

The conceptual approach of water 5

5.1 Introduction

The phenomenological taken towards water in this project may lead to a better understanding of its potential as a resource. The phenomenology of water's spatial characteristics explained in the previous chapter refers to water as one of four aspects in architecture: the point, which represents gathering; the line, which acts as the source of power; the pool, which refers to a place of culture and reflection; and the edge, which is a place of restrictions and imagination. The spatial experience of the productive landscape, aquaponics and public natural swimming pool for recreational activities proposed for the excavated Pretoria Works sedimentation dams is influenced by these spatial phenomenological qualities of water.

For the design, these qualities have formed a tool to capture the intangible qualities of water (see figure 5.2) where points, lines, surfaces (pools) and margins (edges) are found in natural places through hand sketches. The reason for capturing these spaces with hand sketches instead of geographical mapping is because natural experiences cannot be reduced to a physical object that can be measured or analysed through geographical mapping, as people relate to their environment through senses and emotions.

These experiences contribute to the physical qualities of a space that has sensual and perceptual value, thereby enhancing intangible qualitative connotations that are in contrast with geographical mapping, and which presents tangible and quantitative information (Pellitero 2011:62).

The spatial characteristics of water presented in the hand sketches (see figures 5.3-5.20) capture individuals' personal exposure to a few natural water spaces. These spaces (i.e. the site-specific spaces in the landscape and the rich qualities of the Highveld region) work together to create site-specific design nodes.

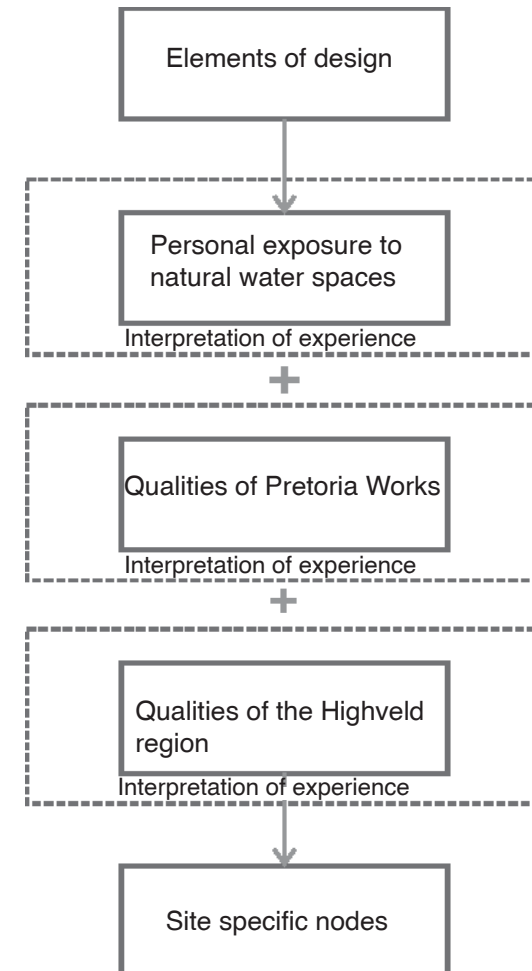


Fig 5.2 Conceptual approach diagram for Pretoria Works (Author 2018)

Personal exposure to natural water spaces ■

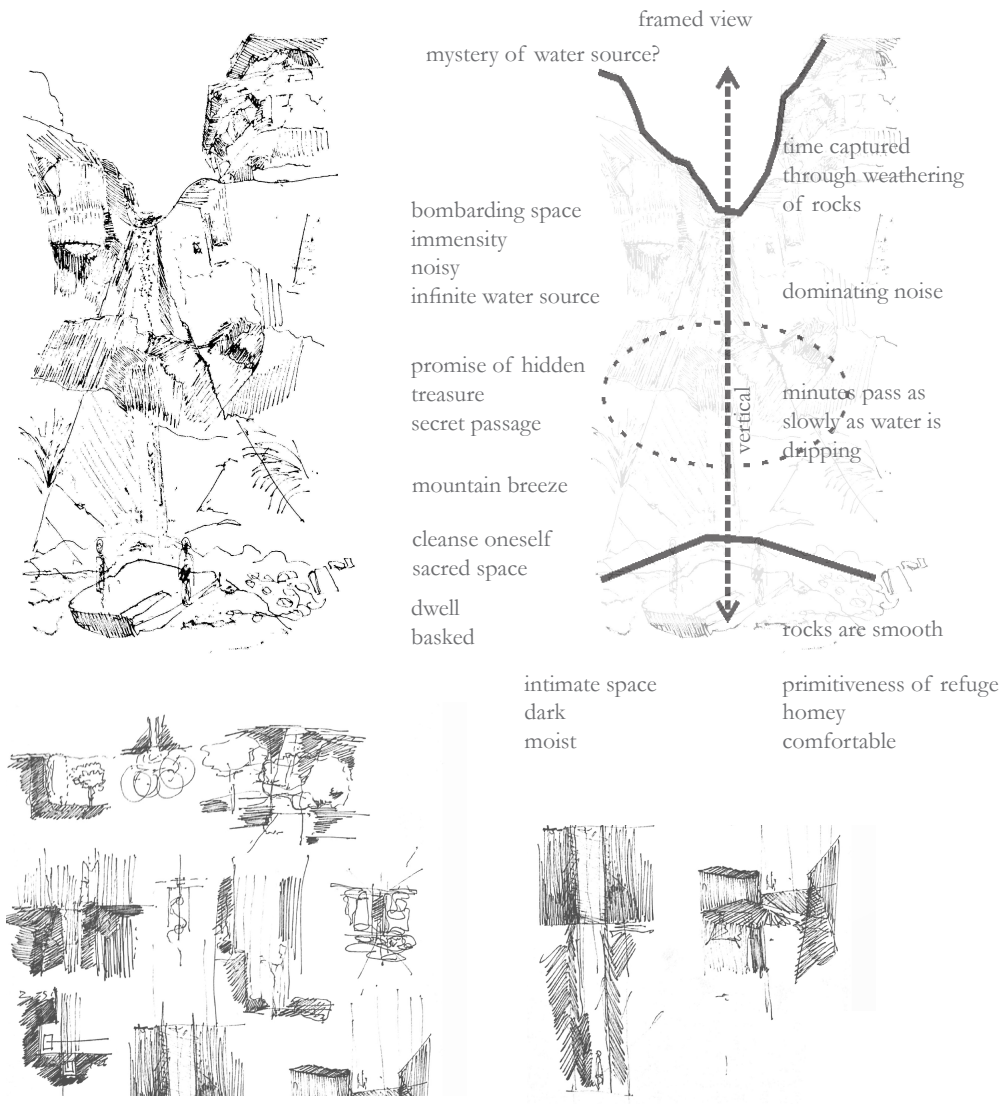


Fig 5.3 South Drakensburg: Onyx Cave (Author 2018)

Qualities of Pretoria Works

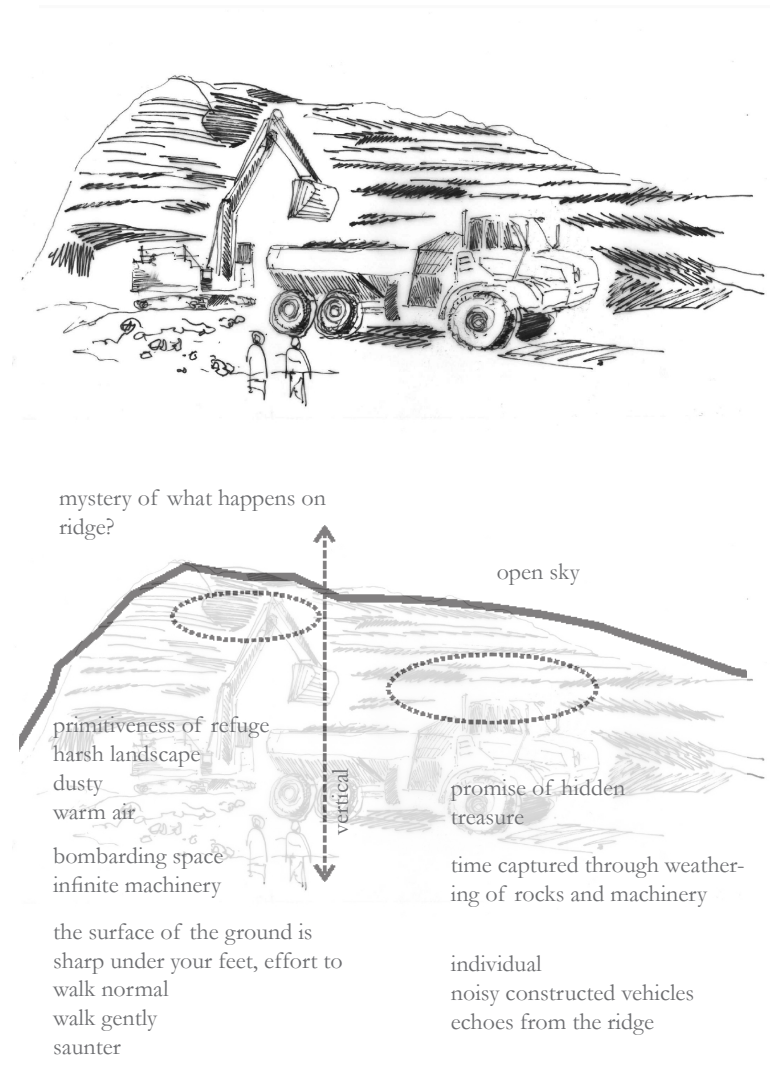


Fig 5.4 Pretoria Works Quarry: Rehabilitated ridge (Author 2018)

Personal exposure to natural water spaces

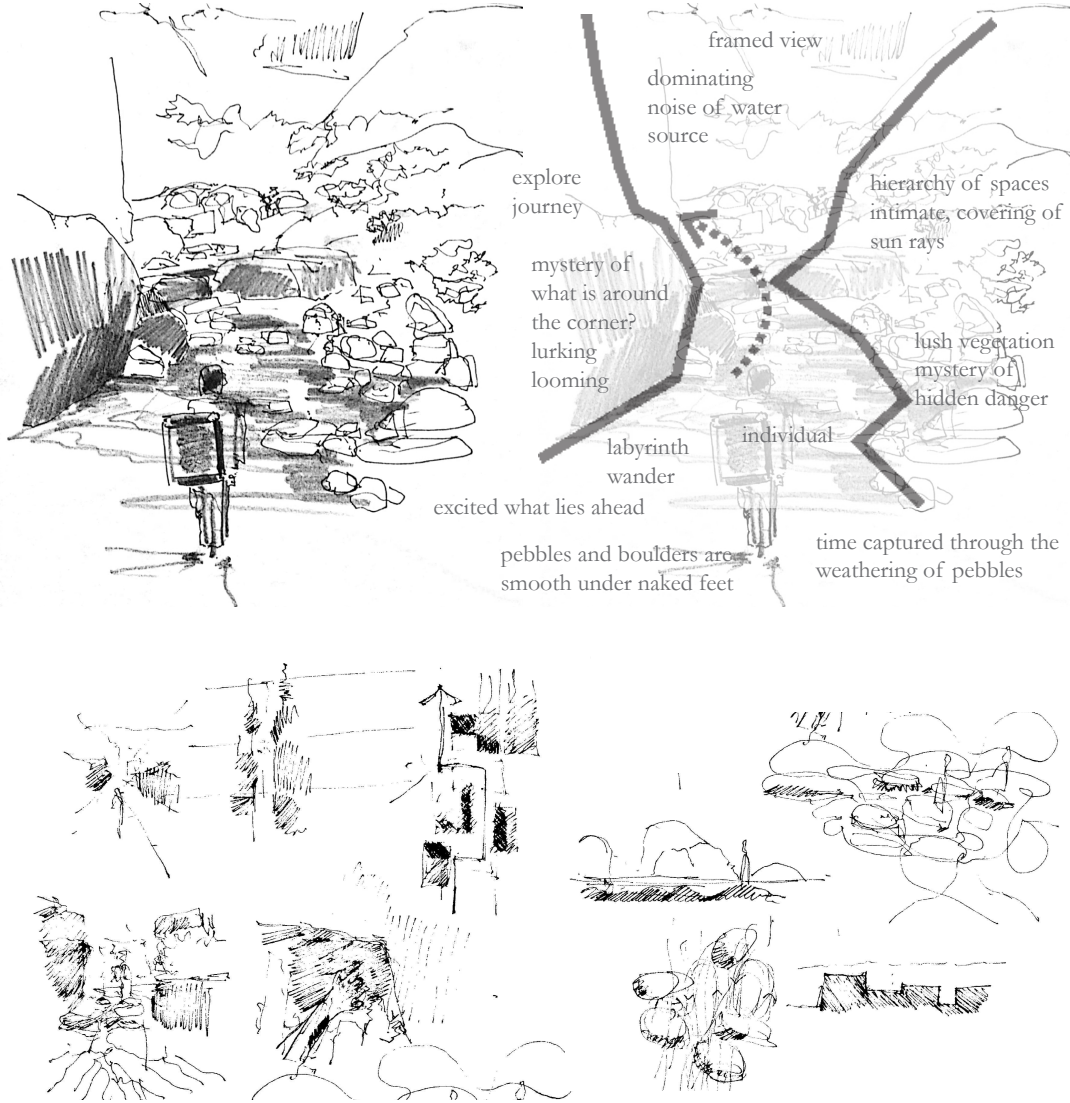


Fig 5.5 South Drakensburg: natural stream (Author 2018)

