OF
WATER CULTURES

FINDING AN ARCHITECTURAL APPROACH TO REVITALISING, SUPPORTING AND CREATING WATER CULTURES

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Cover Page Background Image: Flowing Water (Source: Author's own)

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ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to The Great, The Most Merciful, Allah SWT. He who has granted me many blessings. He who has set this journey in motion.

Shukran to my parents for their guidance and unwavering support. Although life has not been easy, you have carefully paved a potentially perilous pathway and have been my guide every step of the way.

To my family, my brothers and sisters, The Isolated Office, The Bucket List, the Lunch Club, and my supervisor Alta Steenkamp. Thank you for allowing me to see the beauty in the ordinary and to resist its mediocrity. I have truly been blessed, in my life, to have only encountered good people.

CONTENT

ABSTRACT

Water is essential to human sustenance, a vital resource. Water is leisure, a secondary comfort that supports lifestyle. Water is a destroyer, showing no mercy to anything in its path. Water is an entity that exists despite of; and transcending its physicality. But then why is water not treated and appreciated as such?

Within this inquiry I hope to shed light on the development of architecture that has allowed humanity to connect with water whether it be water collection for sustenance or a casual swim to cool down. I will be researching water cultures to understand our current development of the built environment and how we have designed to accommodate, manage and treat water. I will be documenting materials that allow for building at the sea, noting their weathering and resilience.

The project locates itself at the Strandfontein Pavilion a public area aimed at creating a safe space for beach goers in my hometown, Strandfontein Village, Mitchell's Plain an area on the periphery of Cape Town, wanting to enjoy the ocean. My experience of living in Strandfontein has revealed a disconnect from that ocean. Residents are removed from the resources of the city centre and are dislocated from the natural resources of the environment.

This project will encourage a reconnection to the ocean through creating space for the community to experience ways of cultivating and harvesting the resources of the ocean in an informal environment and sharing knowledge passively by existing in spaces with active human presence. This connection will empower the community and grant partial autonomy from the city for residents by bringing some of those resources close to home. The project will use water as a variable that impacts the architectural design to accommodate and manage water and the way that it is experienced by visitors.

Figure 1: First Recitation of Quran. (Source: Author's own)

Figure 2: Wudhu (Source: Author's own)

PREFACE

"And We made from water everything living." – (The Holy Quran: 21: 30)

The quote above from The Holy Quran highlights the significance of water in the creation of all living beings. This acknowledgement of the fundamental nature of water as a source of life is telling of its importance and how crucial it is for the survival of humanity. My acknowledgement and alignment with this belief of water is where my inquiry finds its footing.

My interest in water is deeply rooted in and bolstered by my religious beliefs. I am a practicing Muslim and water is essential to my daily rituals. One such ritual, known as Wudhu, is a form of ablution done before prayer to purify oneself in preparation. This ablution is done with water and the purification is that of a physical nature but fundamentally spiritual.

I am Indonesian by ethnicity, otherwise referred to as Cape Malay in Cape Town, South Africa. My ancestors were brought to Cape Town from the island of Ternate, Indonesia as political prisoners. Water, the ocean, was used as a tool. I divisive mechanism that assisted in the uprooting of people from their countries of origin to start lives in Cape Town under colonial oppression.

Water exists as my connection to the natural environment of Cape Town, South Africa. My memories of life are filtered with days at the beach spent with family and friends, of hikes up the mountains where the only hikes worth hiking were the ones that ended in a swim in a reservoir at the top of the mountain or a rock pool along the footpath, of early, sunrise walks on weekends to empty beaches where we would walk along the shore eager to find anything strange that the ocean spat out overnight, and rainy days sitting in the car in a parking lot at the beach eating fish and chips while we watched the waves run rampant with the turbulent storms.

This connection to water has certainly enriched my life. Architecture has proven to exist in every memory I have connected to water. When waves would crash against the Promenade in Seapoint, allowing us to witness the power of the sea. The many scattered tidal pools allowing us an up close and personal experience with the open ocean and protection from being swept away by its hidden undercurrents. The absence of architecture is difficult to imagine in these memories and like most things difficult to imagine, it leaves one with a gnawing sense of fear of the unknown. I wonder how different these memories would have been without architecture to guide my connection with water.

Figure 3: Archi Maki Model of Thesis Exploration. (Source: Author's own)

INTRODUCTION

Through my inquiry I hope to uncover the many dimensions of water. Water as essential to human sustenance, a vital resource. Water as leisure, a secondary comfort that supports lifestyle. Water as a destroyer, showing no mercy to anything in its path. Water as an entity that exists despite of and transcending its physicality. Water as a life cycle. A life cycle where water is shown in its many forms and the way we humans have interacted and experienced it.

The water life cycle indicates a continuity of existence that persists through the ages. Water's morphic nature within this cycle, I would describe as a closed loop, means that the tap water we drink today could have been water in a puddle from a century ago. This carries a deeper meaning, a meaning that water carries memories. Memories of past and present, an aggregation of the two into one body. I believe that architecture persists within that body.

Within this inquiry I hope to uncover how architecture exists with the natural phenomena of water. The development of architecture over the years that has allowed humanity to connect with water whether it be water collection for sustenance or a casual swim to cool down. I will be researching water cultures to understand our current development of the built environment for water procurement, treatment, and provision. I will be documenting materials that allow for building at the sea, noting their weathering and resilience.

The aim of these inquiries is to develop an architecture that facilitates water cultures by focussing on humanity, not as a threat, but rather as part of the natural environment. My experience of living in a small village close to the ocean on the periphery of Cape Town called Strandfontein Village has revealed the village to be isolated from the central city and its resources as much as it is separated from the resources of the ocean. This architecture will focus on humanity, community of Strandfontein Village and surrounds, and allow it to exist with water, its many forms, and processes to aid the visibility of water as a precious resource. This, I believe, would deepen our connection to water bodies and create a culture of consciousness of the natural environment, water bodies, and what it can offer beyond our current perception of it.

Figure 4: My Mother on the rocks by the sea. (Source: Author's own)

RESEARCH QUESTIONS

How can architecture utilise memories of the past, social practices and the imagination to change the way we exist in current spatial conditions?

How do we create an architecture that facilitates a connection between humanity and the natural environment, specifically water? Does this architecture currently exist? What are the social implications of such an architecture?

Where does architecture fit into the water shortage crisis? How are we designing buildings to accommodate and manage surface water runoff efficiently to collect water and prevent further exposure to contaminants.

How can architecture facilitate the reconnection of Strandfontein Village to the ocean? Thereby offering the residents access to the vast resources of the ocean and ultimately empowering the community.

What is water culture?

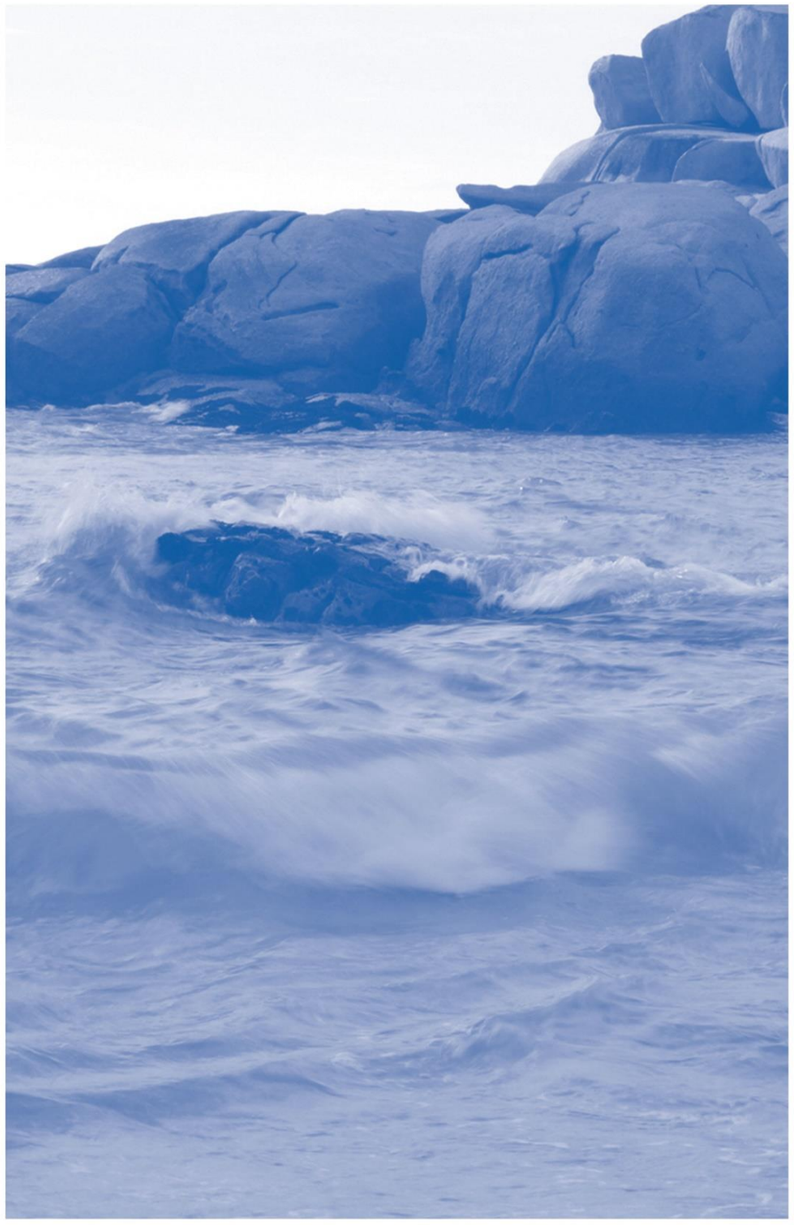


Figure 5: Water in Motion, Stillness of the Earth. (Source: Author's own)

WATER AND TIME

Water in the context of time.

Time can be described in its quantitative form as seconds, minutes, hours. This description, philosopher Henri Bergson, describes as an idealistic conception of what time is. By doing so we reject the time as non – linear and reduce time to points on a plane. An example would be a timeline. Abstracting time in isolation by picking points at which an entity works through a period is essentially removing the full picture and only viewing a part thereof (Bergson, 1896).

Bergson offers a description of time called duration. Duration is the experience of an entity that endures through a period. By thinking of time as duration, Bergson, acknowledges the existence and implications of humanity existing in time. Duration is, according to Bergson, the human experience of time. One does not experience time as a second or a minute but rather one experiences it as a continuous motion (Absurd Being, 2021). The experience of duration is succession, progression, a change in state, where change is constant.

The concept of duration unlocks ideas of what the past and present mean. If time is viewed as a continuous flow of an entity, in this case humanity, experiencing succession, progression, and a change of state, then the past does not exist only as a singular point in time but rather it endures to impact the present.

When water is placed as the subject of time, it becomes embedded with the implications of enduring time. Water has existed since the beginning of time thus water has endured the past. This endurance and encounters with progress, has imbued water with knowledge, knowledge of cultures and ways of living. Water holds, within it, knowledge that we have only scratched the surface of.

Figure 6: You can take the farm to the water but... (Source: Author's own)

MEMORIES OF WATER

Memory is linked to nostalgia, of events lived and experienced before.

Philosopher Henri Bergson offers an insight into the development and origin of memory. He believes that memory has two forms, habitual memory, and representational memory (Absurd Being, 2021).

Habitual memory is a form of memory that is created through repetition. It is developed by performing an action repeatedly, resulting in a habit (Absurd Being, 2021). These actions usually have a start and an end. The memory of the notes or chords while playing a song on piano or guitar. Representational memory is described as independent recollections. These are memories of events that have happened to you. They do not form as singular points along a line of thought but, rather, recollect all at once as a whole (Absurd Being, 2021). A memory of a birthday party past or the time you were chased by your neighbour's dog.

How can memory influence how we live with and experience water? Matter, Bergson offers, is an image. We experience matter as images, matter is not real and that even the sensation of touching matter is just an aggregation of images processed by our minds (Bergson, 1896). Water, viewed as matter, is then an aggregation of images or an object. How we interact with objects is determined by memory. Images accumulated before, in the past, influencing the object in the present. Thus, the memory of an object, water, will determine how we interact with it presently and in the future.

This use of memory is supported by geographer Jennifer Robinson. Memory supports the imagination, which Robinson offers is the way in which subjects, people, remake and change their experience of space that leads to the transformation of these spaces. Like memory, the imagination is based in an individual's past experiences of events. If memory and the imagination dictate how we interact with space presently then it is subject to change in the way that we exist in it (Robinson, 1998).

Memory, as derived from previous understandings, is formed by actions in the past and recalled by intentions of moving forward. Memories impact the way we interact and exist within our surroundings, with objects, and each other (Bergson, 1896). Memory and imagination are powerful tools of transformation. Each are embedded so deeply within our minds that it is sometimes difficult to access them. Memory and imagination do not seem, in my opinion, to exist in the same dimension. Memory and imagination exist as a type of cause and effect, as though imagination could not exist without memory, but memory can exist without imagination. I believe that the imagination is not our ability to visualize but rather our ability to select images that we have encountered before and aggregate them to form something other. Selecting memories that support and create more imaginations.

Jennifer Robinson believes that there are clues to be found in the lives lived everyday by ordinary people. Using their cultural capacities to reimagine the way communities are formed and how we exist in space. She locates our ability to dream as a tool to access the unconscious. The accessed unconscious, while we dream, is uninhibited and has very little resistance, offering a flexible, freer space to create and mould ideas. But dreaming is subjective, how it manifests is determined by the person doing the dreaming and what may be a pleasant dream to one, may be a nightmare for another. Robinson then asks the question, whose dreams will reshape the spaces that we live in (Robinson, 1998)?

Figure 7: The presence of humanity as the bridge to mend the divide between the natural and built environment by breaking spatial limitations with imaginations.
(Source: Author's own)

Philosopher Henri Lefebvre offers an alternative to abstract space. Abstract space that he believes is based in ideas and used by planners, abstract space that implies homogeneity and geometries (Lefebvre, 2016). Abstract space is just that, an ideal conceptualisation of what space is. The alternative that Lefebvre offers is space that is experienced and produced by human beings, social space. He says that "social space is a social product" (Lefebvre, 2016). This statement implies that the very existence of people is crucial in the creation of social space. The belief that every society creates its own space is essential in correcting the homogeneity of abstract space and acknowledging the complexity of the development of space in diverse cultures and communities.

Henri Lefebvre developed a triad of space, the spatial triad, that holds the essence of spatial development around the human being. The spatial triad that I will be focusing on is categorized into representations of space, representational space, and spatial practice. Each of these categories are unique in their descriptions but are tightly related and one category cannot be viewed and interpreted fully in isolation (Lefebvre, 2016).

Representations of space refers to the space captured in the mental sphere, where ideas and abstract thoughts shape space. Representational space refers to the experiences of spaces that hold cultural and symbolic weight in our lives. It is directly lived. Spatial practice refers to the physical and real space that can be described and communicated (Steenkamp).

I believe that, by utilizing the concept of imagination, memory and acknowledging what social space is, we can change the way spaces are created in Cape Town, South Africa. Cape Town has been developed to ensure the centrality of the city. This development has left areas on the periphery reliant on the resources of the city. In my experience, people have described the periphery to have the same issues, the same people, and to have the same solutions. My experience, living in one of these areas, Strandfontein, Mitchell's Plain, dictates otherwise. I have experienced the uniqueness of Strandfontein, the communities here as well as individual community members. The potential to learn from these people who have first-hand experience with community issues and knowledge of how to solve them is limitless. This potential can create space that offers the community partial autonomy from the city centre and create a better quality of life for them. Community members will no longer need to leave the area for resources but can rather enjoy the resources that their homes can offer.

The interrogation of the essence of representational space, I believe, will offer a foundation of how we approach architectural design to accommodate this idea. Representational space, relative to Lefebvre's triad, is entirely reliant on the existence of people. It draws its form from the everyday practices of people. People from diverse cultures, ethnicities, and communities. Architectural design, ultimately, results in a physical manifestation of ideas and conceptions of the architect. By acknowledging and understanding the existence of people and their practices in a place will ensure the architecture created is well suited to facilitating new and supporting existing social practices.

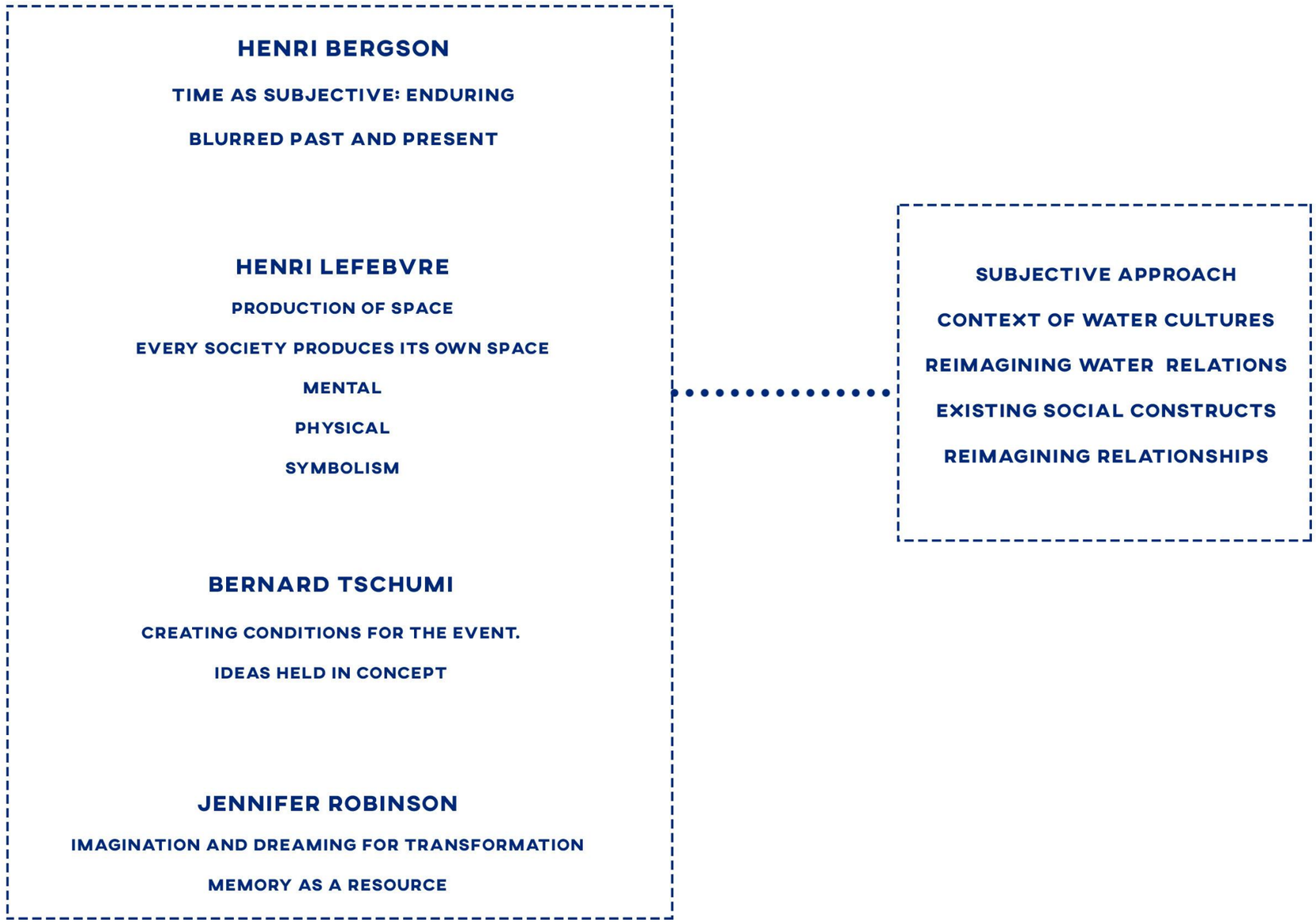


Figure 8: Theoretical Framework and deduced intentions for moving forward. (Source: Author's own)

Figure 9: Memory Collage. (Source: Author's own)

LIVING BY THE SEA

As a young boy, living in Strandfontein, Cape Town, I was privileged enough to live close to the sea. The beach was only a couple of kilometres away from the residential area my family and I lived in. This proximity is the reason why we would use the free time we had on weekend mornings to walk to the beach as part of a ritual to breathe cleaner air and discover new things washed ashore by the ocean. One of the things that we discovered was a form of seaweed that my father had knowledge of. Seaweed that is now used to produce Agar, an ingredient used as a vegan alternative to gelatine. This seaweed my father named *ching chow*, for no particularly special reason but a name that now has a familiar tune of a forgotten practice. We would find the *ching chow* on the early morning walks and we would excitedly rush back home, knowing that on that day my father would cook it down and use it to make a flavourless jelly that he would cut up and add to a Cape Malay cultural drink known as *Falooda* or *Ruh Afza*.

Another type of plant that is found close to the coastal areas but also on most road islands, is the Sour Fig more commonly referred to as *Suurvye*. These *suurvye* we would find on the dunes close to the beach and would pick them to be eaten as a small snack. My preferred way to eat these *suurvye,* is to have them stewed to produce a confectionary treat known as *Suurvye Konfyt*. This treat is sold in a jar at various markets and street corners, and I have eaten and encountered it, often, on our Muslim holiday, Eid, along with other forms of stewed fruit.

On our larger family gatherings, we would go to a beach where we could braai and spend the day swimming. There would come a time, during the braai, where a nominated older male would go diving for shellfish such as muscles, sea urchins and periwinkles. The ones that I remember being harvested, called Periwinkles, were large which meant he would have had to dive deeper to get them because the larger ones were found much deeper than the smaller ones found on the rocks closer to the surface of the water. They would then be boiled, the flesh would be removed from the shell, the inedible part would be pulled away, salt and pepper would be added, and they would be eaten. The taste was something I could never get used to and I only ate them for the social aspect of it. Gathering around the pot and choosing the ones that were most appealing. My aunt then made a recommendation to eat it with sambal, a chilli and tomato-based sauce of Indonesian origin.

The ocean has always provided. Whether it be food, a place of solace or for leisure and recreation, the ocean has been present and consistent, unfaltering. The space as commons or what we hope structured public space to be, that allows for cross cultural experience, sharing of knowledge and the chance to exist with others on equal terms. It has given to my family and I, an immeasurable quality of life filled with culture, tradition, and knowledge.

Figure 10: Chand Bhaori. Women collecting water. (Source: Charlton, G., 2019. Jaipur. [online] The Telegraph. Available at: <https://www.telegraph.co.uk/travel/destinations/asia/india/jaipur/> [Accessed 12 April 2022].)

Figure 11: Young men taking a swim at the Chand Bhaori. (Source: Jtconcierge.mc. 2022. The Chand Baori journey | Member of Virtuoso®, Specialists in the Art of Travel. [online] Available at: <https://www.jtconcierge.mc/content/chand-baori-journey> [Accessed 12 April 2022].)

Figure 12: Men relaxing in the Hammam. (Source: Hays, J., 2018. TURKISH BATHS (HAMMAMS) | Facts and Details. [online] Factsanddetails.com. Available at: <https://factsanddetails.com/world/cat55/sub359/entry-5921.html> [Accessed 9 April 2022].)

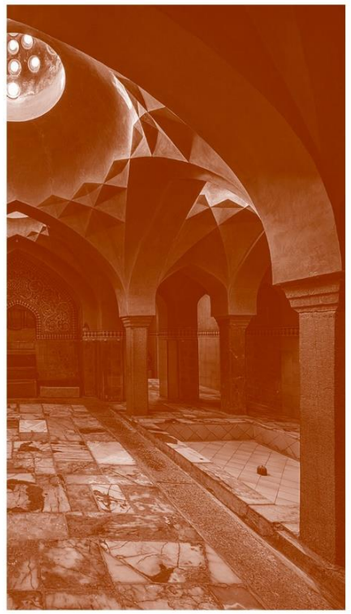


Figure 13: Hammam in Turkey. (Source: Commons.wikimedia.org. n.d. File:Ali Gholi Agha hammam, Isfahan, Iran.jpg - Wikimedia Commons. [online] Available at: <https://commons.wikimedia.org/wiki/File:Ali_Gholi_Agha_hammam,_Isfahan,_Iran.jpg> [Accessed 11 April 2022].)

OF WATER CULTURES

Water culture, most commonly, is associated with biology where plants are grown in a liquid, containing nutrients and no substrate. Water cultures, however, refer to development of customs, social practices, ideas of communities, and people, shaped by the presence of water in its many phases.

Water is one of the largest natural phenomena of the natural world and has existed for millennia, in all its shapes and forms. Its omnipresence has been so constant that it has shaped how we navigate spaces, how we build to accommodate its volatile nature, and the religious and cultural associations we attach to it. People have existed alongside water bodies. We have wandered vast expanses of land in search of a lake for water to drink, we have built boats to float on the surface of the open oceans so that we could claim from its bounty, we have made from earth and water clay pots to catch the rainfall, we have given the spirits of our ancestors to rivers, hoping that they would gain the eternal quality of water, we have trained our bodies to bear the weightlessness of water's embrace.

In India, stepwells were created to capture rainwater and surface water runoff. This effort was made to ensure that villagers had access to fresh water. The stepwells are dug deep into the earth, below the water table. The villagers would have to descend several flights of stairs to collect water from the well. The steps run perpendicular to the visual trajectory of the water, almost suspending one's thought of collecting with each step towards the water. This suspension makes the ritual of descent and collection almost spiritual. The stepwell has many uses in conjunction with and motivated by collection. The stepwells are used by community members for large gatherings and cultural rituals. The stepwells have a more temperate environment for gatherings and many people use it to relax and for a swim (Paleja, Papadopoulos, and Young, 2016).

Bathhouses are a good example of how religion and cultural practice has become reliant on the presence of water. Islam is one religion that has made clear the importance of water. Muslims practice cleanliness as a religious duty, believing that water purifies the physical body as well as the spirit. Hammams in Middle Eastern countries like Turkey, were invented for this reason. Turkey lacked the infrastructure to provide water to individual households and borrowed the idea of public bathhouses from Romans, calling it hammams. Hammams would satiate the need for Turkish communities to fulfil their religious duties and gain consciousness of their spirituality (Farsi, 2014).

A religious group that practices its spiritual connection water in its more natural state, rivers, is The Independent Christian Church and traditional healers in the Vaal area of South Africa. They bestow certain bodies of water with the spirits of their ancestors. Spiritual leaders would hold their services near bodies of water, praying on the water for assign that their ancestor is present within it and to ensure that there are no impurities in the water so they may proceed with their rituals such as baptisms (Tshabalala, Ngcanga, and Mokoena 2015).

Figure 14: Traditional healer performing a baptism. (Source: Liz at Lancaster Guest House Blog. 2018. African Independent Churches Part 2 | Liz at Lancaster Blog. [online] Available at: <https://www.lizatlancaster.co.za/blog/african-independent-churches-pentecostal-charismatic-churches> [Accessed 12 April 2022].)

Figure 15: Artists interpretation of slave labour. (Source: Ashby, N., 2022. Table Mountain's Wash-houses, and doing Laundry at Platteklip Stream. [online] Capetrekking.co.za. Available at: <https://capetrekking.co.za/information-notes/platteklip-wash/> [Accessed 11 April 2022].)

Figure 16: Artist interpretation of the Camissa port. (Source: Ashby, N., 2022. Table Mountain's Wash-houses, and doing Laundry at Platteklip Stream. [online] Capetrekking.co.za. Available at: <https://capetrekking.co.za/information-notes/platteklip-wash/> [Accessed 11 April 2022].)

