

THE UPPER ARM BAY RESORT:

ON THE MISSOURI

Parshall, North Dakota
Fort Berthold Indian Reservation
Van Hook Arm

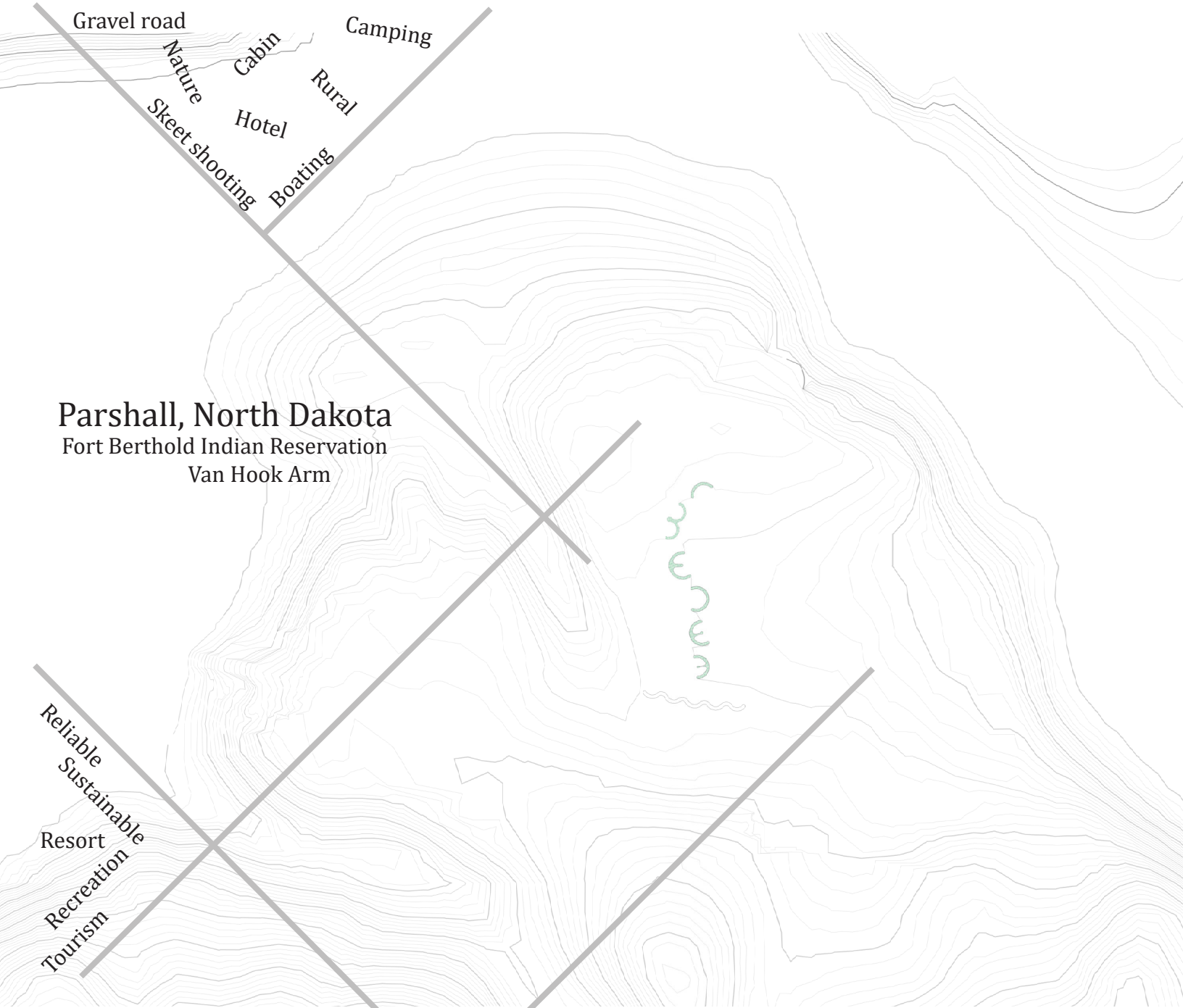


Designer & Editor:

GARRETT HODENFIELD

Master of Landscape Architecture
Spring 2023 | NDSU | MLA

SUSTAINABLE ECO-TOURISM FOR DECLINING RURAL COMMUNITIES



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THE UPPER ARM BAY RESORT: On The Missouri

Sustainable Eco-tourism for Declining Rural Communities

A Design Thesis Submitted to the
Department of Landscape Architecture
of North Dakota State University

By:

Garrett Hodenfield

In Partial Fulfillment of the Requirements
for the Degree of
Master of Landscape Architecture

Primary Thesis Advisor

Secondary Thesis Advisor

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May 2023
Fargo, North Dakota

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THESIS ARCHIVAL NOTE

The following thesis project, entitled *The Upper Arm Bay Resort: On the Missouri, sustainable eco-tourism for declining rural communities*, was composed over the course of the 2022-2023 academic school year. The Thesis Program, as contained here, was initiated and completed in the fall semester as a part of the LA 763: Landscape Architecture Thesis Research and Programming course. Supplemental material, including the Thesis Boards and the Thesis Presentation documents, were generated in the spring semester as a part of the LA 772: Landscape Architecture Graduate Thesis Design Studio. Any inconsistencies between the different documents, in terms of research and design, should be excused per the evolution of the project across the two semesters.

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CHAPTER 1: STATEMENT OF INTENT



Abstract

Focusing on scrutinizing the significance of the economic gain and loss of rural communities in North Dakota. Farming communities are slowly declining around the Fort Berthold Indian reservation area due to the lack of interest in coming back to a small community and revamping their profession. Extensive studies have been done to tackle how to stop the decline of the community and revamp the once vibrant community. Creating a recreational resort in the heart of the Missouri River will encourage citizens from around the country to visit this location which will provide guided tours for recreational hunting and fishing.

The design concept will be directly related to users' interests. Access to the site, sustainability, landscape design analysis and the cultural diversity is involved in the project. Site inventory analysis of the surrounding area, population control, aspects in the landscape will lead to a sustainable community and limiting pollutants of the water from chemical waste. Developing this site will help tourism in the area and bring back the once well-rounded rural town.

Key Words: (Economic gain, Rural Towns, Recreational resort, Missouri River, Tourism, Sustainability, Pollutants)

The Narrative

Declining rural towns may not seem like an issue to the normal population, but to the right group, especially in North Dakota, you will notice how more and more people are leaving there small town locations to go to a larger city which is much more populated. Some issues this may cause is trying to find space to develop more buildings and housing units as well as residential houses. To do this they must keep expanding the city out or up. By expanding up, that will cause some issues such as more structural cost to build, higher rent payments, less parking on the streets for residence. Expanding the city out will mean one thing. Taking away our precious farm land and destroying it. By doing this they are paying these farming families a large amount of money which they cant turn down, eventually leading them to sell more and stray away from the profession. Building in a city making it a more populated area will also cause a more effective heat island effect which can lead to destruction of cars, buildings, parks, streetscapes, etc.

My intentions for this site are to encourage rural tourism around North Dakota and help build back small towns to what they used to be. The recreational resort will serve multiple purposes, being to allow hunters and fisherman to come to the resort for either a short or long period of time, developing lodges for longer stays and hotel like comfort for the weekend stays. The resort will also comply with existing citizens that live there to help them have a more sustainable lifestyle and easier access to fresh grown crops and cleaner water. Creating the landscape with the ability to safely store storm water and reuse it for the crops. I will use strategic planning for the site to allow all users to be safe and satisfied with there lifestyle for years to come.

Project Typology

Typology 1: Resort Planning

Professional development of a resort that must obtain rules and regulations which meets the codes of conduct. Resort planning for hospitality and orderly function of the site. Creating a economic friendly environment for users to enjoy the resort layout and amenities.

Typology 2: Eco-Tourism

Uniting conservation, community and maintain sustainable travel. Eco-tourism is meant to help and provide for the people while using more natural products. Using resources that the environment provides for the community. It is important to support conservation efforts and protect natural wildlife.

Typology 3: Sustainable Community

Sustainable is the balance between environment, economy and equity. How to provide profit to people and the environment all at once. The resort will show this by collecting rain water, using hunted or fishing game to provide for the welcome center restaurant. Sustainability is much needed to create a healthy environment for the community and visitors.



CHAPTER 2:



CASE STUDIES



Case Study #1

Economic Impact of the Corona virus Due to Travel Loss

In this research topic for a case study i will look into how Covid-19 affected the world of traveling and how it hurt the economy. Also in the study, i would look into how many people still traveled and what kind of vacations they took or would have rather took during the pandemic. Some people traveled normally with exceptions of the airlines, but some traveled to remote areas with less people in there group.

The pandemic affected the range of nights stayed in ND lowering the time spent here. 22.2% typically stayed for 1 night, 16.1% had there planned day trip, while the 2+ day trips were lowered and the 4+ trips were decreased to a -4.6% which could damper the long stay hotels and lodges used for these kind of purposes. AirBnB lodges would slowly decline in the effectiveness because it would cost them more to have the paid clean up after each stay since the stays were limited to 1 night or day trips. The longer trips the maid may come once at most 2 times per visitor.



Case Study # 2

H & M Let's Close the Gap: Deposit Scheme for Gathering Raw Material

Studying the use and convenience in raw material and waste to be reused in the ecosystem will be a huge part of what i want my thesis topic to be about. Learning how to use raw materials correctly and safely will be a vital source of nutrients to gardens and plants, as well as keeping critters out of your homes and garbage cans.

Renewable energy is energy that comes from sources that are readily replenish-able on short-timescales. Examples of these are solar radiation, wind, and biomass. Throughout the study of how to gather raw materials i have learned that there are many more materials and object that can be reused for a variety of items and will help maintain the sense of economic sympathy.



Sustainability Objectives

Sustainability will be a large focus on developing this recreational resort, by implementing unique objects and amenities this will help the community thrive off of a main supply developed by the resort itself. Examples of some ways to create a sustainable community would be a rain water capture unit implemented around the resort and community which will contain rain water runoff from the roofs and other permeable objects to reuse this water and treat it to be used in sprinkler systems, drip components to water the community garden and more.

Community gardens are a easy yet inspiring way to involve the community in the movement to become sustainable. Gardens may contain fruits and vegetables which will be up-kept and maintained by the community members and it free access to all members. Finally the recreational side of staying sustainable would be feeding the community through sport. Hunting and fishing year round by these paying customers for the resort to offer a place and restaurants to pay these clients for there meat to help feed and supply food for the restaurants and butcher shops for sale.

Case Study #3

Tata Power: Solar panels on the roofs

Sustainability in a rural community is key and a smart way to save natural energy around the area. Solar panels on roofs or even in the yard will be helpful to power the development especially storing this energy in times of need like the brutal snow storms ND is known to receive. Solar panels are typically expensive but used correctly and for a good amount of time they will earn its keep and pay back the community when it matter most. I will research types of solar panels, how they are used properly, the scale and size needed, as well as how much energy they really can store and for how long of a period of time they are good for.

Solar panels are great for long term saving on electricity and will help maintain you electricity bill to stay the same and then use the stored energy the panels collect. They are very self efficient and low-no maintenance for the community, workers, and users of the lodges. Using raw materials and collecting the suns energy will allow for the resort to afford and make for a cleaner, safer and more sustainable environment on site.



Case Study #4

Tourism: The Impact on Tourism

Tourism will always be a huge role in the economy. People travel all the time, rather that's across town, across the state or halfway around the world. So i will study numbers of people that travel and how far they usually travel regularly, as well as the price they typically spend on a trip. Then i will look to how much they are willing to spend for a longer vacation. Tourism has its perks and downfalls such as cancellations of flights and buses, weather delays, illness, or even the uprise in prices. Knowing this information will encourage the correct prices for my future resort and create a budget friendly area sufficient for the travelers and commuters.

According to the North Dakota Tourism commerce survey and report on marketing and travel industry, North Dakota in 2021 had a 23.5% increase over 2020 listed at \$2.61 Billion being spent on tourism across the state. Also form the same survey in 2021, 21.71 million visitors traveled to ND which was a 19% increase from 2020



Border crossings into ND increased by a whopping 248.8% over the year of 2020. Creating a higher occupancy was 10.1% higher in Quarter 4, 2020.

Social media affect on tourism in ND impacted the followers positively by increasing it by 4% to nearly 154,000 individuals. Content shared between individuals and groups was a large decrease to 2,222,917 which is a 52% decrease.



CHAPTER 3:
MY PROPOSAL



Project Justification

The sustainable recreation resort will be a great opportunity to create jobs for locals who want more outdoor activity. It will also allow the locals to meet new people and encourage them to come back again to enjoy the experience. It will attract fisherman and hunters from all over. An effective way to develop this community to be sustainable is use the resources the land offers and sell or give back to the stores and local meat shops for example.

Some problems that are affecting the area now is chemical pollutants from storm water run off from agricultural fields and oil rigs. Oil rigs burn off lots of natural gases which could be used for other items around the community instead of letting it go to waste. This community will encourage the hunters and gatherers to donate some of there meat to the local shops especially when they know they wont be able to consume most of it in a timely manner.



Project Emphasis

The resort would like to be claimed by a grant from the state of North Dakota or even several grants to develop a system of teams working together on one major project.

Getting a land grant of the state would be a major part of how we develop the site while including the beautiful bluffs of the Missouri river and the beaches it provides for us. The project will use the money to build the resort while giving back to the communities and donors for it.

There will be plenty of opportunities for the donors to get an all inclusive sneak peak on how it is being processed, designed, built, updates on the project and of course the final project. The project will maintain a clean environment and attract locals and non natives to the site to enjoy a recreation outdoor friendly campsite resort style vacation. Creating a sense of arrival and a schematic craftsmanship of rustic lodges shelters and playground will also attract a broad group of all ages and ethnicities.

Major Project Elements (Broad)

Transportation / Access

Two major cities in North Dakota will be the key factor in means of access to the campsite. Minot and Bismarck are larger cities in ND and the site falls in between them near major roads such as HWY 83, connecting them. This will make for easy commuter accessibility and resources available. Another key road connecting HWY 83 to my Location is HWY 1804

Parks and Public outdoor spaces

My project will include open green parks for people that would like to run around and throw around the ball, as well as close corridors to fillet fish and clean deer etc. It will also allow area for kids recreational activities and cookouts. Walkways and board walk near the beautiful Missouri river to enjoy the sunsets. Playgrounds available for all ages and a welcoming center which provides amenities like a outdoor pool, yard games, household necessities and much more.

Restaurant

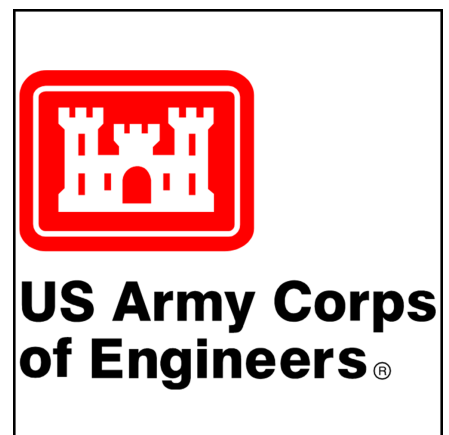
The Restaurant on site in the welcome center will include a vast menu from appetizers all the way to fresh killed/caught meat such as venison and the best walleye ND has to offer. Small, rustic, and cozy is where you would like to settle down to eat at the end of your outdoor adventurous day.

Theme

Creating a sense of a naturalistic environment when you arrive is what will lake you feel like you have arrived to your destination. This makes you feel like you are in the outdoors. Having a rural community feel with lots of small shacks, Pavilions, cabins and gazebos for the outdoor rustic touch.

Intended Clients for use and Funding

The development of the project would strictly be funded by north Dakota funds and grants as well as donations from North Dakota Citizens and citizens on the Berthold Indian Reservation. Clients could be anyone from the state that would like to be a small part of the sustainable community development process. The shoreline would be granted through the U.S. Army Corps of Engineers as well as the Heritage Fund of ND. The client(s) could be a large donor or as simple as 100 dollar and will get some recognition for being apart of the process.



The user for the site will be those who wish to interact with the site inside and out as well as the activities involved with it. Handicap accessible is a must for the resort site, but can not be promised for all activities offered. The user will connect with the landscape and the infrastructure of the rustic development as well as the log cabin in the woods secluded feel. Giving them a peace of mind since they are on vacation. There will be greenway pedestrian corridors which connects places through the entirety of the site. Given this it will be outlined in groves of trees and bio-swales, some creating that separation from the site yet still easily accessible for access.



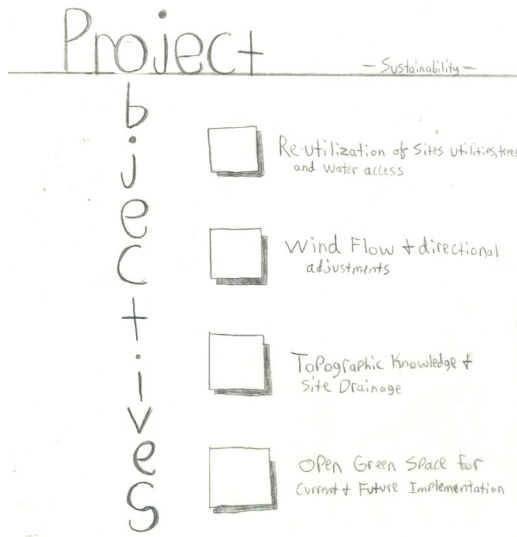
CHAPTER 4:

SITE ANALYSIS & INVENTORY

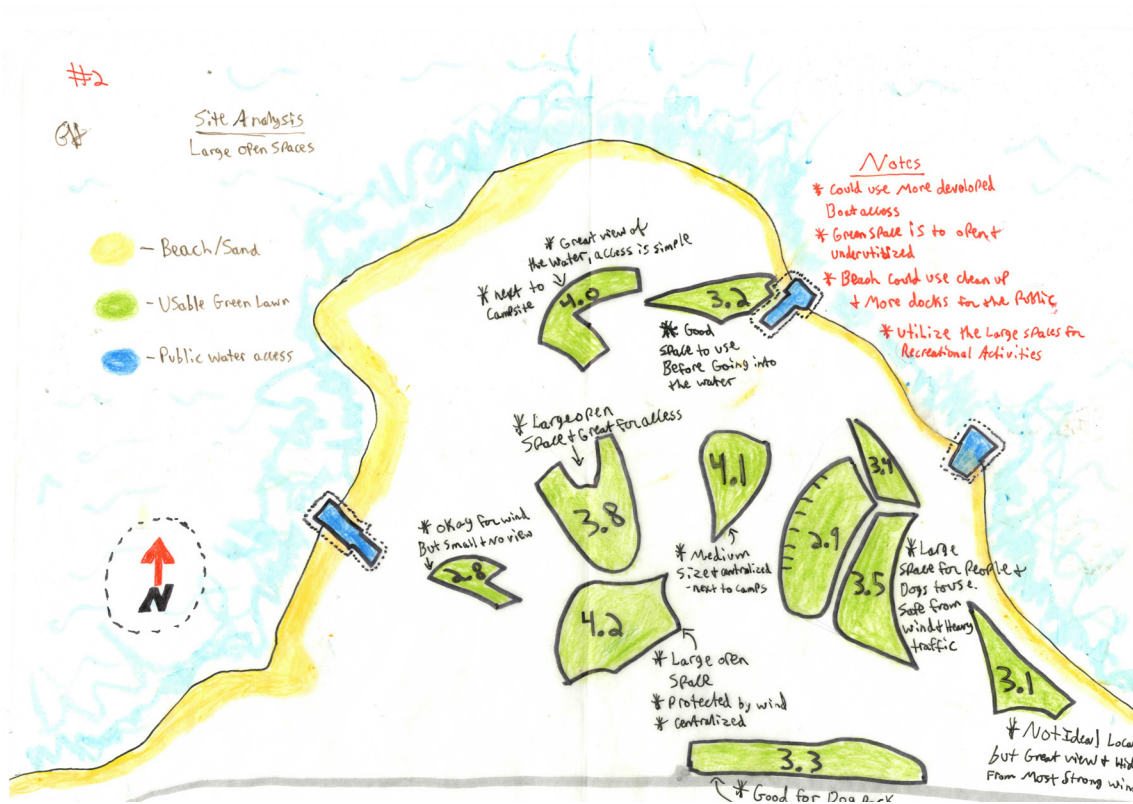


Site Photos

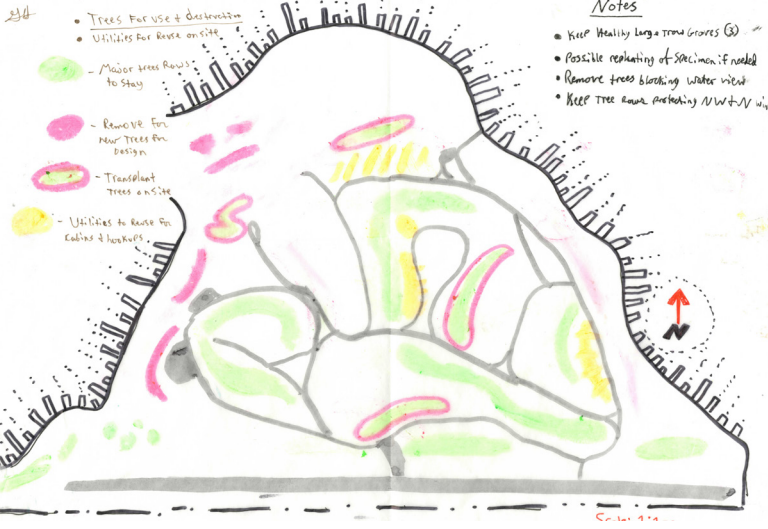




Site Analysis Diagrams



#3



- Trees For use & decoration
- Utilities for Reuse on site
- Major tree Row to stay
- Remove for New Trees on Design
- Transplant Trees on site
- Utilities to Reuse for Cabins & Workshops

