WATER - GRAVITY - GRADIENT

A gathering in the floodplain of the Hout Bay valley

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TITLE PAGE

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Finally, I must express my appreciation to Kevin Fellingham, the architect who first taught me the meaning of architecture. And lastly, my profound gratitude must be expressed to Sebastian Rolando, who continues to teach me...

EPIGRAPH

The region we call home is less expanse than matter; it is granite or soil, wind or dryness, water or light. It is in it that we materialize our reveries, through it that our dream seizes upon its true substance… Dreaming by the river, I dedicated my imagination to water, to clear, green water, the water that makes the meadows green.

-Gaston Bachelard, *Water and Dreams,* 1999

ABSTRACT

This dissertation departs with an enduring interest in matter. The research, in turn, becomes focused primarily on physicality and its implications for people. An empathetic attitude towards considering material developed as a founding precept for the design endeavour.

The project can be described as a process which began by following water; the river, the land and the mediating edge. Water, viewed through the particular lens of this document, has an intelligence, an embedded and personified logic. This material logic is inescapably evident in the landscape with which I am most familiar, my home, the Hout Bay valley.

This dissertation seeks to create an intervention which should encourage a new relationship with water in Hout Bay. It is through a gathering of found program; wood cutters, Zionist Christians, horse riders, joggers, walkers, bird watchers, gardeners and swimmers, that the community is brought together in the floodplain.

CONTENTS

INTRODUCTION

This dissertation grounds itself in the notion that through thinking in matter, or working with a material empathy, we may uncover the specificity and minutiae of site, and thereby develop an architecture which is intimately bound to place.

The paper is marked by an interest in method. The research began with an exploration into a method of thinking rather than a desire to solve any particular problem. Consequently, design and research unfolded concurrently. The research was undertaken through fieldwork investigations on foot, archival visits, theoretical explorations, interviews and drawing. The design process was fed by intermittent discovery and response and the dissertation is presented as a series of episodic vignettes, thereby reflecting this process.

The paper is separated into five parts in order to provide clarity to the whole. The first part examines thoughts on method and in particular a poetic methodology. This first part is supported by an exploration on drawing, material imagination and reading site as ways of working. The second part of the dissertation explores the idea of material empathy. It describes a method for thinking in matter known as material imagination. And begins as an examination of matter itself. This section of the research will benefit from a reciprocity between writing and drawing. The series of drawings will aspire to rest between representation and experiment, ultimately attempting to think in matter.

The final parts attempt to engage with, and follow, the design process. Part three, the problem section, explores the architectural opportunities presented by the Hout Bay valley. The section which follows, part four, describes the process of gathering program from the site. Finally, part five, describes the manifestation of the project from thought to intervention.

Part One: On Method

POETIC METHOD

> *Method, method, what do you want of me?*
> *Don't you know that I have eaten of the fruit of the unconscious?*[1]

This dissertation proposes a form of poetic research. It does not suggest a negation of conventional research methodologies but rather a process which is other to it. This method of poetic research is described by Rosenberg in his essay *"The reservoir": towards a poetic model of research in design.* Rosenberg reveals a tendency towards a marginalisation of the imagination in conventional research methodologies. The imagination is contained to the single "hunch" with which the research begins. It is conceived of as an instantaneous moment of impact which is only made relevant by the proving of the hypothesis through rigorous scientific methodology. Rosenberg proposes instead a poetic model of research;

> *The poetic can be considered as a dynamic process in which the imaginative course of practice can be developed as a research. It starts not in the simple but in the complex.*[2]

Rosenberg's model for poetic research describes research which begins in complexity. This research also brings together seemingly disparate ideas into a rich and evolving structure. Rosenberg proposes that imagination be turned to action and that through this action imagination may find its 'technicity' or method.[3] This dissertation therefore proposes a poetic research methodology which becomes an exchange between reading, writing, imagination and drawing. The understanding of both material imagination and drawing translate into methods which in turn allow us to gain a deep understanding of matter. Three ways of working through poetic method are further explored; material imagination, drawing and reading site.

A Wreck, Joseph Mallord
William Turner, 1834

MATERIAL IMAGINATION

The material imagination is an idea conceived of by Gaston Bachelard (1884-1962). Bachelard was intimately familiar with matter. He studied and taught science before beginning his career in philosophy.[4] This alternating mode of work led to his belief in the possibilities produced through a dynamic and mutative character of thought. The work on matter written by Bachelard therefore lives between science, poetry and imaginative processes.

According to Bachelard the imagination is creative. This is not the same imagination which we believe to relay images of experienced reality, past and present. The function of relaying images should rather be attributed to perception and memory. "Imagination always reaches beyond what is given: it magnifies and deepens, it gathers the whole world into a simple image and the whole subject within its reverie".[5] Bachelard believed that reverie is a function of the creative imagination. Therefore reverie is not conceived of as a mere loss of consciousness, or simple daydream, but rather as a creative state that seeks to find fruition through action. Thus reverie may become research by means of documentation.

But Bachelard's research broadens the capability of the imagination beyond even the creative act. He believed in a material imagination: an imagination of matter. He describes the material imagination as, "this amazing need for penetration which, going beyond the imagination of forms, thinks matter, dreams in it, lives in it, in other words, materializes the imaginary".[6] This describes the idea that matter has an embedded logic, a desire, a potential, an imagination.

Matter abides by laws. These laws form the basis for a method of imagining. We can therefore understand any particular matter and its relationship with the world through understanding its potential. This research will attempt to interpret water's imagination through a human imaginative process.

The Architect Sketching,
Alvaro Siza

DRAWING

This dissertation will question drawing as thought, drawing as invention, and drawing as an act which concretises reverie. Drawing is a language which allows us to communicate thoughts which are otherwise inaccessible to us through the spoken word. Robin Evans reveals that there is a potential held in the moment of translation between drawing and building. In his essay, *Translations from Drawing to Building*, Evans describes the 'peculiar powers' of translation.[7] He reveals there is no even continuity between languages. It is with naivety that we would attempt to translate something without making allowance for alteration. Something is always lost or gained in the act of translation. And it is this ambiguity which holds potential for discovery.

In this way the act of drawing becomes something more than a physical representation of a thought, it becomes a way of thinking. The insubstantiality of a thought becomes one and the same with the avoirdupois nature of the artefactual drawn product. It is the physicality of drawing, the act of making, and the interaction with material, which allows us to discover. The ancient Greeks embedded the word '*poiesis*' with this knowledge. A connotation of the word *poiesis*, which itself means to make or create, is that only through the act of making can discovery occur.[8] Therefore the physical act of drawing creates a locus for cognition. It allows us to create outside of our frame of reference.

An importance should be placed on the nature of drawing and an awareness of medium and process. The process of drawing relies on movement and temporality. It is an action carried out by the hand. When we materialise ideas through a medium they reveal more than anticipated. We don't have full or exact control over the hand. Drawing therefore acts as a tool for the process of discovery through its ambiguous nature and through the vague complexities of the mind-hand relationship. Pallasmaa takes reference from Bachelard in his book The Thinking Hand; "even the hand has its dreams and assumptions. It helps us understand the innermost essence of matter. That is why it also helps us imagine [forms of] matter".[9]

Christo and Jeanne-Claude, *Valley Curtain*, 1972

READING (SITE)

In many instances, architecture, the type that people expect, is not required. Place is the culmination of the pre-existing. It may be a place which requires change, but if it is a good place then it need only be made available to people. The task is then to take a landscape that is charged with potential and to express its favourable possibilities.

The creative rather than archaeological work of reading site can be a counter-intuitive task. The land must be considered not as an undulating surface of skin-topography, but rather as a thickly layered environment with social and physical depth. Reading site, reading the broad existential culmination of place, can be interpreted as the process of presenting previously dormant or unrealised spatial futures. This re-presencing is described by Descombes;

> *Thus, I aim for a precision of disposition, articulation, arrangement-architecture- so that a preexisiting place can be found disturbed, awakened, and brought to presence. I try to achieve an architecture of place, a construction that jolts its context, scrapes the ordinariness of a situation, and imposes a shift on what seems the most obvious.*[11]

Descombes describes his approach as one which is not infatuated by the past but rather an approach which acknowledges future potentialities embedded in the landscape. He describes an act of revealing which opens up new conversations and suggests that we, "appreciate all the possible future developments that are already inscribed in the land".[10] He is not interested in memorialisation of landscape, and the marking of time passed, but rather in change and potential.

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4. Gaudin, 1971; xxvii
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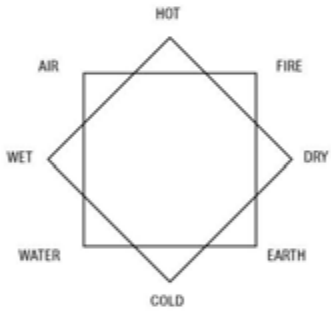
10. Descombes, 1999; 79
11. Descombes, 1999; 79

Part Two: Material Empathy

Fish, swimmers, boats
Transform water.
Water is soft and moves
Only for what touches it.

The fish proceeds
Like finger into a glove.

- Paul Eluard[1]


HOT
AIR
FIRE
WET
DRY
WATER
EARTH
COLD

ARISTOTLE'S ELEMENTS

Why matter? The story of Man's relationship with matter does not begin with the elements of the Periodic Table but rather with those pre-scientific elements which helped us to begin to make sense of the world. Philip Ball describes our long relationship with the elements;

> *Intimacy with matter does not depend on a detailed knowledge of silicon, phosphorus, and molybdenum; it flows from the pleasurable density of a silver ingot, the cool sweetness of water, the smoothness of polished jade. That is the source of the fundamental question: what is the world made of?*[2]

Empedocles was the first philosopher to theorise about the four elements: earth, air, fire, and water. Empedocles was a Greek philosopher who lived during Athens's Golden Age of democracy.[3] And whose work on the elements was followed and expanded upon by Plato and his student Aristotle. These four elements provided archetypes for ordering the world.

Northrop Frye explains that, "the four elements are not a conception of much use to modern chemistry-that is, they are not the elements of nature. But… earth, air, fire and water are still the four elements of imaginative experience, and always will be".[4] This exploration into matter reveals that intuition and imagination is the beginning of pre-scientific thought. It stems from a longing to understand the world around us.

