

Appendix: K – Greenfield Runoff Rate

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	40	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240	10 year (l/s)	1.7
Summer CV	1.000	Additional Storage (m³/ha)	20.0	30 year (l/s)	2.2
Winter CV	1.000	Check Discharge Rate(s)	✓	100 year (l/s)	2.9
Analysis Speed	Normal	1 year (l/s)	0.7	Check Discharge Volume	✓
Skip Steady State	x	2 year (l/s)	0.8	100 year 360 minute (m³)	35

Storm Durations

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

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

Pre-development Discharge Rate

Site Makeup	Greenfield	Q 1 year (l/s)	0.7
Greenfield Method	ReFH2	Q 2 year (l/s)	0.8
Region	England, Wales, NI	Q 10 year (l/s)	1.7
Include Baseflow	x	Q 30 year (l/s)	2.2
Positively Drained Area (ha)	1.000	Q 100 year (l/s)	2.9
Betterment (%)	0		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	ReFH2	Storm Duration (mins)	360
Region	England, Wales, NI	Betterment (%)	0
Include Baseflow	x	Runoff Volume (m³)	35
Positively Drained Area (ha)	1.000		

Appendix: L – Greenfield Volume Calculations

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	40	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240	10 year (l/s)	1.7
Summer CV	1.000	Additional Storage (m³/ha)	20.0	30 year (l/s)	2.2
Winter CV	1.000	Check Discharge Rate(s)	✓	100 year (l/s)	2.9
Analysis Speed	Normal	1 year (l/s)	0.7	Check Discharge Volume	✓
Skip Steady State	x	2 year (l/s)	0.8	100 year 360 minute (m³)	35

Storm Durations

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

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

Pre-development Discharge Rate

Site Makeup	Greenfield	Q 1 year (l/s)	0.7
Greenfield Method	ReFH2	Q 2 year (l/s)	0.8
Region	England, Wales, NI	Q 10 year (l/s)	1.7
Include Baseflow	x	Q 30 year (l/s)	2.2
Positively Drained Area (ha)	1.000	Q 100 year (l/s)	2.9
Betterment (%)	0		

Pre-development Discharge Volume

Site Makeup	Greenfield	Return Period (years)	100
Greenfield Method	ReFH2	Storm Duration (mins)	360
Region	England, Wales, NI	Betterment (%)	0
Include Baseflow	x	Runoff Volume (m³)	35
Positively Drained Area (ha)	1.000		

Appendix: M – Proposed SuDS Strategy Causeway Flow Output

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	40	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

	Name	Area (ha)	T of E (mins)	Cover Level (m)	Node Type	Manhole Type	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
✓	1	0.005	5.00	135.450	Manhole	Adoptable	600	-84.693	18.003	2.180
✓	2	0.005	5.00	135.300	Manhole	Adoptable	600	-84.734	41.322	2.100
✓	3	0.005	5.00	134.000	Manhole	Adoptable	600	-150.236	34.788	1.645
✓	4	0.005	5.00	134.000	Manhole	Adoptable	600	-160.627	116.317	2.430
✓	5	0.005	5.00	132.550	Manhole	Adoptable	600	-43.529	126.708	2.320
✓	6	0.006	5.00	136.200	Manhole	Adoptable	600	72.554	22.203	1.700
✓	7			135.800	Manhole	Adoptable	600	40.011	35.085	2.550
✓	8	0.008	5.00	132.250	Manhole	Adoptable	600	89.444	108.704	1.056
✓	9	0.008	5.00	132.250	Manhole	Adoptable	600	37.808	111.983	1.100
✓	10	0.009	5.00	132.250	Manhole	Adoptable	600	79.676	133.555	1.057
✓	11	0.009	5.00	132.250	Manhole	Adoptable	600	22.706	126.153	2.319
✓	12	0.005	5.00	135.340	Manhole	Adoptable	600	-35.926	26.060	2.245
✓	13	0.005	5.00	132.900	Manhole	Adoptable	600	-45.534	93.019	1.612
✓	14	0.007	5.00	132.400	Manhole	Adoptable	600	8.513	102.327	1.189
✓	15	0.007	5.00	132.250	Manhole	Adoptable	600	3.109	123.946	2.290
✓	16	0.003	5.00	130.825	Manhole	Adoptable	600	4.249	144.424	1.000
✓	17	0.007	5.00	129.850	Manhole	Adoptable	600	-168.339	181.151	1.000
✓	18	0.007	5.00	129.850	Manhole	Adoptable	600	-140.958	165.818	1.037
✓	19	0.007	5.00	129.850	Manhole	Adoptable	600	-74.512	172.024	1.192
✓	20	0.009	5.00	129.850	Manhole	Adoptable	600	-5.633	181.712	1.234
✓	21	0.007	5.00	129.850	Manhole	Adoptable	600	-167.682	210.833	1.173
✓	22	0.009	5.00	129.850	Manhole	Adoptable	600	-13.650	223.288	1.400
	PP2	0.057	5.00	137.000	Junction			225.894	-6.996	0.600
	PP1	0.315	5.00	137.300	Junction			214.540	-73.491	0.600
✓	23	0.003	5.00	131.900	Manhole	Adoptable	600	239.049	208.032	1.127
✓	24	0.003	5.00	131.900	Manhole	Adoptable	600	186.665	235.521	1.574
✓	25	0.003	5.00	131.900	Manhole	Adoptable	600	206.374	139.052	1.432
✓	26	0.003	5.00	131.900	Manhole	Adoptable	600	152.953	174.320	1.987
✓	27	0.007	5.00	130.000	Manhole	Adoptable	600	75.155	232.928	0.852
✓	28	0.007	5.00	130.000	Manhole	Adoptable	600	-9.548	248.085	1.595
✓	29	0.007	5.00	128.970	Manhole	Adoptable	600	46.629	395.784	0.600
✓	30	0.007	5.00	128.970	Manhole	Adoptable	600	58.558	354.292	0.677
✓	31	0.008	5.00	130.970	Manhole	Adoptable	600	-121.933	363.109	1.608
✓	32	0.008	5.00	130.970	Manhole	Adoptable	600	-101.705	320.061	2.163
✓	33	0.008	5.00	130.970	Manhole	Adoptable	600	-32.206	337.695	2.818
✓	Tank	0.058	5.00	130.000	Junction			-10.423	286.349	3.013
✓	34_OUT			128.000	Manhole	Adoptable	1200	88.177	301.636	1.070

Links (Input)

