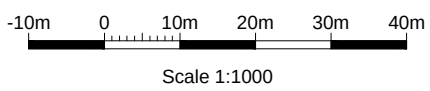
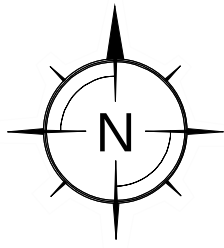


Appendix 6

Proposed Site Layout Plan and Impermeable Areas Plan

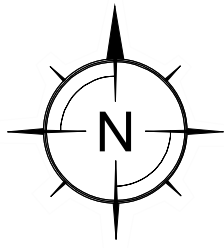


TITLE Proposed Site Layout Plan			
SCALE	1:1000 @ A3	PROJECT No.	23018
REPORT TYPE	FRA	DRG. No.	3 A



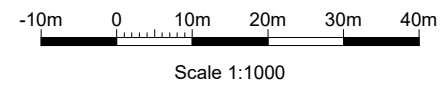
Appendix 7

Drainage Strategy Plans, Calculations and Exceedance Event Flow Route Plan

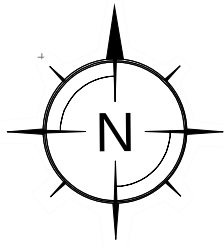


Legend:

- Site Boundary
- Existing Foul Sewers
- Adoptable Type 2 Foul Water Manhole and lateral connection from proposed site
- Private Type 2 Foul Water Manhole
- Private Type 4 / 3 Foul Water Inspection Chamber
- Private Type 4 or catchpit Storm Water Inspection Chamber
- Private Storm Water Rodding Eye
- Distribution tanks to voided subbase
- Area of voided subbase for storm water storage
- Type 1 Concrete baffles in voided subbase. Baffle separates areas.
- Type 2 Concrete baffles in voided subbase. Baffle provides stepped formation in each area.

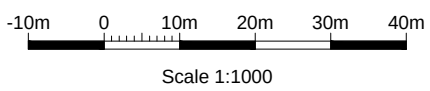


TITLE Proposed Drainage Strategy Plan			
SCALE	1:1000 @ A3	PROJECT No.	23018
REPORT TYPE	FRA	DRG. No.	5 A

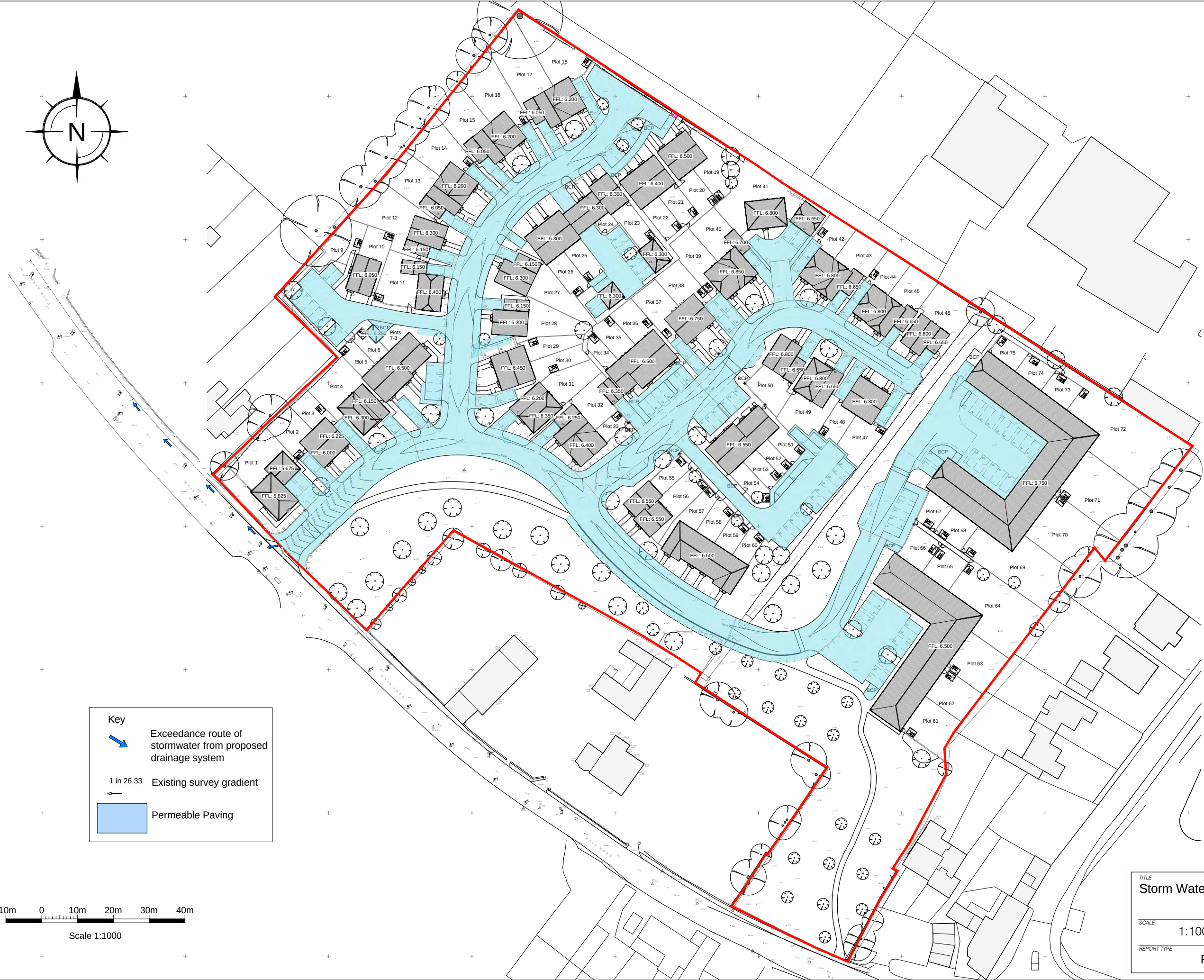


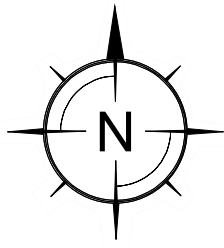
Key

-  Exceedance route of stormwater from proposed drainage system
-  1 in 26.33 Existing survey gradient
-  Permeable Paving



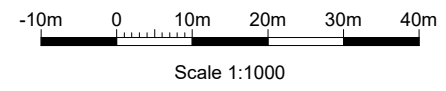
TITLE Storm Water Exceedance Route Plan			
SCALE	1:1000 @ A3		PROJECT No. 23018
	REPORT TYPE FRA		DRG. No. 6 A





Legend:

- Site Boundary
- Existing Foul Sewers
- Adoptable Type 2 Foul Water Manhole and lateral connection from proposed site
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TITLE Proposed Drainage Strategy Plan			
SCALE	1:1000 @ A3	PROJECT No.	23018
REPORT TYPE	FRA	DRG. No.	7 A

