

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	1.00
Return Period (years)	30	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	1.800
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	4.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	500.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Depth (m)
HD02	0.021	4.00	107.482	1350	1.432
HD04	0.071	4.00	107.369	1350	1.469
HD06	0.022	4.00	106.817	1350	1.467
HD08	0.014	4.00	107.968	1350	1.468
HD10	0.000		108.177	1350	1.827
HD12	0.035	4.00	107.944	1350	1.844
HD14	0.022	4.00	106.680	1350	1.630
HD16	0.010	4.00	105.671	1350	1.521
HD18	0.014	4.00	105.080	1350	1.580
HD20	0.000	4.00	104.035	1350	1.535
SWALE 01	0.155	4.00	108.400	100	0.900
CULVERT 01			107.500	100	0.900
SWALE 02	0.039	4.00	106.800	100	0.900
CULVERT 02			104.400	100	0.900
SWALE 03	0.088	4.00	103.900	100	0.900
BASIN	0.050	4.00	103.200	100	1.200
DUMMY			103.200	100	1.250

Links

Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	HD02	HD04	13.205	106.050	105.900	88.0	225	4.17	139.9
1.001	HD04	HD06	53.204	105.900	105.350	96.7	225	4.69	139.9
1.002	HD06	HD14	20.471	105.350	105.125	91.0	225	4.89	139.9
2.000	HD08	HD10	9.097	106.500	106.350	60.6	225	4.15	139.9
2.001	HD10	HD12	12.660	106.350	106.100	50.6	225	4.36	139.9
2.002	HD12	HD14	40.799	106.100	105.125	41.8	225	4.70	139.9
1.003	HD14	HD16	21.408	105.050	104.150	23.8	300	5.07	139.2
1.004	HD16	HD18	11.623	104.150	103.500	17.9	300	5.16	138.3
1.005	HD18	HD20	21.104	103.500	102.500	21.1	300	5.34	136.6
1.006	HD20	BASIN	12.378	102.500	102.350	82.5	300	5.38	136.2
3.000	SWALE 01	CULVERT 01	90.000	107.500	106.600	100.0	2700	5.75	132.5
3.001	CULVERT 01	SWALE 02	10.200	106.900	106.200	14.6	300	5.79	132.1

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	1.394	55.4	10.6	0.021	0.0
1.001	1.329	52.9	46.5	0.092	0.0
1.002	1.371	54.5	57.6	0.114	0.0
2.000	1.682	66.9	7.1	0.014	0.0
2.001	1.842	73.2	7.1	0.014	0.0
2.002	2.028	80.6	24.8	0.049	0.0
1.003	3.237	228.8	93.1	0.185	0.0
1.004	3.735	264.0	97.5	0.195	0.0
1.005	3.437	242.9	103.2	0.209	0.0
1.006	1.732	122.4	102.9	0.209	0.0
3.000	1.370	1831.2	74.2	0.155	0.0
3.001	4.139	292.6	74.0	0.155	0.0

Links

Name	US Node	DS Node	Length (m)	US IL (m)	DS IL (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
3.002	SWALE 02	CULVERT 02	60.000	105.900	103.500	25.0	2700	6.63	124.7
3.003	CULVERT 02	SWALE 03	11.650	103.800	103.300	23.3	300	6.80	123.3
3.004	SWALE 03	BASIN	70.000	103.000	102.300	100.0	2700	6.68	124.3
1.007	BASIN	DUMMY	5.001	102.000	101.950	100.0	300	6.85	122.8

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	Σ Area (ha)	Σ Add Inflow (l/s)
3.002	2.740	3662.4	87.4	0.194	0.0
3.003	3.270	231.2	86.4	0.194	0.0
3.004	1.370	1831.2	126.7	0.282	0.0
1.007	1.572	111.1	240.1	0.541	0.0

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Detailed	Additional Storage (m³/ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	1440	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
30	0	0	0
100	40	0	0

Node BASIN Online Orifice Control

Flap Valve	✓	Invert Level (m)	102.900	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.300		

Node DUMMY Offline Orifice Control

Flap Valve	x	Invert Level (m)	102.900	Discharge Coefficient	0.600
Loop to Node	BASIN	Diameter (m)	0.300		

Node BASIN Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.53280	Safety Factor	2.0	Invert Level (m)	102.000
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	164

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	141.7	141.7	1.200	498.4	141.7

Node CULVERT 01 Link Infiltration Storage Structure

Base Inf Coefficient (m/hr)	0.46800	Porosity	1.00	Link	3.000
Side Inf Coefficient (m/hr)	0.46800	Invert Level (m)	106.600		
Safety Factor	2.0	Time to half empty (mins)	8		

Node CULVERT 02 Link Infiltration Storage Structure

Base Inf Coefficient (m/hr)	0.50400	Porosity	1.00	Link	3.002
Side Inf Coefficient (m/hr)	0.50400	Invert Level (m)	103.500		
Safety Factor	2.0	Time to half empty (mins)	9		

