

Appendix H1

**Design Settings**

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	1	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	1.000
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	x
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Circular Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.102	5.00	50.650	1350	510217.869	117309.804	1.425
S2	0.072	5.00	50.575	1200	510199.990	117317.737	1.775
S3	0.024	5.00	50.650	1200	510207.354	117312.920	2.015
S4	0.050	5.00	49.650	1350	510198.830	117287.966	1.575
S5	0.099	5.00	49.500	1350	510192.742	117259.439	1.825
S6	0.020	5.00	49.050	1350	510168.011	117264.856	1.715
S7	0.090	5.00	48.450	1350	510136.486	117276.775	1.575
S8	0.026	5.00	47.500	1350	510125.725	117252.697	1.650
S9	0.048	5.00	47.100	1350	510126.450	117233.579	1.650
S10	0.053	5.00	46.900	1350	510137.466	117216.677	1.650
S11	0.077	5.00	49.750	1350	510222.928	117247.914	1.425
S12	0.060	5.00	49.150	1350	510238.181	117239.052	1.425
S13	0.065	5.00	48.550	1350	510275.499	117224.126	1.425
S14			48.425	1350	510264.141	117224.263	1.425
S15	0.120	5.00	48.325	1350	510251.984	117220.111	1.575
S16	0.041	5.00	47.850	1350	510229.514	117195.840	1.575
S17			47.500	1350	510210.055	117184.735	1.575
S18	0.087	5.00	47.225	1350	510193.715	117178.036	1.575
S19	0.071	5.00	47.300	1200	510178.040	117196.411	1.945
S20			47.150	1350	510167.758	117201.547	2.015
S21			45.900		510157.332	117180.672	1.400
S22			45.900		510126.179	117174.651	1.500
S23			45.900	2100	510113.478	117166.928	1.600
S24	0.139	5.00	45.350	1350	510089.528	117108.538	1.500
S25			44.500	1350	510079.463	117070.476	1.500
S26			44.500	1350	510075.631	117051.794	1.630
S27	0.131	5.00	44.350	1350	510100.203	117046.907	1.650
S28	0.109	5.00	47.125	1350	510203.209	117149.545	1.425
S29			47.300	1200	510218.193	117127.837	1.775
S30	0.084	5.00	46.200	1200	510160.812	117142.303	1.500
S31	0.021	5.00	46.600	1200	510174.809	117136.819	2.050
S32			47.125	1200	510196.228	117124.621	2.820
S33	0.108	5.00	47.000	1200	510205.085	117116.220	2.820
S34	0.114	5.00	46.750	1200	510199.300	117109.988	2.615

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S35	0.174	5.00	45.100	1350	510119.407	117096.317	1.500
S36			45.250	1200	510177.986	117072.109	2.285
S37	0.019	5.00	45.250	1350	510182.085	117066.647	2.505
S38	0.066	5.00	44.700	1350	510185.475	117050.806	2.020
S39			43.800	1350	510168.164	117009.963	1.770
S40			43.000		510162.966	116997.581	1.900
S41	0.244	5.00	50.975	1350	510327.972	117263.441	1.500
S42	0.091	5.00	48.500	1200	510299.910	117200.493	1.575
S43	0.085	5.00	48.250	1200	510287.138	117175.978	1.575
S44	0.117	5.00	47.975	1200	510268.634	117156.631	1.650
S45	0.094	5.00	47.000	1350	510238.052	117112.009	1.650
S46	0.048	5.00	46.775	1350	510248.394	117104.288	1.695
S47	0.223	5.00	48.525	1200	510364.633	117185.808	1.500
S48	0.147	5.00	48.350	1350	510346.623	117147.180	1.575
S49			47.550	1350	510321.771	117125.589	1.575
S50			47.350	1350	510315.443	117114.115	1.575
S51	0.147	5.00	46.725	1200	510312.259	117090.517	2.000
S52			46.500	1350	510266.261	117097.074	2.110
S53	0.230	5.00	46.100	1350	510262.007	117078.469	1.800
S54	0.072	5.00	46.375	1350	510343.342	117086.034	1.425
S55			46.700	1200	510323.878	117088.841	2.025
S56	0.200	5.00	46.375	1200	510321.970	117075.611	1.835
S57			43.750	1350	510292.373	117007.555	2.045
S58	0.108	5.00	44.150	2100	510240.894	117028.789	2.555
S59	0.099	5.00	42.950	1350	510220.675	116981.457	2.070
S60	0.061	5.00	42.950	1350	510203.368	116988.697	2.325
S61			42.700		510188.721	116984.423	2.100
S62			42.200		510148.389	116980.172	1.800
S63			42.200	2700	510134.728	116981.088	1.830
S64			42.000	1200	510132.248	116980.238	1.645

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S3	10.967	0.600	49.225	48.710	0.515	21.3	225	5.06	37.9
2.000	S2	S3	8.800	0.600	48.800	48.710	0.090	97.8	225	5.11	37.7
1.001	S3	S4	26.370	0.600	48.635	48.150	0.485	54.4	300	5.32	37.1
1.002	S4	S5	29.169	0.600	48.075	47.675	0.400	73.0	375	5.55	36.4
1.003	S5	S6	25.317	0.600	47.675	47.335	0.340	74.5	375	5.75	35.8
1.004	S6	S7	33.703	0.600	47.335	46.875	0.460	73.3	375	6.01	35.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.848	113.2	14.0	1.200	1.715	0.102	0.0	53	1.953
2.000	1.322	52.6	9.8	1.550	1.715	0.072	0.0	65	1.016
1.001	2.136	151.0	26.6	1.715	1.200	0.198	0.0	85	1.621
1.002	2.122	234.4	32.6	1.200	1.450	0.248	0.0	94	1.513
1.003	2.101	232.1	44.9	1.450	1.340	0.347	0.0	111	1.638
1.004	2.119	234.0	46.4	1.340	1.200	0.367	0.0	112	1.663

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)
1.005	S7	S8	26.373	0.600	46.875	45.925	0.950	27.8	375	6.14	34.6
1.006	S8	S9	19.132	0.600	45.850	45.450	0.400	47.8	450	6.25	34.4
1.007	S9	S10	20.175	0.600	45.450	45.250	0.200	100.9	450	6.41	33.9
1.008	S10	S20	33.860	0.600	45.250	45.135	0.115	294.4	450	6.89	32.7
3.000	S11	S12	17.641	0.600	48.325	47.725	0.600	29.4	225	5.12	37.7
3.001	S12	S15	23.437	0.600	47.725	46.900	0.825	28.4	225	5.28	37.2
4.000	S13	S14	11.359	0.600	47.125	47.000	0.125	90.9	225	5.14	37.7
4.001	S14	S15	12.846	0.600	47.000	46.900	0.100	128.5	225	5.32	37.1
3.002	S15	S16	33.075	0.600	46.750	46.275	0.475	69.6	375	5.58	36.3
3.003	S16	S17	22.405	0.600	46.275	45.925	0.350	64.0	375	5.74	35.8
3.004	S17	S18	17.660	0.600	45.925	45.650	0.275	64.2	375	5.87	35.4
3.005	S18	S19	24.153	0.600	45.650	45.355	0.295	81.9	375	6.07	34.8
3.006	S19	S20	11.493	0.600	45.355	45.210	0.145	79.3	375	6.17	34.6
1.009	S20	S21	23.334	0.600	45.135	44.500	0.635	36.7	450	7.01	32.4
1.009a	S21	S22	31.730	0.600	44.500	44.400	0.100	317.3	450	7.47	31.4
1.010	S22	S23	14.865	0.600	44.400	44.300	0.100	148.6	450	7.62	31.1
1.011	S23	S24	63.111	0.600	44.300	43.850	0.450	140.2	300	8.42	29.6
1.012	S24	S25	39.370	0.600	43.850	43.000	0.850	46.3	300	8.70	29.1
1.013	S25	S26	19.071	0.600	43.000	42.870	0.130	146.7	300	8.94	28.6
1.014	S26	S27	25.053	0.600	42.870	42.700	0.170	147.4	300	9.27	28.1
1.015	S27	S39	77.353	0.600	42.700	42.180	0.520	148.8	300	10.27	26.6
5.000	S28	S29	26.377	0.600	45.700	45.525	0.175	150.7	225	5.41	36.8
5.001	S29	S33	17.515	0.600	45.525	44.255	1.270	13.8	225	5.50	36.6
6.000	S30	S31	15.033	0.600	44.700	44.550	0.150	100.0	300	5.16	37.6

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)
1.005	3.450	381.0	57.2	1.200	1.200	0.457	0.0	98	2.514
1.006	2.945	468.4	60.0	1.200	1.200	0.483	0.0	108	2.050
1.007	2.024	321.9	65.1	1.200	1.200	0.531	0.0	137	1.601
1.008	1.179	187.6	69.1	1.200	1.565	0.584	0.0	189	1.093
3.000	2.422	96.3	10.5	1.200	1.200	0.077	0.0	50	1.597
3.001	2.464	98.0	18.4	1.200	1.200	0.137	0.0	65	1.896
4.000	1.372	54.5	8.8	1.200	1.200	0.065	0.0	61	1.015
4.001	1.152	45.8	8.7	1.200	1.200	0.065	0.0	66	0.891
3.002	2.173	240.1	42.2	1.200	1.200	0.322	0.0	106	1.652
3.003	2.267	250.4	47.0	1.200	1.200	0.363	0.0	109	1.755
3.004	2.264	250.0	46.4	1.200	1.200	0.363	0.0	109	1.746
3.005	2.003	221.3	56.6	1.200	1.570	0.450	0.0	129	1.685
3.006	2.036	224.9	65.1	1.570	1.565	0.521	0.0	137	1.770
1.009	3.362	534.7	129.5	1.565	0.950	1.105	0.0	150	2.790
1.009a	1.136	180.6	125.6	0.950	1.050	1.105	0.0	277	1.224
1.010	1.665	264.8	124.3	1.050	1.150	1.105	0.0	217	1.639
1.011	1.325	93.7	118.1	1.300	1.200	1.105	0.0	300	1.342
1.012	2.316	163.7	130.7	1.200	1.200	1.244	0.0	204	2.562
1.013	1.296	91.6	128.7	1.200	1.330	1.244	0.0	300	1.312
1.014	1.293	91.4	126.3	1.330	1.350	1.244	0.0	300	1.309
1.015	1.287	90.9	132.2	1.350	1.320	1.375	0.0	300	1.303
5.000	1.062	42.2	14.5	1.200	1.550	0.109	0.0	91	0.966
5.001	3.542	140.8	14.4	1.550	2.520	0.109	0.0	48	2.289
6.000	1.572	111.1	11.4	1.200	1.750	0.084	0.0	65	1.026

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
6.001	S31	S32	24.649	0.600	44.550	44.305	0.245	100.6	300	5.42	36.8
6.002	S32	S33	12.208	0.600	44.305	44.180	0.125	97.7	300	5.55	36.4
5.002	S33	S34	8.503	0.600	44.180	44.135	0.045	189.0	300	5.67	36.0
5.003	S34	S37	46.635	0.600	44.135	42.895	1.240	37.6	300	5.98	35.1
7.000	S35	S36	63.384	0.600	43.600	42.965	0.635	99.8	300	5.67	36.0
7.001	S36	S37	6.829	0.600	42.965	42.895	0.070	97.6	300	5.74	35.8
5.004	S37	S38	16.200	0.600	42.745	42.680	0.065	250.0	450	6.19	34.5
5.005	S38	S39	44.360	0.600	42.680	42.030	0.650	68.2	450	6.49	33.8
1.016	S39	S40	13.429	0.600	42.030	41.100	0.930	14.4	450	10.31	26.5
1.016a	S40	S62	22.706	0.600	41.100	40.625	0.475	47.8	450	10.44	26.4
8.000	S41	S42	68.920	0.600	49.475	47.000	2.475	27.8	300	5.38	36.9
8.001	S42	S43	27.643	0.600	46.925	46.675	0.250	110.6	375	5.65	36.1
8.002	S43	S44	26.771	0.600	46.675	46.400	0.275	97.4	375	5.89	35.3
8.003	S44	S45	54.096	0.600	46.325	45.350	0.975	55.5	450	6.22	34.4
8.004	S45	S46	12.906	0.600	45.350	45.080	0.270	47.8	450	6.30	34.2
8.005	S46	S52	19.268	0.600	45.080	44.540	0.540	35.7	450	6.39	34.0
9.000	S47	S48	42.620	0.600	47.025	46.850	0.175	243.5	300	5.71	35.9
9.001	S48	S49	32.921	0.600	46.775	45.975	0.800	41.2	375	5.90	35.3
9.002	S49	S50	13.103	0.600	45.975	45.775	0.200	65.5	375	6.00	35.0
9.003	S50	S51	23.812	0.600	45.775	44.800	0.975	24.4	375	6.11	34.7
9.004	S51	S52	46.463	0.600	44.725	44.540	0.185	251.2	450	6.71	33.2
8.006	S52	S53	19.085	0.600	44.390	44.300	0.090	212.1	600	6.90	32.7
8.007	S53	S58	53.980	0.600	44.300	41.670	2.630	20.5	600	7.07	32.3
10.000	S54	S55	19.665	0.600	44.950	44.750	0.200	98.3	225	5.25	37.3

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)
6.001	1.567	110.8	14.0	1.750	2.520	0.105	0.0	71	1.079
6.002	1.591	112.4	13.8	2.520	2.520	0.105	0.0	71	1.091
5.002	1.140	80.6	41.9	2.520	2.315	0.322	0.0	154	1.152
5.003	2.571	181.8	55.3	2.315	2.055	0.436	0.0	113	2.268
7.000	1.573	111.2	22.6	1.200	1.985	0.174	0.0	91	1.241
7.001	1.592	112.5	22.5	1.985	2.055	0.174	0.0	91	1.251
5.004	1.281	203.7	78.5	2.055	1.570	0.629	0.0	194	1.202
5.005	2.463	391.8	84.8	1.570	1.320	0.695	0.0	141	1.981
1.016	5.371	854.2	198.5	1.320	1.450	2.070	0.0	146	4.405
1.016a	2.946	468.5	197.2	1.450	1.125	2.070	0.0	203	2.825
8.000	2.990	211.4	32.5	1.200	1.200	0.244	0.0	79	2.183
8.001	1.722	190.2	43.7	1.200	1.200	0.335	0.0	122	1.409
8.002	1.836	202.8	53.6	1.200	1.200	0.420	0.0	131	1.557
8.003	2.733	434.7	66.8	1.200	1.200	0.537	0.0	118	2.002
8.004	2.946	468.5	78.1	1.200	1.245	0.631	0.0	123	2.209
8.005	3.412	542.6	83.4	1.245	1.510	0.679	0.0	118	2.500
9.000	1.003	70.9	28.9	1.200	1.200	0.223	0.0	133	0.953
9.001	2.831	312.7	47.2	1.200	1.200	0.370	0.0	98	2.062
9.002	2.241	247.5	46.8	1.200	1.200	0.370	0.0	109	1.734
9.003	3.679	406.3	46.4	1.200	1.550	0.370	0.0	85	2.474
9.004	1.278	203.3	62.0	1.550	1.510	0.517	0.0	170	1.128
8.006	1.668	471.6	141.3	1.510	1.200	1.196	0.0	224	1.466
8.007	5.390	1524.1	166.5	1.200	1.880	1.426	0.0	132	3.596
10.000	1.318	52.4	9.7	1.200	1.725	0.072	0.0	65	1.013

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)
10.001	S55	S56	13.367	0.600	44.675	44.540	0.135	99.0	300	5.39	36.9
10.002	S56	S57	74.213	0.600	44.540	42.005	2.535	29.3	300	5.81	35.6
10.003	S57	S58	55.686	0.600	41.705	41.670	0.035	1591.0	600	7.36	31.7
8.008	S58	S59	51.470	0.600	41.595	40.880	0.715	72.0	675	7.63	31.1
8.009	S59	S60	18.760	0.600	40.880	40.625	0.255	73.6	675	7.74	30.9
8.010	S60	S61	15.258	0.600	40.625	40.600	0.025	610.3	675	7.98	30.4
8.011	S61	S62	40.555	0.600	40.600	40.400	0.200	202.8	675	8.35	29.7
1.017	S62	S63	13.692	0.600	40.400	40.370	0.030	456.4	675	10.63	26.1
1.018	S63	S64	2.622	0.600	40.370	40.355	0.015	174.8	375	10.66	26.1

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)
10.001	1.580	111.7	9.6	1.725	1.535	0.072	0.0	59	0.975
10.002	2.916	206.1	35.0	1.535	1.445	0.272	0.0	83	2.188
10.003	0.601	170.0	31.2	1.445	1.880	0.272	0.0	173	0.462
8.008	3.091	1106.0	203.0	1.880	1.395	1.806	0.0	194	2.383
8.009	3.057	1094.1	212.6	1.395	1.650	1.905	0.0	200	2.395
8.010	1.053	376.9	215.8	1.650	1.425	1.966	0.0	367	1.087
8.011	1.837	657.2	211.0	1.425	1.125	1.966	0.0	262	1.644
1.017	1.220	436.6	380.8	1.125	1.155	4.036	0.0	491	1.366
1.018	1.367	151.0	380.2	1.455	1.270	4.036	0.0	375	1.385

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	10.967	21.3	225	Circular	50.650	49.225	1.200	50.650	48.710	1.715
2.000	8.800	97.8	225	Circular	50.575	48.800	1.550	50.650	48.710	1.715
1.001	26.370	54.4	300	Circular	50.650	48.635	1.715	49.650	48.150	1.200
1.002	29.169	73.0	375	Circular	49.650	48.075	1.200	49.500	47.675	1.450
1.003	25.317	74.5	375	Circular	49.500	47.675	1.450	49.050	47.335	1.340
1.004	33.703	73.3	375	Circular	49.050	47.335	1.340	48.450	46.875	1.200
1.005	26.373	27.8	375	Circular	48.450	46.875	1.200	47.500	45.925	1.200
1.006	19.132	47.8	450	Circular	47.500	45.850	1.200	47.100	45.450	1.200
1.007	20.175	100.9	450	Circular	47.100	45.450	1.200	46.900	45.250	1.200
1.008	33.860	294.4	450	Circular	46.900	45.250	1.200	47.150	45.135	1.565
3.000	17.641	29.4	225	Circular	49.750	48.325	1.200	49.150	47.725	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1350	Manhole	Adoptable	S3	1200	Manhole	Adoptable
2.000	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.001	S3	1200	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.002	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.003	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.004	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.005	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.006	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.007	S9	1350	Manhole	Adoptable	S10	1350	Manhole	Adoptable
1.008	S10	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
3.000	S11	1350	Manhole	Adoptable	S12	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.001	23.437	28.4	225	Circular	49.150	47.725	1.200	48.325	46.900	1.200
4.000	11.359	90.9	225	Circular	48.550	47.125	1.200	48.425	47.000	1.200
4.001	12.846	128.5	225	Circular	48.425	47.000	1.200	48.325	46.900	1.200
3.002	33.075	69.6	375	Circular	48.325	46.750	1.200	47.850	46.275	1.200
3.003	22.405	64.0	375	Circular	47.850	46.275	1.200	47.500	45.925	1.200
3.004	17.660	64.2	375	Circular	47.500	45.925	1.200	47.225	45.650	1.200
3.005	24.153	81.9	375	Circular	47.225	45.650	1.200	47.300	45.355	1.570
3.006	11.493	79.3	375	Circular	47.300	45.355	1.570	47.150	45.210	1.565
1.009	23.334	36.7	450	Circular	47.150	45.135	1.565	45.900	44.500	0.950
1.009a	31.730	317.3	450	Circular	45.900	44.500	0.950	45.900	44.400	1.050
1.010	14.865	148.6	450	Circular	45.900	44.400	1.050	45.900	44.300	1.150
1.011	63.111	140.2	300	Circular	45.900	44.300	1.300	45.350	43.850	1.200
1.012	39.370	46.3	300	Circular	45.350	43.850	1.200	44.500	43.000	1.200
1.013	19.071	146.7	300	Circular	44.500	43.000	1.200	44.500	42.870	1.330
1.014	25.053	147.4	300	Circular	44.500	42.870	1.330	44.350	42.700	1.350
1.015	77.353	148.8	300	Circular	44.350	42.700	1.350	43.800	42.180	1.320
5.000	26.377	150.7	225	Circular	47.125	45.700	1.200	47.300	45.525	1.550
5.001	17.515	13.8	225	Circular	47.300	45.525	1.550	47.000	44.255	2.520
6.000	15.033	100.0	300	Circular	46.200	44.700	1.200	46.600	44.550	1.750
6.001	24.649	100.6	300	Circular	46.600	44.550	1.750	47.125	44.305	2.520
6.002	12.208	97.7	300	Circular	47.125	44.305	2.520	47.000	44.180	2.520
5.002	8.503	189.0	300	Circular	47.000	44.180	2.520	46.750	44.135	2.315
5.003	46.635	37.6	300	Circular	46.750	44.135	2.315	45.250	42.895	2.055
7.000	63.384	99.8	300	Circular	45.100	43.600	1.200	45.250	42.965	1.985
7.001	6.829	97.6	300	Circular	45.250	42.965	1.985	45.250	42.895	2.055

