agri[culture]: an alternate paradigm for the american landscape

A Thesis Presented for the
Master of Architecture
Degree
The University of Tennessee, Knoxville

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August 2014

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DEDICATION

To my family and dearest friends, for your unwavering love and support. To my mentors and professors, for your guidance and inspiration, without whom, I would have been lost. And to my love, for always brightening my day even in the most stressful of times.

ABSTRACT

Throughout the Appalachian region, one can experience the vast disappearance of the American landscape as we know it. Whether driving through the rugged coal mining towns of Virginia, or the suburban sprawl taking over the rural farmland of Tennessee, it becomes clear that this is a spreading epidemic. Without an appropriate balance of urban, suburban, and rural areas, we begin to loose the landscape which has always been so closely linked to this country's cultural and physical identity.

This thesis focuses on the agrarian Appalachian culture with a proposal for a project rooted heavily in cultural identity. With programs based in areas of agricultural research, education, and tourism, this proposal unifies concepts of agriculture and commerce, the two key components found on the Tennessee state seal. Agriculture serves as the basis for the regional economy of the future; through research and education, agriculture is reborn. Grounded in concepts of American Pastoralism, the Picturesque Theory, and Urb and Suburb, this thesis enters into a larger conversation of contextual lineage and cultural heritage.

Sited in Grainger County on a peninsula of the Holsten River, this project takes advantage of 170 acres of rolling, pastoral landscape, accompanied by 5,000 feet of river frontage, and a stunning view of the Cumberland Plateau and Great Smoky Mountains. This inspiring site adds a bit of irony to this larger conversation – what once was a family farm, then an aspired upscale subdivision made complete with a private landing strip, is returning to it's cultural roots with the implementation of an agricultural research and education center. The stage is set for the dynamic conversation between research and education, culture and commerce, and thus, building and landscape.

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PART 1 FRAMING



Figure 1: Sprawl Encroachment upon Rural Farmland
Source: [online image] retrieved 2014, <http://environment.nationalgeographic.com/environment/habitats/urban-sprawl/>

The Disappearing American Landscape

For a few decades urban sprawl has been a topic of conversation. Urbanists tend to view this in relation to it's effect on the urban environment and the decline of the city center. With the rise of suburban life, came the downfall of the urban life. This concept is well known by architects and city planners of today. This thesis attempts to bring to light the counterpoint to this argument for urbanity. What does sprawl mean to the rural environment? Are we loosing the American pastoral ideal?

Since the emergence of The Homestead Acts, the United States' countryside has been heavily occupied by small to mid-sized farms with a family homestead located on the property. The countryside was idealized and became part of the national identity. Leo Marx in his book, *The Machine in the Garden*, states that "The pastoral ideal has been used to define the meaning of America ever since the age of discovery." (Marx, 3) Agriculture is a large part of our identity. Without this agrarian culture, the image of the city becomes less significant. With multiple diluted developments taking over these small farms, we are loosing our pastoral landscape. Many of these developments are not appropriated or well-planned and end up abandoned, leaving behind a scarred pastoral land, stuck somewhere between the agrarian ideal and a forgotten community. This thesis is not one which is in opposition to economic growth and

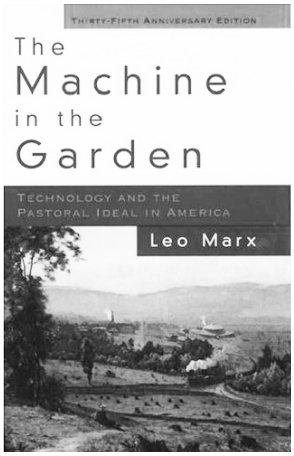

Figure 2: Image of Leo Marx's *Machine in the Garden*
Source: [online image] retrieved 2014, <http://books.google.com>



Figure 3: Changes in the Landscape
Source: [online image] retrieved 2014 <http://www.mass.gov/envir/smart_growth_toolkit/pages/mod-ag.html>

development, rather one which argues for smart growth and development, for villages, agrarian communities, and urban life, rather than mundane subdivisions in rural settings which are cut off from the necessities of life. This is not to say that all suburban communities are a failure, because some clearly are not, but that we must make intelligent land use and planning decisions to insure that our urban, suburban, and rural environments remain at an ideal balance. When this balance is broken, it is at the detriment of all three situations.

Today, many professionals have addressed the question of sprawl. We now know that this was caused by a combination of forces, one being the desire to return to nature and get away from the filth of the city, made possible by the introduction of the interstate system and encouraged by the raising price of the urban residence. The suburbs provided people with an opportunity to have their own plot of land and single-family house for an affordable price. This question of why people moved to



Figure 4: Levy Family in front of a Cape Cod home in Levittown
Source: [online images] retrieved 2014, <http://tigger.uic.edu>

the suburbs is heavily discussed, but the question of why people chose to sell their land and desert their agrarian life is less a familiar topic. It is this issue that I wish to address, the disappearance of the rural American countryside.



Figure 5: Suburban Traffic
Source: [online images] retrieved 2014, <http://yamacanyons.net>

There are many reasons these well-known, family farms are not surviving in today's society. Many of these farms are mid-sized, falling in between the classification of a small farm and a large, corporate farm. In "Why Worry about the Agriculture of the Middle?" a paper written by Fred Kirschenmann, Steve Stevenson, Fred Buttel, Tom Lyson and Mike Duffy, the authors talk about a polarized market, stating that mid-sized farms "are too small to compete in the highly consolidated commodity markets and too large and commoditized to sell in the direct markets." (Kirschenmann, Stevenson, Buttel, Lyson and Duffy, 1) This middle ground makes it difficult of these farms to survive in this economy.

Another factor playing into the decline of the traditional family farm is



Figure 6: Agricultural Markets
Source: [online images] retrieved 2014, From left: < http://groovygreenlivin.com/5-tips-for-your-visit-to-the-farmer's-market/> right: <http://www.examiner.com/article/examining-la-s-grocery-gap-why-south-la-remains-a-food-desert>

the aging population of farmers. These farmers are reaching retirement age, with some being well beyond, and there is no one to take over or look after the land and livestock. The younger generations which inherit this land are unable to pay the high estate taxes and many do not see the value in farming or do not wish to experience the tough life lived by those in the agricultural business. Many young adults leave this rural life, in search of something more, perhaps in a larger urban location. I would argue that this is due to the trend of promoting higher education and demoting the trade in the educational program.



Figure 7: Aging Farmer
Source: [online image] retrieved 2014, <http://www.rte50.com/2007/06/rail-quake-warn.html>

The value of the land itself maybe part of the problem leading farm owners and inheritors toward selling their property. With the increase in the population, more residential developments emerge. Farmland, being already cleared and relatively flat in topography, is seen as a valuable commodity to many developers, especially land located close to urban settings. Many owners cash in on this opportunity, finding more worth in the money than in conserving the land.



Figure 8: Farm Land For Sale
Source: [online image] retrieved 2014, <http://www.rte50.com/2007/06/rail-quake-warn.html>

There are many issues caused by the disappearing of the pastoral landscape, some of which may be truly aesthetic, others which are sociological, economic and environmental. In continuing the discussion from "Why Worry about the Agriculture of the Middle?" the authors identify many objective issues which arise with the disappearance of these mid-

sized farms. They argue that society will lose the opportunity to choose food with special desirable attributes, along with the disappearance of open spaces which are easily accessible. With the additional need of services to accommodate these newly developed residential areas, taxes will increase. Some of the environmental issues that could arise include the loss of wildlife habitat, the reduction of available soil to hold rainwater for aquifers and reduce flooding, and the elimination of the carbon isinki which reduces green house gases due to diversified farmland. (Kirschenmann, Stevenson, Buttel, Lyson and Duffy, 11)



Figure 9: American Farmland Trust: Saving the Land That Sustains Us
Source: [online image] retrieved 2014 <http://www.farmland.org>



Figure 10: Preserved Farmland
Source: [online image] retrieved 2014 <http://www.state.nj.us>

Along with the measurable issues discussed above, many aesthetic and cultural issues may arise without the conservation of these farmlands. These smaller farms, which have served as the face of America for centuries, offer a diverse landscape; if they are taken over by larger farms, these landscapes would be replaced by endless fields of mono-crops. (Kirschenmann, Stevenson, Buttel, Lyson and Duffy, 11) If these landscapes are replaced with mass-produced suburban developments, then authentic American culture is lost, giving way to the mundane, reproduction of industrialization. When the open landscape is occupied, the lines between the city and suburb become blurred. Without this open space, the urban environment looses some of its luster. We must be stewards of the land, realizing the community and social capital that

is produced from this landscape. This is part of our identity, we should find beauty in this vernacular landscape, for this was the ideal upon which our country was founded. Through westward expansion and the pastoral ideal, our country formed an identity which was unique to all other western civilizations. We focus on conservation and preservation of historical buildings, why should this same ideal not apply to our country's ideal landscape?



Figure 11: Architectural Response: Forum, Agritourism, Research and Education, Planning and Policy
Source: Author

Architectural Response

The issues that arise with the loss of the small farm tend to be strongly related to issues of public policy, education, and social support. In recent years there has been a push to give support to these farmers and in many places, we have seen positive results. This support has been given through sources which originate from federal and local government organizations, as well as community and university extensions. In addition to the efforts made by other disciplines, I believe architecture could have a positive role in the conservation and stewardship of traditional American farmland.

One of the many roles architecture can play in this act of conservation is to serve as a forum for discussion of current issues and possible future solutions. Many rural communities lack an actual community center in which public discussions can be held. By providing space where community leaders, small farmers, and the general public can come together under one roof, voices can be heard. The feeling of isolation, known to many who live a rural life, can be lifted and a sense of support can be dispersed throughout the agrarian community.



Figure 12: Community Forum
Source: [online image] retrieved 2014, <http://thisvtlife.com>

An architectural statement within the community can also help to raise awareness, not only within the immediate community, but within a regional or even national society. Through intriguing and impressive spaces, one

can appeal to the general public, providing a space in which people want to visit. Agritourism could emerge through a project that brings attention and serves as place for pilgrimage. With one project setting the basis for an agritourism destination, surrounding farms can benefit and even take part, creating a regional awareness, and growing the agrarian economy through the emerging business of agritourism.



Figure 13: Agritourism
Source: [online image] retrieved 2014, <http://www.tricities.com>

An architectural project based on agricultural research and education, could provide support to local farmers, by educating them on cutting edge research that could be applied on their own agricultural land. This would provide small farmers a place to test out new crop maintenance techniques and emerging agricultural concepts without the risk of wasting valuable land resources on an unsuccessful project. It would also provide with a direct resource to receiving grants and research project that could be conduct on their own land.



Figure 14: Research and Education
Source: [online image] retrieved 2014, <https://www.vtnews.vt.edu>

Finally, another architectural approach to saving this ideal countryside is based in the discipline of planning and land use policies. It has become evident that one of the main ways architects can truly affect civilization is by getting involved in public policy. Many of these agricultural areas which remain intact should be zoned by local government to maintain there agrarian status and prohibit larger development even after the property exchanges ownership.



Figure 15: Land Planning and Policy
Source: [online image] retrieved 2014, <http://www.terranovaplanning.com/Land-Planning>

PART 2 APPROPRIATING



Figure 16: Appalachian Landscape of Northeastern Tennessee
Source: [online image] retrieved 2014, <http://en.wikipedia.org>

The Appalachian Cultural Landscape

The starting point for this thesis was focused within the South-Central Appalachian region, as a way to focus the study and research within the immediate cultural landscape. This idea of the 'disappearing American landscape' extends beyond rural farmland of the Ohio Valley into areas like the rugged mountain towns of Virginia and Kentucky. Due to changes in the economy, industry, and society, many of these cultural landscapes are being forgotten, and left to ruins, or being completely taken over by new development, with little reference to the environment which once existed.

