

# **“My Woods...”**

**A Master Plan for Spencer Woods**





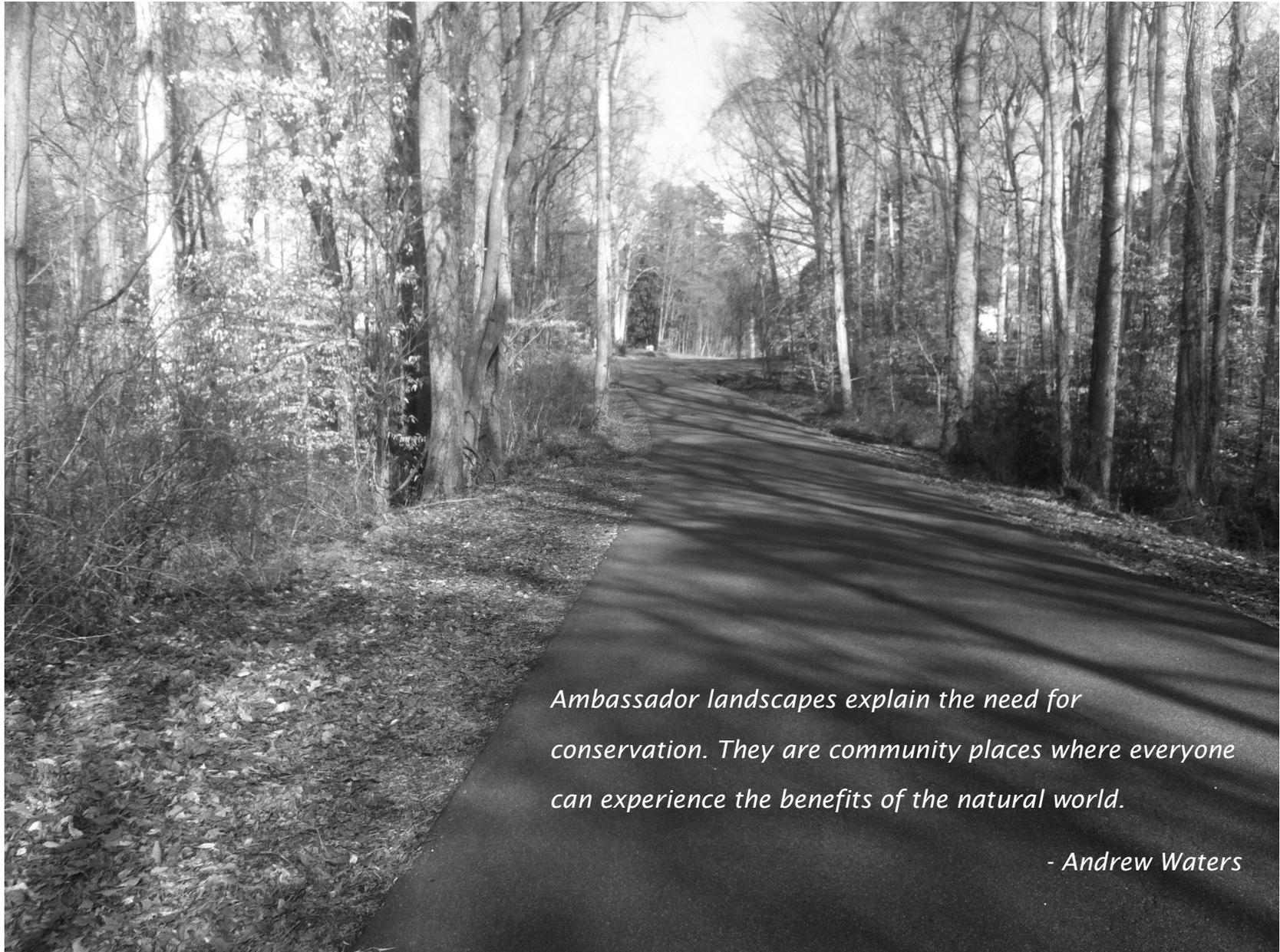
# **“My Woods....” A Master Plan for Spencer Woods**

## **The Fred and Alice Stanback Educational Forest and Park**



**A Report by the Spencer Woods Community Assistance Team 2012**

North Carolina Chapter of the American Society of Landscape Architects  
with  
The LandTrust for Central North Carolina



*Ambassador landscapes explain the need for conservation. They are community places where everyone can experience the benefits of the natural world.*

*- Andrew Waters*

# “My Woods...” A Master Plan for Spencer Woods

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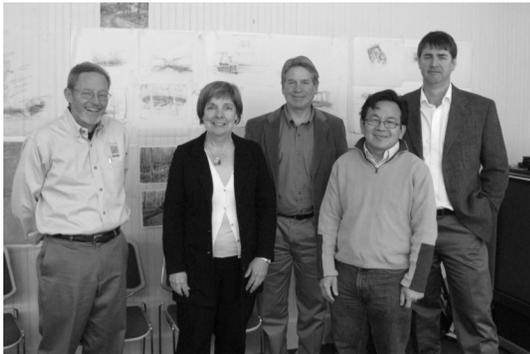


## Community Assistance Team

The LandTrust for Central North Carolina asked the North Carolina Chapter of the American Society of Landscape Architects (NCASLA) to provide a Community Assistance Team to help develop ideas for the future development and preservation of the 42-acre Spencer Woods. The CAT, led by NCASLA and LandTrust Board member Lynn Raker, worked diligently over three days on the site and in the board room of the North Carolina Transportation Museum in Spencer to produce the findings reported in this document. Many other participants from the community who were key to developing the proposals found in these pages are acknowledged in the final pages of the report.

### Spencer Woods NCASLA Community Assistance Team

The NCASLA CAT is a group of landscape architects and other allied professionals that assists communities in developing conceptual solutions for design and development needs. A CAT workshop may last several hours or several days. Professional expertise is provided on a pro-bono basis, while the host community provides accommodations, meals, transportation, work space and materials. A final presentation and/or report from participants is customary. Final reports are often used by the community to pursue more detailed implementation strategies for the project.



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### LandTrust for Central North Carolina

The LandTrust strives to act now to preserve rural landscapes and natural areas of Central North Carolina so that they may be enjoyed in the future. Operating in a ten-county region (Anson, Cabarrus, Davidson, Davie, Iredell, Montgomery, Randolph, Richmond, Rowan and Stanly), the LandTrust for Central North Carolina believes that we must leave a legacy for future generations. Their mission is to work thoughtfully and selectively with property owners to preserve the lands, vistas and essential nature of the region.

**Jason Walser**  
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**Andrew Waters**  
Operations Director

**Crystal Cockman**  
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**Barbara Martin Lawther**  
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## Introduction

### “My Woods”

These are more than just words that describe the 42-acre hardwood forest in the heart of Spencer, what is commonly known as “Spencer Woods” and what will become “The Fred and Alice Stanback Educational Forest.” They are the sentiments of a community, the belief that, even though this property has never been publicly owned or permanently protected, it belongs to everyone.

In winter 2010, “My Woods” were threatened. Despite the fact that the Spencer Community had for decades enjoyed the woods as a nature preserve and place to walk and reflect, the owner planned to clear-cut the property - the \$150,000 timber value was needed to recoup holding costs lost in the real estate downturn. The owner/ real estate developer had already submitted plans for a housing subdivision, but the arrival of the logging equipment on a bleak February day brought the situation to a crisis: the woods were in danger; they needed their community.

The LandTrust for Central North Carolina received several calls that day, asking if there was any way in which the organization could assist in the effort to save the trees. But time was running out, if not expired. Then fate intervened.

A snowstorm that night made conditions too wet to commence logging. The trees,

many of them 80-100 years old, some maybe as old as 250 years, received a stay. The wet weather gave the LandTrust a chance to approach the landowner, as other members of the community came forward pledging their belief in preserving the woods, as well as their financial support.

Negotiations began, and in 2011, the LandTrust was able to acquire the property from the developer. As private donors stepped forward to assist the transaction, a vision for the woods emerged. Julian Robertson’s donation of half the purchase price as a challenge gift to friends of Fred and Alice Stanback was the catalyst that moved the project forward. Over the last several decades, Fred and Alice Stanback have donated millions to support land conservation across the state, as well as to local charities and institutions. With the Stanback family’s historic connection to the Town of Spencer - the famous Stanback Headache Powder was first formulated at a small Spencer pharmacy - the “Woods” were a perfect opportunity to recognize Fred and Alice’s remarkable contributions through the years.

With this vision in place, the Town of Spencer and the LandTrust formed a strategic alliance: the Town would complete the balance of the acquisition with funding from the North Carolina Parks and Recreation Trust Fund (PARTF), and the LandTrust would continue to provide operational support for further grants toward park development. The park would

be owned and maintained by the town.

In late 2011 and early 2012, the vision for “My Woods” was developed through collaboration between the North Carolina Chapter of the American Society of Landscape Architects (NCASLA), the LandTrust, and the Town of Spencer. A public forum set the stage for a 3-day planning charrette conducted by a 5-member NCASLA team in January 2012. During the charrette, the Spencer community presented a vision for a passive recreation nature preserve, and the NCASLA team developed a plan to make that dream a reality.

In the following pages you will read about the vision for “My Woods” that emerged from this planning process: a community forest, a community gathering place, a passive nature preserve, a learning center, an attraction for both residents and visitors to the community, a link in a trail that tells the story of Spencer’s past and future.

The story of “My Woods” is not over; in some ways it is just beginning. The plan for “My Woods” put forth in the following pages will help guide and nurture this story for years to come. “My Woods” are now, truly, “Our Woods,” and all of us in the community have both the opportunity and responsibility to make sure this special natural place is preserved for generations to experience and enjoy.

- Andrew Waters

# Public Involvement

## Public Workshop

Several community meetings gave interested citizens a chance to share their enthusiasm, concerns, and dreams for the Spencer Woods property. Meetings were advertised at the Spencer Town Hall, at Board of Alderman meetings, through press releases and news ads in the Salisbury Post, and through announcements by the Land Trust on their web page, Facebook, and Constant Contact.

