

Surface Water Network											
Pipe No.	Upstream MH	Highway (m²)	Permeable Shared Drive (m²)	Hardstanding (m²)	Roof Area (m²)	Roof +10% (m²)	Pond Area (m²)	Total Area	Key	Area (ha)	
1.000	S520	212	0	582	438	481.8	0	1276		0.128	
1.002	S523	0	151	161	336	369.6	0	682		0.068	
1.003	S524	0	0	0	0	0.0	0	0		0.000	
1.004	S525	0	0	0	0	0.0	0	0		0.000	
1.005	S526	0	0	0	0	0.0	245	245		0.025	
1.006	S113	150					0	150		0.015	
1.007	S114			0	0	0.0	417	417		0.042	
1.008	S536			0	0	0.0	0	850		0.085	
2.000	S527	52	63	233	456	501.6	0	125		0.013	
1.009	S528	126		0	0	0.0	0	126		0.013	
1.011	S529	474		367	682	750.2	53	1644		0.164	
3.000	S51	372	73	197	407	447.7	0	1090		0.109	
1.001	S52	384		181	222	244.2	0	609		0.061	
3.002	S53	385		0	0	0.0	0	385		0.039	
1.003	S54	181		609	954	1049.4	0	1849		0.184	
4.000	S514	270		105	234	257.4	0	632		0.063	
4.001	S515	494		285	500	550.0	0	1289		0.127	
4.002	S517	319		416	386	1084.6	0	1604		0.160	
3.004	S55	636		86	177	194.7	0	917		0.092	
1.012	S57	196		254	397	436.7	0	887		0.089	
1.013	S58	0		0	0	0.0	0	0		0.000	
1.014	S59	685		0	0	0.0	48	733		0.073	
1.015	S510	181		366	631	694.1	0	1241		0.124	
1.016	S511	350		0	0	0.0	0	350		0.035	
1.017	S512	137		248	478	525.8	0	1111		0.111	
1.018	S513	0		0	0	0.0	0	0		0.000	
5.000	S531	399	81	135	246	270.6	0	686		0.069	
5.001	S532	0		0	0	0.0	0	0		0.000	
1.019	S533	0		0	0	0.0	2130	2130		0.212	
1.020	S534	0		0	0	0.0	0	0		0.000	
Totals:		5,417m²	368 m²	4,225 m²	7,144 m²	7,858 m²	2,883 m²	20,751 m²	2,075 ha	2.075	

HEALTH, SAFETY & ENVIRONMENT

It is the responsibility of the client to ensure that those undertaking the works are competent and experienced in the type of work to be undertaken.

In addition to the hazards usually associated with the types of work detailed on this drawing, the following specific hazards have been identified through design risk assessment. The planning and execution of the works should take into account all usual and specific hazards.

Hazards should also be taken into account in the maintenance, operation, decommissioning and demolition of the works.

Flood Zone to Southern Boundary

Dewatering and Risk of Excavation Stability/Collapse

Risk of Historic Mining Pits

Risk of Chalk Dissolution

NOTES

1. All dimensions are in millimetres (mm) and levels in metres Above Ordnance Datum (mAOD) unless noted otherwise.

2. Do not scale from this drawing.

3. The copyright in this drawing belongs to Structa LLP; the designs and details may not be used on any project other than that indicated in the titleblock.

4. Where CAD or BIM files of the drawing are issued, they are provided for the convenience of others, and shall not be used for construction purposes or relied upon for accuracy or completeness.

P1

30.09.20

FIRST ISSUE

SH

TL

T2

Rev

Date

Description

Drawn

Checked

Approved

NOT FOR CONSTRUCTION

PARK LANE, CHARVIL

IMPERMEABLE AREAS

Structural

Civil

Geo-environmental

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Drawing No:

7318-1910

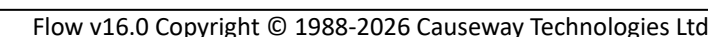
Revision:

P1

APPENDIX F

SURFACE WATER CALCULATIONS

CAUSEWAY FLOW



Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	9.999
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
SS20	0.128	5.00	46.917	1500	477351.462	175191.043	1.666	45.251
SS23	0.053	5.00	45.506	1500	477370.498	175132.348	1.593	43.913
SS24	0.000		44.875	1500	477378.463	175112.840	1.285	43.590
SS25	0.000	5.00	44.700	100	477397.179	175102.124	1.400	43.300
SS26	0.025	5.00	44.750	100	477411.848	175106.886	1.500	43.250
SS113	0.015	5.00	44.675	1200	477426.258	175107.216	1.473	43.202
SS114	0.000		44.650	100	477439.054	175112.982	1.495	43.155
SS36	0.042	5.00	44.650	100	477443.690	175116.820	1.500	43.150
SS27	0.079	5.00	45.140	1500	477424.564	175124.161	1.858	43.282
SS28	0.013	5.00	44.957	1200	477440.812	175129.674	1.857	43.100
SS29	0.164	5.00	43.986	1200	477498.146	175143.143	2.174	41.812
SS1	0.102	5.00	48.258	1500	477389.908	175275.629	1.512	46.746
SS2	0.061	5.00	46.773	1500	477450.891	175292.435	1.511	45.262
SS3	0.039	5.00	46.589	1500	477458.705	175291.445	1.789	44.800
SS4	0.184	5.00	45.202	1500	477481.272	175229.951	1.755	43.447
SS14	0.063	5.00	46.246	1500	477397.585	175189.462	1.440	44.806
SS15	0.127	5.00	46.011	1500	477415.796	175193.985	1.524	44.487
SS17	0.169	5.00	45.383	1500	477465.072	175204.772	1.632	43.751
SS5	0.092	5.00	45.013	1500	477489.802	175216.173	1.885	43.128
SS7	0.089	5.00	43.535	1500	477528.110	175169.295	2.685	40.850
SS8	0.000	5.00	43.251	1500	477536.263	175162.030	2.460	40.791
SS9	0.073	5.00	42.737	1500	477552.726	175156.952	2.109	40.628
SS10	0.124	5.00	41.444	1500	477609.572	175167.708	1.932	39.512
SS11	0.015	5.00	41.184	1500	477627.262	175176.328	1.854	39.330
SS12	0.111	5.00	40.698	1500	477656.588	175199.791	1.705	38.993
SS13	0.000	5.00	39.500	1500	477665.212	175189.007	1.475	38.025
SS31	0.060	5.00	39.532	1500	477682.789	175235.528	1.465	38.067
SS32	0.000		39.500	1500	477694.730	175226.169	1.485	38.015
SS33	0.212	5.00	39.500	1500	477710.438	175231.589	1.500	38.000
SS34	0.000	5.00	39.514	1500	477714.764	175232.481	1.814	37.700
SS35	0.000		37.000	1500	477728.681	175236.561	0.500	36.500