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.001	S12	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
4.000	S13	1350	Manhole	Adoptable	S14	1350	Manhole	Adoptable
4.001	S14	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
3.002	S15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
3.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
3.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
3.005	S18	1350	Manhole	Adoptable	S19	1200	Manhole	Adoptable
3.006	S19	1200	Manhole	Adoptable	S20	1350	Manhole	Adoptable
1.009	S20	1350	Manhole	Adoptable	S21		Junction	
1.009a	S21		Junction		S22		Junction	
1.010	S22		Junction		S23	2100	Manhole	Adoptable
1.011	S23	2100	Manhole	Adoptable	S24	1350	Manhole	Adoptable
1.012	S24	1350	Manhole	Adoptable	S25	1350	Manhole	Adoptable
1.013	S25	1350	Manhole	Adoptable	S26	1350	Manhole	Adoptable
1.014	S26	1350	Manhole	Adoptable	S27	1350	Manhole	Adoptable
1.015	S27	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
5.000	S28	1350	Manhole	Adoptable	S29	1200	Manhole	Adoptable
5.001	S29	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
6.000	S30	1200	Manhole	Adoptable	S31	1200	Manhole	Adoptable
6.001	S31	1200	Manhole	Adoptable	S32	1200	Manhole	Adoptable
6.002	S32	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
5.002	S33	1200	Manhole	Adoptable	S34	1200	Manhole	Adoptable
5.003	S34	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable
7.000	S35	1350	Manhole	Adoptable	S36	1200	Manhole	Adoptable
7.001	S36	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
5.004	16.200	250.0	450	Circular	45.250	42.745	2.055	44.700	42.680	1.570
5.005	44.360	68.2	450	Circular	44.700	42.680	1.570	43.800	42.030	1.320
1.016	13.429	14.4	450	Circular	43.800	42.030	1.320	43.000	41.100	1.450
1.016a	22.706	47.8	450	Circular	43.000	41.100	1.450	42.200	40.625	1.125
8.000	68.920	27.8	300	Circular	50.975	49.475	1.200	48.500	47.000	1.200
8.001	27.643	110.6	375	Circular	48.500	46.925	1.200	48.250	46.675	1.200
8.002	26.771	97.4	375	Circular	48.250	46.675	1.200	47.975	46.400	1.200
8.003	54.096	55.5	450	Circular	47.975	46.325	1.200	47.000	45.350	1.200
8.004	12.906	47.8	450	Circular	47.000	45.350	1.200	46.775	45.080	1.245
8.005	19.268	35.7	450	Circular	46.775	45.080	1.245	46.500	44.540	1.510
9.000	42.620	243.5	300	Circular	48.525	47.025	1.200	48.350	46.850	1.200
9.001	32.921	41.2	375	Circular	48.350	46.775	1.200	47.550	45.975	1.200
9.002	13.103	65.5	375	Circular	47.550	45.975	1.200	47.350	45.775	1.200
9.003	23.812	24.4	375	Circular	47.350	45.775	1.200	46.725	44.800	1.550
9.004	46.463	251.2	450	Circular	46.725	44.725	1.550	46.500	44.540	1.510
8.006	19.085	212.1	600	Circular	46.500	44.390	1.510	46.100	44.300	1.200
8.007	53.980	20.5	600	Circular	46.100	44.300	1.200	44.150	41.670	1.880
10.000	19.665	98.3	225	Circular	46.375	44.950	1.200	46.700	44.750	1.725
10.001	13.367	99.0	300	Circular	46.700	44.675	1.725	46.375	44.540	1.535
10.002	74.213	29.3	300	Circular	46.375	44.540	1.535	43.750	42.005	1.445
10.003	55.686	1591.0	600	Circular	43.750	41.705	1.445	44.150	41.670	1.880
8.008	51.470	72.0	675	Circular	44.150	41.595	1.880	42.950	40.880	1.395
8.009	18.760	73.6	675	Circular	42.950	40.880	1.395	42.950	40.625	1.650
8.010	15.258	610.3	675	Circular	42.950	40.625	1.650	42.700	40.600	1.425
8.011	40.555	202.8	675	Circular	42.700	40.600	1.425	42.200	40.400	1.125

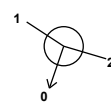
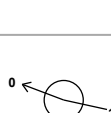
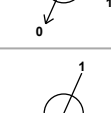
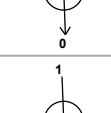
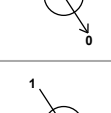
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.004	S37	1350	Manhole	Adoptable	S38	1350	Manhole	Adoptable
5.005	S38	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
1.016	S39	1350	Manhole	Adoptable	S40		Junction	
1.016a	S40		Junction		S62		Junction	
8.000	S41	1350	Manhole	Adoptable	S42	1200	Manhole	Adoptable
8.001	S42	1200	Manhole	Adoptable	S43	1200	Manhole	Adoptable
8.002	S43	1200	Manhole	Adoptable	S44	1200	Manhole	Adoptable
8.003	S44	1200	Manhole	Adoptable	S45	1350	Manhole	Adoptable
8.004	S45	1350	Manhole	Adoptable	S46	1350	Manhole	Adoptable
8.005	S46	1350	Manhole	Adoptable	S52	1350	Manhole	Adoptable
9.000	S47	1200	Manhole	Adoptable	S48	1350	Manhole	Adoptable
9.001	S48	1350	Manhole	Adoptable	S49	1350	Manhole	Adoptable
9.002	S49	1350	Manhole	Adoptable	S50	1350	Manhole	Adoptable
9.003	S50	1350	Manhole	Adoptable	S51	1200	Manhole	Adoptable
9.004	S51	1200	Manhole	Adoptable	S52	1350	Manhole	Adoptable
8.006	S52	1350	Manhole	Adoptable	S53	1350	Manhole	Adoptable
8.007	S53	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
10.000	S54	1350	Manhole	Adoptable	S55	1200	Manhole	Adoptable
10.001	S55	1200	Manhole	Adoptable	S56	1200	Manhole	Adoptable
10.002	S56	1200	Manhole	Adoptable	S57	1350	Manhole	Adoptable
10.003	S57	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
8.008	S58	2100	Manhole	Adoptable	S59	1350	Manhole	Adoptable
8.009	S59	1350	Manhole	Adoptable	S60	1350	Manhole	Adoptable
8.010	S60	1350	Manhole	Adoptable	S61		Junction	
8.011	S61		Junction		S62		Junction	

Pipeline Schedule

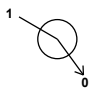
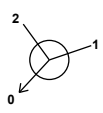
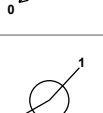
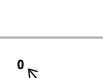
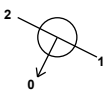
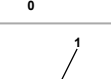
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.017	13.692	456.4	675	Circular	42.200	40.400	1.125	42.200	40.370	1.155
1.018	2.622	174.8	375	Circular	42.200	40.370	1.455	42.000	40.355	1.270

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.017	S62		Junction		S63	2700	Manhole	Adoptable
1.018	S63	2700	Manhole	Adoptable	S64	1200	Manhole	Adoptable

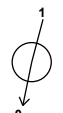
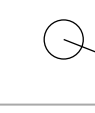
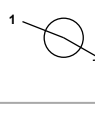
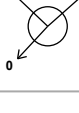
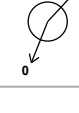
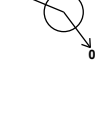
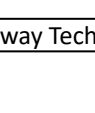
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	510217.869	117309.804	50.650	1.425	1350	 0	1.000	49.225	225
S2	510199.990	117317.737	50.575	1.775	1200	 0	2.000	48.800	225
S3	510207.354	117312.920	50.650	2.015	1200	 1	2.000	48.710	225
						2	1.000	48.710	225
S4	510198.830	117287.966	49.650	1.575	1350	 0	1.001	48.635	300
						1	1.001	48.150	300
S5	510192.742	117259.439	49.500	1.825	1350	 1	1.002	48.075	375
S6	510168.011	117264.856	49.050	1.715	1350	 0	1.002	47.675	375
						1	1.003	47.675	375
S7	510136.486	117276.775	48.450	1.575	1350	 0	1.003	47.335	375
						1	1.004	47.335	375
S8	510125.725	117252.697	47.500	1.650	1350	 1	1.004	46.875	375
						0	1.005	46.875	375
S9	510126.450	117233.579	47.100	1.650	1350	 1	1.005	45.925	375
						0	1.006	45.850	450
S10	510137.466	117216.677	46.900	1.650	1350	 1	1.006	45.450	450
						0	1.007	45.450	450
S10	510137.466	117216.677	46.900	1.650	1350	 1	1.007	45.250	450
						0	1.008	45.250	450

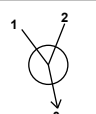
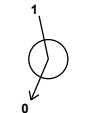
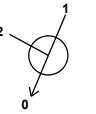
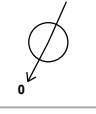
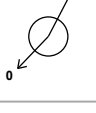
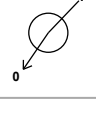
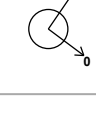
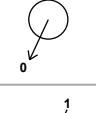
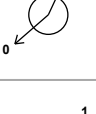
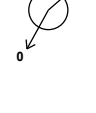
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S11	510222.928	117247.914	49.750	1.425	1350		0	3.000	48.325	225
S12	510238.181	117239.052	49.150	1.425	1350		1	3.000	47.725	225
							0	3.001	47.725	225
S13	510275.499	117224.126	48.550	1.425	1350		0	4.000	47.125	225
S14	510264.141	117224.263	48.425	1.425	1350		1	4.000	47.000	225
							0	4.001	47.000	225
S15	510251.984	117220.111	48.325	1.575	1350		1	4.001	46.900	225
							2	3.001	46.900	225
							0	3.002	46.750	375
S16	510229.514	117195.840	47.850	1.575	1350		1	3.002	46.275	375
							0	3.003	46.275	375
S17	510210.055	117184.735	47.500	1.575	1350		1	3.003	45.925	375
							0	3.004	45.925	375
S18	510193.715	117178.036	47.225	1.575	1350		1	3.004	45.650	375
							0	3.005	45.650	375
S19	510178.040	117196.411	47.300	1.945	1200		1	3.005	45.355	375
							0	3.006	45.355	375
S20	510167.758	117201.547	47.150	2.015	1350		1	3.006	45.210	375
							2	1.008	45.135	450
							0	1.009	45.135	450
S21	510157.332	117180.672	45.900	1.400			1	1.009	44.500	450
							0	1.009a	44.500	450
S22	510126.179	117174.651	45.900	1.500			1	1.009a	44.400	450
							0	1.010	44.400	450
S23	510113.478	117166.928	45.900	1.600	2100		1	1.010	44.300	450
							0	1.011	44.300	300

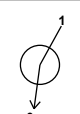
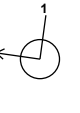
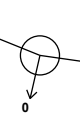
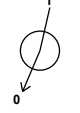
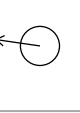
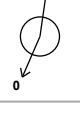
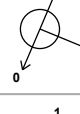
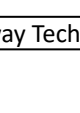
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S24	510089.528	117108.538	45.350	1.500	1350		1	1.011	43.850	300
							0	1.012	43.850	300
S25	510079.463	117070.476	44.500	1.500	1350		1	1.012	43.000	300
							0	1.013	43.000	300
S26	510075.631	117051.794	44.500	1.630	1350		1	1.013	42.870	300
							0	1.014	42.870	300
S27	510100.203	117046.907	44.350	1.650	1350		1	1.014	42.700	300
							0	1.015	42.700	300
S28	510203.209	117149.545	47.125	1.425	1350		0	5.000	45.700	225
S29	510218.193	117127.837	47.300	1.775	1200		1	5.000	45.525	225
							0	5.001	45.525	225
S30	510160.812	117142.303	46.200	1.500	1200		0	6.000	44.700	300
S31	510174.809	117136.819	46.600	2.050	1200		1	6.000	44.550	300
							0	6.001	44.550	300
S32	510196.228	117124.621	47.125	2.820	1200		1	6.001	44.305	300
							0	6.002	44.305	300
S33	510205.085	117116.220	47.000	2.820	1200		1	5.001	44.255	225
							2	6.002	44.180	300
							0	5.002	44.180	300
S34	510199.300	117109.988	46.750	2.615	1200		1	5.002	44.135	300
							0	5.003	44.135	300
S35	510119.407	117096.317	45.100	1.500	1350		0	7.000	43.600	300
S36	510177.986	117072.109	45.250	2.285	1200		1	7.000	42.965	300
							0	7.001	42.965	300

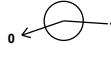
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S37	510182.085	117066.647	45.250	2.505	1350		1 7.001 2 5.003	42.895 42.895	300 300
S38	510185.475	117050.806	44.700	2.020	1350		1 5.004 0 5.005	42.745 42.680	450 450
S39	510168.164	117009.963	43.800	1.770	1350		1 5.005 2 1.015	42.030 42.180	450 300
S40	510162.966	116997.581	43.000	1.900			1 1.016 0 1.016a	42.030 41.100	450 450
S41	510327.972	117263.441	50.975	1.500	1350		0 8.000 1 8.000	49.475 47.000	300 300
S42	510299.910	117200.493	48.500	1.575	1200		0 8.001 1 8.001	46.925 46.675	375 375
S43	510287.138	117175.978	48.250	1.575	1200		0 8.002 1 8.002	46.675 46.400	375 375
S44	510268.634	117156.631	47.975	1.650	1200		0 8.003 1 8.003	46.325 45.350	450 450
S45	510238.052	117112.009	47.000	1.650	1350		0 8.004 1 8.004	45.350 45.080	450 450
S46	510248.394	117104.288	46.775	1.695	1350		0 8.005 1 8.005	45.080 45.080	450 450
S47	510364.633	117185.808	48.525	1.500	1200		0 9.000 1 9.000	47.025 46.850	300 300
S48	510346.623	117147.180	48.350	1.575	1350		0 9.001 1 9.001	46.775 45.975	375 375
S49	510321.771	117125.589	47.550	1.575	1350		0 9.002 1 9.002	45.975 45.975	375 375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S50	510315.443	117114.115	47.350	1.575	1350		1 9.002	45.775	375
S51	510312.259	117090.517	46.725	2.000	1200		1 9.003	44.800	375
S52	510266.261	117097.074	46.500	2.110	1350		1 9.004 2 8.005	44.725 44.540	450 450
S53	510262.007	117078.469	46.100	1.800	1350		1 8.006	44.390	600
S54	510343.342	117086.034	46.375	1.425	1350		1 8.007	44.300	600
S55	510323.878	117088.841	46.700	2.025	1200		1 10.000	44.950	225
S56	510321.970	117075.611	46.375	1.835	1200		1 10.001	44.750	300
S57	510292.373	117007.555	43.750	2.045	1350		1 10.001	44.675	300
S58	510240.894	117028.789	44.150	2.555	2100		1 10.002 2 10.003	44.540 42.005	300 300
S59	510220.675	116981.457	42.950	2.070	1350		1 10.003	41.705	600
S60	510203.368	116988.697	42.950	2.325	1350		1 10.003	41.670	600
S61	510188.721	116984.423	42.700	2.100			1 8.008	41.595	675
S62	510148.389	116980.172	42.200	1.800			1 8.008 2 8.009	40.880 40.880	675 675
							1 8.009 2 8.010	40.880 40.625	675 675
							1 8.010 2 8.011	40.625 40.600	675 675
							1 8.011 2 1.016a	40.600 40.625	675 450
							1 8.011 2 1.017	40.400 40.400	675 675

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S63	510134.728	116981.088	42.200	1.830	2700	1  0	1.017	40.370	675
						0 1	1.018	40.370	375
S64	510132.248	116980.238	42.000	1.645	1200	1 	1.018	40.355	375

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	10080	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	20.0		

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	0	0	0
30	40	0	0
100	45	0	0

Node S23 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	44.300	Product Number	CTL-SHE-0060-1800-1300-1800
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.8	Min Node Diameter (mm)	1200

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	40.370	Product Number	CTL-SHE-0190-1980-1530-1980
Design Depth (m)	1.530	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	19.8	Min Node Diameter (mm)	1800

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	41.000	Product Number	CTL-SCU-0216-4360-0900-4360
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	43.6	Min Node Diameter (mm)	1200

Node S22 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	44.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	7980

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	706.8	706.8	1.200	1491.0	1503.2	1.500	1723.0	1739.0

Node S62 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	40.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	336

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	748.0	748.0	1.500	1830.0	1845.9	1.800	2089.0	2109.2

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	33	49.263	0.038	6.5	0.1082	0.0000	OK
60 minute summer	S2	33	48.847	0.047	4.6	0.0912	0.0000	OK
60 minute summer	S3	33	48.695	0.060	12.6	0.0817	0.0000	OK
60 minute summer	S4	33	48.140	0.065	15.8	0.1346	0.0000	OK
60 minute summer	S5	33	47.754	0.079	22.1	0.1994	0.0000	OK
60 minute summer	S6	33	47.417	0.082	23.2	0.1370	0.0000	OK
60 minute summer	S7	34	46.946	0.071	28.7	0.1833	0.0000	OK
60 minute summer	S8	34	45.927	0.077	30.3	0.1349	0.0000	OK
60 minute summer	S9	34	45.551	0.101	33.3	0.2034	0.0000	OK
60 minute summer	S10	34	45.386	0.136	36.5	0.2830	0.0000	OK
60 minute summer	S11	33	48.359	0.034	4.9	0.0865	0.0000	OK
60 minute summer	S12	33	47.771	0.046	8.7	0.1048	0.0000	OK
60 minute summer	S13	33	47.168	0.043	4.1	0.0997	0.0000	OK
60 minute summer	S14	33	47.047	0.047	4.1	0.0669	0.0000	OK
60 minute summer	S15	33	46.824	0.074	20.4	0.2190	0.0000	OK
60 minute summer	S16	33	46.354	0.079	22.9	0.1535	0.0000	OK
60 minute summer	S17	33	46.003	0.078	22.8	0.1112	0.0000	OK
60 minute summer	S18	34	45.742	0.092	28.2	0.2328	0.0000	OK
60 minute summer	S19	34	45.459	0.104	32.5	0.1942	0.0000	OK
60 minute summer	S20	34	45.243	0.108	69.1	0.1541	0.0000	OK
60 minute summer	S21	34	44.685	0.185	69.0	0.0000	0.0000	OK
960 minute winter	S22	930	44.657	0.257	15.9	203.6476	0.0000	OK
960 minute winter	S23	885	44.663	0.363	7.8	1.2590	0.0000	SURCHARGED
60 minute summer	S24	34	43.899	0.049	9.6	0.1604	0.0000	OK
60 minute summer	S25	34	43.067	0.067	9.5	0.0961	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	6.5	1.521	0.057	0.0469	
60 minute summer	S2	2.000	S3	4.6	0.795	0.087	0.0509	
60 minute summer	S3	1.001	S4	12.6	1.292	0.083	0.2569	
60 minute summer	S4	1.002	S5	15.8	1.063	0.067	0.4332	
60 minute summer	S5	1.003	S6	21.9	1.261	0.095	0.4404	
60 minute summer	S6	1.004	S7	23.1	1.432	0.099	0.5455	
60 minute summer	S7	1.005	S8	28.7	2.023	0.075	0.3744	
60 minute summer	S8	1.006	S9	30.4	1.369	0.065	0.4266	
60 minute summer	S9	1.007	S10	33.3	0.999	0.104	0.6768	
60 minute summer	S10	1.008	S20	36.5	1.053	0.195	1.1784	
60 minute summer	S11	3.000	S12	4.9	1.022	0.051	0.0852	
60 minute summer	S12	3.001	S15	8.7	1.512	0.089	0.1346	
60 minute summer	S13	4.000	S14	4.1	0.738	0.075	0.0633	
60 minute summer	S14	4.001	S15	4.1	0.704	0.089	0.0745	
60 minute summer	S15	3.002	S16	20.3	1.268	0.085	0.5310	
60 minute summer	S16	3.003	S17	22.8	1.376	0.091	0.3720	
60 minute summer	S17	3.004	S18	22.8	1.225	0.091	0.3295	
60 minute summer	S18	3.005	S19	28.2	1.231	0.127	0.5536	
60 minute summer	S19	3.006	S20	32.6	1.389	0.145	0.2700	
60 minute summer	S20	1.009	S21	69.0	1.554	0.129	1.0532	
60 minute summer	S21	1.009a	S22	68.8	2.236	0.381	1.1075	
120 minute summer	S22	1.010	S23	9.9	0.262	0.038	1.0016	
720 minute winter	S23	1.011	S24	1.5	0.568	0.016	0.2067	
60 minute summer	S24	1.012	S25	9.5	1.005	0.058	0.3775	
60 minute summer	S25	1.013	S26	9.5	0.834	0.104	0.2177	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	35	42.935	0.065	9.5	0.0924	0.0000	OK
60 minute summer	S27	35	42.788	0.088	17.3	0.2653	0.0000	OK
60 minute summer	S28	33	45.767	0.067	6.9	0.1969	0.0000	OK
60 minute summer	S29	33	45.559	0.034	6.9	0.0390	0.0000	OK
60 minute summer	S30	33	44.745	0.045	5.3	0.1012	0.0000	OK
60 minute summer	S31	33	44.600	0.050	6.6	0.0674	0.0000	OK
60 minute summer	S32	33	44.354	0.049	6.6	0.0553	0.0000	OK
60 minute summer	S33	33	44.286	0.106	20.4	0.2018	0.0000	OK
60 minute summer	S34	33	44.215	0.080	27.5	0.1598	0.0000	OK
60 minute summer	S35	33	43.663	0.063	11.0	0.2369	0.0000	OK
60 minute summer	S36	34	43.033	0.068	11.0	0.0768	0.0000	OK
60 minute summer	S37	33	42.882	0.137	39.3	0.2162	0.0000	OK
60 minute summer	S38	34	42.787	0.107	43.4	0.2224	0.0000	OK
60 minute summer	S39	34	42.110	0.080	60.2	0.1144	0.0000	OK
60 minute summer	S40	34	41.207	0.107	60.2	0.0000	0.0000	OK
60 minute summer	S41	33	49.530	0.055	15.5	0.2579	0.0000	OK
60 minute summer	S42	33	47.011	0.086	21.2	0.1957	0.0000	OK
60 minute summer	S43	33	46.769	0.094	26.6	0.2079	0.0000	OK
60 minute summer	S44	34	46.408	0.083	33.7	0.2124	0.0000	OK
60 minute summer	S45	34	45.444	0.094	39.4	0.2421	0.0000	OK
60 minute summer	S46	34	45.169	0.089	42.3	0.1774	0.0000	OK
60 minute summer	S47	33	47.117	0.092	14.2	0.3763	0.0000	OK
60 minute summer	S48	33	46.843	0.068	23.3	0.2256	0.0000	OK
60 minute summer	S49	33	46.059	0.084	23.2	0.1197	0.0000	OK
60 minute summer	S50	34	45.837	0.062	23.1	0.0888	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	9.5	0.673	0.104	0.3542	
60 minute summer	S27	1.015	S39	16.9	0.993	0.186	1.3157	
60 minute summer	S28	5.000	S29	6.9	1.039	0.163	0.1797	
60 minute summer	S29	5.001	S33	6.9	1.823	0.049	0.0661	
60 minute summer	S30	6.000	S31	5.3	0.737	0.048	0.1082	
60 minute summer	S31	6.001	S32	6.6	0.866	0.060	0.1879	
60 minute summer	S32	6.002	S33	6.6	0.460	0.058	0.1819	
60 minute summer	S33	5.002	S34	20.3	1.092	0.252	0.1588	
60 minute summer	S34	5.003	S37	27.3	1.850	0.150	0.6884	
60 minute summer	S35	7.000	S36	11.0	0.971	0.099	0.7193	
60 minute summer	S36	7.001	S37	10.9	0.966	0.097	0.0769	
60 minute summer	S37	5.004	S38	39.3	1.141	0.193	0.5602	
60 minute summer	S38	5.005	S39	43.6	1.838	0.111	1.0565	
60 minute summer	S39	1.016	S40	60.2	2.526	0.070	0.3217	
60 minute summer	S40	1.016a	S62	60.1	2.077	0.128	0.6569	
60 minute summer	S41	8.000	S42	15.4	1.756	0.073	0.6050	
60 minute summer	S42	8.001	S43	21.2	1.047	0.111	0.5595	
60 minute summer	S43	8.002	S44	26.3	1.259	0.130	0.5608	
60 minute summer	S44	8.003	S45	33.5	1.520	0.077	1.1951	
60 minute summer	S45	8.004	S46	39.4	1.711	0.084	0.2975	
60 minute summer	S46	8.005	S52	42.4	1.998	0.078	0.4091	
60 minute summer	S47	9.000	S48	14.0	0.783	0.197	0.7618	
60 minute summer	S48	9.001	S49	23.2	1.453	0.074	0.5264	
60 minute summer	S49	9.002	S50	23.1	1.541	0.093	0.1976	
60 minute summer	S50	9.003	S51	23.2	1.988	0.057	0.2775	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	34	44.848	0.123	32.1	0.3192	0.0000	OK
60 minute summer	S52	34	44.556	0.166	74.5	0.2370	0.0000	OK
60 minute summer	S53	34	44.399	0.099	88.4	0.3939	0.0000	OK
60 minute summer	S54	33	44.996	0.046	4.6	0.1119	0.0000	OK
60 minute summer	S55	33	44.716	0.041	4.6	0.0466	0.0000	OK
60 minute summer	S56	33	44.599	0.059	17.3	0.1940	0.0000	OK
60 minute summer	S57	35	41.831	0.126	17.1	0.1804	0.0000	OK
60 minute summer	S58	34	41.739	0.144	110.9	0.6204	0.0000	OK
60 minute summer	S59	34	41.042	0.162	116.7	0.3880	0.0000	OK
60 minute summer	S60	34	40.851	0.226	119.6	0.4417	0.0000	OK
360 minute winter	S61	272	40.794	0.194	43.8	0.0000	0.0000	OK
360 minute winter	S62	272	40.795	0.395	66.6	351.3628	0.0000	OK
360 minute winter	S63	272	40.795	0.425	19.4	2.4307	0.0000	SURCHARGED
360 minute winter	S64	272	40.444	0.089	19.3	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	32.1	0.939	0.158	1.5878	
60 minute summer	S52	8.006	S53	74.5	1.623	0.158	0.8919	
60 minute summer	S53	8.007	S58	88.3	2.975	0.058	1.6017	
60 minute summer	S54	10.000	S55	4.6	0.807	0.088	0.1118	
60 minute summer	S55	10.001	S56	4.6	0.597	0.041	0.1034	
60 minute summer	S56	10.002	S57	17.1	1.778	0.083	0.7120	
60 minute summer	S57	10.003	S58	16.4	0.509	0.096	1.8162	
60 minute summer	S58	8.008	S59	110.7	1.823	0.100	3.1267	
60 minute summer	S59	8.009	S60	116.2	1.374	0.106	1.5990	
60 minute summer	S60	8.010	S61	120.1	1.286	0.319	1.4275	
60 minute summer	S61	8.011	S62	120.5	2.150	0.183	2.5625	
360 minute winter	S62	1.017	S63	19.4	0.185	0.044	3.1010	
360 minute winter	S63	1.018	S64	19.3	0.874	0.128	0.0581	773.1

