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Reconnecting Roots

The Role of Nature and Culture in
Community-Based Design



Reconnecting Roots

The Role of Nature and Culture in Community-
Based Design

Approval of Thesis Research
Project Book is Presented to:

Pegah Zamani

and to the
Faculty of the Department of Architecture
College of Architecture and Construction Management

by

Ben Audinet

In Partial fulfillment of the requirements for the Degree

Bachelor of Architecture

Kennesaw State University
Marietta, Georgia

May 9, 2023

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Design Theorem

Abstract

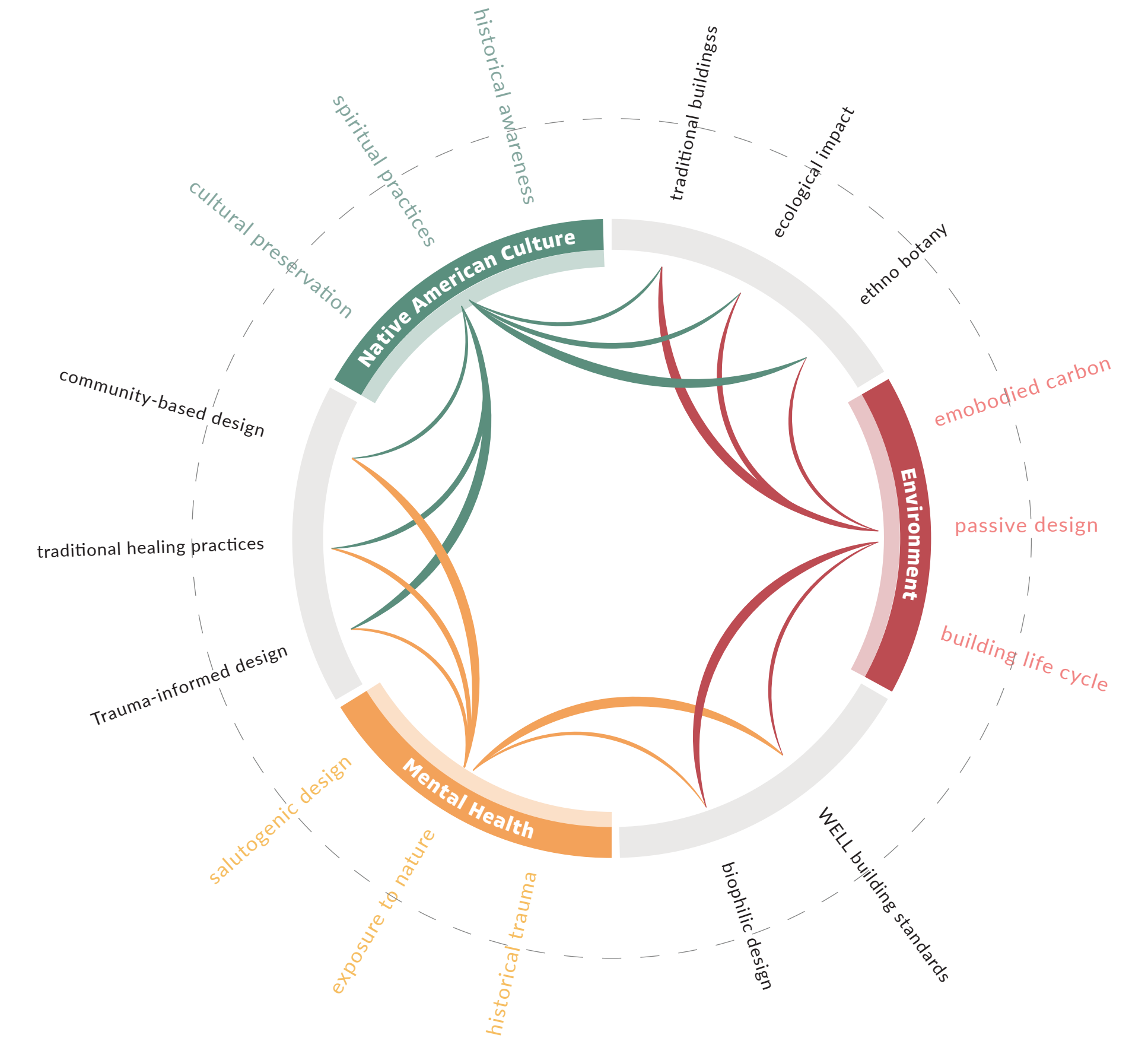
Mental health is a growing challenge in today's world despite being a critical component of well-being. One in five adults in the U.S. experience some form of mental health issues. Among that population, Native Americans suffer disproportionately with higher rates of depression, suicide, drug overdose, and Adverse Childhood Experiences (ACE). These disparities faced by the Indigenous population stem from several factors—historical trauma, social and economic inequalities, and cultural disconnect. Despite modern treatments for mental health, many individuals—both indigenous and non-indigenous—continue to struggle. Nature and the environment are a core part of Native American culture, bringing together communities. While exposure to nature has been shown to increase well-being, modern society has become more disconnected from the natural environment. This thesis explores a holistic framework integrating Native American culture, mental health, and the natural environment. Through analyzing traditional Indigenous structures and the therapeutic effects of nature, the framework aims to foster a sense of community and promote a deeper connection with the environment. The proposed design is set in Dahlonega, Georgia, a city surrounded by nature at the foothills of the North Georgia mountains, where over 500 members of the Georgia Tribe of Eastern Cherokee reside. In such a framework, the design incorporates various therapeutic spaces for people, including cultural spaces, nature-oriented areas, community-focused spaces, and dedicated healthcare facilities. Intertwining these elements aims to create an environment that addresses mental health disparities while honoring Native American culture and promoting community engagement.

1.1

Research

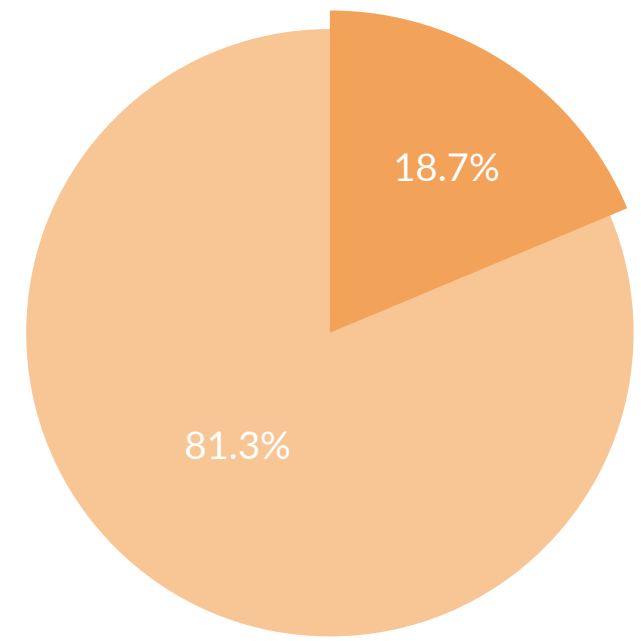
Key Concepts

This framework illustrates the convergence of the environment, mental health, and cultural integrity within architectural practices informed by Native American traditions. It underscores the commitment to ecological stewardship through sustainable design while recognizing the importance of cultural preservation and spiritual practices. The approach is community-centric, promoting environments that foster well-being and are responsive to historical contexts and traditional healing. This framework not only respects the past but actively engages with it to create spaces that are both environmentally responsible and culturally resonant.

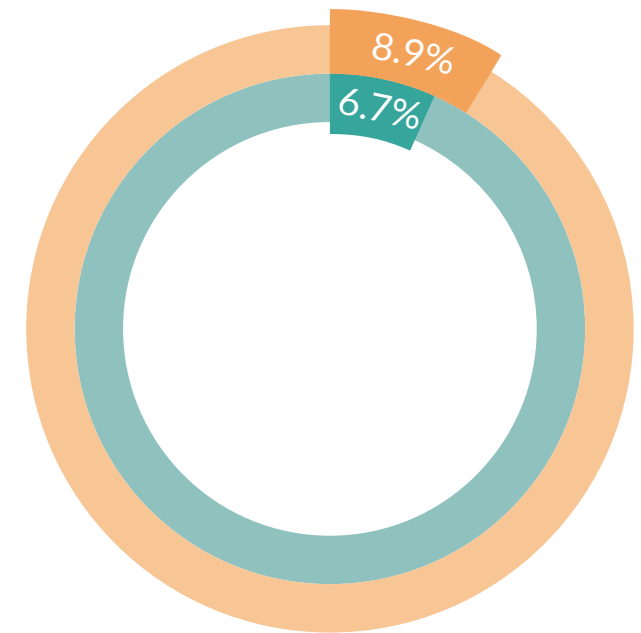


Mental Health

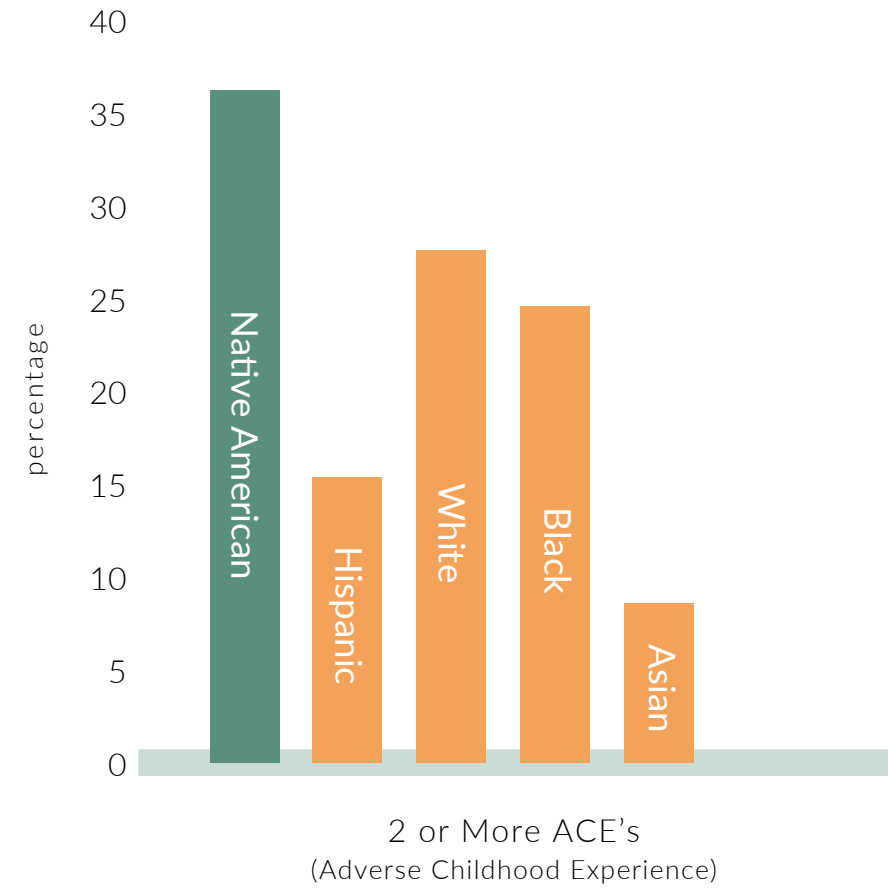
Native American Population
US Adult Population



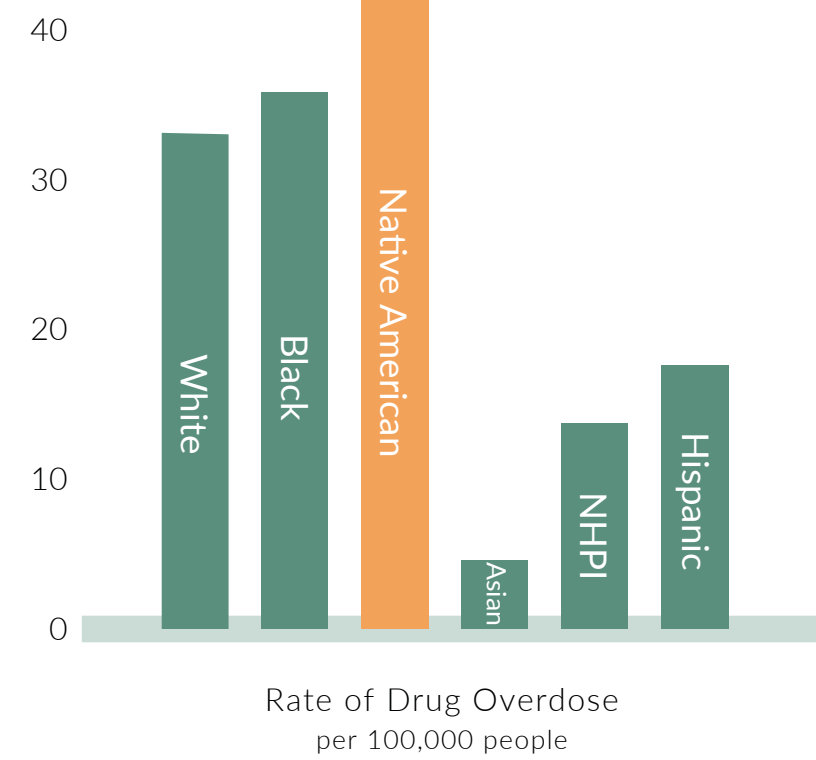
Native Americans Experiencing Mental Illness



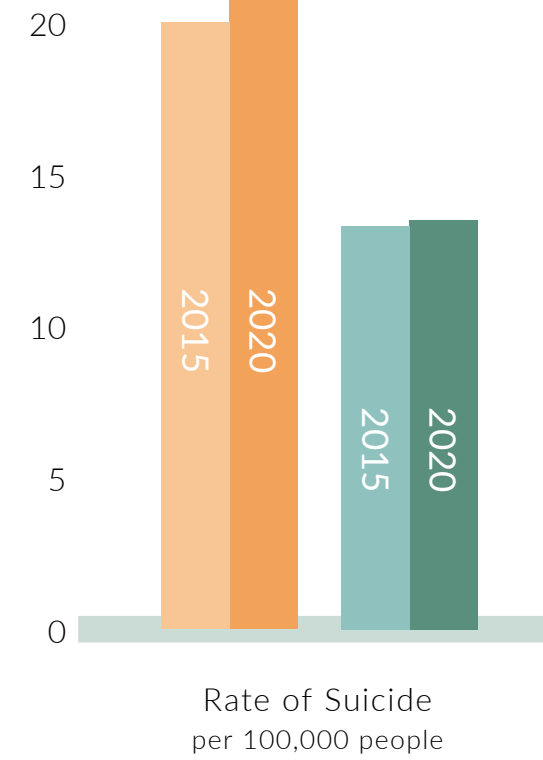
Rate of Depression



2 or More ACE's (Adverse Childhood Experience)

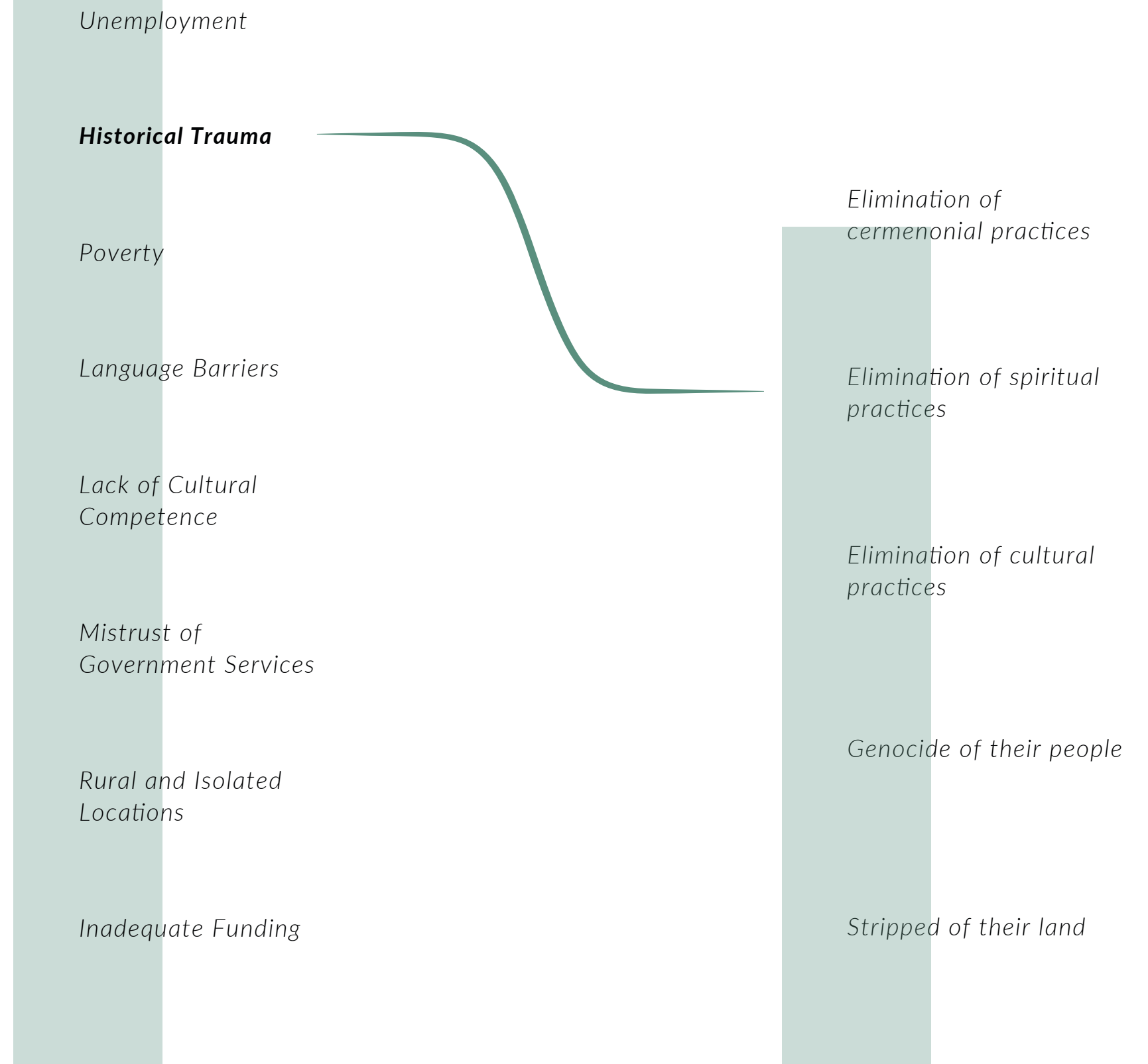


Rate of Drug Overdose per 100,000 people



Rate of Suicide per 100,000 people

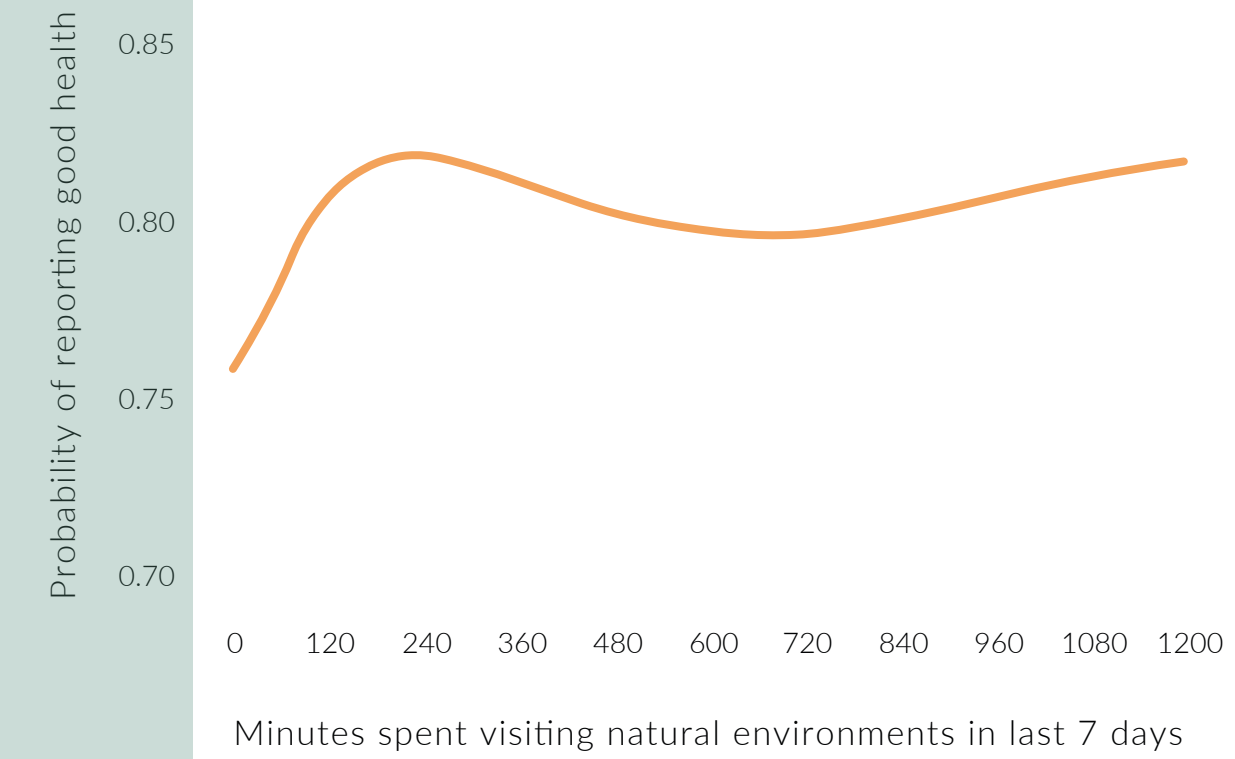
Barriers



Nature

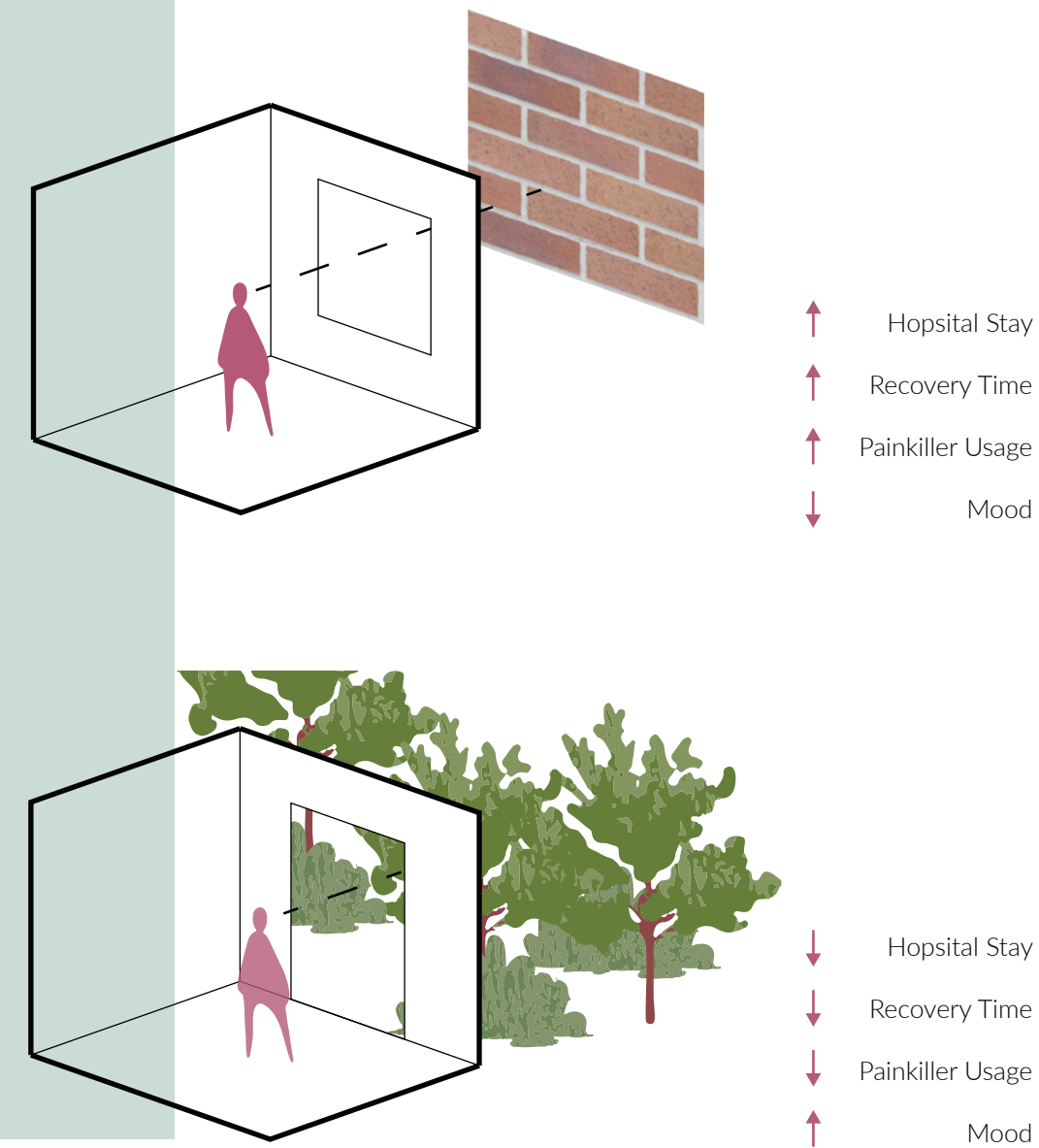
Relationship of Time Spent in Nature and Well Being

A study of around twenty thousand people found that spending at least 120 minutes a week in nature is linked to higher levels of health and well-being. Regardless of how the threshold is reached, such as through long weekend walks or regular shorter visits to local parks, positive outcomes were consistently observed. The research suggests the importance of developing guidelines for weekly nature exposure, similar to those for physical activity, to promote overall well-being and inform policy recommendations.



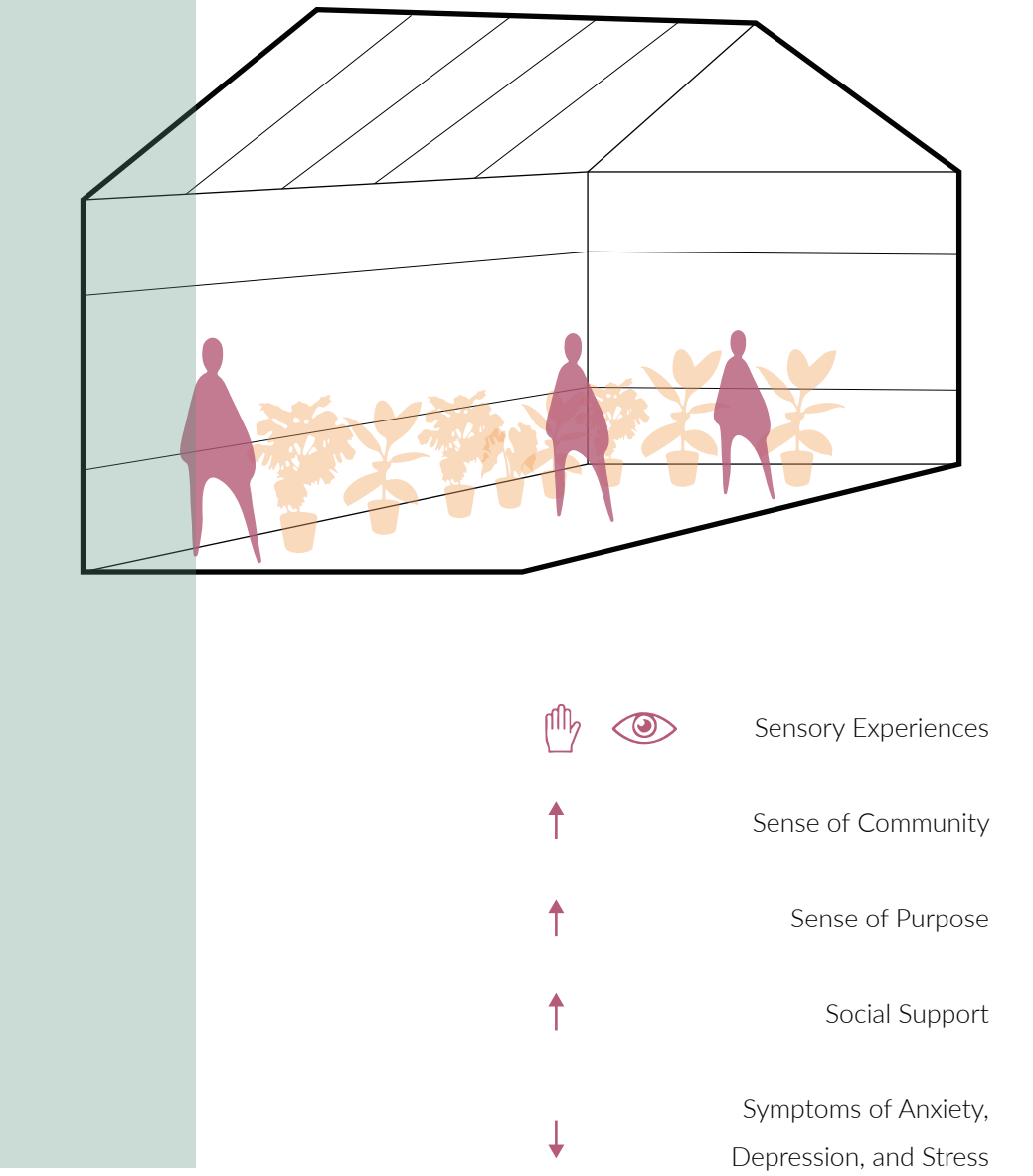
View Through Window Influence on Recovery

A comparative study titled "View through a Window May Influence Recovery Surgery," Professor of Architecture, Dr. Roger S. Ulrich, examined the relationship between natural views and recovery rates in surgical patients. The results showed that patients with a view of nature had shorter hospital stays, required fewer pain medications and had fewer negative comments in their nursing reports. The study also found that patients who had the natural view had lower levels of stress and more positive moods, as measured by self-reported mood scales.



