WWHM2012

PROJECT REPORT

General Model Information

Project Name:	pipe
Site Name:	Lorenzini
Site Address:	
City:	
Report Date:	3/10/2022
Gage:	Seatac
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	1.000
Version Date:	2021/08/19
Version:	4.2.18

POC Thresholds

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

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Mod	0.638
Pervious Total	0.638
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.638

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
C, Pasture, Flat	0.364
Pervious Total	0.364

Impervious Land Use	acre
ROOF TOPS FLAT	0.178
DRIVEWAYS MOD	0.09
SIDEWALKS FLAT	0.006
Impervious Total	0.274
Basin Total	0.638

Element Flows To:

Surface	Interflow	Groundwater
Tank 1	Tank 1	

Routing Elements
Predeveloped Routing

Mitigated Routing

Tank 1

Dimensions
Depth: 8 ft.
Tank Type: Circular
Diameter: 8 ft.
Length: 109 ft.
Discharge Structure
Riser Height: 7 ft.
Riser Diameter: 24 in.
Orifice 1 Diameter: 0.410 in. Elevation:0 ft.
Orifice 2 Diameter: 0.670 in. Elevation:4.7 ft.
Orifice 3 Diameter: 0.430 in. Elevation:6 ft.
Element Flows To:
Outlet 1 Outlet 2

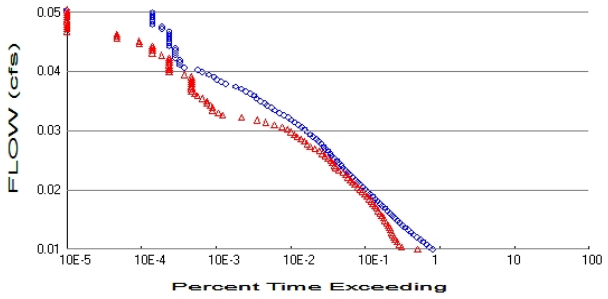
Tank Hydraulic Table

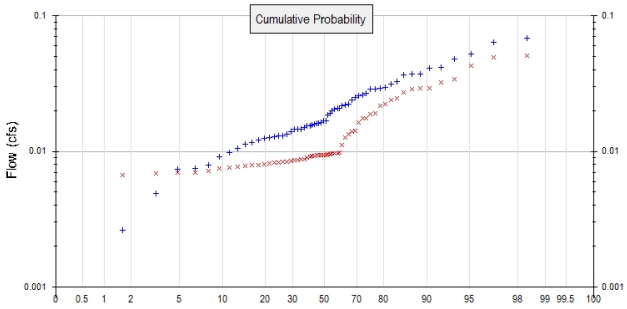
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.000000	0.000000	0.000	0.000
0.0889	0.004197	0.000249	0.001	0.000
0.1778	0.005902	0.000703	0.001	0.000
0.2667	0.007187	0.001286	0.002	0.000
0.3556	0.008251	0.001974	0.002	0.000
0.4444	0.009171	0.002749	0.003	0.000
0.5333	0.009987	0.003601	0.003	0.000
0.6222	0.010723	0.004522	0.003	0.000
0.7111	0.011394	0.005505	0.003	0.000
0.8000	0.012011	0.006546	0.004	0.000
0.8889	0.012582	0.007639	0.004	0.000
0.9778	0.013114	0.008782	0.004	0.000
1.0667	0.013610	0.009970	0.004	0.000
1.1556	0.014075	0.011200	0.004	0.000
1.2444	0.014511	0.012471	0.005	0.000
1.3333	0.014921	0.013779	0.005	0.000
1.4222	0.015307	0.015123	0.005	0.000
1.5111	0.015671	0.016500	0.005	0.000
1.6000	0.016015	0.017908	0.005	0.000
1.6889	0.016339	0.019346	0.005	0.000
1.7778	0.016645	0.020812	0.006	0.000
1.8667	0.016934	0.022305	0.006	0.000
1.9556	0.017206	0.023822	0.006	0.000
2.0444	0.017463	0.025363	0.006	0.000
2.1333	0.017705	0.026926	0.006	0.000
2.2222	0.017933	0.028510	0.006	0.000
2.3111	0.018146	0.030114	0.006	0.000
2.4000	0.018347	0.031736	0.007	0.000
2.4889	0.018535	0.033375	0.007	0.000
2.5778	0.018710	0.035031	0.007	0.000
2.6667	0.018873	0.036701	0.007	0.000
2.7556	0.019025	0.038386	0.007	0.000
2.8444	0.019165	0.040083	0.007	0.000
2.9333	0.019293	0.041792	0.007	0.000
3.0222	0.019411	0.043513	0.007	0.000
3.1111	0.019518	0.045243	0.008	0.000

