
Symbiosis
Kelly Kintz

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Kelly Kintz
Masters of Architecture
University of Detroit Mercy
School of Architecture
AR 5100, 5110, 5200, 5210
John Mueller, Professor
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This book is dedicated to:
Charles, Patricia, and Allison Kintz

Table of Context

Abstract

Natural characteristics can be defined as those that have come from the earth, are untouched and can develop on their own accord. Cultural characteristics can be described as something that has some of the same qualities as nature but were made by some other force. Architecture being one cultural characteristic, it can be developed in a natural environment with some of the same traits that nature itself has. Although this may be true, architecture is made by man and cannot be natural. Architecture that is designed well can be placed into a natural environment and not alter the process by which the natural environment works. However, with a more substantial impact architecture can affect how nature works. The relationships between the natural and cultural environments are extremely strong. Architecture has yet to find a way to intertwine the design of the building with the landscape. The challenge is to develop a way for architecture not to change the process in which nature develops itself.

Nature and culture although seem contradictory are linked together. Between this link there is a separation between them. This separation is made by a cultural idea that when cultural characteristics come into contact with nature that the progression of nature is altered.

Since this is unwanted culture will separate itself by means of barriers or boundaries. These boundaries are put into place without any more thought other than to keep the two separated. No thought of specific place or characteristics that can be related back to the natural environment in which it is located. These barriers are universal and can be placed anywhere, the hot desert, the cold arctic circle, or even in the rainforest. The goal of this is not to keep the two divided but to explore, define, and invent new barriers for a specific location.

Project Summary

Our world stresses the idea that the cultural world is presented in the natural environment it alters what is there and changes the process in which the natural world works. The problem is that the cultural world wants more and more to learn about the natural environment. Since the cultural world alters the natural, they separate themselves from it by all means to keep what is already exists unchanged. To do this, the cultural world puts up barriers to make sure that they do not affect the world around them. This project plans to look at the separation that the cultural world puts between itself and the natural environment and create a space that enhances the awareness of the surrounding space and create activities that help celebrate the adjacent natural environments.

This project plans to include a couple of different components to develop the idea what the cultural environment can be introduced into the natural without altering the process in which the natural environment works. Some of these components are such spaces as exterior experiencing, and discovering spaces. This space means to increase the understanding of the environment around with fun and exciting activities

for all those trying to experience the environment. Another space would include specifically an education and learning space that would help how those experiencing the space to appreciate the environment. This project would also include a gathering and socialization space to bring people together to interact with each other and be able to enjoy the surrounding spaces. Lastly the two last components would include a place to eat and drink, and for sleeping. This space would be for those who wished to experience the natural environment for a longer period of time.

All of these spaces would be integrated into a program to enhance the idea that when the cultural world comes into contract with the natural environment they do not have to separate themselves to learn more about the environment. As long as those experiencing the space are aware that they may be in a place that is hardly touched or even untouched and respect that space, then the alteration of the natural environment should be insignificant.

Thesis

Natural environment is often described as something that has come from the earth and is untouched. Unlike the natural environment, the cultural environment has always been construed as something created by people. There is an idea that when the cultural environment comes into contact with the natural it somehow alters what is there, that after the contact as been made, the natural environment will never be the same. With this thought, how it that almost every architect can see the beauty that nature has to offer, appreciate it, and yet fail to design in a way that celebrates what already exists? Architects are designing buildings that destroy the land, where there were forests there are now shopping malls, where there were fields of wild grass, there are new sub divisions. Not only are architects destroying the land with mass amounts of pavement and buildings, but the buildings themselves only have a twenty to thirty year construction cycle, which has no relation to the century by century pace that the natural cycle has.[1] While the relationships between the natural and cultural environment still have a deep effect on one another, architecture has failed to find a resonant interrelationship with nature. The challenge is to find a way to integrate the fast pace of architecture

1 Gentle Architecture, pg 40

into a landscape that can be perceive as untouched.

Through the study of this thesis, the site chosen, Pictured Rock National Lakeshore had many key aspects to investigate. This site was chosen specifically because of its natural beauty and the fact that many people come to visit the very natural settings. Throughout the Lakeshore, there are many places in which people visit specifically and others which are only discovered through those who wander off the beaten track. With this framework, the effect of the cultural environment can be seen very clearly. The area in which the natural environment has been explored is distinctly different to the areas in which has had very little human attendance. Within the explored area the people who work for the lakeshore have come up with a plan to try to restrict the contact some people have with parts of the site. The more popular sites now have railings and walls to keep people from exploring the less explored areas of the site. For example, Munising Falls is popular because of the horseshoe shaped falls; because of this shape it is possible for people to walk underneath the falls and be behind them. However, after years and years of natural evolution and contact by people, the rocks surrounding the falls have started to fall, this created

a dangerous place for the people exploring the site, as well as the integrity of the falls themselves. This is the reason why the railing was put into place, to stop people from coming into more contact with the site. And because of this, the lakeshore has created a distinct difference between the “untouched” natural environment and the natural environment in which has had some impact by those who visit the site.

Before investigating the relationship between people and their surroundings, the connection of cultural and natural environments must be explored. Although the two might seem contradictory, nature and culture are inescapably linked to one another. In a way the natural environment is a representational model of what the cultural environment consists of. Nature itself is in fact a community, and the cultural environment bases its existence on that. The only difference is that the natural environment works and cities no longer do.[2] Nature has a sense of stability that the cultural environment does not. Nature lives, thrives, and can provide for itself, whereas the cultural environment needs to rely on the natural, and since nature has had a billion years head start, the cultural environment is unlikely to change. Since the cultural environment is based on the natural,

2 Gentle Architecture, pg 29

and is produced by people, then it is fair to say that the cultural environment is based on a person's perception of what would suit them in a certain environment.[3]

Then again is it fair to compare the natural environment (nature) and the cultural environment (architecture), since one is a smaller part of the other?[4] The person's perception of the natural environment could be completely incorrect when it comes to what the natural environment really is. "Like coral creating reefs in the ocean abyss".[5] The reef, representing the perception of what the ocean consists of, is not an accurate representation of what the whole ocean actually is, just a small portion. Where the reef is a small part of the ocean, architecture can be a small representation of what a person believes nature to be, not nature as a whole. Applying this to Pictured Rock, this thesis does not intend to imply that the natural environment here is the same as everywhere else, in the world, in the United State, or even in Michigan itself. This is a very small portion of all of the natural environments the world has to offer, and this thesis just to take this specific site and apply the theory behind the project in a precise way.

3 Nature and the Idea of the Man-Made World, pg 8
4 Nature and Architecture, pg 9
5 Nature and Architecture, pg 9

The relationship that people have with the natural environment consist of different scenarios starting from one that is the most pure natural environment to one that is placed within a cultural setting. The first would be the untouched environment, which could be an area of dense trees, or the depths of the ocean. This would be a place where people have not had any influence on the way the place came to be what it is currently. The second would be a Park system, for example, Yellowstone National Park, or the chosen site, Pictured Rock. This environment would consist of areas that people have had an impact and believe to be worth saving. This is the category in which the chosen site would be placed. After the parks would be a home's private lawn. This is an area where people can design their own little area of nature. Finally there are city green spaces, areas within the cities limits to give a person the feel of nature while keeping them surrounded by a more built environment. Being that Pictured Rock National Lakeshore would be under the park system category, this would be a place in which people have made sure not to undergo some sort of change to how the environment exists. Sadly, even though the intention is not to change, the actual act of being in

a place changes the preceding existence of a place.

With all of the different environments, there is a form of separation that keeps people from experiencing that space, and the types of separations are different in each case. The untouched environment does not have has much of a barrier since there is nothing that is physically there, but since there was a sense of unawareness, the person would feel uncomfortable about encountering such a place. Even in such places as parks, there is some type of boundary between the people and the environment in which they wish to experience, such things as paths keep people from involving themselves with certain parts of the environment around them. It tells them, this is the way to go, do not wonder astray. In the case of Pictured Rock there are many forms of boundaries that are present, whether it is manmade or natural in its sense. The site at Munising for example, has the railing that keeps people from walking under the falls. The Grand Portal site has a cliff, although less likely for someone to cross, the barrier exists in its own way. Even the Grand Sable site has a boundary that keeps people from a certain place. The drop from the top of the dunes, 300ft down to the lakeshore keeps

people at a distance from one another. The mere idea of going from the top of the dunes to the shoreline, or vice versa, would be very difficult and dangerous. The site at Pictured Rock has many barriers that keep people from experiencing the whole site, whether they are natural or not. Even in places where the environment is more cultural, there is a separation, the fabricated natural environment that people put into place to make them feel like they are closer to nature still has a boundary. There is the line where the fabricated nature ends and the pavement begins. Probably the last and most seen separation is that of the building itself. Starting at the front wall and ending at the back, and not until recently did anyone look at this closely enough to see an actual barrier.[6] No matter what situation, there is some sort of barrier between people and the natural environment, whether it is physical or not.

The separation starts to define the reaction of the people experiencing a place. When people come to that edge, where they believe to be entering a natural environment, they hesitate. Knowing that once crossing that threshold the balance between nature and the built world will never be the same. This hesitation is

6 Gentle Architecture, pg 48

another reason why people cannot experience nature the way it was intended to be experienced. The goal is not to keep people from the natural environment but to explore, define, and invent new ways of looking at those boundaries and the human reaction. It is not to stop people from experiencing a space but creating a situation in which people will not hesitate in involving themselves in a situation. The idea is that the experience would not be an actual physical object, but more a situation.

Through the exploration of the boundaries between people and the natural environment the program will introduce people into a place where they will feel as though they are a part of nature itself. The goal is to create an atmosphere where the two seem to be as though there is no separation at all, to find a way to inform people how to experience a place instead of steering clear. To make it almost impossible for people distance themselves from what is surrounding them, and help put them in a situation where they will experience nature in its most natural form. By defining the boundaries that separate people from nature, the design will be able to create a setting that will celebrate the environment.

Precedent Analysis

The following pages are precedents that were studied to help the idea of the thesis for the project. The precedents presented many aspects that help the intent of the program and even the construction method which will be looked at for the project. The precedents helped the process by which the project was constructed and the way the project will be finalized.

The first two precedents look at the type of program that was looked at for the new installation. The first project, Bays of Fire Lodge helped the understanding of the program of the building with respect to the site. Since the lodge was located so far away from any outlet, the design had to make sure it took into account that it had to sustain itself. The design also took into account how the people visiting the site would have an effect on the surrounding environment. This was a crucial aspect of the design process. The second project, Zion National Park Visitor Center, helped more with the layout of the design within the site. This project mainly looking at how the building was to be located on the site and how the new design would help the problems the park was facing.

The second two precedents that were studied had more to do with the way the building would be

constructed. The next process will look more at how the building is constructed and no construction method will be overlooked. In this analysis, the two extremes were looked at. The first project studied was the Loblolly house, this house was designed to be lifted up off the ground. This brought many qualities to the design that helped make the building sustain itself, including having a small footprint and using materials that come from the adjacent environment. The second project looked at was actually a theory that Malcolm Wells created. Not only did Wells look at the underground construction methods, but also studied the way architects look at designing within a site.

All of these projects helped how the project will develop. These precedents show how the project can relate itself to the environment with altering what is there, while having an esthetically pleasing appeal to those who visit the site.

Bay of Fires Lodge,

Tasmania Australia

All photos courtesy of: Google.com/Images

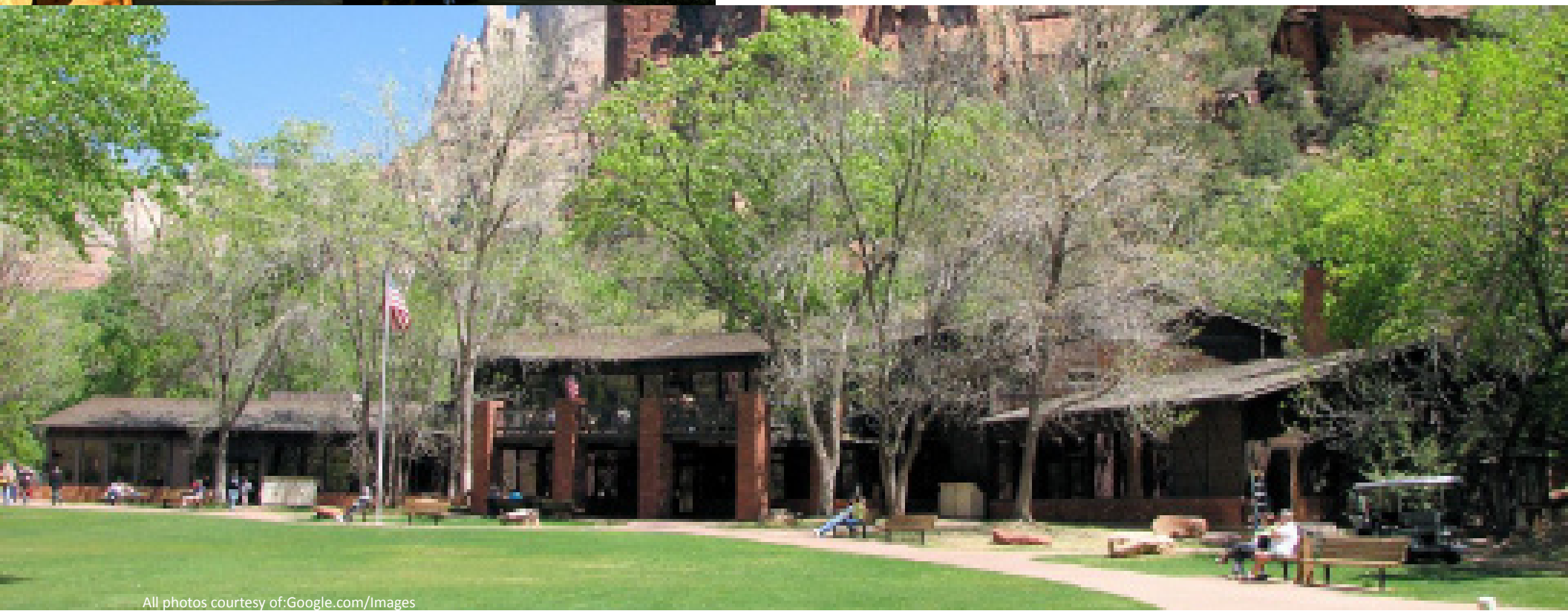
The Bay of Fires Lodge in Tasmania, Australia was designed by Ken Latona of Sydney Australia. This design was based around the idea that the building was to sustain itself and not have any support from an outside source. The site is located on the North East corner of Tasmania in Mt. William National Park. The site is located on 86.5 acres and is placed within a space with minimal disruption. There were only 3 trees taken out of the whole site and after the building was built those trees were replaced elsewhere on the site. The site is 20 km away from any vehicle access, and to get to the lodge, it takes a two day walk through the park.

