NWCA Field Demonstration Preparation

Elizabeth Riley

The Agenda Has Changed!

Plan for the Field Day

- Rotating demonstration stations set up at 2 sites
  - SMALL groups (~10 people) rotate through each station within a site
  - Rotation proceeds 1 – 2 – 3 – 4 – 1

- Stations include:
  - VEG TEAM Stations
    - Vegetation Protocol
    - AA Station will go over assessment area establishment and USA-RAM AA metrics
  - AB TEAM Stations
    - Soil Protocol Station
    - Hydrology, Water Quality, Algae, Buffer Protocols and USA-RAM stressor metrics

Plan for the Field Day

- Group A1 goes to Ginny Baker (NC DENR) and Elizabeth Riley (EPA) in Site A
- Group A2 goes to Mike Scozzafava (EPA) in Site A
- Group A3 goes to Cat McIntyre (MT NHP) in Site A
- Group A4 goes to Gregg Serenbetz (EPA) and Regina Poeske (EPA) in Site C

Plan for the Field Day

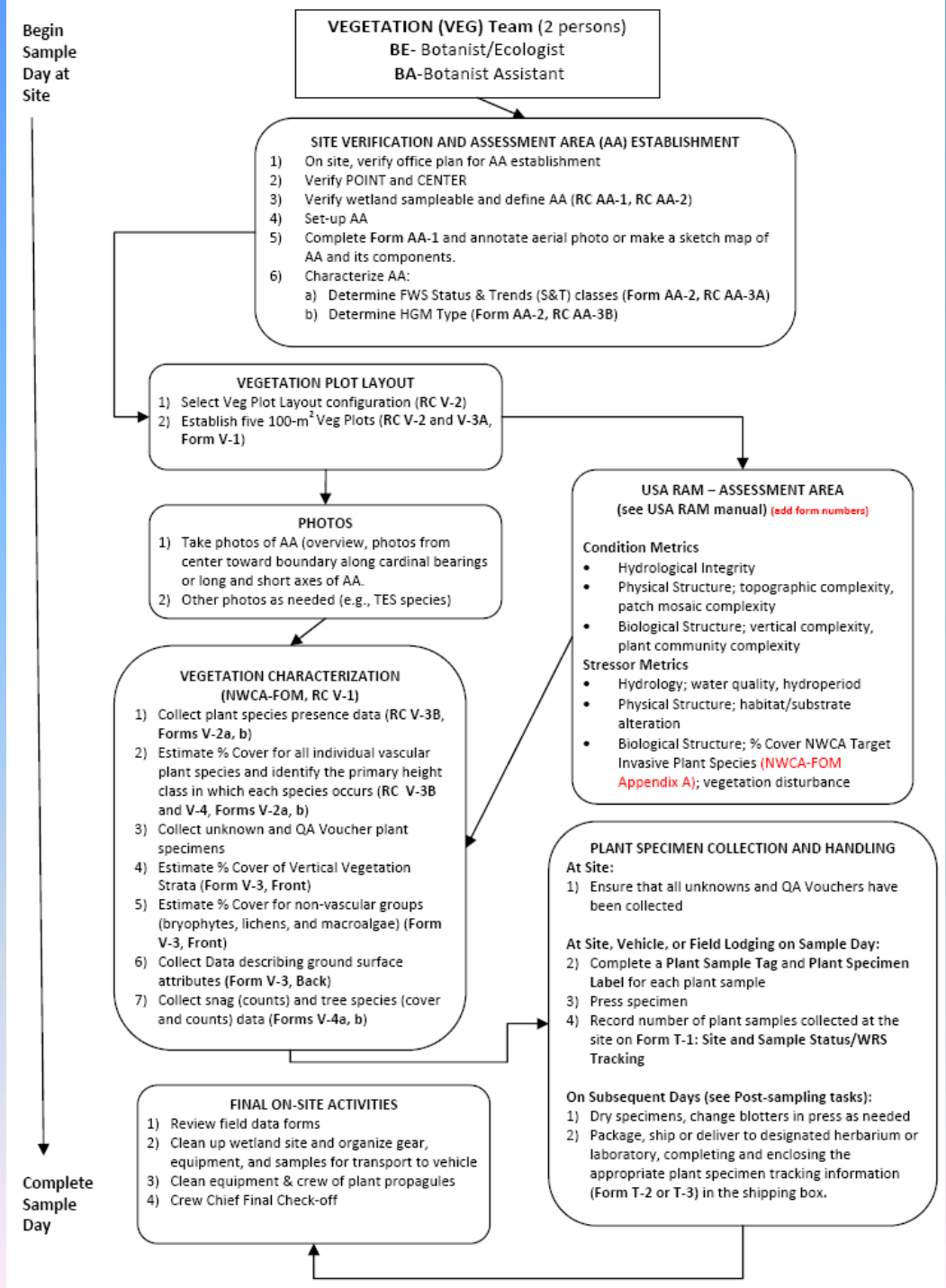
- Group B1 goes to Joanna Lemly (CO NHP) and Brian Gara (OH EPA) in Site B
- Group B2 goes to Chris Faulkner (EPA) in Site B
- Group B3 goes to Mary Anne Thiesing (EPA) in Site B
- Group B4 goes to Rick Savage (NC DENR) and Janet Nestlerode (ORD) in Site C

