

*New Market Plains*

**N M P**



*est. 1747*

*11111 W Baldwin*

NEW MARKET PLAINS VINEYARD REDESIGN



# New Market Plains Vineyard Redesign

University of Maryland College Park Department of Plant Science and Landscape Architecture | LARC 340 BLA 3rd Year Studio | Fall 2018

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**Landscape Architecture**  
DEPARTMENT OF PLANT SCIENCE AND LANDSCAPE ARCHITECTURE



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# Executive Summary

New Market Plains Vineyard is situated on a 260+ acre farm in the town of New Market within Fredrick County, Maryland. The town of New Market and the owners of New Market Plains Vineyard, in coordination with the Partnership for Action Learning in Sustainability (PALS) and undergraduate Landscape Architecture students at the University of Maryland, are interested in developing the site to support and expand amenities available to visitors. Because the property has been in the family since its acquisition in 1747, the owners have a strong tie to the land and hope to continually display its historical significance and interpretive natural systems as part of the project, as they expand the event potential and expanded operations of the winery. The town of New Market is interested in promoting tourism and sharing in the rich history of the site. The site is impacted by highway noise, rock outcroppings, invasive plant species and some hydric soils. The attributes include vistas to the surrounding countryside, abundant water supply, meadows, grasslands, forest, elevation and exposure suitable for growing grapes, and excellent public access.

To approach this project, four design teams were tasked with identifying the site's opportunities and constraints with a focus on historic qualities, natural systems, and expanding vineyard operations. Each team expanded on these opportunities and constraints, some placing emphasis on business operations and others on historic value and educational opportunities. Using this analysis of the existing site conditions, the teams developed individual design programs of what elements they felt would best realize the property's full potential.

The teams made two visits to the site over the course of the project, to locate and identify areas of significance to their designs. Halfway through the design process the teams delivered an interim presentation to the vineyard owners; to receive feedback on the direction their work was taking. Using this review the teams completed their final designs, which include a master plan for the site, an enlarged plan for the main winery complex, and a grading plan for a new underground wine storage facility. The size of the site facilitated the implementation of nature trails of varying difficulty, which each team has incorporated in their design. Each individual member of the class also participated in a competition to design the new entry sign for the vineyard. The winning sign was designed by Rachel Greenhawk and is displayed on the cover of this document.

Compiled in this booklet are the materials produced by the teams over the duration of this project. The results are a diverse and innovative selection of proposals, with the goal of serving as an examination of possibilities for future development. These designs provide the owners with various suggestions for how to restore their property and to elevate New Market Plains Vineyards into a thriving local destination.



Existing bank barn (Evan Lipka)



Vista overlooking vines (Evan Lipka)

# Site Analysis

## Introduction

New Market Plains Vineyards is located on the former estate of Nicholas Hall, Sr., the co-founder of New Market, MD. New Market Plains is now owned and operated by Howard and Susan Wilson. Susan is a direct descendant of Nicholas Hall, Sr. and the farm is currently in its 10th generation of family stewardship.

During site analysis, the elements below were researched and appropriately applied to design solutions:

- History
- Viticulture
- Agricultural Preservation
- Soils
- Hydrology
- Commercial Development
- Wildlife
- Regional Context



Figure 2. Agricultural Preservation delineation



Figure 3. Soil index at New Market Plains Vineyards (USDA Soil Survey)

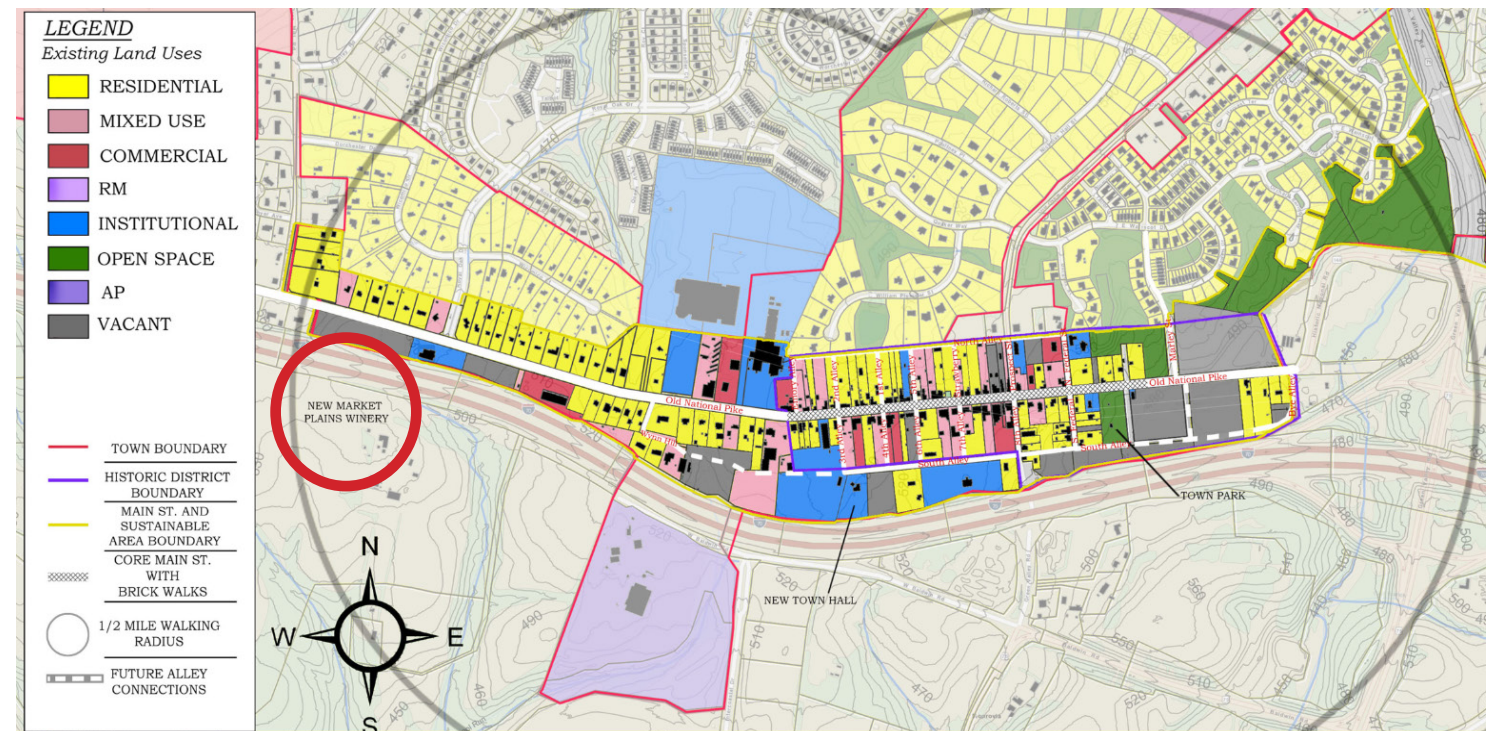
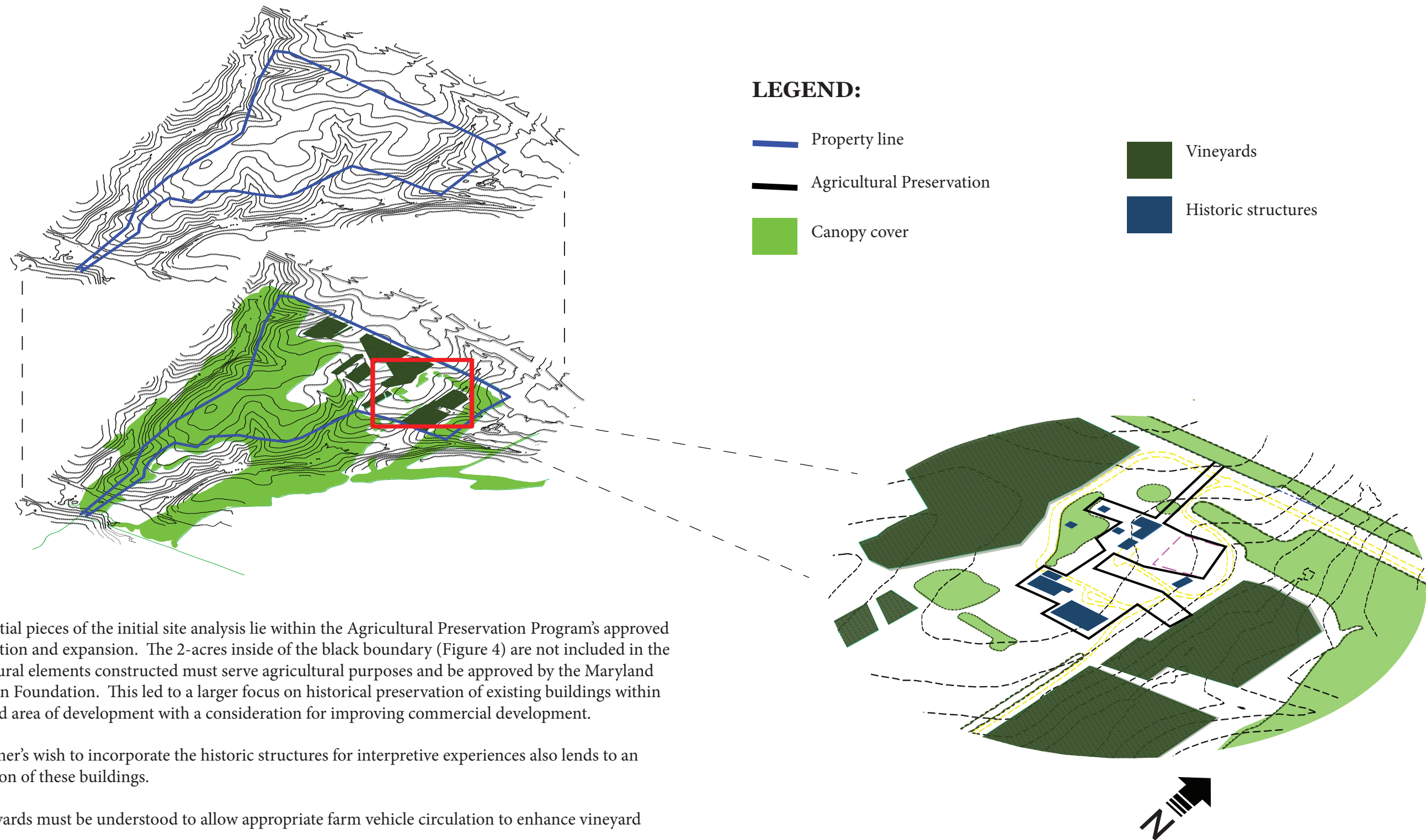


Figure 1. New Market land use - mainly residential

Frederick County, Maryland (MD021)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BkD	Brinklow-Blocktown channery loams, 15 to 25 percent slopes	12.5	4.7%
CcC	Catoclin channery loam, 8 to 15 percent slopes	7.7	2.9%
CeB	Catoclin-Spoilville complex, 3 to 8 percent slopes	23.2	8.7%
CeC	Catoclin-Spoilville complex, 8 to 15 percent slopes	1.5	0.6%
CeD	Catoclin-Spoilville complex, 15 to 25 percent slopes	56.3	21.1%
GhB	Glenelg-Blocktown gravelly loams, 3 to 8 percent slopes	2.3	0.9%
GhC	Glenelg-Blocktown gravelly loams, 8 to 15 percent slopes	15.1	5.7%
HdA	Hatboro-Codorus silt loams, 0 to 3 percent slopes	8.1	3.0%
LyC	Linganore-Hyattstown channery silt loams, 8 to 15 percent slopes	6.7	2.5%
MeB	Mt. Airy channery loam, 3 to 8 percent slopes	3.2	1.2%
MmC	Mt. Zion gravelly silt loam, 8 to 15 percent slopes	1.7	0.6%
MnB	Mt. Zion-Rohrersville complex, 3 to 8 percent slopes	74.3	27.9%
MuC	Myersville gravelly silt loam, 8 to 15 percent slopes	6.2	2.3%
RoB	Rohrersville-Lantz silt loams, 0 to 8 percent slopes	47.7	17.9%
Totals for Area of Interest		266.5	100.0%



# Site Analysis Inventory



The most influential pieces of the initial site analysis lie within the Agricultural Preservation Program's approved area for construction and expansion. The 2-acres inside of the black boundary (Figure 4) are not included in the program. Structural elements constructed must serve agricultural purposes and be approved by the Maryland Land Preservation Foundation. This led to a larger focus on historical preservation of existing buildings within the site's approved area of development with a consideration for improving commercial development.

The property owner's wish to incorporate the historic structures for interpretive experiences also leads to an increased valuation of these buildings.

Location of vineyards must be understood to allow appropriate farm vehicle circulation to enhance vineyard operations.

Figure 4. Site analysis (Rachel Greenhawk)

# History

## Frederick County

The Frederick County was founded in 1745. Upon colonist arrival, the land was fertile and ripe land for agricultural production. They mainly produced tobacco, fruit, grain and livestock, and Fredrick County became a marketing center. As a result of the technological advances that were occurring in agriculture during the 1700's and 1800's, there were changes in what was predominantly produced. With the increasing access to materials and markets in other towns via railroads, many well- off Maryland residents established large farms in Frederick County and built high-styled houses in town.

## New Market Town

Plummer and Hall bought the land because of its proximity to the Baltimore Turnpike and realized the commercial potential for the area. They, in turn, designated a half-mile section of the road as New Market's Main Street. Their intentions were to attract travelers to a place they could rest, eat, shop, and trade. The town became very successful and attracted a lot of business. The town of New Market eventually became annexed into the County of Frederick and more recently established as a Historic town.

## New Market Plains

Nicholas Hall acquired the property in 1747. He purchased approximately 1,080 acres. Lots were then sold to develop the town in 1792. Today, many of the old out buildings remain intact or restored, including: a stone dairy/ice house, log smoke house, log chicken house, log wagon shed and stable, tenant house, bank barn, and a tile dairy barn built in 1941. This tile dairy barn is now the winery and the property is owned and operated by Howard and Susan Wilson. In 2014, the first vintage was harvested and was bottled in April 2015. The first release included Chardonnay, Rich Forest Chardonnay and Rosé.

## New Market Plains



Figure 6. Homestead on site (Maryland Historical Trust)

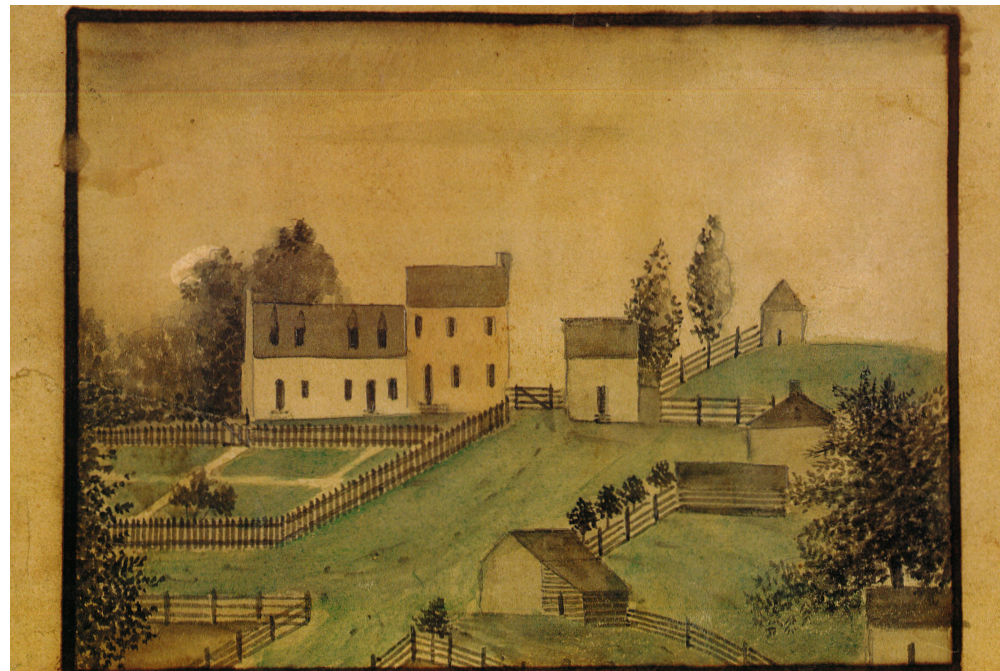


Figure 7. Hall property (Town of New Market Maryland, 2019)

## Frederick County



Figure 5. Horse carriage (Town of New Market Maryland, 2019)

## New Market Town



Figure 8. Old Baltimore Turnpike (Town of New Market Maryland, 2019)

# Regional Impacts

## Summary

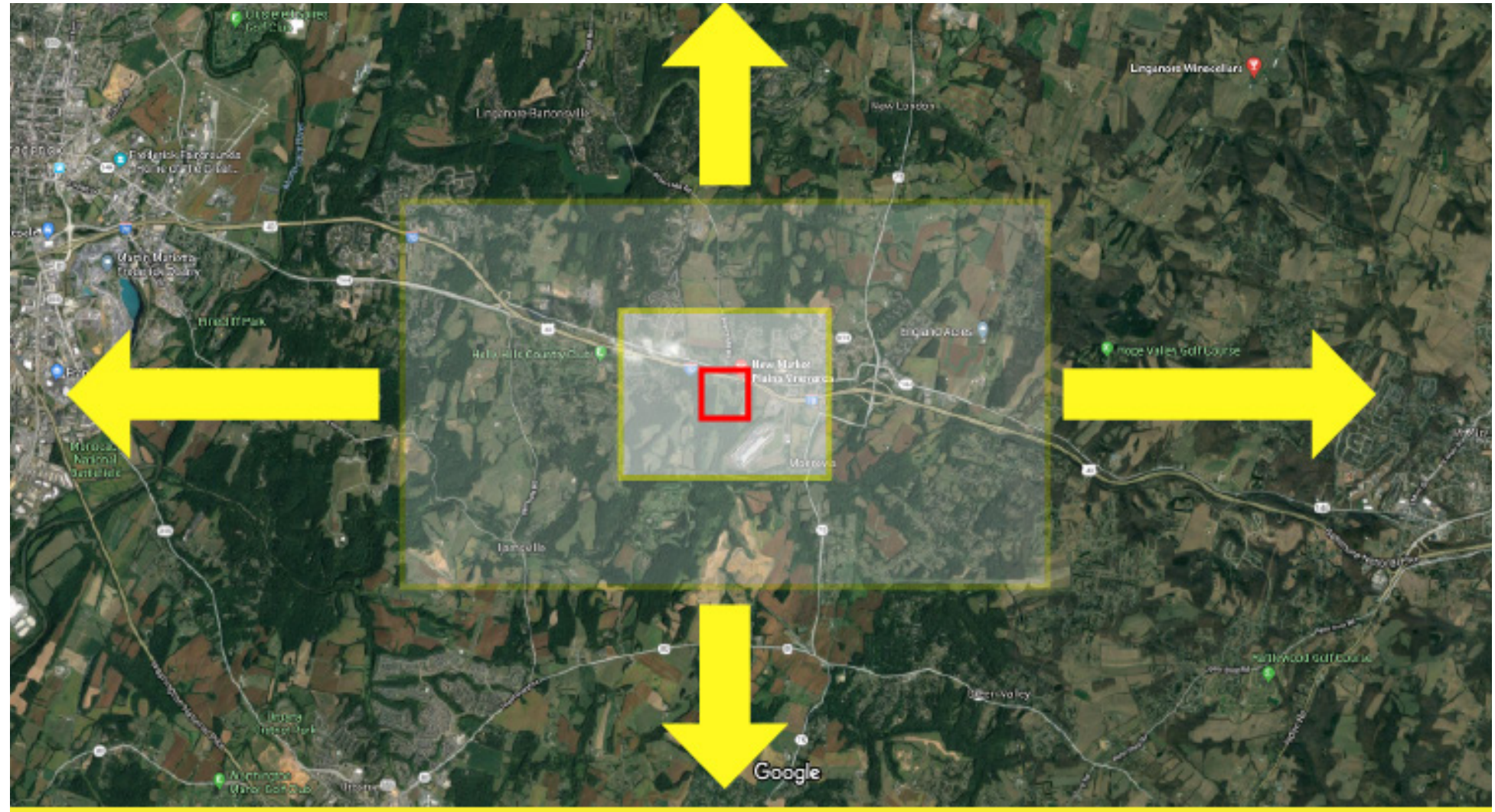
There are many external factors that affect the vineyard in positive and negative ways which must be studied extensively before considering its redesign. These factors include roads, bodies of water, commercial and residential properties, and the vineyard's proximity to each of these. These relationships can be best understood by separating the region into three tiers. The first tier includes the towns of New Market and Monrovia; the second tier expands the coverage and adds Ijamsville; the third and largest tier is the surrounding area which includes Frederick, Urbana, Mt. Airy, New London, and Green Valley.

