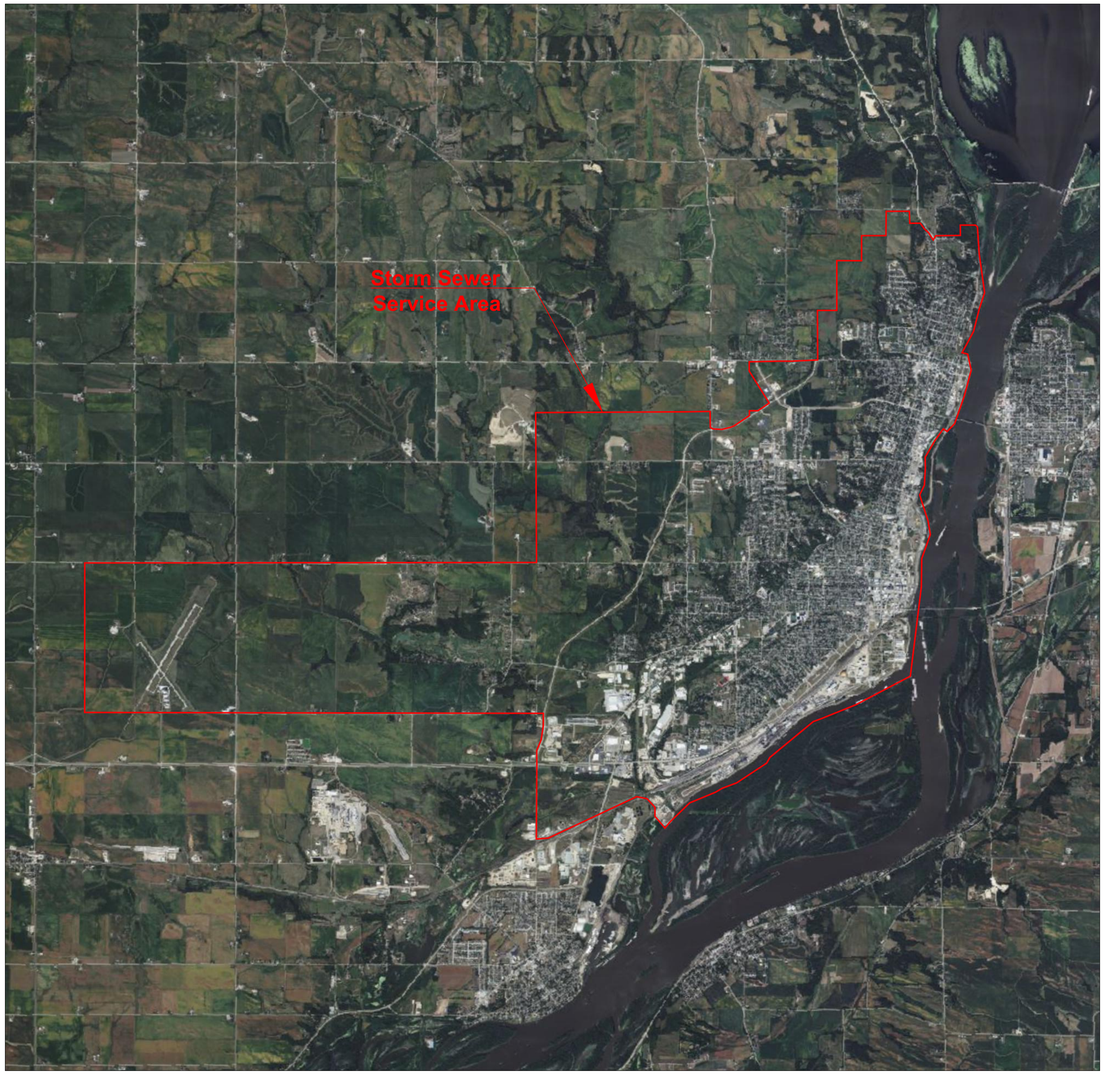
CLINTON STORMWATER UTILITY FEE

Student Team
Civil & Environmental Engineering
University of Iowa



SHEET NO.	INDEX OF SHEETS
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3	POTENTIAL STORMWATER PROJECT LOCATIONS
4	UTILITY FEE STRUCTURE
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SHEET NO. 01

SHEET NAME: Title Sheet

Print Date:	12/9/2022
Drawing File Name:	Stormwater Utility Fee Plan Set
Scale:	As Shown

Sheet Revisions

Date:	Comments	Init.

