

Our Ref: J-3704 01
13 November 2024



RE: Clere Cottage. Symods Yat. Ross-on Wye. HR9 6BN

Surface Water Drainage Proposals

Summary

Percolation testing has been undertaken in accordance with BRE Report 365 at the location of the proposed surface water soakaway to serve the above development.

Results of the percolation testing and calculations for derivation of the soil infiltration coefficient are attached. The testing shows that the subsoil on the site has an infiltration rate of 0.11m/s. This is a moderate rate and indicates that the subsoil on site is suitable for the use of infiltration drainage methods.

The size of a ground soakaway suitable to manage runoff from the roof/front terrace of the dwelling house and the roof of the garage (combined area approx. 140m²) has been calculated using MicroDrainage Software. This is based on a storm return period of 100 years and incorporates an allowance of 50% for climate change.

The calculations show that a soakaway of size 2.0m by 4.0m in plan by 1.2m deep constructed from modular infiltration units with a 95% void content would be suitable for this duty.

With respect to areas of permeable paving, a porous subbase of 30% minimum void content (Type 3 subbase) of depth 0.15m would be required beneath the paving where it is laid flat, and a subbase depth of 0.25m would be required where the paving is laid at a gradient of up to 1 in 40. The subbase depths quoted are for drainage purposes only and are subject to minimum depth requirements for structural purposes such as traffic loading.

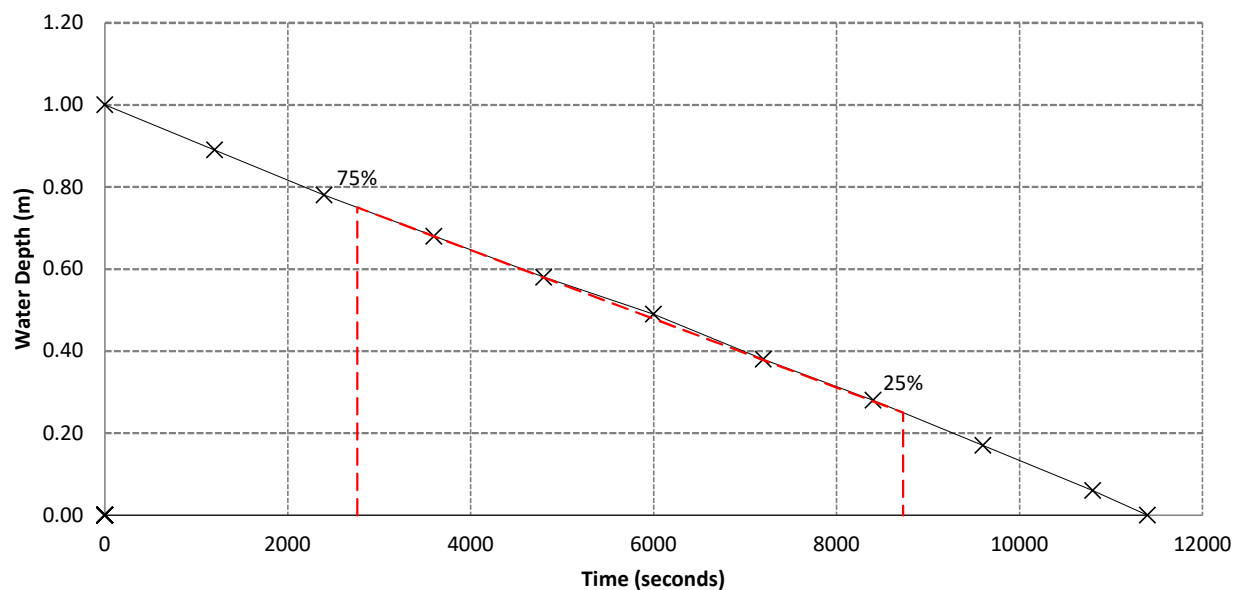
Engineering and Development Solutions Ltd

Registered Office: Engineering and Development Solutions, Unit E4, Threemilestone Industrial Estate Truro, Cornwall, TR4 9LD
Registered in England and Wales No. 10467487
Phone 01872 306311 Mobile 07973816457

ANNEX A – PERCOLATION TEST RESULTS

Date

12/11/2024



Depth (m)

Length (m)Test Date: 09/11/2024

Trial Pit No.:	TP1
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Test No.:	2
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Time
(hh:mm)

Elapsed
Time (sec)

% Effective

Datum (0,0) is ground level at pit

Initial Depth 1.00 m (below datum)

Final Depth 1.90 m (below datum)

Storage Depth	0.90	m (effective depth)
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$a_{p50\%}$	4.37	m^2
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$$q = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

