

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Diameter (m)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S46	0.007	0.250	250	45.866	45.654	0.062	448233.025	110669.229
S45	0.000	1.350	Type C	45.323	45.060	0.113	448250.082	110665.314
S44	0.014	1.350	Type C	45.667	45.015	0.502	448249.700	110663.131
S43	0.000	1.350	Type C	45.483	44.618	0.715	448272.374	110640.949
S42	0.000	0.000	Unknown	45.612	44.572	0.890	448270.538	110637.723
S41	0.013	0.250	250	45.703	45.044	0.509	448239.820	110654.857
S40	0.000	1.350	Type C	45.625	44.977	0.498	448243.917	110651.406
S39	0.000	1.350	Type C	45.639	44.856	0.632	448249.460	110643.506
S38	0.018	1.350	Type C	45.636	44.707	0.779	448259.624	110637.265
S37	0.017	1.350	Type C	45.884	44.608	1.126	448265.892	110632.457
S36	0.000	0.000	Unknown	45.711	44.572	0.989	448267.427	110634.930
S35	0.000	0.000	Unknown	46.117	43.922	2.095	448279.045	110632.581
S34	0.000	1.200	Type B	45.943	43.770	2.073	448281.706	110637.027
S33	0.000	1.200	Type B	45.155	43.110	1.945	448301.676	110625.739
S12	0.025	0.135	Unknown	45.461	43.750	1.561	448289.886	110619.368
S13	0.000	0.000	Unknown	45.319	43.650	1.519	448290.893	110617.720
S16	0.000	0.000	Unknown	45.072	43.240	1.732	448294.811	110615.320
S17	0.000	0.000	Unknown	44.921	43.160	1.661	448299.944	110618.417
S14	0.017	1.350	Type C	44.674	43.750	0.774	448303.982	110613.960
S15	0.000	0.000	Unknown	44.651	43.650	0.851	448303.307	110615.084
S18	0.000	0.000	Unknown	44.585	42.200	2.285	448305.605	110617.414
S19	0.000	1.200	Type B	44.544	42.130	2.314	448306.447	110617.929
S20	0.000	1.200	Type B	43.936	41.970	1.866	448309.254	110616.850
S21	0.039	1.350	Type C	42.231	40.881	1.250	448314.437	110627.315
S22	0.000	0.000	Unknown	42.142	40.820	1.172	448313.040	110628.161
S23	0.000	0.000	Unknown	42.068	39.400	2.568	448312.373	110630.866
S24	0.000	1.200	Type B	42.019	39.370	2.549	448313.342	110632.595
PS17	0.033	0.180	Type E	42.064	40.707	1.256	448332.831	110584.096
FD1	0.000	0.180	Type E	41.952	40.704	1.148	448331.116	110587.001
PS10	0.000	0.180	Type E	41.911	40.700	1.111	448331.298	110589.352
PS11	0.000	0.180	Type E	41.686	40.520	1.066	448328.035	110600.818
PS12	0.010	0.180	Type E	41.600	40.256	1.244	448327.332	110607.518
PS3	0.012	0.180	Type E	41.400	40.221	1.079	448331.604	110615.257
FD2	0.000	0.180	Type E	41.400	40.200	1.100	448327.083	110617.704
PS1	0.000	0.180	Type E	41.830	40.173	1.557	448324.054	110620.484
PS13	0.000	0.450	Type E	41.828	40.150	1.579	448324.029	110623.941
PS16	0.000	0.450	Type E	42.074	40.127	1.847	448321.172	110625.863
PS14	0.000	1.200	Type B	41.918	38.920	2.898	448321.397	110631.728
S47	0.015	0.000	Unknown	41.607	40.550	0.907	448301.470	110645.051
S32	0.000	0.000	Unknown	41.798	39.100	2.598	448320.386	110637.682
S48	0.000	1.200	Type B	41.813	39.086	2.627	448321.318	110637.070
S25	0.129	1.500	Type A	41.564	37.660	3.754	448325.385	110634.660
S26	0.000	1.500	Unknown	38.494	37.055	0.839	448328.204	110639.459
S27	0.058	1.500	Unknown	37.786	36.535	0.651	448360.635	110629.007
S28	0.006	0.000	Unknown	37.578	35.440	0.538	448372.263	110623.490
S29	0.000	0.000	Unknown	36.247	35.410	0.612	448395.960	110616.328
S30	0.000	1.350	Type C	37.000	35.330	1.445	448398.547	110621.513
S31	0.000	0.000	Type C	35.750	35.125	0.400	448403.502	110628.766

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (m)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)
1.000	S46	45.654	S45	45.060	Circ	0.15mØ	17.501	29.4	0.600	0.062
1.001	S45	45.060	S44	45.015	Circ	0.15mØ	2.216	49.1	0.600	0.113
1.002	S44	45.015	S43	44.618	Circ	0.15mØ	31.719	80.0	0.600	0.502
1.003	S43	44.618	S42	44.572	Circ	0.15mØ	3.711	80.0	0.600	0.715
1.004	S42	44.572	S35	43.922	Circ	0.15mØ	9.940	15.3	0.600	0.890
2.000	S41	45.044	S40	44.977	Circ	0.15mØ	5.357	80.0	0.600	0.509
2.001	S40	44.977	S39	44.856	Circ	0.15mØ	9.651	80.0	0.600	0.498
2.002	S39	44.856	S38	44.707	Circ	0.15mØ	11.926	80.0	0.600	0.632
2.003	S38	44.707	S37	44.608	Circ	0.15mØ	7.900	80.0	0.600	0.779

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (m)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)
2.004	S37	44.608	S36	44.572	Circ	0.15mØ	2.911	80.0	0.600	1.126
2.005	S36	44.572	S35	43.922	Circ	0.15mØ	11.853	18.2	0.600	0.989
1.005	S35	43.922	S34	43.770	Circ	0.1mØ	5.181	34.1	0.600	2.095
1.006	S34	43.770	S33	43.110	Circ	0.1mØ	22.940	34.8	0.600	2.073
1.007	S33	43.110	S19	42.130	Circ	0.15mØ	9.153	9.3	0.600	1.895
3.000	S12	43.750	S13	43.650	Circ	0.15mØ	1.932	19.3	0.600	1.561
3.001	S13	43.650	S16	43.240	Circ	0.15mØ	4.595	11.2	0.600	1.519
3.002	S16	43.240	S17	43.160	Circ	0.1mØ	5.995	74.9	0.600	1.732
3.003	S17	43.160	S18	42.200	Circ	0.15mØ	5.749	6.0	0.600	1.611
4.000	S14	43.750	S15	43.650	Circ	0.15mØ	1.311	13.1	0.600	0.774
4.001	S15	43.650	S18	42.200	Circ	0.15mØ	3.272	2.3	0.600	0.851
3.004	S18	42.200	S19	42.130	Circ	0.1mØ	0.988	14.1	0.600	2.285
1.008	S19	42.130	S20	41.970	Circ	0.1mØ	3.007	18.8	0.600	2.314
1.009	S20	41.970	S21	40.881	Circ	0.1mØ	11.678	10.7	0.600	1.866
1.010	S21	40.881	S22	40.820	Circ	0.15mØ	1.633	26.8	0.600	1.200
1.011	S22	40.820	S23	39.400	Circ	0.15mØ	2.786	2.0	0.600	1.172
1.012	S23	39.400	S24	39.370	Circ	0.1mØ	1.982	66.1	0.600	2.568
1.013	S24	39.370	S25	39.027	Circ	0.1mØ	12.219	35.6	0.600	2.549
5.000	PS17	40.707	FD1	40.704	Circ	0.1mØ	3.373	1077.3	0.600	1.256
5.001	FD1	40.704	PS10	40.700	Circ	0.1mØ	2.358	553.2	0.600	1.148
5.002	PS10	40.700	PS11	40.520	Circ	0.1mØ	11.922	66.2	0.600	1.111
5.003	PS11	40.520	PS12	40.256	Circ	0.1mØ	6.737	25.5	0.600	1.066
5.004	PS12	40.256	PS3	40.221	Circ	0.1mØ	8.839	250.0	0.600	1.244
5.005	PS3	40.221	FD2	40.200	Circ	0.1mØ	5.141	250.0	0.600	1.079
5.006	FD2	40.200	PS1	40.173	Circ	0.1mØ	4.111	150.0	0.600	1.100
5.007	PS1	40.173	PS13	40.150	Circ	0.1mØ	3.457	150.0	0.600	1.557
5.008	PS13	40.150	PS16	40.127	Circ	0.1mØ	3.443	150.0	0.600	1.579
5.009	PS16	40.127	PS14	38.920	Circ	0.1mØ	5.869	4.9	0.600	1.847
5.010	PS14	38.920	S25	37.710	Circ	0.1mØ	4.950	4.1	0.600	2.898
6.000	S47	40.550	S32	39.100	Circ	0.15mØ	20.300	14.0	0.600	0.907
6.001	S32	39.100	S48	39.086	Circ	0.1mØ	1.114	80.0	0.600	2.598
6.002	S48	39.086	S25	39.027	Circ	0.1mØ	4.727	80.0	0.600	2.627
1.014	S25	37.660	S26	37.555	Circ	0.15mØ	5.565	53.0	0.600	3.754
1.015	S26	37.055	S27	36.535	Circ	0.6mØ	34.074	65.5	0.600	0.839
1.016	S27	36.535	S28	36.440	Circ	0.6mØ	12.870	135.5	0.600	0.651
1.017	S28	35.440	S29	35.410	Circ	1.6mØ	24.756	825.2	0.600	0.538
1.018	S29	35.410	S30	35.330	Circ	0.225mØ	5.794	72.4	0.600	0.612
1.019	S30	35.330	S31	35.125	Circ	0.225mØ	8.783	42.8	0.600	1.445

