Western Washington Hydrology Model
PROJECT REPORT

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Project Name: redev oil
Site Address:
City :
Report Date : 11/25/2009
Gage : Seatac
Data Start : 1948/10/01
Data End : 1998/09/30
Precip Scale: 1.00
WWHM3 Version:

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PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

| Pervious Land Use | Acres |
|---|---|
| C, Forest, Mod | 1.2 |

| Impervious Land Use | Acres |
|---|---|

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Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|

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Name : Basin 1
Bypass: No

GroundWater: No

| Pervious Land Use | Acres |
|---|---|

| Impervious Land Use | Acres |
|---|---|
| PARKING MOD | 1.2 |

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Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|

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MITIGATED LAND USE

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ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

| Return Period | Flow(cfs) |
|---|---|
| 2 year | 0.030688 |
| 5 year | 0.047862 |
| 10 year | 0.057209 |
| 25 year | 0.066732 |
| 50 year | 0.072396 |
| 100 year | 0.077055 |

Flow Frequency Return Periods for Mitigated. POC #1

| Return Period | Flow(cfs) |
|---|---|
| 2 year | 0.325675 |
| 5 year | 0.396034 |
| 10 year | 0.442458 |
| 25 year | 0.50131 |
| 50 year | 0.545455 |
| 100 year | 0.589963 |

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Yearly Peaks for Predeveloped and Mitigated. POC #1

| Year | Predeveloped | Mitigated |
|---|---|---|
| 1950 | 0.036 | 0.326 |
| 1951 | 0.069 | 0.489 |
| 1952 | 0.076 | 0.307 |
| 1953 | 0.023 | 0.277 |
| 1954 | 0.018 | 0.264 |
| 1955 | 0.026 | 0.307 |
| 1956 | 0.046 | 0.311 |
| 1957 | 0.040 | 0.319 |
| 1958 | 0.030 | 0.351 |
| 1959 | 0.033 | 0.328 |
| 1960 | 0.027 | 0.252 |
| 1961 | 0.047 | 0.300 |
| 1962 | 0.027 | 0.281 |
| 1963 | 0.016 | 0.293 |
| 1964 | 0.022 | 0.288 |
| 1965 | 0.027 | 0.304 |
| 1966 | 0.020 | 0.284 |
| 1967 | 0.021 | 0.277 |
| 1968 | 0.047 | 0.428 |
| 1969 | 0.028 | 0.495 |
| 1970 | 0.027 | 0.247 |
| 1971 | 0.022 | 0.282 |
| 1972 | 0.020 | 0.280 |
| 1973 | 0.056 | 0.387 |
| 1974 | 0.025 | 0.242 |
| 1975 | 0.026 | 0.325 |
| 1976 | 0.040 | 0.384 |
| 1977 | 0.025 | 0.253 |
| 1978 | 0.002 | 0.324 |
| 1979 | 0.022 | 0.473 |
| 1980 | 0.013 | 0.478 |
| 1981 | 0.037 | 0.363 |
| 1982 | 0.019 | 0.376 |
| 1983 | 0.037 | 0.500 |

| | | |
|---|---|---|
| 1984 | 0.033 | 0.388 |
| 1985 | 0.021 | 0.308 |
| 1986 | 0.012 | 0.269 |
| 1987 | 0.058 | 0.325 |
| 1988 | 0.049 | 0.507 |
| 1989 | 0.018 | 0.259 |
| 1990 | 0.011 | 0.365 |
| 1991 | 0.080 | 0.506 |
| 1992 | 0.070 | 0.474 |
| 1993 | 0.023 | 0.297 |
| 1994 | 0.026 | 0.235 |
| 1995 | 0.006 | 0.248 |
| 1996 | 0.037 | 0.301 |
| 1997 | 0.072 | 0.332 |
| 1998 | 0.066 | 0.333 |
| 1999 | 0.013 | 0.406 |

