

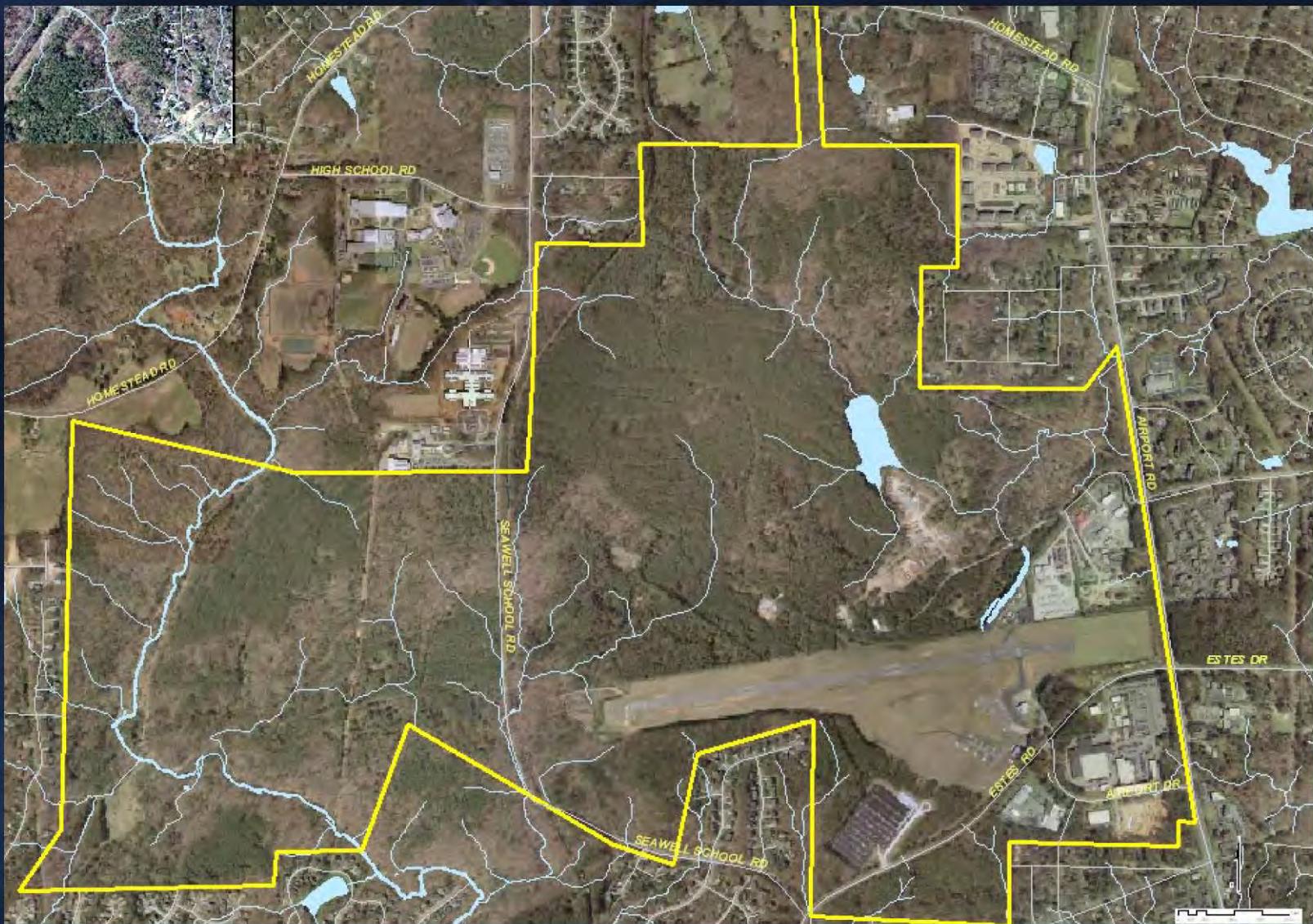
Carolina North Ecological Assessment

# Carolina North Ecological Assessment

## PUBLIC REVIEW SESSION

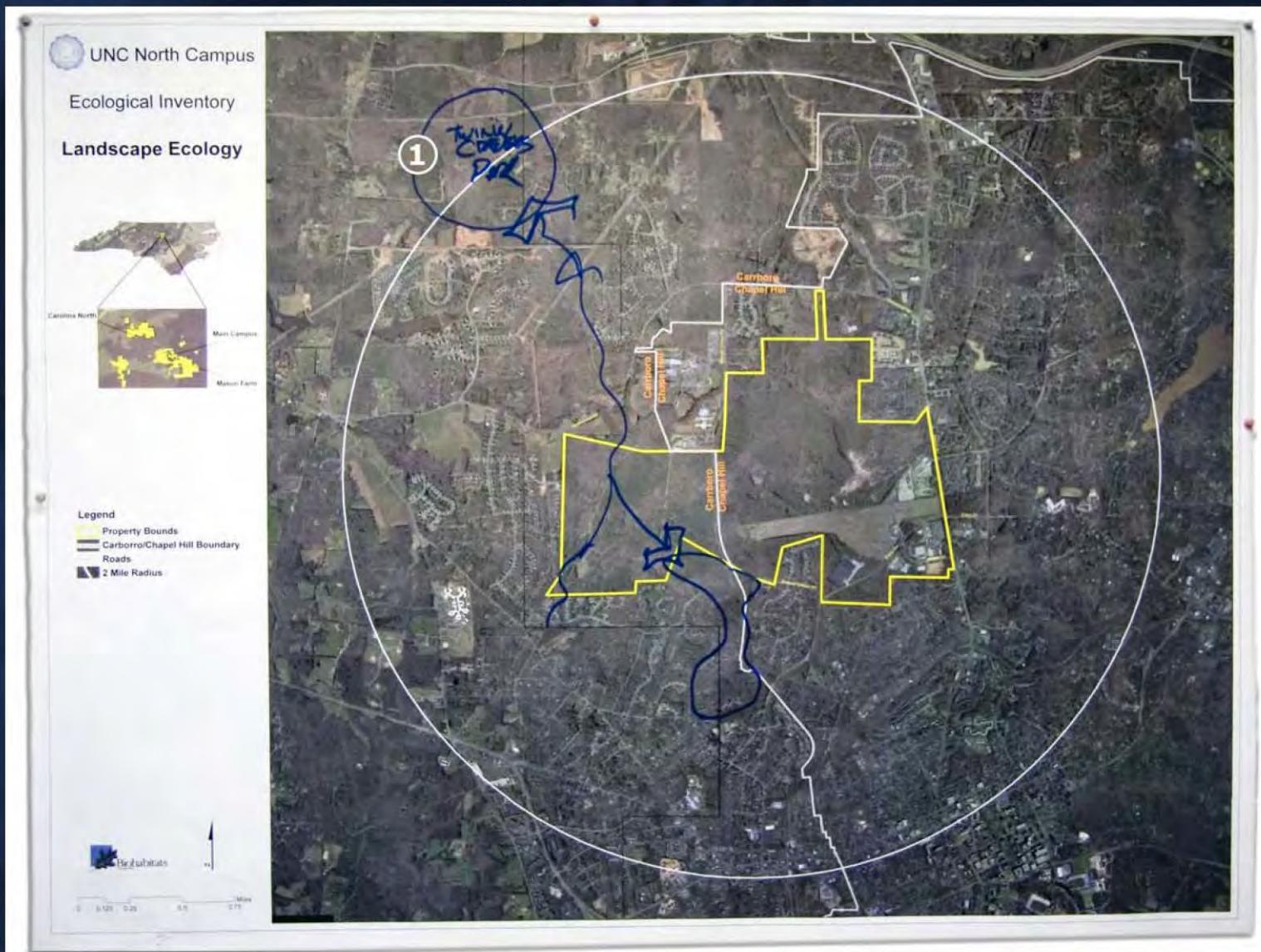


# Carolina North Ecological Assessment



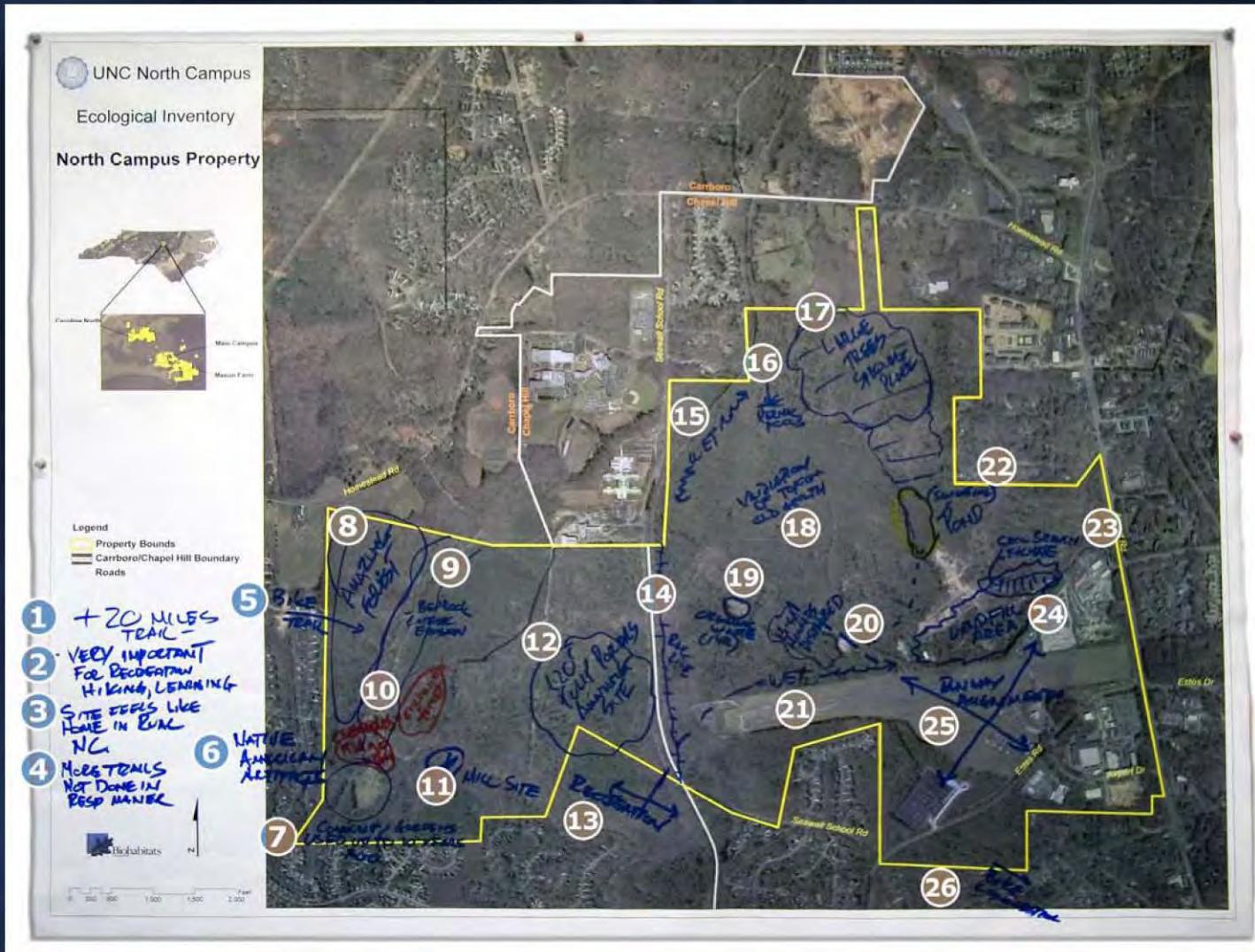
# Carolina North Ecological Assessment

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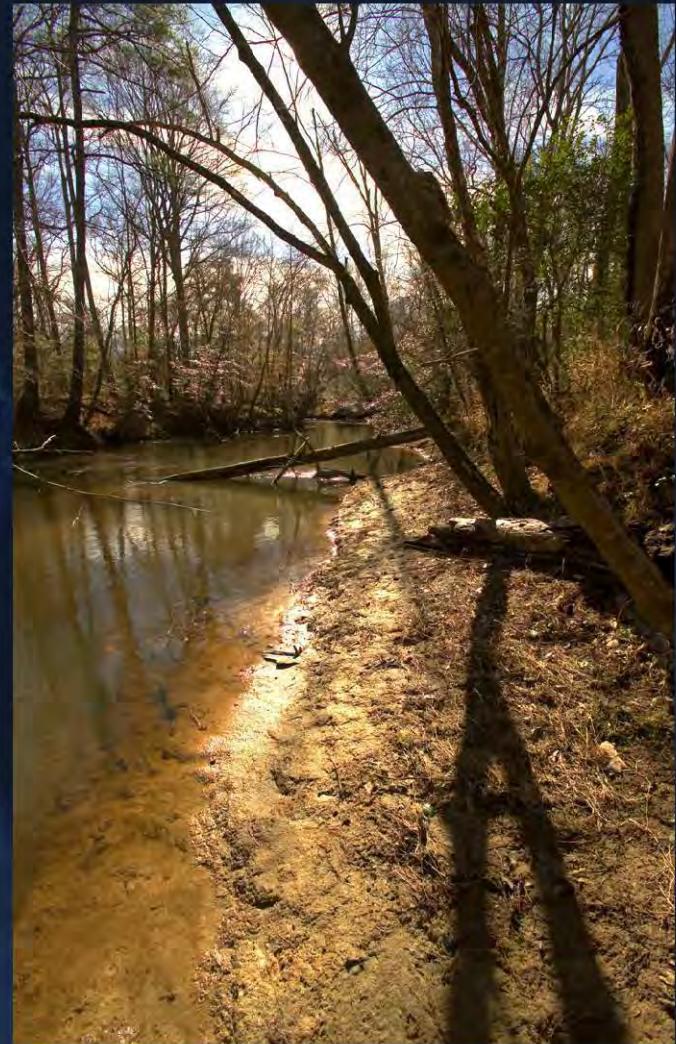
# Carolina North Ecological Assessment

## Carolina North Ecological Assessment



## Background

- Ecological Characterization and land development suitability analysis for the Carolina North property
- Goal of the study – Identify land areas that are most conducive for land conservation and land development with regards to regional and local ecological processes, functions and resiliency
- Focus of the study:
  - conservation > restoration >development
  - regional, local and site
  - temporal
  - process and function



## Methodology

- Data collection and initial field characterization
- Literature search
- Inventory Mapping
  - Soils, geology, morphology, water resources, land cover, vegetation, habitat, landscape ecology, cultural, historic and recreational resources
  - GIS mapping (existing data layers)



# Methodology

- Analysis
  - Scientific and value driven
  - Consensus driven
  - Identify important ecological attributes based on:
    - + uniqueness and rarity
    - + role in governing ecological processes and resiliency (cause and effect relationships)
    - + relationship to regional landscape processes
    - + social and cultural values
    - + aesthetics



## Methodology

- Analysis
  - Development of suitability metrics and values for various ecological attributes
  - Application of suitability values to the site

**METRIC** - Wildlife habitat



**ECOLOGICAL ATTRIBUTE**

Regional Connectivity

**VALUE**

2 x

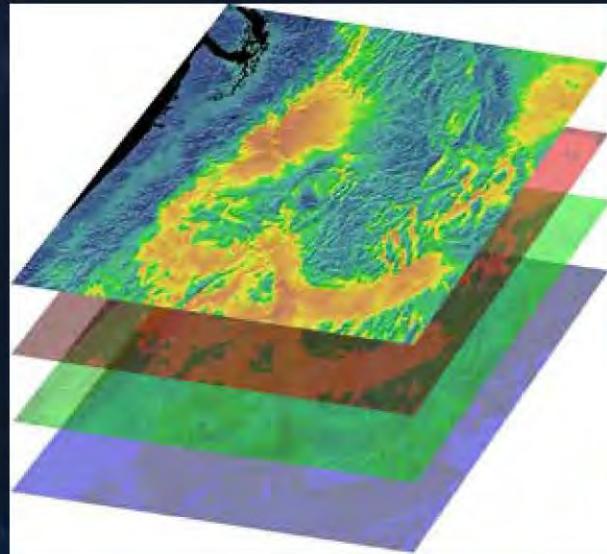
**SUITABILITY**

**SCALE**

No ecological impacts  
Acceptable with restrictions  
Compromise ecological integrity