LOGISTICS

- Meet at 7:45 in hotel lobby to board bus
- Boxed lunches and water
  - Make sure you pay Tammy Taylor ($10)
- Don’t forget knee boots, rain gear, gloves and any other supplies
- It is going to be COLD!

PREPARATION FOR FIELD SAMPLING

Vegetation Team Sampling Day



Assessment Area/Buffer Team Sampling Day

ASSESSMENT AREA/BUFFER (AB) Team (2 persons)
AB1 – AB Member 1
AB2 – AB Member 2

Begin Sample Day at Site

NATURAL COVER AND STRESSORS

FOM – 12 Buffer Plots and AA CENTER Plot (Form B-1, RC B-1)
Plots are 100-m^2 (10X10m) with visually estimated boundaries.

A. In each of 3 Buffer Plots located along each of 4 (N, W, E, S) 100m Buffer Transects, and in the AA Center Plot, determine the presence and abundance of:
1) Natural Cover (Vegetation and Substrate)
2) Residential and Urban Stressors
3) Agriculture & Rural stressors
4) Industrial Development Stressors
5) Hydrology Stressors
6) 22 Targeted Alien Species (presence only)

B. Record GPS coordinates of 3rd plot on each transect.

USA RAM Metric 3: Stress to the Buffer Zone (USA RAM Manual)
1) While walking the 4 FOM Buffer Transects (see above), record the presence and severity of the buffer zone stressors (listed on the USA RAM Metric 3 Form) that occur anywhere along the transects.
2) Walk any other areas of the buffer zone that aerial photos suggest might have potential stressors. If observed add these stressors to USA RAM Metric 3 Form.

HYDROLOGY (Form H-1)
1) Identify Water Sources
2) Determine and Rank Hydrology Stressors
3) Make Ditch Measurements
4) Determine Presence of Hydrology Indicators (RC H-1)

WATER QUALITY (Form WQ-1)
1) Complete Surface Water Characteristics Assessment
2) Collect Water Sample and record associated data
3) If desired, conduct ***Optional*** Water Quality Protocol with multi-probe meter
4) Determine Maximum Depth and Surface Water Extent

ALGAE (Form ALG-1, RC ALG-1)
1) If any surface water is present, collect **Chlorophyll-a** sample. Collect Chl-a sample after collecting the **Algal Toxin** and **Algae Taxonomic** samples.
2) If both water and aquatic or emergent vegetation are present:
   a) Collect epiphytic algae from vegetation
   b) Collect phytoplankton from water
   c) Composite a and b
   d) Split this composite epiphyte-water subsample to form:
      i) the **Algal Toxin** sample, and
      ii) the **Partial Algae Taxonomic** sample
   e) Collect substrate algae subsamples and combine with Partial Taxonomic sample to complete **Algae Taxonomic** sample
3) If water without vegetation is present, collect phytoplankton sample for:
   a) the **Algal Toxin** Sample, and
   b) the **Partial Algae Taxonomic** sample
   c) Collect substrate algae subsamples and combine with Partial Taxonomic sample to complete **Algae Taxonomic** sample
4) If no water is present, collect **Algae Taxonomic** sample from substrate only
5) Complete preparation of each sample by filtering or preserving