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Summer</td><td>9.992</td><td>0.0</td><td>596</td></tr><tr><td>720 min Summer</td><td>8.587</td><td>0.0</td><td>634</td></tr><tr><td>960 min Summer</td><td>6.748</td><td>0.0</td><td>752</td></tr><tr><td>1440 min Summer</td><td>4.812</td><td>0.0</td><td>1002</td></tr><tr><td>2160 min Summer</td><td>3.452</td><td>0.0</td><td>1408</td></tr><tr><td>2880 min Summer</td><td>2.745</td><td>0.0</td><td>1816</td></tr><tr><td>4320 min Summer</td><td>2.017</td><td>0.0</td><td>2596</td></tr><tr><td>5760 min Summer</td><td>1.642</td><td>0.0</td><td>3344</td></tr><tr><td>7200 min Summer</td><td>1.413</td><td>0.0</td><td>4040</td></tr><tr><td>8640 min Summer</td><td>1.259</td><td>0.0</td><td>4760</td></tr><tr><td>10080 min Summer</td><td>1.148</td><td>0.0</td><td>5448</td></tr><tr><td>15 min Winter</td><td>141.120</td><td>0.0</td><td>22</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	4.353	0.093	0.1	2.8	O K	30 min 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Date 09/09/2020 File Catchment A - 75		Designed by MEK Checked by				
Innovyze		Source Control 2020.1				
<u>Summary of Results for 100 year Return Period (+40%)</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	
30 min Winter	4.399	0.139	0.1	4.3	O K	
60 min Winter	4.436	0.176	0.1	5.4	O K	
120 min Winter	4.464	0.204	0.1	6.3	O K	
180 min Winter	4.479	0.219	0.1	6.7	O K	
240 min Winter	4.487	0.227	0.1	7.0	O K	
360 min Winter	4.494	0.234	0.1	7.2	O K	
480 min Winter	4.495	0.235	0.1	7.2	O K	
600 min Winter	4.494	0.234	0.1	7.2	O K	
720 min Winter	4.490	0.230	0.1	7.1	O K	
960 min Winter	4.480	0.220	0.1	6.8	O K	
1440 min Winter	4.463	0.203	0.1	6.2	O K	
2160 min Winter	4.437	0.177	0.1	5.4	O K	
2880 min Winter	4.414	0.154	0.1	4.7	O K	
4320 min Winter	4.376	0.116	0.1	3.6	O K	
5760 min Winter	4.347	0.087	0.1	2.7	O K	
7200 min Winter	4.326	0.066	0.1	2.0	O K	
8640 min Winter	4.313	0.053	0.1	1.6	O K	
10080 min Winter	4.308	0.048	0.1	1.5	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)			
30 min Winter	94.920	0.0	37			
60 min Winter	60.760	0.0	66			
120 min Winter	36.120	0.0	124			
180 min Winter	26.488	0.0	182			
240 min Winter	21.140	0.0	240			
360 min Winter	15.213	0.0	356			
480 min Winter	12.015	0.0	470			
600 min Winter	9.992	0.0	580			
720 min Winter	8.587	0.0	688			
960 min Winter	6.748	0.0	878			
1440 min Winter	4.812	0.0	1088			
2160 min Winter	3.452	0.0	1536			
2880 min Winter	2.745	0.0	1964			
4320 min Winter	2.017	0.0	2768			
5760 min Winter	1.642	0.0	3464			
7200 min Winter	1.413	0.0	4112			
8640 min Winter	1.259	0.0	4680			
10080 min Winter	1.148	0.0	5344			
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11 Tungsten Building George Street Fishersgate BN41 1RA	23018A Bonham's Field, Yapton Catchment A																	
Date 09/09/2020	Designed by MEK																	
File Catchment A - 75	Checked by																	
Innovyze		Source Control 2020.1																
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Date 09/09/2020 File Catchment B - 75		Designed by MEK Checked by			
Innovyze		Source Control 2020.1			
Summary of Results for 100 year Return Period (+40%)					
Half Drain Time : 1452 minutes.					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
15 min Summer	4.813	0.153	0.1	7.8	O K
30 min Summer	4.865	0.205	0.1	10.5	O K
60 min Summer	4.921	0.261	0.1	13.3	Flood Risk
120 min Summer	4.964	0.304	0.1	15.5	Flood Risk
180 min Summer	4.989	0.329	0.1	16.8	Flood Risk
240 min Summer	5.004	0.344	0.1	17.5	Flood Risk
360 min Summer	5.019	0.359	0.1	18.3	Flood Risk
480 min Summer	5.026	0.366	0.1	18.6	Flood Risk
600 min Summer	5.028	0.368	0.1	18.8	Flood Risk
720 min Summer	5.027	0.367	0.1	18.7	Flood Risk
960 min Summer	5.020	0.360	0.1	18.4	Flood Risk
1440 min Summer	5.001	0.341	0.1	17.4	Flood Risk
2160 min Summer	4.979	0.319	0.1	16.3	Flood Risk
2880 min Summer	4.962	0.302	0.1	15.4	Flood Risk
4320 min Summer	4.934	0.274	0.1	14.0	Flood Risk
5760 min Summer	4.913	0.253	0.1	12.9	Flood Risk
7200 min Summer	4.895	0.235	0.1	12.0	O K
8640 min Summer	4.880	0.220	0.1	11.2	O K
10080 min Summer	4.867	0.207	0.1	10.5	O K
15 min Winter	4.832	0.172	0.1	8.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
15 min Summer	141.120	0.0	23		
30 min Summer	94.920	0.0	37		
60 min Summer	60.760	0.0	68		
120 min Summer	36.120	0.0	126		
180 min Summer	26.488	0.0	186		
240 min Summer	21.140	0.0	246		
360 min Summer	15.213	0.0	364		
480 min Summer	12.015	0.0	484		
600 min Summer	9.992	0.0	604		
720 min Summer	8.587	0.0	722		
960 min Summer	6.748	0.0	960		
1440 min Summer	4.812	0.0	1214		
2160 min Summer	3.452	0.0	1576		
2880 min Summer	2.745	0.0	1968		
4320 min Summer	2.017	0.0	2808		
5760 min Summer	1.642	0.0	3624		
7200 min Summer	1.413	0.0	4400		
8640 min Summer	1.259	0.0	5192		
10080 min Summer	1.148	0.0	5952		
15 min Winter	141.120	0.0	23		
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11 Tungsten Building George Street Fishersgate BN41 1RA		23018A Bonham's Field, Yapton Catchment B			
Date 09/09/2020 File Catchment B - 75		Designed by MEK Checked by			
Innovyze		Source Control 2020.1			
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	4.891	0.231	0.1	11.8	O K
60 min Winter	4.953	0.293	0.1	14.9	Flood Risk
120 min Winter	5.002	0.342	0.1	17.5	Flood Risk
180 min Winter	5.031	0.371	0.1	18.9	Flood Risk
240 min Winter	5.049	0.389	0.1	19.8	Flood Risk
360 min Winter	5.067	0.407	0.1	20.8	Flood Risk
480 min Winter	5.076	0.416	0.1	21.2	Flood Risk
600 min Winter	5.081	0.421	0.1	21.4	Flood Risk
720 min Winter	5.082	0.422	0.1	21.5	Flood Risk
960 min Winter	5.077	0.417	0.1	21.3	Flood Risk
1440 min Winter	5.059	0.399	0.1	20.4	Flood Risk
2160 min Winter	5.030	0.370	0.1	18.9	Flood Risk
2880 min Winter	5.006	0.346	0.1	17.6	Flood Risk
4320 min Winter	4.964	0.304	0.1	15.5	Flood Risk
5760 min Winter	4.927	0.267	0.1	13.6	Flood Risk
7200 min Winter	4.896	0.236	0.1	12.1	O K
8640 min Winter	4.869	0.209	0.1	10.7	O K
10080 min Winter	4.846	0.186	0.1	9.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	94.920	0.0	37		
60 min Winter	60.760	0.0	66		
120 min Winter	36.120	0.0	124		
180 min Winter	26.488	0.0	184		
240 min Winter	21.140	0.0	242		
360 min Winter	15.213	0.0	358		
480 min Winter	12.015	0.0	476		
600 min Winter	9.992	0.0	590		
720 min Winter	8.587	0.0	706		
960 min Winter	6.748	0.0	932		
1440 min Winter	4.812	0.0	1360		
2160 min Winter	3.452	0.0	1692		
2880 min Winter	2.745	0.0	2140		
4320 min Winter	2.017	0.0	3032		
5760 min Winter	1.642	0.0	3920		
7200 min Winter	1.413	0.0	4752		
8640 min Winter	1.259	0.0	5536		
10080 min Winter	1.148	0.0	6352		
