AKS Ward

CONSTRUCTION CONSULTANTS

DRAINAGE DESIGN CALCULATIONS FOR:

26 DOLPHIN ROAD

SHOREHAM

Prepared for:
Welling Property & Construction Consultants
Mountbatten Business Centre
Millbrook Rd E
Southampton
SO15 1HY

March 2022

Project No: S218032

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26 Dolphin Road-Drainage Calculations

Revision: P02

Revision	Amendments	Prepared By	Checked	Date
P01	First Issue	MH	IS	Jan’ 2022
P02	Second Issue	MH		Mar’ 2022

Summary of Results for 10 year Return Period (+40%)

Half Drain Time : 958 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	4.346	0.146	1.0	41.0	O K
30 min Summer	4.392	0.192	1.0	53.9	O K
60 min Summer	4.441	0.241	1.0	67.5	O K
120 min Summer	4.491	0.291	1.1	81.5	O K
180 min Summer	4.519	0.319	1.1	89.4	O K
240 min Summer	4.537	0.337	1.1	94.5	O K
360 min Summer	4.560	0.360	1.1	100.9	O K
480 min Summer	4.572	0.372	1.1	104.4	O K
600 min Summer	4.579	0.379	1.1	106.1	O K
720 min Summer	4.581	0.381	1.1	106.8	O K
960 min Summer	4.582	0.382	1.1	107.0	O K
1440 min Summer	4.577	0.377	1.1	105.7	O K
2160 min Summer	4.564	0.364	1.1	101.9	O K
2880 min Summer	4.547	0.347	1.1	97.3	O K
4320 min Summer	4.512	0.312	1.1	87.5	O K
5760 min Summer	4.477	0.277	1.1	77.7	O K
7200 min Summer	4.444	0.244	1.1	68.5	O K
8640 min Summer	4.414	0.214	1.0	60.1	O K
10080 min Summer	4.387	0.187	1.0	52.3	O K
15 min Winter	4.364	0.164	1.0	46.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	79.315	0.0	19
30 min Summer	52.517	0.0	34
60 min Summer	33.434	0.0	64
120 min Summer	20.761	0.0	122
180 min Summer	15.579	0.0	182
240 min Summer	12.670	0.0	242
360 min Summer	9.461	0.0	362
480 min Summer	7.682	0.0	480
600 min Summer	6.532	0.0	600
720 min Summer	5.720	0.0	702
960 min Summer	4.638	0.0	816
1440 min Summer	3.448	0.0	1068
2160 min Summer	2.561	0.0	1472
2880 min Summer	2.073	0.0	1900
4320 min Summer	1.537	0.0	2720
5760 min Summer	1.243	0.0	3512
7200 min Summer	1.055	0.0	4256
8640 min Summer	0.922	0.0	5016
10080 min Summer	0.824	0.0	5752
15 min Winter	79.315	0.0	19

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Summary of Results for 10 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	4.416	0.216	1.0	60.5	O K
60 min Winter	4.471	0.271	1.1	75.9	O K
120 min Winter	4.528	0.328	1.1	91.9	O K
180 min Winter	4.561	0.361	1.1	101.1	O K
240 min Winter	4.583	0.383	1.1	107.2	O K
360 min Winter	4.611	0.411	1.1	115.1	O K
480 min Winter	4.627	0.427	1.1	119.7	O K
600 min Winter	4.637	0.437	1.1	122.4	O K
720 min Winter	4.642	0.442	1.1	123.9	O K
960 min Winter	4.645	0.445	1.1	124.6	O K
1440 min Winter	4.636	0.436	1.1	122.2	O K
2160 min Winter	4.616	0.416	1.1	116.7	O K
2880 min Winter	4.590	0.390	1.1	109.4	O K
4320 min Winter	4.534	0.334	1.1	93.6	O K
5760 min Winter	4.479	0.279	1.1	78.2	O K
7200 min Winter	4.429	0.229	1.0	64.1	O K
8640 min Winter	4.383	0.183	1.0	51.4	O K
10080 min Winter	4.344	0.144	1.0	40.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	52.517	0.0	33
60 min Winter	33.434	0.0	62
120 min Winter	20.761	0.0	122
180 min Winter	15.579	0.0	180
240 min Winter	12.670	0.0	238
360 min Winter	9.461	0.0	354
480 min Winter	7.682	0.0	468
600 min Winter	6.532	0.0	582
720 min Winter	5.720	0.0	692
960 min Winter	4.638	0.0	906
1440 min Winter	3.448	0.0	1140
2160 min Winter	2.561	0.0	1600
2880 min Winter	2.073	0.0	2052
4320 min Winter	1.537	0.0	2940
5760 min Winter	1.243	0.0	3752
7200 min Winter	1.055	0.0	4544
8640 min Winter	0.922	0.0	5280
10080 min Winter	0.824	0.0	6048

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	10	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.900	Shortest Storm (mins)	15
Ratio R	0.342	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+40

Time Area Diagram

Total Area (ha) 0.281

Time (mins) From:	To:	Area (ha)
0	4	0.281

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Model Details

Storage is Online Cover Level (m) 5.600

Trench Soakaway Structure

Infiltration Coefficient Base (m/hr)	0.05800	Trench Width (m)	5.0
Infiltration Coefficient Side (m/hr)	0.05800	Trench Length (m)	59.0
Safety Factor	5.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	**3.200**	Cap Infiltration Depth (m)	0.800

