

**WWHM2012**  
**PROJECT REPORT**

## General Model Information

Project Name: 5'SidewalkGravelTrench  
Site Name:  
Site Address:  
City:  
Report Date: 1/23/2018  
Gage:  
Data Start: 10/01/1901  
Data End: 09/30/2059  
Timestep: 15 Minute  
Precip Scale: 1.000  
Version Date: 2017/10/31  
Version: 4.2.13

## POC Thresholds

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Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

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## *Landuse Basin Data*

### *Predeveloped Land Use*

#### Basin 1

Bypass: No

GroundWater: No

Pervious Land Use      acre  
C, Forest, Flat      0.064

Pervious Total      0.064

Impervious Land Use      acre

Impervious Total      0

Basin Total      0.064

Element Flows To:		
Surface	Interflow	Groundwater

Mitigated Land Use

Lateral Basin 1

Bypass:	No	
GroundWater:	No	
Pervious Land Use	acre	
C, Lawn, Mod	.024	
Element Flows To:		
Surface	Interflow	Groundwater
Gravel Trench Bed 1	Gravel Trench Bed 1	

## Lateral I Basin 1

Bypass:	No
Impervious Land Use	acre
SIDEWALKS MOD LAT	0.04
Element Flows To:	
Outlet 1	Outlet 2
Gravel Trench Bed 1	

## *Routing Elements*

### *Predeveloped Routing*

## Mitigated Routing

### Gravel Trench Bed 1

Bottom Length: 350.00 ft.  
 Bottom Width: 5.00 ft.  
 Trench bottom slope 1: 0 To 1  
 Trench Left side slope 0: 1 To 1  
 Trench right side slope 2: 1 To 1  
 Material thickness of first layer: 0.5  
 Pour Space of material for first layer: 0.2  
 Material thickness of second layer: 0  
 Pour Space of material for second layer: 0  
 Material thickness of third layer: 0  
 Pour Space of material for third layer: 0  
 Infiltration On  
 Infiltration rate: 0.2  
 Infiltration safety factor: 1  
 Total Volume Infiltrated (ac-ft.): 20.379  
 Total Volume Through Riser (ac-ft.): 0  
 Total Volume Through Facility (ac-ft.): 20.38  
 Percent Infiltrated: 100  
 Total Precip Applied to Facility: 0  
 Total Evap From Facility: 0  
 Discharge Structure  
 Riser Height: 0.5 ft.  
 Riser Diameter: 24 in.  
 Element Flows To:  
 Outlet 1                      Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.040	0.000	0.000	0.000
0.0167	0.040	0.000	0.000	0.008
0.0333	0.040	0.000	0.000	0.008
0.0500	0.041	0.000	0.000	0.008
0.0667	0.041	0.000	0.000	0.008
0.0833	0.041	0.000	0.000	0.008
0.1000	0.041	0.000	0.000	0.008
0.1167	0.042	0.001	0.000	0.008
0.1333	0.042	0.001	0.000	0.008
0.1500	0.042	0.001	0.000	0.008
0.1667	0.042	0.001	0.000	0.008
0.1833	0.043	0.001	0.000	0.008
0.2000	0.043	0.001	0.000	0.008
0.2167	0.043	0.001	0.000	0.008
0.2333	0.043	0.002	0.000	0.008
0.2500	0.044	0.002	0.000	0.008
0.2667	0.044	0.002	0.000	0.008
0.2833	0.044	0.002	0.000	0.008
0.3000	0.045	0.002	0.000	0.008
0.3167	0.045	0.002	0.000	0.008
0.3333	0.045	0.002	0.000	0.008
0.3500	0.045	0.003	0.000	0.008
0.3667	0.046	0.003	0.000	0.008
0.3833	0.046	0.003	0.000	0.008

