

BLOOMING THE OBSTINATE

The remediation of an abandoned quarry in Garies through the establishment of a saffron farmstead and visitor attraction as a means of fostering a sense of harmony between people and the natural world.



This page is dyed with dried Saffron threads



Figure 1, Saffron flower edited on-site, (author)

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Blooming the Obstinate

By

ADELIN FRANCIS

Dissertation submitted in fulfilment of the requirements for the
degree

Master of Architecture
MArch (prof)

with the

DEPARTMENT OF ARCHITECTURE
UNIVERSITY OF THE FREE STATE
BLOEMFONTEIN

2023

SUPERVISOR: Mr.David Van Der Merve

Dedication

I thank my parents for their unwavering support, God for His divine guidance, Mr D. van der Merve, my supervisor, for his wisdom and inspiration, and Mr. J. Smit and Ms. P. Smit, my lecturers, for their guidance. I want to thank you all for supporting me.

Definitions

Oxford Dictionary (Davis, 1998):

Saffron:

“an orange-yellow flavouring and food colouring made from the dried stigmas of crocus, *Crocus sativus*” (1998: 727)

Remediate: a verb derived from remedy:

Remedy:

“2 a means of counteracting or removing anything undesirable
3 redress; legal or other reparation” (1998: 694)

Revitalise:

“imbue with new life and vitality” (1998: 704)

Rehabilitate:

“2 restore to former privileges or reputation or proper condition” (1998: 692)

Obstinate:

“1 stubborn, intractable
2 Firmly adhering to one’s chosen course of action or opinion despite dissuasion
3 not readily responding to treatment” (1998: 565)

Oxford English Dictionary (2010: online)

Anthropogenic climate change

“Human-induced changes to the climate, notably *global warming, caused by the emission of *greenhouse gases, in particular carbon dioxide”

Farmstead:

“a farm and its buildings”

Abstract

Human activities have a negative impact on our natural environment, especially in the case of post-industrial waste and destruction, such as global quarries, as well as the consequences encountered by a small community in Namaqualand. Can the blooming flowers in the old quarry at Stoffelsfontein farm be recovered by developing a saffron farmstead and visitors' attraction, thereby remediating a wasteful and destroyed site in Garies, Namaqualand, and globally, investigating the potential for remediation and revitalisation and rehabilitation as a way of ecological empathy? Initiatives to address this problem have been made. Still, they have mainly concentrated on large-scale quarries or abandoned industrial sites, ignoring the effects on our smaller rural towns and farms harmed by trash dumping and quarry activities. To tackle this problem, I aim to remediate, revitalise, and rehabilitate a quarry that was once adorned, with an array of flowers by encouraging ecological awareness and empathy. By considering both human and natural influences, I propose the establishment of a saffron farm and visitors' attraction that actively involves the local community and attracts the rest of South Africa and tourists, offering new work and leisure experiences. This research draws upon a comparative analysis between man-made destruction and natural forces, incorporating relevant precedent studies. Remediating a destroyed site and its waste not only presents an opportunity for environmental rehabilitation but also offers a chance to reconcile human influences. It can stimulate the local economy by creating job opportunities and skills development.

Keywords: Saffron; Quarries; Garies; Ecological Awareness; Empathy; Remediation; Revitalise; Rehabilitate; Human-Nature; Visitors' Attraction; Farmstead; Ecological Stewardship

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Chapter 1: Introduction



Figure 2, Polished Garies granite (author)

Cohabitation with nature is complicated and is on a constant pendulum of power. Unfortunately, we distance ourselves from nature, and the consequences are dire. We witness landscapes marred by mineral overexploitation, ecosystems struggling to recover in the wake of disruption, extensive displacement of soil and vegetation, and the eviction of countless species from their habitats. Yet, despite these stark consequences, the intricate web that binds humanity and nature remains intact, although in a more complex manner than we often acknowledge. There is a pervasive tendency amongst humans to believe we stand above nature, capable of controlling all outcomes. However, the sobering reality is that some consequences are beyond our control, and the fear of losing control can sometimes drive us further down the destructive path of relentless development. To truly stand a chance at survival, we must recognise the imperative of cohabitating with nature.

While it is clear that there is no single solution for the multifaceted environmental challenges we face, cultivating ecological awareness represents a crucial first step - a modest yet meaningful stride towards restoring balance and nudging the pendulum closer to stillness. Projects should shift their focus toward acknowledging our profound interconnectedness with nature, fostering a harmonious and sustainable cohabitation with our planet. The proposed project is located in Garies on an abandoned quarry and focuses on environmental stewardship and the cultivation of empathy through a multifaceted approach encompassing remediation, rehabilitation, and revitalisation. With devastated sites left unattended, Namaqualand offers ample space for improvement and intervention.

The proposal aims to address empathy and remediation by attempting to design a space that utilises and works with the site again. The design would include a saffron farmstead bring the blooming flowers back to where they once grew. The project will also include a visitors' attraction to create awareness and learning experiences, all while creating local jobs, skills development and ecological stimulation.



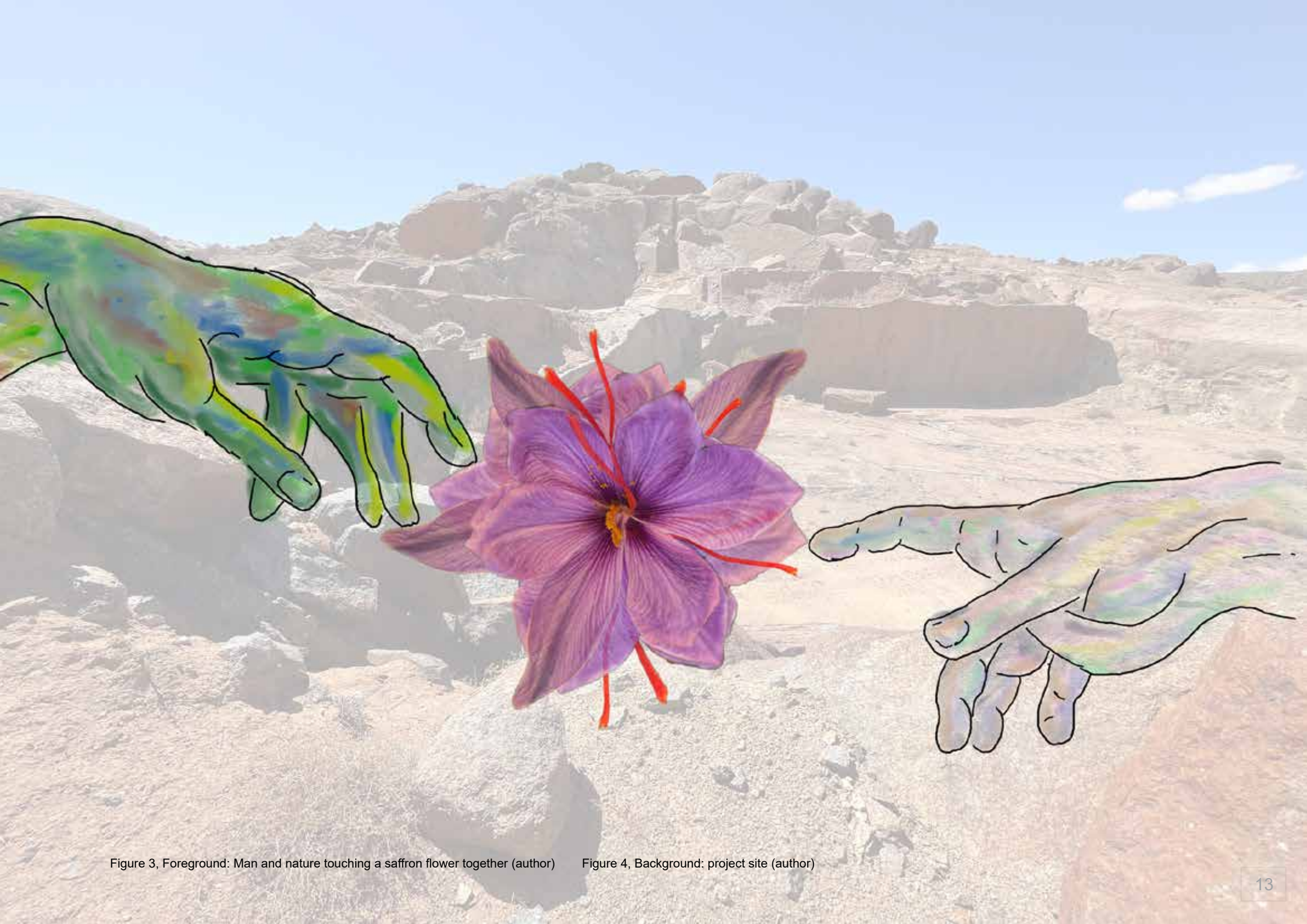


Figure 3, Foreground: Man and nature touching a saffron flower together (author)

Figure 4, Background: project site (author)

Considering the different aspects, Garies could use reimagining, and one can thus ask the question: Can the blooming flowers in the old quarry at Stoffelsfontein farm be recovered by developing a saffron farmstead and visitors' attraction, thereby remediating a wasteful and destroyed site in Garies, Namaqualand, and globally, and investigating the potential for remediation and revitalisation and rehabilitation as a way of ecological empathy? The theoretical foundation of this document delves into the nuanced relationship between humans and nature, unravelling the threads that bind them together. It delves into the realms of ecological awareness, empathy, and the pursuit of harmonious sustainability, all of which converge to form the three pivotal concepts of remediation, revitalisation, and rehabilitation within the realm of the built environment.

The document commences by providing the necessary historical background on saffron, elucidating its uses and cultivation practices. Subsequently, it explores the applicability of saffron in the South African context. The intricacies of quarries and their processes are also dissected, setting the stage for the project's context, objectives, programme, and requirements, all of which feed into the comprehensive site analysis.

Drawing inspiration from precedents such as Parc de la Villette by Bernard Tschumi, ROM by AllesWirdGut Architektur and !Kwa Ttu San Heritage Centre by KLG Architects the document further explores the nuances of these concepts, delving into design elements and their applicability in the context of the project.

Alternative site mappings have been analysed in conjunction with the site's context. Process work is interspersed throughout the document, shedding light on the design exploration underpinning the information above.

The theoretical underpinnings find their embodiment in a thought-provoking exhibition precedent set by Canadian artist Kapwani Kiwanga, infusing life into the theory and paving the way for the practical application of the concepts of remediation, revitalisation, and rehabilitation within the project.

The project's development will then progress towards the final design synthesis, culminating in these multifaceted considerations and endeavours.

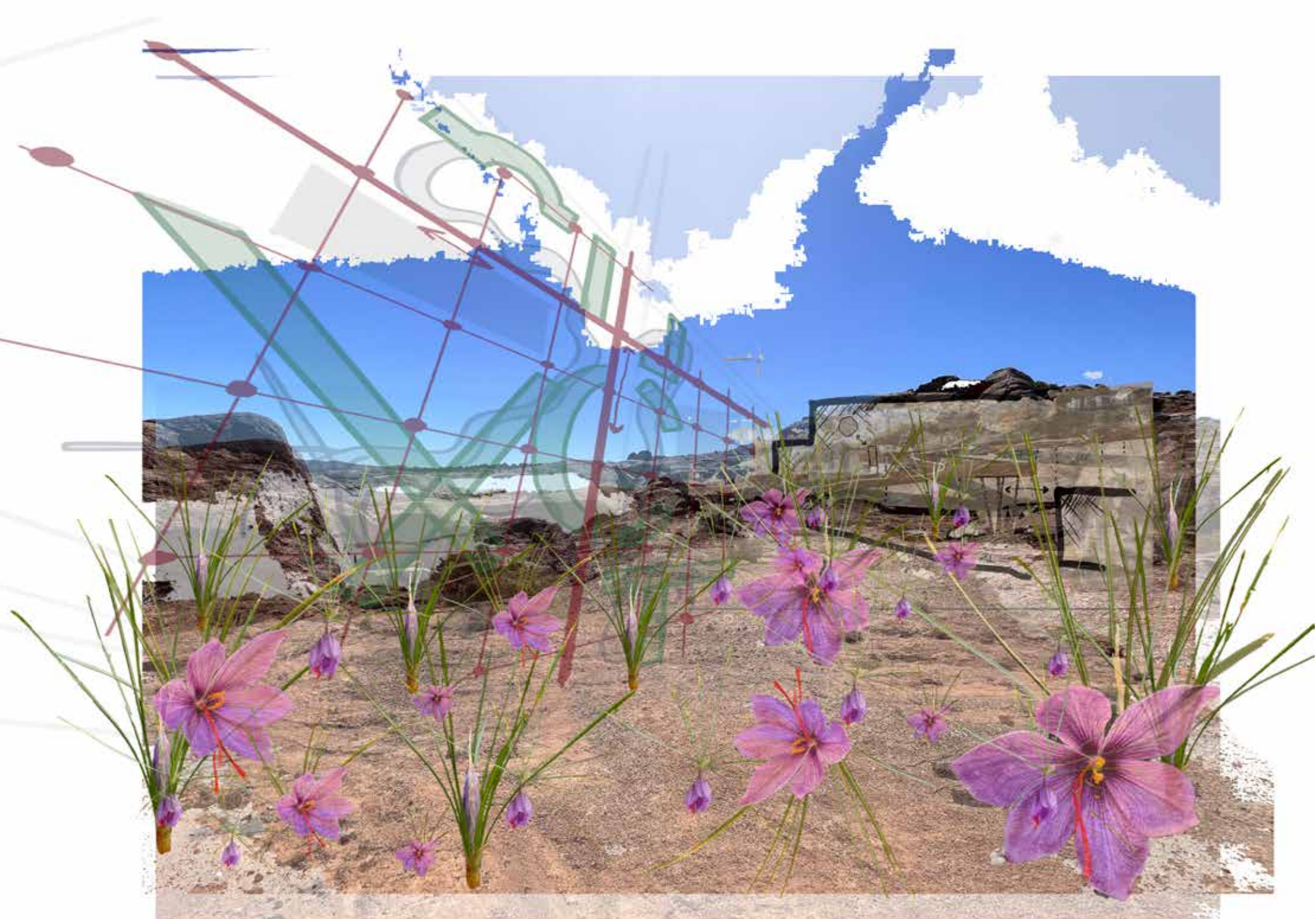


Figure 5, Site with saffron flowers and precedent sketches (author)

Chapter 2: Background Information

This chapter highlights the significance of saffron and quarries by providing a concise overview of their background information. It delves into the importance of saffron in people's daily lives, cultivation and the South African market. Additionally, the chapter provides insights into quarries, covering their processes, statistics, and overall influences.



Figure 6, Textured quartzite-like rock on site (author)

2.1. History of Saffron

Saffron, often referred to as the “golden spice” (Akaberi, Boghrati, Amiri & Emami, 2019: 1), is one of the world’s most expensive spices. Derived from the delicate threads of the *Crocus sativus* flower, as seen in Figure 7, saffron has been revered for centuries for its distinct aroma, vibrant colour, and versatile applications. Whether used as a culinary enhancer or a medicinal elixir, saffron is prominent in various cultures worldwide.

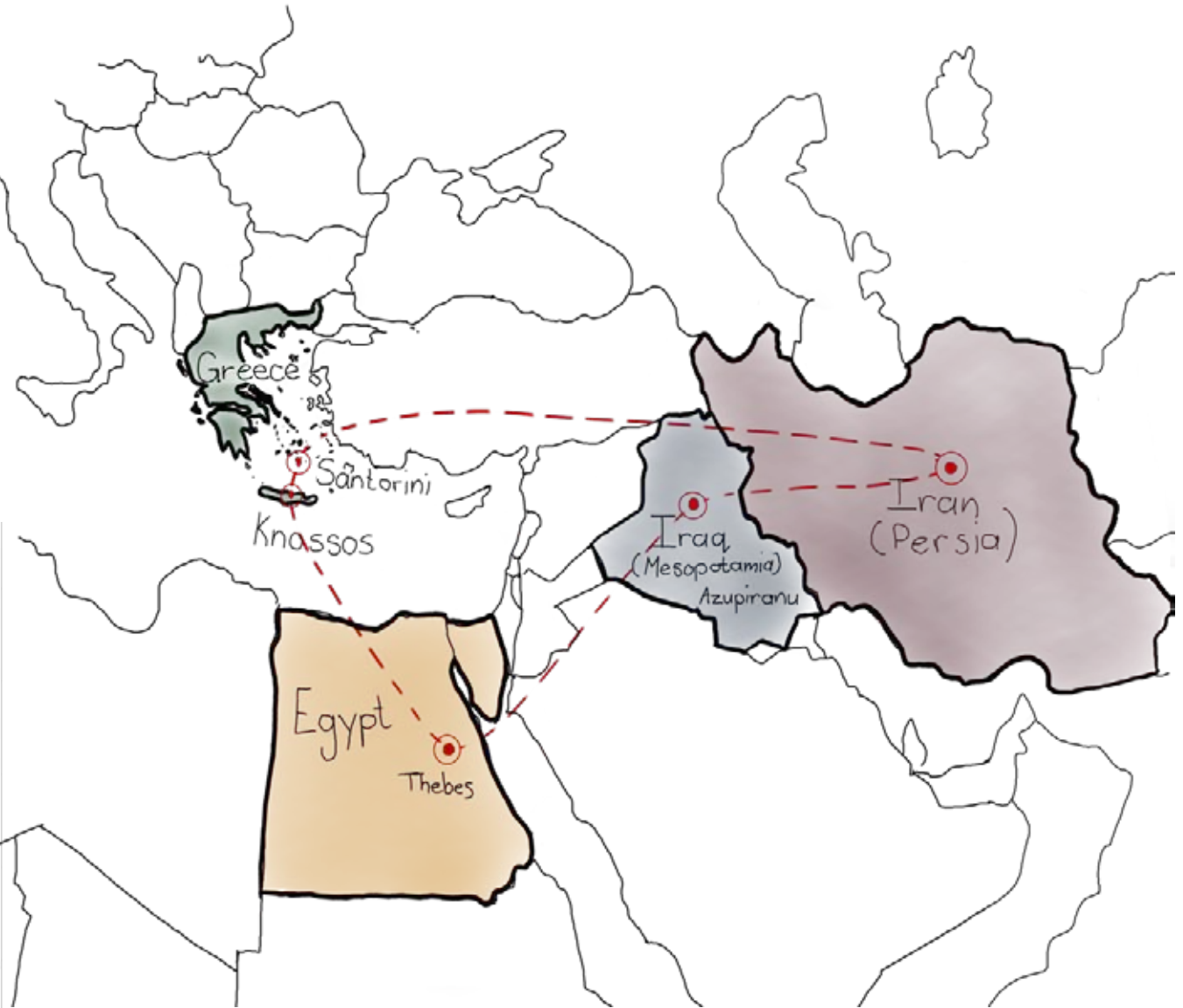


Figure 7, 1985 Iran stamp (Malek National Library and Museum institution, 1985: online)

Figure 8, Map of early saffron trade (author)

Dating back to the unknown

Saffron, a highly prized spice, has a history that spans many centuries, although its exact place of origin still needs to be discovered. East Mediterranean records dating back to 2300 BC, such as those from King Sargon of Akkad in the city of Azupiranu (Sativus, [n.d.]a: online), provide evidence of the early cultivation and recognition of saffron as a valuable commodity. These historical accounts suggest that saffron was grown on a large scale and extensively used in the region, earning the title “Saffron City” (Jagdish, 2018: online). This was situated in ancient Mesopotamia, now known as Iraq (figure 8).

Further historical evidence takes us back to ancient Greece (figure 8), with saffron mentioned in records from 1600 BC in Knossos and 1500 BC in Santorini. These accounts depict the entire process of saffron harvesting, from picking the threads to its ritualistic worship. Intriguingly, it is noted that young girls and monkeys were involved in plucking the saffron threads (Sativus, [n.d.] a: online). In Thebes, Egypt, a tomb dating back to 1600 BC revealed a medical papyrus documenting the medicinal functions of saffron (Sativus, [n.d.]a: online).

While the real origin of saffron is uncertain, historical records show that it was largely used in medicine and as a luxury item appreciated by royalty, pharaohs, and monks (figures 9-11). It was employed in perfumes, saffron-dyed robes, culinary usage, wound healing by bathing in saffron-infused water, sprinkling it on beds, and presenting it to deities as a prelude to romance (Sativus, [n.d.]a: online). Although more precise historical information has been discovered, they go back further (Jagdish et al., 2018: online).



Figure 9, Wall painting of girls collecting saffron crocus (Schorr, 2008: online)



Figure 10, Fresco of saffron crocus flowers being gathered by two women from the excavation of Akrotiri on the Aegean island of Santorini (Doumas, 1992) accessed from (Dewan, 2015: 46)



Figure 11, Blue boy collecting saffron, Minoan fresco from Knossos, (Sativus, [n.d.]a: online)

2.2. Saffron in Contemporary Times

Over time, saffron has remained a cherished spice, commanding a premium price. Today, saffron continues to serve various purposes and is well-researched for its numerous benefits. Although its cultivation demands significant labour, the substantial economic rewards are compelling for farmers to continue growing it.



Figure 12, Freshly picked saffron flowers (author)

Modern uses

Saffron's most prevalent culinary application is as an addition to cottage cheese, biryani, meats, liquors, cordials, cakes, confectioneries, bread, and Mughlai meals. Saffron's current medical applications include gastro-intestinal activity, temperament, hepatoprotective activity, cardiovascular activity, respiratory disorders, ocular disorders, anti-depressant activity, anti-Inflammatory, analgesic and anti-nociceptive activities, aphrodisiac, protective effects on urogenital system disorders, and oxytocic activities (Akaberi et al., 2019: 8; Jagdish, 2018: online).

The taste of saffron is difficult to explain, especially to someone who has not tasted it. It is said to be a sweet taste, like its smell but it is described differently by various people. Some described the taste as mushroomy and smoky, metallic with honey tones and a whiff of seashells or like the sea. (Sativus, [n.d.] d:online). Saffron's rich history, delicate cultivation process, and many culinary and medicinal uses make it an extraordinary spice that has captivated civilisations for centuries, from ancient times to the modern.

Figure 13, Fresh saffron threads (author)

2.3. Farming Process of Saffron



Figure 14, Saffron corm (author)



Figure 15, Sprouting (author)



Figure 16, Appearing leaves (author)



Figure 17, Leaves (author)



Figure 18, Flowering (author)



Figure 19, Long leaves (author)



Figure 20, Dying leaves (author)

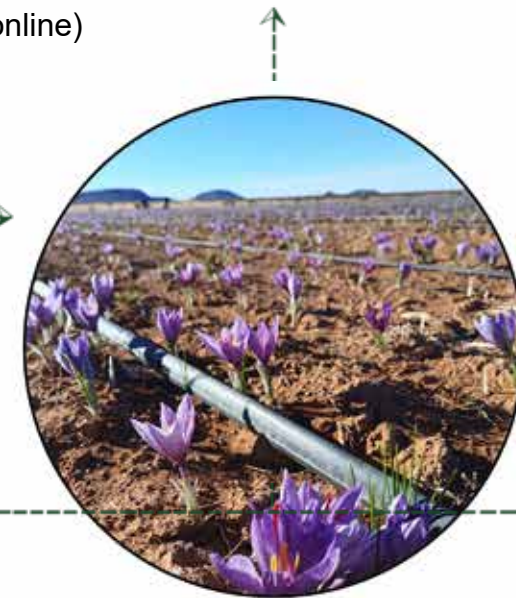
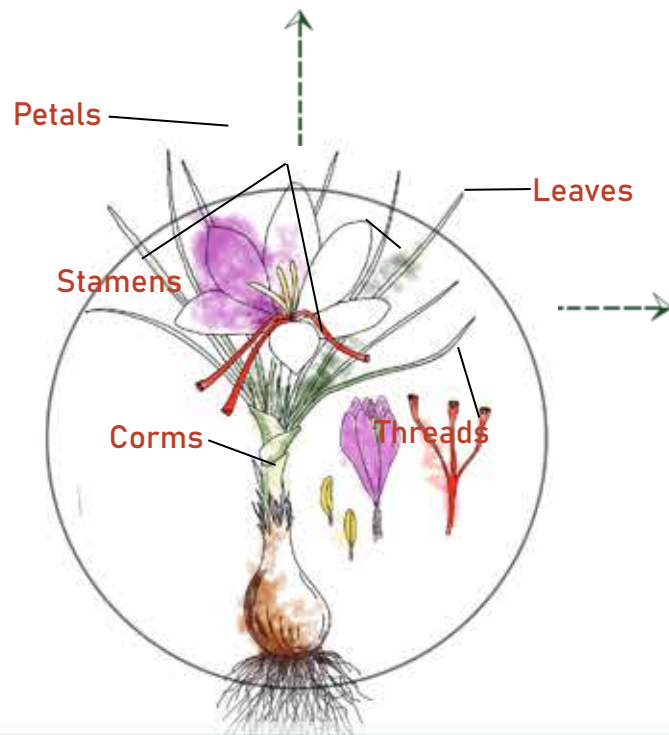


Figure 21, Dead leaves (author)

Ideal for sandy, loamy soil with proper drainage, this plant needs six to eight hours of daily sunlight and is best planted in summer. Resilient to temperatures from +45°C to -18°C, it thrives in regions with an average annual rainfall of 300 mm and is drought-resistant. Although it grows well in non-Mediterranean temperatures, its traditional habitat is in Mediterranean climates. (Jagdish, 2018: online; Saffricon, 2023b: 2; Saffricon, [n.d.]:c: online; SMEDA, 2019: 7; Europeansaffron, 2014: 26)

Machines used to plant potatoes, onions, and garlic can also be used to grow saffron corms (Europeansaffron, 2014: 32; Jagdish, 2018: online), but machines cannot be used to collect the blooms due to their sensitive nature. Not a lot of space is needed as 250 m² can accommodate 15 000 corms (Afrisaff, 2021: online; Laeveld Agrochem, [n.d.]: online; Liebenberg, 2021: online). The usual planting rate is around 60 000 corms per hectare (Saffricon, 2023a: 2).

The growing season spans from mid to late October, with flowering occurring 40 days after seeding and sprouting. Following the growing season, plants dry out, and corms enter dormancy. Cultivating saffron requires moderate irrigation, and corms do not need protection from frost. With minimal maintenance and manual weed management, saffron proves resilient and low-nutrient-requiring, considering fertilizer use only before ploughing if necessary. (SMEDA, 2019: 7; Sativus, [n.d.]:b: online; Saffricon, 2023b: 2; Saffricon, [n.d.]:c: online; Europeansaffron, 2014: 26; Jagdish, 2018: online)



ENVIRONMENT, CLIMATE AND SOIL

PLANTING

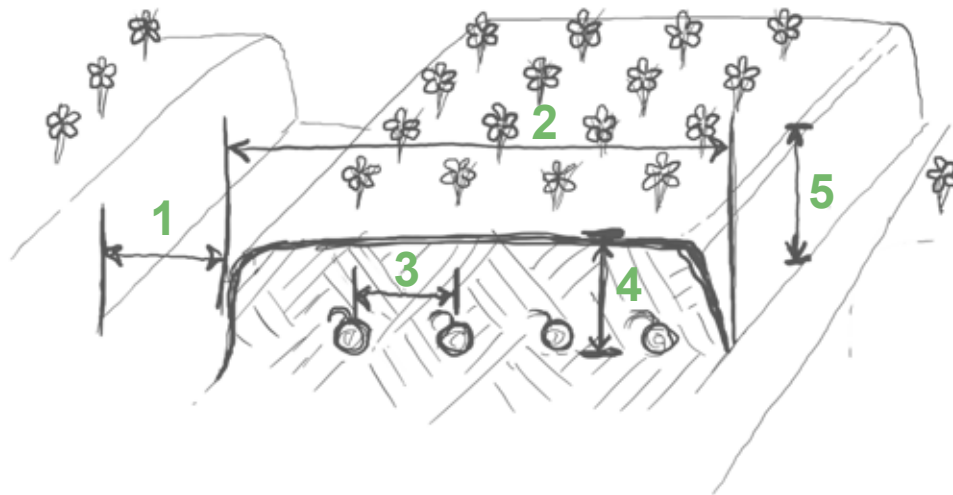
GROWING

Figure 22, Saffron plant elements (author)

Figure 23, Wonder Bhowa planting saffron at Karoo Fresh (Karoo Fresh Produce, 2021a: online)

Figure 24, Irrigated saffron (Saffricon, 2023c: online)

- 1: 25 cm
- 2: 75 cm
- 3: 15 cm
- 4: 10-15 cm
- 5: 15- 35 cm



- 0: Sprouting
- 1: Leaf Development
- 2: Beginning of dormancy
- 3: Replacement corm development
- 4: Appearance of flower
- 5: Flowering

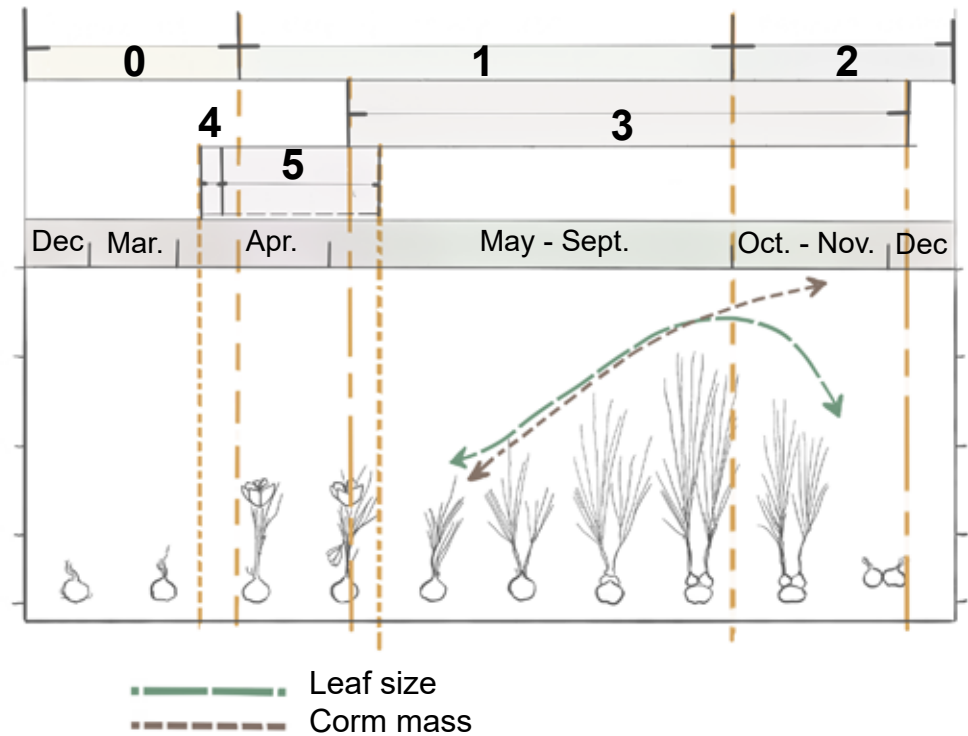


Figure 25, Planting layout Drawing: (author).
Information from: (Sativus, [n.d.].b: online; SMEDA, 2019: 8)

Figure 26, Phenological stages of a saffron plant according to the BBCH Scale. (author). Information from: (Córcoles, Ramos, Garcia, Romero-Valverde & Montero-Riquelme, 2015: 5)

Flower harvesting is a manual task that entails carefully cutting the flower at its lower corolla and gently placing it in small baskets to avoid damage. Flowers are delicately clipped at the lower corolla and placed in tiny baskets to maintain their integrity in the traditional process of saffron flower harvesting (Jagdish, 2018: online). 10 to 20 employees per hectare are needed for efficient harvesting (Liebenberg, 2021: online). Guidelines include picking early in the morning, clean transportation, fast stigma separation, avoiding touch between hands and soil, and refraining from picking tiny, unopened blooms.

Stamens go to waste, however, saffron flower petals find application in both the food industry as a colouring and flavouring agent and in cosmetic formulations. In traditional medicine, saffron petals are ingested (Mortazavi; Kamali; Safi; Salehi, 2012: 76). Stigma separation is done by opening the flower with both hands and cutting the column at the bottom of the three stigmas, taking care not to separate them. A clean environment and hygiene during stigma separation are very important. Workers should keep their hands clean at all times (SMEDA, 2019: 11).

To maintain quality, harvested stigmas should be dried on the same day. Different ways of drying the stigmas include the electric oven method, drying with a sieve and specialised spice dryers. For optimal results when using an electric oven, the temperature is set between 50°C and 60°C. Special trays with silken nets are utilized, layering the dish between 1cm to 2cm thick and cooking for 30 to 40 minutes (Jagdish, 2018: online; Sativus, [n.d.]b: online; SMEDA, 2019: 11). Fresh saffron has no taste but is only apparent after it is dried. Saffron is dry when it feels slightly crispy and shows a vibrant dark red colour and dark orange edges (Sativus, [n.d.]b: online).



HARVESTING

Figure 27, Workers picking flowers (Saffricon, 2023c: online)



PICKING THREADS

Figure 28, Workers picking flowers, (Karoo Fresh Produce, 2021b: online)



DRYING SAFFRON STIGMAS

Figure 29, Saffron threads in an oven, (Sneico Saffron Supplier, 2023a: online)

For proper saffron thread storage, dried threads are packed in glass jars or tightly sealed tins, avoiding plastic containers (Ahari & Seifari, 2022: 240; SMEDA, 2019: 11). Store in a cool, dark place to preserve flavour and quality (Europeansaffron, 2014: 40). For handling and transferring saffron corms, use plastic or carton boxes. Before planting, store corms in a dry, well-ventilated place at temperatures of 20 to 27 degrees Celsius, ensuring they are kept in the dark (Europeansaffron, 2014: 34, 42; Jagdish, 2018: online; Jansen, 2022: online; Sativus, [n.d.]: online; SMEDA, 2019: 10).



STORAGE

Figure 30, Jar of saffron (Sree, 2016: online)

Saffron is typically stored in airtight containers, although some buyers prefer it in clear glass for easy quality assessment without opening the container. When saffron is packed in clear glass, it should be stored in a dark place until sold to prevent deterioration and loss of quality. In the case of corms, it is recommended to use plastic or carton boxes. (Ahari & Seifari, 2022: 236, 240; SMEDA, 2019: 11).



PACKING AND TRANSPORT

Figure 31, Saffron in a bottle (Food For Mzansi, 2021: online)

Under favourable conditions, saffron corms multiply underground approximately three times yearly, considerably increasing corm numbers. Each saffron corm has the potential to produce one to three flowers. On average, it takes approximately 150 to 160 saffron flowers to yield 1 gram of saffron. Notably, in South Africa, the retail price for saffron is approximately R250,000 per kilogram, reflecting the labour-intensive nature of saffron cultivation in the region. (Afrisaff, 2021: online; Decker, 2019: online; Foodformzansi, 2021: online; Jagdish, 2018: online; Jansen, 2022: online; Liebenberg, 2021: online; Sativus, [n.d.]: online).



YIELD

Figure 32, Small corms (Kohan Rishe, 2021: online)

2.3.1 Indoor Farming

Cultivating saffron in controlled environments offers a solution to numerous challenges encountered in outdoor commercial farming. These challenges encompass issues such as climate fluctuations, soil-borne diseases, and labour shortages (Moradi, 2022: 221). Indoor cultivation not only addresses these concerns but also enhances corm multiplication rates, shields plants from diseases, and reduces water consumption (Chib, Kaul, Thangaraj & Setal, 2020). Various cultivation techniques can be employed, including soil cultivation, soilless cultivation, hydroponics, and aeroponics (Moradi, 2022: 226, 227). In this project, soil cultivation is the preferred method due to its resemblance to traditional field cultivation, establishing a direct link between the two approaches (Moradi, 2022: 226).

Key conditions for controlled cultivation include:

- Breaking dormancy period: Maintaining a temperature range of 24°C to 27°C for 90 to 115 days.
- Emergence of flowers: Ensuring a temperature of 16°C to 17°C.
- Light intensity: Providing 1 000 to 1 500 lux for well-developed plants.
- Maintaining a 45 cm distance between LED lights and pots.
- Using red and blue lights.

By precisely managing saffron's environmental conditions, it becomes possible to influence the timing of its flowering. This control hinges on factors such as temperature, light, and humidity, as each growth stage of saffron necessitates specific environmental parameters.

(Moradi, 2022; Molina, Valero, Navarro, García-Luis, Guardiola, 2004, 2005a, b, 2010; Jerzy, 1981).



Figure 33, Foreground: Indoor plants (author)

Figure 34, Background: Long leaves (Vertical Farm Daily, 2023: online)



Figure 35, Indoor flowers (Vertical Farm Daily, 2023: online)

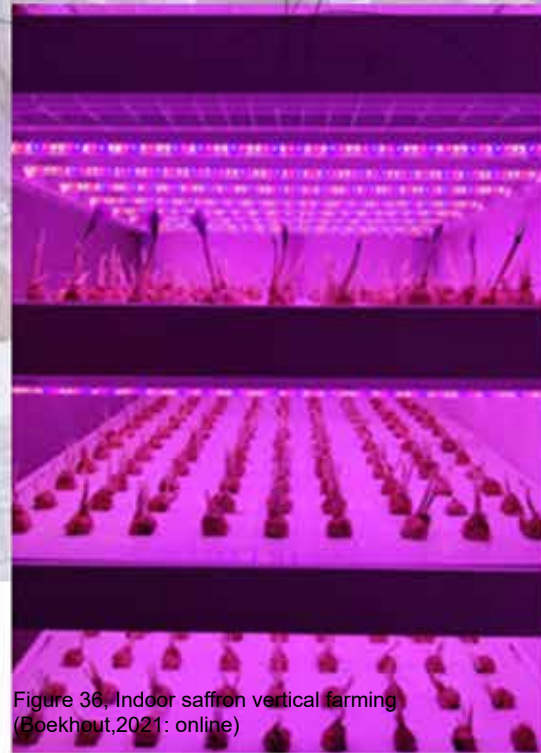


Figure 36, Indoor saffron vertical farming (Boekhout, 2021: online)



Figure 37, Indoor Saffron soil (Boekhout, 2021: online)

2.4. Saffron in South Africa

Saffron production is a growing industry within South Africa (figure 0). Saffricon, the first SA producer (Saffricon, [n.d.]a: online), founded in 2013 in partnership with Laeveld Agrochem, has been the main driver behind the establishment of the saffron industry in South Africa (Jansen, 2022: online; Saffricon, [n.d.]b: online). Bennie Engelbrecht, the managing director of Saffricon, envisions South Africa as a major exporter of saffron, the world's most expensive spice, offering a valuable source of foreign currency.

Partnering with Cornè Liebenberg, director at Laeveld Agrochem, the project aims to harness the potential of saffron farming as a labour-intensive industry, ideal for emerging farmers, and a means to tackle unemployment. The operation between Calvinia and Williston in the Northern Cape has honed the art of cultivating saffron in local conditions. (Saffricon, [n.d.]b: online)

The initiative follows an out-grower system with three-year contracts, ensuring farmers' uptake and providing them double-income potential by selling back corms to Saffricon after the annual harvest.

This venture not only meets the relatively low capital requirements but also uplifts local communities and aids the farmers in surviving the long-lasting drought in the Hantam Karoo region, traditionally oriented towards sheep production. With a focus on quality and sustainability, South Africa is set to establish itself as a reputable saffron producer on the global stage.

(Foodformzansi, 2021: online; Jagdish, 2018: online; Jansen, 2022: online; Liebenberg, 2021: online; Saffricon, [n.d.]b: online)

Although the taste differs for all, Saffron's rich history, delicate cultivation process, and many culinary and medicinal uses make it an extraordinary spice that has captivated civilisations for centuries and continues its growth throughout the world today.


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South Africa's first saffron season exceeds expectations

South Africa started its first full-fledged planting of saffron this year, and the first season exceeded all expectations, with most farmers producing successful crops.

According to Bennie Engelbrecht, founding member and director of Saffricon – the company at the helm of the local saffron revolution, saffron has been planted in all nine provinces and the feedback from farmers indicates a success rate of about 95%. "Here and there farmers experienced some hiccups, but the vast majority of crops were successful and produced flowers. In many cases, year one's harvest yielded more flowers than initially expected. This bodes well for the next seasons' harvests and the expansion of the industry."



Local saffron farmer wants to...



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SAFFRON – SA poised to become big player in saffron market.

It is a big step that could see South Africa becoming a significant player in the saffron and saffron 'red gold' for the world's most expensive spice. For the South African industry, this offers an exciting potential for growth and exports, while also opening up exciting export opportunities for farmers. Furthermore, it offers a new market for the country's saffron, especially considering the ever-changing weather patterns, market trends, and other factors that impact on their existing markets.

Bennie Engelbrecht, founding member and director of Saffricon, says that the saffron season has been a success for the country. He says that the first season has exceeded all expectations and that the country has a bright future in the saffron market.

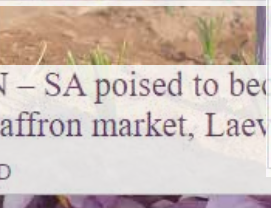
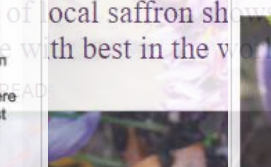


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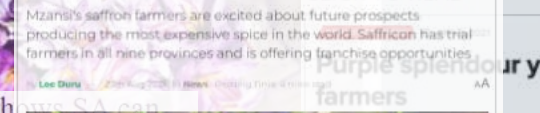
SA's first saffron season surpasses expectations, Food for Mzansi, 27 A...

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SA's first saffron season surpasses expectations

Mzansi's saffron farmers are excited about future prospects producing the most expensive spice in the world. Saffricon has trial farmers in all nine provinces and is offering franchise opportunities.

Lee Duru 27 Aug 2021 11:00



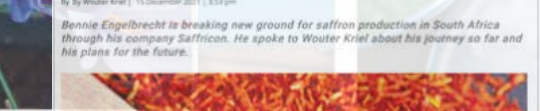
Saffron: harvesting 'red gold' in the Karoo, Farmers Weekly, 15 Decembe...

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Saffron: harvesting 'red gold' in the Karoo

By Wouter Kriel 15 December 2021 | 8:58 pm

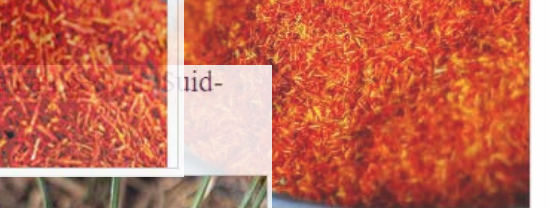
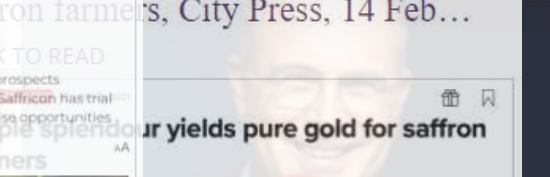
Bennie Engelbrecht is breaking new ground for saffron production in South Africa through his company Saffricon. He spoke to Wouter Kriel about his journey so far and his plans for the future.



Saffricon farmers are an outlier in the agribusiness index decline

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Purple splendour yields pure gold for saffron farmers, City Press, 14 Feb...



'red gold' Die Burger, 10



Saffraan, oftewel 'rooi goud', is oor die wêreld heen bekend as een van die duurste spesies. Dit word nou ook op die bodem verfas en stigters die saffraanboerdery Saffricon in die Noord-Kaap, kan Suid-Afrika 'n groot speler in die wêreldmark word.

Die wêreldmark vir saffraan is baie groot en groei stadig. Dit is 'n baie duur spesie en word gebruik in baie verskillende kosse. Saffraan is ook gebruik in medisyne en is 'n belangrike bestanddeel in baie medisyne. Saffraan is 'n baie belangrike spesie en word gebruik in baie verskillende kosse. Saffraan is ook gebruik in medisyne en is 'n belangrike bestanddeel in baie medisyne.

Saffraanboerdery in die Noord-Kaap is 'n belangrike spesie en word gebruik in baie verskillende kosse. Saffraan is ook gebruik in medisyne en is 'n belangrike bestanddeel in baie medisyne.

Figure 38, SA saffron media coverage (Saffricon, [n.d.]:

2021 Trial Growers

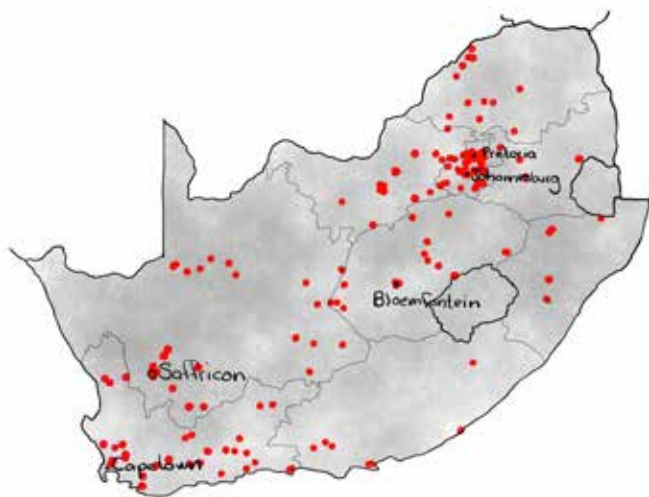


Figure 39, 2021 Trial growers (author),
from: (Saffricon, [n.d.]a: online)

2022 Trial Growers

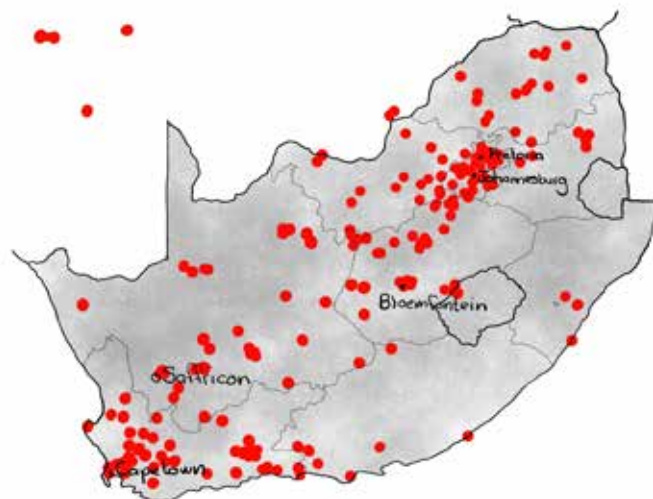


Figure 40, 2022 Trial growers (author),
from: (Saffricon, [n.d.]a: online)

2022 Commercial Growers

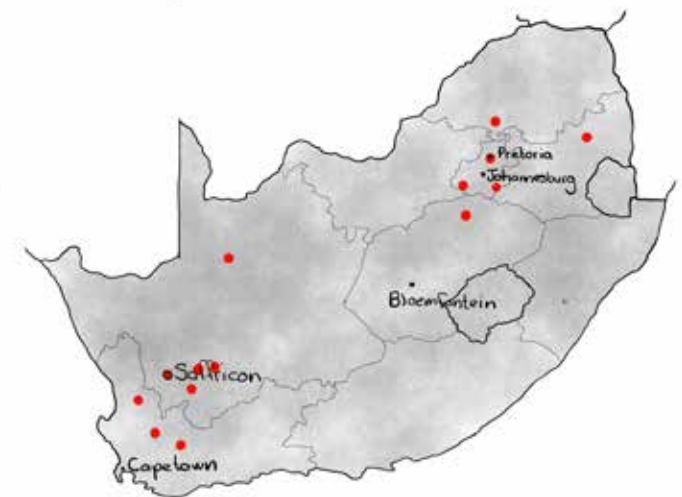


Figure 41, 2022 Commercial growers (author),
from: (Saffricon, [n.d.]a: online)

Saffron

GARDENER PACK

10 Saffron Crocus Sativus corms
& basic plant instructions





Laeveld
Agrochem





Agri All Africa


www.saffricon.com


HELPLINE
WhatsApp messenger support: 071 431 0249
Email: info@saffricon.com


Saffricon (Pty) Ltd, 410 Rigel Avenue, Erasmusrand, Pretoria,
Registration number: 2013/102918/07


- 


1. Seek well-drained soil, heavy clay must be avoided. Plant in sandy, loamy soil to ensure good drainage. Do not use Palm Peat or Coco Peat as a soil medium.
 - 


2. Saffron corms must be planted in a sunny place. The plant needs full sun for 6 - 8 hours per day.
 - 

3. Prepare the soil by loosening it with a garden spade or fork (about 20 cm). Do not mix compost or manure into the soil. Composting can give fungus diseases and manure will burn the roots of the corms.
 - 

4. Saffron corms should be planted 10 - 15 cm deep, with a 10 cm space in between. Growing season is from March/April to end October, when leaves will dry as the corms enter the dormancy stage. The plant does not need to be protected against frost and cold temperatures.
 - 

5. Do not over-water, just keep the soil moist. Water once a week, 4 - 6 mm. The soil needs to be moist and not muddy. You can cover the pot/plant area with a tarp if there is too much rain. Be sure to remove the tarp once it has stopped raining.
 - 

6. Flowering occurs 40 days after planting and sprouting. You may apply Hadeco Bulb Food for essential nutrients. However, the product will not extend flowering time.
 - 

7. The flowers get harvested as soon as they appear. To do this, put the flower between the thumb and forefinger and use the nail to press through the stem to remove the flower. Flowers appear only once during the growing season. The flowers must be harvested, and stigmas removed within 24 hours of their appearance.
 - 

8. Drying can be done by putting the stigmas on a sieve in a well-ventilated place between 40 - 60 degrees Celsius, for 15 minutes. It can also be done in a microwave oven at 100% power between 2 sheets of kitchen towel, for 1 - 2 minutes, or in direct sunlight for 2 - 3 days.
- Store dried saffron in a glass container in a cool, dry place.*

Figure 42, Gardener pack pamphlet (Saffricon, 2023b)

2.5. Background of Quarries

Quarrying has been in operation for millennia, with historical evidence indicating the existence of quarries dating back more than 200 000 years. Early humans utilised improvised tools during this time to engage in quarrying activities (IQ, 2023: online).

2.5.1. Processes

Quarrying involves the extraction of stone, primarily utilised for various construction materials like cement, stone, concrete, plaster, brick, clay, and asphalt (IQ, 2023: online).

Quarries are surface mines known for their distinctive stepped cuts and vertical drill grooves. The extracted stones are crushed and separated, undergoing a subsequent screening process to classify them into uniform categories.

Quarries extract many different raw materials, which include:

- Stone
- Sand
- Gravel
- Gypsum
- Salt
- Potash
- Coal
- Limestone
- Common Clays
- Silica

(IQ, 2023: online).

Mining activities include blasting, excavating, crushing (depending on use) and Stockpiling and transporting.

(Bothma, [n.d.]: 21; Greenmined Environmental, 2019: 4).

Stockpiling activities include loading of granite , weighing of granite and transportation of granite.

Decommissioning activities include rehabilitation landscaping, replacing topsoil and implementation of an alien invader plant management plan.

(Bothma, [n.d.]: 28; Greenmined Environmental, 2019: 6) .

Mining has impacted people's lives in various ways, not just considering quarries but other forms of mining.

(Greenmined Environmental, 2019: 5).



Figure 43, Quarry in Garies (author)

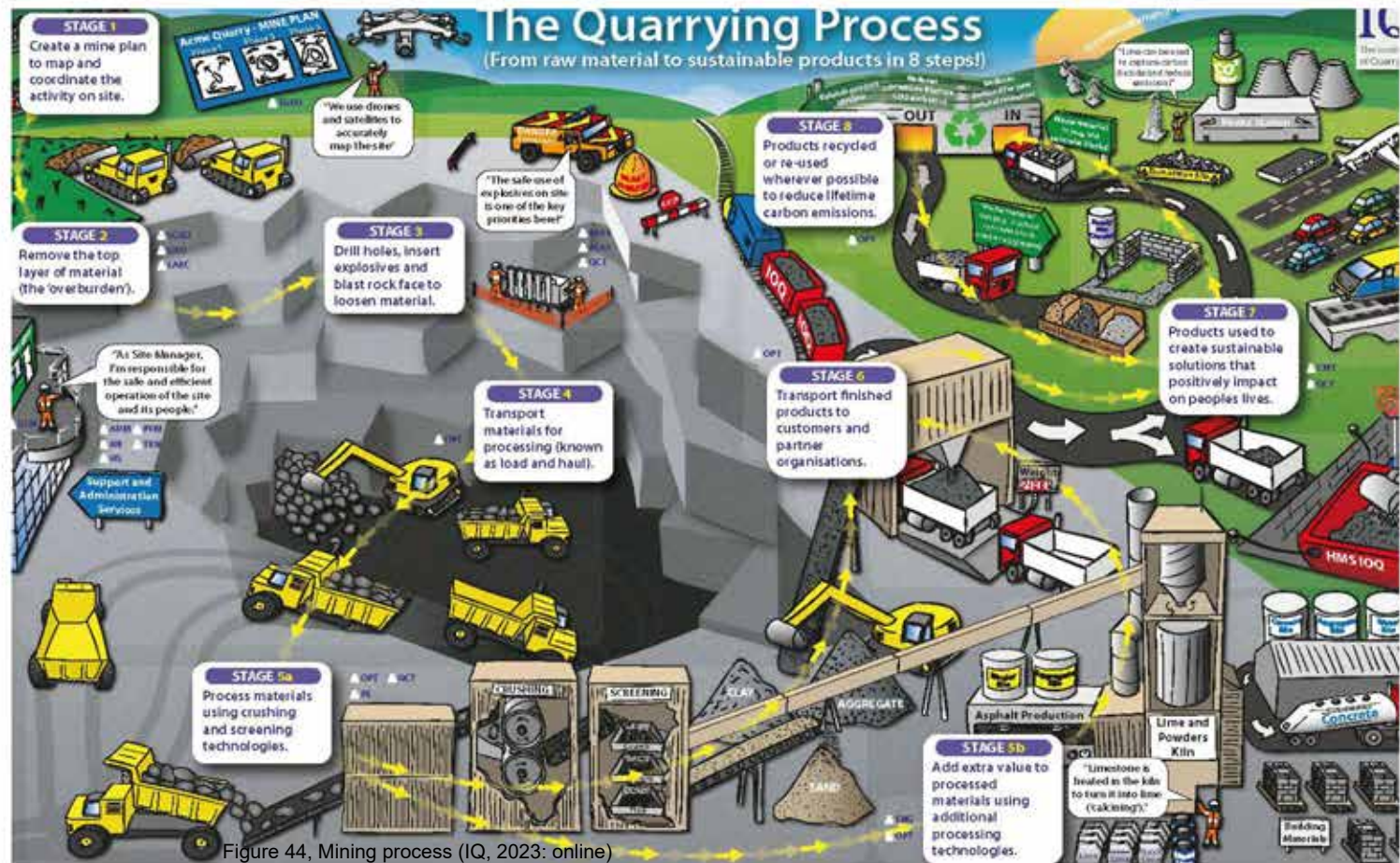


Figure 44, Mining process (IQ, 2023: online)



Figure 45 Vertical drill marks in granite quarry (author)



Figure 46, Granite blocks in Garies (author)



Figure 47, Quarry in Garies (author)

2.5.2. Northern Cape Mining

The figures indicated below were recorded when examining the Northern Cape mining industry statistics 2017, as reported by the Mineral Council of South Africa (2019: online). However, it is important to note that these quantities have since increased in the subsequent years and include all mining types.

- Employed: 15 000 people
- Economic Contribution: 18% (Country), 7% (Northern Cape)
- Focus: Manganese, iron ore and diamonds
- Companies' investments over five years: R700 million

The mining industry may have had positive impacts, but they have changed the surrounding environment.

2.5.3. Environment

In the case of abandoned quarries, the limited amount of soil left behind often hinders the reestablishment of life in the affected area. This results from the displacement of substantial quantities of soil and vegetation and the expulsion of animals from the site. To sell or export granite, it must be precisely cut to specific sizes based on the intended use, and it must be free from any visible marks or deformities.

Failure to meet these standards results in the stone being categorised as waste. While some companies utilise this “waste” granite, unfortunately, there remains a significant quantity of unused stone blocks left in abandoned quarries, as stated by the farm owner, Schreuder (2023), happened on the Stoffelsfontein farm.