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)
1.000	SS20	SS23	61.705	0.600	45.251	43.988	1.263	48.9	225	5.55	48.2
1.002	SS23	SS24	21.071	0.600	43.913	43.590	0.323	65.2	300	5.73	47.5
1.003	SS24	SS25	21.567	0.600	43.590	43.300	0.290	74.4	300	5.93	46.7
1.004	SS25	SS26	2.000	0.600	43.515	43.300	0.215	9.3	300	5.93	46.7
1.005	SS26	SS113	14.414	0.600	43.250	43.202	0.048	300.3	300	6.20	45.7
1.006	SS113	SS114	14.035	0.600	43.202	43.155	0.047	298.6	300	6.46	44.9
1.007	SS114	SS36	1.000	0.600	43.155	43.150	0.005	200.0	300	6.47	44.8
1.008	SS36	SS28	13.172	0.600	43.150	43.100	0.050	263.4	300	6.70	44.1
2.000	SS27	SS28	17.158	0.600	43.282	43.175	0.107	160.4	225	5.28	49.3
1.009	SS28	SS29	58.895	0.600	43.100	41.962	1.138	51.8	300	7.15	42.6
1.011	SS29	SS7	39.771	0.600	41.812	41.000	0.812	49.0	375	7.40	41.9
3.000	SS1	SS2	63.256	0.600	46.746	45.337	1.409	44.9	225	5.54	48.3
3.001	SS2	SS3	7.876	0.600	45.262	44.800	0.462	17.0	300	5.57	48.1
3.002	SS3	SS4	65.504	0.600	44.800	43.522	1.278	51.3	300	6.07	46.2
3.003	SS4	SS5	16.205	0.600	43.447	43.278	0.169	95.9	375	6.22	45.7
4.000	SS14	SS15	18.764	0.600	44.806	44.562	0.244	76.9	225	5.21	49.6
4.001	SS15	SS17	50.443	0.600	44.487	43.826	0.661	76.3	300	5.68	47.7
4.002	SS17	SS5	27.232	0.600	43.751	43.278	0.473	57.6	375	5.87	46.9
3.004	SS5	SS7	60.540	0.600	43.128	40.850	2.278	26.6	525	6.45	44.9
1.012	SS7	SS8	10.920	0.600	40.850	40.791	0.059	185.1	525	7.51	41.6
1.013	SS8	SS9	17.228	0.600	40.791	40.703	0.088	195.8	525	7.69	41.1
1.014	SS9	SS10	57.855	0.600	40.628	39.512	1.116	51.8	600	7.98	40.3
1.015	SS10	SS11	19.678	0.600	39.512	39.330	0.182	108.1	600	8.12	39.9
1.016	SS11	SS12	37.557	0.600	39.330	38.993	0.337	111.4	600	8.39	39.3

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)
1.000	1.876	74.6	22.3	1.441	1.293	0.128	0.0	78	1.766
1.002	1.949	137.8	31.1	1.293	0.985	0.181	0.0	97	1.633
1.003	1.825	129.0	30.6	0.985	1.100	0.181	0.0	150	0.898
1.004	5.184	366.4	30.5	0.885	1.150	0.181	0.0	180	0.696
1.005	0.902	63.8	34.1	1.200	1.173	0.206	0.0	98	1.742
1.006	0.904	63.9	35.8	1.173	1.195	0.221	0.0		
1.007	1.108	78.3	35.8	1.195	1.200	0.221	0.0		
1.008	0.964	68.1	41.9	1.200	1.557	0.263	0.0	32	0.998
2.000	1.030	40.9	14.1	1.633	1.557	0.079	0.0	126	1.820
1.009	2.190	154.8	54.7	1.557	1.724	0.355	0.0	165	1.555
1.011	2.594	286.5	78.6	1.799	2.160	0.519	0.0	127	2.509
3.000	1.957	77.8	17.8	1.287	1.211	0.102	0.0	68	1.618
3.001	3.825	270.4	28.3	1.211	1.489	0.163	0.0	75	2.144
3.002	2.201	155.6	33.7	1.489	1.380	0.202	0.0	88	1.780
3.003	1.850	204.4	63.7	1.380	1.360	0.386	0.0	172	1.327
4.000	1.492	59.3	11.3	1.215	1.224	0.063	0.0	66	1.137
4.001	1.801	127.3	32.8	1.224	1.257	0.190	0.0	96	1.429
4.002	2.392	264.1	60.9	1.257	1.360	0.359	0.0	126	1.828
3.004	4.357	943.1	135.9	1.360	2.160	0.837	0.0	133	2.887
1.012	1.643	355.6	217.3	2.160	1.935	1.445	0.0	222	2.130
1.013	1.597	345.7	214.6	1.935	1.509	1.445	0.0	267	1.654
1.014	3.387	957.6	221.0	1.509	1.332	1.518	0.0	187	2.757
1.015	2.341	661.9	237.0	1.332	1.254	1.642	0.0	239	2.123
1.016	2.306	652.0	235.2	1.254	1.105	1.657	0.0	241	2.095

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)
1.017	SS12	SS13	13.808	0.600	38.993	38.025	0.968	14.3	600	8.43	39.2
1.018	SS13	SS33	2.000	0.600	38.025	38.000	0.025	80.0	600	8.44	39.2
5.000	SS31	SS32	15.172	0.600	38.067	38.015	0.052	291.8	300	5.28	49.3
5.001	SS32	SS33	16.617	0.600	38.015	38.000	0.015	1107.8	300	5.87	46.9
1.019	SS33	SS34	4.417	0.600	38.000	37.700	0.300	14.7	150	8.47	39.1
1.020	SS34	SS35	14.503	0.600	37.700	36.500	1.200	12.1	150	8.55	38.9

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)
1.017	6.468	1828.9	250.4	1.105	0.875	1.768	0.0	144	4.524
1.018	2.724	770.1	250.2	0.875	0.900	1.768	0.0	294	1.705
5.000	0.915	64.7	10.7	1.165	1.185	0.060	0.0	92	0.651
5.001	0.464	32.8	10.2	1.185	1.200	0.060	0.0	107	0.515
1.019	2.639	46.6	288.2	1.350	1.664	2.040	0.0	134	5.799
1.020	2.914	51.5	286.7	1.664	0.350	2.040	0.0	235	4.573

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	61.705	48.9	225	Circular	46.917	45.251	1.441	45.506	43.988	1.293
1.002	21.071	65.2	300	Circular	45.506	43.913	1.293	44.875	43.590	0.985
1.003	21.567	74.4	300	Circular	44.875	43.590	0.985	44.700	43.300	1.100
1.004	2.000	9.3	300	Circular	44.700	43.515	0.885	44.750	43.300	1.150
1.005	14.414	300.3	300	Circular	44.750	43.250	1.200	44.675	43.202	1.173
1.006	14.035	298.6	300	Circular	44.675	43.202	1.173	44.650	43.155	1.195
1.007	1.000	200.0	300	Circular	44.650	43.155	1.195	44.650	43.150	1.200
1.008	13.172	263.4	300	Circular	44.650	43.150	1.200	44.957	43.100	1.557
2.000	17.158	160.4	225	Circular	45.140	43.282	1.633	44.957	43.175	1.557
1.009	58.895	51.8	300	Circular	44.957	43.100	1.557	43.986	41.962	1.724
1.011	39.771	49.0	375	Circular	43.986	41.812	1.799	43.535	41.000	2.160
3.000	63.256	44.9	225	Circular	48.258	46.746	1.287	46.773	45.337	1.211
3.001	7.876	17.0	300	Circular	46.773	45.262	1.211	46.589	44.800	1.489
3.002	65.504	51.3	300	Circular	46.589	44.800	1.489	45.202	43.522	1.380

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	SS20	1500	Manhole	Adoptable	SS23	1500	Manhole	Adoptable
1.002	SS23	1500	Manhole	Adoptable	SS24	1500	Manhole	Adoptable
1.003	SS24	1500	Manhole	Adoptable	SS25	100	Manhole	Adoptable
1.004	SS25	100	Manhole	Adoptable	SS26	100	Manhole	Adoptable
1.005	SS26	100	Manhole	Adoptable	SS113	1200	Manhole	Adoptable
1.006	SS113	1200	Manhole	Adoptable	SS114	100	Manhole	Adoptable
1.007	SS114	100	Manhole	Adoptable	SS36	100	Manhole	Adoptable
1.008	SS36	100	Manhole	Adoptable	SS28	1200	Manhole	Adoptable
2.000	SS27	1500	Manhole	Adoptable	SS28	1200	Manhole	Adoptable
1.009	SS28	1200	Manhole	Adoptable	SS29	1200	Manhole	Adoptable
1.011	SS29	1200	Manhole	Adoptable	SS7	1500	Manhole	Adoptable
3.000	SS1	1500	Manhole	Adoptable	SS2	1500	Manhole	Adoptable
3.001	SS2	1500	Manhole	Adoptable	SS3	1500	Manhole	Adoptable
3.002	SS3	1500	Manhole	Adoptable	SS4	1500	Manhole	Adoptable