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	33	49.273	0.048	10.2	0.1362	0.0000	OK
60 minute summer	S2	33	48.859	0.059	7.2	0.1154	0.0000	OK
60 minute summer	S3	33	48.710	0.075	19.8	0.1031	0.0000	OK
60 minute summer	S4	33	48.157	0.082	24.8	0.1688	0.0000	OK
60 minute summer	S5	33	47.776	0.101	34.7	0.2533	0.0000	OK
60 minute summer	S6	33	47.439	0.104	36.6	0.1735	0.0000	OK
60 minute summer	S7	34	46.965	0.090	45.4	0.2319	0.0000	OK
60 minute summer	S8	34	45.948	0.098	47.7	0.1710	0.0000	OK
60 minute summer	S9	34	45.581	0.131	52.4	0.2645	0.0000	OK
60 minute summer	S10	34	45.423	0.173	57.6	0.3593	0.0000	OK
60 minute summer	S11	33	48.368	0.043	7.7	0.1078	0.0000	OK
60 minute summer	S12	33	47.783	0.058	13.7	0.1324	0.0000	OK
60 minute summer	S13	33	47.179	0.054	6.5	0.1269	0.0000	OK
60 minute summer	S14	33	47.059	0.059	6.5	0.0850	0.0000	OK
60 minute summer	S15	33	46.844	0.094	32.2	0.2771	0.0000	OK
60 minute summer	S16	33	46.375	0.100	36.3	0.1951	0.0000	OK
60 minute summer	S17	33	46.025	0.100	36.2	0.1427	0.0000	OK
60 minute summer	S18	33	45.768	0.118	44.8	0.2994	0.0000	OK
60 minute summer	S19	34	45.490	0.135	51.6	0.2508	0.0000	OK
60 minute summer	S20	34	45.271	0.136	109.4	0.1947	0.0000	OK
960 minute winter	S21	945	44.744	0.244	15.8	0.0000	0.0000	OK
960 minute winter	S22	945	44.744	0.344	19.6	281.4861	0.0000	OK
960 minute winter	S23	915	44.749	0.449	7.9	1.5537	0.0000	SURCHARGED
60 minute summer	S24	33	43.911	0.061	15.2	0.2013	0.0000	OK
60 minute summer	S25	33	43.085	0.085	15.2	0.1222	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	10.2	1.725	0.090	0.0648	
60 minute summer	S2	2.000	S3	7.2	0.898	0.137	0.0706	
60 minute summer	S3	1.001	S4	19.8	1.466	0.131	0.3561	
60 minute summer	S4	1.002	S5	24.8	1.201	0.106	0.6042	
60 minute summer	S5	1.003	S6	34.6	1.422	0.149	0.6165	
60 minute summer	S6	1.004	S7	36.4	1.614	0.156	0.7626	
60 minute summer	S7	1.005	S8	45.2	2.295	0.119	0.5199	
60 minute summer	S8	1.006	S9	47.8	1.506	0.102	0.6107	
60 minute summer	S9	1.007	S10	52.6	1.115	0.164	0.9551	
60 minute summer	S10	1.008	S20	57.8	1.200	0.308	1.6351	
60 minute summer	S11	3.000	S12	7.7	1.158	0.080	0.1181	
60 minute summer	S12	3.001	S15	13.7	1.718	0.140	0.1868	
60 minute summer	S13	4.000	S14	6.5	0.830	0.119	0.0891	
60 minute summer	S14	4.001	S15	6.5	0.800	0.142	0.1042	
60 minute summer	S15	3.002	S16	32.2	1.430	0.134	0.7444	
60 minute summer	S16	3.003	S17	36.2	1.542	0.145	0.5261	
60 minute summer	S17	3.004	S18	36.1	1.364	0.144	0.4691	
60 minute summer	S18	3.005	S19	44.6	1.370	0.201	0.7879	
60 minute summer	S19	3.006	S20	51.5	1.560	0.229	0.3799	
60 minute summer	S20	1.009	S21	109.4	1.763	0.205	1.4582	
60 minute summer	S21	1.009a	S22	106.3	2.378	0.589	1.6170	
120 minute winter	S22	1.010	S23	11.4	0.283	0.043	1.5239	
8640 minute winter	S23	1.011	S24	1.5	0.568	0.016	0.1759	
60 minute summer	S24	1.012	S25	15.2	1.140	0.093	0.5277	
60 minute summer	S25	1.013	S26	15.1	0.945	0.164	0.3045	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	34	42.952	0.082	15.1	0.1169	0.0000	OK
60 minute summer	S27	34	42.814	0.114	28.0	0.3431	0.0000	OK
60 minute summer	S28	33	45.784	0.084	10.9	0.2498	0.0000	OK
60 minute summer	S29	33	45.567	0.042	10.9	0.0478	0.0000	OK
60 minute summer	S30	33	44.757	0.057	8.4	0.1281	0.0000	OK
60 minute summer	S31	33	44.614	0.064	10.5	0.0852	0.0000	OK
60 minute summer	S32	33	44.366	0.061	10.5	0.0694	0.0000	OK
60 minute summer	S33	33	44.316	0.136	32.2	0.2584	0.0000	OK
60 minute summer	S34	33	44.237	0.102	43.5	0.2039	0.0000	OK
60 minute summer	S35	33	43.680	0.080	17.4	0.2985	0.0000	OK
60 minute summer	S36	33	43.052	0.087	17.4	0.0986	0.0000	OK
60 minute summer	S37	33	42.919	0.174	62.4	0.2755	0.0000	OK
60 minute summer	S38	33	42.815	0.135	68.8	0.2820	0.0000	OK
60 minute summer	S39	34	42.131	0.101	96.1	0.1446	0.0000	OK
60 minute summer	S40	34	41.236	0.136	96.2	0.0000	0.0000	OK
60 minute summer	S41	33	49.544	0.069	24.4	0.3239	0.0000	OK
60 minute summer	S42	33	47.034	0.109	33.4	0.2494	0.0000	OK
60 minute summer	S43	33	46.795	0.120	41.9	0.2657	0.0000	OK
60 minute summer	S44	33	46.430	0.105	53.3	0.2675	0.0000	OK
60 minute summer	S45	33	45.471	0.121	62.5	0.3104	0.0000	OK
60 minute summer	S46	34	45.193	0.113	66.8	0.2263	0.0000	OK
60 minute summer	S47	33	47.142	0.117	22.3	0.4822	0.0000	OK
60 minute summer	S48	33	46.861	0.086	36.8	0.2829	0.0000	OK
60 minute summer	S49	33	46.082	0.107	36.7	0.1529	0.0000	OK
60 minute summer	S50	33	45.852	0.077	36.5	0.1105	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	15.1	0.762	0.165	0.5004	
60 minute summer	S27	1.015	S39	27.2	1.131	0.300	1.8648	
60 minute summer	S28	5.000	S29	10.9	1.193	0.258	0.2470	
60 minute summer	S29	5.001	S33	10.9	1.842	0.077	0.1214	
60 minute summer	S30	6.000	S31	8.4	0.833	0.076	0.1517	
60 minute summer	S31	6.001	S32	10.5	0.989	0.095	0.2618	
60 minute summer	S32	6.002	S33	10.5	0.520	0.093	0.2529	
60 minute summer	S33	5.002	S34	32.1	1.235	0.398	0.2217	
60 minute summer	S34	5.003	S37	43.3	2.098	0.238	0.9620	
60 minute summer	S35	7.000	S36	17.4	1.092	0.157	1.0117	
60 minute summer	S36	7.001	S37	17.2	1.089	0.153	0.1081	
60 minute summer	S37	5.004	S38	62.2	1.294	0.305	0.7825	
60 minute summer	S38	5.005	S39	68.9	2.079	0.176	1.4766	
60 minute summer	S39	1.016	S40	96.2	2.885	0.113	0.4501	
60 minute summer	S40	1.016a	S62	96.2	2.378	0.205	0.9187	
60 minute summer	S41	8.000	S42	24.3	2.004	0.115	0.8363	
60 minute summer	S42	8.001	S43	33.4	1.172	0.176	0.7879	
60 minute summer	S43	8.002	S44	41.6	1.423	0.205	0.7844	
60 minute summer	S44	8.003	S45	53.1	1.710	0.122	1.6820	
60 minute summer	S45	8.004	S46	62.2	1.904	0.133	0.4217	
60 minute summer	S46	8.005	S52	67.0	2.259	0.124	0.5723	
60 minute summer	S47	9.000	S48	22.1	0.887	0.311	1.0624	
60 minute summer	S48	9.001	S49	36.7	1.644	0.117	0.7369	
60 minute summer	S49	9.002	S50	36.5	1.748	0.148	0.2760	
60 minute summer	S50	9.003	S51	36.5	2.187	0.090	0.4039	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	34	44.882	0.157	51.2	0.4079	0.0000	OK
60 minute summer	S52	34	44.599	0.209	118.0	0.2993	0.0000	OK
60 minute summer	S53	34	44.425	0.125	140.0	0.4975	0.0000	OK
60 minute summer	S54	33	45.008	0.058	7.2	0.1410	0.0000	OK
60 minute summer	S55	33	44.727	0.052	7.2	0.0587	0.0000	OK
60 minute summer	S56	33	44.614	0.074	27.2	0.2443	0.0000	OK
60 minute summer	S57	34	41.862	0.157	27.0	0.2242	0.0000	OK
60 minute summer	S58	34	41.779	0.184	177.3	0.7920	0.0000	OK
60 minute summer	S59	34	41.097	0.217	186.8	0.5186	0.0000	OK
360 minute winter	S60	288	40.926	0.301	58.4	0.5895	0.0000	OK
360 minute winter	S61	288	40.926	0.326	58.4	0.0000	0.0000	OK
360 minute winter	S62	288	40.926	0.526	88.5	493.6035	0.0000	OK
360 minute winter	S63	288	40.926	0.556	20.1	3.1851	0.0000	SURCHARGED
360 minute winter	S64	288	40.445	0.090	19.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	50.9	1.065	0.251	2.2211	
60 minute summer	S52	8.006	S53	118.1	1.848	0.250	1.2373	
60 minute summer	S53	8.007	S58	140.2	3.394	0.092	2.2298	
60 minute summer	S54	10.000	S55	7.2	0.915	0.137	0.1546	
60 minute summer	S55	10.001	S56	7.2	0.672	0.064	0.1440	
60 minute summer	S56	10.002	S57	27.0	2.028	0.131	0.9872	
60 minute summer	S57	10.003	S58	26.8	0.581	0.158	2.5956	
60 minute summer	S58	8.008	S59	177.4	2.001	0.160	4.5697	
60 minute summer	S59	8.009	S60	186.0	1.537	0.170	2.2765	
60 minute summer	S60	8.010	S61	191.1	1.481	0.507	1.9735	
60 minute summer	S61	8.011	S62	191.5	2.226	0.291	4.0553	
180 minute winter	S62	1.017	S63	20.2	0.292	0.046	3.9363	
360 minute winter	S63	1.018	S64	19.8	0.879	0.131	0.0590	1034.1

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	33	49.325	0.100	38.6	0.2852	0.0000	OK
60 minute summer	S2	33	48.928	0.128	27.3	0.2484	0.0000	OK
60 minute summer	S3	33	48.795	0.160	75.0	0.2185	0.0000	OK
60 minute summer	S4	33	48.248	0.173	93.9	0.3571	0.0000	OK
60 minute summer	S5	33	47.896	0.221	131.5	0.5556	0.0000	OK
60 minute summer	S6	33	47.559	0.224	139.1	0.3734	0.0000	OK
60 minute summer	S7	33	47.068	0.193	173.0	0.4963	0.0000	OK
60 minute summer	S8	33	46.073	0.223	182.2	0.3901	0.0000	OK
60 minute summer	S9	35	45.906	0.456	202.4	0.9187	0.0000	SURCHARGED
60 minute summer	S10	35	45.803	0.553	214.9	1.1479	0.0000	SURCHARGED
60 minute summer	S11	33	48.410	0.085	29.2	0.2124	0.0000	OK
60 minute summer	S12	33	47.849	0.124	51.9	0.2812	0.0000	OK
60 minute summer	S13	33	47.242	0.117	24.6	0.2748	0.0000	OK
60 minute summer	S14	33	47.127	0.127	24.6	0.1812	0.0000	OK
60 minute summer	S15	33	46.950	0.200	121.9	0.5900	0.0000	OK
60 minute summer	S16	33	46.494	0.219	137.4	0.4275	0.0000	OK
60 minute summer	S17	33	46.159	0.234	137.4	0.3343	0.0000	OK
60 minute summer	S18	34	45.945	0.295	170.1	0.7477	0.0000	OK
60 minute summer	S19	35	45.788	0.433	196.6	0.8060	0.0000	SURCHARGED
60 minute summer	S20	35	45.621	0.486	403.6	0.6950	0.0000	SURCHARGED
10080 minute winter	S21	7740	45.356	0.856	7.5	0.0000	0.0000	SURCHARGED
10080 minute winter	S22	7740	45.356	0.956	9.2	974.7734	0.0000	SURCHARGED
10080 minute winter	S23	7740	45.356	1.056	7.7	3.6591	0.0000	SURCHARGED
60 minute summer	S24	33	43.968	0.118	54.1	0.3861	0.0000	OK
60 minute summer	S25	33	43.180	0.180	54.0	0.2577	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	38.6	2.430	0.341	0.1743	
60 minute summer	S2	2.000	S3	27.3	1.256	0.519	0.1913	
60 minute summer	S3	1.001	S4	75.0	2.065	0.497	0.9582	
60 minute summer	S4	1.002	S5	94.0	1.605	0.401	1.7073	
60 minute summer	S5	1.003	S6	131.5	1.931	0.567	1.7246	
60 minute summer	S6	1.004	S7	138.9	2.209	0.594	2.1202	
60 minute summer	S7	1.005	S8	172.4	3.216	0.452	1.4140	
60 minute summer	S8	1.006	S9	185.2	1.820	0.395	2.1998	
60 minute summer	S9	1.007	S10	194.8	1.392	0.605	3.1966	
60 minute summer	S10	1.008	S20	212.0	1.458	1.130	5.3649	
60 minute summer	S11	3.000	S12	29.2	1.629	0.303	0.3173	
60 minute summer	S12	3.001	S15	51.9	2.419	0.530	0.5029	
60 minute summer	S13	4.000	S14	24.6	1.122	0.451	0.2494	
60 minute summer	S14	4.001	S15	24.6	1.126	0.537	0.2806	
60 minute summer	S15	3.002	S16	121.9	1.929	0.508	2.0907	
60 minute summer	S16	3.003	S17	137.4	1.978	0.549	1.5569	
60 minute summer	S17	3.004	S18	137.2	1.675	0.549	1.4509	
60 minute summer	S18	3.005	S19	169.7	1.722	0.767	2.4547	
60 minute summer	S19	3.006	S20	191.6	2.033	0.852	1.2676	
60 minute summer	S20	1.009	S21	394.8	2.495	0.738	3.6971	
60 minute summer	S21	1.009a	S22	393.2	2.860	2.177	4.8384	
60 minute winter	S22	1.010	S23	23.9	0.468	0.090	2.3553	
10080 minute winter	S23	1.011	S24	1.6	0.582	0.017	0.1846	
60 minute summer	S24	1.012	S25	54.0	1.558	0.330	1.3725	
60 minute summer	S25	1.013	S26	53.7	1.246	0.587	0.8360	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	35	43.051	0.181	53.7	0.2584	0.0000	OK
60 minute summer	S27	35	43.007	0.307	102.7	0.9261	0.0000	SURCHARGED
60 minute summer	S28	33	45.889	0.189	41.3	0.5610	0.0000	OK
60 minute summer	S29	33	45.608	0.083	41.3	0.0939	0.0000	OK
60 minute summer	S30	33	44.818	0.118	31.8	0.2660	0.0000	OK
60 minute summer	S31	33	44.673	0.123	39.8	0.1643	0.0000	OK
60 minute summer	S32	33	44.594	0.289	39.8	0.3273	0.0000	OK
60 minute summer	S33	33	44.571	0.391	121.3	0.7424	0.0000	SURCHARGED
60 minute summer	S34	33	44.372	0.237	164.1	0.4739	0.0000	OK
60 minute summer	S35	33	43.765	0.165	65.9	0.6192	0.0000	OK
60 minute summer	S36	33	43.188	0.223	66.1	0.2519	0.0000	OK
60 minute summer	S37	33	43.134	0.389	235.7	0.6155	0.0000	OK
60 minute summer	S38	34	42.973	0.293	259.3	0.6107	0.0000	OK
60 minute summer	S39	34	42.246	0.216	355.7	0.3096	0.0000	OK
240 minute winter	S40	228	41.640	0.540	114.5	0.0000	0.0000	SURCHARGED
60 minute summer	S41	33	49.612	0.137	92.4	0.6440	0.0000	OK
60 minute summer	S42	33	47.175	0.250	126.9	0.5724	0.0000	OK
60 minute summer	S43	33	46.950	0.275	159.0	0.6084	0.0000	OK
60 minute summer	S44	33	46.543	0.218	202.8	0.5564	0.0000	OK
60 minute summer	S45	33	45.624	0.274	238.1	0.7041	0.0000	OK
60 minute summer	S46	33	45.326	0.246	255.2	0.4906	0.0000	OK
60 minute summer	S47	33	47.351	0.326	84.5	1.3386	0.0000	SURCHARGED
60 minute summer	S48	33	46.954	0.179	138.9	0.5908	0.0000	OK
60 minute summer	S49	33	46.207	0.232	138.6	0.3322	0.0000	OK
60 minute summer	S50	33	45.923	0.148	138.0	0.2125	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	53.1	0.949	0.581	1.4370	
60 minute summer	S27	1.015	S39	95.5	1.485	1.050	5.0615	
60 minute summer	S28	5.000	S29	41.3	1.643	0.978	0.6461	
60 minute summer	S29	5.001	S33	41.3	1.843	0.293	0.4647	
60 minute summer	S30	6.000	S31	31.8	1.202	0.286	0.3978	
60 minute summer	S31	6.001	S32	39.8	1.232	0.359	1.1933	
60 minute summer	S32	6.002	S33	39.9	0.662	0.355	0.8550	
60 minute summer	S33	5.002	S34	120.9	1.755	1.500	0.5528	
60 minute summer	S34	5.003	S37	163.6	2.758	0.900	2.7921	
60 minute summer	S35	7.000	S36	66.1	1.406	0.594	3.0363	
60 minute summer	S36	7.001	S37	65.0	1.307	0.578	0.3969	
60 minute summer	S37	5.004	S38	235.2	1.828	1.155	2.0626	
60 minute summer	S38	5.005	S39	260.2	2.814	0.664	4.0937	
60 minute summer	S39	1.016	S40	356.1	3.897	0.417	1.2253	
60 minute summer	S40	1.016a	S62	356.3	3.315	0.761	2.9417	
60 minute summer	S41	8.000	S42	92.4	2.594	0.437	2.5572	
60 minute summer	S42	8.001	S43	126.8	1.537	0.667	2.2784	
60 minute summer	S43	8.002	S44	158.5	1.947	0.782	2.1789	
60 minute summer	S44	8.003	S45	202.5	2.284	0.466	4.7925	
60 minute summer	S45	8.004	S46	237.0	2.509	0.506	1.2223	
60 minute summer	S46	8.005	S52	254.7	2.670	0.469	1.8862	
60 minute summer	S47	9.000	S48	83.2	1.228	1.174	2.7099	
60 minute summer	S48	9.001	S49	138.6	2.242	0.443	2.0339	
60 minute summer	S49	9.002	S50	138.0	2.459	0.558	0.7350	
60 minute summer	S50	9.003	S51	137.7	2.184	0.339	1.5714	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	34	45.090	0.365	193.3	0.9499	0.0000	OK
60 minute summer	S52	34	44.830	0.440	446.1	0.6299	0.0000	OK
60 minute summer	S53	33	44.540	0.240	527.8	0.9570	0.0000	OK
60 minute summer	S54	33	45.072	0.122	27.3	0.2983	0.0000	OK
60 minute summer	S55	33	44.785	0.110	27.3	0.1240	0.0000	OK
60 minute summer	S56	33	44.693	0.153	103.0	0.5067	0.0000	OK
60 minute summer	S57	34	42.056	0.351	102.8	0.5021	0.0000	OK
60 minute summer	S58	34	42.021	0.426	671.1	1.8369	0.0000	OK
240 minute winter	S59	228	41.641	0.761	223.8	1.8165	0.0000	SURCHARGED
240 minute winter	S60	228	41.640	1.015	258.9	1.9857	0.0000	SURCHARGED
240 minute winter	S61	232	41.640	1.040	221.9	0.0000	0.0000	SURCHARGED
240 minute winter	S62	232	41.640	1.240	335.5	1481.3670	0.0000	SURCHARGED
240 minute winter	S63	232	41.639	1.269	53.9	7.2653	0.0000	SURCHARGED
240 minute winter	S64	232	40.507	0.152	53.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	192.4	1.510	0.947	5.8997	
60 minute summer	S52	8.006	S53	444.7	2.702	0.943	3.1147	
60 minute summer	S53	8.007	S58	531.6	3.919	0.349	7.4547	
60 minute summer	S54	10.000	S55	27.3	1.293	0.521	0.4153	
60 minute summer	S55	10.001	S56	27.3	0.921	0.245	0.3972	
60 minute summer	S56	10.002	S57	102.8	2.903	0.499	2.6288	
60 minute summer	S57	10.003	S58	100.6	0.632	0.592	9.5376	
60 minute summer	S58	8.008	S59	670.2	2.374	0.606	14.7594	
60 minute summer	S59	8.009	S60	697.4	1.988	0.637	6.5331	
60 minute summer	S60	8.010	S61	717.8	2.080	1.904	5.4468	
60 minute summer	S61	8.011	S62	710.9	2.517	1.082	14.4772	
240 minute winter	S62	1.017	S63	53.9	0.359	0.123	4.8877	
240 minute winter	S63	1.018	S64	53.8	1.154	0.357	0.1224	2714.9

