

Surface Water Drainage Calculations

Unit 6, Gateway 36

Dearne Valley Parkway, Barnsley

Prepared For

Harworth Group

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Document Revisions

Revision	Date	Written by	Checked by
P01	08.10.25	DM	AF
P02	27.03.26	AF	MH

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Appendices

Appendix A Hydraulic Calculations

Introduction

- 1.1. This surface water calculation pack is the property of H J Consulting Engineers (HJCE) and is produced for the exclusive use of the client, Harworth Group. The contents may not be made use of by any third party without the express written consent of HJCE. Without such consent HJCE can accept no responsibility to any third party. By receiving these calculations and acting on it, the client, or any third party relying on it, accepts that no individual is personally liable in contract, tort, or breach of statutory duty (including negligence).
- 1.2. The existing site infrastructure drainage will accept an unrestricted discharge of both domestic foul water and surface water. Surface water attenuation is provided in a downstream surface water attenuation pond constructed under and earlier phase of works.
- 1.3. These calculations support the drainage design and has been prepared in accordance with the requirements set out in the National Planning Policy Framework (NPPF) 2024 and the associated Planning Practice Guidance.

Drainage Strategy

Surface Water Disposal

Surface water will discharge unrestricted to the infrastructure drainage tails provided to the site.

Drainage Calculation Results

The enclosed calculations produced on Causeway Flow software demonstrate there is no flooding for both the 1:30 year plus 40% climate change storm events and a nominal volume of flooding (6.9m³) for the 1:100 year plus 40% climate change storm events. The flooded volume will be stored in the dock leveller area.

The enclosed calculations cover the Gateway 36 site wide drainage, pipe runs/manholes referenced with a '6' apply to Unit 6.

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)	Invert Level (m)
SW01	2.850	8.00	146.478	1500	2.581	143.897
SW02	0.605	8.00	145.844	1800	2.688	143.156
SW03	0.156	5.00	145.565	2100	3.657	141.908
SW04	0.156	5.00	145.369	2100	3.667	141.702
SW05	0.597	5.00	145.422	2400	3.990	141.432
SW06	0.156	5.00	145.175	2100	3.850	141.325
SW10	1.489	5.00	145.100	2700	4.164	140.936
OUTFALL	0.000		142.767	1200	1.914	140.853
SW101	0.058	5.00	160.164	1200	1.429	158.735
SW102	0.083	5.00	160.164	1200	1.548	158.616
SW103	0.038	5.00	160.512	1200	1.164	159.348
SW104	0.057	5.00	159.648	1200	1.425	158.223
SW105	0.032	5.00	158.898	1200	2.320	156.578
SW106	0.005	5.00	157.665	1200	1.515	156.150
SW107	0.225	5.00	157.606	1200	1.225	156.381
SW108	0.078	5.00	157.964	1200	1.425	156.539
SW109	0.045	5.00	157.603	1200	1.808	155.795
SW110	0.073	5.00	157.636	1200	2.196	155.440
SW111	0.179	5.00	156.897	1800	1.839	155.058
SW112	0.000		156.417	1800	1.692	154.725
SW113	0.188	5.00	157.516	1500	1.425	156.091
SW114	0.376	5.00	157.518	1500	1.612	155.906
SW115	0.376	5.00	157.518	1800	1.797	155.721
SW116	0.188	5.00	156.559	1800	1.625	154.934
SW117	0.000		156.436	1800	5.001	151.435
SW118	0.000		153.756	1500	4.935	148.821
7-SW01	0.242	5.00	145.300	1200	1.575	143.725
7-SW02	0.484	5.00	145.300	1500	1.850	143.450
7-SW03	0.484	5.00	145.300	1500	2.107	143.193
7-SW04	0.242	5.00	145.407	1500	2.324	143.083
7-SW05	0.460	5.00	144.832	1350	1.825	143.007
7-SW06	0.000		144.947	1350	1.970	142.977
INT-02	0.000		145.174	600	2.317	142.857
7-SW07	0.000		145.091	1350	2.254	142.837
7-SW08	0.173	5.00	145.022	1200	1.531	143.491
7-SW09	0.275	5.00	145.065	1350	1.689	143.376
7-INT-01	0.000	5.00	145.065	600	1.801	143.264
7-DL-01	0.127	5.00	144.750	1200	1.450	143.300
6-SW01	0.198	5.00	145.096	1200	2.120	142.976

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)	Invert Level (m)
6-SW02	0.040	5.00	145.129	1200	2.350	142.779
6-SW03	0.362	5.00	145.129	1350	2.588	142.541
6-SW04	0.000		145.250	1350	2.949	142.301
6-SW05	0.045	5.00	145.379	1200	1.425	143.954
6-SW06	0.150	5.00	145.485	1200	1.885	143.600
6-SW07	0.104	5.00	145.635	1200	1.500	144.135
6-SW08	0.000		145.529	600	1.600	143.929
6-SW09	0.000		145.530	1200	2.320	143.210
6-SW10	0.350	5.00	145.574	1200	1.575	143.999
6-SW11	0.000		145.439	1200	1.758	143.681
6-SW12	0.000		145.488	1200	2.938	142.550
6-INT-01	0.000		145.043	1200	2.727	142.316
6-DL-01	0.036	5.00	144.400	1200	1.200	143.200

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1.000	SW01	SW02	32.676	0.600	143.897	143.156	0.741	44.1	1050	8.41	50.0
S1.001	SW02	SW03	28.085	0.600	143.156	142.358	0.798	35.2	1050	8.49	50.0
S1.002	SW03	SW04	51.482	0.600	141.908	141.702	0.206	249.9	1500	8.80	50.0
S1.003	SW04	SW05	52.723	0.600	141.702	141.432	0.270	195.3	1500	9.09	50.0
S1.004	SW05	SW06	26.679	0.600	141.432	141.325	0.107	249.3	1500	9.25	50.0
S1.005	SW06	SW10	97.528	0.600	141.325	140.936	0.389	250.7	1500	9.85	50.0
S1.006	SW10	OUTFALL	20.686	0.600	140.936	140.853	0.083	249.2	1500	9.98	50.0
S1.100	SW101	SW102	30.800	0.600	158.735	158.616	0.119	258.8	225	5.64	50.0
S1.101	SW102	SW104	20.000	0.600	158.616	158.223	0.393	50.9	225	5.82	50.0
S1.102	SW104	SW105	44.100	0.600	158.223	156.653	1.570	28.1	225	6.11	50.0
S1.103	SW105	SW106	27.500	0.600	156.578	156.150	0.428	64.3	300	6.35	50.0
S1.104	SW106	SW111	26.100	0.600	156.150	155.208	0.942	27.7	300	6.49	50.0
S1.105	SW111	SW112	64.600	0.600	155.058	154.800	0.258	250.4	450	7.33	50.0
S1.106	SW112	SW117	68.600	0.600	154.725	154.450	0.275	249.5	525	8.14	50.0
S1.107	SW117	SW118	25.100	0.600	151.435	148.821	2.614	9.6	525	8.20	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1.000	5.196	4499.0	876.6	1.531	1.638	4.851	0.0	311	4.080
S1.001	5.817	5037.4	985.9	1.638	2.157	5.456	0.0	312	4.577
S1.002	2.708	4786.1	1095.0	2.157	2.167	6.060	0.0	484	2.223
S1.003	3.066	5417.5	1229.3	2.167	2.490	6.803	0.0	482	2.511
S1.004	2.712	4791.7	1454.5	2.490	2.350	8.049	0.0	564	2.396
S1.005	2.704	4778.4	1745.0	2.350	2.664	9.657	0.0	625	2.505
S1.006	2.712	4792.7	2129.0	2.664	0.414	11.782	0.0	699	2.637
S1.100	0.808	32.1	10.5	1.204	1.323	0.058	0.0	88	0.724
S1.101	1.837	73.1	25.5	1.323	1.200	0.141	0.0	92	1.680
S1.102	2.478	98.5	42.6	1.200	2.020	0.236	0.0	103	2.389
S1.103	1.964	138.8	48.4	2.020	1.215	0.268	0.0	122	1.795
S1.104	2.998	211.9	49.3	1.215	1.389	0.273	0.0	98	2.460
S1.105	1.280	203.6	157.8	1.389	1.167	0.873	0.0	298	1.407
S1.106	1.413	306.0	157.8	1.167	1.461	0.873	0.0	267	1.424
S1.107	7.257	1570.9	361.6	4.476	4.410	2.001	0.0	170	5.943

