

Milton Avenue Woods

Open Space and Vegetation Analysis

March 10, 2010

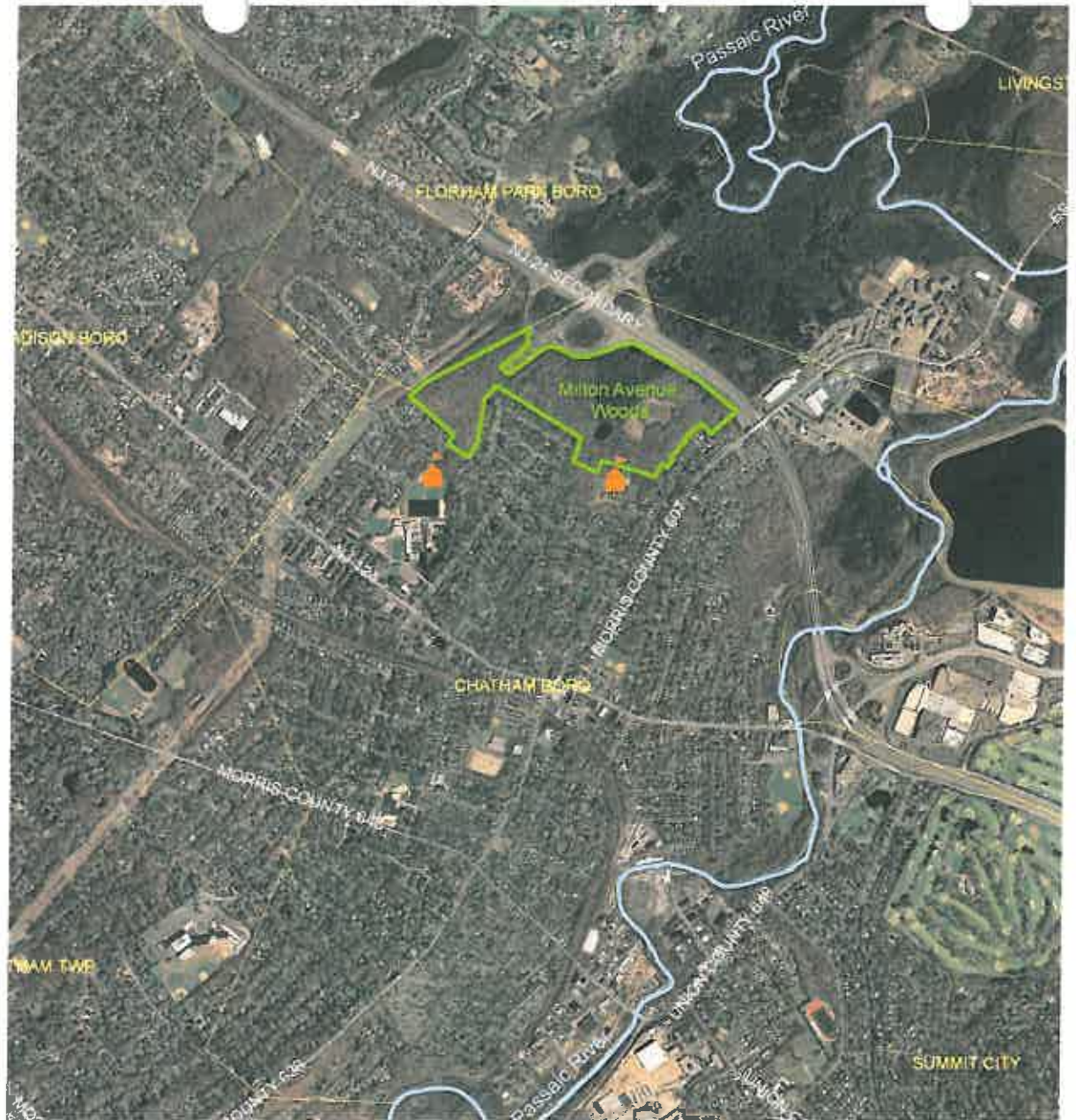


Borough of Chatham
Environmental Commission

AECOM

Milton Avenue Woods

- 94 acres
- Mostly wetlands with poorly drained soils
- Documented habitat:
 - State-listed endangered species (wood turtle, great blue heron)
 - Species of concern (fowlers toad, spotted turtle)
- Proximity to schools and residential neighborhoods