Approximately 25 people attended an open meeting in November 2011, facilitated by Raleigh City Planner Cassie Schumacher-Georgopoulos at the Spencer Municipal Building. Small work groups responded to “What is your vision for Spencer Woods? Ideas were then voted on by the full group. Below are the results of that session and number of votes received:

- ◆ Signage to honor donors and history of the area (11)
- ◆ Possible acquisition of future property (8 )
- ◆ Use sewer outfalls to connect to Grants Creek (8)
- ◆ Connections to 8<sup>th</sup> Street Park, Transportation Museum, Downtown, Other Parks, Grants Creek (7)
- ◆ Possible future subcontracted ziplines (7)
- ◆ Trail connection to 8<sup>th</sup> Street Ballpark/bathrooms (6)
- ◆ Keep site primitive (6)
- ◆ Environmental education—trees, creek, ponds (6)
- ◆ Establish volunteer cadre of trail makers/fundraisers (4)
- ◆ Volunteer planned/constructed primitive trails (3)
- ◆ Keep trails natural or mulched (3)
- ◆ Open only during daylight (3)
- ◆ Limited parking (3)
- ◆ Handicap accessibility (3)
- ◆ Designate parking at parks and adjacent areas (3)

- ◆ Parallel parking on Rowan Avenue with bike parking (3)
- ◆ Views from the ridge (2)
- ◆ Future site for LandTrust office (2)
- ◆ Connection to downtown, N.C. Transportation Museum (2)
- ◆ Contact Landowner before January meeting (1)
- ◆ Preserve the land’s natural appeal (1)
- ◆ Limited trails—small natural area (1)
- ◆ Limited small picnic shelter (1)
- ◆ Call boxes for safety (1)
- ◆ Tree Preservation (1)
- ◆ Bathrooms (1)
- ◆ Wildlife corridor (1)

About six months earlier, an interview with Spencer Mayor Jody Everhart and Public Works Director Jeff Bumgarner produced this short list of considerations:

- ◆ Site should remain as natural as possible
- ◆ Operational hours
- ◆ Restroom facilities
- ◆ Picnic shelter
- ◆ Trail mainly for daytime use – not paved
- ◆ Nature trail with interpretive signs, trees identified, etc. Look at Frog Hollow for examples
- ◆ Pond liability is concern. How will pond be utilized, or should it be eliminated?
- ◆ Benches, but not to encourage loitering
- ◆ Some ADA provisions
- ◆ Possible relocation of LandTrust office to site
- ◆ Short & long-term management considerations (one-, five-, and ten-year maintenance?)
- ◆ Setup of non-profit similar to Hurley Park (Salisbury)

### 3-Day Planning Charrette

A three day planning event was held from January 19-21, 2012. During the event, the Community Assistance Team conducted individual interviews with interested citizens, and hosted a community input session for the general public.

The community input session took place on Thursday evening (Jan. 19). Over 20 citizens attended the work shop. Participants were asked to voice their opinions on community needs, appropriate activity for the property, and priorities for project development.

As a result of these and input from the previous public sessions, this simplified, overall VISION for the property emerged:

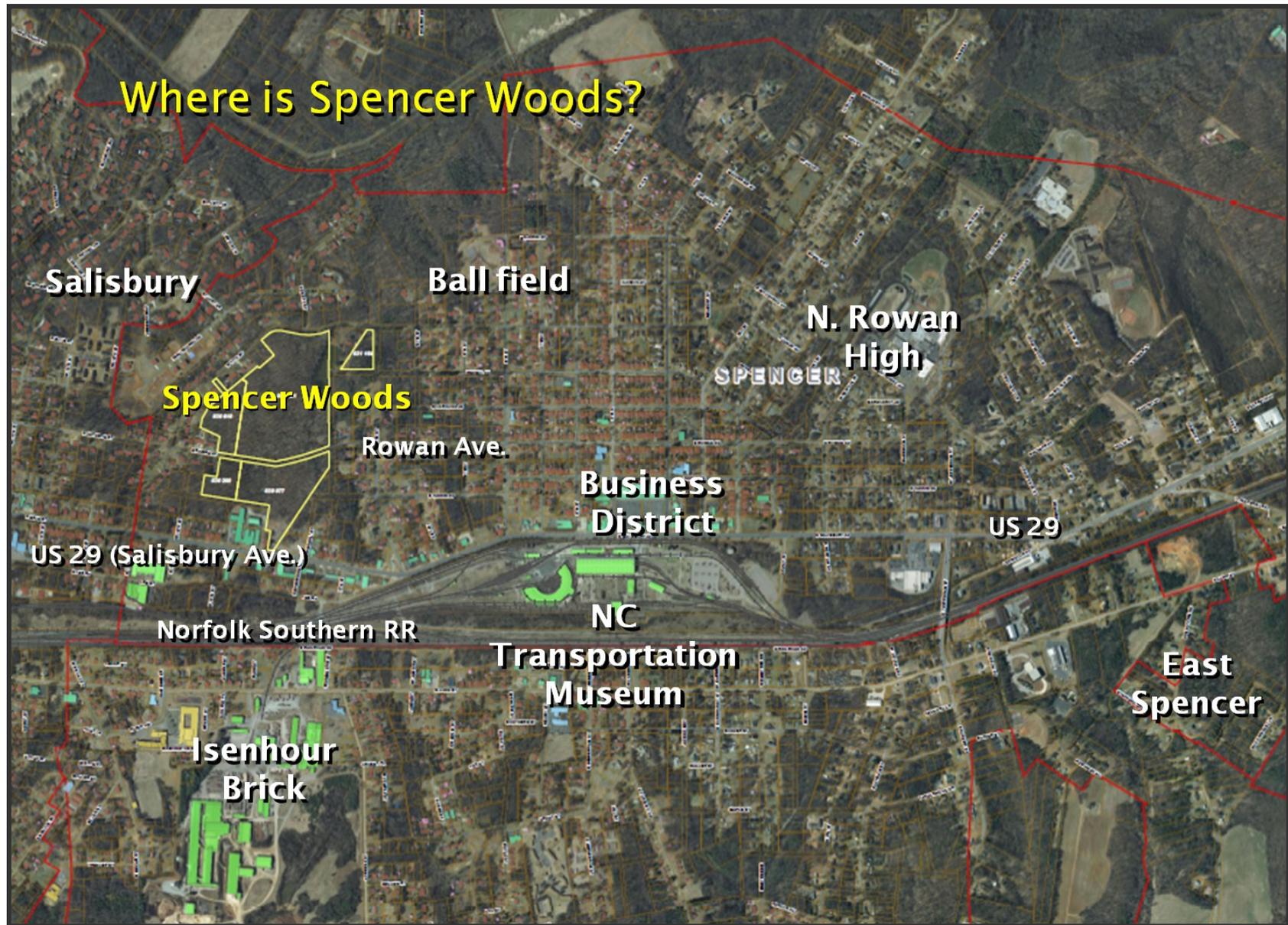


## The Vision

- ◆ Honor the Stanback Family for their remarkable contributions to conservation in the area as well as statewide.
- ◆ Preserve the forest property while providing enjoyment for the public
- ◆ Enhance quality of life and strengthen community
- ◆ Commemorate the donor who made it possible

A second public workshop was held on Saturday (Jan. 20) to review the concept plans. The approximately 20 local stakeholders who attended this workshop agreed that the proposed concepts addressed the town's needs. There was unanimous support for the proposals as presented.







## The Site

**Location:** Spencer Woods is a 42-acre parcel of land in the Town of Spencer in the piedmont region of central North Carolina, west of Interstate Highway 85 and south of the Yadkin River. The site has a small amount of road frontage on Salisbury Avenue (U.S. Highway 29A) in southern Spencer. Rowan Avenue bisects the site and Spencer Avenue forms the northern property boundary. The site is within walking distance from the Spencer Central Business District, the North Carolina Transportation Museum, Spencer's Eighth Street ball park, and for many Spencer and north Salisbury residents.

**General Description:** Spencer Woods is an undeveloped parcel of land in southern Spencer with predominantly mature hardwood trees. The hardwood canopy continues onto parcels to the north which allows Spencer Woods to provide an unfragmented connection of forest to a linear greenway along Grants Creek. The northern property boundary of Spencer Woods is delineated by Spencer Avenue and an intermittent tributary flows along its right-of-way. Another intermittent tributary that flows into a pond delineates the eastern boundary. Slopes and an upland ridge span between these two intermittent streams. Numerous moist draws bisect the slopes. Elevations range from 650 feet to 720 feet above sea level with slopes roughly from 2% to 25%.

A patch of kudzu is located along the Salisbury Avenue road frontage. Generally, Spencer Woods is relatively free of invasive species. Most of the infestations occur east of the eastern intermittent tributary that flows into the pond and on the small parcel north of the pond. Controlling the invasive species on the remainder of the site is achievable.

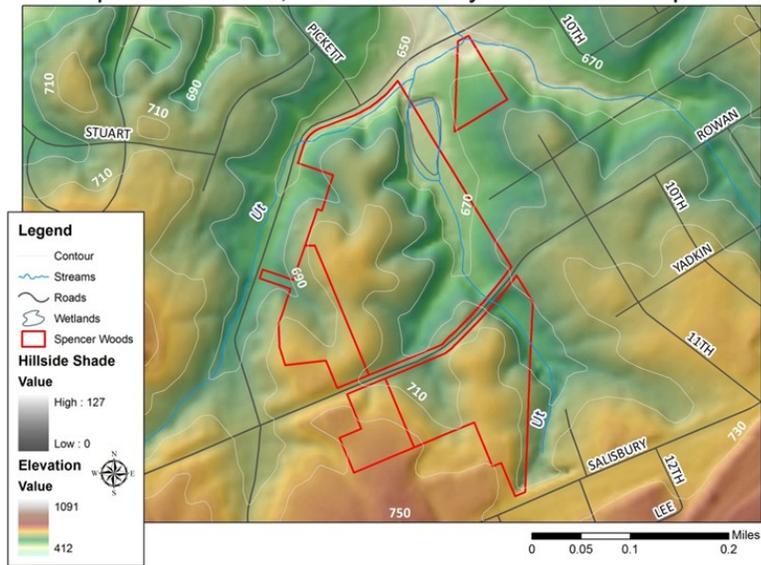
There are no structures on the Spencer Woods property and little past soil disturbance. North of Rowan Avenue and in the upland flat topography is a series of soil mounds and troughs. On this same upland area, a few cut stumps indicated possible harvest for a wood burning stove. There is no evidence of old logging roads and past timbering on the site; nor is there evidence of past row cropping. The small parcel north of the pond is an exception. The canopy of this area is dominated with pines, the slopes have eroded, and numerous invasive plant species and/or native species that grow in disturbed areas are present.

**Watershed:** Grants Creek to the Yadkin River

**Significance of Site:** Spencer Woods is regionally significant for mature hardwood forest, quality of tributaries, and limited invasive species for an urban site. In the future, Spencer Woods may serve as a large protected parcel connected to a linear greenway along Grants Creek.

