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STORMWATER SITE PLAN

PROJECT: Mukilteo Short Plat
405 – 4th Street
Mukilteo, Washington 98275
PN: 00527500800500

APPLICANT: R3Homes, LLC
5055 38th Avenue NE
Seattle, Washington 98105
c/o
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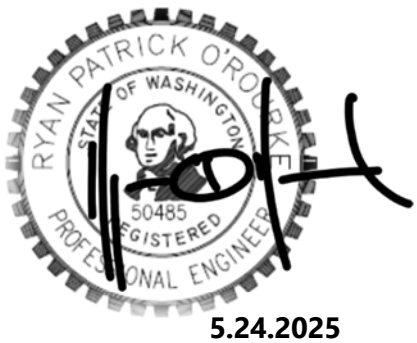

5.24.2025

DATE: May 24, 2025

SITE ENGINEERING, PLLC

Civil & Geotechnical Engineering Services

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PROJECT OVERVIEW

The applicant is proposing to subdivide a residential lot into two (2) residential lots reference herein as Lot "A" and Lot "B". Lot "A" defined as the east lot and Lot "B" defined as the west lot. The subject property is located at 405 – 4th Street, Mukilteo, Washington 98275-1541. The current tax description as listed on the Snohomish County Property Account Summary is as follows: *MUKILTEO PLAT OF BLK 008 D-00 – ALL OF LOTS 5-6-7-8-9 & THE E 20 FT OF LOT 10 PLUS PTN VAC ALLEY*. The Snohomish County Assessor has designated the parcel number as 00527500800500 with Incorporated City, RD 7.5 Single Family Residential zoning. No other permits are required or known at this time.

The site is located within Mukilteo city limits, see the **Site Vicinity Map, Figure 1**. The site consists of a rectangular shaped parcel approximately 145 feet in length (east to south) west and 120 feet in width (north to south). The parcel encompasses approximately 0.39 acres (17,102 square feet). The site generally slopes down from the southeast to the northwest at 10-15 percent slopes toward the Puget Sound. Overall elevation change across the site is approximately 25 feet. The site is located within the Plat of Mukilteo in the city of Mukilteo, Washington within an area of single-family residential development. The site is bounded by established single-family residences to the south, east and west, and by 4th Street to the north. Access to the site is from 4th Street to the north. Existing vegetation across the site mainly consists of typical residential landscaping including grass, a large cedar tree, and several small apple trees. The parcel is developed with a single-family residence and driveway.

Based on our conversations with you, our review of the provided survey/site plan, and our previous site visit on January 9, 2025, it is our understanding that the proposed development will include subdividing the residential lot into two (2) residential lots. Lot "A" will be rectangular shaped located on the east portion of the parcel, with an approximate area of 9,556 square feet. Lot "B" will be rectangular shaped located on the west portion of the parcel with an approximate area of 7,546 square feet. Lot "A" will include the existing residence and driveway to remain "as-is" and reclassified as a detached accessory dwelling unit (DADU).

Lot "A" will be developed with a new single-family residence (2,282 sf), driveway (400 sf), existing residence (580 sf), existing driveway (578 sf), and typical residential landscaping. Lot "B" will be developed with a new single-family residence (3,380), new driveway (400 sf), and typical residential landscaping.

Mitigation for the proposed roof surfaces will utilize BMP T5.10A: Downspout Full Infiltration by means of infiltration trenches. The proposed access road and driveways surfaces for lots C and D will utilize BMP T5.15: Permeable Pavements by means of either porous asphalt pavement or pervious cement concrete. The driveway surface for lot A will utilize BMP T5.12: Sheet Flow Dispersion with a 10-foot

vegetated flowpath. The vegetated flowpath could be undisturbed native vegetation or restored to meet BMP T5.13: Post-Construction Soil Quality and Depth.

Table 1 – Summary of Proposed Site Conditions.

Surface Type	Area (SF)	Area (AC)	Notes
Total Parcel	17,102	0.39	--
Lot A - Roof	580	0.013	existing (dadu)
Lot A - Driveway	578	0.013	existing
Lot A – Roof	2,282	0.052	new
Lot A - Driveway	400	0.009	new
Lot B - Roof	3,380	0.078	new
Lot B - Driveway	400	0.009	new
Impervious Subtotal	7,620	0.175	--
Pervious Subtotal	9,482	0.218	residential landscaping

SITE AND BASIN EXISTING CONDITIONS SUMMARY

A site visit was conducted on January 9, 2025 and the weather was noted as scattered clouds with a high/low of 52/45 degrees Fahrenheit. A preliminary survey of the existing conditions was prepared by ALL Land Surveying for the preliminary short plat subdivision. The preliminary survey was used as a base map for the site development drawings. Minor hydraulic features including seeps, springs, closed depression areas, and drainage swales were not listed or observed during the site visit. However, as noted in the geotechnical report, there was minor seepage noted in the test pits. Major hydraulic features with a stream, wetland, and water body survey and classification report were not listed or known to exist. Locations of geologic sensitive or critical areas were noted offsite though not noted or observed on site during the site visit. The top and toe of steep slopes off site were noted on the site plan. Existing fuel tanks were not listed or known to exist on the site. Groundwater wells were not listed or known to exist on-site or with 100 feet of the site. There were no septic systems noted on the site plan. Typical residential landscaping was noted across the site including large cedar trees, ornamental shrubs, and grass.

Table 2 – Summary of Existing Site Conditions

Surface Type	Area (SF)	Area (AC)	Notes
Total Parcel	17,102	0.39	--
House	580	0.013	roof area
Driveway	578	0.013	asphalt
Impervious Subtotal	1,158	0.026	--
Pervious Subtotal	15,944	0.366	Pasture/lawn area

There is no defined drainage course as the drainage leaves the property. The site drainage tends to infiltrate the upper soils and flow to the north-northwest toward 4th Street. Slopes direct surface drainage to the north-northwest. Existing drainage patterns will generally remain unaltered by the site development, see **Basin Map, Figure 2**. For additional site details, see associated Site Development Drawings.