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
S1.108	SW118	SW01	43.600	0.600	148.921	144.422	4.499	9.7	525	8.30	50.0
S2.100	SW103	SW104	8.500	0.600	159.348	158.298	1.050	8.1	150	5.04	50.0
S3.100	SW107	SW109	77.900	0.600	156.381	155.795	0.586	132.9	375	5.83	50.0
S3.101	SW109	SW110	24.500	0.600	155.795	155.440	0.355	69.0	375	6.01	50.0
S3.102	SW110	SW111	21.500	0.600	155.440	155.133	0.307	70.0	375	6.18	50.0
S4.100	SW108	SW109	14.300	0.600	156.539	155.945	0.594	24.1	225	5.09	50.0
S5.100	SW113	SW114	27.400	0.600	156.091	155.981	0.110	249.1	375	5.40	50.0
S5.101	SW114	SW115	27.400	0.600	155.906	155.796	0.110	249.1	450	5.76	50.0
S5.102	SW115	SW116	27.400	0.600	155.721	154.934	0.787	34.8	525	5.88	50.0
S5.103	SW116	SW117	37.600	0.600	154.934	154.450	0.484	77.7	525	6.12	50.0
7-S1.000	7-SW01	7-SW02	29.669	0.600	143.725	143.600	0.125	237.4	375	5.42	50.0
7-S1.001	7-SW02	7-SW03	31.980	0.600	143.450	143.343	0.107	298.9	525	5.84	50.0
7-S1.002	7-SW03	7-SW04	33.060	0.600	143.193	143.083	0.110	300.5	675	6.20	50.0
7-S1.003	7-SW04	SW06	58.787	0.600	143.083	142.150	0.933	63.0	675	6.50	50.0
7-S2.000	7-SW05	7-SW06	8.933	0.600	143.007	142.977	0.030	297.8	450	5.49	50.0
7-S2.001	7-SW06	INT-02	5.866	0.600	142.977	142.957	0.020	293.3	450	5.57	50.0
7-S2.002	INT-02	7-SW07	5.866	0.600	142.857	142.837	0.020	293.3	450	5.65	50.0
7-S2.003	7-SW07	SW04	25.606	0.600	142.837	142.752	0.085	301.2	450	6.02	50.0
7-S3.000	7-SW08	7-SW09	9.436	0.600	143.491	143.451	0.040	235.9	300	5.15	50.0
7-S3.001	7-SW09	7-INT-01	3.473	0.600	143.376	143.364	0.012	289.4	375	5.21	50.0
7-S3.002	7-INT-01	SW03	16.896	0.600	143.264	143.033	0.231	73.1	375	5.34	50.0
7-DOCK	7-DL-01	7-SW05	22.527	0.600	143.300	143.200	0.100	225.3	300	5.36	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
S1.108	7.223	1563.6	361.6	4.310	1.531	2.001	0.0	170	5.925
S2.100	3.563	63.0	6.9	1.014	1.200	0.038	0.0	33	2.337
S3.100	1.570	173.3	40.7	0.850	1.433	0.225	0.0	123	1.288
S3.101	2.183	241.1	62.9	1.433	1.821	0.348	0.0	130	1.846
S3.102	2.167	239.4	76.1	1.821	1.389	0.421	0.0	145	1.931
S4.100	2.677	106.5	14.1	1.200	1.433	0.078	0.0	55	1.870
S5.100	1.143	126.3	34.0	1.050	1.162	0.188	0.0	132	0.974
S5.101	1.283	204.1	101.9	1.162	1.272	0.564	0.0	225	1.282
S5.102	3.805	823.6	169.9	1.272	1.100	0.940	0.0	161	3.027
S5.103	2.543	550.4	203.8	1.100	1.461	1.128	0.0	221	2.361
7-S1.000	1.171	129.4	43.7	1.200	1.325	0.242	0.0	150	1.061
7-S1.001	1.290	279.3	131.2	1.325	1.432	0.726	0.0	253	1.271
7-S1.002	1.506	539.0	218.6	1.432	1.649	1.210	0.0	299	1.432
7-S1.003	3.305	1182.6	262.4	1.649	2.350	1.452	0.0	215	2.684
7-S2.000	1.173	186.5	106.1	1.375	1.520	0.587	0.0	243	1.208
7-S2.001	1.182	187.9	106.1	1.520	1.767	0.587	0.0	242	1.216
7-S2.002	1.182	187.9	106.1	1.867	1.804	0.587	0.0	242	1.216
7-S2.003	1.166	185.4	106.1	1.804	2.167	0.587	0.0	244	1.203
7-S3.000	1.019	72.0	31.3	1.231	1.314	0.173	0.0	138	0.984
7-S3.001	1.060	117.0	81.0	1.314	1.326	0.448	0.0	230	1.140
7-S3.002	2.120	234.2	81.0	1.426	2.157	0.448	0.0	152	1.934
7-DOCK	1.043	73.7	22.9	1.150	1.332	0.127	0.0	115	0.924