Qualities of Pretoria Works

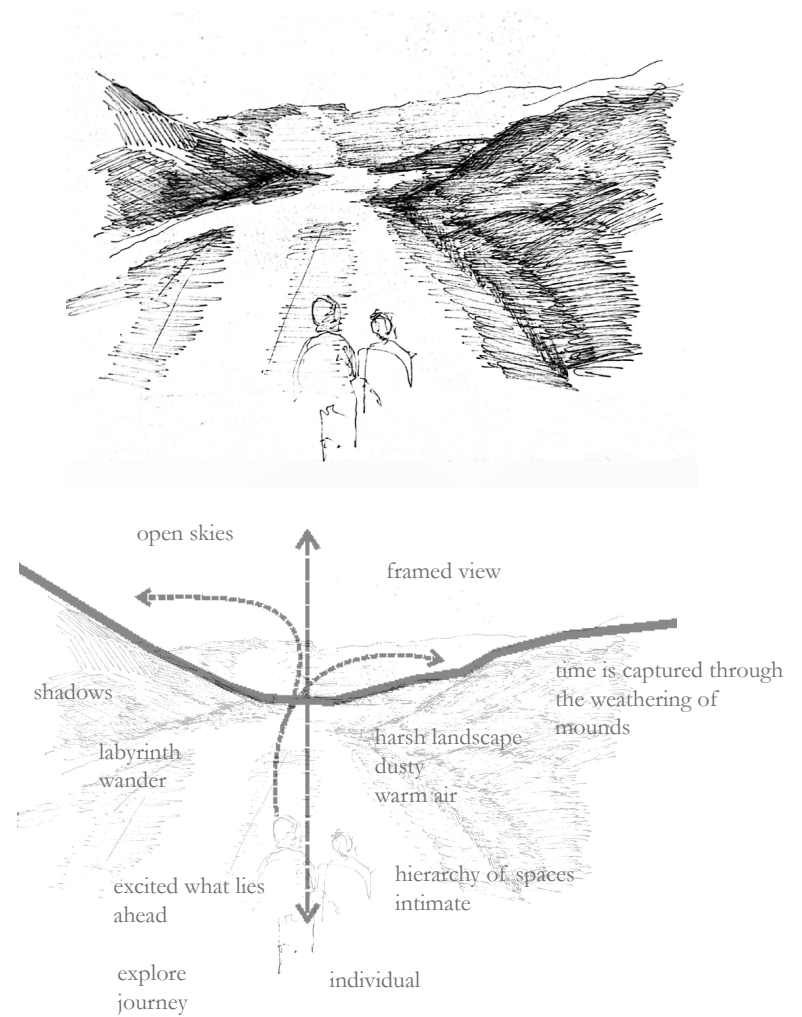
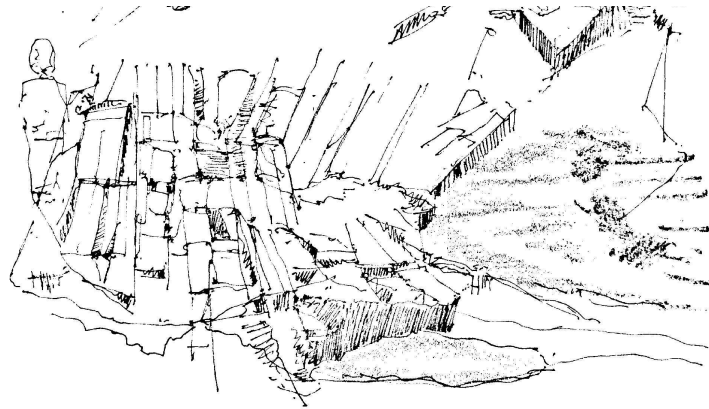


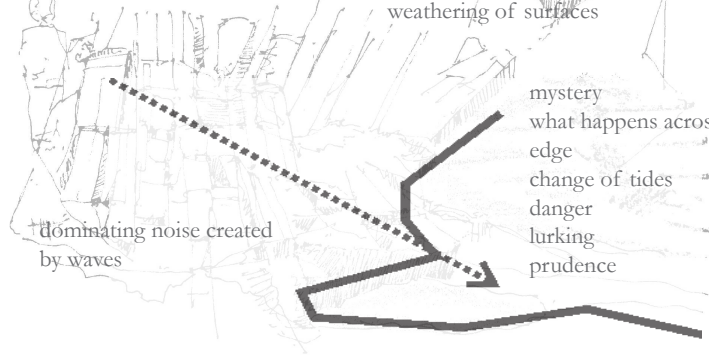
Fig 5.6 Pretoria Works Quarry: view between mounds (Author 2018)

Personal exposure to natural water spaces



open space, yet feels alone
wandering
thinking of the essence of life
start to imagine what if?

view over ocean
viewing sails of far ships
time captured through
weathering of surfaces



dominating noise created
by waves

mystery
what happens across the
edge
change of tides
danger
lurking
prudence

the surface of the weathered rocks
are sharp under naked feet
effort, to walking normal
walk gently
saunter

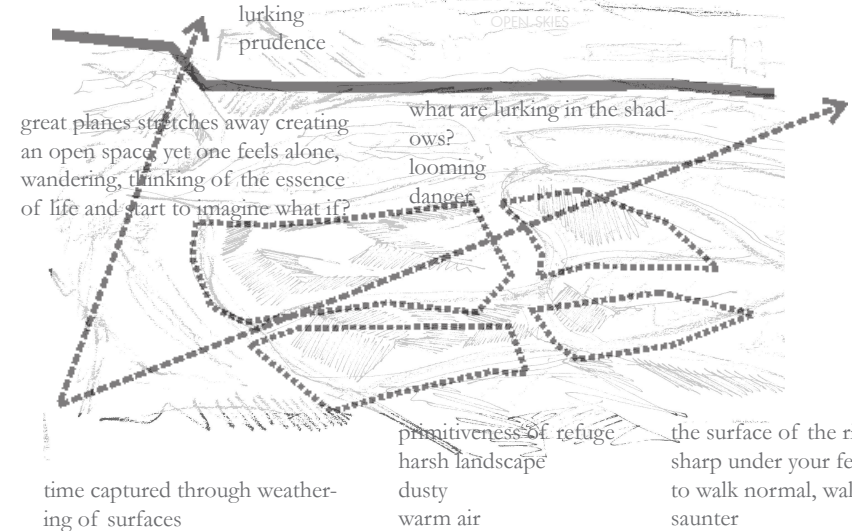
Fig 5.7 Cape Vidal Nature Reserve: Mission Rocks (Author 2018)

Qualities of Pretoria Works



mystery, what is hidden across the
ridge?
danger
lurking
prudence

views over Pretoria
viewing roofs of far buildings



great planes stretches away creating
an open space, yet one feels alone,
wandering, thinking of the essence
of life and start to imagine what if?


what are lurking in the shad-
ows?
looming
danger

time captured through weather-
ing of surfaces

primitiveness of refuge
harsh landscape
dusty
warm air

the surface of the ridge is
sharp under your feet effort
to walk normal, walk gently,
saunter

Fig 5.8 Pretoria Works Quarry: view from the top of the ridge (Author 2018)

Personal exposure to natural water spaces 

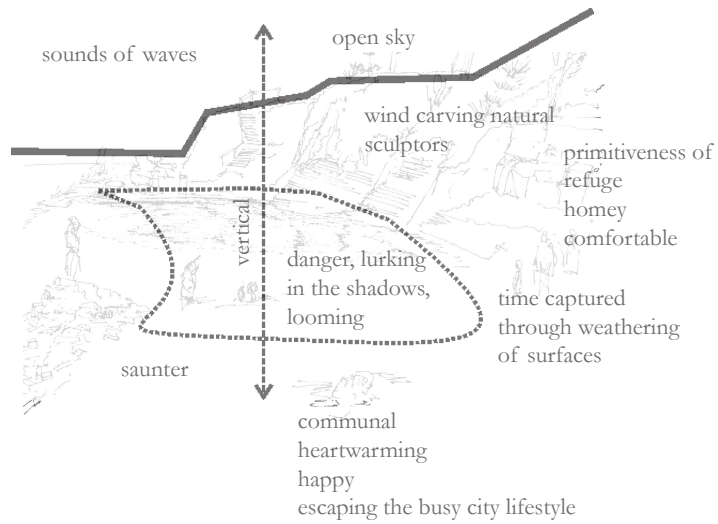
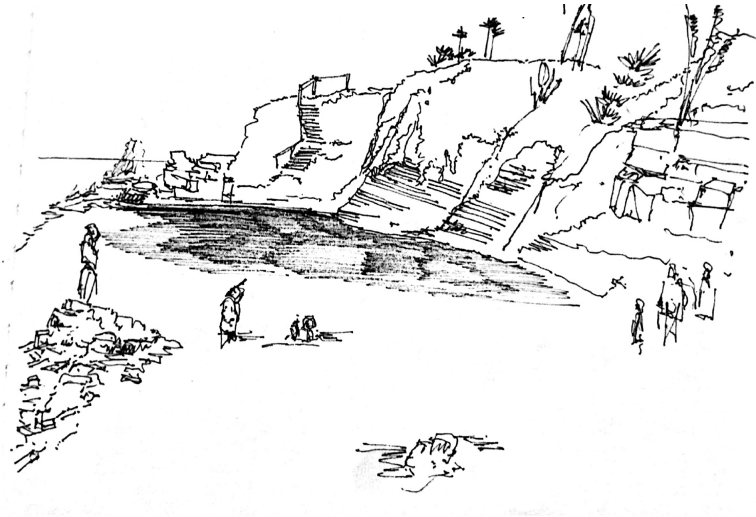


Fig 5.9 Salt Rock: tidal pools (Author 2018)

Qualities of Pretoria Works

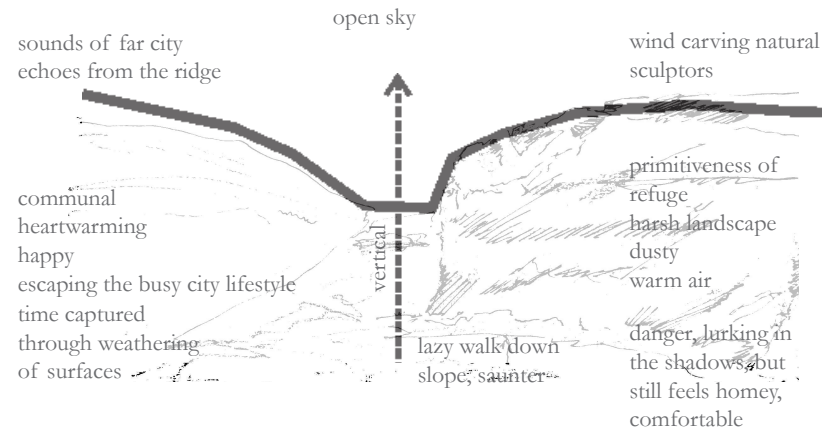
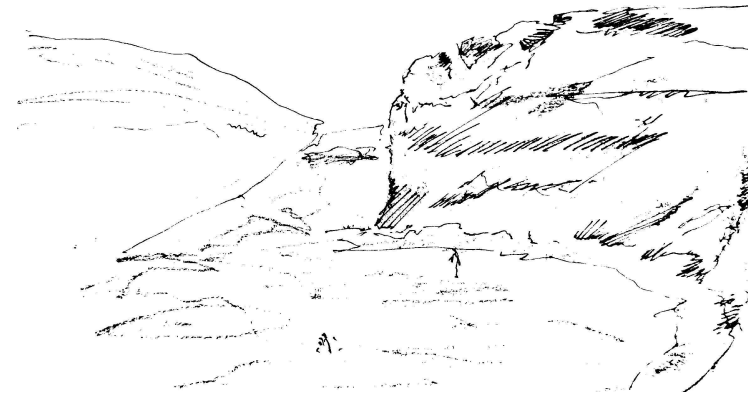
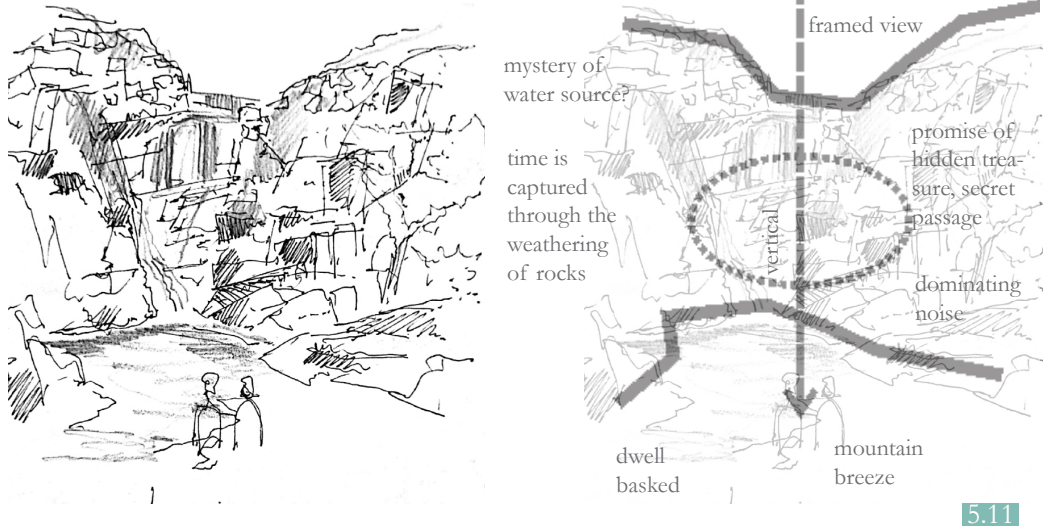


Fig 5.10 Pretoria Works Quarry: ridge (Author 2018)

Qualities of the Highveld region ■



Qualities of the Highveld region ▨

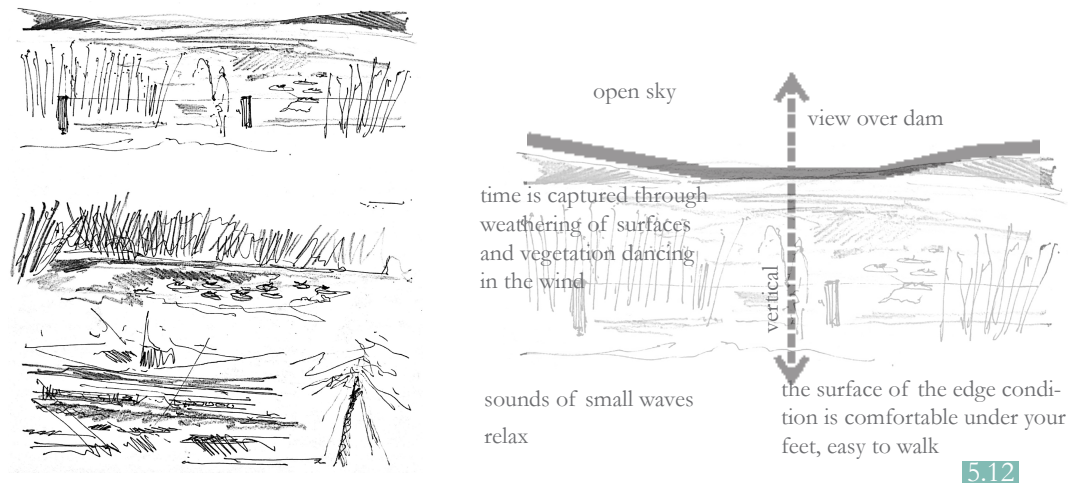
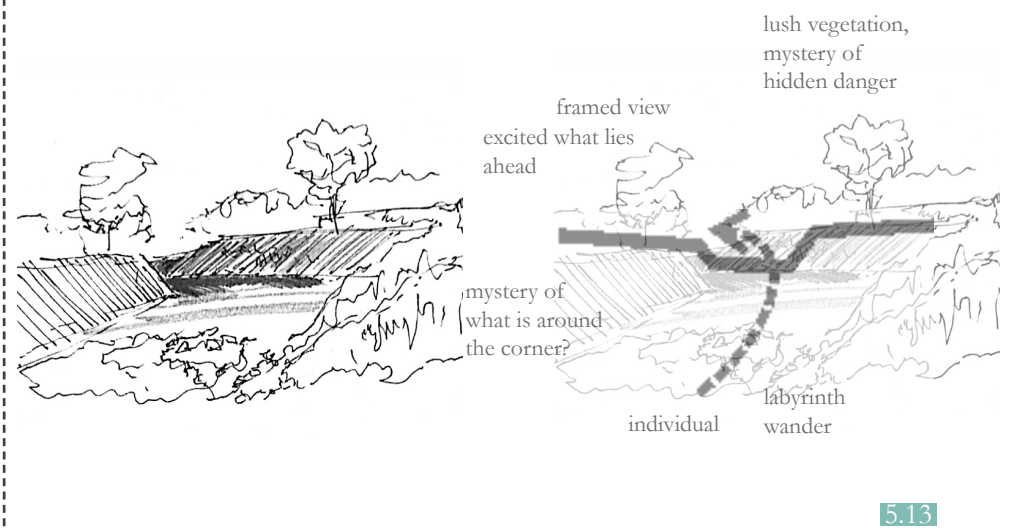