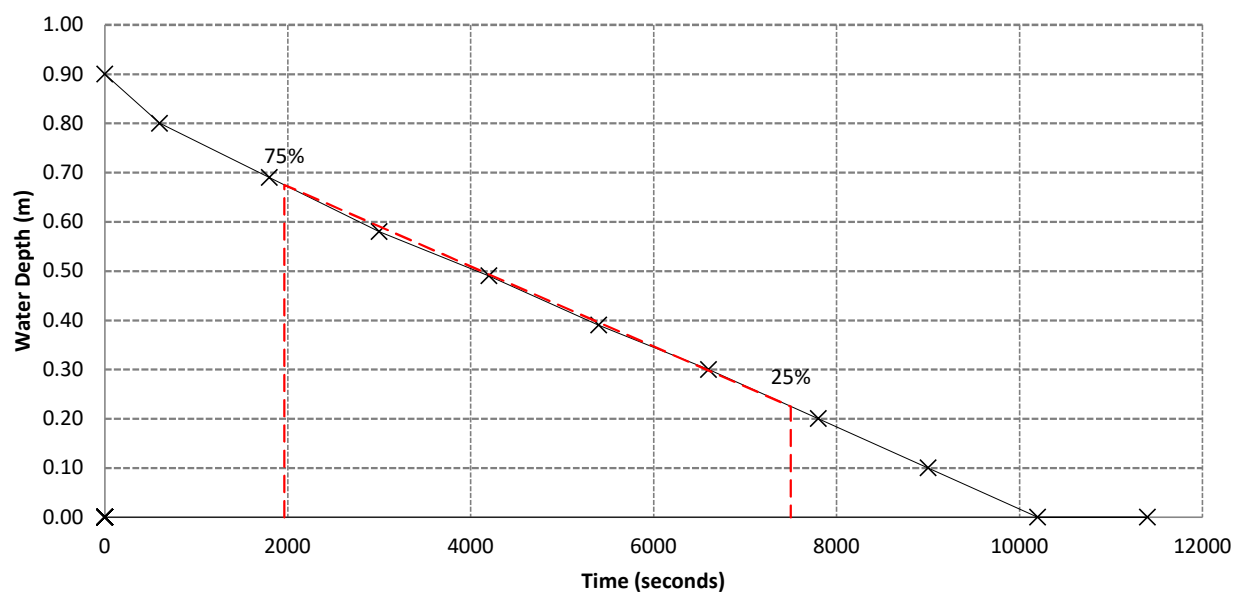
Where:

$a_{p50\%}$: Internal surface area of pite up to 50% effective depth, including base area

$t_{0.75-0.25}$: Time for water to fall from 75% to 25% effective depth

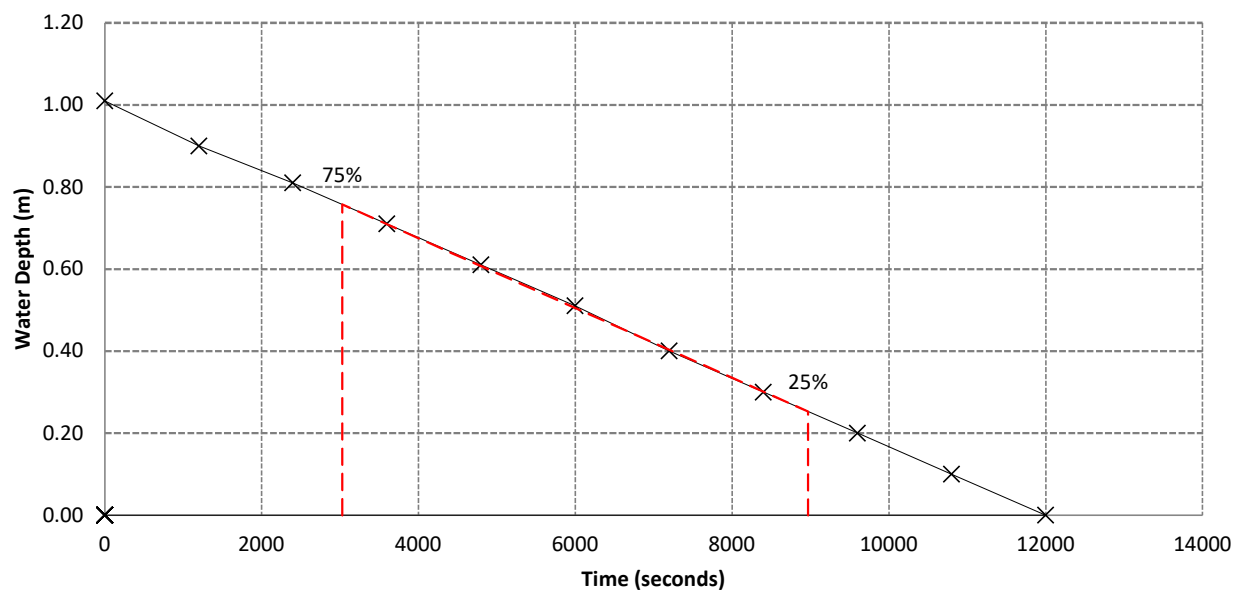
$V_{0.75-0.25}$: Effective storage volume between 75% & 25% effective depth