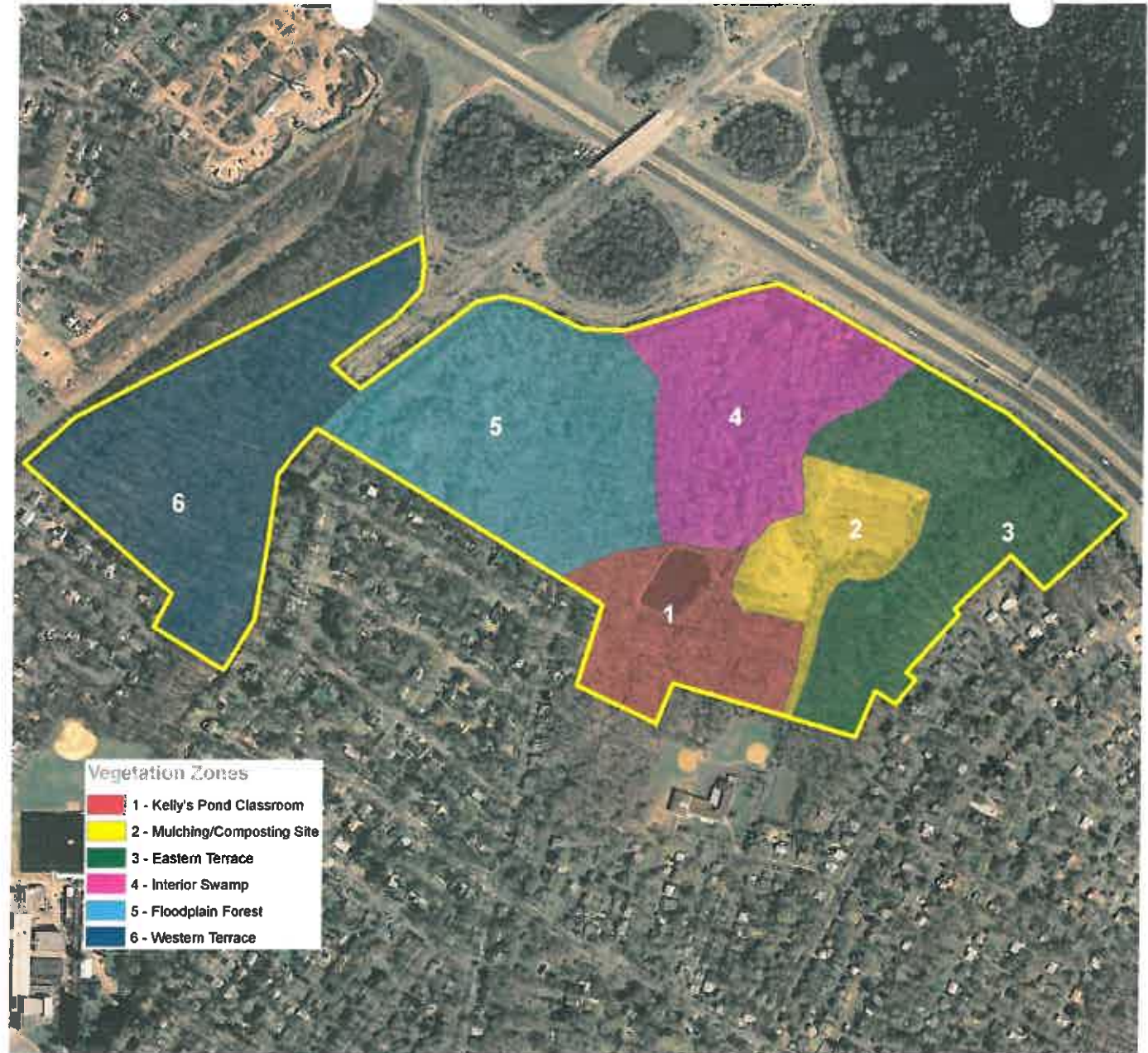
Objectives

- Identify existing vegetation patterns and invasive species
- Recommendations for invasive species removal
- Potential for habitat restoration and native vegetation enhancement
- Recommendations for public access and use



Vegetation Zones

- Six unique vegetation communities or habitat zones
- Vary by dominant native plant community matrix



Vegetation Zones

Zone 1 – Kelly's Pond Classroom

- Native floodplain and riparian hardwood vegetation
 - Red maple
 - Tulip tree
 - American sycamore
 - Shagbark hickory
 - Spicebush

Zone 2 – Mulching/ Composting Site

- Actively disturbed and maintained by the Borough
- Monitor to minimize stormwater runoff impacts and spread of invasive species seed bank