Outfall Details

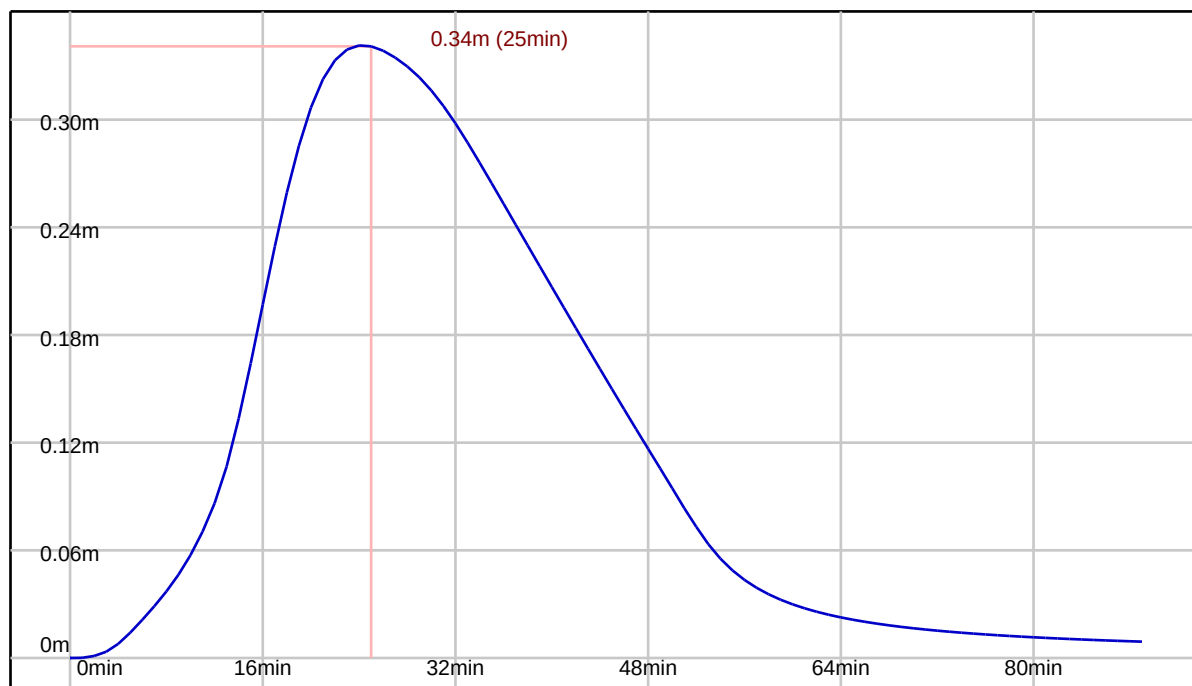
Outfall Manhole S31 : Free Discharge

Flow Control Details

Tank Structure at Manhole S35

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
43.922	0.800	95.00	52.000	49.400	39.520	0.00000000	0.00000000	2.00

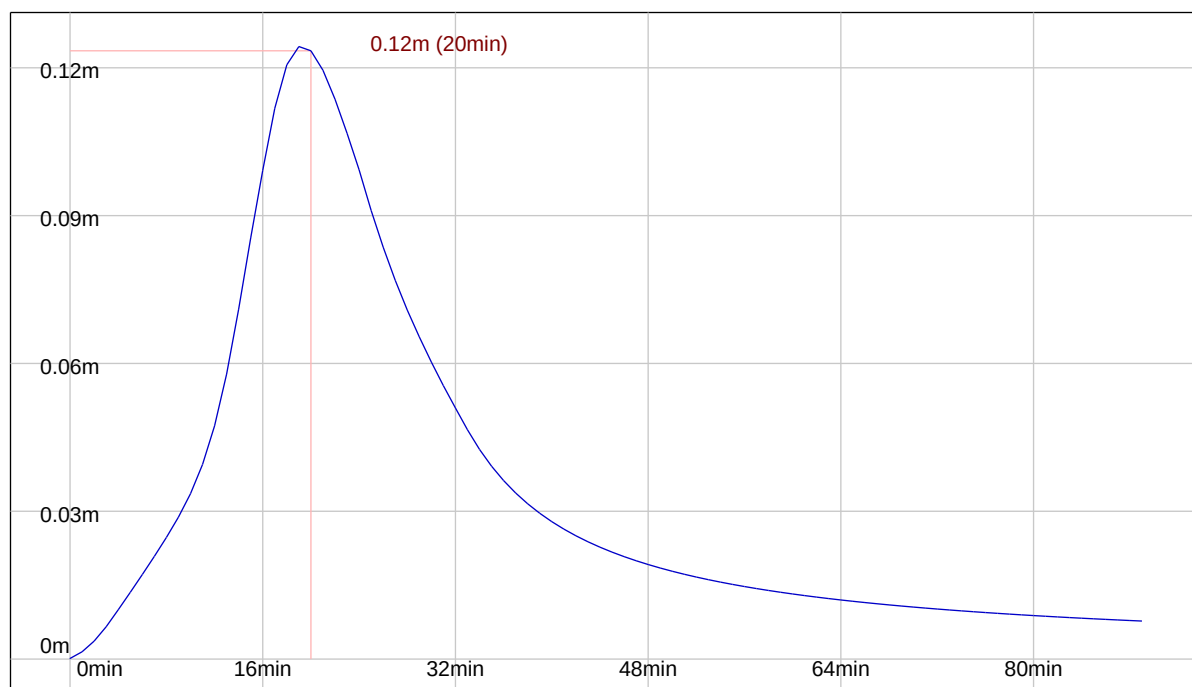
Tank at S35 (100Yr+45% 30Min Winter)



Tank Structure at Manhole S16

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
43.240	0.800	95.00	40.500	38.475	30.780	0.00000000	0.00000000	2.00

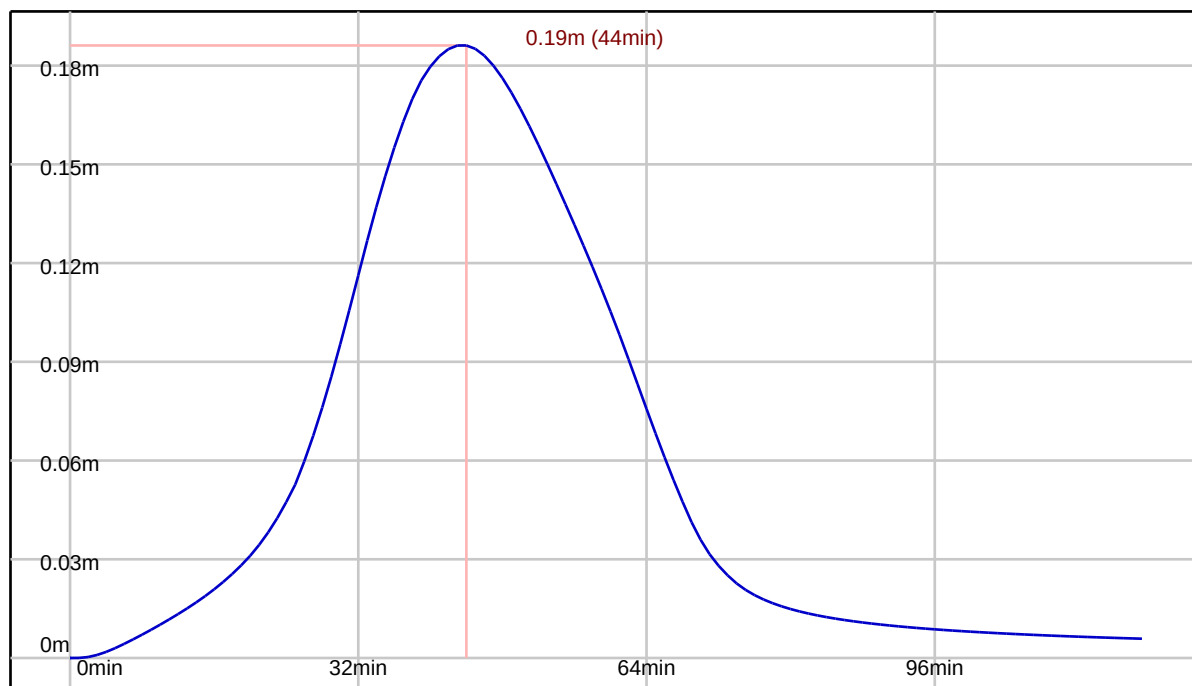
Tank at S16 (100Yr+45% 30Min Summer)