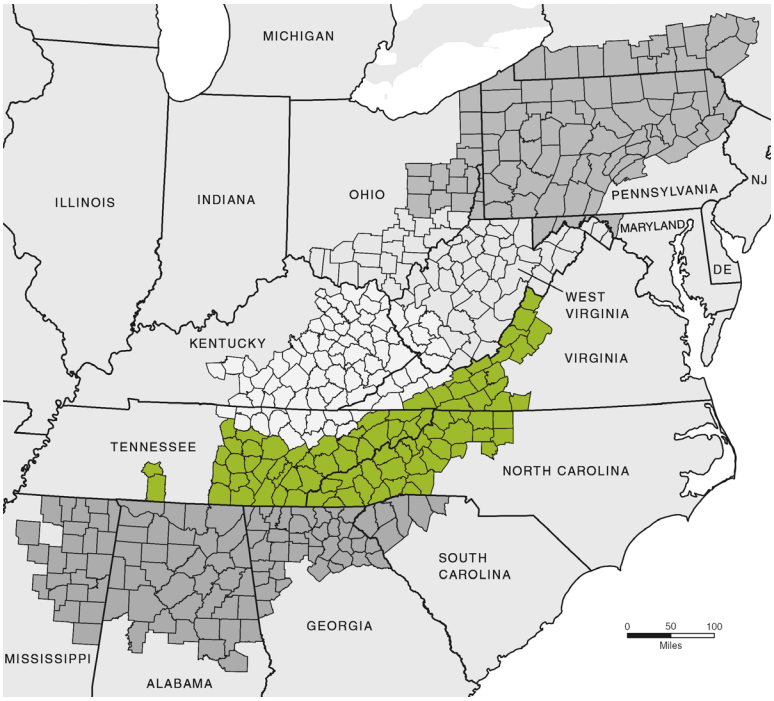

Figure 17: South-Central Appalachian Sub-Region
Source: Author. Base Image: [online image] retrieved 2014, <http://www.arc.gov>

Focused within the South-Central Appalachian region, this thesis began as a study in the relationship between place and culture, with an ultimate goal of proposing a project which is heavily rooted in cultural identity. With this in mind, research began with a focus on Appalachian culture and what gave each region, town, or city it's identity. Much of this was related to the specific geographic location, such as in the valley or in mountains, along a river or a lake, in an area of high traffic or more of a remote location. But the main component, which was most closely related to the identity of these Appalachian towns, appeared to be the industry upon which they were founded. There are five main industries which are prominent in the region; these include: coal mining, logging, manufacturing, agriculture, and tourism. While some of these towns have historically been involved in multiple industries, there typically seems to be one main industry which helps to give the community it's main identity, not only internally, but also to the outside world.



Figure 18: Appalachian Industry: Coal Mining, Logging, Manufacturing, Tourism, and Agriculture
Source: Author.

The Southern Appalachian region has long been one of the largest sources of coal in the world, including the rugged mountains of Kentucky, Virginia, Tennessee, and Alabama. With the rise in industrial processes, the coal mining industry began to boom around the turn of the 20th century, dramatically changing the landscape and the Appalachian people forever. Strip mining and mountain top removal scared the landscape, leaving behind a toxic and barren wasteland, not only harming the environment, but also the health of neighboring communities. What was once beautiful farmland or natural woodland was left in a state of decay.



Figure 19: Coal Mining in Appalachia
Source: [online image] retrieved 2014, <http://www.coalcampmemories.com>

With the increasing demand for coal, there was an increase in the need for miners. Coal companies build simple, monotonous, workers-housing for miners and their families. While being a step up for many of the Appalachian workers, the living conditions were still considered less than ideal. On top of less than desirable living conditions, the work was also dangerous, leaving many families fatherless or in constant fear of losing their loved ones. These conditions formed a rough and rugged culture which can still be felt within these communities today.



Figure 20: Coal Miner's Housing
Source: [online image] retrieved 2014, <http://kycoal.homestead.com>

Around World War II, the demands for coal increased, as a result, companies developed more safe and efficient mining techniques. Mining became a highly mechanized industry, leaving many miners jobless, forcing many people to leave the area or look for other means of work.

Of the few who did stay, some returned to a life of farming, and others fell into a life of poverty. The effects of this change in the coal mining industry can still be felt today. With derelict and abandoned workers-housing making up much of the landscape, many of these towns exist as dreary, ghost towns within the Appalachian Mountains.

Logging emerged as one of the region's main industries around the turn of the 20th century. The remarkable growth in this industry was directly impacted by five factors: the railroad expansion in the late 19th century, the large amount of hardwoods in the Appalachian Region, the demand for theses hardwoods nation-wide and even overseas, the depletion of the woodlands in the Northeast, and the fact that most of the Pacific Northwest was covered in forests consisting of softwoods or pine species. Logging scared the landscape, many times leaving behind little to no vegetation. In the beginning, many logging companies practiced selective cutting, taking only the larger trees and ideal species which were ideal for timber, but as time went on, the minimum diameters decreased and the amount of ideal species increased, make virtually all trees susceptible to logging. Logging companies had little regard for future growth and were not required to replant these vast landscapes until Teddy Roosevelt's Conservation Movement, established in the early 1900s.



Figure 21: Logging in Appalachia
Source: [online image] retrieved 2014, <http://www.etsu.edu/cass/archives/subjects/hardwoods>



Figure 22: Barren Appalachain Landscape after Logging
Source: [online image] retrieved 2014, <http://thefisheriesblog.com>

Along with leaving behind a scared landscape, the logging companies also displaced many farmers within the region, either by purchasing land from welcoming farmers, or seizing 'unclaimed' land from those who had inexact or missing titles. Many people were left with two choices: to leave or work for the logging company.



Figure 23: Loggers Mobile Camp in Appalachia
Source: [online image] retrieved 2014, <http://www.etsu.edu/cass/archives/subjects/hardwoods>

Logging took place all over the South-Central Appalachian region. Much like coal mining, the increased demand for hardwoods lead to an increased demand for workers. Logging companies also developed their own camps and workers-housing. These camps were unique to the mining camps within the region, mainly because of their nomadic nature. They were mobile, moving from work-site to work-site, once the site had been cleared of all available hardwoods. They were comprised of many of the elements found in most Appalachian towns, including a church, a school, dining facilities, and places for community gatherings.

The amount of loggers also decreased over centuries, much like the coal miners. This has happened for many reasons. Logging became a more mechanized process with new developments within the industry; many of the forests were exhausted of all mature hardwood supplies and hardwoods take longer to grow and replenish these lost resources; finally, most of the hardwood industry has now been moved overseas.

The manufacturing industry in Appalachia is most heavily connected to early Pittsburgh's steelworks and ironworks, and North Carolina's textile mills which arose in the Piedmont region. In the late 17th century, the region began to experience and economic boom in the manufacturing industry. Migration from small farms and rural areas to urban centers caused cities such as Knoxville and Asheville to grow exponentially. While the manufacturing industry has experienced many ups and downs, like those experienced during the Great Depression and World War II, it is still considered on of the major industries in the Appalachian region.



Figure 24: Historic Photo of Eastman Chemical Company
Source: [online image] retrieved 2014, <http://www.kingsportlibrary.org>

Tourism exists within South-Central Appalachia as one of the oldest forms of industry within the region. Hot Springs, North Carolina and Hot Springs, Virginia have mineral rich springs which have been attracting visitors since the 18th century because of their supposed, health-restoring qualities. Other mountain retreats have provided low-land elites with the clean, cool air found in the higher elevations of the Appalachian Mountains. As a result of the New Deal, the National Parks Service was established in the 1930s, bringing an explosion of tourist traffic. While the mining, logging, and manufacturing industries were on the decline, the tourist industry became and important part of the economy. The Great Smoky Mountain Nation Park drew many tourists to the area, creating a boom in this industry, resulting in host towns, like Gatlinburg, TN. This ultimately led to issues like urban sprawl, poor air quality, and contamination of many



Figure 25: Tourism in Appalachia's Great Smoky Mountains
Source: [online image] retrieved 2014, <http://www.learnnc.org>

natural habitats. Today, Appalachian tourism has expanded to include many new areas including heritage tourism and agritourism, along with nature and recreational tourism.

Agriculture has a strong history in many regions all over the world. Where there is people, there is a need for food. However, in Appalachia, subsistence farming remained a one of the main industries keeping the economy afloat up until the middle of the 20th century. Throughout the 20th century, places such as western Pennsylvania, the Great Valley of Virginia, and the upper Tennessee Valley transitioned into larger, corporate farms, making this a sustainable industry. Most large scale farming was located within the valley regions of Appalachia, located close to a water source and open or cleared land. However, farmers in the region began to struggle with issues related to poor farming practices which damaged the land and the difficulty of transitioning to mechanized practices to keep up with the demands of the industry. The number of farms began to decline due to many internal and external issues, however, sustainable farming practices have been applied to many small farms within the region, helping to combat the decline of agriculture, and ultimately, viable farmland.

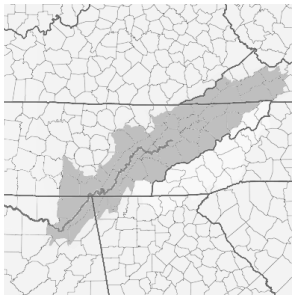

Figure 26: South-Central Agricultural Region
Source: Author, Base Image: [online image] retrieved 2014, <http://en.wikipedia.org>

Appalachian farmers historically grew both European crops, brought over from their home countries, and crops which are native to America and

the Appalachian region like squash and corn. The main cash crop in the region has traditionally been tobacco, mainly because the landscape is not suited to most other cash crops like cotton. Livestock has always been a large component of agriculture of the region. Historically, hogs were the main livestock, due to the abundance of forests, making it easy to keep them in an ideal habitat. Now the main livestock is cattle, with breeds such as Hereford to Angus.



Figure 27: Historic Photo of Agriculture in Appalachia
Source: [online image] retrieved 2014, <http://www.ushistoryscene.com>



Figure 28: Agrarian Appalachian Landscape
Source: [online image] retrieved 2014, <http://3.bp.blogspot.com>

After reviewing all of these industries, which are closely linked with the cultural identity of the region, I chose to focus my efforts on the agricultural industry, with a sub-component of tourism. I feel that these two traditional Appalachian industries provide the brightest opportunities for

a combination of commerce and culture. With an increase in population, the demand for food is ever increasing. This is a resource that can never be expended. Coal and other fossil fuels are being replaced with more sustainable energy practices; logging is mainly being out-sourced to other countries and regions, and is many times seen as unsustainable; and manufacturing, while being somewhat traditional to the area, is something that could happen all over the country and world, which is being proved by the mass migration of manufacturing companies to Asia and South-America. With this being said, I believe that there is a strong future for in agriculture and commerce for the Appalachian region. This is linked to a strong identity within the region, especially within the state of Tennessee. This cultural identity is displayed clearly on the state seal, where 'Agriculture' and 'Commerce' are presented as main components to the identity of Tennessee.



Figure 29: Tennessee State Seal
Source: [online image] retrieved 2014, <http://commons.wikimedia.org>



Figure 30: Agricultural Research Facility
Source: [online image] retrieved 2014, <http://www.uoguelph.ca/omafra_partnership/research>

Agri[culture] Opportunities

There are numerous opportunities for the agricultural industry within the South-Central Appalachian region. The opportunities which will be addressed in this thesis include: agricultural research, education, and agritourism. These fields look toward the future, as channel to help to guide the future of the industry, community, and region, while maintaining a sense of clarity and acknowledgement of cultural identity, rooting the project and program within its immediate context. Without connecting to our roots, we are left without a strong foundation on which to grow.

Agricultural research is a growing field, becoming more popular as issues in sustainability and environmental conditions rise to the forefront in society. This demand for this type of study can be clearly displayed by the USDA's funding of the Agricultural Research Service. The ARS is charged with "finding solutions to agricultural problems that affect Americans everyday, from field to table." (www.ars.usda.gov) They also provide numbers which help to illustrate how large their scope of work actually is, including 800 research projects within 18 National Programs, 2,200 scientists and 6,200 other employees, 90+ research locations, and a $1.1 billion fiscal year budget. (www.ars.usda.gov) They strive to help the population by ensuring high quality and safety to food and assessing the nutritional needs of Americans. But ARC also displays a huge effort



Figure 31: USDA ARS
Source: [online image] retrieved 2014, <http://www.ars.usda.gov>

in sustaining a competitive agricultural economy, stating one of there purposes is to “enhance the natural resource base and the environment, and provide economic opportunities for rural citizens, communities, and society as a whole.” (www.ars.usda.gov)

This information is provided to display the viability of this field and its importance, not only to the agricultural industry and agrarian communities, but to the entire national population.



Figure 32: Agriculture Education
Source: [online images] retrieved 2014, From left: <http://www.grit.com> right: <http://ssd.umich.edu>

Education holds the key to future of society, having the ability to empower populations, broaden horizons, and bridge differences in culture and social hierarchy. Secretary Arne Duncan expressed the importance of agricultural education in a 2010 speech given to the Future Farmers of America, by stating: “I’ve learned that agricultural education is central to the future of American prosperity. I learned that agricultural educators face unique challenges—but that they also can tap into unique strengths

within their tight-knit communities. I learned that agricultural education is very much about the jobs of the future and not a backwards-looking curriculum to preserve the past." (www.ed.gov)

Agricultural Education, like every other field, provides a framework for the profession to build upon. By empowering and educating the future farmers, researchers, and others in the agrarian profession, we can help to ensure a stable future for this profession. Education also has to ability to raise awareness and restore prestige into a declining field. As our society pushes young students towards higher education, other vocational and trade professions are left with fewer numbers and dwindling interest. We see many family farms being lost or sold with the retirement of the aging population; there is often little to no interest to continue this business within the younger generations of the family. Encouraging education and restoring some prestige to this traditional profession could help to raise interest in younger generations, encouraging them to consider the agrarian business as viable option when deciding their future.