Fig 5.11 Walter Sisulu National Botanical Garden: waterfall (Author 2018)
 Fig 5.12 Rietvlei Dam Nature Reserve: view over dam (Author 2018)

Qualities of the Highveld region —



Qualities of the Highveld region ▨

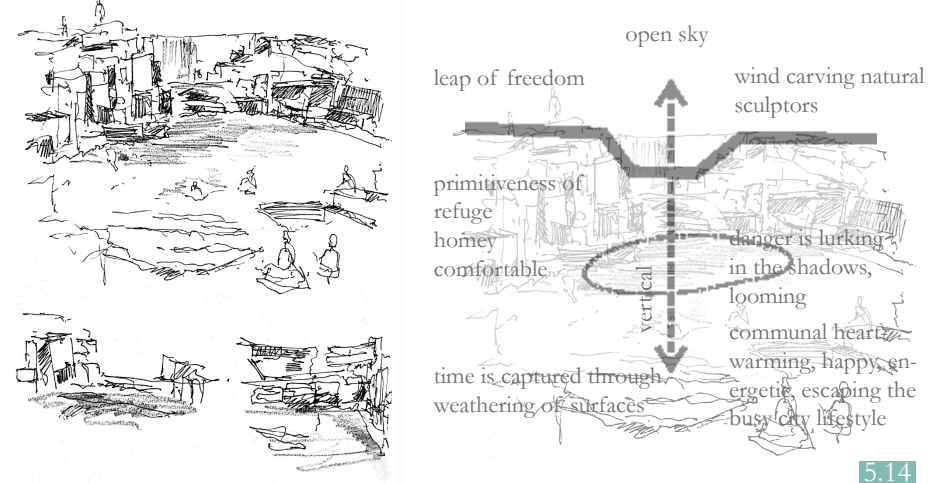


Fig 5.13 Canalized Apies River (Author 2018)
 Fig 5.14 Nkwe Pleasure Resort: swimming node (Author 2018)

Qualities of the Highveld region



5.15

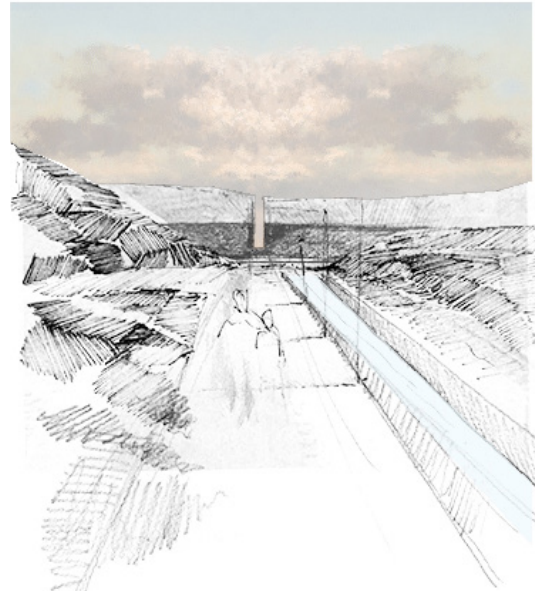


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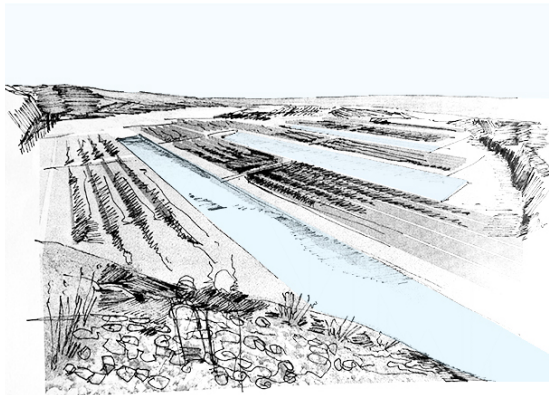
Site specific nodes



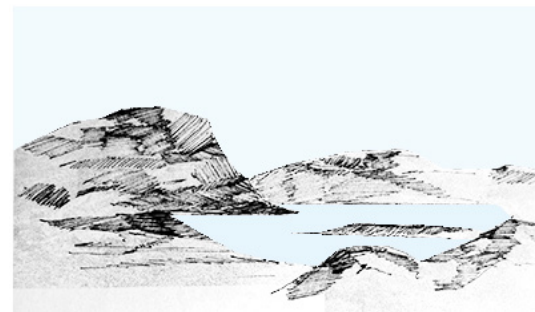
■ Point of gathering 5.17



— Line as the source of power 5.18



▨ Margin of reflection 5.19



▨ Surface of mystery 5.20

Fig 5.17-Fig 5.20 Site specific nodes (Author 2018)

5.1.1 The matrix of spaces guided by the conceptual approach

The site-specific design nodes have guided certain spatial qualities for each place within the design and are summarised in the following 'matrix of spaces':

5.2 Design development

The design has been developed with the use of free-hand sketches, sketch plans, sections and model iterations, which are presented in the following figures 5.22-5.59.





Matrix of spaces				
Phenomenologies of water	 Point of gathering	 Line as a source of power	 Margin of reflection	 Surface of mystery
Purpose	Gathering spaces	Controlling waters power	Reflection (view)	Swimming & Leisure
Event	Fascination	Irrigation & aquaponics	Mysterious	Indulge
Activities	Diverse gathering spaces	Connections & production systems	Views over site & Pretoria City	Swimming (storm water harvesting)
Movement	Pause & wander	Moderate & directional	Pause & wander	Slow to Fast
Material	Excavated	Excavated (terraced)	Fill (mounds)	Excavated (terraced)
Light	Filtered & bright	Open & bright	Open & bright	Filtered & bright
Sound	Bubbled voices	Silent	Silent & Amazed	Loud & splashing

Fig 5.21 Matrix of spaces (Author 2018)

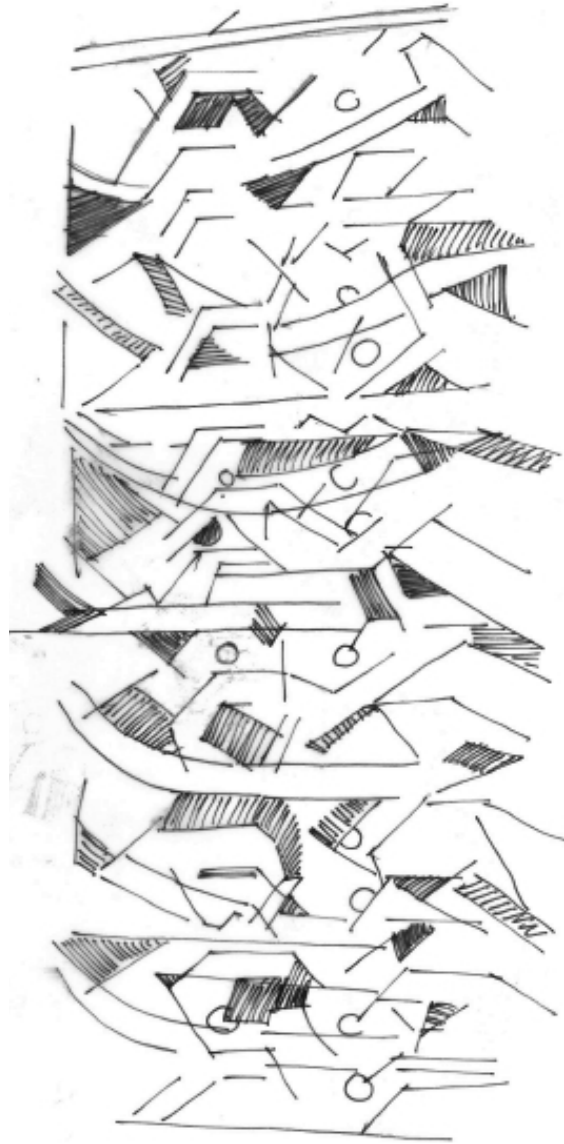


Fig 5.22 Conceptual free hand sketch of the matrix of spaces on plan format (Author 2018)

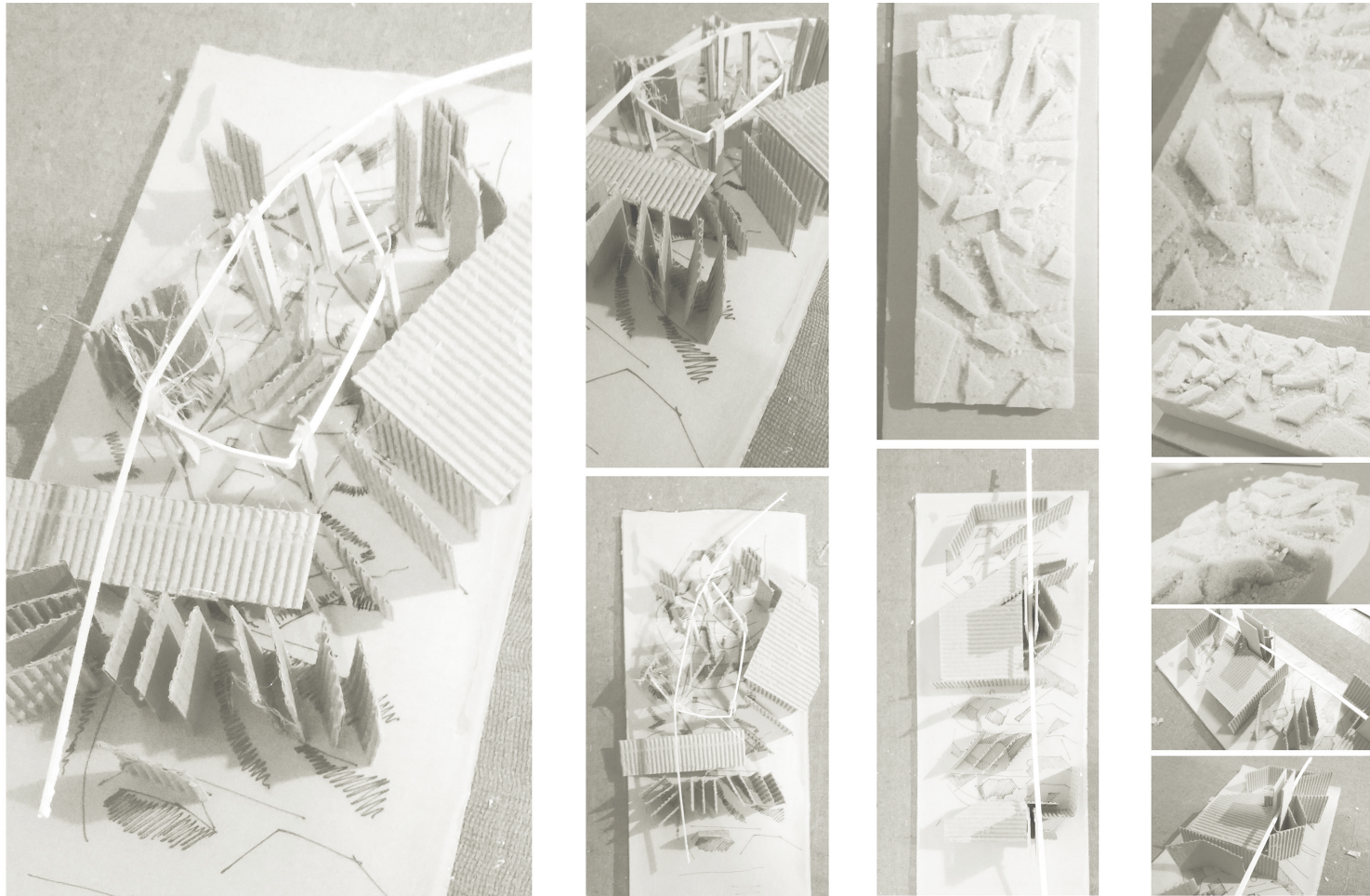
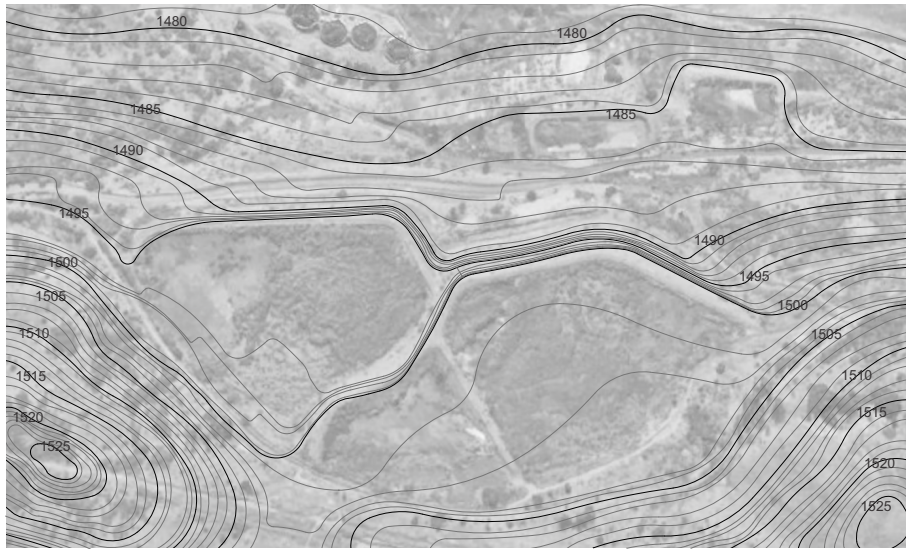


Fig 5.23 Conceptual models of the matrix of spaces (Author 2018)



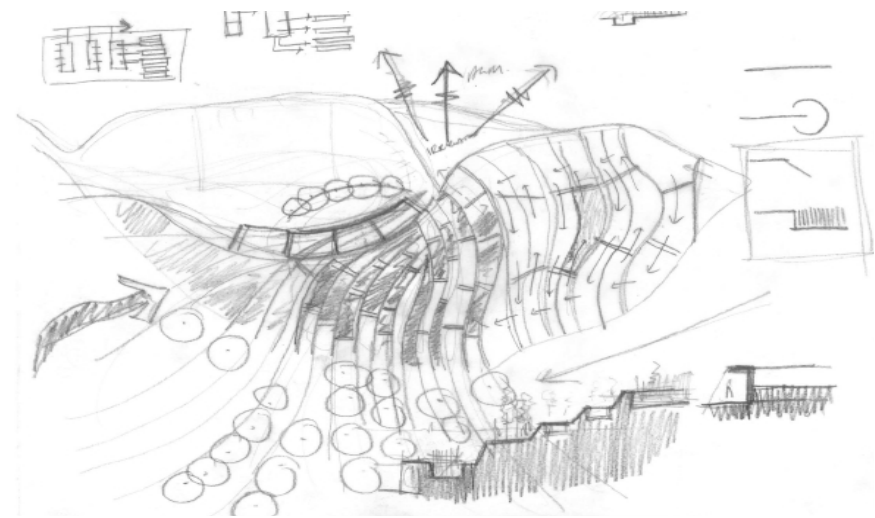
Fig 5.24 Conceptual free hand sketch of the matrix of spaces on plan format, influenced by models (Author 2018)



