



Permanent Groundwater Dewatering

I. Flow Control for Permanent Groundwater Discharge.

If there will be any permanent groundwater discharge with a project, Flow Control Standards may be triggered at a lower threshold (see paragraph II below) and any Flow Control Standards already triggered must account for the anticipated groundwater dewatering flowrates (see paragraph IV below).

22.801.080 "G" DEFINITION

"Groundwater" means water in a saturated zone or stratum beneath the surface of land or below a surface water body. Refer to Ground Water Quality Standards, Chapter 173-200 WAC.

22.805.080 MINIMUM REQUIREMENTS FOR FLOW CONTROL

*B. Requirements. Flow control facilities shall be installed to the extent allowed by law and maintained pursuant to rules promulgated by the Director to receive flows from that portion of the site being developed. **Post-development discharge determination must include flows from dewatering activities.** All projects shall use on-site BMPs identified in Section 22.805.070.D to the maximum extent feasible to meet the minimum requirements. Flow control facilities that receive flows from less than that portion of the site being developed may be installed if the total new plus replaced impervious surface is less than 10,000 square feet, the project site uses only on-site BMPs to meet the requirement, and the on-site BMPs provides substantially equivalent environmental protection as facilities not using on-site BMPs that receive flows from all of the portion of the site being developed.*

II. Peak Flow Control Triggered by Permanent Groundwater Discharge.

Peak Flow control is required for Parcel Based Projects with 2,000 square feet or more or new plus replaced hard surface or Roadway Projects with 10,000 square feet or more or new plus replaced hard surface if there will be permanent groundwater discharge to a public drainage system or to a public combined sewer.

22.805.050 MINIMUM REQUIREMENTS FOR PARCEL-BASED PROJECTS

SMC 22.805.050.C.7

*7. Discharges from Groundwater. In addition to applicable minimum requirements for flow control in subsection 22.805.050.C.1 through subsection 22.805.050.C.6, parcel-based projects that will **permanently discharge groundwater to a public drainage system or to a public combined sewer** shall also comply with subsection 22.805.080.B.4 (**Peak Control Standard**) if the **total new plus replaced hard surface is 2,000 square feet or more.***

22.805.060 MINIMUM REQUIREMENTS FOR ROADWAY PROJECTS

SMC 22.805.060.C.7

*7. Discharges from Groundwater. In addition to applicable minimum requirements for flow control in subsection 22.805.060.C.1 through subsection 22.805.060.C.6, roadway projects that will **permanently discharge groundwater to a public drainage system or to a public combined***

sewer shall also comply with subsection 22.805.080.B.4 (Peak Control Standard) if the total new plus replaced hard surface is 10,000 square feet or more.

III. **“De Minimis” Standard Exception to Peak Flow Control Requirements for Permanent Groundwater Discharge**

SPU has determined that if the anticipated permanent groundwater amount (i.e. estimated by a licensed Geotechnical Engineer or Hydrogeologist) is less than 10% of the allowable discharge from the 4% annual probability (25-year recurrence) Peak Flow Control requirement (i.e. 0.40 cfs per acre), then groundwater discharge is considered “de minimis” (i.e. insignificant) and SMC 22.805.050.C.7 does not apply.

For example, on a 1 acre site, the 25-year allowable Peak Flow Control rate would be 0.40 cfs. If the permanent groundwater rate is less than $0.10 \times 0.40 \text{ cfs} = .04 \text{ cfs}$ (17.95 GPM) from a 1 acre site, then SMC 22.805.050.C.7 does not apply.

IV. **Applying Permanent Groundwater Discharge Rates to Flow Control Standards**

a. **Peak Flow Control Standards**

The anticipated permanent groundwater discharge rate must be deducted from the allowable release rate for the 2-year and 25-year recurrence intervals.

Example:

1 acre site with proposed groundwater dewatering rate of 20 GPM (0.05cfs)

Allowable total discharge rates (storm and groundwater discharge)

2-yr = 1 acre X 0.15 cfs/acre = 0.15 cfs

25-yr = 1 acre X 0.40 cfs/acre = 0.40 cfs

Allowable discharge rates from Flow Control BMP's (groundwater bypasses BMPs)

2-yr = 0.15 cfs - 0.05 cfs = 0.10 cfs

25-yr = 0.40 cfs – 0.05 cfs = 0.35 cfs

b. **Pre-developed Forested and Pasture Flow Control Standards**

This is typically not feasible. In addition to the Peak Flow Control deductions indicated above, the engineer must demonstrate that the post-developed stormwater runoff and groundwater dewatering durations together do not exceed the pre-developed discharge rates from 50 percent of the 2 -year up to the 2 -year for Pasture or 50 -year for Forested.

If this type of modeling is submitted, please discuss with the Drainage Review Team.