



ARCH
ASSOCIATES

APPENDIX 4

SURFACE WATER DRAINAGE CALCULATIONS



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)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

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
10	0	0	0
30	40	0	0



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)	0.200
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)	100.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
ATT. TANK 1	0.010	5.00	56.050		517849.845	131708.585	1.150	54.900
28	0.023	5.00	55.939	450	517846.382	131711.141	0.933	55.006
25	0.025	5.00	55.682	1200	517858.513	131679.298	1.070	54.612
24	0.032	5.00	55.656	1200	517864.466	131667.969	1.096	54.560
19	0.008	5.00	57.462	1200	517965.671	131650.708	2.508	54.954
22	0.042	5.00	57.142	1200	518023.651	131607.590	1.531	55.611
21	0.045	5.00	57.427	1200	518031.924	131649.627	2.068	55.359
20	0.063	5.00	57.179	1200	518014.510	131653.054	1.924	55.255
MH33			56.256		517849.632	131719.735	1.416	54.840
ATT. TANK 6	0.097	5.00	56.699		517956.593	131585.062	1.464	55.235
PP8	0.081	5.00	57.140		517997.731	131589.449	1.020	56.120
ATT. TANK 4			57.360		517955.812	131650.234	2.425	54.935
3			56.605	1500	517916.467	131697.466	2.276	54.329
31	0.085	5.00	57.047	1350	517983.529	131561.822	1.481	55.566
J2	0.017	5.00	57.221		517982.245	131588.641	1.470	55.751
PP7	0.031	5.00	57.440		517996.212	131622.424	0.820	56.620
32	0.079	5.00	57.411	1200	517980.886	131616.837	1.545	55.866
ATT. TANK 5	0.031	5.00	57.080		518006.536	131652.671	1.840	55.240
18	0.017	5.00	57.236	1200	517942.048	131649.573	2.314	54.922
PP6	0.044	5.00	57.000		517942.177	131635.020	0.820	56.180
17	0.032	5.00	57.160	1500	517935.991	131645.548	2.356	54.804
16	0.071	5.00	56.066	1200	517904.423	131624.573	1.417	54.649
DIVERSION MH			56.161		517929.927	131574.833	0.990	55.171
Rain Garden 2		5.00	56.767		517890.695	131741.804	0.400	56.367
15	0.053	5.00	57.385	1200	517908.190	131795.187	1.800	55.585
14	0.047	5.00	56.328	1200	517880.595	131757.793	1.439	54.889
Rain Garden 1		5.00	56.904		517897.668	131751.372	0.400	56.504
10			57.798	1200	517974.176	131775.736	2.022	55.776
PP2	0.089	5.00	56.590		517894.226	131723.236	1.020	55.570
PP1	0.089	5.00	56.780		517916.519	131753.271	0.970	55.810
J4	0.060	5.00	56.600		517905.806	131739.204	1.839	54.761
Rain Garden 3	0.016	5.00	57.273		517924.044	131731.815	0.400	56.873
Rain Garden 4	0.016	5.00	57.106		517917.071	131722.357	0.400	56.706
33			56.565	1350	517948.346	131584.693	1.334	55.231
PP3	0.035	5.00	58.120		517998.367	131772.535	0.820	57.300
12	0.022	5.00	58.311	1200	518020.938	131779.639	2.133	56.178
J5	0.027	5.00	58.189		518002.267	131785.367	2.126	56.063
27			56.175	600	517853.359	131713.350	1.281	54.894
13	0.036	5.00	57.829	1200	517950.194	131801.344	1.728	56.101
11	0.029	5.00	58.005	1200	517979.294	131792.416	2.158	55.847
9	0.043	5.00	57.602	1200	517964.948	131763.220	2.815	54.787
ATT. TANK 3	0.088	5.00	57.464		517956.959	131752.384	2.699	54.765



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
PP5	0.094	5.00	57.100		517951.152	131689.157	0.770	56.330
7	0.023	5.00	58.328	1200	518039.652	131758.335	1.725	56.603
6	0.119	5.00	58.098	1200	518033.328	131737.721	2.994	55.104
34		5.00	57.300	450	517997.742	131554.501	1.349	55.951
8		5.00	57.378	450	517953.612	131693.218	1.494	55.884
5	0.151	5.00	57.269	1350	517976.716	131686.922	2.550	54.719
PP4	0.097	5.00	57.420		517965.217	131708.263	0.870	56.550
J6	0.023	5.00	57.140		517959.023	131699.967	2.489	54.651
4	0.079	5.00	57.025	1500	517932.649	131719.413	2.625	54.400
2	0.021	5.00	56.380	1800	517898.278	131672.796	2.066	54.314
23		5.00	57.407	450	517959.969	131647.555	1.393	56.014
1	0.025	5.00	55.783	2400	517877.897	131655.146	1.527	54.256
MH91			55.690		517873.297	131650.814	1.450	54.240
26	0.045	5.00	56.029	1200	517851.964	131720.069	1.175	54.854
29	0.013	5.00	56.253	1500	517936.277	131572.973	1.066	55.187
ATT. TANK 2	0.090	5.00	56.375		517908.202	131686.256	2.050	54.325
Rain Garden 5	0.016	5.00	57.250		517939.637	131705.015	0.400	56.850
Rain Garden 6	0.014	5.00	57.650		517972.893	131637.406	0.400	57.250
Rain Garden 7	0.018	5.00	57.440		517974.433	131604.515	0.400	57.040
30			56.544	1350	517955.179	131543.587	1.271	55.273

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)
1.009	1	MH91	4.963	0.600	54.256	54.240	0.016	310.2	600	8.30	41.6
20.001	24	1	18.569	0.600	54.560	54.484	0.076	245.0	300	5.52	51.8
16.004	19	ATT. TANK 4	1.871	0.600	54.954	54.935	0.019	98.5	225	6.56	47.8
16.005	ATT. TANK 4	18	1.780	0.600	54.935	54.922	0.013	136.9	225	6.58	47.7
1.007	2	1	26.961	0.600	54.314	54.259	0.055	490.0	525	8.24	42.7
1.004	4	3	27.268	0.600	54.400	54.329	0.071	384.1	525	7.69	44.2
1.005	3	ATT. TANK 2	1.527	0.600	54.329	54.325	0.004	381.8	525	7.71	44.2
5.005	ATT. TANK 3	4	32.963	0.600	54.765	54.625	0.140	235.5	300	6.71	47.3
1.003	J6	4	32.768	0.600	54.651	54.550	0.101	325.0	375	7.29	45.4
2.000	PP5	J6	13.372	0.600	56.330	55.834	0.496	27.0	225	5.09	53.6

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)
1.009	1.377	389.3	272.3	0.927	0.850	1.811	0.0	371	1.484
20.001	1.000	70.7	10.8	0.796	0.999	0.058	0.0	79	0.728
16.004	1.317	52.4	34.9	2.283	2.200	0.202	0.0	135	1.409
16.005	1.115	44.3	34.8	2.200	2.089	0.202	0.0	151	1.232
1.007	1.005	217.5	210.3	1.541	0.999	1.362	0.0	418	1.137
1.004	1.137	246.1	199.9	2.100	1.751	1.251	0.0	361	1.260
1.005	1.140	246.8	199.6	1.751	1.525	1.251	0.0	360	1.263
5.005	1.020	72.1	47.7	2.399	2.100	0.279	0.0	178	1.088
1.003	0.999	110.4	83.4	2.114	2.100	0.508	0.0	244	1.094
2.000	2.529	100.6	18.2	0.545	1.081	0.094	0.0	65	1.933



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)
1.002	5	J6	21.982	0.600	54.719	54.651	0.068	325.0	375	6.74	47.2
3.000	PP4	J6	10.353	0.600	56.550	56.446	0.104	100.0	225	5.13	53.4
25.001	33	29	16.823	0.600	55.231	55.187	0.044	382.3	450	5.30	52.7
24.000	34	31	15.988	0.600	55.951	55.791	0.160	99.9	150	5.27	52.9
1.001	6	5	76.062	0.600	55.104	54.794	0.310	245.0	300	6.37	48.5
1.000	7	6	21.562	0.600	56.603	55.179	1.424	15.1	225	5.11	53.5
5.004	9	ATT. TANK 3	5.464	0.600	54.787	54.765	0.022	245.0	300	6.17	49.2
5.002	11	10	17.448	0.600	55.847	55.776	0.071	245.0	300	6.02	49.7
5.001	J5	11	24.030	0.600	56.063	55.922	0.141	170.0	225	5.73	50.9
7.000	13	11	30.439	0.600	56.101	55.922	0.179	170.0	225	5.51	51.9
26.002	27	26	6.862	0.600	54.894	54.854	0.040	170.0	225	5.18	53.2
6.000	PP3	J5	13.412	0.600	57.300	57.063	0.237	56.6	225	5.13	53.5
5.000	12	J5	19.530	0.600	56.178	56.063	0.115	170.0	225	5.33	52.6
8.002	J4	4	33.350	0.600	54.761	54.625	0.136	245.0	300	6.48	48.1
15.000	Rain Garden 3	4	15.095	0.600	56.873	55.600	1.273	11.9	100	5.11	53.5
14.000	Rain Garden 4	4	15.854	0.600	56.706	55.600	1.106	14.3	100	5.13	53.5
5.003	10	9	15.550	0.600	55.776	54.787	0.989	15.7	300	6.08	49.5
9.000	PP2	J4	19.725	0.600	55.570	55.373	0.197	100.0	150	5.33	52.6
10.000	PP1	J4	17.682	0.600	55.810	55.633	0.177	100.0	150	5.29	52.8
11.000	Rain Garden 2	J4	15.333	0.600	56.367	56.251	0.116	132.2	100	5.38	52.4
8.001	14	J4	31.323	0.600	54.889	54.761	0.128	245.0	300	5.92	50.1
12.000	Rain Garden 1	J4	14.639	0.600	56.504	56.251	0.253	57.9	100	5.24	53.0
8.000	15	14	46.474	0.600	55.585	54.889	0.696	66.8	300	5.40	52.3
16.008	16	1	40.476	0.600	54.649	54.484	0.165	245.0	300	8.01	43.3

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)
1.002	0.999	110.4	50.1	2.175	2.114	0.294	0.0	177	0.975
3.000	1.307	52.0	18.8	0.645	0.469	0.097	0.0	94	1.205
25.001	1.033	164.4	18.6	0.884	0.616	0.097	0.0	102	0.694
24.000	1.005	17.8	0.0	1.199	1.106	0.000	0.0	0	0.000
1.001	1.000	70.7	24.9	2.694	2.175	0.142	0.0	123	0.915
1.000	3.379	134.4	4.5	1.500	2.694	0.023	0.0	28	1.567
5.004	1.000	70.7	34.0	2.515	2.399	0.191	0.0	147	0.991
5.002	1.000	70.7	26.8	1.858	1.722	0.149	0.0	128	0.933
5.001	1.000	39.7	15.4	1.901	1.858	0.084	0.0	97	0.937
7.000	1.000	39.7	6.7	1.503	1.858	0.036	0.0	62	0.745
26.002	1.000	39.7	6.4	1.056	0.950	0.034	0.0	61	0.739
6.000	1.742	69.3	6.7	0.595	0.901	0.035	0.0	47	1.111
5.000	1.000	39.7	4.2	1.908	1.901	0.022	0.0	49	0.650
8.002	1.000	70.7	58.8	1.539	2.100	0.338	0.0	209	1.114
15.000	2.256	17.7	3.0	0.300	1.325	0.016	0.0	28	1.677
14.000	2.051	16.1	3.0	0.300	1.325	0.016	0.0	29	1.572
5.003	3.984	281.6	26.6	1.722	2.515	0.149	0.0	62	2.537
9.000	1.005	17.8	16.9	0.870	1.077	0.089	0.0	117	1.140
10.000	1.005	17.8	17.0	0.820	0.817	0.089	0.0	118	1.141
11.000	0.667	5.2	0.0	0.300	0.249	0.000	0.0	0	0.000
8.001	1.000	70.7	18.1	1.139	1.539	0.100	0.0	103	0.841
12.000	1.014	8.0	0.0	0.300	0.249	0.000	0.0	0	0.000
8.000	1.927	136.2	9.9	1.500	1.139	0.053	0.0	54	1.134
16.008	1.000	70.7	57.3	1.117	0.999	0.366	0.0	205	1.109



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)
21.005	29	DIVERSION MH	6.617	0.600	55.187	55.171	0.016	413.6	450	7.27	45.5
16.007	17	16	37.901	0.600	54.804	54.649	0.155	245.0	300	7.33	45.3
16.006	18	17	7.272	0.600	54.922	54.879	0.043	170.0	225	6.70	47.3
19.000	PP6	17	12.211	0.600	56.180	56.058	0.122	100.0	225	5.16	53.3
16.003	ATT. TANK 5	19	34.912	0.600	55.240	54.954	0.286	122.1	225	6.53	47.9
16.002	20	ATT. TANK 5	1.983	0.600	55.255	55.240	0.015	132.2	225	6.04	49.6
4.000	8	J6	8.650	0.600	55.884	54.909	0.975	8.9	150	5.04	53.8
21.001	32	J2	28.229	0.600	55.866	55.751	0.115	245.0	300	5.74	50.9
21.000	PP7	32	16.313	0.600	56.620	56.457	0.163	100.0	150	5.27	52.9
25.000	ATT. TANK 6	33	1.506	0.600	55.235	55.231	0.004	376.5	450	5.02	53.9
23.000	PP8	J2	15.507	0.600	56.120	55.965	0.155	100.0	150	5.26	52.9
21.002	J2	31	26.850	0.600	55.751	55.641	0.110	245.0	300	6.19	49.1
21.003	31	30	33.708	0.600	55.566	55.348	0.218	154.6	375	6.58	47.7
18.000	23	ATT. TANK 4	1.000	0.600	56.014	56.004	0.010	100.0	150	5.02	53.9
26.000	28	ATT. TANK 1	3.142	0.600	55.006	54.975	0.031	100.0	150	5.05	53.8
16.001	21	20	17.748	0.600	55.359	55.255	0.104	170.0	225	6.01	49.7
16.000	22	21	42.843	0.600	55.611	55.359	0.252	170.0	225	5.71	51.0
26.003	26	MH33	2.356	0.600	54.854	54.840	0.014	170.0	225	5.22	53.1
20.000	25	24	12.798	0.600	54.612	54.560	0.052	245.0	300	5.21	53.1
26.001	ATT. TANK 1	27	1.000	0.600	54.900	54.894	0.006	166.7	225	5.07	53.7

1.006	ATT. TANK 2	2	4.954	0.600	54.325	54.314	0.011	450.4	525	7.79	43.9
13.000	Rain Garden 5	4	16.004	0.600	56.850	56.723	0.127	126.0	100	5.39	52.3