Rio Negro Meander Scars, 2010

THE IMAGINATION OF WATER

Of the archetypal elements described by Aristotle I am most drawn to water. A liquid material, adhering to a ridged internal structure, but essentially formless. It is a substance of poetic nature which is bound to the cyclical dialogue of the making and unmaking of the landscape. The valley of Hout Bay has been chosen as an area of study, a lens through which to understand water's relationship with landscape. This endeavour is aimed to produce an understanding of waters spatial agency, an understanding tooled by the simultaneous acts of thinking and drawing.

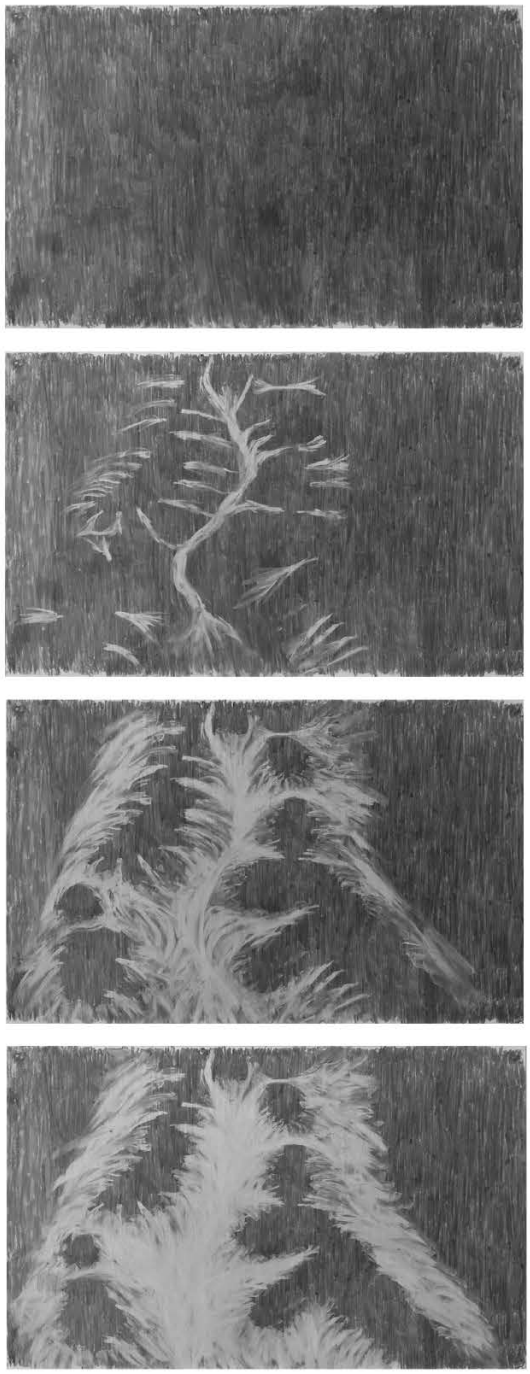
The interaction of water with landscape is governed by its immutable mechanical structure. Understanding the rules which dictate the behaviour of matter is an avenue to the development of sensitivities and sympathies towards a material's personality. Bachelard notes that, "A material element must provide its own substance, its particular rules and poetics."[5]

Water has an inherent logic which guides its movements and interactions with itself and other objects. The fluidity of water suggests a restlessness, a tendency towards movement, a desire. In this suggestion we find the potential of a substance in the constant flux between movement and impatient, expectant pause. The laws by which water reacts to its environment are constant and therefore its resulting series of behaviours, from any point into the future, can be imagined. This consistency allows for a particular character and wilfulness to be established. We personify water and call this an intelligence - a particular attitude towards future actions – an anticipatable mode of existence and of matter flow. Consequently, can it not be said, for the sake of a personified and deepened understanding of the subject of material, that water, knowing its own unchanging traits of character, also manifests, sets out, and allows the idea of future potentialities. Let us call this preconception of the futures of water, an imagination of things to come, water's imagination. There is the intent to use material imagination to gain an insight into the interrelationship between water and landscape.

The topography of the Cape imagined as a series of river bowls

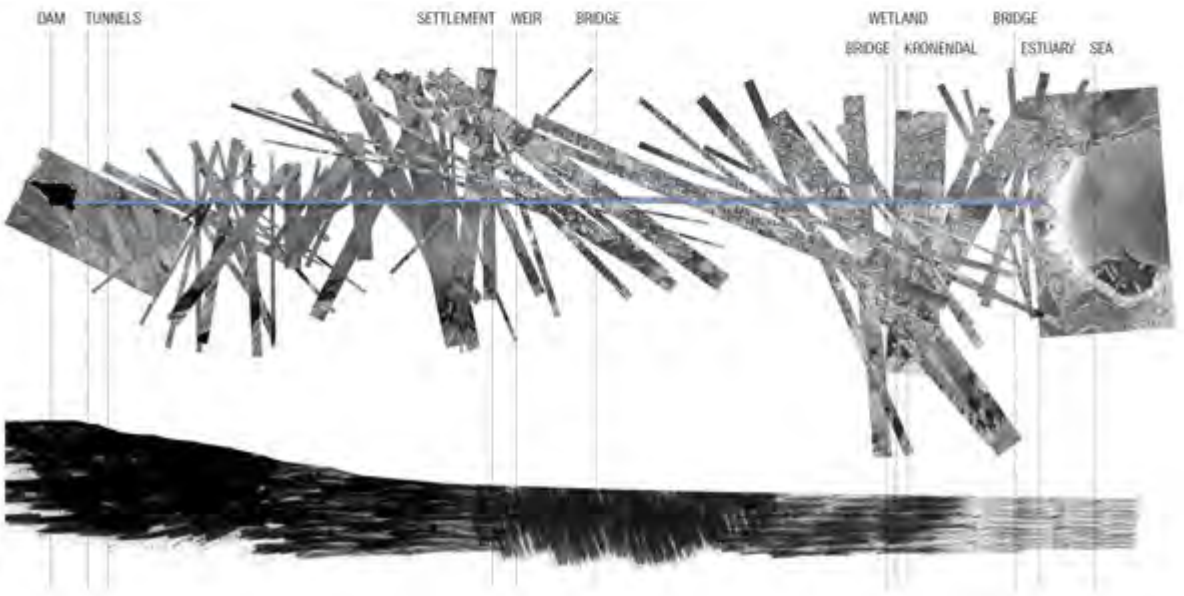
Gravity becomes the principal force by which the rules for the movement of water are dictated. Gravity is that which acts to give water its perceived character of desire. Gravity is the quality of having weight and a tendency toward downward motion. According to the definition offered by the Oxford English Dictionary, gravity, when regarded in terms of ancient physics, is a property which was believed to be inherent in certain bodies. The heaviness or gravity of water as opposed to the levity, or tendency of upward motion, attributed to fire.[6] Gravity thereby embeds water with intent.

A drawing which captures the weight of water is shown on the page to the left. The drawing is an exploration into the interaction between water and landscape. It is a representation of an imaginary filling of the topographies of the Cape with water. It is drawn as an imagining of the landscape (architecture) of the Cape as a series of river bowls carved and then occupied by water. This drawing embodies the weightiness of a body of water at rest. This quality is attributed to water by the force of gravity.



Water drawn as a
gathering material

The drawing alongside was first conceived of as an exploration into the interaction between water and objects, given that gravity gives water its restlessness, fluidity and tendency toward flow. This drawing is ultimately an exploration into water's capacity for making within a landscape. Water is represented through the process of the removal of charcoal on the surface of the drawing. The drawing begins with the representation of water at points in a charcoal landscape. The influence of water then continues down the slope towards the valley floor as the entire landscape becomes saturated. The drawing reveals that water is a gathering thing. It is a fluid that, when dispersed throughout the landscape, acts to collect itself and drain to the lowest possible point. As water is pulled across the topography by gravity it collects material which it later deposits. Through this, water creates a path for itself through the mass of the earth. It forms the gradient of the land as much as it reacts to the gradient of the land.



Water and gradient

The notion of gradient is explored through the figure on the left. The drawing explores gradient through the action of drawing a section along the meandering length of the Hout Bay River. It traces the section which water has carved through the valley over time that is of a geologic scale. As water drains down a landscape it acts to alter the gradient of a slope, it is gravity made tangible. A map of the valley was cut up, conceptualising the river as a straight line in plan in order to correlate with the section line.

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Part Three: The Problem Section

