

Atkins			Page 1																																																																																																																																																																																																																			
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Date 21/05/2020 File TLSB Soakaway 1a (10 yr...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	5.473	0.573	0.8	33.7	O K
60 min Winter	5.639	0.739	0.9	43.5	O K
120 min Winter	5.818	0.918	1.0	54.0	O K
180 min Winter	5.920	1.020	1.1	60.1	O K
240 min Winter	5.986	1.086	1.1	64.0	O K
360 min Winter	6.066	1.166	1.2	68.7	O K
480 min Winter	6.108	1.208	1.2	71.2	O K
600 min Winter	6.129	1.229	1.2	72.4	O K
720 min Winter	6.148	1.248	1.2	73.5	O K
960 min Winter	6.167	1.267	1.2	74.6	O K
1440 min Winter	6.161	1.261	1.2	74.3	O K
2160 min Winter	6.106	1.206	1.2	71.0	O K
2880 min Winter	6.037	1.137	1.1	66.9	O K
4320 min Winter	5.904	1.004	1.1	59.1	O K
5760 min Winter	5.790	0.890	1.0	52.4	O K
7200 min Winter	5.692	0.792	0.9	46.6	O K
8640 min Winter	5.607	0.707	0.8	41.7	O K
10080 min Winter	5.534	0.634	0.8	37.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	42.160	0.0	33		
60 min Winter	27.734	0.0	62		
120 min Winter	17.824	0.0	120		
180 min Winter	13.650	0.0	178		
240 min Winter	11.256	0.0	236		
360 min Winter	8.562	0.0	348		
480 min Winter	7.046	0.0	454		
600 min Winter	6.054	0.0	546		
720 min Winter	5.347	0.0	570		
960 min Winter	4.393	0.0	722		
1440 min Winter	3.326	0.0	1036		
2160 min Winter	2.517	0.0	1472		
2880 min Winter	2.063	0.0	1904		
4320 min Winter	1.559	0.0	2764		
5760 min Winter	1.278	0.0	3568		
7200 min Winter	1.095	0.0	4328		
8640 min Winter	0.966	0.0	5104		
10080 min Winter	0.869	0.0	5856		
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1a (5.5m road + verges + path)	
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Innovyze Source Control 2019.1		

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)	17.800	Shortest Storm (mins)	15
Ratio R	0.284	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.196

Time (mins)	Area
From:	To: (ha)
0	4 0.196

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Model Details Storage is Online Cover Level (m) 6.600 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.0</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>62.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.95</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>4.900</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.0	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	62.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.95	Cap Volume Depth (m)	0.000	Invert Level (m)	4.900	Cap Infiltration Depth (m)	0.000
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Summer</td><td>11.407</td><td>0.3</td><td>320</td></tr><tr><td>600 min Summer</td><td>9.713</td><td>0.0</td><td>388</td></tr><tr><td>720 min Summer</td><td>8.512</td><td>0.0</td><td>458</td></tr><tr><td>960 min Summer</td><td>6.902</td><td>0.0</td><td>596</td></tr><tr><td>1440 min Summer</td><td>5.123</td><td>0.0</td><td>864</td></tr><tr><td>2160 min Summer</td><td>3.791</td><td>0.0</td><td>1252</td></tr><tr><td>2880 min Summer</td><td>3.056</td><td>0.0</td><td>1616</td></tr><tr><td>4320 min Summer</td><td>2.251</td><td>0.0</td><td>2376</td></tr><tr><td>5760 min Summer</td><td>1.815</td><td>0.0</td><td>3112</td></tr><tr><td>7200 min Summer</td><td>1.536</td><td>0.0</td><td>3824</td></tr><tr><td>8640 min Summer</td><td>1.341</td><td>0.0</td><td>4576</td></tr><tr><td>10080 min Summer</td><td>1.195</td><td>0.0</td><td>5248</td></tr><tr><td>15 min Winter</td><td>100.128</td><td>0.0</td><td>18</td></tr></tbody></table>					Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max 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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW		Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)			
Date 21/05/2020 File TLSB Soakaway 1b 1c (10...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<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	6.324	0.864	0.9	15.6	O K
60 min Winter	6.560	1.100	1.1	19.8	Flood Risk
120 min Winter	6.662	1.202	1.2	23.4	FLOOD
180 min Winter	6.663	1.203	1.2	24.7	FLOOD
240 min Winter	6.663	1.203	1.2	25.1	FLOOD
360 min Winter	6.664	1.204	1.2	25.2	FLOOD
480 min Winter	6.663	1.203	1.2	24.8	FLOOD
600 min Winter	6.662	1.202	1.2	24.0	FLOOD
720 min Winter	6.662	1.202	1.2	23.1	FLOOD
960 min Winter	6.644	1.184	1.1	21.3	Flood Risk
1440 min Winter	6.477	1.017	1.0	18.3	Flood Risk
2160 min Winter	6.279	0.819	0.9	14.7	O K
2880 min Winter	6.127	0.667	0.8	12.0	O K
4320 min Winter	5.911	0.451	0.6	8.1	O K
5760 min Winter	5.770	0.310	0.5	5.6	O K
7200 min Winter	5.669	0.209	0.5	3.8	O K
8640 min Winter	5.594	0.134	0.4	2.4	O K
10080 min Winter	5.539	0.079	0.4	1.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	69.786	0.0	32		
60 min Winter	46.629	0.0	60		
120 min Winter	30.097	1.8	118		
180 min Winter	22.908	3.1	170		
240 min Winter	18.703	3.5	196		
360 min Winter	14.013	3.6	272		
480 min Winter	11.407	3.2	350		
600 min Winter	9.713	2.4	424		
720 min Winter	8.512	1.5	496		
960 min Winter	6.902	0.0	636		
1440 min Winter	5.123	0.0	910		
2160 min Winter	3.791	0.0	1316		
2880 min Winter	3.056	0.0	1700		
4320 min Winter	2.251	0.0	2460		
5760 min Winter	1.815	0.0	3176		
7200 min Winter	1.536	0.0	3896		
8640 min Winter	1.341	0.0	4592		
10080 min Winter	1.195	0.0	5256		
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)	
Date 21/05/2020 File TLSB Soakaway 1b 1c (10...	Designed by D Hurley Checked by CW	
Innovyze Source Control 2019.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	17.800	Shortest Storm (mins)	15
Ratio R	0.284	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.057

Time (mins)	Area
From:	To: (ha)
0	4 0.057

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)																					
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Model Details Storage is Online Cover Level (m) 6.660 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.0</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>60.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.30</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>5.460</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.0	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	60.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.30	Cap Volume Depth (m)	0.000	Invert Level (m)	5.460	Cap Infiltration Depth (m)	0.000
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Pipe to Swale 1a Zone 7a	
Date 22/05/2020 File Drainage Run to Swales ...	Designed by D Hurley Checked by	
Innovyze	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	PIMP (%)	100
M5-60 (mm)	17.800	Add Flow / Climate Change (%)	30
Ratio R	0.284	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	250	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.115	4-8	0.065

Total Area Contributing (ha) = 0.180

Total Pipe Volume (m³) = 3.817

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	48.000	0.282	170.0	0.090	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.001	48.000	0.282	170.0	0.090	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	38.72	5.80	5.775	0.090	0.0	0.0	2.8	1.00	39.8	12.3
S1.001	36.68	6.60	5.493	0.180	0.0	0.0	5.4	1.00	39.8	23.2