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)
21.005	0.993	158.0	69.4	0.616	0.540	0.422	0.0	209	0.963
16.007	1.000	70.7	48.3	2.056	1.117	0.295	0.0	183	1.074
16.006	1.000	39.7	37.4	2.089	2.056	0.219	0.0	174	1.132
19.000	1.307	52.0	8.4	0.595	0.877	0.044	0.0	61	0.967
16.003	1.182	47.0	31.3	1.615	2.283	0.181	0.0	135	1.264
16.002	1.135	45.1	26.8	1.699	1.615	0.150	0.0	125	1.184
4.000	3.403	60.1	0.0	1.344	2.081	0.000	0.0	0	0.000
21.001	1.000	70.7	20.3	1.245	1.170	0.110	0.0	110	0.867
21.000	1.005	17.8	5.9	0.670	0.804	0.031	0.0	59	0.904
25.000	1.042	165.6	19.0	1.014	0.884	0.097	0.0	102	0.702
23.000	1.005	17.8	15.5	0.870	1.106	0.081	0.0	109	1.130
21.002	1.000	70.7	40.2	1.170	1.106	0.227	0.0	162	1.030
21.003	1.454	160.6	53.8	1.106	0.821	0.312	0.0	149	1.314
18.000	1.005	17.8	0.0	1.243	1.206	0.000	0.0	0	0.000
26.000	1.005	17.8	4.5	0.783	0.925	0.023	0.0	51	0.838
16.001	1.000	39.7	15.6	1.843	1.699	0.087	0.0	98	0.941
16.000	1.000	39.7	7.7	1.306	1.843	0.042	0.0	67	0.779
26.003	1.000	39.7	15.0	0.950	1.191	0.078	0.0	95	0.930
20.000	1.000	70.7	4.9	0.770	0.796	0.025	0.0	53	0.578
26.001	1.010	40.1	6.5	0.925	1.056	0.034	0.0	61	0.746
1.006	1.049	227.0	212.9	1.525	1.541	1.341	0.0	406	1.184
13.000	0.683	5.4	2.9	0.300	0.202	0.016	0.0	53	0.699



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)
17.000	Rain Garden 6	19	15.136	0.600	57.250	57.127	0.123	123.1	100	5.36	52.5
22.000	Rain Garden 7	J2	17.692	0.600	57.040	56.000	1.040	17.0	100	5.16	53.3
21.004	30	29	34.940	0.600	55.273	55.187	0.086	405.0	450	7.16	45.8

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)
17.000	0.692	5.4	2.6	0.300	0.235	0.014	0.0	48	0.680
22.000	1.882	14.8	3.5	0.300	1.121	0.018	0.0	33	1.544
21.004	1.004	159.6	51.6	0.821	0.616	0.312	0.0	175	0.899

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)
1.009	4.963	310.2	600	Circular	55.783	54.256	0.927	55.690	54.240	0.850
20.001	18.569	245.0	300	Circular	55.656	54.560	0.796	55.783	54.484	0.999
16.004	1.871	98.5	225	Circular	57.462	54.954	2.283	57.360	54.935	2.200
16.005	1.780	136.9	225	Circular	57.360	54.935	2.200	57.236	54.922	2.089
1.007	26.961	490.0	525	Circular	56.380	54.314	1.541	55.783	54.259	0.999
1.004	27.268	384.1	525	Circular	57.025	54.400	2.100	56.605	54.329	1.751
1.005	1.527	381.8	525	Circular	56.605	54.329	1.751	56.375	54.325	1.525
5.005	32.963	235.5	300	Circular	57.464	54.765	2.399	57.025	54.625	2.100
1.003	32.768	325.0	375	Circular	57.140	54.651	2.114	57.025	54.550	2.100
2.000	13.372	27.0	225	Circular	57.100	56.330	0.545	57.140	55.834	1.081
1.002	21.982	325.0	375	Circular	57.269	54.719	2.175	57.140	54.651	2.114
3.000	10.353	100.0	225	Circular	57.420	56.550	0.645	57.140	56.446	0.469
25.001	16.823	382.3	450	Circular	56.565	55.231	0.884	56.253	55.187	0.616
24.000	15.988	99.9	150	Circular	57.300	55.951	1.199	57.047	55.791	1.106
1.001	76.062	245.0	300	Circular	58.098	55.104	2.694	57.269	54.794	2.175
1.000	21.562	15.1	225	Circular	58.328	56.603	1.500	58.098	55.179	2.694
5.004	5.464	245.0	300	Circular	57.602	54.787	2.515	57.464	54.765	2.399

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.009	1	2400	Manhole	Adoptable	MH91		Junction	
20.001	24	1200	Manhole	Adoptable	1	2400	Manhole	Adoptable
16.004	19	1200	Manhole	Adoptable	ATT. TANK 4		Junction	
16.005	ATT. TANK 4		Junction		18	1200	Manhole	Adoptable
1.007	2	1800	Manhole	Adoptable	1	2400	Manhole	Adoptable
1.004	4	1500	Manhole	Adoptable	3	1500	Manhole	Adoptable
1.005	3	1500	Manhole	Adoptable	ATT. TANK 2		Junction	
5.005	ATT. TANK 3		Junction		4	1500	Manhole	Adoptable
1.003	J6		Junction		4	1500	Manhole	Adoptable
2.000	PP5		Junction		J6		Junction	
1.002	5	1350	Manhole	Adoptable	J6		Junction	
3.000	PP4		Junction		J6		Junction	
25.001	33	1350	Manhole	Adoptable	29	1500	Manhole	Adoptable
24.000	34	450	Manhole	Adoptable	31	1350	Manhole	Adoptable
1.001	6	1200	Manhole	Adoptable	5	1350	Manhole	Adoptable
1.000	7	1200	Manhole	Adoptable	6	1200	Manhole	Adoptable
5.004	9	1200	Manhole	Adoptable	ATT. TANK 3		Junction	



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)
5.002	17.448	245.0	300	Circular	58.005	55.847	1.858	57.798	55.776	1.722
5.001	24.030	170.0	225	Circular	58.189	56.063	1.901	58.005	55.922	1.858
7.000	30.439	170.0	225	Circular	57.829	56.101	1.503	58.005	55.922	1.858
26.002	6.862	170.0	225	Circular	56.175	54.894	1.056	56.029	54.854	0.950
6.000	13.412	56.6	225	Circular	58.120	57.300	0.595	58.189	57.063	0.901
5.000	19.530	170.0	225	Circular	58.311	56.178	1.908	58.189	56.063	1.901
8.002	33.350	245.0	300	Circular	56.600	54.761	1.539	57.025	54.625	2.100
15.000	15.095	11.9	100	Circular	57.273	56.873	0.300	57.025	55.600	1.325
14.000	15.854	14.3	100	Circular	57.106	56.706	0.300	57.025	55.600	1.325
5.003	15.550	15.7	300	Circular	57.798	55.776	1.722	57.602	54.787	2.515
9.000	19.725	100.0	150	Circular	56.590	55.570	0.870	56.600	55.373	1.077
10.000	17.682	100.0	150	Circular	56.780	55.810	0.820	56.600	55.633	0.817
11.000	15.333	132.2	100	Circular	56.767	56.367	0.300	56.600	56.251	0.249
8.001	31.323	245.0	300	Circular	56.328	54.889	1.139	56.600	54.761	1.539
12.000	14.639	57.9	100	Circular	56.904	56.504	0.300	56.600	56.251	0.249
8.000	46.474	66.8	300	Circular	57.385	55.585	1.500	56.328	54.889	1.139
16.008	40.476	245.0	300	Circular	56.066	54.649	1.117	55.783	54.484	0.999
21.005	6.617	413.6	450	Circular	56.253	55.187	0.616	56.161	55.171	0.540
16.007	37.901	245.0	300	Circular	57.160	54.804	2.056	56.066	54.649	1.117
16.006	7.272	170.0	225	Circular	57.236	54.922	2.089	57.160	54.879	2.056
19.000	12.211	100.0	225	Circular	57.000	56.180	0.595	57.160	56.058	0.877
16.003	34.912	122.1	225	Circular	57.080	55.240	1.615	57.462	54.954	2.283
16.002	1.983	132.2	225	Circular	57.179	55.255	1.699	57.080	55.240	1.615
4.000	8.650	8.9	150	Circular	57.378	55.884	1.344	57.140	54.909	2.081
21.001	28.229	245.0	300	Circular	57.411	55.866	1.245	57.221	55.751	1.170

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.002	11	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
5.001	J5		Junction		11	1200	Manhole	Adoptable
7.000	13	1200	Manhole	Adoptable	11	1200	Manhole	Adoptable
26.002	27	600	Manhole	Adoptable	26	1200	Manhole	Adoptable
6.000	PP3		Junction		J5		Junction	
5.000	12	1200	Manhole	Adoptable	J5		Junction	
8.002	J4		Junction		4	1500	Manhole	Adoptable
15.000	Rain Garden 3		Junction		4	1500	Manhole	Adoptable
14.000	Rain Garden 4		Junction		4	1500	Manhole	Adoptable
5.003	10	1200	Manhole	Adoptable	9	1200	Manhole	Adoptable
9.000	PP2		Junction		J4		Junction	
10.000	PP1		Junction		J4		Junction	
11.000	Rain Garden 2		Junction		J4		Junction	
8.001	14	1200	Manhole	Adoptable	J4		Junction	
12.000	Rain Garden 1		Junction		J4		Junction	
8.000	15	1200	Manhole	Adoptable	14	1200	Manhole	Adoptable
16.008	16	1200	Manhole	Adoptable	1	2400	Manhole	Adoptable
21.005	29	1500	Manhole	Adoptable	DIVERSION MH		Junction	
16.007	17	1500	Manhole	Adoptable	16	1200	Manhole	Adoptable
16.006	18	1200	Manhole	Adoptable	17	1500	Manhole	Adoptable
19.000	PP6		Junction		17	1500	Manhole	Adoptable
16.003	ATT. TANK 5		Junction		19	1200	Manhole	Adoptable
16.002	20	1200	Manhole	Adoptable	ATT. TANK 5		Junction	
4.000	8	450	Manhole	Adoptable	J6		Junction	
21.001	32	1200	Manhole	Adoptable	J2		Junction	



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)
21.000	16.313	100.0	150	Circular	57.440	56.620	0.670	57.411	56.457	0.804
25.000	1.506	376.5	450	Circular	56.699	55.235	1.014	56.565	55.231	0.884
23.000	15.507	100.0	150	Circular	57.140	56.120	0.870	57.221	55.965	1.106
21.002	26.850	245.0	300	Circular	57.221	55.751	1.170	57.047	55.641	1.106
21.003	33.708	154.6	375	Circular	57.047	55.566	1.106	56.544	55.348	0.821
18.000	1.000	100.0	150	Circular	57.407	56.014	1.243	57.360	56.004	1.206
26.000	3.142	100.0	150	Circular	55.939	55.006	0.783	56.050	54.975	0.925
16.001	17.748	170.0	225	Circular	57.427	55.359	1.843	57.179	55.255	1.699
16.000	42.843	170.0	225	Circular	57.142	55.611	1.306	57.427	55.359	1.843
26.003	2.356	170.0	225	Circular	56.029	54.854	0.950	56.256	54.840	1.191
20.000	12.798	245.0	300	Circular	55.682	54.612	0.770	55.656	54.560	0.796
26.001	1.000	166.7	225	Circular	56.050	54.900	0.925	56.175	54.894	1.056
1.006	4.954	450.4	525	Circular	56.375	54.325	1.525	56.380	54.314	1.541
13.000	16.004	126.0	100	Circular	57.250	56.850	0.300	57.025	56.723	0.202
17.000	15.136	123.1	100	Circular	57.650	57.250	0.300	57.462	57.127	0.235
22.000	17.692	17.0	100	Circular	57.440	57.040	0.300	57.221	56.000	1.121
21.004	34.940	405.0	450	Circular	56.544	55.273	0.821	56.253	55.187	0.616

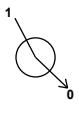
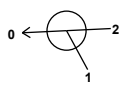
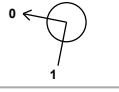
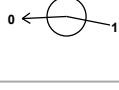
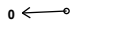
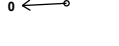
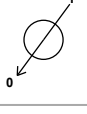
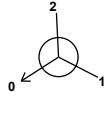
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
21.000	PP7		Junction		32	1200	Manhole	Adoptable
25.000	ATT. TANK 6		Junction		33	1350	Manhole	Adoptable
23.000	PP8		Junction		J2		Junction	
21.002	J2		Junction		31	1350	Manhole	Adoptable
21.003	31	1350	Manhole	Adoptable	30	1350	Manhole	Adoptable
18.000	23	450	Manhole	Adoptable	ATT. TANK 4		Junction	
26.000	28	450	Manhole	Adoptable	ATT. TANK 1		Junction	
16.001	21	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
16.000	22	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
26.003	26	1200	Manhole	Adoptable	MH33		Junction	
20.000	25	1200	Manhole	Adoptable	24	1200	Manhole	Adoptable
26.001	ATT. TANK 1		Junction		27	600	Manhole	Adoptable
1.006	ATT. TANK 2		Junction		2	1800	Manhole	Adoptable
13.000	Rain Garden 5		Junction		4	1500	Manhole	Adoptable
17.000	Rain Garden 6		Junction		19	1200	Manhole	Adoptable
22.000	Rain Garden 7		Junction		J2		Junction	
21.004	30	1350	Manhole	Adoptable	29	1500	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
ATT. TANK 1	517849.845	131708.585	56.050	1.150		1 0	1	26.000	54.975	150
							0	26.001	54.900	225

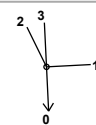
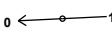
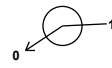
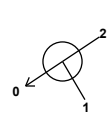


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
28	517846.382	131711.141	55.939	0.933	450		0	26.000	55.006	150
25	517858.513	131679.298	55.682	1.070	1200		0	20.000	54.612	300
24	517864.466	131667.969	55.656	1.096	1200		1	20.000	54.560	300
19	517965.671	131650.708	57.462	2.508	1200		0	20.001	54.560	300
							1	17.000	57.127	100
							2	16.003	54.954	225
							0	16.004	54.954	225
22	518023.651	131607.590	57.142	1.531	1200		0	16.000	55.611	225
21	518031.924	131649.627	57.427	2.068	1200		1	16.000	55.359	225
							0	16.001	55.359	225
20	518014.510	131653.054	57.179	1.924	1200		1	16.001	55.255	225
							0	16.002	55.255	225
MH33	517849.632	131719.735	56.256	1.416			1	26.003	54.840	225
ATT. TANK 6	517956.593	131585.062	56.699	1.464			0	25.000	55.235	450
PP8	517997.731	131589.449	57.140	1.020			0	23.000	56.120	150
ATT. TANK 4	517955.812	131650.234	57.360	2.425			1	18.000	56.004	150
							2	16.004	54.935	225
							0	16.005	54.935	225
3	517916.467	131697.466	56.605	2.276	1500		1	1.004	54.329	525
							0	1.005	54.329	525
31	517983.529	131561.822	57.047	1.481	1350		1	24.000	55.791	150
							2	21.002	55.641	300
							0	21.003	55.566	375

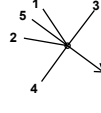
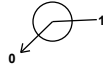
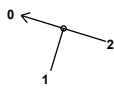


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
J2	517982.245	131588.641	57.221	1.470			1 2 3 0	23.000 22.000 21.001 21.002	55.965 56.000 55.751 55.751	150 100 300 300
PP7	517996.212	131622.424	57.440	0.820			0	21.000	56.620	150
32	517980.886	131616.837	57.411	1.545	1200		1 0	21.000 21.001	56.457 55.866	150 300
ATT. TANK 5	518006.536	131652.671	57.080	1.840			1 0	16.002 16.003	55.240 55.240	225 225
18	517942.048	131649.573	57.236	2.314	1200		1 0	16.005 16.006	54.922 54.922	225 225
PP6	517942.177	131635.020	57.000	0.820			0	19.000	56.180	225
17	517935.991	131645.548	57.160	2.356	1500		1 2 0	19.000 16.006 16.007	56.058 54.879 54.804	225 225 300
16	517904.423	131624.573	56.066	1.417	1200		1 0	16.007 16.008	54.649 54.649	300 300
DIVERSION MH	517929.927	131574.833	56.161	0.990			1	21.005	55.171	450
Rain Garden 2	517890.695	131741.804	56.767	0.400			0	11.000	56.367	100
15	517908.190	131795.187	57.385	1.800	1200		0	8.000	55.585	300
14	517880.595	131757.793	56.328	1.439	1200		1 0	8.000 8.001	54.889 54.889	300 300
Rain Garden 1	517897.668	131751.372	56.904	0.400			0	12.000	56.504	100