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
6-S1.000	6-SW01	6-SW02	21.420	0.600	142.976	142.854	0.122	175.6	300	5.76	50.0
6-S1.001	6-SW02	6-SW03	38.784	0.600	142.779	142.615	0.164	236.5	375	6.31	50.0
6-S1.002	6-SW03	6-INT-01	24.709	0.600	142.541	142.416	0.125	197.7	450	6.60	50.0
6-S1.003	6-INT-01	6-SW04	2.922	0.600	142.316	142.301	0.015	194.8	450	6.63	50.0
6-S1.004	6-SW04	SW10	18.402	0.600	142.301	141.986	0.315	58.4	450	6.74	50.0
6-S2.000	6-SW05	6-SW06	46.581	0.600	143.954	143.675	0.279	167.0	225	5.77	50.0
6-S2.001	6-SW06	6-SW09	75.035	0.600	143.600	143.285	0.315	238.2	300	7.00	50.0
6-S3.000	6-SW07	6-SW08	49.041	0.600	144.135	143.929	0.206	238.1	300	5.81	50.0
6-S3.001	6-SW08	6-SW09	48.184	0.600	143.929	143.285	0.644	74.8	300	6.25	50.0
6-S2.002	6-SW09	6-SW12	27.093	0.600	143.210	142.625	0.585	46.3	375	7.17	50.0
6-S4.000	6-SW10	6-SW11	72.292	0.600	143.999	143.681	0.318	227.3	375	6.01	50.0
6-S4.001	6-SW11	6-SW12	17.275	0.600	143.681	142.625	1.056	16.4	375	6.07	50.0
6-S2.003	6-SW12	SW05	11.409	0.600	142.550	142.482	0.068	167.8	450	7.29	50.0
6-DOCK	6-DL-01	6-SW01	26.700	0.600	143.200	143.051	0.149	179.2	225	5.46	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
6-S1.000	1.183	83.6	42.3	1.820	1.975	0.234	0.0	151	1.186
6-S1.001	1.174	129.6	49.5	1.975	2.139	0.274	0.0	161	1.098
6-S1.002	1.442	229.4	114.9	2.138	2.177	0.636	0.0	225	1.443
6-S1.003	1.453	231.1	114.9	2.277	2.499	0.636	0.0	225	1.452
6-S1.004	2.663	423.6	114.9	2.499	2.664	0.636	0.0	160	2.280
6-S2.000	1.009	40.1	8.1	1.200	1.585	0.045	0.0	68	0.792
6-S2.001	1.014	71.7	35.2	1.585	1.945	0.195	0.0	149	1.010
6-S3.000	1.014	71.7	18.8	1.200	1.300	0.104	0.0	105	0.858
6-S3.001	1.819	128.6	18.8	1.300	1.945	0.104	0.0	77	1.310
6-S2.002	2.668	294.7	54.0	1.945	2.488	0.299	0.0	108	2.051
6-S4.000	1.197	132.2	63.2	1.200	1.383	0.350	0.0	183	1.185
6-S4.001	4.498	496.8	63.2	1.383	2.488	0.350	0.0	90	3.127
6-S2.003	1.566	249.1	117.3	2.488	2.490	0.649	0.0	218	1.545
6-DOCK	0.973	38.7	6.5	0.975	1.820	0.036	0.0	62	0.725

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
Rainfall Events	Singular	Skip Steady State	x
FSR Region	England and Wales	Drain Down Time (mins)	240
M5-60 (mm)	20.000	Additional Storage (m³/ha)	0.0
Ratio-R	0.300	Starting Level (m)	
Summer CV	1.000	Check Discharge Rate(s)	x
Winter CV	1.000	Check Discharge Volume	x

Storm Durations

15	60	180	360	600	960	2160	4320	7200	10080
30	120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	0	0	0
30	40	0	0
100	40	0	0