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1 The Grove Felpham West Sussex PO22 7EY	Dolphin Rd AKS WARD SAT Design
Date 05/01/2022 10:15 File 03 Dolphin Rd - SW SAT ...	Designed by MH Checked by
Micro Drainage	Source Control 2019.1

Summary of Results for 100 year Return Period (+40%)

Half Drain Time : 1542 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	4.442	0.242	1.1	67.7	O K
30 min Summer	4.524	0.324	1.1	90.8	O K
60 min Summer	4.612	0.412	1.1	115.6	O K
120 min Summer	4.702	0.502	1.2	140.6	O K
180 min Summer	4.750	0.550	1.2	154.0	O K
240 min Summer	4.780	0.580	1.2	162.5	O K
360 min Summer	4.821	0.621	1.2	174.1	O K
480 min Summer	4.846	0.646	1.2	180.9	O K
600 min Summer	4.860	0.660	1.2	185.1	O K
720 min Summer	4.869	0.669	1.2	187.5	O K
960 min Summer	4.874	0.674	1.2	188.9	O K
1440 min Summer	4.862	0.662	1.2	185.7	O K
2160 min Summer	4.838	0.638	1.2	178.7	O K
2880 min Summer	4.812	0.612	1.2	171.4	O K
4320 min Summer	4.760	0.560	1.2	157.0	O K
5760 min Summer	4.712	0.512	1.2	143.4	O K
7200 min Summer	4.667	0.467	1.1	130.9	O K
8640 min Summer	4.625	0.425	1.1	119.2	O K
10080 min Summer	4.586	0.386	1.1	108.1	O K
15 min Winter	4.471	0.271	1.1	75.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	130.071	0.0	19
30 min Summer	87.724	0.0	34
60 min Summer	56.422	0.0	64
120 min Summer	34.971	0.0	124
180 min Summer	26.004	0.0	184
240 min Summer	20.933	0.0	242
360 min Summer	15.438	0.0	362
480 min Summer	12.417	0.0	482
600 min Summer	10.477	0.0	602
720 min Summer	9.115	0.0	722
960 min Summer	7.308	0.0	960
1440 min Summer	5.343	0.0	1242
2160 min Summer	3.897	0.0	1620
2880 min Summer	3.111	0.0	2016
4320 min Summer	2.260	0.0	2852
5760 min Summer	1.800	0.0	3640
7200 min Summer	1.510	0.0	4472
8640 min Summer	1.309	0.0	5272
10080 min Summer	1.160	0.0	6048
15 min Winter	130.071	0.0	19

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Date 05/01/2022 10:15 File 03 Dolphin Rd - SW SAT ...	Designed by MH Checked by
Micro Drainage	Source Control 2019.1

Summary of Results for 100 year Return Period (+40%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	4.563	0.363	1.1	101.9	O K
60 min Winter	4.663	0.463	1.1	129.8	O K
120 min Winter	4.765	0.565	1.2	158.2	O K
180 min Winter	4.820	0.620	1.2	173.7	O K
240 min Winter	4.855	0.655	1.2	183.6	O K
360 min Winter	4.904	0.704	1.2	197.3	O K
480 min Winter	4.934	0.734	1.3	205.8	O K
600 min Winter	4.954	0.754	1.3	211.4	O K
720 min Winter	4.967	0.767	1.3	214.9	O K
960 min Winter	4.979	0.779	1.3	218.3	O K
1440 min Winter	4.974	0.774	1.3	216.8	O K
2160 min Winter	4.941	0.741	1.3	207.6	O K
2880 min Winter	4.907	0.707	1.2	198.2	O K
4320 min Winter	4.834	0.634	1.2	177.5	O K
5760 min Winter	4.760	0.560	1.2	157.1	O K
7200 min Winter	4.693	0.493	1.2	138.2	O K
8640 min Winter	4.630	0.430	1.1	120.5	O K
10080 min Winter	4.572	0.372	1.1	104.2	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	87.724	0.0	33
60 min Winter	56.422	0.0	64
120 min Winter	34.971	0.0	122
180 min Winter	26.004	0.0	180
240 min Winter	20.933	0.0	240
360 min Winter	15.438	0.0	356
480 min Winter	12.417	0.0	474
600 min Winter	10.477	0.0	590
720 min Winter	9.115	0.0	702
960 min Winter	7.308	0.0	930
1440 min Winter	5.343	0.0	1368
2160 min Winter	3.897	0.0	1712
2880 min Winter	3.111	0.0	2164
4320 min Winter	2.260	0.0	3072
5760 min Winter	1.800	0.0	3976
7200 min Winter	1.510	0.0	4824
8640 min Winter	1.309	0.0	5624
10080 min Winter	1.160	0.0	6456

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Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
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Infiltration Coefficient Base (m/hr)	0.05800	Trench Width (m)	5.0
Infiltration Coefficient Side (m/hr)	0.05800	Trench Length (m)	59.0
Safety Factor	5.0	Slope (1:X)	0.0
Porosity	0.95	Cap Volume Depth (m)	0.800
Invert Level (m)	**3.200**	Cap Infiltration Depth (m)	0.800

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