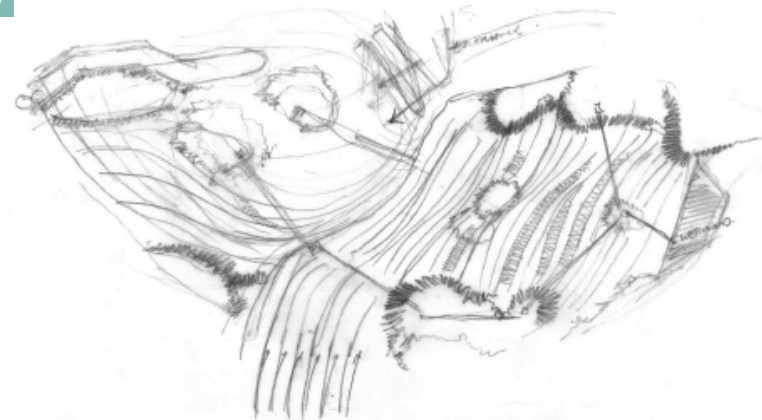
5.25



5.26

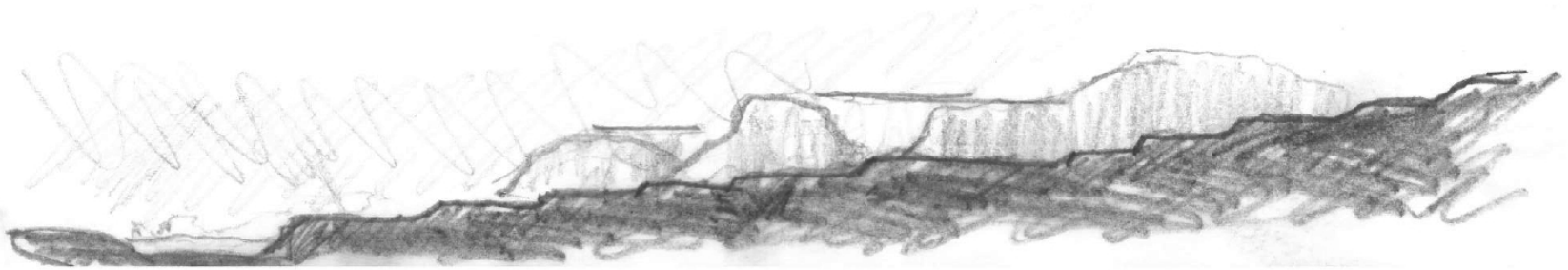
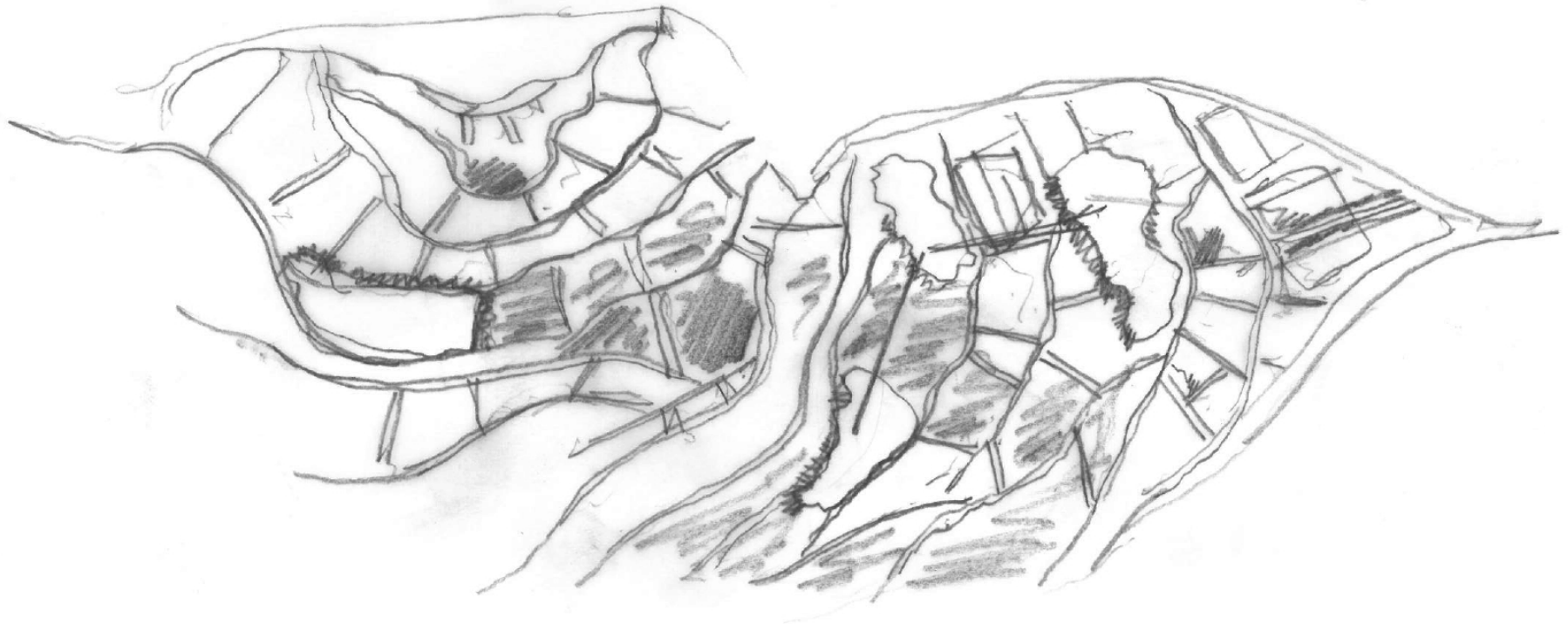


5.27



5.28

Fig 5.25 and Fig 5.26 Location of detail design using the unattended sedimentation dams (Author 2018)
 Fig 5.27-Fig 5.29 Conceptual design for the sedimentation dams (Author 2018)



5.29

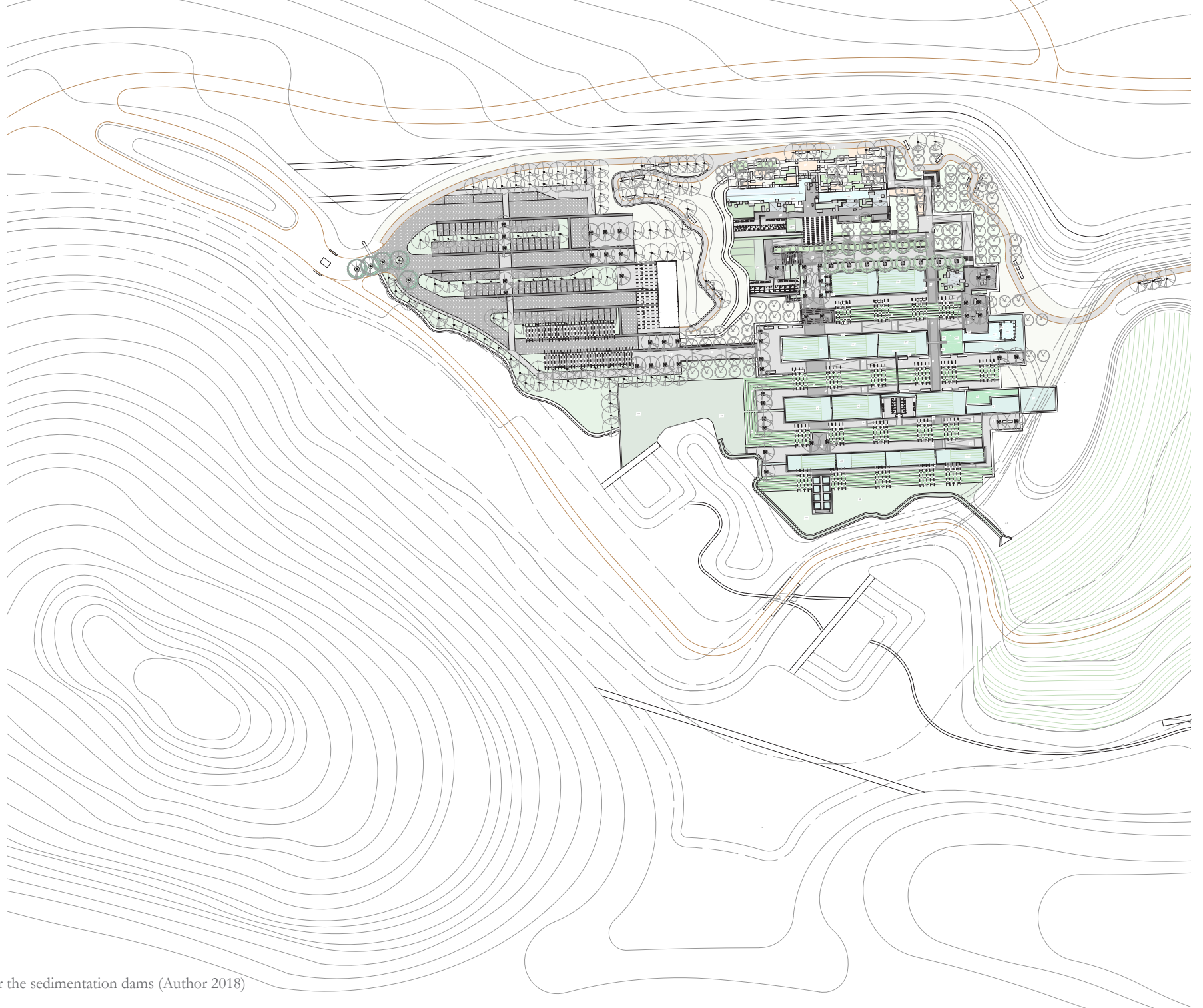
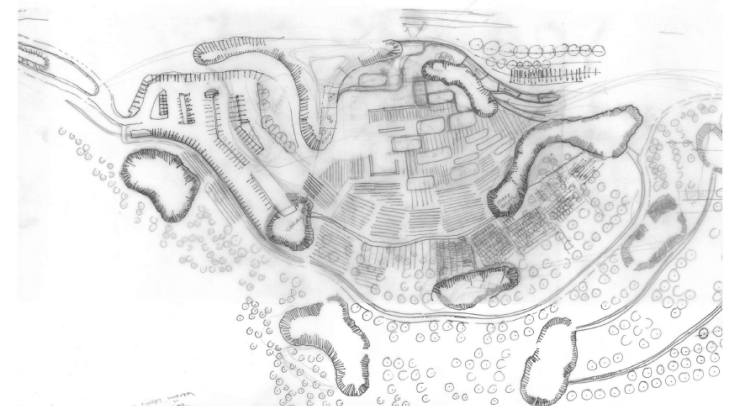
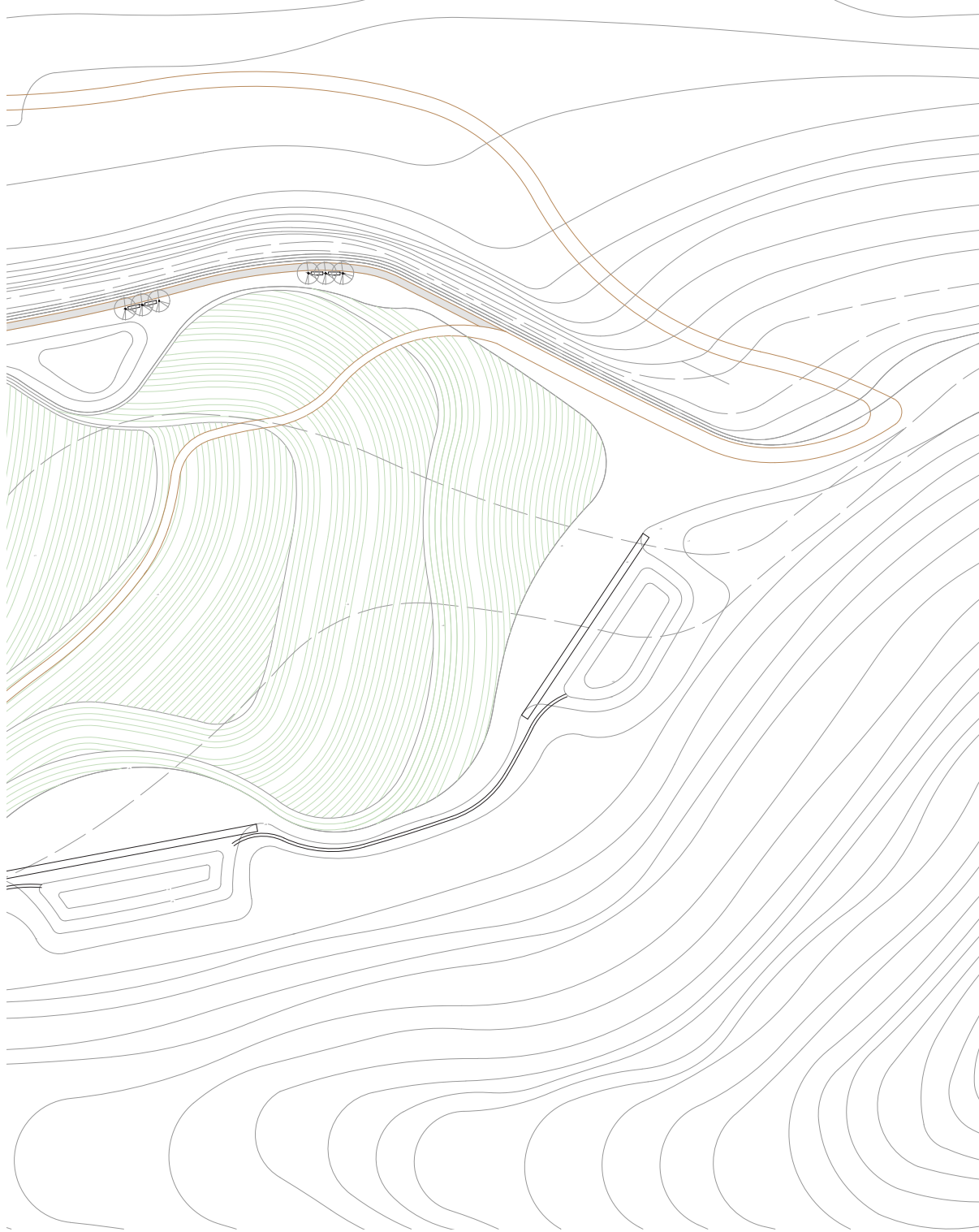
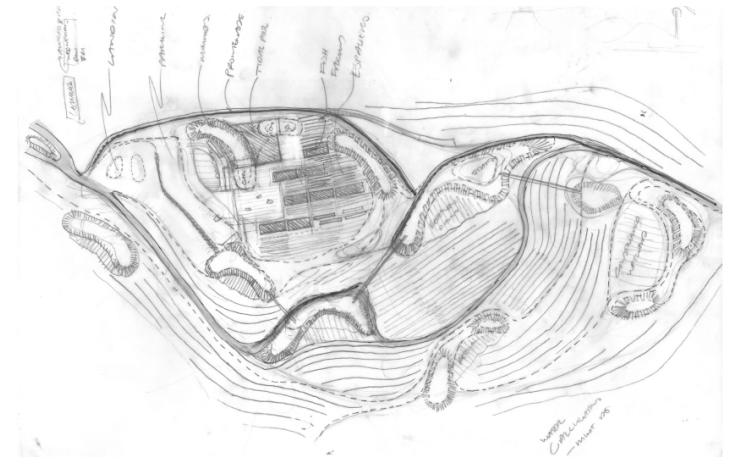


