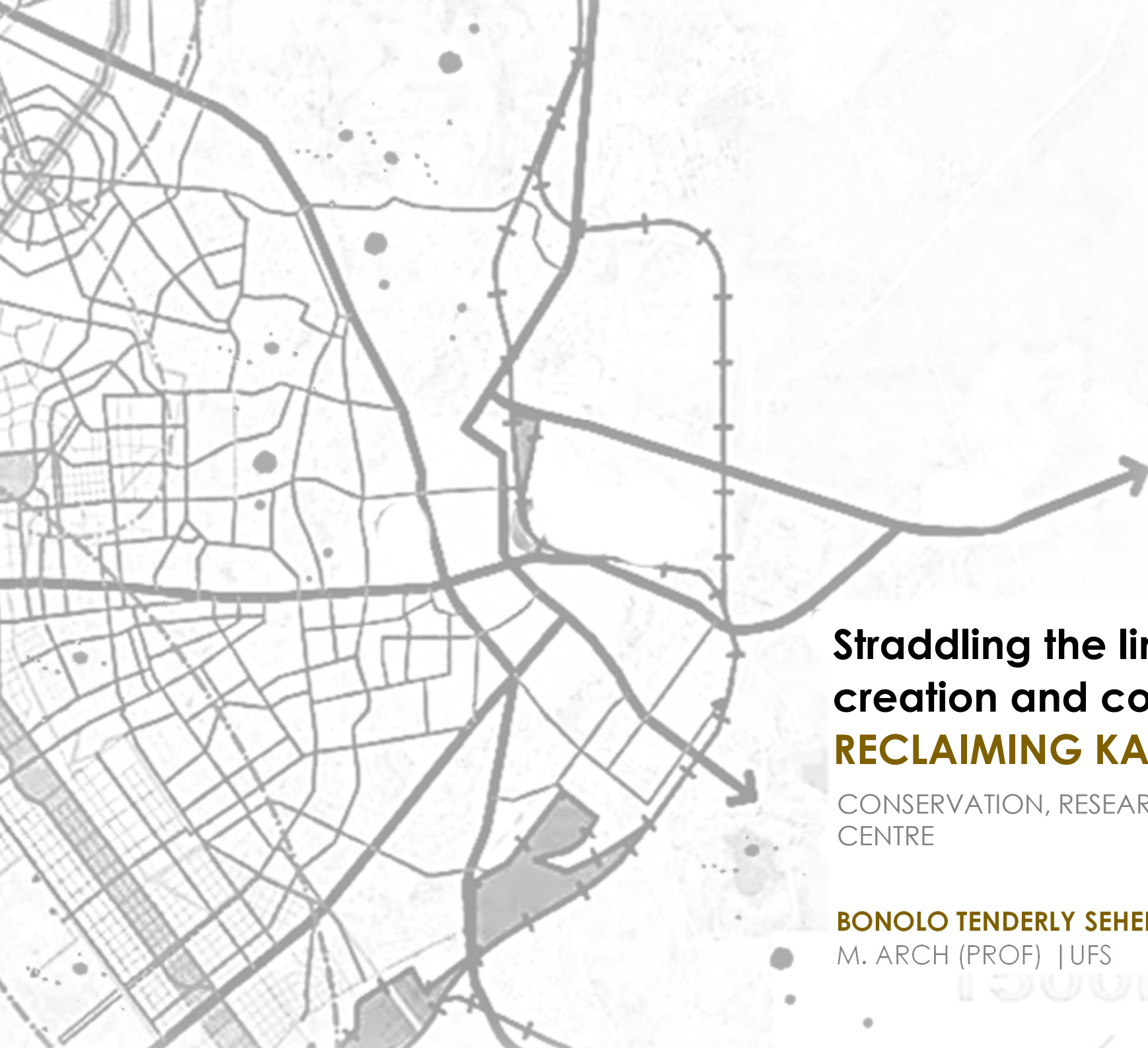

Straddling the line between creation and conservation - RECLAIMING KAMFERS DAM

CONSERVATION, RESEARCH AND VISITORS CENTRE

BONOLO TENDERLY SEHERE
M. ARCH (PROF) | UFS

This dissertation is submitted in partial fulfilment of the requirements for the M.Arch (Prof.) Degree, 2022. The research in this document is my own independent work unless stated otherwise.

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This document was submitted for proof-reading by Mr. Barend Spies

30 November 2022

Front Cover Illustration:
Figure 01: Straddling' the line between creation and conservation Illustration
(Author, 2022: Illustration)

Declaration of original authorship:
The work contained in this dissertation has not been previously submitted to meet the requirements for an award at this or any other institution of higher education.
To the best of my knowledge, this dissertation contains no material previously published or written by another person except where due reference is made.

ACKNOWLEDGMENTS

0.0

Jeremiah 29:11
“For I know the plans I have for you,” declares the LORD, “plans to prosper you and not to harm you, plans to give you hope and a future.”

I would like to dedicate this Master’s Thesis to my Lord and Saviour, Jesus Christ. It is through His unfailing grace and mercy, that I was able to pursue and successfully complete this qualification.

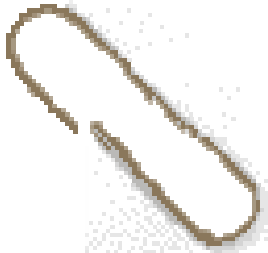
I would to thank my parents, Mr. and Mrs. Sehere, for their unconditional love, support and anchor throughout my studies. I would also like to thank the rest of my family, friends, and mentors along the way for their continued support.

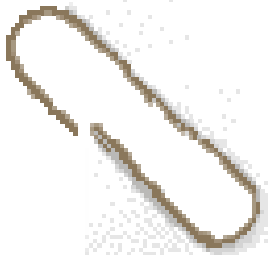
I further extend this gratitude to all my supervisors and sponsors for their for their expert advice and guidance throughout this complex, yet enriching process.

Lastly, to the reader, thank you for taking the time to read my document.


MAXIMISE
INTEGRATION
URBAN GRID
for
Movement

EXAMINER'S NOTES





0.1 ABSTRACT

Architecture ceases not to exist outside its context, every structure is sited among ever-changing climates and cultural conditions. It is shaped by its environment, natural forces, objects over systems, and formal morphology over networks and ecologies. The association of one body with the other aligns itself with a level of accountability and it is in this regard that absolute engagement is defined (Baldwin, 2021).

Straddling the line between creation and conservation within the greater context of Kamfers Dam, a permanent wetland located 6km north of Kimberley, Northern Cape. The study responds to ecology with subliminal thresholds, buffer zones, shared notions, established ecosystems, and tangible and intangible tensions that co-exist between various natural and man-made communities.

According to Wolfhart Pannenberg, creation is not just placed into existence once, creation needs conservation of its existence in every moment. Thus, conservation is nothing else but a continuous creation that is part of a greater ecosystem (Miller, 2009).

The interest of this study proposes a Conservation, Research, and Visitors Centre, which aims to explore how a landscape intervention can better foster, facilitate and narrate the concurrent tensions between humanity and natural systems.

The aim is to simultaneously and harmoniously mend the "undissolvable unity" between "creation and conservation", humanity and nature" and the engagement between various bodies.

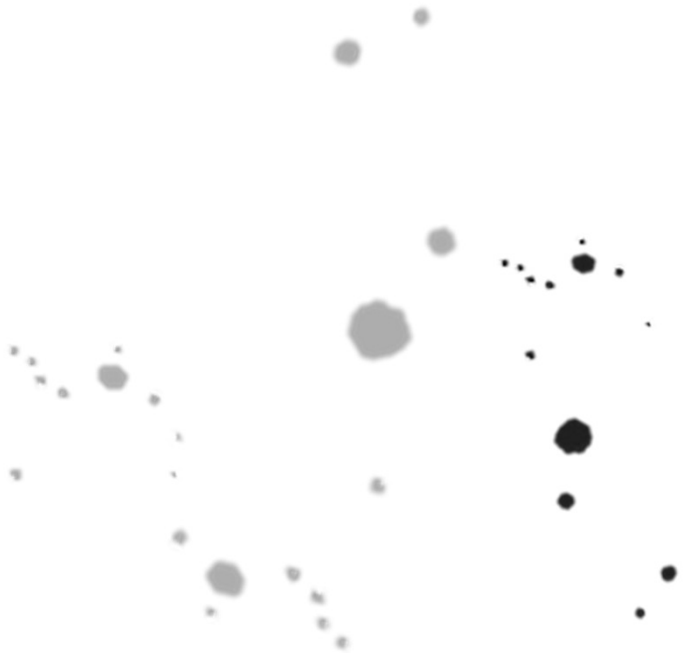


Figure 02: Introductory project Illustration depicting project intention (Author; 2022)

TABLE OF CONTENTS

01

TABLE OF CONTENTS

01

01 INTRODUCTION, PROBLEM STATEMENTS AND AIMS, SITE ANALYSIS

- Introduction
- Problem Statement and Aims
- Site Analysis

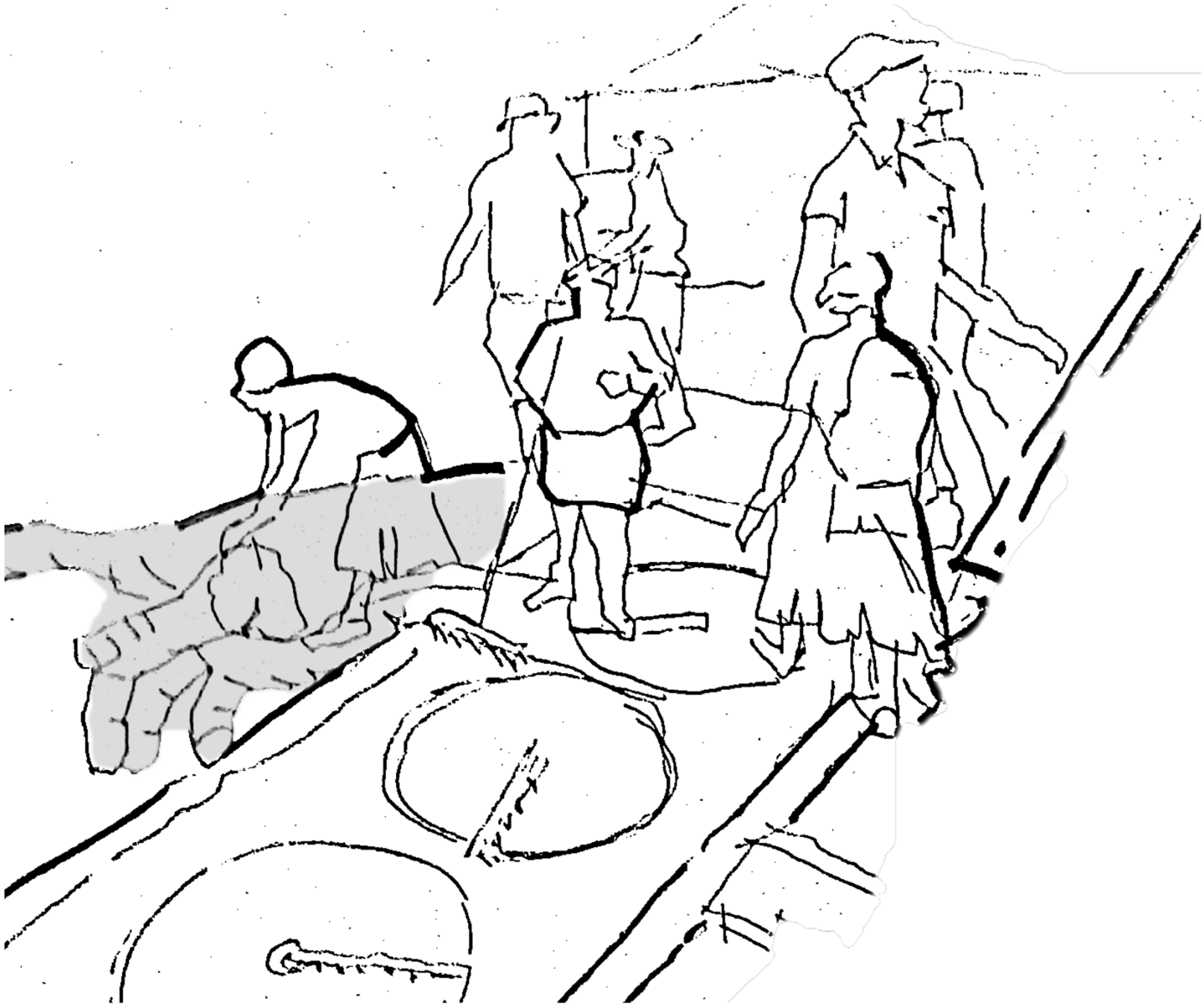
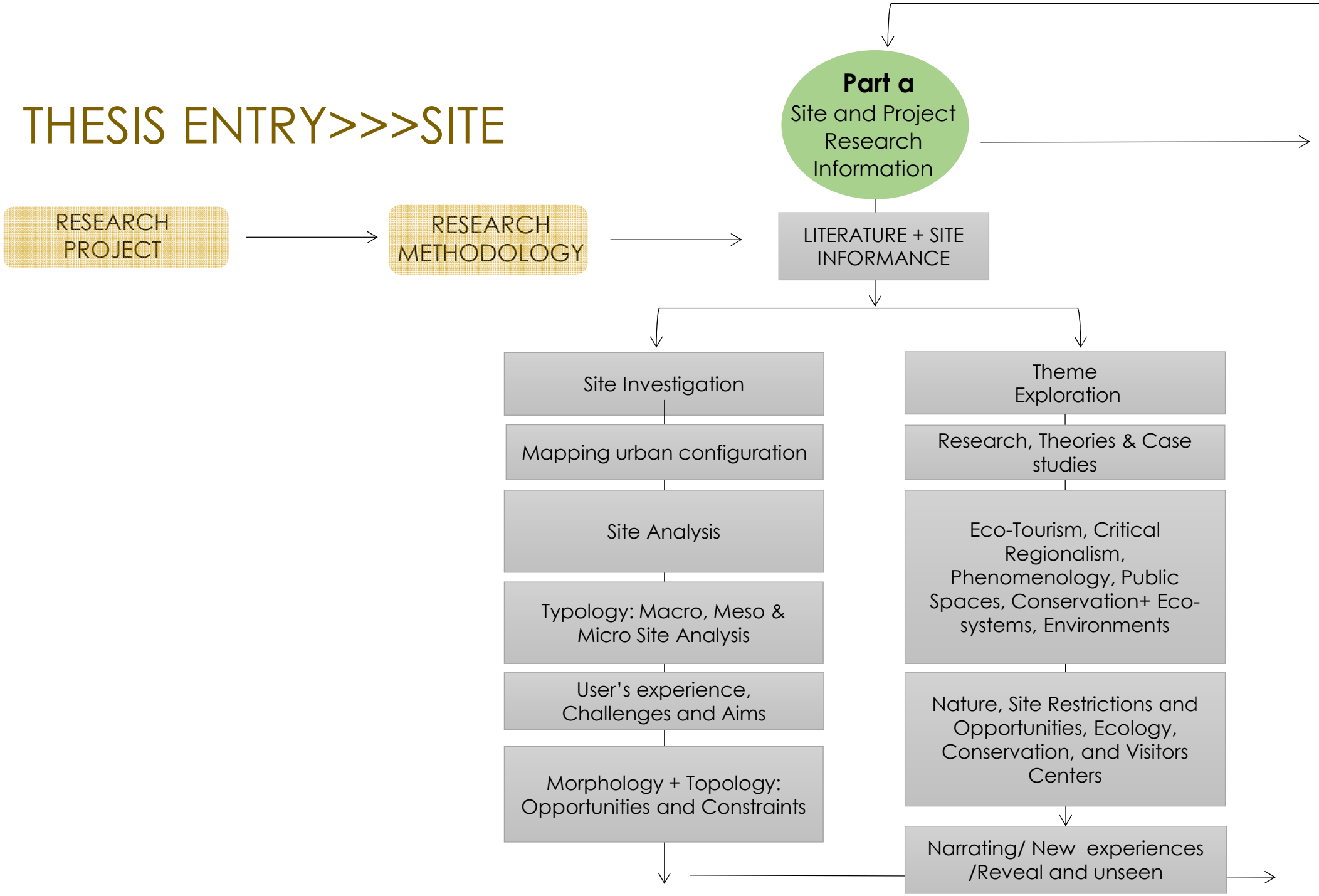


Figure 03: Illustration Sketch depicting project Introduction, problem statement and aims (Author, 2022).

THESIS ENTRY>>>SITE



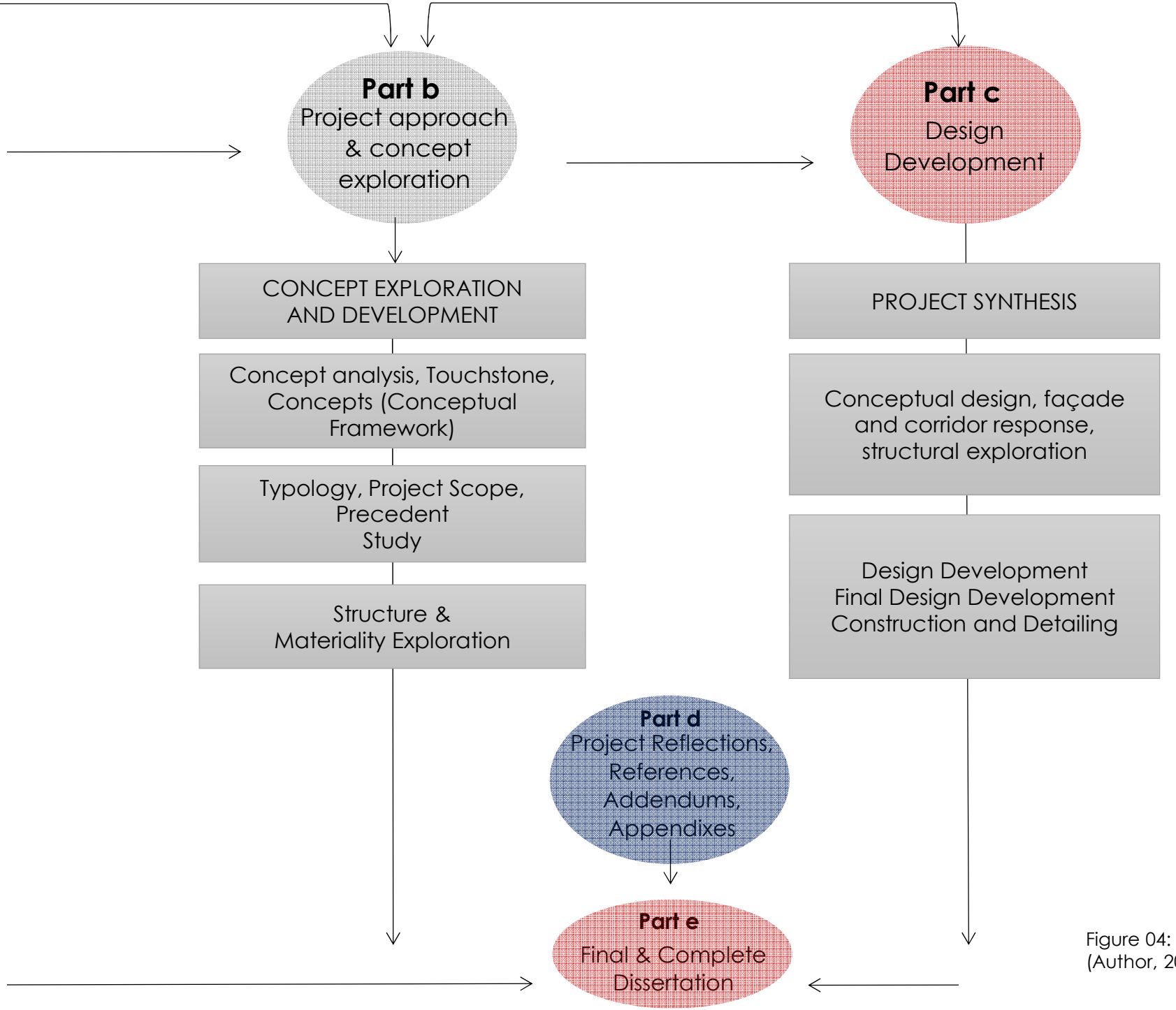


Figure 04: Strategy Diagram
(Author, 2022: Diagram)

1.1 INTRODUCTION

The proposal of this thesis stems from lived experiences and appreciation of a context that has undergone numerous lives through the intervention of both humans and natural systems. A context that has adaptively served various environments and has experienced both the blooms and glooms of undissolvable structures, which continues to navigate the subtle tensions that exist on the site.

Kamfers Dam is a permanent wetland located 6km north of Kimberley, Northern Cape. The site establishes itself at an ecotone, a junction where three main biomes meet; the Kalahari, Grassland, and the Karoo.

The natural configuration of the site bestows itself a haven for its inhabitants, from the siege of Kimberley, where those in the war found the land a place most adequate for protection, to the flamingo birds finding a home in an ephemeral pan that eludes a posture of hiding to be observed and engaged.

In understanding the history of Kamfers Dam, through these various layers, one can recognize the rich identity and engagement which makes up the sense of place. Kamfers Dam goes further than denotes a site representing the arresting interchange of shared environments. It commemorates yet echoes the need for a more harmonious, balanced, and interlinked relationship between man and the associated ecosystem.

It thus becomes essential to extract the most critical elements from the layers identified, which contribute to the establishment of Kamfers Dam in a literal and figurative sense. The study aims to be a platform from which the architecture will develop to use the physical manifestation of the built form as a tool that connects, blurs, and facilitate the tensions established on the site.

In doing so, the study proposes a **Conservation, Research and Visitor Centre**, an architectural medium that explores the continuous straddling between environments and blur between systems.

The first two Chapters of this study constitute the first half of the document, which is structured explicitly according to architectural terms. The investigation into the site and its inhabitant with similar functional requirements will refer to this study's entry point, "the typology/ site." The investigation of the facts and qualities identified, along with other site factors and context factors, will be referred to as "topology.“

The investigation of form-giving with the factors mentioned above, the realization of the proposed deign project will be referred to as the "morphology." Furthermore, the structural system and the use of materials aided by the concepts formulated in the morphology investigation will refer to as "tectonic investigation.“

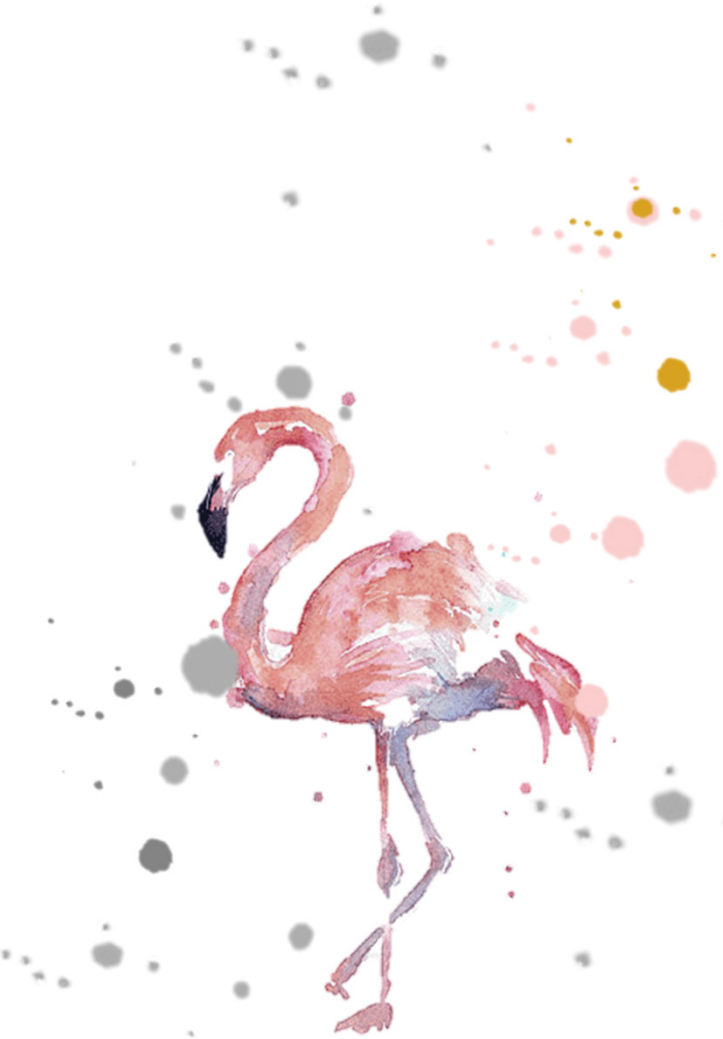
The third chapter of the dissertation document synthesis is the collected information from the previous two chapters, including all the relevant considerations and information, the design and structure of the proposal.

Figure 05: Kamfers Dam (USAID/Southern Africa, 2022: online).

The final chapter concludes the document with an overview of the project and the success of the synthesis of the project in relation to the initial concerns. These will be achieved through a thorough reflection of the overall process.

Figure 06: Illustration of site (Author, 2022).

Figure 07: A photograph depicting a flamboyance of Flamingos (Tripoto, 2022: online).



In the PINK.

"Day breaks too early on the savannah
dawn's a runaway veld fire
clouds of white float gently by
I stretch out on one
50 percent washed Egyptian cotton
lazily wiping the sleep from my eyes
I yawn
blink at the intrusion
scratching my two day stubble
another yawn
and I stretch as a lion would.

I pull a cloud closer
and fluff it to pillow
and a roll into another yawn
onto my back scratching
my sticky morning groin
I un-tuck as men do
and pull up more fluffy softness
to cover my indecency.

Back on my right side
I place my left foot on the knee
of my straight right leg
as a flamingo would
at Kimberley's Kamfers Dam
I am in the pink
watching the now pink fluff fly by
I close my eyes
nodding off to another diamond day
I am in the pink
in Africa."

- Cliff Lindemann

1.2 PROBLEM STATEMENT

"Many people will know that Lesser Flamingos bred, for four consecutive years (about a decade ago), on a purpose-built island at Kamfers Dam, Kimberley, South Africa. *This was the first time that the species had bred on an artificial island, the first time (in recorded history) that the species had bred in South Africa, and essentially the fourth breeding locality globally for this species*."- Mark D. Anderson, Chief Executive Officer, BirdLife South Africa (Birdlife, 2018).

The investigation into the site and its inhabitants with similar functional requirements will be referred to as the entry point of this study, " the typology/ site."

Figure 08: Collective of media headline reporting of cases related to Kamfers Dam (DFA Newspaper, 2022: Online).

The aim of this study's problem statement is derived from the existing, deteriorating site conditions and the concurrent investigations that follow the future of Kamfers Dam. Therefore, the investigation primarily focuses on the significant importance of the site's ecosystem in relation to the broader context, typology, topology, and the conservation of such a site moving forward.

In preserving and restoring a phenomenology that has housed various species and is embedded with great historical memory, the design aims to continue fostering the necessary relationships that make the site an essential emblem of the earth's ecosystem.

Considering the specific context, type of problem, need, and ethos, the parties to which the project is catered play an essential role in the brief of the project and design considerations to be implemented.

Once the contextual and client needs have been identified, the analysis of the project parameters about the aims and challenges will be addressed.

In doing so, various site informants will be primary driving tools in the design explorations. It is simultaneously investigating the implementation of long-term critical infrastructures to support the site's life and its future. The natural environment, the site's size, and the current functions or lack thereof are presented in addressing specific challenges.

The condition of the site within a cosmic urban fabric led to various decisions and approaches to be sensitive to the surrounding, given the state in which Kamfers Dam establishes itself. These considerations regarding the appropriate approaches to take regarding the typology and topology have resulted in certain informants in relation to the morphology of the design.

In this regard, the tectonics of the design was an essential consideration in reinforcing the approach taken. Through these informants, the resolution and application in terms of topology, typology, morphology, and tectonics ultimately formulated the design of the proposed intervention (Water & Biodiversity, 2018).

Kamfers Dam is registered as one of only six known Lesser Flamingo breeding grounds worldwide and is the only one in South Africa, covering approximately 400 hectares.

In 2006, Ekapa Mining company embarked on a sustainable response concerning the endangered lesser flamingo species by building a giant artificial s-shaped island. Between 2007 and 2011, the island became a key breeding site; over 24 000 flamingo chicks would hatch on the island, including a hundred Greater Flamingo chicks.

As a result of the constant influx of effluent and stormwater, Kamfers Dam has evolved from an ephemeral (temporary) dam to a permanent pan over the past forty years.

Kamfers Dam receives treated and untreated sewage water from the Homevale Wastewater Treatment Plant. A total of 30-40 millilitres of stormwater and other effluents that Sol Plaatje Municipality releases into Kamfers Dam flows daily into the pan.

The appropriate saline (salt water) is provided by the permanently submerged pan environment that encourages the growth of spirulina, which is flamingos' primary food source. As a result, the endorheic pan, defined as a basin that retains water and allows no outflow to other external bodies, plays a role in nutrient cycling and provides flamingos and other water birds with suitable habitats, both geographically and ecologically.

On the other hand, if too much untreated or poorly treated sewage is pumped into the system, it can make it more likely that diseases like avian botulism will spread, putting the lives of flamingos and other water birds in danger.

During 2010-2011 some of the chicks drowned when stormwater and sewage effluent flooded the island unchecked (Water & Biodiversity, 2018).

After the flooding, there was an arid and warm period, and the sewage water supply pipelines from the Gogga Pump station broke down, leaving the pan dry by September 2016. As a result, the pan was abandoned by flamingos and other water birds, leaving only catfish skeletons as the remains (Water & Biodiversity, 2018).

In January 2017, rainfall provided some relief, and the former pan residents began to return in large numbers. The municipality simultaneously invested in fixing some of the broken pipelines at the same time. As a result, treated sewage water could once more be released into the pan. The number of flamingos had reached an estimation of a thousand by the end of October 2017. At this time, it was further recorded that the birds successfully bred along the southwestern edges of the pan rather than on the island and constructed nesting (turret) sites.

Although they had been doing so before, this was the first time the birds had successfully bred near the water's edge (Water & Biodiversity, 2018).

The provincial Department of Environment and Conservation believed this to be the first breeding event without human intervention. The Dam has proven the potential to grow in popularity as a birding destination, bringing in a more significant number of eco-tourists and bird photographers with the establishment of appropriate infrastructure for bird watching.

In conclusion, the ecological value of Kamfers Dam as a conservation area has established itself as an iconic contribution to ecotourism revenue (economic and cultural value). Furthermore, an economic opportunity is seen in the results of tourists traveling from all over the country to witness the breath-taking assemblage of flamingos at Kamfers Dam.

The birds have not only moved the experienced of locals and tourists, but they have inspired the names of many places in Kimberley, such as the Flamingo Race Course and Flamingo Casino. The logos of the Sol Plaatje and Frances Baard District Municipalities also feature the flamingo. (Water and Biodiversity, 2018).

1.3 CLIENT

CLIENT

WESSA (the Wildlife and Environment Society of South Africa) is a South African environmental organisation which aims to initiate and support high impact environmental and conservation projects to promote participation in caring for the Earth.

BirdLife South Africa strives to conserve birds, their habitats and biodiversity through scientifically-based programmes, through supporting the sustainable and equitable use of natural resources and by encouraging people to enjoy and value nature.

The **Department of Tourism** is mandated is to promote the practise of responsible tourism for the benefit of the country and for the enjoyment of all its residents and foreign visitors, provide for the effective domestic and international marketing of South Africa as a tourist destination and promote growth in and development of the tourism sector.

Figure 09: WESSA Client Logo (WESSA, 2022: online).

Figure 10: Birdlife Client Logo (Birdlife, 2022: online).

Figure 11: Department of Tourism Client Logo (Department of Tourism, 2022: online).

1.3 USER

USER

The proposed Architectural intervention aims to address the concurrent tension between humans and other natural systems by providing a safe bird viewing platform and a bird and water life educational facility, simultaneously exploring the eco-tourism and recreational aspects of the site.

The proposed program caters to serving and function alongside various parties such as the tourist, locals, water and bird life professions, and the local authority.

Figure 12: Project Client User diagram (Author, 2022).

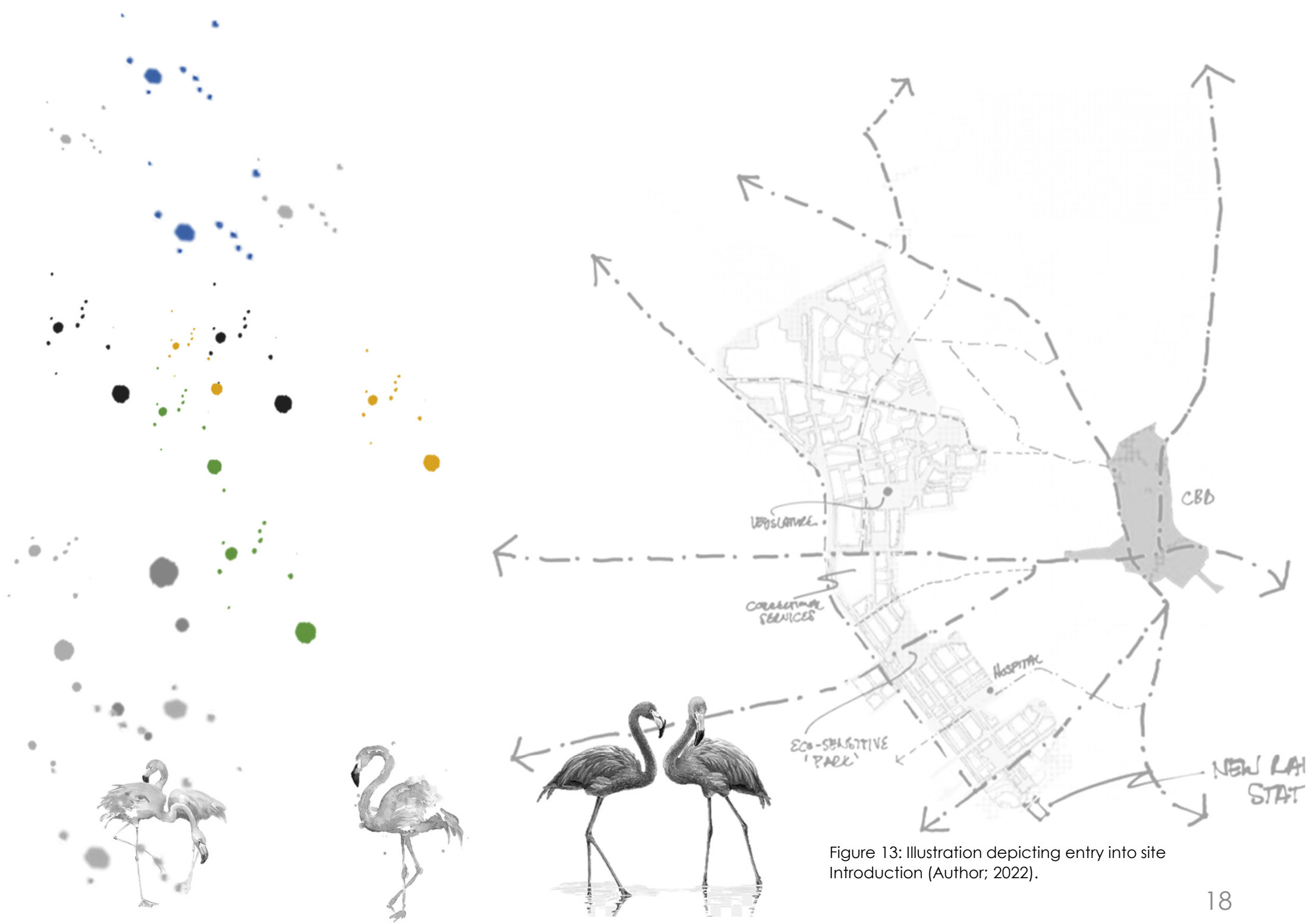
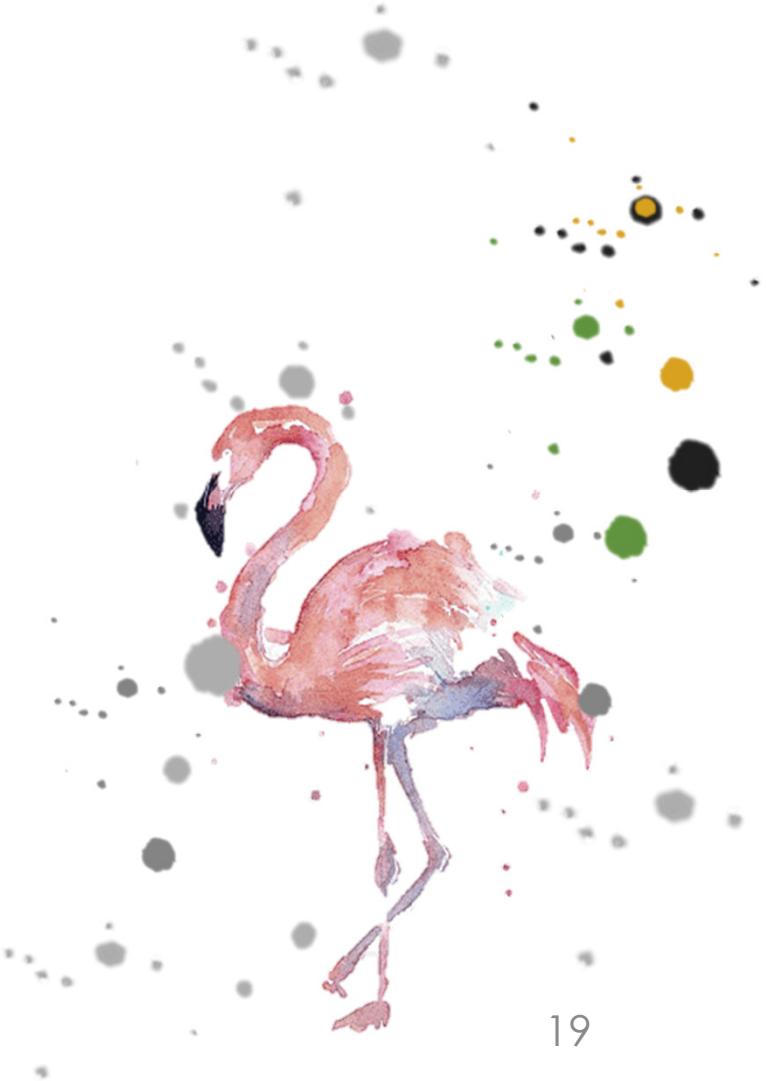


Figure 13: Illustration depicting entry into site Introduction (Author; 2022).

1.4 HISTORY AND DEVELOPMENT OF SITE

- Meso - The City
- Macro - The Area
- Micro - The Site



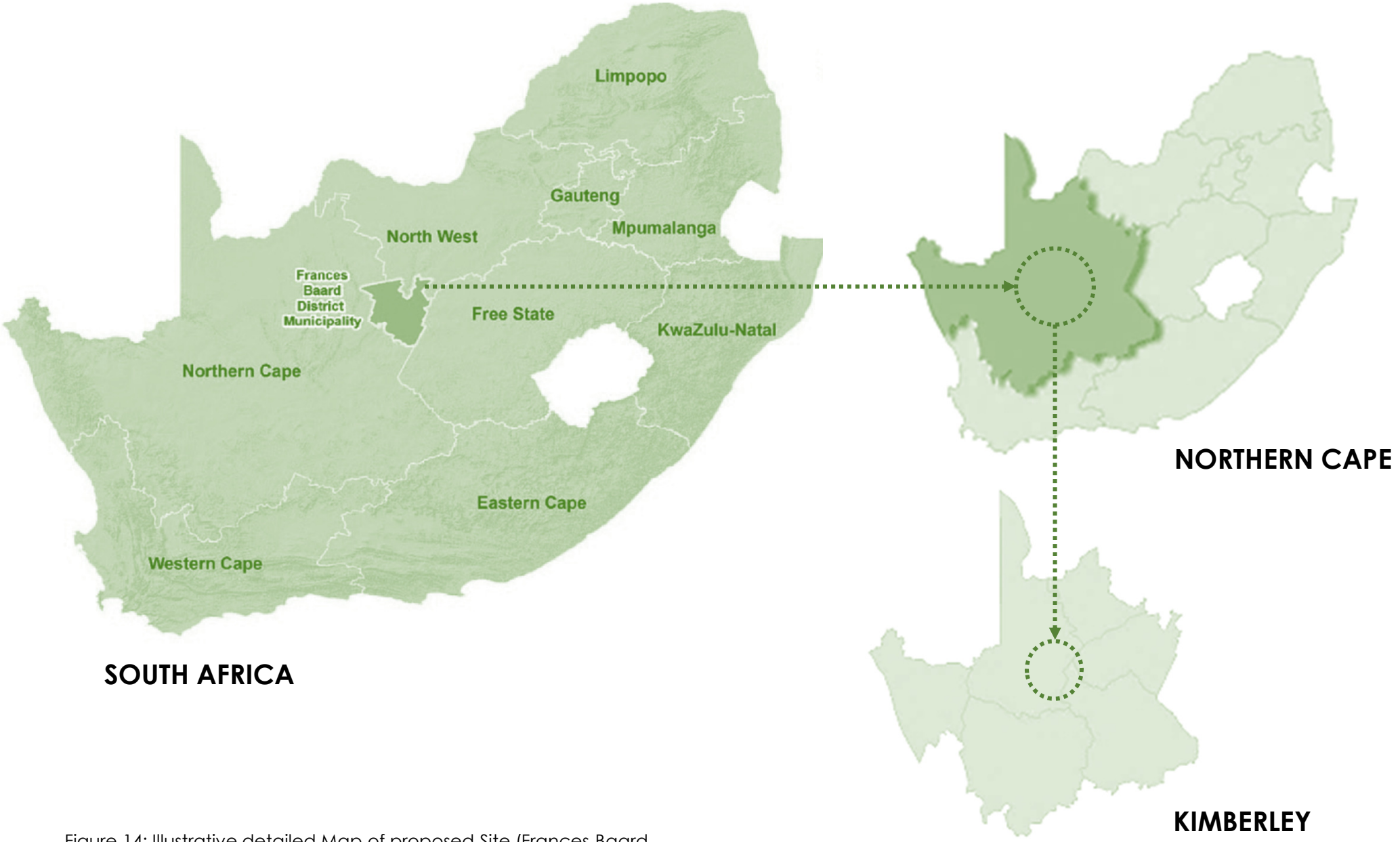


Figure 14: Illustrative detailed Map of proposed Site (Frances Baard District Municipality: Wetland Report, 2021: online) Adapted and illustrated by Author.

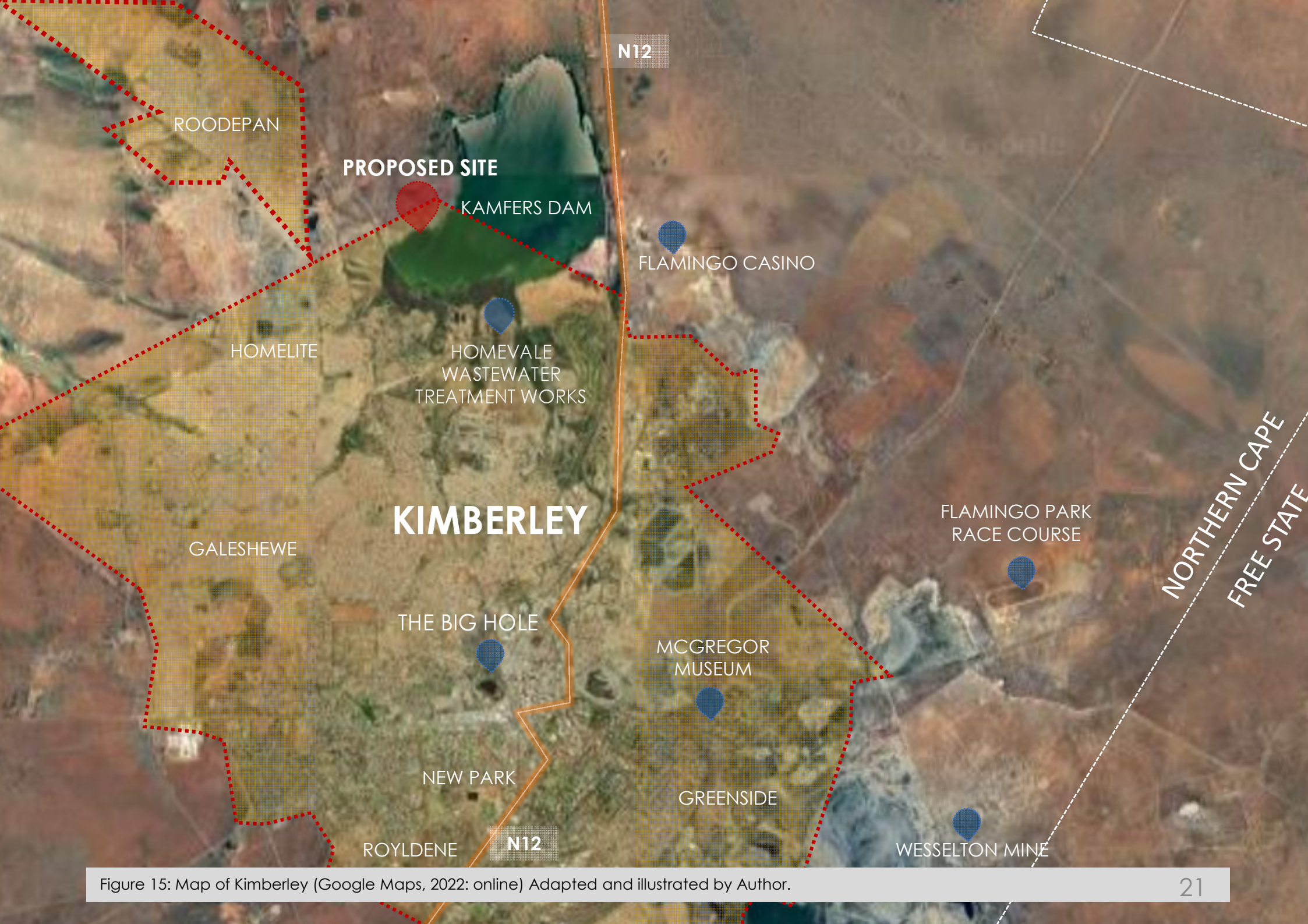


Figure 15: Map of Kimberley (Google Maps, 2022: online) Adapted and illustrated by Author.