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Ranked Yearly Peaks for Predeveloped and Mitigated. POC #1

| Rank | Predeveloped | Mitigated |
|---|---|---|
| 1 | 0.0798 | 0.5067 |
| 2 | 0.0758 | 0.5057 |
| 3 | 0.0715 | 0.5002 |
| 4 | 0.0697 | 0.4945 |
| 5 | 0.0688 | 0.4892 |
| 6 | 0.0657 | 0.4781 |
| 7 | 0.0583 | 0.4737 |
| 8 | 0.0562 | 0.4729 |
| 9 | 0.0493 | 0.4276 |
| 10 | 0.0473 | 0.4057 |
| 11 | 0.0465 | 0.3885 |
| 12 | 0.0465 | 0.3875 |
| 13 | 0.0404 | 0.3841 |
| 14 | 0.0398 | 0.3757 |
| 15 | 0.0369 | 0.3646 |
| 16 | 0.0365 | 0.3633 |
| 17 | 0.0365 | 0.3507 |
| 18 | 0.0356 | 0.3329 |
| 19 | 0.0335 | 0.3321 |
| 20 | 0.0327 | 0.3284 |
| 21 | 0.0300 | 0.3255 |
| 22 | 0.0275 | 0.3255 |
| 23 | 0.0274 | 0.3248 |
| 24 | 0.0272 | 0.3237 |
| 25 | 0.0270 | 0.3187 |
| 26 | 0.0270 | 0.3105 |
| 27 | 0.0264 | 0.3082 |
| 28 | 0.0264 | 0.3073 |
| 29 | 0.0257 | 0.3070 |
| 30 | 0.0249 | 0.3043 |
| 31 | 0.0245 | 0.3009 |
| 32 | 0.0235 | 0.2998 |
| 33 | 0.0230 | 0.2966 |
| 34 | 0.0217 | 0.2934 |
| 35 | 0.0216 | 0.2877 |
| 36 | 0.0215 | 0.2839 |
| 37 | 0.0213 | 0.2818 |

| | | |
|---|---|---|
| 38 | 0.0207 | 0.2808 |
| 39 | 0.0201 | 0.2797 |
| 40 | 0.0196 | 0.2769 |
| 41 | 0.0193 | 0.2769 |
| 42 | 0.0180 | 0.2685 |
| 43 | 0.0179 | 0.2638 |
| 44 | 0.0160 | 0.2586 |
| 45 | 0.0133 | 0.2526 |
| 46 | 0.0126 | 0.2521 |
| 47 | 0.0115 | 0.2475 |
| 48 | 0.0113 | 0.2473 |
| 49 | 0.0065 | 0.2416 |
| 50 | 0.0025 | 0.2354 |

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POC #1
The Facility PASSED

Facility FAILED duration standard for 1+ flows.

| Flow(CFS) | Predev | Dev | Percentage | Pass/Fail |
|---|---|---|---|---|
| 0.0153 | 0 | 1102 | n/a | Fail |
| 0.0159 | 0 | 1018 | n/a | Fail |
| 0.0165 | 0 | 939 | n/a | Fail |
| 0.0171 | 0 | 868 | n/a | Fail |
| 0.0176 | 0 | 803 | n/a | Fail |
| 0.0182 | 0 | 726 | n/a | Fail |
| 0.0188 | 0 | 666 | n/a | Fail |
| 0.0194 | 0 | 629 | n/a | Fail |
| 0.0200 | 0 | 581 | n/a | Fail |
| 0.0205 | 0 | 541 | n/a | Fail |
| 0.0211 | 0 | 495 | n/a | Fail |
| 0.0217 | 0 | 458 | n/a | Fail |
| 0.0223 | 0 | 427 | n/a | Fail |
| 0.0228 | 0 | 388 | n/a | Fail |
| 0.0234 | 0 | 364 | n/a | Fail |
| 0.0240 | 0 | 338 | n/a | Fail |
| 0.0246 | 0 | 311 | n/a | Fail |
| 0.0251 | 0 | 298 | n/a | Fail |
| 0.0257 | 0 | 278 | n/a | Fail |
| 0.0263 | 0 | 256 | n/a | Fail |
| 0.0269 | 0 | 229 | n/a | Fail |
| 0.0274 | 0 | 211 | n/a | Fail |
| 0.0280 | 0 | 203 | n/a | Fail |
| 0.0286 | 0 | 190 | n/a | Fail |
| 0.0292 | 0 | 179 | n/a | Fail |
| 0.0298 | 0 | 169 | n/a | Fail |
| 0.0303 | 0 | 159 | n/a | Fail |
| 0.0309 | 0 | 146 | n/a | Fail |
| 0.0315 | 0 | 138 | n/a | Fail |
| 0.0321 | 0 | 131 | n/a | Fail |
| 0.0326 | 0 | 119 | n/a | Fail |
| 0.0332 | 0 | 111 | n/a | Fail |
| 0.0338 | 0 | 104 | n/a | Fail |
| 0.0344 | 0 | 98 | n/a | Fail |
| 0.0349 | 0 | 89 | n/a | Fail |
| 0.0355 | 0 | 86 | n/a | Fail |