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Pipe to Swale 1a Zone 7a	
Date 22/05/2020 File Drainage Run to Swales ...	Designed by D Hurley Checked by	
Innovyze	Network 2019.1	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.090	0.090	0.090
1.001	-	-	100	0.090	0.090	0.090
				Total	Total	Total
				0.180	0.180	0.180

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Pipe to Swale 1a Zone 7a	
Date 22/05/2020 File Drainage Run to Swales ...	Designed by D Hurley Checked by	
Innovyze	Network 2019.1	

Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	30.000
Hot Start (mins)	0	MADD Factor * 10m³/ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.284
Region England and Wales	Cv (Summer)	0.750	
M5-60 (mm)	17.800 Cv (Winter)	0.840	

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	1, 5
Climate Change (%)	0, 0

	US/MH		Return	Climate	First (X)	First (Y)	First (Z)	Overflow	Water
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.	Level
S1.000	S1	15 Winter	5	+0%					5.897
S1.001	S2	15 Winter	5	+0%					5.676

	US/MH	Depth	Volume	Flow /	Overflow	Pipe		Level
PN	Name	(m)	(m³)	Cap.	(l/s)	Flow	Status	Exceeded
S1.000	S1	-0.103	0.000	0.55		20.9	OK	
S1.001	S2	-0.041	0.000	0.98		37.3	OK	

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW		Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)																																																																																																																																																																																																																				
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Summer</td><td>6.054</td><td>0.0</td><td>384</td></tr><tr><td>720 min Summer</td><td>5.347</td><td>0.0</td><td>452</td></tr><tr><td>960 min Summer</td><td>4.393</td><td>0.0</td><td>588</td></tr><tr><td>1440 min Summer</td><td>3.326</td><td>0.0</td><td>852</td></tr><tr><td>2160 min Summer</td><td>2.517</td><td>0.0</td><td>1232</td></tr><tr><td>2880 min Summer</td><td>2.063</td><td>0.0</td><td>1612</td></tr><tr><td>4320 min Summer</td><td>1.559</td><td>0.0</td><td>2336</td></tr><tr><td>5760 min Summer</td><td>1.278</td><td>0.0</td><td>3056</td></tr><tr><td>7200 min Summer</td><td>1.095</td><td>0.0</td><td>3752</td></tr><tr><td>8640 min Summer</td><td>0.966</td><td>0.0</td><td>4496</td></tr><tr><td>10080 min Summer</td><td>0.869</td><td>0.0</td><td>5144</td></tr><tr><td>15 min Winter</td><td>61.819</td><td>0.0</td><td>18</td></tr></tbody></table>					Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	5.804	0.344	0.6	6.2	O K	30 min Summer	5.913	0.453	0.6	8.2	O K	60 min Summer	6.018	0.558	0.7	10.0	O K	120 min Summer	6.094	0.634	0.8	11.4	O K	180 min Summer	6.124	0.664	0.8	11.9	O K	240 min Summer	6.137	0.677	0.8	12.2	O K	360 min Summer	6.143	0.683	0.8	12.3	O K	480 min Summer	6.136	0.676	0.8	12.2	O K	600 min Summer	6.123	0.663	0.8	11.9	O K	720 min Summer	6.108	0.648	0.8	11.7	O K	960 min Summer	6.076	0.616	0.8	11.1	O K	1440 min Summer	6.010	0.550	0.7	9.9	O K	2160 min Summer	5.923	0.463	0.7	8.3	O K	2880 min Summer	5.850	0.390	0.6	7.0	O K	4320 min Summer	5.739	0.279	0.5	5.0	O K	5760 min Summer	5.659	0.199	0.5	3.6	O K	7200 min Summer	5.601	0.141	0.4	2.5	O K	8640 min Summer	5.558	0.098	0.4	1.8	O K	10080 min Summer	5.528	0.068	0.4	1.2	O K	15 min Winter	5.847	0.387	0.6	7.0	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	61.819	0.0	18	30 min Summer	42.160	0.0	32	60 min Summer	27.734	0.0	62	120 min Summer	17.824	0.0	112	180 min Summer	13.650	0.0	142	240 min Summer	11.256	0.0	174	360 min 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Date 21/05/2020 File TLSB Soakaway 1b 1c (10...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	5.972	0.512	0.7	9.2	O K
60 min Winter	6.094	0.634	0.8	11.4	O K
120 min Winter	6.188	0.728	0.8	13.1	O K
180 min Winter	6.218	0.758	0.9	13.6	O K
240 min Winter	6.233	0.773	0.9	13.9	O K
360 min Winter	6.232	0.772	0.9	13.9	O K
480 min Winter	6.214	0.754	0.9	13.6	O K
600 min Winter	6.189	0.729	0.8	13.1	O K
720 min Winter	6.162	0.702	0.8	12.6	O K
960 min Winter	6.107	0.647	0.8	11.6	O K
1440 min Winter	6.004	0.544	0.7	9.8	O K
2160 min Winter	5.879	0.419	0.6	7.6	O K
2880 min Winter	5.783	0.323	0.6	5.8	O K
4320 min Winter	5.646	0.186	0.5	3.4	O K
5760 min Winter	5.558	0.098	0.4	1.8	O K
7200 min Winter	5.510	0.050	0.4	0.9	O K
8640 min Winter	5.504	0.044	0.3	0.8	O K
10080 min Winter	5.500	0.040	0.3	0.7	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	42.160	0.0	32		
60 min Winter	27.734	0.0	60		
120 min Winter	17.824	0.0	116		
180 min Winter	13.650	0.0	148		
240 min Winter	11.256	0.0	184		
360 min Winter	8.562	0.0	262		
480 min Winter	7.046	0.0	338		
600 min Winter	6.054	0.0	412		
720 min Winter	5.347	0.0	484		
960 min Winter	4.393	0.0	626		
1440 min Winter	3.326	0.0	896		
2160 min Winter	2.517	0.0	1296		
2880 min Winter	2.063	0.0	1672		
4320 min Winter	1.559	0.0	2420		
5760 min Winter	1.278	0.0	3112		
7200 min Winter	1.095	0.0	3672		
8640 min Winter	0.966	0.0	4384		
10080 min Winter	0.869	0.0	5032		
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)	
Date 21/05/2020 File TLSB Soakaway 1b 1c (10...	Designed by D Hurley Checked by CW	
Innovyze	Source Control 2019.1	

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)	17.800	Shortest Storm (mins)	15
Ratio R	0.284	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.057

Time (mins) Area
From: To: (ha)

