

POETRY OF FORGOTTEN WASTELANDS:  
Transforming a wasteland in Salvokop into a designed enigmatic landscape

by  
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Full dissertation title: POETRY OF FORGOTTEN WASTELANDS: Transforming a wasteland in Salvokop into a designed enigmatic landscape

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### **Project summary**

Site description: Salvokop's abandoned wasteland  
Client: The current owner is Transnet Ltd, the proposed client will be a private developer  
Users: Salvokop community, visitors and workers in the area and the general public.  
Site Location: Pretoria town and townlands, farm number 351-JR, portion 406 (remaining extent), Salvokop, Pretoria.  
Address: Skietpoort Avenue, Salvokop, Pretoria, South Africa.  
GPS Coordinates: 25°75'85. 03"S, 28°18'44. 38"E

Landscape Architectural Theoretical Premise: First, on a planning level, wastelands can become the healing tissue that a city needs to reverse urban decay of form and fabric. These wastelands can be used to introduce nature in the city and encourage densification. Second, on a spatial and experiential level, waste lands can be used to design enigmatic landscapes in reaction to the 'non-place' of modernity.

Landscape Architectural Approach: Transforming Salvokop's wasteland into a designed enigmatic landscape.

Research field: Landscape urbanism and cultural landscapes

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I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this dissertation is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.



Gloria Di Monte

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## ABSTRACT

This dissertation explores wastelands on two levels: an urban planning level and a poetic spatial level. As a real world problem, people move to suburbs (notably in the form of low density housing estates) in search of nature; as they move they destroy nature and contribute to the decay of urban form and fabric of the city. Due to the ensuing urban sprawl and other factors, cities are punctured with wastelands that lie abandoned, neglected and forgotten. On a planning level, this dissertation investigates if wastelands can become the healing tissue that a city needs to reverse urban decay of form and fabric. However, once identified for redevelopment or re-use, the intriguing enigmatic character and richness of wastelands are often ignored and erased in a process akin to gentrification - the sterilisation of wastelands results in 'non-place'. Thus, on a spatial and experiential level, this dissertation explores the potential of wastelands to become enigmatic landscapes in reaction to the 'non-place' of modernity. Wastelands in Pretoria are mapped in order to identify potential areas that can be re-imagined to serve a decaying city with open space, yet not be reduced to 'non-place' - a site in Salvokop is selected for the study. The design follows a hypothetical process that start with spatial explorations followed by planning considerations; not *vice versa*. Technical investigations test the validity of the proposed intervention and refine it. A portion of the site is resolved to a detailed sketch plan.

## SAMEVATTING

Hierdie verhandeling ondersoek afvalgebiede op twee vlakke: 'n stedelike beplanning en 'n poëtiese ervaringsleer en ruimtelike vlak. Wêreldwyd ontstaan die probleem dat mense na voorstede verhuis, uitbeweeg uit die woonbuurte na stedelike randgebiede, wat minder bevolk is, op soek na natuur, sodoende vernietig hulle die natuur en dra by tot verrottende gebiede en die vernietiging van die stad se struktuur. As gevolg van die daaropvolgende stedelike uitbreiding en ander faktore, word stede gevul met afvalgebiede wat verlate, verwaarloos en vergete lê. Op 'n beplanningsvlak, ondersoek hierdie verhandeling of afvalgebiede die genesende weefsel kan word wat 'n stad benodig om stedelike verval om te keer. Sodra die afvalgebied geïdentifiseer word vir herontwikkeling of hergebruik, word die enigmatiese karakter en rykdom geignoreer en uitgewis in 'n proses soortgelyk aan verburgerliking - - die sterilisasie van afvalgebiede dra by tot 'n 'nie-plek'. Dus, op 'n ruimtelike en ervaringsleer vlak, ondersoek hierdie verhandeling die potensiaal van afvalgebiede om enigmatiese landskappe te word in reaksie op die 'nie-plek' van moderniteit. Afvalgebiede in Pretoria is gekarteer ten einde potensieël afvalgebiede te identifiseer, wat gebruik kan word om 'n vervalde stad met oop ruimte te dien, en nog nie verminder is tot 'n 'nie-plek' nie - 'n afgebied in Salvokop is geïdentifiseer vir die studie. Die ontwerp volg op 'n hipotetiese proses wat begin met ruimtelike verkennings, gevolg deur oorwegings, nie andersom nie. Tegnieëse ondersoek toets die geldigheid van die voorgestelde ingryping en verfyn dit. 'n Gedeelte van die afvalgebied is in 'n gedetailleerde plan weergegee.

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# DEFINITION OF TERMS

## **LANDSCAPE**

“The combination of ‘land’ and ‘-scape’ indicates an area, an expanse, a space, that has been created or shaped, is visible as such, and therefore can be represented” (Vroom, 2006: 177). Landscape is a term that implies human intervention.

## **WASTELANDS**

According to Curulli (2007: 32) “wastelands are the leftover spaces and buildings from the industrial age. Void of role or function, they leave gaps in landscapes and urban fabric, which are targeted for recycling”. For the purpose of this study part of the formation of wastelands as defined by Alan Berger includes waste, wasted places and wasteful places (2006a:14).

## **WASTE SITES**

For the purpose of this study includes municipal solid waste, scrap metal, sewage plants and landfill sites (see page 43).

## **WASTED SITES**

For the purpose of this study includes abandoned sites that have been leftover and forgotten (see page 44).

## **WASTEFUL SITES**

For the purpose of this study includes oversized parking lots, inappropriate uses and divisive places that disconnect and scar the landscape (see page 45).

## **NON-PLACE**

According to Marc Augé “[i]f a place can be defined as relational, historical and concerned with identity, then a space which cannot be defined as relational, or historical, or concerned with identity will be a non-place” (1995: 78). Non-places include shopping centres, gyms, hotels, airports and large retail outlet (see page 25-27).

## **NON-SITE**

For the purpose of the study non-site is the landscape equivalent to non-place as described by Marc Augé. A controlled, predictable landscape. These include recreational parks, theme parks, formal gardens, leisure parks, golf courses, housing estates, street edges and roads (see page 25-27).

## **PEDIGREE LANDSCAPE**

A ‘pedigree’ landscape of lawns, flowerbeds and planned places (Hough, 1984: 6). For the purpose of this study pedigree landscapes refer to controlled landscapes that have a low biodiversity. These landscapes are completely sterilised of past references, existing character, quality and ecological diversity (see page 25-29). These landscapes fall under the definition of non-place (non-site) as defined by Marc Augé (see page 25-27).

## **ENIGMATIC LANDSCAPE**

“... [a] fortuitous landscape of naturalised urban plants and flooded places left after rain, that may be found everywhere in the forgotten places of the city” (Hough, 1984: 6). Enigmatic landscapes refer to landscapes that are mysterious and unpredictable. For the purpose of this study this type of landscape is rich in biodiversity, character and quality. It highlights existing natural processes, ecological systems and has an aspect of exploration and adventure to it. These landscapes fall under the definition of place as defined by Marc Augé (see page 25-29).

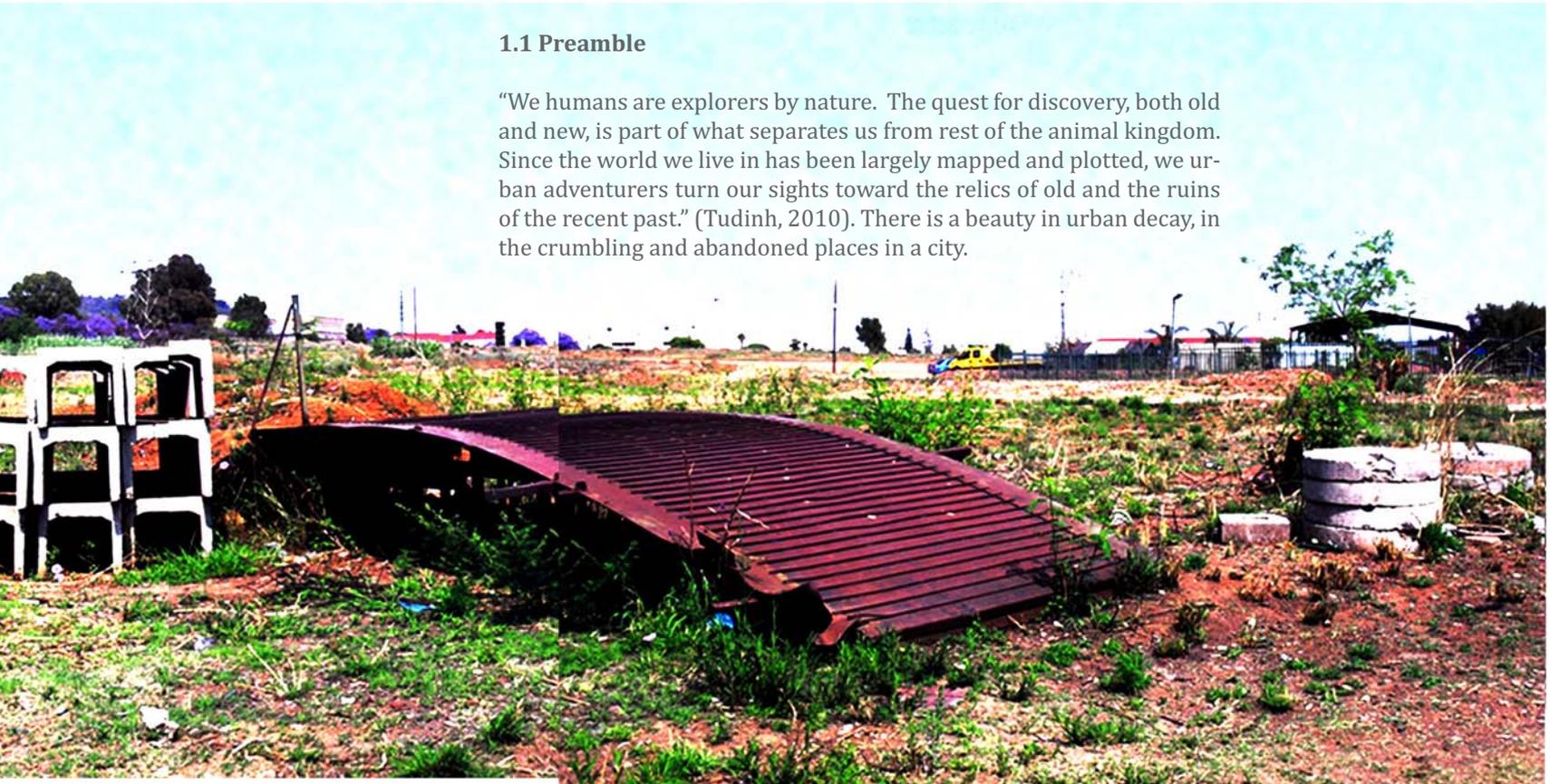
# CHAPTER 1\_INTRODUCTION



Illustration 1: Poetry of forgotten places, Salvokop

### 1.1 Preamble

“We humans are explorers by nature. The quest for discovery, both old and new, is part of what separates us from rest of the animal kingdom. Since the world we live in has been largely mapped and plotted, we urban adventurers turn our sights toward the relics of old and the ruins of the recent past.” (Tudinh, 2010). There is a beauty in urban decay, in the crumbling and abandoned places in a city.



## 01 INTRODUCTION

“Cause on the surface the city lights shine  
They’re calling at me, come and find your kind  
Sometimes I wonder if the World’s so small  
That we can never get away from the sprawl  
Living in the sprawl  
Dead shopping malls rise like mountains beyond mountains  
And there’s no end in sight  
I need the darkness, someone please cut the lights”

(Arcade Fire, Sprawl II lyrics, 2010)

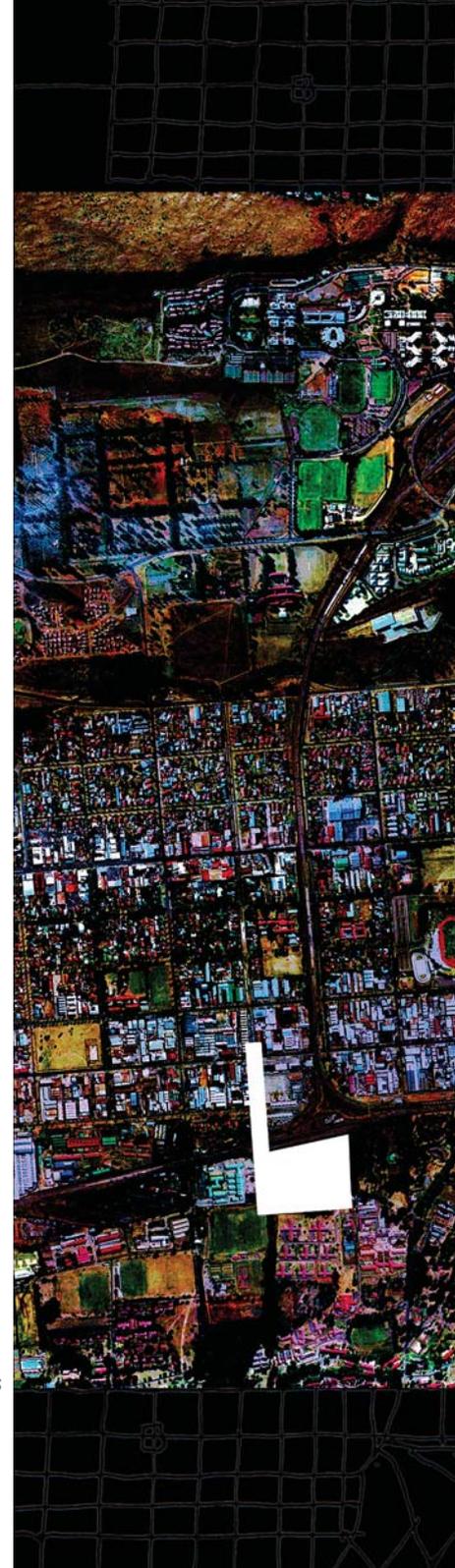


Illustration 2: Urban sprawl and wastelands



WASTE  
AND

URBAN SPRAWL



Illustration 3: Non-place.

...e people are born in the clinic  
...ital..."



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YUNIBESITHI YA PRETORIA

BILL MURRAY SCARLETT JOHANSSON

"The hypothesis advanced here is that supermodernity produces non-places, meaning spaces which are not themselves anthropological places and which, unlike Baudelairean modernity, do not integrate the earlier places: instead these are listed, classified, promoted to the status of 'places of memory', and assigned to a circumscribed and specific position. A world where people are born in the clinic and die in hospital, where transit points and temporary abodes are proliferating under luxurious or inhuman conditions (hotel chains and squats, holiday clubs and refugee camps, shantytowns threatened with demolition or doomed to festering longevity); where a dense network of means of transport which are also inhabited spaces is developing, where the habitue of supermarkets, slot machines and credit cards communicates wordlessly, through gestures, with an abstract, unmediated commerce..."