Pipeline Schedule

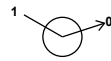
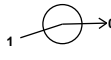
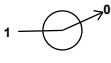
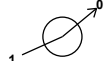
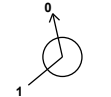
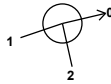
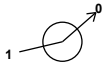
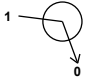
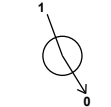
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.003	16.205	95.9	375	Circular	45.202	43.447	1.380	45.013	43.278	1.360
4.000	18.764	76.9	225	Circular	46.246	44.806	1.215	46.011	44.562	1.224
4.001	50.443	76.3	300	Circular	46.011	44.487	1.224	45.383	43.826	1.257
4.002	27.232	57.6	375	Circular	45.383	43.751	1.257	45.013	43.278	1.360
3.004	60.540	26.6	525	Circular	45.013	43.128	1.360	43.535	40.850	2.160
1.012	10.920	185.1	525	Circular	43.535	40.850	2.160	43.251	40.791	1.935
1.013	17.228	195.8	525	Circular	43.251	40.791	1.935	42.737	40.703	1.509
1.014	57.855	51.8	600	Circular	42.737	40.628	1.509	41.444	39.512	1.332
1.015	19.678	108.1	600	Circular	41.444	39.512	1.332	41.184	39.330	1.254
1.016	37.557	111.4	600	Circular	41.184	39.330	1.254	40.698	38.993	1.105
1.017	13.808	14.3	600	Circular	40.698	38.993	1.105	39.500	38.025	0.875
1.018	2.000	80.0	600	Circular	39.500	38.025	0.875	39.500	38.000	0.900
5.000	15.172	291.8	300	Circular	39.532	38.067	1.165	39.500	38.015	1.185
5.001	16.617	1107.8	300	Circular	39.500	38.015	1.185	39.500	38.000	1.200
1.019	4.417	14.7	150	Circular	39.500	38.000	1.350	39.514	37.700	1.664
1.020	14.503	12.1	150	Circular	39.514	37.700	1.664	37.000	36.500	0.350

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.003	SS4	1500	Manhole	Adoptable	SS5	1500	Manhole	Adoptable
4.000	SS14	1500	Manhole	Adoptable	SS15	1500	Manhole	Adoptable
4.001	SS15	1500	Manhole	Adoptable	SS17	1500	Manhole	Adoptable
4.002	SS17	1500	Manhole	Adoptable	SS5	1500	Manhole	Adoptable
3.004	SS5	1500	Manhole	Adoptable	SS7	1500	Manhole	Adoptable
1.012	SS7	1500	Manhole	Adoptable	SS8	1500	Manhole	Adoptable
1.013	SS8	1500	Manhole	Adoptable	SS9	1500	Manhole	Adoptable
1.014	SS9	1500	Manhole	Adoptable	SS10	1500	Manhole	Adoptable
1.015	SS10	1500	Manhole	Adoptable	SS11	1500	Manhole	Adoptable
1.016	SS11	1500	Manhole	Adoptable	SS12	1500	Manhole	Adoptable
1.017	SS12	1500	Manhole	Adoptable	SS13	1500	Manhole	Adoptable
1.018	SS13	1500	Manhole	Adoptable	SS33	1500	Manhole	Adoptable
5.000	SS31	1500	Manhole	Adoptable	SS32	1500	Manhole	Adoptable
5.001	SS32	1500	Manhole	Adoptable	SS33	1500	Manhole	Adoptable
1.019	SS33	1500	Manhole	Adoptable	SS34	1500	Manhole	Adoptable
1.020	SS34	1500	Manhole	Adoptable	SS35	1500	Manhole	Adoptable

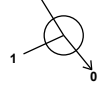
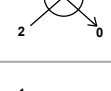
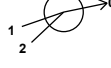
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SS20	477351.462	175191.043	46.917	1.666	1500		0	1.000	45.251	225
SS23	477370.498	175132.348	45.506	1.593	1500		1	1.000	43.988	225
							0	1.002	43.913	300
SS24	477378.463	175112.840	44.875	1.285	1500		1	1.002	43.590	300
							0	1.003	43.590	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SS25	477397.179	175102.124	44.700	1.400	100		1	1.003	43.300	300
							0	1.004	43.515	300
SS26	477411.848	175106.886	44.750	1.500	100		1	1.004	43.300	300
							0	1.005	43.250	300
SS113	477426.258	175107.216	44.675	1.473	1200		1	1.005	43.202	300
							0	1.006	43.202	300
SS114	477439.054	175112.982	44.650	1.495	100		1	1.006	43.155	300
							0	1.007	43.155	300
SS36	477443.690	175116.820	44.650	1.500	100		1	1.007	43.150	300
							0	1.008	43.150	300
SS27	477424.564	175124.161	45.140	1.858	1500		0	2.000	43.282	225
SS28	477440.812	175129.674	44.957	1.857	1200		1	2.000	43.175	225
							2	1.008	43.100	300
							0	1.009	43.100	300
SS29	477498.146	175143.143	43.986	2.174	1200		1	1.009	41.962	300
							0	1.011	41.812	375
SS1	477389.908	175275.629	48.258	1.512	1500		0	3.000	46.746	225
SS2	477450.891	175292.435	46.773	1.511	1500		1	3.000	45.337	225
							0	3.001	45.262	300
SS3	477458.705	175291.445	46.589	1.789	1500		1	3.001	44.800	300
							0	3.002	44.800	300
SS4	477481.272	175229.951	45.202	1.755	1500		1	3.002	43.522	300
							0	3.003	43.447	375
SS14	477397.585	175189.462	46.246	1.440	1500		0	4.000	44.806	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
SS15	477415.796	175193.985	46.011	1.524	1500		1	4.000	44.562	225
							0	4.001	44.487	300
SS17	477465.072	175204.772	45.383	1.632	1500		1	4.001	43.826	300
							0	4.002	43.751	375
SS5	477489.802	175216.173	45.013	1.885	1500		1	4.002	43.278	375
							2	3.003	43.278	375
							0	3.004	43.128	525
SS7	477528.110	175169.295	43.535	2.685	1500		1	3.004	40.850	525
							2	1.011	41.000	375
							0	1.012	40.850	525
SS8	477536.263	175162.030	43.251	2.460	1500		1	1.012	40.791	525
							0	1.013	40.791	525
SS9	477552.726	175156.952	42.737	2.109	1500		1	1.013	40.703	525
							0	1.014	40.628	600
SS10	477609.572	175167.708	41.444	1.932	1500		1	1.014	39.512	600
							0	1.015	39.512	600
SS11	477627.262	175176.328	41.184	1.854	1500		1	1.015	39.330	600
							0	1.016	39.330	600
SS12	477656.588	175199.791	40.698	1.705	1500		1	1.016	38.993	600
							0	1.017	38.993	600
SS13	477665.212	175189.007	39.500	1.475	1500		1	1.017	38.025	600
							0	1.018	38.025	600
SS31	477682.789	175235.528	39.532	1.465	1500		0	5.000	38.067	300
SS32	477694.730	175226.169	39.500	1.485	1500		1	5.000	38.015	300
							0	5.001	38.015	300
SS33	477710.438	175231.589	39.500	1.500	1500		1	5.001	38.000	300
							2	1.018	38.000	600
							0	1.019	38.000	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SS34	477714.764	175232.481	39.514	1.814	1500	1 	1.019	37.700	150
						0	1.020	37.700	150
SS35	477728.681	175236.561	37.000	0.500	1500	1 	1.020	36.500	150

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	1440	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	20.0		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
30	35	0	0
100	0	0	0
100	25	0	0
100	40	0	0

Node SS23 Time-Area Diagram

Overrides Design Area	x	Depression Storage Area (m²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		