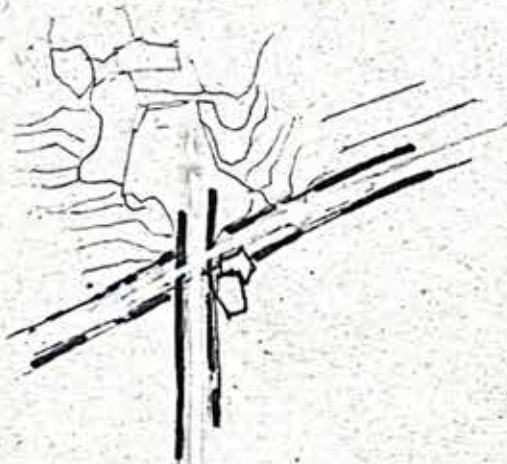


Figure 48, Quarry in Namaqualand (Google Earth 2023:online)

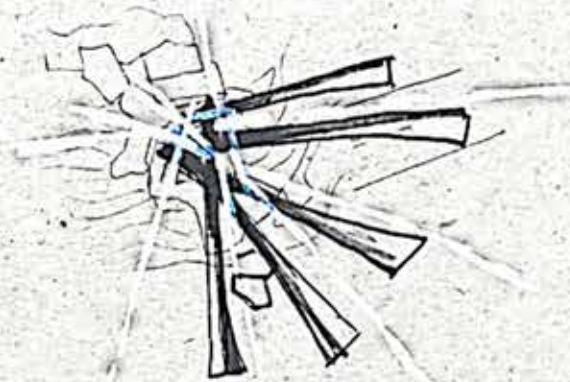
Quarrying undeniably exerts both positive and negative impacts on the environment and people, prompting us to question the overall worth of engaging in such practices despite the potential damage they cause.

Process Exploration (i)

These sketches were the first few things that came to mind. Connecting elements on site.



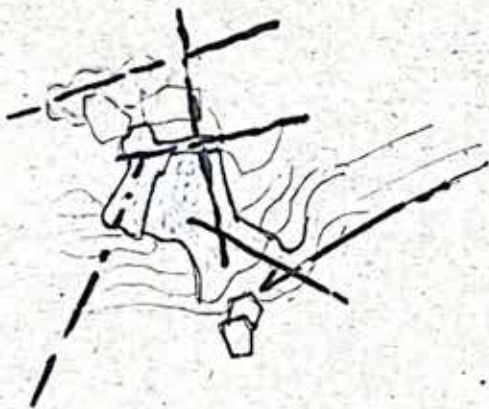
Semi-axis.



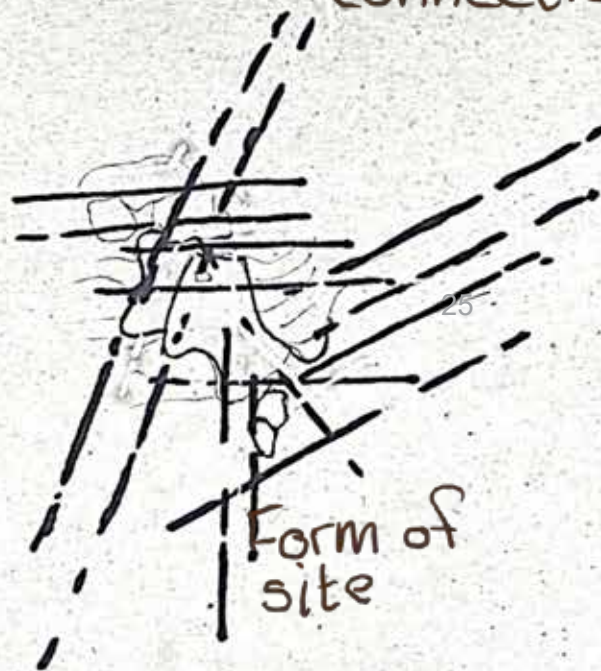
Visual connections



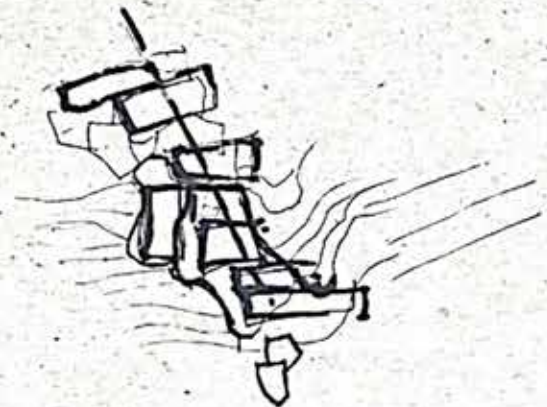
Flow of site



Datums



Form of site



Hierarchy

Figure 49, Initial drawings (author)



Chapter 3: Precedents

Precedents play a crucial role in this project, given its complexity. The project delves into two specific categories: theory and quarry design. Theoretical influence draws inspiration from Bernard Tschumi's Parc de la Villette, focusing on the interplay between rigid and organic forms. In terms of shaping the design, creating pathways, and ensuring accessibility, a notable precedent that directly influences my project is the ROM visitor centre and theatre by AllesWirdGut Architektur. Jo Noero's West Coast Fossil Park and the !Khwa Ttu San Heritage Centre by KLG Architects set precedents for a South African context.



Figure 50, ROM (Hurnaus, 2015: online)

3.1. Parc de la Villette by Bernard Tschumi

1983

Urban Park
Paris

3.1.1. Concept

Tschumi's vision for the park encompassed the fusion of nature and the artificial, aiming to foster continuous exploration and transformations. The project was driven by the need to revitalise and rejuvenate the previously abandoned land, setting the stage for its redevelopment (Souza, 2011: online). Tschumi stated, "It was not about nature, per se, it was an urban moment" (Griffiths, 2022: online). "I call it the largest deconstructed building in the world as it's one building but broken down in many fragments."

3.1.2. Design elements:

- Exploration and discovery
- Activity and interaction
- Freedom within a superimposed organisation
- Reference point organisation
- Ten dispersed garden themes
- Follies arranged in a grid
- Each folly is of the same nature but varies in shape
- Paths follow free forms
- Broken into fragments

3.1.3. Applicability

The precedents embody fundamental concepts within my design: the harmonious integration of structured elements with fluid, unrestricted forms to balance order and freedom.

The precedent also inspired the use of brightly coloured surfaces, diverse activities, fragmented spaces, non-conventional shapes (challenging traditional typology), boldness, and oversized and intimate spaces.

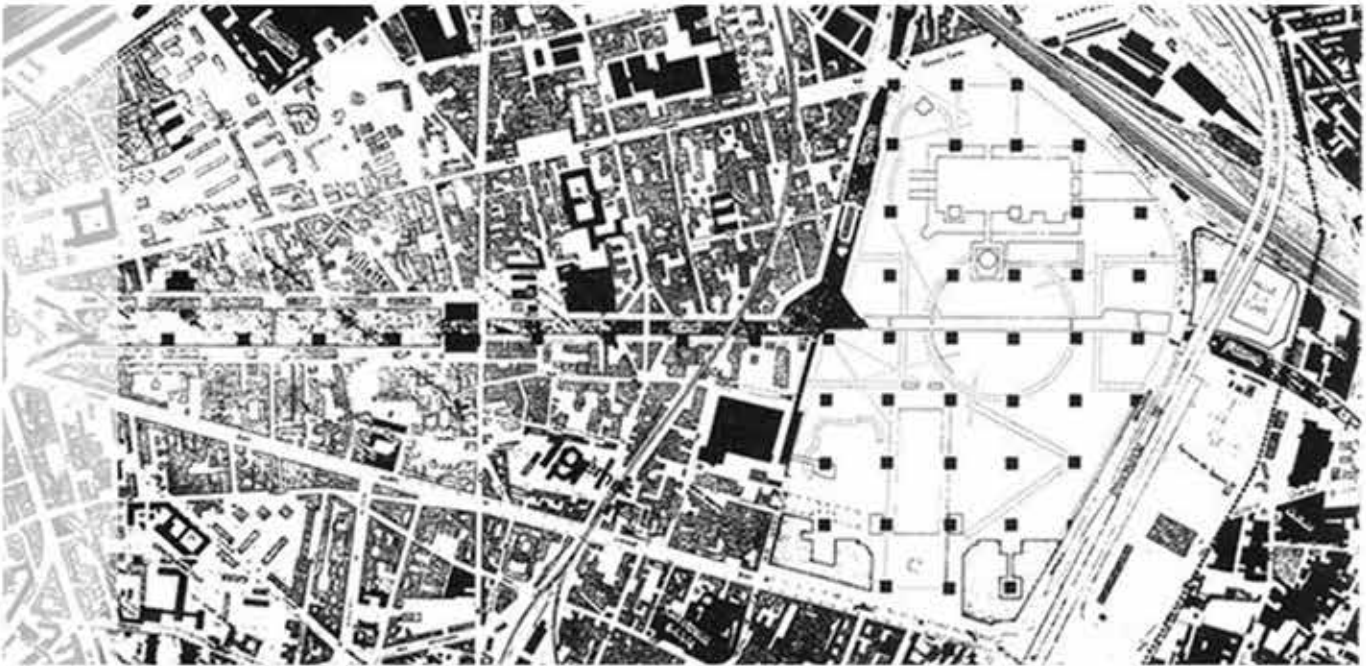


Figure 51, Location plan (Bernard Tschumi Architects, 1982. Online)



Figure 53, MoMA's deconstructivist architecture exhibition (Bernard Tschumi Architects, 1982. online)

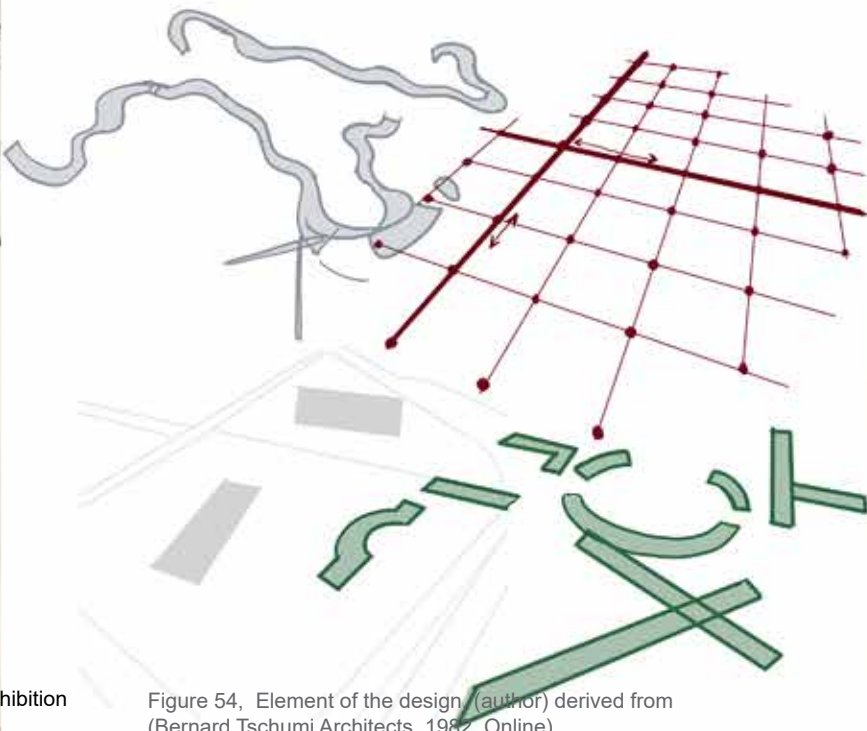


Figure 54, Element of the design (author) derived from (Bernard Tschumi Architects, 1982. Online)



Figure 52, Geometric shapes (Monthiers, 2022: online) edited by (author)



Figure 55, Geometric (Monthiers, 2022: online) edited by (author)



Figure 56 Horizontality (Monthiers, 2022: online) edited by (author)

3.1.4. Interpretations

Structure:

The park embraces a structural grid system, with pathways and plazas intersecting at various angles. Geometric structures and follies break the traditional park layout, creating a dynamic and visually striking environment.

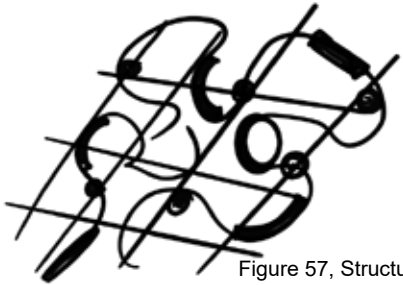


Figure 57, Structure (author)

Light and Shadow:

The design manipulates light and shadow through the placement of structures, creating dynamic patterns throughout the day. The varied heights and orientations of the architectural elements offer shifting shadow play.

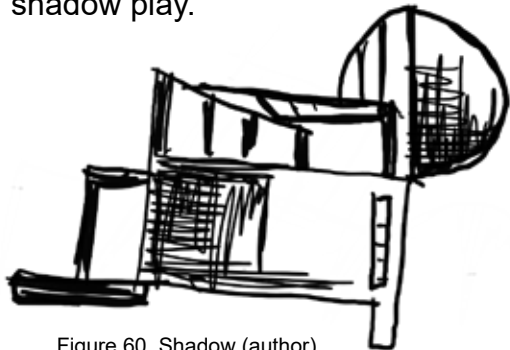


Figure 60, Shadow (author)

Scale and Volume:

The park's vast expanse offers a sense of grandeur, with different areas varying in scale. Large open spaces contrast with more intimate zones, creating a diverse spatial experience.

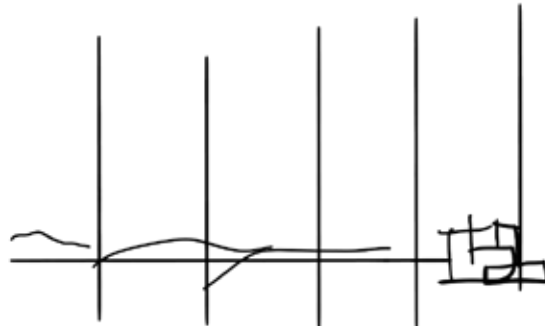


Figure 58, Scale and volume (author)

Details:

The park features intricate detailing within the follies and structures, providing depth and character. These details contribute to the overall whimsical and interactive nature of the space.

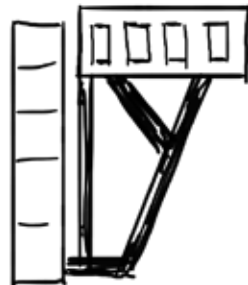


Figure 61, Details (author)

Materials and Surfaces:

Parc de la Villette employs a mix of materials, from concrete and metal to brightly coloured surfaces. The contrast in materials adds visual interest and reinforces the park's playful aesthetic.

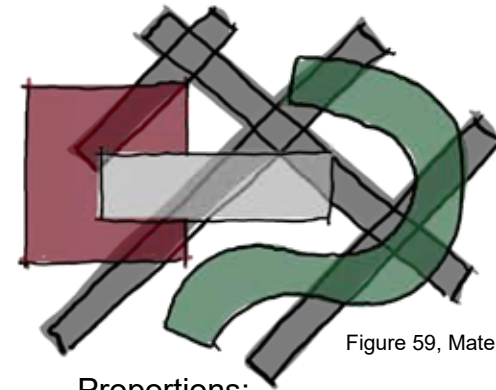


Figure 59, Materials and surfaces (author)

Proportions:

The park's design plays with proportions, juxtaposing oversized elements with smaller, more intimate spaces. This deliberate contrast creates a sense of intrigue and surprise.

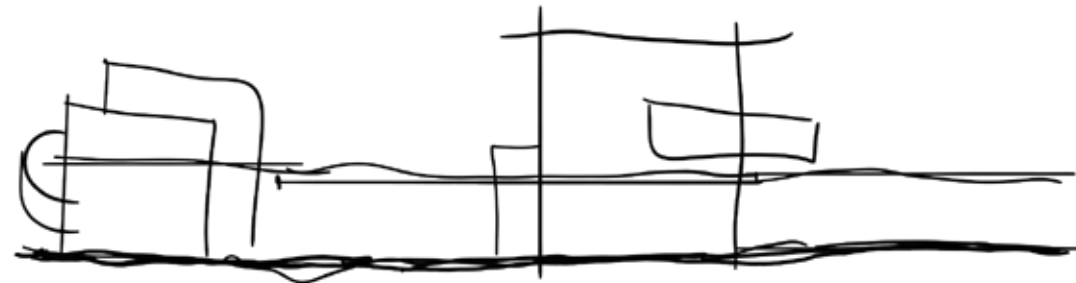


Figure 62, Proportions (author)

Context:

Parc de la Villette's design responds to its urban context, offering a departure from traditional park design to accommodate a diverse population's cultural and social needs in a densely populated area

Social/Cultural Impact:

It has redefined the concept of public spaces, encouraging communal gatherings, cultural exchange, and diverse activities. The park's multipurpose venues foster social interaction and community engagement.

Access:

The park's layout ensures accessibility, with multiple entry points and paths accommodating various modes of transport. Its design promotes inclusivity and ease of movement.

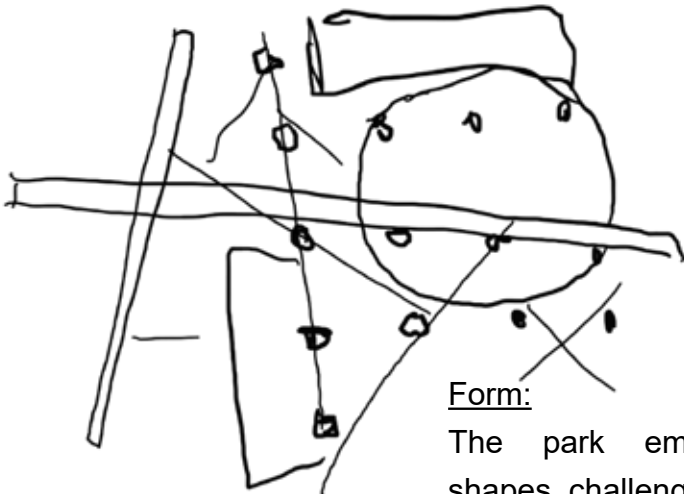


Figure 63, Context (author)

Form:

The park embraces non-conventional shapes, challenging traditional park layouts. Its form encourages exploration, interaction, and a sense of discovery.



Figure 64, Social? Cultural Impact (author)

Aesthetic:

Parc de la Villette's aesthetic is characterised by boldness and playfulness, evident in its colourful structures, innovative design elements, and unconventional landscaping.

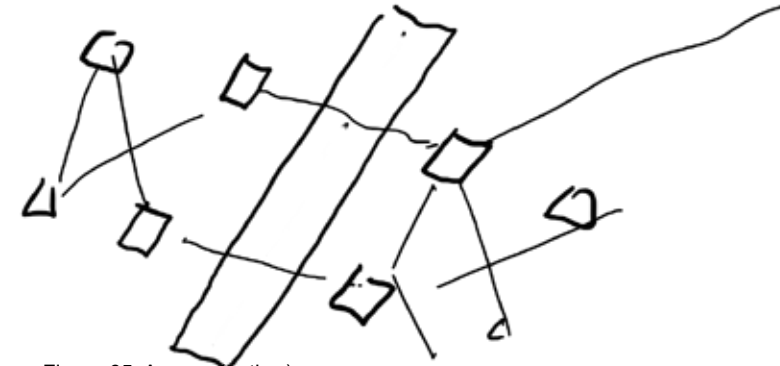


Figure 65, Access (author)



Figure 66, Form (author)

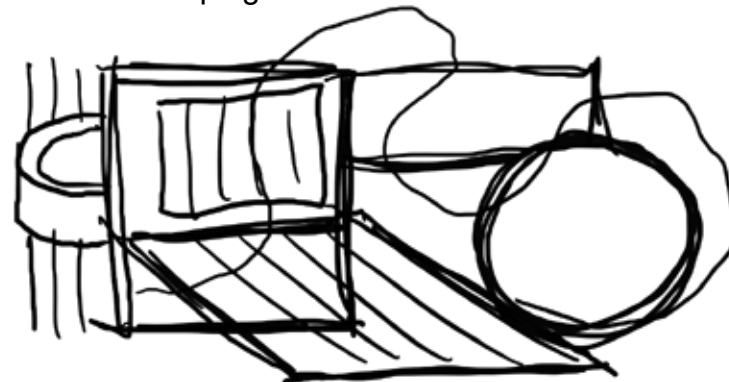


Figure 67, Aesthetic (author)

3.2. ROM by AllesWirdGut Architektur

2008

Visitor Center, Theater

Austria

4980 m²

3.2.1. Concept:

When confronted with a quarry's dramatic and robust surfaces, challenges arise in creating a design that complements such striking scenery. To overcome these obstacles, the precedent draws upon the principles of the Japanese Channel for redesigning. These principles, namely accuracy, reduction, and subtraction, guide achieving a harmonious integration with the natural environment.

Accuracy: "Clear and simple language of shapes"

Reduction: "Reflection to the essential"

Subtraction: "Adding via taking out"

The design aims to accentuate the existing rock faces and edges (Alles Wird Gut Architektur, 2008:1; 2015: online).

3.2.2. Applicability:

The precedent significantly influences my design process, particularly in terms of inspiring the selection of materials, creating diverse walkways, and exploring the relationship between rock and architectural elements. It also inspired visitors' experience and engagement as a priority, respect for natural beauty, 'climbing' the quarry, dialogue between the past and present, controlled light, visual interest and educational experiences.

3.2.3. Main design elements:

- Spatial and geographical experiences
- Diving down into the stone
- Accessible ramp
- Two possibilities to reach stage level
- Separate staff entrance
- The natural interposition of the façade within the vertical rock face effectively restricts visibility
- Unique qualities from each viewpoint
- Existing rock as a free-space material
- Use of steel referring to quarry machinery
- The use of white-fibre cement for refinement against rough stone

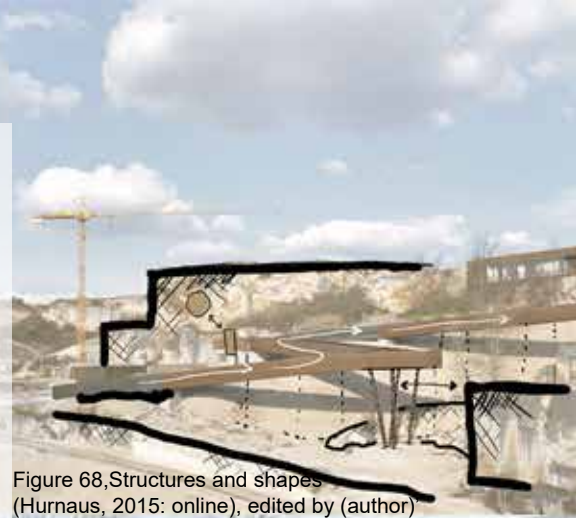


Figure 68, Structures and shapes (Hurnaas, 2015: online), edited by (author)



Figure 69, Views and pathways on plan (Hurnaas, 2015: online) edited by (author)



Figure 70, Exterior view (Hurnaas, 2015: online)

3.2.4. Interpretations

Structure:

The architectural structure integrates modern design elements with the natural surroundings, aiming to harmonize with the site's context. It has distinct structural elements emphasizing both functionality and aesthetics.

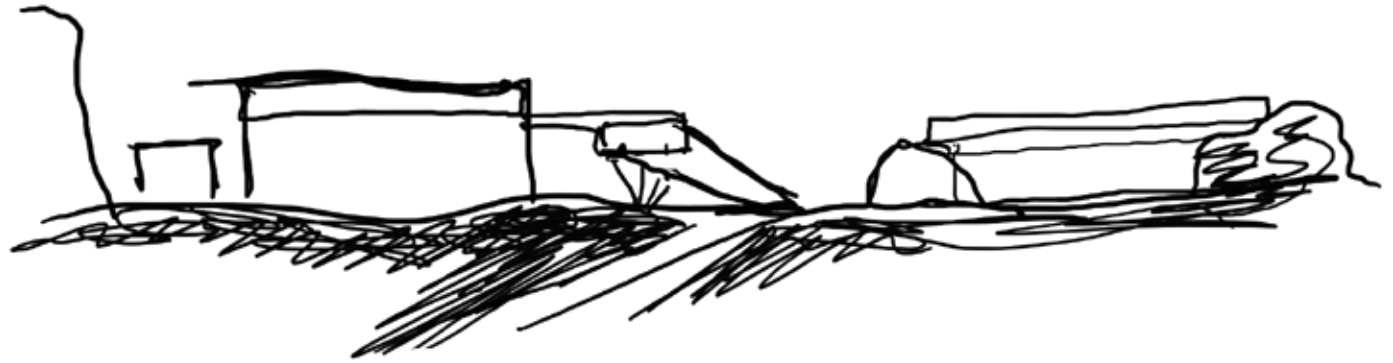


Figure 71, Structure (Hurnaus, 2015: online)

Scale and Volume:

The project plays with varied scales, incorporating larger volumes for the theatre and visitor centre, contrasted with smaller, more intimate spaces. This contrast could create a diverse spatial experience.

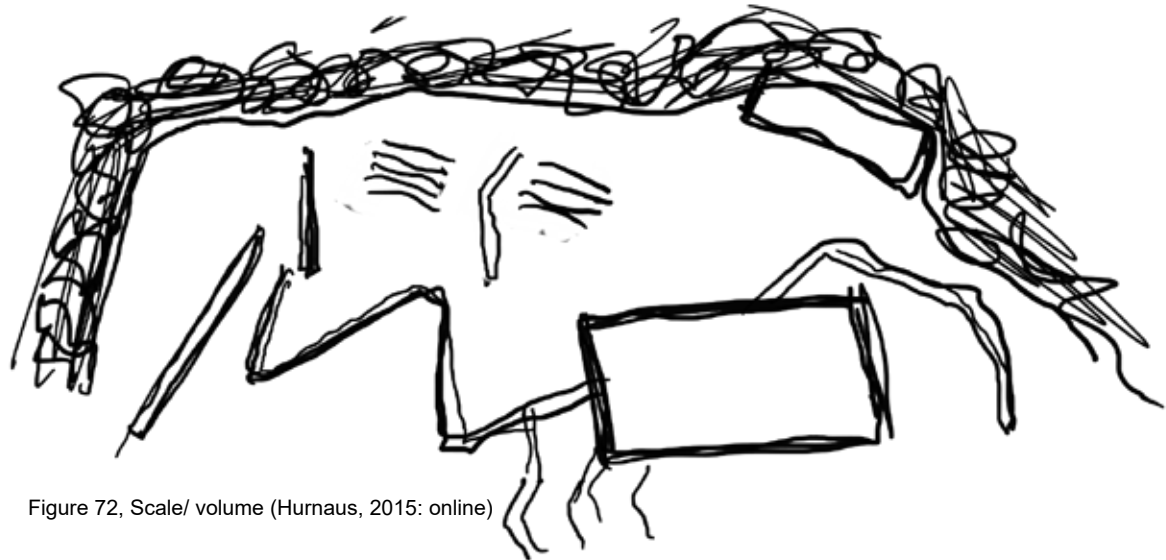


Figure 72, Scale/ volume (Hurnaus, 2015: online)

Materials and Surfaces:

The choice of materials and surfaces reflect a blend of contemporary and possibly regional or sustainable materials, contributing to the project's aesthetic while maintaining a connection to the local context.



Figure 73, Materials and surfaces (Hurnaas, 2015: online)

Access:

The architectural design considers accessibility, ensuring that the spaces are easily accessible to visitors of various abilities while also integrating green spaces and pedestrian-friendly paths.

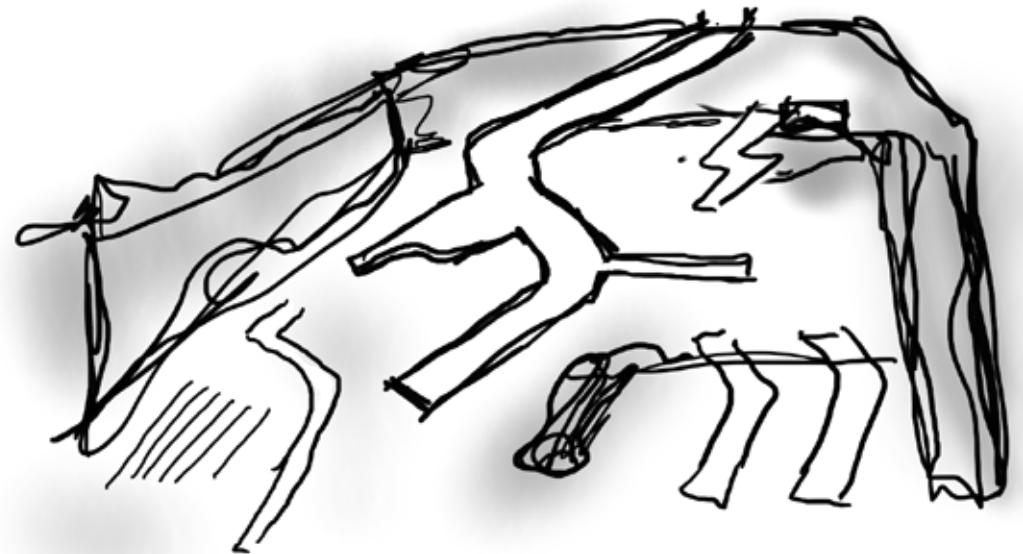


Figure 74, AccessHurnaas, 2015: online)

3.3. !Khwa Ttu San Heritage Centre by KGL Architects

2019

Cultural Centre

Yzerfontein

265 m²

3.3.1. Concept:

The !Khwa Ttu San Heritage Centre is an architectural marvel that beautifully encapsulates the rich cultural heritage of the San people while showcasing sustainable design principles. Situated in the Western Cape of South Africa, this centre stands as a tribute to the indigenous San community, preserving their history, traditions, and knowledge.

(KLG Architects, 2019: online)

3.3.2. Applicability:

The precedent created a respect for natural context and the environment. An element that largely inspired my design includes an indigenous planted concrete roof merging with the landscape. The skylight, minimal usage of new materials and the relationship between context, materials and services also influenced my design.

3.3.3. Main design elements:

- The roof stretches past the glass wall on the northern side to shield it from intense sunlight.
- Blending into the curves of the land.
- Skylights inside the building diffuse light, bathing the granite boulders below.
- The entrance facing west offers a view towards the exhibition building.
- The edges of the roof are shaped precisely to match certain curves.
- Natural granite formations influence the museum's design, melding with the organic structure.
- An elliptical multimedia area offers an immersive sight and sound experience.

(Letch, 2019: online)

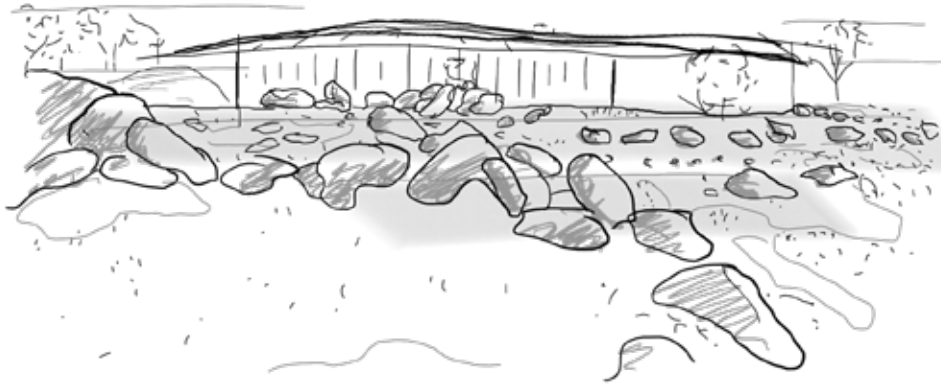


Figure 75, Front view (Letch, 2019: online) drawn by (author)



Figure 76, Entrance (Letch, 2019: online)



Figure 78, Birds eye view (Letch, 2019: online)



Figure 79, Stone detail (Letch, 2019: online)

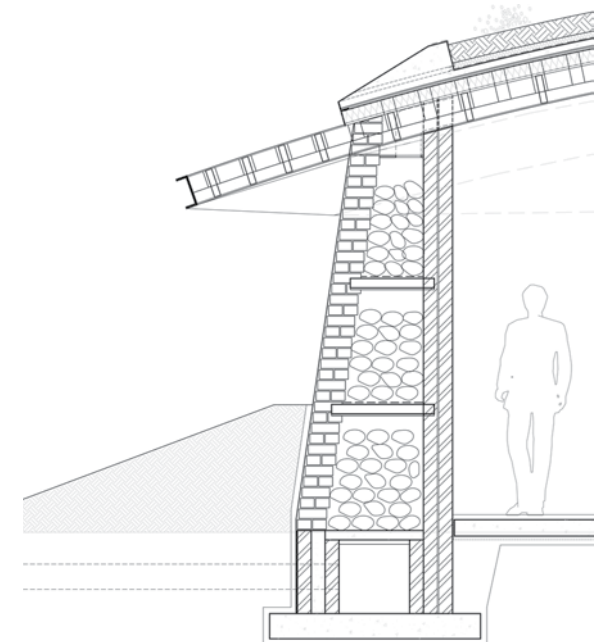


Figure 80, Short section (KLG Architects, 2019: online)

3.3.4. Interpretations

Structure:

Construction techniques emphasize sensitivity to the context, employing specific methods to mitigate moisture issues and naturally dissipate water within the walls. The structure's overall design philosophy embodies a balance between context, materials, and contemporary design, combining passive environmental strategies with modern technologies.

Materials and Surfaces:

Concrete was chosen as the principal material for its versatility, allowing for innovative roofing designs with undulations and curves that required specific consistency and firmness. Concrete and steel beams are utilized in roofing solutions, minimizing material usage and offering cost-effective options. Additionally, the floor design replicates the vibrant colours of the Kalahari San environment, showcasing sensitivity to the surroundings and integrating rocky outcrops into the exhibition space.

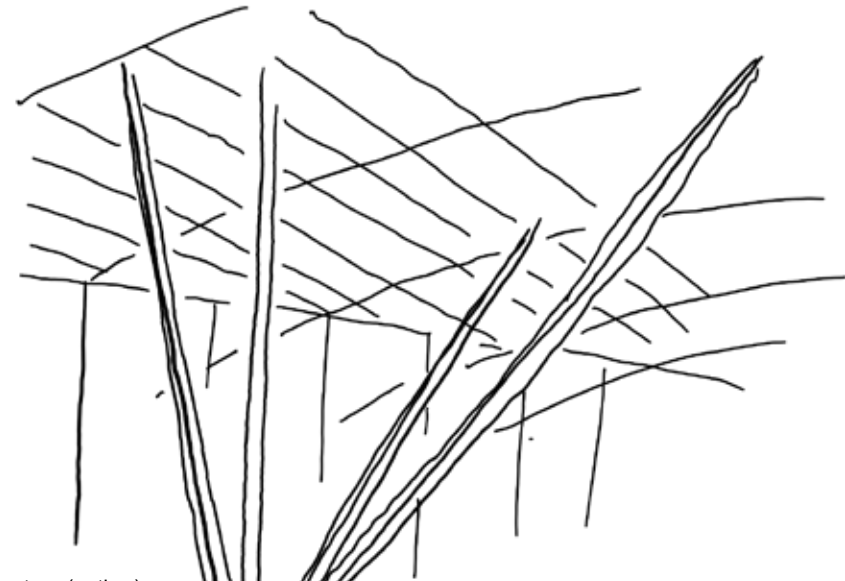


Figure 81, Structure (author)

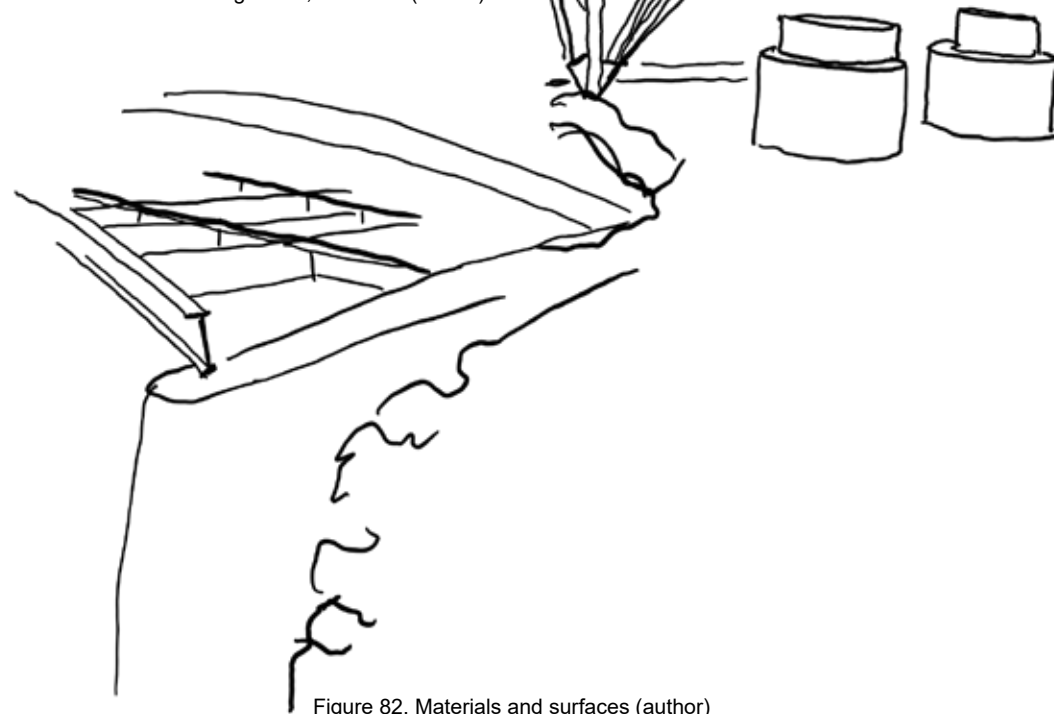


Figure 82, Materials and surfaces (author)

Sustainability:

Environmental sustainability is a key focus, evident in the 'active' thermal mass design strategy, which includes a hydronic underfloor heating system and an indigenous planted green roof for insulation. Innovative cooling systems, such as rock chambers and air circulation, contribute to a stable internal climate, reducing the reliance on traditional heating and cooling services.

Context:

Nestled along a granite ridge overlooking the Atlantic Ocean, the undulating structure integrates harmoniously into the land. The use of an indigenous planted concrete roof further merges the building with its environment.

Social/Cultural Impact:

The museum focuses on presenting the San 'way of life' in a non-traditional setting that integrates with the landscape, celebrating the San heritage.



Figure 83, Sustainability/ Context (author)



Figure 84, Social/ Cultural Impact (author)

3.4. West Coast Fossil Park by Jo Noero

2016
Fossil Park
Vredenburg

3.4.1. Concept:

Joe Noero's design of the West Coast Fossil Park not only showcases a remarkable approach to architecture but also underscores its profound social and cultural impact. The fossil park, nestled on the West Coast of South Africa, serves as a testament to the rich paleontological history of the region.

The central design element revolved around the site and the positioning of the buildings within it. The starting point was the visible traces left on the site from previous mining operations.

The original condition of the site had been affected by mining activities, yet paradoxically, the use of modern mining technology played a role in revealing the fossil bed and its valuable artifacts. This dual aspect formed the foundation of our design strategy.

(Neoro Architects, 2016: online)

3.4.2. Applicability:

Architects facing harsh climates and high public access challenges in South Africa can draw inspiration from Noero's climate-responsive design. Integrating sustainable features, optimizing circulation, and emphasizing a harmonious blend of education and recreation can create resilient and engaging public spaces that positively contribute to local communities. More specifically inspiration is drawn from Climate response, sustainability, reduced environmental impact, integration of education and recreation, contribution to the social fabric of South African communities revolving around the site, inspiration for mining, blending architecture with history as well as vertical and horizontal circulation. (Neoro Architects, 2016: online)

3.4.3. Main design elements:

- Interpretative exhibits
- Interactive displays
- Estuarial walls that add layers of meaning.
- Contributing to an immersive environment.
- Architecture and nature seamlessly flow.
- Caters to diverse needs.
- Comfort from external weather.
- Educational experience
- Harmonise with the natural landscape.
- Materials speak to the durability required in such an environment.
- Innovative design
- A balance between education and recreation.

Figure 86, Landscape view (Neuro Architects, 2016: online)



Figure 87, Entrance (Neuro Architects, 2016: online)



Figure 88, Section model (Neuro Architects, 2016: online)

3.4.4. Interpretations

Structural Systems, Materials and Textures:

Innovative structural systems and durable materials contribute to the longevity and authenticity of the park's design, echoing the mining operations that unearthed the fossils.

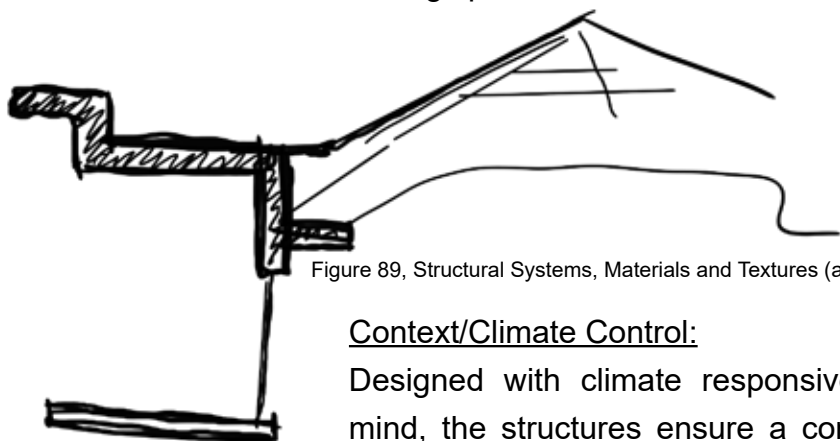


Figure 89, Structural Systems, Materials and Textures (author)

Context/Climate Control:

Designed with climate responsiveness in mind, the structures ensure a comfortable exploration experience irrespective of external weather conditions, showcasing an adaptability to the unique climate of the West Coast.

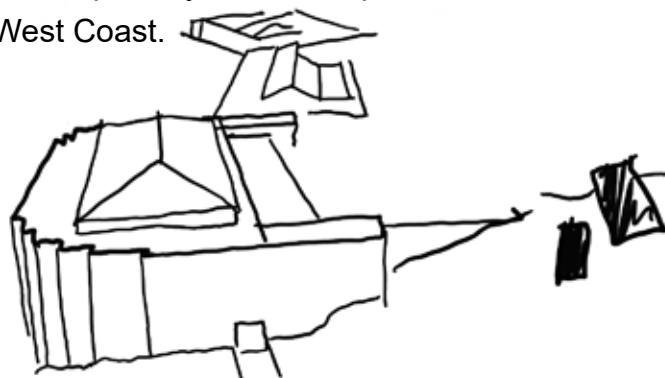


Figure 91, Context/Climate Control (author)

Form, Function and Proportions:

The structures harmonize with the natural landscape, showcasing a seamless integration of form and function, with proportions that complement the dual nature of the site.

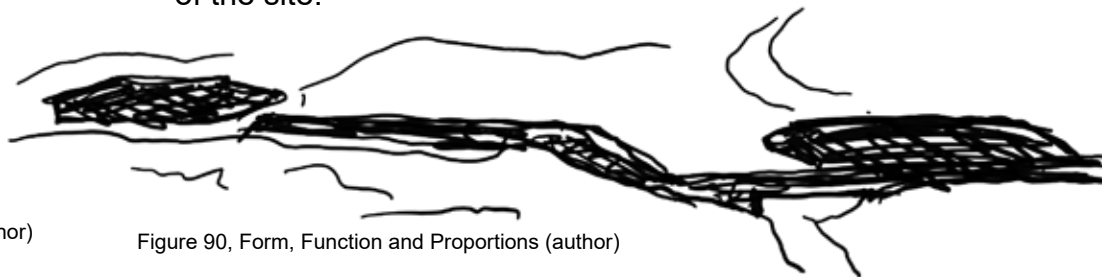


Figure 90, Form, Function and Proportions (author)

Horizontal and Vertical Circulation:

Meticulously planned circulation guides visitors through an immersive and educational journey, efficiently leading them from the top of the slope down to the fossil dig sites.

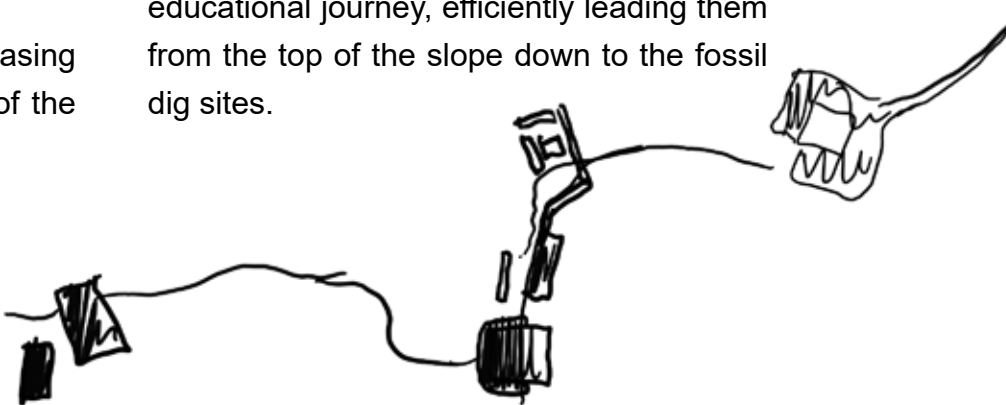


Figure 92, Horizontal and Vertical Circulation (author)

Process Exploration (ii)

Structure and free-form explorations on site.
Pockets of space.

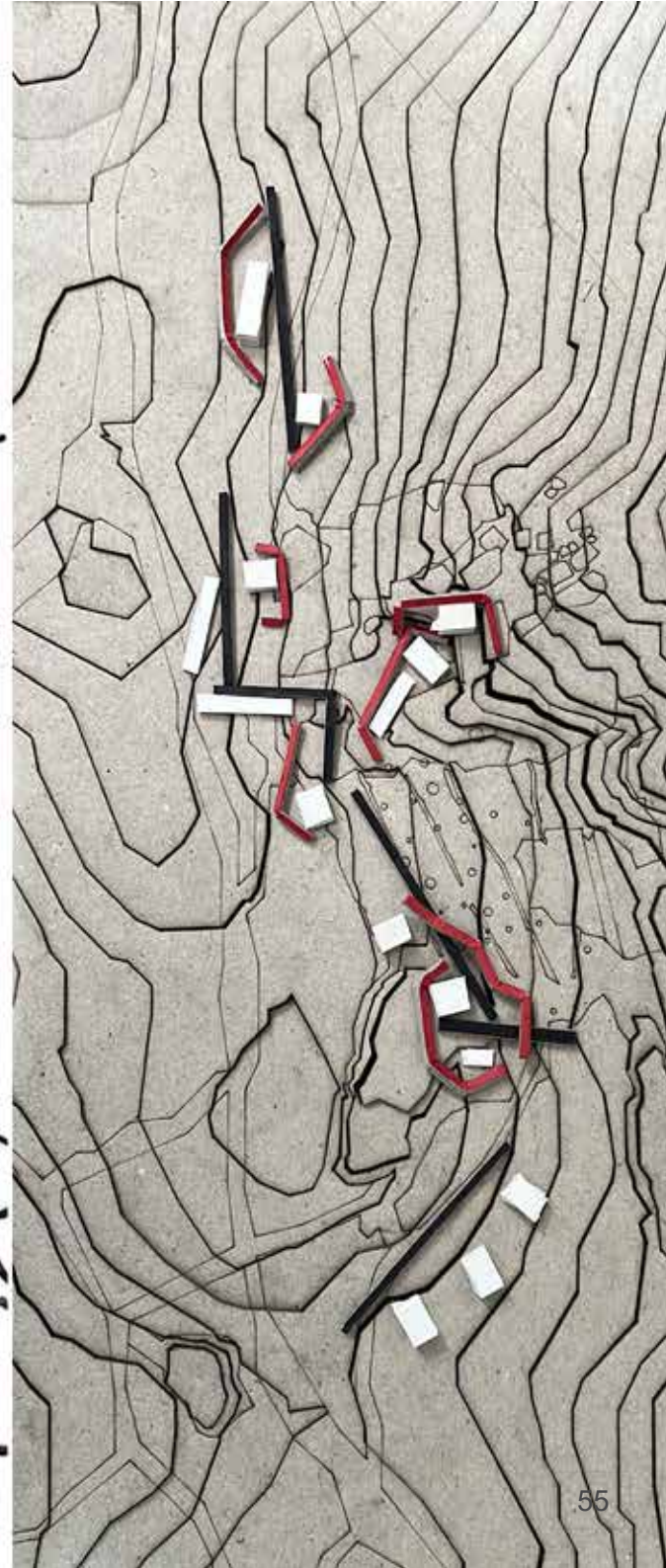
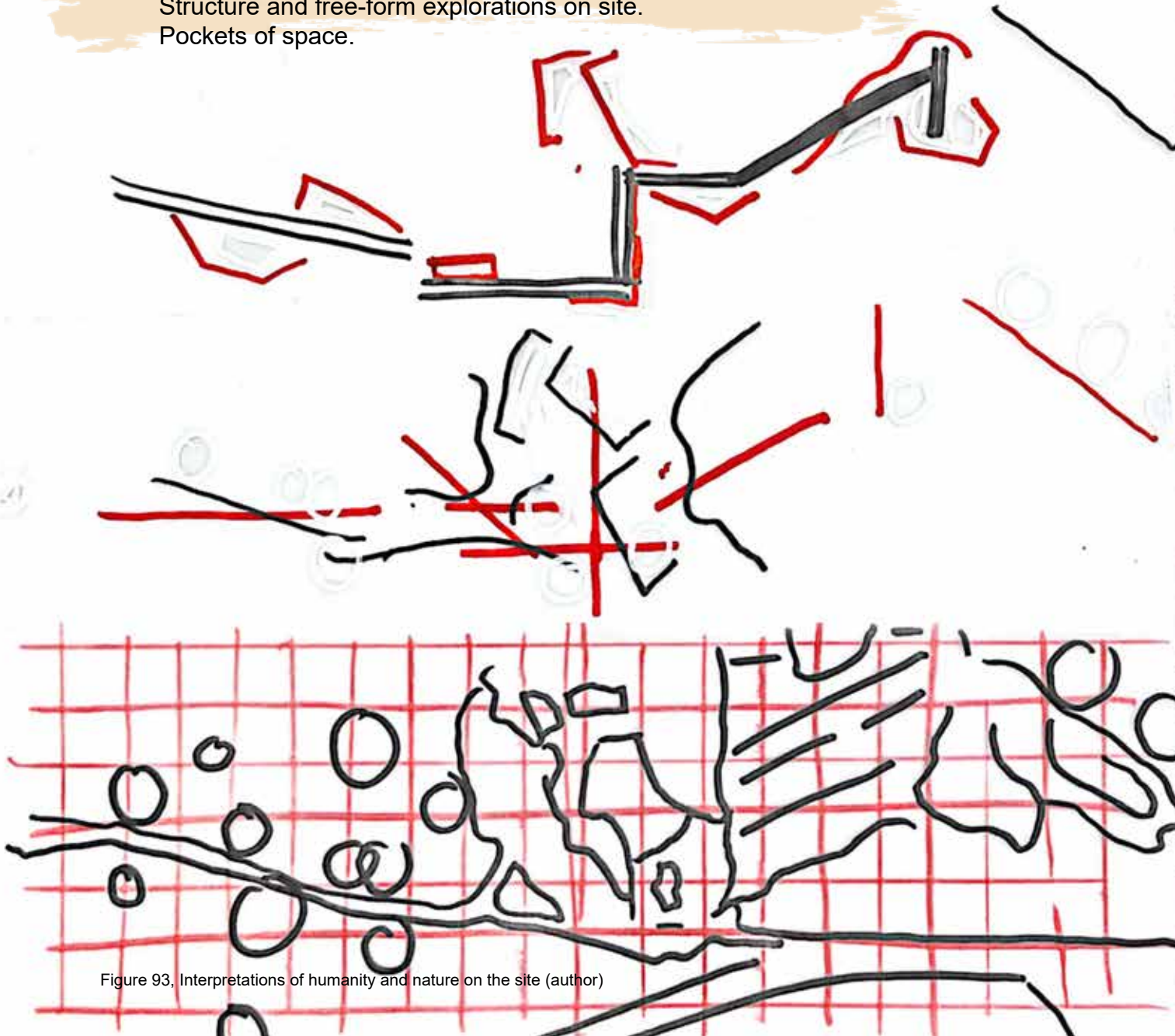


Figure 93, Interpretations of humanity and nature on the site (author)

Chapter 4: Site Analysis

This chapter provides valuable context for the project, delving into the site's immediate and surrounding environment while exploring its intricate details, such as texture and overall atmosphere.



Figure 94, Drilled granite (author)

4.1. Namaqualand

Namaqualand, a captivating region in South Africa's Northern Cape, boasts breathtaking landscapes, an extreme semi-desert climate, and its renowned annual spring flower spectacle. Amidst its striking scenery, Namaqualand's rugged terrain conceals valuable granite deposits, contributing to both its local economy and architectural history through the extraction of building materials. These quarries showcase the region's resilience and connect to its geological past, influencing present and future architectural endeavours.

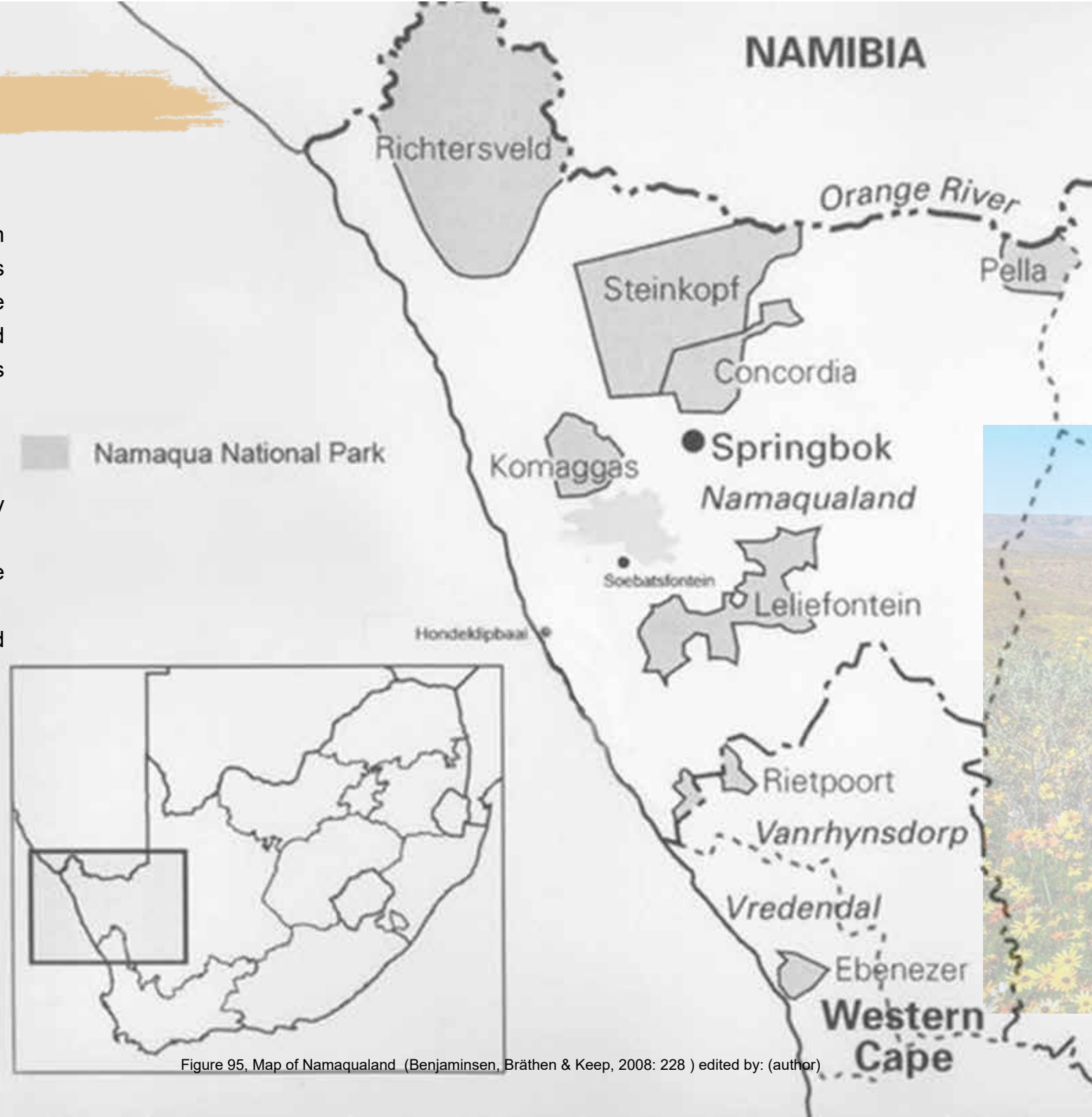


Figure 95. Map of Namaqualand (Benjaminsen, Bräthen & Keep, 2008: 228) edited by: (author)



Figure 96, Namaqualand daisies in full bloom (Wepener, 2022: online)

4.2. Stone Quarries



Figure 96, Waste granite blocks left in field outside Garies (author)

Nababeep

Bitterfontein

Garies



Figure 97, Polished granite from Nababeep (author)



Figure 98, Polished granite from Bitterfontein (author)

Figure 99, Rough granite with drill lines (author)



Figure 100, Waste granite blocks left in field outside Garies (author)

Steinkopf



Figure 101, Polished granite from Steinkopf (author)

Vanrhynsdorp

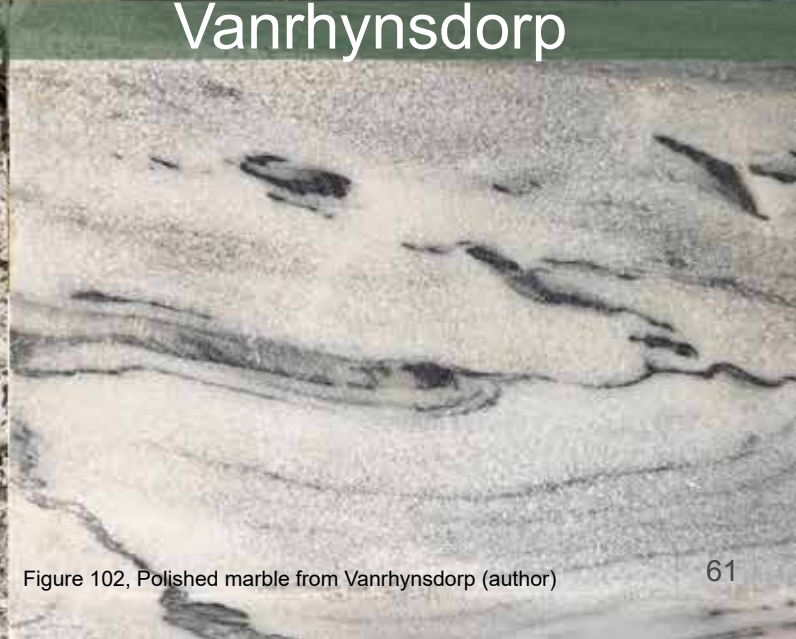


Figure 102, Polished marble from Vanrhynsdorp (author)

4.3. Site Location

Nestled in South Africa's Northern Cape, Garies is a charming town surrounded by rugged mountains and arid plains, radiating tranquillity that captures the essence of the Namaqualand region. Its famed spring flower displays carpet the desert.