- Notes
- Keep Healthy Large trees (G)
 - Possible replanting of Specimen if needed
 - Remove trees blocking water view
 - Keep tree Row protecting NW+V side

#4



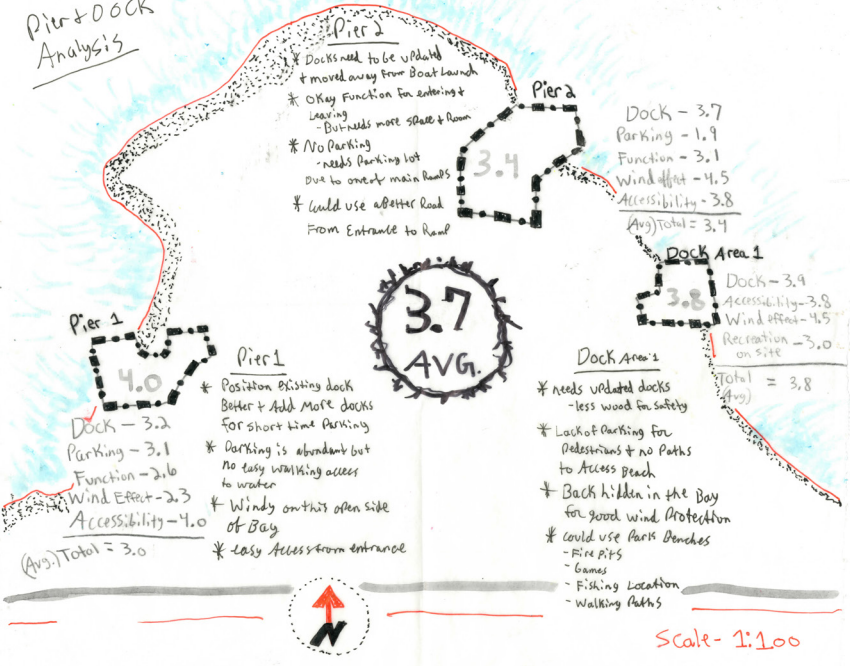
- Structures + Views
- Design Possibilities

- Best view at that spot
- Pavilions for all users
- Welcome Buildings + sheds
- Playground

#5

Pier & Dock Analysis

GA



Pier 2
 * Docks need to be updated & moved away from Boat launch
 * Okay Function for entering & Leaving - But needs more space & room
 * No Parking - needs parking lot due to overly main roads
 * Could use a better road from Entrance to Ramp

3.4

Dock - 3.7
 Parking - 1.9
 Function - 3.1
 Wind Effect - 4.5
 Accessibility - 3.8
 Avg Total = 3.4

Dock Area 1
 Dock - 3.4
 Accessibility - 3.8
 Wind Effect - 4.5
 Recreation on site - 3.0
 Total = 3.8
 Avg

Pier 1
 * Position Existing dock Better & Add More docks for short time parking
 * Docking is abundant but no easy walking access to water
 * Windy on this open side of Bay
 * Easy Access from entrance

4.0

Dock - 3.2
 Parking - 3.1
 Function - 2.6
 Wind Effect - 2.3
 Accessibility - 4.0
 (Avg.) Total = 3.0

Dock Area 2
 * Needs updated docks - less wood for safety
 * Lack of parking for pedestrians & no paths to Access beach
 * Back hidden in the Bay for good wind protection
 * Could use Park Benches
 - Fire Pits
 - Games
 - Fishing Location
 - Walking Paths

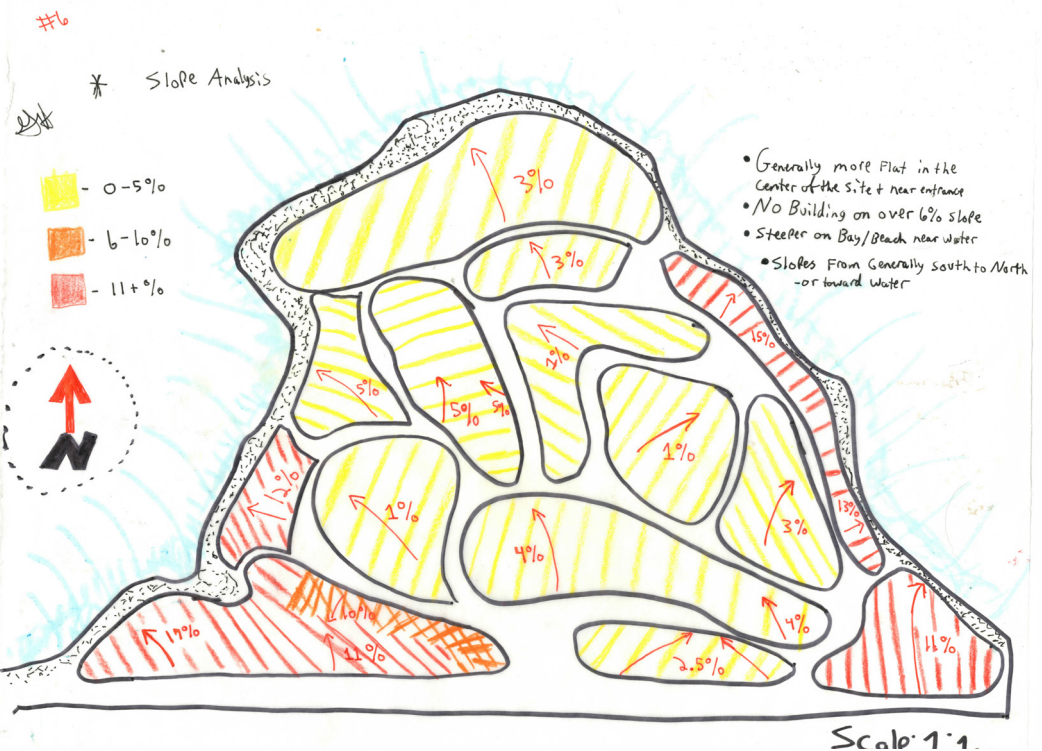
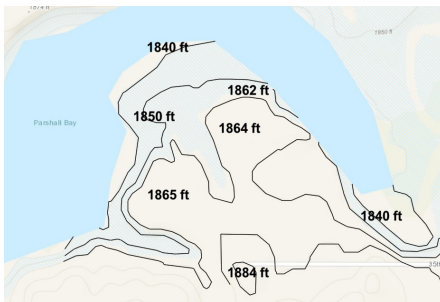
3.7
 AVG.

Scale - 1:100

Wind Circulation



Topography / Property Assessment



Zoning

IN Conclusion

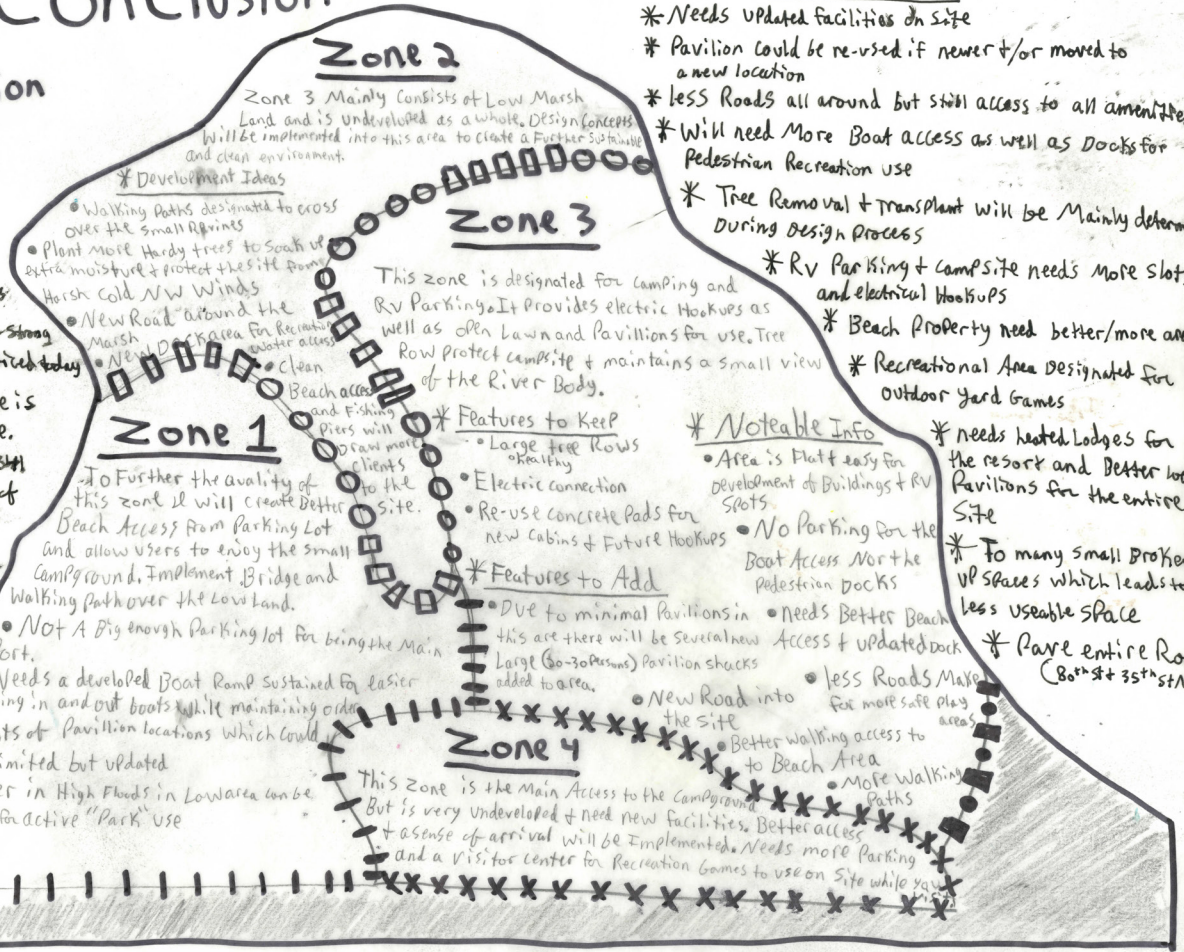
* My vision

historical + culture

+ Berthold Indian Reservation home to the Mandan, Hidatsa + Arikara Nation. Three Affiliated Tribes being created in 1870 it has a strong native culture which is still practiced today in the tribes. Their main language is Lakota which is a Siouan language. Population of the site was 6,344 according to the 2010 census. As of 2016 it increased to 15,013 people.

nearby communities are Four Bears, Mandan, Mandaree, New town, Parshall + Buttes Whiteshield + Fort Sanish.

In 1800s the allotment system private ownership reduced about 1 million acres the entire reservation.



General Notes

- * Needs updated facilities on site
- * Pavilion could be re-used if newer +/or moved to a new location
- * less Roads all around but still access to all amenities
- * Will need More Boat access as well as docks for Pedestrian Recreation use
- * Tree Removal + transplant will be Mainly determined During Design Process
- * RV Parking + Campsite needs more slots and electrical hookups
- * Beach Property need better/more areas
- * Recreational Area Designated for outdoor yard Games
- * Needs heated Lodges for the resort and better local pavilions for the entire site
- * To many small broken up spaces which leads to less useable space
- * Pave entire Road (80th St + 35th St NW)

* Notable Info

- Area is flat + easy for development of Buildings + RV slots
- No Parking for the Boat Access nor the Pedestrian docks
- Needs Better Beach Access + updated dock
- less Roads Make for more safe play areas

* Features to Keep

- Large tree Rows
- Electric connection
- Re-use concrete Pads for new cabins + Future Hookups

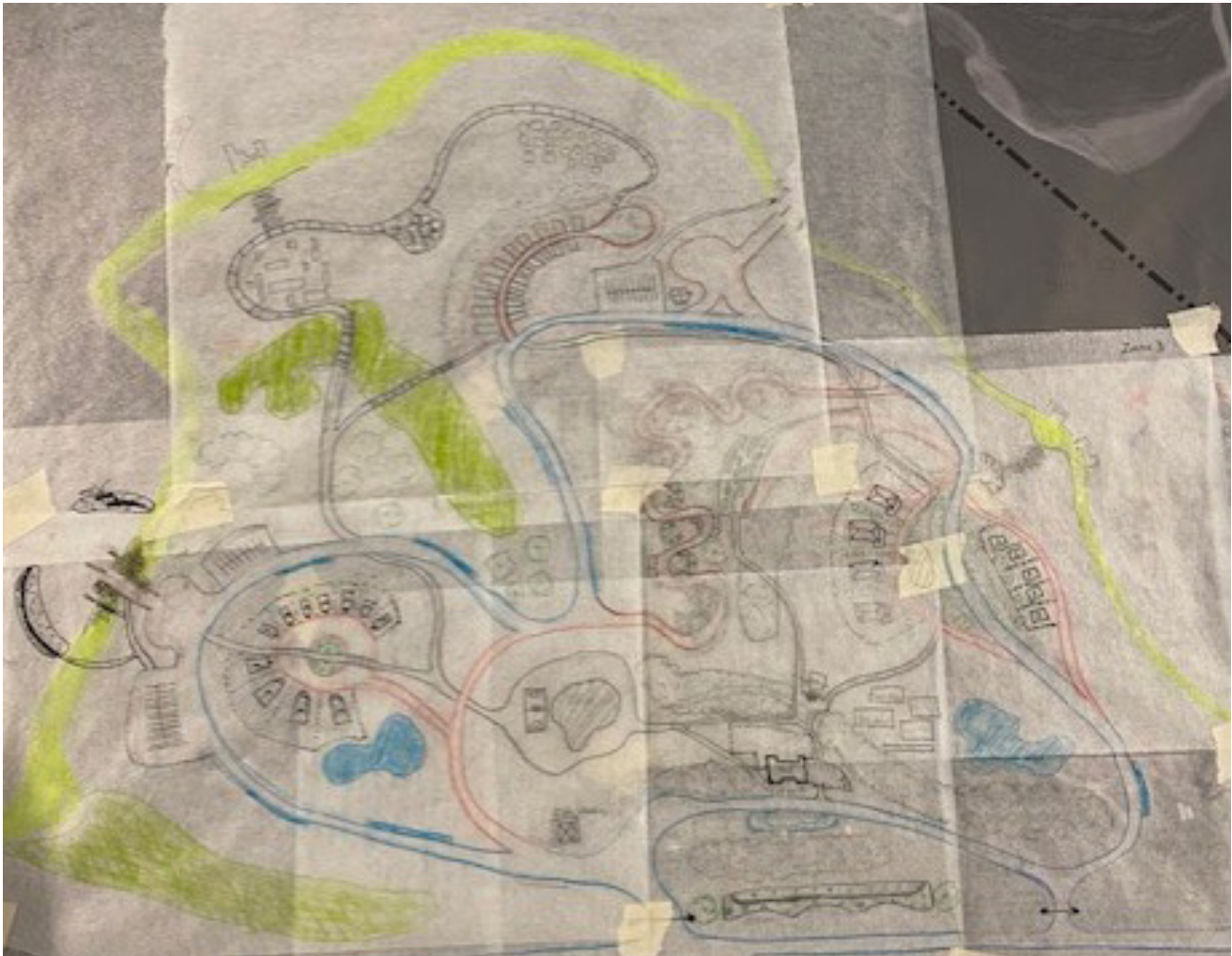
* Features to Add

- Due to minimal pavilions in this area there will be several new Large (60-30 persons) Pavilion Shacks added to a area.
- New Road into the site
- Better walking access to Beach Area
- More walking Paths

* Development Ideas

- Walking Paths designated to cross over the small Aquines
- Plant more Hardy trees to Soak up extra moisture + protect the site from Harsh Cold NW Winds
- New Road around the Marsh Area for Recreational water access
- Clean Beach access and Fishing Piers will draw more clients to the site.

Site Plan



Goals for My Thesis

Goals for my Thesis will include developing a easy to understand completed project with the emphasis of project description. I want to get the process across to the untrained eye and help them understand a feel what it would be like to visit this site before it is constructed. I want to do that through text and drawings that i create as well as the case studies i researched.

Constructing a set of drawings appealing to the users and clients eye will encourage them to enjoy and endure my project. I feel strongly confident about my thesis due to the research being involved and the uniqueness of the project. I want to bring knowledge to people about North Dakota and the place near where i call home.

Developing a set of drawings that are appealing to the users and clients will encourage them to travel and endure the projects emphasis of a rustic recreation campsite. My thesis design is confident to solve the problems listed for the location and create a uniqueness of the project.

Constructing a design platform to give out ideas of how this site will look and give bright eyed deliverables to the future clients and users.

Explanations of each building on the site will be detailed since there will not be 100% constructed 3D models for each living quarters, restaurants, lodging and hunting units.

This project will bring enjoyment to North Dakota and will endure the population crisis of the declining rural towns in the area. There will be many opportunities to design a ideal sight for a rural North Dakota town.

Finally, my project elements and guidelines are going to be well thought through and developed strictly to codes and regulations of all concepts and deliverables.

