What Is A Rain Garden?

A Rain Garden is a constructed depression in permeable soil that captures runoff from hard surfaces such as roof tops, driveways and parking lots. Rain Gardens are designed to reduce the amount of stormwater flow and to absorb pollutants in stormwater runoff. The vegetation in Rain Gardens also provides food and shelter for butterflies, song birds and other wildlife.

Types of Rain Gardens

A Rain Garden can be a simple vegetated depression for collecting rain water or a complex system of amended soils and infiltration media with underdrains and plumbed outlets. The more complex systems are often referred to as bioretention or bioinfiltration cells, and bioswales if elongated into channels. All are designed to slow, infiltrate and remove pollutants from runoff.

Benefits of Rain Gardens

Rain garden benefits include pollution control, flooding protection, habitat creation and water conservation. They help recharge groundwater, improve water quality, reduce mosquito breeding, reduce flooding potential, provide beneficial habitat for insects and wildlife, reduce lawn care and lawn chemical needs, provide better drainage around homes and buildings, and enhance the beauty of properties.

Rain Garden Costs

Small and simple Rain Gardens can be done by individual homeowners. Larger and more complex systems require more complex designs and construction methods. A simple Rain Garden can cost around $2 to $4 per square foot, while larger complex systems for commercial and institutional applications can cost $10 to $40 per square foot. In either case, cost factors to consider are:

- *Area and depth of excavation.*
- *Use of on-site soils and rock.*
- *Street curb cuts and flow channels.*
- *Constructed inlets and outlets.*
- *Mixed media, under-drains.*
- *Use of volunteer labor.*
- *Use of donated materials and funds.*
- *Use of professional design firms.*
- *Amount of hired labor needed.*
- *Specialized equipment needed.*
- *Compliance with local codes.*
- *Availability and types of plantings.*

As a general Rule-of-Thumb:

Do-It-Yourself: $100 - $2,000

Professionally Installed Basic Design: $1,500 - $3,000+

Large, complex Commercial, Industrial or Institutional: $4,000 - $15,000+

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EPA

Green Country Stormwater Alliance
Give Clean Water a Helping Hand

GCSA
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Rain Gardens

How To Make Your Project a Success

For More Information on LID or GCSA

Contact INCOG at (918) 584-7526 or email at stormwater@incog.org

A Closer Look at

Rain Gardens

Rain Garden Designs

Rain gardens work in many climates, but they are most effective in areas with natural groundwater hydrology, especially areas with deep soils that absorb water rather than in rocky areas of higher runoff potential. For Do-It-Yourself designs, an internet search will provide a wealth of technical information and great suggestions on design and construction. Some factors to consider are:

- *Blend into your other landscaping.*
- *Know all runoff flow patterns.*
- *Locate for best effectiveness.*
- *Size according to expected runoff.*
- *Use appropriate filtration media.*
- *Use native plants.*
- *Design for ease of maintenance.*
- *Follow all local codes and permits.*
- *Try several smaller rain gardens.*
- *Free is best: consult local organizations, schools and agencies.*
- *Document your project.*
- *Review credentials and experience of professional services.*
- *Be Proud! Promote your project.*

Rain Garden Limitations

As with all stormwater "Best Management Practices" (**BMPs**), Rain Gardens do have limitations. Their effectiveness is limited to their functional size, drainage area, design constraints, and how they are maintained. The following factors are important when assessing Rain Garden limitations:

- *Effectiveness of design.*
- *Ratio of rain garden size to size of drainage area treated.*
- *Type of infiltration media used.*
- *Types and health of plants used.*
- *Percolation rate of soils.*
- *Types of pollutants in watershed.*
- *Chemical removal efficiency of rain garden soils and mixed media.*
- *Flow patterns within rain garden.*
- *Maintenance adequacy.*
- *Effectiveness of under-drains.*

Rain Gardens should not be located near potable water wells or septic tank fields. They are also difficult to locate in tight urban areas with little soil. Rain Gardens with no under-drain plumbing are better at pollutant removal.

Rain Garden Maintenance

In addition to maintaining structural integrity, Rain Gardens must be inspected for vandalism, trash, drain blockage, car damage, illegal dumping, and to ensure proper drainage for vector control.

Local Codes and Permits

Construction projects must comply with all local codes and permits, including those for utility locations, construction, earth change, floodplain, subdivision regulations, zoning codes, comprehensive plans, homeowners association requirements, covenant restrictions, stormwater permit limitations on discharges to the MS4, and nuisance abatement. Contact your municipal planning office for all requirements.

This brochure is not intended to provide complete guidance on Rain Garden materials, design, costs or construction. It is intended for general information purposes only.