



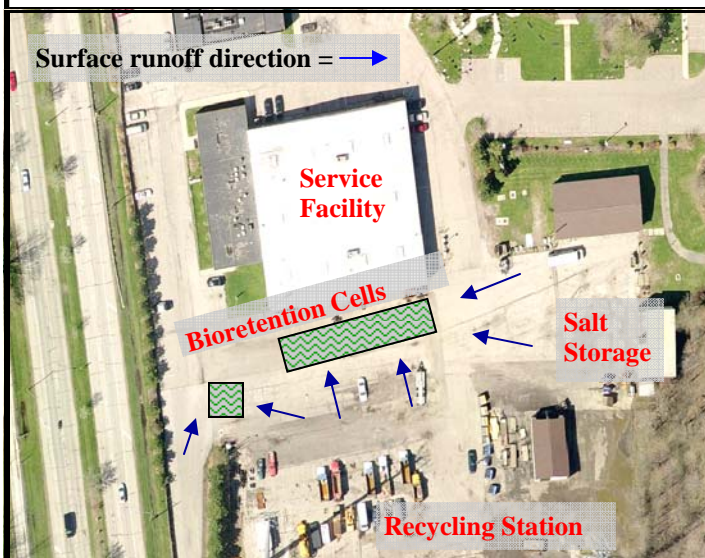
Eastlake City Service Department

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Parking Lot Stormwater Retrofit Project Service Department Facility

Demonstrating Innovative Approaches to Storm Water Management in Northeast Ohio

- In September 2011 the City of Eastlake installed 2 bioretention cells totaling 2,700 square feet within the parking lot at the Service Department to capture, filter, and treat storm water runoff before it enters the existing storm sewer system and empties into the Chagrin River.
- This project serves to demonstrate to local developers, residents and municipal & township service garages in Lake and surrounding counties that innovative stormwater retrofits can be easily incorporated into existing parking areas.
- This practice reduces the volume of runoff, which helps to reduce local flooding along the Chagrin River.



Bioretention Cells Filter/Treat Parking Lot Runoff Pollutants

- ✓ Oils, fuels, grease, antifreeze
 - ◆ Sources: vehicles, equipment
- ✓ Sediments, road grit
 - ◆ Sources: vehicles, construction, materials storage
- ✓ Metals
 - ◆ Sources: vehicles, atmospheric fallout
- ✓ Deicing agents
 - ◆ Sources: road salt & brine application

Eastlake Service Yard Bioretention Cell Construction

- Bioretention cells are landscaping features that store and treat stormwater runoff from impervious (hard) surfaces such as parking lots, roads and rooftops.
- During storms, water runoff temporarily ponds in the landscape depression and soaks into the bioretention cell's plants, mulch, sand-compost soil mix and underlying gravel layers which remove pollutants from the water as it passes through the system.
- A drainage tile within the feature collects the filtered water and drains to the storm sewer system, which eventually flows to the Chagrin River.



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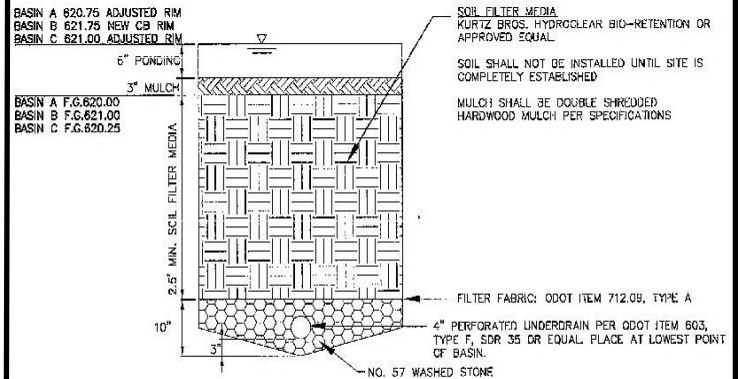
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Stormwater Retrofit - Bioretention Cell Details

- Shallow landscape depression with perforated storm sewer pipe below soil mix.
- 85% sand, 15% compost soil mix to a minimum depth of 2.5 feet
- Soil mix acts as a filter to remove pollutants.
- Plants help to transform and remove pollutants and reduce runoff through evapotranspiration.
- Bioretention cell fills to a maximum of 6" depth around catch basin before overflowing.
- Catch basins allow overflow into storm sewer during large rain events to prevent flooding.
- Pooled water filters through soil mix within 48 hours.

Bioretention Cross Section



BIORETENTION AREA TYPICAL SECTION

NOT TO SCALE

Typical Planting Scheme for Bioretention Features

- 1** New York Aster
(*Aster novi-belgii*)
Height: 4-5 feet
Blooms: Midsummer to Frost

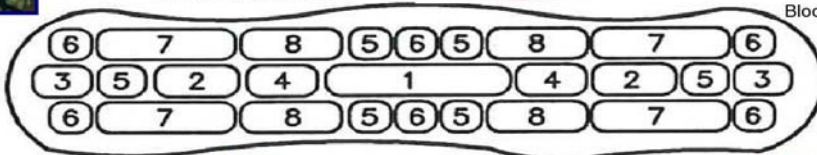


- 2** Bee Balm; Bergamont
(*Monarda fistula*)
Height: 2-3 feet
Blooms: May to Frost

- 3** Happy Returns Daylily
(*Hemerocallis 'Happy Returns'*)
Height: 1-3 feet
Blooms: Midsummer



- 4** Western Sunflower
(*Helianthus occidentalis*)
Height: 1-2 feet
Blooms: summer



- 5** May Night Salvia
(*Salvia X Suprbia 'Mainacht'*)
Height: 2 feet
Blooms: Midsummer to Frost



- 6** Stella de Oro Daylily
(*Hemerocallis 'Stella de Oro'*)
Height: 15 inches
Blooms: May to frost

- 7** Moonbeam coreopsis
(*Coreopsis verticillata 'Moonbeam'*)
Height: 12 inches
Blooms: All summer



- 8** Autumn Joy Sedum
(*Sedum x 'Autumn Joy'*)
Height: 18 inches
Blooms: Late Summer to Frost



City of
Eastlake
The Crown Jewel of Lake County



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