Vegetation Zones

Zone 3 – Eastern Terrace

- Better-drained soils support a mix of hardware tree species
 - Hophornbeam
 - Shagbark hickory
 - Black cherry
 - American linden
 - Pin oak
 - Witch hazel

Zone 4 – Interior Swamp

- Dominated by red maple swamp typical of Piedmont flood plain areas
 - Blackened leaves
 - Saturated soils
 - Trees with flared bases



Vegetation Zones

Zone 5 – Floodplain Forest

- Diverse community of floodplain species
 - Cottonwood
 - American hornbeam
 - Witch hazel
 - American linden
 - Spicebush
 - Swamp white oak
 - American sycamore
 - Jack-in-the-pulpit

Zone 6 – Western Terrace

- Better-drained soils support a mix of hardware tree species
 - Green ash
 - Shagbark hickory
 - Red maple
 - Swamp white oak
 - American hornbeam
 - Spicebush



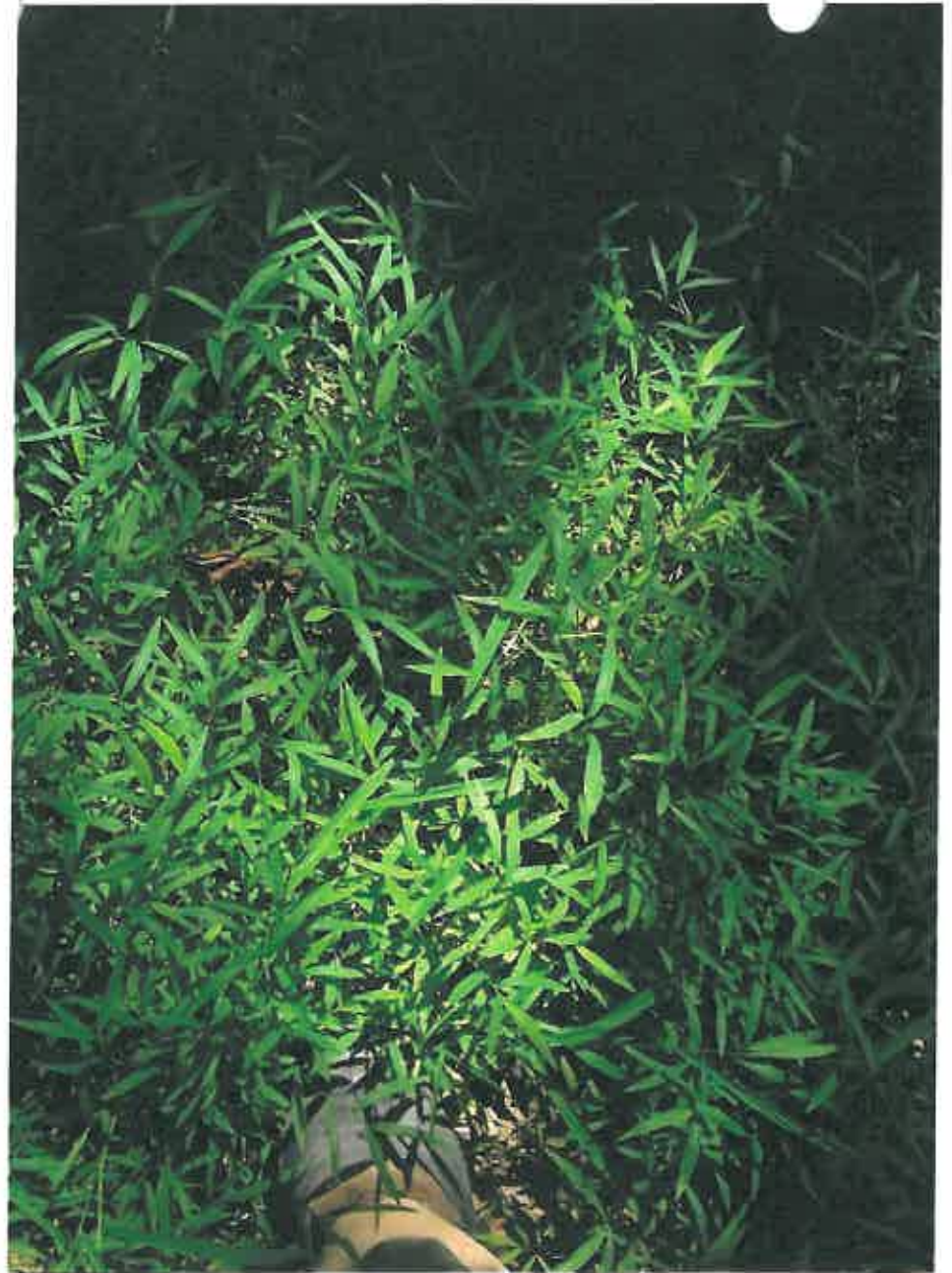
Invasive Vegetation Identification

- Typical invasive species (Phragmites, Japanese knotweed, purple loosestrife) not found in any significance
- Minor evidence of common garden escapees (multi-flora rose, Japanese barberry, pachysandra) observed in perimeter areas
- “Green carpet” of Japanese stiltgrass covers extensive areas of woodland floor, particularly in Zone 6



Japanese Stiltgrass

- Annual species that reseeds itself every year
- Tolerant of full sun to heavy shade
- Out-competes other native groundcovers
- Presence of white-tail deer may facilitate its invasion
