Appendix C - Sustainable Development Toolbox

Sample Stormwater Best Management Practices

This Toolbox contains detailed descriptions of stormwater Best Management Practices (BMPs) and their application in various development scenarios.

On the page preceding the descriptions of the individual BMPs, there are two tables categorizing the BMPs. The first table identifies the most suitable scale or scales and associated land use/land cover for which each of the BMPs are most appropriate. The second table indicates potential effectiveness of each of the BMPs in achieving a number of watershed objectives. The BMPs also have been classified into three categories: planning/zoning, stormwater, and landscaping BMPs.

Planning/Zoning related practices serve as the first step to achieving quality watershed management after policies for watershed protection have been established. Planning should occur first at the broadest scale to identify areas to be protected. Zoning can then be used to implement the land use plan. Zoning provides a means to either prevent development in sensitive areas or control the types and designs of developments and the treatment of the landscape within them. Floodplain and open space zoning are good examples. Planning at the site scale is used to avoid sensitive areas and develop a site plan that respects the natural lay of the land, thereby minimizing negative stormwater and other impacts and the need for structural stormwater management measures.

Stormwater BMPs are stormwater management measures used to minimize onsite and offsite hydrologic and water quality impacts due to runoff by attempting to incorporate and reestablish natural hydrologic processes into the built environment. These measures can be designed and implemented in new developments as well as retrofit into existing development in cost efficient ways. Stormwater BMPs have the capability to significantly improve the quality of stormwater runoff as well as quality of life. The practices discussed here include Bioswales, Filter Strips/Level Spreader, Green Roofs, Naturalized Detention, Porous Pavement, Rain Barrels/Cisterns, Rainwater Gardens, and Vegetated Swales.

Landscaping, as a BMP, stands alone in its own category due to the importance of vegetation in biodiversity, aesthetics, habitat, cooling of ambient air, and stormwater management. Native landscapes, including native prairies and wetlands benefit stormwater management through the infiltration and cleansing of runoff. Properly designed landscapes that incorporate native vegetation and hydrologically and ecologically appropriate plants can facilitate a high quality of stormwater management.

Each BMP is discussed on the following pages beginning with its definition, and continuing with its range of applicability, associated benefits, and finally some potential design considerations. A more detailed description of these specific discussion categories follows.

Definition - a brief description of the BMP relative to stormwater management.

Applicability - Where and how each BMP is most applicable is addressed in three aspects - scale, applicable situations, and effectiveness:

Scale

Watershed/County: Applied at a regional scale such as watershed or county.
Town/Village: Applied at municipal or other scale with common zoning authority.
Neighborhood: Applied at development or other sub-municipal scale.
Lot: Applied within individual residential lot or commercial parcel.

Applicable Situations

Retrofit: Applied to existing developed areas, infill, and redevelopment.
New: Applied to new development.
Roofs: Applied on roofs or used to treat roof runoff.
Streets: Applied on or used to treat runoff from public/private streets and roads.
Driveways: Applied on or used to treat runoff from driveways.
Parking Lots: Applied on or used to treat runoff from parking lots.
Lawns: Applied on or used to treat runoff from exiting open lawns that are generally planted with turfs, such as parks, campuses, individual yards, etc.
Sensitive Areas: Applied on ecologically sensitive areas such as remnant habitats, flood-plains, wetlands, steep slopes, and highly erodible soils.

Effectiveness

Runoff Rate Control: Practices that control or reduce runoff rates.
Runoff Volume Control: Practices that can control or reduce runoff volumes.
Physical Habitat Preservation/Creation: Practices that can preserve, introduce, or provide wildlife habitats.
Sediment Pollution Control: Practices that can remove suspended solids from runoff.
Nutrient Control: Practices that have the ability to reduce or remove nutrients such as nitrogen and phosphorus from runoff.
BOD Control: Practices that can remove constituents that exert a Biological Oxygen Demand in runoff.
Other Pollutant Control: Practices that can reduce and remove other pollutants such as heavy metals and petroleum based hydrocarbons.

Benefits - Other positive effects that the individual or system of practices perform. Benefits can be specific to stormwater management or be more general to various functions and values for the quality of life.

Design Considerations - Design recommendations and suggestions that should be considered when implementing the specific BMP. Drawings are not illustrated for construction, but rather as a general guidance on the components of the practice.