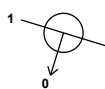
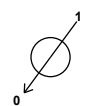
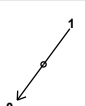
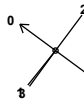
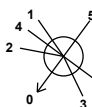


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
10	517974.176	131775.736	57.798	2.022	1200		1 0	5.002 5.003	55.776 55.776	300 300
PP2	517894.226	131723.236	56.590	1.020			0	9.000	55.570	150
PP1	517916.519	131753.271	56.780	0.970			0	10.000	55.810	150
J4	517905.806	131739.204	56.600	1.839			1 2 3 4 5 0	12.000 11.000 10.000 9.000 8.001 8.002	56.251 56.251 55.633 55.373 54.761 54.761	100 100 150 150 300 300
Rain Garden 3	517924.044	131731.815	57.273	0.400			0	15.000	56.873	100
Rain Garden 4	517917.071	131722.357	57.106	0.400			0	14.000	56.706	100
33	517948.346	131584.693	56.565	1.334	1350		1 0	25.000 25.001	55.231 55.231	450 450
PP3	517998.367	131772.535	58.120	0.820			0	6.000	57.300	225
12	518020.938	131779.639	58.311	2.133	1200		0	5.000	56.178	225
J5	518002.267	131785.367	58.189	2.126			1 2 0	6.000 5.000 5.001	57.063 56.063 56.063	225 225 225
27	517853.359	131713.350	56.175	1.281	600		1 0	26.001 26.002	54.894 54.894	225 225
13	517950.194	131801.344	57.829	1.728	1200		0	7.000	56.101	225



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
11	517979.294	131792.416	58.005	2.158	1200		1	7.000	55.922	225
						2	5.001	55.922	225	
						0	5.002	55.847	300	
9	517964.948	131763.220	57.602	2.815	1200		1	5.003	54.787	300
						0	5.004	54.787	300	
ATT. TANK 3	517956.959	131752.384	57.464	2.699			1	5.004	54.765	300
						0	5.005	54.765	300	
PP5	517951.152	131689.157	57.100	0.770						
7	518039.652	131758.335	58.328	1.725	1200		0	2.000	56.330	225
							0	1.000	56.603	225
6	518033.328	131737.721	58.098	2.994	1200		1	1.000	55.179	225
						0	1.001	55.104	300	
34	517997.742	131554.501	57.300	1.349	450					
						0	24.000	55.951	150	
8	517953.612	131693.218	57.378	1.494	450					
						0	4.000	55.884	150	
5	517976.716	131686.922	57.269	2.550	1350		1	1.001	54.794	300
						0	1.002	54.719	375	
PP4	517965.217	131708.263	57.420	0.870						
J6	517959.023	131699.967	57.140	2.489			0	3.000	56.550	225
							1	4.000	54.909	150
						2	3.000	56.446	225	
						3	2.000	55.834	225	
						4	1.002	54.651	375	
4	517932.649	131719.413	57.025	2.625	1500		0	1.003	54.651	375
							1	15.000	55.600	100
						2	14.000	55.600	100	
						3	13.000	56.723	100	
						4	8.002	54.625	300	
						5	5.005	54.625	300	
						6	1.003	54.550	375	



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
2	517898.278	131672.796	56.380	2.066	1800		1 1.006	54.314	525
							0 1.007	54.314	525
23	517959.969	131647.555	57.407	1.393	450				
							0 18.000	56.014	150
1	517877.897	131655.146	55.783	1.527	2400		1 20.001	54.484	300
							2 16.008	54.484	300
							3 1.007	54.259	525
							0 1.009	54.256	600
MH91	517873.297	131650.814	55.690	1.450			1 1.009	54.240	600
26	517851.964	131720.069	56.029	1.175	1200		1 26.002	54.854	225
							0 26.003	54.854	225
29	517936.277	131572.973	56.253	1.066	1500		1 25.001	55.187	450
							2 21.004	55.187	450
							0 21.005	55.187	450
ATT. TANK 2	517908.202	131686.256	56.375	2.050			1 1.005	54.325	525
							0 1.006	54.325	525
Rain Garden 5	517939.637	131705.015	57.250	0.400					
							0 13.000	56.850	100
Rain Garden 6	517972.893	131637.406	57.650	0.400					
							0 17.000	57.250	100
Rain Garden 7	517974.433	131604.515	57.440	0.400					
							0 22.000	57.040	100
30	517955.179	131543.587	56.544	1.271	1350		1 21.003	55.348	375
							0 21.004	55.273	450

Node 1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.256	Product Number	CTL-SHE-0314-6000-1387-6000
Design Depth (m)	1.387	Min Outlet Diameter (m)	0.375
Design Flow (l/s)	60.0	Min Node Diameter (mm)	2400



Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.314	Product Number	CTL-SHE-0188-2000-1734-2000
Design Depth (m)	1.734	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	20.0	Min Node Diameter (mm)	1800

Node 17 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	54.804	Product Number	CTL-SHE-0115-8200-2265-8200
Design Depth (m)	2.265	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.2	Min Node Diameter (mm)	1500

Node 29 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	55.187	Product Number	CTL-SHE-0205-2150-1021-2150
Design Depth (m)	1.021	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	21.5	Min Node Diameter (mm)	1500

Node PP6 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.550	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.180	Diameter (m)	0.025		

Node PP2 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.750	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	55.570	Diameter (m)	0.023		

Node PP1 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.700	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	55.810	Diameter (m)	0.024		

Node PP4 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.750	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.550	Diameter (m)	0.023		

Node PP5 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.650	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.330	Diameter (m)	0.024		



Node PP7 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.550	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.620	Diameter (m)	0.025		

Node PP3 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.550	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	57.300	Diameter (m)	0.025		

Node PP8 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.700	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.120	Diameter (m)	0.024		

Node 26 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.854	Product Number	CTL-SHE-0125-7000-0935-7000
Design Depth (m)	0.935	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	7.0	Min Node Diameter (mm)	1200

Node PP2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.570	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.800
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.810	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.750
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node ATT. TANK 3 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.765	Depth (m)	1.470
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	15.000	Number Required	1
Porosity	0.95	Pit Length (m)	15.000		

Node PP4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.550	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.800
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		



Node PP5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.330	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.700
Safety Factor	2.0	Width (m)	22.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.300	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.600
Safety Factor	2.0	Width (m)	17.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP6 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.180	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.600
Safety Factor	2.0	Width (m)	22.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.620	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.600
Safety Factor	2.0	Width (m)	12.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node ATT. TANK 6 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.235	Depth (m)	1.050
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	23	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	10.000	Number Required	1
Porosity	0.95	Pit Length (m)	13.500		

Node PP8 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.120	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.750
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node ATT. TANK 4 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.935	Depth (m)	1.320
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	106	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.680	Number Required	1
Porosity	0.95	Pit Length (m)	20.000		

Node ATT. TANK 5 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.240	Depth (m)	0.690
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	112	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	4.000	Number Required	1
Porosity	0.95	Pit Length (m)	12.000		



Node Rain Garden 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.504	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	20.000		

Node Rain Garden 2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.367	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	20.000		

Node Rain Garden 3 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.873	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	2	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	13.000		

Node Rain Garden 4 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.706	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	2	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node Rain Garden 5 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.850	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	7	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node Rain Garden 6 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.250	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	5	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	13.000		

Node Rain Garden 7 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.040	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	3	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node ATT. TANK 2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.325	Depth (m)	1.350
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	16.800	Number Required	1
Porosity	0.95	Pit Length (m)	16.800		



Node ATT. TANK 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.900	Depth (m)	0.630
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	25	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	6.000	Number Required	1
Porosity	0.95	Pit Length (m)	8.000		



Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	ATT. TANK 1	22	54.942	0.042	4.6	1.9270	0.0000	OK
15 minute summer	28	10	55.047	0.041	2.7	0.0066	0.0000	OK
15 minute summer	25	10	54.653	0.041	3.0	0.0468	0.0000	OK
15 minute summer	24	11	54.623	0.063	6.7	0.0715	0.0000	OK
120 minute summer	19	80	55.080	0.126	11.9	0.1430	0.0000	OK
15 minute summer	22	11	55.663	0.052	4.9	0.0591	0.0000	OK
15 minute summer	21	11	55.437	0.078	10.0	0.0883	0.0000	OK
15 minute summer	20	11	55.350	0.095	17.0	0.1074	0.0000	OK
15 minute summer	MH33	1	54.840	0.000	3.5	0.0000	0.0000	OK
120 minute summer	ATT. TANK 6	74	55.321	0.086	9.8	11.0228	0.0000	OK
600 minute summer	PP8	420	56.256	0.136	1.9	11.3675	0.0000	OK
120 minute summer	ATT. TANK 4	80	55.080	0.145	11.6	10.1491	0.0000	OK
240 minute summer	3	156	54.625	0.296	33.8	0.5229	0.0000	OK
15 minute summer	31	11	55.663	0.097	22.8	0.1393	0.0000	OK
15 minute summer	J2	11	55.839	0.088	13.2	0.0000	0.0000	OK
720 minute summer	PP7	435	56.676	0.056	0.7	3.4806	0.0000	OK
15 minute summer	32	10	55.939	0.073	9.4	0.0821	0.0000	OK
30 minute summer	ATT. TANK 5	20	55.327	0.087	18.5	3.9602	0.0000	OK
120 minute summer	18	80	55.080	0.158	5.7	0.1784	0.0000	OK
480 minute summer	PP6	328	56.233	0.053	1.3	5.8429	0.0000	OK
120 minute summer	17	80	55.079	0.275	6.4	0.4856	0.0000	OK
15 minute summer	16	11	54.734	0.085	12.7	0.0961	0.0000	OK
15 minute summer	DIVERSION MH	1	55.171	0.000	12.8	0.0000	0.0000	OK
15 minute summer	Rain Garden 2	1	56.367	0.000	0.0	0.0000	0.0000	OK
15 minute summer	15	10	55.628	0.043	6.2	0.0485	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	ATT. TANK 1	26.001	27	2.0	0.494	0.050	0.0056	
15 minute summer	28	26.000	ATT. TANK 1	2.7	0.703	0.151	0.0120	
15 minute summer	25	20.000	24	2.9	0.361	0.042	0.1057	
15 minute summer	24	20.001	1	6.6	0.631	0.093	0.1943	
120 minute summer	19	16.004	ATT. TANK 4	11.6	0.999	0.221	0.0468	
15 minute summer	22	16.000	21	4.8	0.508	0.120	0.4110	
15 minute summer	21	16.001	20	9.9	0.703	0.248	0.2495	
15 minute summer	20	16.002	ATT. TANK 5	17.0	1.494	0.377	0.0291	
120 minute summer	ATT. TANK 6	25.000	33	4.9	0.354	0.030	0.0327	
600 minute summer	PP8	23.000	J2	0.4	0.420	0.024	0.0154	
120 minute summer	ATT. TANK 4	16.005	18	5.5	0.603	0.123	0.0506	
240 minute summer	3	1.005	ATT. TANK 2	32.9	0.946	0.133	0.1930	
15 minute summer	31	21.003	30	22.7	1.026	0.141	0.7448	
15 minute summer	J2	21.002	31	13.2	0.773	0.187	0.4584	
720 minute summer	PP7	21.000	32	0.3	0.369	0.015	0.0120	
15 minute summer	32	21.001	J2	9.3	0.633	0.131	0.4275	
30 minute summer	ATT. TANK 5	16.003	19	14.6	1.045	0.310	0.4874	
120 minute summer	18	16.006	17	5.7	0.523	0.143	0.2437	
480 minute summer	PP6	19.000	17	0.3	0.342	0.005	0.0094	
120 minute summer	17	16.007	16	6.4	0.596	0.090	0.4544	
15 minute summer	16	16.008	1	12.0	0.749	0.169	0.6495	
15 minute summer	Rain Garden 2	11.000	J4	0.0	0.000	0.000	0.0000	
15 minute summer	15	8.000	14	6.1	0.606	0.045	0.4933	



Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	14	11	54.969	0.080	11.7	0.0908	0.0000	OK
15 minute summer	Rain Garden 1	1	56.504	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10	11	55.820	0.044	13.2	0.0498	0.0000	OK
960 minute summer	PP2	645	55.695	0.125	1.6	13.8020	0.0000	OK
720 minute summer	PP1	495	55.932	0.122	1.9	13.4478	0.0000	OK
15 minute summer	J4	11	54.865	0.104	18.3	0.0000	0.0000	OK
15 minute summer	Rain Garden 3	11	56.895	0.022	1.8	0.1510	0.0000	OK
15 minute summer	Rain Garden 4	11	56.728	0.022	1.8	0.1915	0.0000	OK
120 minute summer	33	74	55.321	0.090	4.9	0.1282	0.0000	OK
360 minute summer	PP3	240	57.351	0.051	1.2	4.2960	0.0000	OK
15 minute summer	12	10	56.216	0.038	2.6	0.0435	0.0000	OK
15 minute summer	J5	11	56.121	0.058	5.8	0.0000	0.0000	OK
30 minute summer	27	21	54.941	0.047	2.0	0.0134	0.0000	OK
15 minute summer	13	11	56.150	0.049	4.2	0.0555	0.0000	OK
15 minute summer	11	11	55.938	0.091	13.1	0.1025	0.0000	OK
15 minute summer	9	11	54.889	0.102	18.0	0.1159	0.0000	OK
120 minute summer	ATT. TANK 3	74	54.835	0.070	15.6	14.8943	0.0000	OK
960 minute summer	PP5	645	56.448	0.118	1.7	14.5498	0.0000	OK
15 minute summer	7	10	56.625	0.022	2.7	0.0252	0.0000	OK
15 minute summer	6	11	55.200	0.096	16.7	0.1090	0.0000	OK
15 minute summer	34	1	55.951	0.000	0.0	0.0000	0.0000	OK
15 minute summer	8	1	55.884	0.000	0.0	0.0000	0.0000	OK
15 minute summer	5	11	54.862	0.143	32.5	0.2043	0.0000	OK
600 minute summer	PP4	450	56.686	0.136	2.3	15.1063	0.0000	OK
15 minute summer	J6	11	54.797	0.146	35.4	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 summer	14	8.001	J4	11.3	0.618	0.160	0.5778	
15 minute summer	Rain Garden 1	12.000	J4	0.0	0.000	0.000	0.0000	
15 minute summer	10	5.003	9	13.2	0.995	0.047	0.2147	
960 minute summer	PP2	9.000	J4	0.4	0.403	0.021	0.0179	
720 minute summer	PP1	10.000	J4	0.4	0.412	0.022	0.0168	
15 minute summer	J4	8.002	4	18.0	0.844	0.255	0.7141	
15 minute summer	Rain Garden 3	15.000	4	1.8	1.431	0.099	0.0185	
15 minute summer	Rain Garden 4	14.000	4	1.7	1.324	0.105	0.0203	
120 minute summer	33	25.001	29	5.0	0.216	0.031	0.5158	
360 minute summer	PP3	6.000	J5	0.3	0.417	0.004	0.0082	
15 minute summer	12	5.000	J5	2.6	0.414	0.064	0.1229	
15 minute summer	J5	5.001	11	5.8	0.716	0.145	0.1937	
30 minute summer	27	26.002	26	2.0	0.269	0.052	0.0688	
15 minute summer	13	7.000	11	4.1	0.646	0.102	0.1919	
15 minute summer	11	5.002	10	13.2	1.120	0.187	0.2120	
15 minute summer	9	5.004	ATT. TANK 3	18.0	1.698	0.255	0.0681	
120 minute summer	ATT. TANK 3	5.005	4	8.5	0.693	0.118	0.4049	
960 minute summer	PP5	2.000	J6	0.4	0.613	0.004	0.0085	
15 minute summer	7	1.000	6	2.7	1.334	0.020	0.0432	
15 minute summer	6	1.001	5	15.5	0.809	0.220	1.4630	
15 minute summer	34	24.000	31	0.0	0.000	0.000	0.0000	
15 minute summer	8	4.000	J6	0.0	0.000	0.000	0.0000	
15 minute summer	5	1.002	J6	32.5	0.833	0.295	0.8589	
600 minute summer	PP4	3.000	J6	0.4	0.386	0.007	0.0104	
15 minute summer	J6	1.003	4	34.8	0.935	0.315	1.2290	



Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute summer	4	156	54.626	0.226	34.5	0.3988	0.0000	OK
360 minute summer	2	224	54.624	0.310	16.9	0.7902	0.0000	OK
15 minute summer	23	1	56.014	0.000	0.0	0.0000	0.0000	OK
240 minute summer	1	148	54.430	0.174	25.6	0.7875	0.0000	OK
15 minute summer	MH91	1	54.240	0.000	20.4	0.0000	0.0000	OK
30 minute summer	26	21	54.940	0.086	4.7	0.0975	0.0000	OK
15 minute summer	29	12	55.331	0.144	23.8	0.2541	0.0000	OK
360 minute summer	ATT. TANK 2	224	54.625	0.300	30.0	80.3682	0.0000	OK
15 minute summer	Rain Garden 5	12	56.885	0.035	1.8	0.3044	0.0000	OK
15 minute summer	Rain Garden 6	12	57.283	0.033	1.6	0.2332	0.0000	OK
15 minute summer	Rain Garden 7	11	57.065	0.025	2.2	0.2172	0.0000	OK
15 minute summer	30	11	55.387	0.113	22.7	0.1624	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)
240 minute summer	4	1.004	3	33.8	0.600	0.137	2.9187	
360 minute summer	2	Hydro-Brake®	1	16.9				
15 minute summer	23	18.000	ATT. TANK 4	0.0	0.000	0.000	0.0000	
240 minute summer	1	Hydro-Brake®	MH91	25.6				260.7
30 minute summer	26	Hydro-Brake®	MH33	3.6				5.0
15 minute summer	29	Hydro-Brake®	DIVERSION MH	12.8				18.9
360 minute summer	ATT. TANK 2	1.006	2	16.7	0.221	0.073	0.6447	
15 minute summer	Rain Garden 5	13.000	4	1.4	0.576	0.262	0.0391	
15 minute summer	Rain Garden 6	17.000	19	1.3	0.565	0.235	0.0342	
15 minute summer	Rain Garden 7	22.000	J2	2.0	1.317	0.137	0.0272	
15 minute summer	30	21.004	29	22.5	0.615	0.141	1.2997	



Results for 10 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	ATT. TANK 1	23	55.070	0.170	17.4	7.7734	0.0000	OK
15 minute summer	28	10	55.082	0.076	8.1	0.0121	0.0000	OK
15 minute summer	25	10	54.687	0.075	8.9	0.0845	0.0000	OK
15 minute summer	24	10	54.674	0.114	20.2	0.1285	0.0000	OK
120 minute summer	19	90	55.421	0.467	30.6	0.5285	0.0000	SURCHARGED
15 minute summer	22	10	55.704	0.093	14.8	0.1054	0.0000	OK
15 minute summer	21	11	55.522	0.163	30.3	0.1848	0.0000	OK
15 minute summer	20	12	55.468	0.213	51.0	0.2412	0.0000	OK
15 minute summer	MH33	1	54.840	0.000	6.8	0.0000	0.0000	OK
60 minute summer	ATT. TANK 6	43	55.499	0.264	47.6	33.8008	0.0000	OK
360 minute winter	PP8	344	56.414	0.294	4.0	25.5699	0.0000	SURCHARGED
120 minute summer	ATT. TANK 4	90	55.421	0.486	29.6	33.9698	0.0000	SURCHARGED
180 minute summer	3	136	54.964	0.635	87.4	1.1213	0.0000	SURCHARGED
15 minute summer	31	11	55.746	0.180	68.9	0.2580	0.0000	OK
15 minute summer	J2	11	55.915	0.164	40.3	0.0000	0.0000	OK
240 minute winter	PP7	192	56.741	0.121	2.1	8.3445	0.0000	OK
15 minute summer	32	10	55.998	0.132	28.2	0.1494	0.0000	OK
15 minute summer	ATT. TANK 5	12	55.434	0.194	60.3	8.8475	0.0000	OK
120 minute summer	18	90	55.420	0.498	6.6	0.5637	0.0000	SURCHARGED
360 minute summer	PP6	280	56.289	0.109	3.3	13.4184	0.0000	OK
120 minute summer	17	90	55.419	0.615	7.8	1.0863	0.0000	SURCHARGED
15 minute summer	16	11	54.790	0.141	31.0	0.1596	0.0000	OK
15 minute summer	DIVERSION MH	1	55.171	0.000	21.2	0.0000	0.0000	OK
15 minute summer	Rain Garden 2	1	56.367	0.000	0.0	0.0000	0.0000	OK
15 minute summer	15	10	55.659	0.074	18.6	0.0835	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	ATT. TANK 1	26.001	27	-6.8	0.551	-0.169	0.0328	
15 minute summer	28	26.000	ATT. TANK 1	8.1	0.940	0.455	0.0270	
15 minute summer	25	20.000	24	8.8	0.464	0.124	0.2438	
15 minute summer	24	20.001	1	19.9	0.846	0.281	0.4357	
120 minute summer	19	16.004	ATT. TANK 4	29.6	1.251	0.564	0.0744	
15 minute summer	22	16.000	21	14.5	0.642	0.365	0.9906	
15 minute summer	21	16.001	20	29.5	0.869	0.742	0.6145	
15 minute summer	20	16.002	ATT. TANK 5	49.8	1.628	1.103	0.0747	
60 minute summer	ATT. TANK 6	25.000	33	-24.3	-0.489	-0.147	0.1466	
360 minute winter	PP8	23.000	J2	0.6	0.476	0.036	0.0205	
120 minute summer	ATT. TANK 4	16.005	18	6.6	0.586	0.150	0.0708	
180 minute summer	3	1.005	ATT. TANK 2	85.2	1.191	0.345	0.3299	
15 minute summer	31	21.003	30	69.5	1.380	0.432	1.6975	
15 minute summer	J2	21.002	31	40.2	1.058	0.569	1.0210	
240 minute winter	PP7	21.000	32	0.4	0.420	0.024	0.0164	
15 minute summer	32	21.001	J2	27.9	0.813	0.395	0.9707	
15 minute summer	ATT. TANK 5	16.003	19	47.8	1.329	1.017	1.3258	
120 minute summer	18	16.006	17	6.7	0.498	0.169	0.2892	
360 minute summer	PP6	19.000	17	0.4	0.389	0.008	0.0126	
120 minute summer	17	16.007	16	7.2	0.639	0.101	0.6238	
15 minute summer	16	16.008	1	30.3	0.964	0.428	1.2714	
15 minute summer	Rain Garden 2	11.000	J4	0.0	0.000	0.000	0.0000	
15 minute summer	15	8.000	14	18.4	0.793	0.135	1.1032	



Results for 10 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	14	11	55.036	0.147	35.0	0.1661	0.0000	OK
15 minute summer	Rain Garden 1	1	56.504	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10	11	55.852	0.076	39.5	0.0854	0.0000	OK
360 minute winter	PP2	344	55.831	0.261	4.4	30.1357	0.0000	SURCHARGED
480 minute summer	PP1	416	56.067	0.257	5.3	29.6246	0.0000	SURCHARGED
180 minute summer	J4	136	54.964	0.203	19.8	0.0000	0.0000	OK
15 minute summer	Rain Garden 3	11	56.911	0.038	5.5	0.2695	0.0000	OK
15 minute summer	Rain Garden 4	11	56.746	0.040	5.5	0.3481	0.0000	OK
60 minute summer	33	43	55.498	0.267	26.2	0.3828	0.0000	OK
360 minute summer	PP3	272	57.403	0.103	2.6	9.7835	0.0000	OK
15 minute summer	12	10	56.244	0.066	7.7	0.0749	0.0000	OK
15 minute summer	J5	10	56.168	0.105	17.4	0.0000	0.0000	OK
30 minute summer	27	23	55.070	0.176	7.2	0.0499	0.0000	OK
15 minute summer	13	10	56.189	0.088	12.6	0.0995	0.0000	OK
15 minute summer	11	10	56.006	0.159	39.6	0.1803	0.0000	OK
15 minute summer	9	10	54.975	0.188	54.1	0.2126	0.0000	OK
180 minute summer	ATT. TANK 3	140	54.964	0.199	29.2	42.6301	0.0000	OK
480 minute winter	PP5	456	56.576	0.246	3.7	31.8741	0.0000	SURCHARGED
15 minute summer	7	10	56.641	0.038	8.2	0.0425	0.0000	OK
15 minute summer	6	10	55.289	0.185	50.2	0.2087	0.0000	OK
15 minute summer	34	1	55.951	0.000	0.0	0.0000	0.0000	OK
15 minute summer	8	1	55.884	0.000	0.0	0.0000	0.0000	OK
15 minute summer	5	11	55.015	0.296	102.7	0.4241	0.0000	OK
480 minute winter	PP4	456	56.838	0.288	3.8	33.3487	0.0000	SURCHARGED
180 minute summer	J6	136	54.964	0.313	38.6	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 summer	14	8.001	J4	34.5	0.811	0.488	1.3286	
15 minute summer	Rain Garden 1	12.000	J4	0.0	0.000	0.000	0.0000	
15 minute summer	10	5.003	9	39.6	1.336	0.141	0.4681	
360 minute winter	PP2	9.000	J4	0.5	0.455	0.031	0.0236	
480 minute summer	PP1	10.000	J4	0.6	0.466	0.033	0.0223	
180 minute summer	J4	8.002	4	19.8	0.851	0.280	2.0218	
15 minute summer	Rain Garden 3	15.000	4	5.4	1.958	0.303	0.0414	
15 minute summer	Rain Garden 4	14.000	4	5.3	1.824	0.331	0.0464	
60 minute summer	33	25.001	29	-26.2	-0.385	-0.159	1.8093	
360 minute summer	PP3	6.000	J5	0.4	0.472	0.006	0.0112	
15 minute summer	12	5.000	J5	7.6	0.551	0.192	0.2719	
15 minute summer	J5	5.001	11	17.2	0.963	0.431	0.4280	
30 minute summer	27	26.002	26	-7.2	0.346	-0.180	0.2490	
15 minute summer	13	7.000	11	12.3	0.877	0.309	0.4271	
15 minute summer	11	5.002	10	39.5	1.551	0.559	0.4518	
15 minute summer	9	5.004	ATT. TANK 3	55.6	1.978	0.787	0.1794	
180 minute summer	ATT. TANK 3	5.005	4	23.4	0.838	0.324	1.9803	
480 minute winter	PP5	2.000	J6	0.6	0.688	0.006	0.0113	
15 minute summer	7	1.000	6	8.2	1.455	0.061	0.2535	
15 minute summer	6	1.001	5	49.4	1.006	0.698	3.8156	
15 minute summer	34	24.000	31	0.0	0.000	0.000	0.0000	
15 minute summer	8	4.000	J6	0.0	0.000	0.000	0.0134	
15 minute summer	5	1.002	J6	100.0	1.090	0.906	2.0420	
480 minute winter	PP4	3.000	J6	0.6	0.436	0.011	0.0137	
180 minute summer	J6	1.003	4	38.0	0.895	0.344	3.4188	



Results for 10 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
180 minute summer	4	136	54.964	0.564	94.3	0.9966	0.0000	SURCHARGED
180 minute summer	2	136	54.963	0.649	20.2	1.6524	0.0000	SURCHARGED
15 minute summer	23	1	56.014	0.000	0.0	0.0000	0.0000	OK
15 minute summer	1	11	54.554	0.298	58.4	1.3479	0.0000	OK
15 minute summer	MH91	1	54.240	0.000	55.5	0.0000	0.0000	OK
30 minute summer	26	23	55.070	0.216	14.3	0.2441	0.0000	OK
60 minute summer	29	43	55.498	0.311	50.5	0.5497	0.0000	OK
180 minute summer	ATT. TANK 2	136	54.963	0.638	95.9	171.1855	0.0000	SURCHARGED
15 minute summer	Rain Garden 5	12	56.924	0.074	5.5	0.6370	0.0000	OK
15 minute summer	Rain Garden 6	11	57.318	0.068	4.8	0.4756	0.0000	OK
15 minute summer	Rain Garden 7	11	57.086	0.046	6.5	0.3942	0.0000	OK
15 minute summer	30	11	55.499	0.226	69.5	0.3236	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)
180 minute summer	4	1.004	3	87.4	0.608	0.355	5.8908	
180 minute summer	2	Hydro-Brake®	1	20.0				
15 minute summer	23	18.000	ATT. TANK 4	0.0	0.000	0.000	0.0000	
15 minute summer	1	Hydro-Brake®	MH91	55.5				214.4
30 minute summer	26	Hydro-Brake®	MH33	6.9				15.7
60 minute summer	29	Hydro-Brake®	DIVERSION MH	21.4				91.4
180 minute summer	ATT. TANK 2	1.006	2	19.9	0.174	0.088	1.0702	
15 minute summer	Rain Garden 5	13.000	4	4.7	0.776	0.872	0.0966	
15 minute summer	Rain Garden 6	17.000	19	4.2	0.762	0.777	0.0842	
15 minute summer	Rain Garden 7	22.000	J2	6.3	1.803	0.424	0.0615	
15 minute summer	30	21.004	29	68.8	0.800	0.431	3.0424	



