Indigenous biomedicine research centre

Adaptable Architecture design for a traditional healing research centre in Emshinini township Mpumalanga.

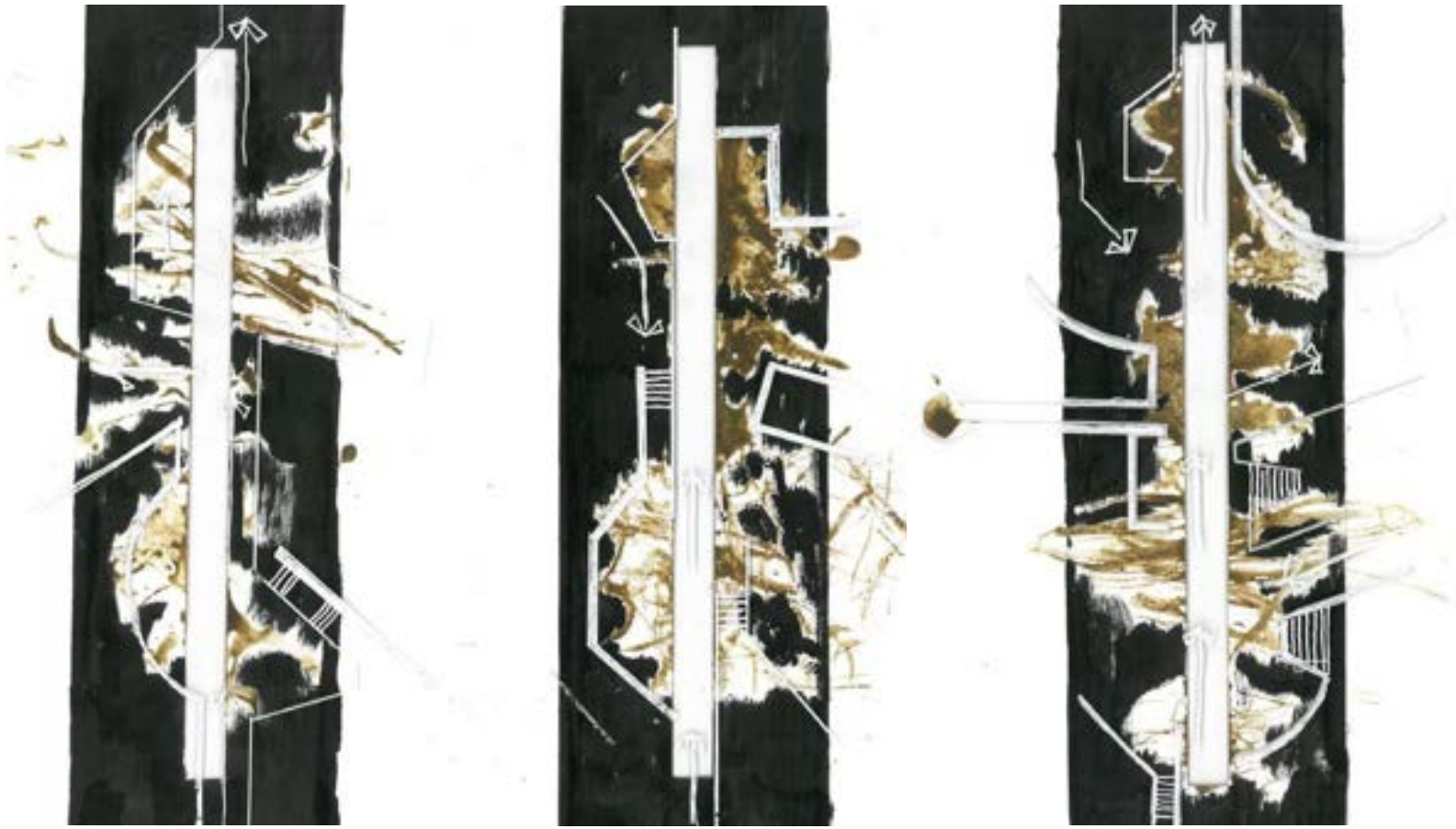

Figure.1: Spatial explorations (author,2023)

Shaun Maimela 2018338406

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DECLARATION

This dissertation is submitted in partial fulfillment of the requirements for the degree M. Arch (Prof). All the work contained in this document is my own except stated otherwise acknowledged.

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Date of submission:
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Declaration of original authorship:
The work contained in this dissertation has not been previously submitted to meet requirements for an award at this or any higher 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

I want to thank my parents, Lindiwe and Simon Maimela, for allowing me to pursue education to the master's degree level and for their endless support during this challenging year in studying towards my M. Arch degree. It has been tough. How can I forget my external family members for believing in me and supporting me, too? And lastly, my friends who have been with me every step of the way, offering endless support.

Abstract

Traditional medicine is a holistic type of healing, loosely called folk medicine; ethno-medicine or native healing is the oldest form. This dissertation proposes an Indigenous Biomedicine Research Centre that will break the current negative perceptions of traditional medicine. I will address the following Research question: How can a contemporary architectural approach be used to improve heterotopic spaces that currently facilitate the practice of traditional medicine rituals intending to work with the conventions of Western healthcare systems? The current spaces used for healing rituals need to be more dignified and promote indigenous healthcare systems. I aim to propose an indigenous healthcare facility that follows cultural rules, uses symbolic rituals, and offers opportunities for innovation and integration with biomedicine. I will use local precedents and conduct interviews with traditional healers about their vision of a contemporary “indumba” (rondavel)or traditional healthcare facility. This dissertation aims to create dignity and social recognition for traditional medicine in South Africa and Africa at large.
Keywords: Traditional medicine, Heterotopia, healing rituals and cultural rules.

DEFINITIONS

Isangoma	: A spiritual diviner or psychic, also a diagnostician
Inyanga	: A medical practitioner who uses technical skills to make medicine or cure
Umthandazi	: A healer who uses faith or prayer
Biomedicine	: Refers to conventional medicine or the branch of medical science and physical principles and clinical science
Holistic Healing	: Healthcare that focuses on all aspects of well being of body, mind and spirit
Muti	: African Traditional medicine

ABBREVIATIONS USED IN THE STUDY

IKS	: Indigenous Knowledge Systems
IBRC	: Indigenous Biomedicine Research Center
ATM	: African Traditional Medicine

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Chapter

01

AFRICAN TRADITIONAL MEDICINE

1.1 Introduction

ATM is a holistic approach to treatment that has deep roots in African civilization. It involves the use of medicinal plants, spiritual activities, and the expertise of traditional healers. This ancient practice coexists with modern medicine and enhances it by providing fresh perspectives and improvements to healthcare. This chapter explores the significance of traditional African medicine (fig.2), discusses its challenges, and highlights its potential advantages for both patient well-being and the more extensive healthcare system.

Figure.2 : Traditional Medicine (2019, Ernest Ankomah, World Health Organisation)

1.2 What Is African Traditional Medicine?

ATM is a treasured kind of healthcare rooted in the many African civilizations' rich cultural heritage. It embraces a holistic approach to health and sees the connections between spiritual, social, and environmental facets of life and well-being. The utilization of medicinal plants, with different regions offering a vast assortment of herbs possessing powerful healing powers, is central to this ancient technique. Traditional healers play an essential role in diagnosing and treating ailments because they have great respect in their communities. They use prayers, rituals, and the guidance of ancestors or spirits in conjunction with their specific knowledge and abilities to promote healing (Chaitanya, Gebremariam Baye &Saad Ali 2022). The methods of ATM continue to coexist with modern medical procedures and are passed down orally through generations, providing remarkable insights and essential contributions to the larger area of healthcare.

Figure. 3: Traditional medicine (2018,Online)

1.3 Why research African Traditional Medicine?

Indigenous African medical research has much potential for improving several aspects of society. Firstly, it protects the traditional knowledge, practices, and cures that have been handed down through the years, preserving the cultural heritage of many communities(Adu-Gyamfi & Anderson, 2019:76) . Such studies also advance our knowledge of the therapeutic potential of native plants, opening the door to the creation of novel medications and therapies. Particularly in rural and underserved areas where traditional practices are more easily accessible, integrating indigenous medicine with contemporary healthcare might increase treatment options and accessibility to healthcare services.

Additionally, learning about indigenous medicine encourages the proper use of medicinal plants, ensures their protection, and guards against environmental deterioration. Research reveals efficient treatments for health problems that are common in South Africa. Adopting indigenous medicine can help reduce health inequalities by giving particular groups more economically and culturally suitable treatment options. Research also recognizes and validates the work of traditional healers, which encourages them to continue their work and fosters cooperation with contemporary healthcare professionals. Health policies and recommendations can be based on data from research on indigenous medicine, which can help establish criteria for the safe and efficient application of conventional medical procedures.

Furthermore, Investigating indigenous medicine helps to cultivate respect for various healing traditions and intercultural understanding and appreciation. Sharing information and research results on indigenous medicine can also result in international partnerships that are advantageous for global health initiatives. Developing a holistic approach to well-being by fusing conventional and cutting-edge medical procedures is one of the many benefits of studying indigenous African medicine in South Africa. The importance of indigenous knowledge can be appreciated and embraced, and society can develop a more inclusive and all-encompassing healthcare system.

Figure.4 : Traditional Medicine (2019, Ernest Ankomah, World Health Organisation)

ATM is facing several challenges in South Africa and Africa. These issues include marginalization, stigmatization, lack of regulation, and inadequate infrastructure. For instance, it is typically sold in unhygienic places where the vendors sleep, cook, and lack proper sanitation facilities (fig.5-6). In modern metropolitan South Africa, ATM is often viewed as unreliable and unsafe. Additionally, the conventional healing industry has received relatively little attention over time, which may contribute to a decline in civic society's trust, belief, and confidence

As a result, the previously described characteristics significantly impact how society makes decisions about health-seeking behaviour, especially among the educated elite, young people, and urbanites. The main issue this research will focus on is the ATM healing sector's underdevelopment and lack of prosperity. Like many indigenous systems, traditional healing has suffered from historical oppression and cultural invasion by colonialism, urbanization, and globalization; this subsequently led to a cyclical tendency in which people move to cities for better opportunities and integrate into a multicultural community.

Figure.5: Our muti heals everything (2018, Mbali Dlungwana)

Figure. 6: Mona Market in KwaZulu-Natal (2020,Gary Stafford)

The potential of ATM remains underutilized due to several reasons, such as its association with informal and dodgy selling structures (fig.7-8), attracting criminals and fraudsters looking to exploit unsuspecting customers. The absence of registration for healthcare practitioners in this field further hinders public trust and awareness. Additionally, the lack of speciality stores for traditional medicine creates confusion for potential buyers, and the unpleasant odour of certain herbal products can deter individuals from exploring these remedies. Moreover, the careless packaging of traditional medicine in dirty bottles and containers suggests negligence and compromises the perception of its quality and effectiveness.

However, ATM has plenty of chances for development and integration with biomedicine, particularly in the context of pandemics and epidemics like HIV/AIDS, the Ebola virus, and COVID-19 (Adu-Gyamfi & Anderson, 2019:83). Therefore, there is a need for designing suitable spaces for traditional medicine practice that respects its cultural diversity and dignity; improve its accessibility and quality; and foster its collaboration with biomedicine. This dissertation proposal aims to create a building form typology that will accommodate traditional practices and convey an indigenous architectural narrative.

Emphasizing hygiene and professionalism within the ATM industry can bridge the gap between traditional and modern healthcare practices. This would enable individuals interested in using traditional medicine to access these remedies confidently and without hesitation. Overall, a more positive and welcoming architectural approach to ATM can propel its acceptance and integration into mainstream healthcare systems, fostering mutual respect and understanding of traditional and modern medical practices.

Figure .7: Faraday Market (author ,2023)

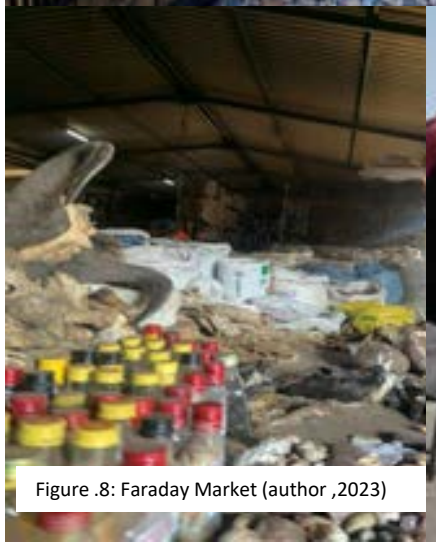


Figure .8: Faraday Market (author ,2023)

Figure .9: Traditional medicine vendors (Sifelani tseko,2021)

The challenge lies in the fact that modern urban planning is based on Western philosophy, which often ignores cultural traditions. As a result, traditional practices often need help to fit into the contemporary built environment of cities. However, traditional healing has played a significant role in the health of many cultures, just like biomedicine and religion. As a result, this idea drives the demand for this study, which aims to create, honour, celebrate, protect, and inform the public about the traditional healing sphere by creating a building typology informed by an active knowledge of the traditional healing field.

Therefore, an opportunity arises for positive change. By reimagining the architecture surrounding traditional medicine, ATM can be presented as more appealing and trustworthy. Thoughtful architectural design can convey a different narrative, shedding the negative stigmas and misconceptions associated with traditional medicine. The industry can regain public confidence and appeal to a broader audience through innovative spaces prioritising hygiene and cleanliness. By establishing registered and well-regulated traditional healthcare practitioners, we can elevate the standards and ensure the safe delivery of traditional healing services.

1.4 Background study of traditional healers

A traditional healer or a traditional medical practitioner is someone whom the community trusts to provide health care using natural and mineral substances and some other methods (Chaitanya, Baye, Ali & Usamo, 2021: 3). These methods are based on the community's social, cultural, and religious backgrounds and their understanding, attitudes and beliefs about physical, mental, and social well-being and the causes of disease and disability.

Traditional medicine practices are divided into three specialities**: diviner-diagnosticians (izangoma), a healer that uses faith or prayer (umthandazi) and traditional doctors or herbalists (izinyanga**). (Traditional doctors). The traditional healer offers medical services following their society's prevalent cultural and religious ideas, knowledge, and attitudes. The belief that illness has both natural and supernatural causes necessitates its treatment through both physical and spiritual means, including divination, incantations, animal sacrifice, exorcism, and the use of herbs and other natural remedies(Chaitanya, Baye, Ali & Usamo, 2021: 2). Traditional medicine's mainstay is herbal therapy. However, it may also use minerals and animal parts.

1.4.1 Diviners *(Sangoma)*

Diviners are the most essential go-betweens between humans and the supernatural. They cannot choose to become diviners by themselves, but the ancestors choose them, and they see themselves as servants of the ancestors. Diviners focus on finding out the unexplainable (fig.10). They examine the reasons for specific events and tell the messages of the ancestors. They use objects for divination and make sense of the unknown with their unique powers of mediumship. Their main job is to divine, but they often also give the medicine for their identified illness (Pretoruis, 1999: 251).

1.4.2 Herbalists *(Inyanga)*

These practitioners specialize in using herbs and other natural forms of medicine to treat various ailments (fig.11). They are also known as traditional healers or indigenous health practitioners and have knowledge of medicinal plants, alternative therapies, and possibly even animal-derived drug combinations. It is important to note that becoming an inyanga is not a calling from the ancestors. One can opt to apprentice with an inyanga who has experience to become one.

Additionally, Inyanga lacks any divine abilities. Like doctors, they assess a patient's medical history and require the patient to be there to receive treatment, whereas sangomas don't always demand the patient be present. In addition to using indigenous medicine to cure patients, Inyangas may also diagnose and treat patients using fidelity, luck, rituals, and symbolism. Typically, they get their business via other people's recommendations and herbal stores.

Figure.10: Sangoma Gogo Phephisile (2019, Getty images online)

Figure.11 :Muti (2017,urielow online)

1.4.3 Prophets/faith healers *(Umthandazi)*

African prophets or faith healers are revered members of their communities, holding significant spiritual and healing roles. They are thought to have a direct connection to the divine or supernatural realm and often claim to receive visions, messages, or divine insights. Their abilities to provide spiritual guidance, predict the future, and cure various ailments or afflictions make them highly respected and sought after. In addition, they are also individuals believed to possess the power to heal through spiritual means.

They employ various methods, such as prayers, laying of hands, rituals, candlelight, water, and sacred objects, to facilitate healing (Pretoruis, 1999: 251). Faith healing is deeply intertwined with strong spiritual beliefs, and the healing process may involve spiritual cleansing or the expulsion of negative energies. It is not uncommon for patients who a faith healer has healed to become devoted members of the healer's church or spiritual community, for example, the Nazareth Baptist Church of Shembe (fig.12), further strengthening their connection to the healer and their beliefs.

The proposed IBRC will focus on the herbalist type of healing catering for Inyanga (Indigenous doctors or herbalists). The facility will consist of farming traditional medicine herbs and integrating them with biomedicine for future possible cures in the healthcare department.

Figure .12: Paris Worshippers of the Nazareth Baptist Church (AFP,2019 Online)

1.5 Conclusion

The complexities that have hindered the development of ATM in South Africa and across Africa have been addressed in the conclusion of this chapter. Traditional African medicine is a testament to the enduring wisdom of African cultures, offering a holistic approach to health that combines the knowledge of traditional healers, spirituality, and medicinal herbs. This ancient practice deepens our understanding of wellbeing in a world where conventional and modern treatment techniques frequently overlap. It has the potential to promote a more inclusive and comprehensive healthcare system that recognizes the richness of African heritage and enhances the health of individuals and communities by embracing its significance, addressing its issues, and acknowledging its potential contributions.

Figure .13: African Traditional Medicine altered by (author,2023)

Chapter

02

TRADITIONAL MEDICINE PLANTS

2.1 Introduction

This chapter focuses on the harvesting of ATM that will be harvested at the proposed IBRC. The selected African Traditional Medicine plants for cultivation include:

- Artemisa Afra
- Eucomis Autumnalis
- Hypoxis Hemerocallidia
- Siphonchilus.
- Helichryum Odoratissimum
- Eucomis Autumnalis
- Hypoxis Hemerocallidia
- Tulboghia Violacea Harv.
- Burkea Africana hook
- Dondonaea vistcosa
- Zanthoxylum
- Zanthoxylum.

These plants are deeply revered in the realms of TM, with the aim of bridging the gap between ATM and contemporary medicine. This chapter serves as the prologue to the proposed IBRC.

Figure.13: The pink periwinkle is used as a tonic and emetic for the treatment of many health conditions. (2023, Jekesai Njikizana)

Artemisia afra (*Umhlonyane*)	Eucomis autumnalis (*Umthunga*)	Hypoxis hemmerocallidea (*Inongwe*)	Siphonochilus aethiopicus *(Isiphephetho)*
 Figure.14:https://sourceofhealth.co.za/plants/artemisia-afra/	 Figure.15: https://wildflowernursery.co.za	 Figure.16:https://pza.sanbi.org/hypoxis-hemerocallidea	 Figure.17:https://www.inaturalist.org
Description *Umhlonyane* is a fragrant perennial shrub with multiple stems that can grow up to 2 meters tall. It has feathery, grey-green leaves, and creamy-yellow flowers that are 3 to 4 mm in diameter. The stems are initially thick and woody at the base, and gradually become softer and thinner as they ascend.	**Description** *Umthunga* is a bulb that grows in summer and loses its leaves in autumn. It can grow as tall as 50 to 60 cm and has a diameter of 8 to 10 cm. It is characterized by its broad, wavy, soft-textured strap-shaped leaves that are 12 to 35 cm long and 60 to 75 cm wide. Its yellow-green blooms grow up to 60 cm tall.	**Description** *Inongwe* is a geophytic perennial herb that makes a tough and very appealing garden plant. It can grow up to 500 mm tall and has an unbranched stem with a corm, which is a type of subterranean rootstock. The deciduous leaves can measure up to 30 cm in length and 3 cm in width. The plant bears yellow flowers that have a star shape.	**Description** *Isiphephetho* is a perennial herbaceous plant that grows on the forest floor. It is characterized by pink, purple, and white blooms with a broad funnel shape. The plant has heart-shaped, light green leaves that are located at the tip of stem-like leaf bases. The stems can grow as tall as 2 meters. Additionally, it has pale and thick roots.
Medical use: Coughs, colds, fever Asthma, Pneumonia, Gastritis, indigestion.	**Medical use:** Back-ache, Stomachache, Colic Fever, Flatulence, Syphilis, Urinary Complications.	**Medical use:** Benigin Prostate Hypertrophy, Depression Testicular tumours, bladder disorder, Urinary tract infections, heart weakness.	**Medical use:** Malaria, Asthma, colds, Appetite suppressant.

Helichrysum odoratissimum (*Imphepho*)	Sutherlandia frutescens: (*Unwele*)	*Moringa oleifera (Mozinga)*	Tulbaghia violacea Harv. (*Isihaqa*)
 Figure.17:https://silverhillseeds.co.za	 Figure.18: https://pza.sanbi.org/lessertia-frutescens	 Figure.19: https://livingseeds.co.za/moringa-tree	 Figure.20:https://pza.sanbi.org/tulbaghia-violacea
Description *Imphepho* is a perennial herb or shrublet that has a strong scent. It grows up to a maximum height of 25 cm and has oval-shaped leaves that are silver in colour and covered in aromatic hairs. The flowers are bright yellow, medium in size (20 to 30 mm in diameter), and almost sessile.	**Description** *Unwele* is a perennial shrub up to 3m tall, has a medicinal stem, pinnate leaves, and orange-red flowers up to 3cm long.	**Description** *Mozinga* are trees with a tuberous taproot that are fast-growing; they can grow up to 5 to 12 meters tall. The tree has a broad umbrella-shaped crown that is attached to a straight trunk, which is 10 to 30 cm thick with pale bark. The leaves are feathery and range in colour from light to dark green.	**Description** Wild garlic is a fast-growing, perennial plant that typically grows up to half a meter in height. It has large, tuberous roots and long, narrow, strap-shaped grey-green leaves. The flower stem is tall and can be white, purple/pink, or orange-brown in colour. The tubular blossoms have a pinkish-mauve hue.
Medical use: Headaches, Colds, Coughs, Infections, Fever, Menstrual pains.	**Medical use:** Diabetes, Peptic ulcer, Chronic bronchitis, heart failure, Rheumatism Dysentery, Cancer, Colds and flue, Indigestion Gastritis, Peptic.	**Medical use:** Fungal skin complications, Headaches, Insect bites, Pains, Malnutrition.	**Medical use:** Oesophagus cancer, Tuberculosis, Colds.

Burkea africana Hook (*Monatlo*)	Zanthoxylum capense (*Umnungamabele*)	Dodonaea viscosa (*Mofentshe*)	Protea caffra (isiqalaba)
			
Figure.18: https://pza.sanbi.org/burkea-africana	Figure.19: http://pza.sanbi.org/zanthoxylum-capense	Figure.20:https://pza.sanbi.org/dodonaea-viscosalia	Figure.20:https://pza.sanbi.org/protea-caffra
Description *Monatlo* is a medium-sized, spreading, deciduous tree that can grow up to 8 meters tall. It has a flat crown. The leaves are complex and pinnate. They can be either glabrescent or silvery-pubescent. Each leaf has 2-4 pairs of pinnae and 5-18 leaflets per pinna. The leaves are 100-350 mm long. The flowers are creamy white and fragrant. They are pendulous racemes that can grow up to 300 mm in length.	**Description** *Umnungamabele* typically grows as a 5-meter-tall, many-branched tree, but under ideal circumstances, it can grow as high as 15 meters. Young branches have smooth bark with straight, dark brown thorns, while older branches and stems have light to dark grey bark with straight spines on a few dispersed cone-shaped knobs.	**Description** Dodonaea viscosa var. angustifolia is a small, evergreen tree or shrub that can grow up to 5 meters. It has beautifully fissured, light gray bark and drooping leaves that are glossy light green on top and lighter green underneath.	**Description** Protea caffra is a common plant found in the natural sections of botanical gardens. It grows as a small tree or shrub with a rounded crown. The grey-green leaves have elongated, almost parallel sides and can grow up to 250mm in length. They are leathery to the touch.
Medical use: Gonorrhoea, STIs	**Medical use:** Flatulent colic, Tooth ache, Fever Epilepsy	**Medical use:** Measles, Sore throat, fever, colds, Influenza, Skin Rashes, Haemorrohoids Tuberculosis, HIV/AIDS	**Medical use:** Chlamydia, Diarrhoea

2.2 Process of making traditional medicine

The process of making ATM, Indigenous medicinal plants and trees are used by traditional healers to prepare remedies for specific ailments of their patients. Depending on the nature of the disease, various plant parts such as leaves, flowers, stems, roots, and bark are employed. Sometimes, a single species can be used in its entirety from flowers to roots to address different medicinal needs. Traditional healers follow specific preparation methods such as drying, boiling, and crushing to extract the therapeutic properties effectively. They understand the importance of selecting the right plant parts and processing methods to ensure the efficacy of the remedies. Nowadays, an increasing number of individuals are interested in combining traditional medicine with modern healthcare systems.

Some conventional medications are now available in various modern dosage forms, including topical gels, creams, liquid extracts, ointments, capsules, and tablets containing powdered raw ingredients. This makes it easier for patients to access and use traditional treatments. These products are widely accessible and can be found in both conventional pharmacies and herbal stores, making them more accessible to a larger population. The significance of traditional medicine as a supplementary approach to healthcare, which synergizes the expertise of traditional healers with the latest advancements in pharmacology, must be recognized. This integration can offer a broader range of therapy options for individuals seeking both conventional and innovative treatments for their medical conditions, promoting a more comprehensive approach to their overall wellbeing.

Figure .21: chopping ATM (author,2023)

Figure .22: Dry Process of ATM (author,2023)

Figure .23: Dry Mixing ATM (Online,2023)

Figure .24: Dry Mixing ATM (Online,2023)

2.3 Conclusion

To sum up, the decision to cultivate these specific African Traditional Medicine plants at the proposed IBRC is a crucial move in bridging the gap between traditional and contemporary medicine. These plants hold a significant value in the ATM field, and their cultivation at the IBRC signifies a vital effort towards integrating traditional and modern medical practices. This chapter serves as an introduction to this essential endeavor, emphasizing the significance and reverence of these plants in the quest for enhanced healthcare outcomes.

Figure.25 :HERB plantationi (2017,urielow online)

Chapter

03

SPIRIT OF THE SITE

3.1 Introduction

Contextual Analysis is a critical part of the planning process. The conditions of the site will influence the proposed intervention and will have an impact on the site. Site analysis is a significant step that must be conducted before the design and construction process to determine the current challenges related to the site conditions and environmental resources.

This chapter forms the foundation for understanding the site, its users, and the community in guiding the proposed design of the IBRC. The proposed site will be analyzed regarding topology, morphology, and typology in three contextual studies: micro, macro, and meso analyses. Macro Analysis will identify the broader location of the site and the condition of the surrounding Coromandel context. Micro Analysis will give an in-depth study of the site.

3.2 Macro Context

The site is located in Emshinini township, Coromandel, which lies in an area of breathtaking natural beauty and agricultural excellence between Lydenburg and Dullstroom in Mpumalanga, South Africa, under a few hour's drive from Johannesburg. This pristine environment of veld, mountains, and rivers offers prime agriculture, eco-tourism, and other business potential.

The position of South Africa in relation to the African continent

The Province in which the site is situated

The location in which the site is situated un the province

Figure.26-28 location of the site (author,2023)

3.3 Meso context

Coromandel Emshinini Township is in the heart of Mpumalanga and is known for its stunning landscapes of veld, mountains, and rivers. The township has potential for development and opportunities for economic diversification in agriculture, eco-tourism, and other business sectors. The region's fertile land and favourable climate make Coromandel Emshinini township ideal for prime agriculture. The current agricultural practices surrounding the township are Crop cultivation, livestock farming, and potential value-added activities such as craft workshops and boutique stores to promote local products and support township entrepreneurship. The farm's breathtaking natural beauty provides an excellent foundation for eco-tourism initiatives. The study delves into the potential for nature walks, birdwatching, fishing, and wildlife conservation projects. It assesses the feasibility of eco-lodges and other hospitality ventures to attract tourists seeking an authentic and sustainable experience.

Figure. 29 :(Coromandel township google earth edited by (author,2023)

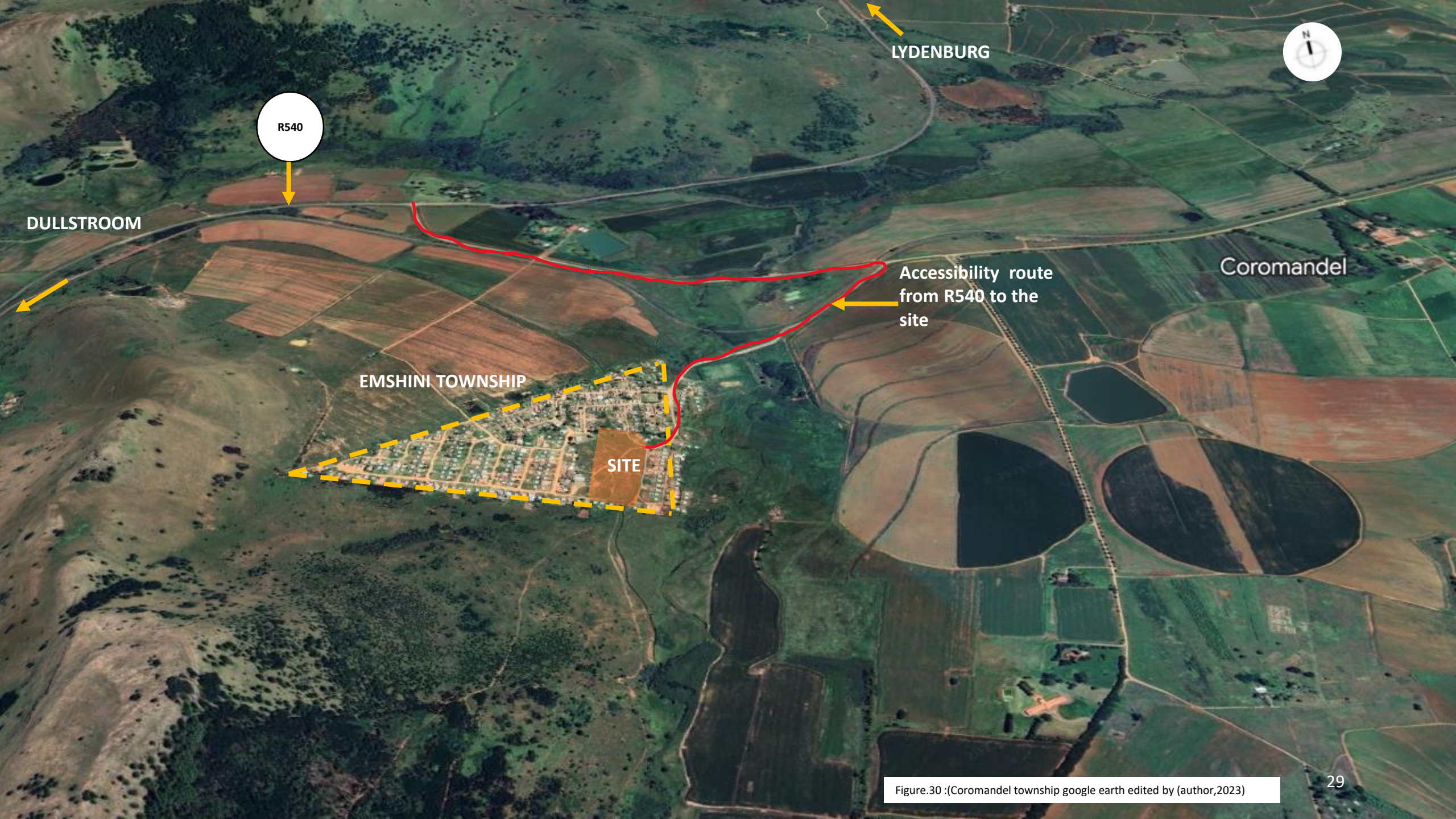


Figure.30 :(Coromandel township google earth edited by (author,2023)

3.4 Context description

Emshini township was founded by Sydney Arnold Press in the 1980s as part of the 5800-hectare estate farm as a village where the farm workers would stay.It consisted of 140 houses and a junior school close to the township. The architects were briefed to follow the principles of European villages(fig32), albeit appropriately adapted to the African landscape, with a town square being the heart of the village. In comparison, the architectural style has little relation to the rustic qualities of the manor house. After Press died in 1996, the farm was bought by the workers under the land claim section, and the township has grown and moved away from the European village architecture typology (Peres, 2013:37). The enlarged village now houses about 1500 people as part of the *Thaba Chweu* municipality.

