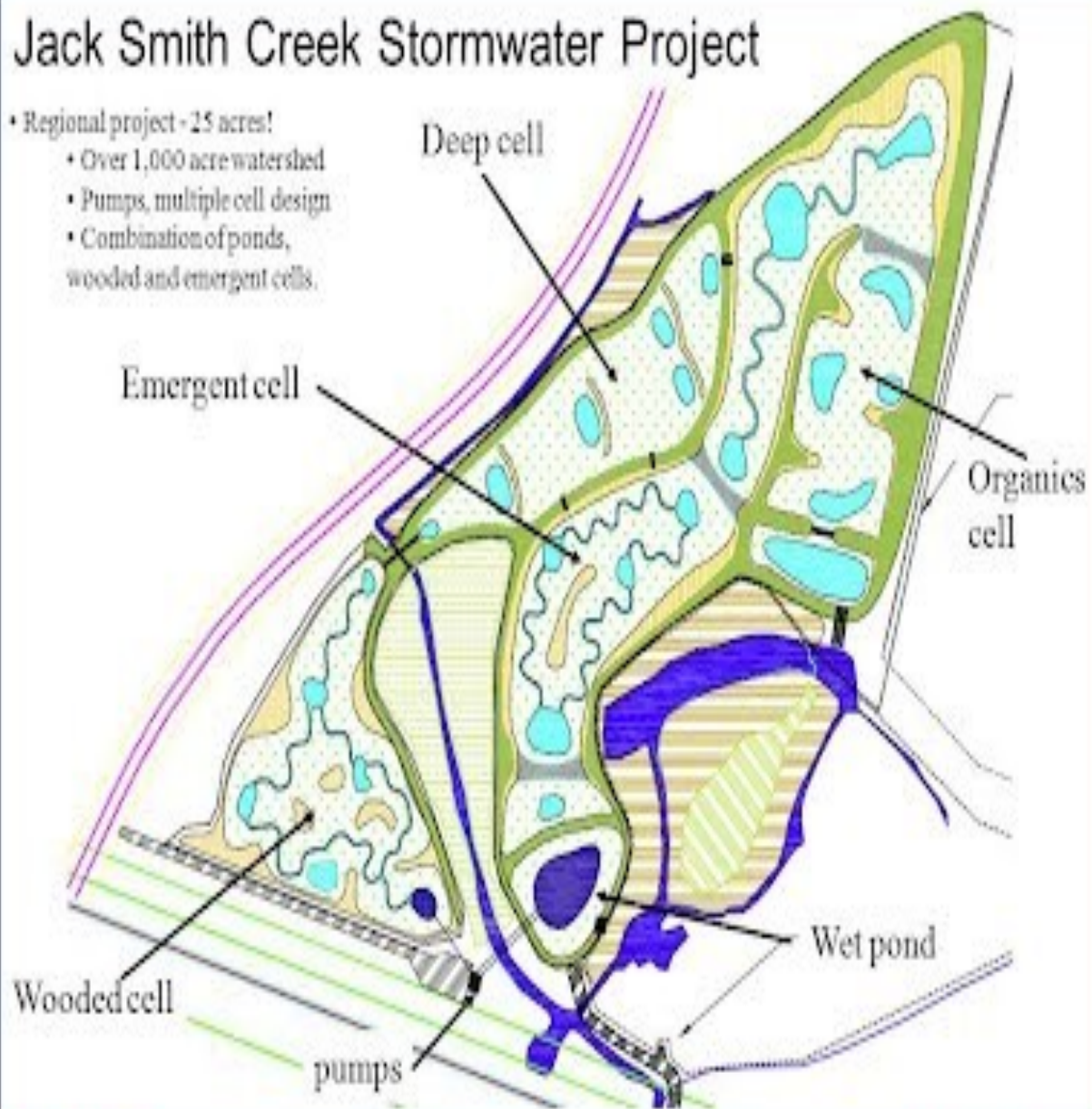


Jack Smith Creek Stormwater Project

- Regional project - 25 acres!
 - Over 1,000 acre watershed
 - Pumps, multiple cell design
 - Combination of ponds, wooded and emergent cells.