SOILS – PROFILE DESCRIPTION (RC S-1A)
1) Determine 4 Soil Pit locations (**RC S-2A**)
2) Use a separate **Form S-1** to record data for each pit
3) At each Soil Pit, excavate to 60cm and record location, depth, and pit attribute information (**Form S-1 (Front)**)
4) Determine presence of Hydric Soil Indicators in the Soil Profile (**RC S-5**) and record on **Form S-1 (Back)**
5) Describe soil profile **at each Soil Pit** by delineating horizons (**RC S-2B and S-3**) and by determining the following characteristics for **each horizon.** Record profile data on **Form S-1 (Front):**
   a) H_2S odor
   b) Horizon depth and horizon boundary abruptness
   c) Soil texture (**RC S-4A**)
   d) % Rock fragments and % Roots (**RC S-3A**)
   e) Soil matrix color (**RC S-4B**)
   f) Presence and type of redoximorphic or other features (**RC S-3**)
   g) % Surface area of distinct or prominent redox and other features (**RC S-4B**)
   h) Color of most evident redox or other feature (**RC S-4B**)
6) Randomly select one Representative Soil Pit from the subset of pits with the most similar soils
7) Excavate soil cores down to 125cm from the Representative Pit and describe the soil profile from 60cm down to 125 cm (Steps 3-6)

SOILS – SAMPLE COLLECTION IN REPRESENTATIVE PIT (RC S-1B)
1) Once the Representative Pit has been identified, excavate as needed to collect four kinds of soil samples. Carefully bag and label each sample using prefilled labels and tags
2) Collect the **soil isotope** (3 syringe cores) and the **sediment enzyme** (6 syringe cores) sample from surface soil layers at Representative Pit location
3) Collect a **Bulk Density** (3 can cores) and a **Chemistry/PSDA** (1-2 liters) sample **for each horizon > 8cm thick** located in the top 60cm of the Representative Pit
4) Collect the **Chemistry/PSDA** sample **for each horizon > 8cm thick** located from 60 to 125cm deep in Representative Pit

SOILS – DEPTH TO WATER IN SOIL PITS (Form S-1 (Back))
1) After all data and all samples have been gathered at all four pits, collect water depth data at each pit.
2) Backfill all 4 Soil Pits

FINAL ON-SITE ACTIVITIES
1) Complete preparation of unfinished water quality, algae, or soil samples
2) Record all sample types collected in the AA on **Form T-1**
3) Review data forms
4) Clean up site, gather equipment, and all samples for transport back to vehicle
5) Clean equipment & crew of plant propagules
6) Crew Chief Final Check-off

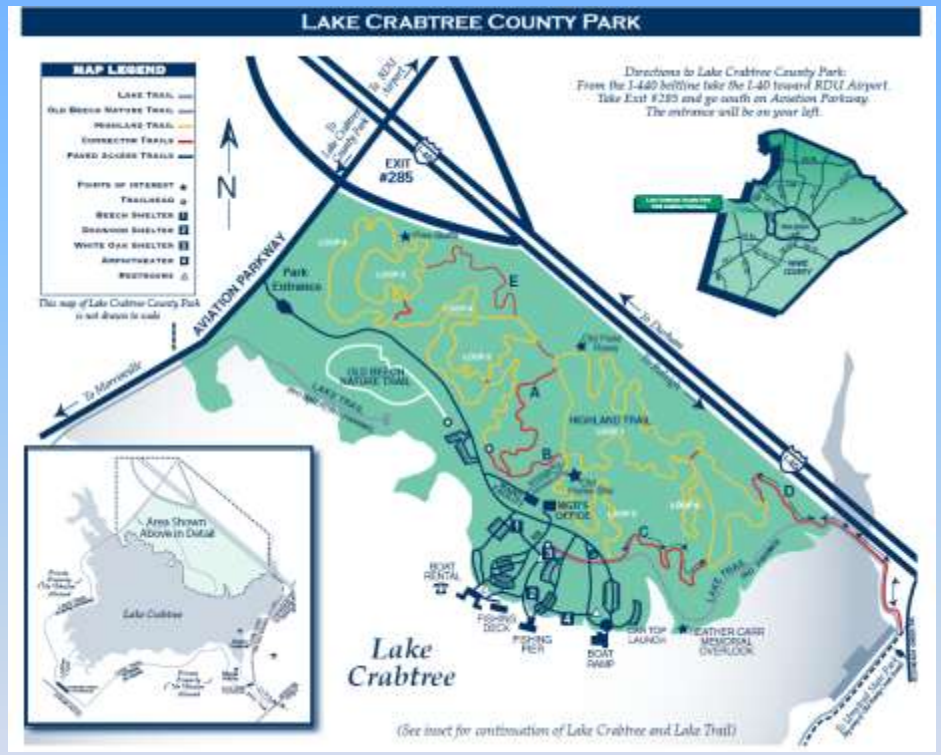
Complete Sample Day

Preparation for Field Sampling

- Before a field crew goes out to sample a site they must develop site packets containing:
  - appropriate maps,
  - aerial images,
  - contact information for the site (public/private),
  - photographs of the site,
  - copies of landowner permission forms,
  - all required permits to access and sample the site,
  - and any other specific requirements or instructions for accessing the site.