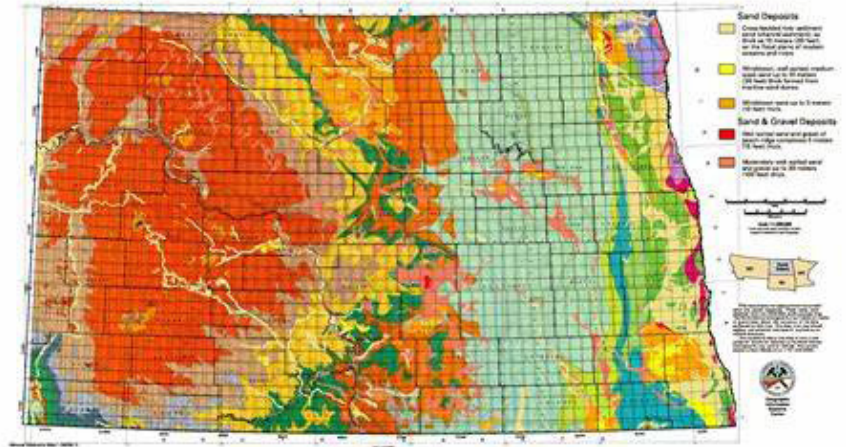


CHAPTER 5:
FUNDING & MEASURABLE
STUDIES

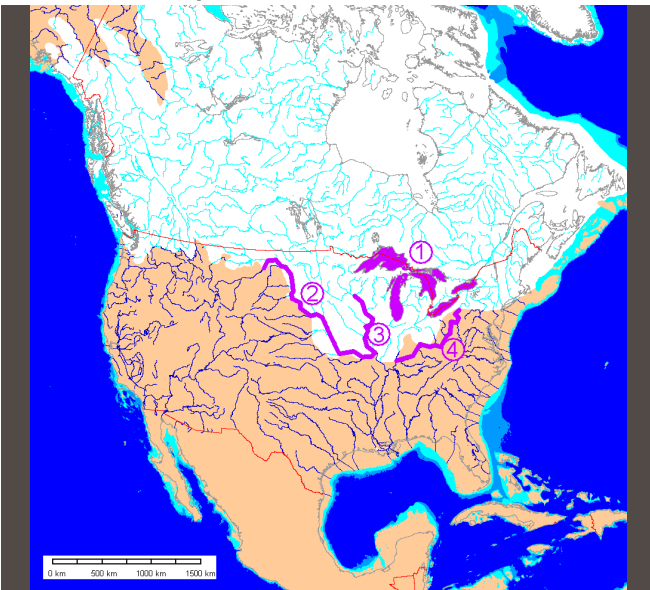
Land Surveys

There are several ways to go about finding information about the site location but one important one is land surveys through ArcGIS as well as soil surveys that have already been completed.

By using ArcGIS i found out on what source of minerals are available on and near site. Soil surveys were used to discover the soil type, which being Sandy loam in most of the site location as well as having small layers of clay and loams.



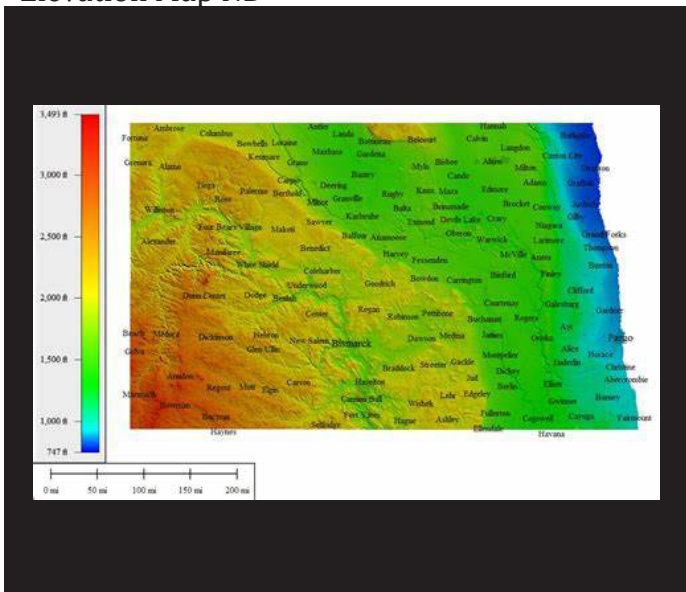
Glacier Survey of the U.S.A.



For my second research study i was focusing on elevation maps of my site due to being next to a major river bed and also was a part of the Wisconsin Glacier which developed here. Being a more rugged terrain than the most part of North Dakota, i was looking to see how water sheds were created and what ways could my project use them safely and be sustainable.

General soil maps will also help subside my research on the many different types of soil in such a small area. On the other hand, watersheds are used for a variety of resourceful things around the state, such as farming, ranching, and sport. Clean water runoff can be useful on obtaining to use for watering trees and plants for the community and will be encouraged to use what the land provides, by implementing it back into the soil and land.

Elevation Map ND



Land Grant & Funding Agency's

Providing funding for my entire project would be very beneficial to the state. Donors of Native Tribes as well as individuals across the state who are passionate about North Dakota hunting and fishing and also would like to see a boost in tourism have the ability to help fund this project and be apart of a major outdoor recreation hot spot. Grants and sponsorships are going to help pay for the cost of the entire design and build, which will attract many visitors who enjoy recreation activities such as hunting and fishing. North Dakota Game and fish would be a great option for funding due to there knowledge and insight they have about the sport and state itself. The Missouri River is mostly owned by the U.S. Army Corps of Engineers as well as the Garrison Dam construction, which has a huge factor due to being very close to my project site.

Project Funding and Donors

North Dakota Game and Fish

-Sponsorship/Education/Conservation Grants



U.S. Army Corps of Engineers

-Federal agency grant



**US Army Corps
of Engineers.**

North Dakota Wildlife Federal Association

-Conservation of wildlife & nature

North Dakota Community Foundation

-Donor Advised Funding



Federal Lands Access Program

-(FLAP) (NDDOT)

McClellan County Residence Donors

-People of McClellan County bids



Tribal Grants

-Fort Berthold Indian Reservation

Fort Berthold Indian Reservation/Plot Land/Major Roads



This base map is used to show the plot land coverage in the Fort Berthold Reservation area. Showing the contours is a large part of the hunting ground which will be used within the circle,(Boundary), for hunting which is a 25 mile radius and a 50 mile diameter of the center of my site location.

Showing the ages in which who will use the site helps determine what there main reason of visiting is as well as the locals who live there and how they may use the space. Jobs will be created for the locals as well as other people around the Bismarck Minot area.

Research Conclusion

In Conclusion to my research on mapping, ecotourism, sustainability, as well as the other case studies that will be involved in this thesis, I will obtain knowledge about the site and clients involved to develop this resort for the community. There will be more research done on case studies and the surveys still being in progress.

Funding will be the main source of income for the project and project site. Being in a Tribal location there will be research done on how to properly engage a conversation in community development and funding coming partially from the citizens of the area and clients who want to be involved in the community and recreational resort. Each chapter will contain information on each variable involved to create a successful community and project.

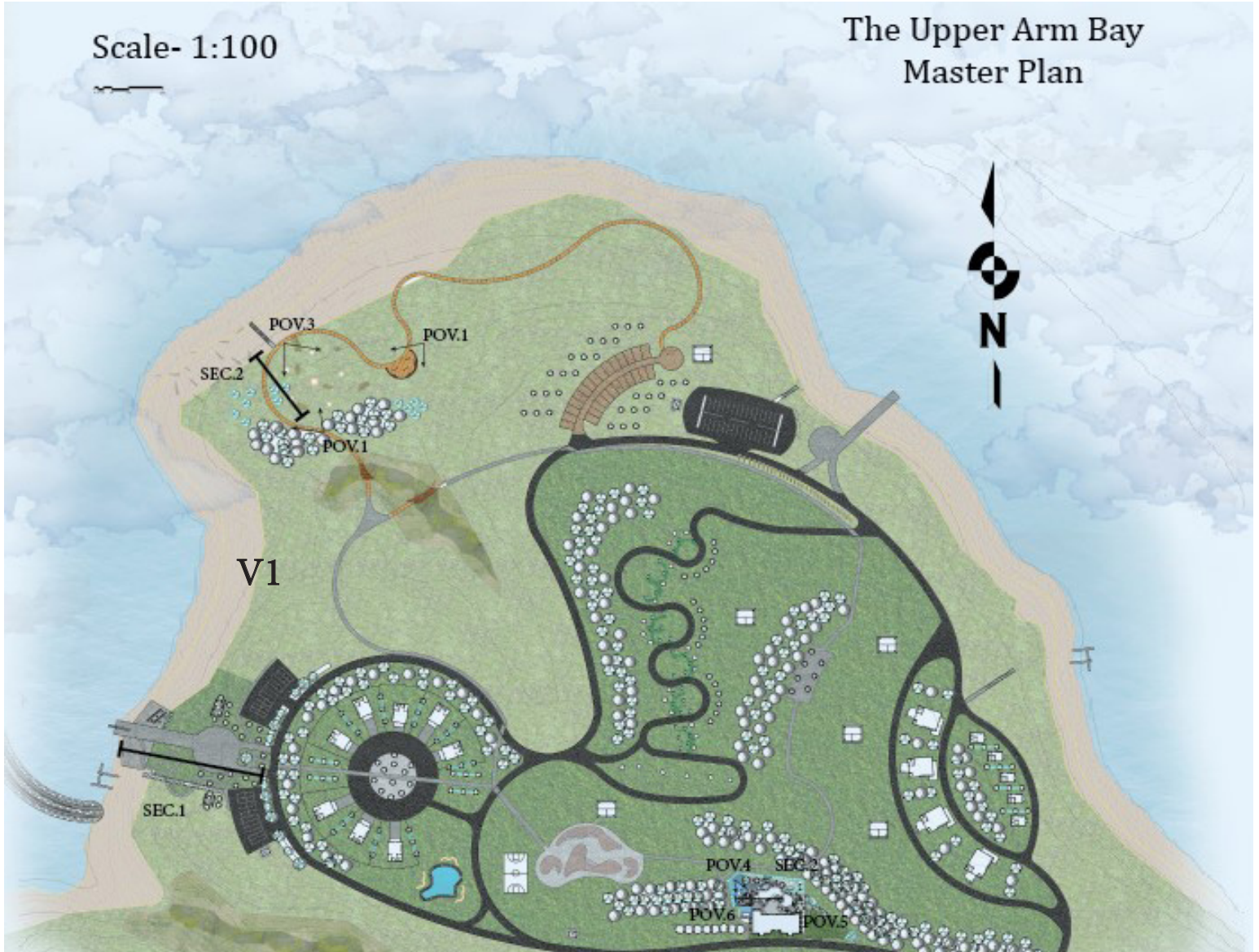


CHAPTER 6:
MY DESIGN PROPOSAL



Design Process

Major Project Elements (Broad)



Structure: **S1**

- Small picnic shelter
 - o 8' x 10' hardscape with an overhead shelter with slanted roof for runoff
 - Maximum capacity (5) people
- Medium picnic shelter
 - o 12' x 15'
 - o hardscape with an overhead shelter with slanted roof for runoff
 - Maximum capacity (10) people
- Large Picnic shelter
 - o 25' x 20'
 - Maximum capacity (30) people
- Fish Cleaning **S2**
 - o Must be within 500' of any boat access area.
 - o Minimum of 4 on location
 - o 10' x 20'
 - Minimum of one (8' x 8') cleaning table per unit
- Welcoming Center **S3**
 - o Must be along Main Road.
 - o Must have (10-15) parking spaces.
 - 9'x18' individual space
 - o Must have (3-4) RV/camper spots
 - o Must have (1) turn around location.
 - o Must have (4-5) ADA accessible parking spaces
 - o Must have sidewalk availability from at least (2) directions
- Recreational playground **S4**
 - o (2) 20'x20' areas
 - o (1) Basketball court on entire site
 - o (1) Horseshoe & Bags
 - (Sand) ground material
 - o Must have (1) per zone on site
- Bathroom **S5**
 - o Must have (1) bathroom within 150' of each boat access
 - (4) total on site
 - o 18' x 22' building
 - o Must have accessible paths leading to it.

Lodging: **L1**

- Small Cabin (1-2) person(s)
 - o Total sq. ft. (600)
- Medium Cabin (3-6) people
 - o Total sq. ft. (1,200)
- Large Cabin (7-15) people
 - o Total sq. ft. (2,000)
- RV spots **L2**
 - o Must have between (20-30) spots
 - Must have electric hookups
 - o Must have a solid hardscape material for stability for units
- Tenting **L3**
 - o Must have between (6-10) areas
 - o Secondary road must go next to it
 - o Fits between (18-22) tents
 - o Grass zones with small gravel spots for campfire pit
- Existing building must have space capable of holding 25% of entire sites people
 - o Storm waring safety building for the tents and possible RV's

Boat Docking/Access: **BA 1**

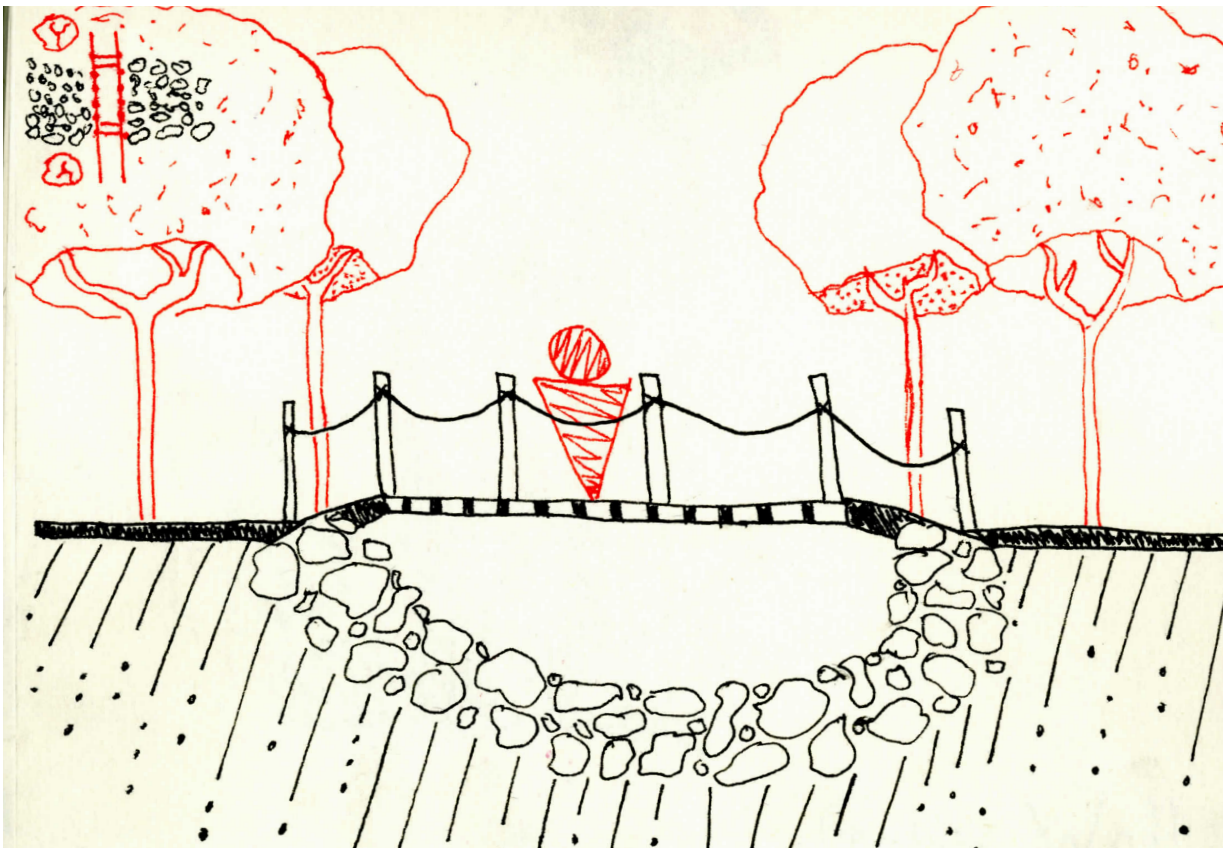
- Must have between (2-3) boat access
- Minimum of (1) Dock per boat access
 - o Maximum of 15% Slope for ramp
- Must be concrete ramps with double sided ramps
- Dock locations must have minimum of (2) Docks extended into the water/area
- All dock locations must have walking path down to the water & beach
- Parking lots must require a minimum of 10 spots per parking lot

General Requirements

- Minimum road slope- 2%
- Maximum road slope- 12%
- Sidewalk slope- 1-5%
- No roadways/buildings/structures lower than 11' contour line
- Lodging must be suitable for year-round
- Pets allowed
 - o Must clean up after pets and dispose of it
- No campfires in the grass locations
- No fishing off the boat docks
 - o Only on beach and designated areas

Concept Sketches



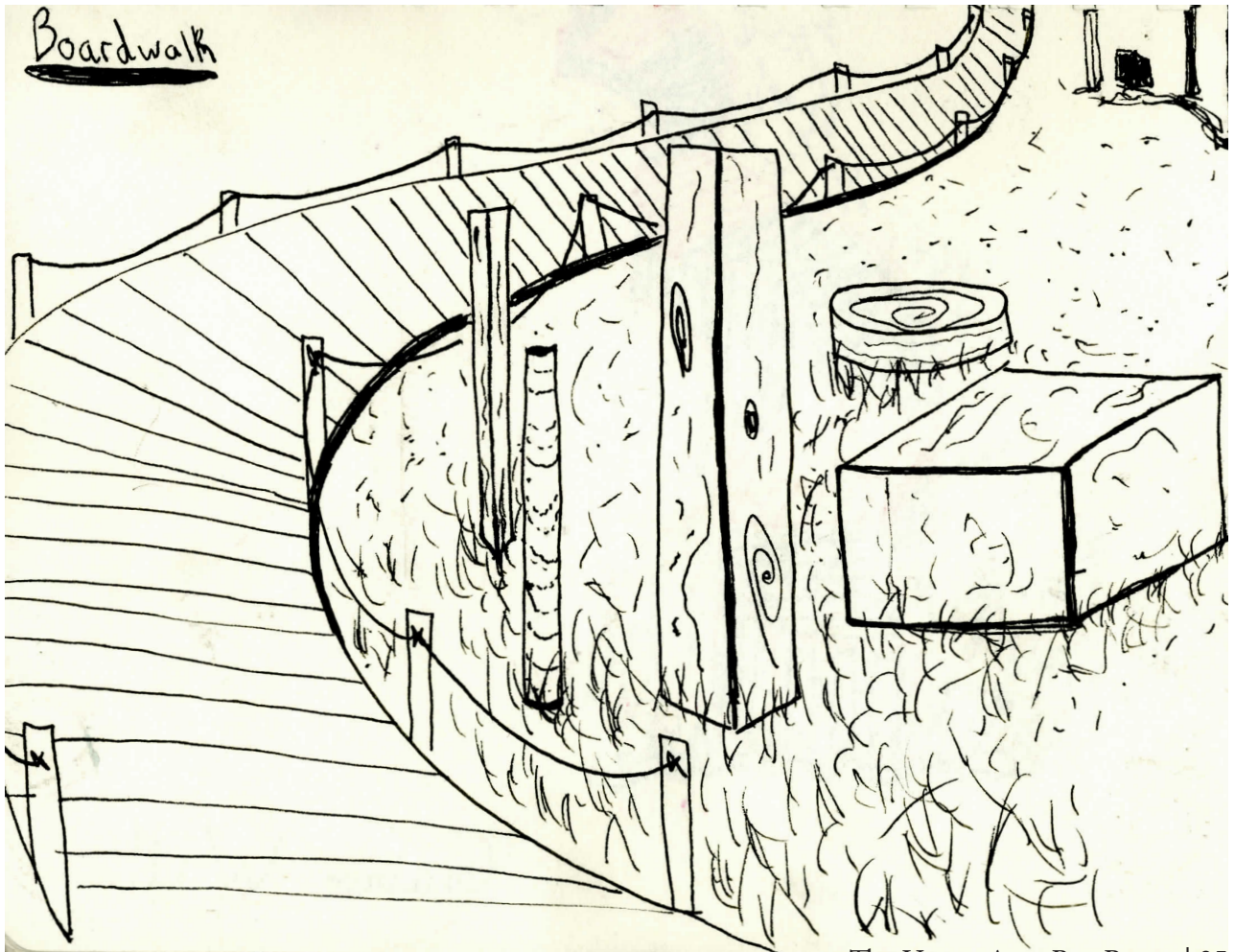


Section of the bridge crossing the wetland ravine areas. Wood material with thick rope as the side railings

