

Best Management Practice Functions



Stormwater

- Stormwater is the result of precipitation that flows overland to streams and other bodies of water
- Stormwater collects pollutants as the water flows overland
- Stormwater is typically not treated
- The amount of runoff is increased by hard, impervious, or compacted surfaces

Is Flooding a Serious Issue in North Carolina?



Is erosion a serious issue in North Carolina?



What's the difference?



The difference is...

Storm sewers lead to...



Streams



The difference is...

Sanitary sewers lead to...



Waste water treatment plants

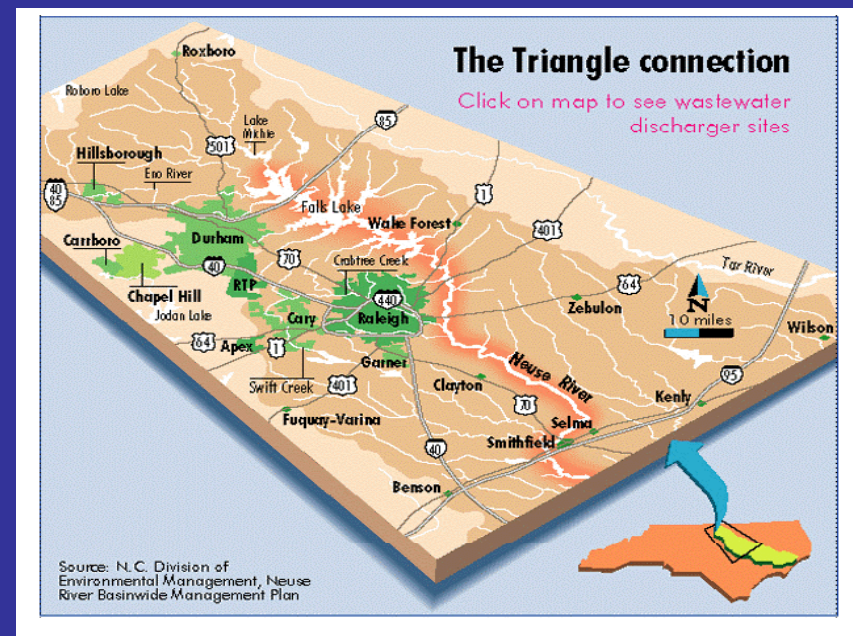


Managing Stormwater

- Stormwater is directly related to land use
 - ‘generally, the more the land is *used* (developed) the more stormwater will be generated’
- Best Management Practices (BMPs) are installed to treat, slow, and reduce stormwater runoff

Watersheds and Land Use

- Watershed is that geographic area that drains into a stream or river
- Watershed = catchment = drainage area
- Urbanization of watersheds increases stormwater flows



Best Management Practice

- Structural, vegetative, or management practices used to protect and improve our surface and groundwater

Stormwater BMP Functions



Bioretention or Rain Garden



Bioretention Functions

- Infiltrate runoff
- Slow runoff
- Pollutant removal
 - Absorption
 - Plant uptake
 - Microbial action
 - Filtration
 - Sedimentation
 - Sunlight

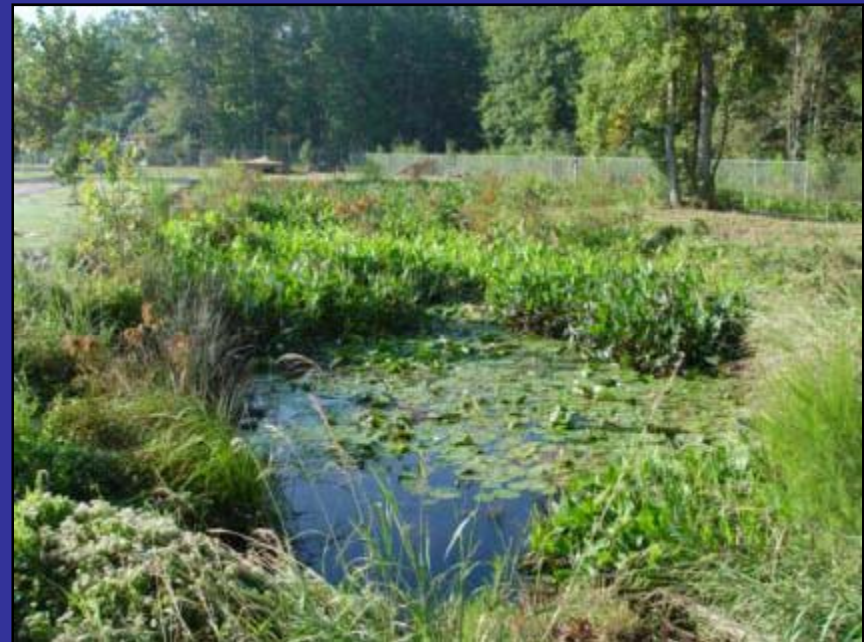


Stormwater Wetlands



Stormwater Wetland Functions

- Reduce flooding
- Recharge groundwater
- Improve water quality
- Should not serve as mosquito habitat
- Attractive landscape features
- Add biodiversity
- Multiple uses (educational, regulatory requirements, aesthetics)



Wet Detention Basins



Retention Pond Function

- Designed to store and slowly release stormwater
- Limited removal of sediment, TSS, nutrients
- Landscape feature - Waterfront property??



Dry Detention Basins



Cisterns



How Cisterns Work:

- First flush diverter diverts pollen/leaves, etc. so clean water enters cistern
- Cistern is sized to match roof size and intended use
- Will reduce stormwater runoff
- Water can be used for nonpotable uses or treated for domestic use

Trash/First Flush Diverter



Grassed Swales



Grassed Swale Functions

- Slow and spread water flow to facilitate filtration, infiltration, and limited nutrient uptake



Riparian Buffers



Permeable Pavement



Permeable Pavement Functions

- Infiltration
- Limited pollution removal



Green Roofs



Green roof benefits

- Energy savings
- Added living space
- Stormwater retention
- Urban heat island reduction
- Extended roof life – anecdotal evidence from Germany shows 2-3 X roof life, from 20 to 40-60 years.
- Aesthetics -viewscape

Sand Filter



Manufactured BMP Systems



Level Spreaders



Level Spreader Functions

- Designed to slow and spread runoff to facilitate:
 - Infiltration
 - filtration



Infiltration Devices