Cultivating Recovery

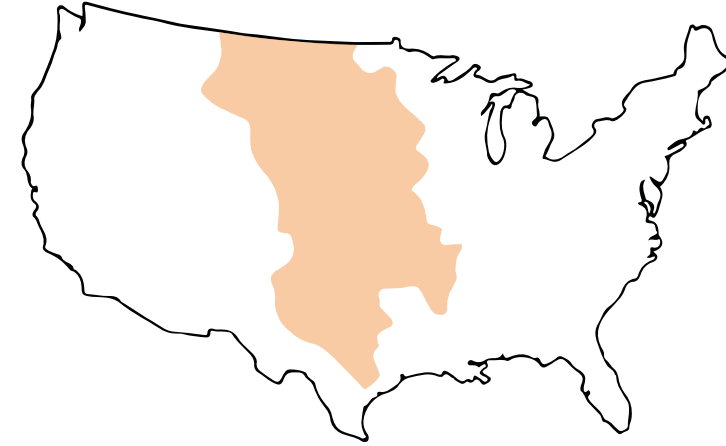
The 2018 study, "Gardening on a psychiatric inpatient unit: Cultivating recovery," explores gardening as a therapeutic intervention for mental health. Participants in a gardening program reported reduced anxiety and depression, enhanced relaxation, and improved social interaction. The sensory experiences of smells, textures, and temperatures of plants helped patients feel grounded and focused.



Traditional Indigenous Structures Tipi



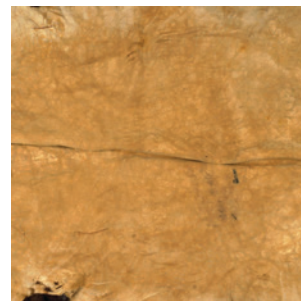
Figure 2.1



Location



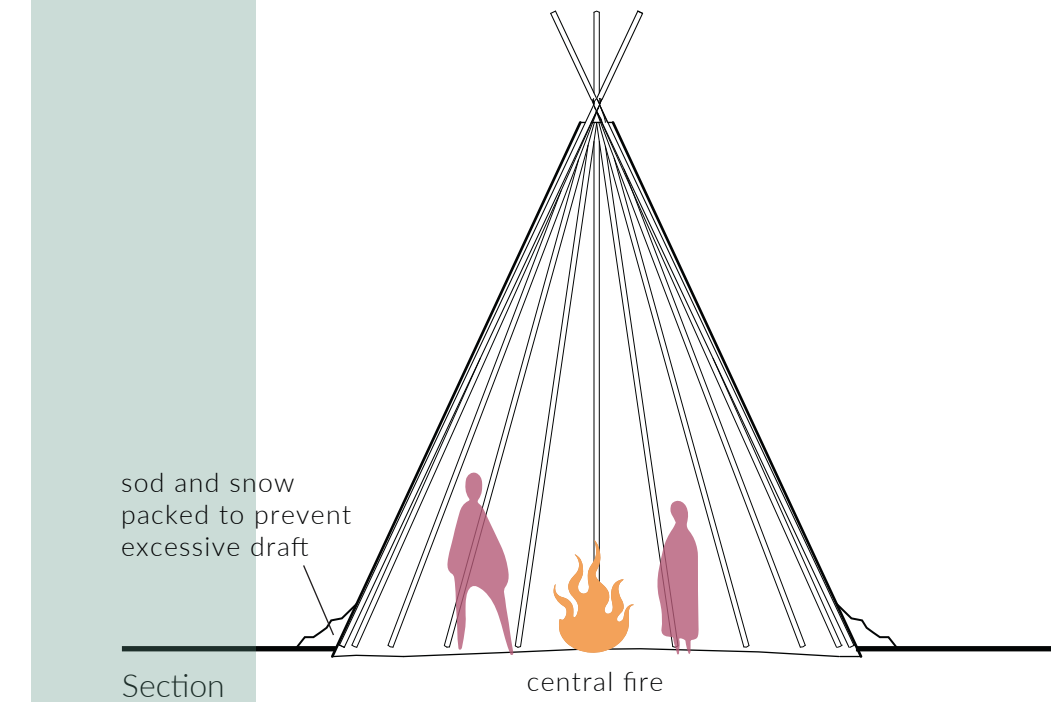
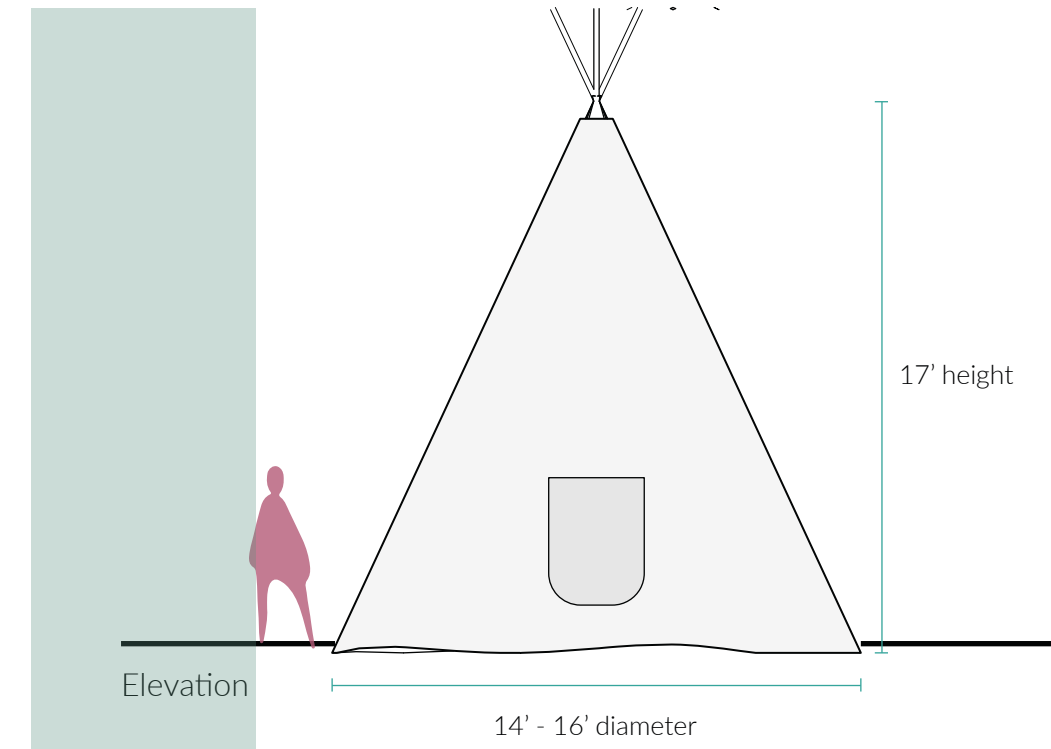
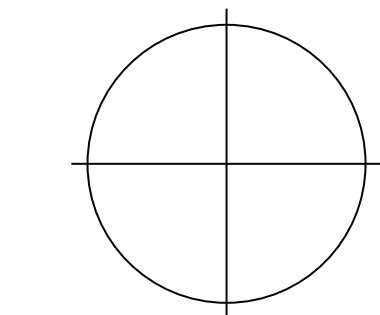
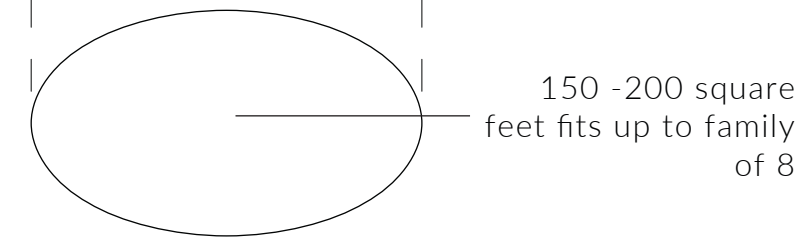
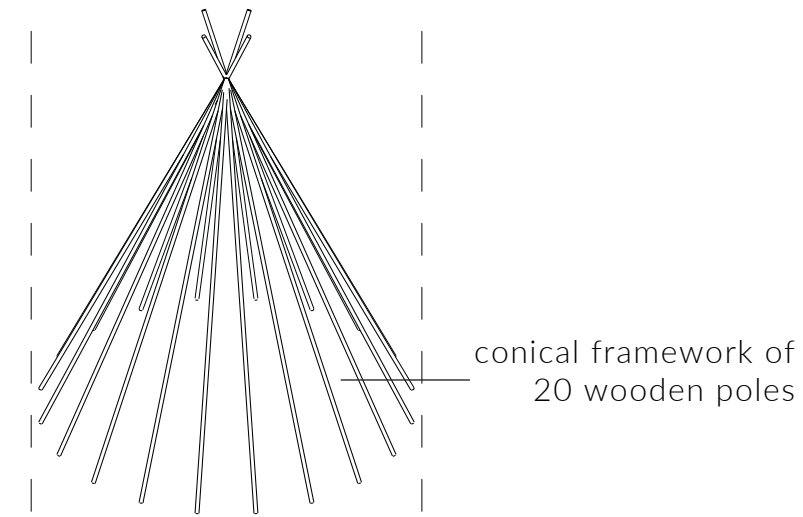
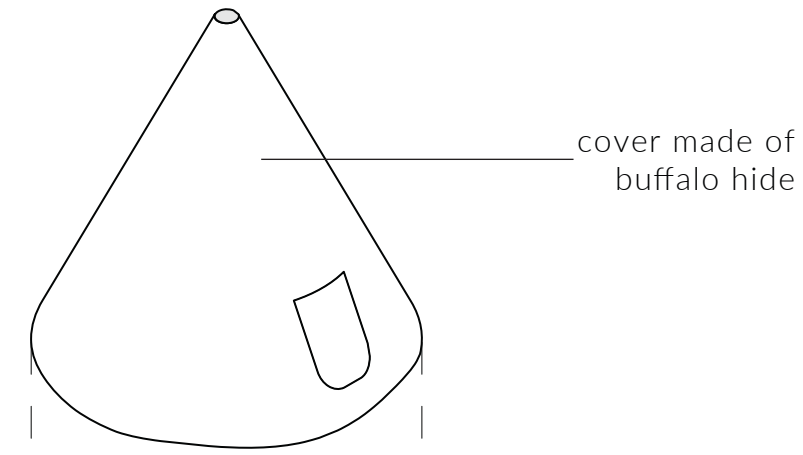
Red Cedar (Southern)



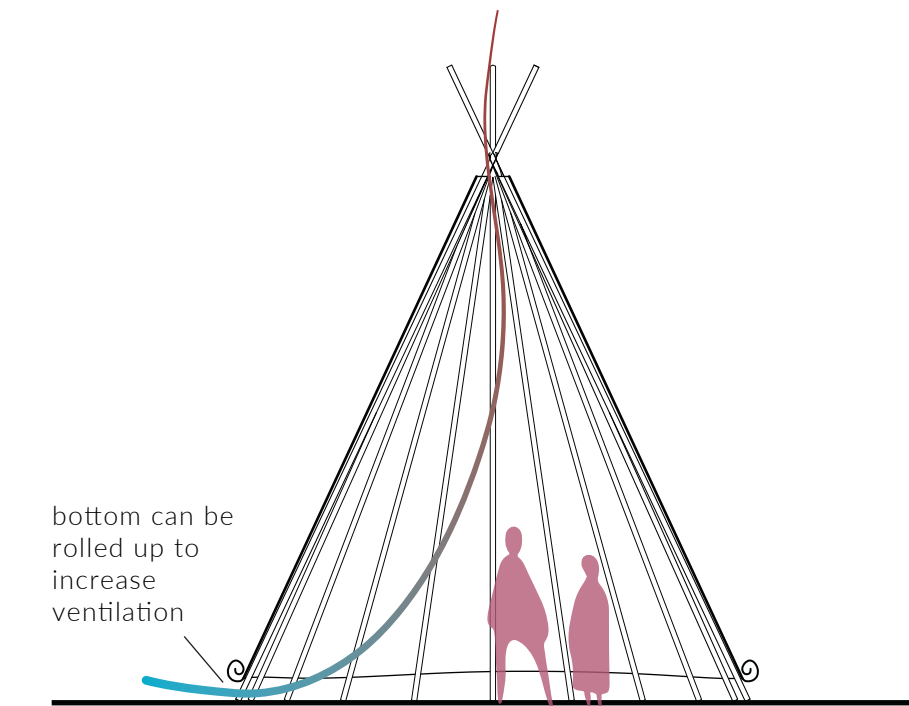
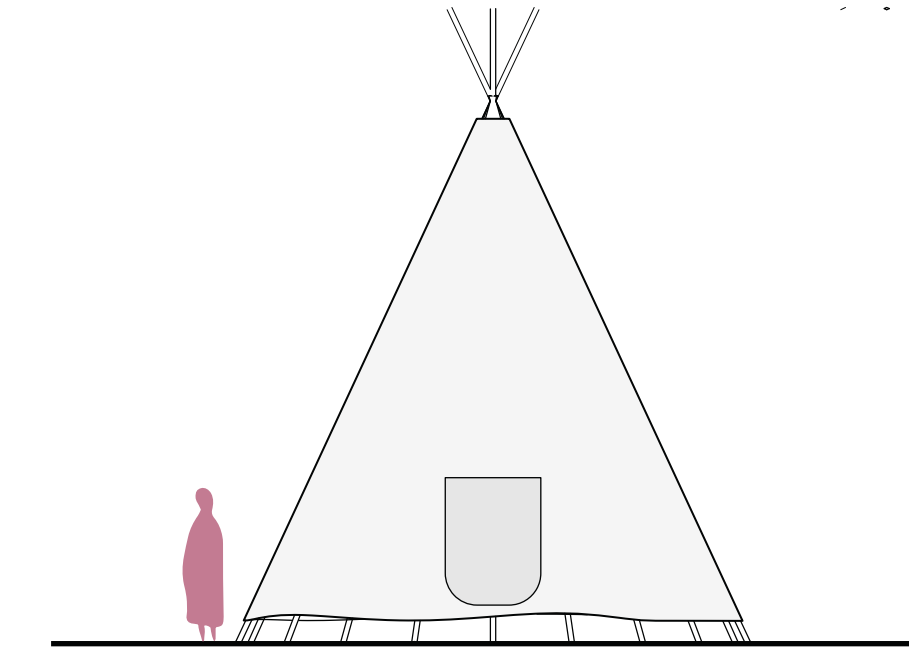
Buffalo Hide



Lodgepole Pine (Northern and Central)



Winter



Summer

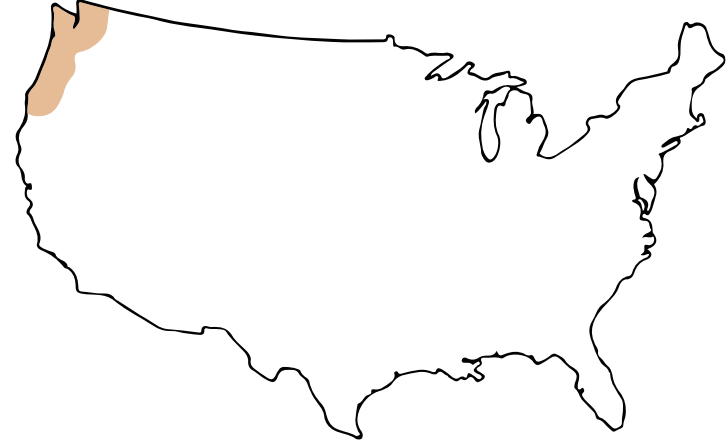
Takeaways

- A tipi is conical in shape, with a framework typically made from long wooden poles, often lodgepole pine. These poles are arranged in a circular pattern and tied together at the top, creating a stable structure.
- The tipi is traditionally covered with animal hides, such as buffalo, or later with canvas. The covering is sewn together and wrapped around the pole structure, leaving an opening at the top for ventilation and a door flap at the base.
- The top of the tipi has a smoke hole that allows for proper ventilation, especially when a fire is used inside. This design feature helps manage smoke and heat.
- The interior is typically simple, with a fire pit at the center and sleeping or sitting areas along the perimeter. Tipis can be personalized with decorative elements, including painted designs that reflect the owner's culture, beliefs, or achievements.
- The tipi is designed to be portable. It can be set up and taken down relatively quickly, allowing for easy relocation, which was essential for many nomadic or semi-nomadic Native American tribes.

Traditional Indigenous Structures Longhouse



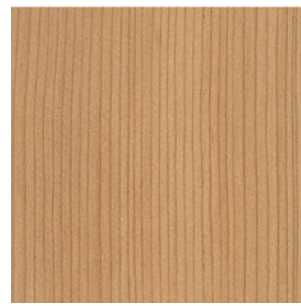
Figure 2.2



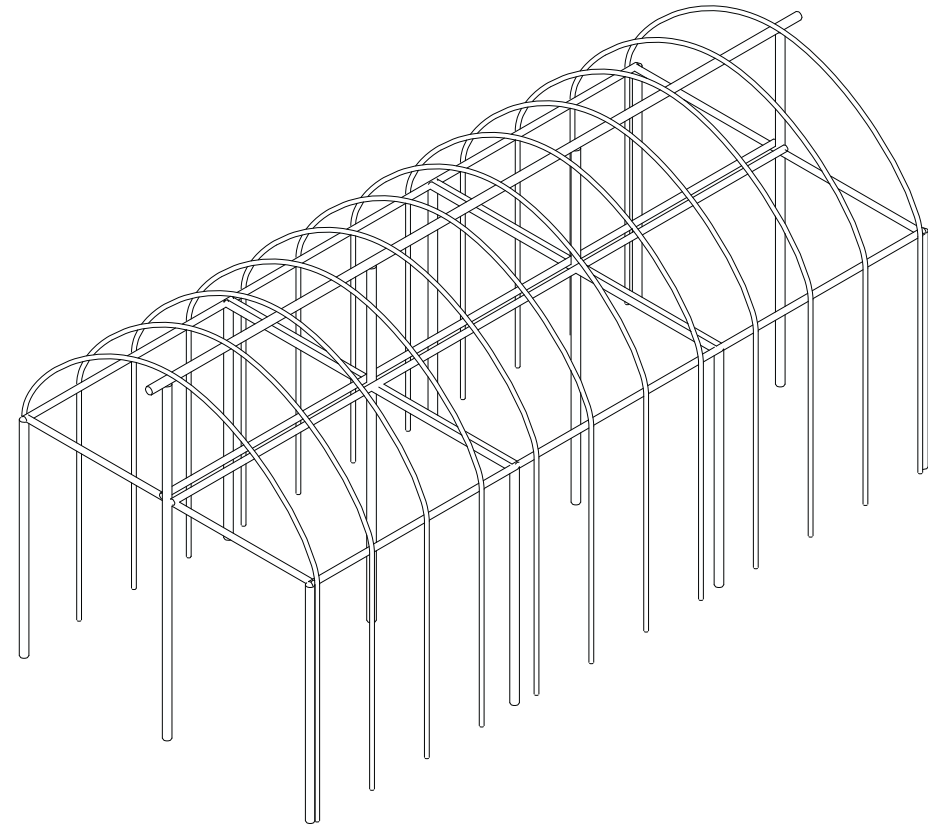
Location



Bark



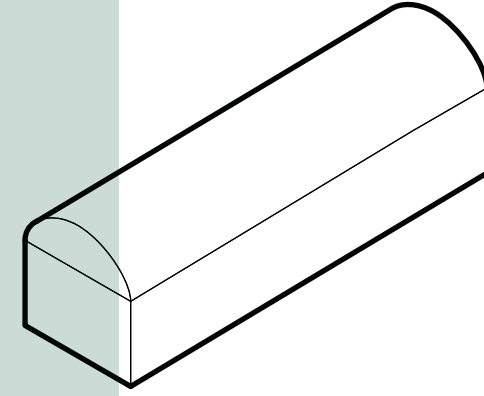
Local Wood



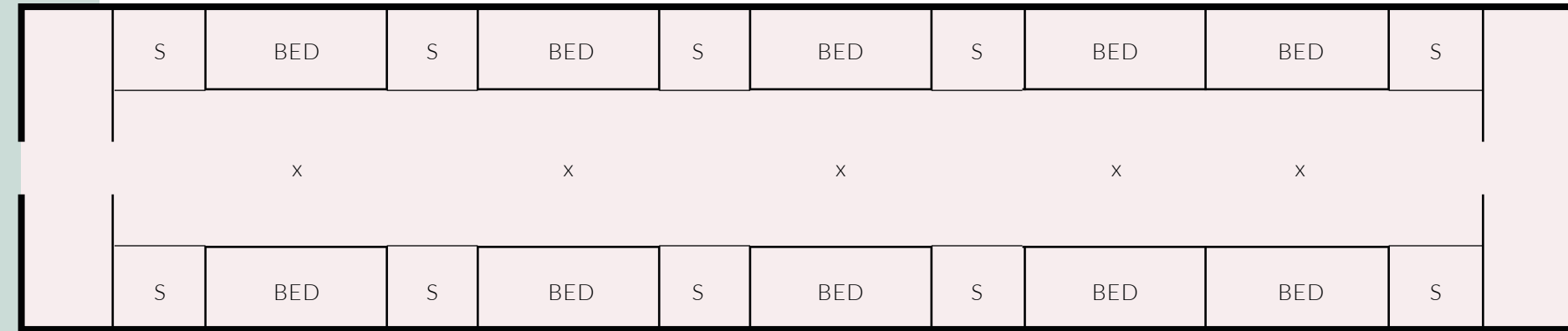
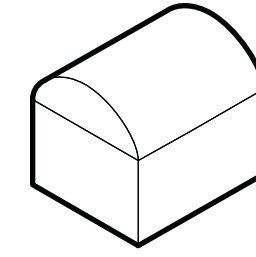
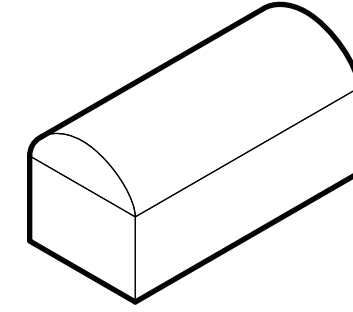
post and beam construction



Figure 2.3



varies in size based on needs of community



x central fire
s storage

Floor Plan

Takeaways

- The longhouse is a large, rectangular structure, typically built with wooden frames, often from sturdy timbers like cedar or elm. The frame is constructed with vertical posts supporting a series of horizontal beams.
- Longhouses can vary in size, but they are typically long and narrow, hence the name "longhouse." The interior is divided into compartments or sections, each typically designated for a specific family or clan within the tribe.
- The longhouse often features a central aisle with fire pits spaced along it, providing heat and a place for cooking. Openings in the roof or along the sides serve as smoke vents.
- The longhouse is designed for communal living, often housing multiple families or an extended clan. This shared space fosters close community bonds and cooperation among its inhabitants.

