



# Worthdale Park Stream Restoration and SCM Retrofit

October 4, 2023 | Public Meeting

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# PROJECT GOALS

- Reduce streambank erosion
- Prevent water pollution from entering Walnut Creek
- Restore stream, riparian, and wetland ecosystems on the project site

# PROJECT DESCRIPTION



## Stream Restoration

- Restoration or Enhancement of ~2,000 ft
- West Creek, East Creek, and Worthdale Creek
- Prevents ~265 tons/year of sediment pollution

## SCM Retrofit - Bioretention Cell

- Capture & treat stormwater runoff from parking lot
- Uses specialized soils and plants

# WORTHDALE PARK

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Existing  
Conditions



# WORTHDALE PARK

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## Existing Conditions



# PROJECT SCHEDULE

**Finish Design and Permitting:** February 2024

**Bid Project and Select Contractor:** Spring/Summer 2024

**Construction:** Fall 2024 – Winter 2025 (*approx. 6 months*)

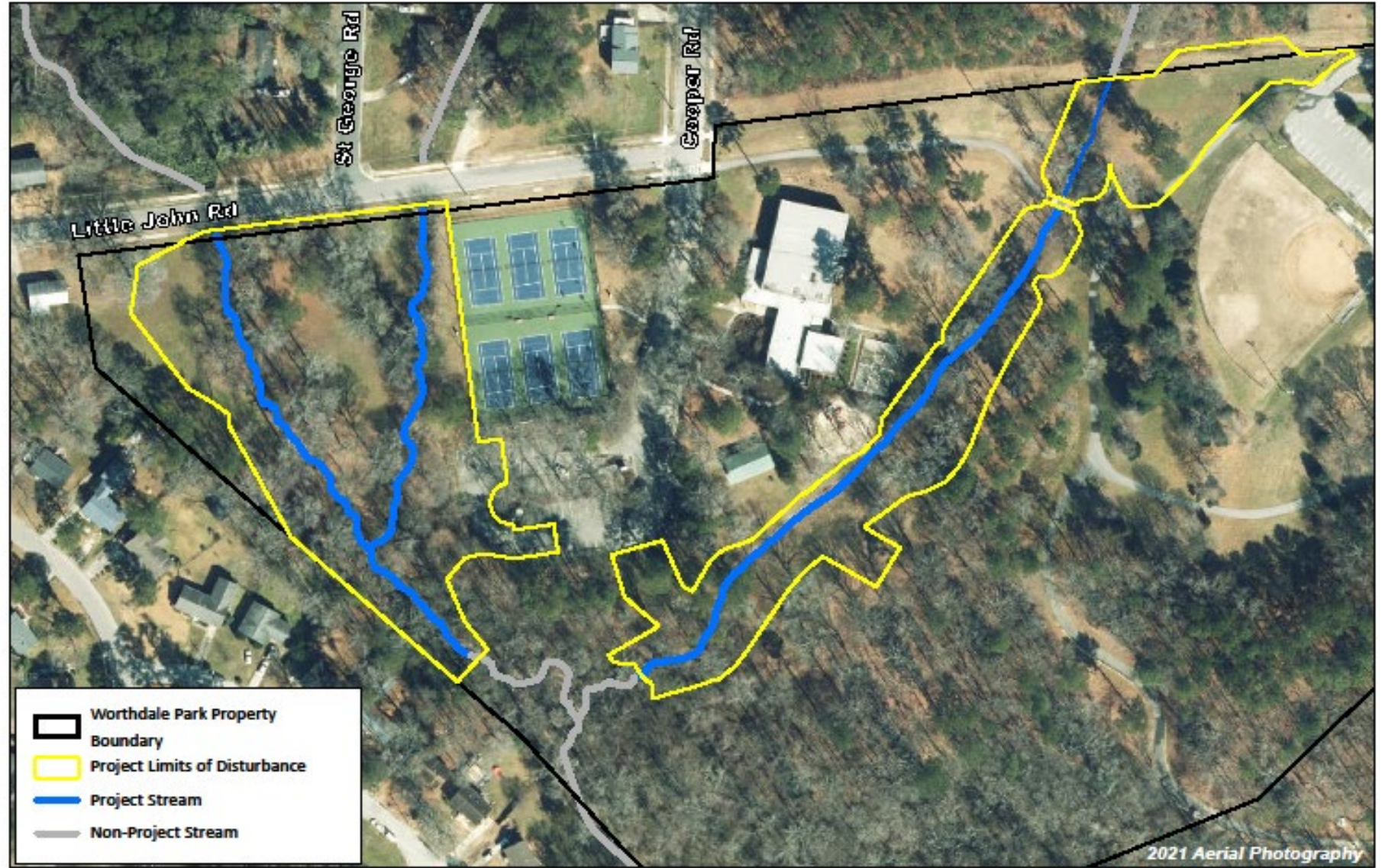
**One Year Warranty Period:** 2025-2026

# PROJECT COSTS

Phase	Estimated Cost
Study, Design, Permitting	\$450,000
Construction <i>(Estimate)*</i>	\$720,000
Park Opportunities <i>(stream access, signage, seating, etc.)*</i>	\$100,000
<b>Total:</b>	<b>\$1,270,000</b>

**\*American Rescue Plan Act (ARPA)** funds in the amount of \$820,000 were awarded to this project for the construction phase

# CONSTRUCTION PHASE LIMITS



0 150 Feet



Project Limits of Disturbance Map  
Worthdale Park Stream Restoration and SCM Retrofit  
Neuse River Basin (03020201)