## Methodology

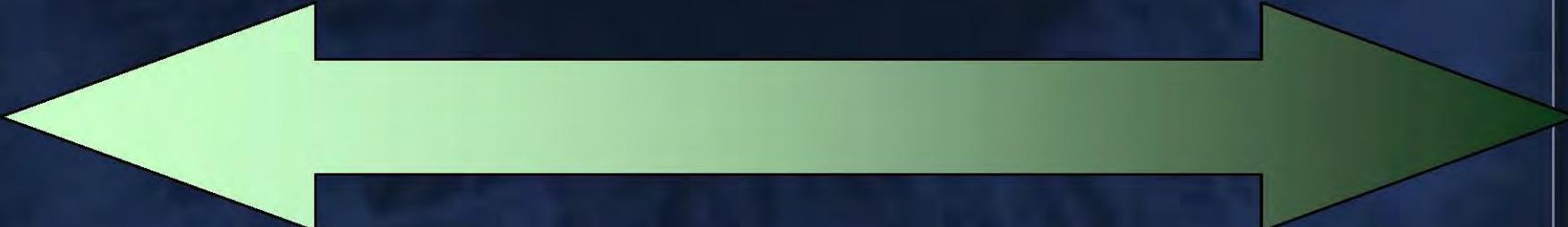
- Analysis
  - Overlay and Identification of ecological suitability



Disturbance will result  
in no or marginal  
ecological impact

Disturbance acceptable  
if BMPs or restrictions  
are applied

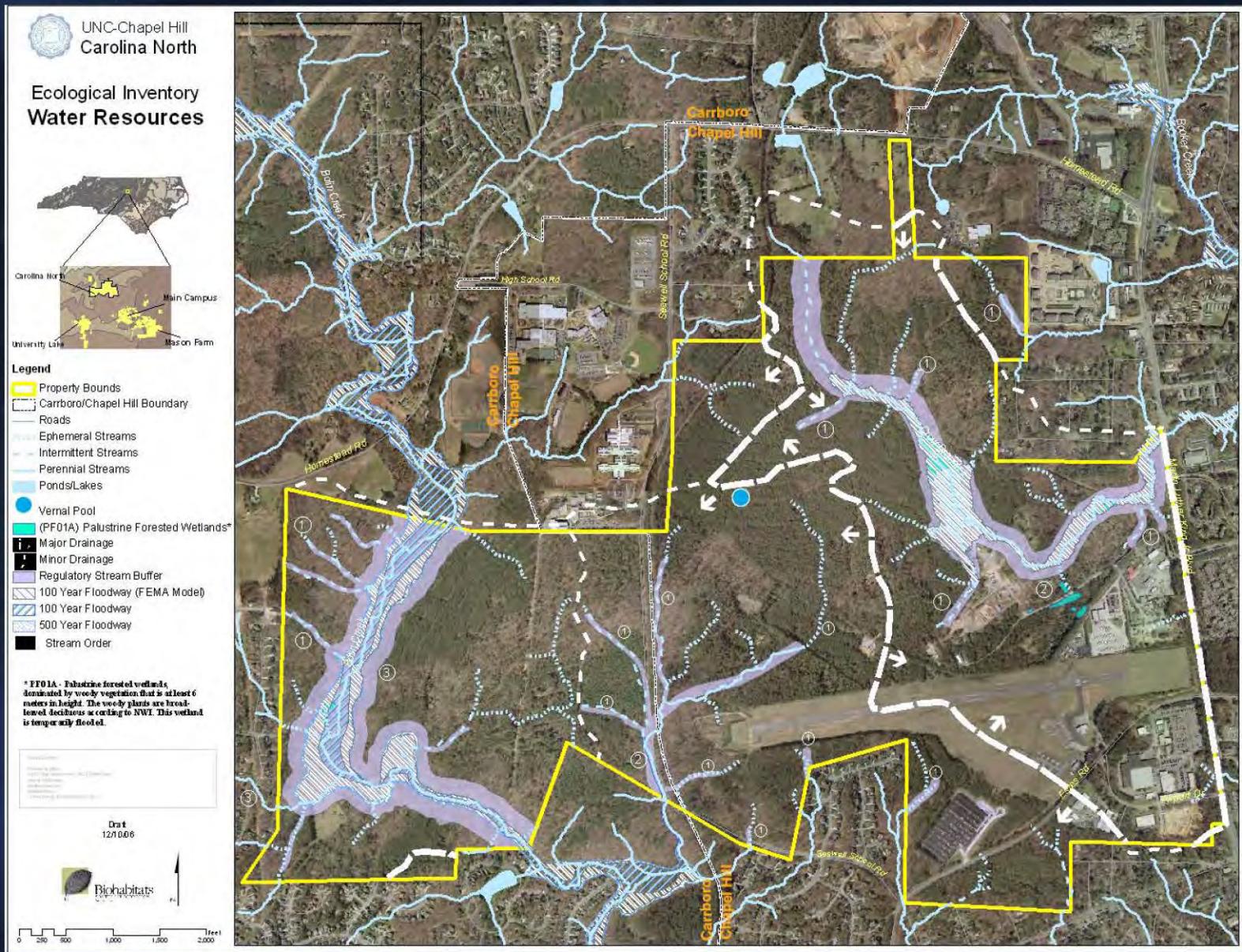
Disturbance will  
compromise ecological  
integrity



Regulatory  
restrictions or  
conservation area

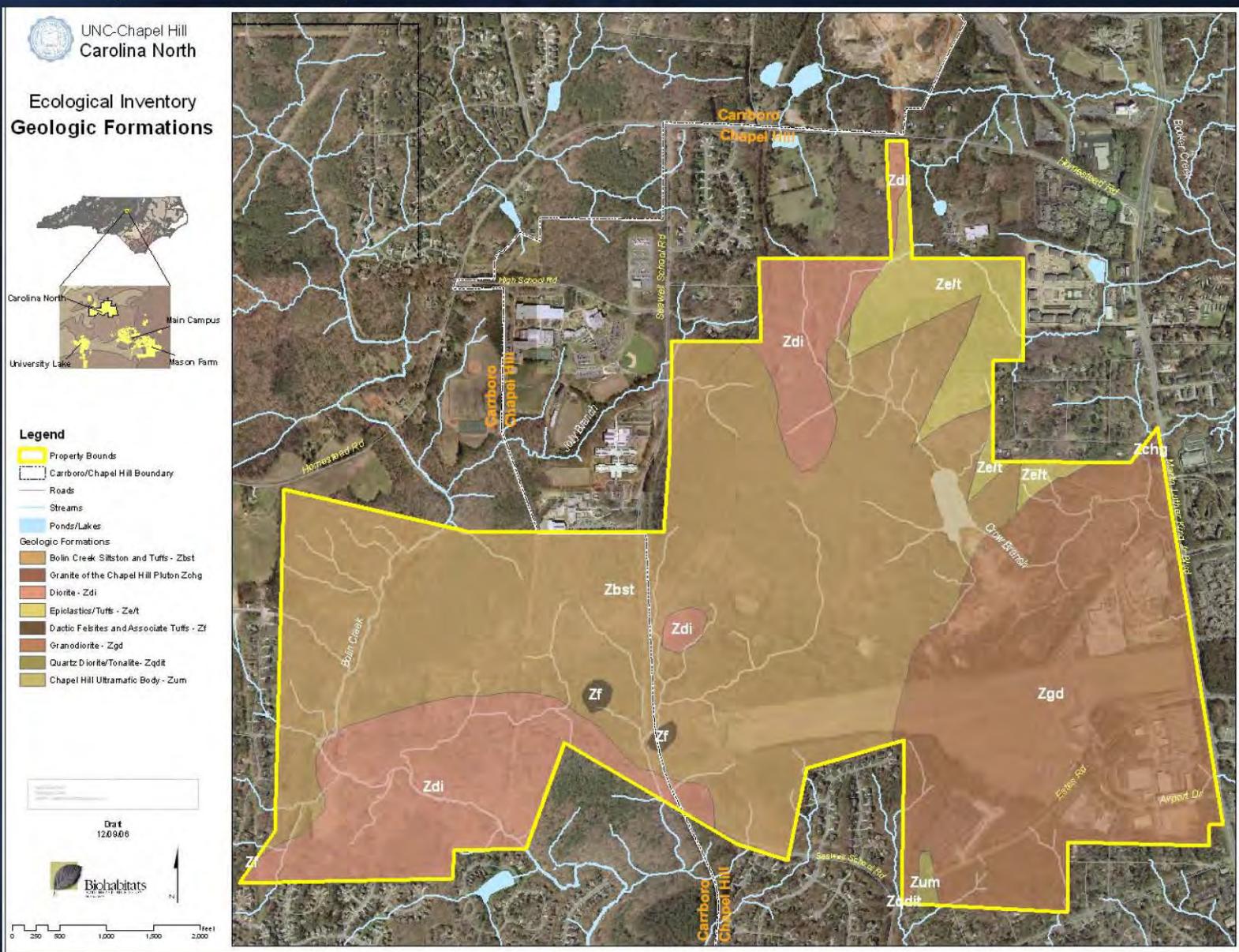
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## Inventory – Water Resources