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K</td></tr><tr><td>8640 min Summer</td><td>5.435</td><td>0.175</td><td>0.2</td><td>17.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>5.422</td><td>0.162</td><td>0.2</td><td>16.0</td><td>O K</td></tr><tr><td>15 min Winter</td><td>5.413</td><td>0.153</td><td>0.2</td><td>15.2</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>141.120</td><td>0.0</td><td>23</td></tr><tr><td>30 min Summer</td><td>94.920</td><td>0.0</td><td>37</td></tr><tr><td>60 min Summer</td><td>60.760</td><td>0.0</td><td>68</td></tr><tr><td>120 min Summer</td><td>36.120</td><td>0.0</td><td>126</td></tr><tr><td>180 min Summer</td><td>26.488</td><td>0.0</td><td>186</td></tr><tr><td>240 min Summer</td><td>21.140</td><td>0.0</td><td>246</td></tr><tr><td>360 min Summer</td><td>15.213</td><td>0.0</td><td>364</td></tr><tr><td>480 min 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960 min Summer	6.748	0.0	938																																																																																																																																																																																																																				
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2880 min Summer	2.745	0.0	1932																																																																																																																																																																																																																				
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11 Tungsten Building		23018A			
George Street		Bonham's Field, Yapton			
Fishersgate BN41 1RA		Catchment C			
Date 09/09/2020		Designed by MEK			
File Catchment C - 75		Checked by			
Innovyze		Source Control 2020.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	5.466	0.206	0.2	20.3	O K
60 min Winter	5.521	0.261	0.2	25.8	Flood Risk
120 min Winter	5.564	0.304	0.2	30.1	Flood Risk
180 min Winter	5.589	0.329	0.2	32.6	Flood Risk
240 min Winter	5.604	0.344	0.2	34.1	Flood Risk
360 min Winter	5.620	0.360	0.2	35.6	Flood Risk
480 min Winter	5.627	0.367	0.2	36.3	Flood Risk
600 min Winter	5.629	0.369	0.2	36.5	Flood Risk
720 min Winter	5.629	0.369	0.2	36.5	Flood Risk
960 min Winter	5.622	0.362	0.2	35.9	Flood Risk
1440 min Winter	5.602	0.342	0.2	33.9	Flood Risk
2160 min Winter	5.575	0.315	0.2	31.2	Flood Risk
2880 min Winter	5.551	0.291	0.2	28.8	Flood Risk
4320 min Winter	5.508	0.248	0.2	24.6	Flood Risk
5760 min Winter	5.472	0.212	0.2	21.0	O K
7200 min Winter	5.442	0.182	0.2	18.0	O K
8640 min Winter	5.416	0.156	0.2	15.4	O K
10080 min Winter	5.393	0.133	0.2	13.2	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	94.920	0.0	37		
60 min Winter	60.760	0.0	66		
120 min Winter	36.120	0.0	124		
180 min Winter	26.488	0.0	182		
240 min Winter	21.140	0.0	242		
360 min Winter	15.213	0.0	358		
480 min Winter	12.015	0.0	474		
600 min Winter	9.992	0.0	590		
720 min Winter	8.587	0.0	704		
960 min Winter	6.748	0.0	926		
1440 min Winter	4.812	0.0	1334		
2160 min Winter	3.452	0.0	1648		
2880 min Winter	2.745	0.0	2108		
4320 min Winter	2.017	0.0	2984		
5760 min Winter	1.642	0.0	3808		
7200 min Winter	1.413	0.0	4616		
8640 min Winter	1.259	0.0	5368		
10080 min Winter	1.148	0.0	6152		
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<u>Model Details</u> Storage is Online Cover Level (m) 5.800 <u>Infiltration Blanket Structure</u> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00396</td> <td>Diameter/Width (m)</td> <td>6.0</td> </tr> <tr> <td>Safety Factor</td> <td>1.5</td> <td>Length (m)</td> <td>55.0</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Cap Volume Depth (m)</td> <td>0.450</td> </tr> <tr> <td>Invert Level (m)</td> <td>5.260</td> <td></td> <td></td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0	Safety Factor	1.5	Length (m)	55.0	Porosity	0.30	Cap Volume Depth (m)	0.450	Invert Level (m)	5.260		
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Summer</td><td>5.752</td><td>0.352</td><td>2.0</td><td>292.5</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>5.753</td><td>0.353</td><td>2.0</td><td>294.0</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>5.752</td><td>0.352</td><td>2.0</td><td>293.1</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>5.745</td><td>0.345</td><td>2.0</td><td>286.9</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>5.727</td><td>0.327</td><td>2.0</td><td>271.7</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>5.705</td><td>0.305</td><td>2.0</td><td>253.8</td><td>Flood Risk</td></tr><tr><td>2880 min Summer</td><td>5.688</td><td>0.288</td><td>2.0</td><td>239.3</td><td>Flood Risk</td></tr><tr><td>4320 min Summer</td><td>5.660</td><td>0.260</td><td>2.0</td><td>216.6</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>5.639</td><td>0.239</td><td>2.0</td><td>198.4</td><td>O K</td></tr><tr><td>7200 min 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Summer</td><td>15.213</td><td>0.0</td><td>368</td></tr><tr><td>480 min Summer</td><td>12.015</td><td>0.0</td><td>486</td></tr><tr><td>600 min Summer</td><td>9.992</td><td>0.0</td><td>604</td></tr><tr><td>720 min Summer</td><td>8.587</td><td>0.0</td><td>724</td></tr><tr><td>960 min Summer</td><td>6.748</td><td>0.0</td><td>960</td></tr><tr><td>1440 min Summer</td><td>4.812</td><td>0.0</td><td>1196</td></tr><tr><td>2160 min Summer</td><td>3.452</td><td>0.0</td><td>1560</td></tr><tr><td>2880 min Summer</td><td>2.745</td><td>0.0</td><td>1964</td></tr><tr><td>4320 min Summer</td><td>2.017</td><td>0.0</td><td>2772</td></tr><tr><td>5760 min Summer</td><td>1.642</td><td>0.0</td><td>3584</td></tr><tr><td>7200 min Summer</td><td>1.413</td><td>0.0</td><td>4400</td></tr><tr><td>8640 min Summer</td><td>1.259</td><td>0.0</td><td>5192</td></tr><tr><td>10080 min Summer</td><td>1.148</td><td>0.0</td><td>5952</td></tr><tr><td>15 min 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11 Tungsten Building George Street Fishersgate BN41 1RA		23018A Bonham's Field, Yapton Catchment D			
Date 09/09/2020 File Catchment D - 75		Designed by MEK Checked by			
Innovyze		Source Control 2020.1			
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	5.622	0.222	2.0	185.0	O K
60 min Winter	5.683	0.283	2.0	235.0	Flood Risk
120 min Winter	5.730	0.330	2.0	274.7	Flood Risk
180 min Winter	5.758	0.358	2.0	297.4	Flood Risk
240 min Winter	5.775	0.375	2.0	311.6	Flood Risk
360 min Winter	5.792	0.392	2.0	326.2	Flood Risk
480 min Winter	5.801	0.401	2.0	333.4	Flood Risk
600 min Winter	5.805	0.405	2.0	336.5	Flood Risk
720 min Winter	5.805	0.405	2.0	336.9	Flood Risk
960 min Winter	5.800	0.400	2.0	332.9	Flood Risk
1440 min Winter	5.781	0.381	2.0	317.2	Flood Risk
2160 min Winter	5.753	0.353	2.0	293.2	Flood Risk
2880 min Winter	5.728	0.328	2.0	273.2	Flood Risk
4320 min Winter	5.686	0.286	2.0	238.1	Flood Risk
5760 min Winter	5.650	0.250	2.0	207.9	O K
7200 min Winter	5.619	0.219	2.0	182.2	O K
8640 min Winter	5.592	0.192	2.0	159.8	O K
10080 min Winter	5.569	0.169	2.0	140.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	94.920	0.0	41		
60 min Winter	60.760	0.0	70		
120 min Winter	36.120	0.0	128		
180 min Winter	26.488	0.0	186		
240 min Winter	21.140	0.0	244		
360 min Winter	15.213	0.0	362		
480 min Winter	12.015	0.0	478		
600 min Winter	9.992	0.0	592		
720 min Winter	8.587	0.0	708		
960 min Winter	6.748	0.0	932		
1440 min Winter	4.812	0.0	1358		
2160 min Winter	3.452	0.0	1684		
2880 min Winter	2.745	0.0	2136		
4320 min Winter	2.017	0.0	3032		
5760 min Winter	1.642	0.0	3872		
7200 min Winter	1.413	0.0	4696		
8640 min Winter	1.259	0.0	5528		
10080 min Winter	1.148	0.0	6264		