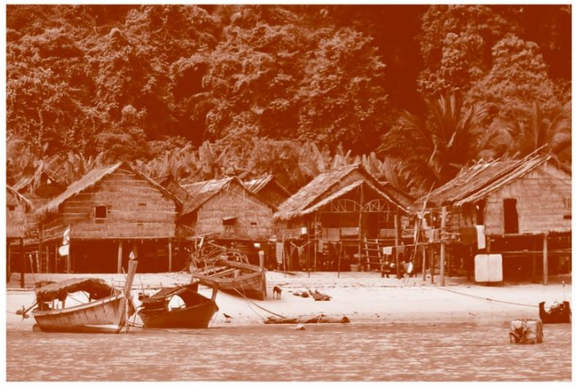


Figure 17: Moken Village. (Source: Rardon, C., 2014. "Boat is home": Getting to know the Moken. [Blog] Candace Rose Rardon, Available at: <https://www.candaceroserardon.com/2014/04/moken-people-thailand/> [Accessed 12 April 2022].)

There are other moments in history indicating how water has shaped South Africa. In precolonial Cape Town, South Africa, indigenous people who left tribal life, known as Goringhaicona, would use a river that connected Table Mountain to the sea, to establish a trading community in the form of a port that would service boats passing by. The river was named by the Khoi, an indigenous group of people, as the Camissa River, meaning The Place of Sweet Water. The Goringhaiconas would later be called Camissa by the Khoi, as indigenous people no longer associated with the tribal life of the Khoi. The river shaped the culture of the Camissa and how they formed connections to others. The Camissa would collect water in barrels from the river to give to smaller boats to take to the main ships of European travellers. The established port would also be a point of welcome for slaves and other people of colour by the Camissa. Slaves would collect water from the river to journey to the top of the river where they would wash clothes. The river was at the centre of the connections of foreign people, the place where the Camissa would embrace different people. The Camissa River could be considered to be the origin of the now culturally and ethnically diverse City of Cape Town (Mellet).

Much like the shaping of the City of Cape Town by water, the Moken Village found its origin on the beaches of the Surin Islands in Thailand surrounded by the Andaman Sea. The Moken people have established their homes right on the edge of the water. Using their vast knowledge of the ocean for survival. They fish for a variety of shellfish using colander type buckets, and spears for deep sea fishing. The expansive jungled area is where the Moken collect vegetables for consumption and other trees and herbs with medicinal properties used for healing and other purposes like washing clothes. The beach is where they perform their cultural practices of sacrifices to appease the ocean, calling on the spirits of their ancestors for assistance (Al Jazeera English, 2014).

The Moken people have lived in isolation for a very long time, until their village was destroyed by a tsunami in 2004. The lives of the villagers were saved by their knowledge of the ocean patterns, but they lost everything else. The tsunami brought the Moken people into view and out of isolation. Other organisations, I believe with good intentions, reached out to help but the help resulted in restrictions on the Moken way of life. The Moken people no longer have access to the full ocean, and no access to the vegetation of the jungle as it has been turned into a nature reserve (Al Jazeera English, 2014). Much of their cultural practices are connected to access to the ocean and the jungles, this inaccessibility could result in the erasure of the Moken people and their knowledge.

Similarly, but in an outrightly violent way, the Dutch seized control of the Camissa River by taking control of the Camissa established port. They then proceeded to create canals that would provide water to agricultural areas, and it was around these canals that settlements started to form, a springboard for the initial development of the City of Cape Town (Ashby, 2022). A development that would see the ethnic cleansing of many of the indigenous people present and their knowledge.

From these instances one can deduce that water means power. The Dutch used their control of water for authority and to ethnically cleanse a people. The Moken people are slowly losing their identity because their cultural practices are denied by the inaccessibility to its sources. South African traditional healers are being excluded from areas where they can practice due to development. Architecture, I believe, can give back the power to the people who are the custodians of water. The people who acknowledge how essential water is to life.

Within understanding water cultures, I believe, exists a powerful understanding of how we should develop as a city and the approach we should take to conserve water as a natural resource, and ensure the sustainability of cultures. We need to approach architecture with the intention to make water accessible to all. For recreation, religious and cultural practices, consumption, or leisure. Humanity is as essential for the survival of water as water is for the survival of humanity. I believe that through architecture we can reassure the connections to water and facilitate how people interact and exist with water, revitalising old and establishing new water cultures.

Figure 18: Therme Vals by Peter Zumthor.
(Source: "The Therme Vals / Peter Zumthor" 11 Feb 2009. ArchDaily. Accessed 12 Apr 2022. <https://www.archdaily.com/13358/the-therme-vals> ISSN 0719-8884)

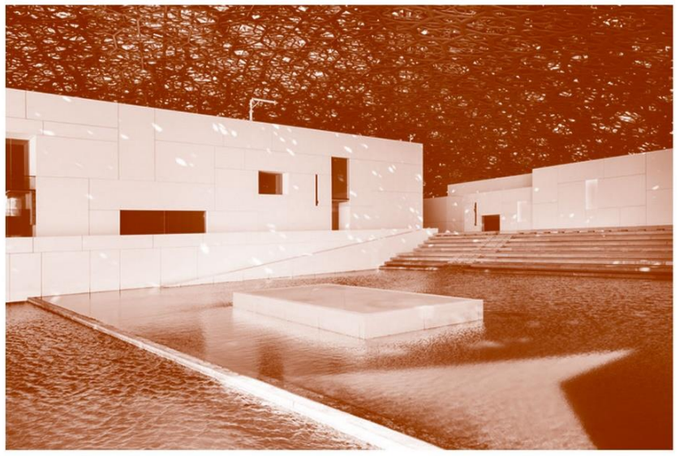


Figure 19: Louvre Abu Dhabi by Jean Nouvel.
(Source: ArchDaily. 2017. Louvre Abu Dhabi / Ateliers Jean Nouvel. [online] Available at: <https://www.archdaily.com/883157/louvre-abu-dhabi-atelier-jean-nouvel> [Accessed 11 April 2022].)

Figure 20: Swimming Pool in Leça de Palmeira by Alvaro Siza.
(Source: Archiweb.cz. 2022. Archiweb - Leça da Palmeira Swimming Pool. [online] Available at: <https://www.archiweb.cz/en/b/primorske-koupaliste-piscina-das-mares-de-le-a-da-palmeira> [Accessed 10 April 2022].)

OF ARCHITECTURE AND WATER

Architecture straddles the threshold connecting societies and water. Architects have been able to use the built environment to aid in the accessibility to water. They have been able to design in such a way that we are now able to see parts of the natural environment we have not seen before, changing our perspective and the way we interact with it. Architects highlight the qualities of water by focussing on our limitations and potentialities, what we can do with our bodies and how we absorb information.

The Themes Vals, located at the base of the Alps on either side of a river, is a bathhouse designed by architect, Peter Zumthor. The bathhouse makes use of spring water designed for leisure and capitalises on the healing qualities of the water by providing palliative care to people suffering from illnesses (Ni Co, 2014). The location of the bathhouse is so close to these large mountains of the Alps and the river, both very natural and wild. The bathhouse makes use of this difference in scale and creates a footing for people by adapting the interaction with the fundamentals of both these natural phenomena. Water that would have been experienced flowing freely is held within the bathhouse, its stillness only interrupted by the insertion of a body, and the large mountains broken down into geometric carved pieces that could fit in the palm of one's hand.

Similarly, the Louvre Abu Dhabi by Jean Nouvel, located in the sea demonstrates construction method of the building would see the ocean being pushed back and held at bay until the concrete was cured and building could continue. Once built, the sea water would occupy the spaces in between each part of the building. flowing from one space to the other, accompanying the user through the journey (ArchDaily, 2017).

The light in the Therme Vals is used to bring the spring water to life. The daylight reflecting off the water and dancing on the walls, shimmering on the surface in fleeting moments, makes the water appear to move even when there is no obvious force moving it. Artificial light used under the water shows the transparency and clarity of water, visually changing and altering the shape of the body within it. At the Louvre, daylight dapples through the roof dome, immersing the user in a static environment with varying rays of sunlight. The changing of light quality and the moving light spots morph the space as the user wanders through it. Consciously experiencing the flow of time. Creating different a different space as they move, but water is constant. A beacon of familiarity. The water present can be used as a point of navigation through these everchanging spaces that may become overwhelming. In both the Louvre and the Therme Vals, the quality of light changes from space to space. The user experiences a shift in perception of these spaces because of the light. The experience of the space shifts with every step taken, altered by the memory of the experience of the space prior.

Alvaro Siza's swimming pools, located in Leça de Palmeira moulds into the landscape, much like the quality of water that allows it to shape itself to any object. As you move to approach the swimming pools you encounter high walls that block your views to swimming pools and the open ocean (Ferreira, 2021). This leaves the sound of the ocean, the wind, and people enjoying the swimming pools as the only indicator of what is to come. This sound sparks the imagination, changing the length of the walk, making it feel longer as the excitement to reach the destination peaks. Just by moving through these walled channels changes the way we will experience the destined space. As the familiar sound of the ocean is heard and the sound of people varies, we encounter sudden rushes of memories. Memories that will change our approach to and interaction with the destined space.

Figure 21: Khudi Bari by Marina Tabassum.
(Source: Wainwright, O., 2021. A £300 monsoon-busting home: the Bangladeshi architect fighting extreme weather. [online] The Guardian. Available at: <https://www.theguardian.com/artanddesign/2021/nov/16/marina-tabassum-architecture-soane-medal-bangladesh-housing> [Accessed 11 April 2022].)

Figure 22: Friendship Hospital by Kashef Chowdhury.
(Source: World Architecture Community. 2022. Bangladesh Friendship Hospital by Kashef Chowdhury/URBANA wins RIBA International Prize 2021. [online] Available at: <https://worldarchitecture.org/architecture-news/emfcc/bangladesh-friendship-hospital-by-kashef-chowdhury-urbana-wins-riba-international-prize-2021.html> [Accessed 11 March 2022].)

Architects are constantly drawing on existing contextual responses to site to develop architecture that is, simply put, appropriate. The Friendship Hospital by Kashef Chowdhury, located in a rural area that had experienced a cyclone a few years ago, works to manage water, that benefits the experience of the space and to react to current environmental conditions. Kashef Chowdhury relies on knowledge accumulated by the experiences of residents of the area. Knowledge that indicates strategies of how to deal with the rise in seawater levels and how the residents have lived and adapted to this change. A canal was introduced that harvests rainwater and surface runoff water that runs through the site, and at each end are tanks to store the water. This freshwater harvested is used by residents of the community due to the impracticality of using saline water found in the groundwater (World Architecture Community, 2022).

Another example of this reactionary architectural response to climate and environmental conditions and the use of indigenous knowledge systems to produce appropriate architecture, can be found in the Khudi Bari or Tiny House, by architect Marina Tabassum. The project responds to the needs of the community living in the Ganges delta area, an area where three major rivers converge. It is an area prone to flooding, described, by Tabassum, as wet and not land. Meaning, that villagers live a nomadic lifestyle seeking dry land. Marina Tabassum developed a modular structure, a housing kit of parts that were made up of available lengths of bamboo and connected with steel joints. The structure is then clad in any available local materials such as panels of woven grass. This project allows villagers to relocate after the destruction caused by flooding and monsoons (Wainwright, 2021).

Architects have been able to draw from their own experiences and the experiences of other societies' cultural practices involving water to design projects that have facilitated and reinforced those practices and experiences. The swimming pools in Leça de Palmeira and the bathhouse in the Swiss Alps respond to the environment by adapting the architecture to qualities of water and their understandings of how people behave in these environments, almost becoming water itself. The Friendship Hospital by Kashef Chowdhury and the Khudi Bari by Marina Tabassum really respond to water as a resource and understand the destructive qualities of water. This understanding offers, the villagers they design for, a new perspective on water by changing their views on flooding and climate change. Water is interpreted and reinterpreted as something dangerous and, simultaneously, beautiful. It takes away and brings new life.

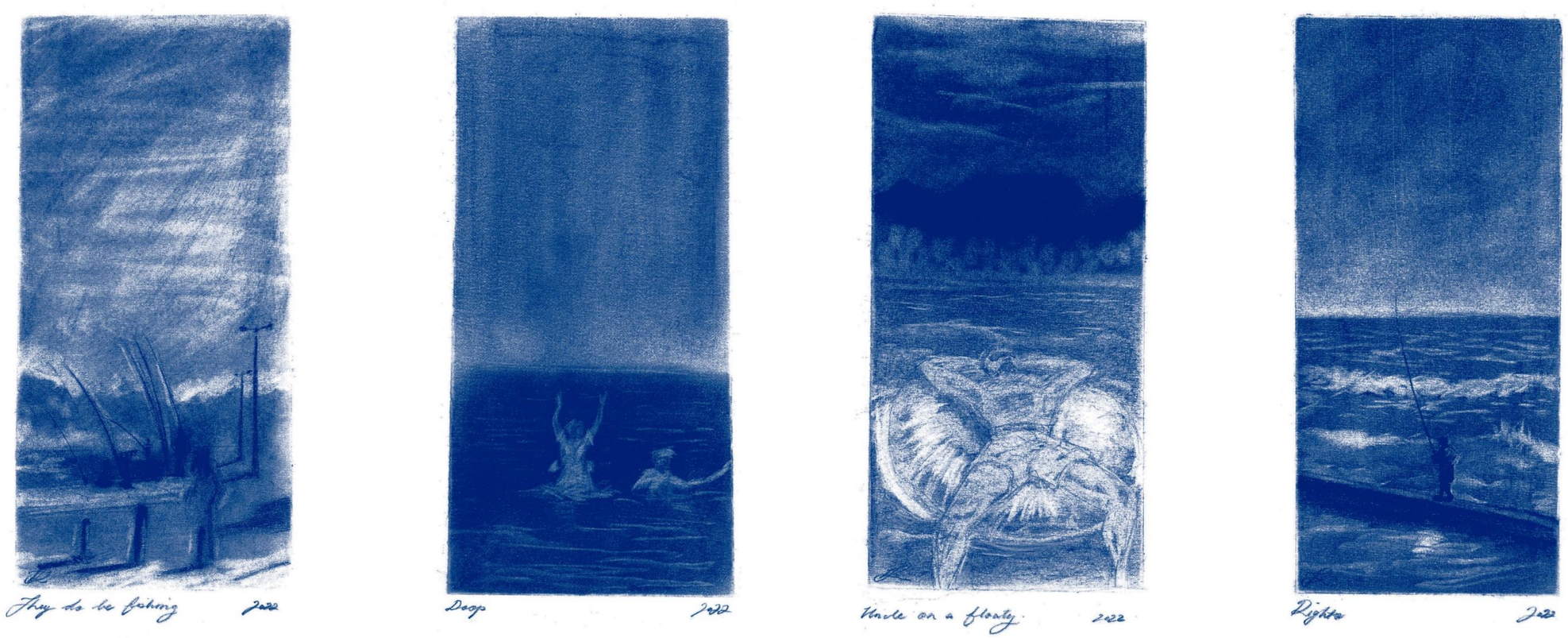


Figure 23: Sketch study of observed water cultures ranging from spiritual and religious to leisure and sport. (Source: Author's own)

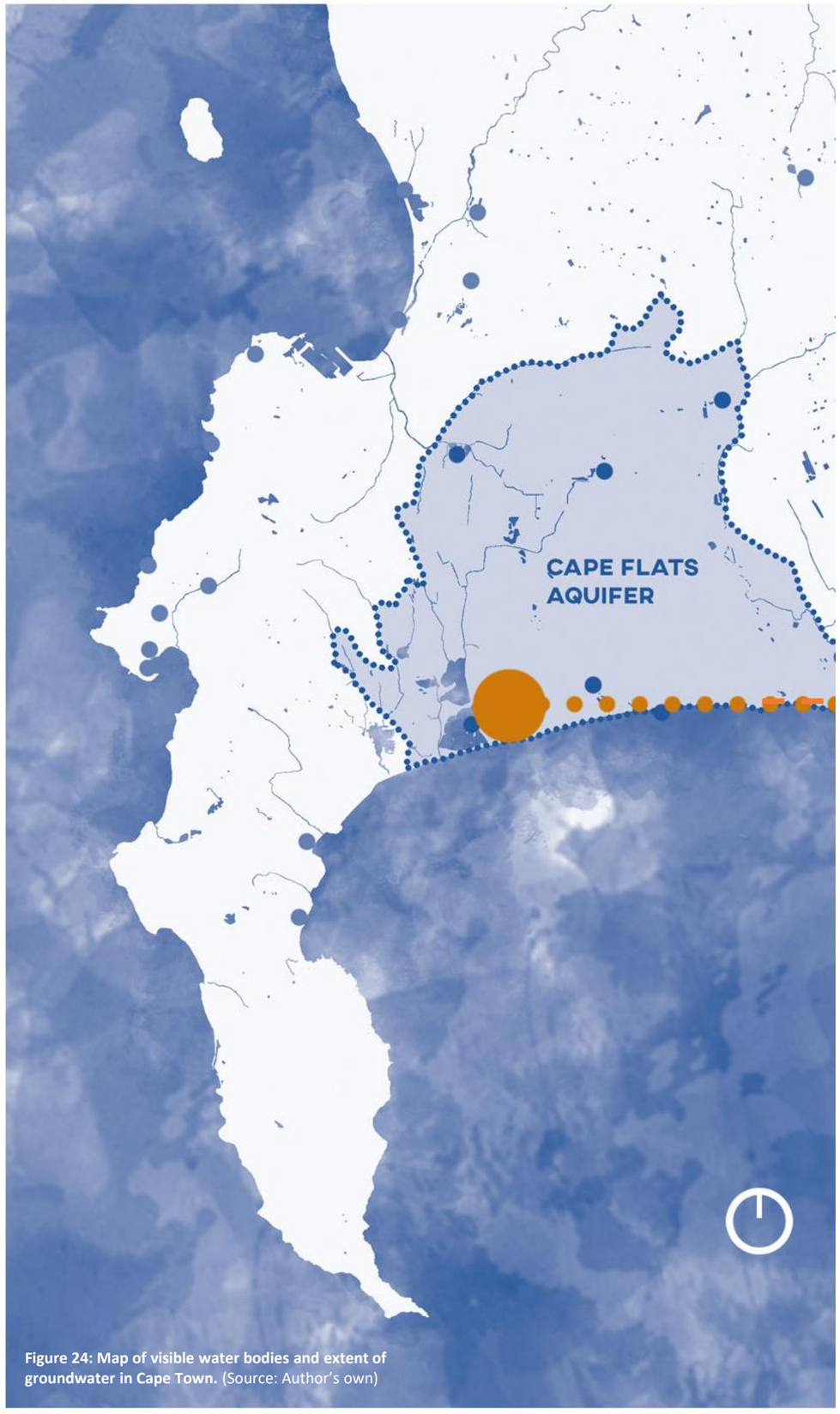


Figure 24: Map of visible water bodies and extent of groundwater in Cape Town. (Source: Author's own)

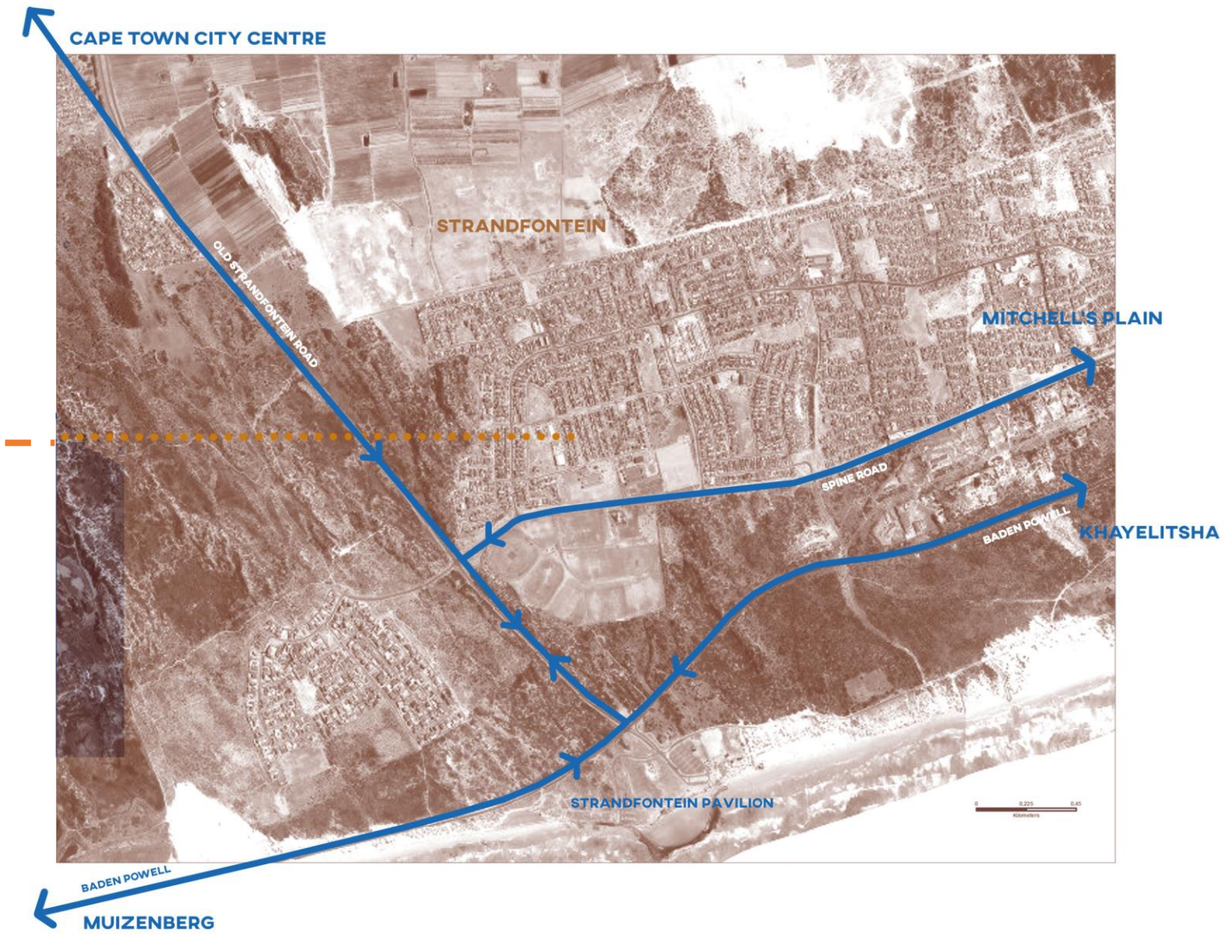


Figure 25: Map locating Strandfontein Village in Cape Town. (Source: Author's own)

STRANDFONTEIN VILLAGE

One could call Strandfontein a coastal town based on its proximity to the coast. However, the residential area is disconnected from the ocean by a frequented road called Spine Road and a band of natural land made up of sandy dunes and shrubbery. Added to the spatial division is the increase in criminal activities in the area and close to the beach, perpetrated by sporadic gangsters. Like many areas on the periphery, it is poorly designed with many amenities and resources sparsely spaced or non-existent. Residents have little opportunities for growth or to create work for themselves. Thereby leading residents to leave their homes early in the mornings to be closer to the resources of the city center and return late in the evenings. The unemployed and poverty stricken are left with nothing to do but wander the streets. What ensues is a firm disconnect from the environment further solidified by routine and feelings of hopelessness.

