

ENVIRONMENTAL PLANNING: INVENTORY & ANALYSIS

HIGH MEADOWS SCHOOL



PREPARED BY

CEPLA

CAMBARDELLA ENVIRONMENTAL PLANNING &
LANDSCAPE ARCHITECTURE



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MEET THE TEAM



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Native Horticulture



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Mario Cambardella serves as CEO of ServeScape, Vice President of B Development Inc. and design principle of Cambardella | Environmental Planning & Landscape Architecture.

Before returning to graduate school, Mario worked for ValleyCrest Companies as a landscape designer, estimator, and project manager. Mario holds a Bachelor of Landscape Architecture (2006), a Master of Environmental Planning (2011) and Master of Landscape Architect from UGA. While at UGA, Mario has served as the Archway Partnership Design Assistant where he has designed the following built works; *Heritage Square Park*, *Norman Park*, Georgia, and *Rylander Plaza Park*, Americus, Georgia. Mario was awarded the American Society of Landscape Architects (ASLA) Student Merit Award for the Trinity Ave. Farm project.

A year ago, Mario stepped down as the first Urban Agriculture Director in the country. Mario led the "AgLanta," initiative. AgLanta is a comprehensive and systematic approach toward strengthening the local food system. Developed programs include the country's largest municipal food forest, "Urban Food Forest at Browns Mill" and the "AgLanta Grows-A-Lot" program that converts vacant properties in USDA-defined food desert areas into food-producing

spaces, and the hyperlocal food promotion program, "AgLanta Grown."

Mario was awarded Georgia Trend's 40 under 40 in October of '19 and served on the board of the MicroLife Institute and Keep Chamblee Beautiful and member of the Urban Land Institute, American Planning Association, and American Society of Landscape Architects.

Caroline Powers is a Landscape Designer for ServeScape and CEPLA, LLC. She holds a Bachelor of Landscape Architecture (2012) from UGA. Her background includes consulting for and design of urban infill projects of all scales including but not limited to multi-family, office, student housing, and hospitality.

Her connection to UGA remains strong as she currently presides as the president of the College of Environment and Design Alumni Association Board. She has had the privilege of working on projects involving institutions including Westminster, the YMCA, and the Wesleyan School.

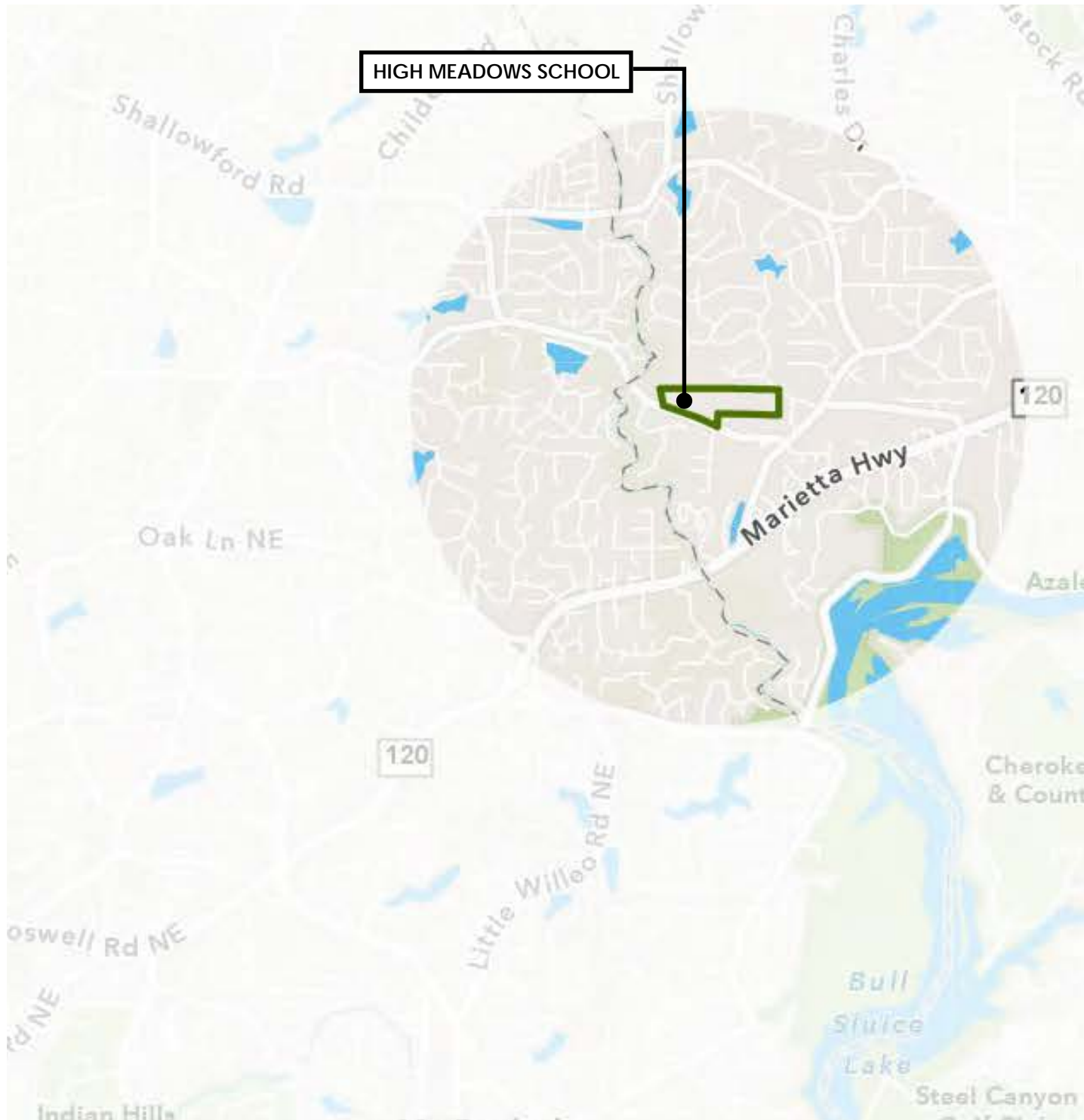
Native Horticulture Ecological Design is a design and installation company led by Allan Cobb, who considers all aspects of a living ecosystem and strives to achieve synergy with wildlife, the environment, and mankind. Native

Horticulture and its founder, Allan Cobb, have experience consulting, designing, and installing beautiful and sustainable residential and commercial landscapes, all featuring native plantings. Key projects include various pollinator gardens and the living playground at the YMCA.

Tori Simmons is a Landscape Designer for ServeScape and CEPLA, LLC. She holds a Bachelor of Landscape Architecture (2011) from UGA. Her background includes horticulture and design for both residential clients and the Atlanta Botanical Gardens.

Alfie Vick is the Georgia Power Professor in Environmental Ethics at the University of Georgia and Director of the Environmental Ethics Certificate Program. His work focuses on preserving and enhancing the functioning of natural systems while effectively and attractively integrating human use. At the University of Georgia's College of Environment & Design he teaches landscape ecology and sustainable design, collaborates with other researchers in the Sustainability and Landscape Performance Lab and serves on the Faculty of the Institute of Native American Studies. His academic research focuses on green infrastructure and sustainable site design, native plant communities, and American Indian ethnobotany.

CAMPUS LOCATION





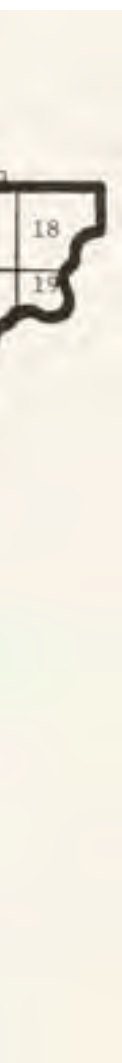
CAMPUS HISTORY

The land on which High Meadows School is located has a long history of indigenous human. Human settlement in the Southeast has been documented to stretch back nearly 14,000 years before present. The first period of human history in Georgia is the Paleoindian Period, which included the Clovis culture among others. These early inhabitants were nomadic, likely living in small groups of 25-50 people in short-term to seasonal camps from which the hunted and gathered food, and which they moved when local resources were exhausted.

The Archaic Period lasted from 10,000 to 3,000 years before present, and was marked by a transition to a warmer climate and increasingly permanent settlements and an increasing reliance on native vegetation for sustenance. The Woodland Period from 3,000 to years ago to 900AD saw the establishment of semi-permanent villages, the emergence of elaborate cultural practices including burial practices, the creation of rock mounds and structures, and the cultivation of native vegetation for food. The Mississippian Period followed,



Figure 1. The land area of the Cherokee lottery (Smith, 1838)



lasting from 900-1600AD. During this period, complex native cultures throughout the Southeast, organized into chiefdoms at permanent towns where ceremonial mounds were constructed (e.g., Etowah Mounds) and corn was cultivated as a staple food source (among others).

After European contact in the 16th century, the Mississippian culture began to decline as a result of the tragic impact of new diseases introduced to North America. Remnants of the various chiefdoms coalesced with other nearby groups to coalesce into larger societies, which are the tribes that existed in Georgia into the 1800's including the Creek and Cherokee Nations.

The High Meadows School is located near the Chattahoochee River, which was one of the most important corridors of human settlement and transportation in the region. In fact, the Hightower Trail passes through the western portion of the campus. The Hightower Trail is one of the most well-known ancient trails in the Southeast, connecting what is now Augusta, GA to Memphis, TN. It is unknown exactly how old this trail is, but it was in existence in the early 1700's

and was so significant that by 1750 the Cherokee and Creek acknowledged the Hightower Trail as the line dividing their territories.