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11 Tungsten Building George Street Fishersgate BN41 1RA	23018A Bonham's Field, Yapton Catchment D																																																							
Date 09/09/2020	Designed by MEK																																																							
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<u>Rainfall Details</u> <table> <tr> <td>Rainfall Model</td> <td>FEH</td> </tr> <tr> <td>Return Period (years)</td> <td>100</td> </tr> <tr> <td>FEH Rainfall Version</td> <td>2013</td> </tr> <tr> <td>Site Location</td> <td>GB 498100 101500 SU 98100 01500</td> </tr> <tr> <td>Data Type</td> <td>Catchment</td> </tr> <tr> <td>Summer Storms</td> <td>Yes</td> </tr> <tr> <td>Winter Storms</td> <td>Yes</td> </tr> <tr> <td>Cv (Summer)</td> <td>0.750</td> </tr> <tr> <td>Cv (Winter)</td> <td>0.840</td> </tr> <tr> <td>Shortest Storm (mins)</td> <td>15</td> </tr> <tr> <td>Longest Storm (mins)</td> <td>10080</td> </tr> <tr> <td>Climate Change %</td> <td>+40</td> </tr> </table> <u>Time Area Diagram</u> Total Area (ha) 0.473 <table> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>From:</th> <th>To:</th> <th>From:</th> <th>To:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>0.150</td> <td>4</td> <td>8</td> <td>0.150</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>8</td> <td>12</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.173</td> </tr> </tbody> </table>			Rainfall Model	FEH	Return Period (years)	100	FEH Rainfall Version	2013	Site Location	GB 498100 101500 SU 98100 01500	Data Type	Catchment	Summer Storms	Yes	Winter Storms	Yes	Cv (Summer)	0.750	Cv (Winter)	0.840	Shortest Storm (mins)	15	Longest Storm (mins)	10080	Climate Change %	+40	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	From:	To:	From:	To:	From:	To:	0	4	0.150	4	8	0.150					8	12						0.173
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Date 09/09/2020	Designed by MEK																	
File Catchment D - 75	Checked by																	
Innovyze		Source Control 2020.1																
<u>Model Details</u> Storage is Online Cover Level (m) 5.970 <u>Infiltration Blanket Structure</u> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00396</td> <td>Diameter/Width (m)</td> <td>6.0</td> </tr> <tr> <td>Safety Factor</td> <td>1.5</td> <td>Length (m)</td> <td>462.0</td> </tr> <tr> <td>Porosity</td> <td>0.30</td> <td>Cap Volume Depth (m)</td> <td>0.480</td> </tr> <tr> <td>Invert Level (m)</td> <td>5.400</td> <td></td> <td></td> </tr> </table>			Infiltration Coefficient Base (m/hr)	0.00396	Diameter/Width (m)	6.0	Safety Factor	1.5	Length (m)	462.0	Porosity	0.30	Cap Volume Depth (m)	0.480	Invert Level (m)	5.400		
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Summer</td><td>5.978</td><td>0.268</td><td>1.4</td><td>149.3</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>5.977</td><td>0.267</td><td>1.4</td><td>148.7</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>5.974</td><td>0.264</td><td>1.4</td><td>147.0</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>5.965</td><td>0.255</td><td>1.4</td><td>142.1</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>5.950</td><td>0.240</td><td>1.4</td><td>133.6</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>5.931</td><td>0.221</td><td>1.4</td><td>122.9</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>5.915</td><td>0.205</td><td>1.4</td><td>113.8</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>5.888</td><td>0.178</td><td>1.4</td><td>99.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>5.867</td><td>0.157</td><td>1.4</td><td>87.3</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>5.850</td><td>0.140</td><td>1.4</td><td>77.7</td><td>O 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min Summer</td><td>9.992</td><td>0.0</td><td>602</td></tr><tr><td>720 min Summer</td><td>8.587</td><td>0.0</td><td>720</td></tr><tr><td>960 min Summer</td><td>6.748</td><td>0.0</td><td>840</td></tr><tr><td>1440 min Summer</td><td>4.812</td><td>0.0</td><td>1076</td></tr><tr><td>2160 min Summer</td><td>3.452</td><td>0.0</td><td>1472</td></tr><tr><td>2880 min Summer</td><td>2.745</td><td>0.0</td><td>1880</td></tr><tr><td>4320 min Summer</td><td>2.017</td><td>0.0</td><td>2684</td></tr><tr><td>5760 min Summer</td><td>1.642</td><td>0.0</td><td>3464</td></tr><tr><td>7200 min Summer</td><td>1.413</td><td>0.0</td><td>4248</td></tr><tr><td>8640 min Summer</td><td>1.259</td><td>0.0</td><td>5008</td></tr><tr><td>10080 min Summer</td><td>1.148</td><td>0.0</td><td>5744</td></tr><tr><td>15 min Winter</td><td>141.120</td><td>0.0</td><td>26</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	5.826	0.116	1.4	64.7	O K	30 min Summer	5.866	0.156	1.4	86.7	O K	60 min Summer	5.907	0.197	1.4	109.8	O K	120 min Summer	5.939	0.229	1.4	127.6	O K	180 min Summer	5.957	0.247	1.4	137.3	Flood Risk	240 min Summer	5.967	0.257	1.4	143.0	Flood Risk	360 min Summer	5.976	0.266	1.4	147.9	Flood Risk	480 min Summer	5.978	0.268	1.4	149.3	Flood Risk	600 min Summer	5.977	0.267	1.4	148.7	Flood Risk	720 min Summer	5.974	0.264	1.4	147.0	Flood Risk	960 min Summer	5.965	0.255	1.4	142.1	Flood Risk	1440 min Summer	5.950	0.240	1.4	133.6	Flood Risk	2160 min Summer	5.931	0.221	1.4	122.9	O K	2880 min Summer	5.915	0.205	1.4	113.8	O K	4320 min Summer	5.888	0.178	1.4	99.1	O K	5760 min Summer	5.867	0.157	1.4	87.3	O K	7200 min Summer	5.850	0.140	1.4	77.7	O K	8640 min Summer	5.835	0.125	1.4	69.7	O K	10080 min Summer	5.823	0.113	1.4	63.0	O K	15 min Winter	5.841	0.131	1.4	72.6	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	141.120	0.0	26	30 min Summer	94.920	0.0	41	60 min Summer	60.760	0.0	70	120 min Summer	36.120	0.0	130	180 min Summer	26.488	0.0	188	240 min Summer	21.140	0.0	248	360 min Summer	15.213	0.0	366	480 min Summer	12.015	0.0	484	600 min Summer	9.992	0.0	602	720 min Summer	8.587	0.0	720	960 min Summer	6.748	0.0	840	1440 min Summer	4.812	0.0	1076	2160 min Summer	3.452	0.0	1472	2880 min Summer	2.745	0.0	1880	4320 min Summer	2.017	0.0	2684	5760 min Summer	1.642	0.0	3464	7200 min Summer	1.413	0.0	4248	8640 min Summer	1.259	0.0	5008	10080 min Summer	1.148	0.0	5744	15 min Winter	141.120	0.0	26
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Date 09/09/2020 File Catchment E - 75		Designed by MEK Checked by			
Innovyze		Source Control 2020.1			
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	5.885	0.175	1.4	97.4	O K
60 min Winter	5.932	0.222	1.4	123.4	O K
120 min Winter	5.968	0.258	1.4	143.8	Flood Risk
180 min Winter	5.989	0.279	1.4	155.1	Flood Risk
240 min Winter	6.001	0.291	1.4	161.9	Flood Risk
360 min Winter	6.013	0.303	1.4	168.3	Flood Risk
480 min Winter	6.017	0.307	1.4	170.7	Flood Risk
600 min Winter	6.017	0.307	1.4	171.0	Flood Risk
720 min Winter	6.015	0.305	1.4	169.9	Flood Risk
960 min Winter	6.007	0.297	1.4	165.3	Flood Risk
1440 min Winter	5.987	0.277	1.4	153.9	Flood Risk
2160 min Winter	5.961	0.251	1.4	139.6	Flood Risk
2880 min Winter	5.937	0.227	1.4	126.1	O K
4320 min Winter	5.895	0.185	1.4	103.0	O K
5760 min Winter	5.861	0.151	1.4	83.9	O K
7200 min Winter	5.833	0.123	1.4	68.2	O K
8640 min Winter	5.810	0.100	1.4	55.4	O K