Traditional Indigenous Structures Plank House



Figure 2.4



Location



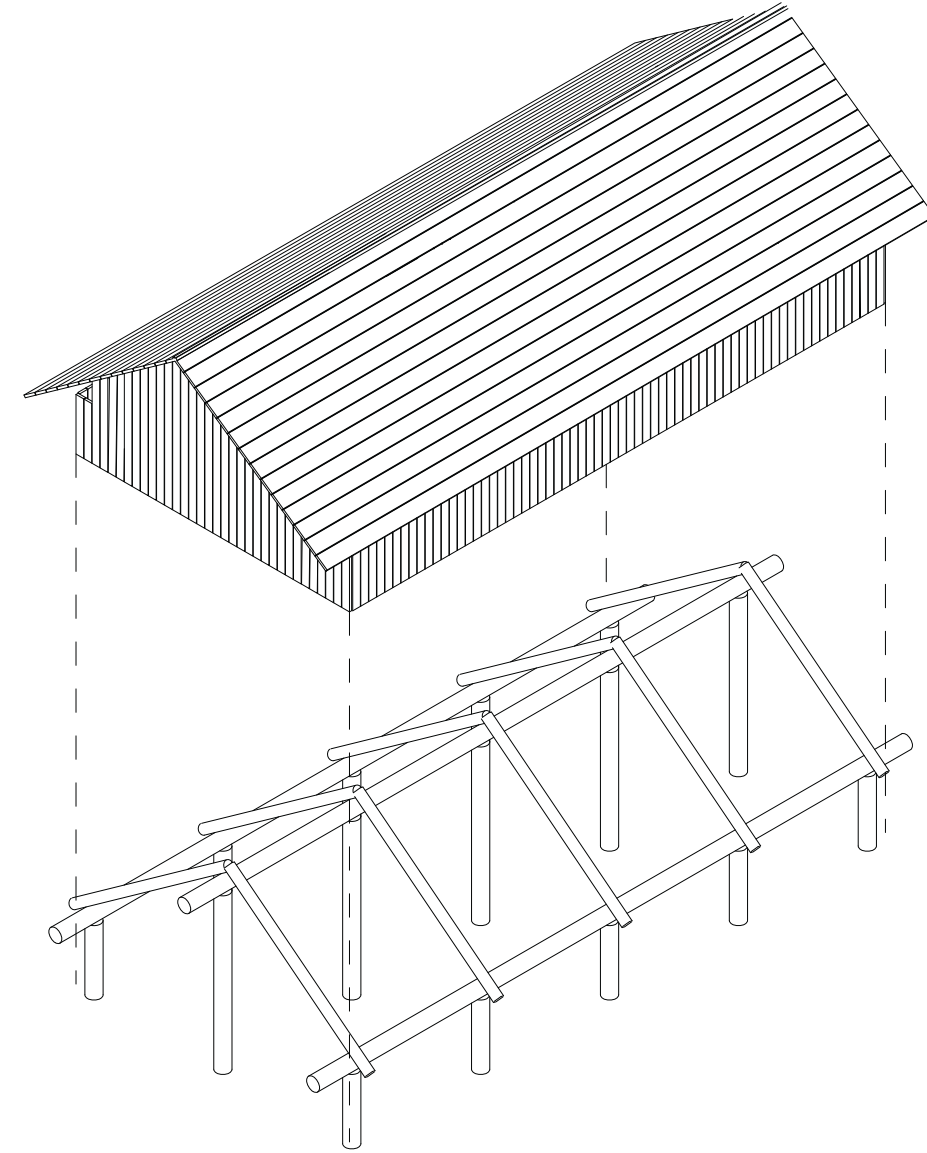
Figure 2.5



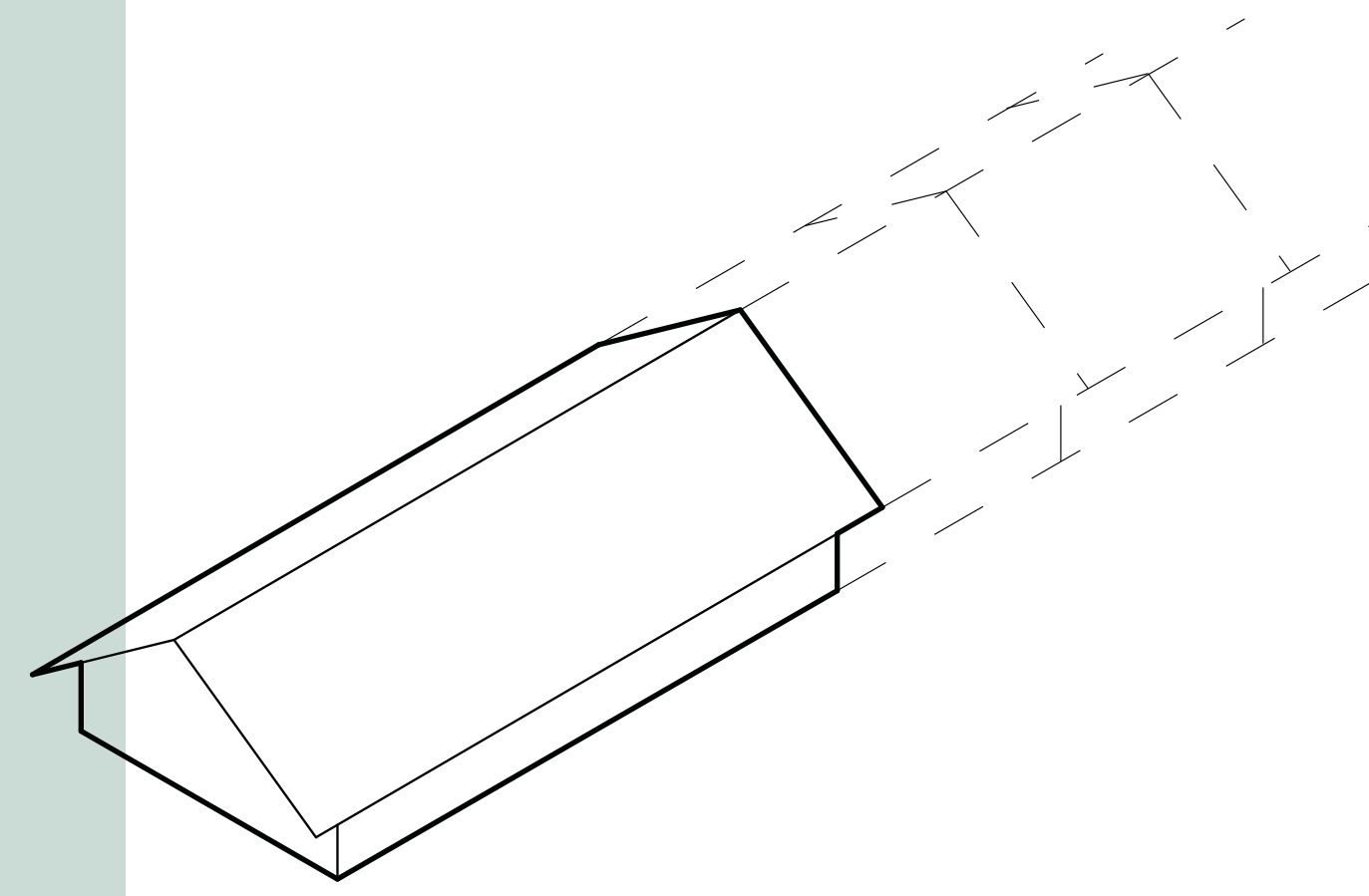
Cedar Logs



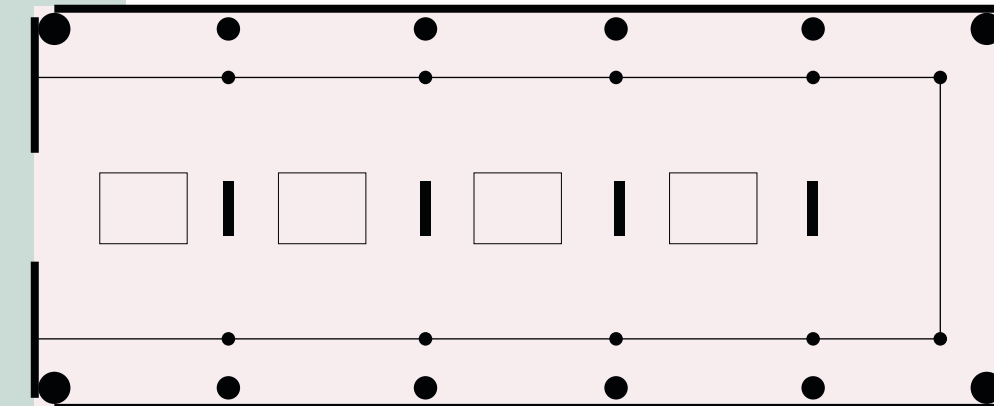
Cedar Planks



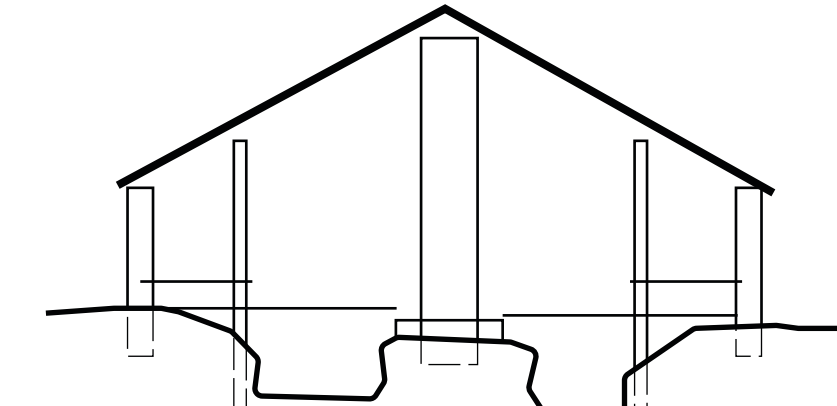
post and beam construction



modular multi-family housing



Plan



Section

Takeaways

- The plank house is a large, rectangular or sometimes oval structure built from wooden planks. Its framework typically consists of massive timber posts and beams, providing a strong and durable foundation.
- Plank houses often feature a steeply pitched or gabled roof, constructed from overlapping planks or shingles. The roof design helps to manage rainwater and allows for efficient runoff.
- The plank house often serves as a communal living space for extended families or entire clans. It provides ample room for multiple families to live together, fostering close community ties.
- Many plank houses feature totem poles or carved panels that symbolize the lineage, stories, and spiritual beliefs of the tribe. These artistic elements serve both decorative and storytelling purposes.
- The plank house is a hub for community activities, including feasts, ceremonies, and gatherings. It is a place for social events, such as potlaches, where wealth and gifts are distributed among the community.

Synthesis

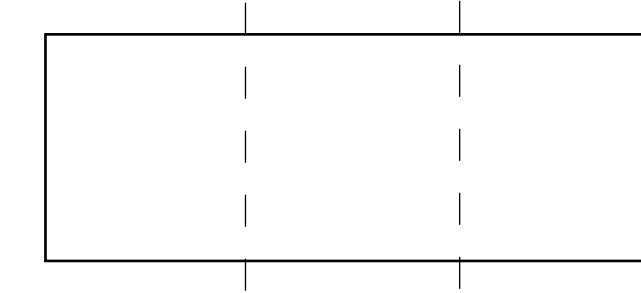
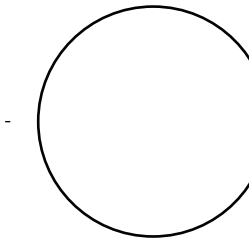


Locally sourced sustainable materials

Much More Than a Shelter

Reflection of Culture and Worldview

Geometry

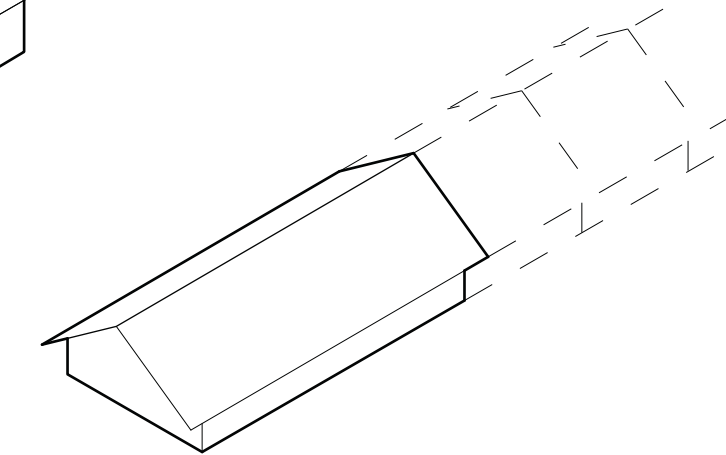
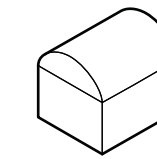
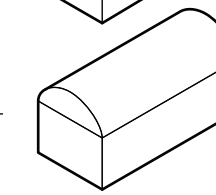
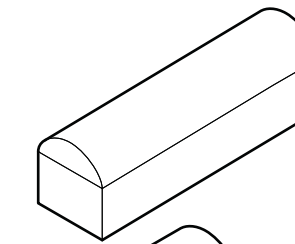


Carvings & Paintings

Passing of knowledge

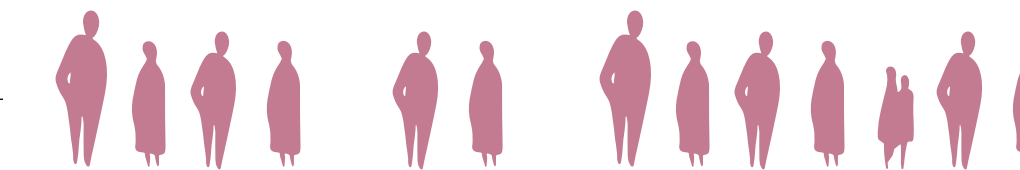
Utilitarian & spiritual Identities

Adaptiveness



Generational Importance

Community



Family

02

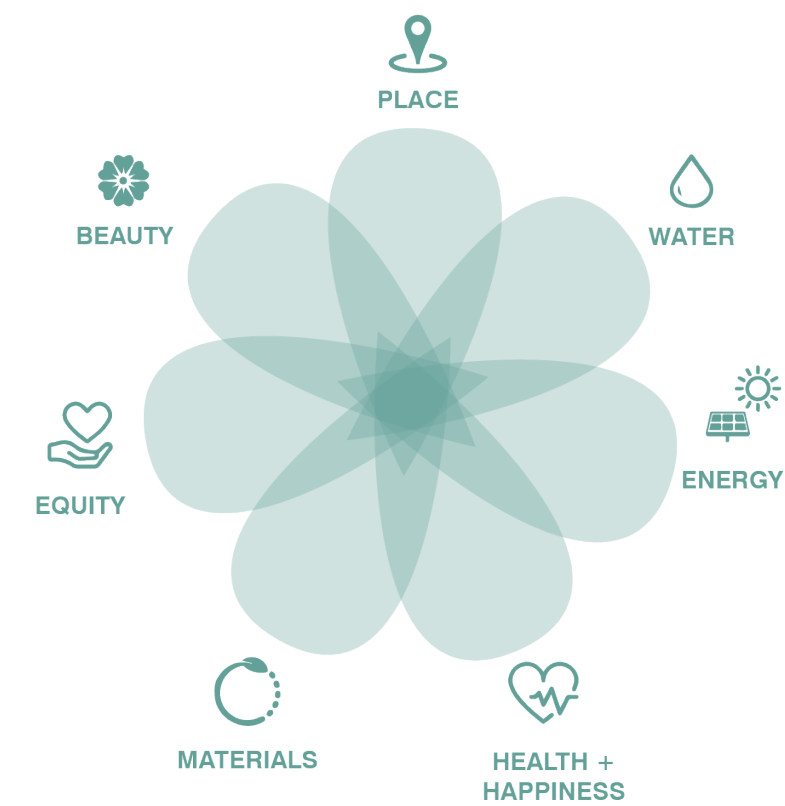
Design Analysis

Maggie's Center | Leeds, U.K.



Figure 3.1

Maggie's Center in Leeds was design to offer support to people affected by cancer. Seamlessly integrates into its natural surroundings, emphasizing a strong connection with nature. The building's design is characterized by its use of natural materials, ample natural light, and plant-life integration, creating a peaceful and healing environment. The layout of the building encourages interaction and communal activities, fostering a sense of community and support among its visitors.



Program Analysis

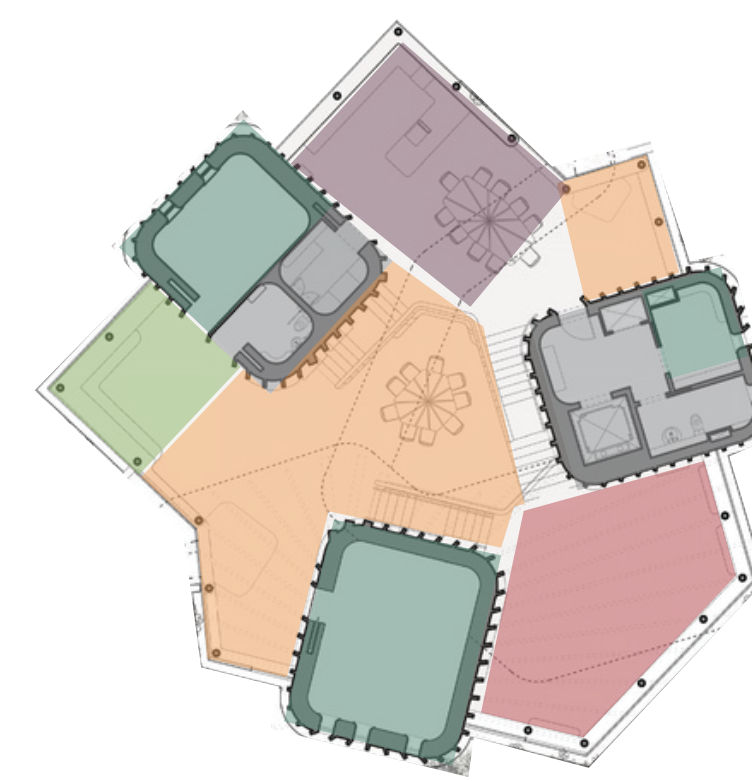


Figure 3.2

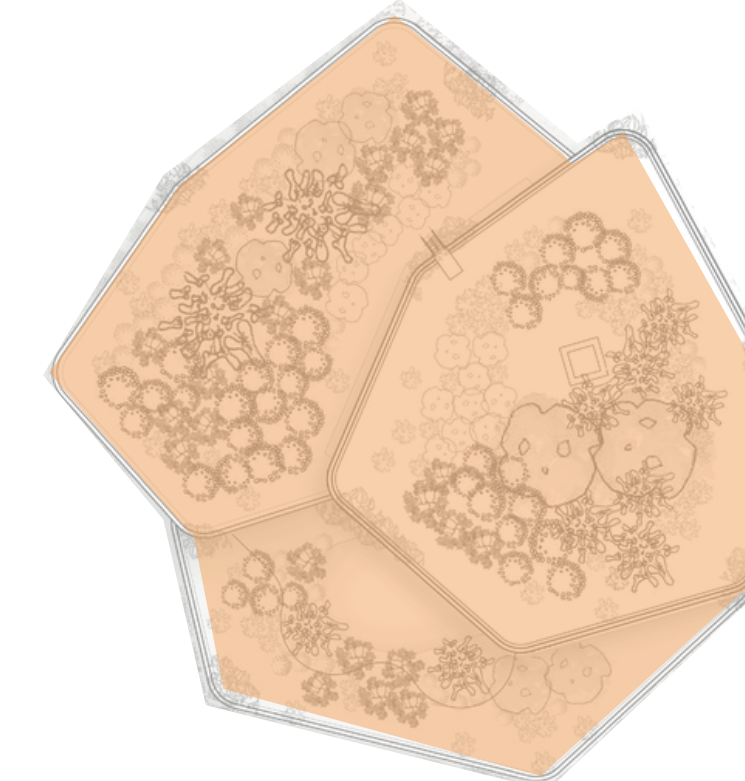
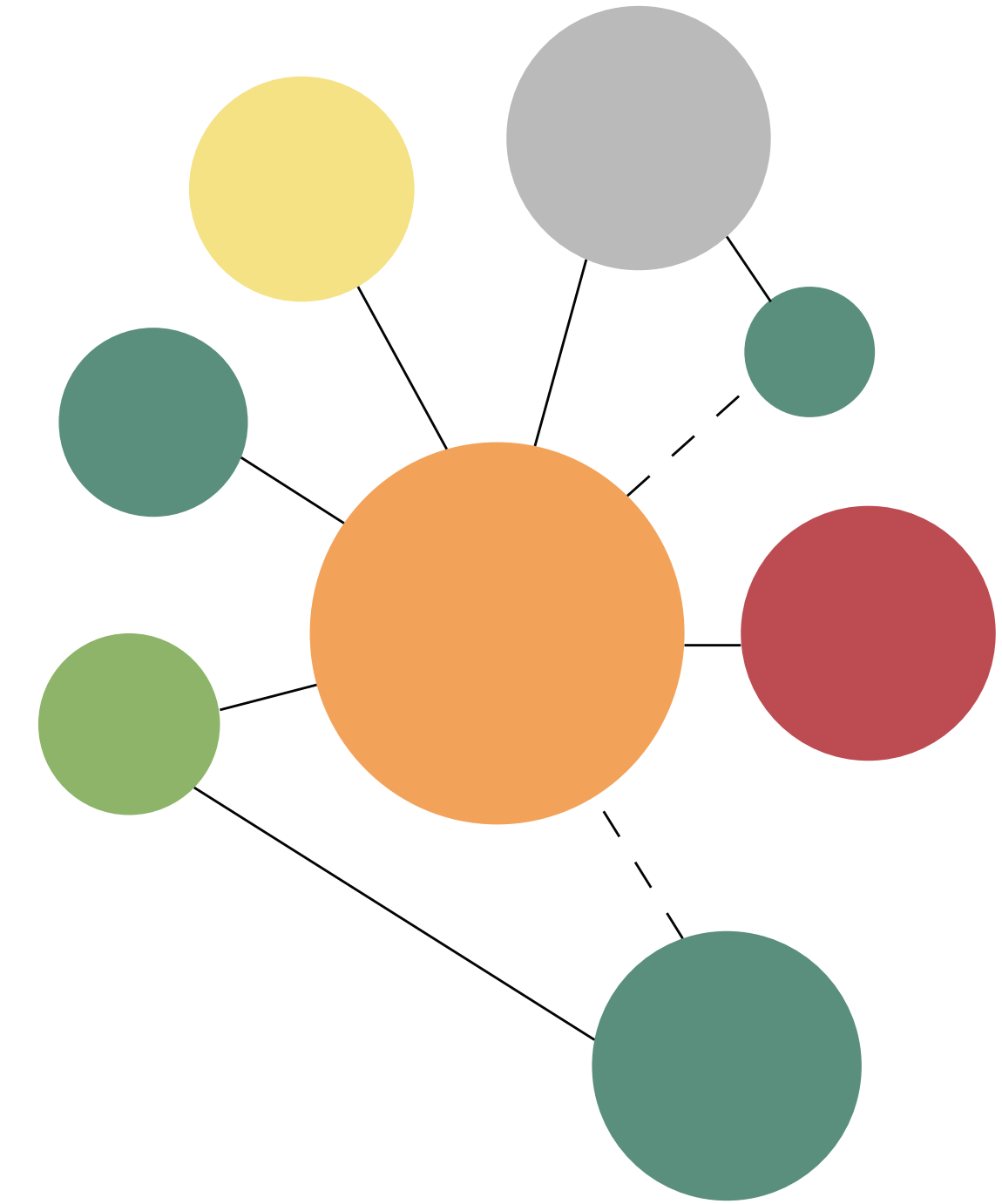


Figure 3.3

Ground Floor Plan

Roof Plan

- Communal Space
- Counseling Rooms
- Library
- Communal Garden
- Kitchen / Dining
- Exercise Room
- Secondary Spaces
Bathroom
Storage
Circulation



Biophilic Elements



Figure 3.4

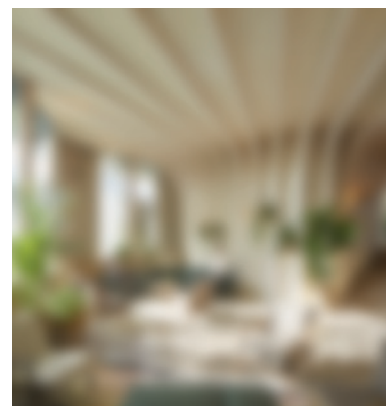
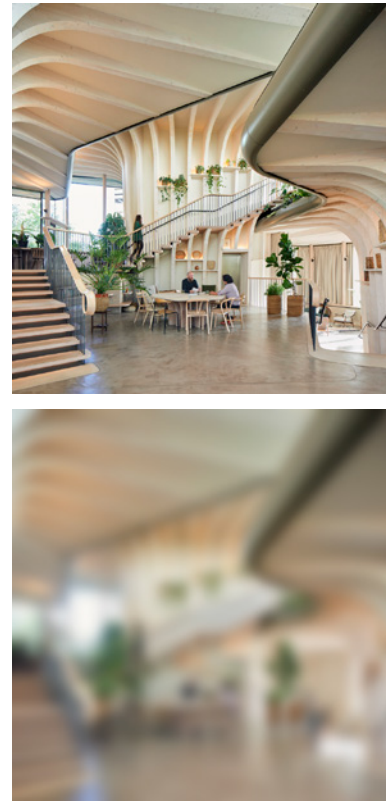


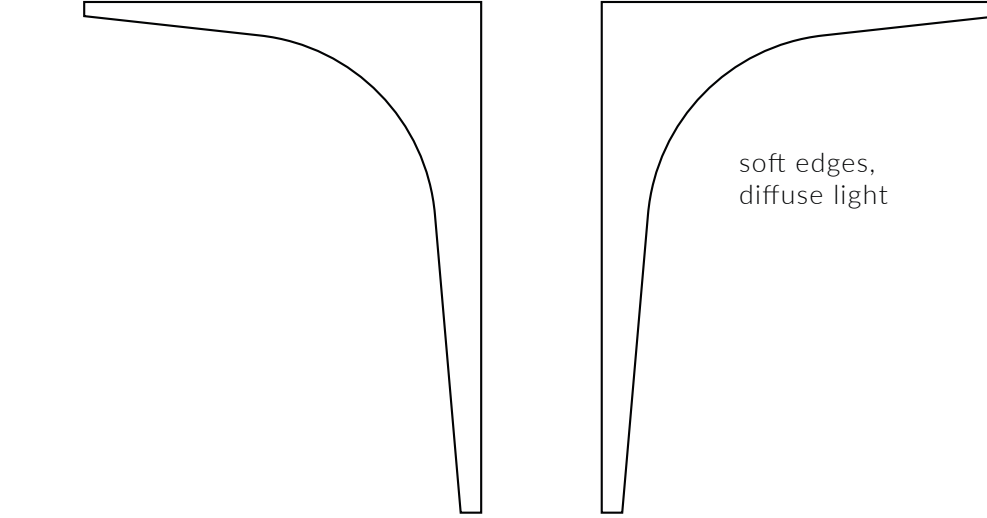
Figure 3.5

Daylight

Color



Material



Shape

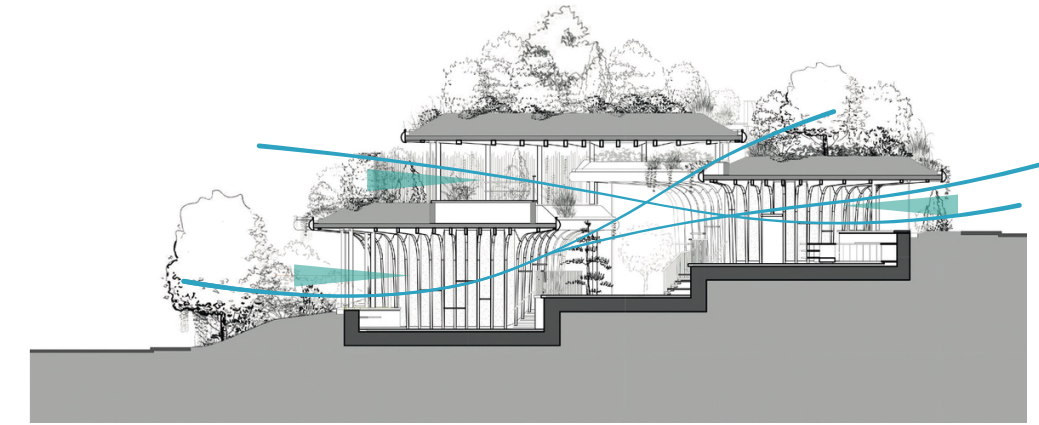


Figure 3.6

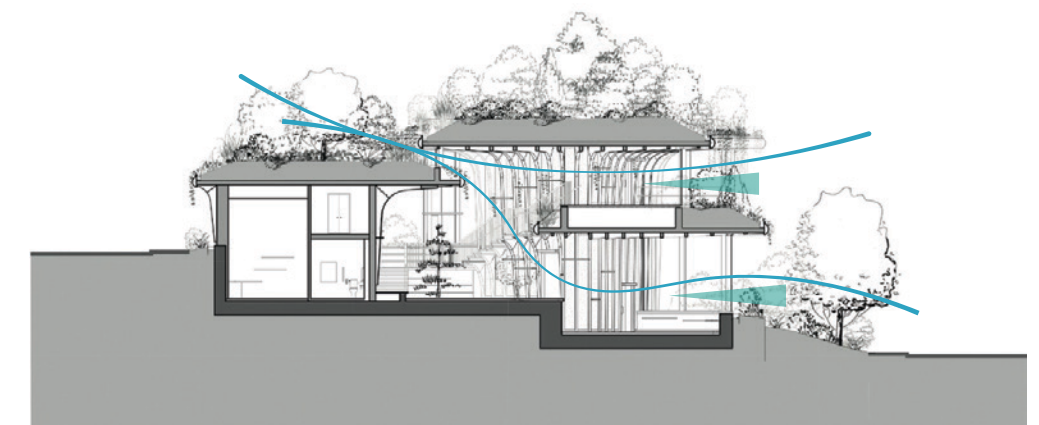


Figure 3.7

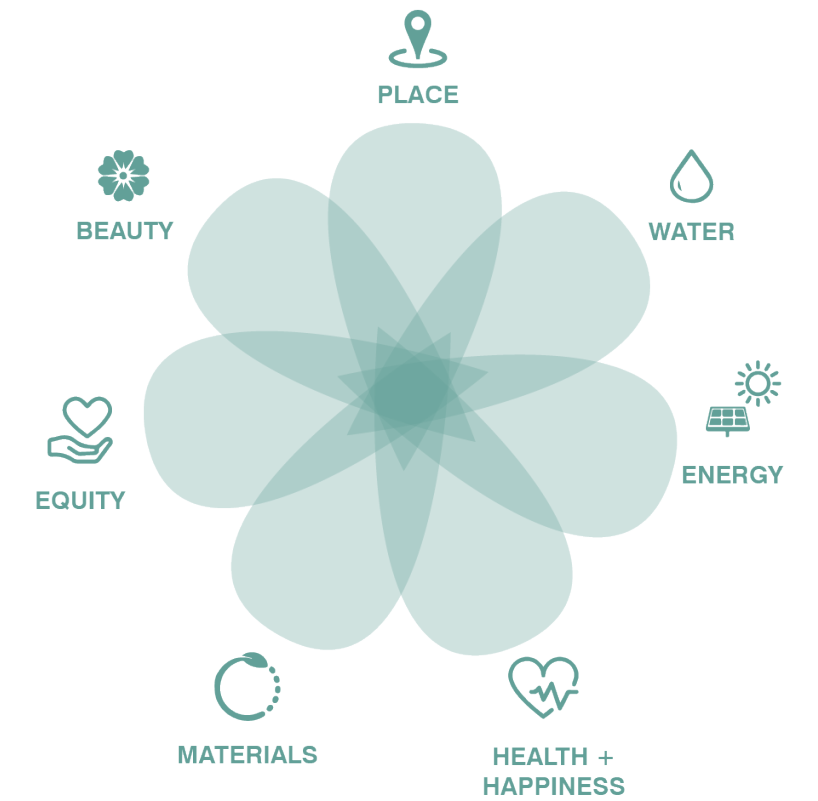
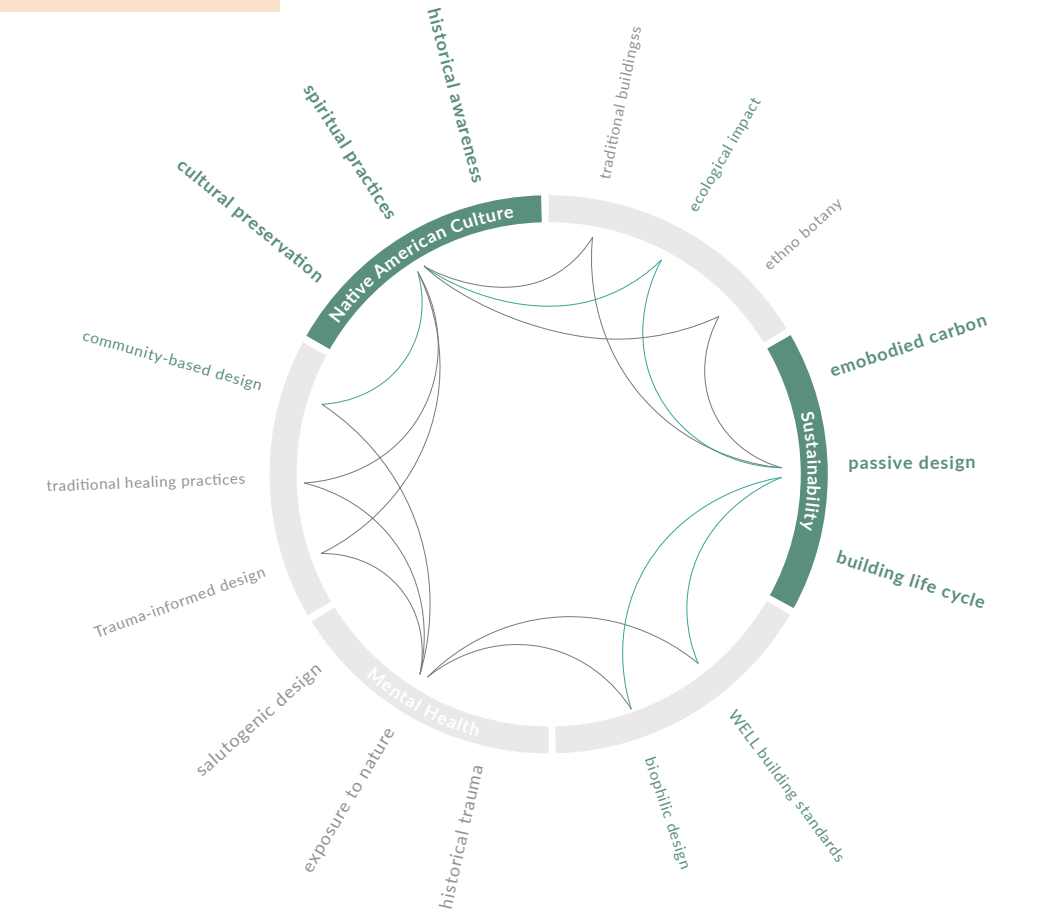
Views & Natural Ventilation

Te Kura Whare | Taneatua, New Zealand



Figure 3.8

Te Kura Whare serves as the Ngāi Tūhoe tribe's headquarters. Designed to meet the stringent Living Building Challenge, it is energy-neutral, environmentally regenerative, and incorporates solar power, water collection, and waste processing. The building embodies the tribe's connection to the land and commitment to self-sustainability, while celebrating Maori heritage through traditional concepts and art. Te Kura Whare stands as a symbol of resilience, environmental respect, and the promotion of indigenous values.