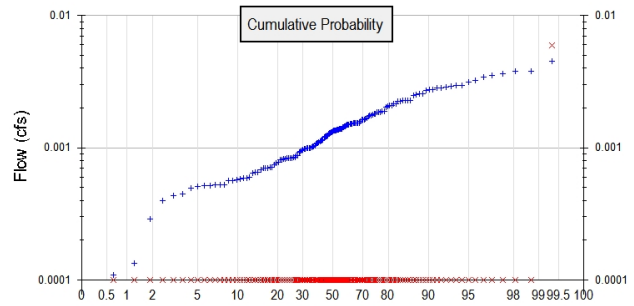
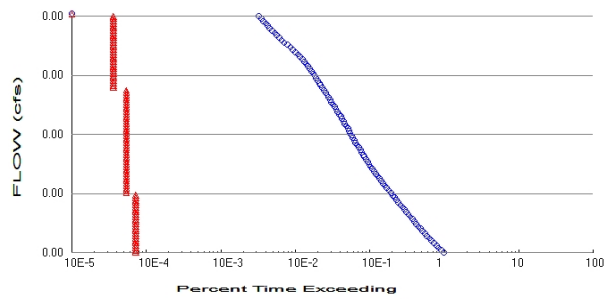
0.4000	0.046	0.003	0.000	0.008
0.4167	0.046	0.003	0.000	0.008
0.4333	0.047	0.003	0.000	0.008
0.4500	0.047	0.003	0.000	0.008
0.4667	0.047	0.004	0.000	0.008
0.4833	0.047	0.004	0.000	0.008
0.5000	0.048	0.004	0.000	0.008
0.5167	0.048	0.005	0.045	0.008
0.5333	0.048	0.006	0.129	0.008
0.5500	0.049	0.006	0.237	0.008
0.5667	0.049	0.007	0.365	0.008
0.5833	0.049	0.008	0.510	0.008
0.6000	0.049	0.009	0.670	0.008
0.6167	0.050	0.010	0.844	0.008
0.6333	0.050	0.011	1.030	0.008
0.6500	0.050	0.011	1.229	0.008
0.6667	0.050	0.012	1.438	0.008
0.6833	0.051	0.013	1.657	0.008
0.7000	0.051	0.014	1.886	0.008
0.7167	0.051	0.015	2.124	0.008
0.7333	0.052	0.016	2.369	0.008
0.7500	0.052	0.017	2.623	0.008
0.7667	0.052	0.017	2.883	0.008
0.7833	0.052	0.018	3.149	0.008
0.8000	0.053	0.019	3.421	0.008
0.8167	0.053	0.020	3.698	0.008
0.8333	0.053	0.021	3.979	0.008
0.8500	0.053	0.022	4.264	0.008
0.8667	0.054	0.023	4.552	0.008
0.8833	0.054	0.024	4.842	0.008
0.9000	0.054	0.025	5.134	0.008
0.9167	0.054	0.025	5.427	0.008
0.9333	0.055	0.026	5.721	0.008
0.9500	0.055	0.027	6.015	0.008
0.9667	0.055	0.028	6.307	0.008
0.9833	0.056	0.029	6.598	0.008
1.0000	0.056	0.030	6.887	0.008
1.0167	0.056	0.031	7.173	0.008
1.0333	0.056	0.032	7.456	0.008
1.0500	0.057	0.033	7.734	0.008
1.0667	0.057	0.034	8.008	0.008
1.0833	0.057	0.035	8.277	0.008
1.1000	0.057	0.036	8.540	0.008
1.1167	0.058	0.037	8.796	0.008
1.1333	0.058	0.038	9.046	0.008
1.1500	0.058	0.039	9.288	0.008
1.1667	0.058	0.040	9.523	0.008
1.1833	0.059	0.041	9.749	0.008
1.2000	0.059	0.042	9.967	0.008
1.2167	0.059	0.043	10.17	0.008
1.2333	0.060	0.044	10.37	0.008
1.2500	0.060	0.045	10.56	0.008
1.2667	0.060	0.046	10.75	0.008
1.2833	0.060	0.047	10.92	0.008
1.3000	0.061	0.048	11.08	0.008
1.3167	0.061	0.049	11.24	0.008
1.3333	0.061	0.050	11.38	0.008
1.3500	0.061	0.051	11.52	0.008



1.3667	0.062	0.052	11.65	0.008
1.3833	0.062	0.053	11.77	0.008
1.4000	0.062	0.054	11.88	0.008
1.4167	0.062	0.055	11.99	0.008
1.4333	0.063	0.056	12.09	0.008
1.4500	0.063	0.057	12.19	0.008
1.4667	0.063	0.058	12.28	0.008
1.4833	0.064	0.059	12.37	0.008
1.5000	0.064	0.060	12.46	0.008

# Analysis Results

## POC 1



+ Predeveloped x Mitigated

### Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.064  
Total Impervious Area: 0

### Mitigated Landuse Totals for POC #1

Total Pervious Area: 0.024  
Total Impervious Area: 0.04

Flow Frequency Method: Log Pearson Type III 17B

### Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.001349
5 year	0.002098
10 year	0.002505
25 year	0.00292
50 year	0.003166
100 year	0.003369

### Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

## Annual Peaks

### Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1902	0.001	0.000
1903	0.001	0.000
1904	0.001	0.000
1905	0.001	0.000
1906	0.000	0.000
1907	0.002	0.000
1908	0.002	0.000
1909	0.002	0.000
1910	0.002	0.000
1911	0.001	0.000