10080 min Winter	5.791	0.081	1.4	45.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	94.920	0.0	41		
60 min Winter	60.760	0.0	70		
120 min Winter	36.120	0.0	128		
180 min Winter	26.488	0.0	186		
240 min Winter	21.140	0.0	244		
360 min Winter	15.213	0.0	360		
480 min Winter	12.015	0.0	474		
600 min Winter	9.992	0.0	588		
720 min Winter	8.587	0.0	700		
960 min Winter	6.748	0.0	918		
1440 min Winter	4.812	0.0	1154		
2160 min Winter	3.452	0.0	1604		
2880 min Winter	2.745	0.0	2052		
4320 min Winter	2.017	0.0	2900		
5760 min Winter	1.642	0.0	3696		
7200 min Winter	1.413	0.0	4464		
8640 min Winter	1.259	0.0	5184		
10080 min Winter	1.148	0.0	5848		
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11 Tungsten Building George Street Fishersgate BN41 1RA	23018A Bonham's Field, Yapton Catchment E - 75 Dwellings																																																							
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Summer</td><td>6.345</td><td>0.405</td><td>0.9</td><td>145.9</td><td>Flood Risk</td></tr><tr><td>600 min Summer</td><td>6.349</td><td>0.409</td><td>0.9</td><td>147.1</td><td>Flood Risk</td></tr><tr><td>720 min Summer</td><td>6.349</td><td>0.409</td><td>0.9</td><td>147.2</td><td>Flood Risk</td></tr><tr><td>960 min Summer</td><td>6.344</td><td>0.404</td><td>0.9</td><td>145.3</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>6.325</td><td>0.385</td><td>0.9</td><td>138.4</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>6.301</td><td>0.361</td><td>0.9</td><td>130.1</td><td>Flood Risk</td></tr><tr><td>2880 min Summer</td><td>6.283</td><td>0.343</td><td>0.9</td><td>123.6</td><td>Flood Risk</td></tr><tr><td>4320 min Summer</td><td>6.256</td><td>0.316</td><td>0.9</td><td>113.7</td><td>Flood Risk</td></tr><tr><td>5760 min Summer</td><td>6.234</td><td>0.294</td><td>0.9</td><td>106.0</td><td>Flood Risk</td></tr><tr><td>7200 min Summer</td><td>6.217</td><td>0.277</td><td>0.9</td><td>99.8</td><td>Flood Risk</td></tr><tr><td>8640 min Summer</td><td>6.202</td><td>0.262</td><td>0.9</td><td>94.5</td><td>Flood Risk</td></tr><tr><td>10080 min Summer</td><td>6.190</td><td>0.250</td><td>0.9</td><td>89.9</td><td>O K</td></tr><tr><td>15 min Winter</td><td>6.129</td><td>0.189</td><td>0.9</td><td>67.9</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>141.120</td><td>0.0</td><td>23</td></tr><tr><td>30 min Summer</td><td>94.920</td><td>0.0</td><td>38</td></tr><tr><td>60 min Summer</td><td>60.760</td><td>0.0</td><td>68</td></tr><tr><td>120 min Summer</td><td>36.120</td><td>0.0</td><td>126</td></tr><tr><td>180 min Summer</td><td>26.488</td><td>0.0</td><td>186</td></tr><tr><td>240 min Summer</td><td>21.140</td><td>0.0</td><td>246</td></tr><tr><td>360 min Summer</td><td>15.213</td><td>0.0</td><td>366</td></tr><tr><td>480 min Summer</td><td>12.015</td><td>0.0</td><td>484</td></tr><tr><td>600 min Summer</td><td>9.992</td><td>0.0</td><td>604</td></tr><tr><td>720 min Summer</td><td>8.587</td><td>0.0</td><td>722</td></tr><tr><td>960 min Summer</td><td>6.748</td><td>0.0</td><td>962</td></tr><tr><td>1440 min Summer</td><td>4.812</td><td>0.0</td><td>1282</td></tr><tr><td>2160 min Summer</td><td>3.452</td><td>0.0</td><td>1624</td></tr><tr><td>2880 min Summer</td><td>2.745</td><td>0.0</td><td>2020</td></tr><tr><td>4320 min Summer</td><td>2.017</td><td>0.0</td><td>2852</td></tr><tr><td>5760 min Summer</td><td>1.642</td><td>0.0</td><td>3640</td></tr><tr><td>7200 min Summer</td><td>1.413</td><td>0.0</td><td>4472</td></tr><tr><td>8640 min Summer</td><td>1.259</td><td>0.0</td><td>5272</td></tr><tr><td>10080 min Summer</td><td>1.148</td><td>0.0</td><td>6056</td></tr><tr><td>15 min 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Summer	6.202	0.262	0.9	94.5	Flood Risk	10080 min Summer	6.190	0.250	0.9	89.9	O K	15 min Winter	6.129	0.189	0.9	67.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	141.120	0.0	23	30 min Summer	94.920	0.0	38	60 min Summer	60.760	0.0	68	120 min Summer	36.120	0.0	126	180 min Summer	26.488	0.0	186	240 min Summer	21.140	0.0	246	360 min Summer	15.213	0.0	366	480 min Summer	12.015	0.0	484	600 min Summer	9.992	0.0	604	720 min Summer	8.587	0.0	722	960 min Summer	6.748	0.0	962	1440 min Summer	4.812	0.0	1282	2160 min Summer	3.452	0.0	1624	2880 min Summer	2.745	0.0	2020	4320 min Summer	2.017	0.0	2852	5760 min Summer	1.642	0.0	3640	7200 min Summer	1.413	0.0	4472	8640 min Summer	1.259	0.0	5272	10080 min Summer	1.148	0.0	6056	15 min Winter	141.120	0.0	23
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Innovyze		Source Control 2020.1			
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	6.193	0.253	0.9	91.0	O K
60 min Winter	6.261	0.321	0.9	115.7	Flood Risk
120 min Winter	6.316	0.376	0.9	135.4	Flood Risk
180 min Winter	6.348	0.408	0.9	146.8	Flood Risk
240 min Winter	6.368	0.428	0.9	154.1	Flood Risk
360 min Winter	6.390	0.450	0.9	161.9	Flood Risk
480 min Winter	6.401	0.461	0.9	166.0	Flood Risk
600 min Winter	6.407	0.467	0.9	168.0	Flood Risk
720 min Winter	6.409	0.469	0.9	168.8	Flood Risk
960 min Winter	6.406	0.466	0.9	167.9	Flood Risk
1440 min Winter	6.391	0.451	0.9	162.2	Flood Risk
2160 min Winter	6.360	0.420	0.9	151.1	Flood Risk
2880 min Winter	6.336	0.396	0.9	142.5	Flood Risk
4320 min Winter	6.295	0.355	0.9	127.6	Flood Risk
5760 min Winter	6.259	0.319	0.9	114.7	Flood Risk
7200 min Winter	6.228	0.288	0.9	103.7	Flood Risk
8640 min Winter	6.201	0.261	0.9	93.9	Flood Risk
10080 min Winter	6.177	0.237	0.9	85.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	94.920	0.0	37		
60 min Winter	60.760	0.0	66		
120 min Winter	36.120	0.0	124		
180 min Winter	26.488	0.0	184		
240 min Winter	21.140	0.0	242		
360 min Winter	15.213	0.0	360		
480 min Winter	12.015	0.0	476		
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Summer	6.057	0.197	0.6	51.3	O K	15 min Winter	6.028	0.168	0.6	43.9	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	141.120	0.0	23	30 min Summer	94.920	0.0	38	60 min Summer	60.760	0.0	68	120 min Summer	36.120	0.0	126	180 min Summer	26.488	0.0	186	240 min Summer	21.140	0.0	246	360 min Summer	15.213	0.0	364	480 min Summer	12.015	0.0	484	600 min Summer	9.992	0.0	604	720 min Summer	8.587	0.0	722	960 min Summer	6.748	0.0	960	1440 min Summer	4.812	0.0	1200	2160 min Summer	3.452	0.0	1560	2880 min Summer	2.745	0.0	1964	4320 min Summer	2.017	0.0	2772	5760 min Summer	1.642	0.0	3584	7200 min Summer	1.413	0.0	4392	8640 min Summer	1.259	0.0	5184	10080 min Summer	1.148	0.0	5952	15 min Winter	141.120	0.0	23
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Innovyze		Source Control 2020.1			
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	6.085	0.225	0.6	58.8	O K
60 min Winter	6.146	0.286	0.6	74.6	Flood Risk
120 min Winter	6.194	0.334	0.6	87.2	Flood Risk
180 min Winter	6.222	0.362	0.6	94.4	Flood Risk
240 min Winter	6.239	0.379	0.6	98.9	Flood Risk
360 min Winter	6.257	0.397	0.6	103.6	Flood Risk
480 min Winter	6.266	0.406	0.6	105.9	Flood Risk
600 min Winter	6.269	0.409	0.6	106.9	Flood Risk
720 min Winter	6.270	0.410	0.6	107.1	Flood Risk
960 min Winter	6.265	0.405	0.6	105.8	Flood Risk
1440 min Winter	6.247	0.387	0.6	101.0	Flood Risk
2160 min Winter	6.218	0.358	0.6	93.4	Flood Risk