q= **3.15E-05** m/sec
0.114 m/hr



Date

12/11/2024



ANNEX B – SOAKAWAY CALCULATIONS

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Unit E4 Threemilestone Industrial Es... Truro, TR4 9LD																																																																																																																																																																																																																							
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Summary of Results for 100 year Return Period (+50%) Half Drain Time : 437 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>98.459</td><td>0.459</td><td>0.1</td><td>3.5</td><td>O K</td></tr><tr><td>30 min Summer</td><td>98.618</td><td>0.618</td><td>0.1</td><td>4.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>98.786</td><td>0.786</td><td>0.2</td><td>6.0</td><td>O K</td></tr><tr><td>120 min Summer</td><td>98.913</td><td>0.913</td><td>0.2</td><td>6.9</td><td>O K</td></tr><tr><td>180 min Summer</td><td>98.972</td><td>0.972</td><td>0.2</td><td>7.4</td><td>O K</td></tr><tr><td>240 min Summer</td><td>99.000</td><td>1.000</td><td>0.2</td><td>7.6</td><td>O K</td></tr><tr><td>360 min Summer</td><td>99.012</td><td>1.012</td><td>0.2</td><td>7.7</td><td>O K</td></tr><tr><td>480 min Summer</td><td>99.006</td><td>1.006</td><td>0.2</td><td>7.6</td><td>O K</td></tr><tr><td>600 min Summer</td><td>98.993</td><td>0.993</td><td>0.2</td><td>7.5</td><td>O K</td></tr><tr><td>720 min Summer</td><td>98.975</td><td>0.975</td><td>0.2</td><td>7.4</td><td>O K</td></tr><tr><td>960 min Summer</td><td>98.934</td><td>0.934</td><td>0.2</td><td>7.1</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>98.849</td><td>0.849</td><td>0.2</td><td>6.5</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>98.745</td><td>0.745</td><td>0.2</td><td>5.7</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>98.664</td><td>0.664</td><td>0.1</td><td>5.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>98.541</td><td>0.541</td><td>0.1</td><td>4.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>98.453</td><td>0.453</td><td>0.1</td><td>3.4</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>98.389</td><td>0.389</td><td>0.1</td><td>3.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>98.341</td><td>0.341</td><td>0.1</td><td>2.6</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>98.303</td><td>0.303</td><td>0.1</td><td>2.3</td><td>O K</td></tr><tr><td>15 min Winter</td><td>98.516</td><td>0.516</td><td>0.1</td><td>3.9</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>136.694</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>93.274</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>60.897</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>37.216</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>27.774</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>22.490</td><td>0.0</td><td>240</td></tr><tr><td>360 min Summer</td><td>16.587</td><td>0.0</td><td>316</td></tr><tr><td>480 min Summer</td><td>13.287</td><td>0.0</td><td>378</td></tr><tr><td>600 min Summer</td><td>11.152</td><td>0.0</td><td>440</td></tr><tr><td>720 min Summer</td><td>9.648</td><td>0.0</td><td>508</td></tr><tr><td>960 min Summer</td><td>7.652</td><td>0.0</td><td>646</td></tr><tr><td>1440 min Summer</td><td>5.491</td><td>0.0</td><td>924</td></tr><tr><td>2160 min Summer</td><td>3.944</td><td>0.0</td><td>1324</td></tr><tr><td>2880 min Summer</td><td>3.134</td><td>0.0</td><td>1728</td></tr><tr><td>4320 min Summer</td><td>2.296</td><td>0.0</td><td>2508</td></tr><tr><td>5760 min Summer</td><td>1.864</td><td>0.0</td><td>3240</td></tr><tr><td>7200 min Summer</td><td>1.605</td><td>0.0</td><td>3968</td></tr><tr><td>8640 min Summer</td><td>1.433</td><td>0.0</td><td>4752</td></tr><tr><td>10080 min