

SPR Hooper

Consulting Civil & Structural Engineers
7 Coychurch Road
Bridgend
CF31 3AR

Tel:07977555746

Proj: 4913.016

Ref : Highway Soakaway

Date: 17/10/19

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Residential Development Glynneath
General components

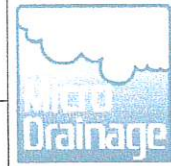
Soakaway design

Soakaway location - England/Wales
Area draining to soakaway $A = 727 \text{ m}^2$
Invert to soakaway $= 1.15 \text{ m}$
Soakaway type - Trench
Breadth of soakaway $= 4 \text{ m}$
Effective storage depth $D_e = 0.8 \text{ m}$
Soil infiltration rate $f = 0.000063 \text{ m/s}$
Rainfall ratio $r = 0.25$
Permeability of fill $P_{er} = 95 \%$
Length increment $= 0.1 \text{ m}$ (computed length will be rounded to this value)

Design calculations to BRE Digest 365

Length of soakaway $L = 7.2 \text{ m}$
Effective outflow area $a_{s50} = 0.5*((2*B*D_e)+(2*L*D_e))$
 $= 0.5*((2*4*0.8)+(2*7.2*0.8))$
 $= 8.96 \text{ m}^2$
Storage volume $V_s = L*B*D_e*P_{er}/100$
 $= 7.2*4*0.8*95/100$
 $= 21.89 \text{ m}^3$
Time of emptying half storage volume $t_{s50} = V_s*0.5/(a_{s50}*f*60*60)$
 $= 21.89*0.5/(8.96*0.000063*60*60)$
 $= 5.4 \text{ hrs.}$

D min.	R m	I m ³	O m ³	S m ³	A _{max} m ²
10	0.011	8.34	0.34	8	1938
20	0.015	11.27	0.68	10.59	1456
30	0.019	13.52	1.02	12.51	1231
40	0.021	15.14	1.35	13.79	1116
60	0.025	18.03	2.03	16	965
120	0.032	23.26	4.06	19.19	811
240	0.041	29.73	8.13	21.6	734
360	0.047	33.91	12.19	21.72	731
600	0.055	40.32	20.32	20	761
1440	0.075	54.68	48.77	5.91	939

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5-6 Deryn Court	8226	
Wharfedale Road	Glynneath	
Pentwyn CF23 7HB	SAway-R0	
Date 12/01/2018	Designed by LKJ	
File 8226-Calcs-SWS-SA-R0.SRCX	Checked by	
XP Solutions	Source Control 2017.1.2	

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)	20.200	Shortest Storm (mins)	15
Ratio R	0.200	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 0.145

Time (mins)	Area	Time (mins)	Area	Time (mins)	Area
From: To: (ha)		From: To: (ha)		From: To: (ha)	
0 4 0.048		4 8 0.048		8 12 0.048	

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Model Details

Storage is Online Cover Level (m) 55.000

Cellular Storage Structure

Invert Level (m) 53.850 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.11880 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.11880

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	120.0	120.0	0.801	0.0	156.8
0.800	120.0	156.8			