Sc. 1

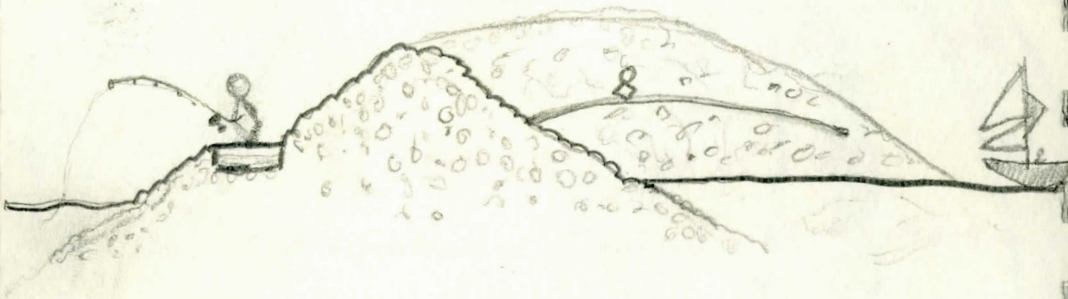
Prsv.1

Wood Floating Boardwalk on the NW side of the plan. shows off landart and structures that will be visually pleasing year round with no water to flood water heights. (typ. rope)



Wind Protection Barrier at boat Launch

- Accessible for fishing at birm
- Protects Boats while entering + exiting water
- Keeps fishermen private + out of the way
- Safe for the ecosystem + water

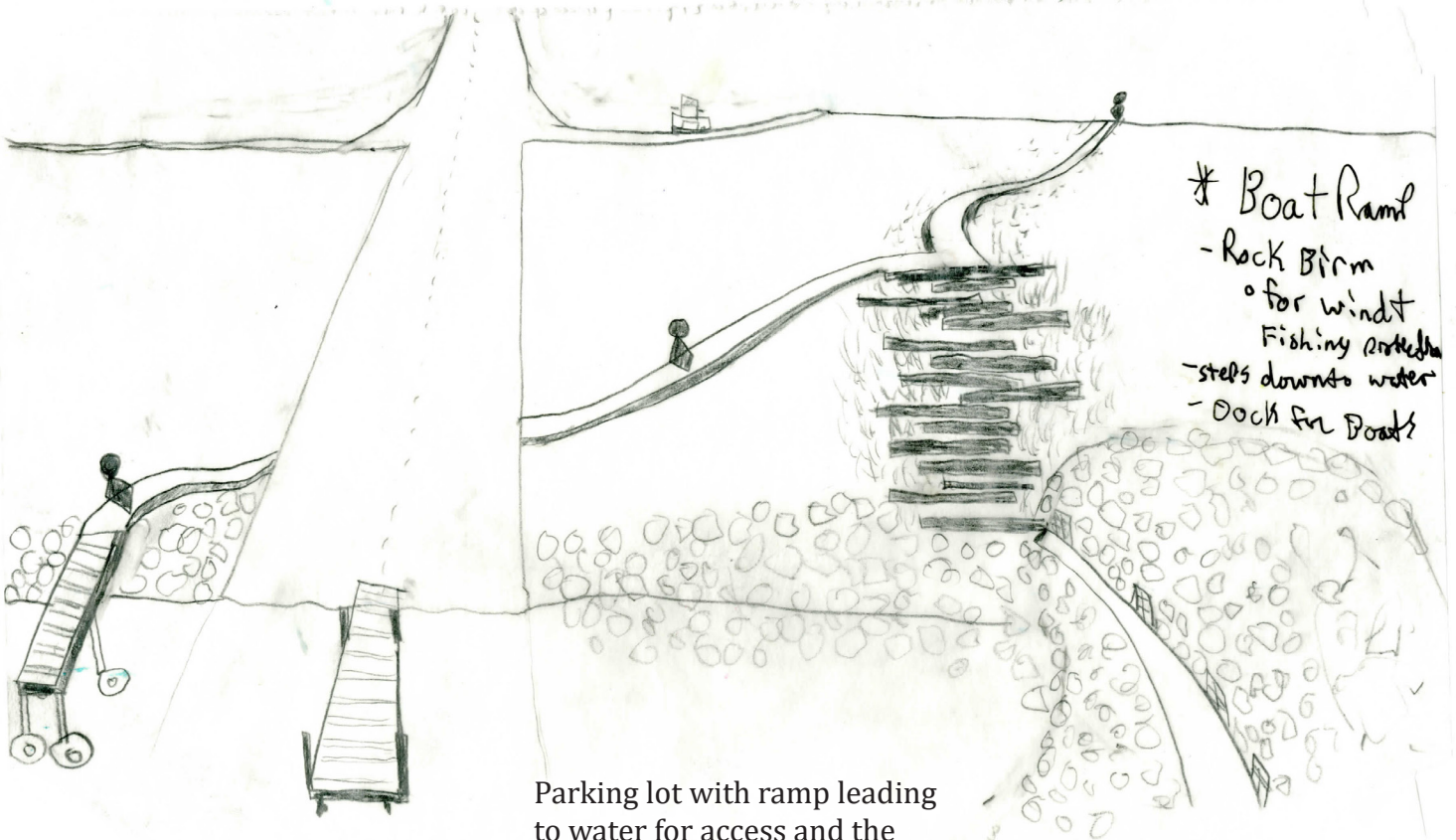


Instrumental Theory

GA

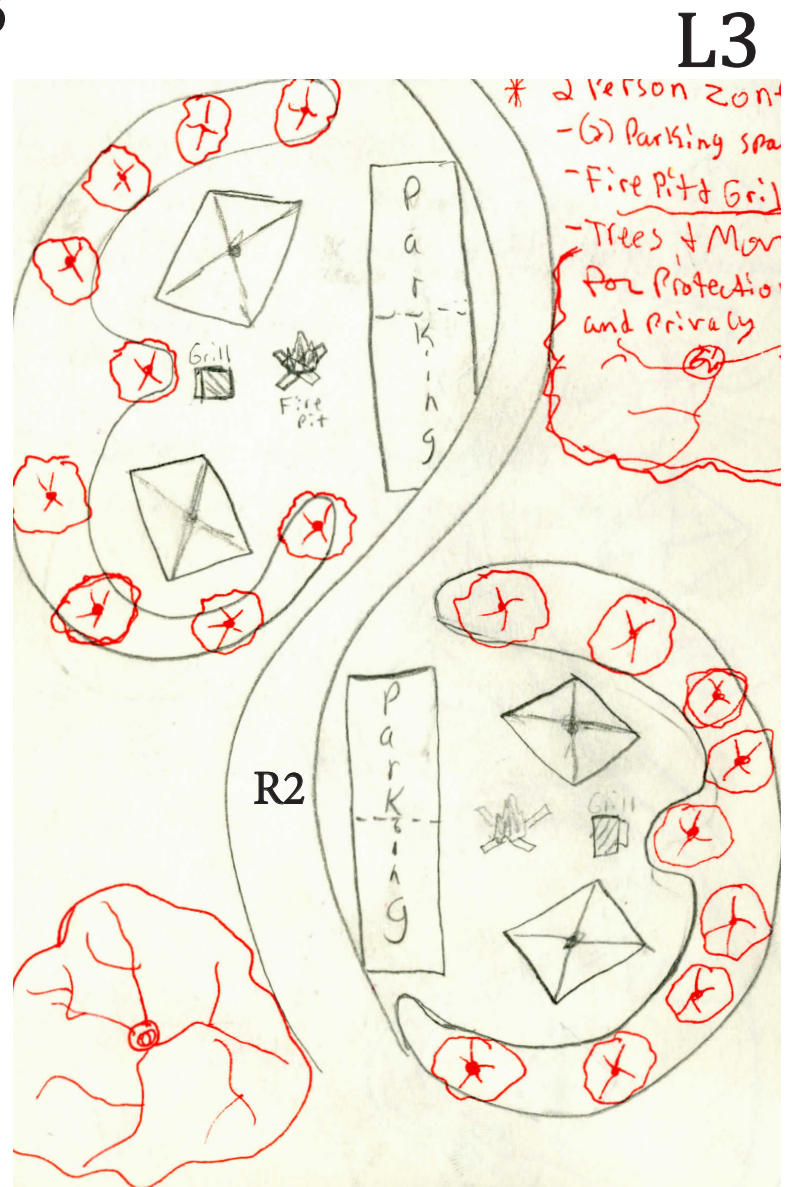
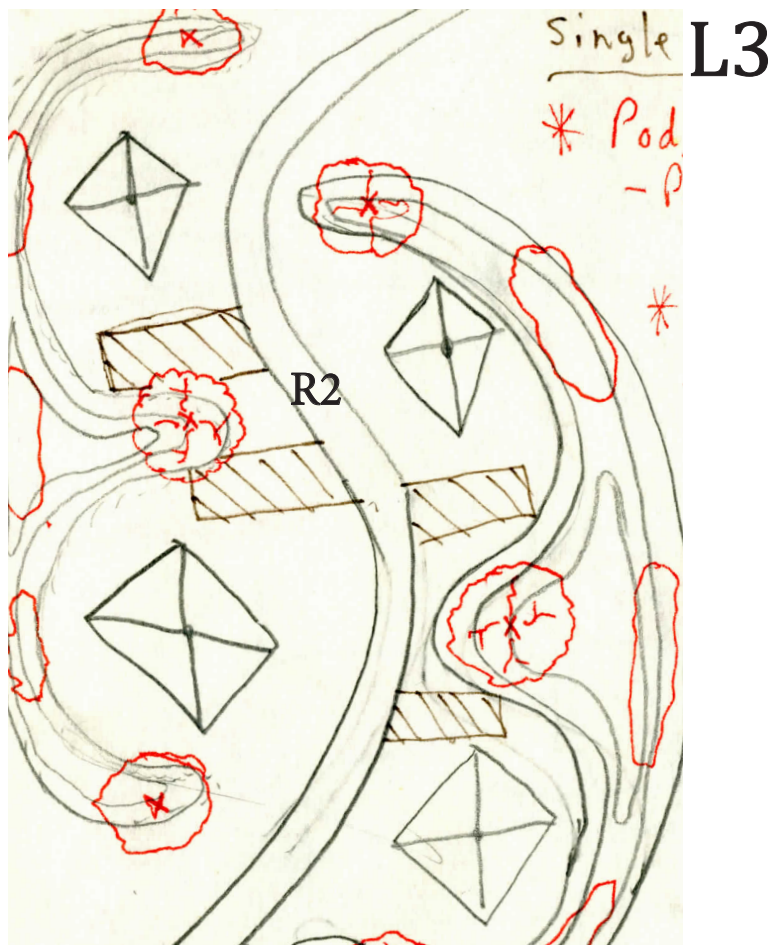
Large wind barrier pier for fishing and wind protection for the boat access bay area.

Prsv. 3

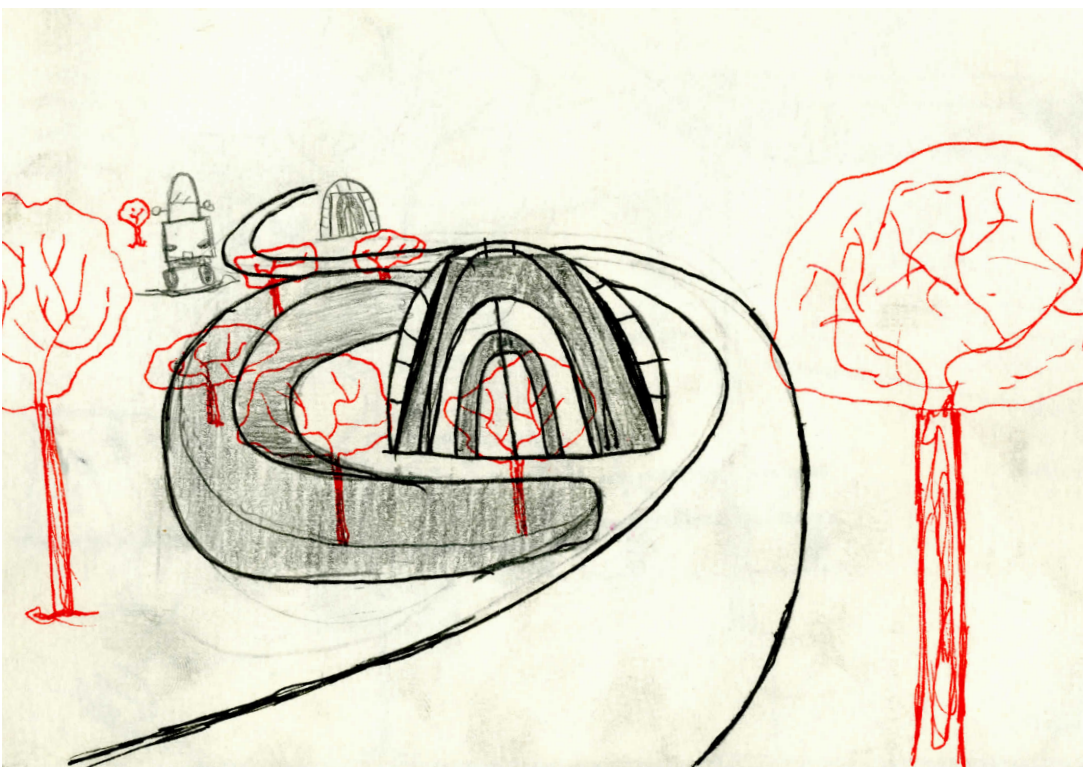


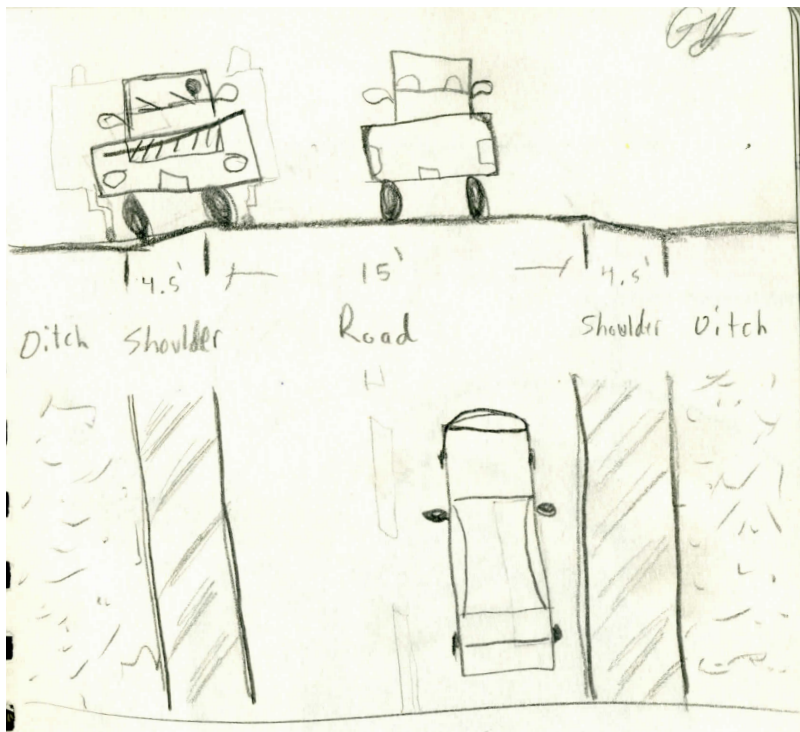
- * Boat Ramp
- Rock Birm
o for wind
o Fishing protection
- steps down to water
- Dock for Boats

Parking lot with ramp leading to water for access and the walking path to lead to docks. Wood steps lead from the top of the bay to the fishing pier.



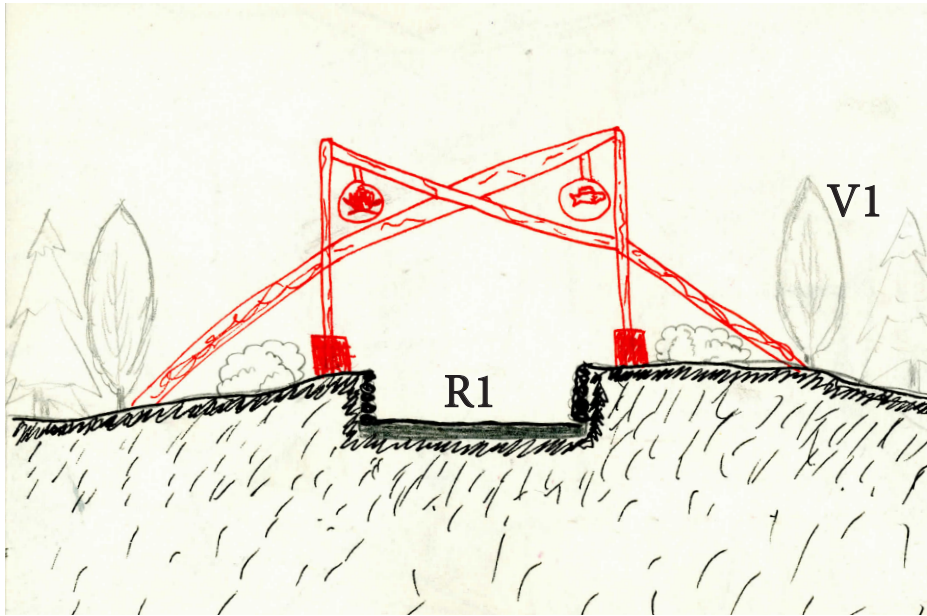
In both of these plan views, it shows the structural layout of different amount of people zones for the tenting areas. Surrounded by grass mounds for privacy which will be build up from the dug up water features on site so the infill will stay about even. vegetation on top of mounds for further protection and smells for the small site.





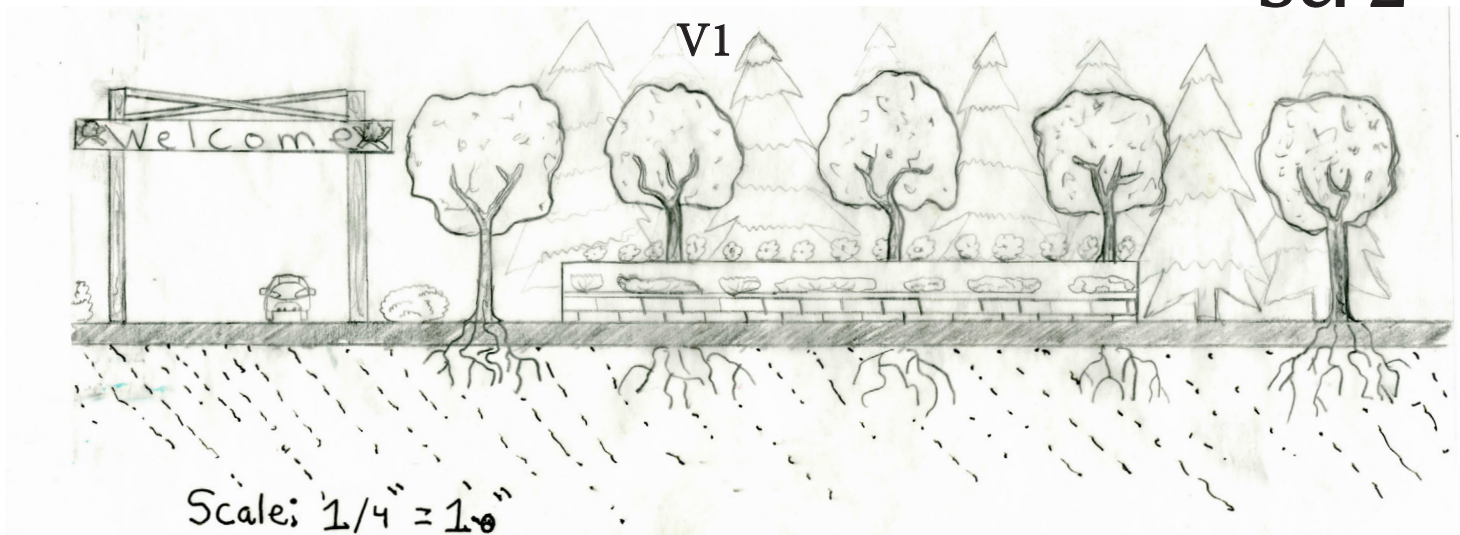
This diagram shows the development of the main road where ever x amount of feet will be a shoulder large enough for the other vehicle passing can get over safely.