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SW01	19	144.190	0.293	650.2	0.5178	0.0000	OK
30 minute summer	SW02	19	143.459	0.303	725.8	0.7707	0.0000	OK
30 minute summer	SW03	19	142.369	0.461	808.7	1.5970	0.0000	OK
15 minute summer	SW04	12	142.180	0.478	915.4	1.6543	0.0000	OK
15 minute summer	SW05	12	142.033	0.601	1096.5	2.7168	0.0000	OK
15 minute summer	SW06	12	141.914	0.589	1338.1	2.0393	0.0000	OK
15 minute summer	SW10	12	141.610	0.674	1633.4	3.8605	0.0000	OK
15 minute summer	OUTFALL	12	141.429	0.576	1637.8	0.0000	0.0000	OK
15 minute summer	SW101	10	158.819	0.084	9.4	0.0948	0.0000	OK
15 minute summer	SW102	10	158.704	0.088	22.7	0.0996	0.0000	OK
15 minute summer	SW103	10	159.381	0.033	6.2	0.0373	0.0000	OK
15 minute summer	SW104	11	158.321	0.098	37.9	0.1113	0.0000	OK
15 minute summer	SW105	11	156.701	0.123	42.5	0.1386	0.0000	OK
15 minute summer	SW106	11	156.242	0.092	43.5	0.1037	0.0000	OK
15 minute summer	SW107	10	156.497	0.116	36.6	0.1307	0.0000	OK
15 minute summer	SW108	10	156.593	0.054	12.7	0.0615	0.0000	OK
15 minute summer	SW109	11	155.922	0.127	55.9	0.1434	0.0000	OK
15 minute summer	SW110	11	155.584	0.144	67.0	0.1625	0.0000	OK
15 minute summer	SW111	11	155.338	0.280	138.8	0.7118	0.0000	OK
15 minute summer	SW112	12	154.977	0.252	135.3	0.6411	0.0000	OK
15 minute summer	SW113	10	156.221	0.130	30.6	0.2291	0.0000	OK
15 minute summer	SW114	10	156.128	0.222	91.3	0.3918	0.0000	OK
15 minute summer	SW115	10	155.874	0.153	150.4	0.3888	0.0000	OK
15 minute summer	SW116	11	155.153	0.219	180.3	0.5566	0.0000	OK
15 minute summer	SW117	11	151.588	0.153	303.6	0.3903	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	SW01	S1.000	SW02	649.8	3.231	0.144	6.5739	
30 minute summer	SW02	S1.001	SW03	723.1	3.895	0.144	5.2218	
30 minute summer	SW03	S1.002	SW04	808.3	1.733	0.169	24.1282	
15 minute summer	SW04	S1.003	SW05	922.3	1.647	0.170	30.0564	
15 minute summer	SW05	S1.004	SW06	1102.6	1.730	0.230	17.3303	
15 minute summer	SW06	S1.005	SW10	1349.0	1.947	0.282	68.6655	
15 minute summer	SW10	S1.006	OUTFALL	1637.8	2.360	0.342	14.3663	827.5
15 minute summer	SW101	S1.100	SW102	9.3	0.667	0.288	0.4290	
15 minute summer	SW102	S1.101	SW104	22.5	1.450	0.308	0.3104	
15 minute summer	SW103	S2.100	SW104	6.2	2.211	0.098	0.0237	
15 minute summer	SW104	S1.102	SW105	37.5	2.289	0.381	0.7227	
15 minute summer	SW105	S1.103	SW106	42.7	1.894	0.308	0.6224	
15 minute summer	SW106	S1.104	SW111	43.7	2.153	0.206	0.6182	
15 minute summer	SW107	S3.100	SW109	36.0	1.177	0.208	2.3856	
15 minute summer	SW108	S4.100	SW109	12.6	1.761	0.118	0.1024	
15 minute summer	SW109	S3.101	SW110	55.7	1.558	0.231	0.8765	
15 minute summer	SW110	S3.102	SW111	67.3	1.479	0.281	1.0784	
15 minute summer	SW111	S1.105	SW112	135.3	1.387	0.665	6.3774	
15 minute summer	SW112	S1.106	SW117	135.9	1.378	0.444	6.7931	
15 minute summer	SW113	S5.100	SW114	30.3	0.828	0.240	1.0096	
15 minute summer	SW114	S5.101	SW115	89.9	1.221	0.440	2.0215	
15 minute summer	SW115	S5.102	SW116	149.7	2.200	0.182	1.8738	
15 minute summer	SW116	S5.103	SW117	180.2	2.228	0.327	3.0413	
15 minute summer	SW117	S1.107	SW118	302.9	3.811	0.193	2.0126	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW118	12	149.084	0.263	302.9	0.4647	0.0000	OK
15 minute summer	7-SW01	10	143.871	0.146	39.3	0.1652	0.0000	OK
15 minute summer	7-SW02	10	143.699	0.249	117.2	0.4392	0.0000	OK
15 minute summer	7-SW03	10	143.473	0.280	194.0	0.4943	0.0000	OK
15 minute summer	7-SW04	11	143.292	0.209	231.6	0.3692	0.0000	OK
15 minute summer	7-SW05	10	143.274	0.267	95.1	0.3819	0.0000	OK
15 minute summer	7-SW06	10	143.224	0.247	94.6	0.3537	0.0000	OK
15 minute summer	INT-02	10	143.121	0.264	93.9	0.0747	0.0000	OK
15 minute summer	7-SW07	11	143.075	0.238	93.7	0.3411	0.0000	OK
15 minute summer	7-SW08	10	143.642	0.151	28.1	0.1712	0.0000	OK
15 minute summer	7-SW09	10	143.607	0.231	72.5	0.3308	0.0000	OK
15 minute summer	7-INT-01	10	143.420	0.156	72.1	0.0441	0.0000	OK
15 minute summer	7-DL-01	10	143.412	0.112	20.7	0.1268	0.0000	OK
15 minute summer	6-SW01	10	143.125	0.149	38.0	0.1682	0.0000	OK
15 minute summer	6-SW02	10	142.934	0.155	43.7	0.1750	0.0000	OK
15 minute summer	6-SW03	11	142.764	0.223	102.1	0.3189	0.0000	OK
15 minute summer	6-SW04	11	142.465	0.164	101.5	0.2347	0.0000	OK
15 minute summer	6-SW05	11	144.018	0.064	7.3	0.0728	0.0000	OK
15 minute summer	6-SW06	11	143.737	0.137	31.1	0.1547	0.0000	OK
15 minute summer	6-SW07	10	144.237	0.102	16.9	0.1158	0.0000	OK
15 minute summer	6-SW08	11	144.002	0.073	16.6	0.0207	0.0000	OK
15 minute summer	6-SW09	11	143.309	0.099	46.1	0.1118	0.0000	OK
15 minute summer	6-SW10	10	144.182	0.183	56.9	0.2065	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW118	S1.108	SW01	304.2	5.544	0.195	2.3927	
15 minute summer	7-SW01	7-S1.000	7-SW02	38.6	1.015	0.298	1.1344	
15 minute summer	7-SW02	7-S1.001	7-SW03	115.7	1.228	0.414	3.0287	
15 minute summer	7-SW03	7-S1.002	7-SW04	192.3	1.663	0.357	3.8401	
15 minute summer	7-SW04	7-S1.003	SW06	232.5	2.570	0.197	5.3211	
15 minute summer	7-SW05	7-S2.000	7-SW06	94.6	1.011	0.507	0.8356	
15 minute summer	7-SW06	7-S2.001	INT-02	93.9	1.153	0.500	0.4779	
15 minute summer	INT-02	7-S2.002	7-SW07	93.7	1.033	0.498	0.5324	
15 minute summer	7-SW07	7-S2.003	SW04	94.2	1.183	0.508	2.0377	
15 minute summer	7-SW08	7-S3.000	7-SW09	27.9	0.801	0.387	0.3429	
15 minute summer	7-SW09	7-S3.001	7-INT-01	72.1	1.113	0.616	0.2250	
15 minute summer	7-INT-01	7-S3.002	SW03	71.7	1.775	0.306	0.6826	
15 minute summer	7-DL-01	7-DOCK	7-SW05	20.3	0.880	0.276	0.5219	
15 minute summer	6-SW01	6-S1.000	6-SW02	37.2	1.124	0.445	0.7130	
15 minute summer	6-SW02	6-S1.001	6-SW03	43.9	1.053	0.339	1.6173	