Clinton Stormwater Utility Fee

Clinton, Iowa

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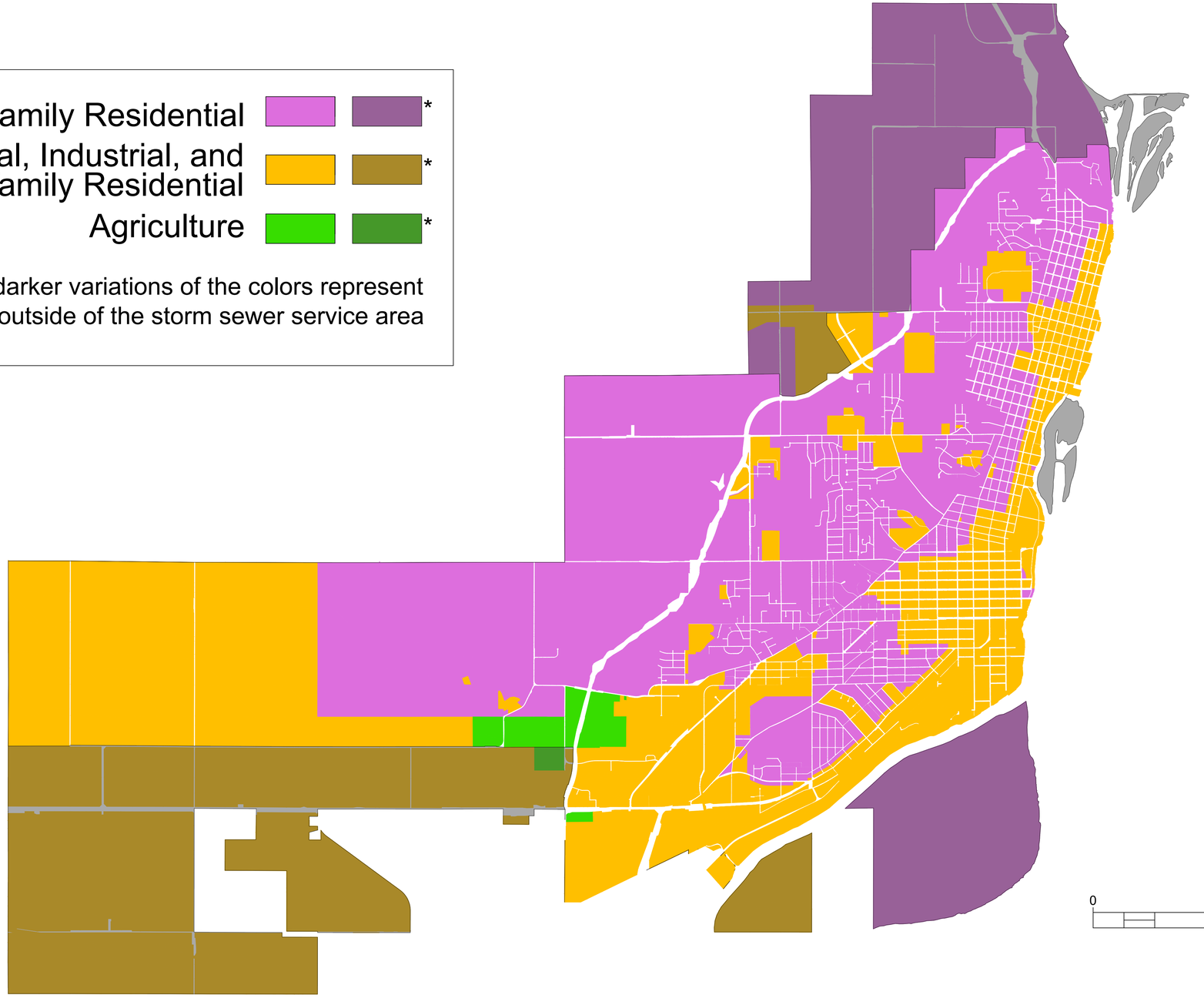
PROJECT:	CEE: 4164
DATE :	12/9/2022
DRAWN BY:	Margaret Trowbridge
REVISION:	

Single Family Residential *

Commercial, Industrial, and Multifamily Residential *

Agriculture *

*The darker variations of the colors represent areas outside of the storm sewer service area



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Clinton Stormwater Utility Fee

Clinton, Iowa

SHEET NAME

Stormwater Utility Fee Land Use Classifications

SHEET NO.