Marc Auge, 1995

# Lost In Translation

...y of human destinies is experienced  
...y of non-place, and in solitude".

# NON-PLACE



FOXES FEATURES PRESENTS AN AMERICAN ZEPHYRE / ELEMENTAL FILMS PRODUCTION "LOST IN TRANSLATION" WITH BILL MURRAY, SCARLETT JOHANSSON, GOMMI BISSI, ANNA FARIS, FANNING MARSH, AND TRAVIS MITCHELL. THE NANCY SPENCER

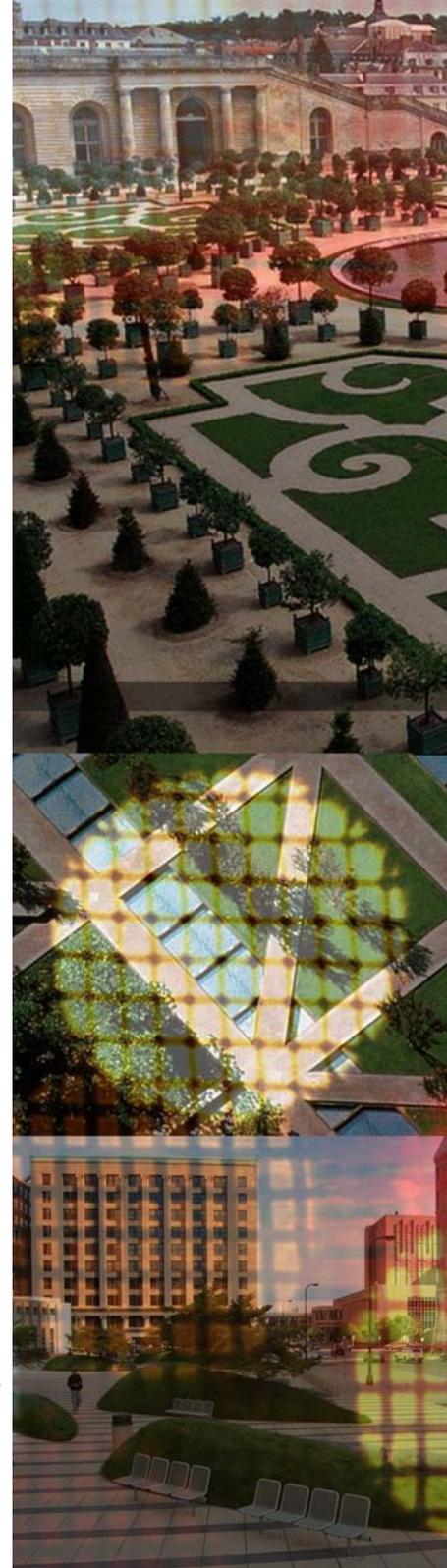


Illustration 4: Non-site



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NON-SITE?

## 1.2 Background and context

Many cities are suffering from large-scale urban decay due to factors such as low density, decentralisation and urban sprawl. These factors lead to unsustainable wasteful cities, which are punctured with spaces that are left abandoned, delapidated, contaminated and wasted. People move away from the city centres, far from the supposedly crime ridden unnatural areas, in search of nature in the suburbs. Unknowingly, they continue to destroy the rare spots of nature that still exist. In addition, life is currently played out and experienced in the predictable non-places of a city. Tired, overworked people spend their lives in shopping malls, airports and on highways. In this monotonous life, humans desire uncontrolled and unpredictable places of adventure and exploration which are characteristics that can be found in enigmatic landscapes such as wastelands.

## 1.3 Problem statement

The real world problem:

People move to the suburbs in search of nature. As they move they destroy nature and contribute to the decay of urban form and fabric. Due to urban sprawl and other factors, cities are punctured with wastelands that lie abandoned, neglected and forgotten.

The theoretical problem:

Once identified for redevelopment or reuse the wastelands and their intriguing enigmatic character and richness are ignored and erased. The sterilisation and gentrification of these wastelands result in 'non-place'.

## 1.4 Hypothesis

The first hypothesis states that, on a planning level, wastelands can become the healing tissue that a city needs to reverse urban decay of form and fabric. These wastelands can be used to introduce nature in the city and encourage densification.

The second hypothesis states that, on a spatial and experiential level, wastelands have the potential to become enigmatic landscapes in reaction to the 'non-place' of modernity.

## 1.5 Aims and objectives

- To find informed methods and processes on a planning and spatial level that allow wastelands to add value to the city without losing its poetic character.
- To find methods to transform abandoned wastelands into ecologically healthy systems within a city.
- To invite citizens into these mysterious zones in order to experience, rather than repress the enigmatic quality of wastelands.
- To create an awareness of the 'other' enigmatic landscape opposite to the pedigree and controlled landscapes that currently exist.

## 1.6 Research questions

1. Is there a need for designed enigmatic landscapes in a city, as opposed to 'non-place'?
2. Can wastelands be transformed without losing their poetic character and if so what design methods and processes can be implemented to enhance the character of the site?
3. Can wastelands be developed into landscape space that will instigate urban densification?

## 1.7 Assumptions and delimitations

- Where required, concepts and guidelines for building footprints, heights and programmes will be provided because the focus of this study is landscape architecture.
- The study of wastelands in Pretoria has been restricted to the centre of Pretoria and Pretoria West for this dissertation.
- The 'Proposed Salvokop Framework' (see chapter 4) will be the assumed framework which will be followed for this dissertation.

## 1.8 Research and design methodology

A combination of a qualitative and quantitative approach will be used. Data will be researched by means of the descriptive survey method and the historical method.

- The Descriptive Survey Method includes taking photographs on the selected site and observing the area under

investigation.

- The Historical Method will include accumulating data in the form of past photographs and past aerial photographs, providing a timeline of the history of the site.
- A different design methodology to the standard and conventional linear approach will be proposed. This methodology focusses foremost on spatial and experiential levels. The process is almost accidental and organic, it grows naturally from one aspect to the other. The proposed design methodology for this dissertation can be seen in detail on page 36.



## CHAPTER 2\_THEORETICAL INVESTIGATION

## 2.1 Background: the relationship between city and nature through the ages

The Roman writer Marcus Tullius Cicero (106 BC - 43 BC) describes second nature in his classical treatise *De natura deorum* [*On the nature of the Gods*]. According to John Dixon Hunt (1992: 131), the Roman writer termed what we would call the cultural landscape as a second nature. This was a landscape of bridges, roads, harbours, agriculture, towns and other infrastructure. All of the elements which man introduces into the physical world to make it more habitable and to make it serve his purpose. Second nature holds onto its natural aspect. Jacopo Bonfadio (1508 - 1550) wrote in 1541 to a fellow humanist that gardens make up third nature (Ray, 2009). Later in the century, another humanist Bartolomeo Taegio (1520 - 1573) also used the term '*terza natura*' in describing gardens (Ray, 2009). The changes made to second nature are to make the world more liveable and pleasurable for humans. In sixteenth-century Italy, when gardens began to flourish, this art was likened to a third nature. Gardens went beyond the functional landscape. Human beings have processed nature in different ways and for different motives. One such mode is the garden. Gardens were worlds where the pursuits of pleasure became more important than the need for utility. According to Hunt, this is where resources of "human intelligence and technological skill were used to fabricate an environment where nature and art collaborated" (1992: 132). In this way the physical world could be seen as aesthetically pleasing and visited more safely. It was thought of as a painting. Each type of garden art draws strongly on the culture of its time. For example, the gardens of the eighteenth-century Romantic era represented the frivolity and pleasure that people so desperately searched for. Romanticism was a reaction against the Industrial Revolution and the scientific rationalisation of nature. People strove for a more playful, light-hearted life rather than that of the hard and serious life of the Industrial Revolution. Gardens go one stage further than the functional landscape of second nature in representing control over their environment. Gardens became an expression of human experience. While Cicero defines second nature, he does not outline what



Illustration 5: Frontispiece to *l'Abbé de Vallemont Curiositez de la nature et de l'art*, 1705

first nature is. It is left for us to assume. Hunt (1992: 132) takes it that he implies a “primal nature”, the natural world, a world before “humans invaded, altered, and augmented it”, a world without any roads, bridges, paths, buildings, etc. Today we might call it the wilderness, portrayed as raw and dangerous. Illustration 5, a painting done in 1705, depicts clearly the three separate natures as described above. The formal, organised garden in the foreground depicts third nature. The middleground, classified as second nature, is the cultivated and agricultural land. In the distance lies the dangerous mountains and wilderness of first nature. In addition, illustration 6 depicts the three natures. In this illustration the city can be classified as third nature, a nature completely controlled, altered and organised by manerely for man.



Illustration 6: “Chain” map of Florence, 1470

Important to emphasise is the point that first nature has constantly been processed for human consumption, “[w]henver humans have encountered it, they tend to tame it, utilize it and otherwise process it” (ibid). The compact layout of past cities have changed form completely. Today it seems we have lost these three distinct natures. Cities bleed into the countryside and the first nature that Cicero implies rarely exists. Traditional urban histories show a movement from compact cities around the world to the Industrial Revolution that allowed cities to break beyond their former boundaries. “The Industrial Revolution altered this delicate ecological and agrarian balance of village around a commons”

(Shane, 2006: 61). Furthermore, it presented mankind with the miracles of innovative and efficient ways of producing goods, manufacturing services and creating new methods of transportation. However, the migration from nature and the simple life into bustling cities filled with polluted factories is evidence of the influence of Industrialisation. As cities grew larger and more congested, distance from the countryside and nostalgia for nature increased, while complaints about city life multiplied (Spirn, 1984a: 31). Over time the city became an unpleasant place to live. People desperately wanted to escape the crime, pollution and harsh environment of the city by moving to the suburbs in search of nature. This became the start of phenomena such as urban sprawl and decentralisation.



Illustration 7: “The city as an egg” by Cedric Price

In Europe, Cedric Price (Shane 2006: 64) described three city morphologies in terms of breakfast dishes (see illustration 7). There was the traditional, dense, “hard-boiled egg” city set in concentric rings of development within its walls. Then the “fried egg” city, where railways ran along the city’s perimeter in “accelerated linear space-time” into the landscape, resulting in a star shape. Lastly, was the post modern “scrambled egg city,” where everything is distributed evenly in small parcels across the landscape in a continuous network. The “scrambled egg city” depicts the layout of our cities today. The three natures have become amalgamated. Since the disintegration of Cicero’s distinct natures people have attempted to incorporate nature and city. *The Death and Life of Great American Cities*, written by Jane

## 02 THEORETICAL INVESTIGATION

Jacobs in the 1960s, is an attack on the city planning, rebuilding and modernist planning policies claimed by Jane Jacobs to have destroyed many existing inner-city communities. The following are influential ideas in orthodox planning. Starting from Howard's Garden city, a set of self-sufficient small towns was to be encircled with a belt of agriculture (see illustration 8). Industry was to be in its planned preserves; schools, housing, and greens in planned living preserves; and in the centre were to be commercial, club, and cultural places. The town and green belt were to be permanently controlled by the public authority. Although Howard tried to create a utopian city in which people live harmoniously together with nature, he set urban sprawl in motion as he increased the size of towns and therefore the desecration of the countryside. Stein and Wright as well as Mumford and Bauer demonstrated and popularised ideas such as: the street is bad as an environment for humans; houses should be turned away from it and faced inward, towards sheltered greens; frequent streets are wasteful; the basic unit of city design is not the street, but the block. Concurrently, City Beautiful, lead by Daniel Burnham of Chicago, was developed to sort out the monuments from the rest of the city, and assemble them in a unit (see illustration 9). One heavy, grandiose monument after another. The aim of the City Beautiful was the City Monumental with the intent of using beautification and monumental grandeur in cities. Designs largely focused on providing visual order in cities that seemed increasingly chaotic as industrial development increased. Later in the 1920s Le Corbusier devised the Radiant City (see illustration 10), composed of skyscrapers within a park. Le Corbusier believed that "[t]he whole city is a park." He envisioned cities with large blocks of park or grassland with many buildings on that parcel of land. Each building would be extremely tall and even be entirely self-sustainable. Jacobs argues that all these are irrelevant to how cities work. Cities are complex systems that are difficult to organise. According to Jacobs (1961: 23-24) cities need an intricate and closely knit diversity of uses that give each other constant mutual support, both economically and socially. Complexities in cities are very often viewed as problems, instead they should be viewed as urbanistic opportunities.

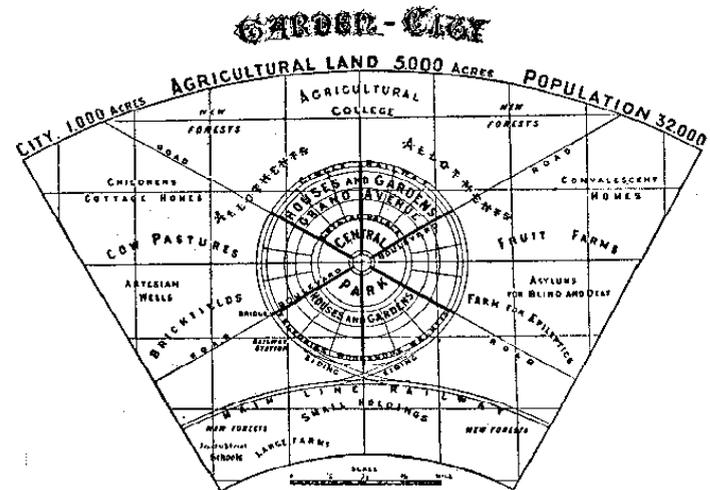


Illustration 8: Howard's Garden City, 1902 by Ebenezer Howard

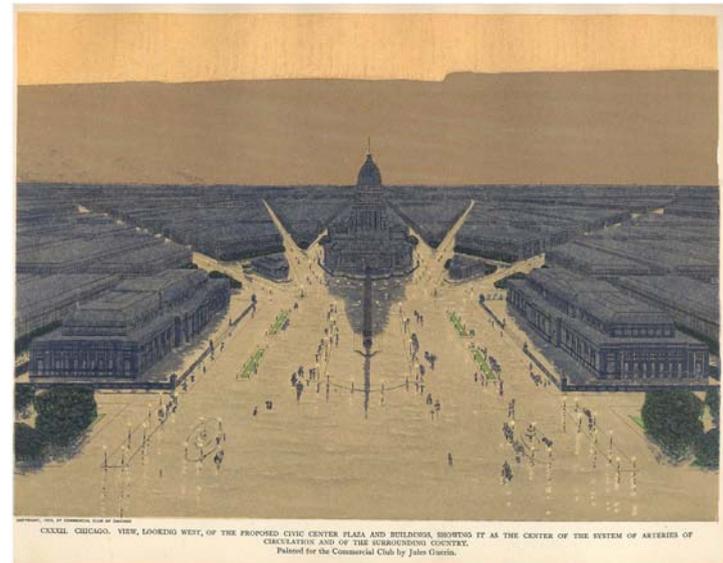


Illustration 9: Daniel Burnham's civic center design during the City Beautiful movement, 1890s and 1900s