Name	US Node	DS Node	Length (m)	ks (mm) / n	Velocity Equation	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	Link Type	T of C (mins)	Rain (mm/h)
1.000	1	3	18.300	0.600	Colebrook-White	133.270	132.355	0.915	20.0	150	Circular	5.13	50.
2.000	2	3	16.900	0.600	Colebrook-White	133.200	132.355	0.845	20.0	150	Circular	5.12	50.
1.001	3	4	15.700	0.600	Colebrook-White	132.355	131.570	0.785	20.0	150	Circular	5.25	50.
1.002	4	5	26.800	0.600	Colebrook-White	131.570	130.230	1.340	20.0	150	Circular	5.45	50.
1.003	5	16	8.100	0.600	Colebrook-White	130.230	129.900	0.330	24.5	150	Circular	5.51	50.
3.000	6	7	7.300	0.600	Colebrook-White	134.500	134.250	0.250	29.2	150	Circular	5.07	50.
3.001	7	9	31.500	0.600	Colebrook-White	133.250	131.150	2.100	15.0	150	Circular	5.27	50.
4.000	8	9	6.600	0.600	Colebrook-White	131.194	131.150	0.044	150.0	150	Circular	5.13	50.
3.002	9	11	2.800	0.600	Colebrook-White	131.150	131.131	0.019	150.0	150	Circular	5.32	50.
5.000	10	11	9.300	0.600	Colebrook-White	131.193	131.131	0.062	150.0	150	Circular	5.19	50.
3.003	11	16	4.300	0.600	Colebrook-White	129.931	129.900	0.031	138.7	150	Circular	5.41	50.
6.000	12	13	15.100	0.600	Colebrook-White	133.095	132.088	1.007	15.0	150	Circular	5.10	50.
6.001	13	14	11.500	0.600	Colebrook-White	131.288	131.211	0.077	149.4	150	Circular	5.33	50.
6.002	14	15	7.700	0.600	Colebrook-White	131.211	131.160	0.051	150.0	150	Circular	5.49	50.
6.003	15	16	5.400	0.600	Colebrook-White	129.960	129.900	0.060	90.0	150	Circular	5.57	50.
1.004	16	20	11.500	0.600	Colebrook-White	129.825	129.016	0.809	14.2	225	Circular	5.63	50.
7.000	17	18	5.500	0.600	Colebrook-White	128.850	128.813	0.037	148.6	225	Circular	5.09	50.
7.001	18	19	23.300	0.600	Colebrook-White	128.813	128.658	0.155	150.3	225	Circular	5.45	50.
7.002	19	20	6.300	0.600	Colebrook-White	128.658	128.616	0.042	150.0	225	Circular	5.55	50.
1.005	20	22	11.300	0.600	Colebrook-White	128.616	128.450	0.166	68.1	225	Circular	5.75	50.
8.000	21	22	34.400	0.600	Colebrook-White	128.677	128.450	0.227	151.5	225	Circular	5.54	50.
1.006	22	28	3.600	0.600	Colebrook-White	128.450	128.405	0.045	80.0	225	Circular	5.79	50.
9.002	26	27	15.300	0.600	Colebrook-White	129.913	129.148	0.765	20.0	150	Circular	5.33	50.
9.000	23	24	12.200	0.600	Colebrook-White	130.773	130.326	0.447	27.3	150	Circular	5.11	50.
9.001	24	26	12.400	0.600	Colebrook-White	130.326	129.913	0.413	30.0	150	Circular	5.22	50.
10.000	25	26	11.100	0.600	Colebrook-White	130.468	129.913	0.555	20.0	150	Circular	5.08	50.
9.003	27	28	13.700	0.600	Colebrook-White	129.148	128.501	0.647	21.2	150	Circular	5.43	50.
1.007	28	Tank	2.500	0.600	Colebrook-White	128.426	128.409	0.017	147.1	225	Circular	5.83	50.
11.000	29	30	11.600	0.600	Colebrook-White	128.370	128.293	0.077	150.6	150	Circular	5.24	50.
11.001	30	33	21.100	0.600	Colebrook-White	128.293	128.152	0.141	149.6	150	Circular	5.67	50.
12.000	31	32	11.100	0.600	Colebrook-White	129.362	128.807	0.555	20.0	150	Circular	5.08	50.
12.001	32	33	13.100	0.600	Colebrook-White	128.807	128.152	0.655	20.0	150	Circular	5.18	50.
11.002	33	Tank	6.500	0.600	Colebrook-White	128.152	128.109	0.043	150.0	150	Circular	5.80	50.
1.008	Tank	34_OUT	7.600	0.600	Colebrook-White	126.987	126.930	0.057	133.3	150	Circular	5.97	50.

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	18.300	20.0	150	Circular	135.450	133.270	2.030	134.000	132.355	1.495
2.000	16.900	20.0	150	Circular	135.300	133.200	1.950	134.000	132.355	1.495
1.001	15.700	20.0	150	Circular	134.000	132.355	1.495	134.000	131.570	2.280
1.002	26.800	20.0	150	Circular	134.000	131.570	2.280	132.550	130.230	2.170
	Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type	
	1.000	1	600	Manhole	Adoptable	3	600	Manhole	Adoptable	
	2.000	2	600	Manhole	Adoptable	3	600	Manhole	Adoptable	
	1.001	3	600	Manhole	Adoptable	4	600	Manhole	Adoptable	
	1.002	4	600	Manhole	Adoptable	5	600	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)
1.003	8.100	24.5	150	Circular	132.550	130.230	2.170	130.825	129.900	0.775
3.000	7.300	29.2	150	Circular	136.200	134.500	1.550	135.800	134.250	1.400
3.001	31.500	15.0	150	Circular	135.800	133.250	2.400	132.250	131.150	0.950
4.000	6.600	150.0	150	Circular	132.250	131.194	0.906	132.250	131.150	0.950
3.002	2.800	150.0	150	Circular	132.250	131.150	0.950	132.250	131.131	0.969
5.000	9.300	150.0	150	Circular	132.250	131.193	0.907	132.250	131.131	0.969
3.003	4.300	138.7	150	Circular	132.250	129.931	2.169	130.825	129.900	0.775
6.000	15.100	15.0	150	Circular	135.340	133.095	2.095	132.900	132.088	0.662
6.001	11.500	149.4	150	Circular	132.900	131.288	1.462	132.400	131.211	1.039
6.002	7.700	150.0	150	Circular	132.400	131.211	1.039	132.250	131.160	0.940
6.003	5.400	90.0	150	Circular	132.250	129.960	2.140	130.825	129.900	0.775
1.004	11.500	14.2	225	Circular	130.825	129.825	0.775	129.850	129.016	0.609
7.000	5.500	148.6	225	Circular	129.850	128.850	0.775	129.850	128.813	0.812
7.001	23.300	150.3	225	Circular	129.850	128.813	0.812	129.850	128.658	0.967
7.002	6.300	150.0	225	Circular	129.850	128.658	0.967	129.850	128.616	1.009
1.005	11.300	68.1	225	Circular	129.850	128.616	1.009	129.850	128.450	1.175
8.000	34.400	151.5	225	Circular	129.850	128.677	0.948	129.850	128.450	1.175
1.006	3.600	80.0	225	Circular	129.850	128.450	1.175	130.000	128.405	1.370
9.002	15.300	20.0	150	Circular	131.900	129.913	1.837	130.000	129.148	0.702
9.000	12.200	27.3	150	Circular	131.900	130.773	0.977	131.900	130.326	1.424
9.001	12.400	30.0	150	Circular	131.900	130.326	1.424	131.900	129.913	1.837
10.000	11.100	20.0	150	Circular	131.900	130.468	1.282	131.900	129.913	1.837
9.003	13.700	21.2	150	Circular	130.000	129.148	0.702	130.000	128.501	1.349

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.003	5	600	Manhole	Adoptable	16	600	Manhole	Adoptable
3.000	6	600	Manhole	Adoptable	7	600	Manhole	Adoptable
3.001	7	600	Manhole	Adoptable	9	600	Manhole	Adoptable
4.000	8	600	Manhole	Adoptable	9	600	Manhole	Adoptable
3.002	9	600	Manhole	Adoptable	11	600	Manhole	Adoptable
5.000	10	600	Manhole	Adoptable	11	600	Manhole	Adoptable
3.003	11	600	Manhole	Adoptable	16	600	Manhole	Adoptable
6.000	12	600	Manhole	Adoptable	13	600	Manhole	Adoptable
6.001	13	600	Manhole	Adoptable	14	600	Manhole	Adoptable
6.002	14	600	Manhole	Adoptable	15	600	Manhole	Adoptable
6.003	15	600	Manhole	Adoptable	16	600	Manhole	Adoptable
1.004	16	600	Manhole	Adoptable	20	600	Manhole	Adoptable
7.000	17	600	Manhole	Adoptable	18	600	Manhole	Adoptable
7.001	18	600	Manhole	Adoptable	19	600	Manhole	Adoptable
7.002	19	600	Manhole	Adoptable	20	600	Manhole	Adoptable
1.005	20	600	Manhole	Adoptable	22	600	Manhole	Adoptable
8.000	21	600	Manhole	Adoptable	22	600	Manhole	Adoptable
1.006	22	600	Manhole	Adoptable	28	600	Manhole	Adoptable
9.002	26	600	Manhole	Adoptable	27	600	Manhole	Adoptable
9.000	23	600	Manhole	Adoptable	24	600	Manhole	Adoptable
9.001	24	600	Manhole	Adoptable	26	600	Manhole	Adoptable
10.000	25	600	Manhole	Adoptable	26	600	Manhole	Adoptable
9.003	27	600	Manhole	Adoptable	28	600	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)
1.007	2.500	147.1	225	Circular	130.000	128.426	1.349	130.000	128.409	1.366
11.000	11.600	150.6	150	Circular	128.970	128.370	0.450	128.970	128.293	0.527
11.001	21.100	149.6	150	Circular	128.970	128.293	0.527	130.970	128.152	2.668
12.000	11.100	20.0	150	Circular	130.970	129.362	1.458	130.970	128.807	2.013
12.001	13.100	20.0	150	Circular	130.970	128.807	2.013	130.970	128.152	2.668
11.002	6.500	150.0	150	Circular	130.970	128.152	2.668	130.000	128.109	1.741
1.008	7.600	133.3	150	Circular	130.000	126.987	2.863	128.000	126.930	0.920