Figure 16: A photograph of a local residence and diamond digger (Reuters.com/article/safrica-mining-illegal, 2022: online).

053

KIMBERLEY

NORTHERN CAPE

Kimberley is the largest and capital city of the Northern Cape province of South Africa. It is located approximately 110km east of the junction of two rivers, the Vaal and Orange Rivers.

The city is well-known for its historical significance of the diamond mining past and the siege during the Second Anglo-Boer war. Cecil Rhodes and Barney Barnato were the British businessmen who immensely made their fortunes in Kimberley. Mr. Rhodes established the De Beers diamond mine company in the early times of the mining city.

In addition, Kimberly became the first stock exchange built in Africa as early as 1881. Finally, on 2 September 1882, Kimberley established itself as the first town in the Southern Hemisphere and the second in the world to incorporate electric street lights into its infrastructure (South African History Online, 2022).

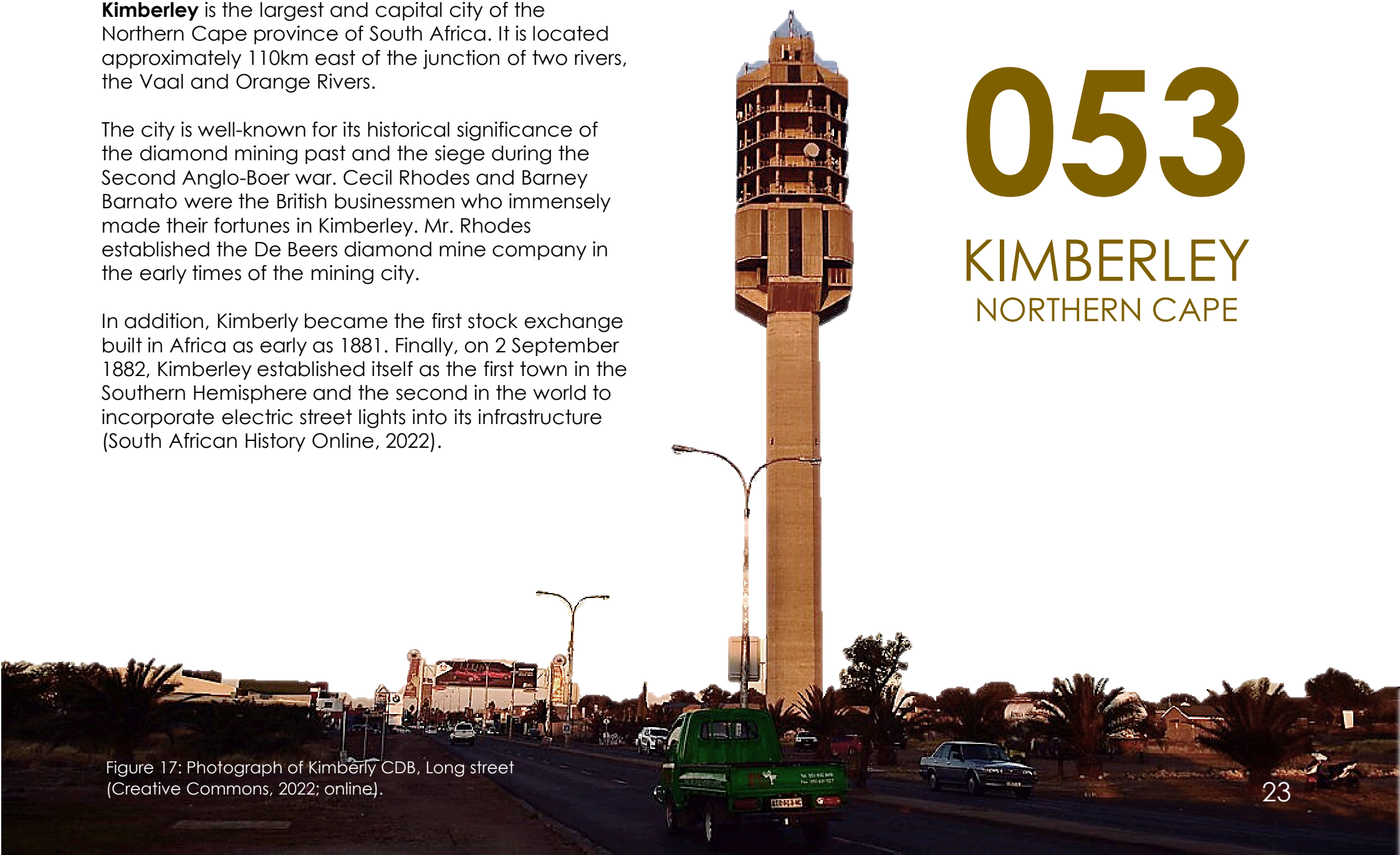


Figure 17: Photograph of Kimberly CDB, Long street (Creative Commons, 2022; online).

BRIEF HISTORY OF THE CITY, KIMBERELEY.

0-1867
EARLY INHABITANTS OF THE CITY.

Early humans inhabiting what is now the Northern Cape can be traced back to Wonderwerk Cave 100,000 to 200,000 years ago. Later, the country was subdivided as part of the Western Colonial area. The history of diamonds in South Africa begins in December 1866, when the officially recognized report of a fifteen-year-old Eureka Erasmus Jacobs finds Africa's first certified diamond near the Orange River in Hopetown.

Then, in 1869, an 83.5-carat rough diamond, named the star of South Africa, was discovered by a herdsman, which triggered the first diamond rush. The discovery of diamonds led to the preceding years, and South Africa produced more diamonds than India did in her over 2,000 years (South African History Online, 2022).

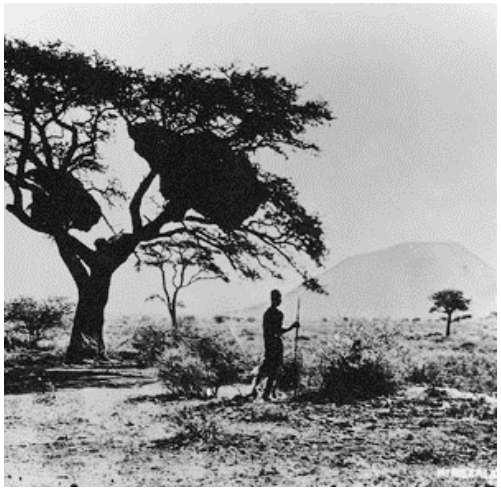


Figure 18-19: Image of early inhabitants of the city (Kimberly City Infor, 2022: online).

1870's
NAMING OF THE CITY: FROM VOORUITZIGT TO NEW RUSH TO KIMBERLEY.

The city of Kimberley sprung up during the diamond rush era of the 1870s. The original name of the city was known as Vooruitsig, which translates as a 'prosperous city. Then, precisely in mid-1870, diamonds were found in the river diggings at Klip Drift (now Barkly West), which triggered the second diamond rush.

Later that year, more diamonds were found alongside Bultfontein farm and adjacent to Du Toit's Pan, triggering the third diamond rush. Thus, the establishment of the name New Rush. In 1873, the city's name changed to Kimberley in honour of the first Earl of Kimberley, John Wodehouse. By 1873, Kimberley was officially the second-largest town in South Africa, with approximately 40,000 residences (The Solomon, 2022).

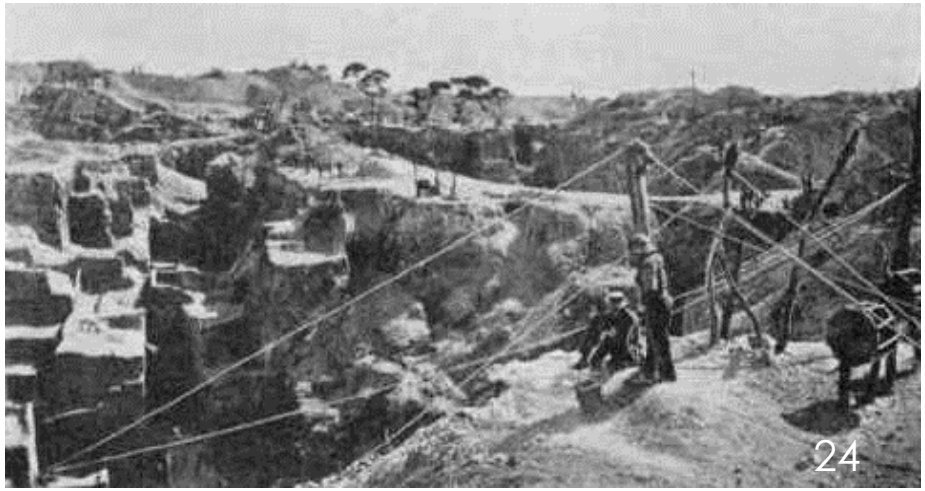


Figure 20: The City diamond rush and current state of the city (The Solomon, 2022: online).

1880'S -1993

DEVELOPMENT OF THE CITY AND LIFE DURING THE APARTHEID REGIME.

Cecil Rhodes and Charles Rudd merged various smaller mining companies to form the mining company De Beers. In 1888, Bernie Barnert's Kimberley Mine merged with De Beers to form De Beers Consolidated Mines, a company that achieved a monopoly in the diamond market.

Due to massive migration from across the African continent, Kimberley quickly became the largest city in the region. On 14 October 1899, Kimberley was besieged at the start of the Second Boer War, until May 1902. One of the most significant effects of the apartheid on the city of Kimberley was the enforcement of the Group Areas Act. In mid-1952, there was a concurrent lead of protest against apartheid against segregation laws in Kimberley (The Solomon, 2022).

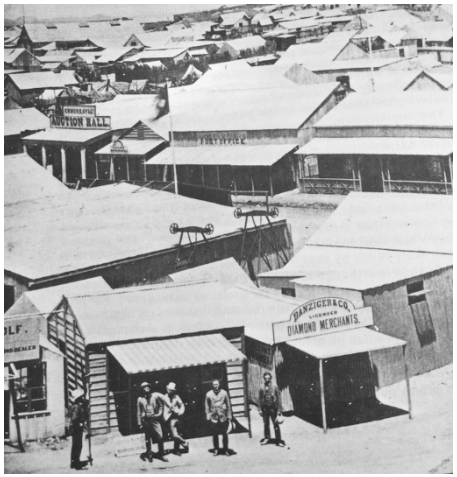


Figure 21- 22: Images of Kimberley during the New Rush era (The Solomon, 2022: online).

1994 - POST APARTHEID

KIMBERLEY POST APARTHEID AND CURRENT STATUS

The Northern Cape was established with the newly democratic South Africa. Before that, the state was part of the Old Western State, which no longer exists. The Northern Cape became a political fact in 1994, with the Kimberley as its capital. After 1994, Kimberley experienced significant development as an administrative department was created and housed to manage the new state.

The Northern Cape Provincial Council was designed and established to bridge the once-divided cities. The Kimberley City Council of the renamed Sol Plaajte Municipality has been extended. By 2008 Kimberley's population had grown, and the area's population was estimated at 250,000 (South African History Online, 2022).

Figure 23: Photograph of Kimberley Big Hole (Kimberley City Info, 2022: online).

SIGNIFICANT BUILDINGS AND MONUMENTS

1870'S
STAR OF THE WEST

Figure 24: Drawing of the Star of the West (Kimberley City Info, online; 2022).
Figure 25: Star of the West, North Circular Road (Netpages, 2022: online).

1887
AFRICANA LIBRARY

Figure 26-27: The Public Library opened in 1887 and the Africana Library in 2010 (The Solomon, 2022: online).

1890
CITY HALL

Figure 28-29: Photograph of the City Hall in 1890 & 2015 (The Solomon, 2022: online).

1870'S

Star of the West is believed to be Kimberley's oldest working bar, dating back to the 1870s. The bud is located on North Circular Road, West End area. Initially, the pub was a hotel built on a 5.4m solid rock foundation.

The hotel began as a and served Kimberley mine workers after obtaining a cattle dealer's license in 1877. It is also believed that Cecil John Rhodes and Bernie Barnato also enjoyed a few drinks at the star (The Solomon, 2022).

The pub is a two-story building that was originally not built with a veranda. The additions of the veranda were due to the extensive use and needed to accommodate public entertainment.

1887

The **Africana Library** on Du Toitospan Road is located in the former Kimberley Public Library. The Public Library first opened on July 23, 1887, in a building designed by architect JR Elton.

The Public Library and the Africana Library were closely related until 1984 when the public and Africana sections of the library were separated. The Africana Library, opened to the public in 1986. Currently, the library holds about 14,000 books, 640 manuscripts, and 12,000 photographs. The collection includes early printed editions of indigenous African languages (San, Tswana, Zulu, and Xhosa), early books on diamond mining and records of the first diamond rush of the 1870s, newspapers from the 1870s. These artefacts includes books by early European travellers. Books and maps of the South African Anglo-Boer War.

David Yuill (1871), then the Mayor of Kimberley, describes the new library building as influences from both America and the Second Empire, but in contrast. "New" building types, such as libraries, were inevitable because the used materials that had not been used before in that part of the world. The interior of the building marks Kimberly's first use of MacFarlane cast iron in the gallery's construction. In addition, the mansard roof over the main library is thatched with Welsh slate, another material not available in the pre-railway era (The Solomon, 2022).

1890

Kimberley **City Hall** was designed by Fergus Carstairs-Rogers and opened on September 20, 1899, several weeks before the siege of Kimberley began. The Hall represents Victorian-style architecture (in Roman Corinthian style). The old Kimberley Town Hall was destroyed by fire on March 29, 1898, and on April 13, it was decided to build a new town hall to meet the needs of a growing town.

On November 16, 1898, the foundation stone was laid, and the plan of the building included the main Hall and council room, dining room, mayor's Hall, committee room, town clerk's office, and several administrative agencies' offices. During the siege from October 14, 1899, to February 15, 1900.

The Hall was a central point for food distribution and, sometimes, as a refuge for the Refugees. A public opinion poll to save City Hall from demolition was held in 1971 and succeeded. The Hall was officially reopened on June 18, 1976, to date (The Solomon, 2022).

1895
SOL PLAATJE MUSEUM & LIBRARY

1897
DUNLUCE

1899
MCGREGOR MUSEUM

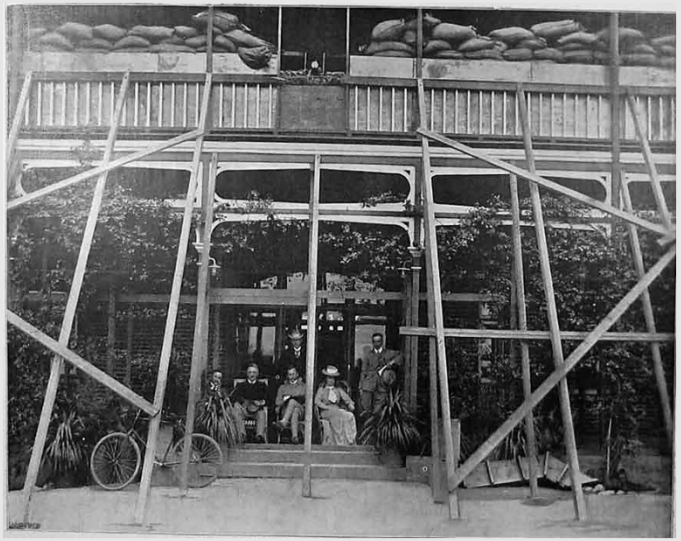


Figure 30: Photograph of Sol Plaatje (The Journalist, 2022: online).
Figure 31: The Sol Plaatje Museum and Library (The Solomon, 2022: online).

Figure 32-33: Dunluce Villa in 1923 and in 2022 (The Solomon, 2022: online).

Figure 34-35: Cecil Rhodes at the Sanatorium where he resided during the Siege of Kimberley (The Solomon, 2022: online).

1895

The Sol Plaatje Library and Museum is located in the house occupied by the Plaatje family at the time of their death in 1932. This place was once known as a Malay camp. This is the same place where Plaatje wrote his novel Mhudi (The Solomon, 2022).

The museum section, established in the two front rooms of the house in 1996, now features panels illustrating Plaatje's life and work as well as the history of resistance journalism in South Africa. Sol Plaatje Education Foundation was established in 1991 to take care of the house and its meaningful use, as it was declared a national monument in the same year (Sol Plaatje Museum and Library, 2022).

The house is a one-story house with expressive (double-placed) concrete columns carrying a porch that defines the threshold between the outside and the inside because the house has no surrounding fence.

1897

The Dunlunce is located on 10 Lodge Road, Belgravia, Kimberley, or Lillianvale as it was first known, was designed by DW Greatbatch for Gustav Bonas, a diamond buyer, in 1897.

In 1902, John Orr purchased Lillianvale, along with its furniture and accessories, and sold it under its current name Dunluce (named after the ruins of a medieval castle in Northern Ireland.) He lived there until he died in 1932, and the family lived there until 1975.

In 1975 Dunluce was purchased by Barlow Rand. The company restored the house and donated it to the McGregor Museum. Dunluce's appeal is greatly enhanced by retaining remnants of the Orr and Bonas family's belongings and furnishings. In contrast, others reflect that the leading Kimberley family is changing preferences over time.

Seventy years old, some parts of the house are of particular interest because it suffered a direct hit by a Long Tom shell during the siege of Kimberley and was severely damaged. However, the original bathroom captivates visitors with its tub-shaped shower and bass towel rack. In the garden, the pool is believed to be the first private pool in Kimberley (The Solomon, 2022).

1899

Kimberley Sanatorium was built at the instigation of Cecil J. Rhodes. It was designed by D.W. Greatbatch, built by Church and McLauchlin, and completed in 1897.

During the Siege of Kimberley, Rhodes occupied a suite as they brought news from Relief. In 1908, the name was changed to the more appropriate Hotel Belgrave. By 1933, the hotel was decommissioned, and the building was rented to the Sisters of the Holy Family and became the Kimberley Priory School for more than 30 years. After the school closed, the entire complex was donated to the museum's board, and the new McGregor Museum opened on November 22, 1976.

Today, McGregor museum is the main museum where both Kimberley's historical and environmental artefacts can be found (The Solomon, 2022).

1904
HONOURED DEAD
MEMORIAL MONUMENT

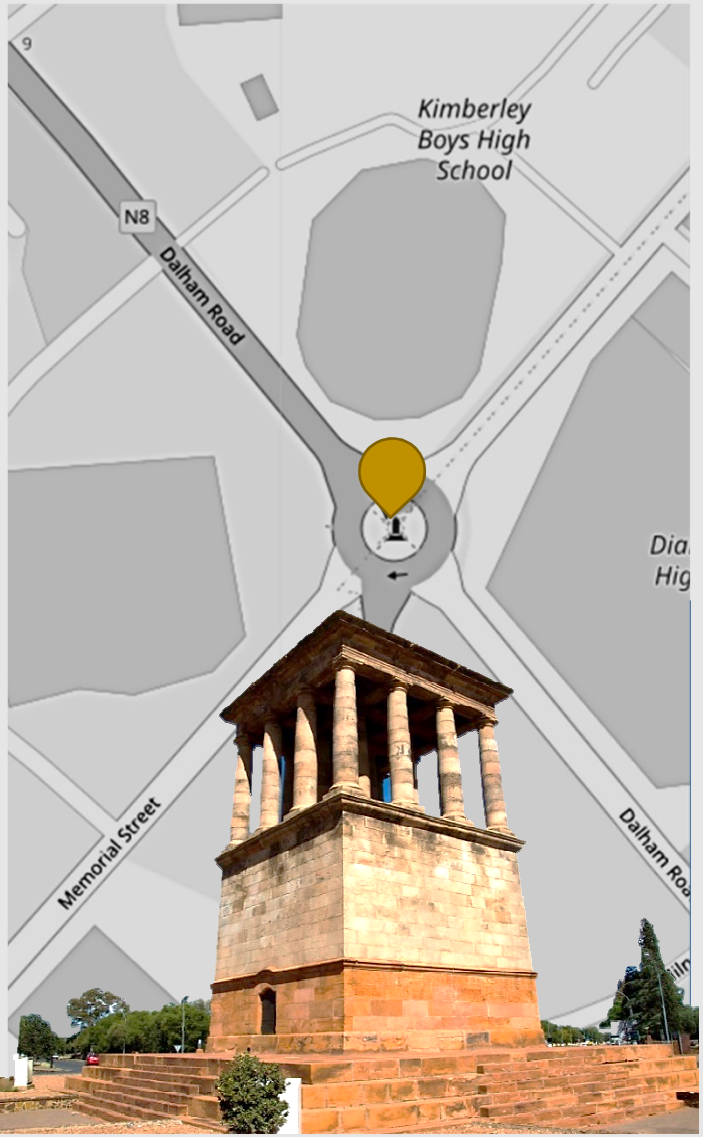


Figure 36-37: Location and current status of the Monument (The Solomon, 2022: online).

1908
ST. CYPRIANS

Figure 38-39: St. Cyprians Cathedral in 1808 and current status (The Solomon, 2022: online)

1973
THE HARRY
OPPENHEIMER HOUSE

Figure 40: Current status of the Harry Oppenheimer House (Kimberly City Portal, 2022: online).

1904

The **Honoured Dead Memorial Monument** at the intersection of Dalham and Oliver Streets in Kimberley was designed by Sir Herbert Baker and built at the request of Cecil John Rhodes to honour those who gave their lives defending Kimberley during the Siege of Kimberley.

During the 2nd South African (Anglo-Boer) War, Cecil John Rhodes sent the architect Herbert Baker around the world for ideas for a memorial he planned to build in honour of the dead. Who died defending Kimberley during the Siege.
Unfortunately, Rhodes would not have seen the monument completed when he died (of heart failure, aged 49) a few months before the Boer republics surrendered in November 1902.

The last monument in Kimberley was built on November 28, 1904. The monument is the grave of 27 soldiers and has a dedication inscription by Rudyard Kiplin. The sandstone was imported from Matopo Hills in Zimbabwe, where Rhodes was later buried (The Solomon, 2022).

1908

Saint-Cyprien Cathedral was born from the idea of building a "more dignified parish church." The former rector, Bishop Gaul of Mashonaland, chastised the Anglican congregation for continuing to worship in a "tin shack. " He referred to the wooden and iron church on Jones Street, built in 1879-1880.

The first stone of the neo-Gothic church that would become the cathedral was laid on 5 March 1907, and the completed nave was consecrated on 13 May 1908. Saint-Cyprien Cathedral became a cathedral when the Synod of Bishops approved the creation of the new Diocese of Kimberley and Kuruman in October 1911.

The first stone of the choir was laid in 1913, but war intervened, and it was not completed until 1926. The glass, arrays, furniture, and decorations were added by successive generations, complementing the early 20th-century glazing, on the south side, in thick glittering glass set in concrete. (The Solomon, 2022).

1973

The **Harry Oppenheimer House** was built to grade all the diamonds mined by De Beers in South Africa. Since diamonds are best graded for their soft natural light, the building has only windows on the south side for optimal indirect natural light conditions.

The building is a 15-story, 52.92m high structure. The primary structural construction material is concrete on piles. The architectural style is described as Modernism, and the building was completed in 1973 by architects Hentrich & Partners, later renamed Hentrich Bergs & Associates.

The primary use of the building is for diamond grading and commercial offices. Harry Oppenheimer's house shares the position of the second tallest building in Kimberley with Eskom Tower (Kimberley City Portal).

1973
ABANTU-BATHO HALL

Figure 41-42: Artwork depicting Sol Plaatje addressing the community in his first speech at the wall and perspective view of Hall (Kimberley City Info, 2022: online).

1975
ROBERT SOBUKWE LAW OFFICE

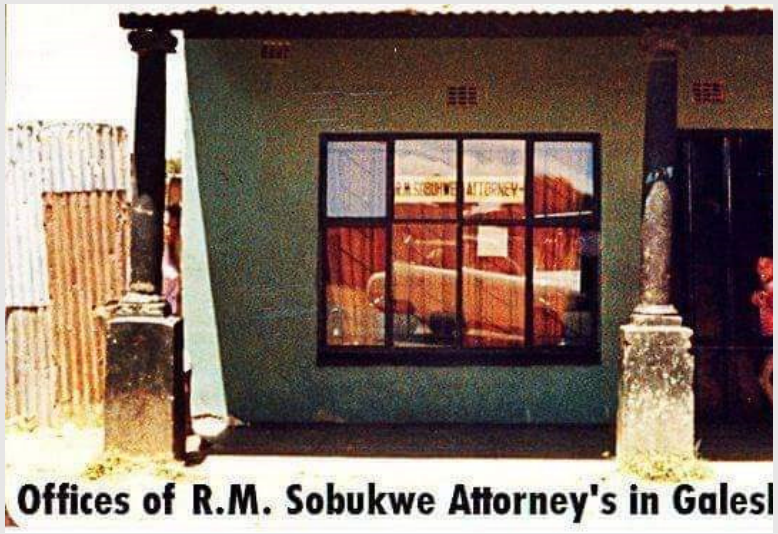


Figure 43: Robert Sobukwe Law House in 1975 (Robert Mangaliso Sobukwe Trust Online, 2022: online).
Figure 44: Robert Sobukwe Law House 2022 (Picking Up The Tabb, 2022: online).

2003
NORTHERN CAPE PROVINCIAL LEGISLATURE

Figure 45-46: Roof top and perspective view of the Provincial Legislature (The Solomon, 2022: online).

1973

The Abantu-Batho Hall, now the Galeshewe Centre, was opened on 22 July 1931. The hall was a community hall established under the apartheid regime where socioeconomic issues and Black politics would be addressed.

The hall simultaneously operates a post office and a cafe. The hall has an area of about 252 square meters and has been used for film screenings and theatrical purposes. At least 500 people can sit.

Perhaps most importantly, Sol Plaatje gave a speech on an opening day, and his last speech at Kimberley before his death in Johannesburg in 1932 was also read in the hall (Kimberley City Infor, 2022).

1975

Robert Mangaliso Sobukwe was born December 5, 1924 - February 27, 1978, and was identified as an Africanist in the ANC. In 1957, he left the ANC to become the editor of The Africanist. A year later, he and others parted ways with the ANC that formed the Pan-African Congress (PAC).

Robert Sobukwe began studying law while under house arrest. He completed his studies at Kimberley and founded his law firm in 1975. It was the site of political meetings to draft proposals to end the apartheid regime. In 2005, the **Robert Sobukwe Law House** was declared a national heritage site (Mail & Guardian, 2020).

2003

The **Northern Cape Legislative Building** is a historic building in terms of design and not time. The Northern Cape Legislative Council Building in Kimberley was opened in February 2003 by then-Deputy President Jacob Zuma and Kimberley Premier Manne Dipicio.

This striking building reflects the culture, nature, and history of Kimberley and the Northern Cape. The corn-shaped brown tower, fixed with tiles and the faces of South African icons, resembles the exotic plants and trees found in the open spaces of the province.

The main buildings are reminiscent of the rock faces and corrugated iron roofs of early Kimberley, and the paths that run between them resemble long provincial roads.

The buildings of the legislature revolve around a central kraal or gathering place resembling the bones of a sangoma. From the air, the outer walls above the entrance to the Legislative Council can be seen in the shape of buffalo horns protecting the kraal. (The Solomon, 2022).

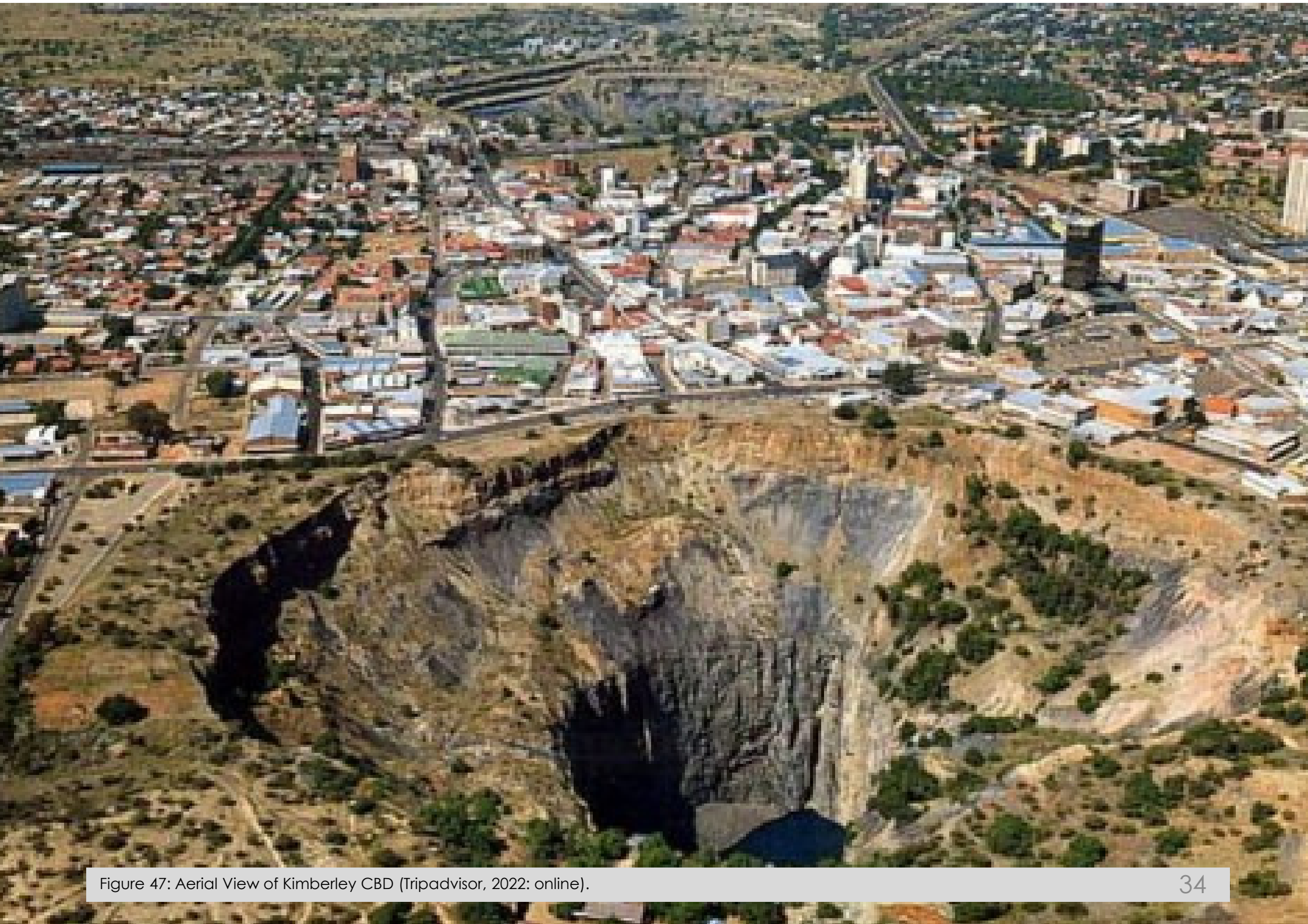


Figure 47: Aerial View of Kimberley CBD (Tripadvisor, 2022: online).

LANDSCAPES, URBAN AND RURAL

Several key features that make the landscape of Kimberley is the relatively flat rural area with no significant topographical features within city limits. The only "hill" is a pile of rubble left over from more than a century of diamond mining.

Since the 1990s, the wreckage has been recycled and returned to the De Beers mine. Some mining waste near the Big Hole has been declared a World Heritage Site and is intended to be preserved as part of the Kimberley Historic Industrial Landscape.

The surrounding countryside, within a few minutes drive of any part of town, consists of rolling hills interspersed with relatively flat, mostly bedrock plains (andesite) in the north. and northwest of dolerite. Dolerite, also known as bluestone, is an igneous rock that was initially melted and pumped as a liquid into older sedimentary rocks south of the Karoo and scattered across the hills (South African Heritage Resource Agency, 2022)

Figure 48: Images of a mine digger (The Christian Science Monitor, 2022: online).
Figure 49-50: Images of Kimberley De Beers mine sand and rocks (Mining .com, 2022: online).

CLIMATIC CONDITIONS

The Climatic condition of Kimberley is semi-arid, which
consist of with dry winters and hot summers (Frances Baard District Municipality Report, 2022)

The area an average of 9 and a half 5 hours of sunshine per day throughout the year and receives about 450 mm of annual rainfall. Kimberley is almost in the centre of South Africa between Cape Town and Johannesburg (SA Places, 2022).

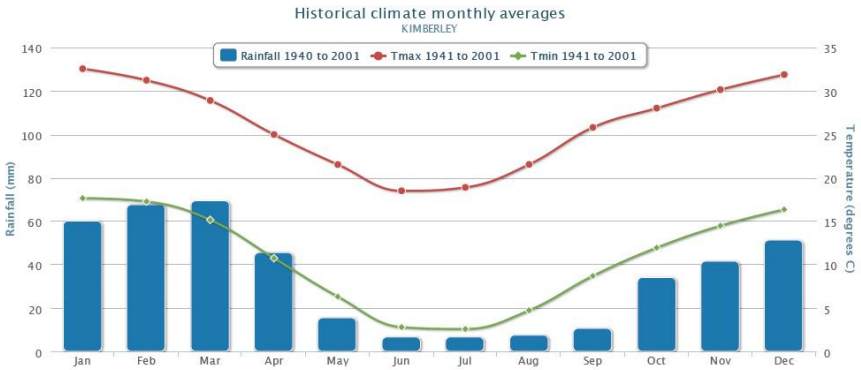


Figure 51: Graphic depicting the typical climate of Kimberley, Northern Cape (Frances Baard District Municipality Report, 2022: online).

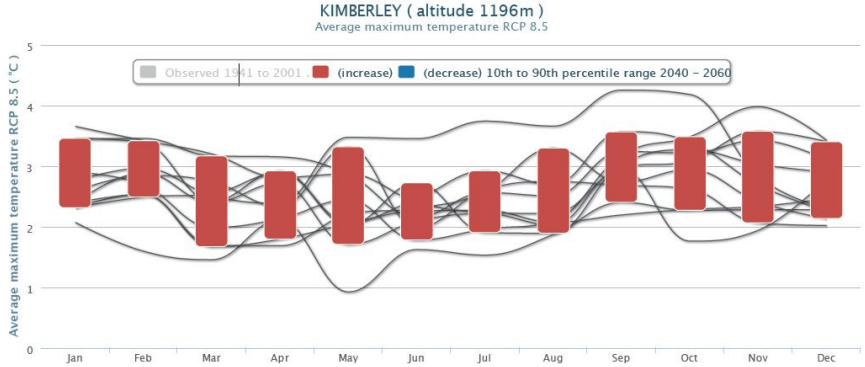


Figure 52: Graphic depicting the anticipated changes in average maximum temperature patterns for Kimberley, Northern Cape (Frances Baard District Municipality Report, 2022: online).

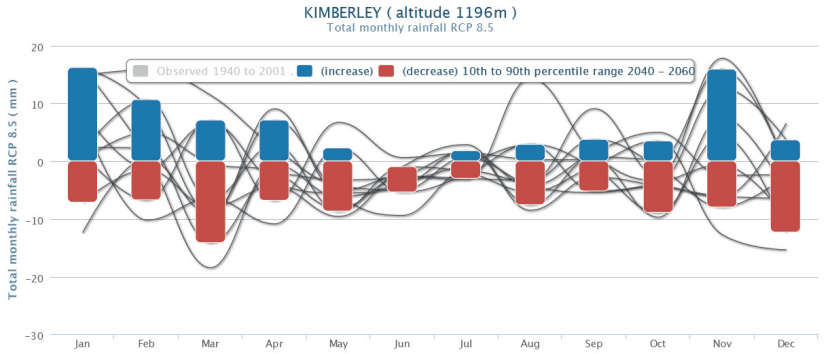


Figure 53: Graphic depicting the anticipated changes in rainfall patters in the region (Frances Baard District Municipality Report, 2022: online).

THE PEOPLE

Some of the initial inhabitants of Kimberley were mainly derived from the Kalahari district of the Northern Cape province, namely the Khoisan. Habitation was significantly established alongside the Orange, Vaal, Gariep, and Modder river banks.

According to the 2011 census, the population of Kimberley was recorded to be 96,977 residents, respectively.

- 63.1% identified as "Black African,"
- 26.8% identified as "Coloured,"
- 8.0% identified as "White,"
- and 1.2% as "Indian or Asian."
- 43.2% of the population spoke Afrikaans as their first **language**,
- 35.8% spoke Setswana,
- 8.7% spoke English,
- 6.0% spoke isiXhosa, and 2.7% spoke Sesotho (Census, 2011).

WATER SOURCE

Kimberley's water is pumped from the Vaal River at Riverton, located 15 km north of the city (Baseline Environmental Description, 2013: online).

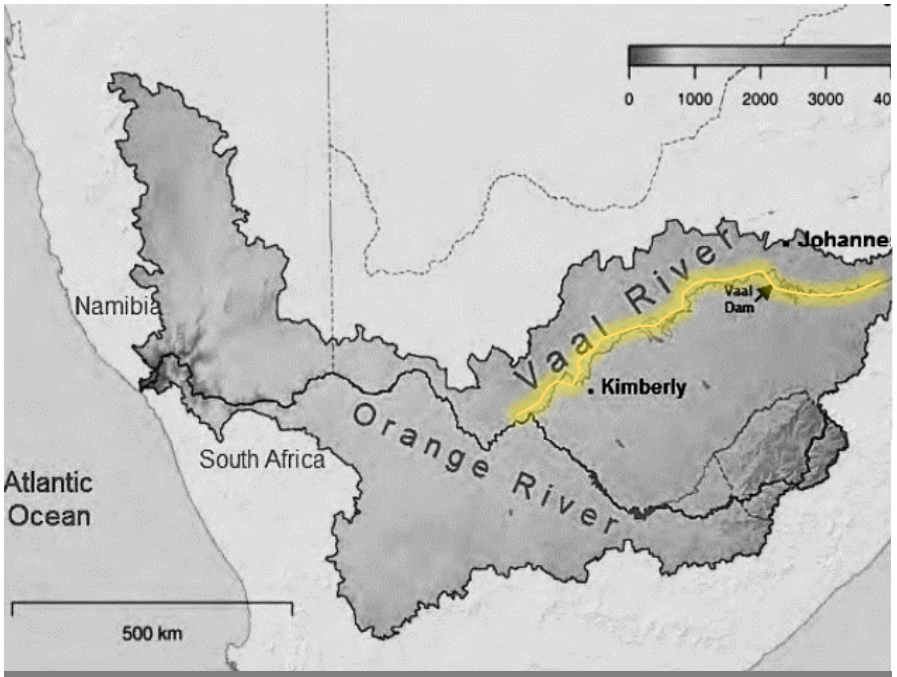


Figure 54: A map of the Vaal River (The Water Wheel ,2022: Online).

KIMBERELY - BUILDING TYPOLOGY.

In identifying tourist attractions in Kimberley, frequent emphasis is placed on the historical significance of Old Kimberley architecture.

In the late Victorian and Edwardian Kimberley periods, all sorts of robust architectural styles were presented. Public buildings have elaborate brick facades topped with vases, gables, and pedestals; Shops are decorated with decorative cast iron balconies, and hotels have fanciful turrets. Study pictures depicting a typical Victorian house layout.

The distinguishing feature of most buildings of this period is the wooden and iron verandas. Patios have become status symbols, ranging from simple wooden poles to rows of brick columns that support straight corrugated iron roofs, representing a combination of China, Chippendale, and supporting trellis curved iron canopies. (The Solomon, 2022).

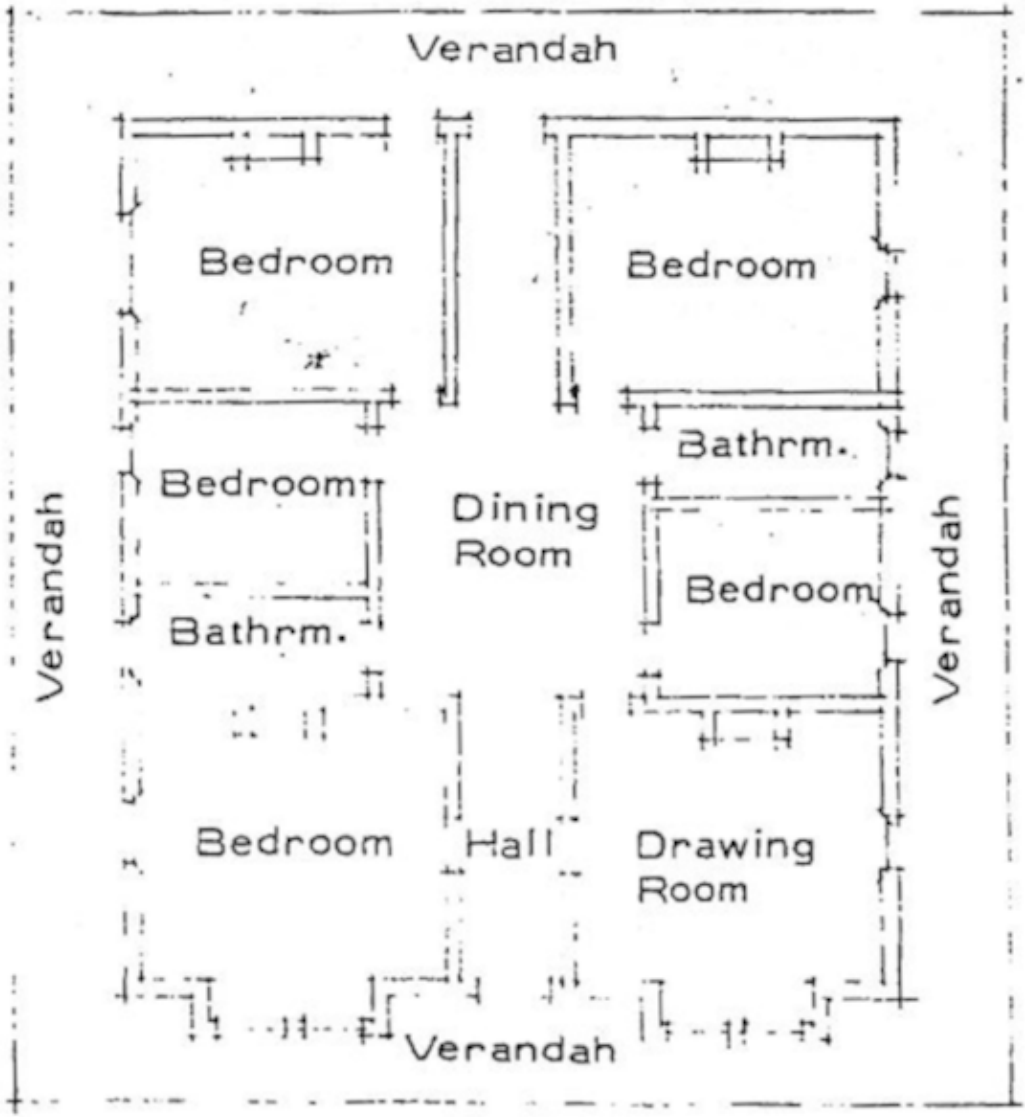


Figure 55: A typical residential layout plan of a house in Kimberley - 1989 (McGregor Museum, 2022: online).