Fig 5.30 Design vision for the sedimentation dams (Author 2018)



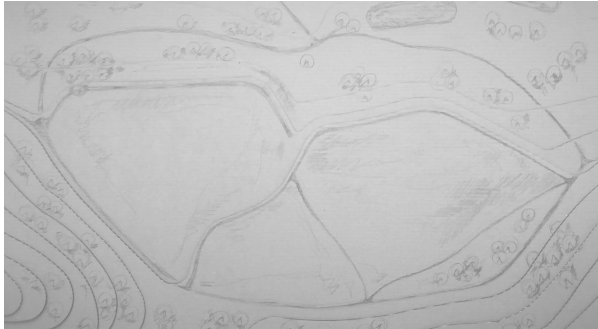
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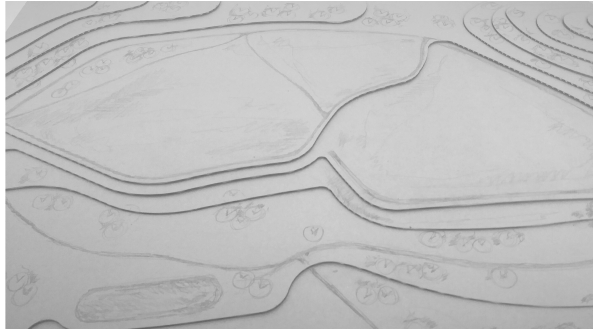
5.32

Fig 5.31 and Fig 5.32 Design development for the sedimentation dams (Author 2018)

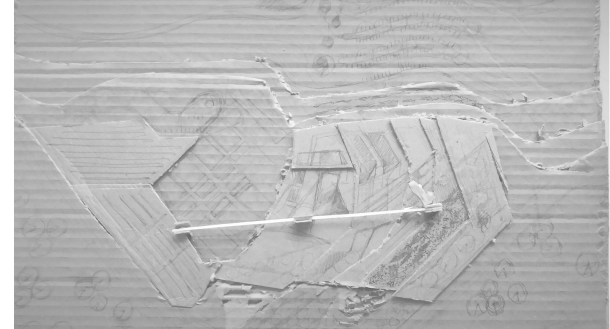
Model iterations



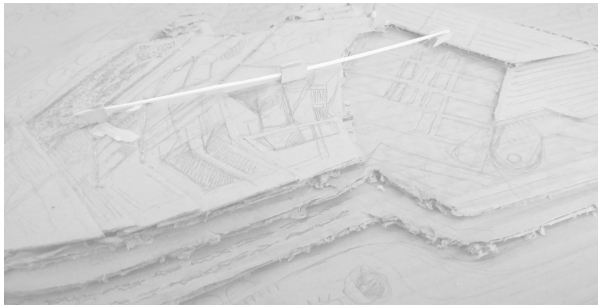
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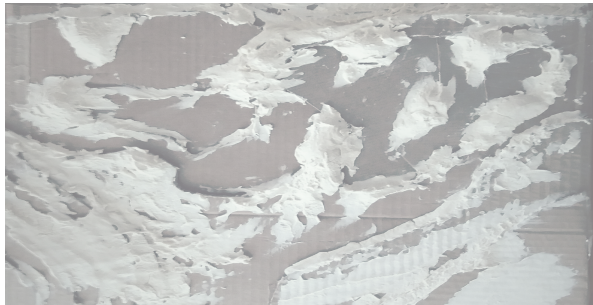
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5.36



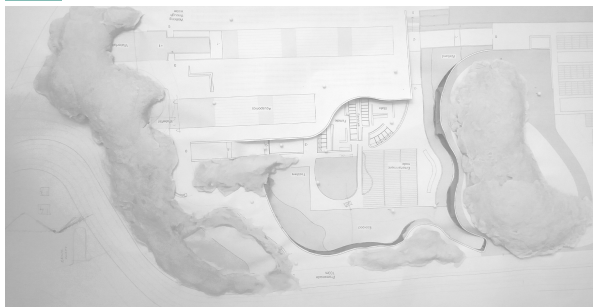
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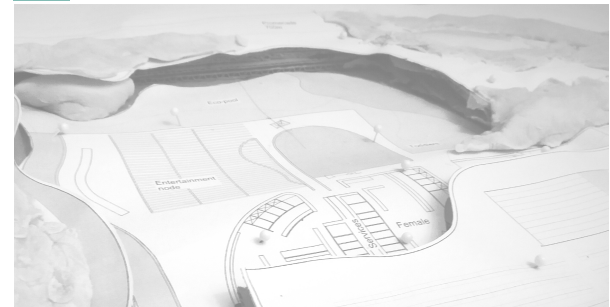
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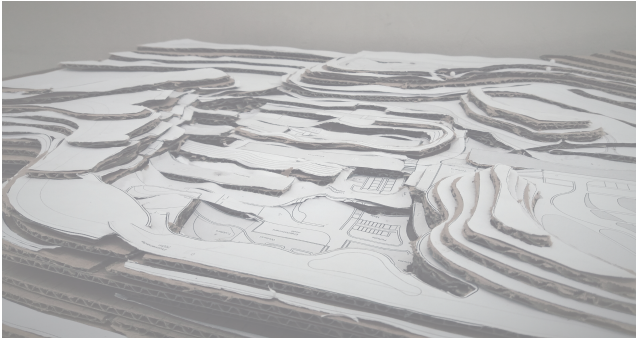


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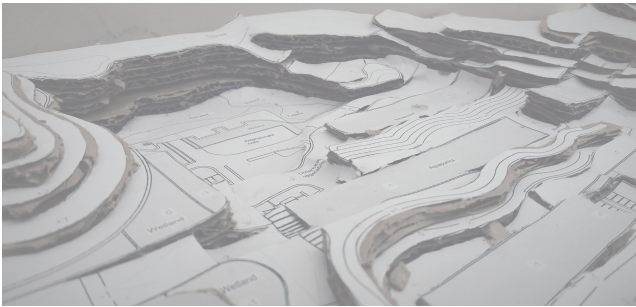


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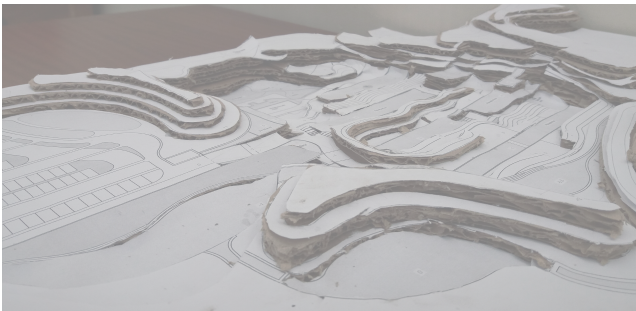
Fig 5.33-Fig 5.41 Model development (Author 2018)



5.42

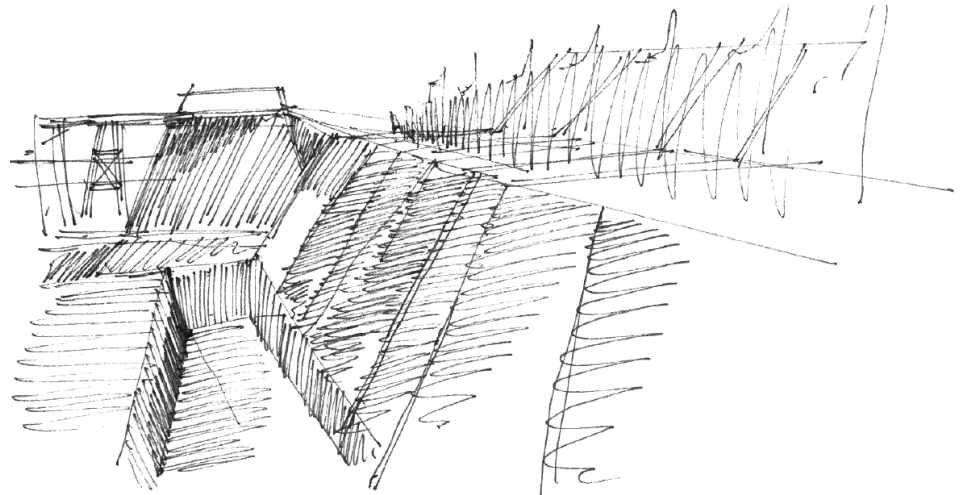


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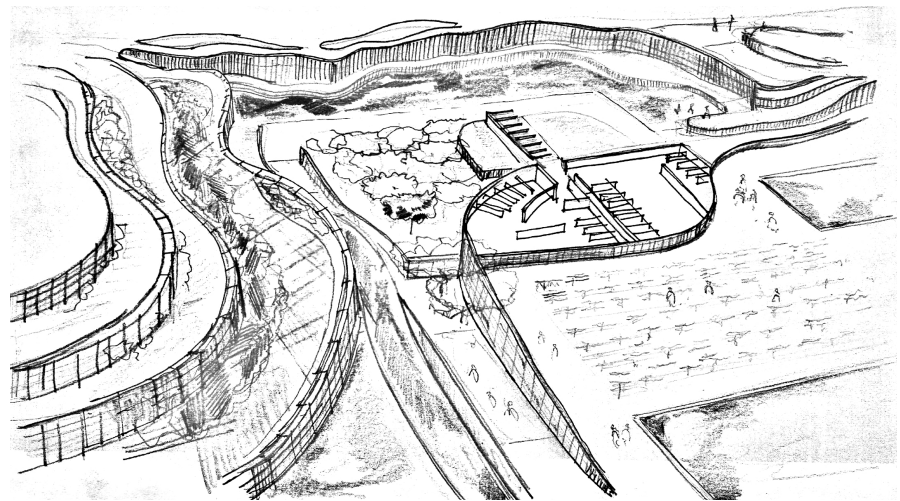


5.44

Fig 5.42-Fig 5.44 Model development (Author 2018)



5.45



5.46

Fig 5.45 and Fig 5.46 Spatial freehand sketches of model development (Author 2018)

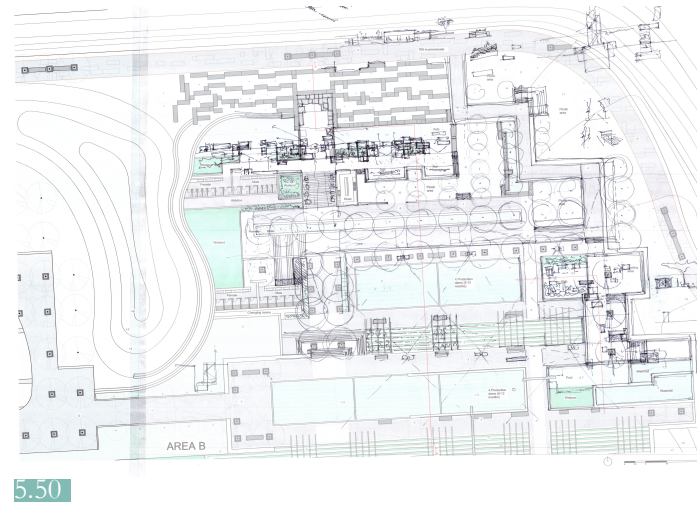
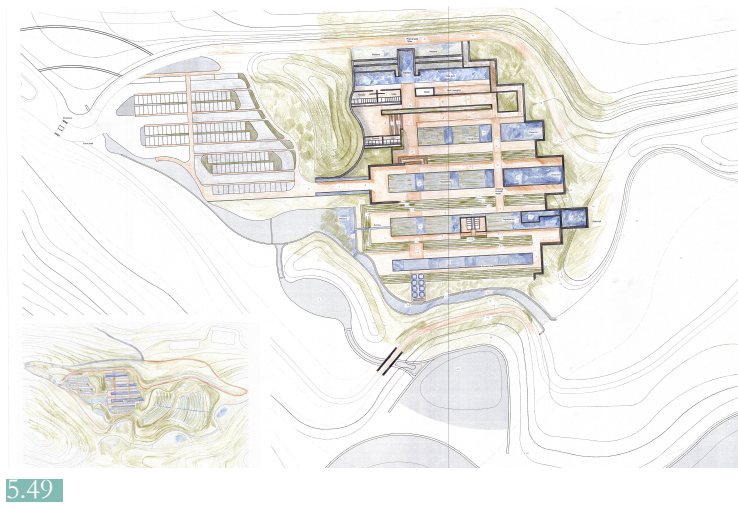
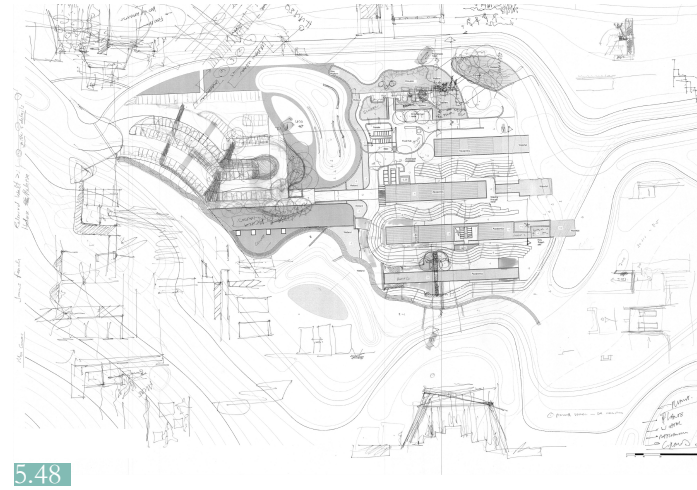
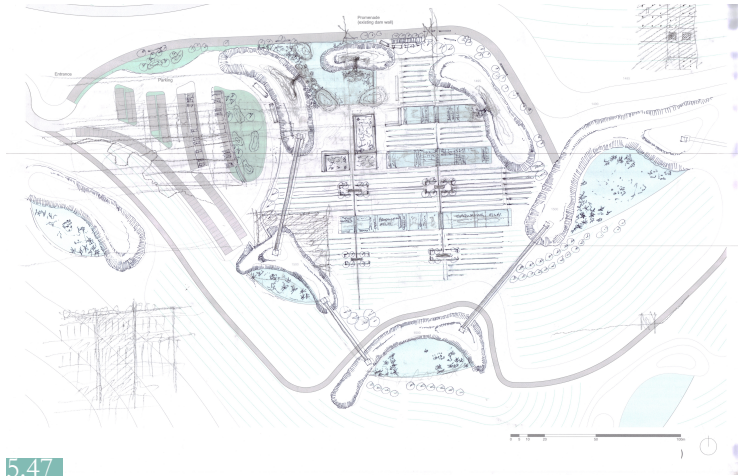