Tank Structure at Manhole S18

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
42.200	1.600	95.00	40.500	38.475	61.560	0.00000000	0.00000000	2.00

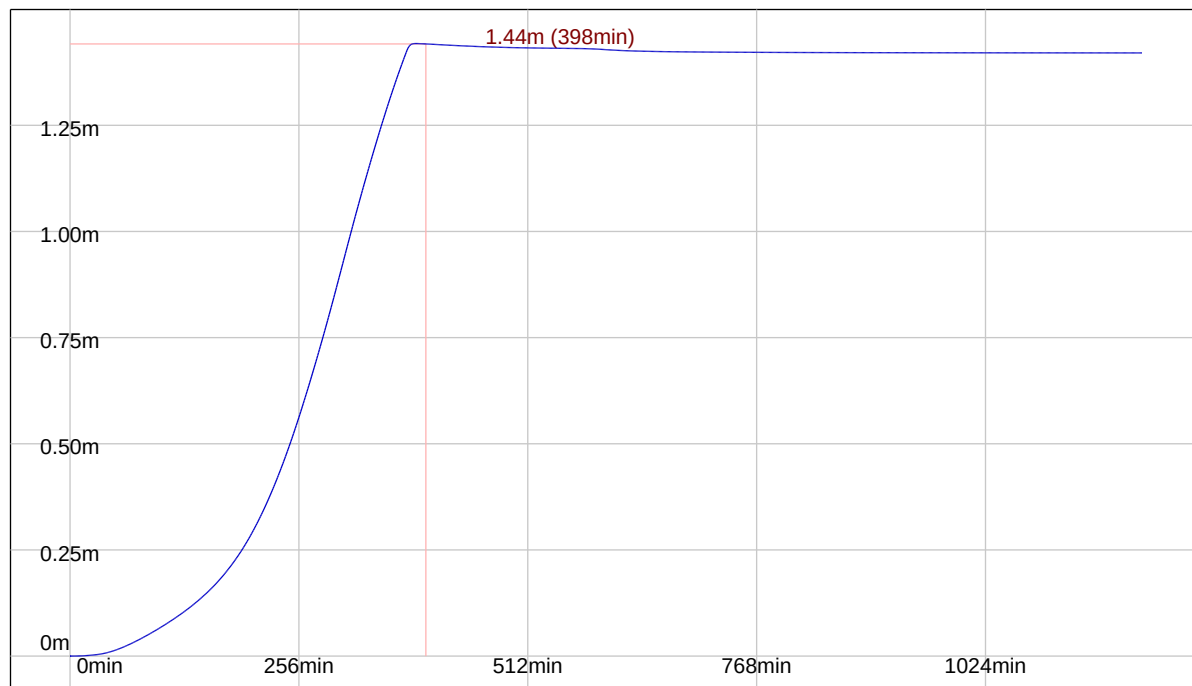
Tank at S18 (100Yr+45% 60Min Winter)



Tank Structure at Manhole S22

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
40.820	1.600	95.00	85.203	80.943	129.509	0.00000000	0.00000000	2.00

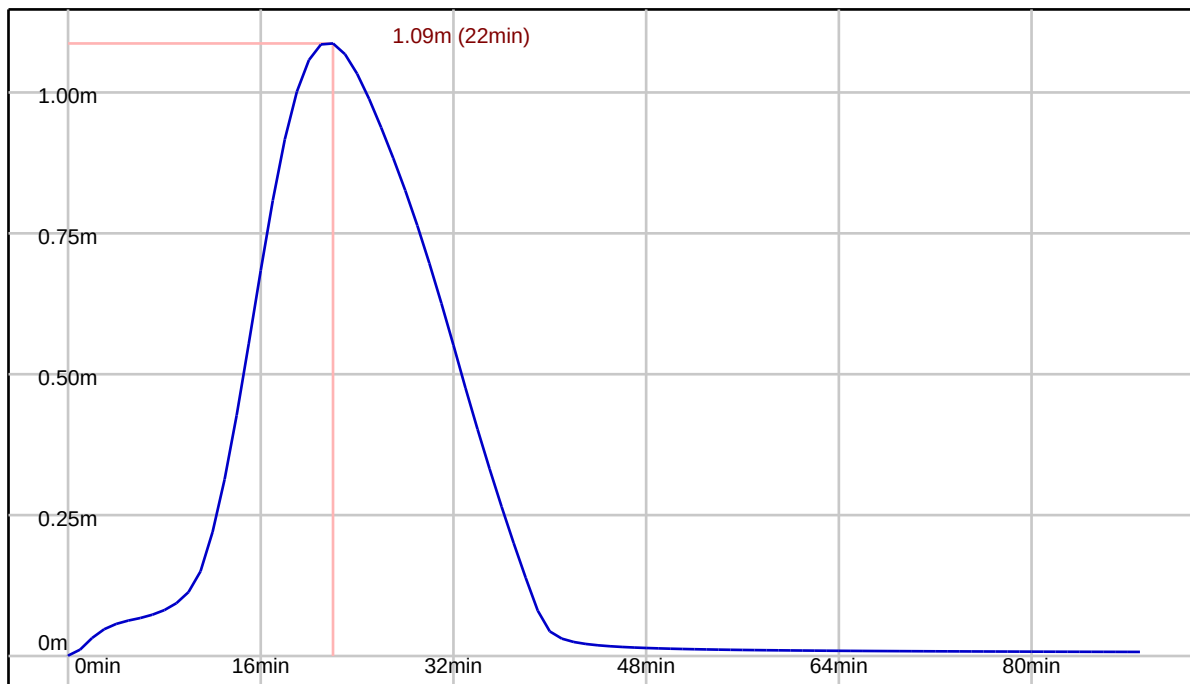
Tank at S22 (100Yr+45% 600Min Winter)



Tank Structure at Manhole FD1

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
40.704	1.200	30.00	9.322	2.797	3.356	0.00000000	0.00000000	2.00

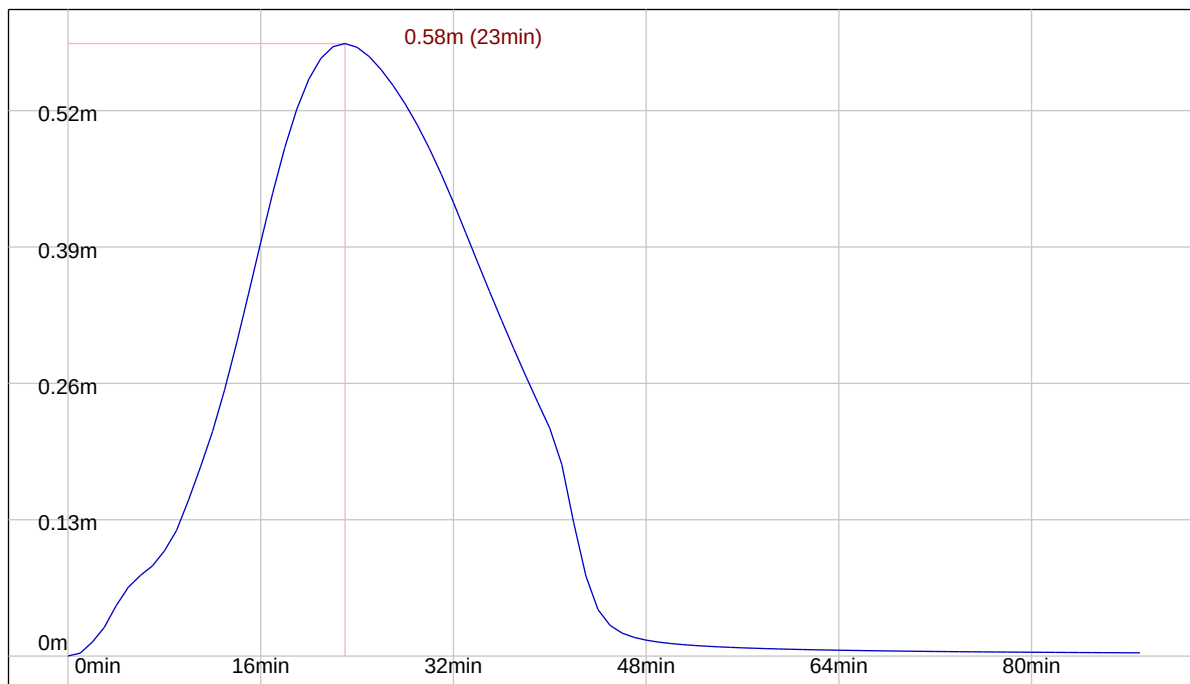
Tank at FD1 (100Yr+45% 30Min Winter)