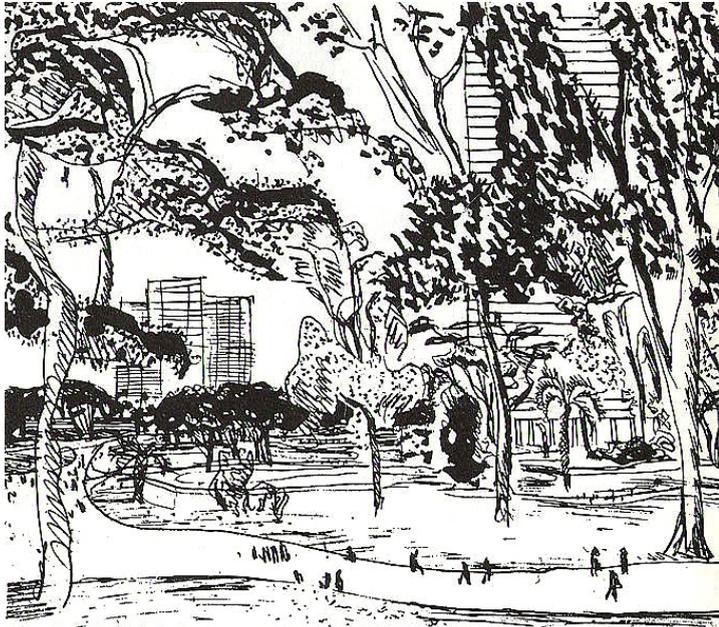


Illustration 10: Le Corbusier's Radiant City, 1920s

## 2.2 Current real world problems: urban sprawl, decentralisation, lost space and wastelands

Rapid horizontal urbanisation is moving away from the traditional descriptions of the city as a place of concentrated population and architectural density. This concept is called urban sprawl. Sprawl according to Berger (2006a: 21) has been seen as a “suburban phenomenon essentially detached from its urban core”. Good or bad, today’s suburban environments often provide more services, diverse amenities, and newer infrastructure than city centres. As a result, job markets have increasingly moved from inner city towns to outlying suburban areas. These overflows are the inevitable result of life’s expanding, waste-making tendencies. Urban populations continue to decentralise as a result and the dense city is no longer the hub of industrial activity. Cities do not look or function the same anymore. As cities undergo a shift of urbanisation expanding outward and hori-

zontally, left in the wake of decentralisation and urban restructuring are sites of waste. They are places where economies have evaporated, populations disappeared and production ceased. These wastelands and lost spaces in the city lie unutilised and forgotten. When viewed by a culture obsessed with clean and orderly space these sites are viewed as valueless entities and classified as wastelands (Claus, 2010: 1). They are banished to areas beyond public sight. Increasingly disconnected and isolated, wastelands have become unequal with adjacent spaces. Roger Trancik uses the term lost space and Stephen Jay Gould uses the term spandrel to describe these neglected spaces.

Trancik (1986: 3-4) defines lost space as:

- the leftover unstructured landscape away from the flow of pedestrian activity in the city.
- the no-man’s lands along the edges of freeways that nobody cares about maintaining, much less using.
- the undesirable urban areas that are in need of redesign – antispace, making no positive contribution to the surroundings or users.
- they are ill-defined, without measurable boundaries, and fail to connect elements in a coherent way.

Stephen Jay Gould defines the term ‘spandrel’ as the spaces arising “as a side-consequence of a prior decision, and not as an explicitly designed feature in itself” (Gould, 2002: 1250). “These spandrels were exapted as mosaic areas, having nothing to do with their original structural purpose” (Berger, 2006a: 34). Wastelands can be classified as spandrel. They may have been spaces that arise as a side-consequence of man’s decisions, but are definitely not afterthoughts of nature. These spaces are inevitable part of a city, so now the problem lies in how to deal with them. People have come up with different ways to approach and deal with wastelands. Some in a negative and some in a positive way. Others have attempted to change people’s attitudes and views about waste. The following discussion will look at these different approaches.

### 2.3 Wastelands: a discourse on approaches, views and attitudes toward wastelands

According to Berger (2006b: 202) the formation of wastelands can mean actual waste (such as municipal solid waste, sewage, scrap metal, etc.), wasted places (such as abandoned and/or contaminated sites), or wasteful places (such as oversized parking lots or big-box retail venues). For the purpose of this study wastelands will be broken down into three different types of sites: waste sites, wasteful sites and wasted sites. In the following pages, approaches, views and attitudes towards wastelands and these different sites will be discussed.

Travel to any country's urbanised area, and you will find "wastefulness" in many forms. Might this reveal the values of the people who live and govern there? Just like physical waste, what is considered "wasteful" is deeply embedded in a culture's value system (Berger, 2006a: 41). Waste was long regarded as part of urbanisation. For example, cities as diverse as ancient Rome, Manhattan and England dumped garbage and waste from daily life into the streets as a means of disposing trash. In older cities, people lived among their waste.

"If the streets of Valencia are not paved,' writes a eighteenth-century traveller, 'it is because their refuse mixed with excrement with which they are only strewn for a few moments, is carried at frequent intervals outside the walls to fertilize the adjoining countryside, and the people are convinced that if they were to pave them, they would deprive the great orchard, which surrounds Valencia on all side, of one of the principle sources of its fertility.'" (Braudel, 1972: 84-85).

Why is it that today we want to be as far away from our waste as possible? Currently there are requirements for appropriate fill materials, and most solid municipal waste is dumped in landfills outside populated areas while water is treated in specialised sewage-treatment plants. Current methods used to deal with waste hide the important services and cycles needed to keep a city running. With these hidden attachments, people

become more wasteful. Without seeing what happens to our waste we continue to live like blind consuming and wasteful citizens. This is not a new found problem and approach to waste, this view was born out of the Modernist period. The Modernists' viewed and dealt with waste as hidden and ugly attachments. Mies stated, "Orderliness is the real reason" (as cited by Perez, 2010). Mies and the Modernists' believed space should be categorised, zoned and responsive to a design philosophy of clarity (Perez, 2010). The landscape was painted as waste and seen as disruptive to any attempt to impose a new pattern (Claus, 2010: 5). For example, the Illinois Institute of Technology campus in Chicago by Mies van der Rohe (see illustration 11), attempts to eliminate the city of dirt and disorder. Modernism was a reaction to the Industrial Revolution. During the Industrial Revolution "[a]nything lying between the outposts of competing imperial realms was seen as masterless, a no man's land, and so an empty space – and empty space was a challenge to action and reproach (blame) to idlers" (Bauman, 2000: 114). The Modernists' sought cleanliness and viewed wastelands as harmful, aesthetically displeasing and negative. The design approach sought to camouflage and conceal them or, as in the case of Illinois Institute of Technology, delete them absolutely. Wasteful sites are a direct result of this Modernist city planning.



Illustration 11: Illinois Institute of Technology campus, 1950, by Mies van der Rohe

In terms of wasted sites contrasting views and approaches have been followed. One such approach is restoration. Landscapes are scraped clean and restored as close as possible to their natural states as if the destruction never occurred. (see illustration 12). Although a healthy approach, the restorative process is an example of a method that invests heavily in idealised notions of landscape (Claus, 2010: 7). The logic of the restorative approach is just as damaged as the landscape seeks to repair as it attempts to hide, sterilise and cover the past. Restoration, however, is a step forward from the Modernists' approach to wastelands. Although still viewed as ugly and ruined, these sites began to be dealt with and no longer ignored.



Illustration 12: Wallsend No. 2 Colliery coal mine before and after reclamation, Australia

By the middle of the 20th century, artists and designers initiated a shift in how wasted sites were viewed. A curatorial approach is shown in the works of Hilla and Bernd Becher (see illustration 13). Abandoned buildings and wastelands were photographed as subjects and objects. The Bechers' technique intended to strip the photographs of subjectivity striving for a non-style (Claus, 2010: 15). The framing detached its visual and cultural connections. Furthermore, reference points such as people, birds, and seasonal effects were kept out of the work. The photographs of the Bechers' step back to observe and capture the subjects for what they are. It does not entangle itself in meaning. They use photographs of objects and subjects to create beautiful compositions and artworks, thus bringing attention to the object. This began to change people's views and attitudes on what was considered beautiful. An example of these photographs changing people's mind sets is Hilla and Bernd Blast Furnace photograph taken at the Duisburg factory (see illustration 14). Artists began seeing this abandoned factory as beautiful and mysterious. The photographs captured the factory's abandoned and enigmatic state. This had a ripple effect which resulted in the factory not being demolished but instead transformed into a unique cultural park (see precedent study, page 32). According to Howette we are:

“trapped not just in a tyranny of the visual imposed by an inherited picturesque aesthetic, but that even the range of possibilities for visual stimulation and pleasure has been needlessly narrowed. And we have deprived our other senses and, indeed, our own minds and souls, of a potentially richer and more profound delight. Baird Callicott has made the point that just as we can develop the capacity to enjoy dissonance in music or ‘the clash of colo[u]r and distortion of eidetic form in painting’, we can come to appreciate qualities in a landscape that initially confound our preconceptions of what is pleasing” (2006: 111).

We need to become accustomed to these different spaces and celebrate them. Slowly our views about these landscapes are beginning to change.

02 THEORETICAL INVESTIGATION



Illustration 13: *Water Towers*, 1980, photograph by Hilla and Bernd Becher

Following this, a theoretical approach and movement, namely landscape urbanism, became a leading trend in the world. In contrast to the Modernists', landscape urbanism is an approach that aims to treat wastelands in a positive light. Landscape urbanism according to Waldheim (2006: 11) "describes a disciplinary realignment currently underway in which landscape replaces architecture as the basic building block of contemporary urbanism. For many, across a range of disciplines, landscape

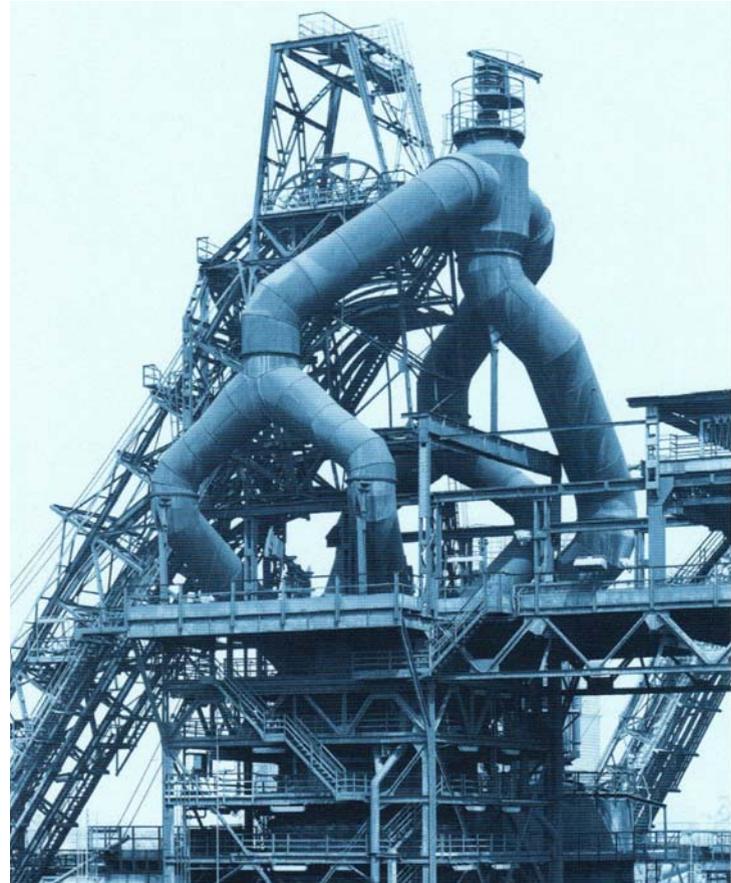


Illustration 14: *Blast Furnace, Duisburg-Bruckhausen*, 1995, photograph by Bernd and Hilla Becher

has become both the lens through which the contemporary city is represented and the medium through which it is constructed." Landscape architects seem mostly employed to deal with left over open spaces where infrastructure and buildings are not. It comes as an afterthought instead of being an integral part of the design process. The idea of "landscape urbanism reorders the values and priorities of urban design, emphasizing the primacy of void over built form, and celebrating indeterminacy and

change over the static certainty of architecture” (Durack, 2004). Urban landscapes have the ability to function as important ecological arteries and pathways. These are important to the health and wellbeing of urban populations. Ecology shows how all life on the planet is bound into dynamic relationships. Cities and infrastructure should be seen as part of the dynamic ecological relationships. Louis Kahn wrote (as cited by Waldheim, 2006: 30):

“Expressways are like rivers. These rivers frame the area to be served. Rivers have Harbors. Harbors are the municipal parking towers; from the Harbors branch a system of Canals that serve the interior; ... from the Canals branch cul-de-sac Docks; the Docks serve as entrance halls to the buildings.”

Lars Lerup divides the urbanised landscape surface into ‘stim’ and ‘dross’. Stim, Lerup defines as the places, buildings, programmes and events that most people would identify as being developed or built for human use (Lerup, 2001: 58). These are points of stimulation. Dross, he defines as the landscape leftover and wasted, found in-between the stims. One of the essential ideas landscape urbanism deals with is wastelands. In contrast to the Modernists’ views, landscape urbanism sees waste as an “indicator of healthy urban growth” (Berger, 2006a: 1). Dross [waste] is understood as a natural component of every dynamically evolving city and emerges out of two primary processes (Berger, 2006a: 12): first, as a consequence of current rapid horizontal urbanisation (urban sprawl), and second, as the leftovers of previous economic and production organisations. Berger takes Lerup’s negative aspect of dross and turns it into a positive one by stating that dross is a result of growth and progression and offers a designer the opportunity to create flexible design strategies that reintegrate the sites into the current urban context (2006a: 58). From this Alan Berger defines the term ‘drosscape’ in his book *Drosscapes: Wasting Land in Urban America*. By this term Berger implies that “dross, or waste, is ‘scaped,’ or resurfaced, and reprogrammed for adaptive reuse” (2006b: 236). Furthermore, Trancik (1986: 2) believes “lost space, underused and deteriorating, provide exceptional oppor-

tunities to reshape an urban centre, so that it attracts people back downtown and counteracts urban sprawl and suburbanization”. Landscape architecture tends to dwell on the traditional areas of landscape history; the garden and the picturesque landscapes (third nature). Beyond and behind these topics lie an important issue and type of landscape that tends to be forgotten and ignored: the wastelands, the drosscapes. These wastelands require attention and new approaches.

