

LID.08A Rain Gardens

This checklist reflects most, but not necessarily all of the items that will be reviewed by the Development Review. It is intended to be used as an aid by us to provide a consistent review of development work in Thurston County. All items may not be applicable in the review of each project and all items of concern to this office may not be covered on this checklist.

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		MODELING AND SIZING
		Minimum Requirement #5 (List #1)
		For compliance with Minimum Requirement #5 (List #1), the rain garden area has a horizontally projected surface area below the overflow which is at least 5% of the total impervious surface area draining to it. If lawn/landscape area will also be draining to the rain garden area, the horizontally projected surface area below the overflow is increased by 2% of the lawn/landscape area.
		The maximum impervious drainage area routed to a rain garden does not exceed twice the area for which it is sized, or 5,000 square feet.
		No onsite stormwater management credit is given for runoff from areas beyond the design area.
		Additional runoff routed to a rain garden is clearly noted on submitted plans.
		DESIGN CRITERIA
		Setbacks and Site Constraints Note: setback distances are measured from the bottom edge of the rain garden footprint.
		All rain garden open water maximum surface elevations are at least 1 foot below the lowest floor elevation of any structures within 25 feet.
		All rain gardens are a minimum of 10 feet away from any structure or property line, unless approved by the County.
		All rain gardens are setback at least 50 feet from top of slopes steeper than 20% and greater than 10 feet high.
		All rain gardens are a minimum of 5 feet from septic tanks and distribution boxes.
		Edge of the design water surface is a minimum of 30 feet upgradient/10 feet downgradient of the drainfield primary and reserve areas. This requirement can be waived if site topography will clearly prohibit flows from intersecting the drainfield or where site conditions (soil permeability, distance between systems, etc.) indicate that this is unnecessary.
		Rain gardens are setback at least 100 feet from drinking water wells and springs used for drinking water supplies.
		Rain gardens are setback at least 300 feet from an erosion hazard or landslide hazard area.
		All rain gardens have at least 1 foot of vertical clearance from the lowest elevation of the rain garden soil (or any underlying gravel layer) to the seasonal high groundwater elevation or other impermeable layer.

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		Water supply wells are identified and protected, and possible impacts of the proposed infiltration facility on groundwater quality are assessed.
		Rain garden soil mix does not contain composted materials if the rain gardens area is located within 1/4 mile of phosphorus-sensitive waterbodies and if the underlying native soil does not meet the soil suitability criteria for treatment. (See Ecology's <i>Publication 21-10-023: Guidance on using new high performance bioretention soil mixes</i> for locating rain gardens near phosphorus-sensitive waterbodies.)
		Flow Entrance
		Flow entrance is sized to capture flow from the catchment area and designed to reduce the potential for clogging at the inlet and prevent inflow from causing erosion in the rain garden.
		Runoff is delivered to rain garden across a landscaped area, through an open swale with plants and decorative rock, or through a pipe (Rain Garden Handbook, 2013).
		If water is directed through a swale with slope greater than 2%, small rock check dams are included every 5 to 10 feet (Rain Garden Handbook, 2013).
		A pad of rock is provided where water enters the rain garden from a swale or pipe to slow the water and guard against erosion (Rain Garden Handbook, 2013).
		Ponding Area
		The ponding depth is 6 to 12 inches.
		The freeboard (measured from the invert of the overflow pipe or earthen channel to facility overtopping elevation) is at least 6 inches.
		If berming is used, the slope on berm is not greater than 3H:1V, and the width of the berm is at least 1 foot.
		Soil used for berming is imported rain garden soil or amended native soil and compacted to a minimum of 90% dry density.
		Bottom Area and Side Slopes
		The planted side slope is not greater than 3H:1V.
		Overflow
		An overflow route is identified for stormwater flows that overtop the rain garden area. The overflow route flows to the downstream conveyance system or other acceptable discharge point (e.g., open space, roadside swale, or storm drain) without posing a health or safety risk or causing property damage. Overflow is not directed towards adjacent properties or structures.
		A rock-lined overflow is provided.
		If there is a berm, the overflow cuts through the berm in a depression that slopes out from the ponding area.
		The overflow rock extends about 4 feet outside the rain garden to slow water as it exits.
		Rain Garden Soil