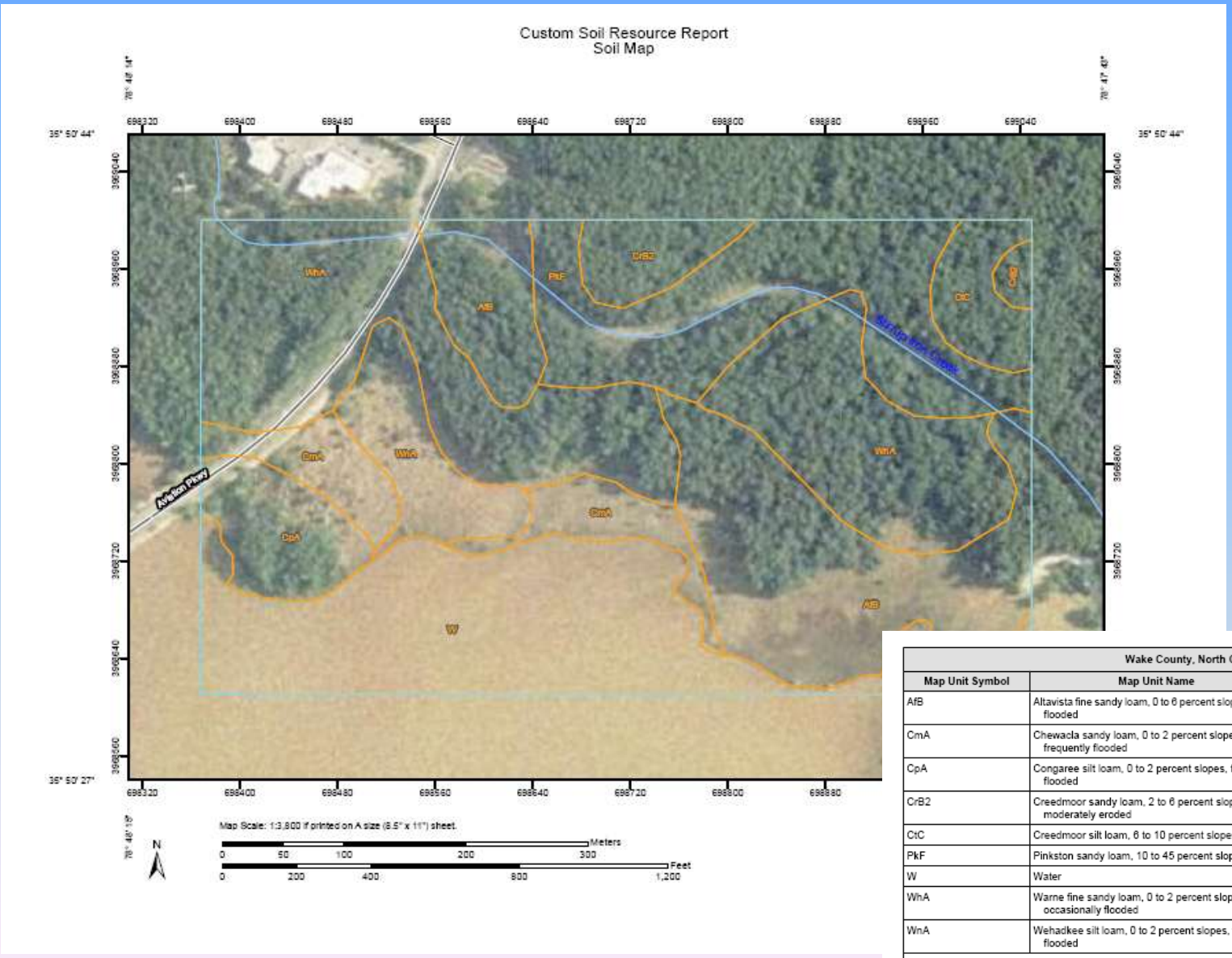
Site Information

- Lake Crabtree County Park
  - 215-acre site adjacent to a 520-acre flood control lake
  - Currently used mainly for recreation purposes
  - Thank you to Rick Savage (NC DENR) for finding the site and obtaining permission to sample!