The 1700's and early 1800's were a time of tremendous upheaval and cultural change for the Creek and Cherokee. By the 1820's, treaties signed with early European colonizers, followed by the United States federal government had drastically reduced the land base of the Creek and Cherokee. The Creek Nation signed the Treaty of Indian Springs in 1825, which ceded the remainder of their land in Georgia. The Cherokee Nation refused to cede their remaining land in the Southeast, however relentless pressure, harassment and violence from the State of Georgia and the white citizens of Georgia eventually resulted in a small faction of Cherokee leaders to sign the Treaty of New Echota in 1835 without authorization from the Cherokee government. That treaty ceded the remainder of their land in the east in exchange for financial compensation and the promise of a permanent territory in the west.

The Cherokee government fought removal through legal and political means, as the vast

majority of Cherokee people did not want to leave their homes and their homelands. However, in 1838 the military enforced the Treaty of New Echota and forced Cherokee families out of their homes and into temporary detainment at forts that were established throughout the region. Fort Buffington was located 27 miles north of High Meadows School, along the Etowah River north of Canton, GA. This is likely where the Cherokee citizens that lived in what is now Roswell were detained. The harsh weather of 138-1839 made the trip west challenging, and provisions were inadequate. Approximately 4,000 Cherokees died during the journey to Indian Territory, what has become known as the Trail of Tears.

Georgia had anticipated the eventual removal of the Cherokee, and had conducted a land lottery in 1832 to divide and distribute Cherokee land and homes to Georgia citizens. The area was so large that it was subdivided into Sections, Districts, and Lots. Lots were either designated as Land Lots or Gold Lots. Land Lots were 160 acres in size, and the Gold Lots were 40 acres each. The three images below show a progressively more detailed look at the location of High Meadows School.

CAMPUS HISTORY



Figure 2. Map of the Second
Section of the Cherokee
Lottery (Green, 1830)

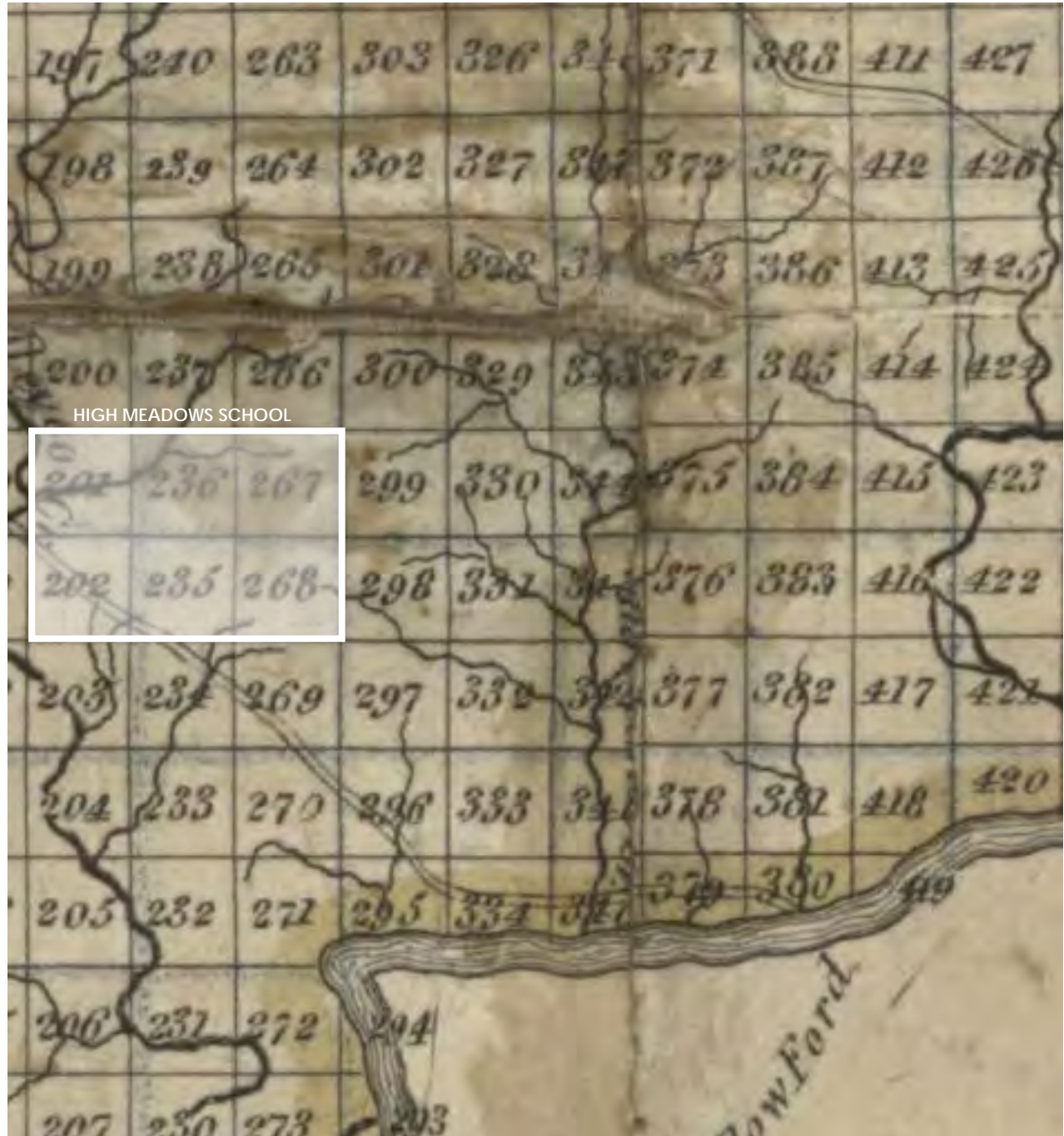
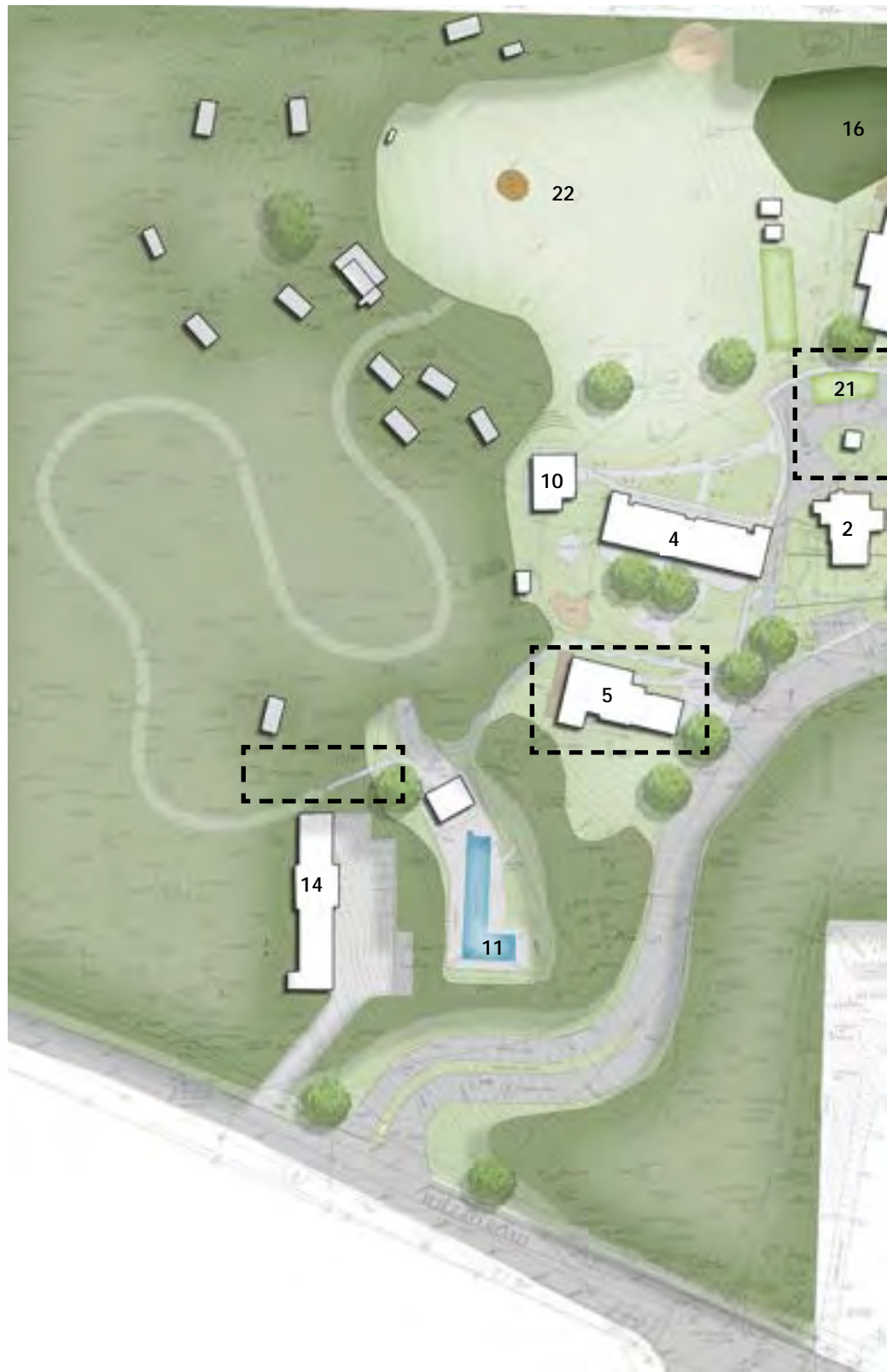


Figure 3. Portion of Section 2, District 1 of the Cherokee lottery. Lots 201, 202, 235, 236, 267 and 268 are High Meadows School campus. The major creek flowing north to south through the image is labeled Willeyoo Cr. (today spelled Willeo). The double line running SE to NW is the Hightower Trail, which crosses the Chattahoochee River at "Shallow Ford."