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.007	28	600	Manhole	Adoptable	Tank		Junction	
11.000	29	600	Manhole	Adoptable	30	600	Manhole	Adoptable
11.001	30	600	Manhole	Adoptable	33	600	Manhole	Adoptable
12.000	31	600	Manhole	Adoptable	32	600	Manhole	Adoptable
12.001	32	600	Manhole	Adoptable	33	600	Manhole	Adoptable
11.002	33	600	Manhole	Adoptable	Tank		Junction	
1.008	Tank		Junction		34_OUT	1200	Manhole	Adoptable

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Additional Storage (m³/ha)	20.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	2880	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
10	0	0	0
30	0	0	0
30	40	0	0
100	0	0	0
100	40	0	0

Node Tank Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.008	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0040-1000-1980-1000
Invert Level (m)	126.987	Min Outlet Diameter (m)	0.075
Design Depth (m)	1.980	Min Node Diameter (mm)	1200
Design Flow (l/s)	1.0		

Node PP2 Online Orifice Control

Flap Valve	x	Invert Level (m)	136.400	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.015		

Node PP1 Online Orifice Control

Flap Valve	x	Invert Level (m)	136.700	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.032		

Node Tank Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	126.987
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	2415

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	120.0	0.0	1.980	120.0	0.0	1.981	0.0	0.0

Node PP2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	136.400	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	2250	Depth (m)	
Safety Factor	2.0	Width (m)	15.000	Inf Depth (m)	
Porosity	0.30	Length (m)	62.000		

Node PP1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	136.700	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	2850	Depth (m)	
Safety Factor	2.0	Width (m)	55.190	Inf Depth (m)	
Porosity	0.30	Length (m)	57.000		

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	11	133.285	0.015	0.8	0.0049	0.0000	OK
15 minute summer	2	11	133.215	0.015	0.8	0.0049	0.0000	OK
15 minute summer	3	11	132.380	0.025	2.4	0.0086	0.0000	OK
15 minute summer	4	11	131.599	0.029	3.2	0.0093	0.0000	OK
15 minute summer	5	11	130.265	0.035	4.0	0.0115	0.0000	OK
15 minute summer	6	11	134.518	0.018	1.0	0.0065	0.0000	OK
15 minute summer	7	11	133.265	0.015	1.0	0.0043	0.0000	OK
15 minute summer	8	11	131.224	0.030	1.3	0.0132	0.0000	OK
15 minute summer	9	11	131.206	0.055	3.6	0.0237	0.0000	OK
15 minute summer	10	10	131.226	0.033	1.5	0.0150	0.0000	OK
15 minute summer	11	11	130.006	0.075	6.4	0.0271	0.0000	OK
15 minute summer	12	11	133.109	0.014	0.8	0.0046	0.0000	OK
15 minute summer	13	11	131.322	0.034	1.6	0.0116	0.0000	OK
15 minute summer	14	11	131.257	0.046	2.8	0.0185	0.0000	OK
15 minute summer	15	11	130.010	0.050	3.9	0.0170	0.0000	OK
15 minute summer	16	11	129.877	0.052	14.8	0.0178	0.0000	OK
15 minute summer	17	10	128.876	0.026	1.2	0.0109	0.0000	OK
15 minute summer	18	11	128.848	0.035	2.4	0.0148	0.0000	OK
15 minute summer	19	11	128.710	0.052	3.5	0.0209	0.0000	OK
15 minute summer	20	11	128.710	0.094	19.7	0.0402	0.0000	OK
15 minute summer	21	11	128.702	0.025	1.2	0.0102	0.0000	OK
15 minute summer	22	11	128.584	0.134	22.2	0.0550	0.0000	OK
600 minute winter	PP2	480	136.615	0.215	1.1	10.7748	0.0000	OK
480 minute winter	PP1	456	136.969	0.269	7.4	62.6589	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)
15 minute summer	1	1.000	3	0.8	0.584	0.020	0.0258	
15 minute summer	2	2.000	3	0.8	0.585	0.020	0.0238	
15 minute summer	3	1.001	4	2.4	1.125	0.060	0.0336	
15 minute summer	4	1.002	5	3.2	1.169	0.080	0.0736	
15 minute summer	5	1.003	16	4.0	1.310	0.111	0.0247	
15 minute summer	6	3.000	7	1.0	0.828	0.030	0.0088	
15 minute summer	7	3.001	9	1.0	0.319	0.022	0.1080	
15 minute summer	8	4.000	9	1.3	0.333	0.090	0.0279	
15 minute summer	9	3.002	11	3.6	0.644	0.247	0.0156	
15 minute summer	10	5.000	11	1.5	0.517	0.101	0.0262	
15 minute summer	11	3.003	16	6.4	0.775	0.428	0.0357	
15 minute summer	12	6.000	13	0.8	0.987	0.017	0.0122	
15 minute summer	13	6.001	14	1.6	0.430	0.110	0.0433	
15 minute summer	14	6.002	15	2.7	0.613	0.189	0.0343	
15 minute summer	15	6.003	16	3.9	0.800	0.207	0.0261	
15 minute summer	16	1.004	20	14.8	2.216	0.107	0.0769	
15 minute summer	17	7.000	18	1.2	0.367	0.028	0.0177	
15 minute summer	18	7.001	19	2.3	0.482	0.054	0.1273	
15 minute summer	19	7.002	20	3.4	0.340	0.081	0.0712	
15 minute summer	20	1.005	22	19.7	1.002	0.312	0.2275	
15 minute summer	21	8.000	22	1.1	0.114	0.027	0.4655	
15 minute summer	22	1.006	28	21.8	0.805	0.375	0.0974	
600 minute winter	PP2	Orifice		0.2				16.1
480 minute winter	PP1	Orifice		1.1				84.6

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	11	130.786	0.013	0.5	0.0043	0.0000	OK
15 minute summer	24	11	130.344	0.018	1.0	0.0058	0.0000	OK
15 minute summer	25	11	130.480	0.012	0.5	0.0039	0.0000	OK
15 minute summer	26	11	129.936	0.023	2.0	0.0072	0.0000	OK
15 minute summer	27	10	129.177	0.029	3.2	0.0129	0.0000	OK
15 minute summer	28	11	128.562	0.157	26.0	0.0581	0.0000	OK
15 minute summer	29	10	128.399	0.029	1.2	0.0148	0.0000	OK
15 minute summer	30	11	128.333	0.040	2.4	0.0197	0.0000	OK
15 minute summer	31	11	129.381	0.019	1.3	0.0071	0.0000	OK
15 minute summer	32	11	128.833	0.026	2.6	0.0093	0.0000	OK
15 minute summer	33	11	128.223	0.071	6.2	0.0241	0.0000	OK
480 minute winter	Tank	368	127.448	0.461	6.5	52.7154	0.0000	SURCHARGED
15 minute summer	34_OUT	1	127.080	0.150	0.5	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)
15 minute summer	23	9.000	24	0.5	0.527	0.015	0.0117	
15 minute summer	24	9.001	26	1.0	0.695	0.031	0.0179	
15 minute summer	25	10.000	26	0.5	0.455	0.013	0.0129	
15 minute summer	26	9.002	27	2.0	0.991	0.050	0.0310	
15 minute summer	27	9.003	28	3.1	1.092	0.080	0.0617	
15 minute summer	28	1.007	Tank	25.9	1.086	0.604	0.0595	
15 minute summer	29	11.000	30	1.2	0.385	0.081	0.0353	
15 minute summer	30	11.001	33	2.3	0.387	0.158	0.1265	
15 minute summer	31	12.000	32	1.3	0.798	0.033	0.0182	
15 minute summer	32	12.001	33	2.6	0.569	0.065	0.0671	
15 minute summer	33	11.002	Tank	6.2	0.771	0.427	0.0520	
120 minute summer	Tank	Hydro-Brake®	34_OUT	0.6				33.1