Figure.31: Emshinini Township (author ,2023)

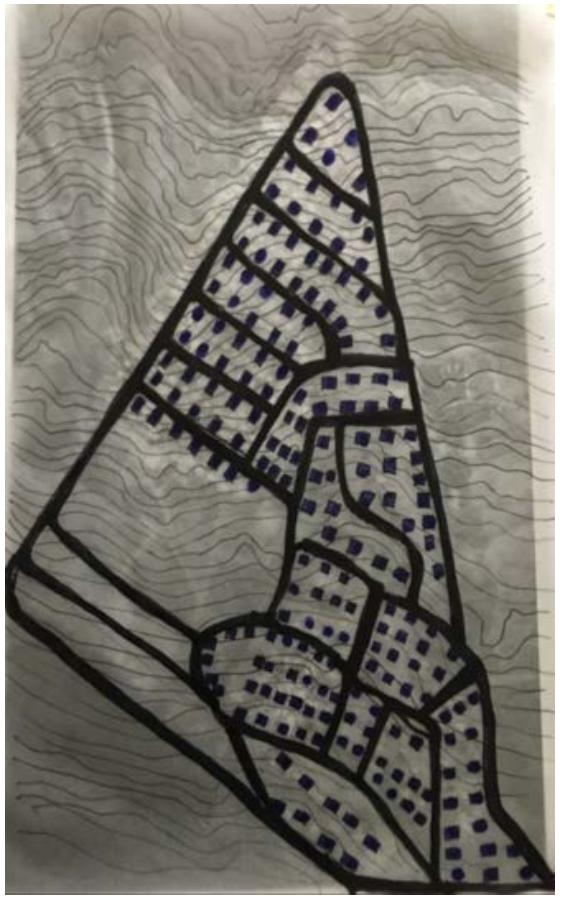
Figure.32:The Coromandel farmworker village (Wood, 1990)

Figure. 33&34: context houses (author,2023)

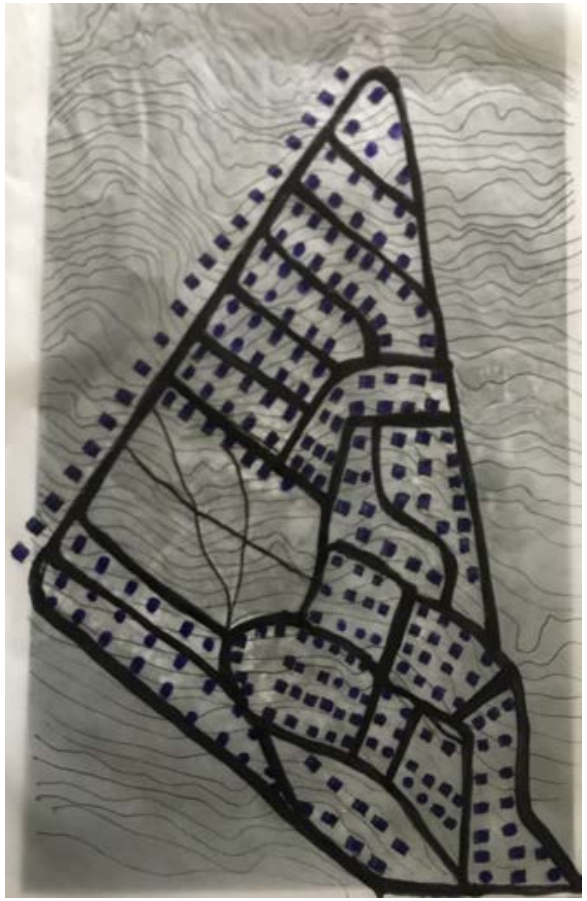
3.4.1 Emshinini Township development

1980-1995

1995-2005



2005-2015



2015-2023

Figure.35: Emshini township development drawings (author,2023)

3.5 Architectural Context

The architectural style prevalent in Coromandel Emshinin Township is predominantly characterized by the use of natural materials, including rock, pebbles, cross-cut timber, clay bricks, and concrete (fig.35-40). This is due to the region's mountainous terrain, which provides ample rock for excavation and use in building construction and landscaping. As a result, stone has become a popular choice for creating distinctive architectural designs that blend seamlessly with the surrounding landscape.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38


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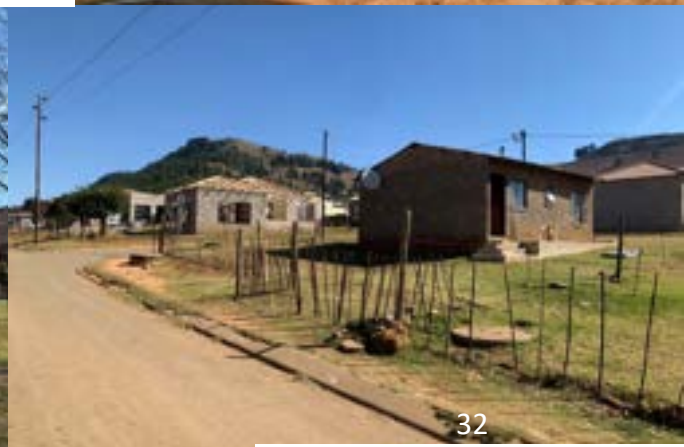

Figure.36-41: Context (Author, 2023)

3.6 Agriculture

Coromandel is an agricultural region that is known for growing peaches, potatoes, sunflowers, peas, corn and blueberries.

Figure.42 :(Coromandel township google earth edited by (author,2023)

Figure.43 :Peaches online (PNG hunter.com)

Figure.44 :Potatoes online (PNG hunter.com)

Figure.45 :Sunflower online (PNG hunter.com)

Figure.46 :peas (PNG hunter.com)

Figure.48 :Blueberries online (PNG hunter.com)

Figure.49 :Corn online (PNG hunter.com)

3.7 Micro Context

Figure.50: Google earth image adapted by (author, 2023)

51

52

Figure .50-53: Site photos (author,2023)

3.7.1 Site analysis

LEGEND

- Proposed site
- Wind Direction
- Site entrance
- Proposed building position
- Sun path

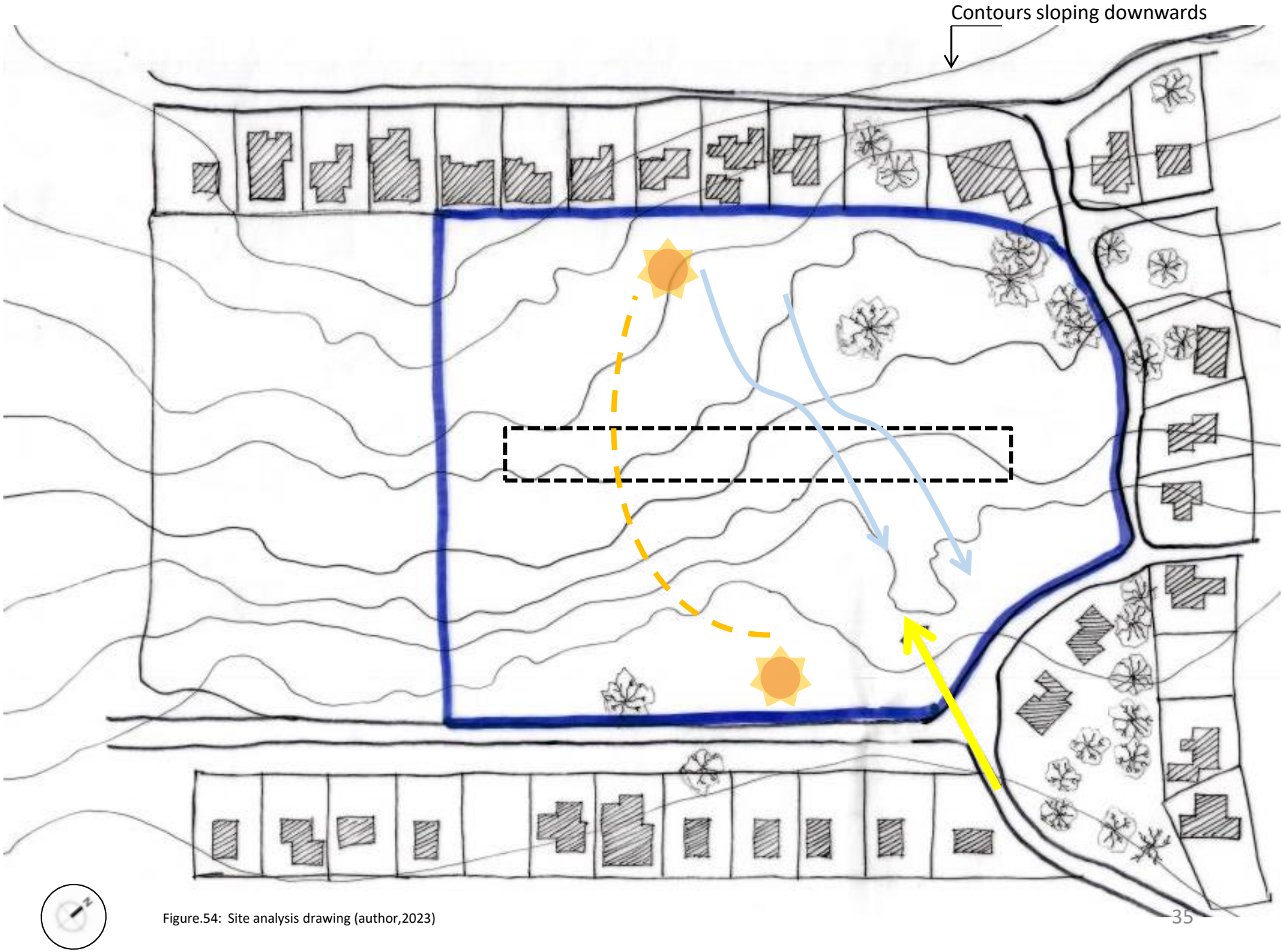

Figure.54: Site analysis drawing (author,2023)

3.8 Site Date

Problem Statement

The site has a voice that often goes unheard and requires interpretation. I intend to use the wind to listen to the voice of the site. The wind can create and destroy; it can be harnessed to pump water or generate electricity but can also damage natural and manmade structures. In this case, the wind will reveal a poetic aspect of the site that is often overlooked. It will be used to uncover the unseen elements of the site.

Poiesisphilia

To better understand and listen to the voice of the site, I will be using a device that utilizes the wind to create paintings (fig.55-56). These devices listen and paint according to the movement of the wind, providing a deeper understanding of the site and its offerings.

A variety of small objects were gathered from around the area and dirt that was found on site was also collected. A piece of paper was then positioned on the device. The small objects were tied to a wire and placed on top of the device, allowing it to swing when the wind blew. These objects were buried under the mud to create a stained effect, so that when the wind blew, they would leave marks or paint on the paper

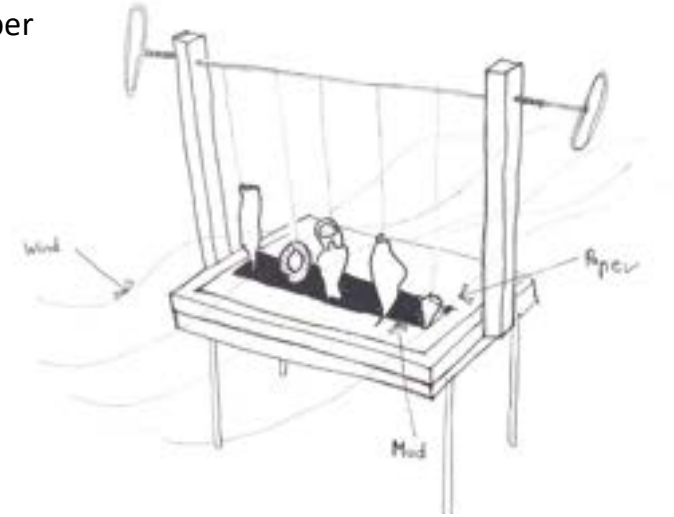

Figure.55: Site date device drawing (author, 2023)

Figure.56: Site Date device(author, 2023)

Insights

Once the device had made markings or painted on the paper, I analyzed the various shapes created by the wind pressure. From an architectural perspective, I then drew potential spatial forms, which will be utilized in developing the spatial planning qualities for the proposed building on site. Figures 59, 62, and 65 showcase some of these forms.

Wind painted

Author painted black

Author drew spatial explorations

57

58

59

60

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62

63

64

65

Figure.57-65 spatial explorations (author,2023)

3.9 Conclusion

In conclusion, it isn't easy to overstate contextual analysis's importance in planning. A thorough examination of the site's conditions and their impact on the proposed intervention is essential to ensure its effectiveness and sustainability. As a complete site analysis reveals the current difficulties resulting from environmental elements and site conditions, it is clear how crucial it is to conduct one before starting the design and construction phases. Understanding the location, its residents, and the surrounding community begins with this chapter. An extensive site investigation is crucial in setting the direction for the envisioned design of the Indigenous biomedicine research centre. Micro, macro, and meso assessments thoroughly examine the proposed site, considering its topology, morphology, and typology. The micro-analysis goes further into the details of the site's characteristics. At the same time, the Macro Analysis reveals the site's location in its larger context and how it relates to the Coromandel region. A strong Contextual Analysis sets the course for a design that fits in with its surroundings and exemplifies the harmony between human endeavour and the natural world.

Figure .67: Site photo (author,2023)

Chapter

04

TOUCHSTONE

4.1 Introduction

The Touchstone portrays the negative influence on the place-making for indigenous medicine. The overview of the existing planning in South Africa proves that indigenous medicine revolves around informal markets. It is mainly sold in untidy, compacted places or along the sidewalks. This urban approach is messy and not welcoming. The Touchstone aims to break down the negative criticism revolving around indigenous medicine.

Part A displays the current situation of indigenous medicine, which is often sold at untidy markets and often associated with negative perceptions such as muti killings and witchcraft.

Part B, the wire form, represents the proposed design of the biomedicine research Centre that aims to eliminate the negative perceptions that are thought about indigenous medicine; it consists of a semi-circle that doesn't proceed to make a complete circle but breaks the form, suggesting change or a new perspective about indigenous medicine which the proposed designs aim to achieve.

Part C, the base of the Touchstone, represents the context of the township, which is triangular, and the proposed development of the indigenous biomedicine research Centre will spill out open job opportunities for the youth.

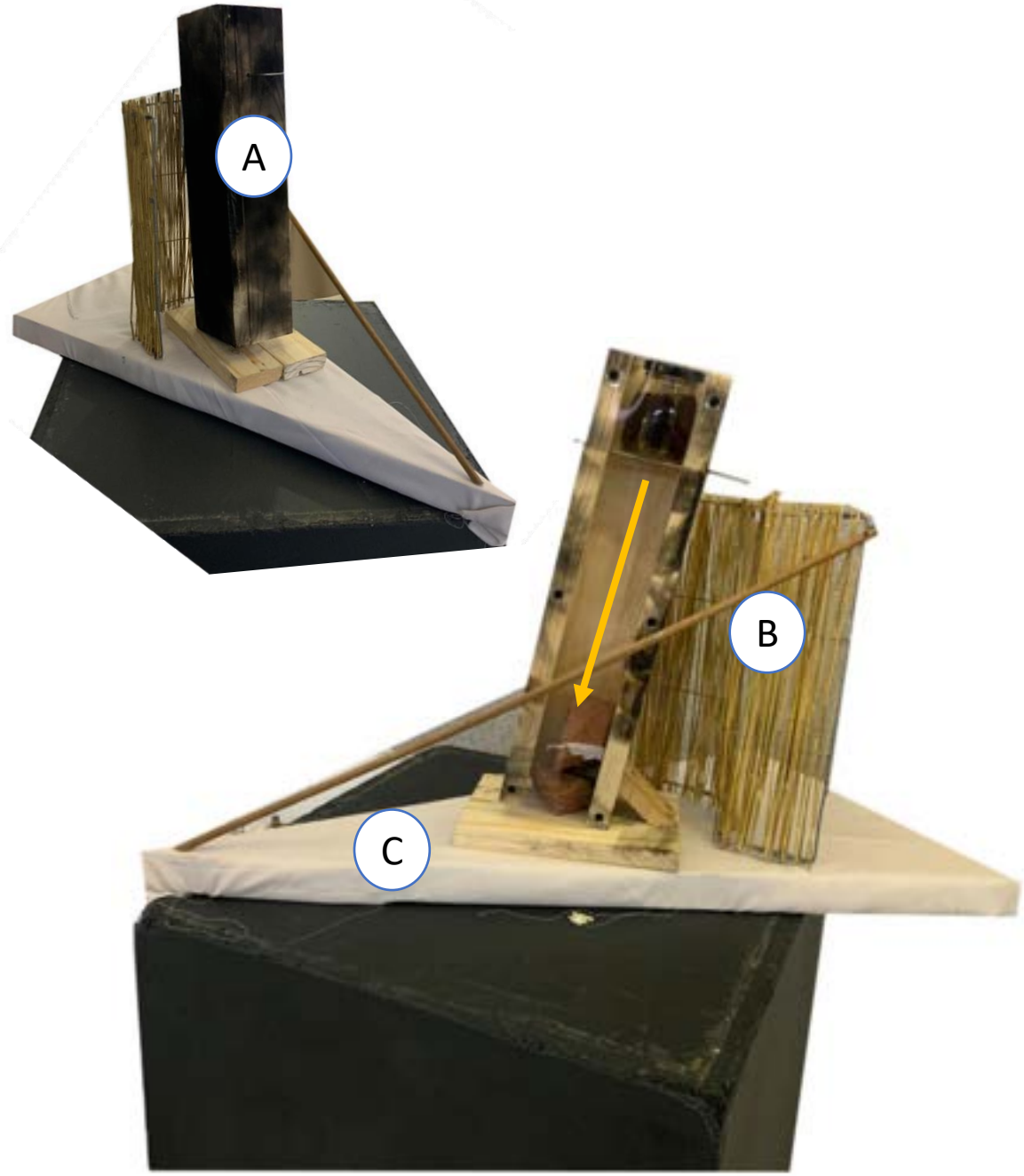


Figure.68: Touchstone Breaking perceptions (author,2023)

4.2 Conclusion

In a nutshell, the Touchstone captures a potent transformation narrative for the place-making of indigenous medicine. The criticism of current procedures in South Africa emphasizes the unorganized and crowded environments where Traditional medicine is frequently traded typified by disarray, such metropolitan settings reflect poorly on this essential cultural element. On the other hand, the Touchstone serves as a symbol of the movement to dispel these adverse misconceptions about Traditional medicine. The Touchstone transcends physicality and captures a profound story of reformation and restoration. Through the architecture of the proposed biomedical research Center, it seeks to alter attitudes and develop a fresh perspective on indigenous medicine.

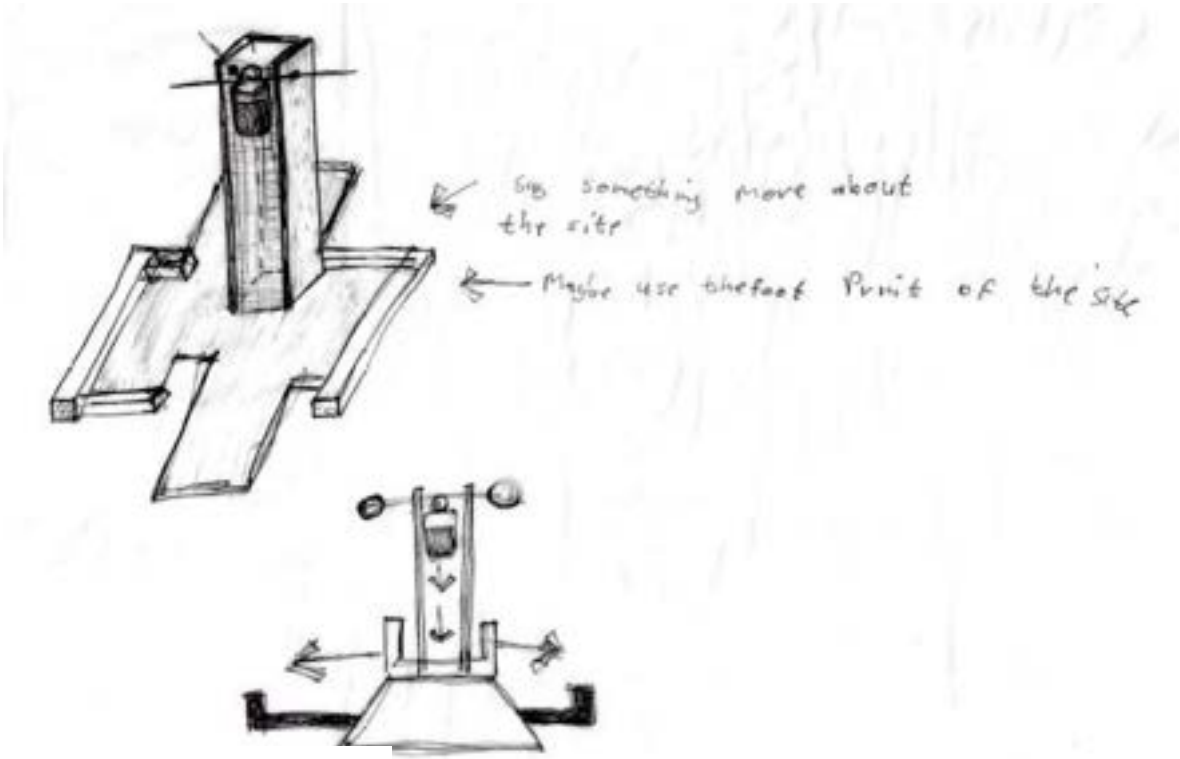


Figure.69: Touchstone drawing (author,2023)

Figure.70: Touchstone (author,2023)

Chapter

05

CONCEPTS

5.1 **Introduction**

The preceding chapter delved into the concepts , unveiling the objectives of the envisioned IBRC. The concepts exemplify the poetic approach the forthcoming centre uses to tackle its mission. Three fundamental concepts have been formulated in conjunction with the proposed IBRC:

I. Natural and Manmade Synergy
II. Shifting Perceptions
III. Site Character

5.2 Natural and man-made

The first concept is about the site's Topology, where the site is rich with desire lines, which breaks away from the structured grid planning of the township. Making use of natural and manmade tools will lead to the planning and allocation of spaces in the proposed IBRC. The concept model displays the experimented allocation of spaces within the layers. The desire lines breaking from the grid planning emphasize change, which is what the proposed project aims to achieve.

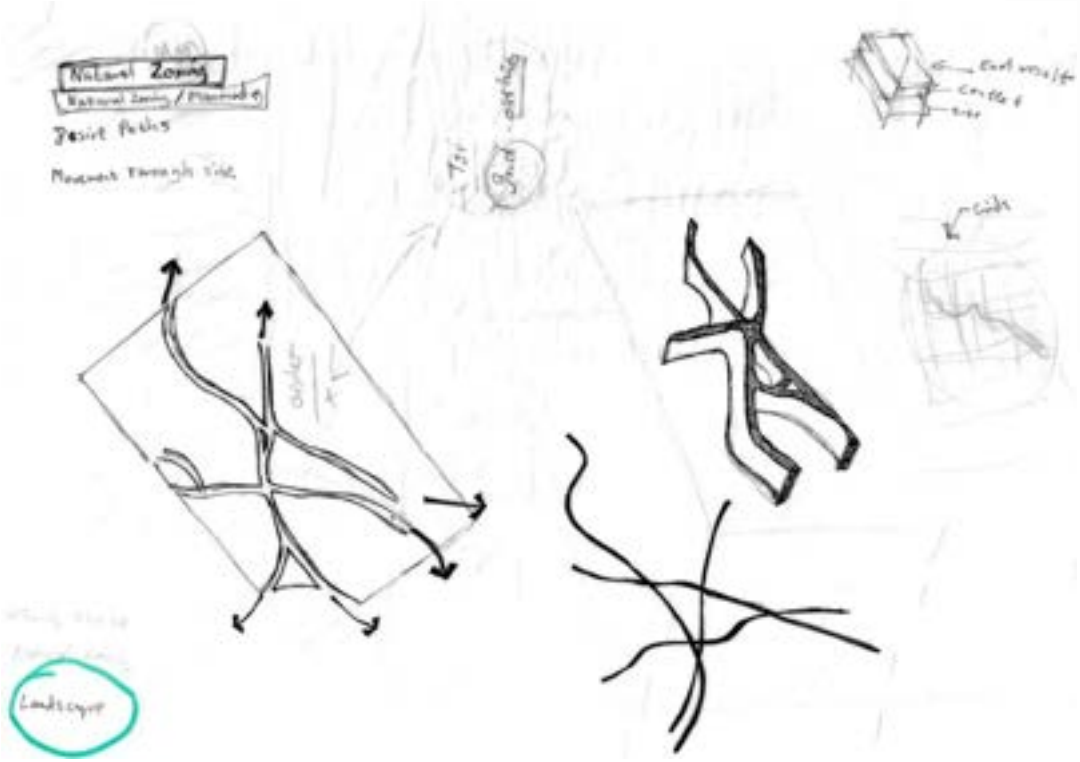
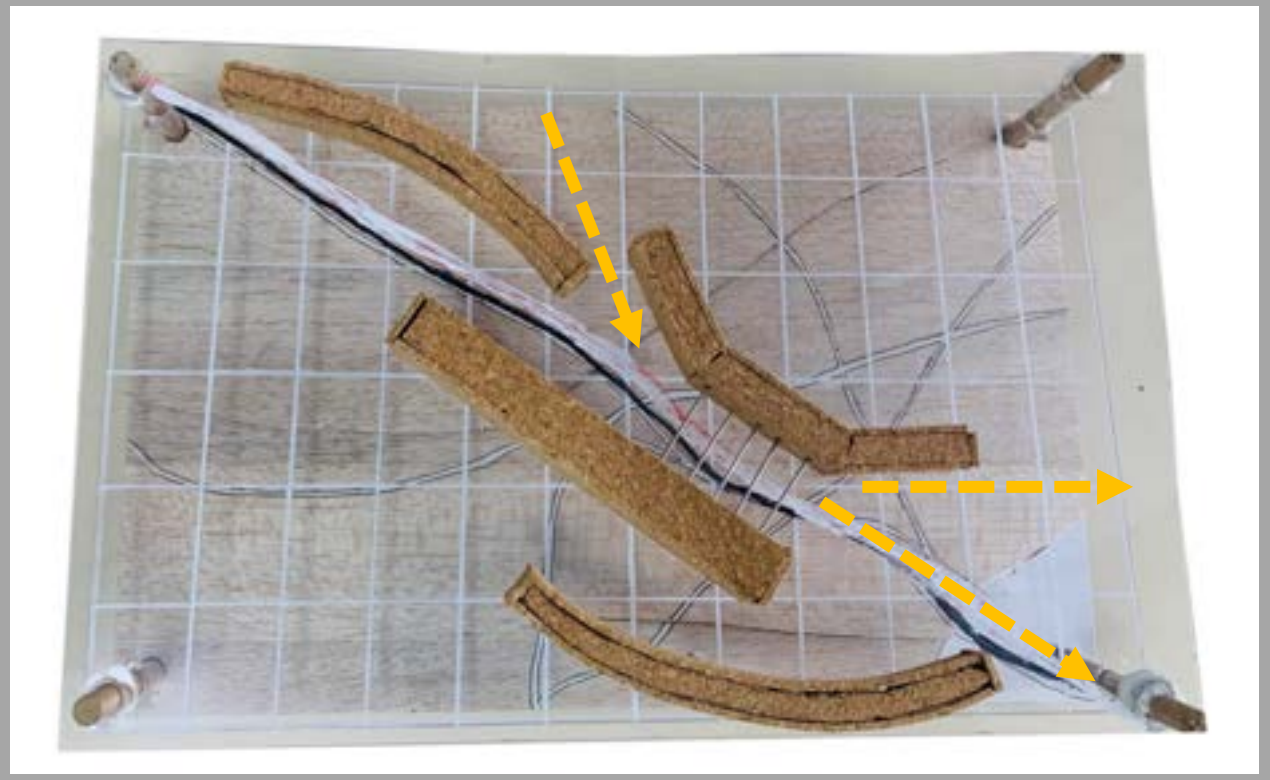


Figure.71: Concept drawing (author,2023)

Figure.72 : Concept (author,2023)

Possible layout of the proposed IBRC



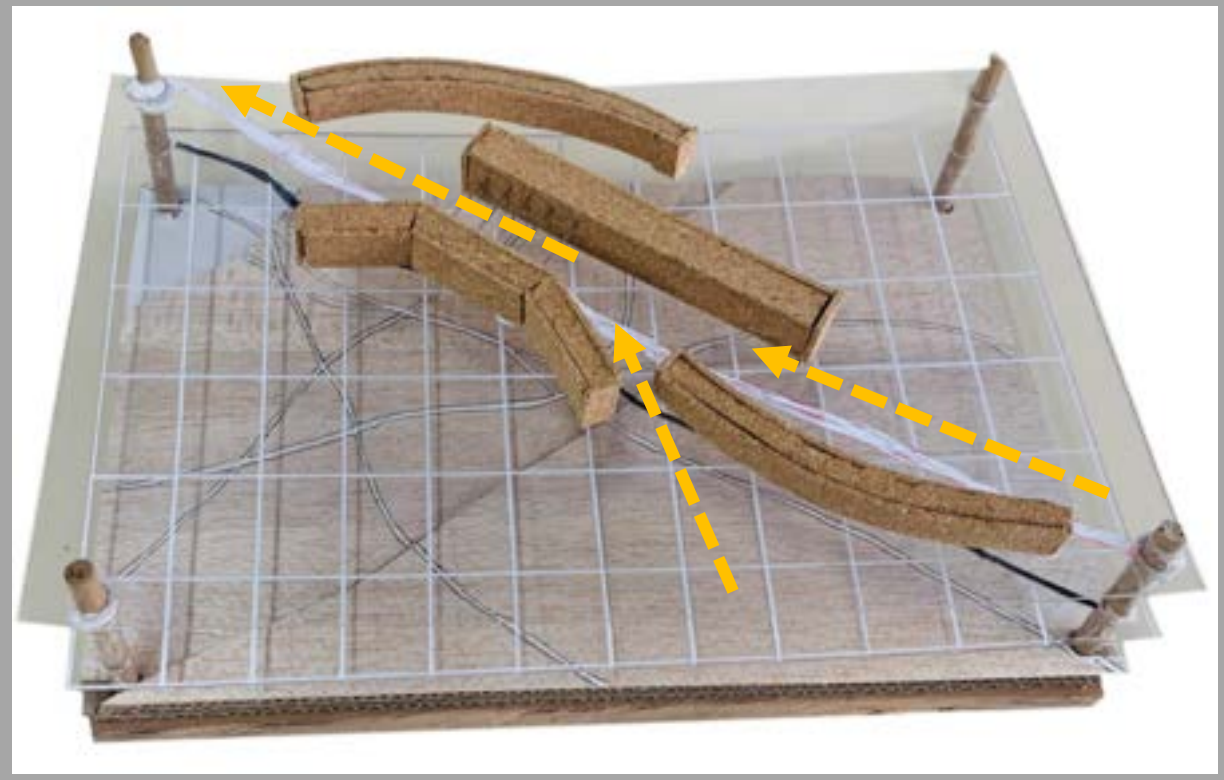


Figure.73&74: Concept path explorations
(Author,2023)

5.2 Changing perceptions

The second concept involves the core idea of the proposed project, which is a IBRC that involves culture. This concept explores the idea that a calabash is often used to mix or drink traditional medicine, often called "muti". The proposed project aims to change perceptions about traditional medicine, which is often linked with bad things such as witchcraft and dark spirits.