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	32	49.342	0.117	51.0	0.3343	0.0000	OK
60 minute summer	S2	33	48.954	0.154	36.0	0.2994	0.0000	OK
60 minute summer	S3	33	48.827	0.192	99.0	0.2632	0.0000	OK
60 minute summer	S4	33	48.284	0.209	124.0	0.4312	0.0000	OK
60 minute summer	S5	33	47.947	0.272	173.6	0.6845	0.0000	OK
60 minute summer	S6	33	47.608	0.273	183.7	0.4553	0.0000	OK
60 minute summer	S7	34	47.168	0.293	228.5	0.7533	0.0000	OK
60 minute summer	S8	35	46.820	0.970	232.3	1.6947	0.0000	SURCHARGED
60 minute summer	S9	35	46.675	1.225	250.5	2.4656	0.0000	SURCHARGED
60 minute summer	S10	35	46.494	1.244	272.9	2.5809	0.0000	SURCHARGED
60 minute summer	S11	33	48.424	0.099	38.5	0.2481	0.0000	OK
60 minute summer	S12	33	47.875	0.150	68.5	0.3402	0.0000	OK
60 minute summer	S13	35	47.349	0.224	32.5	0.5247	0.0000	OK
60 minute summer	S14	35	47.309	0.309	32.5	0.4417	0.0000	SURCHARGED
60 minute summer	S15	35	47.261	0.511	161.1	1.5087	0.0000	SURCHARGED
60 minute summer	S16	35	47.067	0.792	177.8	1.5454	0.0000	SURCHARGED
60 minute summer	S17	35	46.882	0.957	161.9	1.3701	0.0000	SURCHARGED
60 minute summer	S18	35	46.726	1.076	198.8	2.7290	0.0000	SURCHARGED
60 minute summer	S19	35	46.426	1.071	221.0	1.9939	0.0000	SURCHARGED
60 minute summer	S20	35	46.182	1.047	490.6	1.4980	0.0000	SURCHARGED
10080 minute winter	S21	7860	45.552	1.052	8.9	0.0000	0.0000	SURCHARGED
10080 minute winter	S22	7860	45.552	1.152	9.6	1248.0660	0.0000	SURCHARGED
10080 minute winter	S23	7860	45.552	1.252	6.8	4.3374	0.0000	SURCHARGED
60 minute summer	S24	33	43.987	0.137	71.1	0.4494	0.0000	OK
60 minute summer	S25	35	43.550	0.550	71.0	0.7875	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	51.0	2.480	0.450	0.2286	
60 minute summer	S2	2.000	S3	36.0	1.334	0.685	0.2373	
60 minute summer	S3	1.001	S4	99.0	2.190	0.656	1.1918	
60 minute summer	S4	1.002	S5	124.1	1.664	0.529	2.1677	
60 minute summer	S5	1.003	S6	173.7	2.023	0.748	2.1740	
60 minute summer	S6	1.004	S7	183.5	2.358	0.784	2.9860	
60 minute summer	S7	1.005	S8	219.5	3.300	0.576	2.6715	
60 minute summer	S8	1.006	S9	227.7	1.820	0.486	3.0313	
60 minute summer	S9	1.007	S10	247.7	1.564	0.770	3.1966	
60 minute summer	S10	1.008	S20	270.3	1.706	1.441	5.3649	
60 minute summer	S11	3.000	S12	38.5	1.767	0.400	0.3952	
60 minute summer	S12	3.001	S15	68.5	2.550	0.700	0.7634	
60 minute summer	S13	4.000	S14	32.5	1.180	0.596	0.4515	
60 minute summer	S14	4.001	S15	32.5	1.191	0.709	0.5109	
60 minute summer	S15	3.002	S16	157.3	1.977	0.655	3.6481	
60 minute summer	S16	3.003	S17	161.9	2.012	0.646	2.4712	
60 minute summer	S17	3.004	S18	157.5	1.658	0.630	1.9478	
60 minute summer	S18	3.005	S19	190.5	1.729	0.861	2.6640	
60 minute summer	S19	3.006	S20	220.6	2.023	0.981	1.2676	
60 minute summer	S20	1.009	S21	490.7	3.097	0.918	3.6971	
60 minute summer	S21	1.009a	S22	490.4	3.193	2.715	5.0274	
60 minute summer	S22	1.010	S23	24.6	0.467	0.093	2.3553	
10080 minute winter	S23	1.011	S24	1.8	0.598	0.019	0.1963	
60 minute summer	S24	1.012	S25	71.0	1.628	0.434	2.0018	
60 minute summer	S25	1.013	S26	63.9	1.260	0.698	1.3430	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	35	43.464	0.594	63.9	0.8507	0.0000	SURCHARGED
60 minute summer	S27	35	43.356	0.656	125.6	1.9811	0.0000	SURCHARGED
60 minute summer	S28	33	46.054	0.354	54.6	1.0473	0.0000	SURCHARGED
60 minute summer	S29	35	45.642	0.117	53.5	0.1321	0.0000	OK
60 minute summer	S30	35	45.289	0.589	42.0	1.3263	0.0000	SURCHARGED
60 minute summer	S31	35	45.266	0.715	54.8	0.9559	0.0000	SURCHARGED
60 minute summer	S32	35	45.211	0.906	58.7	1.0243	0.0000	SURCHARGED
60 minute summer	S33	35	45.177	0.997	144.5	1.8913	0.0000	SURCHARGED
60 minute summer	S34	35	44.921	0.786	193.7	1.5741	0.0000	SURCHARGED
60 minute summer	S35	33	43.797	0.197	87.1	0.7386	0.0000	OK
60 minute summer	S36	34	43.339	0.374	87.1	0.4235	0.0000	SURCHARGED
60 minute summer	S37	34	43.263	0.518	284.3	0.8193	0.0000	SURCHARGED
60 minute summer	S38	34	43.019	0.339	315.5	0.7059	0.0000	OK
60 minute summer	S39	34	42.278	0.248	434.3	0.3545	0.0000	OK
240 minute winter	S40	232	41.901	0.801	145.7	0.0000	0.0000	SURCHARGED
60 minute summer	S41	33	49.637	0.162	122.1	0.7588	0.0000	OK
60 minute summer	S42	34	47.289	0.364	167.6	0.8335	0.0000	OK
60 minute summer	S43	33	47.074	0.399	205.9	0.8816	0.0000	SURCHARGED
60 minute summer	S44	33	46.581	0.256	260.6	0.6527	0.0000	OK
60 minute summer	S45	33	45.683	0.333	306.8	0.8570	0.0000	OK
60 minute summer	S46	33	45.382	0.302	331.0	0.6024	0.0000	OK
60 minute summer	S47	33	47.559	0.534	111.6	2.1921	0.0000	SURCHARGED
60 minute summer	S48	33	46.990	0.215	183.4	0.7105	0.0000	OK
60 minute summer	S49	33	46.256	0.281	183.1	0.4022	0.0000	OK
60 minute summer	S50	33	45.956	0.181	182.6	0.2590	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	64.1	0.949	0.701	1.7642	
60 minute summer	S27	1.015	S39	120.7	1.716	1.327	5.2701	
60 minute summer	S28	5.000	S29	53.5	1.629	1.267	0.7990	
60 minute summer	S29	5.001	S33	52.8	1.849	0.375	0.5305	
60 minute summer	S30	6.000	S31	44.3	1.232	0.398	1.0586	
60 minute summer	S31	6.001	S32	58.7	1.241	0.530	1.7358	
60 minute summer	S32	6.002	S33	65.1	0.924	0.579	0.8597	
60 minute summer	S33	5.002	S34	144.1	2.046	1.787	0.5988	
60 minute summer	S34	5.003	S37	193.5	2.770	1.064	3.2840	
60 minute summer	S35	7.000	S36	87.1	1.432	0.783	3.7852	
60 minute summer	S36	7.001	S37	85.9	1.287	0.764	0.4809	
60 minute summer	S37	5.004	S38	284.2	1.858	1.395	2.3198	
60 minute summer	S38	5.005	S39	315.4	2.885	0.805	4.8210	
60 minute summer	S39	1.016	S40	433.7	3.950	0.508	1.5999	
60 minute summer	S40	1.016a	S62	431.3	3.346	0.920	3.5976	
60 minute summer	S41	8.000	S42	122.1	2.590	0.578	3.6943	
60 minute summer	S42	8.001	S43	163.4	1.580	0.859	3.0366	
60 minute summer	S43	8.002	S44	202.0	2.012	0.996	2.8374	
60 minute summer	S44	8.003	S45	259.8	2.375	0.598	5.9242	
60 minute summer	S45	8.004	S46	307.0	2.578	0.655	1.5410	
60 minute summer	S46	8.005	S52	331.4	2.653	0.611	2.4602	
60 minute summer	S47	9.000	S48	109.8	1.570	1.549	2.8614	
60 minute summer	S48	9.001	S49	183.1	2.365	0.586	2.5366	
60 minute summer	S49	9.002	S50	182.6	2.579	0.738	0.9254	
60 minute summer	S50	9.003	S51	181.9	2.175	0.448	1.9398	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.45%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	33	45.255	0.530	255.5	1.3797	0.0000	SURCHARGED
60 minute summer	S52	33	44.919	0.529	585.0	0.7570	0.0000	OK
60 minute summer	S53	33	44.578	0.278	699.7	1.1099	0.0000	OK
60 minute summer	S54	33	45.097	0.147	36.0	0.3587	0.0000	OK
60 minute summer	S55	33	44.805	0.130	36.0	0.1468	0.0000	OK
60 minute summer	S56	33	44.721	0.181	136.0	0.5998	0.0000	OK
60 minute summer	S57	35	42.596	0.891	139.8	1.2744	0.0000	SURCHARGED
60 minute summer	S58	35	42.585	0.990	860.9	4.2638	0.0000	SURCHARGED
60 minute summer	S59	35	42.050	1.170	877.6	2.7937	0.0000	SURCHARGED
240 minute winter	S60	232	41.901	1.276	302.0	2.4962	0.0000	SURCHARGED
240 minute winter	S61	232	41.901	1.301	288.0	0.0000	0.0000	SURCHARGED
240 minute winter	S62	232	41.900	1.500	430.3	1933.9860	0.0000	FLOOD RISK
240 minute winter	S63	232	41.899	1.529	62.2	8.7567	0.0000	SURCHARGED
240 minute winter	S64	232	40.520	0.165	62.2	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	254.3	1.620	1.251	6.9906	
60 minute summer	S52	8.006	S53	584.6	2.909	1.240	3.7309	
60 minute summer	S53	8.007	S58	698.5	3.928	0.458	11.0388	
60 minute summer	S54	10.000	S55	36.0	1.373	0.687	0.5157	
60 minute summer	S55	10.001	S56	35.9	0.993	0.322	0.4922	
60 minute summer	S56	10.002	S57	139.8	3.068	0.678	4.1643	
60 minute summer	S57	10.003	S58	121.5	0.722	0.715	15.6855	
60 minute summer	S58	8.008	S59	835.6	2.374	0.755	18.3737	
60 minute summer	S59	8.009	S60	877.0	2.457	0.802	6.6969	
60 minute summer	S60	8.010	S61	901.9	2.527	2.393	5.4468	
60 minute summer	S61	8.011	S62	901.2	2.731	1.371	14.4772	
240 minute winter	S62	1.017	S63	62.2	0.331	0.142	4.8877	
240 minute winter	S63	1.018	S64	62.2	1.199	0.412	0.1360	3361.4

Appendix H2

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	1	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	1.000
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	x
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Circular Link Type

Shape	Circular	Auto Increment (mm)	75
Barrels	1	Follow Ground	x

Available Diameters (mm)

100 | 150

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.102	5.00	50.650	1350	510217.869	117309.804	1.425
S2	0.072	5.00	50.575	1200	510199.990	117317.737	1.775
S3	0.024	5.00	50.650	1200	510207.354	117312.920	2.015
S4	0.050	5.00	49.650	1350	510198.830	117287.966	1.575
S5	0.099	5.00	49.500	1350	510192.742	117259.439	1.825
S6	0.020	5.00	49.050	1350	510168.011	117264.856	1.715
S7	0.090	5.00	48.450	1350	510136.486	117276.775	1.575
S8	0.026	5.00	47.500	1350	510125.725	117252.697	1.650
S9	0.048	5.00	47.100	1350	510126.450	117233.579	1.650
S10	0.053	5.00	46.900	1350	510137.466	117216.677	1.650
S11	0.077	5.00	49.750	1350	510222.928	117247.914	1.425
S12	0.060	5.00	49.150	1350	510238.181	117239.052	1.425
S13	0.065	5.00	48.550	1350	510275.499	117224.126	1.425
S14			48.425	1350	510264.141	117224.263	1.425
S15	0.120	5.00	48.325	1350	510251.984	117220.111	1.575
S16	0.041	5.00	47.850	1350	510229.514	117195.840	1.575
S17			47.500	1350	510210.055	117184.735	1.575
S18	0.087	5.00	47.225	1350	510193.715	117178.036	1.575
S19	0.071	5.00	47.300	1200	510178.040	117196.411	1.945
S20			47.150	1350	510167.758	117201.547	2.015
S21			45.900		510157.332	117180.672	1.400
S22			45.900		510126.179	117174.651	1.500
S23			45.900	2100	510113.478	117166.928	1.600
S24	0.139	5.00	45.350	1350	510089.528	117108.538	1.500
S25			44.500	1350	510079.463	117070.476	1.500
S26			44.500	1350	510075.631	117051.794	1.630
S27	0.131	5.00	44.350	1350	510100.203	117046.907	1.650
S28	0.109	5.00	47.125	1350	510203.209	117149.545	1.425
S29			47.300	1200	510218.193	117127.837	1.775
S30	0.084	5.00	46.200	1200	510160.812	117142.303	1.500
S31	0.021	5.00	46.600	1200	510174.809	117136.819	2.050
S32			47.125	1200	510196.228	117124.621	2.820
S33	0.108	5.00	47.000	1200	510205.085	117116.220	2.820
S34	0.114	5.00	46.750	1200	510199.300	117109.988	2.615

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S35	0.174	5.00	45.100	1350	510119.407	117096.317	1.500
S36			45.250	1200	510177.986	117072.109	2.285
S37	0.019	5.00	45.250	1350	510182.085	117066.647	2.505
S38	0.066	5.00	44.700	1350	510185.475	117050.806	2.020
S39			43.800	1350	510168.164	117009.963	1.770
S40			43.000		510162.966	116997.581	1.900
S41	0.244	5.00	50.975	1350	510327.972	117263.441	1.500
S42	0.091	5.00	48.500	1200	510299.910	117200.493	1.575
S43	0.085	5.00	48.250	1200	510287.138	117175.978	1.575
S44	0.117	5.00	47.975	1200	510268.634	117156.631	1.650
S45	0.094	5.00	47.000	1350	510238.052	117112.009	1.650
S46	0.048	5.00	46.775	1350	510248.394	117104.288	1.695
S47	0.223	5.00	48.525	1200	510364.633	117185.808	1.500
S48	0.147	5.00	48.350	1350	510346.623	117147.180	1.575
S49			47.550	1350	510321.771	117125.589	1.575
S50			47.350	1350	510315.443	117114.115	1.575
S51	0.147	5.00	46.725	1200	510312.259	117090.517	2.000
S52			46.500	1350	510266.261	117097.074	2.110
S53	0.230	5.00	46.100	1350	510262.007	117078.469	1.800
S54	0.072	5.00	46.375	1350	510343.342	117086.034	1.425
S55			46.700	1200	510323.878	117088.841	2.025
S56	0.200	5.00	46.375	1200	510321.970	117075.611	1.835
S57			43.750	1350	510292.373	117007.555	2.045
S58	0.108	5.00	44.150	2100	510240.894	117028.789	2.555
S59	0.099	5.00	42.950	1350	510220.675	116981.457	2.070
S60	0.061	5.00	42.950	1350	510203.368	116988.697	2.325
S61			42.700		510188.721	116984.423	2.100
S62			42.200		510148.389	116980.172	1.800
S63			42.200	2700	510134.728	116981.088	1.830
S64			42.000	1200	510132.248	116980.238	1.645

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	S1	S3	10.967	0.600	49.225	48.710	0.515	21.3	225	5.06	37.9
2.000	S2	S3	8.800	0.600	48.800	48.710	0.090	97.8	225	5.11	37.7
1.001	S3	S4	26.370	0.600	48.635	48.150	0.485	54.4	300	5.32	37.1
1.002	S4	S5	29.169	0.600	48.075	47.675	0.400	73.0	375	5.55	36.4
1.003	S5	S6	25.317	0.600	47.675	47.335	0.340	74.5	375	5.75	35.8
1.004	S6	S7	33.703	0.600	47.335	46.875	0.460	73.3	375	6.01	35.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.848	113.2	14.0	1.200	1.715	0.102	0.0	53	1.953
2.000	1.322	52.6	9.8	1.550	1.715	0.072	0.0	65	1.016
1.001	2.136	151.0	26.6	1.715	1.200	0.198	0.0	85	1.621
1.002	2.122	234.4	32.6	1.200	1.450	0.248	0.0	94	1.513
1.003	2.101	232.1	44.9	1.450	1.340	0.347	0.0	111	1.638
1.004	2.119	234.0	46.4	1.340	1.200	0.367	0.0	112	1.663