The roads immediately adjacent to the property facilitate access into the vineyard. Interstate 70 is a highway that runs across the United States and cars from all over the country drive past New Market. Transportation of goods in and out of the vineyard is also facilitated by I-70. The proximity to the road alternatively creates constraints for the property. The negative effects of I-70 include noise, smog and air pollution, habitat fragmentation, chemical spills coming from vehicles, such as oil and gas, and traffic. Overall, I-70 has a huge impact on the vineyard. Noise pollution is a problem at a place that promotes relaxation and tourism.

Bodies of water play an important role in all ecosystems. They increase biodiversity and create a freshwater source for the community. The site's hydrology suggests rainwater movement towards a creek surrounding the site. On the southern side of the site, a natural spring lies overgrown. This spring could be easily beautified to create an educational experience for visitors.

The proximity of other establishments to the vineyard increases customer potential. According to the owner of the vineyard, a mutualism exists between his business and the other two vineyards in the region, Linganore Winecellars and Hidden Hills Farms and Vineyard. They send customers to one another when they encounter a different wine preference or different services that one does not provide. The proximity of other farms and vineyards does not cause a problem; they work together to promote each other's businesses and do not see it as negative competition. The proximity of Frederick and Urbana increases the flow of people that are exposed to the area and the vineyard.

## 3-Tiered Regional Inventory



### Roads, Establishments and Bodies of Water

**1 mile radius:** Roads: I-70. Route 144. Establishments: Costco, Adventure Park, Holly Hills Country Club, Hilltop Convenience and Liquors. Bodies of water: Wood Run, School Run, Davis Branch Creek, and Bush Creek.

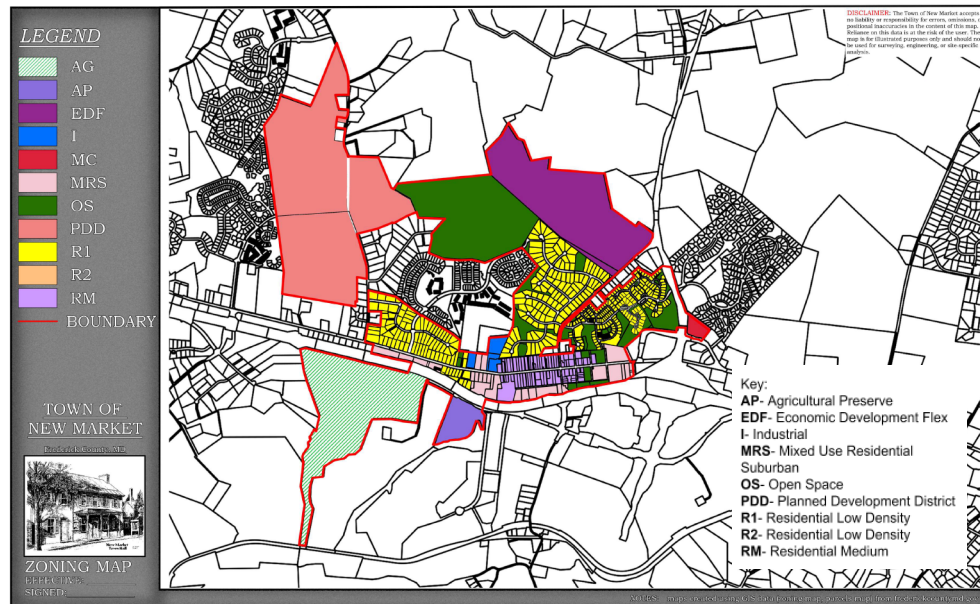
**3 mile radius:** Roads: Route 40 and Route 75. Establishments: Gaver Farm, England Acres, Whiskey Creek Golf Course, and Food Lion. Bodies of water: East Branch Creek, Davis Branch Creek.

**10 mile radius:** Roads: Route 80 and Route 355. Cities: Frederick and Urbana. Establishments: Hidden Hills Farm and Vineyard and Linganore Winecellars. Bodies of water: Lake Linganore and Monocacy River.

**Figure 9.** Regional map (Heyner Pajaro)

# Zoning and Utilities

## Agriculture Zoning



New Market Plains Winery is zoned for Agricultural use. The land can be used for any agricultural purpose such as animals, agricultural plants, equipment, etc. The property owners have expressed that they plan for an additional agricultural structure, a tasting room, to be added to the site. This has multiple implications for zoning. We must consider the parking requirements and zoning ordinance provisions that are currently in place for a tasting room to be located on the farm. Parking requirements will have to be determined by the planning commission. However, according to the Frederick County Zoning Ordinance, a small loading space must have the minimum dimensions of 9 ft. in width, 20 ft. in length, and 10 ft. in height clearance. In addition, a large loading space must have the minimum dimensions of 12 ft. in width, 50 ft. in length, and 15 ft. in height clearance. The zoning ordinance also gives clear provisions for the tasting room, which will be an important part of the winery in the future. The provisions are as follows:

- Parking provided at a rate of 1 space per 50 square feet of floor area devoted to customer service, excluding food preparation and storage area
- Parking not be in setback areas
- These uses are not subject to lot frontage requirements

The Zoning Ordinance also gives clear provisions for the setbacks that are allowed for the tasting room. The front setback must be at least 40 ft., side and back setbacks must be at least 50 ft. The height of the structure is a maximum of 30 ft.

## Agricultural Preservation Program

New Market Plains Winery is part of the Agricultural Preservation Program. Participating in this program protects their land from development and grants them the lowest possible property taxes. The government originally created this program to protect farmland and encourage development in more dense areas.

As part of the program, the farm can use the land for agriculture, forestry, or programs that support agriculture or forestry. For example, they can raise livestock, grow crops, have a winery, create a bed and breakfast, etc. If they want to add a structure (tasting room, events barn) it needs to be related to the agricultural use of the property and they will need to have their request approved by the MALPF (Maryland Land Preservation Foundation) Board of Trustees. Representatives from the foundation can come and inspect the property, however, they are not allowed to inspect inside of buildings. Finally, a soil and water quality plan must be implemented within 10 years of the property becoming part of the Agricultural Preservation Program and followed thereafter.

The entirety of the property except for 2 acres is part of the Agricultural Preservation Program. The map above shows what land is not included in the Agricultural Preservation Program.



Map of land not included in Ag Pres.

## Utilities

New Market Plains Vineyard has several different utilities concentrated around the main compound and housing area. The basic utilities fall under several categories such as storm drains, water lines, and electrical lines which all need to be about 3 feet deep. There are also cable and light lines which both need to be at least 24 feet deep and gas lines which need to be at least 4 feet deep. The utility that is built the lowest is sanitation and septic lines (for obvious reasons). It is important to be aware of where these utilities are when designing because they provide limits on what can be built where and how deep you can dig.

The vineyard has a railroad right of way (light green) directly parallel to the MCI (pink) utility line, both running through the most southern part of the property. To the northeastern edge of the property there are some abandoned phone lines (purple) underground. There is a well water line (green) running from the house to the barn furthest west. Directly behind the barn to the west are approved septic fields and sand mounds (brown). Between these septic fields, there is an AT&T long line (orange) running diagonally through the property. The below ground electric lines (yellow) connect to all the buildings on the property. There are two above ground electric service lines (red), one bordering the northeastern vines and one that cuts across the neighboring highway. The last two utility lines both run alongside the highways, the Frederick Co. 18-inch line and 30-foot R.O.W. (light blue) span the entire highway to the north. The underground Verizon phone lines (dark blue) start at the main house on the property then goes to the highway and follows it east.

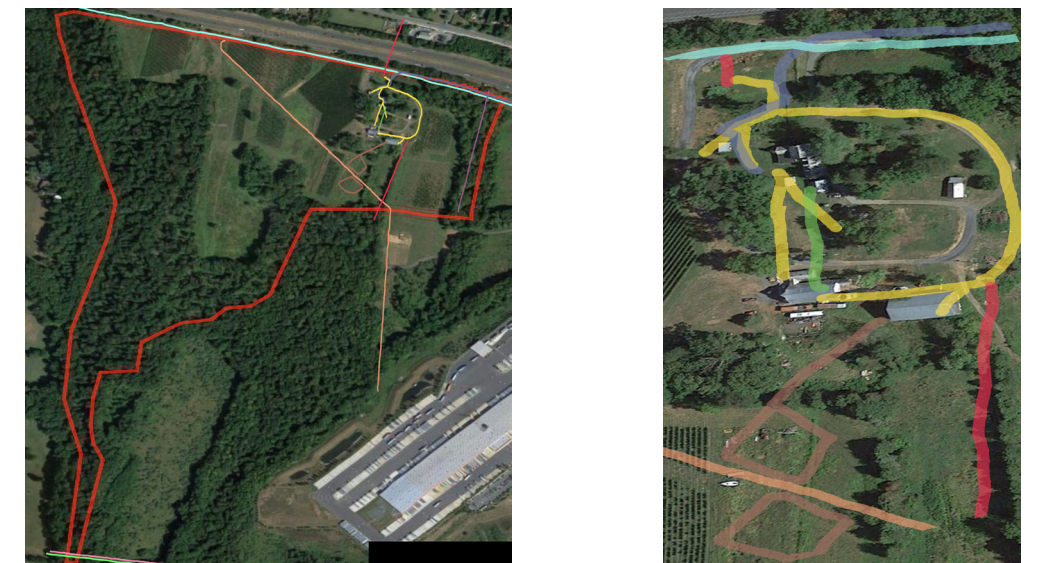


Figure 10. Layout of utilities on site, full site view and zoomed in on the residential area (Jovan Jackson)

# Climate

## North Eastern Humid Subtropical

- New Market, Maryland is part of the subtropical climate zone 6b. The zone is characterized by hot, humid summers and moderately cold winters. Minimum temperatures average between -5 degrees and 0 degrees.
- There are four distinct seasons in New Market where summers and winters exceed human comfort and spring and fall are ideal for comfort. There is low humidity in the winter and hot summers with moderate humidity.
- The growing season is between April 15th and October 23rd. The wet season is from April 2nd to August 22nd with the most rainfall around May 19th and the dry season is from August 22nd to April 2nd.
- The summer winds blow from the southwest while the winter winds blow from the northwest.
- The number of natural disasters in Frederick County (19) is greater than the US average (13).
- New Market-area historical tornado activity is slightly above Maryland state average, and the New Market-area is also 11% higher than the overall U.S. Historical earthquake activity is near Maryland state average. It is 85% smaller than the overall U.S. average.

## Hardiness Zone 6b

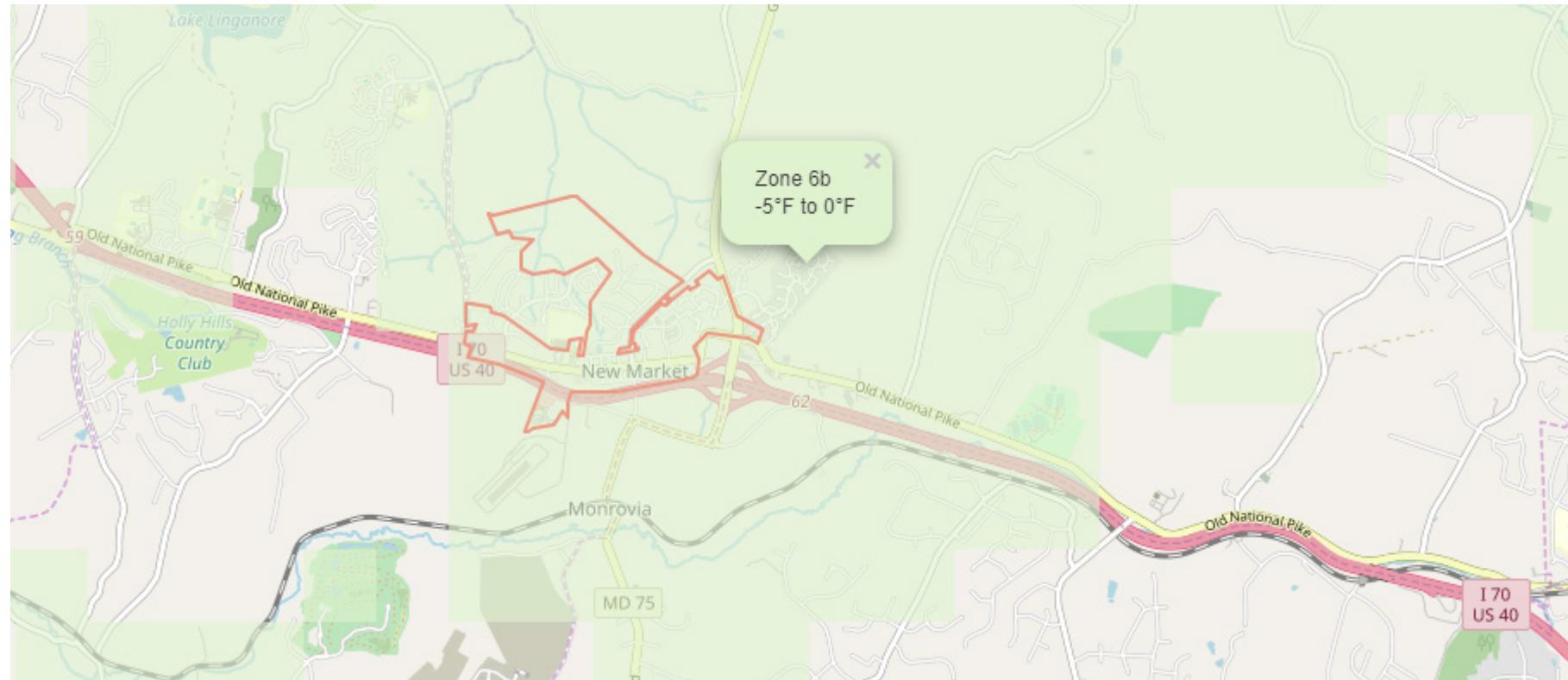


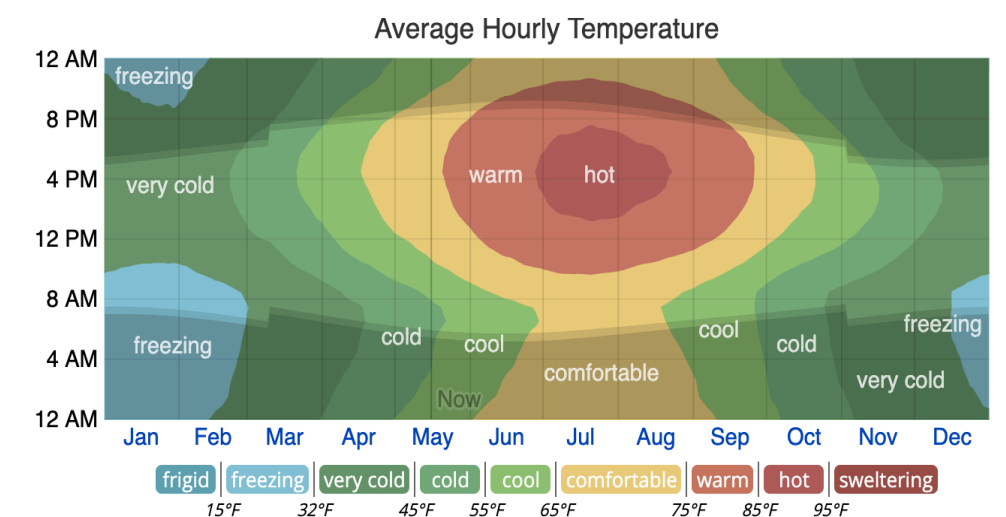
Figure 11. New Market hardiness (PlantMaps, 2019)

## Annual Averages

CLIMATE	New Market, Maryland	United States
<a href="#">Rainfall (in.)</a>	43.1	39.2
<a href="#">Snowfall (in.)</a>	20.8	25.8
<a href="#">Precipitation Days</a>	97.0	102.0
<a href="#">Sunny Days</a>	194	205
<a href="#">Avg. July High</a>	86.8	86.1
<a href="#">Avg. Jan. Low</a>	23.3	22.6
<a href="#">Comfort Index (higher=better)</a>	52	54
<a href="#">UV Index</a>	4.2	4.3
<a href="#">Elevation ft.</a>	528	2443

Figure 12. New Market, Maryland climate market (BestPlace)

## Comfort Index



The average hourly temperature, color coded into bands. The shaded overlays indicate night and civil twilight.

Figure 13. Comfort Index (Weather Spark)

# Soils & Drainage

## Soil

Soil is slowly formed from the physical, chemical, and biological weathering of rocks. Soil composition is the result of constant interactions between mineral particles, organic matter, air, water, and living organisms. Several factors affect soil formation--parent material, living organisms, climate, topography, and time.