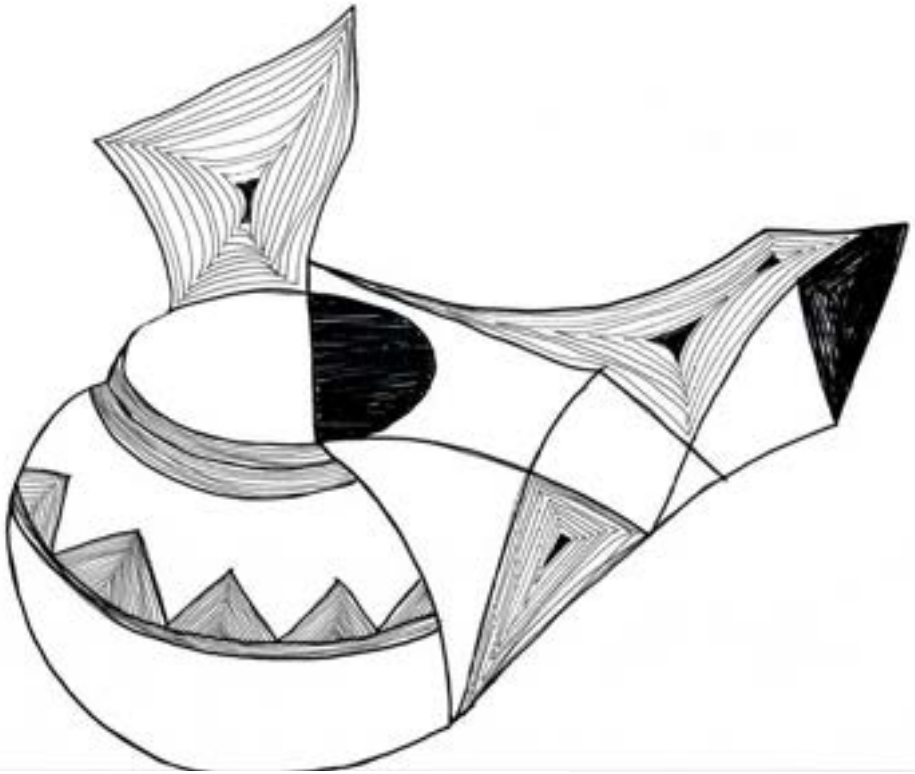


Figure.75: Calabash drawing concept (author,2023)

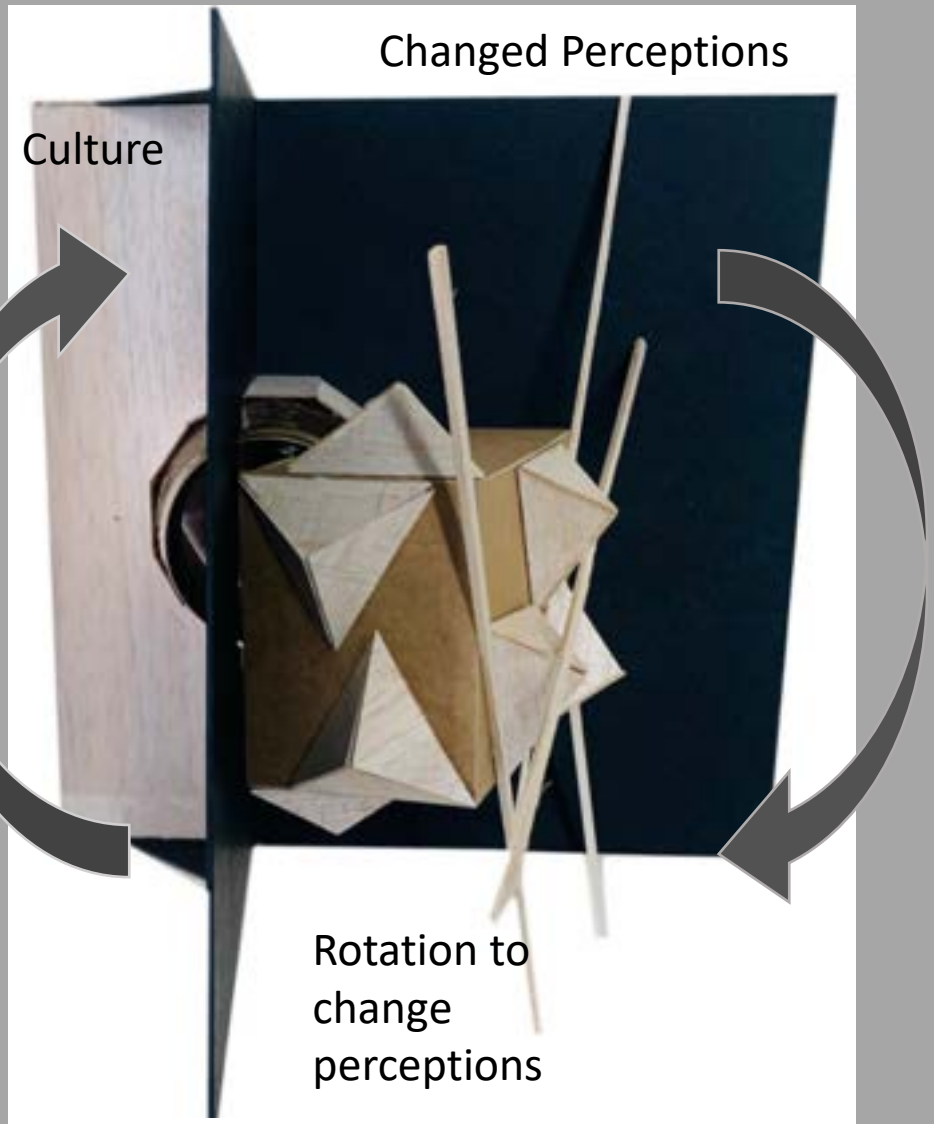


Figure.76: Concept (author,2023)

Calabash

Changed perceptions calabash

Figure.78 & 79: Concept (Author,2023)

5.3 Site Character

The third concept explores the type of architecture that surrounds the site. The township is located in mountainous terrain, and stone is the most commonly used building material. The concept explores the type of construction material, form, and spaces of the IBRC.

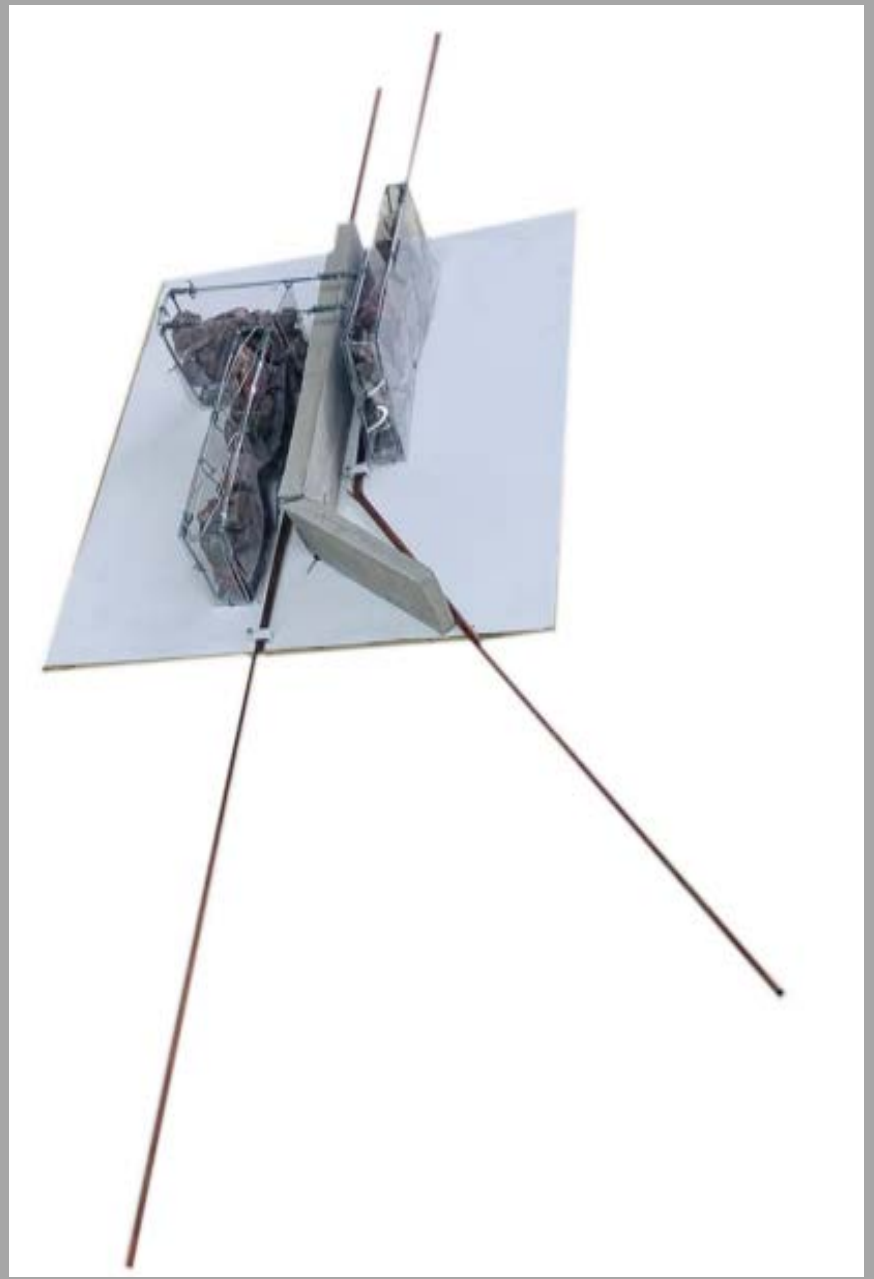


Figure .80: Concept (author,2023)

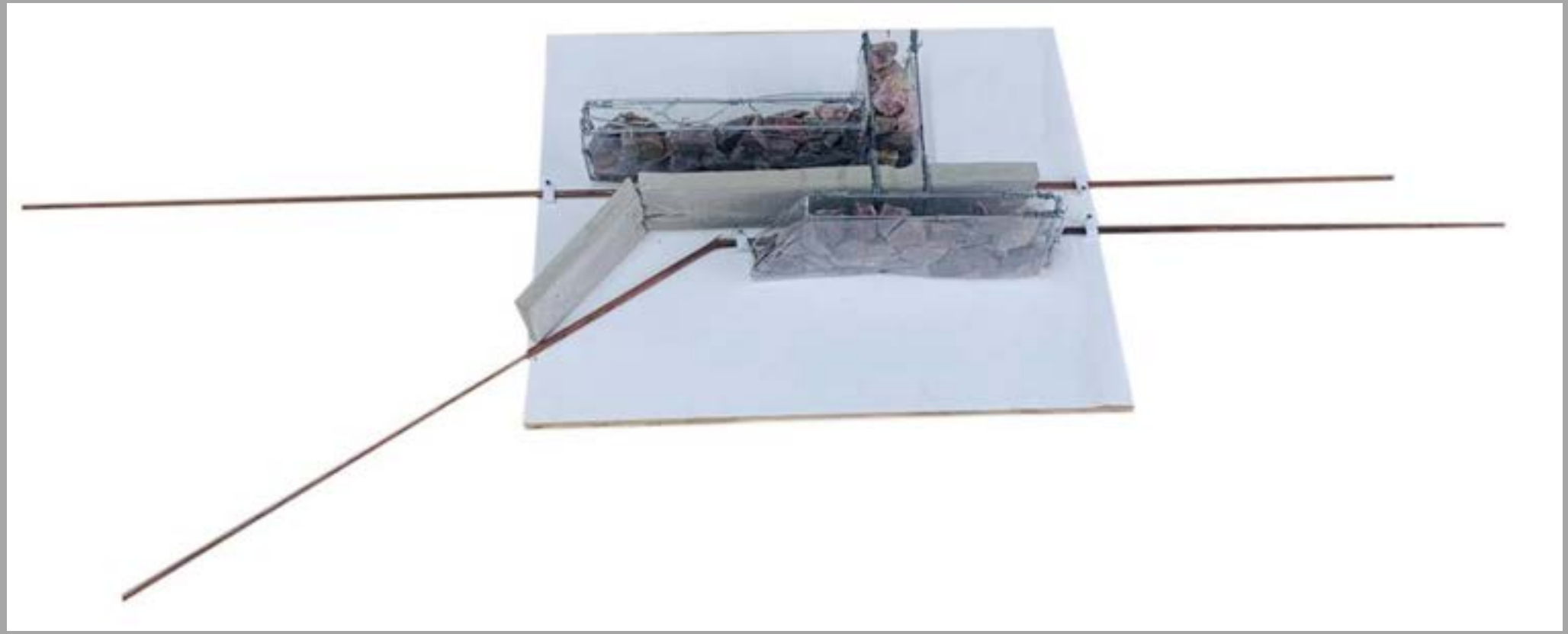


Figure .81: Concept (author,2023)

5.4 Conclusion

In conclusion, the three concepts woven within the proposed biomedicine research centre delve into the site's topology, culture and contextual architecture. The concepts underline the poetic qualities that are envisioned of the proposed IBRC. The first concept concerns the site topology, rich with desire lines. The second concept, intricately intertwined with culture, encapsulates the heart of the proposed endeavour. The third concept, exploring contextual architecture, is a bridge between the centre and its surroundings. The third concept, exploring contextual architecture, is a bridge between the centre and its surroundings. Collectively, these concepts form the bedrock upon which the proposed biomedicine research centre stands. They echo a symphony of innovation, cultural preservation, and transformative integration that speaks to the essence of the proposed Indigenous biomedicine research centre's mission.

Chapter

06

PRECEDENT STUDIES

6.1 Introduction

This chapter explores Precedent studies. The first study is the Faraday market in Johannesburg's heart, a haven of traditional African herbal medicines and spiritual artefacts. This Precedent study delves into the market's storied history and its cultural significance and profound value as a bastion of age-old practices. The second Precedent study is the Coromandel Estate Manor House by architect Marco Zanuso, erected in 1975, which stands as a breathtaking testament to South Africa's cultural tapestry. This precedent's enigmatic aura shrouds the manor house, exploring its resounding significance within the nation's cultural landscape. The precedent Mapungubwe Interpretation Centre rises as a harmonious blend of design and purpose, paying homage to the storied past of the Mapungubwe cultural landscape.

6.2 Faraday Market

The Johannesburg Faraday Muti Market (fig.82) is a unique marketplace that sells traditional African herbal medicines and has, in the past decade, become the biggest and most popularly known traditional medicine marketplace in the southern African region(khumalo, Van Vuuran& Van Wyk, 2021:20).

The precedent study explores the market's historical significance and cultural value, as well as its role in preserving cultural heritage, supporting traditional healing practices, and fostering community cohesion in Johannesburg. The market has been an integral part of the city's cultural fabric for decades and is a significant place for researchers, anthropologists, and tourists interested in exploring traditional medicine practices. Faraday Market is located in the southeastern part of Johannesburg CBD in the Faraday Station Precinct. It is a primary central for traditional healing and a transport hub. The area is home to over 280 muti traders(City of Johannesburg, 2018).

The precinct has become a multinodal transport interchange anchored by Faraday Station, a railway terminal that connects Soweto and other southwestern townships to the city. Bus and taxi services also extend connections into the central and near city zones (City of Johannesburg, 2018). Faraday Muti Market originated in the early 20th century when migrant workers from various African countries settled in Johannesburg. They brought their cultural practices, including traditional healing and herbal medicine. Over time, the market became a hub for practitioners and sellers of muti (traditional medicine) and other spiritual products.

Figure.82: Faraday Market aerial view (Google image adapted by author)

ATM, known as "Muti", can be bought at Faraday Market. However, the market has expanded to include a wide range of traditional African artifacts. Everything African, including Zulu attire, animal skin clothing, walking sticks, and knobkerries, can be found here.

The market serves as more than just a place to buy traditional medicine. The nearby communities define the market to hold deep cultural significance. Many traditional healers and spiritual practitioners see the market as a sacred place because it houses the necessary medicine for their healing rituals and spiritual practices. The market serves as a bridge between the past and present, helping to preserve and pass down cultural knowledge from one generation to the next.

Figure .83 & 84: Faraday market (author,2023)

Figure.85 &86 : Faraday market image (author, 2023)

6.3 Analysing Faraday Market Architectural planning

This section discusses the architecture of the Faraday Multi-Market in Johannesburg and how to identify and analyze any weaknesses that may hinder its functionality, visual appearance, or overall user experience. The market's architecture is rooted in its history, which is marked by a variety of informal structures, makeshift stands, and ancillary additions over time. As the market has grown and developed, problems may arise due to inadequate planning and architectural oversight.

Infrastructure and Amenities.
One of the significant challenges faced by the market is the need for more facilities. Insufficient sanitary facilities and waste management systems may create unhealthy and hazardous environments. Additionally, the lack of facilities may discourage potential customers and tourists from fully experiencing the market's culture.

Adequate Infrastructure:
The Market needs more infrastructure to accommodate ATM merchants. Informal market structures often emerge due to limitations, diminishing the Market's appeal.

Figure .88:Faraday Market (author,2023)

Figure .87 :Faraday Market (author,2023)

Figure .89:Faraday Market (author,2023)

Accessibility for Differently-Abled Individuals:
The market's layout is not accessible for people with disabilities due to uneven walkways, few ramps, and inaccessible stalls, which may prevent a significant portion of the population from taking advantage of the market's offerings.

Figure .90:Faraday Market (author,2023)

Figure .91:Faraday Market (author,2023)

Fire safety Hazards:
It is important to note that structural integrity alone doesn't guarantee fire safety. If a building or warehouse is constructed without proper supervision, it can pose a significant fire hazard. The absence of fire safety measures and emergency exits only compounds these concerns.

The Faraday market is known for its variety of ATMs. However, it could benefit from a more organised design that provides clear pathways for pedestrians and differently-abled persons. Additionally, the market could have different sections for traditional medicine, such as an area for animal medicinal part species, a section for herbal medicine, and a place to find traditional clothing. Such a design would make the market more cohesive and more inviting to visitors.

Figure .92:Faraday Market (author,2023)

Figure .93:Faraday Market (author,2023)

6.4 Coromandel Estate Manor house
Marco Zanuso

The Coromandel Estate Manor House, built in 1975, is hidden among Mpumalanga's grasslands (fig.94 & 95). Its significance in South Africa's cultural environment. Its appeal today comes from its embodiment of a "ruin" that has assimilated and blended with its natural surroundings (Peres, 2013:32). It is a combination of a building, a landscape, and a historical tragedy.

Coromandel Estate Manor House is contextualized, focusing on its origins' response to the landscape. According to (Norberg–Schulz 1979), "Man wants to make the natural structure more precise, that is, he wants to visualize his "understanding" of nature, expressing the existential foothold he has gained". To achieve this, he builds on what he has seen". Marco Zanuso accomplished that with the Architecture of the Coromandel manor house by resembling the house with the surroundings.

Furthermore, Coromandel Estate Manor House resembles African Architecture and critical regionalism in its Use of Natural Materials. Traditional African buildings often use locally sourced materials like mud, thatch, wood, and stone, which are well-suited to the local African environment.

Figure.94: Aerial view (Christoffel Mentz, 2020)

Figure.95: Coromandel Manor estate (author, 2023)

6.4.1 Sustainable Techniques:

Passive design strategies, such as harnessing natural ventilation and shading techniques, have long been common in traditional African architecture, serving as adequate responses to the region's sweltering climate. Marco Zanuso's design approach in the Coromandel Manor House: passive design strategies are evident with thick walls to combat the heat, shaded areas, and thoughtfully planned courtyards(fig.96) that enhance the building's thermal comfort. Incorporating steriotomic and tectonic elements is readily apparent in the house's structural integrity, with the robust walls and the pergola shading details gracing its design(fig.98).

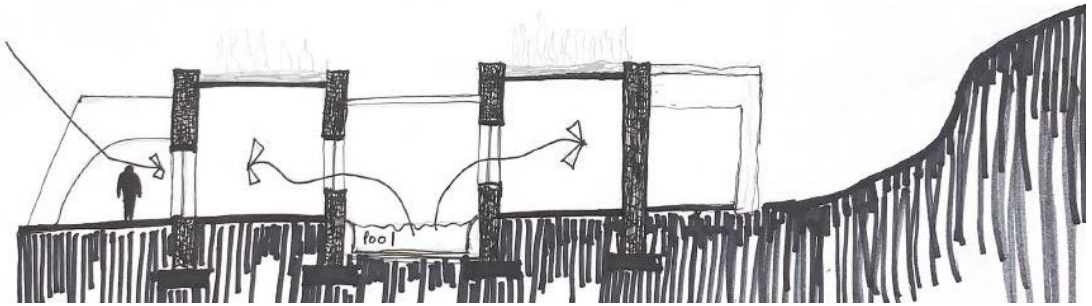


Figure.96: Coromandel estate drawing (author, 2023)

Courtyards

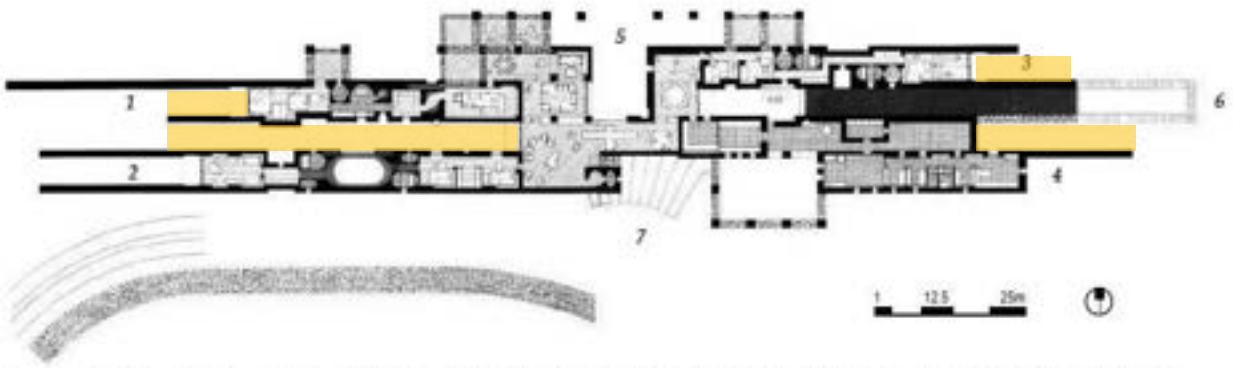


Figure.97: Coromandel Estate floor plan (Diorgio,2011)

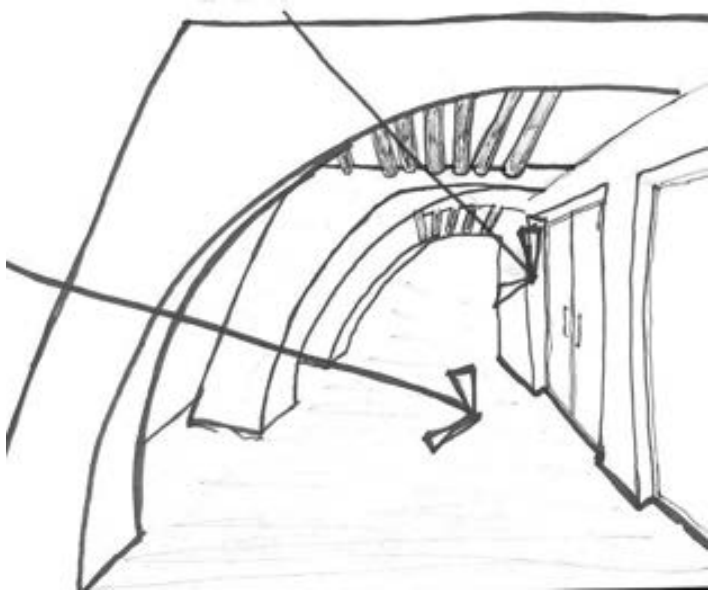


Figure.98: Coromandel estate drawing (author, 2023)

6.5 Mapungubwe Interpretation Centre
Peter Rich Architects

On the border between Zimbabwe and Botswana, near the confluence of the Limpopo and Shashe Rivers, is the Mapungubwe Interpretation Centre by architect Peter Rich. The Interpretation Centre was built with materials sourced from the rocky landscape, which served as both an inspiration for the design and a connection point for the composition of the buildings that make up the complex. Three hollow cairns that visually enclose the building, situated at the base of a mesa near the park's entrance, are reminiscent of the rock way markers common to Southern African societies. The sloping rock-covered vaults disappear into the surrounding scenery from a distance. The vaults soar and appear to billow out of the ground as you approach, revealing their thin, arching edges.

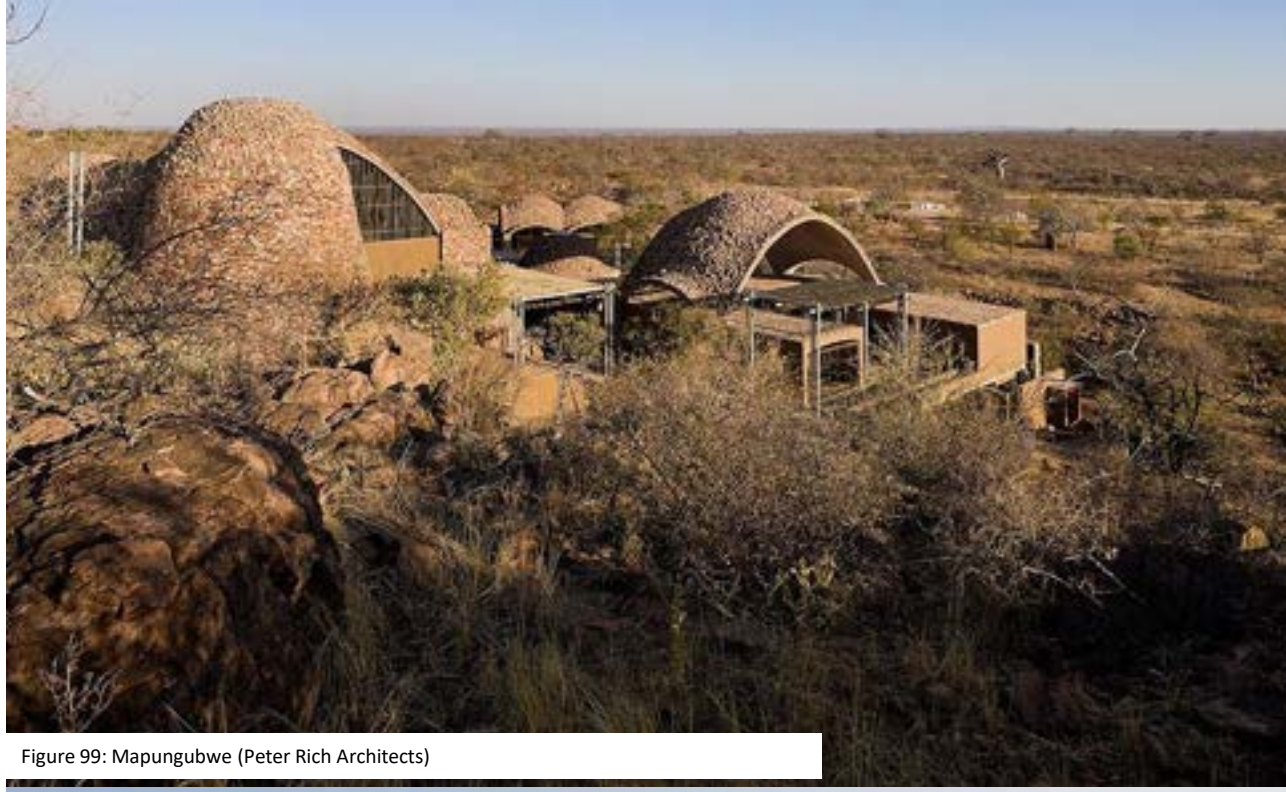


Figure 99: Mapungubwe (Peter Rich Architects)

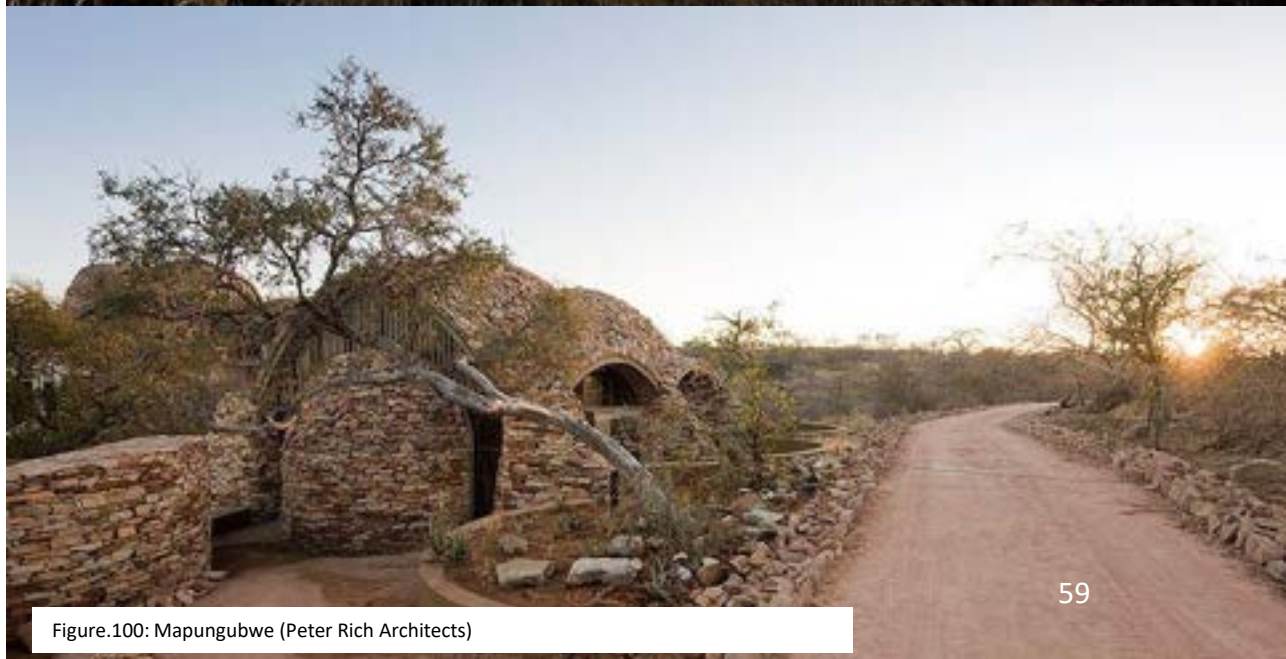


Figure.100: Mapungubwe (Peter Rich Architects)

6.5.1 Design Technique:

The Mapungubwe Interpretation Centre has a remarkable organic design. Peter Rich's design creates spectacular cave-like interior spaces using ancient construction methods for the domes—the passive light gracefully filters in, lending a serene ambience (fig.101). Additionally, the architect's choice of natural materials seamlessly harmonizes with the surrounding environment, enhancing the building's integration with its landscape. Incorporating an organic floor plan inspired by Indigenous African architectural principles (fig.102) further underscores the Center's deep-rooted connection to its cultural and environmental context(fig.103).

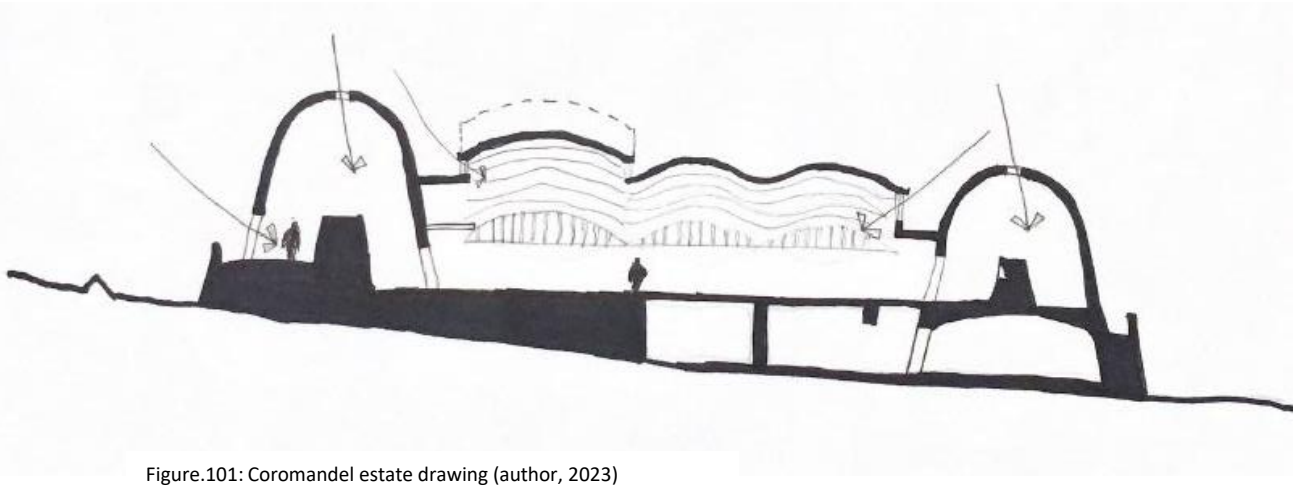


Figure.101: Coromandel estate drawing (author, 2023)

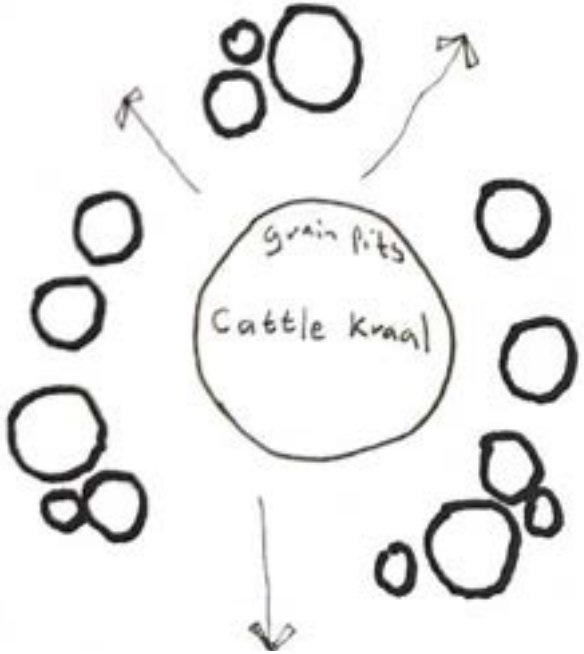


Figure.102: African homestead layout drawing (author, 2023)

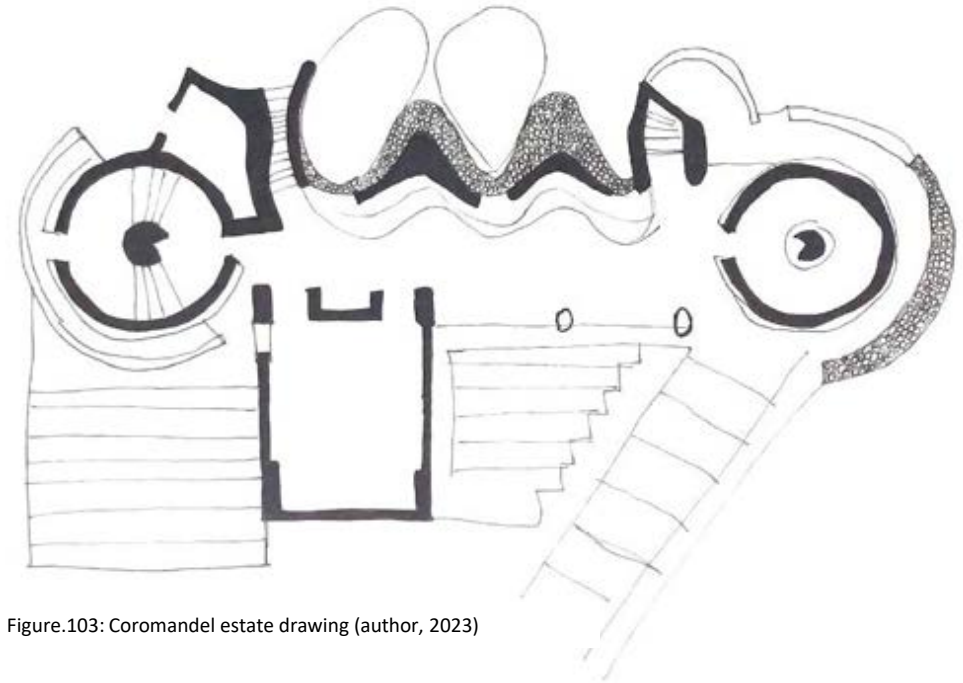


Figure.103: Coromandel estate drawing (author, 2023)

6.6 Conclusion

Faraday Market is a testament to the enduring legacy of traditional practices, preserving the cultural heritage that weaves the city's identity. In addition, the Coromandel House and Mapungubwe Interpretation Centre have unfurled a tapestry of architecture as an art of time travel—a conduit through which cultural heritage, historical resonance, and innovative design intertwine. Each precedent study, a mosaic of stories etched into structures and spaces, speaks to the enduring human quest to encapsulate and express the essence of existence. These architectural precedents remind us that buildings are not mere structures; they are living narratives that connect us to our past, anchor us in the present, and inspire us to shape the future.