Applies to All storms

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.003	20-24	0.001	40-44	0.000	60-64	0.000	80-84	0.000	100-104	0.000
4-8	0.002	24-28	0.001	44-48	0.000	64-68	0.000	84-88	0.000	104-108	0.000
8-12	0.002	28-32	0.001	48-52	0.000	68-72	0.000	88-92	0.000	108-112	0.000
12-16	0.002	32-36	0.001	52-56	0.000	72-76	0.000	92-96	0.000	112-116	0.000
16-20	0.001	36-40	0.001	56-60	0.000	76-80	0.000	96-100	0.000	116-120	0.000

Node SS27 Time-Area Diagram

Overrides Design Area	x	Depression Storage Area (m²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		

Applies to All storms

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.001	20-24	0.001	40-44	0.000	60-64	0.000	80-84	0.000	100-104	0.000
4-8	0.001	24-28	0.000	44-48	0.000	64-68	0.000	84-88	0.000	104-108	0.000
8-12	0.001	28-32	0.000	48-52	0.000	68-72	0.000	88-92	0.000	108-112	0.000
12-16	0.001	32-36	0.000	52-56	0.000	72-76	0.000	92-96	0.000	112-116	0.000
16-20	0.001	36-40	0.000	56-60	0.000	76-80	0.000	96-100	0.000	116-120	0.000

Node SS31 Time-Area Diagram

Overrides Design Area	x	Depression Storage Area (m ²)	0	Evapo-transpiration (mm/day)	0
Overrides Design Additional Inflow	x	Depression Storage Depth (mm)	0		
Applies to All storms					

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.002	20-24	0.001	40-44	0.000	60-64	0.000	80-84	0.000	100-104	0.000
4-8	0.001	24-28	0.001	44-48	0.000	64-68	0.000	84-88	0.000	104-108	0.000
8-12	0.001	28-32	0.000	48-52	0.000	68-72	0.000	88-92	0.000	108-112	0.000
12-16	0.001	32-36	0.000	52-56	0.000	72-76	0.000	92-96	0.000	112-116	0.000
16-20	0.001	36-40	0.000	56-60	0.000	76-80	0.000	96-100	0.000	116-120	0.000

Node SS34 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	37.700	Product Number	CTL-SHE-0122-7700-1500-7700
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	7.7	Min Node Diameter (mm)	1500

Node SS28 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	43.100	Product Number	CTL-SHE-0044-1000-1250-1000
Design Depth (m)	1.250	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.0	Min Node Diameter (mm)	1200

Node SS26 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	43.250
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	19.3	19.3	0.400	64.8	64.8	0.800	121.3	121.3	1.200	188.8	188.8
0.100	29.6	29.6	0.500	77.9	77.9	0.900	137.1	137.1	1.300	207.4	207.4
0.200	40.7	40.7	0.600	91.7	91.7	1.000	153.7	153.7	1.400	226.7	226.7
0.300	52.4	52.4	0.700	106.1	106.1	1.100	170.9	170.9	1.500	246.7	246.7

Node SS33 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	38.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	



Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	812.2	812.2	0.400	1062.4	1062.4	0.800	1476.3	1476.3	1.200	1833.5	1833.5
0.100	874.6	874.6	0.500	1126.3	1126.3	0.900	1563.1	1563.1	1.300	1926.9	1926.9
0.200	936.5	936.5	0.600	1190.9	1190.9	1.000	1651.6	1651.6	1.400	2022.0	2022.0
0.300	999.1	999.1	0.700	1256.2	1256.2	1.100	1741.7	1741.7	1.500	2118.8	2118.8

Node SS36 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	43.150
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	112.2	112.2	0.400	180.8	182.9	0.800	258.6	263.5	1.200	345.6	353.9
0.100	128.5	129.0	0.500	199.4	202.1	0.900	279.5	285.2	1.300	368.8	378.0
0.200	145.4	146.4	0.600	218.6	222.0	1.000	301.0	307.5	1.400	392.6	402.8
0.300	162.8	164.3	0.700	238.3	242.4	1.100	323.0	330.4	1.500	416.9	428.1

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SS20	11	45.331	0.080	20.8	0.2642	0.0000	OK
15 minute summer	SS23	10	44.009	0.096	29.3	0.2517	0.0000	OK
15 minute summer	SS24	11	43.687	0.097	29.3	0.1706	0.0000	OK
960 minute winter	SS25	900	43.594	0.294	3.7	0.0023	0.0000	OK
960 minute winter	SS26	930	43.591	0.341	5.5	13.0017	0.0000	SURCHARGED
960 minute winter	SS113	930	43.591	0.389	2.4	0.5197	0.0000	SURCHARGED
960 minute winter	SS114	930	43.591	0.436	2.3	0.0035	0.0000	SURCHARGED
960 minute winter	SS36	930	43.591	0.441	3.4	66.1945	0.0000	SURCHARGED
960 minute winter	SS27	930	43.591	0.309	1.2	0.8295	0.0000	SURCHARGED
960 minute winter	SS28	930	43.591	0.491	1.3	0.6244	0.0000	SURCHARGED
15 minute summer	SS29	10	41.889	0.077	27.4	0.2036	0.0000	OK
15 minute summer	SS1	11	46.815	0.069	16.6	0.2161	0.0000	OK
15 minute summer	SS2	10	45.325	0.063	25.7	0.1614	0.0000	OK
15 minute summer	SS3	11	44.893	0.093	32.0	0.2053	0.0000	OK
15 minute summer	SS4	11	43.600	0.153	60.5	0.5928	0.0000	OK
15 minute summer	SS14	10	44.869	0.063	10.3	0.1674	0.0000	OK
15 minute summer	SS15	11	44.586	0.099	30.8	0.3407	0.0000	OK
15 minute summer	SS17	11	43.875	0.124	57.2	0.4763	0.0000	OK
15 minute summer	SS5	11	43.259	0.131	132.0	0.3581	0.0000	OK
15 minute summer	SS7	11	41.145	0.295	172.6	0.7175	0.0000	OK
15 minute summer	SS8	11	41.056	0.265	171.3	0.4684	0.0000	OK
15 minute summer	SS9	11	40.801	0.173	181.8	0.4249	0.0000	OK
15 minute summer	SS10	11	39.748	0.236	199.8	0.7212	0.0000	OK
15 minute summer	SS11	12	39.591	0.261	200.3	0.5037	0.0000	OK
15 minute summer	SS12	12	39.156	0.163	216.3	0.4989	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	SS20	1.000	SS23	20.3	1.608	0.272	0.7772	
15 minute summer	SS23	1.002	SS24	29.3	1.506	0.213	0.4106	
15 minute summer	SS24	1.003	SS25	29.4	0.629	0.228	0.9513	
960 minute winter	SS25	1.004	SS26	5.4	1.367	0.015	0.0844	
960 minute winter	SS26	1.005	SS113	2.2	0.368	0.034	1.0150	
960 minute winter	SS113	1.006	SS114	2.3	0.302	0.035	0.9883	
960 minute winter	SS114	1.007	SS36	2.2	0.532	0.028	0.0704	
960 minute winter	SS36	1.008	SS28	0.7	0.060	0.010	0.9276	
960 minute winter	SS27	2.000	SS28	1.1	0.310	0.027	0.6824	
960 minute winter	SS28	1.009	SS29	0.7	0.563	0.005	0.0759	
15 minute summer	SS29	1.011	SS7	27.1	1.438	0.095	1.1014	
15 minute summer	SS1	3.000	SS2	16.1	1.556	0.207	0.6548	
15 minute summer	SS2	3.001	SS3	25.7	1.802	0.095	0.1149	
15 minute summer	SS3	3.002	SS4	31.9	1.735	0.205	1.2034	
15 minute summer	SS4	3.003	SS5	60.7	1.535	0.297	0.6415	
15 minute summer	SS14	4.000	SS15	10.1	1.116	0.170	0.1701	
15 minute summer	SS15	4.001	SS17	30.2	1.495	0.237	1.0201	
15 minute summer	SS17	4.002	SS5	57.0	1.867	0.216	0.8308	
15 minute summer	SS5	3.004	SS7	132.3	1.631	0.140	5.0499	
15 minute summer	SS7	1.012	SS8	171.3	1.462	0.482	1.2794	
15 minute summer	SS8	1.013	SS9	170.5	1.607	0.493	1.8327	
15 minute summer	SS9	1.014	SS10	180.5	2.130	0.188	4.9215	
15 minute summer	SS10	1.015	SS11	198.4	1.804	0.300	2.1648	
15 minute summer	SS11	1.016	SS12	202.1	2.274	0.310	3.3659	
15 minute summer	SS12	1.017	SS13	217.1	2.065	0.119	2.1651	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SS13	9	38.641	0.616	202.6	1.0881	0.0000	SURCHARGED
360 minute winter	SS31	344	38.322	0.255	2.0	0.6864	0.0000	OK
360 minute winter	SS32	344	38.322	0.307	1.8	0.5419	0.0000	SURCHARGED
360 minute winter	SS33	344	38.322	0.322	48.9	294.9691	0.0000	SURCHARGED
360 minute winter	SS34	344	38.310	0.610	7.8	1.0776	0.0000	SURCHARGED
240 minute winter	SS35	132	36.539	0.039	7.7	0.0000	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 winter	SS13	1.018	SS33	205.8	2.642	0.267	0.2844	
360 minute winter	SS31	5.000	SS32	1.8	0.208	0.028	1.0179	
360 minute winter	SS32	5.001	SS33	1.5	0.356	0.046	1.1702	
360 minute winter	SS33	1.019	SS34	7.8	0.602	0.167	0.0778	
360 minute winter	SS34	1.020	SS35	7.7	2.086	0.150	0.0535	480.0

