

EWE Associates Ltd					Page 1		
Windy Ridge Barn Thealby Lane Winterton DN15 9TG							
Date 17/09/2019 09:17 File 100yr+CC30% tank ...		Designed By Windows7 Checked By					
Micro Drainage		Source Control W.12.4					
<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 423 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max E Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	113.891	0.591	0.0	3.6	3.6	104.3	O K
30 min Summer	114.011	0.711	0.0	3.9	3.9	125.5	O K
60 min Summer	114.144	0.844	0.0	4.3	4.3	148.8	O K
120 min Summer	114.276	0.976	0.0	4.6	4.6	172.2	O K
180 min Summer	114.343	1.043	0.0	4.8	4.8	183.9	O K
240 min Summer	114.378	1.078	0.0	4.8	4.8	190.2	O K
360 min Summer	114.408	1.108	0.0	4.9	4.9	195.5	O K
480 min Summer	114.423	1.123	0.0	4.9	4.9	198.0	O K
600 min Summer	114.428	1.128	0.0	5.0	5.0	199.0	O K
720 min Summer	114.428	1.128	0.0	4.9	4.9	198.9	O K
960 min Summer	114.422	1.122	0.0	4.9	4.9	198.0	O K
1440 min Summer	114.388	1.088	0.0	4.9	4.9	192.0	O K
2160 min Summer	114.321	1.021	0.0	4.7	4.7	180.2	O K
2880 min Summer	114.253	0.953	0.0	4.5	4.5	168.1	O K
4320 min Summer	114.077	0.777	0.0	4.1	4.1	137.1	O K
5760 min Summer	113.940	0.640	0.0	3.7	3.7	112.9	O K
7200 min Summer	113.829	0.529	0.0	3.4	3.4	93.4	O K
8640 min Summer	113.736	0.436	0.0	3.1	3.1	76.9	O K
Storm Event	Rain (mm/hr)	Time-Peak (mins)					
15 min Summer	165.156	22					
30 min Summer	100.781	36					
60 min Summer	61.498	66					
120 min Summer	37.527	124					
180 min Summer	28.110	182					
240 min Summer	22.900	240					
360 min Summer	17.153	312					
480 min Summer	13.974	376					
600 min Summer	11.920	440					
720 min Summer	10.467	508					
960 min Summer	8.569	648					
1440 min Summer	6.463	926					
2160 min Summer	4.875	1340					
2880 min Summer	3.991	1732					
4320 min Summer	2.895	2508					
5760 min Summer	2.305	3280					
7200 min Summer	1.932	4032					
8640 min Summer	1.672	4760					
©1982-2010 Micro Drainage Ltd							

EWE Associates Ltd					Page 2		
Windy Ridge Barn Thealby Lane Winterton DN15 9TG							
Date 17/09/2019 09:17 File 100yr+CC30% tank ...			Designed By Windows7 Checked By				
Micro Drainage			Source Control W.12.4				
<u>Summary of Results for 100 year Return Period (+30%)</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
10080 min Summer	113.651	0.351	0.0	2.9	2.9	61.9	O K
15 min Winter	113.964	0.664	0.0	3.8	3.8	117.1	O K
30 min Winter	114.099	0.799	0.0	4.2	4.2	141.0	O K
60 min Winter	114.251	0.951	0.0	4.5	4.5	167.7	O K
120 min Winter	114.405	1.105	0.0	4.9	4.9	195.0	O K
180 min Winter	114.486	1.186	0.0	5.1	5.1	209.3	O K
240 min Winter	114.536	1.236	0.0	5.2	5.2	217.5	O K
360 min Winter	114.597	1.297	0.0	5.3	5.3	224.6	O K
480 min Winter	114.618	1.318	0.0	5.4	5.4	226.4	O K
600 min Winter	114.632	1.332	0.0	5.4	5.4	227.3	O K
720 min Winter	114.623	1.323	0.0	5.4	5.4	226.7	O K
960 min Winter	114.589	1.289	0.0	5.3	5.3	223.9	O K
1440 min Winter	114.505	1.205	0.0	5.1	5.1	212.5	O K
2160 min Winter	114.389	1.089	0.0	4.9	4.9	192.2	O K
2880 min Winter	114.279	0.979	0.0	4.6	4.6	172.7	O K
4320 min Winter	114.040	0.740	0.0	4.0	4.0	130.5	O K
5760 min Winter	113.862	0.562	0.0	3.5	3.5	99.2	O K
7200 min Winter	113.718	0.418	0.0	3.1	3.1	73.7	O K
8640 min Winter	113.576	0.276	0.0	2.9	2.9	48.6	O K
Storm Event	Rain (mm/hr)	Time-Peak (mins)					
10080 min Summer	1.480	5456					
15 min Winter	165.156	22					
30 min Winter	100.781	36					
60 min Winter	61.498	64					
120 min Winter	37.527	122					
180 min Winter	28.110	178					
240 min Winter	22.900	234					
360 min Winter	17.153	342					
480 min Winter	13.974	390					
600 min Winter	11.920	464					
720 min Winter	10.467	542					
960 min Winter	8.569	698					
1440 min Winter	6.463	998					
2160 min Winter	4.875	1432					
2880 min Winter	3.991	1848					
4320 min Winter	2.895	2640					
5760 min Winter	2.305	3408					
7200 min Winter	1.932	4184					
8640 min Winter	1.672	4928					
©1982-2010 Micro Drainage Ltd							