Chapter

07

THEORETICAL DISCOURSE

7.1 Introduction

This chapter aims to present the theoretical discourse in the proposed IBRC. To justify how the proposed IBRC should be in terms of morphology and function. A research question has been developed to guide the dissertation. How can a contemporary architectural approach be used to improve heterotopic spaces that currently facilitate the practice of traditional medicine rituals intending to work with the conventions of Western healthcare systems?

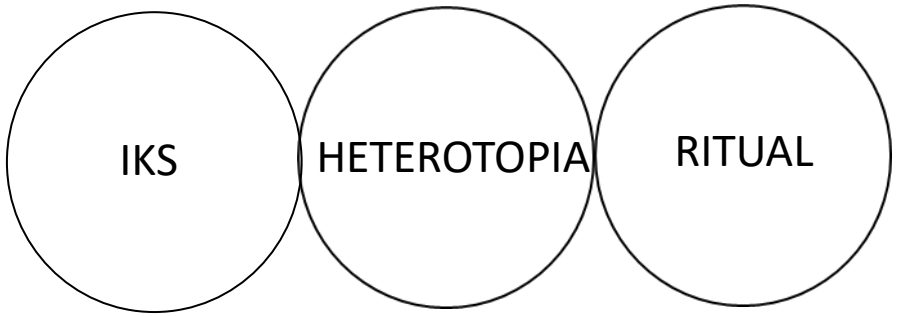


Figure.104: Theory Diagram (author, 2023)

7.2 Indigenous knowledge systems

The understandings, abilities, and philosophies that communities have formed with a long history of interacting with their natural settings are known as indigenous knowledge systems (IKS) (Pandey, Mittal & Sharma, 2017: 2). IKS are varied and context-specific, encompassing elements of culture, language, categorization, resource utilization, social relationships, ritual, and spirituality. IKS can support sustainable development, biodiversity conservation, adaptation to and mitigation of climate change, health care, education, and intellectual property rights. They are also important sources of local wisdom and innovation.

Therefore, IKS must be shared to be preserved, developed, and sustained. It has the capacity to aid in the processes of sustainable development and resource management. It contains reliable knowledge(Pandey, Mittal & Sharma, 2017: 3). IKS has been challenged by colonization, imperialism and modernization, but it also offers opportunities for alternative development paths and futures for Africa. According to (Odora Hoppers 2002), “Majority of the population of Africa, the loss of cultural reference points has culminated in the fundamental breakdown of African societies, with dire consequences for the social and human development as a whole”. The importance of IKS is fundamental in the twenty-first century; because of globalization, migration and colonization, most African people have lost their identity or do not care too much about it.

There is a lot to be learned and preserved with IKS. In Africa, a proverb says, "When an old person dies, the entire library burns" (Maluleka, 2017: 4). This highlights the importance of preserving IKS.Indigenous people depend on their landscapes to maintain their knowledge systems, cultural practices, and spiritual beliefs. Most indigenous people view nature, the forest, or biodiversity not just as a source of food, medicine, shelter, or aesthetic pleasure but also as a foundation of their cultural and spiritual well-being (Pandey, Mittal & Sharma, 2017: 2).

Understanding indigenous communities' perceptions of the value of the land, forest, or plant species is critical in developing and designing landscapes for various purposes. Oral tradition and a wide range of literature sources suggest that native Africans have been performing rituals for multiple purposes at different locations, such as caves, rivers or water features, or around certain trees, regarded sacred sites, for generations. Homesteads also generate areas for spirituality.

7.3 Indigenous African Architecture

The Proposed contextual site of the IBRC is rooted in the neighbouring plots of the ancient Architectural design and construction methods based on the indigenous people of the Bokoni people. The Bokoni people were Sotho-Tswana and Nguni speakers. In most parts of Mpumalanga, along the vast landscape, there are traces of the Bokoni people on the landscape, with circular forms like Great Zimbabwe ruins all over and a few traces of rock foundations (De klerk, 2019).

Figure.105: Locality plan in relation of Bokoni settlements (Maggs, 2008)

Figure.106: Bokoni settlements near Lydenburg. (2014,Julius Pistoruis)

Figure.107: bakoni Ruines (2014,Julius Pistoruis)

According to Pistorius, an Archaeologist and Heritage Consultant “The spatial organisation of Site LIA01 (Fig.108) is a typical Bokoni settlement which reflects both Sotho and Nguni features. Nguni features include a circular ground plan which is composed of two main spatial units, namely a central place with enclosures (kraals for domestic stock) and an outer tier where residences were built (Pistorius, 2014: 5). The Nguni traditional customs, orientated their building structures towards landscapes or features which has socio-cultural significance. This can be seen in the African-built form expression with the concept of gathering in the place-making process. The central place in the Nguni capital usually only holds a single cattle enclosure with a parade ground. Both these spatial components also occur in Sotho Tswana settlements. However, the dwellings for families and family groups in the outer residential areas were clearly defined, whilst several linked cattle enclosures were in the centre of the village.

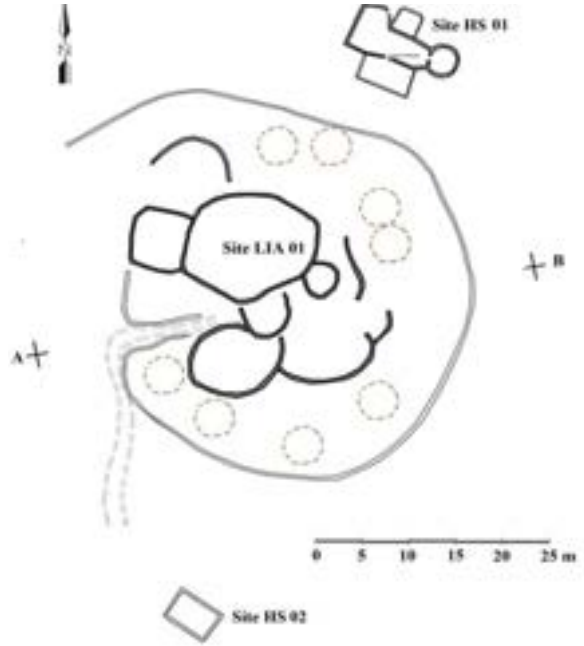


Figure .108: bakoni Ruines (2014, Julius Pistoruis)

Figure.109 : African Nguni settlement village(2017,0nline)

7.4 Indigenous Traditional healer’s Rondavel

The significance of IKS for contemporary members of its communities largely hinges on the harmony between their beliefs and rituals. This alignment is necessary for rituals to fortify and illuminate an individual's sense of identity, social responsibilities, beliefs, interpersonal connections, value systems, and cultural heritage.

African traditional healers' huts exemplify vernacular architecture, mirroring their users' culture, beliefs, and surroundings. These huts have evolved from their original form, consisting of circular spaces constructed from mud and grass. As traditional healers adapted to urban settings, the huts transformed, incorporating materials like corrugated iron, bricks, and concrete, more readily available in such environments. The shift in shape from circular to rectangular or square was influenced by site conditions and the healer's preferences. However, some aspects of the original design endured, such as the use of natural colours, symbols, and patterns representing the spiritual and healing significance of the huts.

When designing for a particular culture, it's important to understand their existing rituals and beliefs. This includes considering how their end users perceive their own rituals. However, it's not necessary to revive outdated architectural traditions and impose them on the current generation. According to (Norberg Schulz, 1979) "To respect the genius loci does not mean to copy old models. It means to determine the identity of the place and to interpret it in every new way." Adapting indigenous knowledge in a thoughtful way can result in modern designs that are still respectful of the site's cultural, climatic, geological, and historical context, as well as its value to the local community.

African huts are characterized by their communalism and complementing social structures in addition to their distinctive architectural style. People congregate in the hut to share, learn, and grow together. The healer can establish a connection with the natural forces that direct their work and with their ancestors there as well. In addition to being a physical building, the hut serves as a symbolic representation of the inhabitants' beliefs and sense of Identity.

African traditional healers' huts have deeply revered nature and its elements throughout history. The huts are integrated into their surroundings due to the materials and building methods emphasising a harmonious relationship with the natural environment.

Figure.110: Ndebele hut (African Architecture styles online)

While maintaining its fundamental cultural and spiritual value, the design of traditional healers' huts in Africa has changed remarkably because of colonization (Figure 111-113), which brought new building materials and architectural styles. Some of the huts' original design elements were kept, but they also included elements of colonial architecture.

Indigenous architectural traditions have demonstrated their flexibility and resiliency through their responses to changing sociocultural and environmental contexts. This highlights the continuing importance of ancient medical practices and their associated architectural structures in modern African society.

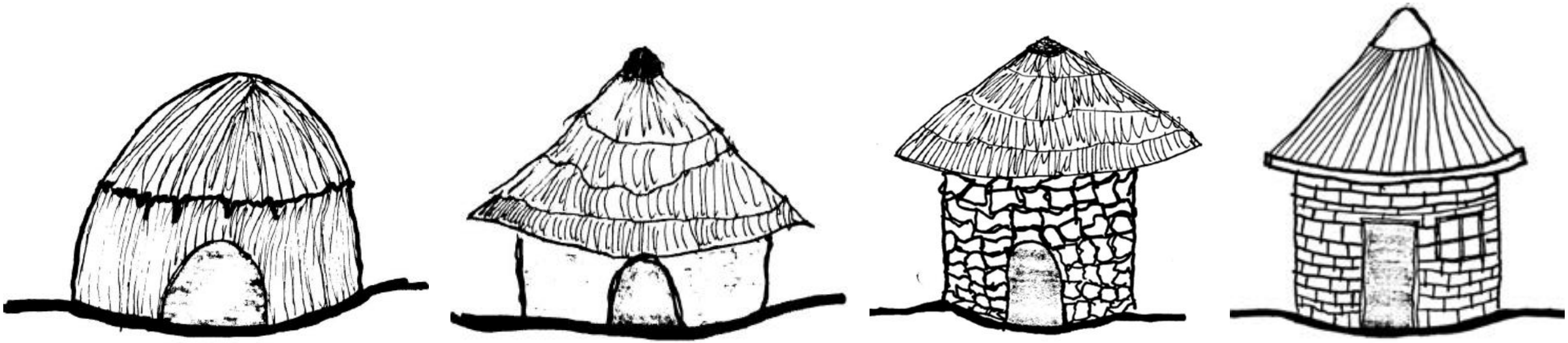


Figure.111-113: Traditional hut evolution (author, 2023)

6.5 Heterotopia

Heterotopia theory examines how architecture relates to alterity or being other or different. It uses the concept of heterotopia, which the French Philosopher Michel Foucault developed to namespaces that deviate from the usual or dominant spaces in a society, such as jails, graveyards, museums, and gardens. Architecture heterotopia theory also explores how heritage and authenticity relate to heterotopic spaces, especially in postmodern architecture and urban design.

The African architecture idea of a traditional healer hut, also known as the ancestral house, can be seen as a heterotopic setting because it is a space that deviates from the normal spaces in society. These spaces are vital for African traditional healing because they should offer a sense of cultural identity, privacy and comfort for the patient and the healers. They also enable the performance of symbolic rituals and natural products that are crucial for the healing process.
Traditional health practices involve symbolic rituals and natural products like local plants. They also respect certain cultural norms about privacy. They need specific spatial features in size, order, light and materials.

Privacy: The consultation should be done in a comfortable space where the client will feel free to share the personal health problems that they are experiencing with the healer. The healer's consultation place should offer privacy from other people.

Scale: The area should be big enough to fit the healer, the patient, and any accompanying family or friends. Additionally, it must permit the performance of rites like dancing, drumming, and singing.

Sequencing: The area should contain distinct zones for various activities, such as consultation, diagnosis, treatment, and recovery, as well as a clear path for access and exit. The progression from illness to wellness should be reflected in the order and the stages of the healing process.

Light: The space should have passive natural light systems that the healer can control according to the mood and purpose of the consultation. The light should also create a sense of warmth and healing power for the patient.

Material: The design of the space for the IBRC should use locally available and culturally appropriate materials such as stone, thatch, mud, or wood. These materials should have symbolic meanings that relate to the healing process and the patient's condition. According to (Pallasma, 2012), architecture is a human-made part of nature that allows us to experience and understand the world. (Schweitzer, 2004) believes that architecture should meet the basic needs for an individual's well-being, such as safety, health, and comfort. Therefore, the design of the healing spaces within the IBRC should mimic nature and indigenous knowledge systems, as they make architecture and nature one component. This will help patients to feel more connected to their environment, and it will enhance their well-being.

Plants: Plants with medicinal or decorative uses for the space should be present. Plants are essential to its success because they are the primary source of natural products utilized in traditional medicine. Anti-inflammatory, antibacterial, antiviral, antifungal, antioxidant, antidiabetic, anticancer, and immunomodulatory capabilities are only a few of the chemical qualities that plants possess that might benefit the human body. Plant symbolic meanings include purification, fertility, luck, strength, and harmony. These meanings are related to the healing process and the patient's condition. Plants come in a variety of forms that can be used, including fresh or dried leaves, roots, bark, flowers, seeds, and fruits.

The concept of architecture heterotopia theory is deep and complex, and it questions how we often think about space and how it affects society. It challenges designers and urbanists to reconsider how they approach diversity and history in their designs.

7.6 Ritual

Ritual refers to a set of formulaic actions and statements performed systematically and distinguished from other daily activities by their formalization and framing. These rituals typically involve a series of choreographed gestures and movements (Kreinth, 2018). Following the meaning of what ritual is and the importance of what ritual is in this section. The question forms how ritual links to architecture in the form of Western health rituals and Indigenous health rituals.

The study of indigenous healthcare systems and rituals in ATM significantly differs from Western healthcare systems' approach to discovering and understanding treatment. ATM encompasses a vast range of practices and beliefs across various cultures and regions; hence, there may be variations in how these systems function. Furthermore, Western healthcare systems are highly diverse, so this comparison should be perceived as a broad overview.

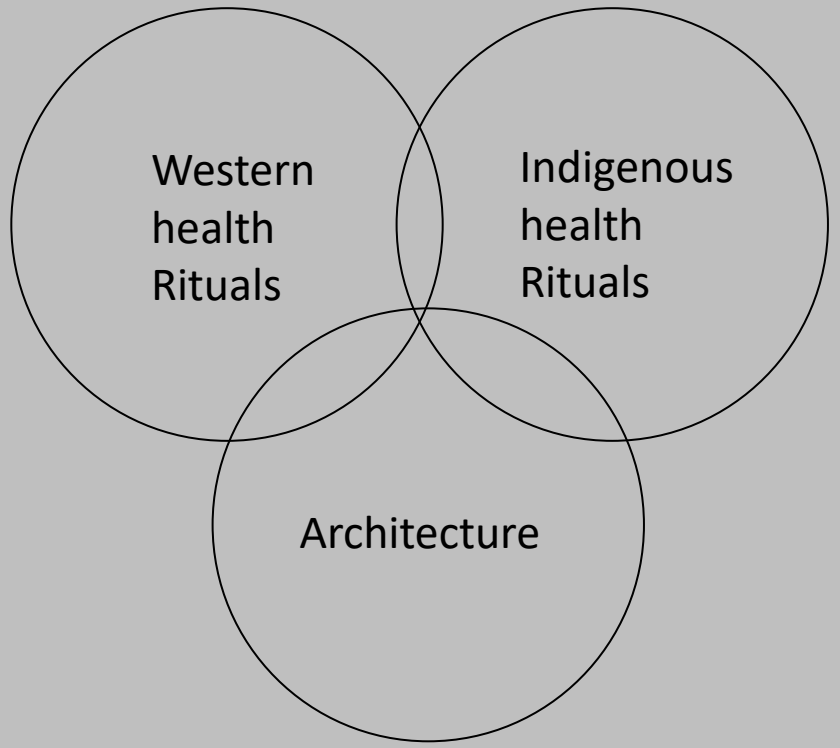


Figure. 115: Ritual diagram (author, 2023)

7.7 Indigenous Healthcare Rituals

ATM systems in Africa have a holistic worldview. They view health and illness as interconnected with life's physical, social, and spiritual aspects (Mokgobi, 2014). Rituals and ceremonies are frequently used to diagnose and treat illnesses, addressing physical symptoms and underlying spiritual or social causes.

How traditional healers Diagnose illness or a disease:

The Sangoma seeks guidance from ancestors or spirits in diagnosing and treating illnesses. The ancestors are the 'living-dead' (Mokgobi, 2014), compassionate spirits who are blood-related to the Sangomas who believe in them. The ancestors continue to show medicinal remedies or diagnoses to the Sangoma to heal the patient.

Secondly, the ritual of traditional medicine is often passed down orally from generation to generation, and specific healers or spiritual leaders may guard it. Learning involves apprenticeships and direct experience to know how to use traditional medicine.

Figure.116: Sangoma (Stephan Seleuke)

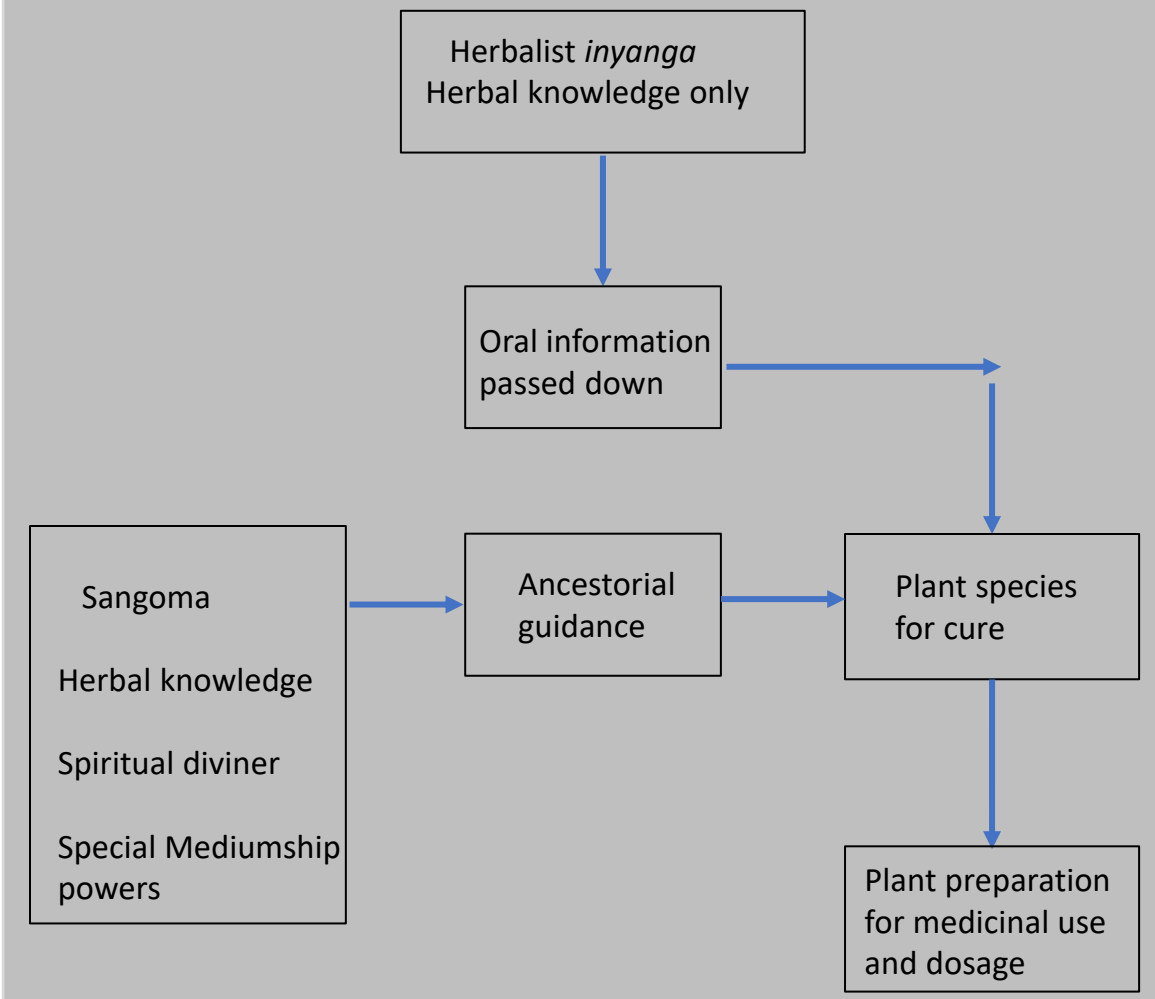


Figure. 117: indigenous healthcare diagram (author, 2023)

7.8 Western Healthcare Rituals

In Western medicine, medicines and treatments undergo rigorous scientific testing, including preclinical studies, clinical trials, and regulatory approval processes to ensure safety and efficacy. Evidence-based medicine forms the foundation of treatment recommendations. “Drug discovery takes place in academic, governmental and industrial laboratories. The development process is largely industry-sponsored and occurs in industrial divisions and clinical research settings, often in academic institutions” (Gelijns, 1990).

There are four approaches to drug discovery: The basic Approach, Screening, Molecular modification and clinical observation (Maxwell, 1984: 380), which can be aligned with the Western Health care rituals for medicinal discovery.

The Basic Approach. The approach is based on conducting fundamental biochemical research studies that can lead to new biomedical hypotheses for specific control medications.

Screening. Scientists are working to discover a new drug that can cure a human ailment using animal models. Screening is necessary to develop an innovative, effective medicine.

Molecular Modification. Modifying molecules involves changing the structure of a drug to enhance its potency, decrease adverse effects, or improve its pharmacological properties.

Clinical observation. The last source during clinical trials is that doctors may identify unanticipated therapeutic effects that could lead to a novel treatment.

Ritual process of medicine discovery

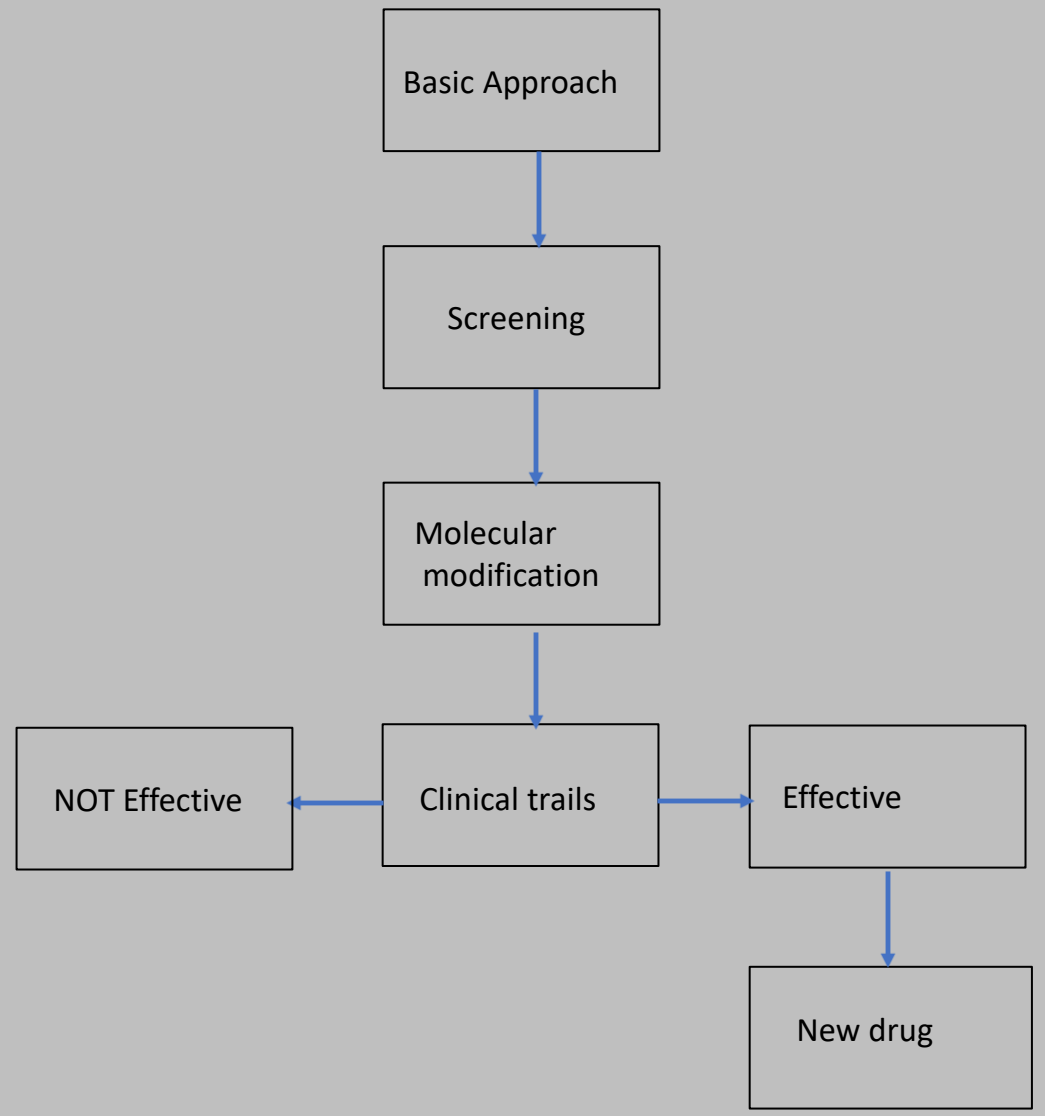


Figure.118: Western healthcare diagram (author, 2023)

7.9 Architecture Theory precedent

Freedom Park

Figure.119: freedom park (Mashabane Rose)

Freedom Park illustrates a collaborative approach between designers, developers, and indigenous communities. The architects and landscape architects encompassed ideas from rural architecture, traditional homestead designs and layouts and Indigenous knowledge systems in general." The conceptualisation of the Isivivane by a consortium of architects and landscape architects originated through consultations with advisers and experts in the Indigenous Knowledge Systems (IKS) field. Their challenge was to introduce cultural sensibility through a narrative based on the abstract expression of African values" (Vosloo & Young, 2020: 97). The plans were influenced by unique and symbolic architectural, urban formations and landscape structures from sites across Southern Africa.

Figure.120: freedom park (Mashabane Rose)

Figure.121: freedom park (Mashabane Rose)

“Isivivane is an isiZulu word that refers to a concept found in several other African cultures. In isiZulu, isivivane means a pile of stones. This concept promotes the spirit of togetherness among people in society” (Mbhele,2020). In Freedom Park, it means a place of cleansing and healing (Vosloo & Young, 2020: 88). Furthermore, “Isivivane is the material expression of a series of cleansing and healing rituals, in the form of ritual sacrifice and the observance of indigenous religious customs conducted at a series of locations around South Africa, on the continent and other parts of the world where liberation fighters were known to have taken refuge and died during apartheid” (Jethro, 2013: 381)

Figure.122: Sacred spaces and the use of African symbolisim (2020,Graham A. Young)

Freedom Park's first section, Isivivane, was conceptualized based on Indigenous Knowledge Systems (IKS). Isivivane is a direct outcome of consultative procedures that were used to reconstruct fragmented African voices and belief systems. To achieve this, oral research was conducted with various IKS practitioners in South Africa.

On the eastern slope of the Salvophill, the circle of rocks that makes up the isivivane's centre and its evocative misting shower give off a feeling of spirituality (Figure 49). According to Jethro (2013), The covered misty cloud symbolizes the incense used during significant religious events. Since water plays an important role in cleansing and healing in many belief systems, water stations were also stationed at both entrances to Isivivane to wash hands. In addition, Mashobane Rose associates state that the future project of Freedom Park was influenced by the architectural language established by the organic rock walls and rock gardens of the Isivivane. The skhumbuto (Figure 50) gallery of freedom fighters on the wall creates a sense of spirituality and a transcent ancestry register (Jethro, 2013: 386).

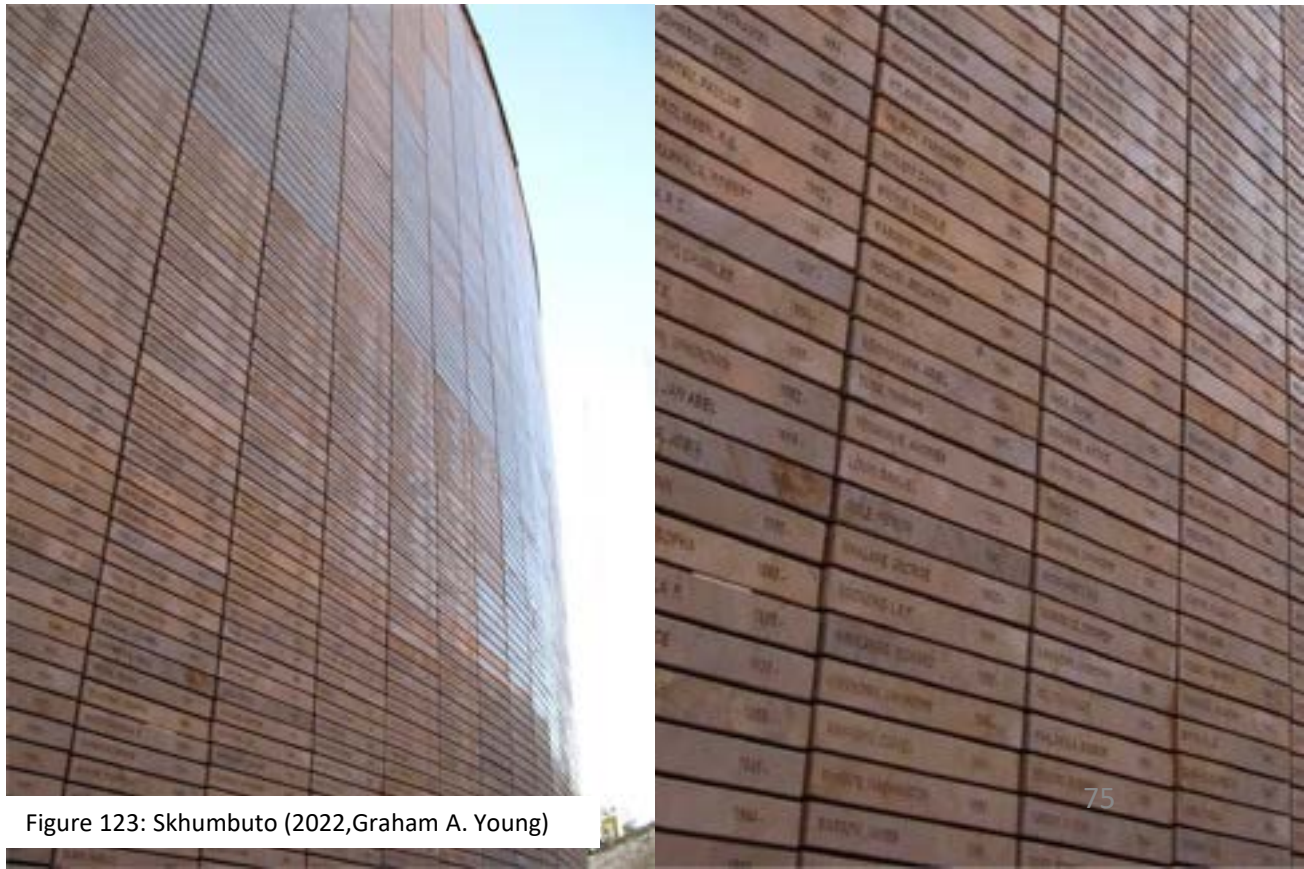


Figure 123: Skhumbuto (2022,Graham A. Young)

Conclusion

Indigenous knowledge systems can provide different perspectives and approaches to modern architecture while supporting sustainable development, biodiversity conservation, climate change adaptation and mitigation, healthcare, and education. by creating contemporary, traditional facilities that reflect indigenous values, beliefs, and customs by designing heterotopic spaces that respect indigenous knowledge systems. Such facilities should have spatial features crucial for traditional healing practices, such as privacy, scale, sequencing, light, materials, and plants. Additionally, architecture can serve as a tool to connect indigenous medicine and Western medicine rituals by providing appropriate spaces to accommodate the discovery of new medicinal species or medications.

Chapter

08

Technical Investigation

8.1 Introduction

This chapter focuses on the technical aspects of the proposed IBRC and explore the use of various technical elements that are essential for its success and functionality. These elements include structural systems, sewerage layout, water catchment systems, water harvesting, and ventilation systems, which are all critical components that require careful consideration. Each element plays a unique role in the overall design, contributing to its effectiveness and practicality.

Figure. 124: 3D view of the proposed IBRC (author, 2023)

8.2 Structural truss System

The roof structure consists of gum poles that extend to the veranda, creating shade and supporting the roof.

