A Vision for Walnut Hill Farm: Agricultural Concept Plan

4401 Mial Plantation Road Raleigh, NC

Prepared For



Prepared By



and



October 2018



1 Chevalier Avenue Greenfield, MA 01301 info@regenerativedesigngroup.com (413) 658-7048

All photographs and graphics © Regenerative Design Group unless otherwise noted. Draft Revised: October 19, 2018

Walnut Hill Agricultural Concept Plan

Contents

Introduction	-
Vision and Goals	4
The Sarah and Bailey Williamson Preserve at Walnut Hill.	4
Agricultural Goals for Walnut Hill	4
MAP: Existing Conditions	5
Concept Development Process	7
Summary Site Analysis	8
MAP: Summary Site Analysis	9
Whole Farm Concept	
Whole Farm Concept: Zone Descriptions	
MAP: Whole Farm Concept	13
North Third: Concept A	15
Concept A Zone Descriptions	16
MAP: Concept A	17
North Third: Concept B	19
Concept B: Zone Descriptions	20
MAP: Concept B	21

A Vision for Frog Pond + Classroom Hub

Appendices	
Conceptual Phasing Plan	
Guiding Principles.	
Stakeholders	
	EN / S S S

Outreach Document: A Vision For Walnut Hill

Introduction

Walnut Hill Farm is a 405-acre property at the heart of the historic Mark's Creek Landscape. Once part of one of Wake County's largest and most prosperous cotton plantations, the land today is a rich mosaic of old fields, woodland, pasture land, ponds, streams, and historic buildings.

The farm and neighboring properties are part of the Oaky Grove National Register Historic District, and were owned by the Williamson Family for over two centuries. Bailey and Sarah Williamson approached the Triangle Land Conservancy (TLC) in the early 2000s about conserving the property. In 2013, with the help of the State's Clean Water Management Trust Fund and Ecosystem Enhancement Grant program, private donors, and Wake and Johnston Counties, TLC was able to purchase the farm from Bailey and Sarah's daughters, Betty Brandt Williamson and Sally Williamson Greaser.

"He felt closer to God down there on the farm than sitting on a pew in church."

– Sally Williamson Greaser recalling the love her father, Bailey Williamson, had for the land at Walnut Hill.

In addition to its' agricultural and historic significance, Walnut Hill has great conservation and recreation value. The property connects 1,600 acres of conservation lands, including the Neuse River Greenway (part of the expansive East Coast Greenway), Mark's Creek Greenway, and the Mountains-to-Sea Trail. Once open, Walnut Hill will become the largest greenspace destination in Wake County.

Walnut Hill has tremendous potential to become a vibrant community resource within the Triangle region. The vision for the land encompasses all of Triangle Land Conservancy's mission: safeguarding clean water, protecting natural habitats, supporting local farms and food, connecting people with nature through land protection and stewardship, inspiring community action, and inviting collaborative partnerships.

The Agricultural Concept Plan for Walnut Hill Farmwas developed by Regenerative Design Group—a landscape architecture and planning firm specializing in regenerative agriculture—with support from Dave Boehnlein at Terra Phoenix Designs. The plan identifies the locations of key activities, potential uses, and connections throughout the property. It has been informed by remote site analysis, data collected during two site visits, input from multiple stakeholder groups, and ongoing conversations with the team at Triangle Land Conservancy (TLC).

TRIANGLE LAND CONSERVANCY

Mission:

TLC strives to create a healthier and more vibrant Triangle region by safeguarding clean water, protecting natural habitats, supporting local farms and food, and connecting people with nature through land protection and stewardship, catalyzing community action, and collaboration.

Vision:

We see the Triangle region as an increasingly healthy and vibrant place to live where wild and working lands are protected and everyone has access to open space, clean water, and local food.

- from the TLC website

Vision + Goals

The Sarah and Bailey Williamson Preserve at Walnut Hill



The vision for Sarah and Bailey Williamson Preserve at Walnut Hill integrates many land use and stewardship activities that, together, will achieve a truly restorative landscape. This Agricultural Plan, while focused on the farming component, considered the big picture vision throughout the Concept Development process.

Agricultural Goals for Walnut Hill

The following agricultural goals were synthesized from meetings and discussions with the Walnut Hill Advisory Committee and TLC. The fact that the vision for agriculture at Walnut Hill encompasses historic, stewardship, education, restoration, and community health goals is a testament to the holistic approach of the TLC team and partners.