3.2000	0.019614	0.046982	0.008	0.000
3.2889	0.019699	0.048730	0.008	0.000
3.3778	0.019775	0.050484	0.008	0.000
3.4667	0.019840	0.052245	0.008	0.000
3.5556	0.019894	0.054011	0.008	0.000
3.6444	0.019939	0.055781	0.008	0.000
3.7333	0.019974	0.057555	0.008	0.000
3.8222	0.019999	0.059332	0.008	0.000
3.9111	0.020013	0.061110	0.009	0.000
4.0000	0.020018	0.062890	0.009	0.000
4.0889	0.020013	0.064669	0.009	0.000
4.1778	0.019999	0.066447	0.009	0.000
4.2667	0.019974	0.068224	0.009	0.000
4.3556	0.019939	0.069998	0.009	0.000
4.4444	0.019894	0.071768	0.009	0.000
4.5333	0.019840	0.073534	0.009	0.000
4.6222	0.019775	0.075295	0.009	0.000
4.7111	0.019699	0.077049	0.011	0.000
4.8000	0.019614	0.078797	0.013	0.000
4.8889	0.019518	0.080536	0.015	0.000
4.9778	0.019411	0.082266	0.016	0.000
5.0667	0.019293	0.083987	0.017	0.000
5.1556	0.019165	0.085696	0.018	0.000
5.2444	0.019025	0.087393	0.019	0.000
5.3333	0.018873	0.089078	0.020	0.000
5.4222	0.018710	0.090748	0.021	0.000
5.5111	0.018535	0.092404	0.021	0.000
5.6000	0.018347	0.094043	0.022	0.000
5.6889	0.018146	0.095665	0.023	0.000
5.7778	0.017933	0.097269	0.023	0.000
5.8667	0.017705	0.098853	0.024	0.000
5.9556	0.017463	0.100416	0.024	0.000
6.0444	0.017206	0.101957	0.026	0.000
6.1333	0.016934	0.103474	0.027	0.000
6.2222	0.016645	0.104967	0.028	0.000
6.3111	0.016339	0.106433	0.029	0.000
6.4000	0.016015	0.107871	0.030	0.000
6.4889	0.015671	0.109279	0.031	0.000
6.5778	0.015307	0.110656	0.032	0.000
6.6667	0.014921	0.112000	0.033	0.000
6.7556	0.014511	0.113308	0.033	0.000
6.8444	0.014075	0.114579	0.034	0.000
6.9333	0.013610	0.115809	0.035	0.000
7.0222	0.013114	0.116997	0.106	0.000
7.1111	0.012582	0.118140	0.821	0.000
7.2000	0.012011	0.119233	1.923	0.000
7.2889	0.011394	0.120274	3.277	0.000
7.3778	0.010723	0.121257	4.783	0.000
7.4667	0.009987	0.122178	6.346	0.000
7.5556	0.009171	0.123030	7.865	0.000
7.6444	0.008251	0.123805	9.248	0.000
7.7333	0.007187	0.124493	10.41	0.000
7.8222	0.005902	0.125076	11.33	0.000
7.9111	0.004197	0.125530	12.00	0.000
8.0000	0.000000	0.125779	12.50	0.000
8.0889	0.000000	0.000000	13.18	0.000