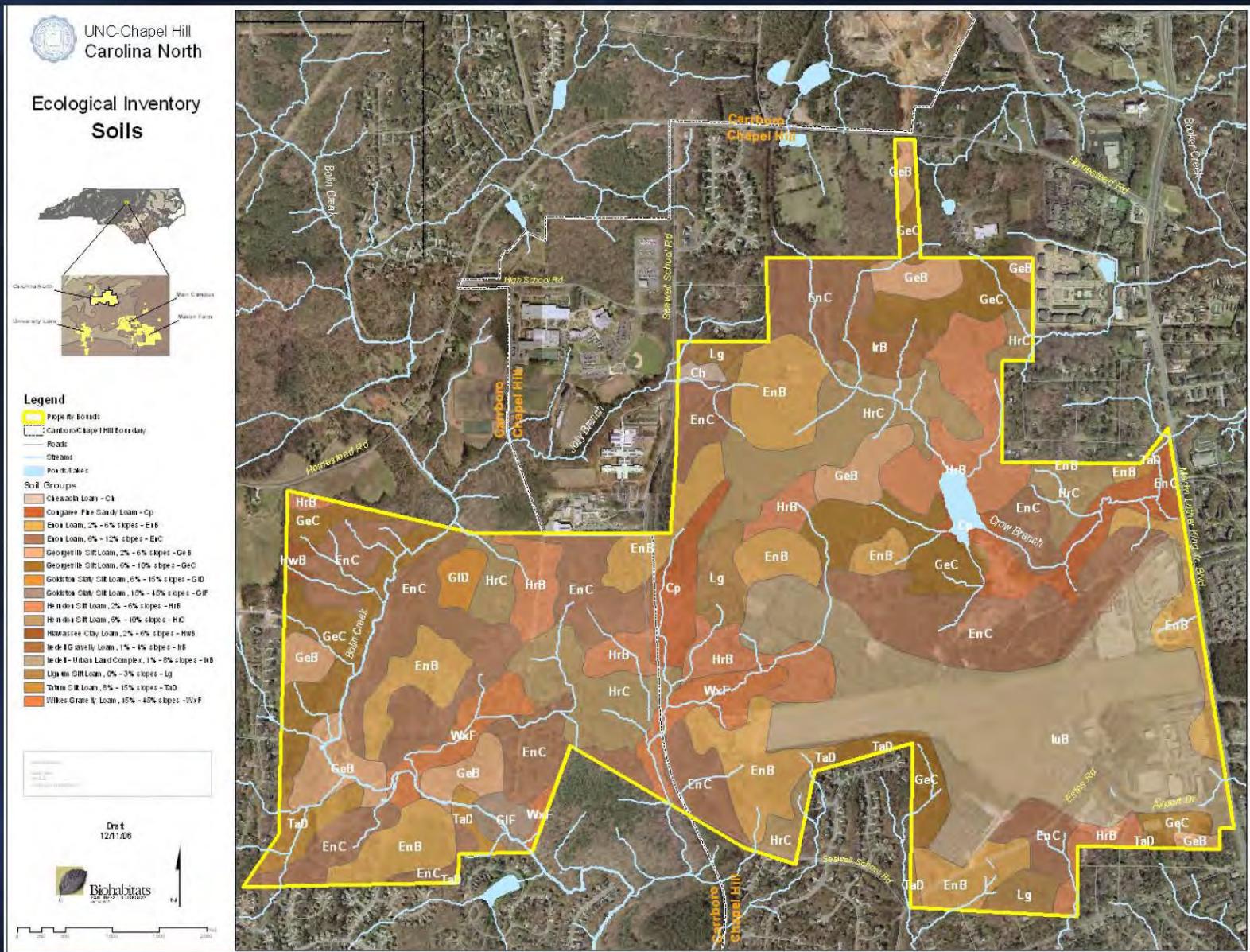
# Carolina North Ecological Assessment

## Inventory – Geologic Formations



# Carolina North Ecological Assessment

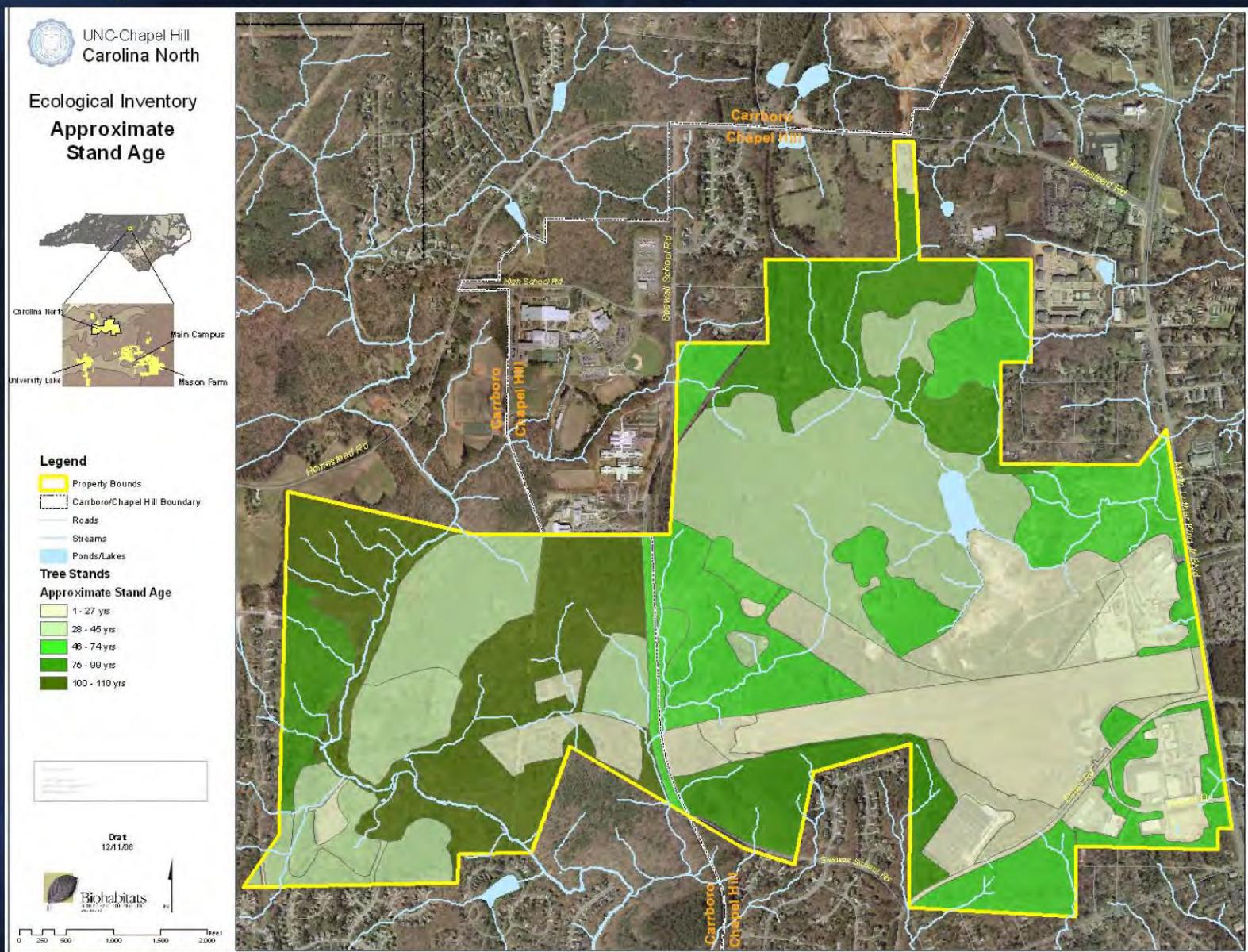
## Inventory – Soils



Biohabitats

# Carolina North Ecological Assessment

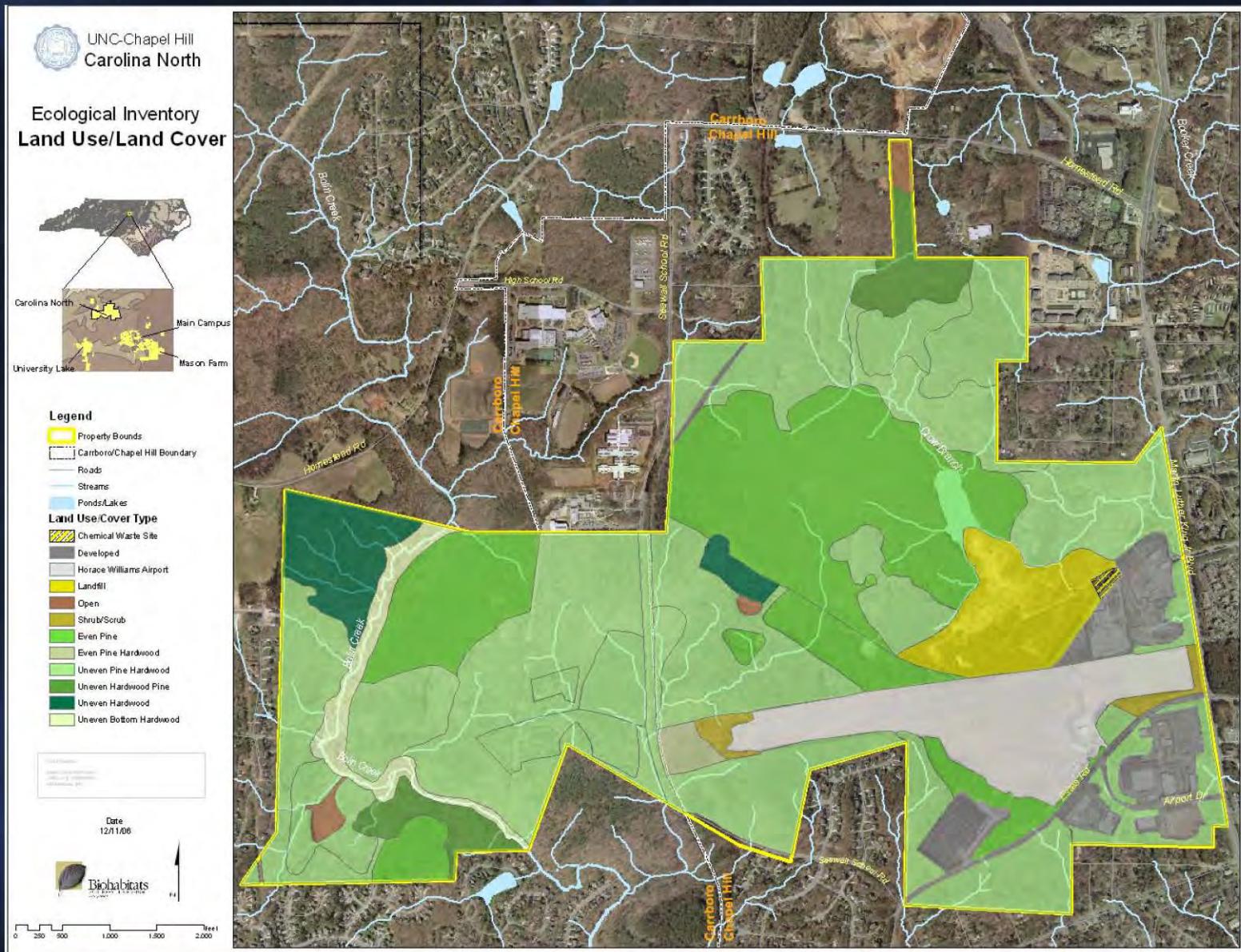
## Inventory – Approximate Stand Age



Biohabitats

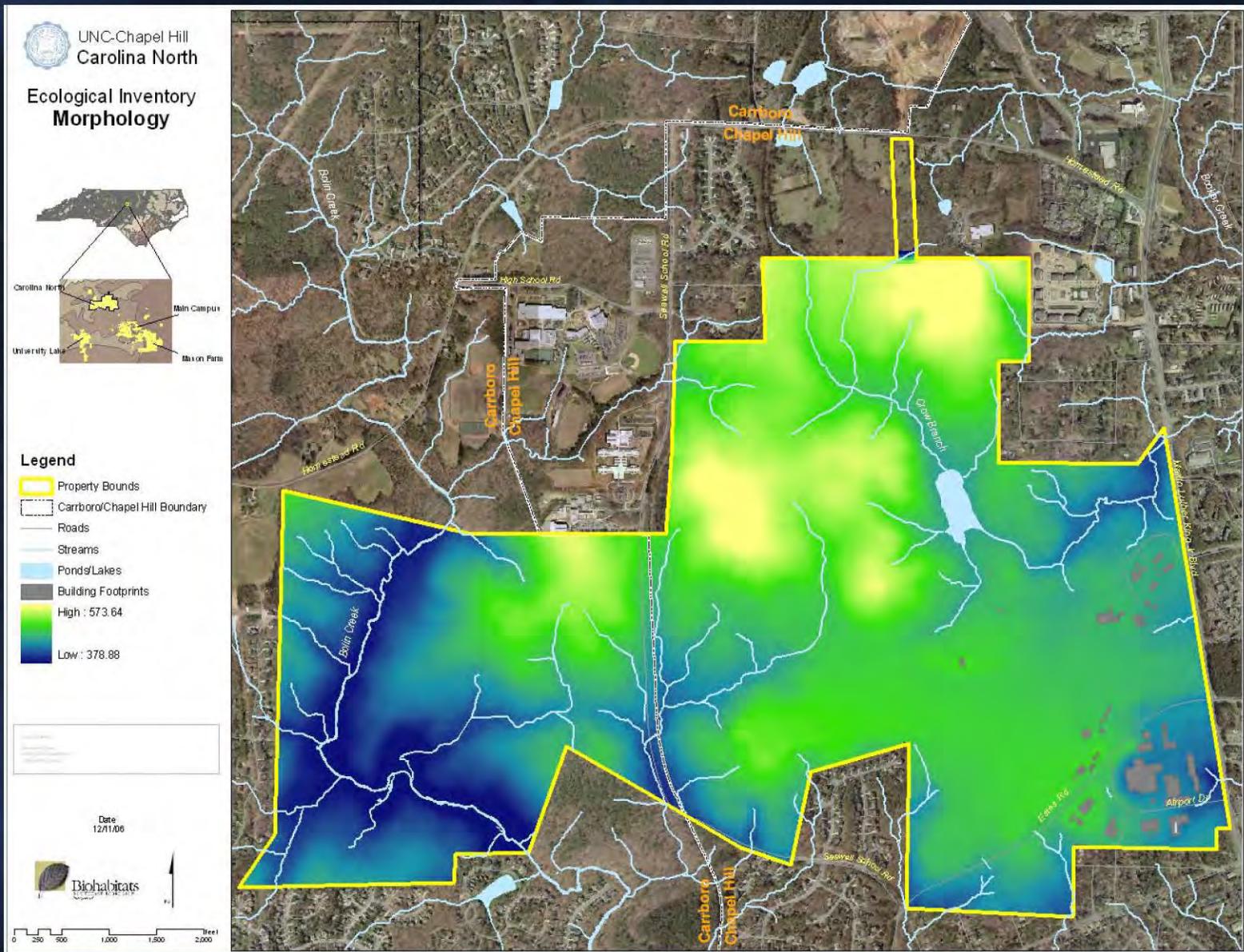
# Carolina North Ecological Assessment

## Inventory – Landuse/Landcover



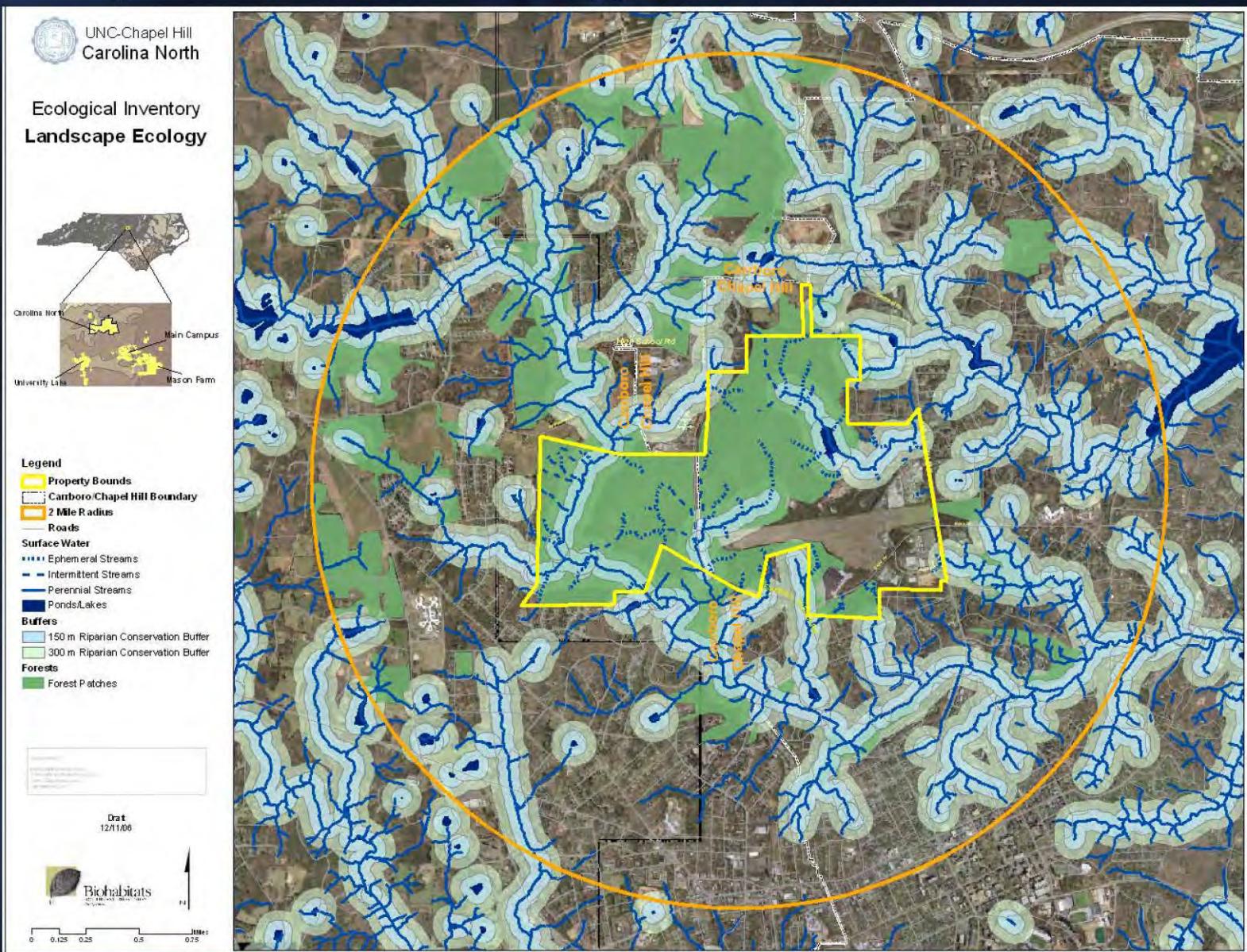
# Carolina North Ecological Assessment

## Inventory – Morphology



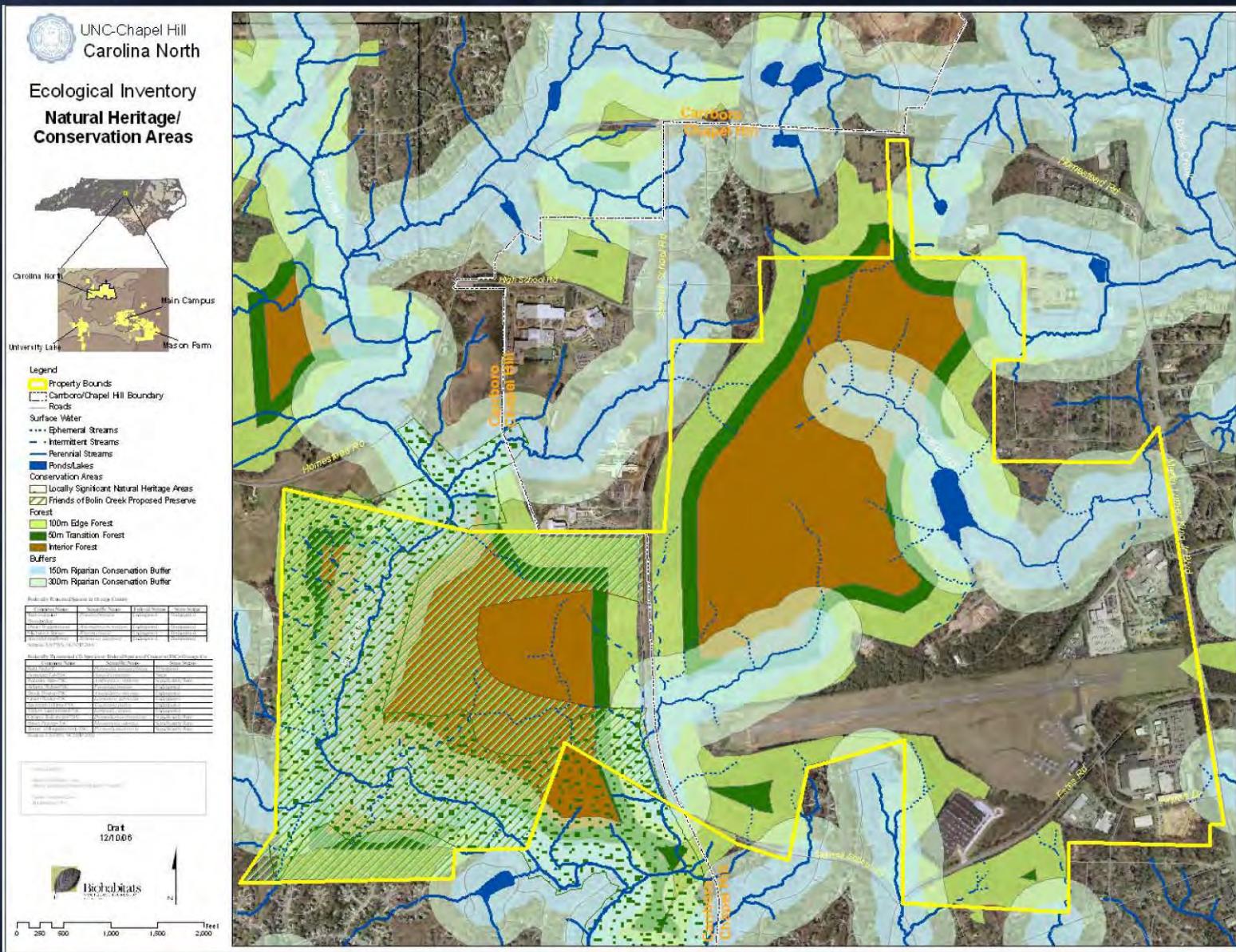
# Carolina North Ecological Assessment

## Inventory – Landscape Ecology



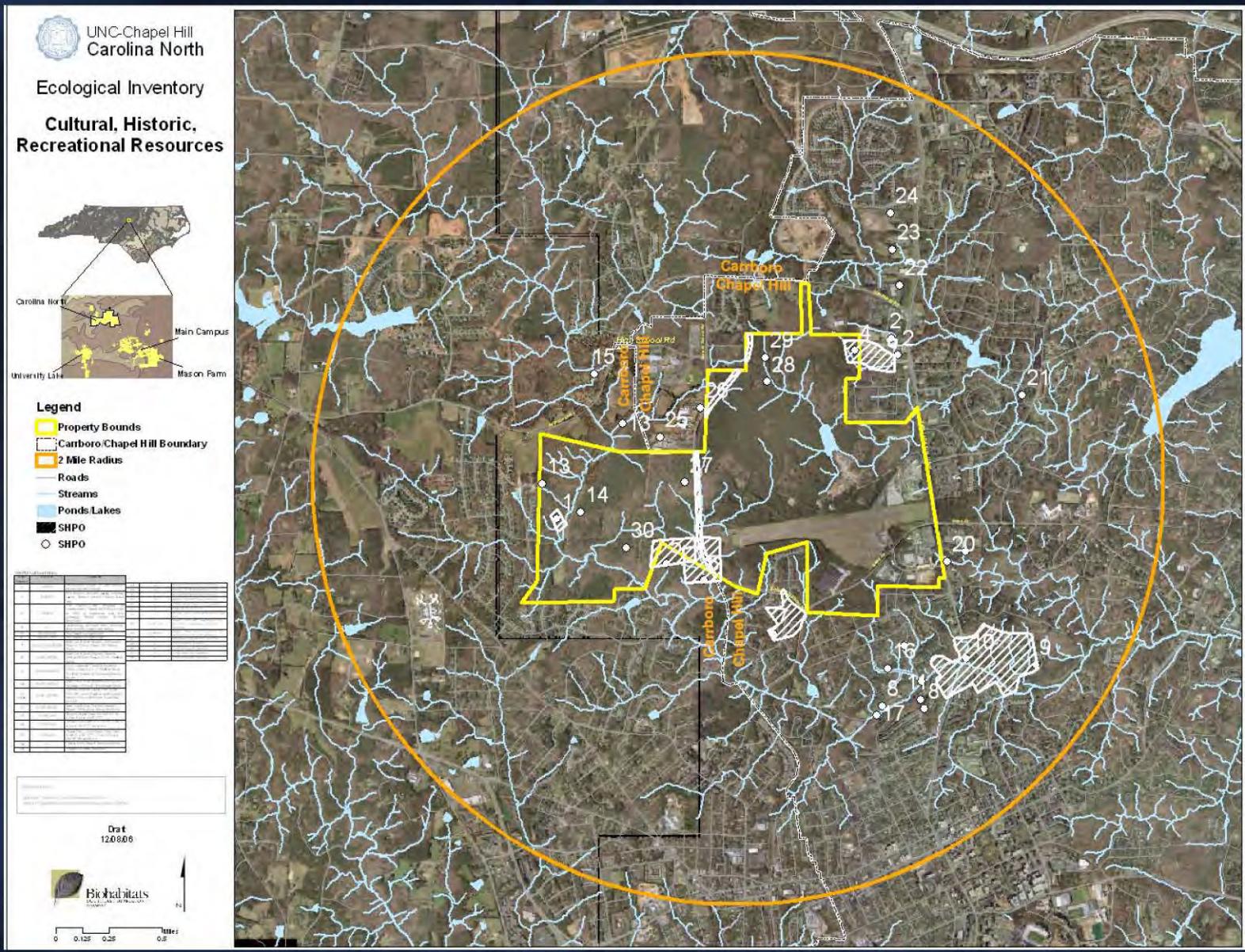