Results for 10 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	11	133.291	0.021	1.7	0.0070	0.0000	OK
15 minute summer	2	11	133.221	0.021	1.7	0.0070	0.0000	OK
15 minute summer	3	11	132.391	0.036	5.1	0.0125	0.0000	OK
15 minute summer	4	11	131.612	0.042	6.8	0.0136	0.0000	OK
15 minute summer	5	11	130.283	0.053	8.5	0.0172	0.0000	OK
15 minute summer	6	10	134.526	0.026	2.1	0.0093	0.0000	OK
15 minute summer	7	10	133.272	0.022	2.1	0.0061	0.0000	OK
15 minute summer	8	10	131.239	0.045	2.8	0.0193	0.0000	OK
15 minute summer	9	11	131.235	0.085	7.6	0.0363	0.0000	OK
15 minute summer	10	10	131.242	0.049	3.1	0.0221	0.0000	OK
15 minute summer	11	11	130.058	0.127	13.4	0.0457	0.0000	OK
15 minute summer	12	11	133.115	0.020	1.7	0.0065	0.0000	OK
15 minute summer	13	11	131.337	0.049	3.4	0.0170	0.0000	OK
15 minute summer	14	10	131.281	0.070	5.8	0.0280	0.0000	OK
15 minute summer	15	10	130.036	0.076	8.1	0.0261	0.0000	OK
15 minute summer	16	11	129.903	0.078	31.1	0.0267	0.0000	OK
15 minute summer	17	10	128.887	0.037	2.4	0.0157	0.0000	OK
15 minute summer	18	10	128.863	0.050	4.8	0.0210	0.0000	OK
15 minute summer	19	11	128.784	0.126	7.1	0.0505	0.0000	OK
15 minute summer	20	11	128.783	0.167	40.2	0.0717	0.0000	OK
15 minute summer	21	12	128.717	0.040	2.4	0.0161	0.0000	OK
15 minute summer	22	11	128.715	0.265	44.8	0.1090	0.0000	SURCHARGED

480 minute winter	PP2	464	136.691	0.291	2.2	19.6299	0.0000	OK
480 minute winter	PP1	464	137.061	0.361	12.1	111.8174	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)
15 minute summer	1	1.000	3	1.7	0.729	0.043	0.0438	
15 minute summer	2	2.000	3	1.7	0.729	0.043	0.0404	
15 minute summer	3	1.001	4	5.1	1.401	0.128	0.0572	
15 minute summer	4	1.002	5	6.8	1.428	0.170	0.1281	
15 minute summer	5	1.003	16	8.5	1.601	0.236	0.0430	
15 minute summer	6	3.000	7	2.1	1.022	0.063	0.0149	
15 minute summer	7	3.001	9	2.1	0.372	0.044	0.1863	
15 minute summer	8	4.000	9	2.7	0.392	0.188	0.0482	
15 minute summer	9	3.002	11	7.4	0.775	0.513	0.0268	
15 minute summer	10	5.000	11	3.1	0.635	0.212	0.0449	
15 minute summer	11	3.003	16	13.5	0.913	0.898	0.0633	
15 minute summer	12	6.000	13	1.7	1.236	0.037	0.0208	
15 minute summer	13	6.001	14	3.4	0.522	0.235	0.0752	
15 minute summer	14	6.002	15	5.7	0.743	0.397	0.0594	
15 minute summer	15	6.003	16	8.1	0.962	0.431	0.0453	
15 minute summer	16	1.004	20	31.1	2.691	0.224	0.1329	
15 minute summer	17	7.000	18	2.4	0.441	0.056	0.0299	
15 minute summer	18	7.001	19	4.7	0.486	0.111	0.3437	
15 minute summer	19	7.002	20	7.6	0.416	0.180	0.1718	
15 minute summer	20	1.005	22	39.7	1.098	0.629	0.4034	
15 minute summer	21	8.000	22	2.3	0.168	0.055	0.7660	
15 minute summer	22	1.006	28	44.5	1.119	0.765	0.1432	

480 minute winter	PP2	Orifice		0.3				24.9
480 minute winter	PP1	Orifice		1.3				137.9

Results for 10 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	11	130.791	0.018	1.0	0.0059	0.0000	OK
15 minute summer	24	11	130.351	0.025	2.0	0.0081	0.0000	OK
15 minute summer	25	11	130.485	0.016	1.0	0.0054	0.0000	OK
15 minute summer	26	11	129.945	0.032	4.0	0.0100	0.0000	OK
15 minute summer	27	10	129.189	0.041	6.4	0.0184	0.0000	OK
15 minute summer	28	11	128.656	0.251	53.0	0.0930	0.0000	SURCHARGED
15 minute summer	29	10	128.411	0.041	2.4	0.0212	0.0000	OK
15 minute summer	30	11	128.351	0.058	4.8	0.0286	0.0000	OK
15 minute summer	31	10	129.389	0.027	2.8	0.0103	0.0000	OK
15 minute summer	32	10	128.845	0.038	5.6	0.0135	0.0000	OK
15 minute summer	33	11	128.266	0.114	13.0	0.0387	0.0000	OK
480 minute winter	Tank	456	127.863	0.876	10.0	100.1929	0.0000	SURCHARGED
15 minute summer	34_OUT	1	127.080	0.150	0.6	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)
15 minute summer	23	9.000	24	1.0	0.648	0.029	0.0190	
15 minute summer	24	9.001	26	2.0	0.853	0.061	0.0292	
15 minute summer	25	10.000	26	1.0	0.551	0.025	0.0211	
15 minute summer	26	9.002	27	4.0	1.209	0.100	0.0509	
15 minute summer	27	9.003	28	6.3	1.177	0.163	0.1472	
15 minute summer	28	1.007	Tank	52.9	1.369	1.236	0.0945	
15 minute summer	29	11.000	30	2.4	0.467	0.164	0.0593	
15 minute summer	30	11.001	33	4.7	0.451	0.323	0.2183	
15 minute summer	31	12.000	32	2.8	0.999	0.069	0.0310	
15 minute summer	32	12.001	33	5.5	0.663	0.138	0.1160	
15 minute summer	33	11.002	Tank	12.8	0.928	0.884	0.0894	
480 minute winter	Tank	Hydro-Brake®	34_OUT	0.7				99.3

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	133.294	0.024	2.3	0.0080	0.0000	OK
15 minute summer	2	10	133.224	0.024	2.3	0.0081	0.0000	OK
15 minute summer	3	10	132.397	0.042	6.9	0.0144	0.0000	OK
15 minute summer	4	10	131.619	0.048	9.1	0.0157	0.0000	OK
15 minute summer	5	11	130.292	0.062	11.3	0.0202	0.0000	OK
15 minute summer	6	10	134.530	0.030	2.7	0.0106	0.0000	OK
15 minute summer	7	10	133.275	0.024	2.7	0.0069	0.0000	OK
15 minute summer	8	11	131.255	0.061	3.6	0.0265	0.0000	OK
15 minute summer	9	11	131.252	0.102	9.7	0.0435	0.0000	OK
15 minute summer	10	10	131.250	0.057	4.1	0.0258	0.0000	OK
15 minute summer	11	11	130.098	0.167	17.5	0.0603	0.0000	SURCHARGED
15 minute summer	12	10	133.118	0.023	2.3	0.0075	0.0000	OK
15 minute summer	13	10	131.345	0.057	4.6	0.0198	0.0000	OK
15 minute summer	14	10	131.294	0.083	7.7	0.0332	0.0000	OK
15 minute summer	15	10	130.051	0.091	10.8	0.0312	0.0000	OK
15 minute summer	16	11	129.916	0.091	40.8	0.0312	0.0000	OK
15 minute summer	17	11	128.937	0.087	3.2	0.0369	0.0000	OK
15 minute summer	18	12	128.946	0.133	6.4	0.0557	0.0000	OK
15 minute summer	19	12	128.932	0.274	10.0	0.1097	0.0000	SURCHARGED
15 minute summer	20	12	128.928	0.312	48.7	0.1338	0.0000	SURCHARGED
15 minute summer	21	12	128.788	0.111	3.4	0.0448	0.0000	OK
15 minute summer	22	12	128.787	0.337	53.9	0.1385	0.0000	SURCHARGED
480 minute winter	PP2	464	136.728	0.328	2.7	24.8865	0.0000	OK
480 minute winter	PP1	472	137.108	0.408	14.9	142.3978	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)
15 minute summer	1	1.000	3	2.3	0.792	0.057	0.0537	
15 minute summer	2	2.000	3	2.3	0.792	0.057	0.0496	
15 minute summer	3	1.001	4	6.8	1.523	0.170	0.0701	
15 minute summer	4	1.002	5	9.0	1.534	0.225	0.1578	
15 minute summer	5	1.003	16	11.2	1.719	0.312	0.0530	
15 minute summer	6	3.000	7	2.7	1.099	0.081	0.0178	
15 minute summer	7	3.001	9	2.7	0.389	0.057	0.2292	
15 minute summer	8	4.000	9	3.5	0.412	0.242	0.0641	
15 minute summer	9	3.002	11	9.7	0.820	0.668	0.0329	
15 minute summer	10	5.000	11	4.0	0.683	0.279	0.0550	
15 minute summer	11	3.003	16	17.6	1.013	1.169	0.0709	
15 minute summer	12	6.000	13	2.3	1.347	0.049	0.0255	
15 minute summer	13	6.001	14	4.5	0.560	0.313	0.0932	
15 minute summer	14	6.002	15	7.6	0.796	0.524	0.0735	
15 minute summer	15	6.003	16	10.7	1.026	0.569	0.0561	
15 minute summer	16	1.004	20	40.9	2.880	0.295	0.1633	
15 minute summer	17	7.000	18	3.5	0.472	0.082	0.1053	
15 minute summer	18	7.001	19	8.5	0.499	0.200	0.7482	
15 minute summer	19	7.002	20	13.2	0.470	0.311	0.2506	
15 minute summer	20	1.005	22	48.6	1.222	0.770	0.4494	
15 minute summer	21	8.000	22	4.4	0.159	0.105	1.0211	
15 minute summer	22	1.006	28	54.8	1.379	0.943	0.1432	
480 minute winter	PP2	Orifice		0.3				30.5
480 minute winter	PP1	Orifice		1.3				170.4