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<u>Summary of Results for 10 year Return Period</u> Half Drain Time : 125 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>53.949</td><td>0.099</td><td>2.1</td><td>11.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>53.989</td><td>0.139</td><td>2.1</td><td>15.8</td><td>O K</td></tr><tr><td>60 min Summer</td><td>54.031</td><td>0.181</td><td>2.1</td><td>20.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>54.066</td><td>0.216</td><td>2.1</td><td>24.7</td><td>O K</td></tr><tr><td>180 min Summer</td><td>54.082</td><td>0.232</td><td>2.2</td><td>26.5</td><td>O K</td></tr><tr><td>240 min Summer</td><td>54.092</td><td>0.242</td><td>2.2</td><td>27.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>54.099</td><td>0.249</td><td>2.2</td><td>28.4</td><td>O K</td></tr><tr><td>480 min 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Summer</td><td>53.888</td><td>0.038</td><td>1.5</td><td>4.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>53.885</td><td>0.035</td><td>1.4</td><td>3.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>53.962</td><td>0.112</td><td>2.1</td><td>12.8</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>48.273</td><td>0.0</td><td>23</td></tr><tr><td>30 min Summer</td><td>34.776</td><td>0.0</td><td>36</td></tr><tr><td>60 min Summer</td><td>24.244</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>16.478</td><td>0.0</td><td>106</td></tr><tr><td>180 min Summer</td><td>13.023</td><td>0.0</td><td>140</td></tr><tr><td>240 min Summer</td><td>11.007</td><td>0.0</td><td>176</td></tr><tr><td>360 min Summer</td><td>8.665</td><td>0.0</td><td>246</td></tr><tr><td>480 min Summer</td><td>7.303</td><td>0.0</td><td>316</td></tr><tr><td>600 min 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Summer	53.989	0.139	2.1	15.8	O K	60 min Summer	54.031	0.181	2.1	20.6	O K	120 min Summer	54.066	0.216	2.1	24.7	O K	180 min Summer	54.082	0.232	2.2	26.5	O K	240 min Summer	54.092	0.242	2.2	27.5	O K	360 min Summer	54.099	0.249	2.2	28.4	O K	480 min Summer	54.099	0.249	2.2	28.4	O K	600 min Summer	54.096	0.246	2.2	28.1	O K	720 min Summer	54.091	0.241	2.2	27.5	O K	960 min Summer	54.078	0.228	2.2	26.0	O K	1440 min Summer	54.046	0.196	2.1	22.4	O K	2160 min Summer	54.001	0.151	2.1	17.2	O K	2880 min Summer	53.963	0.113	2.1	12.9	O K	4320 min Summer	53.914	0.064	2.0	7.3	O K	5760 min Summer	53.898	0.048	1.9	5.4	O K	7200 min Summer	53.892	0.042	1.7	4.8	O K	8640 min Summer	53.888	0.038	1.5	4.3	O K	10080 min Summer	53.885	0.035	1.4	3.9	O K	15 min Winter	53.962	0.112	2.1	12.8	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	48.273	0.0	23	30 min Summer	34.776	0.0	36	60 min Summer	24.244	0.0	62	120 min Summer	16.478	0.0	106	180 min Summer	13.023	0.0	140	240 min Summer	11.007	0.0	176	360 min Summer	8.665	0.0	246	480 min Summer	7.303	0.0	316	600 min Summer	6.392	0.0	386	720 min Summer	5.730	0.0	456	960 min Summer	4.818	0.0	588	1440 min Summer	3.772	0.0	850	2160 min Summer	2.954	0.0	1216	2880 min Summer	2.484	0.0	1568	4320 min Summer	1.950	0.0	2252	5760 min Summer	1.645	0.0	2936	7200 min Summer	1.443	0.0	3672	8640 min Summer	1.297	0.0	4408	10080 min Summer	1.184	0.0	5136	15 min Winter	48.273	0.0	23
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Summary of Results for 10 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	54.008	0.158	2.1	18.0	O K
60 min Winter	54.057	0.207	2.1	23.6	O K
120 min Winter	54.100	0.250	2.2	28.5	O K
180 min Winter	54.117	0.267	2.2	30.4	O K
240 min Winter	54.126	0.276	2.2	31.5	O K
360 min Winter	54.131	0.281	2.2	32.0	O K
480 min Winter	54.126	0.276	2.2	31.5	O K
600 min Winter	54.117	0.267	2.2	30.4	O K
720 min Winter	54.105	0.255	2.2	29.1	O K
960 min Winter	54.078	0.228	2.2	26.0	O K
1440 min Winter	54.022	0.172	2.1	19.6	O K
2160 min Winter	53.951	0.101	2.1	11.5	O K
2880 min Winter	53.905	0.055	2.0	6.3	O K
4320 min Winter	53.891	0.041	1.7	4.7	O K
5760 min Winter	53.885	0.035	1.4	4.0	O K
7200 min Winter	53.881	0.031	1.2	3.5	O K
8640 min Winter	53.878	0.028	1.1	3.1	O K
10080 min Winter	53.875	0.025	1.0	2.9	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
30 min Winter	34.776	0.0	36
60 min Winter	24.244	0.0	64
120 min Winter	16.478	0.0	116
180 min Winter	13.023	0.0	150
240 min Winter	11.007	0.0	188
360 min Winter	8.665	0.0	268
480 min Winter	7.303	0.0	344
600 min Winter	6.392	0.0	418
720 min Winter	5.730	0.0	492
960 min Winter	4.818	0.0	632
1440 min Winter	3.772	0.0	896
2160 min Winter	2.954	0.0	1252
2880 min Winter	2.484	0.0	1536
4320 min Winter	1.950	0.0	2204
5760 min Winter	1.645	0.0	2936
7200 min Winter	1.443	0.0	3664
8640 min Winter	1.297	0.0	4384
10080 min Winter	1.184	0.0	5040