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.638
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.364
Total Impervious Area: 0.274

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	**Flow(cfs)**
2 year	0.018997
5 year	0.031128
10 year	0.038928
25 year	0.048206
50 year	0.054633
100 year	0.060636

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	**Flow(cfs)**
2 year	0.011462
5 year	0.01902
10 year	0.025767
25 year	0.036723
50 year	0.046969
100 year	0.059298

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	**Predeveloped**	**Mitigated**
1949	0.022	0.008
1950	0.026	0.014
1951	0.042	0.051
1952	0.013	0.007
1953	0.011	0.008
1954	0.016	0.009
1955	0.026	0.009
1956	0.021	0.019
1957	0.017	0.009
1958	0.019	0.009

1959	0.016	0.008
1960	0.029	0.027
1961	0.016	0.009
1962	0.010	0.007
1963	0.013	0.009
1964	0.019	0.009
1965	0.013	0.013
1966	0.012	0.008
1967	0.029	0.009
1968	0.016	0.009
1969	0.016	0.008
1970	0.013	0.009
1971	0.014	0.010
1972	0.032	0.024
1973	0.014	0.014
1974	0.015	0.010
1975	0.022	0.009
1976	0.015	0.009
1977	0.002	0.007
1978	0.013	0.010
1979	0.008	0.007
1980	0.037	0.025
1981	0.012	0.009
1982	0.024	0.019
1983	0.021	0.010
1984	0.012	0.008
1985	0.007	0.008
1986	0.033	0.018
1987	0.029	0.022
1988	0.011	0.008
1989	0.008	0.007
1990	0.069	0.029
1991	0.036	0.029
1992	0.015	0.010
1993	0.015	0.008
1994	0.005	0.007
1995	0.021	0.011
1996	0.048	0.050
1997	0.037	0.032
1998	0.009	0.008
1999	0.041	0.022
2000	0.014	0.009
2001	0.003	0.007
2002	0.017	0.016
2003	0.025	0.008
2004	0.027	0.029
2005	0.020	0.010
2006	0.022	0.013
2007	0.052	0.043
2008	0.063	0.034
2009	0.030	0.017

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0688	0.0507
2	0.0634	0.0495
3	0.0520	0.0428

4	0.0482	0.0342
5	0.0415	0.0324
6	0.0408	0.0293
7	0.0372	0.0290
8	0.0371	0.0290
9	0.0365	0.0274
10	0.0326	0.0248
11	0.0315	0.0239
12	0.0295	0.0224
13	0.0292	0.0218
14	0.0287	0.0192
15	0.0286	0.0189
16	0.0268	0.0175
17	0.0260	0.0175
18	0.0258	0.0164
19	0.0251	0.0142
20	0.0241	0.0141
21	0.0224	0.0134
22	0.0219	0.0126
23	0.0215	0.0111
24	0.0208	0.0098
25	0.0208	0.0097
26	0.0206	0.0097
27	0.0199	0.0096
28	0.0191	0.0095
29	0.0186	0.0095
30	0.0168	0.0094
31	0.0168	0.0094
32	0.0164	0.0094
33	0.0162	0.0094
34	0.0160	0.0094
35	0.0160	0.0093
36	0.0157	0.0092
37	0.0155	0.0091
38	0.0154	0.0090
39	0.0149	0.0087
40	0.0145	0.0087
41	0.0145	0.0086
42	0.0145	0.0086
43	0.0140	0.0085
44	0.0135	0.0084
45	0.0130	0.0084
46	0.0130	0.0083
47	0.0128	0.0083
48	0.0127	0.0081
49	0.0124	0.0080
50	0.0122	0.0079
51	0.0116	0.0079
52	0.0113	0.0078
53	0.0105	0.0077
54	0.0098	0.0075
55	0.0091	0.0075
56	0.0079	0.0071
57	0.0075	0.0069
58	0.0074	0.0069
59	0.0049	0.0069
60	0.0026	0.0067
61	0.0023	0.0065