A review of the USDA Soil Survey of Pierce County (Soil Conservation Service) indicates that the site is underlain by Everett very gravelly sandy loam (17). The Everett soils are generally formed in sandy and gravelly glacial outwash on slopes of 0 to 8 percent. The nearly level to undulating soil is "excessively drained" and listed as having "rapid" permeability and "little" erosion hazard when exposed. The Everett series soils are listed as being in hydrologic group "A". These soils are derived from glacial outwash and typically have high infiltration capabilities. A copy of the USDA Soils Map is included as Figure 3. Restrictive features are noted as "more than 80 inches". However, test pit excavations encountered glacial till at 36 inches. Based on this and recommendations from the geotechnical report, we are not proposing traditional infiltration for this project. A copy of the **USDA Soils Map is included as Figure 3**. Hand augers were performed in the vicinity of the proposed infiltration trenches and generally confirm

DISCUSSION OF MINIMUM REQUIREMENTS

The proposed development of the Mukilteo Short Plat will be required to meet all Minimum Requirements #1-9. This was determined based on **Figure I-3.2: Flow Chart for Determining Requirements for Redevelopment**. The site does not have 35% or more of existing coverage and results in 5,000 square feet or more of new plus replaced hard surface area.

Minimum Requirement #1: Preparation of Stormwater Site Plans

This has been addressed by the submittal of this report and referenced site development drawings.

Minimum Requirement #2: Construction Stormwater Pollution Prevention Plan (SWPPP)

Since this project is related to a single-family residential construction project, the proposed erosion control measures are adequate for the project scope and size, see referenced plans for details. Specifically, the 13 elements have been addressed as follows:

1. Preserve Vegetation/Mark Clearing Limits: The clearing limits and location(s) of the silt fence have been clearly shown on the site development drawings sheet C-2;

2. Establish Construction Access: The construction access is clearly shown on the site development drawing sheets C-1 and C-2;

3. Control Flow Rates: This will be accomplished through a downstream analysis, the provided erosion control plan, and the permanent drainage system.

4. Install Sediment Controls: The provided plans include the location and appropriate notes and details for a Silt Fence BMP C233, Construction Entrance BMP C105, Mulching C121, and other erosion control;

5. Stabilize Soils: The limited amount of site disturbance and the nature of the project as a single-family residential limit the opportunity for exposed soils. Temporary site stabilization will include mulching, with final site stabilization including amended soils, permanent landscaping, and driveway surfacing. BMP's to be used will include but not necessarily be limited to C120: Temporary and Permanent Seeding, C121: Mulching, C123: Plastic Covering, C124: Sodding, and C125 Topsoiling.

6. Protect Slopes: Where steep slopes will be disturbed on the site, the most effective method of protecting slopes with disturbed soils is a combination of BMP's including C121: Mulching and C122: Nets and Blankets.

7. Protect Drain Inlets: Drain inlets shall be protected with filter sock inserts, where appropriate, until the site is permanently stabilized.

8. Stabilize Channels and Outlets: This is not applicable to this project.

9. Control Pollutants: This is a single-family residential project; it is expected that there will be limited opportunity for construction pollution to be present on site. The Contractor will be required to follow standard procedures concerning site cleanup, material storage, etc.

10. Control Dewatering: This is not expected to be required for this project. Minor seepage was noted in the test pits likely because of a perched groundwater condition s noted in the Geotechnical Report. If dewatering becomes necessary, a cut-off drain could be installed along the south property line and discharged in an appropriate location. A detail is included in the Site Development Drawings, Sheet C-2.

11. Maintain BMP's: It will be the responsibility of the Owner and Contractor to maintain the installed BMP's and to maintain a clean and safe work site. Appropriate notes and details are included on the referenced plan sheets.

12. Manage the Project: It will be the responsibility of the Owner and Contractor to manage the project. Again, due to the limited amount of clearing and nature of the project, it is expected that a minimal amount of effort will be required to manage the site construction stormwater.

13. Protect Low Impact Development BMPs: It will be the responsibility of the Owner and Contractor to protect all LID BMPs to reduce disruption to natural site hydrology through dispersion/infiltration. Maintain/restore other BMPs to their fully functioning condition. Protect all LID BMPs against compaction from construction equipment and other activities that could reduce the infiltration rate of the soil.

Minimum Requirement #3: Source Control of Pollution

The implementation of the temporary erosion and sediment control plan along with the provided drainage design is adequate to meet this requirement for construction of the proposed short plat.

Minimum Requirement #4: Preservation of Natural Drainage Systems and Outfalls

The stormwater runoff from the proposed short plat will be mitigated with a combination of tight-lined connections to existing catch basins and sheetflow dispersion on site. Stormwater runoff from the proposed driveway surfaces will be dispersed on site by means of sheetflow dispersion. Dispersion is the preferred mitigation option for impervious surfaces and excess stormwater to maintain natural drainage patterns and keep stormwater away from the steep slopes.

Minimum Requirement #5: Onsite Stormwater Management

Onsite stormwater management consists of collecting runoff from all impervious surfaces and infiltrating/dispersing as indicated below. The provided plans and design adequately address stormwater management for the proposed site development.

The flow path in Figure I-3.3 highlights the project's path for Determining MR#5 in the 2024 SWMMWW. For each surface, BMPs are considered in the order listed (List #2) for that type of surface. The first BMP considered feasible must be used. Achievement of the LID Performance Standard is not required nor selected for this project.

Roofs:

- BMP T5.30: Full Dispersion – Infeasible
    - A 65 to 10 ratio of the native vegetation area to the impervious area is unachievable.
    - A minimum native vegetation flow path length of 100 feet (25 feet for sheet flow from a non-native pervious surface) is unachievable.
- BMP T5.10A Downspout Full Infiltration – Infeasible
    - As previously discussed, the Geotechnical Report prepared by Site Engineering, PLLC noted stormwater infiltration measures to be infeasible because of the glacial till soils in the upper soil stratum.