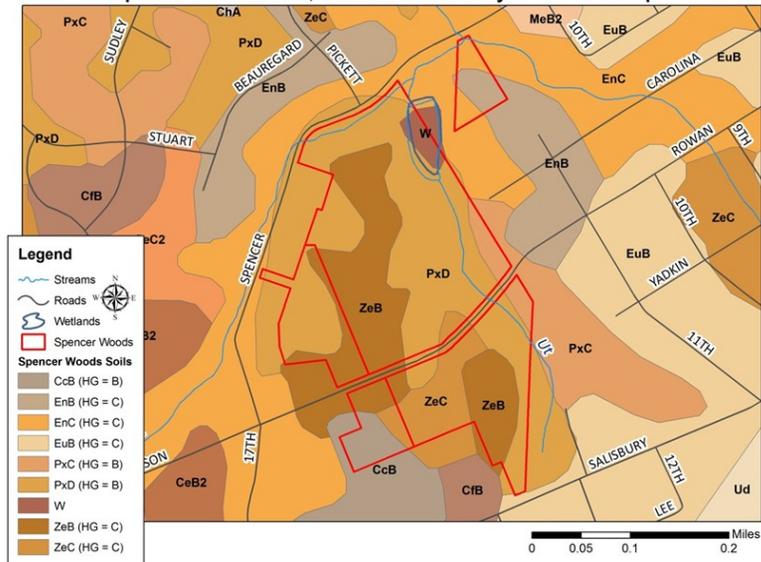
*Note: This site information is primarily from a SITE SURVEY REPORT FORM prepared in May 2012 by Moni Bates for the North Carolina Natural Heritage Program. The full report is published as an appendix at the end of this document.*

Spencer Woods, Rowan County - Elevation Map



**Topography:** Spencer Woods is bisected with numerous intermittent tributaries and draws. The eastern tributary generally flows from south to north and into an impounded pond. The second tributary flows southwest to northeast and meets its confluence with the outflow of the pond at the northern tip of the site and along Spencer Avenue. A ridgeline between these two intermittent tributaries runs north/south through the site.

Spencer Woods, Rowan County - Soils Map



**Soils (from USSCS Soil Map):** The uplands are mapped as Wynott-Enon complex with 2 to 8 percent slopes and the slopes adjacent to the intermittent tributaries and draws are mapped as Poindexter-Rowan complex with 15 to 25 percent slopes.

*Note: These maps were prepared by LandTrust Conservation Specialist Crystal Cockman to assist the CAT with the site analysis. Descriptions are from the SITE SURVEY REPORT FORM by Moni Bates.*

# Developing the Plan

## Site Orientation

Following introductions by LandTrust staff and Town of Spencer staff, the Community Assistance Team explored the site, paying particular attention to potential access points and connectivity to existing street network. Town Manager Larry Smith identified several unopened rights-of-way that could be utilized to connect access trails or provide parking options.

The Team quickly discovered that these rights-of-ways, though near-impassible in their current condition, would be critical to the overall circulation plan for the site.

In addition to the rights-of-way, the Town owns several lots that are either adjacent or close to the 42-acre site. These lots could be incorporated into the master plan for future development.



Spencer Woods Community Assistance Team  
January 19-21, 2012

Site visits, interviews with the community and reviews of previous input sessions provided additional information for translating the vision for the property into a conceptual plan.

The Team got to work sorting through site information— its visible natural resources, topography and hydrology, opportunities for connectivity to other community assets, and any obvious challenges.

A hierarchy of objectives emerged, from site-specific, to local, to regional.

## Recreational Needs

While the primary focus of “The Woods” will be open space preservation, there are a number of recreational needs that will be met by this project.

The town of Spencer currently has one park: Eight Street Ball Park. As the name implies, this park provided valuable active recreation opportunity to the citizens of Spencer and surrounding area. The park provides residents with two ball fields, playground and picnic facilities. The park is extremely compact and provides no open space or passive recreation opportunity. Spencer Woods will provide local residents with much needed open space with passive recreation opportunities. The proposed trails will offer opportunity for walking/ hiking. Proposed shelters will provide an area for picnicking and passive recreation. The site’s natural features will provide opportunities for environmental education,

wildlife and bird watching. The small pond will provide opportunities for waterfowl observation and wetland studies.

All of these activities will meet the passive recreational needs of the citizens of Spencer and the surrounding area.

## Goals

### Site:

- ◆ Preserve and maintain forest and streams
- ◆ Provide primitive trails on the interior
- ◆ Provide general access trails on the periphery
- ◆ Provide parking options that will not adversely impact the site or adjacent properties
- ◆ Enhance opportunities for public education



### Local:

- ◆ Enable neighborhood connections, respecting community preservation
- ◆ Connect to local activities and points of interest

### Regional:

- ◆ Explore opportunities for ecotourism
- ◆ Future connection to Grants Creek Greenway and Yadkin River

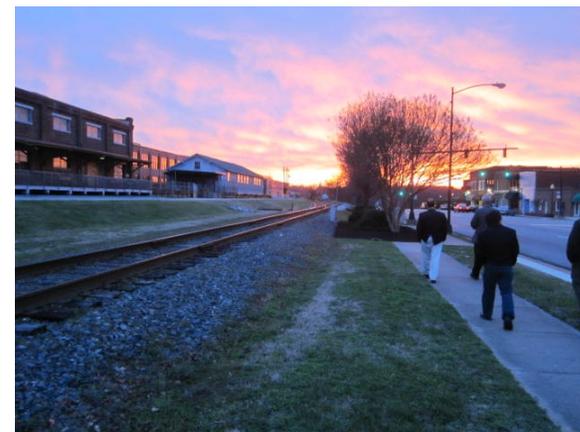
# Program

## Regional

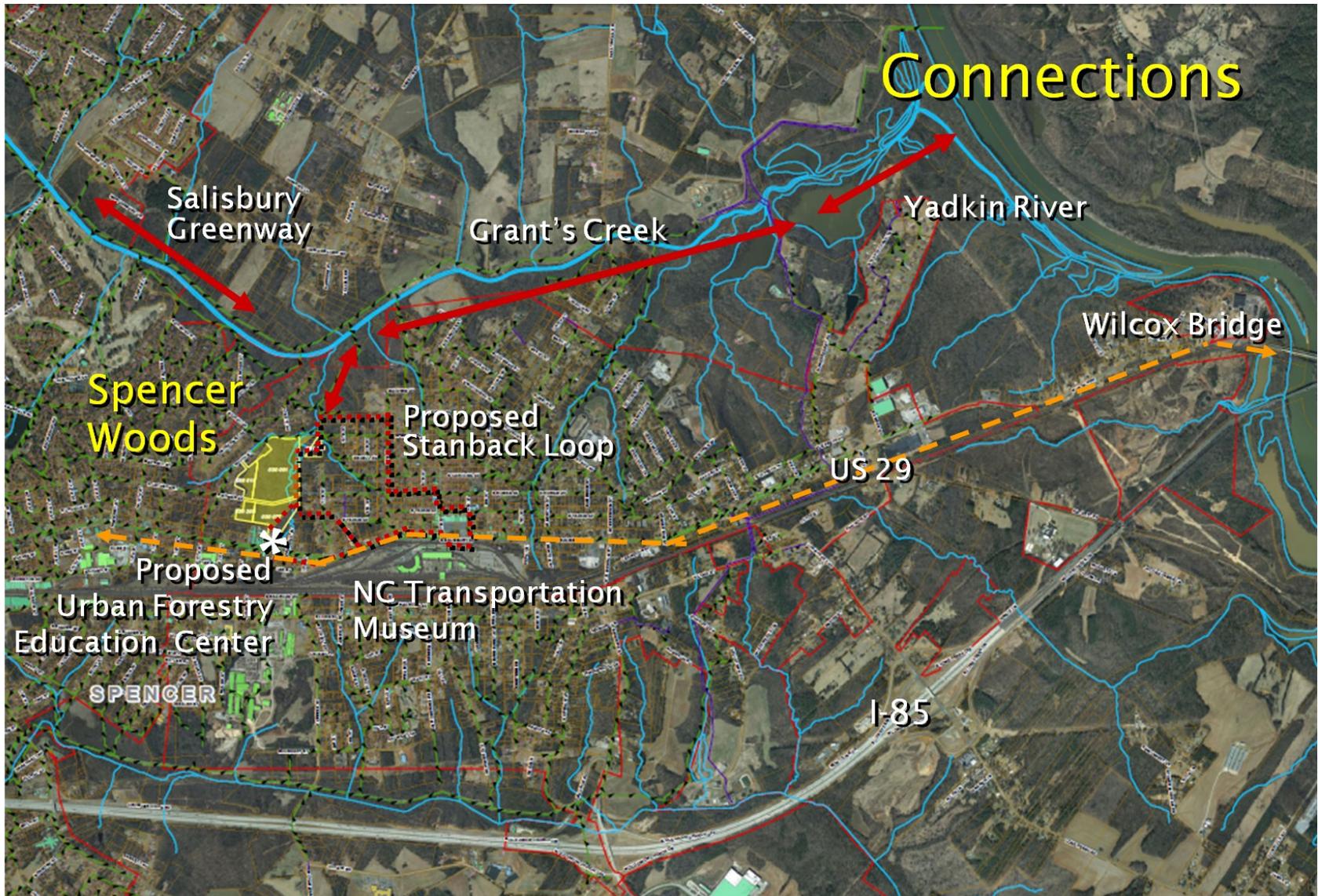
- ◆ Future connections with Grants Creek Greenway and the Yadkin River will provide greater hiking distances and access to regional scale recreational opportunities that may include cross-country running.
- ◆ Take advantage of proposed use of Wilcox Bridge for pedestrian and biking connections from Yadkin River. Work with NCDOT to develop bicycle lanes and better pedestrian access along Highway 29.



Sanitary sewer easement as possible greenway connection



Hwy. 29 at Transportation Museum



# Program

## Local

- ◆ Neighborhood access points
  - Provide several locations for neighborhood access to Spencer Woods
  - Provide several parking options for trail walkers on existing town rights-of-way
  - Enhance and preserve sense of community through Rowan Avenue street tree plantings
- ◆ Connection to local activities and points of interest
  - Link 8th Street Ball Park to Spencer Woods via town rights-of-way and/or undeveloped town-owned lots
  - Emphasize Main Street linkage between Spencer Woods and Transportation Museum
  - Identify “Stanback Loop” for a walking and biking connection, marking historical landmarks along the way. Delineate loop with signage and market loop to Transportation Museum and Town visitors as a another fun thing to do while in Spencer. Include loop into town’s long-range sidewalk improvement planning.