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	10	130.794	0.021	1.4	0.0069	0.0000	OK
15 minute summer	24	10	130.355	0.029	2.8	0.0094	0.0000	OK
15 minute summer	25	10	130.487	0.019	1.4	0.0062	0.0000	OK
15 minute summer	26	10	129.950	0.037	5.5	0.0117	0.0000	OK
15 minute summer	27	10	129.196	0.048	8.6	0.0214	0.0000	OK
15 minute summer	28	12	128.697	0.292	64.8	0.1084	0.0000	SURCHARGED
15 minute summer	29	10	128.418	0.047	3.2	0.0245	0.0000	OK
15 minute summer	30	10	128.361	0.068	6.4	0.0334	0.0000	OK
15 minute summer	31	10	129.392	0.030	3.6	0.0116	0.0000	OK
15 minute summer	32	10	128.850	0.043	7.2	0.0154	0.0000	OK
15 minute summer	33	11	128.301	0.149	16.9	0.0506	0.0000	OK
600 minute winter	Tank	570	128.096	1.109	10.5	126.8453	0.0000	SURCHARGED
15 minute summer	34_OUT	1	127.080	0.150	0.6	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)
15 minute summer	23	9.000	24	1.4	0.716	0.040	0.0237	
15 minute summer	24	9.001	26	2.7	0.938	0.084	0.0363	
15 minute summer	25	10.000	26	1.4	0.601	0.035	0.0263	
15 minute summer	26	9.002	27	5.4	1.320	0.136	0.0632	
15 minute summer	27	9.003	28	8.5	1.150	0.220	0.1537	
15 minute summer	28	1.007	Tank	65.1	1.638	1.522	0.0972	
15 minute summer	29	11.000	30	3.2	0.504	0.218	0.0729	
15 minute summer	30	11.001	33	6.2	0.471	0.427	0.2673	
15 minute summer	31	12.000	32	3.6	1.076	0.090	0.0373	
15 minute summer	32	12.001	33	7.2	0.689	0.179	0.1421	
15 minute summer	33	11.002	Tank	16.7	1.005	1.156	0.1061	
600 minute winter	Tank	Hydro-Brake®	34_OUT	0.7				118.7

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	133.299	0.029	3.2	0.0094	0.0000	OK
15 minute summer	2	10	133.229	0.029	3.2	0.0094	0.0000	OK
15 minute summer	3	10	132.405	0.050	9.5	0.0171	0.0000	OK
15 minute summer	4	10	131.628	0.058	12.6	0.0187	0.0000	OK
15 minute summer	5	10	130.305	0.075	15.7	0.0246	0.0000	OK
15 minute summer	6	10	134.536	0.036	3.8	0.0127	0.0000	OK
15 minute summer	7	10	133.279	0.029	3.8	0.0082	0.0000	OK
15 minute summer	8	11	131.285	0.091	5.1	0.0394	0.0000	OK
15 minute summer	9	11	131.280	0.130	13.7	0.0556	0.0000	OK
15 minute summer	10	10	131.262	0.069	5.7	0.0312	0.0000	OK
15 minute summer	11	11	130.179	0.248	24.5	0.0892	0.0000	SURCHARGED
15 minute summer	12	10	133.122	0.027	3.2	0.0089	0.0000	OK
15 minute summer	13	10	131.357	0.069	6.4	0.0239	0.0000	OK
15 minute summer	14	11	131.315	0.104	10.7	0.0415	0.0000	OK
15 minute summer	15	11	130.075	0.115	14.8	0.0394	0.0000	OK
15 minute summer	16	10	129.935	0.110	56.7	0.0378	0.0000	OK
15 minute summer	17	12	129.257	0.407	4.4	0.1721	0.0000	SURCHARGED
15 minute summer	18	12	129.262	0.449	10.7	0.1878	0.0000	SURCHARGED
15 minute summer	19	12	129.251	0.593	14.5	0.2373	0.0000	SURCHARGED
15 minute summer	20	12	129.244	0.628	69.1	0.2695	0.0000	SURCHARGED
15 minute summer	21	12	128.963	0.286	6.7	0.1150	0.0000	SURCHARGED
15 minute summer	22	12	128.960	0.510	77.5	0.2094	0.0000	SURCHARGED
480 minute winter	PP2	472	136.799	0.399	3.7	36.6503	0.0000	OK
600 minute winter	PP1	585	137.195	0.495	17.2	208.0436	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)
15 minute summer	1	1.000	3	3.2	0.865	0.079	0.0682	
15 minute summer	2	2.000	3	3.2	0.865	0.079	0.0630	
15 minute summer	3	1.001	4	9.4	1.662	0.235	0.0890	
15 minute summer	4	1.002	5	12.5	1.656	0.312	0.2020	
15 minute summer	5	1.003	16	15.5	1.855	0.430	0.0677	
15 minute summer	6	3.000	7	3.8	1.206	0.114	0.0228	
15 minute summer	7	3.001	9	3.7	0.414	0.081	0.2923	
15 minute summer	8	4.000	9	4.9	0.419	0.337	0.0903	
15 minute summer	9	3.002	11	13.5	0.900	0.933	0.0417	
15 minute summer	10	5.000	11	5.6	0.745	0.390	0.0705	
15 minute summer	11	3.003	16	24.6	1.400	1.638	0.0744	
15 minute summer	12	6.000	13	3.2	1.480	0.068	0.0323	
15 minute summer	13	6.001	14	6.3	0.596	0.433	0.1206	
15 minute summer	14	6.002	15	10.5	0.851	0.727	0.0951	
15 minute summer	15	6.003	16	14.8	1.097	0.791	0.0728	
15 minute summer	16	1.004	20	56.8	3.088	0.410	0.3192	
15 minute winter	17	7.000	18	7.2	0.477	0.169	0.2187	
15 minute summer	18	7.001	19	13.2	0.491	0.313	0.9267	
15 minute summer	19	7.002	20	18.0	0.534	0.425	0.2506	
15 minute summer	20	1.005	22	69.1	1.738	1.095	0.4494	
15 minute summer	21	8.000	22	7.7	0.212	0.184	1.3681	
15 minute summer	22	1.006	28	77.8	1.957	1.338	0.1432	
480 minute winter	PP2	Orifice		0.3				42.9
600 minute winter	PP1	Orifice		1.5				237.8