Watershed Stormwater Management Applicability

Tools	Scale				Applications							
	Watershed/ County	Town/ Village	Neighbor-hood	Lot	Retrofit	New	Roofs	Streets	Drive-ways	Parking Lots	Lawns	Sensitive Areas
Planning/Zoning												
Conservation Development	X	X	X			X		X	X	X	X	X
Open Space/Natural Greenway	X	X	X		X	X						X
Stormwater BMPs												
Bioswales			X	X	X	X		X		X		
Filter Strips/Level Spreaders			X	X	X	X			X	X	X	X
Green Roofs				X	X	X	X					
Naturalized Detention	X	X	X		X	X	X	X	X	X	X	X
Porous Pavement			X	X	X	X		X	X	X		
Rain Barrels/Cisterns				X	X	X	X					
Rainwater Gardens				X	X	X	X		X		X	
Vegetated Swales			X	X	X	X	X	X	X	X	X	
Landscaping												
Native Landscaping			X	X	X	X	X	X	X	X	X	X

"X" = practices that are applicable to corresponding scale and applications

Watershed Stormwater Management Effectiveness

Tools	Effectiveness						
	Runoff Rate Control	Runoff Volume Control	Physical Habitat Preservation/ Creation	Sediment Pollution Control	Nutrient Control	BOD Control	Other Pollutant Control
Planning/Zoning							
Conservation Development	H	H	H	H	H	H	H
Open Space/Natural Greenway	-	-	H	-	-	-	-
Stormwater BMPs							
Bioswale	H	H	-	H	H	H	H
Filter Strips/Level Spreader	M	M	-	H	H	H	H
Green Roof	H	H	-	-	-	-	-
Naturalized Detention	H	-	M	H	H	H	H
Porous Pavement	H	H	-	H	M	M	H
Rain Barrels/Cistern	-	M	-	-	-	-	-
Rainwater Garden	M	M	-	-	-	-	-
Vegetated Swale	M	M	-	M	M	M	M
Landscaping							
Native Landscaping	-	M	M	M	M	M	M

"H" = High effectiveness; "M" = Moderate effectiveness; "–" = Not Applicable

conservation development

residential conservation development
(Prairie Crossing, IL)

Definition

- Site planning and design approach that preserves existing natural areas and utilizes naturalized drainage and detention measures for stormwater management.

Applicability

➢ Scale	☒	Watershed/ County	☒	Town/Village	☒	Neighborhood	☐	Lot
➢ Applications	☐	Retrofit	☒	New				
	☐	Roofs	☒	Streets	☒	Driveways		
	☒	Parking Lots	☒	Lawn	☒	Sensitive Areas		
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☒	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control		

Benefits

- Preserves significant natural features and open space.
- Minimizes changes in runoff volumes, rates, and water quality typically associated with urban development.
- Improves views and site aesthetics, while at the same time providing site drainage and water quality functions.

Design Considerations

- Onsite natural areas should be identified and preserved.
- Existing natural drainageways should be incorporated into site plan.
- Roadway should generally follow ridge lines.
- Impervious runoff should be routed through naturalized drainage systems integrated into the site plan.
- Use of native vegetation adapted to expected hydrologic conditions will improve runoff reduction and water quality benefits
- Naturalized drainage systems should be protected from construction site runoff during establishment.

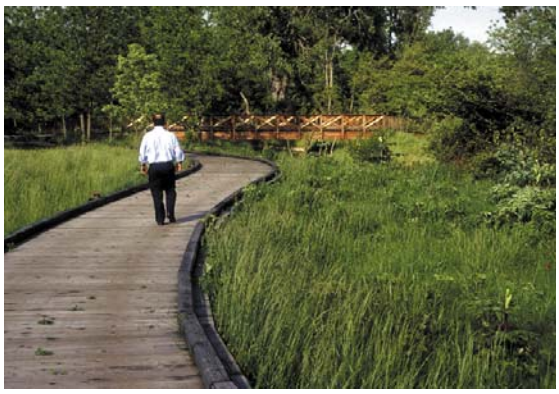
conservation moderate density residential site plan
(Conservation Design Forum)

Planning / Zoning

open space / natural greenway

Definition

- Designation of linear open space and/or natural areas as greenways to preserve significant natural features, create ecologically functioning networks, and to accommodate aesthetic, recreational, and/or transportation uses.



open space greenways can provide recreational as well as habitat and water quality benefits