The mineral particles that make up soil are sorted by size into sand, silt, and clay--sand is the largest particle and clay is the finest. Most soils are a combination of all three particle classes. The percentage of each constituent particle is what gives soil a texture. Soil behavior is influenced by texture and structure. For example, the best farmland is made up of granular soils with a loamy texture because they hold water and nutrients well.

Soils are also classed into Hydrologic Soil Groups A, B, C, and D. Group A soils are sand, loamy sand or sandy loam with low runoff potential and high infiltration rates; consist mainly of very well drained sands. Group B soils are silt loam or loam with moderate infiltration rates and are moderately well to well drained. Group C soils are sandy clay loam with low infiltration rates. Group D soils are clay and have the highest runoff potential with very low infiltration rates.

New Market Plains Vineyard has soils with parent material formed in an era once thought to predate even the emergence of life, 600 million years ago. The site is composed primarily of soils from Hydrologic Soil Groups B, C, and D. These soil compositions have significant implications for proposed vegetation, stormwater management practices, and soil health management. Clay presents challenges for stormwater infiltration and the ability for plants to establish effective root systems as well as regulate temperature.

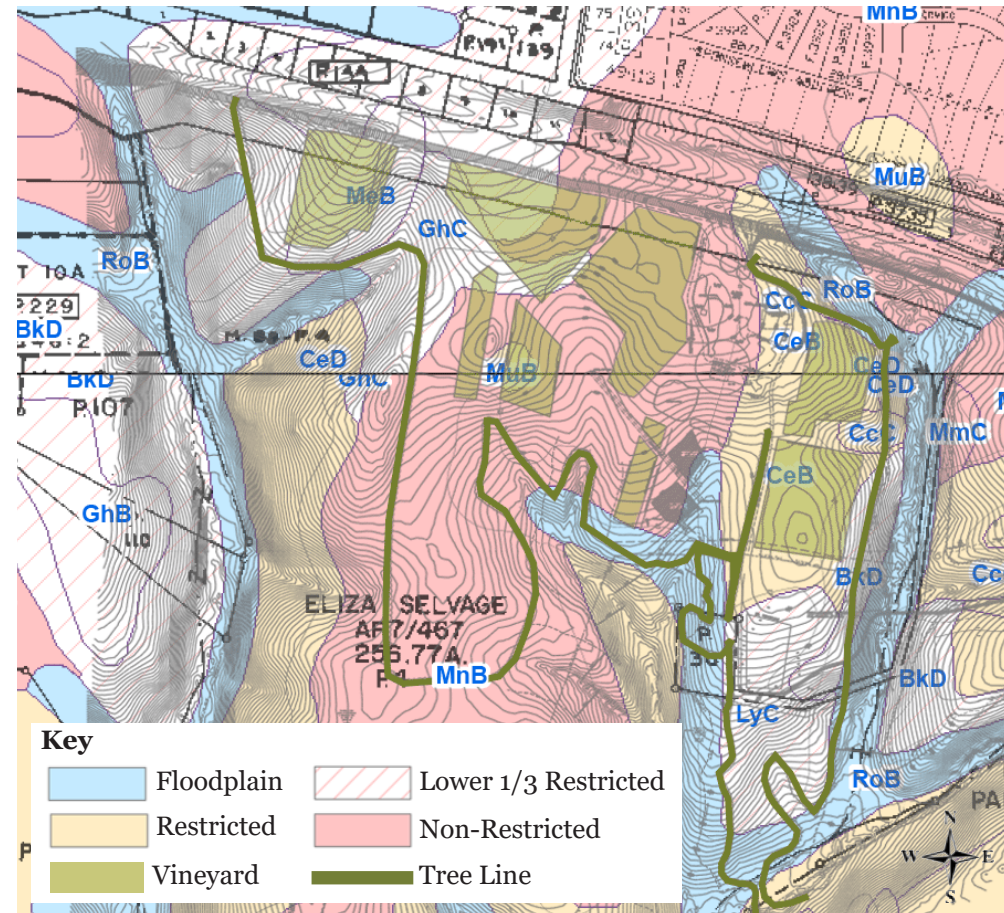


Figure 14. Frederick, MD Soil Map (Frederick County Government)

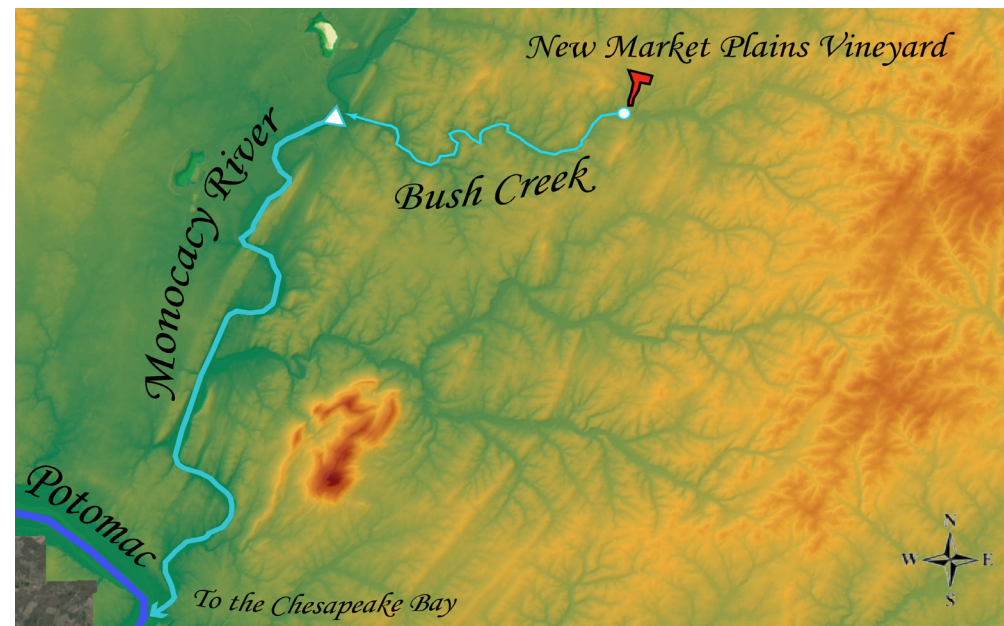


Figure 15. Elevation map and hydrology (MD iMap, 2019)

## Drainage

New Market lies in the Piedmont Region of Maryland. These regions vary in geo-physiology, dictating their drainage patterns just like the flora and fauna they support. Translated from French meaning “foothills,” this region marks the transition from the Appalachian Mountains to the eastern Coastal Plains. The Piedmont is hilly, rocky, and fertile for agriculture.

Valleys and hills are defined by gradient changes in elevation, so water movement is predictable and concentrated toward small streams scattered throughout the valleys, ultimately reaching the Atlantic Ocean. The majority of surface water runs downhill, eastward across the farm. To the east of the Winery is “Wood Run,” (see Figure 16 below) which soon becomes “School Run,” just before spilling into Bush Creek just to the south. To the west is a small seasonal stream that trickles down from a retention pond north of Interstate 70, east of the New Market Mini Storage (10630 Old National Pike, New Market, MD 21774). Other sources of water on site are natural springs, and outfall from I-70’s stormwater.

From here Bush Creek empties into the Monocacy River (see Figure 15), at a junction that harbored a Civil War Battle in July 1864. This leads to the Potomac, known as the “Nation’s River,” eventually emptying into the great Chesapeake Bay.

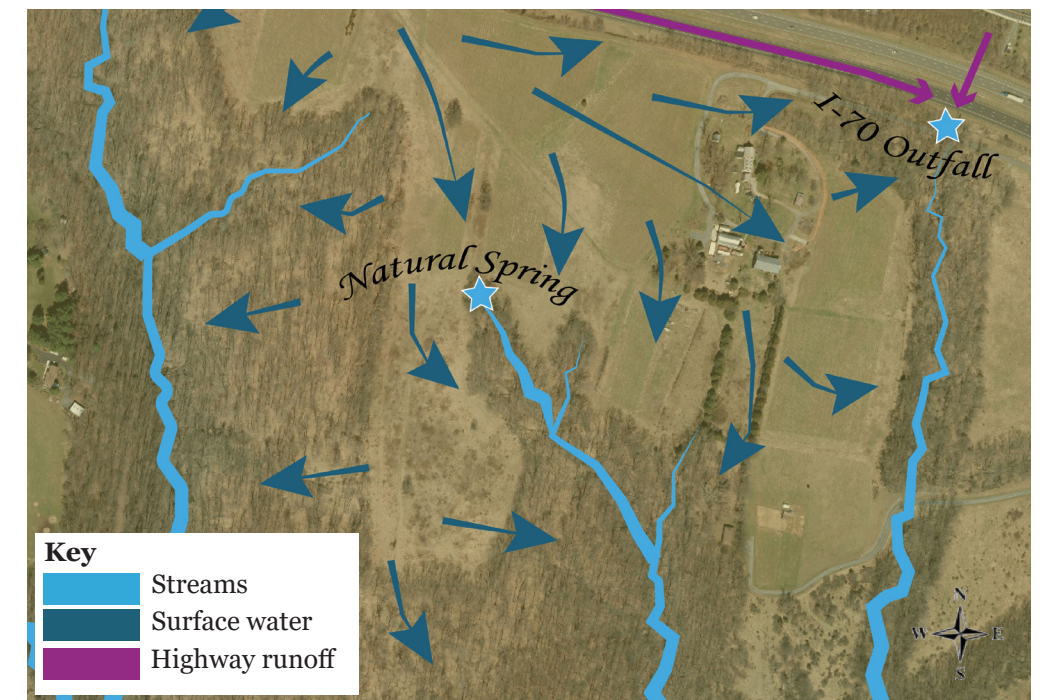


Figure 16. Hydrology (MD iMap, 2019)



Metamorphic Gneiss; Parent Material



Phyllite; Parent Material



Metamorphic Schist; Parent Material



Catoclin Greenstone from Precambrian Era; Parent Material

# Viticulture

*Vitis vinifera*, the common grape, is native to Western Europe and Persia. Due to its adaptability, *V. vinifera* is currently grown on every continent. Grapes are classified as berries that grow in clusters. Ideal growing conditions include temperatures from 50-68 degrees Fahrenheit, 27 inches of annual rainfall, 1300-1500 hours of sunlight a year, and well drained soils situated on sloped land.

When grapes are grown in a warmer climate, they will ripen faster and have a higher sugar content with less acidity. When they are grown in a colder climate, they will ripen earlier in the season and taste fresher but will be more acidic.

The biggest threat grapevines face is weather. Grapes and their leaves can be badly damaged in frosts and during storm events producing strong winds or hail. Grapevines are susceptible to powdery mildew, as well as the yellowing and holes of fanleaf, caused by nematodes. Another major pest is the garden weevil. Garden weevil damage can be seen in Figure 19.

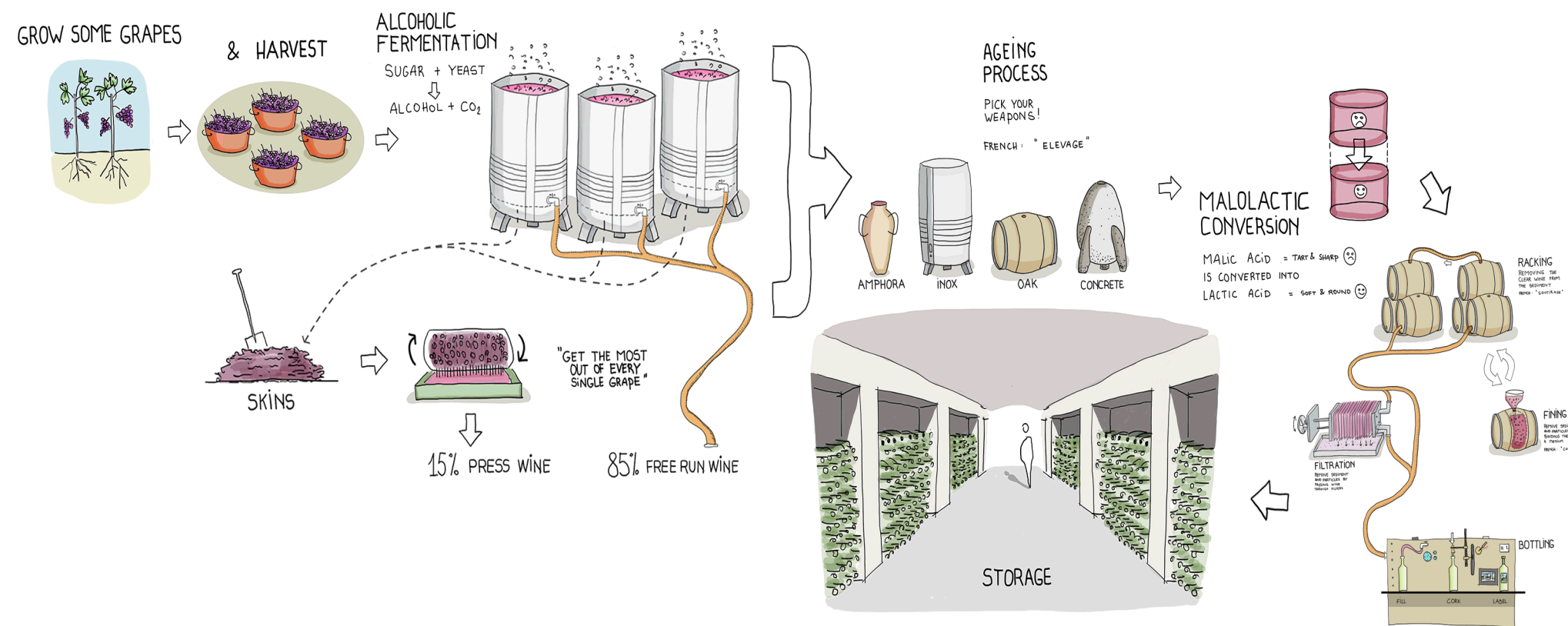


Figure 17. Winemaking process (Jelle de Rock, Winefolly)

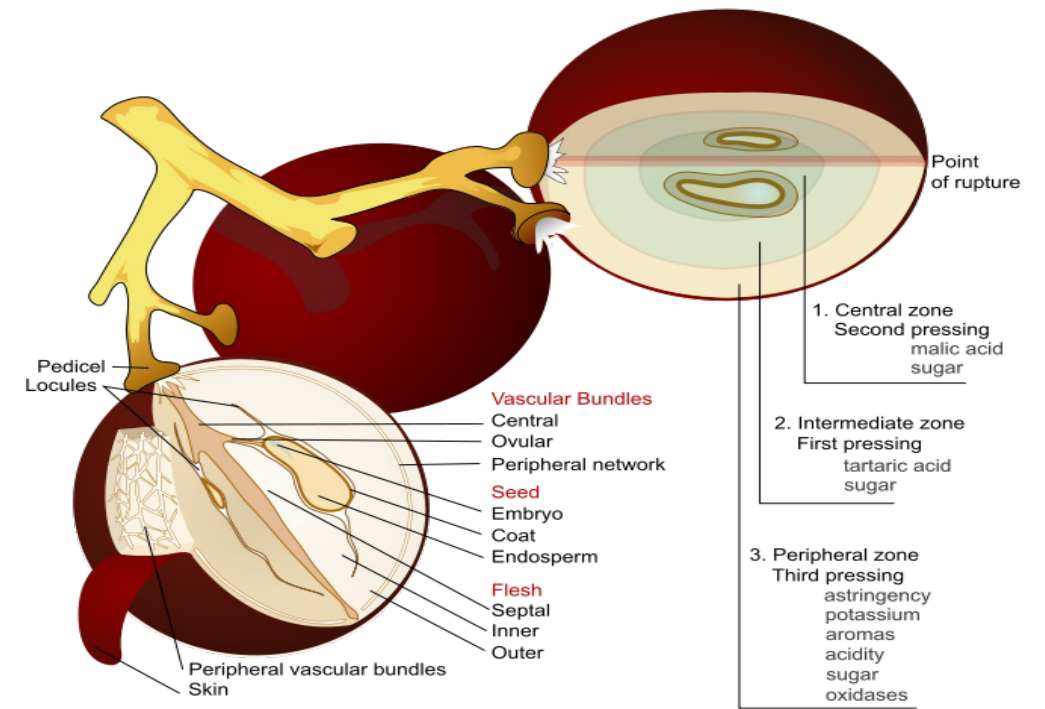


Figure 18. Grape anatomy (The Winemakers Academy)



Figure 19. Weevil damage (Western Australia Department of Agriculture and Food)

# Vegetation

## Site Analysis



Figure 20. Forest Stand Delineation (Michael Kay, Project Manager)

## Invasives

The site is overgrown with invasive species that girdle the trees and prevent understory vegetation from getting adequate sunlight. Smothering inhibits the growth of native species and kills them over time. There are various techniques to remove invasives from a site, but these tend to be physically difficult and can take time to fully remove all species. Common techniques include using chemicals and manually removing the plants from girdled trees and groundcover.