15 minute summer	6-SW03	6-S1.002	6-INT-01	101.4	1.364	0.442	1.8366	
15 minute summer	6-SW04	6-S1.004	SW10	101.9	2.091	0.241	0.8975	
15 minute summer	6-SW05	6-S2.000	6-SW06	7.1	0.762	0.176	0.4311	
15 minute summer	6-SW06	6-S2.001	6-SW09	29.7	0.976	0.415	2.2944	
15 minute summer	6-SW07	6-S3.000	6-SW08	16.6	0.994	0.232	0.8338	
15 minute summer	6-SW08	6-S3.001	6-SW09	16.4	1.252	0.127	0.6297	
15 minute summer	6-SW09	6-S2.002	6-SW12	45.9	1.607	0.156	0.8601	
15 minute summer	6-SW10	6-S4.000	6-SW11	55.9	1.604	0.423	2.5824	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	6-SW11	11	143.765	0.084	55.9	0.0951	0.0000	OK
15 minute summer	6-SW12	11	142.773	0.223	101.8	0.2521	0.0000	OK
15 minute summer	6-INT-01	11	142.535	0.218	101.4	0.2471	0.0000	OK
15 minute summer	6-DL-01	10	143.258	0.058	5.9	0.0661	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	6-SW11	6-S4.001	6-SW12	55.9	2.408	0.113	0.5074	
15 minute summer	6-SW12	6-S2.003	SW05	101.7	1.406	0.408	0.8253	
15 minute summer	6-INT-01	6-S1.003	6-SW04	101.5	1.582	0.439	0.1878	
15 minute summer	6-DL-01	6-DOCK	6-SW01	5.8	0.624	0.150	0.2598	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.98%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SW01	19	144.237	0.340	838.1	0.6004	0.0000	OK
30 minute summer	SW02	19	143.508	0.352	935.6	0.8955	0.0000	OK
30 minute summer	SW03	19	142.447	0.539	1043.0	1.8656	0.0000	OK
15 minute summer	SW04	12	142.268	0.566	1183.5	1.9616	0.0000	OK
15 minute summer	SW05	12	142.141	0.709	1420.2	3.2081	0.0000	OK
15 minute summer	SW06	12	142.017	0.692	1732.5	2.3963	0.0000	OK
15 minute summer	SW10	12	141.719	0.783	2117.9	4.4808	0.0000	OK
15 minute summer	OUTFALL	12	141.518	0.664	2126.1	0.0000	0.0000	OK
15 minute summer	SW101	10	158.832	0.097	12.2	0.1098	0.0000	OK
15 minute summer	SW102	10	158.719	0.103	29.5	0.1160	0.0000	OK
15 minute summer	SW103	10	159.385	0.037	8.0	0.0420	0.0000	OK
15 minute summer	SW104	11	158.338	0.115	49.1	0.1297	0.0000	OK
15 minute summer	SW105	11	156.720	0.142	54.9	0.1607	0.0000	OK
15 minute summer	SW106	11	156.255	0.105	56.2	0.1185	0.0000	OK
15 minute summer	SW107	10	156.514	0.133	47.3	0.1499	0.0000	OK
15 minute summer	SW108	10	156.601	0.062	16.4	0.0704	0.0000	OK
15 minute summer	SW109	11	155.942	0.147	72.4	0.1660	0.0000	OK
15 minute summer	SW110	11	155.612	0.172	86.6	0.1945	0.0000	OK
15 minute summer	SW111	11	155.396	0.338	179.5	0.8591	0.0000	OK
15 minute summer	SW112	12	155.020	0.295	175.0	0.7517	0.0000	OK
15 minute summer	SW113	10	156.241	0.149	39.5	0.2641	0.0000	OK
15 minute summer	SW114	10	156.167	0.261	118.1	0.4603	0.0000	OK
15 minute summer	SW115	10	155.898	0.177	194.6	0.4514	0.0000	OK
15 minute summer	SW116	11	155.189	0.255	233.2	0.6489	0.0000	OK
15 minute summer	SW117	11	151.613	0.178	394.8	0.4520	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	SW01	S1.000	SW02	837.7	3.386	0.186	8.0858	
30 minute summer	SW02	S1.001	SW03	932.8	4.131	0.185	6.3535	
30 minute summer	SW03	S1.002	SW04	1042.1	1.789	0.218	30.0924	
15 minute summer	SW04	S1.003	SW05	1194.2	1.714	0.220	37.6319	
15 minute summer	SW05	S1.004	SW06	1429.2	1.813	0.298	21.5100	
15 minute summer	SW06	S1.005	SW10	1748.8	2.063	0.366	83.9881	
15 minute summer	SW10	S1.006	OUTFALL	2126.1	2.529	0.444	17.3946	1070.5
15 minute summer	SW101	S1.100	SW102	12.0	0.708	0.373	0.5234	
15 minute summer	SW102	S1.101	SW104	29.1	1.538	0.399	0.3790	
15 minute summer	SW103	S2.100	SW104	8.0	2.326	0.127	0.0301	
15 minute summer	SW104	S1.102	SW105	48.5	2.440	0.493	0.8773	
15 minute summer	SW105	S1.103	SW106	55.2	2.022	0.398	0.7530	
15 minute summer	SW106	S1.104	SW111	56.4	2.103	0.266	0.8905	
15 minute summer	SW107	S3.100	SW109	46.6	1.251	0.269	2.9043	
15 minute summer	SW108	S4.100	SW109	16.3	1.888	0.153	0.1235	
15 minute summer	SW109	S3.101	SW110	72.0	1.616	0.299	1.0925	
15 minute summer	SW110	S3.102	SW111	87.2	1.506	0.364	1.4155	
15 minute summer	SW111	S1.105	SW112	175.0	1.487	0.860	7.6750	
15 minute summer	SW112	S1.106	SW117	176.0	1.467	0.575	8.2719	
15 minute summer	SW113	S5.100	SW114	39.1	0.832	0.309	1.3049	
15 minute summer	SW114	S5.101	SW115	116.1	1.296	0.569	2.4619	
15 minute summer	SW115	S5.102	SW116	193.7	2.317	0.235	2.2989	
15 minute summer	SW116	S5.103	SW117	232.8	2.370	0.423	3.6943	
15 minute summer	SW117	S1.107	SW118	394.1	4.264	0.251	2.3284	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.98%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW118	11	149.109	0.288	394.1	0.5091	0.0000	OK
15 minute summer	7-SW01	10	143.895	0.170	50.9	0.1918	0.0000	OK
15 minute summer	7-SW02	10	143.740	0.290	151.8	0.5126	0.0000	OK
15 minute summer	7-SW03	10	143.515	0.322	251.3	0.5696	0.0000	OK
15 minute summer	7-SW04	11	143.324	0.241	300.2	0.4257	0.0000	OK
15 minute summer	7-SW05	10	143.321	0.314	123.0	0.4495	0.0000	OK
15 minute summer	7-SW06	10	143.264	0.287	122.5	0.4108	0.0000	OK
15 minute summer	INT-02	10	143.168	0.311	121.7	0.0881	0.0000	OK
15 minute summer	7-SW07	11	143.116	0.279	121.4	0.3990	0.0000	OK
15 minute summer	7-SW08	10	143.676	0.185	36.4	0.2092	0.0000	OK
15 minute summer	7-SW09	10	143.645	0.269	93.9	0.3847	0.0000	OK
15 minute summer	7-INT-01	10	143.446	0.182	93.4	0.0515	0.0000	OK
15 minute summer	7-DL-01	10	143.430	0.130	26.7	0.1467	0.0000	OK
15 minute summer	6-SW01	10	143.150	0.174	49.0	0.1972	0.0000	OK
15 minute summer	6-SW02	10	142.959	0.180	56.5	0.2035	0.0000	OK
15 minute summer	6-SW03	11	142.802	0.261	131.8	0.3738	0.0000	OK
15 minute summer	6-SW04	11	142.492	0.191	131.0	0.2727	0.0000	OK
15 minute summer	6-SW05	10	144.028	0.074	9.5	0.0839	0.0000	OK
15 minute summer	6-SW06	11	143.760	0.160	40.8	0.1809	0.0000	OK