Applicability

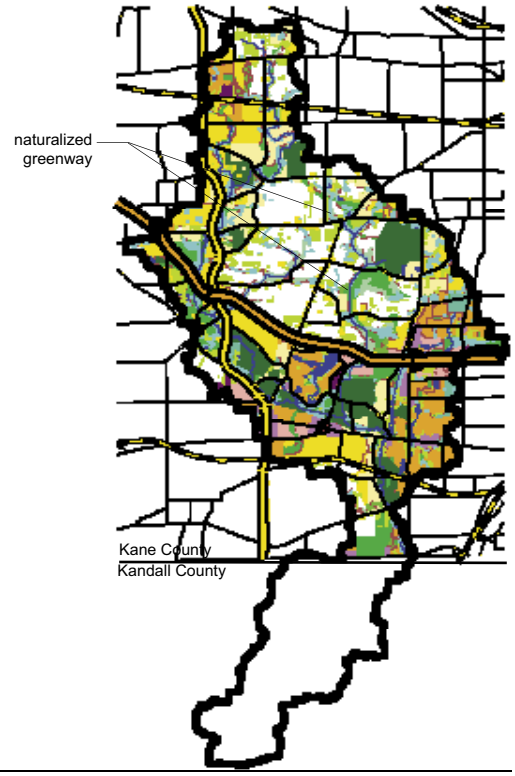
➢ Scale	☒	Watershed/ County	☒	Town/Village	☒	Neighborhood	☐	Lot
➢ Applications	☒	Retrofit	☒	New				
	☐	Roofs	☐	Streets	☐	Driveways		
	☐	Parking Lots	☐	Lawn	☒	Sensitive Areas		
➢ Effectiveness	☐	Runoff Rate Control	☐	Runoff Volume Control	☒	Physical Habitat Preservation/ Creation	☐	Sediment Pollution Control
	☐	Nutrient Control	☐	BOD Control	☐	Other Pollutant Control		

Benefits

- Preserves large contiguous natural areas and resources.
- Provides opportunity for wildlife movement and habitat within an ecological network.
- Provides alternative and connected passive recreation and transportation opportunities.

Design Considerations

- A natural resources inventory should be completed to identify significant natural features and functioning ecological networks.
- Significant cultural features should also be integrated into the network.
- Buffer requirements, open space/floodplain zoning, conservation easements, and conservation design should be used together to implement greenway networks.



a natural greenway system connects key natural features in the Blackberry Creek Watershed area (Conservation Design Forum)

bioswale

bioswale in a parking lot (Tellabs, Napeville, IL) (Conservation Design Forum)

Definition

- Vegetated swale system with an infiltration trench designed to retain and temporarily store stormwater. Bioswales are planted with native grasses and forbs that enhance filtration, cooling, and cleansing of water in order to improve water quality and prevent sealing of subsoils.

Applicability

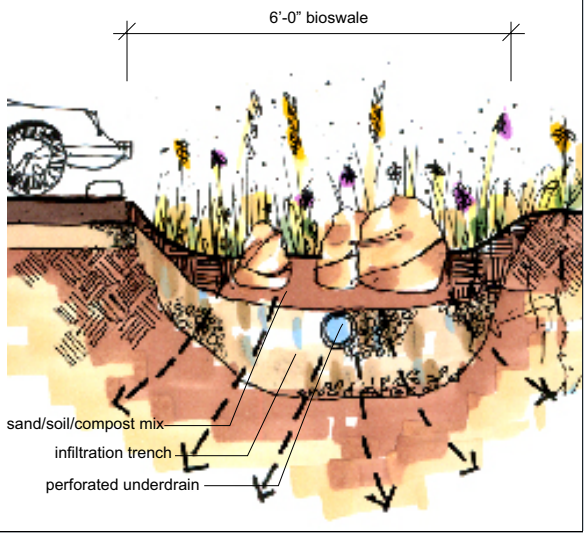
Scale	☐ Watershed/ County	☐ Town/Village	☒ Neighborhood	☒ Lot	
Applications	☒ Retrofit	☒ New			
	☐ Roofs	☒ Streets	☐ Driveways		
	☒ Parking Lots	☐ Lawn	☐ Sensitive Areas		
Effectiveness	☒ Runoff Rate Control	☒ Runoff Volume Control	☐ Physical Habitat Preservation/ Creation	☒ Sediment Pollution Control	
	☒ Nutrient Control	☒ BOD Control	☒ Other Pollutant Control		

Benefits

- Reduces impervious runoff volumes and rates.
- Recharges groundwater and sustains base flows.
- Reduces sediment and nutrient runoff.
- Can reduce detention needs.