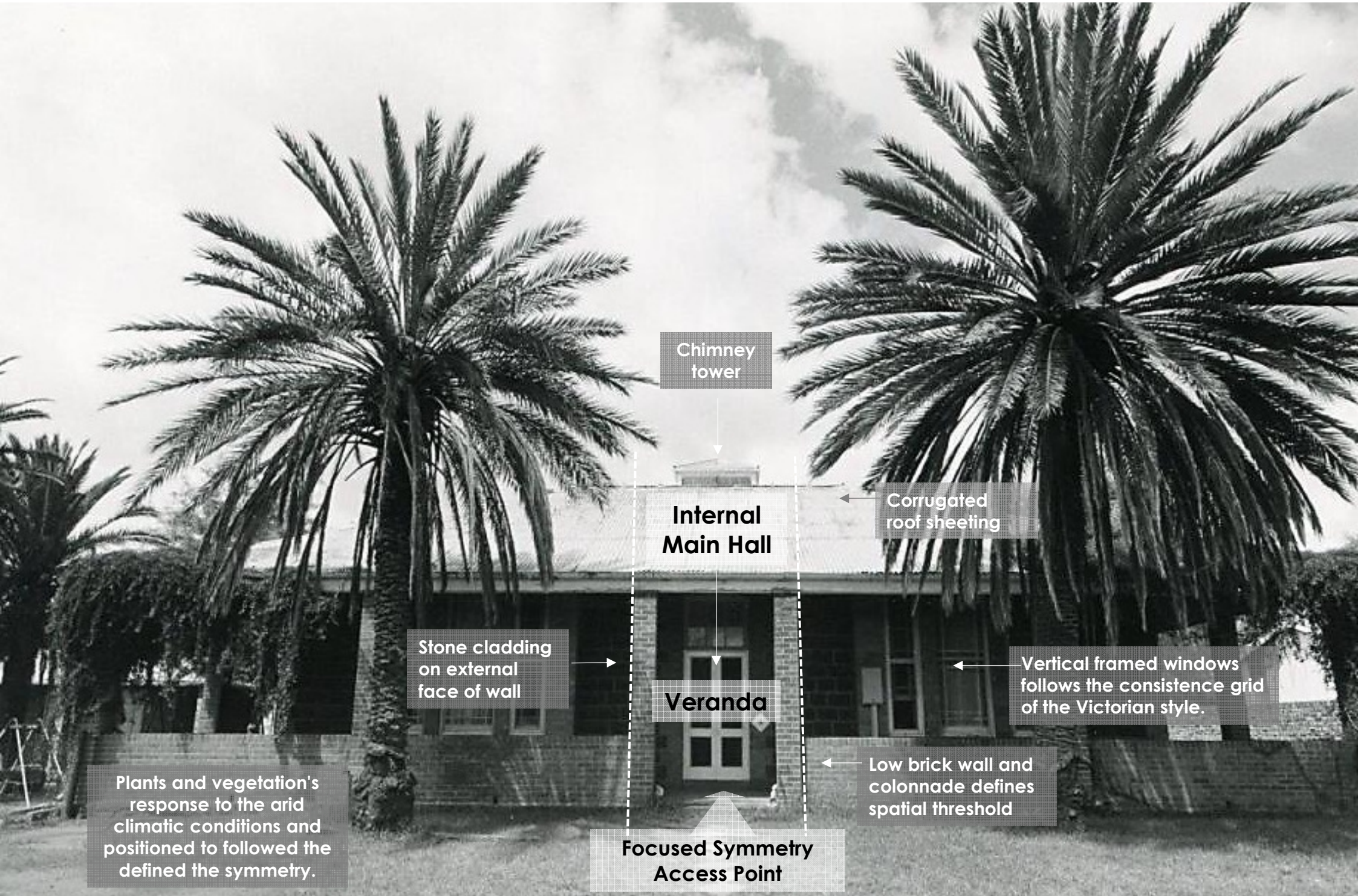


Figure 56: A view of a typical residential dwelling -1989 (McGregor Museum, 2022: online).

The first "architecture" was a set of tents with, here and there, a wooden hut built from old packing crates. This is because, despite the visible output from the mines, there was widespread doubt about the long-term future of the diamond mines and the stability of the settlement for many years.

Developments in the diamond rush era changed the character of the town. Immediately after the merger of diamond mining companies, the country experienced a general recession. With that, the diamond industry fell into the hands of mining magnates and big businesses, inevitably putting private entrepreneurs, individual miners, and small fortune hunters out.

With the amalgamation of diamond mining companies in 1888, Kimberley's long existence as a town was emphasized. During these years, Kimberley was transformed from a collection of wooden and iron structures into a fully furnished town with architecturally designed houses and buildings (The Solomon, 2022)).

Figure 57: Photograph of typical township residence typology in Kimberley (Kimberley City Info, 2022: online).

Figure 58: Kimberley Big Hole Typical Industrial inspired typology built during the diamond rush (Creative Commons, 2022: online).

Figure 59: View of Kamfers Dam from HWWTW (Author, 2022: photograph).

KAMFERS DAM - WETLAND

'Wetlands are land which is transitional between terrestrial and aquatic systems, where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.' (National Water Act No. 36, 1998)

The Kamfers Dam is located 6 km north of Kimberley at the confluence of three biomes; Karoo, Kalahari, and Grasslands. The dam is a semi-arid enclosed pan in a semi-arid environment, receiving water from three primary sources; a catchment area of 160 km², 14 mega litres of Kimberley treated wastewater per day and half of the city's rainfall.

During 5 to 10 years of dry cycles, the basin dries up from October to December and fills up between February and March. However, there is still water at the southwestern end of the basin due to the continuous flow of wastewater. Therefore, it continued to flow in, leading to large reed beds (Birdlife, 2022).

The central portion (95%) of the edge of the Kamfers Dam is private property; a small portion of land (5%) in the southwest corner is owned by the City of Kimberley.

An unofficial bird sanctuary has been established here, and the pan has been registered as a natural heritage site. It is proposed to raise capital to purchase more land around the basin and to prioritize the protection of this area by legislation at the provincial level.

The pan headwaters raise large livestock and provide drinking water to Kimberley and surrounding towns. The pumping of treated wastewater into the pan has contributed to significant changes in the water level in the wetlands. Now, the pan is rarely exhausted as it is in nature (Birdlife, 2022).

BRIEF HISTORY OF KAMFERS DAM

1899
SIEGE OF KIMBERLEY

Kamfers Dam was designated for positioning war firing on December 9, 1899. After that, a large Boer gun stationed at Kamfers Dam began firing 96 lb shells into the town. February 7, 1900.

Several cavalry raids were launched from the city centre to capture it. However, the heavy gun and her crew avoided capture after the siege was lifted, when Boer's defensive positions covered the retreat. (South African History Online, 2022).

2006
CONSTRUCTION OF THE ARTIFICIAL ISLAND

In 2006, an artificial spawning island was built within the Kamfers Dam by Ekapa in collaboration with the North Cape Department of Conservation of Nature and Environment. The purpose of the breeding grounds is to reverse population decline by providing a haven for the birds.

Large numbers of smaller Flamingos have been attracted to the wetlands to feed and nurture chicks due to the high concentration of blue-green algae in the dam water. As a result, Kamfers Dam has become one of only four breeding sites for smaller African flamingos. (Ekapa Environmental Projects, 2022).

Figure 60: Image of Kamfers Dam during the siege of Kimberly before the pan became a wetland Area (Wikiwand, 2021: Online).

BRIEF HISTORY OF KAMFERS DAM

2019-Current

FLAMINGOS RESCUED FROM DAM

On Tuesday, 28 May 2019, more than 500 abandoned and distressed flamingo chicks were flown to Cape Town as part of a series of mercy flights from Kimberley after numerous reports concerning the low-water levels and contamination of the dam that threatened their habitat.

The current state to the dam water quality is reported to be the worst it has ever been and its highest level ever. More than two-thirds of the Lesser Flamingo breeding island remains flooded, and two important railway lines are at risk.

Figure 62: Flamingo's at Kamfers Dam (Birdlife, 2021: online).

Figure 63: Photograph of Kamfers Dam (USAID/Southern Africa, 2022: online).

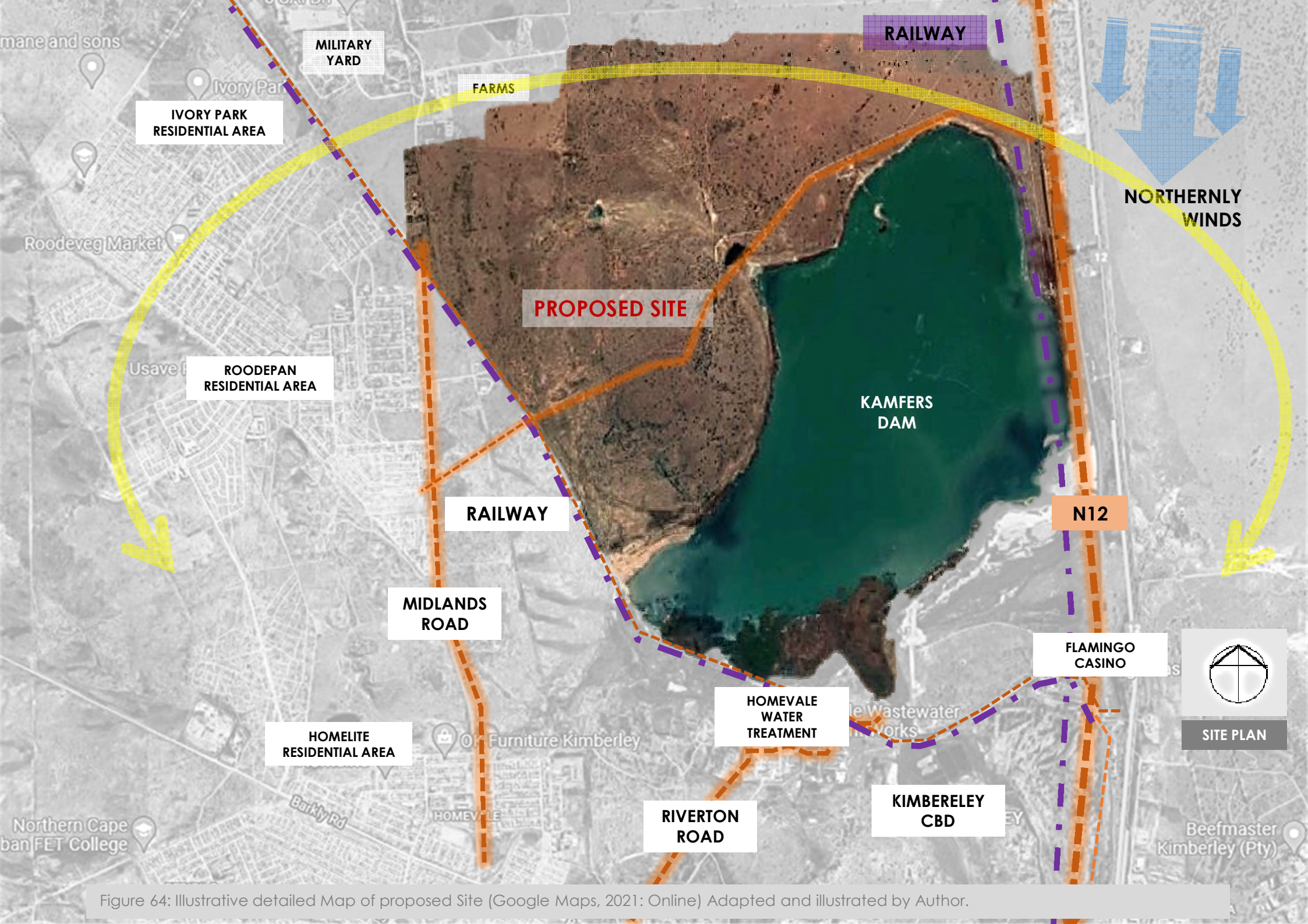


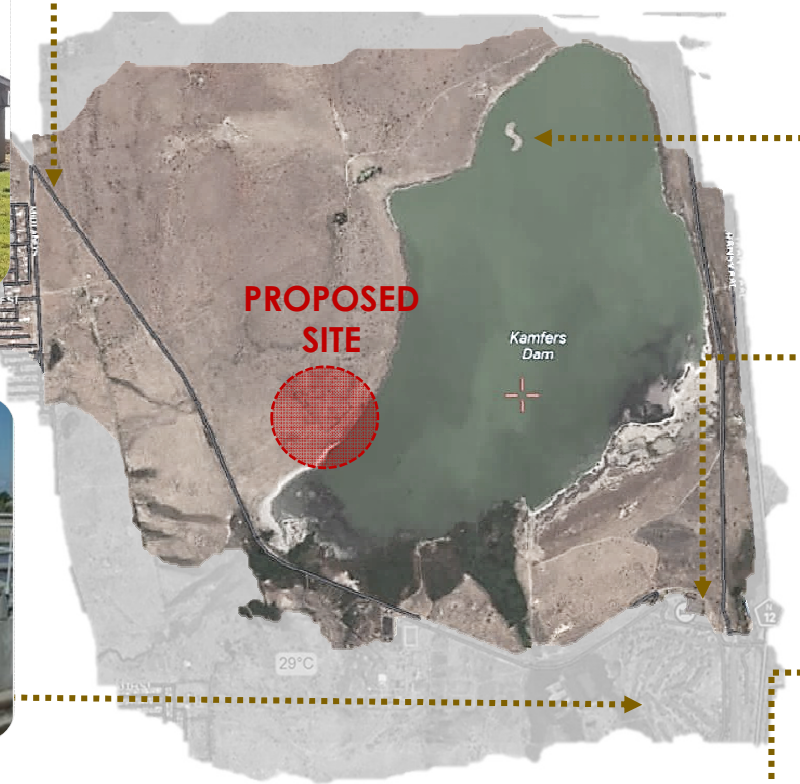
Figure 64: Illustrative detailed Map of proposed Site (Google Maps, 2021: Online) Adapted and illustrated by Author.

NEIGHBOURING FEATURES AND INFRASTRUCTURE

LERATO PARK HOUSING DEVELOPMENTS

KAMFERS DAM

NEWLANDS COUNTRY LODGE



FLAMINGO CASINO

HOMEVALE WATERWASTE TREATMENT WORKS

KIMBERLEY GOLF ESTATE

Figure 65: Indicative Site Plan of the proposed site (Author, 2022: Illustration of proposed site).
Figure 66-71: Surrounding built fabric and landscape features (Author, 2022: Adapted and illustrated by Author).

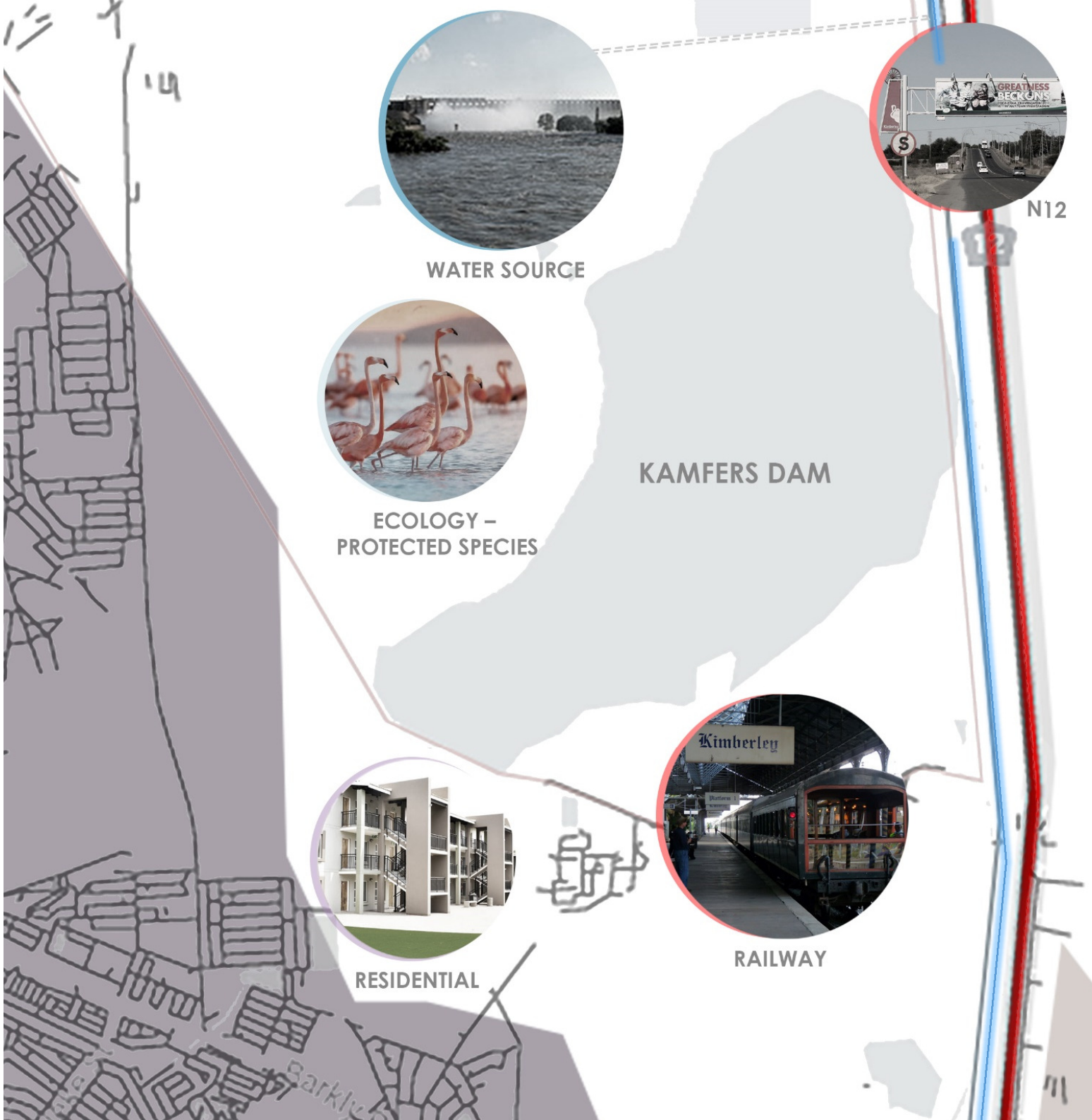


Figure 72: Illustrative site analysis diagrammatic graphics (Kimberley City Info, 2021: online) Adapted and illustrated by Author.

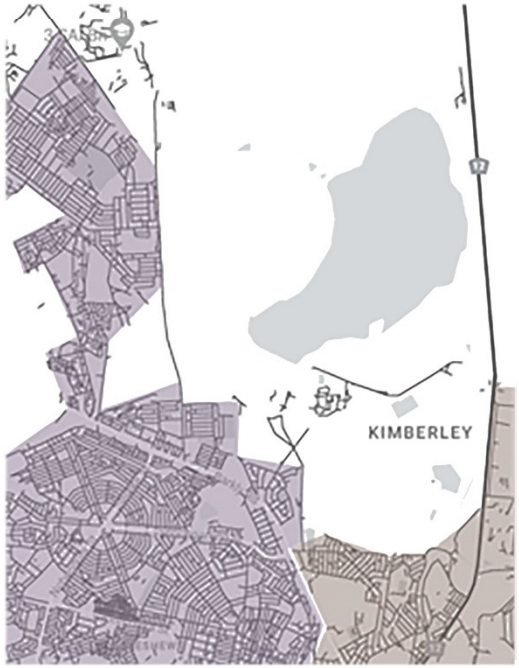
FIGURE GROUND

The **figure ground** surrounding Kamfers Dam is shared predominantly between **Residential** and the **Hospitability** sector. The Residential sector can be found on Southern West, namely Roodepan Homevale and Lerato Park.

The hospital sector is found on the South East and Eastern part of the site, such as the Flamingo Casino, the Kimberley Golf Club and various transportation lanes.

TRANSIT & VEHICULAR ROUTES

The **Transit and Transportation** within the area can be on the East side of Kamfers Dam. Both the N12 road and the railway line runs from Cape Town to Johannesburg. The secondary railway lines can be found alongside the West and South sides of the site.



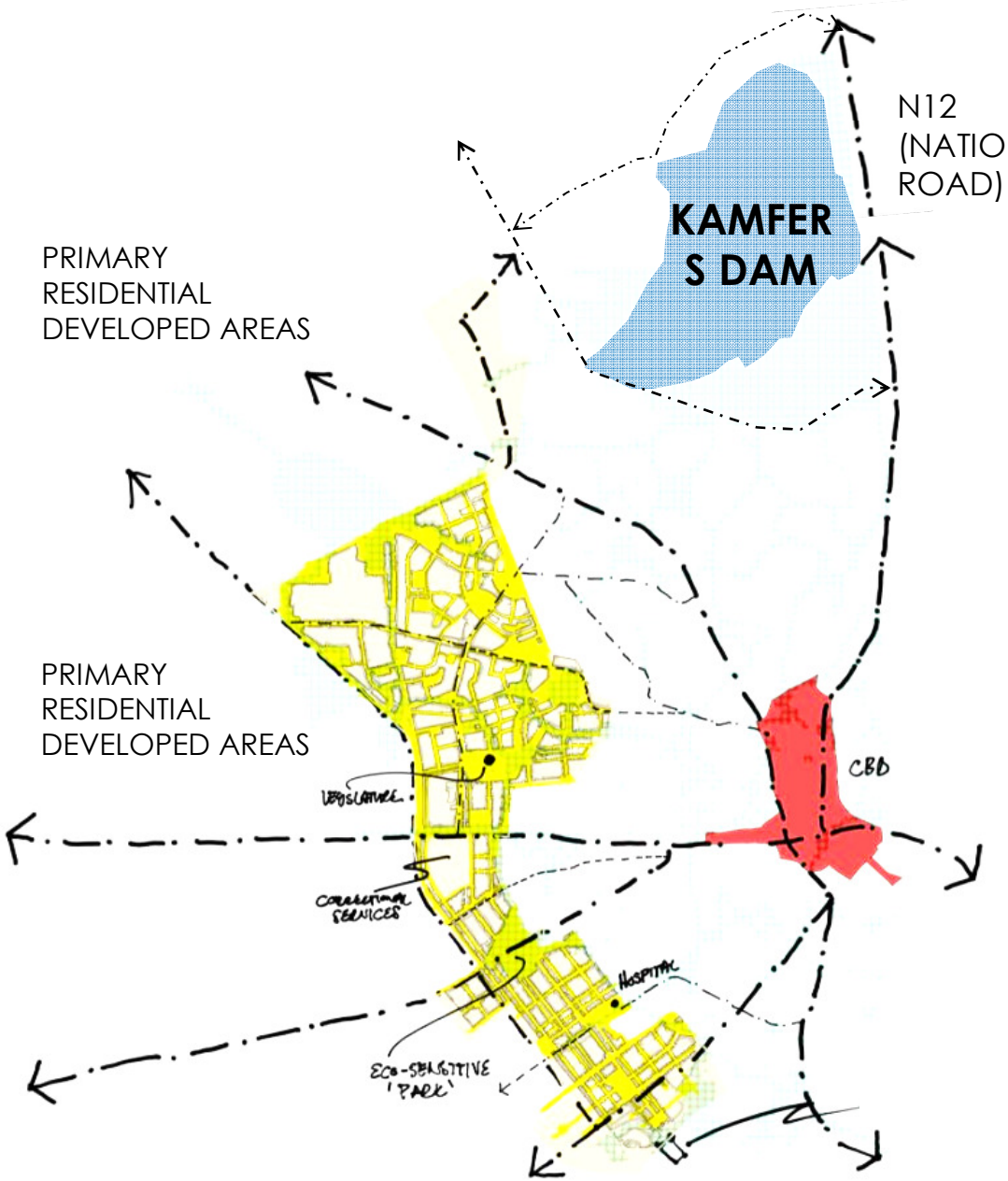
PROMINENT SPATIAL CONFIGURATION (RESIDENTIAL VS COMMERCIAL)

Figure 73-76: Illustrative site analysis diagrams graphics (Author, 2022).

VEGETATION & WATER

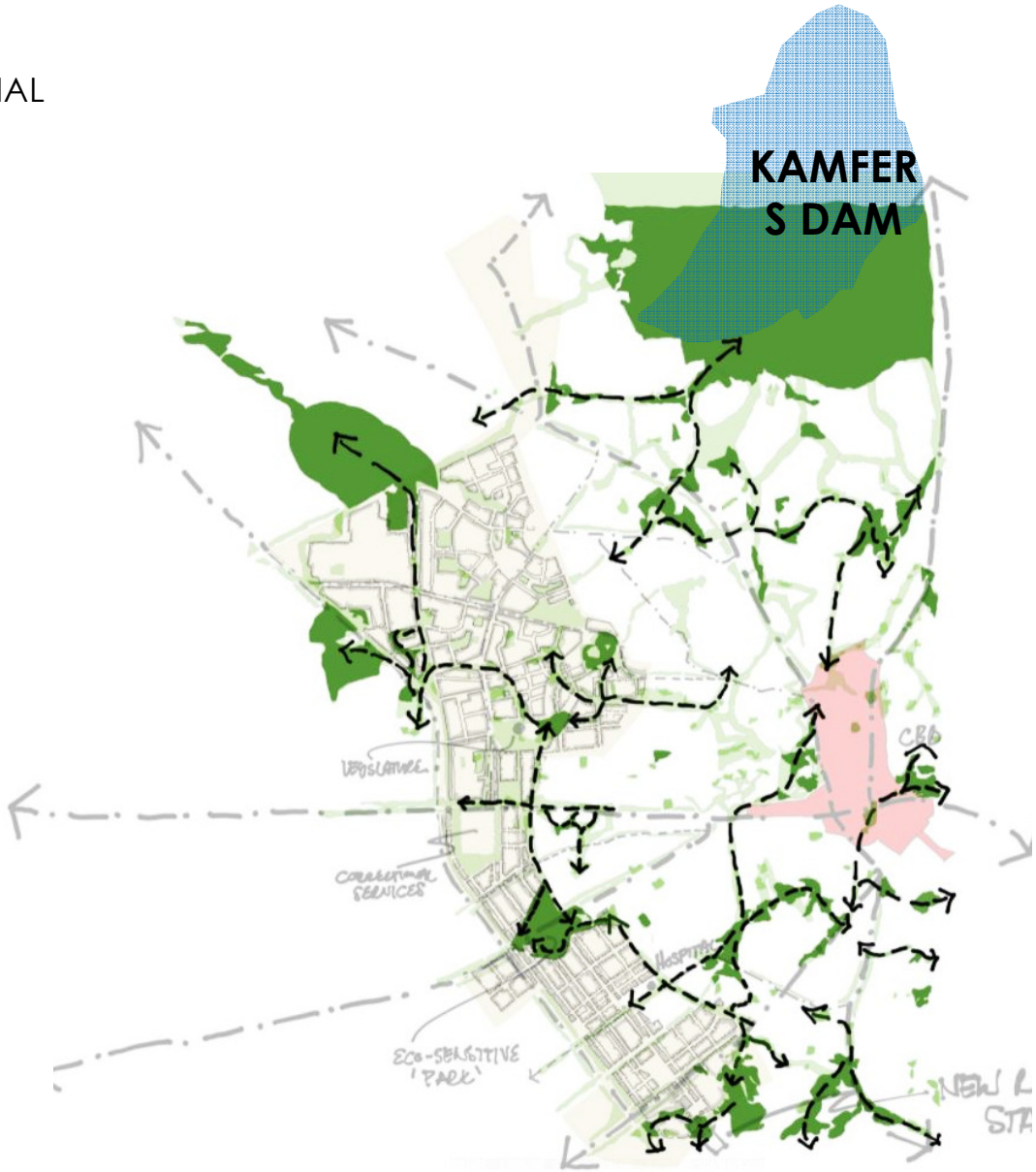
The **Vegetation** around the dam is relatively flat, holding red-yellow, freely drained soils and vegetation such as the Kimberley Thornveld and Vaalbos Rocky Shrubveld.

Kimberley's water is pumped from the Vaal River at Riverton, located 15 km north of the city. The source runs alongside the east side of the dam to the city's main water connection (Baseline Environmental Description, 2013: online).



MAIN VEHICULAR ROUTES THROUGH THE CITY/SITE

Figure 77: Main transport interchange through and around proposed site(kimberleyphshda, 2022: Illustration adapted and edited by Author).



ECOLOGICALLY SENSITIVE AREAS

Figure 78: Ecologically Sensitive Areas (kimberleyphshda, 2022: Illustration a`dapted and edited by Author).

TREES AND VEGETATION

The area around the dam is relatively flat, holding red-yellow, freely drained soils and vegetations such as the Kimberley Thornveld and Vaalbos Rocky Shrubveld.

The water edge on the pan's southern side mainly consist of common reed Phragmites australis.

Endemic plant species
Titanopsis calcarea

Thornveld and Vaalbos
Rocky Shrubveld

Common Reed
Phragmites australis

Figure 79-81: Main vegetations found on (and surrounding) proposed site(kimberleyphshda, 2021: online).

TREES AND VEGETATION

POGONARTHRIA SQUARROSA
Herringbone grass

MELINIS REPENS SUBSP. REPENS
Natal Redtop

STIPAGROSTIS CILIATA VAR. CAPENSIS Tall Bushman Grass

STIPAGROSTIS OBTUSA
Small Bushman Grass

STIPAGROSTIS UNIPLUMP VAR. UNIPLUMIS
Sticky Bushman Grass

THEMEDA TRIANDRA
Red Grass

Figure 82-87: Kamfers Dam trees and vegetation's (Mc Gregor Museum, 2022: online).

TREES AND VEGETATION

SCHMIDTIA PAPPOPHOROIDES
Sand Quick

SETARIA VERTICILLATA
Bur Bristle Grass

FINGERHUTNIA AFRICANA
Thimble Grass

HEROPOGON CONTORTUS
Spear Grass

ENNEAPOGON CENCHROIDES
Nine-awned Grass
Grey Sour Grass

ERAGROTIS LEHMANNIANA
VAR. LEHMANNIANA
Lehmann's Love Grass

Figure 88-94: Kamfers Dam trees and vegetation's (Mc Gregor Museum, 2022: online).

ECOLOGY – PROTECTED SPECIES

Kamfers Dam regularly holds more than 20 000 birds. A special feature is the large numbers of Greater Flamingo, Lesser Flamingo and Grey-headed Gull that are found throughout the year.

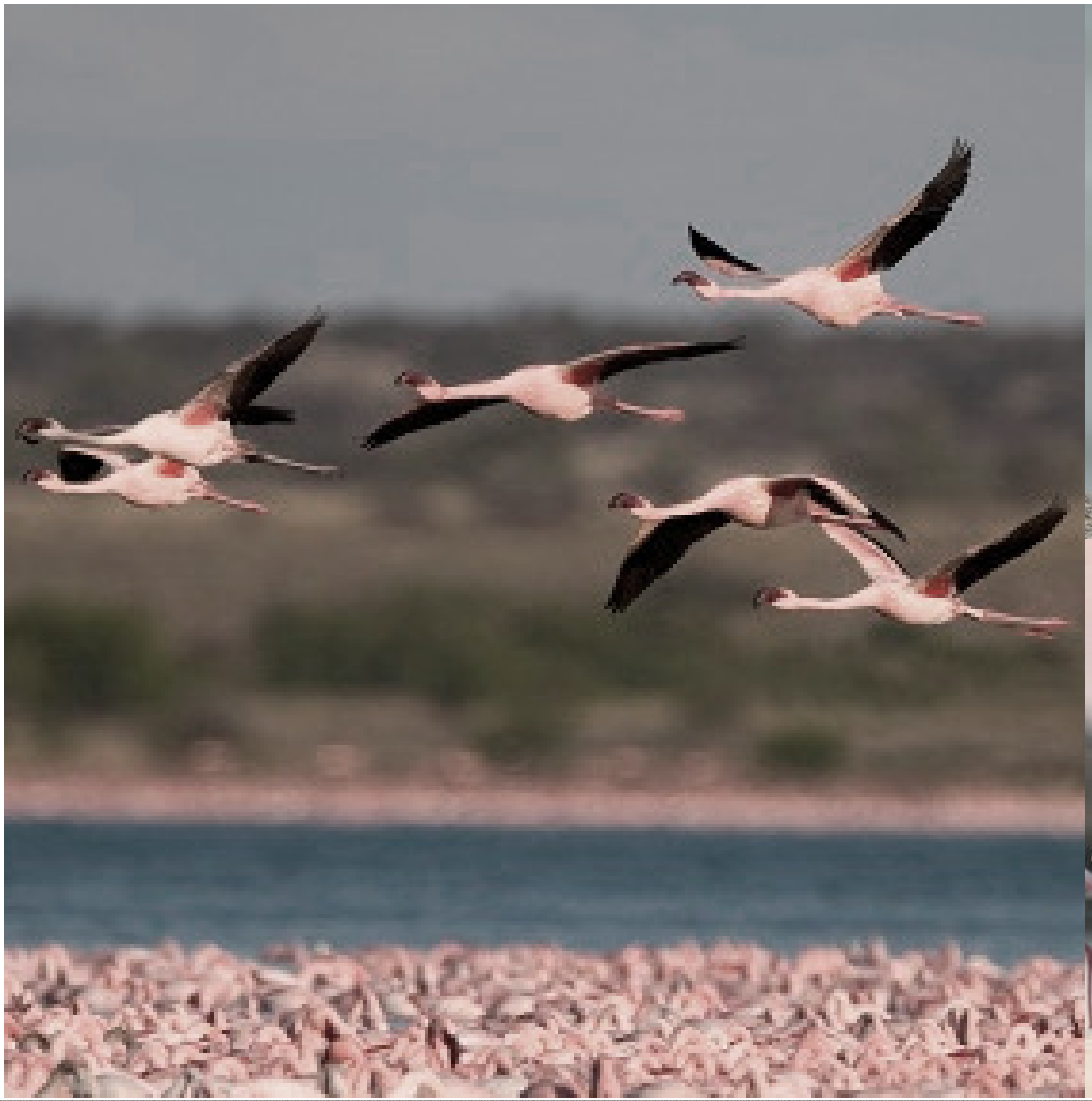


Figure 95-97: Main Species and ecology found on site(kimberleyphshda, 2021: online).

Common Name: Lesser Flamingo
Family Name: Phoenicopterus
Family: Phoenicopteridae
Scientific Name: Phoeniconaias Minor
Type: Birds
Diet: Omnivore
Group
 Name: Colony
Size: 914.4mm To 1270; Wingspan: 1524mm
Weight: 1.2 – 2.7 Kg (Adult)
Height: 800 – 900 Mm (Adult)
Wingspan: 900 – 1000 Mm (Adult)

Flamingo foods include shrimp, snails, and plant-like water organisms called algae—it plunges its head into the water, twists it upside down, and scoops the fish using its upper beak like a shovel. Due to their webbed feet, they can "run" on the water to gain speed before lifting into the sky.

Flamingos build nests that look like mounds of mud along waterways. At the top of the mound, in a shallow hole, the female lays one egg. The parents take turns sitting on the egg to keep it warm. After about 30 days, the egg hatches. Flamingo young are born white, with soft, downy feathers and a straight bill. The bill gradually curves downward as the flamingo matures (Birdlife, 2022).

Figure 98: A close up view of a Lesser Flamingo(Birdlife, 2022: online).

SITE RESTRICTIONS - SEWAGE

Sewage spillages and flow are impacting the Kamfers Dam area. The spillage receives water from the Homevale Waste Water Treatment Works (HWWTW), the wastewater from residential and industrial areas occasionally exceed the hydraulic capacity of the plant, causing millions of litres of untreated waste water to enter Kamfers Dam daily.

Figure 99-101: Photographs from HWWTW of flooded water conditions at the dam (Author, 2022: photograph).

FLOODING

The inflow from the HWWTW, has resulted in high levels of the Kamfers Dam body water. Causing damage to existing railway infrastructure and threat to the flamingo breeding island and the loss of potential ecotourism income.

Figure 102-104: Photographs of HWWTW of dam in 2013 (Kimberley City Info, 2022: online).

1.5 THEORETICAL DISCOURSE EXPLORED THROUGH

- Project Strategy Diagram
- Research Question
- Touchstone
- Concepts
- Theoretical Themes

Straddling' the line between creation and conservation - RECLAIMING KAMFERS DAM

Research Question 01:
How can an urban landscape intervention narrate, facilitate, and seamlessly merge the tensions that exist in a shared environment between man and natural systems, simultaneously fostering improved and reimaged networks within the context of Kamfers Dam, Kimberley?

RQ defined:
Reclaim: Retrieve or recover (something previously lost, given, or paid); obtain the return of.

Reimagine: to create or imagine a new lifestyle or identity and or reinterpret a space or function.

Conserve: To protect, improve, and preserve (something, especially something of environmental or cultural importance) from harm or destruction.

Ecotone: A region of transition between two or more biological communities.

Straddle: to stand, sit, or walk with the legs spread wide apart; to seem to favour two opposite sides of not wanting to offend anyone.

'Straddling' the line: Such as a border or river, that exists on each side of it or goes across it.

Creation: the action or process of bringing something into existence.

Kamfers Dam: A permanent wetland of 400ha in Kimberly, Northern Cape. It is one of the only four breeding sites for the Flamingo bird species, located alongside the N12 national road.

Research Question Critically Defined:

How can an urban landscape intervention **narrate**, **facilitate**, and **seamlessly merge**

(Unfold/ relate/ voice over) (Manage) (Continuously/ Consistently) (Blur/ Integrate/ knit)

the **tensions** that exist in a **shared environment** between **man** and **natural systems**,

(Pressure/ uncertainty) (Ecotone/ Threshold Shared biomes and ownership) (Ecosystem/ Bird & Water life) (Ecosystem/ Bird & Water life)

simultaneously **fostering improved** and **reimaged networks** within the context of **Kamfers**

(Promote/ Advance/ Encourage) (Upgrade/ Enhance) (Rework/ re-evaluate/ revised) (Structured Arrangement/ organisation)

Dam, Kimberley?

Key Words:

urban landscape, narrate, facilitate, merge, tensions, shared environment, man-made , natural systems, reimaged networks , ecology, thresholds

“If the bird does like its cage, and does like its sugar and will not leave it, why keep the door so very carefully shut?”— Olive Schreiner (1855-1920), The Story of an African Farm

DESIGN TOUCHSTONE

The development of the touchstone model resembles the principle of tensegrity, where the purpose of Touchstone defines the essence of the study to be explored. It resonates with the concurrent tensions that have existed and continue to exist. It speaks to the shared yet blurred notions of undefined parameters that have ruled the site past its current status.

Tensions that are equally tangible and non-tangible, yet founding members of an eco-system are deemed as high esteem. The solid and visible members member are operating in compression. At the same time, the fine and almost non-visible members operate in tension. It is in the specific point of balance the structure establishes its purpose.

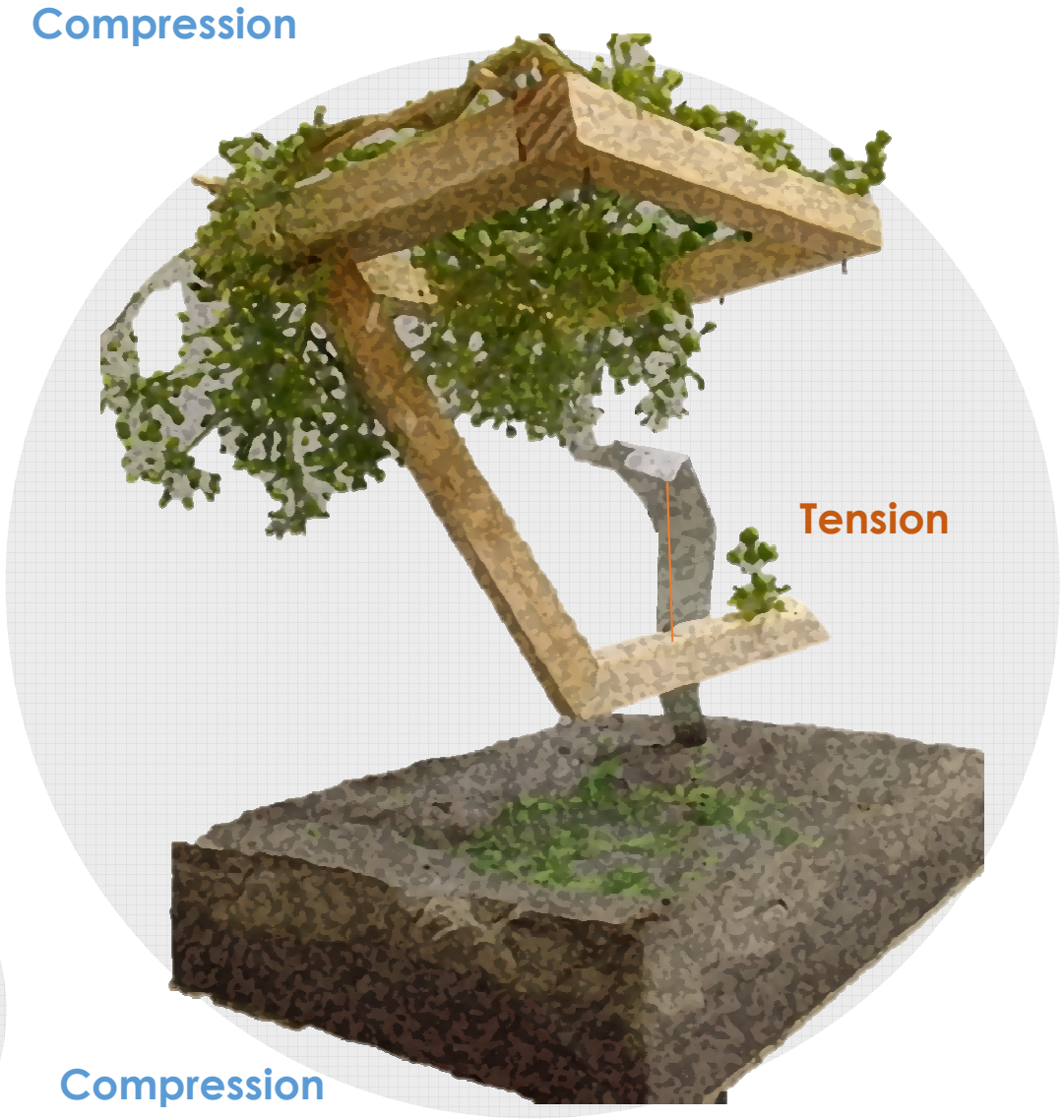


Figure 105-107 : Photographs of the Touchstone (Author, 2022).

CONCEPT 01
SUBLIMINAL THRESHOLDS

The subliminal threshold experience is the initial concept to be explored within the proposal of this study. It is defined and informed by the Kamfers dam's establishment, founded in an ecotone's heart. A subdivision of environments, ownership, inhabitants, and accessibility.

The concept translates to a shared environment with no fundamental notion of more significant barriers. However, it is guarded through intangible members that navigate how a flesh engages with other flesh.

The concept further denotes the exploration of buffer zones, runoff areas, or watersheds; the projects explore the threshold space between water and earth and the tension between natural systems and architecture.