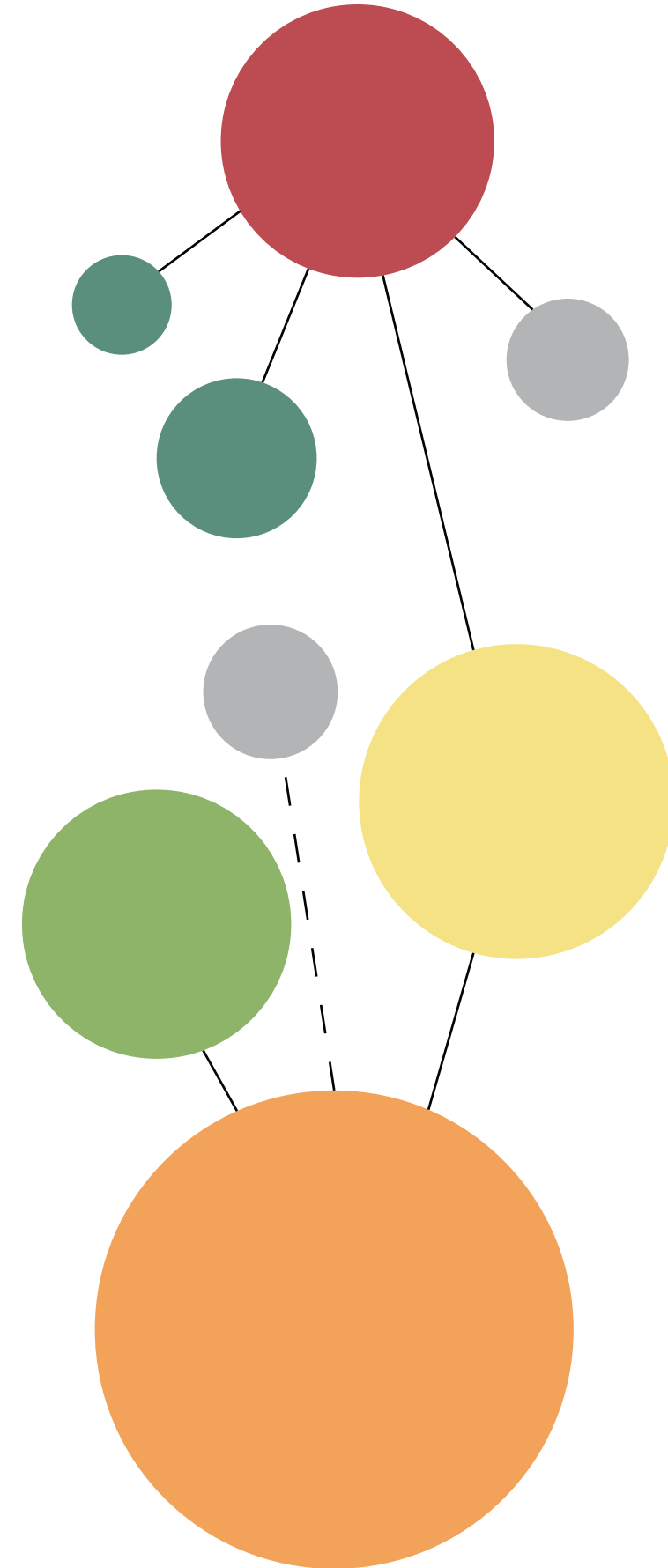
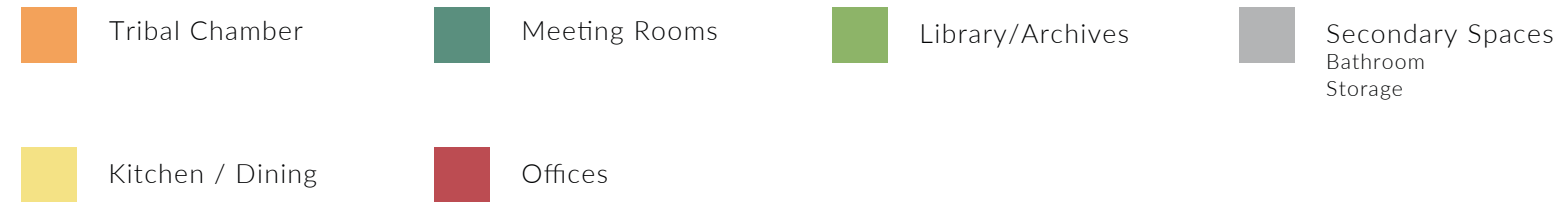


Program Analysis



Figure 3.9

Ground Floor Plan



Biophilic Elements



Figure 3.10



Figure 3.11

Daylight



Totara Wood (exterior clad)



Matai Wood (floors, balustrade, cabinetry, shelving)



Pine Wood (structure)



Earth Bricks

Material



Figure 3.12



Figure 3.13



Figure 3.14

Art & Symbolism

Potawot Health Village | Arcata, California



Figure 3.15

The Potawot Health Village integrates indigenous values with contemporary healthcare. Developed by the United Indian Health Services, this facility combines modern medical practices with traditional Native American healing methods. Situated on 40 acres, the health village is designed to reflect the cultural heritage and environmental consciousness of the local Native American community. It features a blend of sustainable practices, such as organic gardens and native plant restoration, alongside facilities for medical, dental, and mental health services. The design and operation of Potawot Health Village emphasize harmony with nature, community wellness, and respect for indigenous traditions, making it a holistic and culturally sensitive healthcare model.

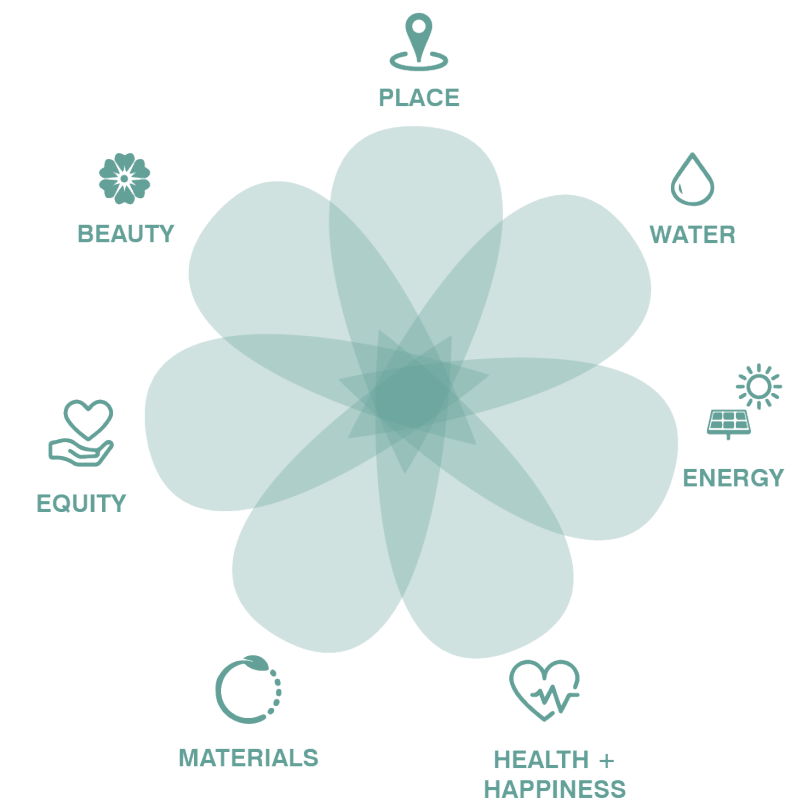
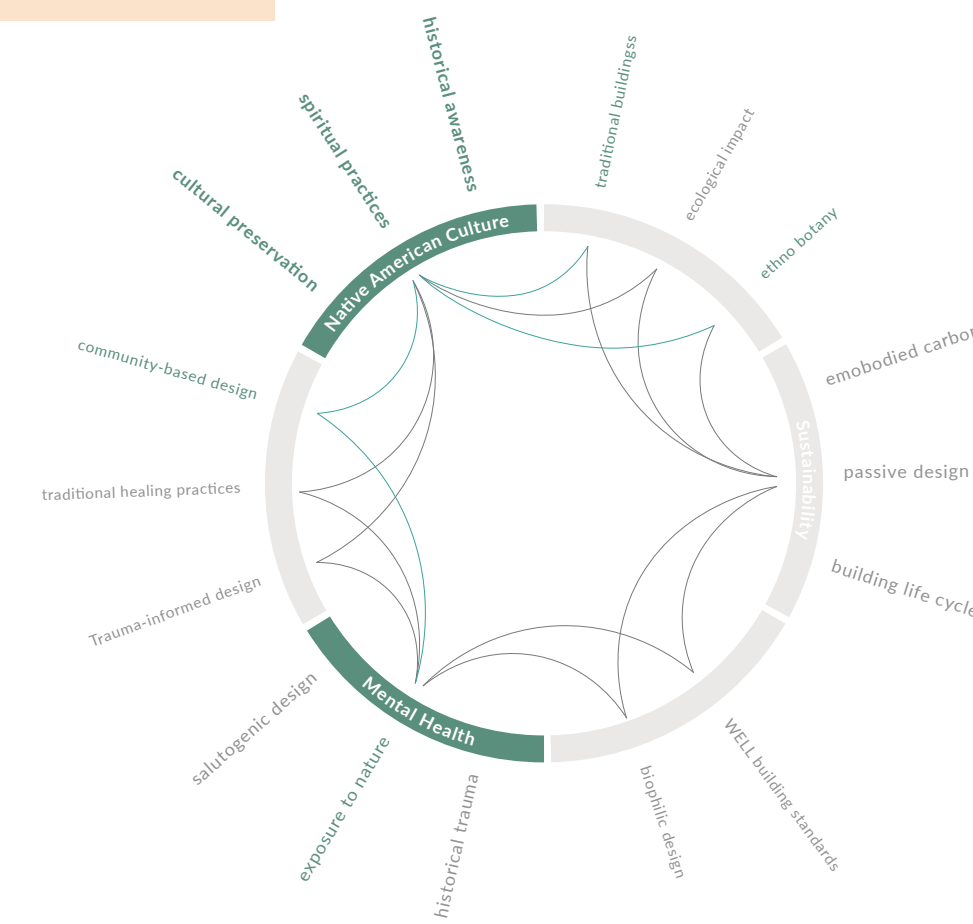


Figure 3.16



Figure 3.17

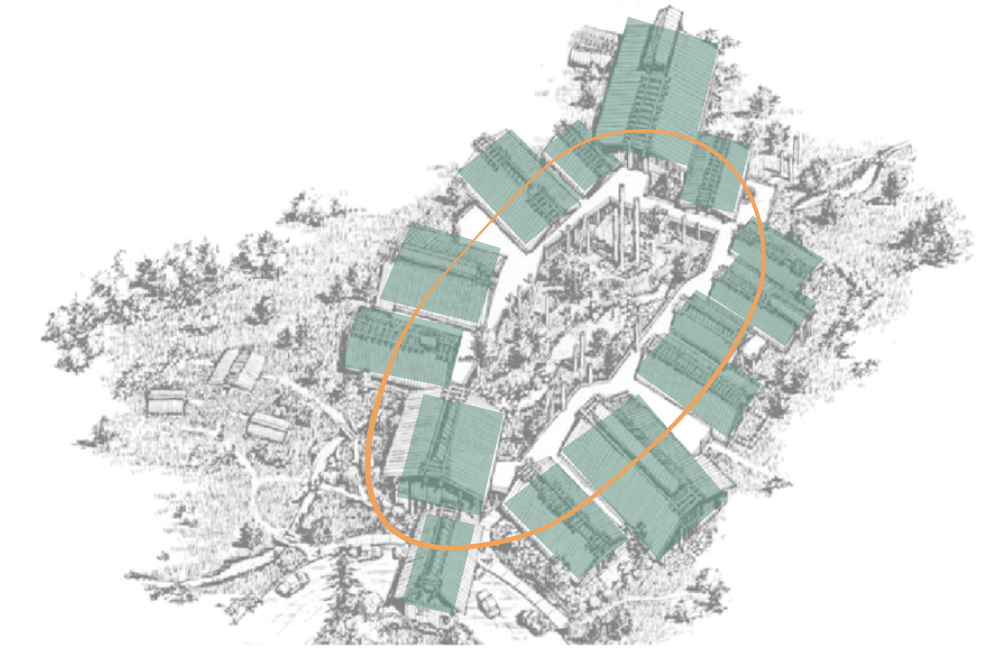


Figure 3.20



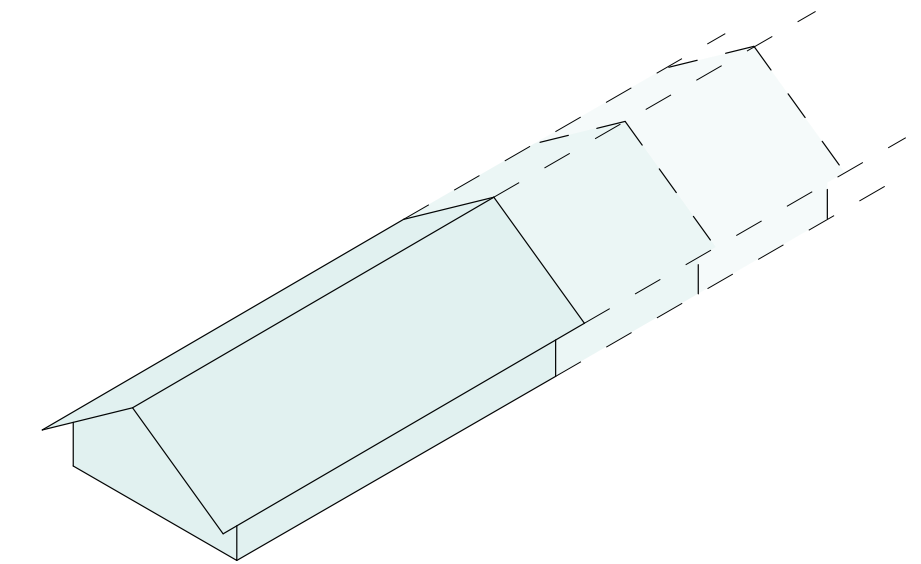
Wellness Garden

Figure 3.18



Figure 3.19

Art & Symbolism



Form & Organization

Community-Based Elderhousing Prototypes | NWT, Canada

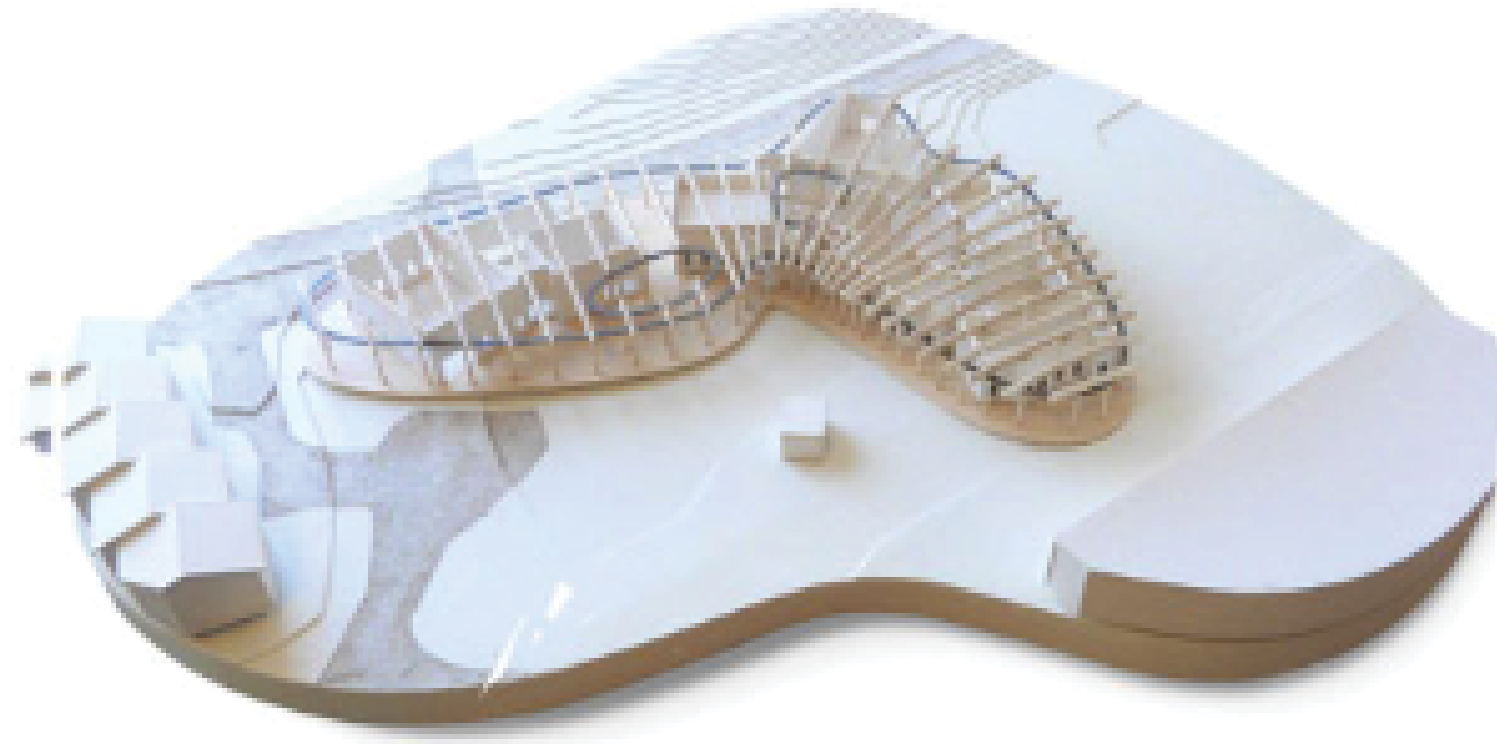
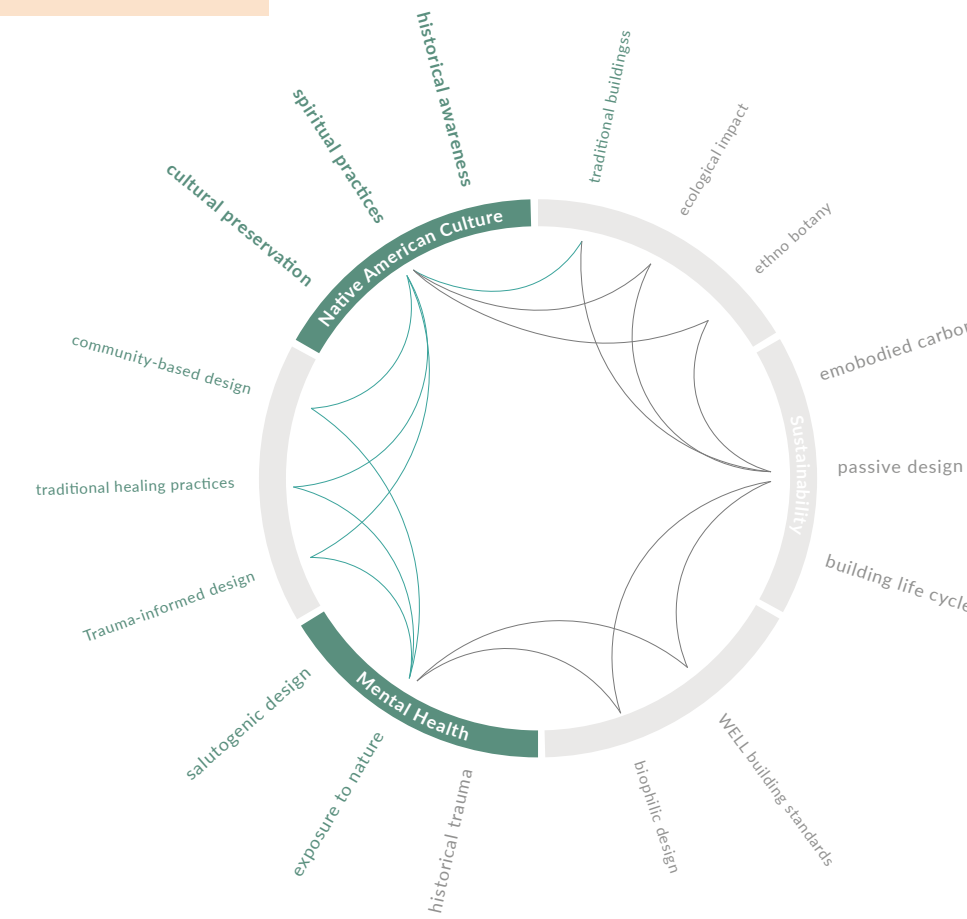


Figure 3.21

This prototype project, led by Jake Pauls Wolf, aimed to revolutionize elder housing in the Beaufort Delta, NWT, with a focus on decolonialist design and community empowerment. This initiative targeted three communities, offering an alternative to traditional, impersonal long-term care facilities. The design combined off-site prefabrication with on-site construction, informed by fieldwork in Yellowknife, Inuvik, and Tuktoyaktuk. These elder-housing prototypes are residential in scale, incorporating local arts, ceremonial spaces, and a connection with nature through gardens, frepits, and walking paths. The interiors favor short, naturally-lit corridors and communal areas, creating a stimulating, culturally sensitive environment.



Program Analysis



Figure 3.23

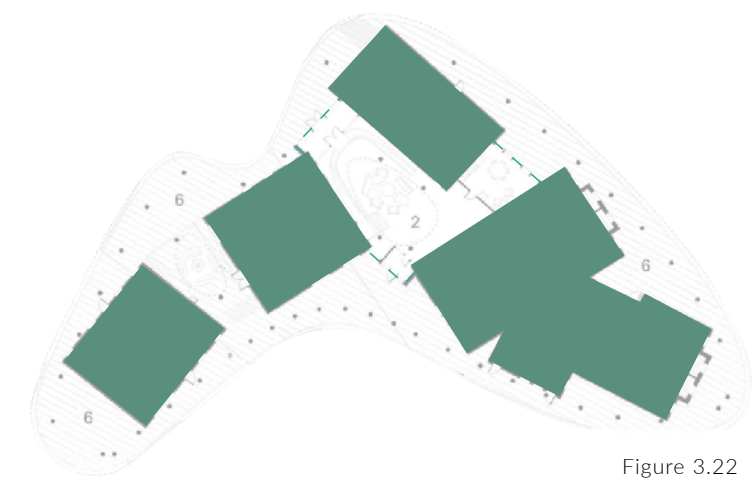
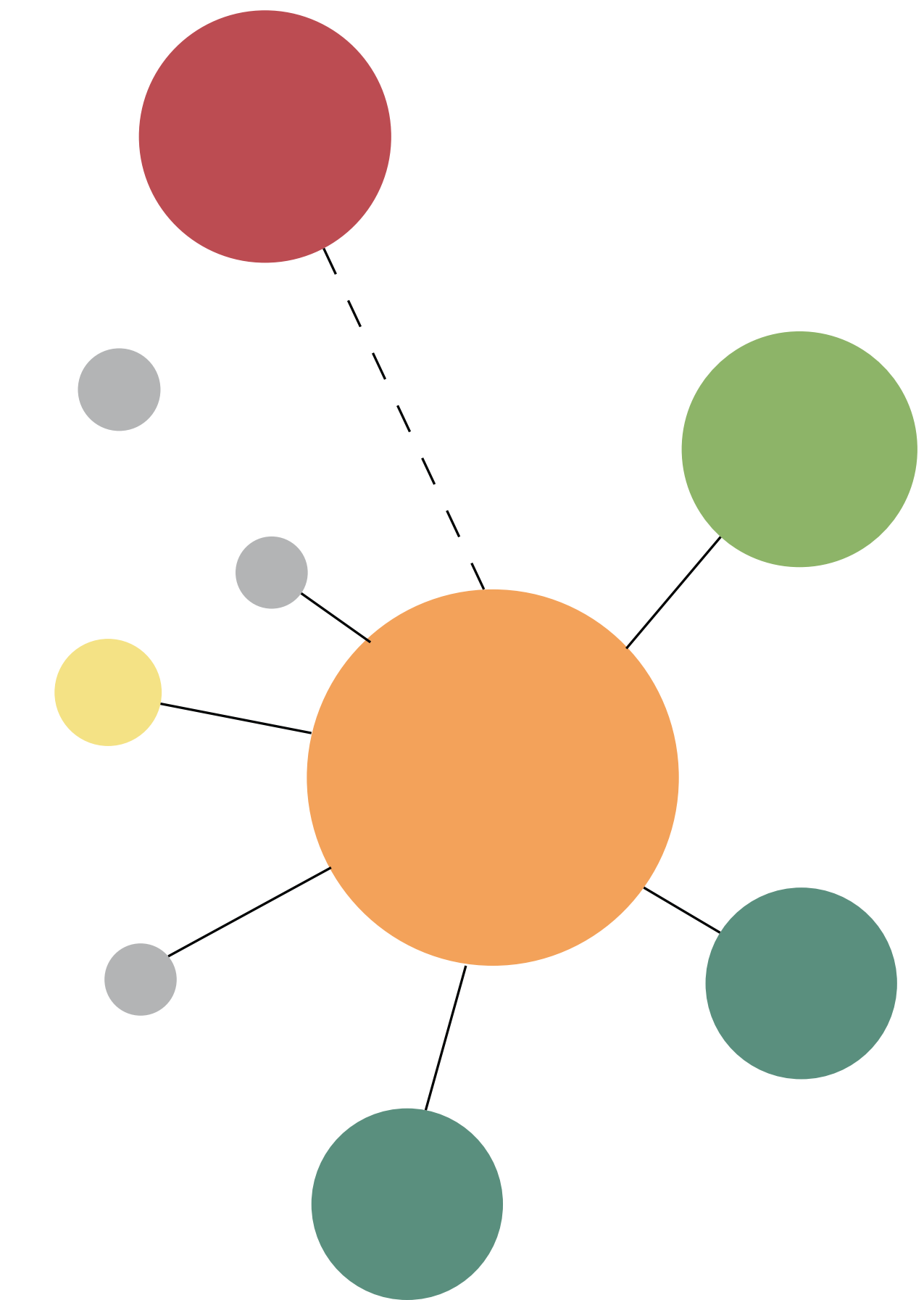
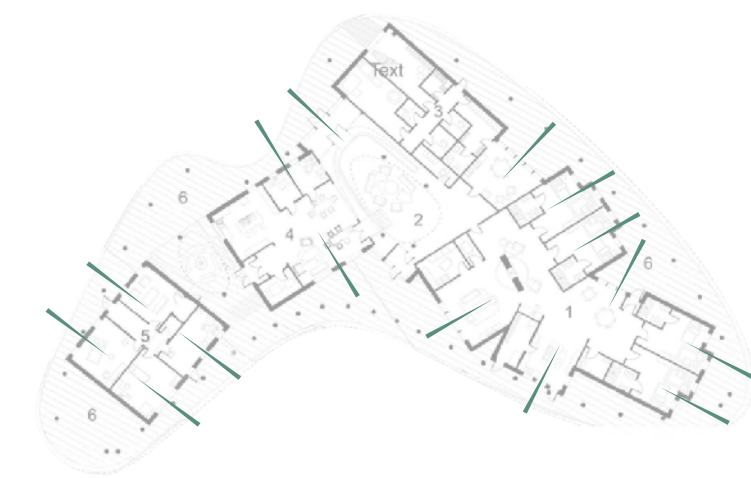