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	10	130.797	0.024	1.9	0.0081	0.0000	OK
15 minute summer	24	10	130.360	0.034	3.8	0.0110	0.0000	OK
15 minute summer	25	10	130.490	0.022	1.9	0.0072	0.0000	OK
15 minute summer	26	10	129.957	0.044	7.5	0.0137	0.0000	OK
15 minute summer	27	10	129.205	0.057	11.8	0.0253	0.0000	OK
15 minute summer	28	12	128.778	0.373	92.0	0.1382	0.0000	SURCHARGED
600 minute summer	29	600	128.610	0.240	0.6	0.1238	0.0000	SURCHARGED
600 minute summer	30	600	128.610	0.317	1.2	0.1553	0.0000	SURCHARGED
15 minute summer	31	10	129.398	0.036	5.1	0.0138	0.0000	OK
15 minute summer	32	10	128.859	0.051	10.2	0.0184	0.0000	OK
600 minute summer	33	600	128.610	0.458	3.0	0.1557	0.0000	SURCHARGED
600 minute summer	Tank	600	128.610	1.623	20.7	185.6526	0.0000	SURCHARGED
15 minute summer	34_OUT	1	127.080	0.150	0.6	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)
15 minute summer	23	9.000	24	1.9	0.784	0.055	0.0296	
15 minute summer	24	9.001	26	3.7	1.025	0.115	0.0454	
15 minute summer	25	10.000	26	1.9	0.656	0.047	0.0328	
15 minute summer	26	9.002	27	7.4	1.440	0.186	0.0794	
15 minute summer	27	9.003	28	11.8	1.149	0.303	0.1623	
15 minute summer	28	1.007	Tank	91.8	2.309	2.146	0.0984	
15 minute summer	29	11.000	30	4.4	0.543	0.302	0.1232	
15 minute summer	30	11.001	33	8.5	0.504	0.590	0.3473	
15 minute summer	31	12.000	32	5.1	1.186	0.127	0.0477	
15 minute summer	32	12.001	33	10.1	0.742	0.253	0.1503	
15 minute summer	33	11.002	Tank	22.6	1.283	1.561	0.1114	
600 minute summer	Tank	Hydro-Brake®	34_OUT	0.9				145.5

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	133.297	0.027	2.8	0.0088	0.0000	OK
15 minute summer	2	10	133.227	0.027	2.8	0.0089	0.0000	OK
15 minute summer	3	10	132.402	0.047	8.4	0.0160	0.0000	OK
15 minute summer	4	10	131.624	0.054	11.1	0.0175	0.0000	OK
15 minute summer	5	11	130.300	0.070	13.8	0.0228	0.0000	OK
15 minute summer	6	10	134.534	0.034	3.4	0.0120	0.0000	OK
15 minute summer	7	10	133.278	0.027	3.4	0.0078	0.0000	OK
15 minute summer	8	11	131.274	0.080	4.6	0.0348	0.0000	OK
15 minute summer	9	11	131.270	0.120	12.3	0.0514	0.0000	OK
15 minute summer	10	10	131.258	0.064	5.1	0.0292	0.0000	OK
15 minute summer	11	11	130.147	0.216	22.0	0.0776	0.0000	SURCHARGED
15 minute summer	12	10	133.120	0.025	2.8	0.0083	0.0000	OK
15 minute summer	13	10	131.352	0.064	5.6	0.0221	0.0000	OK
15 minute summer	14	10	131.307	0.096	9.5	0.0383	0.0000	OK
15 minute summer	15	10	130.066	0.105	13.4	0.0363	0.0000	OK
15 minute summer	16	11	129.929	0.104	50.7	0.0356	0.0000	OK
15 minute summer	17	12	129.128	0.278	4.0	0.1177	0.0000	SURCHARGED
15 minute summer	18	12	129.127	0.314	11.5	0.1312	0.0000	SURCHARGED
15 minute summer	19	12	129.118	0.460	14.1	0.1840	0.0000	SURCHARGED
15 minute summer	20	12	129.114	0.498	63.5	0.2136	0.0000	SURCHARGED
15 minute summer	21	12	128.893	0.216	4.9	0.0867	0.0000	OK
15 minute summer	22	12	128.892	0.442	69.4	0.1816	0.0000	SURCHARGED

480 minute winter	PP2	472	136.773	0.373	3.3	31.9631	0.0000	OK
480 minute winter	PP1	472	137.160	0.460	18.3	179.8021	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)
15 minute summer	1	1.000	3	2.8	0.835	0.070	0.0621	
15 minute summer	2	2.000	3	2.8	0.835	0.070	0.0573	
15 minute summer	3	1.001	4	8.3	1.608	0.208	0.0811	
15 minute summer	4	1.002	5	11.0	1.609	0.276	0.1838	
15 minute summer	5	1.003	16	13.8	1.803	0.381	0.0618	
15 minute summer	6	3.000	7	3.4	1.173	0.102	0.0211	
15 minute summer	7	3.001	9	3.4	0.411	0.073	0.2726	
15 minute summer	8	4.000	9	4.4	0.418	0.302	0.0815	
15 minute summer	9	3.002	11	12.1	0.867	0.839	0.0390	
15 minute summer	10	5.000	11	5.0	0.724	0.349	0.0648	
15 minute summer	11	3.003	16	22.1	1.256	1.468	0.0735	
15 minute summer	12	6.000	13	2.8	1.426	0.060	0.0294	
15 minute summer	13	6.001	14	5.5	0.580	0.382	0.1095	
15 minute summer	14	6.002	15	9.4	0.832	0.649	0.0868	
15 minute summer	15	6.003	16	13.3	1.074	0.708	0.0666	
15 minute summer	16	1.004	20	50.8	3.030	0.366	0.1928	
30 minute summer	17	7.000	18	6.5	0.473	0.152	0.2043	
15 minute summer	18	7.001	19	12.9	0.491	0.304	0.9267	
15 minute summer	19	7.002	20	18.0	0.557	0.424	0.2506	
15 minute summer	20	1.005	22	61.0	1.534	0.966	0.4494	
15 minute summer	21	8.000	22	6.2	0.185	0.148	1.3581	
15 minute summer	22	1.006	28	69.6	1.751	1.197	0.1432	

480 minute winter	PP2	Orifice		0.3				38.0
480 minute winter	PP1	Orifice		1.4				209.1

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	10	130.796	0.023	1.7	0.0076	0.0000	OK
15 minute summer	24	10	130.359	0.032	3.4	0.0104	0.0000	OK
15 minute summer	25	10	130.489	0.021	1.7	0.0068	0.0000	OK
15 minute summer	26	10	129.954	0.041	6.7	0.0130	0.0000	OK
15 minute summer	27	10	129.201	0.053	10.6	0.0239	0.0000	OK
15 minute summer	28	12	128.746	0.341	81.7	0.1265	0.0000	SURCHARGED
15 minute summer	29	10	128.424	0.053	4.0	0.0276	0.0000	OK
480 minute winter	30	472	128.399	0.106	0.8	0.0519	0.0000	OK
15 minute summer	31	10	129.396	0.034	4.6	0.0131	0.0000	OK
15 minute summer	32	10	128.856	0.049	9.2	0.0174	0.0000	OK
480 minute winter	33	472	128.399	0.247	2.3	0.0839	0.0000	SURCHARGED
480 minute winter	Tank	472	128.399	1.412	15.3	161.4834	0.0000	SURCHARGED
15 minute summer	34_OUT	1	127.080	0.150	0.6	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)
15 minute summer	23	9.000	24	1.7	0.759	0.049	0.0273	
15 minute summer	24	9.001	26	3.3	0.993	0.102	0.0419	
15 minute summer	25	10.000	26	1.7	0.635	0.042	0.0303	
15 minute summer	26	9.002	27	6.6	1.391	0.166	0.0733	
15 minute summer	27	9.003	28	10.5	1.132	0.272	0.1591	
15 minute summer	28	1.007	Tank	81.9	2.060	1.915	0.0984	
15 minute summer	29	11.000	30	4.0	0.530	0.274	0.0956	
15 minute summer	30	11.001	33	7.6	0.501	0.527	0.3015	
15 minute summer	31	12.000	32	4.6	1.152	0.114	0.0443	
15 minute summer	32	12.001	33	9.1	0.721	0.227	0.1478	
15 minute summer	33	11.002	Tank	20.7	1.179	1.432	0.1102	
480 minute winter	Tank	Hydro-Brake®	34_OUT	0.8				128.7