Summer</td><td>1.311</td><td>0.0</td><td>5448</td></tr><tr><td>15 min Winter</td><td>136.694</td><td>0.0</td><td>19</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	98.459	0.459	0.1	3.5	O K	30 min Summer	98.618	0.618	0.1	4.7	O K	60 min Summer	98.786	0.786	0.2	6.0	O K	120 min Summer	98.913	0.913	0.2	6.9	O K	180 min Summer	98.972	0.972	0.2	7.4	O K	240 min Summer	99.000	1.000	0.2	7.6	O K	360 min Summer	99.012	1.012	0.2	7.7	O K	480 min Summer	99.006	1.006	0.2	7.6	O K	600 min Summer	98.993	0.993	0.2	7.5	O K	720 min Summer	98.975	0.975	0.2	7.4	O K	960 min Summer	98.934	0.934	0.2	7.1	O K	1440 min Summer	98.849	0.849	0.2	6.5	O K	2160 min Summer	98.745	0.745	0.2	5.7	O K	2880 min Summer	98.664	0.664	0.1	5.0	O K	4320 min Summer	98.541	0.541	0.1	4.1	O K	5760 min Summer	98.453	0.453	0.1	3.4	O K	7200 min Summer	98.389	0.389	0.1	3.0	O K	8640 min Summer	98.341	0.341	0.1	2.6	O K	10080 min Summer	98.303	0.303	0.1	2.3	O K	15 min Winter	98.516	0.516	0.1	3.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	136.694	0.0	19	30 min Summer	93.274	0.0	33	60 min Summer	60.897	0.0	62	120 min Summer	37.216	0.0	122	180 min Summer	27.774	0.0	182	240 min Summer	22.490	0.0	240	360 min Summer	16.587	0.0	316	480 min Summer	13.287	0.0	378	600 min Summer	11.152	0.0	440	720 min Summer	9.648	0.0	508	960 min Summer	7.652	0.0	646	1440 min Summer	5.491	0.0	924	2160 min Summer	3.944	0.0	1324	2880 min Summer	3.134	0.0	1728	4320 min Summer	2.296	0.0	2508	5760 min Summer	1.864	0.0	3240	7200 min Summer	1.605	0.0	3968	8640 min Summer	1.433	0.0	4752	10080 min Summer	1.311	0.0	5448	15 min Winter	136.694	0.0	19
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Unit E4 Threemilestone Industrial Es... Truro, TR4 9LD					
Date 05/11/2024 15:54 File J-3704 SOAKAWAY CALC.SRCX		Designed by TimSullivan Checked by			
Innovyze		Source Control 2020.1			
Summary of Results for 100 year Return Period (+50%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	98.695	0.695	0.2	5.3	O K
60 min Winter	98.886	0.886	0.2	6.7	O K
120 min Winter	99.032	1.032	0.2	7.8	O K
180 min Winter	99.105	1.105	0.2	8.4	O K
240 min Winter	99.142	1.142	0.2	8.7	O K
360 min Winter	99.162	1.162	0.2	8.8	O K
480 min Winter	99.150	1.150	0.2	8.7	O K
600 min Winter	99.135	1.135	0.2	8.6	O K
720 min Winter	99.113	1.113	0.2	8.5	O K
960 min Winter	99.058	1.058	0.2	8.0	O K
1440 min Winter	98.940	0.940	0.2	7.1	O K
2160 min Winter	98.792	0.792	0.2	6.0	O K
2880 min Winter	98.677	0.677	0.1	5.1	O K
4320 min Winter	98.507	0.507	0.1	3.9	O K
5760 min Winter	98.389	0.389	0.1	3.0	O K
7200 min Winter	98.304	0.304	0.1	2.3	O K
8640 min Winter	98.241	0.241	0.1	1.8	O K
10080 min Winter	98.193	0.193	0.1	1.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	93.274	0.0	33		
60 min Winter	60.897	0.0	62		
120 min Winter	37.216	0.0	120		
180 min Winter	27.774	0.0	178		
240 min Winter	22.490	0.0	234		
360 min Winter	16.587	0.0	340		
480 min Winter	13.287	0.0	392		
600 min Winter	11.152	0.0	464		
720 min Winter	9.648	0.0	542		
960 min Winter	7.652	0.0	694		
1440 min Winter	5.491	0.0	996		
2160 min Winter	3.944	0.0	1428		
2880 min Winter	3.134	0.0	1844		
4320 min Winter	2.296	0.0	2636		
5760 min Winter	1.864	0.0	3400		
7200 min Winter	1.605	0.0	4176		
8640 min Winter	1.433	0.0	4920		
10080 min Winter	1.311	0.0	5640		
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Unit E4 Threemilestone Industrial Es... Truro, TR4 9LD		
Date 05/11/2024 15:54 File J-3704 SOAKAWAY CALC.SRCX	Designed by TimSullivan Checked by	
Innovyze Source Control 2020.1		
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Unit E4 Threemilestone Industrial Es... Truro, TR4 9LD																				
Date 05/11/2024 15:54 File J-3704 SOAKAWAY CALC.SRCX	Designed by TimSullivan Checked by																			
Innovyze																				
Source Control 2020.1																				