In addition to this positive view of wastelands, land artists Robert Smithson and Strijdom van der Merwe take on a celebrative approach toward wasted sites (Claus, 2010: 17). These land artists work suggest a continuance of time and process, it is not isolated from context. Robert Smithson began questioning the picturesque and static notion of landscape and art. Smithson sought to liberate scarred and wastelands from the defined and limited values of Modernism. Whereas the Bechers work pushed toward a non-style, Robert Smithson’s work embraced style. As-



Illustration 15: *Asphalt Rundown*, Rome, 1969, by Robert Smithson



Illustration 16: *am/pm Shadow Lines: Earth Work*, Namaqualand Mines, De Beers, South Africa by Strijdom van der Merwe

phalt Rundown in Rome (see illustration 15) was Smithson's first "flow", situated in an abandoned and mundane section of a gravel and dirt quarry in Rome. A large dumptruck released a load of asphalt down a gutted and gullied cliff already marked by time. Strijdom van der Merwe places emphasis on the Namaqualand Mines (see illustration 16). This is a major land art installation in the middle of the devastation wreaked by mining. Bringing attention to that which is considered wasteful and wasted. "While Strijdom's art is about recreating beauty and working with nature, it also highlights the environmental destruction humankind has wrought" (Ngwenya, 2010). These land artists do not seek to hide the truth but instead to reveal and celebrate it in its raw nature. Both land artists work with the "natural" places that have been altered, defaced and distorted by human intervention.

Another example of a celebrative approach toward wastelands

and appreciation for these unique places is the Oscar winning documentary, *Waste Land* (2010) directed by Lucy Walker and Karen Harley (see illustration 17). *Waste Land* tackles the personal relationship developed between Brazilian artist Vik Muniz and the garbage pickers that he befriends in Rio de Janeiro for collaborative art projects using the waste of the city. The artist invited people to choose paintings they identified with and then asked them to pose in the position of the principal figure for portrait photographs. Muniz would then collect waste from the landfill and create the artwork. Muniz's strong belief in the conceptual aspects of making art from trash and other unexpected materials features as a prominent undercurrent of the documentary as a whole. This documentary celebrates waste sites for what they are, it shines an artistic light on landfill sites and the people that work there, bringing that which is ignored to attention.

In addition, Ignasi de Solà-Morales and Irene Curulli also take on celebrative approaches with interesting opinions and views. Ignasi de Solà-Morales coined the term '*terrain vague*', Ignasi interests focuses on abandoned areas, on obsolete and unproductive spaces and buildings, often undefined and without specific limits, places to which he applies the French term '*terrain vague*' (Ignasi de Solà-Morales, 1995: 120). According to Ignasi de Solà-Morales (1995:119) the French term 'terrain' connotes a more urban quality than the english term. Two Latin roots come together in the French 'vague'. Vague descends from 'vacuus', giving us "vacant" and "vacuum" in English, which is to say "empty, unoccupied," yet also "free, available, unengaged." Vagus: vague; indeterminate, imprecise, blurred, uncertain (ibid). Regarding the generalised tendency to reincorporate and reintroduce these places into the productive city by transforming them, in contrast Rubio insists on the value of their state of ruin and lack of productivity (ibid, 1995: 120). Rubio believes that only in this way can these strange urban spaces manifest themselves as "spaces of freedom that are an alternative to the current profitable reality" (ibid). "The relationship between the absence of use, of activity, and the sense of freedom of expectancy, is fundamental to understanding the evocative potential

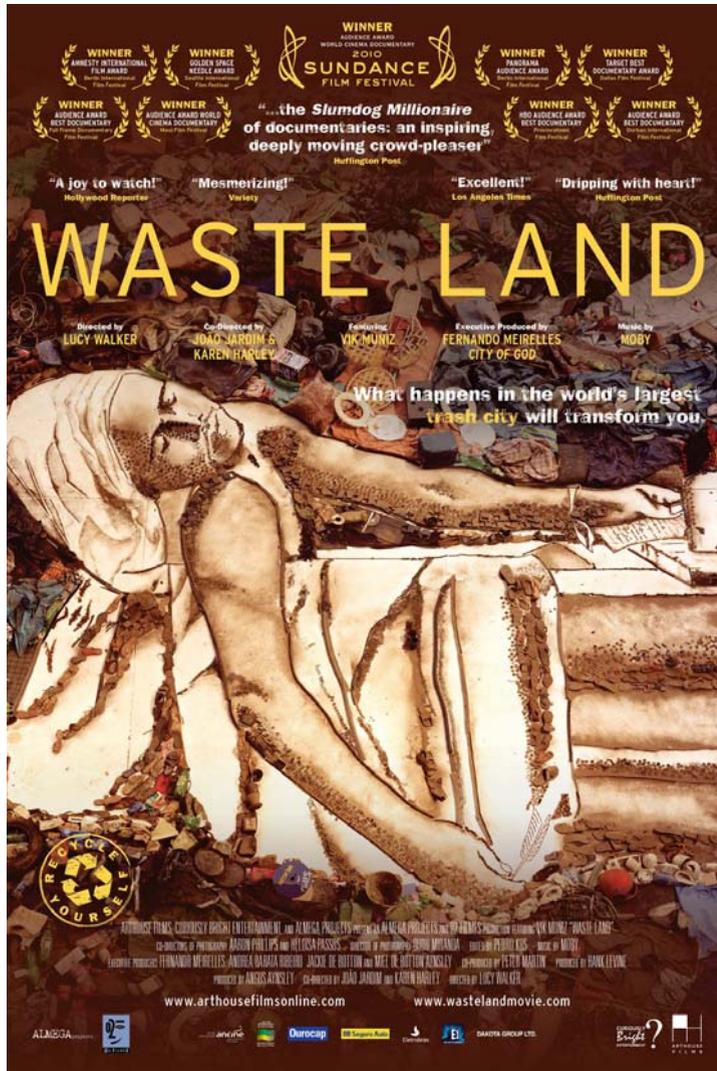


Illustration 17: *Waste Land*, directed by Lucy Walker and Kern Harley, a 2010 film

of the city's *terrains vagues*" (ibid). These places are outside of the city's usual functioning and offer a sense of freedom and richness of unexpected possibilities. Ignasi de Solà-Morales,

(ibid) theorizes that people, especially artists, are drawn to and inspired by the *terrain vague* because they are the unique, unrestrained and free spaces within the city. They are the spaces where "the memory of the past seems to predominate over the present" (ibid).

How can landscape architecture act in the '*terrain vague*' without becoming an aggressive instrument of power and abstract reason? According to Ignasi de Solà-Morales (1995: 123) this can be done through attention to continuity of the flows, energies and rhythms established by the passing of time. "Art's reaction, as before with "nature" is to preserve these alternative, strange spaces" (Ignasi de Solà-Morales, 1995: 122).

Furthermore, the writings by Irene Curulli take on a celebrative approach to industrial sites that focus on their intriguing character. According to Curulli (2007: 32) "wastelands are the leftover spaces and buildings from the industrial age. Void of role or function, they leave gaps in landscapes and urban fabric, which are targeted for recycling". Curulli believes their interpretation has the potential to get a grasp on the absent and invisible aspects in the recent past and present of our society (ibid). They "stimulate awareness and inspire memory: they are forgotten places, often black holes in the mental map of an area, as most people never go there" (ibid). The general trend is a face-lift approach that denies the characteristics of the site itself and wipes out the differences. These sites have built in forces, energies and patterns that the passing of time has set and moulded. These landscape are products of the energies of time. According to Curulli (2007: 33) "wastelands record memories and recall memories". They are extreme sites in their circumstances: "on the one hand, they were damaged by the human activity and are now witness of the human progress; on the other hand they are the focus of concerns as available sites for plans of urban growth" (ibid). Intervention on the site should focus on the process of transformation rather than the final product and this "welcomes decay of memory as the driving force for action" (ibid). These sites offer the designer a high extent of freedom for experimentation. Curulli mentions how the silence of these industrial wastelands is not muteness instead "silence is a potential" (ibid).

**Diagram summary of approaches to wastelands**

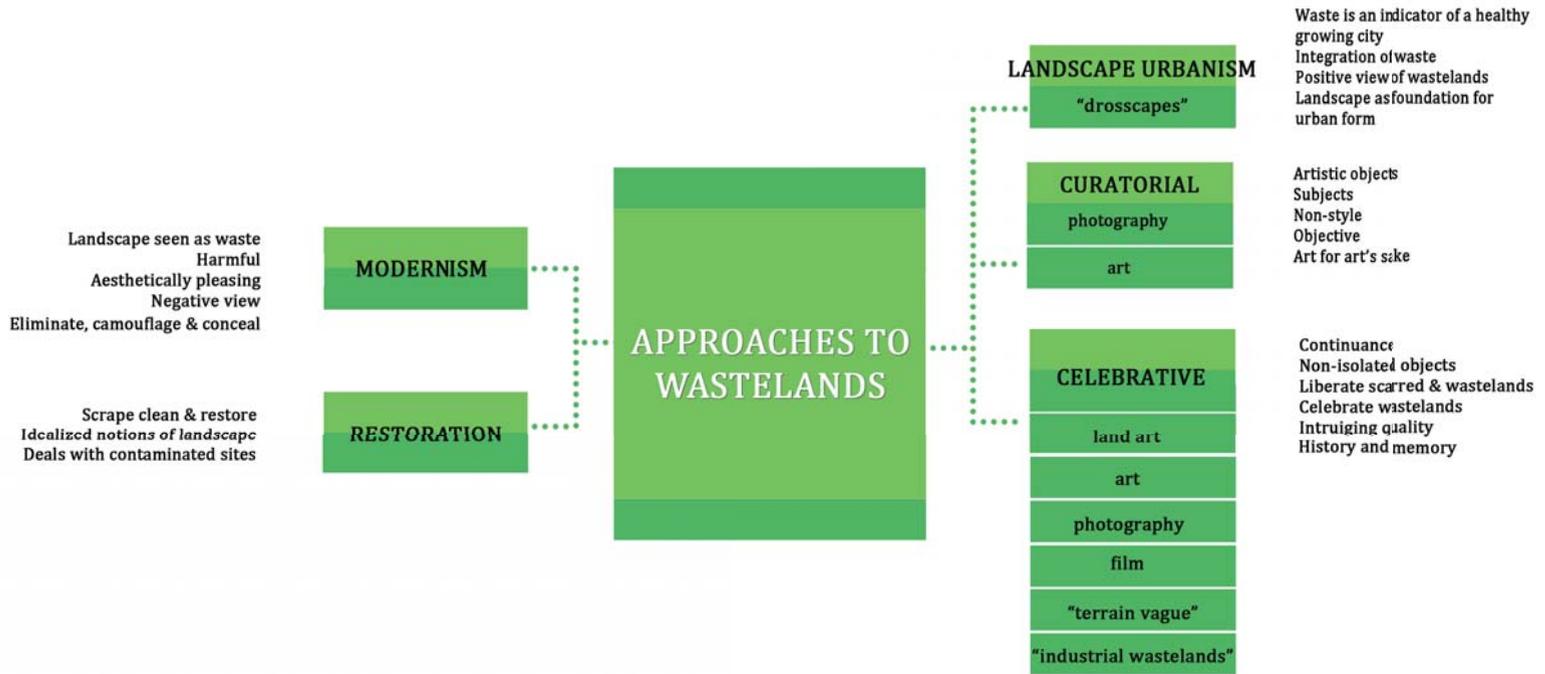


Illustration 18: Diagram of investigated approaches to wastelands

## 2.4 Non-place and place, pedigree and enigmatic landscapes

Marc Augé defines ‘non-place’ and ‘place’ in a city. He uses the term ‘non-place’ to describe the sterile, controlled and predictable spaces in cities. Michel de Certeau mentions ‘non-place’, suggesting indirectly to a “negative quality of place, an absence of the place from itself, caused by the name it has been given” (cited by Augé, 1995: 85). Examples include air, rail and motorway routes, the airports and railway stations, hotel chains, large retail outlets, and the complex galaxy of cables and wireless networks that allow communication (Augé, 1995: 79).

“If a place can be defined as relational, historical and concerned with identity, then a space which cannot be defined as relational, or historical, or concerned with identity will be a non-place” (Augé, 1995: 77-78).

Marc Augé hypothesizes that supermodernity produced non-places,

“... [a] world where people are born in the clinic and die in hospital, where transit points and temporary abodes are proliferating under luxurious or inhuman conditions (hotel chains and squats, holiday clubs and refugee camps, shantytowns threatened with demolition or doomed to festering longevity); where a dense network of means of transport which are also inhabited spaces is developing; where the habitue of supermarkets, slot machines and credit cards communicates wordlessly, through gestures, with an abstract, unmediated commerce ...” (1995: 78).

*Lost in Translation* is a 2003 American film starring Bill Murray and Scarlett Johansson, directed by Sofia Coppola (see illustration 19). The movie explores themes of loneliness, alienation, insomnia, boredom and culture shock against the backdrop of a modern Japanese cityscape. Both Americans find themselves ‘lost’ in non-places, such as hotels, airports, restaurants and motorways. This film shows the non-places we live in, the lifeless, controlled, powered, clean, neon lit and predictable spaces. Experience of non-place is today a fundamental component of all social existence and non-place occupies more space than ever before. “The

community of human destinies is experienced in the anonymity of non-place, and in solitude” (Augé, 1995: 120). These spaces offer no mystery, no uncertainty and no adventure. The philosopher Zygmunt Bauman talks of non-places being “temples of consumption”, they “reveal nothing of the nature of daily reality except its dull sturdiness and impregnability” (2000: 99).

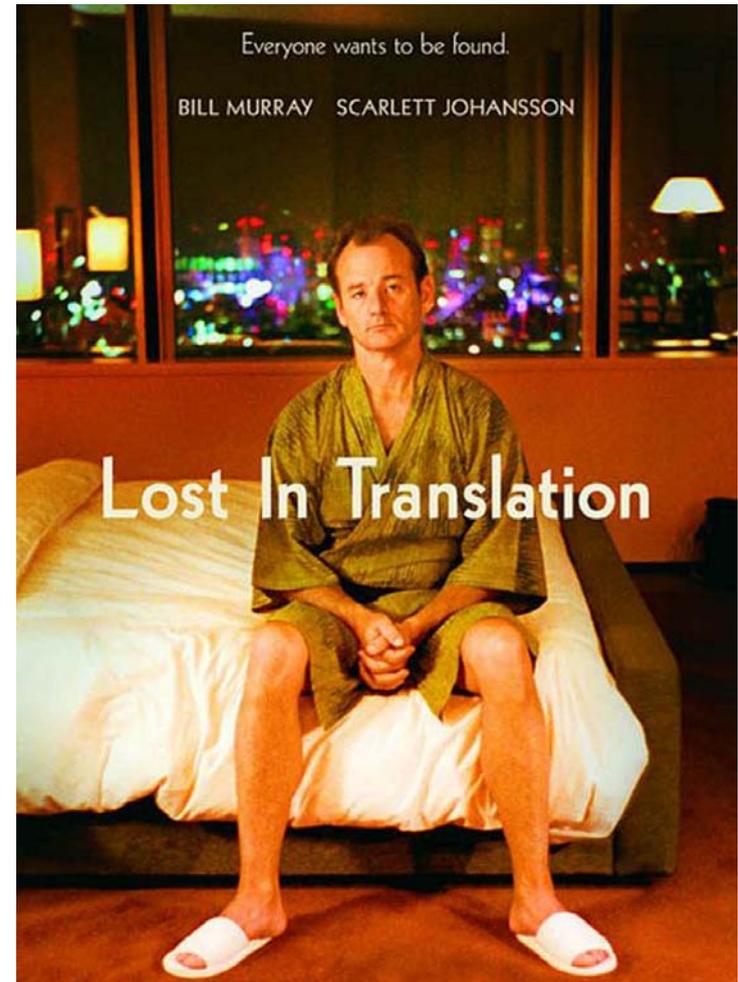


Illustration 19: *Lost in Translation*, directed by Sofia Coppola, a 2003 film. One is urged to question: if landscapes are be-

## coming non-place?

The controlled, green parks, mowed lawns, cut hedges and sterile ecological systems. For the purpose of this study the term non-site will be used as a landscape equivalent to non-place. Examples of non-site's include recreational parks, theme parks, formal gardens, leisure parks, golf courses, street edges and motorways. Non-place and non-site is a result of gentrification and these typical landscapes are found in gentrified areas. Gentrification is the restoration of run-down urban areas by the middle class. Illustration 20 is a cartoon that illustrates the term gentrification. It creates unnecessary, decorative spaces that are void of past references and existing character.