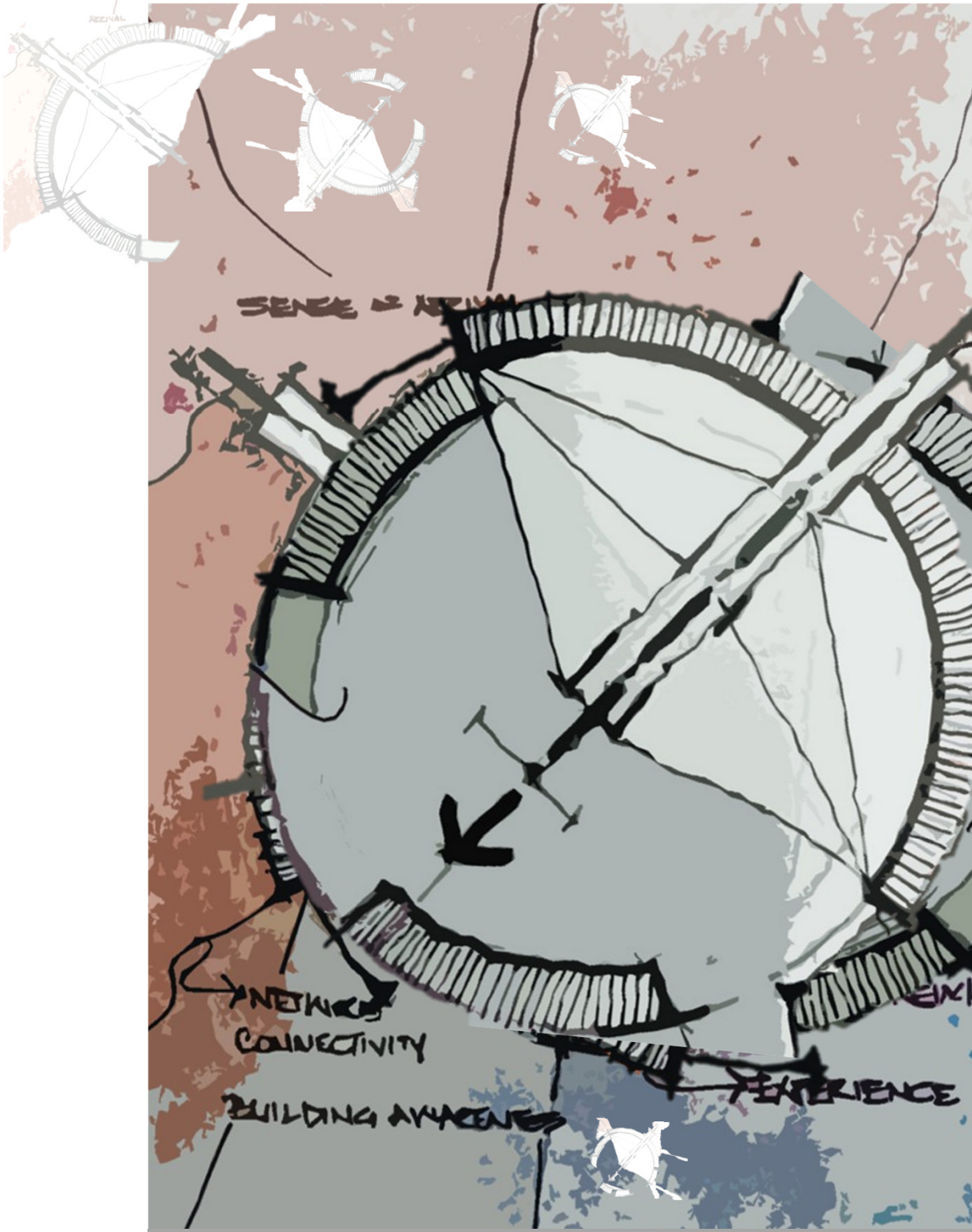


Figure 108: Concept 01 illustration (Author, 2022).

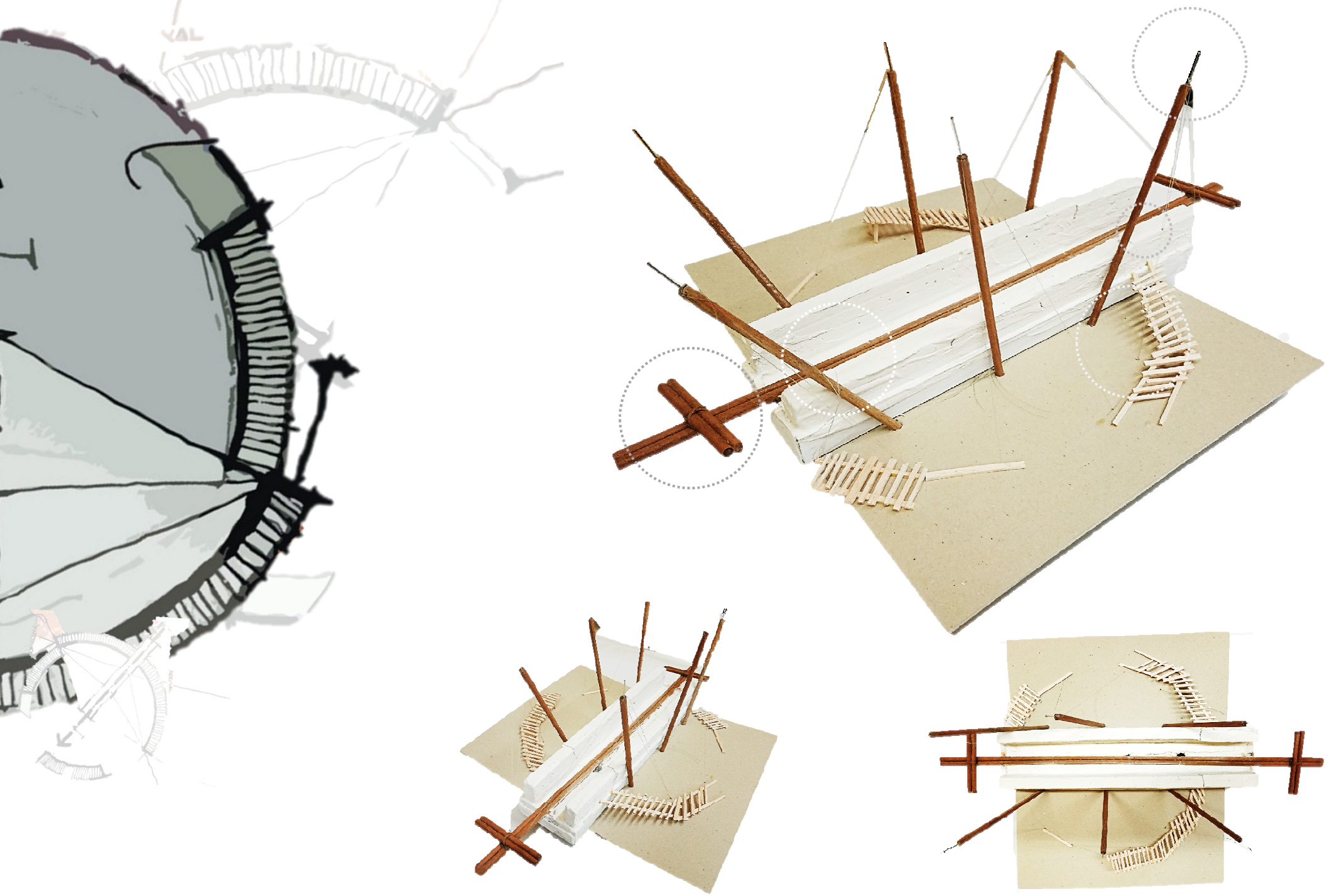


Figure 109-111: Photographs of Concept 01 (Author, 2021).

CONCEPT 02
HIDDEN CERTAINTY

The concept of Hidden Certainty is derived from three main influences: the existing site parameters, how others engage the site, and the proposed intervention that the design aims to establish.

The existing site parameters refer to the restrictions associated with this type of typology. The ecological importance of the dam to the water birds has recognized the dam as a Natural Heritage Site and has international Ramsar status pending (Birdlife, 2018). Thus, although the dam has dual ownership (private and municipal), several tertiary influences further contribute to the dam's life.

The dam is engaged through access from neighbouring sites, with relevant viewing infrastructures. Otherwise, glimpses of the dam can be seen from the N12.The concept further relates to the act in which the birds are to be viewed through the notion that the viewer needs to be hidden from the bird. Simultaneously, with curiosity as the viewer approaches the birds.

Figure 112 : Concept 03 illustration (Author, 2021).

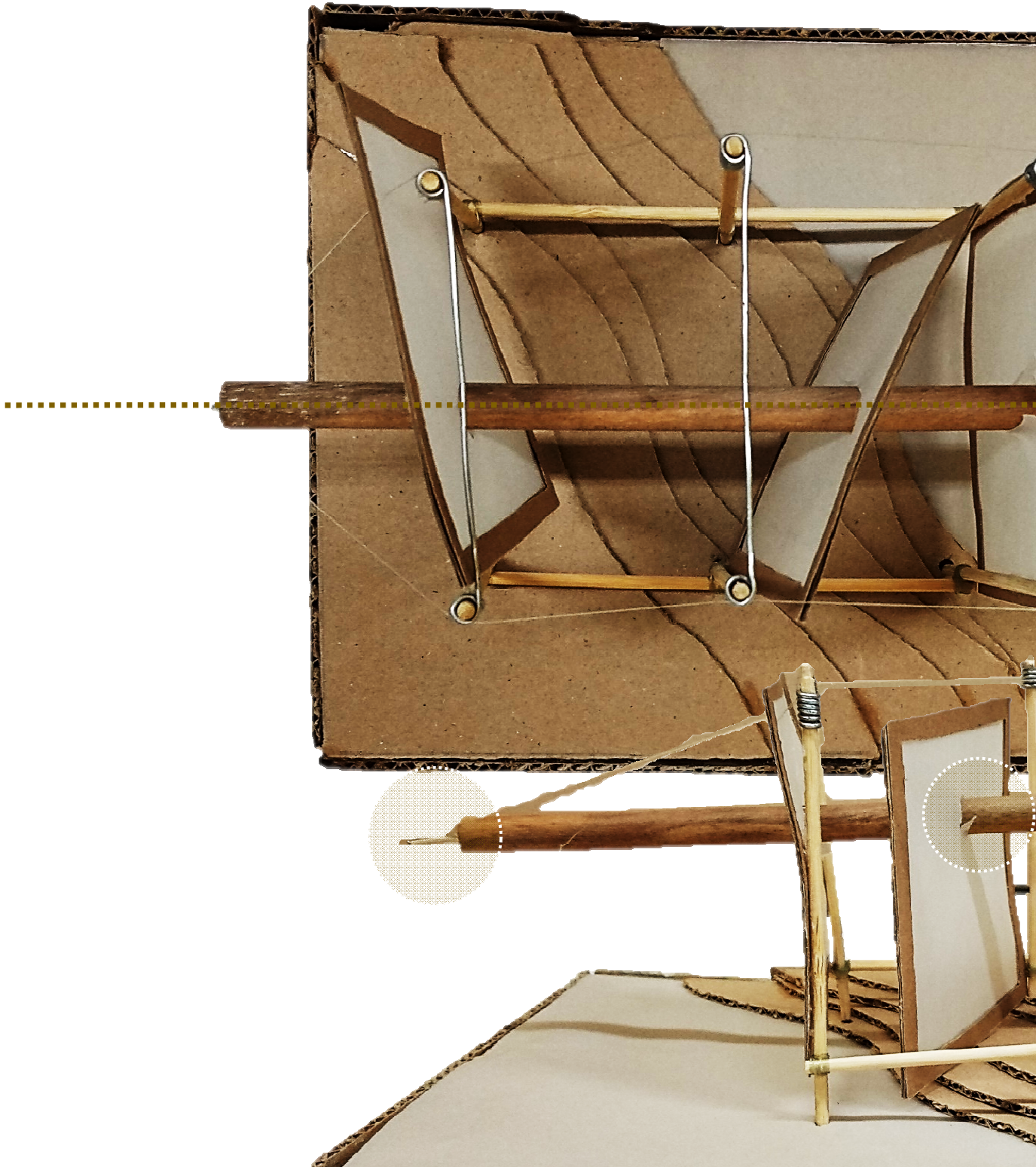


Figure 113: Concept 02 (Author, 2021)

1.6 THEORETICAL DISCOURSE

Introduction

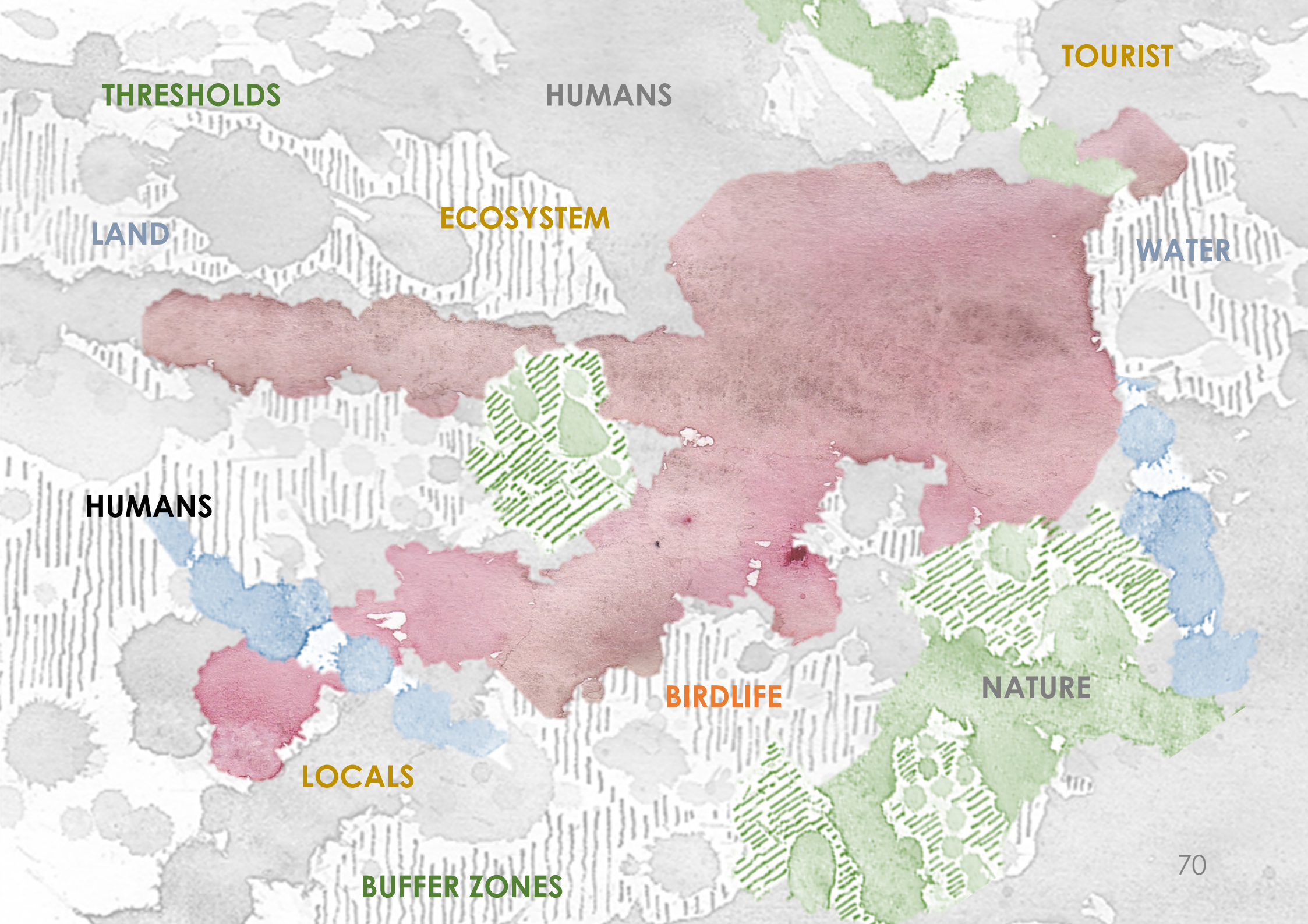
Being born and bred in Kimberley, Northern Cape has provided me the favourable privilege of witnessing Kamfers Dam's transition as a landscape. From the vast blue-green waters to the vibrant pink horizon.

The landscape has undergone a metamorphosis that has left one wondering where to go from now. Kamfers Dam has not only experienced sudden dry conditions, but the dam has experienced floods with an unpleasant sewage smell, up to the brim of its edges and recently leaving no pink sight of the flamingo horizon.

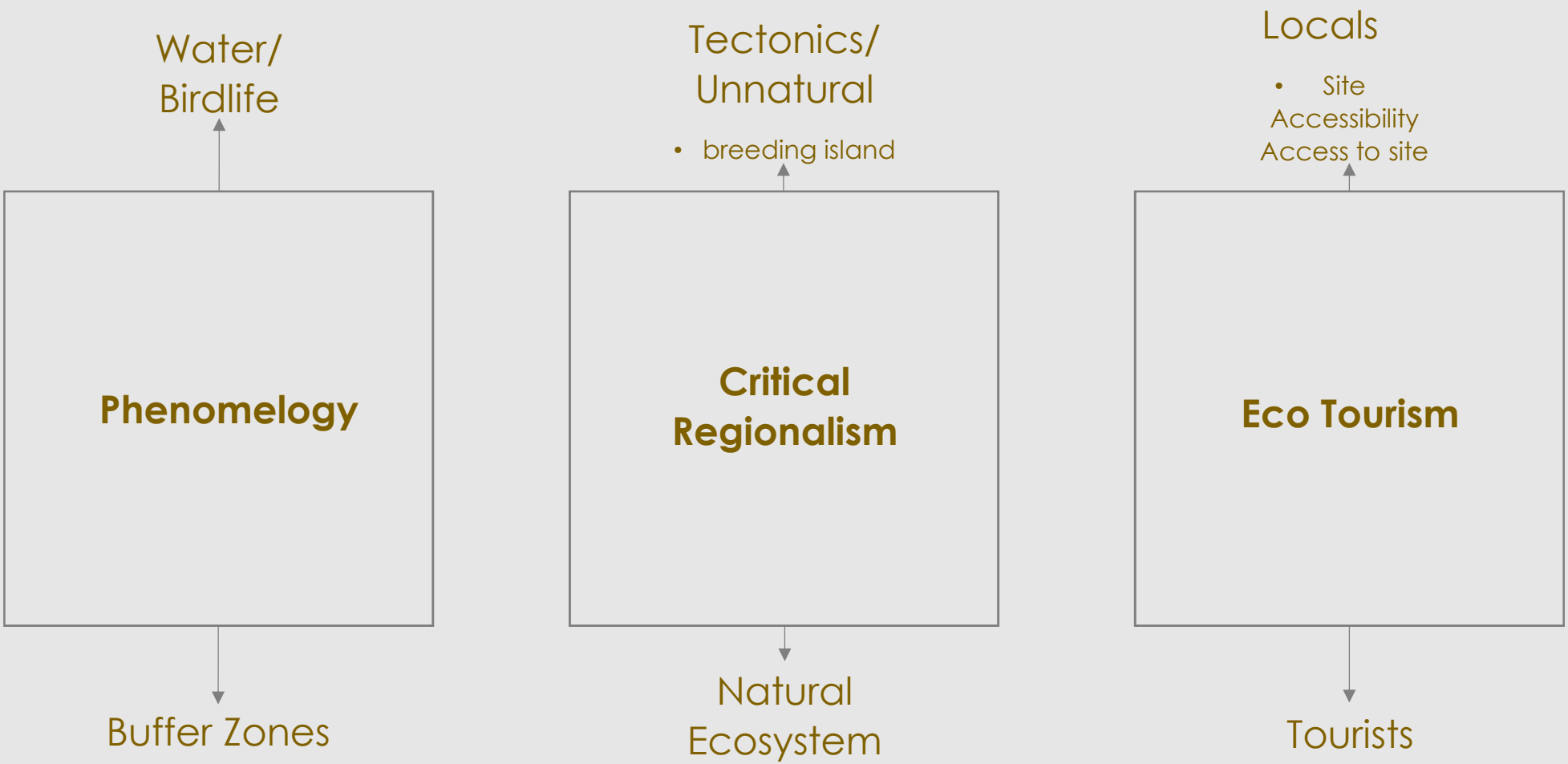
I am reminded of the many times being on a train that passed by Kamfers Dam. I would be filled with much anticipation, knowing that this was the closest contact and the most transparent view of the flamingo colony. However, the reality that the pink horizon is merely a narrative lived through the experiences of some raises the in-depth investigation of how a gem such as this can be better catered for.

Through personal experiences and storytelling of many locals and tourists, the themes were formulated based on associating the realities of a site that simultaneously benefitted and suffered through the intervention of natural and artificial systems. The following themes are the driving systems that unpack the research question.

Figure 114: View of Kamfers Dam from HWWTW (Kimberley City Info, 2022: online).


TOURIST
THRESHOLDS
HUMANS
ECOSYSTEM
LAND
WATER
HUMANS
BIRDLIFE
NATURE
LOCALS
BUFFER ZONES

THEORETICAL DISCOURSE



THEORETICAL DISCOURSE

Phenomenology

Phenomenology is the opening theory that will be explored as a fitting response and entry unto this dissertation. The theory of phenomelogy focuses on the notion of how various fleshes exist and co-exist with each other in a world where a body does not only flaneur through spaces but great participation occurs in creating places, memories and associations of spaces making.

In Being and Time, Heidegger (1962) highlights that, in conventional philosophy and psychology, the relationship between person(stewardship) and world (creation)has been reduced to either an idealist or realist perspective. In an idealist view, the world is a function of a person who stewards and response on the world through consciousness and, therefore, actively shapes and stewards their own world.

In contrast, a realist views a person as a subject that stewards that which is created, in that the world created acts on the person and their react towards it.

Heidegger claimed that both perspectives are out of touch with the nature of human life because they assume a separation and directional relationship between person and world that does not exist in the world of actual lived experience.

Heidegger furthers highlights that people do not exist apart from the world but are rather intimately caught up in and immersed. Whilst this stance has been argued and configured by other phenomenologist and researches otherwise.

THEORETICAL DISCOURSE

Critical Regionalism

The second theme that will be explored in this study is Critical Regionalism. Through the lens of a critical regionalist, stewarding creation is conserving creation. This concept is commonly known as a geographical term to describe regional Architecture. Vitruvius (ca. 46BC) wrote that, " If our designs for private houses are to be correct, then we must at the outset take note of the countries and climates in which they are built".

Vitruvius further explains that the design of one style and type of house seems appropriate to build in another region without considering its unique qualities. Every typology and or topology is different, every place posses opportunities and constraints that the other region might not relate to. This notion stretches to the practicalities relating to the immediate tectonics" (Vitruvius, 1914:170).

In response to the post-modern regionalism that strives to integrate site specific knowledge and modern technology, all of this provides avenues of long-term efficiency at the expense of short-term sacrifices. The understanding of the this phenomena will further be unpacked in the preceding Chapters.

A British Architect and Historian, Kenneth Frampton, states in his document: Towards a Critical Regionalism, Six Points for an Architecture of Resistance" that the fundamental strategy of Critical Regionalism is to mediate the impact of universal civilisation with elements derived indirectly from the peculiar of a particular place. It is clear from the latter, that the study Critical Regionalism depends upon maintaining a high level of critical self-consciousness.

It may find its governing inspiration in such things as the range and quality of the local light, or in tectonic derived from a peculiar structural mode or in the topography od a given site" (Frampton: 21).

Frampton, further identifies six main ideas towards critical regionalism, as his Six Points for an Architecture of Resistance. " In his third point: Critical Regionalism is World Culture, "Frampton emphasis the difference between Critical Regionalism and nostalgic historicism, through exploring the defining characteristics of identity –giving culture in a modern method.

THEORETICAL DISCOURSE

The in sync relationship between the proposed study and the theme explored, is the inseparable nature of the design to its context. As the studied context, with all its possibilities and incapability's births the program and function. Additionally, within the specifics of the site conditions and its future of the site thereof, lies in the so measures to be utilized, the implementation of practical principles and suitable to its context. Such a typology and architectural response can not only be explored through the lens universal civilisation, but through the critical as that serves as the grounding foundation It is imperative that the design incorporate design elements that will efficiently response to the condition of its region.

It is even more imperative that these elements function towards fostering the needs of the existing site, simultaneously establishing new ways to mitigate any existing irregularities. These solutions include the use of materials, tectonics, light and climatic considerations

THEORETICAL DISCOURSE

Eco Tourism

Ziffer (1989) defines Eco Tourism as a form of tourism inspired primarily by the natural history of an area including its indigenous cultural cultures. The eco-tourists visits relatively undeveloped areas in the spirit of appreciation, participation and sensitivity. The Eco-tourist practices a non-consumptive use of wildlife and natural resources and contributes to the visited area through labour or financial means aimed at directly benefiting the conservation of the site and the economic well-being of the local residents. The visit should strengthen the ecotourism appreciation and dedication to conservation issues in general and to the specific needs of the locale. Ecotourism also implies a manged approach by the host country on which commits itself to establishing and maintaining the sites with the participation of local residents marketing them appropriately, enforcing regulations and using the proceeds of the enterprise to fund the area's land managements as well as community development.

The theme eco-tourism is to utilise the global tourism market by attracting visitors international or local, to natural areas and using this market fund conservation and fuel economic developments.

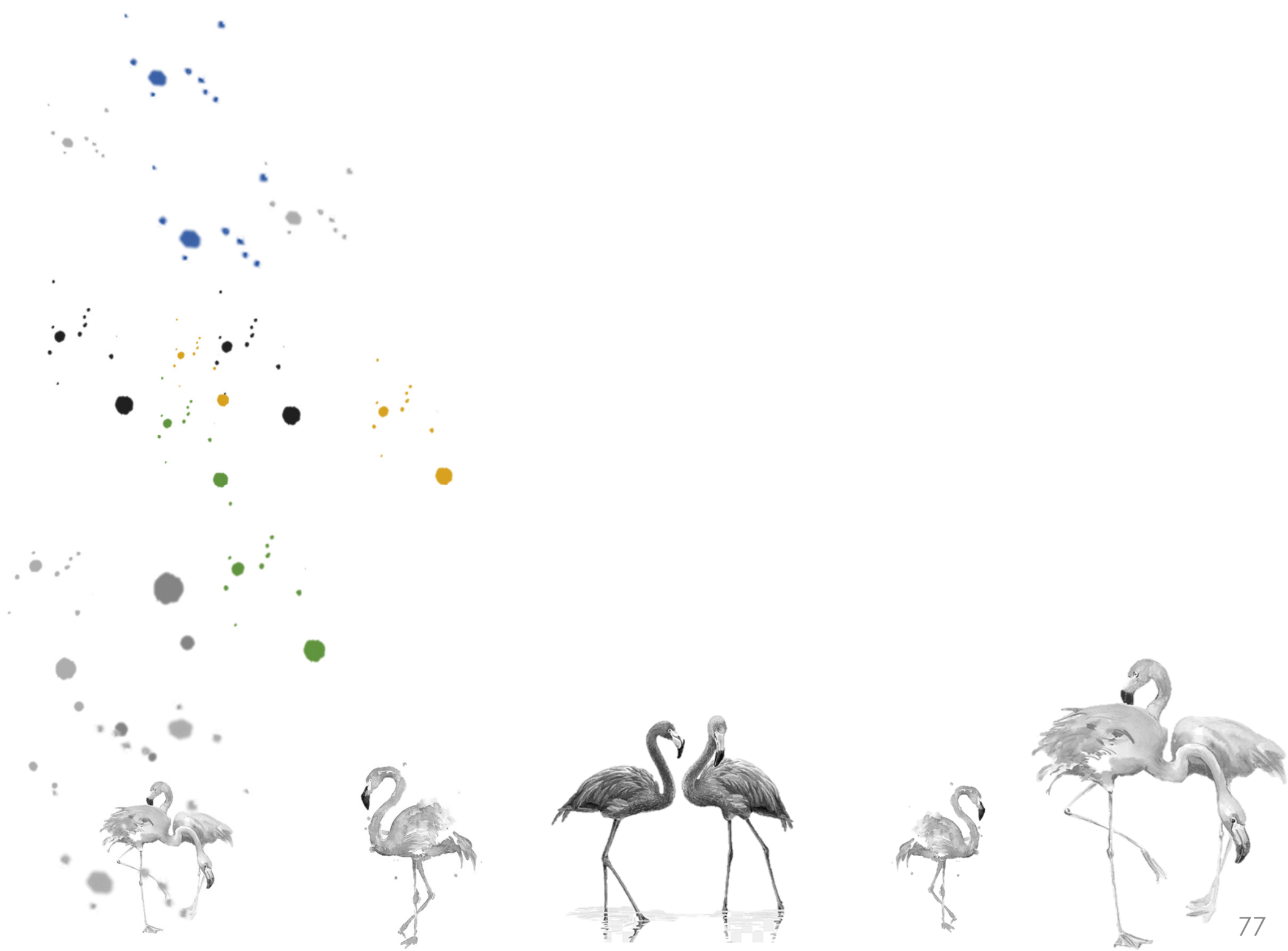
The tourist attraction Kamfers dam has been receiving for many years has enabled growth within the neighbouring hospitality sector.

The tourism industry has indicated it ability to drive local economy through the creation of job opportunities to locals. Since, the depart of the birds, the employment rate within the area has thus dropped due to the drop in activity.

The industry is largely based on the natural resource of the area, therefore conservation of this area plays an important role to various participants and systems.

Eco- tourism is the central point in which multiple parties are able to engage and grow. Tourism is relational to various eco-systems, economics and local engagement.

1.7 PRECEDENT STUDIES



PRECEDENT STUDIES

PRECEDENT 01: **TIJ OBSERVATORY**

LOCATION: STELLENDAM, THE NETHERLANDS

ARCHITECTS: RAU, RO&AD ARCHITECTEN

MATERIALS: TIMBER AND LOCAL REEDS

Tij is an egg-shaped bird hide situated in Scheelhoek, a nature reserve close to the Haringvliet sluice near Stellendam, the Netherlands. The reserve consists of large reed beds on the inside of the coastal defences and some flat sand islands outside. These islands are breeding and feeding grounds for several species of birds like the common tern, spoonbill, and the icon of this area, the sandwich tern.

Figure 79: Top View of TIJ Observatory (ArchDaily, 2022: online).

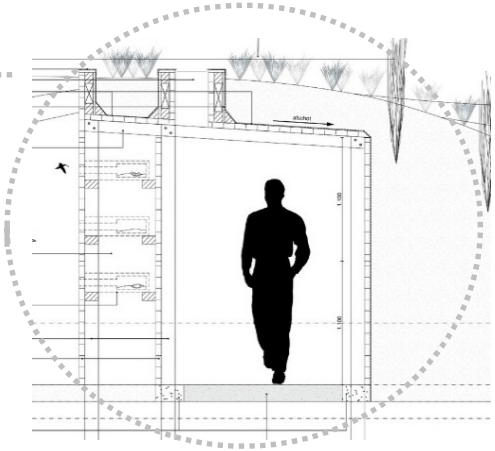
Landscape catered for bird life and bird interaction

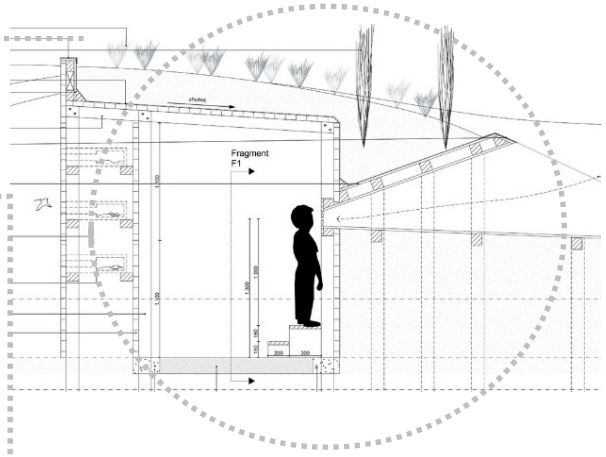
Figure 115-119: Perspective views of the TIJ Observatory at various angles approached by various fleshes (ArchDaily, 2022: online).

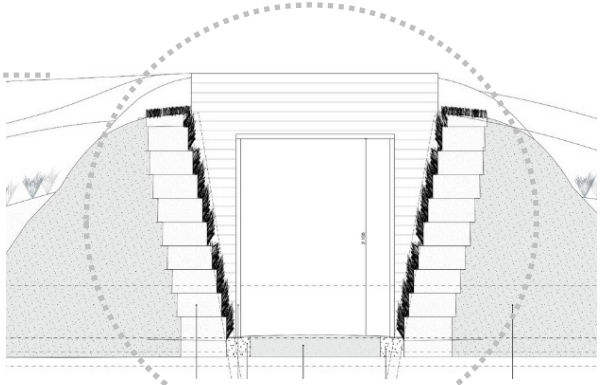
Human route towards site through landscape thresholds.

Figure 120: Internal Perspective and detailed views of TIJ Observatory (ArchDaily, 2022: online).

MATERIAL: SITE PLANNING, LANDSCAPING AND USER ACCESSIBILITY







BIRDING HIDING

Walking along the path, towards the bird viewing site, visitors can view several bird and other species existing within the ecology. Additionally, to prevent the birds from being disturbed, the path gradually leads the visitor into the landscape formed tunnel structure made of re-used mooring posts and second-hand planks. The tunnel is covered in sand to provide habitat for terns or waders. The outside of the tunnel provides artificial nesting holes for sand martins. The end point of the route is the egg-shaped bird hide from where visitors can view hatching Terns and all the other species that live in and around the water.

PROPOSED ADDITIONAL VIEWING TYPOLOGY

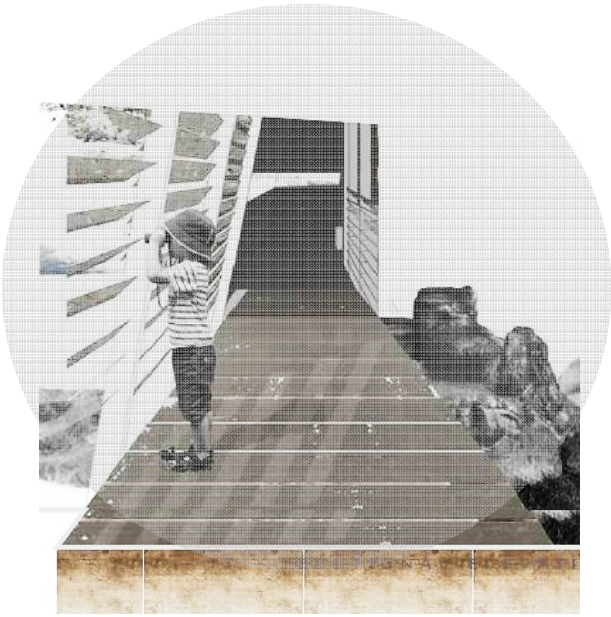


Figure 121-124: Perspective view and detailed illustrations of various pathways (ArchDaily, 2022: online).

Figure 125: Proposed additional viewing typology inspired by precedent (Illustration by Author, 2022).

PRECEDENT 02: **WASIT NATURAL RESERVE VISITOR CENTRE**

LOCATION: SHARJAH, UNITED ARAB EMIRATES

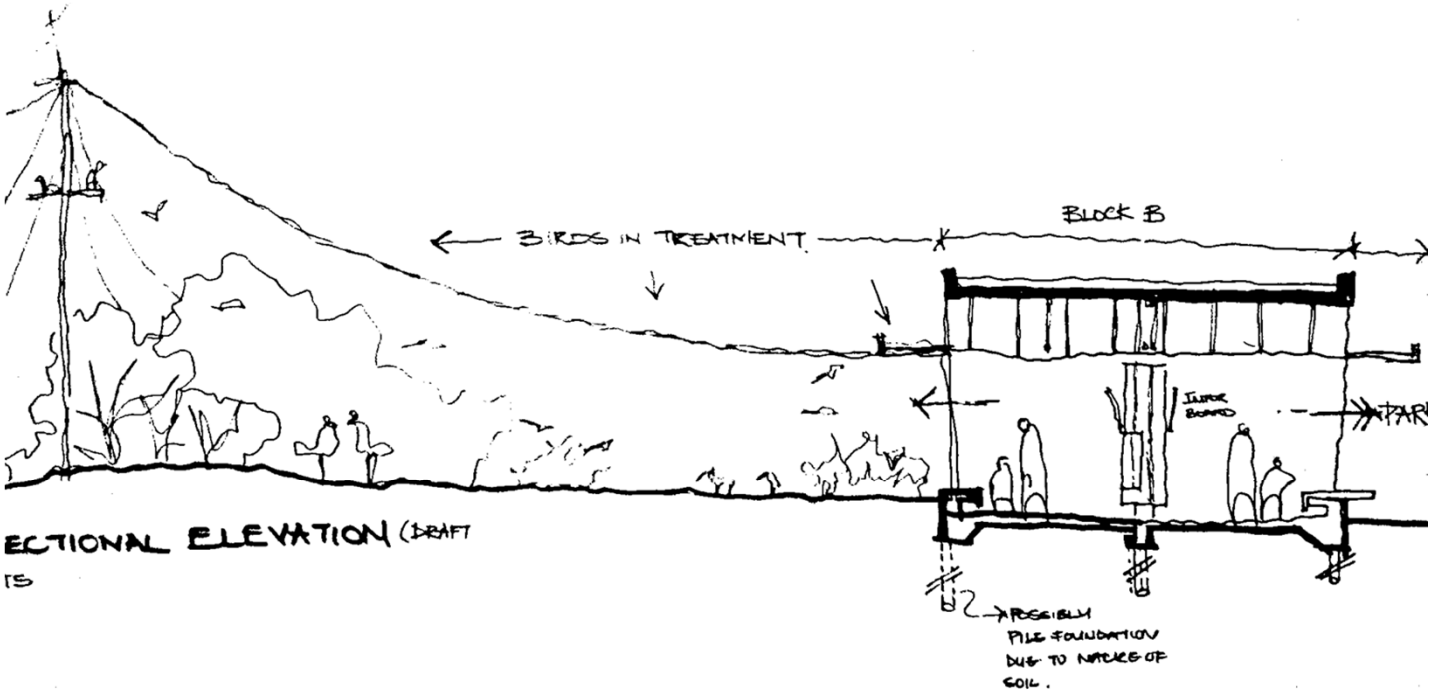
ARCHITECTS: X ARCHITECTS

MATERIALS: TIMBER AND LOCAL REEDS

Wasit Natural Reserve was originally a waste-water and rubbish dump. The rehabilitation process of the damaged ecosystem started in 2005, 40,000m of rubbish removed, 35,000 trees being re-planted, healing the land from toxic chemicals, and conserving of the Unique salt flats and coastal sand dunes.

A wetland visitor centre is established on-site to continue protecting the natural environment, educate people on the richness of the wetland ecosystem and provide information about the birds that frequent the area and other wetlands areas of the emirate. The facility became a heaven for bird watchers and researchers.

Figure 126-130: Perspective views of the Natural Reserve Visitors Centre (ArchDaily, 2022: online).



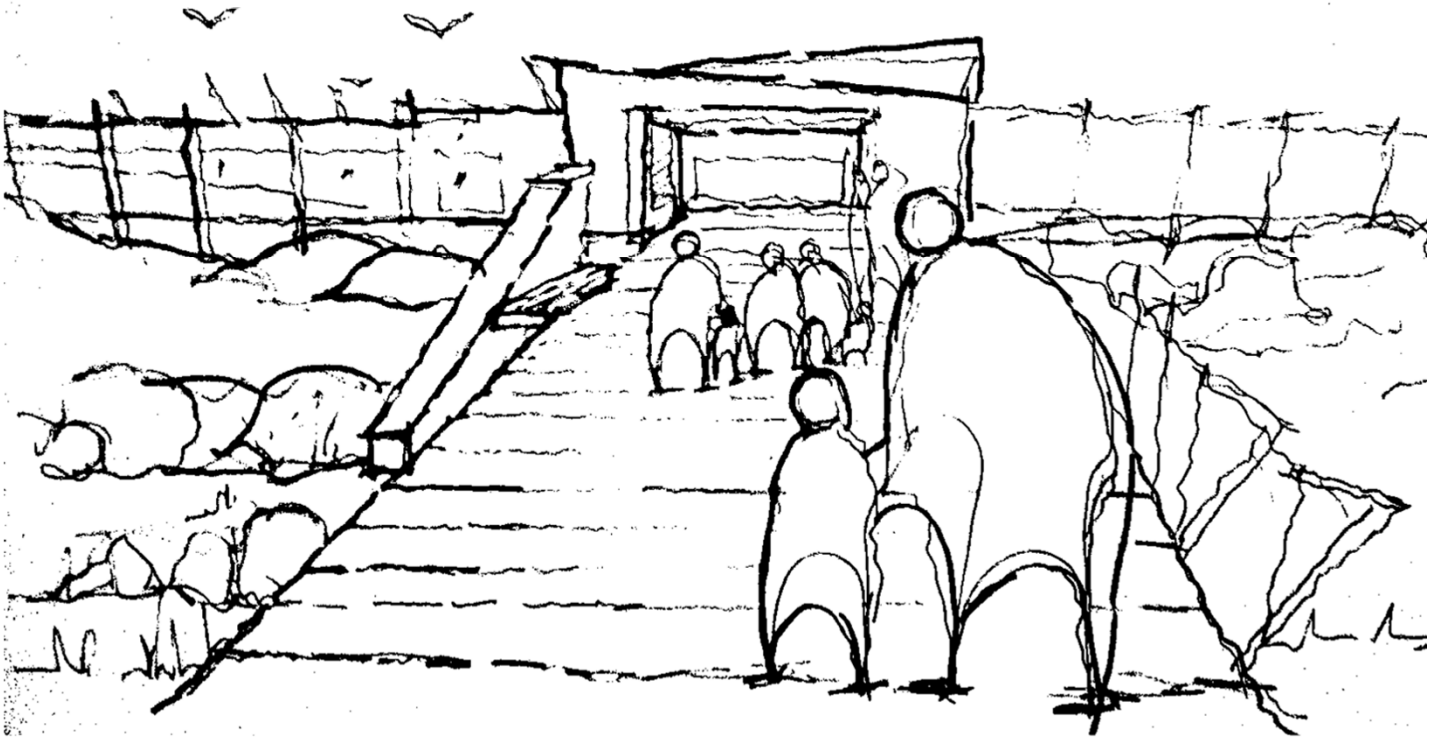


Figure 131: Sectional Elevation view sketch of the main viewing station and spatial organisation (Author, 2022: sketch).

Figure 132: Perspective view sketch of the entrance and indicative of how the structure gradually leads the visitor to the reservoir (Author, 2022: sketch).

PRECEDENT 03: **UNFOLDING THE LAND**

LOCATION: DULLSTROOM

ARCHITECTS: W DESIGN ARCHITECTURAL STUDIO

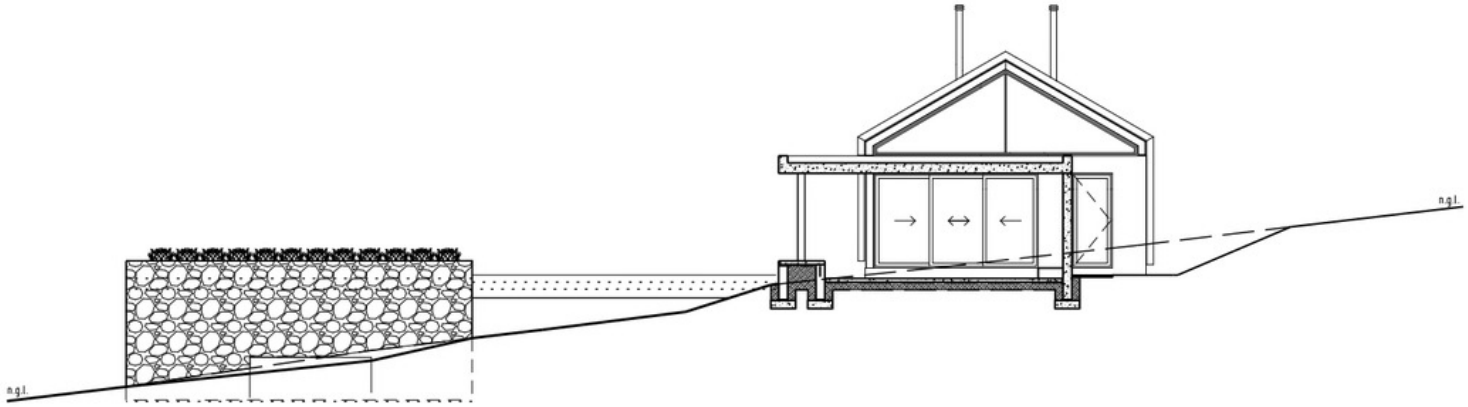
MATERIALS: STONE, METAL SHEETING

Unfolding the land is situated up an hill on the eastern escarpment on the Steenkampsberg mountain range. The Dullstroom is one of the highest towns in South Africa, at 21000m above sea level. It has a sub-alpine climate and is well known for its low, yet misty temperatures. The landscape lends itself to a stone dominated area. With undulating terraces and plateaus, punctuated by the clear streams and quite lakes.

