

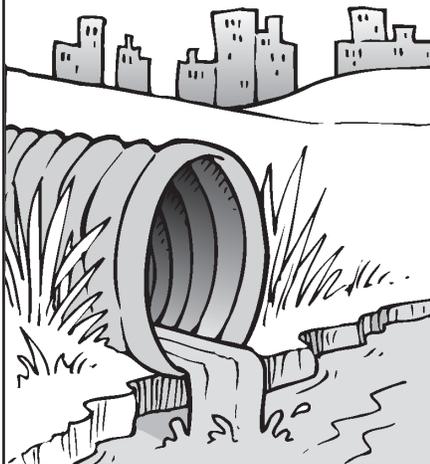


# Designing Stormwater Management Systems

## Why be concerned?

In the past, stormwater was often transported off-site as quickly as possible. Today, this quick off-site transfer of stormwater is known to deliver pollutants to receiving waters much more efficiently, as well as to seriously erode pond and stream banks.

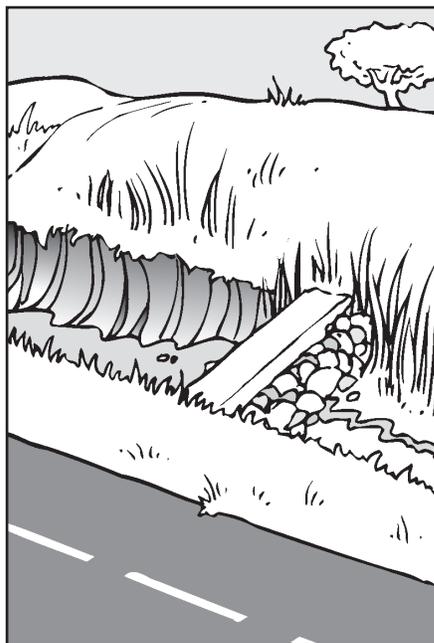
Current stormwater management practice is much more comprehensive. Objectives now include controlling bank erosion and water quality, as well as flooding. To achieve these objectives, the volume, velocity and pollutant load of runoff leaving a site after development must be similar to that which occurred under natural conditions. This can be accomplished by putting in place a coordinated network of both natural and engineered “best management practices” (BMPs) that work together to reduce, convey and treat stormwater runoff. In such a system, each BMP by itself may not provide major benefits but, when combined with others, becomes very effective.



## Reducing Runoff and Pollutants at their Source

Source controls reduce the volume of runoff and eliminate opportunities for pollutants to enter the drainage system. By working to *prevent* problems, source controls are the best option for controlling stormwater and include:

- preserving wetlands, swamps, bogs, vegetation and other natural features that manage stormwater
- promoting stormwater infiltration by minimizing roads, parking lots and other impervious surfaces
- directing stormwater to open lawns and swales rather than to pavement or underground conveyances
- controlling soil erosion



## Designing Systems to Protect Water Quality

After all practical source controls have been implemented, other controls will still be needed to manage runoff. These will be dictated, to some degree, by the soils, topography and other conditions on-site, as well as the receiving waterway and local government standards. While each site will be different, there are some universal guidelines for controlling stormwater quantity and quality. For detailed information on designing stormwater management systems to protect water quality, call Cobb County Stormwater Management.

## Designing Ponds to Control “Bankfull” Flooding

Studies show that pavement and other impervious surfaces increase the frequency of smaller, flashy, “bankfull” floods that fill stream channels but don’t overflow them. These smaller floods – associated with storms that occur every 1.5 years or more often – seriously erode stream channels and destroy aquatic habitat. Designing ponds to capture and detain the 1.5-year storm will help avoid the negative impacts associated with “bankfull” flooding.

# Designing Ponds to Capture and Treat the “First Flush”

Most pollutants that accumulate on urban surfaces are washed off by the first half inch of runoff, which then carries a shock loading of these pollutants into receiving rivers and streams. The term “first flush” is used to describe the more heavily polluted runoff that this washing action initially generates. By capturing and treating the first half inch of runoff, up to 90% of pollutants can be removed from stormwater before it enters the drainage system drainage system.

## GETTING HELP

Cobb County  
Stormwater Management..(770) 419-6435  
Water Quality Section ....(770) 419-6441

Community Partners for  
Healthy Streams .....(770) 528-1482