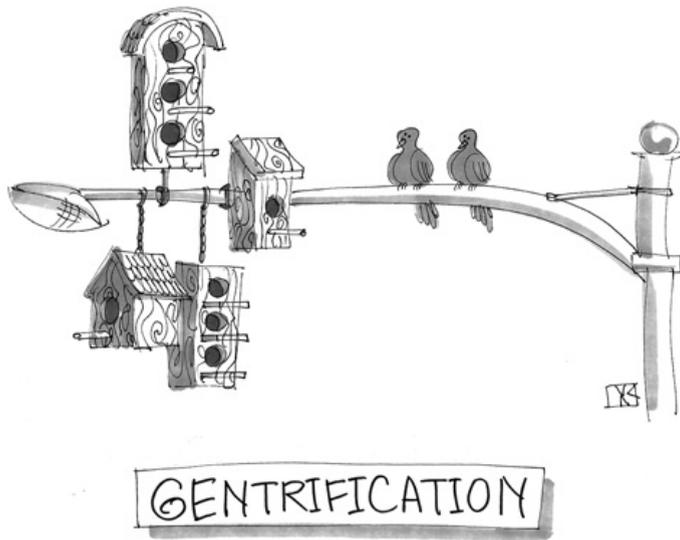


Illustration 20: Gentrification cartoon by Gregory Kogan

In addition to non-place and place, Hough, another theorist, describes two kinds of landscapes (1984: 6-7): the first is a 'pedigree' landscape consisting of lawns, flowerbeds, trees, water features and planned places. It depends on a formal design doctrine where aesthetics is a priority. These landscapes are dependent on high maintenance, this has a negative environmental value because they are so heavily dependent on energy-

intensive methods. These green landscapes are green because they are sustained by irrigation systems. They have little connection with dynamics of natural processes and are thus in conflict with local ecosystems. Many pedigree landscapes require an entrance fee and have limited social value. Controlled and predictable, they are usually built to sell a lifestyle or property. Brochures show the latest buildings set in a vibrant green carpet of manicured grass and exotic shrubs. Landscape has become a commodity, looked at but not used, and watered daily to conserve economic value. "The 'short term' has replaced the 'long term' and made of instantaneity its ultimate ideal" (Bauman, 2000: 125). The pedigree landscape falls perfectly under Marc Augé's definition of non-place.

The second landscape is an enigmatic, 'fortuitous', landscape of naturalised urban plants and places left behind after man has intervened. A natural vernacular. These forgotten landscapes in a city, which do not rely on maintenance but instead grow wild without any human disturbance, should take on an ecological design approach. Ecological design is "an approach which seeks to substitute for the restricted, artificial and expensive creations of conventional design, a looser and apparently more natural landscape, marked by species-diversity, structural complexity and freedom of growth, and achieved above all by the use of indigenous vegetation sensitively managed in order to exploit natural growth processes (especially successional) and the natural potential of the site" (Howette, 2006: 110). The enigmatic landscape represents a mysterious, accidental and unpredictable landscape and appropriately falls under Marc Augé's definition of place. Marc Augé believes place needs to come back to life, a place where journeys can be made:

"... it was in these crowded places where thousands of individual itineraries converged for a moment, unaware of one another, that there survived something of the uncertain charm of the waste lands, the yards and building sites, the station platforms and waiting rooms where travellers break step, of all the chance meeting places where fugitive feelings occur of the possibility of continuing adventure, the feeling that all there is to do is to 'see what happens'" (Augé, 1995: 3).

Wastelands have the qualities of place and enigmatic

landscapes; the uncertainty, the mysterious and the adventure. Wastelands should become a different performance, demonstrating the site's invisible processes and ecologies that become so undetectable in pedigree parks. Contaminated and abandoned sites may in actual fact have favourable ecological surprises. One may find much more diverse ecological environments in contaminated and abandoned sites than in the native landscapes that surround them. According to Spirn (1984a: 197) children find waste and abandoned land more attractive than conventional playgrounds. These areas represent a more efficient use of space. The land then becomes something to explore. The opening of oneself to chance encounters – going with the flow – and enjoying the surprise of what the other has to offer is seen today as psychologically healthy. Humans are adventurers by nature. Imagine a place where nothing is expected, a place where one is free to go anywhere and do what one desires. A place free from control and man's rules. A place far from the predictable shopping malls, endless highways, over the top hotels and massive airports. Imagine a place full of mystery and adventure. A place where exploration and discovery is welcomed. A place where imagination can run free. A place where one chooses where to rest, where to sit, where to stand, where to shout, where to run, where to kiss. A place that people do not control and do not dominate. A place where the soul is set free from the everyday drudgery and sameness. A place free of the evils of modern society, where someone can find out what he is really made of, live by his own rules, and be completely free. There is something about the wilderness that allows our souls to feel harmony. The enigmatic landscape should become these things.

“Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wildness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life” (John Muir, 2011).

It is inevitable that one cannot have a city with one or the other,

“places and spaces, places and non-places intertwine and tangle together. The possibility of non-place is never absent from any place. Place becomes a refuge to the habitué of non-places” (Augé, 1995: 107). We can still value the particular qualities that an ordered garden can bring where human design has the upper hand but we need to recognise the importance of a place where nature dominates over man. We need to bridge the gap between our love of order and love of extreme wilderness. “The city as a spatial form presents both the image of a map and the image of a labyrinth: figures by which characters orientate, but can also lose, themselves” (Pike, 1981: 121). The concept of a city should be to reflect this inherent ambiguity.

## **2.5 Precedent studies of landscape architectural projects constructed on brownfield sites and wastelands**

The following pages discuss and critique landscape architectural precedent studies that deal with wastelands and brownfield sites. The precedent studies will be critiqued in terms of their approach to dealing with the sites character, its past, its ecological approach and its enigmatic or pedigree qualities.

02 THEORETICAL INVESTIGATION



Illustration 21: Freedom Park, Pretoria



Illustration 22: The Palace of Versailles, Paris



Illustration 23: Marina Linear Park, San Diego by Martha Schwartz



Illustration 24: Burgers Park, Pretoria



Illustration 25: Burnette Park, Texas by Peter Walker



Illustration 26: Parc de la Villette, Paris

pedigree landscapes	enigmatic landscape
controlled	fortuitous
low biodiversity	biodiversity
short term	long term
high maintenance	low maintenance
man dominates over nature	nature dominates over man
close-ended	open-ended
contained	wild
unfruitful	fruitful
cultivated	uncultivated
instant transformation	gradual transformation
mono-functional	multi-functional
unsustainable	sustainable
unproductive	productive
surveillance	free
little dynamics of natural processes	process - patterns, flows, energies
pockets of controlled planting	structural complexity
infertile	fertile
separation of landscape and architecture	integration of landscape & architecture
restricted	interactive
product over process	process over product
pruned	freedom of growth
unresponsive to existing	responsive to existing
instant	time
stagnant	dynamic
suppressed	overgrown
common indigenous species	endemic species
traditional landscape and gardens	landscape urbanism
artificial	natural
static	constant change and motion
erase and ignore history and heritage	history, memory and palimpsest
disconnected island	connected
planned spaces	leftover
Foucault Panopticon - powered	<i>terrain vague</i> - mysterious
idealized perfection	imperfection
wasteful	resourceful
lacking vitality	inspirational
no interpretation allowed	imagination and creative
private or enclosed	true public space
sterile	unsterile

Figure 1: pedigree landscapes vs. enigmatic landscapes



Illustration 27: Duisburg Nord Landschaftspark, Germany

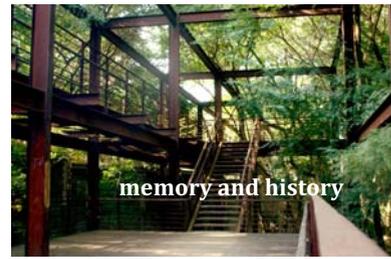


Illustration 28: Parque da Juventude, São Paulo



Illustration 29: High Line, New York



Illustration 30: Don River, Toronto



Illustration 31: Lurie Garden, Millennium Park, Chicago

## 02 THEORETICAL INVESTIGATION

### 2.5.1 Parc de la Villette (1987)

**Location:** North-eastern Paris, France

**Architect:** Bernard Tschumi

**Description:** Constructed on a brownfield site, this 35 hectare park is located on the site of a former abattoir and meat market closed in 1974. President Francois Mitterand issued an international design competition for the site, of which architect Bernard Tschumi became the finalist. As developed as part of an urban renewal plan, the parks aim and objective was to generate a new model for the urban park in the twenty-first century (Tate, 2001: 56). The park consists of a system of surfaces, a system of lines and a system of points. Bright red metal follies act as points of architectural representations of deconstruction. Continuous change is important in terms of the follies, as parts of it can be taken down, changed and built again.

**Critique:** Although a ground breaking design, the park has almost no reference to its industrial past and character. This ordered park does not celebrate its intriguing past. This shows the absent acknowledgment of the natural forces and processes on the site. It also lacks the ecological ability to adapt over time. This park falls under the definition of a pedigree landscape, and leans toward the modernists negative approach to wastelands. A successful park in terms of social and urban renewal but takes on a sterile ecological approach with neat, high maintenance lawn areas. Parc de la Villette is a non-site where man dominates over nature and where activities are controlled. This approach is opposite to the approach appropriate to further this investigation.



Illustration 32: Parc de la Villette in Paris, France

### 2.5.2 Parque da Juventude (2007)

**Location:** São Paulo, Brazil

**Landscape architect:** Rosa Grena Kliass

**Description:** Parque da Juventude in São Paulo was once the site of the notorious Carandiru prison where a massacre took place and was demolished after human rights violations (Parque da Juventude, 2009); Parque Juventude is now a green, hilly park. Signs of its former life still stand in the form of pavilions left over from darker days, with its concrete columns rising from the forest floor. A former prison wall stands up into the lofty trees and parts of the steel skeleton allow for one to climb up two floors into the trees (ibid).

**Critique:** This park serves as successful precedents in terms of acknowledging the heritage of the site as well as leaving physical reminders of the past. The history of the site brings a deep, profound story to the landscape and without acknowledgment the park would be a sterile, meaningless green space. The park becomes so much more intriguing with all its dark secrets. The elements used in this park create a curiosity to explore. This precedent celebrates the past and therefore falls under place and is an enigmatic landscape.



Illustration 33: Parque da Juventude in São Paulo, Brazil

### 2.5.3 High Line (2006)

**Location:** West side of Manhattan, New York, United States of America

**Landscape architects:** Field Operations

**Description:** The High Line was built in the 1930s, as part of a massive public-private infrastructure project called the West Side Improvement. No trains have run on the High Line since 1980. Friends of the High Line, a community-based non-profit group, formed in 1999 when the historic structure was under threat of demolition. The High Line is a complete reuse and transformation of an abandoned industrial structure into a fertile elevated public park.

**Critique:** The park maintains the spirit of the existing vegetation, special character and memory of the site. The design is furthermore successful in terms of its ecological diversity and long term transformation. The park celebrates the past and takes natural processes, patterns and energies into account. In addition, the design produces a variation and a maximum of functions within a constrained space (Margolis & Robinson, 2007: 44). Landscape urbanism principles were used to deal with this wasteland resulting in a unique place and an enigmatic landscape in New York. *High Line is successful in working with the existing potentials of a site.*



Illustration 34: High Line, New York

### 2.5.4 Fresh Kills (2003)

**Location:** Staten Island in New York, United States of America

**Landscape architects:** Field Operations

**Description:** Fresh Kills is a park located on what was once one of the world's largest landfills. Transformed into an ecologically healthy site. Field Operations' proposal, lifescape, envisioned the park as a new form of public ecological landscape and a new paradigm for creativity and adaptive reuse. The scheme has informed public involvement and is shaped by time and process. The scheme is multi-layered and the implementation of the project comprises three 10-year phases. Ecological succession is instigated by introducing pioneer species that will in time develop into full-blown eco-systems. The phases also include a series of movement systems, pathways and trails, neighbourhood parks, public installations, sports, recreational and other amenities.

**Critique:** The departure point is to first contain and heal the damaged and disturbed landscape and then programme it with various socio-cultural and recreational activities. This precedent illustrates how to deal with contaminated sites. Acknowledging time and continuous change unlocks the site's new potential. The proposal respects the site's character by using existing features and elements such as the wetlands and large mounds caused by years of dumping. The scheme is process based. This enigmatic landscape demonstrates an approach to restoring and rehabilitating a landscape without hiding and scraping clean past references.



Illustration 35: Fresh Kills, Staten Island in New York, USA

## 02 THEORETICAL INVESTIGATION

### 2.5.5 Duisburg Nord Landschaftspark (1990 - 1999)

**Location:** Duisburg North, Germany

**Landscape architects:** Latz and Partners

**Description:** Landschaftspark, a 200 hectare site including a coal mine and coking plant that ceased production in 1977, and a steelworks that closed in 1985 (Tate, 2001: 115). The abandoned factory soon became an object of beauty and mystery to artists and was photographed for these qualities. These photographs began changing people's perception of industrial wastelands. Instead of being demolished and forgotten, this site became a ground breaking park. Massive storage bunkers, rail beds, blast furnaces and the main steel works building have all been retained as industrial heritage and adapted to public use. Numerous gathering spaces, bridges and walkways connect these various elements while the existing vegetation offers an evolving reflection of the history of the site. Indigenous vegetation has been encouraged and heavily contaminated soils have

been removed and rehabilitated. An intricate lighting scheme designed by British light designer Jonathan Park, allows the site to be used at night.