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XP Solutions	Source Control 2017.1.2	

Summary of Results for 30 year Return Period

Half Drain Time : 172 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	53.977	0.127	2.1	14.5	O K
30 min Summer	54.032	0.182	2.1	20.8	O K
60 min Summer	54.092	0.242	2.2	27.6	O K
120 min Summer	54.144	0.294	2.2	33.5	O K
180 min Summer	54.164	0.314	2.2	35.8	O K
240 min Summer	54.176	0.326	2.2	37.1	O K
360 min Summer	54.186	0.336	2.2	38.3	O K
480 min Summer	54.188	0.338	2.2	38.5	O K
600 min Summer	54.185	0.335	2.2	38.2	O K
720 min Summer	54.179	0.329	2.2	37.5	O K
960 min Summer	54.164	0.314	2.2	35.8	O K
1440 min Summer	54.127	0.277	2.2	31.5	O K
2160 min Summer	54.071	0.221	2.1	25.2	O K
2880 min Summer	54.022	0.172	2.1	19.6	O K
4320 min Summer	53.951	0.101	2.1	11.5	O K
5760 min Summer	53.911	0.061	2.0	6.9	O K
7200 min Summer	53.898	0.048	1.9	5.5	O K
8640 min Summer	53.893	0.043	1.7	4.9	O K
10080 min Summer	53.889	0.039	1.6	4.5	O K
15 min Winter	53.994	0.144	2.1	16.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)
15 min Summer	60.792	0.0	24
30 min Summer	44.325	0.0	37
60 min Summer	31.124	0.0	64
120 min Summer	21.055	0.0	120
180 min Summer	16.484	0.0	152
240 min Summer	13.839	0.0	186
360 min Summer	10.780	0.0	256
480 min Summer	9.009	0.0	326
600 min Summer	7.829	0.0	396
720 min Summer	6.975	0.0	466
960 min Summer	5.805	0.0	604
1440 min Summer	4.475	0.0	870
2160 min Summer	3.455	0.0	1252
2880 min Summer	2.879	0.0	1616
4320 min Summer	2.235	0.0	2300
5760 min Summer	1.876	0.0	2992
7200 min Summer	1.642	0.0	3672
8640 min Summer	1.473	0.0	4392
10080 min Summer	1.342	0.0	5136
15 min Winter	60.792	0.0	24