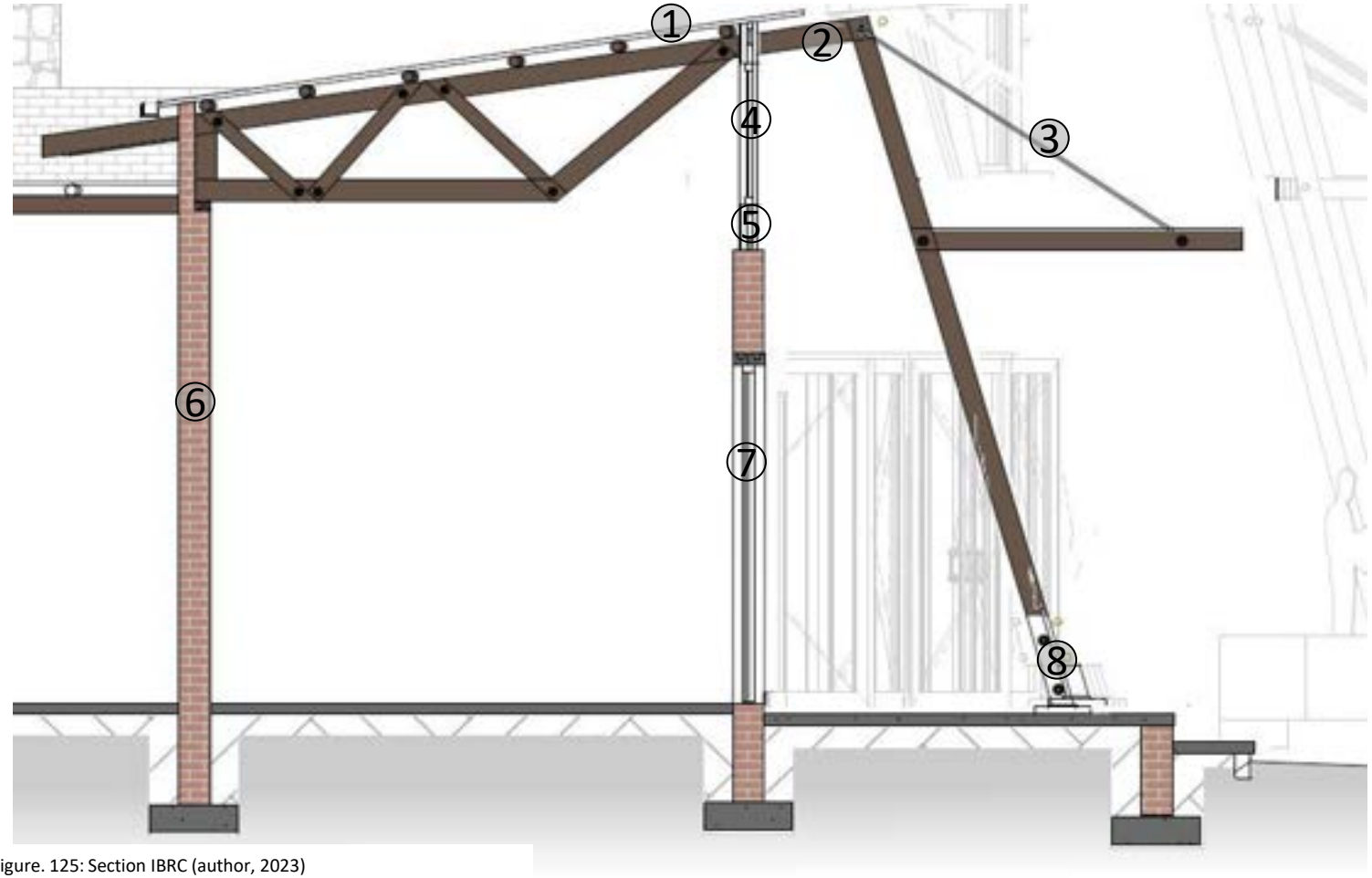


Figure. 125: Section IBRC (author, 2023)

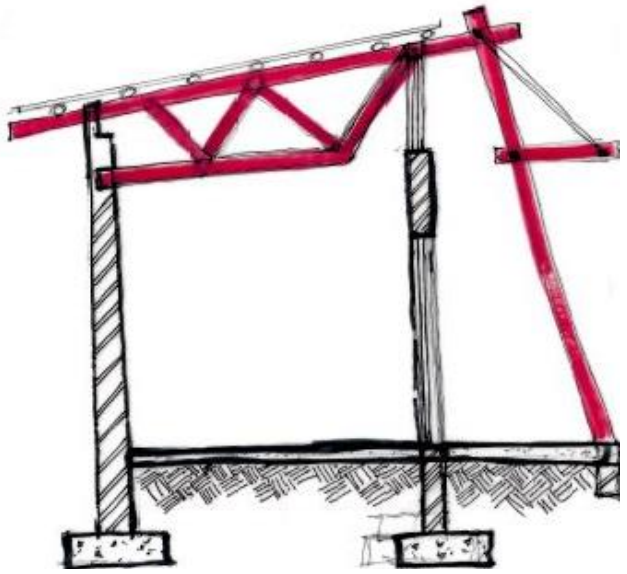


Figure. 126: Section drawing (author, 2023)

1.klip-lock roofing
2.150 mm gum pole
3.Steel Rod
4.Clerestory window
5.dry-wall
6. 220mm brick wall
7.Door
8. Stainless steel footing

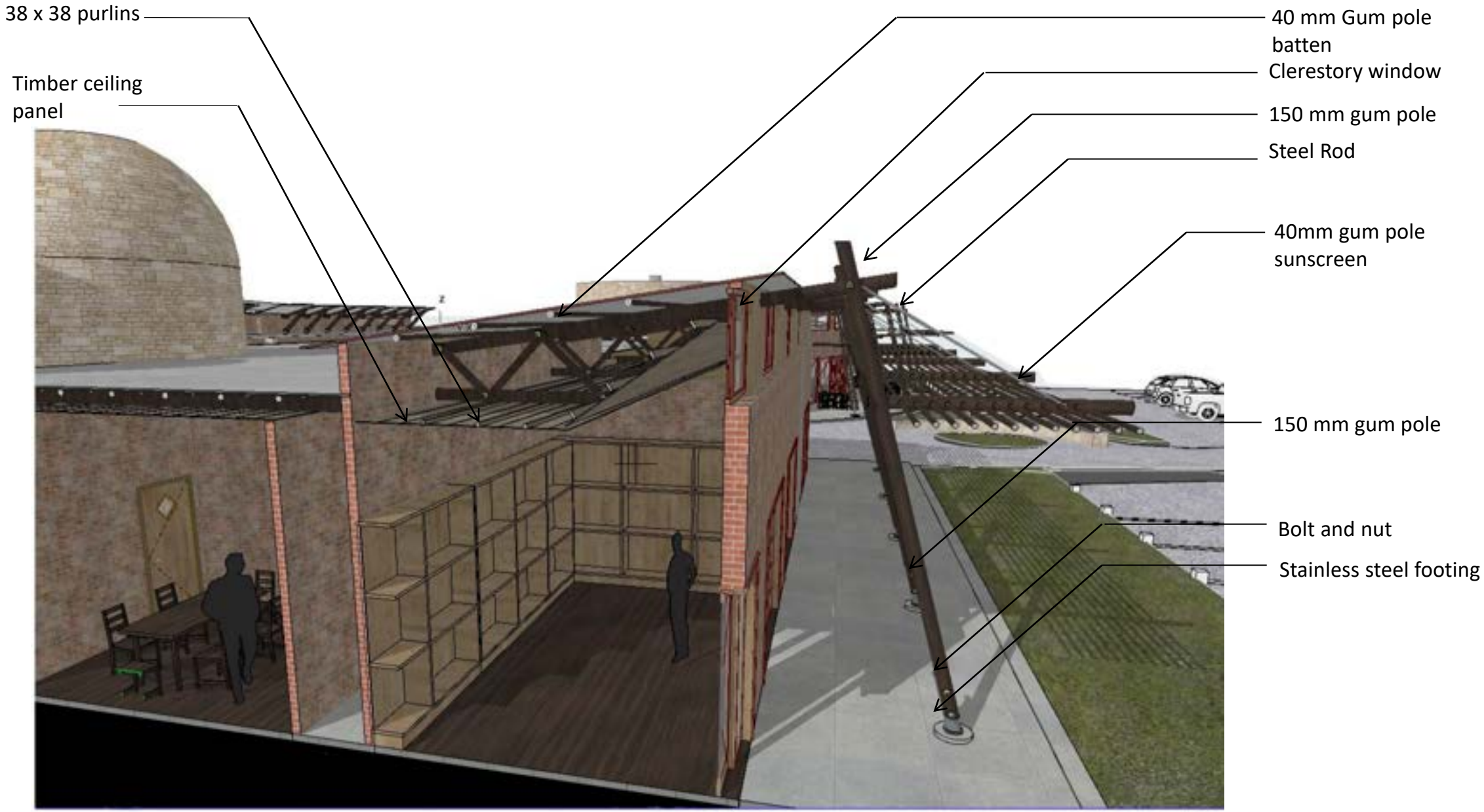


Figure.127:SECTION (author,2023)

8.2.2 Dome structural system

The consultation spaces for traditional healers at IBRC will be constructed in the form of circular domes. Circular domes are an ancient and complex architectural technique that has become increasingly rare in modern times. To construct these domes, a centered compass is used to measure the outside diameter of the dome, which helps in adapting the direction of the block based on the compass's angle. The inner diameter plays a crucial role in controlling the shape, so it's necessary to have a mark or cursor on the compass for accuracy.

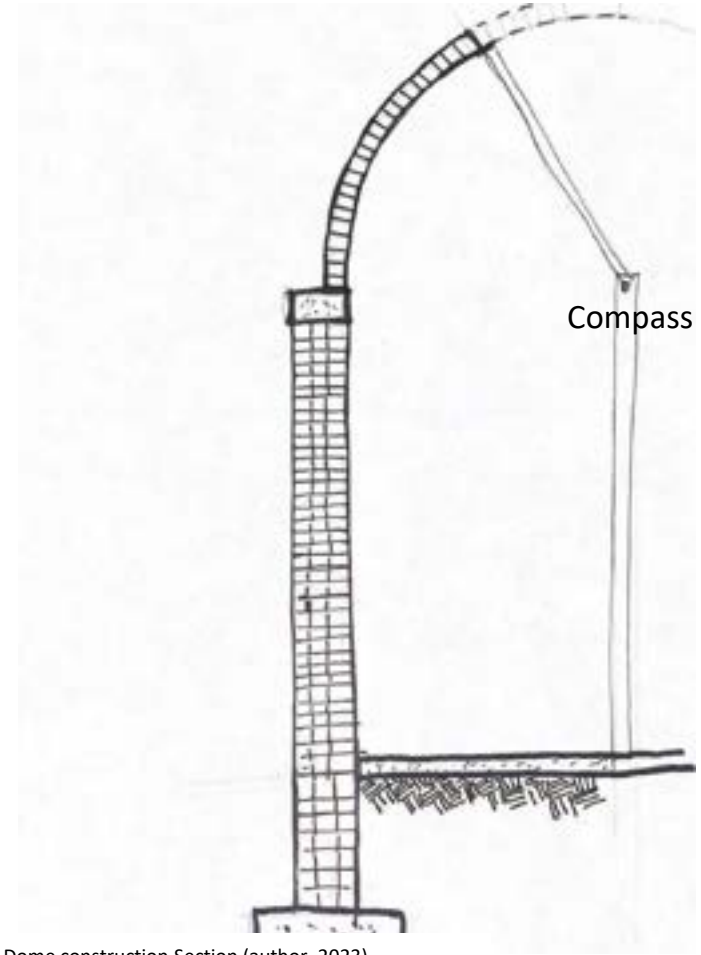


Figure. 128: Dome construction Section (author, 2023)

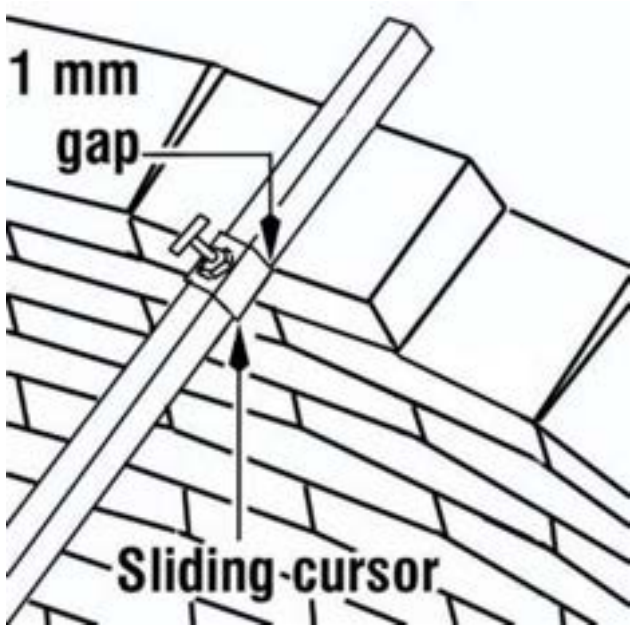


Figure.129: compass (Auroville Institute)

Figure.130: Checking blocks with a compass (Auroville Institute)

8.2.3 3D View of domes

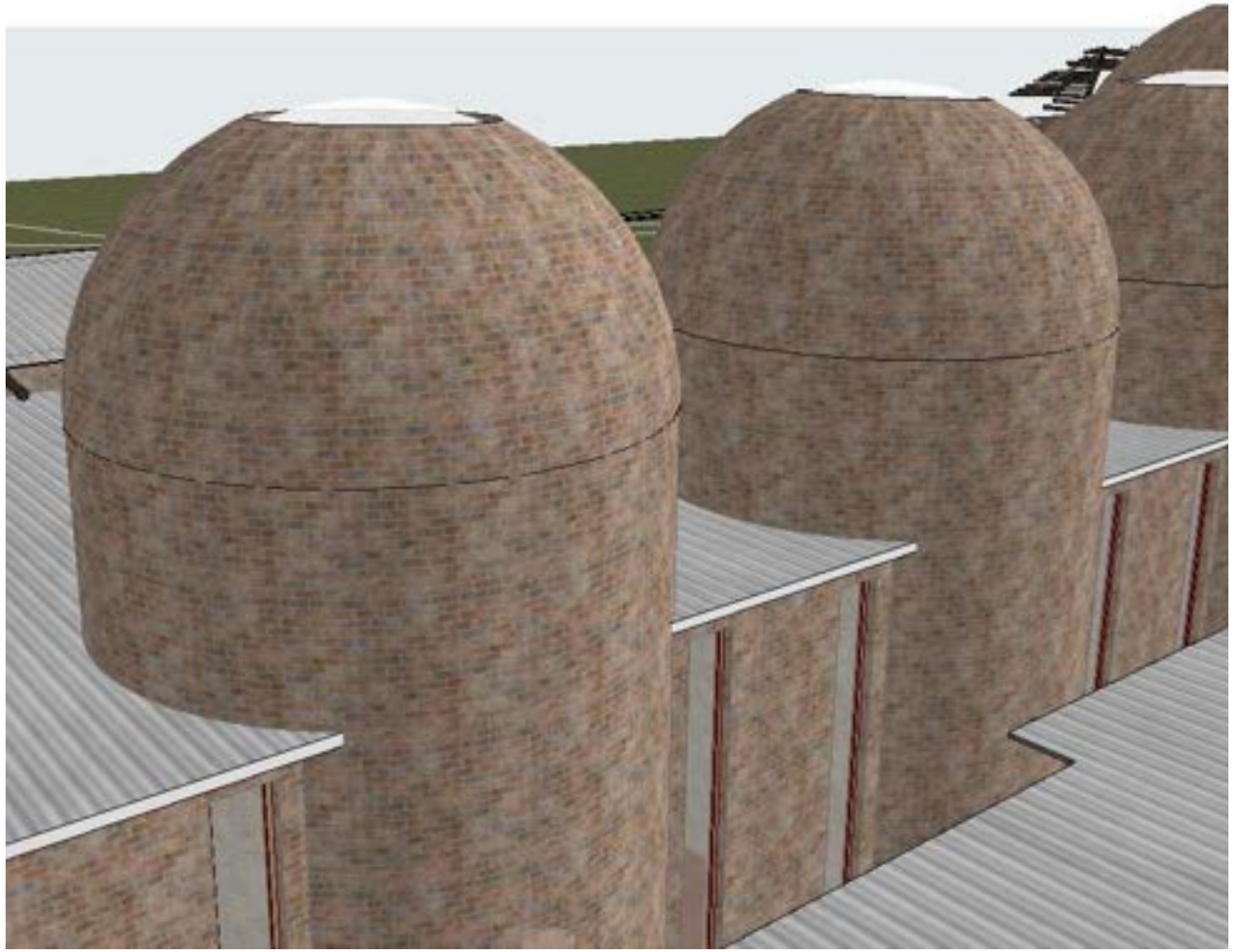


Figure. 131: Dome 3D VIEW (author, 2023)

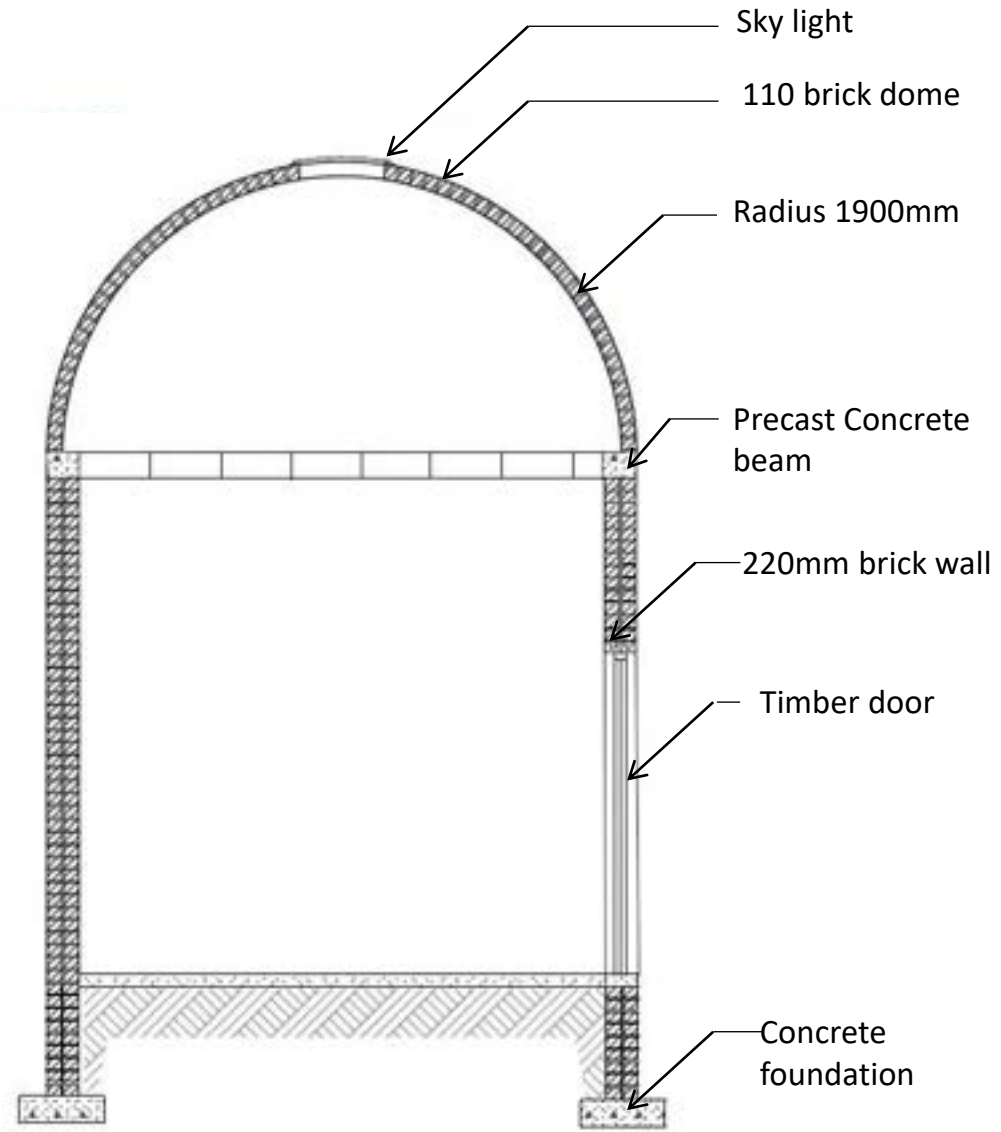
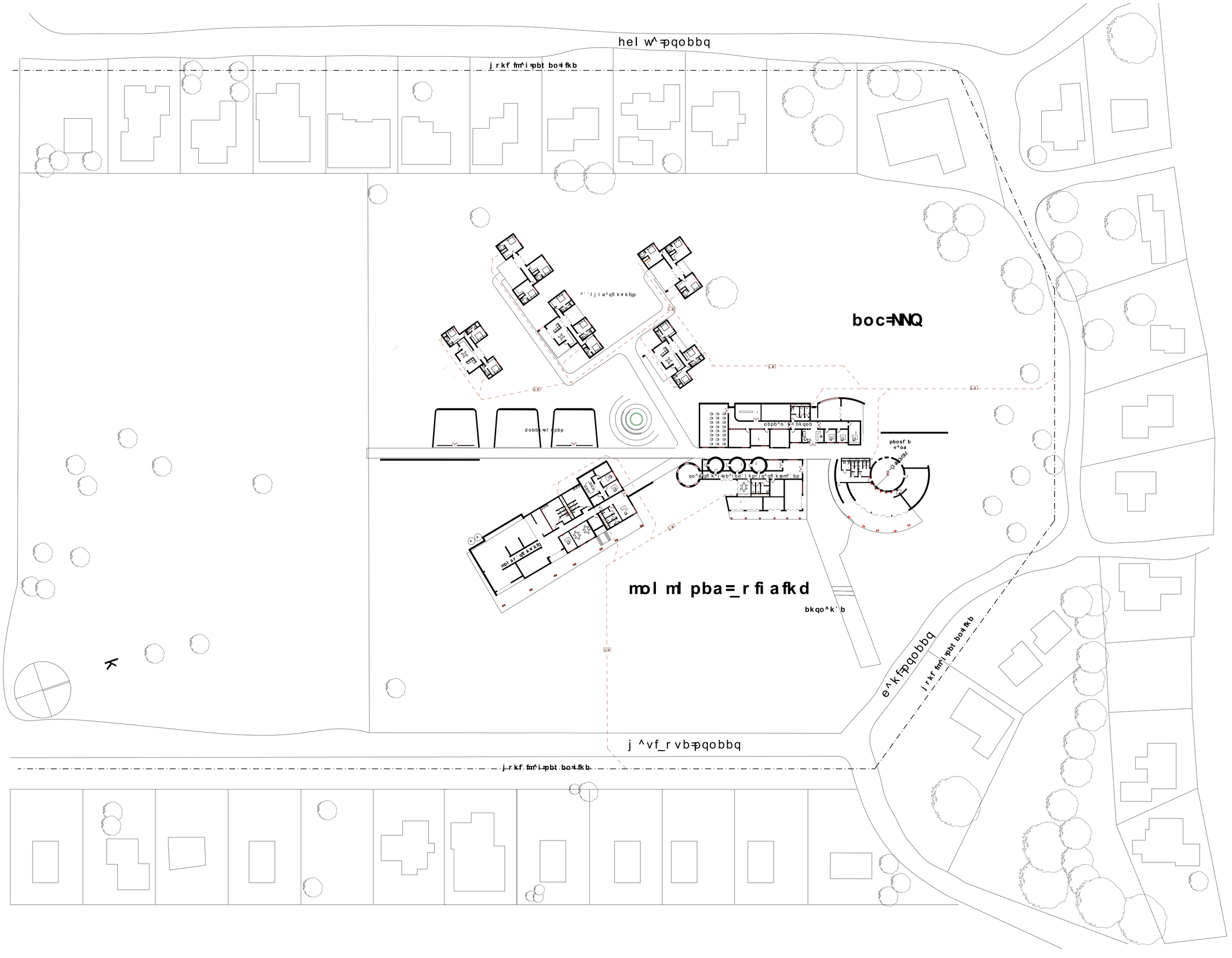


Figure. 132: Dome SECTION DRAWING (author, 2023)



8.4 Water catchment systems

Sites that are on a slope are more likely to have drainage problems. Effective drainage systems, including swales, or permeable surfaces, must be incorporated to control runoff and avoid erosion.

The section illustrates possible v-drains that will be used as water catchments areas on site.

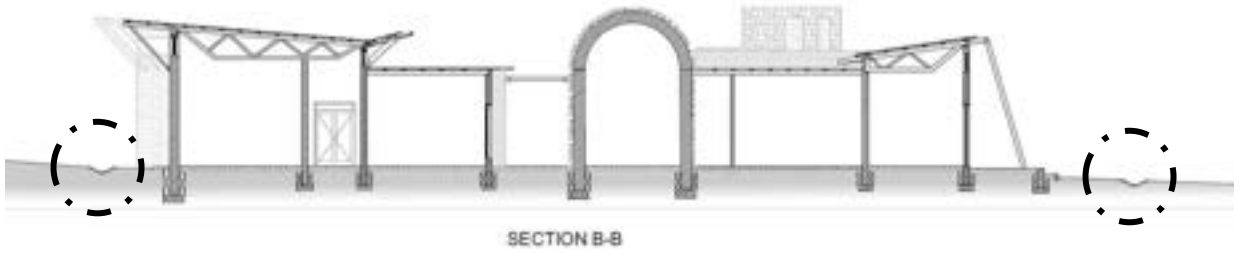


Figure. 134: V-DRAINS (author, 2023)

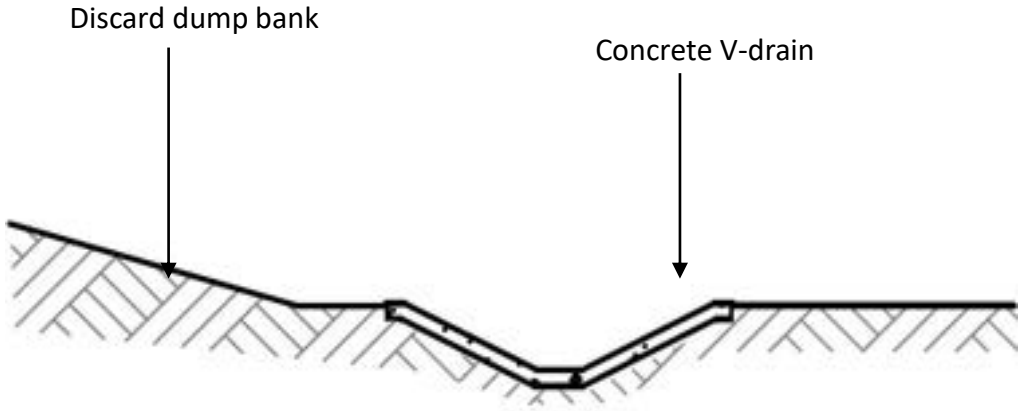


Figure.135: V- Drain detail (author, 2023)

Figure.136: 3D VIEW (Author, 2023)

8.4.1 3D View showing V-drains

Figure. 137: V-DRAINS (author, 2023)

8.5 Water Harvesting

Rainwater harvesting system that stores rainwater using the water gutter and the rainwater tank to collect rainwater and use it in an irrigation system to water the plants on the proposed site.

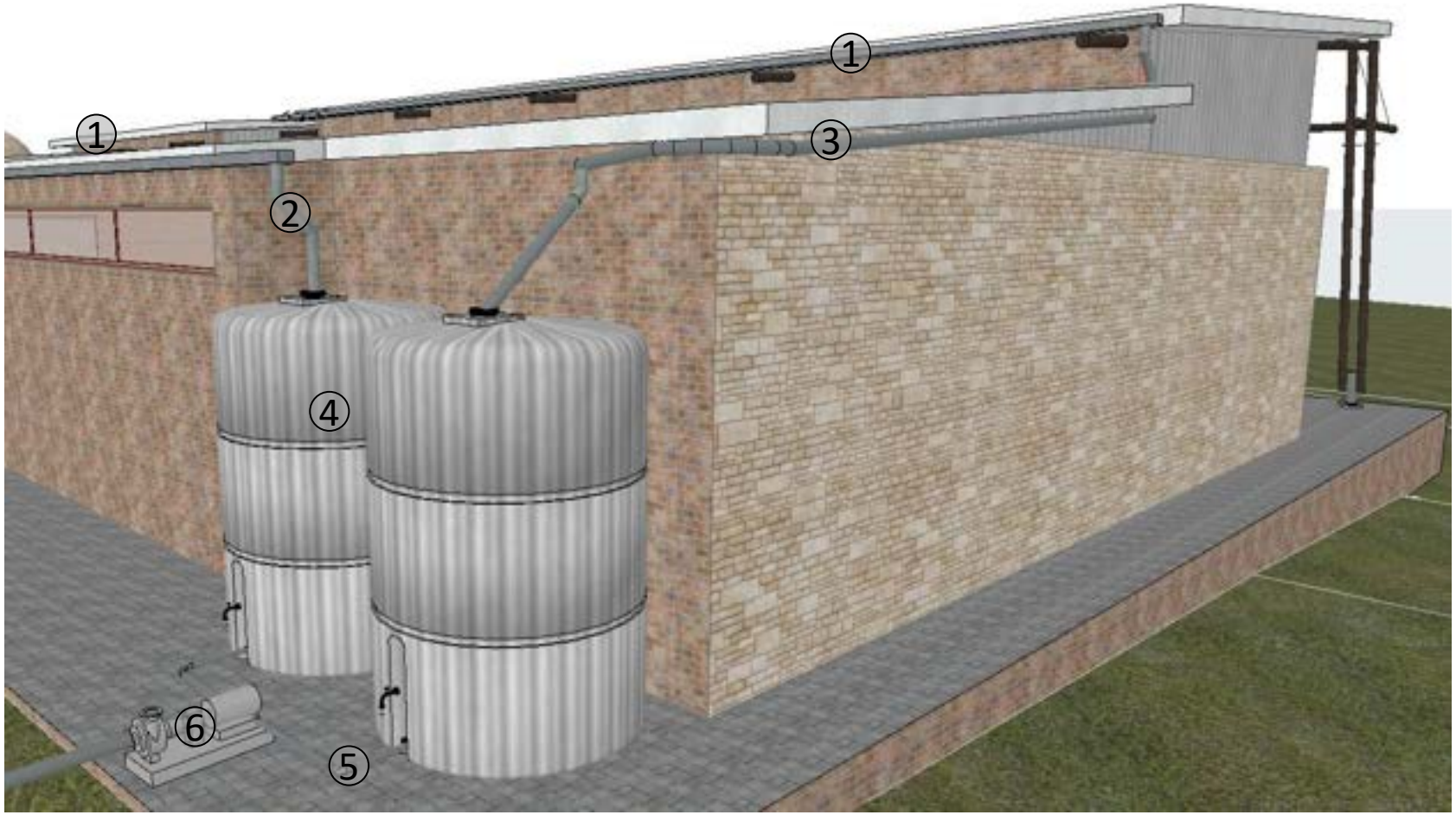


Figure.138: 3D model portraying water harvesting (author, 2023)

1.Gutter
2.Down pipe
3.Side pipe
4.Rainwater tank
5. Drip Irrigation pipe
6.Water pump

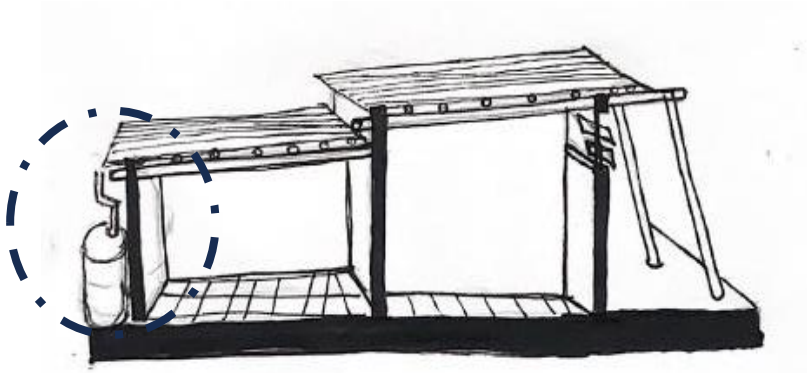


Figure.139: section(author, 2023)