1912	0.004	0.000
1913	0.002	0.000
1914	0.001	0.000
1915	0.001	0.000
1916	0.001	0.000
1917	0.000	0.000
1918	0.001	0.000
1919	0.001	0.000
1920	0.001	0.000
1921	0.002	0.000
1922	0.002	0.000
1923	0.001	0.000
1924	0.001	0.000
1925	0.001	0.000
1926	0.001	0.000
1927	0.001	0.000
1928	0.001	0.000
1929	0.002	0.000
1930	0.001	0.000
1931	0.001	0.000
1932	0.001	0.000
1933	0.001	0.000
1934	0.003	0.000
1935	0.001	0.000
1936	0.001	0.000
1937	0.002	0.000
1938	0.001	0.000
1939	0.000	0.000
1940	0.001	0.000
1941	0.001	0.000
1942	0.002	0.000
1943	0.001	0.000
1944	0.002	0.000
1945	0.002	0.000
1946	0.001	0.000
1947	0.001	0.000
1948	0.003	0.000
1949	0.002	0.000
1950	0.001	0.000
1951	0.001	0.000
1952	0.004	0.006
1953	0.003	0.000
1954	0.001	0.000
1955	0.001	0.000
1956	0.000	0.000
1957	0.002	0.000
1958	0.004	0.000
1959	0.002	0.000
1960	0.001	0.000
1961	0.002	0.000
1962	0.001	0.000
1963	0.001	0.000
1964	0.001	0.000
1965	0.003	0.000
1966	0.001	0.000
1967	0.001	0.000
1968	0.001	0.000
1969	0.001	0.000

1970	0.002	0.000
1971	0.003	0.000
1972	0.002	0.000
1973	0.002	0.000
1974	0.001	0.000
1975	0.003	0.000
1976	0.002	0.000
1977	0.001	0.000
1978	0.003	0.000
1979	0.001	0.000
1980	0.001	0.000
1981	0.001	0.000
1982	0.001	0.000
1983	0.002	0.000
1984	0.001	0.000
1985	0.002	0.000
1986	0.001	0.000
1987	0.003	0.000
1988	0.002	0.000
1989	0.001	0.000
1990	0.002	0.000
1991	0.001	0.000
1992	0.002	0.000
1993	0.002	0.000
1994	0.003	0.000
1995	0.001	0.000
1996	0.003	0.000
1997	0.001	0.000
1998	0.001	0.000
1999	0.000	0.000
2000	0.001	0.000
2001	0.001	0.000
2002	0.002	0.000
2003	0.002	0.000
2004	0.002	0.000
2005	0.003	0.000
2006	0.001	0.000
2007	0.001	0.000
2008	0.001	0.000
2009	0.001	0.000
2010	0.001	0.000
2011	0.001	0.000
2012	0.001	0.000
2013	0.001	0.000
2014	0.001	0.000
2015	0.001	0.000
2016	0.000	0.000
2017	0.002	0.000
2018	0.004	0.000
2019	0.004	0.000
2020	0.001	0.000
2021	0.002	0.000
2022	0.001	0.000
2023	0.002	0.000
2024	0.003	0.000
2025	0.001	0.000
2026	0.002	0.000
2027	0.001	0.000

2028	0.001	0.000
2029	0.002	0.000
2030	0.003	0.000
2031	0.001	0.000
2032	0.001	0.000
2033	0.001	0.000
2034	0.001	0.000
2035	0.003	0.000
2036	0.002	0.000
2037	0.000	0.000
2038	0.001	0.000
2039	0.000	0.000
2040	0.001	0.000
2041	0.001	0.000
2042	0.003	0.000
2043	0.002	0.000
2044	0.002	0.000
2045	0.001	0.000
2046	0.002	0.000
2047	0.001	0.000
2048	0.002	0.000
2049	0.001	0.000
2050	0.001	0.000
2051	0.001	0.000
2052	0.001	0.000
2053	0.001	0.000
2054	0.002	0.000
2055	0.001	0.000
2056	0.001	0.000
2057	0.001	0.000
2058	0.001	0.000
2059	0.002	0.000

### Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0045	0.0059
2	0.0038	0.0000
3	0.0038	0.0000
4	0.0037	0.0000
5	0.0035	0.0000
6	0.0034	0.0000
7	0.0032	0.0000
8	0.0031	0.0000
9	0.0030	0.0000
10	0.0030	0.0000
11	0.0029	0.0000
12	0.0029	0.0000
13	0.0029	0.0000
14	0.0028	0.0000
15	0.0028	0.0000
16	0.0027	0.0000
17	0.0027	0.0000
18	0.0026	0.0000
19	0.0026	0.0000
20	0.0025	0.0000
21	0.0025	0.0000
22	0.0023	0.0000

23	0.0023	0.0000
24	0.0023	0.0000
25	0.0023	0.0000
26	0.0023	0.0000
27	0.0023	0.0000
28	0.0022	0.0000
29	0.0021	0.0000
30	0.0021	0.0000
31	0.0021	0.0000
32	0.0021	0.0000
33	0.0020	0.0000
34	0.0019	0.0000
35	0.0019	0.0000
36	0.0019	0.0000
37	0.0019	0.0000
38	0.0019	0.0000
39	0.0018	0.0000
40	0.0018	0.0000
41	0.0018	0.0000
42	0.0017	0.0000
43	0.0017	0.0000
44	0.0017	0.0000
45	0.0017	0.0000
46	0.0017	0.0000
47	0.0016	0.0000
48	0.0016	0.0000
49	0.0016	0.0000
50	0.0016	0.0000
51	0.0015	0.0000
52	0.0015	0.0000
53	0.0015	0.0000
54	0.0015	0.0000
55	0.0015	0.0000
56	0.0015	0.0000
57	0.0015	0.0000
58	0.0015	0.0000
59	0.0015	0.0000
60	0.0015	0.0000
61	0.0015	0.0000
62	0.0015	0.0000
63	0.0015	0.0000
64	0.0014	0.0000
65	0.0014	0.0000
66	0.0014	0.0000
67	0.0014	0.0000
68	0.0014	0.0000
69	0.0014	0.0000
70	0.0014	0.0000
71	0.0014	0.0000
72	0.0014	0.0000
73	0.0014	0.0000
74	0.0014	0.0000
75	0.0014	0.0000
76	0.0013	0.0000
77	0.0013	0.0000
78	0.0013	0.0000
79	0.0013	0.0000
80	0.0013	0.0000