Farm Systems

- Demonstration, innovation, and training
- Establish successful models of sustainable/ regenerative agriculture in the southeast
- Integrate livestock, annuals, and perennials
- Plan for a diversity of crops and growing systems
- Offer agricultural educational programming
- Expand options for local food and healthy eating in the Triangle Region.

Historic Landscape + Natural Resources

- Honor the agricultural history of the site through interpretive site elements and recognition of the larger Shotwell community
- Restore and utilize historic farm buildings
- Protect and improve water quality
- Protect and improve soil
- Increase biodiversity
- Restore habitat
- Integrate with existing Preserve components: e.g. open space, restoration, trails

Production + Distribution

- Integrate on-site processing + distribution
- Include a farmstand/farmstore for farm crops and nursery plants





Top: RDG's Jono Neiger walks with stakeholders through Main Field North. Bottom: The packhouse sits at the entrance to Walnut Hill, part

of a cluster of historic buildings. The Oakey Grove church is to the left.





IMPORTANT BUILDINGS + INFRASTRUCTURE

Main Farm Hub:

Renovated barn, storage shed, pole barn, tobacco barn, and three silos. These are in various states of repair but are near to entry access points into the property. A dilapidated farmhouse was taken down, leaving an open field area at the Main Farm Hub. There is space within the Main Farm Hub zone for additional infrastructure.

Packhouse:

A beautiful historic structure in need of renovation for intended future entry uses

Field Hub:

A dilapidated barn would need replacement but utilities service is here and it is central and adjacent to some of the larger farm fields.

High Oak Farm Hub:

A historic farm center, site of the "Party Barn",

a small tobacco barn, and proximate to many of the South third farm fields. Utility service terminates here.

*The Frog Pond Academy House, Brick House, and Oakey Grove Church are not on the property but are historic resources and have strong connections to the farm.

PONDS + STREAMS

Other important features include the three ponds: Frog Pond, Finley Pond, and Little Pond as well as numerous small streams and drainages leading to either Marks Creek or directly towards the Neuse River.

ACCESS

Most access through the property are informal farm lanes except the adjacent access road to the west which is both on and off the property and has shared use with the neighbor.

MAP: EXISTING CONDITIONS



Concept Development Process

Concept Development is an iterative process that continually considers project goals, stakeholder input, and site analysis data. It looks at the "big picture" across a timeline that includes immediate and longer-term goals. This stage in the design process helps ensure that the project vision is grounded in the realities of the site, and establishes a foundation from which a more detailed design can emerge.



Leigh Ann Hammerbacher, Walt Tysinger, and George Jones of TLC discuss the High Oak Field area with RDG's Jono Neiger during a site visit.

Walnut Hill Stakeholders

In addition to the staff at Triangle Land Conservancy, the following stakeholders provided valuable input during the concept development process:

- The Walnut Hill Advisory Committee (see Appendix) provided a comprehensive list of goals for short and long term programming
- Betty Brandt Williamson and Sally Williamson Greaser, daughters of Sarah and Bailey, shared stories and memories of the land and their hopes for future farming activities
- Alice Hinman and Uli Gratzl of Apiopolis, Jeff Deal of Knightdale High School, and Sarah Blacklin with the Center For Environmental Farming Systems (CEFS) helped clarify criteria for on-site programming
- Forester Brandon Price offered his assessments of the property's forests
- Additional community members and TLC board members offered enthusiastic and constructive concept feedback.



At the September 2018 stakeholder meeting, preliminary site assessments and concepts were presented to the community for feedback.

Site Analysis

Investigation into the conditions and characteristics of the property and surrounding areas were conducted both on and off-site. On-site observations focused on access and circulation, zones of use, field characteristics, microclimate, vegetation, pond and stream conditions, infrastructure, and utilities.

On-site assessments were reinforced and clarified by remote site analysis. Working with GIS data, aerial photography, and extensive documentation furnished by TLC, the RDG team was able to integrate understanding of topography, slope and aspect, circulation, woodlands, and surrounding land use patterns.



Summary Site Analysis

ACCESS + CIRCULATION

- Adjacent farm road provides good access to western side of the property.
- Limited defined roads and internal circulation to eastern side of the property.
- Farm access and circulation routes overlap with non-farm activities.

* Current access + circulation patterns are based on agricultural uses. Additional programming and a greater diversity of visitors to the farm will require more - and more defined - routes.

LAND USES

- 260 acres in forest.
- 142 forested acres (55%) lie within stream buffers.
- 130 acres in fields and pasture.
- History of tractor tillage for annual crops, hayfields, and pasture.

* Typical farming patterns are evident throughout the property—i.e., tractor cultivation in the flattest fields; woodland in steeper areas. The nested goals of innovative agriculture, recreation, forest management, stream protection, and public use offer opportunities for more flexible land use patterns to emerge.