Parking on unopened right-of-way



Historic Stanback house on Rowan Ave. (needs restoration)



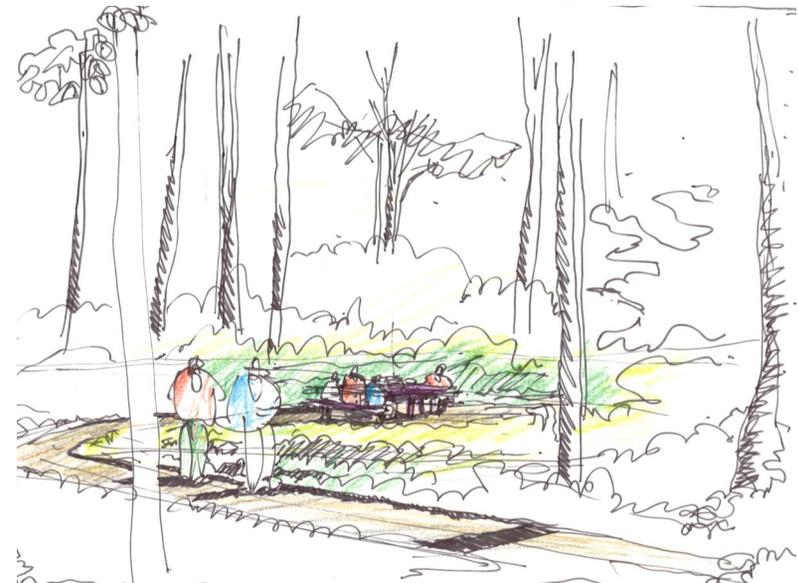
## Program

### Site

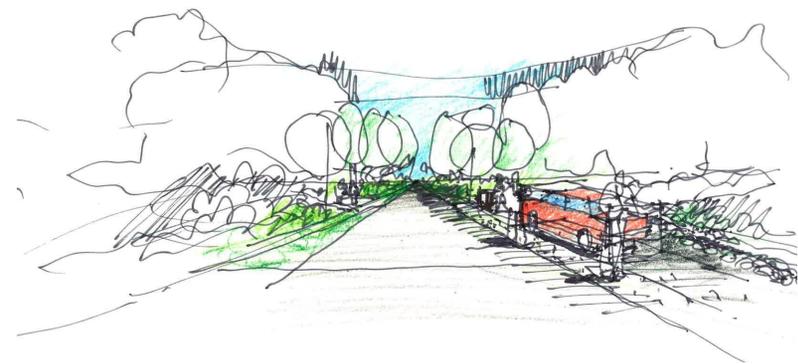
- ◆ Encourage limited access
  - Preservation of the forest is primary
  - Limited, informal parking
  - Primitive trails on the interior of the site
  - Boardwalk trails in wet, lowland areas
  - More developed access on the periphery for those less able to hike on the primitive trails
  - Casual picnic area



Improved access on periphery of site

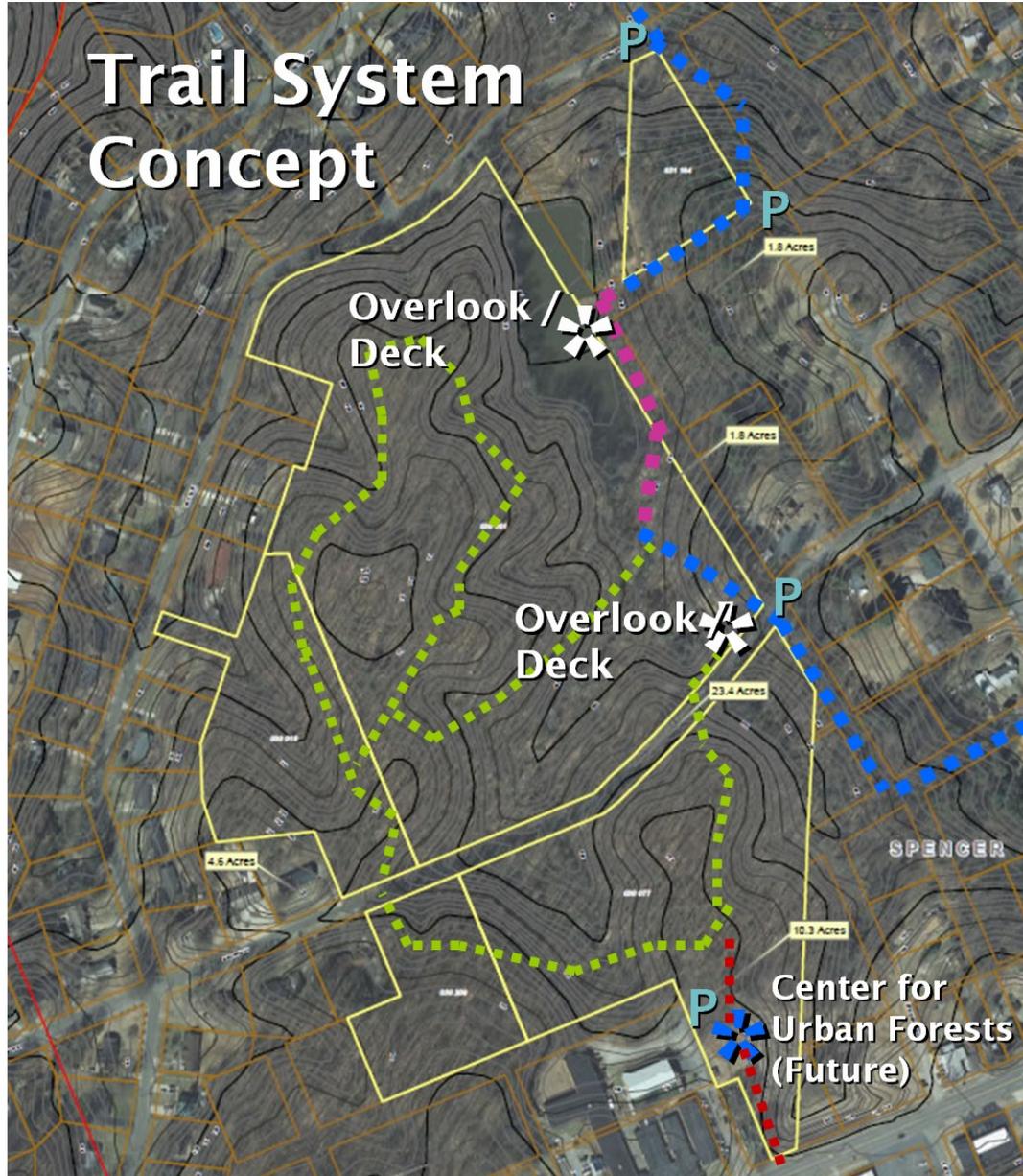


Picnic area off Spencer Avenue



Informal parking off Rowan Avenue

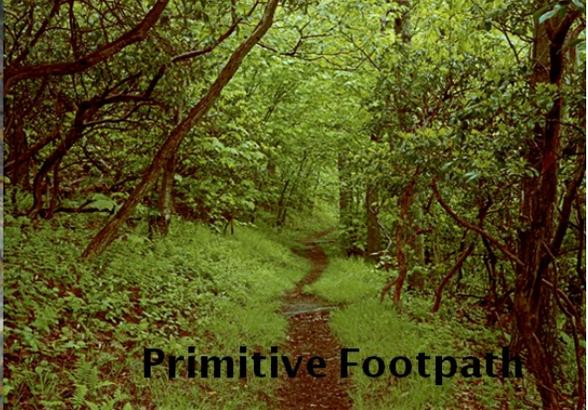
# Trail System Concept



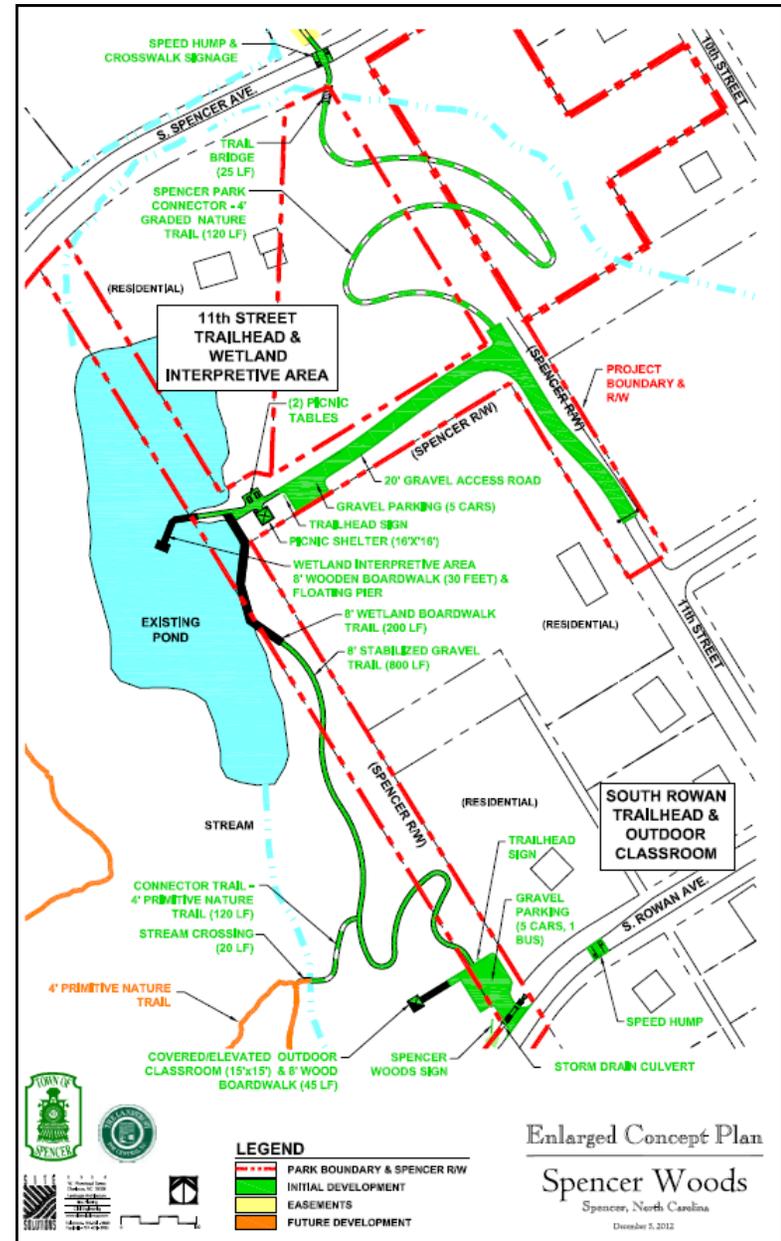
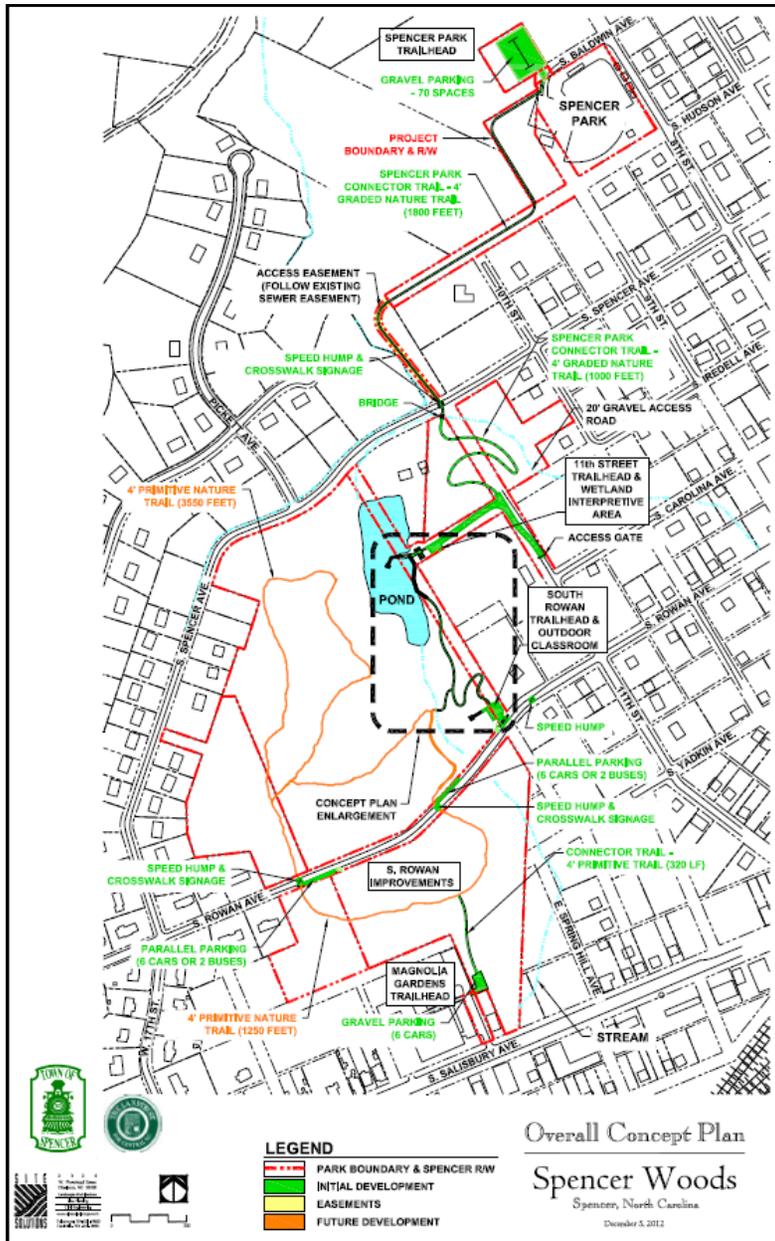
General Access Trail



