



Single Family Residential Stormwater Management Plan

RAIN GARDEN (INFILTRATION)

Definition:

A rain garden is an excavated pit filled with a filter bed of planting media (mixture of soil, sand and organic matter) that provides temporary storage and treatment of runoff from rooftops and driveways. Rain gardens allow for infiltration of that runoff over a 48 hour period.

Constraints:

- Rain gardens should not be used in areas where their operation may create a risk for basement flooding, interfere with septic sewage disposal systems, or cause downslope seepage problems
- Rain gardens may not be used in HSG D or if the infiltration rate of the soil is less than 0.27 inches per hour
- Drainage area to each rain garden shall not exceed 2,000 square feet

Design Guidance:

- Rain gardens must be installed in accordance with the attached detail
- Rain gardens must be installed on the contour
- Rain gardens must not intercept water table or bedrock
- Rain gardens shall be located at least 30 feet from water supply wells and 25 feet from septic systems
- Rain gardens shall be set back at least 50 feet from fill slopes of 25% or steeper
- Soils will be evaluated during excavation by ASCD representative to evaluate soil suitability assumed in original design which may alter type of practice to be constructed

Installation:

- The bottom of the rain garden excavation should be level and scarified prior to backfilling
- Collection pipes from downspouts shall be 4"-6" PVC installed at min. slope of 1%
- Rain gardens shall not be constructed until the contributing drainage area is stabilized
- Inflow points must be protected from erosion and flow distributed evenly throughout the surface of the rain garden
- Planting media and mulch must conform to Table 1 specifications

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- Plantings should include a diverse mixture of species – see Table 2 for commonly used species
- Herbaceous species plantings to have 2 ft. spacing - shrubs shall be spaced according to nursery recommendations
- Overflow from larger storm events must have a stable outfall which does not cause downstream flooding issues

Construction Inspections:

A minimum of three (3) inspections must be made during construction as follows:

- During excavation to subgrade.
- During placement of backfill and appurtenant piping, including downspout conveyance.
- Upon completion of final grading and stabilization

Failure to provide for inspection by Allegany Soil Conservation District, Maryland Registered Professional Engineer or adequate photographs to verify all construction details shall be cause to withhold issuance of Occupancy Permit. If occupancy is requested during a season that is not favorable for planting, a bond in the amount of \$1,000 may be required to ensure completion in the next planting season.

Maintenance:

After installation, rain gardens and associated conveyances will be delineated on the site sketch with an easement. The sketch and this Stormwater Management Plan must be attached to the executed Operation & Maintenance Agreement, which must be recorded in the land records of Allegany County prior to issuance of Occupancy Permit. The rain garden is subject to maintenance inspection by Allegany County on a periodic basis.

If water ponds for more than 48 hours or more than 1" of sediment has accumulated, the top few inches of filter media shall be excavated and replaced. Mulch should be replaced once every two years.

Occasional pruning and replacement of dead vegetation is necessary. If specific plants are not surviving, more appropriate species should be used. Watering may be required during prolonged dry periods.