Model Details Storage is Online Cover Level (m) 100.000 Cellular Storage Structure Invert Level (m) 98.000 Safety Factor 3.0 Infiltration Coefficient Base (m/hr) 0.10000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.10000 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr><tr><td>0.000</td><td>8.0</td><td>8.0</td><td>1.300</td><td>0.0</td><td>22.4</td></tr><tr><td>1.200</td><td>8.0</td><td>22.4</td><td></td><td></td><td></td></tr></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	8.0	8.0	1.300	0.0	22.4	1.200	8.0	22.4			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)															
0.000	8.0	8.0	1.300	0.0	22.4															
1.200	8.0	22.4																		
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Unit E4		Clere Cottage			
Threemilestone Industrial Es...		Porous Paving			
Truro, TR4 9LD		1 in 100 Gradient			
Date 05/11/2024		Designed by TPS			
File J-3704 Porous Paving 1 ...		Checked by			
Innovyze		Source Control 2020.1			
Summary of Results for 100 year Return Period (+50%)					
Half Drain Time : 27 minutes.					
Storm Event		Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³) Status
15 min Summer		98.116	0.116	0.9	2.0 O K
30 min Summer		98.130	0.130	0.9	2.4 O K
60 min Summer		98.137	0.137	0.9	2.6 O K
120 min Summer		98.129	0.129	0.9	2.4 O K
180 min Summer		98.119	0.119	0.9	2.1 O K
240 min Summer		98.110	0.110	0.9	1.8 O K
360 min Summer		98.096	0.096	0.9	1.4 O K
480 min Summer		98.086	0.086	0.8	1.1 O K
600 min Summer		98.078	0.078	0.7	0.9 O K
720 min Summer		98.071	0.071	0.7	0.8 O K
960 min Summer		98.061	0.061	0.6	0.6 O K
1440 min Summer		98.049	0.049	0.4	0.4 O K
2160 min Summer		98.042	0.042	0.3	0.3 O K
2880 min Summer		98.037	0.037	0.3	0.2 O K
4320 min Summer		98.032	0.032	0.2	0.2 O K
5760 min Summer		98.029	0.029	0.2	0.1 O K
7200 min Summer		98.027	0.027	0.1	0.1 O K
8640 min Summer		98.025	0.025	0.1	0.1 O K
10080 min Summer		98.024	0.024	0.1	0.1 O K
15 min Winter		98.125	0.125	0.9	2.3 O K
Storm Event		Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	
15 min Summer		136.694	0.0	16	
30 min Summer		93.274	0.0	26	
60 min Summer		60.897	0.0	44	
120 min Summer		37.216	0.0	78	
180 min Summer		27.774	0.0	110	
240 min Summer		22.490	0.0	142	
360 min Summer		16.587	0.0	200	
480 min Summer		13.287	0.0	260	
600 min Summer		11.152	0.0	320	
720 min Summer		9.648	0.0	380	
960 min Summer		7.652	0.0	500	
1440 min Summer		5.491	0.0	736	
2160 min Summer		3.944	0.0	1096	
2880 min Summer		3.134	0.0	1460	
4320 min Summer		2.296	0.0	2200	
5760 min Summer		1.864	0.0	2896	
7200 min Summer		1.605	0.0	3608	
8640 min Summer		1.433	0.0	4360	
10080 min Summer		1.311	0.0	5040	
15 min Winter		136.694	0.0	16	
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Unit E4		Clere Cottage			
Threemilestone Industrial Es...		Porous Paving			
Truro, TR4 9LD		1 in 100 Gradient			
Date 05/11/2024		Designed by TPS			
File J-3704 Porous Paving 1 ...		Checked by			
Innovyze		Source Control 2020.1			
Summary of Results for 100 year Return Period (+50%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	98.142	0.142	0.9	2.7	O K
60 min Winter	98.148	0.148	0.9	3.0	O K
120 min Winter	98.135	0.135	0.9	2.6	O K
180 min Winter	98.119	0.119	0.9	2.1	O K
240 min Winter	98.105	0.105	0.9	1.7	O K
360 min Winter	98.088	0.088	0.8	1.2	O K
480 min Winter	98.076	0.076	0.7	0.9	O K
600 min Winter	98.066	0.066	0.6	0.7	O K
720 min Winter	98.059	0.059	0.5	0.5	O K
960 min Winter	98.049	0.049	0.4	0.4	O K
1440 min Winter	98.042	0.042	0.3	0.3	O K
2160 min Winter	98.036	0.036	0.2	0.2	O K
2880 min Winter	98.032	0.032	0.2	0.1	O K
4320 min Winter	98.027	0.027	0.1	0.1	O K
5760 min Winter	98.025	0.025	0.1	0.1	O K
7200 min Winter	98.023	0.023	0.1	0.1	O K
8640 min Winter	98.022	0.022	0.1	0.1	O K