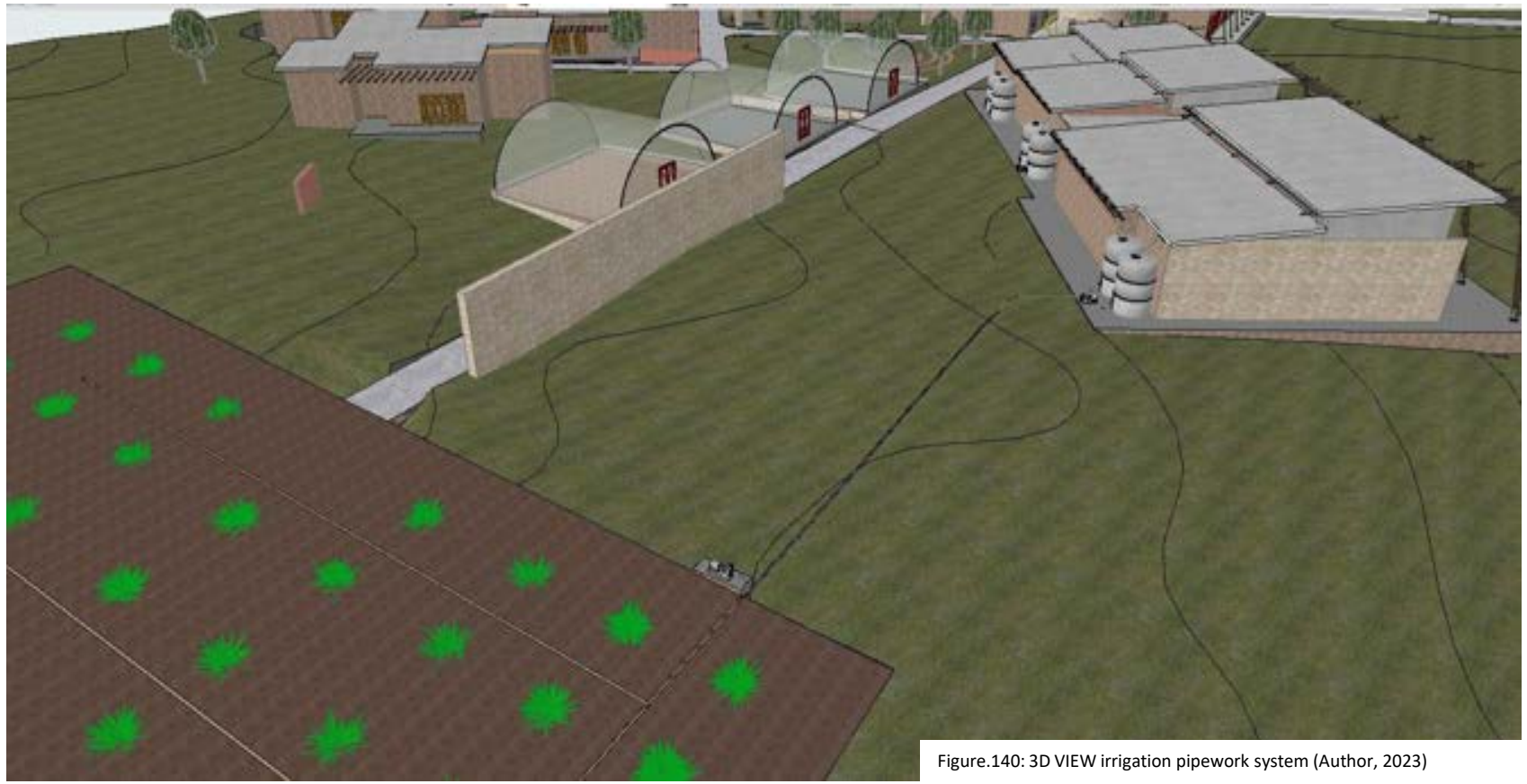
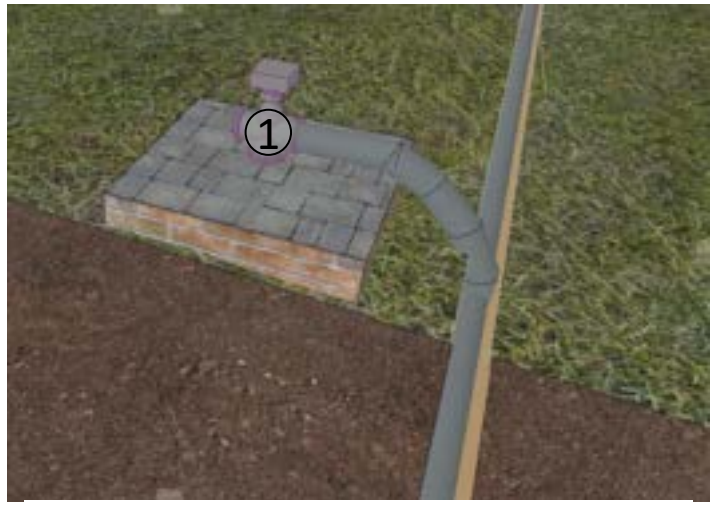


Figure.140: 3D VIEW irrigation pipework system (Author, 2023)

1.Flush valve
2.Drip irrigation
3.Drip irrigation



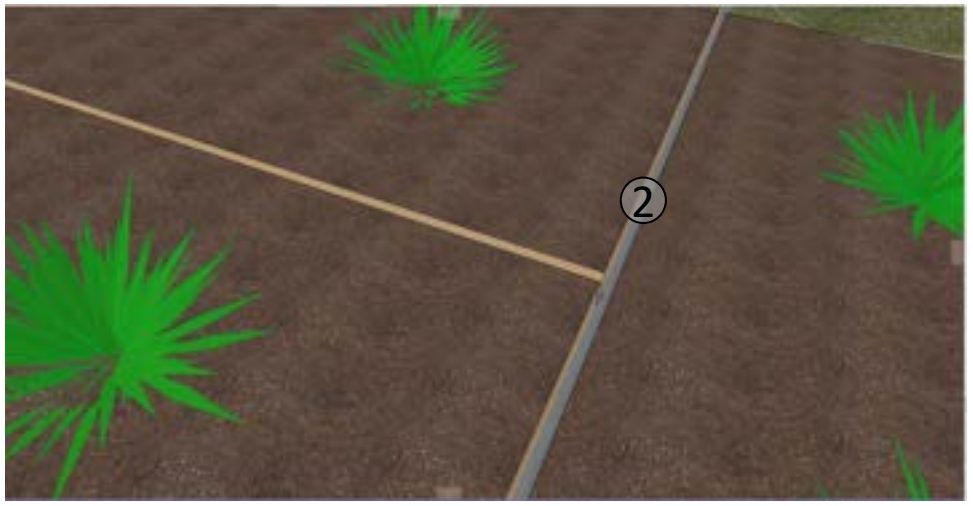


Figure.141-143: 3D VIEW irrigation pipework system (Author, 2023)

8.6 Ventilation systems

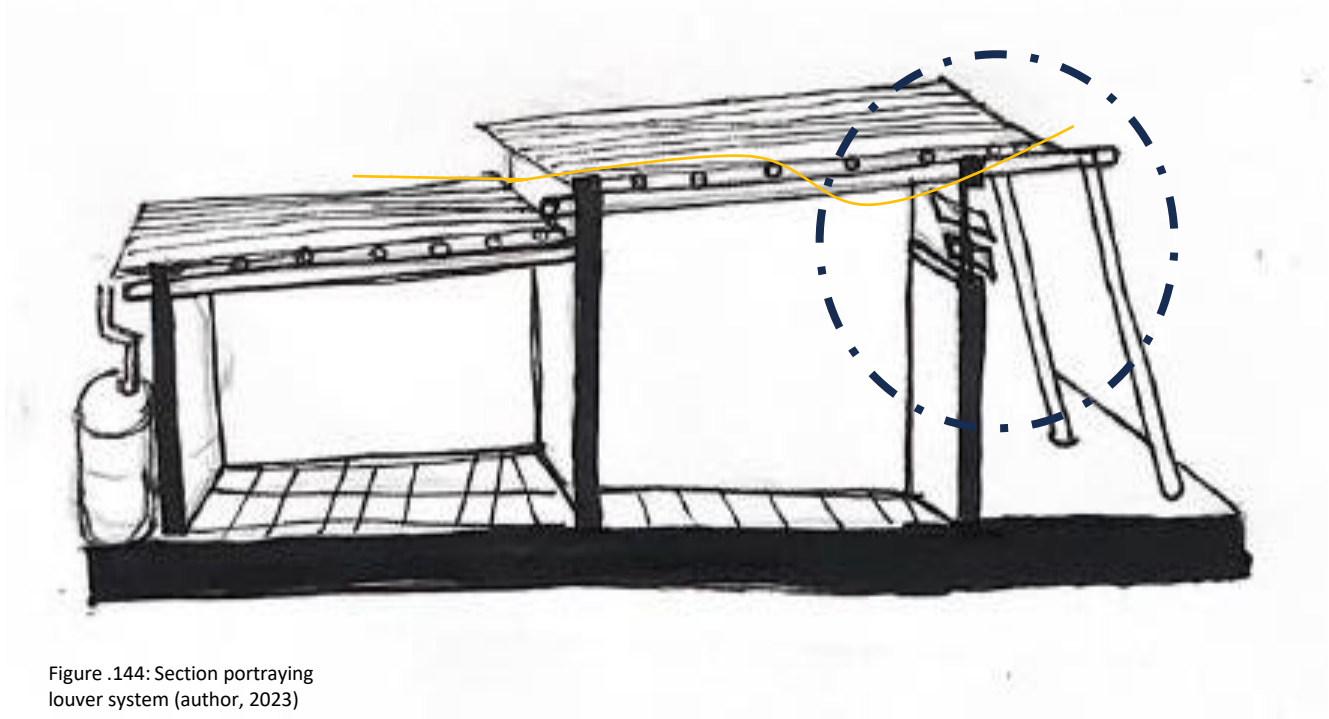


Figure .144: Section portraying louver system (author, 2023)

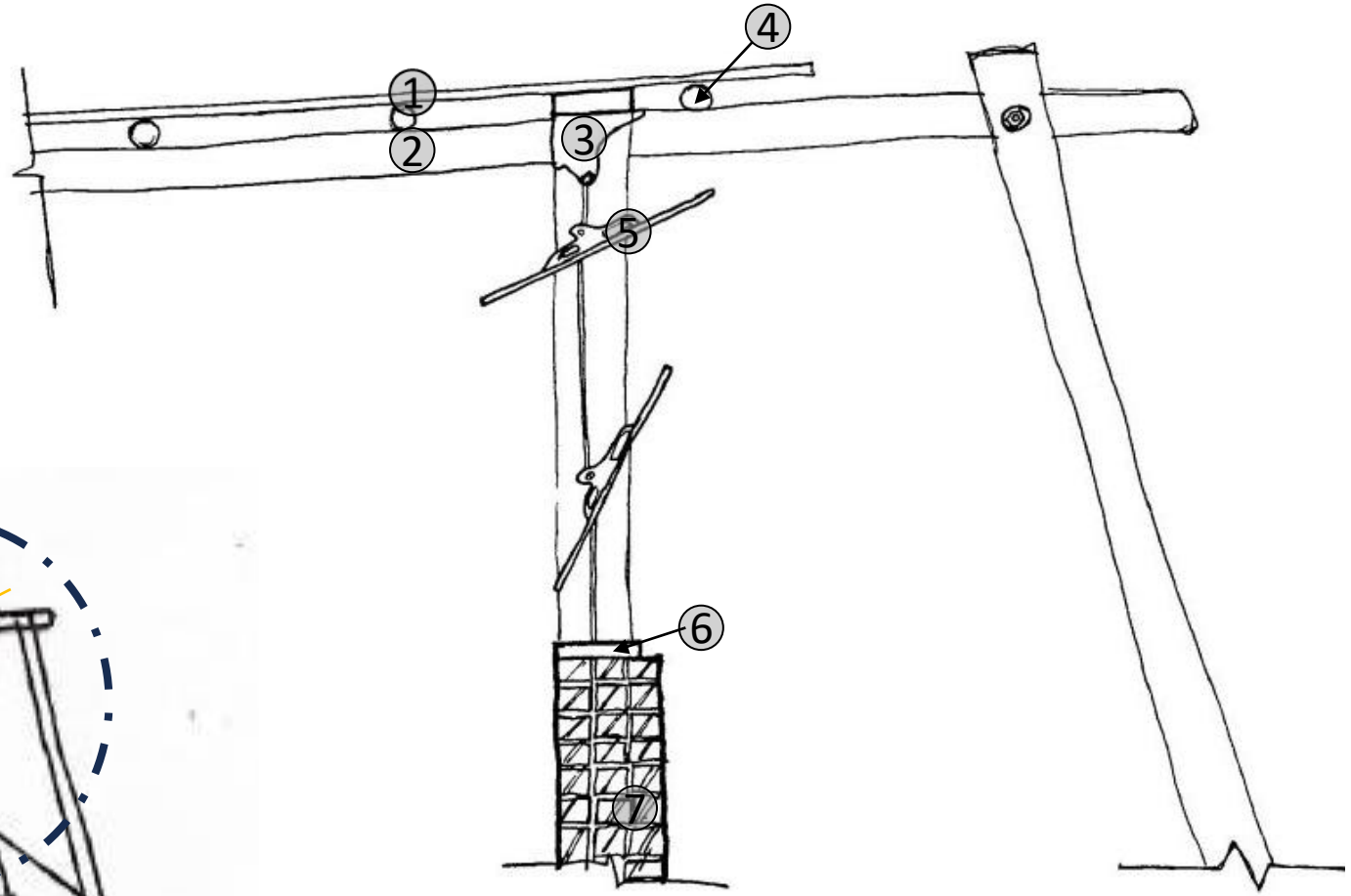


Figure.145: detail drawing Louver system (author, 2023)

1.klip-lock rooftile
2.Gum pole
3.Stainless steel louver bracket
4.Gum pole battens
5. Louvers
6.Timber louver frame
7.330mm brick wall

8.6.1 3D Ventilation louver systems

Figure .146: 3D louver system (author, 2023)

8.7 Conclusion

In conclusion, this chapter has delved into the technical intricacies surrounding the proposed IBRC. It has provided a comprehensive exploration of the crucial technical elements pivotal to the success and functionality of the centre. Each of the technical elements was scrutinized in detail, highlighting their individual significance within the overarching design. Collectively, these technical components not only underscore the intricacy of the IBRC but also underscore the meticulous attention to detail required to ensure its effectiveness and practicality.

Figure. 147: 3D view of the proposed IBRC (author, 2023)

Chapter

09

FINAL DESIGN

9.1 Introduction

This chapter provides a comprehensive view of the evolution of the design. Apart from the technical aspects discussed in the previous chapter, it carefully describes the journey from the initial concept to the final design. The changes and adaptations made during the design development process of the proposed IBRC are showcased in detail, leading up to its final stage.

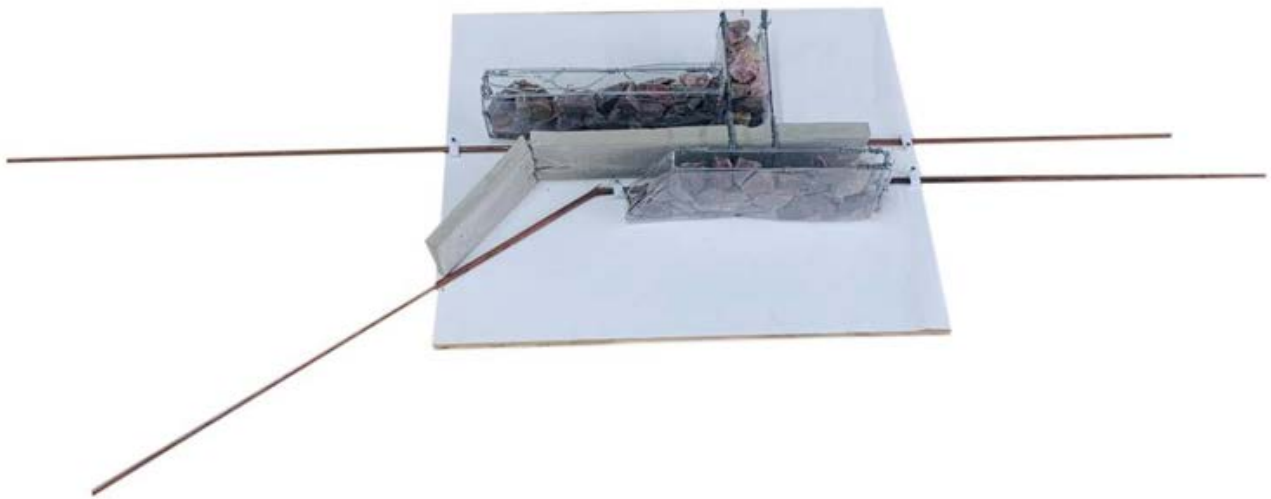


Figure. 148: CONCEPT (author, 2023)

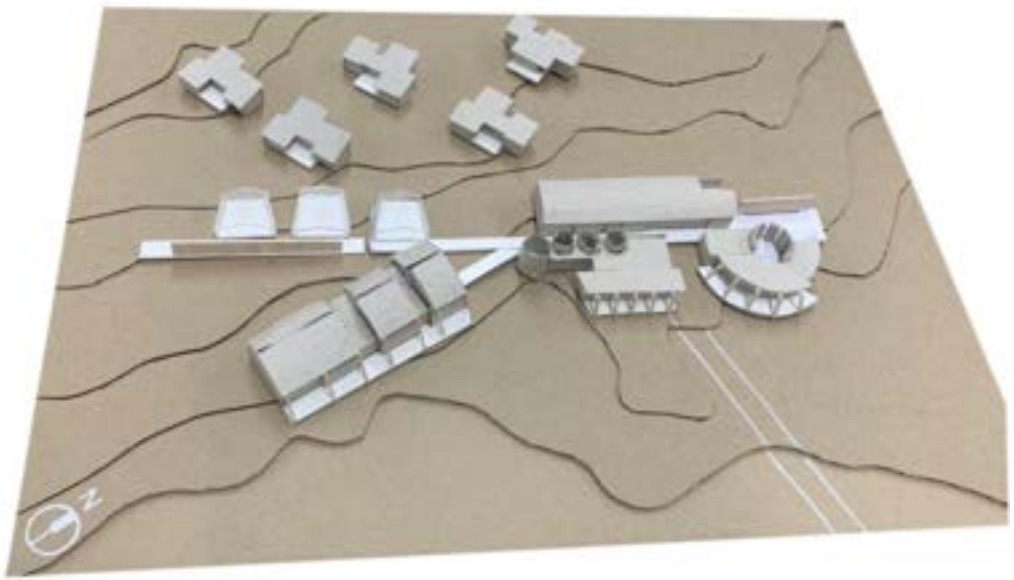


Figure. 149: process model (author, 2023)

9.2 Definition of the zones and spaces in the proposed IBRC

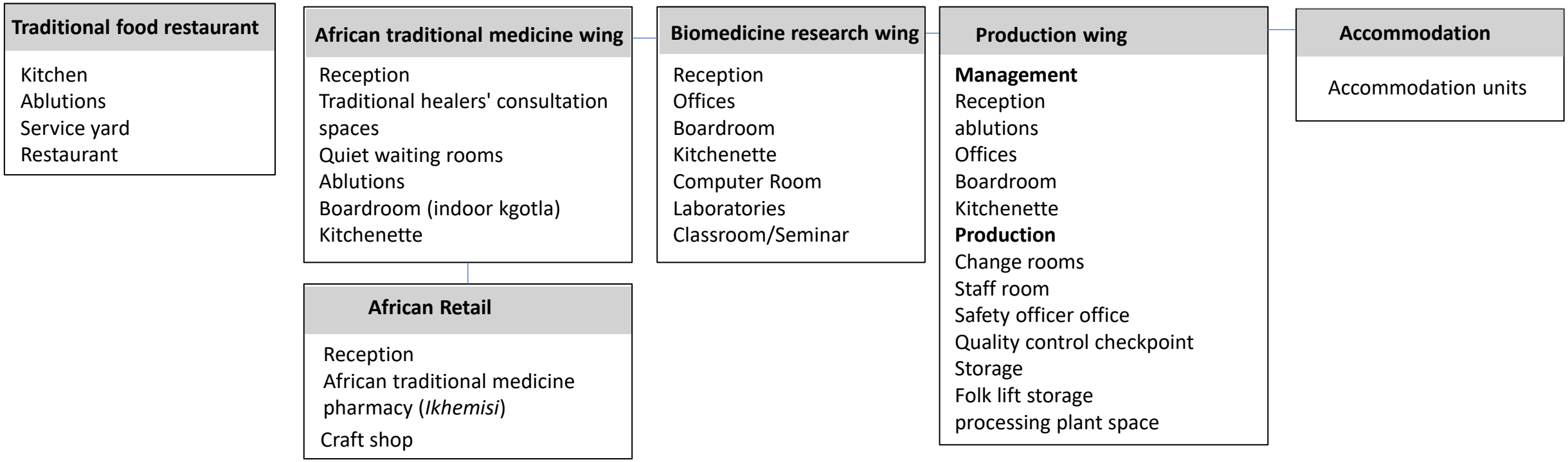


Figure. 150: Accommodation list diagram (author, 2023)

9.3 The process of manufacturing African traditional medicine into capsules or liquids during production.

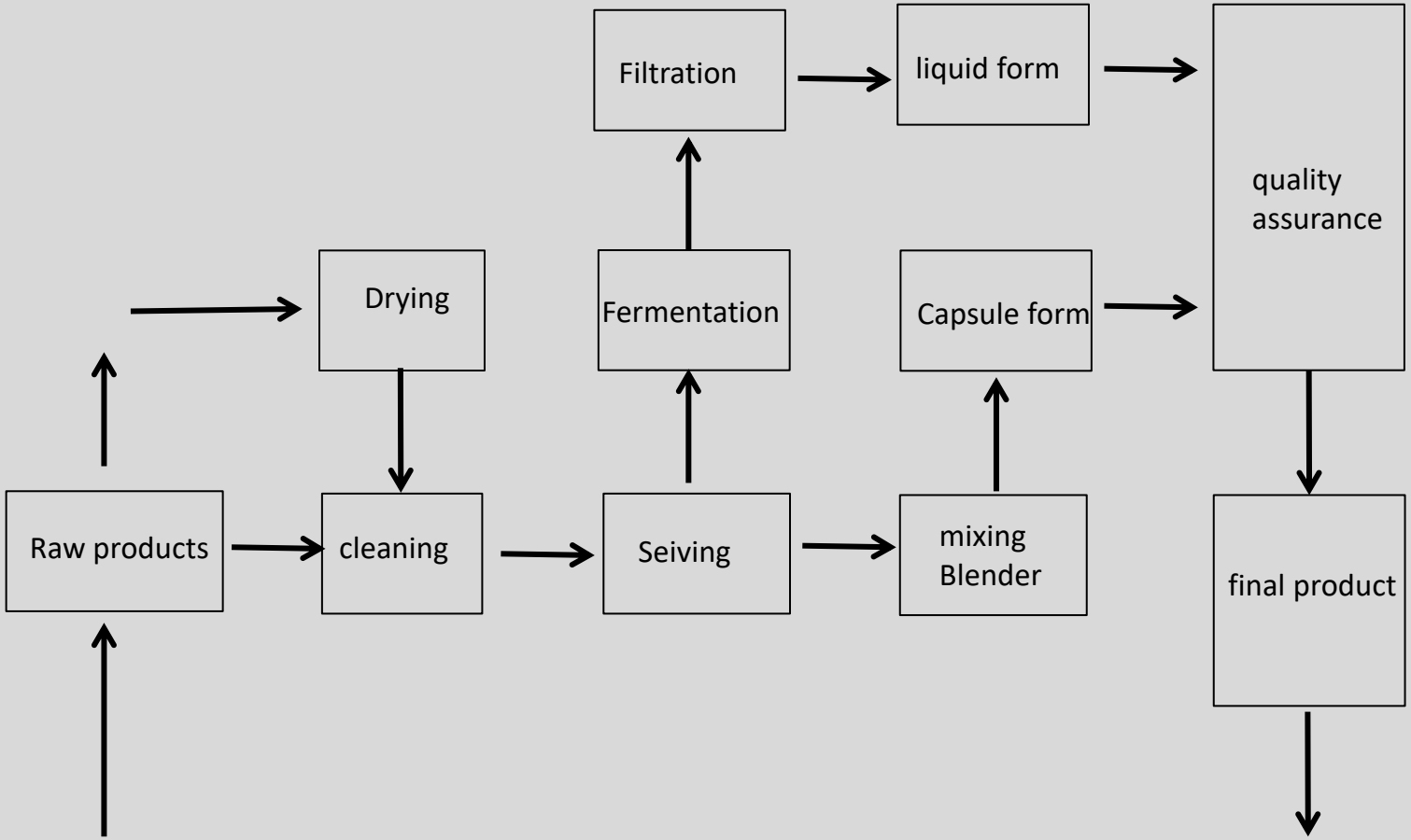


Figure. 151: Production wing diagram (author, 2023)

9.4 Development 1

The initial design was based on the traditional African homestead layout, featuring a central space that radiates out into several buildings around the perimeter.

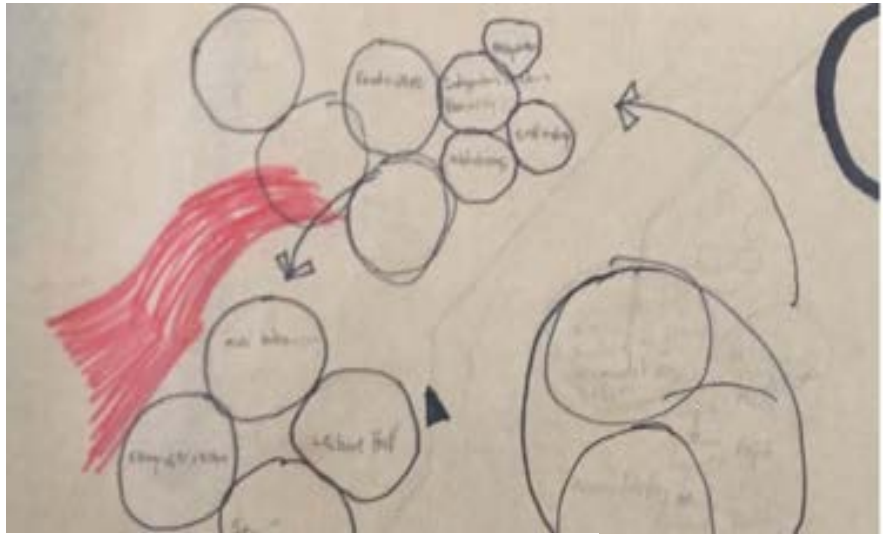


Figure. 152: bubble diagram (author, 2023)

Figure. 153: Proposed IBRC drawing (author, 2023)

Figure. 154: Proposed IBRC drawing (author, 2023)

9.5 Development 2

Development one did not consider surrounding township or orientation. Development two adopted existing township grid layout and adhered to desire lines on site.

Figure. 155: Proposed IBRC drawing (author, 2023)

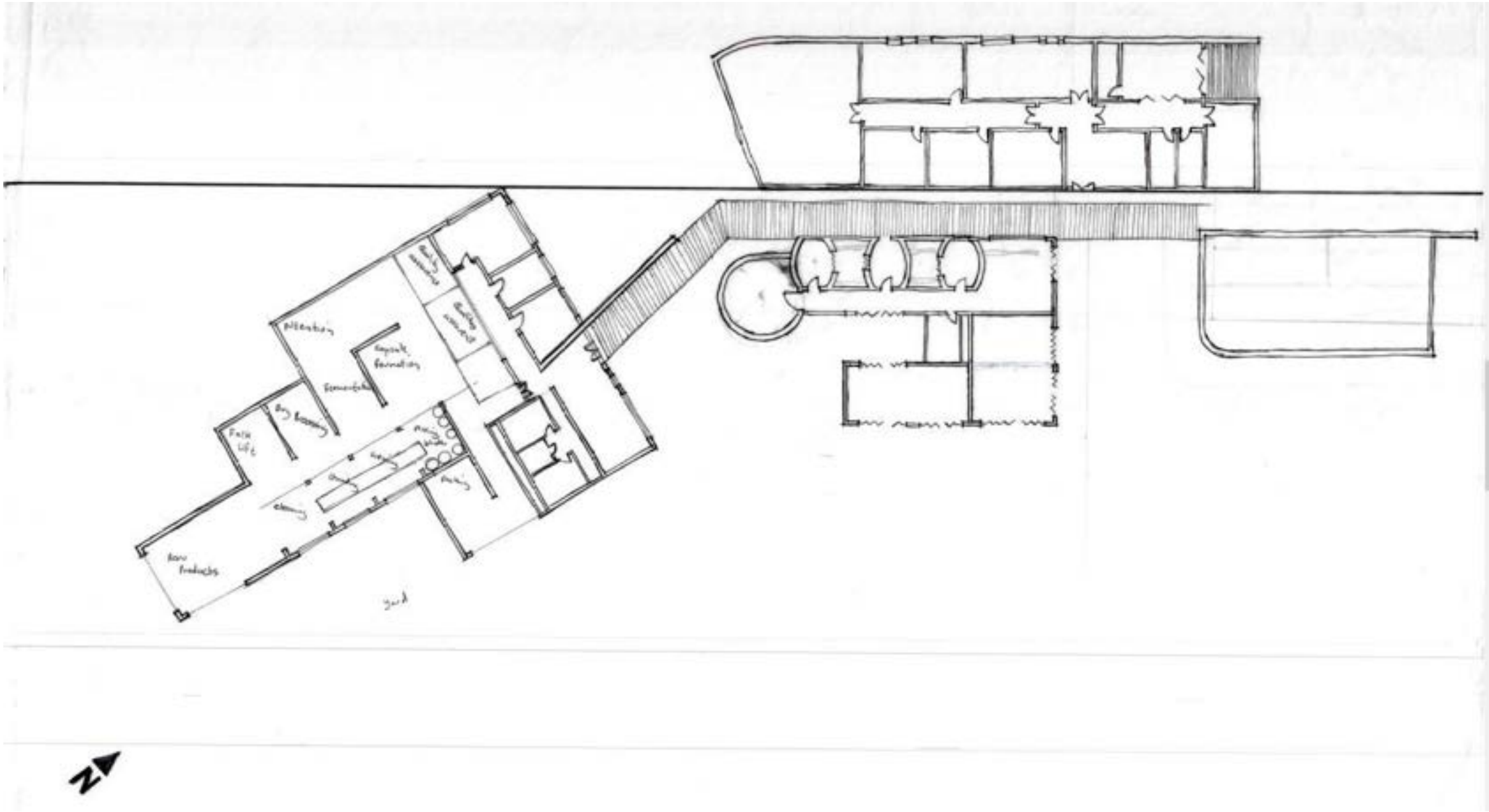


Figure. 156: Proposed IBRC drawing (author, 2023)

9.6 Development 3

Floor plan

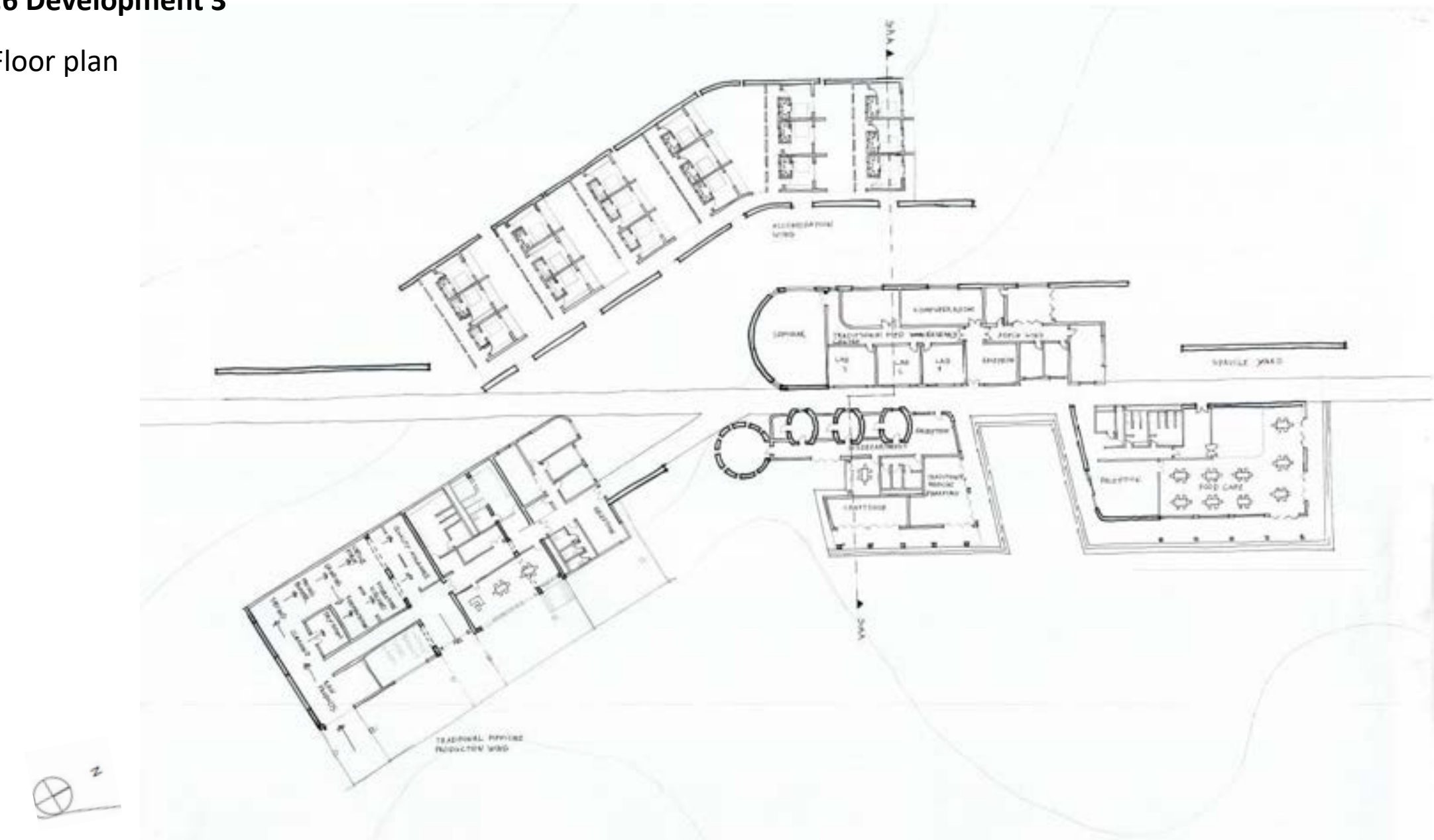


Figure. 136: Floor plan drawing (author, 2023)

Sections

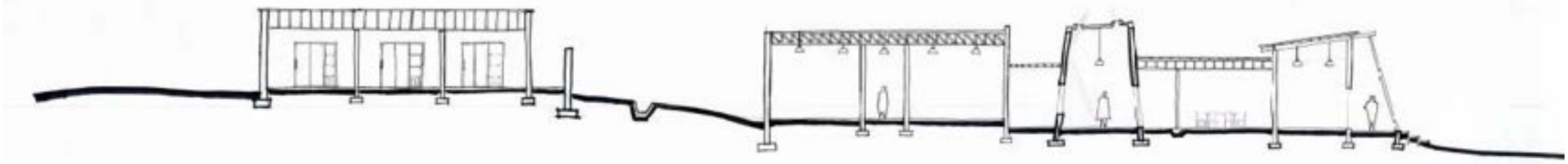


Figure. 157: Section (author, 2023)

Explorations various roof structures for the proposed IBRC.