02

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SHEET NAME

Potential Stormwater Project Locations

SHEET NO.

03

Utility Fee Rate Structure

Single family properties are charged at a uniform rate of $4.63. This is the equivalent residential unit (ERU).

Commercial, industrial, and multifamily properties are a single land use classification for the utility fee, charged by a multiplier of their impervious area proportional to the ERU.

Agriculture properties are not charged a stormwater utility fee because of their low impervious areas.

Only properties within the storm sewer service area are charged a stormwater utility fee.

Credits

Property owners can receive credits for participating in best management practices to reduce their annual stormwater utility fee. BMPs can help manage stormwater by controlling flooding, reducing erosion, and water quality improvement. The most important measurable criteria for BMPs are peak flow control, runoff volume reduction, and water quality. Each criteria which a BMP improves will result in a percent reduction of 25% of the annual stormwater utility fee.

Peak Flow Control

The parcel has BMPs in place to temporarily store stormwater runoff from the property, sufficient to reduce the peak discharge flow rate released from the site

Runoff Volume Reduction

The parcel has BMPs or controls in place that store the volume of runoff equal to or greater than the Recharge Volume – Re_V as refined in the Iowa Stormwater Management Manual.

Water Quality

The parcel has BMPs or controls in place that reduce the amount of total suspended solids (TSS) in discharged runoff, as compared to no controls.

Different BMPs will be eligible to receive credits for single family residential properties and for commercial, industrial, and multifamily residential properties.

For commercial, industrial, and multifamily residential properties that contain less than $\frac{1}{2}$ acres of impervious area, BMPs should be sized to be at least 10% of the impervious area on the site. Properties that have an impervious area that is larger than $\frac{1}{2}$ acre may need to provide engineering studies in order to prove satisfaction of the credit requirements.

Whether or not these criteria are met will be quantified by city staff members using resources such as the Iowa Stormwater Management Manual (ISWMM), Iowa Stormwater Education Partnership.

Cost-Share Program

After the first year of implementing the stormwater utility fee, a cost-share program will be introduced. All properties are eligible to participate. The city will reimburse property owners 50% for implementing BMPs.

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SHEET NAME

Utility Fee Structure

SHEET NO.

04

Potential BMPs for Commercial, Industrial, and Multifamily Residential Properties - 1/2

Bioretention Cells

Bioretention cells are landscaped depressions that retain stormwater runoff from impervious surfaces. They reduce runoff volumes and water pollution. Bioretention cells are required to have:

- Outlet connected to subdrain
- 18-30 inch deep modified soil layer (75-90% washed concrete sand, 0-10% organic material, 0-25% soil with a soil texture that includes A-horizon characteristics and meets specifications)

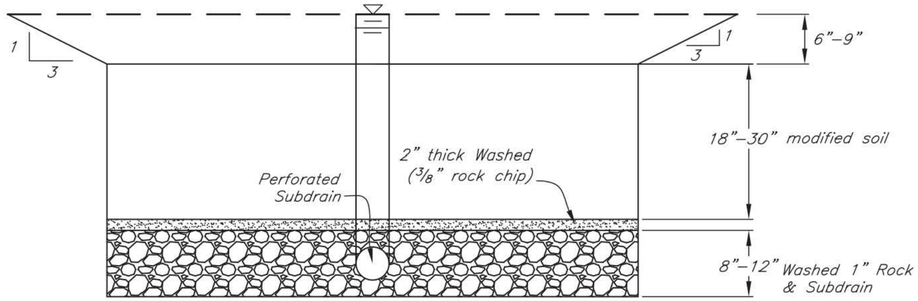

Image source: Iowa Stormwater Education Partnership

Bioswales

Bioswales are sloped drainageways designed to manage stormwater. They are populated with vegetation that provides erosion protection, increases infiltration, and reduces velocity rate. They should be located in sloped areas so stormwater will drain towards them.