10080 min Winter	98.021	0.021	0.1	0.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	93.274	0.0	29		
60 min Winter	60.897	0.0	46		
120 min Winter	37.216	0.0	84		
180 min Winter	27.774	0.0	118		
240 min Winter	22.490	0.0	148		
360 min Winter	16.587	0.0	208		
480 min Winter	13.287	0.0	266		
600 min Winter	11.152	0.0	326		
720 min Winter	9.648	0.0	384		
960 min Winter	7.652	0.0	492		
1440 min Winter	5.491	0.0	736		
2160 min Winter	3.944	0.0	1100		
2880 min Winter	3.134	0.0	1428		
4320 min Winter	2.296	0.0	2136		
5760 min Winter	1.864	0.0	2872		
7200 min Winter	1.605	0.0	3664		
8640 min Winter	1.433	0.0	4280		
10080 min Winter	1.311	0.0	5080		
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Unit E4	Clere Cottage	
Threemilestone Industrial Es...	Porous Paving	
Truro, TR4 9LD	1 in 100 Gradient	
Date 05/11/2024	Designed by TPS	
File J-3704 Porous Paving 1 ...	Checked by	
Innovyze	Source Control 2020.1	
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Engineering and Development Solutions Ltd		Page 4																								
Unit E4	Clere Cottage																									
Threemilestone Industrial Es...	Porous Paving																									
Truro, TR4 9LD	1 in 100 Gradient																									
Date 05/11/2024	Designed by TPS																									
File J-3704 Porous Paving 1 ...	Checked by																									
Innovyze	Source Control 2020.1																									
Model Details Storage is Online Cover Level (m) 100.000 Porous Car Park Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10000</td><td>Width (m)</td><td>10.0</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Length (m)</td><td>10.0</td></tr><tr><td>Max Percolation (l/s)</td><td>27.8</td><td>Slope (1:X)</td><td>100.0</td></tr><tr><td>Safety Factor</td><td>3.0</td><td>Depression Storage (mm)</td><td>0</td></tr><tr><td>Porosity</td><td>0.30</td><td>Evaporation (mm/day)</td><td>0</td></tr><tr><td>Invert Level (m)</td><td>98.000</td><td>Membrane Depth (m)</td><td>0</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10000	Width (m)	10.0	Membrane Percolation (mm/hr)	1000	Length (m)	10.0	Max Percolation (l/s)	27.8	Slope (1:X)	100.0	Safety Factor	3.0	Depression Storage (mm)	0	Porosity	0.30	Evaporation (mm/day)	0	Invert Level (m)	98.000	Membrane Depth (m)	0
Infiltration Coefficient Base (m/hr)	0.10000	Width (m)	10.0																							
Membrane Percolation (mm/hr)	1000	Length (m)	10.0																							
Max Percolation (l/s)	27.8	Slope (1:X)	100.0																							
Safety Factor	3.0	Depression Storage (mm)	0																							
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Unit E4 Threemilestone Industrial Es... Truro, TR4 9LD			Clere Cottage Porous Paving 1 in 40 Gradient																																																																																																																																																																																																																					
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Innovyze			Source Control 2020.1																																																																																																																																																																																																																					
Summary of Results for 100 year Return Period (+50%) Half Drain Time : 46 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (m³)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>98.188</td><td>0.188</td><td>0.7</td><td>2.1</td><td>O K</td></tr><tr><td>30 min Summer</td><td>98.208</td><td>0.208</td><td>0.8</td><td>2.6</td><td>O K</td></tr><tr><td>60 min Summer</td><td>98.220</td><td>0.220</td><td>0.8</td><td>2.9</td><td>O K</td></tr><tr><td>120 min Summer</td><td>98.217</td><td>0.217</td><td>0.8</td><td>2.8</td><td>O K</td></tr><tr><td>180 min Summer</td><td>98.210</td><td>0.210</td><td>0.8</td><td>2.6</td><td>O K</td></tr><tr><td>240 min Summer</td><td>98.202</td><td>0.202</td><td>0.7</td><td>2.