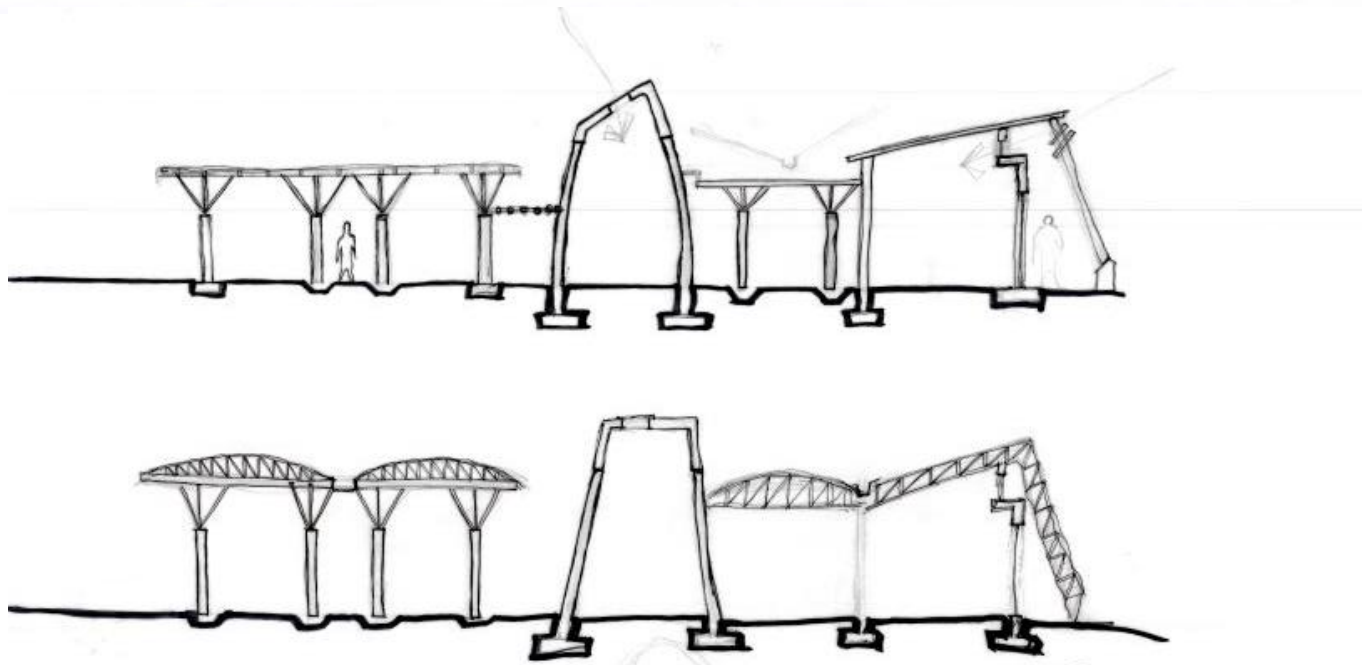


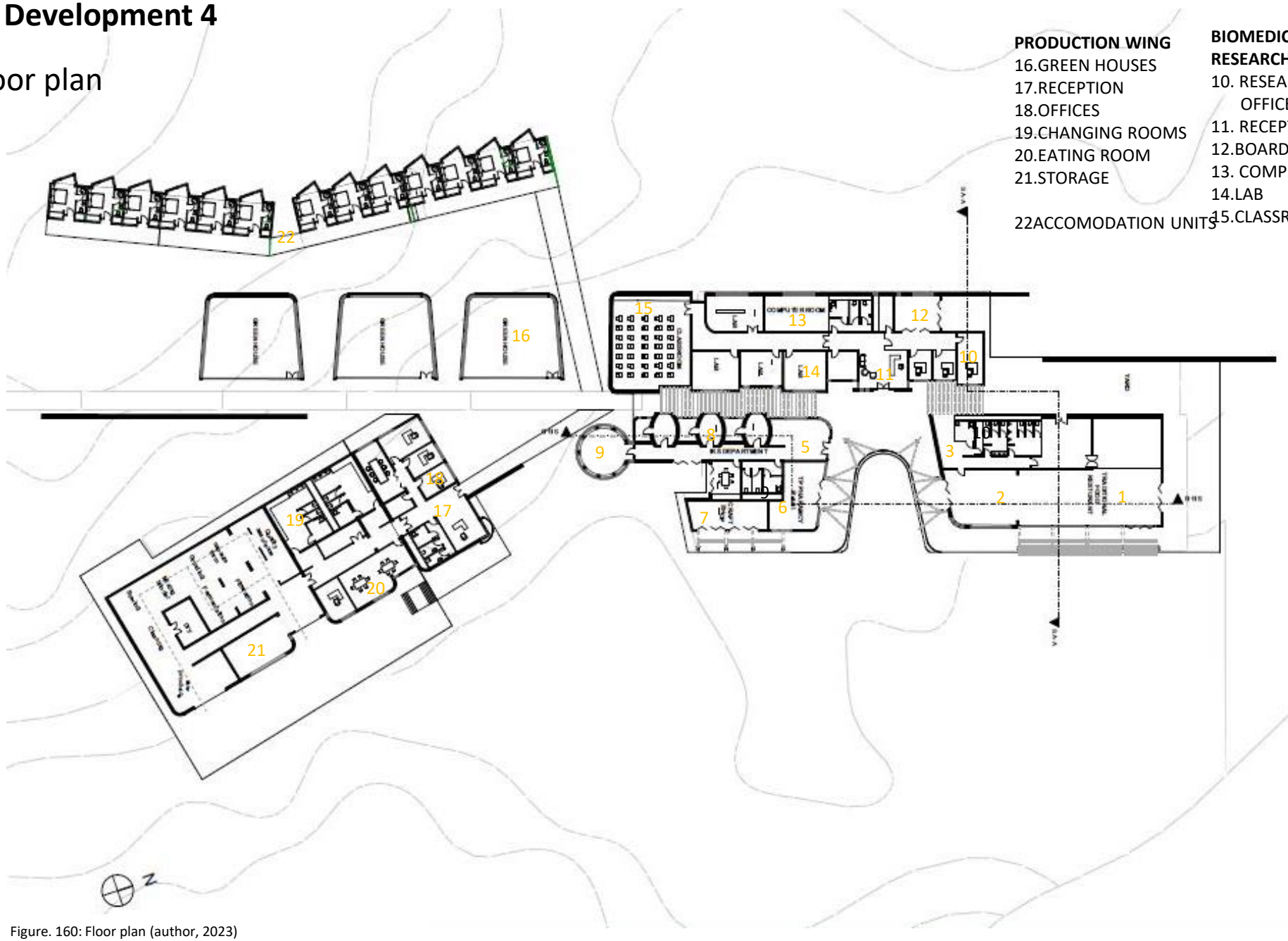
Figure. 158: Sectional exploration drawings (author, 2023)

3D View

Figure. 159: 3D Drawing (author, 2023)

9.7 Development 4

Floor plan



PRODUCTION WING
16.GREEN HOUSES
17.RECEPTION
18.OFFICES
19.CHANGING ROOMS
20.EATING ROOM
21.STORAGE

22ACCOMODATION UNITS

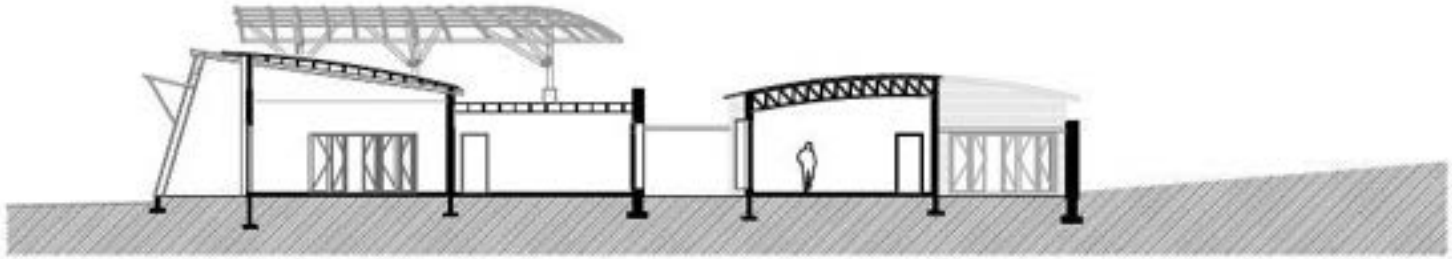
BIOMEDICINE RESEARCH WING
10. RESEARCH CENTRE OFFICES
11. RECEPTION
12.BOARDROOM
13. COMPUTER ROOM
14.LAB
15.CLASSROOMS

RESTAURANT WING
1.RESTAURANT KITCHEN
2.RESTAURANT KITCHEN
3.ABLUTSIONS

TRADITIONAL WING
5. ATM PHAMARCY
6.RECEPTION
7.CRAFT SHOP
8.TRADITIONAL HEALERS CONSULTATION SPACES
9. TRADITIONAL HEALERS

Figure. 160: Floor plan (author, 2023)

Sections



SECTION A-A

SECTION B-B

Figure. 161: Sections (author, 2023)

Figure. 162: 3D view (author, 2023)

Figure. 163: 3D view (author, 2023)

Figure. 164: 3D view (author, 2023)

9.8 Development 5

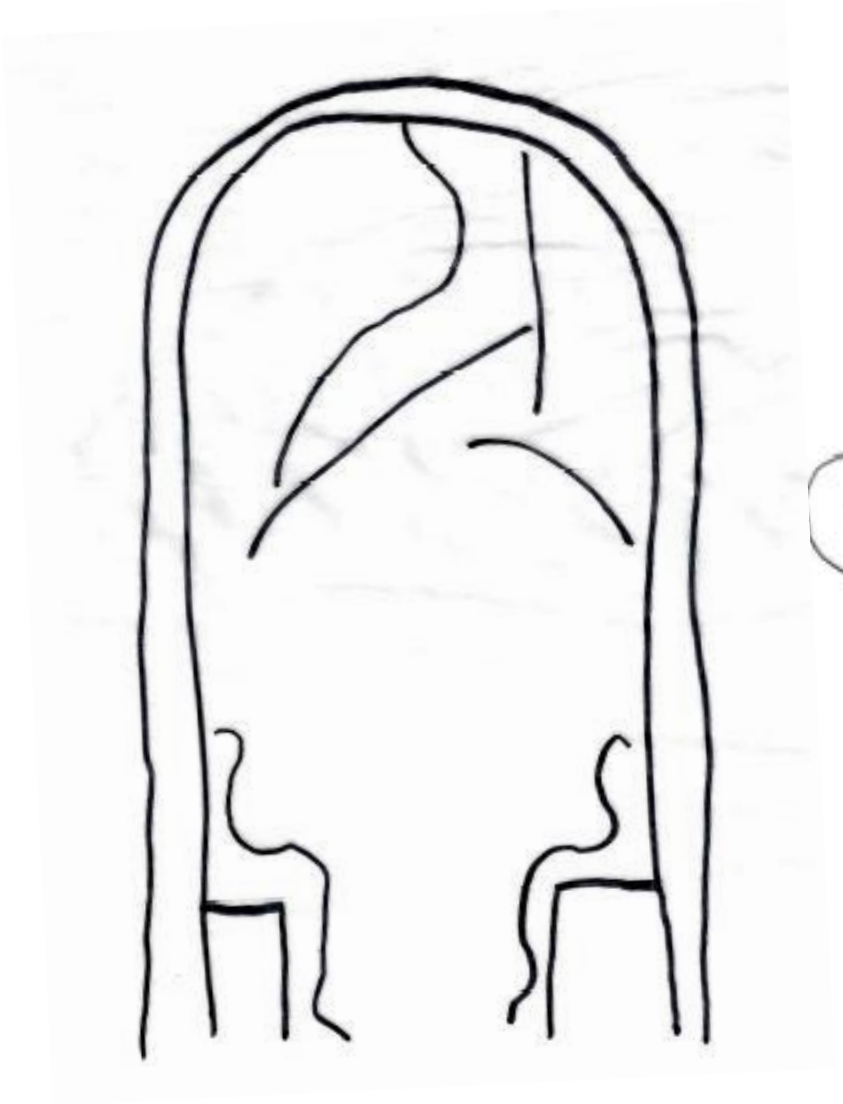


Figure. 165: Traditional healer consultation space (author, 2023)

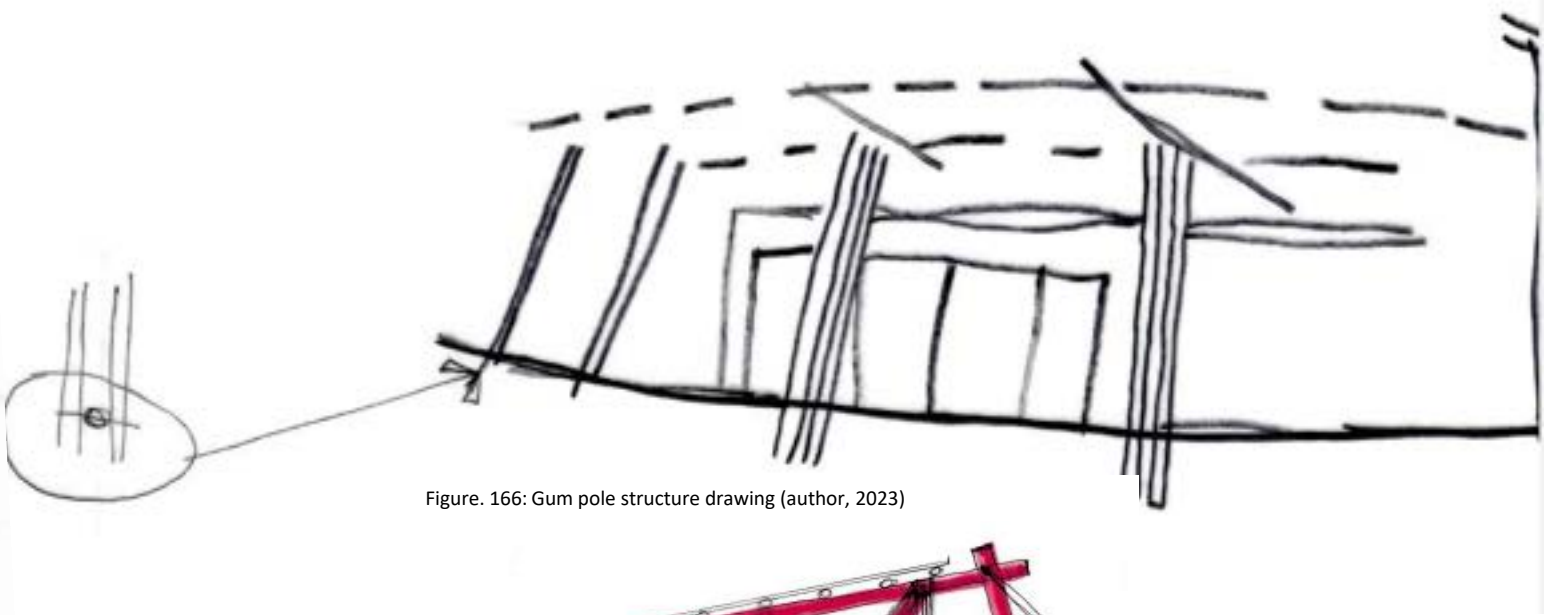


Figure. 166: Gum pole structure drawing (author, 2023)

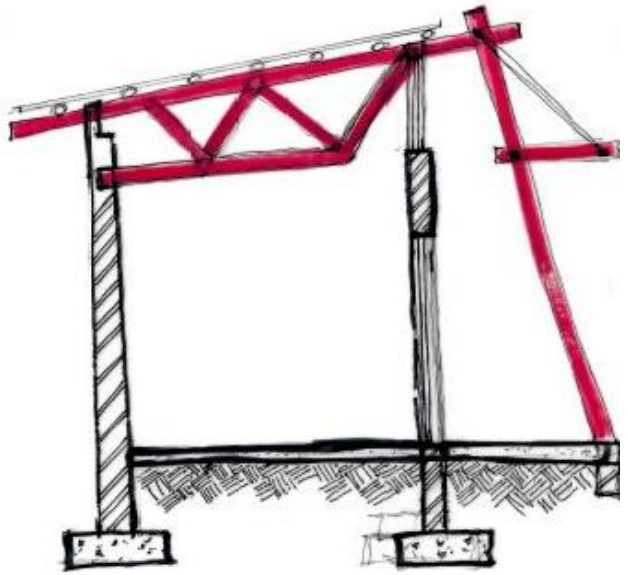


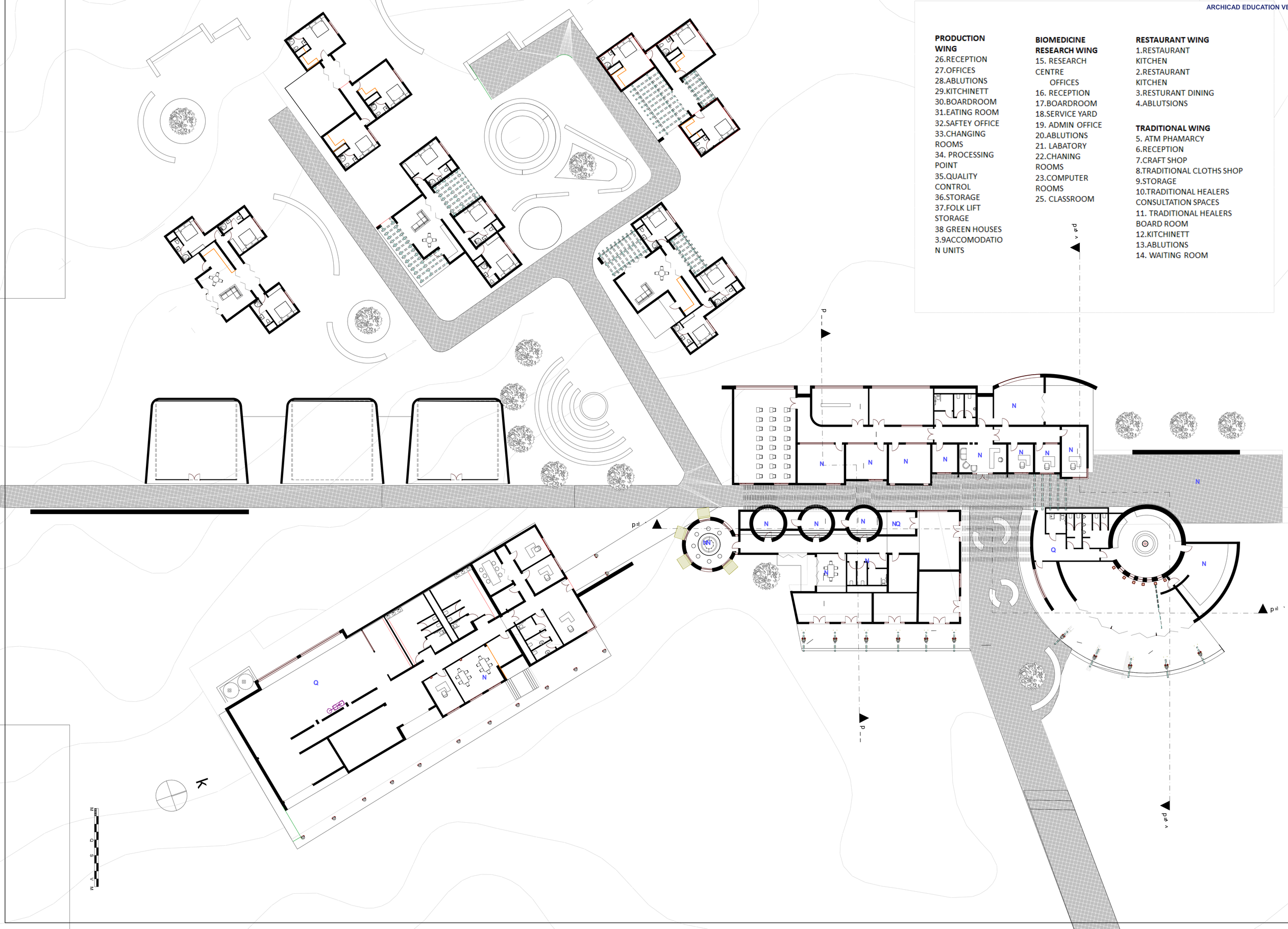
Figure. 167: Dum pole structure (author, 2023)

PRODUCTION WING
26.RECEPTION
27.OFFICES
28.ABLUTIONS
29.KITCHINETT
30.BOARDROOM
31.EATING ROOM
32.SAFTEY OFFICE
33.CHANGING ROOMS
34. PROCESSING POINT
35.QUALITY CONTROL
36.STORAGE
37.FOLK LIFT STORAGE
38 GREEN HOUSES
3.9ACCOMODATIO N UNITS

BIOMEDICINE RESEARCH WING
15. RESEARCH CENTRE
OFFICES
16. RECEPTION
17.BOARDROOM
18.SERVICE YARD
19. ADMIN OFFICE
20.ABLUTIONS
21. LABATORY
22.CHANING ROOMS
23.COMPUTER ROOMS
25. CLASSROOM

RESTAURANT WING
1.RESTAURANT KITCHEN
2.RESTAURANT KITCHEN
3.RESTURANT DINING
4.ABLUTSIONS

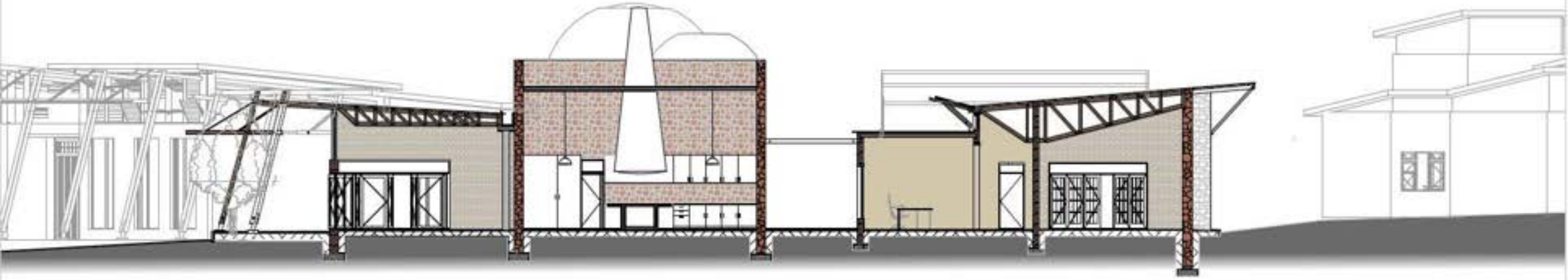
TRADITIONAL WING
5. ATM PHAMARCY
6.RECEPTION
7.CRAFT SHOP
8.TRADITIONAL CLOTHS SHOP
9.STORAGE
10.TRADITIONAL HEALERS CONSULTATION SPACES
11. TRADITIONAL HEALERS BOARD ROOM
12.KITCHINETT
13.ABLUTIONS
14. WAITING ROOM



0 1 2 3 4 5 6 7 8 9 10

EAST ELEVATION

Figure. 168: Elevation (author, 2023)



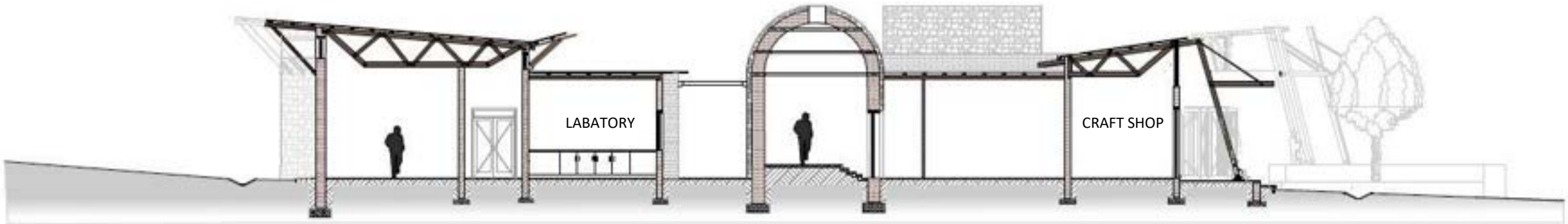
0 1 2 3 4 5 6 7 8 9 10

SECTION A-A

Figure. 169: Section (author, 2023)

NORTH ELEVATION

Figure. 150: Elevation (author, 2023)



SECTION B-B

Figure. 151: Section (author, 2023)

Figure.170: 3D Render (author, 2023)

Figure.171: 3D Render (author, 2023)

TRADITIONAL HEALERS' BOARDROOM

Figure. 172: 3D(author, 2023)

RESTAURANT

Figure. 173: Interior render (author, 2023)

RESTAURANT

Figure. 174: Interior render (author, 2023)

VIEW FROM WAITING TO CONSULT

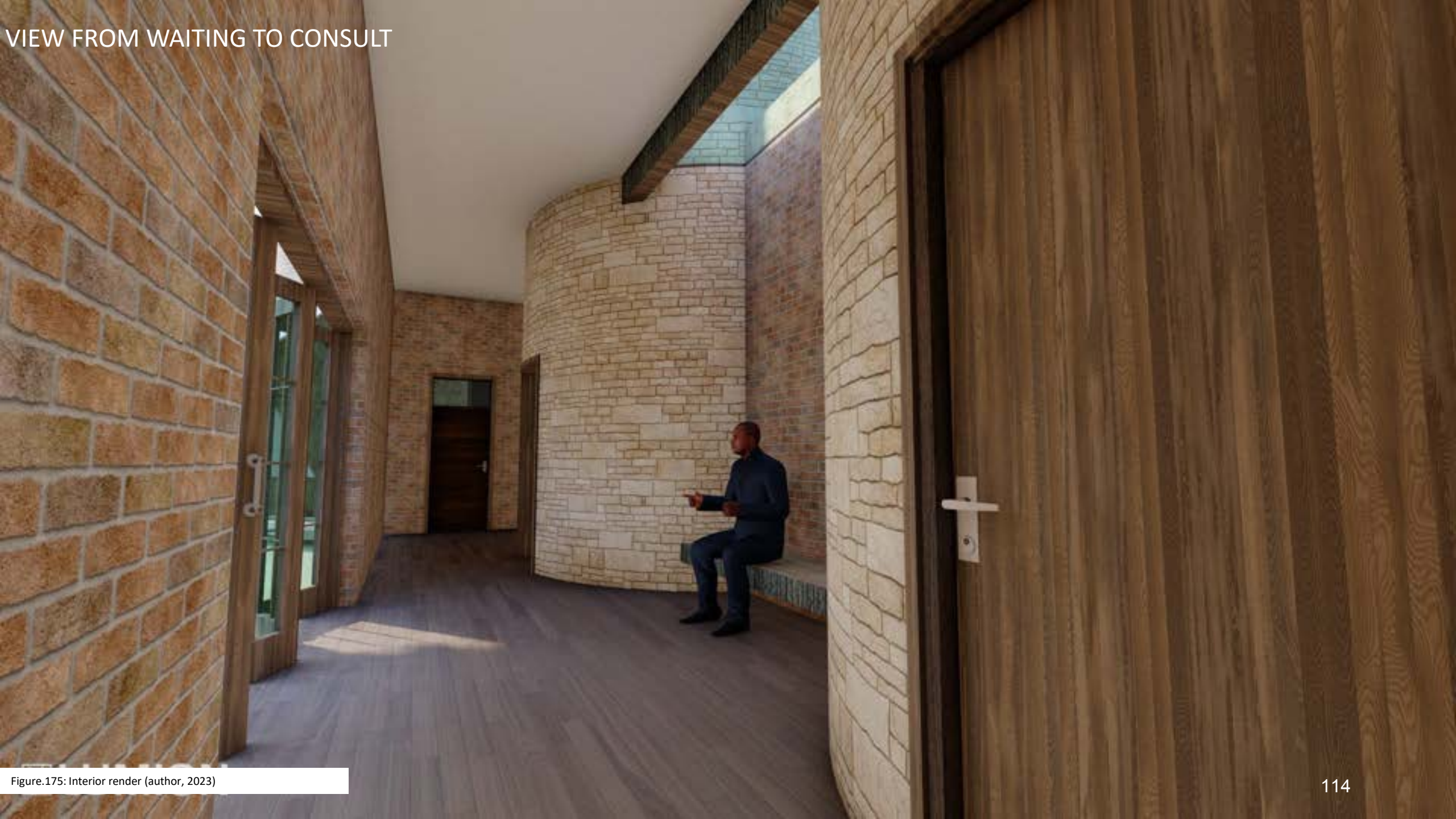


Figure.175: Interior render (author, 2023)

Model

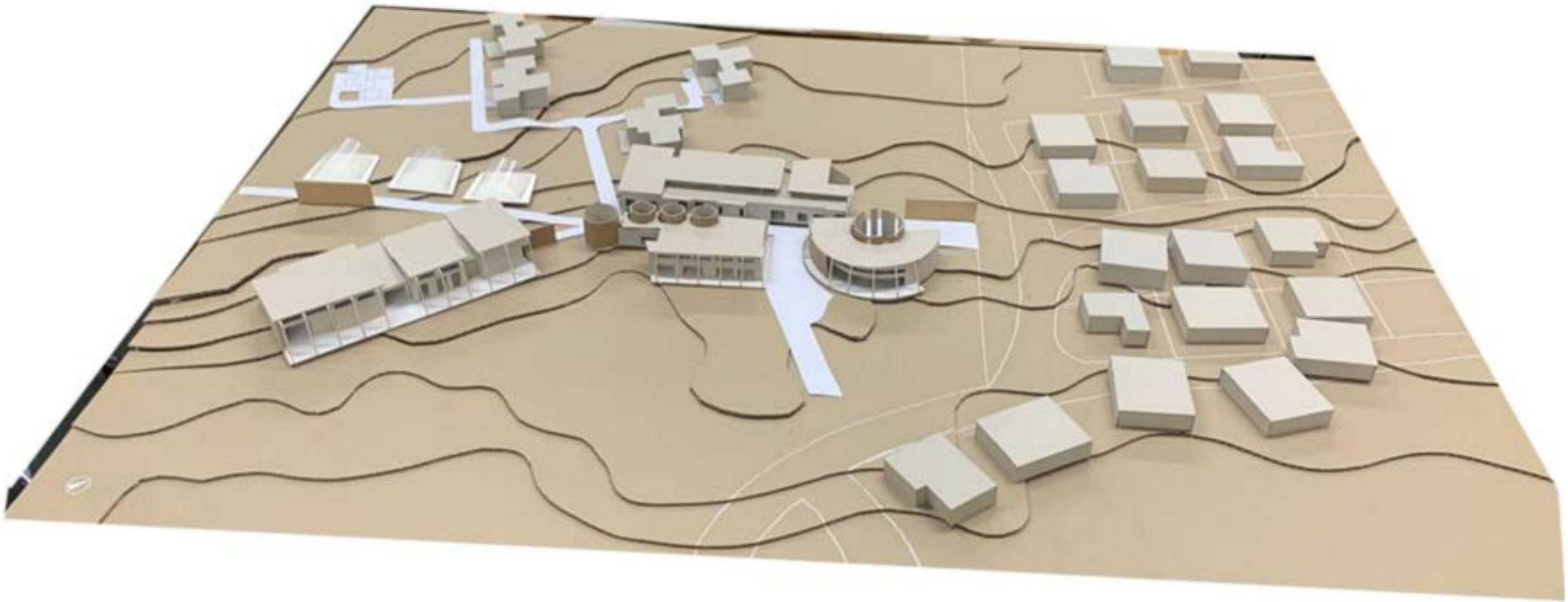


Figure. 176: 3D model (author, 2023)