- ❖ BMP T7.30: Bioretention – Infeasible
    - As previously discussed, the Geotechnical Report prepared by Site Engineering, PLLC noted stormwater infiltration measures to be infeasible because of the glacial till soils in the upper soil stratum.
- ❖ BMP T5.10B: Downspout Dispersion Systems – Infeasible
    - Slope areas less than 15 percent are not available on site. Downspout Dispersion systems are infeasible for this project.
- ❖ BMP T5.10C: Perforated Stub-out Connections – Infeasible
    - As previously discussed, the Geotechnical Report prepared by Site Engineering, PLLC noted stormwater infiltration measures to be infeasible because of the glacial till soils in the upper soil stratum.

The approximate roof area for Lot "A" (2,282 sf) and Lot "B" (3,360 sf) will be tightlined to the existing catch basins located directly in front of each lot. Lot "A" will be tightlined to Catch Basin CB02491. Lot "B" will be tightlined to Catch Basin CB02492. The maximum square footage for the proposed residences is based on Mukilteo Municipal Code Chapter 17.20.028 Maximum hard surface coverage matrix. For Lot "A" with proposed lot area of 9,556 square feet, the maximum hard surface coverage is 3,840 square feet minus existing coverage and required driveway resulting in 2,282 square feet. For Lot "B" with proposed lot area of 7,546 square feet, the maximum hard surface coverage is 3,780 square feet minus required driveway resulting in 3,380 square feet.

Other Hard Surfaces: Driveway

- ❖ BMP T5.30: Full Dispersion – Infeasible
    - A 65 to 10 ratio of the native vegetation area to the impervious area is unachievable.
    - A minimum native vegetation flow path length of 100 feet (25 feet for sheet flow from a non-native pervious surface) is unachievable.
- ❖ BMP T5.15: Permeable Pavements – Infeasible
    - As previously discussed, the Geotechnical Report prepared by Site Engineering, PLLC noted stormwater infiltration measures to be infeasible because of the glacial till soils in the upper soil stratum.
- ❖ BMP T7.30: Bioretention - Infeasible
    - As previously discussed, the Geotechnical Report prepared by Site Engineering, PLLC noted stormwater infiltration measures to be infeasible because of the glacial till soils in the upper soil stratum.

- ❖ Sheet Flow Dispersion – Feasible
    - Driveway surface will be dispersed via sheet flow to a 10-foot vegetated flowpath.

Onsite stormwater management will consist of roof downspouts tightlined to the existing catch basins located on 4th Street and sheet flow dispersion for the driveway surfaces. The driveway surfaces will each be 400 square feet and dispersed via sheet flow to a 10-foot vegetated flow path on the west side of the driveway. The Stormwater Site Plan and design adequately address stormwater management for the proposed site development.

Minimum Requirement #6: Runoff Treatment

The stormwater generated from the driveway surfaces will not require treatment. The total pollution-generating hard surfaces (PGHS) is less than 5,000 square feet and the total pollution generating pervious surface (PGPS) is less than ¾ of an acre. Therefore, runoff treatment is not required for this project.

Minimum Requirement #7: Flow Control

The total effective impervious surface is less than 10,000 square feet in a threshold discharge area. The project converts less than ¾ acre of vegetation to lawn or landscape and less than 2.5 acres of native vegetation to pasture. The input parameters for the predeveloped and developed conditions are as follows:

Predeveloped Condition	
A/B, Pasture, Mod	0.366 ac
Roof Tops, Flat	0.013 ac
Roads, Flat	0.013 ac
Developed Condition:	
A/B, Lawn, Mod	0.217 ac
Roof Tops, Flat	0.143 ac
Roads, Flat	0.032 ac

The flow frequency of the 100-year return period for the predeveloped condition is 0.022 cfs. The flow frequency of the 100-year return period for the developed condition is 0.148 cfs. The change in flow frequency of the 100-year return period for the predeveloped condition and the developed condition result in an increase of 0.126 cfs.

Therefore, the project through a combination of effective hard surface and converted vegetation does not cause a 0.15 cubic feet per second increase using 15-minute time steps in the 100-year flow

frequency from a threshold discharge area estimated using the Western Washington Hydrology Model. With consideration of these conditions, flow control is not required for this project. All proposed roof surfaces will be tightlined to the existing catch basins and the driveway surfaces adjacent to 4th Street will utilize sheet flow dispersion. A copy of the WWHM output can be found in Appendix A.

Minimum Requirement #8: Wetlands Protection

Not applicable. The stormwater for this project does not discharge to a wetland either directly or indirectly through a conveyance system.

Minimum Requirement #9: Operation and Maintenance

An operation and maintenance manual consistent with the provisions in Volume V has been provided for the proposed stormwater facilities and BMPs. A copy of the operation and maintenance manual shall be retained on-site or within reasonable access to the site and shall be transferred with the property to the new owner. The Operation and Maintenance Manual can be found in Appendix C.

OFF-SITE ANALYSIS

A downstream analysis was performed on January 9, 2025 to the extent feasible. The weather was scattered clouds with a high/low of 52/45 degrees Fahrenheit. The stormwater runoff from the proposed development will generally remain the same. Stormwater generally sheet flows cross to the north-northwest and enters existing catch basins along 4th Street. The roof drainage from the proposed residences will be tight-lined to the existing catch basins along 4th Street. Drainage from the driveway surfaces will sheetflow across a 10-foot vegetated surface and be naturally reintroduced to the water table. Existing drainage patterns will generally remain unaltered by the site development. The geotechnical report no0ted minor seepage in the test pits. A cut-off drain could be installed along the southern property line to intercept excess subsurface drainage and redirect to an approved discharge point. There are no other known problems reported downstream or observed during our review. There were no apparent constrictions or capacity deficiencies, flooding problems, overtopping, scouring, bank sloughing, or sedimentation, nor destruction of aquatic habitat.