81	0.0013	0.0000
82	0.0013	0.0000
83	0.0013	0.0000
84	0.0013	0.0000
85	0.0012	0.0000
86	0.0012	0.0000
87	0.0012	0.0000
88	0.0012	0.0000
89	0.0012	0.0000
90	0.0012	0.0000
91	0.0011	0.0000
92	0.0011	0.0000
93	0.0011	0.0000
94	0.0011	0.0000
95	0.0011	0.0000
96	0.0011	0.0000
97	0.0011	0.0000
98	0.0011	0.0000
99	0.0011	0.0000
100	0.0010	0.0000
101	0.0010	0.0000
102	0.0010	0.0000
103	0.0010	0.0000
104	0.0010	0.0000
105	0.0010	0.0000
106	0.0010	0.0000
107	0.0010	0.0000
108	0.0010	0.0000
109	0.0010	0.0000
110	0.0010	0.0000
111	0.0010	0.0000
112	0.0009	0.0000
113	0.0009	0.0000
114	0.0009	0.0000
115	0.0009	0.0000
116	0.0008	0.0000
117	0.0008	0.0000
118	0.0008	0.0000
119	0.0008	0.0000
120	0.0008	0.0000
121	0.0008	0.0000
122	0.0008	0.0000
123	0.0008	0.0000
124	0.0008	0.0000
125	0.0008	0.0000
126	0.0008	0.0000
127	0.0008	0.0000
128	0.0007	0.0000
129	0.0007	0.0000
130	0.0007	0.0000
131	0.0007	0.0000
132	0.0007	0.0000
133	0.0007	0.0000
134	0.0007	0.0000
135	0.0007	0.0000
136	0.0006	0.0000
137	0.0006	0.0000
138	0.0006	0.0000

139	0.0006	0.0000
140	0.0006	0.0000
141	0.0006	0.0000
142	0.0006	0.0000
143	0.0006	0.0000
144	0.0006	0.0000
145	0.0005	0.0000
146	0.0005	0.0000
147	0.0005	0.0000
148	0.0005	0.0000
149	0.0005	0.0000
150	0.0005	0.0000
151	0.0005	0.0000
152	0.0004	0.0000
153	0.0004	0.0000
154	0.0004	0.0000
155	0.0003	0.0000
156	0.0001	0.0000
157	0.0001	0.0000
158	0.0001	0.0000



## Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0007	54354	4	0	Pass
0.0007	50243	4	0	Pass
0.0007	46658	4	0	Pass
0.0008	43290	4	0	Pass
0.0008	40260	4	0	Pass
0.0008	37462	4	0	Pass
0.0008	34941	4	0	Pass
0.0009	32609	4	0	Pass
0.0009	30376	4	0	Pass
0.0009	28254	4	0	Pass
0.0009	26426	4	0	Pass
0.0010	24792	4	0	Pass
0.0010	23307	4	0	Pass
0.0010	21950	4	0	Pass
0.0010	20664	4	0	Pass
0.0011	19407	4	0	Pass
0.0011	18282	4	0	Pass
0.0011	17224	4	0	Pass
0.0011	16166	4	0	Pass
0.0012	15158	4	0	Pass
0.0012	14293	4	0	Pass
0.0012	13440	4	0	Pass
0.0012	12659	4	0	Pass
0.0013	11944	4	0	Pass
0.0013	11246	4	0	Pass
0.0013	10582	3	0	Pass
0.0013	9989	3	0	Pass
0.0014	9374	3	0	Pass
0.0014	8847	3	0	Pass
0.0014	8332	3	0	Pass
0.0014	7867	3	0	Pass
0.0015	7468	3	0	Pass
0.0015	7041	3	0	Pass
0.0015	6609	3	0	Pass
0.0015	6271	3	0	Pass
0.0016	5978	3	0	Pass
0.0016	5706	3	0	Pass
0.0016	5445	3	0	Pass
0.0016	5201	3	0	Pass
0.0017	4939	3	0	Pass
0.0017	4703	3	0	Pass
0.0017	4513	3	0	Pass
0.0017	4339	3	0	Pass
0.0018	4159	3	0	Pass
0.0018	3958	3	0	Pass
0.0018	3763	3	0	Pass
0.0018	3577	3	0	Pass
0.0019	3414	3	0	Pass
0.0019	3265	3	0	Pass
0.0019	3135	3	0	Pass
0.0019	3028	3	0	Pass
0.0020	2924	3	0	Pass
0.0020	2814	3	0	Pass