2880 min Winter	6.194	0.334	0.6	87.1	Flood Risk
4320 min Winter	6.152	0.292	0.6	76.1	Flood Risk
5760 min Winter	6.115	0.255	0.6	66.6	Flood Risk
7200 min Winter	6.084	0.224	0.6	58.5	O K
8640 min Winter	6.057	0.197	0.6	51.5	O K
10080 min Winter	6.034	0.174	0.6	45.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	94.920	0.0	37		
60 min Winter	60.760	0.0	66		
120 min Winter	36.120	0.0	124		
180 min Winter	26.488	0.0	184		
240 min Winter	21.140	0.0	242		
360 min Winter	15.213	0.0	358		
480 min Winter	12.015	0.0	476		
600 min Winter	9.992	0.0	590		
720 min Winter	8.587	0.0	706		
960 min Winter	6.748	0.0	930		
1440 min Winter	4.812	0.0	1358		
2160 min Winter	3.452	0.0	1688		
2880 min Winter	2.745	0.0	2136		
4320 min Winter	2.017	0.0	3028		
5760 min Winter	1.642	0.0	3912		
7200 min Winter	1.413	0.0	4752		
8640 min Winter	1.259	0.0	5528		
10080 min Winter	1.148	0.0	6264		
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Innovyze		Source Control 2020.1			
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	6.291	0.251	0.7	76.0	O K
60 min Winter	6.360	0.320	0.7	96.6	Flood Risk
120 min Winter	6.414	0.374	0.7	113.2	Flood Risk
180 min Winter	6.446	0.406	0.7	122.7	Flood Risk
240 min Winter	6.466	0.426	0.7	128.8	Flood Risk
360 min Winter	6.487	0.447	0.7	135.3	Flood Risk
480 min Winter	6.499	0.459	0.7	138.7	Flood Risk
600 min Winter	6.504	0.464	0.7	140.4	Flood Risk
720 min Winter	6.506	0.466	0.7	141.0	Flood Risk
960 min Winter	6.504	0.464	0.7	140.3	Flood Risk
1440 min Winter	6.488	0.448	0.7	135.4	Flood Risk
2160 min Winter	6.457	0.417	0.7	126.1	Flood Risk
2880 min Winter	6.433	0.393	0.7	118.9	Flood Risk
4320 min Winter	6.392	0.352	0.7	106.4	Flood Risk
5760 min Winter	6.356	0.316	0.7	95.6	Flood Risk
7200 min Winter	6.325	0.285	0.7	86.3	Flood Risk
8640 min Winter	6.298	0.258	0.7	78.0	O K
10080 min Winter	6.274	0.234	0.7	70.8	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	94.920	0.0	41		
60 min Winter	60.760	0.0	70		
120 min Winter	36.120	0.0	128		
180 min Winter	26.488	0.0	186		
240 min Winter	21.140	0.0	244		
360 min Winter	15.213	0.0	362		
480 min Winter	12.015	0.0	478		
600 min Winter	9.992	0.0	594		
720 min Winter	8.587	0.0	710		
960 min Winter	6.748	0.0	936		
1440 min Winter	4.812	0.0	1374		
2160 min Winter	3.452	0.0	1740		
2880 min Winter	2.745	0.0	2192		
4320 min Winter	2.017	0.0	3112		
5760 min Winter	1.642	0.0	3984		
7200 min Winter	1.413	0.0	4832		
8640 min Winter	1.259	0.0	5632		
10080 min Winter	1.148	0.0	6456		
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Summer</td><td>4.335</td><td>0.205</td><td>0.0</td><td>3.6</td><td>3.6</td><td>508.5</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>4.329</td><td>0.199</td><td>0.0</td><td>3.6</td><td>3.6</td><td>493.6</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>4.323</td><td>0.193</td><td>0.0</td><td>3.6</td><td>3.6</td><td>479.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>4.318</td><td>0.188</td><td>0.0</td><td>3.6</td><td>3.6</td><td>466.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>4.313</td><td>0.183</td><td>0.0</td><td>3.6</td><td>3.6</td><td>454.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>4.309</td><td>0.179</td><td>0.0</td><td>3.6</td><td>3.6</td><td>444.2</td><td>O K</td></tr><tr><td>15 min Winter</td><td>4.224</td><td>0.094</td><td>0.0</td><td>2.9</td><td>2.9</td><td>233.5</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>Discharge Volume (m³)</th><th>Time-Peak 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Summer</td><td>2.810</td><td>0.0</td><td>490.0</td><td>1186</td></tr><tr><td>2160 min Summer</td><td>2.026</td><td>0.0</td><td>701.2</td><td>1556</td></tr><tr><td>2880 min Summer</td><td>1.619</td><td>0.0</td><td>738.7</td><td>1964</td></tr><tr><td>4320 min Summer</td><td>1.202</td><td>0.0</td><td>789.3</td><td>2776</td></tr><tr><td>5760 min Summer</td><td>0.987</td><td>0.0</td><td>965.0</td><td>3584</td></tr><tr><td>7200 min Summer</td><td>0.856</td><td>0.0</td><td>1043.3</td><td>4400</td></tr><tr><td>8640 min Summer</td><td>0.768</td><td>0.0</td><td>1116.3</td><td>5192</td></tr><tr><td>10080 min Summer</td><td>0.705</td><td>0.0</td><td>1180.6</td><td>5960</td></tr><tr><td>15 min Winter</td><td>80.264</td><td>0.0</td><td>138.9</td><td>30</td></tr></tbody></table>								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	15 min Summer	4.214	0.084	0.0	2.6	2.6	208.5	O K	30 min Summer	4.242	0.112	0.0	3.5	3.5	277.0	O 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Summer	80.264	0.0	120.0	30	30 min Summer	53.624	0.0	172.3	44	60 min Summer	34.056	0.0	288.2	72	120 min Summer	20.569	0.0	352.3	132	180 min Summer	15.194	0.0	390.7	190	240 min Summer	12.176	0.0	416.4	250	360 min Summer	8.798	0.0	447.3	368	480 min Summer	6.964	0.0	466.8	486	600 min Summer	5.799	0.0	479.8	604	720 min Summer	4.988	0.0	488.4	724	960 min Summer	3.925	0.0	496.4	960	1440 min Summer	2.810	0.0	490.0	1186	2160 min Summer	2.026	0.0	701.2	1556	2880 min Summer	1.619	0.0	738.7	1964	4320 min Summer	1.202	0.0	789.3	2776	5760 min Summer	0.987	0.0	965.0	3584	7200 min Summer	0.856	0.0	1043.3	4400	8640 min Summer	0.768	0.0	1116.3	5192	10080 min Summer	0.705	0.0	1180.6	5960	15 min Winter	80.264	0.0	138.9	30
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Innovyze			Source Control 2020.1				
Summary of Results for 30 year Return Period							
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
30 min Winter	4.255	0.125	0.0	3.5	3.5	310.5	O K
60 min Winter	4.288	0.158	0.0	3.6	3.6	391.9	O K
120 min Winter	4.318	0.188	0.0	3.6	3.6	467.6	O K
180 min Winter	4.336	0.206	0.0	3.6	3.6	512.0	O K
240 min Winter	4.348	0.218	0.0	3.6	3.6	540.7	O K
360 min Winter	4.361	0.231	0.0	3.6	3.6	572.7	O K
480 min Winter	4.368	0.238	0.0	3.6	3.6	590.9	O K
600 min Winter	4.372	0.242	0.0	3.6	3.6	601.4	O K
720 min Winter	4.374	0.244	0.0	3.6	3.6	607.1	O K
960 min Winter	4.375	0.245	0.0	3.6	3.6	609.2	O K
1440 min Winter	4.371	0.241	0.0	3.6	3.6	599.8	O K
2160 min Winter	4.364	0.234	0.0	3.6	3.6	581.5	O K
2880 min Winter	4.358	0.228	0.0	3.6	3.6	565.4	O K
4320 min Winter	4.345	0.215	0.0	3.6	3.6	533.6	O K
5760 min Winter	4.332	0.202	0.0	3.6	3.6	502.3	O K
7200 min Winter	4.321	0.191	0.0	3.6	3.6	473.7	O K
8640 min Winter	4.310	0.180	0.0	3.6	3.6	448.0	O K
10080 min Winter	4.301	0.171	0.0	3.6	3.6	425.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	53.624	0.0	196.5	44			
60 min Winter	34.056	0.0	326.0	72			
120 min Winter	20.569	0.0	396.0	130			
180 min Winter	15.194	0.0	437.1	188			
240 min Winter	12.176	0.0	464.0	246			
360 min Winter	8.798	0.0	495.1	362			
480 min Winter	6.964	0.0	513.2	478			
600 min Winter	5.799	0.0	524.0	594			
720 min Winter	4.988	0.0	529.6	708			
960 min Winter	3.925	0.0	530.5	932			
1440 min Winter	2.810	0.0	508.6	1356			
2160 min Winter	2.026	0.0	784.4	1680			
2880 min Winter	1.619	0.0	824.4	2140			
4320 min Winter	1.202	0.0	870.3	3032			
5760 min Winter	0.987	0.0	1082.7	3912			
7200 min Winter	0.856	0.0	1171.0	4752			
8640 min Winter	0.768	0.0	1253.8	5536			
10080 min Winter	0.705	0.0	1327.9	6352			
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Innovyze Source Control 2020.1		