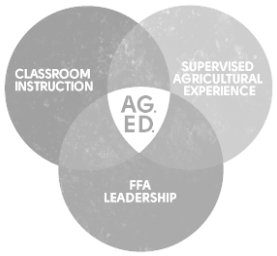

Figure 33: FFA Three Circle Model of Agricultural Education
Source: [online image] retrieved 2014, <http://mytexasffa.org>

An interest in Agritourism has been steadily growing within the past few years. The Agricultural Marketing Resource Center describes agritourism as "the act of visiting a working farm or any agricultural, horticultural or agribusiness operation to enjoy, be educated or be involved in activities." (www.agmrc.org) Agritourism can include areas such as tours of farms and

facilities, hands-on learning and education, day and over-night camps, hands on chores, animal interaction, wine and cheese makings, vegetable and fruit harvesting, and shopping in on-site markets and stands. With the growing interest in health and food production, there is an importance in bridging the gap between the farm and the table. Agritourism can play a valuable role in bridging this gap, taking advantage of the need for education, and capitalizing on the opportunity for the industry. This could potentially help to increase the economic viability of small farms who may be struggling financially with traditional agricultural practices.



Figure 34: Agritourism
Source: [online images] retrieved 2014, From top left: <http://www.tennesseewines.com> top right: <http://oracle.newpaltz.edu> bottom left: <http://www.newcastlepa.org> bottom right: <http://commons.wikimedia.org>



Figure 35: Grainger County Agriculture
Source: [online image] retrieved 2014, <http://farmflavor.com>

Grainger County Agri[culture]

After narrowing the cultural and industrial focus to agriculture, the proposal for regional location became much more clear. Studying the agricultural industry in the immediate South-Central Appalachian Region, the East Tennessee Valley became the main focus. Within the valley, Grainger County stood out as a viable option for a project of cultural identity, which included agricultural research, education, and tourism.

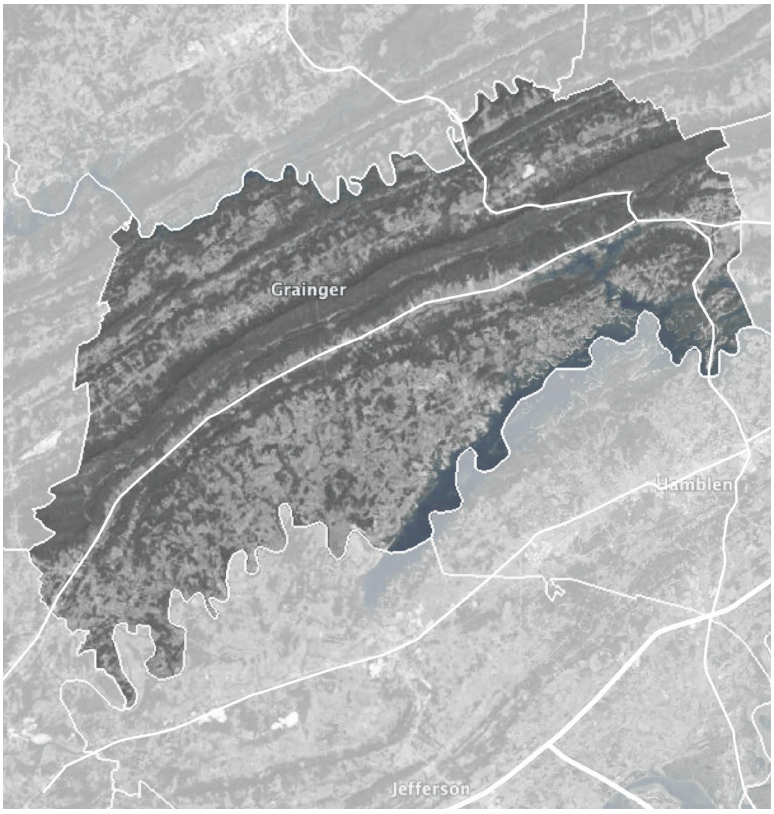

Figure 36: Grainger County Aerial
Source: [online image] retrieved 2014, <http://farmflavor.com>

Grainger County is situated in the western side of the valley, between the Cumberland Plateau and the Smoky Mountains. It is a very rural landscape, painted with farmland and complimented with a thousands of acres of forest. The county's landscape it made complete with two lakes: Norris Lake and Cherokee Lake, and the Holsten and Clinch Rivers. With the combination of rolling hills, large amounts of river frontage, and a 360° backdrop of the mountains, this area can truly be described as picturesque.



Figure 37: Historic Bean Station Tavern
Source: [online image] retrieved 2014, <http://www.wendyleedyart.com>

Grainger County has a rich, frontier history. This land was once considered Cherokee Territory, with the Cherokee's Great War Path running through the area. This path became a major road for frontiersmen, which brought

many notable Americans to the area, including people such as Davy Crockett, Daniel Boone, Henry Clay, Andrew Johnson, Andrew Jackson, and James Polk. This Cherokee Land maintained it's rural identity, attracting many visitors for that exact quality. In the early 1800s, Thomas and Jenkins Whiteside build a three story brick in and tavern in Bean Station, which became a popular stop between Washington and New Orleans. The property surrounding this hotel became the site of a major battle during the Civil War. Later in the 17th century, Captain Thomas Tomlinson built a luxury resort hotel at Tate Springs, attracting many elite patrons with it's mineral-rich waters. This 6,000 acre resort included a golf course, a park, stables, and cottages. However, neither of these resorts are still functioning today.



Figure 38: Pioneers explore Grianger County
Source: [online image] retrieved 2014, <http://www.graingertnhistory.com>

In 1931, the Tennessee Valley Authority was established and brought with it many changes to the rural landscape of Grainger County. The main changes include the creation of Cherokee Lake and Norris Lake, burying many acres of farmland and wildlife. However, the most important aspect of this establishment was that it brought widespread distribution of affordable electricity to the communities, increasing the quality of life for this rural area.



Figure 39: Cherokee Dam
Source: [online image] retrieved 2014, <http://www.tva.com>

Grainger County has a strong history in agricultural production, and still maintains this presence within the region to this day. There are at

least 400 full time farms operating in Grainger County, encompassing about 97,000 acres, making the entire county an ideal site for regional agritourism. Grainger County's main agricultural products include tomatoes, cattle, corn, beans, and tobacco. (www.graingertn.com)

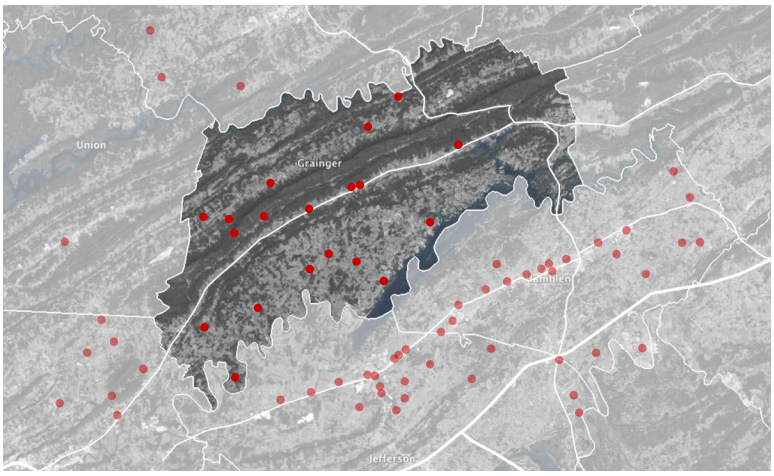

Figure 40: Commercial Farms in the Surrounding Area
Source: Author Underlay: Google Maps

The importance of the agrarian business can be clearly seen in the community and culture of Grainger County. One of the major events taking place in the area is the Grainger County Tomato Festival. This two and a half day festival attracts about 10,000 visitors every year, including events such as tomato wars, singing, dancing, art, crafts, and quilting. Other festivals within the county include the Clinch Mountain Bluegrass Festival, the Harvest Pride Days Festival, and 4-H county fairs and events.

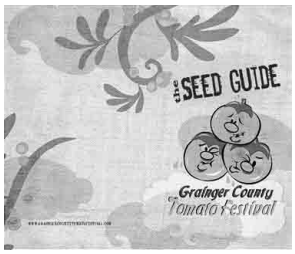

Figure 41: Grainger County Tomato Festival Media
Source: [online image] retrieved 2014, <http://www.behance.net/gallery/Grainger-County-Tomato-Festival>

4-H Youth Development plays a major role in the younger student population of the county. 4-H expanded to Tennessee in the early 18th century, beginning as an educational program to help youth in rural areas develop skills in agriculture and home economics. Historically, 4-H has been known for farming activities, livestock, cooking, canning, and county fairs; however, in recent years 4-H has expanded it's focus to cover areas like sustainability and community development. Club members take part in hands-on learning experiences, building character through hard work, leadership, and commitment, but also experience fun, adventure, lasting friendships, and travel. The local 4-H Club headquarters is the UT Extension in Grainger County. (4h.tennessee.edu)



Figure 42: Historic Photo of 4-H Club Camp
Source: [online image] retrieved 2014, <http://4-hhistorypreservation.com>

The UT Extension in Grainger County not only displays the recognition of their agrarian presence within the region, but also acts as a supportive element to the community. They work with the county government to identify and implement educational programs relating to research-based knowledge in Agriculture, Family and Consumer Sciences, and 4-H Youth Development. Their main focus is using research done in UT's Agricultural Research Department as a basis for education, making knowledge available to the entire community. (extension.tennessee.edu)



Figure 43: UT Extension in Grainger County
Source: [online image] retrieved 2014, <https://utextension.tennessee.edu/grainger>

Along with the agrarian culture of Grainger County, there are other demographics which make it an ideal location for this thesis proposal.

When looking at statistics for education within the area, Grainger County ranks well below the Tennessee average in every category, especially in relation the higher education. Less than eight percent of the of the entire county has attended even one year of school after receiving a high school diploma or GED. This could be directly related to the fact that there is not a single post-secondary place for education within the entire county. With these demographics, a need for the possibility of secondary education within the county is clearly displayed. (www.state.tn.us/tacir/County_Profile/grainger_profile.htm)

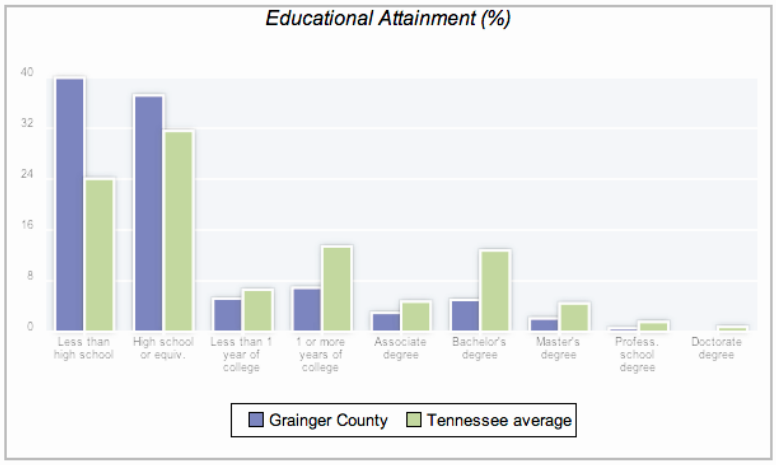

Figure 44: Grainger County Educational Attainment
Source: [online image] retrieved 2014, <http://www.city-data.com/county/Grainger_County-TN. html>

PART 3 **SITUATING**

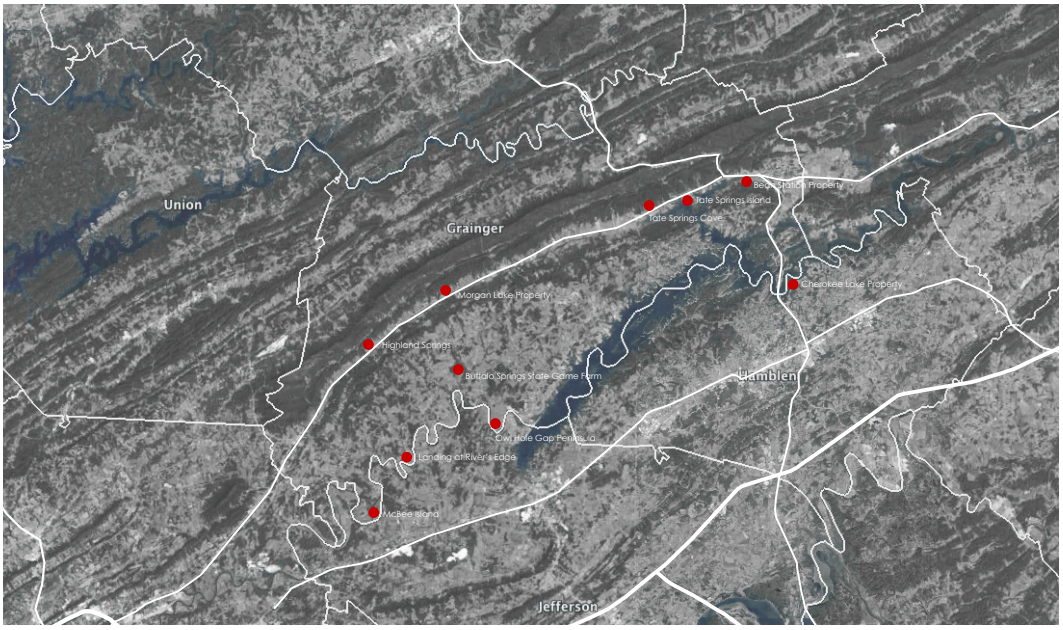

Figure 45: Potential Sites Aerial
Source: Author Underlay: Google Earth

Site Inventory + Evaluation

Ten potential sites in [or directly adjacent to] Grainger County were selected for further evaluation when deciding upon project placement and situation. These sites were broken up into three categories according to their location within the county and their immediate adjacencies. These categories include: Holsten River Properties, Rutledge Pike Properties, and Bean Station Properties.