Tank Structure at Manhole FD2

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
40.200	1.200	30.00	11.269	3.381	4.057	0.00000000	0.00000000	2.00

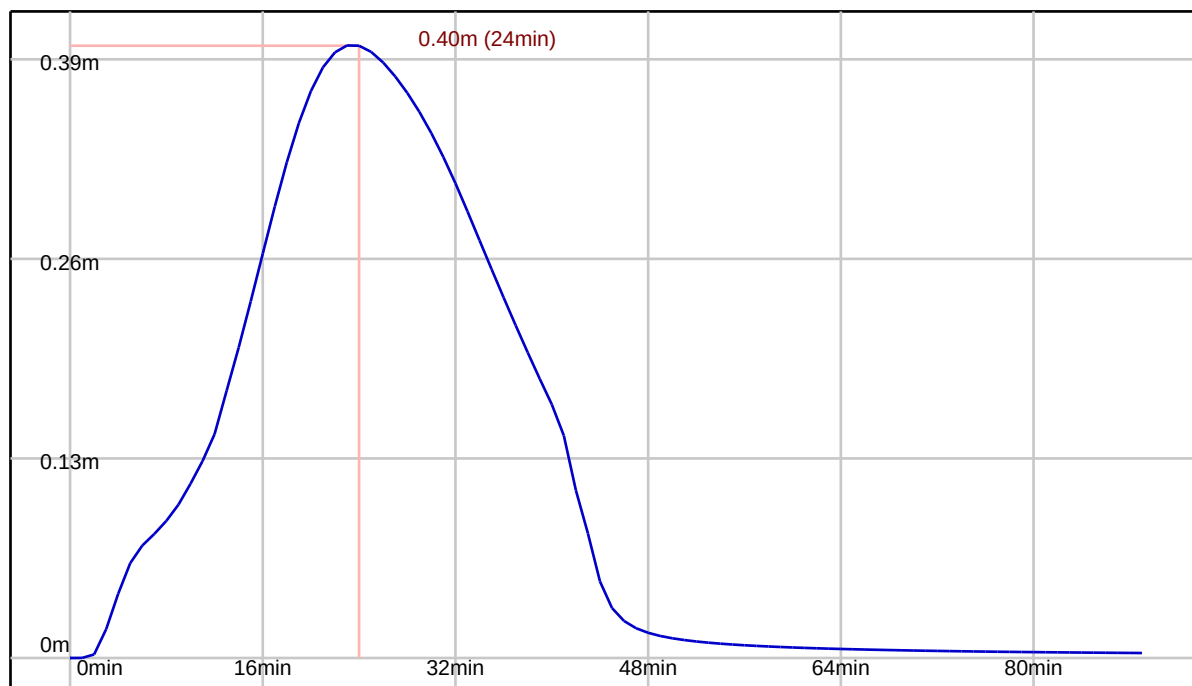
Tank at FD2 (100Yr+45% 30Min Winter)



Tank Structure at Manhole PS1

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
40.173	1.200	30.00	1.501	0.450	0.540	0.00000000	0.00000000	2.00

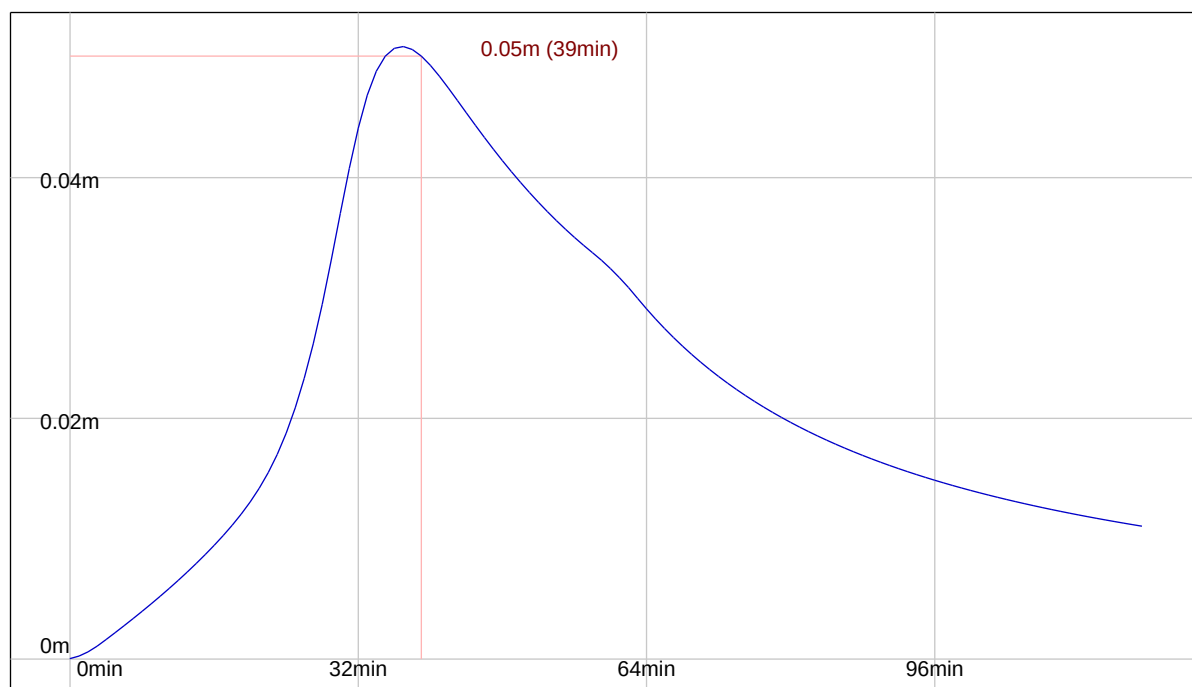
Tank at PS1 (100Yr+45% 30Min Winter)



Tank Structure at Manhole S32

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
39.100	1.600	95.00	90.000	85.500	136.800	0.00000000	0.00000000	2.00

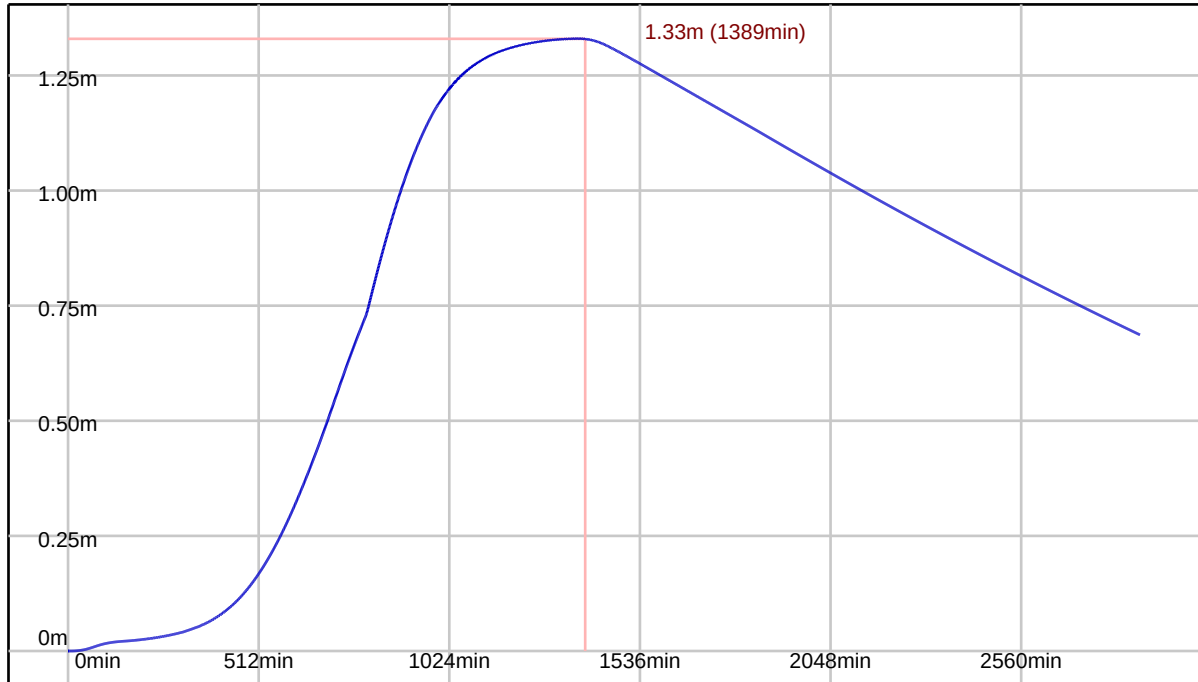
Tank at S32 (100Yr+45% 60Min Summer)