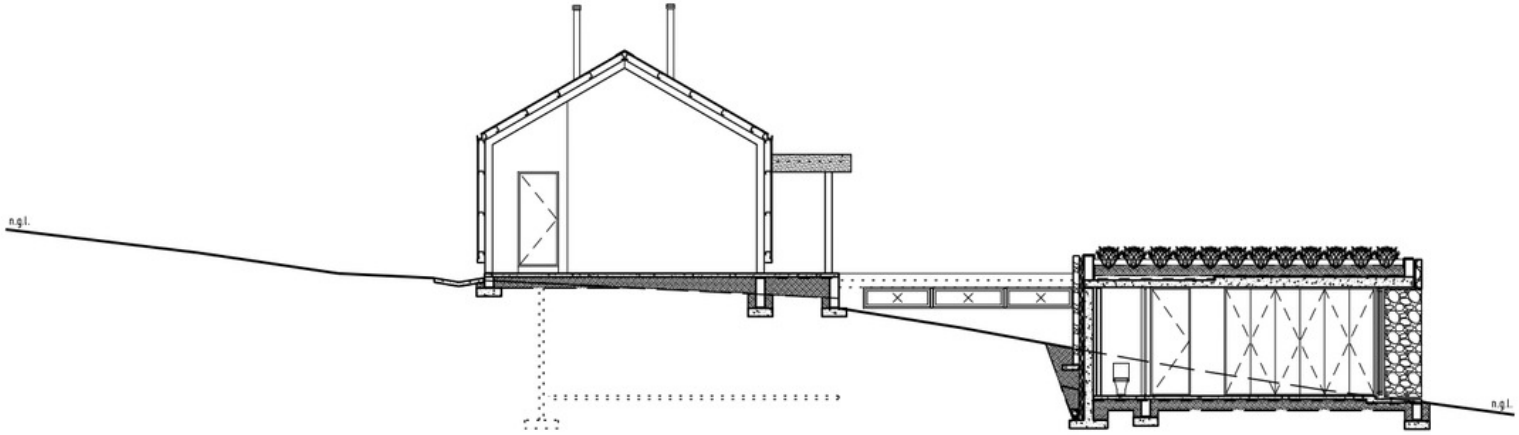
The Architectural form, takes that of a bran like structure. Resonating and referencing from the existing industrial typology.

Figure133: Perspective view of the barn structure (ArchDaily,2022: Online).

Figure 134: Side perspective of the building showcasing the effortless outdoor and indoor transition (ArchDaily, 2022: online).

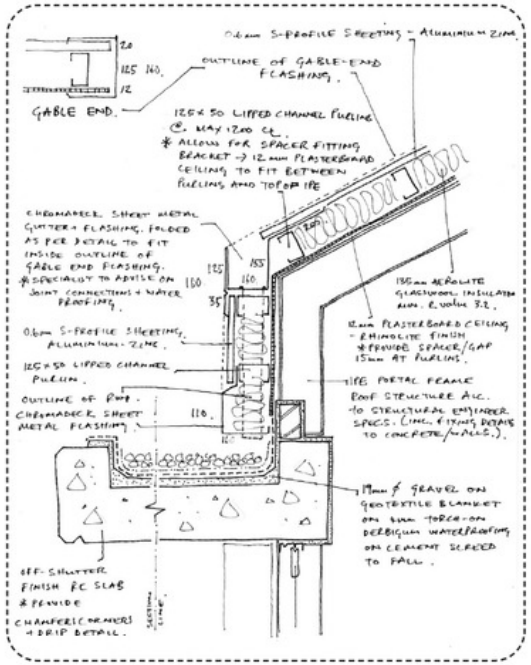


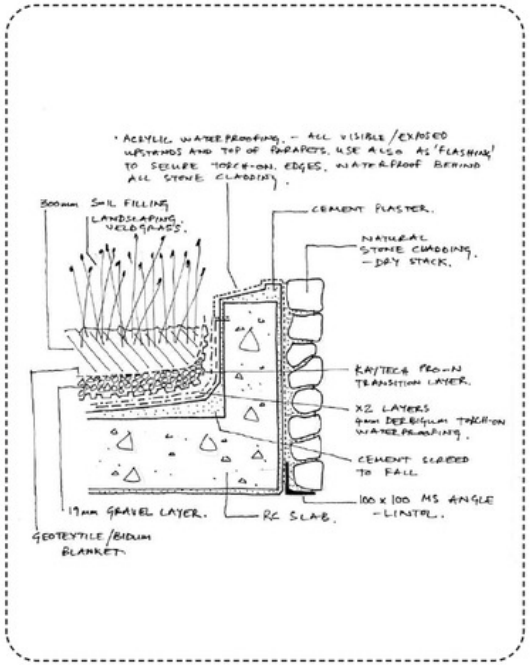
SECTION A-A

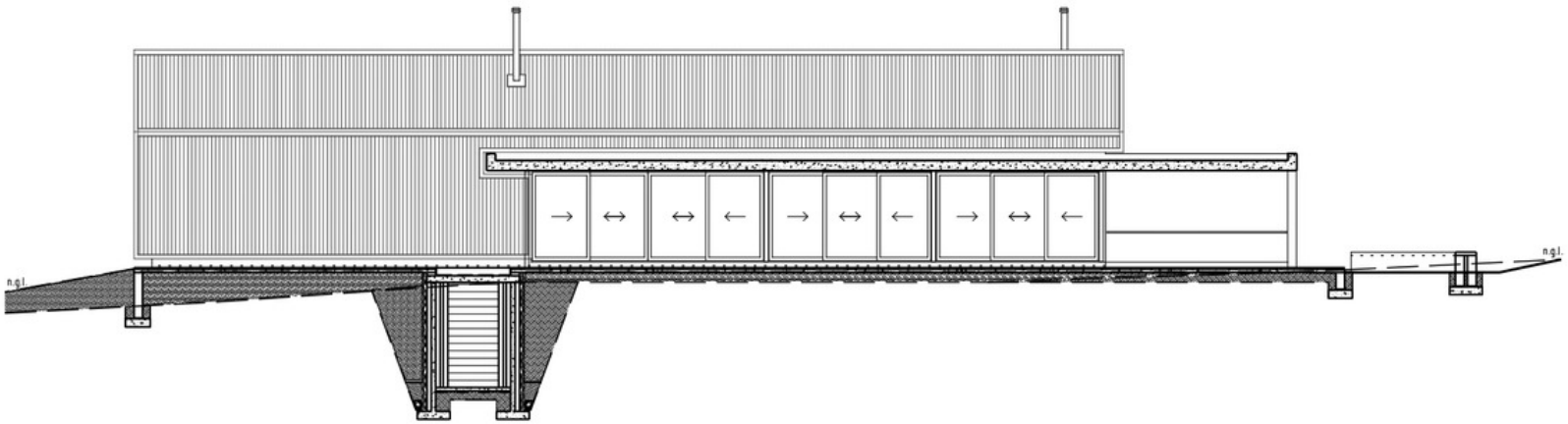


SECTION B-B

Figure 135-136: Sectional elevations of design on sloped landscape (ArchDaily, 2022: online).





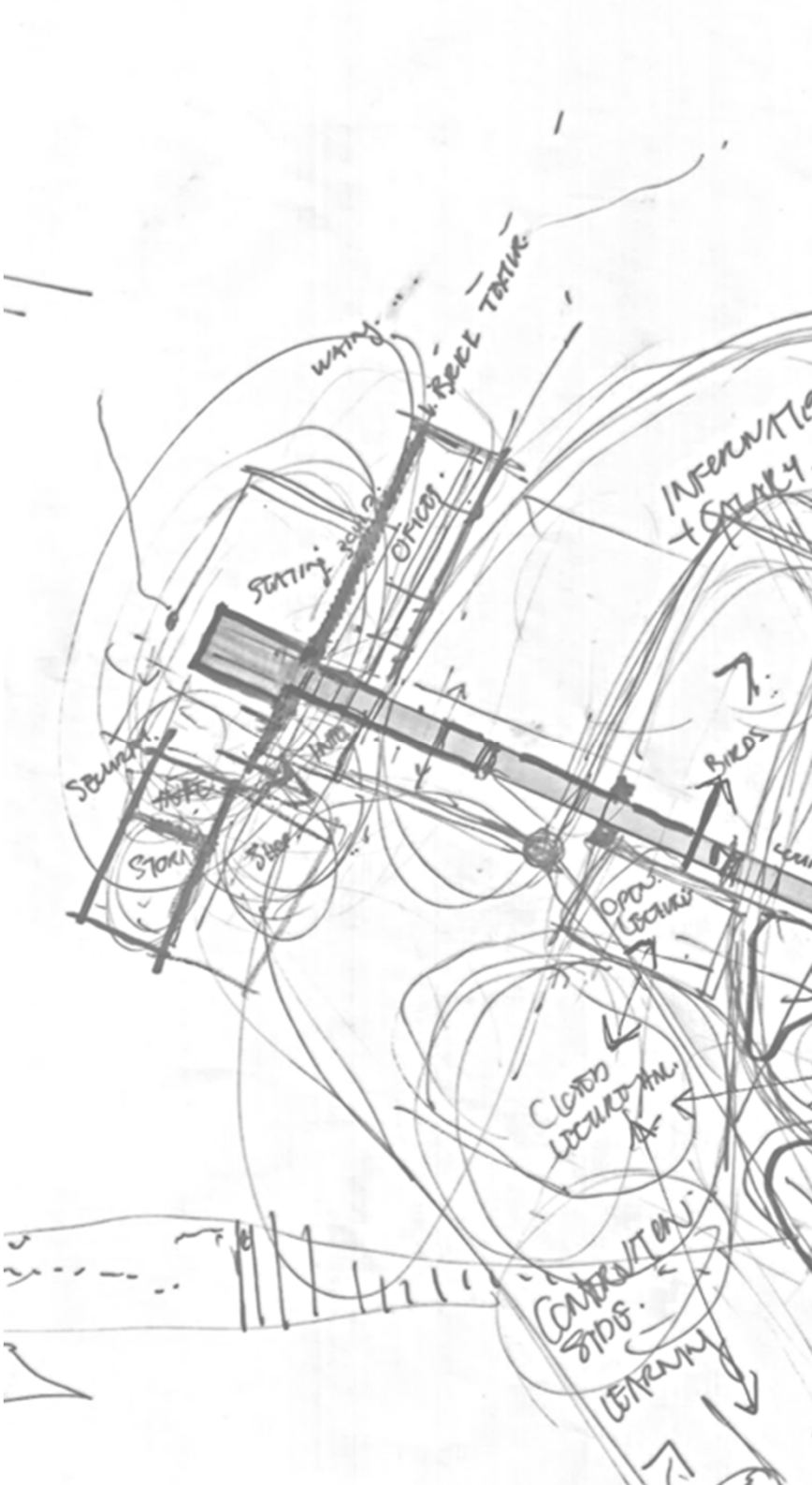


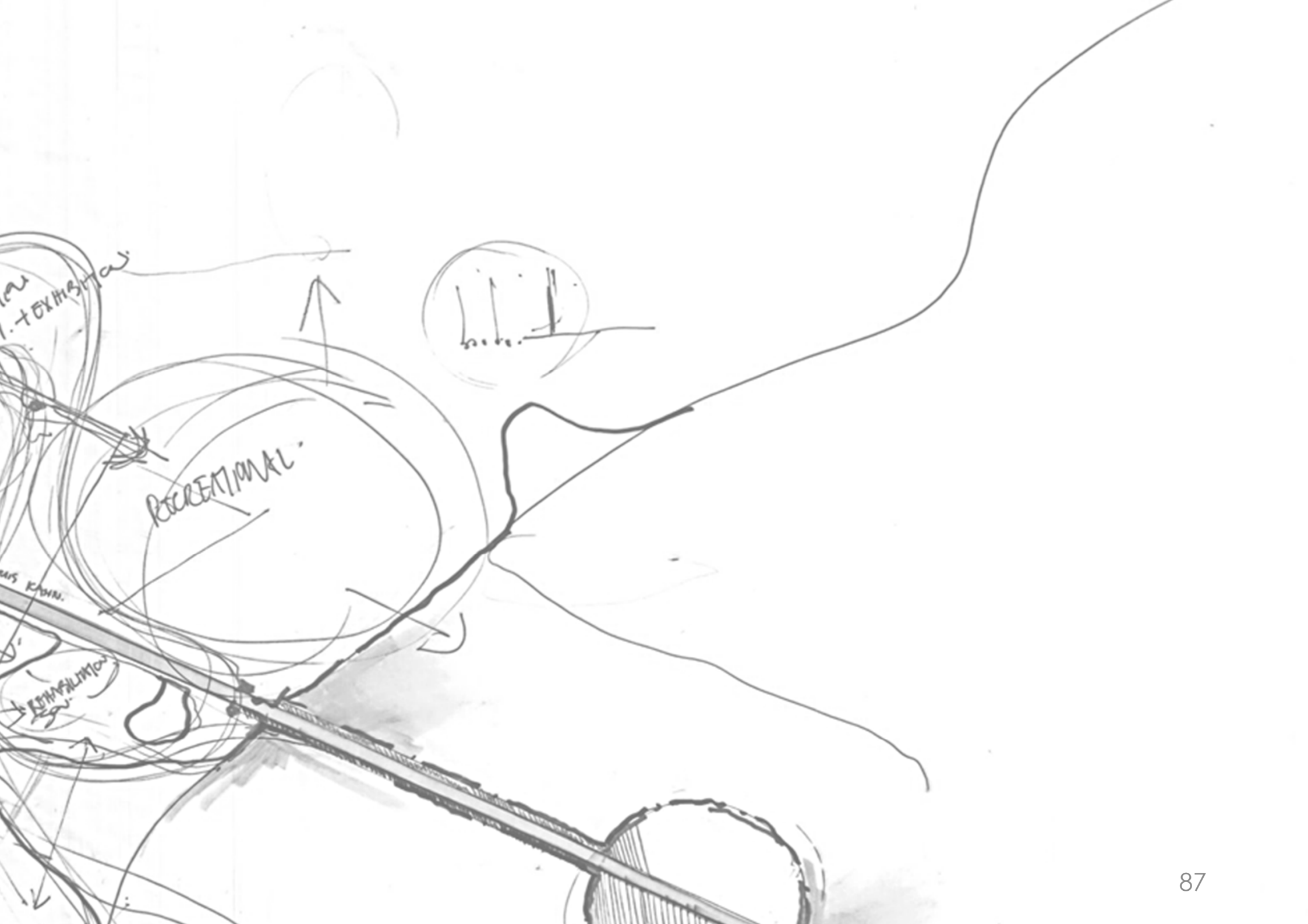
SECTION C-C

Figure 137-139: Elevations and details of design in sloped landscape (ArchDaily, 2022: online).

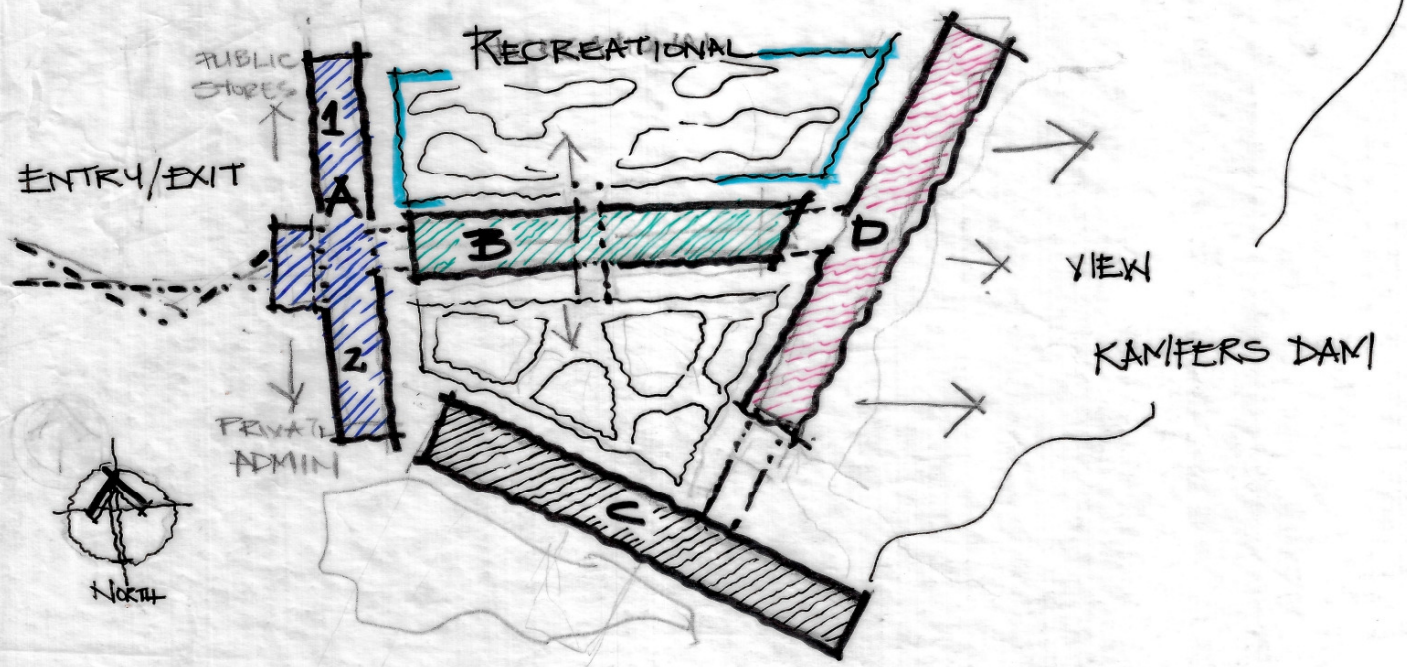
1.8 DESIGN AND TECHNICAL SYNTHESIS

- Conceptual Planning
- Programme
- Conceptual Design
- Design Development
- Structural Development
- Final Design





PROGRAM ORGANISATION



ACCOMODATION SCHEDULE (DRAFT).

BLOCK A(2)
(ADMIN + STORES)
- ENTRANCE LOBBY
- INFORMATION DESK
- MANAGERS OFFICE
- PA OFFICE + OFFICES
- KITCHENNETTE
- ABLUTIONS (MALE/FEMALE DISABLED ETC)
- MEETING ROOM

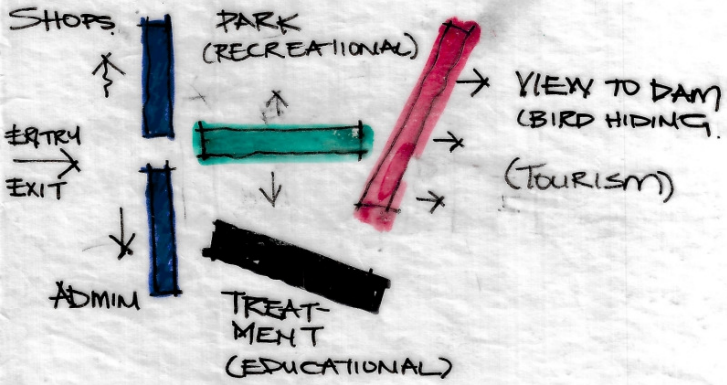
BLOCK A(1)
- CAFE
- SOUVENIR STORE
- STORAGE
- COURTYARD
- KITCHEN
- ABLUTIONS + BABY ROOM

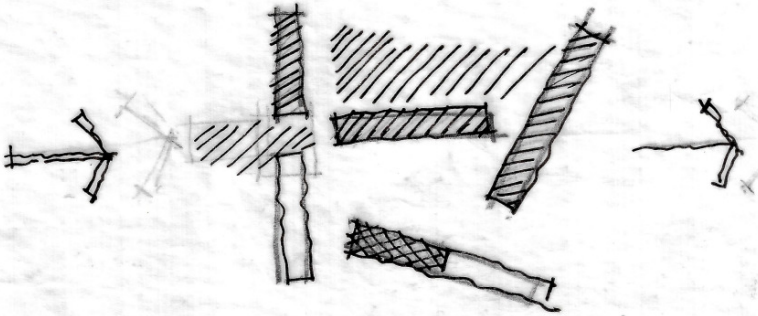
BLOCK B
(VIEWING GALLERY)
- EDUCATIONAL BIRD INFORATION
-

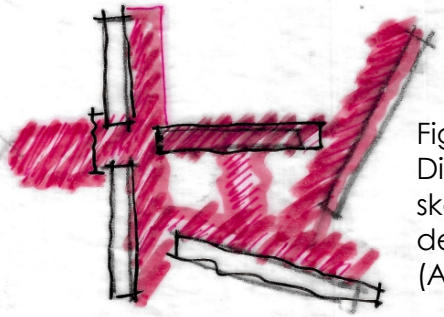
BLOCK C
EDUCATIONAL + TREATMENT FACILITY
- OFFICES (SANCOOB, BIRD LIFE)
- LABOTARIES
- LECTURE HALLS
- ADMIN (SERVER)

BLOCK D
- VIEWING STATION.

DIAGRAMMATIC SKETCHES....







PROGRAM
- ADMIN + STORES
- GALLERY VIEWING
- BIRD VIEWING - TOURISM
- EDUCATIONAL + WATER TREATMENT

FUNCTION OF SPACE
- PUBLIC
- PRIVATE
- SEMI-PUBLIC.
- SERVED
- SERVANT

CIRCULATION.
- AS PER SPACE FUNCTION DIAGRAM.

Figure 140: Diagrammatic sketches of initial design planning (Author, 2022).

CONCEPTUAL PLANNING

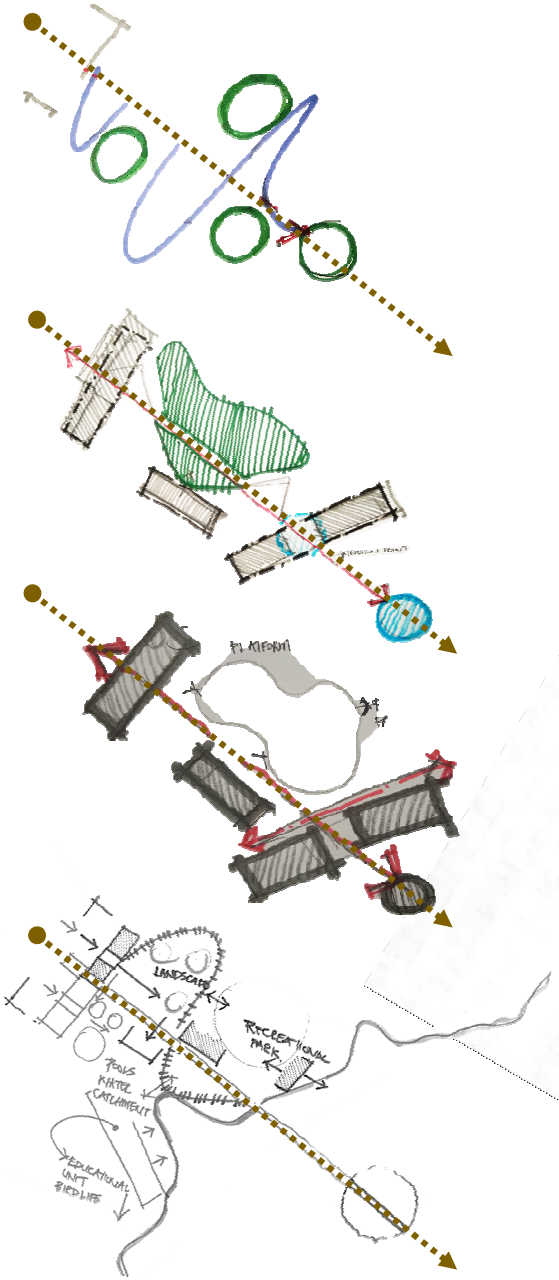


Figure 141-146
Conceptual Planning sketches (Author, 2022)

PROGRAMME

ADMINISTRATION

The administration building is the initial encounter the user encounters and aims to welcomes the users to the Centre.
It consist of the main entrance lobby, designed as a levelled platform which functions as a craft market and entry point.

ENTRANCE LOBBY

- Concierge
- Reception
- Office
- Souvenir Shop
- Kitchenette
- Ablutions
- Conference room

CRAFT MARKET

- Entrance Lobby Structure
- Water Feature

EDUCATION AND TRAINING

The Education and Training section of the proposal are platforms designated towards education, data capturing, training and teaching of scholars. Laboratories and offices for research and environmental professionals.

RECREATIONAL SPACES

Recreational spaces include the Cafe, Transitional Bridge and the Bird Hiding Platform.

VIEWING GALLERY AND OUTDOOR AMPITHEATRE

- Semi-Covered Walkway
- Water Storage Tanks and Viewing Gallery
- Outdoor Amphitheatre

CAFÉ AND RECREATIONAL PARK

- Entrance Lobby
- Reception
- Cafe Dining
- Kitchen
- Dry room & Cold-room
- Kitchenette
- Unisex & Staff Ablutions
- Locker Area
- Patio/ Deck
- Refuse Area

RESEARCH LABORATORY & BIRD REHABILITATION

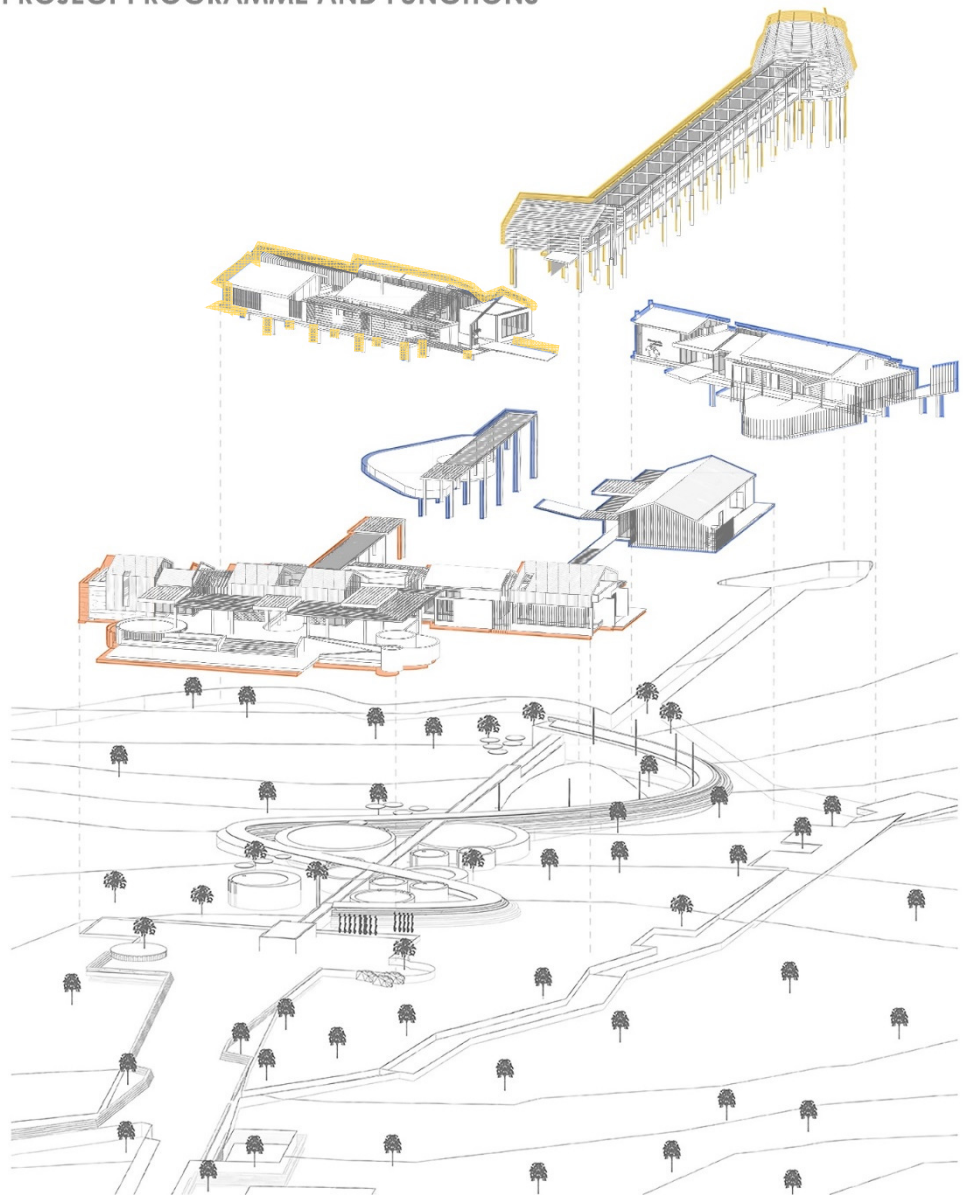
- Meeting/ Conference Room
- Reception
- Laboratories
- Offices
- Kitchenette
- Service Duct
- Ablutions
- Bird Wash Yard
- Rehabilitation pond

BIRD VIEWING

- Uncovered Viewing Platform
- Bridge

ROOF & SITE PLAN
SCALE 1: 500

PROJECT PROGRAMME AND FUNCTIONS



RECREATIONAL

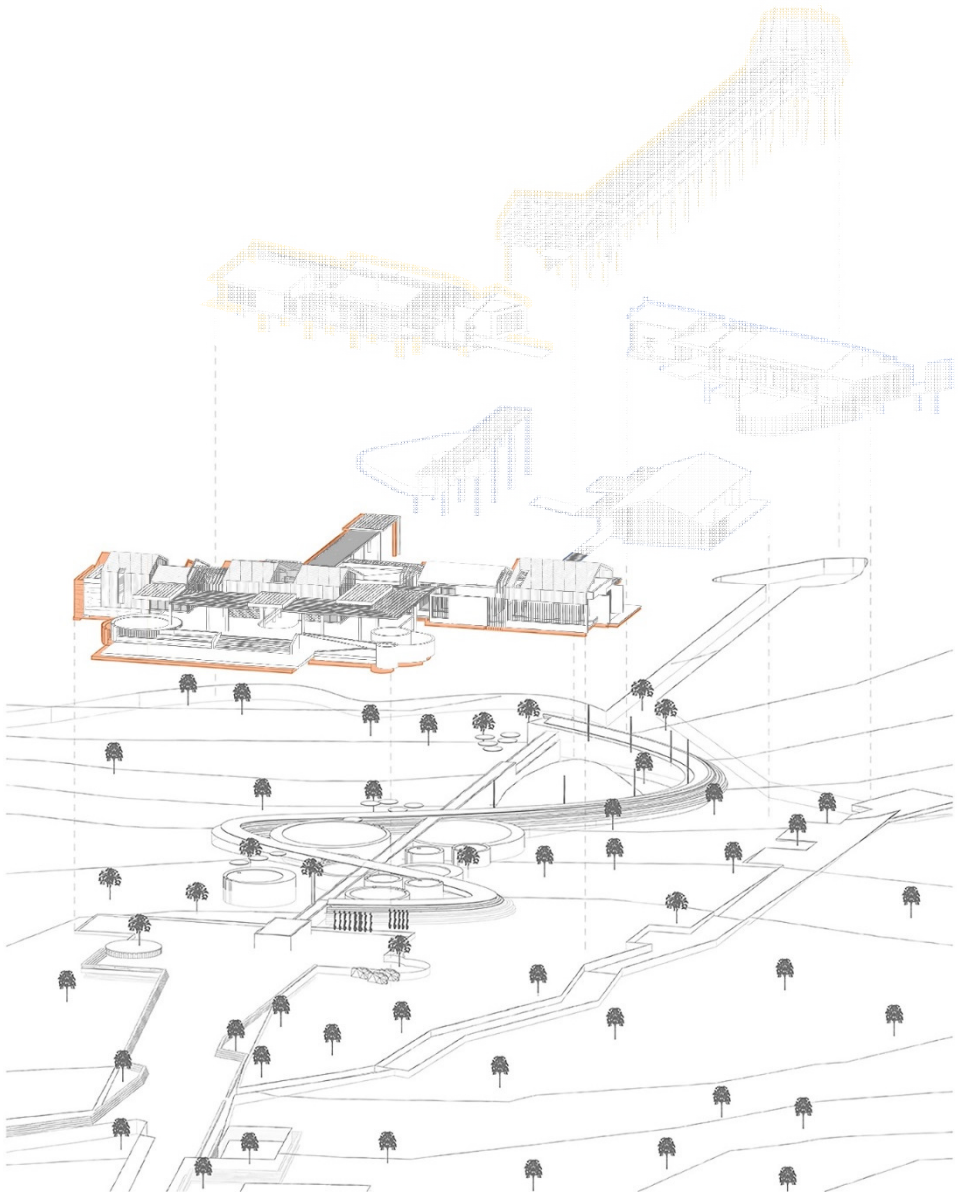
EDUCATION AND TRAINING

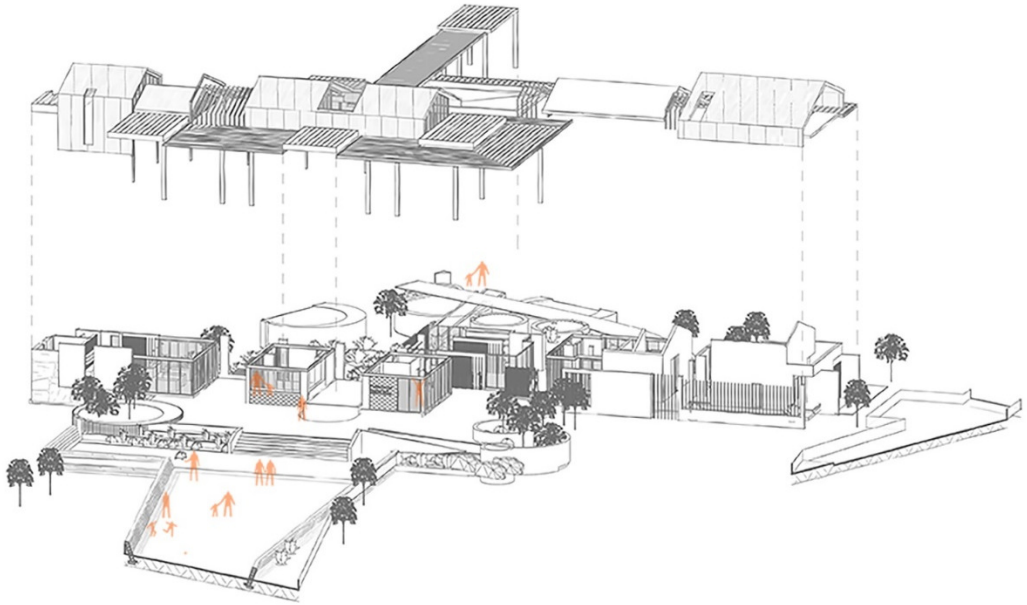
ADMINISTRATION

ADMINISTRATION

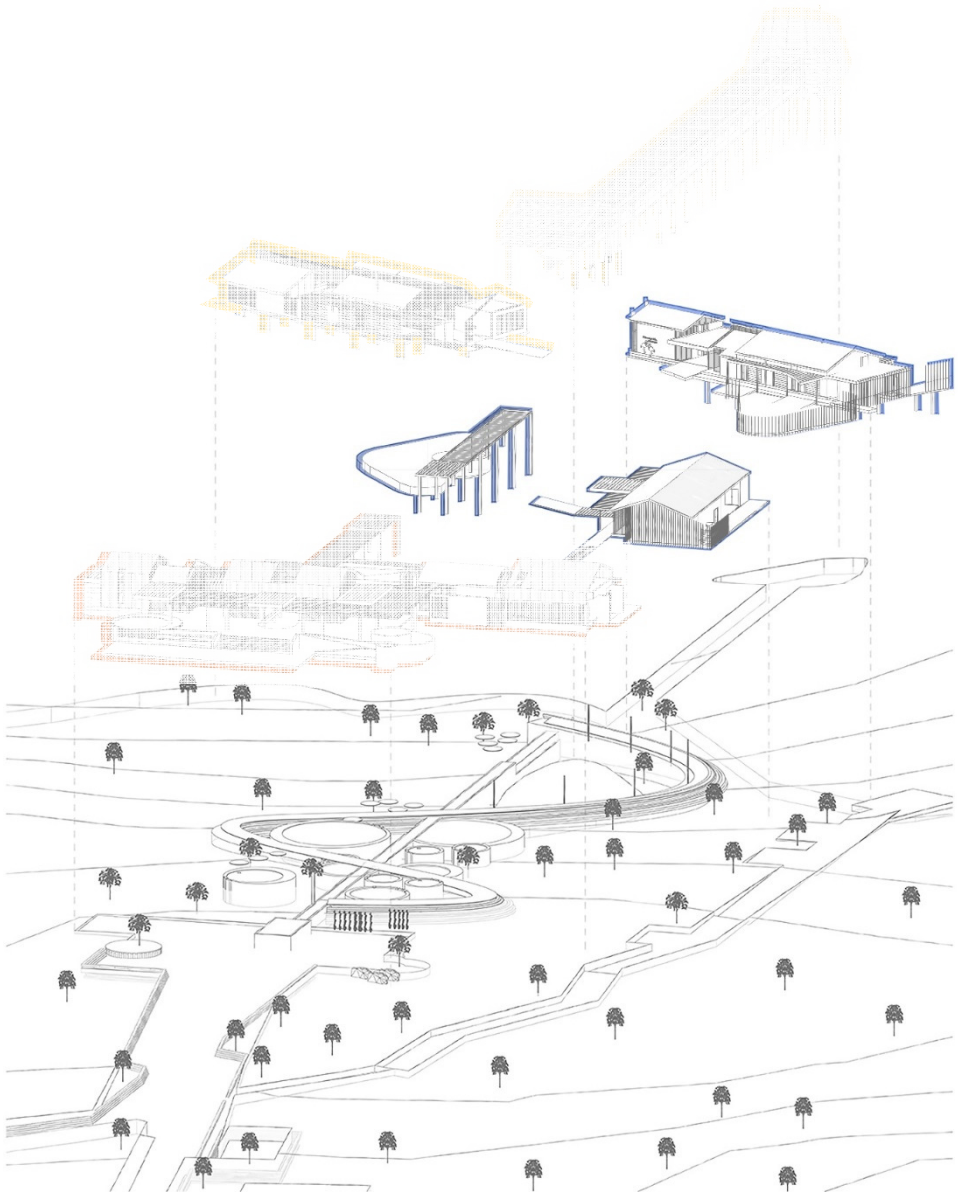
The administration building lends itself to being the main entry point to the development. The user is welcomed on a spacious, transparent and levelled platform, which communicates the welcoming of various parties (locals and tourists) to the centre.

The space further lends itself into a multifunctional space where market stalls and recreational activities could potentially take place. The user is further welcomed by a water feature that aims to capture the attention of the user towards the Bird Hiding Structure. Thus, providing a glimpse of the pink flamingo.





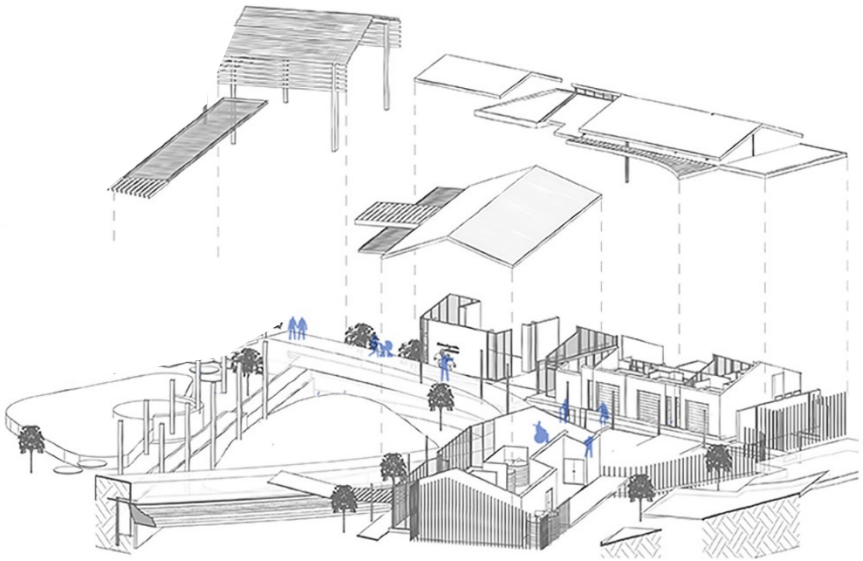
- **ENTRANCE LOBBY**
- **CRAFT MARKET**



EDUCATION AND TRAINING

The Research, Education and Recreational facility serves as the heart of the development. Whereby the user is able to play, learn and foster towards the need of the bird. The viewing gallery allows the user the opportunity to learn about birdlife, water conditions and treatments, essentials of Kamfers Dam (and other eco-systems alike).

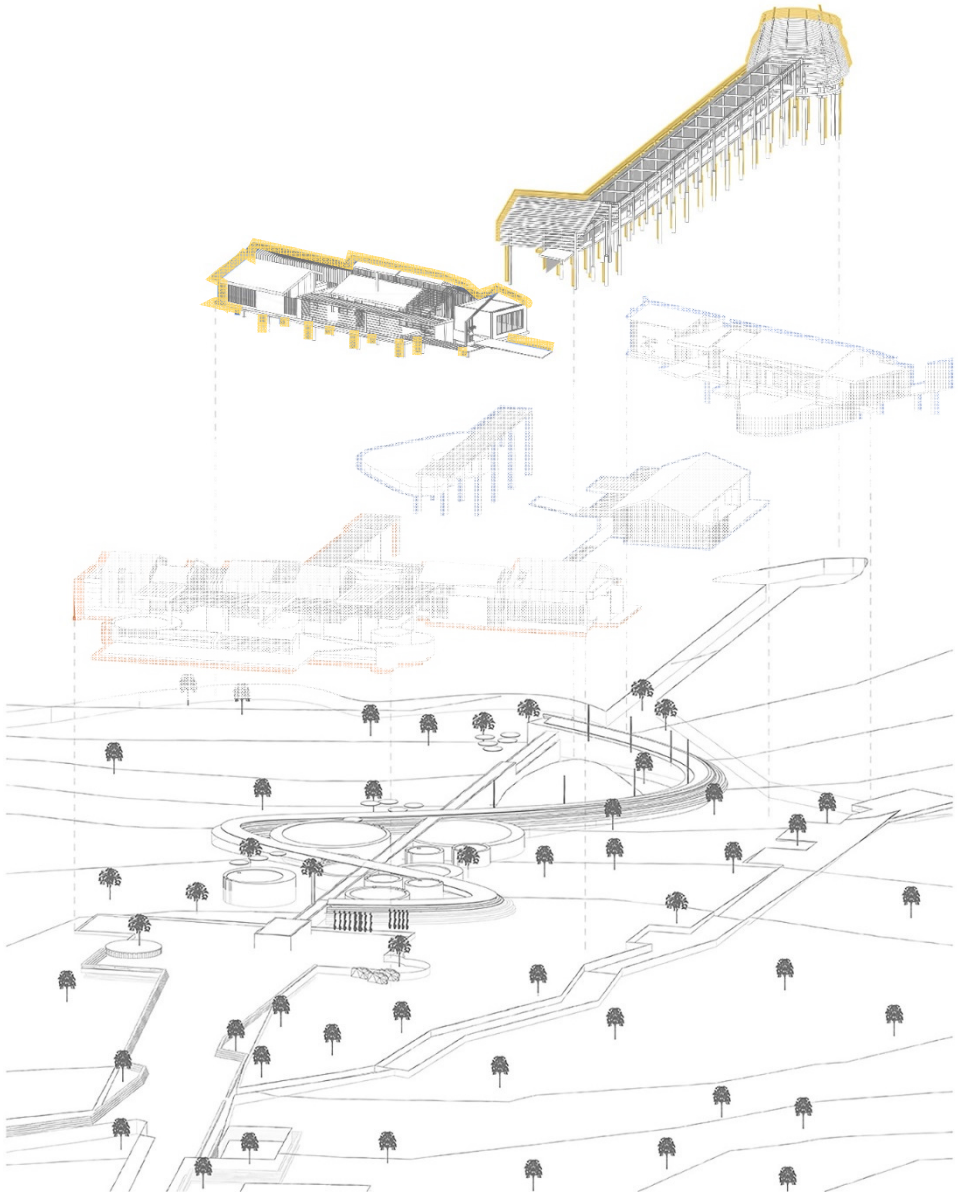
In terms of formal learning, the Research Laboratory Centre extends to the rehabilitation ponds, whereby the treatment and care of birds can take place. The outdoor amphitheatre is to be used as an informal learning platform.