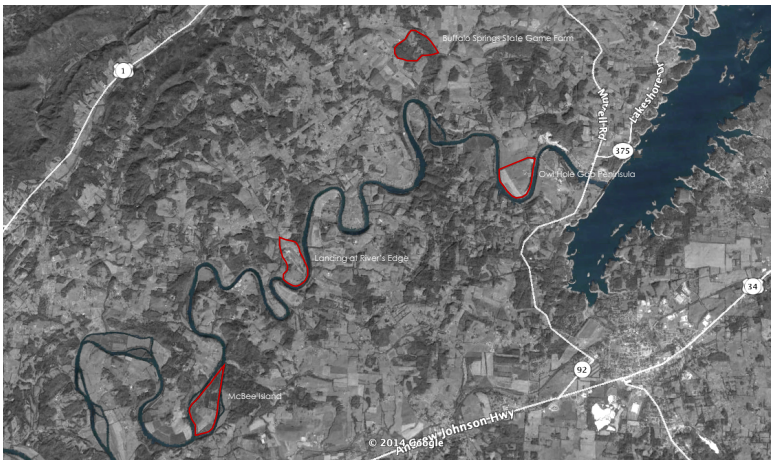

Figure 46: Holsten River Properties Aerial
Source: Author Underlay: Google Earth

The Holsten River Properties included four locations: McBee Island, Landing at River's Edge, Owl Hole Gap Peninsula, and Buffalo Springs State Game Farm. These sites could be characterized by direct access to the Holsten River for irrigation, recreation, and beautiful scenic views, with the exception of Buffalo Springs State Game Farm. These four locations

are also characterized by their seclusion from heavy traffic and large highways, allowing for a more private, arcadian setting.



Figure 47: McBee Island Aerial
Source: Author Underlay: Google Earth

All four sites also have individual characteristics which make them unique and ideal candidates for the job. McBee Island has the closest proximity to Knoxville, allowing it to remain better connected to the largest metropolitan city in the area. It is also an island, floating between a fork in the Holsten River. This dramatizes the idea of seclusion, making it even more prominent. Landing at River's Edge has an extremely unique element from any other site in the county - it has a landing strip running through the property, creating a datum in the landscape. It also has existing infrastructure due to the proposed subdivision which was never developed. Owl Hole Gap Peninsula is the located just off of Highway 92, making access to Jefferson City and I-40 fairly easy. Cherokee Dam and Lake are also within two miles, giving proximity to known cultural artifacts. Lastly, Buffalo Springs State Game Farm is already a well-known historical site within the area. It has many ideal features, including a stone bridge as an entry point into the site, a creek running along the perimeter and a fish hatchery located adjacent to this water source, and dense forest along with open fields, making this ideal for recreation and agriculture.

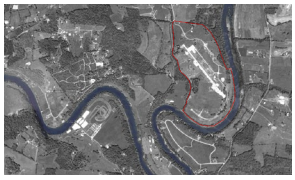

Figure 48: Landing At River's Edge Aerial
Source: Author Underlay: Google Earth



Figure 49: Owl Hole Gap Peninsula Aerial
Source: Author Underlay: Google Earth



Figure 50: Buffalo Springs State Game Farm Aerial
Source: Author Underlay: Google Earth



Figure 51: Rutledge Pike Properties
Source: Author Underlay: Google Earth

The Rutledge Pike Properties include two existing farms which I have titled Highland Springs and Morgan Lake. Both of these sites include water features in the form of fairly large retention ponds. Both are located at the base of the Foothills with wooded land directly adjacent to their open farmland. This dramatic change in topography and forested to open spaces provides great visual and spatial interest on the sites. Their direct location on Rutledge Pike allows for easy access and high visibility, creating an immediate presence within the community. The only major difference between the two sites is their location on Rutledge Pike, with Highland Springs located further south, towards Knoxville, and Morgan Lake further north, towards Bean Station and the Highway 92 intersection.


Figure 52: Highland Springs Aerial
Source: Author Underlay: Google Earth


Figure 53: Morgan Lake Aerial
Source: Author Underlay: Google Earth

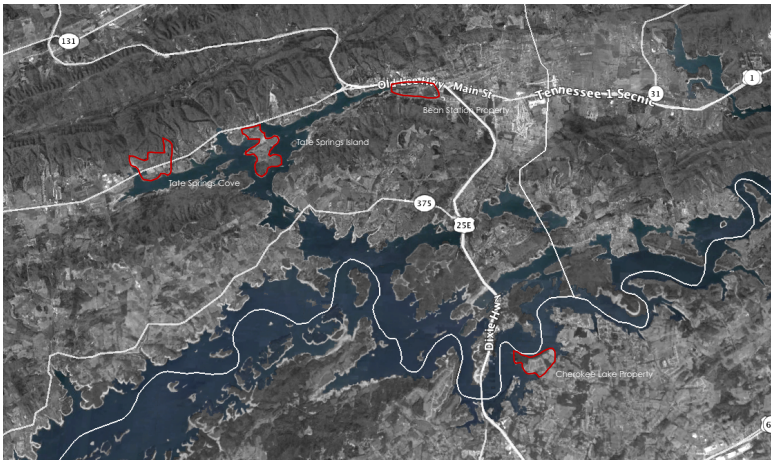

Figure 54: Bean Station Properties
Source: Author, Underlay: Google Earth

The Bean Station Properties are grouped mainly for their location in the in the northern most area of Grainger County, near Bean Station, TN. This group includes Tate Springs Cove, Tate Springs Island, Bean Station Property, and Cherokee Lake Property. They are all also located off of a major road and have waterfront access.



Figure 55: Tate Springs Cove Aerial
Source: Author Underlay: Google Earth

Tate Springs Cove and Tate Springs Island both sit on Rutledge Pike and have direct waterfront access to a cove off of Cherokee Lake. Tate Springs Cove flanks both sides of Rutledge Pike and sits at the edge of the wooded foothills, while Tate Springs Island sits on the eastern side of Rutledge Pike and is an island, standing alone in the lake with only one narrow passage connecting it to the main land. This setting, like McBee Island could emphasize the feeling of seclusion, only Tate Springs Island would still remain highly visible from Rutledge Pike.



Figure 56: Tate Springs Island Aerial
Source: Author Underlay: Google Earth

The Bean Station Property is located at the edge of a shallow cove of Cherokee Lake. It sits in the crook of the intersection of Rutledge Pike and Dixie Highway, providing easy but distant access to Morristown, and eventually I-81. This site is highly visible from, not only one, but two highways. It is also located closer to Bean Station, one of the more populated areas of Grainger County which has a rich history, described as "A Historical Crossroads" due it is location on the Great Wilderness Road and the role it played during the Civil War.



Figure 57: Bean Station Property Aerial
Source: Author Underlay: Google Earth

The Cherokee Lake Property is the last property which was explored as a possible site for this thesis project. It rests directly on Cherokee Lake, across from the Hamblen Marina and Lakeside Marina. It also has a level of high visibility for Dixie Highway Bridge, while still having a discrete approach. On this site, there is infrastructure and roadways for a nonexistent subdivision, leaving the site with open space and defined circulation. This is also the only site chosen to study which is in Hamblen County, just over the county line.



Figure 58: Cherokee Lake Property Aerial
Source: Author Underlay: Goole Earth



Figure 59: Aerial View of Landing at River's Edge
Source: Author Underlay: Google Earth

Site Selection + Analysis

After careful consideration of all ten sites and their attributes, Landing at River's Edge was chosen for the project proposal. This property's location and existing infrastructure make it unique to any other site which was studied. It's history also makes it a perfect fit for a proposal of an alternate paradigm the disappearing American landscape.

Landing at River's Edge was former farmland, purchased in the mid-2000s just before the housing market plummeted in 2008. The owners began development as an idealist subdivision for pilots who wished to live in a serene setting and in close proximity to a private hanger for their plane and a private runway. There were 111 lots planned for residential homes with a minimum required foot print of 2,200 square feet per lot. The plans also included a golf course, community clubhouse, and condominiums. (www.knoxnews.com/news/2008/Feb/23/landing-rivers-edge)



Figure 60: Landing at River's Edge Development Plan
Source: [online image] retreived 2014, <http://www.loopnet.com/xNet/MainSite>

There are many reasons which can be assumed as to why this particular subdivision was not successful, such as: distance from populated areas, specificity of buyer, unsuccessful planning, and ultimately the recession and crash in the housing market in 2008. Some of these are at the fault of the developers, and others completely out of their control; however,

I believe it comes down to a question of appropriateness. Was this project proposal appropriate for this region, this area, and ultimately, this location? Although this site was not successful with the former proposal for development, it has some extremely positive existing attributes, making it an ideal location for an architectural proposal. First of all, it is comprised of 177 acres of lush farmland, with rolling hills and distant views of the surrounding mountains. This is the serene cultivated nature that gives rural East Tennessee its identity. The site is a peninsula, bordered by the Holsten River with 5,000 feet of river frontage. The property has seven shoals which can generate level two and three rapids, making it ideal for fishing and other recreation.



Figure 61: Landing At River's Edge Site Photos
Source: [online images] retrieved 2014, <http://www.loopnet.com/xNet/MainSite>

With the former development project for Landing at River's Edge came some interesting and inspiring artifacts. The most unique artifact is the 3,000 foot long airstrip that runs down the middle of the site, creating a datum within the landscape. The airstrip runs northwest to southeast, resting at the highest point in topography, with a 20-foot topography change from one end to the other. It allows for wonderful views and vistas, creating a powerful site-line and an arcadian feeling within the rural landscape. The other artifact still in place is the infrastructure. The site is navigated by winding roads, aligning with picturesque ideals and the ideas of "the mystery around the bend." These roads also help to slow people down, emphasizing the beauty of the rolling landscape. These roads are intersected by three roundabouts, creating unique, artificial geometries within the rural landscape, and allowing for fluid traffic flow.



Figure 62: Existing Infrastructure on Landing at River's Edge
Source: Author Underlay: Google Earth

Along with the physical attributes discussed above, studies of sun paths, wind direction, and watershed were included within the site analysis. These natural conditions not only influence architecture design decisions, but also have a heavy impact on the agricultural production and research as well. These are factors which cannot be altered, and must be fully considered in order to have a comprehensive design.

Landing at River's Edge has very little wooded areas to block sunlight for agricultural production, with the exception of the areas around the

perimeter of the site and along the river bank. During the summer, the sun rises in the northeast at 60° and sets in the northwest at 300°. At it's highest position in the sky, it reaches an elevation of 88° around 1:30 p.m. During the winter, the sun rises in the southeast at 120° and sets in the southwest at 240°. At it's highest point, the sun reaches an elevation of 30°.