Final Design

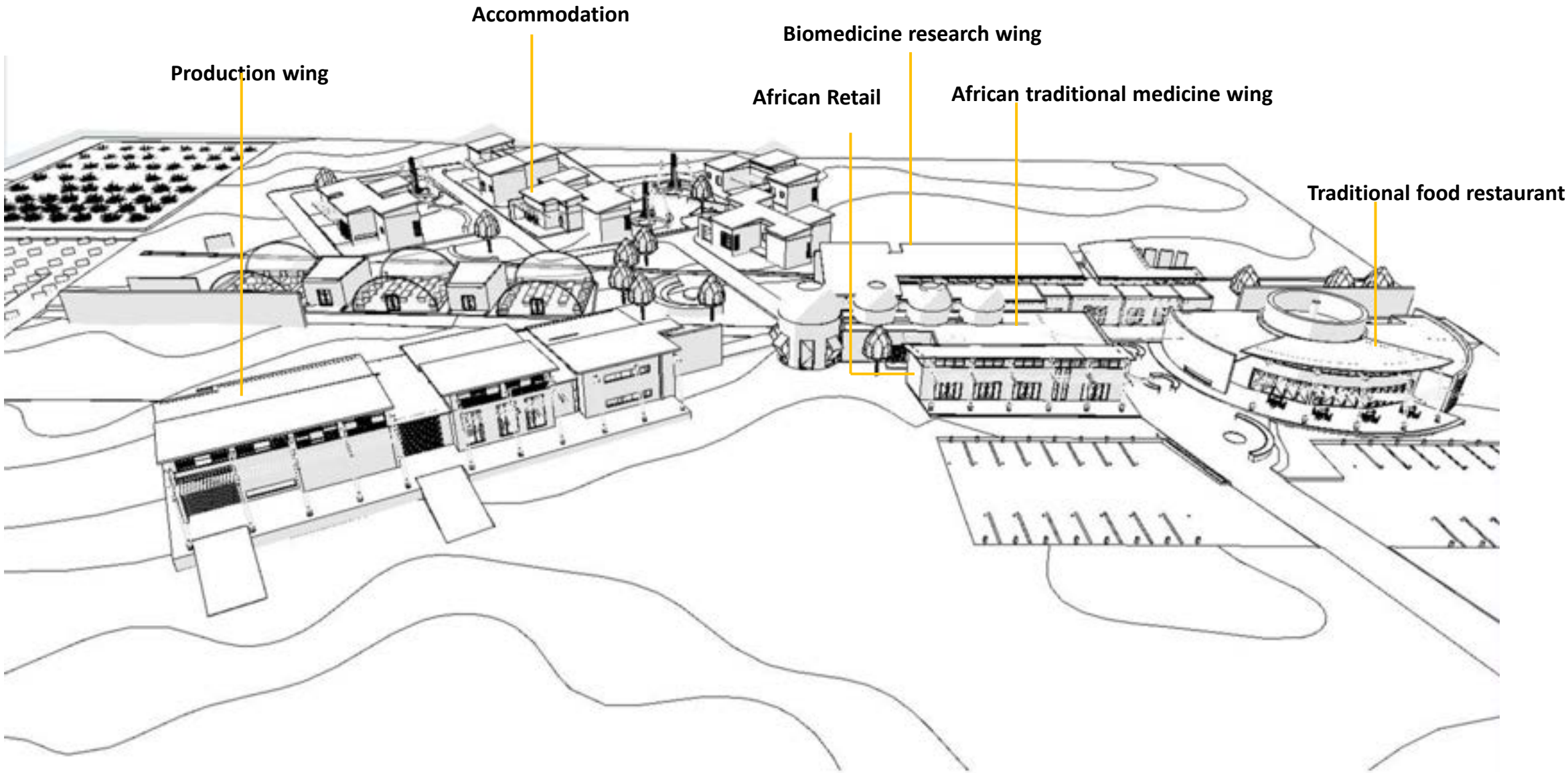


Figure .179: 3D Model6 (author,2023)

RESTAURANT WING

1. RESTAURANT KITCHEN
2. RESTAURANT KITCHEN
3. RESTAURANT DINING
4. ABLUTIONS

TRADITIONAL WING

5. ATM PHARMACY
6. RECEPTION
7. CRAFT SHOP
8. TRADITIONAL CLOTHES SHOP
9. STORAGE
10. TRADITIONAL HEALERS CONSULTATION SPACES
11. TRADITIONAL HEALERS BOARD ROOM
12. KITCHENETTE
13. ABLUTIONS
14. WAITING ROM

BIOMEDICAL RESEARCH WING

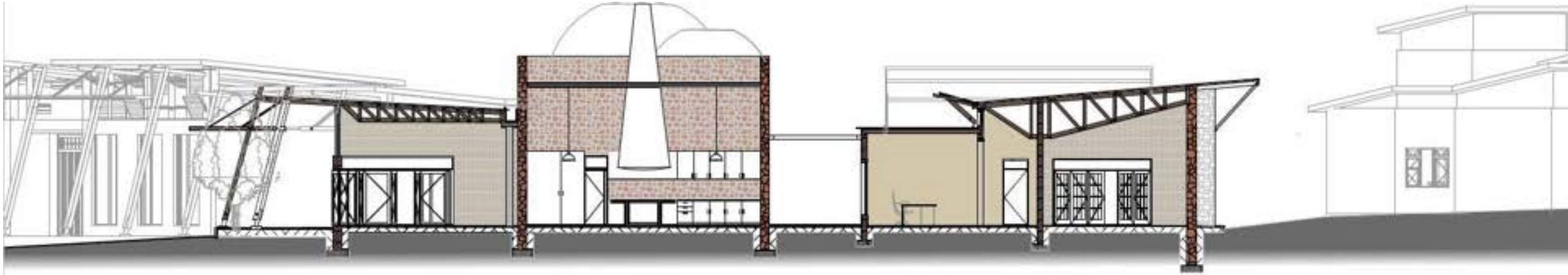
15. RESEARCH CENTER OFFICES
16. RECEPTION
17. BOARDROOM
18. SERVICE YARD
19. ADMIN OFFICE
20. ABLUTIONS
21. LABORATORY
22. CHANGING ROOMS
23. COMPUTER ROOMS
24. CLASSROOM/SEMINAR

PRODUCTION WING

26. RECEPTION
27. OFFICES
28. ABLUTIONS
29. KITCHNETT
30. BOARDROOM
31. EATING ROOM
32. SAFETY OFFICE
33. CHANGING ROOMS
34. PROCESSING POINT
35. QUALITY CONTROL UNIT
36. STORAGE
37. FOLK LIFT STORAGE
38. GREEN HOUSES
39. GREEN HOUSE STORAGE
40. ACCOMODATION UNITS

Figure. 180: Elevation (author, 2023)

EAST ELEVATION



SECTION A-A

0 1 2 3 4 5 6 7 8 9 10

Figure. 181: Section (author, 2023)

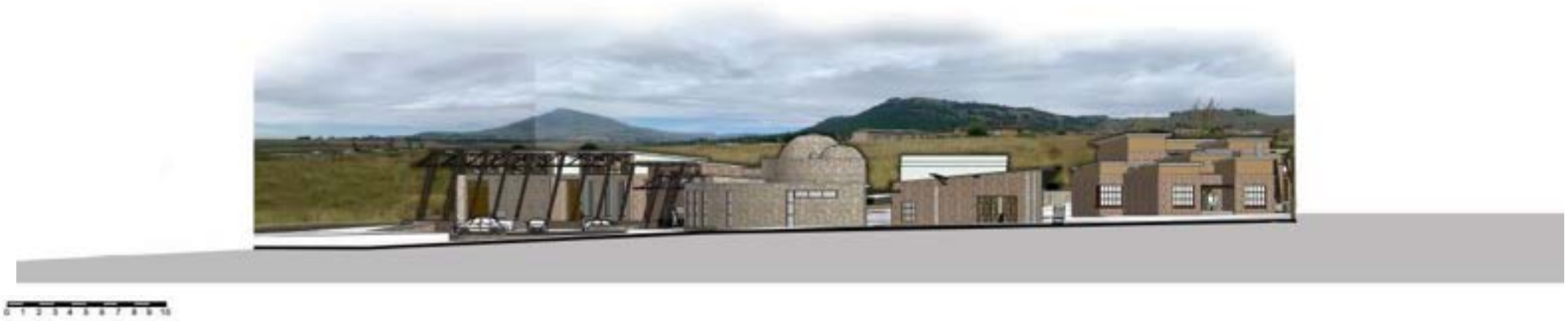


Figure. 182 Elevation (author, 2023)

Figure. 183 Section (author, 2023)

Figure. 184: 3D render (author, 2023)

Figure. 185: 3D render (author, 2023)

VIEW FROM TRADITIONAL HEALERS CONSULTATION SPACE FOR PATIENTS

Figure.186: Interior render (author, 2023)

Figure. 187 Interior render (author, 2023)

Figure. 188 Interior render (author, 2023)

Figure.189: 3D render (author, 2023)

VIEW FROM RESTAURANT

Figure.190:interior render (author, 2023)

Figure. 191: 3D model (author, 2023)

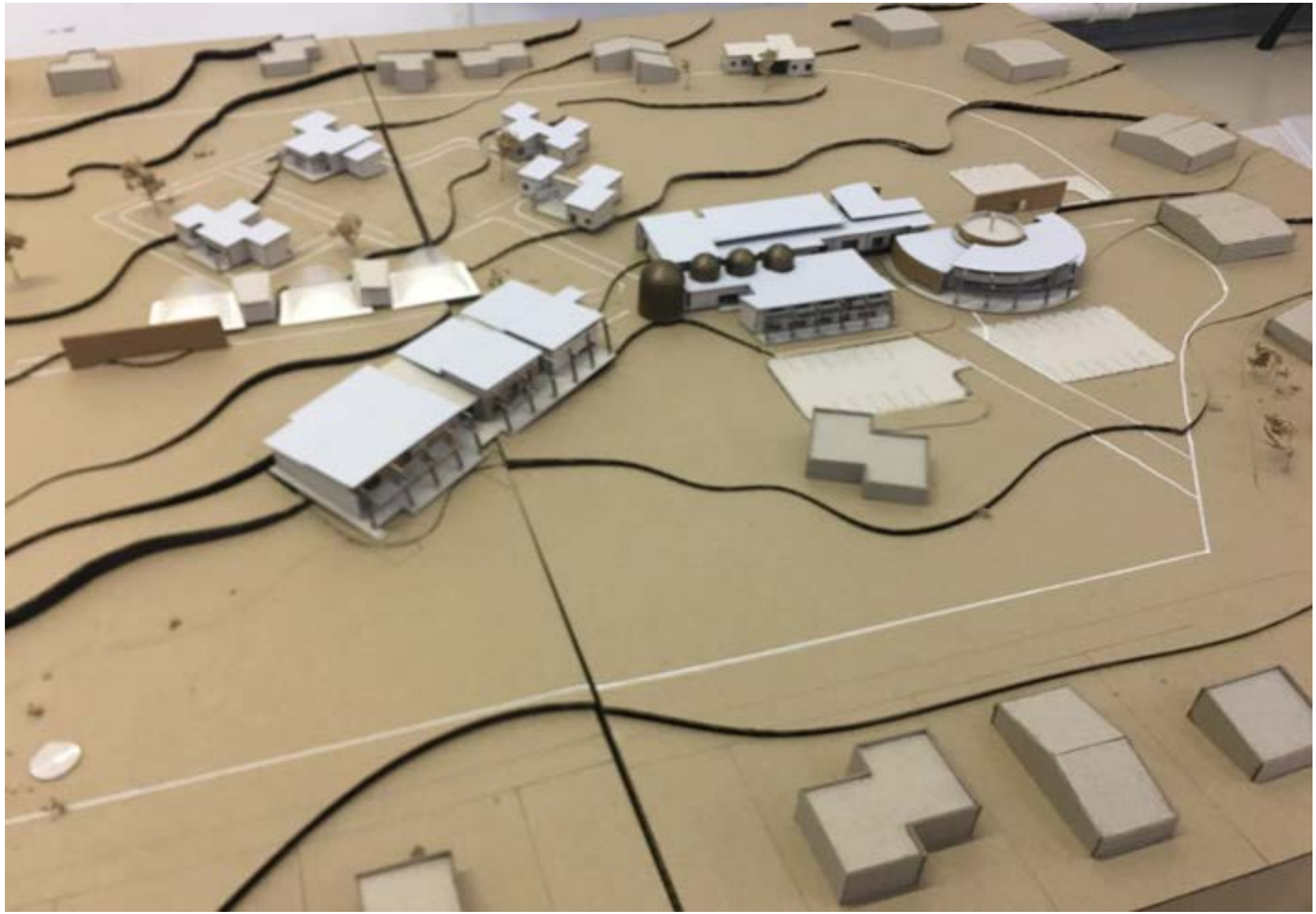


Figure. 192: 3D model (author, 2023)

Figure. 193: 3D model (author, 2023)

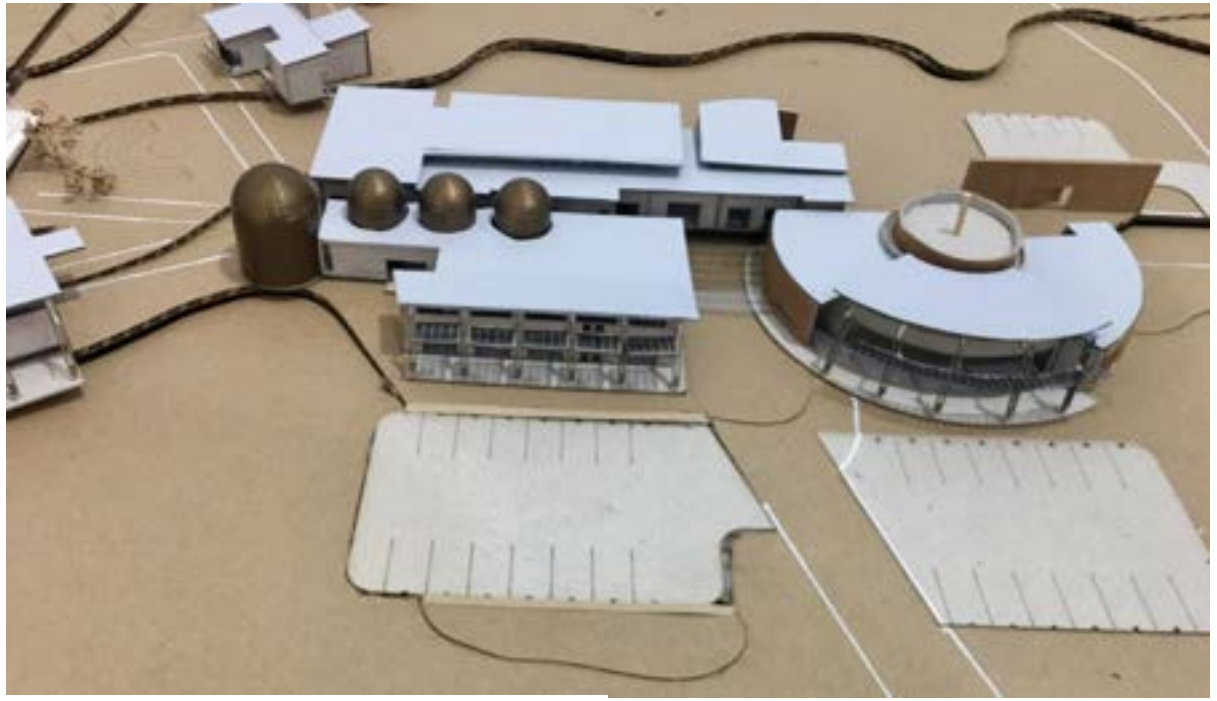


Figure. 194: 3D model (author, 2023)

Figure. 195: 3D model (author, 2023)

Figure. 196: 3D model (author, 2023)

Construction drawings


ARCHICAD EDUCATION VERSION
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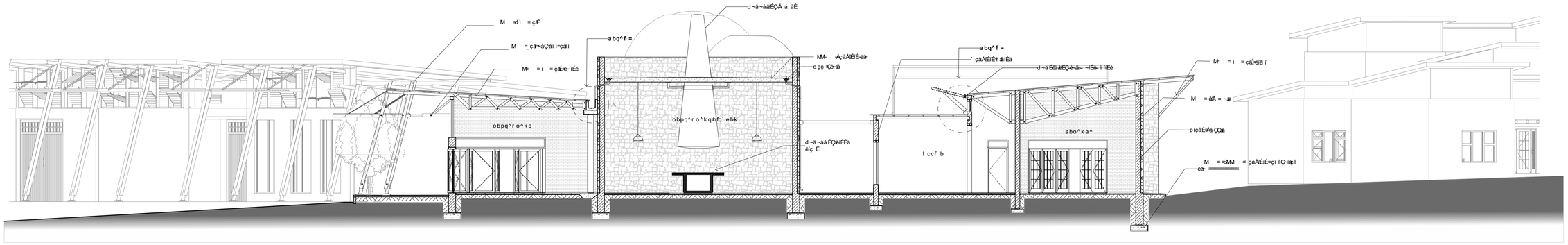
pfqb=mi^k
j ^vf_r vb=pqobbq

ARCHICAD EDUCATION VERSION



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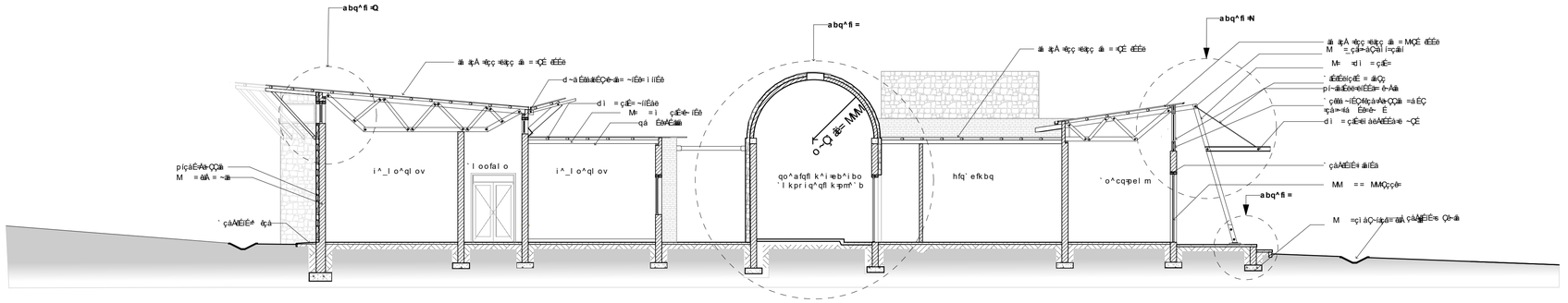
M



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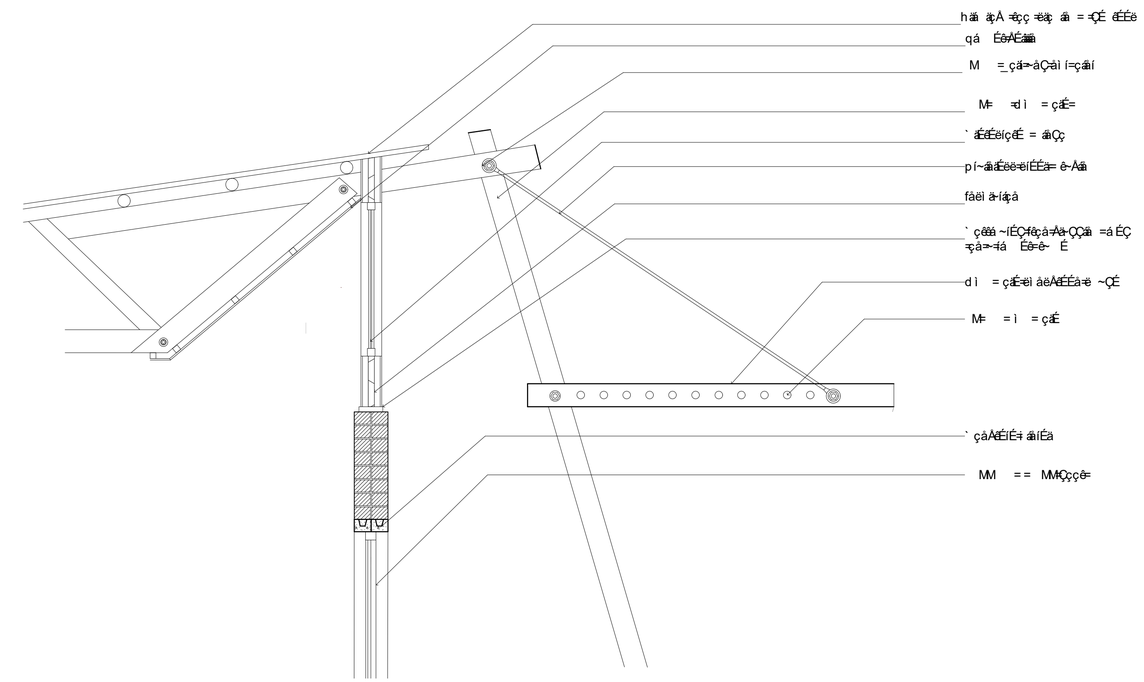

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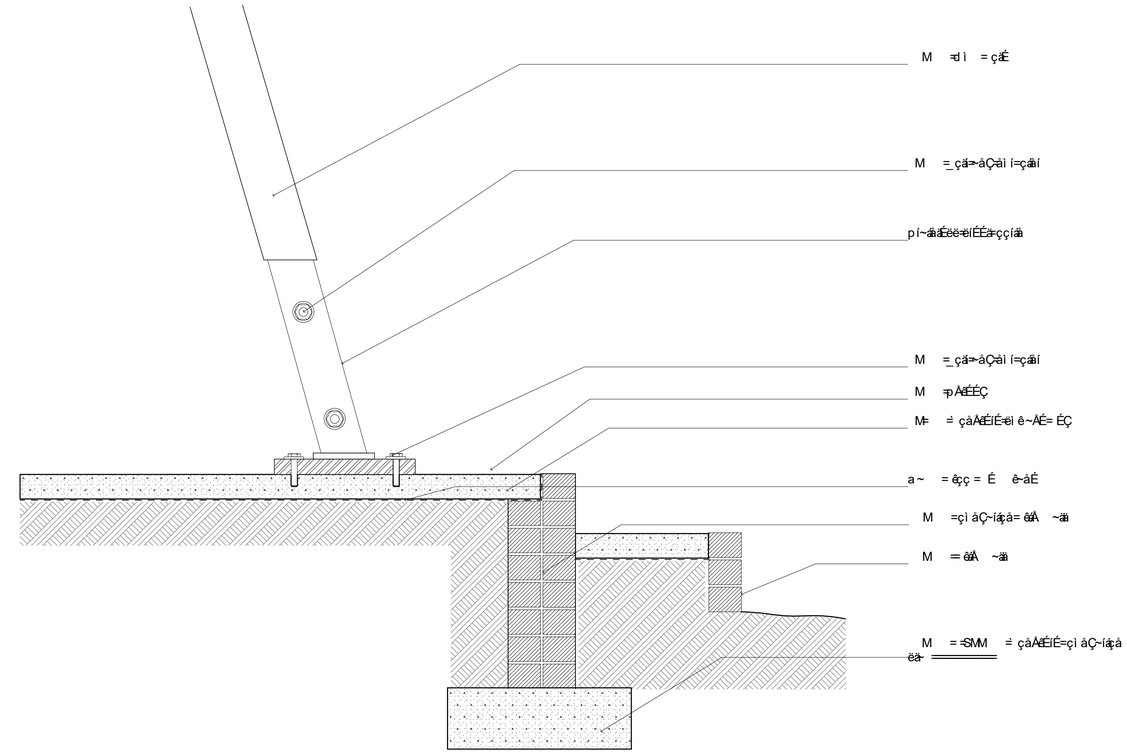

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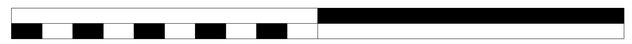

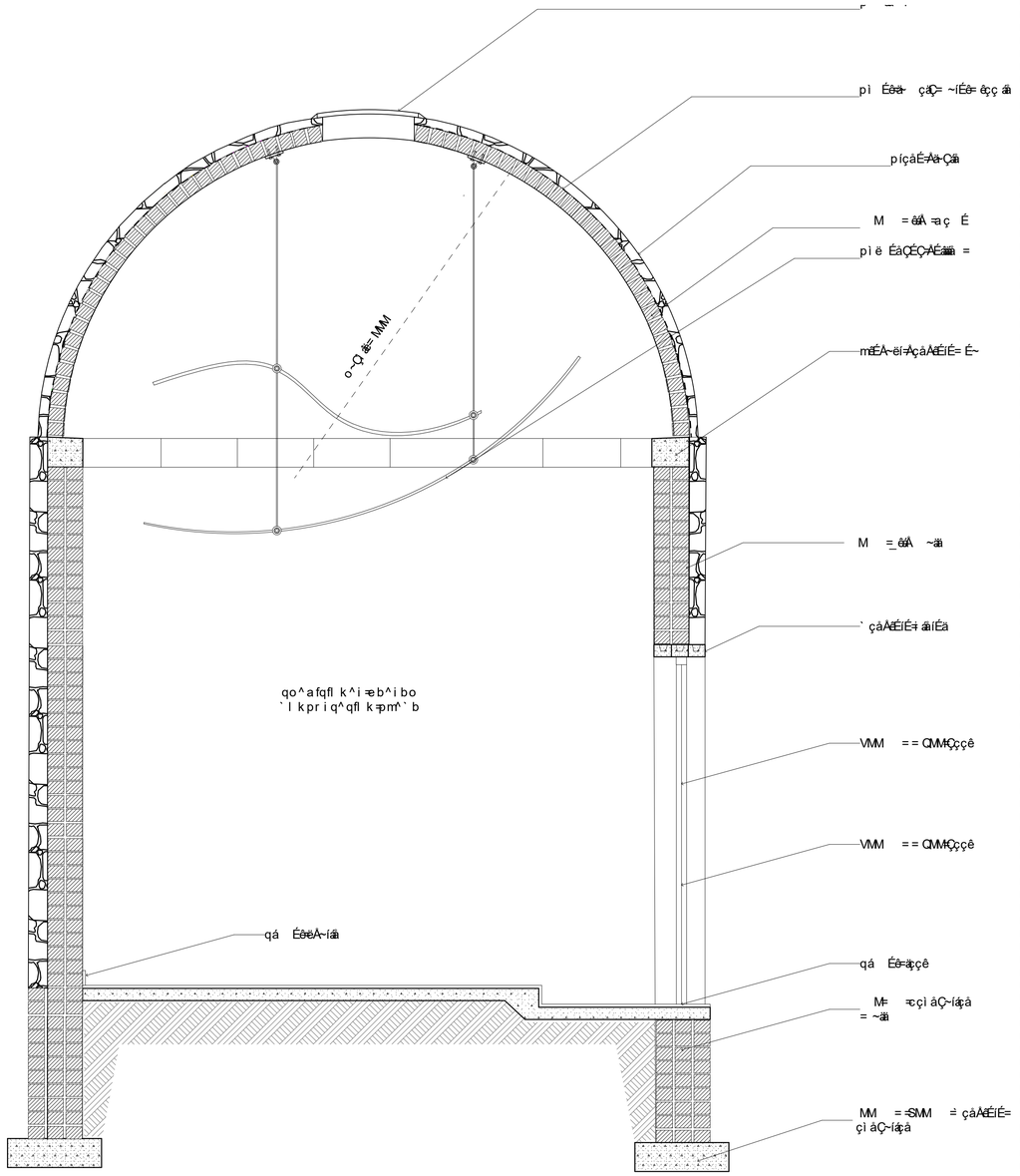

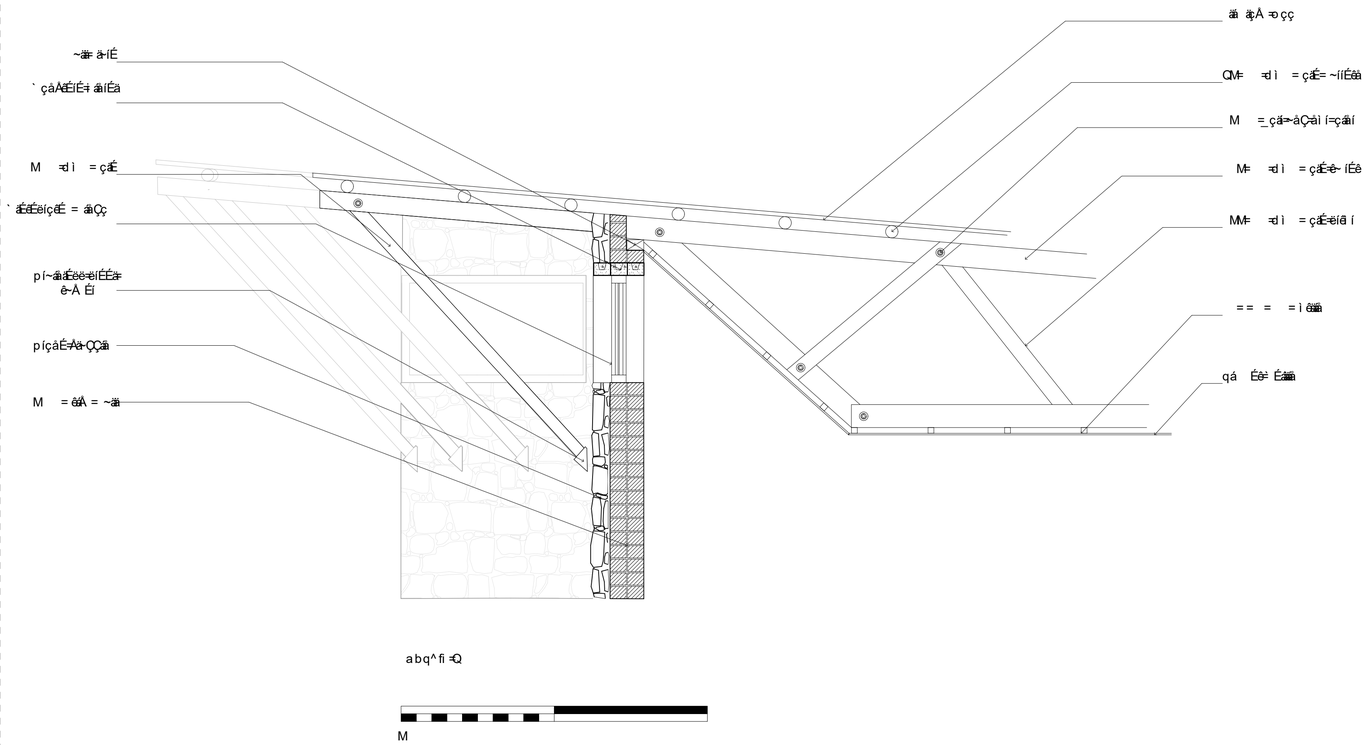

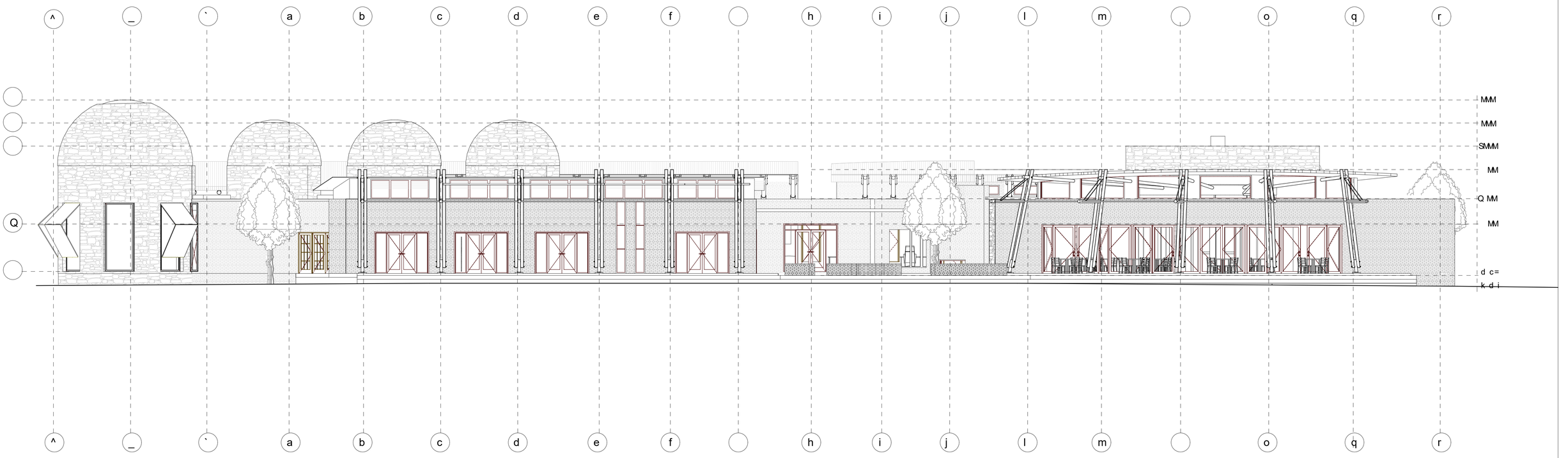

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CONCLUSION

In conclusion, this chapter serves as a significant cornerstone in understanding the evolution of the design for the proposed IBRC. This chapter offered a view of the design's journey, mapping its transformation from the first development plans to the final design of the proposed IBRC.

REFLECTION

Throughout the process of my dissertation, I have learned a great deal about African traditional medicine. I am grateful that I chose to pursue a topic in African traditional medicine because during my years of studying in architecture school, my education predominantly focused on Western architecture. For me, it presented a challenge to delve into an architectural setting rooted in African traditions.

However, the design of this project proved to be more complex than I originally anticipated. The most demanding aspect of this design project was creating a layout for the various buildings on the site that would harmonize with the surrounding context of the township.

Another significant challenge I encountered was the integration of African medicinal spaces with Western medicine spaces. These buildings differed in terms of their architectural styles, and merging the two into a cohesive whole posed a significant challenge in designing the Indigenous Biomedicine Research Centre. Furthermore, this building is quite large, marking the first time I've had the opportunity to design something with such a substantial footprint.

This year has been tough, both mentally and physically, as I navigated these challenges. The architectural knowledge I have gained throughout this year is something I will always value.

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