Results for 30 year +40% 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
60 minute summer	ATT. TANK 1	45	55.320	0.420	26.2	19.1734	0.0000	SURCHARGED
60 minute summer	28	45	55.321	0.315	10.3	0.0501	0.0000	SURCHARGED
30 minute summer	25	21	55.019	0.407	15.0	0.4606	0.0000	SURCHARGED
30 minute summer	24	21	55.018	0.458	31.3	0.5183	0.0000	SURCHARGED
120 minute winter	19	120	55.888	0.934	29.7	1.0560	0.0000	SURCHARGED
15 minute summer	22	11	56.053	0.442	27.3	0.4996	0.0000	SURCHARGED
15 minute summer	21	11	55.939	0.580	52.8	0.6563	0.0000	SURCHARGED
120 minute winter	20	118	55.890	0.635	28.1	0.7179	0.0000	SURCHARGED
15 minute summer	MH33	1	54.840	0.000	7.0	0.0000	0.0000	OK
60 minute summer	ATT. TANK 6	51	55.857	0.622	99.4	79.7945	0.0000	SURCHARGED
480 minute winter	PP8	448	56.664	0.544	5.5	48.0581	0.0000	SURCHARGED
120 minute winter	ATT. TANK 4	120	55.887	0.952	28.6	66.5965	0.0000	SURCHARGED
240 minute winter	3	232	55.441	1.112	72.7	1.9652	0.0000	SURCHARGED
60 minute summer	31	50	55.859	0.293	90.3	0.4192	0.0000	OK
15 minute summer	J2	11	56.002	0.251	73.5	0.0000	0.0000	OK
360 minute winter	PP7	280	56.839	0.219	2.7	15.6709	0.0000	SURCHARGED
15 minute summer	32	10	56.067	0.201	51.7	0.2277	0.0000	OK
120 minute winter	ATT. TANK 5	118	55.890	0.650	33.4	29.6197	0.0000	SURCHARGED
120 minute winter	18	120	55.887	0.965	6.6	1.0916	0.0000	SURCHARGED
360 minute winter	PP6	336	56.376	0.196	3.8	25.0527	0.0000	OK
120 minute winter	17	118	55.886	1.082	7.8	1.9122	0.0000	SURCHARGED
30 minute summer	16	20	55.038	0.389	49.2	0.4401	0.0000	SURCHARGED
15 minute summer	DIVERSION MH	1	55.171	0.000	21.5	0.0000	0.0000	OK
15 minute summer	Rain Garden 2	1	56.367	0.000	0.0	0.0000	0.0000	OK
15 minute summer	15	10	55.686	0.101	34.2	0.1143	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)
60 minute summer	ATT. TANK 1	26.001	27	-11.8	0.548	-0.293	0.0398	
60 minute summer	28	26.000	ATT. TANK 1	9.7	0.918	0.546	0.0553	
30 minute summer	25	20.000	24	13.4	0.481	0.189	0.9012	
30 minute summer	24	20.001	1	28.8	0.845	0.408	1.3076	
120 minute winter	19	16.004	ATT. TANK 4	28.5	1.551	0.545	0.0744	
15 minute summer	22	16.000	21	25.0	0.688	0.629	1.7039	
15 minute summer	21	16.001	20	51.6	1.299	1.299	0.7059	
120 minute winter	20	16.002	ATT. TANK 5	27.4	1.225	0.608	0.0789	
60 minute summer	ATT. TANK 6	25.000	33	-57.8	-0.671	-0.349	0.2386	
480 minute winter	PP8	23.000	J2	0.9	0.524	0.049	0.0257	
120 minute winter	ATT. TANK 4	16.005	18	6.6	0.550	0.148	0.0708	
240 minute winter	3	1.005	ATT. TANK 2	71.7	1.222	0.290	0.3299	
60 minute summer	31	21.003	30	90.4	1.394	0.563	3.4158	
15 minute summer	J2	21.002	31	73.2	1.258	1.036	1.5564	
360 minute winter	PP7	21.000	32	0.6	0.463	0.033	0.0206	
15 minute summer	32	21.001	J2	50.8	0.911	0.719	1.5878	
120 minute winter	ATT. TANK 5	16.003	19	26.4	0.809	0.562	1.3885	
120 minute winter	18	16.006	17	6.6	0.440	0.167	0.2892	
360 minute winter	PP6	19.000	17	0.6	0.428	0.011	0.0157	
120 minute winter	17	16.007	16	7.2	0.639	0.101	0.6774	
30 minute summer	16	16.008	1	48.0	0.965	0.679	2.8503	
15 minute summer	Rain Garden 2	11.000	J4	0.0	0.000	0.000	0.0000	
15 minute summer	15	8.000	14	33.9	0.889	0.249	2.1204	



Results for 30 year +40% 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
240 minute summer	14	240	55.442	0.553	17.6	0.6254	0.0000	SURCHARGED
15 minute summer	Rain Garden 1	1	56.504	0.000	0.0	0.0000	0.0000	OK
15 minute summer	10	11	55.879	0.103	72.9	0.1170	0.0000	OK
600 minute winter	PP2	570	56.049	0.479	5.1	56.2631	0.0000	SURCHARGED
480 minute winter	PP1	456	56.281	0.471	6.1	55.2815	0.0000	SURCHARGED
240 minute winter	J4	232	55.442	0.681	18.8	0.0000	0.0000	SURCHARGED
15 minute summer	Rain Garden 3	11	56.928	0.055	10.1	0.3829	0.0000	OK
15 minute summer	Rain Garden 4	11	56.764	0.058	10.1	0.4992	0.0000	OK
60 minute summer	33	51	55.857	0.626	60.8	0.8960	0.0000	SURCHARGED
240 minute winter	PP3	232	57.486	0.185	4.1	18.4283	0.0000	OK
15 minute summer	12	10	56.270	0.092	14.2	0.1036	0.0000	OK
15 minute summer	J5	10	56.219	0.156	32.0	0.0000	0.0000	OK
60 minute summer	27	45	55.320	0.426	12.4	0.1207	0.0000	SURCHARGED
15 minute summer	13	10	56.225	0.124	23.1	0.1408	0.0000	OK
15 minute summer	11	10	56.075	0.228	73.7	0.2583	0.0000	OK
240 minute winter	9	232	55.442	0.655	18.8	0.7411	0.0000	SURCHARGED
240 minute winter	ATT. TANK 3	232	55.442	0.677	41.4	144.7463	0.0000	SURCHARGED
600 minute winter	PP5	570	56.779	0.449	5.3	59.2635	0.0000	SURCHARGED
15 minute summer	7	10	56.654	0.051	15.1	0.0573	0.0000	OK
15 minute summer	6	11	56.112	1.008	92.3	1.1401	0.0000	SURCHARGED
15 minute summer	34	1	55.951	0.000	0.0	0.0000	0.0000	OK
15 minute summer	8	1	55.884	0.000	0.0	0.0000	0.0000	OK
15 minute summer	5	11	55.564	0.845	182.5	1.2092	0.0000	SURCHARGED
480 minute winter	PP4	464	57.077	0.527	6.6	62.0898	0.0000	SURCHARGED
240 minute winter	J6	232	55.442	0.791	36.1	0.0000	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)
240 minute summer	14	8.001	J4	16.1	0.623	0.227	2.2057	
15 minute summer	Rain Garden 1	12.000	J4	0.0	0.000	0.000	0.0000	
15 minute summer	10	5.003	9	73.1	1.685	0.260	0.6727	
600 minute winter	PP2	9.000	J4	0.7	0.501	0.042	0.0294	
480 minute winter	PP1	10.000	J4	0.8	0.513	0.045	0.0278	
240 minute winter	J4	8.002	4	17.3	0.767	0.245	2.3485	
15 minute summer	Rain Garden 3	15.000	4	9.8	2.284	0.555	0.0651	
15 minute summer	Rain Garden 4	14.000	4	9.8	2.122	0.609	0.0733	
60 minute summer	33	25.001	29	-60.8	-0.450	-0.370	2.6655	
240 minute winter	PP3	6.000	J5	0.5	0.520	0.008	0.0139	
15 minute summer	12	5.000	J5	14.1	0.630	0.354	0.4356	
15 minute summer	J5	5.001	11	31.6	1.087	0.795	0.7000	
60 minute summer	27	26.002	26	-12.4	0.346	-0.311	0.2729	
15 minute summer	13	7.000	11	22.9	0.898	0.577	0.7815	
15 minute summer	11	5.002	10	72.9	1.829	1.032	0.6885	
240 minute winter	9	5.004	ATT. TANK 3	18.1	1.048	0.257	0.3848	
240 minute winter	ATT. TANK 3	5.005	4	19.5	0.785	0.270	2.3212	
600 minute winter	PP5	2.000	J6	0.8	0.757	0.008	0.0140	
15 minute summer	7	1.000	6	15.0	1.395	0.112	0.5007	
15 minute summer	6	1.001	5	88.7	1.260	1.256	5.3562	
15 minute summer	34	24.000	31	0.0	0.000	0.000	0.0393	
15 minute summer	8	4.000	J6	0.0	0.000	0.000	0.0761	
15 minute summer	5	1.002	J6	182.7	1.657	1.655	2.4246	
480 minute winter	PP4	3.000	J6	0.8	0.482	0.015	0.0169	
240 minute winter	J6	1.003	4	36.0	0.792	0.326	3.6142	



Results for 30 year +40% 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
240 minute winter	4	232	55.442	1.042	77.6	1.8404	0.0000	SURCHARGED
240 minute winter	2	232	55.441	1.127	20.4	2.8680	0.0000	SURCHARGED
15 minute summer	23	1	56.014	0.000	0.0	0.0000	0.0000	OK
30 minute summer	1	21	55.008	0.752	82.7	3.4016	0.0000	SURCHARGED
15 minute summer	MH91	1	54.240	0.000	60.0	0.0000	0.0000	OK
60 minute summer	26	45	55.320	0.466	20.0	0.5267	0.0000	SURCHARGED
60 minute summer	29	52	55.857	0.670	87.0	1.1837	0.0000	SURCHARGED
240 minute winter	ATT. TANK 2	232	55.441	1.116	80.7	299.2447	0.0000	SURCHARGED
15 minute summer	Rain Garden 5	12	57.006	0.156	10.1	1.3463	0.0000	FLOOD RISK
15 minute summer	Rain Garden 6	12	57.388	0.138	8.8	0.9668	0.0000	FLOOD RISK
15 minute summer	Rain Garden 7	11	57.107	0.067	11.9	0.5746	0.0000	OK
60 minute summer	30	50	55.858	0.585	90.4	0.8365	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)
240 minute winter	4	1.004	3	72.7	0.641	0.296	5.8908	
240 minute winter	2	Hydro-Brake®	1	20.0				
15 minute summer	23	18.000	ATT. TANK 4	0.0	0.000	0.000	0.0000	
30 minute summer	1	Hydro-Brake®	MH91	60.0				446.6
60 minute summer	26	Hydro-Brake®	MH33	7.0				37.1
60 minute summer	29	Hydro-Brake®	DIVERSION MH	21.5				165.3
240 minute winter	ATT. TANK 2	1.006	2	19.9	0.110	0.088	1.0702	
15 minute summer	Rain Garden 5	13.000	4	6.8	0.871	1.258	0.1186	
15 minute summer	Rain Garden 6	17.000	19	6.5	0.846	1.204	0.1115	
15 minute summer	Rain Garden 7	22.000	J2	11.5	2.077	0.777	0.0978	
60 minute summer	30	21.004	29	81.1	0.674	0.508	5.5360	

Water Quality (TSS)

Node	Treatment	Effectiveness	SuDS Component	Mitigation TSS	Cumulative TSS
ATT. TANK 5	Soakaway	1.0	Bioretention System	0.800	0.000
MH91					0.000
DIVERSION MH					0.000
MH33					0.000

Water Quality (Metals)

Node	Treatment	Effectiveness	SuDS Component	Mitigation Metals	Cumulative Metals
ATT. TANK 5	Soakaway	1.0	Bioretention System	0.800	0.000
MH91					0.000
DIVERSION MH					0.000
MH33					0.000



Water Quality (Hydrocarbons)

Node	Treatment	Effectiveness	SuDS Component	Mitigation Hydrocarbons	Cumulative Hydrocarbons
ATT. TANK 5	Soakaway	1.0	Bioretention System	0.800	0.000
MH91					0.000
DIVERSION MH					0.000
MH33					0.000



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)	240	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

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 %)
100	45	10	0



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)	0.200
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)	100.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
ATT. TANK 1	0.010	5.00	56.050		517849.845	131708.585	1.150	54.900
28	0.022	5.00	55.939	450	517846.382	131711.141	0.933	55.006
25	0.023	5.00	55.682	1200	517858.513	131679.298	1.070	54.612
24	0.031	5.00	55.656	1200	517864.466	131667.969	1.096	54.560
19	0.007	5.00	57.462	1200	517965.671	131650.708	2.508	54.954
22	0.038	5.00	57.142	1200	518023.651	131607.590	1.531	55.611
21	0.041	5.00	57.427	1200	518031.924	131649.627	2.068	55.359
20	0.058	5.00	57.179	1200	518014.510	131653.054	1.924	55.255
MH33			56.256		517849.632	131719.735	1.416	54.840
ATT. TANK 6	0.094	5.00	56.699		517956.593	131585.062	1.464	55.235
PP8	0.078	5.00	57.140		517997.731	131589.449	1.020	56.120
ATT. TANK 4			57.360		517955.812	131650.234	2.425	54.935
3			56.605	1500	517916.467	131697.466	2.276	54.329
31	0.078	5.00	57.047	1350	517983.529	131561.822	1.481	55.566
J2	0.016	5.00	57.221		517982.245	131588.641	1.470	55.751
PP7	0.029	5.00	57.440		517996.212	131622.424	0.820	56.620
32	0.074	5.00	57.411	1200	517980.886	131616.837	1.545	55.866
ATT. TANK 5	0.030	5.00	57.080		518006.536	131652.671	1.840	55.240
18	0.015	5.00	57.236	1200	517942.048	131649.573	2.314	54.922
PP6	0.041	5.00	57.000		517942.177	131635.020	0.820	56.180
17	0.030	5.00	57.160	1500	517935.991	131645.548	2.356	54.804
16	0.068	5.00	56.066	1200	517904.423	131624.573	1.417	54.649
DIVERSION MH			56.161		517929.927	131574.833	0.990	55.171
Rain Garden 2		5.00	56.767		517890.695	131741.804	0.400	56.367
15	0.048	5.00	57.385	1200	517908.190	131795.187	1.800	55.585
14	0.044	5.00	56.328	1200	517880.595	131757.793	1.439	54.889
Rain Garden 1		5.00	56.904		517897.668	131751.372	0.400	56.504
10			57.798	1200	517974.176	131775.736	2.022	55.776
PP2	0.085	5.00	56.590		517894.226	131723.236	1.020	55.570
PP1	0.086	5.00	56.780		517916.519	131753.271	0.970	55.810
J4	0.055	5.00	56.600		517905.806	131739.204	1.839	54.761
Rain Garden 3	0.016	5.00	57.273		517924.044	131731.815	0.400	56.873
Rain Garden 4	0.016	5.00	57.106		517917.071	131722.357	0.400	56.706
33			56.565	1350	517948.346	131584.693	1.334	55.231
PP3	0.031	5.00	58.120		517998.367	131772.535	0.820	57.300
12	0.021	5.00	58.311	1200	518020.938	131779.639	2.133	56.178
J5	0.025	5.00	58.189		518002.267	131785.367	2.126	56.063
27			56.175	600	517853.359	131713.350	1.281	54.894
13	0.034	5.00	57.829	1200	517950.194	131801.344	1.728	56.101
11	0.027	5.00	58.005	1200	517979.294	131792.416	2.158	55.847
9	0.041	5.00	57.602	1200	517964.948	131763.220	2.815	54.787
ATT. TANK 3	0.085	5.00	57.464		517956.959	131752.384	2.699	54.765



Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)	Invert Level (m)
PP5	0.090	5.00	57.100		517951.152	131689.157	0.770	56.330
7	0.023	5.00	58.328	1200	518039.652	131758.335	1.725	56.603
6	0.111	5.00	58.098	1200	518033.328	131737.721	2.994	55.104
34		5.00	57.300	450	517997.742	131554.501	1.349	55.951
8		5.00	57.378	450	517953.612	131693.218	1.494	55.884
5	0.143	5.00	57.269	1350	517976.716	131686.922	2.550	54.719
PP4	0.094	5.00	57.420		517965.217	131708.263	0.870	56.550
J6	0.021	5.00	57.140		517959.023	131699.967	2.489	54.651
4	0.073	5.00	57.025	1500	517932.649	131719.413	2.625	54.400
2	0.020	5.00	56.380	1800	517898.278	131672.796	2.066	54.314
23		5.00	57.407	450	517959.969	131647.555	1.393	56.014
1	0.023	5.00	55.783	2400	517877.897	131655.146	1.527	54.256
MH91			55.690		517873.297	131650.814	1.450	54.240
26	0.041	5.00	56.029	1200	517851.964	131720.069	1.175	54.854
29	0.013	5.00	56.253	1500	517936.277	131572.973	1.066	55.187
ATT. TANK 2	0.085	5.00	56.375		517908.202	131686.256	2.050	54.325
Rain Garden 5	0.016	5.00	57.250		517939.637	131705.015	0.400	56.850
Rain Garden 6	0.014	5.00	57.650		517972.893	131637.406	0.400	57.250
Rain Garden 7	0.018	5.00	57.440		517974.433	131604.515	0.400	57.040
30			56.544	1350	517955.179	131543.587	1.271	55.273