Soils Map from Custom NRCS Soils Report

http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm



Wake County, North Carolina (NC183)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AfB	Altavista fine sandy loam, 0 to 6 percent slopes, rarely flooded	12.7	19.4%
CmA	Chewacla sandy loam, 0 to 2 percent slopes, frequently flooded	4.0	6.1%
CpA	Congaree silt loam, 0 to 2 percent slopes, frequently flooded	2.8	4.3%
CrB2	Creedmoor sandy loam, 2 to 6 percent slopes, moderately eroded	2.0	3.1%
CtC	Creedmoor silt loam, 6 to 10 percent slopes	1.8	2.8%
PkF	Pinkston sandy loam, 10 to 45 percent slopes	9.0	13.7%
W	Water	12.4	18.9%
WhA	Warne fine sandy loam, 0 to 2 percent slopes, occasionally flooded	17.7	26.9%
WnA	Wehadkee silt loam, 0 to 2 percent slopes, frequently flooded	3.0	4.6%
Totals for Area of Interest		65.5	100.0%

Site Images


2D 3D
Road Aerial
Gateway Centre Blvd
Aviation Pl
Winstead Dr
Winstead Dr
Site B
Veg., AA, and Soils
Site C
Buffer, Hydro, WQ, Algae
Site A
Veg., AA, and Soils
Aviation Pkwy
50 feet
20 m
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Topography Map

National Wetland Condition Assessment
Site NWCA11 - RD-A and B

N

Map Scale 1:10,000
0 135 270 540 Meters

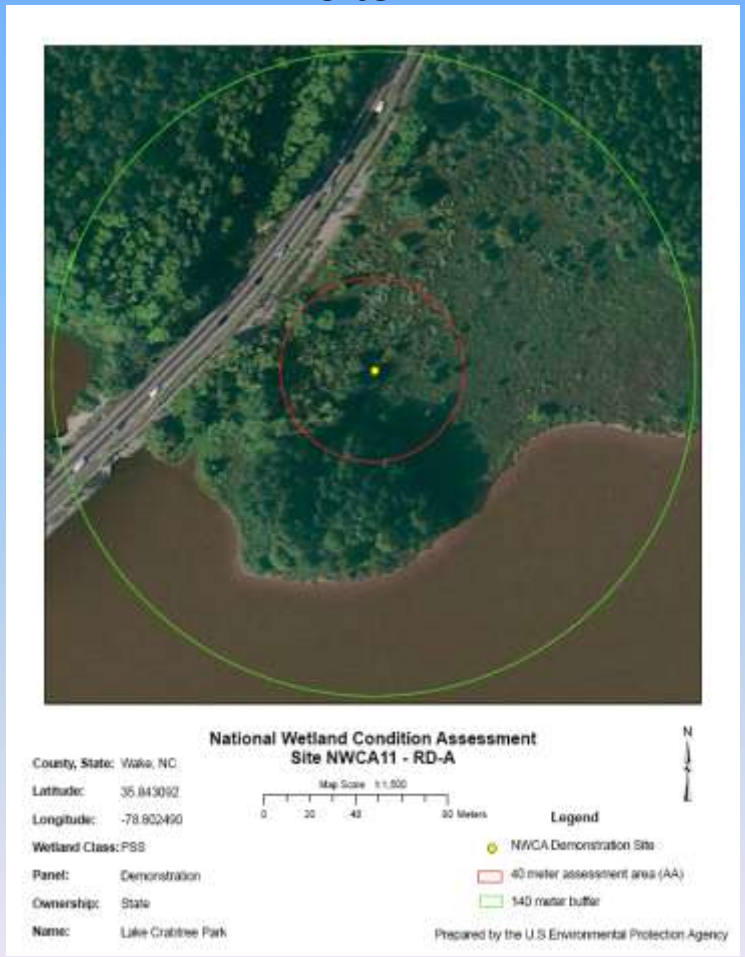
County, State: Wake, NC
Latitude: 35.843092
Longitude: -78.802490
Wetland Class: PSS
Panel: Demonstration
Ownership: State
Name: Lake Crabtree Park

Legend
- NWCA Demonstration Site
- 40 meter assessment area (AA)
- 140 meter buffer