Figure 102, Garies sign, (author)



Figure 103, View of Garies main road (author)



Figure 104, Wild flowers of Garies (Heigan, 2007: online)



Figure 105, View of Garies (author)

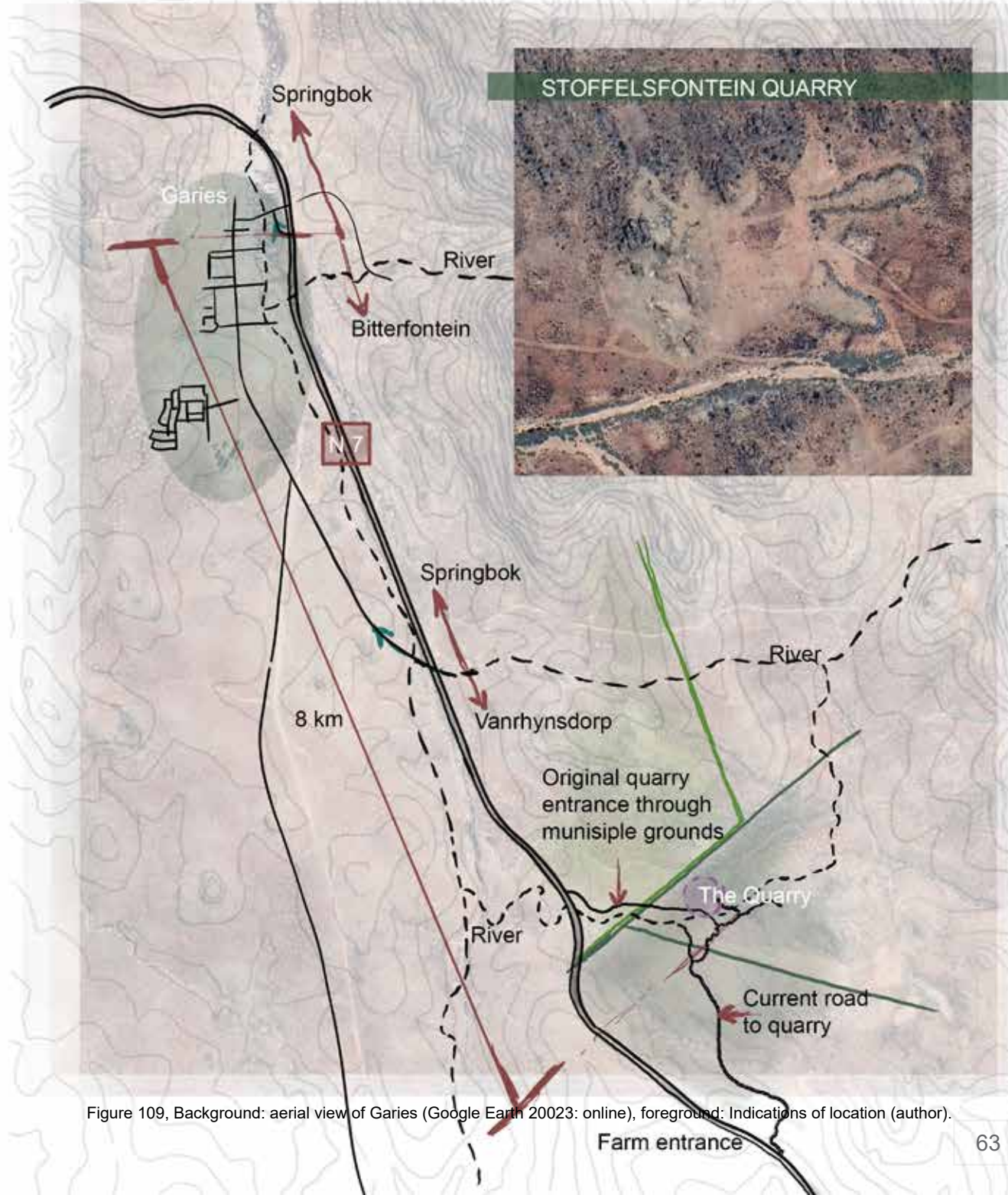


Figure 109, Background: aerial view of Garies (Google Earth 20023: online), foreground: Indications of location (author).

4.4. Saffron Farming in Garies

The location within Garies has viability due to the following:

- Sandy soil
- Average of 107 mm rain per year (Meoteoblu, [n.d.]: online) and chances of drought
 - o Saffron: 300 mm annual rain, resistant to drought
- Temperatures range between 39°C on very hot days and 0°C on cold nights (Meoteoblu, [n.d.]: online)
 - o Saffron: -18°C to 45°C
- Direct sunlight due to short vegetation and open landscape
 - o Saffron: 6 to 8 hours of direct sunlight
- Saffron (the main producer of saffron in South Africa) is based between Calvinia and Williston in the Northern Cape, which is around 300 km away from Garies with similar climates.





Figure 110, Proposed farming area on eastern side of site (author)

4.5. Project Site

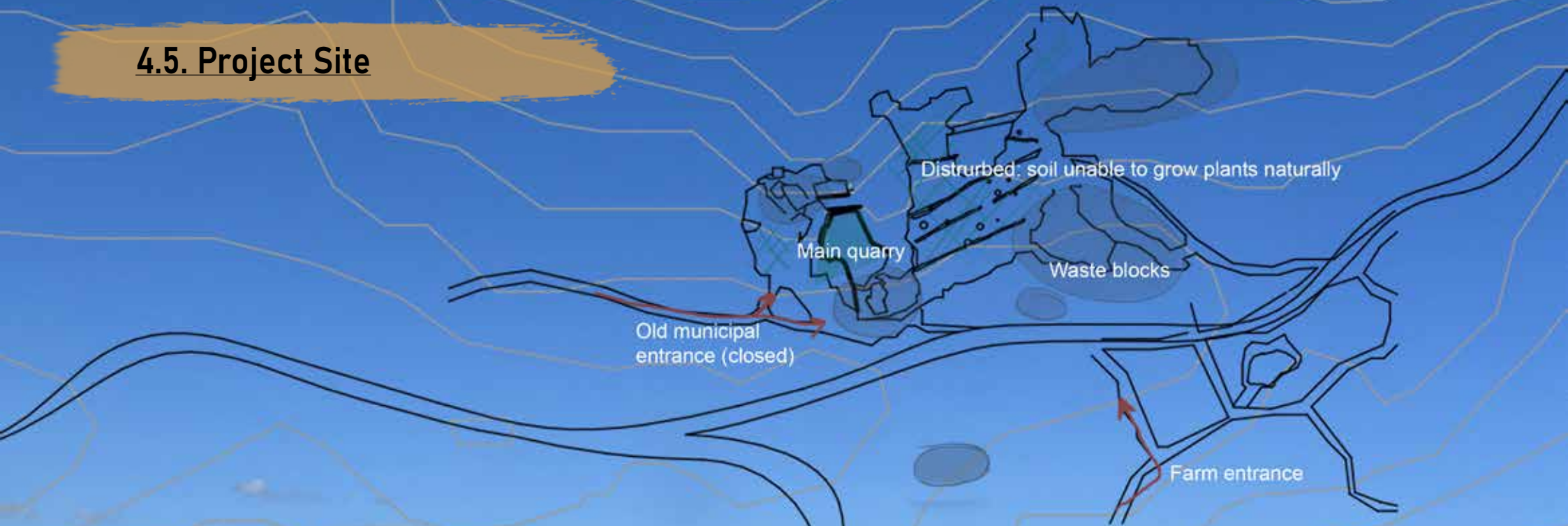


Figure 111, Site lines (author)



Figure 112, Site view from N7 (author)



Figure 113, Farm entrance gate (author)



Figure 114, Road to the site (author)



Figure 115, Distant view of the site (author)



Figure 116, Eastern side of the quarry (author)



Figure 117, View of western side of the quarry (author)



Figure 118, Open field east of the quarry (author)



Figure 119, Southern view of the quarry (author)



Figure 120, Inside of the quarry (author)



Figure 121, Cut stones in the quarry (author)

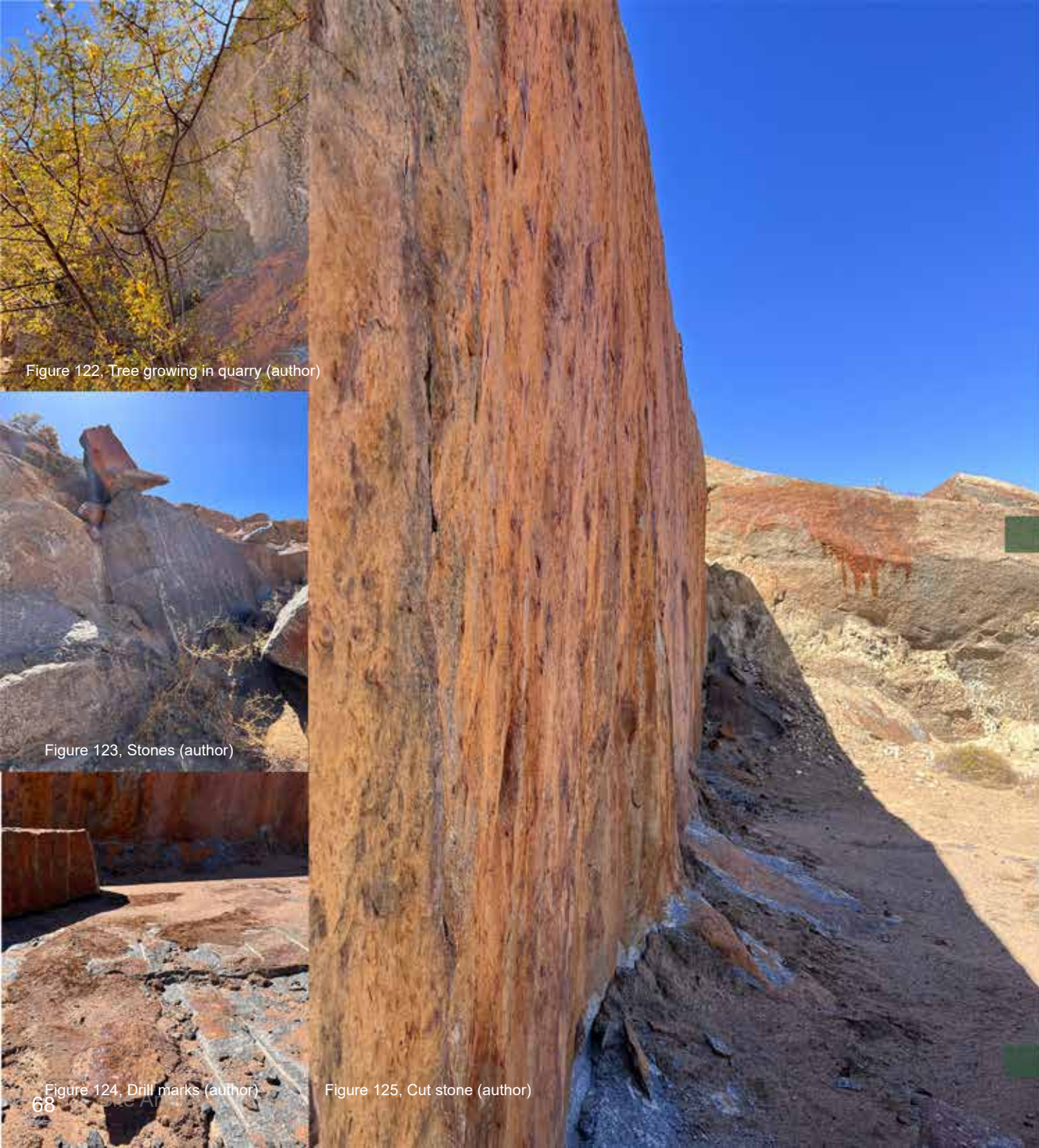


Figure 122, Tree growing in quarry (author)



Figure 123, Stones (author)



Figure 124, Drill marks (author)

Figure 125, Cut stone (author)



Figure 126, Vertical edges (author)

VERTICAL EDGES

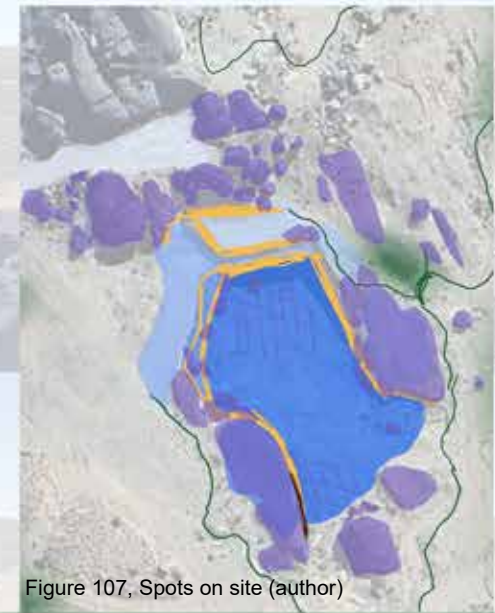


Figure 107, Spots on site (author)

SPOTS

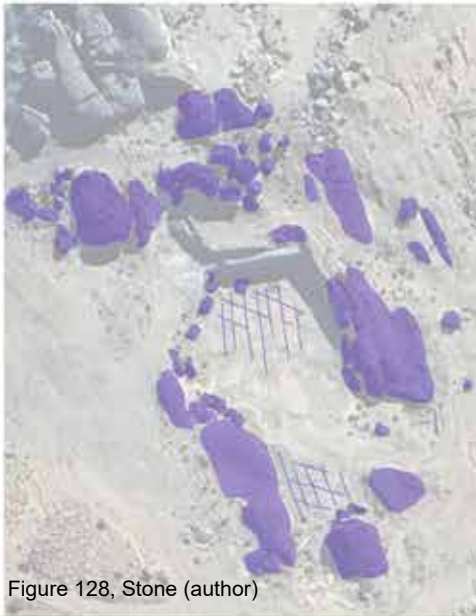


Figure 128, Stone (author)

STONE



Figure 129, Height differences (author)

HEIGHTS



Figure 130, Soil (author)

SOIL



Figure 131, Entire Site (author)



Figure 132, Current approach to the site (author)

DIRT ROADS



Figure 133, Dirt roads (author)

VERTICAL CUT STONE



Figure 134, Vertical cut stone (author)

ROCKS & BLOCKS



Figure 135, Rocks and blocks (author)

WATER



Figure 136, Water (author)

WIND

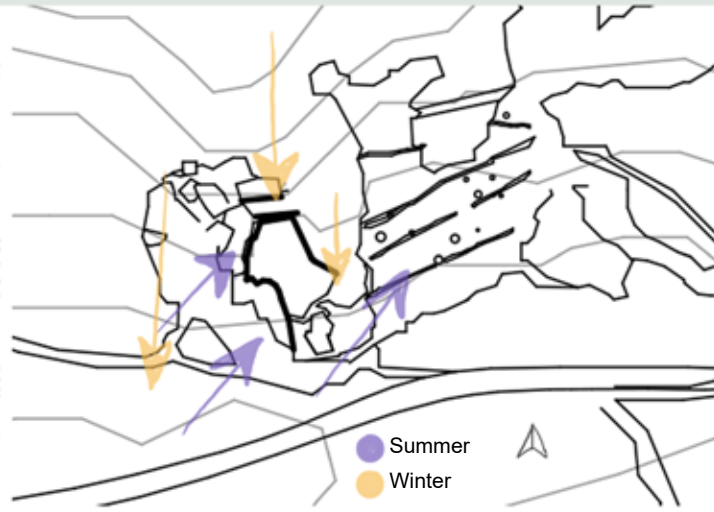


Figure 137, Wind direction (author)

DISTURBED SOIL



Figure 138, Disturbed soil (author)

4.6. Textures

Site texture encompasses the spatial arrangement of natural or man-made elements, impacting aesthetics, functionality, and efficiency. It influences how structures integrate with surroundings, while in agriculture, soil texture influences water retention, which is crucial for crops.

Moreover, site texture is vital for biodiversity and ecosystem conservation. Similarly, in quarries, visual textures ranging from rugged to polished contribute to each site's unique identity, reflecting geological history and shaping artistic potential, highlighting the balance between nature and human craftsmanship.

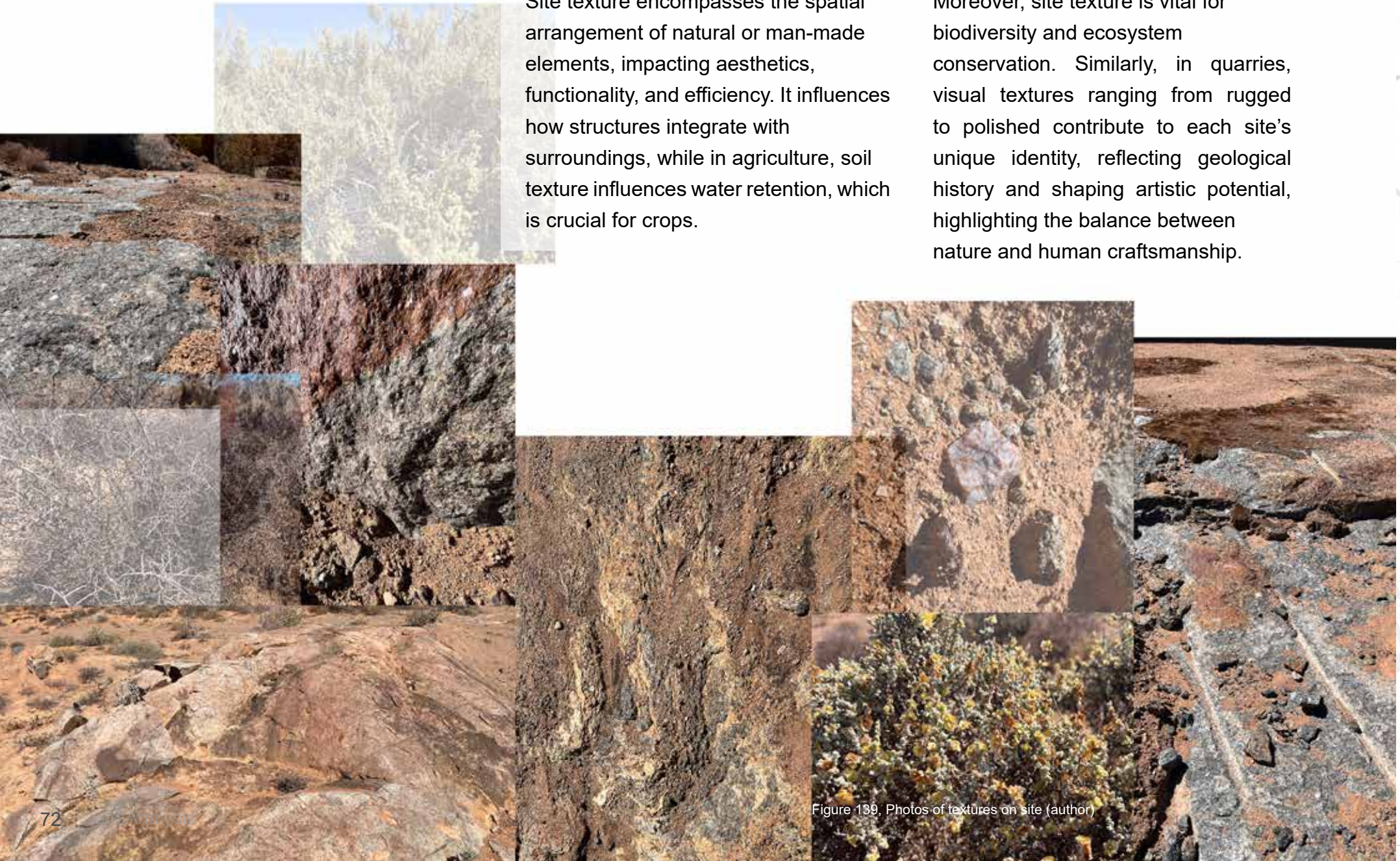


Figure 139, Photos of textures on site (author)



Figure 140, Drawn textures (author)

3.7. Alternative Site Analysis

More than a moment

An alternative analysis was undertaken to gain a fresh perspective on the site. This approach aimed to articulate and portray the site in a manner that allows individuals to not only relive the experience but also envision how it might unfold for someone who has yet to explore it. This interpretation encapsulates the site's essence, fosters a novel connection, and establishes a unique relationship with the surroundings.

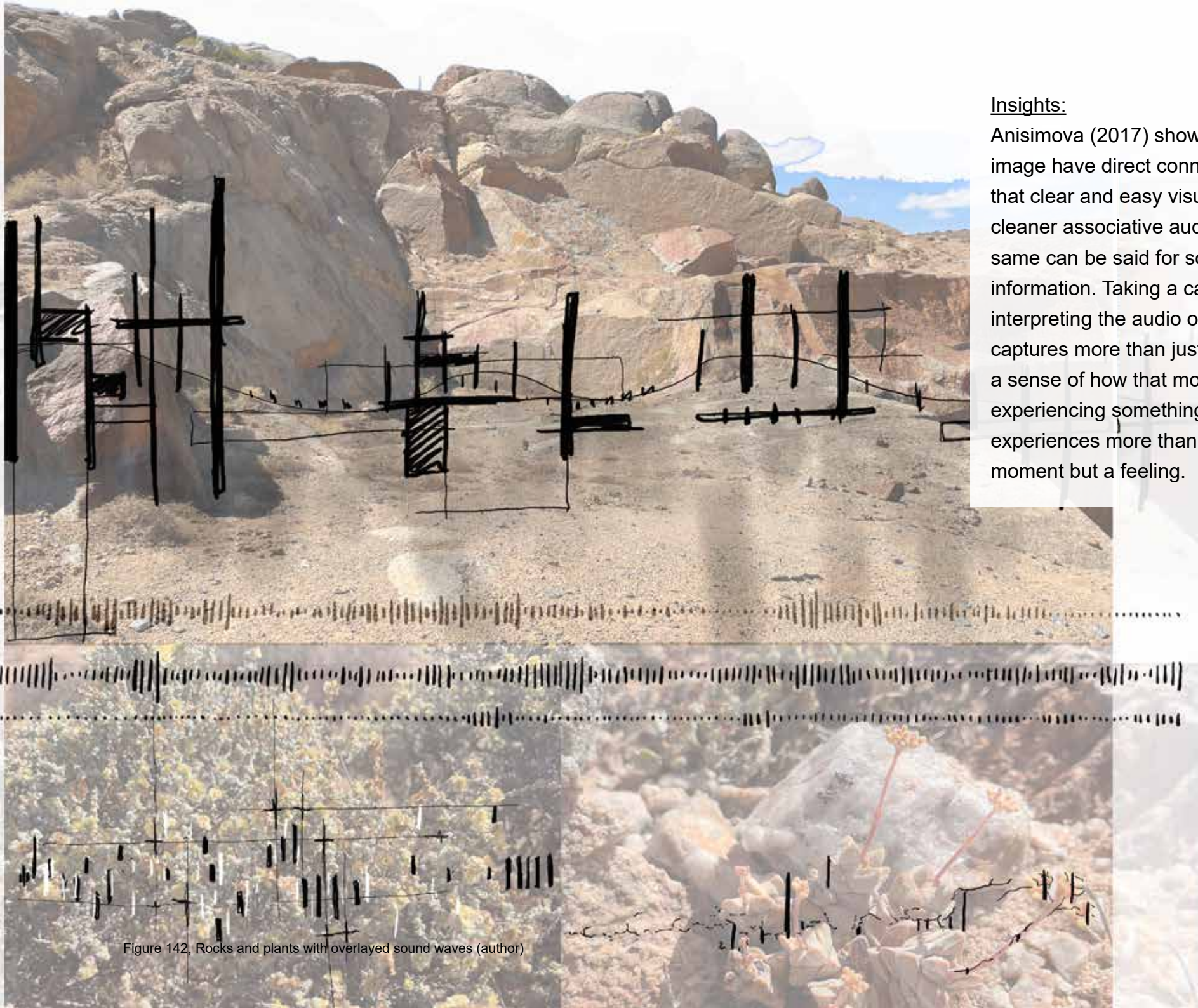
Problem statement:

Within a calm natural environment, the site speaks of its history, interactions, and presence, all while we are experiencing it. What might seem like a moment on-site could be more fleeting than initially perceived. J. Lam, Graduate in M.S. in Hospitality Management and Bachelor of Science in Communication Studies, expresses that the little moments that impact us most are those we never asked for (Lam, 2016: online). Therefore, I ask: how can one recapture more than a lost and fleeting moment but for the experience one had at that moment?

Poesisphilia:

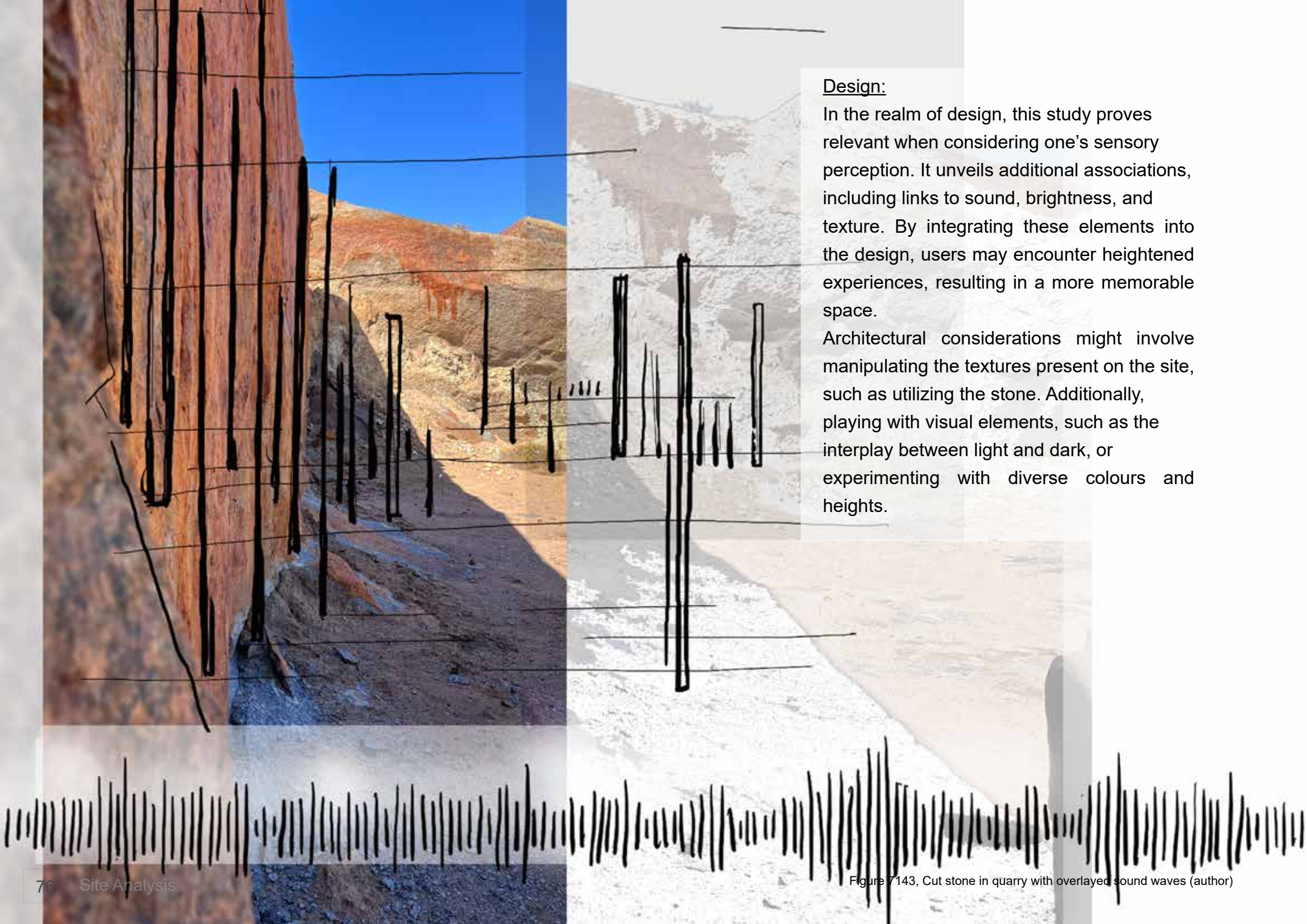
With the fear of losing a moment, one always has the urge to capture it, usually through a photo or video, but those exact moments are filled with more meaning; it is filled with one's feelings and the site's essence of the moment. Although the whole experience could never be relived, one can look back and interpret that that has been captured to create a moment that feels and looks similar, to be able to regain the feelings felt at that place and time to regain and reflect on what the site was like and telling us at that moment.

Capturing the moment: The importance of sound accompanying visuals is evident in its influence on our feelings when looking at something. It directly influences one's mood, thus using three second Audiovisuals to capture moments. Expressing the moment: Processing this moment, the sound is extracted and reinterpreted visually. This moment is then overlaid on the image. The audible becomes visual with line thickness, spacing, and placement on the image.



Insights:
Anisimova (2017) shows that sound and image have direct connotations: she states that clear and easy visuals cognitively create cleaner associative audible patterns. The same can be said for sound into visual information. Taking a captured moment and interpreting the audio onto the visual captures more than just an image. One gets a sense of how that moment was while experiencing something new. One thus experiences more than just a fleeting moment but a feeling.

Figure 142, Rocks and plants with overlaid sound waves (author)



Design:

In the realm of design, this study proves relevant when considering one's sensory perception. It unveils additional associations, including links to sound, brightness, and texture. By integrating these elements into the design, users may encounter heightened experiences, resulting in a more memorable space.

Architectural considerations might involve manipulating the textures present on the site, such as utilizing the stone. Additionally, playing with visual elements, such as the interplay between light and dark, or experimenting with diverse colours and heights.

Process Exploration (iii)

The shadows and textures on the site create intricate patterns that are then superimposed and given a fresh interpretation.

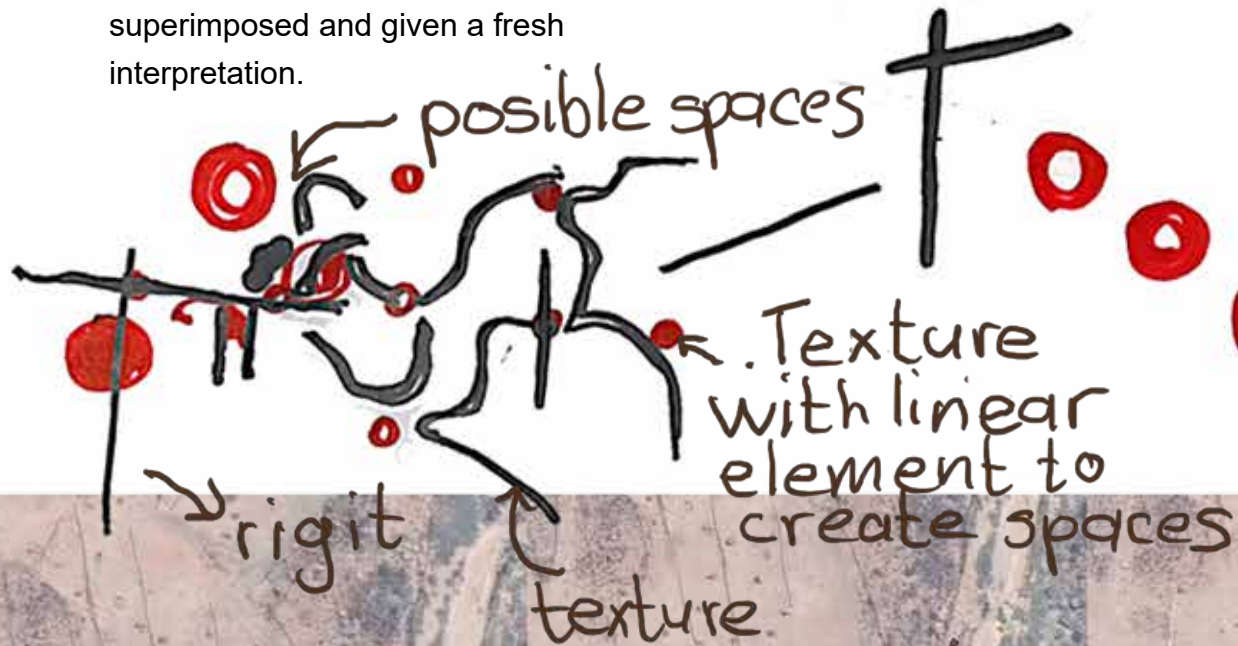


Figure 144, Explorations of overlaid shadows and textures (author)

Chapter 5: Project Outline

This chapter provides a concise overview to enhance comprehension of the project, encompassing its, processes, aims, objectives, problem statement, and accommodations list.



Figure 145, Blooming saffron flower (author)

5.1. Problem statement, Aims and Objectives

5.1.1. Problem Statement

The main issue to be addressed is the destruction and abandonment of flowers and landscapes. A market gap in South African saffron production could also be filled, as only some people are aware of this industry.

5.1.2. Aim

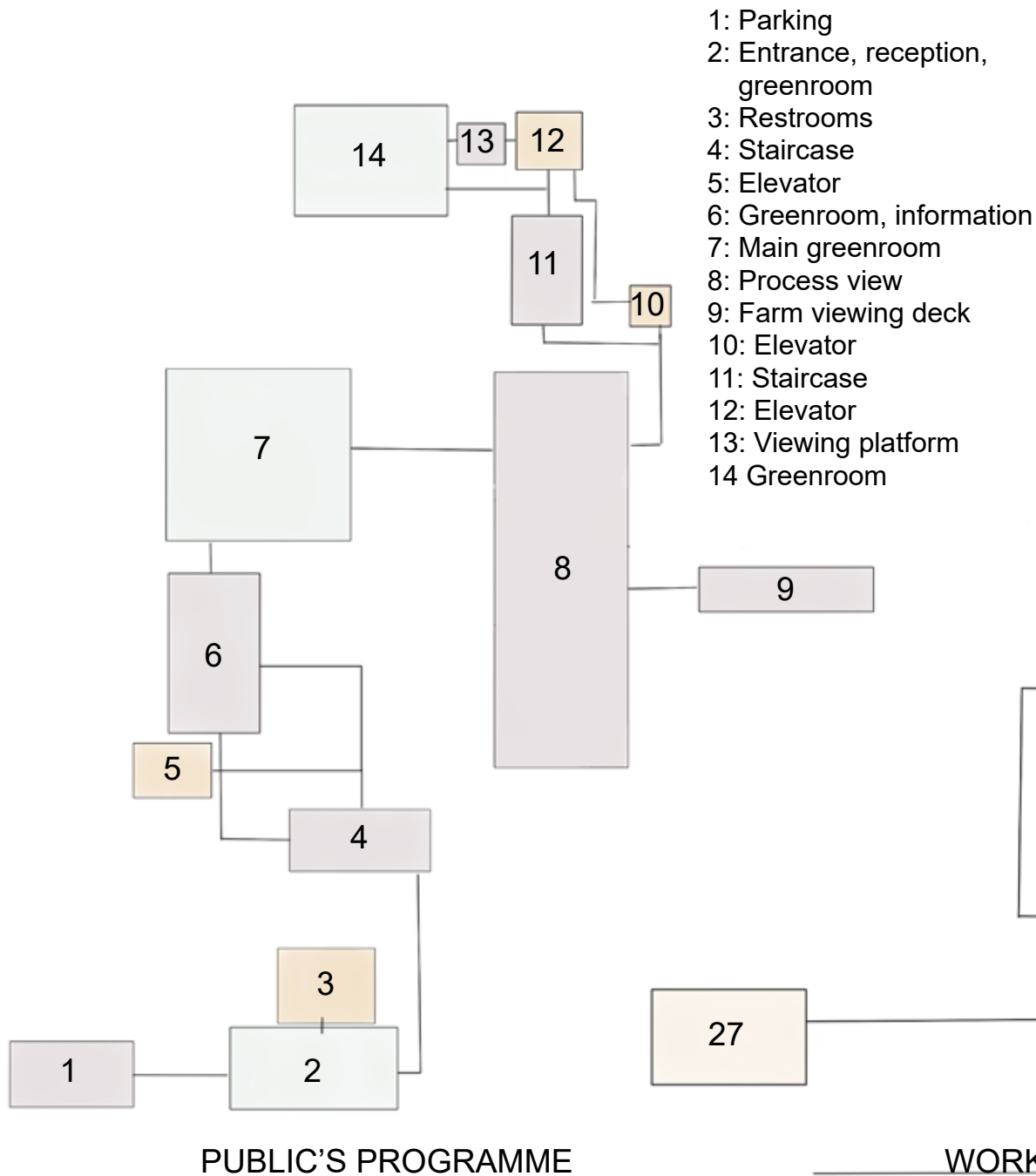
This project aims to realise saffron's opportunities, as listed below.

Why a Saffron Farm:

- It creates new opportunities for employment due to the improvement in regional competitiveness and, therefore, supports local areas in social and economic restructuring (Europeansaffron, 2014: 71).
- It supports small- and medium-sized enterprises.
- It supports the development of disadvantaged rural areas (Europeansaffron, 2014: 72).
- Skills development.
- Public interest.

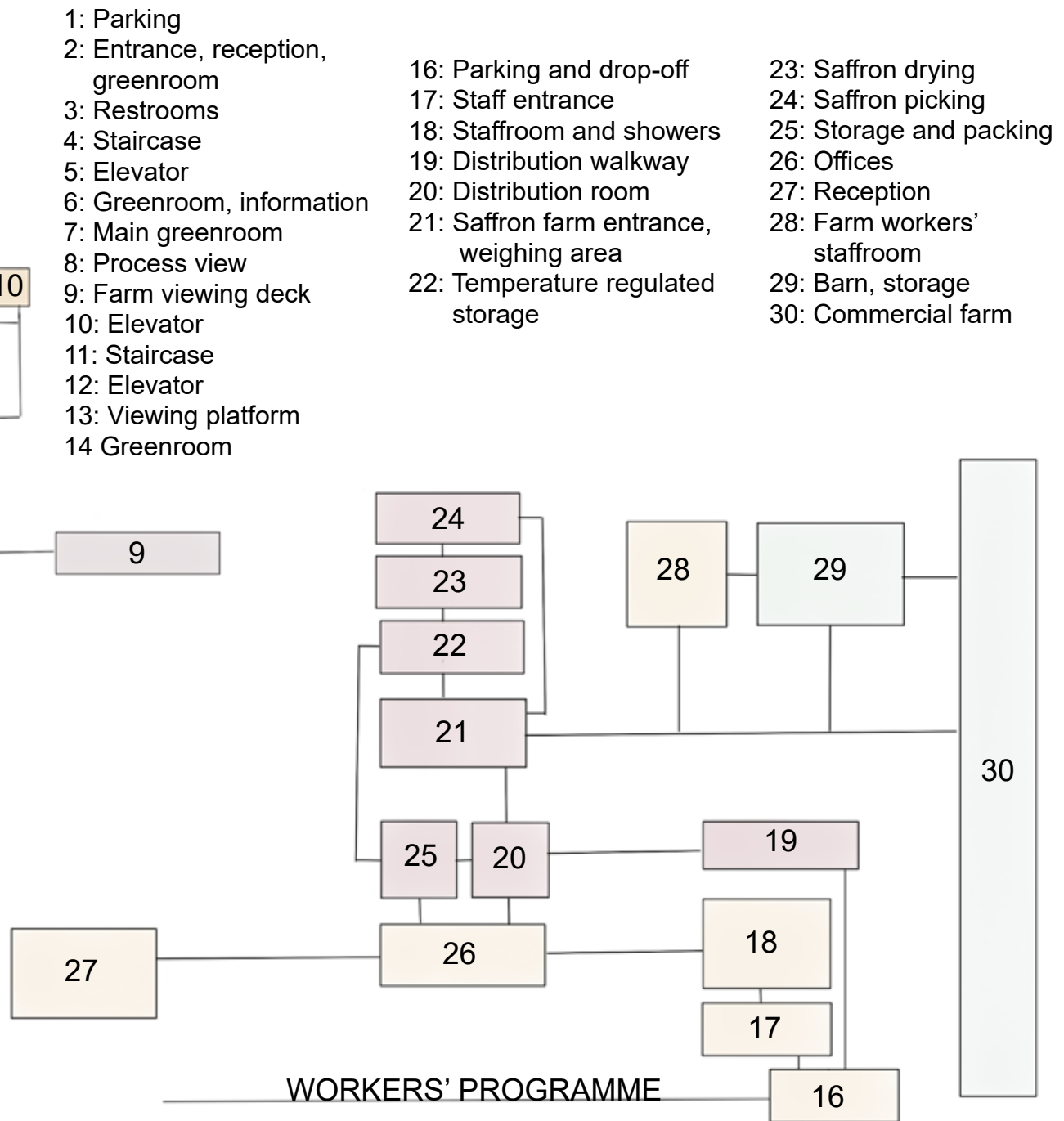
5.1.3. Objective

The project's goal includes the remediation, rehabilitation, and revitalisation of the quarry scarring the landscape. It would repurpose an abandoned space that could now bloom again while attracting people. The goal begins with constructing the saffron farm, which generates local income while providing learning opportunities and information to visitors who come to see the flowers. This also benefits the saffron industry by encouraging more people to grow their own, bringing South Africa one step closer to becoming a more significant competitor in saffron exports.



PUBLIC'S PROGRAMME

Figure 146, Diagram of public programme (author)



WORKERS' PROGRAMME

Figure 147, Diagram of workers' programme (author)

5.2. Accommodation List

5.2.1. Farming

Barn.....	165.7 m ²
Barn Storage.....	35 m ²
Farm Staff Room	59 m ²
Bathrooms.....	44.3 m ²
Farm Ground.....	14849 m ²

5.2.3. Public

Cultivation Rooms.....	518.9 m ²
Shop	99.3 m ²
Restrooms.....	89.3 m ²
Viewing and information areas.....	54.3 m ²
Cafe.....	99.3 m ²

5.2.2. Workers

Offices	37.6 m ²
Bathrooms	75.8 m ²
Picking space	72 m ²
Sorting space	31.2 m ²
Drying space	28.4 m ²
Temperature regulated storage.....	14.7 m ²
Storage	36.7 m ²

5.2.4. Other

Battery storage	5.5 m ²
PV Panels	570 m ²

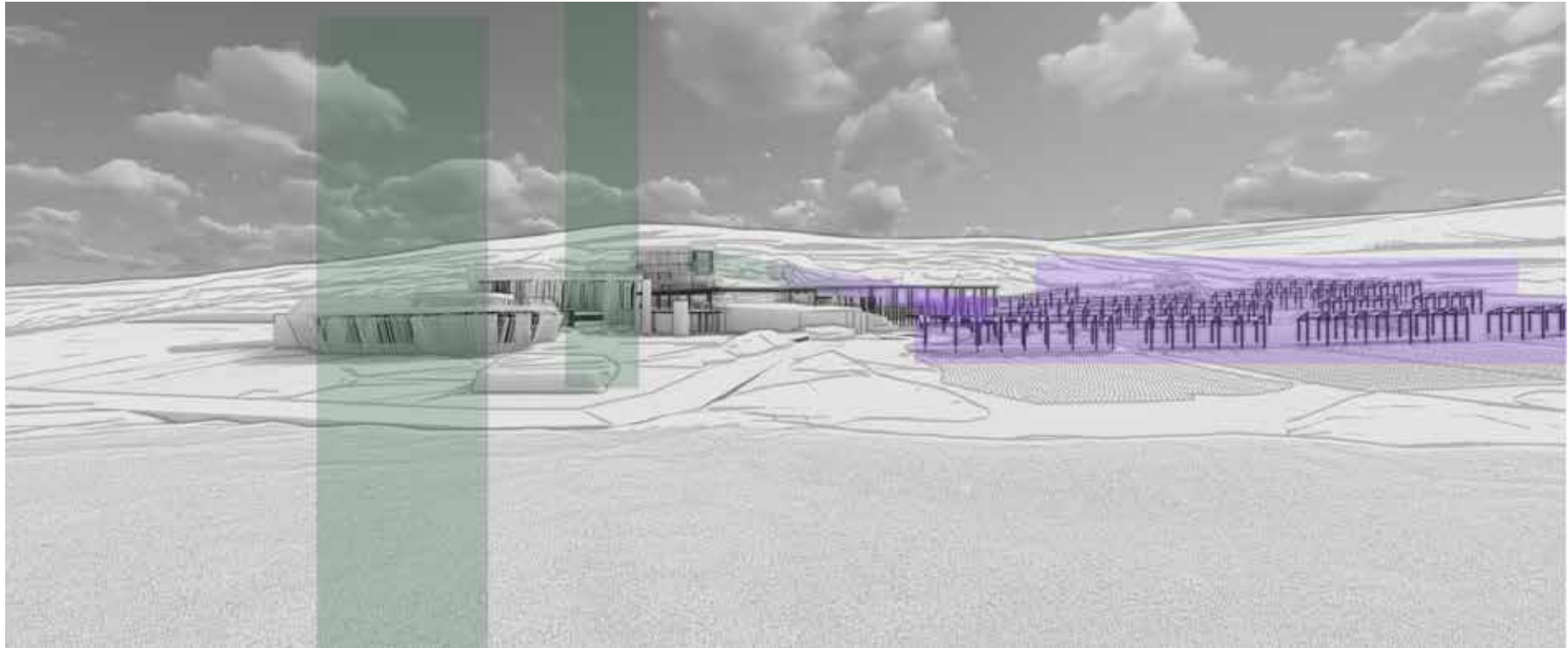


Figure 148, Farming diagram (author)

5.2.5. Farm Production

- +- 1.48 Hectare
- +- 888 000 - 2 664 000 flowers
- +- 2664000 - 7 992 000 dried saffron stigmas

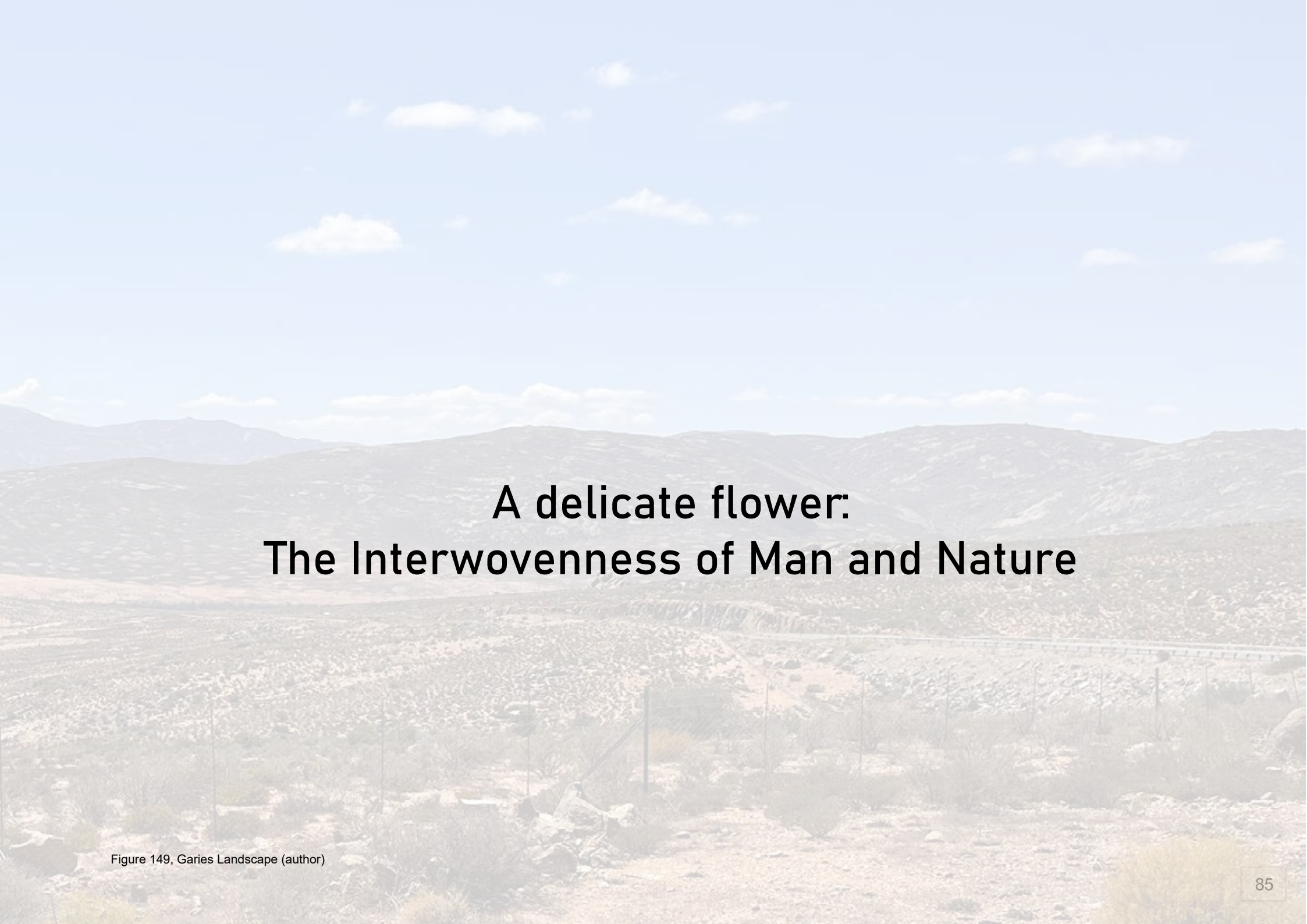
5.2.6. Indoor Cultivation

- +- 963 flowers
- +- 2 889 dried saffron stigmas



Chapter 6: Theoretical Position

This chapter delves into why this project is essential through theoretical elements such as the relationship between man and nature, their cohabitation, empathy, remediation, revitalisation and rehabilitation. It also discusses a precedent to connect all these elements.



**A delicate flower:
The Interwovenness of Man and Nature**

6.1. Introduction

This chapter will explore the contested relationship between man and nature in an attempt to understand the environmental complexities faced by spatial designers in the 21st century. The chapter argues for cohabitation as opposed to coexistence, utilising concepts such as ecological stewardship, which will be explored in the following passages. By being conscious of our relationship with nature, we should be able to design spaces that embody cohabitation and harmony by inspiring environmental empathy and spatial ownership through poetically blurring the boundaries between the spheres of the so-called natural and unnatural environments.

Kapwani Kiwanga's "Remediation" exhibition is a model for exploring the intricate connections between humanity and nature by delving into history, botany, exploitation, and resistance. It underscores nature's pivotal role in rejuvenating polluted areas. This exploration naturally leads us to consider architectural approaches of remediation, rehabilitation, and revitalisation, each addressing distinct facets of architectural intervention and collectively fostering the development of sustainable and thriving environments.



Figure 150, Basilica (Popper, 2021: online) edited by (author).

6.2. Flowers and Weeds: Human-Nature Relationship

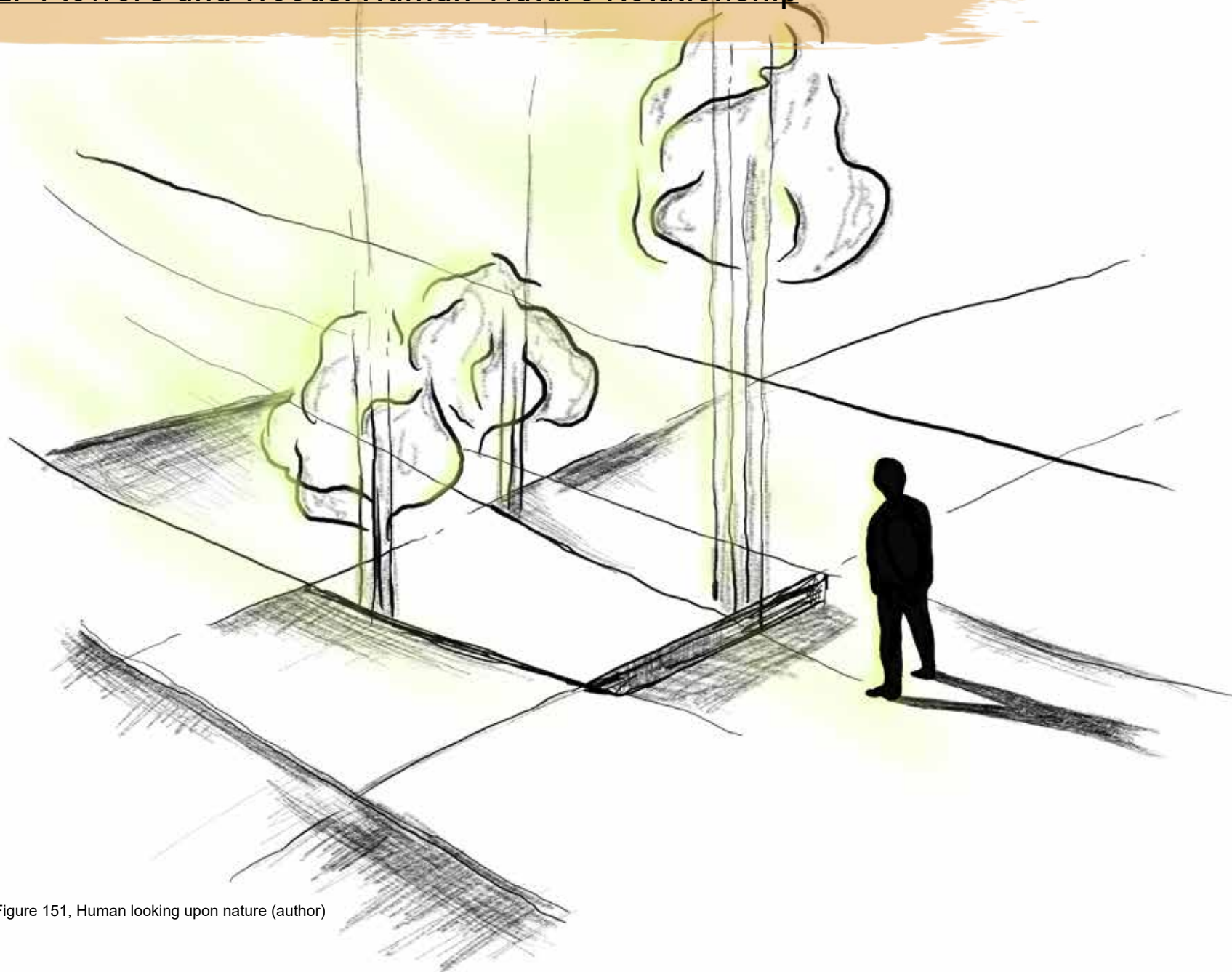


Figure 151, Human looking upon nature (author)

6.2.1. The Fight of Man and Nature

The human view of nature has evolved over time in response to shifts in societal values and cultural beliefs. Nevertheless, conflicting viewpoints persist, some emphasising conservation while others remain disengaged. The partitioning between humans and nature has given rise to various ideas, including the notion that humans are distinct from nature. Holmes Rolston III, Professor of Philosophy at Colorado State University, linked that this estrangement has historical forerunners, including the Enlightenment and industrialisation, which further distanced humanity from nature (1997: 48). In the work of Vining, Merrick and Price, each respectively Doctor in Environmental Psychology, Philosophy and Ecology (2008), researchers at their respective universities, individuals' perceptions of themselves in connection to nature are influenced by the value placed on the environment. This could be through personal ideas, desires, and connections (Vining, Merrick & Price, 2008: 2).