- KEY AREAS:**
1. CRAWFORD CABIN
 2. STONE COTTAGE
 3. CONNECTIONS BUILDING/LIBRARY
 4. PRESCHOOL
 5. FRANKLIN HOUSE
 6. LOWER YEARS
 7. ELEMENTARY
 8. CABOOSE
 9. MIDDLE YEARS
 10. BARN THEATER
 11. POOL HOUSE
 12. COMMUNITY CENTER
 13. MODULAR CLASSROOM
 14. MAINTENANCE SHED
 15. BASKETBALL COURT
 16. DETENTION POND/AREA
 17. OVERLOOK
 18. PONY BARN
 19. TINKER SHED/WOOD WORKING
 20. "THE DITCH"
 21. MEMAW'S GARDEN
 22. UPPER MEADOW
 23. LOWER MEADOW









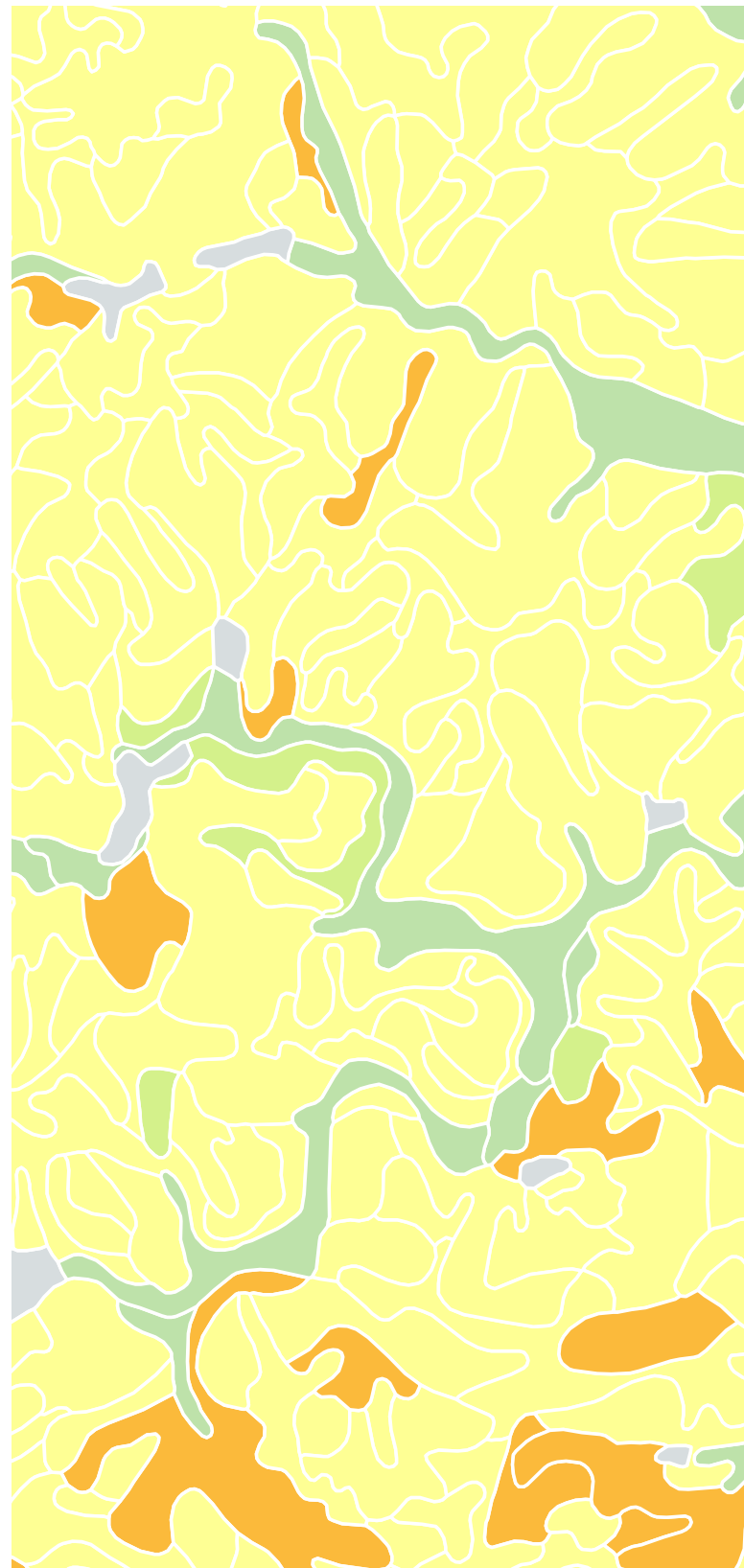
EXISTING SITE PLAN



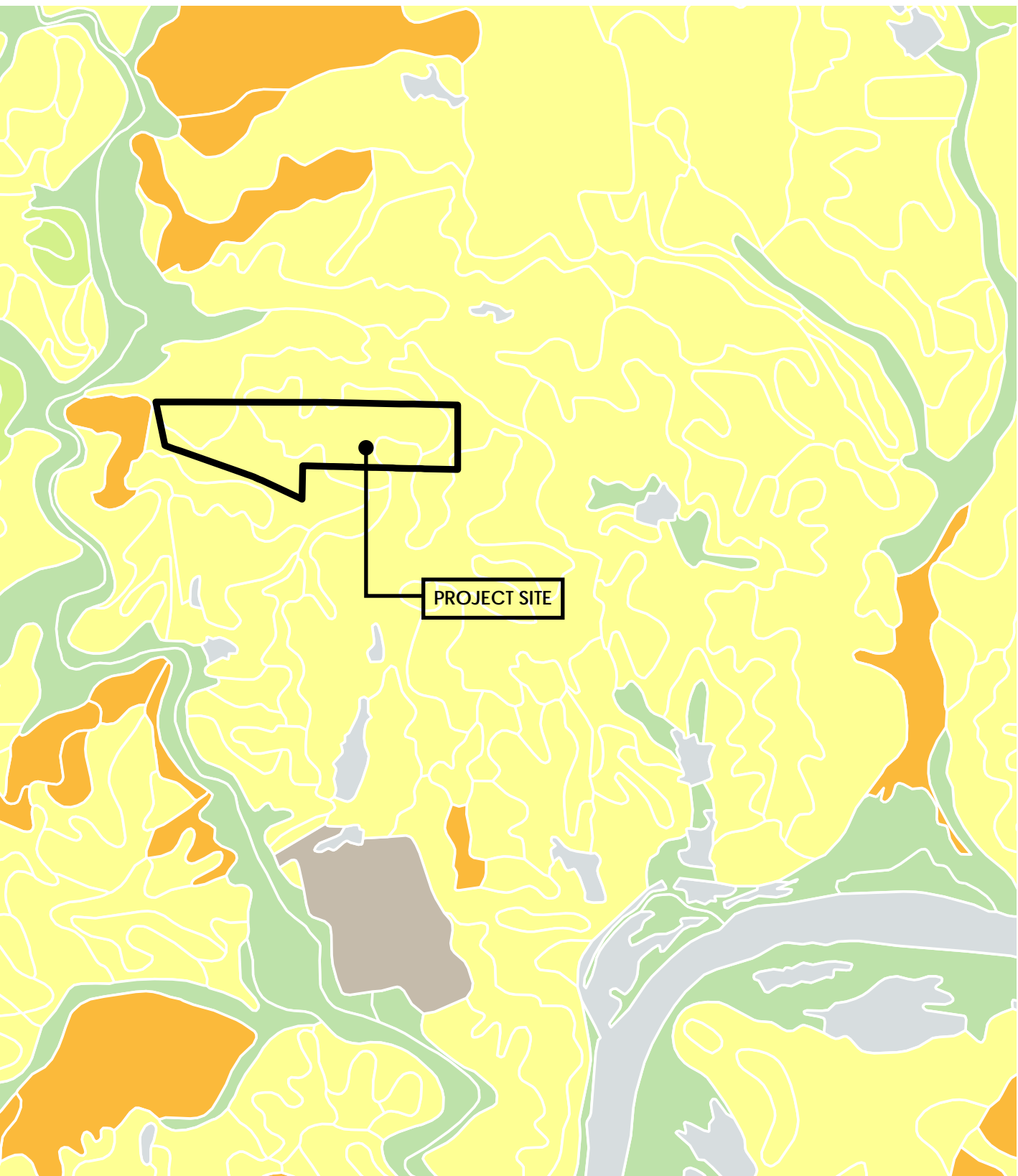
SOILS

LEGEND

	ENTISOLS little or no horizonation or swelling clay
	INCEPTISOLS little or no B horizon development
	ALFISOLS moderate leaching; B horizon enriched in clay; humid forest vegetation
	ULTISOLS warm, humid climate; B horizon enriched in clay; extensive leaching
	BODIES OF WATER
	NO SOIL



Note: The U.S. Soil Taxonomy classifies soils within a hierarchy of six categories. Only the highest-level category, order, is discussed here. Soil orders are named by adding the suffix -sol to a root word, as shown in the table of the U.S. Soil Taxonomy. The resulting 12 soil order names thus represent a classification based either on parent material or on processes related to the five factors of soil formation as reflected in diagnostic horizons.



