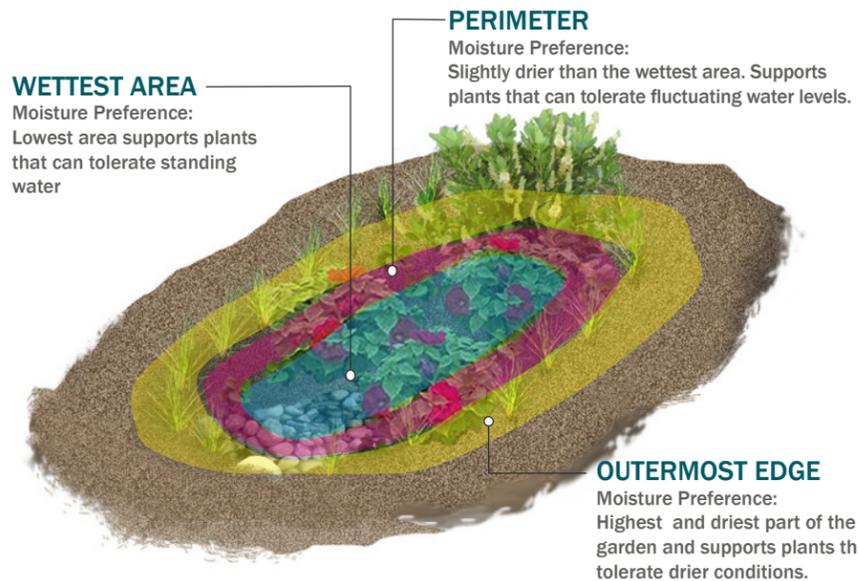
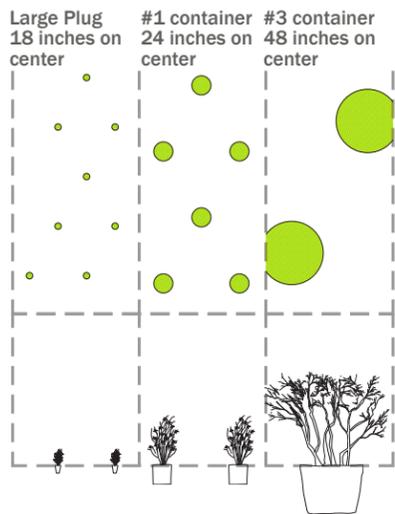


# Getting the most bang for your buck: Fast Growing & Wide Spreading Plants

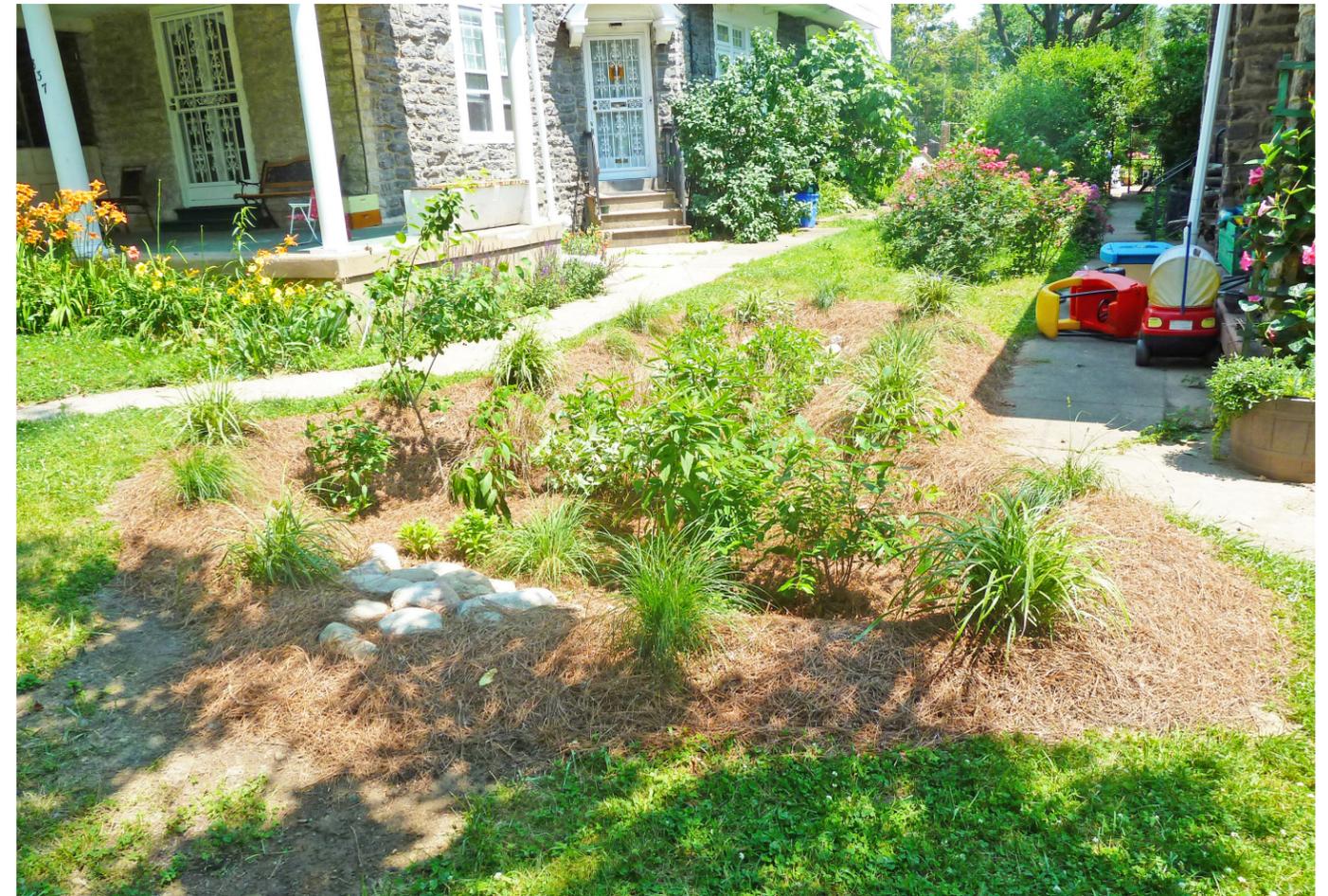
There are many plants that make for successful rain gardens. The plants listed below have been selected because they can be planted at lower densities and grow quickly, resulting in a rain garden that is lush and full while using fewer plants.