# Carolina North Ecological Assessment

## Inventory – Natural Heritage/Landscape Ecology



# Carolina North Ecological Assessment

## Inventory – Cultural, Historic, Recreational Resources

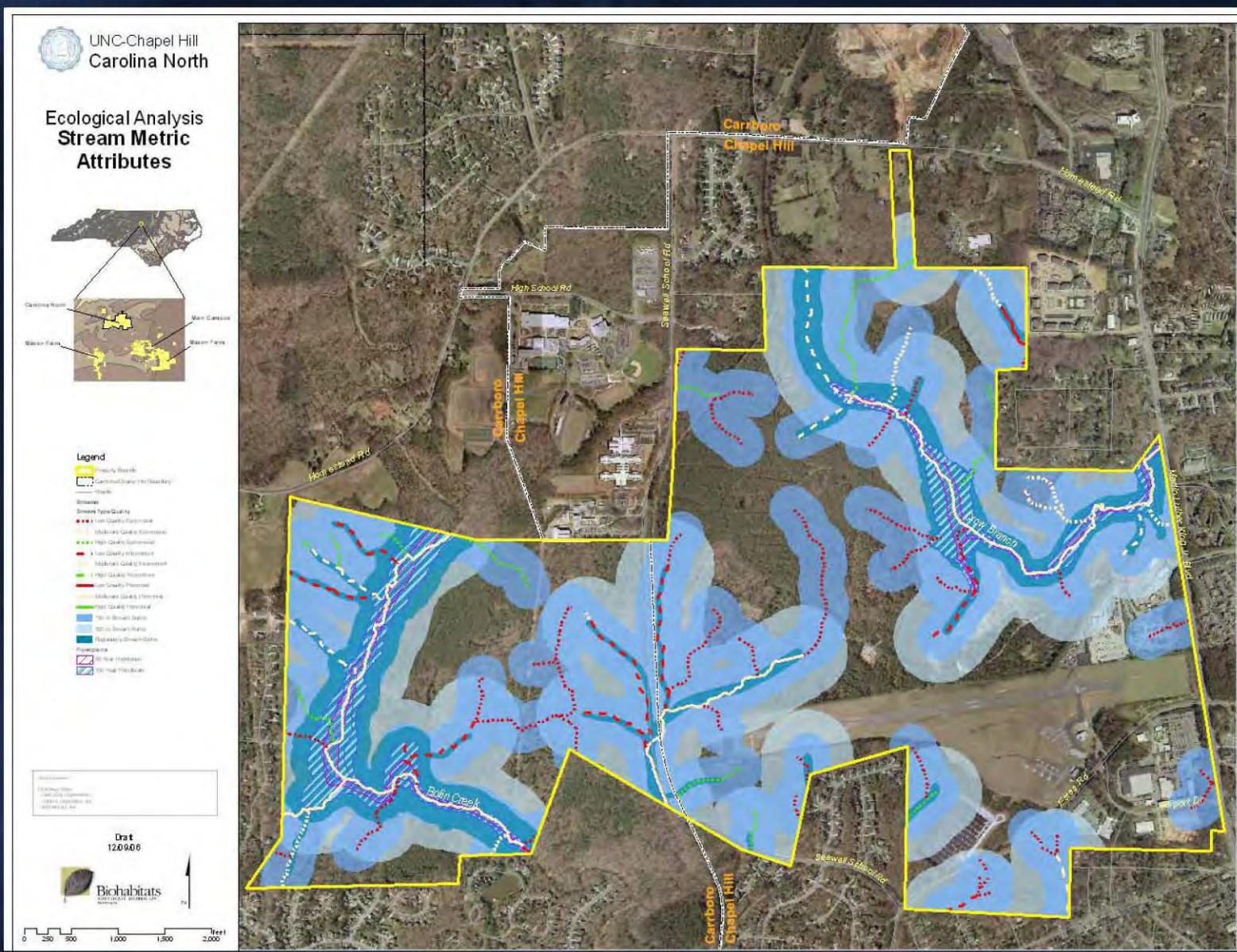


# Analysis – Streams Metric Attributes

Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts	Marg-1 pt	2 Points	3 Points	+1 Point
<b>Streams</b>					
<b>Hydrologic Regime<sup>1</sup></b>					
Ephemeral	1				1
Intermittent		2		1	3
Perennial			3	1	4
<b>Buffers<sup>2</sup></b>					
Regulatory Buffer		2		1	3
150 m Conservation Buffer			3		3
300 m Conservation Buffer	1				1
<b>Floodplains<sup>3</sup></b>					
Regulatory 100 yr floodplain		2		1	3
Morphological 50 yr floodplain			3		3
<b>Aquatic Habitat<sup>4</sup></b>					
Aquatic Habitat-High Quality			3	1	4
Aquatic Habitat-Mod Quality		2		1	3
Aquatic Habitat-Low Quality	1			1	2