- Seed bank can persist for five years, requiring long-term management commitment



Invasive Vegetation Management

Mechanical Removal Methods

- Shallow rooted and easily pulled or raked
- Can be mowed or cut with a weed trimmer
- Stems and leaves should be removed from site to prevent seed spreading
- Biomass should be composted to kill any viable seed, or disposed in a landfill

Chemical Treatment Options

- Pre-emergent chemicals applied in early spring keep stiltgrass from germinating
- Post-emergent treatment with a systemic herbicide (glyphosate) kills growing vegetation and keeps it from going to seed
 - Roundup®, non-specific and will kill or damage nearly all types of vegetation
 - Rodeo®, should be used to protect amphibians and aquatic invertebrates



Management and Maintenance

- Enlist and train volunteers using “train the trainer” programs such as Weed Warriors
- Engages the community in park restoration efforts
- Facilitates ongoing maintenance and long-term management





RECOMMENDATIONS FOR RECREATION ACCESS AND ENVIRONMENTAL EDUCATION

Opportunities

- Proximity to Chatham Middle School and Milton Avenue Elementary School
- Existing pathway to and around Kelly's Pond
- Multiple access points from residential streets
- Pedestrian-friendly community

Constraints

- Environmental restrictions
- Pedestrian safety
- Adjacent private property
- Maintenance requirements

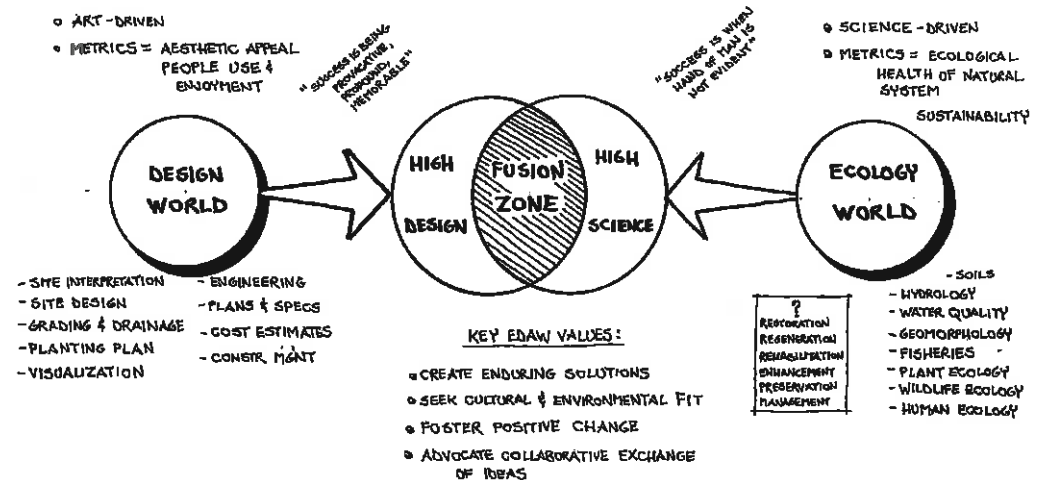


THE CHALLENGE:

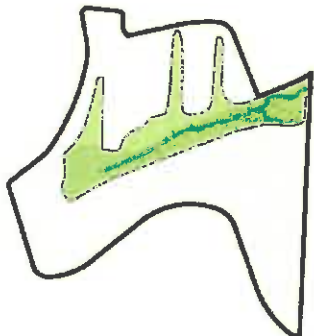
DB 2-20-01

Design + Ecology

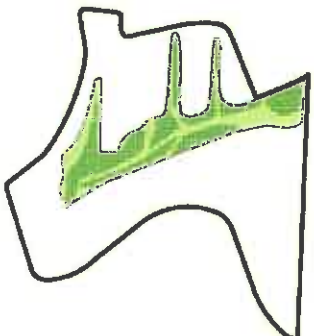
- Understanding how to facilitate collaboration between design and ecology
- Integrate ecology into the entire design process
- Stakeholder involvement and consensus building
- Synergy and innovation



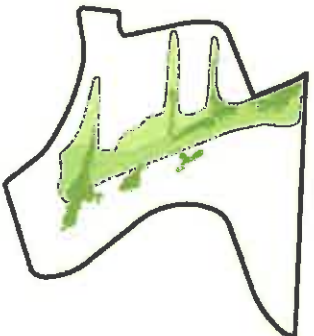
Layers of Opportunity



Sanctuary



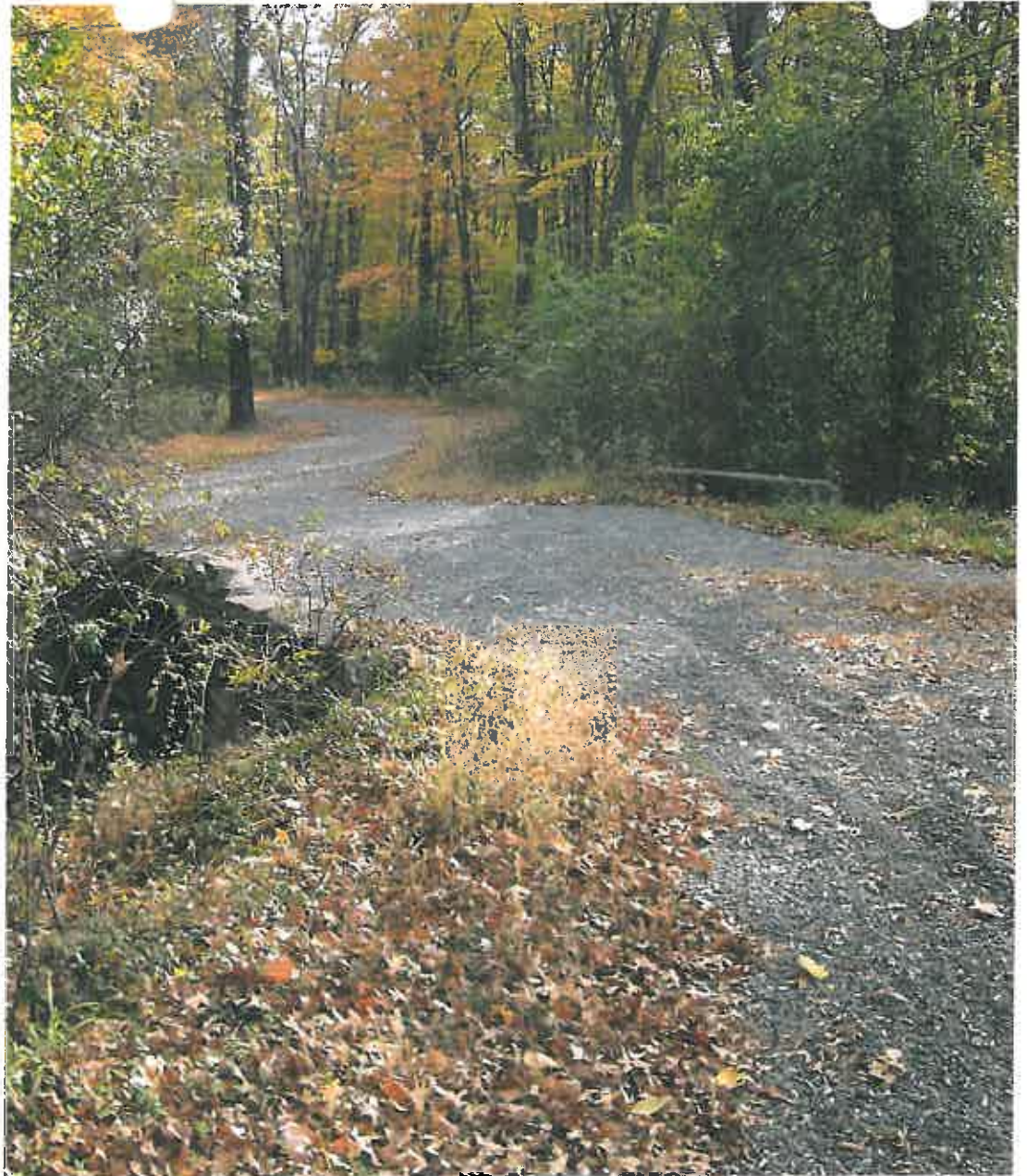
Nursery



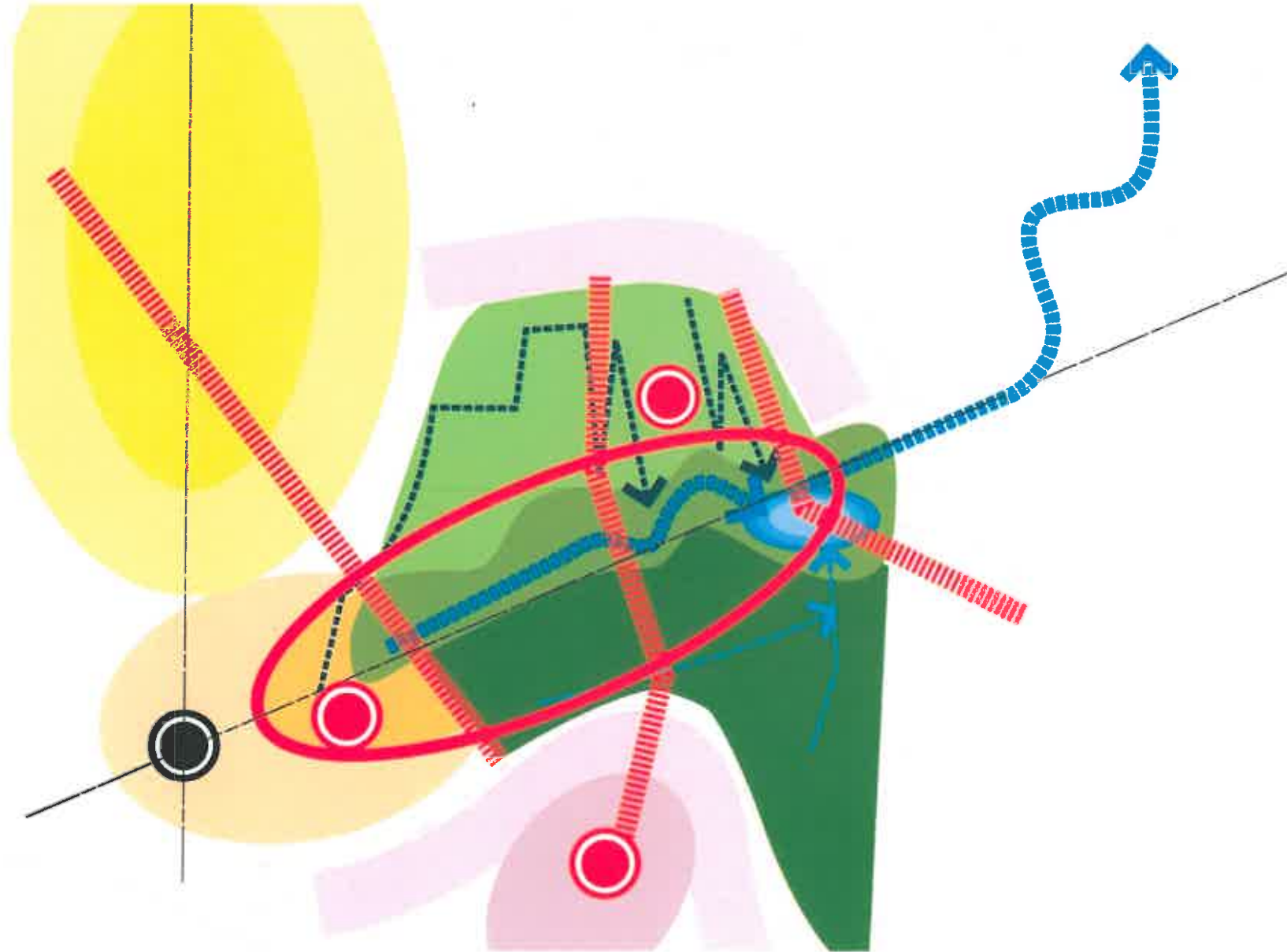
Park

Public Access and Passive Recreation

- Identify points of access that connect the larger community while protecting rights of adjacent property owners
- Establish a continuous route that avoids dead ends, protects core habitat areas, and links key destinations
- Highlight scenic qualities that provides an aesthetic experience for pedestrians
- Provide adequate width and sight distance, avoiding poor drainage and blind corners
- Ensure that all user groups are able to experience the site safely
- Display clear signage
- Develop maintenance plan