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)
1.005	S7	S8	26.373	0.600	46.875	45.925	0.950	27.8	375	6.14	34.6
1.006	S8	S9	19.132	0.600	45.850	45.450	0.400	47.8	450	6.25	34.4
1.007	S9	S10	20.175	0.600	45.450	45.250	0.200	100.9	450	6.41	33.9
1.008	S10	S20	33.860	0.600	45.250	45.135	0.115	294.4	450	6.89	32.7
3.000	S11	S12	17.641	0.600	48.325	47.725	0.600	29.4	225	5.12	37.7
3.001	S12	S15	23.437	0.600	47.725	46.900	0.825	28.4	225	5.28	37.2
4.000	S13	S14	11.359	0.600	47.125	47.000	0.125	90.9	225	5.14	37.7
4.001	S14	S15	12.846	0.600	47.000	46.900	0.100	128.5	225	5.32	37.1
3.002	S15	S16	33.075	0.600	46.750	46.275	0.475	69.6	375	5.58	36.3
3.003	S16	S17	22.405	0.600	46.275	45.925	0.350	64.0	375	5.74	35.8
3.004	S17	S18	17.660	0.600	45.925	45.650	0.275	64.2	375	5.87	35.4
3.005	S18	S19	24.153	0.600	45.650	45.355	0.295	81.9	375	6.07	34.8
3.006	S19	S20	11.493	0.600	45.355	45.210	0.145	79.3	375	6.17	34.6
1.009	S20	S21	23.334	0.600	45.135	44.500	0.635	36.7	450	7.01	32.4
1.009a	S21	S22	31.730	0.600	44.500	44.400	0.100	317.3	450	7.47	31.4
1.010	S22	S23	14.865	0.600	44.400	44.300	0.100	148.6	450	7.62	31.1
1.011	S23	S24	63.111	0.600	44.300	43.850	0.450	140.2	300	8.42	29.6
1.012	S24	S25	39.370	0.600	43.850	43.000	0.850	46.3	300	8.70	29.1
1.013	S25	S26	19.071	0.600	43.000	42.870	0.130	146.7	300	8.94	28.6
1.014	S26	S27	25.053	0.600	42.870	42.700	0.170	147.4	300	9.27	28.1
1.015	S27	S39	77.353	0.600	42.700	42.180	0.520	148.8	300	10.27	26.6
5.000	S28	S29	26.377	0.600	45.700	45.525	0.175	150.7	225	5.41	36.8
5.001	S29	S33	17.515	0.600	45.525	44.255	1.270	13.8	225	5.50	36.6
6.000	S30	S31	15.033	0.600	44.700	44.550	0.150	100.0	300	5.16	37.6

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)
1.005	3.450	381.0	57.2	1.200	1.200	0.457	0.0	98	2.514
1.006	2.945	468.4	60.0	1.200	1.200	0.483	0.0	108	2.050
1.007	2.024	321.9	65.1	1.200	1.200	0.531	0.0	137	1.601
1.008	1.179	187.6	69.1	1.200	1.565	0.584	0.0	189	1.093
3.000	2.422	96.3	10.5	1.200	1.200	0.077	0.0	50	1.597
3.001	2.464	98.0	18.4	1.200	1.200	0.137	0.0	65	1.896
4.000	1.372	54.5	8.8	1.200	1.200	0.065	0.0	61	1.015
4.001	1.152	45.8	8.7	1.200	1.200	0.065	0.0	66	0.891
3.002	2.173	240.1	42.2	1.200	1.200	0.322	0.0	106	1.652
3.003	2.267	250.4	47.0	1.200	1.200	0.363	0.0	109	1.755
3.004	2.264	250.0	46.4	1.200	1.200	0.363	0.0	109	1.746
3.005	2.003	221.3	56.6	1.200	1.570	0.450	0.0	129	1.685
3.006	2.036	224.9	65.1	1.570	1.565	0.521	0.0	137	1.770
1.009	3.362	534.7	129.5	1.565	0.950	1.105	0.0	150	2.790
1.009a	1.136	180.6	125.6	0.950	1.050	1.105	0.0	277	1.224
1.010	1.665	264.8	124.3	1.050	1.150	1.105	0.0	217	1.639
1.011	1.325	93.7	118.1	1.300	1.200	1.105	0.0	300	1.342
1.012	2.316	163.7	130.7	1.200	1.200	1.244	0.0	204	2.562
1.013	1.296	91.6	128.7	1.200	1.330	1.244	0.0	300	1.312
1.014	1.293	91.4	126.3	1.330	1.350	1.244	0.0	300	1.309
1.015	1.287	90.9	132.2	1.350	1.320	1.375	0.0	300	1.303
5.000	1.062	42.2	14.5	1.200	1.550	0.109	0.0	91	0.966
5.001	3.542	140.8	14.4	1.550	2.520	0.109	0.0	48	2.289
6.000	1.572	111.1	11.4	1.200	1.750	0.084	0.0	65	1.026

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
6.001	S31	S32	24.649	0.600	44.550	44.305	0.245	100.6	300	5.42	36.8
6.002	S32	S33	12.208	0.600	44.305	44.180	0.125	97.7	300	5.55	36.4
5.002	S33	S34	8.503	0.600	44.180	44.135	0.045	189.0	300	5.67	36.0
5.003	S34	S37	46.635	0.600	44.135	42.895	1.240	37.6	300	5.98	35.1
7.000	S35	S36	63.384	0.600	43.600	42.965	0.635	99.8	300	5.67	36.0
7.001	S36	S37	6.829	0.600	42.965	42.895	0.070	97.6	300	5.74	35.8
5.004	S37	S38	16.200	0.600	42.745	42.680	0.065	250.0	450	6.19	34.5
5.005	S38	S39	44.360	0.600	42.680	42.030	0.650	68.2	450	6.49	33.8
1.016	S39	S40	13.429	0.600	42.030	41.100	0.930	14.4	450	10.31	26.5
1.016a	S40	S62	22.706	0.600	41.100	40.625	0.475	47.8	450	10.44	26.4
8.000	S41	S42	68.920	0.600	49.475	47.000	2.475	27.8	300	5.38	36.9
8.001	S42	S43	27.643	0.600	46.925	46.675	0.250	110.6	375	5.65	36.1
8.002	S43	S44	26.771	0.600	46.675	46.400	0.275	97.4	375	5.89	35.3
8.003	S44	S45	54.096	0.600	46.325	45.350	0.975	55.5	450	6.22	34.4
8.004	S45	S46	12.906	0.600	45.350	45.080	0.270	47.8	450	6.30	34.2
8.005	S46	S52	19.268	0.600	45.080	44.540	0.540	35.7	450	6.39	34.0
9.000	S47	S48	42.620	0.600	47.025	46.850	0.175	243.5	300	5.71	35.9
9.001	S48	S49	32.921	0.600	46.775	45.975	0.800	41.2	375	5.90	35.3
9.002	S49	S50	13.103	0.600	45.975	45.775	0.200	65.5	375	6.00	35.0
9.003	S50	S51	23.812	0.600	45.775	44.800	0.975	24.4	375	6.11	34.7
9.004	S51	S52	46.463	0.600	44.725	44.540	0.185	251.2	450	6.71	33.2
8.006	S52	S53	19.085	0.600	44.390	44.300	0.090	212.1	600	6.90	32.7
8.007	S53	S58	53.980	0.600	44.300	41.670	2.630	20.5	600	7.07	32.3
10.000	S54	S55	19.665	0.600	44.950	44.750	0.200	98.3	225	5.25	37.3

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)
6.001	1.567	110.8	14.0	1.750	2.520	0.105	0.0	71	1.079
6.002	1.591	112.4	13.8	2.520	2.520	0.105	0.0	71	1.091
5.002	1.140	80.6	41.9	2.520	2.315	0.322	0.0	154	1.152
5.003	2.571	181.8	55.3	2.315	2.055	0.436	0.0	113	2.268
7.000	1.573	111.2	22.6	1.200	1.985	0.174	0.0	91	1.241
7.001	1.592	112.5	22.5	1.985	2.055	0.174	0.0	91	1.251
5.004	1.281	203.7	78.5	2.055	1.570	0.629	0.0	194	1.202
5.005	2.463	391.8	84.8	1.570	1.320	0.695	0.0	141	1.981
1.016	5.371	854.2	198.5	1.320	1.450	2.070	0.0	146	4.405
1.016a	2.946	468.5	197.2	1.450	1.125	2.070	0.0	203	2.825
8.000	2.990	211.4	32.5	1.200	1.200	0.244	0.0	79	2.183
8.001	1.722	190.2	43.7	1.200	1.200	0.335	0.0	122	1.409
8.002	1.836	202.8	53.6	1.200	1.200	0.420	0.0	131	1.557
8.003	2.733	434.7	66.8	1.200	1.200	0.537	0.0	118	2.002
8.004	2.946	468.5	78.1	1.200	1.245	0.631	0.0	123	2.209
8.005	3.412	542.6	83.4	1.245	1.510	0.679	0.0	118	2.500
9.000	1.003	70.9	28.9	1.200	1.200	0.223	0.0	133	0.953
9.001	2.831	312.7	47.2	1.200	1.200	0.370	0.0	98	2.062
9.002	2.241	247.5	46.8	1.200	1.200	0.370	0.0	109	1.734
9.003	3.679	406.3	46.4	1.200	1.550	0.370	0.0	85	2.474
9.004	1.278	203.3	62.0	1.550	1.510	0.517	0.0	170	1.128
8.006	1.668	471.6	141.3	1.510	1.200	1.196	0.0	224	1.466
8.007	5.390	1524.1	166.5	1.200	1.880	1.426	0.0	132	3.596
10.000	1.318	52.4	9.7	1.200	1.725	0.072	0.0	65	1.013

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)
10.001	S55	S56	13.367	0.600	44.675	44.540	0.135	99.0	300	5.39	36.9
10.002	S56	S57	74.213	0.600	44.540	42.005	2.535	29.3	300	5.81	35.6
10.003	S57	S58	55.686	0.600	41.705	41.670	0.035	1591.0	600	7.36	31.7
8.008	S58	S59	51.470	0.600	41.595	40.880	0.715	72.0	675	7.63	31.1
8.009	S59	S60	18.760	0.600	40.880	40.625	0.255	73.6	675	7.74	30.9
8.010	S60	S61	15.258	0.600	40.625	40.600	0.025	610.3	675	7.98	30.4
8.011	S61	S62	40.555	0.600	40.600	40.400	0.200	202.8	675	8.35	29.7
1.017	S62	S63	13.692	0.600	40.400	40.370	0.030	456.4	675	10.63	26.1
1.018	S63	S64	2.622	0.600	40.370	40.355	0.015	174.8	375	10.66	26.1

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)
10.001	1.580	111.7	9.6	1.725	1.535	0.072	0.0	59	0.975
10.002	2.916	206.1	35.0	1.535	1.445	0.272	0.0	83	2.188
10.003	0.601	170.0	31.2	1.445	1.880	0.272	0.0	173	0.462
8.008	3.091	1106.0	203.0	1.880	1.395	1.806	0.0	194	2.383
8.009	3.057	1094.1	212.6	1.395	1.650	1.905	0.0	200	2.395
8.010	1.053	376.9	215.8	1.650	1.425	1.966	0.0	367	1.087
8.011	1.837	657.2	211.0	1.425	1.125	1.966	0.0	262	1.644
1.017	1.220	436.6	380.8	1.125	1.155	4.036	0.0	491	1.366
1.018	1.367	151.0	380.2	1.455	1.270	4.036	0.0	375	1.385

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	10.967	21.3	225	Circular	50.650	49.225	1.200	50.650	48.710	1.715
2.000	8.800	97.8	225	Circular	50.575	48.800	1.550	50.650	48.710	1.715
1.001	26.370	54.4	300	Circular	50.650	48.635	1.715	49.650	48.150	1.200
1.002	29.169	73.0	375	Circular	49.650	48.075	1.200	49.500	47.675	1.450
1.003	25.317	74.5	375	Circular	49.500	47.675	1.450	49.050	47.335	1.340
1.004	33.703	73.3	375	Circular	49.050	47.335	1.340	48.450	46.875	1.200
1.005	26.373	27.8	375	Circular	48.450	46.875	1.200	47.500	45.925	1.200
1.006	19.132	47.8	450	Circular	47.500	45.850	1.200	47.100	45.450	1.200
1.007	20.175	100.9	450	Circular	47.100	45.450	1.200	46.900	45.250	1.200
1.008	33.860	294.4	450	Circular	46.900	45.250	1.200	47.150	45.135	1.565
3.000	17.641	29.4	225	Circular	49.750	48.325	1.200	49.150	47.725	1.200

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	S1	1350	Manhole	Adoptable	S3	1200	Manhole	Adoptable
2.000	S2	1200	Manhole	Adoptable	S3	1200	Manhole	Adoptable
1.001	S3	1200	Manhole	Adoptable	S4	1350	Manhole	Adoptable
1.002	S4	1350	Manhole	Adoptable	S5	1350	Manhole	Adoptable
1.003	S5	1350	Manhole	Adoptable	S6	1350	Manhole	Adoptable
1.004	S6	1350	Manhole	Adoptable	S7	1350	Manhole	Adoptable
1.005	S7	1350	Manhole	Adoptable	S8	1350	Manhole	Adoptable
1.006	S8	1350	Manhole	Adoptable	S9	1350	Manhole	Adoptable
1.007	S9	1350	Manhole	Adoptable	S10	1350	Manhole	Adoptable
1.008	S10	1350	Manhole	Adoptable	S20	1350	Manhole	Adoptable
3.000	S11	1350	Manhole	Adoptable	S12	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
3.001	23.437	28.4	225	Circular	49.150	47.725	1.200	48.325	46.900	1.200
4.000	11.359	90.9	225	Circular	48.550	47.125	1.200	48.425	47.000	1.200
4.001	12.846	128.5	225	Circular	48.425	47.000	1.200	48.325	46.900	1.200
3.002	33.075	69.6	375	Circular	48.325	46.750	1.200	47.850	46.275	1.200
3.003	22.405	64.0	375	Circular	47.850	46.275	1.200	47.500	45.925	1.200
3.004	17.660	64.2	375	Circular	47.500	45.925	1.200	47.225	45.650	1.200
3.005	24.153	81.9	375	Circular	47.225	45.650	1.200	47.300	45.355	1.570
3.006	11.493	79.3	375	Circular	47.300	45.355	1.570	47.150	45.210	1.565
1.009	23.334	36.7	450	Circular	47.150	45.135	1.565	45.900	44.500	0.950
1.009a	31.730	317.3	450	Circular	45.900	44.500	0.950	45.900	44.400	1.050
1.010	14.865	148.6	450	Circular	45.900	44.400	1.050	45.900	44.300	1.150
1.011	63.111	140.2	300	Circular	45.900	44.300	1.300	45.350	43.850	1.200
1.012	39.370	46.3	300	Circular	45.350	43.850	1.200	44.500	43.000	1.200
1.013	19.071	146.7	300	Circular	44.500	43.000	1.200	44.500	42.870	1.330
1.014	25.053	147.4	300	Circular	44.500	42.870	1.330	44.350	42.700	1.350
1.015	77.353	148.8	300	Circular	44.350	42.700	1.350	43.800	42.180	1.320
5.000	26.377	150.7	225	Circular	47.125	45.700	1.200	47.300	45.525	1.550
5.001	17.515	13.8	225	Circular	47.300	45.525	1.550	47.000	44.255	2.520
6.000	15.033	100.0	300	Circular	46.200	44.700	1.200	46.600	44.550	1.750
6.001	24.649	100.6	300	Circular	46.600	44.550	1.750	47.125	44.305	2.520
6.002	12.208	97.7	300	Circular	47.125	44.305	2.520	47.000	44.180	2.520
5.002	8.503	189.0	300	Circular	47.000	44.180	2.520	46.750	44.135	2.315
5.003	46.635	37.6	300	Circular	46.750	44.135	2.315	45.250	42.895	2.055
7.000	63.384	99.8	300	Circular	45.100	43.600	1.200	45.250	42.965	1.985
7.001	6.829	97.6	300	Circular	45.250	42.965	1.985	45.250	42.895	2.055

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
3.001	S12	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
4.000	S13	1350	Manhole	Adoptable	S14	1350	Manhole	Adoptable
4.001	S14	1350	Manhole	Adoptable	S15	1350	Manhole	Adoptable
3.002	S15	1350	Manhole	Adoptable	S16	1350	Manhole	Adoptable
3.003	S16	1350	Manhole	Adoptable	S17	1350	Manhole	Adoptable
3.004	S17	1350	Manhole	Adoptable	S18	1350	Manhole	Adoptable
3.005	S18	1350	Manhole	Adoptable	S19	1200	Manhole	Adoptable
3.006	S19	1200	Manhole	Adoptable	S20	1350	Manhole	Adoptable
1.009	S20	1350	Manhole	Adoptable	S21		Junction	
1.009a	S21		Junction		S22		Junction	
1.010	S22		Junction		S23	2100	Manhole	Adoptable
1.011	S23	2100	Manhole	Adoptable	S24	1350	Manhole	Adoptable
1.012	S24	1350	Manhole	Adoptable	S25	1350	Manhole	Adoptable
1.013	S25	1350	Manhole	Adoptable	S26	1350	Manhole	Adoptable
1.014	S26	1350	Manhole	Adoptable	S27	1350	Manhole	Adoptable
1.015	S27	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
5.000	S28	1350	Manhole	Adoptable	S29	1200	Manhole	Adoptable
5.001	S29	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
6.000	S30	1200	Manhole	Adoptable	S31	1200	Manhole	Adoptable
6.001	S31	1200	Manhole	Adoptable	S32	1200	Manhole	Adoptable
6.002	S32	1200	Manhole	Adoptable	S33	1200	Manhole	Adoptable
5.002	S33	1200	Manhole	Adoptable	S34	1200	Manhole	Adoptable
5.003	S34	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable
7.000	S35	1350	Manhole	Adoptable	S36	1200	Manhole	Adoptable
7.001	S36	1200	Manhole	Adoptable	S37	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
5.004	16.200	250.0	450	Circular	45.250	42.745	2.055	44.700	42.680	1.570
5.005	44.360	68.2	450	Circular	44.700	42.680	1.570	43.800	42.030	1.320
1.016	13.429	14.4	450	Circular	43.800	42.030	1.320	43.000	41.100	1.450
1.016a	22.706	47.8	450	Circular	43.000	41.100	1.450	42.200	40.625	1.125
8.000	68.920	27.8	300	Circular	50.975	49.475	1.200	48.500	47.000	1.200
8.001	27.643	110.6	375	Circular	48.500	46.925	1.200	48.250	46.675	1.200
8.002	26.771	97.4	375	Circular	48.250	46.675	1.200	47.975	46.400	1.200
8.003	54.096	55.5	450	Circular	47.975	46.325	1.200	47.000	45.350	1.200
8.004	12.906	47.8	450	Circular	47.000	45.350	1.200	46.775	45.080	1.245
8.005	19.268	35.7	450	Circular	46.775	45.080	1.245	46.500	44.540	1.510
9.000	42.620	243.5	300	Circular	48.525	47.025	1.200	48.350	46.850	1.200
9.001	32.921	41.2	375	Circular	48.350	46.775	1.200	47.550	45.975	1.200
9.002	13.103	65.5	375	Circular	47.550	45.975	1.200	47.350	45.775	1.200
9.003	23.812	24.4	375	Circular	47.350	45.775	1.200	46.725	44.800	1.550
9.004	46.463	251.2	450	Circular	46.725	44.725	1.550	46.500	44.540	1.510
8.006	19.085	212.1	600	Circular	46.500	44.390	1.510	46.100	44.300	1.200
8.007	53.980	20.5	600	Circular	46.100	44.300	1.200	44.150	41.670	1.880
10.000	19.665	98.3	225	Circular	46.375	44.950	1.200	46.700	44.750	1.725
10.001	13.367	99.0	300	Circular	46.700	44.675	1.725	46.375	44.540	1.535
10.002	74.213	29.3	300	Circular	46.375	44.540	1.535	43.750	42.005	1.445
10.003	55.686	1591.0	600	Circular	43.750	41.705	1.445	44.150	41.670	1.880
8.008	51.470	72.0	675	Circular	44.150	41.595	1.880	42.950	40.880	1.395
8.009	18.760	73.6	675	Circular	42.950	40.880	1.395	42.950	40.625	1.650
8.010	15.258	610.3	675	Circular	42.950	40.625	1.650	42.700	40.600	1.425
8.011	40.555	202.8	675	Circular	42.700	40.600	1.425	42.200	40.400	1.125

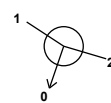
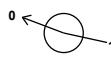
Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
5.004	S37	1350	Manhole	Adoptable	S38	1350	Manhole	Adoptable
5.005	S38	1350	Manhole	Adoptable	S39	1350	Manhole	Adoptable
1.016	S39	1350	Manhole	Adoptable	S40		Junction	
1.016a	S40		Junction		S62		Junction	
8.000	S41	1350	Manhole	Adoptable	S42	1200	Manhole	Adoptable
8.001	S42	1200	Manhole	Adoptable	S43	1200	Manhole	Adoptable
8.002	S43	1200	Manhole	Adoptable	S44	1200	Manhole	Adoptable
8.003	S44	1200	Manhole	Adoptable	S45	1350	Manhole	Adoptable
8.004	S45	1350	Manhole	Adoptable	S46	1350	Manhole	Adoptable
8.005	S46	1350	Manhole	Adoptable	S52	1350	Manhole	Adoptable
9.000	S47	1200	Manhole	Adoptable	S48	1350	Manhole	Adoptable
9.001	S48	1350	Manhole	Adoptable	S49	1350	Manhole	Adoptable
9.002	S49	1350	Manhole	Adoptable	S50	1350	Manhole	Adoptable
9.003	S50	1350	Manhole	Adoptable	S51	1200	Manhole	Adoptable
9.004	S51	1200	Manhole	Adoptable	S52	1350	Manhole	Adoptable
8.006	S52	1350	Manhole	Adoptable	S53	1350	Manhole	Adoptable
8.007	S53	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
10.000	S54	1350	Manhole	Adoptable	S55	1200	Manhole	Adoptable
10.001	S55	1200	Manhole	Adoptable	S56	1200	Manhole	Adoptable
10.002	S56	1200	Manhole	Adoptable	S57	1350	Manhole	Adoptable
10.003	S57	1350	Manhole	Adoptable	S58	2100	Manhole	Adoptable
8.008	S58	2100	Manhole	Adoptable	S59	1350	Manhole	Adoptable
8.009	S59	1350	Manhole	Adoptable	S60	1350	Manhole	Adoptable
8.010	S60	1350	Manhole	Adoptable	S61		Junction	
8.011	S61		Junction		S62		Junction	