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SS20	10	45.407	0.156	62.9	0.5154	0.0000	OK
15 minute summer	SS23	10	44.099	0.186	89.1	0.4872	0.0000	OK
960 minute summer	SS24	960	43.958	0.368	8.4	0.6497	0.0000	SURCHARGED
960 minute summer	SS25	960	43.958	0.658	22.8	0.0053	0.0000	SURCHARGED
960 minute summer	SS26	960	43.958	0.708	36.3	43.0402	0.0000	SURCHARGED
960 minute summer	SS113	960	43.958	0.756	5.9	1.0088	0.0000	SURCHARGED
960 minute summer	SS114	960	43.958	0.803	7.1	0.0064	0.0000	SURCHARGED
960 minute summer	SS36	960	43.958	0.808	11.7	148.3670	0.0000	SURCHARGED
960 minute summer	SS27	960	43.958	0.676	3.6	1.8121	0.0000	SURCHARGED
960 minute summer	SS28	960	43.958	0.858	4.1	1.0901	0.0000	SURCHARGED
15 minute summer	SS29	10	41.946	0.134	81.2	0.3546	0.0000	OK
15 minute summer	SS1	10	46.876	0.130	50.1	0.4042	0.0000	OK
15 minute summer	SS2	10	45.384	0.122	78.7	0.3133	0.0000	OK
15 minute summer	SS3	11	44.969	0.169	97.6	0.3729	0.0000	OK
15 minute summer	SS4	11	43.778	0.331	186.5	1.2775	0.0000	OK
15 minute summer	SS14	10	44.923	0.117	30.9	0.3081	0.0000	OK
15 minute summer	SS15	10	44.676	0.189	93.0	0.6498	0.0000	OK
15 minute summer	SS17	10	43.998	0.247	173.9	0.9467	0.0000	OK
15 minute summer	SS5	11	43.369	0.241	400.1	0.6624	0.0000	OK
15 minute summer	SS7	11	41.711	0.861	521.2	2.0933	0.0000	SURCHARGED
15 minute summer	SS8	11	41.429	0.638	521.3	1.1276	0.0000	SURCHARGED
15 minute summer	SS9	11	40.947	0.319	555.5	0.7850	0.0000	OK
15 minute summer	SS10	11	40.043	0.531	612.7	1.6208	0.0000	OK
15 minute summer	SS11	11	39.887	0.557	612.5	1.0739	0.0000	OK
15 minute summer	SS12	11	39.389	0.396	659.1	1.2151	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	SS20	1.000	SS23	61.3	2.109	0.821	1.7955	
15 minute summer	SS23	1.002	SS24	88.6	1.903	0.643	1.0594	
960 minute summer	SS24	1.003	SS25	10.3	0.197	0.080	1.5187	
960 minute summer	SS25	1.004	SS26	35.2	1.286	0.096	0.1408	
960 minute summer	SS26	1.005	SS113	5.3	0.328	0.083	1.0150	
960 minute summer	SS113	1.006	SS114	7.1	0.352	0.111	0.9883	
960 minute summer	SS114	1.007	SS36	7.2	0.578	0.093	0.0704	
960 minute summer	SS36	1.008	SS28	-3.3	-0.047	-0.048	0.9276	
960 minute summer	SS27	2.000	SS28	3.5	0.334	0.085	0.6824	
960 minute summer	SS28	1.009	SS29	0.8	0.588	0.005	0.0842	
15 minute summer	SS29	1.011	SS7	80.7	1.436	0.282	2.8979	
15 minute summer	SS1	3.000	SS2	48.8	2.081	0.627	1.4870	
15 minute summer	SS2	3.001	SS3	78.5	2.323	0.290	0.2662	
15 minute summer	SS3	3.002	SS4	96.6	1.880	0.621	3.4362	
15 minute summer	SS4	3.003	SS5	184.9	1.946	0.905	1.5296	
15 minute summer	SS14	4.000	SS15	30.6	1.493	0.516	0.3845	
15 minute summer	SS15	4.001	SS17	91.2	1.980	0.716	2.3307	
15 minute summer	SS17	4.002	SS5	172.1	2.417	0.651	1.9436	
15 minute summer	SS5	3.004	SS7	401.5	2.220	0.426	9.4727	
15 minute summer	SS7	1.012	SS8	521.3	2.413	1.466	2.3591	
15 minute summer	SS8	1.013	SS9	521.3	2.415	1.508	3.6257	
15 minute summer	SS9	1.014	SS10	554.6	2.609	0.579	12.0409	
15 minute summer	SS10	1.015	SS11	605.5	2.255	0.915	5.2799	
15 minute summer	SS11	1.016	SS12	611.0	2.626	0.937	8.8260	
15 minute summer	SS12	1.017	SS13	659.7	2.654	0.361	3.3066	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.93%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
480 minute winter	SS13	480	38.761	0.736	72.4	1.3005	0.0000	SURCHARGED
480 minute winter	SS31	480	38.761	0.694	3.4	1.8703	0.0000	SURCHARGED
480 minute winter	SS32	480	38.761	0.746	3.2	1.3182	0.0000	SURCHARGED
480 minute winter	SS33	480	38.761	0.761	85.7	806.6292	0.0000	SURCHARGED
480 minute winter	SS34	480	38.753	1.053	7.9	1.8599	0.0000	SURCHARGED
30 minute summer	SS35	18	36.539	0.039	7.7	0.0000	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)
480 minute winter	SS13	1.018	SS33	71.9	1.349	0.093	0.5634	
480 minute winter	SS31	5.000	SS32	3.2	0.225	0.050	1.0684	
480 minute winter	SS32	5.001	SS33	3.1	0.361	0.094	1.1702	
480 minute winter	SS33	1.019	SS34	7.9	0.609	0.169	0.0778	
480 minute winter	SS34	1.020	SS35	7.7	2.086	0.149	0.0535	772.7