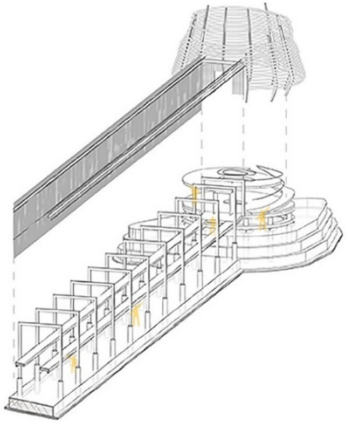


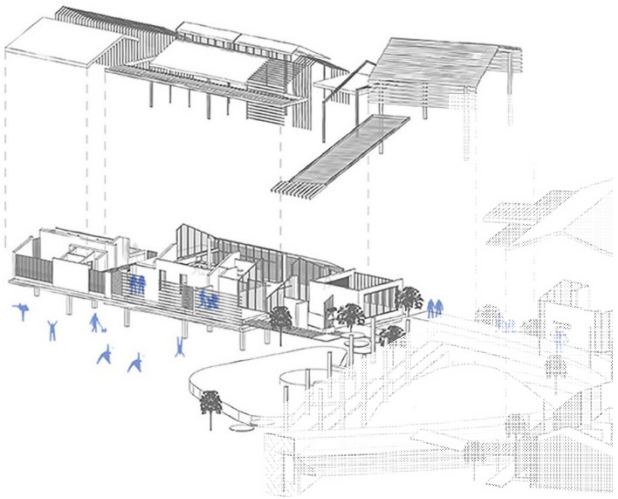
- **INFORMAL LEARNING**
- **FORMAL LEARNING**

RECREATIONAL SPACES

Recreational spaces include the Cafe, Transitional Bridge and the Bird Hiding Platform.





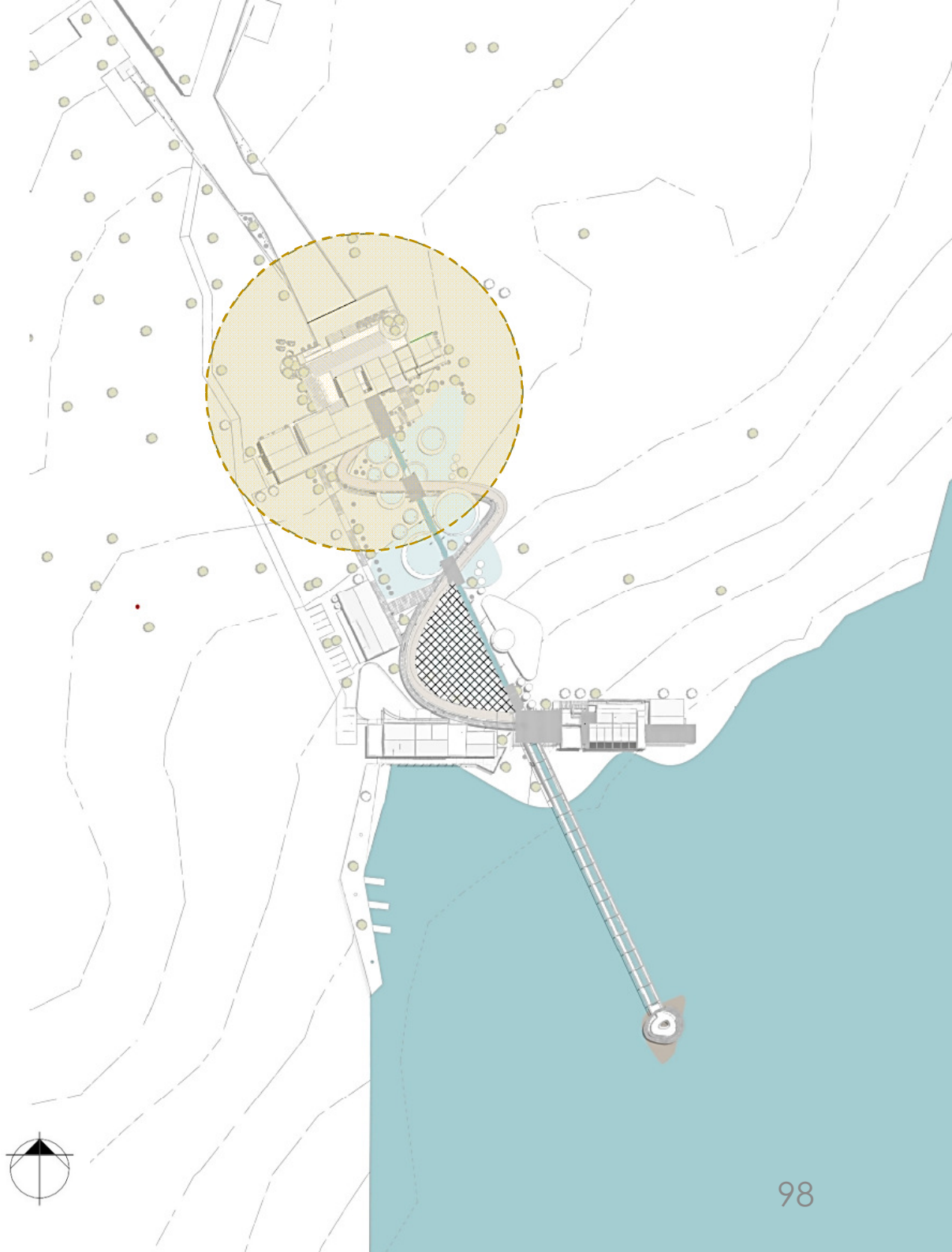


- **TRANSITIONAL ROUTE**
- **BIRD VIEWING**

DESIGN DEVELOPMENT

Figure 147: Perspective View of Admin/ Main Building from Parking area (Author, 2022).

Administration of which the entrance lobby
Aims foster craft market spaces



ADMINISTRATION BUILDING

Figure 148-149: Administration and Entrance Lobby Key Plan and part Plan, 2022).

1. Entrance Lobby
2. Staff Entry/Exit
3. Concierge
4. Water Feature
5. CCTV
6. Reception
7. Guest Entry/Exit
8. Souvenir Shop
9. Kitchenette
10. Storage
11. Covered Walkway
12. Conference Room
13. Manager's Reception
14. Manager's Office
15. Male Ablution
16. Unisex/Family Room
17. Service Duct
18. Duct
19. Refuse Area
20. Staff and Accessible Parking
21. Catchment Ponds
22. Uncovered Walkway

PART GROUND FLOOR PLAN
- ADMIN BUILDING

0 1 2 3 5 10m

RESEARCH, EDUCATION AND RECREATION

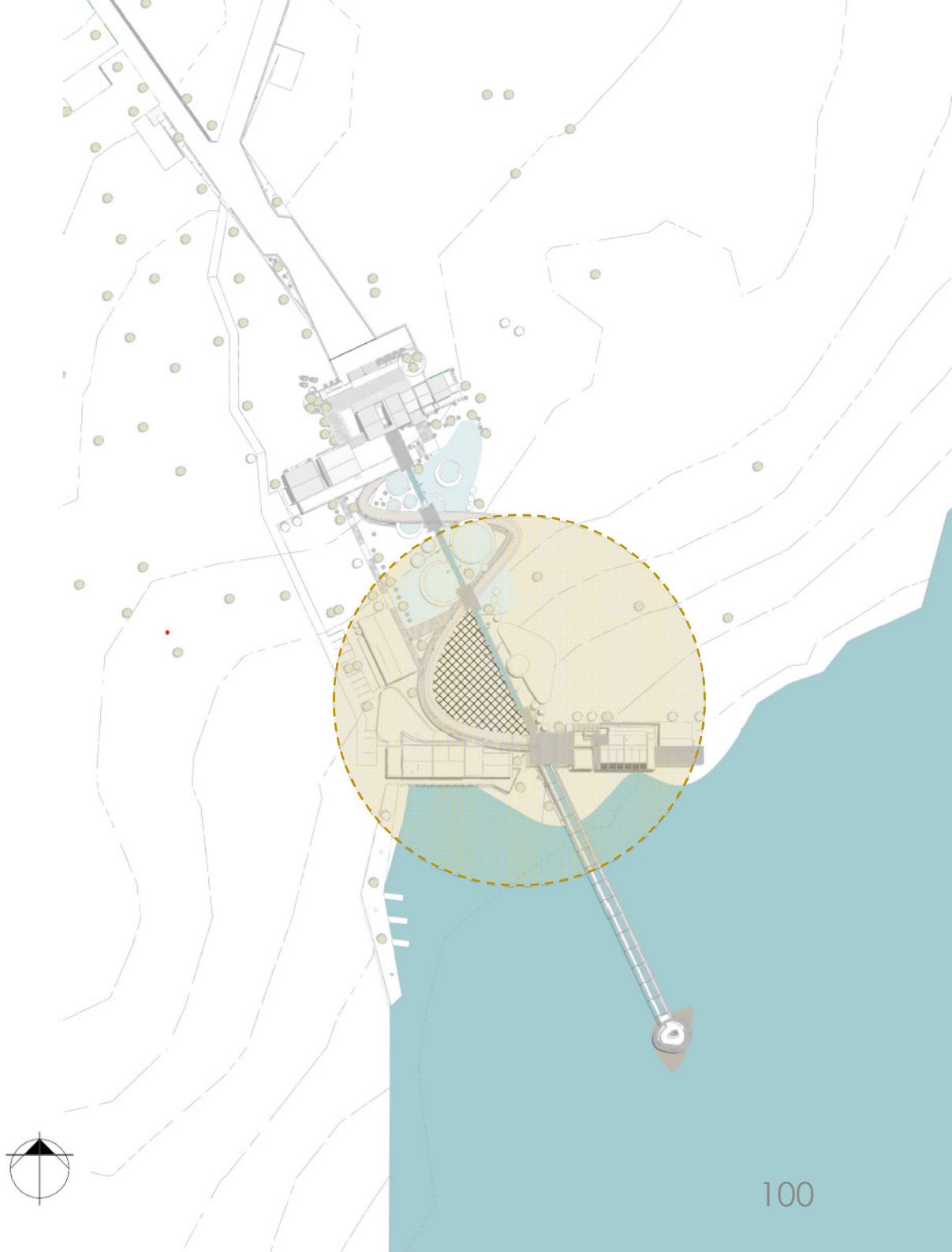


Figure 150-151: Research, Education and Recreational Spaces Key Plan and part Design Plan (Author, 2022).

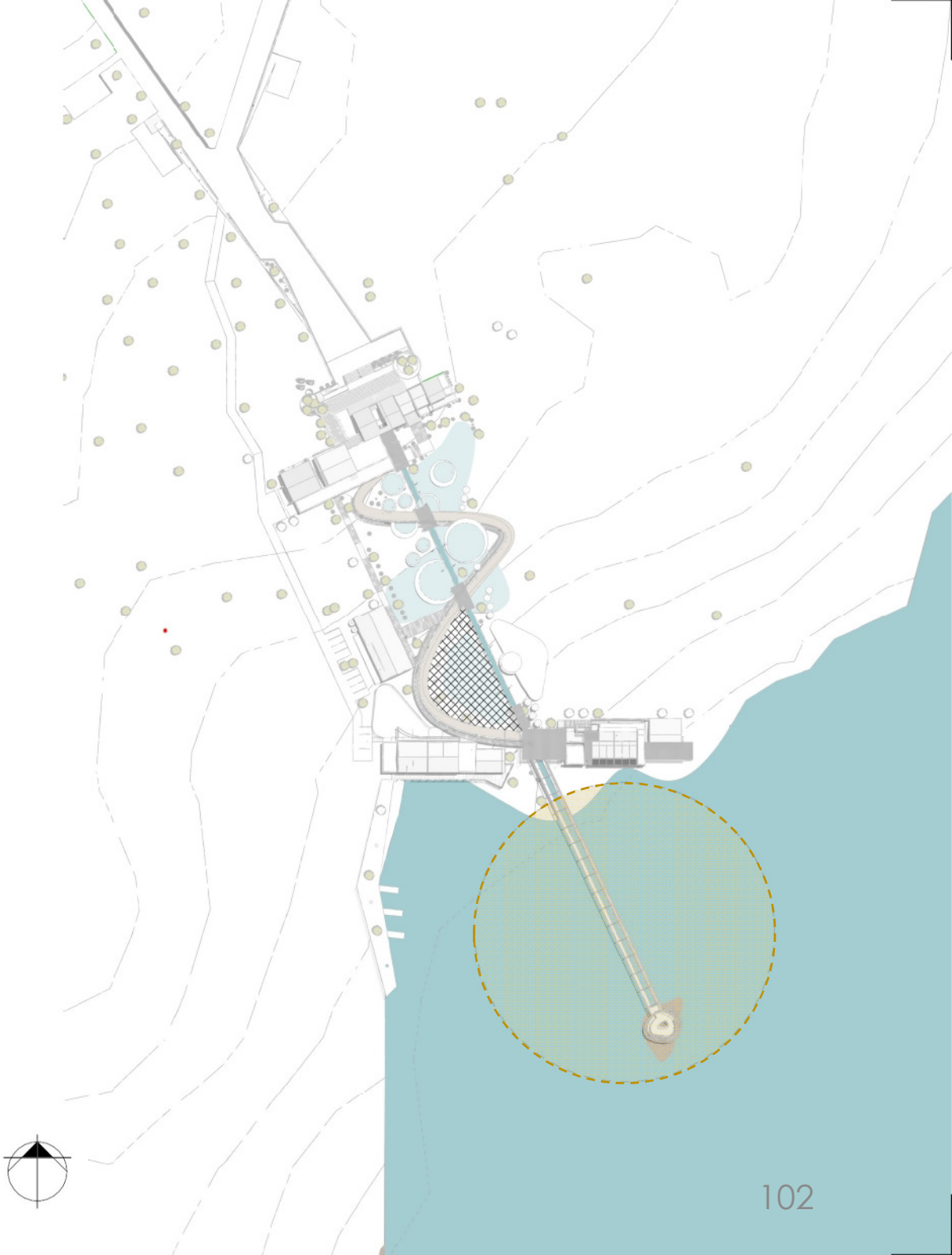
23. Outdoor Amphitheatre
24. Staff/ Service route
25. Recreational Park
26. Viewing Gallery
27. Bird Rehabilitation Pond
28. Bird Wash Yard
29. Underbridge thoroughfare
30. Laboratory
31. Research Reception
32. Offices
33. Meeting Room
34. Staff Ablutions
35. Decking
36. Outdoor dining Area
37. Cafe Entrance Lobby
38. Reception Cafe Dining
39. Kitchen
40. Dry Store
41. Cold Store
42. Service Yard
43. Outdoor Dining Area
44. Outdoor Decking
45. Cafe Ablutions
46. Cafe Staff Ablutions/ Lockers

KEY PLAN

PART GROUND FLOOR PLAN

- RESEARCH AND EDUCATION
- RECREATION

0 1 2 3 5 10m



BIRD VIEWING

Figure 152-153: Bird Viewing Platform Key Plan and part Design Plan (Author, 2022).

47. Transition Bridge
48. Boat Berth
49. Kamfers Dam
50. Floating Wetlands
51. Bird Hide Platform

KEY PLAN

PART GROUND FLOOR PLAN
- BIRD VIEWING PLATFORM

NORTH EAST ELEVATION
- VIEW FROM RECREATIONAL PARK

0 1 2 3 5 10m

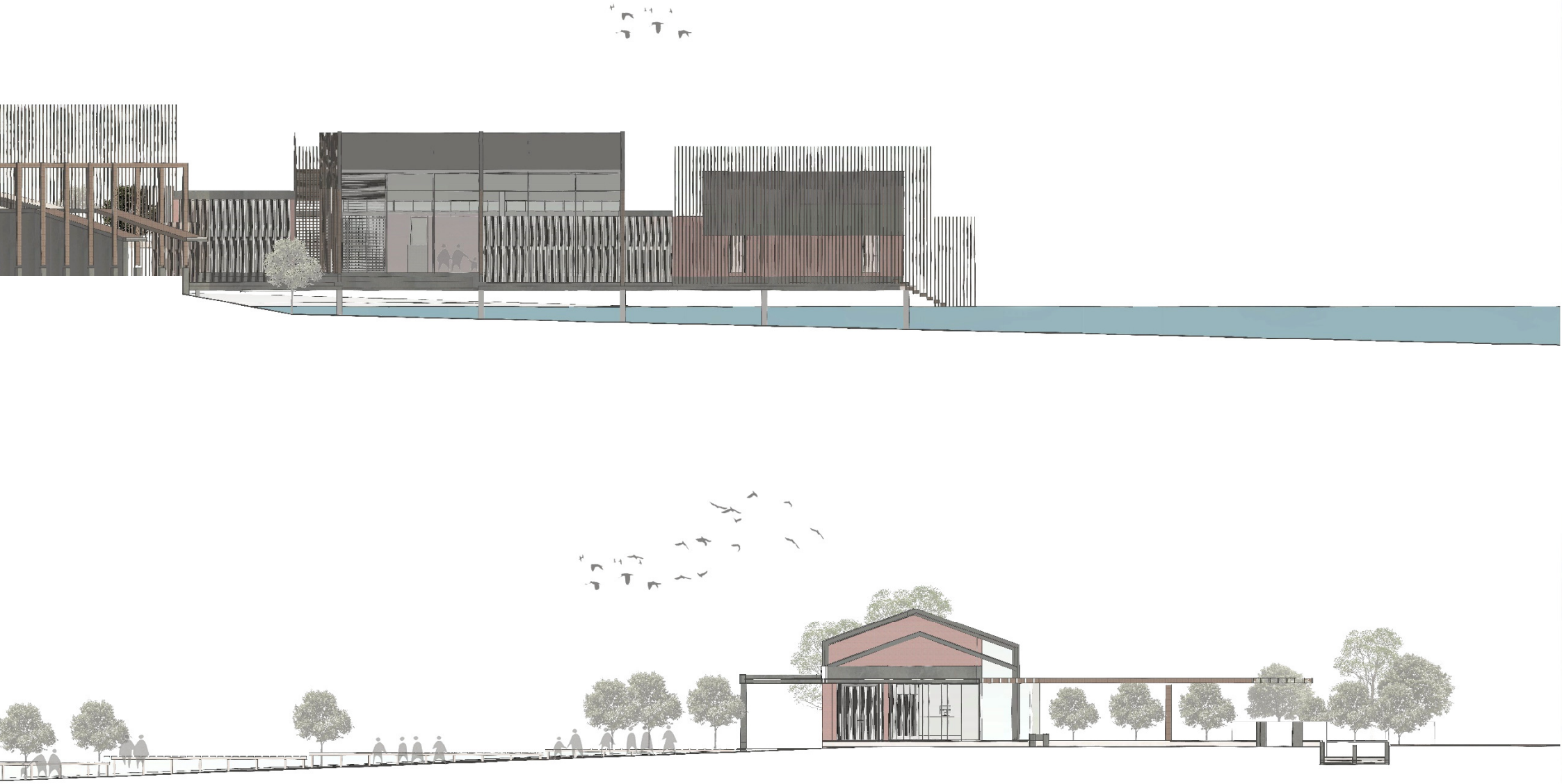
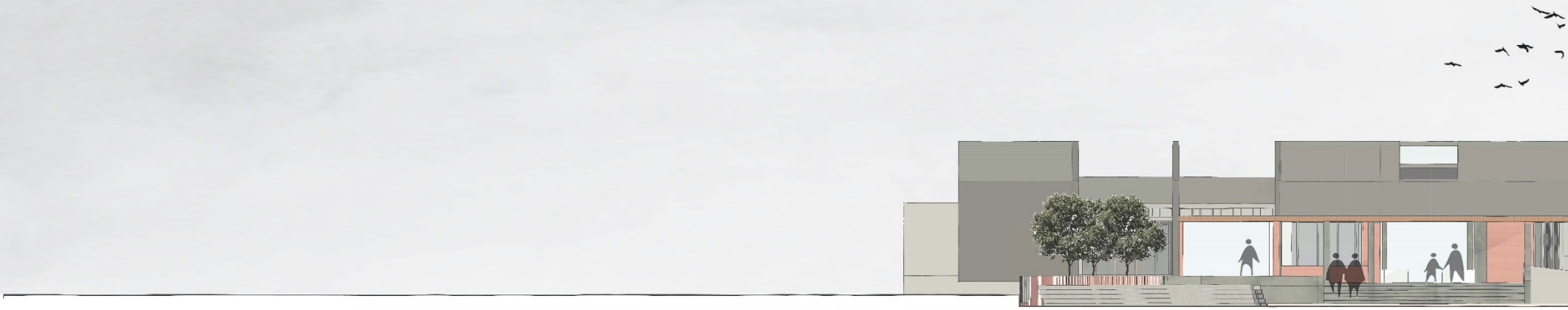


Figure 154-155: Design Elevations (Author, 2022).



NORTH WEST ELEVATION
- VIEW FROM PARKING LOT

0 1 2 3 5 10m

SOUTH EAST ELEVATION

0 1 2 3 5 10m

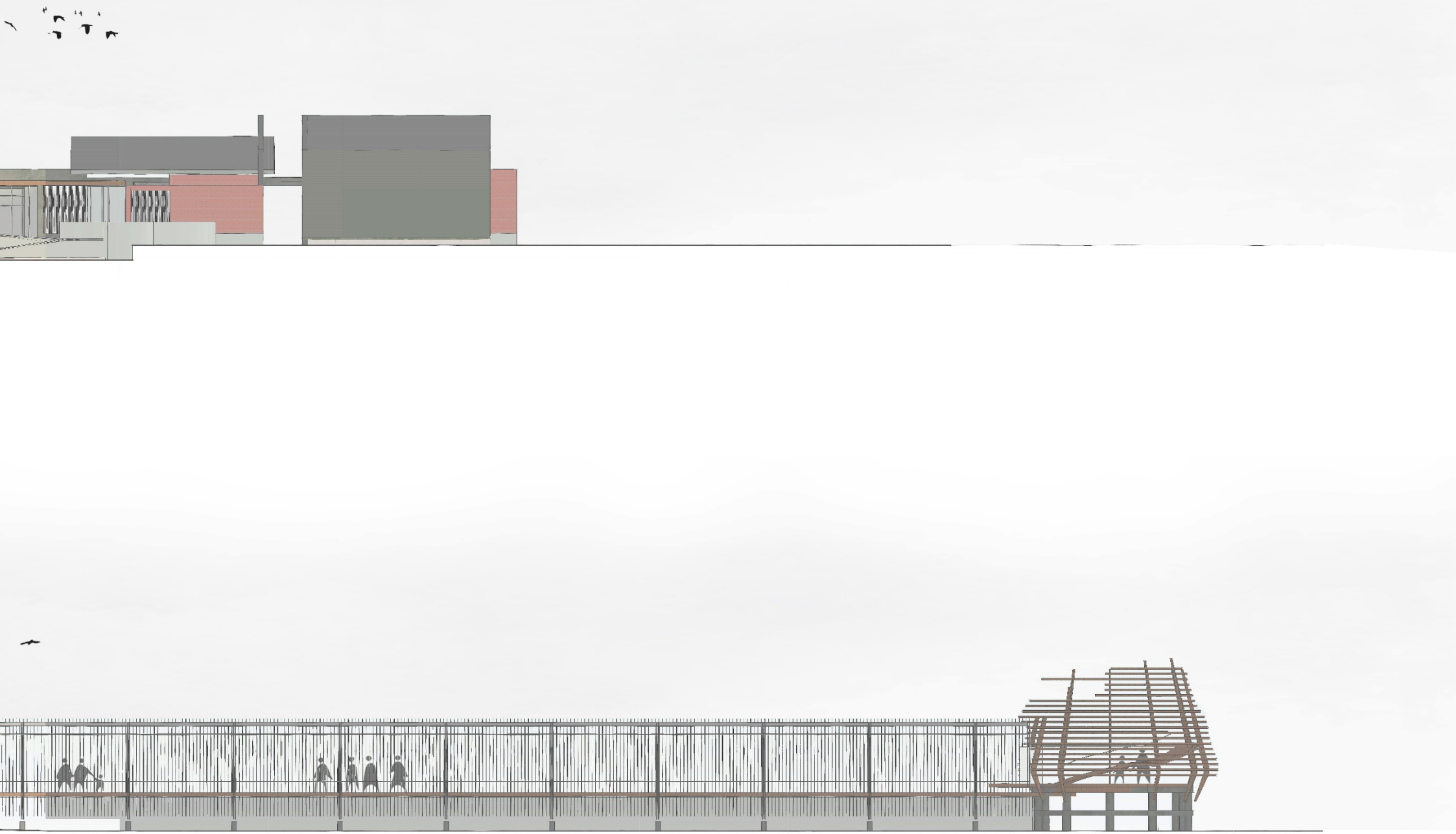


Figure 156-157: Design Elevations (Author, 2022).

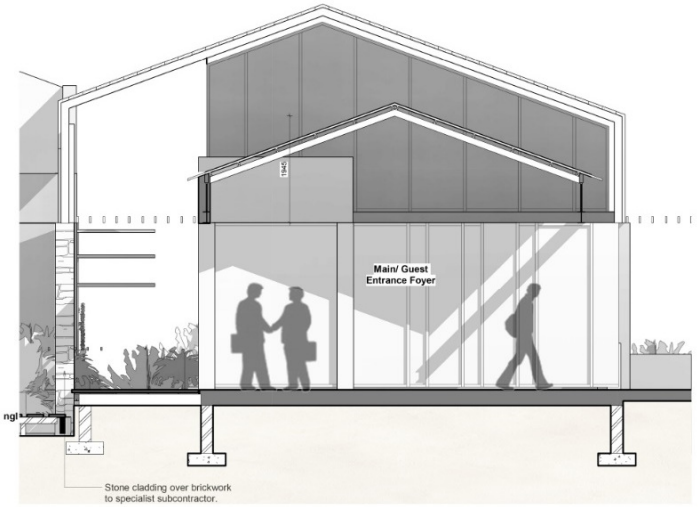
PART FRONT ELEVATION

RED BRICK

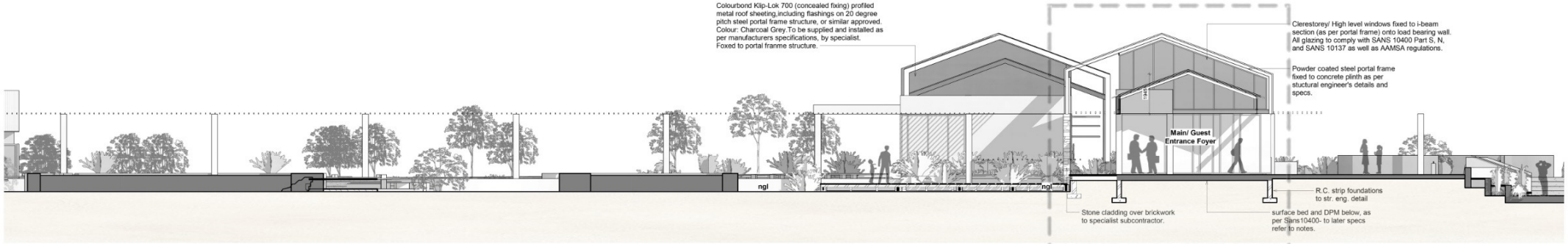
KLIPLOK - COLOURBOND

STONE - CLADDING

TIMBER - CLADDING



STRIP SECTION



STRIP SECTION

SECTION A-A
- THROUGH ADMIN BUILDING

0 1 2 3 5 10m

Figure 158: Sectional Elevations indicating design proposed materials (Author, 2022).

Figure 159: Perspective View of Admin/ Main Building from Parking area (Author, 2022).

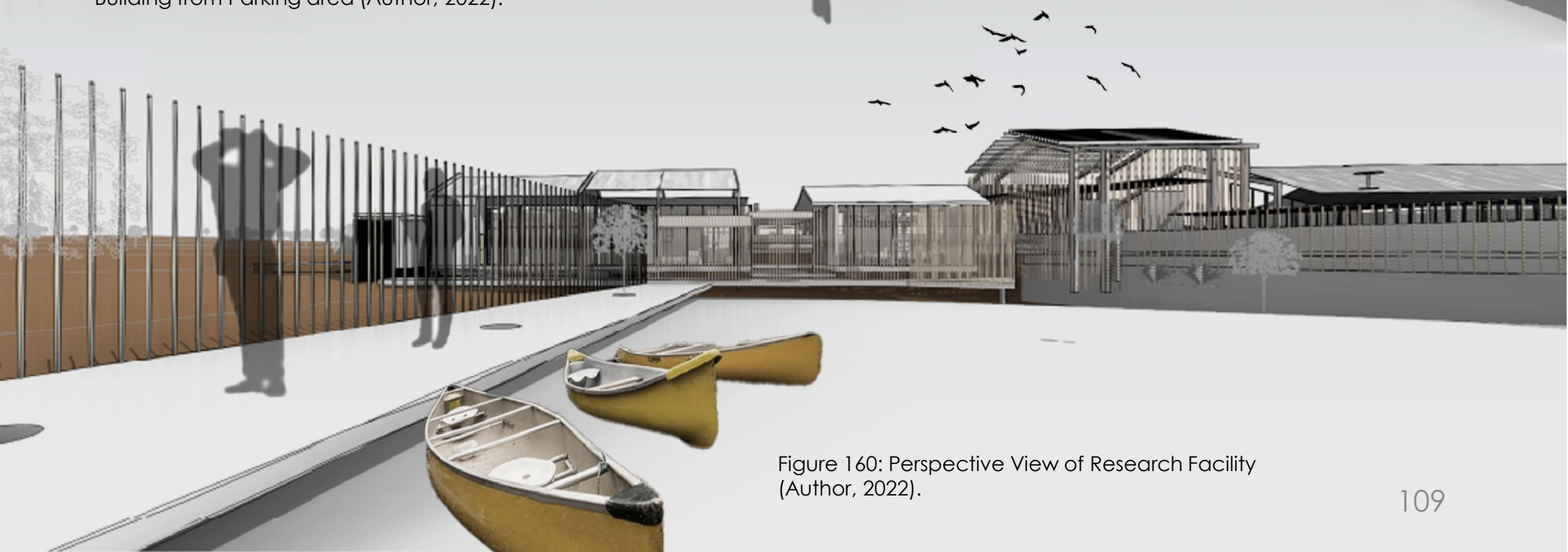


Figure 160: Perspective View of Research Facility (Author, 2022).

Figure 161: Perspective view of Admin Building from Recreational Park (Author, 2022).

ENTRANCE VIEW FROM PARKING

Figure 162: Entrance View from Parking Area (Author, 2022).

PERSPECTIVE VIEW OF MAIN BUILDING

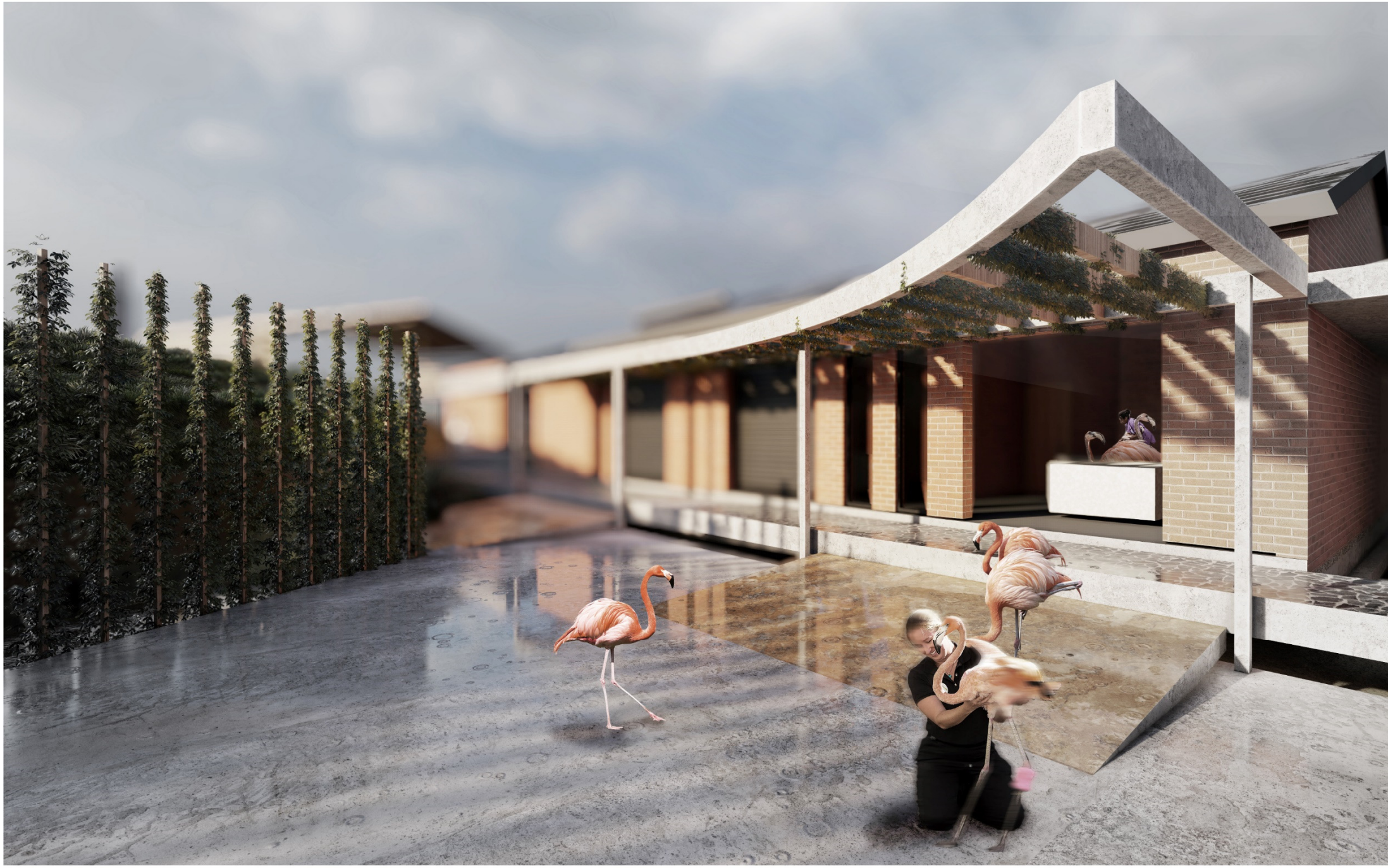
Figure 163: Entrance View (Author, 2022).

PERSPECTIVE VIEW
OF MAIN BUILDING

Figure 164: Entrance View (Author, 2022).

VIEW THROUGH RECREATIONAL PARK

Figure 165: Perspective View Of Catchment Ponds From Recreational Park (Author, 2022).

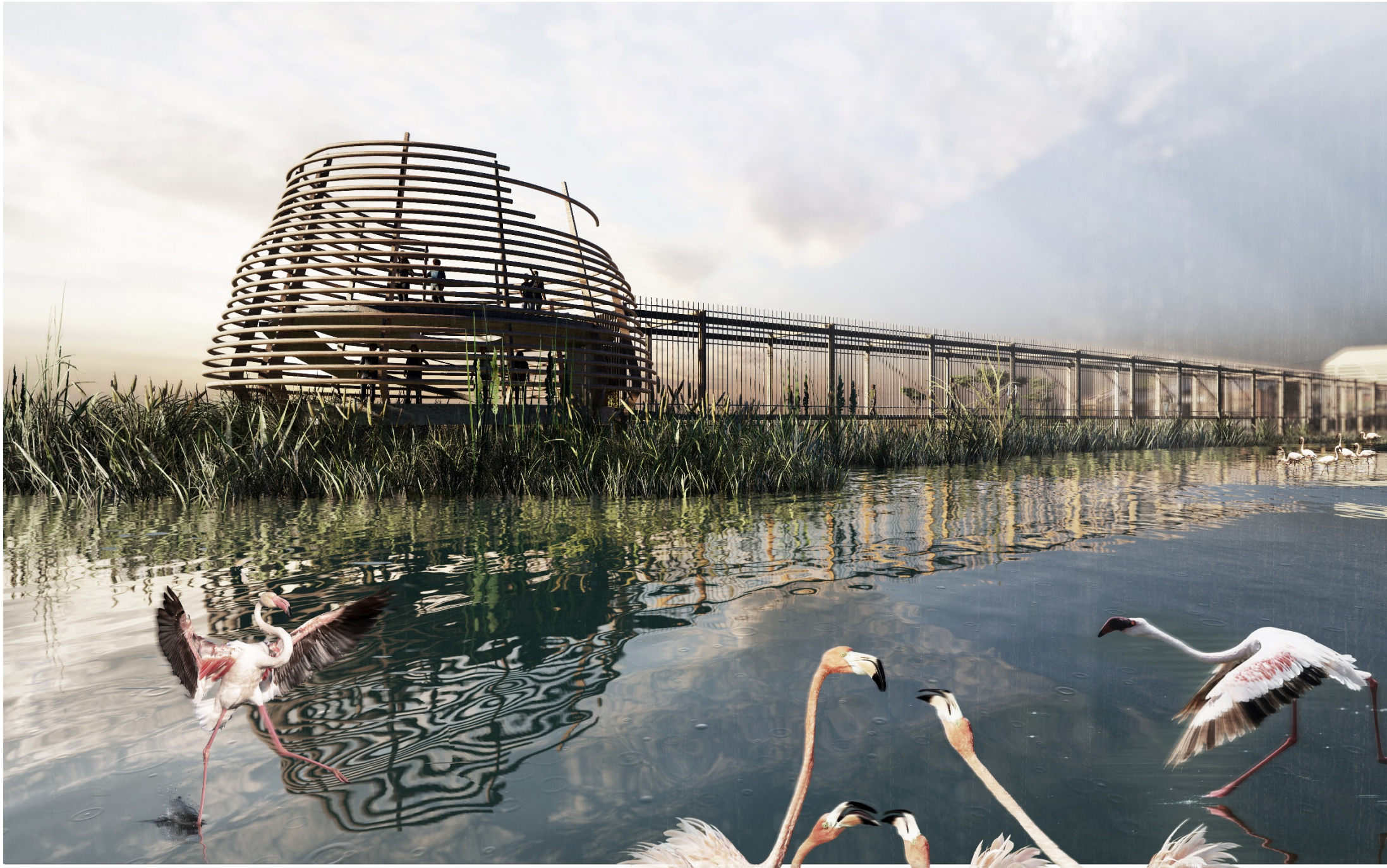


BIRD WASH PERSPECTIVE

Figure 166: Perspective Research and Bird Wash Area (Author, 2022).

CAFE ENTRANCE PERSPECTIVE

Figure 167: Perspective view of Café from Research building (Author, 2022).



FLAMINGO BIRD HIDE

Figure 168: Perspective Bird Hiding Platform (Author, 2022).

BIRDS EYE VIEW

Figure 169: Birds Eye View of Proposed Design (Author, 2022).

1.9 DESIGN MODELS

SITE MODEL

Figure 170: Conceptual Site location Model (Author, 2022).

PROCESS MODELS

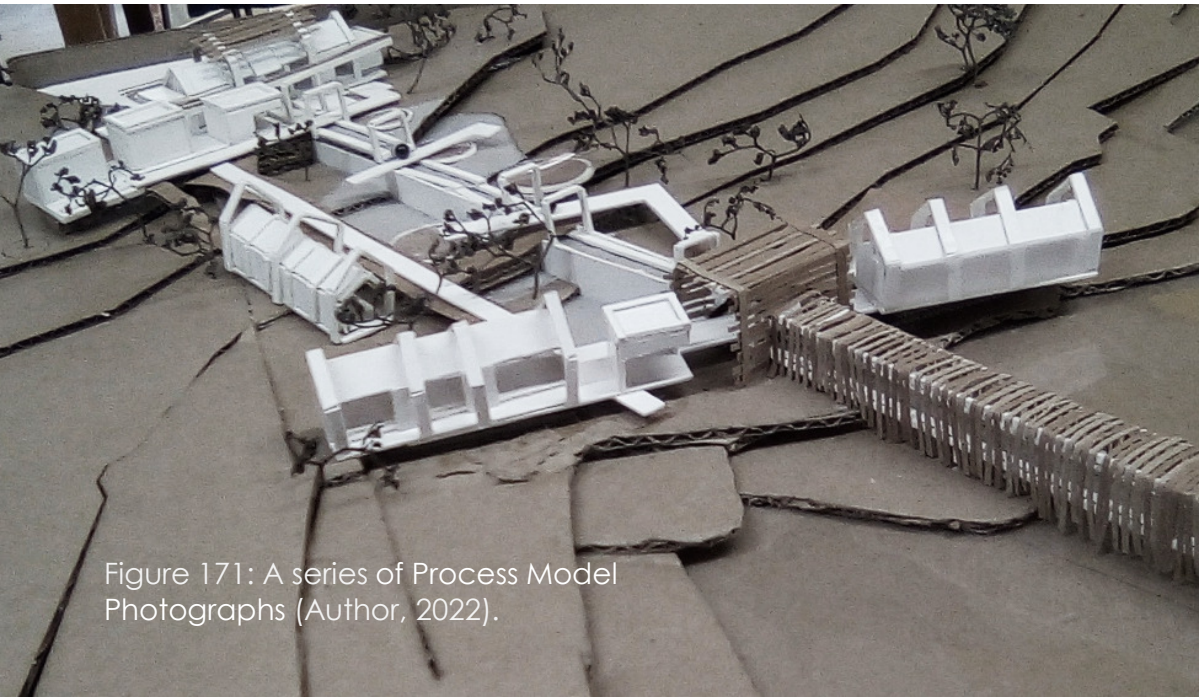
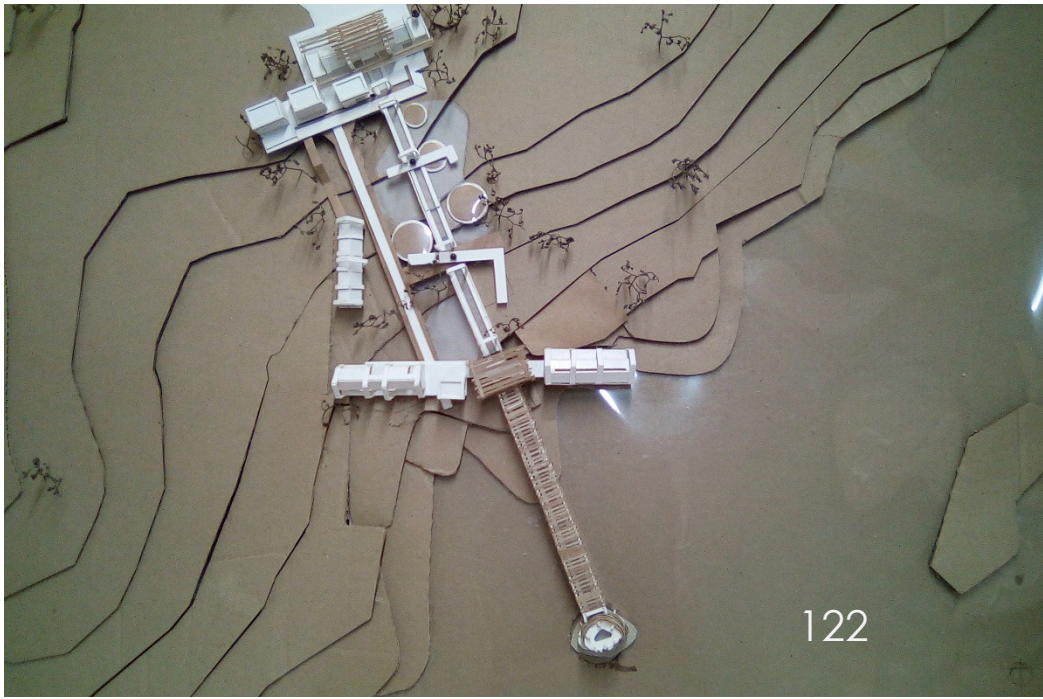
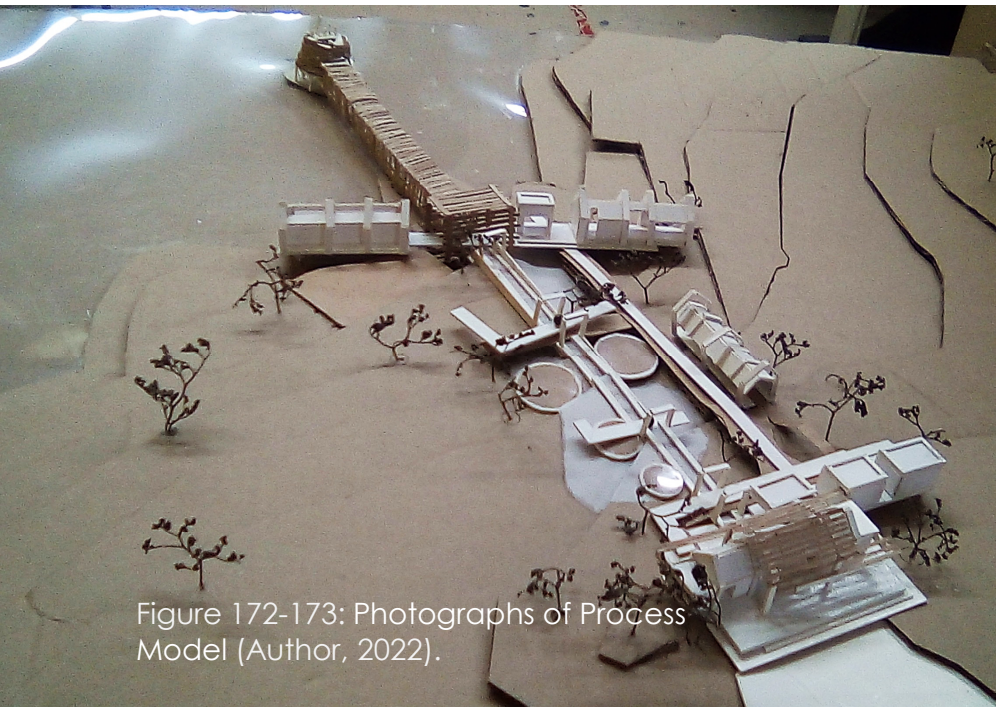


Figure 171: A series of Process Model Photographs (Author, 2022).