0 4 0.057

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)																					
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Model Details Storage is Online Cover Level (m) 6.660 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.0</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>60.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.30</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>5.460</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.0	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	60.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.30	Cap Volume Depth (m)	0.000	Invert Level (m)	5.460	Cap Infiltration Depth (m)	0.000
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<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 216 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>6.026</td><td>0.566</td><td>0.7</td><td>10.2</td><td>O K</td></tr><tr><td>30 min Summer</td><td>6.227</td><td>0.767</td><td>0.9</td><td>13.8</td><td>O K</td></tr><tr><td>60 min Summer</td><td>6.433</td><td>0.973</td><td>1.0</td><td>17.5</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>6.597</td><td>1.137</td><td>1.1</td><td>20.5</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>6.651</td><td>1.191</td><td>1.1</td><td>21.4</td><td>Flood Risk</td></tr><tr><td>240 min Summer</td><td>6.660</td><td>1.200</td><td>1.2</td><td>21.8</td><td>FLOOD</td></tr><tr><td>360 min Summer</td><td>6.660</td><td>1.200</td><td>1.2</td><td>22.1</td><td>FLOOD</td></tr><tr><td>480 min 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min Summer</td><td>5.727</td><td>0.267</td><td>0.5</td><td>4.8</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>5.670</td><td>0.210</td><td>0.5</td><td>3.8</td><td>O K</td></tr><tr><td>15 min Winter</td><td>6.096</td><td>0.636</td><td>0.8</td><td>11.4</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>100.128</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>69.786</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>46.629</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>30.097</td><td>0.0</td><td>120</td></tr><tr><td>180 min Summer</td><td>22.908</td><td>0.0</td><td>152</td></tr><tr><td>240 min Summer</td><td>18.703</td><td>0.2</td><td>184</td></tr><tr><td>360 min Summer</td><td>14.013</td><td>0.5</td><td>250</td></tr><tr><td>480 min Summer</td><td>11.407</td><td>0.3</td><td>320</td></tr><tr><td>600 min Summer</td><td>9.713</td><td>0.0</td><td>388</td></tr><tr><td>720 min Summer</td><td>8.512</td><td>0.0</td><td>458</td></tr><tr><td>960 min Summer</td><td>6.902</td><td>0.0</td><td>596</td></tr><tr><td>1440 min Summer</td><td>5.123</td><td>0.0</td><td>864</td></tr><tr><td>2160 min Summer</td><td>3.791</td><td>0.0</td><td>1252</td></tr><tr><td>2880 min Summer</td><td>3.056</td><td>0.0</td><td>1616</td></tr><tr><td>4320 min Summer</td><td>2.251</td><td>0.0</td><td>2376</td></tr><tr><td>5760 min Summer</td><td>1.815</td><td>0.0</td><td>3112</td></tr><tr><td>7200 min Summer</td><td>1.536</td><td>0.0</td><td>3824</td></tr><tr><td>8640 min Summer</td><td>1.341</td><td>0.0</td><td>4576</td></tr><tr><td>10080 min Summer</td><td>1.195</td><td>0.0</td><td>5248</td></tr><tr><td>15 min Winter</td><td>100.128</td><td>0.0</td><td>18</td></tr></table>					Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	6.026	0.566	0.7	10.2	O K	30 min Summer	6.227	0.767	0.9	13.8	O K	60 min Summer	6.433	0.973	1.0	17.5	Flood Risk	120 min Summer	6.597	1.137	1.1	20.5	Flood Risk	180 min Summer	6.651	1.191	1.1	21.4	Flood Risk	240 min Summer	6.660	1.200	1.2	21.8	FLOOD	360 min Summer	6.660	1.200	1.2	22.1	FLOOD	480 min Summer	6.660	1.200	1.2	21.9	FLOOD	600 min Summer	6.652	1.192	1.1	21.5	Flood Risk	720 min Summer	6.625	1.165	1.1	21.0	Flood Risk	960 min Summer	6.566	1.106	1.1	19.9	Flood Risk	1440 min Summer	6.455	0.995	1.0	17.9	Flood Risk	2160 min Summer	6.313	0.853	0.9	15.3	O K	2880 min Summer	6.196	0.736	0.8	13.2	O K	4320 min Summer	6.020	0.560	0.7	10.1	O K	5760 min Summer	5.895	0.435	0.6	7.8	O K	7200 min Summer	5.801	0.341	0.6	6.1	O K	8640 min Summer	5.727	0.267	0.5	4.8	O K	10080 min Summer	5.670	0.210	0.5	3.8	O K	15 min Winter	6.096	0.636	0.8	11.4	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	100.128	0.0	18	30 min Summer	69.786	0.0	33	60 min Summer	46.629	0.0	62	120 min Summer	30.097	0.0	120	180 min Summer	22.908	0.0	152	240 min Summer	18.703	0.2	184	360 min Summer	14.013	0.5	250	480 min Summer	11.407	0.3	320	600 min Summer	9.713	0.0	388	720 min Summer	8.512	0.0	458	960 min Summer	6.902	0.0	596	1440 min Summer	5.123	0.0	864	2160 min Summer	3.791	0.0	1252	2880 min Summer	3.056	0.0	1616	4320 min Summer	2.251	0.0	2376	5760 min Summer	1.815	0.0	3112	7200 min Summer	1.536	0.0	3824	8640 min Summer	1.341	0.0	4576	10080 min Summer	1.195	0.0	5248	15 min Winter	100.128	0.0	18
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW		Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)			
Date 21/05/2020 File TLSB Soakaway 1b 1c (10...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<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	6.324	0.864	0.9	15.6	O K
60 min Winter	6.560	1.100	1.1	19.8	Flood Risk
120 min Winter	6.662	1.202	1.2	23.4	FLOOD
180 min Winter	6.663	1.203	1.2	24.7	FLOOD
240 min Winter	6.663	1.203	1.2	25.1	FLOOD
360 min Winter	6.664	1.204	1.2	25.2	FLOOD
480 min Winter	6.663	1.203	1.2	24.8	FLOOD
600 min Winter	6.662	1.202	1.2	24.0	FLOOD
720 min Winter	6.662	1.202	1.2	23.1	FLOOD
960 min Winter	6.644	1.184	1.1	21.3	Flood Risk
1440 min Winter	6.477	1.017	1.0	18.3	Flood Risk
2160 min Winter	6.279	0.819	0.9	14.7	O K
2880 min Winter	6.127	0.667	0.8	12.0	O K
4320 min Winter	5.911	0.451	0.6	8.1	O K
5760 min Winter	5.770	0.310	0.5	5.6	O K
7200 min Winter	5.669	0.209	0.5	3.8	O K
8640 min Winter	5.594	0.134	0.4	2.4	O K
10080 min Winter	5.539	0.079	0.4	1.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	69.786	0.0	32		
60 min Winter	46.629	0.0	60		
120 min Winter	30.097	1.8	118		
180 min Winter	22.908	3.1	170		
240 min Winter	18.703	3.5	196		
360 min Winter	14.013	3.6	272		
480 min Winter	11.407	3.2	350		
600 min Winter	9.713	2.4	424		
720 min Winter	8.512	1.5	496		
960 min Winter	6.902	0.0	636		
1440 min Winter	5.123	0.0	910		
2160 min Winter	3.791	0.0	1316		
2880 min Winter	3.056	0.0	1700		
4320 min Winter	2.251	0.0	2460		
5760 min Winter	1.815	0.0	3176		
7200 min Winter	1.536	0.0	3896		
8640 min Winter	1.341	0.0	4592		
10080 min Winter	1.195	0.0	5256		
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)	
Date 21/05/2020 File TLSB Soakaway 1b 1c (10...	Designed by D Hurley Checked by CW	
Innovyze Source Control 2019.1		

Rainfall Details

Rainfall Model	FSR	Winter Storms	Yes
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	17.800	Shortest Storm (mins)	15
Ratio R	0.284	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.057