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		The treatment soil is 12-24 inches deep (Rain Garden Handbook for Western Washington, 2013).															
		Compost Requirements															
		Compost does not include biosolids or manure.															
		Meets the definition of “composted material” in WAC 173-350-100 and complies with testing parameters and other standards in WAC 173-350-220.															
		Composed of yard debris, crop residues, or bulking agents originated with a minimum of 65% by volume.															
		Composed of postconsumer food waste originated with a maximum of 35% by volume.															
		Water content: no visible free water or dust is produced when handling the material.															
		Tested in accordance with the U.S. Composting Council “Test Method for the Examination of Compost and Composting” (TMECC).															
		Meets the size gradations established in the U.S. Composting Council’s Seal of Testing Assurance (STA) program: <table border="1"> <thead> <tr> <th></th><th>Min.</th><th>Max.</th></tr> </thead> <tbody> <tr> <td>Percent passing 2"</td><td>100</td><td></td></tr> <tr> <td>Percent passing 1"</td><td>99</td><td>100</td></tr> <tr> <td>Percent passing 0.625"</td><td>90</td><td>100</td></tr> <tr> <td>Percent passing 0.25"</td><td>75</td><td>100</td></tr> </tbody> </table>		Min.	Max.	Percent passing 2"	100		Percent passing 1"	99	100	Percent passing 0.625"	90	100	Percent passing 0.25"	75	100
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		pH is between 6.0 and 8.5															
		“Physical contaminants” (as defined in WAC 173-350-100) content is less than 1% by weight (TMECC 03.08-A) total, and does not exceed 0.25% film plastic by dry weight.															
		Minimum organic matter content is 40% by dry weight basis (TMECC 04.10-A).															
		Soluble salt contents are less than 4.0 dS/m (mmhos/cm) (TMECC 04.10-A).															
		Maturity indicators from a cucumber bioassay shall be greater than 80% (TMECC 04.10-A) for both emergence and vigor.															
		Stability is 7 mg CO ₂ -C/g OM/day or less (TMECC 05.08-B).															
		Carbon to nitrogen ratio is than 25:1 (TMECC 05.02A “Carbon to Nitrogen Ratio” which uses TMECC 04.01). A ratio of up to 35:1 may be allowed when only Puget Sound lowland native species are planted, and a ratio of up to 40:1 may be allowed for coarse compost to be used as a surface mulch.															
		Rain Garden Soil Mix															
		Compost meets compost requirements above.															
		OPTION #1. Excavate and Replace Soil: Excavate the soil and completely replace with imported rain garden soil mix; or OPTION #2. Excavate and Amend Soil for Reuse: Excavate the soil, amend it by mixing in compost, then put it back into the rain garden; or															

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		OPTION #3. Amend Soil in Place: Amend your existing soil in place by mixing in compost after you've excavated to the proper depth (Rain Garden Handbook for Western Washington).
		If the applicant chooses Option #1, rain garden soil is 60% screened sand and 40% compost by volume, or meets the bioretention soil mix specification (Rain Garden Handbook for Western Washington, 2013).
		If the applicant chooses Option #2, amended soil is approximately 65% excavated soil and 35% compost by volume. Before adding amended soil, the excavated area is scarified. (Rain Garden Handbook for Western Washington, 2013).
		If the applicant chooses Option #3, 3 inches of compost and till are spread over the excavation to a depth of 4 to 5 inches (Rain Garden Handbook for Western Washington, 2013).
		Planting
		The design plans specify that vegetation coverage of selected plants will achieve 80% coverage within 2 years or additional plantings will be provided until this coverage requirement is met.
		Plant spacing and plant size is designed to achieve specified coverage.
		Plants are sited according to sun, soil, wind, and moisture requirements.
		Provisions are made for supplemental irrigation for at least the first two growing seasons following installation.
		Plants are chosen in accordance with the Rain Garden Handbook for Western Washington.
		Mulch Layer
		The mulch layer is a maximum of 3 inches thick (Rain Garden Handbook for Western Washington, 2013).
		Compost is provided in the bottom of the rain garden area, and wood chip mulch is used on the rain garden cell slopes above the ponding elevation and rim area.
		Wood chip mulch is composed of shredded or chipped hardwood or softwood (Rain Garden Handbook for Western Washington, 2013).
		Mulch is not composed of grass clippings, pure bark, or beauty bark. (Rain Garden Handbook for Western Washington, 2013)
		Mulch layer is free of weed seeds, soil, roots, and other material that is not trunk or branch wood and bark (Rain Garden Handbook for Western Washington, 2013).
		CONSTRUCTION CRITERIA
		Construction SWPPP BMPs and protection techniques are implemented as applicable. The upslope areas of construction areas are stabilized and overland flow distances are minimized.
		The rain garden area is clearly identified (e.g., using flagging or high visibility fencing) and protected prior to construction.
		Machinery is operated outside of rain garden area during construction. If machinery is operated in the rain garden area for excavation, lightweight,

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		low ground-contact pressure equipment is utilized and the base soil is scarified to a minimum of 12 inches at completion.
		Rain garden area excavated to final grade only after all disturbed areas in the upgradient project drainage area have been permanently stabilized. If rain garden areas must be excavated before permanent site stabilization, initial excavation is conducted to no less than 6 inches of the final elevation of the facility floor.)
		No excavation of rain garden areas during wet or saturated conditions.
		No placement of native soil, rain garden soil, or amended soil during wet or saturated conditions.
		Infiltration and interflow pathways are maintained in an unobstructed state during construction and post-construction.
		Clogging and over compaction of the subgrade, native soil, rain garden soils, or amended soils is prevented during construction.
		Area is inspected for compaction prior to planting. If compaction occurred during construction, the native soil, rain garden soil, or amended soil was aerated prior to planting.
		INSPECTION CRITERIA
		The rain garden meets applicable design and construction criteria (see Design and Construction Criteria above).