C D Gray & Associates Ltd				Page 11		
5-6 Deryn Court Wharfedale Road Pentwyn CF23 7HB		8226 Glynneath SAway-R0				
Date 12/01/2018 File 8226-Calcs-SWS-SA-R0.SRCX		Designed by LKJ Checked by				
XP Solutions		Source Control 2017.1.2				
<u>Summary of Results for 30 year Return Period</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	
30 min Winter	54.057	0.207		2.1 23.6	O K	
60 min Winter	54.127	0.277		2.2 31.6	O K	
120 min Winter	54.190	0.340		2.2 38.8	O K	
180 min Winter	54.214	0.364		2.3 41.5	O K	
240 min Winter	54.226	0.376		2.3 42.9	O K	
360 min Winter	54.236	0.386		2.3 44.0	O K	
480 min Winter	54.233	0.383		2.3 43.7	O K	
600 min Winter	54.224	0.374		2.3 42.7	O K	
720 min Winter	54.212	0.362		2.3 41.2	O K	
960 min Winter	54.181	0.331		2.2 37.8	O K	
1440 min Winter	54.116	0.266		2.2 30.3	O K	
2160 min Winter	54.026	0.176		2.1 20.0	O K	
2880 min Winter	53.955	0.105		2.1 12.0	O K	
4320 min Winter	53.897	0.047		1.9 5.4	O K	
5760 min Winter	53.890	0.040		1.6 4.5	O K	
7200 min Winter	53.885	0.035		1.4 4.0	O K	
8640 min Winter	53.881	0.031		1.3 3.5	O K	
10080 min Winter	53.879	0.029		1.2 3.3	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)			
30 min Winter	44.325	0.0	37			
60 min Winter	31.124	0.0	64			
120 min Winter	21.055	0.0	120			
180 min Winter	16.484	0.0	172			
240 min Winter	13.839	0.0	198			
360 min Winter	10.780	0.0	276			
480 min Winter	9.009	0.0	354			
600 min Winter	7.829	0.0	432			
720 min Winter	6.975	0.0	506			
960 min Winter	5.805	0.0	652			
1440 min Winter	4.475	0.0	926			
2160 min Winter	3.455	0.0	1304			
2880 min Winter	2.879	0.0	1648			
4320 min Winter	2.235	0.0	2204			
5760 min Winter	1.876	0.0	2936			
7200 min Winter	1.642	0.0	3672			
8640 min Winter	1.473	0.0	4376			
10080 min Winter	1.342	0.0	5152			
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5-6 Deryn Court Wharfedale Road Pentwyn CF23 7HB		8226 Glynneath SAway-R0			
Date 12/01/2018 File 8226-Calcs-SWS-SA-R0.SRCX		Designed by LKJ Checked by			
XP Solutions		Source Control 2017.1.2			
<u>Summary of Results for 100 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	54.217	0.367	2.3	41.9	O K
60 min Winter	54.354	0.504	2.4	57.5	O K
120 min Winter	54.488	0.638	2.5	72.8	O K
180 min Winter	54.549	0.699	2.5	79.6	O K
240 min Winter	54.583	0.733	2.5	83.6	O K
360 min Winter	54.611	0.761	2.6	86.7	O K
480 min Winter	54.619	0.769	2.6	87.7	O K
600 min Winter	54.618	0.768	2.6	87.5	O K
720 min Winter	54.610	0.760	2.6	86.6	O K
960 min Winter	54.582	0.732	2.5	83.4	O K
1440 min Winter	54.508	0.658	2.5	75.0	O K
2160 min Winter	54.394	0.544	2.4	62.0	O K
2880 min Winter	54.287	0.437	2.3	49.8	O K
4320 min Winter	54.111	0.261	2.2	29.8	O K
5760 min Winter	53.987	0.137	2.1	15.6	O K
7200 min Winter	53.911	0.061	2.0	6.9	O K
8640 min Winter	53.897	0.047	1.9	5.3	O K
10080 min Winter	53.893	0.043	1.7	4.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	75.172	0.0	39		