Figure 3.22

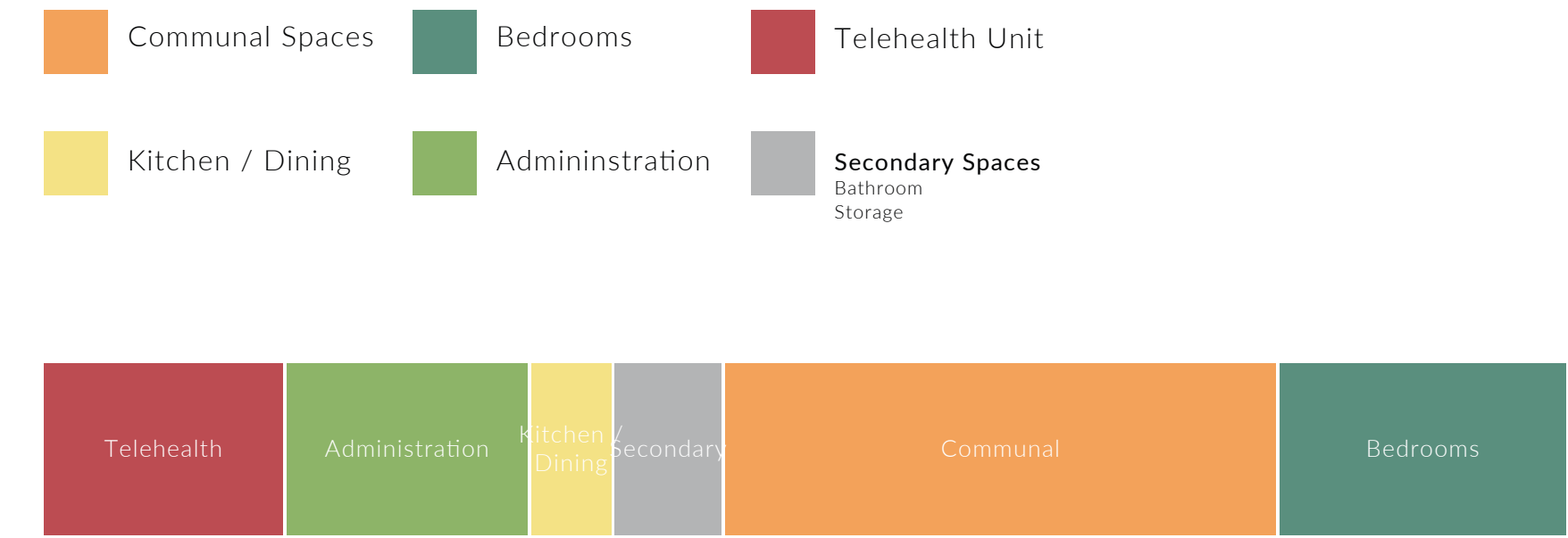
Small Residential Scale



Views to Nature, Natural Daylight



Short Corridors



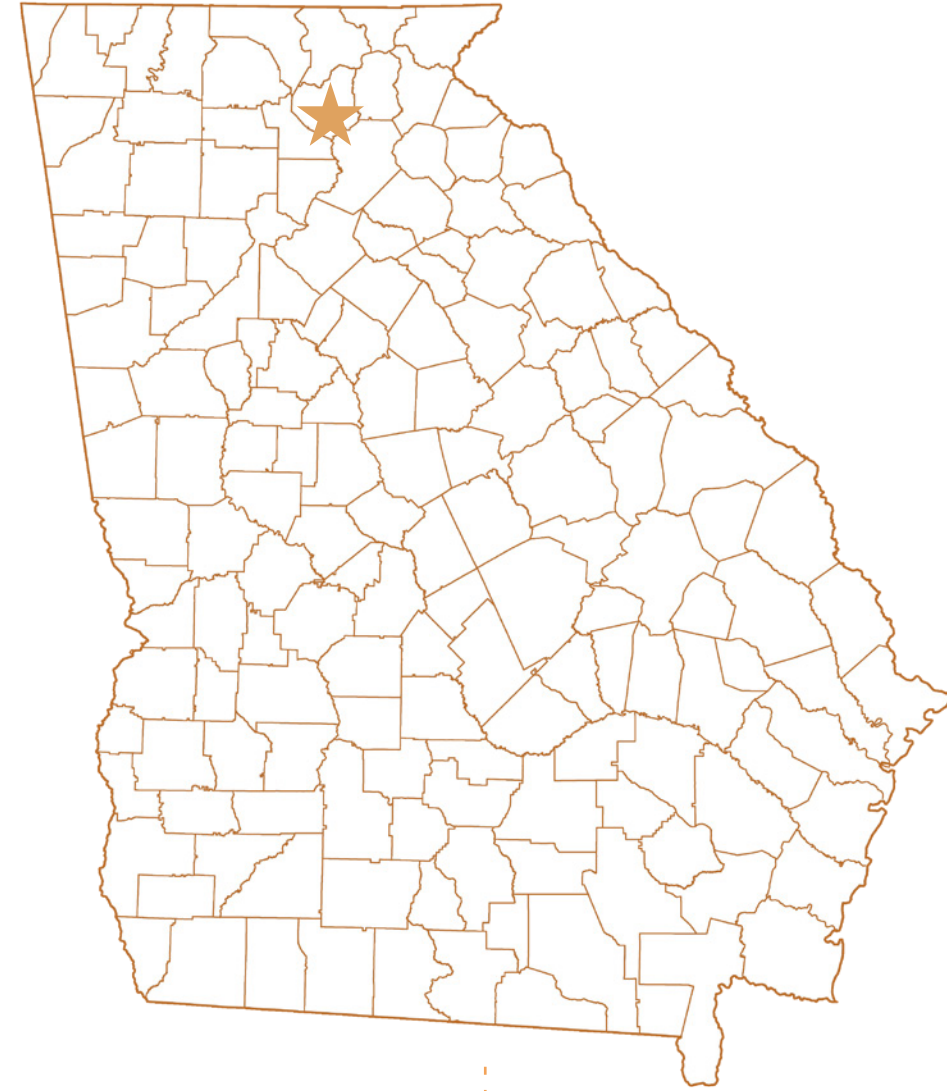
2.1

Site

Location

Dahlonega, Georgia

Dahlonega, Georgia, nestled in the North Georgia mountains, is a small city renowned for its rich history and picturesque setting. It gained historical significance as the site of the first major gold rush in the United States in 1828. Today, Dahlonega preserves its heritage through museums and historic sites, while also being a gateway to the Appalachian Trail and the scenic Blue Ridge Mountains. Dahlonega is home to more than 500 members of the Georgia Tribe of Eastern Cherokee.



Georgia

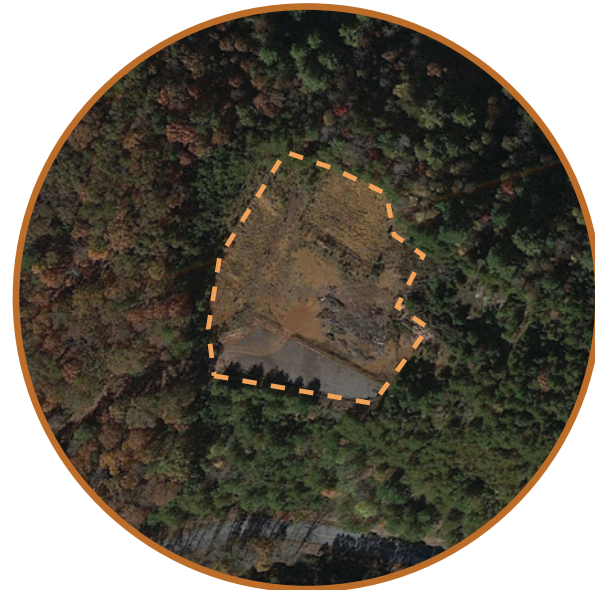


Figure 4.1

Dahlonega

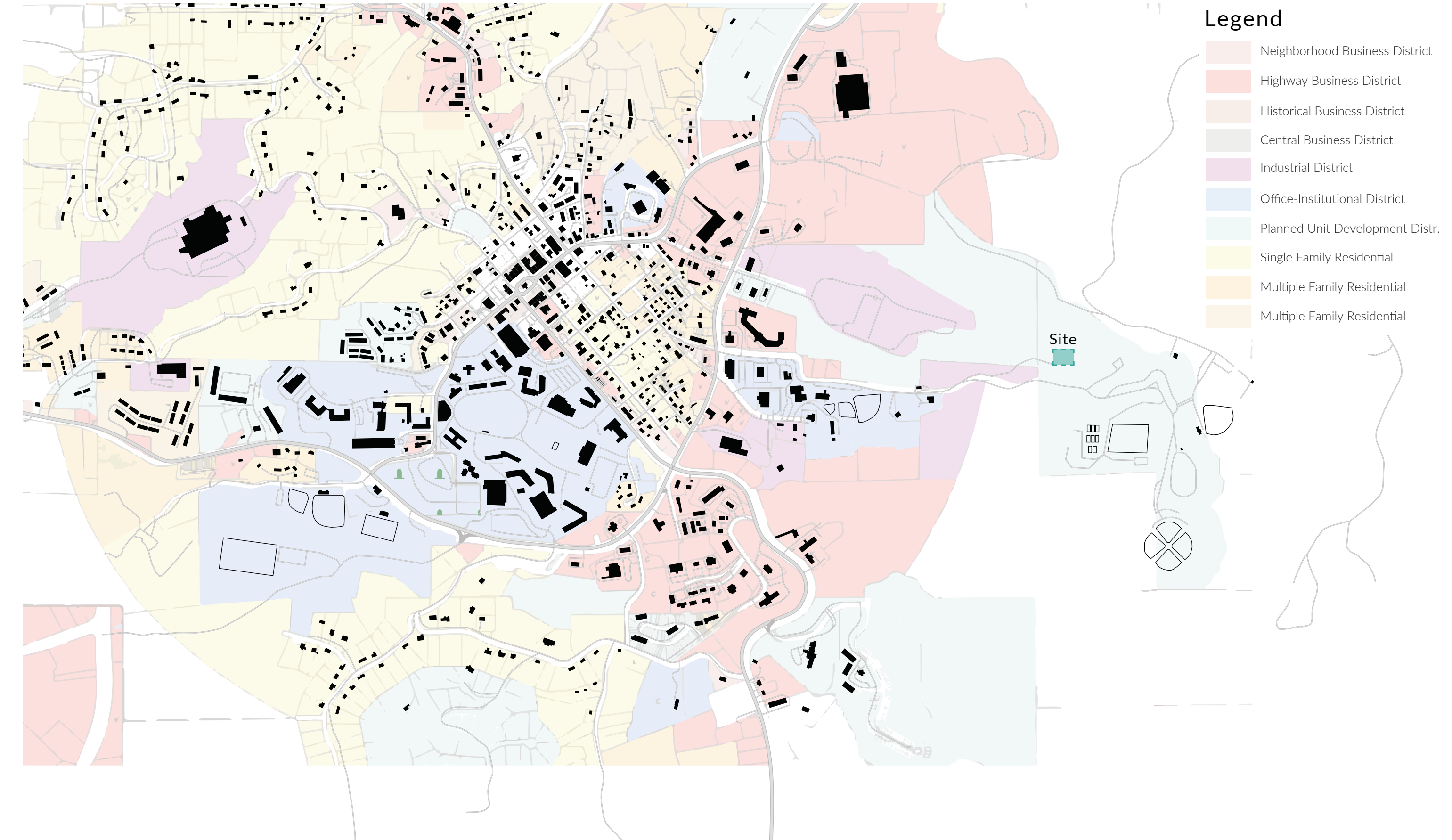


Yahoola Creek Park



Site

Zoning



City Plan

Community Vision Statement

Cultural heart of the region, defined by **historic architecture**, social and economic vitality, and **good stewardship of natural and cultural resources**

Thriving community balancing economic development, historic preservation, academic excellence, and military renown

Destination for social and commercial tourism that celebrates Georgia's Appalachian heritage

A hometown that embodies the principles defined as a city of excellence, providing quality services, ethical leadership, and fiscal stability

Strengths

Historic square / Tourism

Hancock Park

Lake Zwerner

UNG

Hospital

Water & Sewer

Safe Hometown

Yahoola Creek Park

Chestasee River

Access to GA 400 & Metro ATL

Access to mountains / St. Parks / National Forest

Weaknesses

Competition for space

Traffic congestion in downtown

Topographic challenges

Scale developments

Gaps in workforce

Limited options for groceries

Need for road & sidewalk improvements

Competition for parking

Hospital moving out of city

Developmental Trends

Receiving more interest in new development each year

Residential projects seek cheaper land / more attractive rural places

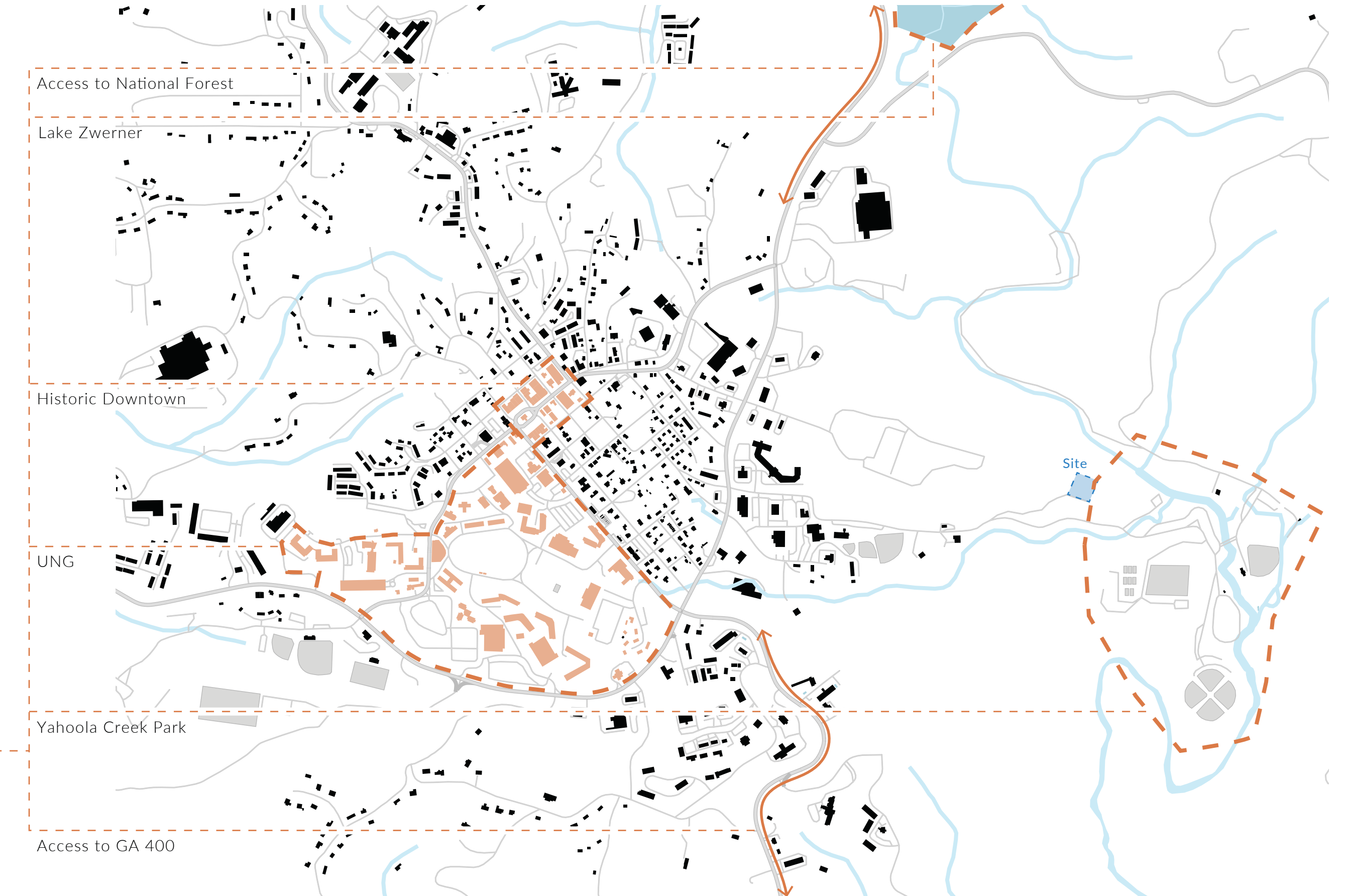
Most growth is south or west of the city

Trending decline in owner-occupied housing units

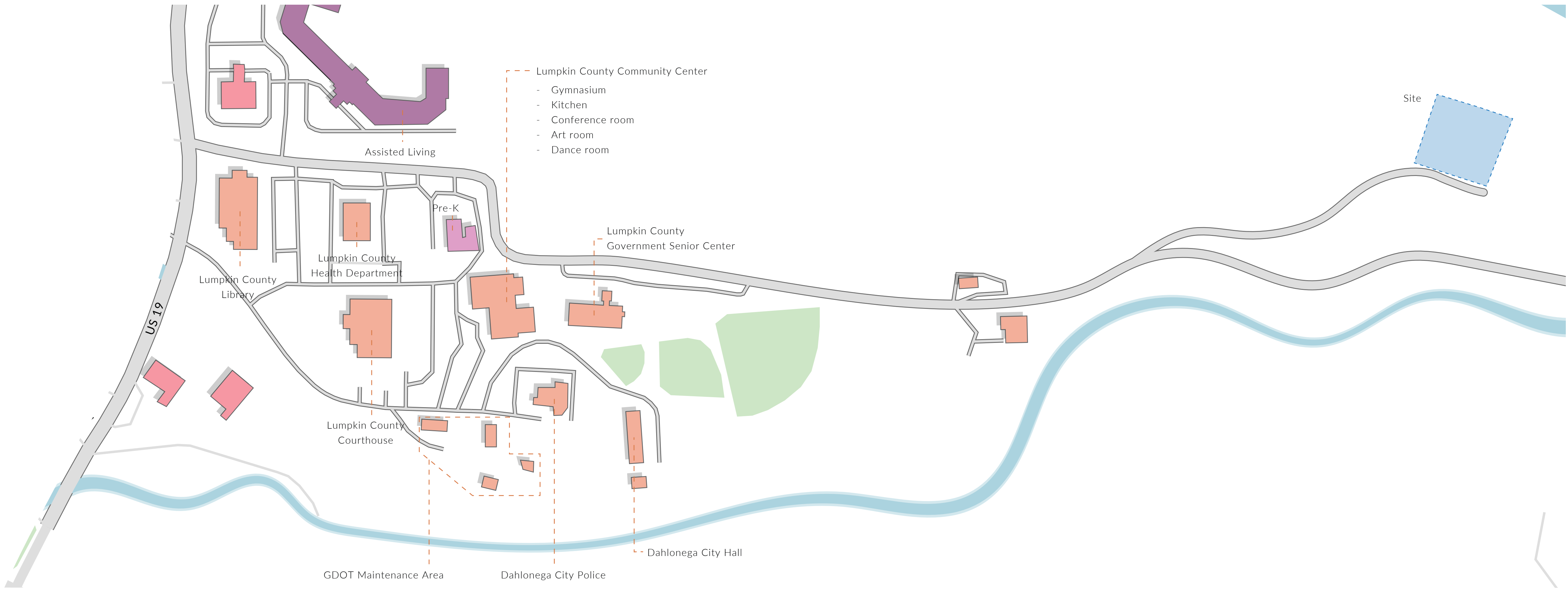
UNG continues to grow campus & facilities

Northeast Georgia Medical Center relocating hospital in Dahlonega to new campus along GA 400

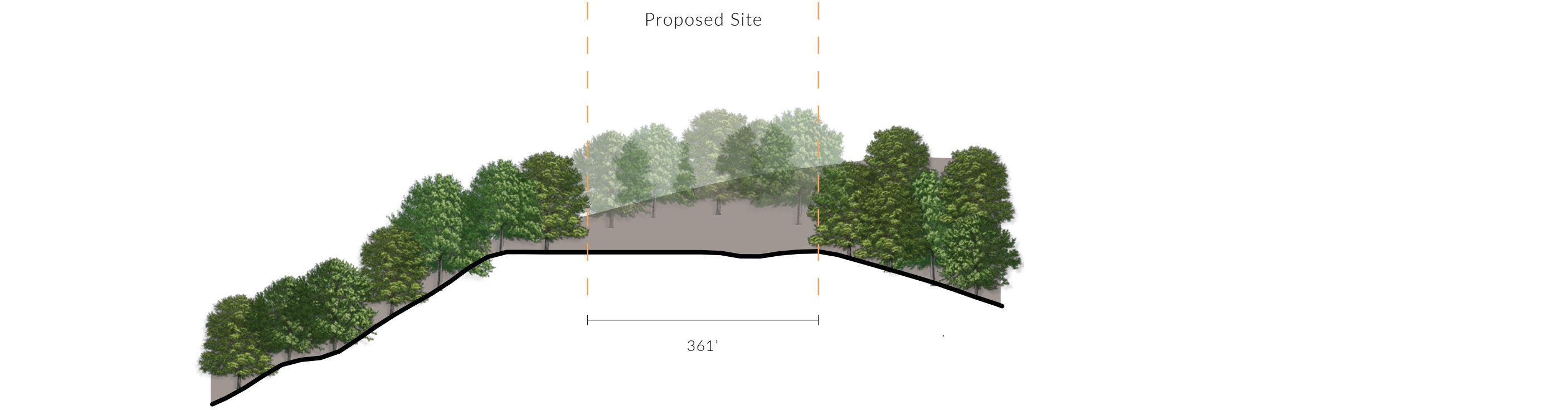
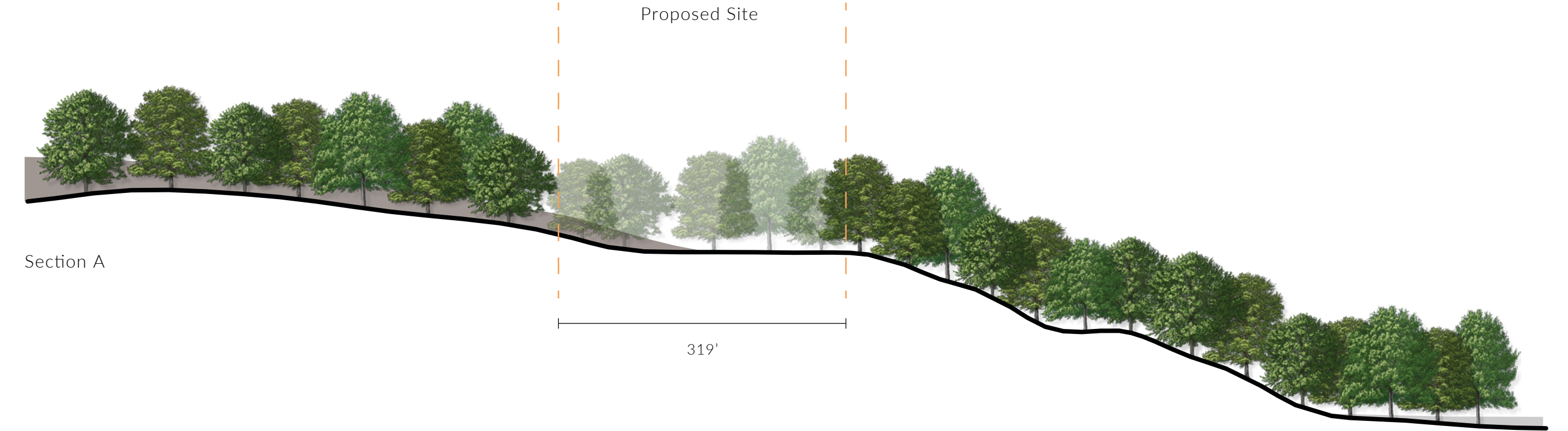
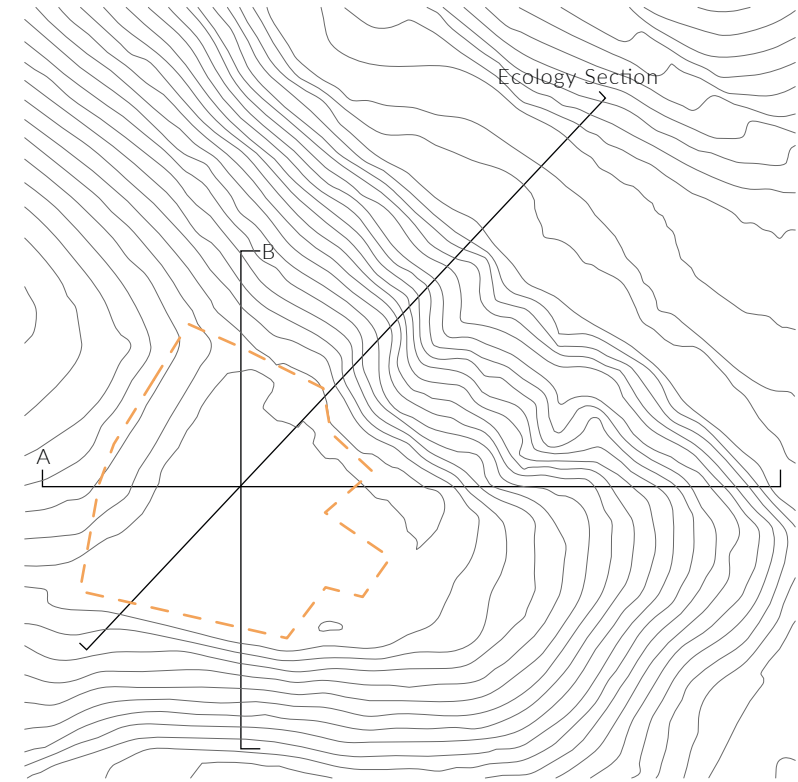
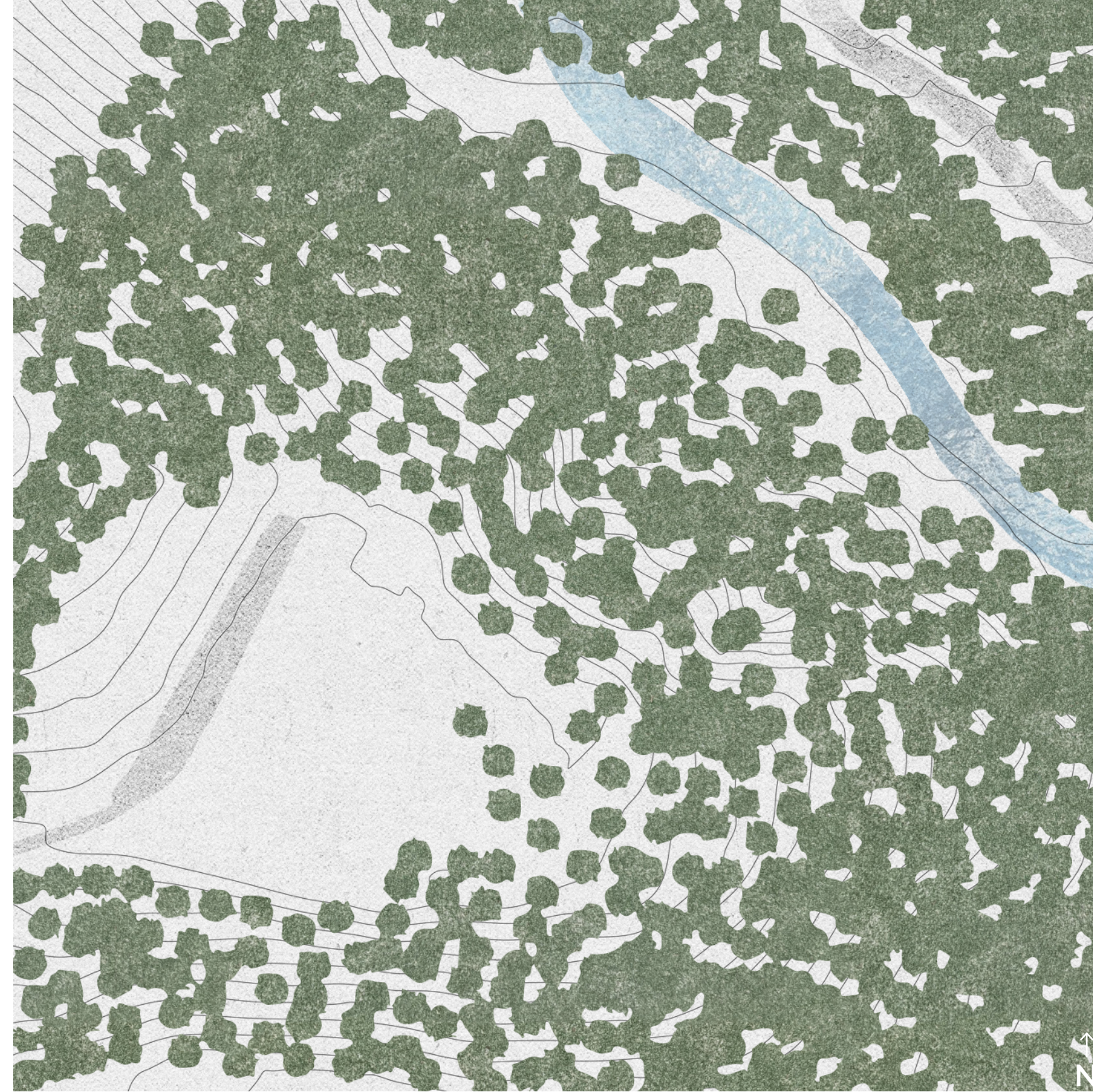
Wealth of natural beauty, community amenities, and cultural tourism