Pipeline Schedule

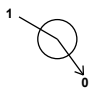
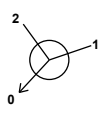
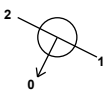
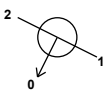
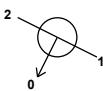
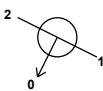
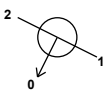
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.017	13.692	456.4	675	Circular	42.200	40.400	1.125	42.200	40.370	1.155
1.018	2.622	174.8	375	Circular	42.200	40.370	1.455	42.000	40.355	1.270

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.017	S62		Junction		S63	2700	Manhole	Adoptable
1.018	S63	2700	Manhole	Adoptable	S64	1200	Manhole	Adoptable

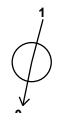
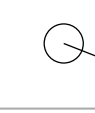
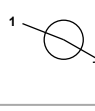
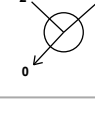
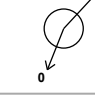
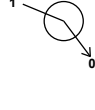
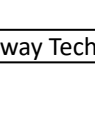
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S1	510217.869	117309.804	50.650	1.425	1350		0	1.000	49.225	225
S2	510199.990	117317.737	50.575	1.775	1200		0	2.000	48.800	225
S3	510207.354	117312.920	50.650	2.015	1200		1	2.000	48.710	225
							2	1.000	48.710	225
							0	1.001	48.635	300
S4	510198.830	117287.966	49.650	1.575	1350		1	1.001	48.150	300
0	1.002	48.075	375							
S5	510192.742	117259.439	49.500	1.825	1350		1	1.002	47.675	375
0	1.003	47.675	375							
S6	510168.011	117264.856	49.050	1.715	1350		1	1.003	47.335	375
0	1.004	47.335	375							
S7	510136.486	117276.775	48.450	1.575	1350		1	1.004	46.875	375
0	1.005	46.875	375							
S8	510125.725	117252.697	47.500	1.650	1350		1	1.005	45.925	375
0	1.006	45.850	450							
S9	510126.450	117233.579	47.100	1.650	1350		1	1.006	45.450	450
0	1.007	45.450	450							
S10	510137.466	117216.677	46.900	1.650	1350		1	1.007	45.250	450
							0	1.008	45.250	450

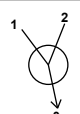
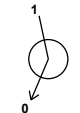
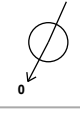
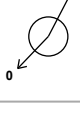
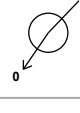
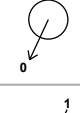
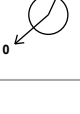
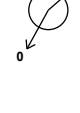
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S11	510222.928	117247.914	49.750	1.425	1350	 0	3.000	48.325	225
S12	510238.181	117239.052	49.150	1.425	1350	 1 0	3.000	47.725	225
S13	510275.499	117224.126	48.550	1.425	1350	 0	3.001	47.725	225
S14	510264.141	117224.263	48.425	1.425	1350	 1 0	4.000	47.000	225
S15	510251.984	117220.111	48.325	1.575	1350	 1 2 0	4.001	46.900	225
S16	510229.514	117195.840	47.850	1.575	1350	 1 0	3.001	46.900	225
S17	510210.055	117184.735	47.500	1.575	1350	 1 0	3.002	46.750	375
S18	510229.514	117195.840	47.850	1.575	1350	 1 0	3.002	46.275	375
S19	510210.055	117184.735	47.500	1.575	1350	 1 0	3.003	46.275	375
S20	510193.715	117178.036	47.225	1.575	1350	 1 0	3.003	45.925	375
S21	510178.040	117196.411	47.300	1.945	1200	 1 0	3.004	45.925	375
S22	510193.715	117178.036	47.225	1.575	1350	 1 0	3.004	45.650	375
S23	510178.040	117196.411	47.300	1.945	1200	 1 0	3.005	45.650	375
S24	510167.758	117201.547	47.150	2.015	1350	 1 2 0	3.005	45.355	375
S25	510167.758	117201.547	47.150	2.015	1350	 1 2 0	3.006	45.355	375
S26	510167.758	117201.547	47.150	2.015	1350	 1 2 0	3.006	45.210	375
S27	510167.758	117201.547	47.150	2.015	1350	 1 2 0	1.008	45.135	450
S28	510167.758	117201.547	47.150	2.015	1350	 1 2 0	1.009	45.135	450
S29	510157.332	117180.672	45.900	1.400		 1 0	1.009	44.500	450
S30	510157.332	117180.672	45.900	1.400		 1 0	1.009a	44.500	450
S31	510126.179	117174.651	45.900	1.500		 1 0	1.009a	44.400	450
S32	510126.179	117174.651	45.900	1.500		 1 0	1.010	44.400	450
S33	510113.478	117166.928	45.900	1.600	2100	 1 0	1.010	44.300	450
S34	510113.478	117166.928	45.900	1.600	2100	 1 0	1.011	44.300	300

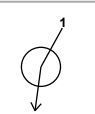
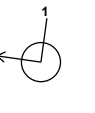
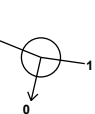
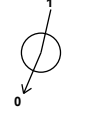
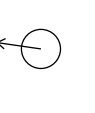
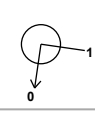
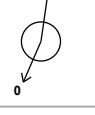
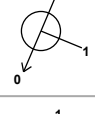
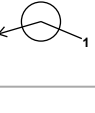
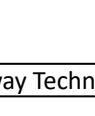
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S24	510089.528	117108.538	45.350	1.500	1350		1	1.011	43.850	300
							0	1.012	43.850	300
S25	510079.463	117070.476	44.500	1.500	1350		1	1.012	43.000	300
							0	1.013	43.000	300
S26	510075.631	117051.794	44.500	1.630	1350		1	1.013	42.870	300
							0	1.014	42.870	300
S27	510100.203	117046.907	44.350	1.650	1350		1	1.014	42.700	300
							0	1.015	42.700	300
S28	510203.209	117149.545	47.125	1.425	1350		0	5.000	45.700	225
S29	510218.193	117127.837	47.300	1.775	1200		1	5.000	45.525	225
							0	5.001	45.525	225
S30	510160.812	117142.303	46.200	1.500	1200		0	6.000	44.700	300
S31	510174.809	117136.819	46.600	2.050	1200		1	6.000	44.550	300
							0	6.001	44.550	300
S32	510196.228	117124.621	47.125	2.820	1200		1	6.001	44.305	300
							0	6.002	44.305	300
S33	510205.085	117116.220	47.000	2.820	1200		1	5.001	44.255	225
							2	6.002	44.180	300
							0	5.002	44.180	300
S34	510199.300	117109.988	46.750	2.615	1200		1	5.002	44.135	300
							0	5.003	44.135	300
S35	510119.407	117096.317	45.100	1.500	1350		0	7.000	43.600	300
S36	510177.986	117072.109	45.250	2.285	1200		1	7.000	42.965	300
							0	7.001	42.965	300

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S37	510182.085	117066.647	45.250	2.505	1350		1 7.001 2 5.003 0 5.004	42.895 42.895 42.745	300 300 450
S38	510185.475	117050.806	44.700	2.020	1350		1 5.004 0 5.005	42.680 42.680	450 450
S39	510168.164	117009.963	43.800	1.770	1350		1 5.005 2 1.015 0 1.016	42.030 42.180 42.030	450 300 450
S40	510162.966	116997.581	43.000	1.900			1 1.016 0 1.016a	41.100 41.100	450 450
S41	510327.972	117263.441	50.975	1.500	1350		0 8.000 1 8.000	49.475 47.000	300 300
S42	510299.910	117200.493	48.500	1.575	1200		0 8.001 1 8.001	46.925 46.675	375 375
S43	510287.138	117175.978	48.250	1.575	1200		0 8.002 1 8.002	46.675 46.400	375 375
S44	510268.634	117156.631	47.975	1.650	1200		0 8.003 1 8.003	46.325 45.350	450 450
S45	510238.052	117112.009	47.000	1.650	1350		0 8.004 1 8.004	45.350 45.080	450 450
S46	510248.394	117104.288	46.775	1.695	1350		0 8.005 1 8.005	45.080 45.080	450 450
S47	510364.633	117185.808	48.525	1.500	1200		0 9.000 1 9.000	47.025 46.850	300 300
S48	510346.623	117147.180	48.350	1.575	1350		0 9.001 1 9.001	46.775 45.975	375 375
S49	510321.771	117125.589	47.550	1.575	1350		0 9.002 1 9.002	45.975 45.975	375 375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
S50	510315.443	117114.115	47.350	1.575	1350		1	9.002	45.775	375
S51	510312.259	117090.517	46.725	2.000	1200		0	9.003	45.775	375
							1	9.003	44.800	375
S52	510266.261	117097.074	46.500	2.110	1350		0	9.004	44.725	450
							1	9.004	44.540	450
S53	510262.007	117078.469	46.100	1.800	1350		2	8.005	44.540	450
							0	8.006	44.390	600
S54	510262.007	117078.469	46.100	1.800	1350		0	8.006	44.300	600
							1	8.007	44.300	600
S55	510343.342	117086.034	46.375	1.425	1350		0	10.000	44.950	225
							1	10.000	44.750	225
S56	510323.878	117088.841	46.700	2.025	1200		0	10.001	44.675	300
							1	10.001	44.540	300
S57	510321.970	117075.611	46.375	1.835	1200		0	10.002	44.540	300
							1	10.002	42.005	300
S58	510292.373	117007.555	43.750	2.045	1350		0	10.003	41.705	600
							1	10.003	41.670	600
S59	510240.894	117028.789	44.150	2.555	2100		2	8.007	41.670	600
							0	8.008	41.595	675
S60	510220.675	116981.457	42.950	2.070	1350		1	8.008	40.880	675
							0	8.009	40.880	675
S61	510203.368	116988.697	42.950	2.325	1350		1	8.009	40.625	675
							0	8.010	40.625	675
S62	510188.721	116984.423	42.700	2.100			1	8.010	40.600	675
							0	8.011	40.600	675
S63	510148.389	116980.172	42.200	1.800			1	8.011	40.400	675
							2	1.016a	40.625	450
							0	1.017	40.400	675

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S63	510134.728	116981.088	42.200	1.830	2700	1  0	1.017	40.370	675
						0  1	1.018	40.370	375
S64	510132.248	116980.238	42.000	1.645	1200	1 	1.018	40.355	375

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	10080	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	20.0		

Storm Durations

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

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	0	0	0
30	40	0	0
100	45	0	0

Node S23 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	44.300	Product Number	CTL-SHE-0060-1800-1300-1800
Design Depth (m)	1.300	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.8	Min Node Diameter (mm)	1200

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	40.370	Product Number	CTL-SHE-0190-1980-1530-1980
Design Depth (m)	1.530	Min Outlet Diameter (m)	0.225
Design Flow (l/s)	19.8	Min Node Diameter (mm)	1800

Node S63 Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	41.000	Product Number	CTL-SCU-0216-4360-0900-4360
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.300
Design Flow (l/s)	43.6	Min Node Diameter (mm)	1200

Node S22 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	44.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	10800

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	706.8	706.8	1.200	1491.0	1503.2	1.500	1723.0	1739.0

Node S62 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	1.0	Invert Level (m)	40.400
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	444

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	748.0	748.0	1.500	1830.0	1845.9	1.800	2089.0	2109.2

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	33	49.269	0.044	8.6	0.1247	0.0000	OK
60 minute summer	S2	33	48.854	0.054	6.1	0.1057	0.0000	OK
60 minute summer	S3	33	48.704	0.069	16.7	0.0944	0.0000	OK
60 minute summer	S4	33	48.150	0.075	20.9	0.1544	0.0000	OK
60 minute summer	S5	33	47.767	0.092	29.3	0.2315	0.0000	OK
60 minute summer	S6	33	47.430	0.095	30.9	0.1589	0.0000	OK
60 minute summer	S7	34	46.957	0.082	38.3	0.2121	0.0000	OK
60 minute summer	S8	34	45.939	0.089	40.3	0.1562	0.0000	OK
60 minute summer	S9	34	45.569	0.119	44.2	0.2395	0.0000	OK
60 minute summer	S10	34	45.409	0.159	48.7	0.3289	0.0000	OK
60 minute summer	S11	33	48.365	0.040	6.5	0.0993	0.0000	OK
60 minute summer	S12	33	47.778	0.053	11.6	0.1215	0.0000	OK
60 minute summer	S13	33	47.175	0.050	5.5	0.1161	0.0000	OK
60 minute summer	S14	33	47.054	0.054	5.5	0.0779	0.0000	OK
60 minute summer	S15	33	46.836	0.086	27.3	0.2542	0.0000	OK
60 minute summer	S16	33	46.367	0.092	30.8	0.1788	0.0000	OK
60 minute summer	S17	33	46.016	0.091	30.7	0.1303	0.0000	OK
60 minute summer	S18	33	45.758	0.108	37.9	0.2731	0.0000	OK
60 minute summer	S19	34	45.478	0.123	43.7	0.2285	0.0000	OK
60 minute summer	S20	34	45.260	0.125	92.6	0.1787	0.0000	OK
10080 minute summer	S21	6540	44.765	0.265	5.2	0.0000	0.0000	OK
10080 minute summer	S22	6540	44.765	0.365	8.0	301.2020	0.0000	OK
10080 minute summer	S23	6660	44.766	0.466	7.7	1.6146	0.0000	SURCHARGED
60 minute summer	S24	33	43.907	0.057	13.1	0.1864	0.0000	OK
60 minute summer	S25	34	43.079	0.079	13.0	0.1125	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	8.6	1.645	0.076	0.0573	
60 minute summer	S2	2.000	S3	6.1	0.859	0.116	0.0625	
60 minute summer	S3	1.001	S4	16.7	1.399	0.111	0.3147	
60 minute summer	S4	1.002	S5	20.9	1.148	0.089	0.5322	
60 minute summer	S5	1.003	S6	29.2	1.360	0.126	0.5439	
60 minute summer	S6	1.004	S7	30.7	1.544	0.131	0.6727	
60 minute summer	S7	1.005	S8	38.2	2.192	0.100	0.4592	
60 minute summer	S8	1.006	S9	40.3	1.454	0.086	0.5333	
60 minute summer	S9	1.007	S10	44.4	1.071	0.138	0.8405	
60 minute summer	S10	1.008	S20	48.9	1.144	0.260	1.4504	
60 minute summer	S11	3.000	S12	6.5	1.103	0.068	0.1047	
60 minute summer	S12	3.001	S15	11.6	1.640	0.118	0.1657	
60 minute summer	S13	4.000	S14	5.5	0.796	0.101	0.0786	
60 minute summer	S14	4.001	S15	5.5	0.764	0.120	0.0922	
60 minute summer	S15	3.002	S16	27.3	1.369	0.114	0.6586	
60 minute summer	S16	3.003	S17	30.7	1.481	0.122	0.4640	
60 minute summer	S17	3.004	S18	30.5	1.313	0.122	0.4126	
60 minute summer	S18	3.005	S19	37.8	1.319	0.171	0.6923	
60 minute summer	S19	3.006	S20	43.7	1.498	0.194	0.3358	
60 minute summer	S20	1.009	S21	92.6	1.677	0.173	1.3024	
60 minute summer	S21	1.009a	S22	92.2	2.324	0.510	1.4111	
240 minute summer	S22	1.010	S23	11.0	0.255	0.042	1.6553	
8640 minute summer	S23	1.011	S24	1.5	0.567	0.016	0.1801	
60 minute summer	S24	1.012	S25	13.0	1.094	0.079	0.4702	
60 minute summer	S25	1.013	S26	12.9	0.906	0.141	0.2723	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	34	42.945	0.075	12.9	0.1080	0.0000	OK
60 minute summer	S27	34	42.804	0.104	23.6	0.3129	0.0000	OK
60 minute summer	S28	33	45.777	0.077	9.2	0.2287	0.0000	OK
60 minute summer	S29	33	45.564	0.039	9.2	0.0440	0.0000	OK
60 minute summer	S30	33	44.752	0.052	7.1	0.1175	0.0000	OK
60 minute summer	S31	33	44.609	0.059	8.9	0.0783	0.0000	OK
60 minute summer	S32	33	44.362	0.057	8.9	0.0639	0.0000	OK
60 minute summer	S33	33	44.304	0.124	27.2	0.2354	0.0000	OK
60 minute summer	S34	33	44.228	0.093	36.8	0.1862	0.0000	OK
60 minute summer	S35	33	43.673	0.073	14.7	0.2741	0.0000	OK
60 minute summer	S36	33	43.044	0.079	14.7	0.0899	0.0000	OK
60 minute summer	S37	33	42.904	0.159	52.6	0.2517	0.0000	OK
60 minute summer	S38	34	42.804	0.124	58.1	0.2583	0.0000	OK
60 minute summer	S39	34	42.122	0.092	81.2	0.1323	0.0000	OK
60 minute summer	S40	34	41.225	0.125	81.2	0.0000	0.0000	OK
60 minute summer	S41	33	49.539	0.064	20.7	0.2979	0.0000	OK
60 minute summer	S42	33	47.025	0.100	28.3	0.2280	0.0000	OK
60 minute summer	S43	33	46.785	0.110	35.5	0.2426	0.0000	OK
60 minute summer	S44	33	46.421	0.096	45.1	0.2455	0.0000	OK
60 minute summer	S45	33	45.460	0.110	52.9	0.2830	0.0000	OK
60 minute summer	S46	34	45.184	0.104	56.5	0.2068	0.0000	OK
60 minute summer	S47	33	47.132	0.107	18.9	0.4396	0.0000	OK
60 minute summer	S48	33	46.854	0.079	31.1	0.2601	0.0000	OK
60 minute summer	S49	33	46.072	0.097	31.0	0.1395	0.0000	OK
60 minute summer	S50	34	45.847	0.072	30.8	0.1027	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	12.9	0.733	0.141	0.4440	
60 minute summer	S27	1.015	S39	22.9	1.081	0.252	1.6465	
60 minute summer	S28	5.000	S29	9.2	1.136	0.218	0.2190	
60 minute summer	S29	5.001	S33	9.2	1.832	0.065	0.0959	
60 minute summer	S30	6.000	S31	7.1	0.796	0.064	0.1342	
60 minute summer	S31	6.001	S32	8.9	0.944	0.080	0.2325	
60 minute summer	S32	6.002	S33	8.9	0.497	0.079	0.2240	
60 minute summer	S33	5.002	S34	27.1	1.179	0.336	0.1959	
60 minute summer	S34	5.003	S37	36.5	2.005	0.201	0.8497	
60 minute summer	S35	7.000	S36	14.7	1.046	0.132	0.8922	
60 minute summer	S36	7.001	S37	14.5	1.042	0.129	0.0954	
60 minute summer	S37	5.004	S38	52.6	1.237	0.258	0.6919	
60 minute summer	S38	5.005	S39	58.2	1.992	0.149	1.3044	
60 minute summer	S39	1.016	S40	81.2	2.758	0.095	0.3976	
60 minute summer	S40	1.016a	S62	81.1	2.265	0.173	0.8132	
60 minute summer	S41	8.000	S42	20.6	1.912	0.098	0.7431	
60 minute summer	S42	8.001	S43	28.3	1.126	0.149	0.6947	
60 minute summer	S43	8.002	S44	35.2	1.361	0.173	0.6934	
60 minute summer	S44	8.003	S45	44.9	1.639	0.103	1.4820	
60 minute summer	S45	8.004	S46	52.6	1.832	0.112	0.3708	
60 minute summer	S46	8.005	S52	56.7	2.162	0.105	0.5058	
60 minute summer	S47	9.000	S48	18.7	0.847	0.263	0.9413	
60 minute summer	S48	9.001	S49	31.0	1.573	0.099	0.6505	
60 minute summer	S49	9.002	S50	30.8	1.661	0.125	0.2447	
60 minute summer	S50	9.003	S51	30.9	2.157	0.076	0.3411	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	34	44.868	0.143	43.0	0.3723	0.0000	OK
60 minute summer	S52	34	44.582	0.192	99.7	0.2746	0.0000	OK
60 minute summer	S53	34	44.414	0.114	118.3	0.4565	0.0000	OK
60 minute summer	S54	33	45.003	0.053	6.1	0.1294	0.0000	OK
60 minute summer	S55	33	44.722	0.047	6.1	0.0537	0.0000	OK
60 minute summer	S56	33	44.608	0.068	23.0	0.2242	0.0000	OK
60 minute summer	S57	34	41.850	0.145	22.8	0.2073	0.0000	OK
60 minute summer	S58	34	41.763	0.168	149.5	0.7245	0.0000	OK
60 minute summer	S59	34	41.075	0.195	157.4	0.4652	0.0000	OK
60 minute summer	S60	35	40.886	0.261	161.1	0.5113	0.0000	OK
480 minute summer	S61	336	40.883	0.283	64.4	0.0000	0.0000	OK
480 minute summer	S62	336	40.883	0.483	97.6	445.5440	0.0000	OK
480 minute summer	S63	336	40.883	0.513	19.9	2.9375	0.0000	SURCHARGED
480 minute summer	S64	336	40.445	0.090	19.7	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	43.0	1.018	0.211	1.9616	
60 minute summer	S52	8.006	S53	99.8	1.762	0.212	1.0973	
60 minute summer	S53	8.007	S58	118.4	3.235	0.078	1.9760	
60 minute summer	S54	10.000	S55	6.1	0.874	0.116	0.1371	
60 minute summer	S55	10.001	S56	6.1	0.645	0.055	0.1272	
60 minute summer	S56	10.002	S57	22.8	1.934	0.111	0.8747	
60 minute summer	S57	10.003	S58	22.4	0.569	0.132	2.2294	
60 minute summer	S58	8.008	S59	149.4	1.937	0.135	3.9741	
60 minute summer	S59	8.009	S60	156.2	1.476	0.143	1.9943	
60 minute summer	S60	8.010	S61	161.1	1.405	0.427	1.7522	
60 minute summer	S61	8.011	S62	161.6	2.211	0.246	3.4204	
240 minute summer	S62	1.017	S63	20.0	0.217	0.046	3.5794	
480 minute summer	S63	1.018	S64	19.7	0.878	0.131	0.0589	1005.3