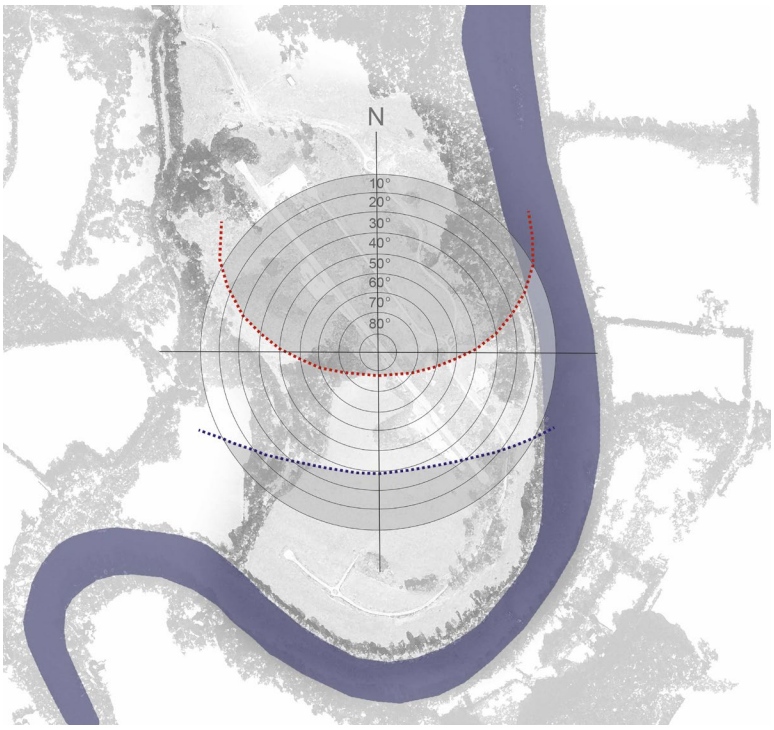

Figure 63: Solar Diagram
Source: Author Underlay: Google Earth

This information is directly applicable to making sustainable design decisions like maximizing thermal gain in the winter, perhaps through

thermal mass and southern facing glass facades, and minimize heat gain in the summer through overhangs, louver systems, brise soleils, etc. Along with these architectural implications, sun paths have a direct implication on the agricultural planning. Most edible crops require at least six hours of direct sun light in order to prosper. Morning sun can be very helpful for many crops to stimulate growth and rid the leaves of condensation, getting the plants off to a good start. For greenhouses containing winter crops, orienting the building east-to-west allows the plants to have the maximum amount of southern exposure, providing ample sunlight in cold conditions.



Figure 64: Sun-shading Techniques
Source: [online image] retrieved 2014, From left: <http://www.weareprivate.net> right: <http://media-cache-ec0.pinimg.com>

The prevailing wind in Grainger County is from the northeast, with secondary winds coming from the southwest. These wind directions are probably determined by it's valley location with the Cumberland Plateau to the northwest and the Blue Ridge Mountains to the southeast, creating a tunnel effect which runs between the ridges. Strong winds can harm agricultural crops by damaging the shoots, shredding flowers and fruits, uprooting crops and trees with shallow roots, causing soil erosion, and causing soil deposition which causes poor aeration in the root zone. To prevent wind damage and protect the crops, one can create wind breaks or shelter belts by growing trees or tall crops in the perpendicular direction of the prevailing wind.



Figure 65: Agricultural Wind Breaks
Source: [online image] retrieved 2014, <http://en.wikipedia.org/wiki/Windbreak>

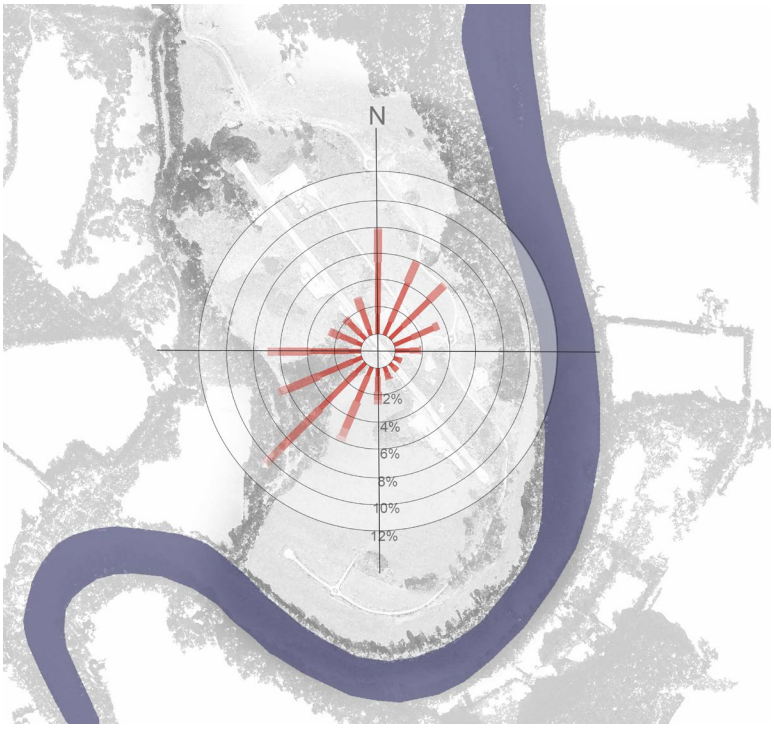

Figure 66: Wind Rose Diagram
Source: Author Underlay: Google Earth

Due to the Landing's location on the Holsten River and 'downhill' from the Cumberland Plateau, some of the site rests at the bottom of the watershed. On site, there exists five retention ponds, some of which were man-made by the most recent developers and a creek which flanks the western side of the property, terminating into the Holsten River. Some of the site along the river also rests within the flood plane. With an average annual precipitation of 39.65 inches, and 50% which falls during the growing season from April through September, watershed becomes an integral part in site design and agricultural planning. While drought can

cause major issues with agriculture, so can too much unmanaged water, causing issues such as run-off, erosion, root rot, and mineral difficiencies or toxicities. Excess water smothers and eventually kills the roots of many plants. Architectural damage related to improper drainage are well-known and include issues such as insect infestation, mold and allergens, foundation and structural damage, and discoloration of materials.

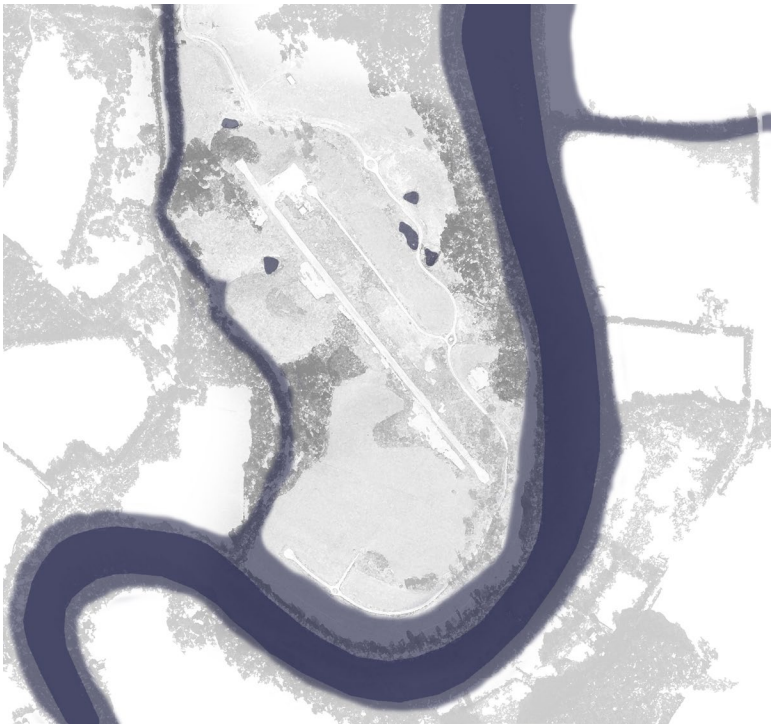

Figure 67: Watershed Diagram
Source: Author Underlay: Google Earth

The abundance of water located on site can not only have harmful qualities, but can also allow for many desirable elements within the design. Retention

ponds can become great attractions for wildlife. The creek and river can provide places for recreation such as fishing, kayaking, canoeing, and swimming. Water collection and retention is made possible for irrigation and other purpose. And finally, the floodplain can have architectural and design implications, creating unique spaces and structures which not only perform, but also create unique aesthetic appearances.



Figure 68: Agricultural Wind Breaks
Source: [online image] retrieved 2014, <http://commons.wikimedia.org>

PART 4 SUPPORTING



Figure 69: Picturesque Painting 1
Source: Claude Lorrain, "Landscape With Merchants," 1630

Through careful site selection, and examination of the thesis problem, it became clear that there are a few underlying concepts which could potentially bring this thesis into a larger conversation of contextual lineage and cultural heritage. These concepts include American Pastoralism, the Picturesque, Urb and Suburb, and Re[creation] in relation to environmental psychology. All of these ideologies call on the relationship between nature and civilization, and directly relate to concepts of the human experience. These ideas not only help to support the design work which will follow, but also appropriate this project into a larger, theoretical conversation which stretches past the boundaries of Appalachia, into the world beyond.



Figure 70: American Pastoral Painting
Source: George Innes, "The Lackawanna Valley," 1855

American Pastoralism

Pastoral Idealism has been used to define American meaning and cultural identity since the age of discovery and immigration to the New World. In Leo Mark's *The Machine in the Garden,* he explains that pastoralism was generated from an urge to withdrawal from the complex artificiality of the city to a more natural and rural landscape. This movement towards a simpler life, in close relation to nature, expresses clear ideas aligning with primitivism, ideas which are directly linked to the way early European travelers view America. (Marx, 6)

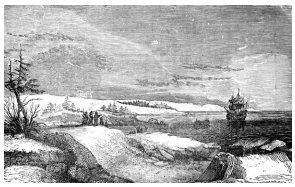

Figure 71: Landscape of the New World
Source: Bancroft, George. History of the Colonization of the United States. New York: Julius Hart and Company, 1886.

Marx displays the emergence of the American Pastoral ideals from American literature through the works of writers such as Mark Twain, Ernest Hemingway, Robert Frost, and Nathaniel Hawthorne. (Marx, 12) Marx recalls scenes from the work of Hawthorne where he is reflecting upon the emotions created by sitting in solitude in the woods, when, out of nowhere, one hears the loud whistle of a locomotive. (Marx, 13) This event allows us to explore the concept of the machine within the garden by focusing on the emotional response of the author, rather than the actual story line. This emotional response was heightened through contrast between nature and civilization, the garden and the machine. (Marx, 16)

The ideas of a connection back to nature and a heightened state of emotion due to the contrast between nature and the machine, directly relate to Landing at River's Edge, with the serene, pastoral landscape contrasted by the direct line of the landing strip. Along with existing site conditions, this feeling of the convergence of machine and garden is also displayed through the use of heroic machines for agricultural production. With this proposal, nature and civilization merge, creating a heightened sense of juxtaposition between the machine and the garden, and ultimately, building and landscape.



Figure 72: Airstrip at Landing at River's Edge
Source: Author



Figure 73: Picturesque Painting 2
Source: Claude Lorrain (Gellee), "Pastoral Landscape," 1645

The Picturesque

The picturesque landscape began as a romantic idea that came about from the embrace of literature and landscape painting. Peter Collins, in his book *Changing Ideals In Modern Architecture*, provides readers with a basis for understanding this movement and it's impact on architecture and landscape. He suggests that architecture and landscape design become a kind of poetry in which merits are given by the power to inspire romantic images and thoughts. (Collins, 45) It is the architectural elements within the landscape that begin to act as a complementary associational device within a naturalistic setting. (Collins, 50) Within these natural, picturesque environments, architecture could adhere to new rules in which asymmetry and free planning became desired. (Collins, 56-58)

Horace Walpole is a key figure who enters this discussion of the picturesque landscape. Walpole presents the Garden of Eden as the prototype for picturesque landscapes, presenting its creator as having "the prophetic eye of taste to have conceived, to have foreseen modern gardening." (Walpole, 30) Walpole admired Kent for his vision of seeing all of nature as a garden. (Walpole, 43) Picturesque landscapes were polished, not transformed (Walpole, 144); the designs were "softening natures harshness and copying her graceful touch." (Walpole, 55)

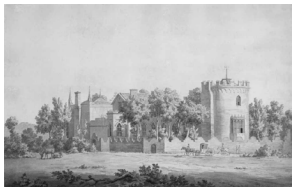

Figure 74: Walpole's Strawberry Hill
Source: William Marlow, "Strawberry Hill," 1776–80.

John Dixon Hunt enters as another key figure in the conversation of the picturesque, supporting the idea of the relationship between gardening and literary history by finding common ground between poetry, painting, and gardening. He speaks of Landscape paintings as not only an inspiration of gardening, but also as a way to assist in the manipulation of mood and human experience. (Hunt, 97)



Figure 75: Emblematic vs. Expressive Landscapes
Source: [online images] retrieved 2014, From left: <http://www.nationaltrust.org.uk> right: <http://www.studyblue.com>

Hunt continues the conversation of the picturesque by distinguishing between two types of gardens found within this theory: the emblematic and the expressive. Emblematic landscapes being those which combine word and image, and must be studied to be understood. Expressive landscapes are those which exist as a beautiful scene and do nothing to challenge our intellectual thought. (Hunt, 75-87)

This thesis proposal falls more into Hunt's later category of expressive landscapes, while still maintaining an understanding of the theoretical

linage from literature and picturesque paintings. Through the combination of architectural elements and the pictorial landscape, a dialogue is formed, creating a kind of romantic and heroic poetry.