- Government
- Commercial
- Residential
- Educational

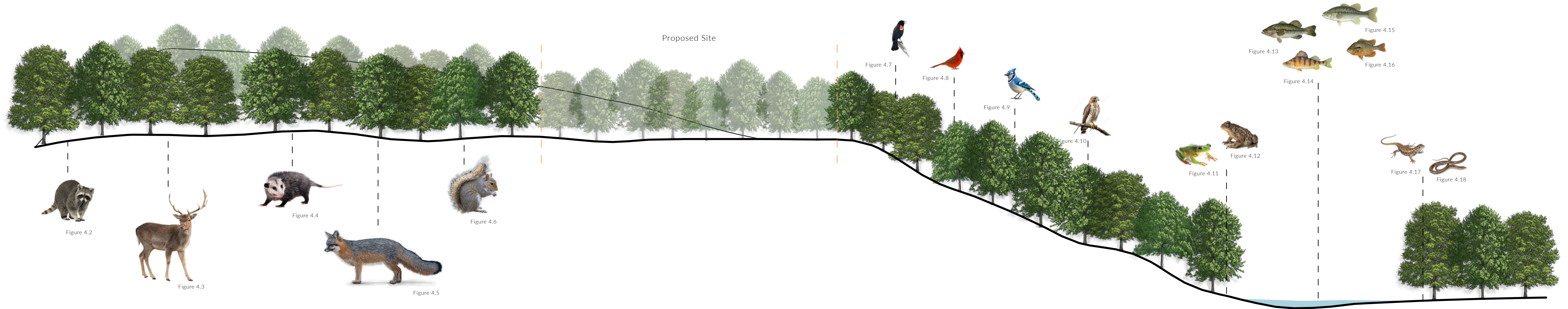


Site

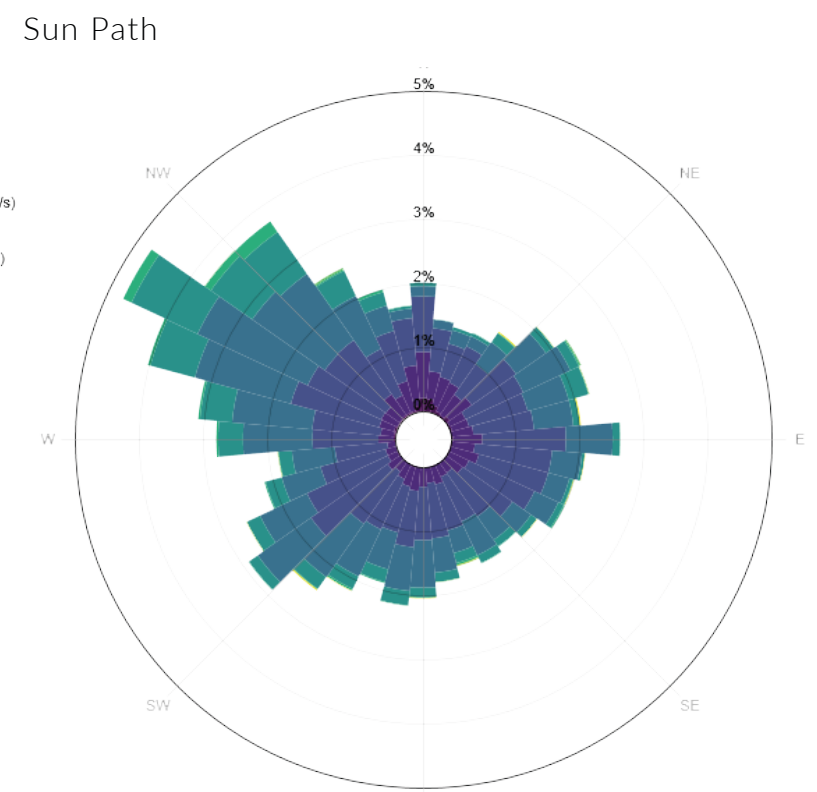
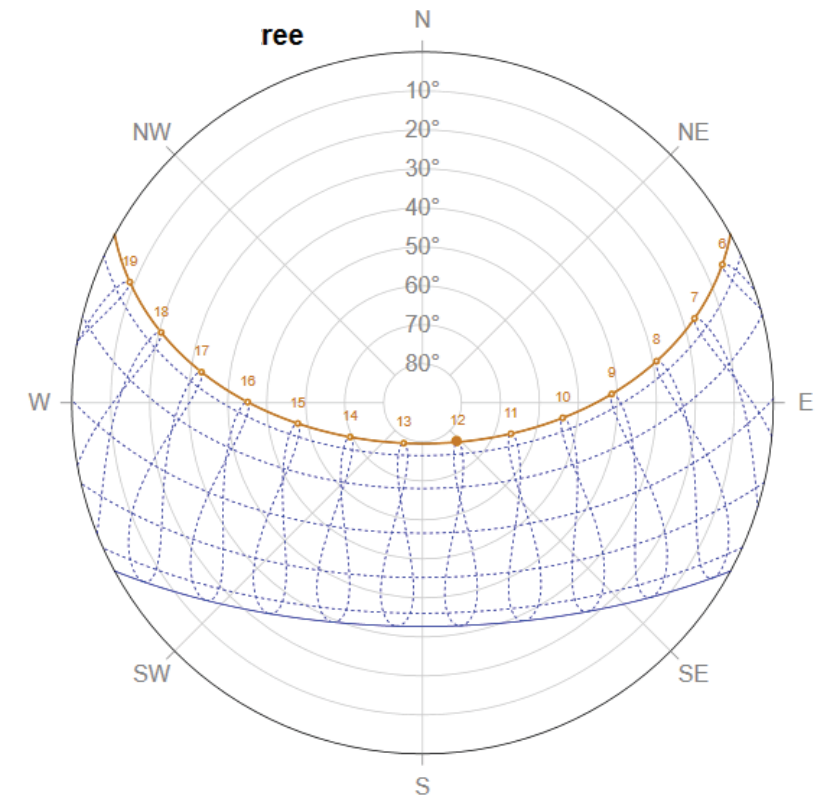
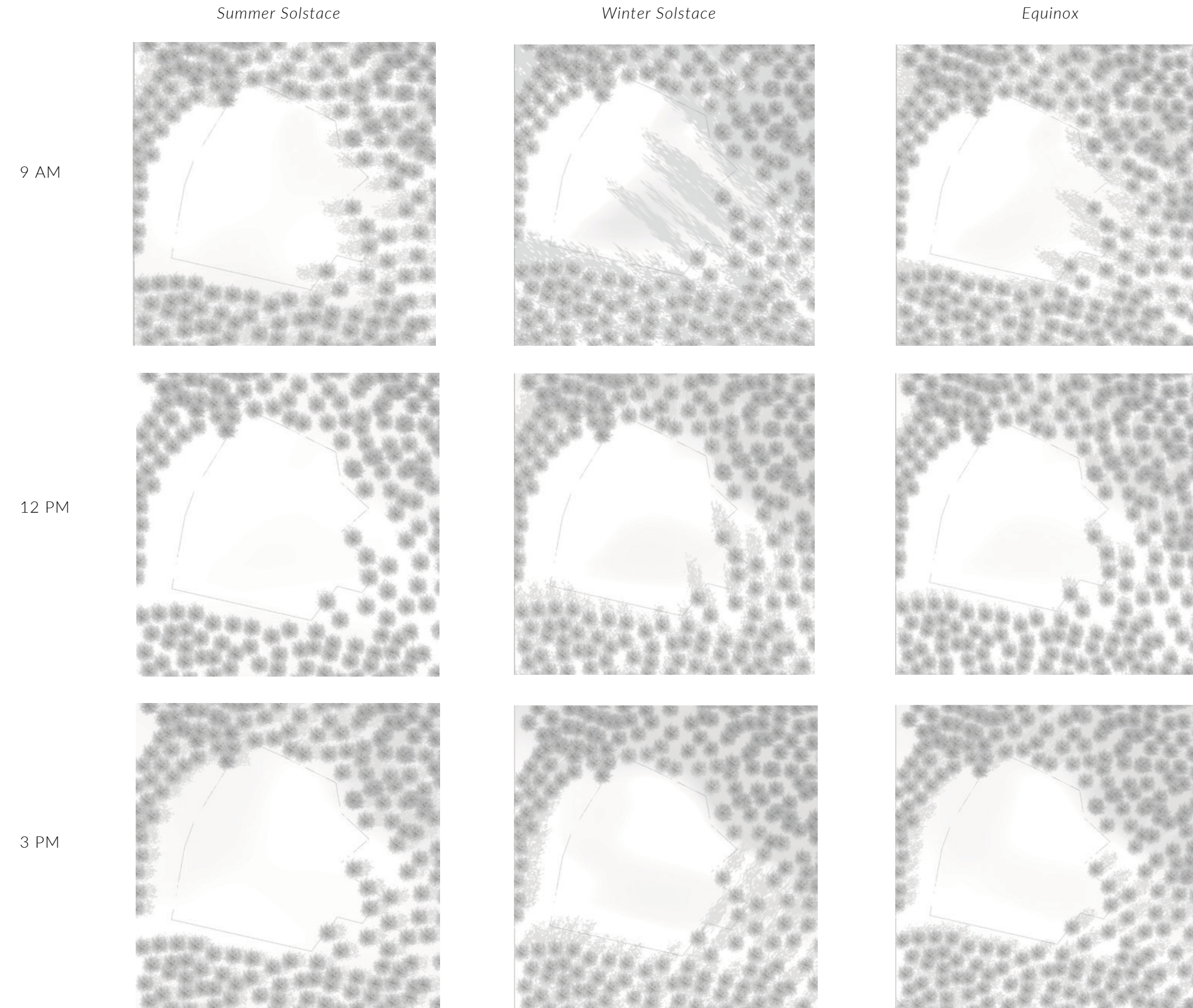


Section B

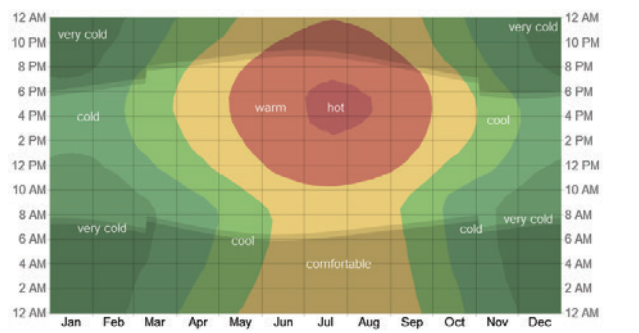
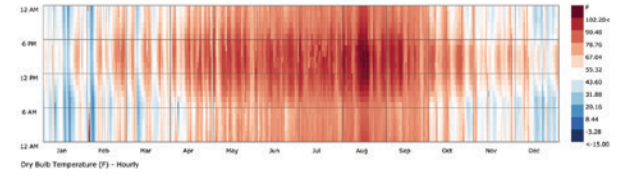
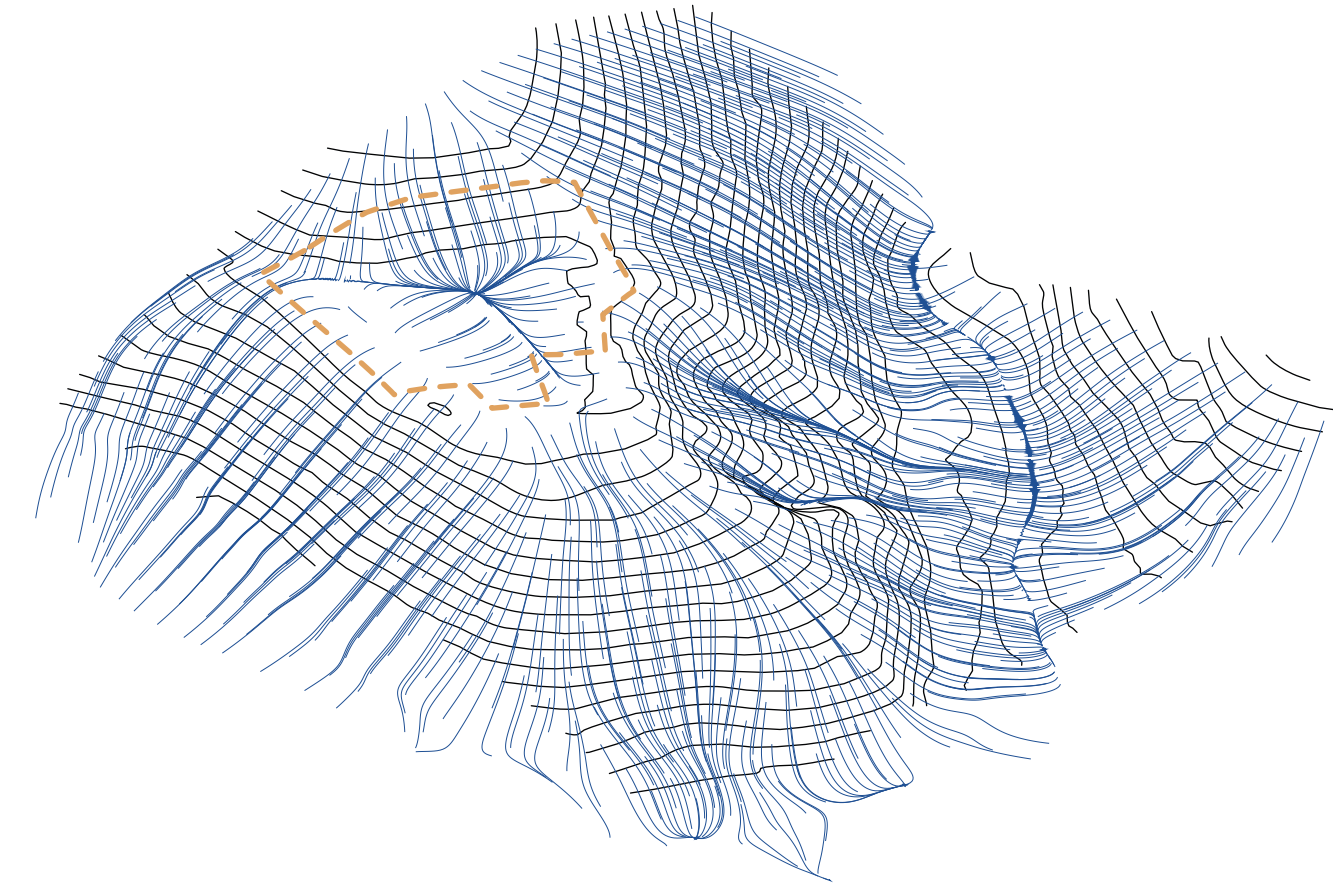
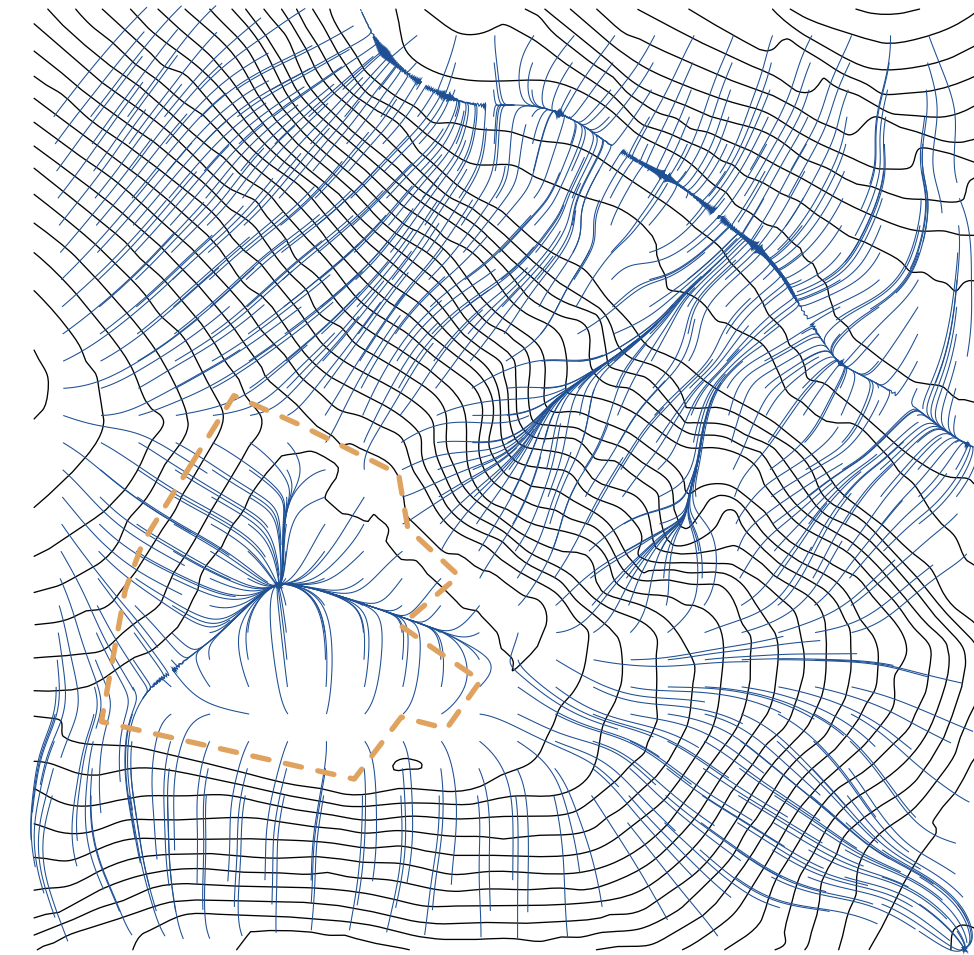
Ecological Section