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	33	49.280	0.055	13.6	0.1586	0.0000	OK
60 minute summer	S2	33	48.869	0.069	9.6	0.1348	0.0000	OK
60 minute summer	S3	33	48.723	0.088	26.4	0.1200	0.0000	OK
60 minute summer	S4	33	48.170	0.095	33.1	0.1965	0.0000	OK
60 minute summer	S5	33	47.793	0.118	46.3	0.2963	0.0000	OK
60 minute summer	S6	33	47.457	0.122	48.9	0.2025	0.0000	OK
60 minute summer	S7	33	46.980	0.105	60.7	0.2706	0.0000	OK
60 minute summer	S8	33	45.965	0.115	63.8	0.2006	0.0000	OK
60 minute summer	S9	34	45.606	0.156	70.1	0.3149	0.0000	OK
60 minute summer	S10	34	45.453	0.203	76.9	0.4205	0.0000	OK
60 minute summer	S11	33	48.375	0.050	10.3	0.1244	0.0000	OK
60 minute summer	S12	33	47.793	0.068	18.3	0.1542	0.0000	OK
60 minute summer	S13	33	47.188	0.063	8.7	0.1484	0.0000	OK
60 minute summer	S14	33	47.069	0.069	8.7	0.0993	0.0000	OK
60 minute summer	S15	33	46.859	0.109	43.0	0.3228	0.0000	OK
60 minute summer	S16	33	46.392	0.117	48.5	0.2281	0.0000	OK
60 minute summer	S17	33	46.042	0.117	48.4	0.1680	0.0000	OK
60 minute summer	S18	33	45.789	0.139	59.9	0.3535	0.0000	OK
60 minute summer	S19	33	45.515	0.160	69.1	0.2972	0.0000	OK
60 minute summer	S20	34	45.294	0.159	146.2	0.2279	0.0000	OK
10080 minute summer	S21	6960	44.871	0.371	6.2	0.0000	0.0000	OK
10080 minute summer	S22	6960	44.871	0.471	9.4	405.4748	0.0000	SURCHARGED
10080 minute summer	S23	6960	44.871	0.571	7.6	1.9782	0.0000	SURCHARGED
60 minute summer	S24	33	43.920	0.070	20.0	0.2305	0.0000	OK
60 minute summer	S25	33	43.099	0.099	19.9	0.1417	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	13.6	1.865	0.120	0.0800	
60 minute summer	S2	2.000	S3	9.6	0.969	0.183	0.0872	
60 minute summer	S3	1.001	S4	26.4	1.587	0.175	0.4389	
60 minute summer	S4	1.002	S5	33.1	1.289	0.141	0.7511	
60 minute summer	S5	1.003	S6	46.2	1.529	0.199	0.7658	
60 minute summer	S6	1.004	S7	48.7	1.737	0.208	0.9468	
60 minute summer	S7	1.005	S8	60.3	2.481	0.158	0.6423	
60 minute summer	S8	1.006	S9	63.7	1.589	0.136	0.7718	
60 minute summer	S9	1.007	S10	70.2	1.191	0.218	1.1924	
60 minute summer	S10	1.008	S20	77.3	1.298	0.412	2.0216	
60 minute summer	S11	3.000	S12	10.3	1.255	0.107	0.1458	
60 minute summer	S12	3.001	S15	18.3	1.860	0.187	0.2305	
60 minute summer	S13	4.000	S14	8.7	0.892	0.160	0.1110	
60 minute summer	S14	4.001	S15	8.7	0.866	0.190	0.1289	
60 minute summer	S15	3.002	S16	43.0	1.538	0.179	0.9243	
60 minute summer	S16	3.003	S17	48.4	1.649	0.193	0.6577	
60 minute summer	S17	3.004	S18	48.3	1.453	0.193	0.5890	
60 minute summer	S18	3.005	S19	59.6	1.458	0.269	0.9897	
60 minute summer	S19	3.006	S20	68.8	1.675	0.306	0.4725	
60 minute summer	S20	1.009	S21	146.4	1.910	0.274	1.7912	
60 minute summer	S21	1.009a	S22	149.9	2.560	0.830	2.0598	
60 minute summer	S22	1.010	S23	13.9	0.330	0.053	1.3221	
1440 minute summer	S23	1.011	S24	1.5	0.568	0.016	0.2230	
60 minute summer	S24	1.012	S25	19.9	1.225	0.122	0.6451	
60 minute summer	S25	1.013	S26	19.8	1.013	0.216	0.3727	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	34	42.964	0.094	19.8	0.1345	0.0000	OK
60 minute summer	S27	34	42.834	0.134	37.1	0.4032	0.0000	OK
60 minute summer	S28	33	45.799	0.099	14.6	0.2921	0.0000	OK
60 minute summer	S29	33	45.574	0.049	14.6	0.0552	0.0000	OK
60 minute summer	S30	33	44.766	0.066	11.2	0.1488	0.0000	OK
60 minute summer	S31	33	44.624	0.074	14.0	0.0988	0.0000	OK
60 minute summer	S32	33	44.376	0.071	14.0	0.0801	0.0000	OK
60 minute summer	S33	33	44.340	0.160	43.0	0.3043	0.0000	OK
60 minute summer	S34	33	44.254	0.119	58.1	0.2393	0.0000	OK
60 minute summer	S35	33	43.692	0.092	23.2	0.3463	0.0000	OK
60 minute summer	S36	33	43.067	0.102	23.2	0.1159	0.0000	OK
60 minute summer	S37	33	42.949	0.204	83.4	0.3225	0.0000	OK
60 minute summer	S38	33	42.838	0.158	92.0	0.3292	0.0000	OK
60 minute summer	S39	34	42.148	0.118	128.2	0.1692	0.0000	OK
60 minute summer	S40	34	41.258	0.158	128.4	0.0000	0.0000	OK
60 minute summer	S41	33	49.555	0.080	32.6	0.3758	0.0000	OK
60 minute summer	S42	33	47.053	0.128	44.7	0.2931	0.0000	OK
60 minute summer	S43	33	46.816	0.141	56.1	0.3126	0.0000	OK
60 minute summer	S44	33	46.447	0.122	71.4	0.3108	0.0000	OK
60 minute summer	S45	33	45.493	0.143	83.8	0.3664	0.0000	OK
60 minute summer	S46	34	45.213	0.133	89.6	0.2654	0.0000	OK
60 minute summer	S47	33	47.164	0.139	29.8	0.5696	0.0000	OK
60 minute summer	S48	33	46.874	0.099	49.2	0.3274	0.0000	OK
60 minute summer	S49	33	46.101	0.126	49.1	0.1796	0.0000	OK
60 minute summer	S50	33	45.862	0.087	48.9	0.1249	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	19.9	0.811	0.217	0.6159	
60 minute summer	S27	1.015	S39	36.4	1.219	0.400	2.3075	
60 minute summer	S28	5.000	S29	14.6	1.293	0.346	0.3040	
60 minute summer	S29	5.001	S33	14.6	1.836	0.104	0.1762	
60 minute summer	S30	6.000	S31	11.2	0.898	0.101	0.1877	
60 minute summer	S31	6.001	S32	14.0	1.072	0.126	0.3224	
60 minute summer	S32	6.002	S33	14.0	0.560	0.124	0.3113	
60 minute summer	S33	5.002	S34	42.9	1.333	0.532	0.2741	
60 minute summer	S34	5.003	S37	57.8	2.266	0.318	1.1908	
60 minute summer	S35	7.000	S36	23.2	1.174	0.209	1.2556	
60 minute summer	S36	7.001	S37	23.0	1.172	0.205	0.1342	
60 minute summer	S37	5.004	S38	83.2	1.400	0.408	0.9660	
60 minute summer	S38	5.005	S39	91.9	2.234	0.234	1.8318	
60 minute summer	S39	1.016	S40	128.4	3.108	0.150	0.5573	
60 minute summer	S40	1.016a	S62	128.5	2.580	0.274	1.1312	
60 minute summer	S41	8.000	S42	32.5	2.176	0.154	1.0300	
60 minute summer	S42	8.001	S43	44.7	1.255	0.235	0.9845	
60 minute summer	S43	8.002	S44	55.8	1.534	0.275	0.9743	
60 minute summer	S44	8.003	S45	71.2	1.835	0.164	2.1016	
60 minute summer	S45	8.004	S46	83.2	2.032	0.178	0.5295	
60 minute summer	S46	8.005	S52	89.7	2.435	0.165	0.7099	
60 minute summer	S47	9.000	S48	29.6	0.960	0.417	1.3139	
60 minute summer	S48	9.001	S49	49.1	1.770	0.157	0.9151	
60 minute summer	S49	9.002	S50	48.9	1.904	0.198	0.3389	
60 minute summer	S50	9.003	S51	48.8	2.192	0.120	0.5465	

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	34	44.909	0.184	68.4	0.4790	0.0000	OK
60 minute summer	S52	34	44.633	0.243	157.8	0.3483	0.0000	OK
60 minute summer	S53	34	44.445	0.145	187.1	0.5780	0.0000	OK
60 minute summer	S54	33	45.017	0.067	9.6	0.1641	0.0000	OK
60 minute summer	S55	33	44.736	0.061	9.6	0.0687	0.0000	OK
60 minute summer	S56	33	44.626	0.086	36.3	0.2836	0.0000	OK
60 minute summer	S57	34	41.885	0.180	36.1	0.2573	0.0000	OK
60 minute summer	S58	34	41.810	0.215	237.1	0.9283	0.0000	OK
60 minute summer	S59	34	41.142	0.262	250.1	0.6265	0.0000	OK
600 minute summer	S60	465	41.075	0.450	77.4	0.8798	0.0000	OK
480 minute winter	S61	400	41.076	0.476	56.2	0.0000	0.0000	OK
480 minute summer	S62	360	41.033	0.633	127.7	617.9739	0.0000	OK
480 minute summer	S63	360	41.033	0.663	21.0	3.7966	0.0000	SURCHARGED
480 minute summer	S64	360	40.447	0.092	20.7	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	68.1	1.151	0.335	2.7505	
60 minute summer	S52	8.006	S53	158.0	2.004	0.335	1.5227	
60 minute summer	S53	8.007	S58	187.6	3.664	0.123	2.7647	
60 minute summer	S54	10.000	S55	9.6	0.991	0.183	0.1905	
60 minute summer	S55	10.001	S56	9.6	0.723	0.086	0.1787	
60 minute summer	S56	10.002	S57	36.1	2.202	0.175	1.2160	
60 minute summer	S57	10.003	S58	35.8	0.594	0.210	3.3679	
60 minute summer	S58	8.008	S59	237.6	2.105	0.215	5.8190	
60 minute summer	S59	8.009	S60	249.3	1.642	0.228	2.8515	
60 minute summer	S60	8.010	S61	256.3	1.612	0.680	2.4261	
60 minute summer	S61	8.011	S62	256.0	2.259	0.389	6.2506	
120 minute summer	S62	1.017	S63	21.5	0.319	0.049	4.1693	
480 minute summer	S63	1.018	S64	20.7	0.890	0.137	0.0609	1327.2

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	32	49.342	0.117	51.5	0.3362	0.0000	OK
60 minute summer	S2	33	48.955	0.155	36.4	0.3018	0.0000	OK
60 minute summer	S3	33	48.829	0.194	100.0	0.2651	0.0000	OK
60 minute summer	S4	33	48.285	0.210	125.2	0.4342	0.0000	OK
60 minute summer	S5	33	47.949	0.274	175.3	0.6901	0.0000	OK
60 minute summer	S6	33	47.611	0.276	185.4	0.4588	0.0000	OK
60 minute summer	S7	35	47.182	0.307	230.5	0.7909	0.0000	OK
60 minute summer	S8	35	46.849	0.999	234.9	1.7453	0.0000	SURCHARGED
60 minute summer	S9	35	46.701	1.251	252.4	2.5181	0.0000	SURCHARGED
60 minute summer	S10	35	46.517	1.267	275.1	2.6287	0.0000	SURCHARGED
60 minute summer	S11	33	48.424	0.099	38.9	0.2497	0.0000	OK
60 minute summer	S12	33	47.875	0.150	69.2	0.3419	0.0000	OK
60 minute summer	S13	35	47.389	0.264	32.8	0.6183	0.0000	SURCHARGED
60 minute summer	S14	35	47.343	0.343	32.8	0.4911	0.0000	SURCHARGED
60 minute summer	S15	35	47.296	0.546	162.9	1.6131	0.0000	SURCHARGED
60 minute summer	S16	35	47.096	0.821	178.9	1.6035	0.0000	SURCHARGED
60 minute summer	S17	35	46.910	0.985	163.2	1.4089	0.0000	SURCHARGED
60 minute summer	S18	35	46.752	1.102	193.6	2.7939	0.0000	SURCHARGED
60 minute summer	S19	35	46.448	1.093	222.7	2.0343	0.0000	SURCHARGED
60 minute summer	S20	35	46.200	1.065	493.7	1.5247	0.0000	SURCHARGED
10080 minute winter	S21	7860	45.547	1.047	8.9	0.0000	0.0000	SURCHARGED
10080 minute winter	S22	7860	45.547	1.147	9.1	1240.3820	0.0000	SURCHARGED
10080 minute winter	S23	7860	45.547	1.247	7.6	4.3191	0.0000	SURCHARGED
60 minute summer	S24	33	43.987	0.137	71.7	0.4515	0.0000	OK
60 minute summer	S25	35	43.571	0.571	71.6	0.8172	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	51.5	2.481	0.455	0.2311	
60 minute summer	S2	2.000	S3	36.4	1.337	0.692	0.2394	
60 minute summer	S3	1.001	S4	100.0	2.194	0.662	1.2015	
60 minute summer	S4	1.002	S5	125.3	1.665	0.535	2.1866	
60 minute summer	S5	1.003	S6	175.3	2.025	0.756	2.1923	
60 minute summer	S6	1.004	S7	185.1	2.354	0.791	3.0613	
60 minute summer	S7	1.005	S8	221.8	3.306	0.582	2.7291	
60 minute summer	S8	1.006	S9	229.4	1.818	0.490	3.0313	
60 minute summer	S9	1.007	S10	249.7	1.576	0.776	3.1966	
60 minute summer	S10	1.008	S20	272.2	1.718	1.451	5.3649	
60 minute summer	S11	3.000	S12	38.9	1.749	0.404	0.3978	
60 minute summer	S12	3.001	S15	70.0	2.554	0.714	0.7722	
60 minute summer	S13	4.000	S14	32.8	1.182	0.601	0.4518	
60 minute summer	S14	4.001	S15	35.1	1.190	0.766	0.5109	
60 minute summer	S15	3.002	S16	158.2	1.979	0.659	3.6481	
60 minute summer	S16	3.003	S17	163.2	2.002	0.652	2.4712	
60 minute summer	S17	3.004	S18	155.7	1.659	0.623	1.9478	
60 minute summer	S18	3.005	S19	191.7	1.739	0.867	2.6640	
60 minute summer	S19	3.006	S20	221.8	2.026	0.986	1.2676	
60 minute summer	S20	1.009	S21	493.7	3.116	0.923	3.6971	
60 minute summer	S21	1.009a	S22	493.4	3.206	2.732	5.0274	
60 minute summer	S22	1.010	S23	25.6	0.468	0.097	2.3553	
10080 minute winter	S23	1.011	S24	1.8	0.598	0.019	0.1961	
60 minute summer	S24	1.012	S25	71.6	1.629	0.438	2.0056	
60 minute summer	S25	1.013	S26	64.4	1.261	0.703	1.3430	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	35	43.484	0.614	64.4	0.8784	0.0000	SURCHARGED
60 minute summer	S27	35	43.374	0.674	126.5	2.0345	0.0000	SURCHARGED
60 minute summer	S28	33	46.060	0.360	55.0	1.0645	0.0000	SURCHARGED
60 minute summer	S29	35	45.646	0.121	54.0	0.1368	0.0000	OK
60 minute summer	S30	35	45.323	0.623	42.4	1.4022	0.0000	SURCHARGED
60 minute summer	S31	35	45.299	0.749	49.4	1.0006	0.0000	SURCHARGED
60 minute summer	S32	35	45.243	0.938	59.2	1.0612	0.0000	SURCHARGED
60 minute summer	S33	35	45.209	1.029	145.6	1.9524	0.0000	SURCHARGED
60 minute summer	S34	35	44.949	0.814	195.3	1.6313	0.0000	SURCHARGED
60 minute summer	S35	33	43.798	0.198	87.9	0.7434	0.0000	OK
60 minute summer	S36	34	43.345	0.380	87.9	0.4301	0.0000	SURCHARGED
60 minute summer	S37	34	43.267	0.522	286.4	0.8263	0.0000	SURCHARGED
60 minute summer	S38	34	43.021	0.341	318.0	0.7105	0.0000	OK
60 minute summer	S39	34	42.279	0.249	437.7	0.3565	0.0000	OK
240 minute winter	S40	232	41.824	0.724	136.3	0.0000	0.0000	SURCHARGED
60 minute summer	S41	33	49.638	0.163	123.2	0.7629	0.0000	OK
60 minute summer	S42	34	47.315	0.390	169.1	0.8921	0.0000	SURCHARGED
60 minute summer	S43	34	47.080	0.405	207.7	0.8940	0.0000	SURCHARGED
60 minute summer	S44	33	46.582	0.257	262.2	0.6562	0.0000	OK
60 minute summer	S45	33	45.685	0.335	309.4	0.8618	0.0000	OK
60 minute summer	S46	33	45.383	0.303	333.0	0.6053	0.0000	OK
60 minute summer	S47	33	47.568	0.543	112.6	2.2282	0.0000	SURCHARGED
60 minute summer	S48	33	46.992	0.217	185.0	0.7149	0.0000	OK
60 minute summer	S49	33	46.258	0.283	184.7	0.4048	0.0000	OK
60 minute summer	S50	33	45.958	0.183	184.1	0.2617	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	64.6	0.948	0.706	1.7642	
60 minute summer	S27	1.015	S39	121.6	1.729	1.337	5.2745	
60 minute summer	S28	5.000	S29	54.0	1.633	1.277	0.8113	
60 minute summer	S29	5.001	S33	53.1	1.848	0.377	0.5387	
60 minute summer	S30	6.000	S31	39.3	1.235	0.354	1.0586	
60 minute summer	S31	6.001	S32	59.2	1.239	0.534	1.7358	
60 minute summer	S32	6.002	S33	63.8	0.906	0.568	0.8597	
60 minute summer	S33	5.002	S34	145.1	2.060	1.800	0.5988	
60 minute summer	S34	5.003	S37	194.9	2.799	1.072	3.2840	
60 minute summer	S35	7.000	S36	87.9	1.432	0.790	3.7966	
60 minute summer	S36	7.001	S37	86.5	1.288	0.769	0.4809	
60 minute summer	S37	5.004	S38	286.4	1.867	1.406	2.3267	
60 minute summer	S38	5.005	S39	317.9	2.888	0.811	4.8538	
60 minute summer	S39	1.016	S40	437.1	3.948	0.512	1.6359	
60 minute summer	S40	1.016a	S62	434.6	3.349	0.928	3.5976	
60 minute summer	S41	8.000	S42	123.2	2.588	0.583	3.7292	
60 minute summer	S42	8.001	S43	164.8	1.582	0.867	3.0489	
60 minute summer	S43	8.002	S44	203.5	2.026	1.003	2.8408	
60 minute summer	S44	8.003	S45	261.9	2.379	0.602	5.9610	
60 minute summer	S45	8.004	S46	308.8	2.579	0.659	1.5496	
60 minute summer	S46	8.005	S52	332.6	2.651	0.613	2.4724	
60 minute summer	S47	9.000	S48	110.8	1.583	1.563	2.8656	
60 minute summer	S48	9.001	S49	184.7	2.369	0.591	2.5541	
60 minute summer	S49	9.002	S50	184.1	2.579	0.744	0.9338	
60 minute summer	S50	9.003	S51	183.4	2.178	0.451	1.9483	

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	33	45.263	0.538	257.6	1.3993	0.0000	SURCHARGED
60 minute summer	S52	33	44.921	0.531	588.3	0.7600	0.0000	OK
60 minute summer	S53	33	44.579	0.279	703.5	1.1136	0.0000	OK
60 minute summer	S54	33	45.098	0.148	36.4	0.3615	0.0000	OK
60 minute summer	S55	33	44.806	0.131	36.4	0.1480	0.0000	OK
60 minute summer	S56	32	44.721	0.181	137.3	0.6003	0.0000	OK
60 minute summer	S57	35	42.635	0.930	141.6	1.3305	0.0000	SURCHARGED
60 minute summer	S58	35	42.617	1.022	860.4	4.4040	0.0000	SURCHARGED
60 minute summer	S59	35	42.073	1.193	885.7	2.8480	0.0000	SURCHARGED
240 minute winter	S60	232	41.823	1.198	266.9	2.3442	0.0000	SURCHARGED
240 minute winter	S61	232	41.823	1.223	267.2	0.0000	0.0000	SURCHARGED
240 minute winter	S62	232	41.823	1.423	400.5	1794.2210	0.0000	SURCHARGED
240 minute winter	S63	232	41.822	1.452	59.8	8.3131	0.0000	SURCHARGED
240 minute winter	S64	232	40.516	0.161	59.8	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	256.7	1.634	1.263	7.0063	
60 minute summer	S52	8.006	S53	587.4	2.911	1.245	3.7436	
60 minute summer	S53	8.007	S58	702.6	3.928	0.461	11.0541	
60 minute summer	S54	10.000	S55	36.4	1.376	0.694	0.5203	
60 minute summer	S55	10.001	S56	36.3	0.995	0.325	0.4931	
60 minute summer	S56	10.002	S57	141.6	3.073	0.687	4.1748	
60 minute summer	S57	10.003	S58	120.8	0.713	0.711	15.6855	
60 minute summer	S58	8.008	S59	843.3	2.375	0.763	18.3737	
60 minute summer	S59	8.009	S60	886.2	2.483	0.810	6.6969	
60 minute summer	S60	8.010	S61	912.0	2.555	2.420	5.4468	
60 minute summer	S61	8.011	S62	911.6	2.736	1.387	14.4772	
240 minute winter	S62	1.017	S63	59.8	0.351	0.137	4.8877	
240 minute winter	S63	1.018	S64	59.8	1.187	0.396	0.1322	3186.2