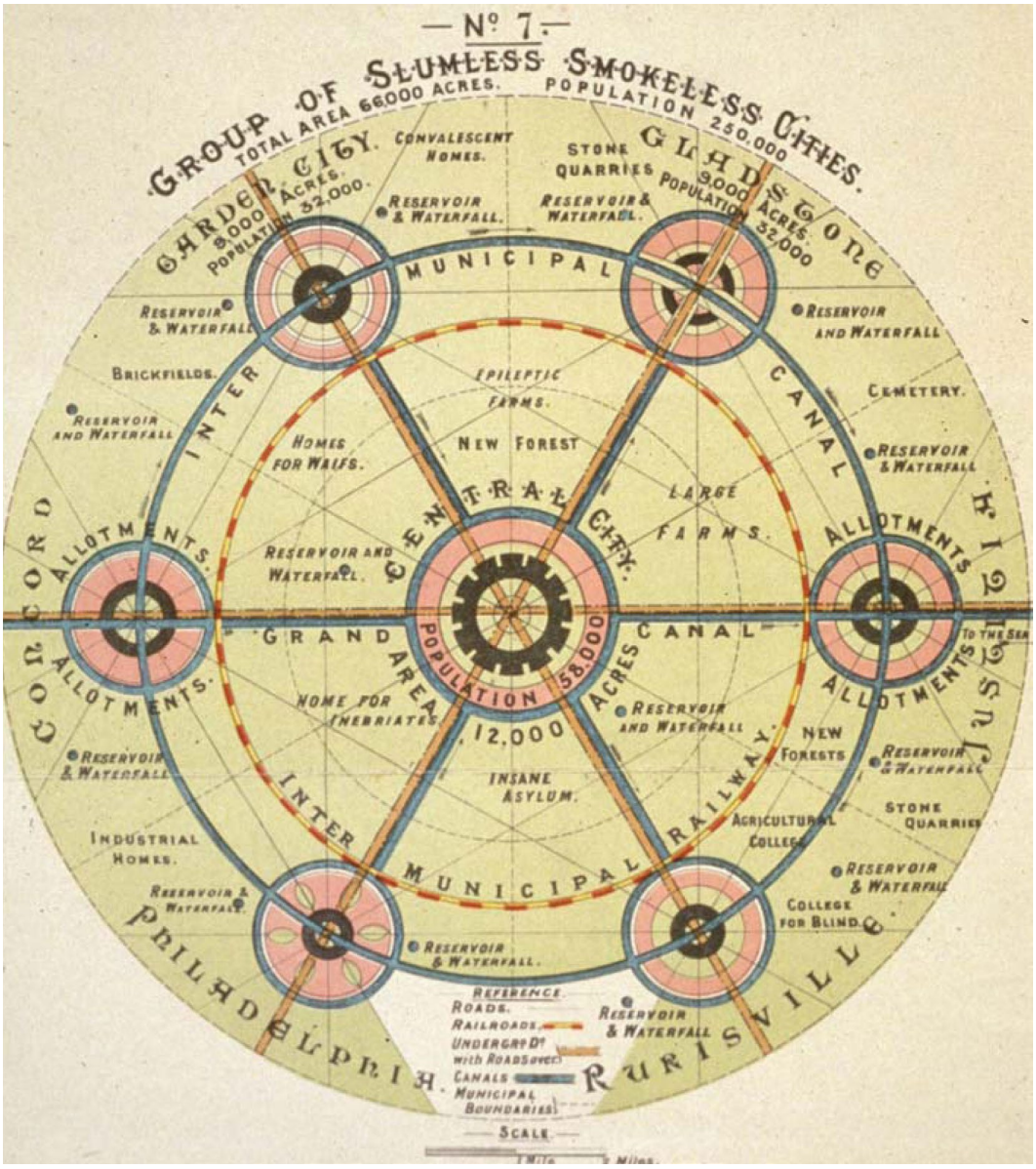

Figure 76: Garden City Concept Diagram
Source: Ebenezer Howard, "Garden City," (1902)

Urb + Suburb

With the explosion of the automobile industry and the vast expansion of the highway system, came a mass migration of the population out of the city, and into garden suburbs. While these suburban developments were influenced by the impact of the automobile, they were also created as a direct response to the unhealthy, polluted environment experienced within the city. With the rise in industrial processes came some undesirable effects, creating smog and soot within the city, and forcing people into the country to acquire clean air and a healthy lifestyle. Suburban living allowed people to truly aspire to the American dream, where each person owned their own piece of paradise.

With the rise of suburban development, came other issues of sprawl and degradation of city centers. This is the typical conversation of urb and suburb that many architects and urban designers speak of, but there is a flip side to this coin. With the sprawl of civilization into the rural countryside the lines between country and city began to blur. It became even more taxing to reach the rural, pastoral landscape because of this layer of suburban development which exists as a middle ground. As suburbia increased, city centers were left empty and the rural landscape began to disappear, causing a disruption in the balance of the physical environment as we know it.



Figure 77: Levittown Aerial
Source: [online image] retrieved 2014, <http://www.nytimes.com>



Figure 78: Indian Summer in the Smoky Mountains
Source: [online image] retrieved 2014, <http://www.lovethesepics.com>

Re[creation] - influences of Environmental Psychology

Re[creation] in environmental psychology is often referred to as a recreation of the mind, body, and soul. Giving into our innate longing for a connection with nature, many people approach the natural environment as a way to escape from the chaos of the city. This can be expressed through the heavy populations seen in the national parks, the use of recreational green spaces within the city, and even in the high volume of natural, picturesque scenes found as artwork in most homes.

The connection with nature heightens our senses, sharpening smells, enlivening sounds, and dramatizing scenery. This also ties into the impact of experiencing the changing of seasons within the natural environment, and the heightened experiences or sunrises, sunsets, and the magical starry sky. Outside of the noise and light pollution of the city, one can really connect with the evolving world around them, finding joy in the most primitive of experiences.



Figure 79: Camping Under the Stars
Source: Quincy Dein [online image] retrieved 2014, <http://fineartamerica.com/>

Along with the innate drive to be within nature and the heightened sensual experience that occurs while in the great outdoors, there are other specific elements which could be incorporated to enliven the experience of the place. There are eight natural elements which are found to be of most interest, relating back to primal instincts and fascinations. These

elements include water, vistas, fire, trees, wildlife, rock, earth, and the heavens. All of these elements already exist within the site and could be easily incorporated into the design to create amplified visual and experiential interest.



Figure 80: Natural Elements of Fascination
Source: [online images] retrieved 2014, From top left: <http://www.visiteasternky.com> <http://en.wikipedia.org/wiki/Blue_Ridge_Mountains> <http://en.wikipedia.org/wiki/Campfire> <http://en.wikipedia.org/wiki/Temperate_rainforest> bottom left: <http://animalcrossing.wikia.com/wiki/Deer> <http://commons.wikimedia.org/wiki/File:Eystfelli_a_cliff_on_Fugloy_Faroe_Islands.JPG> <http://commons.wikimedia.org/wiki/File:Layers_in_soil_on_Dartmoor.jpg> <http://www.panoramio.com/photo/25057796>

The final concept, which relates directly to this proposal for an agricultural center, is the idea of ritual and the import role it plays in the cultural identity of an agrarian context. When working with the earth and the cycles of the seasons, planting and harvesting and feeding the livestock, become rituals which dictate your everyday. This identifies a culture

of great hardship and pride, speaking of people who literally 'reap what they sow.' With great drudgery, comes great celebration. This idea is greatly displayed by the many harvest festivals found throughout agrarian communities. And thus, industry becomes culture through ritual and celebration.

PART 5 REFERENCING



Figure 81: Precedent Studies: Cistercian Monasteries, Wineries, Kibbutzim, Taliesin West, Shaker Villages, and Spanish-Portuguese ARC

Source: [online images] retrieved 2014, From top left <http://www.topboxdesign.com/new-cistercian-monastery-in-cinigiano-italy/> top middle <http://www.archdaily.com/93538/> top right <http://www.haaretz.com/print-edition> bottom left <http://everywhereonce.com/2012/06/20/frank-lloyd-wrights-winter-home-taliesin-west/> bottom middle <http://www.discovernewengland.org> bottom right <http://www.archello.com/en/project/spanish-—-portuguese-agricultural-research-center-ciale>

During the research phase of this thesis, six different typologies were referenced as precedent. These included Cistercian monasteries, wineries, kibbutzim, Taliesin West, Shaker villages, and the Spanish-Portuguese Agricultural Research Center. These six case studies were chosen for many reasons, but mainly because of their complex programming components and their architectural significance and prestige.

In order to generate a cohesive design, these studies were referenced when making important design decisions, some of which include the approach and the sequencing of spaces, defining the program, the relationship of the building and landscape, the joining of public and agricultural program, the spatial relationship of programs and program placement, and the contextualization of projects.

In the following pages, these precedents are studied more closely, looking mainly at two areas of study: programming and spatial arrangement. These two categories helped to form a basis for the final project proposal.



Figure 82: Clairvaux Monastery Programmatic Diagram
Source: Author Underlay: Google Earth

Cistercian Monasteries

Cistercian monasteries are prime examples of self-sustaining communities, living by minimal means. This is one of the oldest and purist examples presented. The main programmatic components of a Cistercian monastery are church, sacristy, armarium, chapter house, audience room, cloister, well, heating chamber, refectorium, kitchen, lay brothers' building, latrine, guest house, gatekeeper's house, provision store, tithe, and barn.

Cistercian monasteries are typically located in a valley, taking advantage of the rich soils and natural resources. They are also set in a rural area, isolated from the rest of civilization.



Figure 83: Thoronet Cistercian Monastery
Source: Quincy Dein [online image] retrieved 2014, <http://gofrance.about.com>

The programmed spaces within the monastery are typically arranged within a walled precinct, creating a compound of sorts. Spaces for worship are located in close proximity to one another. The same proximity applies for places of work, study, and rest. The central point of a monastery is typically the cloister, also at the heart of the monastic experience. The church is also a cardinal point within the plan of a Cistercian monastery.



Figure 84: Chateau Margaux Winery Programmatic Diagram
Source: Author Underlay: Google Earth

Wineries

The history of wine spans thousands of years, dating back much further than the Roman Emperor. Wine tends to have a close realtionship with society and culture, being linked to early religious ceremonies and celebrations for centuries. This rich history of wine has led to an even richer history of wineries, with some working wineries in France and Italy dating back five centuries.

Along with the historical and cultural roots found within wineries, there are also many physical attributes to be recognized. Wineries contain a very complex combination of programs, including wine production, public/ tourism, and some even include residential programs. Most wineries are set up for educational tours, allowing the public and agricultural programs to intertwine, creating interesting, experiential spaces. Vistiors can view the grotto-like wine vaults and be amazed by the expansive number of bottle and barrels in production. Wineries also effectively integrate building and landscape, creating spaces for outdoor gathering and areas for views and vistas. The agricultural landscape becomes the picturesque garden, and thus, public and agricultural programs are once again, harmoniously united.



Figure 85: Winery in Bordeaux
Source: [online image] retrieved 2014, <http://www.letsgodine.com/wine-world/france-bordeaux.aspx>

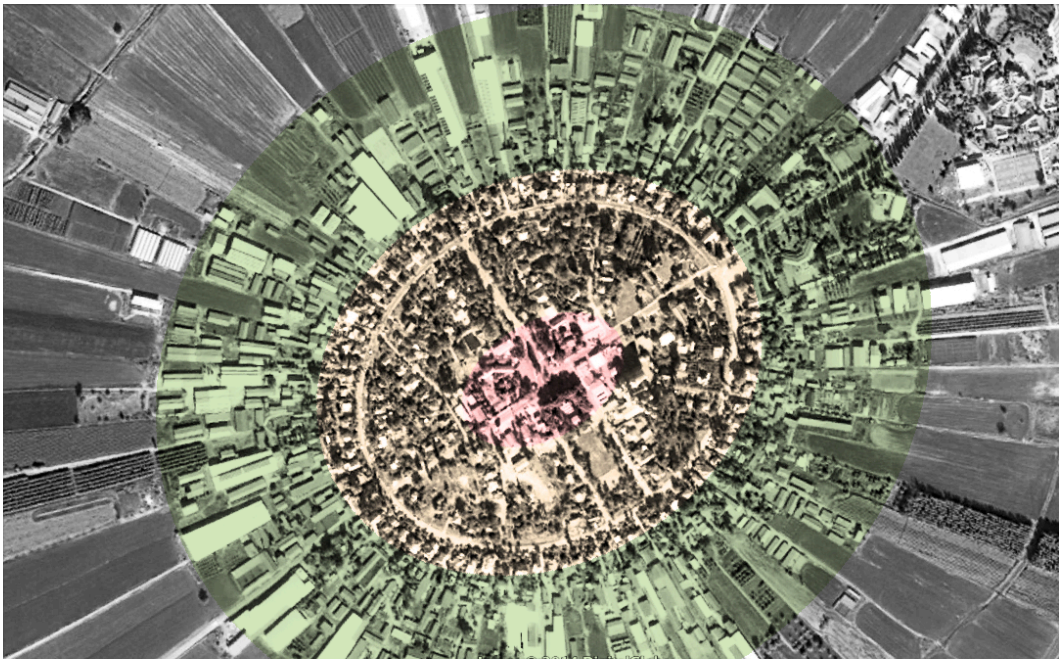

Figure 86: Kibbutz Nahal Programmatic Diagram
Source: Author Underlay: Google Earth

Kibbutzim

A kibbutz is a collective community in Israel which contains all of the programmatic components necessary to be self-sustaining. Many of these program components include: communal kitchen, communal dining-room, auditorium, library, swimming pool, tennis courts, medical clinic, laundry, grocery, member's homes, children's homes, playgrounds, sheds for dairy cattle, chicken coops, one or more industrial plants, agricultural fields, orchards, and fish ponds.