Girdling



Smothering



## Existing Vegetation

 Black Walnut Sun: ☀ Soil: Sand, clay, loam Moisture: Moist, wet (Arbor Day Foundation)	 White Oak Sun: ☀☀ Soil: Sand, clay, loam Moisture: Moist (Arbor Day Foundation)	 Tulip Poplar Sun: ☀ Soil: Sand, clay, loam Moisture: Moist (Arbor Day Foundation)
 Silver Maple Sun: ☀☀ Soil: Sand, clay, loam Moisture: Moist (Arbor Day Foundation)	 Poison Ivy Sun: ☀☀ Soil: Acidic Moisture: Wet, dry (Clemson HGIC)	 Mile-A-Minute Sun: ☀☀ Soil: Sand, clay, loam Moisture: Wet, dry (NY Invasive Species)
 Green Ash Sun: ☀ Soil: Sand, clay, loam Moisture: Moist, wet (Arbor Day Foundation)	 Jap. Honeysuckle Sun: ☀ Soil: Sand, silt, clay Moisture: Moist (Evan-Claire Schaum)	 Jap. Stiltgrass Sun: ☀ Soil: Acidic Moisture: Moist (Evan-Claire Schaum)
 White Ash Sun: ☀ Soil: Sand, loam Moisture: Moist, wet (Arbor Day Foundation)	 Tree of Heaven Sun: ☀☀ Soil: Sand, clay, loam Moisture: Moist, dry (Evan-Claire Schaum)	 Amur Honeysuckle Sun: ☀☀ Soil: Sand, clay, loam Moisture: Wet, dry (Evan-Claire Schaum)

## Proposed Vegetation

 Pin Oak Sun: ☀ Soil: Sand, clay, loam Moisture: Moist, wet (Arbor Day Foundation)	 Sweetgum Sun: ☀ Soil: Sand, clay, loam Moisture: Moist, wet (Arbor Day Foundation)	 Eastern Red Cedar Sun: ☀☀ Soil: Sand, clay, loam Moisture: Moist, wet (Arbor Day Foundation)
 Red Maple Sun: ☀ Soil: Sand, clay, loam Moisture: Moist (Arbor Day Foundation)	 Persimmon Sun: ☀ Soil: Sand, loam Moisture: Wet, Moist (Gardening Know How)	 Paw Paw Sun: ☀ Soil: Sand, loam Moisture: Moist (Gardening Know How)
 Honey Locust Sun: ☀ Soil: Sand, clay, loam Moisture: Moist (Arbor Day Foundation)	 Serviceberry Sun: ☀☀ Soil: Sand, clay, loam Moisture: Moist (Arbor Day Foundation)	 America holly Sun: ☀☀ Soil: Sand, loam Moisture: Moist (Arbor Day Foundation)
 Witch Hazel Sun: ☀☀ Soil: Clay Moisture: Moist (MO Botanical Garden)	 White Fringe-tree Sun: ☀☀ Soil: Clay Moisture: Moist (MO Botanical Garden)	 Winged Sumac Sun: ☀☀ Soil: Rocky Moisture: Dry (MO Botanical Garden)

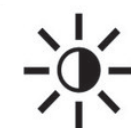
## Proposed Wetland Species

 Cardinal flower Sun: ☀ Soil: Sand, clay, loam Moisture: Moist (Gardening Know How)	 Marsh marigold Sun: ☀ Soil: Clay, loam Moisture: Moist (Gardening Know How)	 Joe-Pye weed Sun: ☀☀ Soil: Clay, loam Moisture: Moist (Gardening Know How)
 Monkey flower Sun: ☀☀ Soil: Clay, loam Moisture: Moist (Gardening Know How)	 Goldenrod Sun: ☀ Soil: Sand, clay, loam Moisture: Moist (Gardening Know How)	 Switchgrass Sun: ☀☀ Soil: Sand, clay, loam Moisture: Moist (Gardening Know How)
 Gamagrass Sun: ☀☀ Soil: Clay, loam Moisture: Moist (Gardening Know How)	 Zebra grass Sun: ☀☀ Soil: Sand, clay, loam Moisture: Moist (Gardening Know How)	 Muhly grass Sun: ☀ Soil: Sand, loam Moisture: Moist (Gardening Know How)

### KEY:



Full sun



Full sun/part shade



Full shade



# Meadows and Wildlife

## Meadows

Meadows are an important component of an environmentally restorative approach to land management of all types. The proper design, installation, and management of meadows create a living landscape composed of diverse communities of plant species that can sustain themselves and thrive throughout North America. It is critical that restorative strategies such as meadow plantings be considered for their ability to resist the succession of deciduous forest creeping into open un-maintained land. Meadows produce a constantly changing pattern of colors and textures throughout the seasons. Much of the landscape once featured grasslands and prairie-like habitats for many animals, including birds, mammals and insect pollinators.

There are three key meadow types: wet, mesic and dry. A wet meadow is a type of marsh that typically occurs in poorly-drained areas. They are normally drier than marshland, except in periods of exceptionally high water. Most of the time, despite seasonal highs in rainfall, wet meadows are often not inundated in constant water, but their soil is typically always saturated as a result of the water table level. One key benefit of wet meadows is that during periods of excessive rainfall, they collect the runoff and mitigate flood damage to low lying areas. Mesic meadows are an intermediary vegetation community found on soil types ranging from well-drained to semi-poor draining soil with a moderate supply of water. Plants species in a dry meadow enjoy low fertility soil. Lack of moisture leaves the site prone to periodic drought and fire.

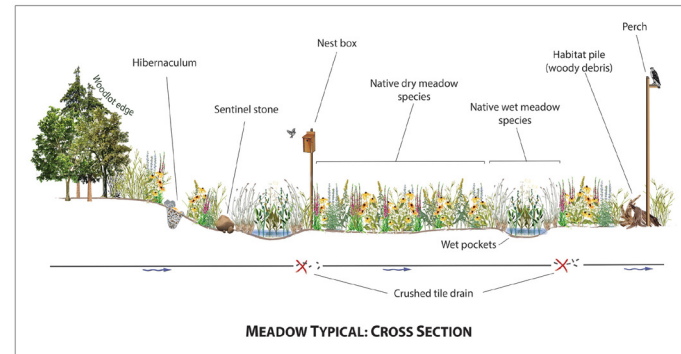
Meadows evolved with fire and depend on it for their ecological health. The land requires periodic fire to survive as productive wildlife habitat. Without ecological benefits of fire, meadows suffer from the effects of invasive weeds. Burning optimizes plant growth by returning nutrients to the soil. Fire produces a healthier, more productive habitat by killing the tops of woody plants such as willow and oak. The resulting shoots provide nutritious browse for deer and other small animals.

Meadows are important shelter for native plants that were once common and thrived along the edges of woodlands, open areas and roadsides but appear less frequently. Meadows and grassy areas can also act as natural buffers that preserve a high-quality standard of waterways, wetlands and water resources. The decline of both plant and wildlife species native to the eastern U.S. is linked to the disappearance of meadows.

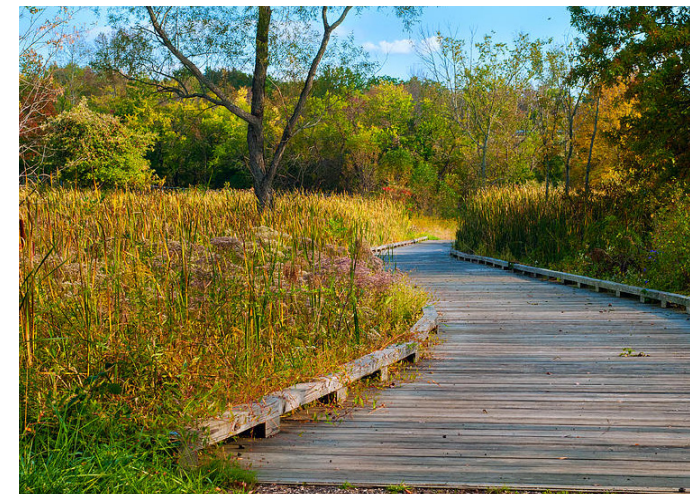
Wildlife on site of the New Market Plains Vineyards can be broken down into eight major categories of habitat. This text will discuss the observed on-site species found the eight main habitats. The most prominent set of species is within the mixed forest habitat. The mixed forest is what surrounds the vineyard and is made up of coniferous and deciduous species.



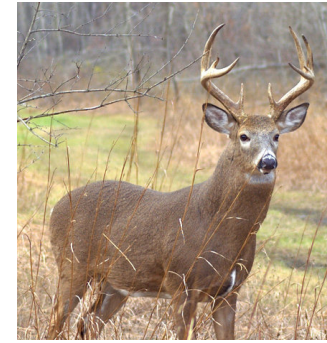
**Figure 21.** Forest edge meadow (Royce Bair, 2010)



**Figure 22.** Meadow cross section (TRCA, 2019)



**Figure 23.** Meadow with boardwalk trail (Kenneth Sponsler, 2013)



*Odocoileus virginianus*  
(Tractor Supply Co., 2019)



*Procyon lotor* (Omega Park, 2016)



*Danaus plexippus* (The National Wildlife Federation)



*Mecynogea lemniscata*  
(Ken, 2011)



*Cambarus bartonii*  
(Michigan Lake Stewardship, 2015)



*Archilochus colubris*  
(Cornell University, 2017)

The most common animal in these forests, also poses the biggest threat to the company. The owner installed a fence around his grape growing property to keep them out. This species is the whitetail deer. Other common species in this habitat include the barred owl, red fox, and Eastern grey squirrel.

The next habitat and species list are part of the grasslands or open pasture areas on site. Though they are commonly in the air, one of the species that spends its time feeding on dead prey in grasslands is the turkey vulture, which can very frequently be seen circling above. Others include Eastern rat snakes, raccoons, and woodchucks. Where the vineyard meets the forest is called a forest edge. In this habitat, we are likely to see multiple spiders (orb weaver and yellow garden spider), chipmunks, and more deer.

One request made by the property owner is some form of stormwater remediation. One way this can be incorporated is through implementing a wetland. It is good to understand the species that will be present in the wetlands when designing one or improving one. The three primary species that may be present here are the little brown skink, common garter snake, and common box turtle. There is a small creek cutting through the site with species like the common slider and common crayfish.

Another potential design element is a meadow. This habitat shares a lot of the same species observed in a pollinator habitat (flowers, fruiting plants, etc). The shared species include the monarch butterfly, Western honey bee, and the ruby throated hummingbird.

Lastly are the fauna that feed and hide in decaying plant material and fallen trees. Expected and observed species are carpenter ants, beetles, and brown elfin.

# Interpretive Experiences

## What makes an experience interpretive?

An interpretive experience is at the core of meaningful education. These types of spaces create more meaningful visitor experiences by creating connections to memory and creating a sense of understanding about a site's history. Freeman Tilden, who is considered the progenitor of formal interpretation, defines interpretation as "an educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information".



**Figure 24.** Private event space potential (Jessica Meilman)



**Figure 25.** Historical learning (Jessica Meilman)

Some examples of interpretive experience can include interpretive walks, audio tours, GPS triggered multimedia tours, and interpretive signs. There are plenty of interpretive experience opportunities on our site including creating potential secluded event areas, winemaking educational experiences, using the historical structures on site as learning experiences, using the beautiful views, and as well as possibly creating a hayride experience for this site specifically.

An interpretive experience should incorporate a sharing of ideas and relationships; it should not just be facts and figures. The space should give individuals knowledge and connections they can take home with them, reflect on, and share with other people. At the foundation of developing an interpretive program is calling people to action, inspiring, and educating individuals in order to create personal and intellectual connections. These connections can be formed through either tangibles (information) and intangibles (meaning).



**Figure 26.** Winemaking (Jessica Meilman)



**Figure 27.** Maximizing views (Jessica Meilman)

# Wine, History, and Nature:

Design Team One

Olivia Duley, Evan Lipka, Allison Lopez, and Audrey Wilke



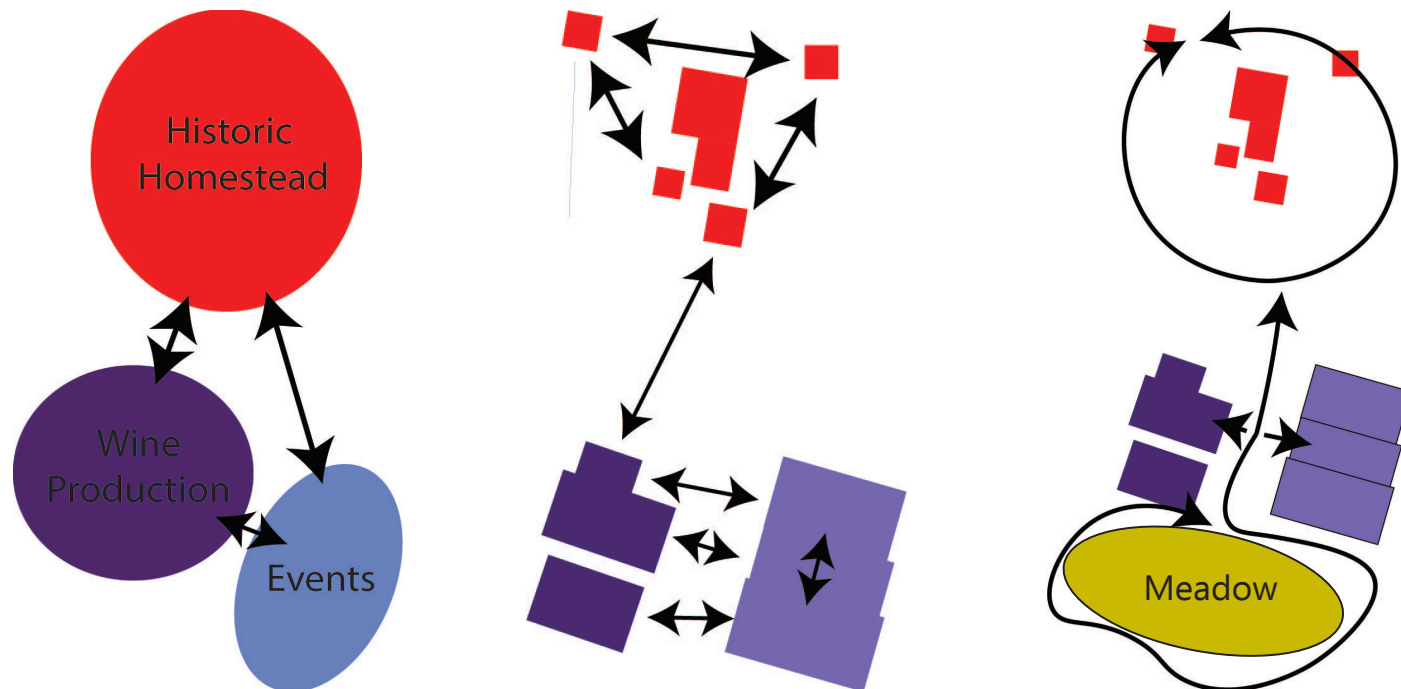
# Wine, History & Nature

## Overall Description

Our goal was to bring new life to the New Market Plains Vineyard while celebrating its history. While walking around the property with the owners, Sue and Howard, we could instantly feel their love for their farm. The beauty and history was all there--all we had to do was frame it. First, we thought about a visitor's experience at the site and what story they would tell their friends later. For this reason, we created a strong tree-lined entrance road that opens up to a view of the homestead before transitioning into the parking area. Visitors will clearly know they arrived at the winery. Next, visitors will be directed to the interpretive trail that connects the parking lot to the rest of the property. This trail will have "picture frame" signs that frame views while having historic figures in them that show how the land was used in the past (an example is on page 24). This trail will lead them to the new winery area, that is described in greater detail on the next page. We created a winery area complete with the existing wine production barn and store, the repurposed bank barn and silos, a new tasting room, storage area, and courtyard (see map).

In doing so we created an area that can be used for normal wine tastings, or for events. We intentionally created spots that frame the best views on the property, such as the outlook and courtyard view of the meadow, and the overlook and wine production area views of the vineyard. When driving home, visitors will remember the tree-lined entrance, historic buildings, beautiful courtyard, unique event space, and of course- the views of the vineyard.

## Concept Diagramming



## Site Analysis

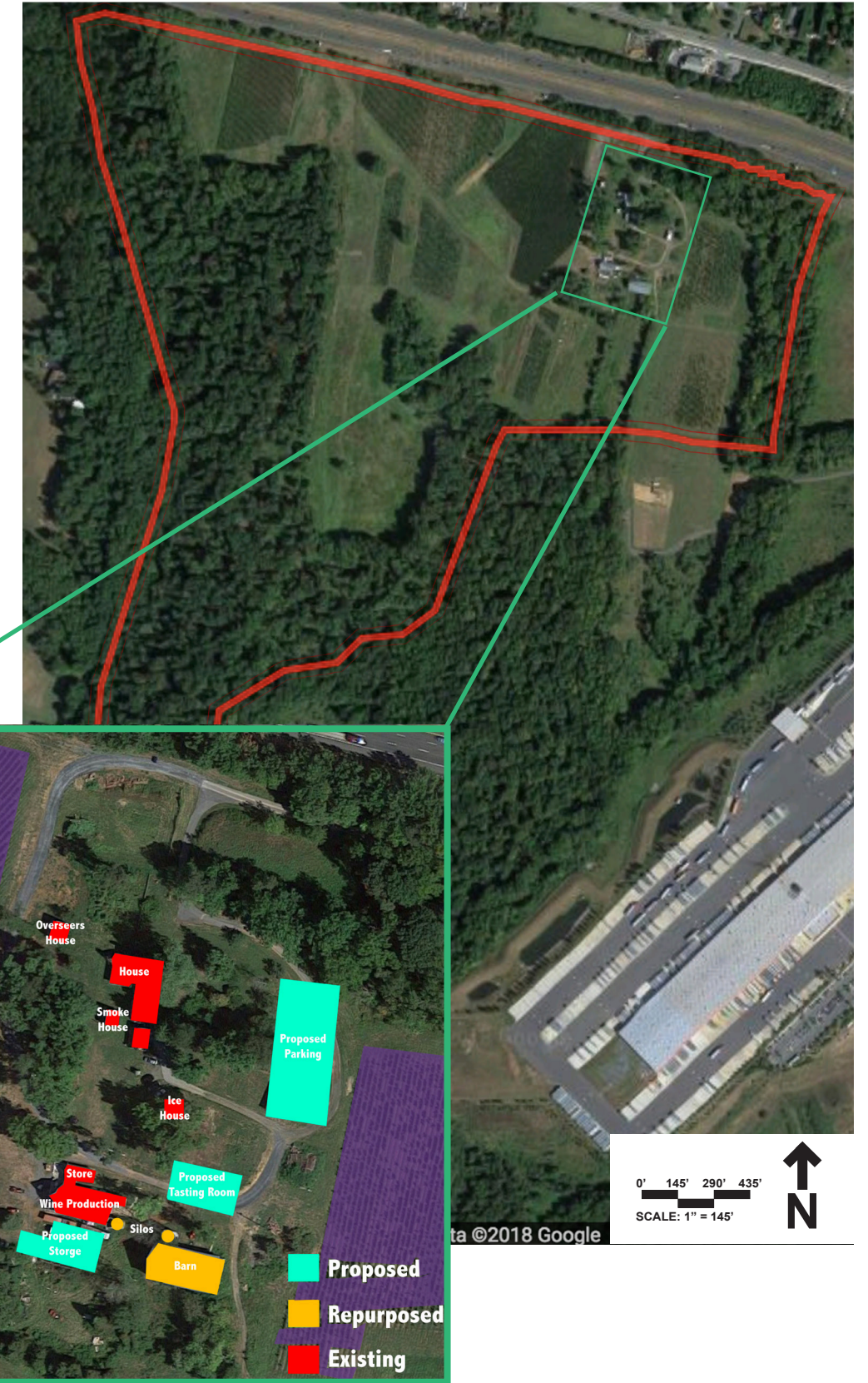


Ag. Preservation requires parking and tasting room to be on same regulated area



Preserve historic buildings (red) and views (blue stars)

