Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
TANK	0.360	5.00	32.600	1350	-97.257	73.523	1.136
SWMH04C	0.027	5.00	32.600	1200	-147.101	-4.244	0.440
SWMH04B	0.027	5.00	32.600	1200	-140.106	20.222	0.610
SWMH04A	0.027	5.00	32.600	1200	-134.943	37.824	0.733
SWMH04	0.027	5.00	32.600	1200	-126.783	65.430	0.925
SWMH03C	0.027	5.00	32.750	1200	-120.612	-5.757	0.550
SWMH03B	0.027	5.00	32.700	1200	-115.782	10.880	0.615
SWMH03A	0.027	5.00	32.700	1200	-111.203	26.230	0.722
SWMH03	0.027	5.00	32.700	1200	-104.921	48.648	0.877
SWMH02	0.150	5.00	32.600	1350	-61.388	94.718	1.280
SWMH01			32.600	1350	-61.081	100.046	1.340
EX OUTFALL			31.730	1350	-60.506	106.788	0.500

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.004	TANK	SWMH02	41.663	0.600	31.464	31.320	0.144	289.3	375	7.38	50.0
1.003	SWMH04	TANK	30.615	0.600	31.675	31.539	0.136	225.0	225	6.72	50.0
1.000	SWMH04C	SWMH04B	25.449	0.600	32.160	31.990	0.170	150.0	225	5.40	50.0
1.001	SWMH04B	SWMH04A	18.399	0.600	31.990	31.867	0.123	150.0	225	5.69	50.0
1.002	SWMH04A	SWMH04	28.726	0.600	31.867	31.675	0.192	150.0	225	6.14	50.0
2.003	SWMH03	TANK	26.029	0.600	31.823	31.464	0.359	72.5	225	6.17	50.0
2.000	SWMH03C	SWMH03B	17.297	0.600	32.200	32.085	0.115	150.0	225	5.27	50.0
2.001	SWMH03B	SWMH03A	16.112	0.600	32.085	31.978	0.107	150.0	225	5.52	50.0
2.002	SWMH03A	SWMH03	23.271	0.600	31.978	31.823	0.155	150.0	225	5.89	50.0
1.005	SWMH02	SWMH01	5.337	0.600	31.320	31.260	0.060	88.9	375	7.43	50.0
1.006	SWMH01	EX OUTFALL	6.766	0.600	31.260	31.230	0.030	225.5	375	7.52	50.0

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)
1.004	1.060	117.1	78.1	0.761	0.905	0.576	0.0	224	1.132
1.003	0.867	34.5	14.6	0.700	0.836	0.108	0.0	102	0.833
1.000	1.065	42.3	3.7	0.215	0.385	0.027	0.0	44	0.655
1.001	1.065	42.3	7.3	0.385	0.508	0.054	0.0	63	0.800
1.002	1.065	42.3	11.0	0.508	0.700	0.081	0.0	78	0.896
2.003	1.537	61.1	14.6	0.652	0.911	0.108	0.0	75	1.272
2.000	1.065	42.3	3.7	0.325	0.390	0.027	0.0	44	0.655
2.001	1.065	42.3	7.3	0.390	0.497	0.054	0.0	63	0.800
2.002	1.065	42.3	11.0	0.497	0.652	0.081	0.0	78	0.896
1.005	1.922	212.2	98.4	0.905	0.965	0.726	0.0	179	1.886
1.006	1.202	132.8	98.4	0.965	0.125	0.726	0.0	241	1.312