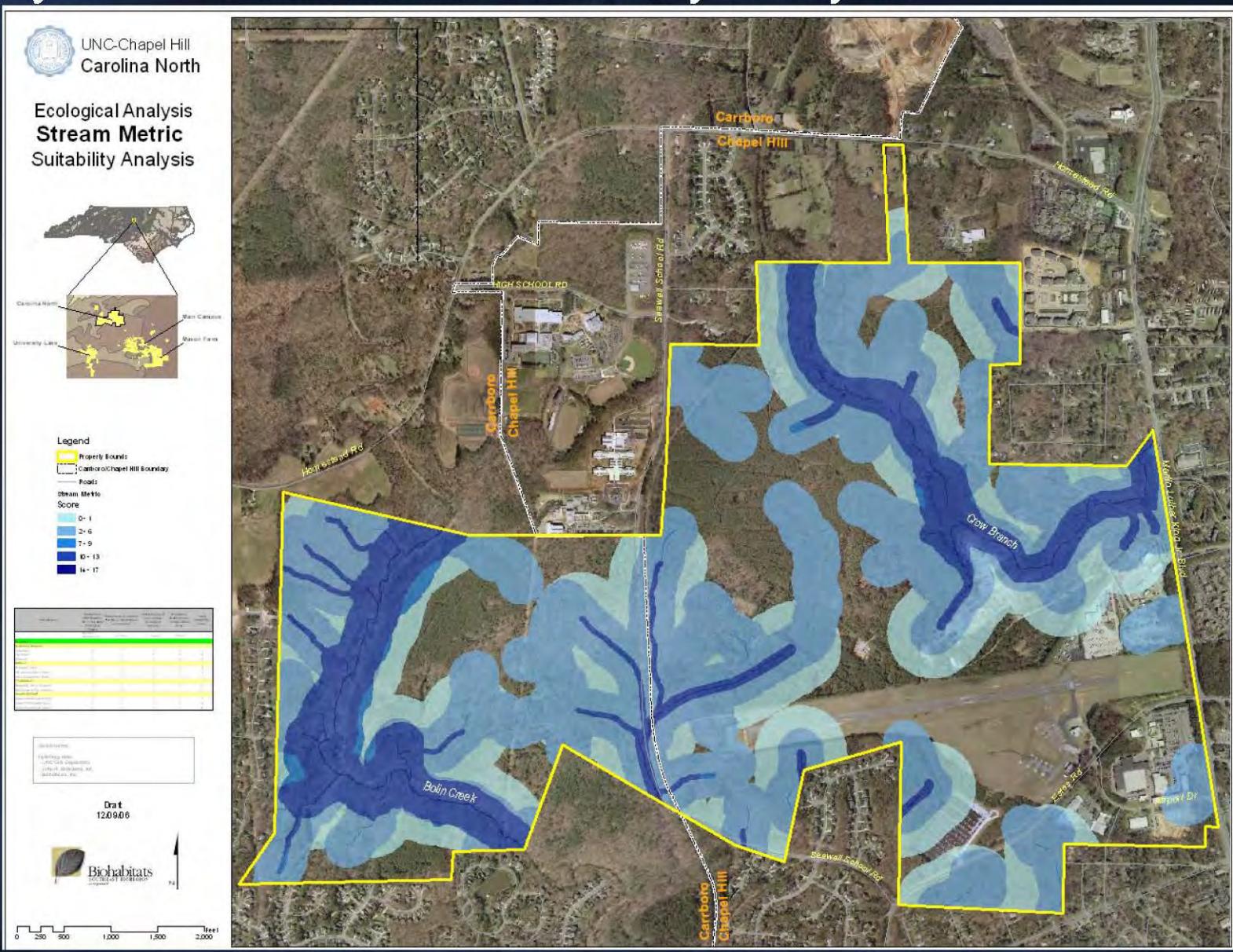
# Carolina North Ecological Assessment

## Analysis – Stream Metric Attributes



# Carolina North Ecological Assessment

## Analysis – Stream Metric Suitability Analysis



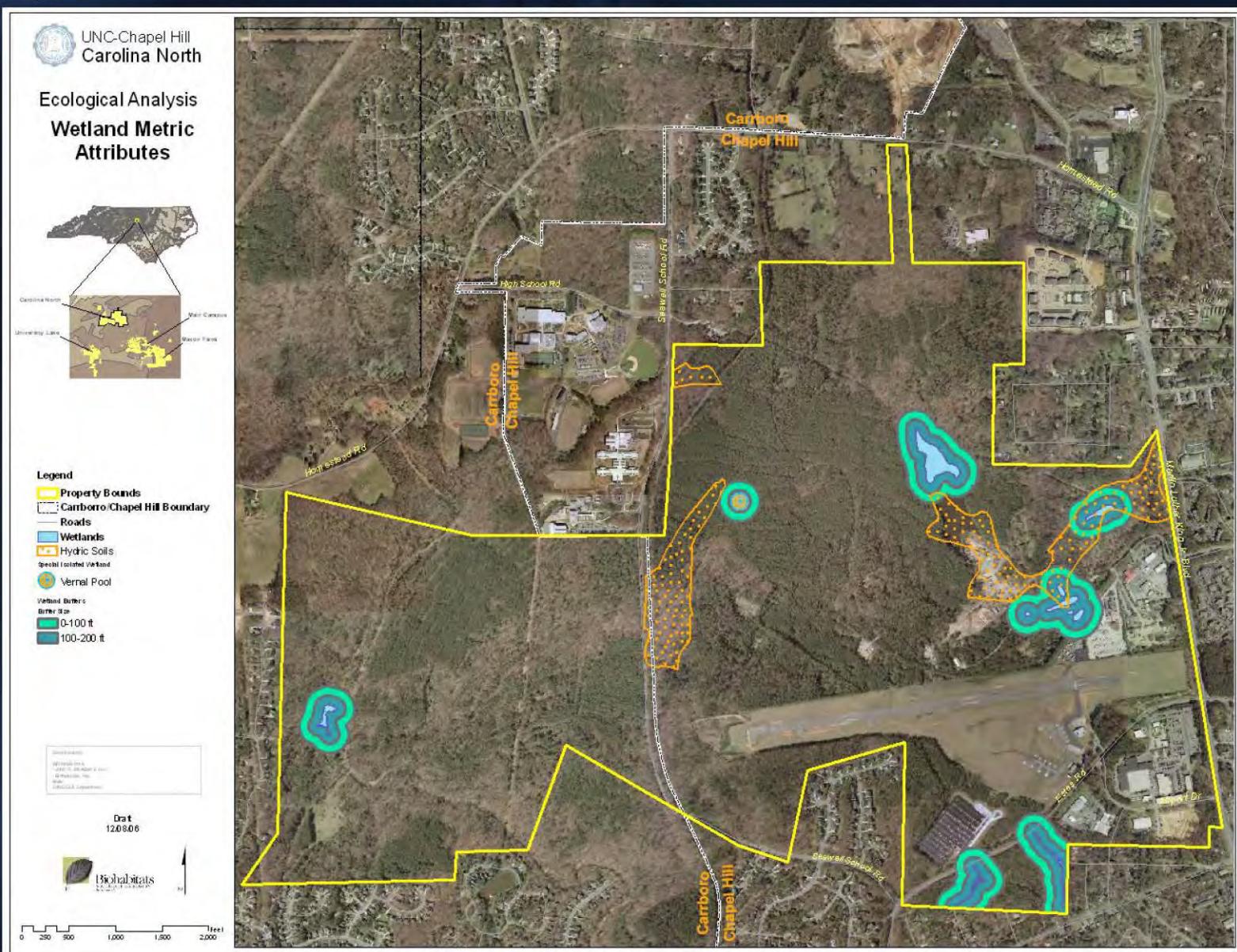
# Carolina North Ecological Assessment

## Analysis – Wetlands Metric Attributes

Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts	Marg-1 pt	2 Points	3 Points	+1 Point
<b>Wetlands<sup>5</sup></b>					
Hydric Soils					
Hydric Soils			3	1	4
Non-hydric soils	0				0
<b>Wetland Size</b>					
Area < 0.1 ac		2			2
Area 0.1-33 ac		2		1	3
Area > 0.33 ac			3	1	4
<b>Special Isolated Wetland Type</b>					
Vernal Pool			3	1	4
Springs and Seeps			3	1	4
<b>Wetland Buffer<sup>6</sup></b>					
0-100' Conservation Buffer				3	3
100'-200' Conservation Buffer		2			2

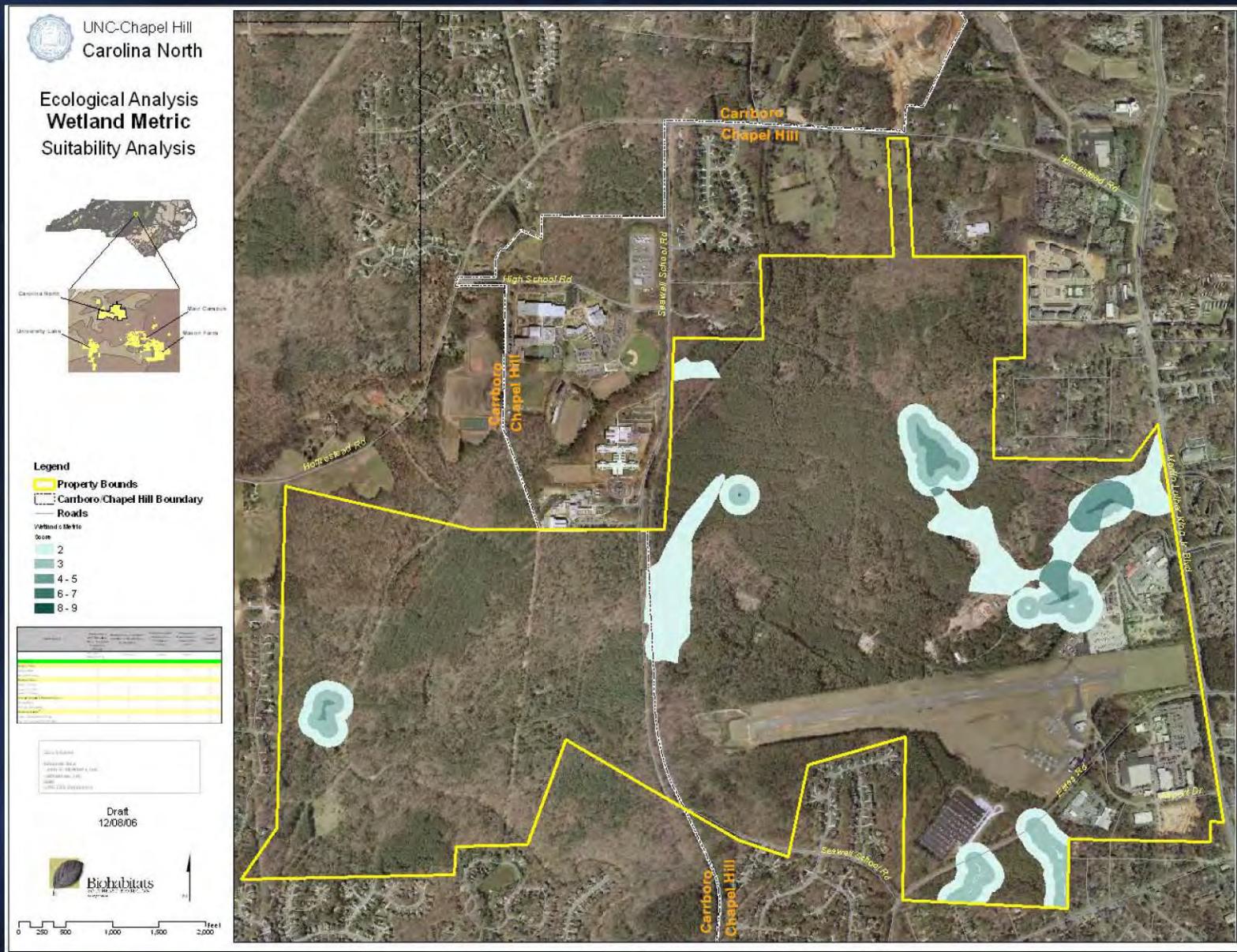
# Carolina North Ecological Assessment

## Analysis – Wetland Metric Attributes



# Carolina North Ecological Assessment

## Analysis – Wetland Metric Suitability Analysis

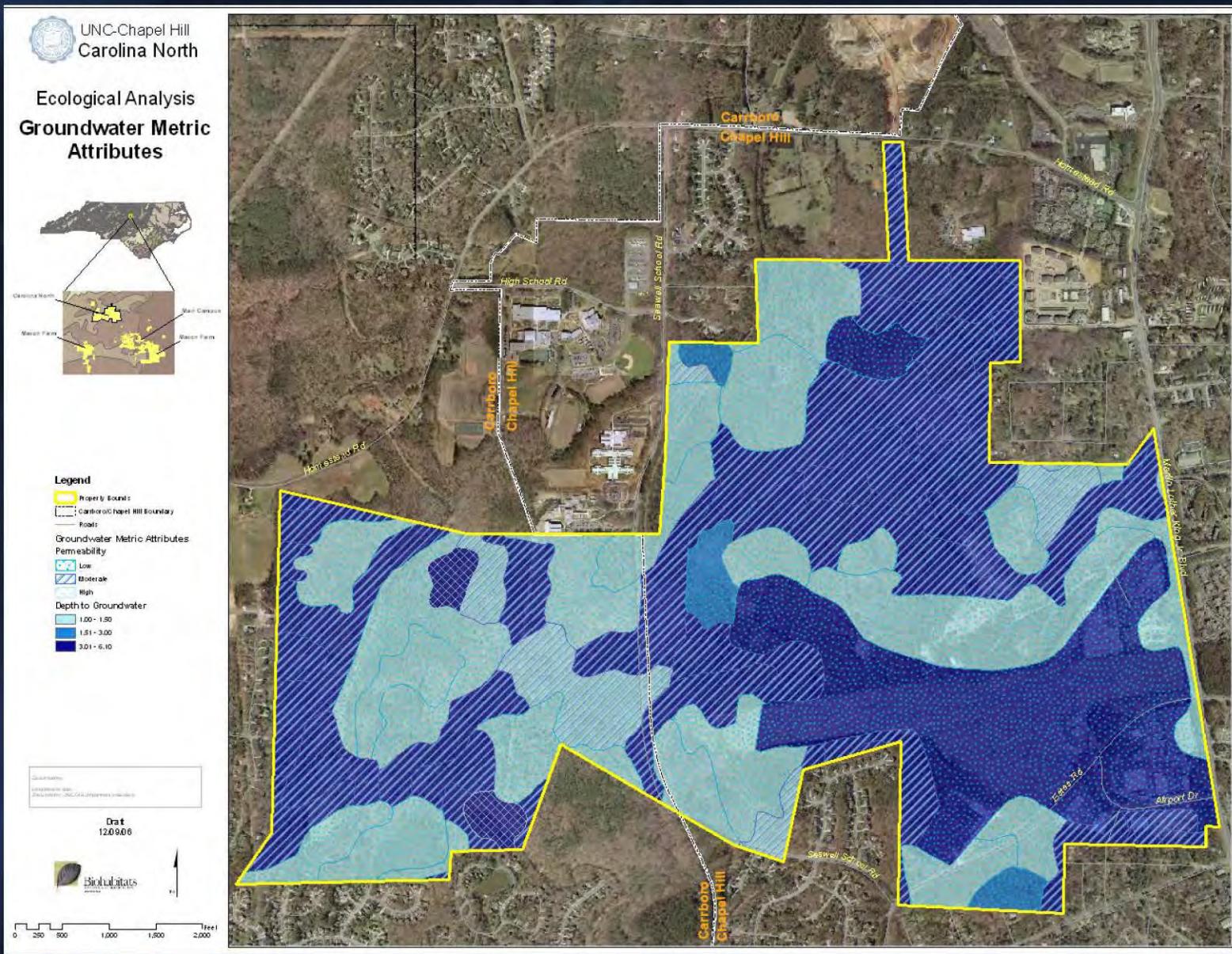


# Analysis – Groundwater Metric Attributes

Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts	Marg-1 pt	2 Points	3 Points	+1 Point
<b>Groundwater<sup>7</sup></b>					
<b>Recharge Zones</b>					
High Soil Permeability/Recharge Zone			2		2
Mod. Soil Permeability/Recharge Zone	1				1
Low Soil Permeability/Recharge Zone	0				0
<b>Depth to Groundwater</b>					
Depth to Groundwater <1.5'				3	3
Depth to Groundwater 1.5'-4'			2		2
Depth to Groundwater >4'	0				0