Design Considerations

- Bioswales must be sized and designed to account for drainage area and soils.
- Filtration benefits can be improved by planting native deep-rooted vegetation.
- Infiltration storage should be designed to drain in 24 hours to prevent sealing of subsoils.
- Topsoil should be amended with compost and/or sand to improve organic content for filtering and to achieve adequate infiltration rates.
- Bioswales should be protected from construction site runoff to prevent sealing of topsoil and/or subsoils.
- Direct entry of stormwater runoff into infiltration trench should be prevented to protect groundwater quality and to prevent sealing of subsoils.
- Underdrain should be sufficiently low in the trench to provide adequate drainage of aggregate base of adjacent paved areas but sufficiently high to provide infiltration storage.



cross section of bioswale (Conservation Design Forum)

filter strip/ level spreader

Coffee Creek Center level spreader installation (Chesterton, IN) (Conservation Design Forum)

Definition

- A filter strip is an area with dense, preferably native vegetative cover used to filter and absorb runoff from impervious areas. A level spreader is a trench laid on the contour to distribute runoff over filter strip areas.

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒	Lot
➢ Applications	☒	Retrofit	☒	New				
	☐	Roofs	☐	Streets	☒	Driveways		
	☒	Parking Lots	☒	Lawn	☒	Sensitive Areas		
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control		

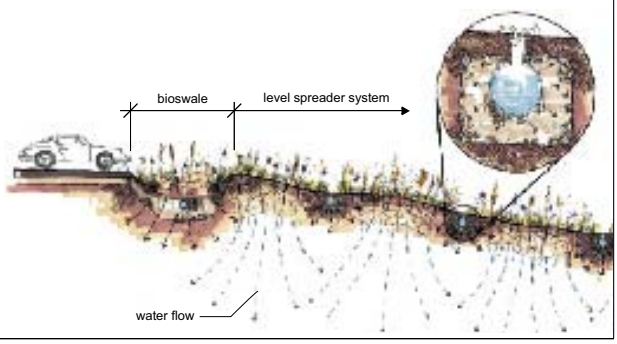
Benefits

- Reduces runoff volumes and rates by allowing runoff to infiltrate over a large area.
- Recharges groundwater and sustains base flows.
- Reduces sediment and nutrient runoff.
- Deconcentrate storm sewer and detention basin discharges to dissipate energy, reduce scour, and better mimic historic runoff patterns to receiving waterbody.
- Can reduce detention needs.

filter strips/level spreader

Design Considerations

- Filter strips/level spreaders must be sized and designed to account for drainage area, slope and soils. Chronic hydraulic overloading of filter strips may cause erosion.
- Filtration benefits can be improved by planting native deep-rooted vegetation and by minimizing the slope.
- Infiltration storage within the level spreader trench should be designed to drain in 24 hours to prevent sealing of subsoils.
- Compaction of filter strips should be avoided and/or topsoil should be amended with leaf compost and coarse sand to improve filtration, infiltration and plant establishment.
- Runoff should be diverted away from filter strips during construction until vegetation is established.



cross section of level spreader (Conservation Design Forum)

green roof

green roof (Chicago City Hall, IL) (Conservation Design Forum)

Definition

- Vegetated roof system designed to retain and slow rainwater runoff on the top of roofs. Green roofs are generally planted with drought and wind tolerant vegetation.

Applicability

➢ Scale	☐ Watershed/ County	☐ Town/Village	☐ Neighborhood	☒ Lot	
➢ Applications	☒ Retrofit	☒ New			
	☒ Roofs	☐ Streets	☐ Driveways		
	☐ Parking Lots	☐ Lawn	☐ Non-Buildable		
➢ Effectiveness	☒ Runoff Rate Control	☒ Runoff Volume Control	☐ Physical Habitat Preservation/ Creation	☐ Sediment Pollution Control	
	☐ Nutrient Control	☐ BOD Control	☐ Other Pollutant Control		