Figure 26: Images taken of Strandfontein during the week to witness the stillness. (Source: Author's own)

Figure 27: Mapped recreational activities observed in Strandfontein Village.
(Source: Author's own)

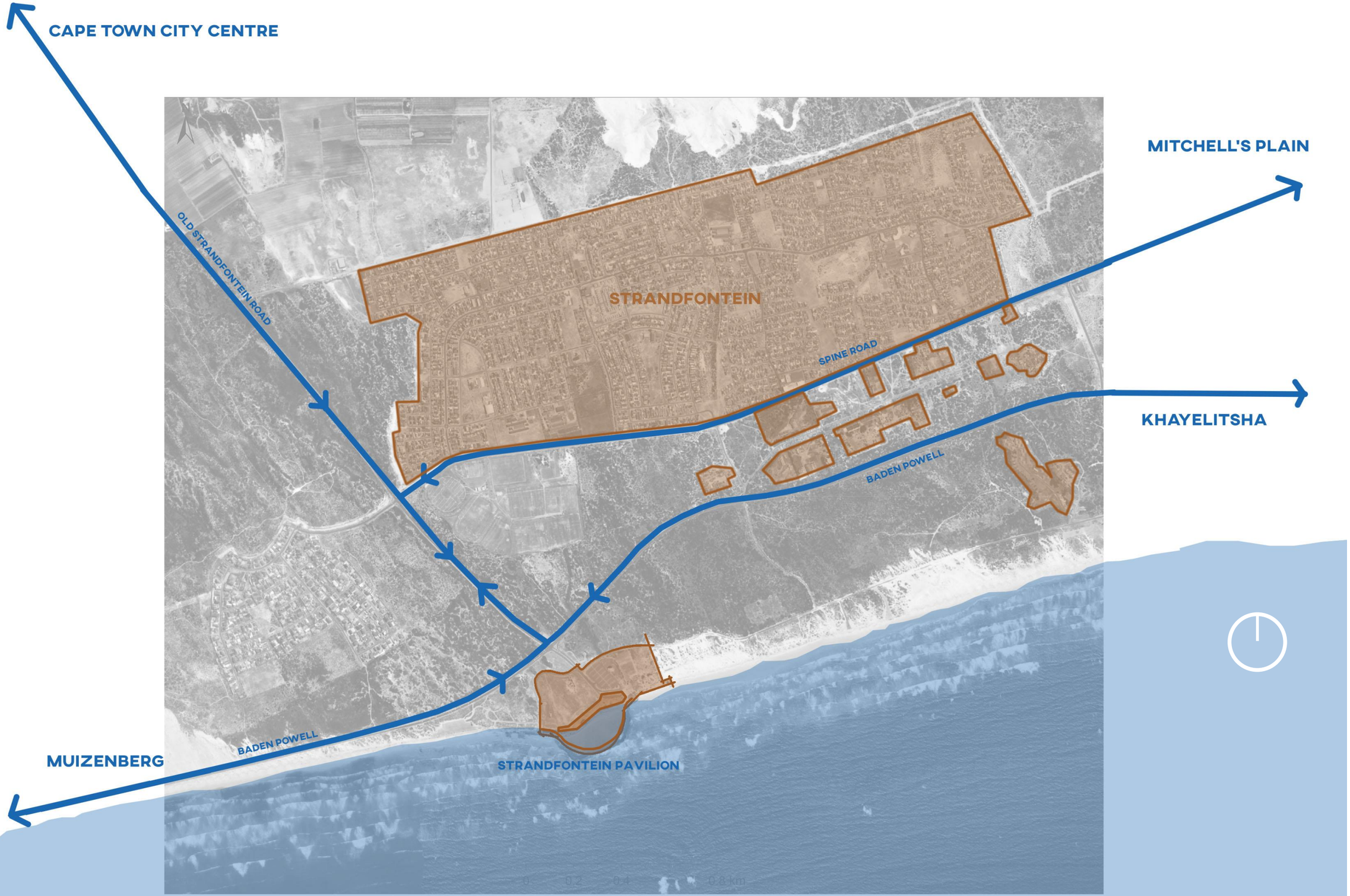


Figure 28: Mapped extent of built fabric to natural land. (Source: Author's own)

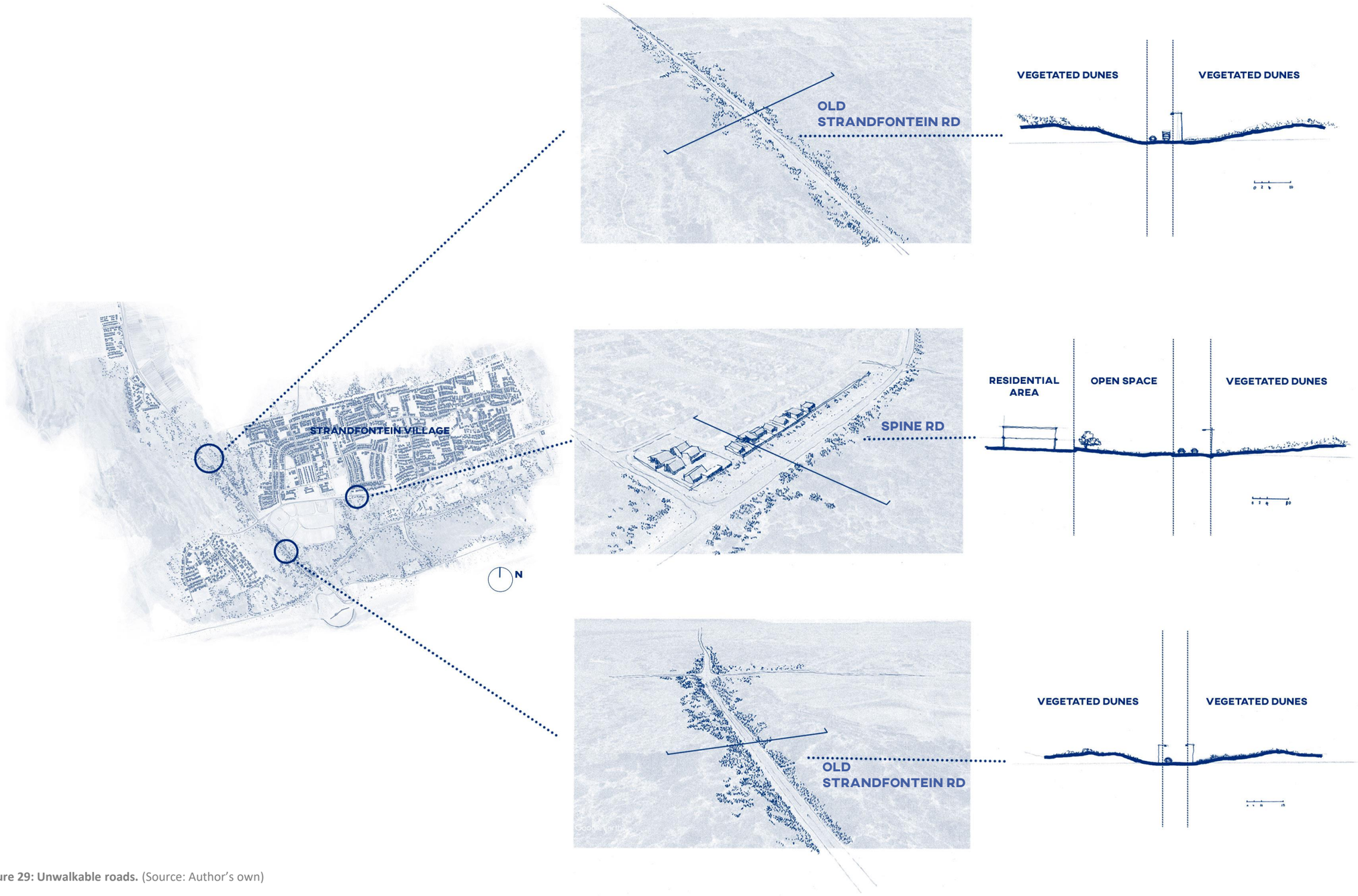


Figure 29: Unwalkable roads. (Source: Author's own)

These drawings indicate the conditions of these roads, frequented by pedestrians, that make it unsafe for pedestrians to journey along. Each road experiences periods of heavy traffic. Spine Road is edged by paving, a clear demarcation of space for pedestrian and vehicles. Old Strandfontein Road is less formalized, with no boundaries, showing clear signs that the road was not intended to be walkable.

Figure 30: Mapped amenities in Strandfontein Village. Amenities include educational facilities, police stations, community halls, library, religious institutions, and social institutions. (Source: Author's own)

HEART OF STRANDFONTEIN

The amenities in Strandfontein Village are where the heart of Strandfontein lies. Residents of Strandfontein formulate community strategies within these institutions to find solutions to problems arising in the community.

My experience as a primary school student involved being able to witness the will of community members to actively partake in ventures set out by schools to aid the youth. Markets were held in the courtyards of the primary school where some students showcased their talents for the community while the teachers used the classrooms as makeshift stores to sell food and other goods.

Many religious institutions are responsible for funding or sourcing funds for community projects that are involved in educating youth and adults about the consequences of drug abuse, gangsterism, and crime. They have taken on the responsibility of distributing food to community members in need.

The police station has played an integral role in assisting community members in gaining the skills necessary to combat crime in the area. They have actively supported neighborhood watch groups and often join them in patrolling the area. Mitigating criminal activity.

Strandfontein Village should not be defined by crime but should be acknowledged for its residents and their hope to uplift the community. Hope that can currently only be witnessed at these institutions.

Figure 31: Images of pedestrians making the trek to Strandfontein Pavilion and the greater beach. (Source: Author's own)

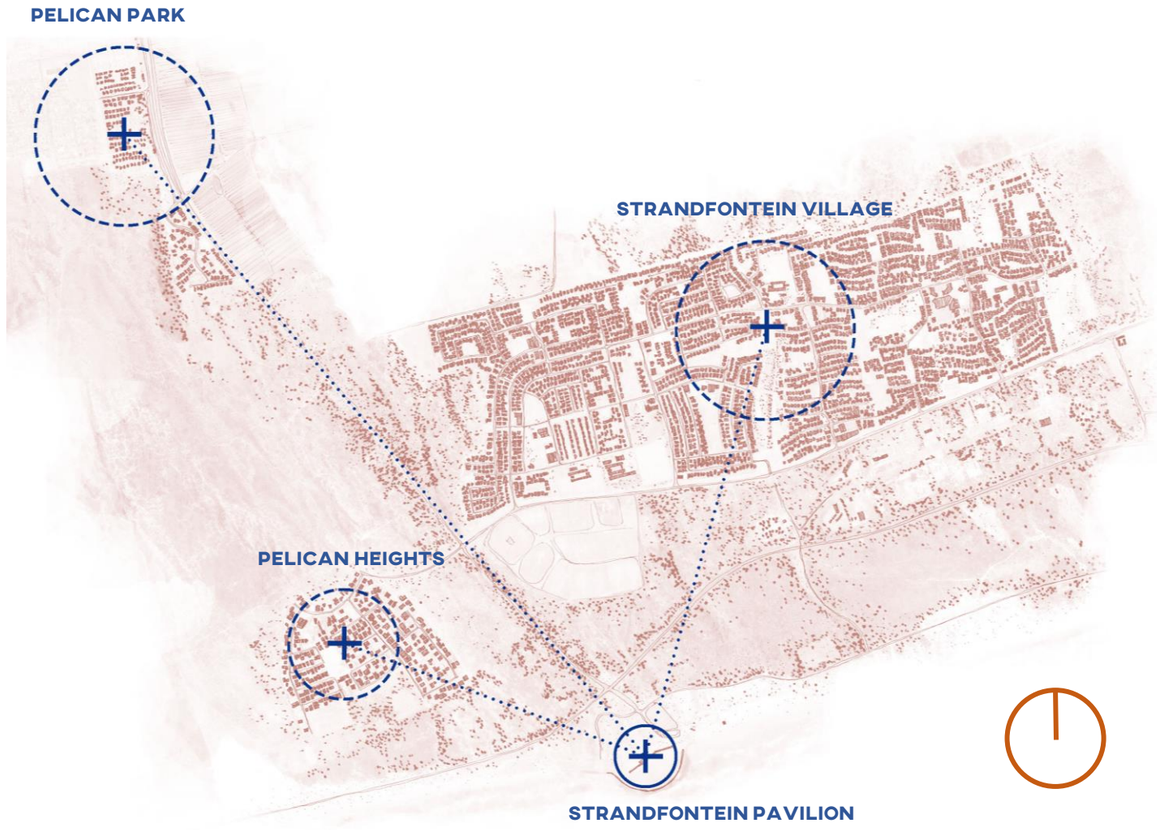


Figure 32: Strandfontein Pavilion as a public amenity that serves Pelican Park, Pelican Heights and Strandfontein Village. (Source: Author's own)

BRIDGING

These images were taken from snapshots of a video taken on a drive at the end of the summer of 2022. The roads are congested with the vehicles of beach goers and many of the people walking are from areas far from the beach. This includes Pelican Park and Pelican heights. Pedestrians are walking at sunset to their homes with traffic on one side and a vast natural landscape on the other. The area is unpaved, and any cyclists would have to walk to cycle on the road in the way of cars. This poorly planned stretch of road stands to be developed in away that considers the movement and habits of the public pedestrian.

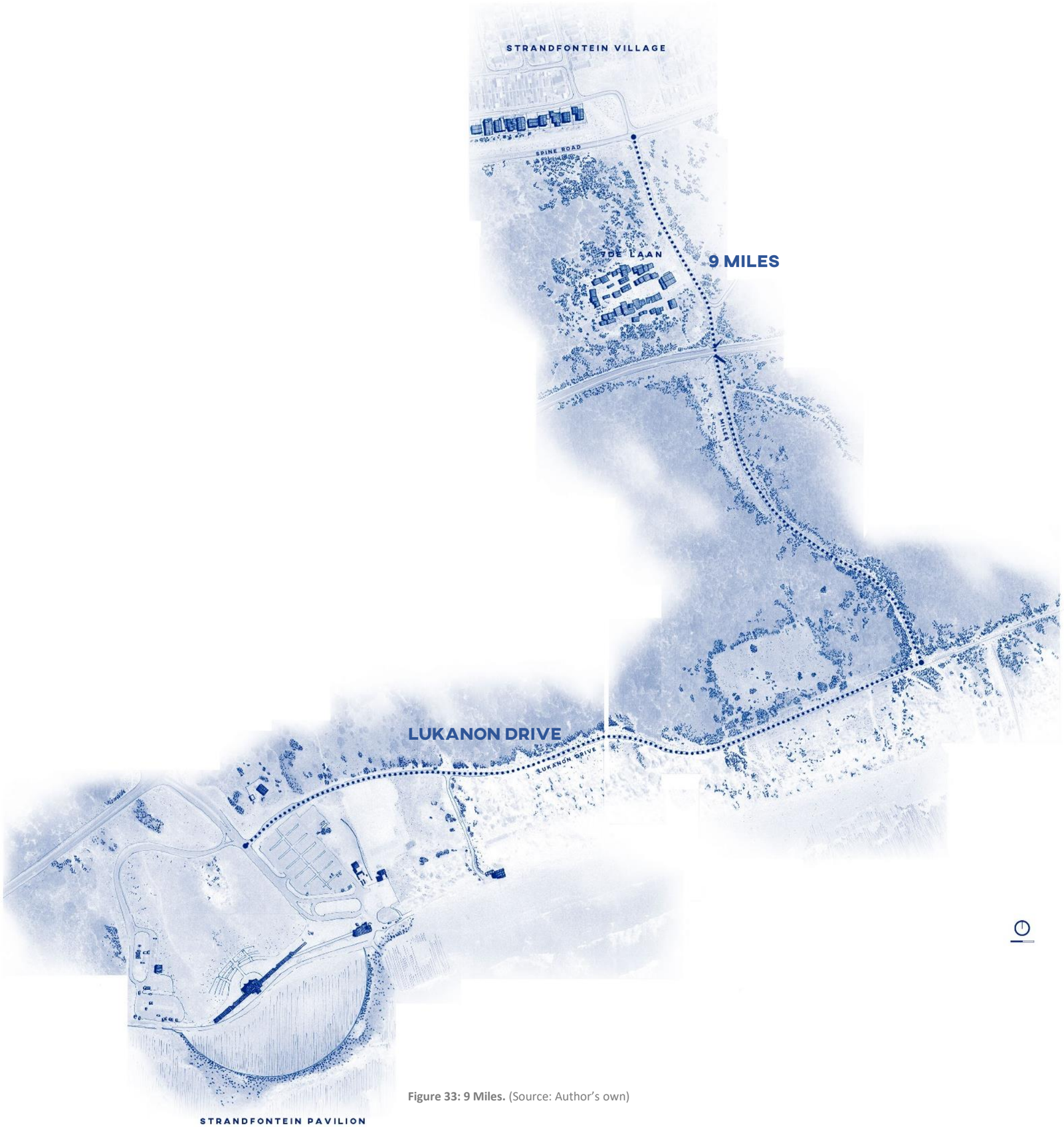


Figure 33: 9 Miles. (Source: Author's own)

MEMORY LANE

The route indicated by the dotted line, see Figure 33, is an access road used by pedestrians and vehicles to access the beach or an alternate route to avoid the congested traffic on Spine Road. It is barely used and the full distance from the entry off Spine Road to the pavilion is 2km. The route is made up of 9 Miles road and a portion of Lukanon Drive leading to Strandfontein Pavilion and the larger Strandfontein Beach. This route is the one we used as a family to walk from our home to the beach and it is one of the only roads that cuts through the natural landscape and connects to the beach.

Apart from the sentimental value of the road, I believe it has the potential to become a frequented route by residents of Strandfontein to access the pavilion. I am therefore proposing that it be developed.

By orientating the development of the route to suit pedestrians, I believe the road can be used for recreational activities such as jogging, walking dogs, cycling, and walking. These activities create human presence. Human presence that will deter crime. Having a safer access route for Strandfontein residents will create an easier transition to the beach.

Figure 34: Key access routes to develop to be more pedestrian oriented.
(Source: Author's own)

STRUCTURING CONNECTION

Developing the roads to be more pedestrian friendly will allow safer passage to the Strandfontein Pavilion. This will allow Strandfontein residents and the general public within walking distance to solidify a relationship and connection to site. Proposing this will also structure the site as a public amenity that serves Strandfontein and other areas such as Pelican Park, Pelican Heights, and the greater Mitchell's Plain area.

Figure 35: Birdseye View of the Strandfontein Pavilion. (Source: Author's own)

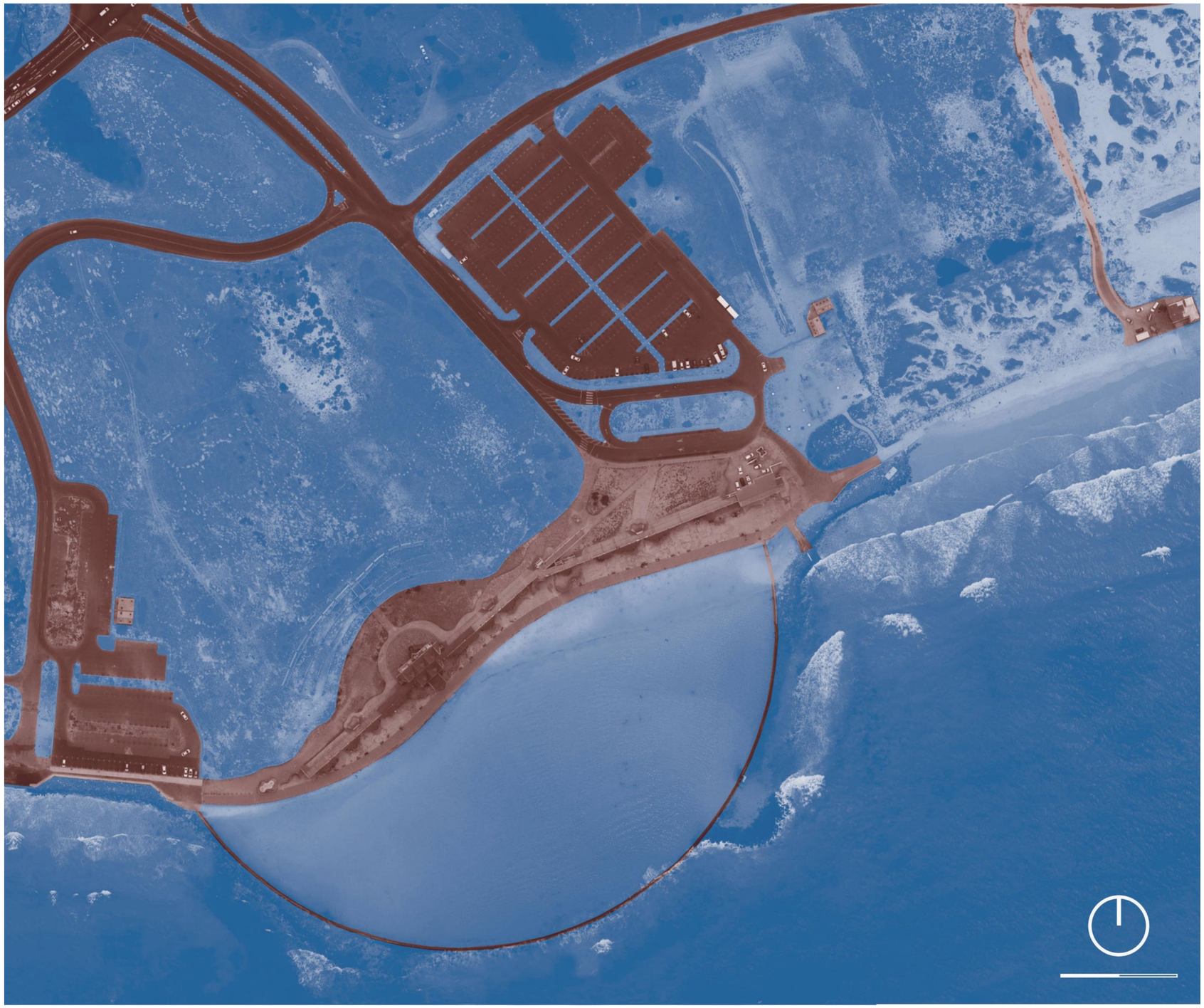


Figure 36: Strandfontein Pavilion. (Source: Author's own)

STRANDFONTEIN PAVILION

Strandfontein Pavilion was then chosen as the site for development. The Pavilion was designed and built in 1980 by architect Vaughan Burns. The seaside recreational area was designed to accommodate the influx of blacks and coloured people removed to Mitchell's Plain, Khayelitsha and the expected increase in population by the developing Strandfontein Village. The tidal pool is one of the largest in Cape Town aimed at creating a safe space to practice safe swimming for POC who at the time were believed to have no 'swimming culture'.

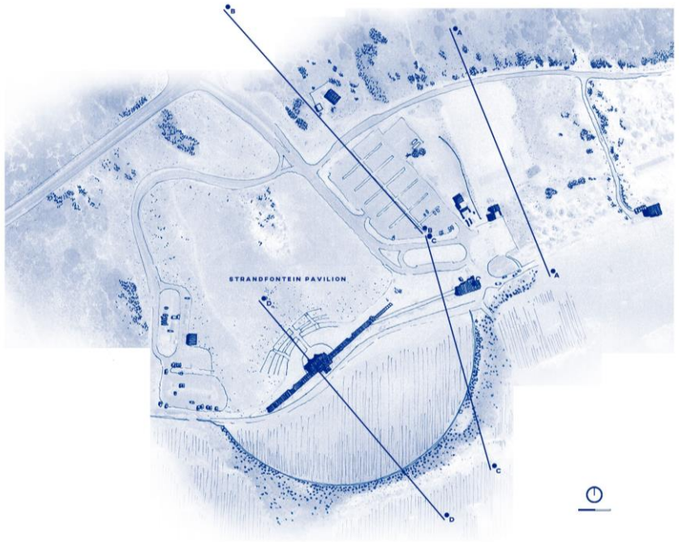
Figure 37: Existing Strandfontein Pavilion.(Source: Author's own)

Currently, the pavilion, meant to house offices, a restaurant, accommodation for lifeguards and other aquatic related amenities, is vacant with an odd office in use by the 9Miles Project and a take aways. East of the site is parking used frequently by fishermen and to the west of the site is the national sea rescue institute, NSRI, currently in use as station 16. The part of the pavilion meant for the restaurant is fenced off and in a state of deterioration too dangerous for occupation. The plinth on which the pavilion stands, made of concrete and brick paving, has managed to withstand the weathering.

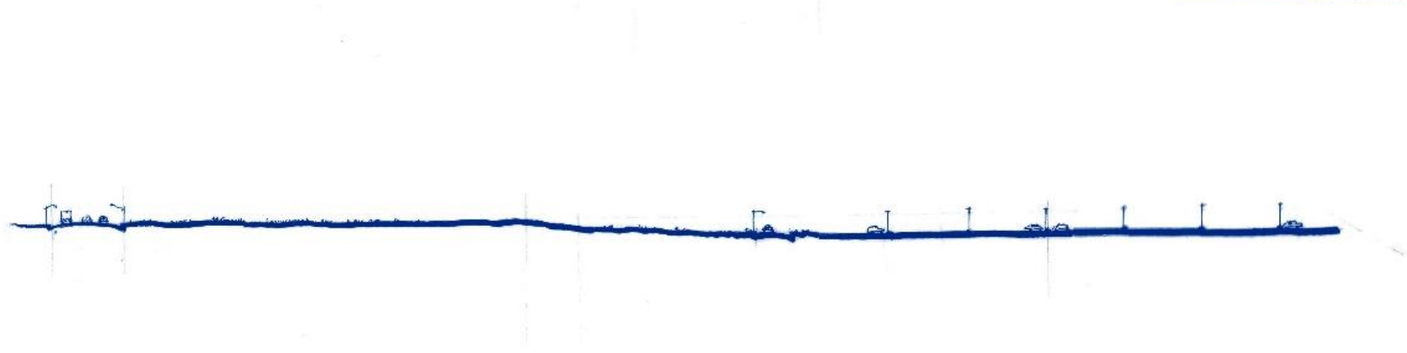
Apart from the deterioration of materials the building stands as an afront to the natural environment. Especially water. The large plinth is made impervious using concrete. Leaving the water to either collect in one flat spot or to run off into sea. The rainwater is not considered as a fundamental resource and it is shown in the pavilion's inability to capture, store and manage rainwater in an efficient way that can be used for secondary domestic use. Towards the northern most part of the site, adjacent to the area previously occupied by the temporary desalination plant, is a stormwater outlet carrying half of Strandfontein Village's surface runoff water and directing it the contaminated water to the sea.

I am therefore proposing to redevelop the site by removing the pavilion, redeveloping the plinth and developing an architecture that responds better to rainwater, the aquatic environment and water cultures.

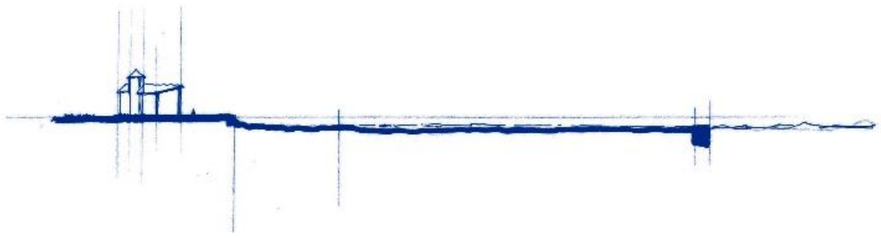
Figure 38: Deterioration and conditions of existing site..(Source: Author's own)



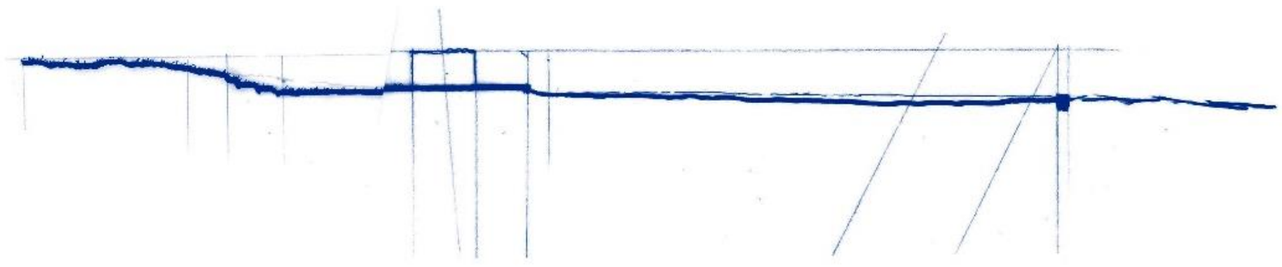
SECTION AA



SECTION BB



SECTION CC



SECTION DD

0 10 20 40

Figure 38: Section studies of the existing site.(Source: Author's own)

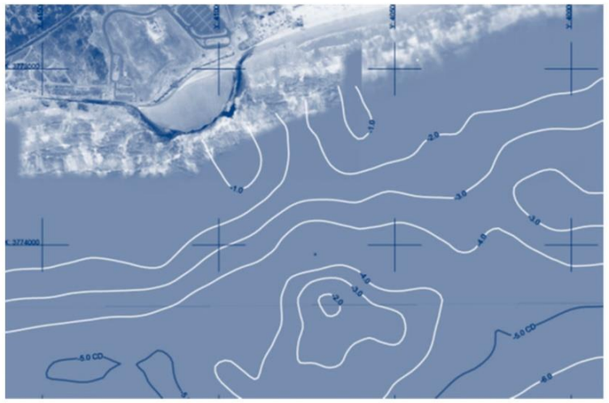


Figure 39: Bathymetry Data.(IX Engineers, 2017)

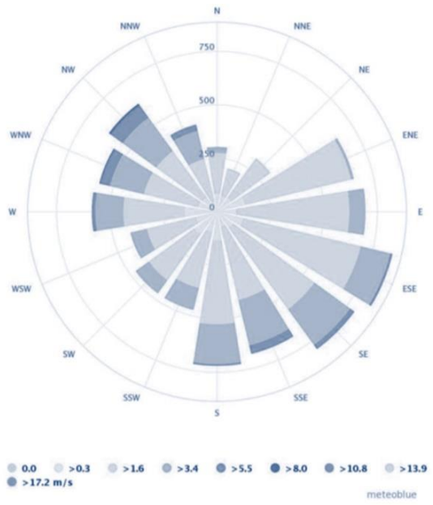
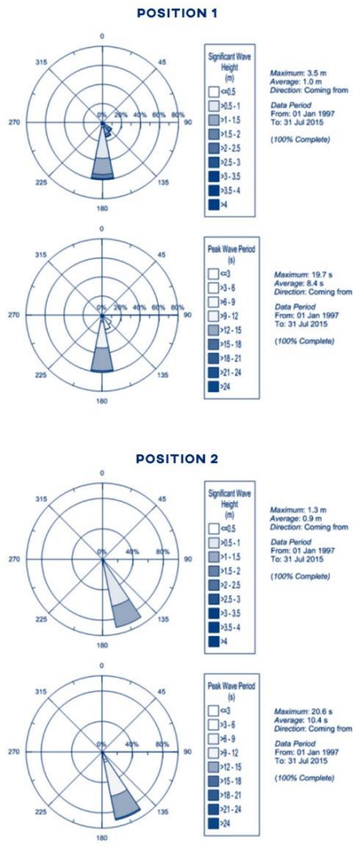


Figure 40: Wind.(IX Engineers, 2017)

Figure 41: Wave speed and frequency.(IX Engineers, 2017)



CLIMATE

The climatic conditions at Strandfontein Pavilion are harsh and will be a factor in the way that I design and how I consider the program.