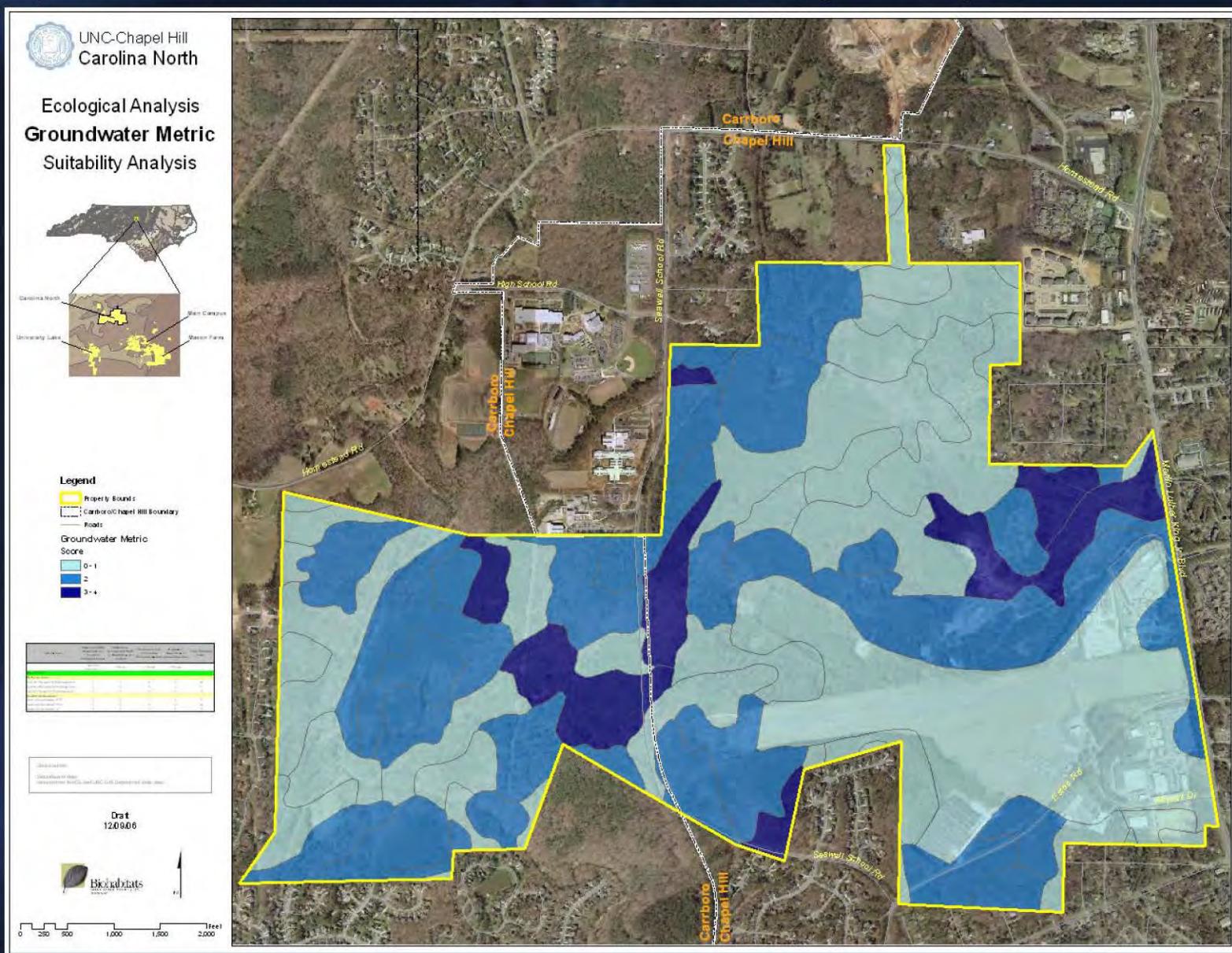
# Carolina North Ecological Assessment

## Analysis – Groundwater Metric Attributes



# Carolina North Ecological Assessment

## Analysis – Groundwater Metric Suitability Analysis

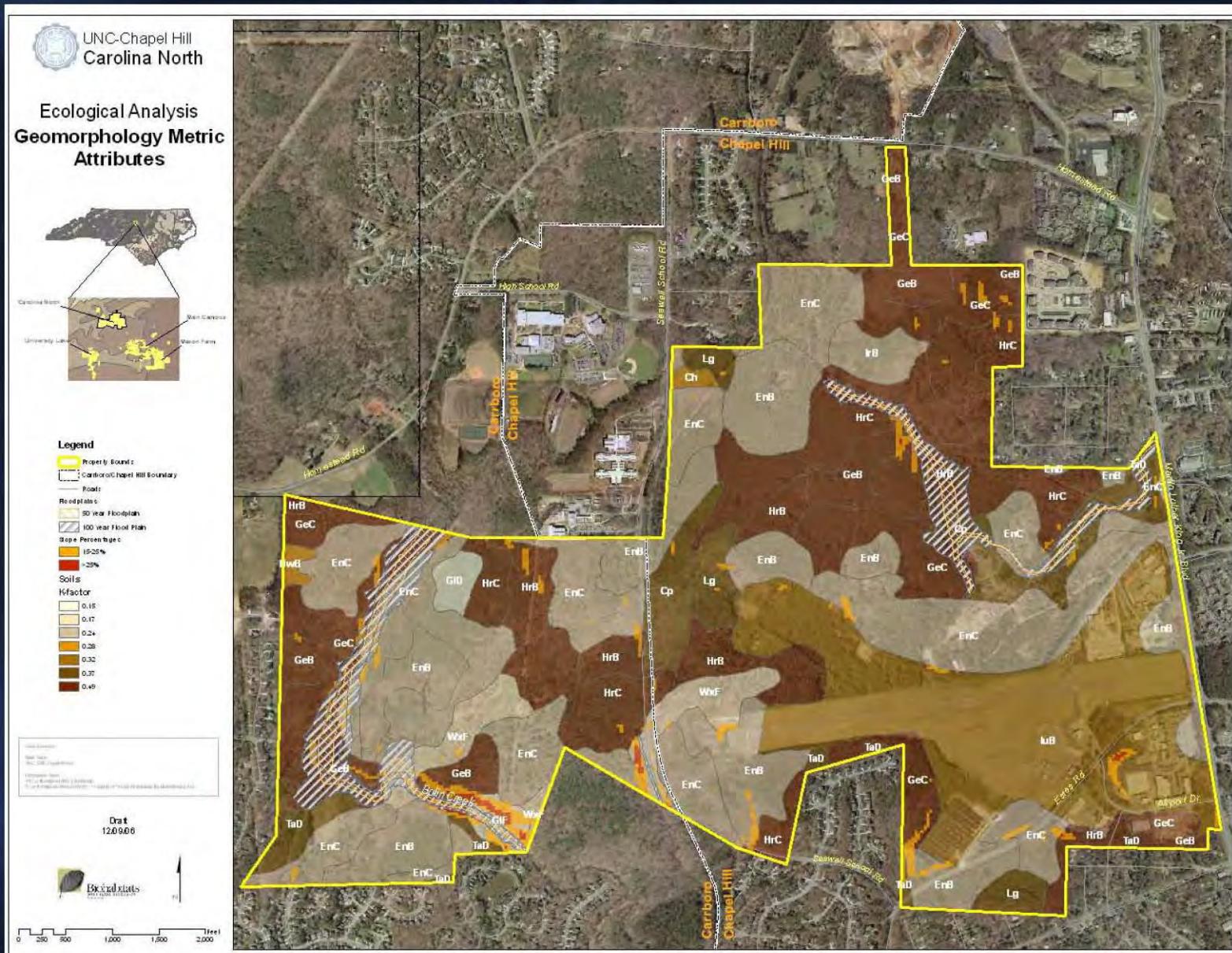


# Analysis – Geomorphology Metric Attributes

Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts Marg-1 pt	2 Points	3 Points	+1 Point	
<b>Geomorphology</b>					
<b>Erodability<sup>7</sup></b>					
Erodability K Factor <0.35		2			2
Erodability K Factor >0.35			3		3
<b>Slope</b>					
Slopes 0-15%	1				1
Slopes 15-25%		2			2
Slopes >25%			3	1	4
<b>Floodplain</b>					
Morphological 50 yr floodplain			3	1	4

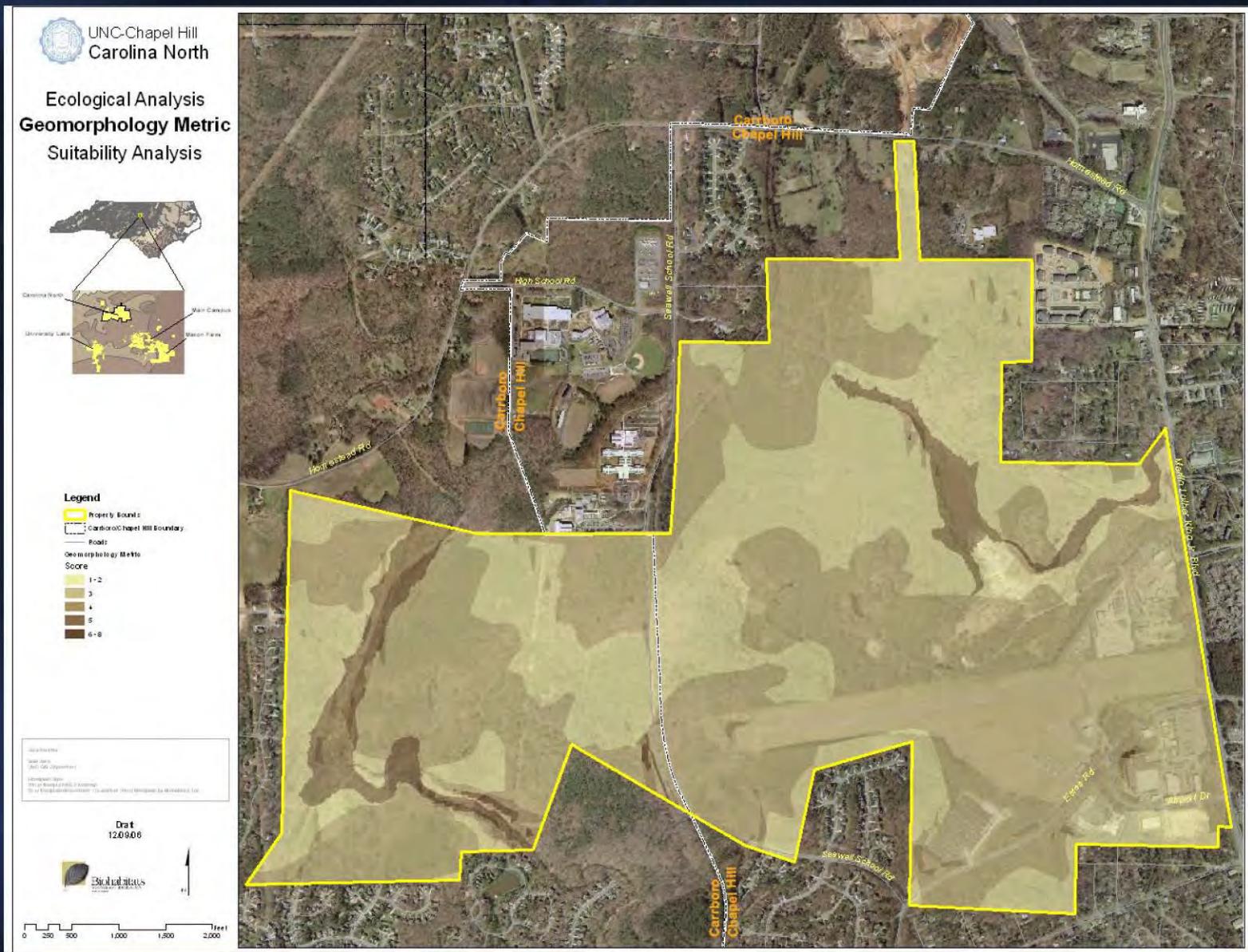
# Carolina North Ecological Assessment

## Analysis – Geomorphology Metric Attributes



# Carolina North Ecological Assessment

## Analysis – Geomorphology Metric Suitability Analysis

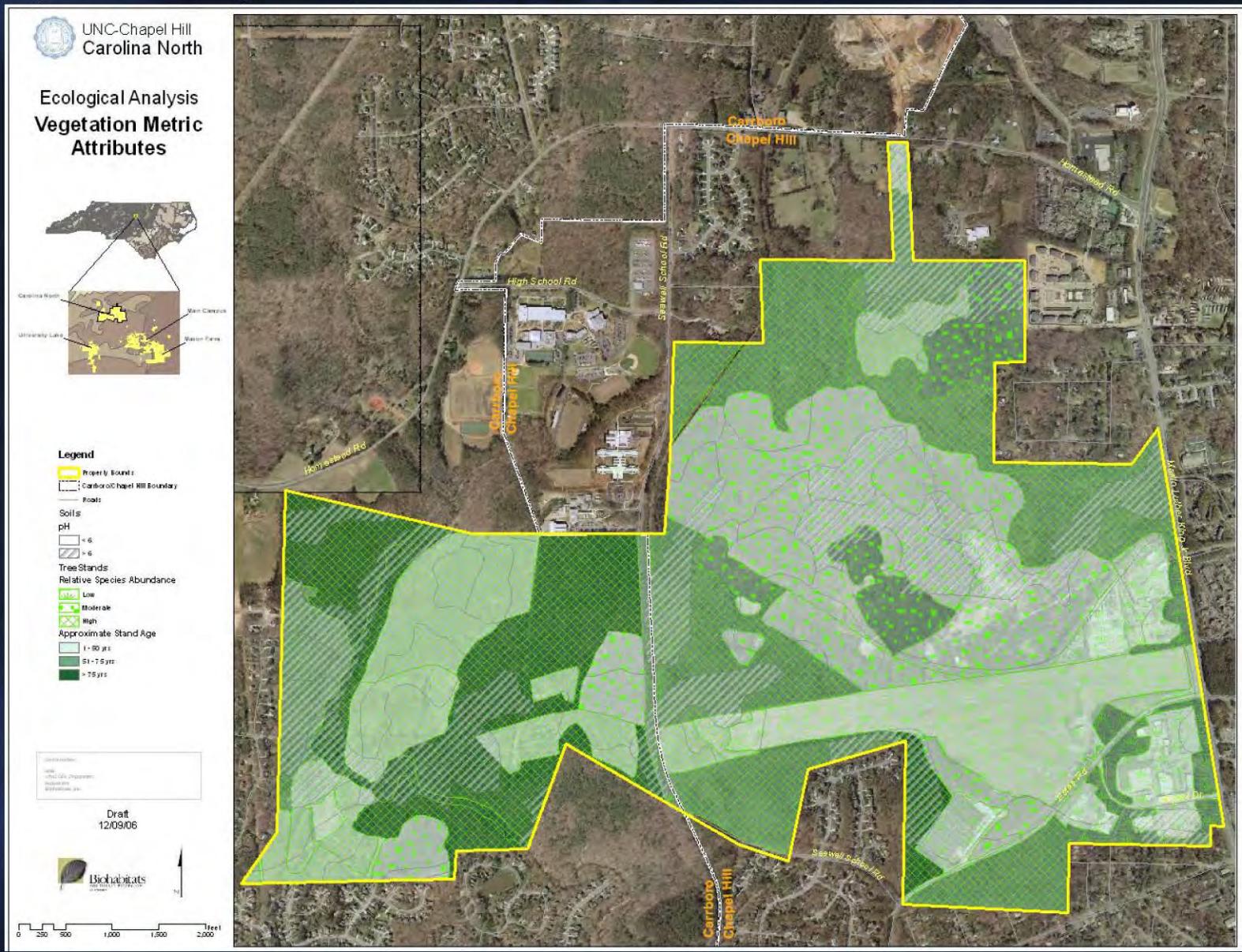


# Analysis – Vegetation Metric Attributes

Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts Marg-1 pt	2 Points	3 Points	+1 Point	
<b>Vegetation</b>					
<b>Rare Species</b>					
RTE Species Location			3	1	4
RTE Potential Habitat		2			2
<b>Tree Age</b>					
Tree Age Class 0-50 yrs	1				1
Tree Age Class 51-75 yrs		2			2
Tree Age Class >75 yrs			3		3
<b>Tree Species Abundance<sup>8</sup></b>					
Relative Species Abundance - High			3		3
Relative Species Abundance - Mod.		2			2
Relative Specie Abundance - Low	1				1

# Carolina North Ecological Assessment

## Analysis – Vegetation Metric Attributes



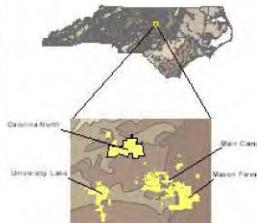
# Carolina North Ecological Assessment

## Analysis – Vegetation Metric Suitability Analysis



UNC-Chapel Hill  
Carolina North

### Ecological Analysis Vegetation Metric Suitability Analysis



Legend  
Property Boundary  
Carolina Chapel Hill Boundary  
Roads  
Vegetation Metric Score  
1  
2-4  
5-6