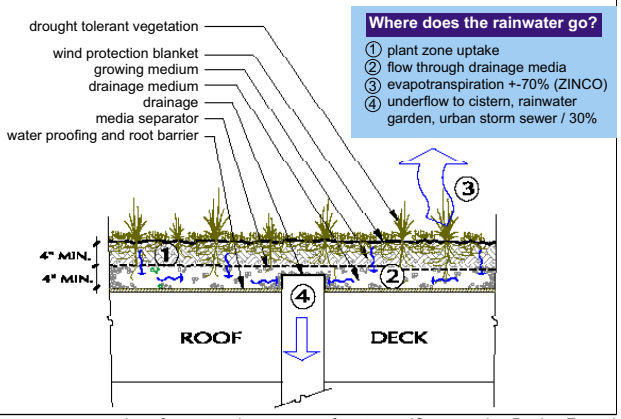
Benefits

- Significantly reduces runoff volumes and rates as well as thermal impacts (50 - 90% reduction in annual runoff).
- Can reduce detention needs.
- Contributes to reduction in urban heat island effect.
- Can reduce energy requirements associated with heating and cooling.
- Creates opportunities for outdoor space as roof top gardens.

greenroof can be applied on various roofs and scales (Germany)

Design Considerations

- Structural load capacity of existing roof system must be evaluated.
- Plant material, such as succulents, that are drought tolerant, should be used on lightweight "extensive" green roof systems.
- A wider range of vegetation may be used on heavier, "intensive" green roof systems with deeper growing medium.
- Use of a granule drainage layer will improve retention and detention benefits relative to drain boards.



cross section of an extensive green roof systems (Conservation Design Forum)

naturalized detention

naturalized wetland detention on Tellabs industrial campus (Bolingbrook, IL) (Conservation Design Forum)

Definition

- Naturalized detention basins are used to temporarily store runoff and release it at a rate allowed by ordinances. Native wetland and prairie vegetation improves water quality and habitat benefits. Naturalized detention may also be used as a retrofit to achieve water quality benefits.

Applicability

➢ Scale	☒	Watershed/ County	☒	Town/Village	☒	Neighborhood	☐	Lot
➢ Applications	☒	Retrofit	☒	New				
	☒	Roofs	☒	Streets	☒	Driveways		
	☒	Parking Lots	☒	Lawn	☒	Sensitive Areas		
➢ Effectiveness	☒	Runoff Rate Control	☐	Runoff Volume Control	☒	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control		

Benefits

- Reduces runoff rates.
- Recognized by virtually all stormwater agencies as approved method of controlling stormwater runoff.
- Very effective at removing sediment and associated pollutants.
- Provides attractive site amenity when properly designed and not used as sole BMP on sites with high pollutant/ nutrient runoff.

Design Considerations

- Should be sized to control release to allowable rate.
- Size should reflect use of upstream BMPs.
- Water level fluctuations should be limited to 3-4 feet (during 100-year storm) to maximize plant diversity.
- Shallow water entry angles will minimize shoreline erosion, improve water quality benefits, increase aquatic habitat and plant diversity and provide safety ledge.
- May be used as retrofit along stream corridors to prevent direct discharge of stormwater runoff.

a well designed naturalized wet detention provides extra open space and resting place

porous pavement

porous pavement driveway

Definition

- Permeable or perforated paving materials or pavers with spaces that allow transmission of water to aggregate base and subsoils. Runoff is temporarily stored in the base for infiltration into the subsoils and/or slow release to storm drain system.

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒	Lot	
➢ Applications	☒	Retrofit	☒	New					
	☐	Roofs	☒	Streets	☒	Driveways			
	☒	Parking Lots	☐	Lawn	☐	Sensitive Areas			
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control	
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control			

Benefits

- Reduces runoff volumes and rates.
- Recharges groundwater and sustains base flow.
- Filters sediments and associated pollutants from runoff.
- Can reduce detention needs.

porous pavement allows infiltration through the paving material

Design Considerations

- Base and subbase materials should be coarse aggregate with no fines to allow adequate drainage and prevent frost heave.
- Subgrade should be graded at minimum 1% slope to allow drainage when water entry rate exceeds infiltration capacity of subsoils.
- Subsoils should be compacted to the minimum level necessary to achieve structural stability.
- Geotextiles should be used between base and subgrade to improve structural stability and separate base from subgrade.
- Underdrains should be placed at edge of pavement to provide drainage as necessary to prevent ponding in the base for periods greater than 24 hours.

porous pavement in parking lot

rain barrel/ cistern

rain barrels in back yard (Conservation Design Forum)

Definition

- A vessel used to capture and temporarily store rainwater for various uses, including greywater reuse and irrigation.