Fig 5.47-Fig 5.50 Master plan development (Author 2018)

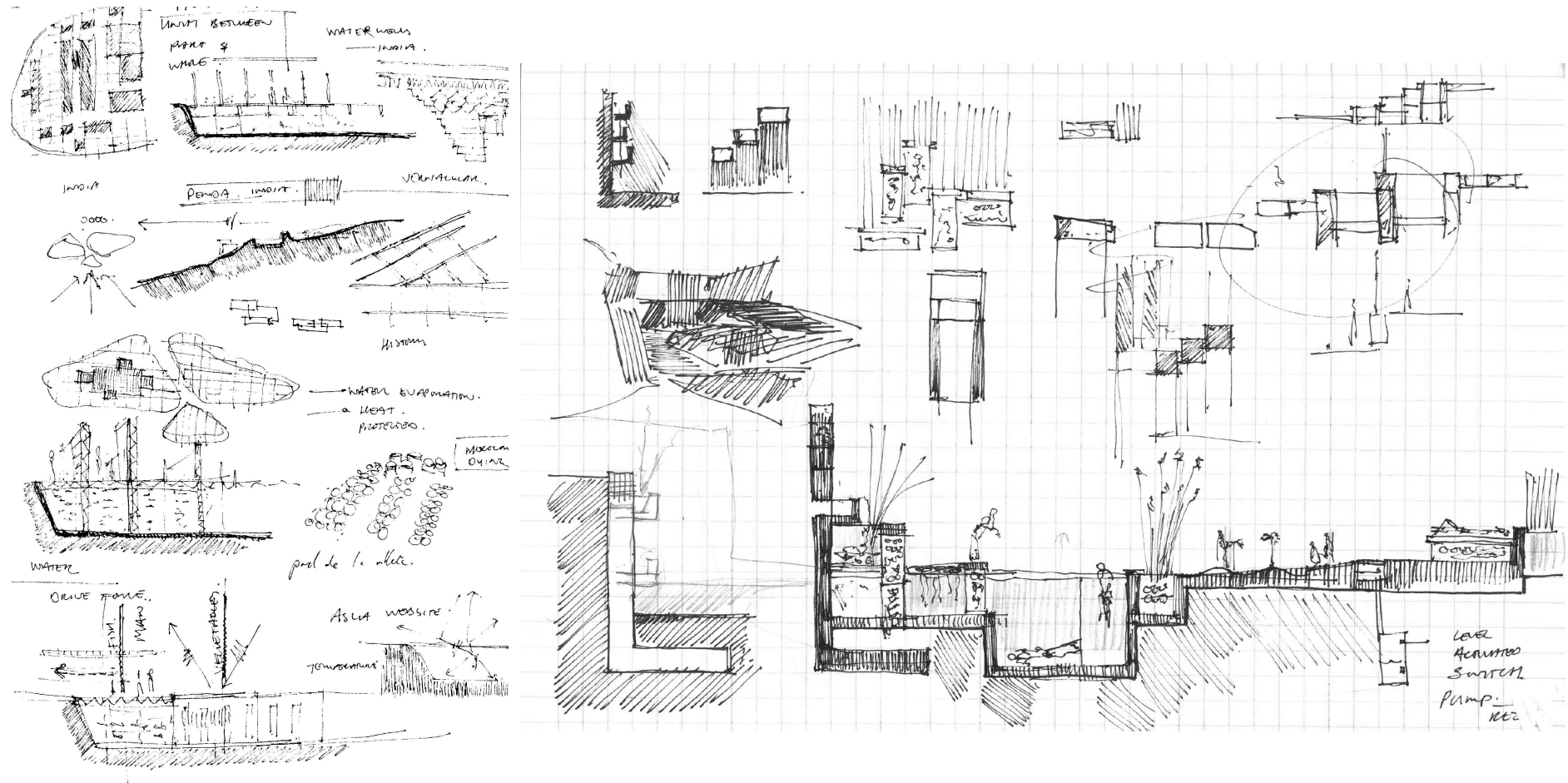


Fig 5.52 Natural pool section development (Author 2018)

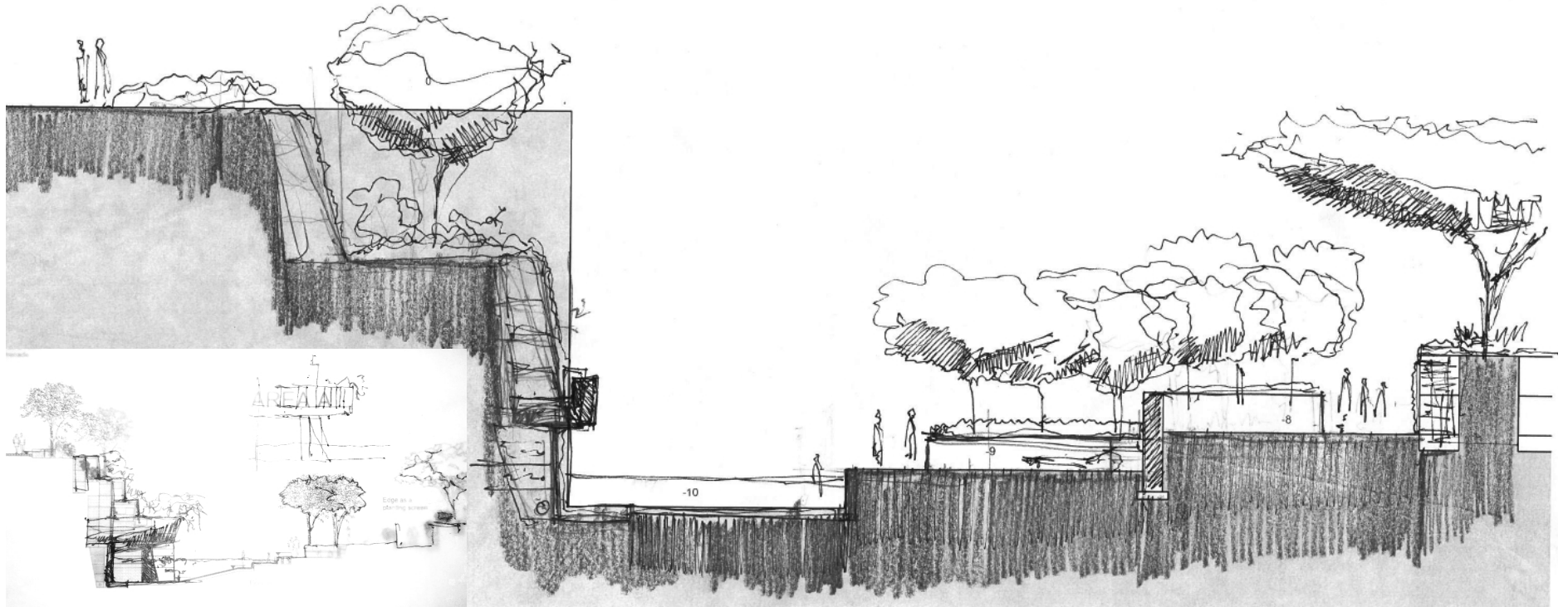
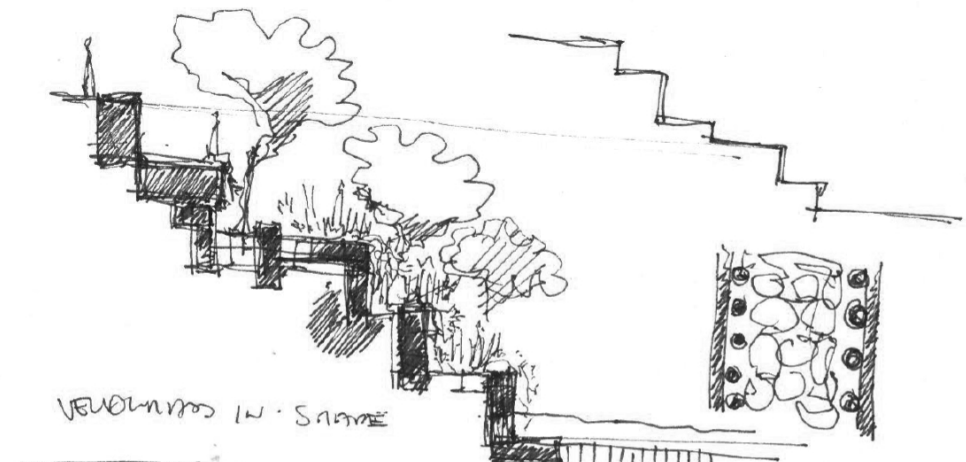
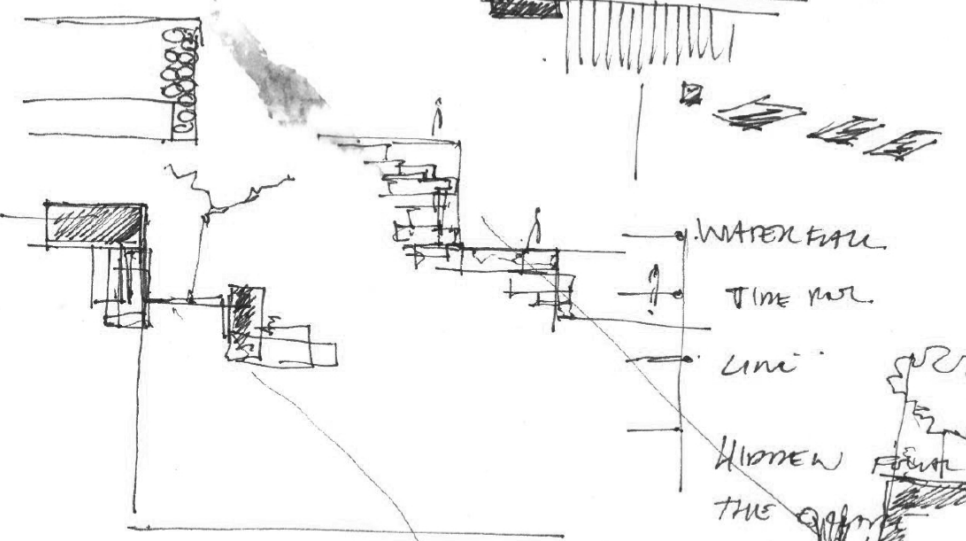


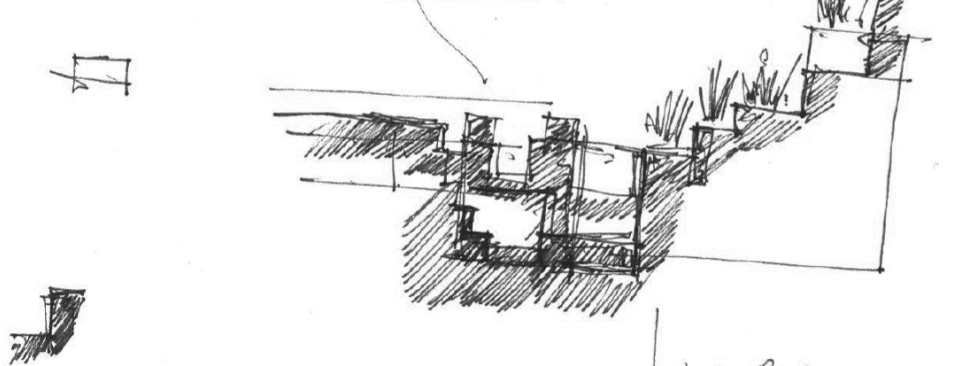
Fig 5.53 Natural pool and man made cliff section development (Author 2018)



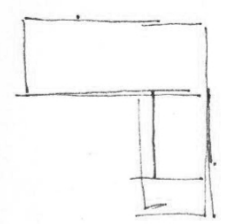
VENUE AND W. SIDE



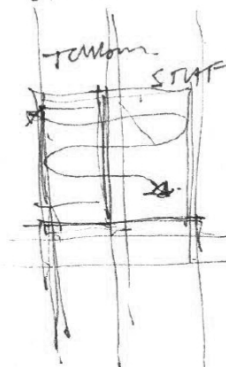
WATER FALL
 TIME WALL
 LINE
 HIDDEN FRONT PART
 THIS



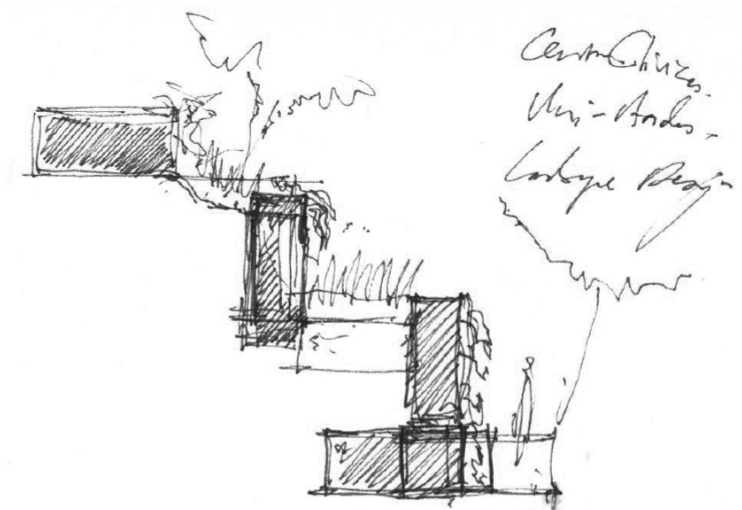
W. PARTS



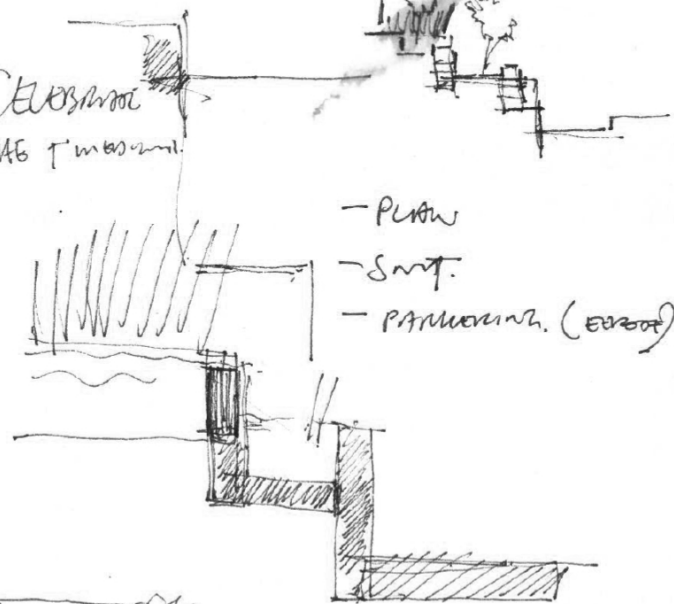
W. BRACKS



TERRACE
 STAFF CLEARANCE
 THE TERRACE



Central Plaza
 Mini-Plaza
 Lobby Plaza



- PLAZA
 - SWP.
 - PARKING (EAST)