Wake County, NC



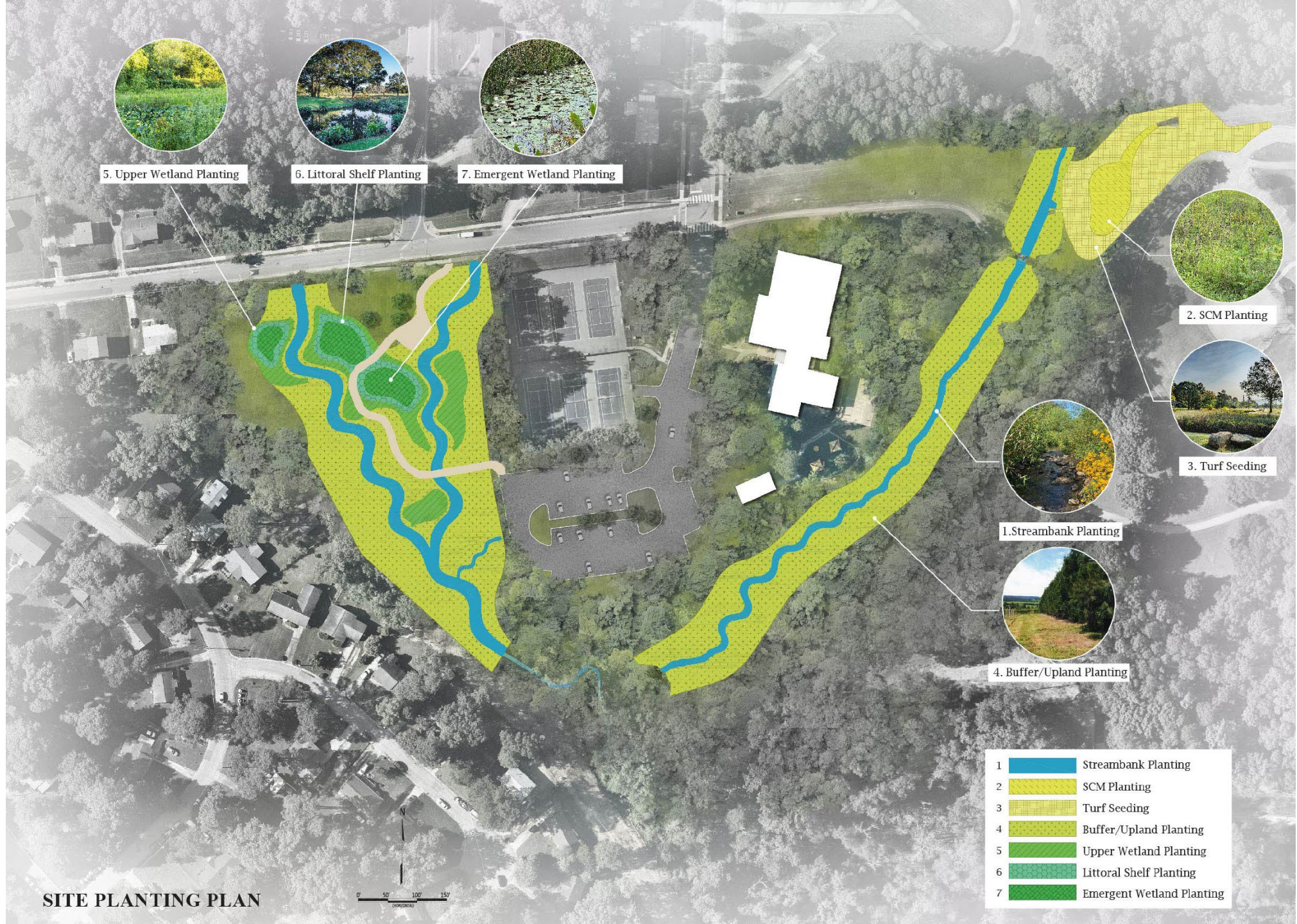
# PROJECT RENDERING



# PROJECT RENDERING



# SITE PLANTING PLAN



5. Upper Wetland Planting

6. Littoral Shelf Planting

7. Emergent Wetland Planting

2. SCM Planting

3. Turf Seeding

1. Streambank Planting

4. Buffer/Upland Planting

- 1 Streambank Planting
- 2 SCM Planting
- 3 Turf Seeding
- 4 Buffer/Upland Planting
- 5 Upper Wetland Planting
- 6 Littoral Shelf Planting
- 7 Emergent Wetland Planting

SITE PLANTING PLAN



# Draft Plant List

## Streambank Planting Zone 1 - Worthdale

Silky Dogwood  
(*Cornus amomum*)



Silky Willow  
(*Salix sericea*)



Hop Sedge  
(*Carex lupulina*)



## Streambank Planting Zone 2 - East Creek & West

Button Bush  
(*Cephalanthus occidentalis*)



Black Willow  
(*Salix nigra*)



## Buffer/Upland Planting Zone

Fringed Sedge  
(*Carex crinita*)



Sycamore  
(*Platanus occidentalis*)



River Birch  
(*Betula nigra*)



Willow Oak  
(*Quercus phellos*)



Eastern Cottonwood  
(*Populus deltoides*)