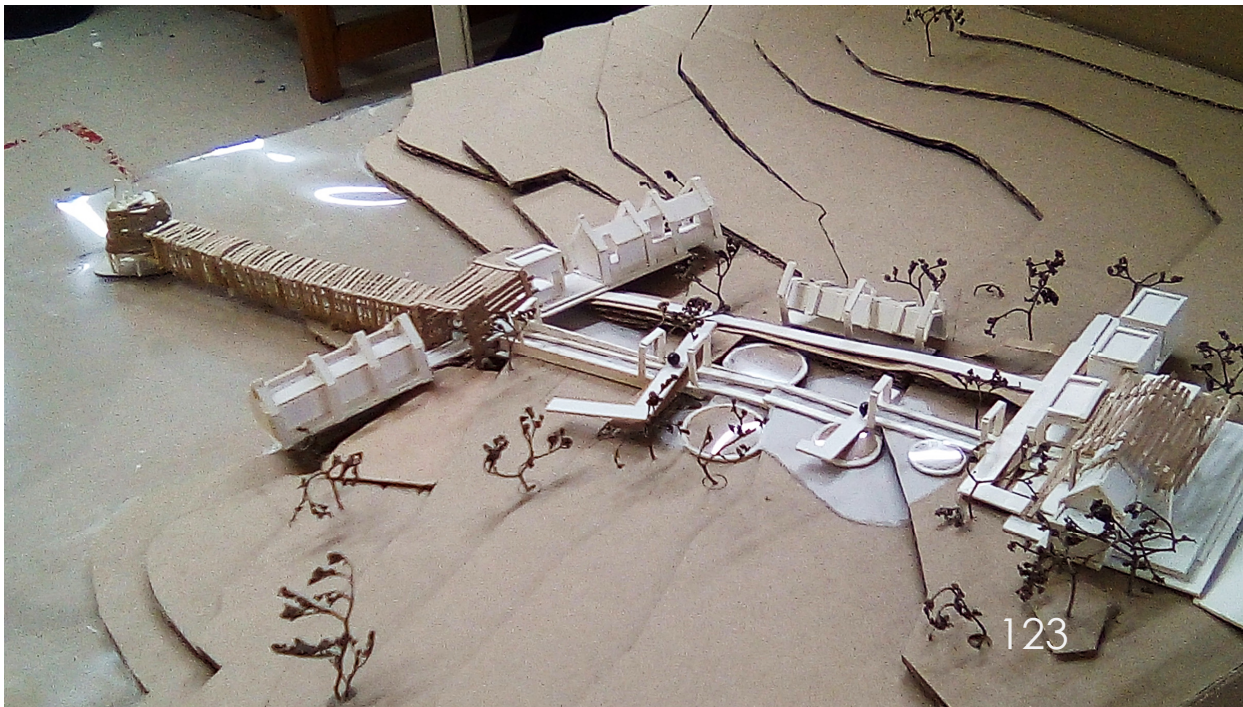


Figure 172-173: Photographs of Process Model (Author, 2022).

FINAL MODEL

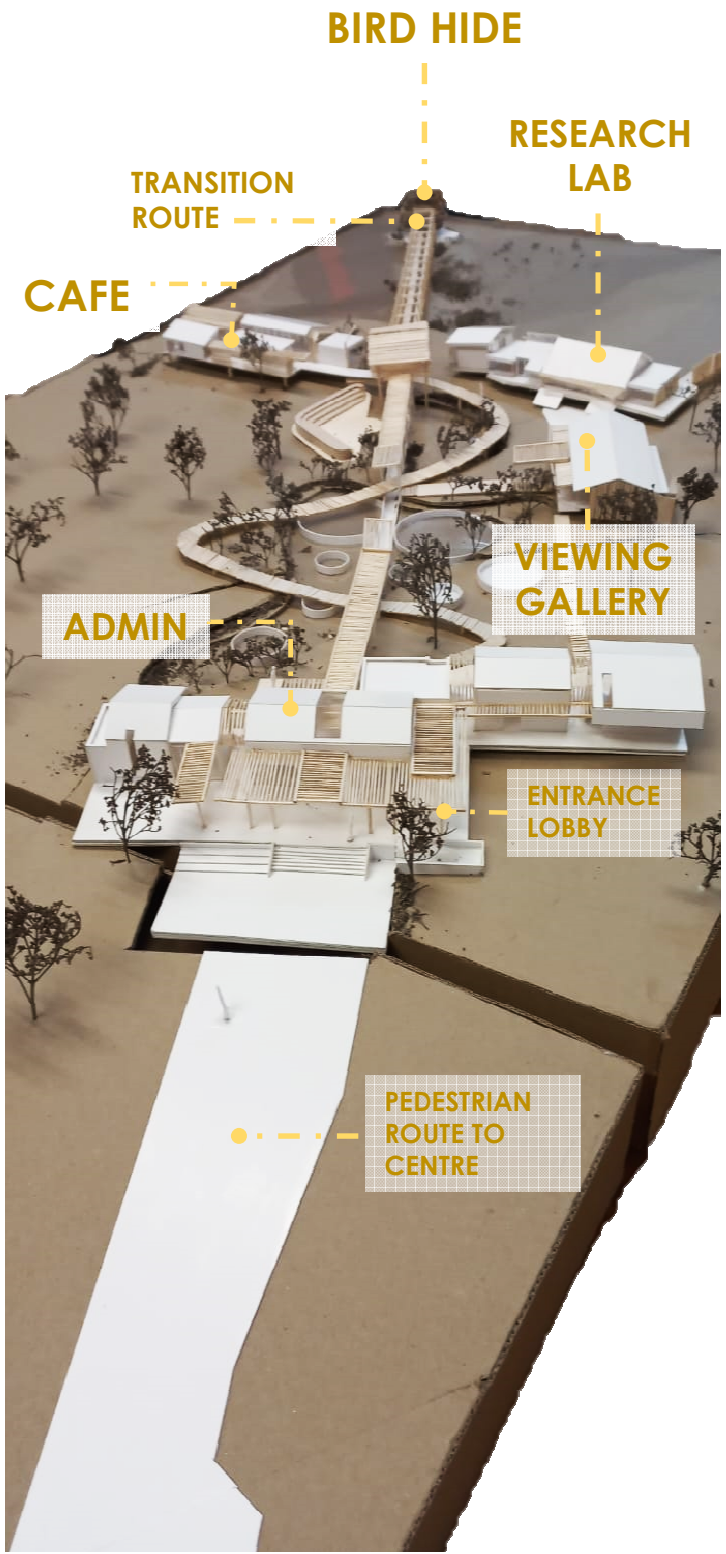


Figure 174-176: Photographs of Final Model with descriptions (Author, 2022).

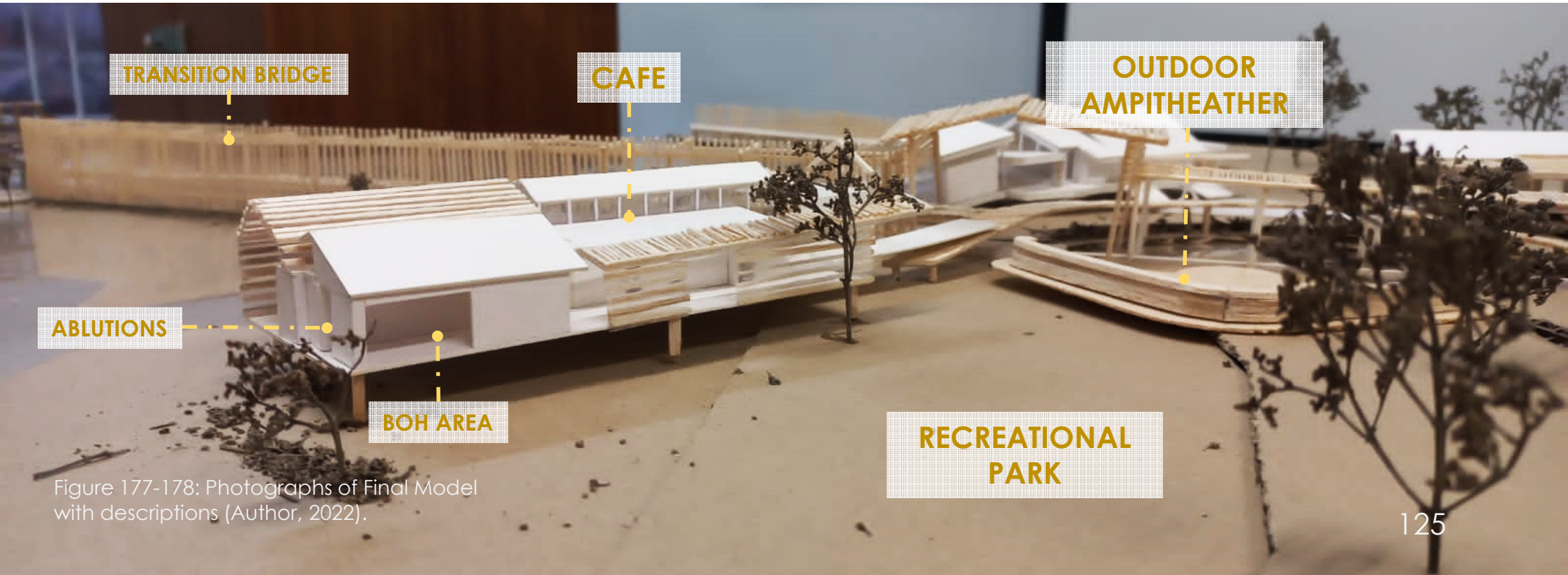


Figure 177-178: Photographs of Final Model with descriptions (Author, 2022).

Figure 179-180: Photographs of Final Model (Author, 2022).

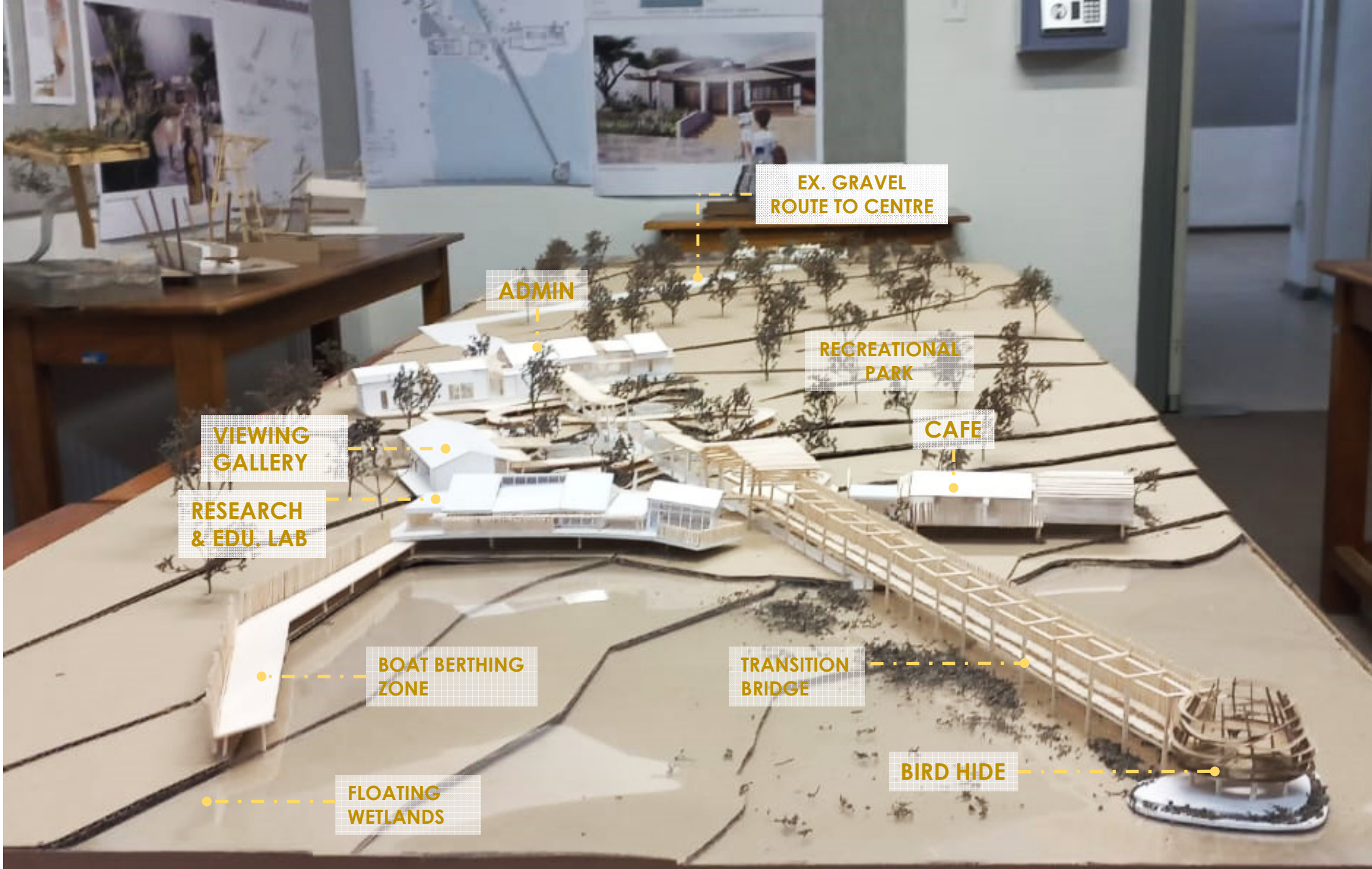


Figure 181: Photograph of Final Model with descriptions (Author, 2022).

1.10 TECHNICAL INVESTIGATION

TECHNICAL INVESTIGATION

The Technical investigation provides a brief understating of how the design was further explored on a technical resolution. This chapter provides the compilation of the previous chapters' explorations, interpretations, and development toward a design resolution, functions, and structure.

The technical investigation explores the influences of the site and environment on the design together with the building services, circulation, structural and experiential approaches which all work together in a symbiotic relationship that resonated with the theoretical study.

Site Introduction

Kamfers Dam is located 6 km north of Kimberley at the junction of three biomes; the Karoo, Kalahari, and Grasslands. The dam is a non-perennial, closed-basin pan in a semi-arid environment, receiving water from three primary sources; its 160 km² catchment, 14 mega litters of treated sewage effluent from Kimberley per day, and half of the town's stormwater.

The site forms a cosmic landscape topology known for its vast undulating, clear view and flat topology. The soil type found within the area is generally red clay, with black granite at the bedrock.

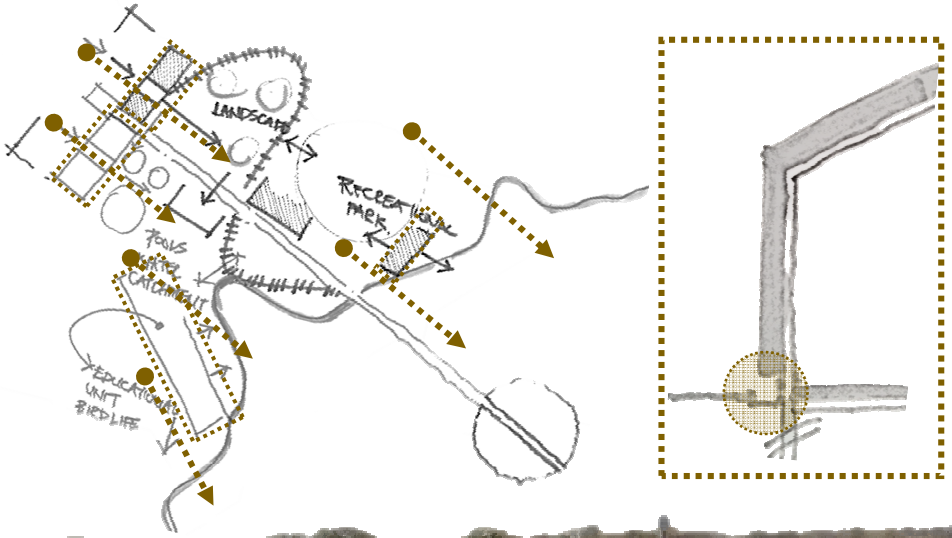
The site has a two-way directional overall fall of 3m from where the proposed design starts to the dam's edge. The falls are experienced from the South West and North East elevation. The site is vastly covered by the area's thornveld and vaalbos rocky shrubvelds and reeds. Which greatly influenced the design of form-giving and the approach to study.

Figure 182: View of site from Site HWWT(Author, 2022: Photograph).

SITE PLANNING

Storm Water Control And Use

The control and use of stormwater play a significant role in the existence of Kamfers dam. The wetland was originally a non-perennial (ephemeral) pan, often dry and dependent on rainwater. Throughout the years, the pan water levels rose due to the input of constant runoff and treated water from the growing city of Kimberley.



Stormwater control and planning are accommodated and fostered breath-out sections that form part of the internal and external experience as the user thoroughfares from one space to the next.

The use of stormwater and rainwater catchment continues to play a crucial role in the experiential existence and function of the proposed conservation and visitors centre. The water well features, together with the catchment ponds, introduce and ground the importance of harvesting natural resources that enables the birthing of new and replenishing ecosystems.

The accommodation and control of stormwater collection form part of the building's edge condition perimeter and practical detail. A stormwater gutter is situated between the building perimeter and the external platform, such as the walkway.

Figure 183: Storm water control diagrammatic sketch (Author, 2022).
Figure 184: Perimeter gutter detail (Author, 2022).

SITE PLANNING

Storm Water Control And Use

The gutter system allows for continuous associations between natural and humane systems. Fostering this design element as part of a reasonable resolution controls and continues the narrative associated with the site's existence.

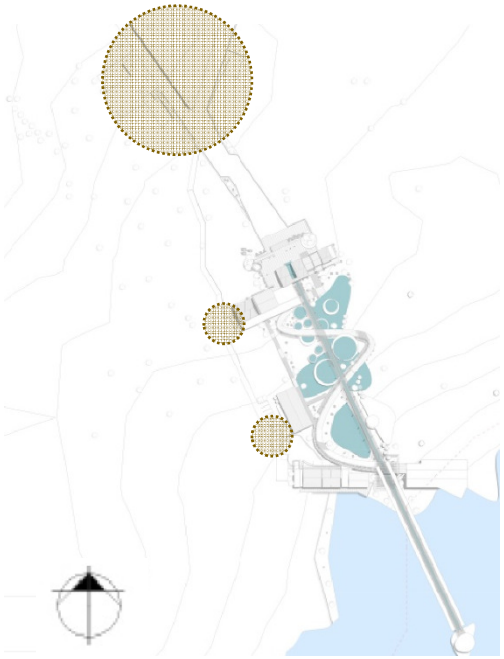


Figure 185: Locality plan indicating parking on site (Author, 2022).

Landscape and Parking

The site's landscaping forms a large part of the transitional scheme between connecting the users from the inner parts of the city to the edge of the water and eventually to the Bird Viewing Platform.

In choosing the ideal position for the proposed site, the site informance and the theoretical stance of the blurring environment had a pivotal role. The proposal found its location at the edge where the dual ownership of the dam and the existing gravel routes meet. Additionally, the positioning of the design found itself at a fairly central position where the N12 and neighbouring residential routes meet.

Demarcated guest parking is located on the northern part of the site, at the centre's main Main/ Admin entrance. Environmental practitioners and permissible birdwatches use the parking on existing gravel roads. Disabled parking zones are located West part of the building, which provides an easy transition into the Centre. Staff parking is also allocated alongside the West elevation, close to the research Facility and Bird Rehabilitation zone.

SITE AND ENVIRONMENT

Vegetation and Passive Water Filtration system

The area around the dam is relatively flat, holding red-yellow, freely drained soils and vegetation such as the Kimberley Thornveld and Vaalbos Rocky Shrubveld. The water edge on the pan's southern side mainly consists of common reed Phragmites australis.

As part of a sustainable solution to contribute to the life of Kamfers Dam through its vegetation, the proposal incorporates a passive water treatment system alongside the Southern part of the edge of the dam. In addition, these plants are used to create floating wetlands that aid in water filtration.

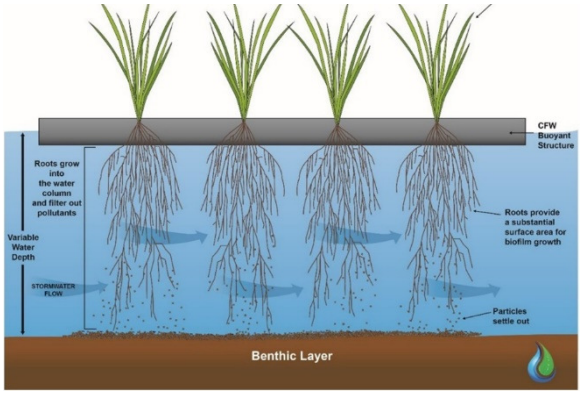


Figure 186: Illustration of a floating Wetland (Birdlife, 2022: online).

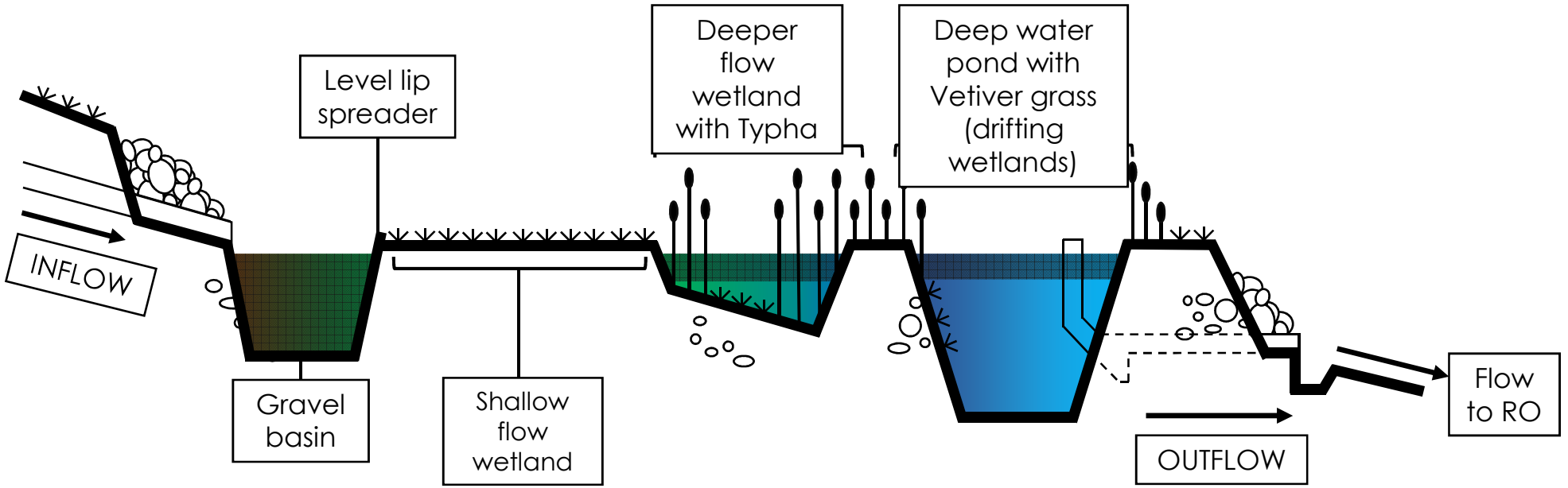
Floating Landscape Defined:

Floating treatment wetlands (FTWs) or islands are small artificial platforms that allow aquatic plants to grow in water that is typically too deep for them. This system works towards increasing the biodiversity and cleaning water (Birdlife, 2022).

In addition, the natural filtration system will further support the water filtration intervention (see figure 183)

PASSIVE TREATMENT SOLUTIONS

"Walk away solution"



This natural system consists of five units arranged in a series.

Figure 187: Illustration and design of a floating Wetland provide (P. Oberholster, 2022).

STRUCTURAL SYSTEM

The design's primary structural system consists of a composite of steel and concrete at the entrance of the design. A composite of steel and timber toward the building closer to the dam follows this.

The **steel portal frame** is the primary structural system incorporated within the design. The form-giving is influenced by the Late Victorian style architecture found on site.

The **foundation** for the concrete columns consists of a 300x250mm ring beam around the floor slab edge, which rests on a 1000x300mm reinforced concrete capping beam on a pile foundation column.

The main building's interior **floors** are 85mm reinforced concrete floor slab cast in situ with a polished finish to reflect natural light in the design. The exterior concrete ramps and walkways use a coarse texture to make them slip-resistant.

Complete details and specifications of the design are to be further provided in Construction documentation.

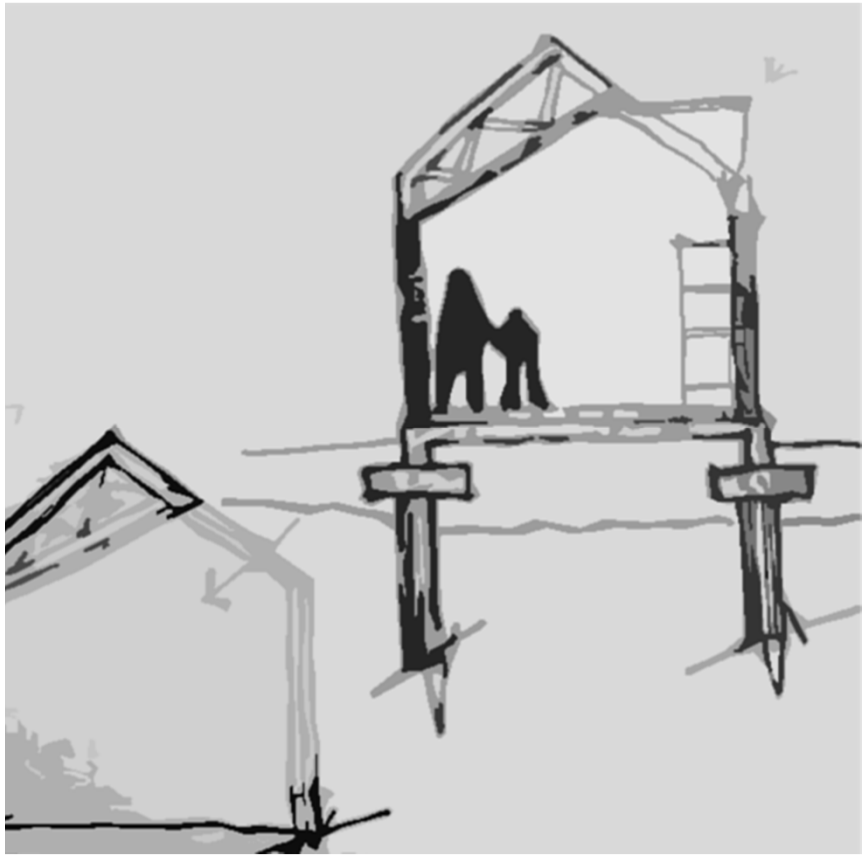
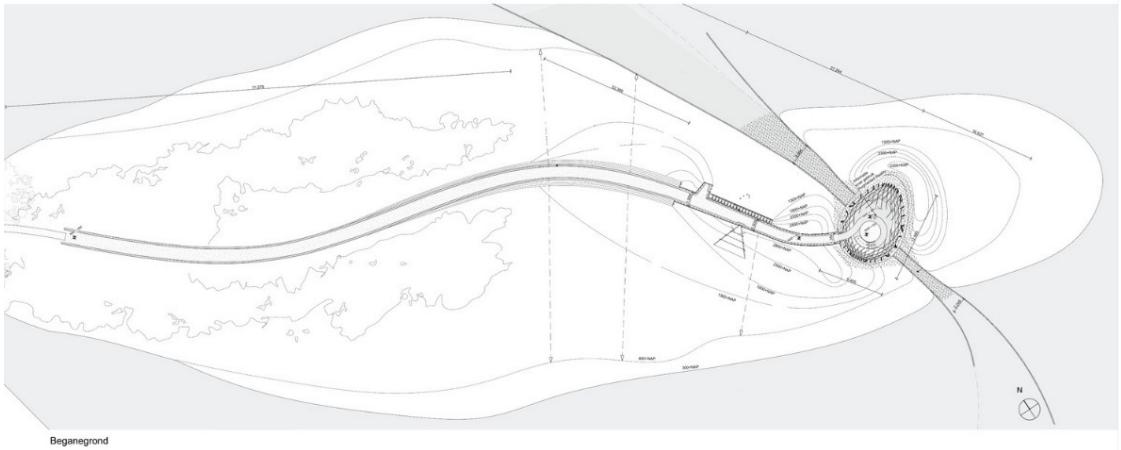


Figure 188: Illustration sketch of main structural system (Author, 2022).

PRECEDENT STUDY



Plan and Elevation of Bird viewing station

Tij observatory is part of a large scale landscaping plan where people can experience the Scheelhoek nature reserve in a walk from the car parking area to the Ei.

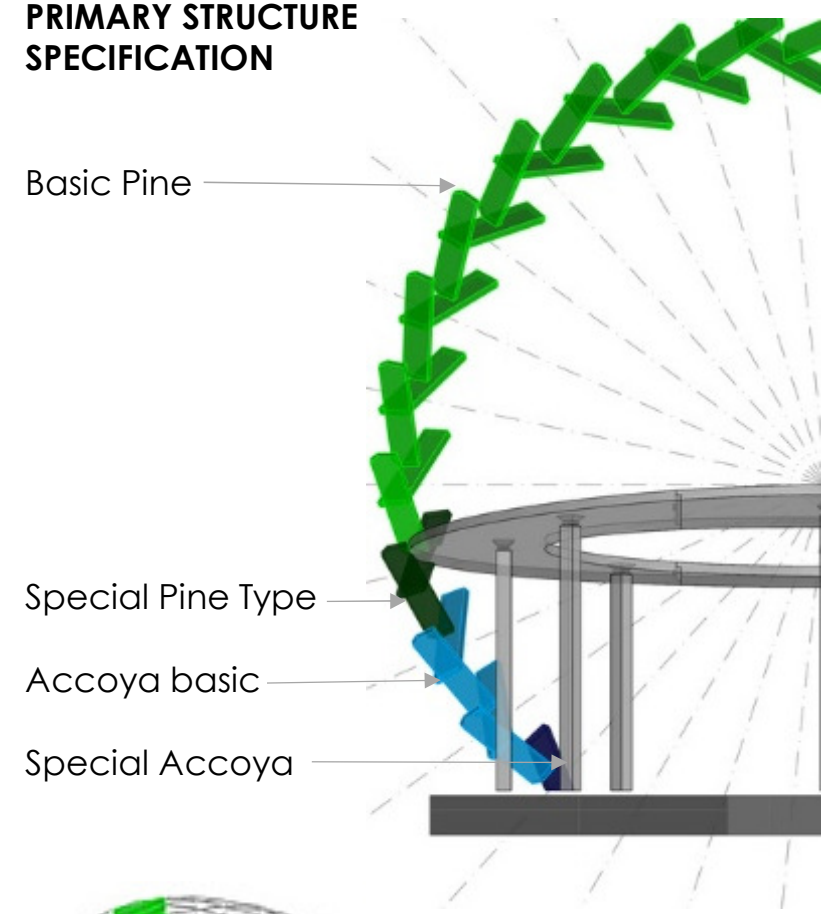
The egg takes the form of a sandwich tern egg, and rests on a nest of sand, much like a tern would have done it herself. The nest of the egg-like shape consists of vertical 'feathers' of chestnut poles, reeds and small sand dunes. The egg is designed to achieve a good ratio between form, structural integrity, size of the timber, and size of the openings. The structure has been constructed as a File-to-Factory form to provide relatively big spans with small timber parts.

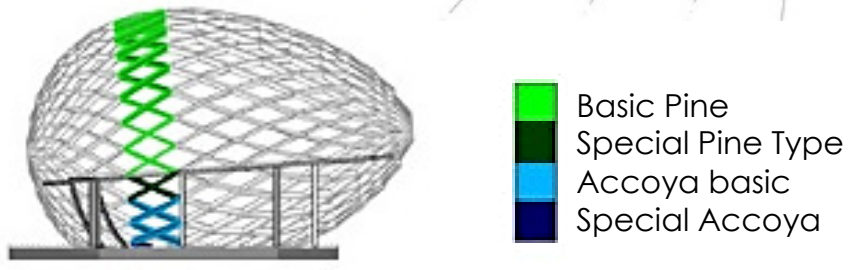
Figure 189: Plan of Bird viewing station (ArchDaily, 2022: online).

Figure 190-191: Structural Analysis of design (ArchDaily, 2022: online).

STRUCTURE: IDENTIFY TYPE + SYSTEM DETAILS SITE

PRIMARY STRUCTURE SPECIFICATION





STRUCTURE: IDENTIFY TYPE + SYSTEM DETAILS

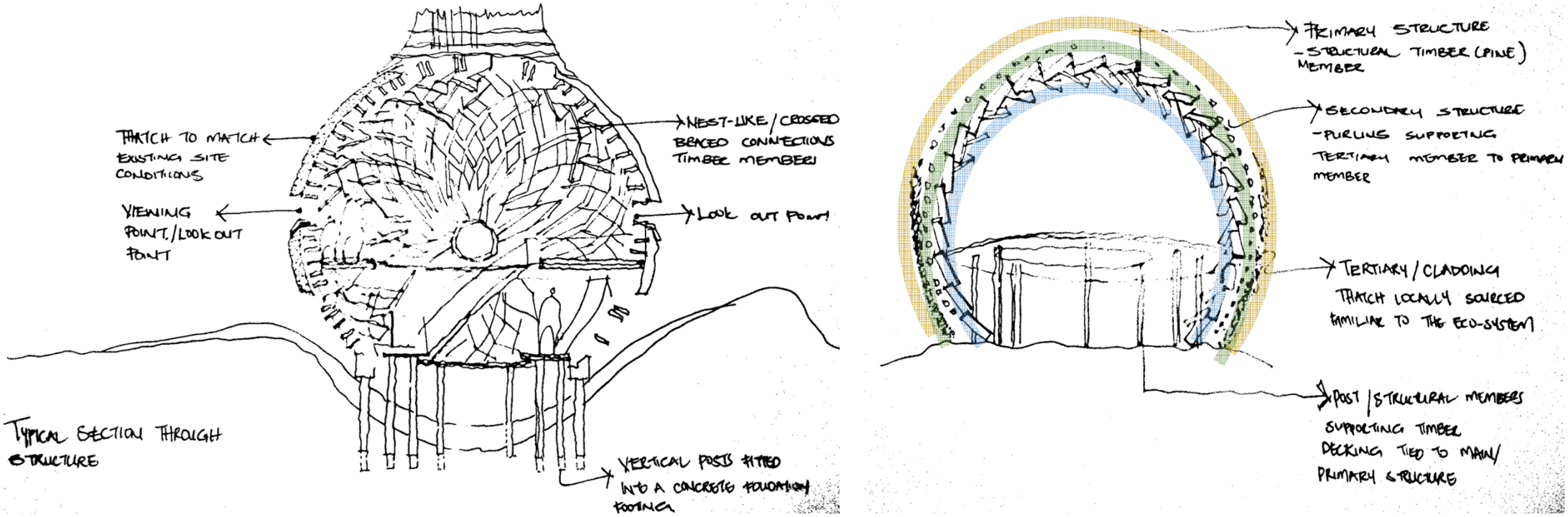
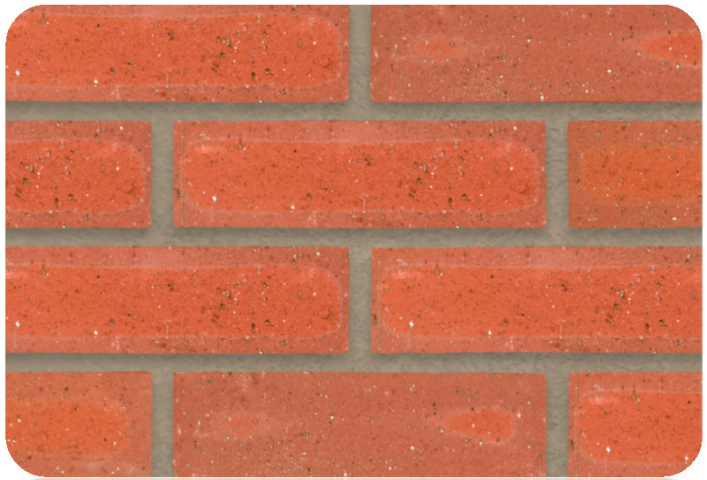


Figure 192-193: Material and Structure analysis sketches/ illustrations (Author, 2022).

The lower part of the egg is designed to accommodate floods is made of **accoya**. The upper part, which stays dry all year, is made of **pine**. The upper part is thatched with local **reed**, harvested from the inside of the sea defences. The thatched roof stops just above the highest possible water line. The floor inside the egg is a **hybrid wood (CLT)-concrete floor** which acts as a structural stabiliser between the landscape and the structure.

The sluices were opened in order to improve water quality and biodiversity, while also stimulating fish migration from the North Sea to the river delta system of Maas and Rhine in the Netherlands. This will create a new, salt-resistant and salt-loving natural environment. The biodiversity in the surrounding nature reserves will increase and a more robust, healthier ecosystem will develop in the coming years.

MATERIALITY



Red Face brick

Corobrick Red face brick is the primary material utilized as a solid load-bearing and infill wall system. The brick references the Northern Cape cosmic landscape, red clay soil, local vernacular, and tectonics. This material is manufactured locally and constitutes a low embodied energy, good thermal qualities, and structural resistance.
These facades further open themselves to latticed brickwork and feature brick walls with brick patterns. The open lattice is achieved by removing headers in a flemish bond, thereby allowing
for light penetration, ventilation, solar shading, and maintaining the continuity of the brick skin.

Steel

Galvanised Mild steel portal frames are the primary structural system of the design. Steel is a lightweight material that engages the architectural experience between tectonics and stereotomic elements. The soil conditions of the site enable flexibility and movement tolerance. Steel contrasts the robust, heavy concrete and accommodates a layering of mild steel grid screens to produce faceted facade elements.

A hot-dipped galvanizing finish of pre-welded components is fixed with bolts to ensure the longevity of the building and minimize maintenance. In addition, standard profile sizes are used to minimize additional construction time and cost.

Treated Timber

Timber is a natural material that resonates with the sustainable nature of the project. Therefore, timber will gradually and increasingly be used towards the dam threshold, which aims to merge the architecture with the landscape.
Timber will need to be treated for long-lasting and durability reasons. Some of the benefits of timber are as follows;

- Versatile and naturally aesthetically pleasing;
- Durable. Timber is a highly durable material;
- Non-toxic. In its natural state, wood is wholly non-toxic and healthy;
- Carbon Storage;
- Renewable Material.

Colourbond Kliplok –Concealed metal sheeting

Kliplok metal roof and wall cladding sheeting honours Kimberley industrial typology. The sheeting is selectively chosen for its wearable properties that allows the material to age significantly in line to the textures and materials found on site
Some of the most reliable benefits of Kliplok are as follows

- Strong, versatile long-length roofing or walling.
- concealed fastening method enables its use on many applications from low pitched roofs to vertical or horizontal ribbed walling.
- Fixing clips secure sheets without puncturing.
- No exposed fasteners for clean, smooth lines.

Glass

Glass is used to establish visual links between interior and exterior space and between private and public realms. A layered glass facade system promotes indoor climate control and illuminates exterior courtyard spaces at night while furnishings the spatial definition of the building.

Double glazing with Low-E UV protection is used to control solar heat gain. In addition, a faceted masonry and wall cladding façade protect Northern Eastern and Western glazing components.

Natural Stone Cladding

Stone Cladding will be utilized at the main/ admin building of the design. The material commemorates the vernacular use of materiality used during the 1800's. As it was the material that was mostly found at veranda section of the Late Victorian style.
The material is also used to welcome the various participant on site simultaneously reverencing as a platform that established the foundation of the design and theoretical standing.

1.11 DESIGN SYNTHESIS

Through the thorough investigation and research done in chapter 1and up to date, it is possible for an informed design process to commence.

Through the analysis of the history relating to the site, the surrounding context and an analysis of concise precedent studies, informants regarding the design process were established, and specific guidelines for the design approach were put in place. The morphological approach taken was greatly influenced through the research conducted in the previous chapter with the typology of the building in mind set in the given context.

The design was conceived, initially, through a series of conceptual sketches. A series of model building exercises also greatly assisted in gaining a better understanding of the nature of the proposals relationship with its context, in terms of scale, proportion, placement and detail.

These conceptual massing exercises used the most successful elements in each to develop an idea which was strong across the various facets mentioned previously.

1.12 TECHNICAL DOCUMENTATION

Stradding the line between Creation and Conservation:

RECLAIMING KAMFERS DAM

TECHNICAL INFORMATION AND ANALYSIS - KAMFERS DAM, KIMBERLEY CONTEXT:

Site Introduction
Kamfers Dam is located 6 km north of Kimberley at the junction of three biomes; the Karoo, Kalahari and Grasslands. The dam is a non-perennial, closed-basin pan in a semi-arid environment, receiving water from three primary sources; its 160 km² catchment, 14 mega litres of treated sewage effluent from Kimberley per day, and half of the town's storm water.
The site forms part of a cosmic landscape topoogy which is known for its vast undulating, clear view and and flat topography. The soil type found within the area is generally red clay, with black granite at the bedrock.

The site has a two-way directional overall fall of 3m from where the proposed design starts to the edge of the dam. The falls are experienced from the South West and North East elevation. The site is extensively covered by the area's thornveld and vaalbos rocky shrubvelds and reeds. Which greatly influenced the design form-giving and approach to study.

During 5- to 10-year dry cycles, the pan dries out between October and December, and fills between February and March. There is always permanent water at the south-western end of the pan, owing to the continuous inflow of sewage effluent, and this has resulted in the establishment of extensive reed beds.

The major part (95%) of the fringe of Kamfers Dam is privately owned; a small portion of land (5%), in the south-western corner, belongs to the Kimberley Municipality.

Storm Water Control And Use
The control and use of storm water play a significant role in the existence of Kamfers dam.
The wetland was originally a non-perennial (ephemeral) pan, often dry and dependent on rainwater. Throughout the years the pan water levels rose due to the input of constant runoff and treated water from the growing city of Kimberley.

Storm water control and planning are accommodated and fostered breath-out sections that form part of the internal and external experience as the user thoroughfares from one space to the next.
The use of storm water and rainwater catchment continues to play a crucial role in the experiential existence and function of the proposed conservation and visitors centre. The water well features together with the catchment ponds introduce and ground the importance of harvesting natural resources that enables the birthing of new and replenishing ecosystems.

Climate and Temperature
Kimberley's climate is **semi-arid**, with mild, dry winters and hot, sunny summers (during which thunderstorms can break out).

The summers are long and hot; the winters are short, cold, and dry; and it is mostly clear year round. Over the course of the year, the temperature typically varies from 36°F to 90°F and is rarely below 28°F or above 97°F (Weather spark: online, 2022).

Water Source
Kimberley's water is pumped from the Vaal River at Riverton, located 15 km north of the city (Baseline Environmental Description, 2013 : online).

Vegetation and Passive Water Filtration system
The area around the dam is relatively flat, holding red-yellow, freely drained soils and vegetation such as the Kimberley Thornveld and Vaalbos Rocky Shrubveld.
The water edge on the pan's southern side mainly consists of common reed Phragmites australis.