15 minute summer	6-SW07	10	144.252	0.117	21.9	0.1326	0.0000	OK
15 minute summer	6-SW08	11	144.013	0.084	21.6	0.0237	0.0000	OK
15 minute summer	6-SW09	11	143.323	0.113	59.9	0.1279	0.0000	OK
15 minute summer	6-SW10	10	144.210	0.211	73.6	0.2391	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW118	S1.108	SW01	393.3	5.923	0.252	2.8959	
15 minute summer	7-SW01	7-S1.000	7-SW02	50.1	1.083	0.387	1.3774	
15 minute summer	7-SW02	7-S1.001	7-SW03	149.5	1.320	0.535	3.6514	
15 minute summer	7-SW03	7-S1.002	7-SW04	249.3	1.778	0.463	4.6521	
15 minute summer	7-SW04	7-S1.003	SW06	301.1	2.748	0.255	6.4415	
15 minute summer	7-SW05	7-S2.000	7-SW06	122.5	1.089	0.657	1.0045	
15 minute summer	7-SW06	7-S2.001	INT-02	121.7	1.251	0.648	0.5701	
15 minute summer	INT-02	7-S2.002	7-SW07	121.4	1.103	0.646	0.6453	
15 minute summer	7-SW07	7-S2.003	SW04	121.7	1.275	0.656	2.4426	
15 minute summer	7-SW08	7-S3.000	7-SW09	36.1	0.797	0.501	0.4422	
15 minute summer	7-SW09	7-S3.001	7-INT-01	93.4	1.215	0.798	0.2663	
15 minute summer	7-INT-01	7-S3.002	SW03	92.8	1.887	0.396	0.8312	
15 minute summer	7-DL-01	7-DOCK	7-SW05	26.3	0.940	0.356	0.6318	
15 minute summer	6-SW01	6-S1.000	6-SW02	48.1	1.194	0.575	0.8666	
15 minute summer	6-SW02	6-S1.001	6-SW03	56.6	1.075	0.437	2.0787	
15 minute summer	6-SW03	6-S1.002	6-INT-01	130.9	1.450	0.571	2.2318	
15 minute summer	6-SW04	6-S1.004	SW10	131.4	2.223	0.310	1.0885	
15 minute summer	6-SW05	6-S2.000	6-SW06	9.2	0.779	0.230	0.5780	
15 minute summer	6-SW06	6-S2.001	6-SW09	38.6	1.049	0.538	2.7692	
15 minute summer	6-SW07	6-S3.000	6-SW08	21.6	1.064	0.301	1.0055	
15 minute summer	6-SW08	6-S3.001	6-SW09	21.3	1.349	0.166	0.7625	
15 minute summer	6-SW09	6-S2.002	6-SW12	59.7	1.633	0.203	1.1163	
15 minute summer	6-SW10	6-S4.000	6-SW11	72.4	1.717	0.547	3.1070	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.98%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	6-SW11	11	143.777	0.096	72.4	0.1081	0.0000	OK
15 minute summer	6-SW12	11	142.811	0.261	132.0	0.2950	0.0000	OK
15 minute summer	6-INT-01	11	142.569	0.253	130.9	0.2862	0.0000	OK
15 minute summer	6-DL-01	10	143.266	0.066	7.6	0.0752	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	6-SW11	6-S4.001	6-SW12	72.3	2.325	0.146	0.6611	
15 minute summer	6-SW12	6-S2.003	SW05	131.7	1.499	0.529	1.0024	
15 minute summer	6-INT-01	6-S1.003	6-SW04	131.0	1.684	0.567	0.2274	
15 minute summer	6-DL-01	6-DOCK	6-SW01	7.5	0.649	0.193	0.3560	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SW01	19	144.530	0.633	2163.8	1.1189	0.0000	OK
15 minute summer	SW02	12	143.876	0.720	2390.1	1.8326	0.0000	OK
15 minute summer	SW03	12	143.364	1.456	2696.8	5.0432	0.0000	OK
15 minute summer	SW04	12	143.218	1.516	3002.6	5.2500	0.0000	SURCHARGED
15 minute summer	SW05	12	143.076	1.644	3582.7	7.4373	0.0000	SURCHARGED
15 minute summer	SW06	12	142.930	1.605	4303.5	5.5587	0.0000	SURCHARGED
15 minute summer	SW10	12	142.473	1.537	5304.0	8.8015	0.0000	SURCHARGED
15 minute summer	OUTFALL	12	142.049	1.196	5291.4	0.0000	0.0000	OK
15 minute summer	SW101	12	159.816	1.081	32.3	1.2229	0.0000	SURCHARGED
15 minute summer	SW102	12	159.726	1.110	73.0	1.2550	0.0000	SURCHARGED
15 minute summer	SW103	12	159.452	0.104	21.2	0.1178	0.0000	OK
15 minute summer	SW104	12	159.361	1.138	114.2	1.2872	0.0000	FLOOD RISK
15 minute summer	SW105	12	157.320	0.742	122.9	0.8396	0.0000	SURCHARGED
15 minute summer	SW106	12	156.922	0.772	124.0	0.8731	0.0000	SURCHARGED
15 minute summer	SW107	12	157.233	0.852	125.4	0.9632	0.0000	SURCHARGED
15 minute summer	SW108	12	157.114	0.575	43.5	0.6505	0.0000	SURCHARGED
15 minute summer	SW109	12	157.020	1.225	179.2	1.3850	0.0000	SURCHARGED
15 minute summer	SW110	12	156.807	1.367	195.7	1.5457	0.0000	SURCHARGED
15 minute summer	SW111	12	156.523	1.465	395.8	3.7278	0.0000	SURCHARGED
15 minute summer	SW112	12	155.388	0.663	395.3	1.6868	0.0000	SURCHARGED
15 minute summer	SW113	10	156.638	0.547	104.8	0.9657	0.0000	SURCHARGED
15 minute summer	SW114	10	156.537	0.631	313.2	1.1154	0.0000	SURCHARGED
15 minute summer	SW115	10	156.134	0.413	520.2	1.0514	0.0000	OK
15 minute summer	SW116	10	155.736	0.802	614.1	2.0401	0.0000	SURCHARGED
15 minute summer	SW117	11	151.769	0.334	976.8	0.8506	0.0000	OK
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	SW01	S1.000	SW02	2164.2	3.887	0.481	18.6415	
15 minute summer	SW02	S1.001	SW03	2372.0	4.763	0.471	20.8011	
15 minute summer	SW03	S1.002	SW04	2671.4	1.924	0.558	90.2579	
15 minute summer	SW04	S1.003	SW05	3101.0	1.875	0.572	92.8131	
15 minute summer	SW05	S1.004	SW06	3622.9	2.061	0.756	46.9679	
15 minute summer	SW06	S1.005	SW10	4336.1	2.467	0.907	171.6964	
15 minute summer	SW10	S1.006	OUTFALL	5291.4	3.143	1.104	33.7829	2830.3
15 minute summer	SW101	S1.100	SW102	29.0	0.812	0.901	1.2249	
15 minute summer	SW102	S1.101	SW104	63.5	1.716	0.870	0.7954	
15 minute summer	SW103	S2.100	SW104	20.6	2.401	0.328	0.1303	
15 minute summer	SW104	S1.102	SW105	105.7	2.665	1.073	1.7539	
15 minute summer	SW105	S1.103	SW106	121.2	2.234	0.873	1.9365	
15 minute summer	SW106	S1.104	SW111	132.2	2.162	0.624	1.8379	
15 minute summer	SW107	S3.100	SW109	119.8	1.418	0.691	8.5921	
15 minute summer	SW108	S4.100	SW109	41.8	2.237	0.393	0.5687	
15 minute summer	SW109	S3.101	SW110	161.2	1.687	0.668	2.7023	
15 minute summer	SW110	S3.102	SW111	194.7	1.765	0.813	2.3714	
15 minute summer	SW111	S1.105	SW112	395.3	2.495	1.942	10.2354	
15 minute summer	SW112	S1.106	SW117	392.7	1.849	1.283	13.8051	
15 minute summer	SW113	S5.100	SW114	103.7	0.940	0.821	3.0221	
15 minute summer	SW114	S5.101	SW115	310.7	1.971	1.522	4.1571	
15 minute summer	SW115	S5.102	SW116	509.3	2.588	0.618	5.4570	
15 minute summer	SW116	S5.103	SW117	614.9	2.846	1.117	8.0192	