Anthropogenic climate change underscores human complicity in destructive processes, with historical transformations in human perspectives on nature contributing to this issue, states Harris, author in environmental philosophy (2016: 304), such as how the complicated construct of a multi-dimensional nature is moulded by scientific understanding (Rolston III, 1997). Human arrogance obtained by this understanding frequently causes us to feel that we can surpass nature through urbanisation, an underpinning principle of contemporary architecture, striving to separate the natural world from our existence. Nature, on the other hand, has a way of proving that human intelligence is not as extraordinary as we imagine, and we have, therefore, lost our false sense of control. The first stanza of an unreleased poem by Barnard (2022) emphasises the impact this could have.

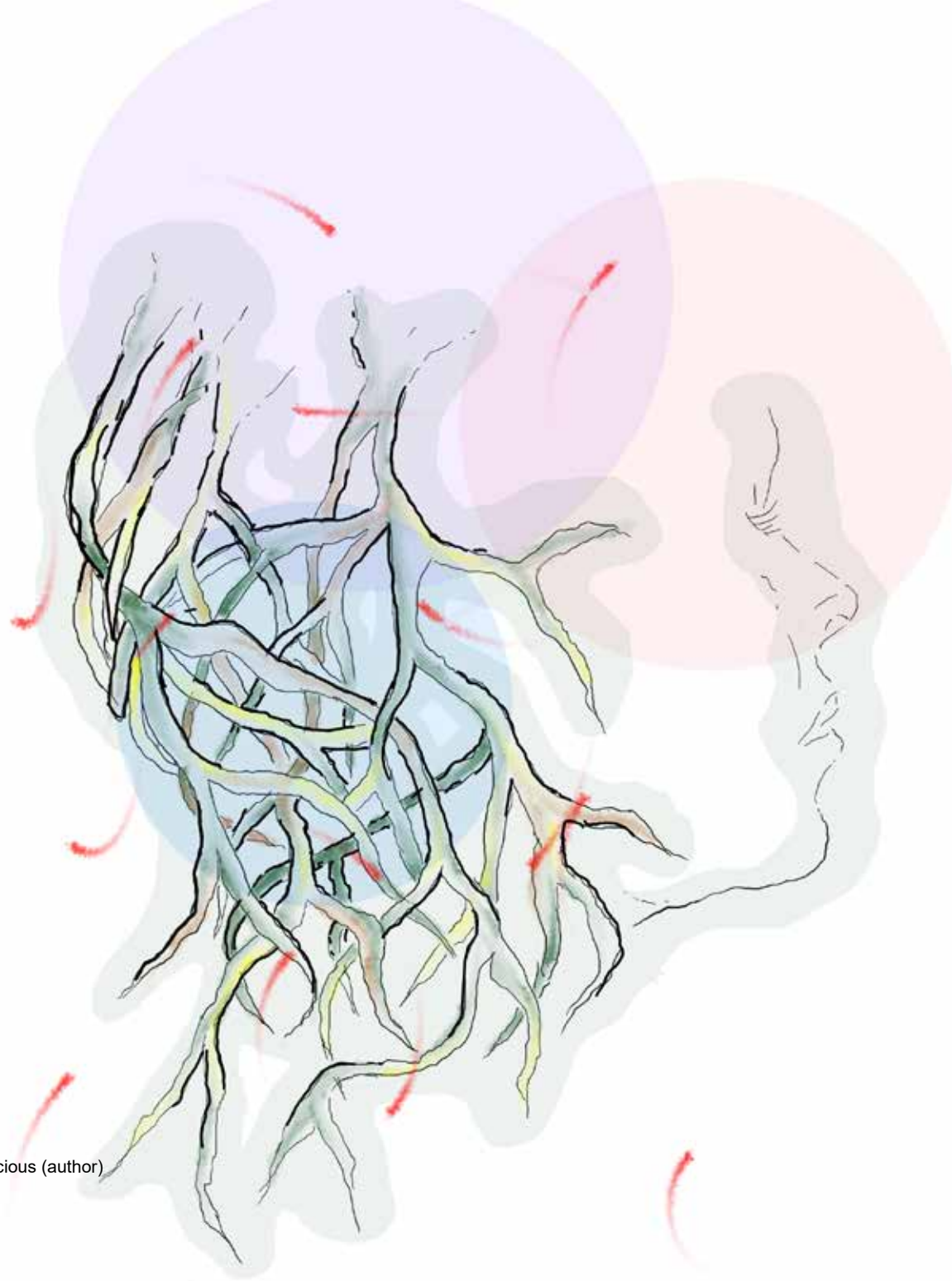


Figure 152, Nature in the subconscious (author)

The illusion of control:

“Why dwell on that that can’t be controlled
Why would one torture oneself on all the
what-if
Simply because one has the illusion of
control”

While scientific and technological progress
has surged forward, the question remains:
are we genuinely detached from the natural
world?

The tendency to distance oneself from
nature is undeniable as we get lost in the
hustle and bustle of urban life. The brutality
of nature embodies the concept of “survival
of the fittest.” In modern culture, nature is
viewed as the inverse of civilisation, and we
isolate ourselves from it by creating
concrete structures and isolating ourselves
in enclosed settings.

Humanity’s complicated relationship with
nature validates the fact that we rely on it for
survival. As depicted by Gillette, *Philosophy
undergraduate* (2020: 50), *Homo Faber* (Man
the Maker) has historically been a destructive
force towards nature, emphasising the need
for humans to understand their hostile
connection with the environment. Yongbo Liu,
a Doctoral Student of Philosophy in Visual
Art and Design (2022: 9110), emphasises the
need to maintain balance in our relationship
with the natural world, stating that humanity’s
selfish approach to nature could eventually
lead to even more devastating results.

Taking small steps towards cohabitation with
nature stands as a reasonable starting point.
As Barnard stated, “Why dwell on that that
can’t be controlled” (2022).

Therefore, let us rather dwell ‘with’ that that
can not be controlled. Furthermore, in the
works of Vining et al. (2008: 3), the
definition of ‘nature’ remains a complex and
contested notion, reflecting different
opinions on this subject. Rolston III (1997:
41) delves into the multidimensional
character of ‘nature,’ ‘environment,’ and
‘wilderness’, demonstrating its relativity
and how different cultures and individuals
interpret it.

“the creation of God, the great chain of
being, a clockwork machine, chaos, an
evolutionary ecosystem, Mother Nature,
Gaia, a cosmic egg, maya (appearance,
illusion) spun of a Brahman, or samara (a
flow, a turning) which is also sunyata, the
great Empress, or Yang and Ying” (Rolston
III, 1997: 41).



Foreground: Figure 153, Humankind carrying Nature while standing on it (author) Background: Figure 140, Pendulum of power between humans and nature (author)

6.2.2. Not a Coexistence, but Cohabitation

Timothy Morton, writer of “Dark Ecology: Ecology Without Nature” and English Professor at Rice University, calls for a more integrated perspective between humans and the non-human environment (2016). Dark ecology is a philosophical and ecological perspective that challenges conventional notions of humanity’s relationship with nature. It posits that humans are profoundly interconnected and not separate from the natural world (Morton, 2016: 181-186).

Morton argues that traditional environmentalism often reinforces the idea of a separation between humans and nature, treating nature as something external to us (Morton, 2016: 102-108). Dark ecology, on the other hand, challenges this separation by emphasising our deep entanglement with the natural world. Morton suggests confronting the “dark” aspects of our ecological interconnectedness, such as the unintended consequences of our actions on the environment (Morton, 2016). Morton’s concept of the “mesh” highlights the intricate web of connections between all living beings and non-living entities. This interconnectedness means that even our most minor actions can have far-reaching ecological consequences. Rather than distancing ourselves from these dark ecological realities, Morton calls for an embrace of them, acknowledging our inherent responsibility for the planet (Morton, 2016).

David Abram’s work in “Becoming Animal” (2010) aligns with the idea of humanity’s oneness with nature. Abram argues that humans have become estranged from the natural world, primarily due to the rise of written language and the dominance of the visual sense over the other senses (Abram, 2010). He contends that the written word and the multiplication of images have contributed to a sense of disconnection from the more-than-human world (Abram, 2010).





Figure 154, Man as part of nature (author)

Abram invites us to rekindle our sensory relationship with the Earth, recognising that we are not isolated observers but participants in a multisensory, animate world (Abram, 2010). He advocates for reawakening our senses, enabling us to perceive the vibrant, living Earth more directly. This sensory reconnection can help us realise that we are not apart from nature but deeply embedded within it (Abram, 2010).

Dark ecology emphasises our interconnectedness with nature, urging us to confront the consequences of our actions and shift our ethical perspective (Morton, 2016). Morton promotes “ecological awareness,” encouraging us to acknowledge the unpredictability of ecological systems and work towards responsible coexistence with the Earth (Morton, 2016). The idea that humans are not outsiders looking in on nature but integral participants in the intricate web of life encourages us to embrace our responsibility for the planet and foster a more harmonious and sustainable coexistence with nature.

Ecological awareness has expanded dramatically recently, yet it is frequently viewed as a threat (Liu, 2022: 9110). Oneness with nature has led to ecological stewardship, emphasising empathy and environmental conservation, fostering localised knowledge and practices (Liu, 2022: 9110). But becoming one with nature requires ongoing effort, a constant battle of awareness and action, a perpetual journey of ‘non-coexistence’, a cohabitation, where our responsibilities to nature are woven into our existence.

6.2.3. Ecological Empathy

The ecological idea of interconnection is critical in tackling current ecological issues such as environmental devastation and resource overexploitation (Liu, 2022: 9111). Nature appears to retaliate against humans until they recognise their place as a part of nature rather than its master (Liu, 2022: 9110). This perspective aligns with a sustainable development approach that acknowledges the delicate equilibrium within the natural world (Liu, 2022: 9110). It harmonises with the principles of ecological stewardship, which emphasise empathy and the preservation of the environment, encouraging humans to perceive themselves as a component of nature and appreciate the value of all organisms (Gillette, 2020).

Nonetheless, the feasibility of universal empathy is called into doubt, and self-interest is proposed as a more effective motivation for environmental protection. The intersection of these two viewpoints can result in a more effective motivator for environmental protection (Gillette, 2020). In light of the deep connection between nature and human existence, Liu contends that implementing natural principles is imperative for sustaining a harmonious coexistence between humans and the environment (Liu, 2022: 9110).

These principles are shown in the table below.

No.	Aspect	Details
1	A harmonic relationship between humans and nature	To adhere to the law of natural development.
2	A harmonic relationship between humans and society	To follow the social ideology.
3	A harmonic relationship between people	To adhere to human moral and ethics.
4	A harmonic relationship between design and culture	To create a design works based on the concept of integrating design with culture.
5	A harmonic relationship between design and natural resources	To perform according to the concept of sustainable development.

Table 1: The Principle of "Oneness between humans and Nature" in design (Liu, 2022: 9110).



Figure 155, The front floor of the Cheng Zhitang area, (Liu, 2022: 9114)



Figure 156, The architecture and natural layout of Cheng Zhitang (Liu, 2022: 9113).

For example, Liu applied this to the Cheng Zhitang area’s architecture and design (figures 155 & 156).

No.	Aspect	Details
1	A harmonic relationship between humans and nature	To adhere to the natural law and concurrence to mountains, rivers and climates of the Huizhou area.
2	A harmonic relationship between humans and society	Based on the concept of sustainable development with materials used for buildings as renewable resources.
3	A harmonic relationship between people	To adhere to the moral principles of human ethics by designing areas based on a classification between male and female, and elder and youth.
4	A harmonic relationship between design and culture	Based on the concept of encompassing design and culture with meaningful carving patterns.

Table 2: “Cheng Zhitang” on Diversified Perspectives of “Oneness between Humans and Nature” (Liu, 2022: 9115).

These perspectives depict humanity’s complex relationship with the environment, ranging from interdependence to attempts to define and grasp nature, strike a balance, and bring the pendulum closer to rest. With the beauty and conflict of nature and the development and complicity of humans, the relationship is ever-changing. We must adopt a more integrated perspective to move forward, emphasising ecological awareness and our responsibility to the planet. This shift towards acknowledging our interconnectedness with nature fosters a more harmonious and sustainable coexistence with the Earth.

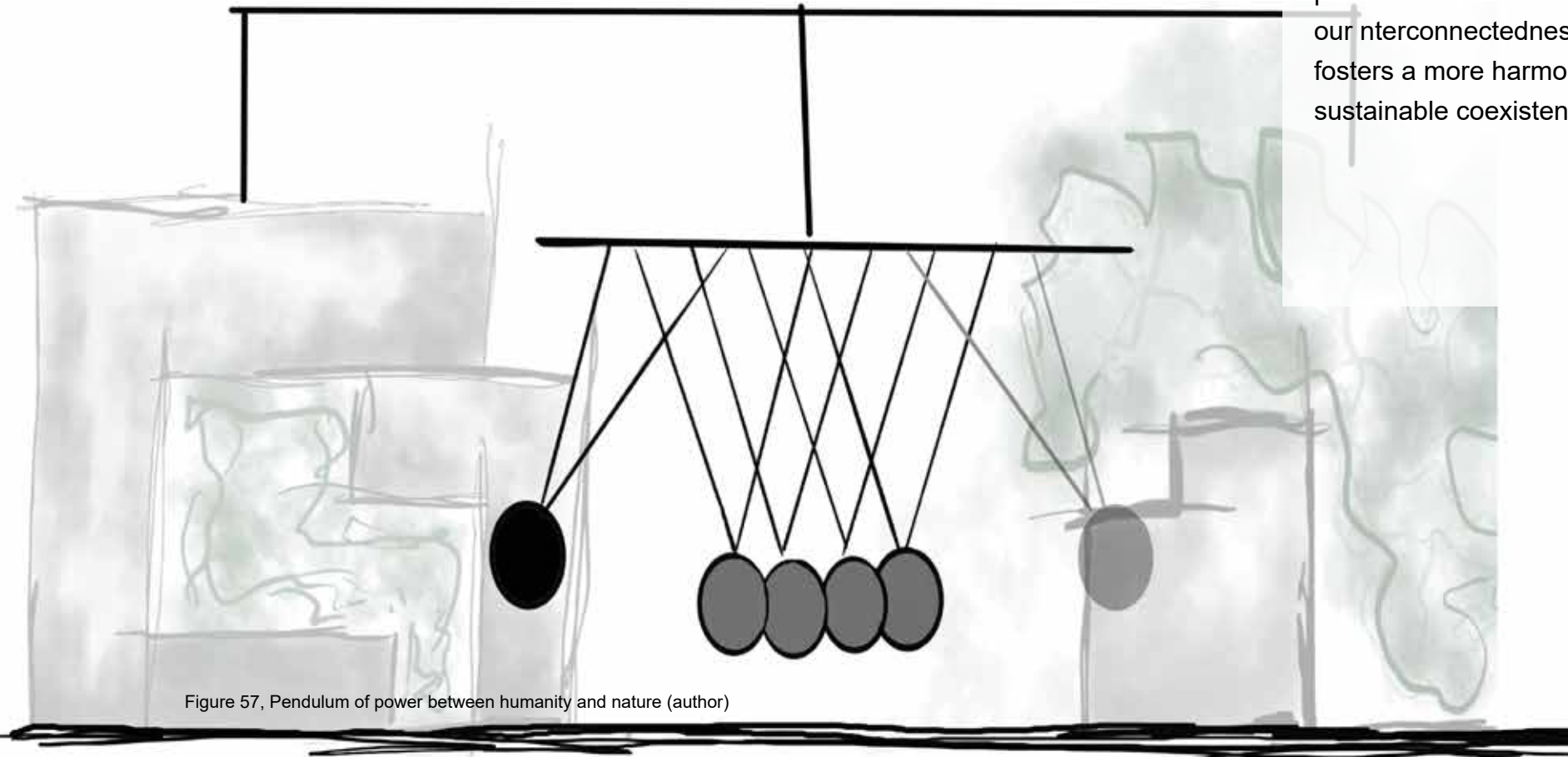


Figure 57, Pendulum of power between humanity and nature (author)

6.3. Theoretical Precedent

Exhibition: Remediation

Kapwani Kiwanga

February 24, 2023- July 23, 2023

MOCA, Toronto Canada

This precedent interprets how one could put the relationship between man and nature into form by addressing a historical connection between botany, exploitation, and resistance, demonstrating how plant life can help revitalise polluted areas.

Kapwani Kiwanga's relationship to Hamilton, her hometown, and its industrial heritage inspired the exhibition's title, "Remediation". Kiwanga's art emphasises nature's role in shaping history through evolution and its responses to human actions.

She explores how the Earth has been impacted by both violent and remedial actions by humans and nature, leading to various consequences. The exhibition explores the historical tensions between toxicity and regeneration in the human and natural world and the effects and consequences thereof. Thus, this precedent shapes the discussion of the relationship between nature and humanity (MOCA, 2023: online).

The exhibition includes:

- Sisal installations
- Flooring
- Window interventions
- Updated inflatable vivariums inspired by MOCA's industrial background.

Three specific installations will be discussed:

Keyhole (figure 158) and Vivarium: Apomixis, Adventitious (figure 168).



KEYHOLE

Figure 158, Keyhole (Findlay, 2023: online)



LINE

Figure 59, Line (Findlay, 2023: online)



GLAZE

Figure 160, Glaze (Findlay, 2023: online)



THE MARIAS

Figure 161, The Marias (Findlay, 2023: online)



ELLIPTICAL FIELD

Figure 162, Elliptical field (Findlay, 2023: online)



RESIDUE

Figure 163, Residue (Findlay, 2023: online)



6.3.1. Keyhole

The new work combines steel structures, plants, water, soil, pea gravel, LED growth lights, and an air pump. These plants serve as natural air, soil, or water filters, removing toxins and improving their surroundings.

The pool's design is influenced by keyhole gardens (figure 167), a permaculture planting arrangement that promotes sustainability and regeneration. Kiwanga's inspiration included a compost area in the centre to nourish the surrounding plants (Kiwanga, 2023: online).

6.3.2. Vivarium: Adventitious

6.3.3. Vivarium: Apomixis

The vivariums are made of PVC inflatable material with a steel structure (figure 168). Unlike traditional Wardian cases designed to display and protect plant specimens, these vivariums are quite the opposite. They seem to have evolved in harmony with the plants they house and are delicate, relying on the air inside them. Instead of being preserved as archived specimens for human observation, these vivariums represent a forward-thinking concept.

They envision a future where plants are surrounded by a protective environment that can serve as a structure for their growth and support rather than being enclosed, captured and sealed away (Kiwanga, 2023: online).

The artistic interpretation of the historical relationship between botany, exploitation, and resistance that demonstrates how plant life can help revitalise polluted areas mediates the idea of old industrial heritage. Kiwanga's art portrays the shaping of natural evolution, human actions, and the consequences it leads to.

GROWTH THROUGH LIGHT



Figure 164 Growth through light
(Findlay, 2023: online) edited by (author)

KEYHOLE GARDEN SHAPE



Figure 165, Lesotho keyhole garden influence
(Findlay, 2023: online) edited by (author)

LIGHT AND DARK



Figure 166, use of light and dark
(Findlay, 2023: online) edited by (author)

THE KEYHOLE GARDEN

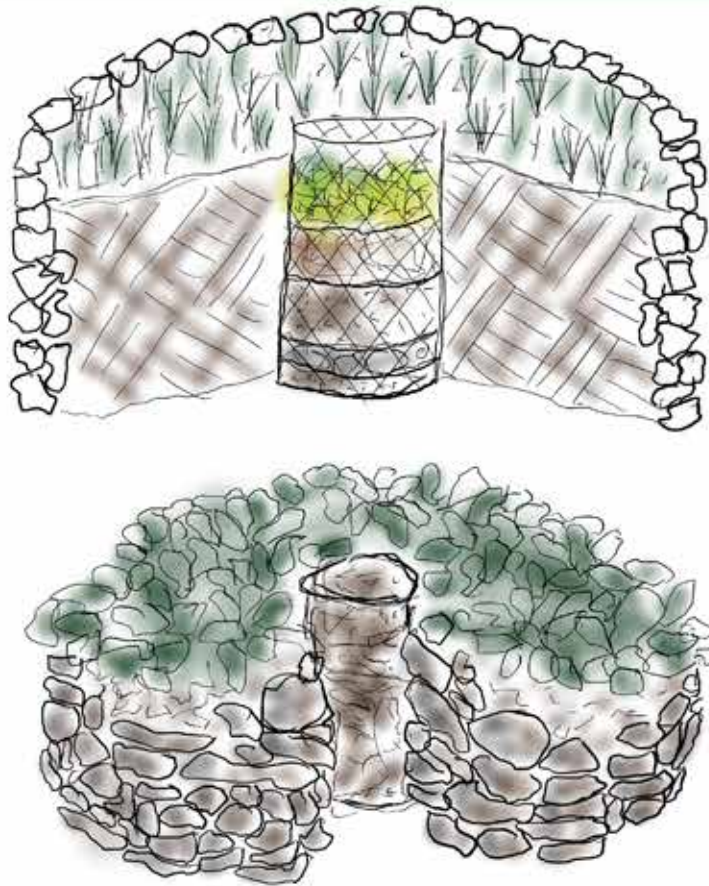


Figure 167, Lesotho keyhole garden (author)

LIGHT & DARK, FIRM & FRAGILE, TRANSPARENT AND OPAQUE



Figure 168 Light and dark, firm and fragile, transparent and opaque (Findlay, 2023: online) edited by (author)

6.4. Rooted reimagination: Remediation, Rehabilitation and Revitalisation

Humans, as producers and developers of the built world, place themselves at the centre of the cosmos, according to Widodo (2019: 45), associate professor and Master of Arts in Architectural Conservation (MAARC) program director. They carefully select habitation sites in harmony with nature and the spiritual realm. Adaptation is essential for establishing eco-friendly settings that provide long-term solutions. Humans, wildlife, vegetation, and the environment constitute an integrated entity resembling a single organism. The Earth is one integrated ecosystem, and our structures share responsibility for its preservation (Widodo, 2019).

When examining the post-industrial sites such as the precedents ROM by AllesWirdGut Architektur (discussed in Chapter 2), we can pinpoint three distinct concepts that have been consciously or unconsciously applied - remediation, rehabilitation, and revitalisation. The field of architecture, in its many facets, has long been a driving force behind the transformation and preservation of the built environment. Amongst the various branches of architectural practice, the three distinctive approaches, each with unique goals and methodologies, are interrelated. Yet, they address different aspects of architectural intervention and contribute to creating sustainable and vibrant environments.

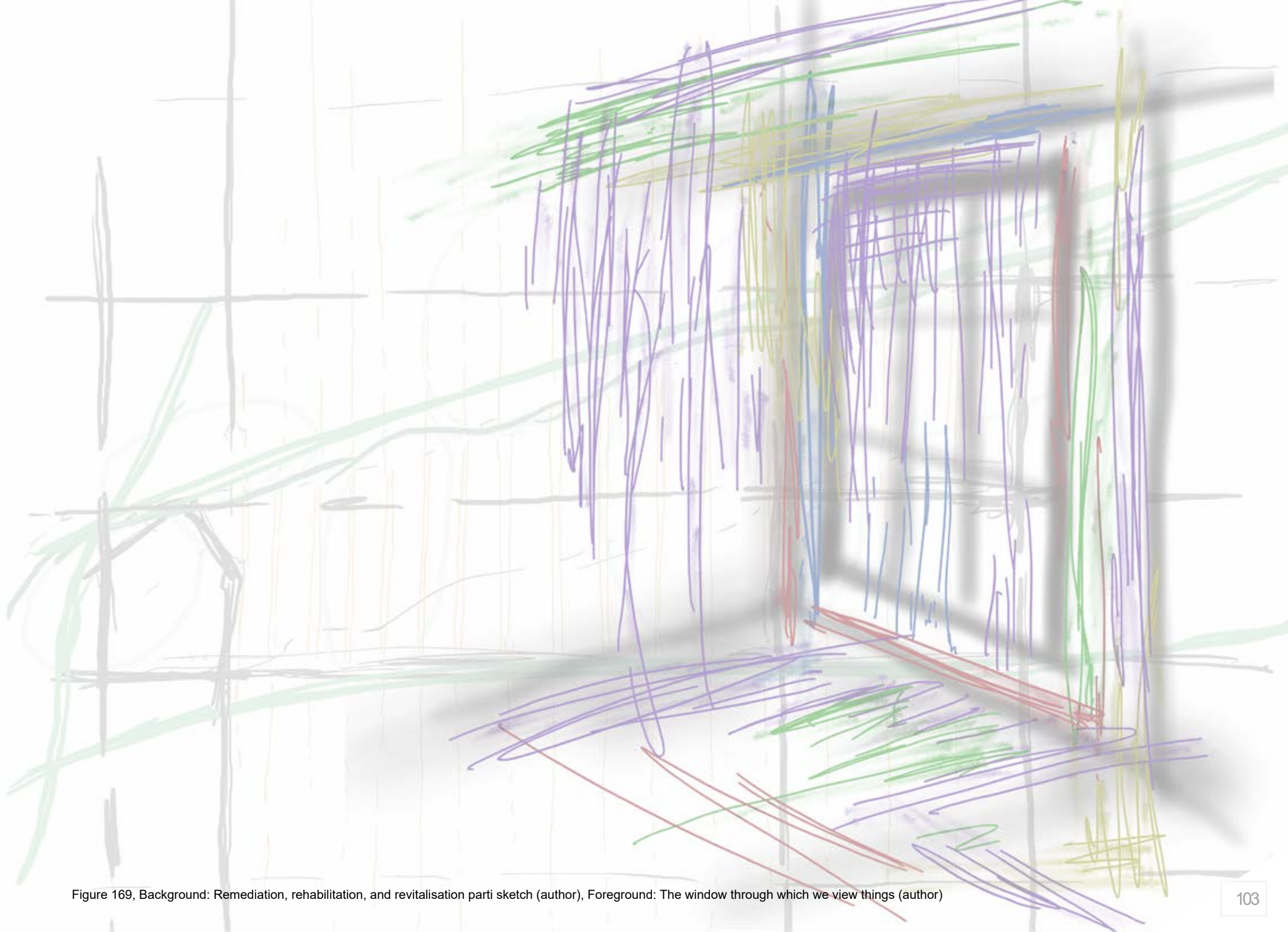


Figure 169, Background: Remediation, rehabilitation, and revitalisation parti sketch (author), Foreground: The window through which we view things (author)

6.4.1. Remediation

Remediation architecture focuses on the restoration and environmental remediation of sites that have suffered ecological damage due to human activities or natural disasters. In essence, it seeks to heal and rejuvenate the built environment and its ecological context. Remediation architects work collaboratively with environmental scientists, engineers, and landscape architects to devise innovative and sustainable strategies for revitalising these areas while addressing pressing environmental concerns.

The Eden Project in Cornwall, United Kingdom, by Grimshaw Architects, is an outstanding example of remediation architecture, showcasing the power of innovative design in reversing environmental degradation. Located within a former clay pit, this ambitious project sought to rehabilitate a once-degraded industrial site. It aimed to be an educational platform for promoting environmental awareness (Grimshaw Architects, 2023: online).

At the core of the Eden Project lies a network of interconnected biomes (figure 158) housing a diverse array of plant species from various global climates and ecosystems. These biomes, often described as “bubble-like” structures, utilise advanced ethylene tetrafluoroethylene (ETFE) materials to create an ideal environment for plant growth while maintaining energy efficiency. Beyond showcasing biodiversity, these biomes also serve as active laboratories for research and education in environmental sustainability (Grimshaw Architects, 2023: online).

Moreover, sustainable design principles were crucial to the project’s development. Features such as rainwater harvesting systems), renewable energy sources, and the use of eco-friendly building materials were all employed to minimise the project’s ecological impact. By adopting a comprehensive approach to environmental restoration, the Eden Project successfully transformed a disused industrial area into a thriving botanical garden and a centre for education. It serves as a prime example of how remediation architecture can address contemporary environmental challenges, creating spaces that are both visually appealing and environmentally sustainable (Grimshaw Architects, 2023: online).



Figure 170, Drone view (Grimshaw Architects, 2023: online)



Figure 172, Rain forest lookout (Grimshaw Architects, 2023: online)



Figure 173, Eden (Grimshaw Architects, 2023: online)



Figure 171 Before planting (Grimshaw Architects, 2023: online)



Figure 174, Solar panels core roof (Grimshaw Architects, 2023: online)

6.4.2. Rehabilitation

Rehabilitation architecture takes a fundamentally different approach from remediation architecture. Rehabilitation in architecture involves the restoration and repurposing of existing structures while preserving their historical and cultural significance. In essence, it bridges the past and present by safeguarding these structures' architectural integrity and historical value while adapting them to meet contemporary needs.

A notable illustration of rehabilitation architecture principles is in the Tate Modern in London, designed by Herzog & de Meuron. The building was originally a power station that was no longer in use (figure 175). Instead of demolishing it, architects transformed it into a world-renowned art museum (figure 176). The rehabilitation process preserved the industrial character of the building while adapting it to house contemporary art exhibitions (Herzog & de Meuron, 2010: online). Herzog & de Meuron aimed to enhance the urban character of the building while preserving its experiential and visual significance (figure 178). The prominent exterior change is a light beam on the roof, distinct from the original facade, with minimal geometry and translucent glass. The transition between old and new elements is subtle, with careful reference to the industrial character of the original design. Details like heavy stair rails, cast iron grills, and unfinished wood floors harmonise with the power station's aesthetic.

The architects opened the landscape around the power station, creating a natural approach and mediating between the museum and urban surroundings. The facade features punctured bands at ground level, indicating entrances and inviting the public into the museum. The turbine hall envisioned as a public plaza, offers a unique space for movement and congregation. Olafur Eliasson utilised the monumental scale of the turbine hall in his 2003 installation, *The Weather Project*. Herzog & de Meuron replaced the power station's interior with galleries of varying sizes, sharing an understated aesthetic (figure 177). The former oil tanks, which opened in 2012, serve as another unique gallery, and an extension is underway to provide additional display space and public areas. This project showcases how rehabilitation can breathe new life into old structures, repurposing them for modern uses while honouring their architectural heritage (Herzog & de Meuron, 2010: online).



Figure 175, Old factory (Herzog & de Meuron, 2010: online)



Figure 176, New project (Herzog & de Meuron, 2010: online)

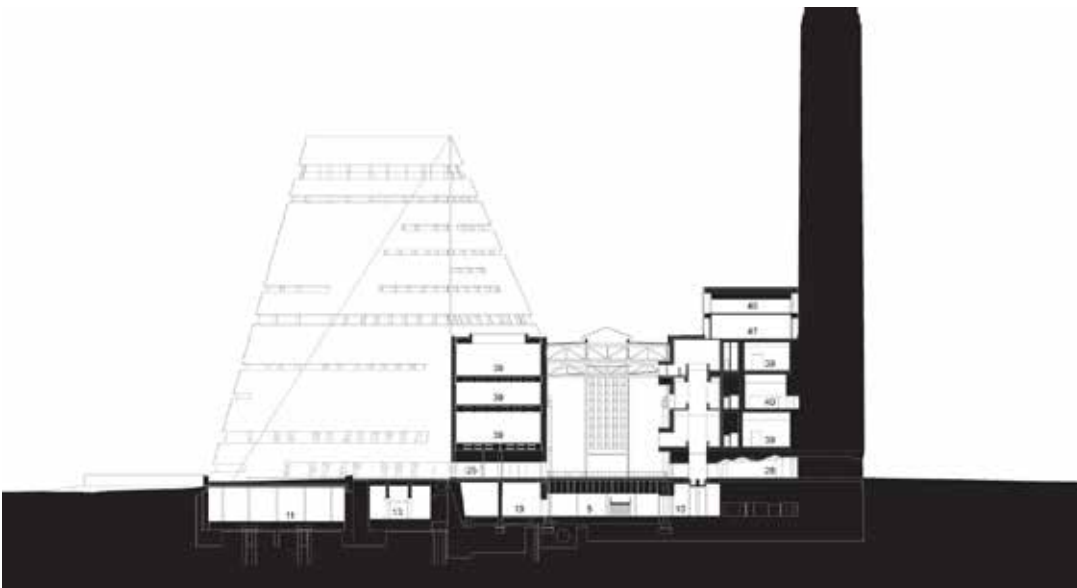


Figure 177, Section (Herzog & de Meuron, 2010: online)



Figure 178, Interior (Herzog & de Meuron, 2010: online)

6.4.3. Revitalisation

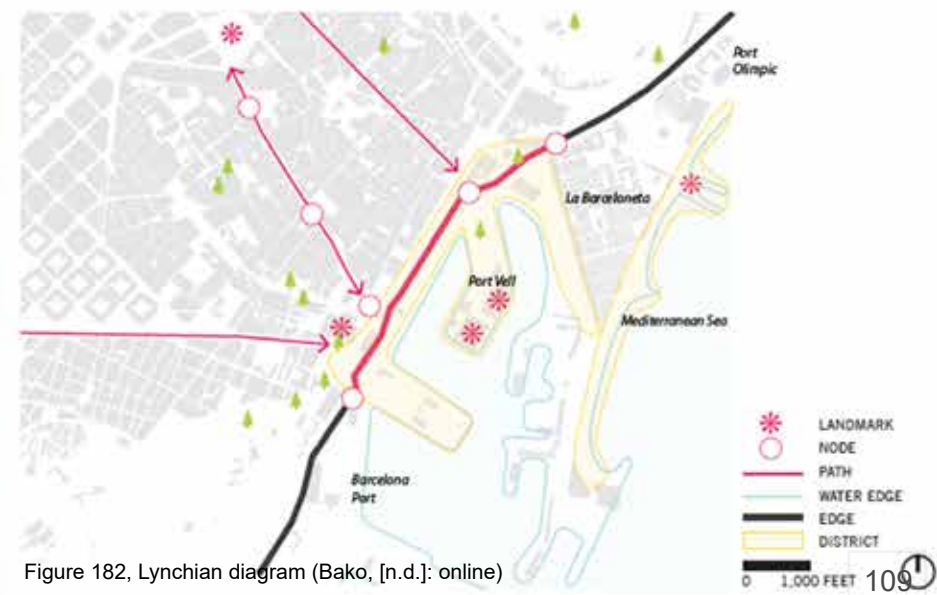
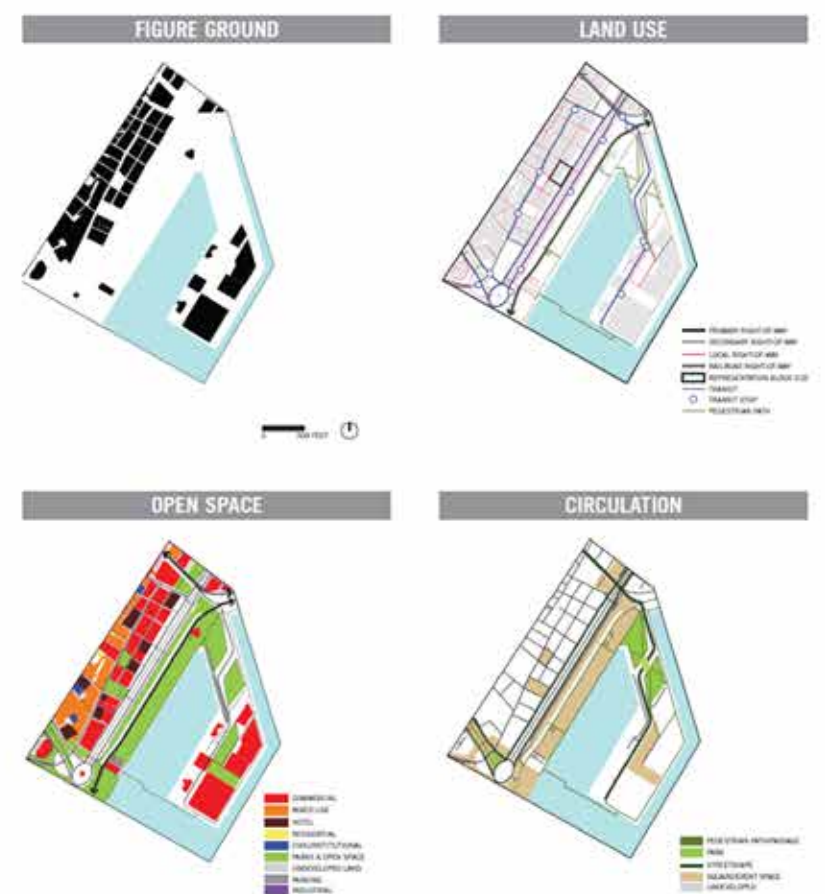
Revitalisation architecture adopts a broader and more community-centred approach, aiming to comprehensively renew and rejuvenate neighbourhoods, districts, or even entire urban areas suffering from economic decline, urban decay, or neglect. In this context, architects and urban planners collaborate closely to develop holistic solutions, encompassing architectural changes, urban design strategies, and infrastructure enhancements to inject new vitality into these communities.

A notable example of revitalisation architecture can be witnessed in the Barcelona waterfront revitalisation project in Spain. Previously an industrial waterfront, this area has transformed remarkably into a lively, culturally rich district that pays homage to the city's historical and architectural heritage while fostering social and economic vibrancy.

Central to this revitalisation endeavour is the Barcelona Pavilion, initially conceived by the pioneering architect Ludwig Mies van der Rohe for the 1929 International Exposition. The pavilion, characterised by its minimalist design, exquisite material use, and spatial clarity, is a seminal work of modernist architecture. Instead of demolishing this architectural treasure, the revitalisation project integrated it into the overall redevelopment plan, recognising its historical and cultural significance (Bako, [n.d.]: online).

The Barcelona waterfront revitalisation project emphasised pedestrian-friendly design, green spaces, and cultural amenities, creating an environment that encourages community engagement and interaction. The district now boasts a broad waterfront promenade (figure 179, 181), public art installations, museums, and recreational areas, all contributing to its newfound vibrancy (Bako, [n.d.]: online).

Furthermore, the project incorporated sustainable design principles, such as green roofs and sustainable water management systems, to align with contemporary environmental standards. It also aimed to preserve and showcase the area's industrial heritage through adaptive reuse, repurposing former warehouses into cultural centres, restaurants, and shops (Bako, [n.d.]: online).



6.4. Theory in the design

Remediation by giving function to a site that is not used while creating jobs and skills.

Rehabilitation by using the stone of the quarry within the quarry, by using its existing shapes as part of the design and by reestablishing flowers.

Revitalisation by giving new life to the dead space through human interaction and awareness.

When looking at Liu's principles of "Oneness between humans and nature" (2022: 9110), the following can be interpreted:

No.	Aspect	Details
1	A harmonic relationship between humans and nature	To adhere to the natural mountains, vegetation and climate of Garies, as well as the remediation of a broken site.
2	A harmonic relationship between humans and society	Based on the development of local skills and work.
3	A harmonic relationship between people	To adhere to universal design for disabled, elderly and youth, male and female.
4	A harmonic relationship between design and culture	Based on the surrounding farms as part of the functionality.
5	A harmonic relationship between design and natural resources	Adhering to onsite materials as building materials.

6.5. Conclusion

The distinction between nature and the so-called unnatural or, more specifically to this thesis, architecture, is not a simple categorisation; rather, it signifies our coexistence as integral components of the natural world. This perspective aligns with the principles of ecological stewardship and environmental consciousness, emphasising our shared essence with the natural world. Acknowledging our significant impact on the ecosystem and actively striving for equilibrium by adopting sustainable practices and nurturing a sense of interconnectedness with nature is crucial.

It could be argued that there is no clear boundary between nature and the built environment, viewing the latter as a natural progression of environmental processes of transformation, such as in the case of

material evolution, as the grain of sand becomes a pearl through the careful cultivation of an oyster, the ferrous ore becomes load-bearing structure under the detailed guidance and vision of the architect. These distinctions still hold importance to prevent undue intrusion or further destruction of natural sites. Therefore, it remains imperative to make deliberate choices to preserve and maintain a harmonious balance in the human-nature relationship.

Remediation, rehabilitation and revitalisation architecture represent three separate yet interconnected branches within the field of architecture, each possessing its distinct purpose and objectives. They respond to the challenges and opportunities presented by diverse settings. By embracing innovative design, sustainability principles, and a profound comprehension of historical significance, architects can contribute to developing sustainable, vibrant, and culturally enriched environments that cater to the present and future generations' needs and

aspirations. In doing so, they not only mould physical spaces but also enhance the tapestry of society and enrich the human experience.

Exploring remediation, rehabilitation, and revitalisation has showcased the transformative power of architecture. These paradigms will guide us through the stories of places reborn through human creativity and a commitment to preserving and celebrating the built world in the chapters ahead.



The background of the page is a detailed architectural drawing. It features a series of grey, irregular lines that resemble topographic contour lines, creating a sense of depth and terrain. Overlaid on this are several white, rectangular shapes representing building footprints or structures. Some of these shapes are highlighted with a red outline, suggesting a specific design focus or a key element of the project. The overall style is technical and artistic, typical of architectural planning or site design.

Chapter 7: Development

This chapter encompasses the design process and the underlying thought process. The chapter starts with a touchstone followed by concepts and the final design process. It begins by capturing the initial idea and then retraces its steps back to the essence of the project, leading the development of more directions. By amalgamating all these elements, the final design is brought to life.



Figure 183, Site mapping (author)

7.1. Touchstone

The Touch

The touchstone describes the essence of the project, what the project truly wanted to accomplish and was the first step of the development process.

Amidst the impact of man's destructive actions, chipped away piece by piece, a space gradually undergoes a transformative process as nature's essence begins to reclaim its territory, growing and interweaving with the disrupted earth. With a gentle touch and delicate beauty, an apparent renewal emerges amidst the hard and broken.

A fragile flower emerges from this harsh environment, seizing its only chance to grow. Concealed beneath, the saffron flower's corms symbolise new life, blooming each year before returning to its roots.





Figure 185, Twisted wire piercing base (author)



Figure 186, Twisted wire wrapping around flowering hole (author)



Figure 187, Twisted wire wrapping around base, (author)

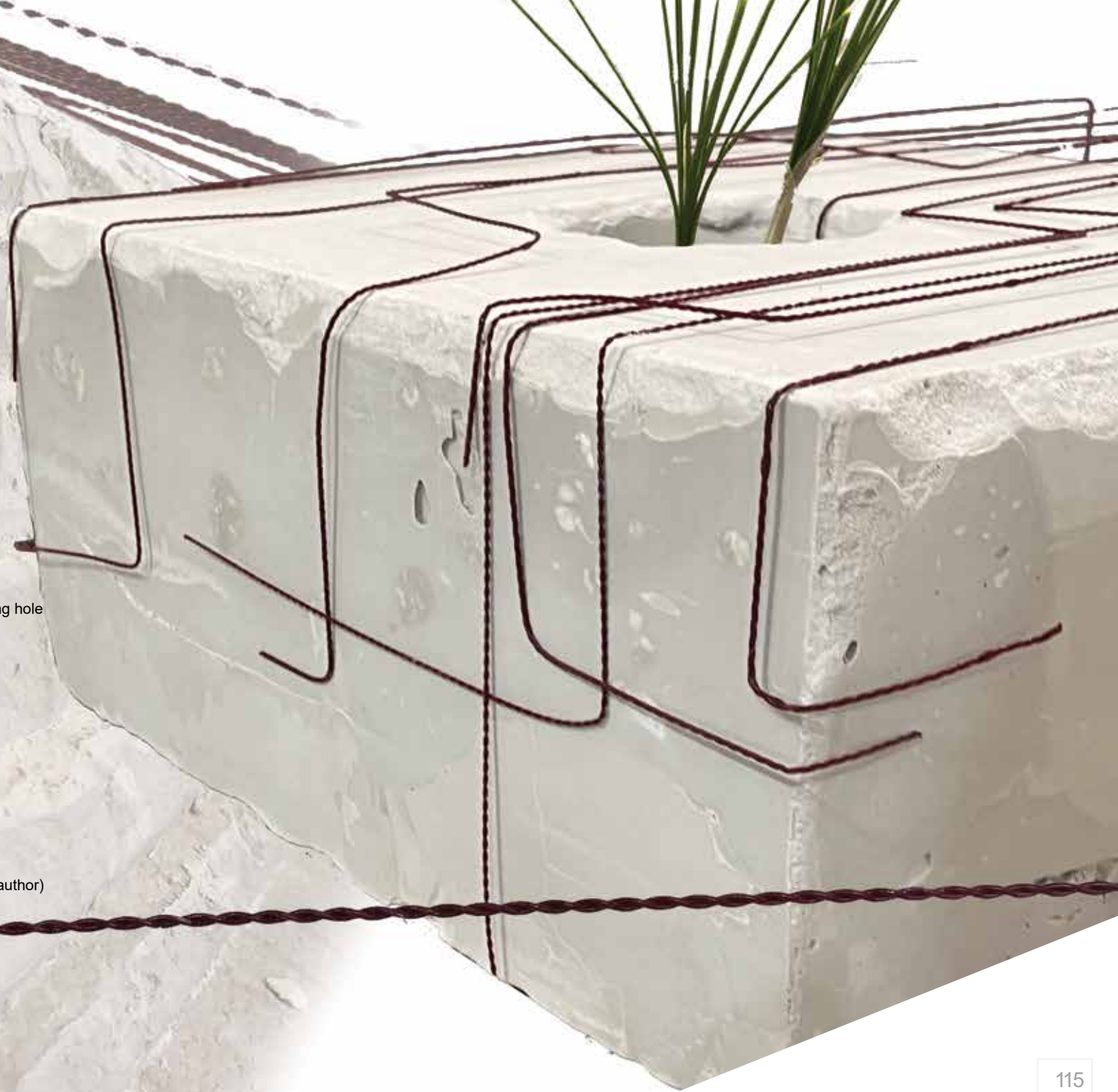


Figure 188, The touchstone (author)

7.2. Concepts

Three concepts emerge that hold the potential to allude to form and influence further design elements. Each concept explores distinct aspects of the project and can be combined or utilised independently for the project's ongoing development.

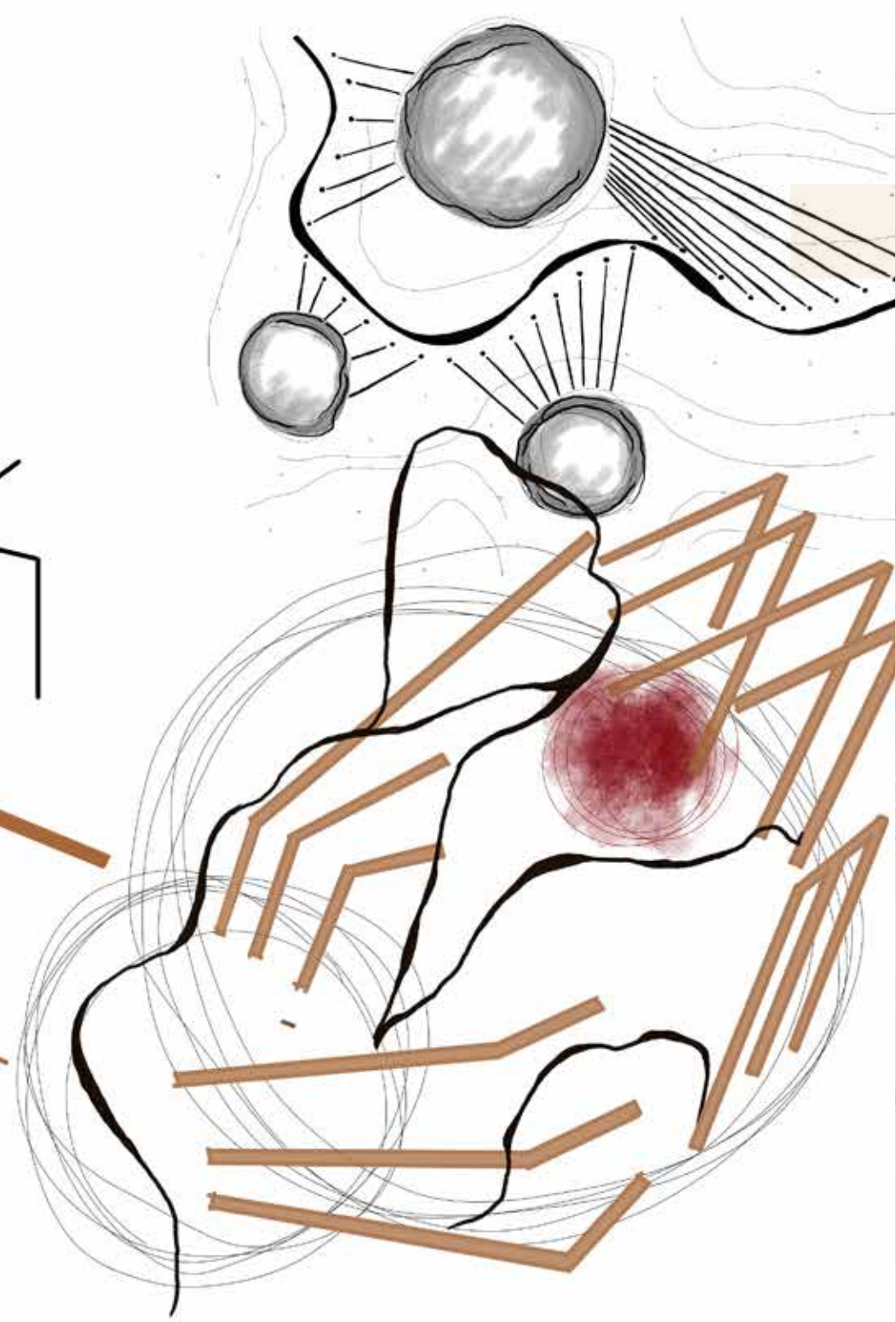
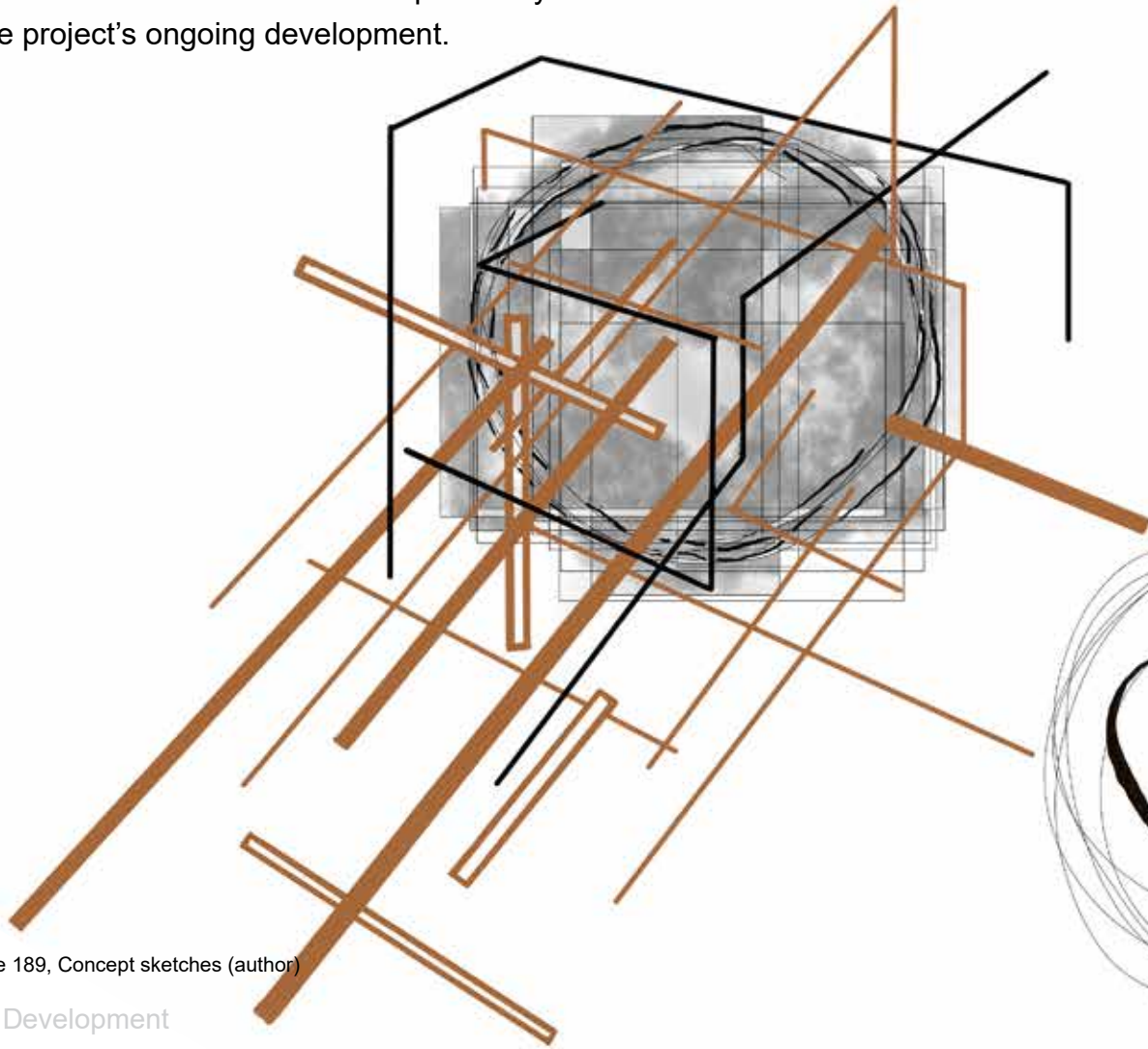


Figure 189, Concept sketches (author)

7.2.1. Concept 1

Treading Lightly

The relationship between delicate and harsh.

Embracing the concept of treading lightly is almost self-evident, as it embodies the notion of treating the site with sensitivity, in contrast to the harsh and forceful past influences. Previously butchered by destructive actions, the site transforms, taking on a delicate nature like a flower. At its core, this concept encapsulates the significance of human interaction within a natural environment. The model exemplifies a profound closeness to the object, without physically touching it, by mere millimetres. The notion draws inspiration from the paths animals tread, such as the gentle flow of sheep through the landscape. It follows the path of least resistance, subtly influencing the site's shape, ultimately becoming a harmonious integration of nature and human presence.

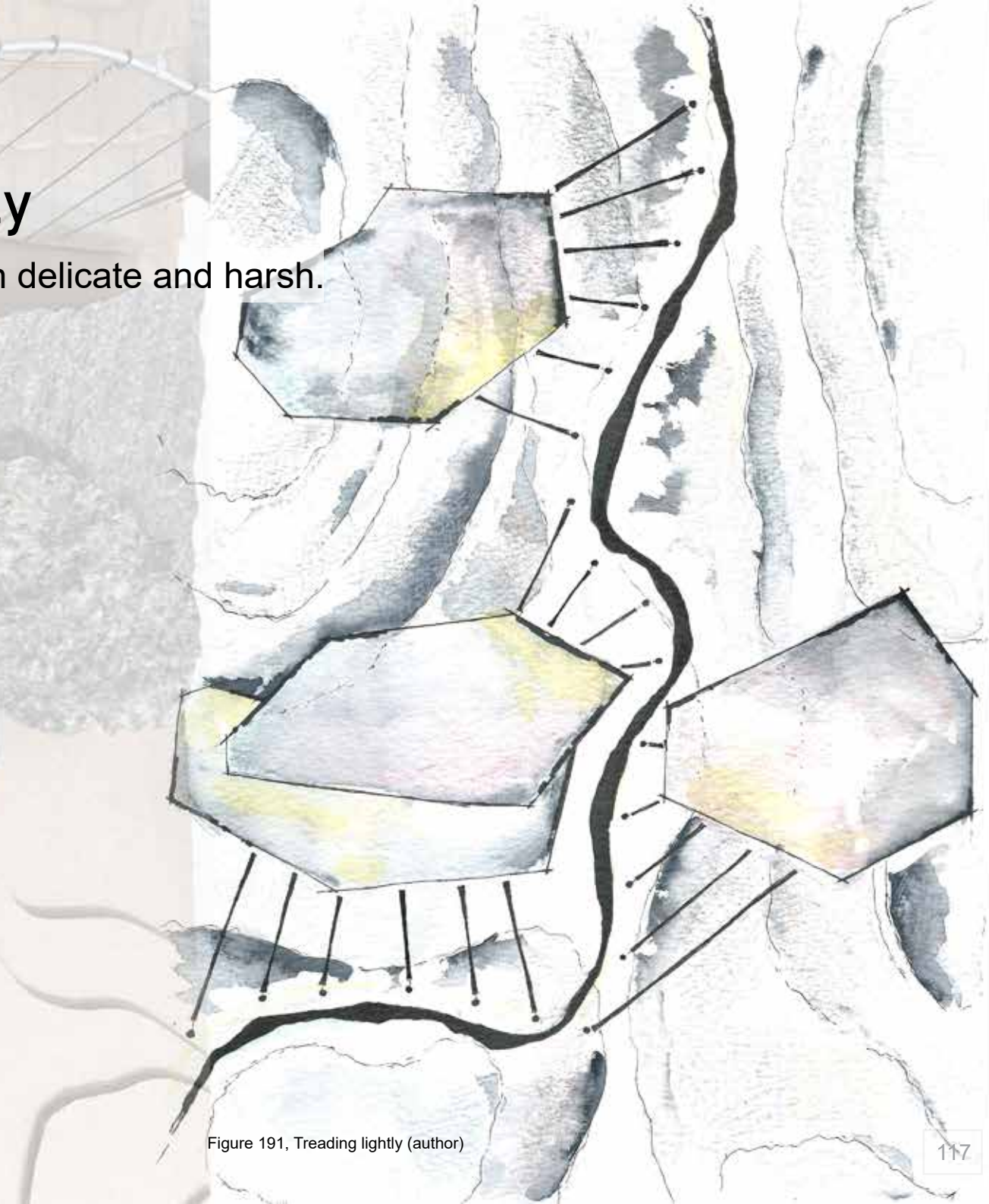


Figure 190, Treading lightly model (author)

Figure 191, Treading lightly (author)

7.2.2. Concept 2

Treasured Memory

A conversation between the old, the present and the new.