TOPOGRAPHY + MICROCLIMATE

- Gently rolling hills.
- Variable aspect.
- Mostly level and mild slopes.

* Field slopes are all within a safe range for mechanized agricultural activity. Mild slopes with erosion-prone soils would benefit from contour or perennial farming. Utilizing microclimates created by a combination of field slope and aspect open up opportunities for crops outside of the hardiness zone.

WATER

• Siltation is a major water quality problem in Neuse and Mark's Creek watersheds.

- Several drainages are in disturbed condition and candidates for restoration.
- The Neuse River Buffer Rule mandates 50 ft of vegetated buffer along all perennial and intermittent streams in the basin.
- Clean Water Management Trust Fund (CWMTF) buffers are 300'.

*Major streams in the east and south are protected by stream buffers and have restricted uses. Frog Pond, Finley Pond, and several seasonal drainages are candidates for buffers, particularly with new farming activity. Opportunities for combining buffer and restoration activities with education and innovative agriculture are abundant.

SOILS

- NRCS land capability class 2e, prime farmland, but erosion-prone.
- Fields have been in in crop or hay production for the last century at least, with likely degraded fertility and organic matter levels.
- Deep, well-drained sandy loam with clayey or gravelly subsoils.

*All future agricultural activity should contribute to, rather than degrade, soil fertility. On-site manure, vegetated fertility banks, keeping fields in cover crops or pasture, conservation tillage, and perennial agriculture zones are all strategies wellsuited to the site.

SPECIAL PLACES

- Old farm road allee.
- Finley Pond: sitting rock + natural edges.
- Frog Pond: southwest oak grove + field east of pond.
- Chickasaw plum stands: diverse field regrowth.
- High Oak Hub: stately oaks, protected with long views.
- Little Pond: quiet, removed, hidden.
- Historic Buildings.

* Planning and design—particularly of trailways, gathering spaces, and historic/nature interpretation—should draw upon and enhance already special and historically significant places throughout the property.



A former farm road creates a central shaded allee down the north third of the property.

Looking across Finley Pond, to the sitting rock where Sarah + Bailey Williamson would picnic.

Looking west from the High Oak Farm Hub. Stately oaks and long views south over Flatwood Field create a distinct sense of place.



MAP: SUMMARY SITE ANALYSIS

Farm fields: Generally S+W Facing

Farm fields: Generally E+N Facing



Whole Farm Concept

SPECTRUM OF USE

The organizing principle for the entire property centers around a proposed Spectrum of Use. Inspired by the Zones of Use principle in Permaculture, this spectrum organizes intensity of agricultural, programming, and stewardship activities along the site's defining north-to-south axis.

Patterns of arrival; access and circulation; buildings, infrastructure, and utilities; field layouts; and special places all suggest a greater diversity and intensity of activities in the north, that gradually decrease in intensity as one moves south toward larger woodlands and conservation lands.

Organizing the site in this way helps to make the considerable programming and agricultural goals more digestible, and can aid with planning priorities as Walnut Hill grows and changes.

PERMACULTURE ZONES OF USE: A LAND PLANNING TOOL





Photo Credits, Top to Bottom: Les Jardins de la Grelinette, Occidental Arts + Ecology Center, WikiCommons, RDG

Whole Farm Concept: Zone Descriptions

NORTH THIRD -DIVERSE ACTIVITY

The north third is where people arrive and enter the farm. It's where visitors buy local, healthy food grown on site and participate in various activities on the land. Programming is supported by two farm hubs, offices, meeting and education spaces. Most farm production is in this north third. * Concepts A+B (pgs. 15-21) focus on the North Third.

- Public face, point of sale, demonstration, high activity, public engagement
- Intensive farm activity, winter production with greenhouses
- Main Farm Hub: Equipment, plant nursery, storage, processing, and distribution.
- Experimental farming
- Diverse microclimates, N-E-S-W aspects, open sun to shaded woodlands, ponds and streams
- Entry to ecological corridor and farm fields (primarily on east side)
- Soils: Focus on soil building, fertility management, no till
- Direct access from farm road on west and farm lane down center

MIDDLE THIRD -GRAZING + STREAM BUFFERS

The central portion of the land transitions to broadscale activities of grazing and tree crops in integrated silvopasture systems. Intensive to less intensive farm activity and education opportunities are supported by the High Oak Farm Hub. A through trail runs through the wooded, buffered east side, bringing recreation activity into the southern third.