15 minute summer	SW117	S1.107	SW118	977.3	5.776	0.622	4.2144	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW118	11	149.255	0.434	977.3	0.7663	0.0000	OK
15 minute summer	7-SW01	10	144.283	0.558	134.8	0.6307	0.0000	SURCHARGED
15 minute summer	7-SW02	10	144.105	0.655	403.9	1.1580	0.0000	SURCHARGED
15 minute summer	7-SW03	10	143.803	0.610	670.8	1.0773	0.0000	OK
15 minute summer	7-SW04	10	143.527	0.444	792.7	0.7840	0.0000	OK
15 minute summer	7-SW05	10	144.024	1.017	325.0	1.4547	0.0000	SURCHARGED
15 minute summer	7-SW06	10	143.826	0.849	322.8	1.2146	0.0000	SURCHARGED
15 minute summer	INT-02	10	143.661	0.804	320.9	0.2276	0.0000	SURCHARGED
15 minute summer	7-SW07	10	143.498	0.661	319.9	0.9459	0.0000	SURCHARGED
15 minute summer	7-SW08	10	144.074	0.583	96.4	0.6599	0.0000	SURCHARGED
15 minute summer	7-SW09	10	143.955	0.579	248.2	0.8287	0.0000	SURCHARGED
15 minute summer	7-INT-01	10	143.773	0.509	246.8	0.1441	0.0000	SURCHARGED
15 minute summer	7-DL-01	10	144.140	0.840	70.8	0.9498	0.0000	SURCHARGED
15 minute summer	6-SW01	11	143.908	0.932	127.0	1.0540	0.0000	SURCHARGED
15 minute summer	6-SW02	11	143.538	0.759	147.6	0.8583	0.0000	SURCHARGED
15 minute summer	6-SW03	11	143.274	0.733	345.0	1.0494	0.0000	SURCHARGED
15 minute summer	6-SW04	11	142.718	0.416	341.8	0.5959	0.0000	OK
15 minute summer	6-SW05	12	144.160	0.206	25.1	0.2329	0.0000	OK
15 minute summer	6-SW06	11	144.083	0.483	107.2	0.5467	0.0000	SURCHARGED
15 minute summer	6-SW07	10	144.342	0.207	58.0	0.2337	0.0000	OK
15 minute summer	6-SW08	11	144.073	0.144	57.2	0.0408	0.0000	OK
15 minute summer	6-SW09	12	143.459	0.249	152.3	0.2812	0.0000	OK
15 minute summer	6-SW10	11	144.755	0.756	195.0	0.8546	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW118	S1.108	SW01	976.0	7.260	0.624	5.8582	
15 minute summer	7-SW01	7-S1.000	7-SW02	134.3	1.217	1.038	3.2724	
15 minute summer	7-SW02	7-S1.001	7-SW03	401.1	1.861	1.436	6.6603	
15 minute summer	7-SW03	7-S1.002	7-SW04	657.8	2.246	1.220	9.7195	
15 minute summer	7-SW04	7-S1.003	SW06	799.3	3.259	0.676	17.7400	
15 minute summer	7-SW05	7-S2.000	7-SW06	322.8	2.037	1.730	1.4154	
15 minute summer	7-SW06	7-S2.001	INT-02	320.9	2.026	1.708	0.9294	
15 minute summer	INT-02	7-S2.002	7-SW07	319.9	2.019	1.702	0.9294	
15 minute summer	7-SW07	7-S2.003	SW04	319.3	2.022	1.722	4.0571	
15 minute summer	7-SW08	7-S3.000	7-SW09	95.0	1.349	1.319	0.6645	
15 minute summer	7-SW09	7-S3.001	7-INT-01	246.8	2.238	2.109	0.3831	
15 minute summer	7-INT-01	7-S3.002	SW03	246.1	2.231	1.051	1.8324	
15 minute summer	7-DL-01	7-DOCK	7-SW05	69.2	0.982	0.938	1.5863	
15 minute summer	6-SW01	6-S1.000	6-SW02	126.3	1.794	1.510	1.5084	
15 minute summer	6-SW02	6-S1.001	6-SW03	148.4	1.346	1.145	4.2778	
15 minute summer	6-SW03	6-S1.002	6-INT-01	342.5	2.162	1.493	3.9150	
15 minute summer	6-SW04	6-S1.004	SW10	340.1	2.589	0.803	2.8672	
15 minute summer	6-SW05	6-S2.000	6-SW06	23.7	0.830	0.590	1.8139	
15 minute summer	6-SW06	6-S2.001	6-SW09	95.2	1.378	1.329	4.9075	
15 minute summer	6-SW07	6-S3.000	6-SW08	57.2	1.350	0.798	2.0701	
15 minute summer	6-SW08	6-S3.001	6-SW09	57.1	1.750	0.444	1.7430	
15 minute summer	6-SW09	6-S2.002	6-SW12	149.9	1.668	0.509	2.5446	
15 minute summer	6-SW10	6-S4.000	6-SW11	187.8	2.046	1.420	5.8621	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.77%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	6-SW11	12	143.860	0.179	187.8	0.2024	0.0000	OK
15 minute summer	6-SW12	12	143.305	0.754	334.9	0.8533	0.0000	SURCHARGED
15 minute summer	6-INT-01	11	142.884	0.568	342.5	0.6428	0.0000	SURCHARGED
15 minute summer	6-DL-01	11	143.958	0.758	22.7	0.8571	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	6-SW11	6-S4.001	6-SW12	185.0	2.399	0.372	1.4008	
15 minute summer	6-SW12	6-S2.003	SW05	324.6	2.049	1.303	1.8077	
15 minute summer	6-INT-01	6-S1.003	6-SW04	341.8	2.179	1.479	0.4553	
15 minute summer	6-DL-01	6-DOCK	6-SW01	23.0	0.693	0.593	1.0619	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.56%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SW01	18	145.516	1.619	2789.8	2.8599	0.0000	SURCHARGED
30 minute summer	SW02	18	144.966	1.810	3139.2	4.6053	0.0000	SURCHARGED
30 minute summer	SW03	18	144.351	2.443	3497.3	8.4623	0.0000	SURCHARGED
30 minute summer	SW04	18	144.169	2.467	3871.4	8.5467	0.0000	SURCHARGED
30 minute summer	SW05	18	143.936	2.504	4636.1	11.3301	0.0000	SURCHARGED
30 minute summer	SW06	18	143.676	2.351	5661.9	8.1444	0.0000	SURCHARGED
15 minute summer	SW10	11	142.864	1.928	7110.0	11.0376	0.0000	SURCHARGED
15 minute summer	OUTFALL	11	142.199	1.346	7118.6	0.0000	0.0000	OK
15 minute summer	SW101	10	160.164	1.429	41.8	1.6162	3.7228	FLOOD
15 minute summer	SW102	10	160.164	1.548	79.8	1.7508	0.1470	FLOOD
15 minute summer	SW103	11	159.906	0.558	27.4	0.6315	0.0000	SURCHARGED
15 minute summer	SW104	10	159.648	1.425	137.6	1.6117	5.3714	FLOOD
15 minute summer	SW105	11	157.758	1.180	132.3	1.3349	0.0000	SURCHARGED
15 minute summer	SW106	11	157.331	1.181	131.7	1.3354	0.0000	SURCHARGED
15 minute summer	SW107	10	157.606	1.225	162.0	1.3855	10.3044	FLOOD
30 minute summer	SW108	18	157.692	1.153	53.2	1.3039	0.0000	FLOOD RISK
30 minute summer	SW109	18	157.475	1.680	195.7	1.8998	0.0000	FLOOD RISK
30 minute summer	SW110	18	157.249	1.809	228.7	2.0456	0.0000	SURCHARGED
30 minute summer	SW111	18	156.897	1.839	463.3	4.6803	2.0302	FLOOD
15 minute winter	SW112	11	155.513	0.788	435.9	2.0044	0.0000	SURCHARGED
15 minute summer	SW113	10	157.516	1.425	135.4	2.5180	2.5834	FLOOD
15 minute summer	SW114	10	157.435	1.529	377.4	2.7021	0.0000	FLOOD RISK
15 minute summer	SW115	10	156.922	1.201	647.8	3.0565	0.0000	SURCHARGED