As part of a sustainable solution to contribute to the life of Kamfers Dam through its vegetation, the proposal incorporates a passive water treatment system alongside the Southern part of the edge of the dam. These plants are used to create floating wetlands, that aid in the filtration of water.

Landscape
The site's landscaping forms a large part of the transitional scheme between connecting the users from the inner parts of the city to the edge of the water.

In choosing the ideal position for the proposed site,the proposal found its location at the edge where the dual ownership of the dam and the existing gravel routes meet. Additionally, the positioning of the design found itself at a fairly central position where the N12 and neighbouring residential routes meet.

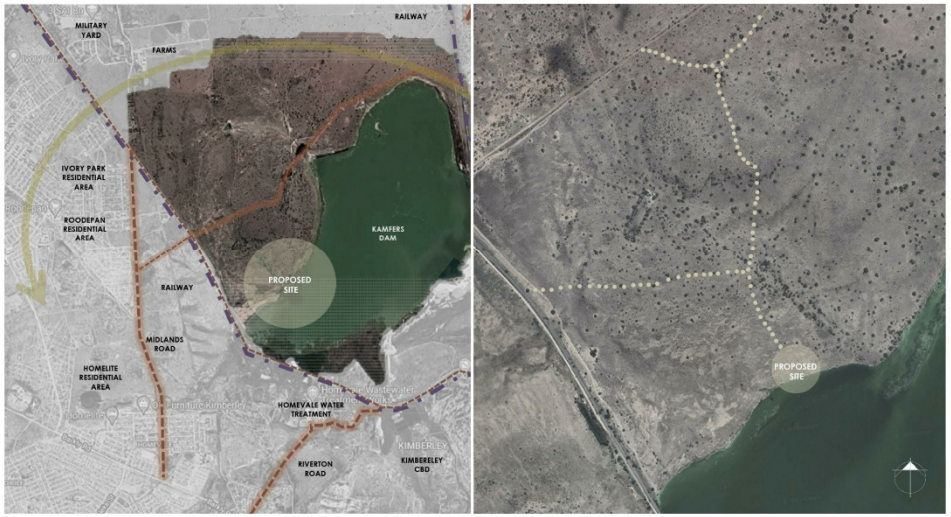
Proposed Parking
Demarcated guest parking is located on the northern part of the site, at the main Main/ Admin entrance of the Centre. The parking on existing gravel roads is used by environmental practitioners and permissible birdwatches. Disabled parking zones are located West part of the building which provides an easy transition into the Centre.
Staff parking is also allocated alongside the West elevation, close to the research Facility and Bird Rehabilitation zone.

Proposed Structural System
The main structural system of the design consist of a composite of both of steel and concrete at the entrance of the design. Followed by a composite of steel and timber towards the building located closer to the dam.

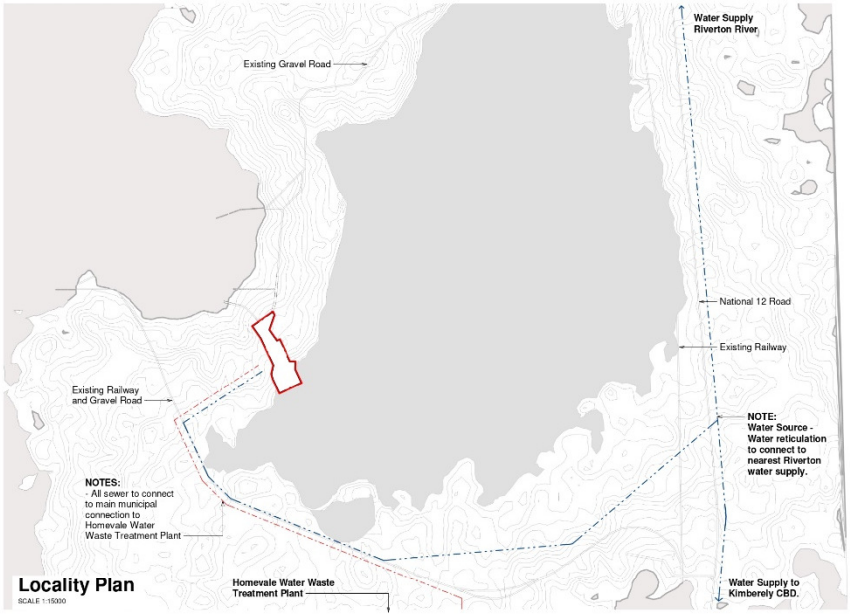
Steel portal frame is the main structural system incorporated within the design. The form giving is influenced by the Late Victorian style Architecture that is found on site.

Foundations: The foundation for the concrete columns consist out of a reinforced concrete ring beam around the floor slab edge, that rest on a reinforced concrete capping beam on a pile foundation column.

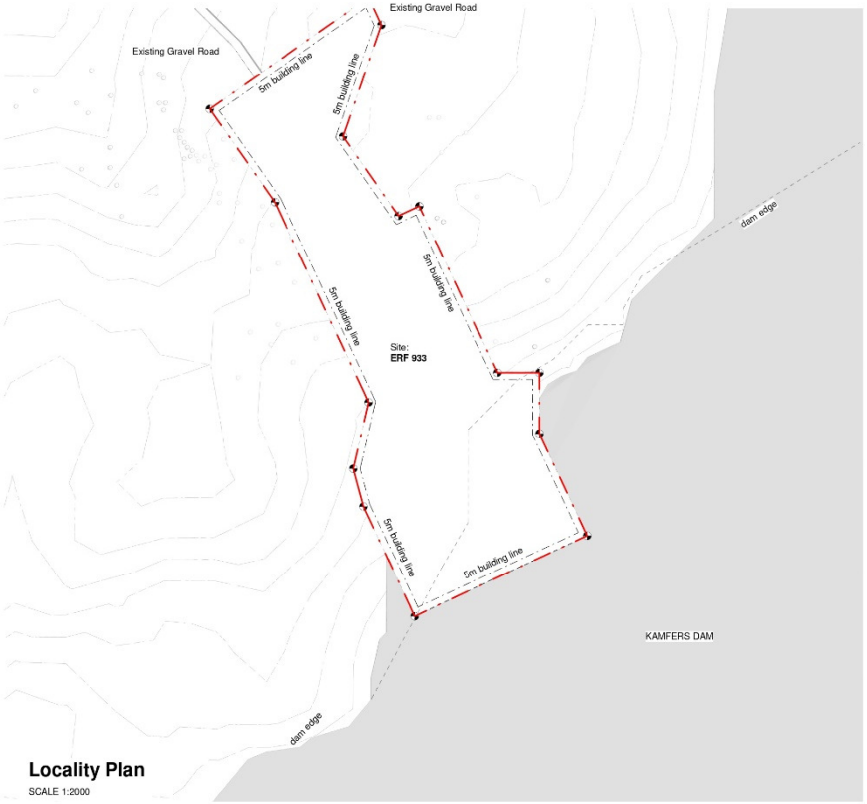
Site Location



Site Photographs and Views



Locality Plan
SCALE 1:15000



Locality Plan
SCALE 1:2000

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revisions

rev	date	description	name
A	27/10/2022	General Layout Drawings Issued for Information	BS
1	14/11/2022	General Layout Drawings Issued for Information	BS

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CONSERVATION AND VISITOR'S CENTRE
KAMFERS DAM

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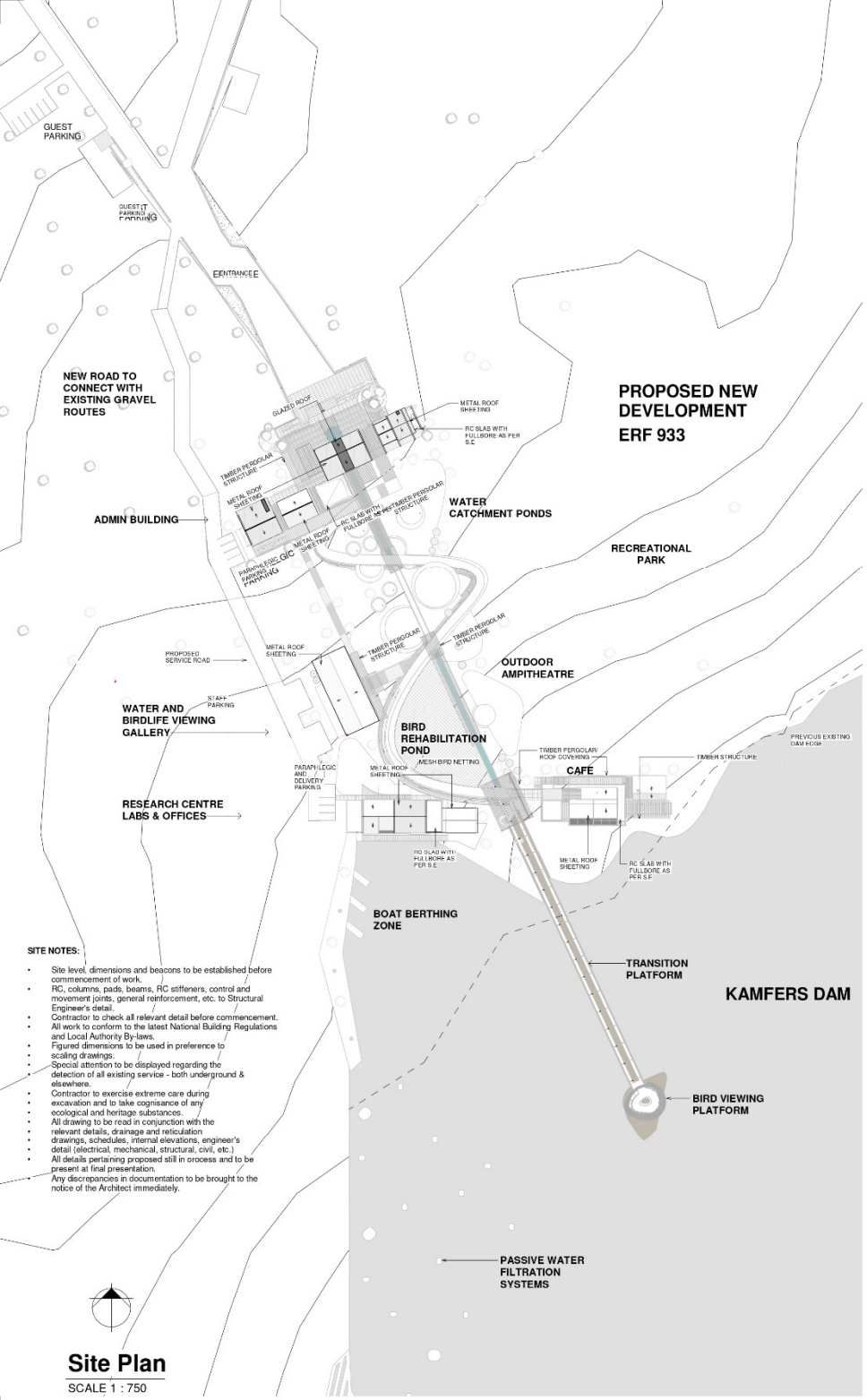
drawing
PAGE 01
GENERAL LAYOUT DRAWINGS
PROJECT INTRO. AND LOCALITY PLAN

project number	drawing number	revision
18095	01-20-001	1
first issue	scale	
10/21/22	As indicated @ A1	

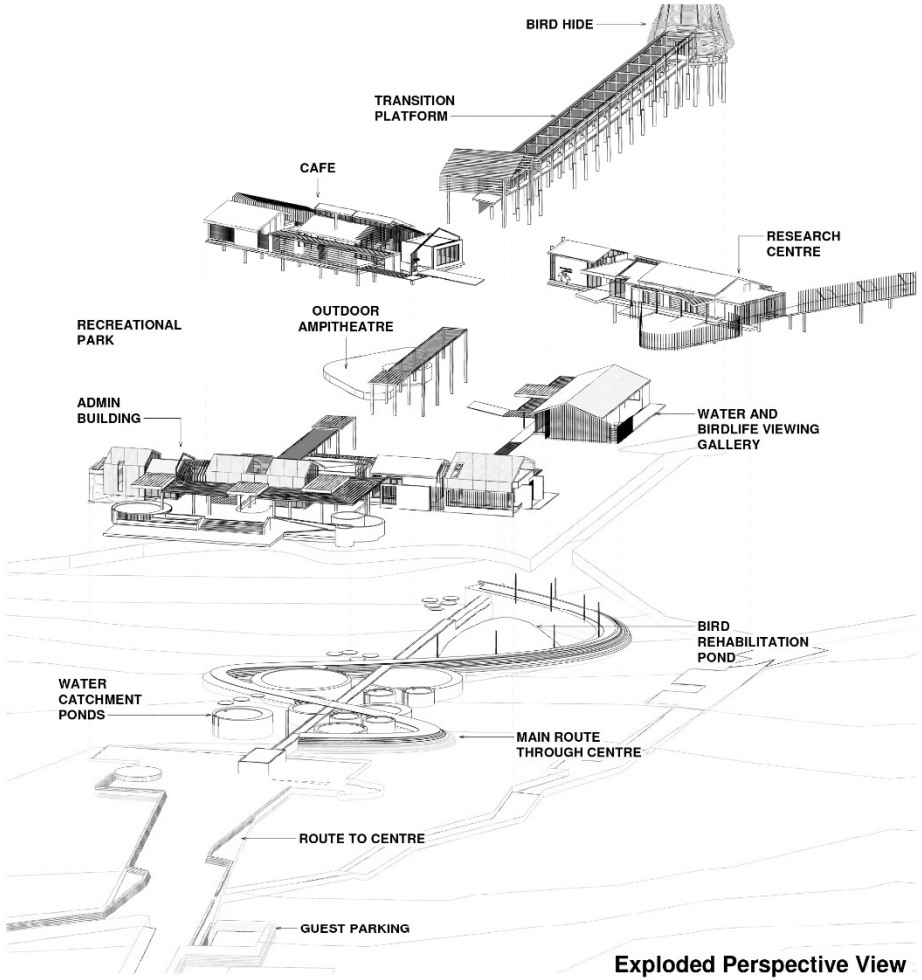


SITE NOTES:

- Site level, dimensions and beacons to be established before commencement of work.
- RC, columns, pads, beams, RC stiffeners, control and movement joints, general reinforcement, etc. to Structural Engineer's detail.
- Contractor to check all relevant detail before commencement.
- All work to conform to the latest National Building Regulations and Local Authority By-laws.
- Figured dimensions to be used in preference to scaling drawings.
- Special attention to be displayed regarding the detection of all existing service - both underground & elsewhere.
- Contractor to exercise extreme care during excavation and to take cognisance of any ecological and heritage substances.
- All drawing to be read in conjunction with the relevant details, drainage and reticulation drawings, schedules, internal elevations, engineer's detail (electrical, mechanical, structural, civil, etc.)
- All details pertaining proposed still in process and to be present at final presentation.
- Any discrepancies in documentation to be brought to the notice of the Architect immediately.

Site Plan

SCALE 1 : 750



Exploded Perspective View

Bird Eye View of Proposal

revisions

rev	date	description	name
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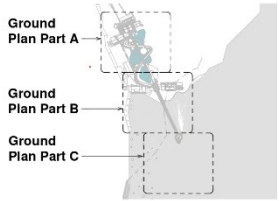
1	14/11/2022	General Layout Drawings Issued for Information	BS



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KAMFERS DAM

client
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NORTHERN CAPE PROVINCE

drawing
PAGE 02
GENERAL LAYOUT DRAWINGS
SITE PLAN

project number	drawing number	revision
18095	01-20-002	1
first issue	scale	
06/08/22	As indicated @ A1	

Ground Floor- Part A

SCALE 1 : 200

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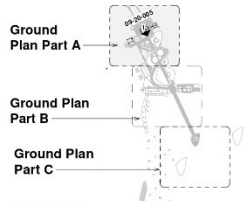

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PAGE 04
GENERAL LAYOUT DRAWINGS
GROUND FLOOR PLAN - PART A

project number	drawing number	revision
18095	01-20-004a	1
first issue	scale	
06/08/22	As indicated @ A1	

PART A
PART B

VIEWING GALLERY: WATER & BIRDLIFE

STAFF PARKING ZONE

BIRD WASH YARD

LANDSCAPE

OUTDOOR AMPHITHEATER

TRANSITION 04

STAFF PARKING

TIMBER DECKING

BOAT BERTHING/ MOORING ZONE

BOAT BERTHING/ MOORING ZONE

LAB 01
LAB 02
LAB 03
PASSAGE
KITCHENETTE
RECEPTION
Laminated floor finish 60m²
RC OFFICE 01
Laminated floor finish 18 m²
RC OFFICE 02
Laminated floor finish 18m²
CONFERENCE ROOM
Laminated 61m²
Ramp
Ramp

OUTDOOR DINING
Timber slide double door
LOBBY
24m²
ramp slope min 1:12
OUTDOOR DINING
Timber decking 49m²
CAFE DINING
Laminated floor finish 100m²
SERVER
COLD ROOM
F. ABLUTIONS
M. ABLUTIONS
Refuse Yard
70m²

63-20-002

5.03°
120.00°
120.00°
120.00°
121.03°

Ground Floor- Part B

SCALE 1 : 200

PART B
PART C

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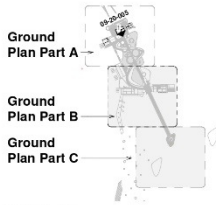
NB NOTE: COMPLETE GENERAL LAYOUT DRAWINGS TO BE PRESENTED AT FINAL PRESENTATION



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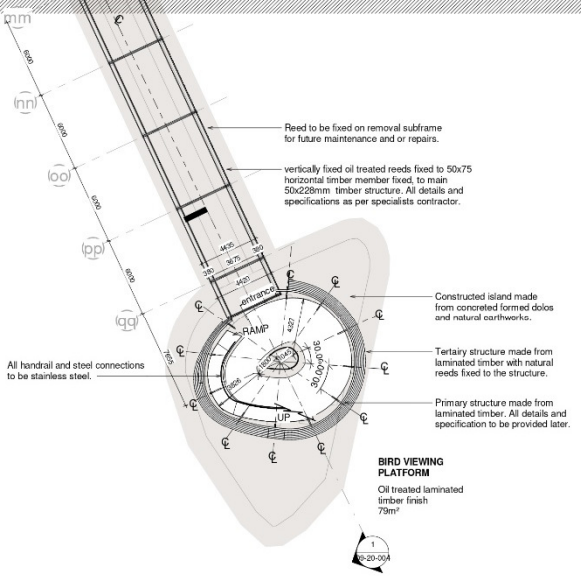
PAGE 05
GENERAL LAYOUT DRAWINGS
GROUND FLOOR PLAN - PART B

project number	drawing number	revision
18095	01-20-004b	1
first issue	scale	
06/08/22	As indicated @ A1	

PART B
PART C



KAMFERS DAM

floating wetland made from existing vegetation.

Proposed Breeding Island

floating wetland

Proposed Breeding island

Ground Floor- Part C

SCALE 1 : 200

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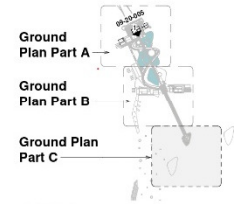

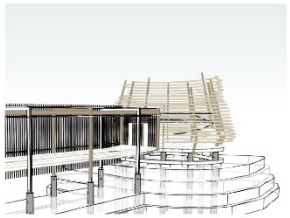

Bird Viewing Platform

SCALE

NB NOTE: ALL DRAWINGS, SPECIFICATIONS AND DETAILS PERTAINING TO BIRD VIEWING PLATFORM TO BE PROVIDED AT LATER STAGE.

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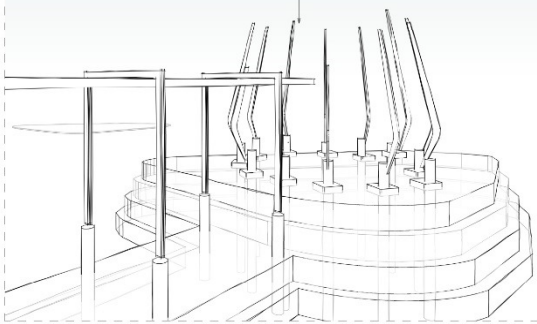
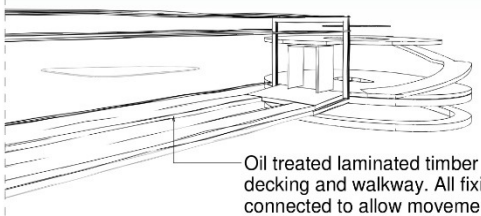
PRIMARY STRUCTURE

Oil treated laminated timber fixed with stainless connectors on concrete footing.

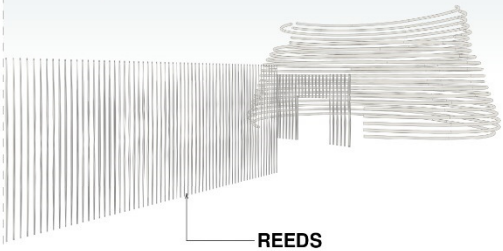


SECONDARY STRUCTURE



Oil treated laminated timber decking and walkway. All fixing connected to allow movement.

TERTIARY STRUCTURE



REEDS
Oil treated reeds e fixed on removal subframe for future maintenance and or repairs.

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PAGE 06
GENERAL LAYOUT DRAWINGS
GROUND FLOOR PLAN - PART C

project number	drawing number	revision
18095	01-20-004c	1
first issue	scale	
06/08/22	As indicated @ A1	

Local Common Reed (Phragmites australis)

Bundled Common Reed

Treated SA Pine — please recommend sustainable, durable wood

Class Level H5 Green Wood Treated Poles

Dolos Island and Jetting Walkway Construction

Local sourced common reeds bundled and vertically fixed to walkway substructure as a screen.

Local sourced common reeds bundled (whilst moist) fixed to treated timber substructure as a screen. Bundles to be layed and act as protective facade.

76x152mm 'green wood' treated SA Pine structural timber as main structural frame of walkway fixed with stainless steel base plate onto pile foundation capping. All braoing and strutural support as per structural engineer details and specifications.

Treated timber decking and walkway fixed to timber joinst, with cross braced stainless steel rods, to allow for movement and structural rigidity. All works to be carried out by specialist as per structural engineers details and specifications.

Timber piling:
Class level H5 'green wood' treated timber poles fixed into ground as piling system. All structural and groundworks to be carried out by specialist as per structural engineers details and specifications and SABS approved.

Dolos Island Construction
Breakwater blocks island construction with natural ground to form topology. All structural and groundworks to be carried out by specialist.

Treated laminated timber as main structure to bird hiding structure fixed to treated timber poles with stainless steel connector. To be installed by specialist and supplied by manufacture.

stainless steel handrails and connection fixings to be supplied and intalled my manufacture.

Treated timber flooring (and ramp) fixed on Class level H5 'green wood' treated structural timber poles, all to be protected against heavy wet soil and moisture.

Capping beam to pile foundation to increase the rigity of the foundation and to reduce movement. to structural engineers details and spec.

Pile Foundation
300mm dia. RC pile foundation drilled to solid bedrock as per specialist details and specifications. All structural and groundworks to be carried out by specialist.

TIMBER NOTES:

- All timber and reed construction to be in accordance with SANS 10163 (timber structural use), 100882 (timber frame building) and 10043 (solid wood decking).
- All works to be carried out with strict adherence to the National Building Regulations.
- Decking and walkways (above wate) which are more than 1.5m above ground to further designed by structural engineer and approved by Project Architect.
- All timber to be treated with 'green wood' treatment or simarly approved product.

Bird Hide Exploded 3D View

SCALE

revisions

rev	date	description	name
1	14/11/2022	General Layout Drawings Issued for Information	BS

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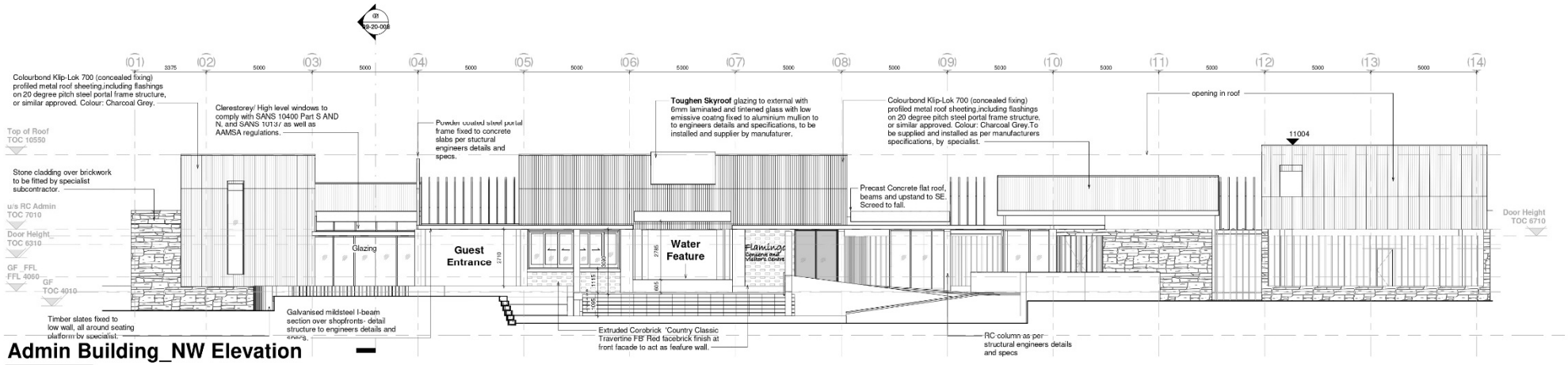
PAGE 09
GENERAL LAYOUT
Bird Hide Exploded 3D View

project number	drawing number	revision
18095	09-20-011h	1
first issue	scale	
11/07/22	@ A1	

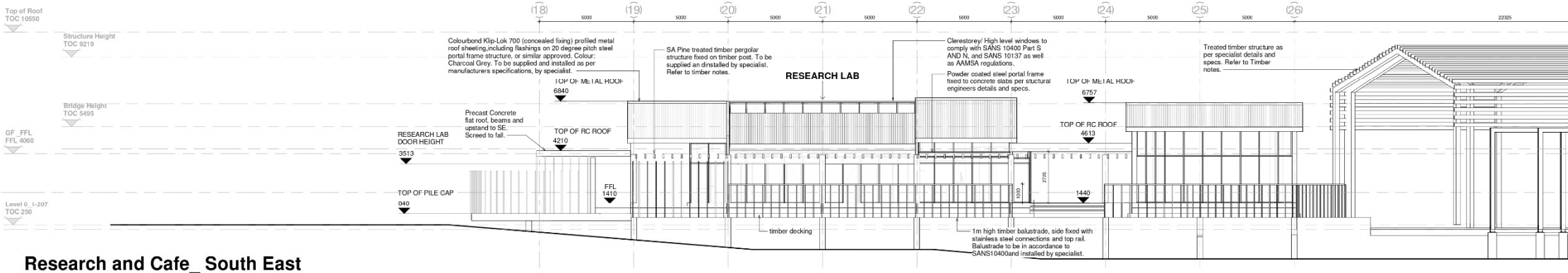


Admin Building_NW Elevation

SCALE 1 : 100

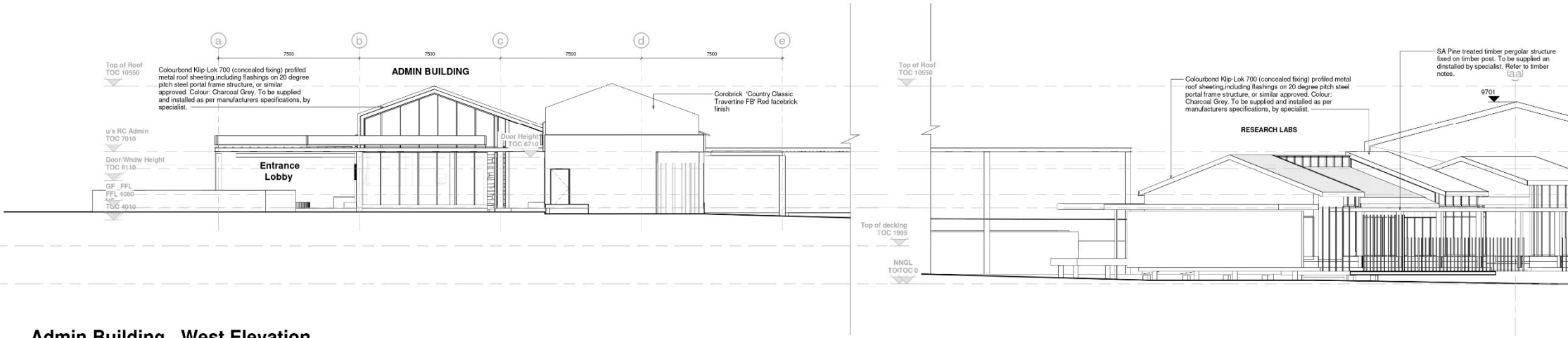
Admin Buildin

SCALE 1 : 100



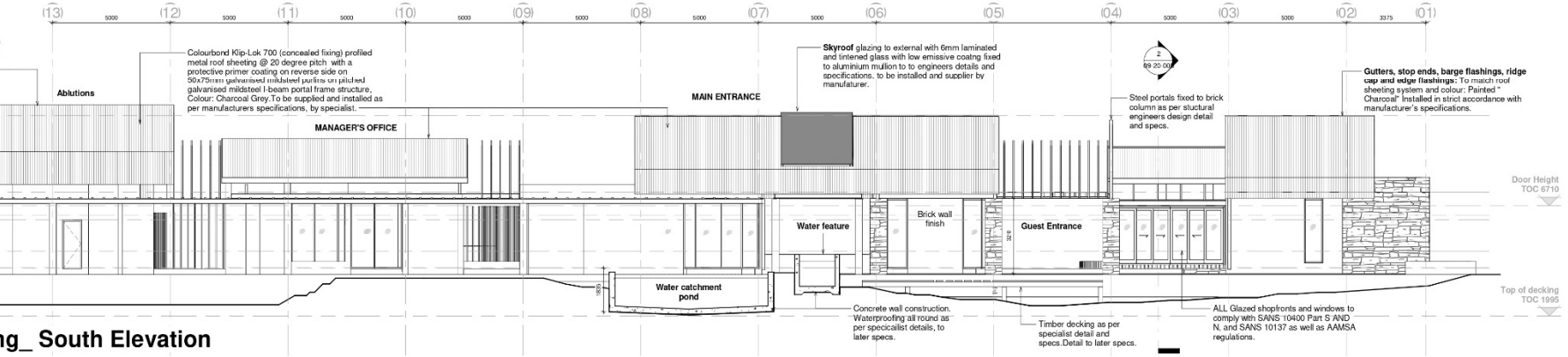
Research and Cafe_ South East Elevation

SCALE 1 : 100

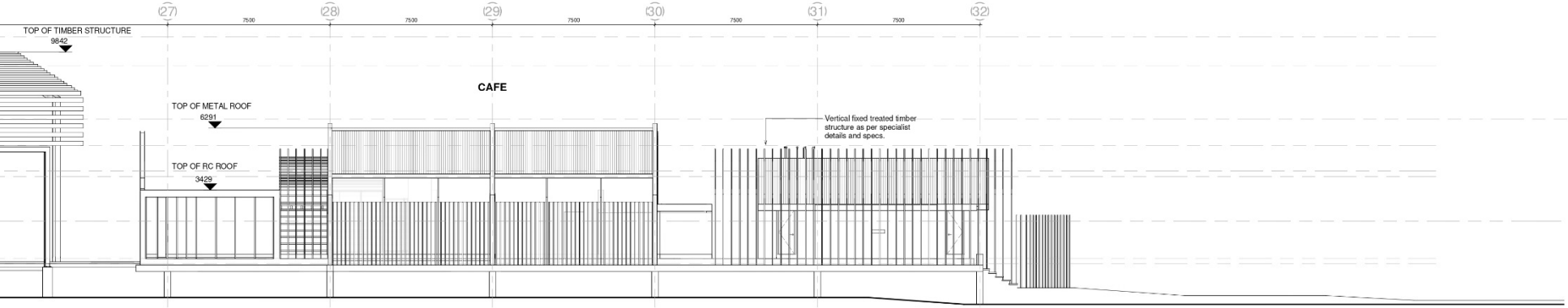


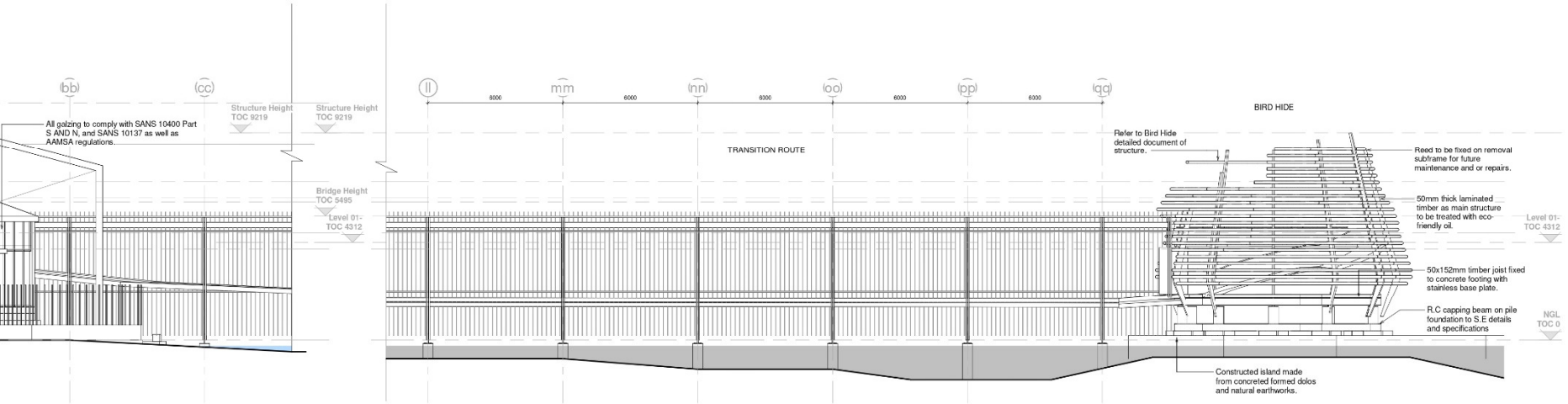
Admin Building_ West Elevation

SCALE 1 : 100



ng_ South Elevation





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revisions

rev	date	description	name
A	27/10/2022	General Layout Drawings Issued for Information	BS
1	14/11/2022	General Layout Drawings Issued for Information	BS

issued for
CONSTRUCTION
14/11/2022

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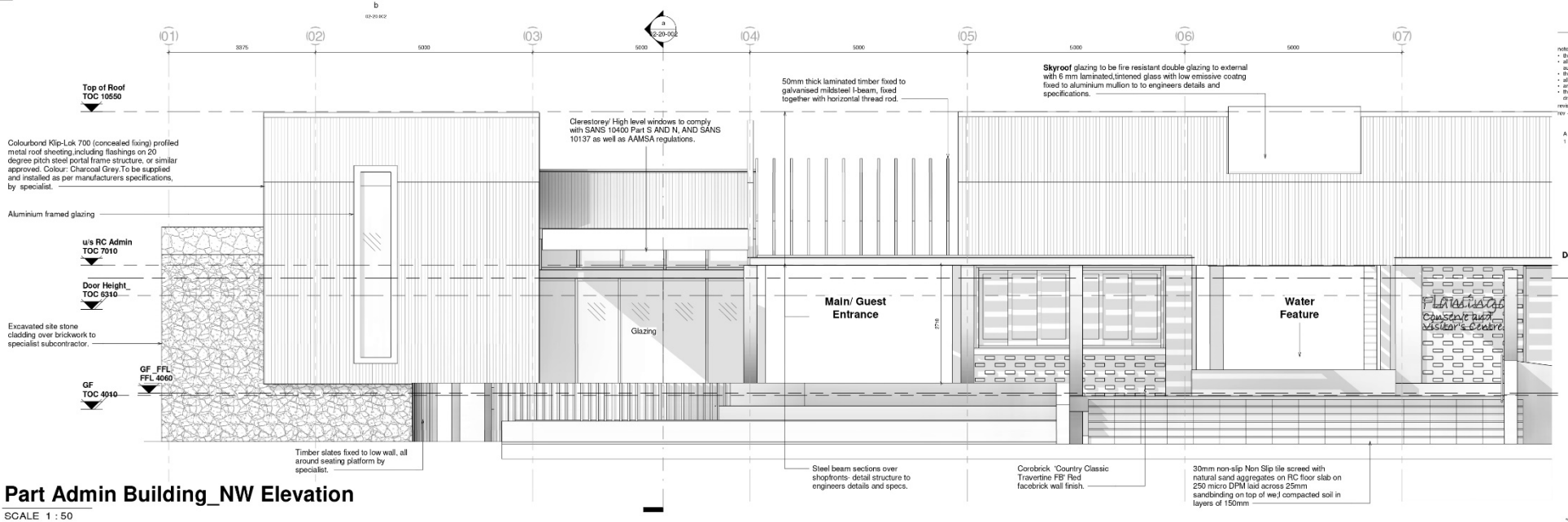
project
MASTERS THESIS: GENERAL LAYOUT DRAWINGS
CONSERVATION AND VISITOR'S CENTRE
KAMFERS DAM

client
DEPARTMENT OF TOURISM
NORTHERN CAPE PROVINCE

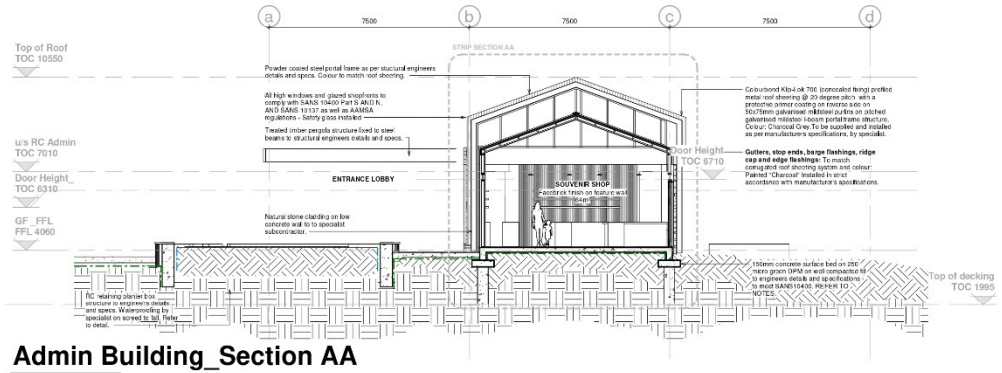
drawing
PAGE 08
GENERAL LAYOUT DRAWINGS
ELEVATIONS

project number	drawing number	revision
18095	03-20-002	1
first issue	scale	
06/22/22	1 : 100 @ A1	



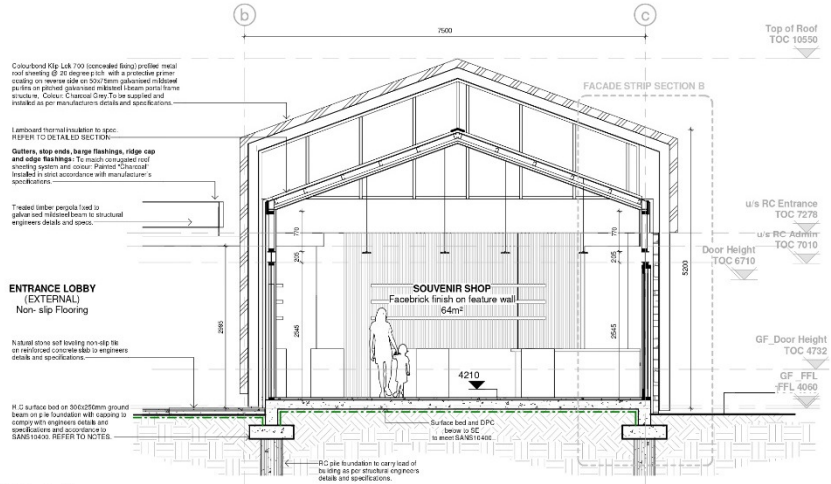
Part Admin Building_NW Elevation

SCALE 1 : 50



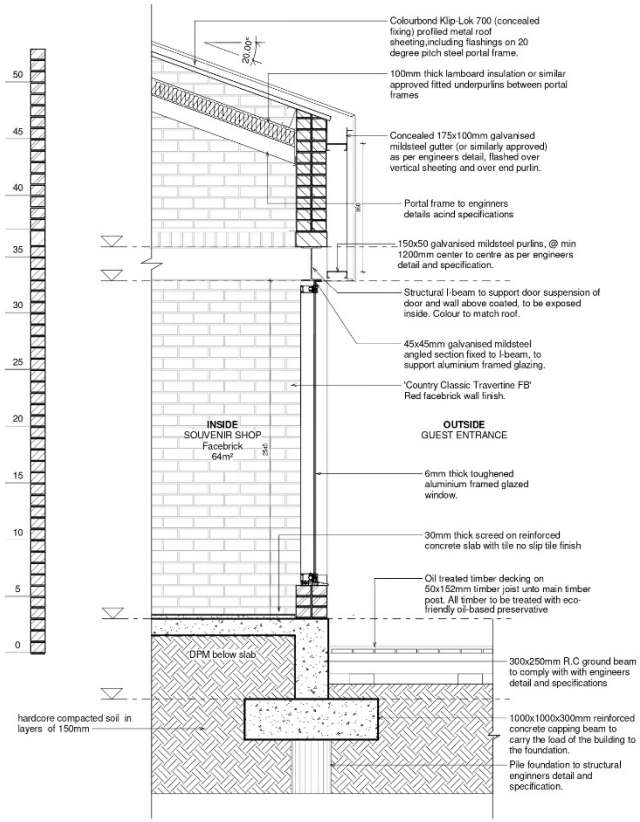
Admin Building_Section AA

SCALE 1 : 100



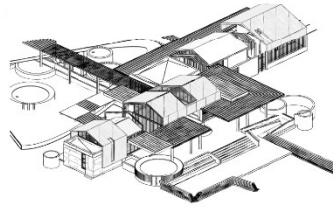
Detailed Section AA

SCALE 1 : 50



Facade Strip Section B

SCALE 1 : 20



Main Building

SCALE

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NORTHERN CAPE PROVINCE

drawing
PAGE 07
GENERAL LAYOUT DRAWINGS
SECTIONS AND ELEVATIONS

project number	drawing number	revision
18095	02-20-002	1
first issue	scale	
08/02/22	As indicated @ A1	

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1.13 CONCLUSION

Throughout the design process, various challenges were raised, especially regarding the placement of the building and its functions in its context.

Essentially, through constant exercises of model building and developmental sketches, the morphology of the design was developed through decision making which stemmed from the above, in order to design a building which is sensible and appropriate for the context, whilst showcasing the theoretical application within it.

1.14 REFLECTION

The past year has been nothing short of immerse learning of a typology and topology that has significantly contributed towards some of the most memorable lived experiences of my home town, Kimberley.

The in-depth study of this subject enabled me to have an insightful understanding of Kamfers Dam and the greater context of Kimberly. Simultaneously, investigating sustainable measures and design interventions that could potentially contribute towards the life of Kamfers dam and its majestic, yet ever so daring birdlife.

The scale of the project translated itself towards a large project type due to the opportunities and functions the proposed design aimed to address. Subsequently, pining down the project program was the most challenging aspect and having to revaluate the project focus and architectural response became of importance exercise towards navigating the success of the project.

The proposal further possess tangible and intangible intricacies relating to the intertwined relations of environments. The sensitivity, educational and ecotourism reliability of the site, directed the explored themes of critical regionalism, ecotourism and the being of place, whist honouring the inhabitants that make the site what it is.

During this time of reflection, I realise that throughout the year I have gained great admiration for the people who positively contribute to the life of Kamfers Dam, the natural wildlife, which I previously thought I was knowledgeable about until embarking upon this study.

I am proud of what I have achieved thus far, not only during this year but also thought-out my past studies and experience. With this project, I believe that I have acquired the necessary architectural tools, the understanding of supporting design and construction works with sound theoretical stance which I had not previously possessed. Although I have reached the conclusion of this study, conversations and acts towards seeing Kamfers Dam pink again will continue to be had.

I am thoroughly grateful for my supervisors, community and every person that took time out to assistance, encourage and supported me during my study. I am immensely grateful and excited for what the future holds.

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