Most kibbutzim are organized in a similar manner, with three main areas: the residential area, work area, and the agricultural area. The residential area is made up of member's homes and gardens, children's houses, playgrounds, communal dining hall, auditorium, library, swimming pool, tennis court, medical clinic, laundry, and grocery. Directly adjacent is the work area, with sheds for dairy cattle, chicken coops, and the industrial plant(s). Further out lies the agricultural area with fields for crops, orchards, and fish ponds, usually located around the perimeter.



Figure 87: Kibbutz Members in the Landscape
Source: [online image] retrieved 2014, <http://www.theguardian.com/world/2010/aug/13/kibbutz-100-years-old-uncertain-future>

Some kibbutzim are arranged in an ideal radial pattern, while others have a different overall shape, but a similar organization with the living quarters towards the interior and the agricultural areas around the periphery.

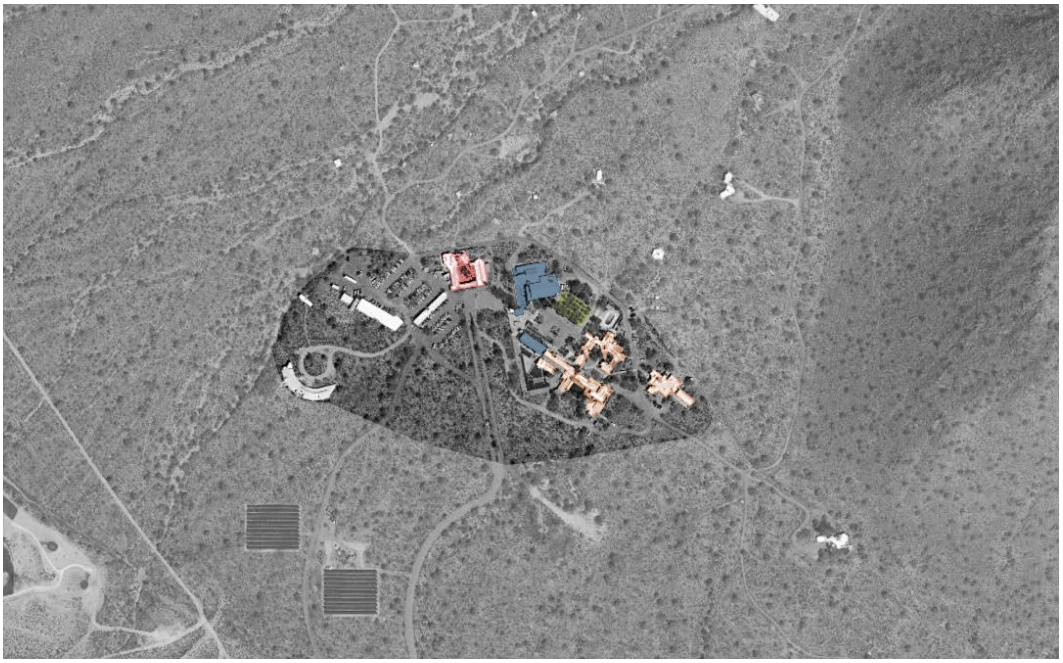

Figure 88: Taliesin West Programmatic Diagram
Source: Author Underlay: Google Earth

Taliesin West

Taliesin West was a commune-type educational facility, which acted as a desert retreat for students and staff alike. The programming components included those which were necessary to maintain a small-scale educational program: studio, dining hall, theater, library, staff apartments, student housing, administrative offices, conference room, courtyard, terraces, swimming pools, garden, citrus grove, and laundry facilities.

Taliesin West is on a rural site located in the middle of the Arizona dessert. The building height remains relatively low, to adhere to it's context and fit into the surrounding landscape. The plan also appears to be formed in an orgainic matter, leaving flexibility and room for additions. Certain programs are grouped together, with the more communal ones located near the center and the more private programs branching off from the main part of the building. Spaces between different wings become programed exterior spaces, such as groves, gardens, and courtyards.



Figure 89: Taliesin West
Source: [online image] retrieved 2014, <http://en.wikipedia.org/wiki/Taliesin_West>



Figure 90: Canterbury Shaker Village Programmatic Diagram
Source: Author Underlay: Google Earth

Shaker Villages

Shaker villages, much like the kibbutzim, were collective, self-sustained communities. They were usually isolated from other villages and, therefore, contained all of their own necessary programs. These programs included a meeting house, work shop, girl's school, sister's workshop, dwelling houses, brothers workshop, hospital, carriage house, agricultural fields, meeting field, laundry, cow barn, sheep barn, school house, stables for horses, storage, office for trustees, blacksmith, collection ponds, and an orchard.

Shaker Villages are usually arranged with one or two main, tree-lined roads. The living quarters are located in the central area of the village, made up of a cluster of individual structure with individual programs. The living quarters are also divided by gender, keeping men and boys separate from women and girls. Surrounding the living quarters are the unbuilt programs, including the agricultural fields, barns, orchard, and ponds. While the organization visually appears a little less structured than other communal villages, the main planning principles are still held intact.



Figure 91: Shaker Village, Harvard, Massachusetts
Source: [online image] retrieved 2014, <http://www.gardenclubbackbay.org>



Figure 92: Spanish-Portuguese ARC Programmatic Diagram
Source: Author Underlay: Google Earth

Spanish-Portuguese Agricultural Research Center

The Spanish-Portuguese Agricultural Research Center is meant for research and experimentation in farming and plant maintenance. It has the infrastructure required to conduct research related to agricultural activities in the field of physiology, biochemistry and molecular biology of plants, fungus and microorganisms. The main programing components included for this small-to-mid-sized research center include laboratories based on farming and plant maintenance, conference rooms, classrooms, lecture hall, offices, gallery and commons space.

The design of the ARC is made up of three program types, which are represented in three distinct volume typologies. The main, longitudinal bar contains the educational program, which is tucked into the landscape, making use of the topography of the bank and helping to integrate itself into the landscape. The laboratory volumes extend from this educational bar, and the space between creates a wide compositional sequence. A distinct volume houses the administrative and public programs of the project. This project makes use of the attributes of the site by taking advantage of the topographical change and implementing a project with rich spatial and sectional experiences and by taking advantage of it's river-front location by orienting views and creating vistas within the project.



Figure 93: Spanish-Portuguese ARC
Source: [online image] retrieved 2014, <http://www.archello.com/en/project/spanish-–-portuguese-agricultural-research-center-ciale>

PART 6 FORMING



Figure 94: View From Tower 1
Source: Author

Site Response

Upon analysis of the current site conditions, it became very apparent that there were many positive attributes and intriguing elements left behind from the previous development. Many of these elements were preserved and actually used to generate design.

The infrastructure put in place by the previous developers were winding roads made complete by three roundabouts, both devices for slowing people down and helping them to truly take in the site. This infrastructure was left in place, only the smooth asphalt replaced with crushed material to build on this idea of slowing people down and add to the sensual quality of the approach.

There is a 3,000' by 50' landing strip running down the middle of the site, creating a datum in the landscape. This landing strip was inherited into the design proposal and used to generate design. The program was concentrated around this landing strip, utilizing the infrastructure as a main service thoroughfare.



Figure 95: Context Plan
Source: Author



Figure 96: Transverse Contextual Section
Source: Author

There is about one mile of river frontage located on the site. The majority of the riverfront was left open for public and communal use, with a small portion being programmed as campus residential area. However, even in this area there is a trail system running along the river, making it an enjoyable place for all.

This site rests in the rolling hills of Grainger County. This topographic change can cause many issues when it comes to design, but can also have some inspiring qualities. This project takes advantage of the topographic changes by building into the landscape and creating landform terraces to make use of steeper sloped conditions.

Lastly, there are a few beautiful views and vistas which exist on site. These existing view are incorporated into the design, enhanced, and even added to. By creating framed and controlled views, the landscape follows in the footsteps of the Picturesque.



Figure 97: Site Plan
Source: Author



Figure 98: Longitudinal Contextual Section
Source: Author

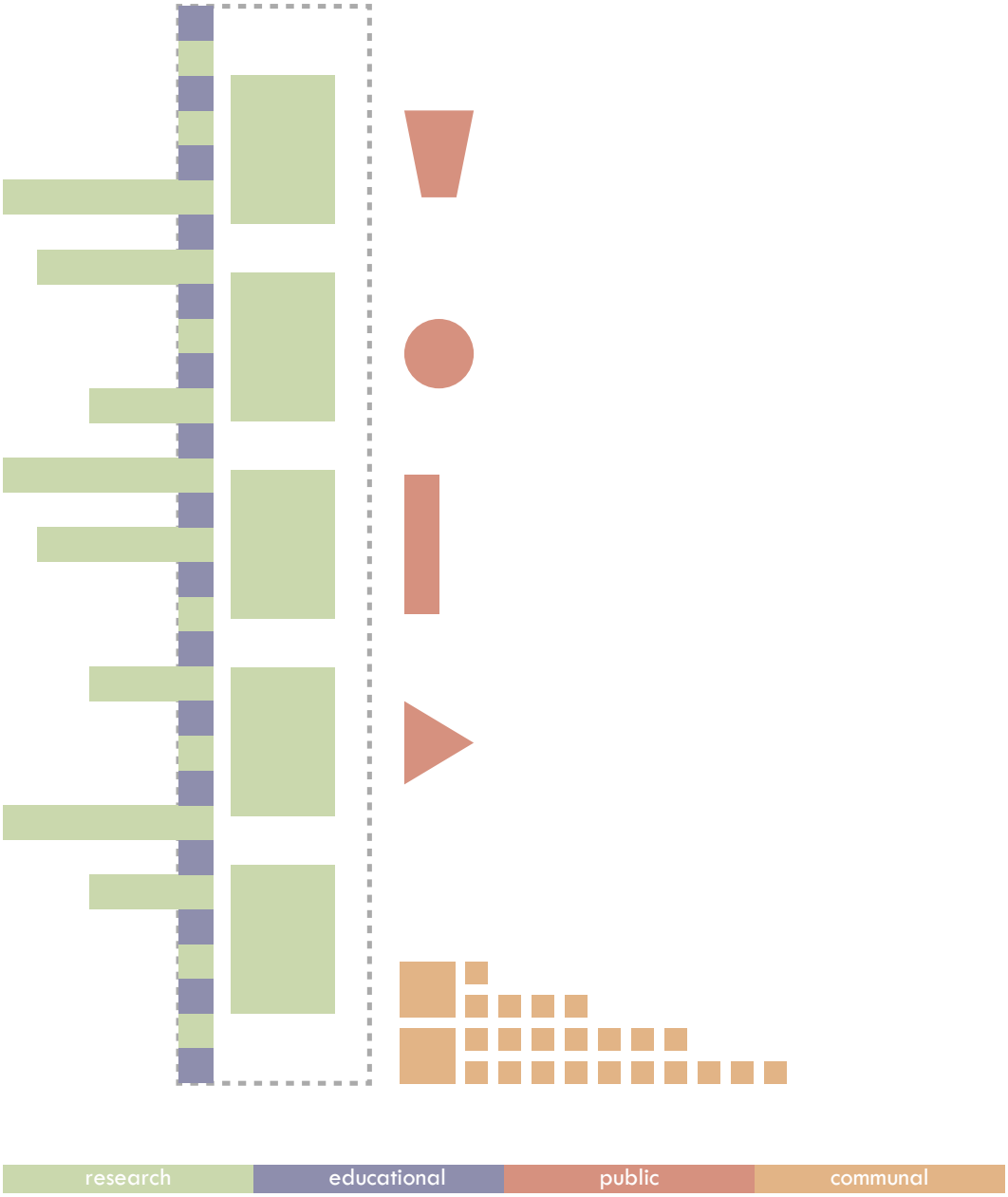

Figure 99: Program Diagram
Source: Author

Program

The Program for the Agricultural Research and Education Center is broken down into four main categories, including research, education, communal, and public programs. Due to the complexity of the program, many spaces become multi-functional, some even serving all three program types.