- Access road on west side is dirt road partially through neighbor land; less accessible
- Large fields Open grazing areas and transition to silvopasture
- Open up large forest block north of High Oak Farm Hub (outside buffer) and develop for silvopasture grazing system (as per forest management recommendation)

- Chickasaw Plum Field is transitional: blend of agriculture, ecology, and education
- Power line corridor is difficult to maintain; removing it opens up the opportunity to demonstrate off-grid infrastructure
- Develop High Oak Farm Hub as off-grid with potential future housing for staff and interns

SOUTH THIRD -CONSERVATION + CONNECTION

There is minimal agriculture activity here as most of this area is forested with streams, a pond, and connections to adjacent conservation land and greenway corridors. The Little Pond Field is an opportunity to highlight appropriate activities in buffer zones next to ecologically important open space.

- Minimal agriculture activity: Pulsed grazing, wild harvest, foraging, ecosystem mimicry, buffer activities
- Habitat restoration
- Primarily natural area and connections to Riverwalk Tract, Neuse River Corridor, Mark's Creek Corridor
- Public trails and nature connection

Regenerative Agriculture is a system of farming principles and practices that increases biodiversity, enriches soils, improves watersheds, and enhances ecosystem services. Other benefits are increased yields, resilience to climate instability, and higher health and vitality for farming communities.

Regenerative Agriculture Principles:

- Progressively improve whole agroecosystems
- Create context-specific designs and make holistic decisions that express the essence of each farm
- Ensure and develop just and reciprocal relationships amongst all stakeholders

Regenerative Agriculture Practices:

- No-Till Farming
- Pasture Cropping
- Managed Grazing
- Perennial Crops
- Silvopasture
- Agroforestry

(adapted from Ethan Rolan and Gregory Landua, Terra Genesis)



MAP: WHOLE FARM CONCEPT

NORTH THIRD: CONCEPT A

EDUCATION + TRAINING FARM

Walnut Hill is designed to maximize educational and training opportunities, and showcases small scale innovative farming techniques. The farm hosts a diversity of user groups, and programming happens throughout the site.



Top to Bottom

Row One: Entry at Stone Barns Center, Pocantico Hills, NY; Cattle grazing beneath large-canopied oaks; Schoolkids visit the White House Garden Row Two: Outdoor Classroom; High School intern at a stream restoration class; Forest farming Row Three: Alley cropping; Rotating chickens through pasture; Farm classes in the field

CONCEPT A: ZONE DESCRIPTIONS

1. ENTRY (1.5 ac.)

Public Face of Walnut Hill. Beautiful + legible.

- Parking
- Gardens + Trail Head
- Admin Offices
- Public Rest Rooms

2. MAIN FARM HUB (1 ac.)

Infrastructure for surrounding fields + programming.

- Barns
- Processing, Storage + Distribution
- Tool Shed

3. GATHERING PLACE (.5 ac.)

Flexible space for a variety of group activities.

4. ALLEE

Primary path connecting Entry to Eco Corridor.

5. EDUCATION FARM (3.5 ac.)

Mini farm + gardens for env. + ag. education.

- Season extension
- Small livestock
- Trial Gardens
- Workshops

6. FROG POND + FIELDS (3 ac.)

A demo of innovative ways to work with water in

- the productive landscape.
 - Increased pond edge
 - Catch, sink, + filter water
 - Small fruit production on contour
 - Experimental aquaculture systems

7. CLASSROOM HUB (1 ac.)

At the top of the Ecological Corridor, and adjacent to

the Frog Pond, a space for education programming.

- Indoor + Outdoor Classroom
- Camping Area
- Access to Ponds + Stream

8. ECOLOGICAL CORRIDOR (12 ac.)

Flanked by Frog Pond + Finley Pond, an interactive demonstration site for a variety of restoration efforts.

- Stream + woodland restoration
- Extension of Environmental classroom

9. CHICKASAW PLUM FIELD (17 ac.)

Experimental area of restoration agriculture akin to Mark Shepherd's New Forest Farm.

- Transition between traditional + wild farming
- Perennial crops like hazelnut, plum, brambles
- Pulsed grazing

10. SAVANNAH GRAZING (6 ac.)

Animals grazing beneath full canopy trees evoke historic landscapes + working lands.

- Oaks + Chestnuts
- Large or small livestock
- Expanse between plantings maintain long views

11. INTENSIVE MARKET FARM (2 ac.)

Run by established farmer; small-scale intensive annual + perennial production, akin to Les Jardins de la Grelinette in Quebec.