**Critique:** This post-industrial brownfield site started out as an abandoned factory that attracted only artists and photographers. It has since transformed, becoming a catalyst for future development and urban regeneration. Industrial processes shaped the land and gave it its unusual landforms over time. Latz and Partners embraced the qualities and character of the site and his design is a reaction to its existing potential. The design allows the natural processes of decay and regeneration to take place and therefore the allows the site to adapt and evolve over time. This project leans towards a celebrative approach that results in a truly enigmatic landscape. This precedent employs the ideal approach to wastelands, the ideal approach that the design for this dissertation will strive to achieve.



Illustration 36: Duisburg Nord Landschaftspark, Germany

## 2.6 Theoretical conclusion: a hypothetical design process

With the inevitable decaying urban form, wastelands lie in abundance in the city centre. By examining the different approaches to wastelands an informed decision can be made as to which approach will be implemented in this dissertation. The approach taken to further this investigation is a combination of a landscape urbanism approach on a planning level and a celebrative approach (see page 20-23) on a spatial level. The proposed intervention must aim to become opposite to the many non-place's that exist in our cities. The design must strive toward creating an enigmatic landscape of mystery and freedom. Parc de la Villette uses an approach to wastelands that is opposite to the approach appropriate for this specific dissertation. In contrast, Duisburg Nord Landschaftspark provides the ideal approach, processes and methods that the design for this dissertation must strive toward.

In summary, the focus of this study is twofold (see diagram summary of theory discussed, illustration 38). First, on a planning level, people move to the suburbs in search of nature, as they move they destroy nature and contribute to the decaying of the urban form and fabric of the city (see illustration 37). In order to attract people back to the city one needs to bring nature back

to the city, but where can one do this?

Wastelands have the potential to heal a city's ecosystems and ultimately attract these people back from the sprawling boundaries to the inner city. This approach will allow the wastelands in a city to produce an open space network that surrounds and intermingles with the city. Once an open space network is established, development can be assigned in order to increase the density of the city. By first creating ecologically healthy spaces in the city with development following thereafter is one of the main principles of landscape urbanism that will be implemented in this investigation. Second, we tend to focus on sustainability and urban problems that the experiential and spatial quality of places are lost. Instead of gentrifying these wastelands to create a modern sterile cityscape consisting of more non-places, one needs to explore the mystery and character of these wastelands and work with the existing potentials of the site. Tribesmen do not select a holy place by looking at a plan of the area, instead places and their character dictate programme and function. A majestic holy tree cannot be seen on plan.

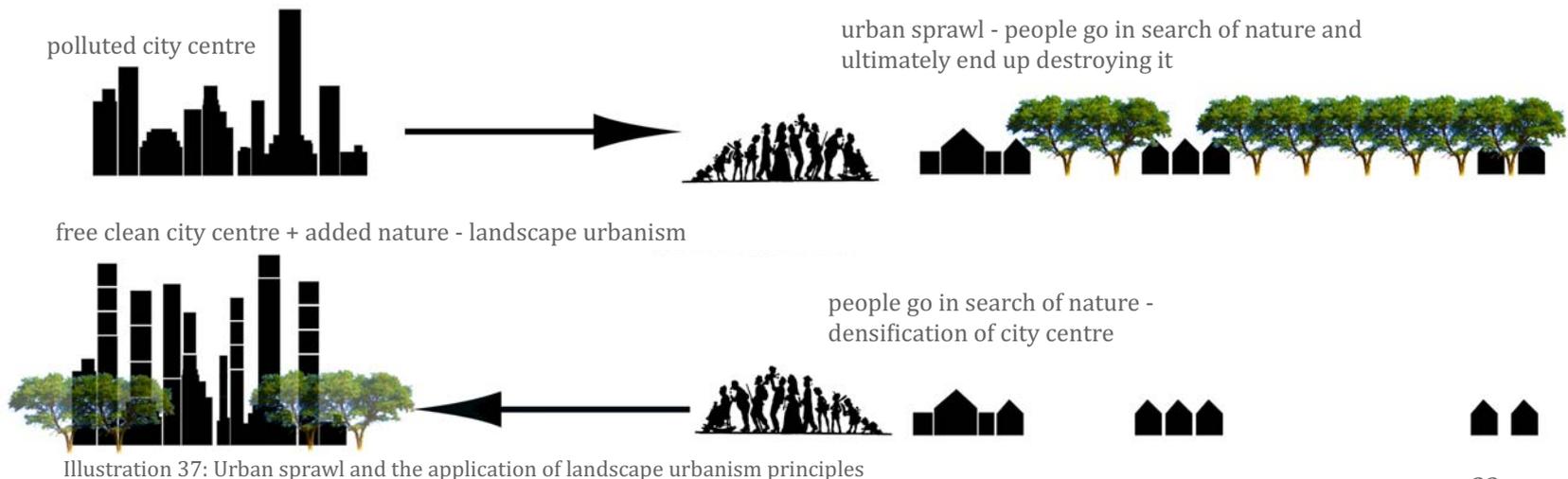


Illustration 37: Urban sprawl and the application of landscape urbanism principles

“The best improver or physician is he who leaves most to nature – who watches and takes advantage of those indications which she points out when left to exert her own powers; but which, when once destroyed or suppressed by an empiric of either kind, present themselves no more” (Brook, 2008: 109).

Wastelands, although intriguing as they are, do however need to add value to the city and therefore cannot be completely untouched as Ignasi de Solà-Morales suggests. Wastelands should be transformed with carefully retaining the spirit of the place. A solution should emphasise local attributes, characteristics and qualities and therefore create a local sense of place.

The solution and design proposed must be treated as a long term project that enriches a city through creative effort and imagination. The project must be phased over time to ensure flexibility in the future ultimately resulting in the design of an enigmatic landscape that is responsive, process driven and ecologically diverse and rich in character. Intervention on the site should focus on the process of transformation rather than the final product and this “welcomes decay of memory as the driving force for action” (Curulli, 2007: 36). The forces and elements that act on wastelands are too complex and challenging for immediate broad stroke solutions. A landscape is more than something to restore and manufacture to a sterilised state. The difference and uniqueness of enigmatic landscape to pedigree landscapes needs to be emphasised. By transforming a wasteland into an enigmatic landscape one provides different types of open spaces in a city, different to conventional parks. These projects should demonstrate how a landscape architect can “acknowledge the history of not only human use, but also abuse of the land” (Meyer, 2000: 230). Instead of returning the site to some image of an idealized nature thought to exist before human dumping, destroying, wasting and polluting, the sites unforeseen events are highlighted and reinforced.

Design guidelines to retain the unique qualities and character of wastelands:

- Approach
  - landscape urbanism principles of working first with ecological systems and landscape and then allowing develop-

ment to follow

- following a design process that focuses on character of place
- nature and ecological systems dominate over man
- allowing these sites to add value to the city but retaining their unique quality
- a long term solution
- working with the existing potential of the site
- Materials
  - use recycled materials
  - reusing materials
  - using robust materials
  - integration of nature and man-made
- Planting
  - focus on long term succession and rehabilitation
  - use of indigenous and endemic plant species
  - retaining species that add character and mystery to the site

Because of the importance and emphasis of the character of wastelands the design process used will be adapted and altered. Conventional design processes look at programme and site first and lastly deals with the spatial and experiential qualities (see illustration 39). It is a standard and very linear process. In this investigation the character of the site will lead almost all of the design decisions. The experiential and spatial qualities will be explored first, with a programme being accidentally assigned to the design at the end of the process (see illustration 40 and 41). *Therefore the design is not programme specific and programme is not forced.* This process is more organic and tends to grow naturally from one aspect to the other. The potentials of the site will guide the process. In the following chapters the city of Pretoria will be the area under investigation. More specifically, the Pretoria CBD and Pretoria West will be examined. The city will be tested on a planning level by first mapping the existing open spaces and then layering this with a map of the wastelands to obtain an understanding of existing healthy nodes and potential nodes. Thereafter an open space network and urban framework for the city will be proposed. The city analysis will provide potential sites to further the investigation in terms of the spatial and experiential levels.