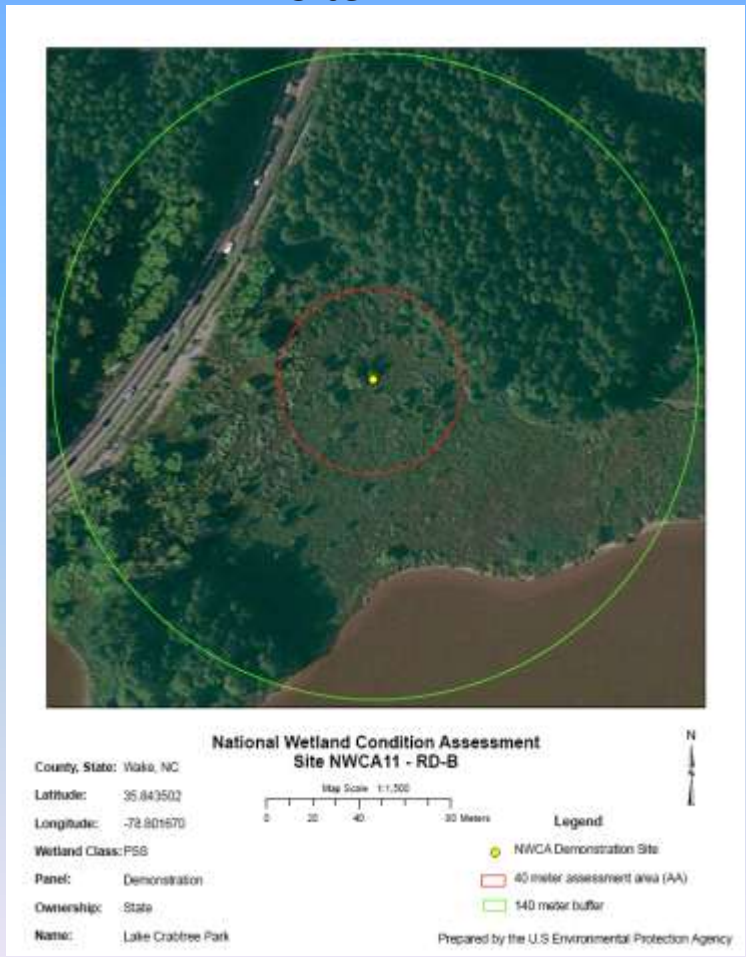
Prepared by the U.S Environmental Protection Agency