Stone entrance to the Woodhead Tunnel, the National Archives, 1891

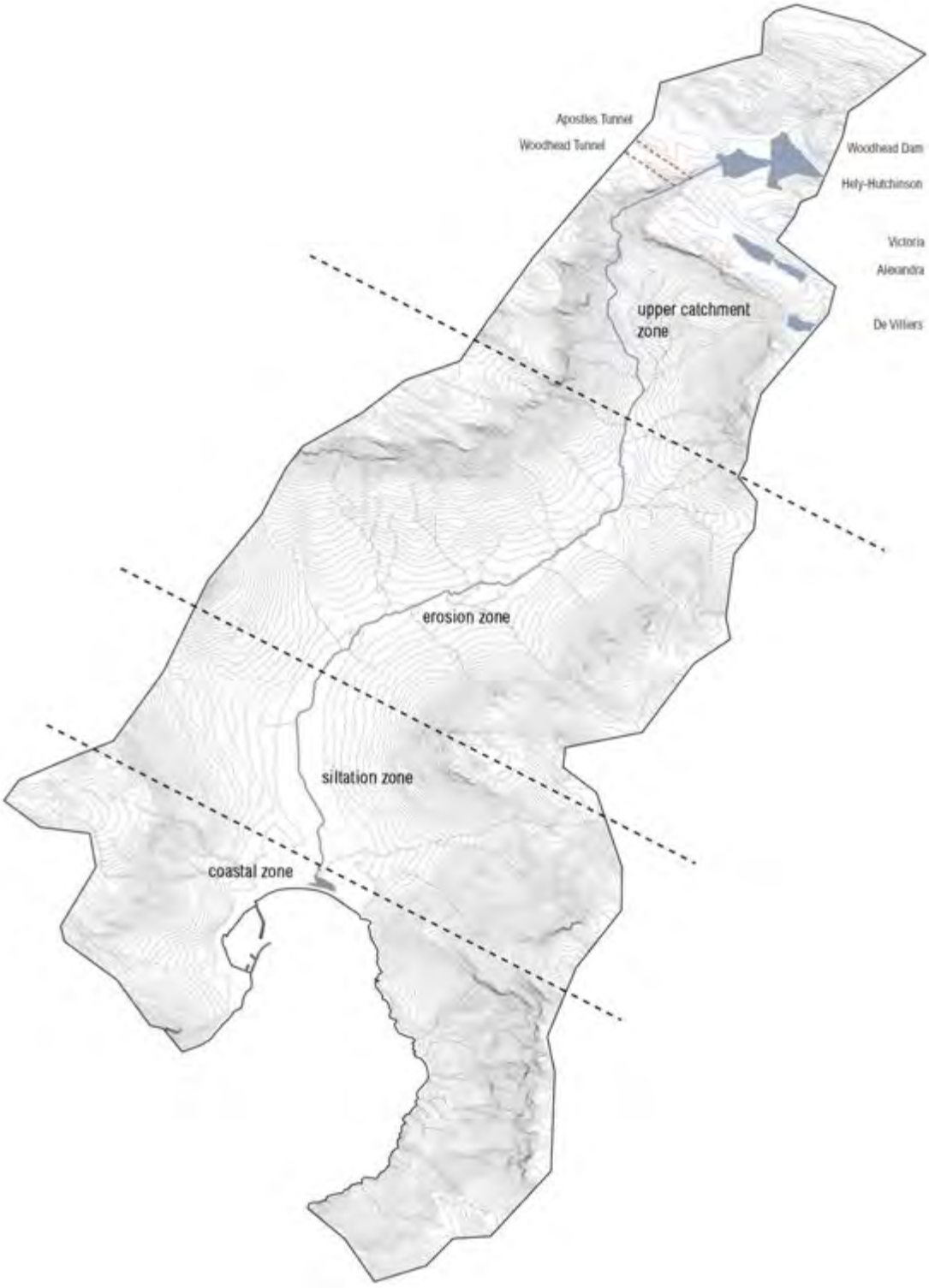
DAMS, WEIRS, TUNNELS AND FURROWS

The Hout Bay valley became a site on which to practice ideas of material empathy as the valley is a place of interest for both the author and water. The valley of Hout Bay has a long history of water engineering, for which the Dutch appear to have had an affinity. Dams, spillways, tunnels and furrows are scattered throughout the valley and manipulate the waters of the Hout Bay catchment area.

The Hout Bay River begins on the back slopes of Table Mountain and drains this face of the mountain into two separate streams; The Disa Stream and the Original Disa Stream. The Hout Bay River is subsequently formed in Orangekloof as these two streams meet. The total catchment area of the river is 33,8km^2 and the total length of the river being 12km.[1] The river is divided into four distinct zones; the upper catchment, erosion, siltation and coastal zones. The river finally joins the Atlantic Ocean at the Hout Bay beach where in summer it takes the form of a lagoon and in winter, an estuary. The Hout Bay River is the only river in the Cape that can be connected as a walking path from mouth to source.

The first farm to make use of the river in Hout Bay was the Kronendal farm which was established in 1681.[2] An ambitious furrow was dug along the valley, following its contours, and this furrow diverted river water to the farm for both domestic use and irrigation. The furrow was used for 250 years to divert water through the valley and can still be seen alongside Hout Bay Main Road as an artefact consciously preserved in the landscape.

Exploitation of the Hout Bay water supply became prevalent in the late 1800s as two Acts were passed which allowed the City to divert water from the upper catchment area of the river to other parts of the city. In 1888 construction began on the Woodhead Tunnel. This is a 640m long tunnel which cuts through the Twelve Apostles leading water from the Disa Stream to Slangolie Ravine.[3]

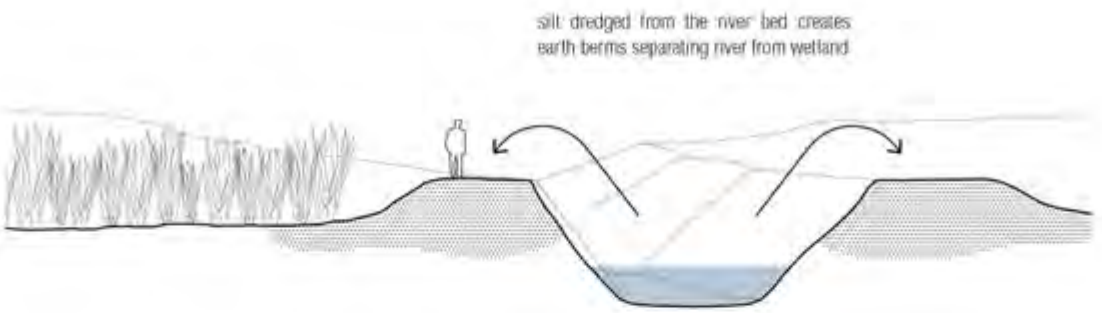

Apostles Tunnel
Woodhead Tunnel
Woodhead Dam
Hely-Hutchinson
Victoria
Alexandra
De Villiers
upper catchment zone
erosion zone
siltation zone
coastal zone

In 1966 the Apostles Tunnel was built north of the Woodhead Tunnel. This was a concrete lined tunnel with a greater capacity for water transport than the cast iron pipes of the previous tunnel. Five dams were constructed on Table Mountain to store the headwaters of the river: the Woodhead, Hely-Hutchinson, Victoria, Alexandra and lastly the De Villiers Dam.

Residential development along the river banks began in the 1900s and according to Grindley, "the large-scale destruction of the mountain forests and alteration to the flood plains in the valley has increased the impact of floods. The river, now forced into an artificially maintained earthen channel, cuts deeply into the original flood plain".[4] As development along the river banks became commonplace it resulted in the deep-rooted palmiet being removed from the river causing erosion along the river channel.[5] As material is eroded in the upper reaches of the river it is later deposited in the siltation zone causing the river channel to be filled with silt. This has required mechanical dredging operations since the 1970s in order to keep the river channel at a reasonable depth.[6] Earth levees have therefore been formed on either side of the river resulting in a segregation between river and wetland. The river is currently confined to a deep channel and the naturally meandering river course has been straightened. The once meandering river is described by Grindley;

> *In the lower reaches of the river, which now constitute the farming and village area of Hout Bay, a braided system of streams flowed through a marshland densely overgrown by palmiet and reeds. This system absorbed winter rain floods and prevented erosion in the higher section of the zone as well as siltation in the vicinity of the river mouth.*[7]

In addition to erosion the river is largely affected by pollution. During winter, water is polluted by runoff from land located alongside the river.[8] The river is also continually polluted by stormwater from Imizamo Yethu which has been provided with little to no sanitation infrastructure resulting in both waste and storm water being deposited in the river through an outlet at the Victoria Bridge.



A typical cross section
through the Hout Bay River -
the problem section

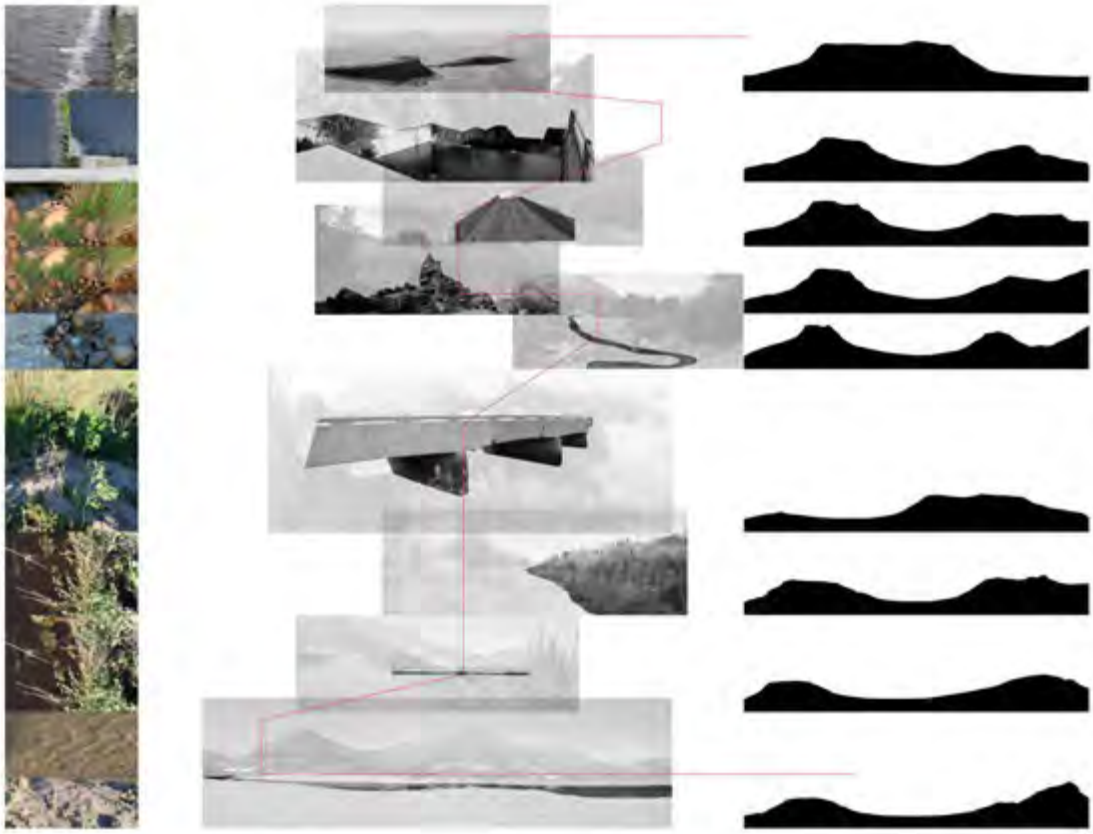
Stormwater pipe discharging effluent from Imizamo Yethu into the Hout Bay River

RIVER TIME

Tide, current, time. All calendars began with people recording time using natural cycles. In her polemic paper on the subject of time Jay Griffiths describes that calendars were embedded with the character of a place. Griffiths says that the abstracted, standardised, global calendar "characterises neither time nor place".[9] Instead rivers speak of a time embedded in the rhythms of nature, the measure of which speaks of a particular place.