# Draft Plant List

## Littoral Shelf Planting Zone

Common Rush  
(*Juncus effusus*)



Lizard's Tail  
(*Saururus cernuus*)



Duck Potato  
(*Sagittaria latifolia*)

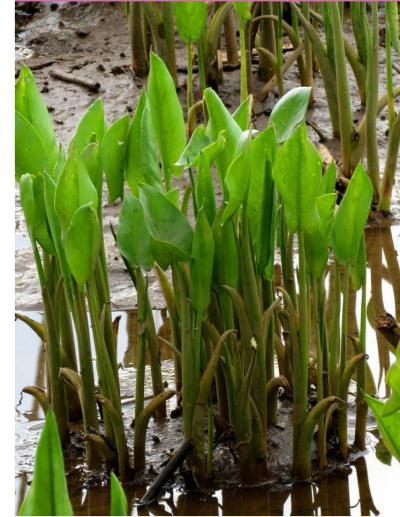


## Emergent Wetland Planting Zone

Woolgrass  
(*Scirpus cyperinus*)



Arrow Arum  
(*Peltandra virginica*)



## Upper Wetland Planting Zone

Swamp Rose  
(*Rosa palustris*)



Common Elderberry  
(*Sambucus canadensis*)



Swamp Milkweed  
(*Asclepias incarnata*)



## Permanent Riparian Seeding

Indian Grass  
(*Sorghastrum nutans*)



Partridge Pea  
(*Chamaecrista fasciculata*)



# Draft Plant List

## Permanent Wetland Seeding

Devil's Beggartick  
(*Bidens aristosa*)



Wild Senna  
(*Senna hebecarpa*)



Green-White Sedge  
(*Carex albolutescens*)



## Permanent Seeding

Tall Fescue  
(*Festuca arundinacea*)



Creeping Red Fescue  
(*Festuca rubra*)



## Temporary Seeding

Ladino Clover  
(*Trifolium repens*)



Rye Grain  
(*Secale cereale*)



German Millet  
(*Setaria italica*)



## Bioretention Area

Poverty Rush  
(*Juncus tenuis* PA ecotype)