- Modified soil
- Washed rock
- Perforated subdrain
- Berms
- Vegetated with plants that can withstand both heavy watering and drought
- Linear systems that are greater in length than width perform better

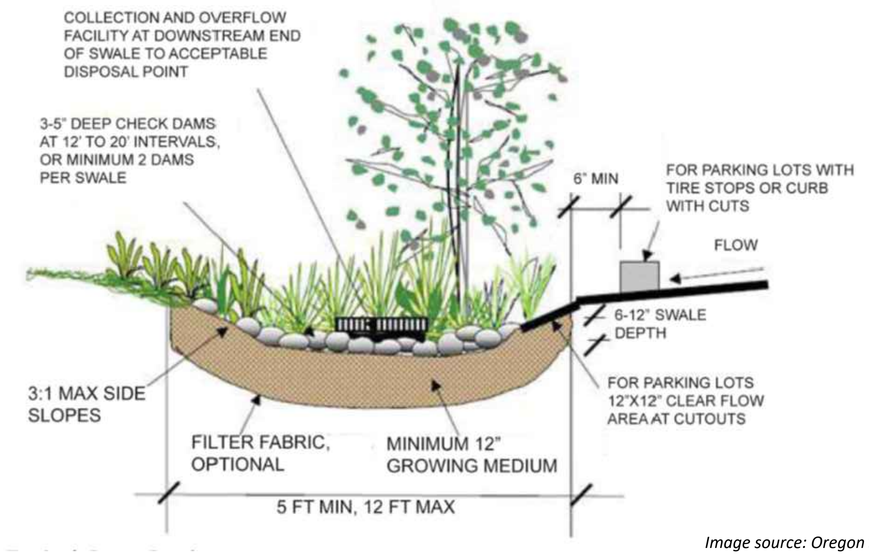

Image source: Oregon State University

Green Roofs

Green roofs are roofs that incorporate vegetation, soil or another growing medium, and a drainage layer over waterproof membranes. They can reduce 50% to 80% of roof runoff. Green roofs work best on flat or gently sloping roofs.

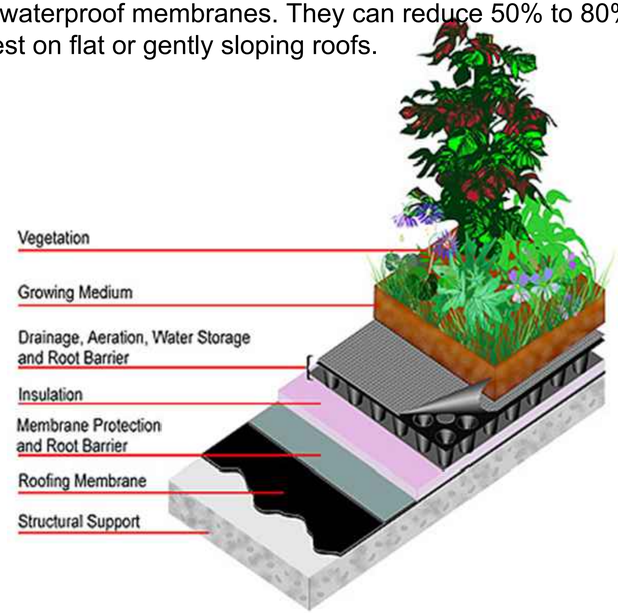

Image source: lid-stormwater.net

Soil Quality Management and Restoration

Soil quality restoration is the process of improving soil health on new or existing lawns. This can be done by reducing soil compaction through tillage or aeration and increasing organic matter content with the addition of high quality topsoil and/or compost. Good soil quality reduces the need for watering and organic matter increases infiltration. Soil quality management and restoration is comprised of:

- Soil aeration
- $\frac{1}{2}$ to $\frac{3}{4}$ inch of compost should be spread across the yard.