Boardwalk



Primitive Footpath





Wetland Boardwalk



Picnic Shelter



Gravel Parking Area



Floating Pier



Picnic Table



Bench



Trash Can



4' Primitive Nature Trail



8' Compacted Gravel Trail



Wooden Trail Bridge



Primitive Trail - Stream Crossing



## Spencer Woods - Character Imagery

Spencer, North Carolina



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## Site (cont.)

### ◆ Environmental Education

- Provide opportunities for schoolchildren and other groups to learn from Spencer Woods
- Overlooks at pond and off Rowan Ave. for enjoyment and environmental education
- Create a system of interpretive signage to educate visitors along the pathways



Foot bridge



Overlook at pond



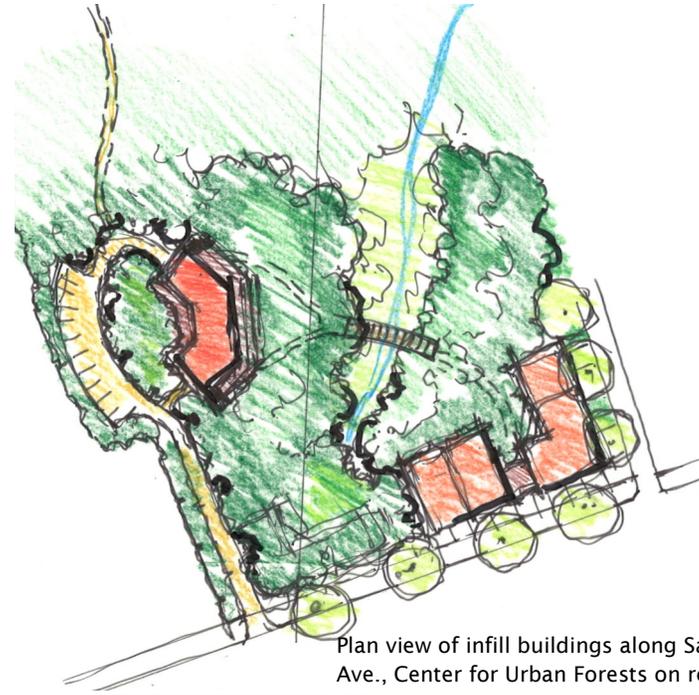
Interpretive and commemorative signs

**Site (cont.)**

- ◆ Center for Urban Forests
  - Educational resource for the community
  - Meeting rooms
  - Sustainable design prototype
  - Urban forest succession demonstrations
  - Redevelopment and reforestation of Salisbury Ave. frontage of the site
  - Possible future location for LandTrust office



Possible mixed-use on Salisbury Ave.—LandTrust office, flexible office and meeting space



Plan view of infill buildings along Salisbury Ave., Center for Urban Forests on rear knoll



Bridge and overlook over ravine

## Site (cont.)

### The Center for Urban Forests

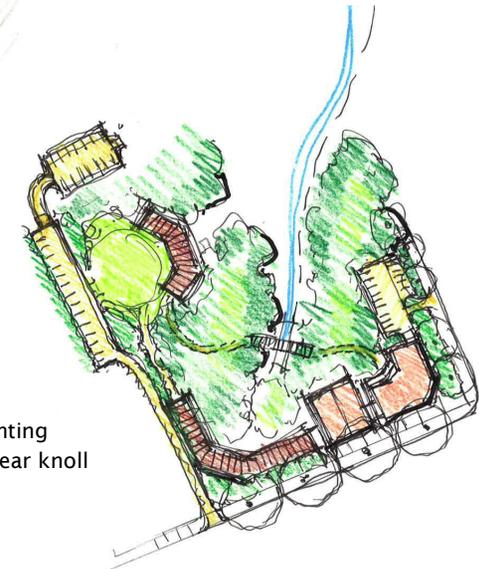
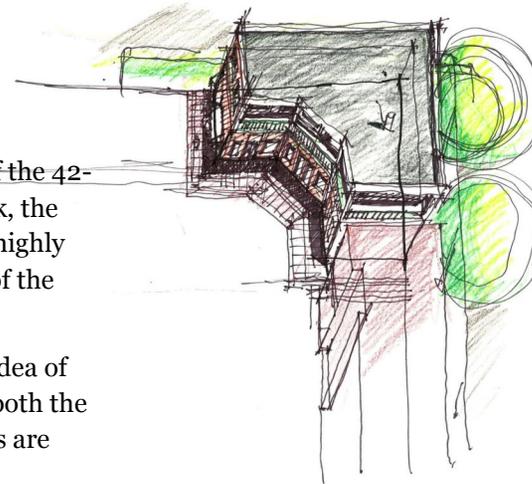
Salisbury Avenue (Highway 29) defines the eastern edge of the 42-acre Spencer Woods property. Behind the public sidewalk, the land slopes deeply down to a kudzu-covered ravine. This highly visible exposure of an otherwise pristine woodland is one of the few shortfalls of the property.

To turn this eyesore into an asset, the Team explored the idea of completing the street front with buildings to complement both the urban fabric and the vision for the property. Two concepts are shown on this and the preceding page.

Both concepts include a Center for Urban Forests, a new LandTrust office, and an opportunity to eradicate the kudzu and restore the natural forest ecology. The center would offer the Town much-needed flexible meeting space. The forest restoration would occur over time and would be chronicled as part of the center's education mission.

In the first concept (page 21), the attractive energy-efficient Center would be built on a knoll, back from the street, but overlooking the ravine reforestation project. Other well-designed mixed-use buildings would fill in the street front in buildable areas and utilize the sloping terrain for expanded views and solar gain.

In the concept on this page, the Center is the anchor building on Salisbury Avenue, supported by other mixed-use buildings. A boardwalk spans a deep area at the mouth of a culvert and provides viewing opportunities into the ravine and the reforestation process. The knoll provides a larger open gathering space with a deck overlooking the ravine. Discrete, permeable parking areas makes the site accessible for all users, without adversely affecting the site.



Center for Urban Forests fronting Salisbury Ave., overlook on rear knoll



# Phased Tasks & Project Cost

## ◆ Define trails

- Field locate primitive trails on site's interior
- Stream cleanup/ assessment for problems
- Field locate general access trail linking 8th Street Ball Park to Spencer Avenue
- Field locate general access trail linking Spencer Avenue to South Yadkin Street

## ◆ Construct trails (Note: Cost estimates are very general and are based on hiring contractor to complete all work. Many tasks may be accomplished through volunteer labor with students, scouts, civic groups, etc.)

- Construct interior primitive on-site trails: \$60,000
- Construct general access trail linking 8th Street Ballpark to Spencer Avenue: \$80,000
- Construct general access trail linking Spencer Avenue to South Yadkin Street: \$100,000

## ◆ Open neighborhood access points

- Provide gravel parking improvements at trailheads— 8th Street Ballpark, Spencer Avenue, Rowan Avenue, South Yadkin Street: \$50,000
- Provide interpretive signage and commemorative signage: \$15,000

- Incorporate rest stops (benches), vistas (observation deck) and creek crossings (primitive bridges): \$25,000
- Provide markers and/or signs to delineate “Stanback Loop.” Market loop to Transportation Museum and Town visitors as a “another fun thing to do while in Spencer”: \$10,000.
- Plant street trees along Rowan Avenue as a visual cue for Spencer Woods and a connection to historic Stanback house: \$15,000
- Develop plan for rehabilitation of historic Stanback house on Rowan Avenue
- Provide signage and/or markers to delineate Stanback Loop



General access trail

## Phased Tasks (cont.)

### ◆ Restoration of highly visible Salisbury Avenue part of the property (ravine area)

- Kudzu eradication
- Reforestation
- Expand link to North Carolina Transportation Museum



Kudzu-covered ravine along Salisbury Ave.