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)
1.009	1	MH91	4.963	0.600	54.256	54.240	0.016	310.2	600	8.30	41.6
20.001	24	1	18.569	0.600	54.560	54.484	0.076	245.0	300	5.52	51.8
16.004	19	ATT. TANK 4	1.871	0.600	54.954	54.935	0.019	98.5	225	6.56	47.8
16.005	ATT. TANK 4	18	1.780	0.600	54.935	54.922	0.013	136.9	225	6.58	47.7
1.007	2	1	26.961	0.600	54.314	54.259	0.055	490.0	525	8.24	42.7
1.004	4	3	27.268	0.600	54.400	54.329	0.071	384.1	525	7.69	44.2
1.005	3	ATT. TANK 2	1.527	0.600	54.329	54.325	0.004	381.8	525	7.71	44.2
5.005	ATT. TANK 3	4	32.963	0.600	54.765	54.625	0.140	235.5	300	6.71	47.3
1.003	J6	4	32.768	0.600	54.651	54.550	0.101	325.0	375	7.29	45.4
2.000	PP5	J6	13.372	0.600	56.330	55.834	0.496	27.0	225	5.09	53.6

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)
1.009	1.377	389.3	256.5	0.927	0.850	1.706	0.0	357	1.466
20.001	1.000	70.7	10.1	0.796	0.999	0.054	0.0	76	0.716
16.004	1.317	52.4	32.4	2.283	2.200	0.188	0.0	128	1.384
16.005	1.115	44.3	32.3	2.200	2.089	0.188	0.0	143	1.214
1.007	1.005	217.5	198.7	1.541	0.999	1.288	0.0	397	1.132
1.004	1.137	246.1	189.0	2.100	1.751	1.183	0.0	346	1.248
1.005	1.140	246.8	188.7	1.751	1.525	1.183	0.0	345	1.250
5.005	1.020	72.1	45.1	2.399	2.100	0.264	0.0	172	1.074
1.003	0.999	110.4	79.0	2.114	2.100	0.482	0.0	235	1.083
2.000	2.529	100.6	17.4	0.545	1.081	0.090	0.0	63	1.904



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)
1.002	5	J6	21.982	0.600	54.719	54.651	0.068	325.0	375	6.74	47.2
3.000	PP4	J6	10.353	0.600	56.550	56.446	0.104	100.0	225	5.13	53.4
25.001	33	29	16.823	0.600	55.231	55.187	0.044	382.3	450	5.30	52.7
24.000	34	31	15.988	0.600	55.951	55.791	0.160	99.9	150	5.27	52.9
1.001	6	5	76.062	0.600	55.104	54.794	0.310	245.0	300	6.37	48.5
1.000	7	6	21.562	0.600	56.603	55.179	1.424	15.1	225	5.11	53.5
5.004	9	ATT. TANK 3	5.464	0.600	54.787	54.765	0.022	245.0	300	6.17	49.2
5.002	11	10	17.448	0.600	55.847	55.776	0.071	245.0	300	6.02	49.7
5.001	J5	11	24.030	0.600	56.063	55.922	0.141	170.0	225	5.73	50.9
7.000	13	11	30.439	0.600	56.101	55.922	0.179	170.0	225	5.51	51.9
26.002	27	26	6.862	0.600	54.894	54.854	0.040	170.0	225	5.18	53.2
6.000	PP3	J5	13.412	0.600	57.300	57.063	0.237	56.6	225	5.13	53.5
5.000	12	J5	19.530	0.600	56.178	56.063	0.115	170.0	225	5.33	52.6
8.002	J4	4	33.350	0.600	54.761	54.625	0.136	245.0	300	6.48	48.1
15.000	Rain Garden 3	4	15.095	0.600	56.873	55.600	1.273	11.9	100	5.11	53.5
14.000	Rain Garden 4	4	15.854	0.600	56.706	55.600	1.106	14.3	100	5.13	53.5
5.003	10	9	15.550	0.600	55.776	54.787	0.989	15.7	300	6.08	49.5
9.000	PP2	J4	19.725	0.600	55.570	55.373	0.197	100.0	150	5.33	52.6
10.000	PP1	J4	17.682	0.600	55.810	55.633	0.177	100.0	150	5.29	52.8
11.000	Rain Garden 2	J4	15.333	0.600	56.367	56.251	0.116	132.2	100	5.38	52.4
8.001	14	J4	31.323	0.600	54.889	54.761	0.128	245.0	300	5.92	50.1
12.000	Rain Garden 1	J4	14.639	0.600	56.504	56.251	0.253	57.9	100	5.24	53.0
8.000	15	14	46.474	0.600	55.585	54.889	0.696	66.8	300	5.40	52.3
16.008	16	1	40.476	0.600	54.649	54.484	0.165	245.0	300	8.01	43.3

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)
1.002	0.999	110.4	47.2	2.175	2.114	0.277	0.0	171	0.961
3.000	1.307	52.0	18.1	0.645	0.469	0.094	0.0	92	1.195
25.001	1.033	164.4	17.9	0.884	0.616	0.094	0.0	100	0.687
24.000	1.005	17.8	0.0	1.199	1.106	0.000	0.0	0	0.000
1.001	1.000	70.7	23.4	2.694	2.175	0.134	0.0	119	0.900
1.000	3.379	134.4	4.4	1.500	2.694	0.023	0.0	28	1.567
5.004	1.000	70.7	31.8	2.515	2.399	0.179	0.0	141	0.974
5.002	1.000	70.7	24.9	1.858	1.722	0.139	0.0	123	0.915
5.001	1.000	39.7	14.3	1.901	1.858	0.078	0.0	94	0.922
7.000	1.000	39.7	6.4	1.503	1.858	0.034	0.0	61	0.739
26.002	1.000	39.7	6.2	1.056	0.950	0.032	0.0	60	0.733
6.000	1.742	69.3	6.1	0.595	0.901	0.031	0.0	45	1.087
5.000	1.000	39.7	4.0	1.908	1.901	0.021	0.0	48	0.643
8.002	1.000	70.7	55.2	1.539	2.100	0.318	0.0	200	1.102
15.000	2.256	17.7	3.0	0.300	1.325	0.016	0.0	28	1.677
14.000	2.051	16.1	3.0	0.300	1.325	0.016	0.0	29	1.572
5.003	3.984	281.6	24.8	1.722	2.515	0.139	0.0	59	2.481
9.000	1.005	17.8	16.2	0.870	1.077	0.085	0.0	113	1.136
10.000	1.005	17.8	16.3	0.820	0.817	0.086	0.0	114	1.137
11.000	0.667	5.2	0.0	0.300	0.249	0.000	0.0	0	0.000
8.001	1.000	70.7	16.6	1.139	1.539	0.092	0.0	99	0.821
12.000	1.014	8.0	0.0	0.300	0.249	0.000	0.0	0	0.000
8.000	1.927	136.2	9.1	1.500	1.139	0.048	0.0	52	1.104
16.008	1.000	70.7	53.4	1.117	0.999	0.342	0.0	195	1.095



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)
21.005	29	DIVERSION MH	6.617	0.600	55.187	55.171	0.016	413.6	450	7.27	45.5
16.007	17	16	37.901	0.600	54.804	54.649	0.155	245.0	300	7.33	45.3
16.006	18	17	7.272	0.600	54.922	54.879	0.043	170.0	225	6.70	47.3
19.000	PP6	17	12.211	0.600	56.180	56.058	0.122	100.0	225	5.16	53.3
16.003	ATT. TANK 5	19	34.912	0.600	55.240	54.954	0.286	122.1	225	6.53	47.9
16.002	20	ATT. TANK 5	1.983	0.600	55.255	55.240	0.015	132.2	225	6.04	49.6
4.000	8	J6	8.650	0.600	55.884	54.909	0.975	8.9	150	5.04	53.8
21.001	32	J2	28.229	0.600	55.866	55.751	0.115	245.0	300	5.74	50.9
21.000	PP7	32	16.313	0.600	56.620	56.457	0.163	100.0	150	5.27	52.9
25.000	ATT. TANK 6	33	1.506	0.600	55.235	55.231	0.004	376.5	450	5.02	53.9
23.000	PP8	J2	15.507	0.600	56.120	55.965	0.155	100.0	150	5.26	52.9
21.002	J2	31	26.850	0.600	55.751	55.641	0.110	245.0	300	6.19	49.1
21.003	31	30	33.708	0.600	55.566	55.348	0.218	154.6	375	6.58	47.7
18.000	23	ATT. TANK 4	1.000	0.600	56.014	56.004	0.010	100.0	150	5.02	53.9
26.000	28	ATT. TANK 1	3.142	0.600	55.006	54.975	0.031	100.0	150	5.05	53.8
16.001	21	20	17.748	0.600	55.359	55.255	0.104	170.0	225	6.01	49.7
16.000	22	21	42.843	0.600	55.611	55.359	0.252	170.0	225	5.71	51.0
26.003	26	MH33	2.356	0.600	54.854	54.840	0.014	170.0	225	5.22	53.1
20.000	25	24	12.798	0.600	54.612	54.560	0.052	245.0	300	5.21	53.1
26.001	ATT. TANK 1	27	1.000	0.600	54.900	54.894	0.006	166.7	225	5.07	53.7
1.006	ATT. TANK 2	2	4.954	0.600	54.325	54.314	0.011	450.4	525	7.79	43.9
13.000	Rain Garden 5	4	16.004	0.600	56.850	56.723	0.127	126.0	100	5.39	52.3

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)
21.005	0.993	158.0	65.8	0.616	0.540	0.401	0.0	203	0.950
16.007	1.000	70.7	44.8	2.056	1.117	0.274	0.0	174	1.057
16.006	1.000	39.7	34.7	2.089	2.056	0.203	0.0	163	1.122
19.000	1.307	52.0	7.8	0.595	0.877	0.041	0.0	58	0.944
16.003	1.182	47.0	28.9	1.615	2.283	0.167	0.0	128	1.241
16.002	1.135	45.1	24.6	1.699	1.615	0.137	0.0	118	1.158
4.000	3.403	60.1	0.0	1.344	2.081	0.000	0.0	0	0.000
21.001	1.000	70.7	19.0	1.245	1.170	0.103	0.0	106	0.851
21.000	1.005	17.8	5.5	0.670	0.804	0.029	0.0	57	0.886
25.000	1.042	165.6	18.3	1.014	0.884	0.094	0.0	100	0.692
23.000	1.005	17.8	15.0	0.870	1.106	0.078	0.0	106	1.124
21.002	1.000	70.7	38.4	1.170	1.106	0.216	0.0	157	1.019
21.003	1.454	160.6	50.7	1.106	0.821	0.294	0.0	145	1.296
18.000	1.005	17.8	0.0	1.243	1.206	0.000	0.0	0	0.000
26.000	1.005	17.8	4.2	0.783	0.925	0.022	0.0	50	0.828
16.001	1.000	39.7	14.2	1.843	1.699	0.079	0.0	93	0.917
16.000	1.000	39.7	7.0	1.306	1.843	0.038	0.0	64	0.756
26.003	1.000	39.7	14.0	0.950	1.191	0.073	0.0	92	0.913
20.000	1.000	70.7	4.5	0.770	0.796	0.023	0.0	51	0.563
26.001	1.010	40.1	6.3	0.925	1.056	0.032	0.0	60	0.740
1.006	1.049	227.0	201.3	1.525	1.541	1.268	0.0	387	1.177
13.000	0.683	5.4	2.9	0.300	0.202	0.016	0.0	53	0.699



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)
17.000	Rain Garden 6	19	15.136	0.600	57.250	57.127	0.123	123.1	100	5.36	52.5
22.000	Rain Garden 7	J2	17.692	0.600	57.040	56.000	1.040	17.0	100	5.16	53.3
21.004	30	29	34.940	0.600	55.273	55.187	0.086	405.0	450	7.16	45.8

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)
17.000	0.692	5.4	2.6	0.300	0.235	0.014	0.0	48	0.680
22.000	1.882	14.8	3.5	0.300	1.121	0.018	0.0	33	1.544
21.004	1.004	159.6	48.6	0.821	0.616	0.294	0.0	170	0.886

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)
1.009	4.963	310.2	600	Circular	55.783	54.256	0.927	55.690	54.240	0.850
20.001	18.569	245.0	300	Circular	55.656	54.560	0.796	55.783	54.484	0.999
16.004	1.871	98.5	225	Circular	57.462	54.954	2.283	57.360	54.935	2.200
16.005	1.780	136.9	225	Circular	57.360	54.935	2.200	57.236	54.922	2.089
1.007	26.961	490.0	525	Circular	56.380	54.314	1.541	55.783	54.259	0.999
1.004	27.268	384.1	525	Circular	57.025	54.400	2.100	56.605	54.329	1.751
1.005	1.527	381.8	525	Circular	56.605	54.329	1.751	56.375	54.325	1.525
5.005	32.963	235.5	300	Circular	57.464	54.765	2.399	57.025	54.625	2.100
1.003	32.768	325.0	375	Circular	57.140	54.651	2.114	57.025	54.550	2.100
2.000	13.372	27.0	225	Circular	57.100	56.330	0.545	57.140	55.834	1.081
1.002	21.982	325.0	375	Circular	57.269	54.719	2.175	57.140	54.651	2.114
3.000	10.353	100.0	225	Circular	57.420	56.550	0.645	57.140	56.446	0.469
25.001	16.823	382.3	450	Circular	56.565	55.231	0.884	56.253	55.187	0.616
24.000	15.988	99.9	150	Circular	57.300	55.951	1.199	57.047	55.791	1.106
1.001	76.062	245.0	300	Circular	58.098	55.104	2.694	57.269	54.794	2.175
1.000	21.562	15.1	225	Circular	58.328	56.603	1.500	58.098	55.179	2.694
5.004	5.464	245.0	300	Circular	57.602	54.787	2.515	57.464	54.765	2.399

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.009	1	2400	Manhole	Adoptable	MH91		Junction	
20.001	24	1200	Manhole	Adoptable	1	2400	Manhole	Adoptable
16.004	19	1200	Manhole	Adoptable	ATT. TANK 4		Junction	
16.005	ATT. TANK 4		Junction		18	1200	Manhole	Adoptable
1.007	2	1800	Manhole	Adoptable	1	2400	Manhole	Adoptable
1.004	4	1500	Manhole	Adoptable	3	1500	Manhole	Adoptable
1.005	3	1500	Manhole	Adoptable	ATT. TANK 2		Junction	
5.005	ATT. TANK 3		Junction		4	1500	Manhole	Adoptable
1.003	J6		Junction		4	1500	Manhole	Adoptable
2.000	PP5		Junction		J6		Junction	
1.002	5	1350	Manhole	Adoptable	J6		Junction	
3.000	PP4		Junction		J6		Junction	
25.001	33	1350	Manhole	Adoptable	29	1500	Manhole	Adoptable
24.000	34	450	Manhole	Adoptable	31	1350	Manhole	Adoptable
1.001	6	1200	Manhole	Adoptable	5	1350	Manhole	Adoptable
1.000	7	1200	Manhole	Adoptable	6	1200	Manhole	Adoptable
5.004	9	1200	Manhole	Adoptable	ATT. TANK 3		Junction	