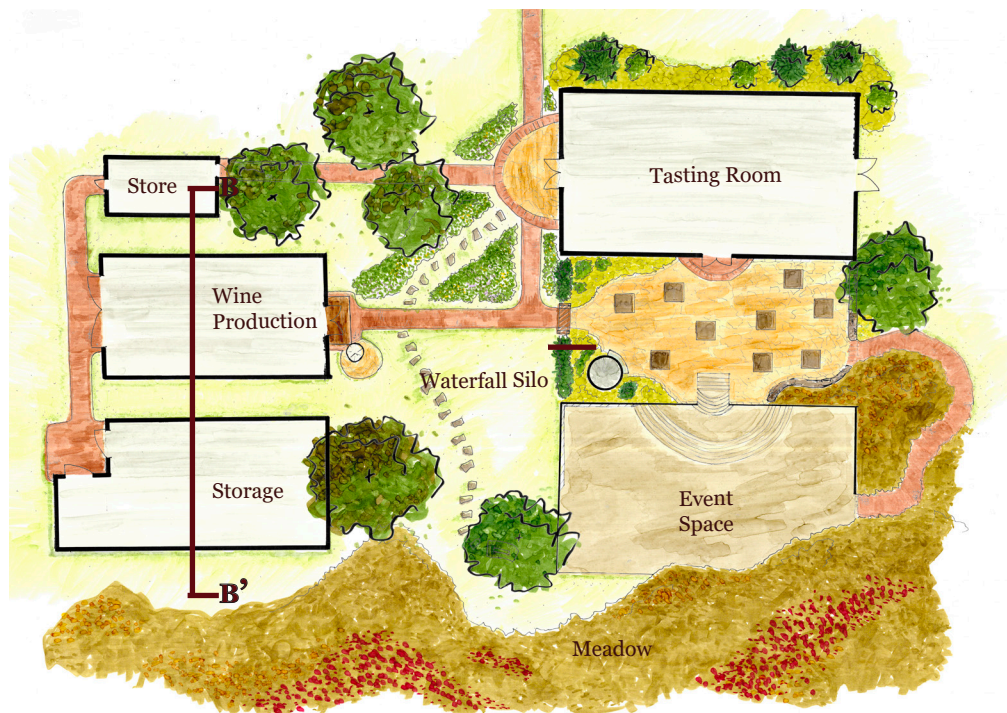
## Site Plan



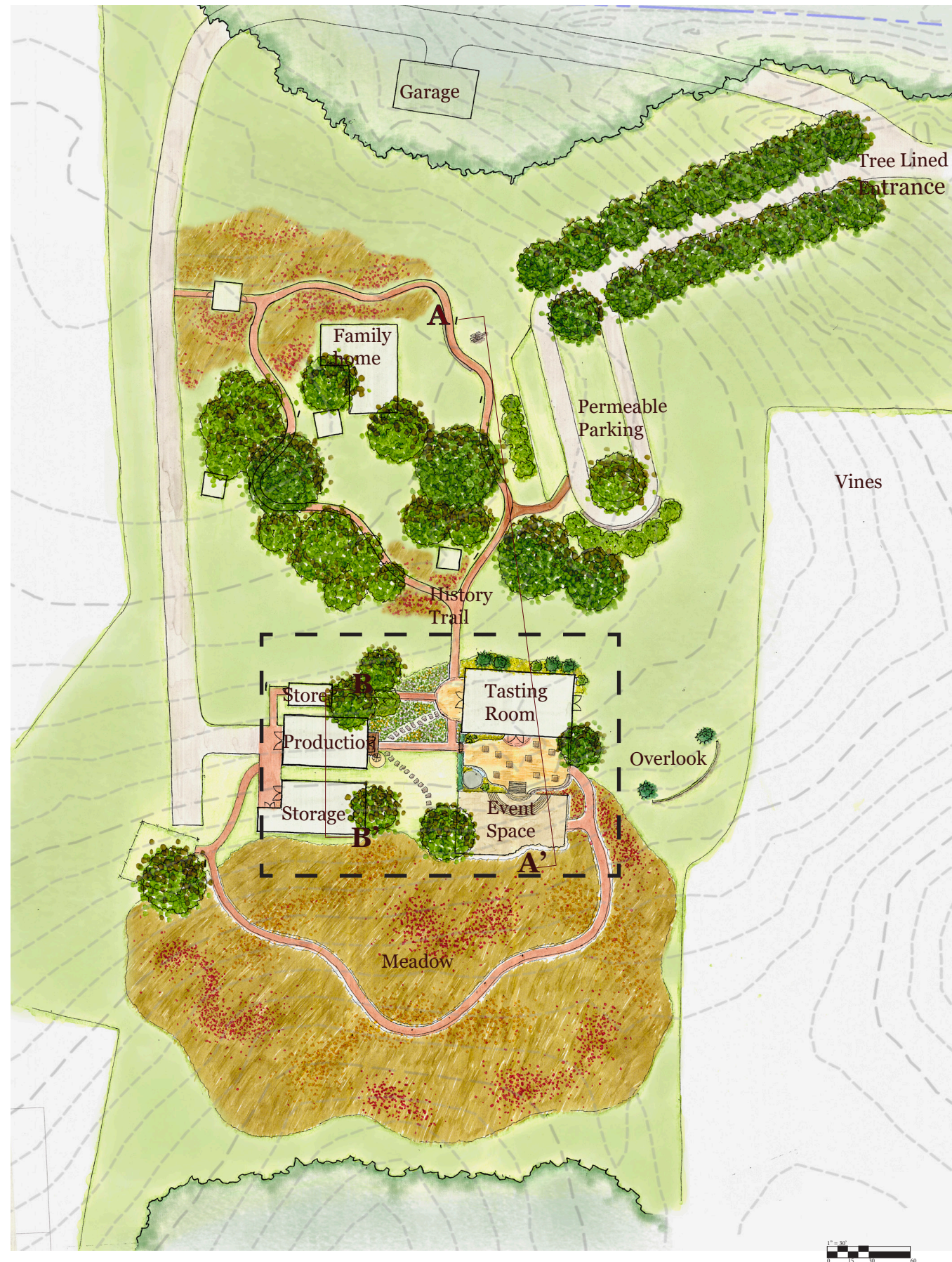
## Site Plan Description

To honor the history of the farm, we brought new life to unsound buildings by repurposing them. The bank barn, once used for animals, can now be used as an events space. We will remove the structure of the building except for the foundation, which will create a sunken dance floor/event space. The wood from the bank barn will be used in constructing the new tasting room. In between the event space/old bank barn and the tasting room, we created a courtyard which is perfect for events and tastings. In the courtyard we will repurpose the silo into a water feature, this feature and the building will help create a peaceful atmosphere and block the noise from I-70. The “silo waterfall” will have copper sheathing that will give the water a dazzling effect and be beautiful when the water is off for the season. The second silo, located next to the production barn, will be turned into a spiral staircase. Perhaps a bridal room could be on the second floor of the production barn (an area with some of the most stunning views of the property) and the bride would be able to go on the balcony, down the spiral staircase, and walk down the aisle into the courtyard area.

There will be a fragrance garden outside of the tasting room that can provide cheese trays with fresh herbs. It will smell aromatic and look beautiful when visitors walk through it. A historic interpretive trail will lead visitors through the property, highlighting the historic buildings, some of which will house family and farm relics for visitors to see. This trail also connects to the meadow path that provides a beautiful backdrop to the event space.



## Site Plan



## Precedent Images



Boardwalk through meadow



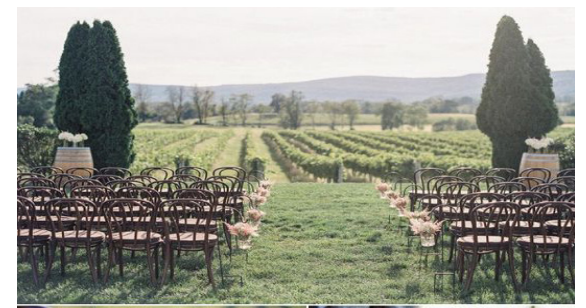
Glass-side barn



Tree-lined driveway entrance



Tasting room/ Event space



Ceremony overlook

# Illustratives

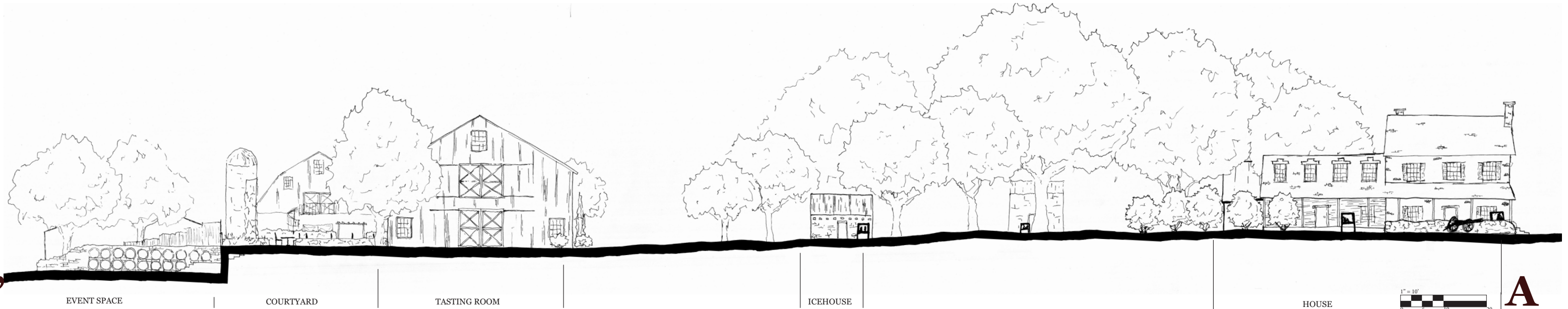
## Repurposed Bank Barn Event Space



## Silo Waterfall



## Farm Section



EVENT SPACE

COURTYARD

TASTING ROOM

ICEHOUSE

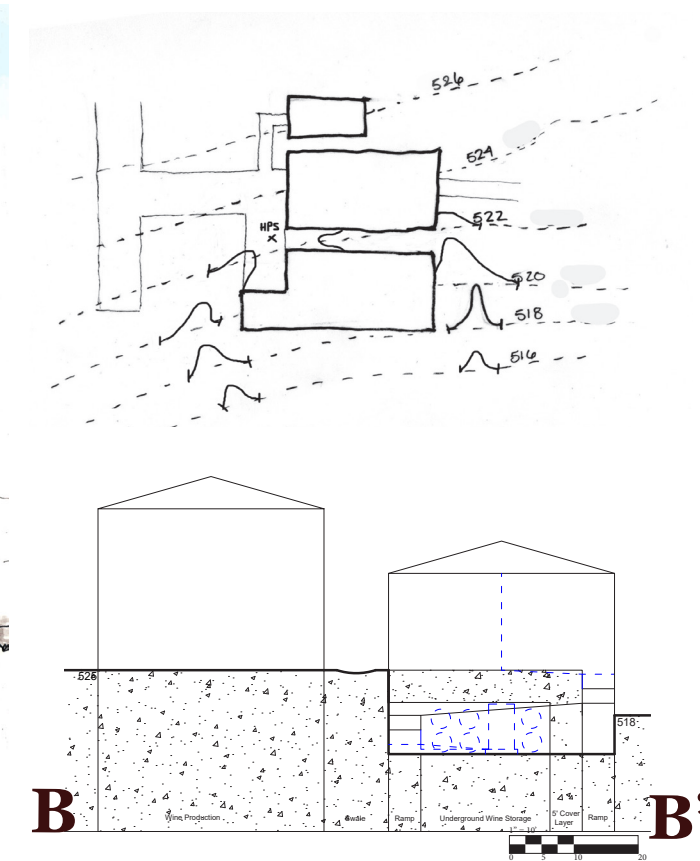
HOUSE



## View From Balcony



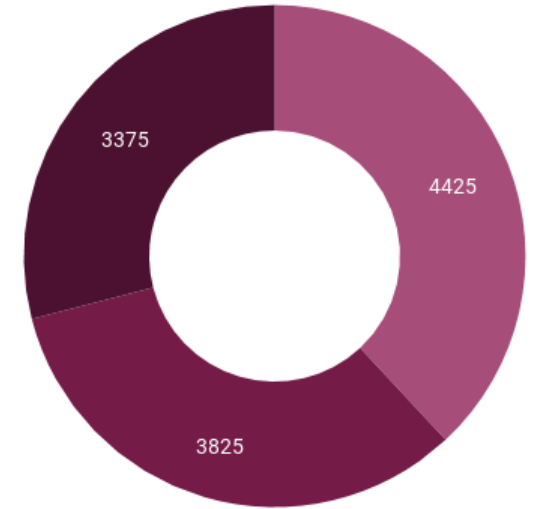
## Underground Wine Storage



## Performance Metrics

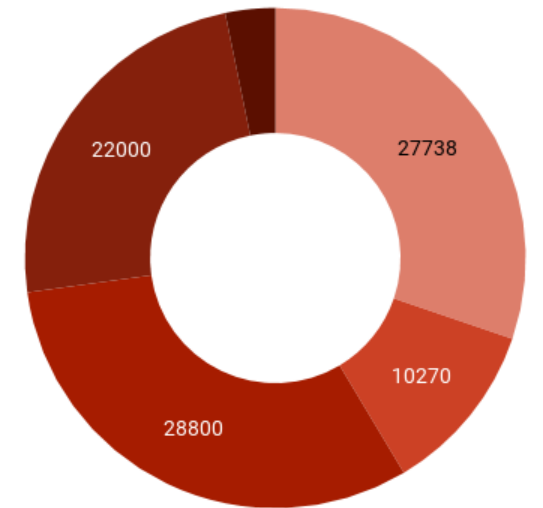
### Site Usage Breakdown

- Total Wine Facilities (Production, Storage, Etc.) 38.1%
- Total Retail Space (Tasting Room, Gift Shops, Etc.) 32.9%
- Total Event Space 29.0%



### Landscape Surfaces

- Permeable Hardscape 30.2%
- Impermeable Hardscape 11.2%
- Lawn Space 31.4%
- Added Meadow or Native Restoration 24.0%
- Added Planting Areas 3.2%



## Plant Pallet

### Trees



### Shrubs



### Fragrance Garden



### Meadow



## Interpretive Trail Sign



**70 Trees Added**



**No Trails Added**



**24 Parking Spaces Provided**





# Remnants:

Design Team Two

Mia Manning, Jess Meilman, Heyner Pajaro, and Ryan Young

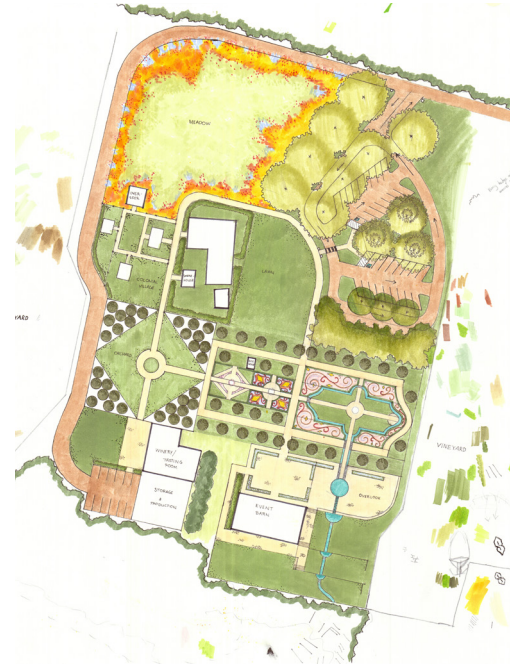
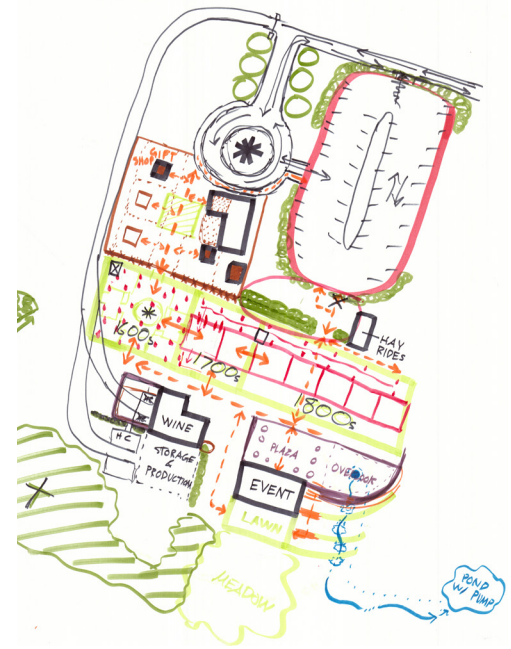


# REMNANTS

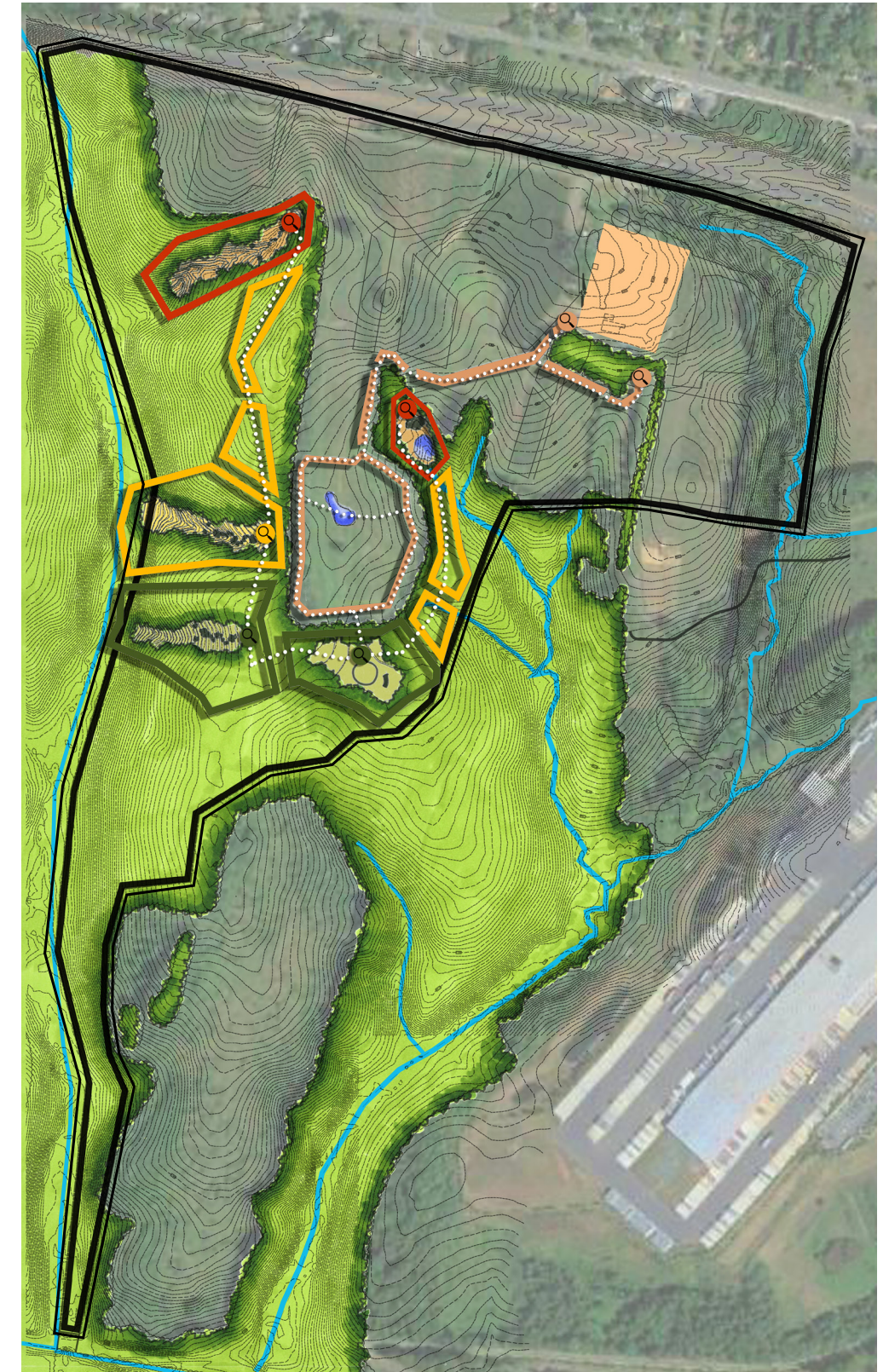
## Overall Description

The overall goal was to improve New Market Plains Vineyard and pay respect to the site's history. We focused on enhancing the existing features already on site. This involved reimagining and rethinking the current state of the site in order to design something even more unique than the original site itself. Our four main objectives were to 1.) educate visitors about historic natural features, 2.) create interpretive experiences, 3.) increase the tourism to this site and larger Frederick Maryland, and 4.) design a multipurpose event space. We wanted to create a cohesive and fluent design that would impact visitors even after they left the site.