| | | | | |
|---|---|---|---|---|
| 0.0361 | 0 | 78 | n/a | Fail |
| 0.0367 | 0 | 73 | n/a | Fail |
| 0.0372 | 0 | 66 | n/a | Fail |
| 0.0378 | 0 | 62 | n/a | Fail |
| 0.0384 | 0 | 61 | n/a | Fail |
| 0.0390 | 0 | 57 | n/a | Fail |
| 0.0395 | 0 | 52 | n/a | Fail |
| 0.0401 | 0 | 48 | n/a | Fail |
| 0.0407 | 0 | 46 | n/a | Fail |
| 0.0413 | 0 | 42 | n/a | Fail |
| 0.0419 | 0 | 39 | n/a | Fail |
| 0.0424 | 0 | 39 | n/a | Fail |
| 0.0430 | 0 | 38 | n/a | Fail |
| 0.0436 | 0 | 36 | n/a | Fail |
| 0.0442 | 0 | 35 | n/a | Fail |
| 0.0447 | 0 | 35 | n/a | Fail |
| 0.0453 | 0 | 34 | n/a | Fail |
| 0.0459 | 0 | 31 | n/a | Fail |
| 0.0465 | 0 | 29 | n/a | Fail |
| 0.0470 | 0 | 28 | n/a | Fail |
| 0.0476 | 0 | 26 | n/a | Fail |
| 0.0482 | 0 | 24 | n/a | Fail |
| 0.0488 | 0 | 23 | n/a | Fail |
| 0.0493 | 0 | 21 | n/a | Fail |
| 0.0499 | 0 | 20 | n/a | Fail |
| 0.0505 | 0 | 18 | n/a | Fail |
| 0.0511 | 0 | 18 | n/a | Fail |
| 0.0516 | 0 | 14 | n/a | Fail |
| 0.0522 | 0 | 14 | n/a | Fail |
| 0.0528 | 0 | 14 | n/a | Fail |
| 0.0534 | 0 | 14 | n/a | Fail |
| 0.0540 | 0 | 14 | n/a | Fail |
| 0.0545 | 0 | 14 | n/a | Fail |
| 0.0551 | 0 | 12 | n/a | Fail |
| 0.0557 | 0 | 12 | n/a | Fail |
| 0.0563 | 0 | 11 | n/a | Fail |
| 0.0568 | 0 | 10 | n/a | Fail |
| 0.0574 | 0 | 10 | n/a | Fail |
| 0.0580 | 0 | 10 | n/a | Fail |
| 0.0586 | 0 | 10 | n/a | Fail |
| 0.0591 | 0 | 10 | n/a | Fail |
| 0.0597 | 0 | 10 | n/a | Fail |
| 0.0603 | 0 | 10 | n/a | Fail |
| 0.0609 | 0 | 9 | n/a | Fail |
| 0.0614 | 0 | 9 | n/a | Fail |
| 0.0620 | 0 | 7 | n/a | Fail |
| 0.0626 | 0 | 5 | n/a | Fail |
| 0.0632 | 0 | 5 | n/a | Fail |
| 0.0638 | 0 | 5 | n/a | Fail |
| 0.0643 | 0 | 4 | n/a | Fail |
| 0.0649 | 0 | 3 | n/a | Fail |
| 0.0655 | 0 | 3 | n/a | Fail |
| 0.0661 | 0 | 2 | n/a | Fail |
| 0.0666 | 0 | 1 | n/a | Fail |
| 0.0672 | 0 | 0 | n/a | Pass |
| 0.0678 | 0 | 0 | 0 | Pass |
| 0.0684 | 0 | 0 | 0 | Pass |

| | | | | |
|---|---|---|---|---|
| 0.0689 | 0 | 0 | 0 | Pass |
| 0.0695 | 0 | 0 | 0 | Pass |
| 0.0701 | 0 | 0 | 0 | Pass |
| 0.0707 | 0 | 0 | 0 | Pass |
| 0.0712 | 0 | 0 | 0 | Pass |
| 0.0718 | 0 | 0 | 0 | Pass |
| 0.0724 | 0 | 0 | 0 | Pass |

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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.

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Water Quality BMP Flow and Volume for POC 1.
On-line facility volume: 0.1427 acre-feet
On-line facility target flow: 0.01 cfs.
Adjusted for 15 min: 0.205 cfs.
Off-line facility target flow: 0.1052 cfs.
Adjusted for 15 min: 0.1189 cfs.

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Perlnd and Implnd Changes
No changes have been made.

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