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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)
1.004	41.663	289.3	375	Circular	32.600	31.464	0.761	32.600	31.320	0.905
1.003	30.615	225.0	225	Circular	32.600	31.675	0.700	32.600	31.539	0.836
1.000	25.449	150.0	225	Circular	32.600	32.160	0.215	32.600	31.990	0.385
1.001	18.399	150.0	225	Circular	32.600	31.990	0.385	32.600	31.867	0.508
1.002	28.726	150.0	225	Circular	32.600	31.867	0.508	32.600	31.675	0.700
2.003	26.029	72.5	225	Circular	32.700	31.823	0.652	32.600	31.464	0.911
2.000	17.297	150.0	225	Circular	32.750	32.200	0.325	32.700	32.085	0.390
2.001	16.112	150.0	225	Circular	32.700	32.085	0.390	32.700	31.978	0.497
2.002	23.271	150.0	225	Circular	32.700	31.978	0.497	32.700	31.823	0.652
1.005	5.337	88.9	375	Circular	32.600	31.320	0.905	32.600	31.260	0.965
1.006	6.766	225.5	375	Circular	32.600	31.260	0.965	31.730	31.230	0.125

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.004	TANK	1350	Manhole	Adoptable	SWMH02	1350	Manhole	Adoptable
1.003	SWMH04	1200	Manhole	Adoptable	TANK	1350	Manhole	Adoptable
1.000	SWMH04C	1200	Manhole	Adoptable	SWMH04B	1200	Manhole	Adoptable
1.001	SWMH04B	1200	Manhole	Adoptable	SWMH04A	1200	Manhole	Adoptable
1.002	SWMH04A	1200	Manhole	Adoptable	SWMH04	1200	Manhole	Adoptable
2.003	SWMH03	1200	Manhole	Adoptable	TANK	1350	Manhole	Adoptable
2.000	SWMH03C	1200	Manhole	Adoptable	SWMH03B	1200	Manhole	Adoptable
2.001	SWMH03B	1200	Manhole	Adoptable	SWMH03A	1200	Manhole	Adoptable
2.002	SWMH03A	1200	Manhole	Adoptable	SWMH03	1200	Manhole	Adoptable
1.005	SWMH02	1350	Manhole	Adoptable	SWMH01	1350	Manhole	Adoptable
1.006	SWMH01	1350	Manhole	Adoptable	EX OUTFALL	1350	Manhole	Adoptable

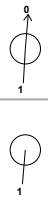
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
TANK	-97.257	73.523	32.600	1.136	1350	1	2.003	31.464	225
						2	1.003	31.539	225
						0	1.004	31.464	375
SWMH04C	-147.101	-4.244	32.600	0.440	1200	0	1.000	32.160	225
SWMH04B	-140.106	20.222	32.600	0.610	1200	1	1.000	31.990	225
						0	1.001	31.990	225
SWMH04A	-134.943	37.824	32.600	0.733	1200	1	1.001	31.867	225
						0	1.002	31.867	225
SWMH04	-126.783	65.430	32.600	0.925	1200	1	1.002	31.675	225
						0	1.003	31.675	225
SWMH03C	-120.612	-5.757	32.750	0.550	1200	0	2.000	32.200	225
SWMH03B	-115.782	10.880	32.700	0.615	1200	1	2.000	32.085	225
						0	2.001	32.085	225
SWMH03A	-111.203	26.230	32.700	0.722	1200	1	2.001	31.978	225
						0	2.002	31.978	225
SWMH03	-104.921	48.648	32.700	0.877	1200	1	2.002	31.823	225
						0	2.003	31.823	225
SWMH02	-61.388	94.718	32.600	1.280	1350	1	1.004	31.320	375
						0	1.005	31.320	375

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Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
SWMH01	-61.081	100.046	32.600	1.340	1350	1	1.005	31.260	375
						0	1.006	31.260	375
EX OUTFALL	-60.506	106.788	31.730	0.500	1350	1	1.006	31.230	375



Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	0.750	Drain Down Time (mins)	240	Check Discharge Volume	x
Winter CV	0.840	Additional Storage (m³/ha)	20.0		

Storm Durations

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

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

Node SWMH02 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.425	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	21.8		
Invert Level (m)	31.320	Diameter (m)	0.132		