### ◆ Property acquisitions

- Explore opportunities to protect and enhance Spencer Woods property through strategic additions of key properties
  - Adjacent and nearby properties owned by Town of Spencer.
  - Undeveloped properties that may provide key connections (see map on page 15)
  - Long-term sustainability plan for pond area

### ◆ Center for Urban Forests

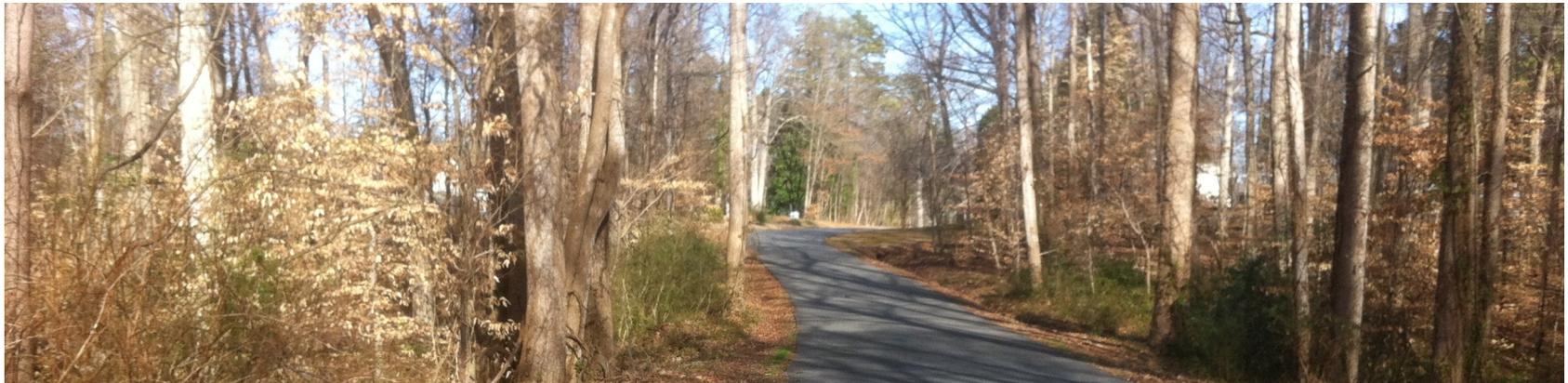
- Feasibility study
- Explore and cultivate potential partnerships





## THE LEGACY

Preserve and enhance Spencer Woods for future generations!



## ACKNOWLEDGEMENTS

Special thanks to the North Carolina Transportation Museum  
Brian Howell, Facilities Director

### **Community Assistance Team**

North Carolina Chapter  
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Jim Gobbel, Mayor Pro-tem  
Scott Benfield  
Kevin Jones  
Jeff Morris  
David Smith  
Reid Walters  
Larry Smith  
Joel Taylor  
Jeff Bumgarner  
Tracy Aitken  
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Reid Walters and Lauren Raper  
L A Murph's Fine Cooking,  
Laura Murph

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The Woodson Foundation  
Wyndham G. Robertson  
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John and Rebecca Peeler  
Burr and Carolyn Blackman  
David and Carole Simmons  
Will and Amy Goodnight  
Marla Coulthard  
Crystal Cockman  
Lynn and Steve Raker  
Lindsey Dunevant  
Ruth Ann and Marcus Grissom  
Rebecca Hyde  
Doug and Carolyn Glasgow  
Donald and Betty Sunding  
John and Moni Bates  
Jim and Gail Foltz  
Tim and Laurie Klaus



APPENDIX

**SITE SURVEY REPORT FORM**  
**NC Natural Heritage Program**

SITE NAME: Spencer Woods/Stanback Educational Forest

DATES VISITED: May 4, 2012

INVESTIGATORS: Moni Bates

REPORT AUTHOR: Moni Bates

OWNER: The LandTrust for Central North Carolina

OWNER CONTACT: yes, botanical survey conducted during field work for a Phase I Environmental Site Assessment. Crystal Cockman with the LandTrust for Central North Carolina participated in the afternoon field survey. Morning survey lasted from 9:30 a.m. to 12:30 p.m.; afternoon survey from 3:00 p.m. to 4:30 p.m.

COUNTY: Rowan

QUAD: Salisbury

SIZE: 41.73 acres

HOW DETERMINED: From copy of Statewide Title, Inc report

LOCATION: Spencer Woods in located in central North Carolina, west of Interstate Highway 85 and south of the Yadkin River. The site has a small amount of road frontage on Salisbury Avenue (U.S. Highway 29A) in southern Spencer. Rowan Avenue bisects the site and Spencer Avenue forms the northern property boundary.

PROVINCE: Piedmont

WATERSHED: Grants Creek to the Yadkin River

SIGNIFICANCE OF SITE: Regionally significant for mature hardwood forest, quality of tributaries, and limited invasive species for an urban site. In the future, Spencer Woods may serve as a large protected parcel connected to a linear greenway along Grants Creek.

GENERAL AND PHYSICAL DESCRIPTION: Spencer Woods is an undeveloped parcel of land in southern Spencer that

predominantly supports mature hardwood trees. The hardwood canopy continues onto parcels to the north which provides potential for Spencer Woods to serve as an unfragmented block of forest attached to a linear greenway along Grants Creek. The northern property boundary of Spencer Woods is delineated by Spencer Avenue and an intermittent tributary flows along its right-of-way. Another intermittent tributary that flows into a pond delineates the eastern boundary. Slopes and an upland ridge span between these two intermittent streams. Numerous moist draws bisect the slopes. Rowan Avenue bisects the site and Salisbury Avenue is to the south.

A patch of kudzu is located along the Salisbury Avenue road frontage. Generally, Spencer Woods is relatively free of invasive species. Most of the infestations occur east of the eastern intermittent tributary that flows into the pond and on the small parcel north of the pond. Controlling the invasive species on the remainder of the site is achievable.

There are no structures on the Spencer Woods Property and little past soil disturbance. North of Rowan Avenue and in the upland flat topography is a series of soil mounds and troughs (Refer to the Phase I Environmental Site Assessment for GPS coordinates and photograph). On this same upland area, a few cut stumps were noted possibly harvest for a wood burning stove. There is no evidence of old logging roads and past timbering on the site; nor is there evidence of past row cropping. The small parcel north of the pond is an exception. The canopy of this area is dominated with pines, the slopes have eroded, and numerous invasive plant species and/or native species that grow in disturbed areas are present.

ASPECT: All aspects, but many of the steep slopes are generally north-facing.

SLOPE: Most of Spencer Woods consists of slopes along intermittent tributaries and draws that range from 2 to 25%.

ELEVATION: The highest elevation is 720 feet and the lowest is 650 feet.

TOPOGRAPHY: Spencer Woods is bisected with numerous intermittent tributaries and draws. The eastern tributary generally

flows from south to north and into an impounded pond. The second tributary flows southwest to northeast and meets its confluence with the outflow of the pond at the northern tip of the site and along Spencer Avenue. A ridgeline between these two intermittent tributaries runs north/south through the site.

**HYDROLOGY AND MOISTURE:** The intermittent tributaries are bordered with moist slopes and the upland ridgeline is dry.

**GEOLOGY:** Spencer Woods is mapped as metavolcanic rock. These rocks are of either felsic metavolcanic and mafic and intermediate metavolcanic type or commonly both interbedded. (Geologic Map of the Charlotte 1° x 2° Quadrangle, North Carolina and South Carolina. 1988. Richard Goldsmith, Daniel J. Milton and J. Wright Horton, Jr.)

**SOIL (FROM USSCS SOIL MAP):** The uplands are mapped as Wynott-Enon complex with 2 to 8 percent slopes and the slopes adjacent to the intermittent tributaries and draws are mapped as Poindexter-Rowan complex with 15 to 25 percent slopes.

**NATURAL COMMUNITY DESCRIPTION:** Most of Spencer Woods supports a Dry-Mesic Oak-Hickory Forest and the highest elevation, along the north/south ridgeline is a Dry Oak-Hickory Forest. On the ridgeline, oak and hickory species that prefer drier soils are present such as *Quercus stellata* (Post oak), *Quercus alba* (White oak), and *Carya glabra* (Pignut hickory). A few *Pinus echinata* (Short-leaf pine) occur scattered in the uplands. *Rosa carolina* (Wild rose) and *Euonymus americanus* (Strawberry bush) are common in the shrub layer. There is a patch of a blueberry species, *Vaccinium arboreum* (Sparkleberry), that grows in dry rocky upland habitats and is present on the ridgeline. A small population of the hazelnut species that prefers dry soils was also noted, *Corylus cornuta* var. *cornuta* (Beaked hazelnut). *Viburnum rafinesquianum* (Downy arrow-wood), another dry habitat species, grows on the upper slopes. The herb diversity is low in the uplands and is dominated with *Vitis rotundifolia* (Muscadine grape) and *Parthenocissus quinquefolia* (Virginia creeper). A few other herbs such as *Polystichum acrostichoides* (Christmas fern) and *Hexastylis arifolia* (Arrowleaf heartleaf) are common in the Dry Oak-Hickory Forest along with a few small patches of *Piptochaetium avenaceum* (Eastern needlegrass). The

quality of the Dry Oak-Hickory Forest is excellent, few cut stumps and invasive species were noted in this natural community.

The mid-slopes along the draws have more soil moisture than do the upland ridges and support a Dry-Mesic Oak-Hickory Forest. Numerous species of oaks and hickories dominate the canopy such as *Quercus alba* (White oak), *Carya tomentosa* (Mockernut), and *Quercus rubra* (Red oak). The herb diversity varies from fairly low to some north-facing slopes with a high diversity of species that thrive in nutrient-rich soils such as *Actaea racemosa* (Common black-cohosh), *Thalictrum* sp. (A Meadowrue), *Ligusticum canadense* (Lovage), *Geranium maculatum* (Wild Geranium), and *Podophyllum peltatum* (Mayapple) grows on the upper slopes which is indicative of a basic or circumneutral soil site, common on mafic volcanic geology.

Spencer Woods is located in a swath of metavolcanic rock and some of the plant species are indicative of mafic geology. Examples of these species include *Carya caroliniae-septentrionalis* (Carolina shagbark hickory) and *Viburnum rufidulum* (Southern black haw), and *Acer floridanum* (Southern sugar maple). The maple is common in the subcanopy across the site. *Vaccinium stamineum* var. *stamineum* (Common deerberry) which unlike most other *Vaccinium* species, Common deerberry is often found growing on mafic, ultramafic, or calcareous rocks (Flora of the Carolinas, Virginia, Georgia, and Surrounding Area; Weakley, A. 2006). However, these elements were not dominant enough to warrant describing the natural communities of Spencer Woods as basic.