Tank Structure at Manhole S29

Tank Invert (m)	Tank Height (m)	Void Ratio (%)	Area (m2)	Effective Area (m2) Area x Void Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
35.410	1.600	95.00	187.591	178.211	285.138	0.00000000	0.00000000	2.00

Tank at S29 (100Yr+45% 1440Min Winter)

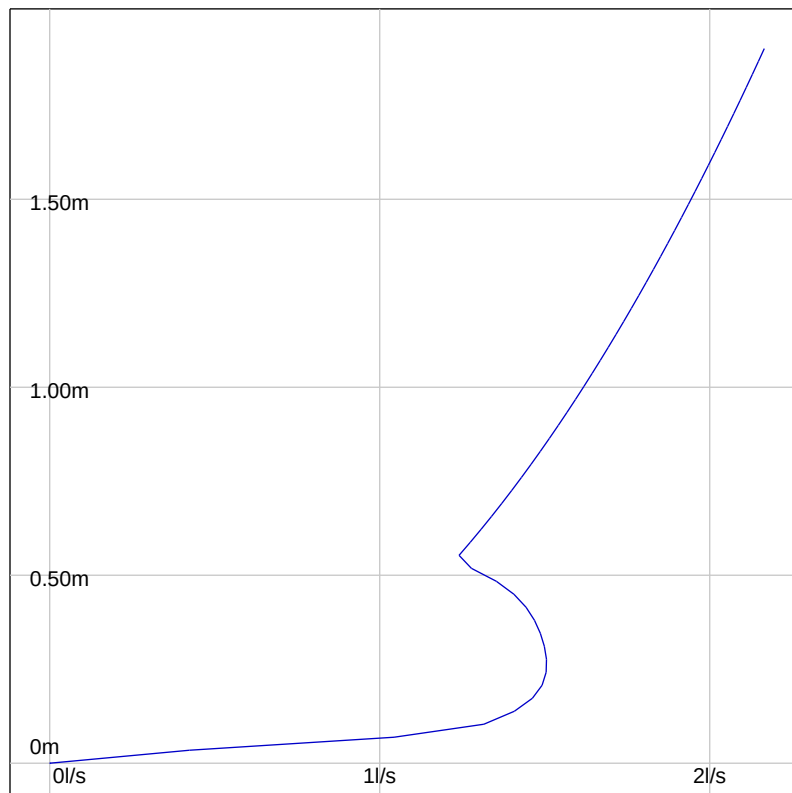


Controls within Manhole S30

Hydro-Brake® Optimum Control at Manhole S30

Model Ref	Design Depth (m)	Design Flow (l/s)	Depth Above Invert (m)	FF Head (m)	FF Flow (l/s)	KF Head (m)	KF Flow (l/s)
SHE-0060-2000-1600-2000 ID:613954	1.600	2.000	0.000	0.263	1.506	0.537	1.224

Hydro-Brake® Optimum Control at S30



Simulation Settings

FSR: M5-60=19.40, R=0.35, Locale=England and Wales

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760

Return Periods (yrs) + Climate Change: (1, +0%), (30, +40%), (100, +45%)

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
1Yr 15Min Winter	33.957	0.00	0.00	30Yr+40% 600Min Summer	7.902	0.00	0.05
1Yr 15Min Summer	33.957	0.00	0.00	30Yr+40% 600Min Winter	7.902	0.00	0.06
1Yr 30Min Winter	21.996	0.00	-0.07	30Yr+40% 720Min Summer	6.892	0.00	0.04
1Yr 30Min Summer	21.996	0.00	-0.07	30Yr+40% 720Min Winter	6.892	0.00	0.05
1Yr 60Min Winter	13.802	0.00	0.00	30Yr+40% 960Min Summer	5.551	0.00	0.03
1Yr 60Min Summer	13.802	0.00	0.00	30Yr+40% 960Min Winter	5.551	0.00	0.04
1Yr 120Min Summer	8.541	0.00	0.00	30Yr+40% 1440Min Summer	4.087	0.00	0.00
1Yr 120Min Winter	8.541	0.00	0.00	30Yr+40% 1440Min Winter	4.087	0.00	0.01
1Yr 180Min Summer	6.444	0.00	-0.05	30Yr+40% 2160Min Summer	3.004	0.00	0.00
1Yr 180Min Winter	6.444	0.00	-0.04	30Yr+40% 2160Min Winter	3.004	0.00	0.00
1Yr 240Min Summer	5.283	0.00	-0.04	30Yr+40% 2880Min Summer	2.413	0.00	0.00
1Yr 240Min Winter	5.283	0.00	0.00	30Yr+40% 2880Min Winter	2.413	0.00	0.00
1Yr 360Min Summer	3.985	0.00	0.00	30Yr+40% 4320Min Summer	1.770	0.00	0.00
1Yr 360Min Winter	3.985	0.00	0.00	30Yr+40% 4320Min Winter	1.770	0.00	0.00
1Yr 480Min Summer	3.259	0.00	0.00	30Yr+40% 5760Min Summer	1.419	0.00	0.00
1Yr 480Min Winter	3.259	0.00	0.00	30Yr+40% 5760Min Winter	1.419	0.00	0.00
1Yr 600Min Summer	2.789	0.00	0.00	100Yr+45% 15Min Summer	132.071	0.00	0.08
1Yr 600Min Winter	2.789	0.00	0.00	100Yr+45% 15Min Winter	132.071	0.00	0.10
1Yr 720Min Winter	2.455	0.00	0.00	100Yr+45% 30Min Summer	88.761	0.00	0.10
1Yr 720Min Summer	2.455	0.00	0.00	100Yr+45% 30Min Winter	88.761	0.00	0.10
1Yr 960Min Summer	2.008	0.00	0.00	100Yr+45% 60Min Summer	56.919	0.00	0.10
1Yr 960Min Winter	2.008	0.00	0.00	100Yr+45% 60Min Winter	56.919	0.00	0.11
1Yr 1440Min Summer	1.513	0.00	0.00	100Yr+45% 120Min Summer	35.224	0.00	0.10
1Yr 1440Min Winter	1.513	0.00	0.00	100Yr+45% 120Min Winter	35.224	0.00	0.11
1Yr 2160Min Summer	1.141	0.00	0.00	100Yr+45% 180Min Summer	26.199	0.00	0.10
1Yr 2160Min Winter	1.141	0.00	0.00	100Yr+45% 180Min Winter	26.199	0.00	0.10
1Yr 2880Min Summer	0.934	0.00	0.00	100Yr+45% 240Min Summer	21.078	0.00	0.10
1Yr 2880Min Winter	0.934	0.00	0.00	100Yr+45% 240Min Winter	21.078	0.00	0.10
1Yr 4320Min Summer	0.705	0.00	0.00	100Yr+45% 360Min Summer	15.506	0.00	0.10
1Yr 4320Min Winter	0.705	0.00	0.00	100Yr+45% 360Min Winter	15.506	0.00	0.10
1Yr 5760Min Winter	0.578	0.00	0.00	100Yr+45% 480Min Summer	12.458	0.00	0.09
1Yr 5760Min Summer	0.578	0.00	0.00	100Yr+45% 480Min Winter	12.458	0.00	0.10
30Yr+40% 15Min Summer	98.523	0.00	0.03	100Yr+45% 600Min Summer	10.503	0.00	0.09
30Yr+40% 15Min Winter	98.523	0.00	0.05	100Yr+45% 600Min Winter	10.503	0.00	0.09
30Yr+40% 30Min Summer	65.580	0.00	0.07	100Yr+45% 720Min Summer	9.132	0.00	0.08
30Yr+40% 30Min Winter	65.580	0.00	0.07	100Yr+45% 720Min Winter	9.132	0.00	0.08
30Yr+40% 60Min Summer	41.816	0.00	0.09	100Yr+45% 960Min Summer	7.315	0.00	0.07
30Yr+40% 60Min Winter	41.816	0.00	0.09	100Yr+45% 960Min Winter	7.315	0.00	0.07
30Yr+40% 120Min Summer	25.877	0.00	0.09	100Yr+45% 1440Min Summer	5.341	0.00	0.04
30Yr+40% 120Min Winter	25.877	0.00	0.09	100Yr+45% 1440Min Winter	5.341	0.00	0.04
30Yr+40% 180Min Winter	19.319	0.00	0.08	100Yr+45% 2160Min Summer	3.891	0.00	0.01
30Yr+40% 180Min Summer	19.319	0.00	0.08	100Yr+45% 2160Min Winter	3.891	0.00	0.01
30Yr+40% 240Min Summer	15.620	0.00	0.08	100Yr+45% 2880Min Summer	3.104	0.00	0.00
30Yr+40% 240Min Winter	15.620	0.00	0.08	100Yr+45% 2880Min Winter	3.104	0.00	0.00
30Yr+40% 360Min Summer	11.565	0.00	0.07	100Yr+45% 4320Min Summer	2.253	0.00	0.00
30Yr+40% 360Min Winter	11.565	0.00	0.07	100Yr+45% 4320Min Winter	2.253	0.00	0.00
30Yr+40% 480Min Summer	9.336	0.00	0.06	100Yr+45% 5760Min Winter	1.793	0.00	0.00
30Yr+40% 480Min Winter	9.336	0.00	0.06	100Yr+45% 5760Min Summer	1.793	0.00	0.00