Node SWMH02 Online Orifice Control

Flap Valve	x	Design Depth (m)	0.275	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	47.6		
Invert Level (m)	31.745	Diameter (m)	0.240		

Node SWMH02 Online Weir Control

Flap Valve	x	Invert Level (m)	32.020	Discharge Coefficient	0.590
Replaces Downstream Link	✓	Width (m)	0.150		

Node TANK Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	31.464
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	93

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	650.0	0.0	0.400	650.0	0.0	0.401	0.0	0.0

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 15 minute summer	104.606	29.600
2 year 15 minute winter	73.408	29.600
2 year 30 minute summer	67.146	19.000
2 year 30 minute winter	47.120	19.000
2 year 60 minute summer	45.030	11.900
2 year 60 minute winter	29.917	11.900
2 year 120 minute summer	30.083	7.950
2 year 120 minute winter	19.986	7.950
2 year 180 minute summer	23.860	6.140
2 year 180 minute winter	15.510	6.140
2 year 240 minute summer	19.205	5.075
2 year 240 minute winter	12.759	5.075
2 year 360 minute summer	14.962	3.850
2 year 360 minute winter	9.726	3.850
2 year 480 minute summer	11.868	3.136
2 year 480 minute winter	7.885	3.136

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Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
2 year 600 minute summer	9.752	2.667
2 year 600 minute winter	6.663	2.667
2 year 720 minute summer	8.709	2.334
2 year 720 minute winter	5.853	2.334
2 year 960 minute summer	7.176	1.890
2 year 960 minute winter	4.753	1.890
2 year 1440 minute summer	5.272	1.413
2 year 1440 minute winter	3.543	1.413
30 year 15 minute summer	265.433	75.108
30 year 15 minute winter	186.269	75.108
30 year 30 minute summer	173.381	49.061
30 year 30 minute winter	121.671	49.061
30 year 60 minute summer	116.455	30.776
30 year 60 minute winter	77.370	30.776
30 year 120 minute summer	68.599	18.129
30 year 120 minute winter	45.576	18.129
30 year 180 minute summer	51.644	13.290
30 year 180 minute winter	33.570	13.290
30 year 240 minute summer	40.327	10.657
30 year 240 minute winter	26.793	10.657
30 year 360 minute summer	30.319	7.802
30 year 360 minute winter	19.708	7.802
30 year 480 minute summer	23.649	6.250
30 year 480 minute winter	15.712	6.250
30 year 600 minute summer	19.248	5.265
30 year 600 minute winter	13.151	5.265
30 year 720 minute summer	17.087	4.579
30 year 720 minute winter	11.483	4.579
30 year 960 minute summer	13.992	3.684
30 year 960 minute winter	9.269	3.684
30 year 1440 minute summer	10.147	2.719
30 year 1440 minute winter	6.819	2.719
100 year +45% CC 15 minute summer	487.949	138.073
100 year +45% CC 15 minute winter	342.420	138.073
100 year +45% CC 30 minute summer	321.892	91.084
100 year +45% CC 30 minute winter	225.889	91.084
100 year +45% CC 60 minute summer	217.872	57.577
100 year +45% CC 60 minute winter	144.749	57.577
100 year +45% CC 120 minute summer	125.965	33.289
100 year +45% CC 120 minute winter	83.688	33.289
100 year +45% CC 180 minute summer	94.323	24.273
100 year +45% CC 180 minute winter	61.313	24.273
100 year +45% CC 240 minute summer	73.545	19.436
100 year +45% CC 240 minute winter	48.861	19.436
100 year +45% CC 360 minute summer	55.331	14.239
100 year +45% CC 360 minute winter	35.967	14.239
100 year +45% CC 480 minute summer	43.395	11.468
100 year +45% CC 480 minute winter	28.831	11.468
100 year +45% CC 600 minute summer	35.506	9.712
100 year +45% CC 600 minute winter	24.260	9.712
100 year +45% CC 720 minute summer	31.659	8.485
100 year +45% CC 720 minute winter	21.277	8.485
100 year +45% CC 960 minute summer	26.040	6.857
100 year +45% CC 960 minute winter	17.249	6.857
100 year +45% CC 1440 minute summer	18.965	5.083
100 year +45% CC 1440 minute winter	12.746	5.083