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0095	17075	10671	62	Pass
0.0100	15481	6519	42	Pass
0.0104	14067	6049	43	Pass
0.0109	12810	5685	44	Pass
0.0113	11569	5364	46	Pass
0.0118	10532	5176	49	Pass
0.0122	9569	4986	52	Pass
0.0127	8765	4793	54	Pass
0.0131	8044	4633	57	Pass
0.0136	7347	4502	61	Pass
0.0141	6744	4327	64	Pass
0.0145	6192	4126	66	Pass
0.0150	5739	3927	68	Pass
0.0154	5311	3756	70	Pass
0.0159	4924	3557	72	Pass
0.0163	4571	3364	73	Pass
0.0168	4237	3200	75	Pass
0.0172	3957	3018	76	Pass
0.0177	3645	2838	77	Pass
0.0182	3388	2697	79	Pass
0.0186	3133	2565	81	Pass
0.0191	2915	2402	82	Pass
0.0195	2706	2246	83	Pass
0.0200	2490	2094	84	Pass
0.0204	2314	1936	83	Pass
0.0209	2136	1826	85	Pass
0.0214	1972	1689	85	Pass
0.0218	1826	1547	84	Pass
0.0223	1702	1434	84	Pass
0.0227	1579	1346	85	Pass
0.0232	1443	1266	87	Pass
0.0236	1325	1181	89	Pass
0.0241	1233	1067	86	Pass
0.0245	1147	932	81	Pass
0.0250	1086	856	78	Pass
0.0255	1020	820	80	Pass
0.0259	947	773	81	Pass
0.0264	887	736	82	Pass
0.0268	824	679	82	Pass
0.0273	761	615	80	Pass
0.0277	725	566	78	Pass
0.0282	674	519	77	Pass
0.0286	623	453	72	Pass
0.0291	589	391	66	Pass
0.0296	549	353	64	Pass
0.0300	506	324	64	Pass
0.0305	469	292	62	Pass
0.0309	427	260	60	Pass
0.0314	388	237	61	Pass
0.0318	356	217	60	Pass
0.0323	328	193	58	Pass
0.0327	298	164	55	Pass
0.0332	270	129	47	Pass

0.0337	241	99	41	Pass
0.0341	218	76	34	Pass
0.0346	198	47	23	Pass
0.0350	174	26	14	Pass
0.0355	152	23	15	Pass
0.0359	130	19	14	Pass
0.0364	119	19	15	Pass
0.0369	104	18	17	Pass
0.0373	95	16	16	Pass
0.0378	83	16	19	Pass
0.0382	74	14	18	Pass
0.0387	69	12	17	Pass
0.0391	61	11	18	Pass
0.0396	53	10	18	Pass
0.0400	46	10	21	Pass
0.0405	39	10	25	Pass
0.0410	29	10	34	Pass
0.0414	25	10	40	Pass
0.0419	22	10	45	Pass
0.0423	20	10	50	Pass
0.0428	17	8	47	Pass
0.0432	14	5	35	Pass
0.0437	12	5	41	Pass
0.0441	8	5	62	Pass
0.0446	7	5	71	Pass
0.0451	7	5	71	Pass
0.0455	7	5	71	Pass
0.0460	6	5	83	Pass
0.0464	6	4	66	Pass
0.0469	6	3	50	Pass
0.0473	6	3	50	Pass
0.0478	6	3	50	Pass
0.0483	5	3	60	Pass
0.0487	5	2	40	Pass
0.0492	5	2	40	Pass
0.0496	5	1	20	Pass
0.0501	5	1	20	Pass
0.0505	5	1	20	Pass
0.0510	5	0	0	Pass
0.0514	4	0	0	Pass
0.0519	4	0	0	Pass
0.0524	3	0	0	Pass
0.0528	3	0	0	Pass
0.0533	3	0	0	Pass
0.0537	3	0	0	Pass
0.0542	3	0	0	Pass
0.0546	3	0	0	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
Tank 1 POC	☐	56.66			☐	0.00			
Total Volume Infiltrated		56.66	0.00	0.00		0.00	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Model Default Modifications

Total of 0 changes have been made.