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☐	Neighborhood	☒	Lot
➢ Applications	☒	Retrofit	☒	New				
	☒	Roofs	☐	Streets	☐	Driveways		
	☐	Parking Lots	☐	Lawn	☐	Sensitive Areas		
➢ Effectiveness	☐	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☐	Sediment Pollution Control
	☐	Nutrient Control	☐	BOD Control	☐	Other Pollutant Control		

Benefits

- Reduces runoff volumes.
- Conserves water for reuse.
- Provides irrigation water during watering restrictions.

Design Considerations

- At the residential scales, rain barrels located at downspouts will typically be used.
- One inch of rainfall over 1,000 square feet of roof area is equivalent to 625 gallons of rainwater.
- Rain barrels can be used in combination with rainwater gardens, green roofs and other stormwater BMPs to increase stormwater benefits.
- Larger cisterns in some settings may be used to provide greywater for use in toilet flushing and other non-portable uses.

a cistern system collects rainwater from Chicago Center for Green Technology (Chicago, IL) (Photo: Conservation Design Forum)

rainwater garden

Definition

- A landscaped garden designed to retain and detain stormwtaer runoff from individual lots and roofs.

rainwater garden planted with vegetation that attracts butterflies (Maplewood, MN)

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☐	Neighborhood	☒	Lot	
➢ Applications	☒	Retrofit	☒	New					
	☒	Roofs	☐	Streets	☒	Driveways			
	☐	Parking Lots	☒	Lawn	☐	Sensitive Areas			
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☐	Sediment Pollution Control	
	☐	Nutrient Control	☐	BOD Control	☐	Other Pollutant Control			

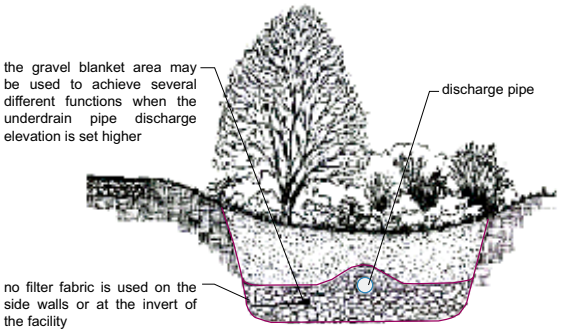
Benefits

- Reduces runoff volumes and rates from lawns, roofs, and driveways.
- Recharges groundwater and sustains base flows.
- Reduces sediment and nutrient runoff.
- Can reduce detention needs.
- Can increase aesthetic value for the properties.
- Can provide wildlife habitat.

roof down spout connects to rainwater garden (Glen Ellen, IL)

Design Considerations

- Rainwater gardens must be sized and designed based on drainage area, soils, and desired runoff volume reduction.
- Filtration and nutrient control benefits can be improved by planting native vegetation.
- The soils in the top 18″ to 24″ should be amended with leaf compost and coarse sand to enhance organic content and improve permeability.
- Where subsoil infiltration rates are low (less than 0.5 to 1.0 in/hr), a gravel trench with underdrain should be used to encourage drainage between events.
- Maximum ponding depths should generally be limited to 6″ to 12″ unless underdrains are used.



rainwater garden cross section (Low Impact Development Center)

vegetated swale

Definition

- Vegetated swales are planted stormwater features that convey, retain, infiltrate, and cleanse stormwater.

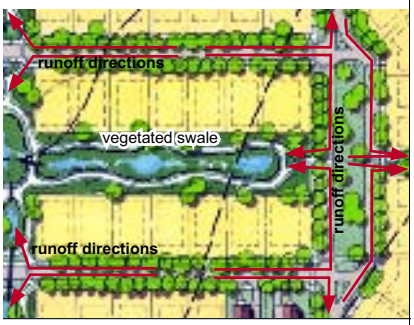
vegetated swales planted with native grasses and forbs along the street

Applicability

➢ Scale	☐	Watershed/ County	☐	Town/Village	☒	Neighborhood	☒	Lot	
➢ Applications	☒	Retrofit	☒	New					
	☒	Roofs	☒	Streets	☒	Driveways			
	☒	Parking Lots	☒	Lawn	☐	Sensitive Areas			
➢ Effectiveness	☒	Runoff Rate Control	☒	Runoff Volume Control	☐	Physical Habitat Preservation/ Creation	☒	Sediment Pollution Control	
	☒	Nutrient Control	☒	BOD Control	☒	Other Pollutant Control			