The Bay of Fires Lodge is also about 20km away from any utility outlets. The building sustains itself throughout the whole year, by getting energy from the surrounding environment. The main source of energy for the lodge comes from solar energy, but it also has glass louvers for sunlight penetration and cross ventilation. The roof has rain water collectors to supply water for the buildings, non drinking water supply. The building also has a graywater treatment and composting toilets to help reduce waste.

All photos courtesy of: Google.com/Images

Zion National Park Visitor Center, Springdale, Utah

The Zion National Park Visitor Center was designed by architect, James Crockett. His idea was to design the new visitor center around the existing camp ground. The camp ground was sitting on a site that already had a lot of disturbance. The site had its own drive loop that would be suitable for the new bus system they planned on creating. The new visitor's center was mainly constructed because of the horrible traffic that the park was getting during the tourist season. On any day, the park would have 3000 visitors with only 400



All photos courtesy of:Google.com/Images

parking spots. The idea was that visitors would come to the Visitor Center, and then get onto a bus that would take them on a tour of the area. Before the bus system was put into place, people would fill up the 400 parking spots before 8am, and then they would start parking in the vegetation on the side of the road. Not only were the cars killing the plants on the side of the road, but the noise of the vehicles would drive away the animals in the area. "About a month after the new Visitor Center was built and the bus system was up and working, there was more than one sighting of Bob Cats around the roads" said Crockett.[1] Not only did the Visitor Center take into account were it was located in the park, but it was designed so that it would save the park money on energy costs. The building has PV solar power, a Trombe wall, and a cool tower. A couple of addition things that was part of the design was that the new parking spots were put in the places of already existing camp sites, there was little vegetation that was removed, and there were historical ditches on the sides of the road that were kept in tacked.

1 James Crockett, Architect

Photo courtesy of:James Crockett

Loblolly House,
Taylors Island, Maryland

Positioned off the coast of Maryland, this house is located just off the Chesapeake Bay and surrounded by a small grove of loblolly pines that helps the enhance the sustainable features of the construction. Built above the ground supported by piles of loblolly pines, leaving just enough room underneath to park a car. This 2,200 square foot residence is positioned in between a dense grove of loblolly pines and a lush foreground of saltmeadow cordgrass and the bay.[1]

1 Kieran Timberlake Associates, website

All photos courtesy of:Google.com/Images

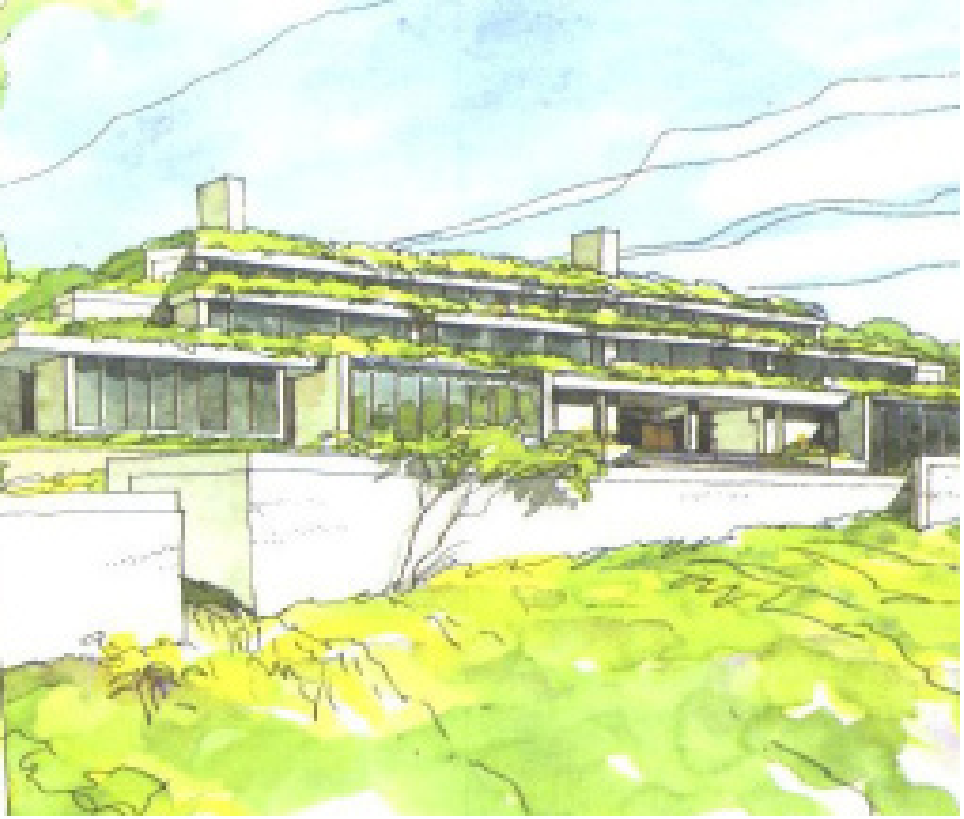
The whole residence was assembled on the site and was done in a period of six weeks. Since the piles lifting up the residence were made of loblolly pines, it had a – it is a house among and within the trees – feeling.[2] The interior finishes included fiber-cement panels, cedar wood, and birch plywood paneling, all of which were prefabricated and brought to the site to install. All of these methods, prefabrications, raw materials, and construction time, were perfect for designing methods that have significant energy conservation. The house also includes a roof garden that provides natural cooling for the warmer months and has an insulated structure that keeps the interior warm during the winter.

The construction method was built around the idea that when this house was to be disassembled, whenever that may be, the process would, just like the assembling process, not harm any of the environment adjacent to the site. The idea would be that after being disassembled, the house could easily be relocated and assembled once again.

Photo courtesy of:Green Homes

Photo courtesy of:Google.com/Images

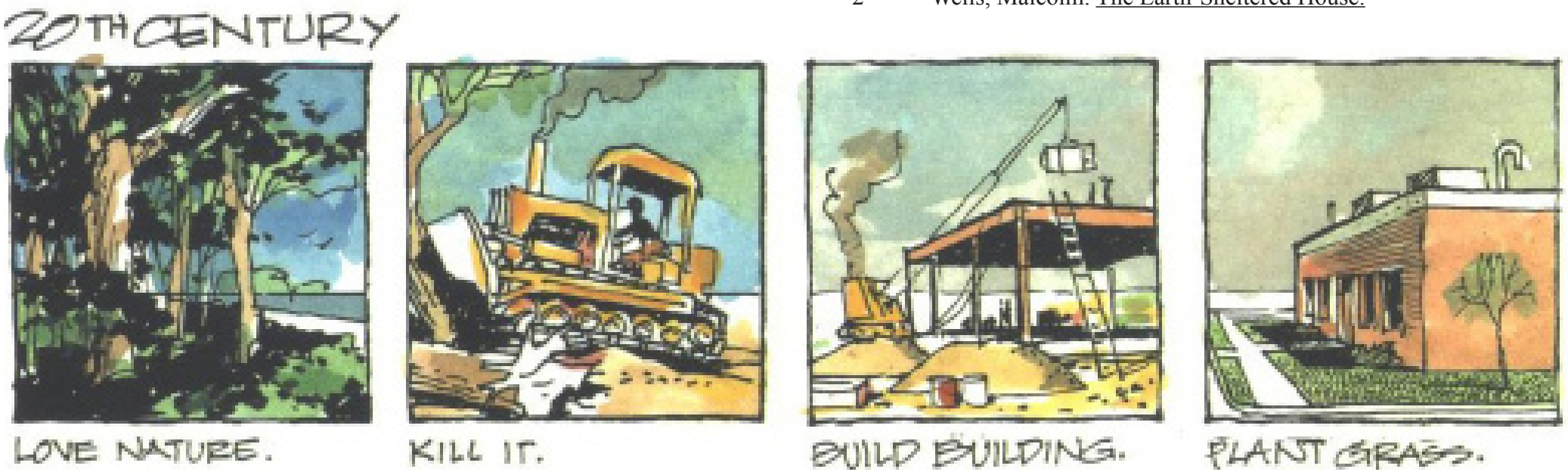
2 Green Homes, New Ideas for Sustainable Living



Malcolm Wells, The Earth-Sheltered House

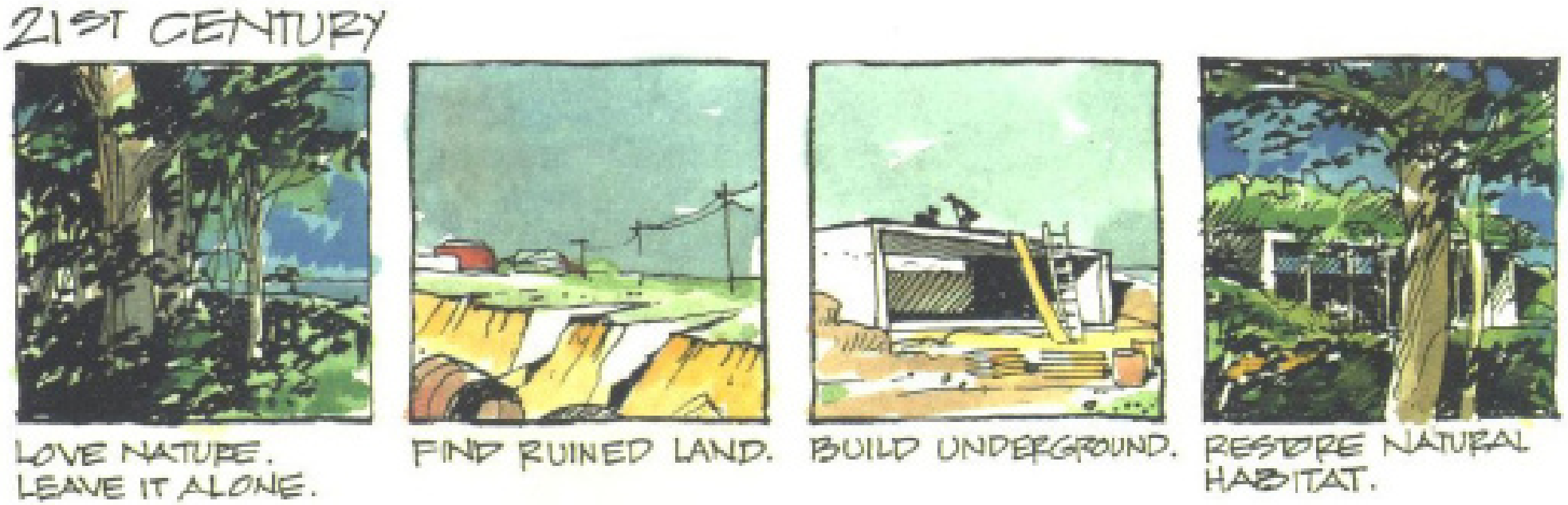
Malcolm Wells believes that buildings destroy the land, and yet in the name of architecture architects continue to pave the beautiful country with buildings and parking lots.[1] Wells does not understand why architects can recognize and appreciate the beauty that nature has to offer but yet fails to design in a way that celebrates the environment. Wells started to build underground because he thought that building underground was the only way to build without destroying the land.[2] Along with having a green "footprint" building underground also has other qualities that make these types of construction worthwhile, for example, it is silent, bright, dry, long-lasting, and easy to heat and cool.

1 Wells, Malcolm. Gentle Architecture.
2 Wells, Malcolm. The Earth-Sheltered House.



All photos courtesy of: The Earth-Sheltered House

Wells had a process in which an architect could use while selecting a site. On the bottom left, it shows how Wells' believes architects design when not building underground. It shows the process by which an architect will pick a site that has a lot of beauty, cut down all the trees, build their building, then replace what was there before with new grass and trees. This process is not what Wells would do when designing a project. Instead his idea is shown below. Wells' idea is that when finding a site that is beautiful, leave it be, find another site that looks like it needs work, build an underground building, and then restore the natural habitat. Clearly the process by which Wells' uses has much more thought in it then the process by which other architects use.



All photos courtesy of: The Earth-Sheltered House

Site Analysis

The sites that were studied for this project had many qualities that were important for the development of this project. The site had to have an environment that had issues because of tourists coming to the area. This would help the problem that arises within the thesis of this project. The thesis hopes to protect the environment from anything that would alter the natural process that the site develops.

The first site has many critical areas in which people have an effect on how the natural environment. Some of which are those closest to the river. This area is the most visited in the area because of how the area transforms from the dense forest to the raging river. The nearby camp sites help with directing people to another part of the park, somewhere just within walking distance, but far enough away that the tourists do not alter the environment in which the falls are a part of.

The second site has much more of an impact by those who are visiting the site. Munising Falls have had problems with erosion and human interference for around ten years. Now because of the popular site, the falls have been separated from those who wish to experience them. The site had perfect qualities

to set up for the problem in which is faced in the thesis, but did not have much more of an experience other than the falls to help enhance the project.

Lastly, the AuSable River site was the best for the amount of people who visited the site on a daily basis. The town of Oscoda really put a lot of stress on the natural environment around the area. The activities around the site had developed more and more over the years and that took a toll on the process by which the environment worked in the region.

All of these sites had potential when it came to why they should be chosen for this project. However, all three were lacking a little emphasis when it came to having all the qualities that were being looked at, the experience, the natural environment, and how the people visiting the site had an impact on those sites.