Scientific Name	Common Name	Moisture Preference	Sun/Shade Preference	Height	Width	Recommended Plug Plant Spacing	Planting Area in Rain Garden
<b>Herbaceous Perennials:</b>							
<i>Acorus americanus</i>	Sweetflag	Moist to Wet	Sun	2-3'	12"	12"	Wettest Area
<i>Hibiscus moscheutos</i>	Swamp Mallow	Moist to Wet	Sun	3-6'	24"	24"	Wettest Area
<i>Iris versicolor</i>	Blue Flag Iris	Moist to Wet	Sun to Partial Shade	2-3'	36"	12"	Wettest Area
<i>Lobelia cardinalis</i>	Cardinal Flower	Moist to Wet	Sun to Partial Shade	2-4'	24"	12"	Wettest Area
<i>Mimulus ringens</i>	Monkey Flower	Moist to Wet	Sun to Partial Shade	1-3'	18"	12"	Wettest Area
<i>Vernonia noveboracensis</i>	New York Ironweed	Moist to Wet	Sun	4-6'	36"	18"	Wettest Area
<i>Eupatorium dubium</i> 'Little Joe'	Dwarf Joe Pye Weed	Moist to Wet	Sun	3-4'	24"	24"	Wettest Area
<i>Helenium</i> sp.	Sneezeweed	Moist to Wet	Sun	18-40"	18"	18"	Perimeter
<i>Aster novae-angliae</i>	New England Aster	Moist to Dry	Sun	1-2'	30"	12"	Perimeter
<i>Helianthus</i> sp.	Sunflower	Average to Dry	Sun	4-6'	30"	24"	Outermost Edge
<i>Vernonia glauca</i>	Upland Ironweed	Average to Dry	Sun	3-5'	36"	12"	Outermost Edge
<i>Amsonia hubrichtii</i>	Thread-leaf Blue Star	Average to Dry	Sun to Partial Shade	2-3'	30"	18"	Outermost Edge
<i>Eragrostis spectabilis</i>	Purple Love Grass	Average to Dry	Sun	24"	30"	12"	Outermost Edge
<i>Echinacea purpurea</i>	Purple Coneflower	Average to Dry	Sun to Partial Shade	2-3'	18"-24"	12"	Outermost Edge
<b>Shrubs:</b>							
<i>Aronia melanocarpa</i>	Black Chokeberry	Moist to Wet	Sun to Partial Shade	4'-10'	3'-6'		Wettest Area
<i>Viburnum dentatum</i>	Arrowwood Viburnum	Moist to Wet	Sun to Shade	5'-10'	5'-10'		Wettest Area
<i>Rhododendron viscosum</i>	Swamp Azalea	Moist to Wet	Sun to Partial Shade	4'-8'	4'-8'		Wettest Area
<i>Ilex verticillata</i> 'Red Sprite'	Dwarf Winterberry Holly	Moist to Wet	Sun to Partial Shade	2'-3'	2'		Wettest Area
<i>Ilex glabra</i>	Inkberry Holly	Average	Sun to Shade	5'-8'	5'-8'		Perimeter
<i>Cornus sericea</i>	Redosier Dogwood	Average	Sun	4'-8'	4'-8'		Perimeter
<i>Clethra alnifolia</i>	Summersweet Pepperbush	Average	Sun to Shade	4'-6'	5'-8'		Perimeter
<i>Itea virginica</i>	Virginia Sweetspire	Average	Sun to Shade	4'-8'	4'-8'		Perimeter
<i>Viburnum trilobum</i>	American Cranberry	Average to Dry	Partial Shade to Shade	4'-8'	4'-8'		Outermost Edge
<i>Ceanothus americanus</i>	New Jersey Tea	Average to Dry	Sun to Partial Shade	3'	3'-5'		Outermost Edge
<i>Rhus aromatica</i> 'Gro Low'	Dwarf Aromatic Sumac	Average to Dry	Sun	2'-4'	3'-8'		Outermost Edge
<b>Trees:</b>							
<i>Betula nigra</i>	River Birch	Moist to Wet		30'-60'	15'-40'		Wettest Area
<i>Quercus bicolor</i>	Swamp Oak	Moist to Wet		40'-80'	30'-60'		Wettest Area
<i>Platanus occidentalis</i>	Sycamore	Moist to Wet		40'-80'	30'-80'		Wettest Area
<i>Taxodium distichum</i>	Bald Cypress	Moist to Wet		40'-80'	20'-30'		Wettest Area
<i>Acer rubrum</i>	Red Maple	Average		30'-60'	30'-60'		Perimeter
<i>Amelanchier</i> sp.	Serviceberry	Average		15'-25'	20'-30'		Perimeter
<i>Chionanthus virginicus</i>	Fringtree	Average		15-30'	15-30'		Perimeter
<i>Halesia carolina</i>	Carolina Silverbell	Average to Dry		15-25'	15-25'		Outermost Edge
<i>Rhus typhina</i>	Staghorn Sumac	Average to Dry		15'-30'	15'-30'		Outermost Edge