Winter 2011/Spring 2012!

NC STATE UNIVERSITY

Jack Smith Creek Stormwater Wetlands

Informational Brochure

City of New Bern



*P.O. Box 1129
New Bern NC 28563*





Background

This project is a unique water quality partnership between the City of New Bern, The NC Ecosystems Enhancement Program, and the NC Clean Water Management Trust Fund. The project involves the construction of a stormwater wetland to capture and treat runoff from a large watershed in New Bern. The wetland is proposed as an environmental initiative by the City, and as a part of the EEP Nutrient Offset Program. The wetland has the ability to treat runoff from over 1,000 acres of residential and commercial property. The project is unique in both its size and scope, and is the largest stormwater retrofit built to date in NC. The site location and contributing watershed represents a rare chance to intercept stormwater before it gets to the Neuse River, less than one mile away. In addition, the site is in use by NC State University as a wetland research park to evaluate the ability of large scale wetlands to improve water quality.

Quick Stats:

Site Area	51.0 Acres
Stormwater Wetlands	28.0 Acres
Preserved Wetlands	10.0 Acres
Park / Parking Area	13.0 Acres
1 Small Electric Pump	1,000 GPM
2 Large Storm Pumps	21,000 GPM (each)
Nitrogen Removal	40% (3,300 lbs/yr)
Phosphorus Removal	35% (299 lbs / yr)
Stormwater Plants	25 Different Species
	140,000 Planted

Design

The wetland has been designed using the latest research and technology from the NCSU Stormwater Group. The system utilizes a multi-cell, treatment train approach. This approach combines the effects of the wetland by routing water through a combination of designed environments. The wetland has been specifically designed to maintain necessary water depths and velocities to support wetland vegetation and maximize water quality improvements. This is accomplished with a series of adjustable weirs and culverts. Each wetland cell has been designed for a slightly different wetland community, which progresses from shallower to deeper environments. This design will encourage diversity throughout the site, and improve exposure to the various treatment pathways that are needed to convert and remove contaminants. The design also includes a mixture of deep pools, channels, islands, and densely vegetated zones. These zones will provide mixing areas for water, and habitat for fish and wildlife. These habitats will promote the ecological balance of the site.

Wildlife

Wetlands like this one should be particularly abundant in a variety of wildlife. Keep your eye out for all types and sizes of fish in pool areas, turtles, frogs, and especially dragonflies. Dragonflies (4 wings) and damselflies (2 wings) live most of their lives in the water, feeding on mosquitos. Once they grow wings, they are particularly attracted to flowering wetland plants and you may commonly see them in pairs (possibly mating) all over the wetland. This wetland appears very popular with a variety of birds, ducks and geese. Keep your eyes open for herons and cormorants, both of which have been seen regularly on site. A common question about wetland has to do with mosquitos. In general, a healthy diverse stormwater wetland will not be a source of mosquitos. If a healthy habitat for frogs, fish, and dragonflies (all mosquito predators) can be developed, mosquito populations will be keep in check. In addition, moving and circulating water is not favorable for mosquito reproduction, which should be the case in this wetland.



Plants

This wetland has been planted with over 140,000 plants. There are over 25 different species of wetland plants that have been planted and many more will naturally grow. The plants generally fall into either the category of wetland grasses, rushes, emergent aquatics, or trees. In general, emergent aquatics will grow in the deepest water, have broad leaves, and flowers. Rushes can grow in both deep and shallow water, and grasses will be found in very shallow water or on dry land.



Pickerelweed



Lizard Tail



Wool Grass



Bulrush



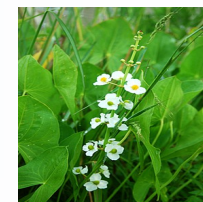
Sweet Flag



Common Rush



Sedge Grass



Duck Potato



Hibiscus



Lobelia Cardinalis