CONVEYANCE SYSTEM ANALYSIS AND DESIGN

Roof drainage will be conveyed through the use of typical gutters and downspouts which will be collected by a perimeter pipe consisting of a 4-inch PVC pipe at a minimum slope of 0.02 ft/ft. A 4-inch PVC pipe at a slope of 0.02ft/ft has a capacity of 0.32cfs and will convey collected water to the existing catch basins along 4th Street. The total impervious roof area to be conveyed by a single roof drain line is approximately 3,380sqft (0.078acres) using the rational method the 100-year peak flow is 0.9x4.0x0.078=0.28cfs (C, A, Pr, and Ir, respectively). Therefore, the pipe is adequately sized to meet or exceed the expected peak flows from the proposed impervious roof areas. The driveway surfaces will be

dispersed through a 10-foot vegetated flow path. All other disturbed areas shall meet the requirements of BMP T5.13: Post-Construction Soil Quality and Depth.

Erosion control measures will be in place throughout the project. On a temporary basis, they will consist of silt fence installed along downhill sections of the site and along areas being graded. The site entrance will also have a temporary construction entrance installed as shown on the Site Development Drawings. Permanent erosion control will consist of amended soils and typical residential landscaping.

We trust this is sufficient for your current needs. Should you have any questions, or require additional information, please contact us at your earliest convenience.

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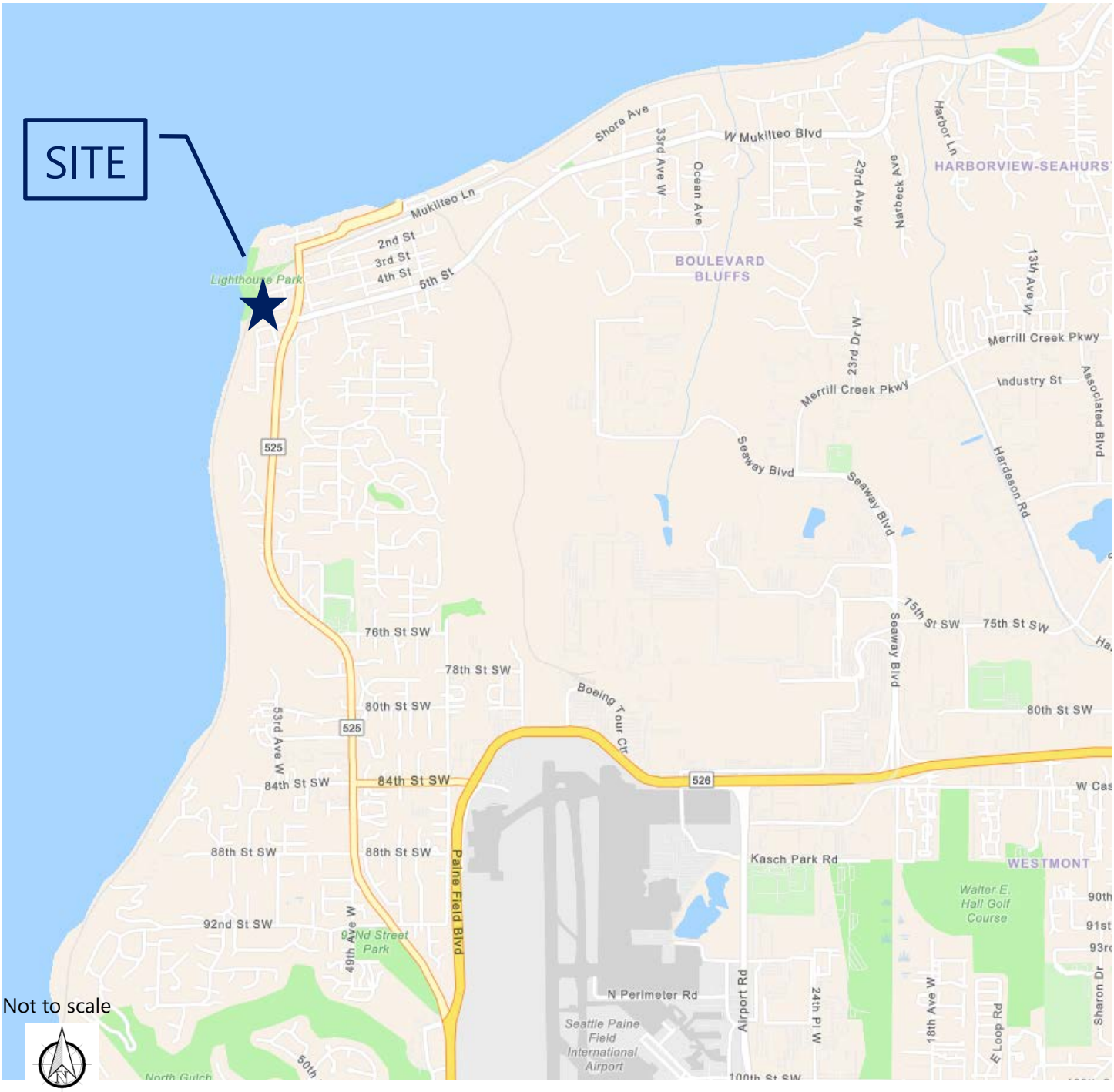