Simulation Results

Return Period Yrs: 1.0

Climate Change %: 0

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S46	15 min Winter	8	45.674	0.019	1.178		OK
S45	15 min Winter	9	45.082	0.022	1.116		OK
S44	15 min Winter	8	45.058	0.043	3.735		OK
S43	15 min Winter	9	44.662	0.043	3.647		OK
S42	15 min Winter	9	44.601	0.029	3.666		OK
S41	15 min Winter	8	45.078	0.034	2.325		OK
S40	15 min Winter	8	45.011	0.034	2.303		OK
S39	15 min Winter	9	44.890	0.034	2.241		OK
S38	15 min Winter	9	44.760	0.053	5.263		OK
S37	15 min Winter	9	44.675	0.067	8.165		OK
S36	15 min Winter	8	44.619	0.047	8.169		OK
S35	30 min Summer	19	43.983	0.061	7.778		OK
S34	30 min Summer	20	43.837	0.067	7.089		OK
S33	30 min Summer	20	43.145	0.035	7.132		OK
S12	15 min Winter	8	43.784	0.034	4.580		OK
S13	15 min Winter	8	43.681	0.031	4.556		OK
S16	30 min Winter	21	43.279	0.039	1.865		OK
S17	30 min Winter	21	43.177	0.017	2.052		OK
S14	15 min Winter	8	43.776	0.026	3.031		OK
S15	15 min Winter	7	43.667	0.017	2.778		OK
S18	30 min Winter	21	42.230	0.030	3.298		OK
S19	30 min Summer	20	42.194	0.064	10.196		OK
S20	30 min Summer	20	42.023	0.053	10.196		OK
S21	30 min Summer	18	40.946	0.065	13.626		OK
S22	5760 min Winter	6832	40.417	1.017	0.002		OK
S23	-	0	39.400	0.000	0.000		OK
S24	-	0	39.370	0.000	0.000		OK
PS17	15 min Winter	8	40.820	0.113	5.965		Surcharged
FD1	15 min Winter	9	40.789	0.089	5.677		OK
PS10	15 min Winter	9	40.766	0.066	5.767		OK
PS11	15 min Winter	10	40.591	0.071	5.387		OK
PS12	15 min Winter	10	40.545	0.289	6.850		Surcharged
PS3	15 min Winter	11	40.442	0.221	7.749		Surcharged
FD2	15 min Winter	11	40.356	0.156	7.881		Surcharged
PS1	15 min Winter	12	40.292	0.119	7.547		Surcharged
PS13	30 min Summer	20	40.240	0.090	7.196		OK
PS16	30 min Summer	19	40.163	0.036	7.761		OK
PS14	15 min Winter	11	38.954	0.034	7.533		OK
S47	15 min Winter	8	40.578	0.028	2.662		OK
S32	120 min Summer	75	39.117	0.017	0.438		OK
S48	120 min Summer	75	39.103	0.017	0.440		OK
S25	15 min Winter	9	37.834	0.174	28.160		Surcharged
S26	15 min Winter	9	37.129	0.074	28.525		OK
S27	15 min Winter	9	36.636	0.101	38.372		OK
S28	360 min Winter	292	35.609	0.169	1.499		OK
S29	360 min Winter	292	35.609	0.199	1.500		OK
S30	360 min Winter	293	35.609	0.279	1.503		Surcharged
S31	360 min Winter	291	35.146	0.021	1.505		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	S46	S45	0.020	0.810	1.167	0.035	OK
1.001	15 min Winter	9	S45	S44	0.032	0.405	1.137	0.045	OK
1.002	15 min Winter	9	S44	S43	0.043	0.870	3.647	0.184	OK
1.003	15 min Winter	9	S43	S42	0.036	1.123	3.666	0.185	OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.004	30 min Summer	18	S42	S35	0.043	1.177	3.401	0.074	OK
2.000	15 min Winter	8	S41	S40	0.034	0.758	2.303	0.116	OK
2.001	15 min Winter	9	S40	S39	0.034	0.759	2.261	0.114	OK
2.002	15 min Winter	9	S39	S38	0.043	0.535	2.267	0.114	OK
2.003	15 min Winter	9	S38	S37	0.060	0.809	5.313	0.268	OK
2.004	15 min Winter	9	S37	S36	0.057	1.365	8.220	0.414	OK
2.005	30 min Summer	18	S36	S35	0.049	1.892	7.793	0.186	OK
1.005	30 min Summer	19	S35	S34	0.064	1.348	7.150	0.687	OK
1.006	30 min Summer	20	S34	S33	0.051	1.760	7.132	0.693	OK
1.007	30 min Summer	20	S33	S19	0.050	1.404	7.144	0.122	OK
3.000	15 min Winter	8	S12	S13	0.032	1.628	4.556	0.112	OK
3.001	30 min Summer	18	S13	S16	0.031	1.967	4.215	0.079	OK
3.002	30 min Winter	21	S16	S17	0.028	1.131	2.052	0.294	OK
3.003	30 min Winter	21	S17	S18	0.024	1.157	2.053	0.028	OK
4.000	15 min Winter	8	S14	S15	0.021	1.943	3.008	0.061	OK
4.001	30 min Winter	20	S15	S18	0.021	2.656	2.348	0.020	OK
3.004	30 min Summer	21	S18	S19	0.047	0.882	3.069	0.189	OK
1.008	30 min Summer	20	S19	S20	0.058	2.140	10.196	0.726	OK
1.009	30 min Summer	20	S20	S21	0.058	2.191	10.190	0.547	OK
1.010	30 min Summer	18	S21	S22	0.065	1.843	13.606	0.395	OK
1.011	15 min Winter	0	S22	S23	0.000	0.000	0.000	0.000	OK
1.012	15 min Winter	0	S23	S24	0.000	0.000	0.000	0.000	OK
1.013	15 min Winter	0	S24	S25	0.000	0.000	0.000	0.000	OK
5.000	15 min Winter	9	PS17	FD1	0.092	0.774	5.823	3.290	OK
5.001	15 min Winter	9	FD1	PS10	0.075	0.909	5.767	2.302	OK
5.002	15 min Winter	10	PS10	PS11	0.067	1.157	5.798	0.780	OK
5.003	15 min Winter	10	PS11	PS12	0.085	0.820	5.583	0.464	OK
5.004	30 min Summer	17	PS12	PS3	0.100	0.815	6.403	1.697	Surcharged
5.005	30 min Summer	17	PS3	FD2	0.100	1.004	7.882	2.089	Surcharged
5.006	30 min Summer	19	FD2	PS1	0.100	0.940	7.382	1.506	Surcharged
5.007	30 min Summer	20	PS1	PS13	0.095	0.962	7.399	1.510	OK
5.008	15 min Winter	12	PS13	PS16	0.063	1.492	7.637	1.558	OK
5.009	15 min Winter	12	PS16	PS14	0.035	3.087	7.533	0.272	OK
5.010	15 min Winter	12	PS14	S25	0.066	3.192	7.642	0.253	OK
6.000	30 min Summer	16	S47	S32	0.018	2.164	2.459	0.051	OK
6.001	120 min Summer	75	S32	S48	0.017	0.488	0.440	0.065	OK
6.002	120 min Summer	75	S48	S25	0.017	0.488	0.440	0.065	OK
1.014	15 min Winter	9	S25	S26	0.146	1.625	28.525	1.167	OK
1.015	15 min Winter	9	S26	S27	0.087	1.122	28.594	0.034	OK
1.016	15 min Winter	9	S27	S28	0.101	1.223	38.511	0.065	OK
1.017	360 min Winter	292	S28	S29	0.184	0.375	6.947	0.002	OK
1.018	360 min Winter	292	S29	S30	0.212	0.536	12.136	0.199	OK
1.019	360 min Winter	291	S30	S31	0.021	0.791	1.505	0.019	OK