Node BASIN Link Infiltration Storage Structure

Base Inf Coefficient (m/hr)	0.53280	Porosity	1.00	Link	3.004
Side Inf Coefficient (m/hr)	0.53280	Invert Level (m)	102.300		
Safety Factor	2.0	Time to half empty (mins)	94		

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.59%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	HD02	10	106.092	0.042	4.3	0.0604	0.0000	OK
15 minute summer	HD04	10	105.993	0.093	19.0	0.1327	0.0000	OK
15 minute summer	HD06	10	105.457	0.107	23.7	0.1535	0.0000	OK
15 minute summer	HD08	10	106.533	0.033	2.9	0.0474	0.0000	OK
15 minute summer	HD10	10	106.381	0.030	2.9	0.0436	0.0000	OK
15 minute summer	HD12	10	106.154	0.054	10.1	0.0773	0.0000	OK
15 minute summer	HD14	10	105.135	0.085	37.4	0.1217	0.0000	OK
15 minute summer	HD16	10	104.233	0.083	39.2	0.1187	0.0000	OK
15 minute summer	HD18	10	103.583	0.083	41.8	0.1191	0.0000	OK
15 minute summer	HD20	11	102.632	0.132	41.4	0.1891	0.0000	OK
15 minute summer	SWALE 01	10	107.642	0.142	32.1	0.0011	0.0000	OK
60 minute summer	CULVERT 01	38	106.936	0.336	17.9	0.0027	0.0000	OK

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15 minute summer	HD02	10	106.092	0.042	4.3	0.0604
15 minute summer	HD04	10	105.993	0.093	19.0	0.1327
15 minute summer	HD06	10	105.457	0.107	23.7	0.1535
15 minute summer	HD08	10	106.533	0.033	2.9	0.0474
15 minute summer	HD10	10	106.381	0.030	2.9	0.0436
15 minute summer	HD12	10	106.154	0.054	10.1	0.0773
15 minute summer	HD14	10	105.135	0.085	37.4	0.1217
15 minute summer	HD16	10	104.233	0.083	39.2	0.1187
15 minute summer	HD18	10	103.583	0.083	41.8	0.1191
15 minute summer	HD20	11	102.632	0.132	41.4	0.1891
15 minute summer	SWALE 01	10	107.642	0.142	32.1	0.0011
60 minute summer	CULVERT 01	38	106.936	0.336	17.9	0.0027

Results for 2 year Critical Storm Duration. Lowest mass balance: 98.59%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	SWALE 02	68	105.953	0.053	10.7	0.0004	0.0000	OK
120 minute summer	CULVERT 02	74	103.837	0.337	10.7	0.0027	0.0000	OK
15 minute summer	SWALE 03	12	103.110	0.110	18.2	0.0009	0.0000	OK
120 minute summer	BASIN	84	102.153	0.153	29.7	25.1912	0.0000	OK
15 minute summer	DUMMY	1	101.950	0.000	0.0	0.0000	0.0000	OK

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)
120 minute summer	SWALE 02	68	105.953	0.053	10.7	0.0004
120 minute summer	CULVERT 02	74	103.837	0.337	10.7	0.0027
15 minute summer	SWALE 03	12	103.110	0.110	18.2	0.0009
120 minute summer	BASIN	84	102.153	0.153	29.7	25.1912
15 minute summer	DUMMY	1	101.950	0.000	0.0	0.0000

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.59%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	HD02	10	106.118	0.068	11.0	0.0967	0.0000	OK
15 minute summer	HD04	10	106.069	0.169	48.2	0.2411	0.0000	OK
15 minute summer	HD06	11	105.595	0.245	60.4	0.3510	0.0000	SURCHARGED
15 minute summer	HD08	10	106.553	0.053	7.3	0.0760	0.0000	OK
15 minute summer	HD10	10	106.398	0.048	7.3	0.0684	0.0000	OK
15 minute summer	HD12	10	106.189	0.089	25.6	0.1272	0.0000	OK
15 minute summer	HD14	10	105.191	0.141	92.1	0.2015	0.0000	OK
15 minute summer	HD16	10	104.291	0.141	96.8	0.2023	0.0000	OK
15 minute summer	HD18	10	103.636	0.136	103.8	0.1941	0.0000	OK
15 minute summer	HD20	11	102.746	0.246	103.7	0.3521	0.0000	OK
15 minute summer	SWALE 01	10	107.718	0.218	81.0	0.0017	0.0000	OK
15 minute summer	CULVERT 01	12	107.001	0.401	75.4	0.0032	0.0000	OK