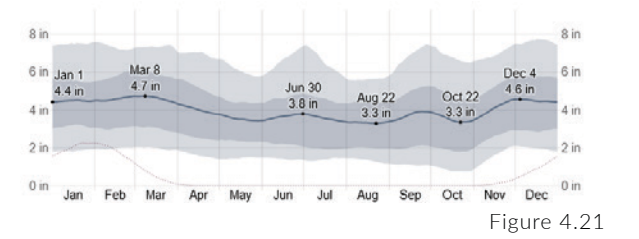
Environmental Analysis



Wind Rose



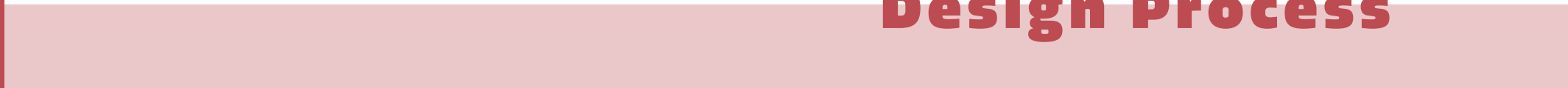
Average Hourly Temp



Precipitation



Design Process



Program

Barriers to Address

Rural and Isolated Locations

Lack of Cultural Competence

Historical Trauma

Physical, mental, emotional violence

Elimination of ceremonial practices

Elimination of spiritual practices

Elimination of cultural practices

Genocide of their people

Stripped of their land

Program

Lobby



Gallery



Library



Meeting Room



Outdoor Amphitheater



Public

Cultural

Community Gardens



Wellness Gardens



Nature Trails



Nature

Therapy Rooms



Patient Rooms



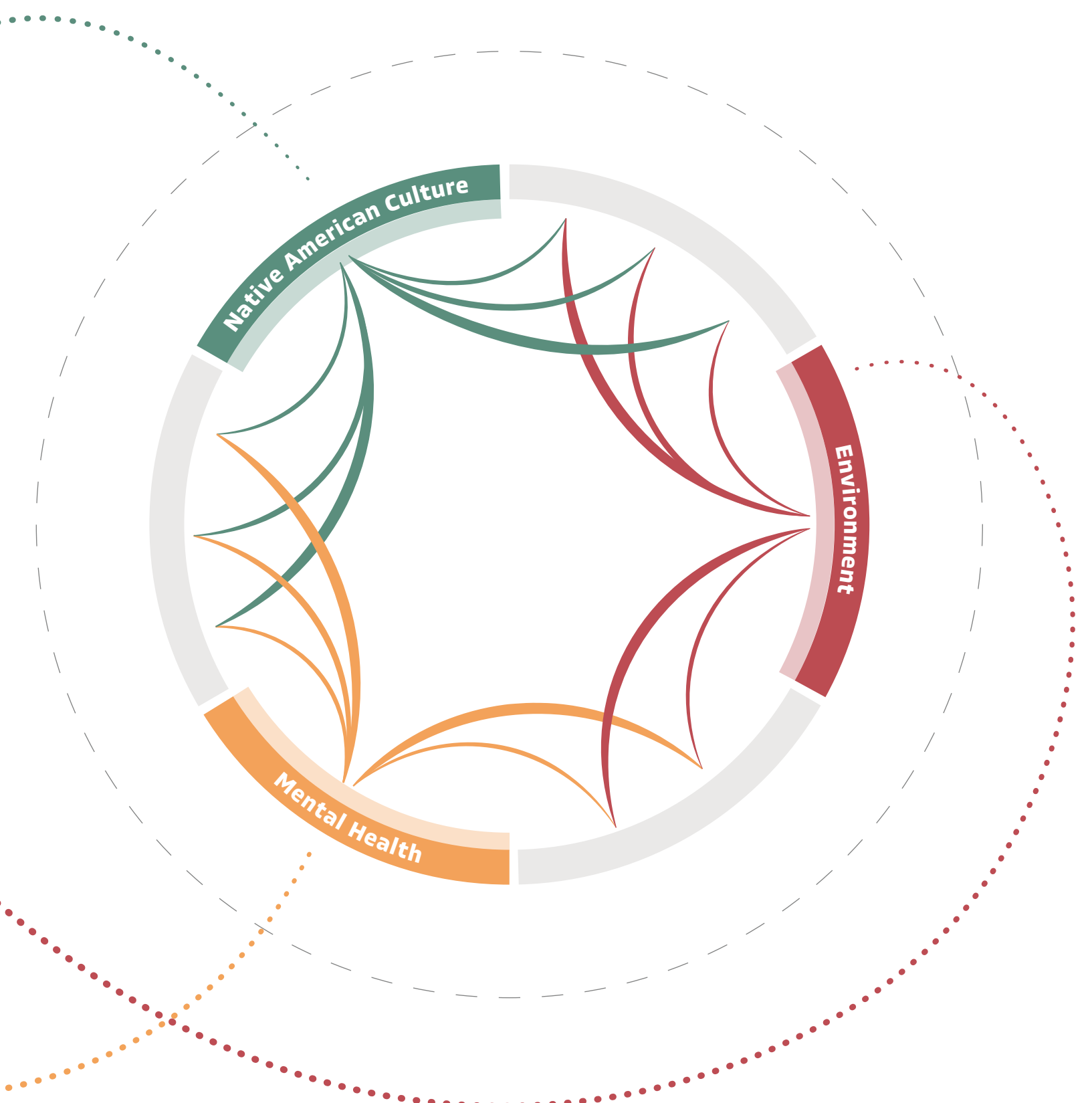
Meditative Space

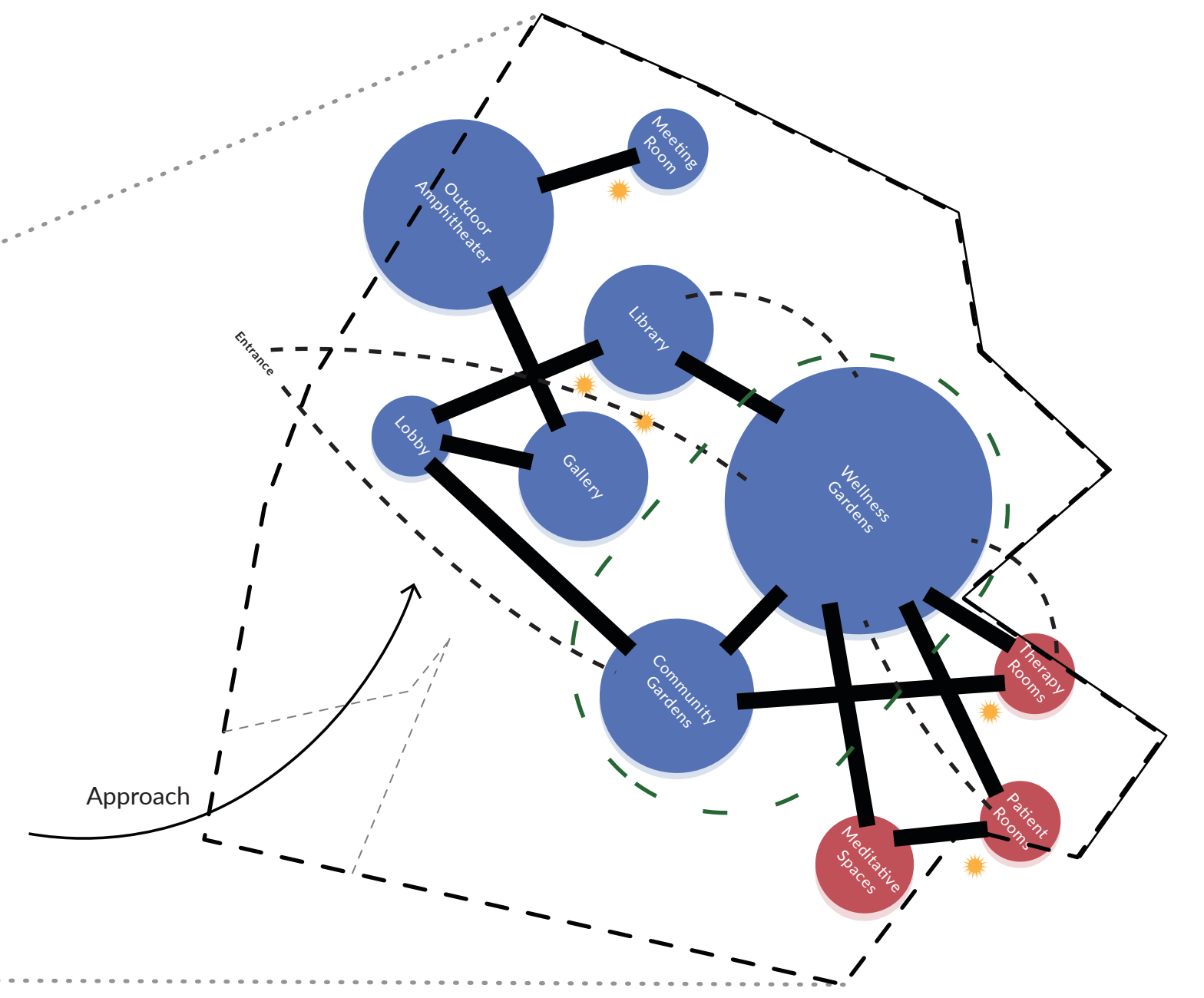
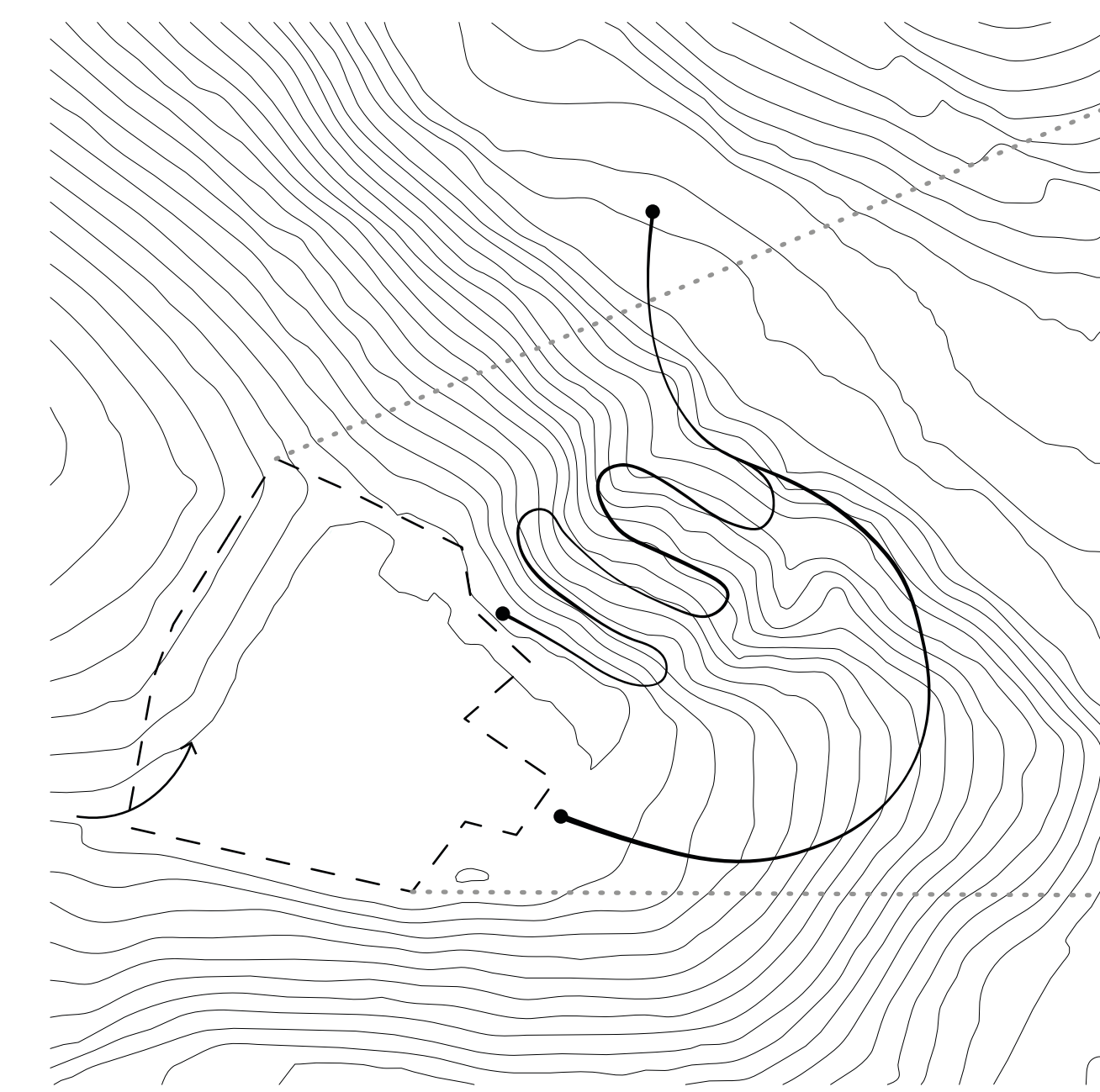
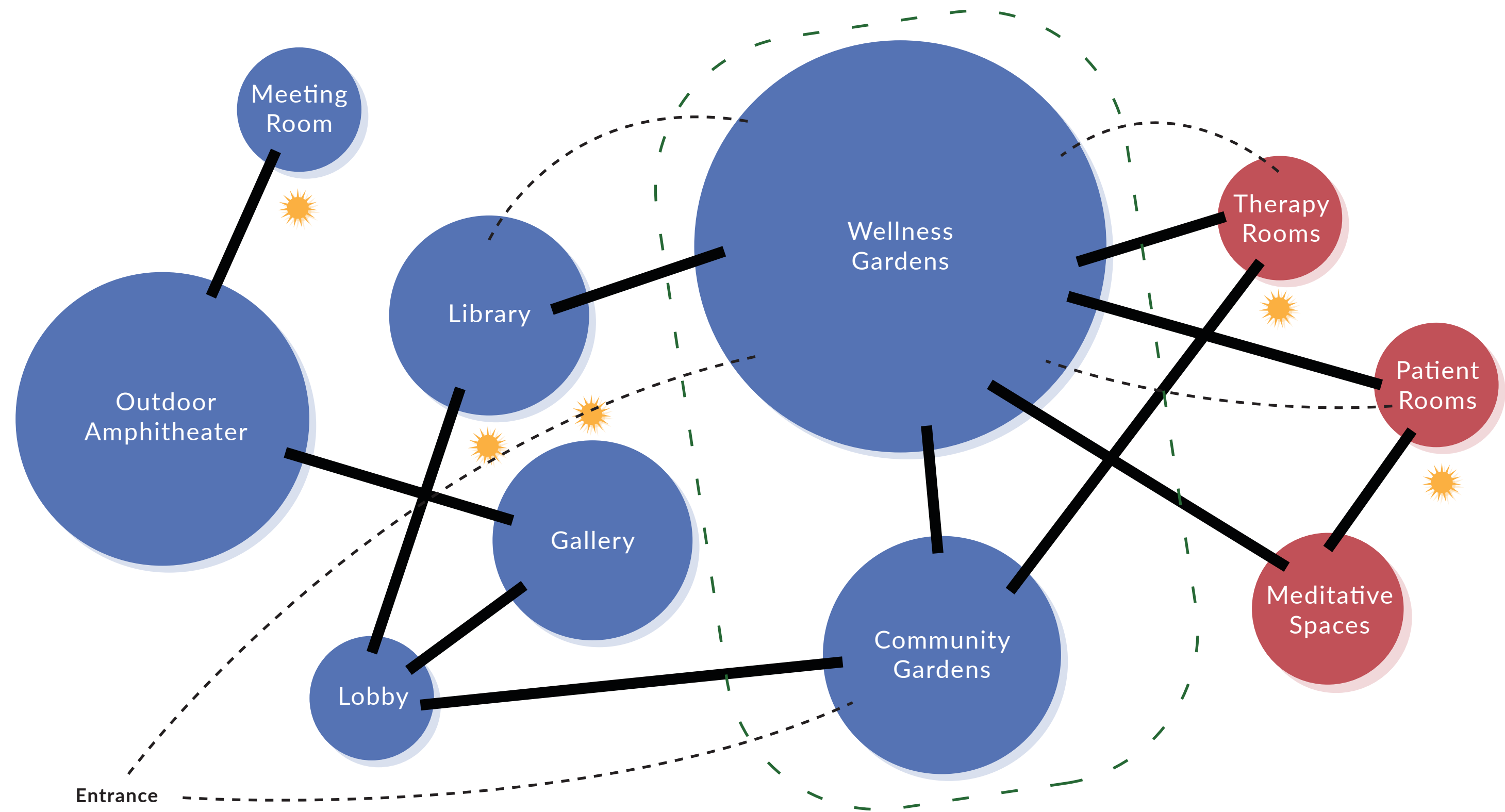


Private

Wellness

Community

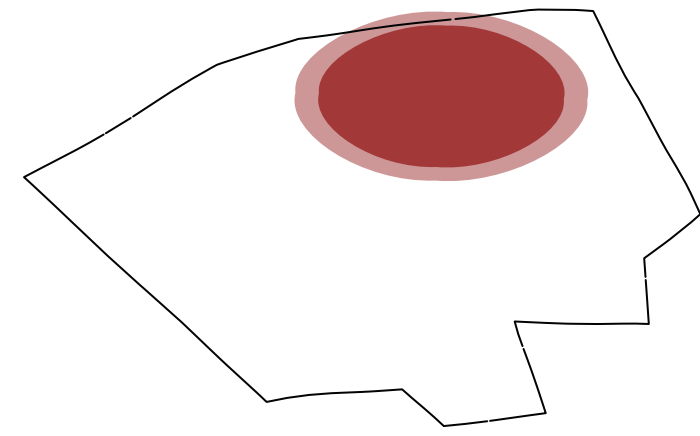




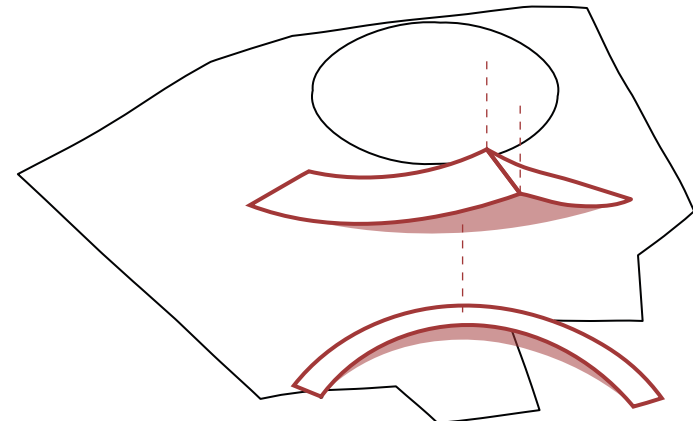
04

Design Synthesis

Massing



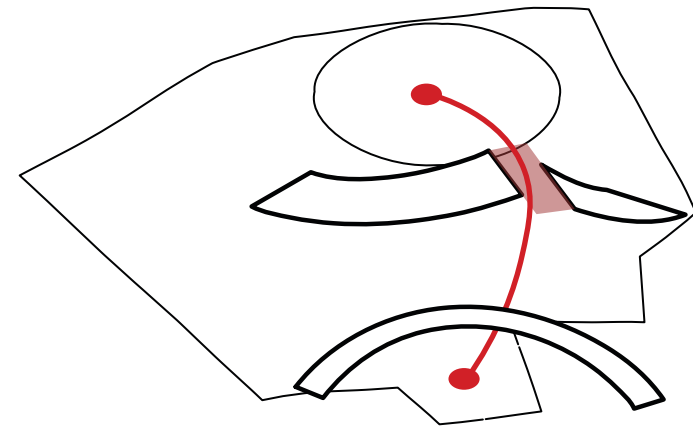
Outdoor amphitheater serves as the social and cultural hub of the site



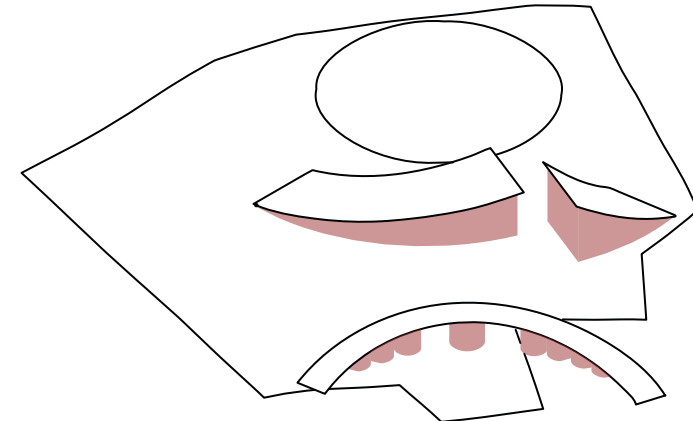
Curvilinear form inspired by curves of nature, form raised similar to native mound vernacular



Figure 6.1

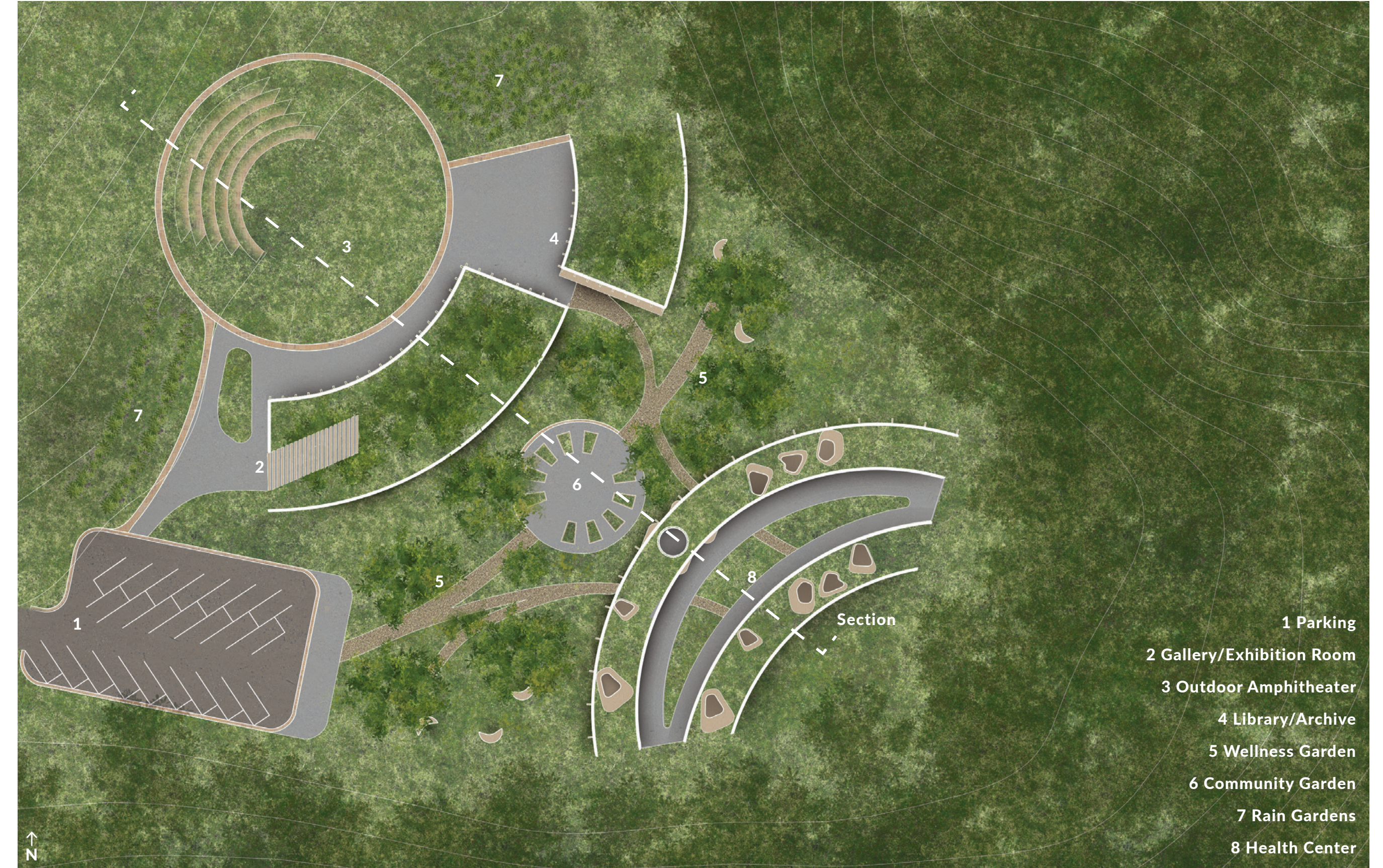


Form split to provide interconnectivity between programs on the site



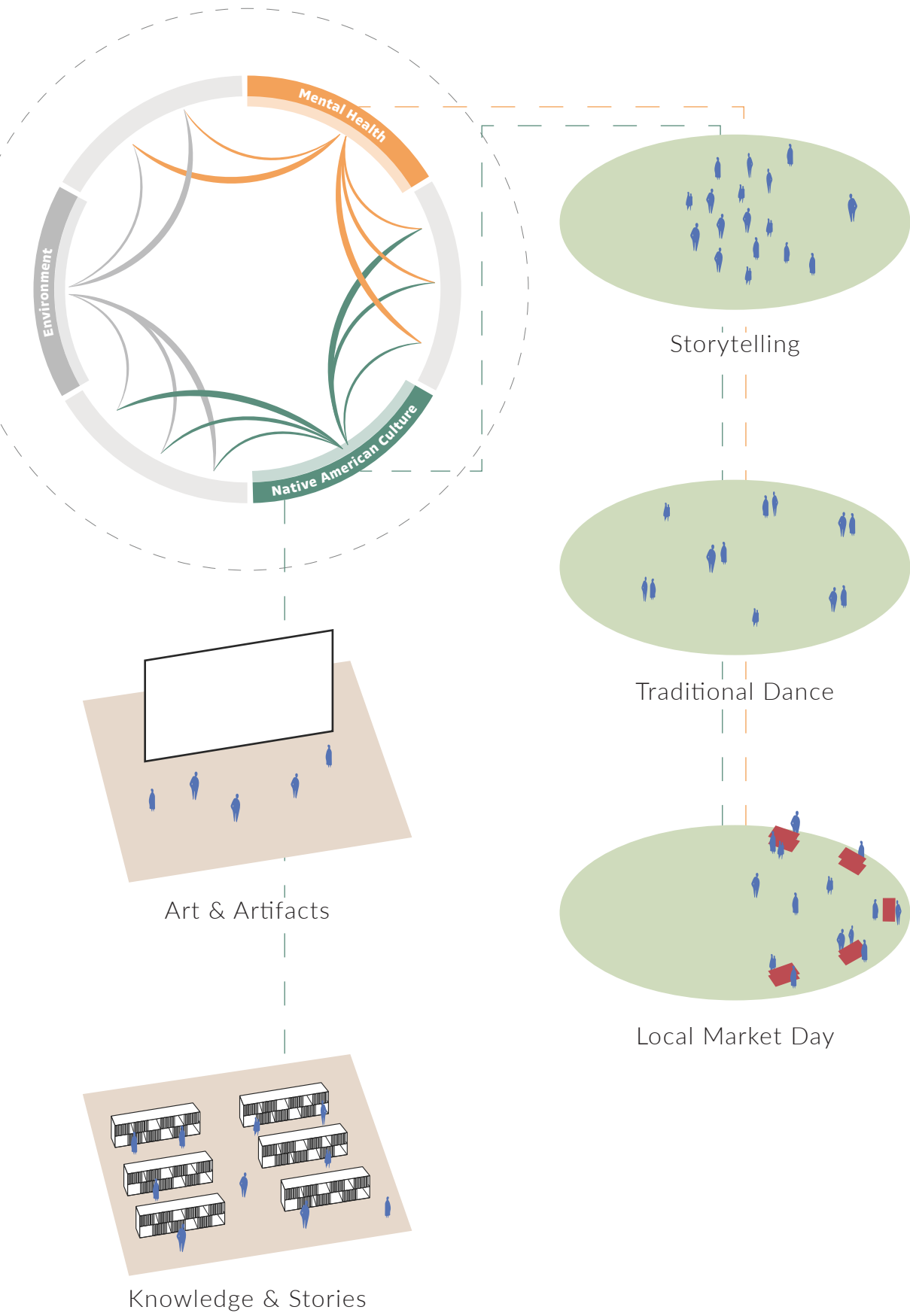
Space formed under the raised landscape

Site Plan

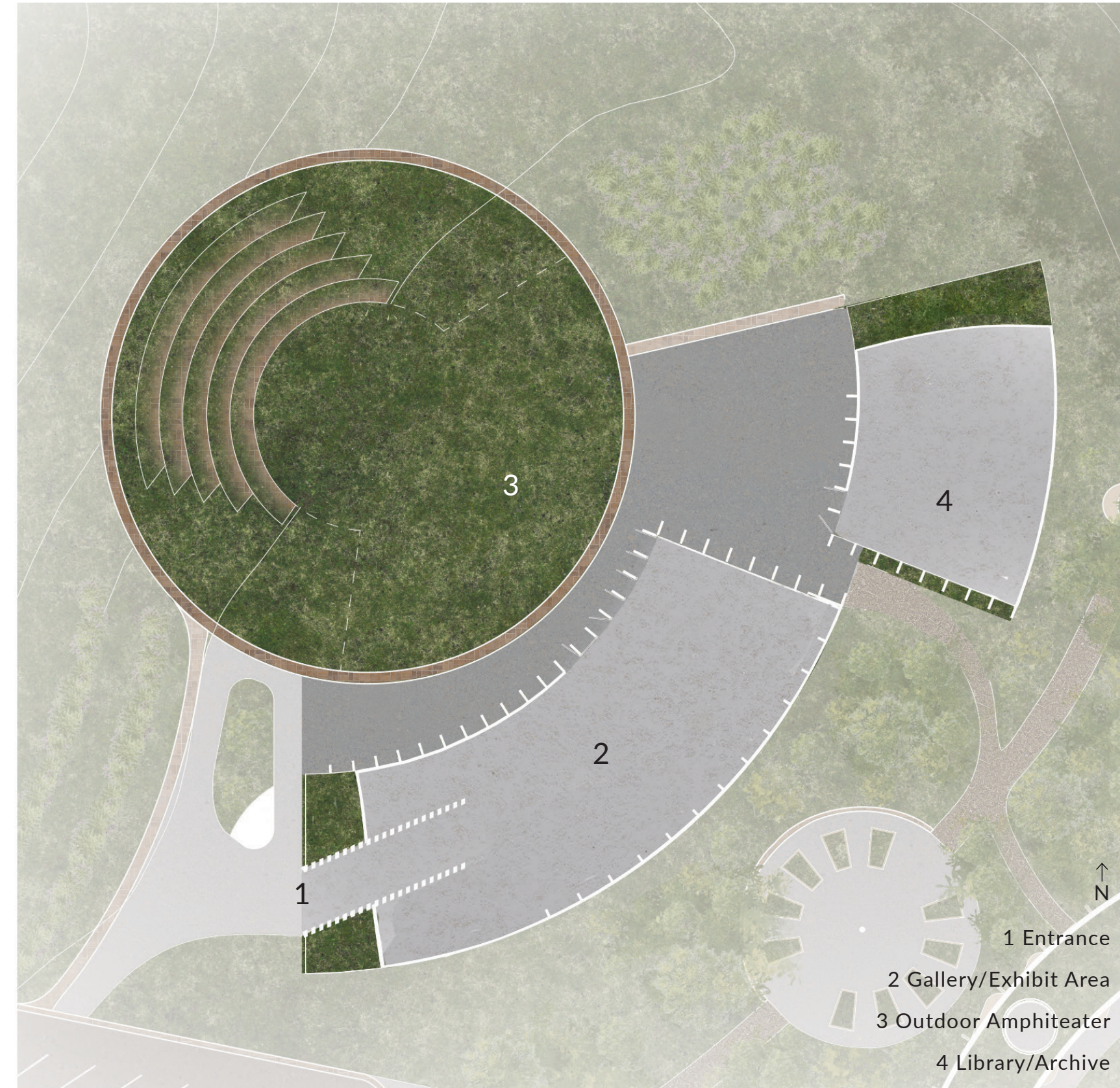


- 1 Parking
- 2 Gallery/Exhibition Room
- 3 Outdoor Amphitheater
- 4 Library/Archive
- 5 Wellness Garden
- 6 Community Garden
- 7 Rain Gardens
- 8 Health Center

Floor Plans



Zone 1 Education and Culture



Entrance

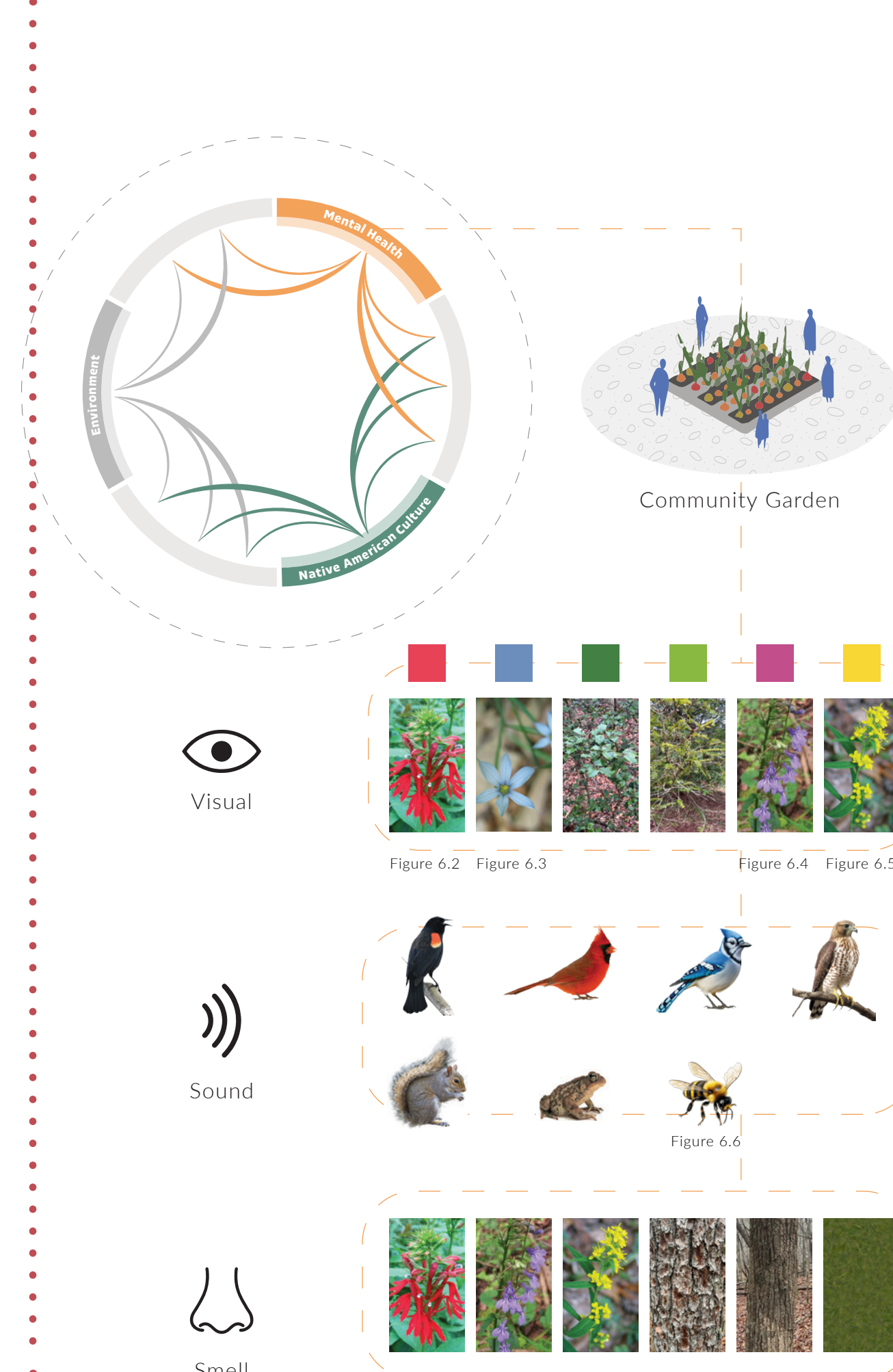


Gallery



Amphitheater

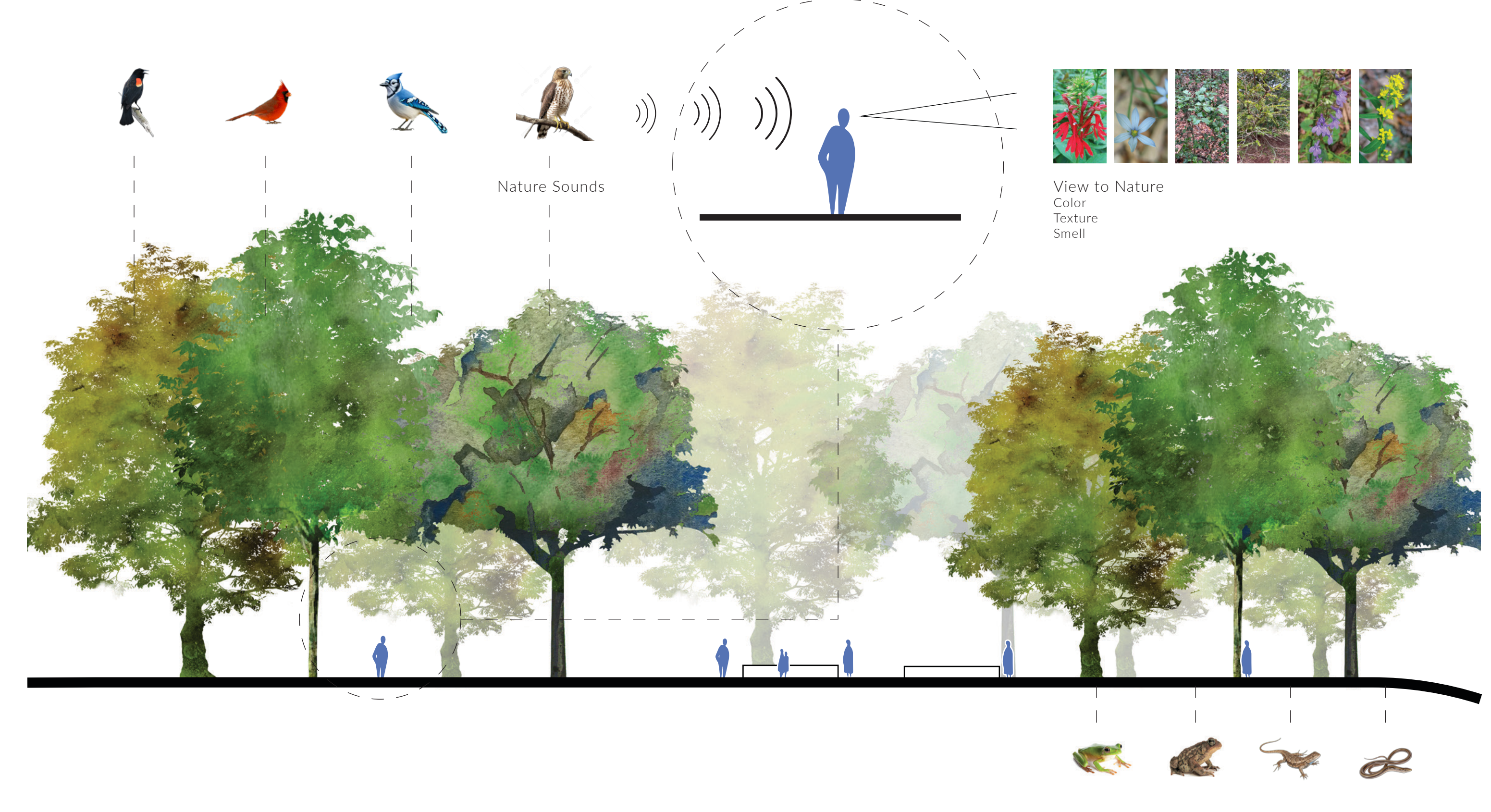




Zone 2 Gardens



Garden Section

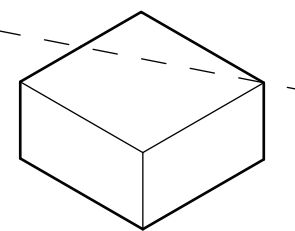
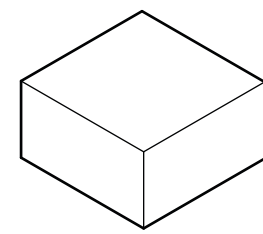