EWE Associates Ltd		Page 3																																
Windy Ridge Barn Thealby Lane Winterton DN15 9TG																																		
Date 17/09/2019 09:17 File 100yr+CC30% tank ...	Designed By Windows7 Checked By																																	
Micro Drainage		Source Control W.12.4																																
<u>Summary of Results for 100 year Return Period (+30%)</u> <table border="1"> <thead> <tr> <th>Storm Event</th> <th>Max Level (m)</th> <th>Max Depth (m)</th> <th>Max Infiltration (l/s)</th> <th>Max Control (l/s)</th> <th>Max Outflow (l/s)</th> <th>Max Volume (m³)</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>10080 min Winter</td> <td>113.466</td> <td>0.166</td> <td>0.0</td> <td>2.9</td> <td>2.9</td> <td>29.2</td> <td>O K</td> </tr> <tr> <td></td> <td></td> <td>Storm Event</td> <td>Rain (mm/hr)</td> <td>Time-Peak (mins)</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>10080 min Winter</td> <td>1.480</td> <td>5352</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status	10080 min Winter	113.466	0.166	0.0	2.9	2.9	29.2	O K			Storm Event	Rain (mm/hr)	Time-Peak (mins)						10080 min Winter	1.480	5352			
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Outflow (l/s)	Max Volume (m³)	Status																											
10080 min Winter	113.466	0.166	0.0	2.9	2.9	29.2	O K																											
		Storm Event	Rain (mm/hr)	Time-Peak (mins)																														
		10080 min Winter	1.480	5352																														
©1982-2010 Micro Drainage Ltd																																		

EWE Associates Ltd		Page 4
Windy Ridge Barn Thealby Lane Winterton DN15 9TG		
Date 17/09/2019 09:17 File 100yr+CC30% tank ...	Designed By Windows7 Checked By	
Micro Drainage		Source Control W.12.4

Rainfall Details

Rainfall Model	FEH
Return Period (years)	100
Site Location	411050 415800 SE 11050 15800
C (1km)	-0.026
D1 (1km)	0.407
D2 (1km)	0.424
D3 (1km)	0.328
E (1km)	0.306
F (1km)	2.449
Summer Storms	Yes
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Shortest Storm (mins)	15
Longest Storm (mins)	10080
Climate Change %	+30

Time / Area Diagram

Total Area (ha) 0.347

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.200	4-8	0.147

©1982-2010 Micro Drainage Ltd

EWE Associates Ltd		Page 5
Windy Ridge Barn Thealby Lane Winterton DN15 9TG		
Date 17/09/2019 09:17 File 100yr+CC30% tank ...	Designed By Windows7 Checked By	
Micro Drainage	Source Control W.12.4	

Model Details

Storage is Online Cover Level (m) 115.700

Cellular Storage Structure

Invert Level (m) 113.300 Safety Factor 1.5
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.98
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	180.0	180.0	2.600	0.0	249.8
0.200	180.0	190.7	2.800	0.0	249.8
0.400	180.0	201.5	3.000	0.0	249.8
0.600	180.0	212.2	3.200	0.0	249.8
0.800	180.0	222.9	3.400	0.0	249.8
1.000	180.0	233.7	3.600	0.0	249.8
1.200	180.0	244.4	3.800	0.0	249.8
1.400	0.0	249.8	4.000	0.0	249.8
1.600	0.0	249.8	4.200	0.0	249.8
1.800	0.0	249.8	4.400	0.0	249.8
2.000	0.0	249.8	4.600	0.0	249.8
2.200	0.0	249.8	4.800	0.0	249.8
2.400	0.0	249.8	5.000	0.0	249.8

Hydro-Brake® Outflow Control

Design Head (m) 1.500 Diameter (mm) 88
Design Flow (l/s) 5.7 Invert Level (m) 113.300
Hydro-Brake® Type Md5 SW Only

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.3	1.200	5.1	3.000	8.1	7.000	12.3
0.200	2.9	1.400	5.5	3.500	8.7	7.500	12.8
0.300	2.9	1.600	5.9	4.000	9.3	8.000	13.2
0.400	3.0	1.800	6.3	4.500	9.9	8.500	13.6
0.500	3.3	2.000	6.6	5.000	10.4	9.000	14.0
0.600	3.6	2.200	6.9	5.500	10.9	9.500	14.4
0.800	4.2	2.400	7.2	6.000	11.4		
1.000	4.7	2.600	7.5	6.500	11.9		

©1982-2010 Micro Drainage Ltd