Photo courtesy of: Google.com/Images

Image courtesy of: the author

Manido Falls,

Porcupine Mountain State Park

Manido Falls is located on the West side of the Upper Peninsula, just 20 miles north of the town of Bessemer. While Bessemer is the closest town, with only 2,000 people they do not have much of an impact on the site. The biggest impact for this location is actually the tourists that come to the site for the beautiful landscape. Manido Falls is located on the Presque Isle River in the Porcupine Mountain State Park. The park brings people from all over Michigan, Wisconsin, Minnesota, Illinois, Indiana, and even Ohio. The park has many camp sites where the tourists can come to stay; the closest camp site to Manido Falls is just north of the side, only by a mile or two, so the distance from the camp site to Manido Falls is just a short walk away. The most popular time of the year is obviously during the summer when the weather is much warmer. However, in the fall, while is weather is just slightly colder and not as many people visit the site, people still come to the region to see the colors of the trees. In this area there are many hardwood-hemlocks, maple and birch trees to present a vast amount of reds, yellows, and oranges that attract tourists.

Photo courtesy of: Google.com/Images

Image courtesy of: the author

Munising Falls,

PIctured Rock National Lakeshore

Photo courtesy of: Google.com/Images

Munising Falls is located in the Upper Peninsula of Michigan, just north east of the city of Munising. This site is also located in the Pictured Rock National Lakeshore. While the city of Munising, with much more than 2,000 people, it still does not have much of an impact on the site. The tourists that visit the site have the biggest impact on this site. The Falls are actually shaped in a horseshoes because of erosion that happened over millions on years. This was a nice spot for people to come see because someone could actually walk behind and underneath the waterfalls. After a while, the tourist actually started to have an effect on the waterfall.[1] Sometime in the late 1990's some of the rocks surrounding the falls started to fall, and almost hit a tourist. After this they started to put signs and fences up so that people would not go closer to the falls, as shown in the picture in the bottom left corner. This was put up not only to keep the people safe, but the lack of human contact would also help keep the falls safe from further damage.

1 Gregg Bruff, Chief of Heritage Education, and Cultural Resources Management

Photo courtesy of: Google.com/Images

Image courtesy of: the author

AuSable River,
Oscoda, Michigan

Photo courtesy of: Google.com/Images

The AuSable River is located on the East coast of Michigan, on Lake Huron. The site is just a couple miles west of the city of Oscoda. Oscoda has a much smaller population and is a prime location for tourists. This site has wonderful weather during the summer time, warm days and cool nights are perfect for the vacationers looking for outdoor activities, ranging anywhere from tubing to fishing. Even during the winter when the weather is on average below freezing, there are plenty of things to do for vacationers. The area around the site has about 50% of deciduous trees. This is great because the site will have a vast amount of colors during the fall season, but also have coverage from the bitter winter winds during the colder months.

All photos courtesy of: Google.com/Images

Photo courtesy of: Scott Hampton

Site Selected Pictured Rock National Lakeshore

The site decided on is Pictured Rock National Lakeshore, in the Upper Peninsula. The overall site consists of a trail that runs from Munising to Grand Marias, stretching 42.5 miles. Along this trail there are many sites that attract people on a yearly basis. During the year on average 400,000 people drive to the site to visit the beautiful landscape. The reason why the site was picked was because of two main factors. The first was the fact that the site is well visited and the second is because of the geological formation of the site. The goal is to study the natural forms that have been created over the past million years and somehow design in a way that looks at the mass amounts of people that visit the site and how they alter the environment in which they are in.

Pictured Rock National Lakeshore has an extensive history of geological information. The period in which is most important to this site would be the Cambrian Period – Beginning of the Paleozoic Era. At the beginning of this era, the mountains that initially formed during the Precambrian remained in a belt that extended from the east side of Ontario, Canada across the central and southern parts of the Upper Peninsula, all the way into Wisconsin. At this time, the streams flowing north would carry sand and gravel down to the lowlands that is now

the present day shoreline of Lake Superior. The coarse sand and gravel deposits that were left behind resulted in leaving fragments of many rocks and minerals that came from the Precambrian rocks. The deposit of the oldest Cambrian formation exposed on the shoreline of Lake Superior is called the Jacobsville Sandstone. The Jacobsville is from the early to middle Cambrian age. The erosion process in this era was irregular on the rock surface, so the thickness of this era varies anywhere from 46 feet to 1100 feet thick. The Jacobsville Sandstone is an attractive reddish-brown, and is used locally as a building stone. The red color is due to the mass

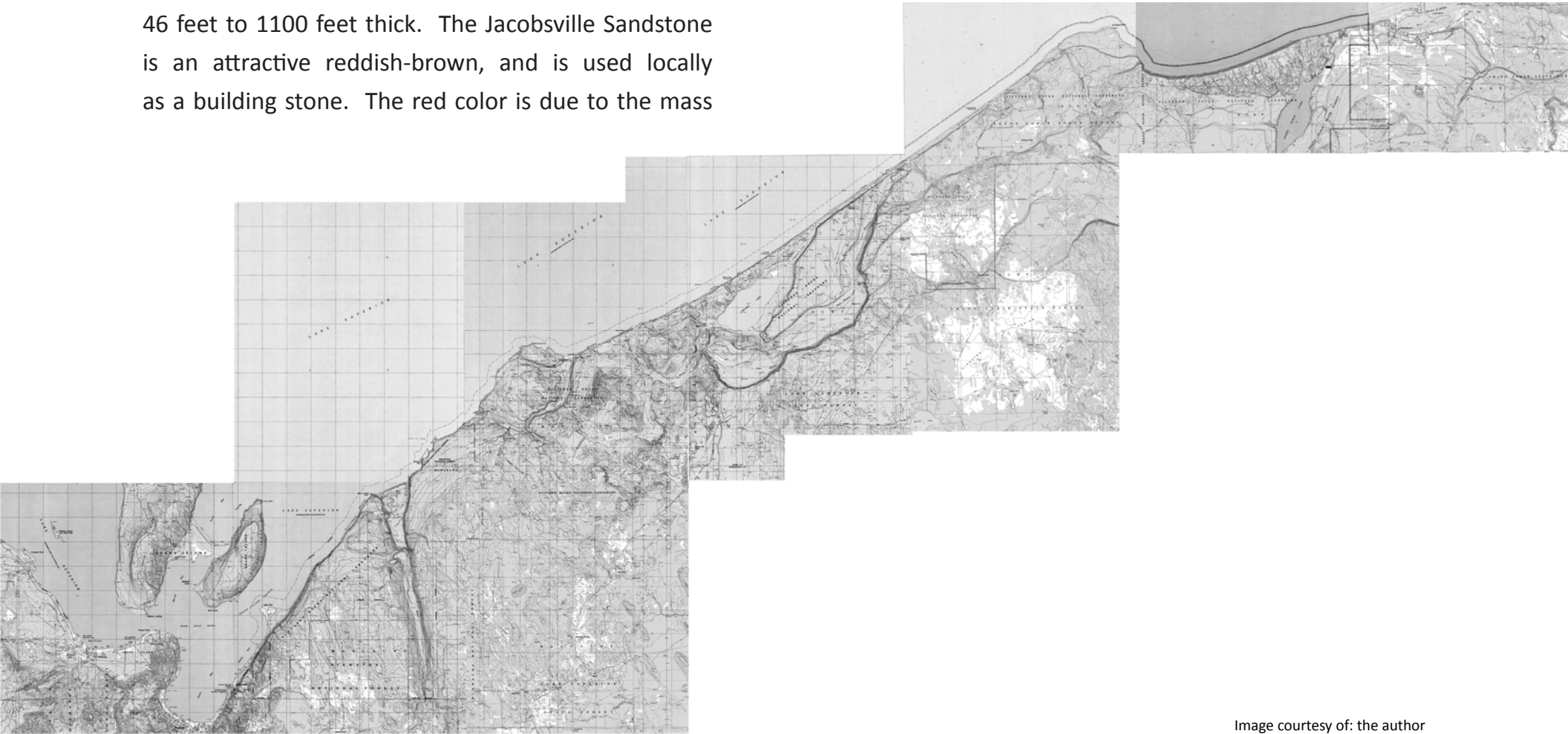


Image courtesy of: the author

Photo courtesy of: Google.com/Images

amounts of ferric iron oxide, most of which was eroded from the Precambrian iron formations exposed in the highland area from which streams flowed from during the Jacobsville era. There are small portions in the rock where there are greenish spots occurring where there were acidic ground water that chemically reduced the iron into a ferrous state. There is no evidence of Early or Middle Cambrian deposits, or Jacobsville, on the subsurface of anywhere else in the State of Michigan.

After the Jacobsville time, and before the Late Cambrian era, the region went through many changes. The next formation had a much different way it was positioned compared to the Jacobsville Formation, which was were beveled by erosion. The younger beds of the Munising Formation were slightly uplifted and tilted. The Munising Formation was also known as the Middle Cambrian, and during this time the seas had started to take over North America from the west and northwest and from the south. Finally in the Late Cambrian, those seas reached Northern Michigan. At this point in time, the streams were still flowing both north and south from the highlands eroding the Jacobsville Sandstone and well as Precambrian rocks, carrying those rocks

and sediments to the edge of the Late Cambrian Sea. Waves, shifting particles of sand back and forth would pound against the shores of the sea, rounding the shores to nearly perfect spheres, the sands that were apart of those waves created such forms as Chapel Rock, of the Munising Formation. The familiar scenic attractions of the Pictured Rock cliffs and the town of Munising came from this geological time period.

During the late Cambrian time, the Munising Sea started to take over most the Upper Peninsula. The sediment that was being carried in the streams was shifting toward the east and northeast. The streams that eroded the Precambrian rocks and were flowing from the highlands at this time located in Canada, carried a different type of sediment of different mineral composition toward the shoreline of northern Michigan. This formed the Miner's Castle Sandstone, which was deposited above the Chapel Rock Sandstone. The Munising Formation, with Chapel Rock and Miner's Castle crop out today as a cliff because of the original continuity of those strata and has been cut by later erosion. The Cambrian sandstone cliff runs from Munising to AuSable point, creating those beautiful Pictured Rocks. Both west of Munising

Photo courtesy of: Rory Dorow

Photo courtesy of: Scott Hampton

and east of AuSable Point, the sandstone swing inland.

In places where the cliffs were formed, they were protected from erosion by more resistant, sandy dolomites and dolomitic sands of the Middle Ordovician Au Train Formation. The sandstone and gravel from this era are largely covered by glacial sand and gravel. Many of the waterfalls in the Pictured Rock Lakeshore along the northern edge of the Upper Peninsula were formed in much of the same way, where streams plunged over the sandstone cliffs of the Munising and Au Train Formation on their journey to Lake Superior.[1]

All of the geological formations that have been created within the Lakeshore have been developing that way for millions of years. The idea is that the project will create a place where the environment of Pictured Rock will still develop the way it was intended to develop. That the people who visit the site will not have an impact on the site that will alter what is there, or what will be there in the years to come.

1 Geology of Michigan, John A. Dorr Jr. and Donald F. Eschman

Munising Falls

All photos courtesy of: Google.com/Images

Within the Pictured Rock National Lakeshore, Munising Falls is the farthest west site on the trail. The Munising site is the beginning of the trail that links the rest of the trail to each other. It is also the location of one of the most popular sites in the whole park system. Munising Falls have been visited by tourists for many years. So many years that in the late 1990's people started to have an effect on the falls themselves. Shaped in a horseshoe, at one point people could actually walk underneath the falls to get a better look. However, after some time the impact of people altered the process by which the falls evolved and the rocks started to break away and fall. Once a rock almost hit one of the tourist, and after that, the park service's decided to install a fence to keep people from danger. This not only kept the visitors from harm, but helped restore the evolution process that the falls take over time. This site also includes a bus system that can take you from one end of the trail to the other. This way, if someone wishes to hike the trail, they would park their car at this site, have a bus take them to the other end of the trail and then take the four to five day hike back to their car.

Photo courtesy of: Google.com/Images

Miners

Along the trail leading from Munising to Grand Marais the next site visited is at Miner's Beach. This site has a lot of interesting features because it is so closely located to several natural beauties. The first would be the beach itself, which is a nice location for people to relax and swim, the beach also has a nice view of the back side of Miners Castle in which there is a cliff of beautiful rock. The next would be Miners Falls, which

All photos courtesy of: Google.com/Images

is located to the South of Miners Beach. A drive from the site would only take a couple minutes and after parking less than a five minute walk. Miners Falls has much more of an effect on the visitor than Munising Falls just because the walk toward the falls has much more of an experience and once you get to the falls you are basically at the edge of a cliff looking at a much larger scaled waterfall. Lastly just up the hill from the site there is Miners Castle. This beauty was created by the erosion of water over millions of years. There are two locations in which people can view Miners Castle, closer to the top of the hill there is an observation deck in which people can look over onto Lake Superior and only a couple hundred feet away a nice shot of Miners Castle, just like the image to the right. After looking off the observation deck, there is a short walk down a path that takes you closer to the actual Castle. Once there you are merely feet away from Miners Castle, like it shows in the upper left picture on the opposite page.

Photo courtesy of: the author

Grand Portal

All photos courtesy of: Google.com/Images

The next stop on the trail that runs through Pictured Rock National Lakeshore is Grand Portal/Chapel Rock. This site has many features resembling that of Miners Castle. At this location the beauty of the rock is shown best. Grand Portal is the portion of the lakeshore that has the most of the beautiful rock the park is best known for. In this area there is a massive cliff that runs along Lake Superior. This site is also adjacent to another beautiful geological formation, Chapel Rock. Just like the formation of Miners Castle, this site was carved out by the erosion that happened over millions of years. When this was first discovered back in the early 1900's, there was an arch that connected the two rock formations. However in the 1940's the arch that connected the two pieces broke and fell.

Photo courtesy of: Google.com/Images

12 Mile Beach

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The fourth site on the trail through the Lakeshore is 12 Mile Beach. 12 Mile Beach is exactly that it says it is. Located along Lake Superior, the pictured rock cliffs give way to this isolated beach stand shortly after Grand Portal. The beach continues until just short of the Grand Sable Dunes. This portion of the lakeshore has become popular for water sports and camping trips. The location in the lakeshore has a lot to offer, with many areas for drive up visitors to park and stay, along with many places to rent water skies or ever boats. This site also consists of many bike and smaller hiking trails for those who wish to enjoy the landscape inland.