Community Garden

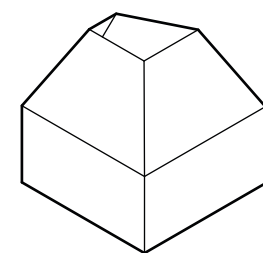


Meditation Area

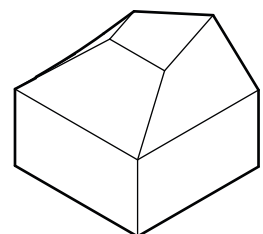




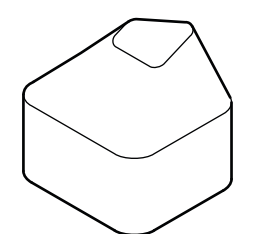
Cut to frame views



Raise roof for daylight and ventilation



Optimize position and angle



Soften form

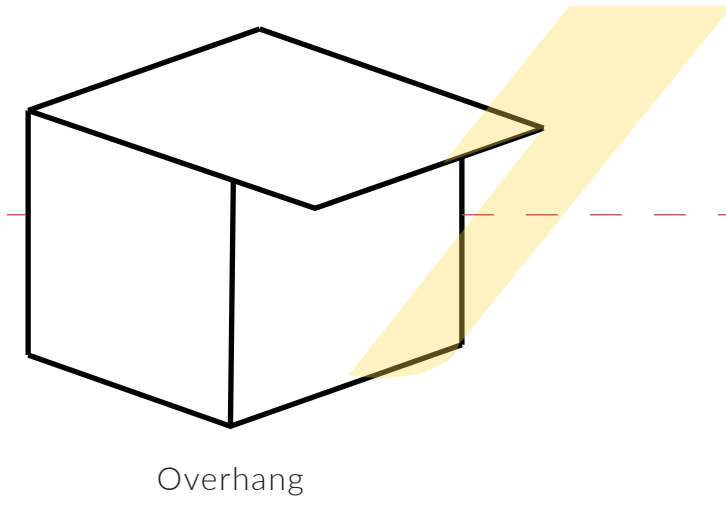
Zone 3 Healthcare



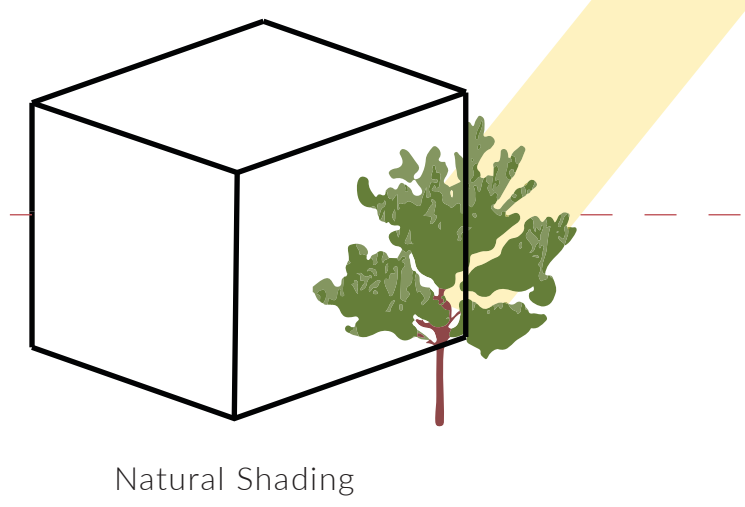
Patient Rooms Exterior



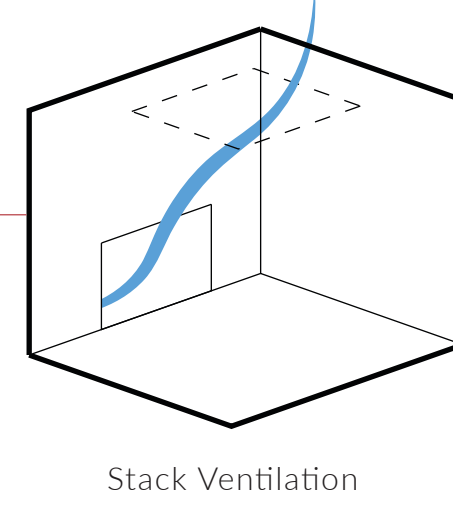
Patient Rooms



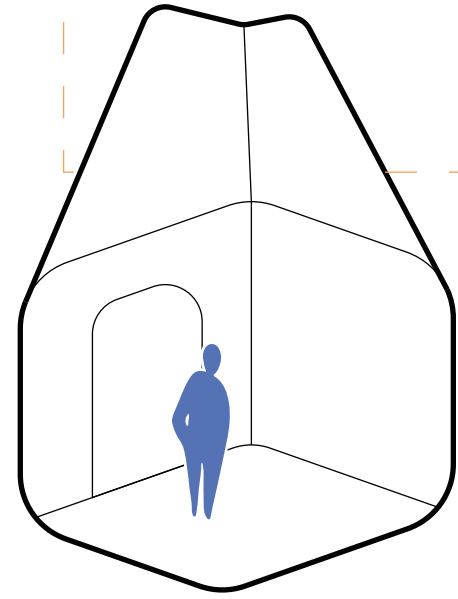
Overhang



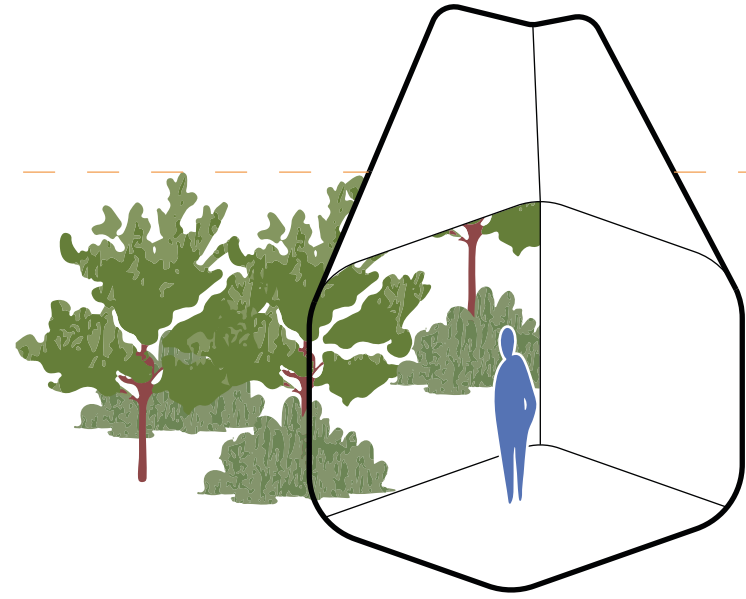
Natural Shading



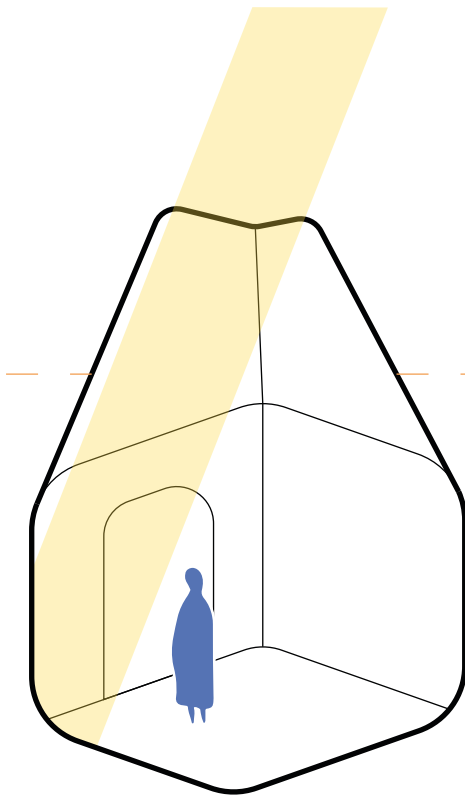
Stack Ventilation



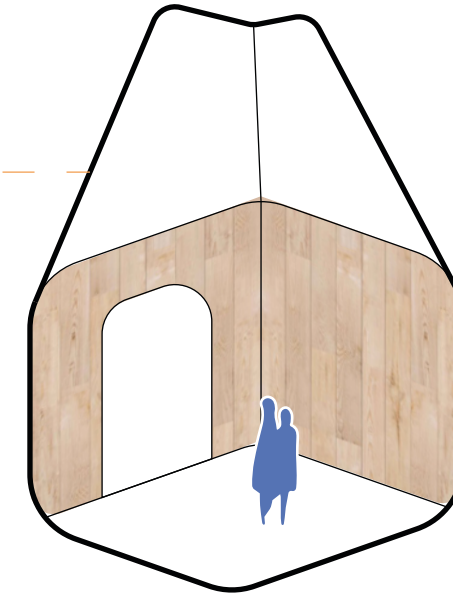
Soft Forms



Views to Nature

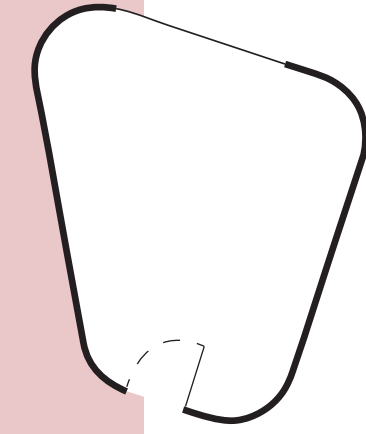


Natural Daylight

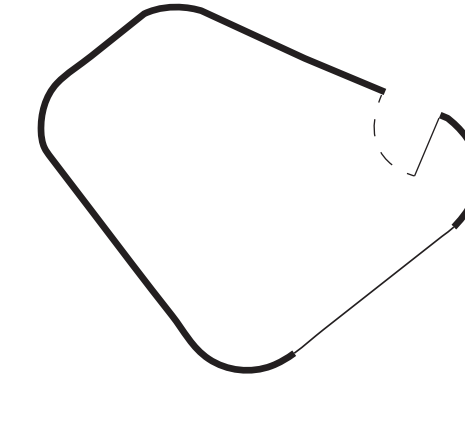


Natural Materials

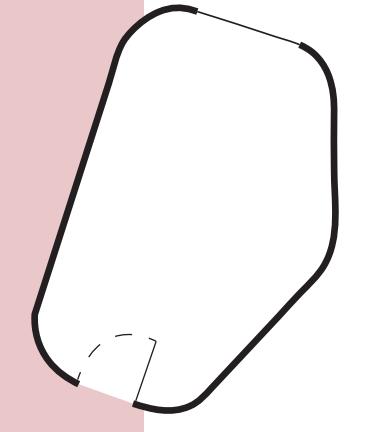
Patient Room Breakdown



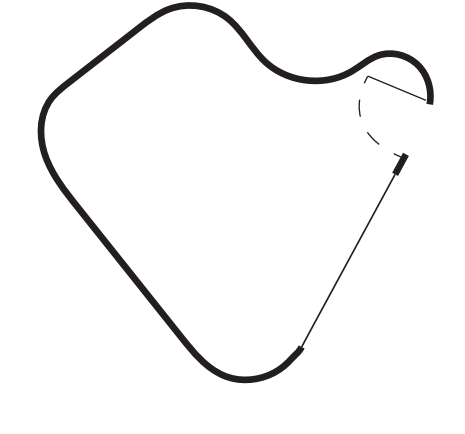
268 Square Feet



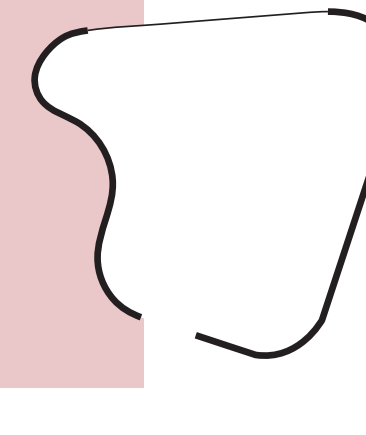
267 Square Feet



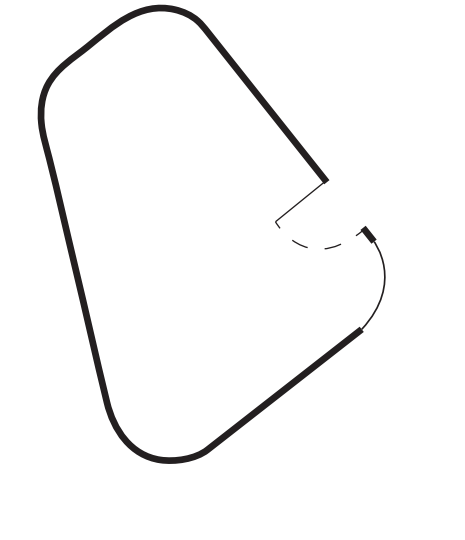
268 Square Feet



268 Square Feet



242 Square Feet



268 Square Feet

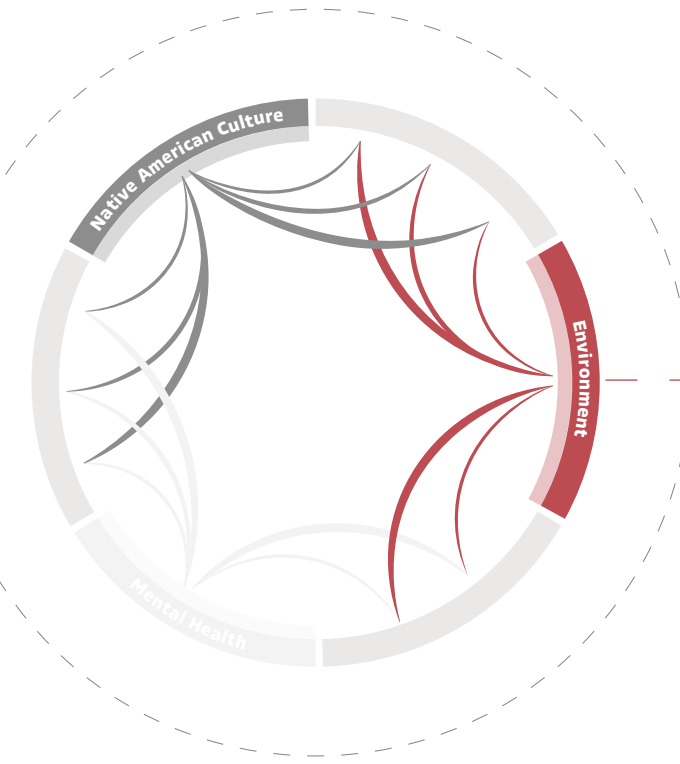
Patient Rooms Interior



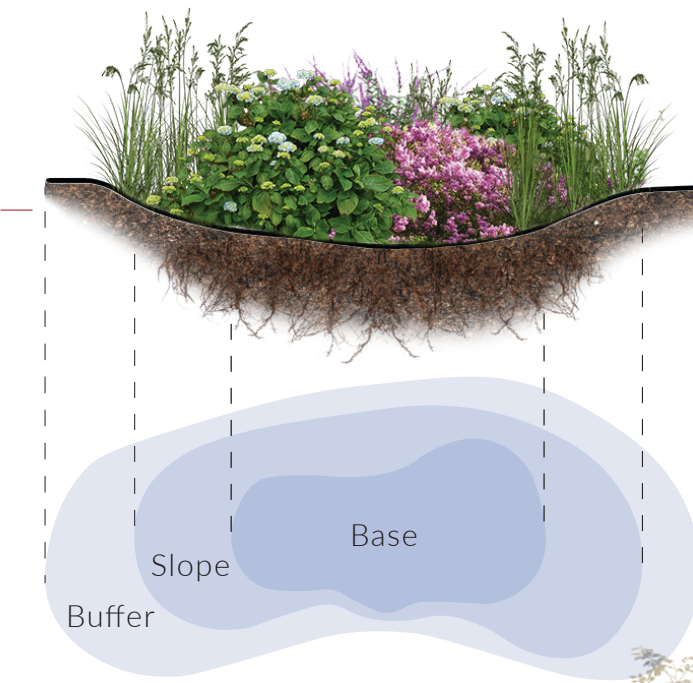
Therapy Room



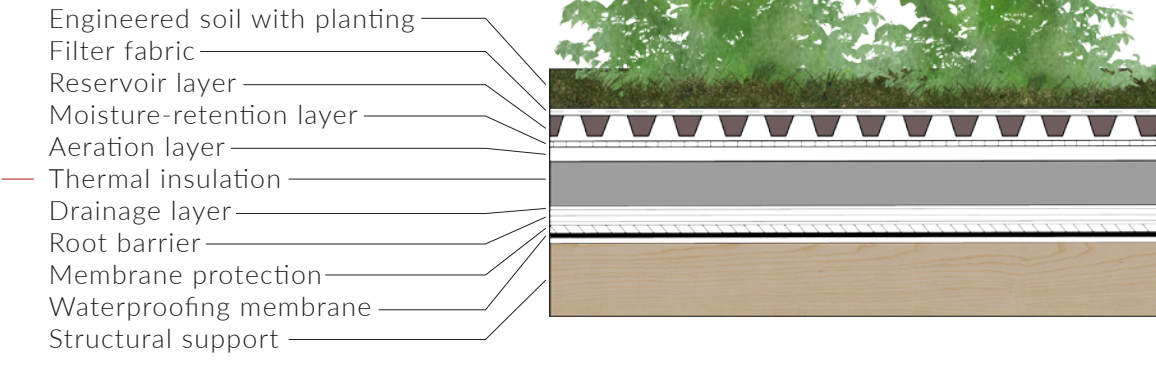
Section



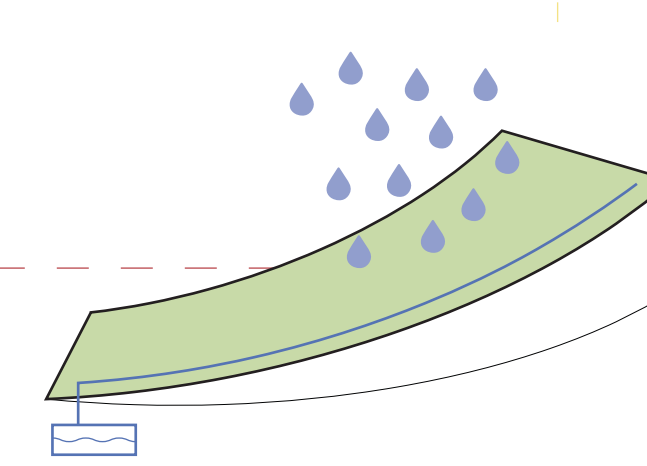
Rain Garden



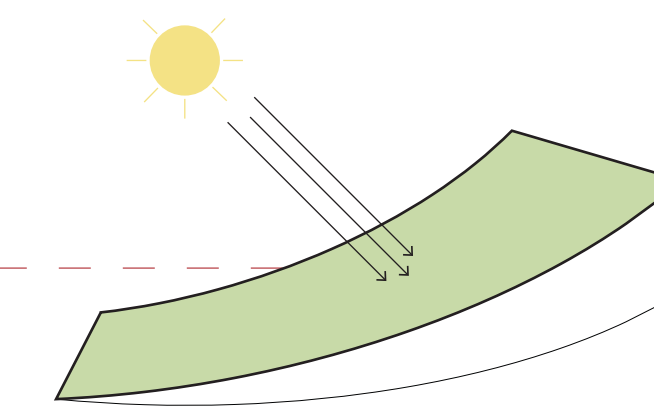
Green Roof



Native plants



Water management



Reduced heat island effect
Increased heat absorption

Material Palette



Locally sourced timber
- CLT
- Glulam

Stone

Brick



Journey Mapping

Person



Michael
Age 43

Michael was born and raised in dahlonega. He is a member of the city council and is always looking to make the area a better place. He enjoys nature and often hikes the nearby Blue Ridge Moutains. Michael visits this facility to enjoy the local biodiversity and help out at the community garden.



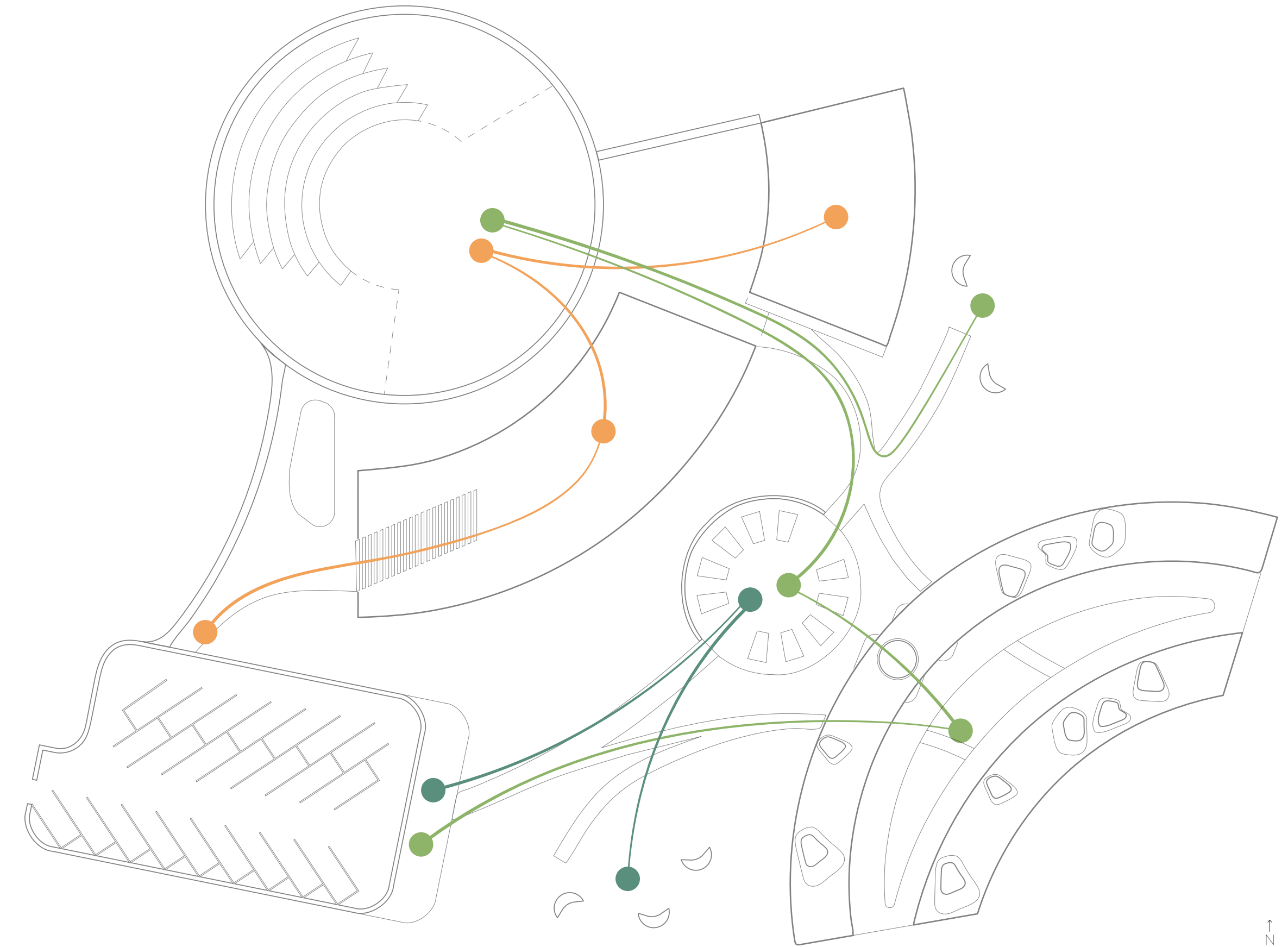
Eric
Age 28

Eric is a Native American man struggling with depression and anxiety. Contemporary fixes to these issues (prescriptions) hasn't worked to well with Eric. He decides to come to this facility as an alternative.



Hanna
Age 16

Hanna is a highschool student researching a project on the history of Dahlonega. She knows that Native Americans played a big role in the cities history, so she decides to come to this area to learn more about it.



05

Bibliography



Chapter 1.1

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- Figure 2.5 Vorenberg, S. (2016, January 6). Plankhouse Springs back to life. The Columbian. <https://www.columbian.com/news/2012/apr/13/plankhouse-springs-back-to-life/>

Chapter 2

- Figure 3.1 Maggie's Centre Leeds, by Heatherwick Studio. Architect Magazine. (n.d.). https://www.architectmagazine.com/project-gallery/maggies-centre-leeds_o
- Figure 3.2 Pintos, P. (2021, July 24). Maggie's Leeds Centre / heatherwick studio. ArchDaily. <https://www.archdaily.com/941540/maggies-leeds-centre-heatherwick-studio>
- Figure 3.3 Pintos, P. (2021, July 24). Maggie's Leeds Centre / heatherwick studio. ArchDaily. <https://www.archdaily.com/941540/maggies-leeds-centre-heatherwick-studio>
- Figure 3.4 Pintos, P. (2021, July 24). Maggie's Leeds Centre / heatherwick studio. ArchDaily. <https://www.archdaily.com/941540/maggies-leeds-centre-heatherwick-studio>
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- Figure 3.6 Pintos, P. (2021, July 24). Maggie's Leeds Centre / heatherwick studio. ArchDaily. <https://www.archdaily.com/941540/maggies-leeds-centre-heatherwick-studio>
- Figure 3.7 Pintos, P. (2021, July 24). Maggie's Leeds Centre / heatherwick studio. ArchDaily. <https://www.archdaily.com/941540/maggies-leeds-centre-heatherwick-studio>
- Figure 3.8 Te Kura Whare. International Living Future Institute. (2022, August 1). <https://living-future.org/case-studies/te-kura-whare/>

Chapter 2.1

- Figure 4.1 Map showing location of Dahlonega, Georgia. Google Earth, earth.google.com/web/.
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- Figure 4.18 Ophisaurus attenuatus attenuatus western slender glass lizard. Herps of Arkansas. (2023, April 13). <https://herpsofarkansas.com/reptiles/lizards/ophisaurus-attenuatus/>
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Chapter 4

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- Figure 6.2 Cardinal Flower (lobelia cardinalis). GNPS. (n.d.). <https://gnps.org/plant/cardinal-flower-lobelia-cardinalis-2/>
- Figure 6.3 Blue-eyed grass (sisyrinchium angustifolium). GNPS. (n.d.-a). <https://gnps.org/plant/blue-eyed-grass-sisyrinchium-angustifolium/>
- Figure 6.4 Downy lobelia (lobelia puberula). GNPS. (n.d.-c). <https://gnps.org/plant/downy-lobelia-lobelia-puberula/>
- Figure 6.5 Blue-stem goldenrod (Solidago Caesia). GNPS. (n.d.-b). <https://gnps.org/plant/blue-stem-goldenrod-solidago-caesia/>
- Figure 6.6 PNG of Png Bee Bumblebee. rawpixel. <https://www.rawpixel.com/image/12057849/png-white-background>

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