BATHYMETRY

I would first like to talk about the about the bathymetry data. Bathymetry data is related to the slopes of the ocean bed. This data is relevant to determining waves and is a factor in determining the wave heights. As it is represented in the figure it shows the depth of the ocean bed at chart datum, which is the depth relevant to a specific tidal phase and in this map, it is relevant to the low tide. (IX Engineers, 2017)

WIND

The wind chart shows that the strongest and most predominant winds come from the southeast and northwest. (IX Engineers, 2017)

WAVES

Waves as shown in the graphs at points, position 1 is at -10.6m chart datum and position 2 at 0.6m chart datum, show that the waves reach an average height of 1.0m and 0.9m with a period of 8.4s and 10.4s between waves, respectfully. (IX Engineers, 2017)

WATER TEMPERATURE

The recorded temperature for the water is averaged at 17 degrees Celsius. Temperature ranges between 13 and 21 degrees Celsius. (IX Engineers, 2017)

Figure 42: Program Informants.(Source: Author's own)

PROGRAMME

I am proposing that the redevelopment aims to establish the Strandfontein Pavilion as a public amenity. A public amenity that reconnects the residents and broader public to the ocean. This public space will allow the greater public the opportunity to experience lives lived in Strandfontein Village and mitigate the preconceived ideas and homogeneity associated with areas in the periphery. This also exposes residents of Strandfontein to people from other areas. This exposure in a public space is invaluable as it allows for freedom in sharing of embodied knowledge and experiences.

I am proposing that the public amenity has aquaculture at its centre. This, I believe will inspire a connection to the ocean that directly benefits the community of Strandfontein. Apart from natural food resources, an aquaculture farm presents opportunities for social and economic opportunities. Work at an aquaculture farm starts at a very basic skill level of simply being able to sort and clean produce that has been harvested through to research level employment. The aquaculture farm will also serve as an attraction for those who visit the site. Operation Phakisa is a national government initiative in the Department of Agriculture, Forestry and Fisheries that aims to support coastal communities with funding, resources and training required to start an aquaculture farm.

By placing the farm in a public space. I am actively exposing the public to the processes of aquaculture farming. Practices that are visible and imply the importance of the ocean as a resource and our involvement in it. I will also include an extension of the False Bay College on the site. This extension will be aimed at the courses offered by the college specifically maritime, hospitality and marine tourism.

The inclusion of an educational institute aimed at young adults adds a different energy to the site. A tertiary institution that does not exist in Strandfontein. Along with the farm adds a consistent life to the site, even when the weather is not conducive to recreation.

A restaurant and stores are added to further add to the social life and public realm on site. The restaurant will aim to highlight and showcase the produce harvested by the farm to show its value as a producer of food and exposing visitors to a level of fine cuisine and recipes that are easily implemented at the domestic level. The restaurant will also work with the college to allow students the opportunity to carry out practical lessons in that space and work. The stores will allow for small businesses to occupy space in the public realm and provide visitors with any items that they may need during the day spent on site. The restaurant and stores offer staying power on the site, creating consistent human presence.

The NSRI adjacent, east, to the site will be placed at a location closer to where there will be more visitor movement. This will create a presence of practicing safe aquatic practices. Locating the NSRI closer and on the edge of the tidal pool will create efficiency in its functions allowing the NSRI to practice drills directly in the pool. This relocation is also strategic in that I imagine the NSRI will work with an NGO called 9Miles Project, currently on site, that reaches out to underprivileged youth in the Strandfontein community and teaches them about beach safety and surf culture.

The aim of the program is that it is embedded in the public realm and has functions that are related to one another to reinforce the idea of a connected program. A connected program that works to create a public amenity aimed at reconnection and creating identity and emphasising the individuality of the community of Strandfrontein.

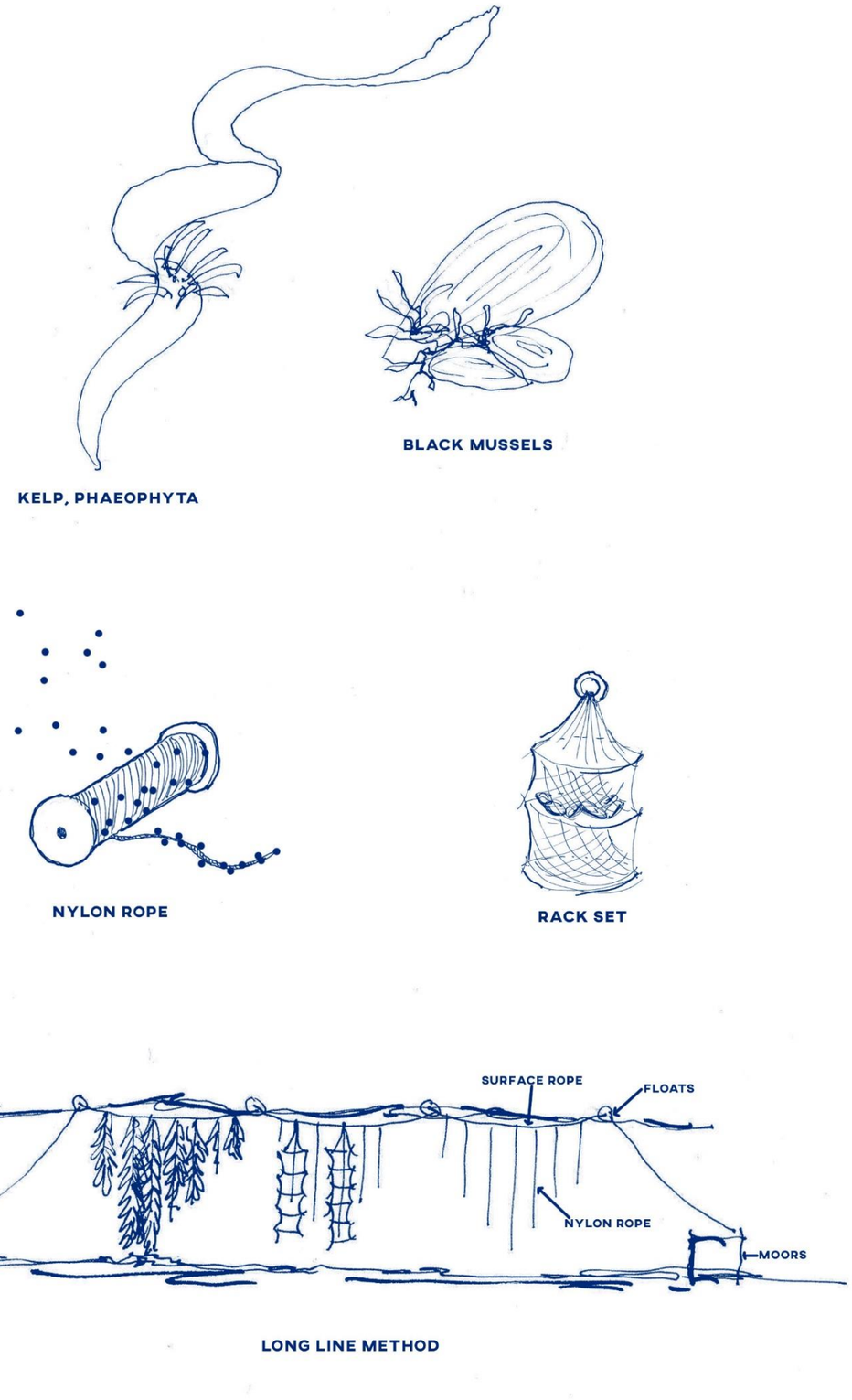


Figure 43: Production Method.(Source: Author's own)

ON AQUACULTURE

Aquaculture is the cultivation, rearing, and harvesting of marine life such as marine plant life, shellfish, and finfish in a water environment. The operations of aquaculture farms can be carried out on land, in sea, or a hybrid of land and sea-based aquaculture. Land-based aquaculture is the farming of aquatic organisms on land in controlled aquatic environments. Sea-based aquaculture can take place on shore, close to the sea or in the open ocean. (Capricorn Marine Environmental (Pty) Ltd, 2017)

Things to consider when selecting Strandfontein Pavilion as a site for aquaculture is if the site has existing infrastructure necessary to support operations, possibility for necessary expansion on site, existing aquaculture farms, and the oceanographic conditions. (Capricorn Marine Environmental (Pty) Ltd, 2017)

The oceanographic conditions are deduced based on the species of marine organism being farmed. I am proposing the farming of marine organisms that are familiar to Cape Town seafood and adding to the diversity of food resources. The farming of the bivalve species, *Choromytilus Meridionalis*, black mussels and seaweed. Seaweed can encompass ocean plant life and algae but when I mention seaweed, I am referring to *phaeophyta* or brown seaweed. I have selected these two aquatic organisms because of their potential symbiosis. These species require cool water temperatures, water with movement, and high biomass. These conditions are present at Strandfontein Pavilion, making it the ideal environment to farm these organisms. (Capricorn Marine Environmental (Pty) Ltd, 2017)

Among the benefits of farming these species is the ability of each organism to feed on substances that are potentially harmful to us in large quantities such as phosphorous and nitrogen in the water. Waste excreted by the mussels can be absorbed by the seaweed. The growth of seaweed can contribute to diversity in marine life as it forms habitats for other organisms creating sustainable ecosystems. Both mussels and seaweed require very little feed and survive mainly on nutrients provided by the ocean and sunlight. This makes the farming of these two organisms more sustainable as a starting point for aquaculture farming at Strandfontein Pavilion. (Capricorn Marine Environmental (Pty) Ltd, 2017)

The land-based infrastructure required for sea-based aquaculture are landing quays, mooring space, and product holding facilities. Other operations can take place on vessels such as harvesting, de-clumping, and grading of the produce. Strandfontein Pavilion does not currently have the infrastructure mentioned but it has enough infrastructure to support the addition of these to the site. (Capricorn Marine Environmental (Pty) Ltd, 2017)

The production methods in aquaculture farming of mussels are longline, rafts, cages, and barrel cultures. Long line however is the best because of its flexibility of application of farming both mussels and seaweed. It is robust and can be used in depths of 100m. (Capricorn Marine Environmental (Pty) Ltd, 2017)

Using this production method, seaweed seeds are cultivated and seeded onto a nylon rope that is then transported out to sea by boat. The rope is then dragged out and held up by floats and then moored to the ocean floor by an anchor. The process is much the same for mussels except for the cultivation stage. At the cultivation stage, mussels are either grown to a certain age and then attach to the rope before being transported to sea or they are grown to a certain age, placed on racks attached to the rope and taken out to sea. (Capricorn Marine Environmental (Pty) Ltd, 2017)

The farming of these species at the Strandfontein Pavilion will affect the marine environment. There is always the risk that producing these organisms at a large scale will negatively impact the marine environment, but it is a foreseeable impact that can be mitigated with foresight and by implementing sustainable aquaculture practices.

Accomodation Schedule

Building Programme

Aquaculture Farm

Rooms	Quantity	Size (m^2)
Change Rooms	1M + 1F	
WC	1M + 1F + 2DAP	
Processing Shed		1
Cultivation Shed		1
Boat Garage + Store		1
Mechanical Room		

False Bay College Campus

Rooms	Quantity	Size (m^2)
Reception		1 2x3
Offices		3 3x3
WC (office)	1M + 1F + 2DAP	
Kitchenette & Lounge		1 4x3
Cafeteria		1 5x7
Classrooms		3 4x4
Computer Room		1 8x3
Loading Bay		
Store Room		1 1.8 x 2
Service Room		
Lobby		
Library		
Recreation Room		

Restaurant

Rooms	Quantity	Size (m^2)
Kitchen		1
Dining Area		1
WC	1M + 1F + 2DAP	
Store Room		1

Stores

Rooms	Quantity	Size (m^2)
Kitchenette		1
Store room		1
WC	1DAP	

NSRI

Rooms	Quantity	Size (m^2)
Garage		1
WC		1
Change Rooms		1
Office		1
Kitchenette		1
Waiting Room		1

Figure 44: Working accommodation schedule.(Source: Author's own)

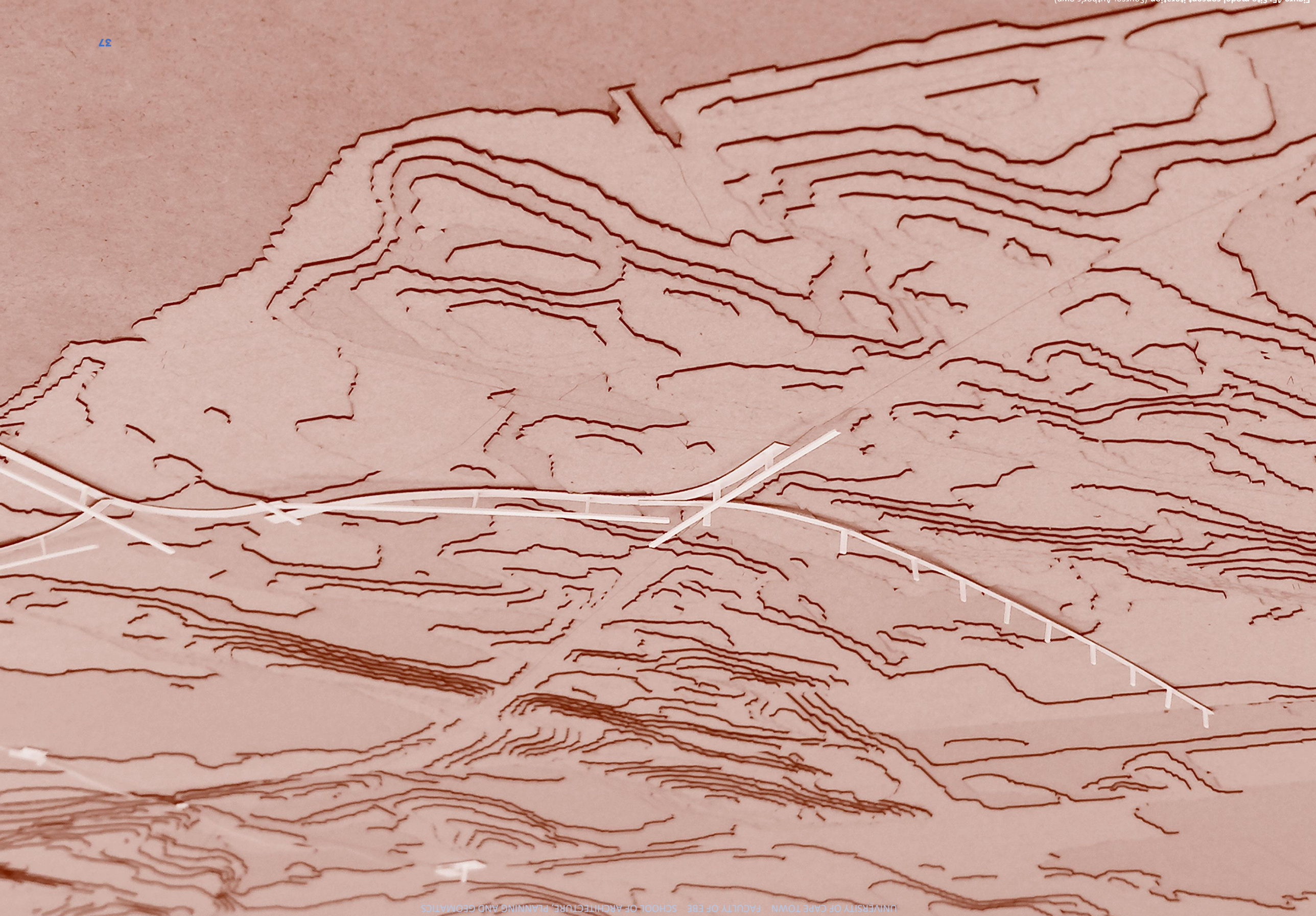


Figure 46: Photodocumentary of material weathering along Muizenberg Beach.
(Source: Author's own)

ON WEATHERING

"Weathering does not construct, it destroys." – David Leatherbarrow

Weathering is the process that occurs when materials are exposed to the natural environment. Weathering can occur due to rain, wind, sunlight, and continual exposure to friction of one body to another. The process of weathering on built objects is a given. As it withstands years of existing at the mercy of time, materials show their inner workings and start to collapse under the strain of deteriorating structural integrity (Mostafavi and Leatherbarrow, 1993).

Figure 47: Photodocumentary of material weathering along Muizenberg Beach.
(Source: Author's own)

Figure 48: Photodocumentary of material weathering along Muizenberg Beach.
(Source: Author's own)

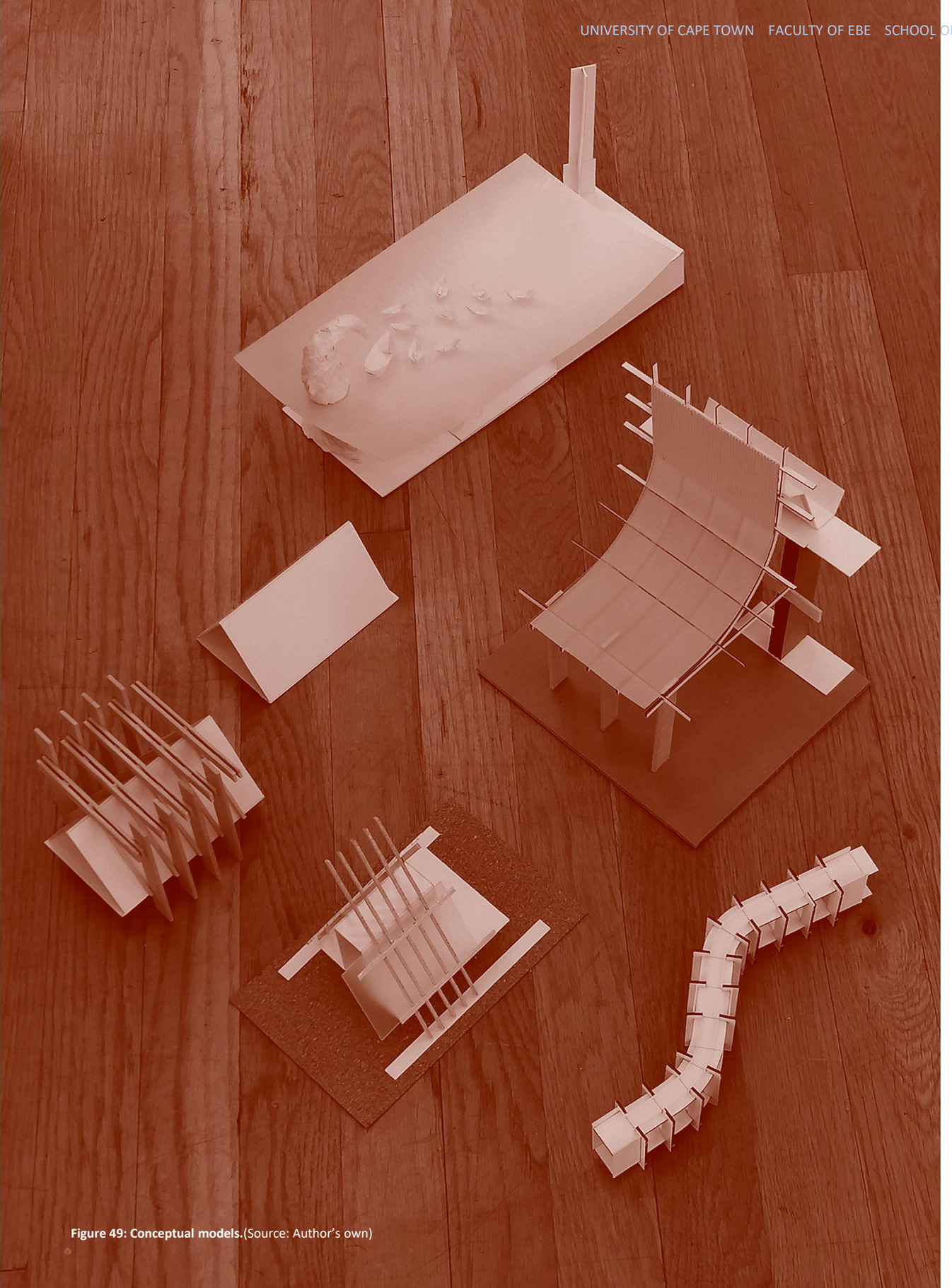
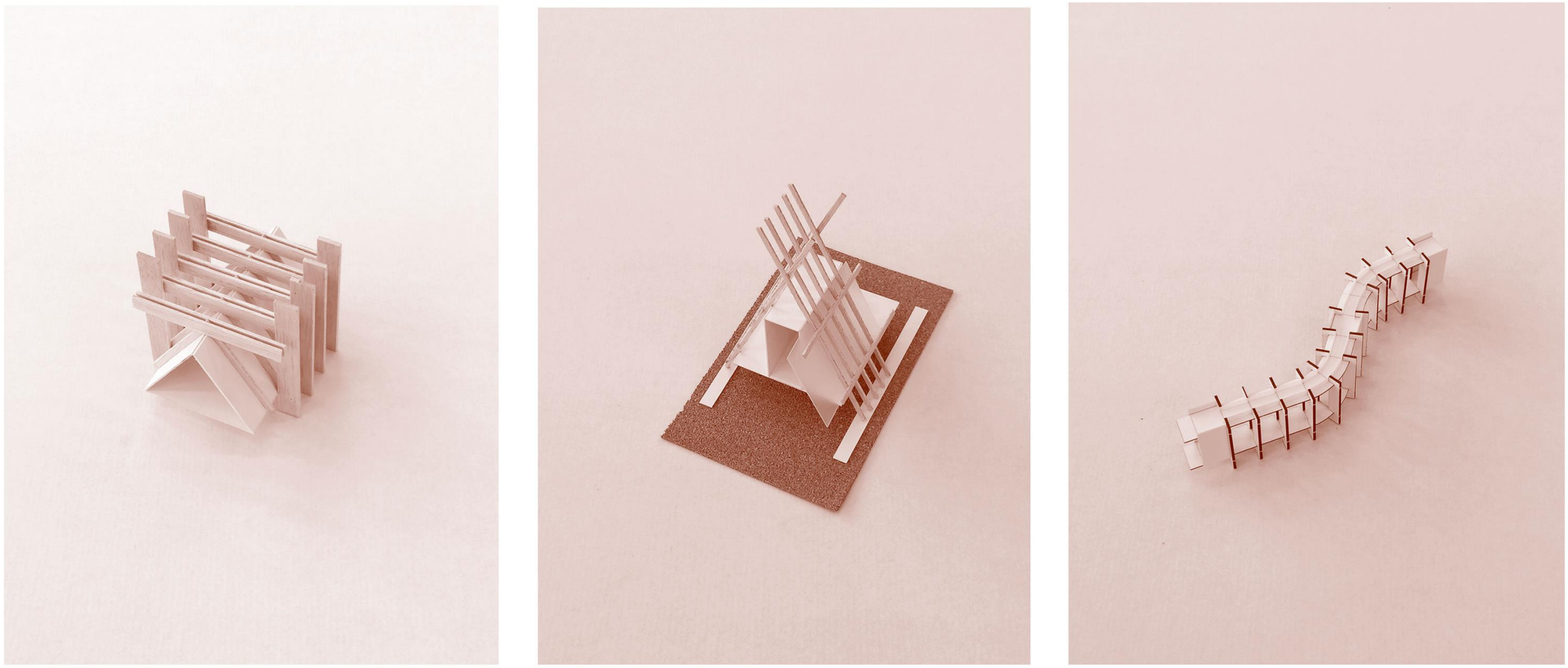


Figure 49: Conceptual models.(Source: Author's own)

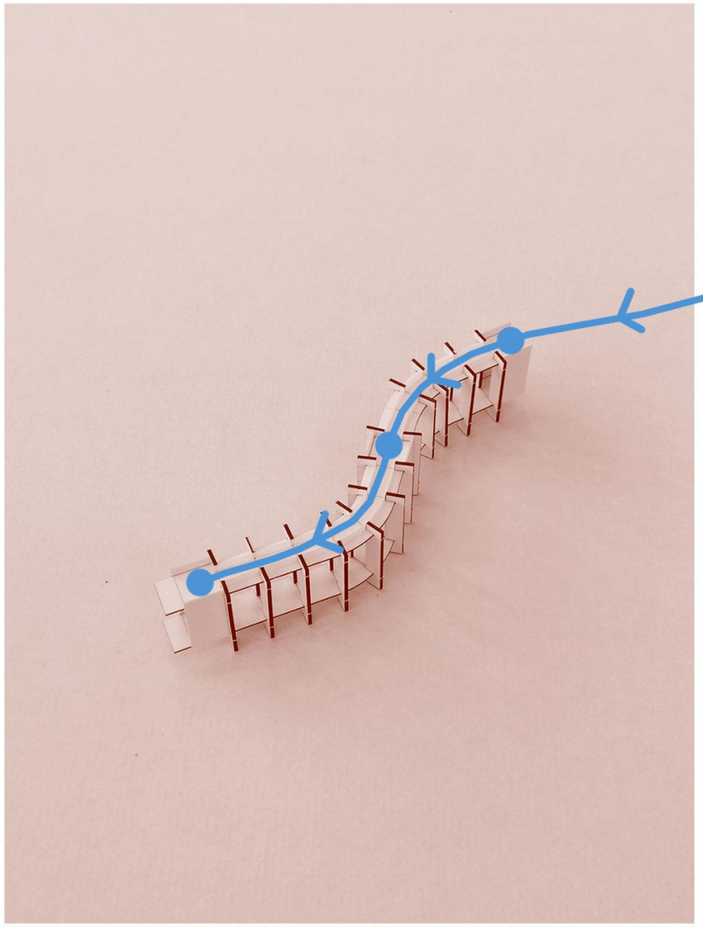
ROOTING AND FLOATING

The site is quite large and as an entry point, I developed a metaphor. A metaphor of rooting and floating. Rooting and floating has implications of settling, settling in the way that our ancestors have. Settling in the most favorable conditions, equipping oneself with tools before venturing into the unknown. It is a metaphor that ends itself to a narrative of broadening perspectives through absorbing knowledge.



These iterations of model studies are showing the tectonics that are inspired by rooting and floating. A robust and sturdy primary structure capable of withstanding the harsh ocean environment that allows for supporting and strengthening seemingly fragile substructure that allows for transparency and openness.

Figure 50: Rooting and Floating.(Source: Author's own)



WATER MANAGEMENT

The structure of the building is aimed at collecting water and allowing overflow and excess to permeate the ground and replenish the ground water. This iteration also acts to support the weight of the rainwater that will flow along the gutters and into the water tanks.