## Concept Diagramming



## Site Plan



# Winery Complex Plan

## Site Plan Description

The compound of the site is a mixture of organic and geometric shapes that come together to create a connected series of spaces. Through varying diagrammatic exercises, our team was able to explore ways that develop these spaces in the most aesthetic and logical way.

A visitor's experience begins once they transition from the parking lot into the Colonial Village- where we've decided to rehabilitate the existing overseer's house and add three additional buildings for a colonial museum of sorts. Visitors then work their way from the colonial village into the formal garden and event space.

Through experimenting with different shapes, we were able to come up with the final design of our formal garden. The formal garden involves three spaces with varying curvilinear and geometric shapes. Visitors then reach the event barn, which is concluded by the overlook that highlights a beautiful vista into the vineyard. At the southern edge of our complex, we transition a nature trail system that guides the visitor into the beautiful landscape beyond.



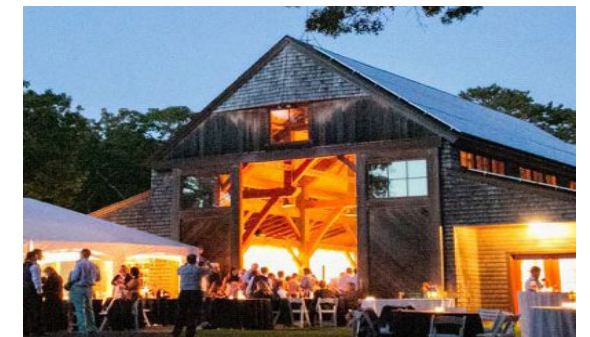
## Precedent Images



Second level tasting room with glass wall to capture view of the vineyards



Historic colonial village with artifacts and a restored gift shop



Renovated event barn with outdoor pavillion

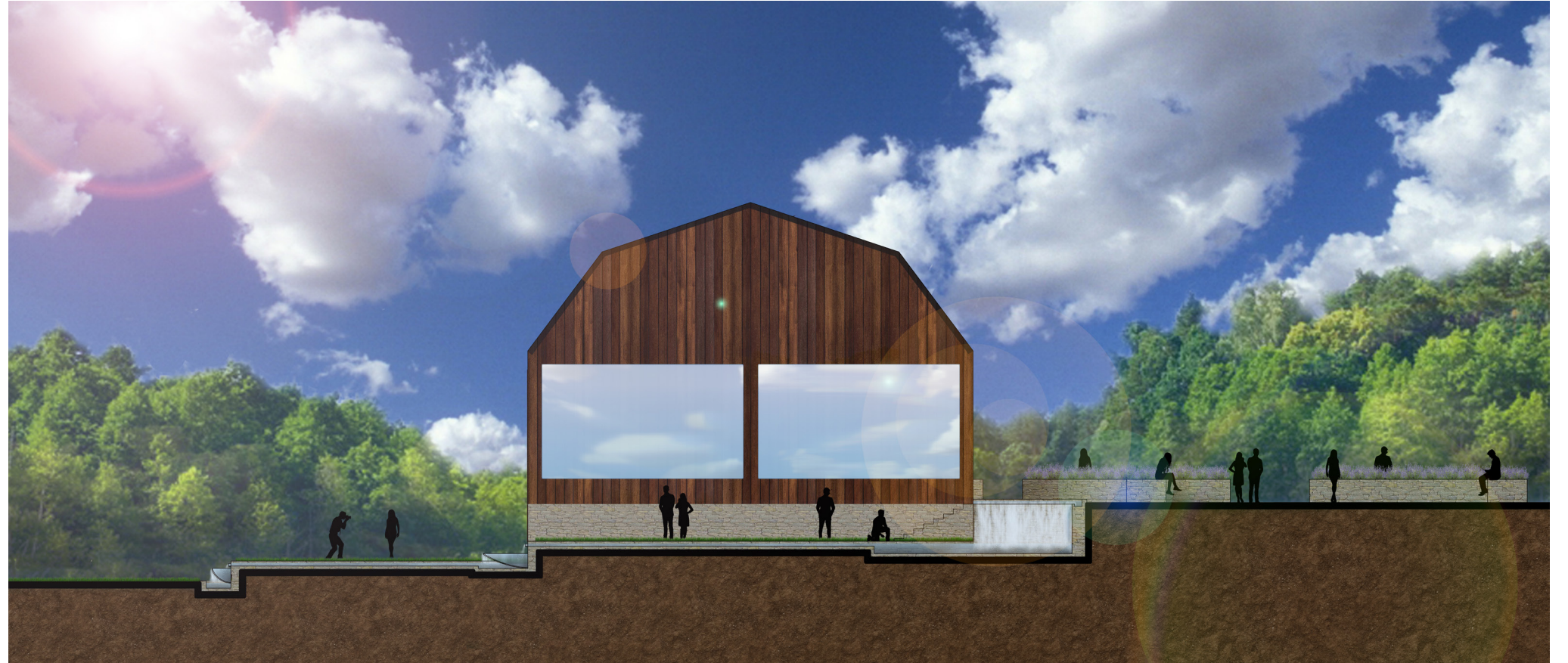


Stone steps inspired by the formation of hen of the woods mushrooms

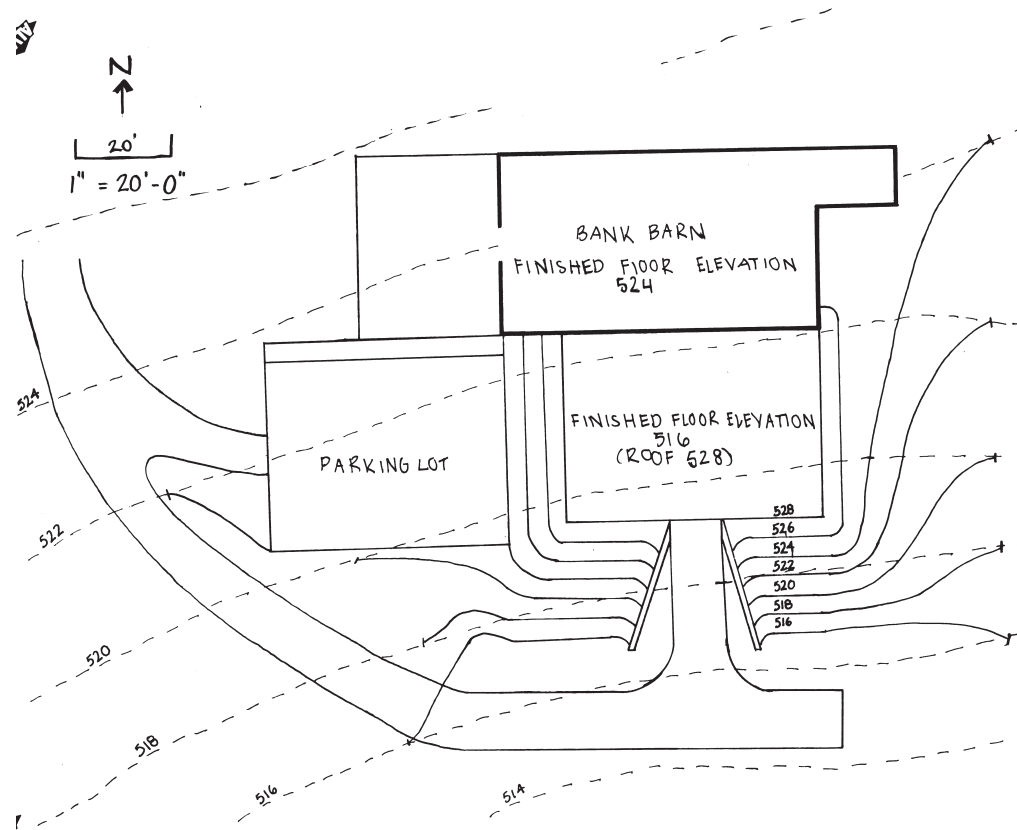
# Illustratives

## Sections

### Perspectives



# Underground Wine Storage



One of the desires of the clients was an underground wine storage facility. This facility helps to maintain the required temperature for proper wine storage and mitigate electricity costs. It also serves as a point of attraction for visitors, as it offers the possibility of tours of the unique facility.

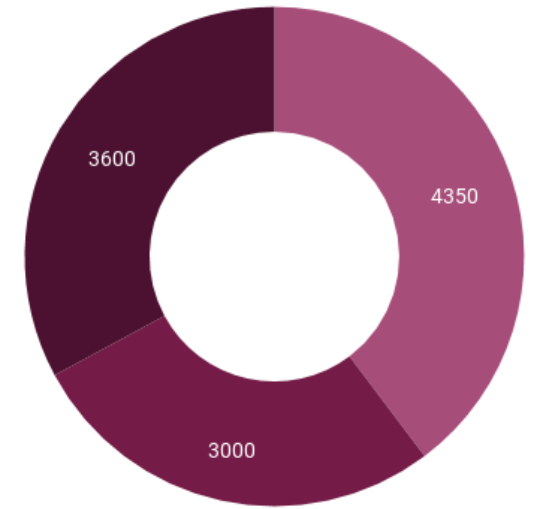
Our design places that storage on the south side of the existing wine facility barn, dug into the hillside and then covered with a 2 foot thick intensive green roof. The grading plan allows for exterior access via a small service drive that branches off the main employee drive.

The storage area can also be accessed from inside the wine facility for easy transport. The close proximity to the production building provides a convenient working connection between the two structures. Ideally an electronic lift or ramp would assist in moving the wine barrels up and down the 4 foot finished floor elevation change from the production barn to the storage room.

## Performance Metrics

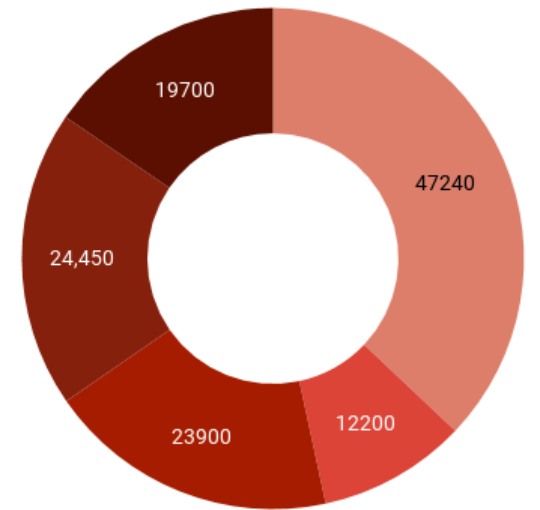
### Site Usage Breakdown

- Total Wine Facilities (Production, Storage, Etc.) 39.7%
- Total Retail Space (Tasting Room, Gift Shops, Etc.) 27.4%
- Total Event Space 32.9%



### Landscape Surfaces

- Permeable Hardscape 37.1%
- Impermeable Hardscape 9.6%
- Lawn Space 18.7%
- Added Meadow or Native Restoration 19.2%
- Added Planting Areas 15.5%



**77 Trees Added**



**1.52 Miles of Trails Added**



**45 Parking Spaces Provided**



# Reviving Spaces:

Design Team Three

Abigail Smith, Catherine Garcia, Marquis Barnes, Evan Schaum



# Reviving Concept

## Overall Description

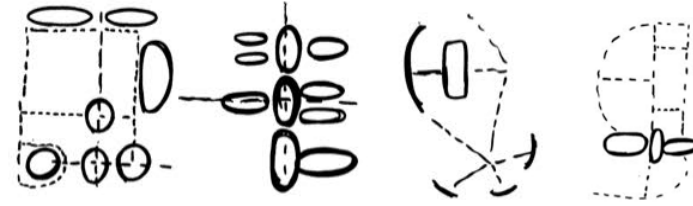
New Market Plains Vineyard is beautiful and holds much potential for being an amazing attraction. Our goal during this project was to create a beautiful and functional winery that incorporates wine production, gathering space and historic beauty.

Our objectives to achieve our goal were to design an outdoor gathering area for a new wine tasting room, provide an event space with vineyard views, and restore historic buildings to accommodate new uses.

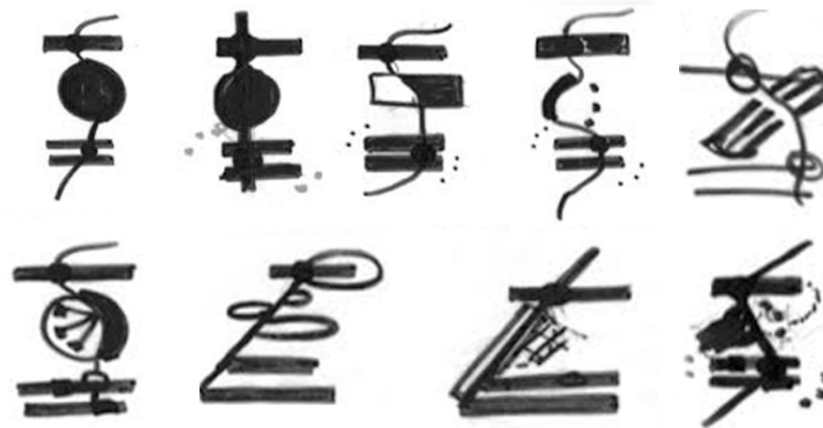
What is special about our design is that it strives to be extremely low impact and enhance the natural beauty of the property. We added no buildings, we instead restored the existing ones. We have kept the existing driveways and implemented many small gardens throughout the space. This brought vitality, beauty and wildlife to the winery experience.

## Concept Diagramming

Exploration of gridlike form:



Exploration of organic form:



## Site Plan





# Winery Compound Plan

## Site Plan Description

Orientation: North: Highway I-70  
 East: Drive entrance, east vineyards  
 South: Meadow and nature trail entrance  
 West: Parking lot, winery and west vineyards.

Concept: Our design presents an organic, low impact concept. The main walkway is designed with vegetated mounds that provide privacy for the homestead, guide the user down the winding path, and provides visual previews of the event barn and the terraced overlook. They also add a beautiful aesthetic to the space. In addition to the mounds, the walkway is also lined weaving red, pink and white gardens, representing red, rose and white wine. The vegetated mounds and gardens are planted for continual interest throughout the seasons.

Circulation: People enter from the existing entryway and will park on impervious pavers; overflow parking is on grass. An added carport will give the owners a private and more direct route to their house. Pedestrian circulation flows down main winding path that acts as the backbone of the space. It connects the historic buildings in the northwest corner to the event barn down in the southeast corner. From the parking lot, pathways provide direct access to the top, middle and bottom of the site and the loop at the south end of the site connects it all.

Structures: The property owners' home and historic buildings, north; carport, northeast; icehouse, west; event barn, southeast; winery and patio, southwest.