The river site is bound to seasonality as an experience of time. Therefore it is essential to think in water; in tides and floods; lagoon and estuary. The river's tide is seasonal and therefore our experience of this landscape changes seasonally. And our ways of inhabiting it.

The image alongside is an exercise in imagining landscape as process. The river mouth and beach are currently constricted by walls and parking lots. An experiment was done by drawing the imagined past river movement across an old aerial image of the beach.



ARCHETYPING THE RIVER

Place, movement, edge and ground were recorded along the Hout Bay River. This became an exercise in archetyping the river. This drawing began to speak of place-making along the river and the corresponding edge and ground conditions at that place.

The exercise is based on ideas presented in *Soak: Mumbai in an Estuary* by Anu Mathur and Dilip da Cunha. The book attempts to change the primary mode of visualisation of rivers from plan to section.[10] By drawing in this method the river is not contained to a single line in a drawing but instead the drawing reveals opportunity for fluidity and openness.

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9. Griffiths, 2007; 1
10. Da Cunha & Mathur, 2014; 93

Part Four: Gathering Program


HIGH ACTIVITY ZONE
RECREATION
SCHOOL SPORTS AREA
DESIRE LINE
EQUESTRIAN AREA
MYCITI BUS STOP
BIRD WATCHING
COMMERCIAL
LIBRARY
BEACHFRONT

VALLEY ARTEFACTS

The Hout Bay floodplain soon became a site of interest. The saturated ground of the wetland and river have ensured the conservation of this undeveloped site, one of the few open public spaces in the valley. The chosen site runs between bridges; from Victoria to Princess. The river divides the valley into two and the wetland is marked by desire lines, bridges, horse trails and raised bird watchers platforms.

These artefacts in the floodplain were revealed through a series of fieldwork investigations. Walking the route between bridges became an opportunity for discovery on foot.

The program for the intervention is gathered from the site. The project intends to extend the existing path along the wetland to create a walking route from mountain to sea.

Furthermore, new program is introduced on site. Swimming is a new and shared activity that establishes the river as a community recreational amenity. The existing asset of water on site will be presented for public use and will form a part of the established recreational zone of soccer fields and park space.

Claude Nicolas Ledoux:
House for the supervisor at the source of the Loue, 1804.

THE RIVER WATCHER'S HOUSE

The agricultural history of the area dominates the historical narrative of the Hout Bay valley. As soon as the indigenous forests had been depleted at the beginning of the 18th century, the valley became valuable arable land. The Kronendal farm was the first known permanent habitation of the valley and is the initiation of the architectural tradition of the area.

During a walk along the river I discovered that the social, political and architectural influence of the farm is still very much present on the site. Seven families live along the eastern banks of the river below Victoria Bridge. They have been dubbed 'the wallers' in reference to their constant struggle to retain their homes along the collapsing banks.[1] These families along with the family which grows flowers opposite to the Kronendal homestead are all descendants of families who worked the lands of the original farm. The 'Wallers' have lived on the land for generations but now face the constant threat of eviction. These people were all born on the farm before it was subdivided and were given permission to build homes along the river banks by the last owner of the farm Duppie van Oudshoorn.[2] They now live and work here along the river banks as either flower sellers or woodcutters.

HOUT BAY FARMWORKERS FIGHT FOR RIGHTS

Kronendal families resist eviction

VUSUMUZI KA NZAPHEZA

SEVEN Hout Bay families living on the historic Kronendal Farm have vowed to resist eviction notices served on them last week by attorneys representing a private company that bought the land from the Oudtshoorn family.

The Wallers – so-called because they live on the Disa River bank – have been living under the eviction cloud since Kronendal Farm owner Duppie van Oudtshoorn died in 1995 and his family sold the farm.

Peter Moses, spokesman for the group, said he was born on the farm, worked there and had nowhere to go if evicted.

A notice of eviction from the attorneys representing Dormakor 66 was served to the Wallers last Tuesday instructing "family members occupying a temporary structure on the farm" to leave within 30 days.

"In the circumstances you are hereby notified that the owner intends to proceed with eviction procedure against you and your family members in terms of Section 8 of the Extension of Security Act within 30 days of service of this notice, should you and your family not voluntarily evacuate the land," reads the notice.

Said Moses: "I was born here in 1966. My father, Isak, was a foreman on the farm. What are we going to do now? Mr Oudtshoorn said we will always have a place to live on the farm. We are not dogs."

His wife, Cynthia Pokpas, said they had nowhere to go and she feared living on the streets.

The eviction notice spells out that Duppie Oudtshoorn had allowed the families to live on the farm as a "humanitarian gesture", on condition they evacuated on request.

Moses and Peter Arendse, said this was not true and there had never been word from Oudtshoorn that their stay on the land was temporary.

Kronendal Farm was established in the 1670s to grow fresh produce soon after Dutch colonialists arrived in the Cape, according to a website on the history of Hout Bay.

Arendse said the Wallers were the descendants of the farmworkers.

"Mrs Oudtshoorn told us to build the shacks on the river bank when our families grew and could no longer be accommodated in the cottages."

Arendse said his parents lived in the old slave quarters near Kronendal Manor House.

Since the Oudtshoorns stopped farming, the Wallers survive by doing odd jobs around Hout Bay and cutting down the trees to sell as firewood to the residents of Imizamo Yethu settlement.

The Wallers have asked the Legal Resources Centre to take up their cause. "We have a legitimate claim to stay here on the farm. We are not prepared to go," Moses said.

Cape Town Mayco member for housing, Dan Plato, said he was not familiar with the Wallers' plight.

Hout Bay councillor, Marga Haywood, was not available for comment at the time of going to press.

Ka Nzapheza, *The Cape Times*,
02 March 2007

Path to the Acropolis,
Dimitris Pikionis, 1957

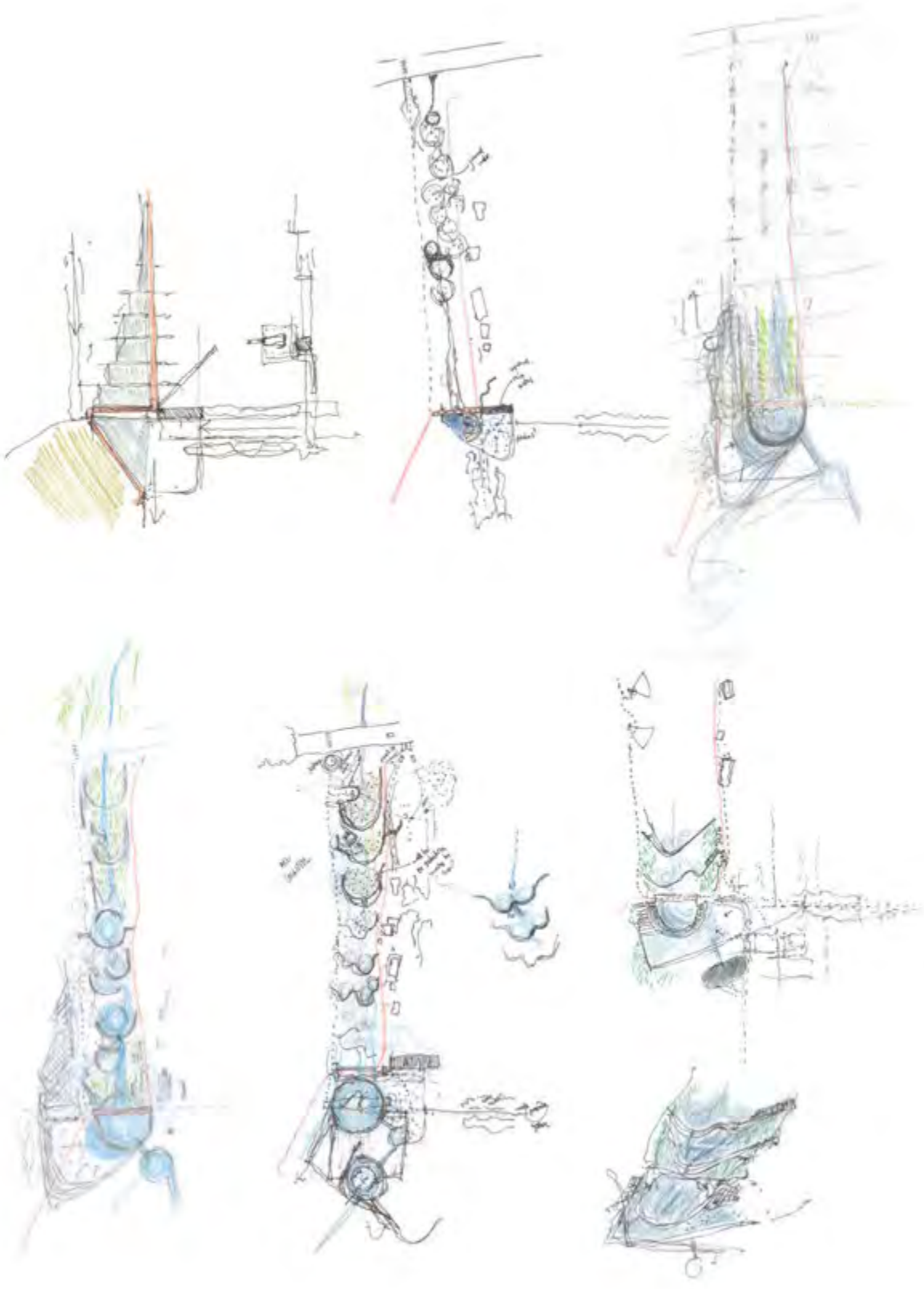
TO 'SCAPE

> *We rejoice in the progress of our body across the uneven surface of the earth and our spirit is gladdened by the endless interplay of the three dimensions that we encounter at every step... we walk past a rock, or a tree trunk, or a shrub's tufted foliage; we move up and down, following the rise and fall of the ground, tracing its convexities, which are the hills and mountains, and its concavities, which are the valleys.*
>
> - Pikionis, Sentimental Topography

Pikionis speaks of walking within the landscape as a mode of knowing the environment. Additionally, movement by foot, the innate and first action, is explored with great insight by Ingold; "This is the land 'scaped', 'shaped' or created as place and polity by people through their practices of dwelling – their 'doing' of landscape. The suffix –scape embodies this sense of creative shaping and carving".[3]

Space is dynamic and therefore experienced most fully through movement. It is in the act of walking and navigating the contour that one truly occupies the landscape. This physical contact promotes a deepened relationship with site. The pedestrian utilizes more than the five Aristotlelian senses in this act, additionally engaging with the job through the inner ear (the sense of balance and movement) and through the muscles and skeleton (the sense of weight).[4]

First the ground is 'scaped'; carved and revealed as artefact. The patina of the site is polished rather than removed. The undulations, the modulations, the material clumps of environment, are taken up under foot and then known. Two paths, one perpendicular and the other parallel to the river, are 'scaped. It should be a curative process of restoration and delicate addition. The old is excavated and the new is lightly imposed. The landscape is not a museum.