15 minute summer	SW116	10	156.211	1.277	777.3	3.2494	0.0000	SURCHARGED
15 minute summer	SW117	11	151.842	0.407	1204.8	1.0363	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
30 minute summer	SW01	S1.000	SW02	2797.9	3.859	0.622	28.1875	
30 minute summer	SW02	S1.001	SW03	3141.5	4.697	0.624	24.2271	
30 minute summer	SW03	S1.002	SW04	3500.9	1.989	0.731	90.6332	
30 minute summer	SW04	S1.003	SW05	3876.8	2.202	0.716	92.8179	
30 minute summer	SW05	S1.004	SW06	4643.5	2.638	0.969	46.9679	
30 minute summer	SW06	S1.005	SW10	5667.4	3.220	1.186	171.6964	
15 minute summer	SW10	S1.006	OUTFALL	7118.6	4.047	1.485	35.4442	3601.8
15 minute summer	SW101	S1.100	SW102	28.4	0.864	0.884	1.2249	
15 minute summer	SW102	S1.101	SW104	73.9	1.858	1.012	0.7954	
15 minute summer	SW103	S2.100	SW104	26.4	2.368	0.419	0.1496	
15 minute summer	SW104	S1.102	SW105	110.4	2.776	1.120	1.7539	
15 minute summer	SW105	S1.103	SW106	128.3	2.284	0.924	1.9365	
15 minute summer	SW106	S1.104	SW111	133.9	2.107	0.632	1.8379	
15 minute summer	SW107	S3.100	SW109	116.1	1.464	0.670	8.5921	
30 minute summer	SW108	S4.100	SW109	54.7	2.323	0.514	0.5687	
30 minute summer	SW109	S3.101	SW110	179.0	1.700	0.742	2.7023	
30 minute summer	SW110	S3.102	SW111	216.7	1.965	0.905	2.3714	
30 minute summer	SW111	S1.105	SW112	436.8	2.757	2.146	10.2354	
15 minute winter	SW112	S1.106	SW117	436.1	2.035	1.425	14.0795	
15 minute summer	SW113	S5.100	SW114	126.6	1.148	1.003	3.0221	
15 minute summer	SW114	S5.101	SW115	377.1	2.380	1.847	4.3414	
15 minute summer	SW115	S5.102	SW116	641.9	2.972	0.779	5.9193	
15 minute summer	SW116	S5.103	SW117	770.7	3.568	1.400	8.0407	
15 minute summer	SW117	S1.107	SW118	1205.4	6.225	0.767	4.8543	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.56%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW118	11	149.301	0.480	1205.4	0.8484	0.0000	OK
15 minute summer	7-SW01	11	145.300	1.575	174.3	1.7813	3.3861	FLOOD
15 minute summer	7-SW02	11	145.161	1.711	495.0	3.0235	0.0000	FLOOD RISK
15 minute summer	7-SW03	11	144.771	1.578	810.0	2.7880	0.0000	SURCHARGED
30 minute summer	7-SW04	18	144.420	1.337	970.9	2.3621	0.0000	SURCHARGED
30 minute summer	7-SW05	18	144.822	1.815	393.1	2.5975	0.0000	FLOOD RISK
30 minute summer	7-SW06	18	144.672	1.695	375.2	2.4257	0.0000	FLOOD RISK
15 minute summer	INT-02	11	144.546	1.689	373.0	0.4780	0.0000	SURCHARGED
15 minute summer	7-SW07	11	144.421	1.584	368.1	2.2666	0.0000	SURCHARGED
30 minute summer	7-SW08	18	145.022	1.531	118.0	1.7316	4.6890	FLOOD
30 minute summer	7-SW09	18	144.983	1.607	301.5	2.2994	0.0000	FLOOD RISK
30 minute summer	7-INT-01	18	144.785	1.521	296.9	0.4303	0.0000	FLOOD RISK
15 minute summer	7-DL-01	10	144.750	1.450	139.4	1.6400	14.0732	FLOOD
15 minute summer	6-SW01	11	144.493	1.517	144.3	1.7152	0.0000	SURCHARGED
15 minute summer	6-SW02	11	144.221	1.442	160.8	1.6308	0.0000	SURCHARGED
15 minute summer	6-SW03	11	143.990	1.449	409.6	2.0738	0.0000	SURCHARGED
15 minute summer	6-SW04	11	143.285	0.984	400.5	1.4075	0.0000	SURCHARGED
15 minute summer	6-SW05	11	145.379	1.425	32.4	1.6117	0.8757	FLOOD
15 minute summer	6-SW06	11	145.323	1.723	131.0	1.9484	0.0000	FLOOD RISK
30 minute summer	6-SW07	19	144.895	0.760	70.9	0.8596	0.0000	SURCHARGED
30 minute summer	6-SW08	19	144.719	0.790	70.2	0.2235	0.0000	SURCHARGED
30 minute summer	6-SW09	19	144.442	1.232	178.0	1.3939	0.0000	SURCHARGED
15 minute summer	6-SW10	11	145.574	1.575	252.1	1.7813	0.8216	FLOOD
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW118	S1.108	SW01	1208.8	7.411	0.773	8.3599	
15 minute summer	7-SW01	7-S1.000	7-SW02	157.8	1.431	1.220	3.2724	
15 minute summer	7-SW02	7-S1.001	7-SW03	477.6	2.211	1.710	6.9087	
15 minute summer	7-SW03	7-S1.002	7-SW04	794.7	2.303	1.474	11.8017	
30 minute summer	7-SW04	7-S1.003	SW06	924.9	3.286	0.782	20.9857	
30 minute summer	7-SW05	7-S2.000	7-SW06	375.2	2.368	2.012	1.4154	
30 minute summer	7-SW06	7-S2.001	INT-02	347.2	2.191	1.847	0.9294	
15 minute summer	INT-02	7-S2.002	7-SW07	368.1	2.324	1.959	0.9294	
15 minute summer	7-SW07	7-S2.003	SW04	361.5	2.283	1.950	4.0571	
30 minute summer	7-SW08	7-S3.000	7-SW09	114.3	1.624	1.587	0.6645	
30 minute summer	7-SW09	7-S3.001	7-INT-01	296.9	2.692	2.537	0.3831	
30 minute summer	7-INT-01	7-S3.002	SW03	286.8	2.600	1.224	1.8636	
15 minute summer	7-DL-01	7-DOCK	7-SW05	77.2	1.097	1.047	1.5863	
15 minute summer	6-SW01	6-S1.000	6-SW02	133.4	1.894	1.594	1.5084	
15 minute summer	6-SW02	6-S1.001	6-SW03	152.8	1.385	1.179	4.2778	
15 minute summer	6-SW03	6-S1.002	6-INT-01	405.3	2.558	1.767	3.9150	
15 minute summer	6-SW04	6-S1.004	SW10	393.0	2.687	0.928	2.9157	
15 minute summer	6-SW05	6-S2.000	6-SW06	33.9	0.853	0.846	1.8526	
15 minute summer	6-SW06	6-S2.001	6-SW09	115.9	1.646	1.617	5.2839	
30 minute summer	6-SW07	6-S3.000	6-SW08	70.2	1.395	0.979	3.4534	
30 minute summer	6-SW08	6-S3.001	6-SW09	71.8	1.694	0.558	3.3931	
30 minute summer	6-SW09	6-S2.002	6-SW12	193.7	1.764	0.657	2.9883	
15 minute summer	6-SW10	6-S4.000	6-SW11	233.0	2.240	1.762	7.9736	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.56%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	6-SW11	11	144.499	0.818	233.0	0.9251	0.0000	SURCHARGED
15 minute summer	6-SW12	11	144.171	1.621	403.9	1.8337	0.0000	SURCHARGED
15 minute summer	6-INT-01	11	143.480	1.164	405.3	1.3160	0.0000	SURCHARGED
15 minute summer	6-DL-01	10	144.400	1.200	52.3	1.3572	6.8552	FLOOD
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	6-SW11	6-S4.001	6-SW12	227.2	2.411	0.457	1.9054	
15 minute summer	6-SW12	6-S2.003	SW05	409.0	2.582	1.642	1.8077	
15 minute summer	6-INT-01	6-S1.003	6-SW04	400.5	2.528	1.734	0.4630	
15 minute summer	6-DL-01	6-DOCK	6-SW01	31.2	0.784	0.805	1.0619	