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SS20	11	45.587	0.336	84.9	1.1112	0.0000	SURCHARGED
15 minute summer	SS23	11	44.239	0.326	118.2	0.8551	0.0000	SURCHARGED
960 minute winter	SS24	945	44.157	0.567	7.5	1.0020	0.0000	SURCHARGED
960 minute winter	SS25	945	44.157	0.857	7.2	0.0069	0.0000	SURCHARGED
960 minute winter	SS26	945	44.157	0.907	29.7	67.5499	0.0000	SURCHARGED
960 minute winter	SS113	945	44.157	0.955	5.2	1.2750	0.0000	SURCHARGED
960 minute winter	SS114	945	44.157	1.002	6.5	0.0080	0.0000	SURCHARGED
960 minute winter	SS36	945	44.157	1.007	10.1	204.5467	0.0000	SURCHARGED
960 minute winter	SS27	945	44.157	0.875	3.3	2.3468	0.0000	SURCHARGED
960 minute winter	SS28	945	44.157	1.057	3.7	1.3435	0.0000	SURCHARGED
15 minute summer	SS29	12	42.175	0.363	109.4	0.9574	0.0000	OK
15 minute summer	SS1	10	46.906	0.160	67.6	0.4976	0.0000	OK
15 minute summer	SS2	10	45.410	0.148	106.1	0.3819	0.0000	OK
15 minute summer	SS3	11	45.022	0.222	131.7	0.4891	0.0000	OK
15 minute summer	SS4	11	44.022	0.575	250.0	2.2200	0.0000	SURCHARGED
15 minute summer	SS14	10	44.948	0.142	41.8	0.3753	0.0000	OK
15 minute summer	SS15	10	44.729	0.242	125.5	0.8315	0.0000	OK
15 minute summer	SS17	11	44.069	0.318	236.0	1.2199	0.0000	OK
15 minute summer	SS5	11	43.471	0.343	540.8	0.9396	0.0000	OK
15 minute summer	SS7	11	42.071	1.221	675.0	2.9662	0.0000	SURCHARGED
15 minute summer	SS8	11	41.604	0.813	669.4	1.4369	0.0000	SURCHARGED
15 minute summer	SS9	12	41.128	0.500	715.1	1.2304	0.0000	OK
15 minute summer	SS10	12	40.629	1.117	781.7	3.4066	0.0000	SURCHARGED
15 minute summer	SS11	12	40.322	0.992	783.9	1.9133	0.0000	SURCHARGED
15 minute summer	SS12	12	39.588	0.595	842.9	1.8266	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	SS20	1.000	SS23	80.4	2.127	1.078	2.4541	
15 minute summer	SS23	1.002	SS24	109.3	1.922	0.794	1.4838	
960 minute winter	SS24	1.003	SS25	7.2	0.159	0.056	1.5187	
960 minute winter	SS25	1.004	SS26	28.9	1.292	0.079	0.1408	
960 minute winter	SS26	1.005	SS113	4.6	0.382	0.072	1.0150	
960 minute winter	SS113	1.006	SS114	6.5	0.388	0.101	0.9883	
960 minute winter	SS114	1.007	SS36	6.7	0.646	0.086	0.0704	
960 minute winter	SS36	1.008	SS28	-2.9	-0.041	-0.042	0.9276	
960 minute winter	SS27	2.000	SS28	3.2	0.371	0.078	0.6824	
960 minute winter	SS28	1.009	SS29	0.9	0.604	0.006	0.0899	
15 minute summer	SS29	1.011	SS7	118.2	1.467	0.413	4.3644	
15 minute summer	SS1	3.000	SS2	65.8	2.211	0.846	1.8888	
15 minute summer	SS2	3.001	SS3	105.8	2.411	0.391	0.3545	
15 minute summer	SS3	3.002	SS4	130.8	1.929	0.841	4.1372	
15 minute summer	SS4	3.003	SS5	249.1	2.259	1.219	1.7586	
15 minute summer	SS14	4.000	SS15	41.4	1.477	0.697	0.5445	
15 minute summer	SS15	4.001	SS17	124.1	2.053	0.974	3.0713	
15 minute summer	SS17	4.002	SS5	233.4	2.527	0.884	2.5039	
15 minute summer	SS5	3.004	SS7	541.9	2.700	0.575	11.0557	
15 minute summer	SS7	1.012	SS8	669.4	3.099	1.882	2.3591	
15 minute summer	SS8	1.013	SS9	668.9	3.096	1.935	3.6842	
15 minute summer	SS9	1.014	SS10	707.6	2.639	0.739	15.4122	
15 minute summer	SS10	1.015	SS11	776.1	2.755	1.172	5.5428	
15 minute summer	SS11	1.016	SS12	785.1	2.788	1.204	10.5724	
15 minute summer	SS12	1.017	SS13	844.9	3.000	0.462	3.8870	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	SS13	720	38.985	0.960	69.6	1.6959	0.0000	SURCHARGED
720 minute winter	SS31	720	38.985	0.918	3.3	2.4734	0.0000	SURCHARGED
720 minute winter	SS32	720	38.985	0.970	3.1	1.7136	0.0000	SURCHARGED
720 minute winter	SS33	720	38.985	0.985	82.6	1151.2130	0.0000	SURCHARGED
720 minute winter	SS34	720	38.975	1.275	8.5	2.2524	0.0000	SURCHARGED
120 minute summer	SS35	50	36.539	0.039	7.7	0.0000	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)
720 minute winter	SS13	1.018	SS33	69.3	1.267	0.090	0.5634	
720 minute winter	SS31	5.000	SS32	3.1	0.224	0.048	1.0684	
720 minute winter	SS32	5.001	SS33	3.0	0.348	0.092	1.1702	
720 minute winter	SS33	1.019	SS34	8.5	0.576	0.182	0.0778	
720 minute winter	SS34	1.020	SS35	7.7	2.086	0.150	0.0535	850.7