The site bears evident indications and traces of its past state. Although one can never fully recover what has been lost or truly comprehend its former glory, one can draw insights from the present to shape the future. By studying the remnants, one can envision what the site might have been, what it could become, the treasures it once held, and the potential it still possesses. Within the memories lie both a treasure and the promise of underlying potential. The existing structure offers glimpses of what it could have been while simultaneously providing an opportunity for transformation. Each change in perspective reveals a concealed treasure nestled at its core, protected and awaiting new life and opportunity.

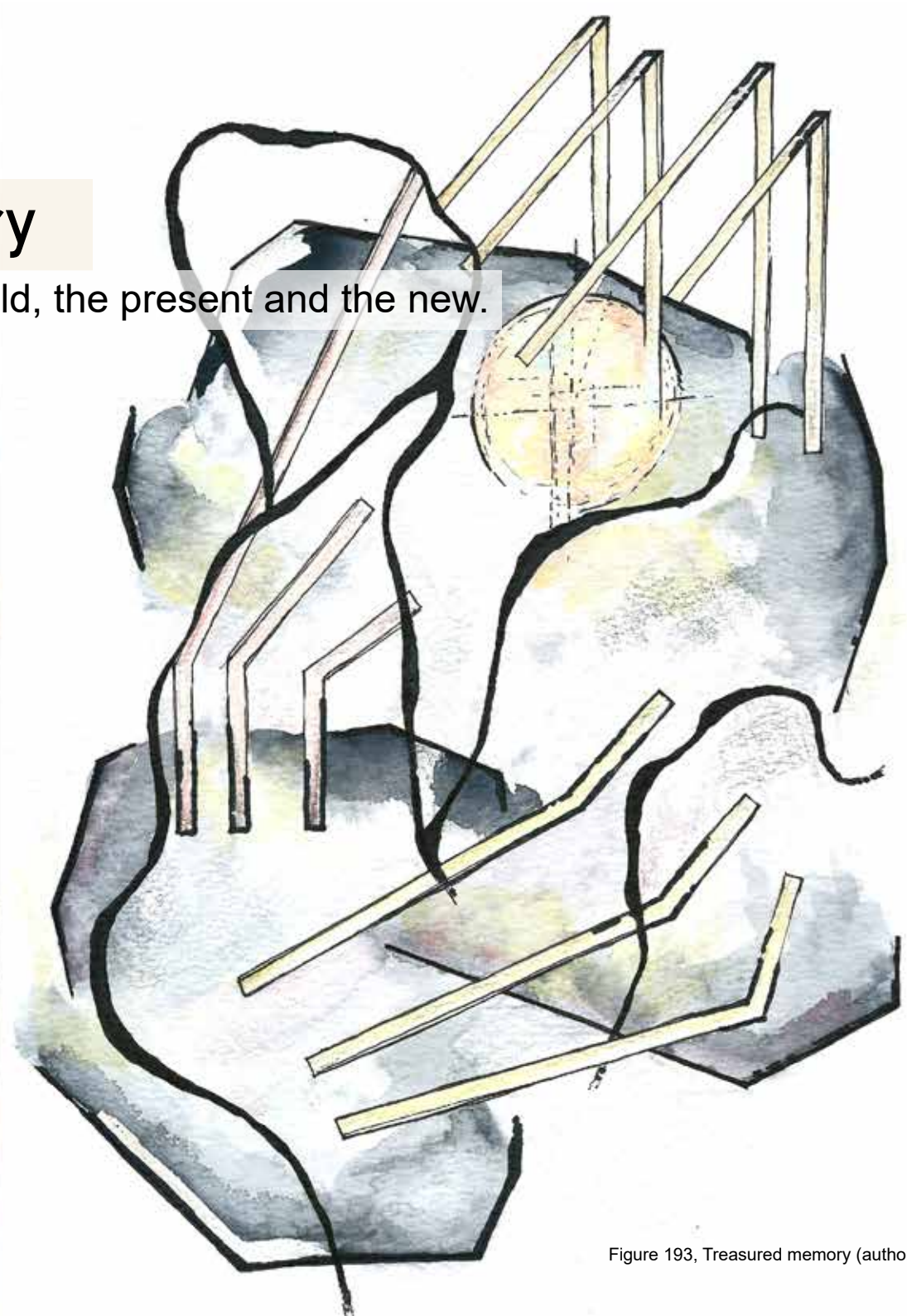


Figure 193, Treasured memory (author)

7.2.3. Concept 3

Seizing Growth

A comparison between life and death

The project can become a new life growing through the site, such as growing a flower. Spreading its roots and sprouting its leavings, impacting the site permanently. A vibrant resurgence emerges amid the remnants of a once lifeless and devastated site. Gradually, this newfound life reclaims the territory it once adorned with lush greenery. It is an undeniable destiny that the site will be overtaken once more. The flourishing growth becomes a beacon of hope, foreshadowing the endless possibilities. Like a flourishing flower, the project has the potential to breathe new life into the area. Just as a plant extends its roots and unfurls its leaves, it will leave a lasting impact on the site, transforming it permanently. The project embodies the essence of growth, spreading its tendrils and blossoming, instilling vitality into the surroundings.

Figure 194, Seizing growth model (author)

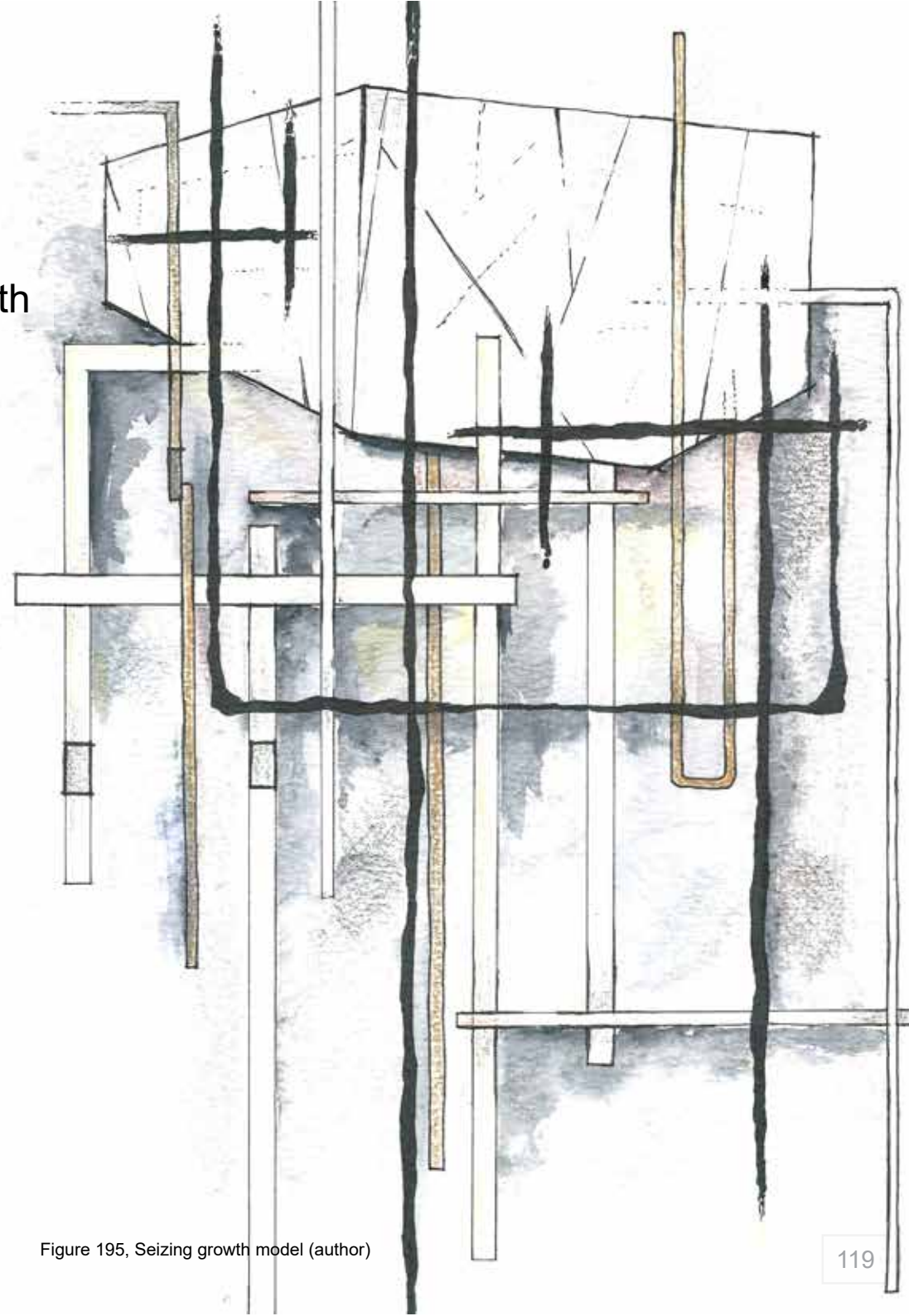


Figure 195, Seizing growth model (author)

7.3. Process

Within the realm of design, the journey towards the ultimate concept is a dynamic process. Throughout this project, numerous twists and modifications have been embraced, each serving the purpose of attaining a design that is not only more fitting but also exceptionally functional.

experiments
with flows
and views

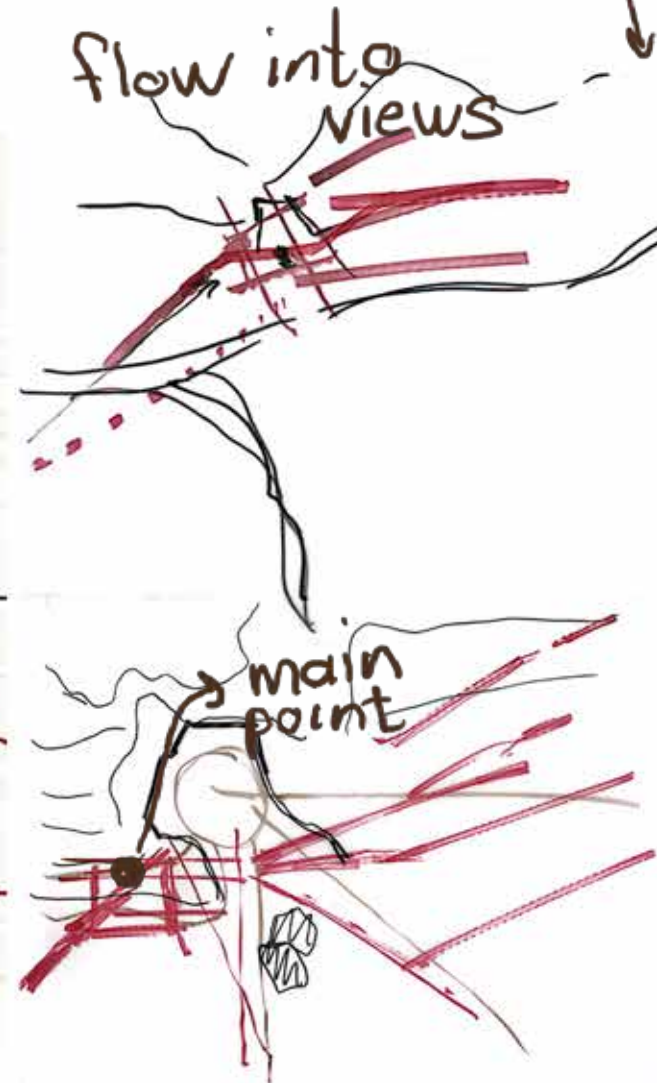
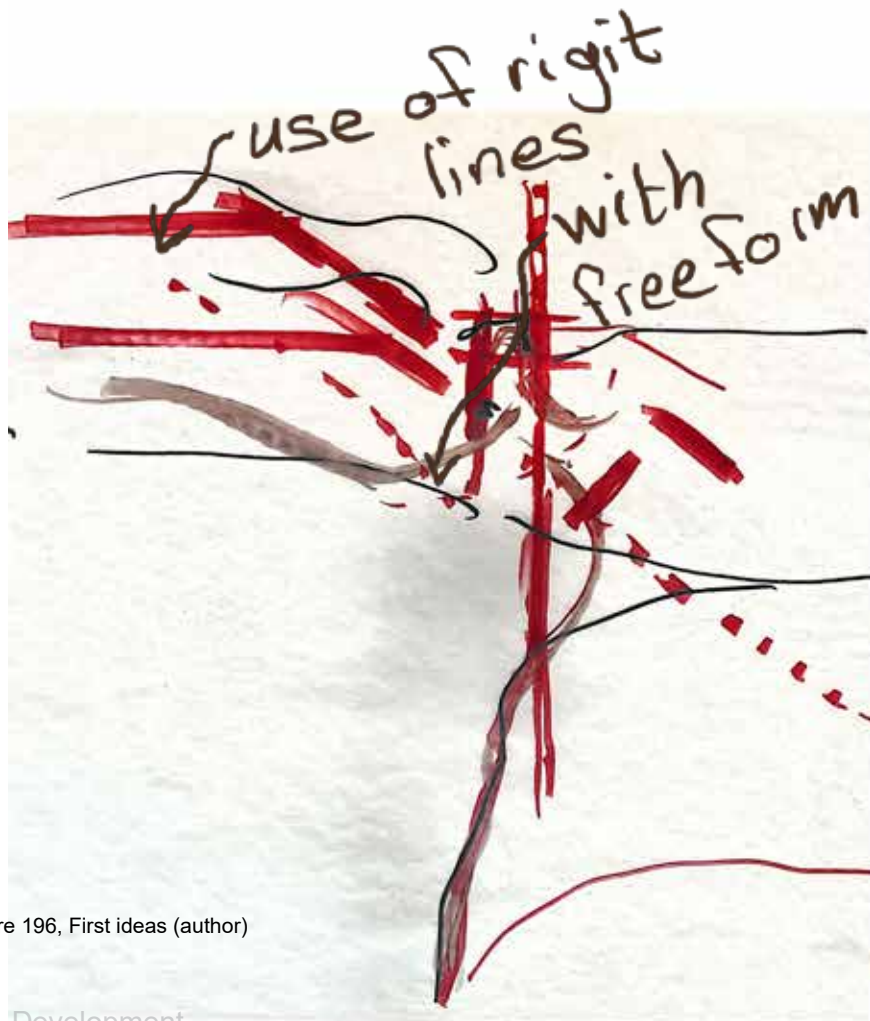
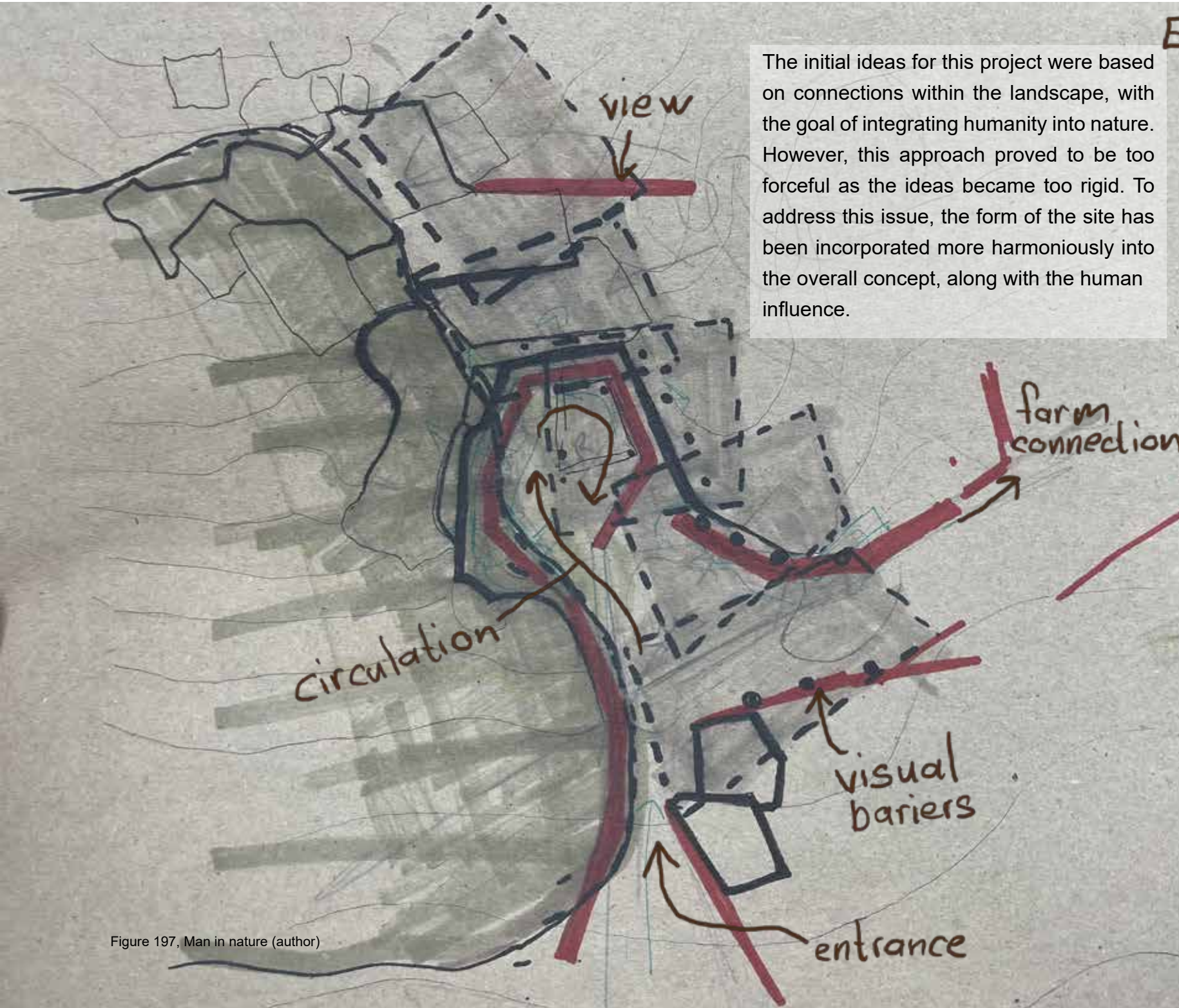


Figure 196, First ideas (author)



The initial ideas for this project were based on connections within the landscape, with the goal of integrating humanity into nature. However, this approach proved to be too forceful as the ideas became too rigid. To address this issue, the form of the site has been incorporated more harmoniously into the overall concept, along with the human influence.

Experiments with datums



Figure 197, Man in nature (author)

A more sensitive approach was considered; therefore, the project explored lightweight structures and connections, drawing inspiration from the delicacy of a flower and its petals. However, due to the harsh climate of the site, this idea would only be viable with thicker wall and roof structures as well as reduced transparency, and, as a result, the idea would lose its intended effect.

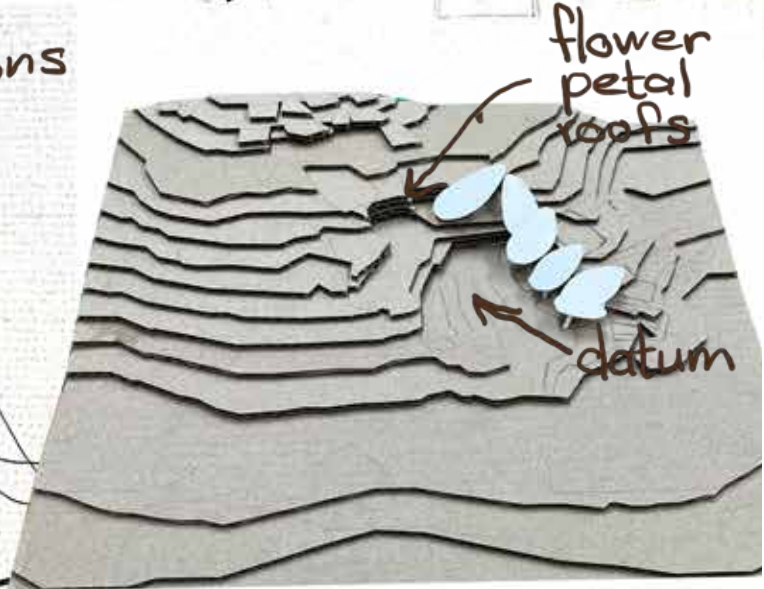
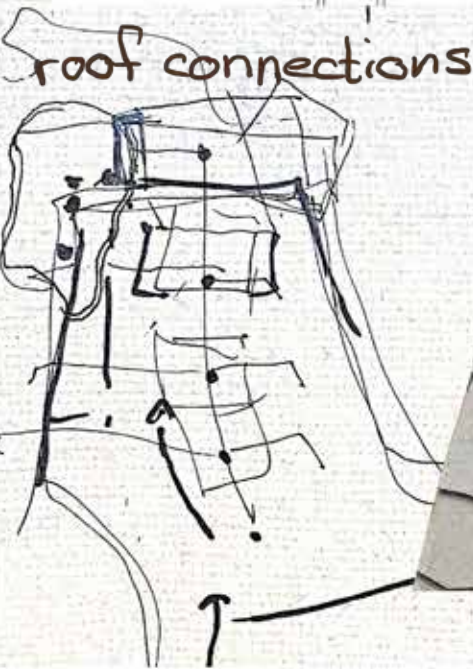
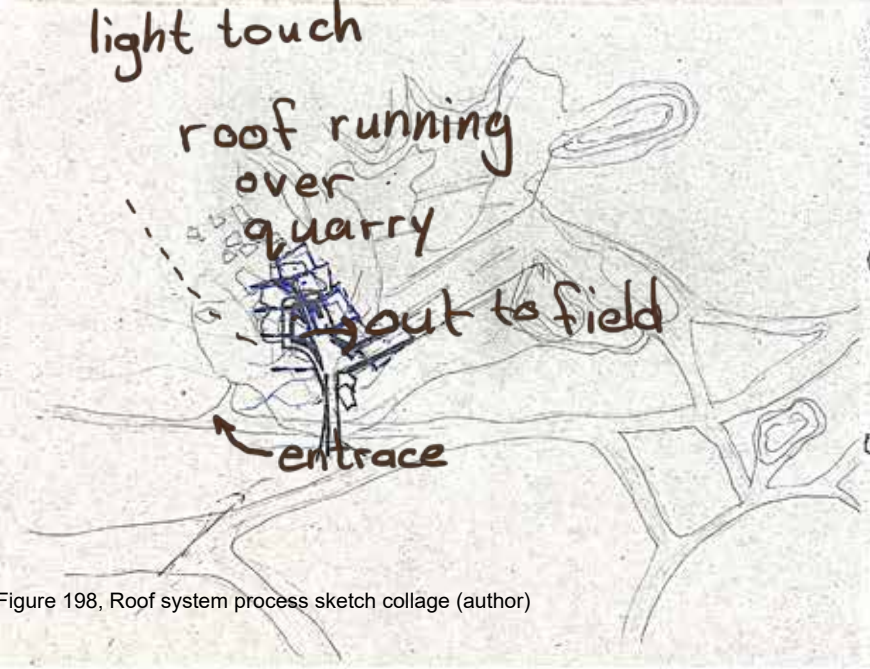
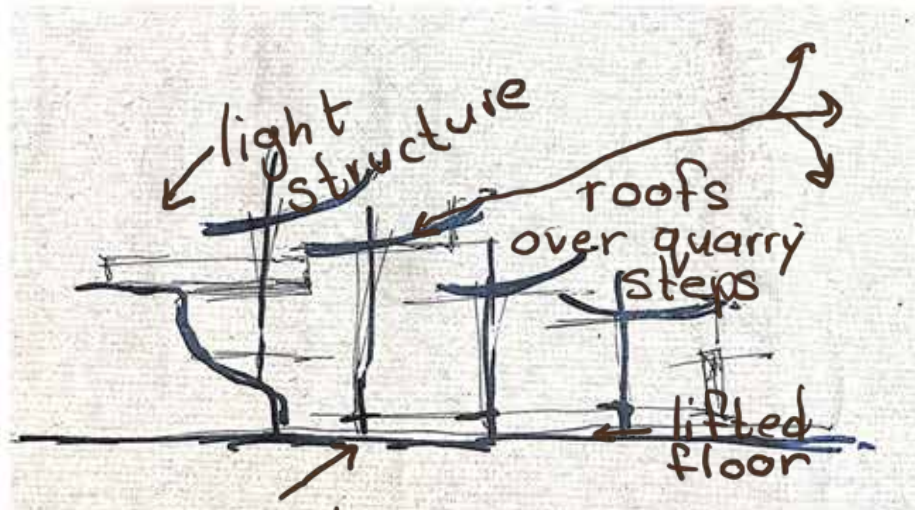
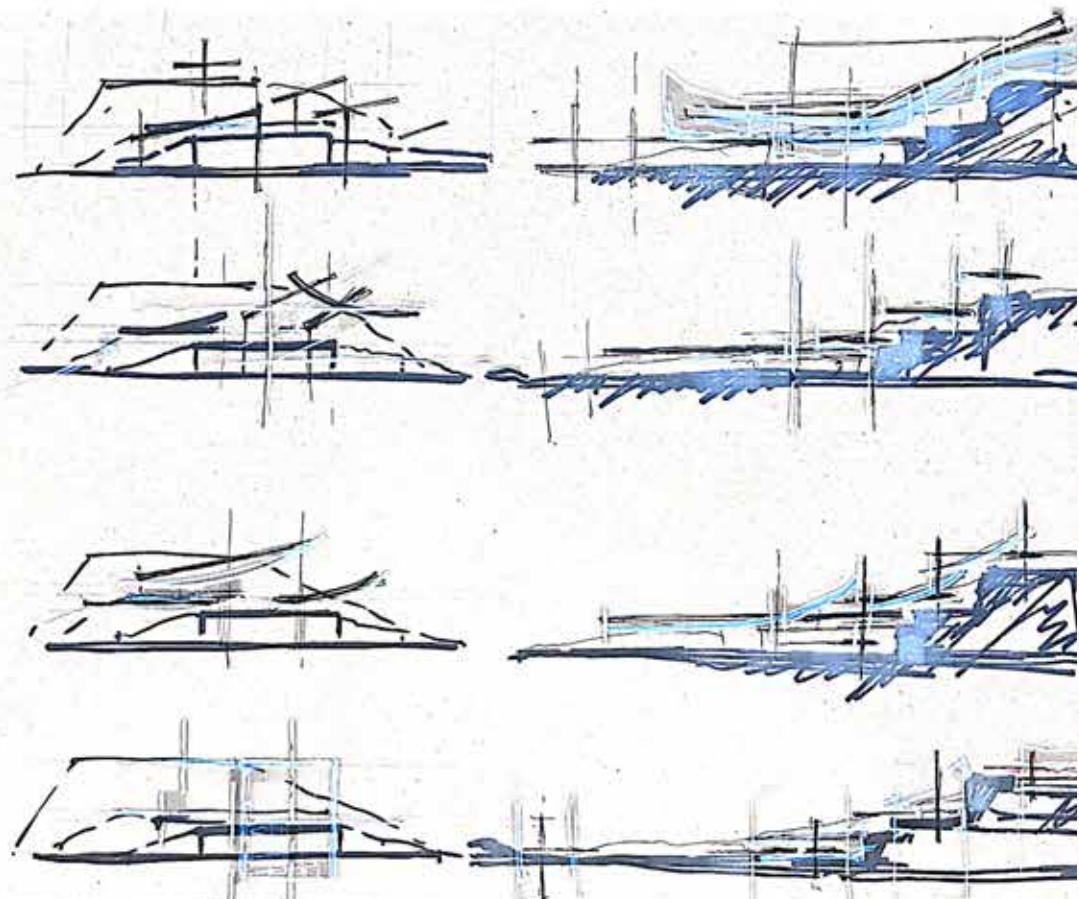


Figure 198, Roof system process sketch collage (author)

Figure 199, Model of roof system (author)

The narrative of a story is integrated into this project to create a narrated experience. A basic narrative plot chart typically begins with an exposition, ascends to the conflict, includes rising action, reaches its peak at the climax, descends during the falling action, and ultimately reaches a resolution. This idea incorporates the experiences of arrival, confronting the destroyed site, and the saffron processing. When reaching the climax, one can appreciate the flowers before circling back while gathering information. However, this concept lacked versatility and would require workers and the public to cross paths, potentially disrupting their work and hygiene. Nevertheless, this exploration of a narrated experience inspired the consideration of experiences through pathways.

Narrative Plot Chart

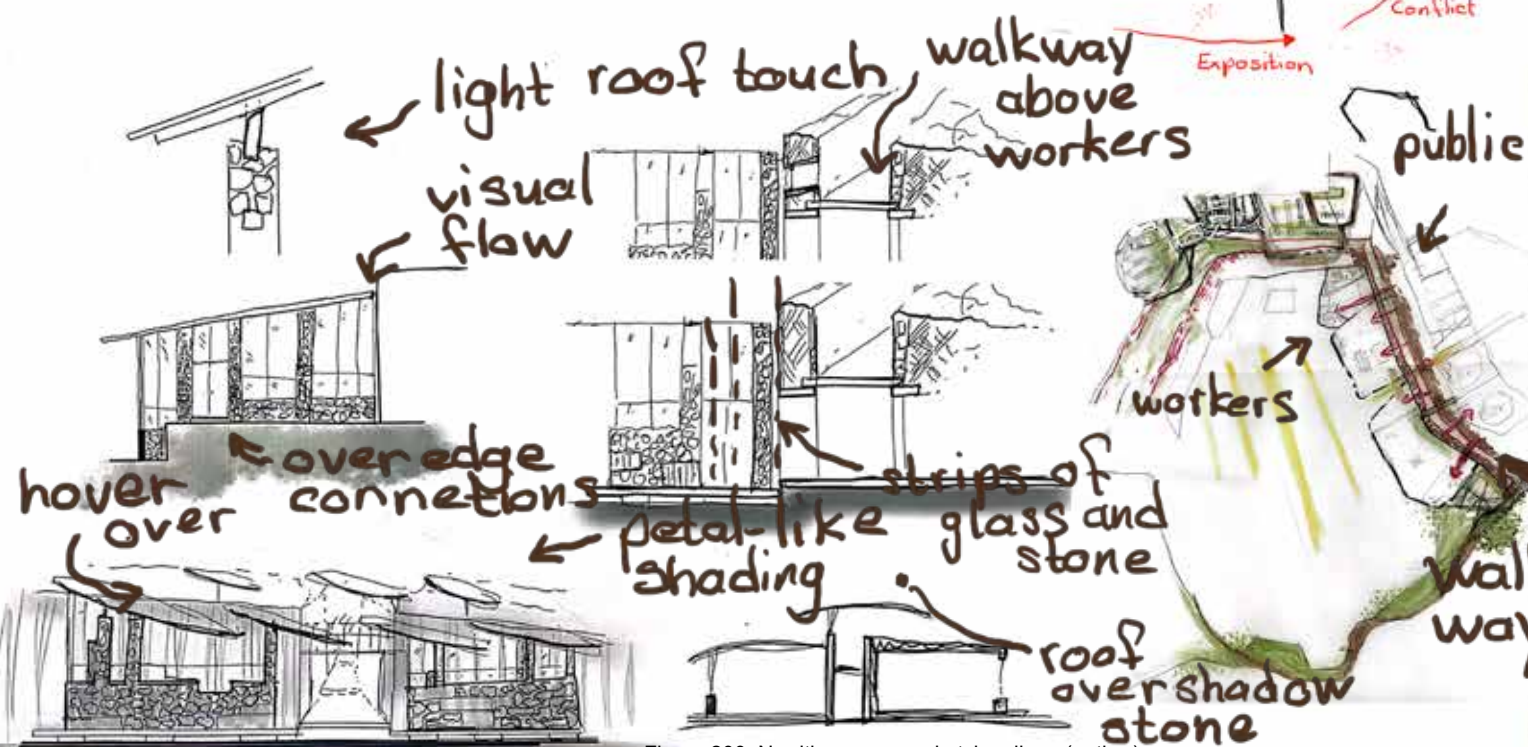
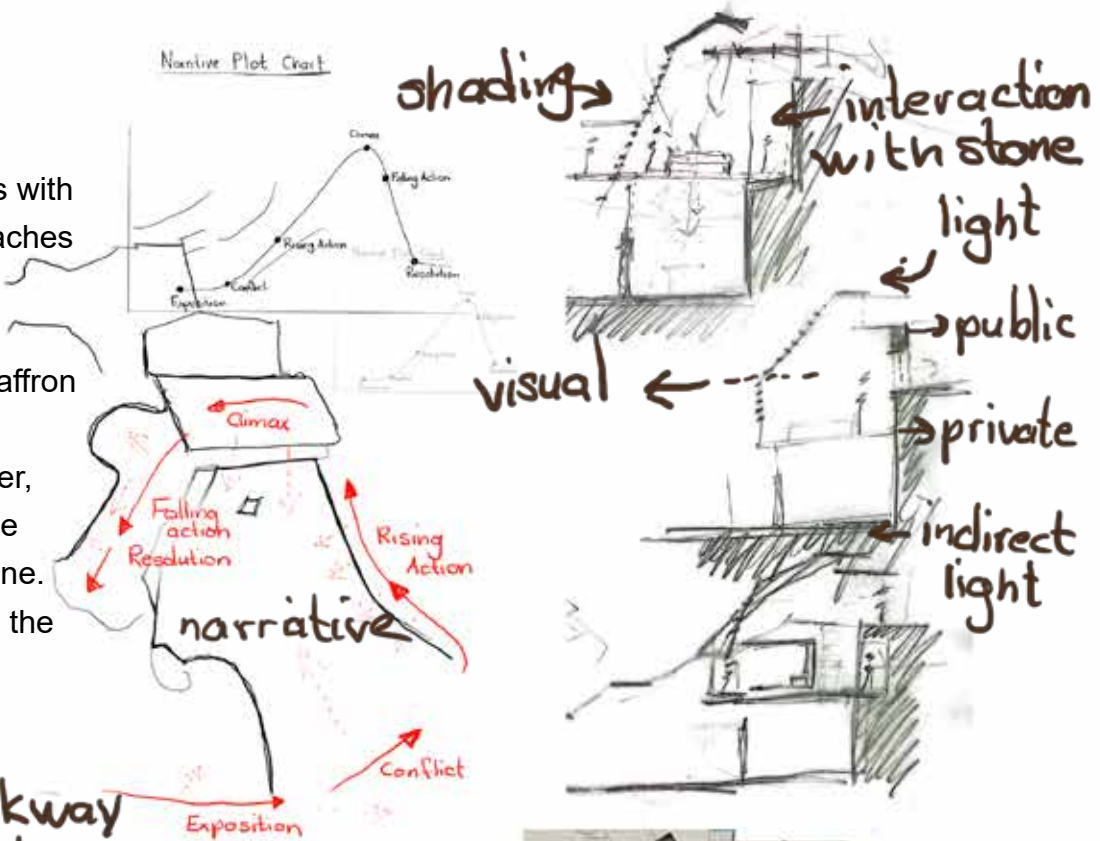


Figure 200, Narrative process sketch collage (author)

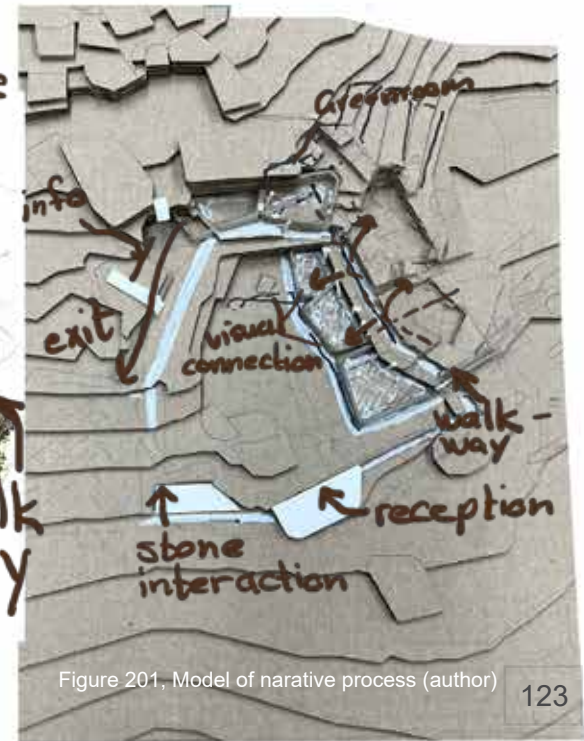


Figure 201, Model of narrative process (author)

The precedents were more integrated into the concept of an extended path of experiences. This facilitated the project's progression; however, it still bore a sense of forcefulness and led to the creation of impractical shapes, spaces, and excessively lengthy pathways.

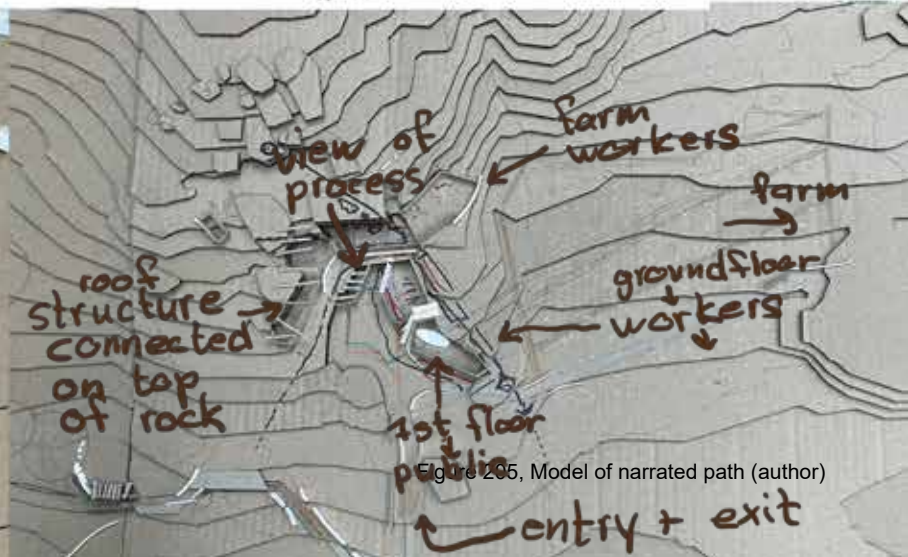
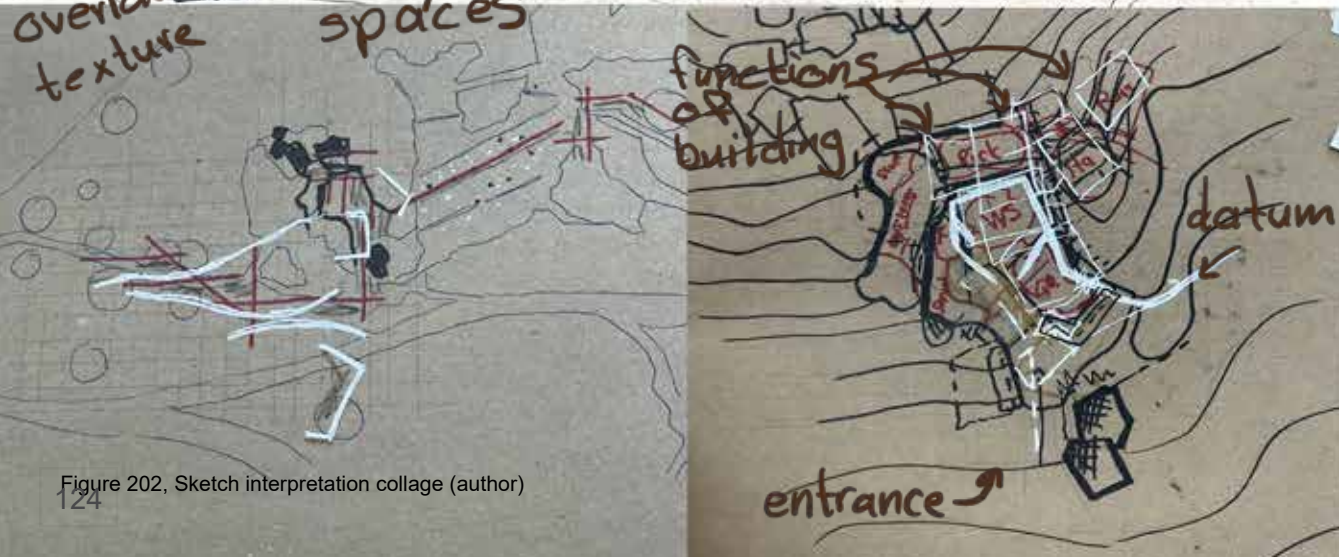
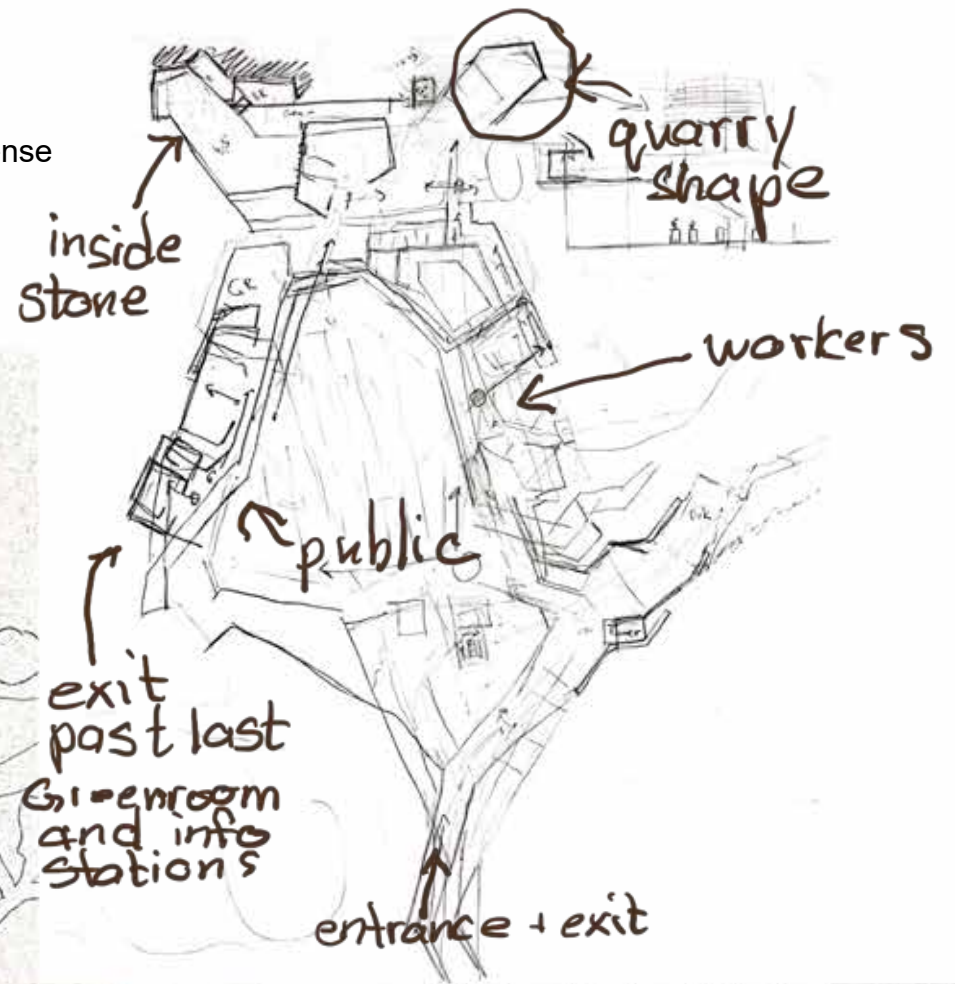
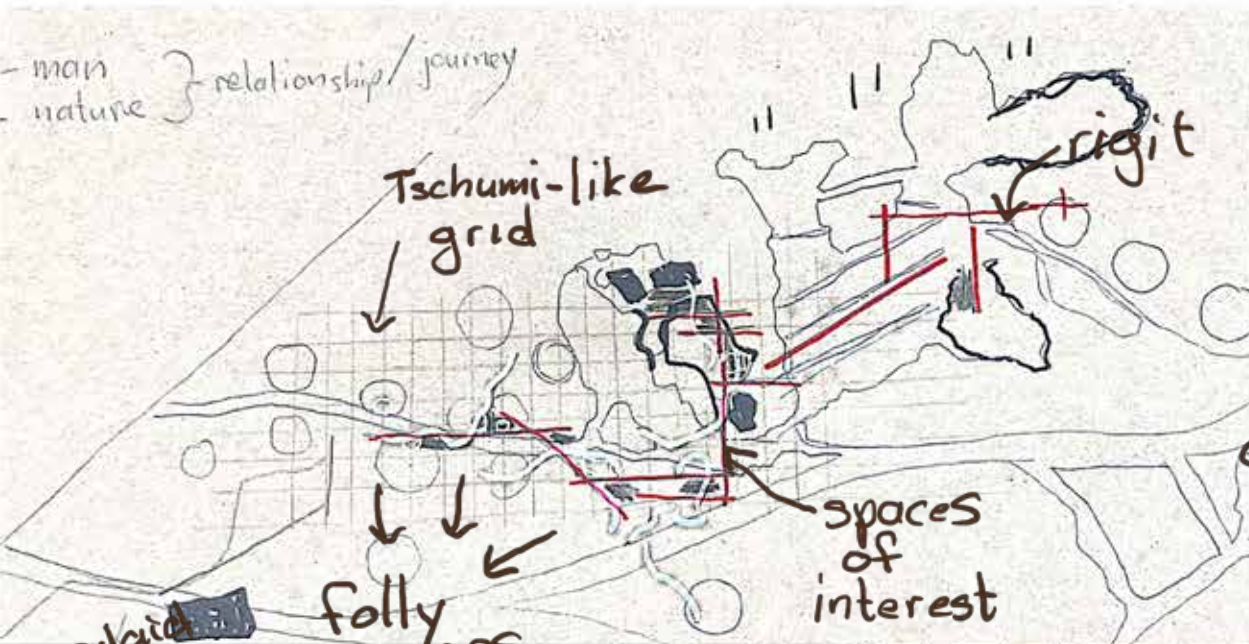


Figure 202, Sketch interpretation collage (author)

Figure 205, Model of narrated path (author)

Shortening the paths resulted in the ideas below, but the project became too disconnected from nature and lost its empathy.

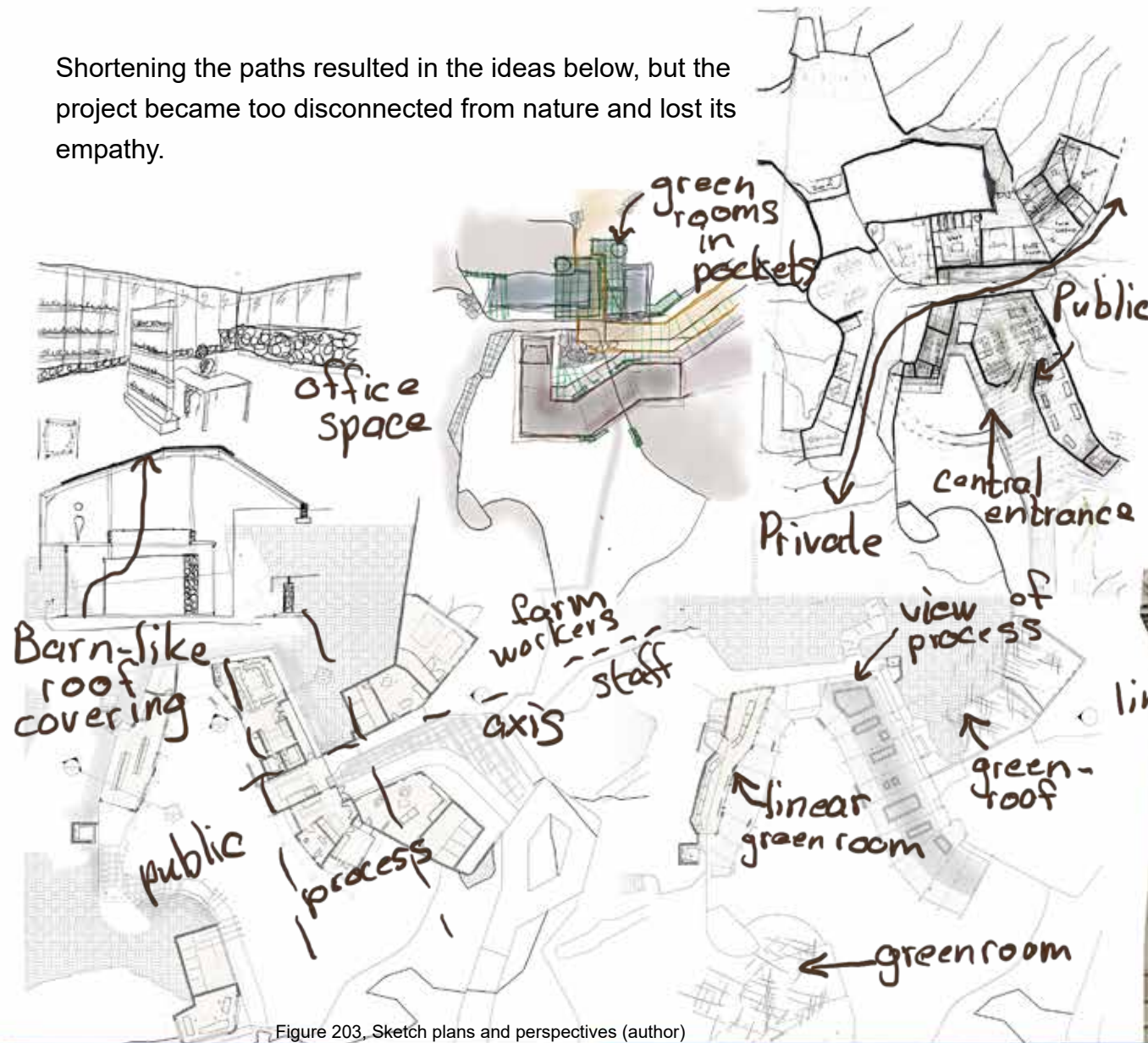


Figure 203, Sketch plans and perspectives (author)

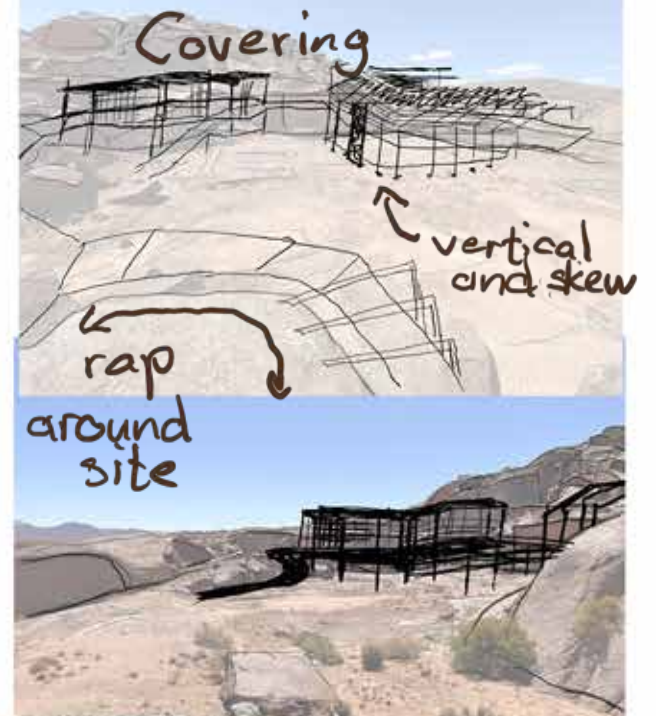


Figure 207, Model of the process design (author)



Figure 204, Renders of the process design (author)

To establish a stronger connection with nature, the project returned to its core essence. Natural shapes were identified and explored to achieve a more empathetic design.

This approach resulted in the incorporation of pockets of green spaces throughout the design, providing ever-changing experiences. Consequently, this design could blend human and natural influences while maintaining a balance and preserving the essence of a narrated experience.