60 min Winter	53.203	0.0	66		
120 min Winter	35.806	0.0	122		
180 min Winter	27.743	0.0	180		
240 min Winter	23.121	0.0	234		
360 min Winter	17.802	0.0	336		
480 min Winter	14.741	0.0	382		
600 min Winter	12.711	0.0	460		
720 min Winter	11.249	0.0	540		
960 min Winter	9.256	0.0	694		
1440 min Winter	7.018	0.0	990		
2160 min Winter	5.335	0.0	1412		
2880 min Winter	4.399	0.0	1816		
4320 min Winter	3.374	0.0	2556		
5760 min Winter	2.818	0.0	3232		
7200 min Winter	2.460	0.0	3816		
8640 min Winter	2.200	0.0	4384		
10080 min Winter	2.002	0.0	5136		
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Summary of Results for 100 year Return Period (+30%) Half Drain Time : 307 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>54.072</td><td>0.222</td><td>2.1</td><td>25.3</td><td>O K</td></tr><tr><td>30 min Summer</td><td>54.175</td><td>0.325</td><td>2.2</td><td>37.0</td><td>O K</td></tr><tr><td>60 min Summer</td><td>54.294</td><td>0.444</td><td>2.3</td><td>50.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>54.407</td><td>0.557</td><td>2.4</td><td>63.5</td><td>O K</td></tr><tr><td>180 min Summer</td><td>54.454</td><td>0.604</td><td>2.4</td><td>68.8</td><td>O K</td></tr><tr><td>240 min Summer</td><td>54.479</td><td>0.629</td><td>2.5</td><td>71.7</td><td>O K</td></tr><tr><td>360 min Summer</td><td>54.503</td><td>0.653</td><td>2.5</td><td>74.4</td><td>O K</td></tr><tr><td>480 min Summer</td><td>54.512</td><td>0.662</td><td>2.5</td><td>75.4</td><td>O K</td></tr><tr><td>600 min Summer</td><td>54.513</td><td>0.663</td><td>2.5</td><td>75.6</td><td>O K</td></tr><tr><td>720 min Summer</td><td>54.510</td><td>0.660</td><td>2.5</td><td>75.2</td><td>O K</td></tr><tr><td>960 min Summer</td><td>54.496</td><td>0.646</td><td>2.5</td><td>73.6</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>54.455</td><td>0.605</td><td>2.4</td><td>69.0</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>54.388</td><td>0.538</td><td>2.4</td><td>61.3</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>54.321</td><td>0.471</td><td>2.3</td><td>53.7</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>54.205</td><td>0.355</td><td>2.2</td><td>40.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>54.116</td><td>0.266</td><td>2.2</td><td>30.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>54.046</td><td>0.196</td><td>2.1</td><td>22.3</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>53.990</td><td>0.140</td><td>2.1</td><td>16.0</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>53.948</td><td>0.098</td><td>2.1</td><td>11.1</td><td>O K</td></tr><tr><td>15 min Winter</td><td>54.101</td><td>0.251</td><td>2.2</td><td>28.6</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>101.752</td><td>0.0</td><td>25</td></tr><tr><td>30 min Summer</td><td>75.172</td><td>0.0</td><td>39</td></tr><tr><td>60 