POOLS FOR WATER; POOLS FOR PEOPLE

The site is at the point in the valley where water loses its restlessness and begins to collect in pools. The yielding character of the river in this area is ideal for swimming.

The image on the left shows drawings of imagined interventions. Two moves are made to change the existing condition of the site. The remainder of the scheme developed from these foundational decisions.

The first move diverts polluted storm water which has travelled to the river from the slopes of Imizamo Yethu. It is proposed that this pollution be carried by an aqueduct and diverted directly into the wetland to be cleaned by the existing natural systems. River water is then cleaned for swimming by constructed wetland and turbulence pools located below Victoria Road bridge, upstream from the bathing site.

The second change would involve the movement of people. The walking path which currently runs along the divide between wetland and river would be moved over to the opposite bank, thereby allowing the river to meander freely through the wetland. A crossing is ultimately formed; a bridge for both people and water.

leg-stroke (fig. 9). They should be in position for beginning the kick when the hand leaves the water, and the kick should be completed and the legs straightened before the left hand is replaced ready for the next stroke.

A peculiar screw-like leg movement is the distinctive and most important feature of this style of over-arm swimming.

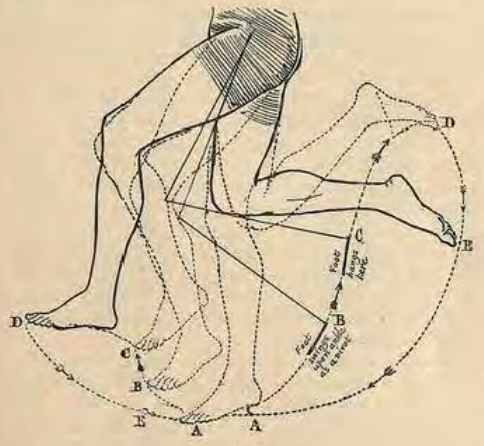


FIG. 9

In describing it the best plan is to take the legs together as at the completion of a dive, and after the body has been turned on the side. The legs are opened, and brought together again simultaneously, the left or upper leg being kicked a little forward, the knee slightly bent, and the foot kept in its ordinary position, not allowed to hang free. The right or lower leg is bent double until the foot approaches the thigh, the

Diagram describing how to complete a leg-stroke, *The Art of Swimming*

THE ART OF SWIMMING

Water, being emotive – elemental – essential, is omnipresent in the human narrative, and a part of the landscape in which we live. The spatial volume of the Hout Bay valley has been physically moulded by the influence of water. At the point closest to the draw of gravity, the valley floor, water runs from the steeper ground and collects. This fluid gathering is an unchanged phenomenon and the valley floor has always been the place to find water.

The slow conversation of land and water is most evident at the point of meeting between the two entities. Here, the land is endowed with soil deep enough, wet enough and rich enough for planting and it is where the fast flowing river allows for clean water to be collected for our use. Certain places along the bank are favoured by people, some are fords, some are pools for washing and at other places the river narrows and firm banks allow for bridged crossings. The river bank is a historical place of social gathering and activity. Pragmatism, recreation and necessity bring people together at particular points along the water-course.

Immersion in water is a natural and impulsive, hyper sensory action. But it is the process of preparation that becomes interesting in the context of a place of communal bathing. One must become naked, stripped of any protective social decorum, in order to enter the water. You bare your body in a show of trust to your community, who, in return, mirror your display and bare their bodies in answer. You become completely vulnerable for a few brief moments during the ritualistic parade of skin that separates the changing rooms from the comforting modesty of the enveloping water. It is a democratic, equalising thing. All are laid bare and made humble through the ritual. The river pool is a place for all, where the economic and racial segregations of our South African context are lessened and hopefully forgotten. It is a place to which we are instinctually drawn.

The first text written on the subject of swimming is called *De Arte Natandi* (The Art of Swimming). It was written by Everard Digby and published in 1587 and described techniques for swimming in a river. There is a sensuous pleasure in immersing the body in this water as these pools are in a constant cycle of flow, from mountain to sea, and water is continuously washing over the body.

A model of the intervention exploring the pools carved into the river banks

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Part Five: Building as Fulcrum

Plan van de Hout Baay, 1785

WATER AXIS

During a fieldwork investigation I visited the Kronendal homestead, which is now a restaurant, and noted an old avenue of oak trees in front of the house. This avenue of trees extends out from the house in the direction of the river and, at first, it appeared to be an oak lined driveway typical of Cape Dutch homesteads. Archival research then led to the discovery of the military map shown to the left. The map revealed that the avenue of oak trees was a walking path directly from the homestead down to the river. This axis runs perpendicular to the river and appears to have garden lots adjoining the path on either side.

This axis was made as a response to life in the valley section. It is part of an embodied knowledge; by walking across the landscape to the bottom of the valley we will find water, this is the place where water collects.

Baptism and healing at dawn, Soweto by Martin West, 1969-1971

PRAYER PATH

> *A Zionist becomes a Christian through baptism by triune immersion in water, which usually must take place in running water – that is, in a river often called Jordan.*
>
> – Melton & Baumann, *Religions of the World*, 2010

When visiting the site on a Sunday, long white robes stand in stark contrast to the green of the river landscape. These robes belong to members of the Zionist Christian Church. Upon discovering their residence on the site I spoke with a member of the Church and was told that the Church meets on the river banks every Sunday for the whole day as well as during the week at nightfall with the ceremony ending as dawn breaks. The religion has a tendency toward ritual and when members arrive at church one is usually sprinkled with water. Water is also used for both healing and baptism and Zionist Christian Churches are sometimes referred to as didiba, meaning 'wells'. Baptism is not a singular occurrence within an individual's religious life and members undergo several baptisms.[1]

This community gathers in the wilderness of the flood plain due to a lack of community built space in Imizamo Yethu. The site, in its informal public nature, is the only shared space available to the multitude of marginalised Hout Bay residents.

Font of Santa Maria
Church, Alvaro
Siza, 1996

RITUAL

The origin of ritual is described by McCarter and Pallasmaa in *Understanding Architecture* as follows, "most rituals are derived from human need to make sense of the world: its origins, its essences and ways of working, as well as its ultimate fate".[2] The origin of ritual is founded in sacred acts. However, the act of repeating the mundane tends toward ritualization.[3] Through repetition our daily habits are therefore elevated.

Rituals are often formed as a response to the changing natural rhythms of a place as articulated by Ralph Knowles, "ritual imparts special meaning to alterations of time and season, setting up rhythms in our own lives that attach us to the place we occupy".[4] Ritual therefore articulates time and periodicity. Through practicing daily acts of ritual we are able to deeply experience, and bind our lives, to place.

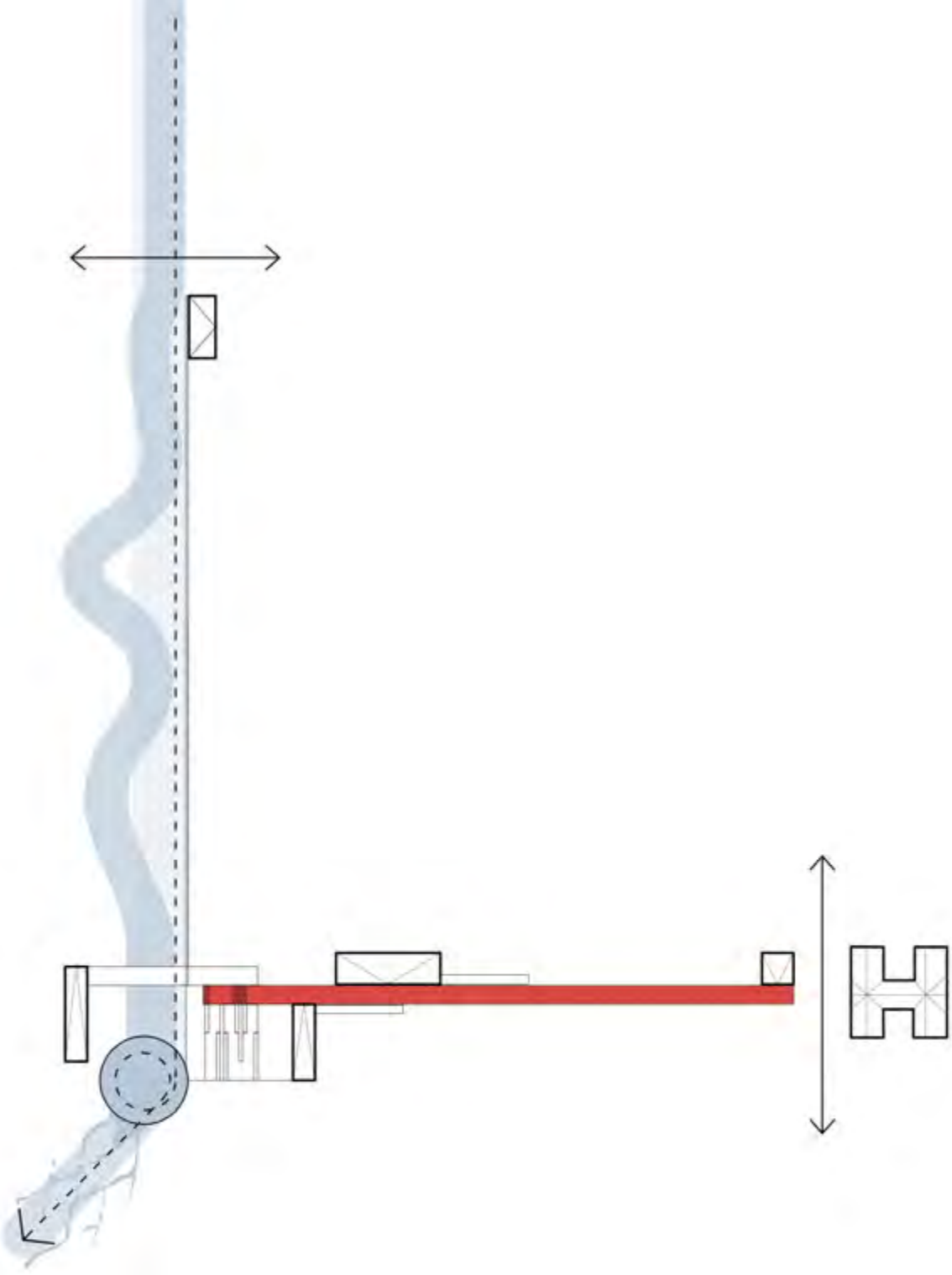
Architecture is the art which materialises these beliefs and patterns of behaviour. By providing a place to practice daily habits, or rituals, architecture is capable of transforming the profane into the profound.