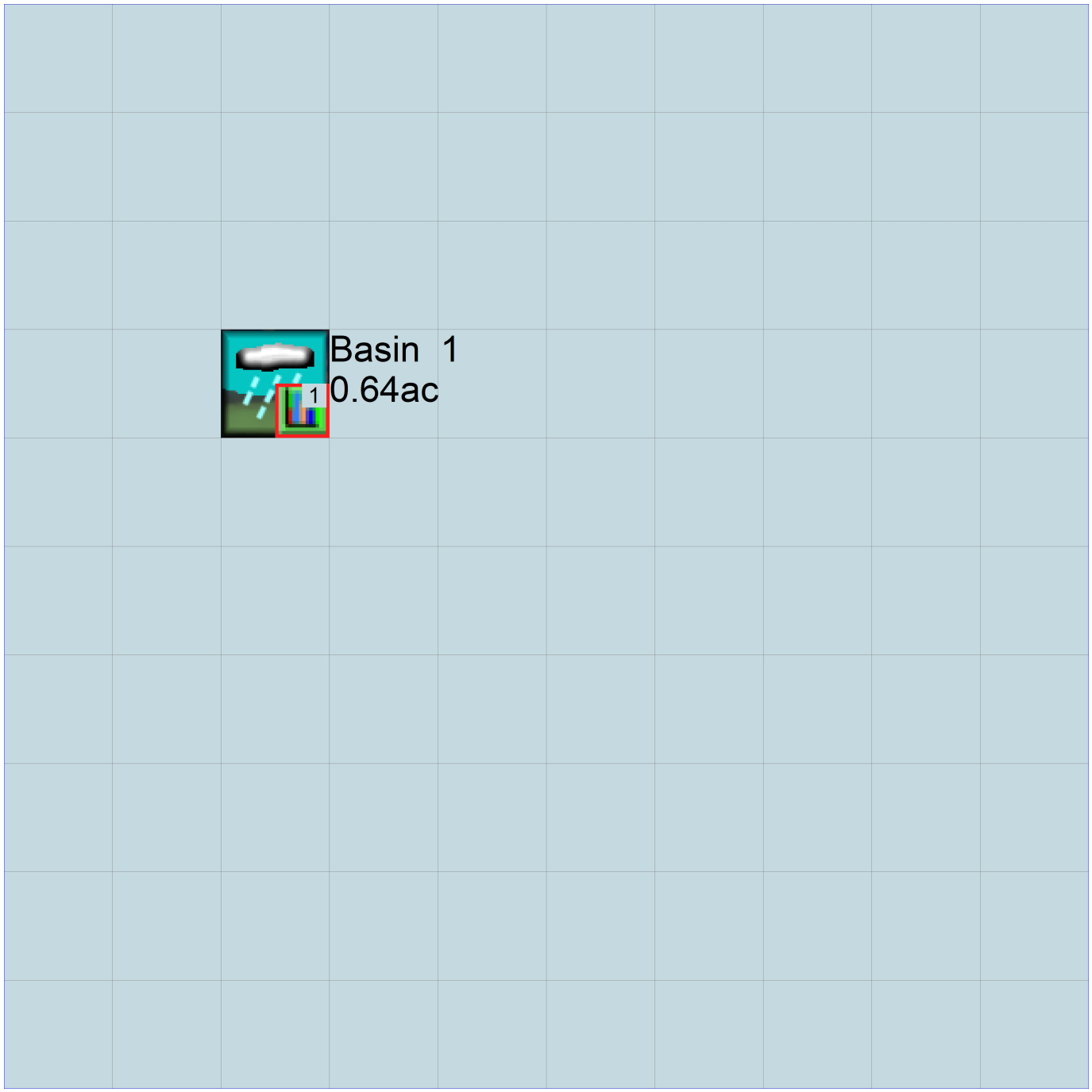
PERLND Changes

No PERLND changes have been made.