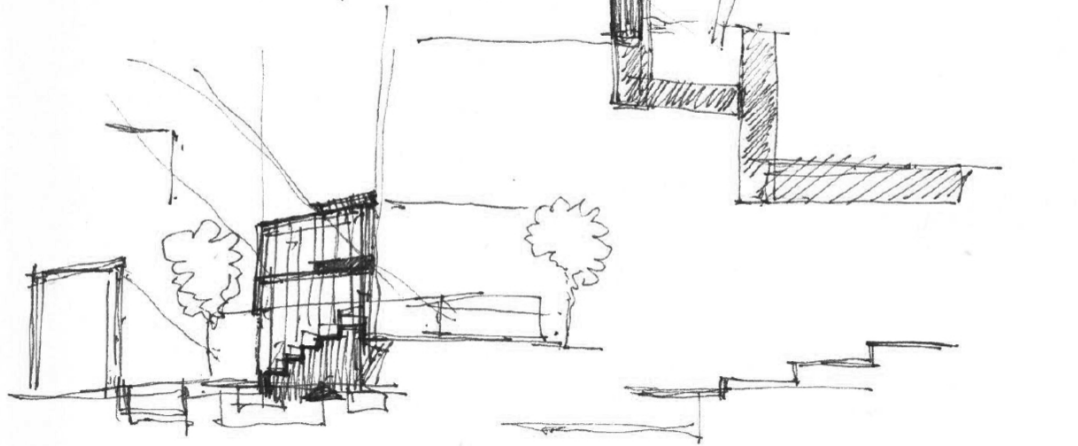


Fig 5.54 Man made cliff section development (Author 2018)

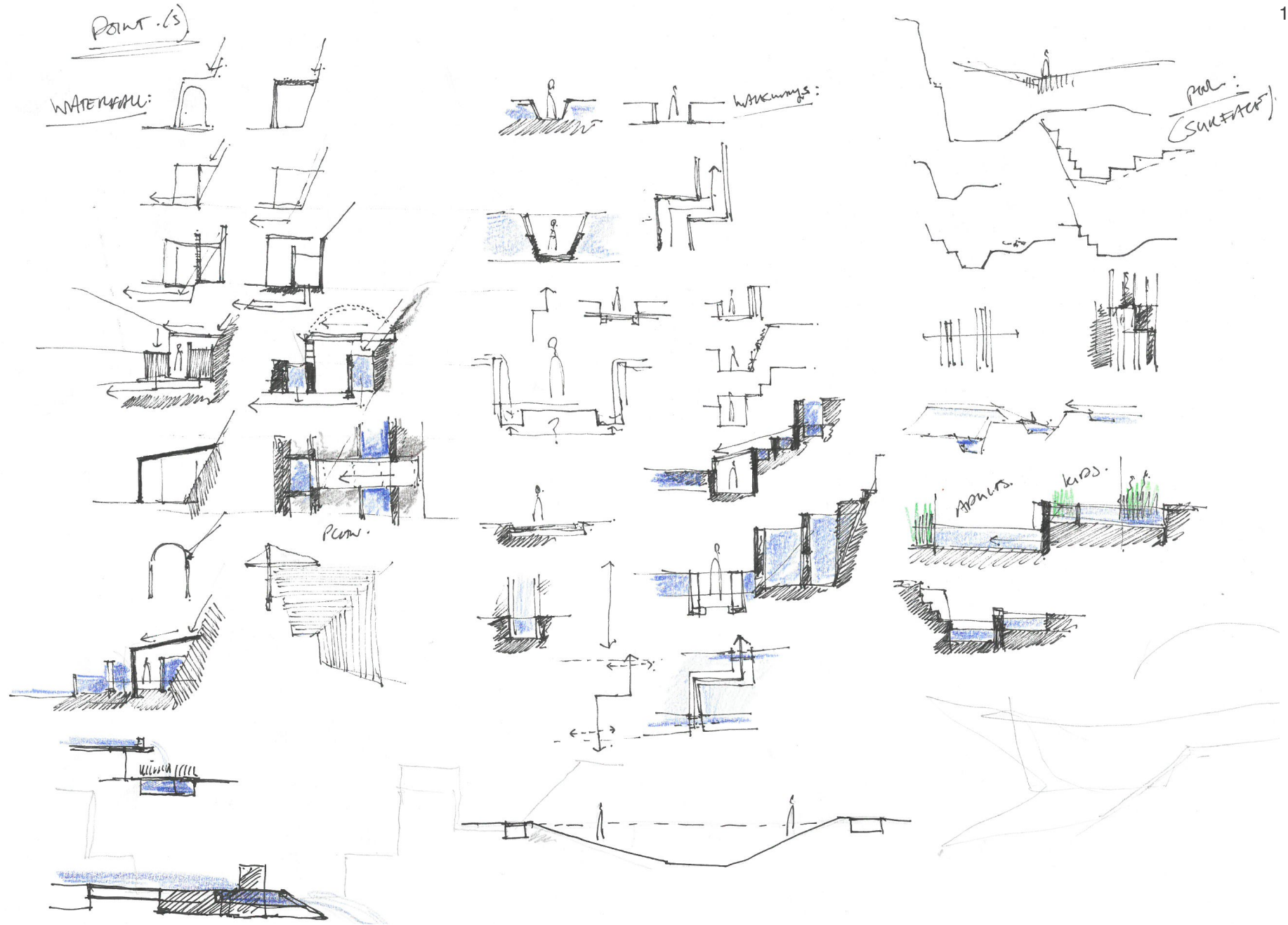


Fig 5.55 Spaces development (Author 2018)

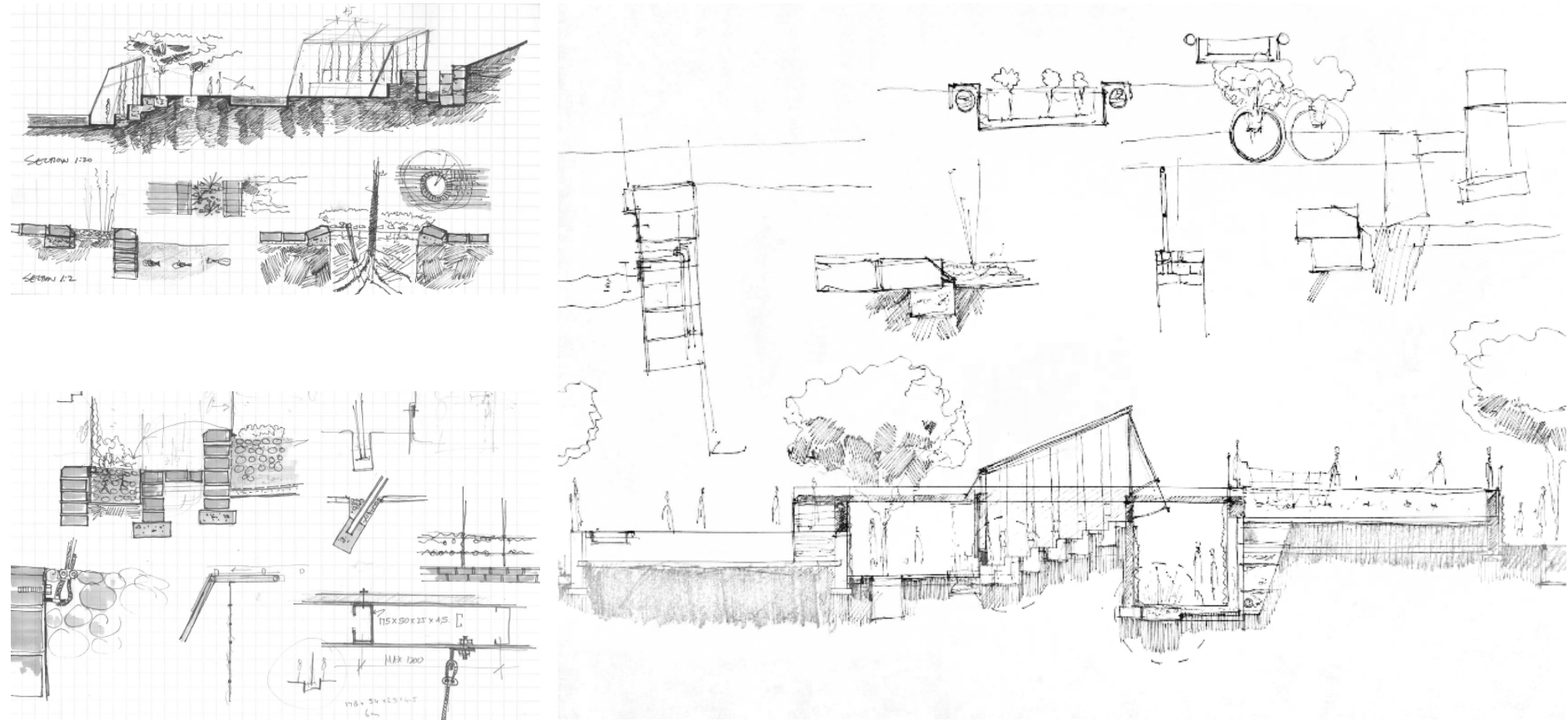


Fig 5.56 Aquaponics section development (Author 2018)



5.57



5.58

Fig 5.57 Perspective of the natural pool and man made cliff (Author 2018)

Fig 5.58 Perspective of the aquaponics system (Author 2018)

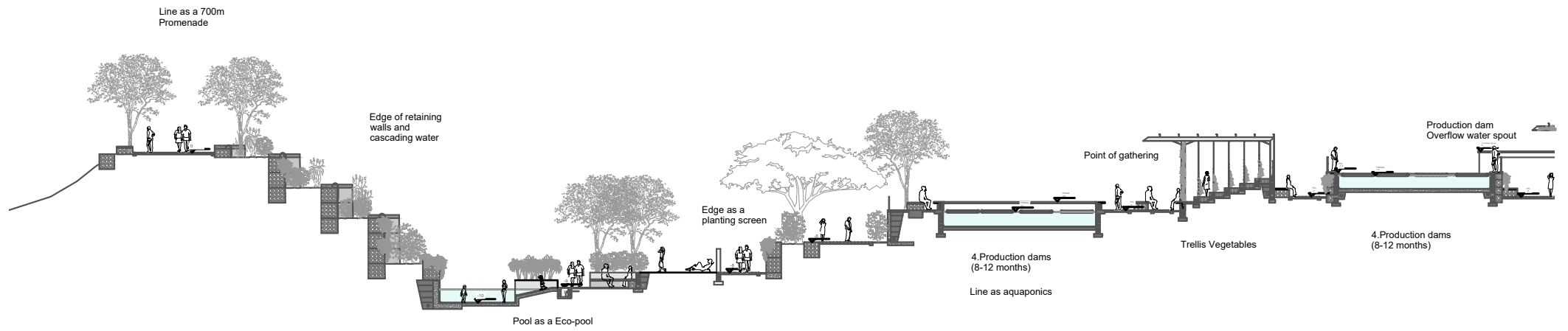
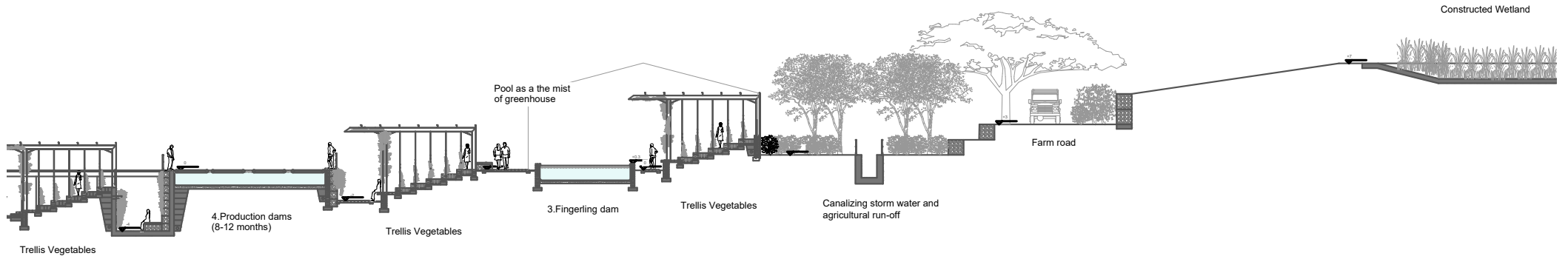


Fig 5.59 Section A--A (Author 2018)



5.3 Concept

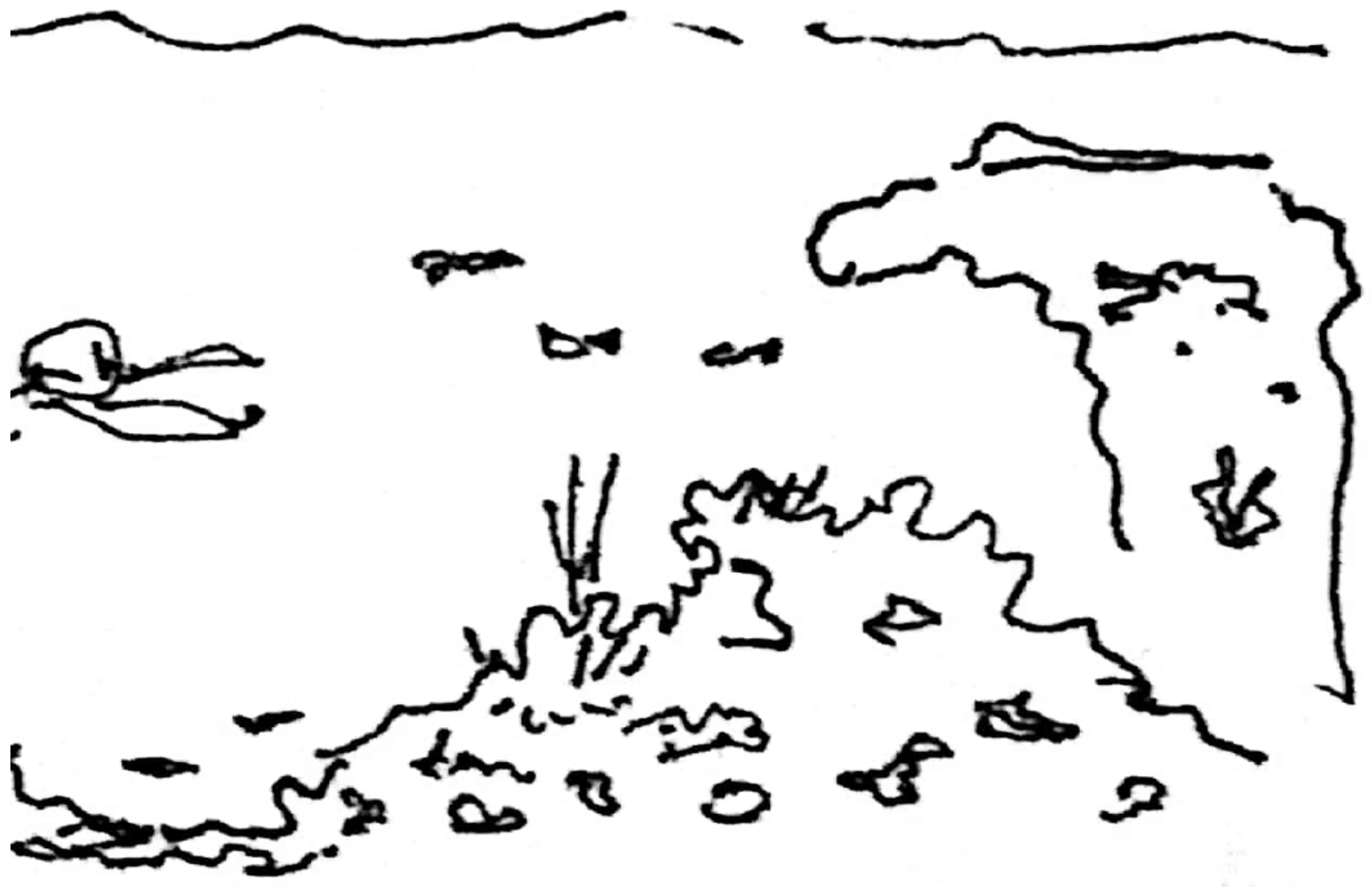
It became clear through the design investigation that water's phenomenological spatial qualities, such as line, point, pool (surface) and edge (margin), can be grouped so that the line and the point, and the pool and the edge, complement each other. The line and point cannot stand apart; thus, the line ends at a point and creates a threshold between the line (e.g. the aquaponics system) and the point (e.g. the waterfall and grotto). The pool (surface) and the edge (margin) reflect each other, and cause the edge to meet the pool and, thereby, connect land with water.