Photograph taken of the old avenue of oak trees

RITUAL CONTINUED

The intervention is sensitive to the different rituals of use for each user; the ritual of prayer; of baptism; of bathing; of movement; and of crossing. Prayer and baptism are rooted in the sacred connotations of ritual. However, the curated and repeated progression toward water across the valley evokes a sense of ritual through the repeated activities of; walking, undressing, sunbathing and finally, immersing the body in water.

The path which once connected the old manor house to the river, and which is now used by the Christian Zionists, is revealed and 'scaped. This new (old) path joins Main Road to the river between the avenue of oak trees. This act of 'scaping articulates the common desire of inhabitants to reach the river. As one progresses down the gradient of the path, to the river below, successive pavilions are revealed. These pavilions hang off of the path. Each pavilion has its own function; changing, eating or praying. These embody the rituals of different individuals visiting the site and each ritual is revealed on this journey along the path to the water. Finally, the visitor experiences the intimate ritual of descent to the pools excavated into the river landscape below, leaving the public path, and descending into the privacy of the water.

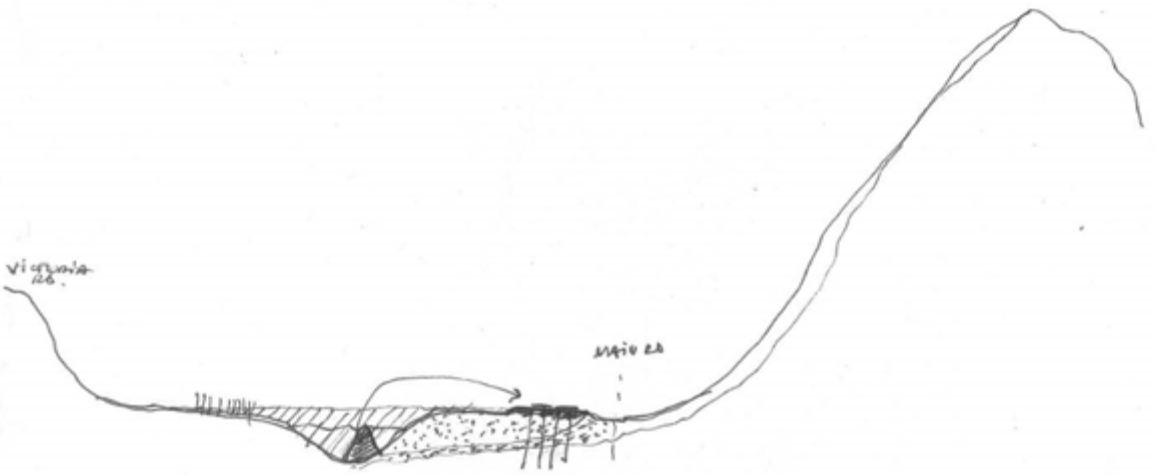


FULCRUM & COUNTERPOINT

The prayer path down to the river is designed to be paved and ends in a pool. It is a circular pool which is built at the end of the series of wetland and aeration pools that extend to the Victoria Road bridge. This final pool is set apart. It acts as a fulcrum, turning the course of the river, reuniting river with wetland. This is the only concrete intervention and resists the force of the river through gravity construction.

The intervention acknowledges that, by paving the prayer path, the colonial water axis is, in consequence, restored. This paved path connects the river to the main road and the Kronendal homestead. The Cape Dutch manor house is a physical artifice of Colonialism. The intervention reintroduces it into the public discourse in order to confront it, question its associations and celebrate its beauty.

The project therefore forms a counterpoint to the homestead. The point of a counterpoint is, "to set in contrast; to emphasize a contrast between (two things) by juxtaposition".[5] A circular pool is dug into the earth, an inversion of the earthen Kronendal Groot Huis. The removed form is set in contrast to the built object. The intervention also forms a balance with a place now holding each end of the axis. This sets up a clear condition; a landscape extrusion is tethered to a landscape intrusion. There is a new type of experience intended at the end of the path.



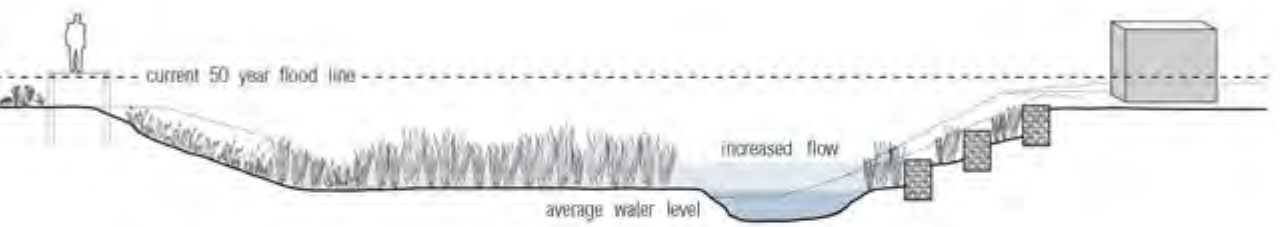
Explanatory sketch drawn in
studio, Luis Mira, architect of the
Hout Bay International School

THE THICK SECTION

An exploration into site revealed the material structure of the place. The section through the site began to inform the materiality of the architecture above. This exploration revealed that the valley is made of both the material eroded from the surrounding mountains, and beach sand, which rests on top of this layer. An additional layer, which fluctuates between an immaterial concern and materiality, is the potential flood water of the site. The buildings therefore become timber structures which stand on legs and float 1.2m above the site and, as a result, the floodplain. Ultimately, a material horizon is created, and the floating pavilions leave stereotomic construction in the floodplain below.

The pools are made by manipulating and gathering the ground. Silt from the problem section is gathered, mixed with concrete in a dry mixture, shuttered and rammed to form pools. The pools become both architecture and land-form. The intervention becomes a new layer in a thickly layered site. The project is not added, it is brought out of the existing.

The pools which clean the river constitute the third material of the intervention. The material of which the wetland was always constructed; palmiet, sand and water. The bed of the river is manipulated and planted to restore the wetland of the river. And, when necessary, retained by rock found in the valley in the form of gabions. The materiality of the intervention is therefore; timber; rammed concrete; and earth, rock, water and palmiet.



A cross section showing the opportunity for the river to expand westward

EDGES

River edges form the transition between land and water. When intervening in a river system how do we learn from the 'squishiness' of natural river edges? Da Cunha and Mathur, authors of *Soak; Mumbai in an Estuary*, describe the irony of constructing hard river edges,

> *Mumbai's apparent hard edges are the historical product of a determined effort to imagine lines where none exist and then to make them survive in the face of an aqueous terrain which constantly defeats their materiality*[6]

As explained by Da Cunha and Mathur, edges along a river should be constructed in a language that is both absorbent and resilient in both plan and section. When building a hard edge becomes a necessity it should be married with a fluid edge on the opposite river bank. Water needs an environment of flexibility. It cannot be entirely contained.

A simultaneous exploration into the thick section of the site and research into river edges brought about a change in thinking regarding the wetland and turbulence pools. The matter of the site (water, earth and palmiet) is restored and used to construct 'squishy' and resilient edges. The section of the river is also changed. The river bank which supports the homes of the Wallers is retained with gabions to protect the homes from floods and collapsing river banks. The opposite bank opens up, creating a resilient river bank capable of absorbing increases in flow.

Termas Geométricas Hot Springs Complex,
Germán del Sol, 2005

BRIDGES

To be sure, the bridge is a thing of its own kind; for it gathers the fourfold in such a way that it allows a site for it. But only something that is itself a location can make space for a site. The location is not already there before the bridge is. Before the bridge stands, there are of course many spots along the stream that can be occupied by something. One of them proves to be a location, and does so because of the bridge. Thus the bridge does not first come to a location to stand in it; rather, a location comes into existence only by virtue of the bridge. The bridge is a thing; it gathers the fourfold, but in such a way that it allows a site for the fourfold.