The research program tends to be the most complex, being a combination of architectural and landscape elements. These architectural elements include in-ground green houses, laboratories, offices, product and equipment storage, and a fish hatchery. The landscape components include landform terraces for product testing and variety studies of existing Grainger County crops like vegetables, melons, and berries, propagation fields for experimental crop and 'show' crops like herbs and cut flowers, and linear orchards containing fruit trees such as pears, apples and cherries.

The educational program is more general to any secondary educational facility. This program includes: administration, faculty offices, conference rooms, a lecture hall, a library, and a cafe. These educational spaces are in close proximity to the research facilities, simply because the two programs regularly overlap, with many users being involved in both research and education.

The public program is the main component for creating a project with a community presence, rather than a satellite school located within rural Tennessee. These spaces include a pavilion with banquet rooms, an auditorium, a market hall, a gift shop, a viewing tower, and recreational trails. These may also serve all other programs, but act as the main draw for bringing in the community.

The communal program directly serves the other three programs. This includes housing for students, researchers, tourism, and campers, gathering spaces so that a sense of community can be experienced, a dining hall to provide meals and conversation for those residing on site, and a market to buy some essentials for living. This program relates to all users, no matter how long their stay, acting as the main component that brings this project into the more private, intimate realm.

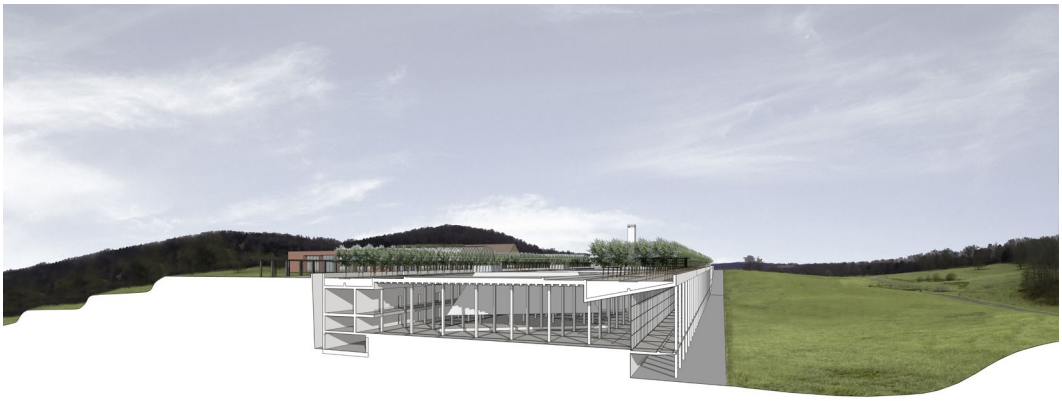

Figure 100: Sectional Perspective
Source: Author

Architectural Approach

The approach to this project included a few major architectural moves, such as sequencing the approach, incorporating a tower for viewing, placing the housing towards the river, engaging with the landscape, tucking the majority of the program under ground, and conceptualizing the interior space as a landscape. All these concepts come together to create the design for this Agricultural Research and Education Xenter.

The concept of sequencing the approach helps to give visitors a sense of arrival. By creating a gateway through an allée of trees, visitors enter a state of compression, where views are screened and the landscape isn't fully revealed. As you exit the allée, the space opens into a vast, rolling landscape. At the highest point, a tower is placed like a beacon, encouraging visitors to continue their journey. The project continues to slowly reveal itself as the visitors proceed on the meandering path.

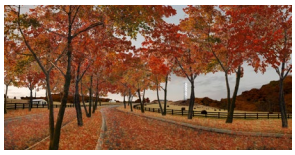

Figure 101: View of Arrival
Source: Author



Figure102: View of Approach
Source: Author

A tower is placed at the highest point on the site, acting like an anchor on the linear air strip, and providing 360° views into the surrounding landscape. From this elevation one can see the Cumberland Plateau to the west, including Clinch Mountain, and the Great Smoky Mountains to the East. This elevated view helps to contextualize the project, orienting visitors within the rolling hills and providing views of the Holsten River.



Figure103: View from Tower 2
Source: Author

The housing program is placed along the Holsten River, taking advantage of the tranquil and serene setting, while being sure to not obstruct the view from the rest of the program. This also allows for necessary public and private program separation and ensures that the residents get a sense of retreat from their research and education.



Figure 104: Roof Garden Plan
Source: Author

Engaging with the landscape is the main goal for this project to help agritourists, residents, and researchers get the full agrarian experience. This is achieved by creating landform terraces for agricultural research, incorporating a trail system to provide a path for circulation of the entire property, leaving some land a pasture to encourage individual interaction and way finding, and lastly, providing destinations within the landscape such as a fish hatchery and a small pier reaching into the Holsten River.

One of the boldest moves made in the main architectural project was tucking the majority of the program underground. This makes a minimal footprint on the site, with the roof becoming part of the landscape and only a sliver of program revealing itself through the northeastern facade. This move was encouraged by the change in topography and benefits from the thermal qualities of the earth in this southern climate.



Figure105: View from Pavilion
Source: Author

With the roof garden becoming landscape and the incorporation of linear orchards, framed views created, providing picturesque scenes of the

landscape beyond. This landscape is made complete with propagation fields, which double as pleasure gardens, and sunken courtyards which provide a visual connection between 'overworld and underworld' and also allow additional natural light into the space below.

The final concept resides in the interior of the main building. This interior space has been conceptualized as a landscape. Large, market hall spaces exist within a grid of columns, allowing for multiple programs and functions. Floating objects sit as volumes within this landscape, standing alone to show their importance, housing main programmatic components. This interior landscape extends into the exterior landscape through an expansive glass facade and on to a portico which provides epic views of the rural landscape beyond.

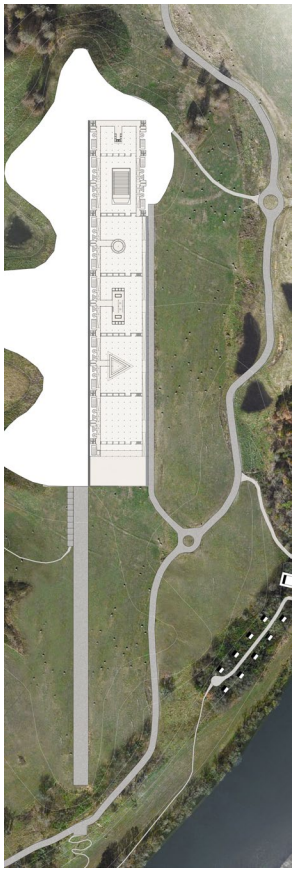

Figure 106: Interior Plan
Source: Author



Figure 107: Longitudinal Section
Source: Author

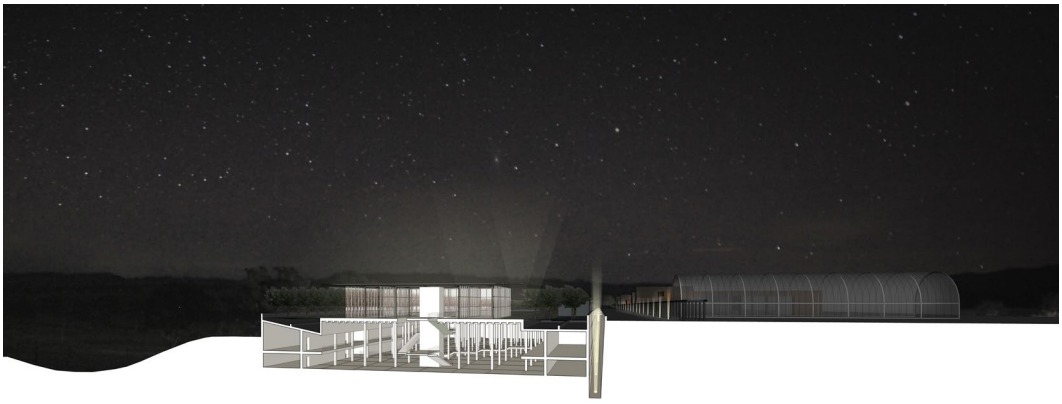

Figure 108: Sectional Perspective
Source: Author

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APPENDIX





agri[culture]

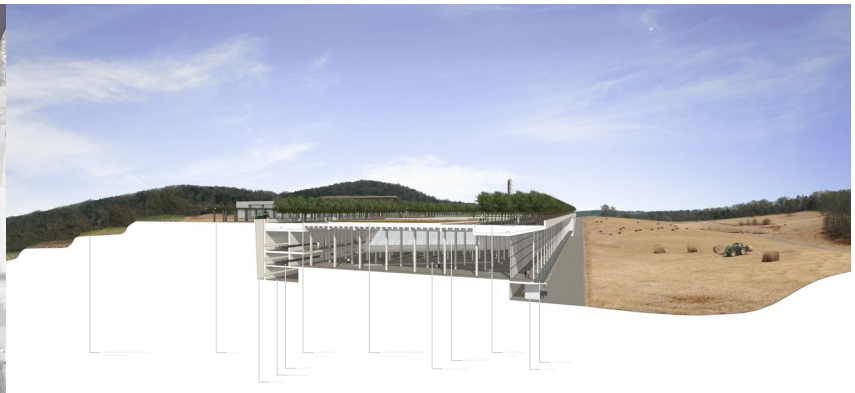
an alternative paradigm for the american landscape

melissa morris | masters of architecture | arch 500 | advisor: hansjörg göritz | committee: james rose + fk davis

framing







sectional perspective step



longitudinal section elevation 1:80

appropriating







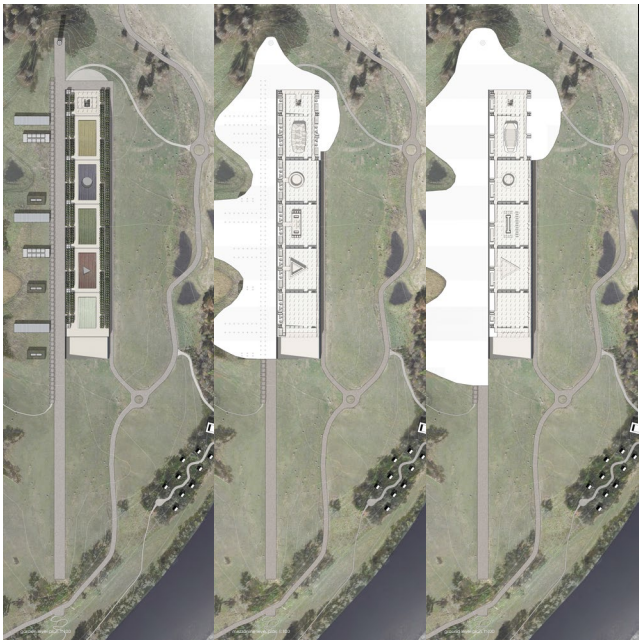




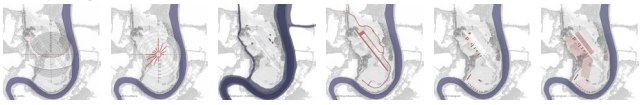
situating

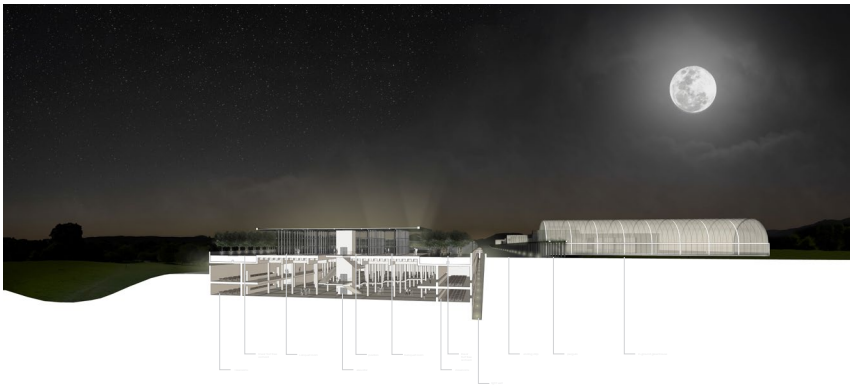






analyzing





sectional perspective-night



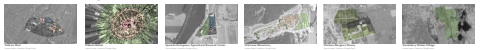
longitudinal section 1:50

supporting





referencing



forming



VITA

Melissa Morris grew up on a small family farm in Sweetwater, Tennessee with a sincere appreciation for the agrarian landscape and it's importance to society and civilization as a whole. She went on to study Interior Design at Carson Newman University and received a Bachelor of Science in 2010. During her undergraduate education, She completed an internship at a small architecture firm. This experience was inspiring and ultimately, led her to pursue a career in the field of architecture. It became important to expand her knowledge of form and space, and to acquire a more wholistic understanding of the build environment. She moved to Knoxville, Tennessee to acquire a Masters of Architecture from the University of Tennessee. After graduation, She plans to pursue long term career goals of working abroad, acquiring an architectural license, and ultimately practicing with the concept of stewardship and giving back to the community through conscientious design.