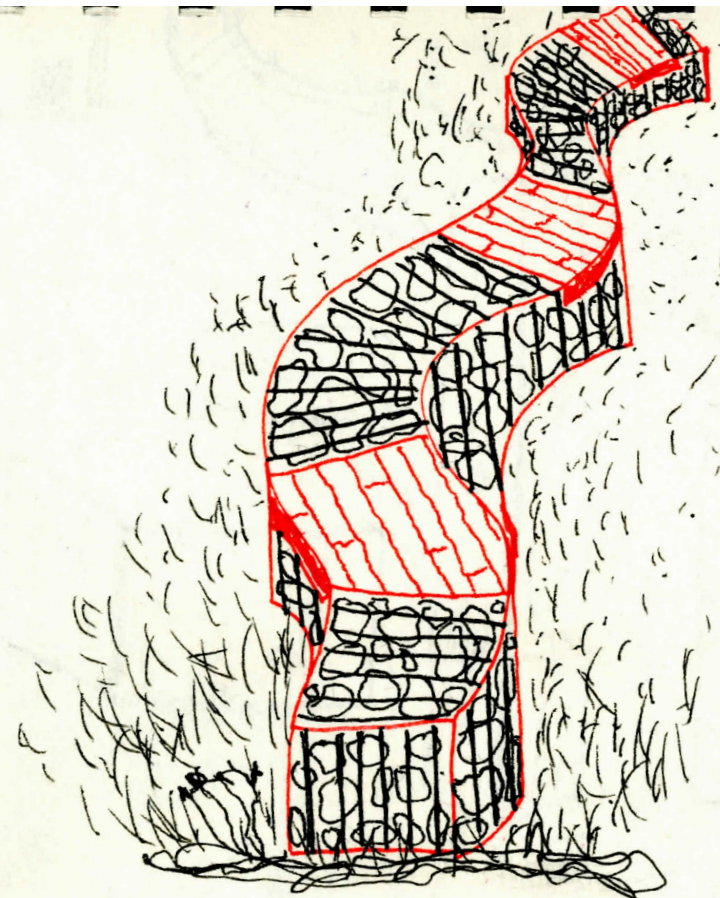
Sc. 2



Both images show the possible entrances and how they develop a sense of arrival while entering the site. Large wood beams with heavy vegetation and planting beds made out of stamped concrete molded like wood for texture.

Sc. 2

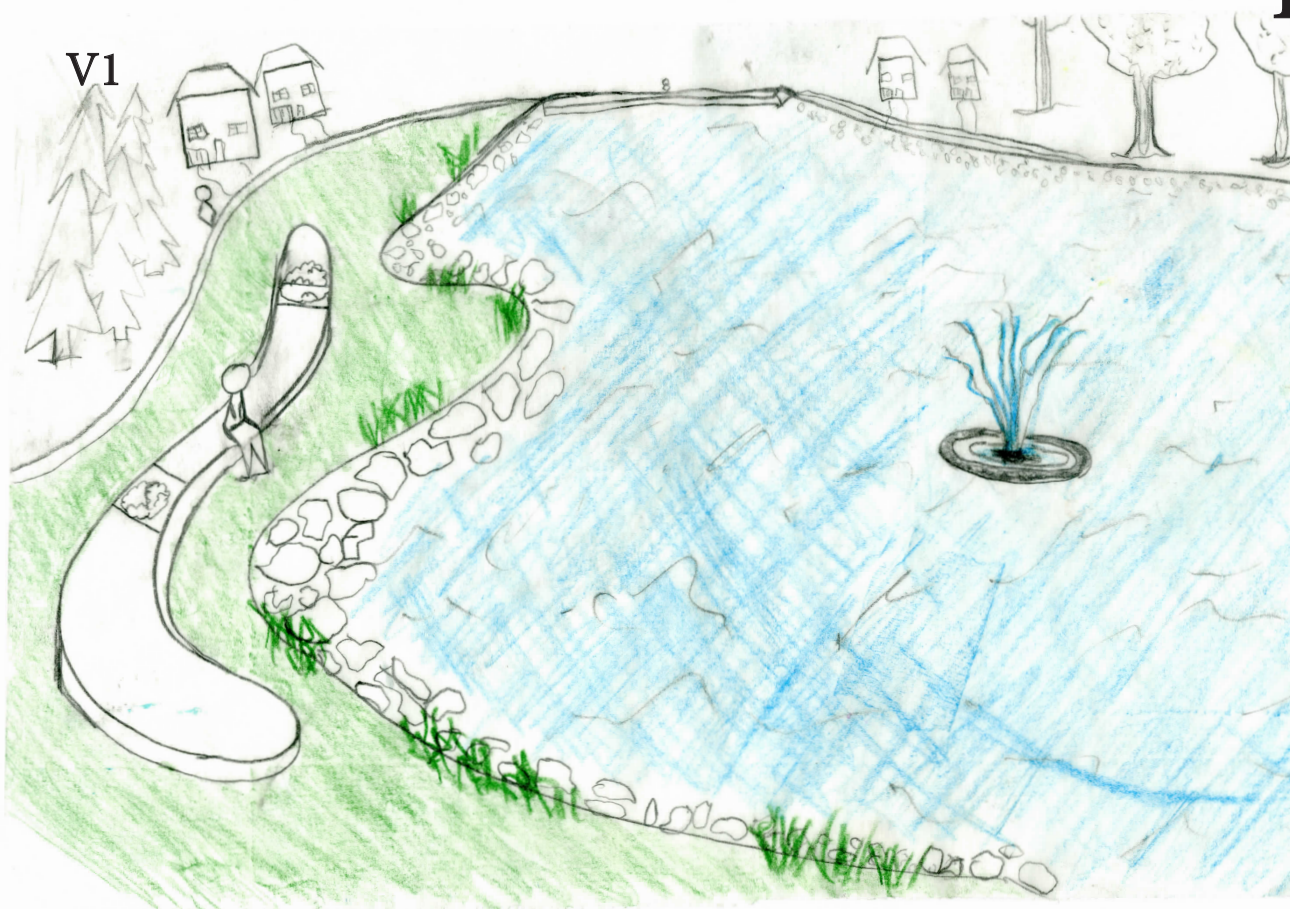




This Rock filled Gabion bench/wall will be implemented throughout the site next to the rock filed water as well as made out of wood seating built into it for pedestrian usage. The wire will be made out of a rustic metal which is easy for bending and shaping.

Gabion Wall

Prsv. 4



Notice the seating in the perspective is of the water with rocky edges and the gabion wall seating bench next to it. Water feature in the middle for filtration of the water throughout the site.

- * Parking Lot
- * Wood steps
- * Vegetation



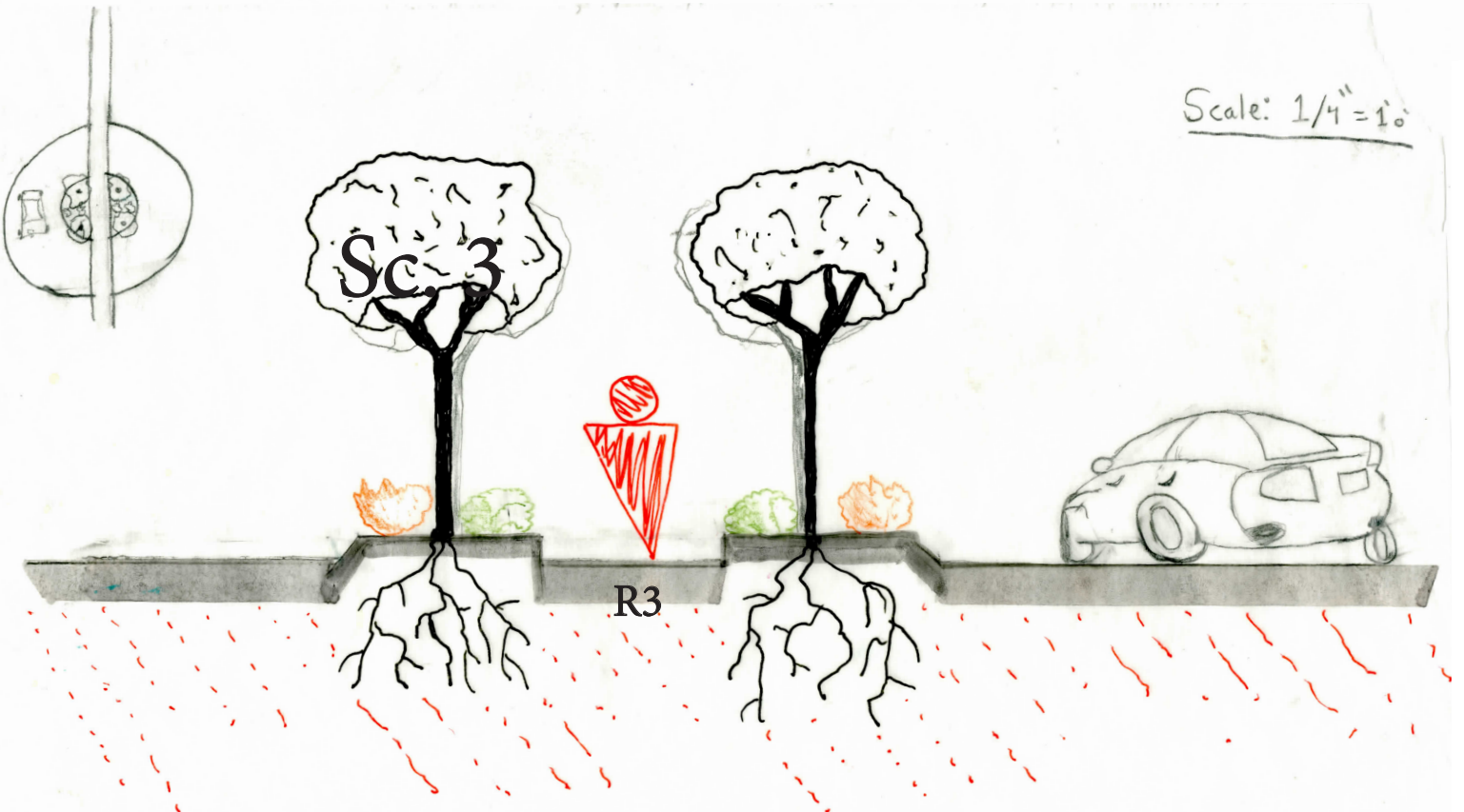
- * Large cabins along Road
- * Tree Row
- * Main Road



- * Tree Block By welcome center
- * Sidewalk - From door
- * Topography

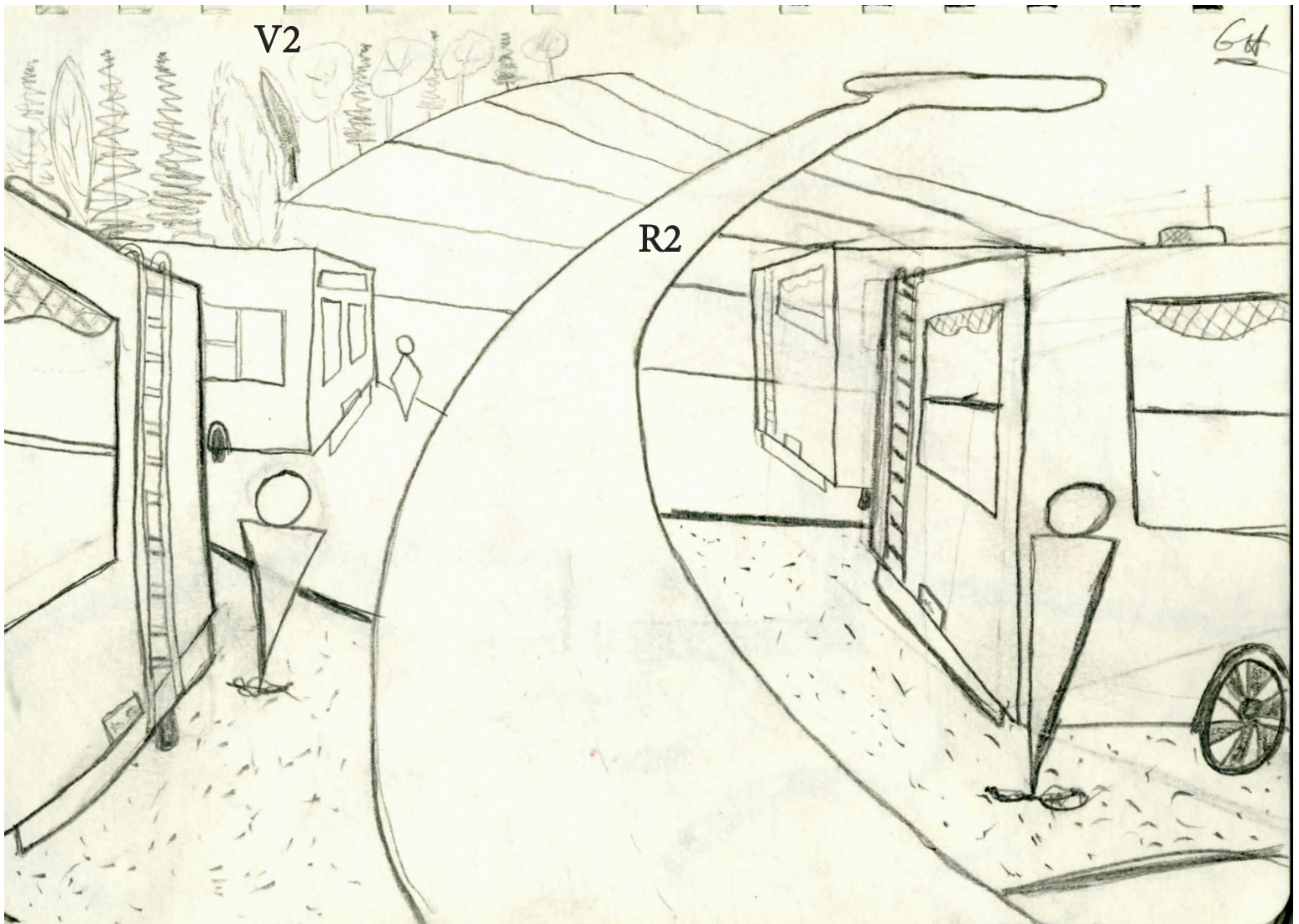


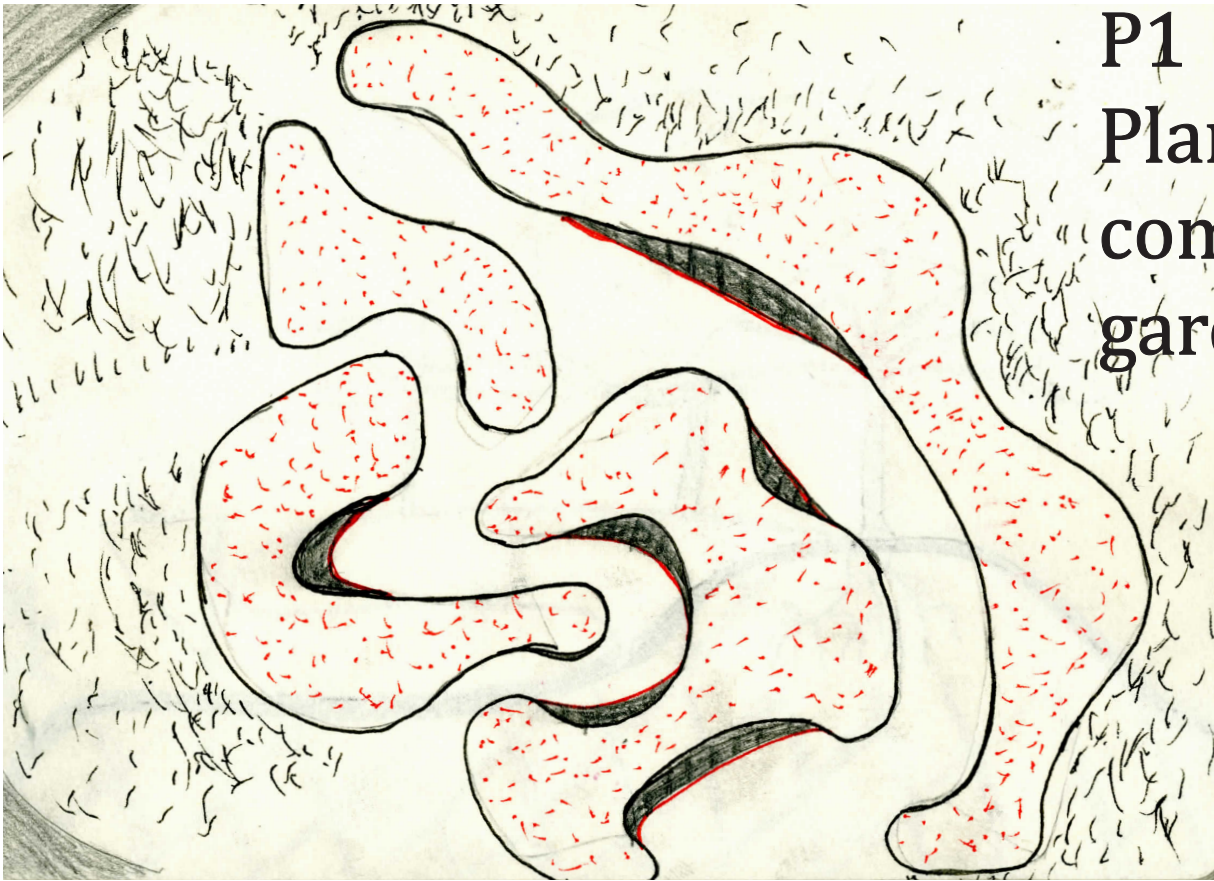
Scale: 1/4" = 1'



Secondary road leading to a turnaround spot for vehicles. Camper and RV location located on the North side of the sight. Permeable material for the road and the spots themselves.

Prsv. 5





P1 Plan view of community garden

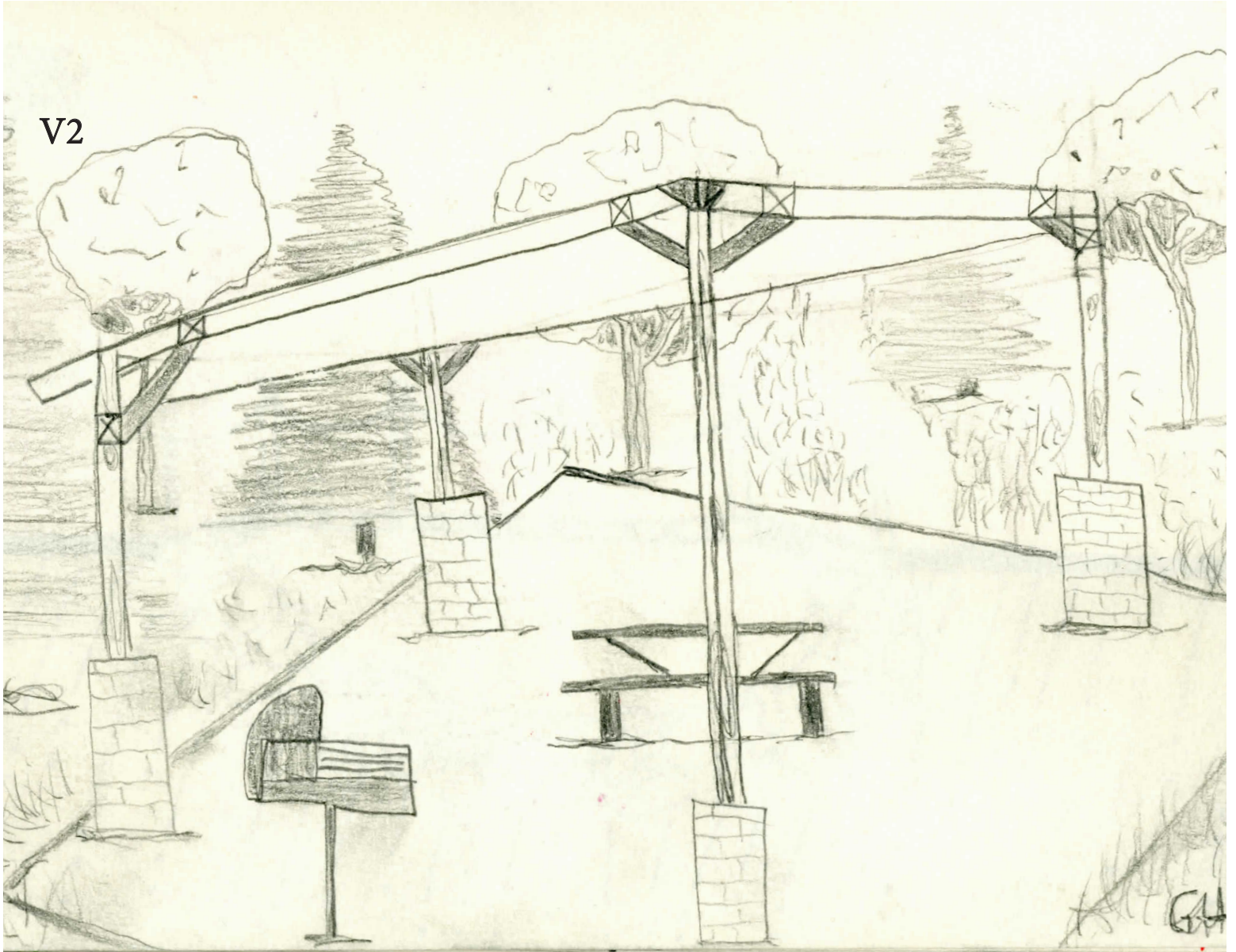
Upraised planter beds for a community garden, implementing fruits and vegetables for the member of the campsite and people around surrounding towns. Seating benches made of the same wood material are embedded into the walls of the planters. Overgrown native vegetation on the outside of the beds.