Time (mins)	Area
From:	To: (ha)
0	4 0.057

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 1b (5.5m road + verges + path)																					
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Innovyze	Source Control 2019.1																					
Model Details Storage is Online Cover Level (m) 6.660 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.0</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>60.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.30</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>5.460</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.0	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	60.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.30	Cap Volume Depth (m)	0.000	Invert Level (m)	5.460	Cap Infiltration Depth (m)	0.000
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<u>Summary of Results for 10 year Return Period (+30%)</u> Half Drain Time : 907 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>5.038</td><td>0.388</td><td>0.5</td><td>23.2</td><td>O K</td></tr><tr><td>30 min Summer</td><td>5.175</td><td>0.525</td><td>0.6</td><td>31.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>5.330</td><td>0.680</td><td>0.6</td><td>40.7</td><td>O K</td></tr><tr><td>120 min Summer</td><td>5.500</td><td>0.850</td><td>0.7</td><td>50.9</td><td>O K</td></tr><tr><td>180 min Summer</td><td>5.601</td><td>0.951</td><td>0.7</td><td>56.9</td><td>O K</td></tr><tr><td>240 min Summer</td><td>5.669</td><td>1.019</td><td>0.8</td><td>61.0</td><td>O K</td></tr><tr><td>360 min Summer</td><td>5.758</td><td>1.108</td><td>0.8</td><td>66.3</td><td>O K</td></tr><tr><td>480 min Summer</td><td>5.810</td><td>1.160</td><td>0.8</td><td>69.4</td><td>O K</td></tr><tr><td>600 min Summer</td><td>5.841</td><td>1.191</td><td>0.8</td><td>71.3</td><td>O K</td></tr><tr><td>720 min Summer</td><td>5.861</td><td>1.211</td><td>0.9</td><td>72.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>5.890</td><td>1.240</td><td>0.9</td><td>74.2</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>5.915</td><td>1.265</td><td>0.9</td><td>75.7</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>5.911</td><td>1.261</td><td>0.9</td><td>75.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>5.886</td><td>1.236</td><td>0.9</td><td>74.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>5.824</td><td>1.174</td><td>0.8</td><td>70.3</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>5.759</td><td>1.109</td><td>0.8</td><td>66.4</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>5.695</td><td>1.045</td><td>0.8</td><td>62.5</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>5.633</td><td>0.983</td><td>0.8</td><td>58.9</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>5.576</td><td>0.926</td><td>0.7</td><td>55.4</td><td>O K</td></tr><tr><td>15 min Winter</td><td>5.085</td><td>0.435</td><td>0.5</td><td>26.1</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>61.819</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>42.160</td><td>0.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>27.734</td><td>0.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>17.824</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>13.650</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>11.256</td><td>0.0</td><td>242</td></tr><tr><td>360 min Summer</td><td>8.562</td><td>0.0</td><td>362</td></tr><tr><td>480 min Summer</td><td>7.046</td><td>0.0</td><td>480</td></tr><tr><td>600 min Summer</td><td>6.054</td><td>0.0</td><td>594</td></tr><tr><td>720 min Summer</td><td>5.347</td><td>0.0</td><td>642</td></tr><tr><td>960 min Summer</td><td>4.393</td><td>0.0</td><td>762</td></tr><tr><td>1440 min Summer</td><td>3.326</td><td>0.0</td><td>1026</td></tr><tr><td>2160 min Summer</td><td>2.517</td><td>0.0</td><td>1448</td></tr><tr><td>2880 min Summer</td><td>2.063</td><td>0.0</td><td>1872</td></tr><tr><td>4320 min Summer</td><td>1.559</td><td>0.0</td><td>2684</td></tr><tr><td>5760 min Summer</td><td>1.278</td><td>0.0</td><td>3512</td></tr><tr><td>7200 min Summer</td><td>1.095</td><td>0.0</td><td>4320</td></tr><tr><td>8640 min Summer</td><td>0.966</td><td>0.0</td><td>5096</td></tr><tr><td>10080 min Summer</td><td>0.869</td><td>0.0</td><td>5848</td></tr><tr><td>15 min Winter</td><td>61.819</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	5.038	0.388	0.5	23.2	O K	30 min Summer	5.175	0.525	0.6	31.4	O K	60 min Summer	5.330	0.680	0.6	40.7	O K	120 min Summer	5.500	0.850	0.7	50.9	O K	180 min Summer	5.601	0.951	0.7	56.9	O K	240 min Summer	5.669	1.019	0.8	61.0	O K	360 min Summer	5.758	1.108	0.8	66.3	O K	480 min Summer	5.810	1.160	0.8	69.4	O K	600 min Summer	5.841	1.191	0.8	71.3	O K	720 min Summer	5.861	1.211	0.9	72.5	O K	960 min Summer	5.890	1.240	0.9	74.2	O K	1440 min Summer	5.915	1.265	0.9	75.7	O K	2160 min Summer	5.911	1.261	0.9	75.5	O K	2880 min Summer	5.886	1.236	0.9	74.0	O K	4320 min Summer	5.824	1.174	0.8	70.3	O K	5760 min Summer	5.759	1.109	0.8	66.4	O K	7200 min Summer	5.695	1.045	0.8	62.5	O K	8640 min Summer	5.633	0.983	0.8	58.9	O K	10080 min Summer	5.576	0.926	0.7	55.4	O K	15 min Winter	5.085	0.435	0.5	26.1	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	61.819	0.0	19	30 min Summer	42.160	0.0	34	60 min Summer	27.734	0.0	64	120 min Summer	17.824	0.0	122	180 min Summer	13.650	0.0	182	240 min Summer	11.256	0.0	242	360 min Summer	8.562	0.0	362	480 min Summer	7.046	0.0	480	600 min Summer	6.054	0.0	594	720 min Summer	5.347	0.0	642	960 min Summer	4.393	0.0	762	1440 min Summer	3.326	0.0	1026	2160 min Summer	2.517	0.0	1448	2880 min Summer	2.063	0.0	1872	4320 min Summer	1.559	0.0	2684	5760 min Summer	1.278	0.0	3512	7200 min Summer	1.095	0.0	4320	8640 min Summer	0.966	0.0	5096	10080 min Summer	0.869	0.0	5848	15 min Winter	61.819	0.0	19
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW		Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2a (6.5m road + verges + path)			
Date 21/05/2020 File TLSB Soakaway 2a (10 yr...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	5.240	0.590	0.6	35.3	O K
60 min Winter	5.415	0.765	0.7	45.8	O K
120 min Winter	5.608	0.958	0.7	57.3	O K
180 min Winter	5.724	1.074	0.8	64.3	O K
240 min Winter	5.804	1.154	0.8	69.1	O K
360 min Winter	5.910	1.260	0.9	75.4	O K
480 min Winter	5.975	1.325	0.9	79.3	O K
600 min Winter	6.017	1.367	0.9	81.8	O K
720 min Winter	6.044	1.394	0.9	83.4	O K
960 min Winter	6.070	1.420	0.9	85.0	O K
1440 min Winter	6.097	1.447	0.9	86.6	O K
2160 min Winter	6.079	1.429	0.9	85.5	O K
2880 min Winter	6.031	1.381	0.9	82.7	O K
4320 min Winter	5.918	1.268	0.9	75.9	O K
5760 min Winter	5.811	1.161	0.8	69.5	O K
7200 min Winter	5.710	1.060	0.8	63.4	O K
8640 min Winter	5.618	0.968	0.8	57.9	O K
10080 min Winter	5.534	0.884	0.7	52.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	42.160	0.0	33		
60 min Winter	27.734	0.0	62		
120 min Winter	17.824	0.0	120		
180 min Winter	13.650	0.0	180		
240 min Winter	11.256	0.0	238		
360 min Winter	8.562	0.0	352		
480 min Winter	7.046	0.0	466		
600 min Winter	6.054	0.0	576		
720 min Winter	5.347	0.0	682		
960 min Winter	4.393	0.0	800		
1440 min Winter	3.326	0.0	1094		
2160 min Winter	2.517	0.0	1556		
2880 min Winter	2.063	0.0	2016		
4320 min Winter	1.559	0.0	2896		
5760 min Winter	1.278	0.0	3744		
7200 min Winter	1.095	0.0	4544		
8640 min Winter	0.966	0.0	5360		
10080 min Winter	0.869	0.0	6152		
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2a (6.5m road + verges + path)	
Date 21/05/2020 File TLSB Soakaway 2a (10 yr...	Designed by D Hurley Checked by CW	
Innovyze Source Control 2019.1		