Figure 51: Diagram showing thoughts on water management.(Source: Author's own)

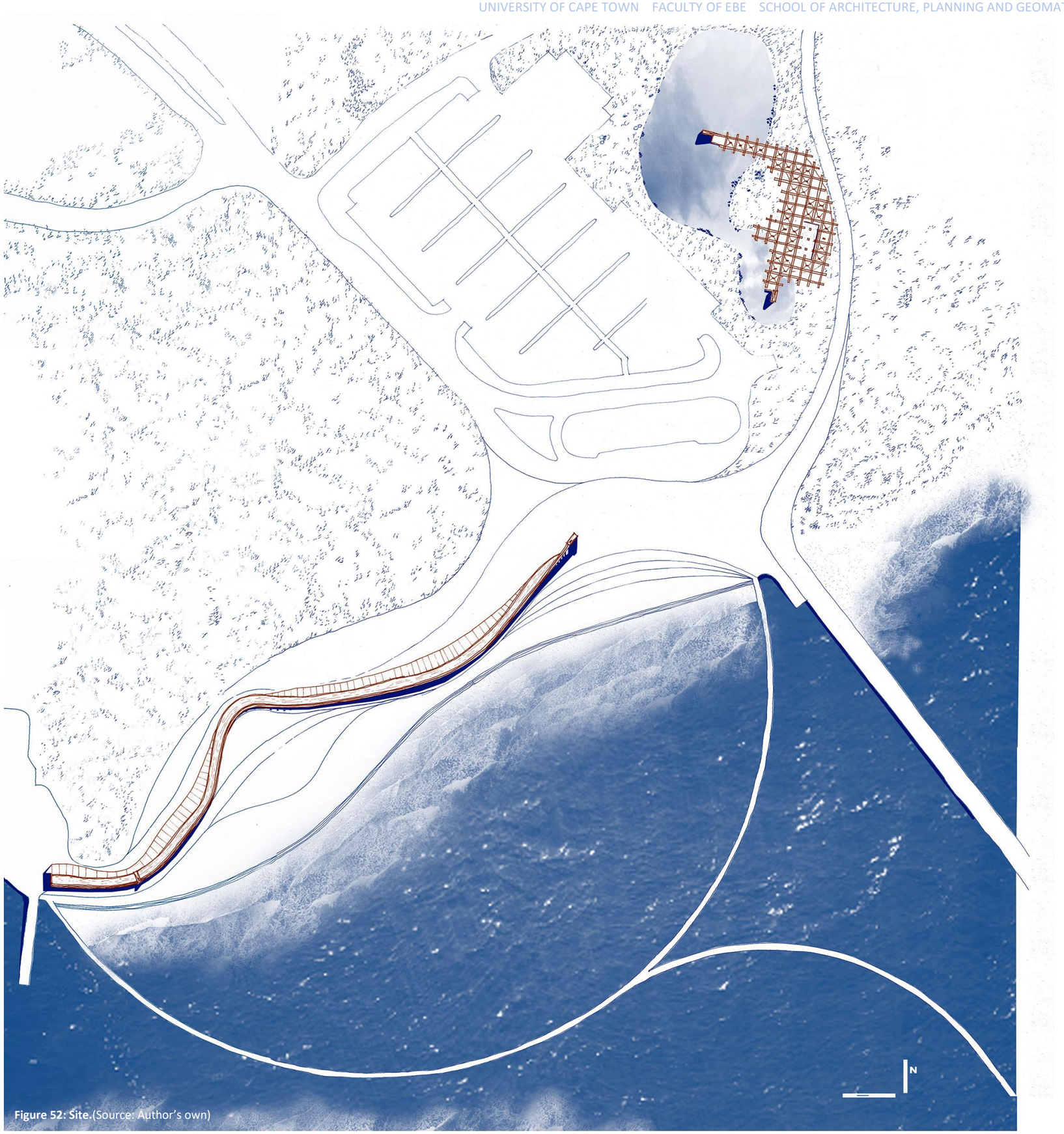


Figure 52: Site.(Source: Author's own)

DESIGN PROPOSAL

I developed a plan around the theoretical principles of creating human presence, permeable space, settling on dry favorable conditions and moving toward water. These principles are aimed towards inspiring new social practices and facilitating old. I also adopted the idea of follies by Bernard Tschumi. Placing the buildings at optimal positions on site and using them to anchor and navigate visitors while encouraging loitering that allows for passive knowledge transfer.

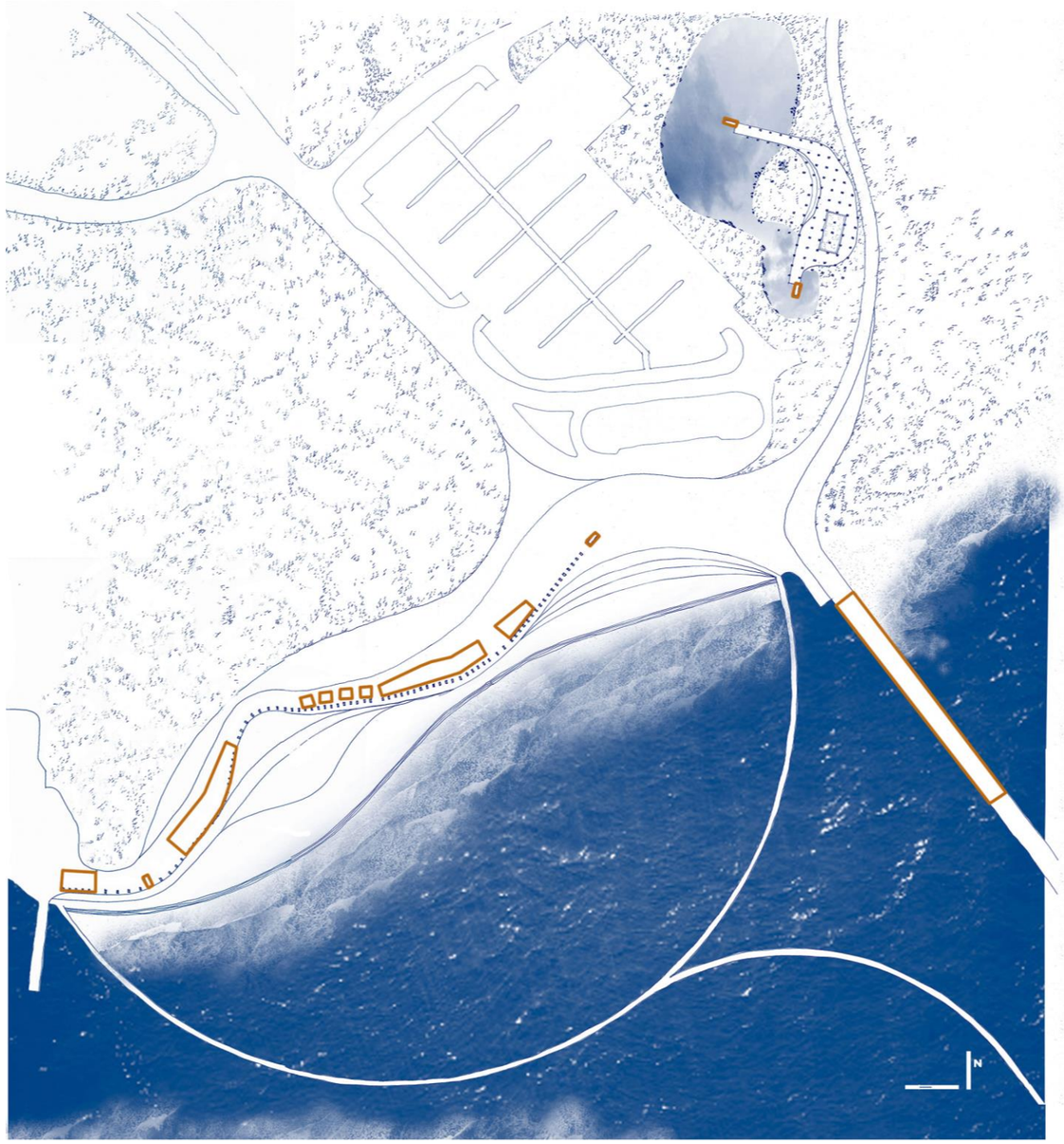


Figure 53: Existing site and Redeveloped site.(Source: Author's own)

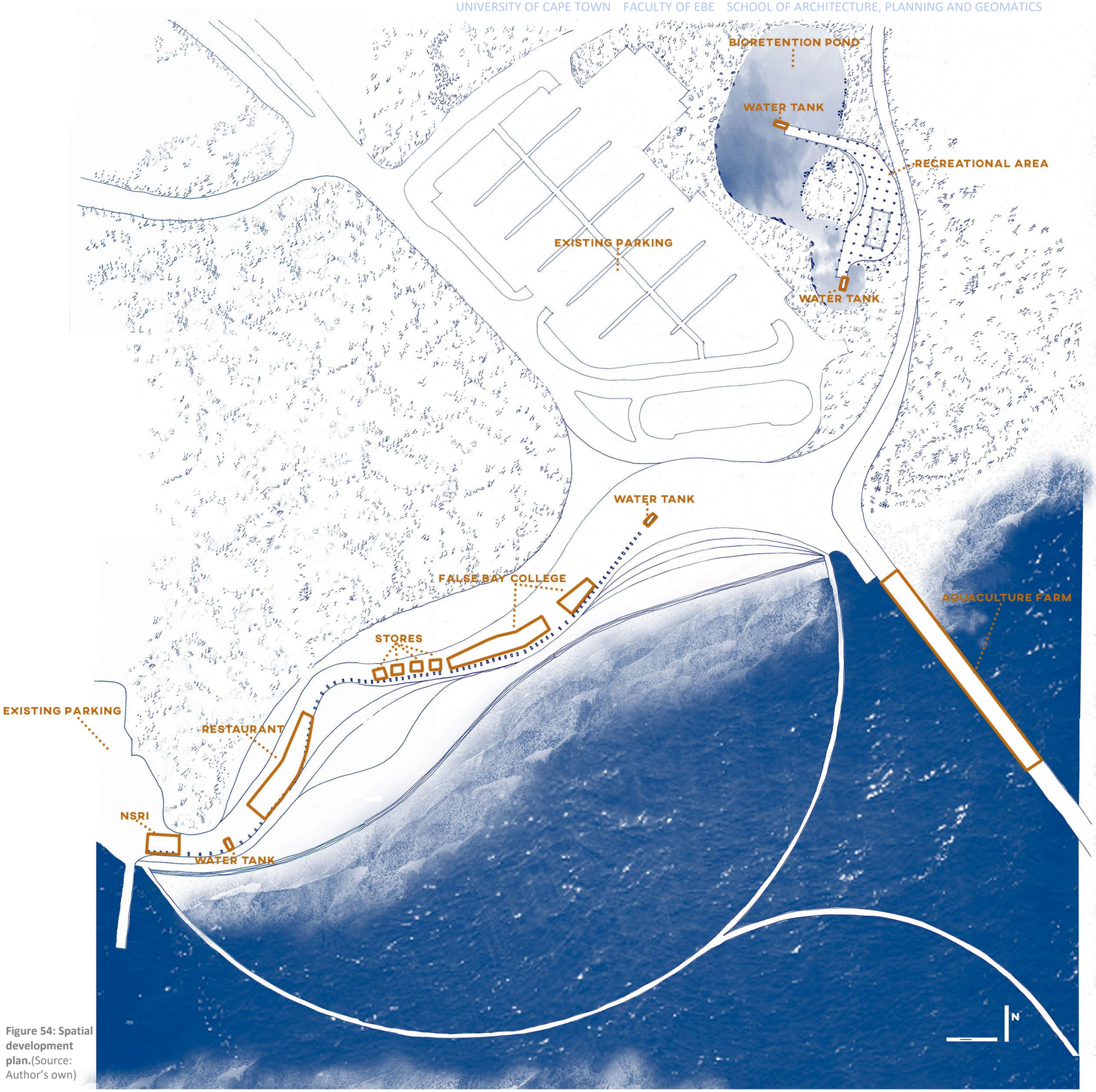


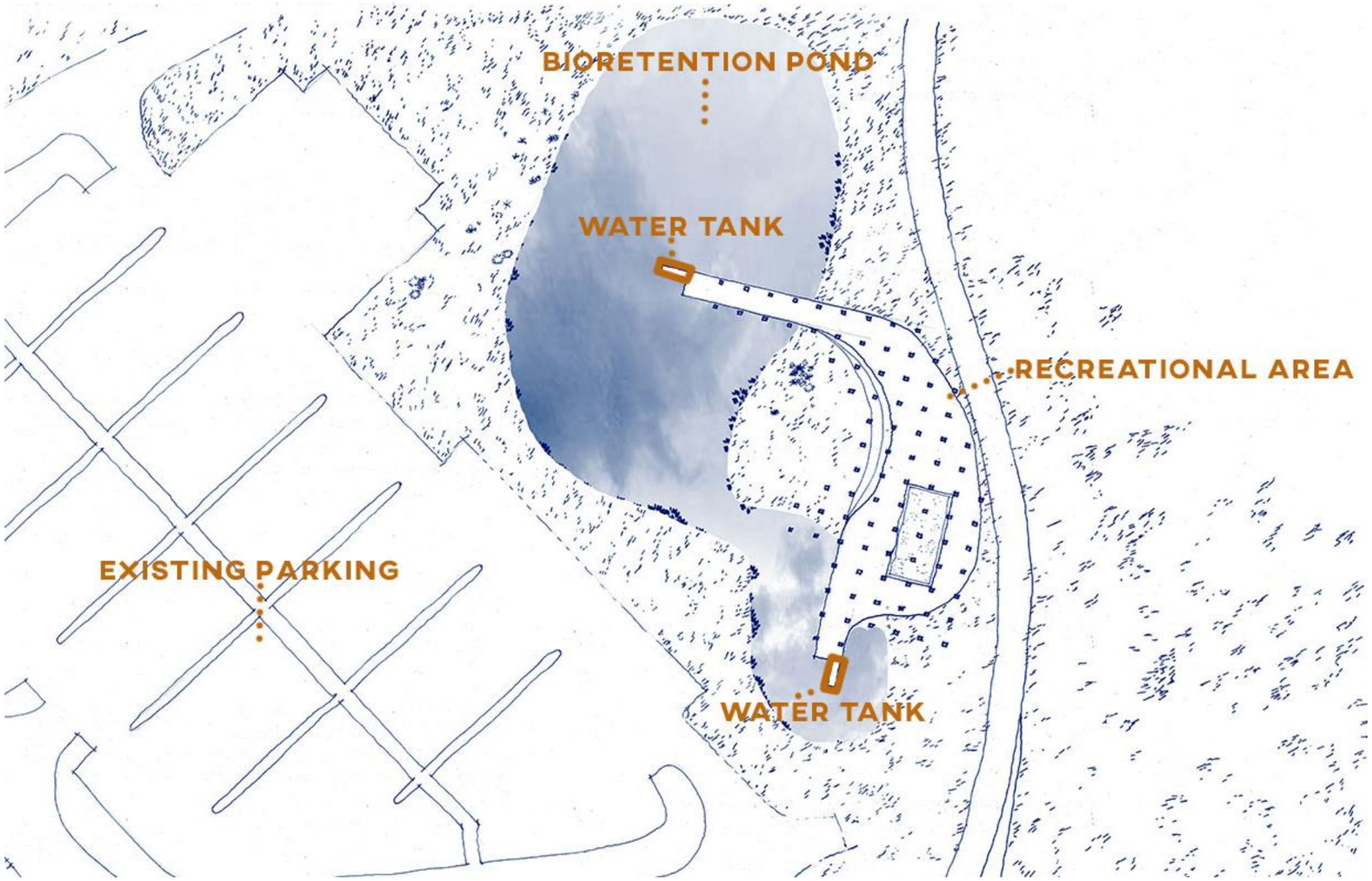
Figure 54: Spatial development plan.(Source: Author's own)

Towards the North of the site, at the outlet point of the surface runoff water, I am proposing a bio retention pond, an infrastructure that uses natural processes to clean water. Around this pond I will build a partially roofed structure that sits on a raised platform. This area will act as mediator to visitors hesitant to venture further towards the beach or place of refuge for those seeking a different atmosphere.

In place of the old pavilion, I proposed a new building. One that will house a restaurant, a few stores, absorb the NSRI and an FET College. Further adapting the tidal pool to extend its walls of protection.

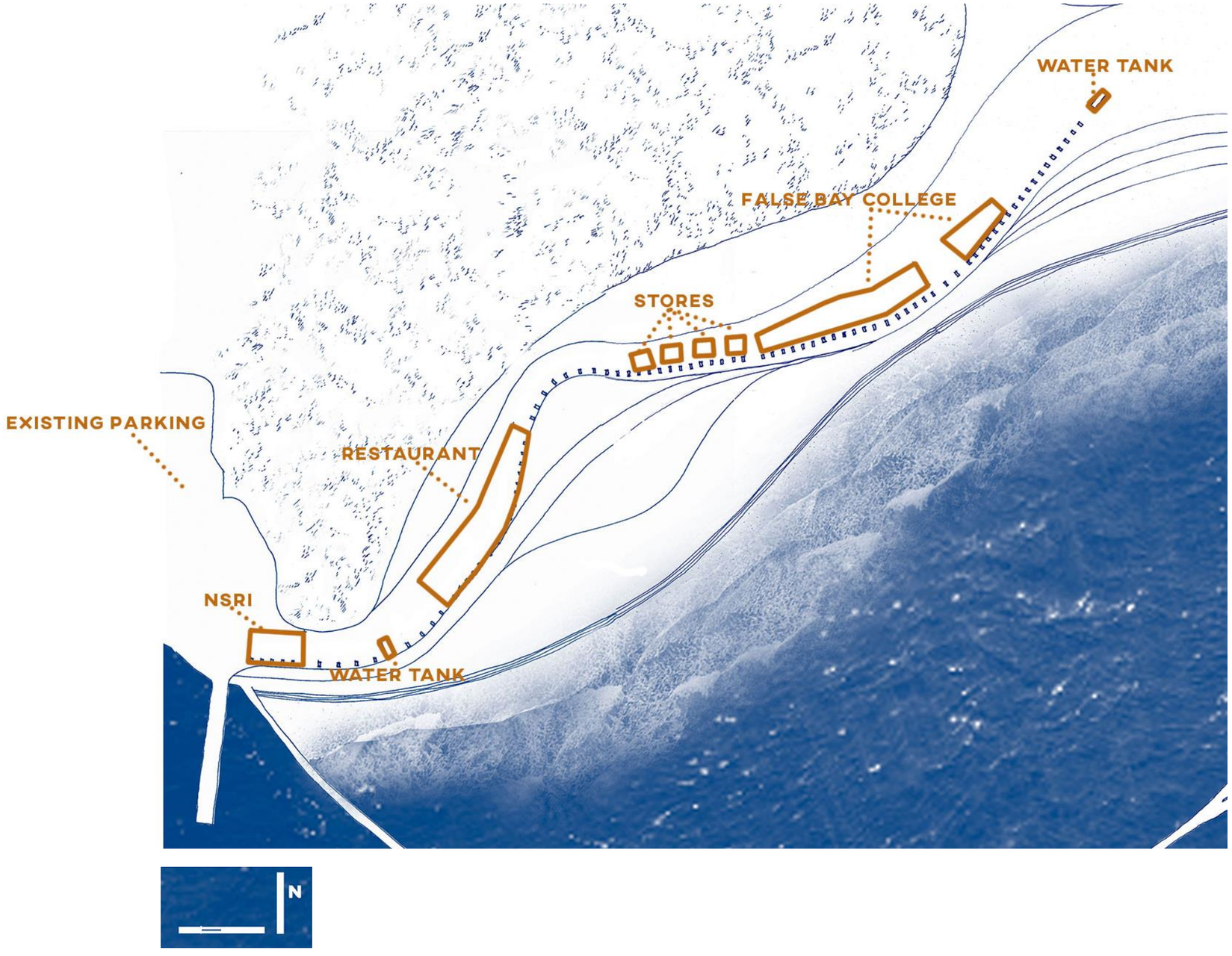
These buildings will support and create balance with the building that extends into the ocean that will house the aquaculture farm.

The water tanks act as moments of recall located throughout the site and amongst the programs.



Programmatically, I have imagined that in the northern most part of the site sits a recreational area that celebrates water. The roof will create shade for rest while visitors sit by the water. The roof is made up of a series of gutters arranged on a grid and supported by columns. The water will be collected in tanks and along with the water collected in the bio retention pond will be used to service the pavilion and aquaculture farm.

Figure 55: Recreational area.(Source: Author's own)



The produce harvested will be supplied to the restaurant where the beauty of these products can be shown through cuisine. This also offers locals an opportunity to witness what can be done with the produce and what simpler meals can be made at a domestic level. Increasing diversity of food resources. The FET College will be an extension of the False Bay College focusing on maritime, hospitality and marine tourism. I envision students studying and preparing practical lessons in partnership with the restaurant. The classrooms supplied at the school will also be used by the local organization, 9Miles Project, a Strandfontein based NGO that educates primary school learners about surfing culture and often supplies food to the impoverished in the community. They will work with the NSRI that will further educate learners and the general public about beach safety.

Figure 56: False Bay College, Restaurant, NSRI.(Source: Author's own)

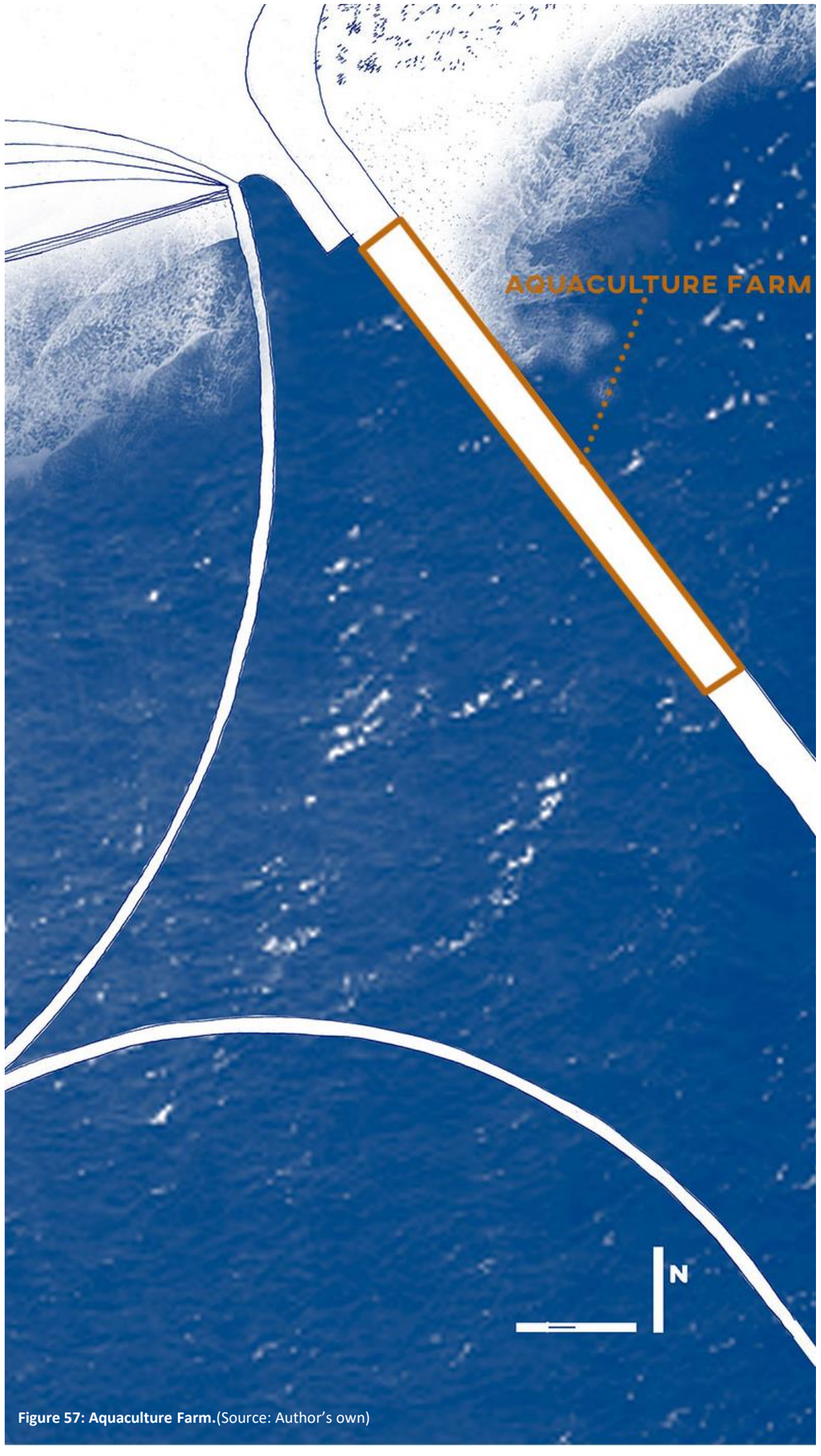


Figure 57: Aquaculture Farm.(Source: Author's own)

The aquaculture farm located in the sea will start off as a seaweed and shellfish farm. Because of the low skill level required, this farm will produce many jobs that start at very basic level of processing produce all the way to research level employment. Seaweed has a wide range of benefits for the environment and for our health. It can be used to produce various products such as soaps, building material as well as foods. Seaweed can be cultivated by planting seeds in a nylon rope that is then strung out in the water and anchored to the sea floor. Growth takes up to 3 to 4 months before harvesting and sometimes seaweed grow 28cm in a day. Seaweed feeds on nutrients present in the sea and sunlight. Some of those nutrients are pollutants and organic matter not safe for human exposure. Once harvested it is taken to be processed and turned into a product. Shellfish can also be grown in cages tethered to rafts in the sea and anchored to the sea floor.