Sc. 4



Prsv. 6 Large Picnic Area







S5



Large picnic shelter spread throughout the entire site, made for anyone camping. Wood with a rustic tin/sheet metal roofing for long lasting structures and low cost.

Planting Schedule

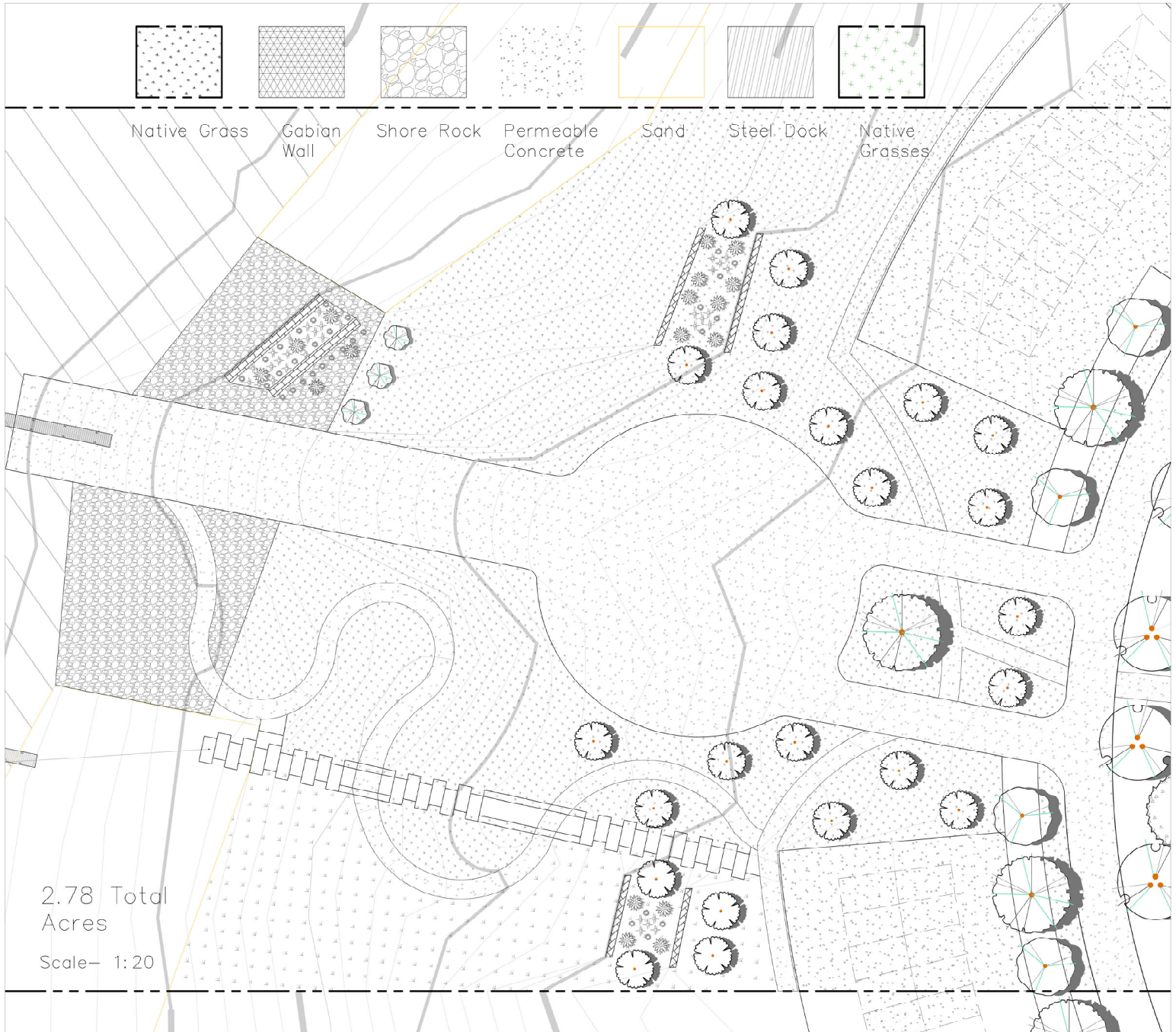
PLANT SCHEDULE

TREES	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY	DETAIL	REMARKS
	ACE CRK	Acer platanoides 'Crimson King' / Crimson King Norway Maple	25 gal.	Pot	7		
	ACE AUT	Acer rubrum 'Autumn Flame' / Autumn Flame Red Maple	3 year		16		
	ACE SDV	Acer saccharum x barbatum 'Sandersville' / Harvest Moon® Sugar Maple	--		24		
	COR FLO	Cornus florida / Flowering Dogwood	--		40		
	GYM MCD	Gymnocladus dioica 'J.C. McDaniel' / Prairie Titan® Kentucky Coffeetree	--		1		
	JUN EAS	Juniperus virginiana / Eastern Redcedar	--		8		
	PIC BLU	Picea pungens glauca / Colorado Blue Spruce	--		256		
	POP ERE	Populus tremula 'Erecta' / European Columnar Aspen	2 year	B&B	141		
	POP NMN	Populus tremuloides 'Clump Form' / Clump Form Quaking Aspen	30 gal.	Pot	7		
SHRUBS	CODE	BOTANICAL / COMMON NAME	SIZE	CONTAINER	QTY	DETAIL	REMARKS
	CAL RUB	Calamagrostis rubescens / Pine Grass	--		177		
	CAL KAR	Calamagrostis x acutiflora 'Karl Foerster' / Karl Foerster Feather Reed Grass	--		165		
	THU EUG	Thuja occidentalis 'Europe Gold' / Europe Gold Arborvitae	2 year		136		

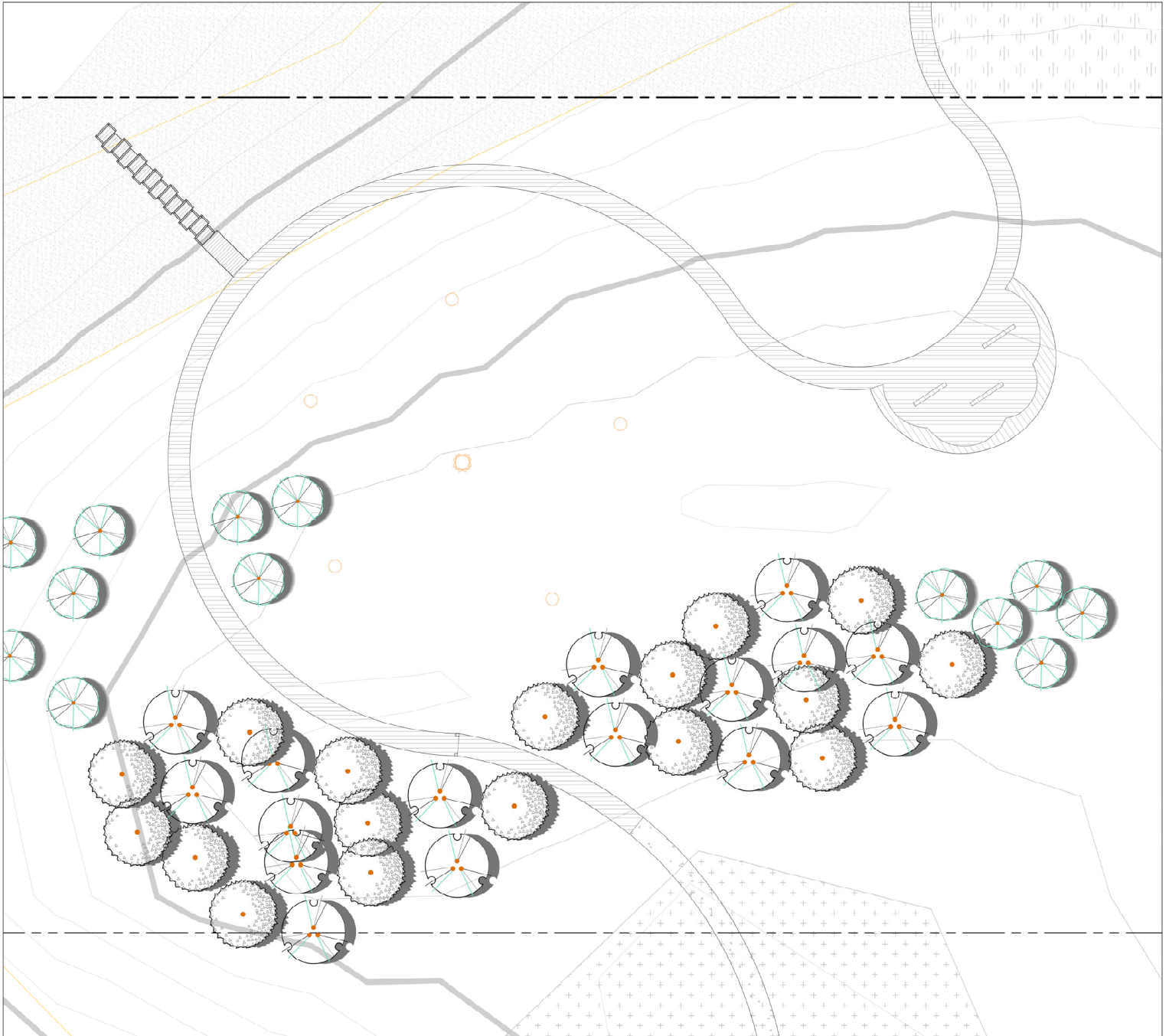
Master Plan



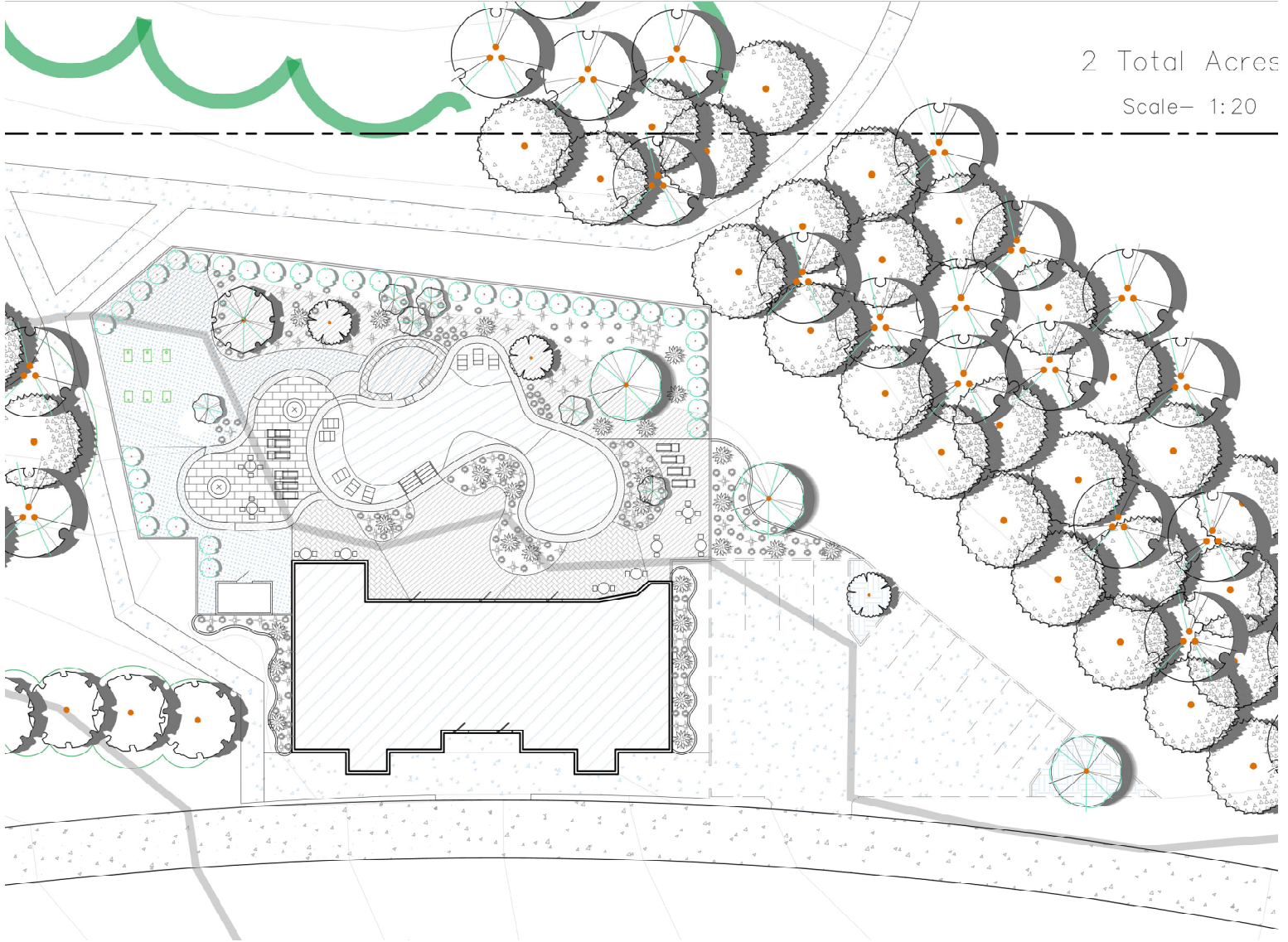
Boat Access Site Plan



Boardwalk Site Plan



Welcome Center Site Plan



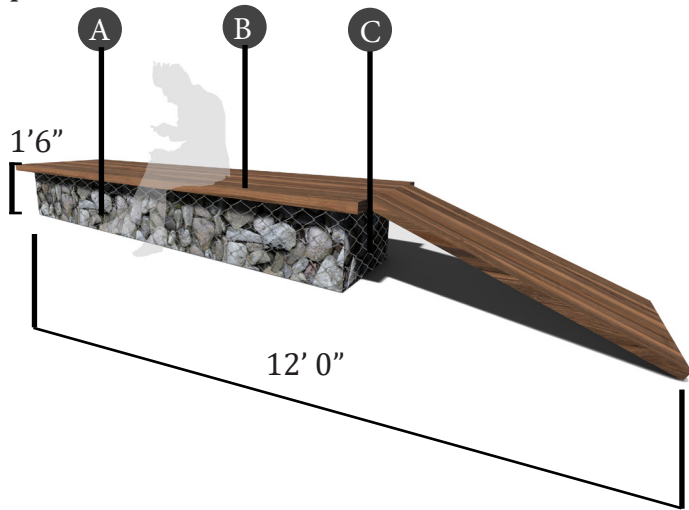
Schematic Master Plan



Sections & Elevations

Gabion Seating Bench

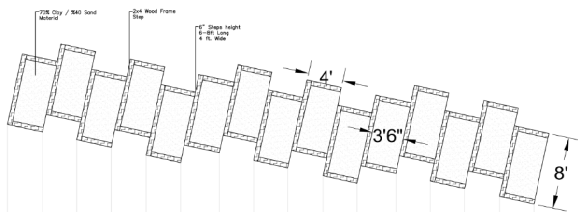
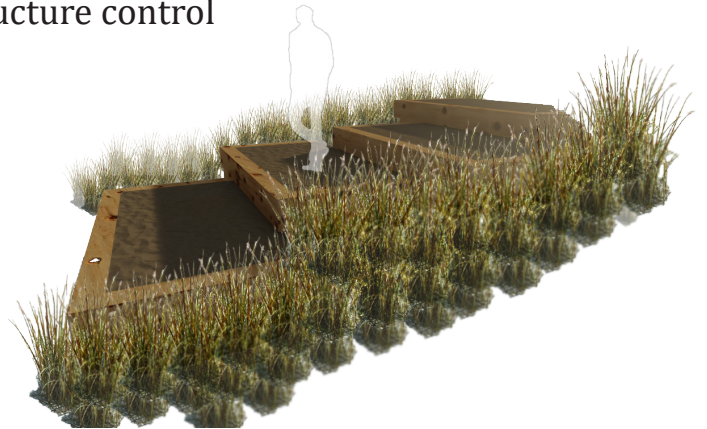
These Gabion Walls and seating benches are located all around the site, especially near the water features, playground and along walking paths



- A** 2-8" Rock
- B** Dark Wood Finish
- C** Wire Fencing Mesh

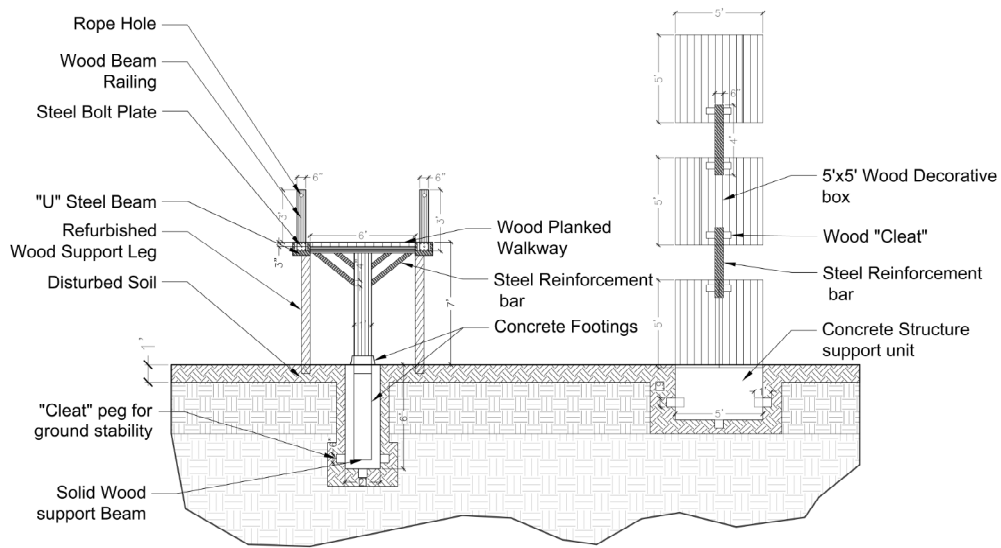
Vegetative Step Walkway | POV. 1

Walk down the tampered sand stair case to the beach destination. Made up of Reclaimed Wood and 75% Sand / 25% Clay mix to help with structure control