#### OTHER NATURAL COMMUNITIES PRESENT:

The small parcel to the north of the pond has been disturbed in the recent past. Remnants of barbed wire fencing were noted and the canopy is dominated with pines with a mix of immature hardwoods. The slopes are eroded from the past disturbance with headward erosion in several draws. In areas, the herb layer is dominated with *Lycopodium flabelliforme* (Running cedar) which is common on early successional sites. There is also a dominance of *Lonicera japonica* (Japanese honeysuckle) and *Hedera helix* (English ivy) in the herb layer.

## APPENDIX

### ANIMAL HABITAT FACTORS

HABITAT HETEROGENEITY: dry upland habitat, mesic slopes, tributaries and pond

AMPHIBIAN BREEDING SITES: logs on forest floor and intermittent tributaries

DENNING SITES: moderate slopes

BIG TREES/LARGE CAVITIES: large trees present, cavities noted in some

SNAGS AND LOGS: standing snags with cavities and logs present on forest floor; neither in excessive amounts; a few standing snags in the pond with cavities

MAST PRODUCING SPECIES: site is dominated with species of oaks and hickories; hazelnut

NECTAR SOURCES: blueberry species, herbs on mesic slopes and narrow riparian zone

PRESENCE OF WATER: intermittent tributaries; one pond

### AQUATIC HABITAT FACTORS

HYDROLOGY (ORDER, FLOW RATE, PERSISTENCE): There are two mapped first order tributaries. One flows from Salisbury Avenue to the impounded pond on Spencer Avenue. The second one flows in the right-of-way of 17<sup>th</sup> Street and Spencer Avenue, along the north property boundary of the site. Some of the small draws held water during the May 4<sup>th</sup> survey date.

DEPTH/WIDTH: The intermittent tributary that flows into the pond is approximately 3 to 4 feet wide and 6 inches or less deep.

SUBSTRATE: Mud substrate

WATER QUALITY/CLARITY: Fairly clear on May 4<sup>th</sup> survey date

BANK CONDITION: Excellent bank conditions on all the tributaries and draws on the main section of the site. No incised banks were noted and no excessive erosion from adjacent parking lots, drive ways, or streets. The tributary and draws are examples of high quality bank conditions on piedmont streams.

VEGETATION: All banks are fully vegetated on both sides of the streams.

WOODY DEBRIS: Little woody debris was noted in the stream beds and no log jams were noted blocking the flow of water which causes bank erosion.

SPECIAL STATUS SPECIES PRESENT: None noted on May 4, 2012.

POTENTIAL FOR OTHER SPECIAL STATUS SPECIES: Possibly *Panax quinquefolium* (Ginseng) on slopes south of Rowan Avenue with high herb diversity.

### OTHER NOTEWORTHY SPECIES OR FEATURES PRESENT:

One clump of *Tradescantia* sp. (A Spiderwort) was noted in the ROW of Rowan Avenue at 35.68474° N and 80.44601° W (accuracy of plus or minus 17 feet). The ROW habitat is not the typical type for spiderworts and this clump of about ten stems may be present due to horticultural landscaping especially since near by and in the same ROW is a large clump of *Deutzia*, an “old-time or pass along” horticultural shrub. Possibly, historically, a home sight was in the immediate vicinity.

SITE ECOSYSTEM INTEGRITY: Excellent

AVERAGE DBH OF CANOPY TREES: The average trees range from 45 to 75 cm DBH

MAXIMUM DBH OF CANOPY TREES: Largest trees are around 65-80 cm DBH

DISTURBANCE-SENSITIVE SPECIES: *Actaea racemosa* (Common black-cohosh) on the steep slopes with high herb diversity.

FIRE REGIME: No evidence of past fires and no past management with fire.

### OTHER DISTURBANCES OR IMPACTS

LOGGING: only a few cut stumps were noted on the ridgeline on the section of the site south of Spencer Avenue; no logging roads present

the section of the site south of Spencer Avenue; no logging roads present

**FARMING:** no evidence of past row cropping or pastures on the site

**DITCHES:** none noted

**ROADS:** Rowan Avenue, a paved city road, bisects the property.

**ALTERED FLOOD REGIME:** none noted

**EXOTIC/WEEDY SPECIES:**

*Albizia julibrissin* (Mimosa) – saplings noted on small parcel north of pond

*Elaeagnus umbellata* var. *parvifolia* (Spring Silverberry) - along ROW of Rowan Avenue

*Hedera helix* (English ivy)

*Ipomoea batatas* (Sweet potato)

*Ligustrum sinense* (Privet) – scattered stems were noted along the edges of the property and along some of the tributaries

*Lonicera japonica* (Japanese honeysuckle) – scattered in patches mainly along the tributaries and lower slopes

*Lonicera standishii* (Standish's honeysuckle) – introduced from China

*Microstegium vimineum* (Japanese grass)

*Pueraria lobata* (Kudzu) – patch along Salisbury Avenue

*Vinca minor* (Periwinkle) – noted in ROW of Spencer Avenue and near residence on south side of site

*Wisteria* sp. (Wisteria)

*Youngia japonica* (Asiatic hawk's-beard) – mostly in ROW of Rowan and Spencer Avenues.

A few clumps of daffodils noted; one near the kudzu patch

**UNDERSTORY CLEARING:** none noted

**DIRECT HUMAN INTRUSION:** Trash, see Phase I Environmental Site Assessment for GPS coordinates of trash noted

on either Spencer Woods and/or adjacent properties.

**LANDSCAPE FACTORS**

**BOUNDARY INTEGRITY/SHAPE:** rectangular shape

**ADJACENT LAND USE/OFFSITE STRESSES:** Most of Spencer Woods is surrounded by residential homes in the town of Spencer. To the south are Magnolia Gardens Extended Care Community and Piedmont Radiator Works. There is a wooded five acre parcel to the north that connects Spencer Woods to the riparian corridor of Grants Creek.

**RELATION/CONNECTION TO OTHER SITES:** Spencer Woods is upland from parcels protected along Grants Creek in either conservation easements on private property or by Catawba College. The Catawba College preserve is upstream on Grants Creek.

**DEGREE OF THREAT/POTENTIAL FOR CHANGE:** Spencer Woods is protected through the LandTrust for Central North Carolina.

There is a threat of invasive species spreading from adjacent residences.

**BOUNDARY JUSTIFICATION:** Limited to only the Spencer Woods.

**RECOMMENDATIONS FOR PROTECTION:** The LandTrust for Central North Carolina purchased this property for protection in perpetuity.

**MANAGEMENT RECOMMENDATIONS:**

**Water Quality Issue:**

- Educate the owners of the in holding parcel with the house that is adjacent to the pond about buffering the north side of the pond.

- Develop trails that are sustainable and, on slopes, design a trail system that does not cause erosion of sediment into the tributaries and draws.

## APPENDIX

### Invasive Species Issues:

- Educate adjacent landowners about invasive plant species and encourage the use of native plants in landscaping and/or containing their plantings of invasive species onto their property. For example, the patch of *Vinca minor* (Periwinkle) and *Wisteria* sp. (Wisteria) may have spread from adjacent properties.

- Map the invasive species and develop a management plan for eliminating and/or controlling invasive species in the main body of the site between Spencer Avenue to Rowan Avenue and to the edge of the kudzu patch.

- The northeast side of the intermittent tributary between Salisbury and Rowan Avenues has a heavier infestation of invasive species than does the opposite side of the stream. The tributary has served as a barrier to the spread of these species. Some of the species noted in this area include *Ligustrum sinense* (Privet), *Lonicera japonica* (Japanese honeysuckle), *Stellaria media* (Common chickweed), and *Ipomoea batatas* (Sweet potato). The amount noted south/southwest of the tributary is possible to control and manage. Therefore, when designing a trial system, avoid the east side of this intermittent tributary to help prevent the spread of those species to the west side. Likewise, the small parcel to the north of the pond has a heavier infestation of invasive species than does the rest of the site. Delay construction of a trial through this small parcel until the invasive species are addressed. Since the majority of the site is remarkably free of invasive species, it is worthy to take actions that avoid the spread of invasive species into the interior of Spencer Woods and maintain the high integrity of the site.

- There is a *Pueraria lobata* (Kudzu) patch on the road frontage at Salisbury Avenue. In the historic aerial photographs, this area appears open in 1981 and 1985. There is little encroachment into the mature hardwood forest, however, it should be monitored and controlled if it encroaches further into the natural area.

- *Youngia japonica* (Asiatic hawk's-beard) was noted in the ROW of Rowan and Spencer Avenues. The patch on Spencer Avenue is just east of its intersection with Pickett and at GPS coordinate 35.68826° N and 80.44742° W and in front of a LTCNC boundary

sign. One small patch was noted in the forest and next to a *Quercus alba* (White oak) tree at GPS coordinate 35.68551° N and 80.44867° W. Since this clump is in the middle of the natural area, it should be eliminated.

- One large patch of *Wisteria* sp. (A Wisteria) is located at GPS coordinate 35.68438° N and 80.44522° W. This patch should be controlled since it has encroached into the natural area.

- Monitor for the emerald ash borer with the purple boxes that the State of North Carolina has begun to use to monitor for the spread of this invasive insect. Numerous sapling ash trees were noted in the subcanopy during the site survey.

### NEED FOR FURTHER STUDY:

An unknown plant species was noted on the ridgeline near Spencer Avenue that could not be identified in Radford, Ahles, and Bell by using the family key. It does not appear to be a horticultural species due to its small petals.

Confirm which species occurs in the north ROW of Rowan Avenue: *Symphotrichum georgianum* (Georgia aster) or *Aster paternus* (White-topped aster). The former is a rare plant species and the latter is common. They both bloom in the fall and are identified by flower color. The stems are located at GPS coordinate 35.68485° N and 80.44584° W.

### PLANT SPECIES OBSERVED

THOROUGHNESS OF LIST: thorough late spring survey

#### CANOPY

*Acer rubrum* (Red maple)

*Betula nigra* (River birch) – along tributary

*Carya caroliniae-septentrionalis* (Carolina shagbark hickory) – Upland flats, especially those weathered from mafic rocks (Flora of the Carolinas, Virginia, Georgia, and Surrounding Area; Weakley, A. 2006).