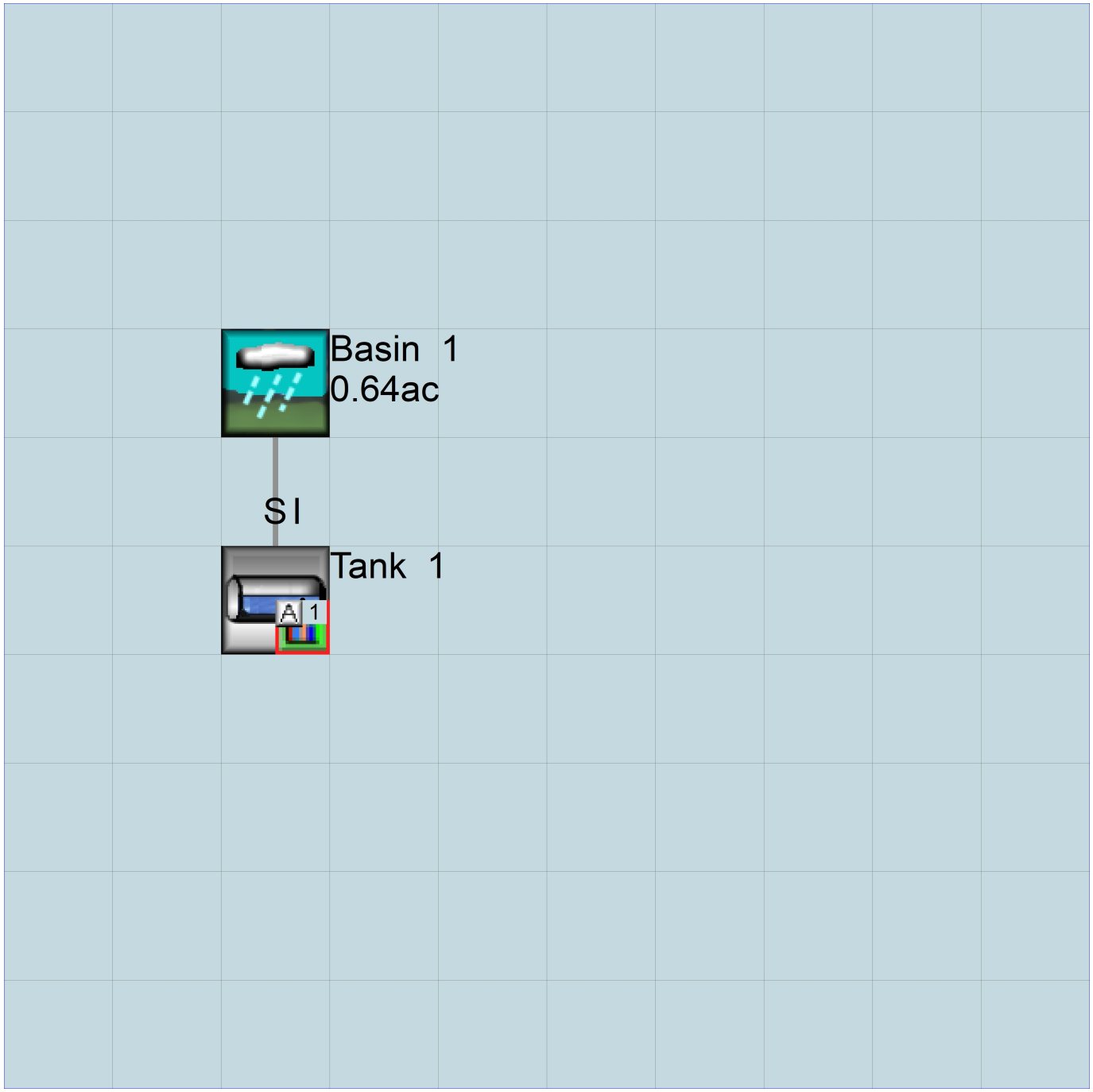
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1948 10 01        END    2009 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   pipe.wdm
MESSU       25   Prepipe.MES
            27   Prepipe.L61
            28   Prepipe.L62
            30   POCpipe1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND      11
      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           ***
   11     C, Forest, 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 ***
   11         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  *********
   11         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 ***
   11         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
   11              0       4.5      0.08       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
   11             0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   11           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
   11             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  11                       0.638     COPY   501     12
PERLND  11                       0.638     COPY   501     13