- Model intensive market farm
- Small fruits
- Vegetables + Herbs
- Hoop houses

12. WATER CHANNEL BUFFERS

Productive + habitat-supporting plantings around intermittent streams, low points, and drainages.

13. ALLEY CROPPING (7.5 ac.)

Working with field contours, a combination of annual + perennial production.

- Fruit + nut trees
- Productive hedgerows
- Annual crops between tree rows
- Demonstrate historic crops (tobacco, cotton) grown in integrated systems

14. FOREST FARMING (5 ac.)

Within existing woodland + converting field into multi-purpose production.

- Mushrooms + Woodland medicinal herbs
- Coppice for craft + farm materials
- Historic NC species

15. FIELD HUB (.50 ac.)

Infrastructure for surrounding fields + programming.

- Barn
- Tool Shed
- Equipment Storage

16. NEW FARMER TRAINING (8.5 ac.)

Space for new farmers to access land, improve their skills, and scale up their operations.

17. FINLEY POND

Naturalistic pond in woodland setting contrasts with more managed Frog Pond.

- Semi-wild
- Experiential Learning
- Recreation
- Relaxation

CONCEPT A: EDUCATION + TRAINING FARM



17 🅥

NORTH THIRD: CONCEPT B

PRODUCTION FARM

Walnut Hill is designed for maximum crop production for on-site farmstore and off-site sales. The land is farmed by an experienced farmer or farmers, and hosts selected education and training programs.



HERITAGE CROPS: INTEGRATING FARMING, EDUCATION, HEALTH, + HISTORY

Many of our food traditions have been lost over time, as the industrial food system, agribusiness, and fast food have taken hold. But there is a resurging recognition of our food traditions, heirloom crop varieties, and heritage breeds. Many of these hold stories of our history and connect us to the places we live. Cultivating these crops brings them back to our communities and tables, and builds a future with diverse and regionally adapted perennial crops are abundant.

According to Gary Paul Nabhan in **Renewing Americas Food Traditions** (RAFT) (2008) heritage crops from the Walnut Hill Farm region include Guinea Hogs, Jack's Copperclad Jerusalem Artichoke, Zimmerman Pawpaw, Hickory King Dent Corn, and Maypop Passionfruit (*below left, at Walnut Hill*). Chickasaw Plum—a native plum selected and bred beginning with Native Americans— grows on the farm (*below, center*), offering an opportunity to connect to regional history. Mountain Mint, a prized pollinator and medicinal, also grows in abundance at Walnut Hill (*below, right*).



CONCEPT B: ZONE DESCRIPTIONS

NOTE: Some elements remain the same between the two concepts. They are numbered here but not described.

1. ENTRY (1 ac.)

Public Face of Walnut Hill. Beautiful, inviting, and legible.

- Parking + public rest rooms
- Point of sale
- Trail head + gardens
- Information kiosk

2. MAIN FARM HUB (1.5 ac.)

Infrastructure for surrounding fields + programming.

- Barns
- Processing, storage + distribution
- Tool shed
- Admin offices + meeting space
- Plant nursery

3. MICRO FARM (3.5 ac.)

Intensive, small scale production

- Hoop Houses + other season extension
- Small livestock
- Field crops
- Gathering spaces
- Workshops
- Community-run options (i.e. Irvin Farm)

4. ALLEE

5. CLASSROOM HUB (1 ac.)

6. NEW FARMER TRAINING (3 ac.)

A place where new farmers can improve their skills and begin scaling up operations.

- Excellent access
- Separated from main farm and visitor activity

7. CHICKASAW PLUM FIELD

8. PIEDMONT PRAIRIE (3 ac.)

Prairie grassland restoration diversifies the farm habitat and attracts pollinators

- Interactive
- Public Access
- Circuit Trail

9. INTENSIVE MARKET FARM (3 ac.)

Run by established farmer; small-scale intensive annual + perennial production, akin to Les Jardins

de la Grelinette in Quebec.

- Model intensive market farm
- Small fruits
- Vegetables + herbs
- Hoop houses

10. ORCHARD ALLEY CROPPING (3.5 ac.)

Stabilize erosion-prone slopes with trees..

- Fruit trees
- Annual row crops
- Individual or cooperative management

11. WATER CHANNEL BUFFERS

12. FRUIT + NUT ORCHARD (5 ac.)

On-contour orchard protects erosion-prone soils.

- Innovative crop potential
- Improved cultivars of persimmon + pawpaw

13. FIELD HUB (1.5 ac.)

Infrastructure for surrounding fields + programming.

- Barn
- Tool Shed
- Processing, storage, distribution
- Equipment storage

14. LARGE SCALE ANNUAL CROPS (14 ac.)

Central production area of annual vegetable + grain crops for market.