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)	17.800	Shortest Storm (mins)	15
Ratio R	0.284	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+30

Time Area Diagram

Total Area (ha) 0.204

Time (mins)	Area
From:	To: (ha)
0	4 0.204

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2a (6.5m road + verges + path)																					
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Model Details Storage is Online Cover Level (m) 6.600 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.8</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>35.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.95</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>4.650</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.8	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	35.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.95	Cap Volume Depth (m)	0.000	Invert Level (m)	4.650	Cap Infiltration Depth (m)	0.000
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<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 1211 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>5.282</td><td>0.632</td><td>0.6</td><td>37.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>5.525</td><td>0.875</td><td>0.7</td><td>52.4</td><td>O K</td></tr><tr><td>60 min Summer</td><td>5.806</td><td>1.156</td><td>0.8</td><td>69.2</td><td>O K</td></tr><tr><td>120 min Summer</td><td>6.110</td><td>1.460</td><td>1.0</td><td>87.4</td><td>O K</td></tr><tr><td>180 min Summer</td><td>6.283</td><td>1.633</td><td>1.0</td><td>97.7</td><td>O K</td></tr><tr><td>240 min Summer</td><td>6.392</td><td>1.742</td><td>1.1</td><td>104.2</td><td>Flood Risk</td></tr><tr><td>360 min Summer</td><td>6.531</td><td>1.881</td><td>1.1</td><td>112.6</td><td>Flood Risk</td></tr><tr><td>480 min Summer</td><td>6.601</td><td>1.951</td><td>1.2</td><td>117.6</td><td>FLOOD</td></tr><tr><td>600 min Summer</td><td>6.604</td><td>1.954</td><td>1.2</td><td>120.7</td><td>FLOOD</td></tr><tr><td>720 min Summer</td><td>6.606</td><td>1.956</td><td>1.2</td><td>122.5</td><td>FLOOD</td></tr><tr><td>960 min Summer</td><td>6.608</td><td>1.958</td><td>1.2</td><td>124.4</td><td>FLOOD</td></tr><tr><td>1440 min Summer</td><td>6.609</td><td>1.959</td><td>1.2</td><td>125.8</td><td>FLOOD</td></tr><tr><td>2160 min Summer</td><td>6.608</td><td>1.958</td><td>1.2</td><td>124.4</td><td>FLOOD</td></tr><tr><td>2880 min Summer</td><td>6.604</td><td>1.954</td><td>1.2</td><td>120.9</td><td>FLOOD</td></tr><tr><td>4320 min Summer</td><td>6.535</td><td>1.885</td><td>1.1</td><td>112.8</td><td>Flood Risk</td></tr><tr><td>5760 min Summer</td><td>6.416</td><td>1.766</td><td>1.1</td><td>105.7</td><td>Flood Risk</td></tr><tr><td>7200 min Summer</td><td>6.309</td><td>1.659</td><td>1.0</td><td>99.3</td><td>Flood 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Summer</td><td>11.407</td><td>0.9</td><td>482</td></tr><tr><td>600 min Summer</td><td>9.713</td><td>3.9</td><td>600</td></tr><tr><td>720 min Summer</td><td>8.512</td><td>5.8</td><td>720</td></tr><tr><td>960 min Summer</td><td>6.902</td><td>7.7</td><td>828</td></tr><tr><td>1440 min Summer</td><td>5.123</td><td>9.1</td><td>1082</td></tr><tr><td>2160 min Summer</td><td>3.791</td><td>7.6</td><td>1488</td></tr><tr><td>2880 min Summer</td><td>3.056</td><td>4.2</td><td>1900</td></tr><tr><td>4320 min Summer</td><td>2.251</td><td>0.0</td><td>2724</td></tr><tr><td>5760 min Summer</td><td>1.815</td><td>0.0</td><td>3520</td></tr><tr><td>7200 min Summer</td><td>1.536</td><td>0.0</td><td>4328</td></tr><tr><td>8640 min Summer</td><td>1.341</td><td>0.0</td><td>5104</td></tr><tr><td>10080 min Summer</td><td>1.195</td><td>0.0</td><td>5856</td></tr><tr><td>15 min Winter</td><td>100.128</td><td>0.0</td><td>19</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max 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Summer	69.786	0.0	34	60 min Summer	46.629	0.0	64	120 min Summer	30.097	0.0	124	180 min Summer	22.908	0.0	182	240 min Summer	18.703	0.0	242	360 min Summer	14.013	0.0	362	480 min Summer	11.407	0.9	482	600 min Summer	9.713	3.9	600	720 min Summer	8.512	5.8	720	960 min Summer	6.902	7.7	828	1440 min Summer	5.123	9.1	1082	2160 min Summer	3.791	7.6	1488	2880 min Summer	3.056	4.2	1900	4320 min Summer	2.251	0.0	2724	5760 min Summer	1.815	0.0	3520	7200 min Summer	1.536	0.0	4328	8640 min Summer	1.341	0.0	5104	10080 min Summer	1.195	0.0	5856	15 min Winter	100.128	0.0	19
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW		Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2a (6.5m road + verges + path)			
Date 21/05/2020 File TLSB Soakaway 2a (100 y...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<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	5.632	0.982	0.8	58.8	O K
60 min Winter	5.948	1.298	0.9	77.7	O K
120 min Winter	6.292	1.642	1.0	98.3	O K
180 min Winter	6.489	1.839	1.1	110.1	Flood Risk
240 min Winter	6.601	1.951	1.2	117.6	FLOOD
360 min Winter	6.611	1.961	1.2	127.6	FLOOD
480 min Winter	6.617	1.967	1.2	134.1	FLOOD
600 min Winter	6.622	1.972	1.2	138.5	FLOOD
720 min Winter	6.625	1.975	1.2	141.4	FLOOD
960 min Winter	6.628	1.978	1.2	144.3	FLOOD
1440 min Winter	6.628	1.978	1.2	144.8	FLOOD
2160 min Winter	6.626	1.976	1.2	142.4	FLOOD
2880 min Winter	6.620	1.970	1.2	137.1	FLOOD
4320 min Winter	6.607	1.957	1.2	123.8	FLOOD
5760 min Winter	6.525	1.875	1.1	112.2	Flood Risk
7200 min Winter	6.367	1.717	1.1	102.8	Flood Risk
8640 min Winter	6.227	1.577	1.0	94.4	O K
10080 min Winter	6.103	1.453	1.0	87.0	O K
Storm Event	Rain (mm/hr)		Flooded Volume (m³)	Time-Peak (mins)	
30 min Winter	69.786		0.0	33	
60 min Winter	46.629		0.0	62	
120 min Winter	30.097		0.0	122	
180 min Winter	22.908		0.0	180	
240 min Winter	18.703		0.8	238	
360 min Winter	14.013		10.9	354	
480 min Winter	11.407		17.4	470	
600 min Winter	9.713		21.8	584	
720 min Winter	8.512		24.6	694	
960 min Winter	6.902		27.6	914	
1440 min Winter	5.123		28.1	1156	
2160 min Winter	3.791		25.7	1620	
2880 min Winter	3.056		20.4	2076	
4320 min Winter	2.251		7.1	2940	
5760 min Winter	1.815		0.0	3752	
7200 min Winter	1.536		0.0	4608	
8640 min Winter	1.341		0.0	5440	
10080 min Winter	1.195		0.0	6248	
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2a (6.5m road + verges + path)																					
Date 21/05/2020 File TLSB Soakaway 2a (100 y...	Designed by D Hurley Checked by CW																					
Innovyze	Source Control 2019.1																					
Model Details Storage is Online Cover Level (m) 6.600 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.8</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>35.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.95</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>4.650</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.8	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	35.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.95	Cap Volume Depth (m)	0.000	Invert Level (m)	4.650	Cap Infiltration Depth (m)	0.000
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Pipe to Swale 2a Zone 7a	
Date 22/05/2020 File Drainage Run to Swale 2...	Designed by D Hurley Checked by	
Innovyze	Network 2019.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	1	PIMP (%)	100
M5-60 (mm)	17.800	Add Flow / Climate Change (%)	30
Ratio R	0.284	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	250	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Time Area Diagram for Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.108	4-8	0.060