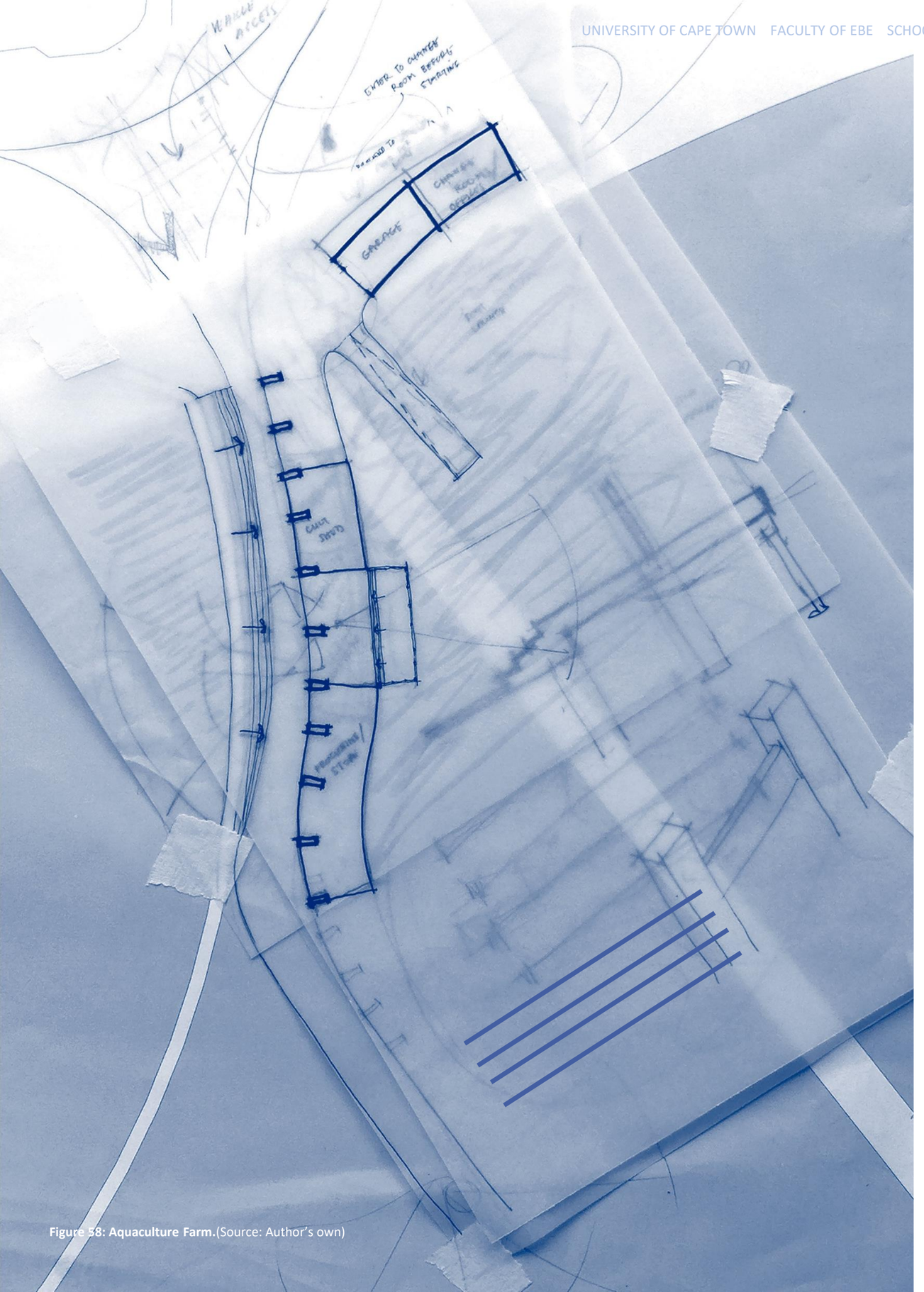
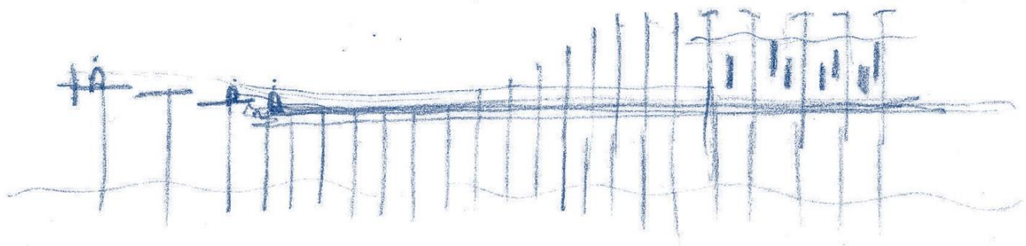
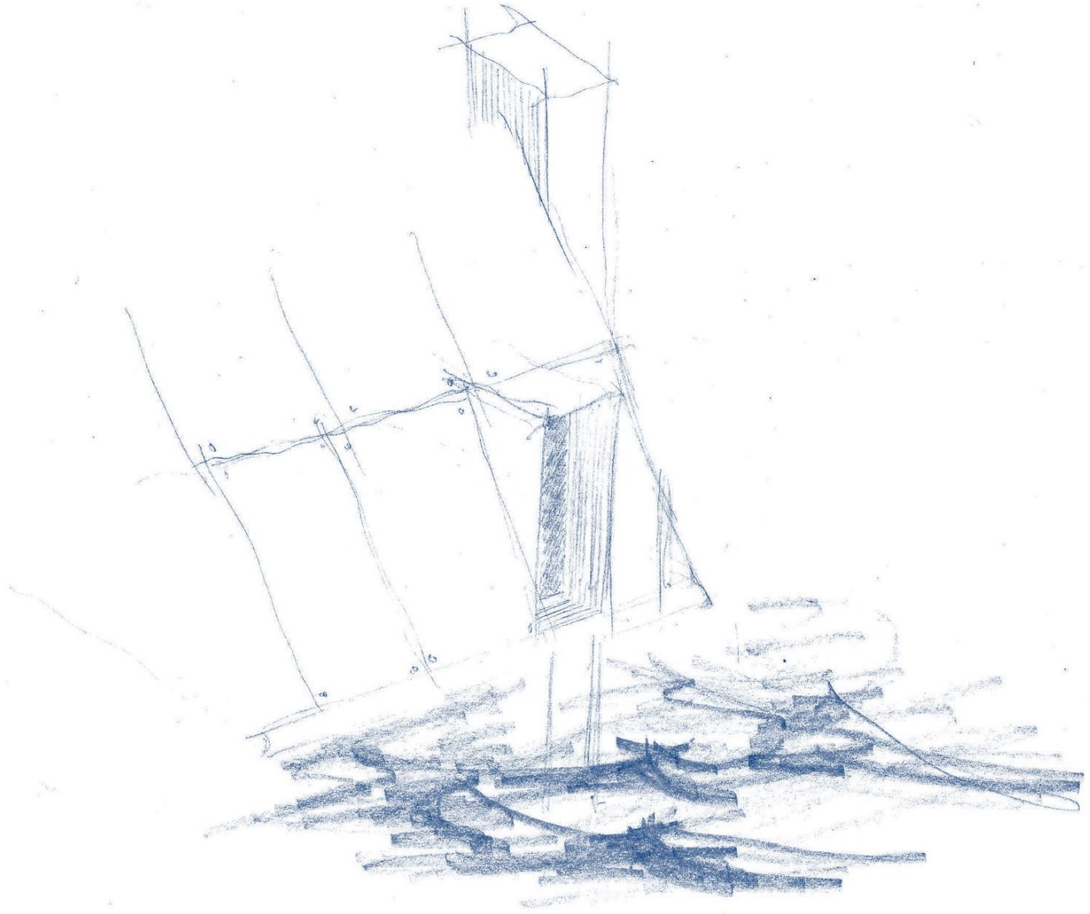
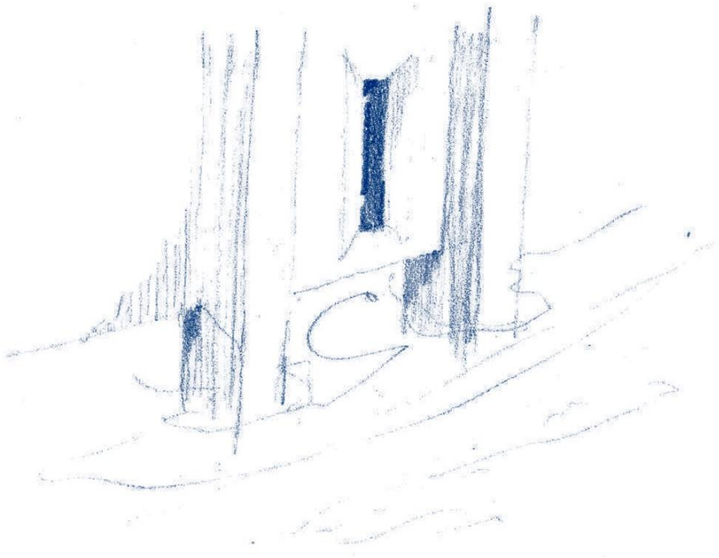


Figure 38: Aquaculture Farm.(Source: Author's own)

The aquaculture farm is designed to front the social and create a connection between the public realm and an activity, such as aquaculture farming, that has the potential to be private. By placing this farm within the public realm, I hope to create transparency. Transparency that aims to encourage passive learning through visibility of processes.

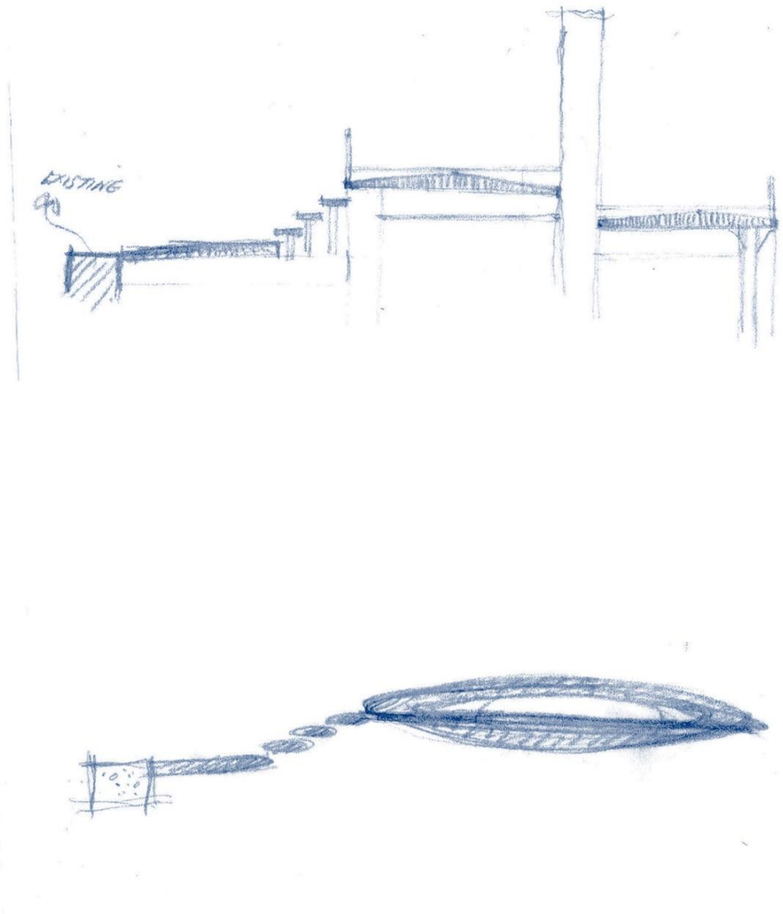






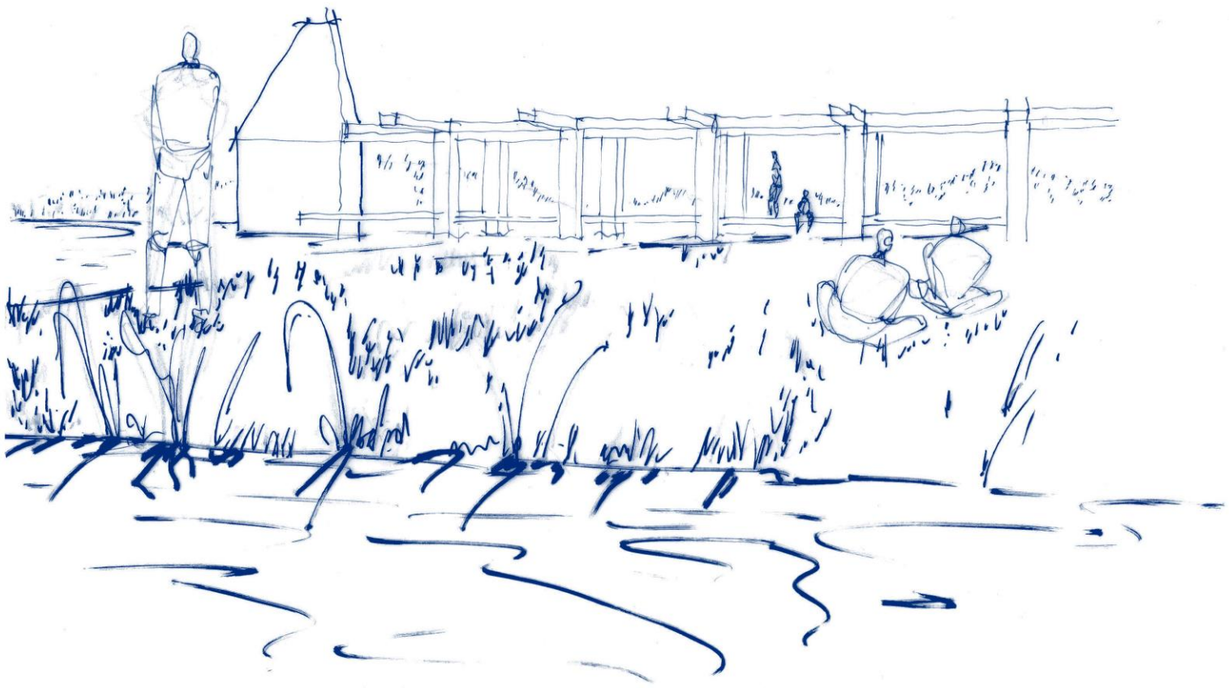
These sketches were done as reflections of my imaginations of what the façade of the aquaculture farm can be relative to the material palette of concrete and steel. These are merely a few iterations of many but reflect my response to building an architecture that is robust enough to receive and counter the force of the ocean.

Figure 59: Conceptual Sketches of farm.(Source: Author's own)



These sketches of isolated sections are looking at how to build a jetty that is robust and timeless but appears lightweight. The guiding principle with these sections is the response to the ocean water and allowing it to permeate. Horizontal planes are offset from each other, this makes it seem as though they were floating. The offset allows for a gap where, in higher tides, the seawater would be able to permeate and cascade over the floor slabs.

Figure 60: Conceptual section sketches of farm.(Source: Author's own)



IMAGINED

The project aims to mend the disconnection by allowing the community of Strandfontein to immerse themselves in the site and acknowledge the site for the natural landscape that it is, giving space to what is already present. Then establishing a change of perception of the ocean, not just as an inevitable but as a valuable resource capable of improving livelihoods. The public spaces will be treated as commons allowing visitors to witness lived experiences that inform the social practices of water. Visitors are able to partake in the activities or simply sit and watch it take place. The walkway is positioned adjacent to the aquaculture farm to ensure that the public can witness the process of harvesting and production. The NSRI has been relocated closer to the tidal pool so that their practice drills can be seen by onlookers. This influx of human presence, I believe, will deter criminal activity. Further, the restaurant and stores allow visitors to prolong their stay with amenities close by. The terraced plinth will act as a place for visitors to lounge on their towels while watching fisherman tread the walls of the tidal pool for the catch of the day. The public will also be able to witness boats being launched into the water while enjoying a casual swim in the pool. An architecture of Water Cultures is an architecture that prioritizes the role of humanity as an inevitable presence in nature but alters that presence for humanity to be of nature.

Figure 61: Imagined Life at Recreational Area.(Source: Author's own)

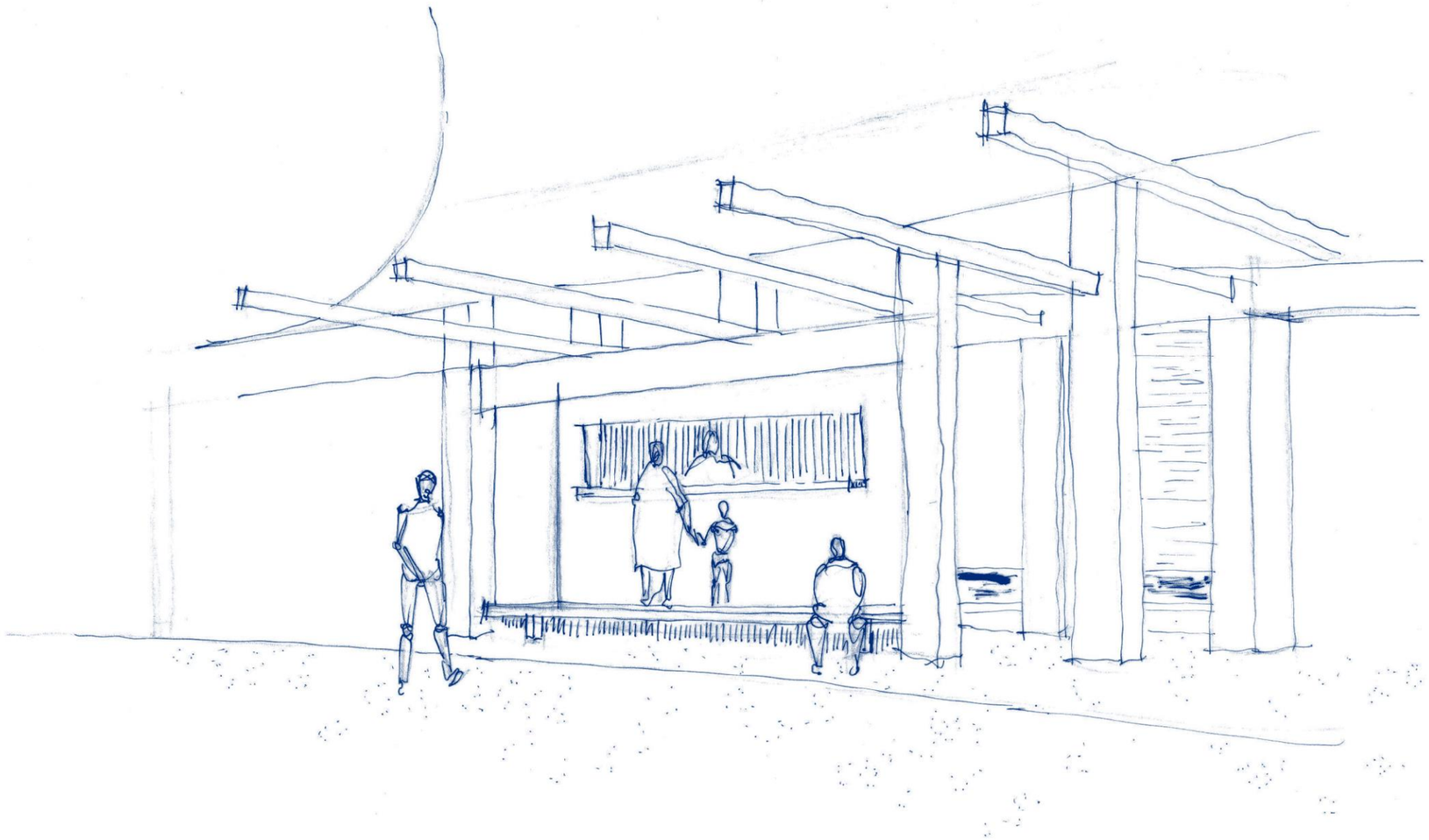


Figure 62: Imagined Life at Snack stores.(Source: Author's own)

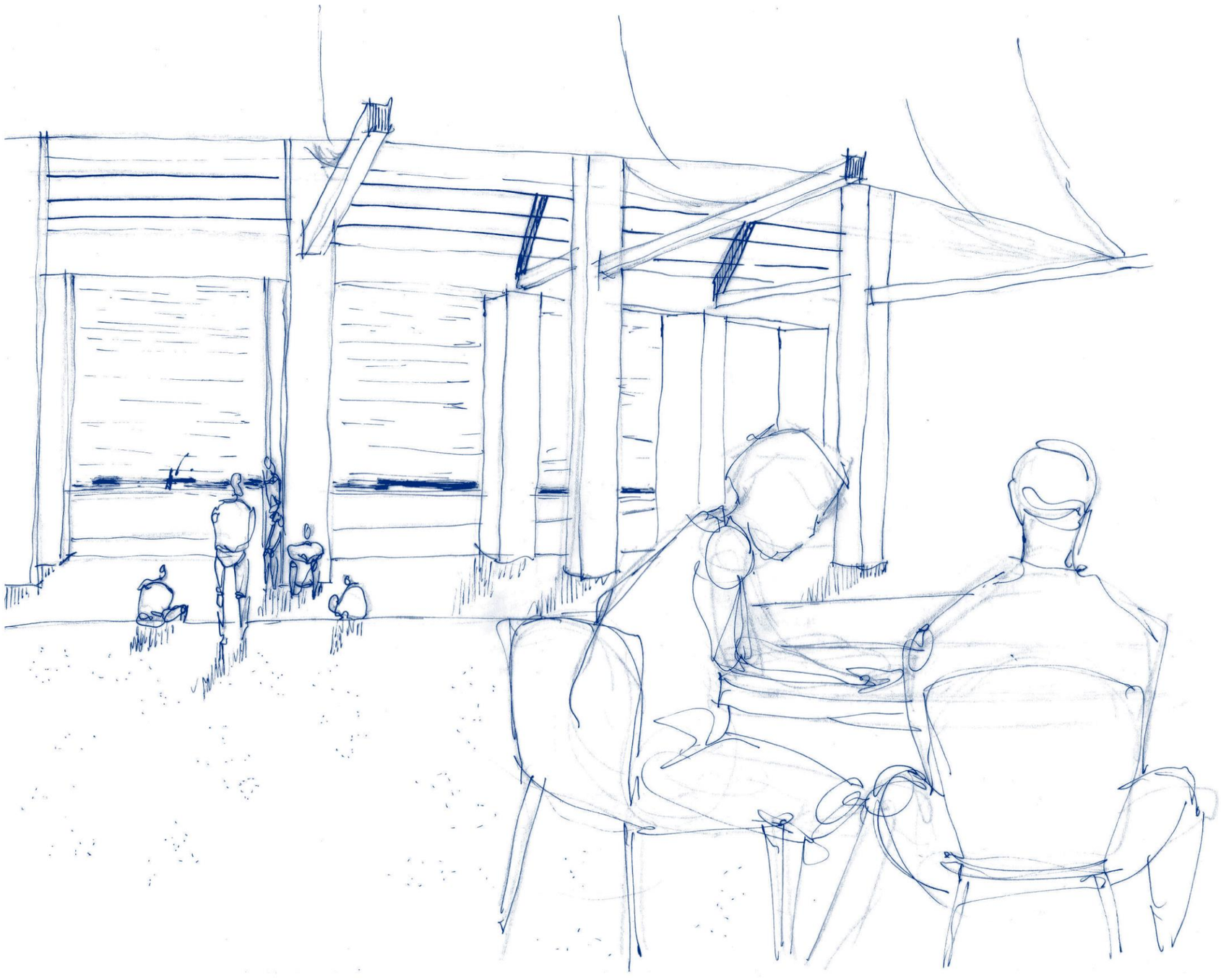


Figure 63: Imagined Life at Restaurant.(Source: Author's own)

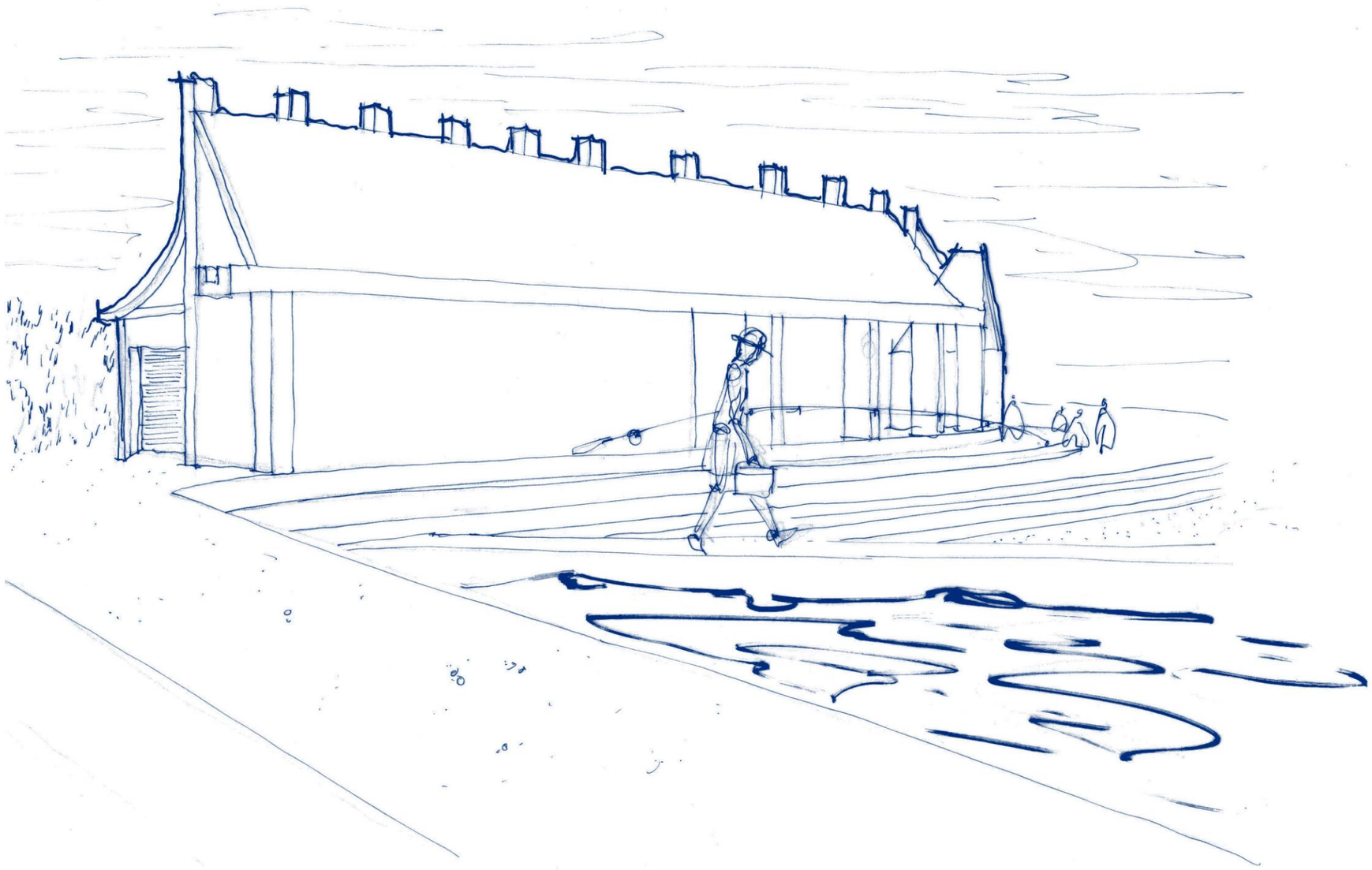


Figure 64: Imagined Life at NSRI.(Source: Author's own)