- Rebuild fertility using best practices
- Conservation tillage
- No-till
- Potential for future transition to agroforestry

15. FINLEY POND

* In both Concepts, field delineations and acreages were informed by topography; micro-climate; and adjacent buildings, infrastructure, and vegetation. Although specific programming and farm systems are indicated, there have been no farm enterprise studies done in the concept phase.

Acreages should be considered flexible and respond to future enterprise viability assessments.

CONCEPT B: PRODUCTION FARM



21 🌒

A VISION FOR FROG POND + CLASSROOM HUB



Frog Pond is central to many of the programming objectives for Walnut Hill. Here, looking southwest across the pond, one can appreciate the wealth of opportunities to connect to local food and healthy eating; regenerative agriculture; nature education, habitat restoration; and recreation.

An outdoor classroom provides a meeting space for local student groups. Classes can conduct water quality experiments from the docks, engage in stream restoration efforts in the ecological corridor, or tend to berries in the productive pond buffer. A gentle loop walking path welcomes visitors into the property, where they can access the pond, and see diverse farming activity in the adjacent orchards and agricultural fields.





Conceptual Phasing Plan Guiding Principles Stakeholders Walnut Hill Outreach Document

CONCEPTUAL PHASING PLAN

WALNUT HILL CONCEPTUAL	PHASING PLAN		
PHASE ONE: 6-12 Months			
- /		. - 1	
Type of Work	Focus Area	Key Tasks	
Organizational	All	Co-develop lease agreements with preliminary leaseholders	
Organizational	All	Revise access road agreement	
Organizational	All	leaseholders	
Organizational	All	Develop publicity and recruiting materials	
		Detail design and planning for agriculture operations: finding	
		farmers, matching their goals with the operations; educational	
Organizational	Agricultural	farm, new farmer training	
Design and Planning	All	Master Plan: Develop a Whole Site Design that moves beyond concents to schematics and details	
	Entry Education Public	Detail Design for Entry Garden, Education Hub/Classroom, Point of	
Design and Planning	Engagement	Sale, Allee	
Design and Planning	Public engagement	Plan hiking and biking trails in lower third	
		Begin preliminary operations: grazing, temporary agreements with	
Operations	Fields	farmers	
		Townsyn y infrastructure, asthevings space, av slassyn an ange	
Site Work	All	structures to fill immediate needs.	
		Soil Building in fields: cover cropping: drainage improvements:	
Site Work	Fields	detailed soil testing; mineral balancing	
Site Work	Entry	Parking, Arrival and Entry construction	
		Agriculture operations; grazing, temporary field fencing for initial	
Site Work	Fields	phases of operation	
Site Work	Central woods	Thin Central Woods for timber and grazing improvements	
DUASE TWO: 12 24 Months			
PHASE TWO: 12-24 Wonths			
Type of Work	Focus Area	Key Tasks	
Organizational	All	Develop Point of Sale, infrastructure, operations, agreements	
Organizational	All	Develop programs, volunteer work days, and tours of property	
Design and Planning	Public engagement	Detail design for gathering space, general plantings, allee	
Design and Planning	All	Plan Caretaker position and housing, and create job description	
Design and Planning	North fields	Pollinator edge planning	
Design and Planning	High Oak Farm Hub	Planning for High Oak Farm Hub off-grid infrastructure	
		Expand preliminary operations: Education farm, new farmer	
Operations	Fields	training	
Site Work	Entry	Infrastructure: Build public bathrooms	
Site Work	Earm hubs	Infrastructure: Improve farm structures, maintenance facilities	
Site Work	Fields	Mark out field layout for New Farmer programs	
Site Work		Hiking and hiking trail building	
Site Work	Frog pond	Infractructure: Build classroom	
Site Work	Frog pond		
PHASE THREE: 2 Years+			
Type of Work	Focus Area	Key Tasks	
Design and Planning	Conservation	Stream restoration planning	
Site Work	Agricultural	Develop High Oak Farm Hub with farm facilities and housing	
Site Work	Public engagement	Build gathering space structure	
Site Work	Agricultural	Implement Forest farming, Chickasaw plum field, and alley cropping systems. Implement pollinator edge plantings	