Total Area Contributing (ha) = 0.168

Total Pipe Volume (m³) = 3.777

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	47.500	0.279	170.0	0.084	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.001	47.500	0.279	170.0	0.084	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL Σ (m)	I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	38.74	5.79	5.775	0.084	0.0	0.0	2.6	1.00	39.8	11.5
S1.001	36.72	6.58	5.496	0.168	0.0	0.0	5.0	1.00	39.8	21.7

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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Pipe to Swale 2a Zone 7a	
Date 22/05/2020 File Drainage Run to Swale 2...	Designed by D Hurley Checked by	
Innovyze	Network 2019.1	

Summary of Critical Results by Maximum Inflow (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 30.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 0
 Number of Online Controls 0 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.284
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 17.800 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600,
 720, 960, 1440, 2160, 2880, 4320, 5760,
 7200, 8640, 10080
 Return Period(s) (years) 1, 5
 Climate Change (%) 0, 0

								Water
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Level
S1.000	S1	15 Winter	5	+0%			Overflow Act.	5.892
S1.001	S2	15 Winter	5	+0%				5.669

		Surcharged		Flooded			Pipe		
PN	US/MH Name	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded	
S1.000	S1	-0.108	0.000	0.51		19.5	OK		
S1.001	S2	-0.052	0.000	0.92		35.0	OK		