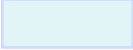


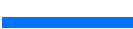
HYDROGRAPHY



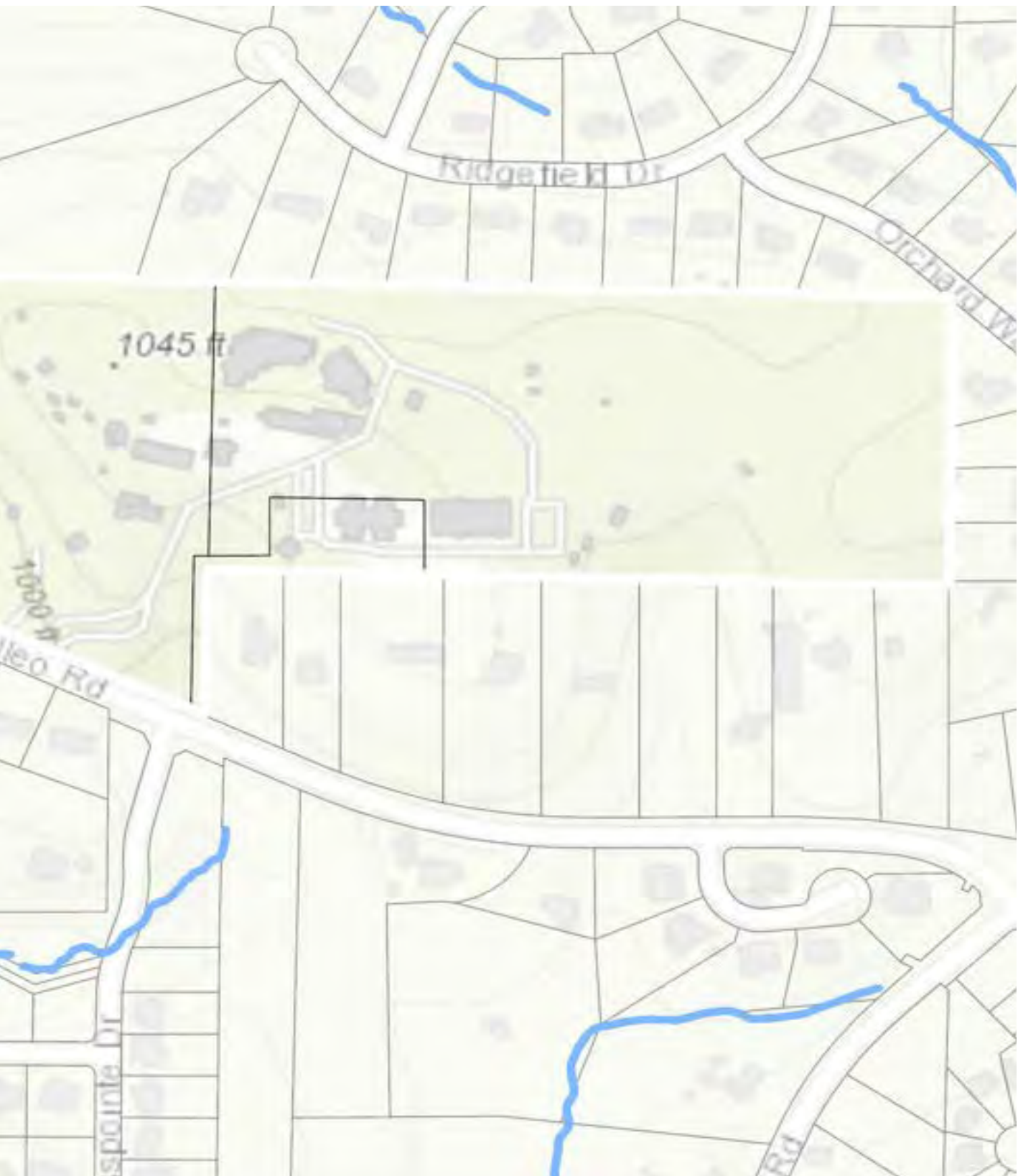


HYDROGRAPHY

LEGEND

	WATER BODIES
	WETLAND
	FEMA FLOODPLAIN
	STATE WATERS














AERIAL

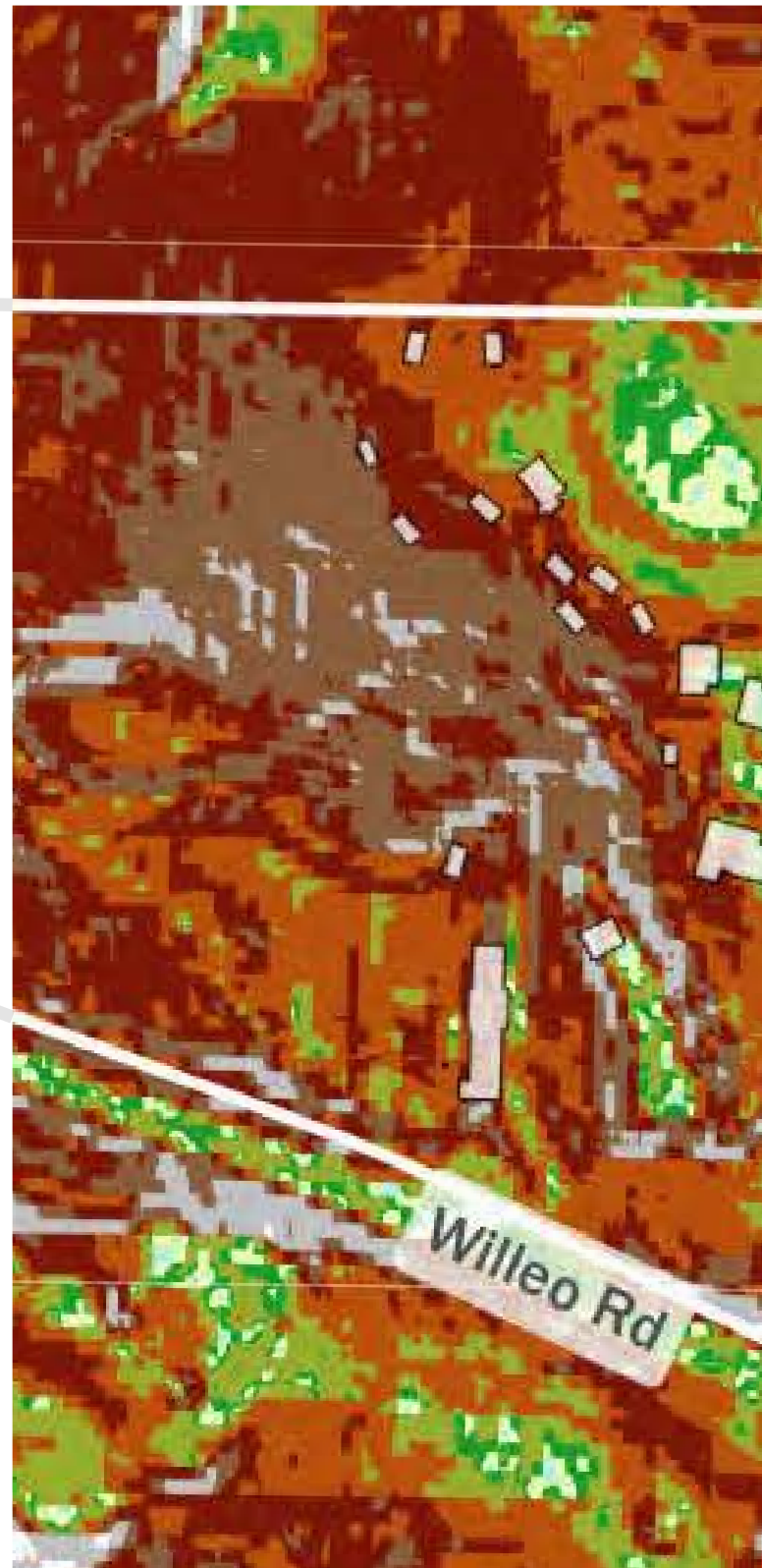


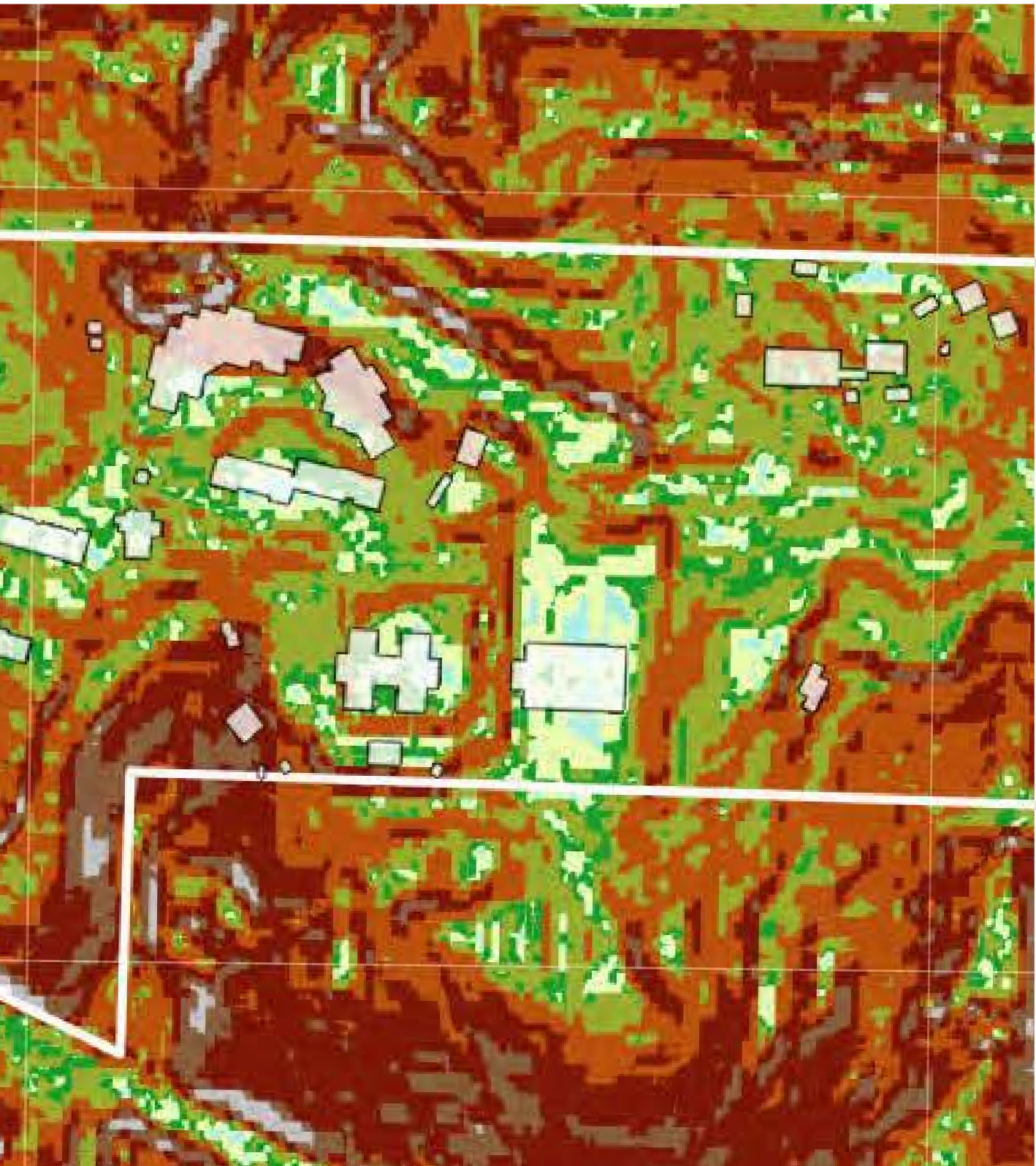


SLOPE

LEGEND

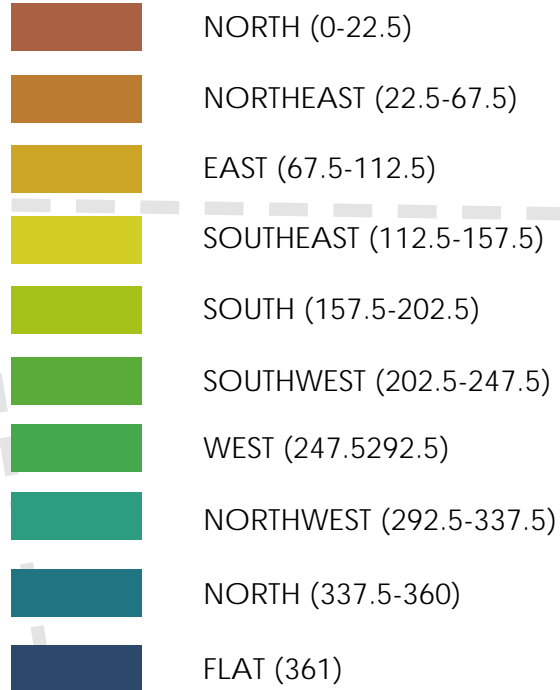