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

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
180 minute winter	TANK	120	31.542	0.078	20.9	48.9725	0.0000	OK
15 minute winter	SWMH04C	10	32.203	0.043	3.6	0.1021	0.0000	OK
15 minute winter	SWMH04B	11	32.052	0.062	7.1	0.1260	0.0000	OK
15 minute winter	SWMH04A	11	31.942	0.075	10.4	0.1407	0.0000	OK
15 minute winter	SWMH04	11	31.775	0.100	13.8	0.1712	0.0000	OK
15 minute winter	SWMH03C	10	32.244	0.044	3.6	0.0921	0.0000	OK
15 minute winter	SWMH03B	11	32.148	0.063	7.1	0.1259	0.0000	OK
15 minute winter	SWMH03A	11	32.056	0.078	10.5	0.1465	0.0000	OK
15 minute winter	SWMH03	10	31.908	0.085	13.9	0.1492	0.0000	OK
180 minute winter	SWMH02	120	31.537	0.217	14.2	0.8209	0.0000	OK
180 minute winter	SWMH01	120	31.348	0.088	14.2	0.1266	0.0000	OK
180 minute winter	EX OUTFALL	120	31.312	0.082	14.2	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)
180 minute winter	TANK	1.004	SWMH02	11.5	0.350	0.098	1.7265	
15 minute winter	SWMH04C	1.000	SWMH04B	3.5	0.495	0.082	0.1820	
15 minute winter	SWMH04B	1.001	SWMH04A	7.0	0.678	0.165	0.1896	
15 minute winter	SWMH04A	1.002	SWMH04	10.4	0.739	0.246	0.4111	
15 minute winter	SWMH04	1.003	TANK	13.3	0.815	0.386	0.5020	
15 minute winter	SWMH03C	2.000	SWMH03B	3.5	0.492	0.083	0.1245	
15 minute winter	SWMH03B	2.001	SWMH03A	7.0	0.661	0.165	0.1709	
15 minute winter	SWMH03A	2.002	SWMH03	10.5	0.809	0.248	0.3025	
15 minute winter	SWMH03	2.003	TANK	14.2	1.793	0.233	0.2229	
180 minute winter	SWMH02	Orifice	SWMH01	14.2				
15 minute summer	SWMH02	Orifice	SWMH01	0.0				
15 minute summer	SWMH02	Weir	SWMH01	0.0				
180 minute winter	SWMH01	1.006	EX OUTFALL	14.2	0.757	0.107	0.1266	101.7