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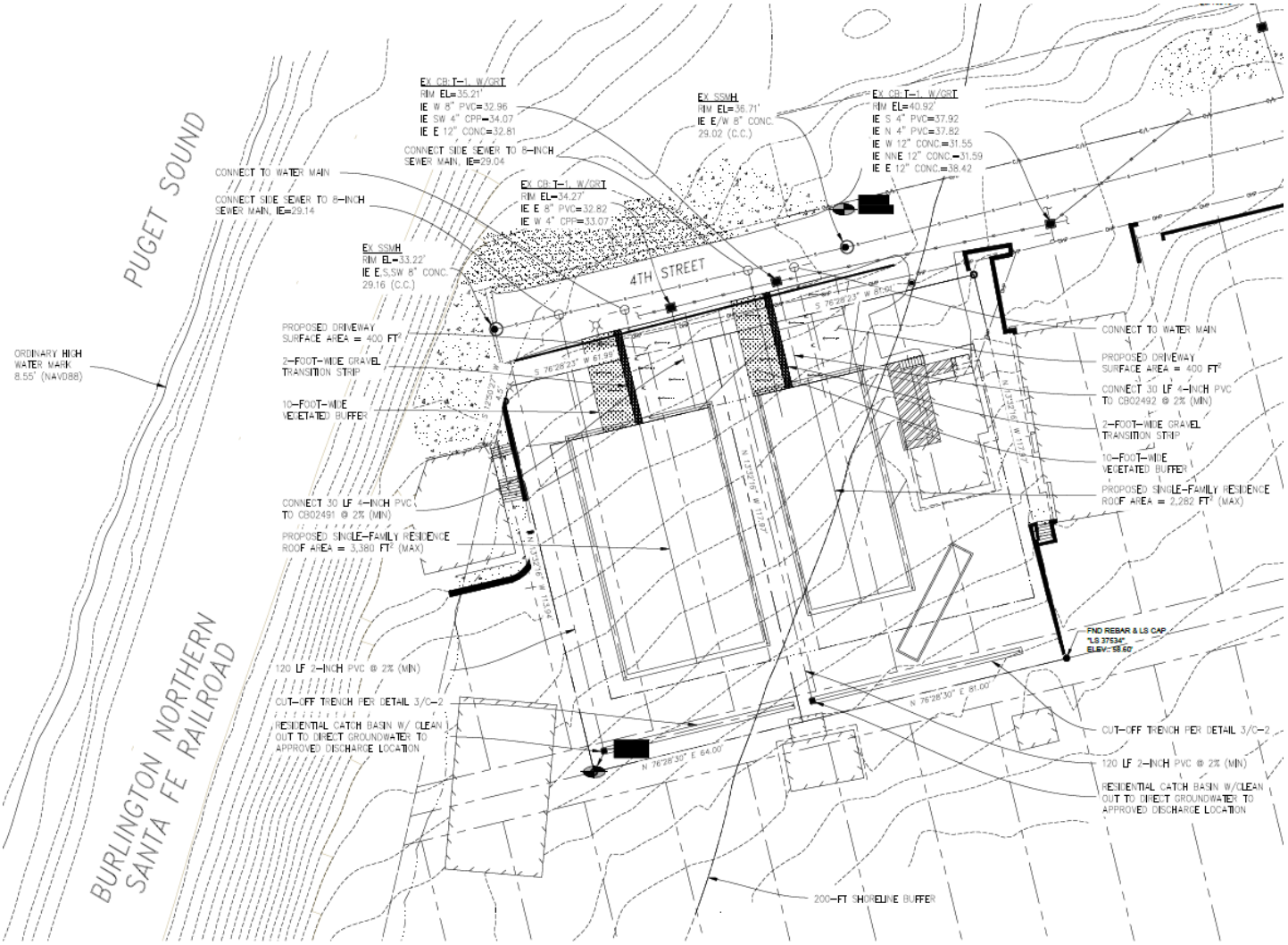
Site Vicinity Map
Mukilteo Short Plat
405 – 4th Street
Mukilteo, Washington

Job No: 241113	January 2025	Figure 1



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Site Plan
Mukilteo Short Plat
405 – 4th Street
Mukilteo, Washington

Job No: 241113	January 2025	Figure 2

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
17	Everett very gravelly sandy loam, 0 to 8 percent slopes	0.8	100.0%
Totals for Area of Interest		**0.8**	**100.0%**

Not to scale

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USDA Soils Map
Mukilteo Short Plat
405 – 4th Street
Mukilteo, Washington

Job No: 241113	January 2025	Figure 3

APPENDIX A

WWHM2012

PROJECT REPORT

General Model Information

WWHM2012 Project Name: MukilteoSP

Site Name:	Mukilteo Short Plat
Site Address:	405 4th Street
City:	Mukilteo
Report Date:	1/28/2025
Gage:	Everett
Data Start:	1948/10/01
Data End:	2009/09/30
Timestep:	15 Minute
Precip Scale:	0.800
Version Date:	2023/01/27
Version:	4.2.19

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
A B, Pasture, Mod	0.366
Pervious Total	0.366

Impervious Land Use	acre
ROOF TOPS FLAT	0.013
ROADS FLAT	0.013
Impervious Total	0.026
Basin Total	0.392

Mitigated Land Use

Basin 1

Bypass:	No
GroundWater:	No

Pervious Land Use	acre
A B, Lawn, Mod	0.217
Pervious Total	0.217

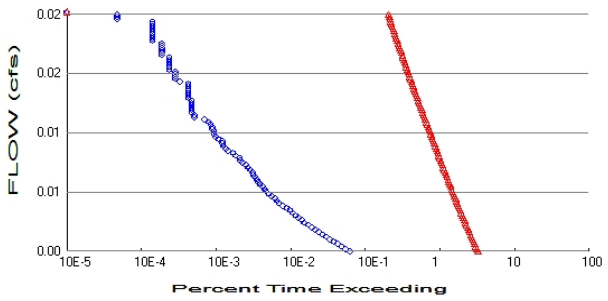
Impervious Land Use	acre
ROOF TOPS FLAT	0.143
ROADS FLAT	0.032
Impervious Total	0.175
Basin Total	0.392

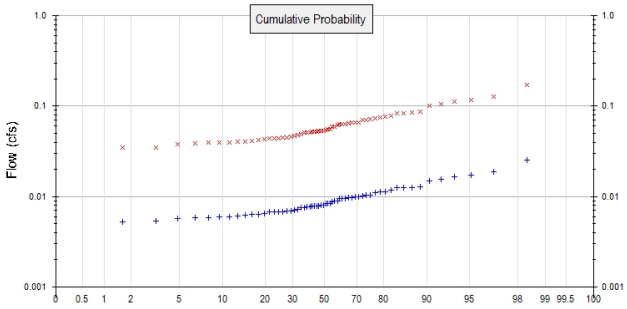
Routing Elements
Predeveloped Routing

Mitigated Routing

Analysis Results

POC 1





\+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.366
Total Impervious Area: 0.026

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.217
Total Impervious Area: 0.175

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.008421
5 year	0.011443
10 year	0.013661
25 year	0.016719
50 year	0.01919
100 year	0.021832

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.056244
5 year	0.076713
10 year	0.091775
25 year	0.112594
50 year	0.12945
100 year	0.147501