Image source: Tee Time Lawn Care (left), Home Depot (right)
Source: Iowa Stormwater Education Partnership

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Clinton, Iowa

SHEET NAME
Potential BMPs for Commercial, Industrial, and Multifamily Residential Properties - 1/2

SHEET NO.
05

Potential BMPs for Commercial, Industrial, and Multifamily Residential Properties - 2/2

Porous or Permeable Pavement

Porous or permeable pavement allows stormwater to infiltrate surfaces which would typically be impervious. These alternative pavements reduce stormwater runoff and filter out pollutants. These pavements must be comprised of:

- Permeable asphalt, permeable concrete, or permeable pavers
- A perforated drain tile installed in the rock chamber

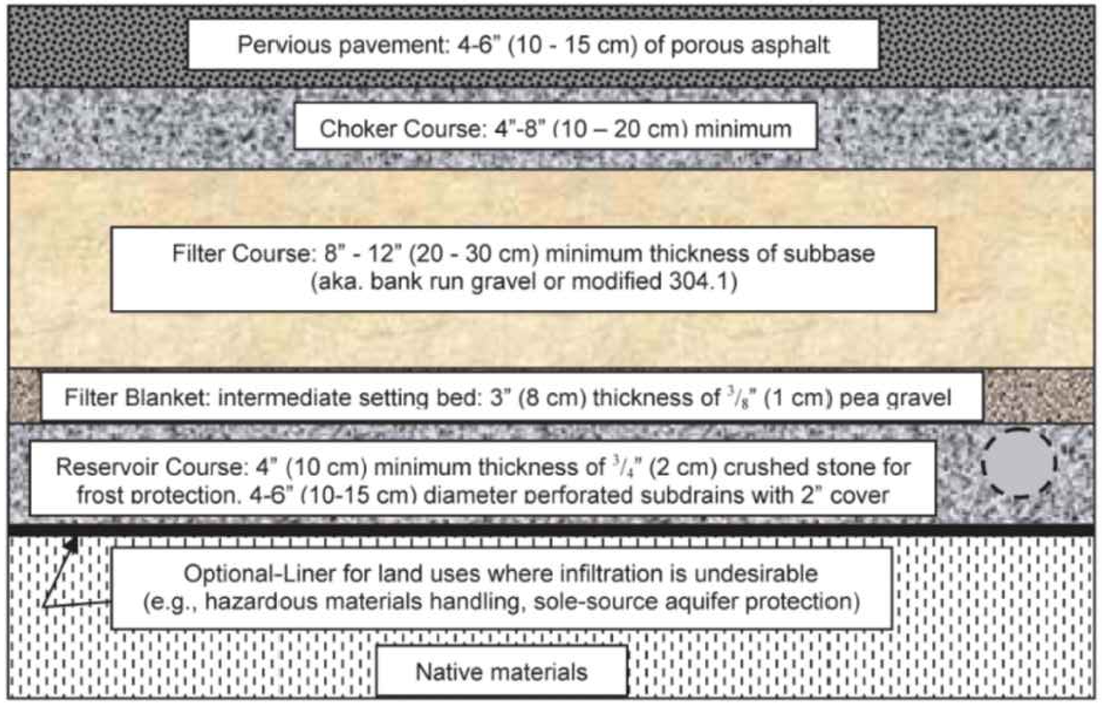

Image source: Minnesota Department of Transportation

Native Landscaping

Native landscaping can enhance the landscape's ability to infiltrate and manage stormwater because of the deep root systems. The following images show examples of plants native to Iowa; this is not a comprehensive list of all of the plants native to Iowa.