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>98.187</td><td>0.187</td><td>0.7</td><td>2.1</td><td>O K</td></tr><tr><td>480 min Summer</td><td>98.172</td><td>0.172</td><td>0.6</td><td>1.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>98.160</td><td>0.160</td><td>0.6</td><td>1.5</td><td>O K</td></tr><tr><td>720 min Summer</td><td>98.149</td><td>0.149</td><td>0.6</td><td>1.3</td><td>O K</td></tr><tr><td>960 min Summer</td><td>98.131</td><td>0.131</td><td>0.5</td><td>1.0</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>98.105</td><td>0.105</td><td>0.4</td><td>0.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>98.082</td><td>0.082</td><td>0.3</td><td>0.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>98.067</td><td>0.067</td><td>0.2</td><td>0.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>98.051</td><td>0.051</td><td>0.2</td><td>0.2</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>98.045</td><td>0.045</td><td>0.2</td><td>0.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>98.042</td><td>0.042</td><td>0.1</td><td>0.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>98.040</td><td>0.040</td><td>0.1</td><td>0.1</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>98.038</td><td>0.038</td><td>0.1</td><td>0.1</td><td>O K</td></tr><tr><td>15 min Winter</td><td>98.200</td><td>0.200</td><td>0.7</td><td>2.4</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (m³)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>136.694</td><td>0.0</td><td>16</td></tr><tr><td>30 min Summer</td><td>93.274</td><td>0.0</td><td>28</td></tr><tr><td>60 min Summer</td><td>60.897</td><td>0.0</td><td>44</td></tr><tr><td>120 min Summer</td><td>37.216</td><td>0.0</td><td>80</td></tr><tr><td>180 min Summer</td><td>27.774</td><td>0.0</td><td>112</td></tr><tr><td>240 min Summer</td><td>22.490</td><td>0.0</td><td>146</td></tr><tr><td>360 min Summer</td><td>16.587</td><td>0.0</td><td>210</td></tr><tr><td>480 min Summer</td><td>13.287</td><td>0.0</td><td>272</td></tr><tr><td>600 min Summer</td><td>11.152</td><td>0.0</td><td>334</td></tr><tr><td>720 min Summer</td><td>9.648</td><td>0.0</td><td>394</td></tr><tr><td>960 min Summer</td><td>7.652</td><td>0.0</td><td>512</td></tr><tr><td>1440 min Summer</td><td>5.491</td><td>0.0</td><td>752</td></tr><tr><td>2160 min Summer</td><td>3.944</td><td>0.0</td><td>1104</td></tr><tr><td>2880 min Summer</td><td>3.134</td><td>0.0</td><td>1468</td></tr><tr><td>4320 min Summer</td><td>2.296</td><td>0.0</td><td>2184</td></tr><tr><td>5760 min Summer</td><td>1.864</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.605</td><td>0.0</td><td>3592</td></tr><tr><td>8640 min Summer</td><td>1.433</td><td>0.0</td><td>4400</td></tr><tr><td>10080 min Summer</td><td>1.311</td><td>0.0</td><td>5072</td></tr><tr><td>15 min Winter</td><td>136.694</td><td>0.0</td><td>16</td></tr></tbody></table>							Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	98.188	0.188	0.7	2.1	O K	30 min Summer	98.208	0.208	0.8	2.6	O K	60 min Summer	98.220	0.220	0.8	2.9	O K	120 min Summer	98.217	0.217	0.8	2.8	O K	180 min Summer	98.210	0.210	0.8	2.6	O K	240 min Summer	98.202	0.202	0.7	2.5	O K	360 min Summer	98.187	0.187	0.7	2.1	O K	480 min Summer	98.172	0.172	0.6	1.8	O K	600 min Summer	98.160	0.160	0.6	1.5	O K	720 min Summer	98.149	0.149	0.6	1.3	O K	960 min Summer	98.131	0.131	0.5	1.0	O K	1440 min Summer	98.105	0.105	0.4	0.7	O K	2160 min Summer	98.082	0.082	0.3	0.4	O K	2880 min Summer	98.067	0.067	0.2	0.3	O K	4320 min Summer	98.051	0.051	0.2	0.2	O K	5760 min Summer	98.045	0.045	0.2	0.1	O K	7200 min Summer	98.042	0.042	0.1	0.1	O K	8640 min Summer	98.040	0.040	0.1	0.1	O K	10080 min Summer	