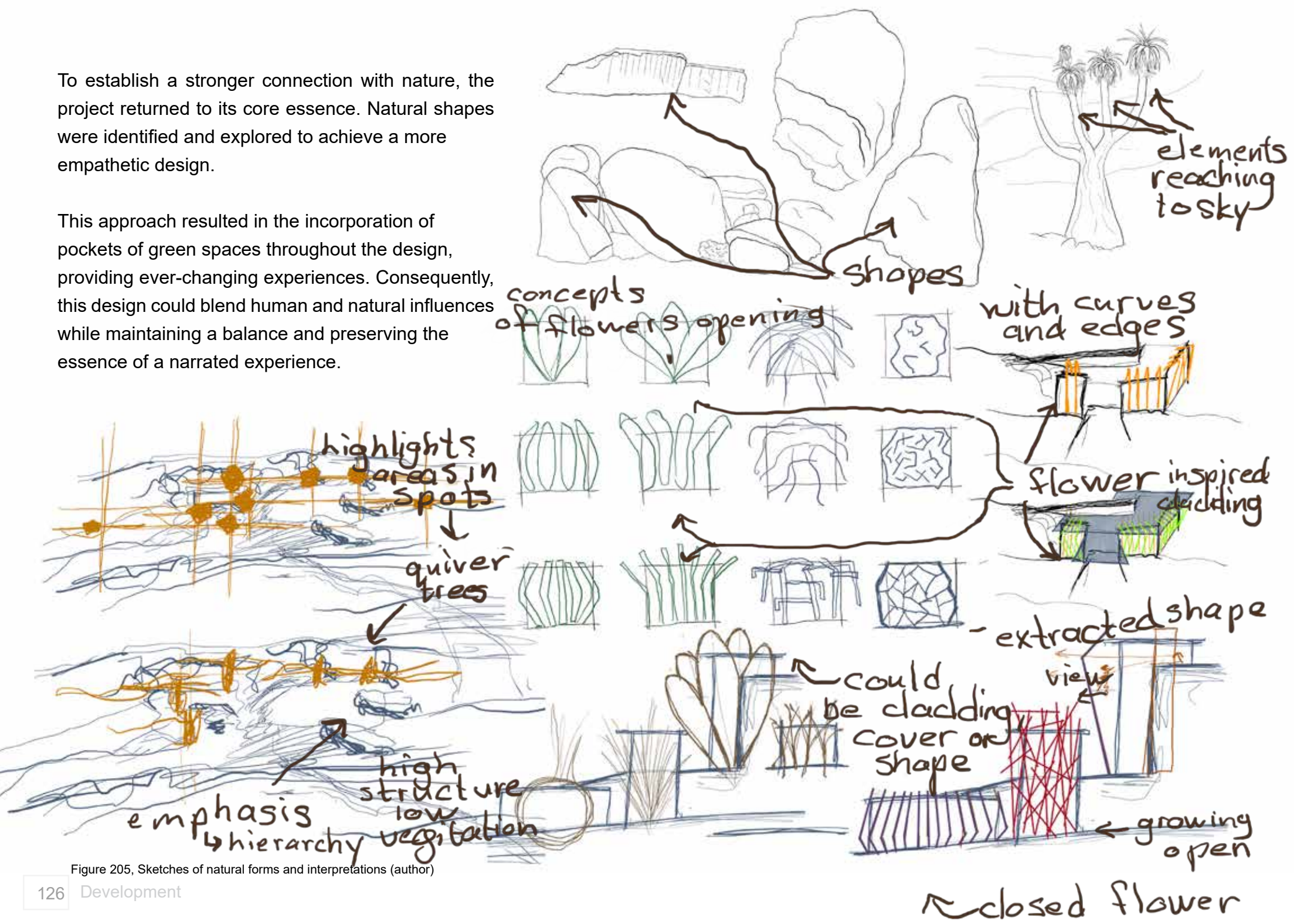


Figure 205, Sketches of natural forms and interpretations (author)

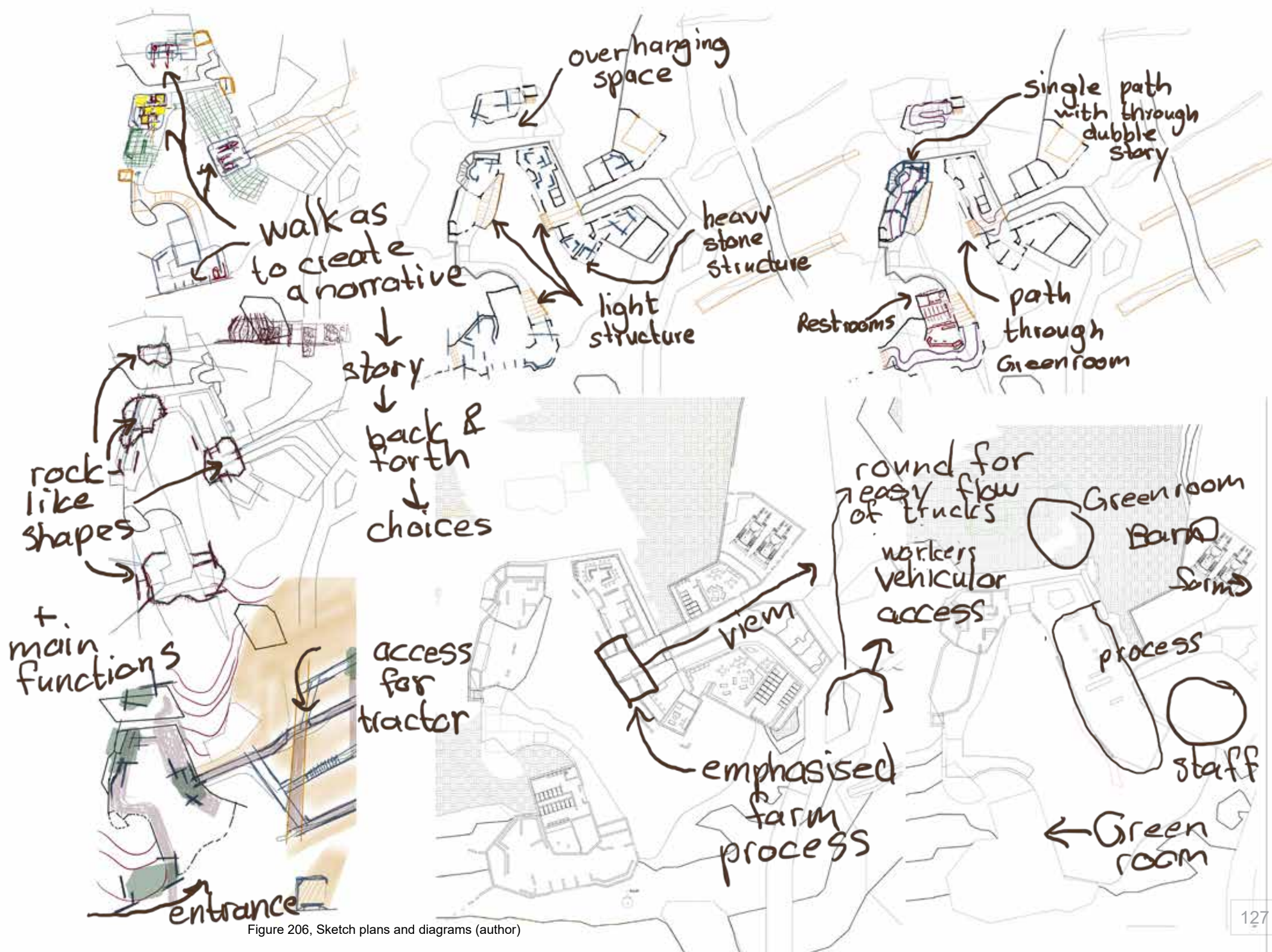
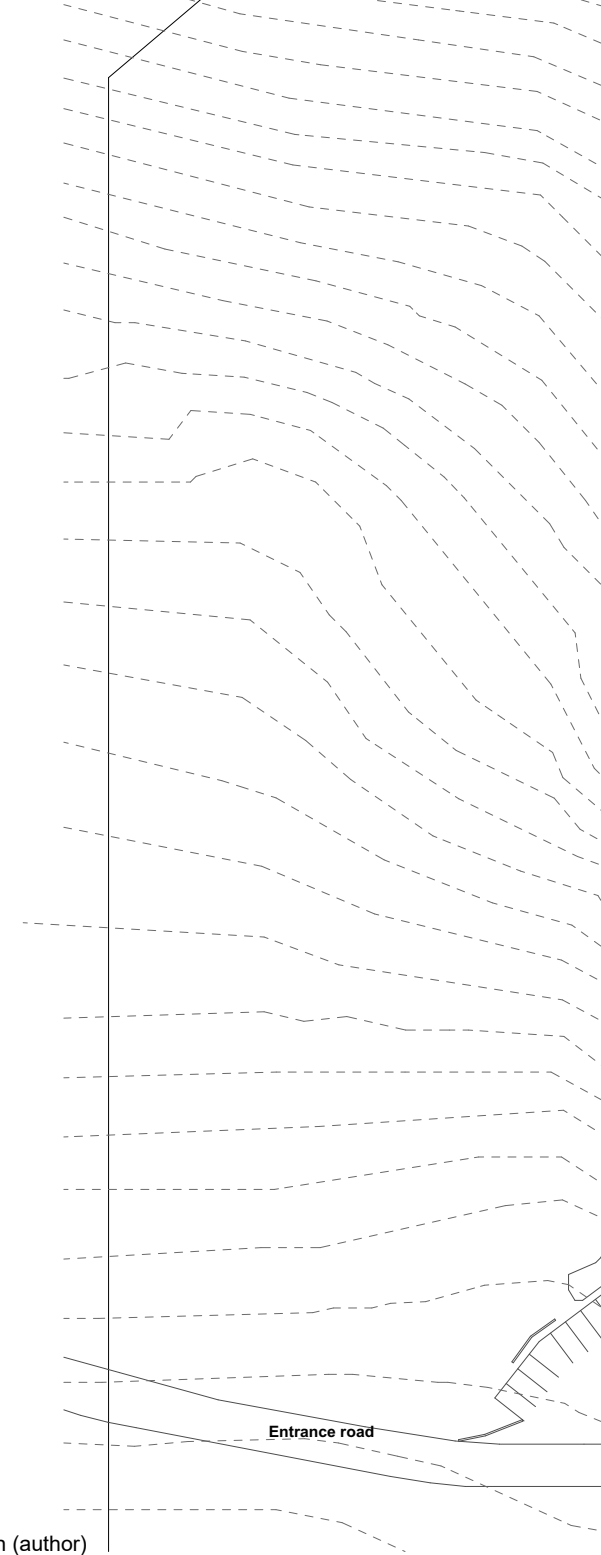


Figure 206, Sketch plans and diagrams (author)

Chapter 8: Final Design



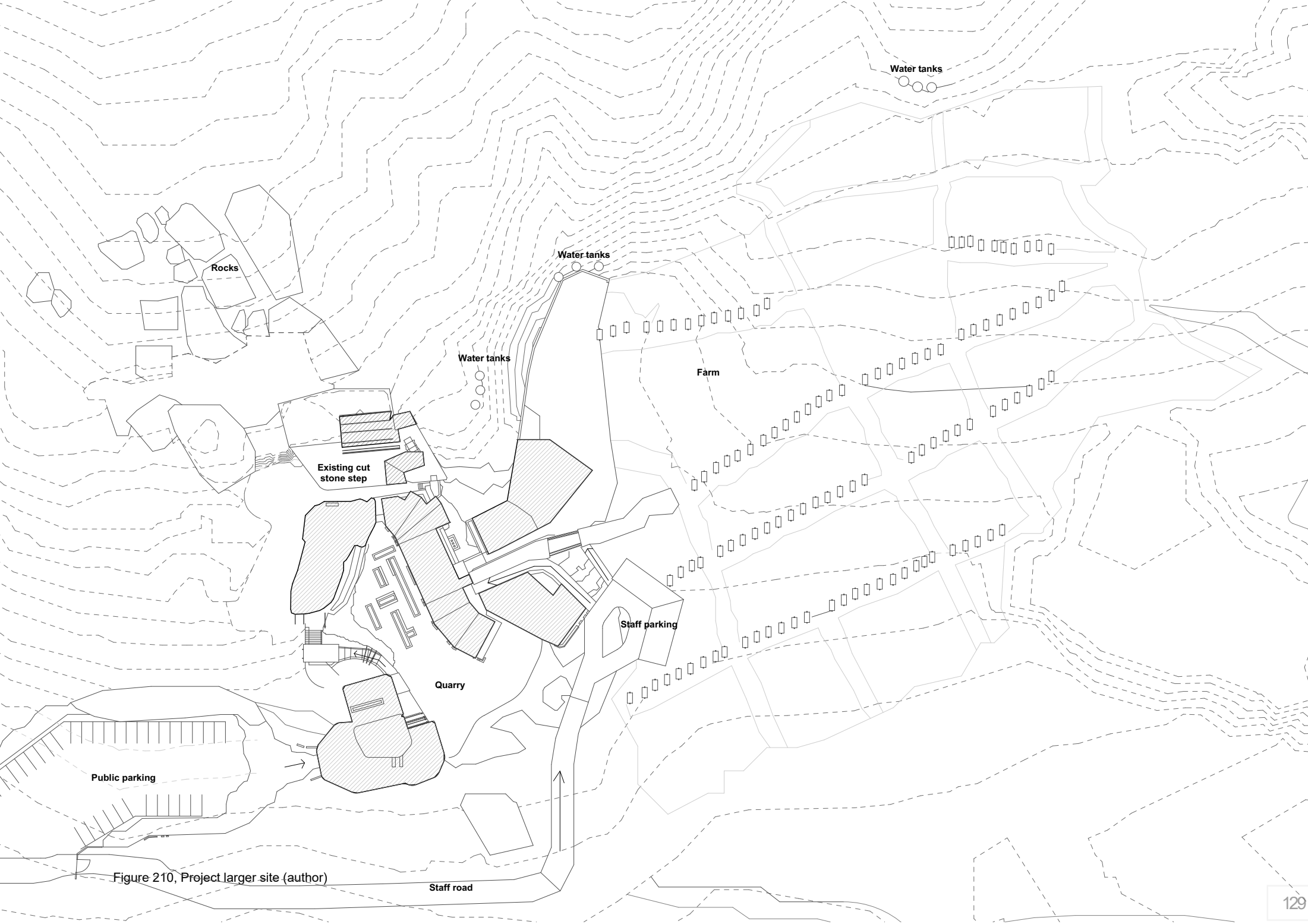


Figure 210, Project larger site (author)

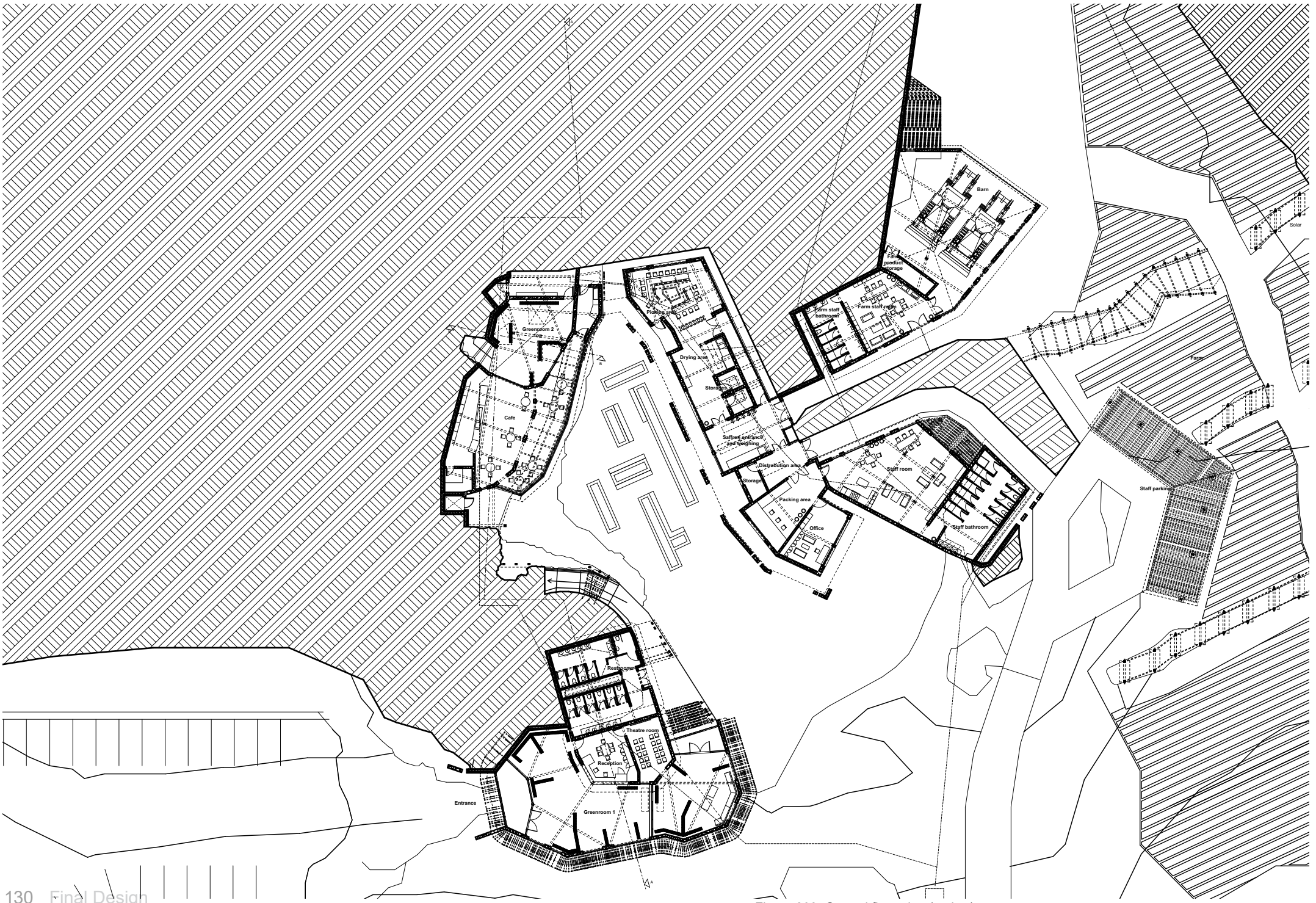


Figure 208, Ground floor plan (author)

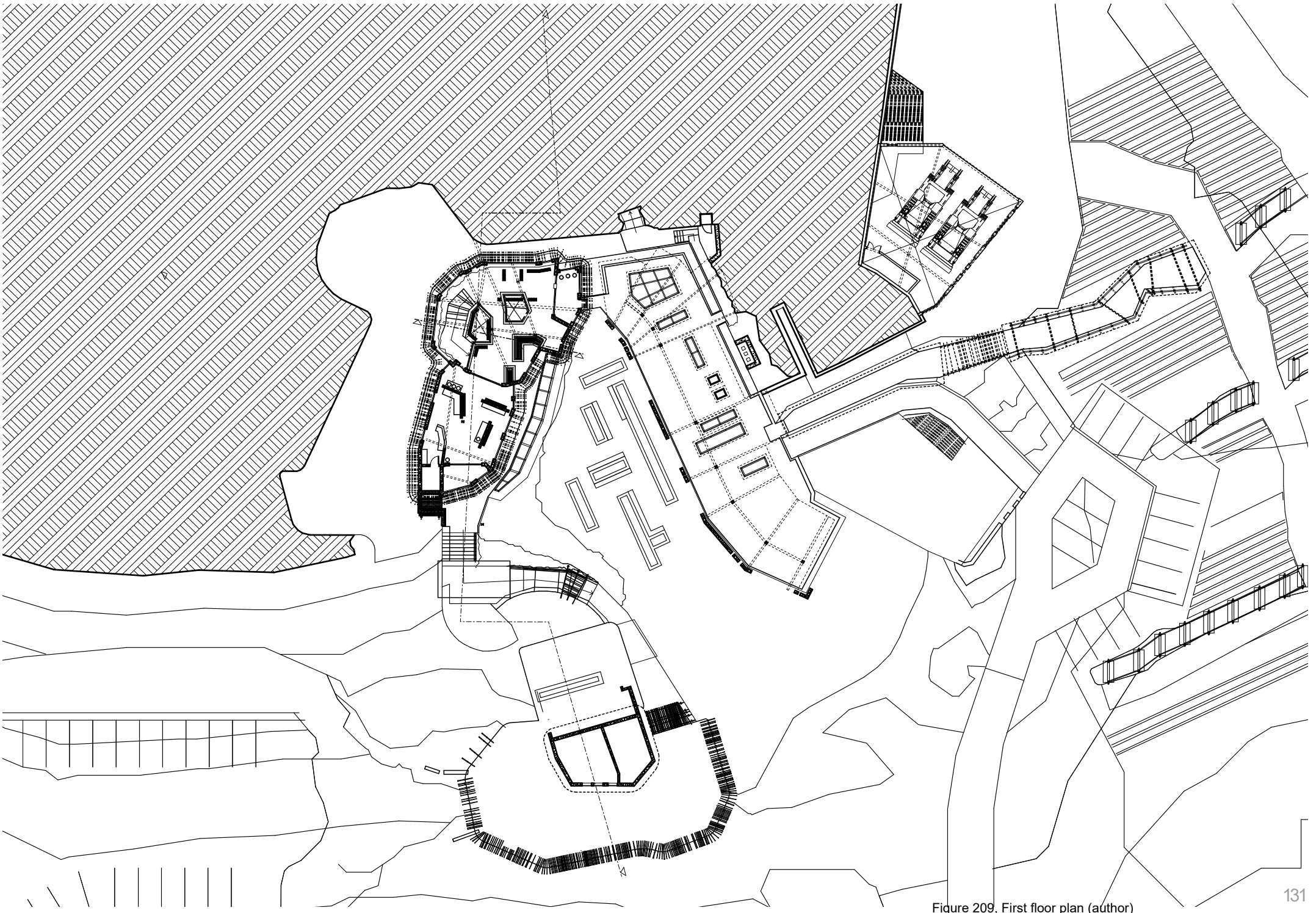


Figure 209, First floor plan (author)

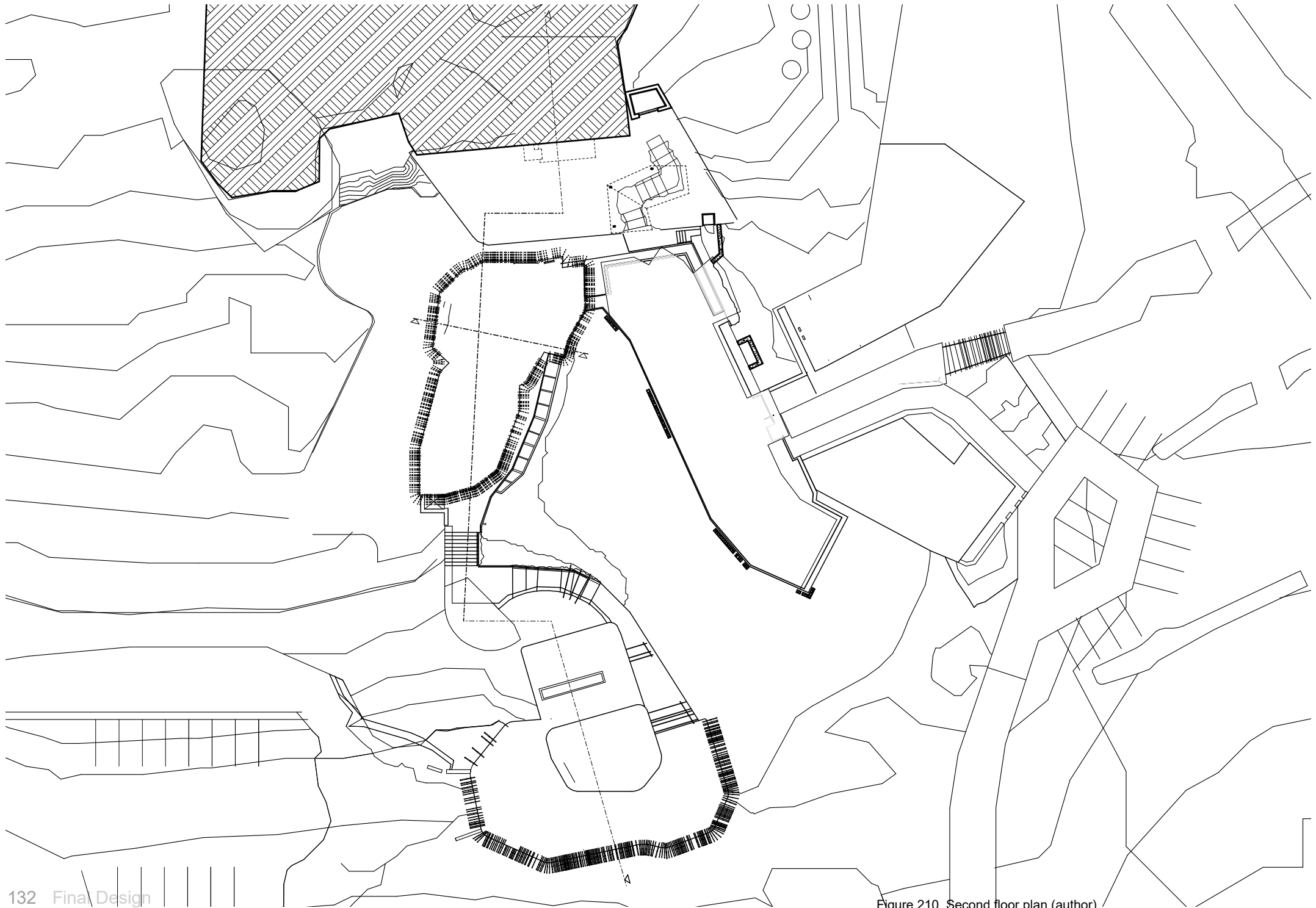


Figure 210, Second floor plan (author)

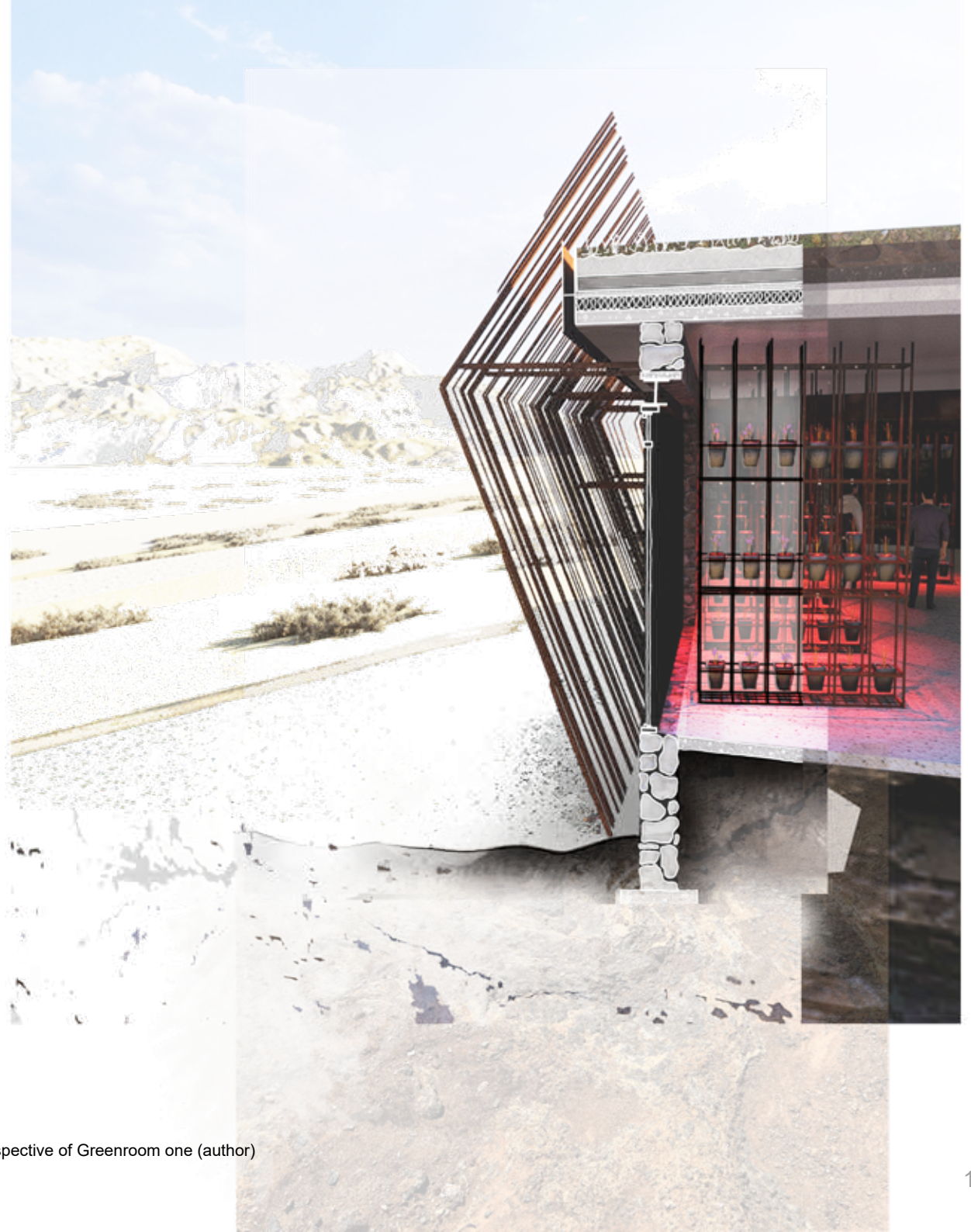


Figure 211, Sectional perspective of Greenroom one (author)

Shadow Study

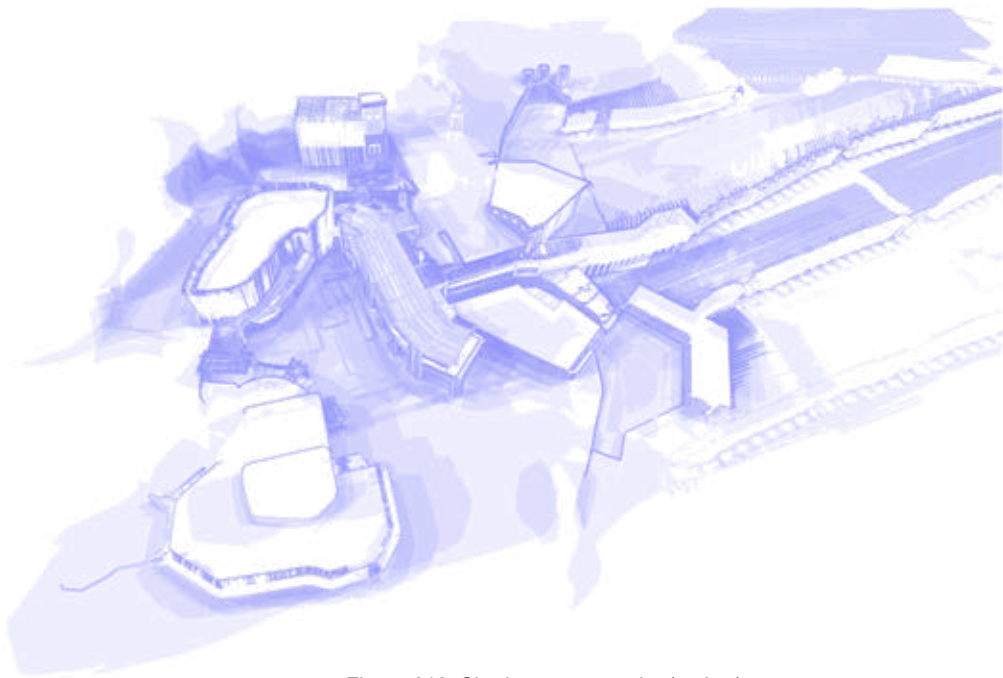


Figure 212, Shadows cast on site (author)

View Points



Figure 213, Viewing areas (author)

Green Roofs

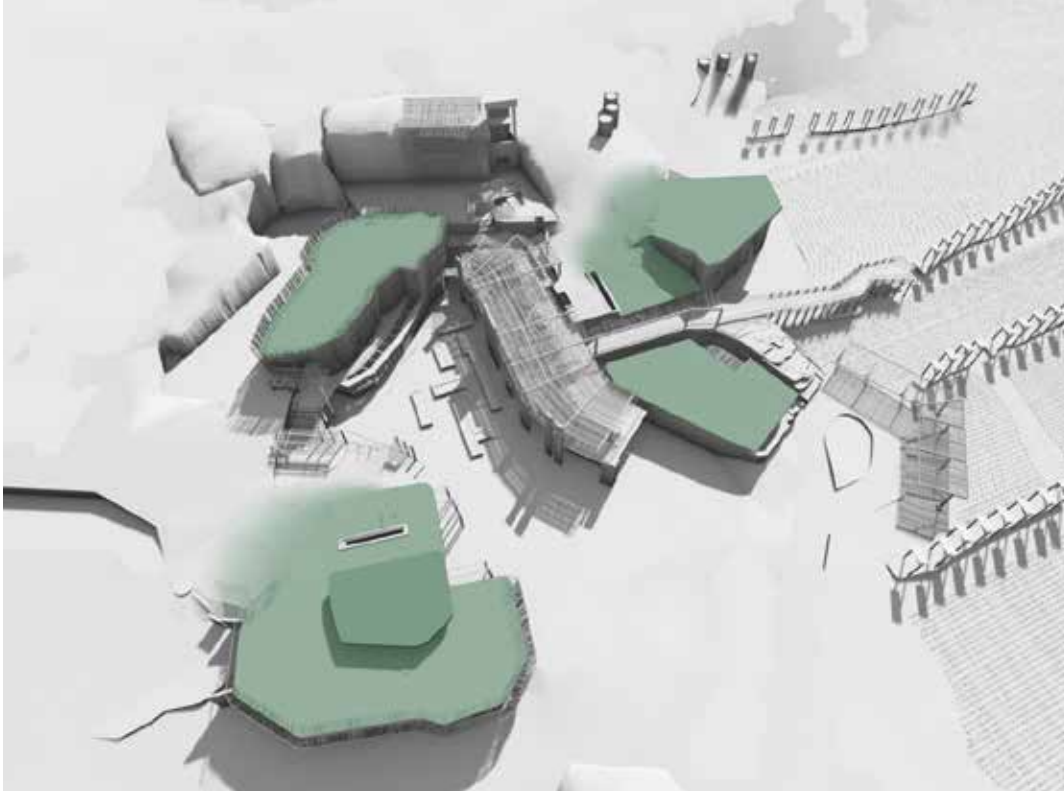


Figure 214, Greenrooms (author)

Cultivation



Figure 215, indoor and outdoor cultivation (author)

Public Flow



Figure 216, Public flow (author)

Workers' Flow

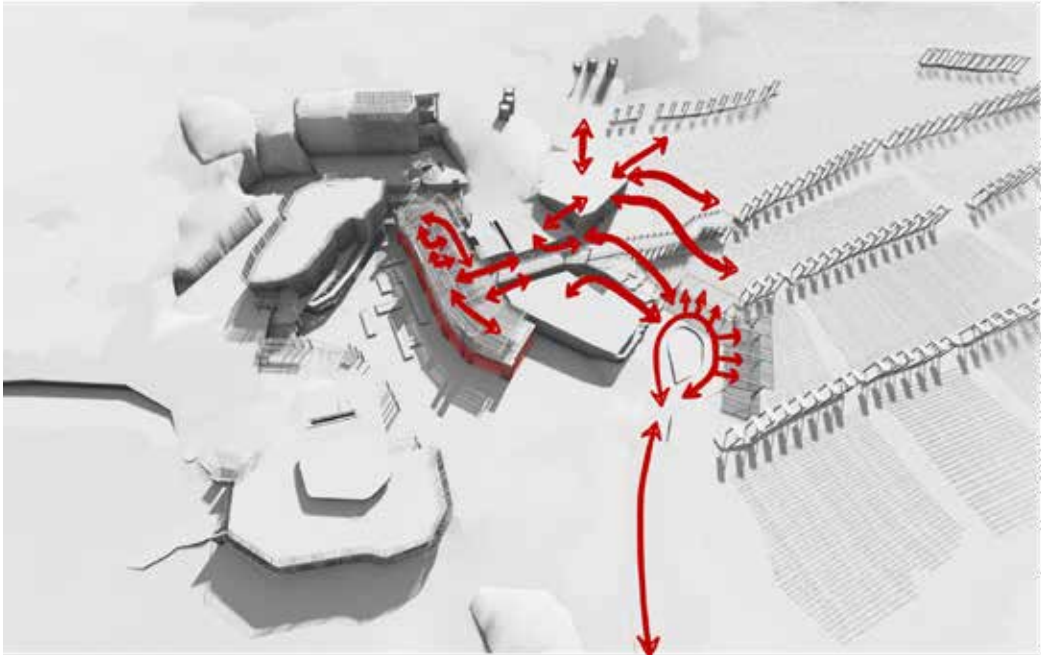


Figure 217, Workers' flow (author)

Public vs Private

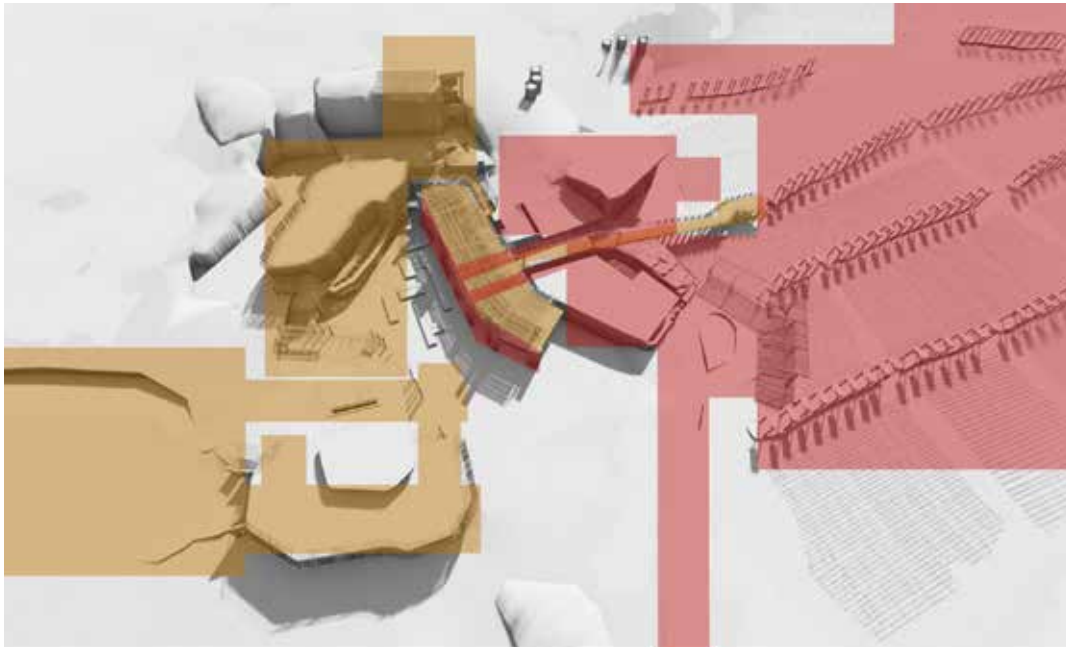


Figure 218, Public and private (author)

Public and Private Entrances

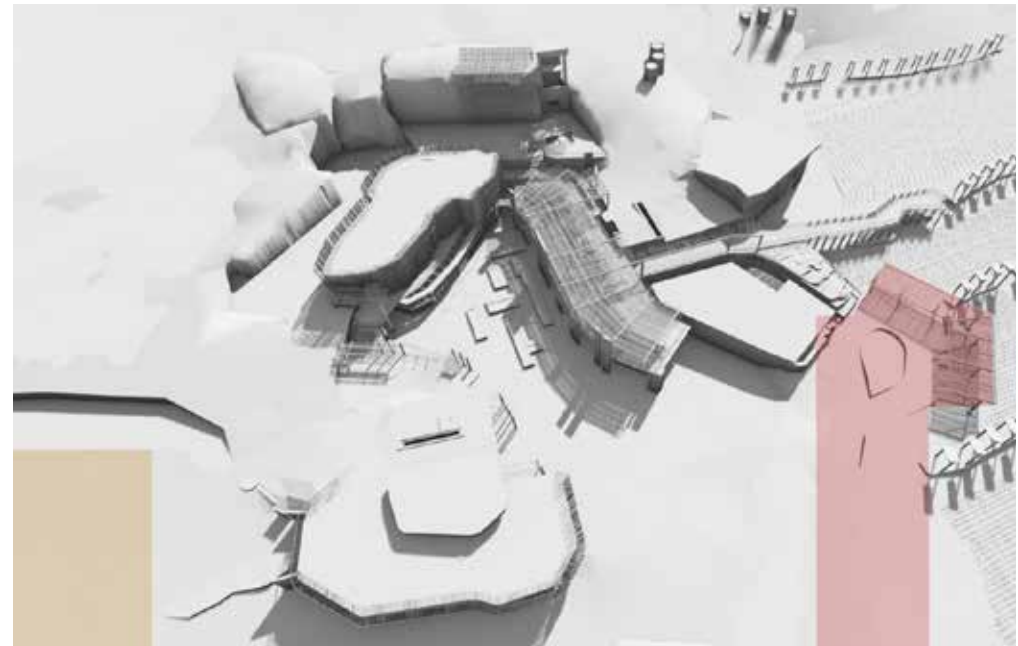
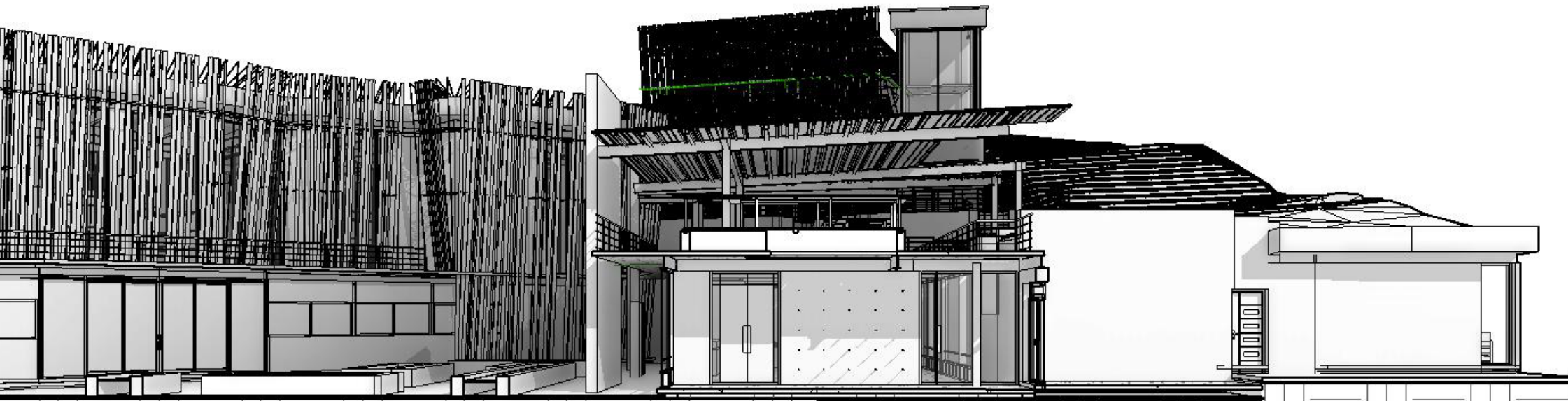


Figure 219, Entrances (author)



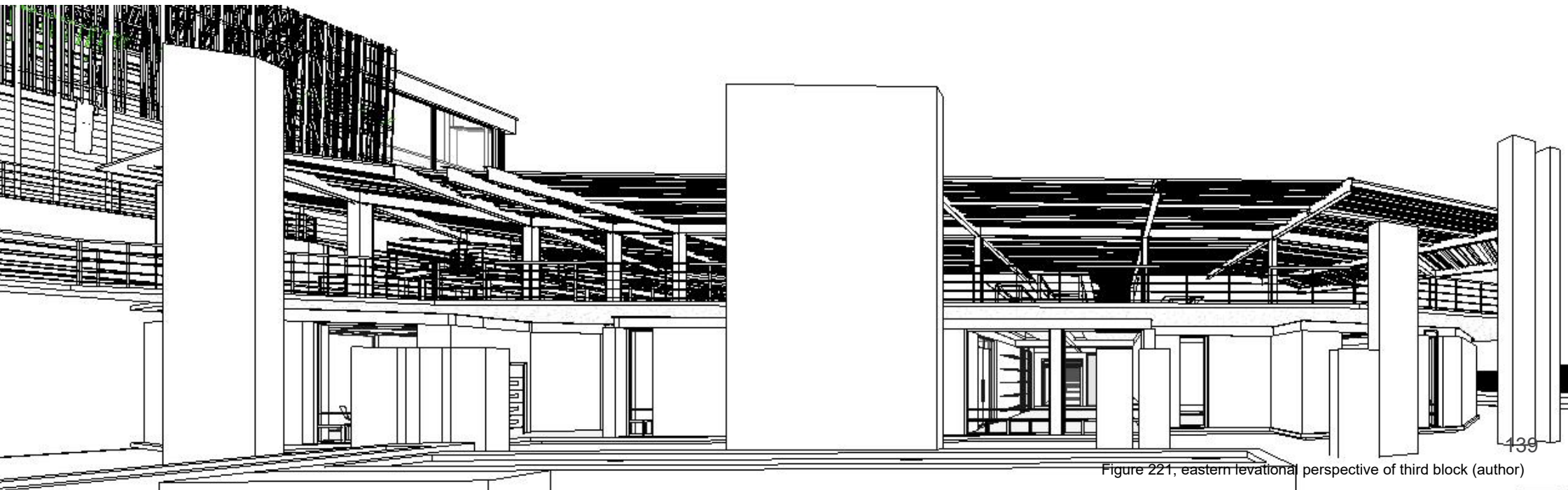
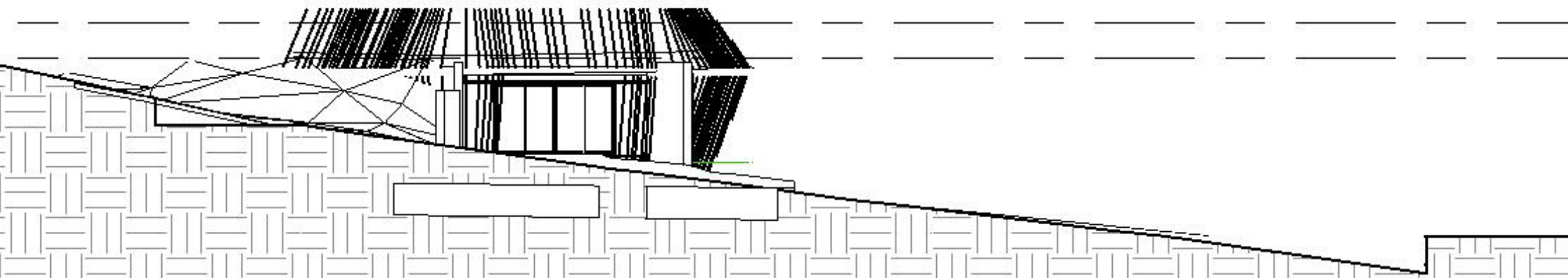


Figure 221, eastern elevational perspective of third block (author)



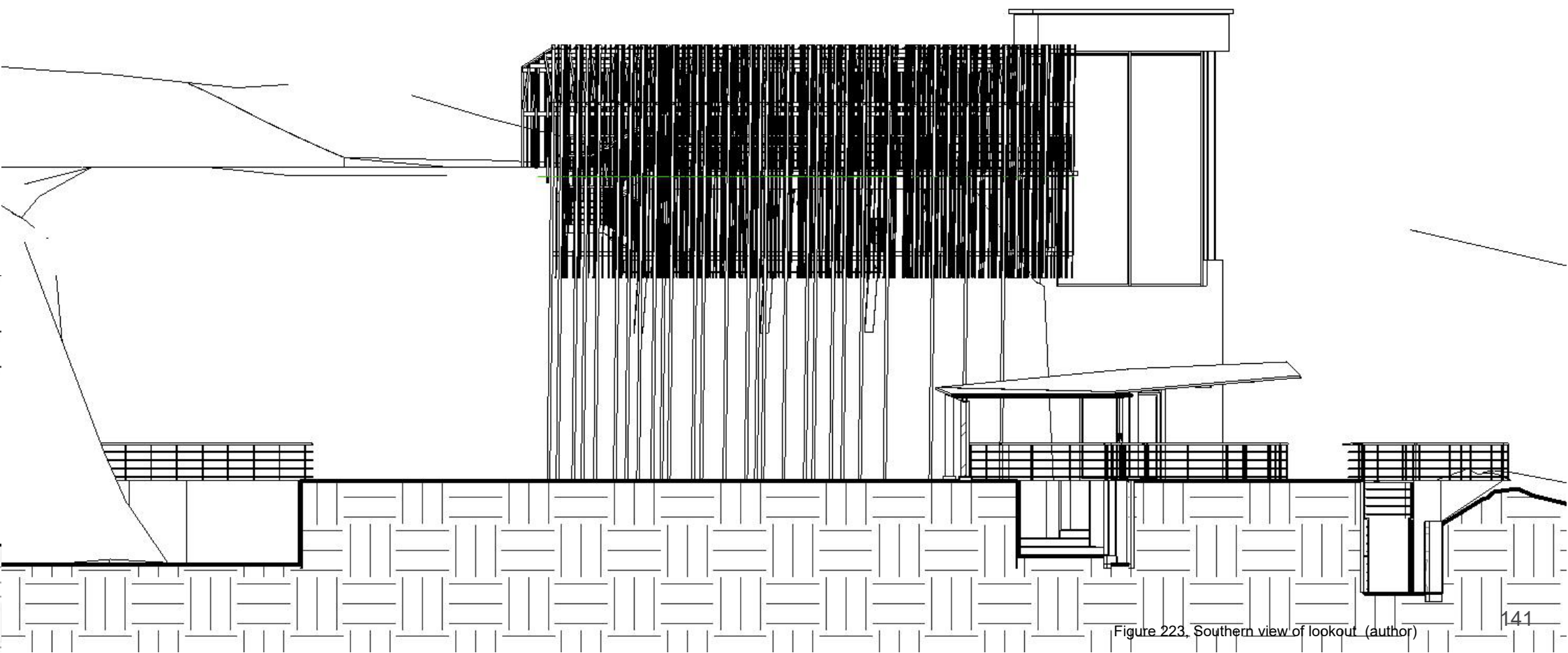


Figure 223. Southern view of lookout (author)



Figure 224, Sectional perspective of greenroom two (author)

Greenrooms

The greenrooms create sensory experiences between light and dark. The journey in between serves as a narrative as one passes through the different stages of saffron growth to ultimately reach the point where the commercial farm can be properly viewed, transitioning from controlled to natural cultivation. The greenroom is strategically placed on site to stand out, much like the bird nests, quiver trees, and rocks. Buffer zones create anticipation for the green rooms while aiding in the control of conditions inside.

Form

The shape of the greenrooms reflects the freeform of rocks, textures, and shadows directly related to the essence of the site and the Namaqualand environment. Exterior views areas are shaped by the shape of the quarry as well as the farming land that takes the shape of the disturbed soil.

Quarry

The original quarry can be explored in various ways within the design, including cutting through, touching lightly, circulating above, below, and on top, as well as viewing from a distance.

Experiences (Narrative)

The process of harvesting saffron until the final distribution is observable to the public through horizontally raised windows. This allows visitors to follow the process as it continues. The path through the greenrooms aims to motivate engagement and interest while creating a narrated experience.

Optional pathways lead to an intriguing route towards the top, where one can view the entire environment. An unemphasised entrance creates a sense of mystery in the experience, allowing visitors to walk directly into a dark space.

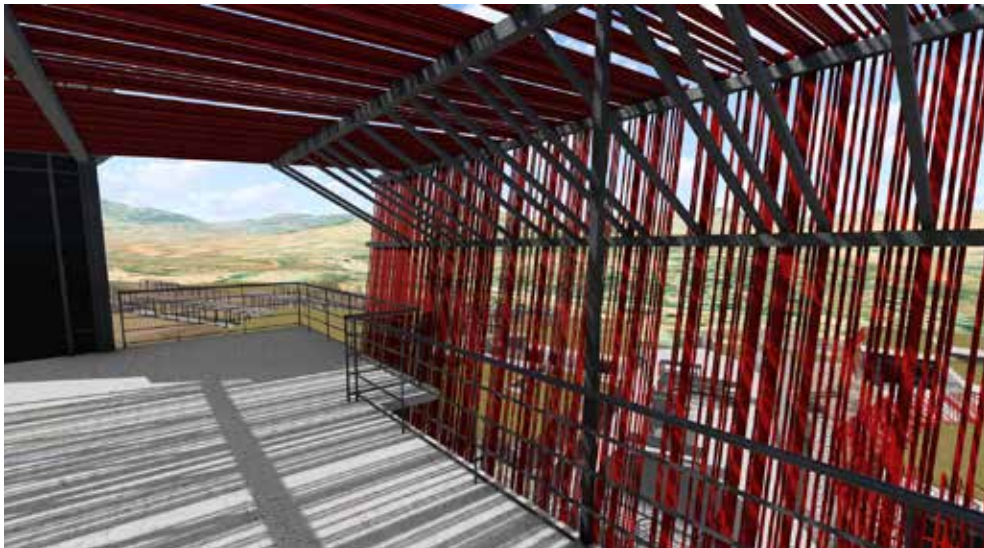


Figure 225, View from look-out (author)



Figure 226, View from bottom look-out (author)

Materials

The wasted granite on site is used to construct the walls, while the metal structure reflects the machinery used on the site. Green roofs add a natural aspect to the site, integrating it into the landscape. Dark-coated ultraviolet-blocking glass allows for more controlled cultivation in the greenrooms and creates interest from the outside and inside.

The rotating cladding and beam structures embody the essence of flower petals. They emphasise the greenrooms, creating a focal point throughout the site. Red anodised Aluminium is used to reflect the threads of saffron.

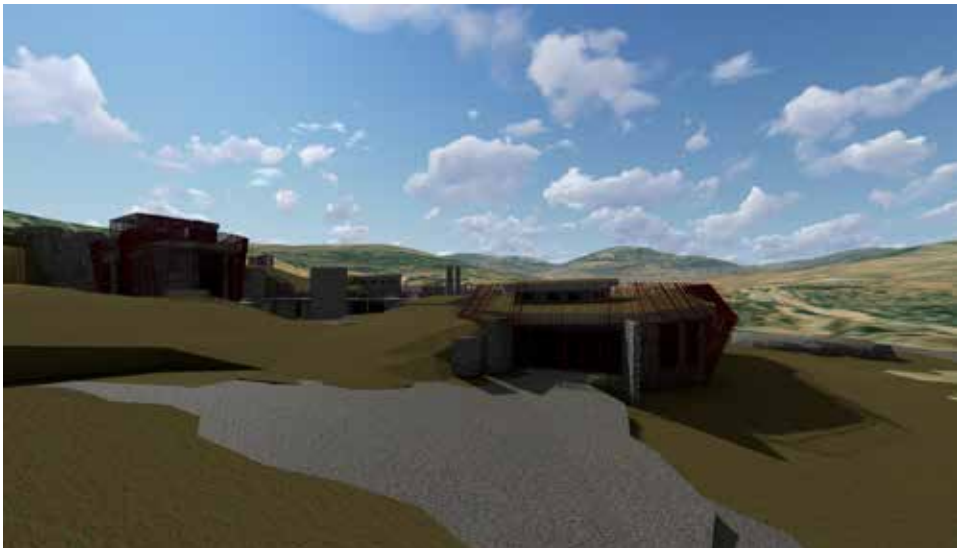


Figure 227, Public entrance (author)

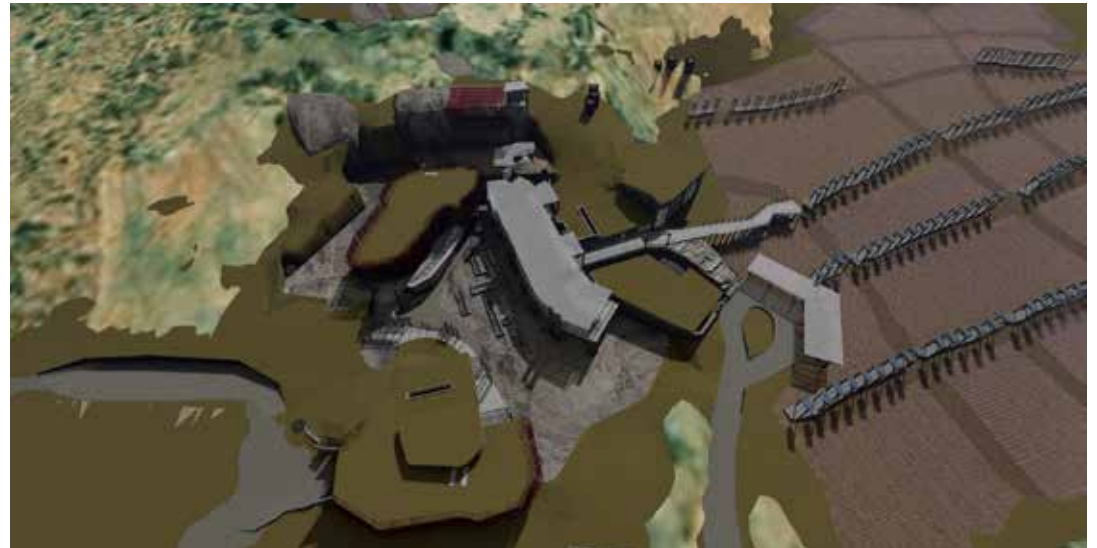


Figure 228, Birds' eye view (author)



Figure 229, Exit of greenroom one (author)

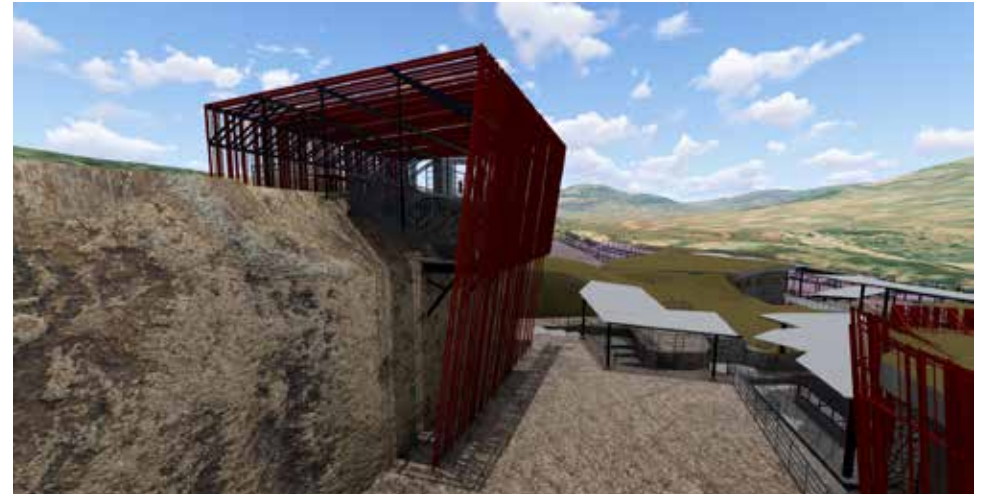


Figure 230, View of look-out (author)



Figure 231, View from first floor on eastern side (author)



Figure 232, View from exit of greenroom one (author)



Figure 233, Southern view of project (author)

Chapter 9: Technical Report

This chapter sheds light on the design's structural and technical facets, offering insight into the project's underlying principles and methodologies. It explores key components such as the structural touchstone, climate control, materials, technical elements, and various design details. Additionally, it delves into the services such as electricity and water supply.