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.008	0.052
1950	0.010	0.070
1951	0.009	0.060
1952	0.008	0.051
1953	0.010	0.070
1954	0.013	0.087
1955	0.010	0.066
1956	0.005	0.031
1957	0.008	0.053
1958	0.019	0.127

1959	0.008	0.054
1960	0.007	0.047
1961	0.025	0.170
1962	0.009	0.063
1963	0.011	0.076
1964	0.006	0.041
1965	0.006	0.040
1966	0.006	0.041
1967	0.017	0.117
1968	0.009	0.063
1969	0.017	0.112
1970	0.007	0.044
1971	0.010	0.065
1972	0.013	0.083
1973	0.010	0.067
1974	0.013	0.084
1975	0.009	0.064
1976	0.007	0.044
1977	0.007	0.045
1978	0.005	0.035
1979	0.012	0.078
1980	0.006	0.040
1981	0.007	0.044
1982	0.007	0.045
1983	0.009	0.059
1984	0.008	0.053
1985	0.012	0.083
1986	0.011	0.074
1987	0.010	0.066
1988	0.008	0.051
1989	0.008	0.056
1990	0.006	0.038
1991	0.008	0.053
1992	0.008	0.051
1993	0.006	0.040
1994	0.006	0.039
1995	0.006	0.043
1996	0.008	0.054
1997	0.010	0.072
1998	0.011	0.075
1999	0.005	0.035
2000	0.016	0.105
2001	0.006	0.042
2002	0.006	0.039
2003	0.008	0.053
2004	0.015	0.101
2005	0.007	0.048
2006	0.009	0.061
2007	0.008	0.056
2008	0.007	0.046
2009	0.007	0.049

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0253	0.1701
2	0.0189	0.1268
3	0.0174	0.1168

4	0.0166	0.1115
5	0.0156	0.1053
6	0.0149	0.1006
7	0.0129	0.0873
8	0.0126	0.0843
9	0.0126	0.0832
10	0.0124	0.0830
11	0.0118	0.0779
12	0.0113	0.0759
13	0.0113	0.0748
14	0.0109	0.0735
15	0.0104	0.0716
16	0.0104	0.0703
17	0.0102	0.0700
18	0.0099	0.0666
19	0.0099	0.0661
20	0.0098	0.0659
21	0.0097	0.0650
22	0.0095	0.0637
23	0.0095	0.0633
24	0.0094	0.0627
25	0.0089	0.0614
26	0.0088	0.0598
27	0.0087	0.0588
28	0.0083	0.0561
29	0.0083	0.0558
30	0.0083	0.0540
31	0.0081	0.0538
32	0.0080	0.0532
33	0.0079	0.0529
34	0.0079	0.0526
35	0.0078	0.0525
36	0.0078	0.0521
37	0.0077	0.0514
38	0.0076	0.0512
39	0.0075	0.0507
40	0.0075	0.0495
41	0.0072	0.0478
42	0.0071	0.0468
43	0.0070	0.0462
44	0.0068	0.0448
45	0.0068	0.0445
46	0.0068	0.0444
47	0.0067	0.0444
48	0.0067	0.0443
49	0.0065	0.0434
50	0.0063	0.0422
51	0.0063	0.0411
52	0.0062	0.0406
53	0.0060	0.0402
54	0.0059	0.0400
55	0.0059	0.0398
56	0.0059	0.0392
57	0.0058	0.0389
58	0.0057	0.0381
59	0.0053	0.0349
60	0.0052	0.0345
61	0.0046	0.0310

Duration Flows

The Duration Matching Failed

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0042	1320	69471	5262	Fail
0.0044	1168	67161	5750	Fail
0.0045	1018	64851	6370	Fail
0.0047	900	62712	6968	Fail
0.0048	803	60659	7554	Fail
0.0050	717	58734	8191	Fail
0.0051	639	56873	8900	Fail
0.0053	566	55055	9727	Fail
0.0054	507	53322	10517	Fail
0.0056	451	51611	11443	Fail
0.0057	414	50050	12089	Fail
0.0059	369	48510	13146	Fail
0.0060	323	46948	14534	Fail
0.0062	299	45473	15208	Fail
0.0063	270	44125	16342	Fail
0.0065	248	42735	17231	Fail
0.0066	229	41451	18100	Fail
0.0068	210	40211	19148	Fail
0.0069	189	38970	20619	Fail
0.0071	166	37794	22767	Fail
0.0072	148	36725	24814	Fail
0.0074	142	35634	25094	Fail
0.0075	130	34628	26636	Fail
0.0077	117	33645	28756	Fail
0.0078	108	32661	30241	Fail
0.0080	100	31655	31654	Fail
0.0081	95	30693	32308	Fail
0.0083	89	29859	33549	Fail
0.0084	82	29025	35396	Fail
0.0086	79	28212	35711	Fail
0.0087	75	27420	36560	Fail
0.0089	70	26650	38071	Fail
0.0091	67	25966	38755	Fail
0.0092	66	25196	38175	Fail
0.0094	61	24512	40183	Fail
0.0095	57	23763	41689	Fail
0.0097	54	23121	42816	Fail
0.0098	48	22501	46877	Fail
0.0100	45	21838	48528	Fail
0.0101	44	21243	48279	Fail
0.0103	39	20662	52979	Fail
0.0104	36	20112	55866	Fail
0.0106	31	19631	63325	Fail
0.0107	29	19092	65834	Fail
0.0109	27	18578	68807	Fail
0.0110	26	18078	69530	Fail
0.0112	26	17558	67530	Fail
0.0113	23	17070	74217	Fail
0.0115	21	16632	79200	Fail
0.0116	20	16198	80990	Fail
0.0118	20	15774	78870	Fail
0.0119	19	15351	80794	Fail
0.0121	19	14908	78463	Fail
0.0122	18	14476	80422	Fail