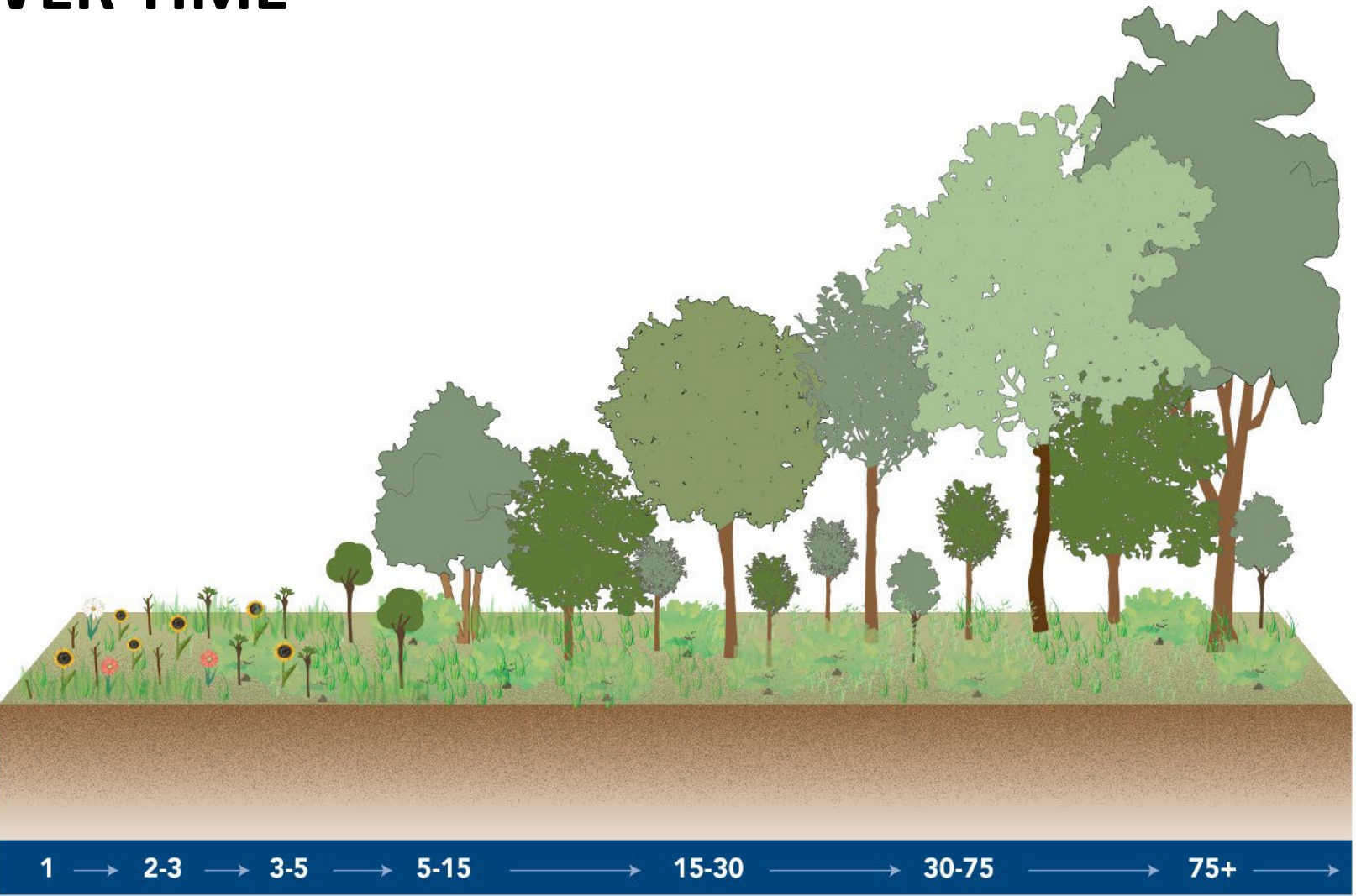


Deertongue  
(*Panicum clandestinum*)



# PLANTED TREE GROWTH OVER TIME

Example tree growth at Millbrook Exchange Park Stream Project (2019 – 2023)



Tree maturity post-construction planting



Tree maturity after four years

# EXAMPLE CITY PARK PROJECT



Open water features are attractive and add to the variety of habitats



Different planting zones create varied ecosystems for wildlife and viewing by park visitors