Photo courtesy of: Scott Hampton

AuSable Point

All photos courtesy of: Google.com/Images

The next stop on the trail through the lakeshore is AuSable Point. This location has a beautiful lighthouse that helped sailors through the eighty mile stretch from east of the Grand Island lighthouse to the light on Whitefish Point. The shore before was unmarked by any navigational light, and the dangerous shores destroyed many ships. The AuSable Point Lighthouse was put into place in 1874 to help fill the gap. The gorgeous lighthouse is an eighty-seven foot brick tower that was built up on a small hill, putting the light about 150 feet above Lake Superior. Since the nearest town was Grand Marais, more than 12 miles away with no roads, the keepers of the lighthouse had to either hike in or come in by boat. So along with the lighthouse, there was a two-story brick keeper's residence put just adjacent to the lighthouse. Other than the lighthouse, there are a couple of buildings in the surrounding areas. The site is much like 12 Mile Beach, where it has many inland trails and access for water activities.

Photo courtesy of: Scott Hampton

Photo courtesy of: Google.com/Images

Grand Sable

Photo courtesy of: Scott Hampton

The last site on the trail, reaching almost to Grand Marais, about 2 miles short, is the Grand Sable Dunes. Stretching five miles east of AuSable Point, the Grand Sable Dunes are perched atop the 300 foot high Grand Sable Banks. These Dunes are considered to be the best example of perched Dunes in the world; because of this parts of the Dunes are off limits to tourists. A large portion of the dunes are preserved in the Grand Sable Dunes Research Natural Area. This gives scientists a set of area to keep track how the dunes develop over the years. At this end of the trail, the number of tourist's drops compared to the first couple of sites. However, after talking with student Scott Hampton he relived that this was his favorite site out of the whole park. "There are not a lot of people, it seems to quite, and the Dunes are absolutely beautiful."[1] This site also consists of another bus system, just like at Munising, this way if someone wishes to end their trip on this side of the trail, they could park their car here and then take the bus to Munising and walk back toward the Dunes.

1 Scott Hampton, architecture student

Photo courtesy of: Scott Hampton

Project Identification

The world in which we live in stresses the notion that nature is something that is sacred and should be left untouched by the cultural world. Because of this, people have separated themselves from nature to create spaces that are intact. People believe themselves to be completely separated from nature and see as though the relationship cannot be further explored. The program introduced is there to enhance to feeling of nature within someone. To create a space that not only includes awareness but also activates celebrating their surrounding natural environments.

Major Components:

Gathering/Socialization Space: This space will have the intention of bringing people together within a setting to interact with each other and to be able to enjoy the architecture and surrounding spaces with family and friends. This area will include lounging for someone who wishes to experience tranquility, and places for many to gather together to interrelate stories and emotions.

Eating/Drinking Space: This area would be best used to support any local foods. Since the site is located in an area surrounded by forest, the menu could have a cultural impact on those adjacent communities.

Exterior/Experience/Discovering Space: While this portion would be on the exterior, this would no doubt have a huge impact on the way someone would experience the surrounding natural elements. This component would have an educational theme tied in so that while they familiarize themselves with nature, the person could also learn more about what they are intertwining themselves in. Hiking trail and benches would also be put into place so that the person experiencing the place could discover and their own understanding of an area.

Education/Learning Space: This would be similar to the component above but would have many more activates to celebrate the natural environment. Promotions of the connection between the built environment and the natural one would be on exhibition, helping to educate someone.

Sleeping/Lounging Space: This would be intended to extend the visitors stay so they can get a better understanding of the space they are encountering.

Activities Space: Each of the sites would have a certain unique quality. This component would intend to have activates that celebrate the qualities that each site represents to help aid the person in having a better experience of the natural environment.

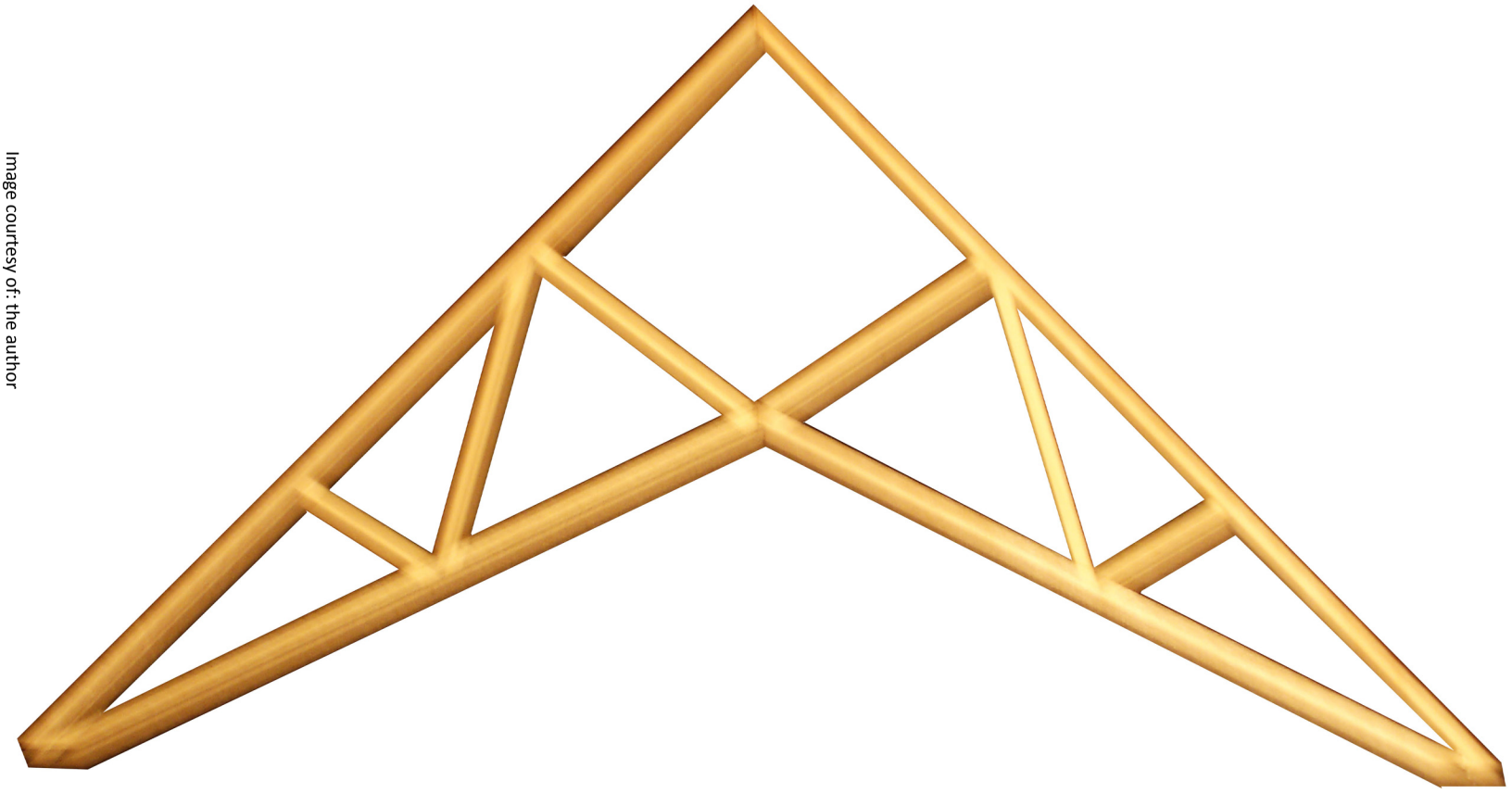


Image courtesy of: the author

Program Statement

The program which was implicated in the design is closely related to each of the buildings throughout the site, the program included two difference distinct components and while each had their own application to the design process, one without the other would not have the same effect on how the project was to unfold. The room sizes that are stated below are specifically from the Grand Portal building, but can be applied in relative to any of the other sites.

Entrance – 500 sq ft

Suite #1 – 600 sq ft (2) = 1,200 sq ft

Suite #2 – 800 sq ft (2) = 1,600 sq ft

Suite #3 – 1000 sq ft (2) = 2,000 sq ft

Office #1 – 150 sq ft

Office #2 – 225 sq ft

Kitchen – 300 sq ft

Restaurant – 1,200 sq ft

Classroom – 500 sq ft

Exhibition Space – 500 sq ft

Storage – 200 sq ft

Circulation – 1,500 sq ft

Total – 10,000 sq ft

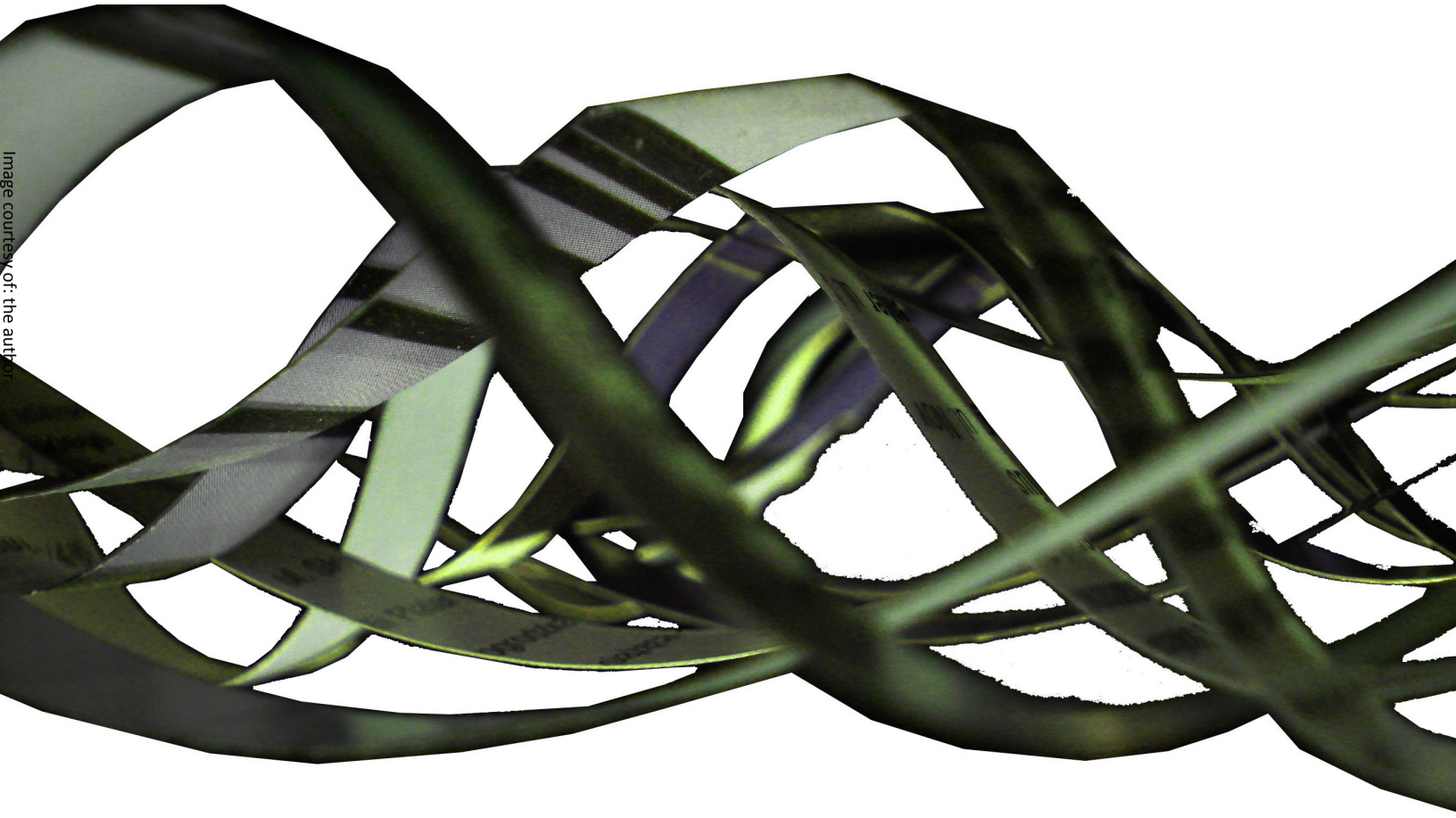


Image courtesy of: the author

Design Process

Throughout the process in which the thesis was developed, there were many steps that were taken to come to the final design concept. The first step in trying to establish a solid thesis was to look more closely at some of the case studies that were presented earlier. And that after looking at some of the case studies and what they had to offer, then it was fair enough to say that the development of the thesis could be taken to a physical level. Through these studies the basis on which the built design was founded upon was through a couple of different ideas. Through model making and research there was enough information to develop a creative and sensitive idea to implement into the design of the physical building. And that through the ideas created, the best solution would be discovered. The studies in which are presented not only have the positive aspect of design within, but also the negative, this way all sides of the research were looked at, thought about, and then decided for or against.

Image courtesy of: the author

Land, Water, Shore

The first of many of the steps that were taken was to take a closer look at the involvement between the distinct land types and the water, and how they worked with each other. The idea of erosion of one that cannot be overlooked. Since the site chosen had so many access points to the water, there was going to be that middle ground in which the rock, sand, or dirt came into contact with the water. The studies done helped the understanding of the relationships and how, if a building was put into place, the natural environment would react in such a case.