	FLAT (0°)
	NEARLY LEVEL (1°)
	GENTLY LEVEL (2°)
	GENTLY SLOPING (3° - 5°)
	STRONGLY SLOPING (6° - 10°)
	GENTLY STEEP (11° - 15°)
	MODERATELY STEEP (16° - 20°)
	STEEP (21° - 30°)
	VERY STEEP (31° - 90°)





ASPECT

LEGEND

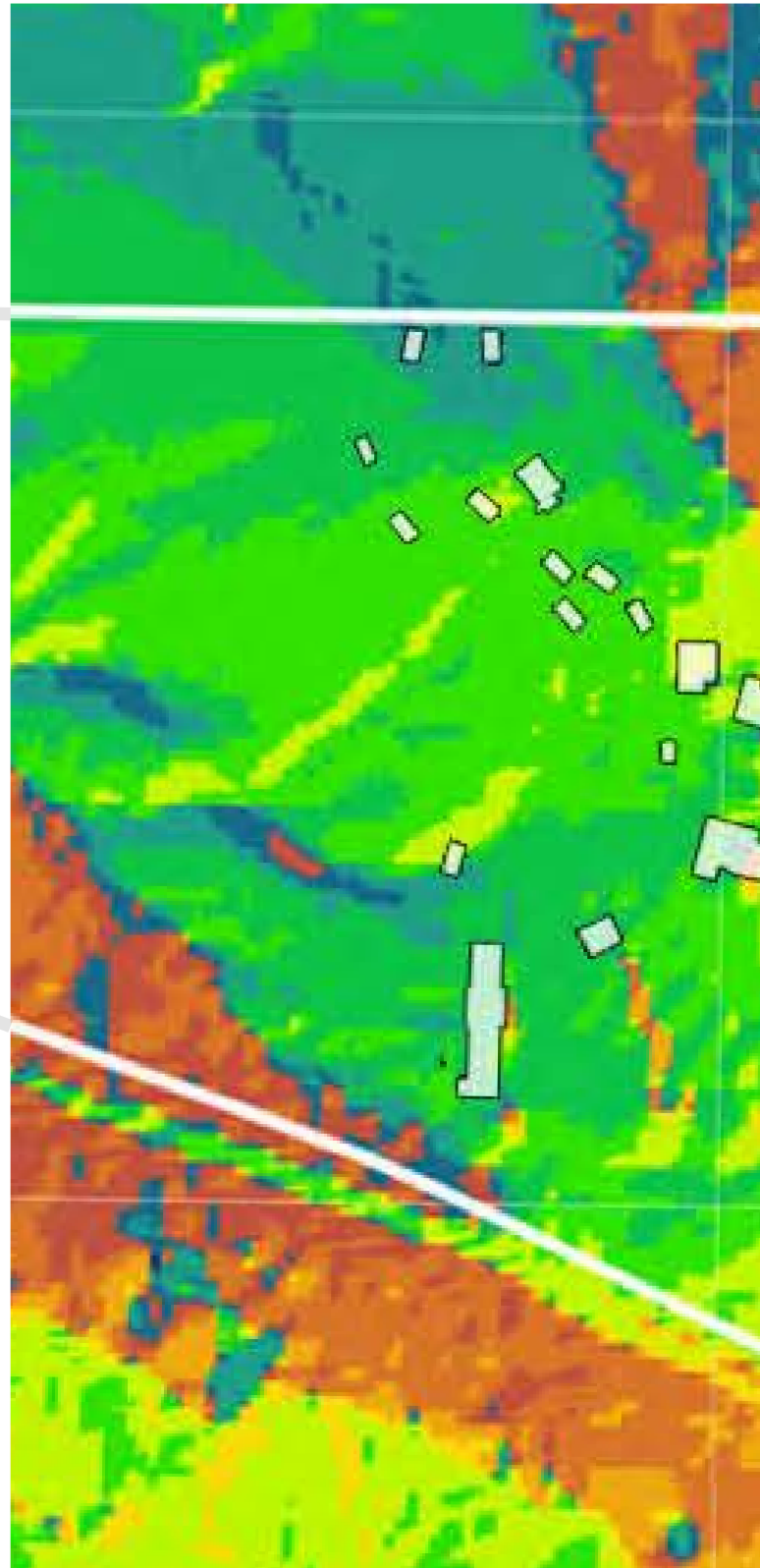


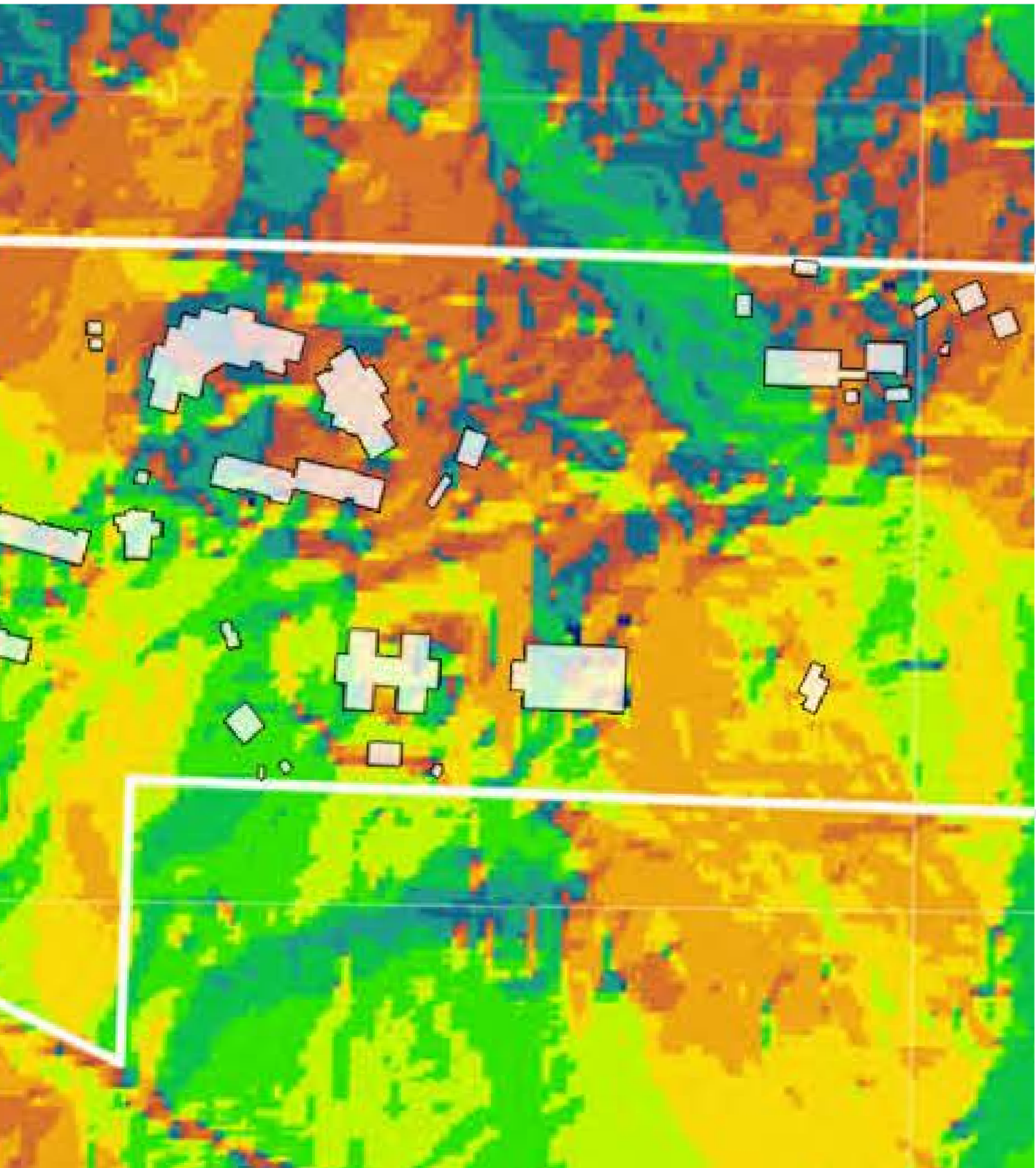
Uses and applications of aspect maps:

The direction a slope faces with respect to the sun (aspect) has a profound influence on vegetation, and construction.

MICROCLIMATE: When you expose slopes to sunlight, it creates microclimate conditions. In other words, these are mini-climate areas different from the area around them. For example, there can be a south-facing hill that supports small woody plant species because it is much hotter, dryer, and more desert-adapted. If you compare this to the opposite side, north-facing slopes receive less direct sunlight because of their orientation.

BUILDING CONSTRAINTS: Prohibiting construction on south-facing slopes because they undergo more extensive freeze/thaw cycles. This freeze/thaw cycle can erode the ground beneath and reduce the overall stability. Aspect data can determine these prohibited building zones.







WHAT LIVES ON CAMPUS?



The term flora refers to the plant life that exists in a particular place at a particular time. This typically includes all indigenous plant life, and the use of flora in this fashion was coined by the French-Swiss botanist and geologist Jules Thurmann. Similarly, fauna refers to animal life that exists in a particular place at a particular time, and the use of fauna in this fashion was codified by Swedish zoologist Carl Linnaeus.

Flora and fauna are umbrella terms that refer to many different types of life. What is counted as flora and fauna is dependent upon the specific region, climate, or time period. A region might be a specific habitat or biome like grasslands or savannas. For this reason, what classifies as a particular group of flora or fauna can be up for debate depending upon how groups of scientists classify a time period or region.

FLORA

What is a native plant?

Native plants are the plant species that are naturally found in a specific area. Plants introduced from other regions of the United States or other parts of the world are called exotics. Native plants have evolved in each region over the course of hundreds of thousands of years. These plants thrive in the local soils, rainfall levels, weather, and climate conditions. Native plants support local ecosystems better than introduced species,

primarily by supporting food webs far better than non-natives. When one plants natives in a particular area, one helps to create wildlife corridors that are necessary to sustain groups of plants and animals in our highly altered modern landscapes. Additionally, native trees and flower beds typically require less fertilizer and water than lawns.

Wildlife evolved alongside the native plants in each particular region and use those natives as food, and

shelter. As a result, nearly every living creature on the planet relies on native plants for survival. They are the foundation of local food webs, giving butterflies, birds, and other wildlife what they need to survive.



Southern Shield Fern is an adaptable, deciduous, native fern. It is aptly named, as it is native to every state in the southeastern United States. There is something about the heat and humidity of the deep south that allows it to prosper here.



Both native and non-native plants are thriving on the High Meadows campus. Categories of plantings throughout the campus include: foundation plantings, educational zones, wildlife habitats, wetlands (ie. retention pond), woodland edge, meadows, and trails. Notable existing native foundation and base plantings along campus building facades include native species, such as

Scentless Mock Orange, Southern Shield Fern, Grancy Greybeard, Sweetshrub, Bottlebrush Buckeye, and American Beautyberry.

The landscape around the pool area presents an exciting educational opportunity. In addition to Tulip Poplars and native azaleas, blueberry shrubs, mulberry trees, and other various fruit trees are thriving.

Alternatively, the Shadow

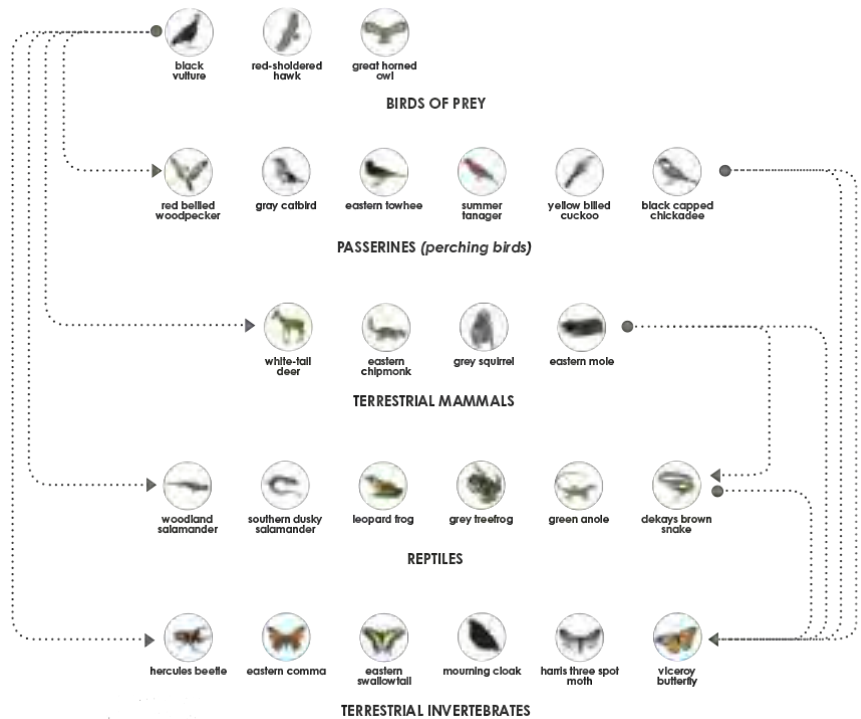
Fox Trail is made up of a mature hardwood forest, mostly natives, many ephemerals, and unfortunately, invasive exotics. Four native species in this area include Wild Ginger, Jack the Pulpit, American Beech, and Redwing Milkweed. Non-natives in this area include Japanese stiltgrass, Chinaberry, and Bigleaf Periwinkle.



FAUNA

The Shadow Fox Trail houses the most intact ecosystem on campus, even with its absence of old growth and presence of exotic invasives. Several indicator species thrive along the trail and in the adjacent naturalized areas. For example, Woodland salamanders, like the *Plethodon* species are an essential part of the food chain and ecosystem. They spend their entire lives under rotting logs and leaf litter. Unfortunately, exotic ant species like Asian Needle Ants and South American Fire Ants are taking over these habitats. The *Desmognathus auriculatus*, Southern Dusky Salamander, is an indication of a healthy stream ecosystem. Unlike the *Plethodon*, this species requires aquatic areas for reproduction. These ephemeral wetland areas are free from major predators like fish, and therefore required by many different amphibian species for successful reproduction. Protecting these areas is paramount to preserving a thriving ecosystem.

Various insect larval host plants are thriving in this area. For example, the Tulip Poplar hosts Eastern Swallowtails, the Fringe Trees host Sphinx moths, and Inland Sea Oats host Northern Pearly Eye butterflies. Existing Eastern Redbuds and moss phlox also support important pollinators as part of this healthy ecosystem.



DEFINING ECOLOGICAL VALUE & ENVIRONMENTALLY SENSITIVE AREAS



WHAT IS ECOLOGICAL VALUE:

Ecological value means the value of vegetation in maintaining the health of the key natural heritage feature and the related ecological features and ecological functions, as measured by factors such as the diversity of species, the diversity of habitats, and the suitability and amount of habitats that are available for rare, threatened and endangered species.

Natural communities are

finely-tuned systems, where each species has an ecological value to the other species that are part of that ecosystem. Species diversity increases an ecosystem's stability and resilience, in particular its ability to adapt and respond to the ever-changing environmental conditions. If a certain amount, or type of species are lost, eventually it leads to the loss of ecosystem function.

WHAT IS AN ENVIRONMENTALLY SENSITIVE AREA:

Environmentally Sensitive Areas are places that have special environmental attributes worthy of retention or special care. These areas are critical to the maintenance of productive and diverse plant and wildlife populations. They range in size from small patches to extensive landscape features, and can include rare and common habitats, plants and animals. Development proposals that demonstrate good environmental stewardship including the protection of environmentally sensitive areas help to create unique developments that have the community support. Design developments that allow for the continuation of ecological processes and connect environmentally sensitive areas to nearby habitats using wildlife corridors are essential for ecosystem sustainability.