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1	10	133.302	0.032	4.0	0.0105	0.0000	OK
15 minute summer	2	10	133.232	0.032	4.0	0.0106	0.0000	OK
15 minute summer	3	10	132.412	0.056	11.9	0.0194	0.0000	OK
15 minute summer	4	10	131.635	0.065	15.8	0.0212	0.0000	OK
15 minute summer	5	10	130.318	0.088	19.7	0.0286	0.0000	OK
15 minute summer	6	10	134.541	0.041	4.8	0.0143	0.0000	OK
15 minute summer	7	10	133.283	0.032	4.8	0.0092	0.0000	OK
15 minute summer	8	11	131.320	0.126	6.4	0.0548	0.0000	OK
15 minute summer	9	11	131.312	0.161	17.1	0.0691	0.0000	SURCHARGED
15 minute summer	10	10	131.272	0.079	7.2	0.0358	0.0000	OK
15 minute summer	11	11	130.260	0.328	30.9	0.1182	0.0000	SURCHARGED
15 minute summer	12	10	133.125	0.030	4.0	0.0099	0.0000	OK
15 minute summer	13	10	131.370	0.082	8.0	0.0283	0.0000	OK
15 minute summer	14	11	131.336	0.125	13.4	0.0498	0.0000	OK
15 minute summer	15	11	130.119	0.159	18.7	0.0548	0.0000	SURCHARGED
15 minute summer	16	11	129.968	0.143	71.4	0.0489	0.0000	OK
15 minute summer	17	12	129.613	0.763	9.9	0.3226	0.0000	FLOOD RISK
15 minute summer	18	12	129.612	0.799	17.6	0.3338	0.0000	FLOOD RISK
15 minute summer	19	12	129.597	0.939	16.2	0.3758	0.0000	FLOOD RISK
15 minute summer	20	12	129.589	0.973	86.3	0.4173	0.0000	FLOOD RISK
15 minute summer	21	12	129.149	0.472	10.5	0.1897	0.0000	SURCHARGED
15 minute summer	22	12	129.145	0.694	96.5	0.2854	0.0000	SURCHARGED

600 minute winter	PP2	585	136.850	0.450	3.8	46.4471	0.0000	OK
600 minute winter	PP1	600	137.256	0.556	21.1	261.7664	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)
15 minute summer	1	1.000	3	4.0	0.917	0.099	0.0806	
15 minute summer	2	2.000	3	4.0	0.917	0.099	0.0744	
15 minute summer	3	1.001	4	11.8	1.763	0.296	0.1054	
15 minute summer	4	1.002	5	15.7	1.739	0.392	0.2417	
15 minute summer	5	1.003	16	19.5	1.949	0.540	0.0810	
15 minute summer	6	3.000	7	4.8	1.286	0.144	0.0271	
15 minute summer	7	3.001	9	4.7	0.426	0.102	0.3214	
15 minute summer	8	4.000	9	6.2	0.418	0.427	0.1103	
15 minute summer	9	3.002	11	17.1	0.993	1.180	0.0459	
15 minute summer	10	5.000	11	7.1	0.787	0.491	0.0838	
15 minute summer	11	3.003	16	31.0	1.759	2.058	0.0749	
15 minute summer	12	6.000	13	4.0	1.580	0.086	0.0379	
15 minute summer	13	6.001	14	7.9	0.609	0.542	0.1466	
15 minute summer	14	6.002	15	13.2	0.908	0.916	0.1119	
15 minute summer	15	6.003	16	18.7	1.125	0.997	0.0901	
15 minute summer	16	1.004	20	71.0	3.136	0.512	0.3813	
15 minute summer	17	7.000	18	6.7	0.511	0.156	0.2187	
15 minute summer	18	7.001	19	14.4	0.492	0.340	0.9267	
15 minute summer	19	7.002	20	21.2	0.534	0.501	0.2506	
15 minute summer	20	1.005	22	86.1	2.165	1.365	0.4494	
15 minute summer	21	8.000	22	8.6	0.244	0.204	1.3681	
15 minute summer	22	1.006	28	96.7	2.432	1.663	0.1432	

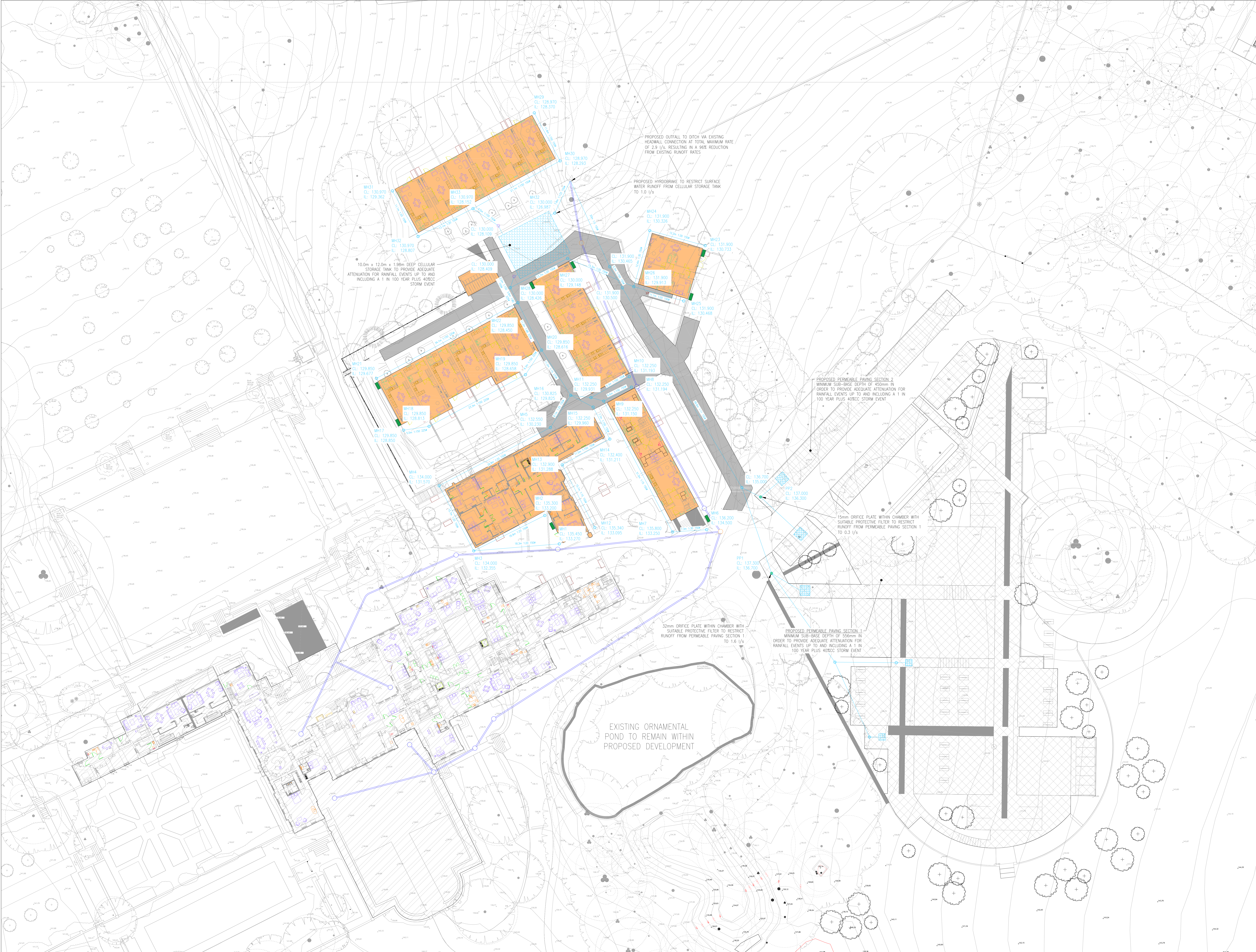
600 minute winter	PP2	Orifice		0.3				51.5
600 minute winter	PP1	Orifice		1.6				266.2