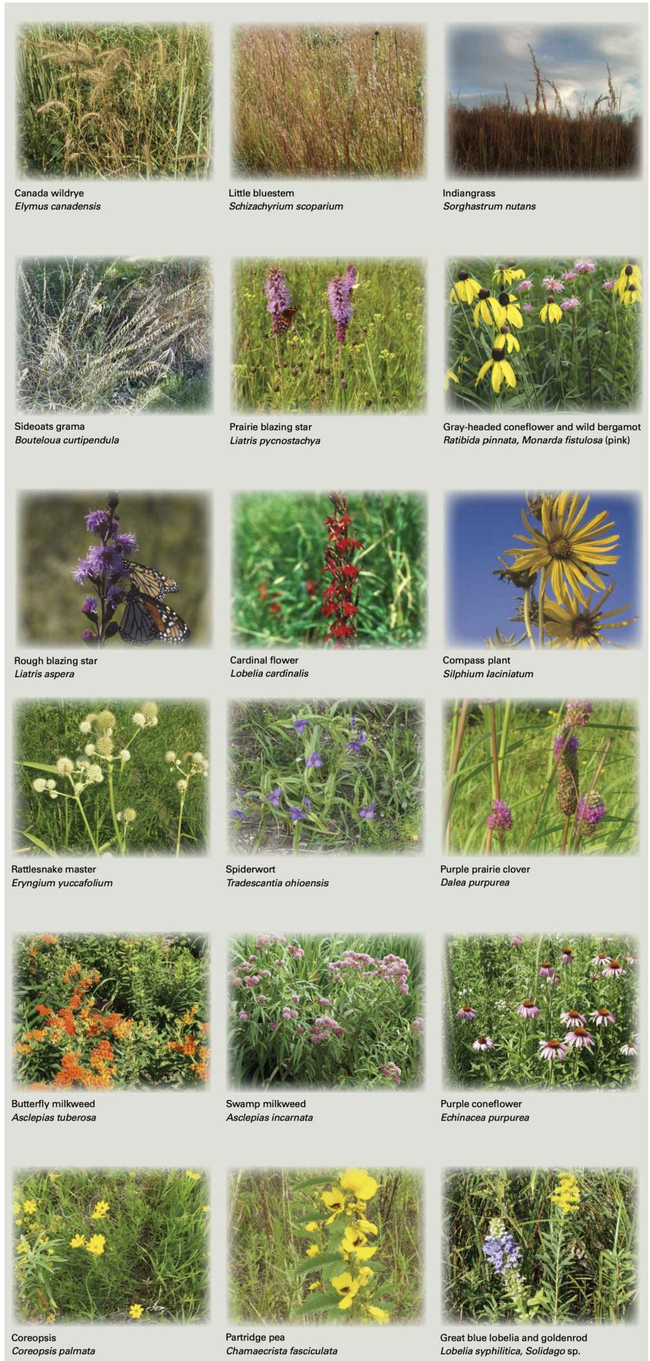

Image source: Iowa Stormwater Education Partnership
Source: Iowa Stormwater Education Partnership

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SHEET NAME
Potential BMPs for Commercial, Industrial, and Multifamily Residential Properties - 2/2

SHEET NO.
06

Potential BMPs for Single Family Residential Properties

Rain Barrel

Rain barrels can be purchased and connected to downspouts to store rainwater. This reduces the volume of stormwater entering the existing drainage system. Stored water can be used for watering yards and gardens. Rain barrels can be purchased at hardware stores. Rain barrels must:

- Be able to hold at least 40 gallons of water
- Be positioned to collect rainwater from roof

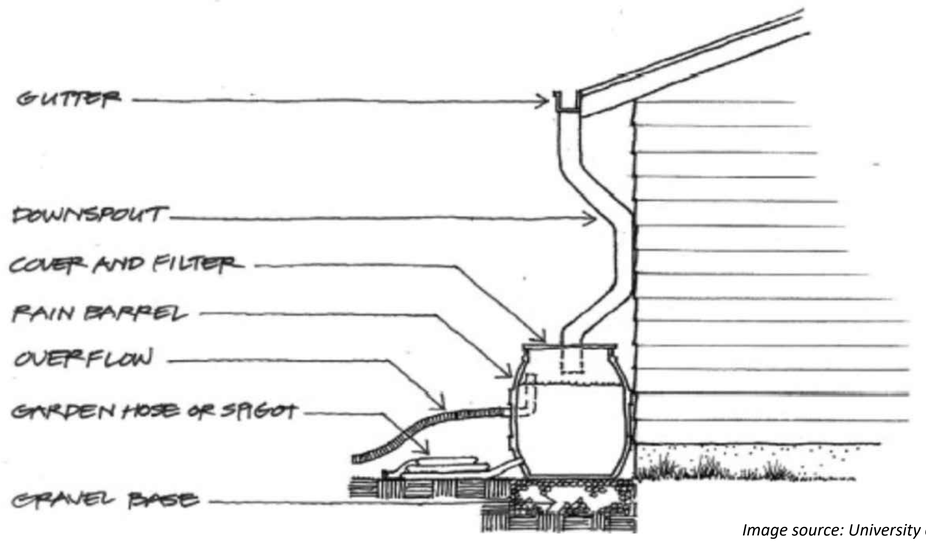

Image source: University of Flordia

Rain Gardens

Rain gardens are depressions or shallow bowls made in the landscape that is level from all directions. Runoff that travels to a rain garden temporarily ponds and eventually infiltrates into the soil. The garden can also trap pollutants for small driveways and rooftops. Rain gardens should be placed at a low point so water flows into it. Rain gardens must have:

- 50% of plants native to Iowa
- Amended soil (50% sand, 30% compost, 20% yard topsoil - low clay content)
- Edging (such as pavers, plastic, metal, or rocks)

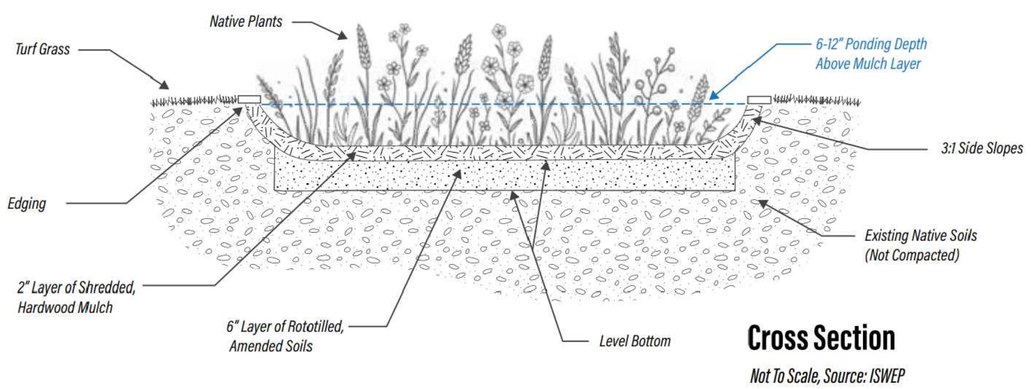

Image source: Iowa Stormwater Education Partnership

Rooftop and Pavement Disconnection

This can reduce the amount of downstream erosion caused by high volume runoff. It can reduce pollutants from small driveways and rooftops entering the sewer system. The impervious areas runoff should be routed directly to pervious surfaces.

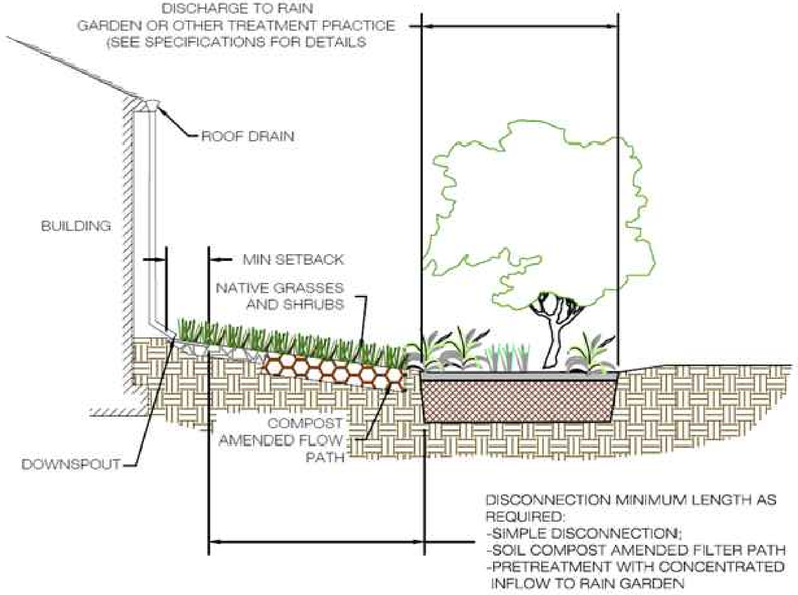

Image source: Virginia Stormwater BMP Clearinghouse

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Source: Iowa Stormwater Education Partnership

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SHEET NAME
Potential BMPs for Single Family Residential Properties

SHEET NO.
07