Image courtesy of: the author

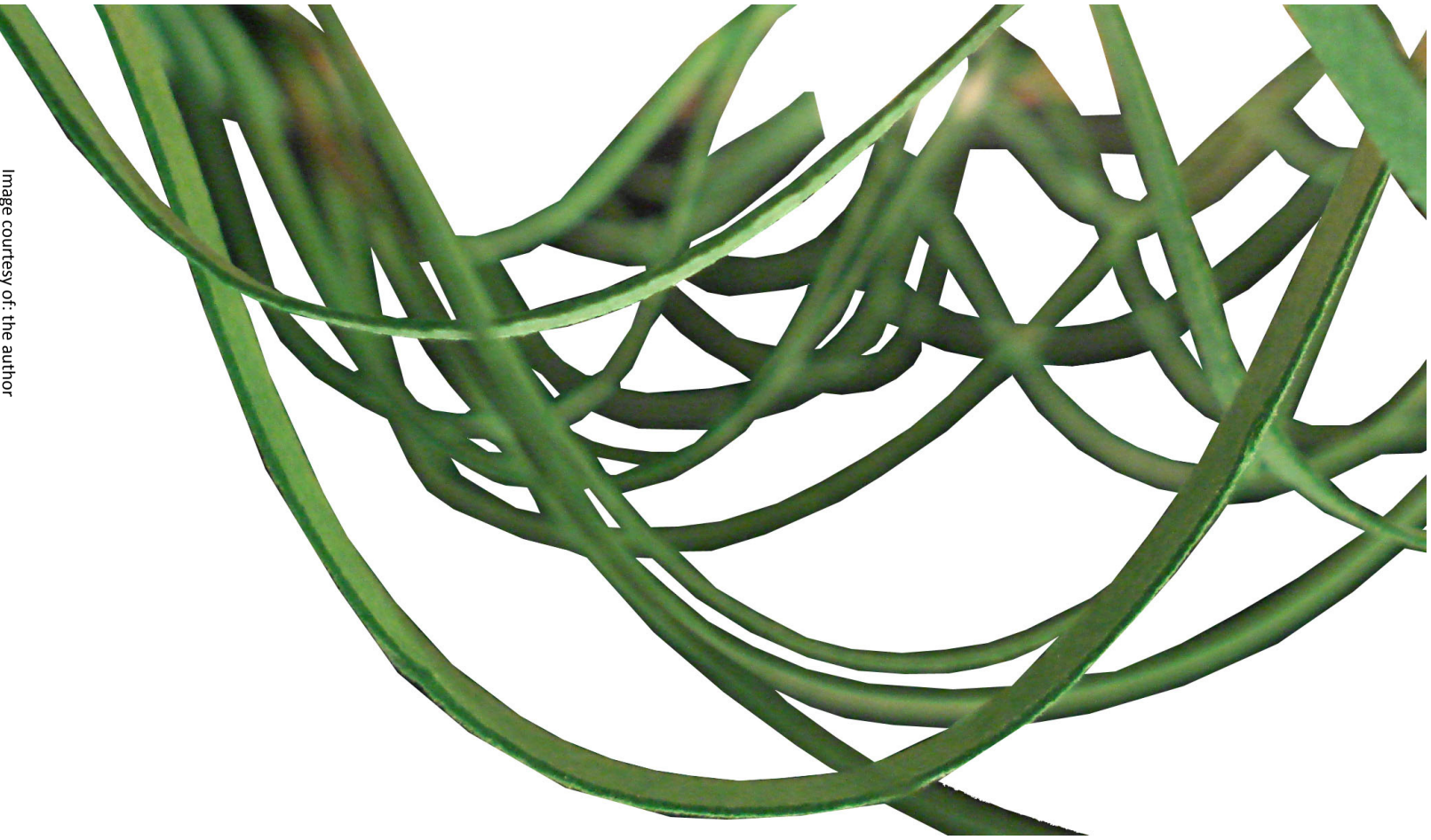
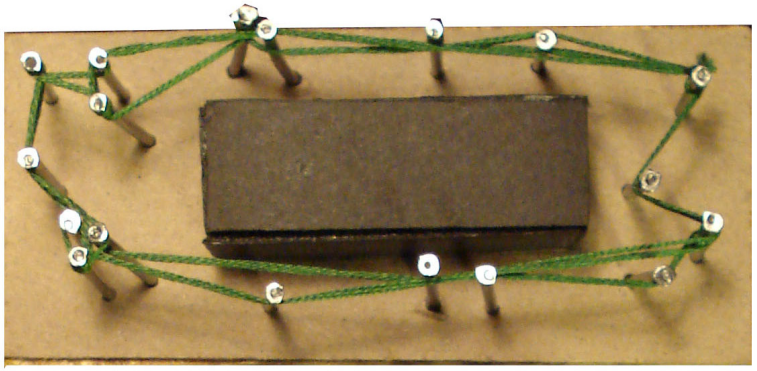
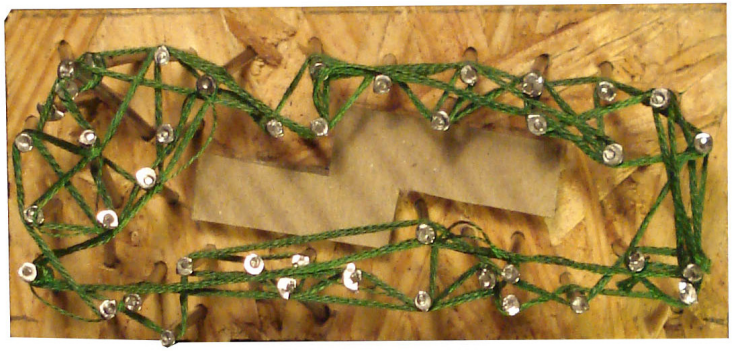


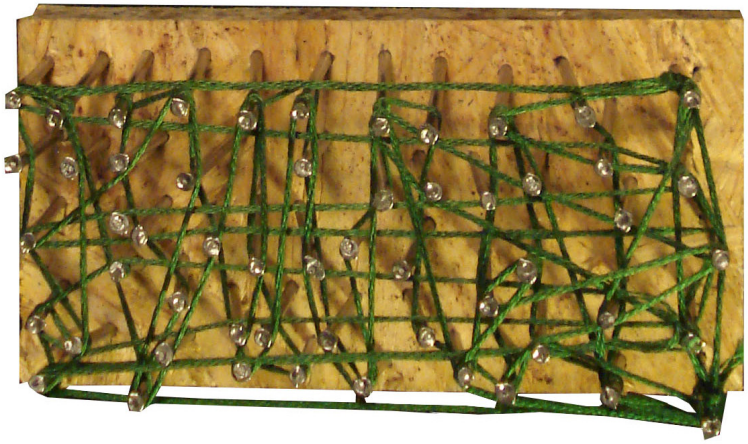
Image courtesy of: the author

Environmental Contact

The second and the more developed idea behind how the final physical design was executed were based around the idea of how the building was to come into contact with the ground. Through the previous design methods of James Timberlake and his work on the loblolly house, of one of Malcolm Well's many works there were endless possibilities on how to have the building meet the ground. Many study models were created to show how a building can place itself within a natural environment.







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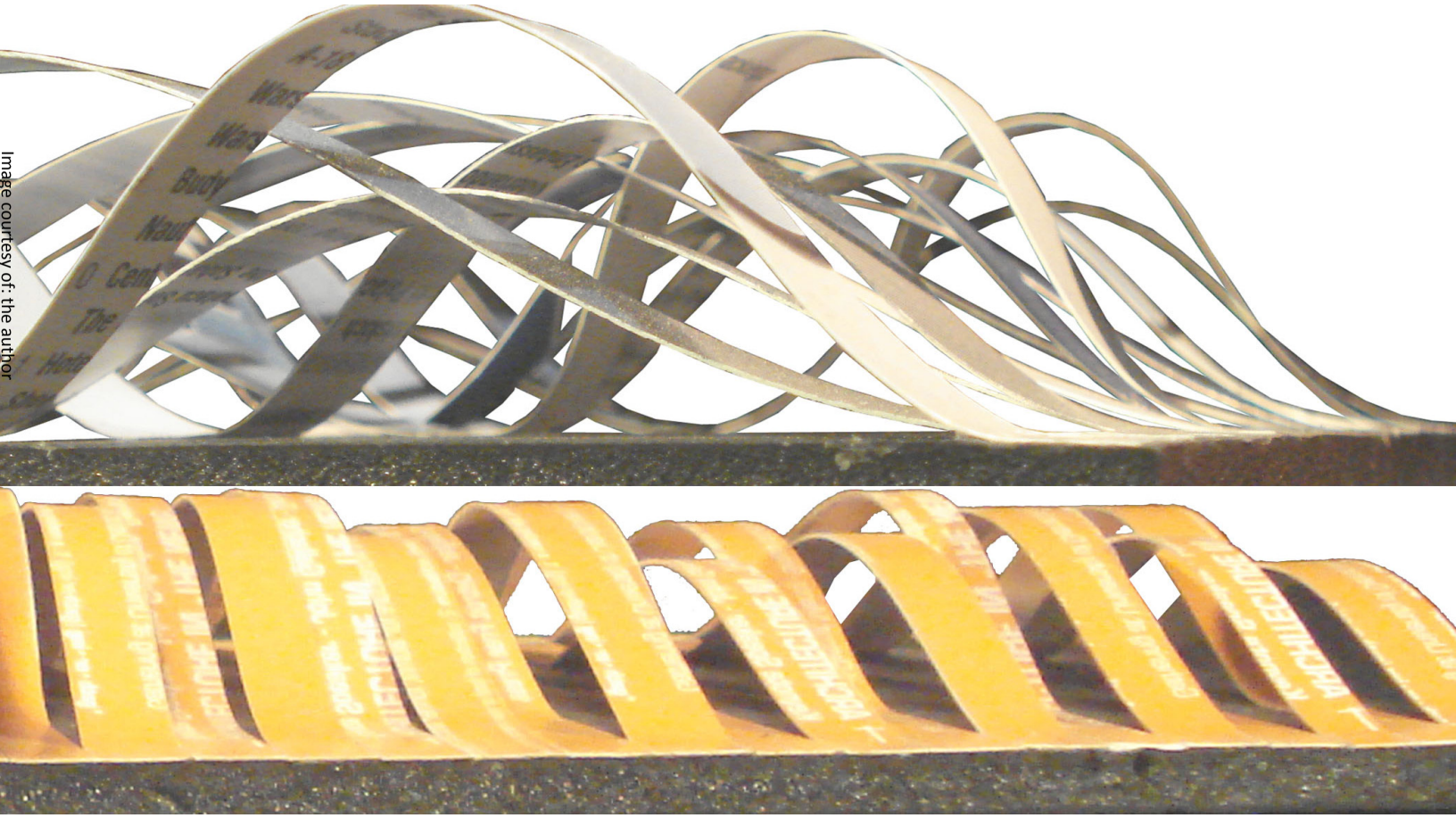


Image courtesy of: the author

Underground Design

The first possibility would be to have the building underground, through Well's philosophy it was not just the idea of building underground, but the construction process in which the building went through to seem as though it did not disrupt the land as much as the "normal" building. Through the massing models that were made throughout the design process, the concept of building underground did not always fit the site in which was chosen. Even though the site had enough topography for such a case, the way in which the building would have to be designed underground was not suitable for the situation. While this concept would not be applicable for the situation in which my thesis revolves itself around, the idea that Well's had about impacting the environment was something that was very valuable.

Image courtesy of: the author

Image courtesy of: the author

Above Ground Design

The second opportunity for developing more of a physical theory would be to build above the ground. This type of design had many promising aspects that relate to the thesis of this project. Many of the promising aspects revolve around the idea of a light footprint the building would provide of the surrounding environment. The design of the Loblolly house, by James Timberlake is a prime example of a building designed above ground up on pillars. This design along with many others bases its design around being environmentally friendly. Other than having the environment in mind, the building would offer much more of a feeling as being a part of the surrounding site instead of being placed in an environment after the fact. This design concept, unlike the other, had many more key points that could play a part of the design of the building itself. Again, just like the other theory of physical design, this was just a method in which to narrow down the possibilities in which the design of the building could turn into.