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.96%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	23	10	130.800	0.027	2.4	0.0090	0.0000	OK
15 minute summer	24	10	130.365	0.039	4.8	0.0124	0.0000	OK
15 minute summer	25	10	130.493	0.025	2.4	0.0081	0.0000	OK
15 minute summer	26	10	129.963	0.050	9.5	0.0156	0.0000	OK
15 minute summer	27	10	129.213	0.065	15.1	0.0289	0.0000	OK
960 minute winter	28	915	128.959	0.554	7.0	0.2054	0.0000	SURCHARGED
960 minute winter	29	915	128.958	0.588	0.3	0.3034	0.0000	FLOOD RISK
960 minute winter	30	915	128.958	0.665	0.6	0.3258	0.0000	FLOOD RISK
15 minute summer	31	10	129.403	0.041	6.4	0.0155	0.0000	OK
960 minute winter	32	915	128.958	0.151	0.8	0.0539	0.0000	SURCHARGED
960 minute winter	33	915	128.958	0.806	1.8	0.2740	0.0000	SURCHARGED
960 minute winter	Tank	915	128.958	1.971	11.4	225.4396	0.0000	SURCHARGED
15 minute summer	34_OUT	1	127.080	0.150	0.6	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)
15 minute summer	23	9.000	24	2.4	0.839	0.070	0.0350	
15 minute summer	24	9.001	26	4.7	1.096	0.146	0.0539	
15 minute summer	25	10.000	26	2.4	0.699	0.060	0.0389	
15 minute summer	26	9.002	27	9.5	1.535	0.237	0.0945	
15 minute summer	27	9.003	28	15.0	1.150	0.385	0.1703	
15 minute summer	28	1.007	Tank	114.3	2.874	2.672	0.0984	
15 minute summer	29	11.000	30	5.2	0.552	0.359	0.2042	
15 minute summer	30	11.001	33	10.4	0.588	0.715	0.3715	
15 minute summer	31	12.000	32	6.4	1.264	0.159	0.0563	
15 minute summer	32	12.001	33	12.7	0.904	0.318	0.1566	
15 minute summer	33	11.002	Tank	28.0	1.589	1.935	0.1133	
960 minute winter	Tank	Hydro-Brake®	34_OUT	1.0				178.2

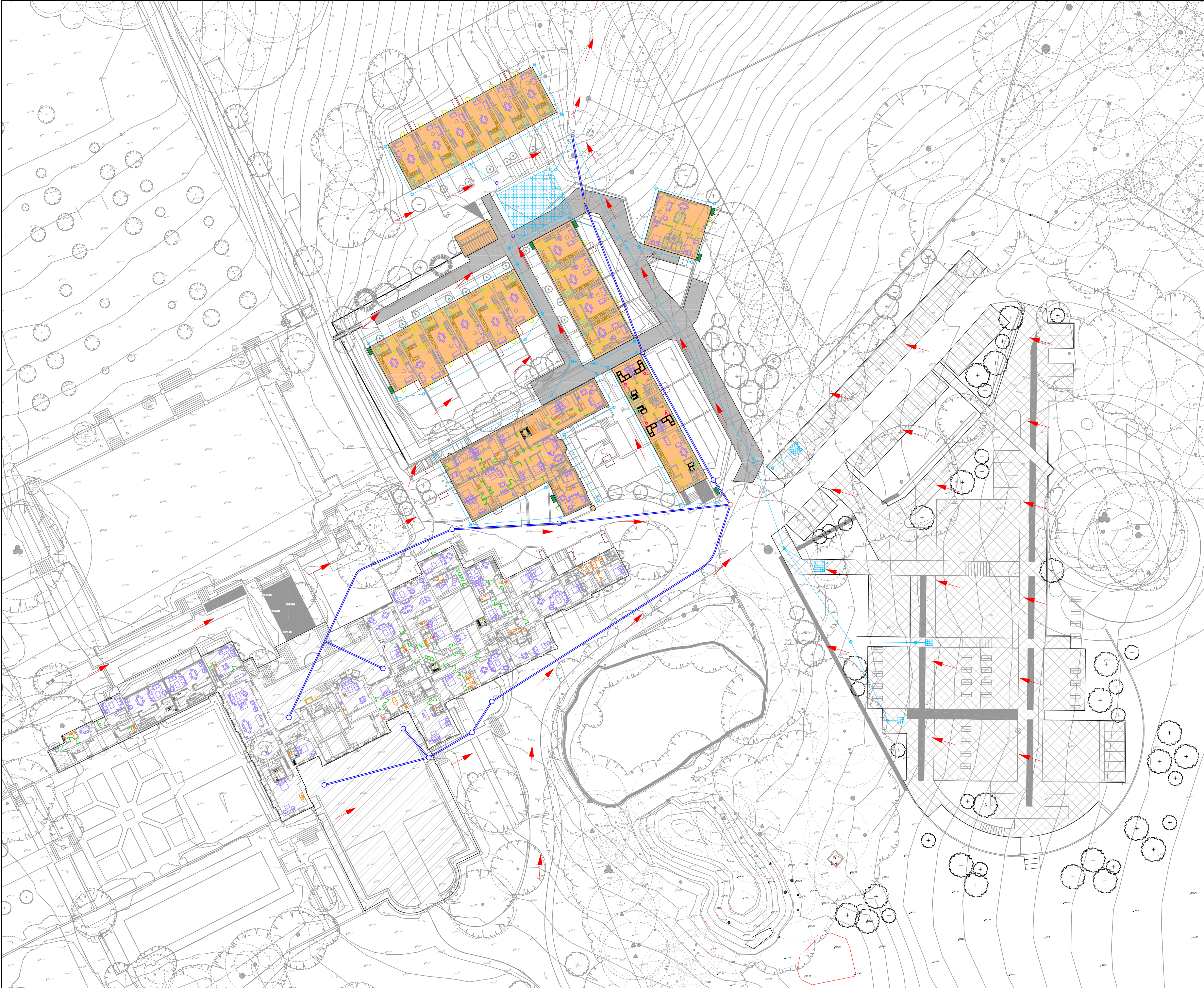
Appendix: N – Proposed SuDS Layout



- KEY:
- PRIVATE SURFACE WATER SEWER AND INSPECTION CHAMBER
 - SURFACE WATER DIFFUSER UNIT
 - DOWNSTREAM DEFENDER
 - ORIFICE PLATE WITHIN CHAMBER WITH SUITABLE PROTECTIVE FILTER TO RESTRICT OUTFALL FROM PERMEABLE PAVING
 - PROPOSED RAINGARDEN PLANTER, EXACT LOCATIONS TO BE CONFIRMED
 - PROPOSED ROOF AREAS (1911m² INCLUDING URBAN CREEP)
 - PROPOSED PERMEABLE PAVING (3711m²)
 - PROPOSED ACCESS ROAD AND FOOTPATHS (730m²)
 - ROOF AND COURTYARD AREAS TO CONTINUE USING EXISTING DRAINAGE SYSTEM
 - EXISTING SURFACE WATER SEWER AND INSPECTION CHAMBER
 - RELOCATED EXISTING INSPECTION CHAMBER TO ACCOMMODATE BUILDING PROPOSALS

REV	DATE	BY	DESCRIPTION	CHK	APP
DRAWING STATUS:					
Drawing Stamp (S) Over Copyright 2018. All Rights Reserved. License Number: 100000000					
					
1st Floor Millers House, Rippon Road, Sheffield S10 2TB, Yorkshire, S10 2TB Tel: 0114 2717777 www.fas.co.uk					
CLIENT: SCABAL					
PROJECT: TEMPLE DINSLEY, PRESTON HITCHIN					
TITLE: PROPOSE SUDS LAYOUT					
SCALE: @ A3	DESIGN: DRAWN: MC	DATE: 28/11/2024			
PROJECT No: 5201	DRAWING No:	SK02 REV A			

Appendix: O – Exceedance Plan



KEY:
 DIRECTION OF FLOW OF SURFACE WATER DURING EXCEEDANCE EVENT

REV	DATE	BY	DESCRIPTION	CHK	APD
DRAWING STATUS:					
Ordnance Survey (c) Crown Copyright 2018. All rights reserved. Licence number 100022432					
 1st Floor Millers House, Raydon Road, Stanstead Abbots, Hertfordshire, SG12 8HN Tel: 01920 871777 www.eastp.co.uk					
CLIENT:					
ARCHITECT:					
PROJECT:					
TEMPLE DINSLY, PRESTON HITCHIN					
TITLE:					
EXCEEDANCE FLOW PATHS					
SCALE @ A2: 1:500		DESIGN-DRAWN: MC		DATE: 28/11/2024	
PROJECT No: 5201		DRAWING No: SK03 REV A			