Framework for Design



Landscape and User Experience



Environmental Education

- Outdoor learning centers or classrooms provide dynamic and organic settings
- Offers active learning experience where students can observe and interact with the weather, insects, plants and wildlife
- Allows teachers to extend curriculum themes and projects into an outdoor setting
- Can lead to increased community involvement

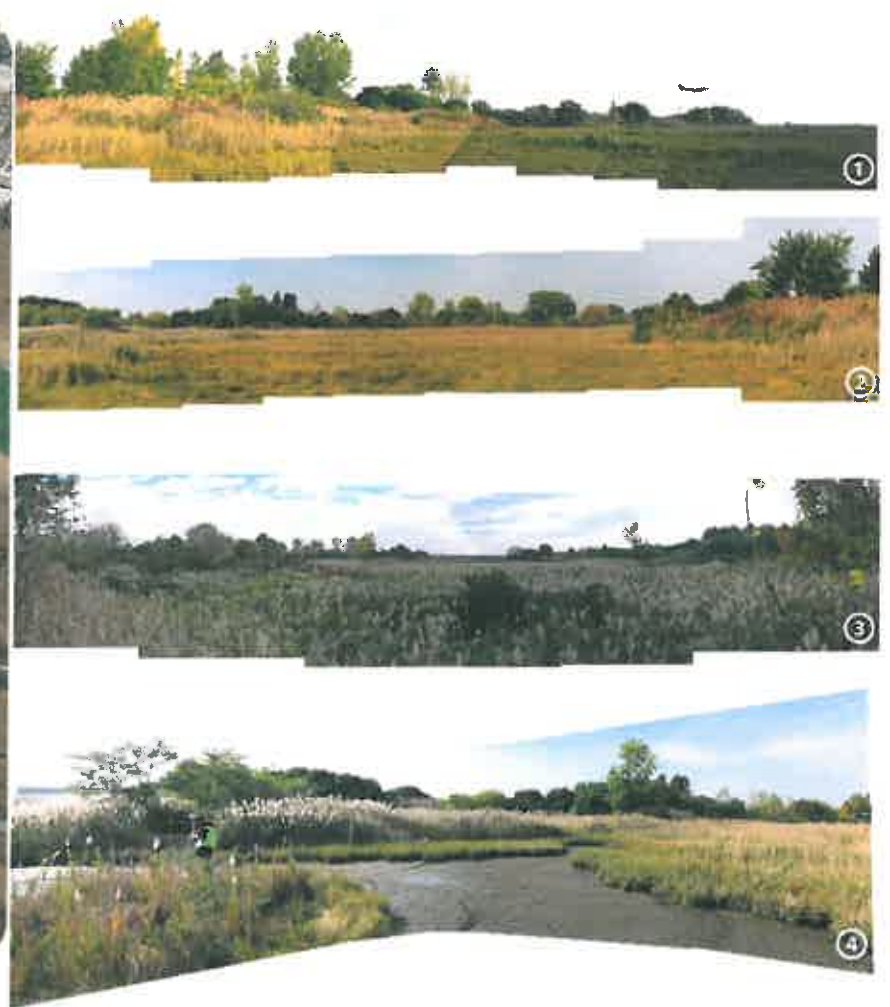


Idlewild Experimental Research and Education Center Queens, New York

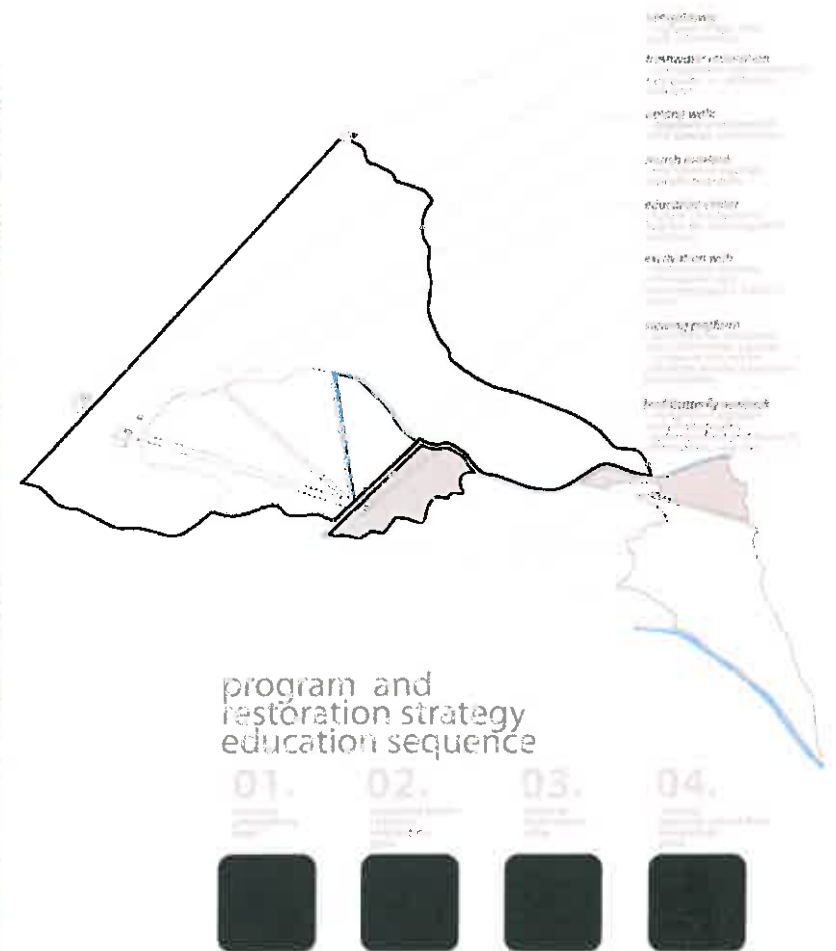


AECOM

Site Views and Understanding



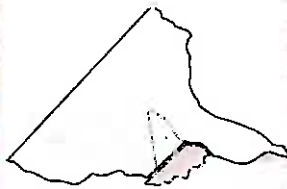
Programming and Education Sequence



Salt Marsh Restoration

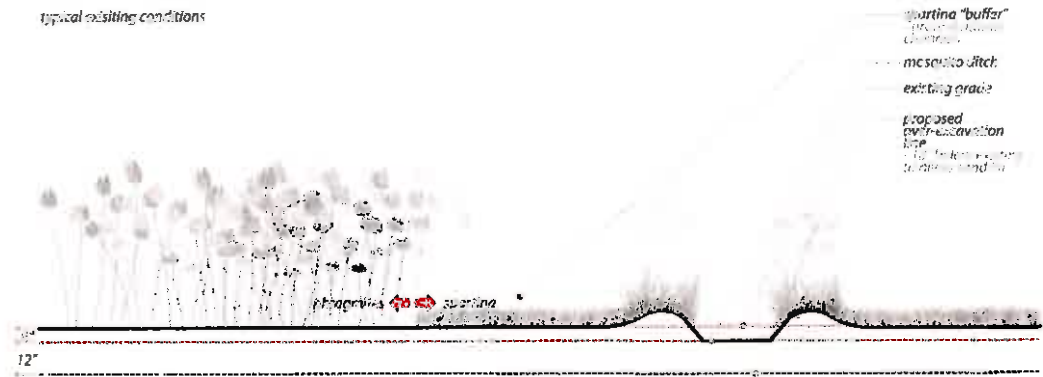


phragmites and
spartina and
educational components



marsh edge
components

typical existing conditions



phragmites zone

phragmites exists ~ 10' - 20' from aquatic channel condition at same grade
this zone is the most dense and most productive of the marsh

high marsh channel

spartina exists ~ 0' - 20' from aquatic channel
this zone is the most open and most productive of the marsh

phragmites, spartina, and spartina exist co-exist
this zone is the most open and most productive of the marsh

proposed conditions



01. cut

lower elevation 6"
this zone is the most open and most productive of the marsh

02. fill

create berm with fill
this zone is the most open and most productive of the marsh

03. excavate

excavate open channels to increase salinity
this zone is the most open and most productive of the marsh

04. educate

create educational experience on top of fill pathways
this zone is the most open and most productive of the marsh

05. expand

create framework for marsh expansion
this zone is the most open and most productive of the marsh

Next Steps

- Implement invasives removal program
- Conduct feasibility assessment for passive recreation and environmental education improvements
- Prepare final site plans and permits for restoration and improvements
- Secure required approvals and implementation funding
- Implement habitat restoration and enhancement, passive recreation improvements, and environmental education improvements





Thank You

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