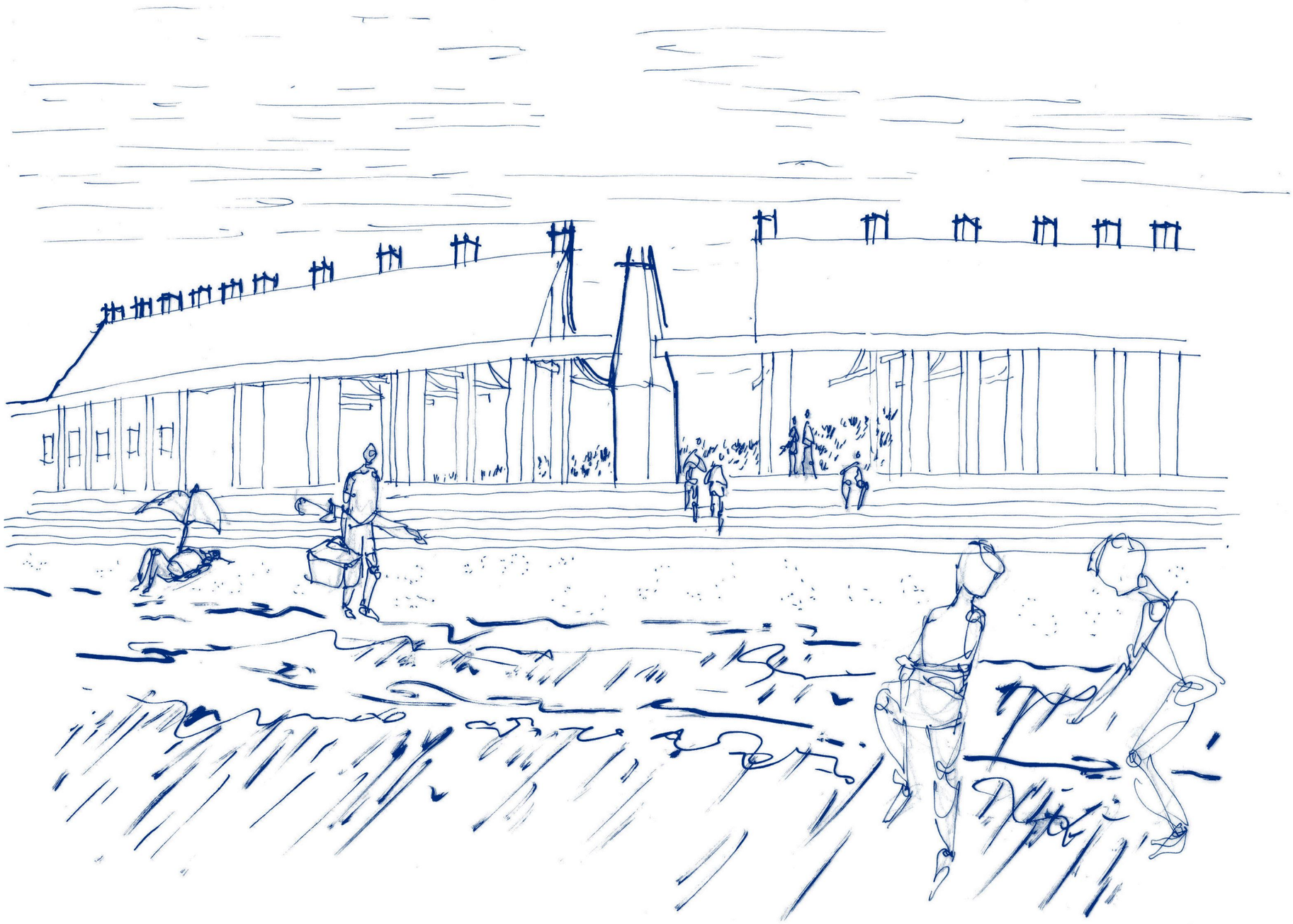
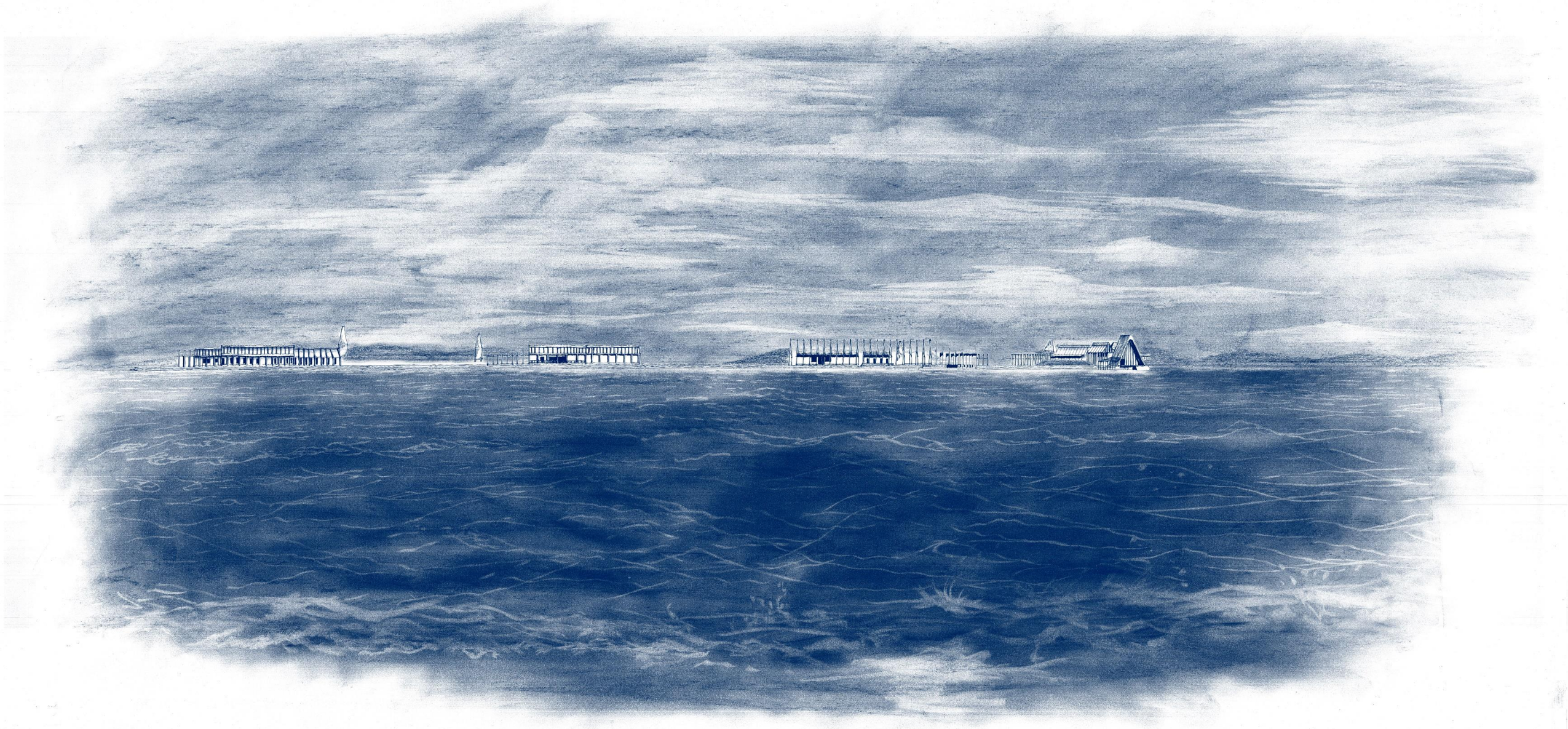
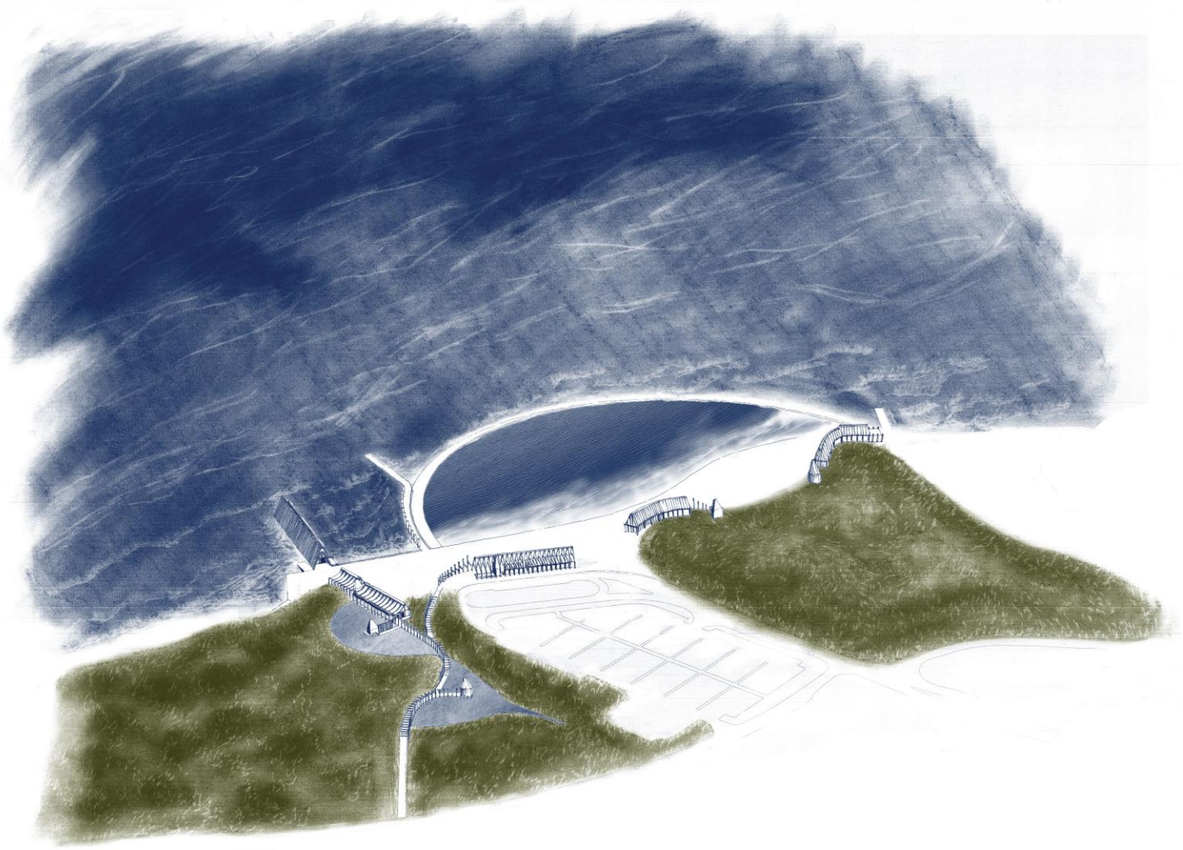
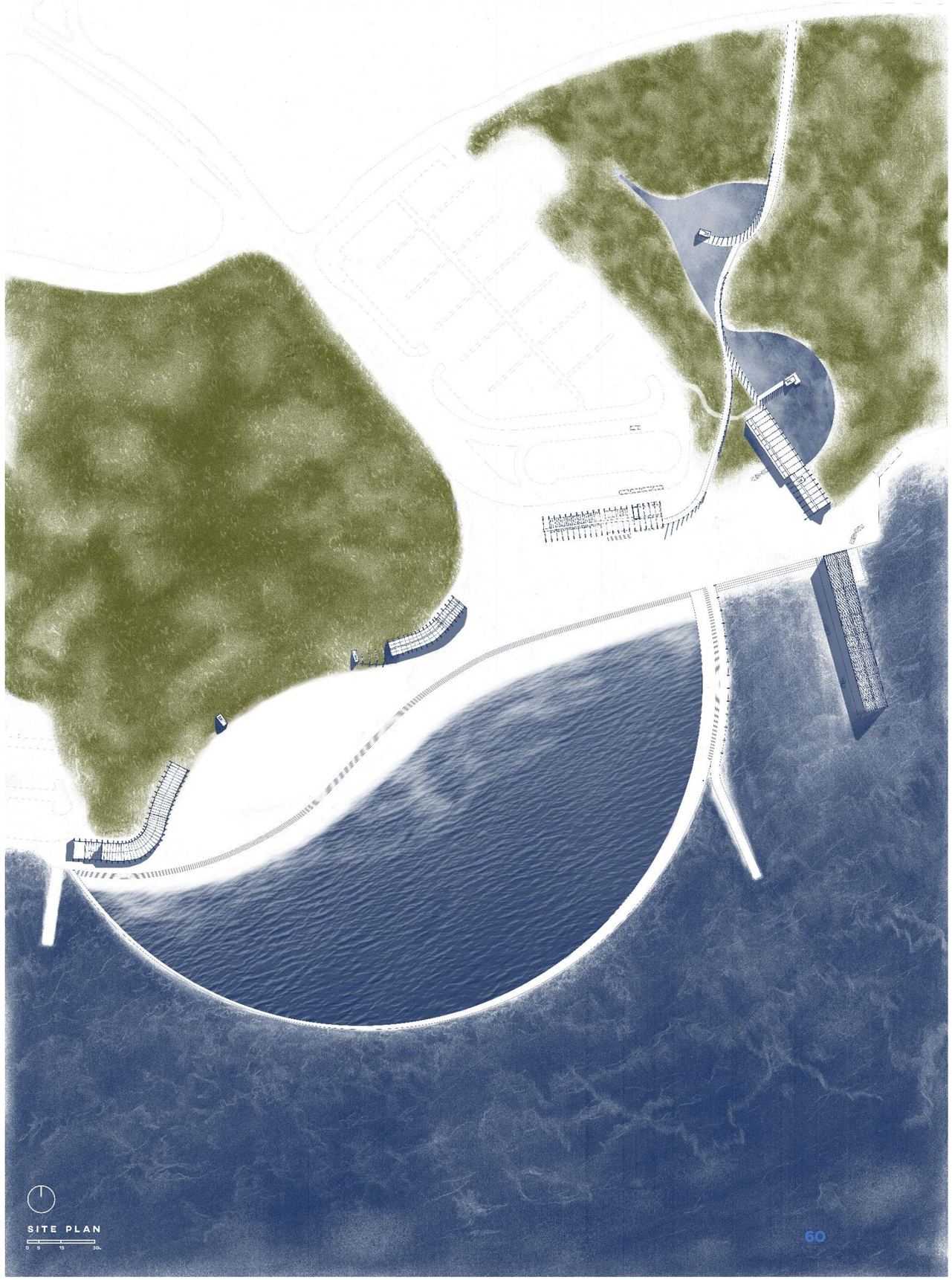


Figure 65: Imagined Life at Tidal Pool.(Source: Author's own)



SOUTH ELEVATION




SITE PLAN
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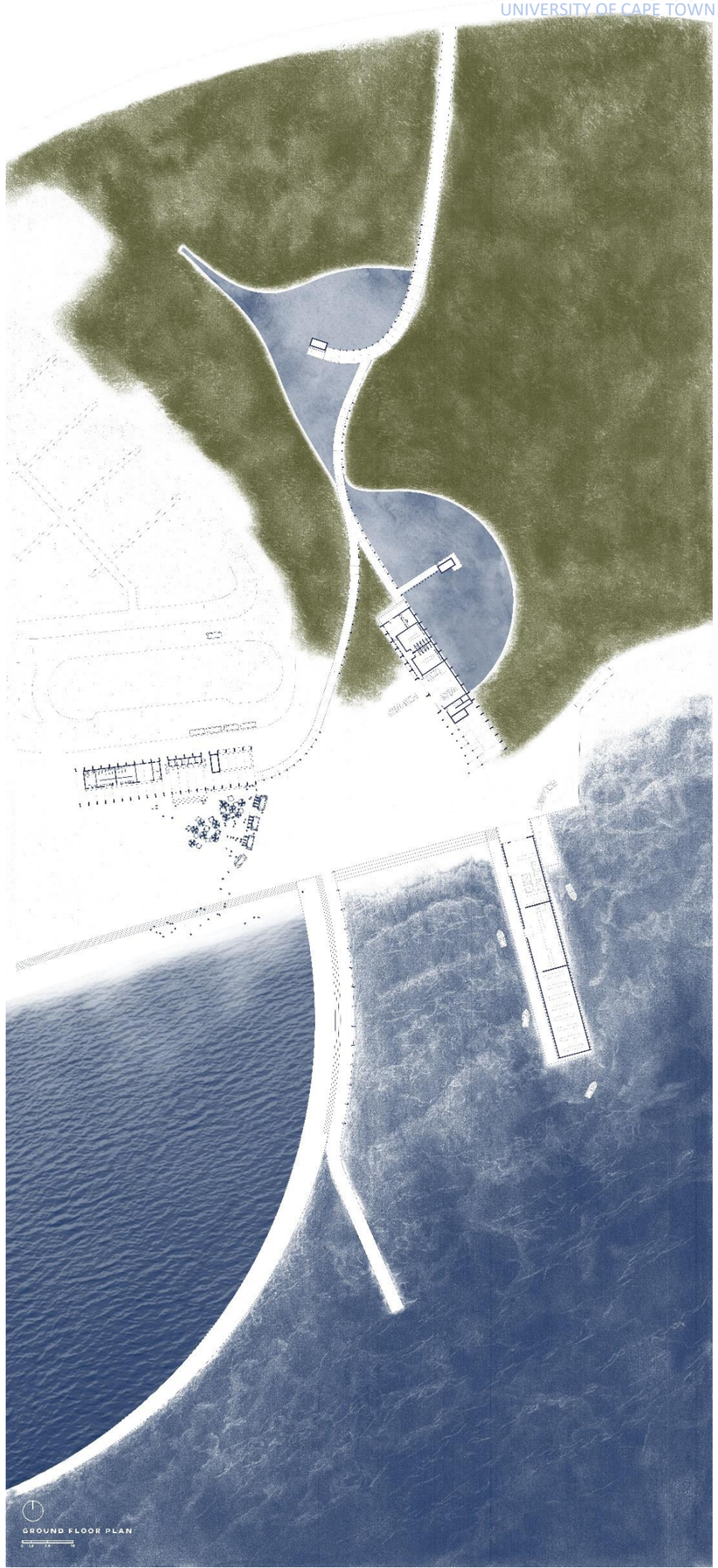
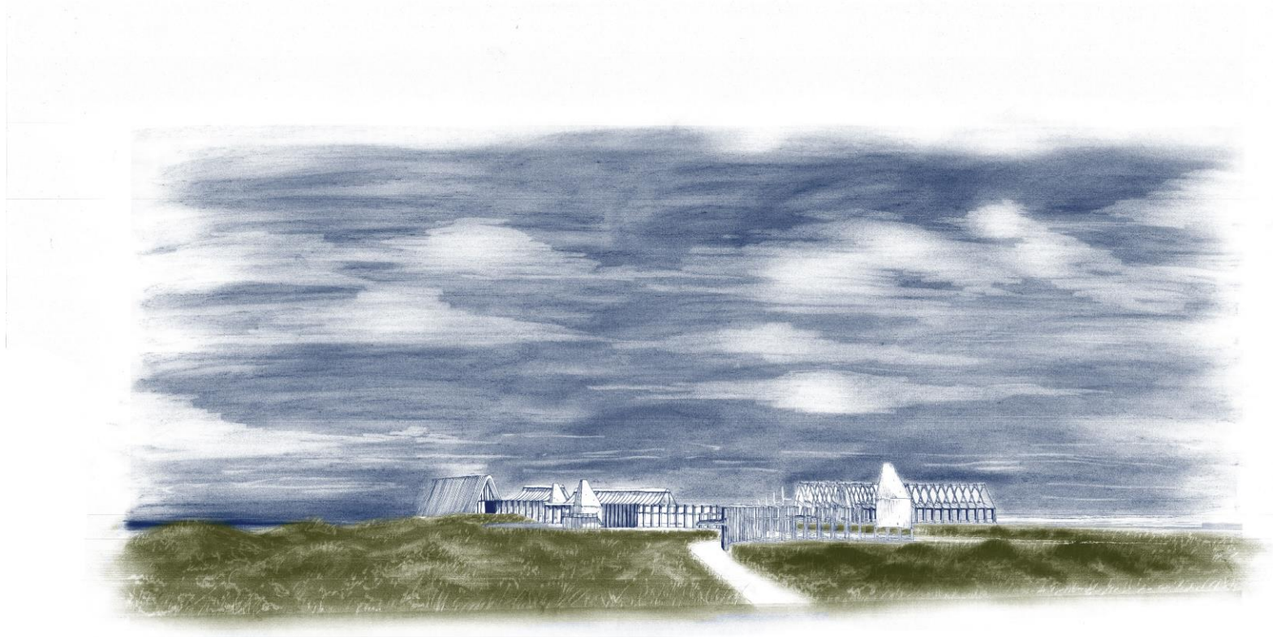
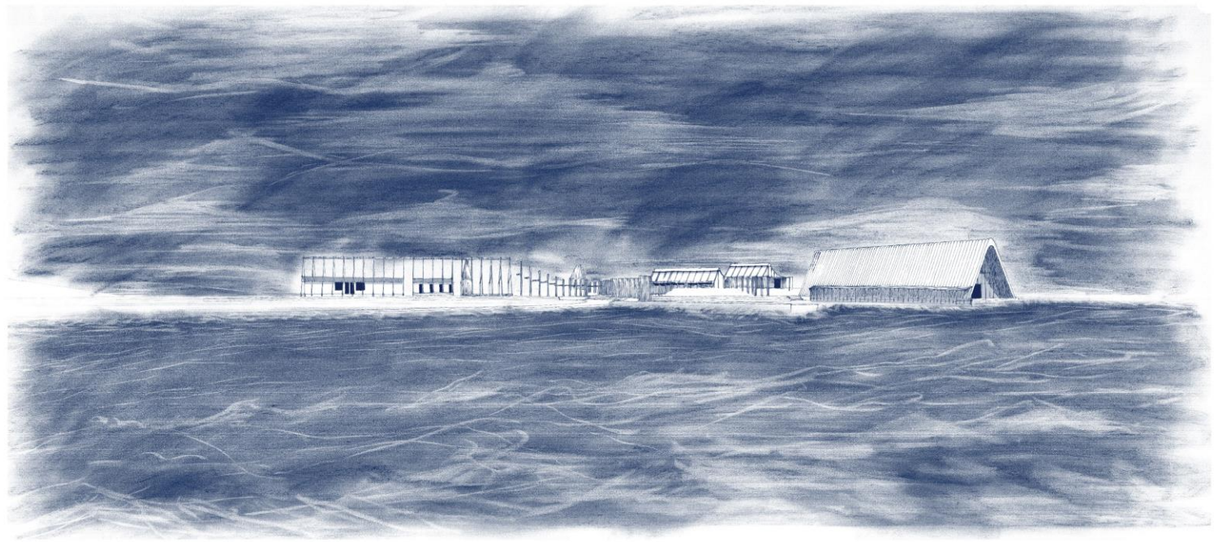
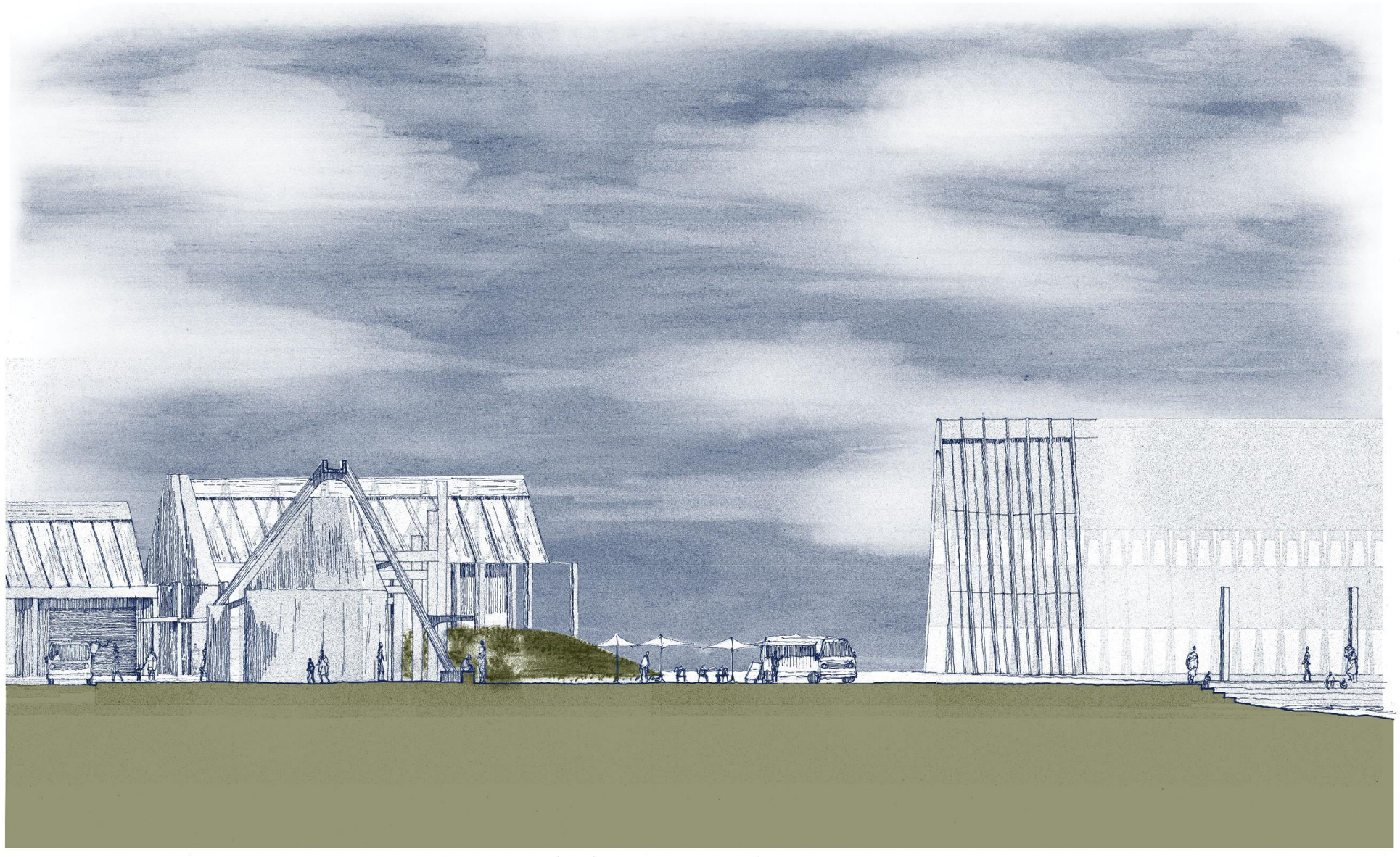