98.038	0.038	0.1	0.1	O K	15 min Winter	98.200	0.200	0.7	2.4	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	136.694	0.0	16	30 min Summer	93.274	0.0	28	60 min Summer	60.897	0.0	44	120 min Summer	37.216	0.0	80	180 min Summer	27.774	0.0	112	240 min Summer	22.490	0.0	146	360 min Summer	16.587	0.0	210	480 min Summer	13.287	0.0	272	600 min Summer	11.152	0.0	334	720 min Summer	9.648	0.0	394	960 min Summer	7.652	0.0	512	1440 min Summer	5.491	0.0	752	2160 min Summer	3.944	0.0	1104	2880 min Summer	3.134	0.0	1468	4320 min Summer	2.296	0.0	2184	5760 min Summer	1.864	0.0	2936	7200 min Summer	1.605	0.0	3592	8640 min Summer	1.433	0.0	4400	10080 min Summer	1.311	0.0	5072	15 min Winter	136.694	0.0	16
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Unit E4		Clere Cottage			
Threemilestone Industrial Es...		Porous Paving			
Truro, TR4 9LD		1 in 40 Gradient			
Date 05/11/2024		Designed by TPS			
File J-3704 Porous Paving.SRCX		Checked by			
Innovyze		Source Control 2020.1			
Summary of Results for 100 year Return Period (+50%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	98.223	0.223	0.8	3.0	O K
60 min Winter	98.234	0.234	0.9	3.3	O K
120 min Winter	98.228	0.228	0.8	3.1	O K
180 min Winter	98.217	0.217	0.8	2.8	O K
240 min Winter	98.205	0.205	0.8	2.5	O K
360 min Winter	98.183	0.183	0.7	2.0	O K
480 min Winter	98.164	0.164	0.6	1.6	O K
600 min Winter	98.147	0.147	0.5	1.3	O K
720 min Winter	98.134	0.134	0.5	1.1	O K
960 min Winter	98.112	0.112	0.4	0.8	O K
1440 min Winter	98.085	0.085	0.3	0.4	O K
2160 min Winter	98.062	0.062	0.2	0.2	O K
2880 min Winter	98.050	0.050	0.2	0.2	O K
4320 min Winter	98.043	0.043	0.1	0.1	O K
5760 min Winter	98.039	0.039	0.1	0.1	O K
7200 min Winter	98.036	0.036	0.1	0.1	O K
8640 min Winter	98.034	0.034	0.1	0.1	O K
10080 min Winter	98.033	0.033	0.1	0.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	93.274	0.0	29		
60 min Winter	60.897	0.0	48		
120 min Winter	37.216	0.0	86		
180 min Winter	27.774	0.0	120		
240 min Winter	22.490	0.0	156		
360 min Winter	16.587	0.0	220		
480 min Winter	13.287	0.0	284		
600 min Winter	11.152	0.0	344		
720 min Winter	9.648	0.0	406		
960 min Winter	7.652	0.0	522		
1440 min Winter	5.491	0.0	754		
2160 min Winter	3.944	0.0	1104		
2880 min Winter	3.134	0.0	1468		
4320 min Winter	2.296	0.0	2200		
5760 min Winter	1.864	0.0	2928		
7200 min Winter	1.605	0.0	3672		
8640 min Winter	1.433	0.0	4368		
10080 min Winter	1.311	0.0	5024		
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Unit E4	Clere Cottage	
Threemilestone Industrial Es...	Porous Paving	
Truro, TR4 9LD	1 in 40 Gradient	
Date 05/11/2024	Designed by TPS	
File J-3704 Porous Paving.SRCX	Checked by	
Innovyze	Source Control 2020.1	

Engineering and Development Solutions Ltd		Page 4																								
Unit E4	Clere Cottage																									
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Model Details Storage is Online Cover Level (m) 100.000 Porous Car Park Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10000</td><td>Width (m)</td><td>10.0</td></tr><tr><td>Membrane Percolation (mm/hr)</td><td>1000</td><td>Length (m)</td><td>10.0</td></tr><tr><td>Max Percolation (l/s)</td><td>27.8</td><td>Slope (1:X)</td><td>40.0</td></tr><tr><td>Safety Factor</td><td>3.0</td><td>Depression Storage (mm)</td><td>0</td></tr><tr><td>Porosity</td><td>0.30</td><td>Evaporation (mm/day)</td><td>0</td></tr><tr><td>Invert Level (m)</td><td>98.000</td><td>Membrane Depth (m)</td><td>0</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10000	Width (m)	10.0	Membrane Percolation (mm/hr)	1000	Length (m)	10.0	Max Percolation (l/s)	27.8	Slope (1:X)	40.0	Safety Factor	3.0	Depression Storage (mm)	0	Porosity	0.30	Evaporation (mm/day)	0	Invert Level (m)	98.000	Membrane Depth (m)	0
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