

Bioretention Systems

Description

Bioretention systems are composed of depressions or enclosures filled with infiltration media (soil matrix with a porous structure) and vegetation (trees, shrubs, and/or grasses) that collect and hold stormwater to infiltrate into the ground, thereby removing contaminants and reducing the volume of runoff. Bioretention systems also treat surface runoff before it's discharged to a storm drain. Rain gardens, bioswales, vegetated swales, and bioretention basins all work in a similar manner. In general, the size of the bioswales will be approximately five to 10 percent the size of the impervious area draining to it.

Advantages

- Simple and cost effective
- Captures and treats stormwater through natural processes
- Reduces regional flooding and reduces impacts from hydromodification
- Provides groundwater recharge
- Creates a habitat for birds, amphibians, dragonflies, butterflies, and bees
- Can provide shade, wind breaks, noise reduction, reduction in heat island affects, wildlife and pollinator habitat, and beautification

Limitations

- Not effective at treating large drainage areas
- Not suitable in areas with contaminated groundwater, high groundwater levels, and/or slope stability issues
- Can require frequent upkeep and maintenance

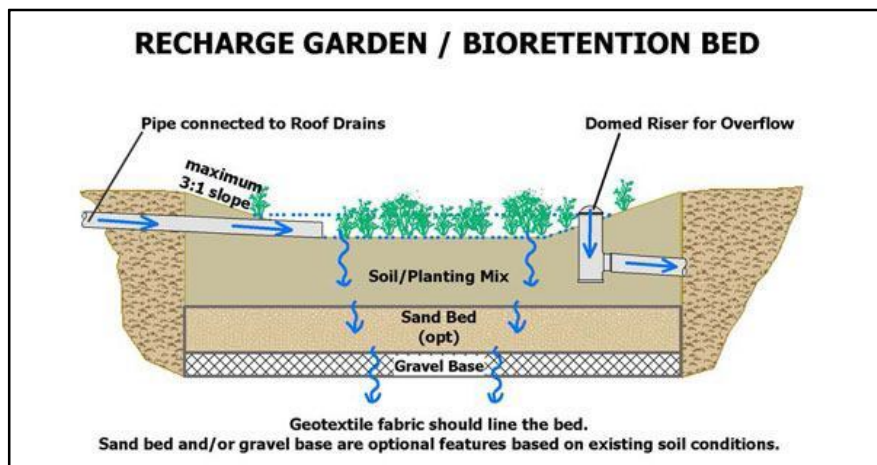
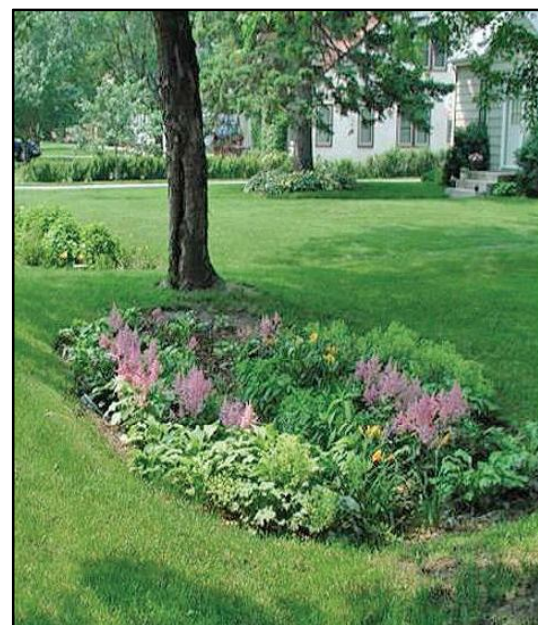


Illustration of typical rain garden bed

Photo Credit: Temple.edu



Typical Rain Garden

Photo Credit: www.mda.state.mn.us