The spatial experience that has been created through the integration of these grouped spaces was influenced by the author's experience of 'indulging' in tidal pools and observing aquatic cultures during snorkelling activities at two KwaZulu Natal beaches, namely Cape Vidal and Ballito. Snorkelling is an effective way of discovering the mysterious beauty of these natural places from all angles. This is because snorkelling continuously changes and limits possible views of the surroundings, due to the snorkeller swimming with goggles that force the snorkeller to 'desire' various spaces by only seeing a few metres ahead. This continuous changing and limiting inter-

change represents a harmoniously calming experience wherein a person can 'leisure' and be distanced from technological noise pollution. This harmonious calm is the result after all senses, above and below water, have been utilised while exploring aqua life and, in particular, sea fish. The exploration through snorkelling occurs through various angles, which causes the snorkeller to become intrigued and excited after each turn, each peep through natural rock holes and/or each new observation of the vast open ocean (see figure 5.60).



Fig 5.60 The movement and curiosity of snorkeling as concept (Author 2018)



5.4 Spatial experiences of the design

The phenomenological value of water's spatial quality within the project is experienced as users progress through the designed landscape (see figure 5.61). Decisions about this landscape are inspired by the concept of exploration through snorkelling and experienced through spaces of desire, indulgence and leisure.

Spaces of desire

The waterfalls (point) placed at the end of the aquaponics system (line) oxidise the water for the living system and simultaneously represent gathering points. These waterfalls are approximately 2-3 metres high. People can sit and relax by these falls and listen to the falling water. The waterfalls are protected by retention walls made of gabion structures that are 1000 millimetres thick. The retention walls create a space for people to listen to the sounds of the waterfalls, which can bring peace to the mind and relief from the busy city.

Another space of desire is created where the aquaponics system (line) overflows from one fish dam to the next by making use of gravity; flowing further to the constructed wetland of the natural swimming pool (surface). The controlled line of flowing water is

emphasised at the point where water jets are placed to act as artificial fountains on visitors' pilgrimage towards the mysterious 9 metre-high south-facing grotto (point). A grotto can be described as an artificial, man-made recess that resembles a natural cave, with the purpose of acting as a cooling reservoir (Miller 1982:8-9). This grotto can contribute to fear and desire-fear developing in individuals, due to its threatening overhang. It could also elicit the desire to see whether there are any marvellous things within it, which could lead to users' further exploration.

Spaces of indulgence

The natural swimming pool (surface) cut within the landscape could allow swimmers to immerse themselves into the water and forget about the everyday rush of the city. The water is cleansed by wetlands, which could allow visitors the opportunity to enjoy the idyllic sensation of swimming alongside the vegetation surrounding the pool. The pool water is also brought to life with water fountains that will create spaces wherein children can play.

Spaces of leisure

The use of the existing sedimentation walls creates a promenade (margin) that may encourage individuals to stroll through the area. This promenade offers

views of the city and supports programmed events like Pilates classes, picnics and exhibitions. The aquaponics system (line) in this area makes use of both fish and plants, and provides a space where vegetables are grown into espaliers, thereby creating pathways down which visitors can stroll.

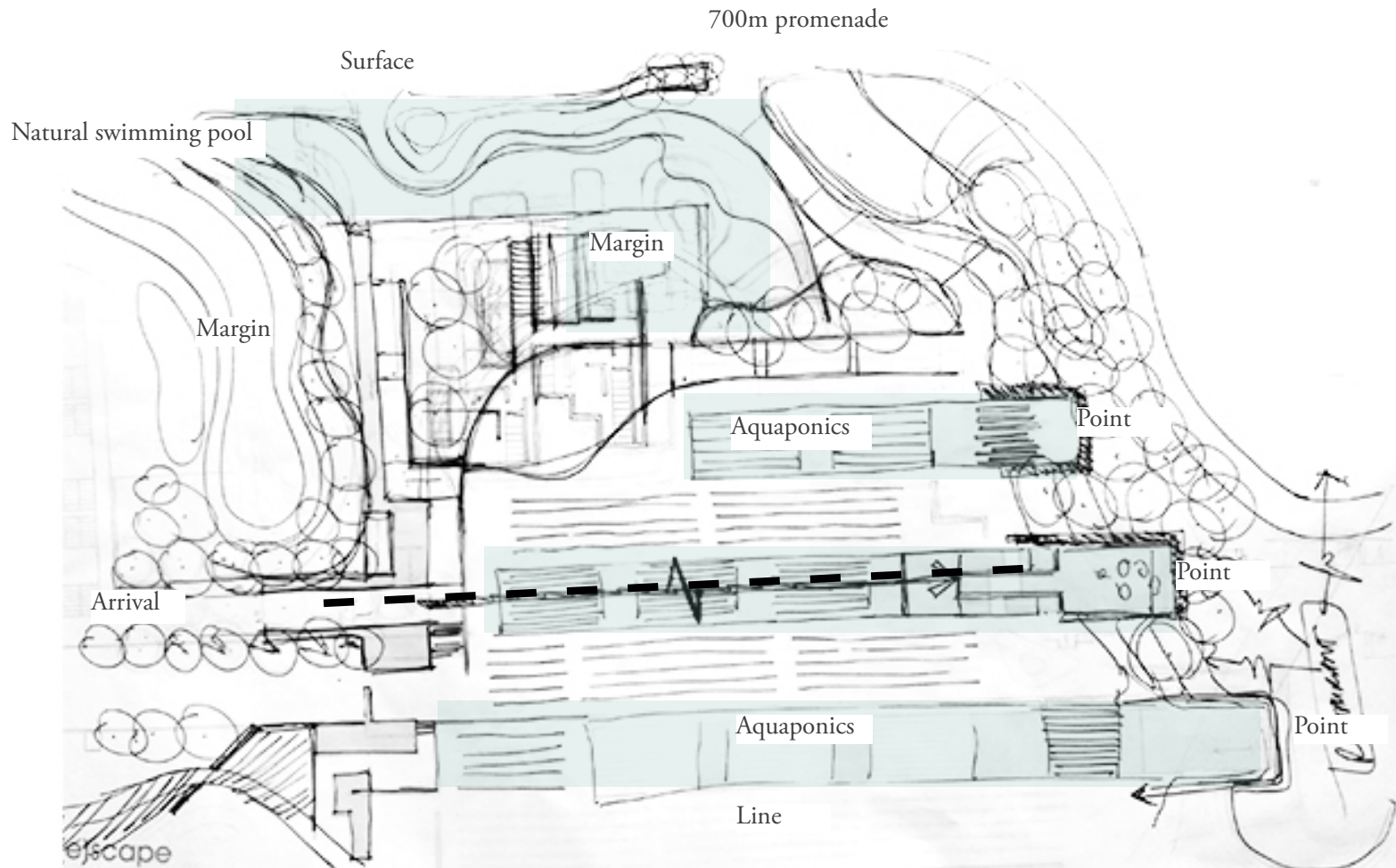
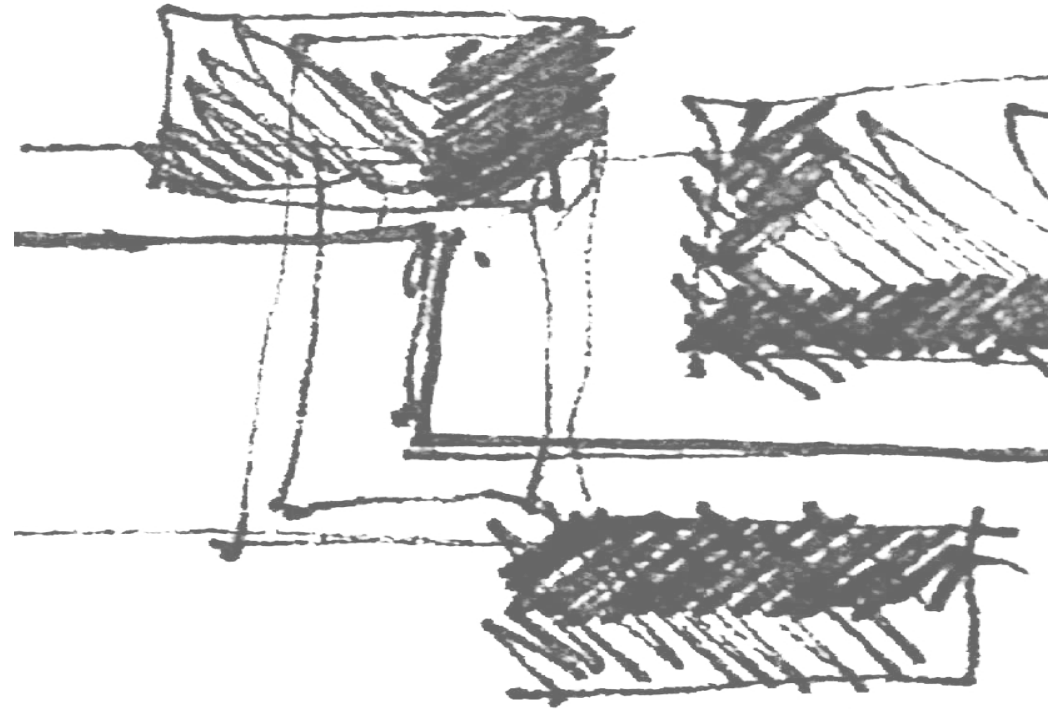


Fig 5.61 The spatial experiences of the design (Author 2018)

5.4 Conclusion

The conceptual approach of water is based on the phenomenology of water's spatial characteristics, which refers to four aspects in architecture: the point, which represents gathering; the line, which acts as the source of power; the pool, which refers to a place of culture and reflection; and the edge, which is a place of restrictions and imagination, which guided a landscape architectural design.

The decisions that will lead to the spatial experience of the productive landscape, as well as to those related to the investigation of water-treating and water-harvesting systems, planting strategies, natural swimming pool design, construction material choices and aquaponics production system construction, have all been influenced by the spatial phenomenological qualities of water. These qualities are addressed in more detail in Chapter 6.



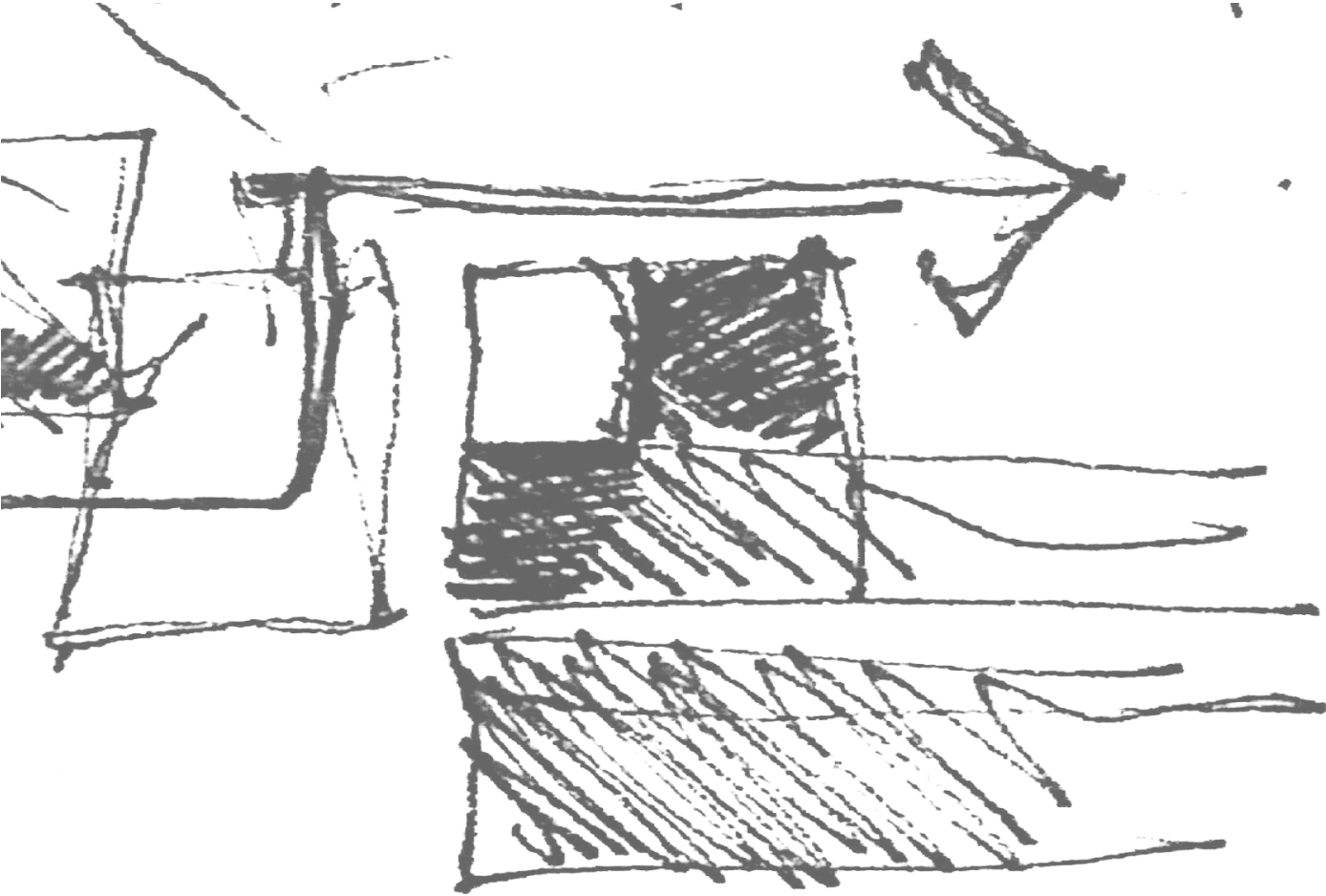


Fig 5.62 The movement and curiosity of snorkeling that influences the spatial experiences of the design (Author 2018)



Fig 6.1 Pretoria Works quarry (Author 2018)