0.0020	2682	3	0	Pass
0.0020	2556	3	0	Pass
0.0021	2454	3	0	Pass
0.0021	2363	3	0	Pass
0.0021	2255	3	0	Pass
0.0021	2140	3	0	Pass
0.0022	2039	3	0	Pass
0.0022	1952	3	0	Pass
0.0022	1862	3	0	Pass
0.0022	1779	3	0	Pass
0.0023	1688	3	0	Pass
0.0023	1619	3	0	Pass
0.0023	1561	3	0	Pass
0.0023	1483	3	0	Pass
0.0024	1408	3	0	Pass
0.0024	1340	3	0	Pass
0.0024	1270	2	0	Pass
0.0024	1217	2	0	Pass
0.0025	1163	2	0	Pass
0.0025	1103	2	0	Pass
0.0025	1057	2	0	Pass
0.0025	1007	2	0	Pass
0.0026	963	2	0	Pass
0.0026	919	2	0	Pass
0.0026	872	2	0	Pass
0.0026	815	2	0	Pass
0.0027	775	2	0	Pass
0.0027	738	2	0	Pass
0.0027	694	2	0	Pass
0.0027	636	2	0	Pass
0.0028	601	2	0	Pass
0.0028	556	2	0	Pass
0.0028	517	2	0	Pass
0.0028	478	2	0	Pass
0.0029	433	2	0	Pass
0.0029	394	2	0	Pass
0.0029	363	2	0	Pass
0.0029	340	2	0	Pass
0.0030	310	2	0	Pass
0.0030	297	2	0	Pass
0.0030	273	2	0	Pass
0.0030	252	2	0	Pass
0.0031	237	2	0	Pass
0.0031	223	2	0	Pass
0.0031	206	2	0	Pass
0.0031	195	2	1	Pass
0.0032	180	2	1	Pass

## Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

## LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Gravel Trench Bed 1 POC	<input type="checkbox"/>	18.55			<input type="checkbox"/>	100.00			
Total Volume Infiltrated		18.55	0.00	0.00		100.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

## *Model Default Modifications*

Total of 0 changes have been made.

### *PERLND Changes*

No PERLND changes have been made.

### *IMPLND Changes*

No IMPLND changes have been made.

## Appendix

### Predeveloped Schematic



Basin 1  
10.06ac

Mitigated Schematic



## Predeveloped UCI File

RUN

GLOBAL

```
WWMH4 model simulation
START      1901 10 01      END      2059 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1          UNIT SYSTEM      1
END GLOBAL
```

FILES

```
<File>  <Un#>  <-----File Name----->***
<-ID->                                     ***
WDM      26     5'SidewalkGravelTrench.wdm
MESSU    25     Pre5'SidewalkGravelTrench.MES
          27     Pre5'SidewalkGravelTrench.L61
          28     Pre5'SidewalkGravelTrench.L62
          30     POC5'SidewalkGravelTrench1.dat
```

END FILES

OPN SEQUENCE

INGRP INDELT 00:15

```
PERLND    10
COPY       501
DISPLY     1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Basin 1          MAX          1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #          K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS      Unit-systems      Printer ***
# - #      User      t-series      Engl Metr ***
                        in out      ***
10      C, Forest, Flat      1      1      1      1      27      0
```

END GEN-INFO

\*\*\* Section PWATER\*\*\*

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
10      0      0      1      0      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
10      0      0      4      0      0      0      0      0      0      0      0      0      1      9
```

END PRINT-INFO