NEW DETENTION POND

**High ecological value, area of high sensitivity

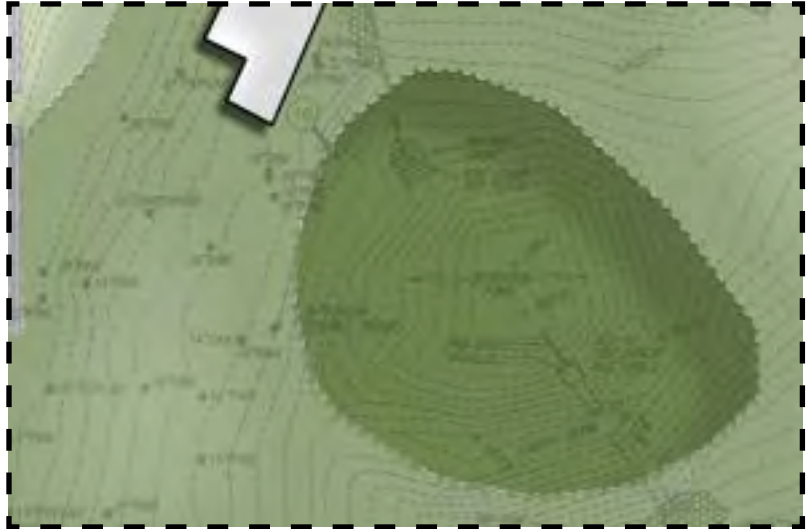


Figure 1. Plants identified in Detention Pond from existing overlook.

FRANKLIN HOUSE

**Low ecological value, area of low sensitivity

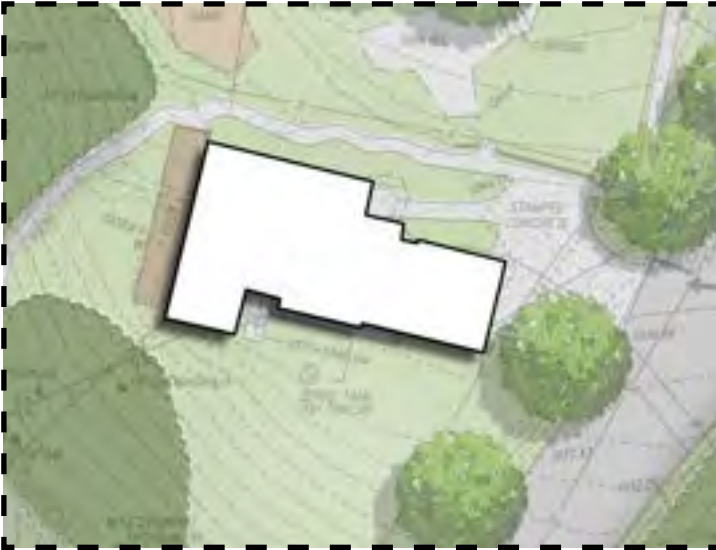
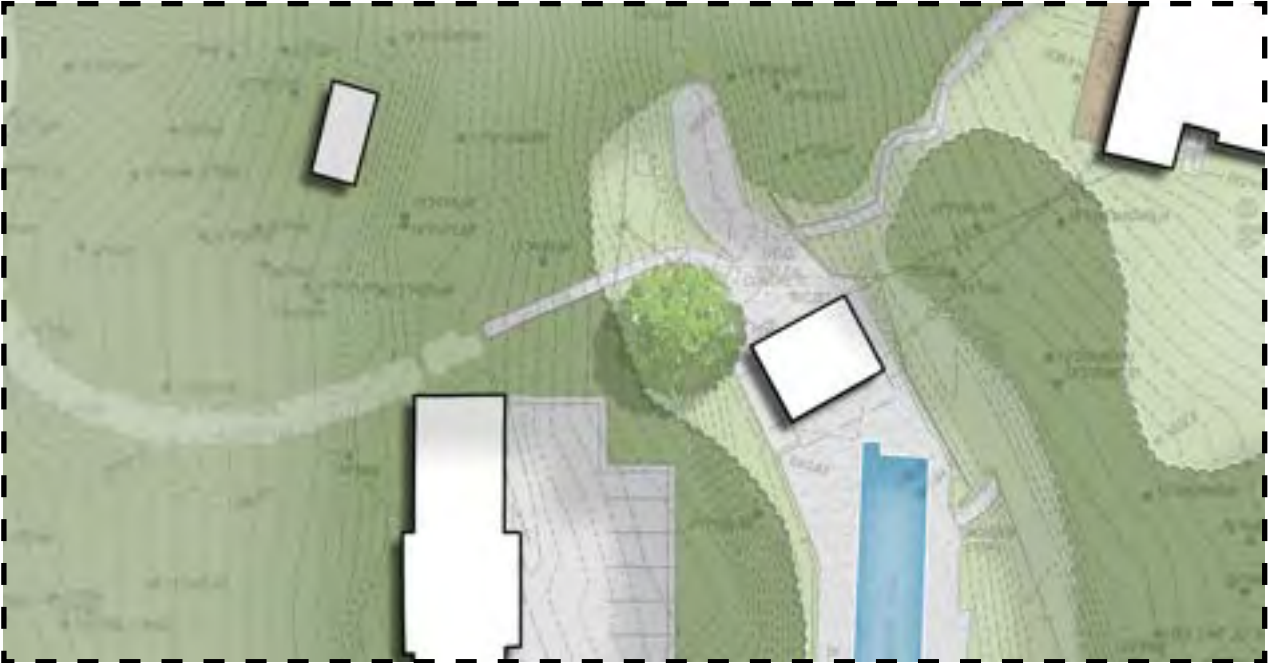


Figure 2. Foundation plants identified at entrance to Franklin House.

AREA SURROUNDING POOL & MAINTENANCE BUILDING

**High ecological value, area of high sensitivity



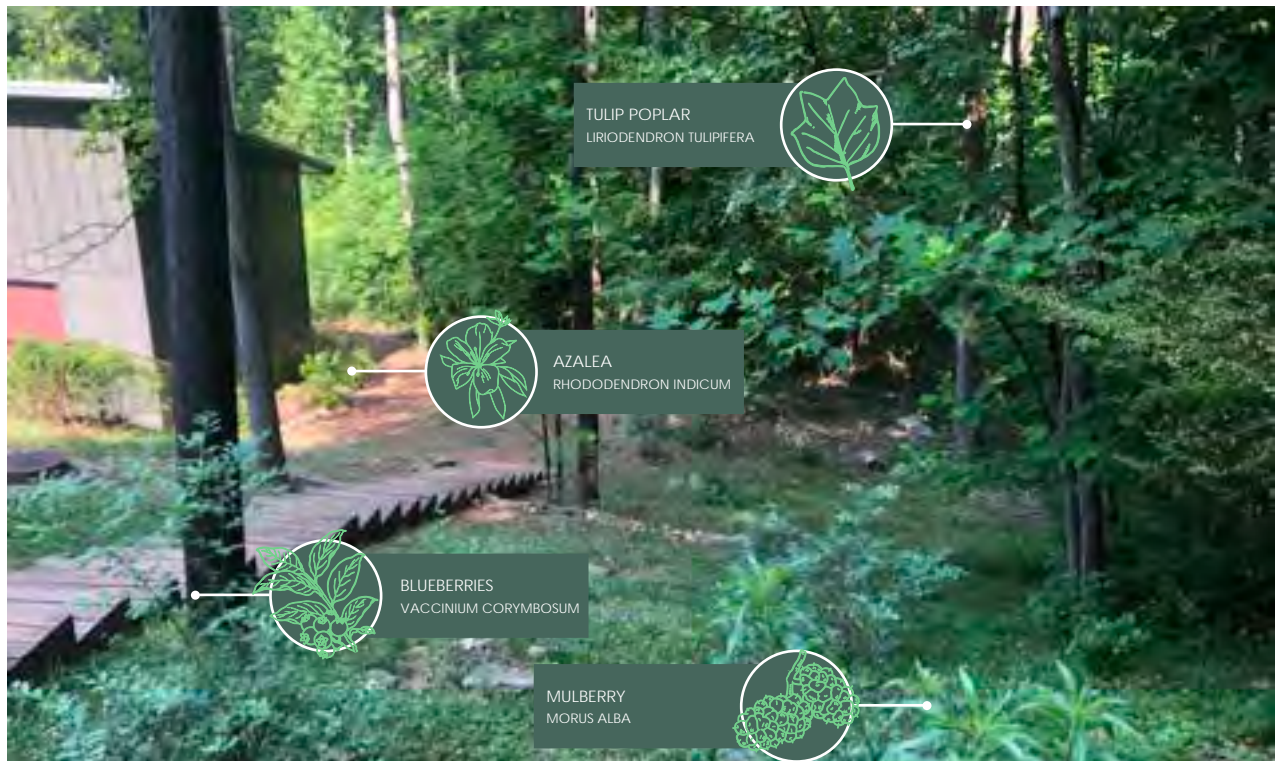


Figure 1. Plants identified along stairs connecting the pool to the maintenance building.



Figure 2. Plants identified in the seating area adjacent to the campus pool.



Figure 5. Plants identified in Memaw's Garden

MEMAW'S GARDEN

****High ecological value, area of high sensitivity**

Originally the herb and vegetable garden of Florence "Mema" Crawford, mother of co-founder Bill Crawford. Today it houses bird-feeding stations, butterfly and insect pollinators, numerous flower and herb varieties, and native plant landscapes. Students visit with each other on the gazebo's bench swing which was built by alumni and parents in recognition of our 40th anniversary.