## Wooten Meadow Park *Raleigh, NC*



Seating areas and signage complete the park experience for visitors

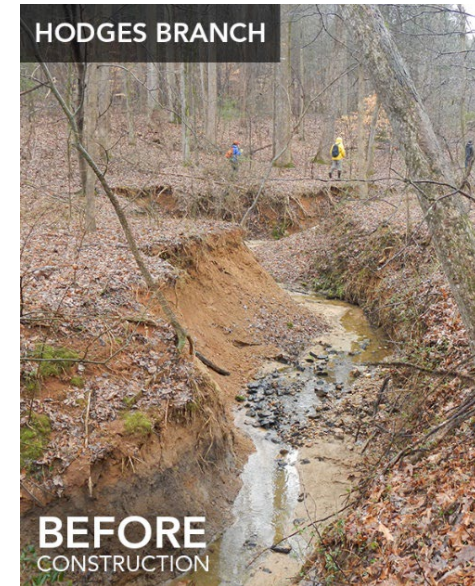
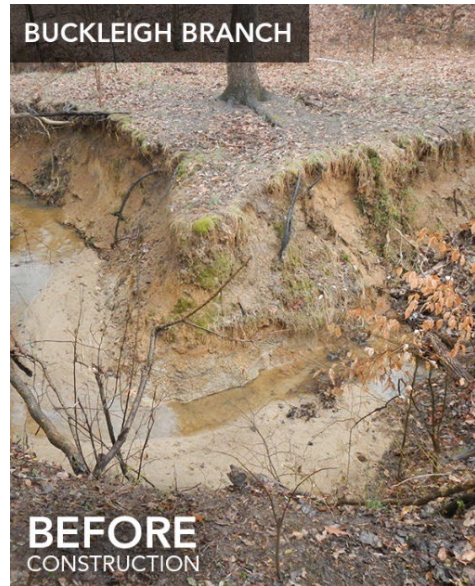
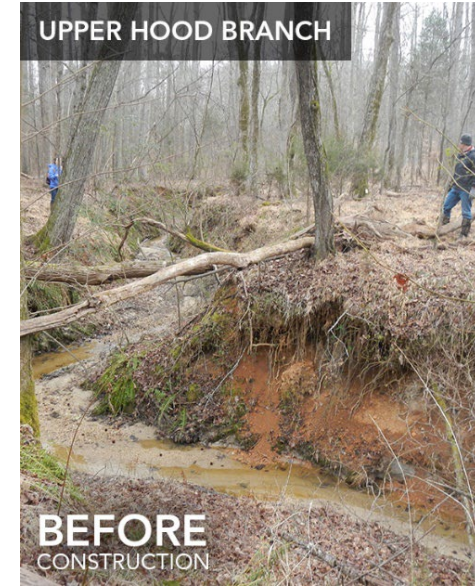
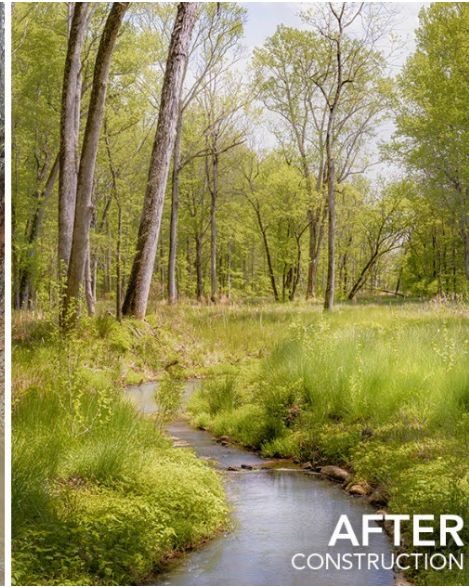
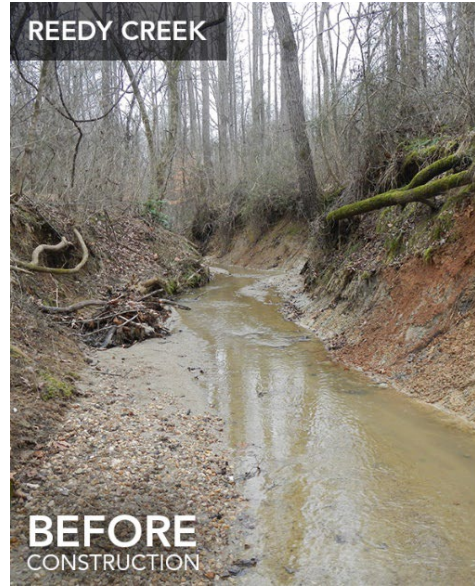


Flowering plants in upland areas are good for birds and pollinators such as bees and butterflies



# EXAMPLE STREAM RESTORATION PROJECT

Reedy Creek  
Park & Nature  
Preserve  
*Charlotte, NC*



# EXAMPLE BIORETENTION PROJECT



**Glenwood Ave.  
Rose Garden  
Glen Eden Pilot Park  
Fox Rd.**

*Raleigh, NC*



# Project Opportunities for Community Engagement

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# THANK YOU FOR ATTENDING!

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City of Raleigh Stormwater Division

For more information, please visit:

<https://raleighnc.gov/projects/worthdale-park-stream-restoration-and-stormwater-improvements>