Model Details

Storage is Online Cover Level (m) 4.770

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00000	Diameter/Width (m)	91.0
Safety Factor	1.5	Length (m)	91.0
Porosity	0.30	Cap Volume Depth (m)	0.550
Invert Level (m)	4.130		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0097-3600-0550-3600
Design Head (m)	0.550
Design Flow (l/s)	3.6
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	97
Invert Level (m)	4.130
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.550	3.6
Flush-Flo™	0.172	3.6
Kick-Flo®	0.389	3.1
Mean Flow over Head Range	-	3.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.1	1.200	5.2	3.000	7.9	7.000	11.9
0.200	3.6	1.400	5.5	3.500	8.5	7.500	12.3
0.300	3.5	1.600	5.9	4.000	9.1	8.000	12.7
0.400	3.1	1.800	6.2	4.500	9.6	8.500	13.1
0.500	3.4	2.000	6.6	5.000	10.1	9.000	13.5
0.600	3.7	2.200	6.9	5.500	10.6	9.500	13.9
0.800	4.3	2.400	7.1	6.000	11.0		
1.000	4.7	2.600	7.4	6.500	11.5		

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Innovyze			Source Control 2020.1				
Summary of Results for 100 year Return Period (+40%)							
Half Drain Time : 2693 minutes.							
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
15 min Summer	4.278	0.148	0.0	3.6	3.6	366.7	O K
30 min Summer	4.328	0.198	0.0	3.6	3.6	492.5	O K
60 min Summer	4.383	0.253	0.0	3.6	3.6	628.2	O K
120 min Summer	4.428	0.298	0.0	3.6	3.6	740.6	O K
180 min Summer	4.455	0.325	0.0	3.6	3.6	808.2	O K
240 min Summer	4.473	0.343	0.0	3.6	3.6	853.3	Flood Risk
360 min Summer	4.495	0.365	0.0	3.6	3.6	907.2	Flood Risk
480 min Summer	4.509	0.379	0.0	3.6	3.6	941.5	Flood Risk
600 min Summer	4.518	0.388	0.0	3.6	3.6	964.9	Flood Risk
720 min Summer	4.525	0.395	0.0	3.6	3.6	981.1	Flood Risk
960 min Summer	4.532	0.402	0.0	3.6	3.6	999.4	Flood Risk
1440 min Summer	4.537	0.407	0.0	3.6	3.6	1011.2	Flood Risk
2160 min Summer	4.533	0.403	0.0	3.6	3.6	1001.9	Flood Risk
2880 min Summer	4.527	0.397	0.0	3.6	3.6	985.2	Flood Risk
4320 min Summer	4.519	0.389	0.0	3.6	3.6	965.6	Flood Risk
5760 min Summer	4.513	0.383	0.0	3.6	3.6	951.7	Flood Risk
7200 min Summer	4.509	0.379	0.0	3.6	3.6	942.1	Flood Risk
8640 min Summer	4.506	0.376	0.0	3.6	3.6	934.9	Flood Risk
10080 min Summer	4.504	0.374	0.0	3.6	3.6	930.3	Flood Risk
15 min Winter	4.295	0.165	0.0	3.6	3.6	411.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	141.120	0.0	233.2	30			
30 min Summer	94.920	0.0	292.0	45			
60 min Summer	60.760	0.0	514.4	74			
120 min Summer	36.120	0.0	577.6	134			
180 min Summer	26.488	0.0	592.9	192			
240 min Summer	21.140	0.0	589.6	252			
360 min Summer	15.213	0.0	576.4	370			
480 min Summer	12.015	0.0	562.9	490			
600 min Summer	9.992	0.0	550.1	610			
720 min Summer	8.587	0.0	538.4	728			
960 min Summer	6.748	0.0	518.2	968			
1440 min Summer	4.812	0.0	483.8	1444			
2160 min Summer	3.452	0.0	1046.5	2160			
2880 min Summer	2.745	0.0	998.6	2508			
4320 min Summer	2.017	0.0	905.0	3252			
5760 min Summer	1.642	0.0	1599.4	4040			
7200 min Summer	1.413	0.0	1702.9	4896			
8640 min Summer	1.259	0.0	1779.0	5712			
10080 min Summer	1.148	0.0	1777.8	6560			
15 min Winter	141.120	0.0	258.6	30			
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Innovyze			Source Control 2020.1				
Summary of Results for 100 year Return Period (+40%)							
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
30 min Winter	4.352	0.222	0.0	3.6	3.6	552.2	O K
60 min Winter	4.414	0.284	0.0	3.6	3.6	704.5	O K
120 min Winter	4.465	0.335	0.0	3.6	3.6	831.3	O K
180 min Winter	4.495	0.365	0.0	3.6	3.6	907.9	Flood Risk
240 min Winter	4.516	0.386	0.0	3.6	3.6	959.6	Flood Risk
360 min Winter	4.541	0.411	0.0	3.6	3.6	1021.9	Flood Risk
480 min Winter	4.557	0.427	0.0	3.6	3.6	1061.6	Flood Risk
600 min Winter	4.568	0.438	0.0	3.6	3.6	1088.7	Flood Risk
720 min Winter	4.576	0.446	0.0	3.6	3.6	1107.8	Flood Risk
960 min Winter	4.585	0.455	0.0	3.6	3.6	1130.2	Flood Risk
1440 min Winter	4.592	0.462	0.0	3.6	3.6	1148.0	Flood Risk
2160 min Winter	4.591	0.461	0.0	3.6	3.6	1145.8	Flood Risk
2880 min Winter	4.585	0.455	0.0	3.6	3.6	1130.3	Flood Risk
4320 min Winter	4.572	0.442	0.0	3.6	3.6	1099.0	Flood Risk
5760 min Winter	4.564	0.434	0.0	3.6	3.6	1077.9	Flood Risk
7200 min Winter	4.556	0.426	0.0	3.6	3.6	1058.4	Flood Risk
8640 min Winter	4.549	0.419	0.0	3.6	3.6	1039.9	Flood Risk
10080 min Winter	4.542	0.412	0.0	3.6	3.6	1022.9	Flood Risk
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	94.920	0.0	303.7	44			
60 min Winter	60.760	0.0	560.3	74			
120 min Winter	36.120	0.0	598.3	132			
180 min Winter	26.488	0.0	590.6	190			
240 min Winter	21.140	0.0	579.5	248			
360 min Winter	15.213	0.0	561.1	366			
480 min Winter	12.015	0.0	548.3	482			
600 min Winter	9.992	0.0	538.2	600			
720 min Winter	8.587	0.0	529.5	716			
960 min Winter	6.748	0.0	514.5	950			
1440 min Winter	4.812	0.0	489.4	1410			
2160 min Winter	3.452	0.0	1053.4	2080			
2880 min Winter	2.745	0.0	1009.4	2720			
4320 min Winter	2.017	0.0	928.1	3424			
5760 min Winter	1.642	0.0	1780.5	4376			
7200 min Winter	1.413	0.0	1876.3	5328			
8640 min Winter	1.259	0.0	1895.4	6232			
10080 min Winter	1.148	0.0	1818.2	7168			
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Innovyze Source Control 2020.1																																																		
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Rainfall Model	FEH																																																	
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Innovyze Source Control 2020.1		

Model Details

Storage is Online Cover Level (m) 4.770

Infiltration Blanket Structure

Infiltration Coefficient Base (m/hr)	0.00000	Diameter/Width (m)	91.0
Safety Factor	1.5	Length (m)	91.0
Porosity	0.30	Cap Volume Depth (m)	0.550
Invert Level (m)	4.130		

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0097-3600-0550-3600
Design Head (m)	0.550
Design Flow (l/s)	3.6
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	97
Invert Level (m)	4.130
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.550	3.6
Flush-Flo™	0.172	3.6
Kick-Flo®	0.389	3.1
Mean Flow over Head Range	-	3.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.1	1.200	5.2	3.000	7.9	7.000	11.9
0.200	3.6	1.400	5.5	3.500	8.5	7.500	12.3
0.300	3.5	1.600	5.9	4.000	9.1	8.000	12.7
0.400	3.1	1.800	6.2	4.500	9.6	8.500	13.1
0.500	3.4	2.000	6.6	5.000	10.1	9.000	13.5
0.600	3.7	2.200	6.9	5.500	10.6	9.500	13.9
0.800	4.3	2.400	7.1	6.000	11.0		
1.000	4.7	2.600	7.4	6.500	11.5		

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Appendix 8

Arun District Council's Surface Water Drainage Proposal Checklist

Surface Water Drainage Proposal Checklist

Ground Investigation Results				
Results Required	Results Provided?			
Winter groundwater monitoring results ^(Please refer to guidance note 1 below)	Yes	X	No	
Period of winter groundwater monitoring ^{Note 1}	From	17/10/2019 Y		
	To	17/05/2020 Y		
Maximum recorded groundwater level	4.0-5.2 mAOD 0.95-1.8 mBGL			
Winter infiltration test results ^{Note 2}	Yes	X	No	
Date of winter infiltration testing	22/10/2019 Y			
Details of the location and depth of the infiltration testing ^{Note 3}	Yes	X	No	
Minimum infiltration rate ^{Note 4}	1.1x10-6 m/s			

Guidance Notes

1. A full winters groundwater monitoring should be undertaken, (October to March inclusive) to enable the peak annual groundwater levels to be established. The extent of winter monitoring for developments of less than 5 properties should be discussed with the council's Engineers.
2. Infiltration testing should be undertaken during the wet winter months (typically January) and in line with BRE365, or a similar approved method. Tests should be repeated 3x, to replicate saturated ground conditions. Please note that infiltration testing is to be carried out at a time and depth agreed with the Councils engineers.
3. Infiltration testing should be undertaken at the location and depth of any proposed infiltration structures. This must be above the maximum recorded groundwater level in that vicinity.
4. The minimum infiltration rate obtained at the location and depth of the proposed infiltration structures should be used to inform the design of the structures.