KEY COMPONENTS:

- Gazebo
- Decorative paving
- Seating
- Garden

NOTABLE OBSERVATIONS:

- Thriving pollinator garden
- Slightly overgrown

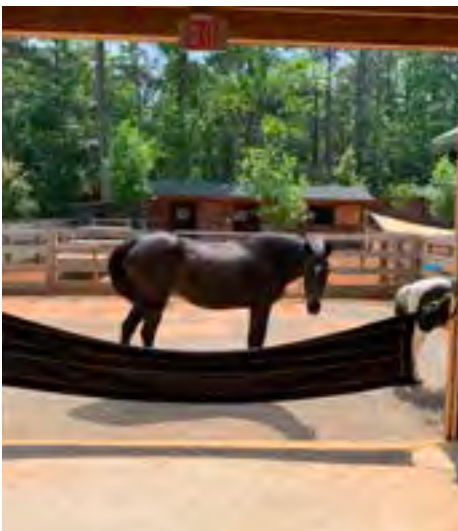
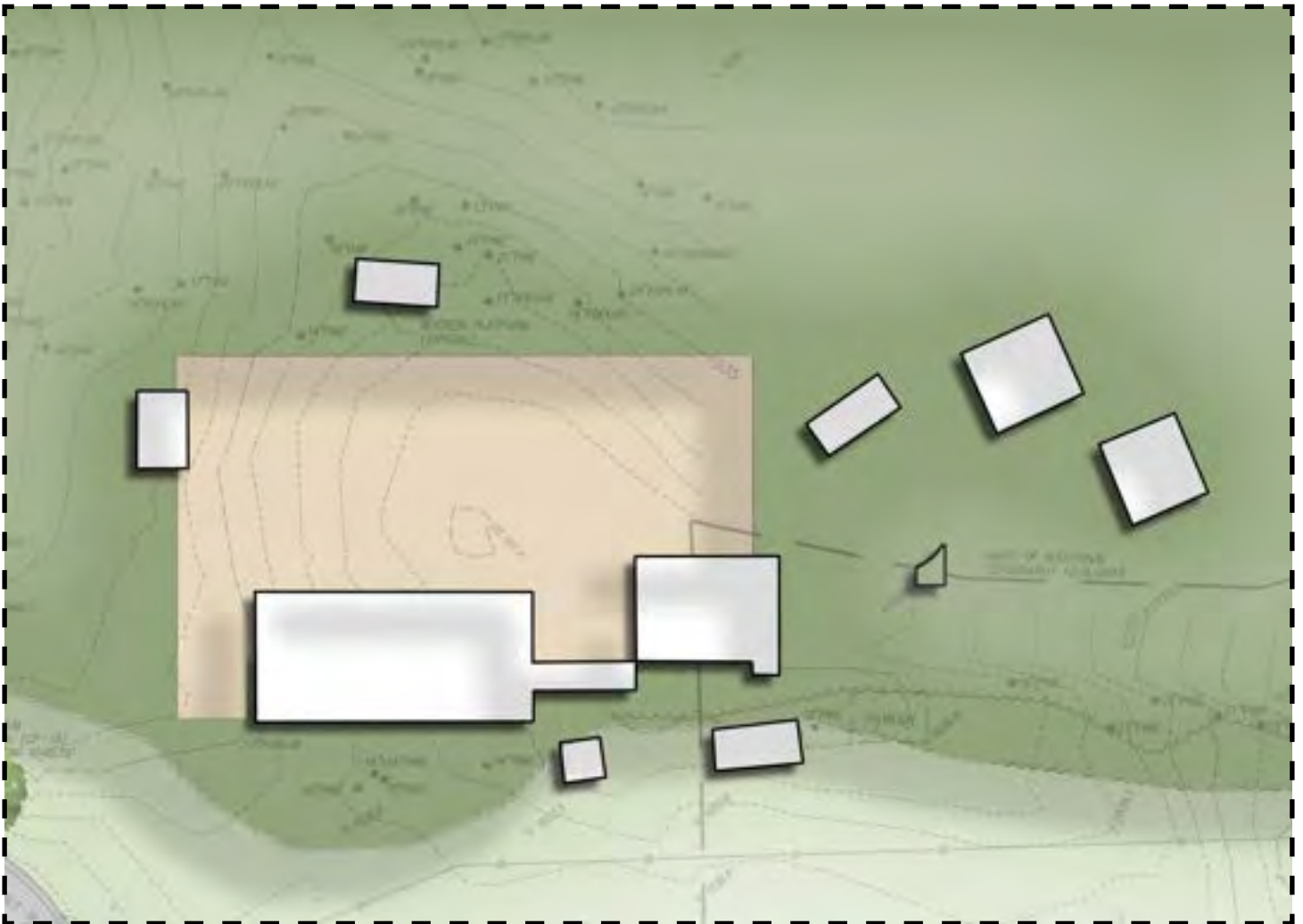
Memaw's Garden Gazebo

*Built to commemorate our
40th Anniversary*

*by our High Meadows community
November 9, 2013*

*under the skill and leadership of
Alumnus Josh Briggs '99*

*Dedicated
January 15, 2014*



PONY BARN ENLARGEMENT

**High ecological value, area of high sensitivity

KEY COMPONENTS:

- Compost area
- Paddock
- Horse Stable
- Chick-Inn
- Cabins
- Outdoor gathering area
- Bunny shelter

NOTABLE OBSERVATIONS:

- Excessive water changes chemistry of plantings in this area, which are then consumed by grazing animals. Animals become colic.
- Washout along fenceline and buildings
- Suppressed area drains

POTENTIAL PARTNERS

- Captain Planet
- Giving Gardens



WATER IN ACTION

Rainwater harvesting is collecting the run-off from a structure or other impervious surface in order to store it for later use. Traditionally, this involves harvesting the rain from a roof. The rain will collect in gutters that channel the water into downspouts and then into some sort of storage vessel. Rainwater collection systems can be as simple as collecting rain in a rain barrel or as elaborate as harvesting rainwater into large cisterns to supply your entire household demand.





Minimal issues related to drainage were noted on campus. In general, the system in place is comprised of area drains routing to either detention area. As a result of recent changes in development around campus, more area drains will need to be added and tied into the existing systems. One area in particular is around the pony barn and future vegetable garden. Significant washout will need to be remediated. In some spaces, area drains are clogged or covered; in these areas, river slicks and native plantings can be incorporated to create single rain gardens.

Along the stairway leading to the maintenance building,

a series of check dams have been installed to ameliorate issues related to drainage and erosion. This area could benefit from additional check dams and reinforcing the existing ones with proper infrastructure to further slow the velocity of runoff.



AREAS OF CULTURAL IMPORTANCE

Over the last five decades, students of High Meadows remain inspired by Native American rituals and ceremonies. This is evident throughout areas of campus that display respectful connections to the natural environment and create areas for reflection and togetherness.



Areas and gathering spaces inspired by the site's cultural importance exist throughout the site and are typically created by students. They are comprised of natural materials often found on site.

The stone labyrinth is a quiet space for students to walk and reflect. Sometimes used for

class discussion to bring focus to a learning concept, the permanent spiral of painted rocks created by previous generations of students is revered by current students and campers. These areas of campus serve as physical representations of the campus' rich history and traditions.

SIGNAGE & MATERIALS

Common materials used throughout the campus include timber, stone, reclaimed materials, decorative pavers, and mixed metals. The overall palette is eclectic, and mis-matching materials is celebrated.

The campus aesthetic is reminiscent of designing in situ, meaning the construction is completed on site and comprised of materials commonly

found on site. Inspiration for materials and finishes is drawn from nature and the surrounding environment. The campus offers a balance between nature and its built components.

While the campus has evolved and developed over the last five decades, the newly built components and the untouched, natural areas maintain of the campus maintain a high level of harmony.





CAMPUS ASSETS

The campus is comprised of dozens of unique areas, outdoor rooms, and sacred spaces. They each have their own identity and purpose. Three noteworthy areas include the Detention Pond adjacent to the basketball court, the unused open space next to the Pony Barn, and the rain garden located in the heart of the campus.

The Detention Pond is currently enclosed, overgrown, and an exceptional educational opportunity for the students. By engaging a crew, introducing native plants, and integrating signage into the existing chain-link fence, the transformed space would require less maintenance and could be incorporated into the curriculum.

The usable open space is currently a vacant lot, located adjacent to the barn. At the present moment, the open space will remain vacant to accommodate future design concepts, and potential expansion driven

by needs of the school. This space could potentially be transformed into a large vegetable garden as there is ample space and plenty of sunlight. The vegetable garden poses a unique opportunity for the school to partner with local farmer's markets or CSA programs. It is important to note of all three areas, this open space has low ecological value and is an area of little sensitivity.

The existing rain garden on campus has endless potential. The foundation appears to be intact and evidence of thriving native plants is visible. Localized areas such as these on campus support native wildlife and attract important pollinators. In order to maximize the benefit of the rain garden, removal of invasives would be necessary. Additional signage or educational materials could be integrated into the design to utilize the space for teaching opportunities.





RAIN GARDEN



USABLE OPEN SPACE

A rain garden is a depressed area in the landscape that collects rain water from a roof, driveway or street and allows it to soak into the ground. Planted with grasses and flowering perennials, rain gardens can be a cost effective and beautiful way to reduce runoff from your property. Rain gardens can also help filter out pollutants in runoff and provide food and shelter for butterflies, song birds and other wildlife.



SWOT ANALYSIS

STRENGTHS

Rich site history/
Cultural significance of site

Unique hardscape palette

Healthy ecosystems intact

Established programs
throughout campus

Partnership with Giving Gardens

WEAKNESSES

Deteriorating hardscape areas

Broken lanterns (near Memaw's
Garden)

Disparate wayfinding signage

Undesired plant material

Overgrown landscape

OPPORTUNITIES

Landscape enhancements
around school buildings

Propose additional signage for
educational purposes

Edible garden

Rainwater harvesting

Partnerships with local non-profits

THREATS

Drainage throughout

Erosion

Invasive plant material

Hazardous hardscape

Grazing animals