Return Period Yrs: 30.0

Climate Change %: 40

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S46	15 min Winter	8	45.687	0.032	3.420		OK
S45	15 min Winter	8	45.097	0.037	3.400		OK
S44	15 min Winter	8	45.093	0.078	10.895		OK
S43	15 min Winter	9	44.696	0.078	10.538		OK
S42	15 min Winter	9	44.621	0.049	10.667		OK
S41	15 min Winter	8	45.104	0.060	6.746		OK
S40	15 min Winter	8	45.036	0.059	6.706		OK
S39	15 min Winter	9	44.915	0.059	6.452		OK
S38	15 min Winter	8	44.811	0.104	15.777		OK
S37	15 min Winter	8	44.748	0.140	24.320		OK
S36	15 min Winter	8	44.654	0.082	23.852		OK
S35	30 min Winter	23	44.146	0.224	10.772		Surcharged
S34	30 min Winter	24	43.999	0.229	10.215		Surcharged
S33	30 min Winter	24	43.152	0.042	10.209		OK
S12	15 min Winter	8	43.809	0.059	13.286		OK
S13	15 min Winter	8	43.701	0.051	13.247		OK
S16	30 min Summer	19	43.329	0.089	6.962		OK
S17	30 min Summer	19	43.193	0.033	7.778		OK
S14	15 min Winter	8	43.794	0.044	8.796		OK
S15	15 min Winter	8	43.677	0.027	8.761		OK
S18	30 min Winter	25	42.322	0.122	7.076		Surcharged
S19	30 min Winter	25	42.309	0.179	17.379		Surcharged
S20	30 min Winter	25	42.046	0.076	17.380		OK
S21	15 min Winter	9	41.007	0.126	33.976		OK
S22	1440 min Winter	959	40.833	1.433	2.245		OK
S23	1440 min Winter	959	39.438	0.038	2.246		OK
S24	1440 min Winter	959	39.402	0.032	2.246		OK
PS17	15 min Winter	11	41.427	0.719	10.306		Surcharged
FD1	30 min Summer	20	41.354	0.654	7.031		Surcharged
PS10	30 min Summer	20	41.319	0.619	7.412		Surcharged
PS11	30 min Summer	20	41.141	0.621	7.457		Surcharged
PS12	30 min Winter	21	41.043	0.787	9.461		Surcharged
PS3	30 min Winter	20	40.827	0.606	12.687		Surcharged
FD2	30 min Winter	22	40.621	0.421	11.869		Surcharged
PS1	30 min Winter	23	40.466	0.293	11.737		Surcharged
PS13	30 min Winter	23	40.337	0.188	11.768		Surcharged
PS16	30 min Winter	23	40.173	0.046	11.776		OK
PS14	15 min Winter	9	38.968	0.048	9.571		OK
S47	15 min Winter	8	40.596	0.046	7.724		OK
S32	60 min Summer	38	39.140	0.040	2.114		OK
S48	60 min Summer	38	39.126	0.040	2.295		OK
S25	15 min Winter	9	38.637	0.977	73.554		Surcharged
S26	15 min Winter	9	37.171	0.116	73.479		OK
S27	15 min Winter	9	36.699	0.164	101.764		OK
S28	1440 min Winter	1342	36.254	0.814	1.545		OK
S29	1440 min Winter	1342	36.254	0.844	1.545		Surcharged
S30	1440 min Winter	1343	36.254	0.924	1.544		Surcharged
S31	1440 min Winter	1342	35.146	0.021	1.544		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	S46	S45	0.035	1.106	3.400	0.103	OK
1.001	15 min Winter	8	S45	S44	0.057	0.536	3.343	0.132	OK
1.002	15 min Winter	8	S44	S43	0.078	1.161	10.697	0.539	OK
1.003	15 min Winter	9	S43	S42	0.063	1.499	10.667	0.537	OK
1.004	30 min Summer	17	S42	S35	0.099	1.499	10.310	0.225	OK
2.000	15 min Winter	8	S41	S40	0.060	1.024	6.706	0.338	OK
2.001	15 min Winter	8	S40	S39	0.059	1.023	6.619	0.333	OK
2.002	15 min Winter	9	S39	S38	0.081	0.671	6.541	0.329	OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
2.003	15 min Winter	8	S38	S37	0.122	1.006	15.491	0.780	OK
2.004	15 min Winter	9	S37	S36	0.111	1.709	23.919	1.205	OK
2.005	30 min Summer	17	S36	S35	0.114	2.132	23.398	0.559	OK
1.005	30 min Winter	15	S35	S34	0.100	1.446	10.617	1.021	Surcharged
1.006	30 min Winter	24	S34	S33	0.071	1.803	10.209	0.991	OK
1.007	30 min Winter	24	S33	S19	0.096	1.517	10.209	0.174	OK
3.000	15 min Winter	8	S12	S13	0.055	2.261	13.247	0.326	OK
3.001	30 min Summer	17	S13	S16	0.066	2.178	12.566	0.235	OK
3.002	30 min Summer	19	S16	S17	0.061	1.574	7.911	1.134	OK
3.003	30 min Winter	24	S17	S18	0.075	1.393	7.351	0.100	OK
4.000	15 min Winter	8	S14	S15	0.036	2.734	8.761	0.177	OK
4.001	30 min Winter	24	S15	S18	0.067	3.234	7.001	0.059	OK
3.004	30 min Winter	24	S18	S19	0.100	1.002	7.184	0.443	Surcharged
1.008	30 min Winter	25	S19	S20	0.088	2.370	17.380	1.237	OK
1.009	30 min Winter	25	S20	S21	0.087	2.682	17.379	0.933	OK
1.010	15 min Winter	9	S21	S22	0.128	2.234	34.567	1.003	OK
1.011	1440 min Winter	959	S22	S23	0.025	1.132	2.246	0.018	OK
1.012	1440 min Winter	959	S23	S24	0.035	0.927	2.246	0.302	OK
1.013	1440 min Winter	959	S24	S25	0.032	1.042	2.246	0.221	OK
5.000	15 min Winter	8	PS17	FD1	0.100	1.848	14.513	8.201	Surcharged
5.001	15 min Winter	9	FD1	PS10	0.100	1.140	8.951	3.573	Surcharged
5.002	15 min Winter	12	PS10	PS11	0.100	1.168	7.506	1.010	Surcharged
5.003	15 min Winter	14	PS11	PS12	0.100	1.008	7.915	0.657	Surcharged
5.004	15 min Winter	13	PS12	PS3	0.100	1.232	9.674	2.564	Surcharged
5.005	15 min Winter	10	PS3	FD2	0.100	1.714	13.463	3.568	Surcharged
5.006	30 min Winter	21	FD2	PS1	0.100	1.508	11.846	2.417	Surcharged
5.007	30 min Winter	22	PS1	PS13	0.100	1.500	11.784	2.404	Surcharged
5.008	30 min Winter	23	PS13	PS16	0.073	1.915	11.776	2.403	OK
5.009	30 min Summer	22	PS16	PS14	0.045	3.467	11.662	0.421	OK
5.010	15 min Winter	14	PS14	S25	0.074	3.575	11.560	0.382	OK
6.000	30 min Summer	17	S47	S32	0.035	2.587	7.329	0.153	OK
6.001	60 min Summer	38	S32	S48	0.040	0.783	2.295	0.340	OK
6.002	60 min Summer	38	S48	S25	0.040	0.782	2.297	0.340	OK
1.014	15 min Winter	9	S25	S26	0.150	4.158	73.479	3.006	Surcharged
1.015	15 min Winter	9	S26	S27	0.140	1.463	73.391	0.086	OK
1.016	15 min Winter	9	S27	S28	0.164	1.623	102.011	0.173	OK
1.017	1440 min Winter	1342	S28	S29	0.829	0.218	7.001	0.002	OK
1.018	30 min Summer	19	S29	S30	0.225	0.549	16.656	0.273	OK
1.019	1440 min Winter	1342	S30	S31	0.021	0.797	1.544	0.019	OK