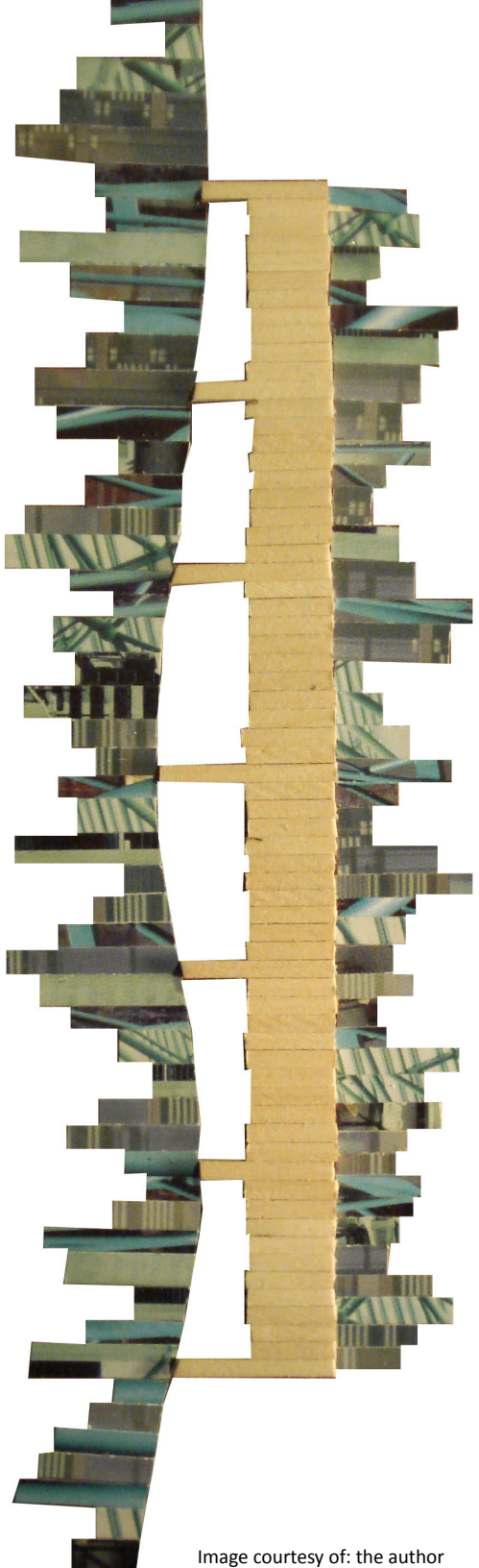


Image courtesy of: the author

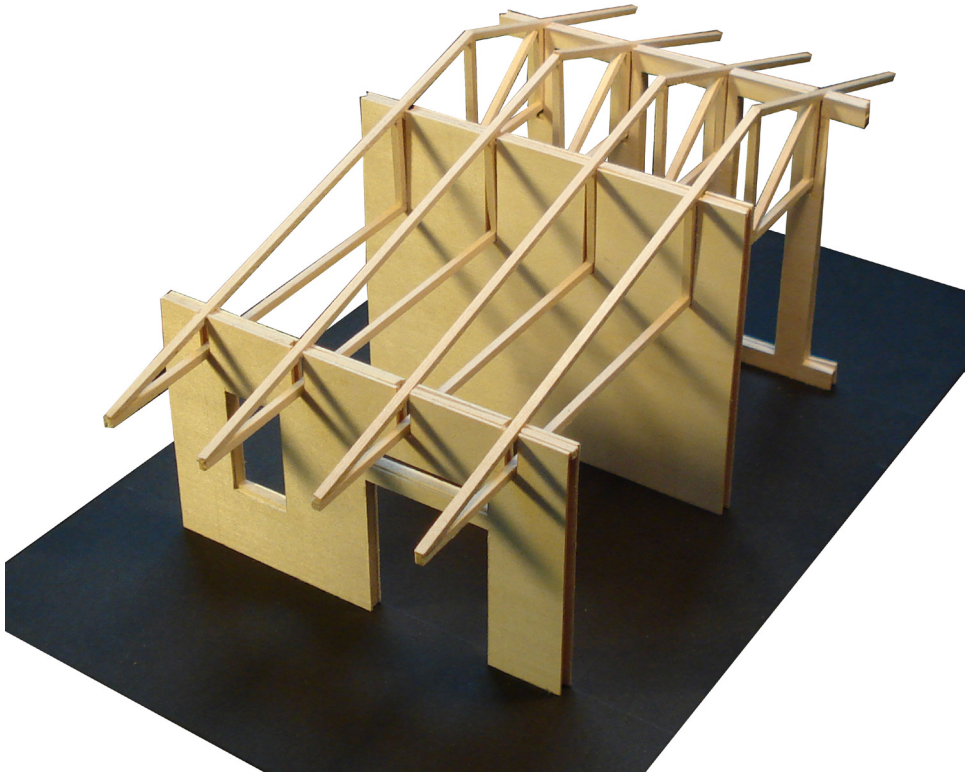
Intial Building Design

12 Mile Beach

All images courtesy of: the author

After taking a theoretical study of the possible building forms the next step was to take a more physical approach. Therefore the next studies were done with actual building structures, floor plans, site plans etc. This was a start to see how forms would work together to create a space with a suitable aim for the direction of the thesis. The first method that was used was to create six different buildings with some detail and use the same type of structure to link them all together. After putting some level of detail into the six buildings, the 12 Mile Beach building was put through more extensive research. The idea behind the building design was to create as many access points from the interior of the building out to the beach in which the building was facing. That way, from many points within the building there was not a far distance in which someone would have to walk before being on the beach itself. Including this aspect of the design, the roof height was to increase as it went toward the beach to maximize the views from the interior of the building to Lake Superior. To take into account of the rise and fall of the tide, the building would be lifted up onto pillars on the north side of the building, the lake side, and almost match the level of the ground on the south side of the building.

While this study helped with the understanding of how to work with a given site, the idea of the thesis and the overall site that was chosen could have been studied with another site within Pictured Rock National Lakeshore. So, while this study did help narrow down the possibilities that the thesis had to offer, the direction in which the thesis was aiming for was in a different one, so the plan to find the better solution was changed.



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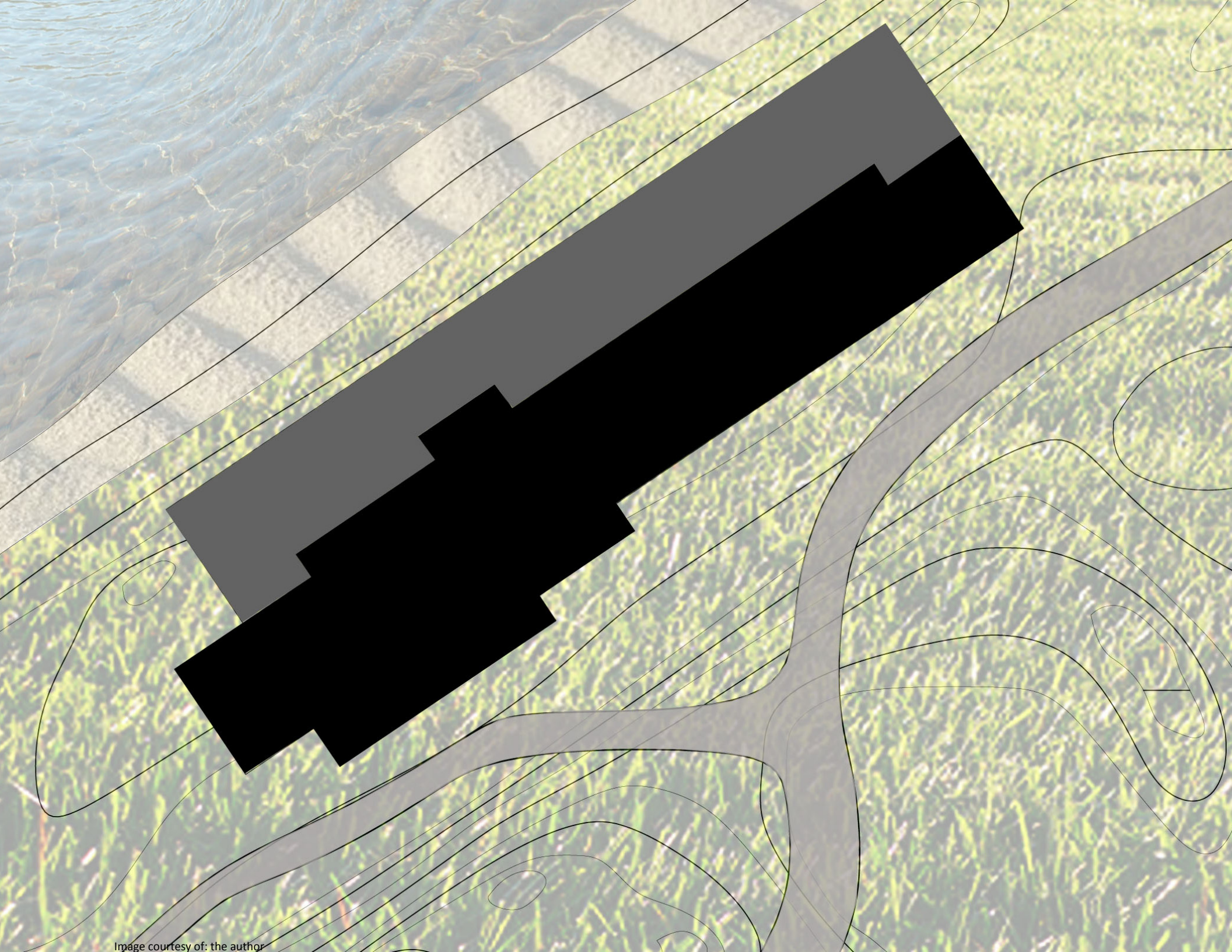

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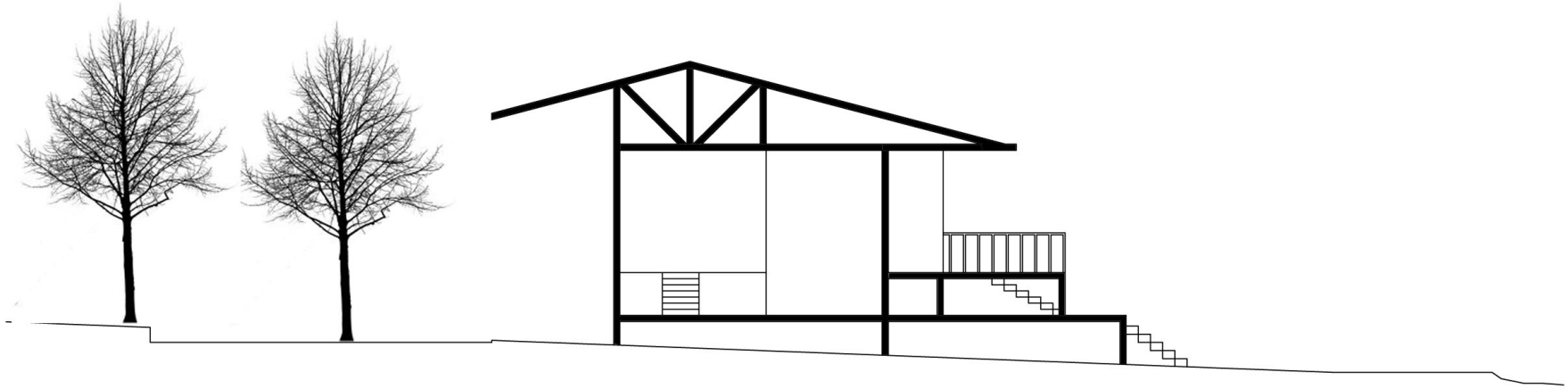
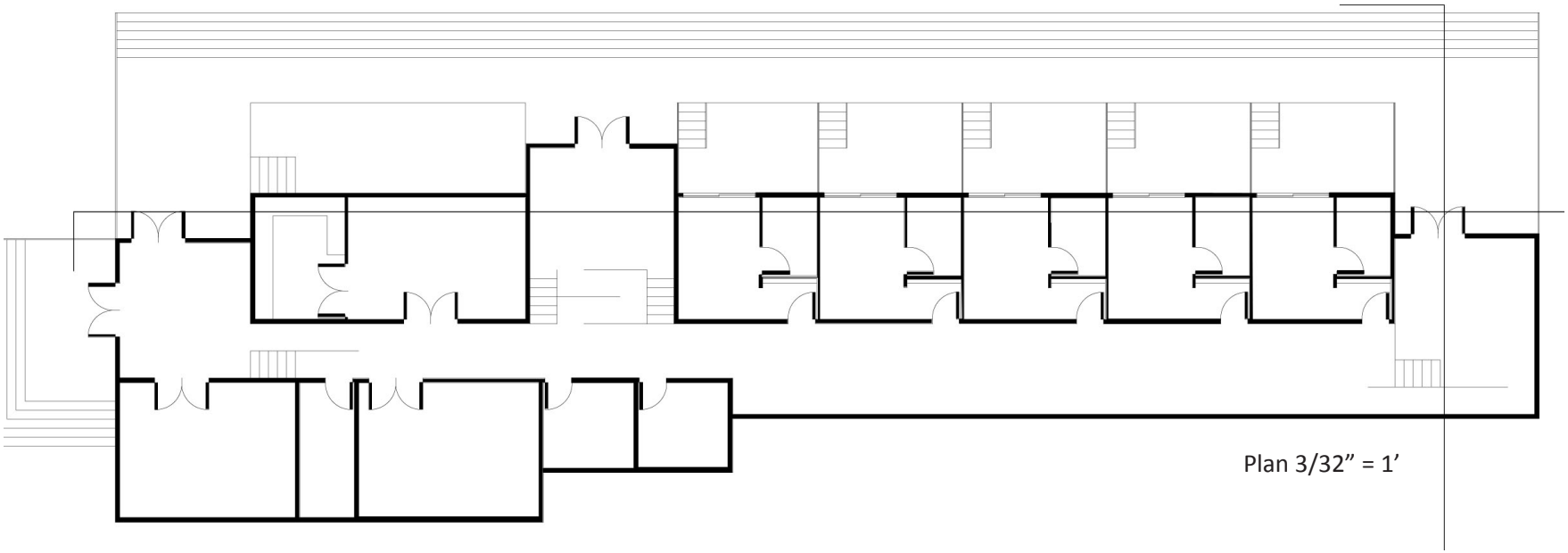


Section 1/8” = 1’



Plan 3/32” = 1’