GROUND FLOOR PLAN







SECTION THROUGH PUBLIC AREA

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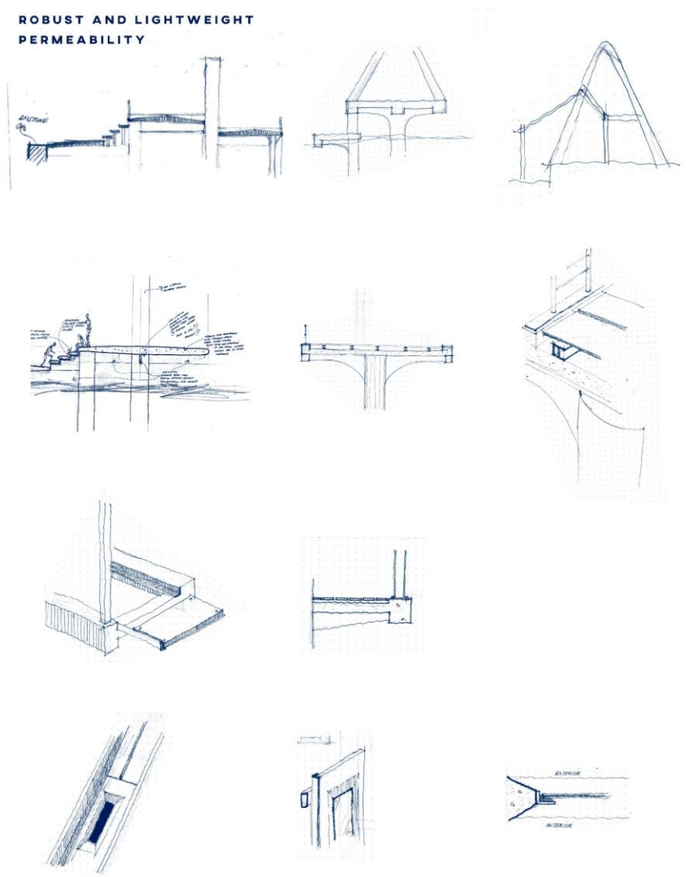
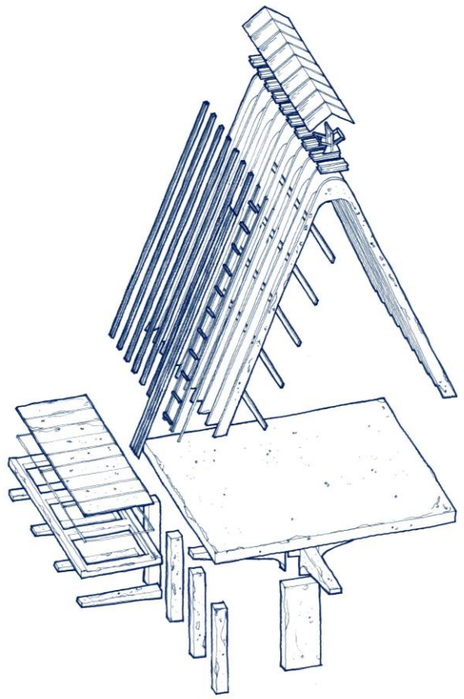
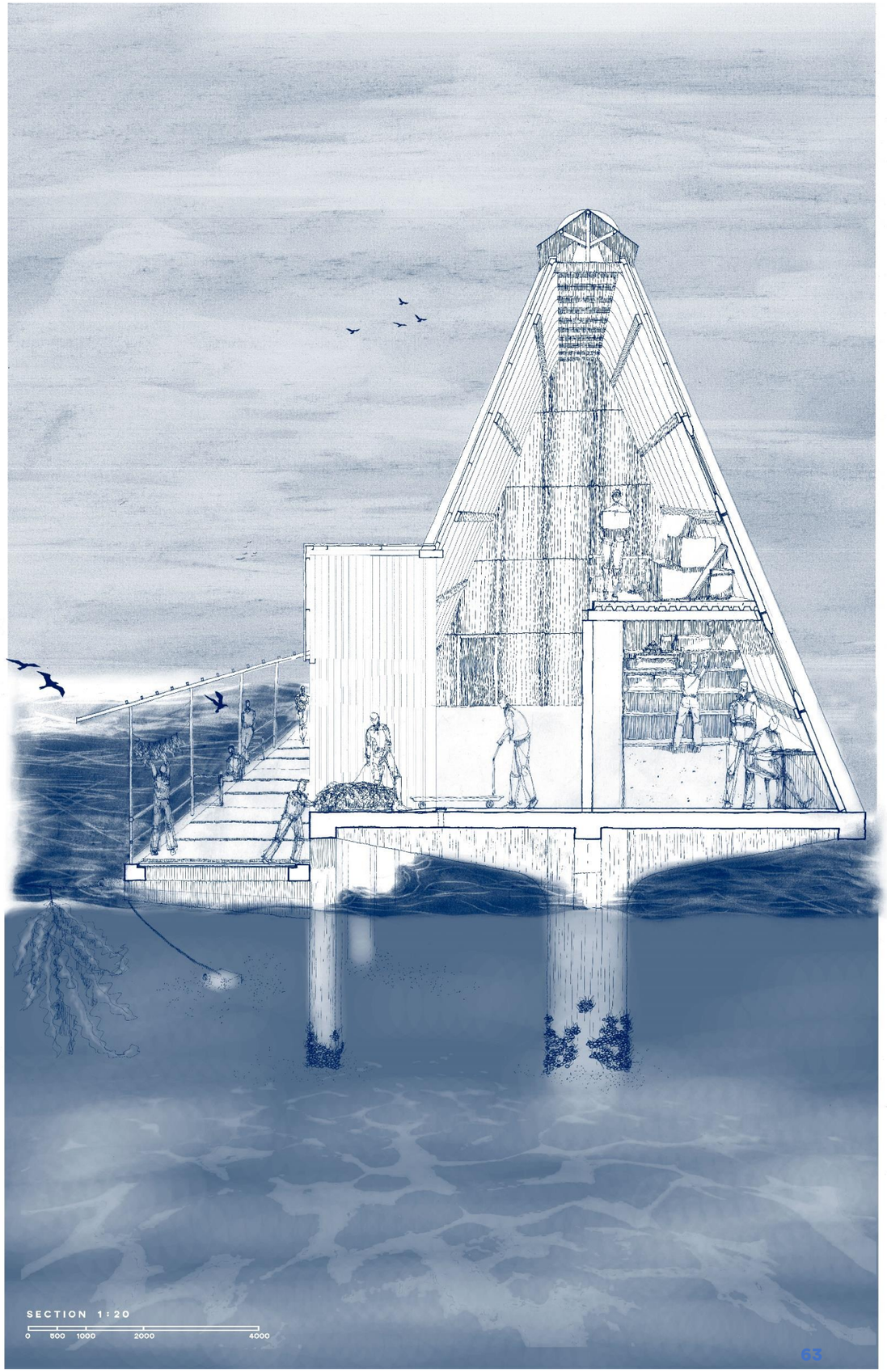
PRINCIPLES OF STRUCTURE

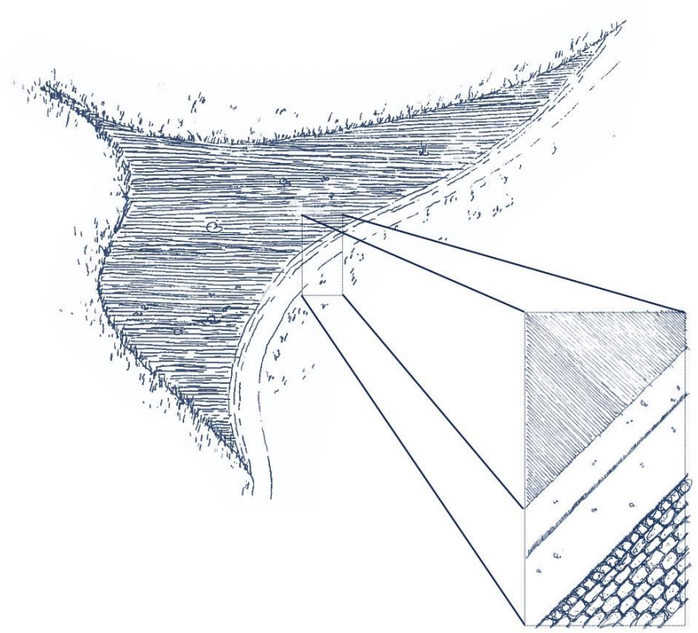
ROBUST AND LIGHTWEIGHT
PERMEABILITY

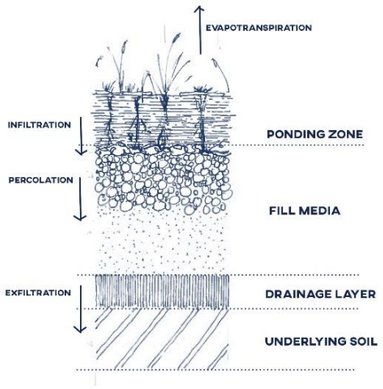


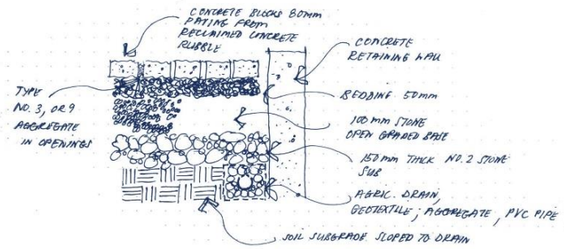


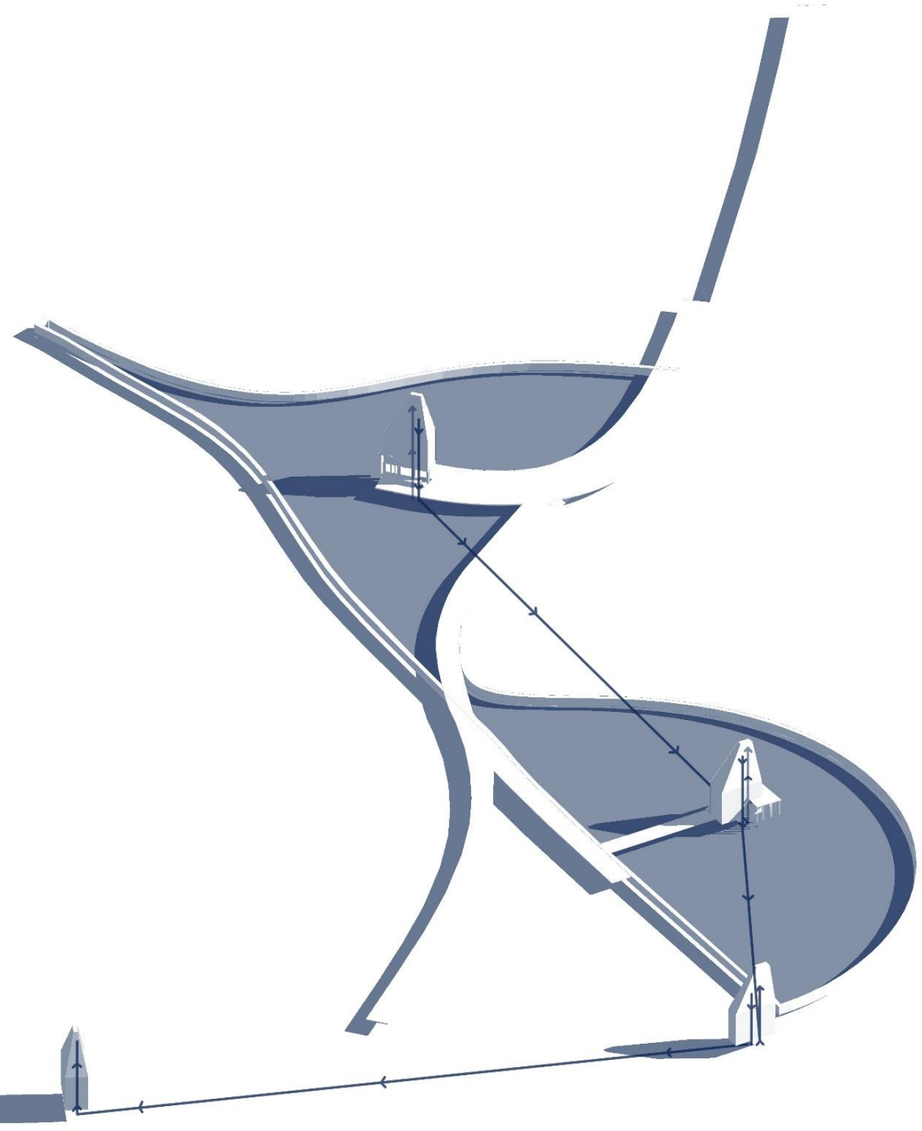


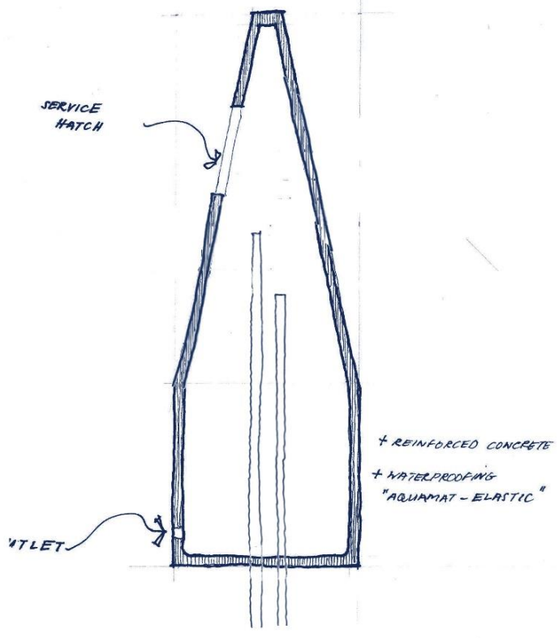
WATER SYSTEM

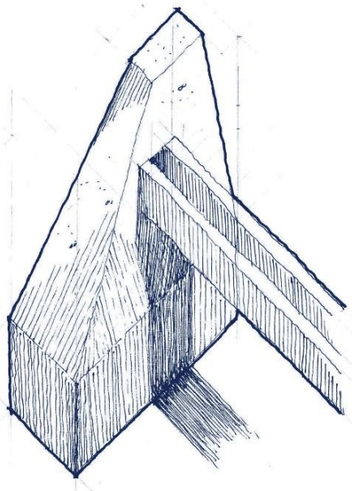


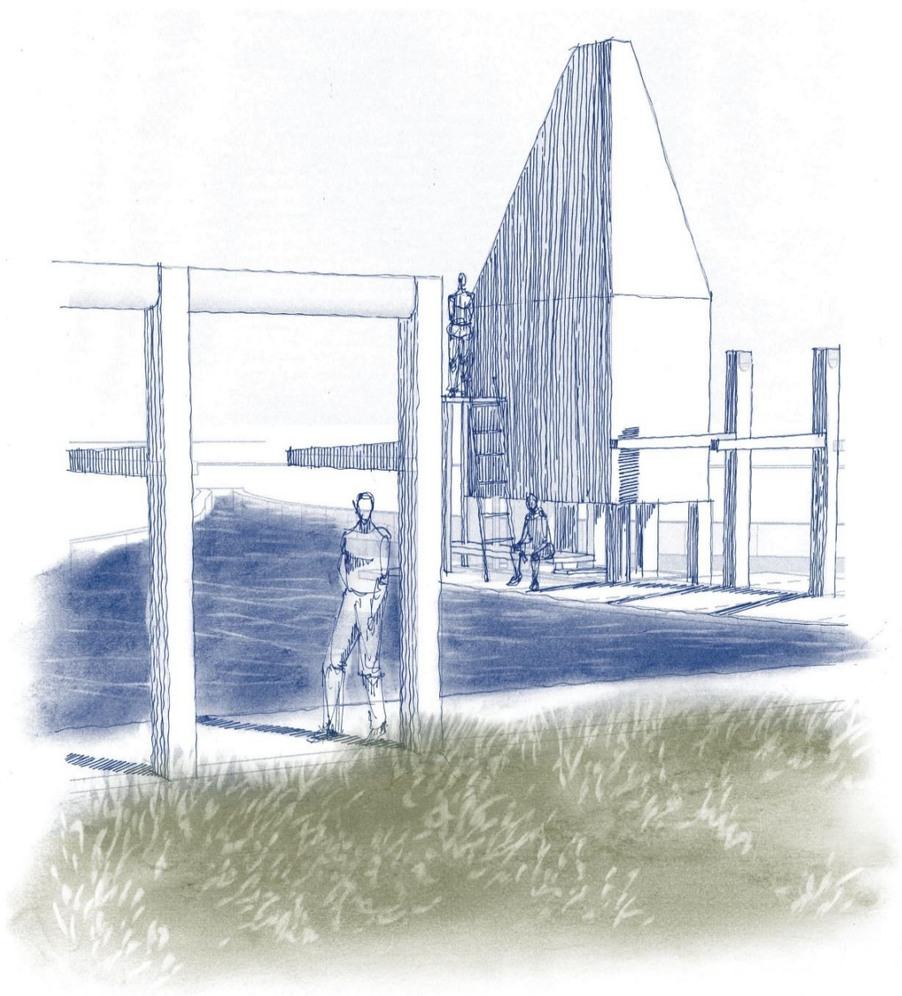


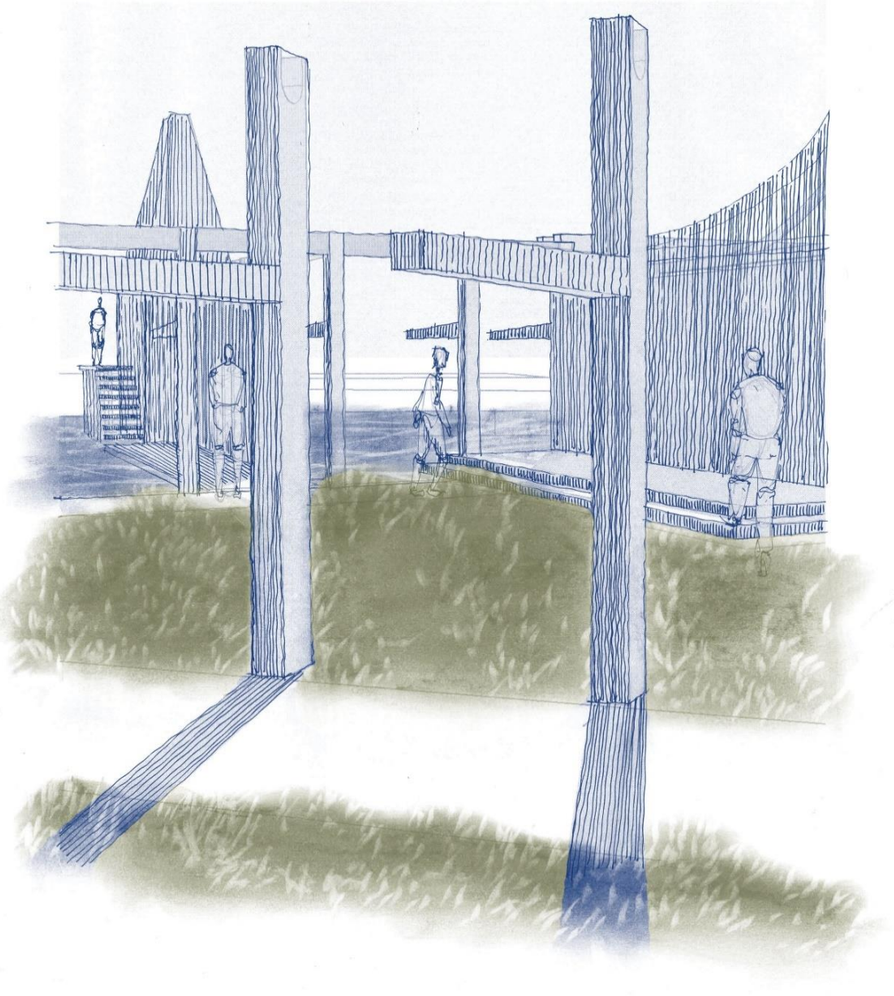


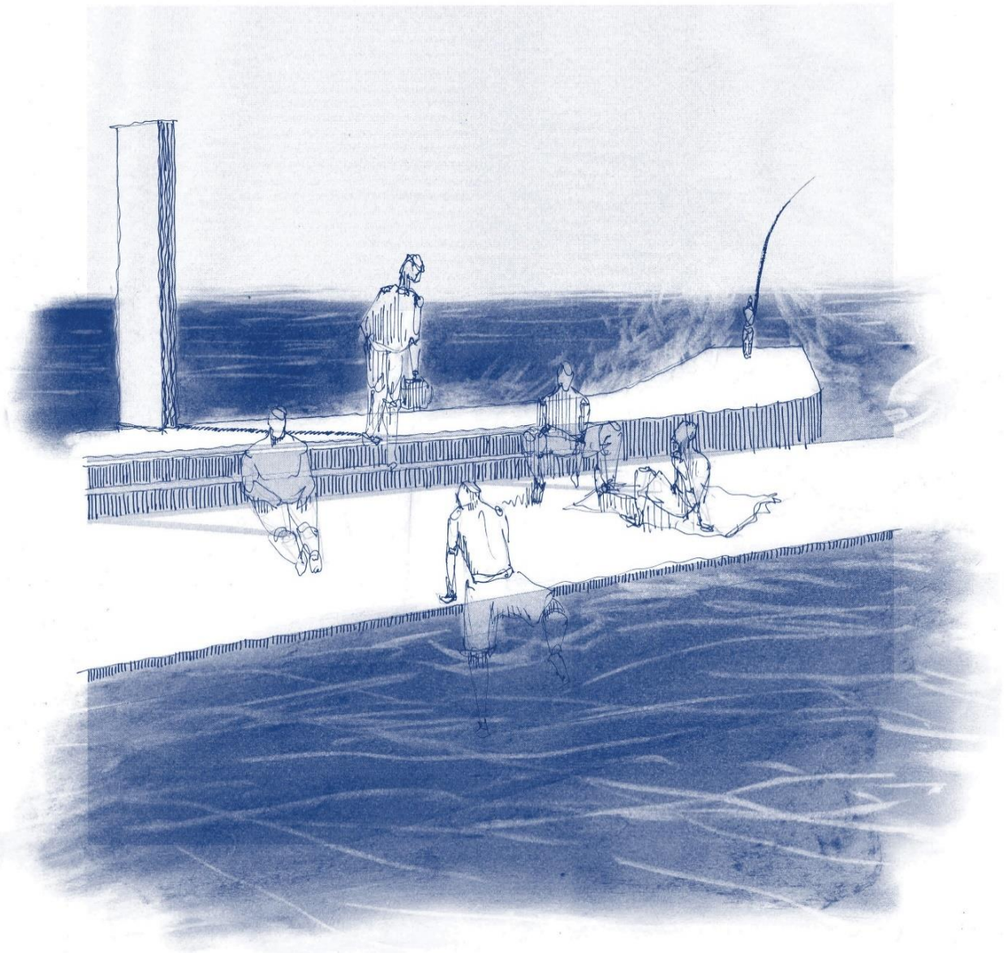


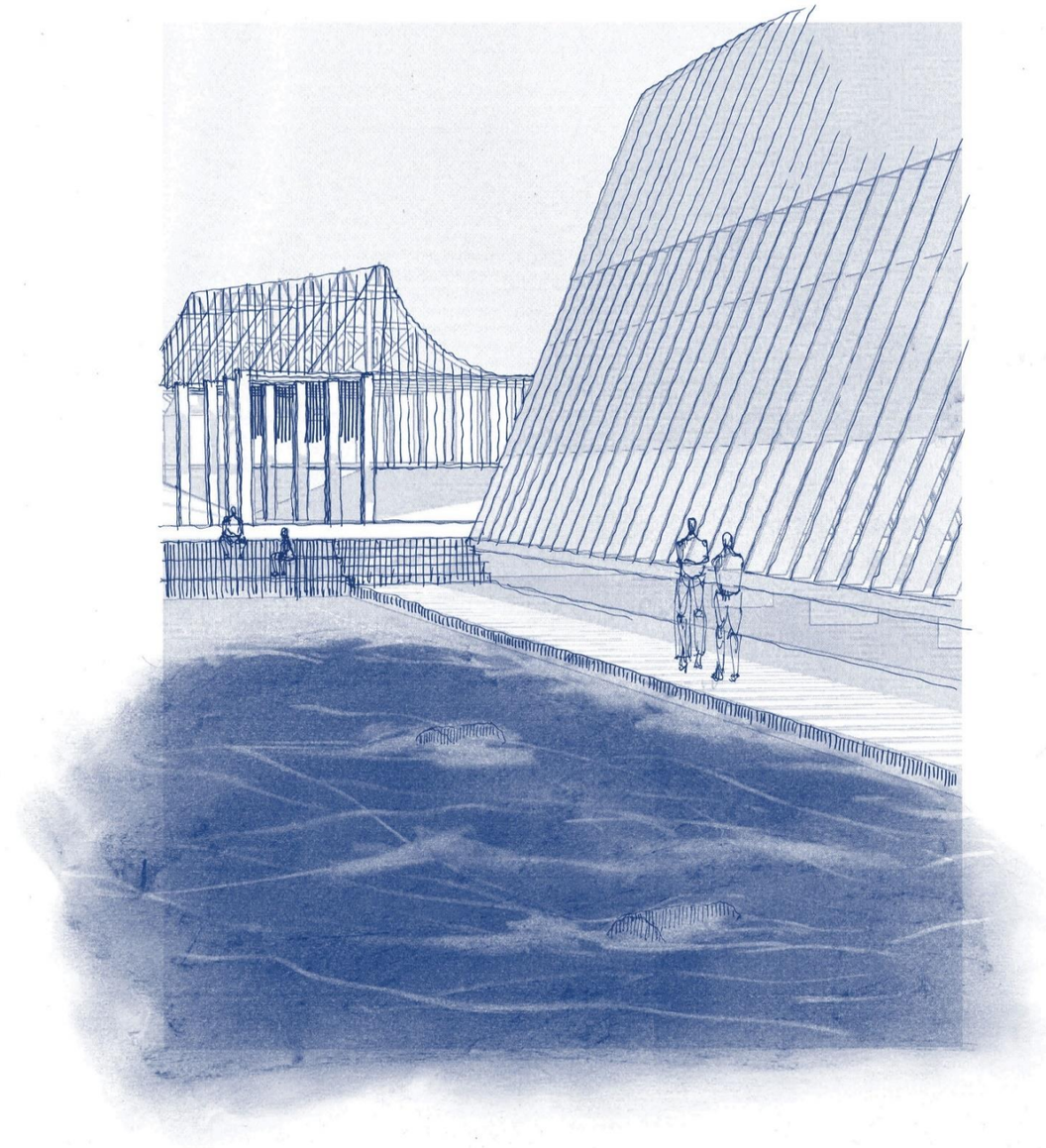












PORT OF CALL: LAUNCHING

This dissertation submerges itself in the depths of water and its endless potentialities.

The essence of all life. Acknowledging the life of water and its many phases. As gatekeeper of knowledges of humanity past and present. As the source of memories, the tool for transformation. A canon of lives lived, concentrated with history.

The pseudo eternal. A phenomenon that is adjacent to and supplemented by the nature of time. A quiet existence, not in the past, the future, nor the present but somewhere, shifting, enduring. Ebbing and flowing. Transcendent of abstract time. A constant shift, a constant in between.

The shapeshifter. Capable of moulding and holding within itself. It moulds the lives that it encounters. Shaping how it is approached. Dictating how it is directed, how it is handled. Within it, it holds social practices. Whispers of stories told between friends. Imprinted with the splashing of limbs. Cooling and caressing tender, sunburnt bodies. Refreshing the parched and rejuvenating the lifeless.

The Karma. Life on a loop. Finding life in phase. From liquid, to vapor, to solid, and back again. Each phase holding an existence of experiences, of encounters and of relationships. Unloading none but carrying all of it with it.

The destroyer. Water destroys instantaneously or it takes its time. Water guided the stripping away of cultures and identities. A symbol of what was lost. Its presence tormenting the abducted. A slow, deliberate weathering into neutrality. Weathering reveals the structure of materials. It reveals the frailty of objects to time because it does not occur all at once but rather over a period.

Through investigating architecture and social practice through the metaphorical lens of water, a very real water, and water cultures, this dissertation aims to understand the importance of the built environment in relation to the natural environment. It aims to see and acknowledge cultural and social relations to the natural environment, what we have gained from these relationships and what invaluable knowledge exists within these relationships that can aid our development. It aims to understand the human existence in relation to space and highlight the ability we have, to transform space through memory, our cultural identity, and our unconscious. It interrogates the architect's role in facilitating the presence of the natural environment and the placing of the human within it. It presents the existence of humanity, not as a threat to the natural environment, but rather as a potential aid where humanity, with the help of architecture, develops new and revitalises past cultures and social practices to ascertain a sustainable way of living. This dissertation presents itself, in sorts, as a port of call. A loading bay along the journey of discovering water, humanity, and architecture.

This project has reached a destination, one of many. I have anticipated a few challenges that I will address as I continue to work at developing the Strandfontein Pavilion. Challenges such as how to create tangible links to Strandfontein Village, further development of an architecture that responds to the ocean on a technical level but also architecturally, and not sacrificing my method to achieve technical resolution.

Figure 66: Pestering the Seagulls.
(Source: Author's own)

Resources

Preface

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UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

PRE-SCREENING QUESTIONNAIRE OUTCOME LETTER

STU-EBE-2022-PSQ000034

2022/09/19

Dear Tauhir Rakiep,

Your Ethics pre-screening questionnaire (PSQ) has been evaluated by your departmental ethics representative. Based on the information supplied in your PSQ, it has been determined that you do not need to make a full ethics application for the research project in question.

You may proceed with your research project titled:

Of Water Cultures: Finding an Architectural Approach to Revitalizing, Supporting and Creating Water Cultures

Please note that should aspect(s) of your current project change, you should submit a new PSQ in order to determine whether the changed aspects increase the ethical risks of your project. It may be the case that project changes could require a full ethics application and review process.

Regards,

Faculty Research Ethics Committee