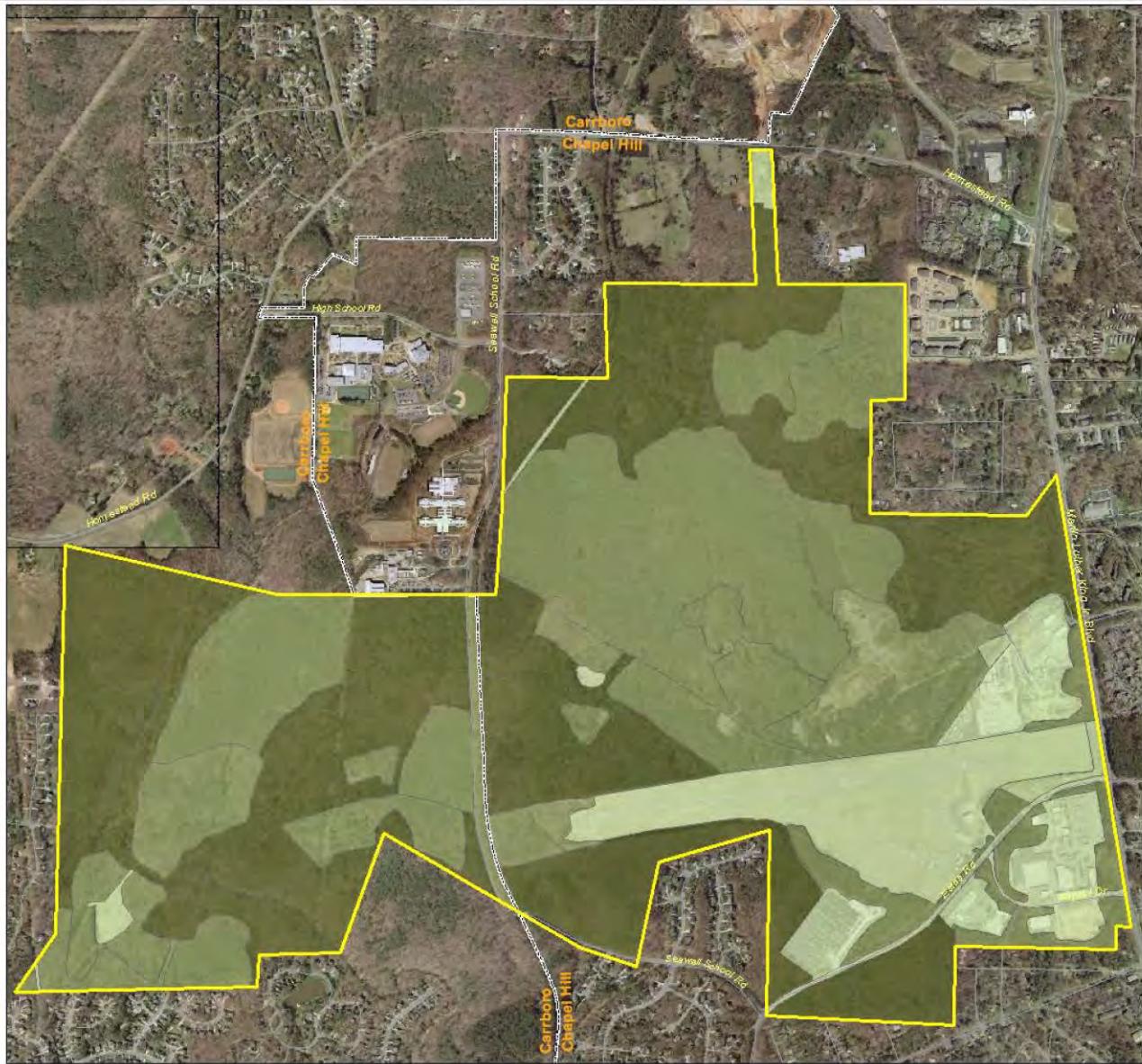


Landowner:  
Date: 120906  
Biohabitats  
biohabitats.com

Date  
120906



0 500 1,000 1,500 2,000  
Feet



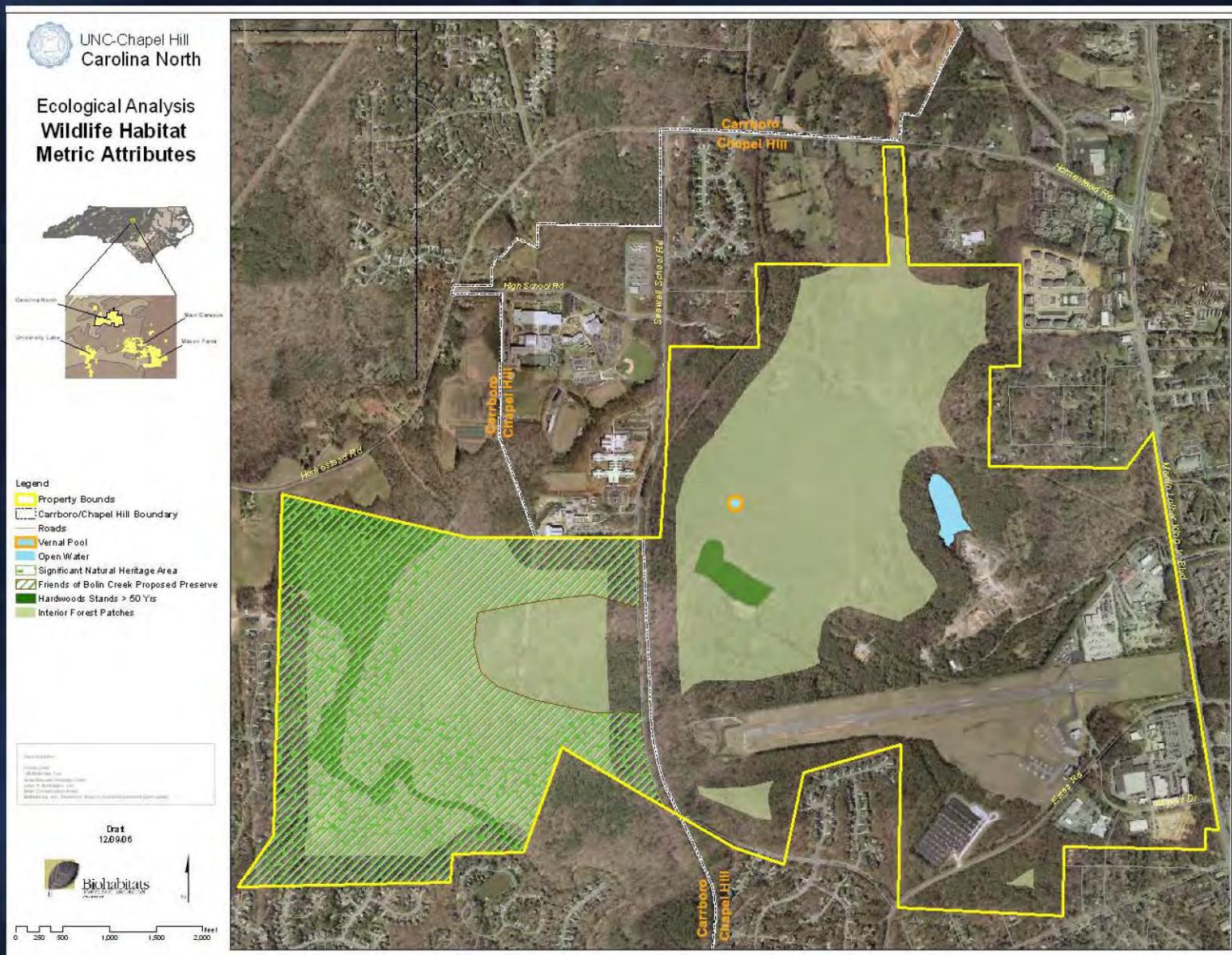
# Carolina North Ecological Assessment

## Analysis – Wildlife Metric Attributes

Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts Marg-1 pt	2 Points	3 Points	+1 Point	
<b>Wildlife Habitat</b>					
<b>Endangered Species Habitat<sup>11</sup></b>					
Identified Critical Habitat			3	1	4
Rare, Threat. or Spec. Species Hab.					
Hardwoods > 50 yrs old		2			2
Hardwoods < 50 yrs old	1				1
Migratory Bird Habitat		2			2
Vernal Pool			3	1	4
<b>Identified Natural Areas</b>					
Nat. Her. Prog. or Other Designation		2			2
Cultural & Historic					

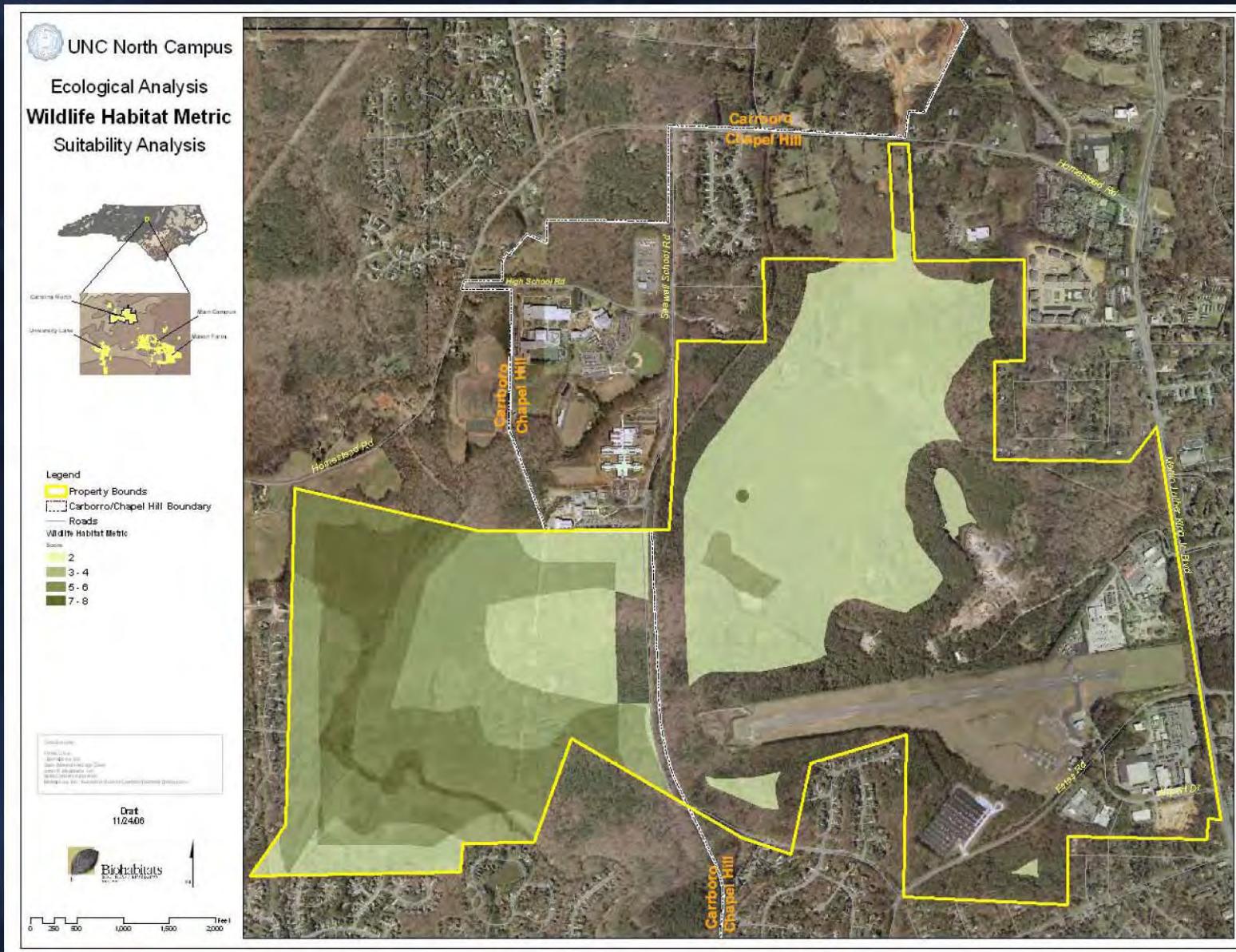
# Carolina North Ecological Assessment

## Analysis – Wildlife Habitat Metric Attributes



# Carolina North Ecological Assessment

## Analysis – Wildlife Habitat Metric Suitability Analysis

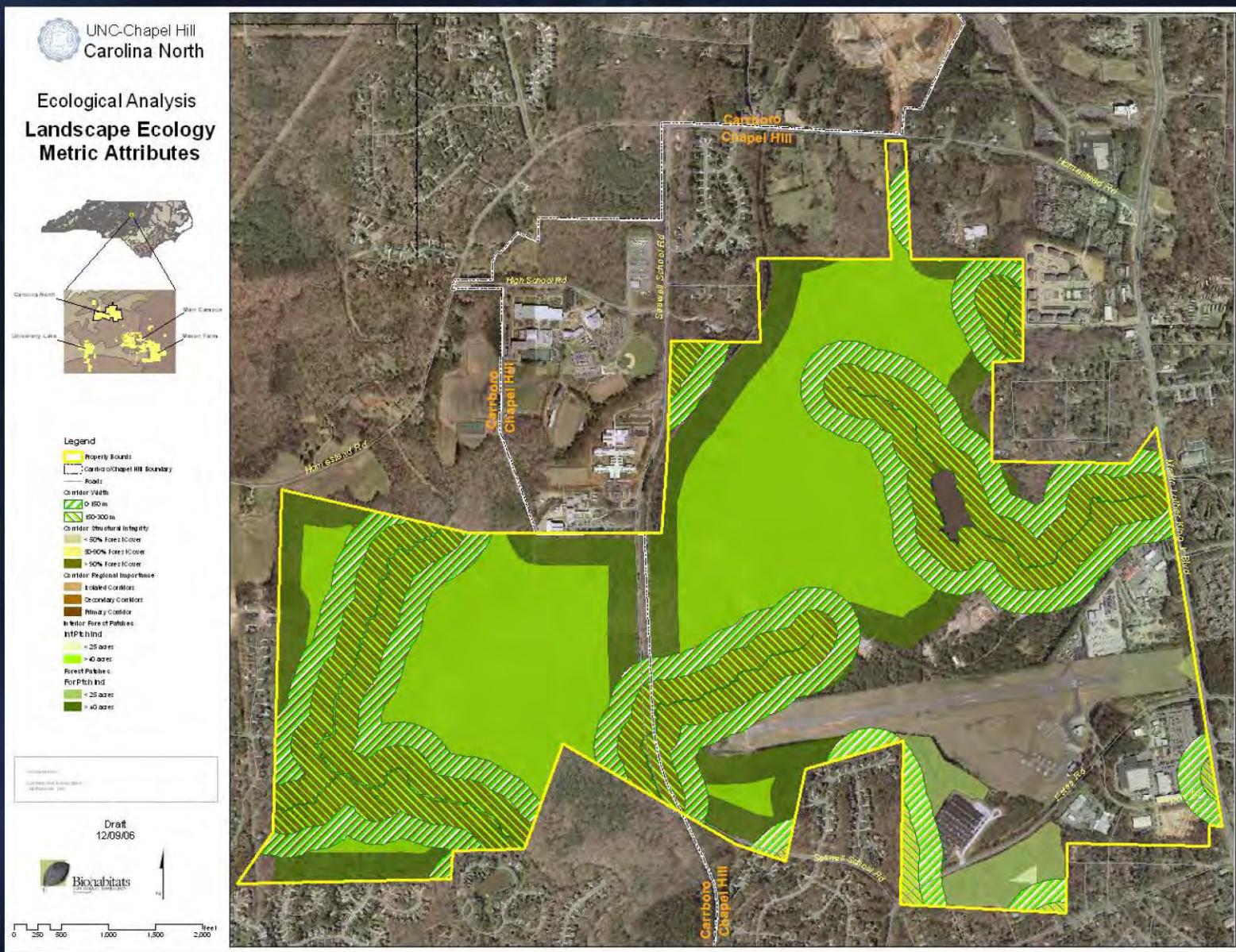


# Analysis – Landscape Ecology Metric Attributes

Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts	Marg-1 pt	2 Points	3 Points	+1 Point
<b>Landscape Ecology</b>					
<b>Corridor Regional Importance<sup>9</sup></b>					
Primary Corridors				3	3
Secondary Corridors			2		2
Isolated Corridors	1				1
<b>Corridor Width</b>					
Site Corridors 0-150 meters				3	3
Site Corridors 151-300 meters		2			2
<b>Corridor Structural Integrity</b>					
Solid->90% forest cover				3	3
Porous-50-90% forest cover		2			2
Stepping Stone-<50% forest cover	1				1
<b>Total Patch Size<sup>10</sup></b>					
Forested Habitat Patch > 40 ac				3	3
Forested Habitat Patch 25-39 ac		2			2
Forested Habitat Patch <25 ac	1				1
<b>Interior Patch Size<sup>10</sup></b>					
Forested Habitat Patch > 40 ac				3	3
Forested Habitat Patch 25-39 ac		2			2
Forested Habitat Patch 0-24 ac	1				1