```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
10      0      0      0      0      0      0      0      0      0      0      0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC
10      0      4.5      0.08      400      0.05      0.5      0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
10      0      0      2      2      0      0      0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
10      0.2      0.5      0.35      6      0.5      0.7
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
10      0      0      0      0      2.5      1      0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***
END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
END IWAT-STATE1

```

END IMPLND

SCHEMATIC

<-Source->		<--Area-->		<-Target->	MBLK	***
<Name>	#	<-factor-->		<Name>	#	Tbl#
Basin	1***					
PERLND	10	0.064		COPY	501	12
PERLND	10	0.064		COPY	501	13

\*\*\*\*\*Routing\*\*\*\*\*

END SCHEMATIC

NETWORK

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	#
COPY	501	OUTPUT	MEAN	1	1	48.4	DISPLY	1
							INPUT	TIMSER
								1

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	#

END NETWORK

RCHRES

GEN-INFO

RCHRES	Name	Nexits	Unit	Systems	Printer	***
# - #	<----->	<---->	User	T-series	Engl Metr LKFG	***
			in	out		***

END GEN-INFO

\*\*\* Section RCHRES\*\*\*

ACTIVITY

<PLS > \*\*\*\*\* Active Sections \*\*\*\*\*

#	-	#	HYFG	ADFG	CNFG	HTFG	SDFG	GQFG	OXFG	NUFG	PKFG	PHFG	***
---	---	---	------	------	------	------	------	------	------	------	------	------	-----

END ACTIVITY

PRINT-INFO

<PLS > \*\*\*\*\* Print-flags \*\*\*\*\* PIVL PYR

#	-	#	HYDR	ADCA	CONS	HEAT	SED	GQL	OXRX	NUTR	PLNK	PHCB	PIVL	PYR	*****
---	---	---	------	------	------	------	-----	-----	------	------	------	------	------	-----	-------

END PRINT-INFO

HYDR-PARM1

RCHRES	Flags	for each HYDR Section	***	ODGTFG	for each	FUNCT	for each
# - #	VC	A1 A2 A3	ODFVFG	for each	***	ODGTFG	for each
	FG	FG FG FG	possible	exit	***	possible	exit
		* * * *	* * * *	* * *		* * * *	* * *

END HYDR-PARM1

HYDR-PARM2

#	-	#	FTABNO	LEN	DELTH	STCOR	KS	DB50	***
<----->	<----->	<----->	<----->	<----->	<----->	<----->	<----->	<----->	***

END HYDR-PARM2

HYDR-INIT

RCHRES	Initial conditions	for each HYDR section	***
# - #	*** VOL	Initial value of COLIND	Initial value of OUTDGT
	*** ac-ft	for each possible exit	for each possible exit
<----->	<----->	<--->	<--->
		<--->	<--->

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	tem strg	<-factor-->	strg	<Name>	#
WDM	2	PREC	ENGL	1	PERLND	1	999	EXTNL
WDM	2	PREC	ENGL	1	IMPLND	1	999	EXTNL

```

WDM      1 EVAP      ENGL      1          PERLND  1 999 EXTNL  PETINP
WDM      1 EVAP      ENGL      1          IMPLND  1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>      #      <Name> # #<-factor->strg <Name>      # <Name>      tem strg strg***
COPY    501 OUTPUT MEAN    1 1      48.4      WDM      501 FLOW      ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>    <-Grp> <-Member-><--Mult-->      <Target>      <-Grp> <-Member->***
<Name>      <Name> # #<-factor->      <Name>      <Name> # #***
  MASS-LINK      12
PERLND      PWATER SURO      0.083333      COPY      INPUT  MEAN
  END MASS-LINK      12

  MASS-LINK      13
PERLND      PWATER IFWO      0.083333      COPY      INPUT  MEAN
  END MASS-LINK      13

END MASS-LINK

END RUN

```

## Mitigated UCI File

RUN

GLOBAL

```
WWMH4 model simulation
START      1901 10 01      END      2059 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1          UNIT SYSTEM      1
END GLOBAL
```

FILES

```
<File>  <Un#>  <-----File Name----->***
<-ID->                                     ***
WDM      26     5'SidewalkGravelTrench.wdm
MESSU    25     Mit5'SidewalkGravelTrench.MES
          27     Mit5'SidewalkGravelTrench.L61
          28     Mit5'SidewalkGravelTrench.L62
          30     POC5'SidewalkGravelTrench1.dat
```

END FILES

OPN SEQUENCE

INGRP INDELT 00:15

```
PERLND    38
IMPLND    16
RCHRES     1
COPY       1
COPY      501
DISPLY     1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Gravel Trench Bed 1      MAX      1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501     1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #      K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #      User  t-series  Engl Metr ***
          in  out      ***
```

```
38      C, Lawn, Mod      1      1      1      1      27      0
```

END GEN-INFO

\*\*\* Section PWATER\*\*\*

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
38      0      0      1      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC *****
```

```

38      0      0      4      0      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO

PWAT-PARM1
<PLS >  PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
38      0      0      0      0      0      0      0      0      0      0      0
END PWAT-PARM1

PWAT-PARM2
<PLS >  PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
38      0      4.5      0.03      400      0.1      0.5      0.996
END PWAT-PARM2

PWAT-PARM3
<PLS >  PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
38      0      0      2      2      0      0      0
END PWAT-PARM3
PWAT-PARM4
<PLS >  PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
38      0.1      0.25      0.25      6      0.5      0.25
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
38      0      0      0      0      2.5      1      0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***
16 SIDEWALKS/MOD LAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
16      0      0      1      0      0      0
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
16      0      0      4      0      0      0      1      9
END PRINT-INFO

IWAT-PARM1
<PLS >  IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
16      0      0      0      0      0
END IWAT-PARM1

IWAT-PARM2
<PLS >  IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
16      400      0.05      0.1      0.08
END IWAT-PARM2

IWAT-PARM3
<PLS >  IWATER input info: Part 3 ***