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Date 21/05/2020 File TLSB Soakaway 2b (10 yr...		Designed by D Hurley Checked by CW																																																																																																																																																																																																																				
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<u>Summary of Results for 10 year Return Period (+30%)</u> Half Drain Time : 171 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>6.933</td><td>0.383</td><td>1.1</td><td>12.7</td><td>O K</td></tr><tr><td>30 min Summer</td><td>7.056</td><td>0.506</td><td>1.2</td><td>16.7</td><td>O K</td></tr><tr><td>60 min Summer</td><td>7.175</td><td>0.625</td><td>1.4</td><td>20.6</td><td>O K</td></tr><tr><td>120 min Summer</td><td>7.264</td><td>0.714</td><td>1.5</td><td>23.6</td><td>O K</td></tr><tr><td>180 min Summer</td><td>7.299</td><td>0.749</td><td>1.5</td><td>24.7</td><td>O K</td></tr><tr><td>240 min Summer</td><td>7.316</td><td>0.766</td><td>1.6</td><td>25.3</td><td>O K</td></tr><tr><td>360 min Summer</td><td>7.326</td><td>0.776</td><td>1.6</td><td>25.6</td><td>O K</td></tr><tr><td>480 min Summer</td><td>7.320</td><td>0.770</td><td>1.6</td><td>25.4</td><td>O K</td></tr><tr><td>600 min Summer</td><td>7.308</td><td>0.758</td><td>1.6</td><td>25.0</td><td>O K</td></tr><tr><td>720 min Summer</td><td>7.293</td><td>0.743</td><td>1.5</td><td>24.5</td><td>O K</td></tr><tr><td>960 min Summer</td><td>7.259</td><td>0.709</td><td>1.5</td><td>23.4</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>7.191</td><td>0.641</td><td>1.4</td><td>21.1</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>7.097</td><td>0.547</td><td>1.3</td><td>18.1</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>7.019</td><td>0.469</td><td>1.2</td><td>15.5</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>6.897</td><td>0.347</td><td>1.0</td><td>11.5</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>6.809</td><td>0.259</td><td>0.9</td><td>8.5</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>6.743</td><td>0.193</td><td>0.9</td><td>6.4</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>6.692</td><td>0.142</td><td>0.8</td><td>4.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>6.652</td><td>0.102</td><td>0.7</td><td>3.4</td><td>O K</td></tr><tr><td>15 min Winter</td><td>6.981</td><td>0.431</td><td>1.2</td><td>14.2</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>61.819</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>42.160</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>27.734</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>17.824</td><td>0.0</td><td>116</td></tr><tr><td>180 min Summer</td><td>13.650</td><td>0.0</td><td>144</td></tr><tr><td>240 min Summer</td><td>11.256</td><td>0.0</td><td>176</td></tr><tr><td>360 min Summer</td><td>8.562</td><td>0.0</td><td>246</td></tr><tr><td>480 min Summer</td><td>7.046</td><td>0.0</td><td>316</td></tr><tr><td>600 min Summer</td><td>6.054</td><td>0.0</td><td>386</td></tr><tr><td>720 min Summer</td><td>5.347</td><td>0.0</td><td>454</td></tr><tr><td>960 min Summer</td><td>4.393</td><td>0.0</td><td>588</td></tr><tr><td>1440 min Summer</td><td>3.326</td><td>0.0</td><td>852</td></tr><tr><td>2160 min Summer</td><td>2.517</td><td>0.0</td><td>1236</td></tr><tr><td>2880 min Summer</td><td>2.063</td><td>0.0</td><td>1616</td></tr><tr><td>4320 min Summer</td><td>1.559</td><td>0.0</td><td>2336</td></tr><tr><td>5760 min Summer</td><td>1.278</td><td>0.0</td><td>3064</td></tr><tr><td>7200 min Summer</td><td>1.095</td><td>0.0</td><td>3816</td></tr><tr><td>8640 min Summer</td><td>0.966</td><td>0.0</td><td>4496</td></tr><tr><td>10080 min Summer</td><td>0.869</td><td>0.0</td><td>5240</td></tr><tr><td>15 min Winter</td><td>61.819</td><td>0.0</td><td>18</td></tr></table>					Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	6.933	0.383	1.1	12.7	O K	30 min Summer	7.056	0.506	1.2	16.7	O K	60 min Summer	7.175	0.625	1.4	20.6	O K	120 min Summer	7.264	0.714	1.5	23.6	O K	180 min Summer	7.299	0.749	1.5	24.7	O K	240 min Summer	7.316	0.766	1.6	25.3	O K	360 min Summer	7.326	0.776	1.6	25.6	O K	480 min Summer	7.320	0.770	1.6	25.4	O K	600 min Summer	7.308	0.758	1.6	25.0	O K	720 min Summer	7.293	0.743	1.5	24.5	O K	960 min Summer	7.259	0.709	1.5	23.4	O K	1440 min Summer	7.191	0.641	1.4	21.1	O K	2160 min Summer	7.097	0.547	1.3	18.1	O K	2880 min Summer	7.019	0.469	1.2	15.5	O K	4320 min Summer	6.897	0.347	1.0	11.5	O K	5760 min Summer	6.809	0.259	0.9	8.5	O K	7200 min Summer	6.743	0.193	0.9	6.4	O K	8640 min Summer	6.692	0.142	0.8	4.7	O K	10080 min Summer	6.652	0.102	0.7	3.4	O K	15 min Winter	6.981	0.431	1.2	14.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	61.819	0.0	18	30 min Summer	42.160	0.0	33	60 min Summer	27.734	0.0	62	120 min Summer	17.824	0.0	116	180 min Summer	13.650	0.0	144	240 min Summer	11.256	0.0	176	360 min Summer	8.562	0.0	246	480 min Summer	7.046	0.0	316	600 min Summer	6.054	0.0	386	720 min Summer	5.347	0.0	454	960 min Summer	4.393	0.0	588	1440 min Summer	3.326	0.0	852	2160 min Summer	2.517	0.0	1236	2880 min Summer	2.063	0.0	1616	4320 min Summer	1.559	0.0	2336	5760 min Summer	1.278	0.0	3064	7200 min Summer	1.095	0.0	3816	8640 min Summer	0.966	0.0	4496	10080 min Summer	0.869	0.0	5240	15 min Winter	61.819	0.0	18
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW		Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2b (6.5m road + verges + path)			
Date 21/05/2020 File TLSB Soakaway 2b (10 yr...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<u>Summary of Results for 10 year Return Period (+30%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status
30 min Winter	7.121	0.571	1.3	18.8	O K
60 min Winter	7.259	0.709	1.5	23.4	O K
120 min Winter	7.370	0.820	1.6	27.0	O K
180 min Winter	7.405	0.855	1.7	28.2	O K
240 min Winter	7.424	0.874	1.7	28.8	O K
360 min Winter	7.428	0.878	1.7	29.0	O K
480 min Winter	7.412	0.862	1.7	28.4	O K
600 min Winter	7.386	0.836	1.7	27.6	O K
720 min Winter	7.358	0.808	1.6	26.7	O K
960 min Winter	7.300	0.750	1.5	24.7	O K
1440 min Winter	7.191	0.641	1.4	21.2	O K
2160 min Winter	7.057	0.507	1.2	16.7	O K
2880 min Winter	6.952	0.402	1.1	13.3	O K
4320 min Winter	6.801	0.251	0.9	8.3	O K
5760 min Winter	6.701	0.151	0.8	5.0	O K
7200 min Winter	6.632	0.082	0.7	2.7	O K
8640 min Winter	6.599	0.049	0.7	1.6	O K
10080 min Winter	6.594	0.044	0.6	1.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	42.160	0.0	32		
60 min Winter	27.734	0.0	60		
120 min Winter	17.824	0.0	116		
180 min Winter	13.650	0.0	150		
240 min Winter	11.256	0.0	186		
360 min Winter	8.562	0.0	264		
480 min Winter	7.046	0.0	340		
600 min Winter	6.054	0.0	416		
720 min Winter	5.347	0.0	486		
960 min Winter	4.393	0.0	628		
1440 min Winter	3.326	0.0	908		
2160 min Winter	2.517	0.0	1300		
2880 min Winter	2.063	0.0	1676		
4320 min Winter	1.559	0.0	2420		
5760 min Winter	1.278	0.0	3120		
7200 min Winter	1.095	0.0	3816		
8640 min Winter	0.966	0.0	4400		
10080 min Winter	0.869	0.0	5136		
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2b (6.5m road + verges + path)																					
Date 21/05/2020 File TLSB Soakaway 2b (10 yr...	Designed by D Hurley Checked by CW																					
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Model Details Storage is Online Cover Level (m) 7.850 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.0</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>110.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.30</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>6.550</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.0	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	110.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.30	Cap Volume Depth (m)	0.000	Invert Level (m)	6.550	Cap Infiltration Depth (m)	0.000
