
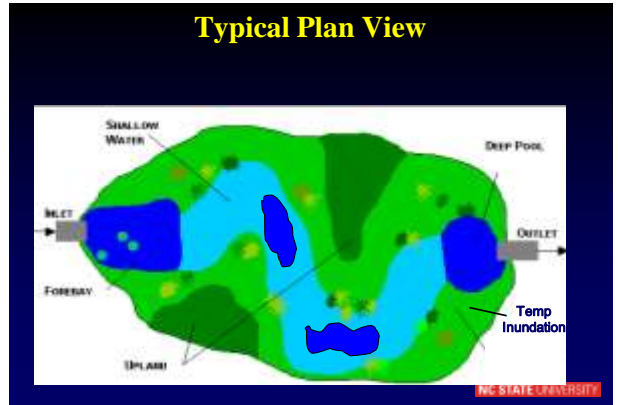


Stormwater BMPs Stormwater Wetlands

- How do they work?
- **Retention** – hold water for a longer period of time than a pipe, ditch or stream
- **Physical** – slow water down, allow sediment to be retained
- **Biological** – plant uptake of pollutants
- **Biogeochemical transformations** – conversion of some contaminants to forms that may be retained or released harmlessly to the atmosphere



Wetland Soil

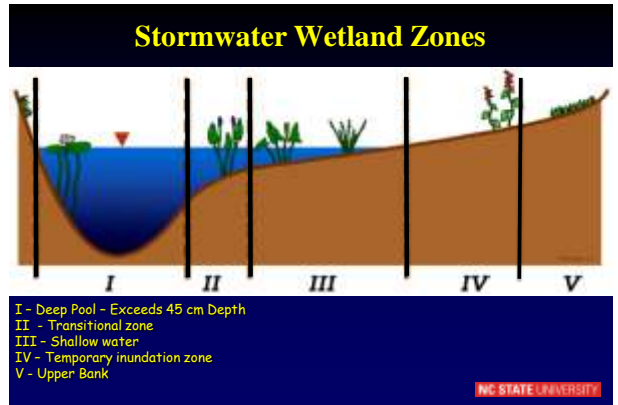


“Entry” Deep Pool is the Forebay

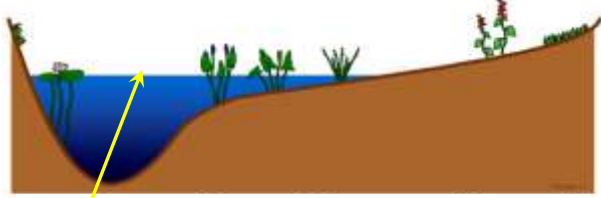


1. Slow H₂O
2. Capture Sediment & Solids

2 Purposes...



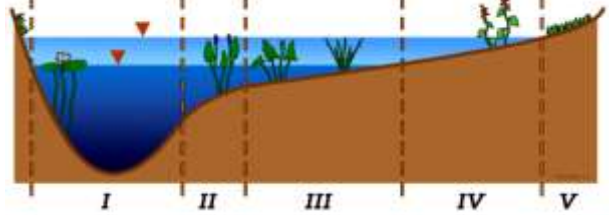
Normal pool



Elevation of the stormwater outlet (an orifice 12-18 in below overflow)

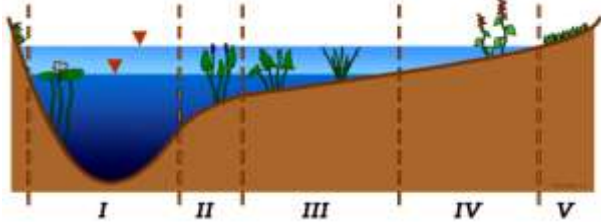
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Stormwater enters!



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Stormwater drains to normal pool



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Deep Pools



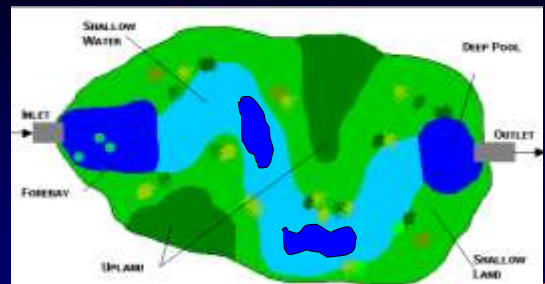
Retain Water During Droughts

Deep Pools a refuge for mosquito predators



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"Scatter" Small Deep Pools Across Wetland

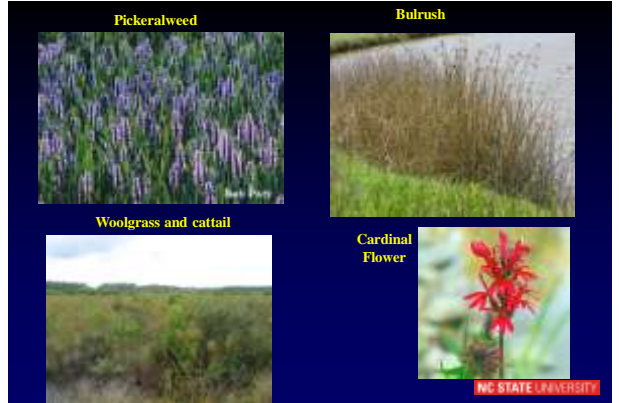


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Select Wetland vegetation based on wetness tolerance

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Spring Lake – Cumberland Co.



Established

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Mary Bridger's - Wilmington



Newly
Constructed

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Moss Planing Mill - Washington



Large & Eastern
NC

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NC Arboretum - Asheville



Small & Western

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Ashbrook H.S. - Gastonia



Piedmont & Normal
Pool

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Smithfield Selma HS



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August 2005



July 2006



Laney HS – Wilmington, NC

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May 2007



Sept 2007

Laney HS – Wilmington, NC

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Golf Course Stormwater Wetlands



Unnamed Failure



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CE wetland - Shallow Water Too Deep



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How big are stormwater wetlands?

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**Wetland Treating a Parking Lot Drainage
Area < 0.4 ha**



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Depends on watershed size and characteristics



Wetland is
Located at
Bottom of
Landscape

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Outlet Structures – controls the hydrology

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Flashboard Riser



Water Level Can Be Adjusted by Replacing,
Removing, or Adding Flashboards



**Flashboard
Riser
Variations**

Removal of All Boards aids in Maintenance or Planting

Recommend that all zones but Zone I are able to be drained.



Must retain portion of Water Quality Volume for at least 48 hours



This means a potentially small hole (orifice)

How Well Do Stormwater Wetlands Work?

According to NC DENR....

Pollutant	Removal Efficiency
TSS	85%
TN	40%
TP	35%

Fecal Coliform? Temperature? Metals?

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