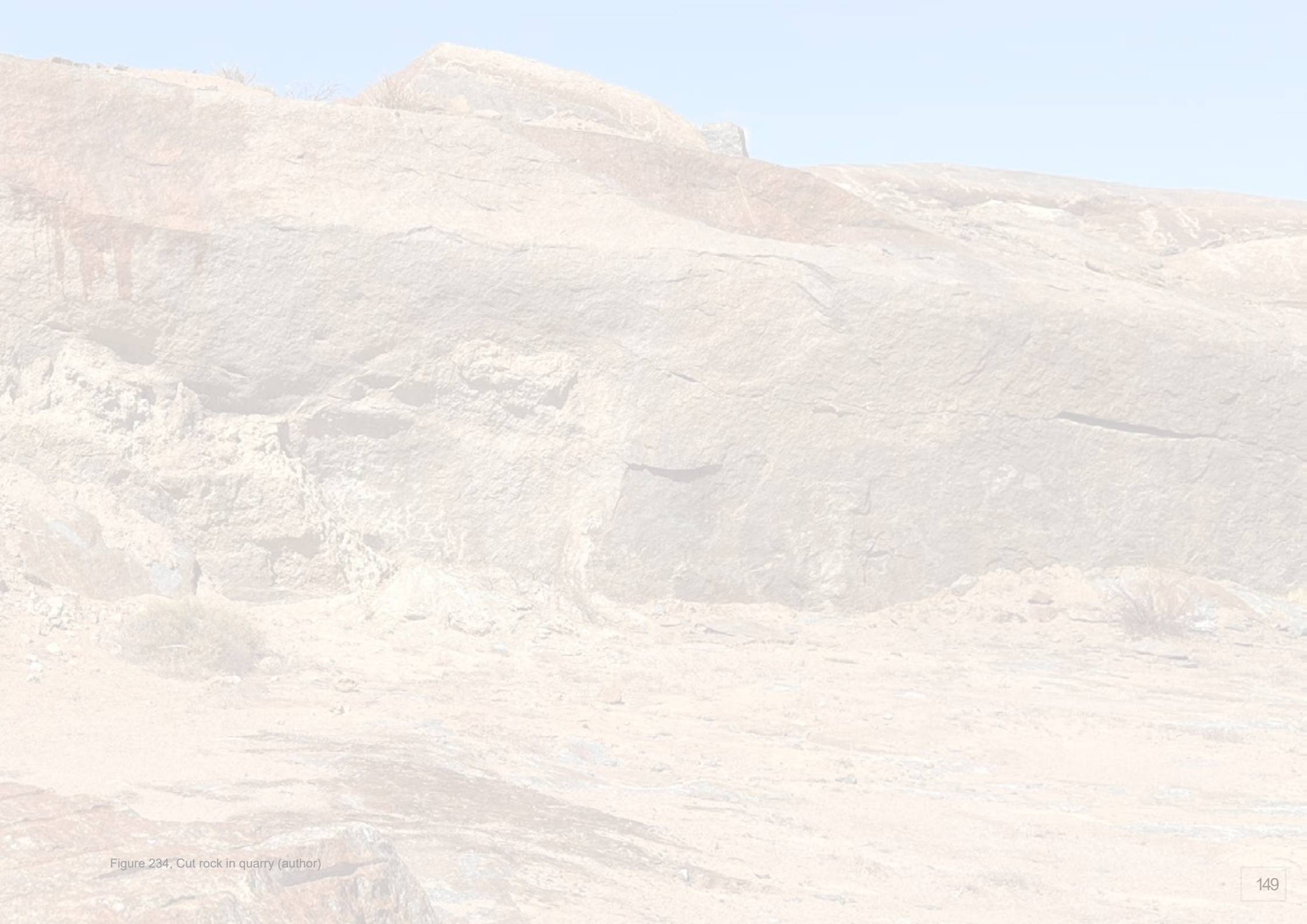


Figure 234, Cut rock in quarry (author)

9.1. Structural Touchstone

The touchstone originally featured a delicate structure hovering above the solid stone quarry, making minimal contact at isolated points. However, adjustments became necessary in response to the challenging climate conditions. The design adaptation involved raising the floor to create a shading effect. The design evolved into a heavier structure lightened by the windows, cladding, and an extending deck.

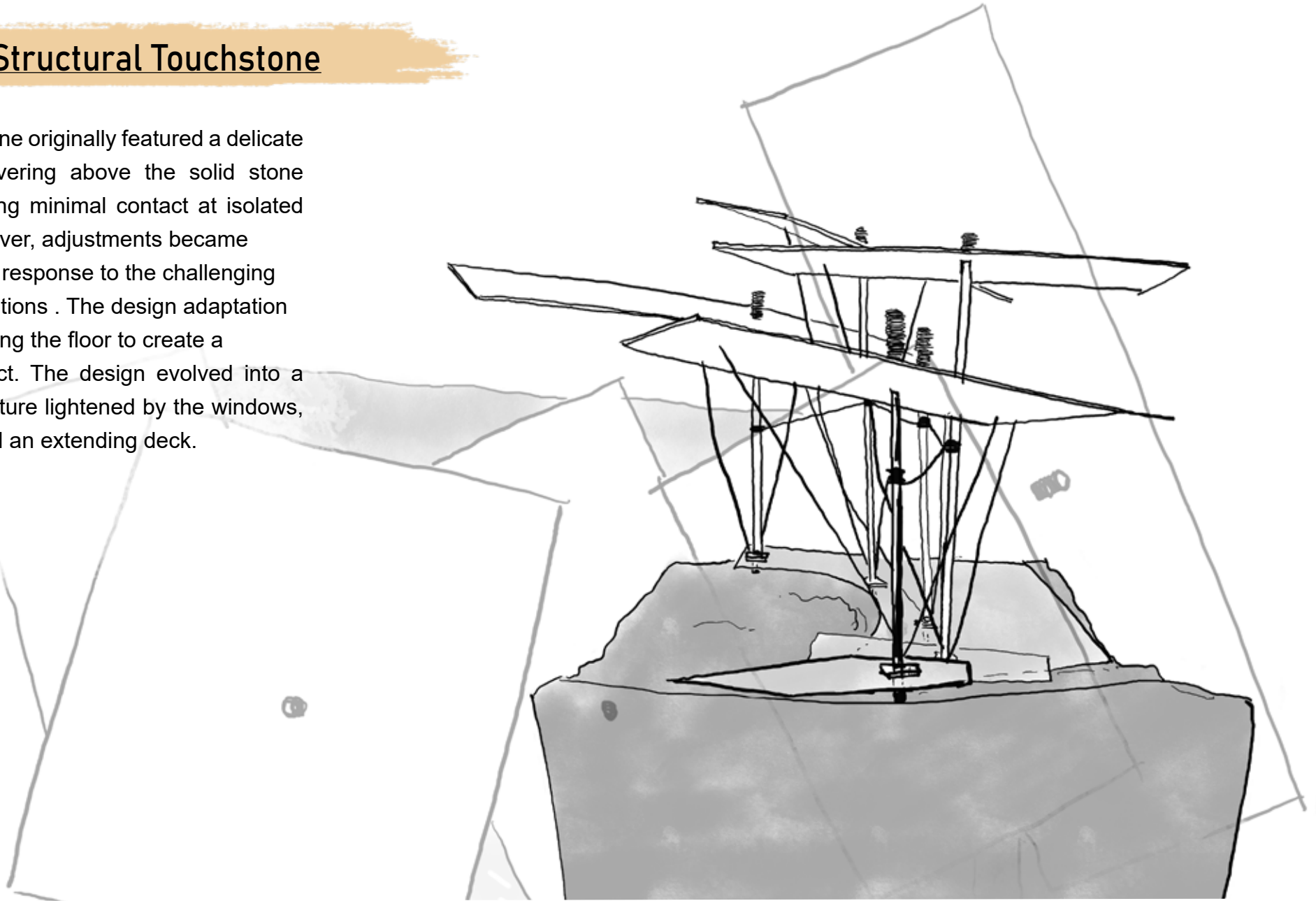


Figure 235, Drawing of structural touchstone (author)

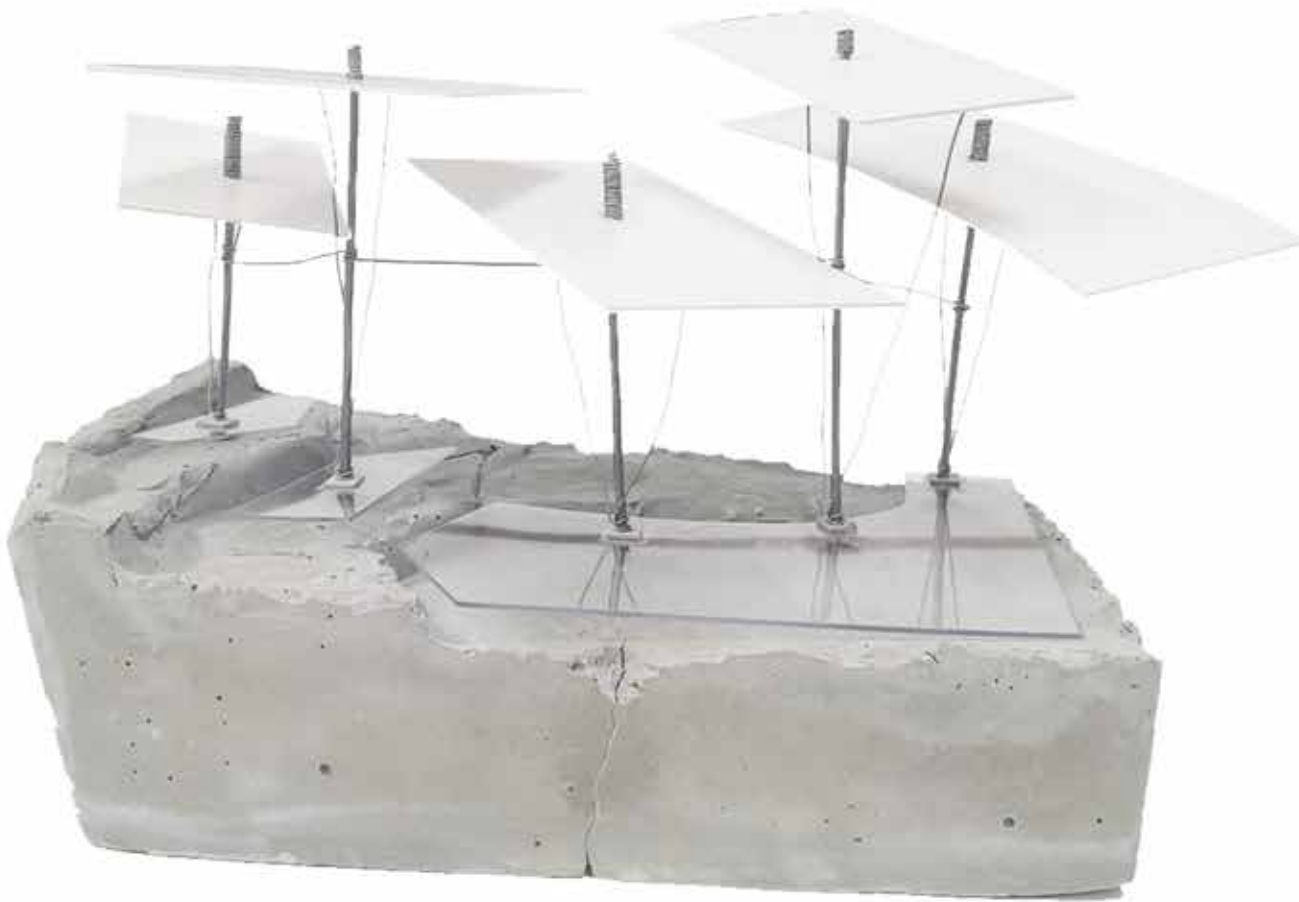


Figure 236, Front view of structural touchstone (author)



Figure 237, Side view of structural touchstone (author)

9.2. Climate Control

The project's region showcases a harsh climate (4.1), and regulatory systems should be put in place. The project has two main climate conditions, one being the conditions of the natural surrounding environment and the other being the controlled cultivation.

Protection from environmental conditions

The following design elements are put into place and will be discussed:

- Green roofs
- Insolation
- High-performance windows,
- Cladding
- HVAC

The greenrooms also include the following:

- Intermediate spaces



Figure 238, Greenrooms on diagrammatic plan (author)

9.2.1. Green roofs

A greenroof primarily regulates temperature, with the most significant impact occurring during the summer. Unlike conventional roofs, which can lead to substantial indoor temperature fluctuations, green roofs help maintain a cooler environment. Green roofs reflect a substantial portion of direct sunlight due to the vegetation cover. Furthermore, the moisture within the vegetation evaporates, contributing to additional cooling. These combined factors result in lower indoor temperatures, ultimately leading to energy savings by reducing the need for air conditioning. During the winter months, green roofs excel at trapping heat within your home, offering more efficient insulation compared to conventional roofs. Beyond its thermal insulation benefits, a green roof also provides sound insulation.

Figure 239, View of greenroofs (author)

A greenroof in South Africa usually consists of various layers, including:

- Growing substrate
- Root barrier
- Drainage/ moisture panel
- Waterproof membrane
- Concrete screed
- Insolation
- Concrete slab

(Pienaar, Pienaar & Vollmer 2018: pp. 298)

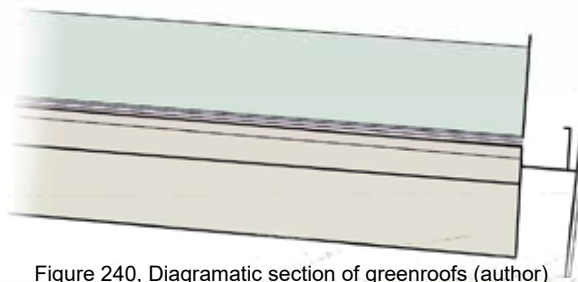


Figure 240, Diagrammatic section of greenroofs (author)

Green roofs are incorporated into the multi-story building's design to enhance the overall experience.



Figure 241, Greenroofs on diagrammatic plan (author)



9.2.2. Insolation

Insulation is a fundamental yet crucial element in climate control. Stone walls are comprised of unevenly shaped rocks. Versatile insulation, such as fibre, foam sprays, loose-fill, or blown-in insulation, is highly suitable. In the design of the temperature-regulated spaces, the walls consist of two layers of stone with Thermguard insulation in between and reinforced with wall ties.

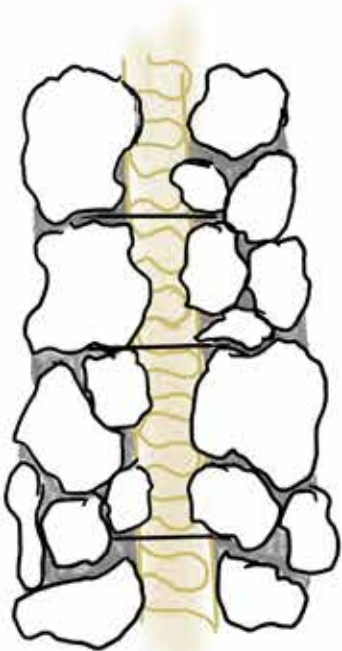


Figure 242, diagrammatic section of storage room wall (author)

Thermguard, a cellulose fibre insulation, is created by blending recycled newspaper with naturally sourced inorganic salts, enhancing its resistance to fire, insects, and rodents (Thermguard, 2023: online). It is an environmentally friendly solution benefiting the planet.

Rather than sending thousands of newspapers to landfills, Thermguard repurposes them to craft lightweight insulation. This insulation also reduces greenhouse gas emissions and is packaged in environmentally-conscious recycled plastic bags.



Figure 243, Sectional view of storage (author)

9.2.3. Windows

The design incorporates numerous windows, emphasising the necessity of using high-performance glass. Specifically, double-glazing windows are employed, with an inner layer coated with films to mitigate UV and heat infiltration while reducing natural light within the greenrooms. For instance, consider the UV films by Klingshield in a South African context.

The greenroom can benefit from the 'charcoal non-reflective window film' and the 'clear window film' for other windows. These films are characterised by their non-reflective properties, scratch resistance, and effective reduction of ultraviolet transmission. The charcoal non-reflective window film also reduces visible light, making it ideal

for use in projection and computer rooms and, in this case, the darker greenrooms. On the other hand, the clear window film, a nano-ceramic innovation, offers self-cleaning features, 100% visibility with a subtle tint, minimises solar heat, exhibits high infrared rejection, and curtails the need for air conditioning.



Figure 244, Greenroom interior (author)

9.2.4. HVAC

The project still relies on active systems for temperature control, which is achieved through the use of an HVAC system to maintain precise conditions. This HVAC system is installed on the rooftop, within spaces created between the layers of green roofs.

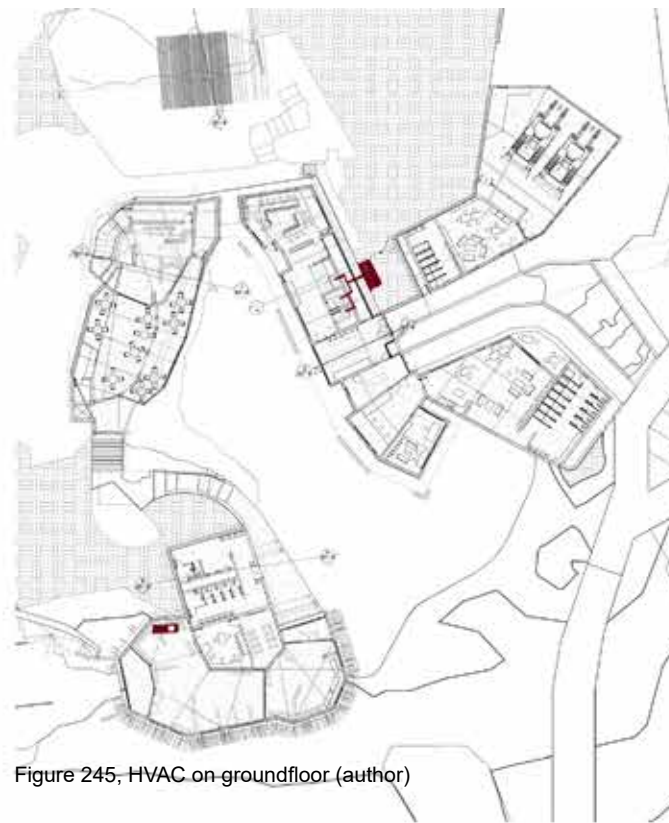


Figure 245, HVAC on-groundfloor (author)

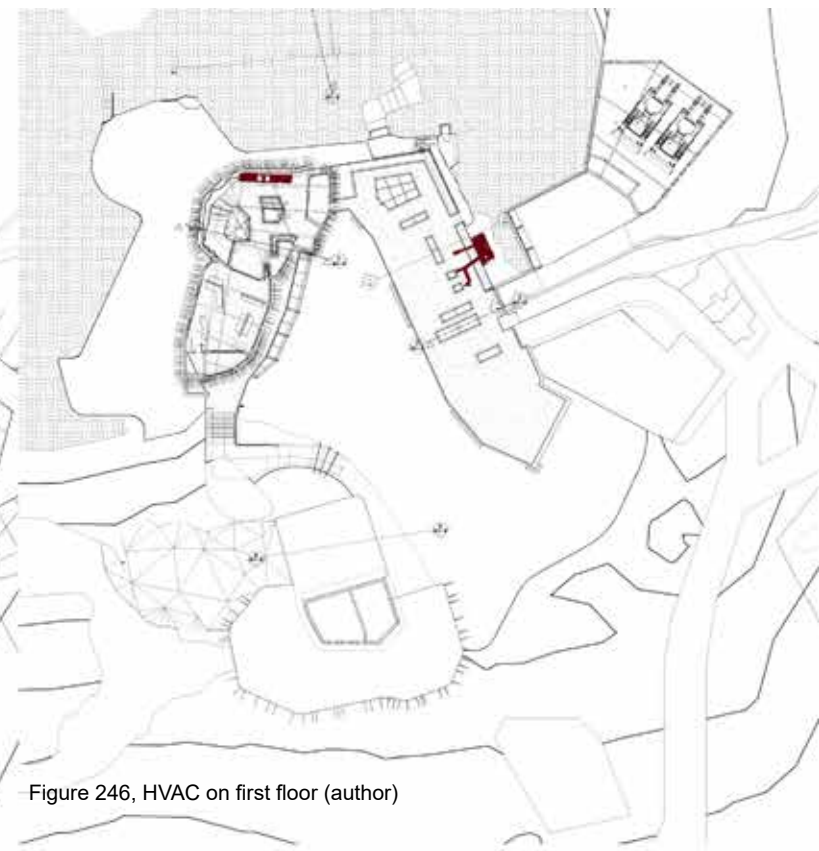


Figure 246, HVAC on first floor (author)

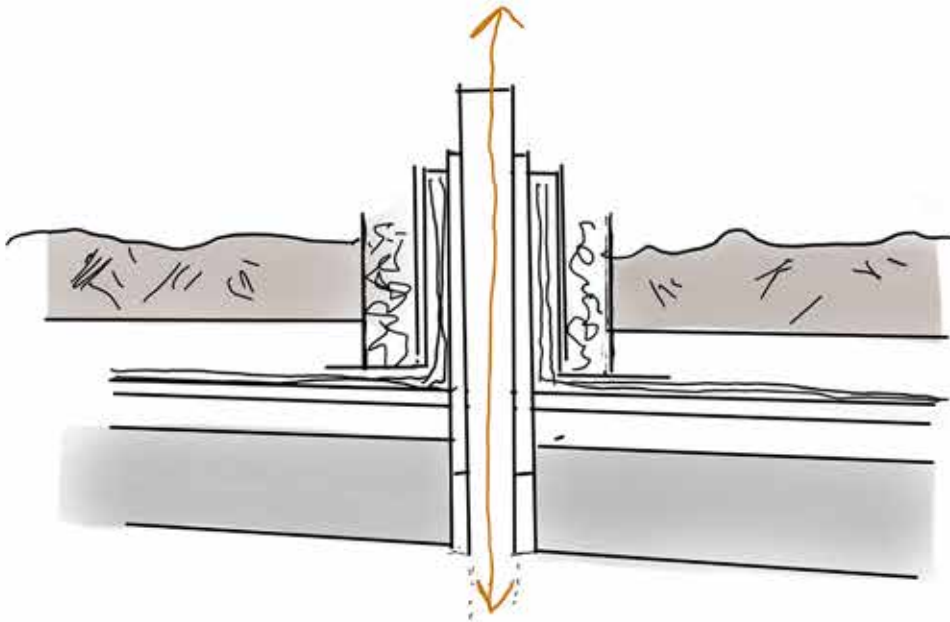


Figure 247, HVAC vent (author)

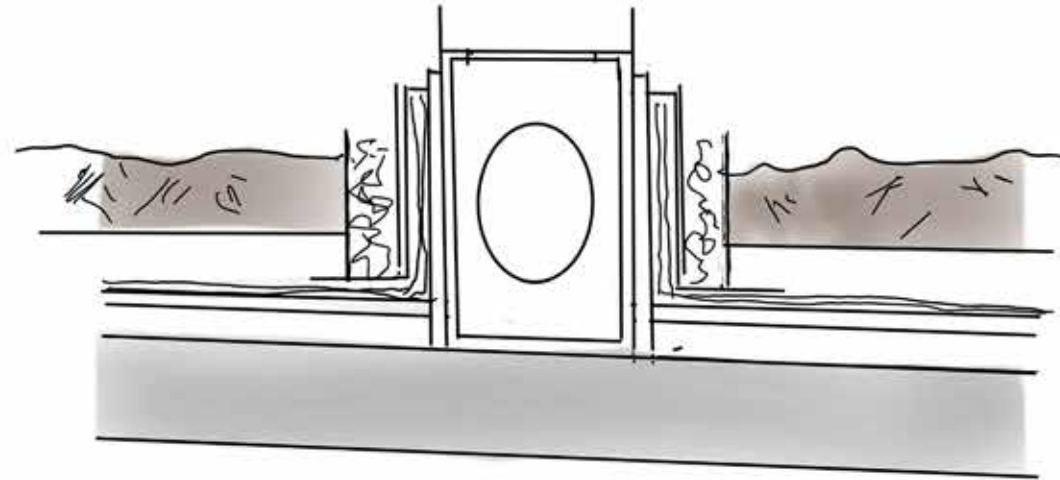


Figure 248, HVAC system (author)

9.2.7. Intermediate spaces

To enhance the stability of the controlled climate within the greenrooms, intermediate spaces are introduced, reducing direct interactions between the interior and exterior environments.

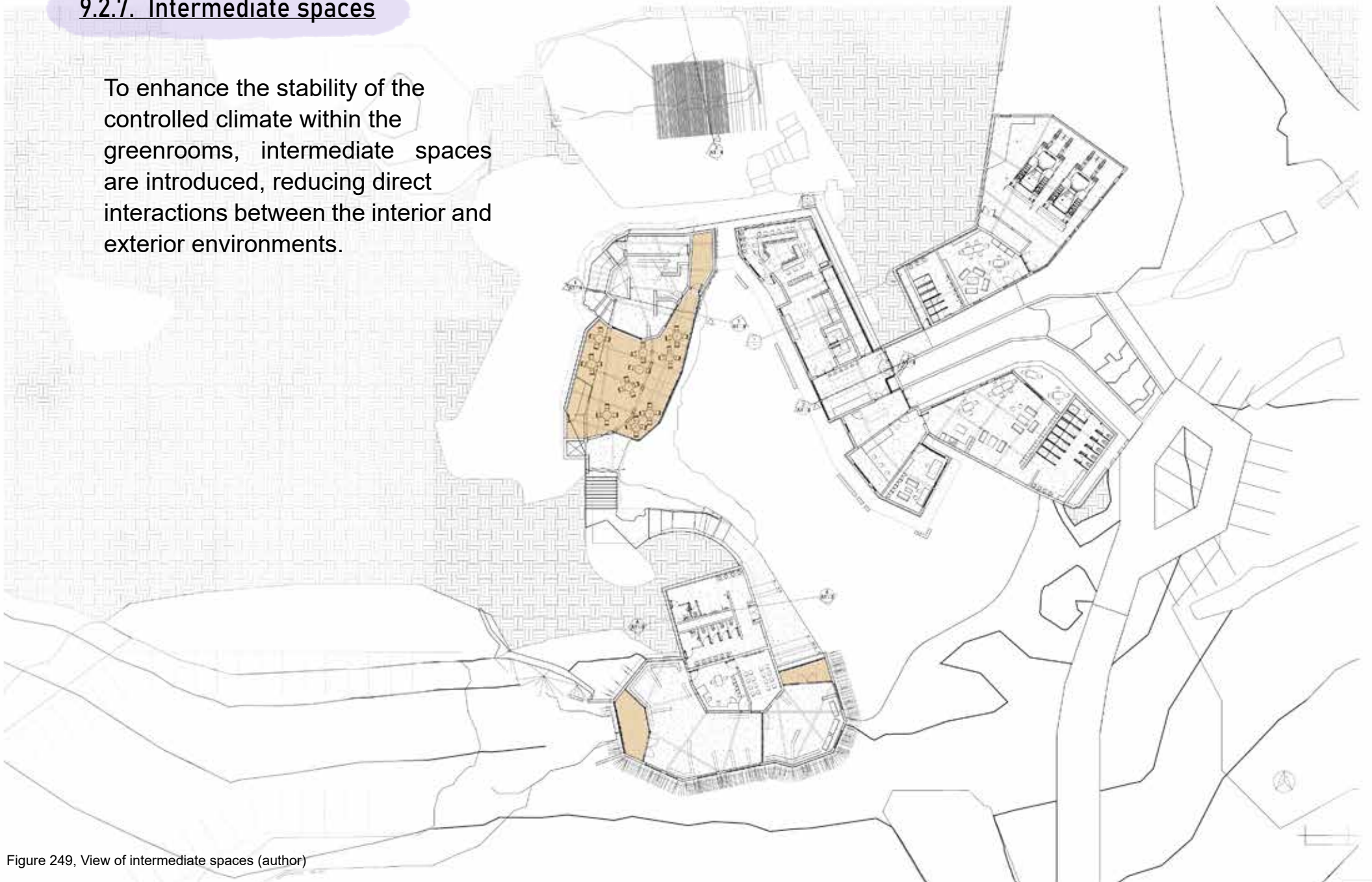


Figure 249, View of intermediate spaces (author)

9.3 Materials

9.3.1. Stone

Using waste rock as a building material is a sustainable approach that helps repurpose materials that would otherwise contribute to environmental pollution or landfill waste. Recycling waste rock can create cost-effective building materials like crushed stone, concrete, or even decorative elements. This practice reduces the demand for natural resources and lessens the environmental impact associated with extracting and processing raw materials. Waste rock materials can be adapted for various construction purposes, contributing to more sustainable and responsible building practices while minimising the need for new quarries and landfills.



Figure 250, View of greenroofs (author)

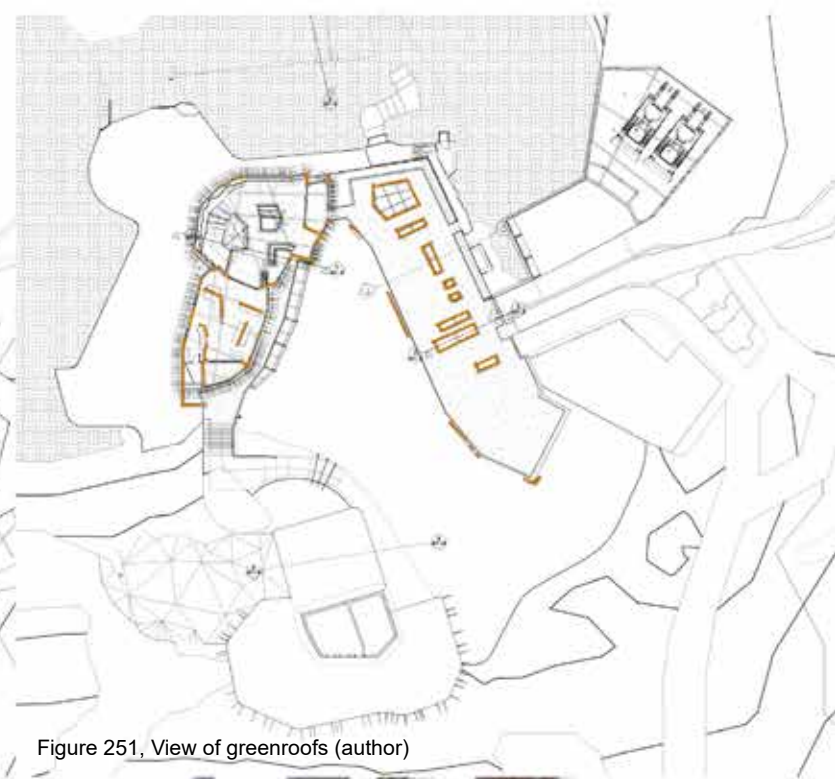


Figure 251, View of greenroofs (author)

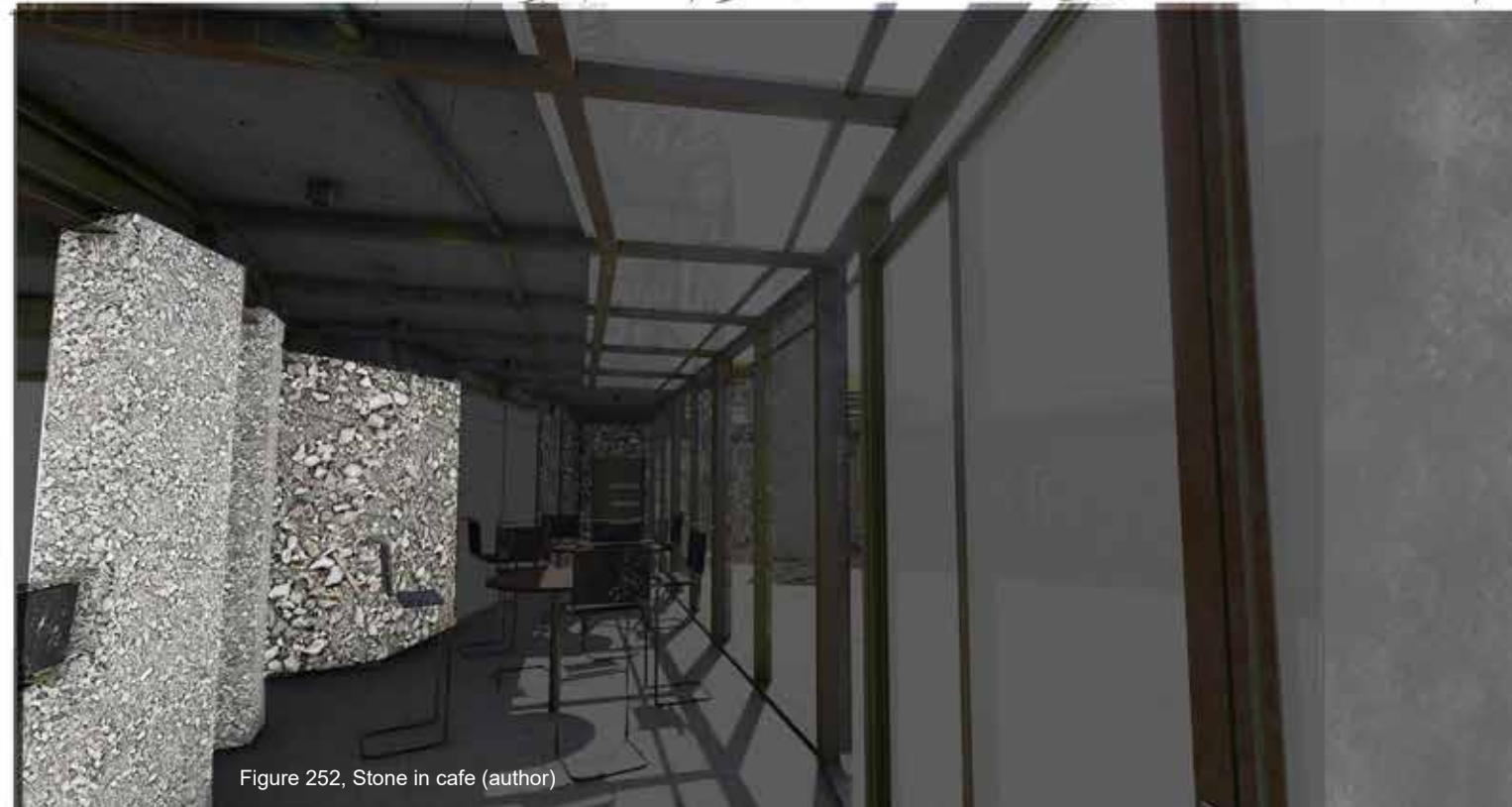


Figure 252, Stone in cafe (author)

9.3.2. Steel

Steel structures have been integrated into the design to reference the steel machinery employed on-site for quarrying. Corten steel is utilised for non-load-bearing components, which gradually develop stains on other materials over time, symbolising the impact of human activity, the passage of time, and the transformations the site has undergone.



Figure 253, Steel on groundfloor(author)



Figure 254, Steel on firstfloor (author)

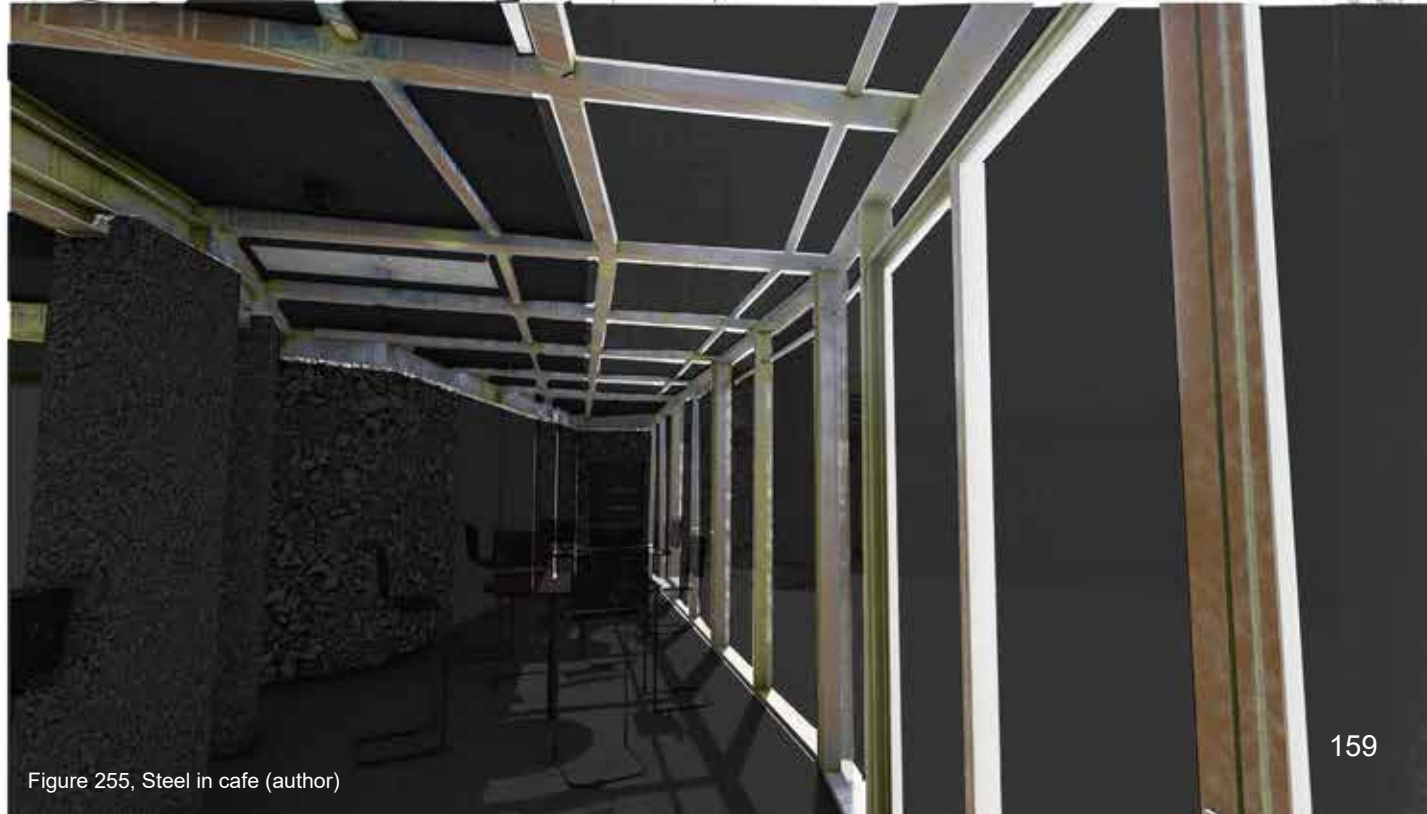


Figure 255, Steel in cafe (author)

9.3.3. Glass

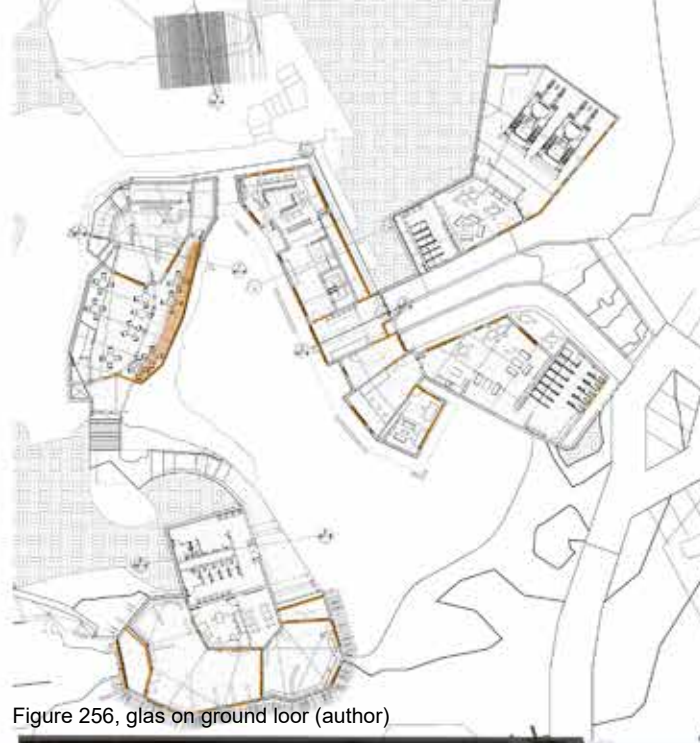


Figure 256, glas on ground loor (author)



Figure 257, View of greenroofs (author)



9.3.4. Concrete

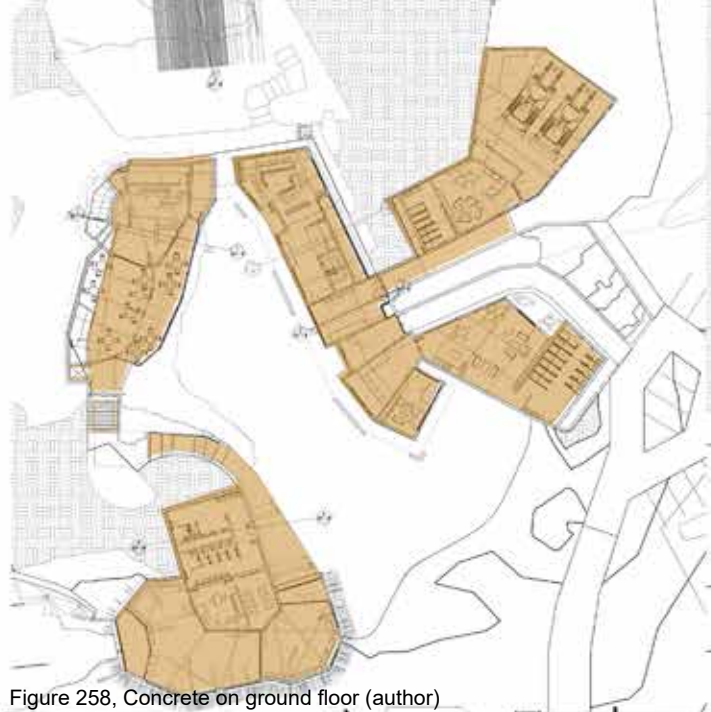


Figure 258, Concrete on ground floor (author)

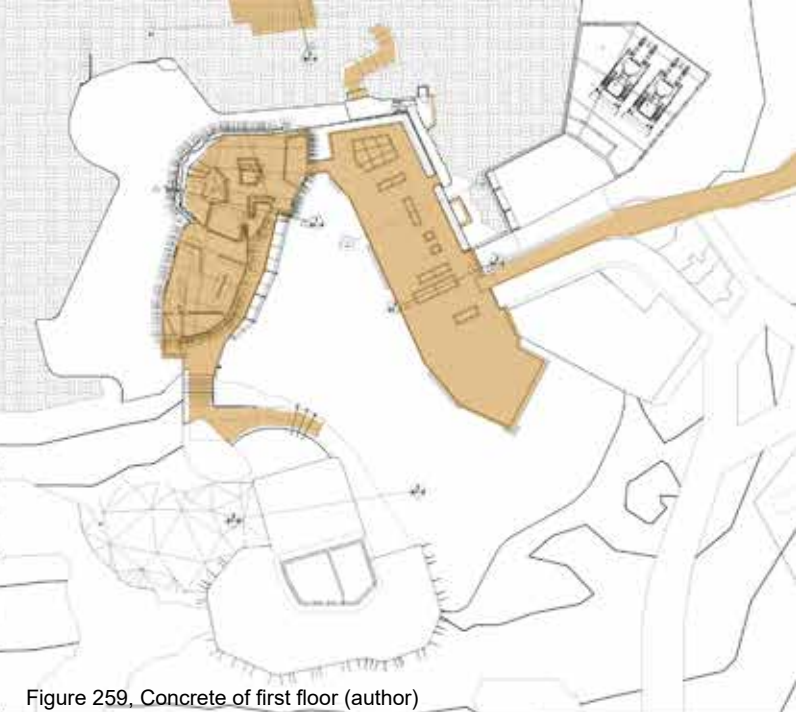


Figure 259, Concrete of first floor (author)



Figure 262, Concrete in cafe (author)

9.4. Design Elements

9.4.1. Walls

Retaining walls
Stone walls

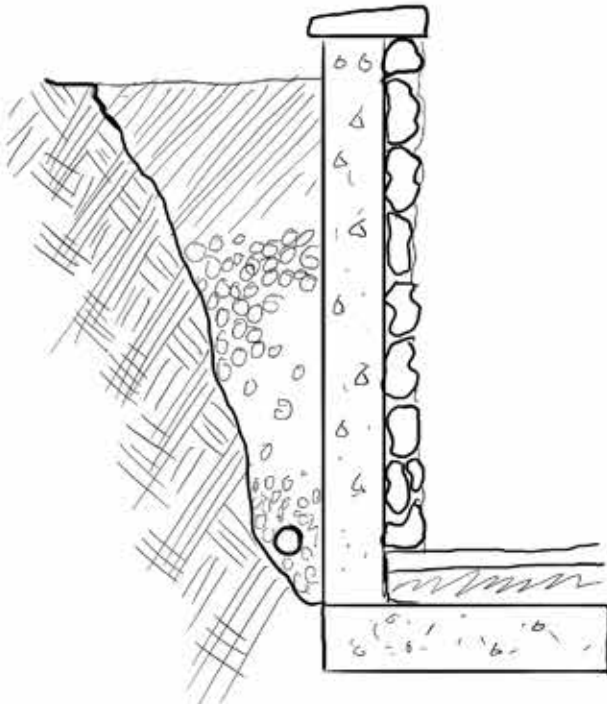


Figure 261, Section of retaining wall (author)

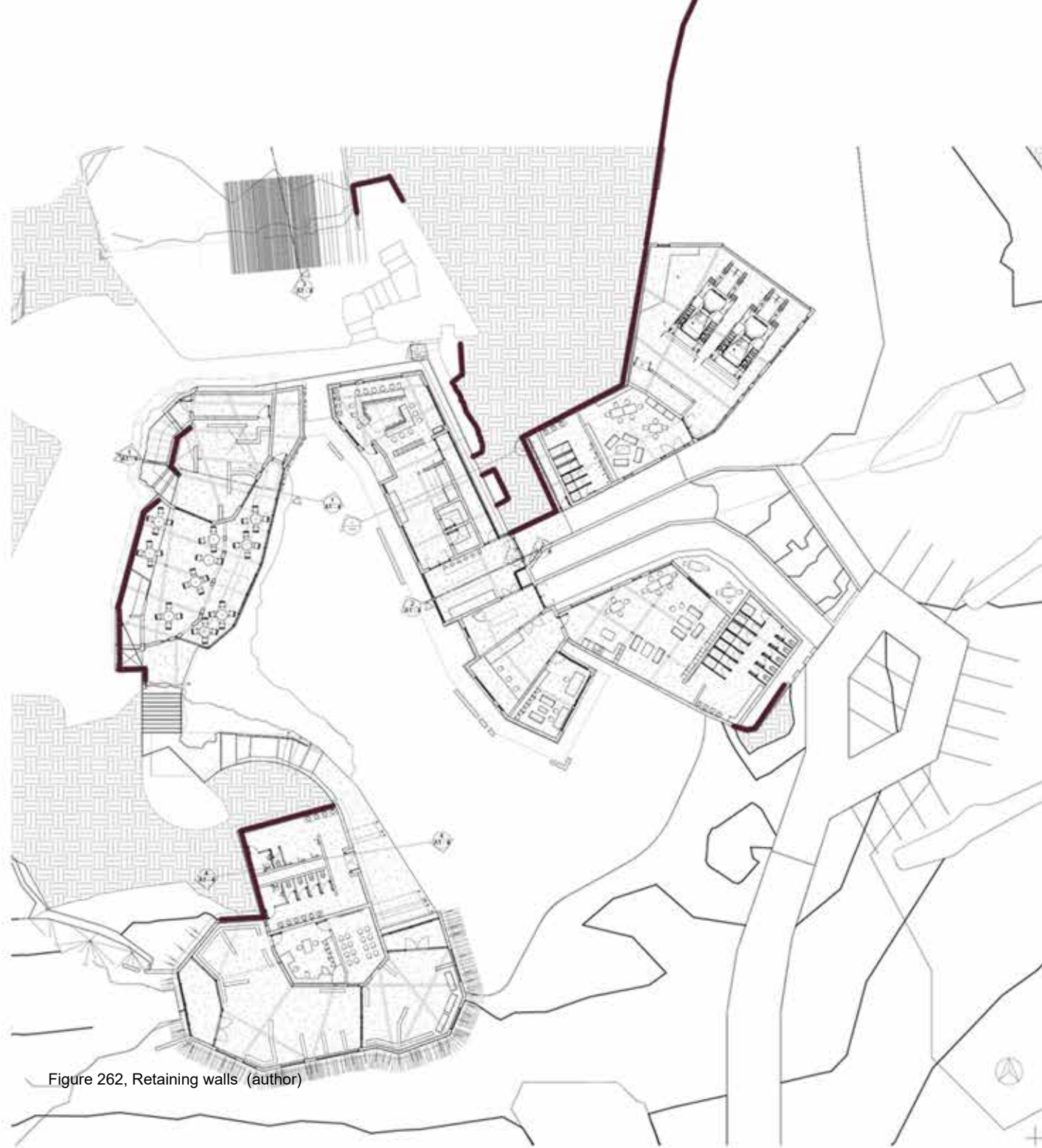


Figure 262, Retaining walls (author)

9.4.2. Floors

Lifted floor system

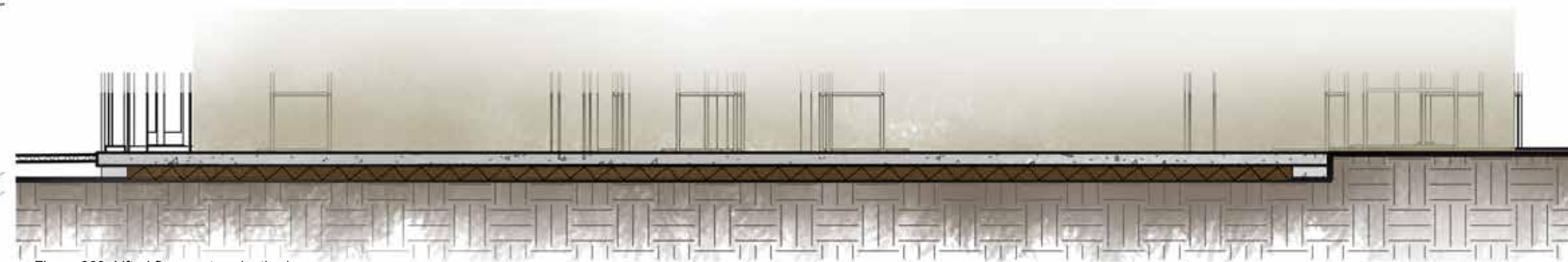


Figure 263, Lifted floor system (author)

9.4.3. Structure



Figure 264, Structure on groundfloor (author)

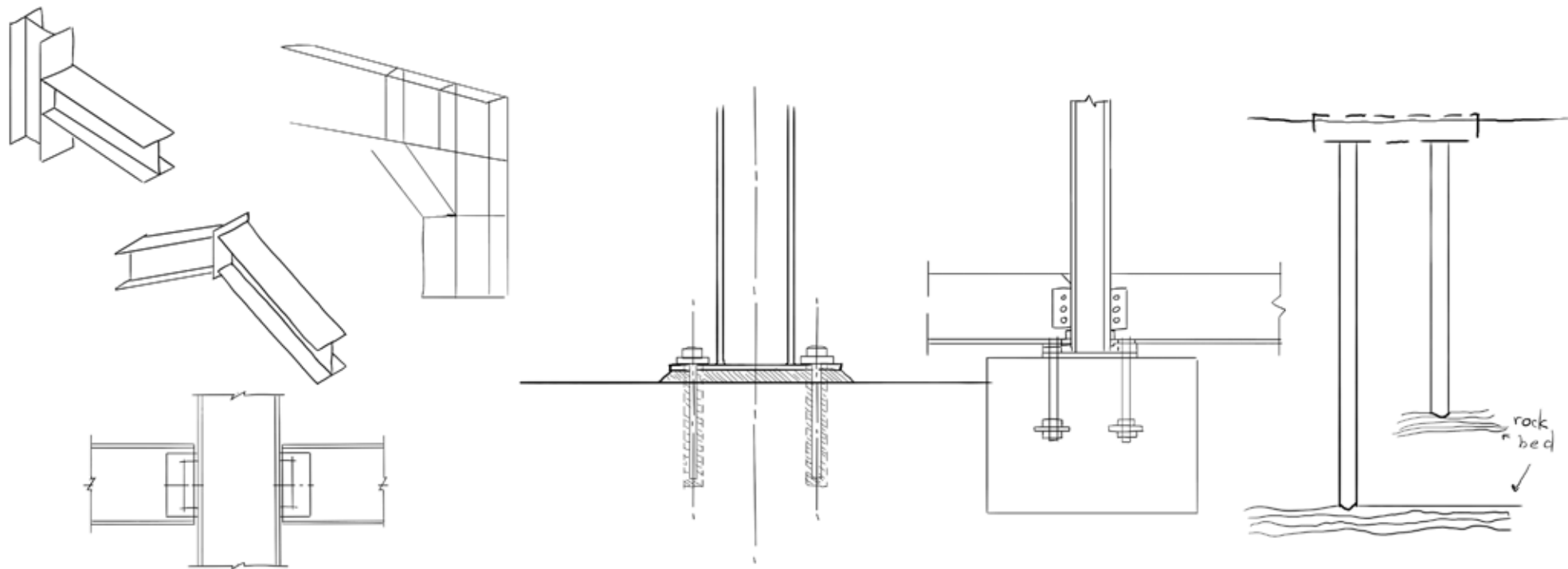


Figure 265, Details (author)

9.5. Water

The project's location, situated approximately 8 km outside the town of Garies, lacks access to municipal water. This arid region necessitates prudent water usage. Local farmers rely on boreholes, and because the crops have low water requirements, the primary water usage will be directed towards bathrooms and showers. A few strategically placed boreholes could suffice to sustain the facility. However, if a water shortage were to occur, water could be transported by truck.

Greywater, including runoff from sinks, showers, washing machines, and dishwashers, is a valuable resource for environmentally conscious and self-sustaining living. It can be repurposed for various on-site applications, although caution is warranted due to potential harmful bacteria. Repurposing greywater for toilet flushing helps conserve fresh water. It is suitable for non-edible plants.

For irrigation solutions a specialist is consulted.

9.5.1. Sewage

Proper sewage treatment is essential before disposal or reuse due to its high pathogen content. Septic systems use bacteria to break down waste and consist of four main components: a pipeline, a septic tank, a leach field, and soil filtration. While initial costs are high, well-maintained septic systems can last for decades with minimal maintenance.

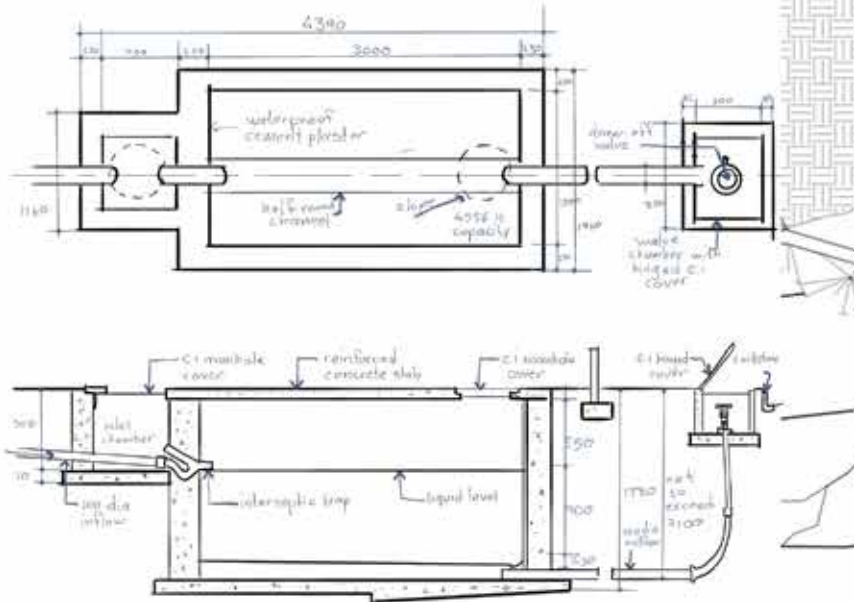


Figure 266, Septic tank (author)

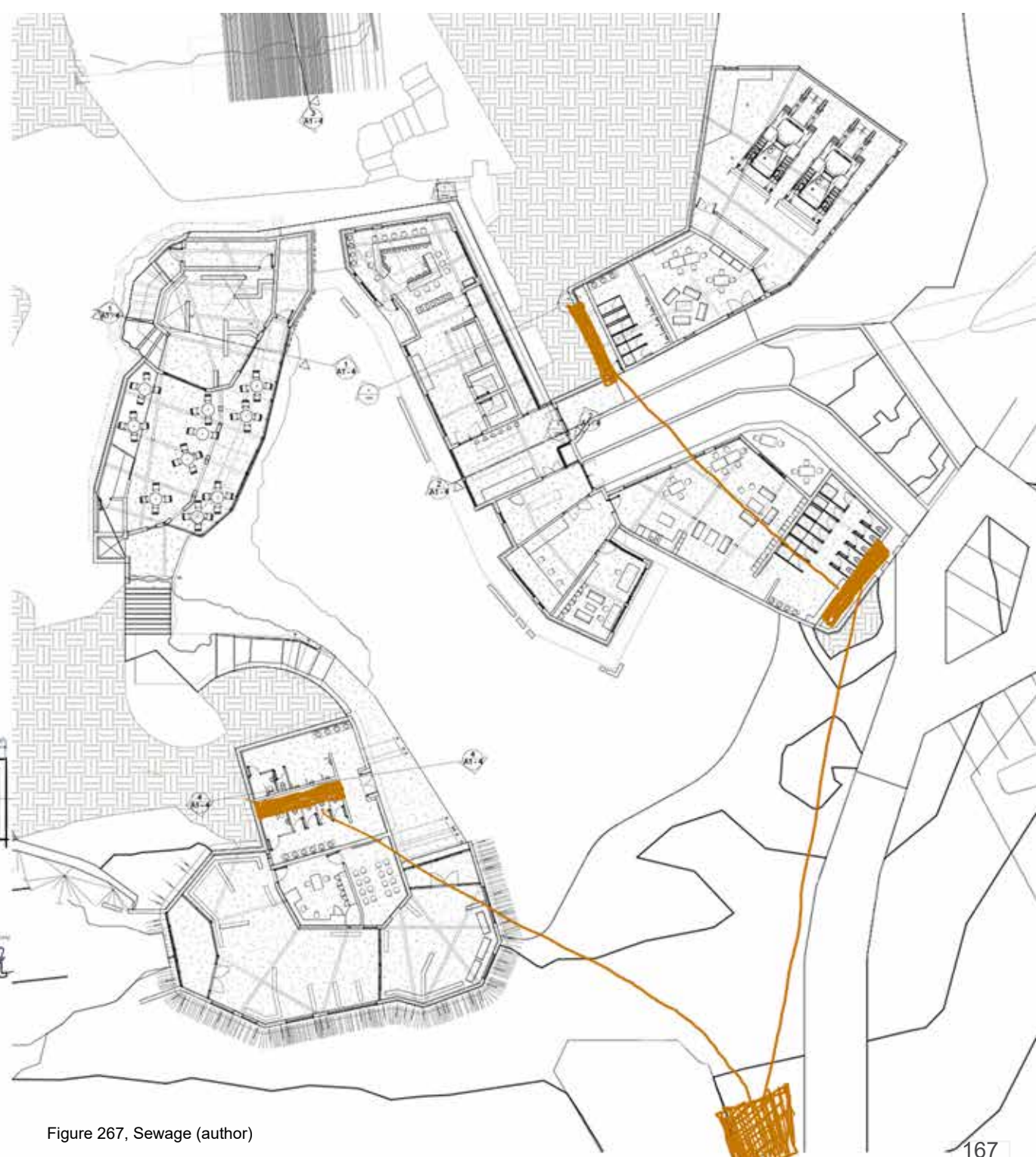


Figure 267, Sewage (author)

9.5.2. Borehole, Rain

Boreholes

Boreholes play a crucial role in agriculture by providing a consistent water supply, reducing water competition, and enabling precise water management for optimal crop yields. They also help mitigate the impact of droughts by tapping into underground aquifers.