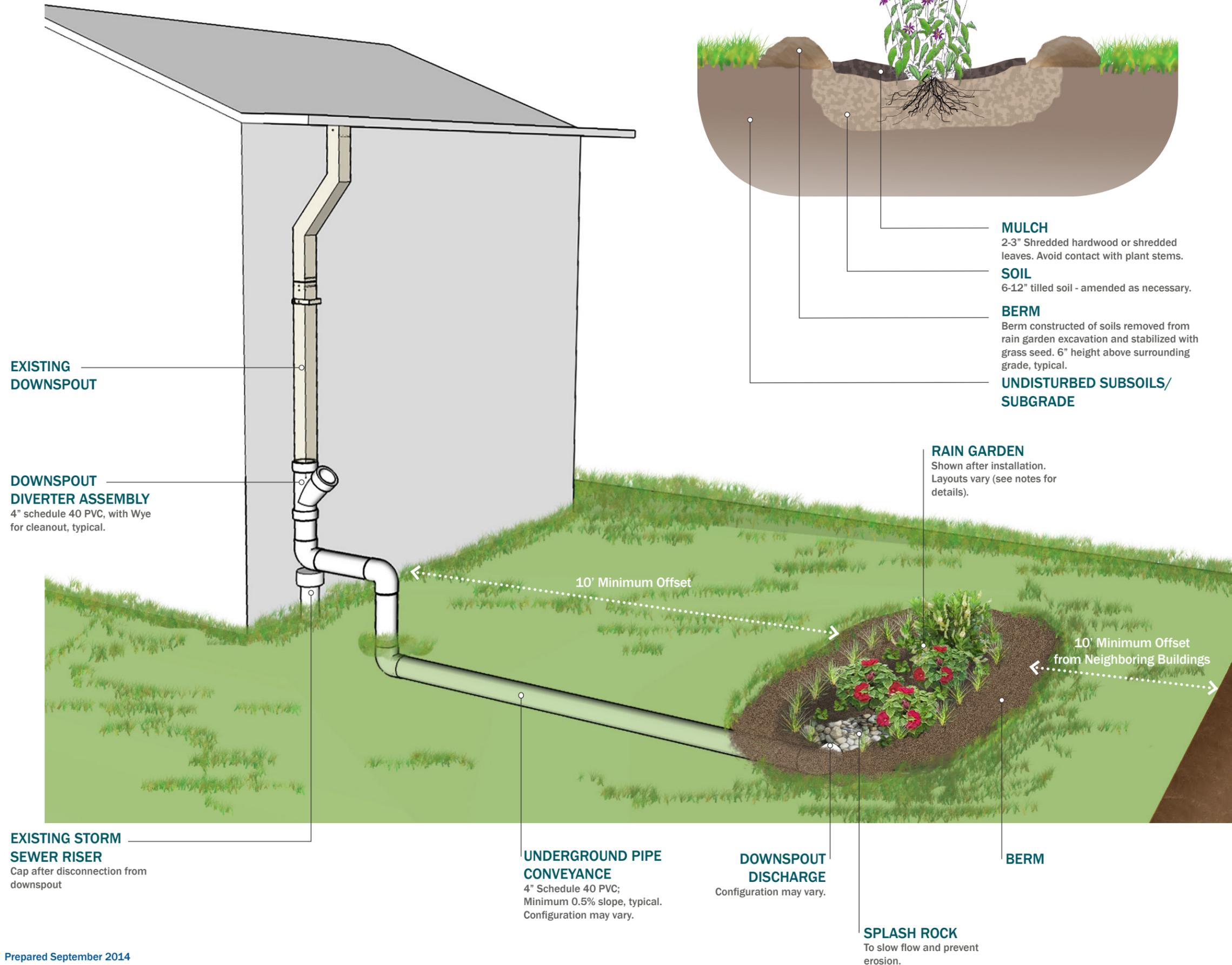
## PLANT SPACING LAYOUT Spacing for fast growing & wide spreading plants