******Routing******
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                           ***
  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                                      ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** 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>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
```

```
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           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
  WWHM4 model simulation
  START       1948 10 01        END    2009 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   pipe.wdm
MESSU       25   Mitpipe.MES
            27   Mitpipe.L61
            28   Mitpipe.L62
            30   POCpipe1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:15
      PERLND      13
      IMPLND       4
      IMPLND       6
      IMPLND       8
      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        Tank  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           ***
   13     C, Pasture, 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 ***
   13         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  *********
   13         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 ***
   13         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
   13              0       4.5      0.06       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
   13              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                                 ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   13           0.15       0.4       0.3         6       0.5       0.4
  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
   13              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           ***
    4      ROOF TOPS/FLAT         1    1    1   27    0
    6      DRIVEWAYS/MOD          1    1    1   27    0
    8      SIDEWALKS/FLAT         1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ****************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
    4         0    0    1    0    0    0
    6         0    0    1    0    0    0
    8         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
    4         0    0    4    0    0    0    1    9
    6         0    0    4    0    0    0    1    9
    8         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     ***
    4         0    0    0    0    0
    6         0    0    0    0    0
    8         0    0    0    0    0
```

```
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    4            400      0.01       0.1       0.1
    6            400      0.05       0.1      0.08
    8            400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    4              0         0
    6              0         0
    8              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    4              0         0
    6              0         0
    8              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND  13                      0.364     RCHRES   1      2
PERLND  13                      0.364     RCHRES   1      3
IMPLND   4                      0.178     RCHRES   1      5
IMPLND   6                       0.09     RCHRES   1      5
IMPLND   8                      0.006     RCHRES   1      5

******Routing******
PERLND  13                      0.364     COPY     1     12
IMPLND   4                      0.178     COPY     1     15
IMPLND   6                       0.09     COPY     1     15
IMPLND   8                      0.006     COPY     1     15
PERLND  13                      0.364     COPY     1     13
RCHRES   1                          1     COPY   501     16
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     Tank  1                1    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    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    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  0  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      0.02       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  0.0  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
   91    4
     Depth      Area    Volume  Outflow1 Velocity  Travel Time***
      (ft)   (acres) (acre-ft)   (cfs)   (ft/sec)    (Minutes)***
  0.000000  0.000000  0.000000  0.000000
  0.088889  0.004197  0.000249  0.001360
  0.177778  0.005902  0.000703  0.001923
  0.266667  0.007187  0.001286  0.002356
  0.355556  0.008251  0.001974  0.002720
  0.444444  0.009171  0.002749  0.003041
  0.533333  0.009987  0.003601  0.003331
  0.622222  0.010723  0.004522  0.003598
  0.711111  0.011394  0.005505  0.003847
  0.800000  0.012011  0.006546  0.004080
  0.888889  0.012582  0.007639  0.004301
  0.977778  0.013114  0.008782  0.004511
  1.066667  0.013610  0.009970  0.004711
  1.155556  0.014075  0.011200  0.004904
  1.244444  0.014511  0.012471  0.005089
  1.333333  0.014921  0.013779  0.005267
  1.422222  0.015307  0.015123  0.005440
  1.511111  0.015671  0.016500  0.005608
  1.600000  0.016015  0.017908  0.005770
  1.688889  0.016339  0.019346  0.005928
  1.777778  0.016645  0.020812  0.006082
  1.866667  0.016934  0.022305  0.006232
  1.955556  0.017206  0.023822  0.006379
  2.044444  0.017463  0.025363  0.006523
  2.133333  0.017705  0.026926  0.006663
  2.222222  0.017933  0.028510  0.006800
  2.311111  0.018146  0.030114  0.006935
  2.400000  0.018347  0.031736  0.007067
  2.488889  0.018535  0.033375  0.007197
  2.577778  0.018710  0.035031  0.007324
  2.666667  0.018873  0.036701  0.007449
  2.755556  0.019025  0.038386  0.007572
```