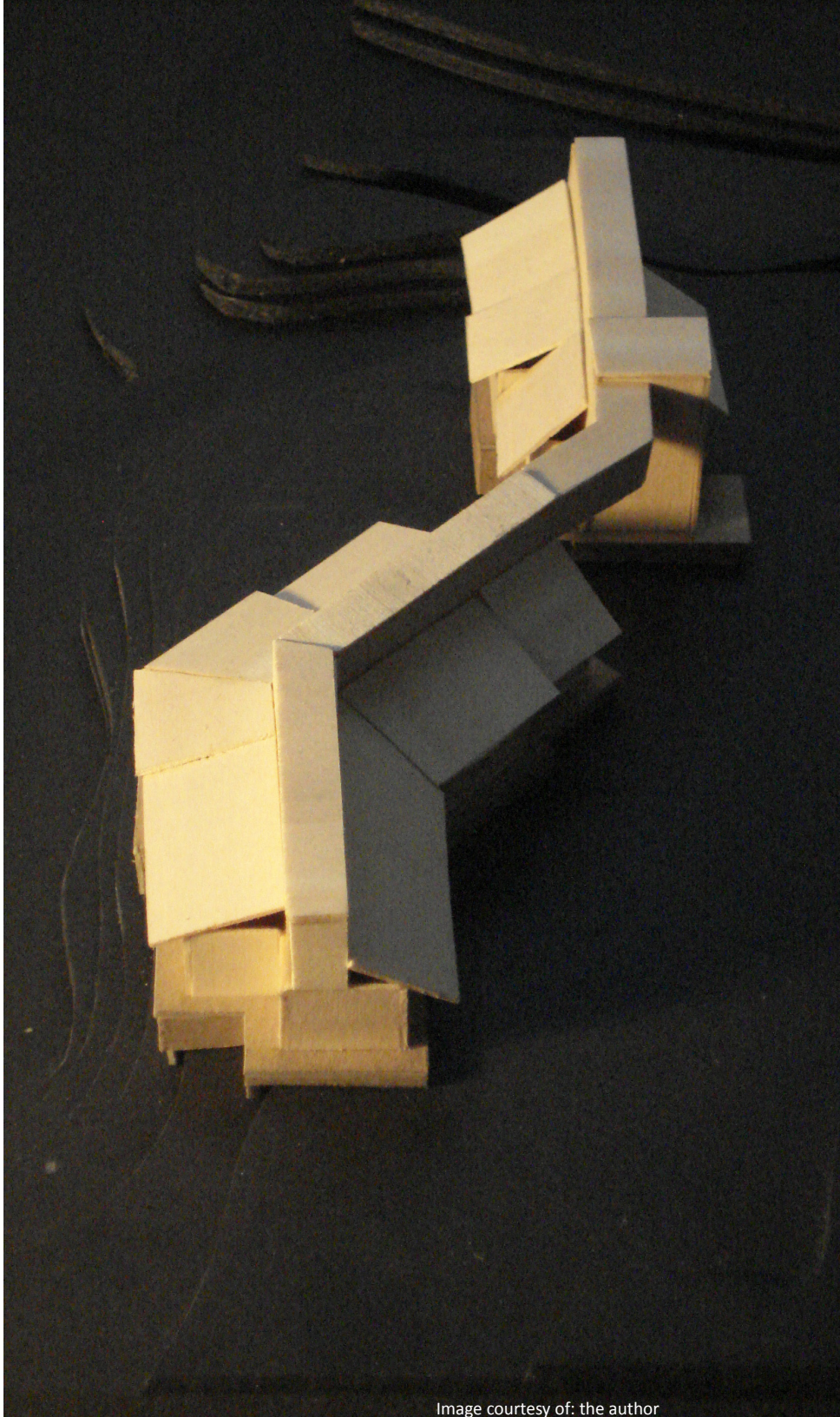
All images courtesy of: the author

Secondary Design

Grand Portal

All images courtesy of: the author

After looking at the 12 Mile Beach building and deciding that the building was not going along with the theme of the thesis, a new site was chosen to look more closely at and come up with a new design in which would incorporate more theory. The site chosen was at Grand Portal. This site took into account many more aspects then just the building and its relationship to the adjacent site, which will be discussed when looking over the final design of the building. Many of the design aspects of the building are included in the final design, which again will be discussed later, but the thing that was first brought into context was the relationship between the building and the site around Grand Portal as a whole instead of just the adjacent surroundings. A few site maps were created during this time that was also carried through to the final design that is displayed. A few design aspects of this building were changed for the final including placement of the building. The study did show promising characteristics so the next step was to develop it further and proceed to the final design.



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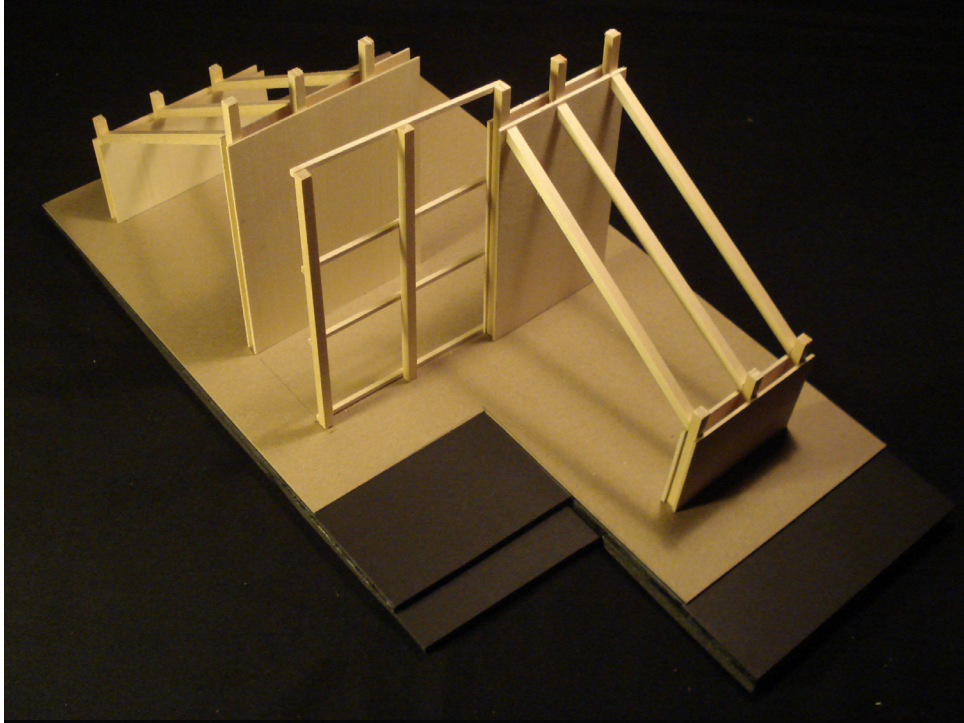
Final Project

The final design bases itself around the idea that the design of the building and the intension in which it hopes to have involves not only the adjacent site but the whole site surround the Grand Portal area. The area around Grand Portal has many things to offer those who come to visit the site, including some of the most beautiful rock that Pictured Rock National Lakeshore has to offer. It also includes an experience that none of the other sites have to offer. The closest drive up access to the site is 2 miles south of where my building is, this way even if a person was to drive up to the site, they would experience much more than just the building itself. The idea is based around the person getting more out of the approach then just being at the final destination. When finally getting close to the building, from the south, the person would have a clearing in the trees and see a glass box in which would be the entrance into the main part of the building. They would also see the building frame a perfect view towards Lake Superior in the distance. Another approach that someone would experience would be from the West. From this direction, there are points along the trail that you could view the building off in the distance as it hangs off the edge of the cliff. The site also offers a lot of trails that

can connect people coming to the site with a lot more than just the building, there are trails leading to all the attractive spots throughout the site, and some that are for hiking just to hike. In designing the building, there was emphasis on the most prominent characteristic of the site, which is the rock of the cliff itself. In response to this, the building was placed on the cliffs edge. The person at the site could experience the cliff in two ways, one being from the building itself, by walking up to the edge and being able to look down the cliffs edge, or from the water. From the water the person could look at the base of the structure which is a stone similar to that of the rock of the cliff merging together.

The building itself would have two different programs to offer someone who is either driving up to the site or walking along the main trail. There is the private section of the building which is on the west side, this is for those who come to visit the site that wish to stay for a longer period of time. The second building would be for everyone who comes to the site. The second building, the public building, would have many uses for those who visit the site, offices for those who work there and a restaurant and kitchen so those services would be



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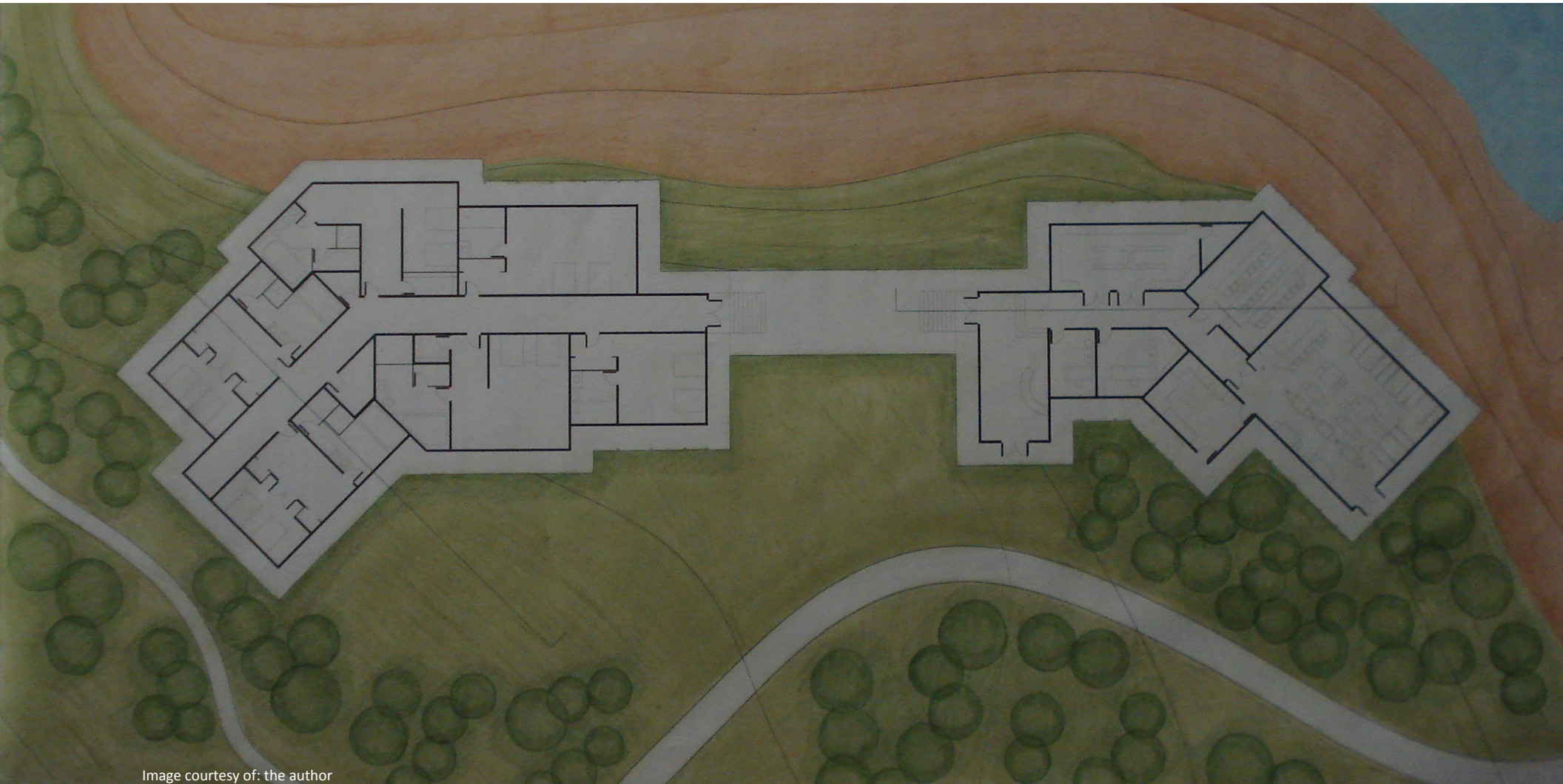
provided to those who visit. There would also two more uses in which would relate the program of the building with the surrounding environment Grand Portal has to offer. The first would be a classroom, this would be a space in which people from the community could show videos or people could have discussions with an expert to discuss Grand Portal. The second would be the small



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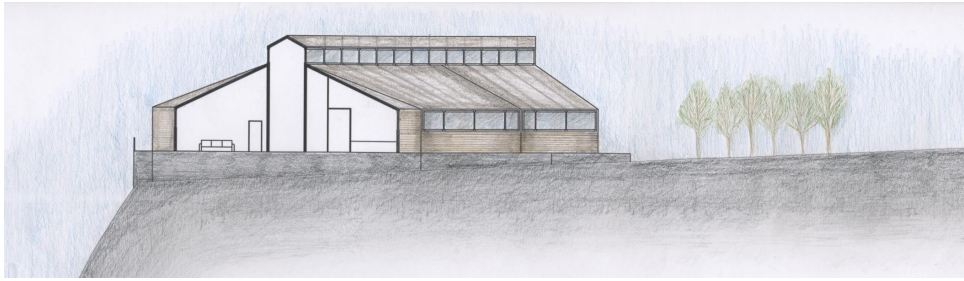
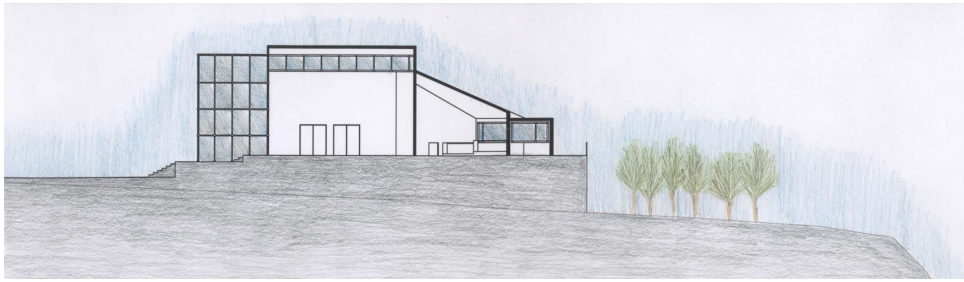
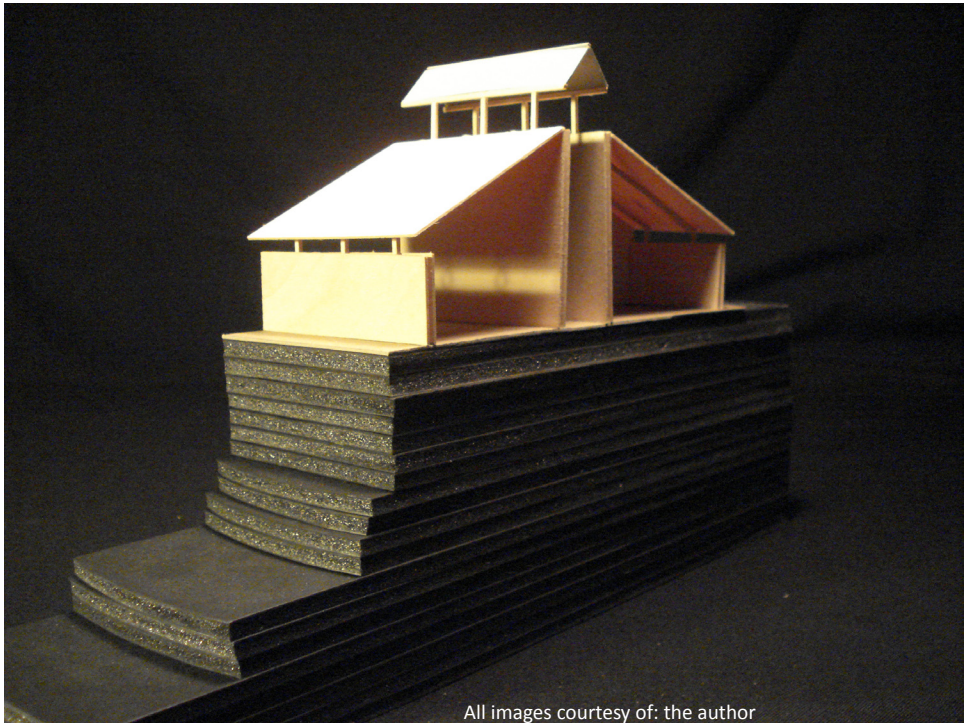
exhibition space where there would be artifacts from the surrounding site along with a site map that informs the person there how to get there from the building. The building itself also has a circulation space that runs through the middle this space has a ceiling height that is taller than the rest of the building, this not only connects the two buildings together not physically but through a feeling of connection. The angle in which the building creates not only frames the cliffs edge but also creates a gathering space on the south side of the building.