Return Period Yrs: 100.0

Climate Change %: 45

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S46	15 min Winter	8	45.692	0.038	4.585		OK
S45	15 min Winter	8	45.103	0.043	4.561		OK
S44	15 min Winter	8	45.109	0.094	14.558		OK
S43	15 min Winter	9	44.712	0.094	14.141		OK
S42	15 min Winter	9	44.629	0.057	14.294		OK
S41	15 min Winter	8	45.114	0.071	9.043		OK
S40	15 min Winter	8	45.047	0.070	8.993		OK
S39	15 min Winter	9	44.925	0.069	8.637		OK
S38	15 min Winter	9	44.874	0.167	20.408		Surcharged
S37	15 min Winter	9	44.771	0.163	31.566		Surcharged
S36	15 min Winter	9	44.669	0.097	31.601		OK
S35	30 min Winter	24	44.263	0.341	11.572		Surcharged
S34	30 min Winter	25	44.098	0.328	10.852		Surcharged
S33	30 min Winter	25	43.154	0.044	10.835		OK
S12	15 min Winter	8	43.819	0.069	17.811		OK
S13	15 min Winter	8	43.709	0.059	17.763		OK
S16	30 min Summer	19	43.364	0.124	9.379		Surcharged
S17	30 min Summer	19	43.195	0.035	8.670		OK
S14	15 min Winter	8	43.801	0.051	11.792		OK
S15	15 min Winter	8	43.681	0.031	11.750		OK
S18	60 min Winter	44	42.386	0.186	8.189		Surcharged
S19	60 min Winter	44	42.367	0.237	19.267		Surcharged
S20	60 min Winter	44	42.055	0.085	19.277		OK
S21	30 min Summer	16	41.061	0.180	42.500		Surcharged
S22	600 min Winter	387	40.843	1.443	6.771		OK
S23	600 min Winter	387	39.474	0.074	6.770		OK
S24	600 min Winter	387	39.430	0.060	6.769		OK
PS17	30 min Summer	18	41.878	1.170	16.158		Flood Risk
FD1	30 min Winter	22	41.787	1.087	8.056		Surcharged
PS10	30 min Winter	22	41.741	1.041	8.540		Flood Risk
PS11	30 min Winter	22	41.502	0.982	8.629		Flood Risk
PS12	30 min Winter	21	41.369	1.113	11.243		Flood Risk
PS3	30 min Winter	21	41.071	0.850	14.689		Surcharged
FD2	30 min Winter	23	40.784	0.584	13.802		Surcharged
PS1	30 min Winter	23	40.572	0.399	13.833		Surcharged
PS13	30 min Winter	24	40.395	0.246	13.766		Surcharged
PS16	30 min Winter	24	40.177	0.051	13.778		OK
PS14	30 min Summer	18	39.279	0.359	12.103		Surcharged
S47	15 min Winter	8	40.602	0.052	10.354		OK
S32	60 min Summer	37	39.151	0.051	3.406		OK
S48	15 min Winter	9	39.146	0.060	1.002		OK
S25	15 min Winter	9	39.144	1.484	93.363		Surcharged
S26	15 min Winter	9	37.184	0.129	91.318		OK
S27	1440 min Winter	1369	36.746	0.211	1.863		OK
S28	1440 min Winter	1369	36.740	1.300	1.198		OK
S29	1440 min Winter	1367	36.740	1.330	0.084		Surcharged
S30	1440 min Winter	1367	36.740	1.410	1.868		Flood Risk
S31	1440 min Winter	1374	35.149	0.024	1.875		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	8	S46	S45	0.040	1.189	4.561	0.139	OK
1.001	15 min Winter	8	S45	S44	0.069	0.571	4.435	0.175	OK
1.002	15 min Winter	9	S44	S43	0.093	1.240	14.310	0.721	OK
1.003	15 min Winter	9	S43	S42	0.076	1.604	14.294	0.720	OK
1.004	15 min Winter	9	S42	S35	0.104	1.803	14.314	0.313	OK
2.000	15 min Winter	8	S41	S40	0.070	1.106	8.993	0.453	OK
2.001	15 min Winter	8	S40	S39	0.070	1.105	8.883	0.447	OK
2.002	15 min Winter	9	S39	S38	0.110	0.678	8.752	0.441	OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
2.003	15 min Winter	9	S38	S37	0.150	1.183	20.471	1.031	Surcharged
2.004	15 min Winter	9	S37	S36	0.124	2.030	31.601	1.592	OK
2.005	15 min Winter	9	S36	S35	0.124	2.733	31.600	0.755	OK
1.005	30 min Summer	18	S35	S34	0.100	1.442	11.275	1.084	Surcharged
1.006	30 min Winter	25	S34	S33	0.072	1.830	10.835	1.052	OK
1.007	30 min Winter	25	S33	S19	0.097	1.587	10.835	0.185	OK
3.000	15 min Winter	8	S12	S13	0.064	2.454	17.763	0.437	OK
3.001	30 min Summer	18	S13	S16	0.085	2.307	17.008	0.318	OK
3.002	30 min Summer	19	S16	S17	0.067	1.590	8.670	1.242	OK
3.003	30 min Winter	21	S17	S18	0.092	1.418	8.564	0.117	OK
4.000	15 min Winter	8	S14	S15	0.041	2.988	11.750	0.238	OK
4.001	30 min Winter	20	S15	S18	0.086	3.407	9.476	0.079	OK
3.004	60 min Winter	42	S18	S19	0.100	1.089	8.554	0.527	Surcharged
1.008	60 min Winter	44	S19	S20	0.093	2.537	19.277	1.372	OK
1.009	60 min Winter	44	S20	S21	0.092	2.680	19.277	1.035	OK
1.010	30 min Summer	16	S21	S22	0.150	2.401	42.423	1.230	Surcharged
1.011	600 min Winter	387	S22	S23	0.048	1.501	6.770	0.053	OK
1.012	600 min Winter	387	S23	S24	0.067	1.211	6.769	0.910	OK
1.013	600 min Winter	387	S24	S25	0.060	1.389	6.766	0.665	OK
5.000	15 min Winter	9	PS17	FD1	0.100	2.408	18.912	10.687	Surcharged
5.001	15 min Winter	10	FD1	PS10	0.100	1.348	10.587	4.226	Surcharged
5.002	30 min Summer	20	PS10	PS11	0.100	1.150	8.685	1.169	Surcharged
5.003	15 min Winter	15	PS11	PS12	0.100	1.169	9.182	0.763	Surcharged
5.004	30 min Winter	22	PS12	PS3	0.100	1.432	11.248	2.981	Surcharged
5.005	30 min Summer	17	PS3	FD2	0.100	2.027	15.918	4.219	Surcharged
5.006	30 min Winter	22	FD2	PS1	0.100	1.767	13.876	2.831	Surcharged
5.007	30 min Winter	23	PS1	PS13	0.100	1.756	13.793	2.814	Surcharged
5.008	30 min Winter	24	PS13	PS16	0.075	2.172	13.778	2.811	OK
5.009	30 min Summer	23	PS16	PS14	0.074	3.601	13.516	0.488	OK
5.010	15 min Winter	12	PS14	S25	0.100	3.706	19.349	0.640	Surcharged
6.000	30 min Summer	17	S47	S32	0.043	2.688	9.918	0.207	OK
6.001	60 min Summer	37	S32	S48	0.051	0.873	3.507	0.520	OK
6.002	15 min Winter	13	S48	S25	0.080	0.819	2.731	0.405	OK
1.014	15 min Winter	9	S25	S26	0.150	5.168	91.318	3.735	Surcharged
1.015	15 min Winter	9	S26	S27	0.158	1.563	91.207	0.107	OK
1.016	1440 min Winter	1369	S27	S28	0.256	0.891	26.110	0.044	OK
1.017	1440 min Winter	1371	S28	S29	1.315	0.237	25.794	0.008	OK
1.018	15 min Winter	11	S29	S30	0.225	0.626	17.385	0.284	OK
1.019	1440 min Winter	1374	S30	S31	0.024	0.843	1.875	0.024	OK