Site Maps

Site A

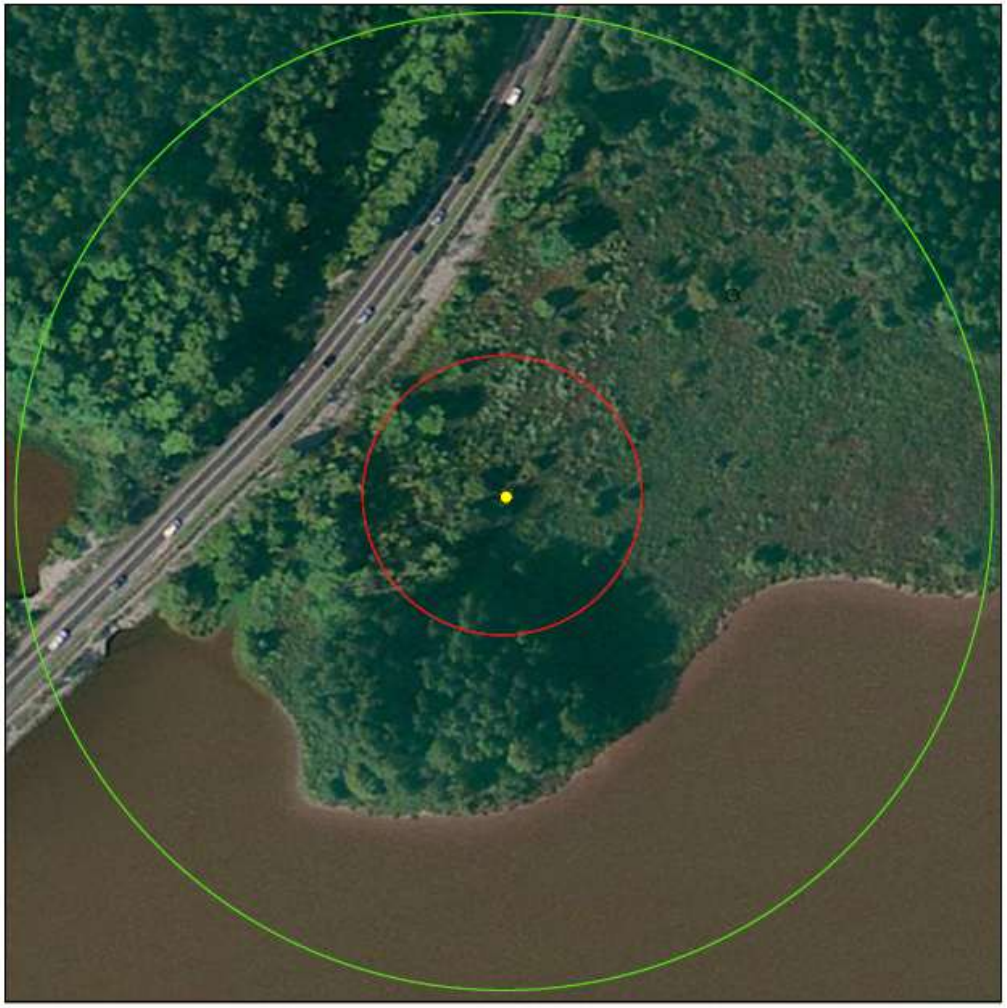


Site B



ANNOTATING SITE MAPS AND USA-RAM BUFFER METRICS 1 & 2

USA-RAM Metric 1:
51 – 75% Buffer



National Wetland Condition Assessment
Site NWCA11 - RD-A

County, State:	Wake, NC
Latitude:	35.843092
Longitude:	-78.802490
Wetland Class:	PSS
Panel:	Demonstration
Ownership:	State
Name:	Lake Crabtree Park

Map Scale 1:1,500

0 20 40 80 Meters

N

Legend

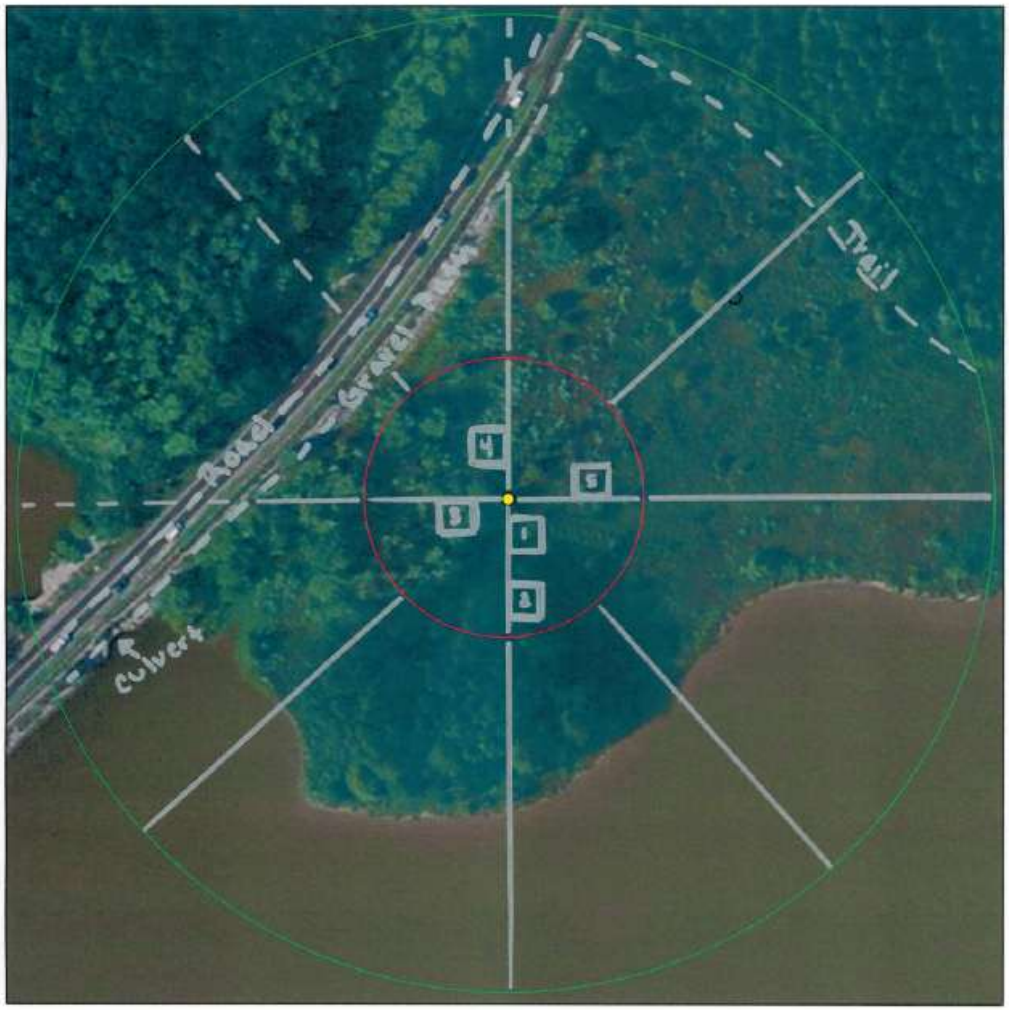
- NWCA Demonstration Site
- 40 meter assessment area (AA)
- 140 meter buffer

