DPD

Director's Rule 14-2008

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City of Seattle Department of Planning and Development	1 of 5	N/A
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Infiltration Facilities in Peat Settlement-prone Areas	**Type of Rule:** Code Interpretation	
	Ordinance Authority: SMC 3.06.040	
Index: Environmental/Technical Requirements	**Approved** _____ **Date** (signature on file) 10/21/08 Diane M. Sugimura, Director, DPD	

PURPOSE

The purpose of this rule is to define the Department's requirements for infiltrations facilities designed to meet the requirement to offset lost infiltration function in Category I peat settlement-prone areas.

The Environmentally Critical Areas Code, Seattle Municipal Code (SMC) 25.09, regulates areas of peat-rich soils that are prone to settlement. These regulations provide additional development standards designed to prevent modification of the groundwater including requirements for new impervious surface in Category I areas.

Subsection E of SMC Section 25.09.100, "Development standards for peat settlement-prone areas" provides as follows:

> "Development in a Category I peat settlement-prone area shall not increase the total impervious surface on the site unless the Director approves using an infiltration facility or soil amendments that offset the lost infiltration function."

RULE

Infiltration facilities designed to meet the requirement to "offset the lost infiltration function" of new impervious surface in Category I peat settlement-prone areas shall be sized according to the following tables and shall meet the design specifications of the Flow Control Technical Requirements Manual. Facility sizing developed by a qualified professional using continuous hydrologic modeling methods to match predeveloped infiltration capacity per the requirements set forth in the Stormwater Manual will also be accepted.

Soil amendments shall only be allowed for projects with less than 300 square feet of new impervious surface or where infiltration facilities are infeasible due to a high groundwater table or other geotechnical constraints. Soil amendments shall be required over the entire pervious area disturbed by construction activity. Soil amendment projects shall be designed to meet the post construction soil quality and depth Best Management Practice section of the Stormwater Manual or equivalent standard.

Table 1. Sizing factors for infiltration facilities receiving runoff from impervious surfaces.

Facility Type	Facility Depth	Native Soil Design Infiltration Rate (inch/hour)	Sizing Factor [a] (% of contributing impervious area)	Design Requirements
Bioretention Cell	6 inch ponding depth	0.25 0.5 1.0	1.7% 1.1% 0.7%	• Bioretention cell bottom area shall be sized based on the sizing factor • Top area (total facility footprint) will be larger than the bottom area and can be calculated as a function of the bottom area, the side slopes and the total facility depth (e.g., ponding and freeboard depth) • Bottom area shall be flat (0 percent slope) • Side slopes within ponded area shall be no steeper than 3H (horizontal):1V (vertical) • Imported landscape bioretention soil per City of Seattle standard specification 9-14 shall be used • Bioretention soil depth shall be a minimum of 12 inches • No underdrain shall be used • Minimum ponding depth shall be 6 inches
Bioretention Cell	12 inch ponding depth	0.25 0.5 1.0	1.0% 0.6% 0.3%	• Bioretention cell bottom area shall be sized based on the sizing facto • Top area (total facility footprint) will be larger than the bottom area and can be calculated as a function of the bottom area, the side slopes and the total facility depth (e.g., ponding and freeboard depth) • Bottom area shall be flat (0 percent slope) • Side slopes within ponded area shall be no steeper than 3H (horizontal):1V (vertical) • Imported landscape bioretention soil per City of Seattle standard specification 9-14 shall be used • Bioretention soil depth shall be a minimum of 12 inches • No underdrain shall be used • Minimum ponding depth shall be 12 inches (for ponding depths between 6 and 12 inches, the sizing factor for the 6 inch depth shall be used)

Facility Type	Facility Depth	Native Soil Design Infiltration Rate (inch/hour)	Sizing Factor [a] (% of contributing impervious area)	Design Requirements
Infiltration Planter	12 inch ponding depth	0.25 0.5 1.0	2.6% 1.8% 1.3%	• Area shall be sized based on the sizing factor • Bottom area shall be flat (0 percent slope) • Side slopes shall be vertical • Imported landscape bioretention soil per City of Seattle specification 9-14 shall be used • Bioretention soil depth shall be a minimum of 2.5 feet (internal gravel trench may be used) • No underdrain shall be used • Minimum ponding depth shall be 12 inches.
Pervious Pavement Surface Not Designed to Manage Other Runoff	2 inch aggregate subbase depth	≥0.25	NA	• Pervious pavement surfaces must meet goal of no net reduction in infiltration capacity • Surface shall not receive runoff from other surfaces • Aggregate subbase depth shall be a minimum of 2 inches • Aggregate subbase shall be composed of Aggregate No. 5, or equal • Slope of the pervious pavement shall be less than 5 percent • No underdrain shall be used
Pervious Pavement as an Infiltration Facility (with Storage Reservoir and Overflow)	6 inch aggregate discharge subbase depth	0.25 0.5 1.0	7.0% 4.6% 2.8%	• Pervious pavement area shall be sized based on the sizing factor • Aggregate discharge subbase depth shall be a minimum of 6 inches • Aggregate discharge subbase shall be composed of Aggregate No. 5, or equal • Slope of the pervious pavement shall be less than 5 percent • Invert of drain pipe shall be set at top of the storage reservoir
Infiltration Trench	1.5 foot depth	0.25 0.5 1.0	4.7% 3.3% 2.2%	• Trench bottom area shall be sized based on the sizing factor • Storage reservoir depth shall be a minimum of 1.5 feet • Storage reservoir shall be composed of Aggregate No. 26, or equal • Trench bottom shall be flat (0 percent slope) • Trench side slopes shall be vertical • Invert of drain pipe shall be set at top of the storage reservoir

Facility Type	Facility Depth	Native Soil Design Infiltration Rate (inch/hour)	Sizing Factor [a] (% of contributing impervious area)	Design Requirements
Infiltration Trench	3.0 foot depth	0.25 0.5 1.0	3.5% 2.4% 1.7%	• Trench bottom area shall be sized based on the sizing factor • Storage reservoir depth shall be a minimum of 3 feet • Storage reservoir shall be composed of Aggregate No. 26, or equal • Trench bottom shall be flat (0 percent slope) • Trench side slopes shall be vertical • Invert of drain pipe shall be set at top of the storage reservoir
Drywell	4.0 foot depth	0.25 0.5 1.0	3.1% 2.1% 1.5%	• Drywell footprint area shall be sized based on the sizing factor • Storage reservoir depth shall be a minimum of 4 feet • Storage reservoir shall be composed of Aggregate No. 26, or equal • Drywell bottom area shall be flat (0 percent slope) • Drywell side slopes shall be vertical • Invert of drain pipe shall be set at top of the storage reservoir
Drywell	6.0 foot depth	0.25 0.5 1.0	2.5% 1.8% 1.2%	• Drywell footprint area shall be sized based on the sizing factor • Storage reservoir depth shall be a minimum of 6 feet • Storage reservoir shall be composed of Aggregate No. 26, or equal • Drywell bottom area shall be flat (0 percent slope) • Drywell side slopes shall be vertical • Invert of drain pipe shall be set at top of the storage reservoir

NA-not applicable
%-percent
No. –number

[a] Infiltration facility bottom area can be calculated as a function of impervious area routed to it. As an example, to replace infiltration capacity, pervious pavement as an infiltration facility would have a minimum area of 4.6% of the impervious area routed to it if the native soil design infiltration rate is 0.5 in/hr.