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Results for 30 year Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	TANK	59	31.678	0.214	109.9	133.9921	0.0000	OK
15 minute winter	SWMH04C	10	32.230	0.070	9.2	0.1649	0.0000	OK
15 minute winter	SWMH04B	11	32.097	0.107	18.2	0.2150	0.0000	OK
15 minute winter	SWMH04A	11	31.995	0.128	26.9	0.2400	0.0000	OK
15 minute winter	SWMH04	11	31.870	0.195	35.5	0.3345	0.0000	OK
15 minute winter	SWMH03C	10	32.270	0.070	9.2	0.1484	0.0000	OK
15 minute winter	SWMH03B	10	32.193	0.108	18.3	0.2171	0.0000	OK
15 minute winter	SWMH03A	11	32.115	0.137	27.1	0.2582	0.0000	OK
15 minute winter	SWMH03	10	31.962	0.139	35.7	0.2426	0.0000	OK
60 minute winter	SWMH02	57	31.676	0.356	26.4	1.3438	0.0000	OK
60 minute winter	SWMH01	57	31.365	0.105	19.6	0.1503	0.0000	OK
60 minute winter	EX OUTFALL	57	31.326	0.096	19.6	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 winter	TANK	1.004	SWMH02	-31.9	-0.555	-0.273	2.7916	
15 minute winter	SWMH04C	1.000	SWMH04B	9.0	0.624	0.213	0.3691	
15 minute winter	SWMH04B	1.001	SWMH04A	17.9	0.853	0.422	0.3858	
15 minute winter	SWMH04A	1.002	SWMH04	26.8	0.905	0.634	0.8617	
15 minute winter	SWMH04	1.003	TANK	34.6	1.046	1.004	1.0094	
15 minute winter	SWMH03C	2.000	SWMH03B	9.1	0.620	0.214	0.2542	
15 minute winter	SWMH03B	2.001	SWMH03A	17.9	0.810	0.422	0.3554	
15 minute winter	SWMH03A	2.002	SWMH03	27.0	1.070	0.637	0.5933	
15 minute winter	SWMH03	2.003	TANK	36.4	2.031	0.596	0.5412	
60 minute winter	SWMH02	Orifice	SWMH01	19.6				
15 minute summer	SWMH02	Orifice	SWMH01	0.0				
15 minute summer	SWMH02	Weir	SWMH01	0.0				
60 minute winter	SWMH01	1.006	EX OUTFALL	19.6	0.827	0.148	0.1604	171.2

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Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute winter	TANK	48	31.981	0.517	215.9	251.3254	0.0000	SURCHARGED
15 minute winter	SWMH04C	12	32.388	0.228	17.0	0.5369	0.0000	FLOOD RISK
15 minute winter	SWMH04B	12	32.366	0.376	31.2	0.7574	0.0000	FLOOD RISK
15 minute winter	SWMH04A	12	32.300	0.433	45.2	0.8093	0.0000	FLOOD RISK
15 minute winter	SWMH04	12	32.091	0.416	54.2	0.7130	0.0000	SURCHARGED
15 minute winter	SWMH03C	11	32.329	0.129	17.0	0.2717	0.0000	OK
15 minute winter	SWMH03B	11	32.311	0.226	33.8	0.4534	0.0000	SURCHARGED
15 minute winter	SWMH03A	11	32.244	0.266	45.3	0.4994	0.0000	SURCHARGED
15 minute winter	SWMH03	11	32.034	0.211	61.3	0.3691	0.0000	OK
60 minute winter	SWMH02	48	31.958	0.638	59.6	2.4086	0.0000	SURCHARGED
60 minute winter	SWMH01	48	31.459	0.199	60.6	0.2845	0.0000	OK
60 minute winter	EX OUTFALL	48	31.405	0.175	60.9	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 winter	TANK	1.004	SWMH02	-70.8	-0.825	-0.605	4.2174	
15 minute summer	SWMH04C	1.000	SWMH04B	15.9	0.699	0.375	0.9147	
15 minute winter	SWMH04B	1.001	SWMH04A	29.2	0.874	0.691	0.7317	
15 minute winter	SWMH04A	1.002	SWMH04	40.5	1.017	0.956	1.1425	
15 minute winter	SWMH04	1.003	TANK	54.3	1.373	1.574	1.1743	
15 minute winter	SWMH03C	2.000	SWMH03B	16.8	0.685	0.396	0.5465	
15 minute winter	SWMH03B	2.001	SWMH03A	31.1	0.853	0.734	0.6406	
15 minute winter	SWMH03A	2.002	SWMH03	45.6	1.189	1.076	0.9135	
15 minute winter	SWMH03	2.003	TANK	61.6	2.110	1.008	0.9829	
60 minute winter	SWMH02	Orifice	SWMH01	25.7				
60 minute winter	SWMH02	Orifice	SWMH01	34.9				
15 minute summer	SWMH02	Weir	SWMH01	0.0				
60 minute winter	SWMH01	1.006	EX OUTFALL	60.9	1.110	0.458	0.3712	325.2

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