### Diagram summary of theory

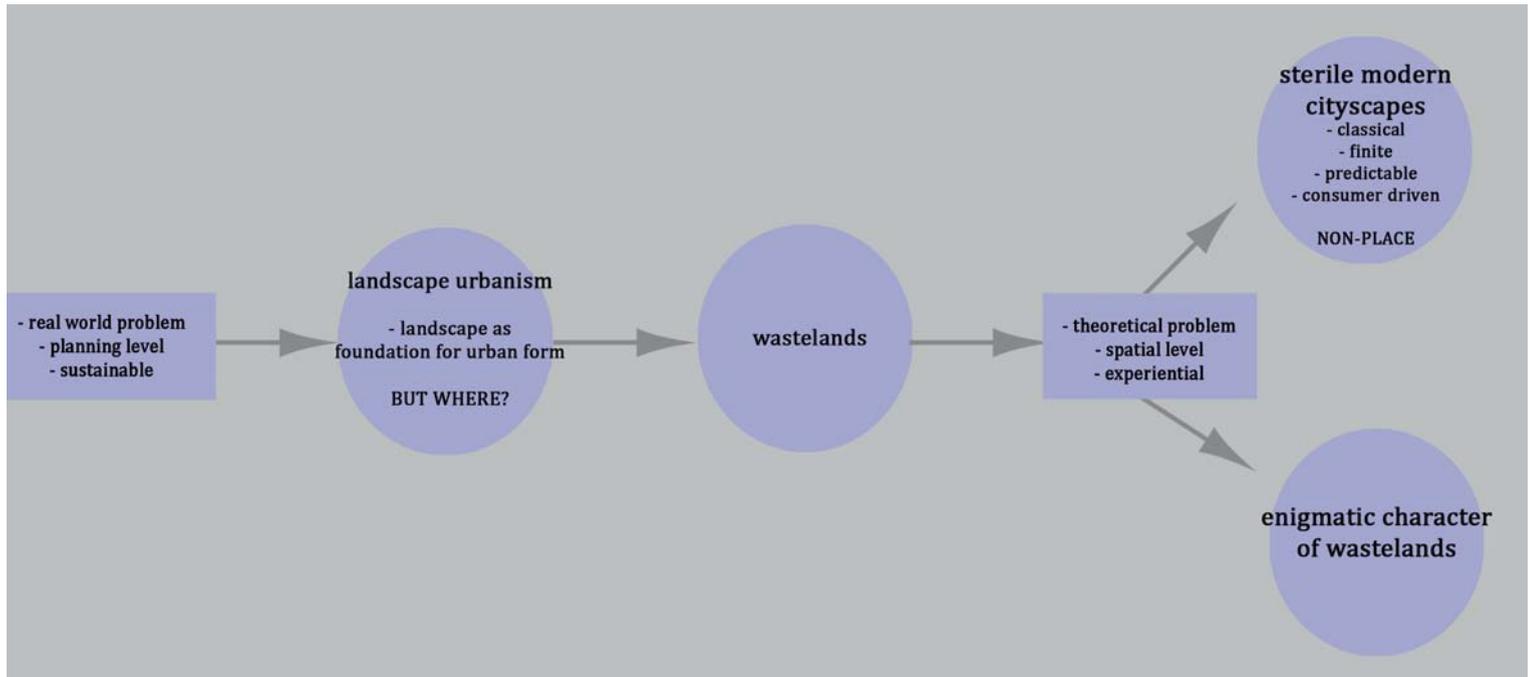


Illustration 38: Diagrammatic summary of theory

### Design process

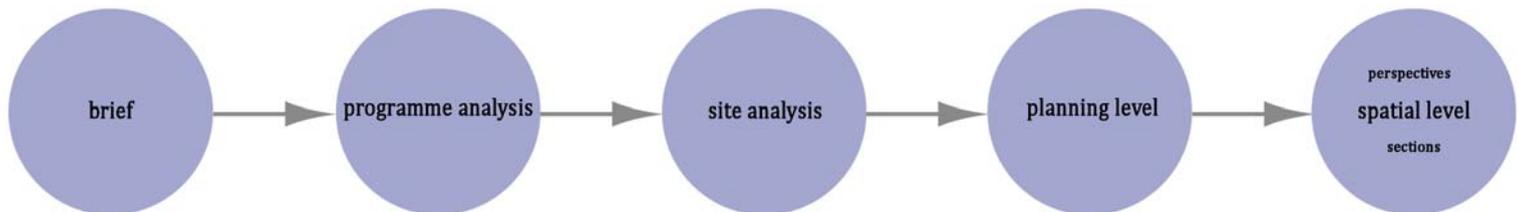


Illustration 39: Conventional design process

02 THEORETICAL INVESTIGATION

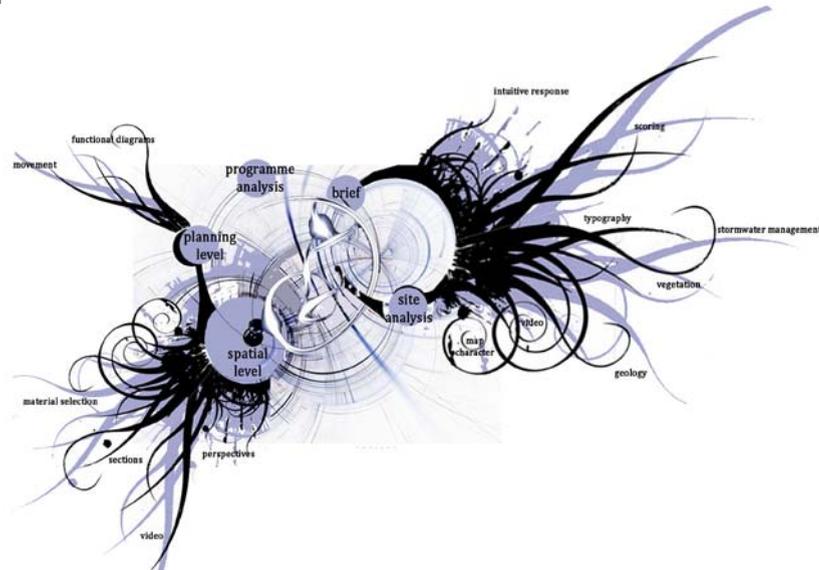


Illustration 40: Proposed organic design process

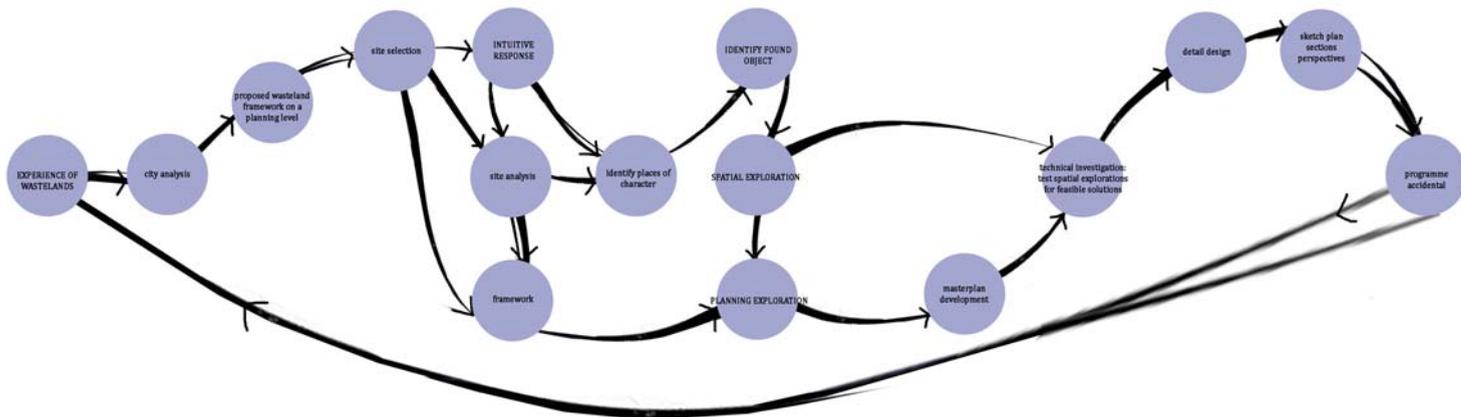
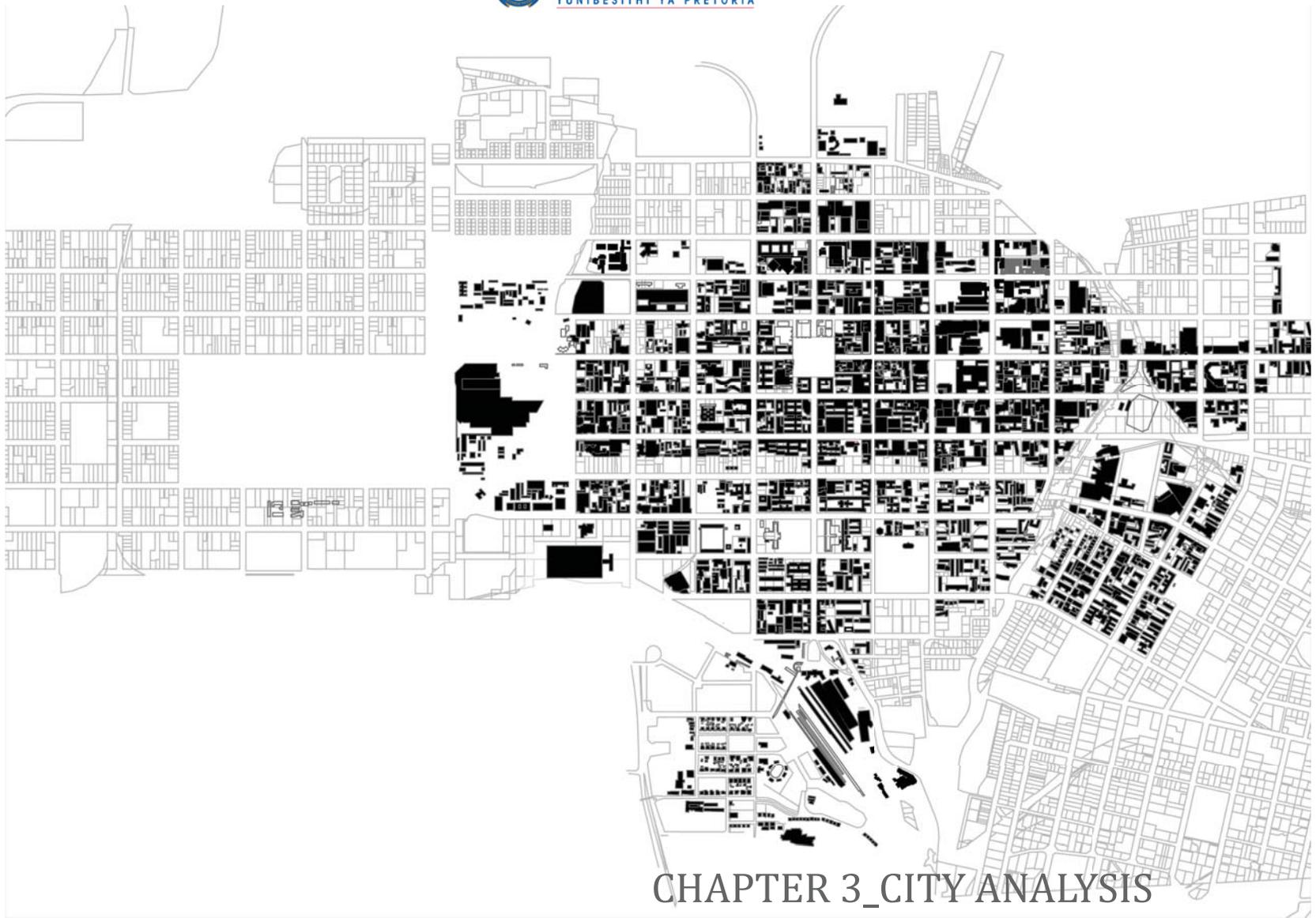


Illustration 41: Proposed design process



## CHAPTER 3\_CITY ANALYSIS

### 3.1 Growth of Pretoria and the emergence of wastelands

According to Jordaan (1989: 28), Pretoria is placed on a classical landscape, described as a landscape that consists of defined places with valleys and mountain ranges which give the city its strong individuality (ibid). Pretoria started out as a settlement form that was sympathetic to the landscape. Nature existed next to the city and the settlement was naturally bordered with rivers and mountain ranges (ibid), as shown on illustration 43. In Pretoria one could see the separation that existed between city and nature. One could identify the three separate natures. As the city grew it began to stretch past the mountains and rivers. With the natural boundaries of the city now hidden and ignored, the city continues to expand. Due to factors such as urban sprawl and decentralisation, the city centre became punctured with wastelands and brownfield sites (see illustration 43). Pretoria continues to change form and is a good example of Cedric Price's illustration of the 'scrambled egg city' (see page 15). Illustration 43 further illustrates Pretoria's growth: its **origin**, its **urbanisation**, its **urban sprawl**, the **decay of its centre** and its desperate need for **regeneration** and **densification**. Pretoria's CBD has evolved from an active, dense, vertical, architecturally dominated and contained place, to a CBD punctured with dilapidated, abandoned, wasteful, wasted and underutilized spaces. First, second and third nature has become inseparable in Pretoria (see illustration 44). It is scarce if a spot in Pretoria, however remote, is free from the impact of human activity. With communities moving to suburbs east from the supposedly crime ridden and polluted centre, the CBD landscape appears wasteful and poorly planned, designed, and unmaintained and as irregular and careless leftovers from more dominant forms of development. Although these spaces are often described with negative connotations and are associated with deterioration and abandonment, they possess an intriguing quality, as oppose to non-places (see illustration 1). Shane highlighted the leftover void spaces of the city as potential commons (2006: 58-59). These wastelands are slowly becoming valuable city assets. The in-between landscapes lie dormant, "awaiting a societal desire to inscribe them with value and status" (Berger, 2006a: 29). Most of

the wastelands in Pretoria were once highly functioning areas; they were previously active sites, located in close proximity to populated urban areas. Sites dismissed as useless, inadequate, destroyed or simply abandoned have the potential to heal our decaying urban form. Lewis' argument is that today's city is so diffuse that it has become a "galactic metropolis", a city resembling a galaxy of stars and planets, with large empty areas in-between, held together with something similar to gravitational attraction (as cited by Berger, 2006a: 28). These large empty areas are what he terms "new metropolitan tissue". Lewis asks the reader to accept the fact that this tissue is here to stay as the result of the horizontal urbanisation, and he provokes readers to instead rethink its use. The design should aim to acknowledge the inevitable growth of Pretoria, while using and transforming the in-between wastelands to maximize their value to the city. In the following pages the open space of Pretoria will be looked at in order to find opportunities for the regeneration of wastelands into enigmatic public open space.

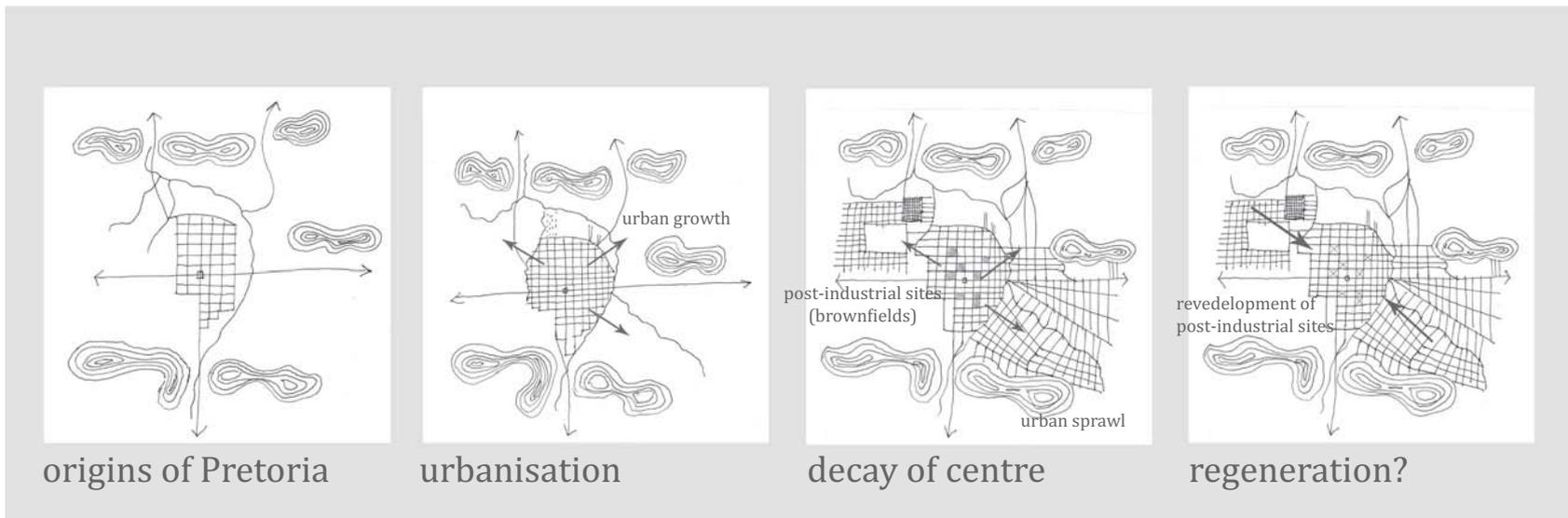
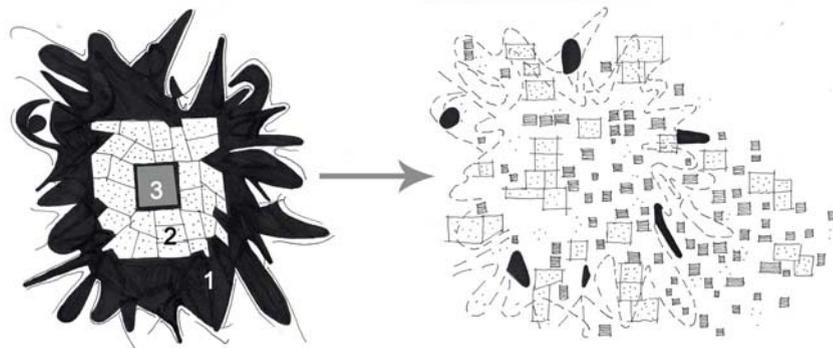


Illustration 43: Growth of Pretoria, the emergence of wastelands and its need for regeneration.



Description of the three natures as defined on page 14 and 15

1. first nature - primal nature, wilderness
2. second nature - landscape of infrastructure
3. third nature - gardens and parks

Current situation in Pretoria  
first, second and third nature have become inseparable as defined in Cedric Price's illustration of the 'scrambled egg city' (see page 15).

Illustration 44: Traditional distinction between city, nature and wilderness to the current inseparation of natures in Pretoria

### 3.2 Public and private open space in Pretoria

Open space needs to be defined in order to understand the nature of open spaces in Pretoria and their differences to wastelands. According to the Tshwane Open Space Framework (2006: iv), open space is defined as areas predominantly free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area. A city consists of private open space and public open space. See illustration 45 for a map of the public and private open spaces in the city centre of Pretoria and Pretoria west. Private open space refers to open space privately owned which is not freely accessible to the public and where access to the public is controlled. These include private parks such as Freedom Park, school grounds, sports fields such as Berea Park, training fields and golf courses. Public open space refers to open space that is accessible to everyone. These include neighbourhood parks, cemeteries, Church Square, Strydom Square, Burgers Park, Prince's Park and Pilditch Sportgrounds. It is obvious that these are useful open spaces in Pretoria that need to be retained. These landscapes follow the trend of pedigree landscapes and need to be mapped out to differentiate between used open space and lost open space. Following this exercise the wastelands in Pretoria will be mapped in order to identify potential wastelands that can be re-imagined to serve a decaying city with open space, yet not be reduced to non-place.



Illustration 45: Map of public and private open space in Pretoria CBD and Pretoria West.

### 3.3 Wastelands in Pretoria

In order to find opportunity in wastelands, they need to be mapped and identified. For this purpose the term ‘wastelands’ has been divided into three different categories, borrowed and altered from Alan Berger’s definition of waste landscapes which can be seen on page 18 (2006a: 203).

1. Waste sites: includes municipal solid waste, dumping sites, scrap metal sites, sewage sites and land fills (see illustrations 46-52).
2. Wasted sites: includes abandoned sites that have been leftover and forgotten (see illustrations 53-58).
3. Wasteful sites: includes oversized parking lots, large storage yards, large temporarily used sports fields, golf courses, inappropriate uses, and divisive landscapes that disconnect and scar (see illustrations 59-65).

Illustration 66 identifies the three different types of wastelands in the Pretoria CBD and Pretoria West. This map reveals Pretoria’s punctured and wide spreading almost wasteful character. This map does not imply that every open space and wasteland should be filled with development. It also does not imply that all of these should be left as open green spaces in the city. The waste sites in a city are inevitable and a city needs places for waste to be able to be dealt with. The wasted places are sites that have great potential to become green open spaces to form part of a larger open space network. They contain an intriguing mysterious quality. The wasteful sites in Pretoria are a result of how the city functions. These sites should be dealt with in more efficient and careful ways. More suitable uses and approaches to these should be investigated.

### 3.3.1 Waste sites

Includes municipal solid waste, dumping sites, scrap metal sites, sewage sites and land fills.



Illustration 46: Scrap yard, Pretoria West



Illustration 47: Dumping site, Salvokop



Illustration 48: Dumping site, Rebecca Station



Illustration 50: Dumping site, Rebecca Station



Illustration 49: Dumping site, Salvokop



Illustration 51: Dumping site, Pretoria Station



Illustration 52: Dumping site, Salvokop

### 03 CITY ANALYSIS

#### 3.3.2 Wasted sites

Includes abandoned sites that have been leftover and forgotten.