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SS20	10	45.445	0.194	81.2	0.6418	0.0000	OK
15 minute summer	SS23	11	44.234	0.321	114.5	0.8407	0.0000	SURCHARGED
960 minute winter	SS24	945	44.098	0.508	6.9	0.8971	0.0000	SURCHARGED
960 minute winter	SS25	945	44.098	0.798	14.3	0.0064	0.0000	SURCHARGED
960 minute winter	SS26	945	44.098	0.848	31.3	59.6065	0.0000	SURCHARGED
960 minute winter	SS113	945	44.098	0.896	6.4	1.1958	0.0000	SURCHARGED
960 minute winter	SS114	945	44.098	0.943	4.7	0.0075	0.0000	SURCHARGED
960 minute winter	SS36	945	44.098	0.948	8.8	186.9417	0.0000	SURCHARGED
960 minute winter	SS27	945	44.098	0.816	3.0	2.1877	0.0000	SURCHARGED
960 minute winter	SS28	945	44.098	0.998	3.4	1.2681	0.0000	SURCHARGED
15 minute summer	SS29	12	42.081	0.269	104.7	0.7104	0.0000	OK
15 minute summer	SS1	10	46.900	0.154	64.7	0.4813	0.0000	OK
15 minute summer	SS2	10	45.406	0.144	101.6	0.3711	0.0000	OK
15 minute summer	SS3	11	45.009	0.209	126.0	0.4614	0.0000	OK
15 minute summer	SS4	11	43.984	0.537	239.2	2.0763	0.0000	SURCHARGED
15 minute summer	SS14	10	44.943	0.137	40.0	0.3631	0.0000	OK
15 minute summer	SS15	10	44.719	0.232	120.1	0.7972	0.0000	OK
15 minute summer	SS17	11	44.054	0.303	225.7	1.1633	0.0000	OK
15 minute summer	SS5	11	43.452	0.324	517.0	0.8883	0.0000	OK
15 minute summer	SS7	11	42.016	1.166	651.0	2.8327	0.0000	SURCHARGED
15 minute summer	SS8	11	41.579	0.788	648.6	1.3917	0.0000	SURCHARGED
15 minute summer	SS9	11	41.066	0.438	692.6	1.0758	0.0000	OK
15 minute summer	SS10	12	40.516	1.004	759.7	3.0638	0.0000	SURCHARGED
15 minute summer	SS11	12	40.229	0.899	761.7	1.7340	0.0000	SURCHARGED
15 minute summer	SS12	12	39.505	0.512	819.3	1.5716	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	SS20	1.000	SS23	78.8	2.121	1.056	2.3517	
15 minute summer	SS23	1.002	SS24	109.5	1.910	0.794	1.4838	
960 minute winter	SS24	1.003	SS25	7.3	0.154	0.057	1.5187	
960 minute winter	SS25	1.004	SS26	30.5	1.309	0.083	0.1408	
960 minute winter	SS26	1.005	SS113	6.0	0.366	0.094	1.0150	
960 minute winter	SS113	1.006	SS114	4.7	0.378	0.074	0.9883	
960 minute winter	SS114	1.007	SS36	4.7	0.635	0.060	0.0704	
960 minute winter	SS36	1.008	SS28	-2.6	-0.037	-0.038	0.9276	
960 minute winter	SS27	2.000	SS28	2.9	0.353	0.071	0.6824	
960 minute winter	SS28	1.009	SS29	0.9	0.600	0.006	0.0883	
15 minute summer	SS29	1.011	SS7	98.5	1.474	0.344	3.8766	
15 minute summer	SS1	3.000	SS2	63.0	2.195	0.810	1.8214	
15 minute summer	SS2	3.001	SS3	101.3	2.397	0.375	0.3361	
15 minute summer	SS3	3.002	SS4	125.0	1.877	0.804	4.0269	
15 minute summer	SS4	3.003	SS5	238.2	2.161	1.166	1.7519	
15 minute summer	SS14	4.000	SS15	39.6	1.496	0.667	0.5162	
15 minute summer	SS15	4.001	SS17	118.5	2.047	0.931	2.9218	
15 minute summer	SS17	4.002	SS5	223.0	2.518	0.844	2.4041	
15 minute summer	SS5	3.004	SS7	518.7	2.628	0.550	10.7700	
15 minute summer	SS7	1.012	SS8	648.6	3.002	1.824	2.3591	
15 minute summer	SS8	1.013	SS9	648.4	3.002	1.875	3.6842	
15 minute summer	SS9	1.014	SS10	684.7	2.643	0.715	14.5173	
15 minute summer	SS10	1.015	SS11	754.2	2.678	1.139	5.5428	
15 minute summer	SS11	1.016	SS12	764.0	2.729	1.172	10.1003	
15 minute summer	SS12	1.017	SS13	823.8	2.943	0.450	3.7134	

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.92%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	SS13	600	38.923	0.898	74.4	1.5875	0.0000	SURCHARGED
600 minute winter	SS31	600	38.923	0.856	3.6	2.3080	0.0000	SURCHARGED
600 minute winter	SS32	600	38.923	0.908	3.4	1.6051	0.0000	SURCHARGED
600 minute winter	SS33	600	38.923	0.923	88.4	1052.0680	0.0000	SURCHARGED
600 minute winter	SS34	600	38.914	1.214	7.8	2.1447	0.0000	SURCHARGED
60 minute winter	SS35	27	36.539	0.039	7.7	0.0000	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)
600 minute winter	SS13	1.018	SS33	74.1	1.324	0.096	0.5634	
600 minute winter	SS31	5.000	SS32	3.4	0.224	0.053	1.0684	
600 minute winter	SS32	5.001	SS33	3.3	0.358	0.100	1.1702	
600 minute winter	SS33	1.019	SS34	7.8	0.563	0.167	0.0778	
600 minute winter	SS34	1.020	SS35	7.7	2.086	0.149	0.0535	794.0

Results for 100 year +25% CC Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SS20	12	46.248	0.997	101.5	3.2946	0.0000	SURCHARGED
15 minute summer	SS23	12	44.445	0.532	128.4	1.3942	0.0000	SURCHARGED
1440 minute winter	SS24	1410	44.254	0.664	6.1	1.1734	0.0000	SURCHARGED
1440 minute winter	SS25	1410	44.254	0.954	19.4	0.0076	0.0000	SURCHARGED
1440 minute winter	SS26	1410	44.254	1.004	6.8	81.7771	0.0000	SURCHARGED
1440 minute winter	SS113	1410	44.254	1.052	4.3	1.4045	0.0000	SURCHARGED
1440 minute winter	SS114	1410	44.254	1.099	4.2	0.0088	0.0000	SURCHARGED
1440 minute winter	SS36	1410	44.254	1.104	7.6	234.9847	0.0000	SURCHARGED
1440 minute winter	SS27	1410	44.254	0.972	2.6	2.6070	0.0000	SURCHARGED
1440 minute winter	SS28	1410	44.254	1.154	2.9	1.4668	0.0000	SURCHARGED
15 minute summer	SS29	12	42.914	1.102	130.6	2.9097	0.0000	SURCHARGED
15 minute summer	SS1	10	46.931	0.185	80.9	0.5760	0.0000	OK
15 minute summer	SS2	12	45.608	0.346	127.8	0.8907	0.0000	SURCHARGED
15 minute summer	SS3	12	45.458	0.658	151.8	1.4489	0.0000	SURCHARGED
15 minute summer	SS4	12	44.284	0.837	284.4	3.2353	0.0000	SURCHARGED
15 minute summer	SS14	12	45.206	0.400	49.9	1.0557	0.0000	SURCHARGED
15 minute summer	SS15	12	45.067	0.580	141.5	1.9903	0.0000	SURCHARGED
15 minute summer	SS17	12	44.370	0.619	262.6	2.3738	0.0000	SURCHARGED
15 minute summer	SS5	12	43.864	0.736	601.1	2.0191	0.0000	SURCHARGED
15 minute summer	SS7	12	42.781	1.931	729.3	4.6914	0.0000	SURCHARGED
15 minute summer	SS8	12	42.257	1.466	710.0	2.5909	0.0000	SURCHARGED
15 minute summer	SS9	12	41.803	1.175	764.4	2.8901	0.0000	SURCHARGED
15 minute summer	SS10	12	41.051	1.539	834.0	4.6957	0.0000	SURCHARGED
15 minute summer	SS11	12	40.696	1.366	845.0	2.6346	0.0000	SURCHARGED
15 minute summer	SS12	12	39.822	0.829	914.9	2.5429	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	SS20	1.000	SS23	86.0	2.164	1.154	2.4541	
15 minute summer	SS23	1.002	SS24	125.4	1.918	0.910	1.4838	
1440 minute winter	SS24	1.003	SS25	6.0	0.124	0.047	1.5187	
1440 minute winter	SS25	1.004	SS26	-14.5	1.178	-0.040	0.1408	
1440 minute winter	SS26	1.005	SS113	3.8	0.348	0.059	1.0150	
1440 minute winter	SS113	1.006	SS114	4.2	0.351	0.066	0.9883	
1440 minute winter	SS114	1.007	SS36	4.2	0.593	0.053	0.0704	
1440 minute winter	SS36	1.008	SS28	-2.1	-0.030	-0.031	0.9276	
1440 minute winter	SS27	2.000	SS28	2.5	0.336	0.062	0.6824	
1440 minute winter	SS28	1.009	SS29	1.0	0.612	0.006	0.0924	
15 minute summer	SS29	1.011	SS7	130.4	1.438	0.455	4.3866	
15 minute summer	SS1	3.000	SS2	79.4	2.205	1.021	2.3474	
15 minute summer	SS2	3.001	SS3	120.9	2.380	0.447	0.5546	
15 minute summer	SS3	3.002	SS4	145.2	2.063	0.934	4.6127	
15 minute summer	SS4	3.003	SS5	276.8	2.510	1.354	1.7874	
15 minute summer	SS14	4.000	SS15	45.9	1.501	0.774	0.7463	
15 minute summer	SS15	4.001	SS17	134.8	1.977	1.059	3.5522	
15 minute summer	SS17	4.002	SS5	251.5	2.479	0.952	3.0036	
15 minute summer	SS5	3.004	SS7	594.5	2.852	0.630	13.0786	
15 minute summer	SS7	1.012	SS8	710.0	3.287	1.996	2.3591	
15 minute summer	SS8	1.013	SS9	711.4	3.293	2.058	3.7218	
15 minute summer	SS9	1.014	SS10	756.8	2.687	0.790	16.2964	
15 minute summer	SS10	1.015	SS11	835.7	2.967	1.262	5.5428	
15 minute summer	SS11	1.016	SS12	845.9	3.003	1.297	10.5790	
15 minute summer	SS12	1.017	SS13	916.2	3.253	0.501	3.8894	