- Martin Heidegger, *Building Dwelling Thinking,* 1993

GRADIENT

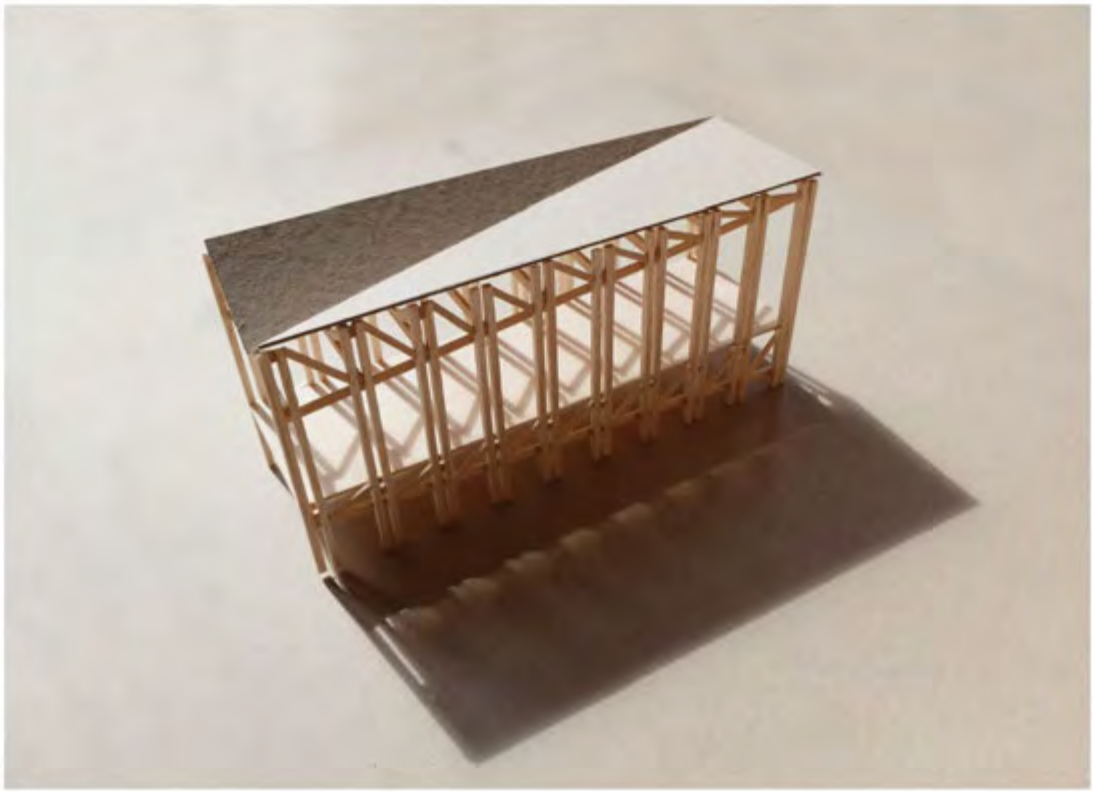
Gradient becomes an architectural phenomenon when people are made to inhabit the inclined or unlevelled plain. In this way, topography and landscape are the unmade and native architectures of the lived environment.

The manner in which we, as bipeds, negotiate the inhumane topographic conditions of the world is the archetypal endeavour of architectural discourse. How do built things, regular things, interact with the irregular fabric of the land?

Gradient is inescapable, the level plain is an unnatural thing. Gradient in the river valley is essential to the understanding of place. The gradient at the valley floor is minimal, it is the easiest place to farm because terracing is not necessary and the ground is free of rocks. The gradient further up the valley becomes steeper and water is only available from springs and streams. The land here must be shaped to be habitable. Further up the valley still, the land becomes vertical and of no use to people, it remains in its natural state.

Navigation, movement across the contour is the task of living in a landscape of valley spaces. To walk directly across the contour is difficult and so the switchback is utilised.

In the architectural plan, where gradient is imperceptible, the way in which paths are laid out can always offer suggestion as to the lay of the land. Desire lines often unconsciously mark the most efficient route of movement. These routes scribe an intelligent design of human – nature relationships dictated by the length of a stride and the gradient of the ground.



A model exploring the structure of
the timber pavilions

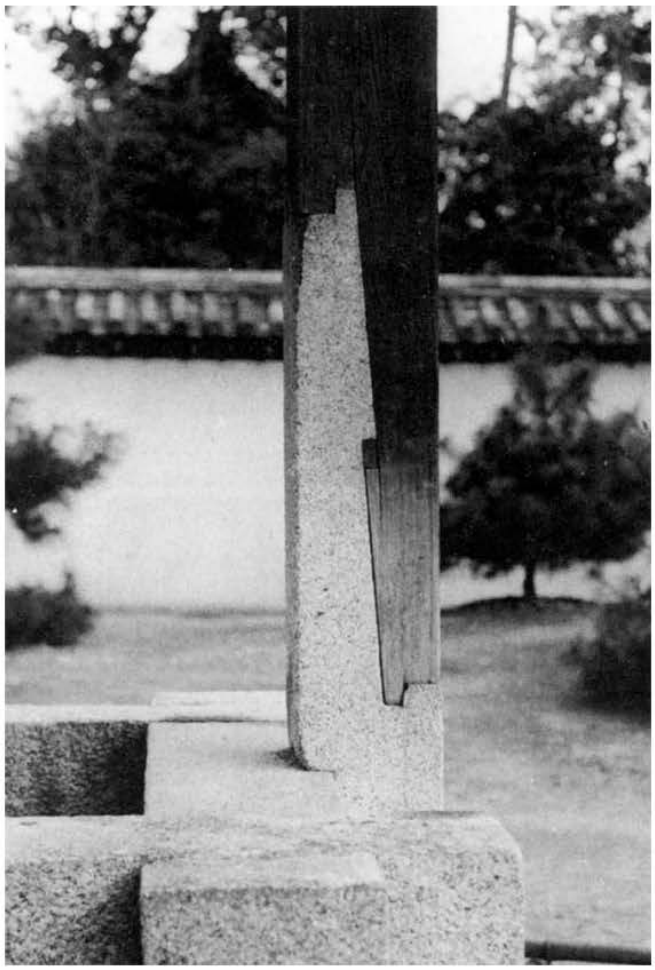
DESIGN DEVELOPMENT

> *When we come across a mound in the woods, six feet long and three feet wide, raised to a pyramidal form by means of a spade, we become serious and something within us says: someone lies buried here. This is architecture.*
>
> - Adolf Loos, *Arkitektur*, 1962

The design process began with an interest in landscape and water. The shape of the land made water gather and the gathered water in turn shaped the land. Gradient and fluid are locked in a mutual conversation of material flow.

The roof of the pavilion catches water, and then acts to drain the water to a single point. The flow of water draining therefore forms the roof. The timber structure below the roof expresses this watery function. The roof was developed where three sides with gradient would funnel water to a spout. This spout would fountain water off of the roof and it would splash on the ground. You would be able to see if there had been rain the night before from the darkened earth underneath the spout. When viewed, the roof would unmistakably be a funnel, and even with no rain, you would be able to see it was a water catching shape.

This roof would be supported by a timber assemblage which would constitute the pavilion buildings. I favoured an imagining of the buildings as light structures, tectonic and made of slender members. This brought about the dimension of the structural bay that would support the roof. A rhythm of columns at 1.5m spacings was established as a practical span for small timber members.



Japanese Sumikiri-isu-ka-tsugi joint provides a union between stone and timber

There are two types of tree on the site. One is the English oak, these line the avenue that connected the Kronendal Manor House to the river, and the other type are poplar trees, growing unplanned in clumps on the site. The oaks would be left as a remnant of the original garden axis. They seeded an interest in rhythm as I noticed their even spacing in what is otherwise random overgrowth. The poplars would be removed in order to make room for the civil works involved in the rehabilitation of the river. They would be milled and stay on in the construction of the buildings. Poplar, if quarter sawn, has a flame in its grain which would look beautiful. It can be a structural or ornamental timber but it is soft and does not last if constantly wet.

This problem, the wet, has been a focus. The site is a flood plain and is known to occasionally be covered by up to 1m of sitting water. Hence the buildings grew legs. The columns grew longer and the floors became suspended. With the buildings on stilts, a very clear material strategy presented itself. The ground plain would be altered subtly and remain heavy, sometimes submerged, while the timber structures would become liberated from the topography. The join, the meeting point between the differing materials required attention. The ground would reach up in the form of a concrete pier and be jointed to the poplar column with a Japanese fixingless carpentry joint. This joint is celebrated while the remainder of the timber buildings would be simply side jointed, modest, easily constructed and expressive of the desired 'assembled' quality.

An idea became consumptive; the logic of building a landform architecture from the material of the surrounding landscape. The local standstone, as hewn from the surrounding mountains, is often of a striking colour palette ranging from pink to bright red, orange and purple. It would be masoned and used to form those architectural elements that would be directly interacted with by visitors to the site. Benches, stairs, and curbs would be fabricated from the durable red stone. The majority of the path, pools and surfaces would, however, be cast from a substitute substance made of river sand from the site, river pebbles, cement and a red oxide additive to match the colour of the natural stone.