*Carya cordiformis* (Bitternut hickory) – along tributary

*Carya cordiformis* (Bitternut hickory) – along tributary  
*Carya glabra* (Pignut hickory)  
*Carya pallida* (Sand hickory)  
*Carya tomentosa* (Mockernut)  
*Fagus grandifolia* (Beech) – dominant on mesic slopes  
*Fraxinus pennsylvanica* (Green ash)  
*Juglans nigra* (Black walnut)  
*Liquidambar styraciflua* (Sweet gum) – few noted in canopy  
*Liriodendron tulipifera* (Tulip tree)  
*Nyssa sylvatica* (Black gum)  
*Pinus echinata* (Short-leaf pine) – mainly on small parcel north of pond  
*Pinus virginiana* (Virginia pine) – mainly on small parcel north of pond  
*Platanus occidentalis* (Sycamore) – along intermittent tributary  
*Quercus alba* (White oak) – dominant on dry slopes and ridgeline  
*Quercus coccinea* (Scarlet oak) – in drier habitat  
*Quercus falcata* (Southern red oak) – few noted in canopy  
*Quercus rubra* (Red oak) – dominant on mesic slopes  
*Quercus stellata* (Post oak) – on upland ridgeline  
*Quercus velutina* (Black oak) – in drier habitat

#### UNDERSTORY

*Acer floridanum* (Southern sugar maple) – Found on bottomland forests, mesic slopes especially common over mafic or calcareous rocks, but not limited to these habitats (Flora of the Carolinas, Virginia, Georgia, and Surrounding Area; Weakley, A. 2006).  
*Acer negundo* (Box elder) – along tributary  
*Acer rubrum* (Red maple) – saplings noted  
*Albizia julibrissin* (Mimosa) – saplings noted on small parcel north of pond  
*Amelanchier arborea* (Serviceberry)  
*Asimina triloba* (Pawpaw) – along lower slopes of tributaries

*Carpinus caroliniana* (Ironwood)  
*Celtis laevigata* (Hackberry) – one sapling noted  
*Cercis canadensis* (Redbud)  
*Chionanthus virginicus* (Fringe-tree)  
*Cornus florida* (Flowering dogwood)  
*Crataegus macrosperma* (Fanleaf hawthorn)  
*Diospyros virginiana* (Persimmon)  
*Fagus grandifolia* (Beech) – saplings noted  
*Fraxinus pennsylvanica* (Green ash) – saplings noted  
*Hamamelis virginiana* (Witch-hazel)  
*Ilex cornuta* (A horticultural holly) – near the kudzu patch  
*Ilex opaca* (American holly)  
*Juniperus virginiana* (Red cedar)  
*Liquidambar styraciflua* (Sweet gum) – saplings noted  
*Liriodendron tulipifera* (Tulip tree) – saplings noted  
*Morus rubra* (Mulberry)  
*Nyssa sylvatica* (Black gum) – saplings noted  
*Oxydendrum arboreum* (Sourwood)  
*Prunus serotina* (Black cherry)  
*Quercus alba* (White oak) – saplings noted  
*Quercus falcata* (Southern red oak) – saplings noted  
*Quercus phellos* (Willow oak) – saplings noted  
*Quercus rubra* (Red oak) – saplings noted  
*Sassafras albidum* (Sassafras)  
*Ulmus alata* (Winged elm)  
*Ulmus alata* (Winged elm)  
*Ulmus rubra* (Slippery elm or Red elm)  
*Ulmus rubra* (Slippery elm or Red elm)

#### SHRUB LAYER

*Alnus serrulata* (Tag alder)  
*Corylus americana* (Hazel-nut)

## APPENDIX

*Quercus rubra* (Red oak) – saplings noted

*Sassafras albidum* (Sassafras)

*Ulmus alata* (Winged elm)

*Ulmus alata* (Winged elm)

*Ulmus rubra* (Slippery elm or Red elm)

*Ulmus rubra* (Slippery elm or Red elm)

### SHRUB LAYER

*Alnus serrulata* (Tag alder)

*Corylus americana* (Hazel-nut)

*Corylus cornuta* var. *cornuta* (Beaked hazelnut)

*Deutzia* sp. (A *Deutzia*) –old time landscape shrub, in ROW of Rowan Avenue, north side

*Elaeagnus umbellata* var. *parvifolia* (Spring Silverberry)

*Euonymus americanus* (Strawberry bush)

*Hypericum hypericoides* (St. Andrew's cross)

*Ligustrum sinense* (Privet)

*Lindera benzoin* (Spicebush)

*Lonicera standishii* (Standish's honeysuckle)

*Rhododendron periclymenoides* (Wild azalea)

*Rosa carolina* (Wild rose)

*Rubus argutus* (Common blackberry)

*Sambucus canadensis* (Elderberry)

*Viburnum acerifolium* (Maple-leaf viburnum)

*Viburnum prunifolium* (Black haw)

*Vaccinium arboreum* (Sparkleberry)

*Vaccinium pallidum* (Dryland blueberry)

*Vaccinium stamineum* var. *stamineum* (Common deerberry) – Unlike most other *Vaccinium* species, this species is often found growing on mafic, ultramafic, or calcareous rocks (Flora of the Carolinas, Virginia, Georgia, and Surrounding Area; Weakley, A. 2006).

*Viburnum rufidulum* (Southern black haw) – Especially common

over mafic rock, but not restricted to mafic (Flora of the Carolinas, Virginia, Georgia, and Surrounding Area; Weakley, A. 2006).

### VINES

*Amphicarpaea bracteata* var. *bracteata* (Hog-peanut)

*Bignonia capreolata* (Cross-vine)

*Campsis radicans* (Trumpet vine)

*Clematis virginiana* (Virgin's bower)

*Dioscorea villosa* (Wild yam)

*Hedera helix* (English ivy)

*Ipomoea batatas* (Sweet potato)

*Lonicera japonica* (Japanese honeysuckle)

*Lonicera sempervirens* (Coral honeysuckle)

*Lycopodium flabelliforme* (Running cedar)

*Matelea* (A Milk-vine)

*Mitchella repens* (Partridge-berry)

*Parthenocissus quinquefolia* (Virginia creeper)

*Pueraria lobata* (Kudzu)

*Schrankia microphylla* (Sensitive brier)

*Smilax bon-nox* (A Greenbrier)

*Smilax rotundifolia* (A Greenbrier)

*Toxicodendron radicans* (Poison-ivy)

*Vinca minor* (Periwinkle)

*Vitis rotundifolia* (Muscadine grape)

*Vitis* sp. (A Grape)

*Wisteria* sp. (Wisteria)

### HERB LAYER

*Actaea racemosa* (Common black-cohosh)

*Agrimonia parviflora* (Southern agrimony)

*Allium canadense* (Wild onion)

*Amsonia tabernaemontana* (Blue star)

*Antennaria plantaginifolia* (Plantain pussytoes)  
*Arisaema triphyllum* (Jack-in-the-pulpit)  
*Asplenium platyneuron* (Ebony spleenwort)  
*Athyrium asplenioides* (Southern lady fern)  
*Aureolaria virginica* (Downy oak-leach)  
*Bidens* sp. (A Tickseed-sunflower)  
*Boehmeria cylindrica* (False nettle)  
*Botrypus virginianus* (Rattlesnake fern)  
*Carex blanda* (A Sedge)  
*Carex caroliniana* (Carolina sedge)  
*Carex muhlenbergii* (A Sedge)  
*Chimaphila maculata* (Striped wintergreen)  
*Chrysogonum virginianum* (Green-and-gold)  
*Circaea lutetiana* ssp. *canadensis* (Enchanters' nightshade)  
*Comandra umbellata* var. *umbellata* (Eastern bastard-toadflax)  
*Coreopsis major* (A Coreopsis)  
*Cynoglossum virginianum* (Wild comfrey)  
*Desmodium nudiflorum* (Naked Tick-trefoil)  
*Dichanthelium laxiflorum* (Open-flower witch grass)  
*Dichanthelium* sp. (A Witch-grass)  
*Elephantopus carolinianus* (Leafy elephant's-foot)  
*Epifagus virginiana* (Beech-drops)  
*Galium aparine* (Bedstraw)  
*Galium circaezans* (Forest bedstraw)  
*Geranium maculatum* (Wild Geranium)  
*Geum canadense* (An Avens)  
*Glyceria striata* var. *striata* (Fowl mannagrass)  
*Heuchera americana* (American alumroot)  
*Hexastylis arifolia* (Arrowleaf heartleaf)  
*Hieracium venosum* (Rattlesnake weed)  
*Houstonia caerulea* (Quaker ladies)  
*Houstonia purpurea* (A Houstonia)

*Impatiens capensis* (Jewel-weed)  
*Krigia dandelion* (Colonial dwarf-dandelion)  
*Ligusticum canadense* (Lovage) – Grows on moist to dry, nutrient-rich forests and woodlands (Weakley)  
*Luzula acuminata* var. *carolinae* (A Wood-rush)  
*Melica mutica* (Melic grass)  
*Microstegium vimineum* (Japanese grass)  
*Onoclea sensibilis* (Sensitive fern)  
*Oxalis stricta* (A Wood sorrel)  
*Phytolacca americana* (Pokeweed)  
*Piptochaetium avenaceum* (Eastern needlegrass)  
*Podophyllum peltatum* (Mayapple)  
*Polygonatum biflorum* (Solomon's seal)  
*Polystichum acrostichoides* (Christmas fern)  
*Potentilla canadensis* (Five-fingers)  
*Prenanthes serpentaria* (Lion's foot)  
*Prunella vulgaris* (Heal-all)  
*Pteridium aquilinum* (Bracken fern)  
*Ranunculus abortivus* (Kidneyleaf buttercup)  
*Salvia lyrata* (A Sage)  
*Scleria triglomerata* (Tall nutrush)  
*Sisyrinchium mucronatum* (Blue-eyed grass)  
*Smilacina racemosa* (False Soloman's-seal)  
*Solidago caesia* var. *caesia* (Axillary goldenrod)  
*Thalictrum* sp. (A Meadowrue) – one of the tall species  
*Tipularia discolor* (Crane-fly orchid)  
*Trillium cuneatum* (Toadshade trillium)  
*Uvularia perfoliata* (Perfoliate bellwort)  
*Viola sororia* (Common blue violet)  
*Youngia japonica* (Asiatic hawk's-beard)

## APPENDIX

### ANIMAL SPECIES OBSERVED

#### THOROUGHNESS OF LIST:

American crow  
Barred owl  
Blue jay  
Carolina chickadee  
Downy woodpecker  
Gray squirrel  
Great blue heron  
Great crested flycatcher  
Kingsnake  
Northern cardinal  
Racer snake  
Red-bellied woodpecker  
Tufted titmouse  
White-breasted nuthatch  
White-throated sparrow  
Wood thrush

#### **About the author of the SITE SURVEY REPORT FORM**

Moni Bates is a botanist who contributes to the protection, preservation and restoration of our natural heritage. Her areas of expertise include conservation site planning, biological inventories, endangered, threatened and rare plant species surveys, natural area restoration and management, rare plant monitoring design and analysis, and plant reproductive biology research. Moni received her B.S. from Iowa State University and M.S. from the University of North Carolina at Greensboro. As a graduate of the Natural Resource Leadership Institute through NC State University, Moni creatively merges her knowledge with other disciplines and provides leadership to create natural areas for plants, animals, and people.