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)
15 minute summer	HD02	10	106.118	0.068	11.0	0.0967
15 minute summer	HD04	10	106.069	0.169	48.2	0.2411
15 minute summer	HD06	11	105.595	0.245	60.4	0.3510
15 minute summer	HD08	10	106.553	0.053	7.3	0.0760
15 minute summer	HD10	10	106.398	0.048	7.3	0.0684
15 minute summer	HD12	10	106.189	0.089	25.6	0.1272
15 minute summer	HD14	10	105.191	0.141	92.1	0.2015
15 minute summer	HD16	10	104.291	0.141	96.8	0.2023
15 minute summer	HD18	10	103.636	0.136	103.8	0.1941
15 minute summer	HD20	11	102.746	0.246	103.7	0.3521
15 minute summer	SWALE 01	10	107.718	0.218	81.0	0.0017
15 minute summer	CULVERT 01	12	107.001	0.401	75.4	0.0032

Results for 30 year Critical Storm Duration. Lowest mass balance: 98.59%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute summer	SWALE 02	19	106.047	0.147	70.3	0.0012	0.0000	OK
30 minute summer	CULVERT 02	20	103.919	0.419	68.6	0.0034	0.0000	OK
30 minute summer	SWALE 03	22	103.257	0.257	84.8	0.0021	0.0000	OK
60 minute winter	BASIN	61	102.509	0.509	106.5	110.5853	0.0000	SURCHARGED
15 minute summer	DUMMY	1	101.950	0.000	0.0	0.0000	0.0000	OK

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)
30 minute summer	SWALE 02	19	106.047	0.147	70.3	0.0012
30 minute summer	CULVERT 02	20	103.919	0.419	68.6	0.0034
30 minute summer	SWALE 03	22	103.257	0.257	84.8	0.0021
60 minute winter	BASIN	61	102.509	0.509	106.5	110.5853
15 minute summer	DUMMY	1	101.950	0.000	0.0	0.0000

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.59%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	HD02	11	107.294	1.244	19.8	1.7807	0.0000	FLOOD RISK
15 minute summer	HD04	11	107.271	1.371	78.7	1.9619	0.0000	FLOOD RISK
15 minute summer	HD06	11	106.091	0.741	90.0	1.0607	0.0000	SURCHARGED
15 minute summer	HD08	10	106.573	0.073	13.2	0.1046	0.0000	OK
15 minute summer	HD10	10	106.414	0.064	13.2	0.0921	0.0000	OK
15 minute summer	HD12	10	106.227	0.127	46.3	0.1810	0.0000	OK
15 minute summer	HD14	10	105.248	0.198	153.6	0.2828	0.0000	OK
15 minute summer	HD16	10	104.347	0.197	161.6	0.2822	0.0000	OK
15 minute summer	HD18	11	103.738	0.238	174.2	0.3403	0.0000	OK
15 minute summer	HD20	11	103.098	0.598	172.3	0.8561	0.0000	SURCHARGED
15 minute summer	SWALE 01	10	107.790	0.290	146.4	0.0023	0.0000	OK
15 minute summer	CULVERT 01	11	107.059	0.459	137.8	0.0037	0.0000	OK

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)
15 minute summer	HD02	11	107.294	1.244	19.8	1.7807
15 minute summer	HD04	11	107.271	1.371	78.7	1.9619
15 minute summer	HD06	11	106.091	0.741	90.0	1.0607
15 minute summer	HD08	10	106.573	0.073	13.2	0.1046
15 minute summer	HD10	10	106.414	0.064	13.2	0.0921
15 minute summer	HD12	10	106.227	0.127	46.3	0.1810
15 minute summer	HD14	10	105.248	0.198	153.6	0.2828
15 minute summer	HD16	10	104.347	0.197	161.6	0.2822
15 minute summer	HD18	11	103.738	0.238	174.2	0.3403
15 minute summer	HD20	11	103.098	0.598	172.3	0.8561
15 minute summer	SWALE 01	10	107.790	0.290	146.4	0.0023
15 minute summer	CULVERT 01	11	107.059	0.459	137.8	0.0037

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.59%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SWALE 02	11	106.115	0.215	151.7	0.0017	0.0000	OK
15 minute summer	CULVERT 02	12	103.998	0.498	146.7	0.0040	0.0000	OK
30 minute summer	SWALE 03	20	103.371	0.371	184.5	0.0030	0.0000	OK
120 minute winter	BASIN	118	102.879	0.879	134.2	239.3447	0.0000	SURCHARGED
15 minute summer	DUMMY	1	101.950	0.000	0.0	0.0000	0.0000	OK

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)
15 minute summer	SWALE 02	11	106.115	0.215	151.7	0.0017
15 minute summer	CULVERT 02	12	103.998	0.498	146.7	0.0040
30 minute summer	SWALE 03	20	103.371	0.371	184.5	0.0030
120 minute winter	BASIN	118	102.879	0.879	134.2	239.3447
15 minute summer	DUMMY	1	101.950	0.000	0.0	0.0000