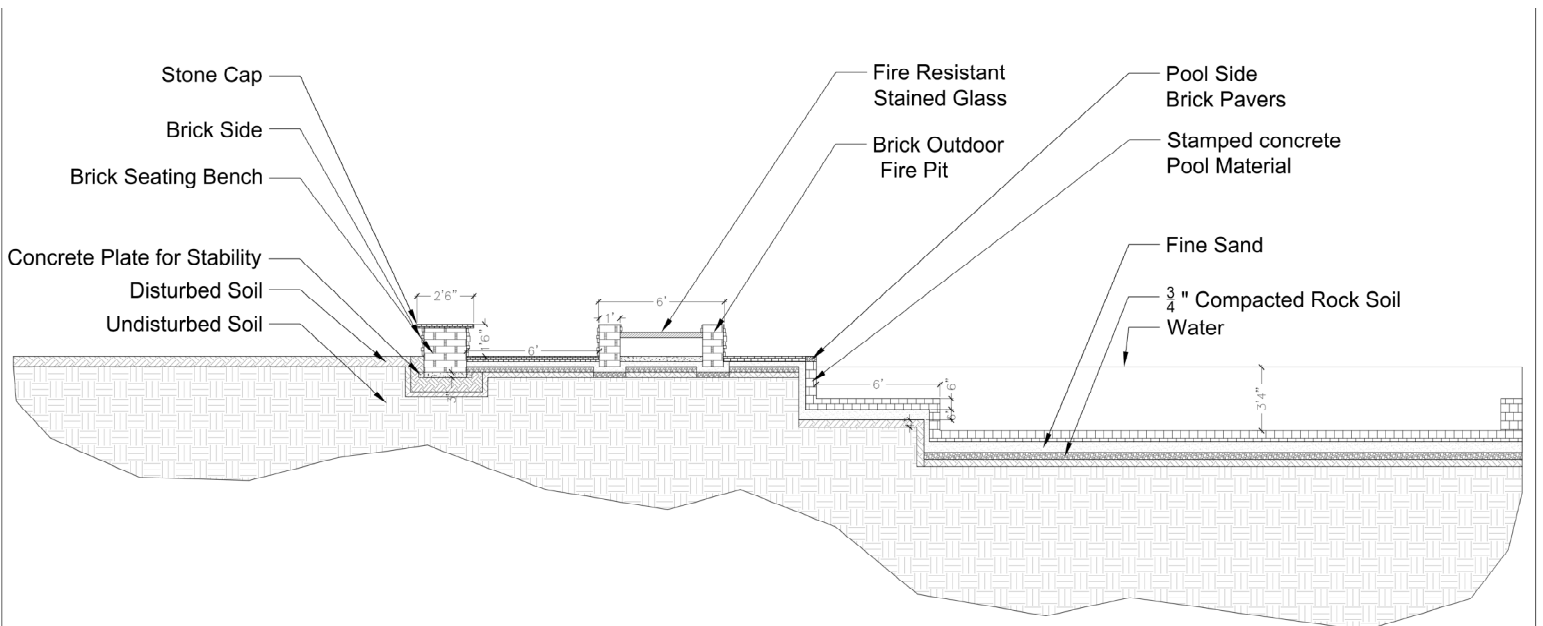
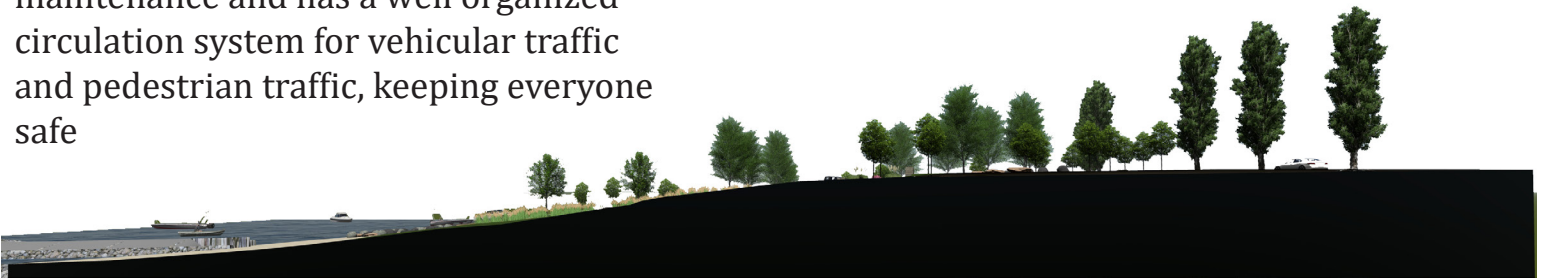
Horizontal cut
Step Detail-Section Cut

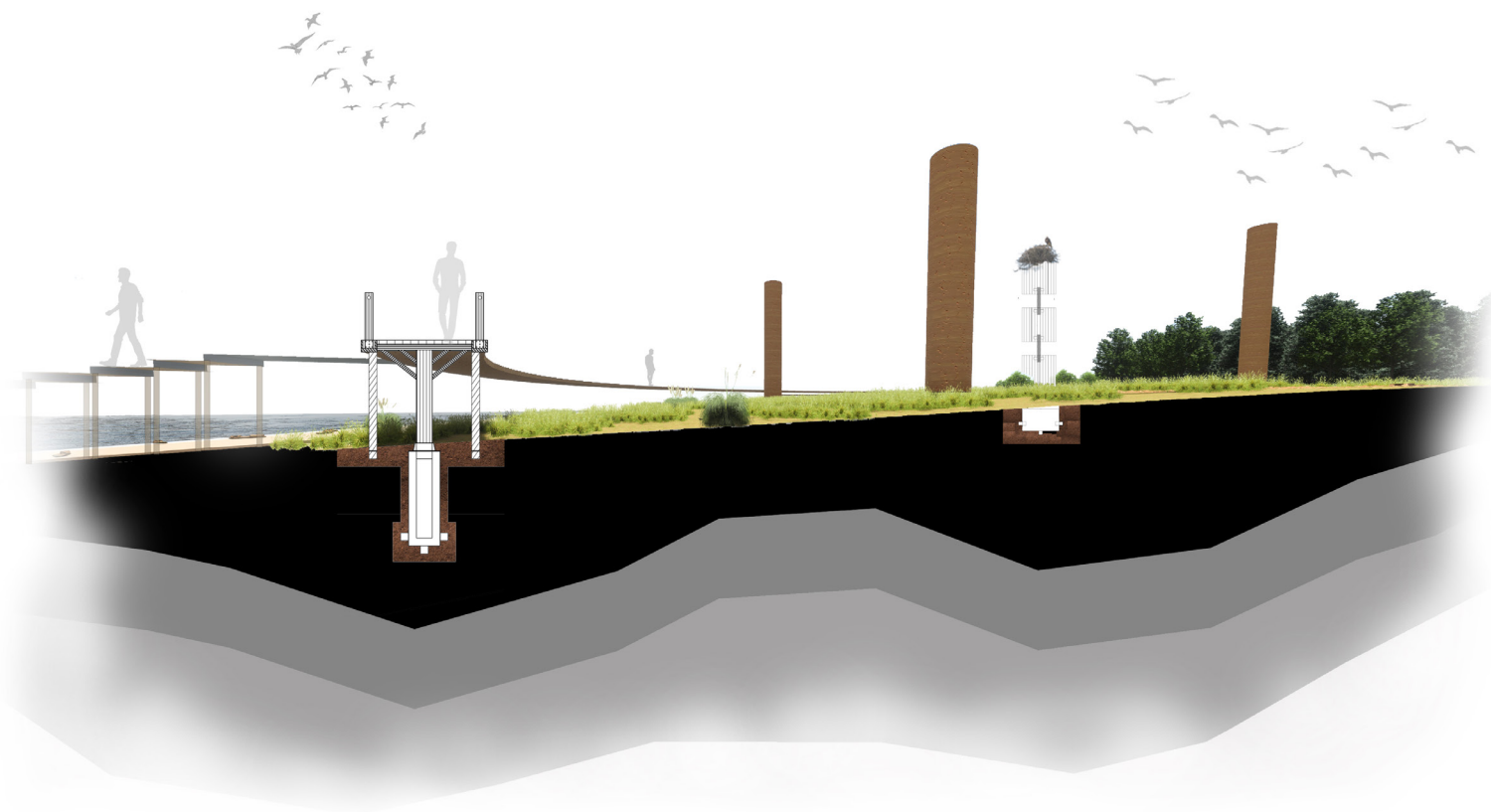
Scale- 1:8



Main Boat launch section | SEC.3

The Boat Launch acquires very minimal maintenance and has a well organized circulation system for vehicular traffic and pedestrian traffic, keeping everyone safe

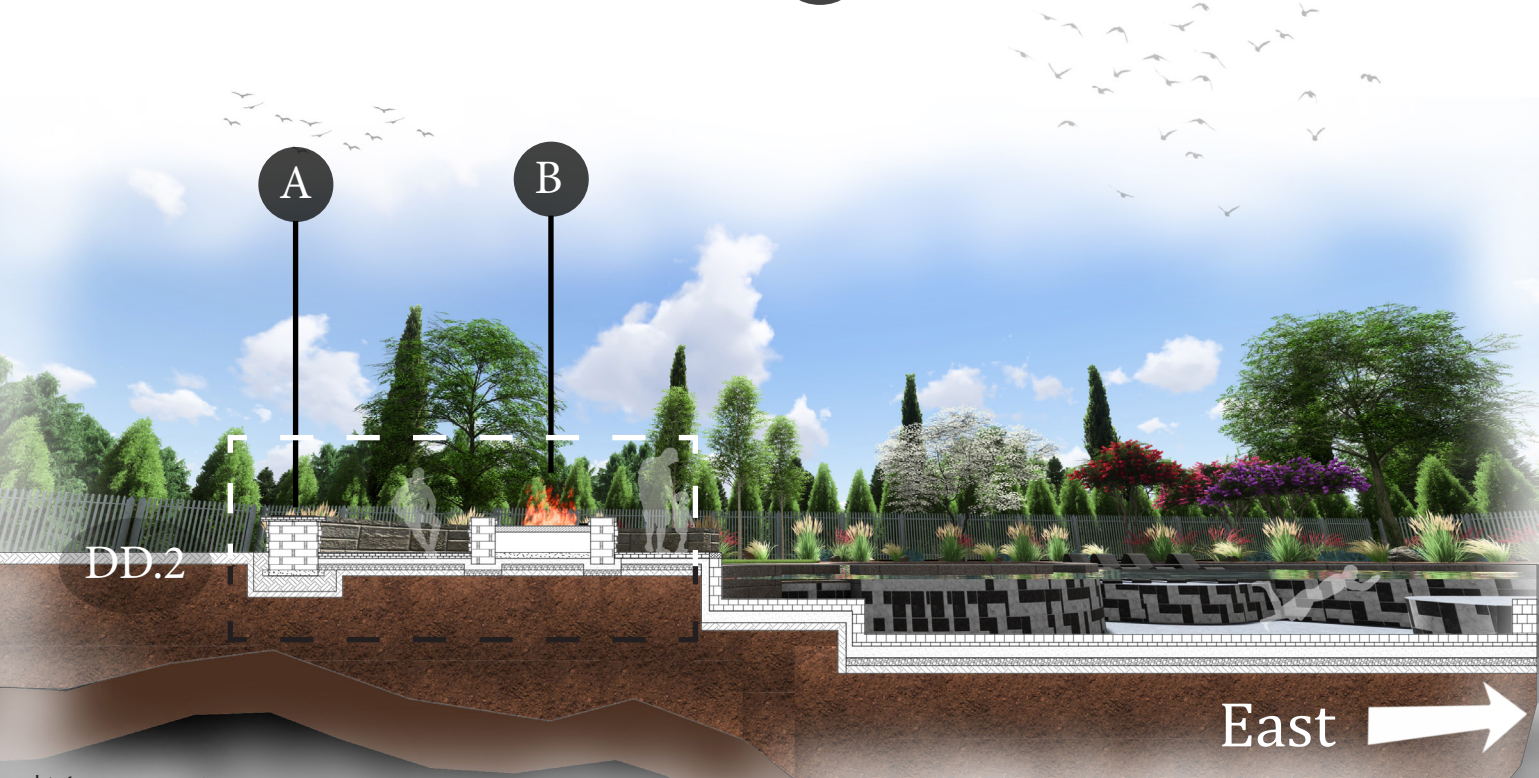




Welcome Center Patio Section | SEC.2

The Welcome center provides a luxury swimming pool with patio furniture and fire pit to further enjoy the outdoors

- A Seating / Retaining Wall
- B Fire Pit



Perspectives



Boardwalk Oasis Entrance | POV.2

Enjoy a Breathtaking view through the tree canopy into an open land of nature and phenomenal perspectives full of vegetation.



Boardwalk Lounging | POV.1

Take a Break from your joyous walk along the elevated boardwalk and enjoy views of the sunrise/Sunset and the rugged terrain of the Missouri River



Mid-walk Eye Catcher | POV.3

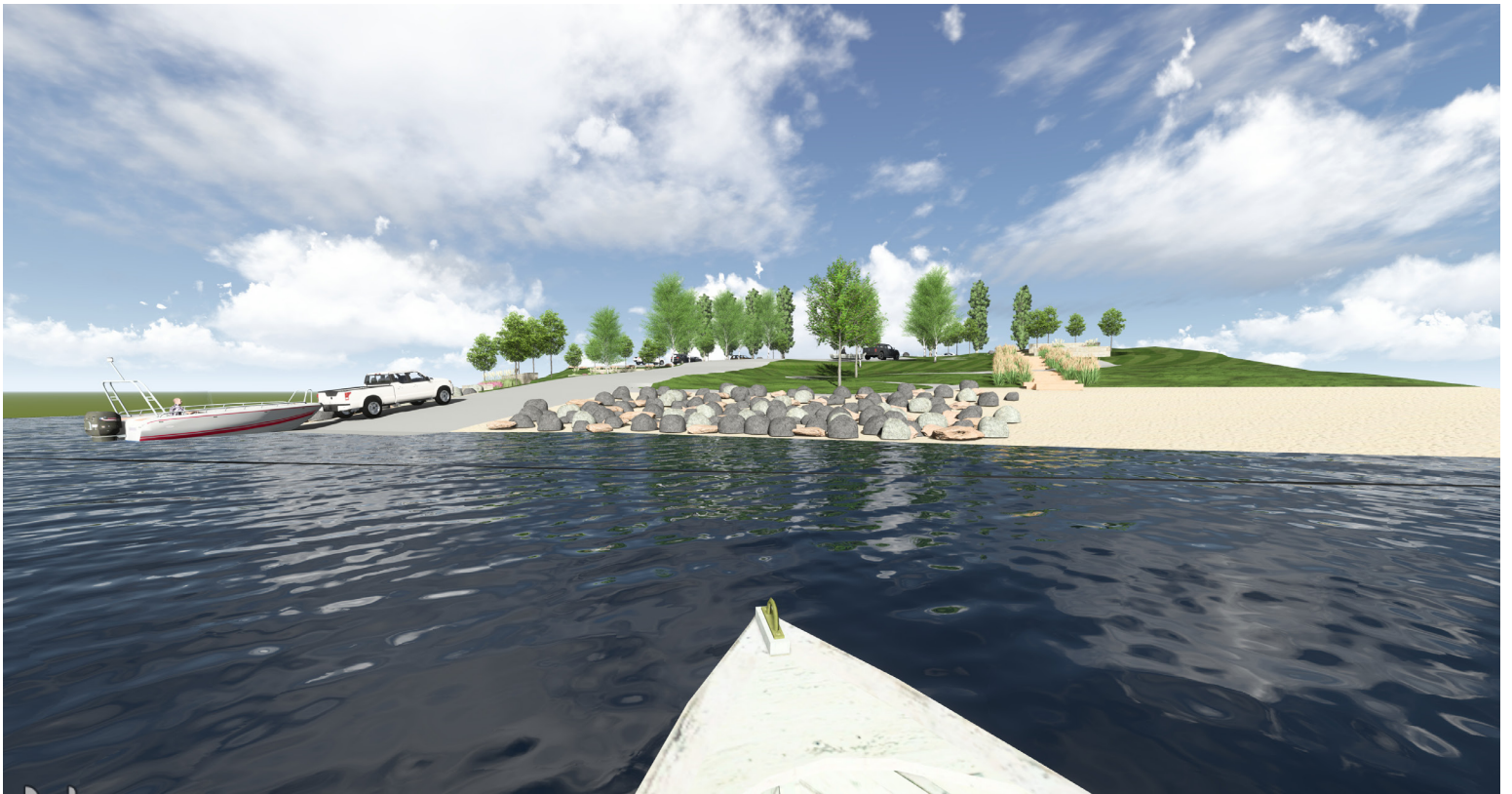
Walk along the wooden elevated pathway and enjoy the view of the Missouri river and large decorative posts

