

Attachment C

The Stormwater System

Dry Detention Basin

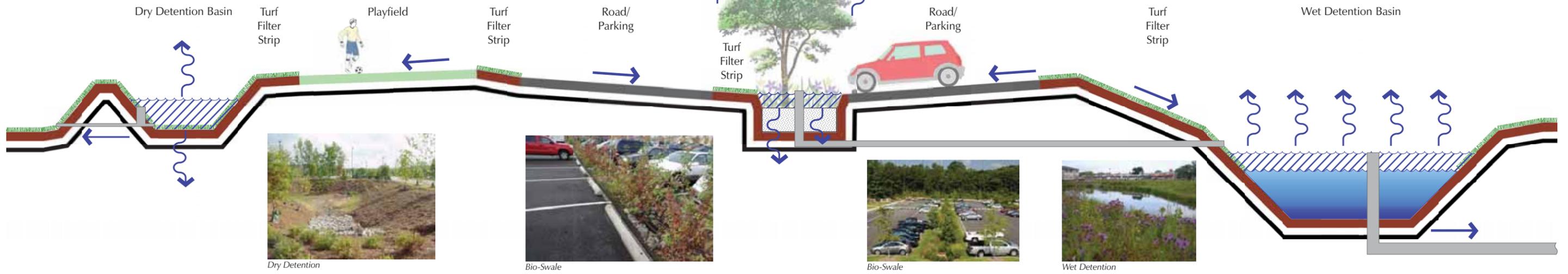
Dry detention basins are designed to detain the stormwater to allow particles and pollutants to settle. They do not maintain a permanent water pool. However, dry basins may develop wetland vegetation and sometimes shallow pools in the bottom portions can enhance the basin's pollutant removal. Dry basins are used to improve stormwater runoff quality and reduce peak stormwater runoff rates and peak stages.

Bio-Swale

Bio-Swales are channels with a dense stand of vegetation covering the side slopes and channel bottom. They slowly convey stormwater runoff, and in the process promote infiltration, reduce flow velocities, and pretreat stormwater. Bio-Swales include an engineered soil matrix and an under-drain system for drainage. Bio-Swales promote infiltration, filter pollutants through the soil and through plant biological uptake.

Wet Detention Basin

Wet detention basins are designed to collect stormwater runoff in a permanent pool and a temporary water quality pool. This allows particles and pollutants to settle but biological and chemical activity also remove pollutants, particularly nutrients. In addition, there is temporary detention of stormwater to reduce peak stormwater runoff rates and peak stages. Wet basins can also provide wildlife and aquatic habitats and be an aesthetic amenity.



Bio-Swale Plantings

Bio-Swales take advantage of both permeable soil and plant materials to slow the runoff of most storms and to reduce the pollutants in the runoff. Pollutants are removed as water flows through the soil and by bacterial action. When properly planted, vegetation thrives and enhances the functioning of these systems. For example, pretreatment buffers trap sediments which often are bound with phosphorous and metals. Vegetation planted in the facility takes up nutrients and their roots provide arteries for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities desirable to the public.

Using the expertise of the Parks and Recreation Horticulture Division along with resources such as the Missouri Botanical Garden and The Grow Native! Program of the Missouri Prairie Foundation, a palette of plant material will be developed. These plantings will not only insure a successful stormwater management facility but will also become an attractive amenity to the Gans Creek Recreation Area.

A partial list of plants is shown below. Note this is only partial list. Other appropriate materials will be added as the project progresses and the success of each species is determined.

Grasses/Sedges	
<i>Andropogon gerardii</i>	Big Bluestem
<i>Carex grayii</i>	Bur Sedge
<i>Carex shortiana</i>	Short's Sedge
<i>Carex vulpinoidea</i>	Fox Sedge
<i>Chasmanthium latifolium</i>	River Oats
<i>Schizachyrium scoparium</i>	Little Bluestem
Forbs	
<i>Amsonia illustris</i>	Shining Bluestar
<i>Chelone obliqua</i>	Rose Turtlehead
<i>Coreopsis lanceolata</i>	Lanceleaf Coreopsis
<i>Echinacea purpurea</i>	Purple Coneflower
<i>Eryngium yuccifolium</i>	Rattlesnake Master
<i>Hibiscus lasiocarpus</i>	Rose Mallow
<i>Iris virginica</i>	Southern Blueflag Iris
<i>Ratibida pinnata</i>	Yellow/Grey Coneflower
<i>Rudbeckia hirta</i>	Black-eyed Susan
<i>Solidago rugosa</i>	Rough-Leaved Goldenrod
Trees/Shrubs	
<i>Callicarpa americana</i>	Beautyberry
<i>Cercis canadensis</i>	Redbud
<i>Nyssa sylvatica</i>	Black Gum
<i>Quercus bicolor</i>	Swamp White Oak
<i>Sambucus canadensis</i>	Elderberry



Chasmanthium latifolium River oats



Callicarpa americana Beautyberry



Nyssa sylvatica Black gum



Eryngium yuccifolium Rattlesnake master



Sambucus canadensis Elderberry



Cercis canadensis Redbud



Andropogon gerardii Big bluestem



Chelone obliqua Rose turtlehead



Amsonia illustris Shining bluestar

Gans Creek Recreation Area Phase 1 Development Stormwater BMPs