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<u>Summary of Results for 100 year Return Period (+30%)</u> Half Drain Time : 231 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>7.179</td><td>0.629</td><td>1.4</td><td>20.8</td><td>O K</td></tr><tr><td>30 min Summer</td><td>7.405</td><td>0.855</td><td>1.7</td><td>28.2</td><td>O K</td></tr><tr><td>60 min Summer</td><td>7.637</td><td>1.087</td><td>2.0</td><td>35.9</td><td>Flood Risk</td></tr><tr><td>120 min Summer</td><td>7.825</td><td>1.275</td><td>2.2</td><td>42.1</td><td>Flood Risk</td></tr><tr><td>180 min Summer</td><td>7.851</td><td>1.301</td><td>2.2</td><td>44.2</td><td>FLOOD</td></tr><tr><td>240 min Summer</td><td>7.852</td><td>1.302</td><td>2.2</td><td>45.2</td><td>FLOOD</td></tr><tr><td>360 min Summer</td><td>7.853</td><td>1.303</td><td>2.2</td><td>45.8</td><td>FLOOD</td></tr><tr><td>480 min Summer</td><td>7.853</td><td>1.303</td><td>2.2</td><td>45.5</td><td>FLOOD</td></tr><tr><td>600 min Summer</td><td>7.852</td><td>1.302</td><td>2.2</td><td>44.7</td><td>FLOOD</td></tr><tr><td>720 min Summer</td><td>7.851</td><td>1.301</td><td>2.2</td><td>43.7</td><td>FLOOD</td></tr><tr><td>960 min Summer</td><td>7.812</td><td>1.262</td><td>2.2</td><td>41.6</td><td>Flood Risk</td></tr><tr><td>1440 min Summer</td><td>7.691</td><td>1.141</td><td>2.0</td><td>37.7</td><td>Flood Risk</td></tr><tr><td>2160 min Summer</td><td>7.537</td><td>0.987</td><td>1.8</td><td>32.6</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>7.409</td><td>0.859</td><td>1.7</td><td>28.4</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>7.217</td><td>0.667</td><td>1.4</td><td>22.0</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>7.080</td><td>0.530</td><td>1.3</td><td>17.5</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>6.976</td><td>0.426</td><td>1.1</td><td>14.0</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>6.894</td><td>0.344</td><td>1.0</td><td>11.3</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>6.828</td><td>0.278</td><td>1.0</td><td>9.2</td><td>O K</td></tr><tr><td>15 min Winter</td><td>7.257</td><td>0.707</td><td>1.5</td><td>23.3</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>100.128</td><td>0.0</td><td>18</td></tr><tr><td>30 min Summer</td><td>69.786</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>46.629</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>30.097</td><td>0.0</td><td>120</td></tr><tr><td>180 min Summer</td><td>22.908</td><td>1.3</td><td>156</td></tr><tr><td>240 min Summer</td><td>18.703</td><td>2.3</td><td>188</td></tr><tr><td>360 min Summer</td><td>14.013</td><td>2.9</td><td>254</td></tr><tr><td>480 min Summer</td><td>11.407</td><td>2.6</td><td>324</td></tr><tr><td>600 min Summer</td><td>9.713</td><td>1.8</td><td>392</td></tr><tr><td>720 min Summer</td><td>8.512</td><td>0.8</td><td>460</td></tr><tr><td>960 min Summer</td><td>6.902</td><td>0.0</td><td>596</td></tr><tr><td>1440 min Summer</td><td>5.123</td><td>0.0</td><td>866</td></tr><tr><td>2160 min Summer</td><td>3.791</td><td>0.0</td><td>1252</td></tr><tr><td>2880 min Summer</td><td>3.056</td><td>0.0</td><td>1640</td></tr><tr><td>4320 min Summer</td><td>2.251</td><td>0.0</td><td>2376</td></tr><tr><td>5760 min Summer</td><td>1.815</td><td>0.0</td><td>3112</td></tr><tr><td>7200 min Summer</td><td>1.536</td><td>0.0</td><td>3824</td></tr><tr><td>8640 min Summer</td><td>1.341</td><td>0.0</td><td>4576</td></tr><tr><td>10080 min Summer</td><td>1.195</td><td>0.0</td><td>5248</td></tr><tr><td>15 min Winter</td><td>100.128</td><td>0.0</td><td>18</td></tr></table>					Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (m³)	Status	15 min Summer	7.179	0.629	1.4	20.8	O K	30 min Summer	7.405	0.855	1.7	28.2	O K	60 min Summer	7.637	1.087	2.0	35.9	Flood Risk	120 min Summer	7.825	1.275	2.2	42.1	Flood Risk	180 min Summer	7.851	1.301	2.2	44.2	FLOOD	240 min Summer	7.852	1.302	2.2	45.2	FLOOD	360 min Summer	7.853	1.303	2.2	45.8	FLOOD	480 min Summer	7.853	1.303	2.2	45.5	FLOOD	600 min Summer	7.852	1.302	2.2	44.7	FLOOD	720 min Summer	7.851	1.301	2.2	43.7	FLOOD	960 min Summer	7.812	1.262	2.2	41.6	Flood Risk	1440 min Summer	7.691	1.141	2.0	37.7	Flood Risk	2160 min Summer	7.537	0.987	1.8	32.6	O K	2880 min Summer	7.409	0.859	1.7	28.4	O K	4320 min Summer	7.217	0.667	1.4	22.0	O K	5760 min Summer	7.080	0.530	1.3	17.5	O K	7200 min Summer	6.976	0.426	1.1	14.0	O K	8640 min Summer	6.894	0.344	1.0	11.3	O K	10080 min Summer	6.828	0.278	1.0	9.2	O K	15 min Winter	7.257	0.707	1.5	23.3	O K	Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)	15 min Summer	100.128	0.0	18	30 min Summer	69.786	0.0	33	60 min Summer	46.629	0.0	62	120 min Summer	30.097	0.0	120	180 min Summer	22.908	1.3	156	240 min Summer	18.703	2.3	188	360 min Summer	14.013	2.9	254	480 min Summer	11.407	2.6	324	600 min Summer	9.713	1.8	392	720 min Summer	8.512	0.8	460	960 min Summer	6.902	0.0	596	1440 min Summer	5.123	0.0	866	2160 min Summer	3.791	0.0	1252	2880 min Summer	3.056	0.0	1640	4320 min Summer	2.251	0.0	2376	5760 min Summer	1.815	0.0	3112	7200 min Summer	1.536	0.0	3824	8640 min Summer	1.341	0.0	4576	10080 min Summer	1.195	0.0	5248	15 min Winter	100.128	0.0	18
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW		Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2b (6.5m road + verges + path)			
Date 21/05/2020 File TLSB Soakaway 2b (100 y...		Designed by D Hurley Checked by CW			
Innovyze		Source Control 2019.1			
<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	7.513	0.963	1.8	31.8	O K
60 min Winter	7.777	1.227	2.1	40.5	Flood Risk
120 min Winter	7.855	1.305	2.2	48.2	FLOOD
180 min Winter	7.858	1.308	2.2	51.1	FLOOD
240 min Winter	7.859	1.309	2.2	51.9	FLOOD
360 min Winter	7.859	1.309	2.2	52.4	FLOOD
480 min Winter	7.859	1.309	2.2	51.7	FLOOD
600 min Winter	7.857	1.307	2.2	50.3	FLOOD
720 min Winter	7.856	1.306	2.2	48.6	FLOOD
960 min Winter	7.852	1.302	2.2	44.9	FLOOD
1440 min Winter	7.722	1.172	2.1	38.7	Flood Risk
2160 min Winter	7.506	0.956	1.8	31.6	O K
2880 min Winter	7.339	0.789	1.6	26.1	O K
4320 min Winter	7.102	0.552	1.3	18.2	O K
5760 min Winter	6.945	0.395	1.1	13.0	O K
7200 min Winter	6.833	0.283	1.0	9.3	O K
8640 min Winter	6.749	0.199	0.9	6.6	O K
10080 min Winter	6.684	0.134	0.8	4.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Time-Peak (mins)		
30 min Winter	69.786	0.0	32		
60 min Winter	46.629	0.0	60		
120 min Winter	30.097	5.3	118		
180 min Winter	22.908	8.2	172		
240 min Winter	18.703	9.0	218		
360 min Winter	14.013	9.5	276		
480 min Winter	11.407	8.8	352		
600 min Winter	9.713	7.4	428		
720 min Winter	8.512	5.7	500		
960 min Winter	6.902	2.0	642		
1440 min Winter	5.123	0.0	912		
2160 min Winter	3.791	0.0	1316		
2880 min Winter	3.056	0.0	1700		
4320 min Winter	2.251	0.0	2464		
5760 min Winter	1.815	0.0	3176		
7200 min Winter	1.536	0.0	3896		
8640 min Winter	1.341	0.0	4664		
10080 min Winter	1.195	0.0	5344		
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Woodcote Grove Ashley Road Epsom Surrey KT18 5BW	Swansea Bay Tidal Lagoon Zone 7a - Trench Soakaway 2b (6.5m road + verges + path)																					
Date 21/05/2020 File TLSB Soakaway 2b (100 y...	Designed by D Hurley Checked by CW																					
Innovyze	Source Control 2019.1																					
Model Details Storage is Online Cover Level (m) 7.850 Infiltration Trench Structure <table><tr><td>Infiltration Coefficient Base (m/hr)</td><td>0.10073</td><td>Trench Width (m)</td><td>1.0</td></tr><tr><td>Infiltration Coefficient Side (m/hr)</td><td>0.10073</td><td>Trench Length (m)</td><td>110.0</td></tr><tr><td>Safety Factor</td><td>5.0</td><td>Slope (1:X)</td><td>0.0</td></tr><tr><td>Porosity</td><td>0.30</td><td>Cap Volume Depth (m)</td><td>0.000</td></tr><tr><td>Invert Level (m)</td><td>6.550</td><td>Cap Infiltration Depth (m)</td><td>0.000</td></tr></table>			Infiltration Coefficient Base (m/hr)	0.10073	Trench Width (m)	1.0	Infiltration Coefficient Side (m/hr)	0.10073	Trench Length (m)	110.0	Safety Factor	5.0	Slope (1:X)	0.0	Porosity	0.30	Cap Volume Depth (m)	0.000	Invert Level (m)	6.550	Cap Infiltration Depth (m)	0.000
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