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S1	35	49.550	0.325	68.1	0.9301	0.0000	SURCHARGED
60 minute summer	S2	35	49.434	0.634	48.0	1.2312	0.0000	SURCHARGED
60 minute summer	S3	35	49.347	0.712	131.2	0.9746	0.0000	SURCHARGED
60 minute summer	S4	35	48.986	0.911	163.3	1.8812	0.0000	SURCHARGED
60 minute summer	S5	35	48.786	1.111	212.2	2.7965	0.0000	SURCHARGED
60 minute summer	S6	35	48.439	1.104	217.7	1.8377	0.0000	SURCHARGED
60 minute summer	S7	34	47.952	1.077	266.8	2.7728	0.0000	SURCHARGED
60 minute summer	S8	34	47.329	1.479	281.4	2.5836	0.0000	FLOOD RISK
60 minute summer	S9	33	47.100	1.650	311.5	3.3215	11.0346	FLOOD
60 minute summer	S10	33	46.900	1.650	299.3	3.4221	0.2736	FLOOD
60 minute summer	S11	35	48.969	0.644	51.4	1.6175	0.0000	SURCHARGED
60 minute summer	S12	35	48.813	1.088	88.3	2.4727	0.0000	SURCHARGED
60 minute summer	S13	35	48.365	1.240	43.4	2.9063	0.0000	FLOOD RISK
60 minute summer	S14	35	48.281	1.281	37.4	1.8327	0.0000	FLOOD RISK
60 minute summer	S15	35	48.186	1.436	182.4	4.2427	0.0000	FLOOD RISK
60 minute summer	S16	35	47.833	1.558	206.2	3.0410	0.0000	FLOOD RISK
60 minute summer	S17	35	47.500	1.575	206.6	2.2538	0.1556	FLOOD
60 minute summer	S18	33	47.225	1.575	256.5	3.9942	9.4585	FLOOD
60 minute summer	S19	33	46.866	1.511	255.4	2.8116	0.0000	SURCHARGED
60 minute summer	S20	37	46.543	1.408	548.1	2.0150	0.0000	SURCHARGED
60 minute summer	S21	38	45.769	1.269	548.2	0.0000	0.0000	FLOOD RISK
10080 minute winter	S22	8220	45.762	1.362	14.4	1571.1250	0.0000	FLOOD RISK
10080 minute winter	S23	8220	45.762	1.462	7.0	5.0660	0.0000	FLOOD RISK
60 minute summer	S24	35	44.367	0.517	94.2	1.6994	0.0000	SURCHARGED
60 minute summer	S25	35	44.163	1.163	84.9	1.6637	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S1	1.000	S3	67.8	2.483	0.599	0.4362	
60 minute summer	S2	2.000	S3	47.5	1.396	0.903	0.3500	
60 minute summer	S3	1.001	S4	129.9	2.255	0.860	1.8570	
60 minute summer	S4	1.002	S5	149.5	1.664	0.638	3.2173	
60 minute summer	S5	1.003	S6	205.0	2.036	0.883	2.7924	
60 minute summer	S6	1.004	S7	213.8	2.342	0.914	3.7173	
60 minute summer	S7	1.005	S8	266.0	3.289	0.698	2.9089	
60 minute summer	S8	1.006	S9	281.1	1.824	0.600	3.0313	
60 minute summer	S9	1.007	S10	263.9	1.666	0.820	3.1966	
60 minute summer	S10	1.008	S20	292.6	1.847	1.560	5.3649	
60 minute summer	S11	3.000	S12	48.3	1.750	0.501	0.7016	
60 minute summer	S12	3.001	S15	79.1	2.583	0.807	0.9321	
60 minute summer	S13	4.000	S14	37.4	1.208	0.686	0.4518	
60 minute summer	S14	4.001	S15	38.2	1.286	0.834	0.5109	
60 minute summer	S15	3.002	S16	183.0	1.977	0.762	3.6481	
60 minute summer	S16	3.003	S17	206.6	2.002	0.825	2.4712	
60 minute summer	S17	3.004	S18	204.0	1.850	0.816	1.9478	
60 minute summer	S18	3.005	S19	214.8	1.948	0.971	2.6640	
60 minute summer	S19	3.006	S20	256.1	2.322	1.139	1.2676	
60 minute summer	S20	1.009	S21	548.2	3.460	1.025	3.6971	
60 minute summer	S21	1.009a	S22	548.2	3.501	3.035	5.0274	
60 minute summer	S22	1.010	S23	24.1	0.507	0.091	2.3553	
60 minute summer	S23	1.011	S24	-5.6	0.569	-0.060	2.6949	
60 minute summer	S24	1.012	S25	84.9	1.645	0.519	2.7724	
60 minute summer	S25	1.013	S26	81.4	1.258	0.889	1.3430	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S26	35	44.049	1.179	81.4	1.6867	0.0000	SURCHARGED
60 minute summer	S27	35	43.907	1.207	148.7	3.6436	0.0000	SURCHARGED
60 minute summer	S28	35	46.950	1.250	72.7	3.7008	0.0000	FLOOD RISK
60 minute summer	S29	35	46.475	0.950	63.3	1.0744	0.0000	SURCHARGED
60 minute summer	S30	34	46.200	1.500	56.1	3.3765	3.8037	FLOOD
60 minute summer	S31	34	46.197	1.647	58.1	2.2001	0.0000	SURCHARGED
60 minute summer	S32	34	46.177	1.872	62.3	2.1175	0.0000	SURCHARGED
60 minute summer	S33	34	46.165	1.985	168.1	3.7647	0.0000	SURCHARGED
60 minute summer	S34	34	45.850	1.715	234.7	3.4361	0.0000	SURCHARGED
60 minute summer	S35	34	44.294	0.694	116.1	2.6042	0.0000	SURCHARGED
60 minute summer	S36	35	43.613	0.648	109.7	0.7327	0.0000	SURCHARGED
60 minute summer	S37	35	43.490	0.745	350.2	1.1795	0.0000	SURCHARGED
60 minute summer	S38	35	43.179	0.499	389.1	1.0412	0.0000	SURCHARGED
60 minute summer	S39	36	42.415	0.385	534.1	0.5511	0.0000	OK
240 minute winter	S40	232	42.112	1.012	173.1	0.0000	0.0000	SURCHARGED
60 minute summer	S41	33	49.682	0.207	162.8	0.9697	0.0000	OK
60 minute summer	S42	34	47.844	0.919	222.6	2.1012	0.0000	SURCHARGED
60 minute summer	S43	33	47.406	0.731	274.1	1.6164	0.0000	SURCHARGED
60 minute summer	S44	34	46.711	0.386	350.9	0.9840	0.0000	OK
60 minute summer	S45	34	46.116	0.766	404.8	1.9697	0.0000	SURCHARGED
60 minute summer	S46	34	45.753	0.673	430.5	1.3441	0.0000	SURCHARGED
60 minute summer	S47	33	47.979	0.954	148.8	3.9147	0.0000	SURCHARGED
60 minute summer	S48	34	47.071	0.296	244.5	0.9753	0.0000	OK
60 minute summer	S49	34	46.548	0.573	242.8	0.8199	0.0000	SURCHARGED
60 minute summer	S50	34	46.249	0.474	239.1	0.6780	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S26	1.014	S27	84.1	1.195	0.921	1.7642	
60 minute summer	S27	1.015	S39	147.1	2.089	1.617	5.3691	
60 minute summer	S28	5.000	S29	63.3	1.716	1.498	1.0490	
60 minute summer	S29	5.001	S33	64.6	1.852	0.458	0.6966	
60 minute summer	S30	6.000	S31	44.1	1.232	0.397	1.0586	
60 minute summer	S31	6.001	S32	62.3	1.248	0.562	1.7358	
60 minute summer	S32	6.002	S33	69.4	0.985	0.617	0.8597	
60 minute summer	S33	5.002	S34	170.9	2.427	2.120	0.5988	
60 minute summer	S34	5.003	S37	231.2	3.283	1.272	3.2840	
60 minute summer	S35	7.000	S36	109.7	1.558	0.986	4.4635	
60 minute summer	S36	7.001	S37	107.9	1.533	0.959	0.4809	
60 minute summer	S37	5.004	S38	346.6	2.188	1.702	2.5668	
60 minute summer	S38	5.005	S39	387.0	2.899	0.988	6.7169	
60 minute summer	S39	1.016	S40	530.5	3.944	0.621	2.0338	
60 minute summer	S40	1.016a	S62	528.9	3.339	1.129	3.5976	
60 minute summer	S41	8.000	S42	161.9	2.597	0.766	4.2133	
60 minute summer	S42	8.001	S43	219.1	1.986	1.152	3.0489	
60 minute summer	S43	8.002	S44	273.9	2.484	1.351	2.9203	
60 minute summer	S44	8.003	S45	343.3	2.390	0.790	8.2005	
60 minute summer	S45	8.004	S46	400.2	2.575	0.854	2.0449	
60 minute summer	S46	8.005	S52	429.3	2.710	0.791	3.0529	
60 minute summer	S47	9.000	S48	146.4	2.080	2.066	2.9575	
60 minute summer	S48	9.001	S49	242.8	2.423	0.777	3.3503	
60 minute summer	S49	9.002	S50	239.1	2.563	0.966	1.4452	
60 minute summer	S50	9.003	S51	234.1	2.174	0.576	2.6264	

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.64%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	S51	34	45.803	1.078	329.4	2.8038	0.0000	SURCHARGED
60 minute summer	S52	34	45.220	0.830	753.3	1.1878	0.0000	SURCHARGED
60 minute summer	S53	35	44.778	0.478	897.3	1.9060	0.0000	OK
60 minute summer	S54	35	45.499	0.549	48.0	1.3414	0.0000	SURCHARGED
60 minute summer	S55	35	45.352	0.677	47.1	0.7661	0.0000	SURCHARGED
60 minute summer	S56	35	45.325	0.785	180.4	2.5976	0.0000	SURCHARGED
60 minute summer	S57	35	43.750	2.045	167.3	2.9264	1.7320	FLOOD
60 minute summer	S58	35	43.720	2.125	1099.9	9.1553	0.0000	SURCHARGED
60 minute summer	S59	36	42.827	1.947	1140.9	4.6502	0.0000	FLOOD RISK
60 minute summer	S60	36	42.326	1.701	1175.1	3.3263	0.0000	SURCHARGED
240 minute winter	S61	232	42.112	1.512	346.6	0.0000	0.0000	SURCHARGED
240 minute winter	S62	236	42.111	1.711	518.6	2339.1960	0.0000	FLOOD RISK
240 minute winter	S63	236	42.110	1.740	68.1	9.9633	0.0000	FLOOD RISK
240 minute winter	S64	236	40.529	0.174	68.1	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	S51	9.004	S52	324.7	2.050	1.598	7.3618	
60 minute summer	S52	8.006	S53	751.7	2.888	1.594	4.9854	
60 minute summer	S53	8.007	S58	885.2	3.933	0.581	14.1007	
60 minute summer	S54	10.000	S55	47.1	1.431	0.899	0.7821	
60 minute summer	S55	10.001	S56	47.1	1.011	0.421	0.9413	
60 minute summer	S56	10.002	S57	167.3	3.105	0.812	5.2260	
60 minute summer	S57	10.003	S58	175.8	0.657	1.034	15.6855	
60 minute summer	S58	8.008	S59	1078.3	3.021	0.975	18.3737	
60 minute summer	S59	8.009	S60	1136.5	3.184	1.039	6.6969	
60 minute summer	S60	8.010	S61	1172.2	3.284	3.110	5.4468	
60 minute summer	S61	8.011	S62	1170.9	3.280	1.782	14.4772	
240 minute winter	S62	1.017	S63	68.1	0.330	0.156	4.8877	
240 minute winter	S63	1.018	S64	68.1	1.228	0.451	0.1453	3863.8

Appendix I

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type Pollution Hazard Level Pollution Hazard Indices TSS Metals Hydrocarbons	Roads (excluding low traffic roads, highly frequented lorry approaches to industrial estates, trunk roads/motorways) Medium 0.7 0.6 0.7				
SuDS components proposed		SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 1	Bioretention system (where the system is not designed as an infiltration component)				
Component 2	Detention basin				
Component 3	None				
SuDS Pollution Mitigation Indices TSS Metals Hydrocarbons	>0.95 >0.95 >0.95				
Groundwater protection type Groundwater protection Pollution Mitigation Indices TSS Metals Hydrocarbons	None 0 0 0				
Combined Pollution Mitigation Indices TSS Metals Hydrocarbons Acceptability of Pollution Mitigation TSS Metals Hydrocarbons	>0.95 >0.95 >0.95 Sufficient Sufficient Sufficient	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Roads (excluding low traffic roads, highly frequented lorry approaches to industrial estates, trunk roads/motorways)				
Pollution Hazard Level	Medium				
Pollution Hazard Indices					
TSS	0.7				
Metals	0.6				
Hydrocarbons	0.7				
SuDS components proposed					
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.95				
Metals	0.85				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection					
Pollution Mitigation					
Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation					
Indices					
TSS	0.95	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Metals	0.85				
Hydrocarbons	>0.95				
Acceptability of Pollution					
Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Roads (excluding low traffic roads, highly frequented lorry approaches to industrial estates, trunk roads/motorways)				
Pollution Hazard Level	Medium				
Pollution Hazard Indices					
TSS	0.7				
Metals	0.6				
Hydrocarbons	0.7				
SuDS components proposed					
Component 1	Swale	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.75				
Metals	0.85				
Hydrocarbons	0.9				
Groundwater protection type	None				
Groundwater protection					
Pollution Mitigation					
Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation		Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
Indices					
TSS	0.75				
Metals	0.85				
Hydrocarbons	0.9				
Acceptability of Pollution					
Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Low traffic roads (e.g. residential roads and general access roads, < 300 traffic movements/day)				
Pollution Hazard Level	Low				
Pollution Hazard Indices					
TSS	0.5				
Metals	0.4				
Hydrocarbons	0.4				
SuDS components proposed		SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 1	Detention basin				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Groundwater protection type	None				
Groundwater protection					
Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices		Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Individual driveway				
Pollution Hazard Level	Low				
Pollution Hazard Indices					
TSS	0.5				
Metals	0.4				
Hydrocarbons	0.4				
SuDS components proposed					
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 2	Detention basin				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.95				
Metals	0.85				
Hydrocarbons	>0.95				
Groundwater protection type	None				
Groundwater protection					
Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices		Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
TSS	0.95				
Metals	0.85				
Hydrocarbons	>0.95				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type	Residential roofing				
Pollution Hazard Level	Very low				
Pollution Hazard Indices					
TSS	0.2				
Metals	0.2				
Hydrocarbons	0.05				
SuDS components proposed		SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B			
Component 1	Detention basin				
Component 2	None				
Component 3	None				
SuDS Pollution Mitigation Indices					
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Groundwater protection type	None				
Groundwater protection					
Pollution Mitigation Indices					
TSS	0				
Metals	0				
Hydrocarbons	0				
Combined Pollution Mitigation Indices		Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			
TSS	0.5				
Metals	0.5				
Hydrocarbons	0.6				
Acceptability of Pollution Mitigation					
TSS	Sufficient				
Metals	Sufficient				
Hydrocarbons	Sufficient				

Appendix J

OPERATION AND MAINTENANCE REQUIREMENTS BASED ON C753 THE SuDS
MANUAL 2015

Inlets, Outlets, Controls and Inspection Chambers	
Regular Maintenance	Typical Frequency
Inlets, outlets and surface control structures Inspect surface structures, removing obstructions and silt as necessary. Check there is no physical damage.	Monthly
Inspection chambers and below-ground control chambers Remove cover and inspect, ensuring that water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn.	Annually
Occasional Maintenance	
Check topsoil levels are 20mm above edges of baskets and chambers to avoid mower damage.	As necessary
Remedial Work	Frequency
Repair physical damage if necessary	As Required

Operation and Maintenance Requirements for Pervious Pavements		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface).	Once a year, after autumn leaf fall, or reduce frequency as required, based on site-specific observations of clogging or manufacture's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is the most likely to collect the most sediment.
Occasional maintenance	Stabilise and mow contributing and adjacent areas.	As required.
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator rather than a spray.	As required – once per a year on less frequently used pavements.
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the paving.	As required.
	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing materials.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Initial inspection.	Monthly for three months after instillation.

Operation and Maintenance Requirements for Pervious Pavements		
Maintenance Schedule	Required Action	Typical Frequency
	Inspect for evidence of poor operation and/or weed growth – if required, take remedial action.	Three-monthly, 48 hours after large storms in first six months.
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually.
	Monitor inspection chambers.	Annually.

Operation and Maintenance Requirements for Attenuation Storage Tanks

Maintenance Schedule	Required Action	Typical Frequency
Regular Inspections	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risk to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface or filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary.	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays.	Annually, or as required
Remedial Action	Repair/rehabilitate inlets, outlets, overflows and vents.	As required
Monitoring	Inspect/ check all inlets, outlets vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required

Operation and Maintenance Requirements for Filter Drains

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter (including leaf litter) and debris from filter drain surface, access chambers and pre-treatment devices.	Monthly or as required.
	Inspect filter drain surface, inlet/outlet pipework and control system for blockages, clogging, standing water and structural damage.	Monthly.
	Inspect pre-treatment systems, inlets and perforated pipework for silt accumulation, and establish appropriate silt removal frequencies.	Six monthly.
	Remove sediment from pre-treatment devices.	Six monthly, or as required.
Occasional Maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (e.g. NJUG, 2007 or BS 3998:2010).	As required.
	At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium.	Five yearly, or as required.
	Clear perforated pipework of blockages.	As required.

Operation and Maintenance Requirements for Bio-Retention Features		
Maintenance Schedule	Required Action	Typical Frequency
Regular Inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time and assess water levels in underdrain (if appropriate) to determine any maintenance need.	Quarterly
	Check performance of underdrains by inspection of flows after rain.	Annually
	Assess plants for disease infection, poor growth, invasive species etc. and replace as necessary.	Quarterly
	Inspect inlets and outlets for blockage.	Quarterly
Regular Maintenance	Remove litter (including leaf litter), surface debris and weeds.	Quarterly or more frequently as required for aesthetic reasons.
	Replace any plants, to maintain planting density.	As required.
	Remove sediment, litter and debris build-up from around inlets or from forebays.	Quarterly to bi-annually.
Occasional Maintenance	Infill any holes or scour in the filter medium, improve erosion protection if necessary.	As required.
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch.	As required.
Remedial Actions	Remove and replace filter medium and vegetation above.	As required, but expectancy of >20 years.

Operation and Maintenance Requirements for Swales

Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter (including leaf litter) and debris.	Monthly or as required.
	Cut grass – to retain grass height within specified design range.	Monthly (during growing season) or as required.
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly.
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours.	Monthly or as required.
	Inspect vegetation coverage.	Monthly for six months, quarterly for two years, then half yearly.
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies.	Half yearly.
Occasional Maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the swale treatment area.
Remedial Actions	Repair erosion or other damage by re-turfing or reseeded.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.
	Scarify and spike topsoil layer to improve infiltration performance, break-up silt deposits and prevent compaction of the soil surface.	As required.
	Remove build-up of sediment on upstream gravel trench, flow spreader or top of soil surface.	As required.

Operation and Maintenance Requirements for Swales		
Maintenance Schedule	Required Action	Typical Frequency
Remedial Actions	Remove and dispose of oil and fuel residues using safe standard practices.	As required.

Operation and Maintenance Requirements for Detention Basin		
Maintenance Schedule	Required Action	Typical Frequency
Regular Maintenance	Remove litter (including leaf litter) and debris.	Monthly or as required.
	Cut grass – for spillways and access routes.	Monthly (during growing season) or as required.
	Cut grass – meadow grass in and around basin.	Half yearly (spring – before nesting season, and autumn).
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect inlets, outlets and overflows for blockages, and clear if required.	Monthly.
	Inspect bankside, structures, pipework etc. for evidence of physical damage.	Monthly.
	Inspect inlets and facility surface for silt accumulation and establish appropriate silt removal frequencies.	Monthly (for first year), then annually or as required.
	Check any penstocks and other mechanical devices.	Annually.
	Tidy all dead growth before start of growing season.	Annually.
	Remove sediment from inlets, outlets and forebay.	Annually (or as required).
	Manage wetland plants in outlet pool – where provided.	Annually.
Occasional Maintenance	Reseed areas of poor vegetation growth.	As required.
	Prune and trim any trees, remove cuttings.	Every two years, or as required.
	Remove sediment from inlets, outlets, forebay and main basin when required.	Every five years, or as required.
Remedial Actions	Repair erosion or other damage by reseedling or re-turfing.	As required.
	Realignment of rip-rap.	As required.

Operation and Maintenance Requirements for Detention Basin		
Maintenance Schedule	Required Action	Typical Frequency
Remedial Actions	Repair/rehabilitation of inlets, outlets and overflows.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.