Rainwater

Rainwater will primarily be absorbed by the soil and plants on the green roof and the surrounding arid soil. However, gutters and channels within the rocky terrain can direct water to a tank for various uses and irrigation.

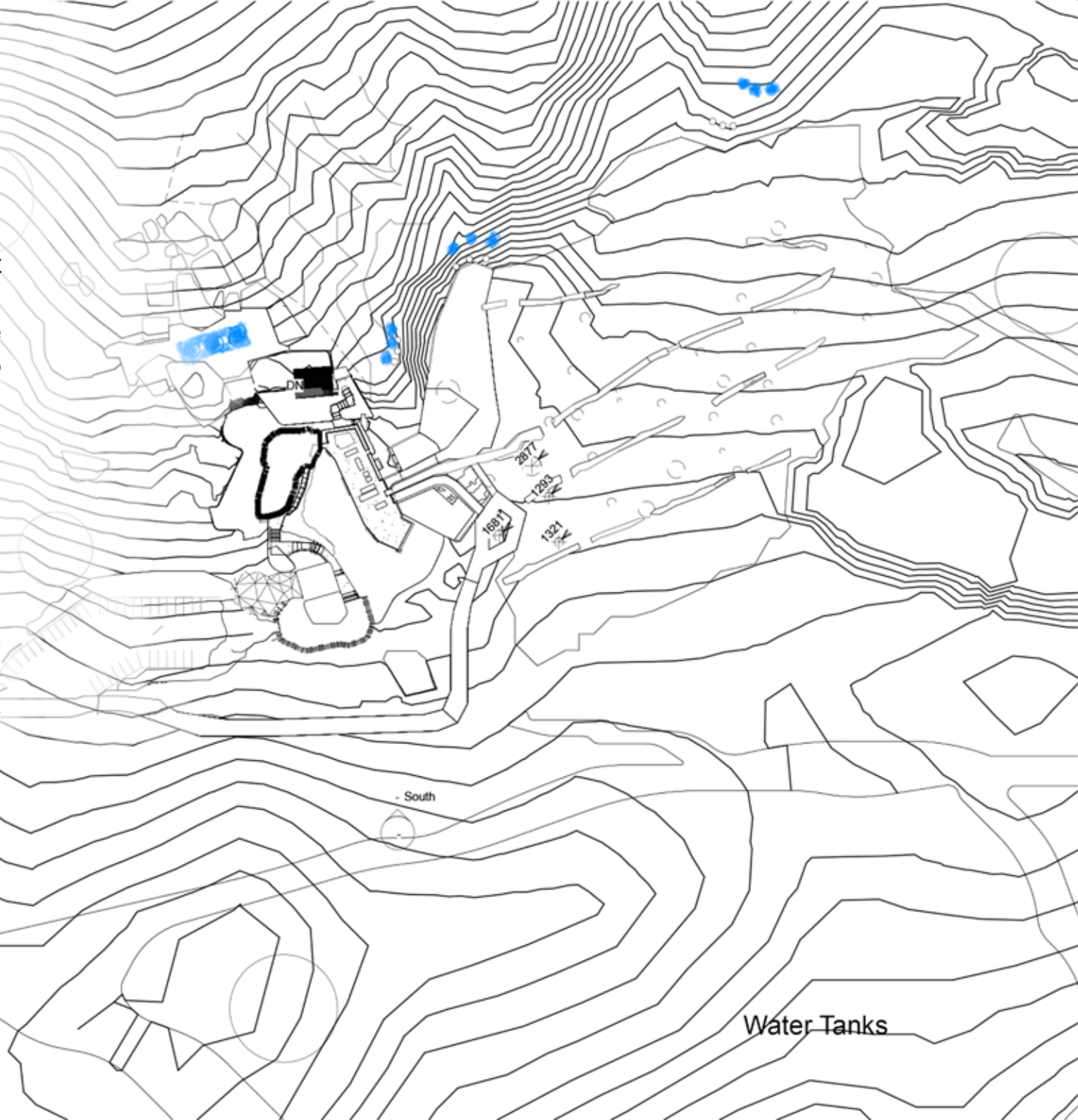


Figure 268, Water (author)

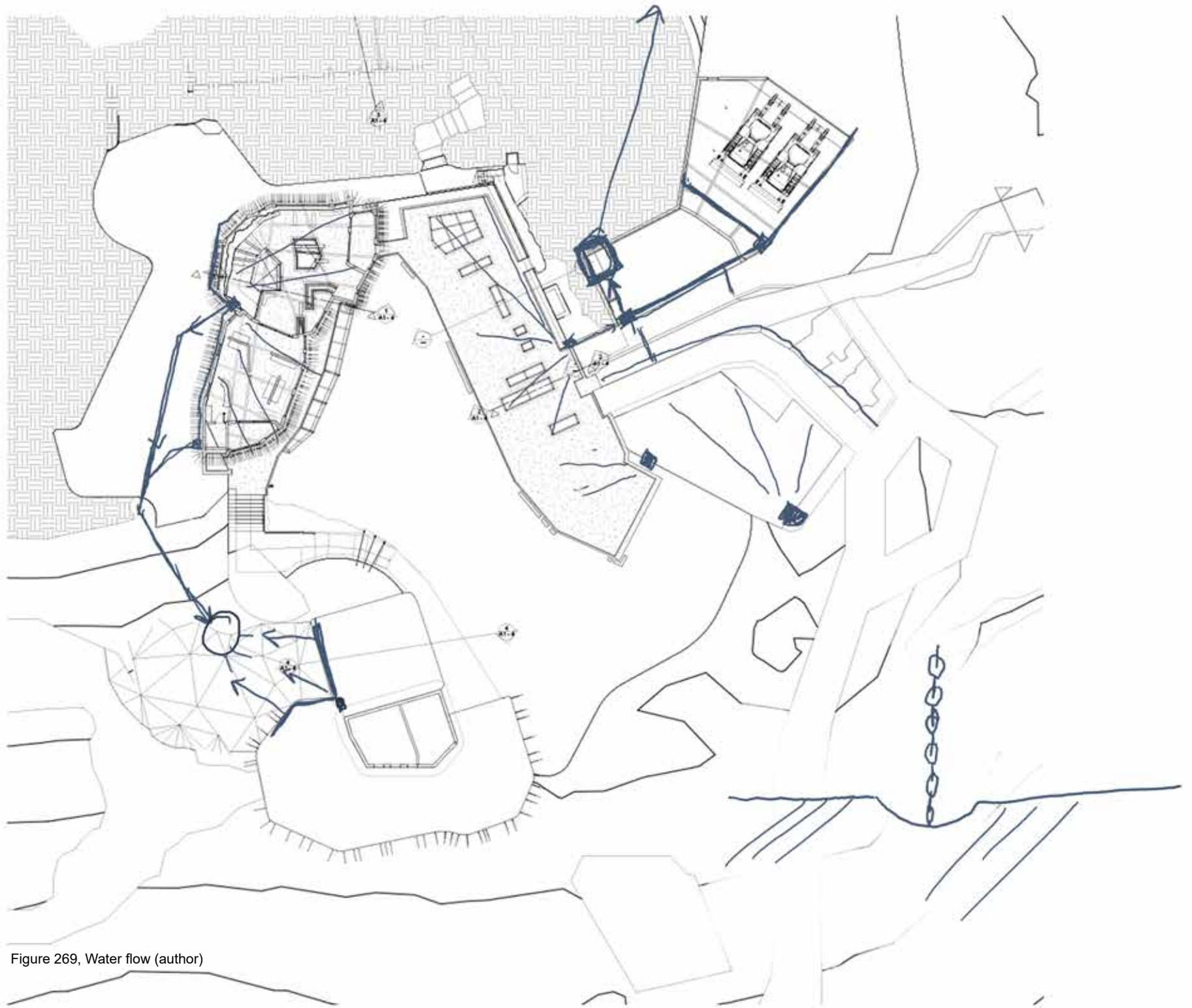


Figure 269, Water flow (author)

9.6. Electricity

The project does not have access to a municipal electricity supply, making PV (photovoltaic) solar systems ideal for the site. The transition to solar power offers cleaner and more reliable energy, reducing carbon emissions and environmental impact. Businesses, farmers, institutions, and households are increasingly adopting solar power to enhance financial stability and contribute to environmental sustainability in the face of climate change and limited energy resources.

PV solar panels harness sunlight to generate electricity in the form of DC (direct current). An inverter converts this DC power into AC (alternating current), which is compatible with household appliances and the grid. An electric panel then distributes AC power to circuits within the project, while surplus solar energy is stored in batteries for a consistent power

supply.

Proper solar panel positioning is crucial for optimal energy generation, necessitating an orientation facing north at an angle between 25 and 35 degrees in South Africa while avoiding shadow interference.

Given the use of temperature control systems and ovens in the project, a substantial PV system is required, estimated at around 30 kW. This would entail approximately 60 panels (500W each) and two 15 or 20-kWh batteries.

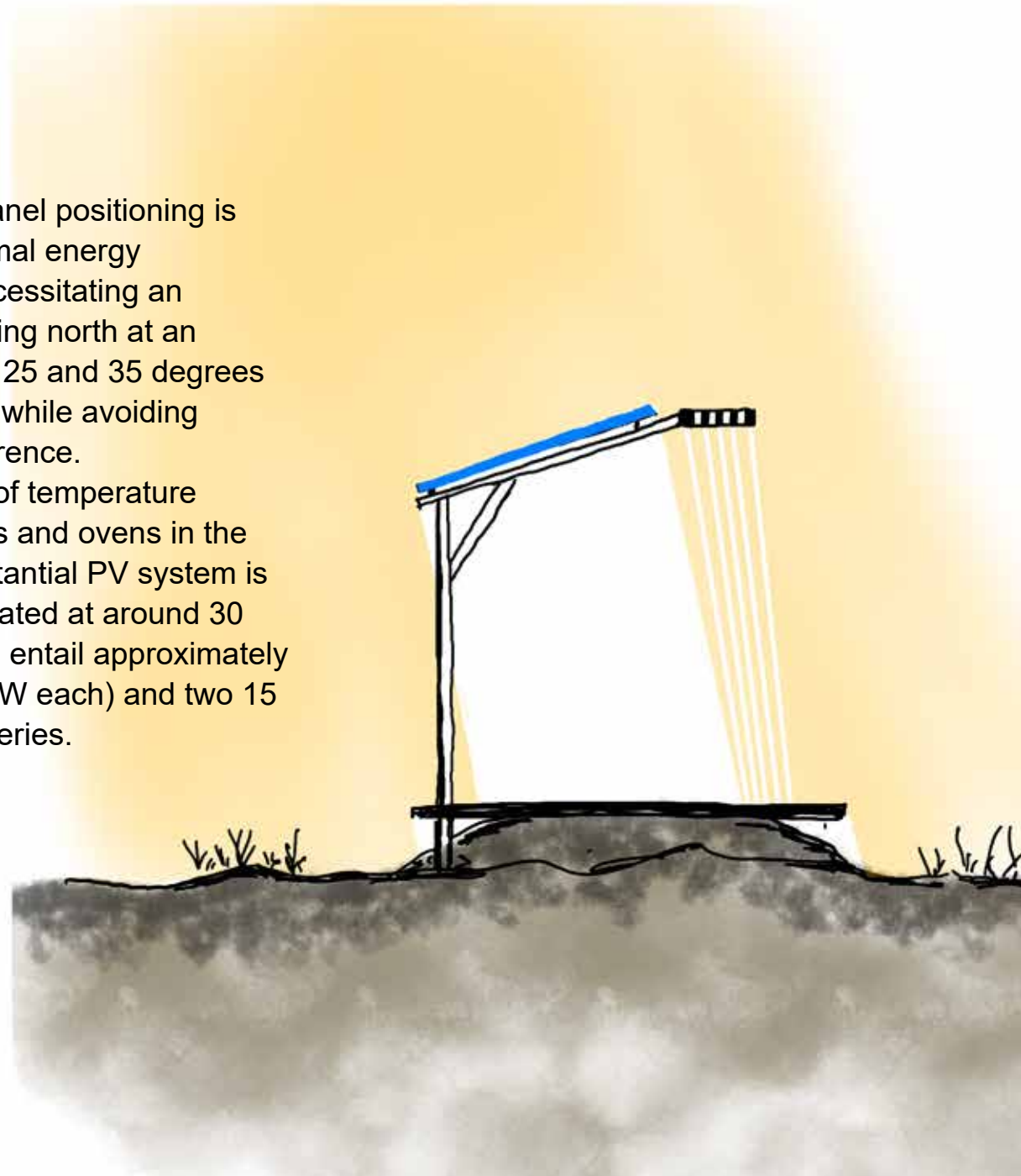


Figure 270, Solar shading (author)

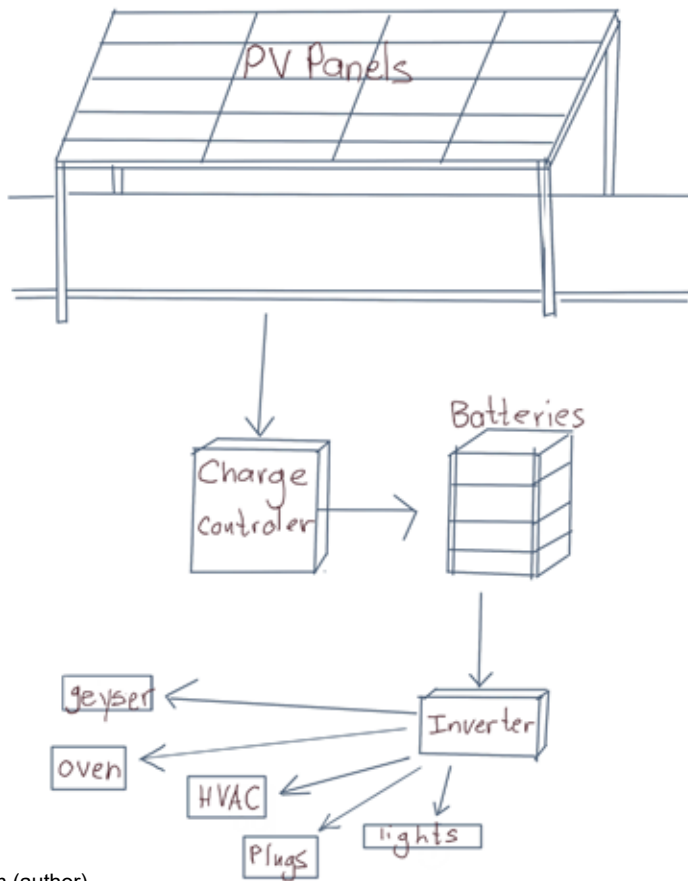


Figure 271, Solar system (author)



Figure 272, Electricity on ground floor (author)

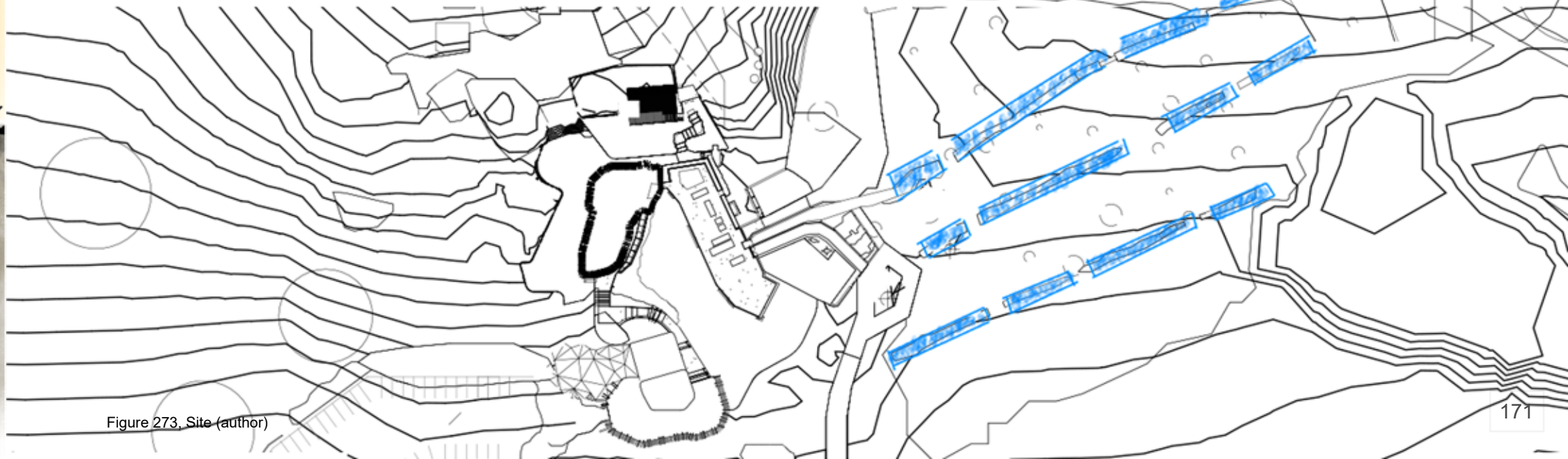


Figure 273, Site (author)

Chapter 10: Final Construction Drawings



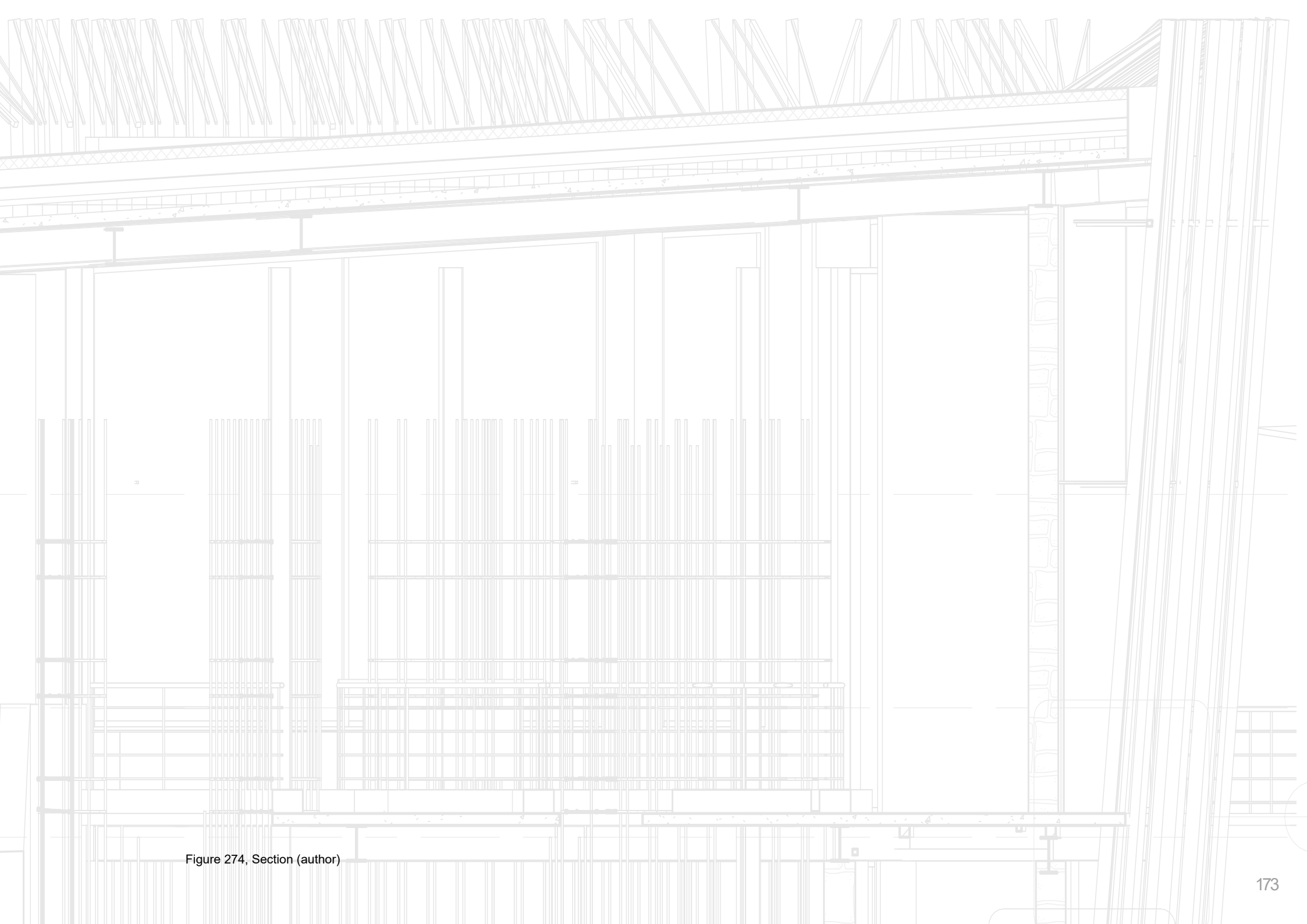


Figure 274, Section (author)

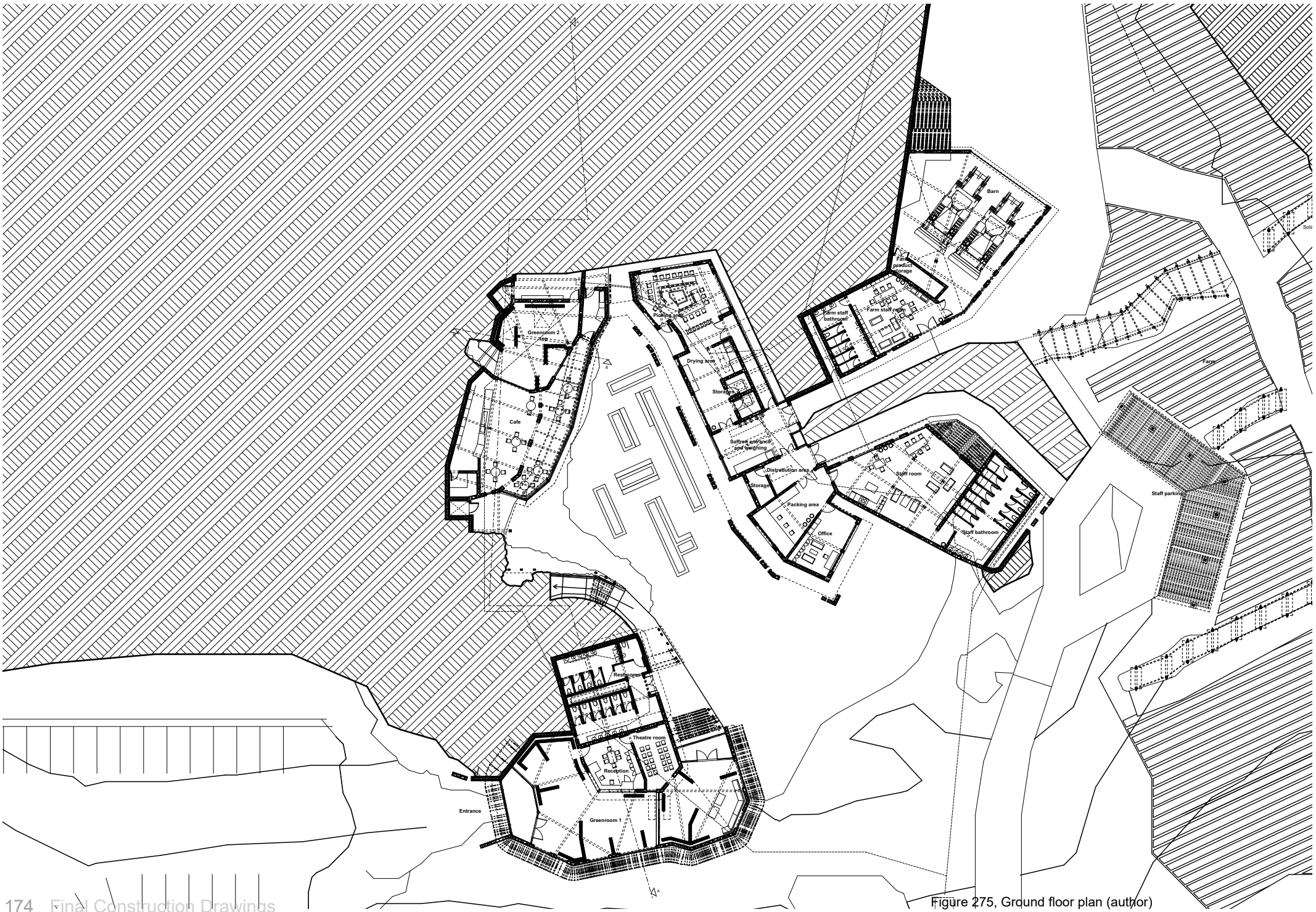


Figure 275, Ground floor plan (author)

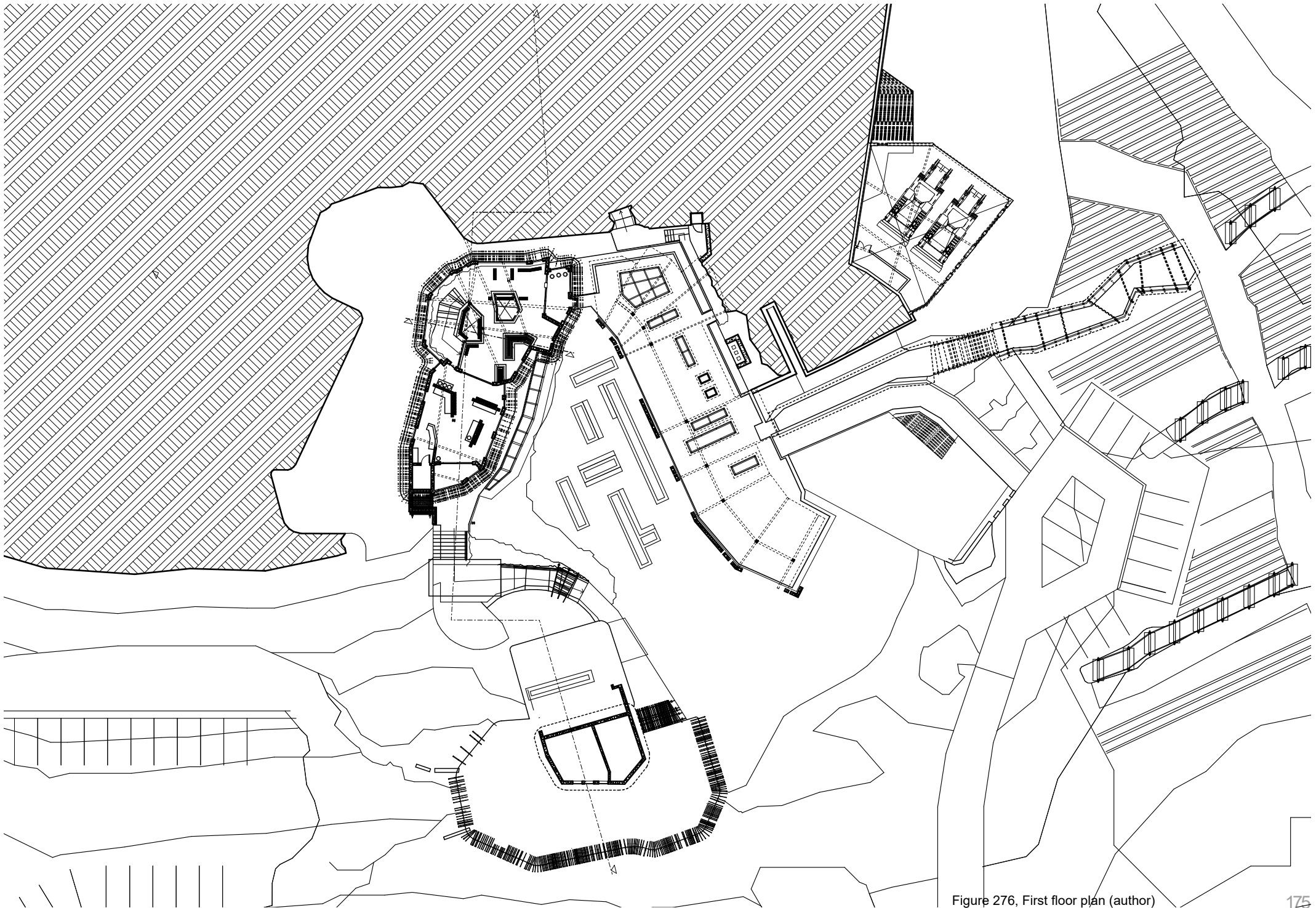


Figure 276, First floor plan (author)

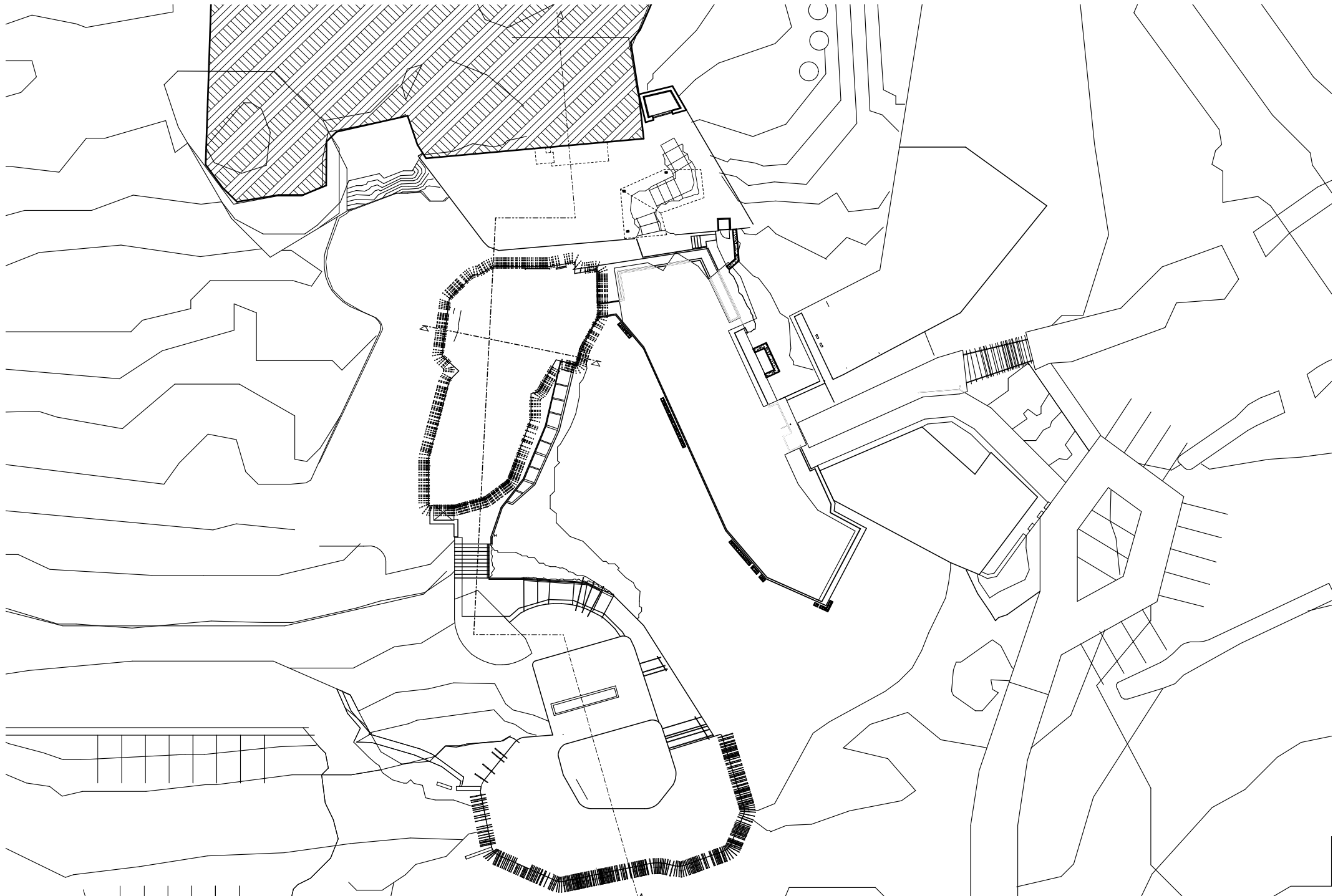


Figure 277. Second floor plan (author)

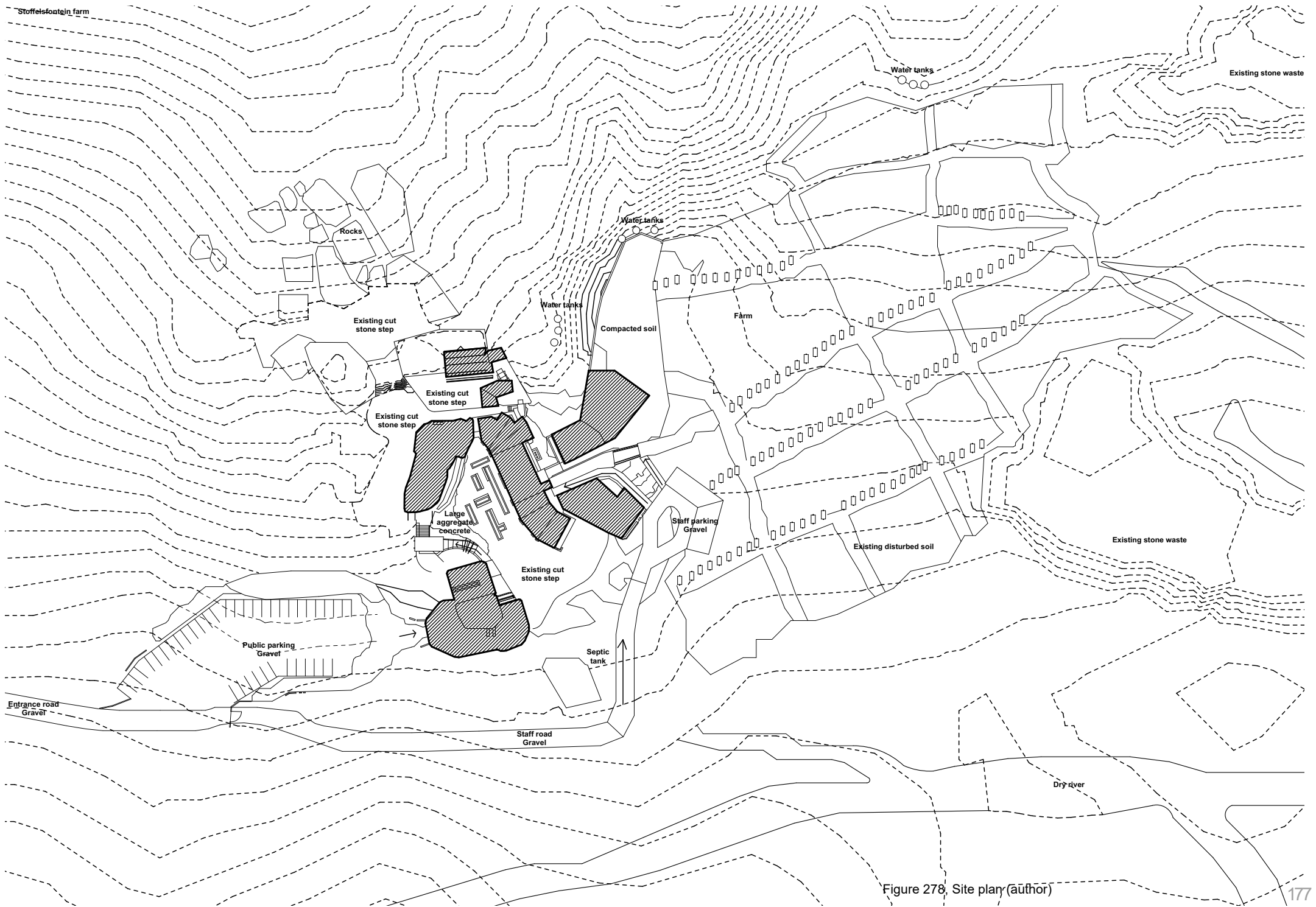


Figure 278. Site plan (aūthōr)

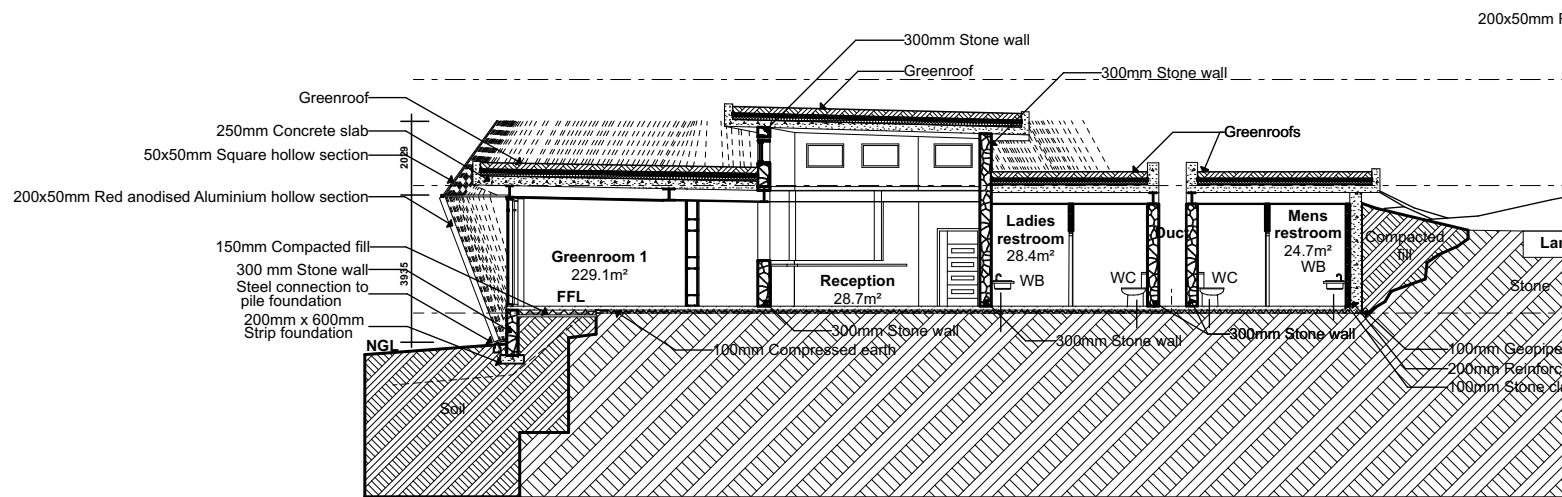
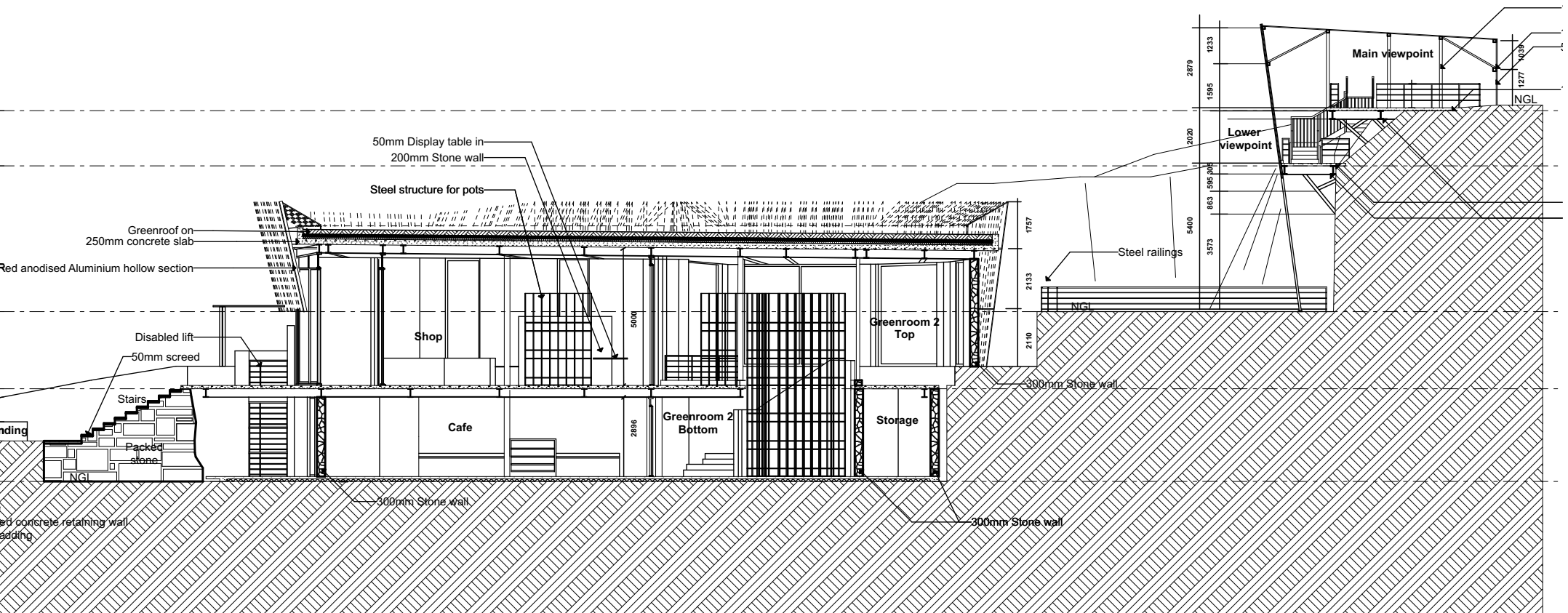
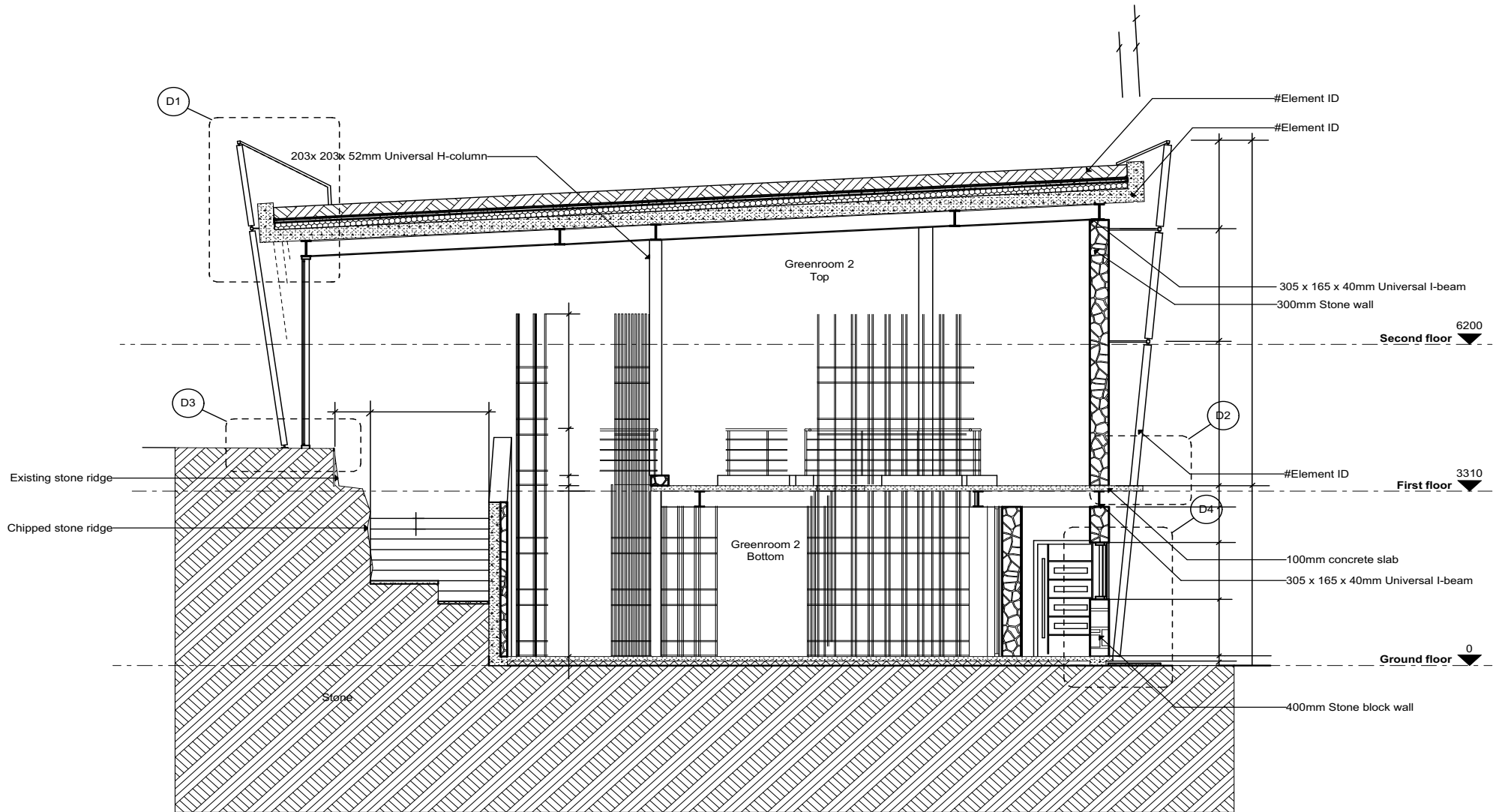


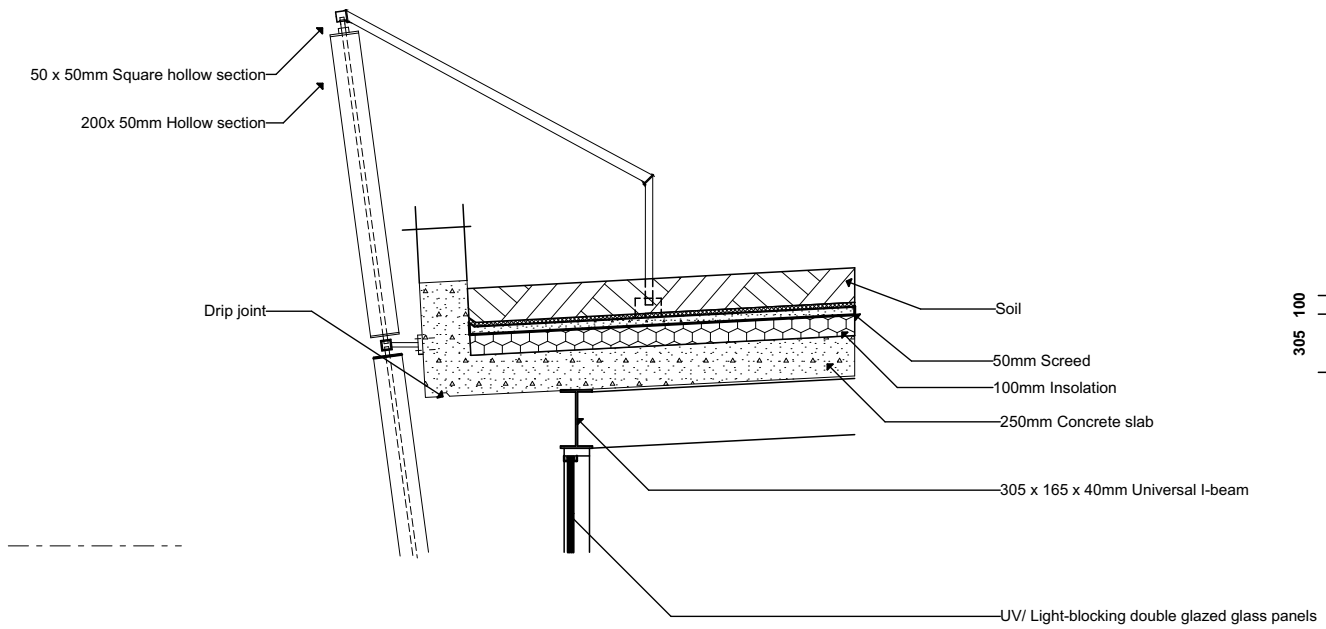
Figure 279, Section AA (author)



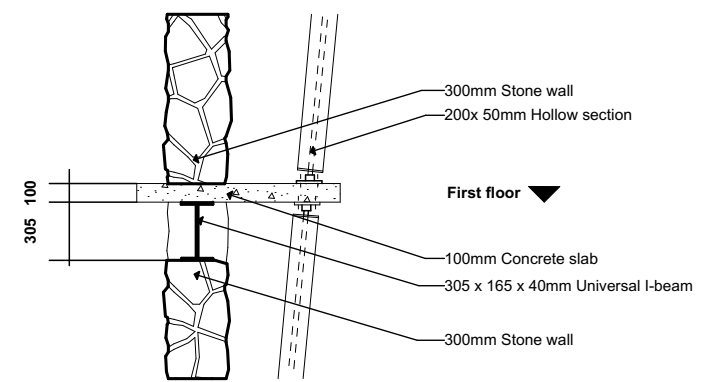


Section BB

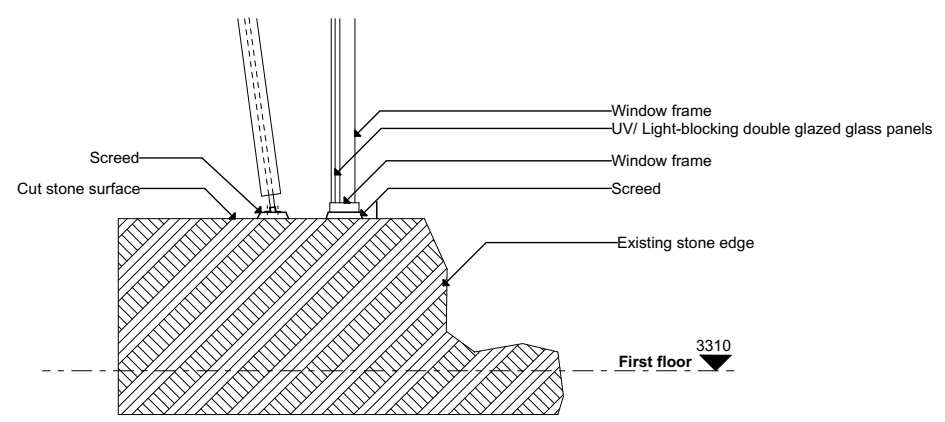
Figure 280, (author)



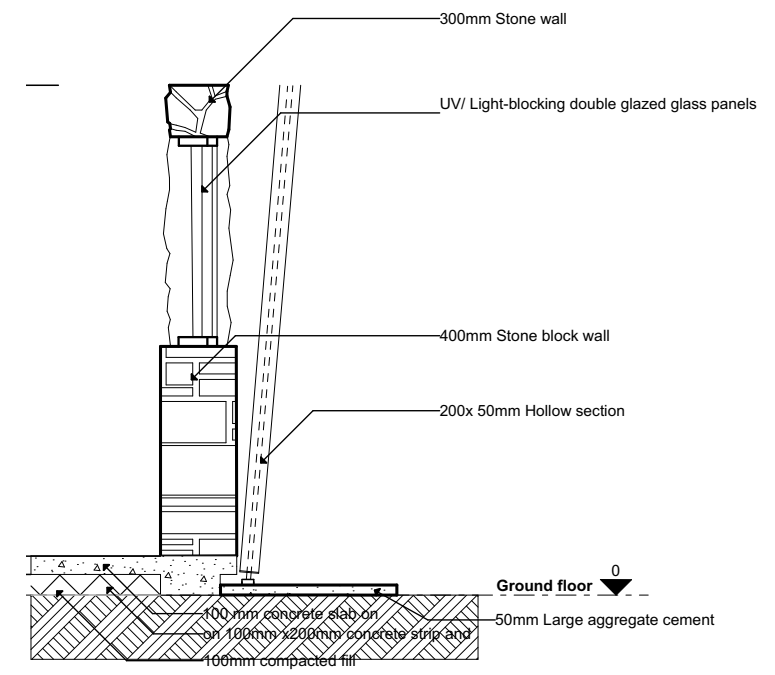
Detail section 1
Figure 281 (author)



Detail section 2 Figure 282 (author)




Detail section 3 Figure 283 (author)



Detail section 4 Figure 284 (author)




Chapter 11: Conclusion




The intricate dance of coexistence with nature is on a perpetual, delicate pendulum that seeks equilibrium. Our collective aspiration is for this pendulum to eventually find a state of rest. Achieving this equilibrium demands considerable effort, underpinned by heightened ecological consciousness and an overarching sense of empathy. It is imperative to acknowledge the significance of the human-nature relationship, a discourse that, while ongoing, has not yet reached a conclusive resolution. To make meaningful progress, it is important for all individuals to engage in continuous and empathetic efforts.

The essence of this document centres on the imperative of harmonious cohabitation with nature, urging us not to sever the vital connection that binds us to the natural world. It delves into the context of abandoned landscapes, envisioning the potential transformation of these spaces into farms and inviting venues for visitors. Within these contemplations, the document endeavours to elucidate the complexities inherent in post-industrial sites and the intricate web of ecological theories. These theories, it asserts, are not abstract concepts but have real-world applicability to our immediate environment, exerting an enduring influence on our daily lives.

Throughout this discourse, we have meticulously identified critical elements and fundamental needs, weaving them into the fabric of the design. The result is a remediated space where humans and nature coexist symbiotically, fostering mutual benefit and rejuvenation. While it is essential to recognise that there is no singular solution for the environmental challenges confronting us in both the constructed environment and our daily routines, we can build forward through the pillars of awareness, interconnectedness, and empathy. These values serve as the bedrock upon which design remediation, revitalisation, and rehabilitation can thrive, ensuring a harmonious and sustainable future for all.



Chapter 12: Reflection



Navigating topics like awareness, empathy, and sustainability posed particular challenges during this endeavour. It was imperative for me to carefully explore the potential directions to which these concepts could lead, as their impact on the field of architecture is profound. The realm of possibilities for designing a project of this nature is virtually limitless. However, through the difficulties of incorporating humanity without being too forceful, I believe I have successfully produced a space that embodies a harmonious cohabitation between humanity and nature that seeks to cultivate awareness and empathy, ultimately influencing how we approach design. While my focus has been on architects' role in this paradigm shift, I firmly believe this mindset should extend beyond our profession.

It may seem ambitious, but its significance must be recognised. I maintain a sense of optimism in humanity's capacity to embrace this transformative way of thinking. Progress is often incremental, and taking even a single step in the right direction brings us closer to a more balanced and sustainable future than we were before.

Chapter 13: Reference List



Figure 287, Site ground textures (author)

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