18.97	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off	13.80	17.02	28.78	3.99	3.98
30	0.795	14.15	sheet	17.26	21.37	36.24	5.02	5.02
1	1.000	17.80		20.65	24.56	39.80	5.51	5.51
2	1.215	21.63		24.33	27.47	42.17	5.84	5.83
4	1.470	26.17		28.78	32.18	46.94	6.50	6.47
6	1.645	29.28		31.48	34.84	47.58	6.59	6.55
8	1.820	32.40		33.21	36.28	46.75	6.47	6.42

Storage Volume required (one hour)=

5.02 cu.m.

Storage Volume designed=

18.97 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

48

Time of emptying half storage volume =

18.94 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: PLOT 19

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 121 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1300 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.91E-05 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377 with rainfalls from Modified Rational Method 100 year	CELLULAR BLOCK [square] - mm		WIDTH	LENGTH	DEPTH
	BLOCKS = 800 x 800 X 650mm		2400	2400	1300
	SINGLE BLOCK m3 0.395		No. BLOCKS	3	3
	Storage Volume in block beneath invert - cu.m.			7.11	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	3.48	3.47
30	0.795	14.15		17.26	21.37	36.24	4.39	4.39
1	1.000	17.80		20.65	24.56	39.80	4.82	4.75
2	1.215	21.63		24.33	27.47	42.17	5.10	4.97
4	1.470	26.17		28.78	32.18	46.94	5.68	5.40
6	1.645	29.28		31.48	34.84	47.58	5.76	5.34
8	1.820	32.40		33.21	36.28	46.75	5.66	5.11

Storage Volume required (one hour)=

5.40 cu.m.

Storage Volume designed=

7.11 OKAY

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

Peak Design storm considered

30 hours / minutes

TOTAL BLOCKS =

18

Time of emptying half storage volume =

5.53 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]

KANE DESIGN

Calculation of Soakaway Requirements

SCHEME

1261

PRIVATE

GARDENS: CELLULAR BLOCKS: PLOT 20

ALAN KANE

28-Mar-16

Assume M5-60 rain =

17.800 mm

Assumed Impermeable Area = 156 sq.m. (from drawings)

Assume effective depth =
(Depth beneath invert)

1300 mm
[multiple of 650mm depth]

Soil Infiltration Rate = 1.91E-05 m/sec (from tests)

Voids ratio =

0.95

DESIGNED TO BS 1377 with rainfalls from Modified Rational Method 100 year	CELLULAR BLOCK [square] - mm		WIDTH	LENGTH	DEPTH
	BLOCKS = 800 x 800 X 650mm		2400	2400	1300
	SINGLE BLOCK m3 0.395		No. BLOCKS	3	3
	Storage Volume in block beneath invert - cu.m.			7.11	

Rainfall Duration D MINUTES / HOURS	Z1	M5-D rain mm	Z2	M10-D rain mm 10 year storm	M30-D rain mm 30 year storm	M100-D rain mm 100 year storm plus 30% climate	Inflow to Soakaway = I cu.m. 100+ climate	Storage Volume Required = S cu.m.
15	0.625	11.13	off sheet	13.80	17.02	28.78	4.49	4.47
30	0.795	14.15		17.26	21.37	36.24	5.65	5.65
1	1.000	17.80		20.65	24.56	39.80	6.21	6.14
2	1.215	21.63		24.33	27.47	42.17	6.58	6.44
4	1.470	26.17		28.78	32.18	46.94	7.32	7.05
6	1.645	29.28		31.48	34.84	47.58	7.42	7.01
8	1.820	32.40		33.21	36.28	46.75	7.29	6.74

Storage Volume required (one hour)= 7.05 cu.m.

Storage Volume designed= 7.11 OKAY

Peak Design storm considered 30 hours / minutes

NOTE: "STORMCELL" CELLULAR BLOCKS INDICATED
OTHER APPROVED MANUFACTURERS, OR PC RINGS. MAY BE USED

TOTAL BLOCKS = 18

Time of emptying half storage volume = 7.20 hours

OKAY: WITHIN BRITISH STANDARD [50% EMPTY IN 24 HOURS]