0.0124	17	14074	82788	Fail
0.0125	15	13676	91173	Fail
0.0127	11	13306	120963	Fail
0.0128	11	12919	117445	Fail
0.0130	10	12555	125550	Fail
0.0131	10	12245	122450	Fail
0.0133	10	11916	119160	Fail
0.0134	10	11595	115950	Fail
0.0136	10	11289	112890	Fail
0.0137	10	10981	109810	Fail
0.0139	9	10707	118966	Fail
0.0140	9	10440	116000	Fail
0.0142	9	10158	112866	Fail
0.0143	9	9888	109866	Fail
0.0145	9	9606	106733	Fail
0.0147	9	9368	104088	Fail
0.0148	9	9139	101544	Fail
0.0150	7	8921	127442	Fail
0.0151	6	8690	144833	Fail
0.0153	6	8449	140816	Fail
0.0154	6	8235	137250	Fail
0.0156	6	8008	133466	Fail
0.0157	5	7809	156180	Fail
0.0159	5	7599	151980	Fail
0.0160	5	7411	148220	Fail
0.0162	5	7238	144760	Fail
0.0163	5	7035	140700	Fail
0.0165	5	6868	137360	Fail
0.0166	4	6729	168225	Fail
0.0168	4	6541	163525	Fail
0.0169	4	6365	159125	Fail
0.0171	4	6190	154750	Fail
0.0172	4	6017	150425	Fail
0.0174	4	5861	146525	Fail
0.0175	3	5732	191066	Fail
0.0177	3	5587	186233	Fail
0.0178	3	5439	181300	Fail
0.0180	3	5302	176733	Fail
0.0181	3	5176	172533	Fail
0.0183	3	5052	168400	Fail
0.0184	3	4917	163900	Fail
0.0186	3	4810	160333	Fail
0.0187	3	4695	156500	Fail
0.0189	1	4590	459000	Fail
0.0190	1	4498	449800	Fail
0.0192	1	4387	438700	Fail

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

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
Total Volume Infiltrated		0.00	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

POC 2

POC #2 was not reported because POC must exist in both scenarios and both scenarios must have been run.

POC 3

POC #3 was not reported because POC must exist in both scenarios and both scenarios must have been run.

POC 4

POC #4 was not reported because POC must exist in both scenarios and both scenarios must have been run.

POC 5

POC #5 was not reported because POC must exist in both scenarios and both scenarios must have been run.

POC 6

POC #6 was not reported because POC must exist in both scenarios and both scenarios must have been run.

Model Default Modifications

Total of 0 changes have been made.

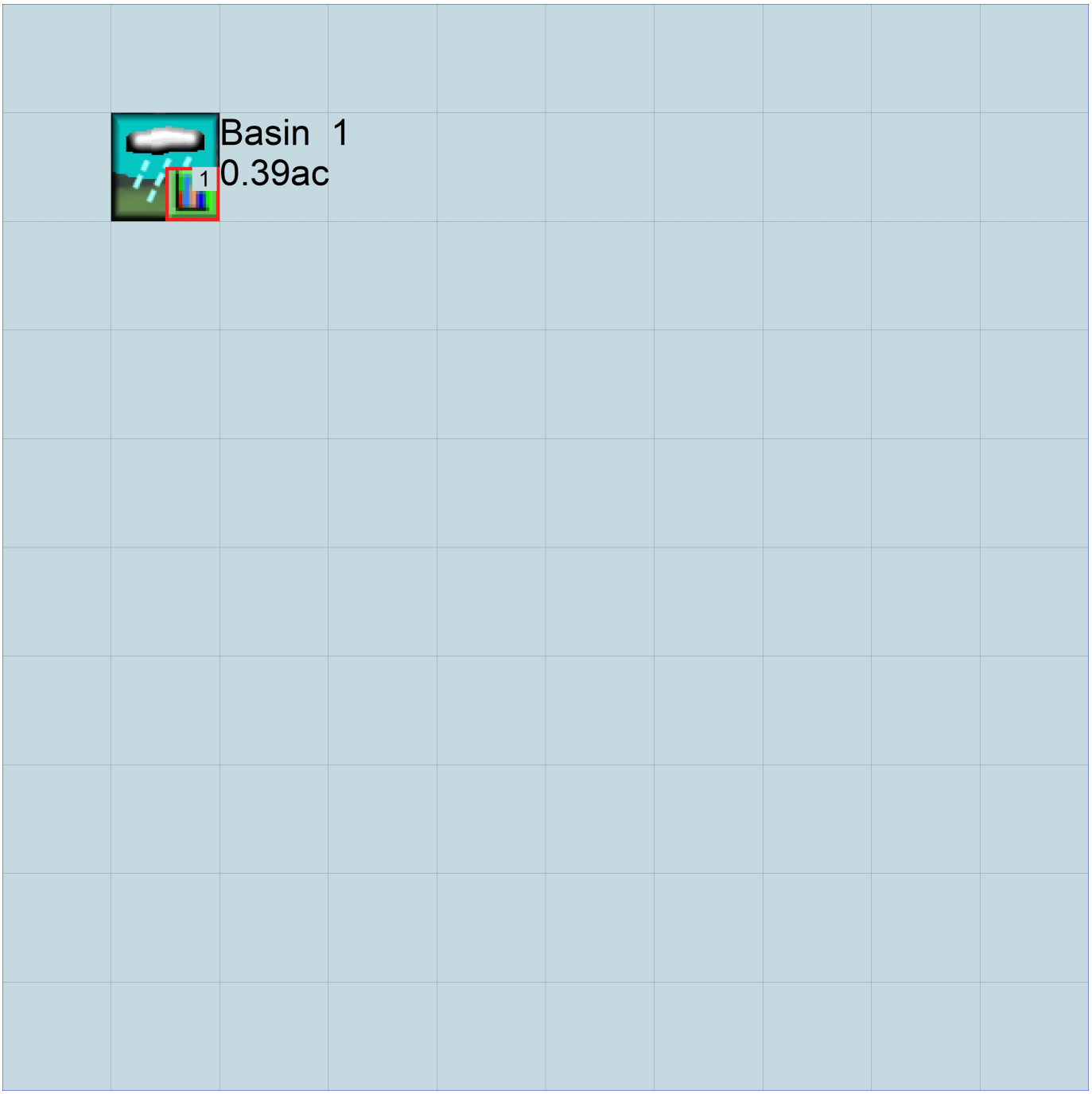
PERLND Changes

No PERLND changes have been made.