GUIDING PRINCIPLES

General Principles	Broad principles that guide overall operations and decision-making.
Utilize a "Triple Bottom Line" accounting approach, considering economic, social, and environmental goals; People, Planet, Profit. (Source: Adapted from ATTRA, Applying the Principles of Sustainable Farming, May 2003)	1. Economic Sustainability: Project "value" and economic strength is consistently going up. Farmer debt is consistently going down. The farm enterprises are consistently profitable from year to year. Purchase of off-farm feed and fertilizer is decreasing. Reliance on government payments is decreasing.
	2. Social Sustainability: The farm supports other businesses and families in the community. Dollars circulate within the local economy. The number of rural families is going up or holding steady. Young people take over their parents' farms and continue farming. College graduates return to the community after graduation.
	3. Environmental Sustainability: There is no bare ground. Clean water flows in the farm's ditches and streams. Wildlife is abundant. The farm landscape is diverse in vegetation.
Regenerate soil, water, and biodiversity	Bringing back health to degraded natural resources is imperative. Regenerative agriculture systems utilize self-repair and rebuilding strategies.
Support ecosystem services	Ecosystems provide important services, given the chance. This includes pollination, flood control, climate regulation, nutrient cycling, etc. Activities should allow and support these functions.
Develop resilience in operation and production	The ability of our ecosystem and social systems to bounce back from disturbance and change is diminished. Diversity, redundancy, localized economies, healthy soils, recharged aquifers, and reforestation are some resilience strategies. Resilience planning can occur at the local and regional level as well.
Accept feedback	Feedback is an opportunity to learn and improve practices, and bring greater strength to overall operations. The farm plans and operations can adapt and change as new opportunities and information emerges.
Build in diversity and utilize edges	Diversity of crop systems, crops, and strategies helps create stability and resilience. Edges are environments that are often underutilized or degraded. Opportunities to utilize and take advantage of the microclimates and resource flows abound at the edge.
Agricultural Principles	"Designing an economically viable, sustainable and productive modern agricultural system is based on enhancing the health of the land and rural communities and concentrating on long-term solutions rather than short-term treatment of symptoms." MSU Extension - Intro to Sust Ag
Use water and nutrients efficiently.	Employ water conservation techniques; only apply fertilizers/amendments according to soil test recommnedations; utilize biological and organic amendments.
Keep soil covered throughout the year.	Utilize cover crops, mulching, and crop rotations to keep the soil covered to reduce erosion and increase biological activity.
Reduce or eliminate tillage in a manner consistent with effective weed control.	Tillage disrupts soil structure and biology and leads to compacted, degraded soil. Reduced or no-till systems are available for numerous crop growing situations.
Diversify farming enterprises to spread agronomic and economic risk.	Utilize perennial and annual crops and season extension for off-season sales. Develop value-added products and on-farm sales opportunities. Use media and technology resources to improve practices and consumer reach.
Utilize perennial crops and agroforestry systems.	Perennial crops and tree crops add farm diversification and resilience and sequester more carbon in the soil.
Rotate crops to enhance yields and facilitate pest management.	As opposed to monocropping, crop rotation has multiple benefits including reduced pest pressure, improved soil conditions, reduced erosion, and increased yields.
Use cover crops and green manure and/or animal manure to build soil quality and fertility.	Cover crops build soil, soil structure and support the soil food web. Cover crops sequester carbon in soil. Manures should be composted before adding to fields, or pare added as part of a livestock cycling program.
Protect water quality.	Farm in a manner consistent with ecological health in or near wetlands and
	livestock access to waterways (bring water to animals).
Develop ecologically-based pest management programs.	livestock access to waterways (bring water to animals). Synthetic chemical pesticides have proven to be harmful to the environment and human health. Many pests develop resistance to pesticides and stonger compounds get used. There are many facets to ecologically-based pest management such as crop rotation, fallowing, intercropping, and incorporation of organic matter into soils.

GUIDING PRINCIPLES, cont.