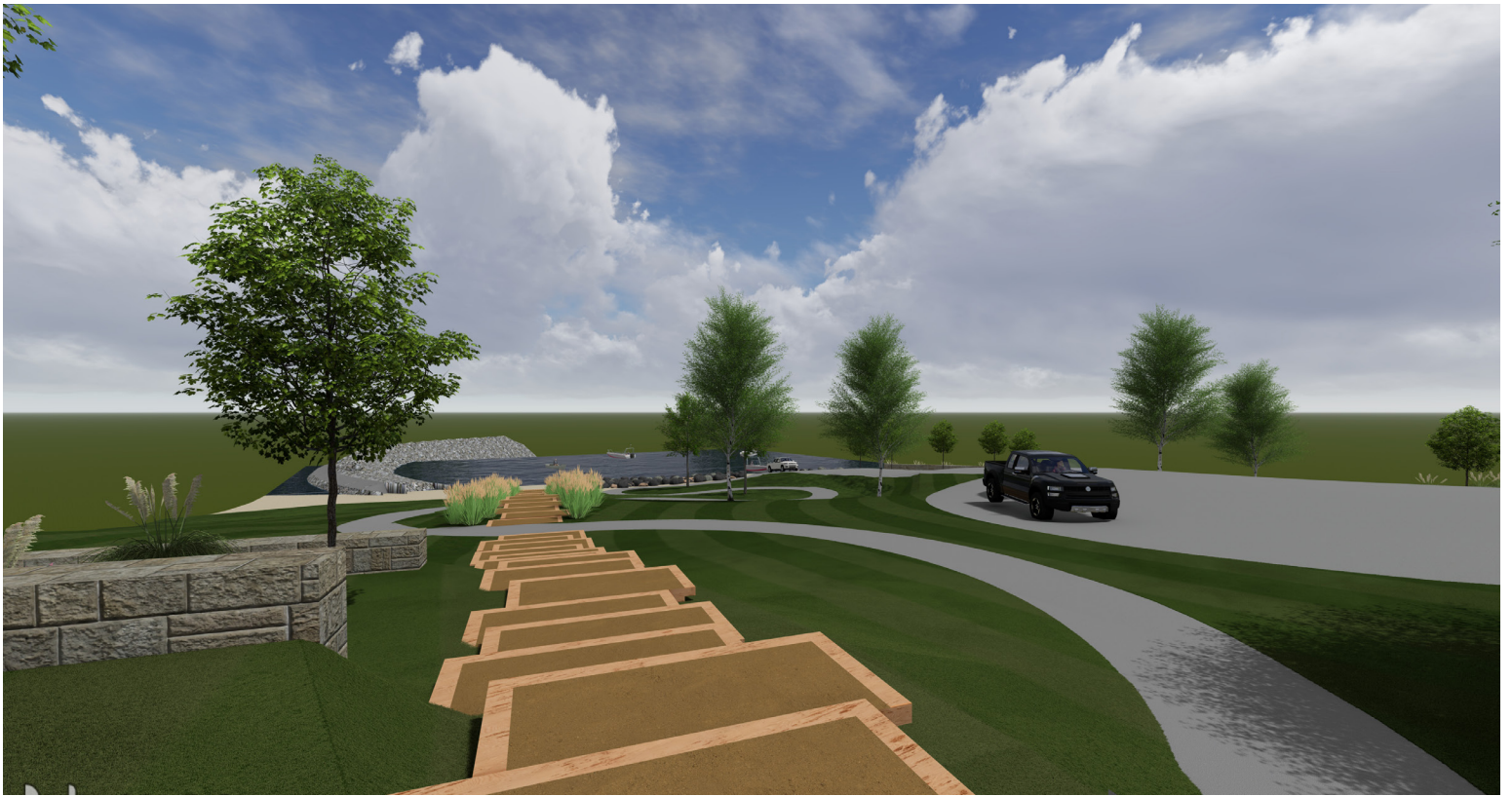


Mid Walk Winding Path



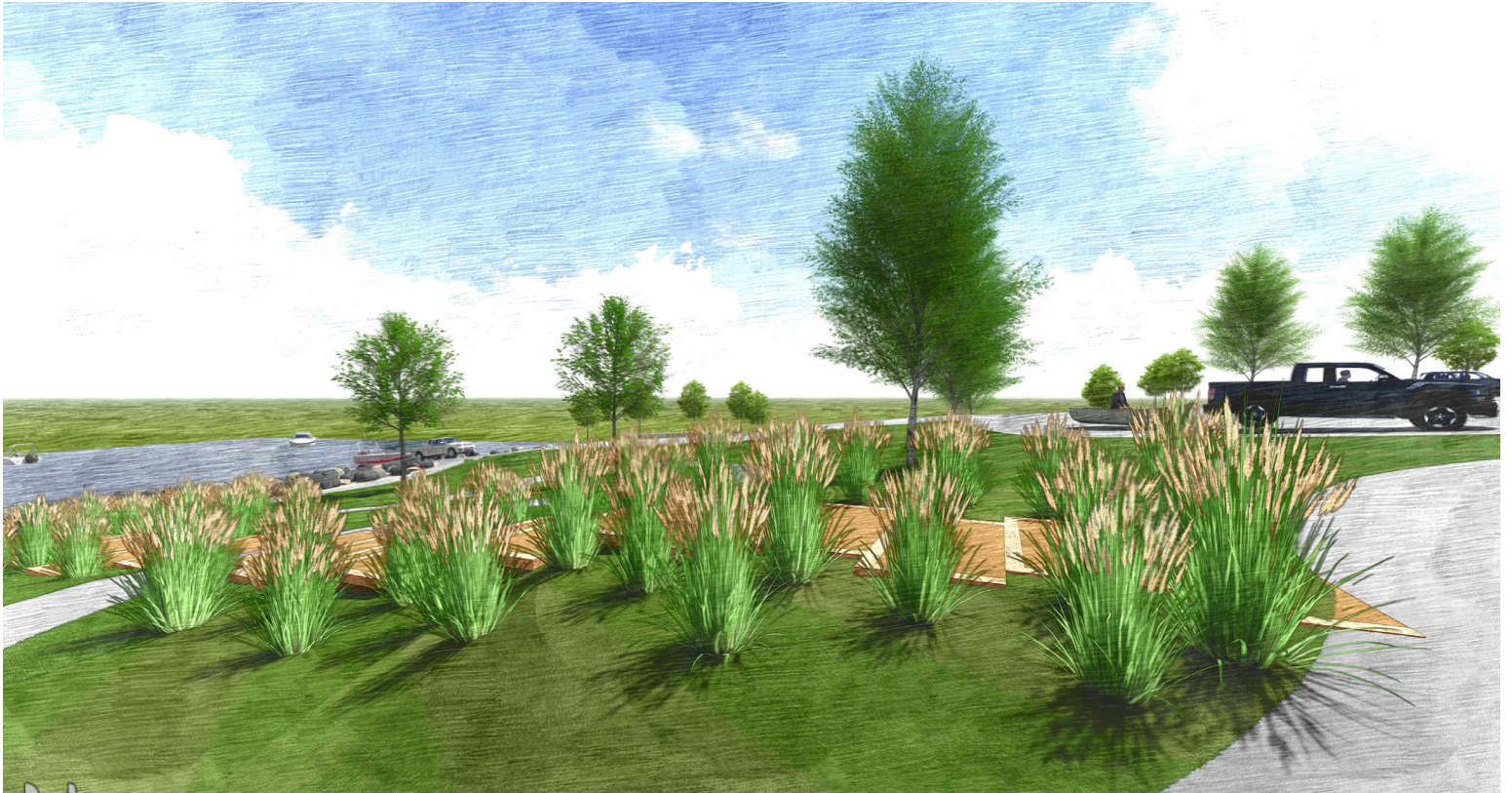
Boat Launch

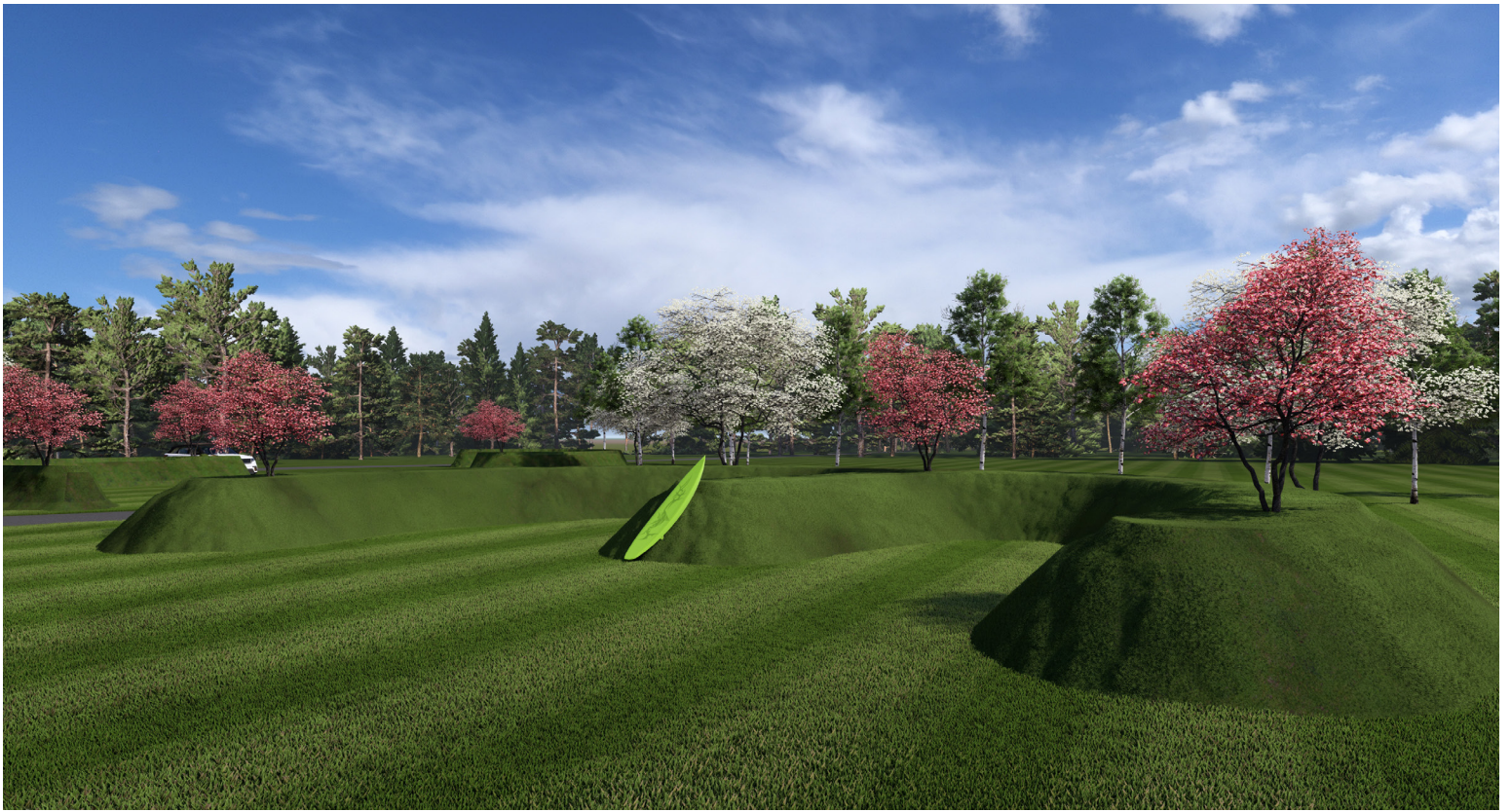




Walking Path

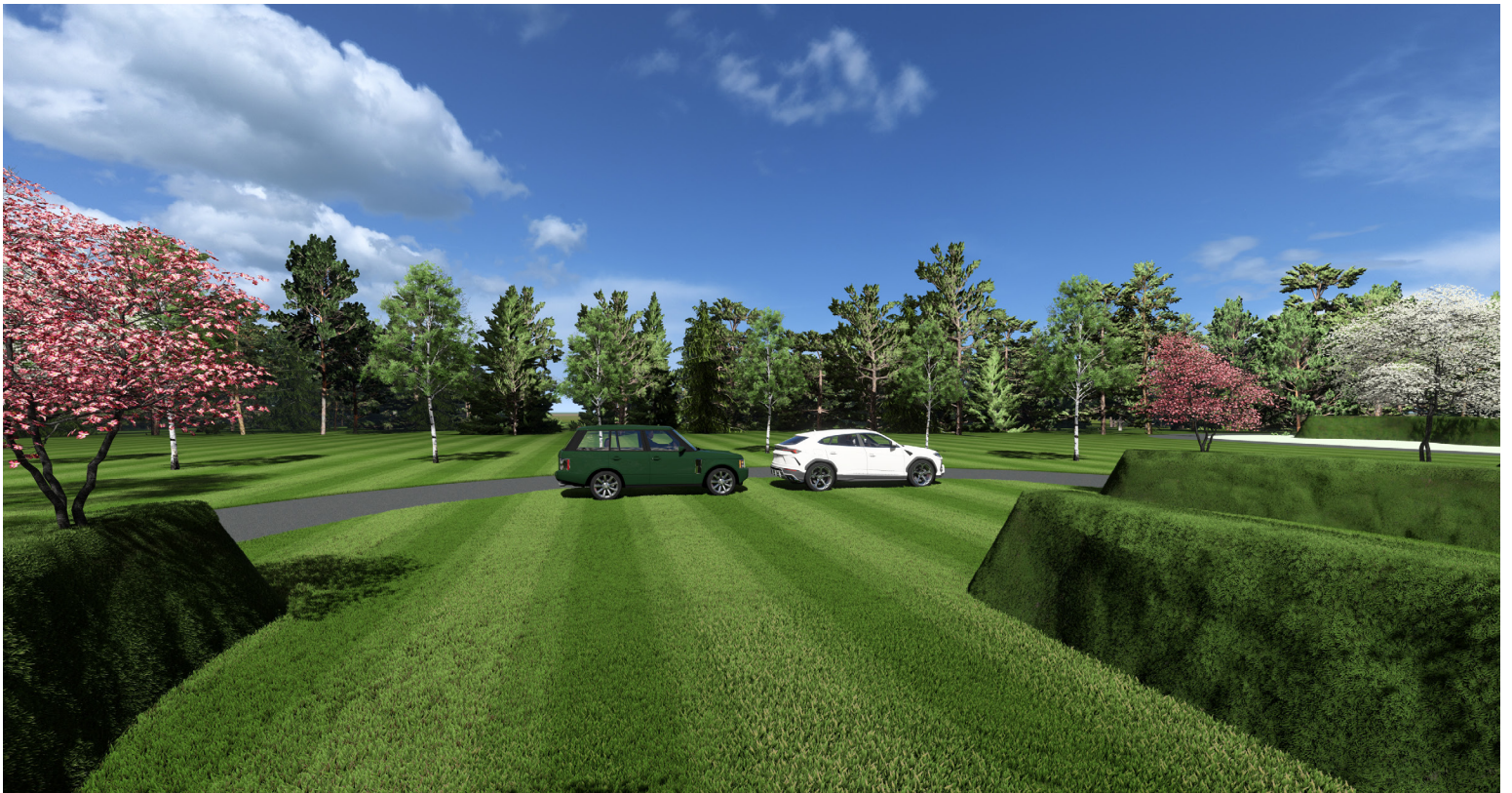
Vegetative Sketch





Tenting Zone

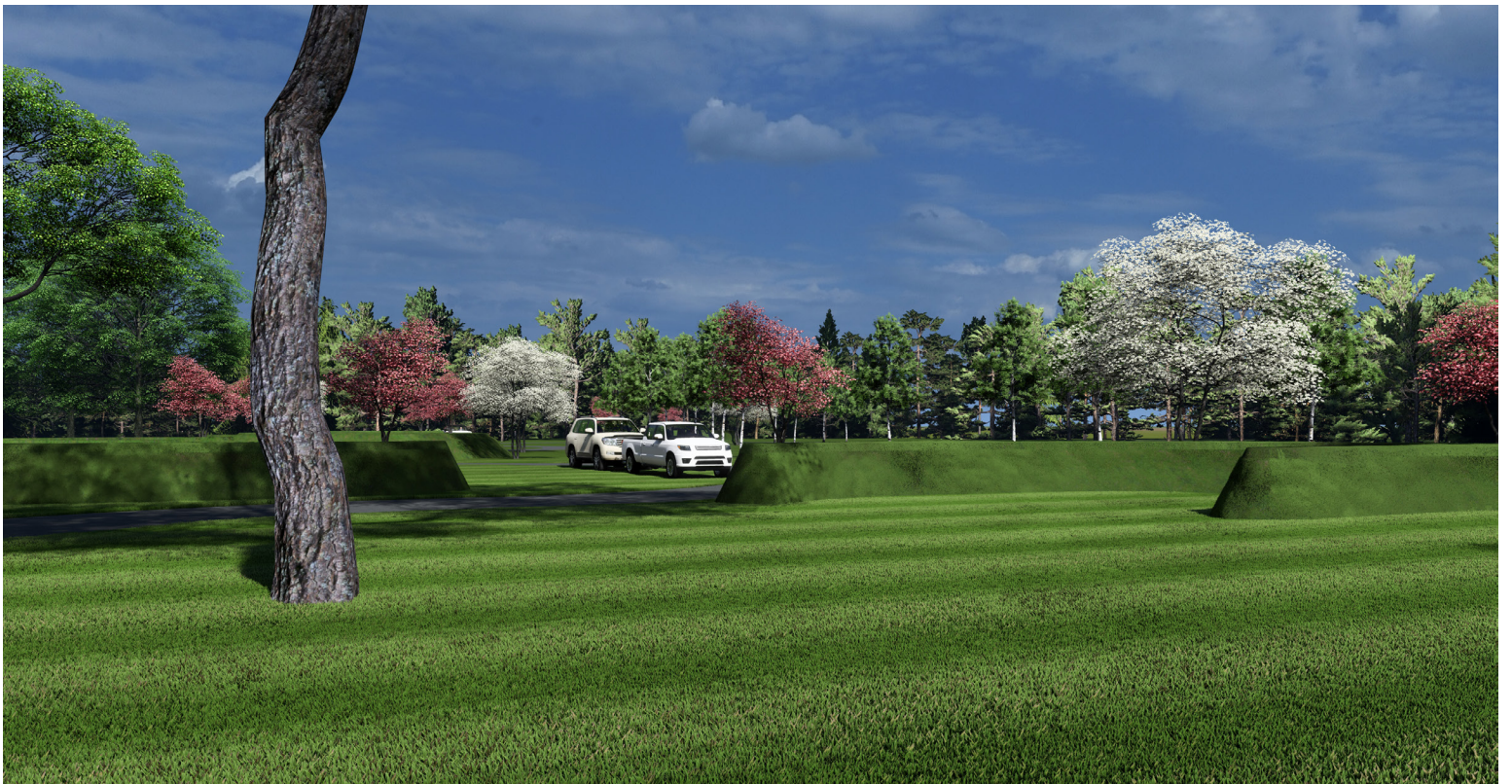
Inside Perspective





Master Plan Tenting Zone

Open Lawn



Patio Relaxation Hideaway | POV.5

Take the edge off of your busy everyday life to enjoy a furnished lounging pool and poolside amenities.



The Yard | POV.4

The Welcome Center Provides a sizeable green space for outdoor activities such as Corn hole



Patio Deck | POV.6

Lounge in this prestine large patio area with water flow white noise and stay warm next to the propane fire pits



Special Site Elements



Reflections

The Upper Arm Bay Resort focused on sustainable eco-tourism located on an existing campground in Parshall ND, encouraging the revive of declining rural communities. I believe my project succeeded in developing a safe eco-friendly environment for users from all over the united to come and enjoy. Creating several spaces for all types of users was a challenge, but i felt like i came at them from the right perspective. Thriving by encouraging users to get closer to nature and enjoy the outdoors on my recreational resort.

Some takeaways i have had from my project and objectives i would do different including the research of the Indian reservation more and have more personal contact with locals from the area. I would take my design and the suggestions from the critiques and make changes to the site for a different kind of experience on top of being a functional site location. I learned that focusing on the big picture and working towards the details is a safe way to work on a project. I enjoyed the whole process of the project from start to finish and endured the hard challenges by continuing to do research to get different opinions and perspectives. Overall my project i believe answered my thesis question and delivered a solid project design.



**CHAPTER 7:
CITATIONS & RESOURCES**

“Economic Impact of Corona Virus.” The Economic Impact of the Corona virus Due to Travel Losses https://www.ustravel.org/sites/default/files/media_root/document/coronavirus_2020_impacts_web.pdf.

H&M Let’s Close the Gap: Deposit scheme for gathering raw material
<https://research.aimultiple.com/sustainability-case-studies/>

https://link.springer.com/chapter/10.1007/978-3-319-07287-6_16

Tata Power: Solar plants on the roofs
<https://research.aimultiple.com/carbon-footprint-software/>

Tourism Case Study- Impact of Tourism
<https://www.coursehero.com/file/10037404/Tourism-Case-Study-Impact-of-Tourism/>

https://www.swc.nd.gov/pdfs/gao_experts_agree_corps_appropriate_action_forecasting.pdf

<https://www.nd.gov/ndic/outdoor-infopage.htm>

<https://rollingplainsadventures.com/pheasant/>

<https://www.thinkaec.com/architectural-services/landscape-architecture/>

<https://enfactorpodcast.com/gathering-raw-material/>

<https://www.nature.com/subjects/renewable-energy>

<https://gf.nd.gov/education/nasp-grant>

<https://gf.nd.gov/wildlife/swg>

<https://gf.nd.gov/magazine/2017/feb/natural-resources-trust>

<https://www.commerce.nd.gov/services-assistance/grant-programs/main-street-tourism-outdoor-recreation-grant>

<https://gf.nd.gov/private-lands/landowner-programs/outdoor-heritage-fund>

<https://www.northdakotawildlife.org/>

https://www.fhwa.dot.gov/bipartisan-infrastructure-law/grant_programs.cfm

<https://www.thesolarnerd.com/blog/pros-cons-home-solar-panels/>

https://images.search.yahoo.com/yhs/search;_ylt=AwrEbSnJwPdJMxcNv1wPxQt.;_ylu=Y29sbwNiZjEEcG-9zAzEEdnRpZAMEc2VjA3BpdnM-?p=soalr+panels+on+cabins&type=Y219_F163_204671_013122&hsimp=yhs-freshy&hspart=tro&grd=1&ei=UTF-8&fr=yhs-tro-freshy#id=7&iurl=http%3A%2F%2Fmedia.mywoodhome.com%2Fwp-content%2Fuploads%2Fsites%2F5%2F2017%2F11%2FPearlman3.jpg&action=click

Author links open overlay panel Raphael Ocelli Pinheiro a, a, b, Abstract Assessment of cultural ecosystem services (CES) and the negative impacts humans can have on them can provide essential information toward conservation and management strategies. Globally, Raymond, C. M., Plieninger, T., Lyytimäki, J., Lopes, P. F. M., Notte, A. L., Kumar, M., Kathiresan, K., Jobstvogt, N., Fisher, B., Fagerholm, N., Groot, R. S. de, Coria, J., Cooper, N., Blanco, J., Berkel, D. B. van, ... Dudley, N. (2021, July 26). Cultural Ecosystem Services: Linking landscape and social attributes to ecotourism in Protected Areas. *Ecosystem Services*. Retrieved April 18, 2023, from https://www.sciencedirect.com/science/article/abs/pii/S221204162100098X?casa_token=PTqPWwV2e1UAAAAA%3Ae9y-jplUawycCB0nLXVBwJ8zJzBrnInY1P7H-l_sXFtB3u6CjCUFtu_L_IPdf6FOu_PMfkO9c8Uc