VICTORIA ROAD
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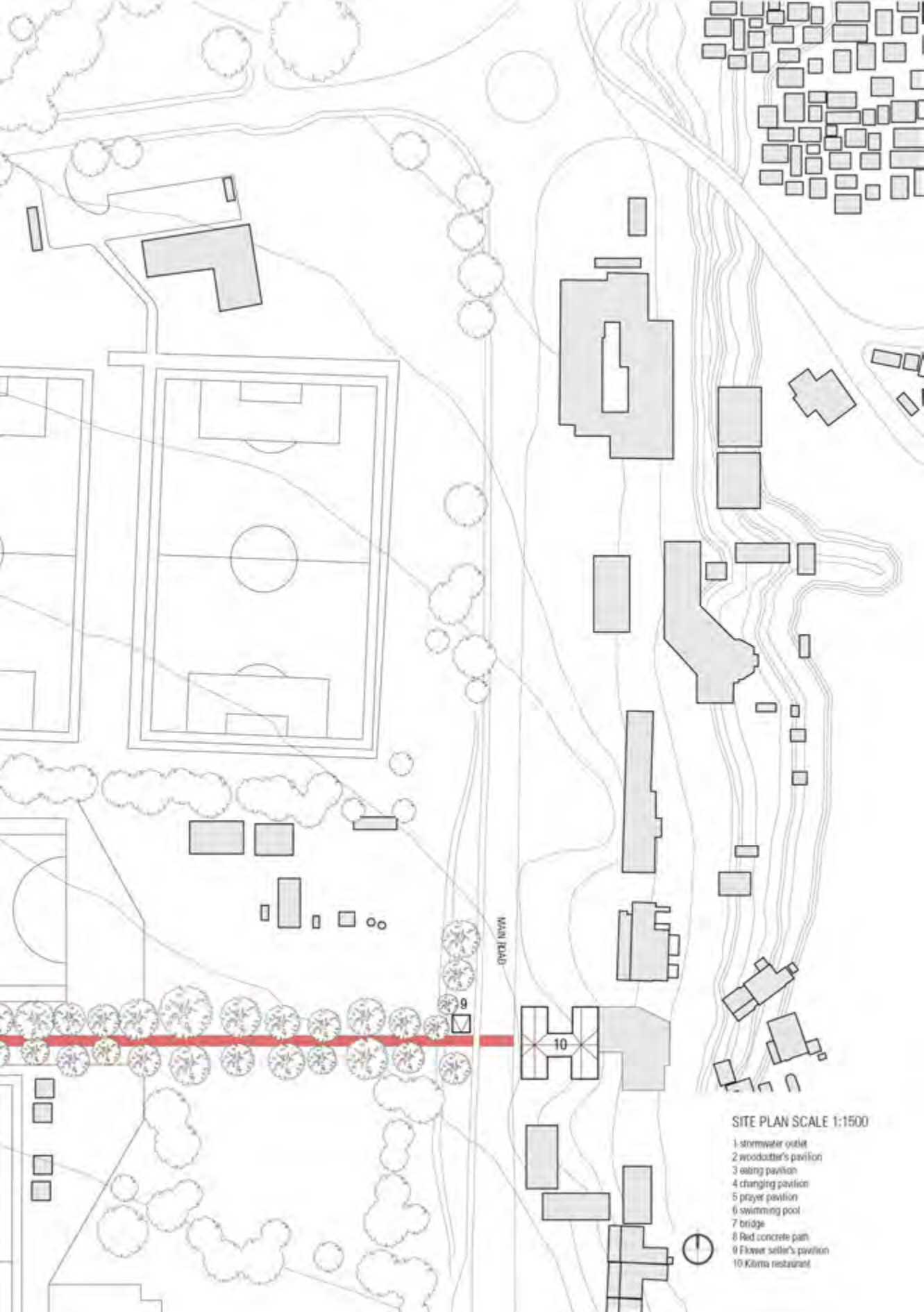
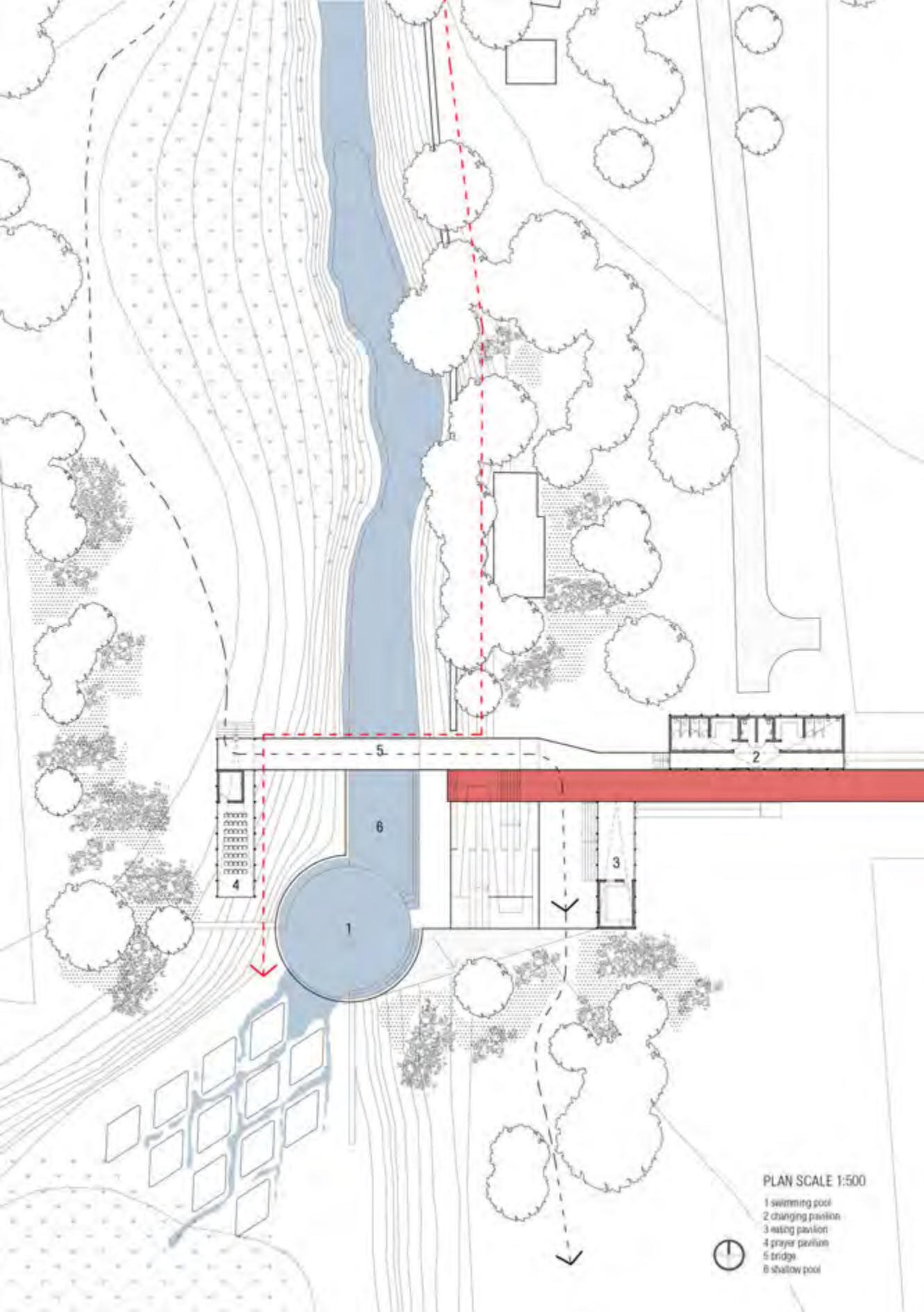


SITE PLAN SCALE 1:1500

1 stormwater outlet
2 woodcutter's pavilion
3 eating pavilion
4 changing pavilion
5 prayer pavilion
6 swimming pool
7 bridge
8 Red concrete path
9 Flower seller's pavilion
10 Kitima restaurant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2
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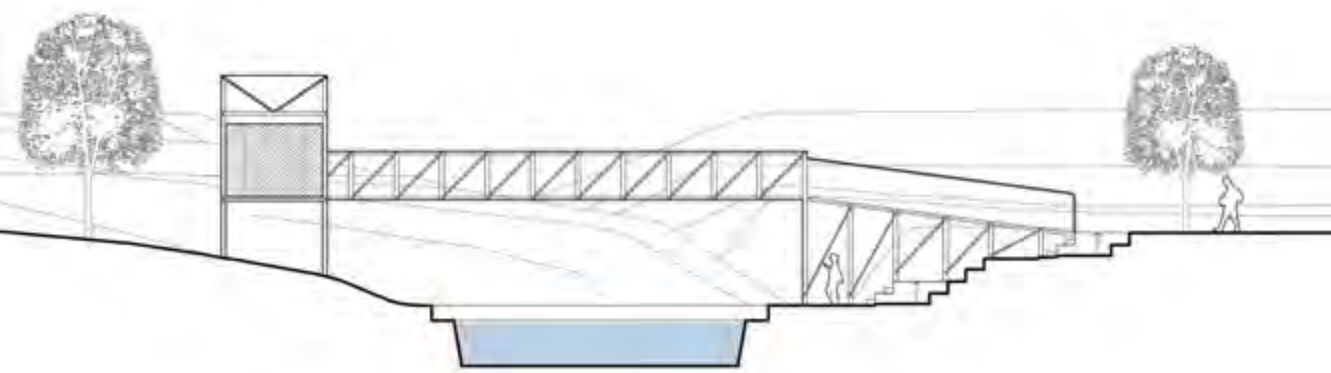
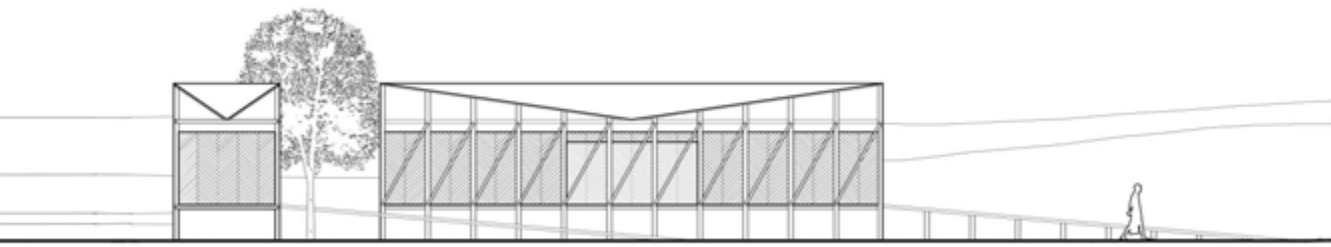
PLAN SCALE 1:500
1 swimming pool
2 changing pavilion
3 eating pavilion
4 prayer pavilion
5 bridge
6 shallow pool





CROSS SECTION THROUGH
SITE SCALE 1:250

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CONCLUSION

This dissertation began with a passionate interest in matter.

Metaphysical ponderings developed the idea that material could have a personified intelligence, a personality, and even an imagination. In this sense, a way of thinking became the starting point for the research rather than the desire to solve any particular problem.

A site was chosen which embodied the research focus. In an attempt to understand the Hout Bay Valley, the logic of material, the logic of the landscape, became manifestly apparent. Ultimately, an intentionally empathetic attitude towards material and landscape distilled an intervention which is intimately bound to matter and site.

Along the river, a series of pre-existing activities were gathered from the banks and provided for architecturally. Bird watchers, horse riders, Christian Zionists, hikers, woodcutters and flower sellers are brought together in the Hout Bay floodplain by water. The landscape and its artefacts are not proposed as memorial. They are offered up as a thickly layered life-ground, embedded with future potentialities.

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