Results for 100 year +25% CC Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	SS13	720	39.110	1.085	80.0	1.9164	0.0000	SURCHARGED
720 minute winter	SS31	720	39.110	1.043	3.8	2.8097	0.0000	SURCHARGED
720 minute winter	SS32	720	39.110	1.095	3.6	1.9341	0.0000	SURCHARGED
720 minute winter	SS33	720	39.110	1.110	95.1	1363.1930	0.0000	SURCHARGED
720 minute winter	SS34	720	39.099	1.399	7.8	2.4712	0.0000	SURCHARGED
60 minute winter	SS35	25	36.539	0.039	7.7	0.0000	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)
720 minute winter	SS13	1.018	SS33	79.7	1.310	0.104	0.5634	
720 minute winter	SS31	5.000	SS32	3.6	0.231	0.056	1.0684	
720 minute winter	SS32	5.001	SS33	3.5	0.365	0.106	1.1702	
720 minute winter	SS33	1.019	SS34	7.8	0.561	0.166	0.0778	
720 minute winter	SS34	1.020	SS35	7.7	2.086	0.149	0.0535	887.3

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SS20	12	46.766	1.515	113.6	5.0067	0.0000	FLOOD RISK
15 minute summer	SS23	12	44.631	0.718	140.6	1.8822	0.0000	SURCHARGED
1440 minute winter	SS24	1410	44.342	0.752	6.7	1.3290	0.0000	SURCHARGED
1440 minute winter	SS25	1410	44.342	1.042	14.2	0.0083	0.0000	SURCHARGED
1440 minute winter	SS26	1410	44.342	1.092	18.0	96.0721	0.0000	SURCHARGED
1440 minute winter	SS113	1410	44.342	1.140	4.6	1.5221	0.0000	SURCHARGED
1440 minute winter	SS114	1410	44.342	1.187	4.6	0.0095	0.0000	SURCHARGED
1440 minute winter	SS36	1410	44.342	1.192	8.4	264.4383	0.0000	SURCHARGED
1440 minute winter	SS27	1410	44.342	1.060	2.9	2.8432	0.0000	SURCHARGED
1440 minute winter	SS28	1410	44.342	1.242	3.2	1.5787	0.0000	SURCHARGED
15 minute summer	SS29	12	43.304	1.492	146.2	3.9383	0.0000	SURCHARGED
15 minute summer	SS1	12	47.421	0.675	90.6	2.1042	0.0000	SURCHARGED
15 minute summer	SS2	12	46.140	0.878	130.3	2.2608	0.0000	SURCHARGED
15 minute summer	SS3	12	45.991	1.191	160.2	2.6236	0.0000	SURCHARGED
15 minute summer	SS4	12	44.861	1.414	308.3	5.4648	0.0000	SURCHARGED
15 minute summer	SS14	12	45.836	1.030	55.9	2.7216	0.0000	SURCHARGED
15 minute summer	SS15	12	45.701	1.214	156.5	4.1690	0.0000	SURCHARGED
15 minute summer	SS17	12	44.973	1.222	286.3	4.6907	0.0000	SURCHARGED
15 minute summer	SS5	12	44.411	1.283	657.4	3.5196	0.0000	SURCHARGED
15 minute summer	SS7	12	43.211	2.361	740.8	5.7382	0.0000	SURCHARGED
15 minute summer	SS8	12	42.654	1.863	735.4	3.2918	0.0000	SURCHARGED
15 minute summer	SS9	12	42.169	1.541	785.7	3.7901	0.0000	SURCHARGED
15 minute summer	SS10	12	41.355	1.843	874.6	5.6231	0.0000	FLOOD RISK
15 minute summer	SS11	12	40.964	1.634	887.9	3.1516	0.0000	FLOOD RISK
15 minute summer	SS12	12	39.998	1.005	966.8	3.0848	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	SS20	1.000	SS23	93.6	2.354	1.255	2.4541	
15 minute summer	SS23	1.002	SS24	136.5	1.939	0.991	1.4838	
1440 minute winter	SS24	1.003	SS25	6.6	0.119	0.051	1.5187	
1440 minute winter	SS25	1.004	SS26	17.3	1.178	0.047	0.1408	
1440 minute winter	SS26	1.005	SS113	4.1	0.366	0.064	1.0150	
1440 minute winter	SS113	1.006	SS114	4.6	0.355	0.071	0.9883	
1440 minute winter	SS114	1.007	SS36	4.5	0.554	0.058	0.0704	
1440 minute winter	SS36	1.008	SS28	-2.4	-0.033	-0.035	0.9276	
1440 minute winter	SS27	2.000	SS28	2.8	0.352	0.069	0.6824	
1440 minute winter	SS28	1.009	SS29	1.0	0.618	0.006	0.0946	
15 minute summer	SS29	1.011	SS7	138.3	1.488	0.483	4.3866	
15 minute summer	SS1	3.000	SS2	78.7	2.116	1.011	2.5158	
15 minute summer	SS2	3.001	SS3	127.2	2.415	0.471	0.5546	
15 minute summer	SS3	3.002	SS4	151.2	2.147	0.972	4.6127	
15 minute summer	SS4	3.003	SS5	300.1	2.721	1.469	1.7874	
15 minute summer	SS14	4.000	SS15	52.6	1.468	0.887	0.7463	
15 minute summer	SS15	4.001	SS17	136.3	1.964	1.070	3.5522	
15 minute summer	SS17	4.002	SS5	275.7	2.499	1.044	3.0036	
15 minute summer	SS5	3.004	SS7	582.7	2.813	0.618	13.0786	
15 minute summer	SS7	1.012	SS8	735.4	3.405	2.068	2.3591	
15 minute summer	SS8	1.013	SS9	744.2	3.445	2.153	3.7218	
15 minute summer	SS9	1.014	SS10	788.2	2.798	0.823	16.2964	
15 minute summer	SS10	1.015	SS11	877.5	3.116	1.326	5.5428	
15 minute summer	SS11	1.016	SS12	889.5	3.158	1.364	10.5790	
15 minute summer	SS12	1.017	SS13	968.6	3.439	0.530	3.8894	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.90%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	SS13	720	39.214	1.189	89.7	2.1016	0.0000	FLOOD RISK
720 minute winter	SS31	720	39.214	1.147	4.3	3.0921	0.0000	SURCHARGED
720 minute winter	SS32	720	39.214	1.199	4.1	2.1193	0.0000	FLOOD RISK
720 minute winter	SS33	720	39.214	1.214	106.7	1552.1510	0.0000	FLOOD RISK
720 minute winter	SS34	720	39.203	1.503	8.5	2.6550	0.0000	SURCHARGED
120 minute summer	SS35	44	36.539	0.039	7.7	0.0000	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)
720 minute winter	SS13	1.018	SS33	89.5	1.353	0.116	0.5634	
720 minute winter	SS31	5.000	SS32	4.1	0.236	0.063	1.0684	
720 minute winter	SS32	5.001	SS33	4.0	0.354	0.121	1.1702	
720 minute winter	SS33	1.019	SS34	8.5	0.649	0.182	0.0778	
720 minute winter	SS34	1.020	SS35	7.7	2.086	0.150	0.0535	917.3