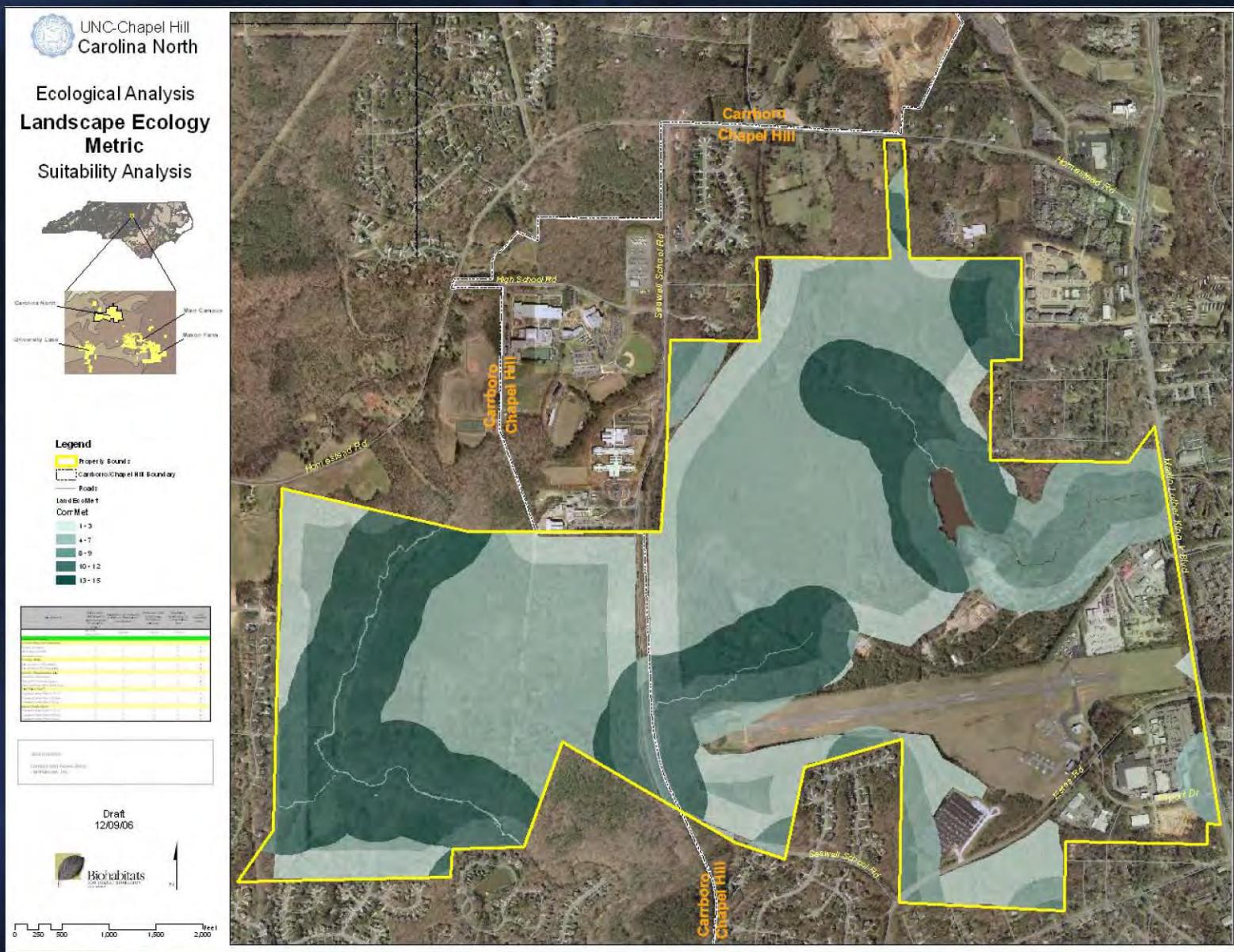
# Carolina North Ecological Assessment

## Analysis – Landscape Ecology Metric Attributes



# Carolina North Ecological Assessment

## Analysis – Landscape Ecology Metric Suitability Analysis



# Analysis – Cultural/Historical Metric Attributes

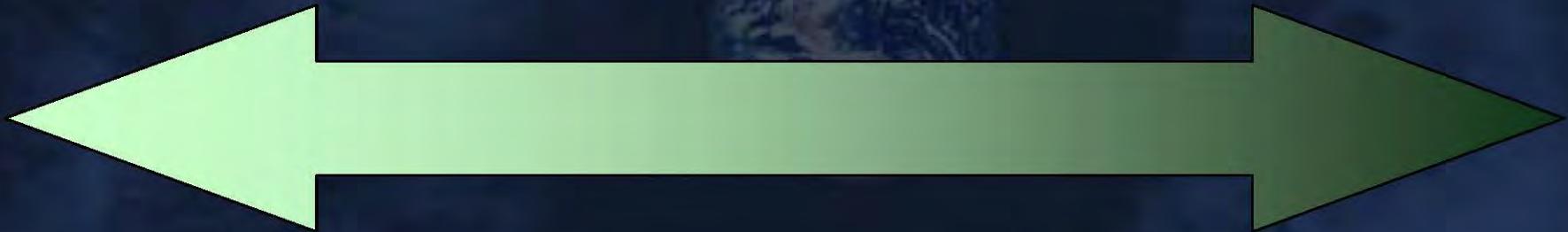
Site Attribute	Disturbance Will Result in No or Marginal Ecological Impact	Disturbance Acceptable If BMPs or Restrictions Are Applied	Disturbance will Compromise Ecological Integrity	Regulatory Restrictions or Conservation Area	Land Suitability Index*
	No-0 pts Marg-1 pt	2 Points	3 Points	+1 Point	
<b>Cultural Areas</b>					
<b>Viewsheds</b>					
Viewsheds - regional		2			2
Viewsheds - site		2			2
<b>Historic Sites</b>					
Nationally Registered Sites			3	1	4
Identified Cult and Hist. Occurrences		2			2

# Analysis – Land Suitability Ranking

Disturbance will result  
in no or marginal  
ecological impact

Disturbance acceptable  
if BMPs or restrictions  
are applied

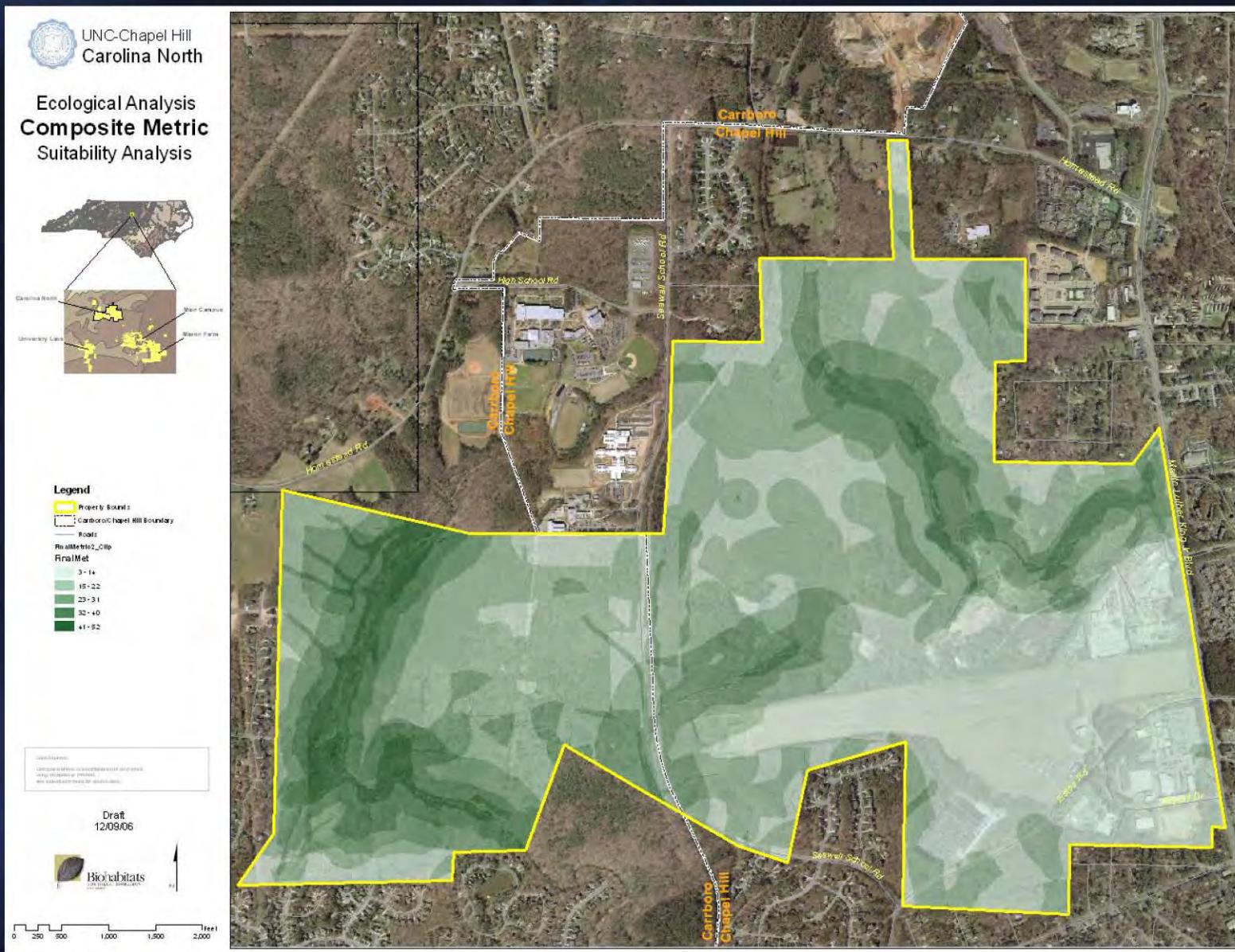
Disturbance will  
compromise ecological  
integrity



Regulatory  
restrictions or  
conservation area

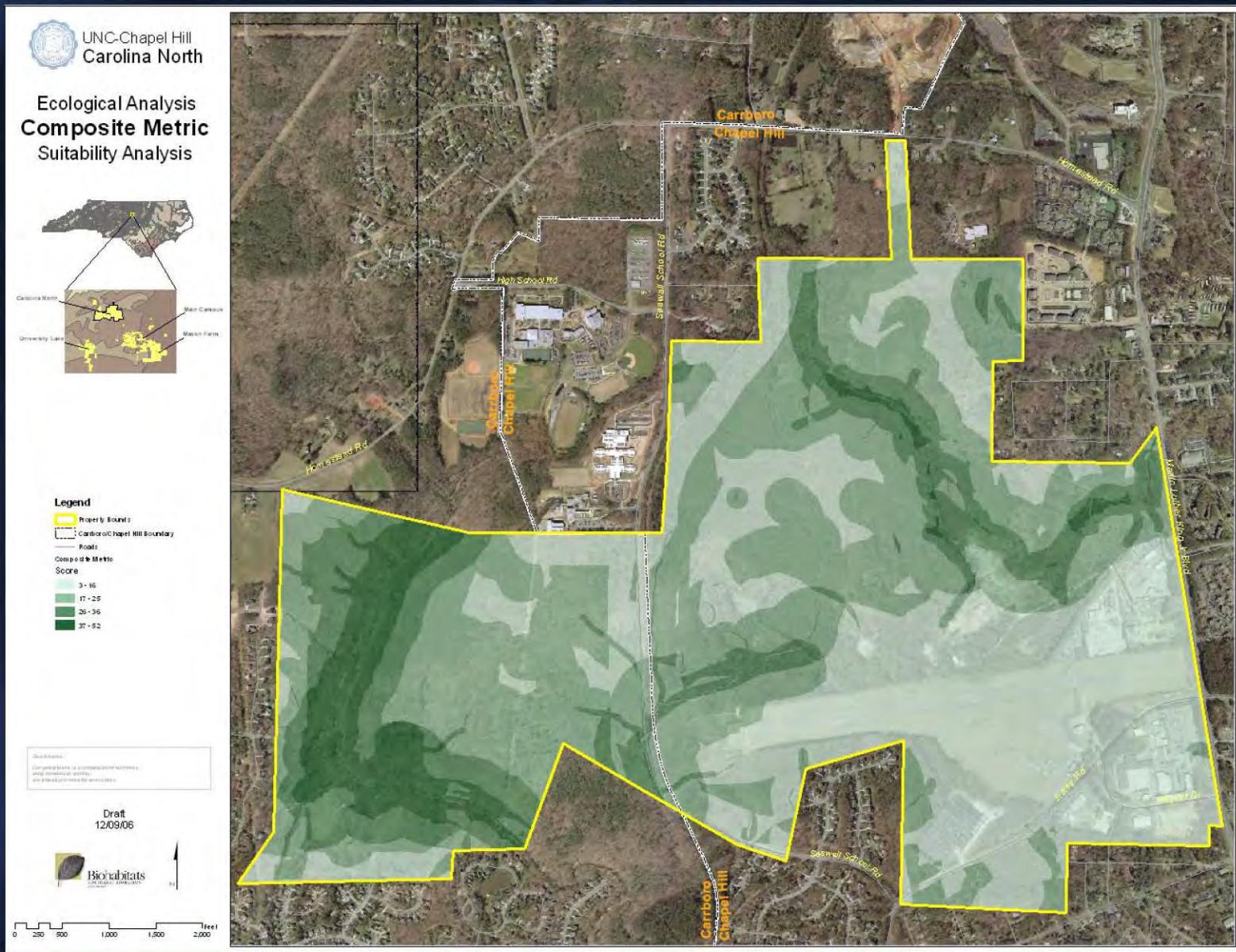
# Carolina North Ecological Assessment

## Analysis – Composite Metric Suitability Analysis (5 scale)



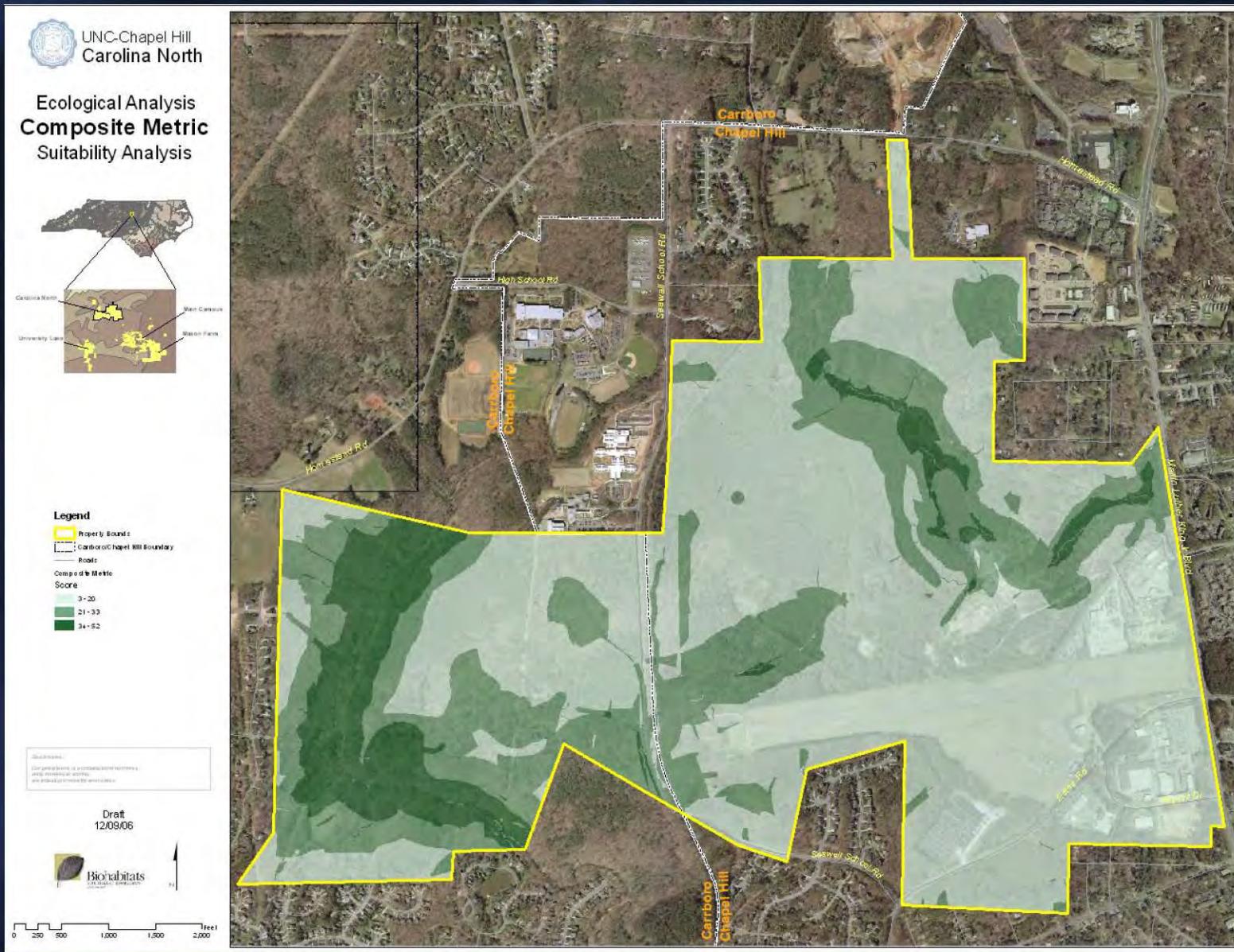
# Carolina North Ecological Assessment

## Analysis – Composite Metric Suitability Analysis (4 scale)



# Carolina North Ecological Assessment

## Analysis – Composite Metric Suitability Analysis (3 scale)



Carolina North Ecological Assessment

## Carolina North Website

Comments are welcome.

Submit via Carolina North Website:  
<http://cn.unc.edu>