The building design includes a simple post and beam construction that is carried through the rest of the five buildings throughout the Pictured Rock site. All of the building that is throughout the site has their own design characteristics that make them different to the others, but the basic construction is similar throughout them all. For example, the Munising site would include more public space to accommodate those who live in the city along with those who are coming to visit the site for the first time. Miners just like the site at Grand Portal, sits on a rock beach and would in a way have a similar base to that. 12 Mile Beach would be placed right on the beach itself and have as many access points from the interior of the building to the beach itself. AuSable Point, since having the only lighthouse







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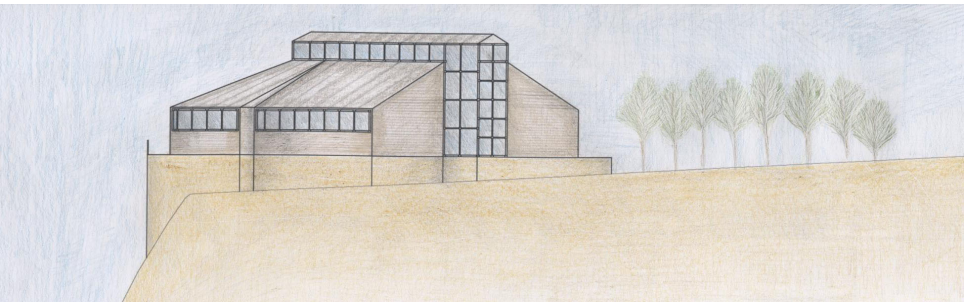
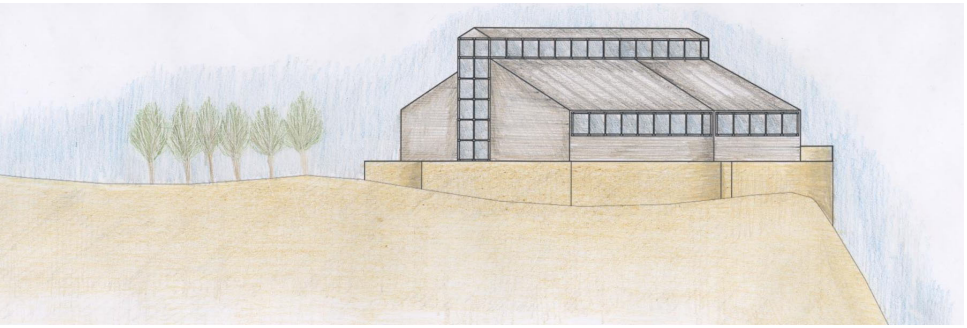
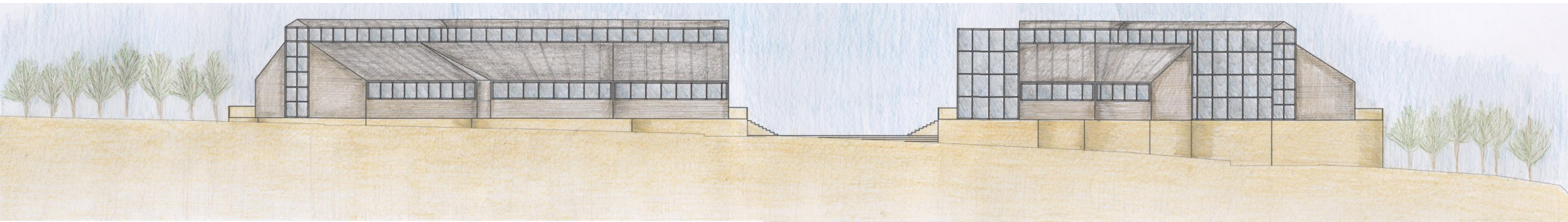
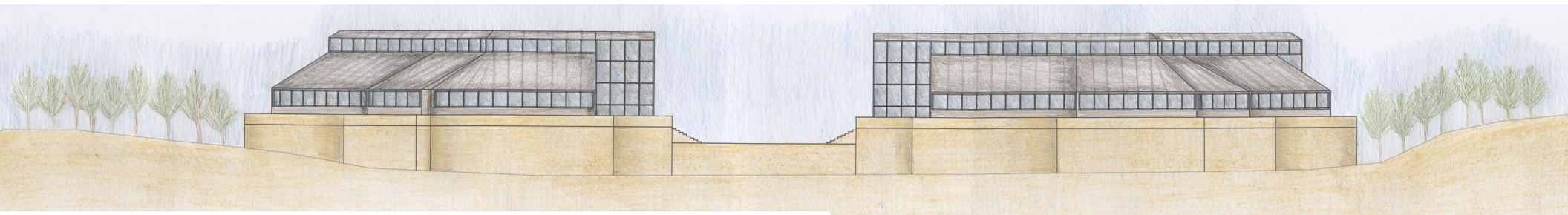




in the site would be connected to celebrate that fact. And lastly, Grand Sable, looking at the base of the building in respond to the adjacent dunes would be lifted onto pillars to respond to the changing dunes.

All of these building have the similarities of building structure with design aspects that change depending on the site characteristics. The idea behind the buildings designed would not take away from what is already there but instead enhance the experience in which those who visit the site would have.





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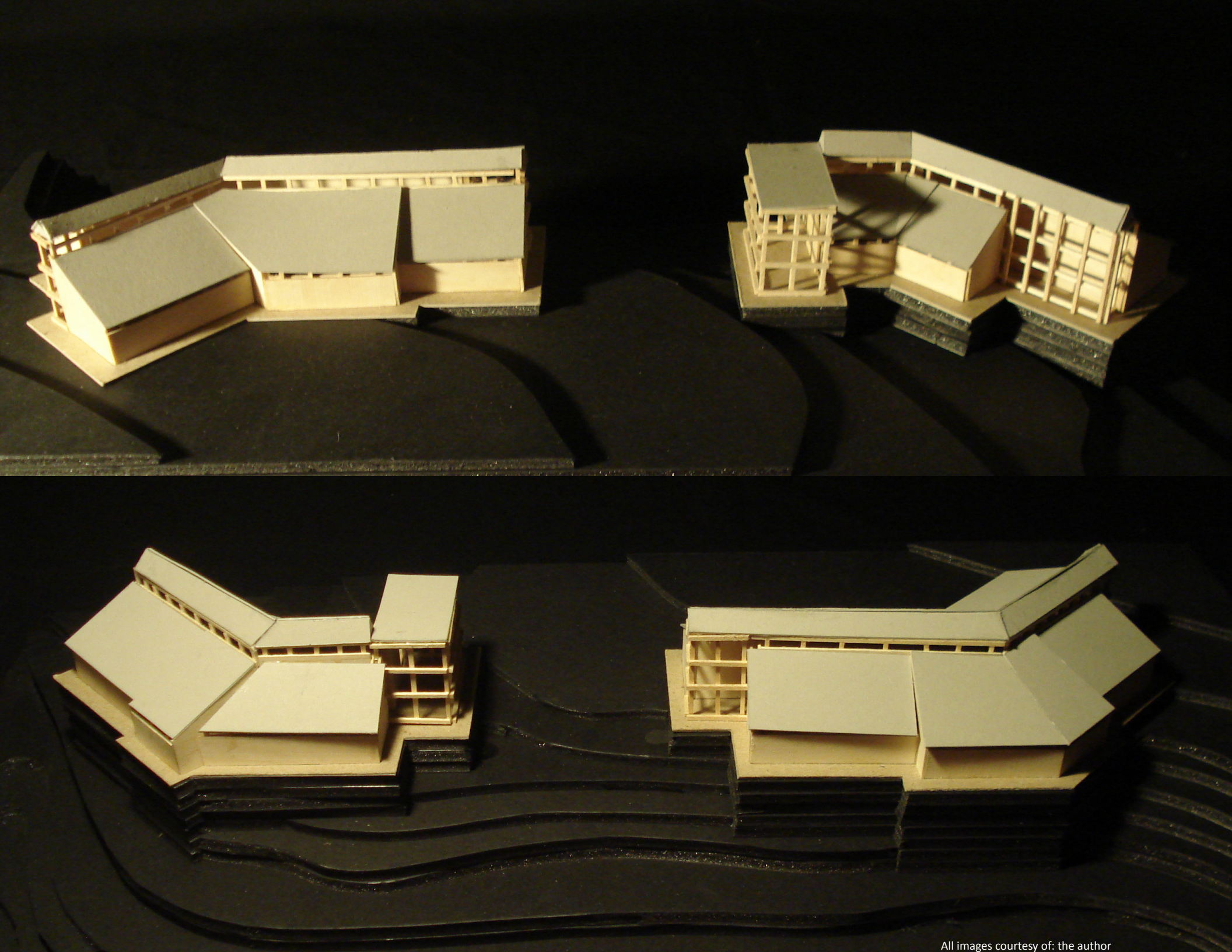

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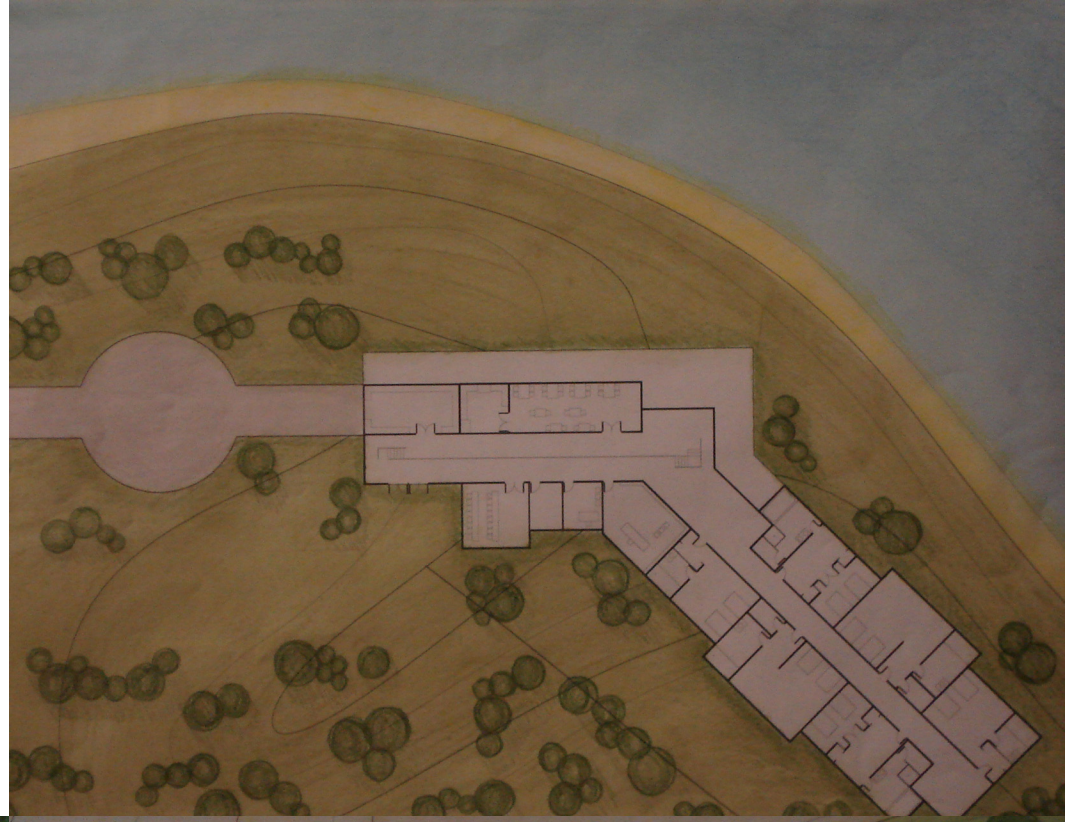
Final Design of All Sites

Through the design of the six buildings, there is a way that the site can see connected other than the trail itself. The theoretical idea of these buildings would be to enhance the experience the person would feel while at the specific site, along with the Pictured Rock as a whole. This is why the buildings were designed to have a similar aspect in each of them. In a way, the buildings would connect the trail together and be a way for someone who is either walking along the trail or driving up have an experience that they will always remember.



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Conclusion

The main theme of the thesis was to involve the people who come to the site with the surrounding environment without disrupting what was there before. While the idea behind this theory was something that sounded nice, any use of architecture would change what was there before. After that attempt, the experience of the person and how they react to the environment came next, and this was the part that succeeded more. While this project still has many more problems that have to be worked out, the solution to have the buildings enhance the experience a person would have while at the site was one that was accomplished. The idea behind the approach of the person to the site was probably the best solution to the many problems that was involved with this thesis. Also having a connection between the building and to surrounding site, not just the adjacent environment was a nice decision to the many issues. Where these two issues succeeded and helped the design of the building with the thesis, the actual building design was lacking something to really help the thesis shine through. The fight between whether or not the building was to blend in with the environment or stick out and make a clear statement needed to be clarified through more design work and research. The thesis did not make clear which one was a more important issue. While the idea was that the building was compliment the environment surrounding it by not disrupting it as much as possible and the enhancement of experience the person would get when first getting to the building itself was struggling with each other. Since these two factors, being important, were in conflict, the building design was a failed attempt. Even with the failed attempt, it still is a process in which someone would have to continue redefining through more attempts to change the design. This process was a good beginning to one in which a building could be design to fit into the theme of the thesis.

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