Spots of interest: nature trail at bottom of site, wine cellar cave under



## Precedent Images



Meadow area with great views for a wedding or other event



Terraces were implemented on the east side of the event barn



Beautiful barn with glass wall that opens up views to the winery



Stone path with mounds creates a beautiful look and boundary for the historic house

# Illustratives

## Perspectives



P1

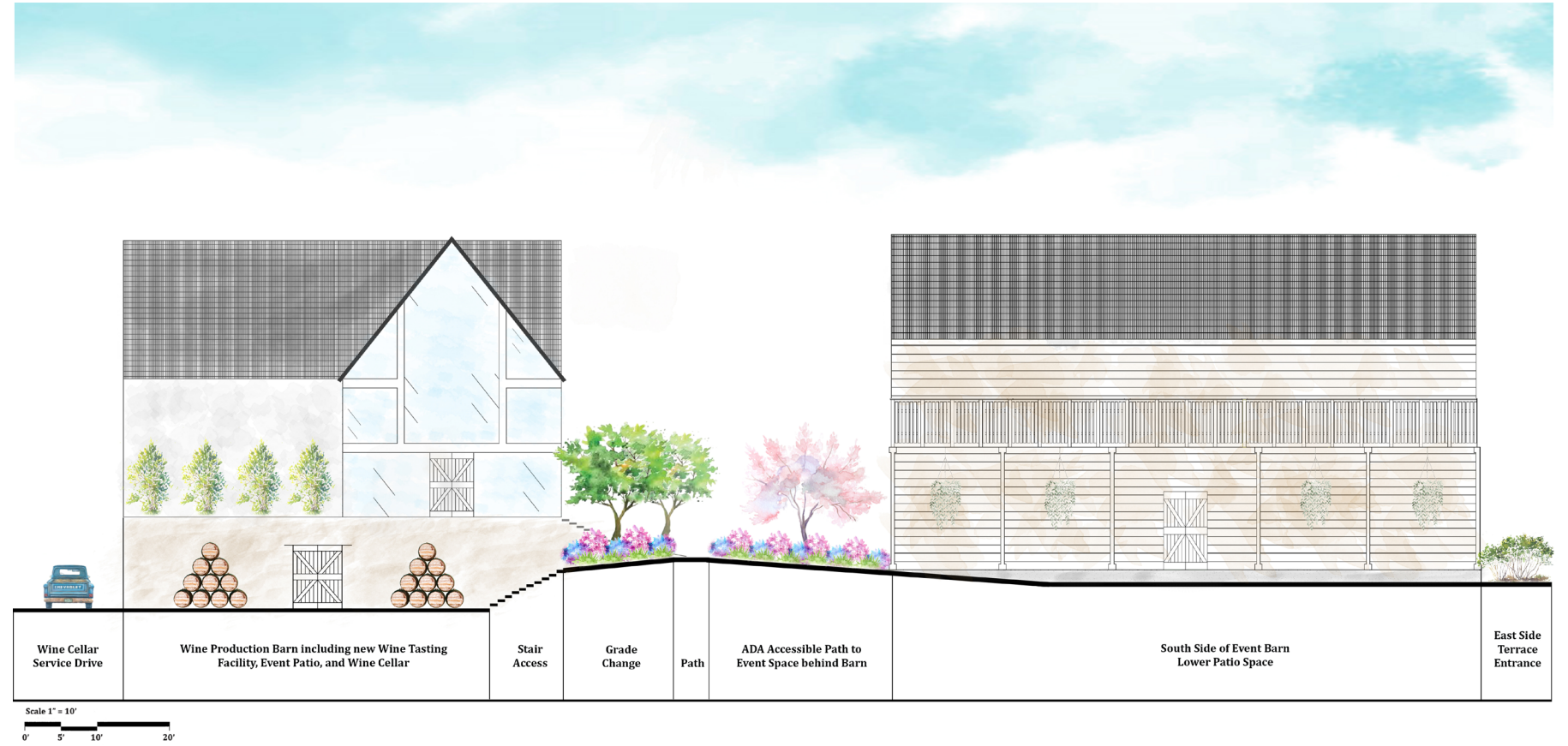


P2

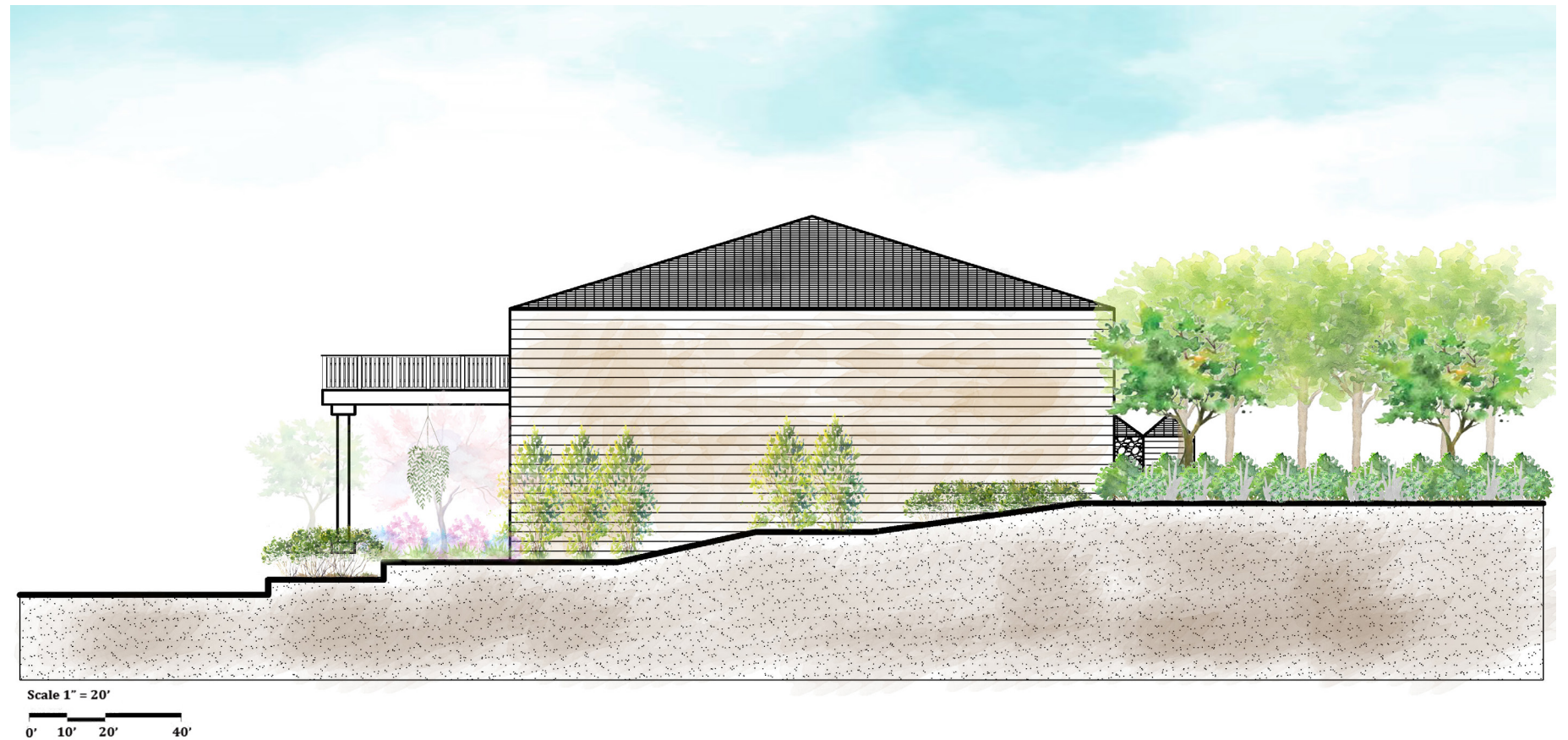


P3

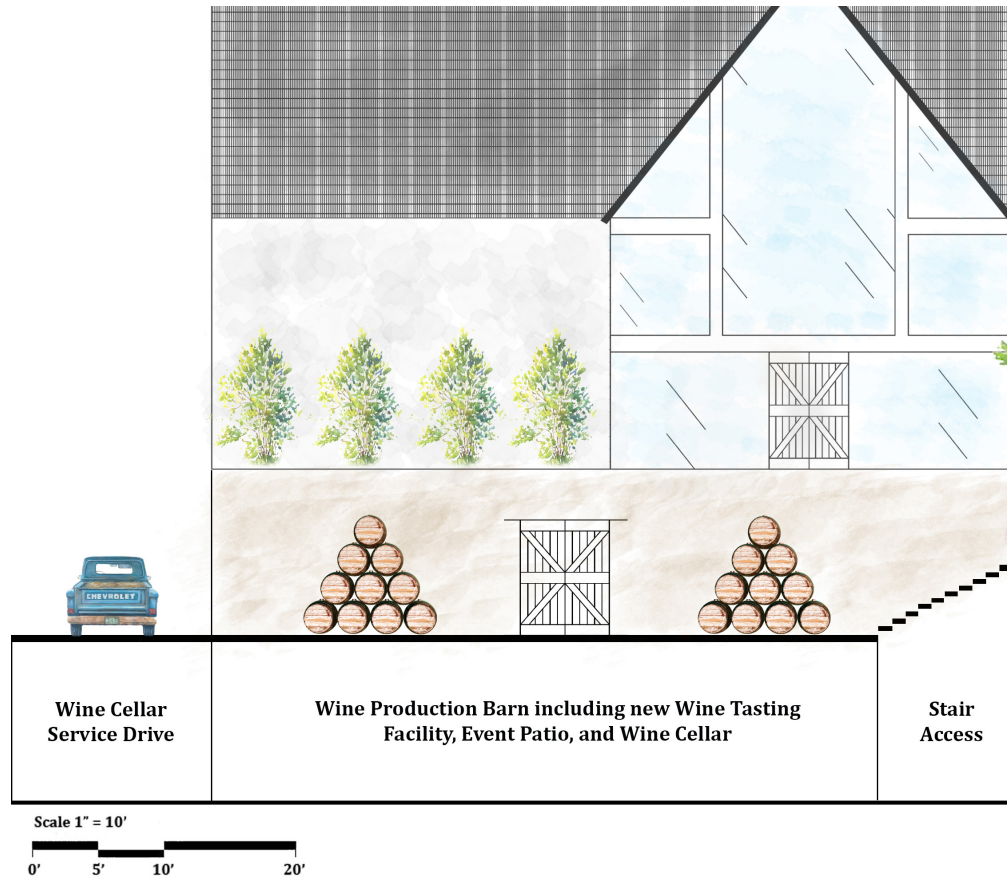
## Section A-A'



## Section B-B'



# Underground Wine Storage



During the concept phase of our project co-owner and operator, Howard Wilson expressed his interest in a wine cave, which would help to drastically reduce electric cost. Currently, Howard is spending \$900 a month to keep the building at a suitable temperature to store wine barrels. A wine cave would offer many benefits in reducing this cost and increasing efficiency of operations at the winery.

Caves are energy-efficient, use limited land and space, and offer a suitable environment to storing wine. The limited amount of light helps slow the aging process of wine. When UV rays hit a bottle of wine, it speeds up the aging process. This happens in both red and white wine, although UV rays impact white wine more quickly.

Building a wine cave on this property is no easy task. Due to the gradual slopes of New Market Plains finding a suitable spot for a cave was difficult. Our proposed cave is located directly under the patio off the back of the wine production/tasting building. We created a service drive that slopes down on the west side of the barn and goes around to the wine cave entrance, located on the south side of the building. In addition, we located a set of stairs for visitor access to the cave.

## Plant Palette



*Acer saccharum*



*Chamaecyparis thyoides*



*Carpinus betulus*



*Thujaopsid dolabrata*



*Cornus kousa*



*Magnolia stellata*



*Prunus cerasifera*



*Cercis canadensis*



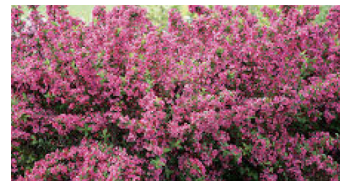
*Muhlenbergia capillaris*



*Miscanthus sinensis 'Gracillimus'*



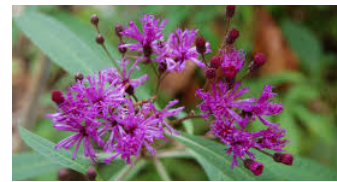
*Rhododendron 'Roblez'*



*Weigala*



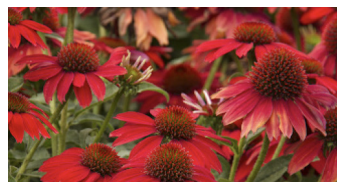
*Rhododendron x 'RLH1-2P8'*



*Vernonia noveboracensis*



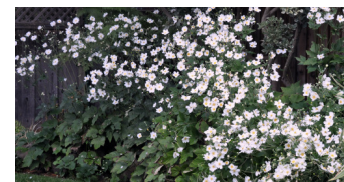
*Phlox divaricata*



*Echinacea x hybrida*



*Paeonia*



*Anemone hupehensis*



*Leucanthemum x superbum*

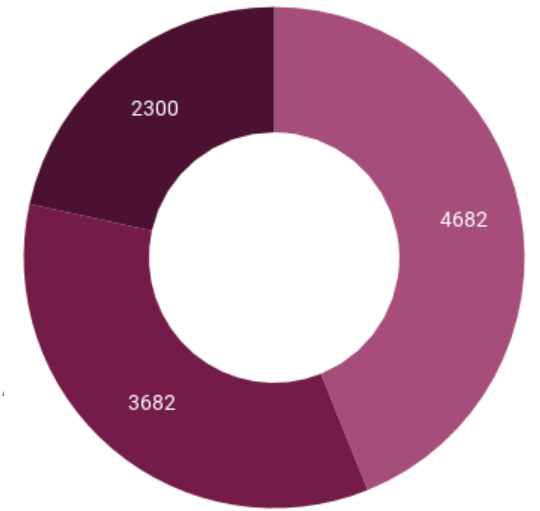


*Baptisia australis*

## Performance Metrics

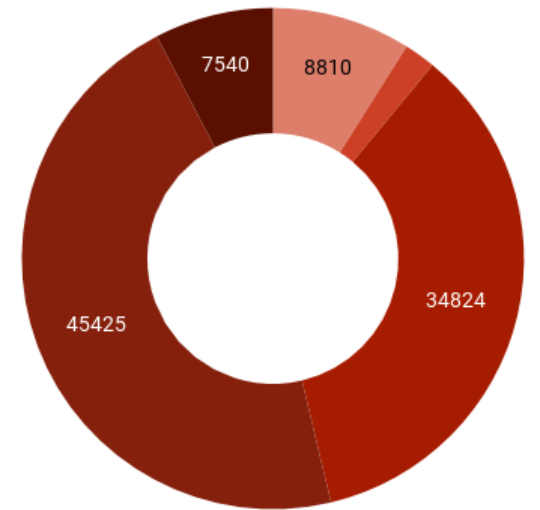
### Site Usage Breakdown

- Total Wine Facilities (Production, Storage, Etc.)
- Total Retail Space (Tasting Room, Gift Shops, Etc.)
- Total Event Space



### Landscape Surfaces

- Permeable Hardscape
- Impermeable Hardscape
- Lawn Space
- Added Meadow or Native Restoration
- Added Planting Areas



**70 Trees Added**



**0.40 Miles of Trails Added**



**19 Parking Spaces Provided**



# Preservation and Prosperity:

Design Team Four

Maria Harrington, Rachel Greenhawk, Greg Remesch, Jovon Jackson,  
and Linda MacSorley



# Title of Concept

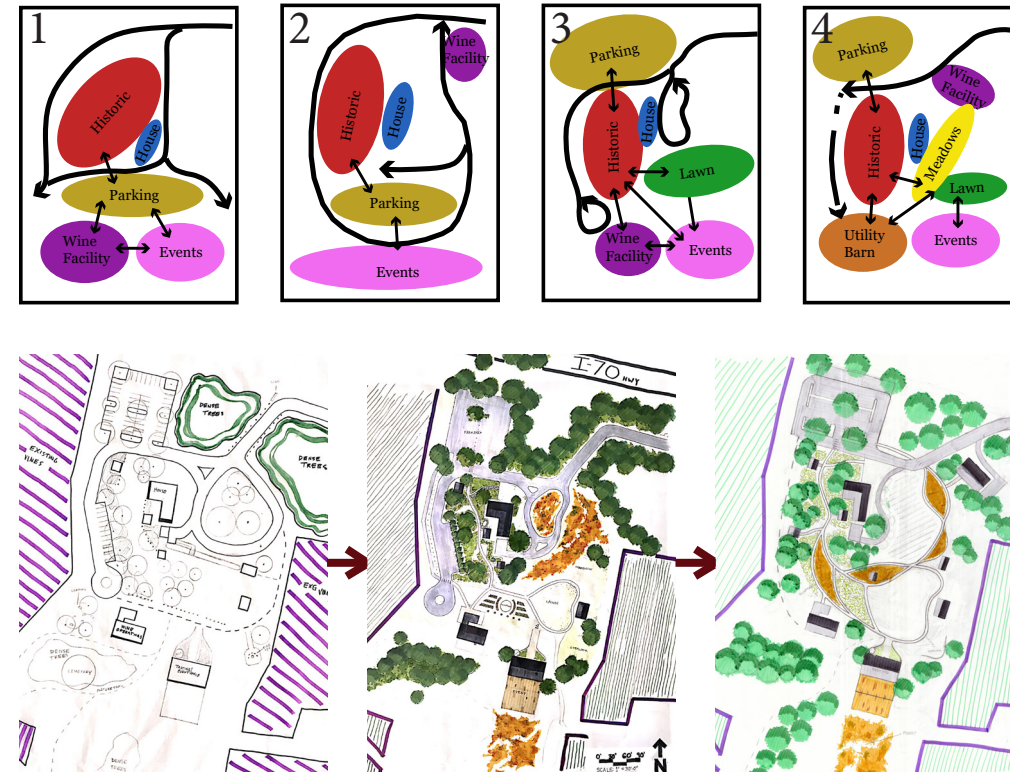
## Overall Description

The structure of our design is inspired by vehicular, pedestrian, and farm circulation with appreciation of the historic presence and commercial potential. The circulation of our design addresses multiple uses and functions of the site. Pedestrian walkways allow visitors to move through the historical features, natural elements, and utilize event spaces. Agricultural functions were identified to preserve working access and not conflict with other elements on site. Vehicular circulation was created with respect to agricultural functions, to mitigate sound, and to not interfere with visitor experiences on site.

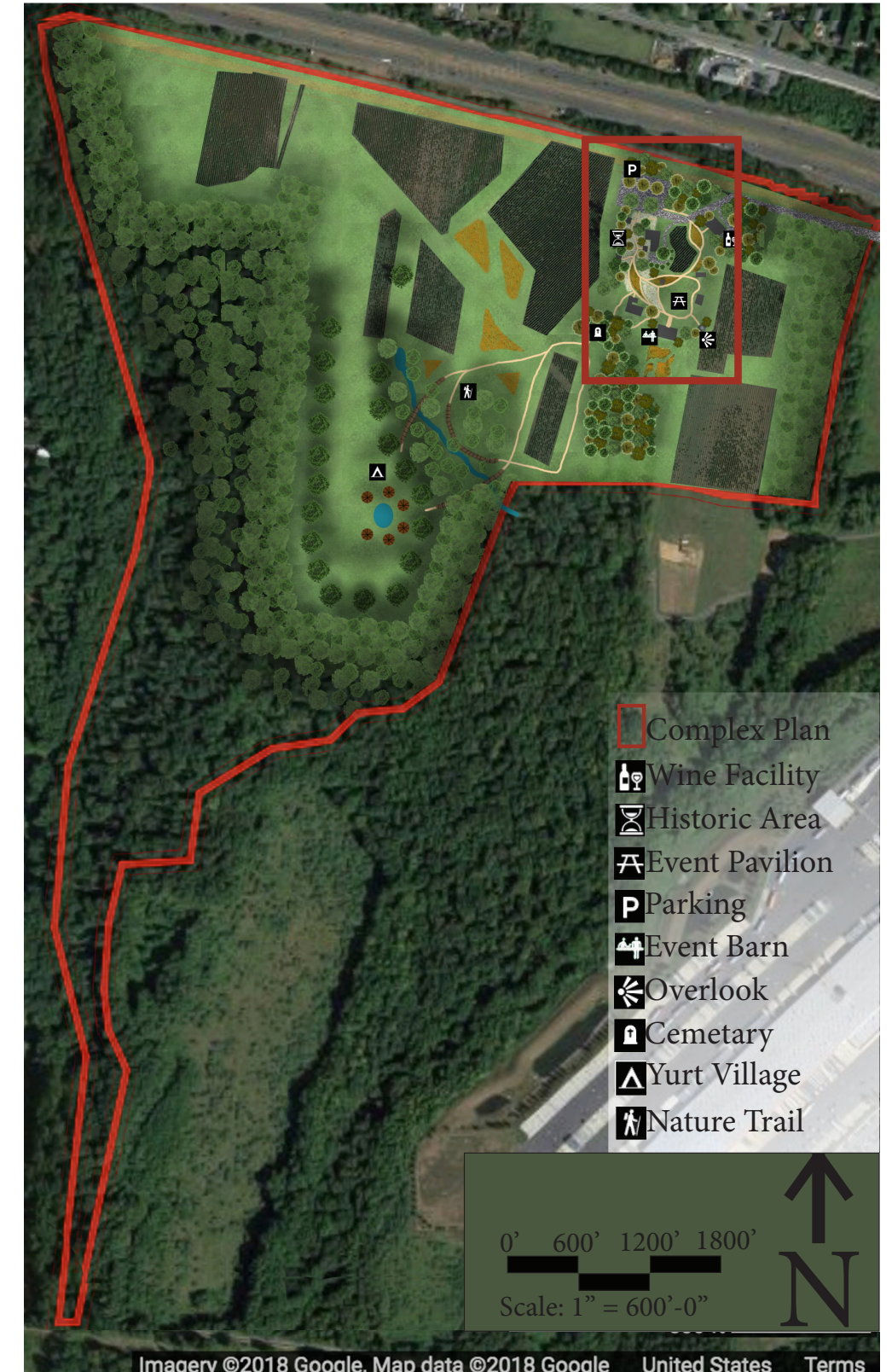
A secondary consideration of our design response addresses natural systems. This 120-acre parcel provides a myriad of habitats and conditions. The natural spring on site inspired access via a trail system. The vineyard overlook with a view to the southeast warranted a rustic firepit. A native pond in the south meadow is surrounded by a yurt village and white oak stand for coverage.