# Residential Rain Garden Design Guidelines



# Typical Residential Rain Garden



**EXISTING DOWNSPOUT**

**DOWNSPOUT DIVERTER ASSEMBLY**  
4" schedule 40 PVC, with Wye for cleanout, typical.

**EXISTING STORM SEWER RISER**  
Cap after disconnection from downspout

**UNDERGROUND PIPE CONVEYANCE**  
4" Schedule 40 PVC;  
Minimum 0.5% slope, typical.  
Configuration may vary.

**DOWNSPOUT DISCHARGE**  
Configuration may vary.

**SPLASH ROCK**  
To slow flow and prevent erosion.

**BERM**

**MULCH**  
2-3" Shredded hardwood or shredded leaves. Avoid contact with plant stems.

**SOIL**  
6-12" tilled soil - amended as necessary.

**BERM**  
Berm constructed of soils removed from rain garden excavation and stabilized with grass seed. 6" height above surrounding grade, typical.

**UNDISTURBED SUBSOILS/SUBGRADE**

**RAIN GARDEN**  
Shown after installation.  
Layouts vary (see notes for details).

## Siting Requirements

- 1. The rain garden should be 10 feet from all basements or sub-surface structures.
- 2. The rain garden should not be near a septic field.
- 3. There should be a suitable spot for overflow from the rain garden that will not impact any nearby structures or properties (e.g. downslope pervious surface, area drain).
- 4. The infiltration rate should be adequate to safely infiltrate runoff (typically between 0.5 in/hr and 6 in/hr).
- 5. The rain garden cannot be within a drip line of a tree.
- 6. Rain garden must manage stormwater from existing downspout that would otherwise run into sewer.

## Installation Requirements

- 1. Garden meets sizing requirements as specified in design.  
The rain garden must be between 20% and 30% the size of the total roof area draining to garden and 6-12 inches deep.
- 2. Water conveyance to rain garden cannot create trip or ice hazard.
- 3. Plants meet coverage requirements specified in the Plant Spacing Diagram.
- 4. Splash rock greater than 4 inches in diameter must be installed in the rain garden at the downspout discharge to dissipate flow and avoid erosion. Splash rock must be placed so as to slow the flow of water conveyed to the rain garden while not impeding it.
- 5. Berms should be created on the perimeter of the rain garden at 1.5:1 horizontal to vertical. Berms may be constructed of soils removed from the rain garden excavation.

For additional guidance please refer to Philadelphia Water Department's Rain Check Website

[http://www.phillywatersheds.org/whats\\_in\\_it\\_for\\_you/residents/how-build-rain-garden](http://www.phillywatersheds.org/whats_in_it_for_you/residents/how-build-rain-garden)