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)
5.002	17.448	245.0	300	Circular	58.005	55.847	1.858	57.798	55.776	1.722
5.001	24.030	170.0	225	Circular	58.189	56.063	1.901	58.005	55.922	1.858
7.000	30.439	170.0	225	Circular	57.829	56.101	1.503	58.005	55.922	1.858
26.002	6.862	170.0	225	Circular	56.175	54.894	1.056	56.029	54.854	0.950
6.000	13.412	56.6	225	Circular	58.120	57.300	0.595	58.189	57.063	0.901
5.000	19.530	170.0	225	Circular	58.311	56.178	1.908	58.189	56.063	1.901
8.002	33.350	245.0	300	Circular	56.600	54.761	1.539	57.025	54.625	2.100
15.000	15.095	11.9	100	Circular	57.273	56.873	0.300	57.025	55.600	1.325
14.000	15.854	14.3	100	Circular	57.106	56.706	0.300	57.025	55.600	1.325
5.003	15.550	15.7	300	Circular	57.798	55.776	1.722	57.602	54.787	2.515
9.000	19.725	100.0	150	Circular	56.590	55.570	0.870	56.600	55.373	1.077
10.000	17.682	100.0	150	Circular	56.780	55.810	0.820	56.600	55.633	0.817
11.000	15.333	132.2	100	Circular	56.767	56.367	0.300	56.600	56.251	0.249
8.001	31.323	245.0	300	Circular	56.328	54.889	1.139	56.600	54.761	1.539
12.000	14.639	57.9	100	Circular	56.904	56.504	0.300	56.600	56.251	0.249
8.000	46.474	66.8	300	Circular	57.385	55.585	1.500	56.328	54.889	1.139
16.008	40.476	245.0	300	Circular	56.066	54.649	1.117	55.783	54.484	0.999
21.005	6.617	413.6	450	Circular	56.253	55.187	0.616	56.161	55.171	0.540
16.007	37.901	245.0	300	Circular	57.160	54.804	2.056	56.066	54.649	1.117
16.006	7.272	170.0	225	Circular	57.236	54.922	2.089	57.160	54.879	2.056
19.000	12.211	100.0	225	Circular	57.000	56.180	0.595	57.160	56.058	0.877
16.003	34.912	122.1	225	Circular	57.080	55.240	1.615	57.462	54.954	2.283
16.002	1.983	132.2	225	Circular	57.179	55.255	1.699	57.080	55.240	1.615
4.000	8.650	8.9	150	Circular	57.378	55.884	1.344	57.140	54.909	2.081
21.001	28.229	245.0	300	Circular	57.411	55.866	1.245	57.221	55.751	1.170

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.002	11	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
5.001	J5		Junction		11	1200	Manhole	Adoptable
7.000	13	1200	Manhole	Adoptable	11	1200	Manhole	Adoptable
26.002	27	600	Manhole	Adoptable	26	1200	Manhole	Adoptable
6.000	PP3		Junction		J5		Junction	
5.000	12	1200	Manhole	Adoptable	J5		Junction	
8.002	J4		Junction		4	1500	Manhole	Adoptable
15.000	Rain Garden 3		Junction		4	1500	Manhole	Adoptable
14.000	Rain Garden 4		Junction		4	1500	Manhole	Adoptable
5.003	10	1200	Manhole	Adoptable	9	1200	Manhole	Adoptable
9.000	PP2		Junction		J4		Junction	
10.000	PP1		Junction		J4		Junction	
11.000	Rain Garden 2		Junction		J4		Junction	
8.001	14	1200	Manhole	Adoptable	J4		Junction	
12.000	Rain Garden 1		Junction		J4		Junction	
8.000	15	1200	Manhole	Adoptable	14	1200	Manhole	Adoptable
16.008	16	1200	Manhole	Adoptable	1	2400	Manhole	Adoptable
21.005	29	1500	Manhole	Adoptable	DIVERSION MH		Junction	
16.007	17	1500	Manhole	Adoptable	16	1200	Manhole	Adoptable
16.006	18	1200	Manhole	Adoptable	17	1500	Manhole	Adoptable
19.000	PP6		Junction		17	1500	Manhole	Adoptable
16.003	ATT. TANK 5		Junction		19	1200	Manhole	Adoptable
16.002	20	1200	Manhole	Adoptable	ATT. TANK 5		Junction	
4.000	8	450	Manhole	Adoptable	J6		Junction	
21.001	32	1200	Manhole	Adoptable	J2		Junction	



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)
21.000	16.313	100.0	150	Circular	57.440	56.620	0.670	57.411	56.457	0.804
25.000	1.506	376.5	450	Circular	56.699	55.235	1.014	56.565	55.231	0.884
23.000	15.507	100.0	150	Circular	57.140	56.120	0.870	57.221	55.965	1.106
21.002	26.850	245.0	300	Circular	57.221	55.751	1.170	57.047	55.641	1.106
21.003	33.708	154.6	375	Circular	57.047	55.566	1.106	56.544	55.348	0.821
18.000	1.000	100.0	150	Circular	57.407	56.014	1.243	57.360	56.004	1.206
26.000	3.142	100.0	150	Circular	55.939	55.006	0.783	56.050	54.975	0.925
16.001	17.748	170.0	225	Circular	57.427	55.359	1.843	57.179	55.255	1.699
16.000	42.843	170.0	225	Circular	57.142	55.611	1.306	57.427	55.359	1.843
26.003	2.356	170.0	225	Circular	56.029	54.854	0.950	56.256	54.840	1.191
20.000	12.798	245.0	300	Circular	55.682	54.612	0.770	55.656	54.560	0.796
26.001	1.000	166.7	225	Circular	56.050	54.900	0.925	56.175	54.894	1.056
1.006	4.954	450.4	525	Circular	56.375	54.325	1.525	56.380	54.314	1.541
13.000	16.004	126.0	100	Circular	57.250	56.850	0.300	57.025	56.723	0.202
17.000	15.136	123.1	100	Circular	57.650	57.250	0.300	57.462	57.127	0.235
22.000	17.692	17.0	100	Circular	57.440	57.040	0.300	57.221	56.000	1.121
21.004	34.940	405.0	450	Circular	56.544	55.273	0.821	56.253	55.187	0.616

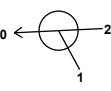
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
21.000	PP7		Junction		32	1200	Manhole	Adoptable
25.000	ATT. TANK 6		Junction		33	1350	Manhole	Adoptable
23.000	PP8		Junction		J2		Junction	
21.002	J2		Junction		31	1350	Manhole	Adoptable
21.003	31	1350	Manhole	Adoptable	30	1350	Manhole	Adoptable
18.000	23	450	Manhole	Adoptable	ATT. TANK 4		Junction	
26.000	28	450	Manhole	Adoptable	ATT. TANK 1		Junction	
16.001	21	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
16.000	22	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
26.003	26	1200	Manhole	Adoptable	MH33		Junction	
20.000	25	1200	Manhole	Adoptable	24	1200	Manhole	Adoptable
26.001	ATT. TANK 1		Junction		27	600	Manhole	Adoptable
1.006	ATT. TANK 2		Junction		2	1800	Manhole	Adoptable
13.000	Rain Garden 5		Junction		4	1500	Manhole	Adoptable
17.000	Rain Garden 6		Junction		19	1200	Manhole	Adoptable
22.000	Rain Garden 7		Junction		J2		Junction	
21.004	30	1350	Manhole	Adoptable	29	1500	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
ATT. TANK 1	517849.845	131708.585	56.050	1.150			26.000	54.975	150
							26.001	54.900	225



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
28	517846.382	131711.141	55.939	0.933	450		0	26.000	55.006	150
25	517858.513	131679.298	55.682	1.070	1200		0	20.000	54.612	300
24	517864.466	131667.969	55.656	1.096	1200		1	20.000	54.560	300
19	517965.671	131650.708	57.462	2.508	1200		0	20.001	54.560	300
							1	17.000	57.127	100
							2	16.003	54.954	225
							0	16.004	54.954	225
22	518023.651	131607.590	57.142	1.531	1200		0	16.000	55.611	225
21	518031.924	131649.627	57.427	2.068	1200		1	16.000	55.359	225
							0	16.001	55.359	225
20	518014.510	131653.054	57.179	1.924	1200		1	16.001	55.255	225
							0	16.002	55.255	225
MH33	517849.632	131719.735	56.256	1.416			1	26.003	54.840	225
ATT. TANK 6	517956.593	131585.062	56.699	1.464			0	25.000	55.235	450
PP8	517997.731	131589.449	57.140	1.020			0	23.000	56.120	150
ATT. TANK 4	517955.812	131650.234	57.360	2.425			1	18.000	56.004	150
							2	16.004	54.935	225
							0	16.005	54.935	225
3	517916.467	131697.466	56.605	2.276	1500		1	1.004	54.329	525
							0	1.005	54.329	525
31	517983.529	131561.822	57.047	1.481	1350		1	24.000	55.791	150
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							0	21.003	55.566	375

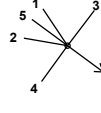
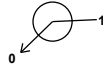
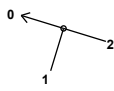


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
J2	517982.245	131588.641	57.221	1.470		2 3 1 0 1 2 3 0	23.000 55.965 150 22.000 56.000 100 21.001 55.751 300 21.002 55.751 300		
PP7	517996.212	131622.424	57.440	0.820		0 0	21.000 56.620 150 21.000 56.457 150		
32	517980.886	131616.837	57.411	1.545	1200	1 0 1 0	21.001 55.866 300 16.002 55.240 225		
ATT. TANK 5	518006.536	131652.671	57.080	1.840		0 1 1 0	16.005 54.922 225 16.006 54.922 225		
18	517942.048	131649.573	57.236	2.314	1200	1 0 1 0	19.000 56.180 225 19.000 56.058 225		
PP6	517942.177	131635.020	57.000	0.820		0 1 0 1	16.007 54.804 300 16.007 54.649 300		
17	517935.991	131645.548	57.160	2.356	1500	2 1 0 1 0	16.008 54.649 300 21.005 55.171 450		
16	517904.423	131624.573	56.066	1.417	1200	0 1 0 1			
DIVERSION MH	517929.927	131574.833	56.161	0.990		0 0	11.000 56.367 100 8.000 55.585 300		
Rain Garden 2	517890.695	131741.804	56.767	0.400		0 0	8.000 54.889 300 8.001 54.889 300		
15	517908.190	131795.187	57.385	1.800	1200	1 0 1 0			
14	517880.595	131757.793	56.328	1.439	1200	1 0 1 0	12.000 56.504 100		
Rain Garden 1	517897.668	131751.372	56.904	0.400		0 0			

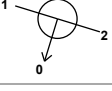
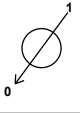
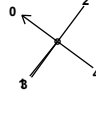
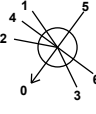


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
10	517974.176	131775.736	57.798	2.022	1200		1 0	5.002 5.003	55.776 55.776	300 300
PP2	517894.226	131723.236	56.590	1.020			0	9.000	55.570	150
PP1	517916.519	131753.271	56.780	0.970			0	10.000	55.810	150
J4	517905.806	131739.204	56.600	1.839			1 2 3 4 5 0	12.000 11.000 10.000 9.000 8.001 8.002	56.251 56.251 55.633 55.373 54.761 54.761	100 100 150 150 300 300
Rain Garden 3	517924.044	131731.815	57.273	0.400			0	15.000	56.873	100
Rain Garden 4	517917.071	131722.357	57.106	0.400			0	14.000	56.706	100
33	517948.346	131584.693	56.565	1.334	1350		1 0	25.000 25.001	55.231 55.231	450 450
PP3	517998.367	131772.535	58.120	0.820			0	6.000	57.300	225
12	518020.938	131779.639	58.311	2.133	1200		0	5.000	56.178	225
J5	518002.267	131785.367	58.189	2.126			1 2 0	6.000 5.000 5.001	57.063 56.063 56.063	225 225 225
27	517853.359	131713.350	56.175	1.281	600		1 0	26.001 26.002	54.894 54.894	225 225
13	517950.194	131801.344	57.829	1.728	1200		0	7.000	56.101	225

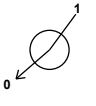
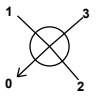
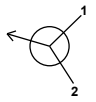


Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
11	517979.294	131792.416	58.005	2.158	1200		1 7.000 2 5.001	55.922 55.922	225 225
9	517964.948	131763.220	57.602	2.815	1200		1 5.003 0 5.004	54.787 54.787	300 300
ATT. TANK 3	517956.959	131752.384	57.464	2.699			1 5.004 0 5.005	54.765 54.765	300 300
PP5	517951.152	131689.157	57.100	0.770			0 2.000	56.330	225
7	518039.652	131758.335	58.328	1.725	1200		0 1.000	56.603	225
6	518033.328	131737.721	58.098	2.994	1200		1 1.000 0 1.001	55.179 55.104	225 300
34	517997.742	131554.501	57.300	1.349	450		0 24.000	55.951	150
8	517953.612	131693.218	57.378	1.494	450		0 4.000	55.884	150
5	517976.716	131686.922	57.269	2.550	1350		1 1.001 0 1.002	54.794 54.719	300 375
PP4	517965.217	131708.263	57.420	0.870			0 3.000	56.550	225
J6	517959.023	131699.967	57.140	2.489			1 4.000 2 3.000 3 2.000 4 1.002 0 1.003	54.909 56.446 55.834 54.651 54.651	150 225 225 375 375
4	517932.649	131719.413	57.025	2.625	1500		1 15.000 2 14.000 3 13.000 4 8.002 5 5.005 6 1.003 0 1.004	55.600 55.600 56.723 54.625 54.625 54.550 54.400	100 100 100 300 300 375 525



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
2	517898.278	131672.796	56.380	2.066	1800		1 1.006	54.314	525
							0 1.007	54.314	525
23	517959.969	131647.555	57.407	1.393	450		0 18.000	56.014	150
1	517877.897	131655.146	55.783	1.527	2400		1 20.001	54.484	300
							2 16.008	54.484	300
							3 1.007	54.259	525
							0 1.009	54.256	600
MH91	517873.297	131650.814	55.690	1.450			1 1.009	54.240	600
26	517851.964	131720.069	56.029	1.175	1200		1 26.002	54.854	225
							0 26.003	54.854	225
29	517936.277	131572.973	56.253	1.066	1500		1 25.001	55.187	450
							2 21.004	55.187	450
							0 21.005	55.187	450
ATT. TANK 2	517908.202	131686.256	56.375	2.050			1 1.005	54.325	525
							0 1.006	54.325	525
Rain Garden 5	517939.637	131705.015	57.250	0.400			0 13.000	56.850	100
Rain Garden 6	517972.893	131637.406	57.650	0.400			0 17.000	57.250	100
Rain Garden 7	517974.433	131604.515	57.440	0.400			0 22.000	57.040	100
30	517955.179	131543.587	56.544	1.271	1350		1 21.003	55.348	375
							0 21.004	55.273	450

Node 1 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.256	Product Number	CTL-SHE-0314-6000-1387-6000
Design Depth (m)	1.387	Min Outlet Diameter (m)	0.375
Design Flow (l/s)	60.0	Min Node Diameter (mm)	2400



Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.314	Product Number	CTL-SHE-0188-2000-1734-2000
Design Depth (m)	1.734	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	20.0	Min Node Diameter (mm)	1800