Thirdly our design encourages growth and opportunity for the winery itself. A new wine facility will alleviate energy costs, add space for wine and barrels, and provide interest to an unused portion of the site. This frees up the original barn for alternate uses.

## Concept Diagramming



## Site Plan



## Event Barn Entrance



## Event Barn Deck



# Winery Complex Plan

## Site Plan Description

The final design solves circulation issues, adds points of interest throughout the site, and enhances the wine making business. This was accomplished through the preservation of historical elements, the siting of a new wine making and storage facility, the identification and establishment of pedestrian, agricultural and vehicular circulation, and the introduction of spaces that invite events and commercial endeavors to take place.

Circulation is one aspect we tested in depth to ensure the most effective solution. We relocated the main entry for cars, creating a view of the house upon arrival to the site. Cars park in the parking lot located at the northwest corner of our site and visitors are welcome to wander through a series of sensory gardens located within the historical area on the site.

After emerging from the sensory gardens, visitors may continue along the path through a series of meadows, ultimately leading to the wine facility where wine tours are held in the northeast corner of the site, located adjacent to the main entry. As visitors arrive for an event, they are welcome to enjoy the lawn event space in front of the pavilion or make their way to the event barn where wine tastings are held.

Located next to the event barn is an overlook for those who wish to experience the intimacy that the space offers while taking advantage of the incredible view looking out over the vineyard. This design is a simple, yet elegant solution for the site and creates interest throughout the entirety of the space.

## Event Pavilion



## Precedent Images



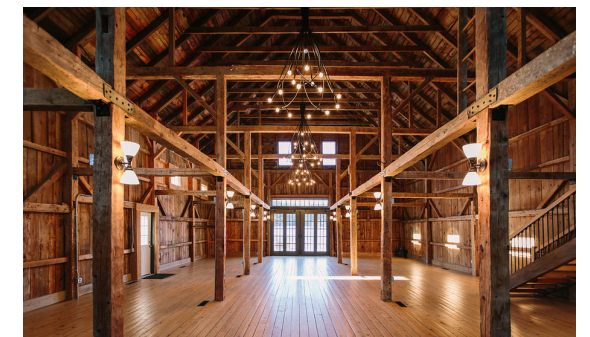
Event barn potential



Nature walk through meadow on nature trail



Fire pit for overlook



Interior of event barn

# Illustratives

Yurt Village



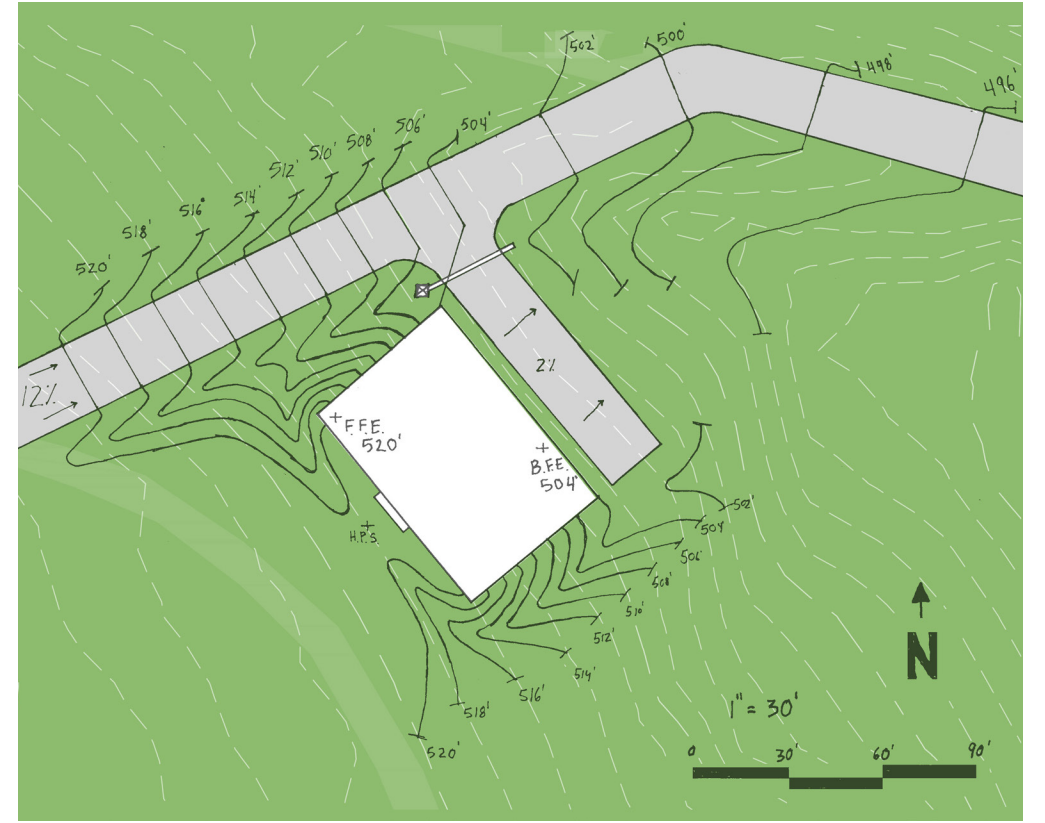
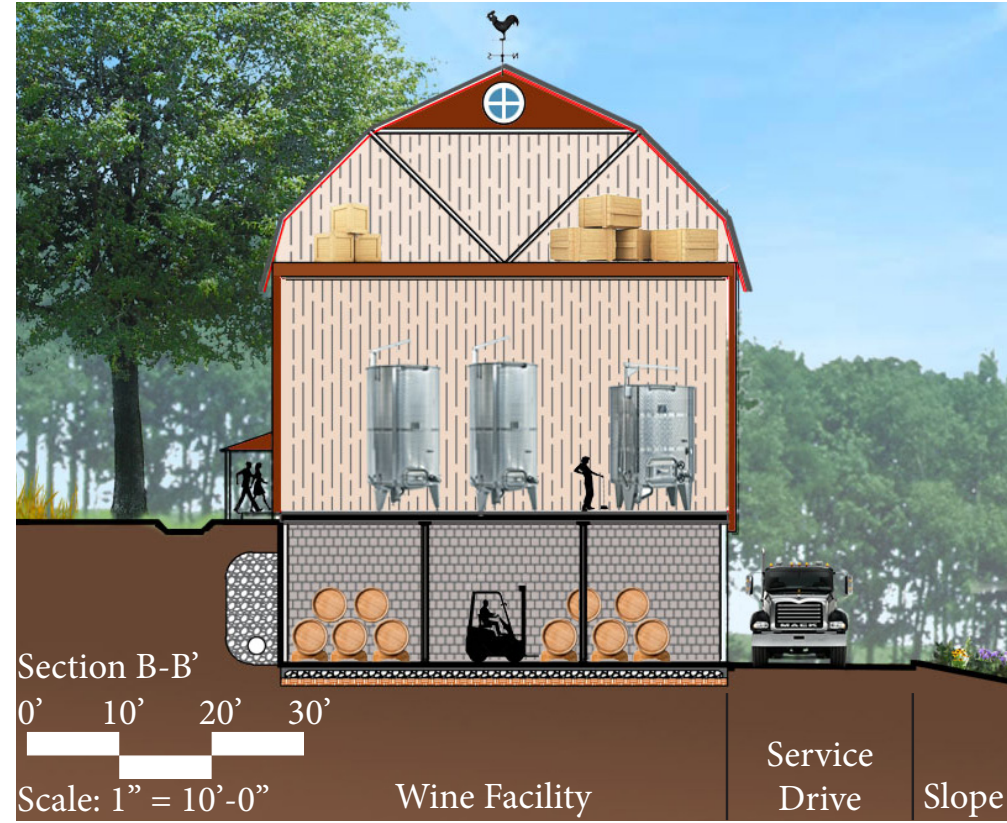
Nature Walk



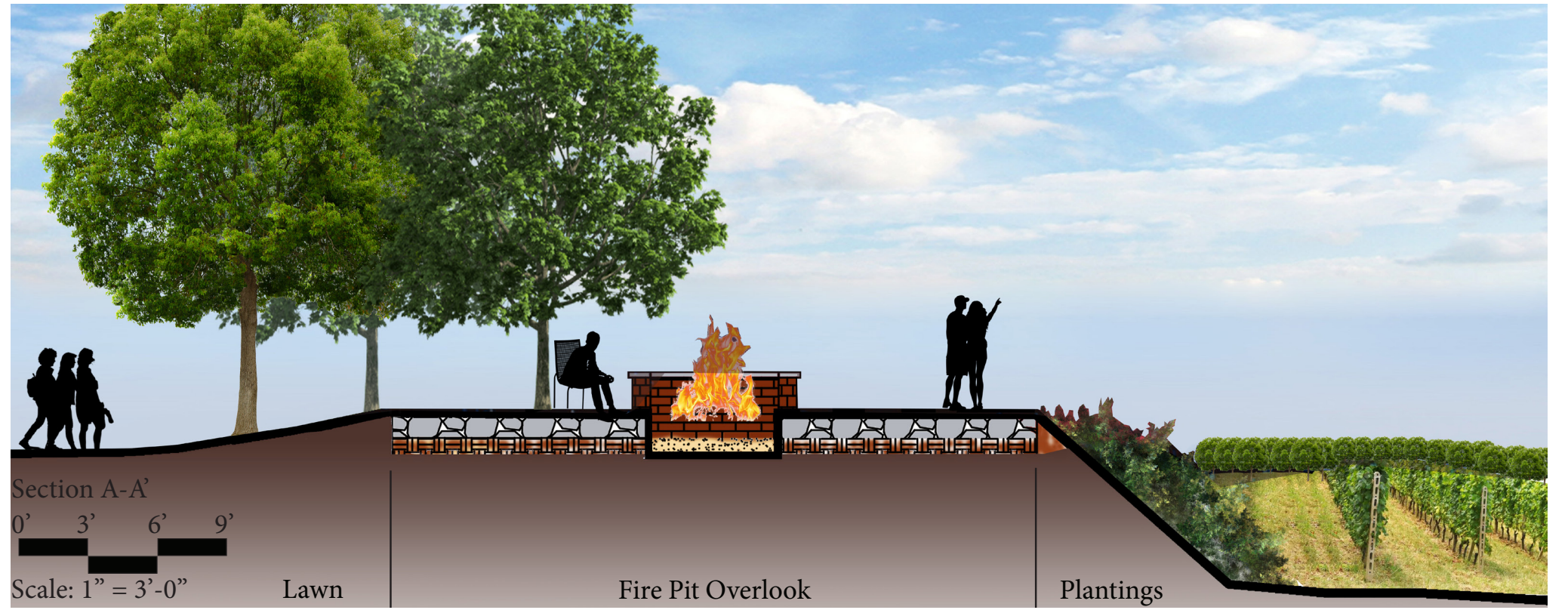
Sensory Garden



Winery Facility Section and Regrading



Firepit Overlook Section





## Agricultural Reserve

Identifies and defines the boundaries for the agriculture reserve areas.

Provides a basis for determining the location of elements that are to be implemented on site.

Contributed to design solutions such as parking and wine cave siting.



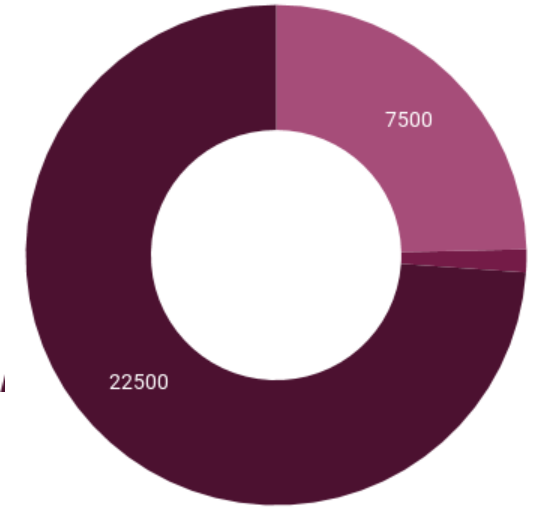
## History

The site-specific history reveals the “song of the land”, which we looked to preserve throughout the course of the design process. A song of lives dedicated to extracting bounty from the land.

## Performance Metrics

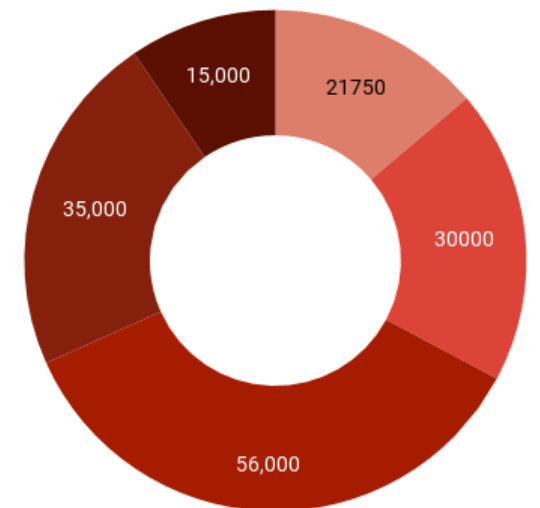
### Site Usage Breakdown

- Total Wine Facilities (Production, Storage, Etc.) 24.6%
- Total Retail Space (Tasting Room, Gift Shops, Etc.) 1.5%
- Total Event Space 73.9%


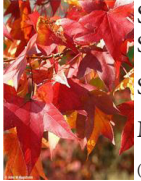


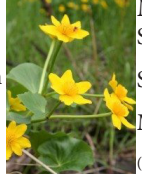






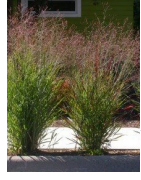

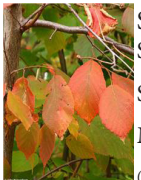




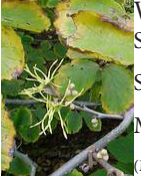



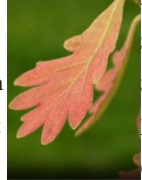
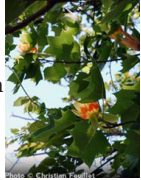


### Landscape Surfaces

- Permeable Hardscape 13.8%
- Impermeable Hardscape 19.9%
- Lawn Space Removed 35.5%
- Added Meadow or Native Restoration 22.2%
- Added Planting Areas 9.5%



## Plant Palette

 Pin Oak Sun: ☀ Soil: Sand, clay, loam Moisture: Moist, wet <small>(Arbor Day Foundation)</small>	 Sweetgum Sun: ☀ Soil: Sand, clay, loam Moisture: Moist, wet <small>(Arbor Day Foundation)</small>	 Eastern redbud Sun: ☀ ☀ Soil: Sand, clay, loam Moisture: Moist, wet <small>(Arbor Day Foundation)</small>	 Cardinal flower Sun: ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Gardening Know How)</small>	 Marsh marigold Sun: ☀ Soil: Clay, loam Moisture: Moist <small>(Gardening Know How)</small>	 Joe-Pye weed Sun: ☀ ☀ Soil: Clay, loam Moisture: Moist <small>(Gardening Know How)</small>
 Red Maple Sun: ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Arbor Day Foundation)</small>	 Persimmon Sun: ☀ Soil: Sand, loam Moisture: Wet, Moist <small>(Gardening Know How)</small>	 Paw Paw Sun: ☀ Soil: Sand, loam Moisture: Moist <small>(Gardening Know How)</small>	 Monkey flower Sun: ☀ ☀ Soil: Clay, loam Moisture: Moist <small>(Gardening Know How)</small>	 Goldenrod Sun: ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Gardening Know How)</small>	 Switchgrass Sun: ☀ ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Gardening Know How)</small>
 Honey Locust Sun: ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Arbor Day Foundation)</small>	 Serviceberry Sun: ☀ ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Arbor Day Foundation)</small>	 America holly Sun: ☀ ☀ Soil: Sand, loam Moisture: Moist <small>(Arbor Day Foundation)</small>	 Gamagrass Sun: ☀ ☀ Soil: Clay, loam Moisture: Moist <small>(Gardening Know How)</small>	 Zebra grass Sun: ☀ ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Gardening Know How)</small>	 Muhly grass Sun: ☀ Soil: Sand, loam Moisture: Moist <small>(Gardening Know How)</small>
 Witch Hazel Sun: ☀ ☀ Soil: Clay Moisture: Moist <small>(MO Botanical Garden)</small>	 White Fringe-tree Sun: ☀ ☀ Soil: Clay Moisture: Moist <small>(MO Botanical Garden)</small>	 Winged Sumac Sun: ☀ ☀ Soil: Rocky Moisture: Dry <small>(MO Botanical Garden)</small>	 Black Walnut Sun: ☀ Soil: Sand, clay, loam Moisture: Moist, wet <small>(Arbor Day Foundation)</small>	 White Oak Sun: ☀ ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Arbor Day Foundation)</small>	 Tulip Poplar Sun: ☀ Soil: Sand, clay, loam Moisture: Moist <small>(Arbor Day Foundation)</small>



**60 Trees Added**



**0.74 Miles of Trails Added**



**40 Parking Spaces Provided**



# Logo Designs