Table 1: Construction Specifications for Rain gardens*

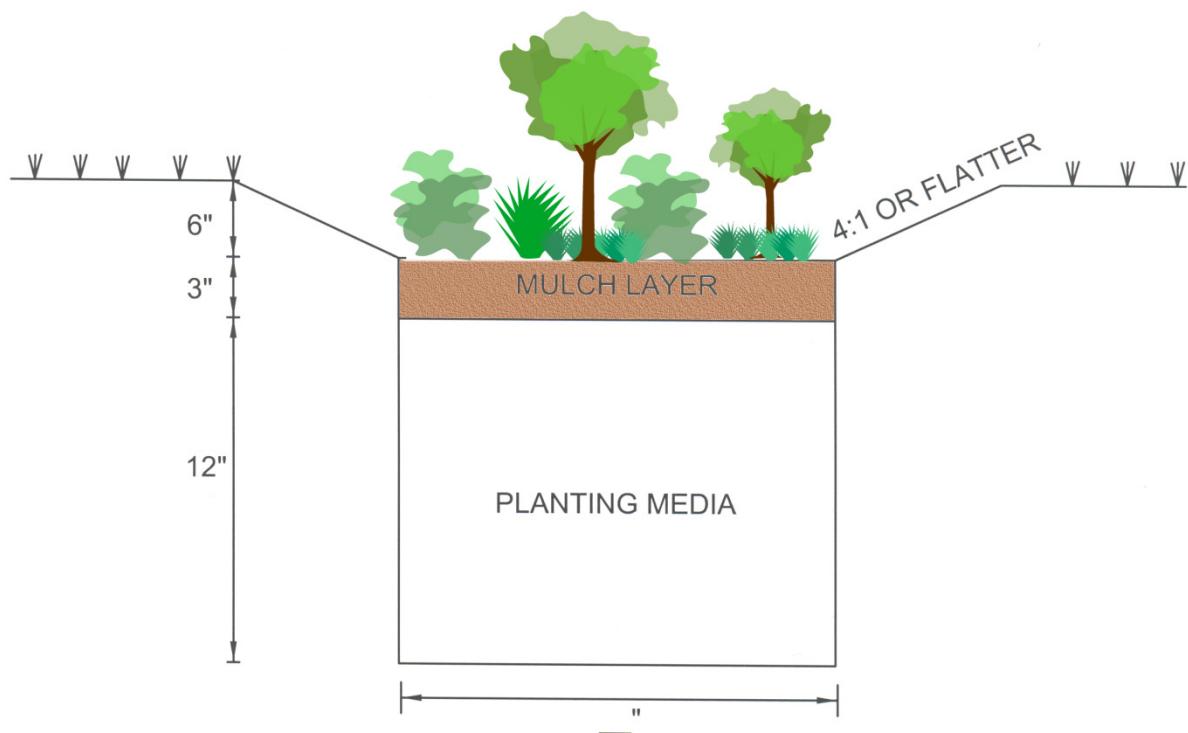
Material	Specification	Size	Notes
Planting Soil	Loamy sand (60-65%) & compost (35-40%) OR sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Mulch	Shredded hardwood		Aged 6 months, min. no pine or wood chips

Table 2: Commonly Used Species for Rain Gardens*

Herbaceous Species	Shrubs
<i>Andropogon virginicus</i> Broomsedge	<i>Aesculus parviflora</i> Bottlebrush Buckeye
<i>Eupatorium perpurea</i> Joe Pye Weed	<i>Cephalanthus occidentalis</i> Buttonbush
<i>Scirpus pungens</i> Three Square Bulrush	<i>Hamamelis virginiana</i> Witch Hazel
<i>Iris versicolor</i> Blue Flag	<i>Vaccinium corymbosum</i> Highbush Blueberry
<i>Lobelia cardinalis</i> Cardinal Flower	<i>Ilex glabra</i> Inkberry
<i>Panicum virgatum</i> Switchgrass	<i>Ilex verticillata</i> Winterberry
<i>Dichanthelium scoparium</i> Broom Panic Grass	<i>Viburnum dentatum</i> Arrowwood
<i>Rudbeckia laciniata</i> Tall Coneflower	<i>Lindera benzoin</i> Spicebush
<i>Scirpus cyperinus</i> Woolgrass	<i>Myrica pensylvanica</i> Bayberry
<i>Veronica noveboracensis</i> New York Ironweed	
<i>Rudbeckia hirta</i> Black-eyed Susan	

*Source: 2000 Maryland Stormwater Design Manual, Appendix A and Appendix B.4

CROSS SECTION RAIN GARDEN (INFILTRATION)



L = ____
W = ____
SURFACE AREA = ____
NUMBER OF PLANTS = ____

N.T.S.