Prepared by the U.S Environmental Protection Agency

USA-RAM
Metric 2

Line 1: 74 m
Line 2: 100m
Line 3: 100m
Line 4: 33m
Line 5: 45m
Line 6: 33m
Line 7: 45m
Line 8: 20m

Mean Width =
56.25 meters



National Wetland Condition Assessment
Site NWCA11 - RD-A

N

Map Scale 1:1,500
0 20 40 80 Meters

County, State: Wake, NC
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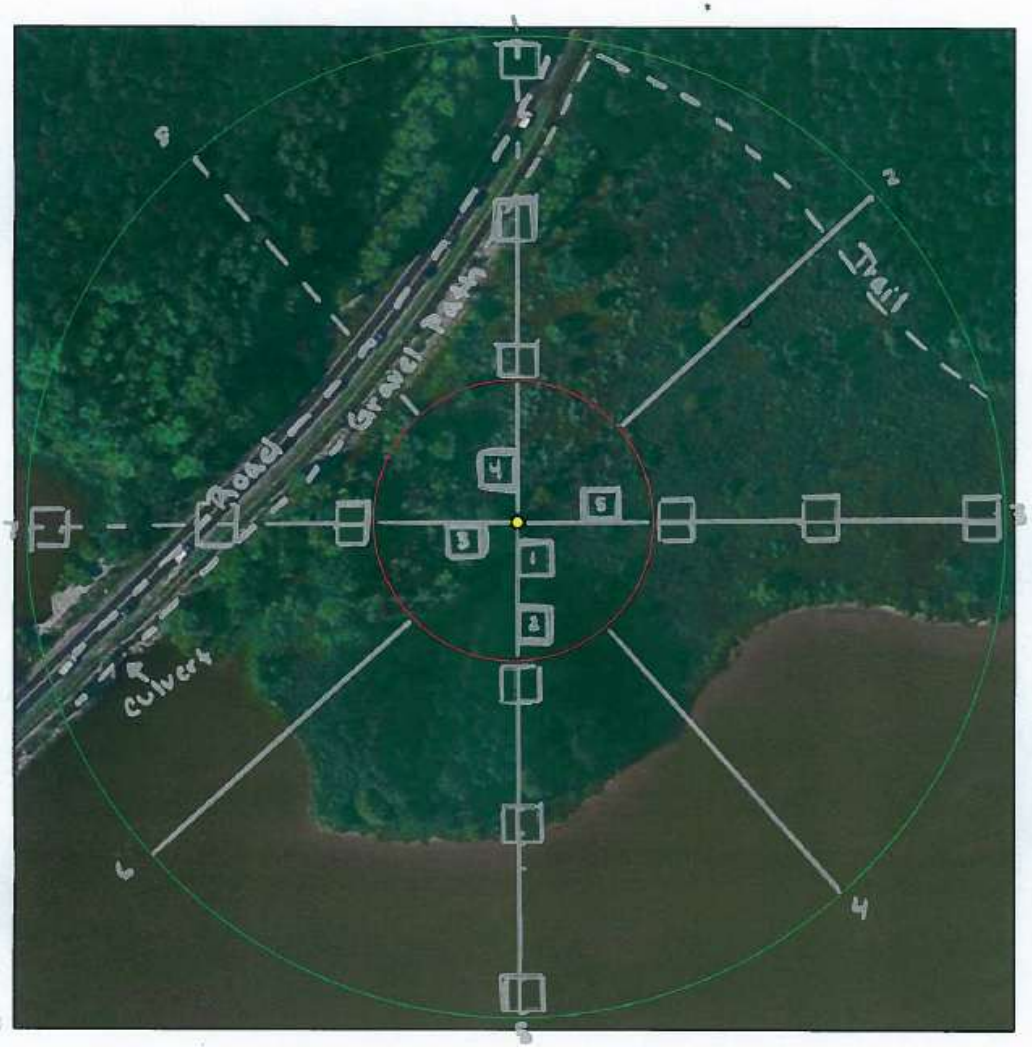

National Wetland Condition Assessment
Site NWCA11 - RD-A

County, State: Wake, NC

Latitude: 35.843092

Longitude: -78.802490

Wetland Class: PSS

Panel: Demonstration

Ownership: State

Name: Lake Crabtree Park

Map Scale 1:1,500

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