min Summer</td><td>53.203</td><td>0.0</td><td>66</td></tr><tr><td>120 min Summer</td><td>35.806</td><td>0.0</td><td>124</td></tr><tr><td>180 min Summer</td><td>27.743</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>23.121</td><td>0.0</td><td>230</td></tr><tr><td>360 min Summer</td><td>17.802</td><td>0.0</td><td>294</td></tr><tr><td>480 min Summer</td><td>14.741</td><td>0.0</td><td>360</td></tr><tr><td>600 min Summer</td><td>12.711</td><td>0.0</td><td>428</td></tr><tr><td>720 min Summer</td><td>11.249</td><td>0.0</td><td>498</td></tr><tr><td>960 min Summer</td><td>9.256</td><td>0.0</td><td>638</td></tr><tr><td>1440 min Summer</td><td>7.018</td><td>0.0</td><td>914</td></tr><tr><td>2160 min Summer</td><td>5.335</td><td>0.0</td><td>1320</td></tr><tr><td>2880 min Summer</td><td>4.399</td><td>0.0</td><td>1708</td></tr><tr><td>4320 min Summer</td><td>3.374</td><td>0.0</td><td>2468</td></tr><tr><td>5760 min Summer</td><td>2.818</td><td>0.0</td><td>3176</td></tr><tr><td>7200 min Summer</td><td>2.460</td><td>0.0</td><td>3896</td></tr><tr><td>8640 min Summer</td><td>2.200</td><td>0.0</td><td>4584</td></tr><tr><td>10080 min Summer</td><td>2.002</td><td>0.0</td><td>5248</td></tr><tr><td>15 min Winter</td><td>101.752</td><td>0.0</td><td>25</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	54.072	0.222	2.1	25.3	O K	30 min Summer	54.175	0.325	2.2	37.0	O K	60 min Summer	54.294	0.444	2.3	50.6	O K	120 min Summer	54.407	0.557	2.4	63.5	O K	180 min Summer	54.454	0.604	2.4	68.8	O K	240 min Summer	54.479	0.629	2.5	71.7	O K	360 min Summer	54.503	0.653	2.5	74.4	O K	480 min Summer	54.512	0.662	2.5	75.4	O K	600 min Summer	54.513	0.663	2.5	75.6	O K	720 min Summer	54.510	0.660	2.5	75.2	O K	960 min Summer	54.496	0.646	2.5	73.6	O K	1440 min Summer	54.455	0.605	2.4	69.0	O K	2160 min Summer	54.388	0.538	2.4	61.3	O K	2880 min Summer	54.321	0.471	2.3	53.7	O K	4320 min Summer	54.205	0.355	2.2	40.5	O K	5760 min Summer	54.116	0.266	2.2	30.3	O K	7200 min Summer	54.046	0.196	2.1	22.3	O K	8640 min Summer	53.990	0.140	2.1	16.0	O K	10080 min Summer	53.948	0.098	2.1	11.1	O K	15 min Winter	54.101	0.251	2.2	28.6	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	101.752	0.0	25	30 min Summer	75.172	0.0	39	60 min Summer	53.203	0.0	66	120 min Summer	35.806	0.0	124	180 min Summer	27.743	0.0	182	240 min Summer	23.121	0.0	230	360 min Summer	17.802	0.0	294	480 min Summer	14.741	0.0	360	600 min Summer	12.711	0.0	428	720 min Summer	11.249	0.0	498	960 min Summer	9.256	0.0	638	1440 min Summer	7.018	0.0	914	2160 min Summer	5.335	0.0	1320	2880 min Summer	4.399	0.0	1708	4320 min Summer	3.374	0.0	2468	5760 min Summer	2.818	0.0	3176	7200 min Summer	2.460	0.0	3896	8640 min Summer	2.200	0.0	4584	10080 min Summer	2.002	0.0	5248	15 min Winter	101.752	0.0	25
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SPR Hooper