Increase energy efficiency in production and food distribution.	Use of fossil fuels in agriculture has created high-yielding farms that rely on extractive industries. Decrease dependence on fossil fuel by developing local markets, reducing equipment use, incorporating renewable energy, and finding efficiencies of scale.
Develop local markets and provide food for people of different means.	Everyone deserves access to fresh, healthy food. Find avenues to bring healthy local food into groceries, farmers markets, schools, hospitals, restaurants, prisons, churches, and more.
Workplace Principles	Principles and guidelines in the social and workplace realm. Adapted from sourcing criteria for Lush Cosmetics suppliers
Safe and healthy work conditions	Workers will have a safe and healthy workplace, and utilize practices that prevent threats to human life, health, and welfare. As a minimum, potable drinking water, adequate sanitation, emergency exits, essential safety training and equipment, and access to emergency medical care while at work shall be provided.
Workplace equality and non-discrimination	Workers are treated fairly and equally, irrespective of their nationality, gender, race, religion, sex, age, ethnicity, physical condition, political view, or legal status. Discrimination on any of these bases should not be tolerated.
Remuneration, wages and benefits	Equal remuneration for men, women and transgendered individuals for work of equal value. In addition, all workers shall be paid at least the minimum wage required by applicable laws in their country of jurisdiction, and shall be provided all legally mandated benefits. Information shall be provided to workers at the time of their hire about hours worked, rates of pay, and the calculation of legal deductions.
Diversity and inclusion	Farmers and stakeholders shall strive to adopt approaches, measures, and processes to help enhance meaningful participation of diverse and under-represented groups in all facets of the operation, including decision-making, leadership roles, and other aspects of their business.
Commitment to transparency and supply chain visibility	Business is conducted in an open and transparent manner. Operations, working conditions, materials sourcing, supplier traceability, and production are subject to review and feedback.
Rural and economic development	Operations contribute to sustainable and inclusive rural development, including, as appropriate, through the promotion of fair and equitable sharing of monetary and non-monetary benefits with workers and local community.

STAKEHOLDERS

TLC Mission

TLC strives to create a healthier and more vibrant Triangle region by safeguarding clean water, protecting natural habitats, supporting local farms and food, and connecting people with nature through land protection and stewardship, catalyzing community action, and collaboration.

TLC Board Members 2018-2019

Jack Blackmer -- Retired Senior Manager of Quality, Environment, Health and Safety - Novozymes North America Jack Clayton -- Retired Regional President, Wells Fargo Triangle East Community Banking Norris Cotton First Vice President, Financial Advisor, Cotton Moehrke Group at Morgan Stanley Mavis Gragg -- Attorney, Gragg Law Firm Pam Hemminger -- Mayor, Town of Chapel Hill, Former Orange County Commissioner (2008-2012) Alan Hughes -- Chief Operating Officer NTT DATA Services Health and Life Sciences Toni Wyche Jones -- Environmental Engineer, Environmental Protection Agency Russell Killen -- Mayor, Town of Knightdale and Partner, Parker Poe David Morris -- Attorney, Forrest Firm P.C. Cook Sam -- Executive Director of Forrest Assets, NCSU College of Natural Resources Wendee Smith -- Senior Environmental Manager, North State Environmental Danielle Spurlock -- Assistant Professor, City and Regional Planning UNC Chapel Hill Tahz Walker -- Farmer Organizer: Farmer of Color Network and Agricultural Reinvestment Fund at RAFI (Rural Advancement Foundation International) and Co-Founder Earthseed Land Collective Sean Wilson -- Chief Executive Optimist, Fullsteam Brewery Jennifer Zuckerman -- Director of Strategic Initiatives, Duke University Sanford School of Public Policy.

Walnut Hill Advisory Committee 2018

Dan Kadis – President of Centrex Properties, Former TLC Board Member Pat McCullers – Retired School Teacher, and Historian of Shotwell Community Sally Greaser – Gift Donor of Walnut Hill Preserve and Williamson Family Historian Betty Brandt Williamson – Gift Donor of Walnut Hill Preserve and Williamson Family Historian Tandy Jones – Former TLC staff member and Cattle Farmer Julie Moore – Community Environmentalist Dale Threatt Taylor – District Director, Wake County Soil and Water Department Jeffrey Deal – Teacher, Knightdale High School (KAES Instructor - Knightdale Academy of Environmental Science) Deborah Fowler – Open Space Manager, Wake County Parks, Recreation and Open Space Tom Bradshaw – Businessman, and Public Official Larry Bailey – retired, former Director, Clayton Parks and Recreation Department Emily Mueller – Extension Agent (Agriculture) Wake County Cooperative Extension Michael Goodson – Businessman and Owner of KiddsFarm, and Historian of Shotwell Community Chris Snow – Director, Wake County Parks, Recreation and Open Space



A VISION FOR WALNUT HILL



Walnut Hill Farm is a 405acre property at the heart of the historic Mark's Creek Landscape, with tremendous potential to become a vibrant community resource within the Triangle region. The vision for the land encompasses all of Triangle Land Conservancy's mission: safeguarding clean water, protecting natural habitats, supporting local farms and food, connecting people with nature through land protection and stewardship, inspiring community action, and inviting collaborative partnerships.



regenerative agriculture education + training healthy food connection to nature habitat + stream restoration

community building



1 Chevalier Avenue Greenfield, MA 01301 info@regenerativedesigngroup.com (413) 658-7048

All photographs and graphics © Regenerative Design Group unless otherwise noted. Draft Revised: October 19, 2018