```
  2.844444  0.019165  0.040083  0.007694
  2.933333  0.019293  0.041792  0.007813
  3.022222  0.019411  0.043513  0.007930
  3.111111  0.019518  0.045243  0.008046
  3.200000  0.019614  0.046982  0.008160
  3.288889  0.019699  0.048730  0.008273
  3.377778  0.019775  0.050484  0.008384
  3.466667  0.019840  0.052245  0.008493
  3.555556  0.019894  0.054011  0.008602
  3.644444  0.019939  0.055781  0.008708
  3.733333  0.019974  0.057555  0.008814
  3.822222  0.019999  0.059332  0.008918
  3.911111  0.020013  0.061110  0.009021
  4.000000  0.020018  0.062890  0.009123
  4.088889  0.020013  0.064669  0.009224
  4.177778  0.019999  0.066447  0.009324
  4.266667  0.019974  0.068224  0.009423
  4.355556  0.019939  0.069998  0.009520
  4.444444  0.019894  0.071768  0.009617
  4.533333  0.019840  0.073534  0.009713
  4.622222  0.019775  0.075295  0.009807
  4.711111  0.019699  0.077049  0.011185
  4.800000  0.019614  0.078797  0.013846
  4.888889  0.019518  0.080536  0.015381
  4.977778  0.019411  0.082266  0.016598
  5.066667  0.019293  0.083987  0.017644
  5.155556  0.019165  0.085696  0.018580
  5.244444  0.019025  0.087393  0.019435
  5.333333  0.018873  0.089078  0.020229
  5.422222  0.018710  0.090748  0.020975
  5.511111  0.018535  0.092404  0.021680
  5.600000  0.018347  0.094043  0.022352
  5.688889  0.018146  0.095665  0.022994
  5.777778  0.017933  0.097269  0.023612
  5.866667  0.017705  0.098853  0.024207
  5.955556  0.017463  0.100416  0.024782
  6.044444  0.017206  0.101957  0.026398
  6.133333  0.016934  0.103474  0.027714
  6.222222  0.016645  0.104967  0.028774
  6.311111  0.016339  0.106433  0.029721
  6.400000  0.016015  0.107871  0.030597
  6.488889  0.015671  0.109279  0.031421
  6.577778  0.015307  0.110656  0.032206
  6.666667  0.014921  0.112000  0.032958
  6.755556  0.014511  0.113308  0.033683
  6.844444  0.014075  0.114579  0.034384
  6.933333  0.013610  0.115809  0.035064
  7.022222  0.013114  0.116997  0.106054
  7.111111  0.012582  0.118140  0.821138
  7.200000  0.012011  0.119233  1.923675
  7.288889  0.011394  0.120274  3.276970
  7.377778  0.010723  0.121257  4.783643
  7.466667  0.009987  0.122178  6.346395
  7.555556  0.009171  0.123030  7.865931
  7.644444  0.008251  0.123805  9.248484
  7.733333  0.007187  0.124493  10.41818
  7.822222  0.005902  0.125076  11.33270
  7.911111  0.004197  0.125530  12.00147
  8.000000  0.001000  0.125779  12.50607
  END FTABLE  1
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    0.76           PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    0.76           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***
RCHRES   1 HYDR   RO     1 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>                <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       16
RCHRES     ROFLOW                          COPY           INPUT  MEAN
  END MASS-LINK   16


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

Disclaimer

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