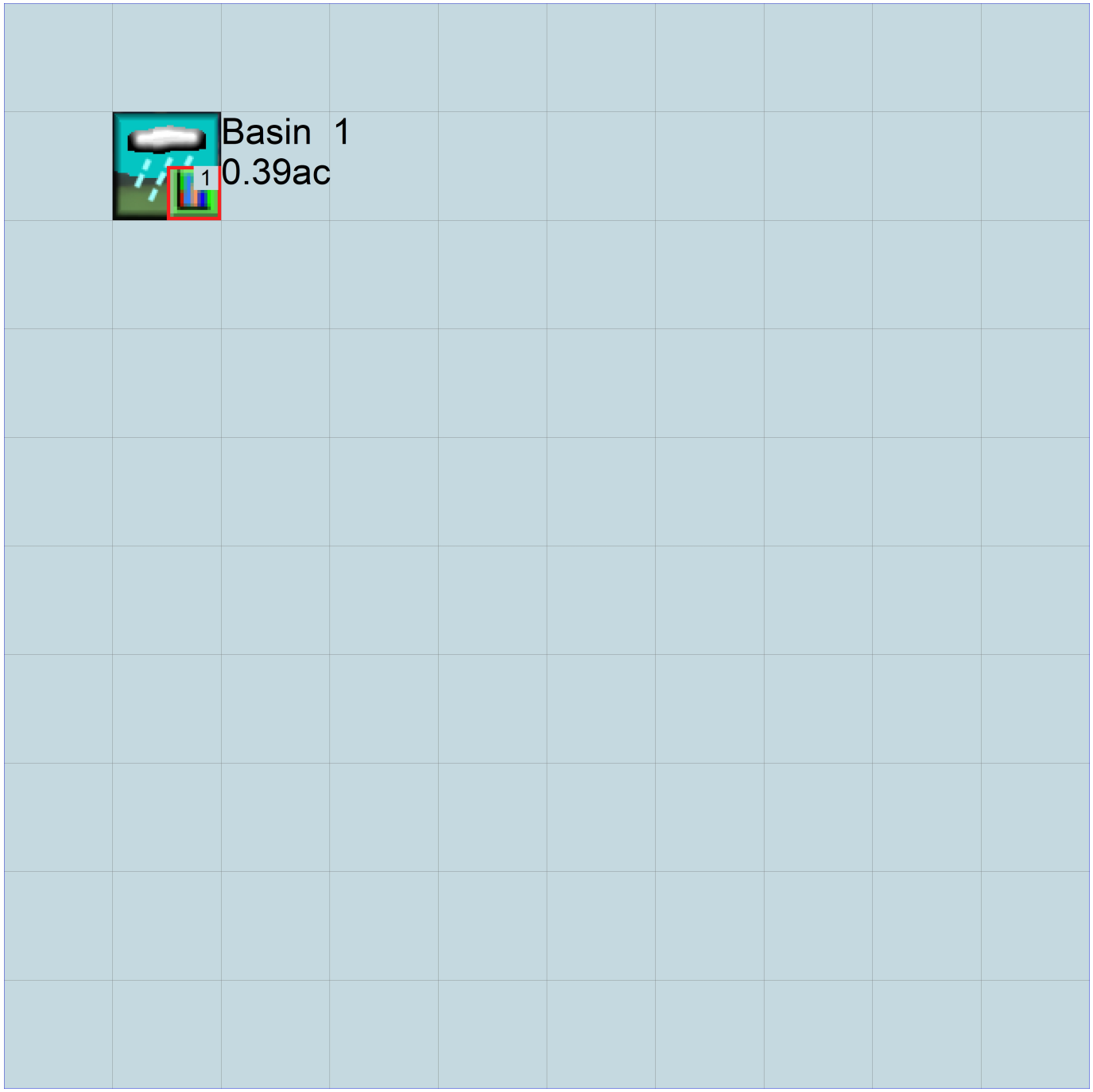
IMPLND Changes

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   MukilteoSP.wdm
MESSU       25   PreMukilteoSP.MES
            27   PreMukilteoSP.L61
            28   PreMukilteoSP.L62
            30   POCMukilteoSP1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND       5
      IMPLND       4
      IMPLND       1
      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           ***
    5     A/B, Pasture, 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 ***
    5         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  *********
    5         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 ***
    5         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
    5              0         5       1.5       400       0.1       0.3     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
    5              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
    5          0.15       0.5       0.3         0       0.7       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
    5              0         0         0         0         3         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
    1      ROADS/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
    1         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    4    1    9
    1         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
    1         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
    1            400      0.01       0.1       0.1
```

```
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    4              0         0
    1              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    4              0         0
    1              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND   5                      0.366     COPY   501     12
PERLND   5                      0.366     COPY   501     13
IMPLND   4                      0.013     COPY   501     15
IMPLND   1                      0.013     COPY   501     15

******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    0.8            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    0.8            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

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


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   MukilteoSP.wdm
MESSU       25   MitMukilteoSP.MES
            27   MitMukilteoSP.L61
            28   MitMukilteoSP.L62
            30   POCMukilteoSP1.dat
END FILES

OPN SEQUENCE
    INGRP              INDELT 00:15
      PERLND       8
      IMPLND       4
      IMPLND       1
      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           ***
    8     A/B, 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 ***
    8         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  *********
    8         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 ***
    8         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
    8             0         5       0.8       400       0.1       0.3     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
    8             0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >     PWATER input info: Part 4                              ***
    # -  #     CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
    8          0.1       0.5      0.25         0       0.7      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
    8             0         0         0         0         3         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
    1      ROADS/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
    1         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    4    1    9
    1         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
    1         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
    1            400      0.01       0.1       0.1
```

```
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    4              0         0
    1              0         0
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    4              0         0
    1              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin  1***
PERLND   8                      0.217     COPY   501     12
PERLND   8                      0.217     COPY   501     13
IMPLND   4                      0.143     COPY   501     15
IMPLND   1                      0.032     COPY   501     15

******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    0.8            PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    0.8            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     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       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


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

Disclaimer

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