Raingardens in Clay and Shallow Bedrock

by

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Washington Conservation District
Training Programs

• MetroBlooms (Homeowners)
• Train the Trainers Programs in KC
• Stormwater U! in Twin Cities Metro Area
  – One Day workshop for Designers.
  – Half Day workshop for Landscapers.
  – Couple hour workshop about Maintenance.
  – One Day workshop for Planners.
MetroBlooms Program

- Citizen Engagement Program (MS4 Education)
- Teaching citizens how to build raingardens and rain barrels with cost-share opportunities ($10 sessions).
- A four class session
- A grass-root initiative
- However, most Important use KISS METHOD.
MetroBlooms Program

• No soil replacements but amendments for the plants only.
• Use a Percolation Test to determine depth of garden.
• More important to stress depth of garden then size of the garden.
MetroBlooms Program

- Style the Garden to the owners liking!
- Not Expensive
- Can do it yourself!
- Advertising is in utility bill, paper, and website.
Train the Trainer Programs were developed in KC

- Learned a big lesson in KC about quality control, speaking in one voice, and creating a training program.
STORMWATER U!

- Evolving to incorporate new trainings within the Twin Cities Metro Area.
STORMWATER U!

- Educating the landscapers and the nurseries.
- Explain construction techniques to make successful gardens.
STORMWATER U!

- Educating the public works staff, landscapers, natural resource staff and etc. on Maintenance.

- We started a maintenance standard form to fill out, general cost implications and timing laid out for staff or hiring outside individuals.
STORMWATER U!

- Educating the planners.
- Just finished a four month series to educate the planners that are creating the comprehensive plan updates required by the state on STORMWATER and GROUNDWATER language and the multitude of locations within the plan that they should be located.
SOILS
The Place to Start

Photograph Courtesy of Rice Creek Watershed District.
Test Pits

El Colegio Charter School, Mpls.
Be Prepared for Surprises
The Enemy of Infiltration
Compaction
Rules of Thumb on When to Use and Not Use Engineered Soils

- Depends on the space available and Amount of Water to be captured.
- Does the Native Soil have too slow an infiltration rate?
- Does the design require filtration to a specific standard?
Engineered Soils for Special Applications

Typical Mix for Native Plants:
70% Sand/30% Compost

Typical Mix for a Manicured Garden:
50% Sand/50% Compost
Peat Versus Compost

Peat
• Lasts longer in the soil
• Provides better accumulation of heavy metals and hydrocarbons.
• Acts more sponge like than compost
• Taken from nature

Compost
• Recycled
• MnDOT Spec – Grade 2
• Cheaper
The Test

12 minutes to infiltrate and 2 hours to drain completely. This will slow down over time.
PRETREATMENT
Extends Life of Basin

- Sump CB
- Grass Strip
- Grass Swale
- Wet basin
- Sediment forebay
INLET OPTIONS

Reduce Erosion and Maintenance

- Flat curbs
- Curb cuts
- CB with Sump and Pipe
- Stone Drop Structures
Curb Cut & Grass Pretreament Strip In Action

Rushmore St, Burnsville, MN
Large Curb Cut, Flume, and Sediment Forebay
Curb Cut and Rill
Sump CB with Pipe into RWG

- Pretreatment, Minimal Maintenance, Minimal Erosion Potential
Curb Cut, Grass Strip, and Stone “Stairs”

Rushmore Street, Burnsville, MN
PROVIDE HIGH FLOW BYPASS

Rushmore St, Burnsville, MN

RWG Full = Off line

System Overflow
Rain Garden
Pretreatment Chamber
Installation Guide
Pretreatment Chamber Installation Cross-Section

Top of metal grate 1 1/2” below gutter overflow elevation

26”  4”  10 1/2”

Concrete skirt

Sediment and debris carried by rainwater from the street is deposited into the pretreatment forebay
Position Chamber

- Position chamber 26” from back of curb
- Mark corners with chalk for easy repositioning
- Make sure a few inches of concrete are exposed on the filter side of chamber to act as a splash area
Backfill Chamber

- Fill space between chamber and curb with soil to prepare for curb-cut and apron installation
Install Filter & Metal Grate
Completed Project
General Maintenance

- Remove sediment and debris from the pretreatment chamber periodically to ensure optimal functionality.
- Spray filter using a garden hose to remove sediment and debris build-up.
Choosing Plants for Rain Gardens

Photograph: David Dods, URS
Native Plants – The Root of the Solution

Root Depths
Turf Grass: **Inches**
Native Grasses & Wildflowers: **Feet**

Photos: David Dods, URS
Seed versus Plant
STORMWATER U!

- Who’s next?
- House Inspectors?
Overflow to Storm Sewer
- Existing Depression
- Place riser on existing flush-mount drain
- **Mulch** (smother existing weak lawn)
- Plant
Lake Harriet Community School – mulching/planting day
Lake Harriet Community School – planting day
1 year later