Consulting Civil & Structural Engineers
7 Coychurch Road
Bridgend
CF31 3AR

Tel:07977555746

Proj: 4913.016

Ref : Highway Soakaway

Date: 17/10/19

Page: 14

Residential Development Glynneath
General components

STORAGE VOLUME REQUIRED

1 IN 10 STORM - 32m^3

1 IN 30 STORM - 44m^3

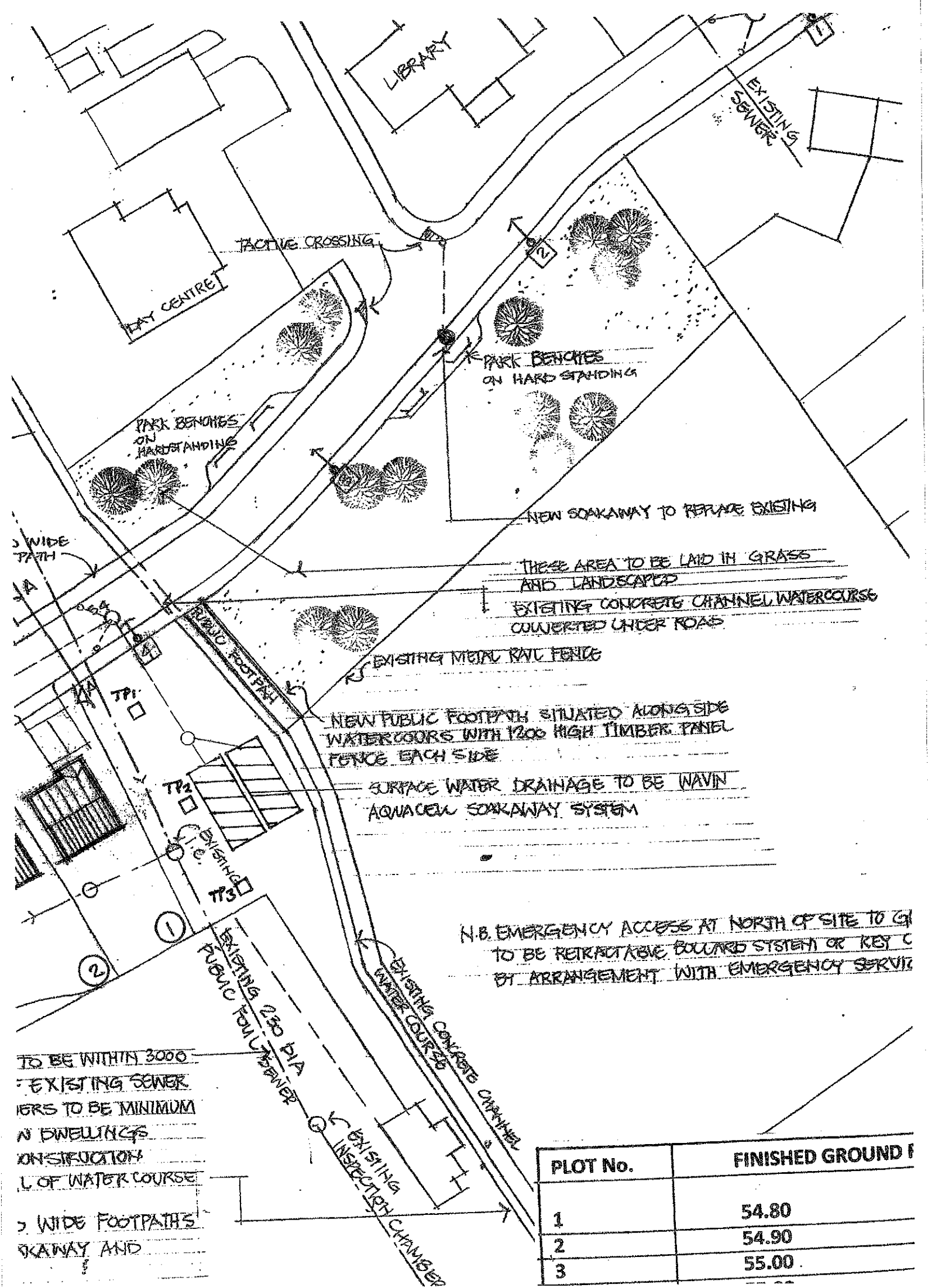
1 IN 100 STORM + 30% = 87.7m^3

USING 2 NO SOAKAWAYS

STORAGE VOLUME PER SOAKAWAY = 44m^3

∴ MAKE SOAKAWAYS - $15 \times 4.0 \times 0.8\text{m}$ DEEP - 2 NO.

USING WAVIN BLUE AQUA CRATES.



PLOT No.	FINISHED GROUND I
1	54.80
2	54.90
3	55.00