```

```

# - # ***PETMAX      PETMIN
16      0      0
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS      SURS
16      0      0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->          <--Area-->      <-Target->      MBLK      ***
<Name> #          <-factor->      <Name> #      Tbl#      ***
Lateral Basin 1***
PERLND 38          0.024      RCHRES 1      2
PERLND 38          0.024      RCHRES 1      3
Lateral I Basin 1***
IMPLND 16          0.04      RCHRES 1      5

*****Routing*****
PERLND 38          0.024      COPY 1      12
PERLND 38          0.024      COPY 1      13
IMPLND 16          0.04      COPY 1      15
RCHRES 1          1      COPY 501      17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #      <Name> # #<-factor->strg <Name> # #      <Name> # #      ***
COPY 501 OUTPUT MEAN 1 1 48.4      DISPLY 1      INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #      <Name> # #<-factor->strg <Name> # #      <Name> # #      ***
END NETWORK

RCHRES
GEN-INFO
RCHRES      Name      Nexits      Unit Systems      Printer      ***
# - #<-----><----> User T-series      Engl Metr LKFG      ***
in out
1      Gravel Trench Be-004      2      1      1      1      28      0      1
END GEN-INFO
*** Section RCHRES***

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
1      1      0      0      0      0      0      0      0      0
END ACTIVITY

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR *****
# - # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR *****
1      4      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO

HYDR-PARM1
RCHRES      Flags for each HYDR Section      ***
# - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each      FUNCT for each
FG FG FG FG possible exit *** possible exit      possible exit
* * * * * * * * * *
1      0 1 0 0      4 5 0 0 0      0 0 0 0 0      2 2 2 2 2
END HYDR-PARM1

HYDR-PARM2
# - # FTABNO      LEN      DELTH      STCOR      KS      DB50      ***

```

```

<-----><-----><-----><-----><-----><-----><----->
1          1          0.07          0.0          0.0          0.5          0.0
END HYDR-PARM2
HYDR-INIT
  RCHRES Initial conditions for each HYDR section ***
  # - # *** VOL Initial value of COLIND Initial value of OUTDGT
  *** ac-ft for each possible exit for each possible exit
<-----><-----><-----><-----><-----><-----><----->
1          0          4.0  5.0  0.0  0.0  0.0          0.0  0.0  0.0  0.0  0.0
END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE 1
  92 5
    Depth Area Volume Outflow1 Outflow2 Velocity Travel Time***
    (ft) (acres) (acre-ft) (cfs) (cfs) (ft/sec) (Minutes)***
0.000000 0.040174 0.000000 0.000000 0.000000
0.016667 0.040442 0.000134 0.000000 0.008102
0.033333 0.040710 0.000270 0.000000 0.008102
0.050000 0.040978 0.000406 0.000000 0.008102
0.066667 0.041246 0.000543 0.000000 0.008102
0.083333 0.041514 0.000681 0.000000 0.008102
0.100000 0.041781 0.000820 0.000000 0.008102
0.116667 0.042049 0.000959 0.000000 0.008102
0.133333 0.042317 0.001100 0.000000 0.008102
0.150000 0.042585 0.001241 0.000000 0.008102
0.166667 0.042853 0.001384 0.000000 0.008102
0.183333 0.043121 0.001527 0.000000 0.008102
0.200000 0.043388 0.001671 0.000000 0.008102
0.216667 0.043656 0.001816 0.000000 0.008102
0.233333 0.043924 0.001962 0.000000 0.008102
0.250000 0.044192 0.002109 0.000000 0.008102
0.266667 0.044460 0.002257 0.000000 0.008102
0.283333 0.044728 0.002406 0.000000 0.008102
0.300000 0.044995 0.002555 0.000000 0.008102
0.316667 0.045263 0.002706 0.000000 0.008102
0.333333 0.045531 0.002857 0.000000 0.008102
0.350000 0.045799 0.003009 0.000000 0.008102
0.366667 0.046067 0.003162 0.000000 0.008102
0.383333 0.046335 0.003316 0.000000 0.008102
0.400000 0.046602 0.003471 0.000000 0.008102
0.416667 0.046870 0.003627 0.000000 0.008102
0.433333 0.047138 0.003784 0.000000 0.008102
0.450000 0.047406 0.003941 0.000000 0.008102
0.466667 0.047674 0.004100 0.000000 0.008102
0.483333 0.047942 0.004259 0.000000 0.008102
0.500000 0.048209 0.004419 0.000000 0.008102
0.516667 0.048477 0.005225 0.045687 0.008102
0.533333 0.048745 0.006035 0.129168 0.008102
0.550000 0.049013 0.006850 0.237213 0.008102
0.566667 0.049281 0.007669 0.365093 0.008102
0.583333 0.049549 0.008492 0.510062 0.008102
0.600000 0.049816 0.009320 0.670242 0.008102
0.616667 0.050084 0.010153 0.844221 0.008102
0.633333 0.050352 0.010990 1.030872 0.008102
0.650000 0.050620 0.011831 1.229240 0.008102
0.666667 0.050888 0.012677 1.438492 0.008102
0.683333 0.051155 0.013528 1.657872 0.008102
0.700000 0.051423 0.014382 1.886677 0.008102
0.716667 0.051691 0.015242 2.124240 0.008102
0.733333 0.051959 0.016105 2.369915 0.008102
0.750000 0.052227 0.016974 2.623072 0.008102
0.766667 0.052495 0.017846 2.883085 0.008102
0.783333 0.052762 0.018724 3.149332 0.008102
0.800000 0.053030 0.019605 3.421187 0.008102
0.816667 0.053298 0.020491 3.698025 0.008102
0.833333 0.053566 0.021382 3.979211 0.008102