Node 17 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	54.804	Product Number	CTL-SHE-0115-8200-2265-8200
Design Depth (m)	2.265	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	8.2	Min Node Diameter (mm)	1500

Node 29 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	55.187	Product Number	CTL-SHE-0205-2150-1021-2150
Design Depth (m)	1.021	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	21.5	Min Node Diameter (mm)	1500

Node PP6 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.550	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.180	Diameter (m)	0.025		

Node PP2 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.750	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	55.570	Diameter (m)	0.023		

Node PP1 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.700	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	55.810	Diameter (m)	0.024		

Node PP4 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.750	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.550	Diameter (m)	0.023		

Node PP5 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.650	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.330	Diameter (m)	0.024		



Node PP7 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.550	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.620	Diameter (m)	0.025		

Node PP3 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.550	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	57.300	Diameter (m)	0.025		

Node PP8 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.700	Discharge Coefficient	0.600
Replaces Downstream Link	x	Design Flow (l/s)	1.0		
Invert Level (m)	56.120	Diameter (m)	0.024		

Node 26 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	54.854	Product Number	CTL-SHE-0125-7000-0935-7000
Design Depth (m)	0.935	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	7.0	Min Node Diameter (mm)	1200

Node PP2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.570	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.800
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.810	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.750
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node ATT. TANK 3 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.765	Depth (m)	1.470
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	232	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	15.000	Number Required	1
Porosity	0.95	Pit Length (m)	15.000		

Node PP4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.550	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.800
Safety Factor	2.0	Width (m)	20.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		



Node PP5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.330	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.700
Safety Factor	2.0	Width (m)	22.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP3 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.300	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.600
Safety Factor	2.0	Width (m)	17.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP6 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.180	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	76	Depth (m)	0.600
Safety Factor	2.0	Width (m)	22.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node PP7 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.620	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	68	Depth (m)	0.600
Safety Factor	2.0	Width (m)	12.500	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node ATT. TANK 6 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.235	Depth (m)	1.050
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	63	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	10.000	Number Required	1
Porosity	0.95	Pit Length (m)	13.500		

Node PP8 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.120	Slope (1:X)	1000.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.750
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Node ATT. TANK 4 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.935	Depth (m)	1.320
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	202	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	3.680	Number Required	1
Porosity	0.95	Pit Length (m)	20.000		

Node ATT. TANK 5 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	55.240	Depth (m)	0.690
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	126	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	4.000	Number Required	1
Porosity	0.95	Pit Length (m)	12.000		



Node Rain Garden 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.504	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	20.000		

Node Rain Garden 2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.367	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	20.000		

Node Rain Garden 3 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.873	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	3	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	13.000		

Node Rain Garden 4 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.706	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	3	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node Rain Garden 5 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	56.850	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	8	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node Rain Garden 6 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.250	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	8	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	13.000		

Node Rain Garden 7 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	57.040	Depth (m)	0.400
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	3	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	1.800	Number Required	1
Porosity	0.30	Pit Length (m)	16.000		

Node ATT. TANK 2 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.325	Depth (m)	1.350
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	16.800	Number Required	1
Porosity	0.95	Pit Length (m)	16.800		



Node ATT. TANK 1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	54.900	Depth (m)	0.630
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	41	Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	6.000	Number Required	1
Porosity	0.95	Pit Length (m)	8.000		



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	ATT. TANK 1	49	55.792	0.892	38.5	28.7508	0.0000	FLOOD RISK
60 minute summer	28	49	55.792	0.786	14.3	0.1250	0.0000	FLOOD RISK
30 minute summer	25	20	55.664	1.052	20.0	1.1903	0.0000	FLOOD RISK
30 minute summer	24	20	55.656	1.096	41.0	1.2396	0.7401	FLOOD
120 minute winter	19	116	57.062	2.108	38.7	2.3845	0.0000	SURCHARGED
120 minute winter	22	116	57.070	1.459	10.8	1.6504	0.0000	FLOOD RISK
120 minute winter	21	116	57.070	1.711	21.8	1.9349	0.0000	SURCHARGED
120 minute winter	20	116	57.069	1.814	37.3	2.0516	0.0000	FLOOD RISK
15 minute summer	MH33	1	54.840	0.000	7.0	0.0000	0.0000	OK
60 minute winter	ATT. TANK 6	59	56.207	0.972	110.5	124.6462	0.0000	SURCHARGED
360 minute winter	PP8	320	57.140	1.020	9.6	66.6460	0.7707	FLOOD
120 minute winter	ATT. TANK 4	116	57.061	2.126	41.1	92.3294	0.0000	FLOOD RISK
240 minute winter	3	236	56.047	1.718	73.9	3.0355	0.0000	SURCHARGED
60 minute winter	31	58	56.209	0.643	89.4	0.9200	0.0000	SURCHARGED
30 minute summer	J2	19	56.286	0.535	88.4	0.0000	0.0000	SURCHARGED
240 minute winter	PP7	232	56.916	0.296	4.8	21.4569	0.0000	SURCHARGED
30 minute summer	32	19	56.383	0.517	64.4	0.5847	0.0000	SURCHARGED
120 minute winter	ATT. TANK 5	116	57.069	1.829	44.9	31.4868	0.0000	FLOOD RISK
120 minute winter	18	116	57.061	2.139	9.1	2.4187	0.0000	FLOOD RISK
240 minute winter	PP6	240	56.466	0.286	6.8	37.2937	0.0000	SURCHARGED
120 minute winter	17	116	57.058	2.254	11.2	3.9823	0.0000	FLOOD RISK
30 minute summer	16	20	55.707	1.058	63.5	1.1966	0.0000	SURCHARGED
15 minute summer	DIVERSION MH	1	55.171	0.000	21.5	0.0000	0.0000	OK
15 minute summer	Rain Garden 2	1	56.367	0.000	0.0	0.0000	0.0000	OK
240 minute winter	15	236	56.048	0.463	8.0	0.5232	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)
60 minute summer	ATT. TANK 1	26.001	27	-18.1	0.549	-0.451	0.0398	
60 minute summer	28	26.000	ATT. TANK 1	13.5	0.920	0.758	0.0553	
30 minute summer	25	20.000	24	15.4	0.473	0.218	0.9012	
30 minute summer	24	20.001	1	36.4	0.844	0.515	1.3076	
120 minute winter	19	16.004	ATT. TANK 4	38.1	1.632	0.727	0.0744	
120 minute winter	22	16.000	21	10.5	0.590	0.264	1.7039	
120 minute winter	21	16.001	20	21.1	0.719	0.531	0.7059	
120 minute winter	20	16.002	ATT. TANK 5	36.7	1.280	0.814	0.0789	
60 minute winter	ATT. TANK 6	25.000	33	-65.9	-0.854	-0.398	0.2386	
360 minute winter	PP8	23.000	J2	1.2	0.576	0.068	0.0323	
120 minute winter	ATT. TANK 4	16.005	18	7.9	0.522	0.178	0.0708	
240 minute winter	3	1.005	ATT. TANK 2	73.0	1.282	0.296	0.3299	
60 minute winter	31	21.003	30	86.1	1.325	0.536	3.7179	
30 minute summer	J2	21.002	31	85.4	1.255	1.208	1.8908	
240 minute winter	PP7	21.000	32	0.7	0.486	0.039	0.0230	
30 minute summer	32	21.001	J2	59.7	0.930	0.845	1.9879	
120 minute winter	ATT. TANK 5	16.003	19	34.1	0.871	0.726	1.3885	
120 minute winter	18	16.006	17	8.1	0.379	0.205	0.2892	
240 minute winter	PP6	19.000	17	1.1	0.452	0.022	0.4856	
120 minute winter	17	16.007	16	8.1	0.647	0.114	1.3288	
30 minute summer	16	16.008	1	52.0	0.956	0.736	2.8503	
15 minute summer	Rain Garden 2	11.000	J4	0.0	0.000	0.000	0.0000	
240 minute winter	15	8.000	14	8.0	0.585	0.059	3.2727	



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	14	236	56.048	1.159	15.3	1.3104	0.0000	FLOOD RISK
15 minute summer	Rain Garden 1	1	56.504	0.000	0.0	0.0000	0.0000	OK
240 minute winter	10	236	56.049	0.273	18.3	0.3086	0.0000	OK
600 minute winter	PP2	585	56.259	0.689	6.9	81.4755	0.0000	SURCHARGED
480 minute winter	PP1	464	56.472	0.662	8.3	78.2632	0.0000	SURCHARGED
240 minute winter	J4	236	56.048	1.287	24.5	0.0000	0.0000	SURCHARGED
15 minute summer	Rain Garden 3	11	56.943	0.070	14.5	0.4898	0.0000	OK
15 minute summer	Rain Garden 4	11	56.781	0.075	14.5	0.6477	0.0000	OK
60 minute winter	33	59	56.207	0.976	67.2	1.3964	0.0000	SURCHARGED
360 minute winter	PP3	336	57.545	0.245	3.8	24.6907	0.0000	SURCHARGED
15 minute summer	12	11	56.306	0.128	19.5	0.1449	0.0000	OK
15 minute summer	J5	11	56.288	0.225	42.7	0.0000	0.0000	SURCHARGED
60 minute summer	27	49	55.792	0.898	18.9	0.2541	0.0000	SURCHARGED
15 minute summer	13	10	56.255	0.154	31.7	0.1737	0.0000	OK
15 minute summer	11	11	56.138	0.291	97.8	0.3287	0.0000	OK
240 minute winter	9	236	56.049	1.262	25.1	1.4271	0.0000	SURCHARGED
240 minute winter	ATT. TANK 3	236	56.049	1.284	55.5	274.3944	0.0000	SURCHARGED
600 minute winter	PP5	585	56.960	0.630	7.3	83.6450	0.0000	FLOOD RISK
15 minute summer	7	11	57.138	0.535	21.3	0.6047	0.0000	SURCHARGED
15 minute summer	6	11	57.106	2.002	118.4	2.2644	0.0000	SURCHARGED
60 minute winter	34	58	56.209	0.258	1.0	0.0410	0.0000	SURCHARGED
240 minute winter	8	236	56.048	0.164	0.1	0.0260	0.0000	SURCHARGED
15 minute summer	5	11	56.165	1.446	243.7	2.0697	0.0000	SURCHARGED
720 minute winter	PP4	690	57.298	0.748	6.6	88.6014	0.0000	FLOOD RISK
240 minute winter	J6	236	56.048	1.397	48.5	0.0000	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)
240 minute winter	14	8.001	J4	14.1	0.590	0.200	2.2057	
15 minute summer	Rain Garden 1	12.000	J4	0.0	0.000	0.000	0.0000	
240 minute winter	10	5.003	9	18.3	0.893	0.065	1.0706	
600 minute winter	PP2	9.000	J4	1.8	0.518	0.099	0.3473	
480 minute winter	PP1	10.000	J4	1.0	0.535	0.057	0.3045	
240 minute winter	J4	8.002	4	24.3	0.750	0.343	2.3485	
15 minute summer	Rain Garden 3	15.000	4	14.1	2.461	0.797	0.0866	
15 minute summer	Rain Garden 4	14.000	4	14.1	2.269	0.872	0.0982	
60 minute winter	33	25.001	29	-67.2	-0.424	-0.409	2.6655	
360 minute winter	PP3	6.000	J5	0.6	0.545	0.009	0.0154	
15 minute summer	12	5.000	J5	18.7	0.656	0.471	0.6159	
15 minute summer	J5	5.001	11	41.6	1.112	1.046	0.9481	
60 minute summer	27	26.002	26	-18.9	-0.476	-0.477	0.2729	
15 minute summer	13	7.000	11	31.3	0.922	0.787	1.0342	
15 minute summer	11	5.002	10	96.9	1.916	1.371	0.8392	
240 minute winter	9	5.004	ATT. TANK 3	24.5	1.129	0.347	0.3848	
240 minute winter	ATT. TANK 3	5.005	4	-31.9	0.773	-0.442	2.3212	
600 minute winter	PP5	2.000	J6	0.9	0.798	0.009	0.0329	
15 minute summer	7	1.000	6	24.2	1.421	0.180	0.8575	
15 minute summer	6	1.001	5	116.3	1.651	1.645	5.3562	
60 minute winter	34	24.000	31	-1.0	-0.090	-0.054	0.2815	
240 minute winter	8	4.000	J6	-0.1	-0.006	-0.001	0.1523	
15 minute summer	5	1.002	J6	241.2	2.187	2.185	2.4246	
720 minute winter	PP4	3.000	J6	0.9	0.509	0.018	0.0192	
240 minute winter	J6	1.003	4	48.3	0.784	0.437	3.6142	



Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	4	236	56.047	1.647	90.8	2.9110	0.0000	SURCHARGED
240 minute winter	2	236	56.047	1.733	20.6	4.4094	0.0000	SURCHARGED
120 minute winter	23	116	57.061	1.047	1.7	0.1665	0.0000	SURCHARGED
30 minute summer	1	20	55.643	1.387	96.1	6.2741	0.0000	FLOOD RISK
15 minute summer	MH91	1	54.240	0.000	60.0	0.0000	0.0000	OK
60 minute summer	26	49	55.791	0.937	26.7	1.0600	0.0000	FLOOD RISK
60 minute winter	29	59	56.206	1.019	89.8	1.8013	0.0000	FLOOD RISK
240 minute winter	ATT. TANK 2	236	56.047	1.722	87.0	362.1069	0.0000	SURCHARGED
15 minute summer	Rain Garden 5	13	57.119	0.269	14.5	2.3251	0.0000	FLOOD RISK
15 minute summer	Rain Garden 6	12	57.490	0.240	12.6	1.6867	0.0000	FLOOD RISK
15 minute summer	Rain Garden 7	12	57.159	0.119	17.1	1.0248	0.0000	FLOOD RISK
60 minute winter	30	58	56.207	0.934	86.1	1.3362	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)
240 minute winter	4	1.004	3	73.9	0.692	0.301	5.8908	
240 minute winter	2	Hydro-Brake®	1	20.0				
120 minute winter	23	18.000	ATT. TANK 4	-1.7	-0.195	-0.098	0.0176	
30 minute summer	1	Hydro-Brake®	MH91	60.0				452.3
60 minute summer	26	Hydro-Brake®	MH33	7.0				50.6
60 minute winter	29	Hydro-Brake®	DIVERSION MH	21.5				225.8
240 minute winter	ATT. TANK 2	1.006	2	19.1	0.112	0.084	1.0702	
15 minute summer	Rain Garden 5	13.000	4	8.2	1.055	1.537	0.1220	
15 minute summer	Rain Garden 6	17.000	19	8.1	1.030	1.482	0.1151	
15 minute summer	Rain Garden 7	22.000	J2	15.5	2.125	1.047	0.1384	
60 minute winter	30	21.004	29	83.6	0.634	0.524	5.5360	

Water Quality (TSS)

Node	Treatment	Effectiveness	SuDS Component	Mitigation TSS	Cumulative TSS
ATT. TANK 5	Soakaway	1.0	Bioretention System	0.800	0.000
MH91					0.000
DIVERSION MH					0.000
MH33					0.000

Water Quality (Metals)

Node	Treatment	Effectiveness	SuDS Component	Mitigation Metals	Cumulative Metals
ATT. TANK 5	Soakaway	1.0	Bioretention System	0.800	0.000
MH91					0.000
DIVERSION MH					0.000
MH33					0.000



Water Quality (Hydrocarbons)

Node	Treatment	Effectiveness	SuDS Component	Mitigation Hydrocarbons	Cumulative Hydrocarbons
ATT. TANK 5	Soakaway	1.0	Bioretention System	0.800	0.000
MH91					0.000
DIVERSION MH					0.000
MH33					0.000