Benefits

- Reduces runoff volumes and rates.
- Provides conveyance and water quality benefits in one stormwater feature.
- Reduces sediment and nutrient runoff.
- With proper design, can reduce detention needs.



schematic plan of back yard vegetated swale system (Conservation Design Forum)

Design Considerations

- Vegetated swales must be sized to convey design runoff rate (typically 10-year storm).
- Filtration benefits can be substantially improved by planting native deep-rooted grasses and forbs and by minimizing the slope.
- Topsoil may be amended with compost and/or coarse sand to improve organic content for filtering and to improve infiltration and retention of runoff.
- Vegetated swales should be protected from construction site runoff to prevent sealing of topsoil and/or subsoils.

back yard vegetated swales

native landscaping

prairie planted in residential development area (Mill Creek, IL)

Definition

- Establishment of native vegetation in either large restoration projects or smaller gardening projects. Native landscaping is often a component of other BMPs such as detention, filter strips, bioswales, and rainwater gardens.

Applicability

Scale	☐ Watershed/ County	☐ Town/Village	☒ Neighborhood	☒ Lot	
Applications	☒ Retrofit	☒ New			
	☒ Roofs	☒ Streets	☒ Driveways		
	☒ Parking Lots	☒ Lawn	☒ Sensitive Areas		
Effectiveness	☐ Runoff Rate Control	☒ Runoff Volume Control	☒ Physical Habitat Preservation/ Creation	☒ Sediment Pollution Control	
	☒ Nutrient Control	☒ BOD Control	☒ Other Pollutant Control		

Benefits

- Reduces runoff volumes.
- Increases infiltration rates.
- Increases ability to remove nutrients.
- Increases organic content of soils.
- Increases permeability of compacted soils.
- Reduces irrigation and fertilization requirements.
- Reduces use of fossil fuels and air pollution relative to turf landscapes that require regular mowing and maintenance.
- Provides wildlife habitat.

comparison of root structure between lawn and various native plants in the Illinois and Mid West Region (Conservation Research Institute)

Design Considerations

- Some local "weed" ordinances may need to be amended to allow native and taller vegetation.
- Plant diversity and health is maximized by annual burning. Plots may be mowed and then burned to prevent spread of fire on small sites. Fall burning will select for prairie wildflowers.
- On compacted soils, amendment may be necessary to increase organic content, improving success of establishment.

Blackwell Prairie (IL)

Stormwater BMPs Resources

Planning / Zoning

- Center for Watershed Protection, *Better Site Design* http://www.cwp.org/better_site_design.htm
- Northern Illinois Planning Commission (NIPC) www.nipc.cog.il.us
- Prince George's County Planning Department www.mncppc.org/pgco
- The Conservation Fundation http://www.theconservationfoundation.org/tcf/lp/
- The Countryside Program http://www.countrysideprogram.org/

Stormwater BMPs

- Center for Watershed Protection, *Stormwater Manager's Resource Center* www.stormwatercenter.net
- Kane County Department of Environmental Management, 2001, Kane County Stormwater Technical Guidance Manual. http://www.co.kane.il.us/kcstorm/manuals/Technical_FINAL.pdf
- Low Impact Development (LID) Center www.lowimpactdevelopment.org
- Maryland Stormwater Design Manual Volumes I & II, 2000. http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/stormwater_design/index.asp
- Northern Illinois Planning Commission (NIPC) www.nipc.cog.il.us
- Portland Stormwater Management Manual 2002 http://www.cleanrivers-pdx.org/tech_resources/2002_swmm.htm
- Prince George's County Planning Department http://www.pgcounty.com/Government/AgencyIndex/DER/PPD/lid.asp?h=&s=&n=50&n1=160
- Green Roof

  Greenroofs.com www.greenroofs.com

  Green Roofs for Healthy Cities www.peck.ca/grhcc

  Pennsylvania State University, Center for Green Roof Research http://hortweb.cas.psu.edu/research/greenroofcenter/
- Rainwater Garden

  RainGardens.org www.raingardens.org
- Porous Pavement

  Paveloc Ltd. www.paveloc.com

  Unilock Ltd. www.unilock.com

Landscaping

- Native Landscaping

  Chicago Wilderness http://www.chicagowilderness.org/wildchi/landscape/index.cfm

  EPA www.epa.gov/glnpo/greenacres/nativeplants