```

0.850000	0.053834	0.022277	4.264108	0.008102
0.866667	0.054102	0.023176	4.552071	0.008102
0.883333	0.054369	0.024080	4.842450	0.008102
0.900000	0.054637	0.024989	5.134592	0.008102
0.916667	0.054905	0.025901	5.427837	0.008102
0.933333	0.055173	0.026819	5.721526	0.008102
0.950000	0.055441	0.027740	6.014997	0.008102
0.966667	0.055709	0.028667	6.307592	0.008102
0.983333	0.055976	0.029597	6.598653	0.008102
1.000000	0.056244	0.030533	6.887532	0.008102
1.016667	0.056512	0.031472	7.173586	0.008102
1.033333	0.056780	0.032416	7.456186	0.008102
1.050000	0.057048	0.033365	7.734715	0.008102
1.066667	0.057316	0.034318	8.008574	0.008102
1.083333	0.057583	0.035275	8.277186	0.008102
1.100000	0.057851	0.036237	8.539994	0.008102
1.116667	0.058119	0.037204	8.796472	0.008102
1.133333	0.058387	0.038175	9.046123	0.008102
1.150000	0.058655	0.039150	9.288484	0.008102
1.166667	0.058923	0.040130	9.523132	0.008102
1.183333	0.059190	0.041114	9.749685	0.008102
1.200000	0.059458	0.042103	9.967808	0.008102
1.216667	0.059726	0.043096	10.17721	0.008102
1.233333	0.059994	0.044094	10.37768	0.008102
1.250000	0.060262	0.045096	10.56902	0.008102
1.266667	0.060530	0.046102	10.75114	0.008102
1.283333	0.060797	0.047113	10.92400	0.008102
1.300000	0.061065	0.048129	11.08763	0.008102
1.316667	0.061333	0.049149	11.24214	0.008102
1.333333	0.061601	0.050173	11.38772	0.008102
1.350000	0.061869	0.051202	11.52466	0.008102
1.366667	0.062137	0.052236	11.65332	0.008102
1.383333	0.062404	0.053274	11.77418	0.008102
1.400000	0.062672	0.054316	11.88781	0.008102
1.416667	0.062940	0.055363	11.99489	0.008102
1.433333	0.063208	0.056414	12.09620	0.008102
1.450000	0.063476	0.057470	12.19266	0.008102
1.466667	0.063743	0.058530	12.28531	0.008102
1.483333	0.064011	0.059594	12.37530	0.008102
1.500000	0.064279	0.060663	12.46394	0.008102
1.516667	0.064547	0.061737	12.70307	0.008102

END FTABLE 1  
END FTABLES

# EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	tem strg<-factor-->	strg	<Name>	#
WDM	2	PREC	ENGL	1		PERLND	1 999
WDM	2	PREC	ENGL	1		IMPLND	1 999
WDM	1	EVAP	ENGL	1		PERLND	1 999
WDM	1	EVAP	ENGL	1		IMPLND	1 999

END EXT SOURCES

# EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	<Name>	tem	strg
RCHRES	1	HYDR	RO	1 1	1	WDM	1000	FLOW	ENGL	REPL
RCHRES	1	HYDR	O	1 1	1	WDM	1001	FLOW	ENGL	REPL
RCHRES	1	HYDR	O	2 1	1	WDM	1002	FLOW	ENGL	REPL
RCHRES	1	HYDR	STAGE	1 1	1	WDM	1003	STAG	ENGL	REPL
COPY	1	OUTPUT	MEAN	1 1	48.4	WDM	701	FLOW	ENGL	REPL
COPY	501	OUTPUT	MEAN	1 1	48.4	WDM	801	FLOW	ENGL	REPL

END EXT TARGETS

# MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>		<Name>	#	#<-factor-->	<Name>	#	#
MASS-LINK		2					
PERLND	PWATER	SURO		0.083333	RCHRES	INFLOW	IVOL



```

END MASS-LINK      2

MASS-LINK          3
PERLND      PWATER IFWO      0.083333      RCHRES      INFLOW IVOL
END MASS-LINK      3

MASS-LINK          5
IMPLND      IWATER SURO      0.083333      RCHRES      INFLOW IVOL
END MASS-LINK      5

MASS-LINK          12
PERLND      PWATER SURO      0.083333      COPY      INPUT  MEAN
END MASS-LINK      12

MASS-LINK          13
PERLND      PWATER IFWO      0.083333      COPY      INPUT  MEAN
END MASS-LINK      13

MASS-LINK          15
IMPLND      IWATER SURO      0.083333      COPY      INPUT  MEAN
END MASS-LINK      15

MASS-LINK          17
RCHRES      OFLOW  OVOL      1      COPY      INPUT  MEAN
END MASS-LINK      17

END MASS-LINK

END RUN

```





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