Proposed Method of Surface Water Disposal				
Infiltration	Yes	X	No	
On-site, via soak-away structures				
If on-site infiltration is not to be used, has justification for this been provided? ^{Note 5}	Yes		No	
Attenuation (on-site) with a restricted discharge to a watercourse on, or adjacent to, the site	Yes		No	
Attenuation (on-site) with a restricted discharge to a surface water sewer on, or adjacent to, the site	Yes		No	
Attenuation (on-site) with a restricted discharge to a foul water sewer on, or adjacent to, the site	Yes		No	

Guidance Notes

5. If on-site infiltration is not being used to drain the site you will need to provide evidence that demonstrates on-site infiltration is unviable.

Drainage Design: Supporting Calculations					
Calculations Required			Calculations Provided?		
Infiltration Structures	Half-drain time for 10 year event (plus climate change allowance)	Yes	X	No	
		Hours			
	Half-drain time for 100 year event (plus climate change allowance)	Yes	X	No	
		26 Hours			
	Calculations demonstrating that the 1 in 100 year event, plus climate change allowance can be accommodated on-site. Note 7	Yes	X	No	
Attenuation and Subsequent Restricted Discharge	Lowest base level of infiltration structure	4.1-5.9 mAOD 0.45-0.80 mBGL			
	Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.	Yes	X	No	
	Pre-development run-off rate calculations	Yes		No	
		l/s			
	Proposed discharge rate Note 6	l/s			
Attenuation and Subsequent Restricted Discharge	Calculations demonstrating that the 1 in 100 year event, plus climate change allowance can be accommodated on-site. Note 7	Yes		No	
	Has the design sought to provide treatment of potential contaminants? E.g. hydrocarbons.	Yes		No	
	If your proposed scheme incorporates any impermeable lined attenuation features we require calculations to demonstrate that appropriate resistance to floatation (due to groundwater levels) is catered for in the design	Yes		No	
	If you propose discharging into or altering an ordinary watercourse; have you sought Ordinary Watercourse/Land Drainage Consent? Note 8	Yes		No	
	If discharging to a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event plus climate change allowance, within the existing system? Note 9	Yes		No	

Guidance Notes

- Any proposed discharge rate must be less than, or equal to, the pre-development rate. Greenfield sites must use the mean flow rate (Qbar) and be based upon the area occupied by the development, ignoring significant open spaces. Please note that the minimum acceptable discharge rate is 2l/s when using formal flow control devices, unless otherwise agreed. Additionally, if you are developing a brownfield site, we expect you to provide fully detailed plans of the existing surface water drainage arrangements on site, including impermeable areas, gullies, outfalls, pipes & diameters, manholes, etc. We generally seek 50% betterment in terms of run off from brownfield sites.
- The appropriate factor of safety from the table below must be applied to your calculations to ensure your design is fully in accordance with CIRIA R156/ CIRIA C753.

Factor of Safety Table						
Size of Area to be Drained	Consequences of failure					
	No damage or inconvenience		Minor inconvenience, e.g. surface water on car park		Damage to buildings or structures or roads.	
	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75
<100 m ²	1.5	2	2	3	10	13
100m ² to 1000m ²	1.5	2	3	4	10	13
>1000m ²	1.5	2	5	6.5	10	13

8. [Ordinary Watercourse/Land Drainage Consent](#) will need to be sought, ideally in parallel with planning permission, if you propose discharging into, culverting or altering a watercourse.
9. Modelling is required to ensure that problems, such as surcharged outfalls, are addressed.

Plans/Drawings/Diagrams				
Required	Provided?			
Plan detailing the location of groundwater monitoring and infiltration testing	Yes	X	No	
Detailed drainage layout plan ^{Note 10}	Yes	X	No	
Construction detail plans ^{Note 11}	Yes	X	No	
Exceedance flow route plans ^{Note 12}	Yes	X	No	
Impermeable area plan	Yes	X	No	
If ground levels are being raised $\geq 300\text{mm}$ above existing levels and is unavoidable, have fully detailed plans been provided, together with drainage proposals, to address any potential drainage related issues.	Yes	N/A	No	

Guidance Notes

10. Drainage layout plans should include:
 - All surface water drainage pipes labelled with; diameters, pipe materials, falls and invert levels.
 - All infiltrating and attenuating structures (including permeable paving) labelled with; dimensions, invert and cover levels.
 - All manholes labelled with; cover levels, invert levels, cover types detailed.
 - All silt traps clearly labelled with sump depths.
 - Control structures with outflow rates and invert levels.
 - Proposed/existing levels of any areas subject to ground raising, together with suitable measures/detailed drawings for the associated management of surface water runoff. Please note that ground raising should be avoided unless there are exceptional circumstances.
11. Site specific construction detail plans should be supplied if your proposed drainage scheme includes any of the following elements: pipe bed and surround; infiltrating structures; attenuating structures; manholes; catch-pits/silt traps; control devices; permeable paving; headwalls.
12. Unless specifically requested by the council's drainage engineers 'Exceedance Flow Route Plans' are only required for developments of more than 5 residential properties or more than 0.5ha of commercial development.

Appendix 9

Drainage Maintenance Schedule

Drainage Maintenance Schedule



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Project	Bonhams Field, Yapton
Project Number	23018

By Martin Kempshall CEng MICE

Date 10 September 2020

1 Schedule of Maintenance

- 1.1 Upon completion of the development the management of the shared drainage facilities will be passed on to a Management Company who will be appointed by the developer on behalf of the new Residents.
- 1.2 The regular and corrective maintenance of all shared elements of the drainage system beneath the road, including the lined voided subbase will be managed by the Management Company on behalf of the Residents.
- 1.3 Regular maintenance of all private drainage, channels, gutters, rainwater pipes, driveways and connections will be the responsibility of the individual homeowner and should be undertaken every 3 months.
- 1.4 Driveways and connections will be the responsibility of the individual homeowner and should be undertaken on an annual basis. Driveways which form part of the wider infiltration system include a legal covenant to ensure these remain part of the wider drainage system in perpetuity.
- 1.5 With adequate maintenance the working design life of permeable paving system is approximately 25 years.
- 1.6 At a minimum interval of 25 years the permeable paving blocks shall be lifted and inspection undertaken as follows:
 - 3-6mm gravel bedding to be removed and the voided subbase stone inspected.
 - The subbase shall be replaced as required where blocked or blinded.
 - The permeable geotextile shall be inspected using a series of hand dug trial holes to assess its general condition, where damaged it should be replaced or repaired.
 - Upon completion of the inspection the voided stone subbase shall be replaced to the original specification and level.
 - The 3-6mm bedding shall be replaced with the permeable blocks reinstated after cleaning or where required replaced with new.



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- Following block reinstatement 3-6mm grit shall be swept into the joints between the permeable blocks.

- 1.7 Provisions will be made to replace any infrastructure that has reached the end of its serviceable design life and will be replaced on a like for like basis as far as reasonably practicable.
- 1.8 A drainage ownership and responsibilities plan will be submitted prior to construction of this element of the works.

Maintenance Schedule	Required Action	Frequency
Regular Maintenance	Remove sediment and debris from silt trap chambers, channel drains and inlet chambers	Monthly or as required
	Litter and debris removal – catch pits	Monthly or as required
	Surface and foul water pipework – jetting / rodding	Every 2 years or as required
	Visual inspection of permeable paving for defects and settlement	Annually, or after leaf fall
	Sweeping / brushing / vacuuming of permeable paving	Annually, or after leaf fall
Corrective Maintenance	Repairs to access chambers / manhole covers	As required
	Replace any broken permeable blocks / surface, remedial works to any depressions or rutting	As required
	Inspect inlet, outlet from downpipe and gullies for blockages, standing water and clear	As required
	Full inspection and service of permeable paving system	Minimum of every 25 years

Table 1: Schedule of Regular and Corrective Maintenance

2 Financing

- 2.1 The regular maintenance of all private drainage, channels, gutters, rainwater pipes, driveways and connections will be the responsibility of the individual homeowner.
- 2.2 The regular and corrective maintenance of all shared elements of the drainage system will be managed and funded through the Management Company on behalf of the Residents.
- 2.3 In the event that the estate's Management Company becomes unable to discharge its duties within 2 years of first appointment the developer will endeavour to appoint an alternative on behalf of the Residents.

3 Maintenance Summary

Inspection / Action Required	Gullies, Channels and Gutters	Silt Traps, Channel Drainage and Inlet Chambers	Catchpit	Permeable Paving / Surfaces	Surface Water Pipework
Monthly		✓	✓		
3 Months	✓		✓	✓	
1 Year				✓	
After leaf fall in Autumn	✓		✓	✓	
2 Years					✓
5 Years					
25 Years				✓	

Table 2: Drainage System Maintenance Summary