Illustration 53: Abandoned house, Barracks Station



Illustration 54: Abandoned workshop, Marabastad



Illustration 55: Demolished building currently used as skater park, Pretoria West



Illustration 56: Unused railway lines, Barracks Station



Illustration 57: Unused railway edge, Rebecca Station



Illustration 58: Abandoned Pretoria West Power Station

### 3.3.3 Wasteful sites

Includes oversized parking lots, large storage yards, large temporarily used sports fields, golf courses, inappropriate uses, and

divisive landscapes that disconnect and scar.



Illustration 59: Tractor storage yard, Pretoria West



Illustration 60: Bus storage yard, Salvokop



Illustration 61: Golf course, Pretoria West Golf Course



Illustration 62: Large cemeteries, Rebecca Cemetery



Illustration 63: Large sports fields, Pilditch Stadium

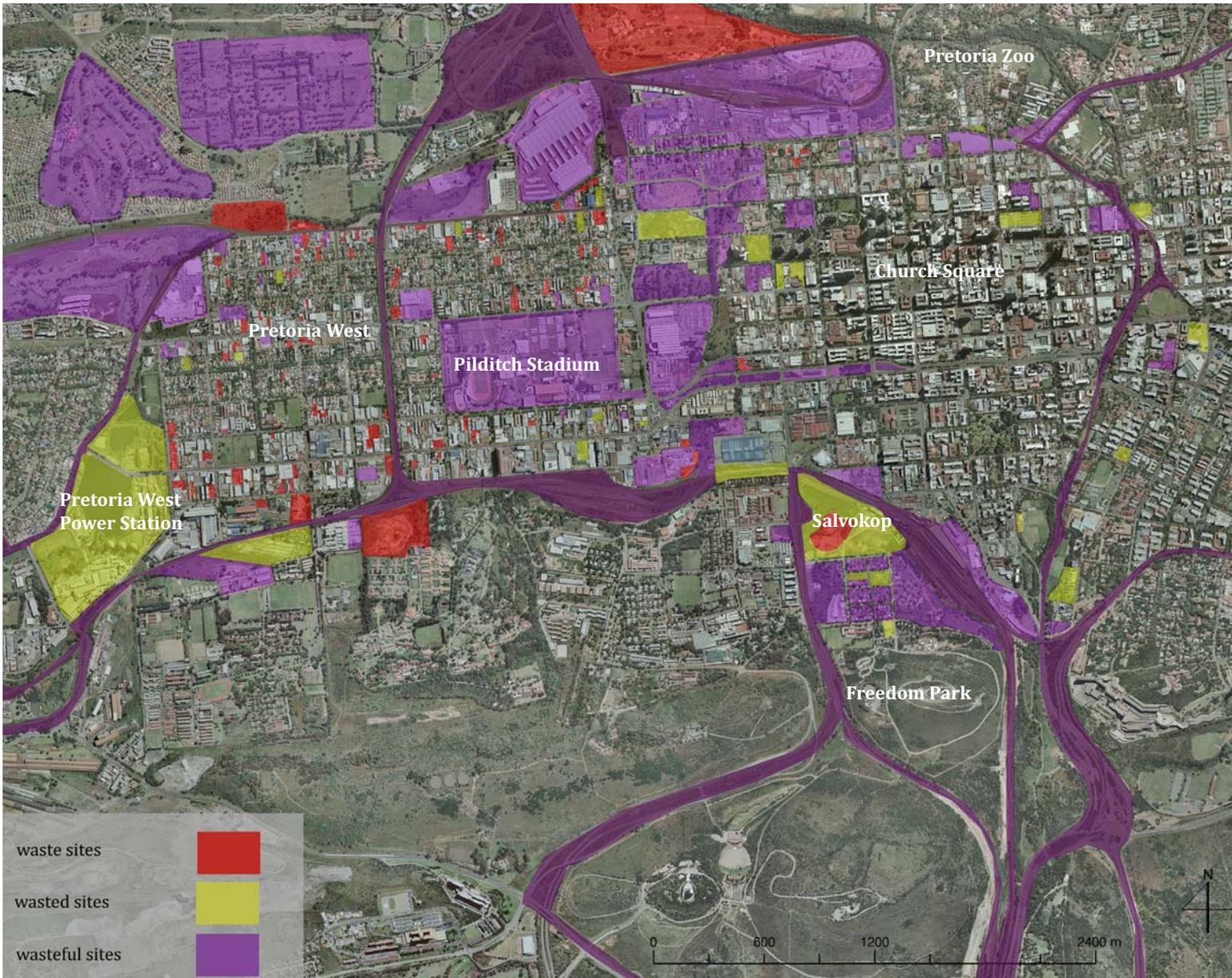


Illustration 64: Oversized parking lots, Quagga Centre, Pretoria West



Illustration 65: Divisive landscapes, railway lines, Rebecca Station.

3.3.4 Wastelands mapped



### 3.4 Parks vs. wastelands in Pretoria

In the search for ways to re-imagine the wastelands of Pretoria without destroying their mysterious quality a comparison of parks and wastelands in Pretoria needs to be done in order to understand their fundamental differences. Figure 2 compares parks and wastelands. Are parks in Pretoria wild or controlled, what is lacking? Pretoria at present has open spaces which are both sterile and enigmatic. Parks include Freedom Park, Burgers Park and Princes Park. These landscapes are controlled, high in maintenance and provide safe places for outdoor activities. Pretoria's controlled landscapes are becoming inaccessible for different types of people. Enigmatic landscapes include the wastelands in Pretoria. Free, process driven landscapes. These places, although having an intriguing quality, are dangerous, avoided and neglected. Pretoria's only ecologically wild landscapes are nature reserves. These are fenced off from the public to keep out the unwanted and an entrance fee is charged. A comparison of these two different landscapes reveal that a city needs both controlled and wild landscapes, landscapes where nature dominates over man, where freedom is emphasized and highlighted. It seems Pretoria has two extremes: on the one hand there is Freedom Park, a controlled landscape, and on the other hand there are large wastelands for example in Salvokop, that are so free that they become no man's land and destructively unsafe. We need to retain certain qualities and characteristics of wastelands, but improve and transform them to add value to the city. The aspiration is not to replace the one with the other as concluded previously, but rather transform wild wastelands as one type of nature in Pretoria that requires care and respect. The question then is: why turn wastelands into 'pedigree' parks in Pretoria when they already exist? By changing these wastelands one continues to generate more non-place in a city. Why not retain their mystery and strangeness? A case study of a project in Pretoria now needs to be critiqued.



parks in Pretoria	wastelands in Pretoria
pedigree landscape	enigmatic landscape
sterile	unsterile
relatively safe	unsafe
relatively clean	litter ridden
realatively neat	dirty and overgrown
definite and controlled	uncertain and vague
maintained	not maintained
removal of invasive plant species	taken over by invasive and exotic plant species
owned	no man's land
controlled	fortuitous
man dominates over nature	nature dominates over man
contained	wild
surveillance	free
little dynamics of natural processes	process - patterns, flows, energies
pruned	freedom of growth
instant	time
supressed	overgrown
static	constant change and motion
erase and ignore history and heritage	history, memory and palimpsest
planned spaces	leftover
lacking vitality	inspirational
entrance fee	no entrance fee
race, gender, age and class restrictions	open to all races, ages, classes and genders
private or enclosed	true public space
playgrounds	not a safe place for children
large parking areas	entire waste landscapes are used for parking
designated activities	neglected and avoided
large lawn areas	no lawn areas
formal pathways	informal pathways
active	stagnant
economically viable	economically poor
Foucault Panopticon - powered	terrain vague - mysterious

Figure 2: parks vs. wastelands

### 3.5 Case study: Freedom Park (2004)

**Location:** Salvokop in Pretoria, South Africa

**Landscape architects:** Newtown Landscape Architects, Bagale, Green Inc, Momo Landscape Architects (NBGM)

**Description:** Freedom Park is a monument to democracy; a landscape narrative that tells the story of South Africa's pre-colonial, colonial, apartheid, and post-apartheid history and heritage, spanning a period of 3.6 billion years of humanity, to acknowledge those who contributed to the freedom of the country. It is a space where South Africans and visitors to the country can reflect on the past. It is regarded as one of the most ambitious heritage projects the South African government has invested in; an attempt to encapsulate the heart and soul of South Africa in a physical space.

**Critique:** With regard to the two different landscapes discussed previously, Freedom Park will be critiqued in terms of pedigree and enigmatic landscapes as well as non-place and non-site. On visiting Freedom Park, an entrance fee of R45 is charged. A lengthy process then leads one through booms (see illustration 69) and security guards that direct one to the beginning of a tour. Every corner is met by security guards (see illustration 70) and almost every space is under surveillance (see illustration 71). Security cameras watch each move. Signage tells the visitor exactly where to go and what to do, where to stop, where to sit, where to stand, where to have a picnic, where to take your shoes off, where to rest, where to contemplate, where to pray and where to learn (see illustration 72). Freedom Park ironically allows no freedom. Certain aspects of Freedom Park can be considered non-place as defined previously by Marc Augé. The Panopticon is a type of building designed by English philosopher and social theorist Jeremy Bentham in the late eighteenth century. The concept of the design is to allow an observer to observe all inmates of an institution without them being able to tell whether or not they are being watched. This park almost becomes a landscape equivalent to the Panopticon, completely controlled and powered. The private park denies access to the poor and is a cut-off island from Salvokop. Freedom Park is successful in telling the story of South Africa's struggle to freedom. However, one is urged to ask if this place should not have rather been named the *Outdoor Museum to the Freedom Fighters of*

*South Africa.* Can museums be categorised under non-place? A museum is a controlled and secured place where one goes to learn and look at artefacts. A museum doesn't allow exploration or adventure. It is something you look at, learn from and move on. It is a place that brings special things together that one may not touch or take or smell or feel. In terms of ecology, Freedom Park is successful in rehabilitating the site and creating a rich endemic ecological system, these areas require almost no maintenance (see illustration 68). The amphitheatre area covered in lawn (see illustration 67) however calls for high maintenance. Freedom Park creates a successful ecological balance between neat lawned areas and wild growing endemic areas. Ecologically, Freedom Park leans toward an enigmatic landscape approach. In conclusion, this case study documents primarily a pedigree approach to the site that creates non-site and secondarily an ecological enigmatic approach. The analysis of this case study will assist in making informed decisions of what to do and what not to do in the design that follows in this dissertation.



Illustration 67: Amphitheatre in Freedom Park, Pretoria, South Africa



Illustration 68: Endemic vegetation in Freedom Park, Pretoria, South Africa



Illustration 69: Booms and security gates control access into Freedom Park, Pretoria, South Africa



Illustration 70: Security guards patrolling Freedom Park, Pretoria, South Africa



Illustration 71: Surveillance camera's in Freedom Park, Pretoria, South Africa

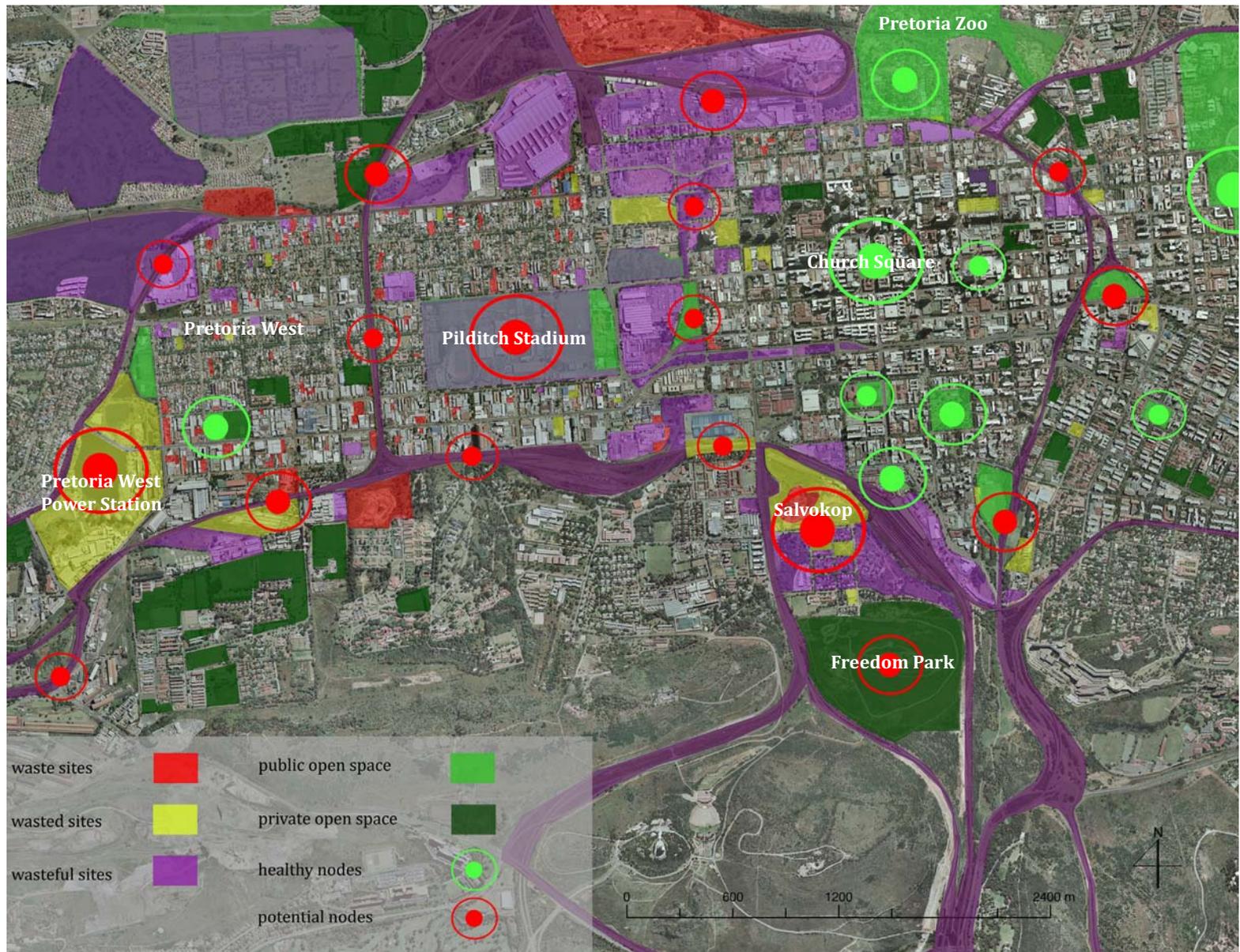


Illustration 72: Signage in Freedom Park, Pretoria, South Africa

### 3.6 Healthy and potential nodes in Pretoria

An overlaying of the map of wastelands with the map of open

spaces reveals healthy and potential nodes in the city.



### 3.7 Vision for Pretoria's wastelands

#### 3.7.1 Proposed framework on a planning level

Illustration 74 shows the balance between using the wastelands in Pretoria to create an unbroken network of open spaces

and to increase the building density in the city. Together these will densify the city, attracting people back from the sprawling boundaries and create open breathing spaces within the city. The open space network will contribute to a healthier city.

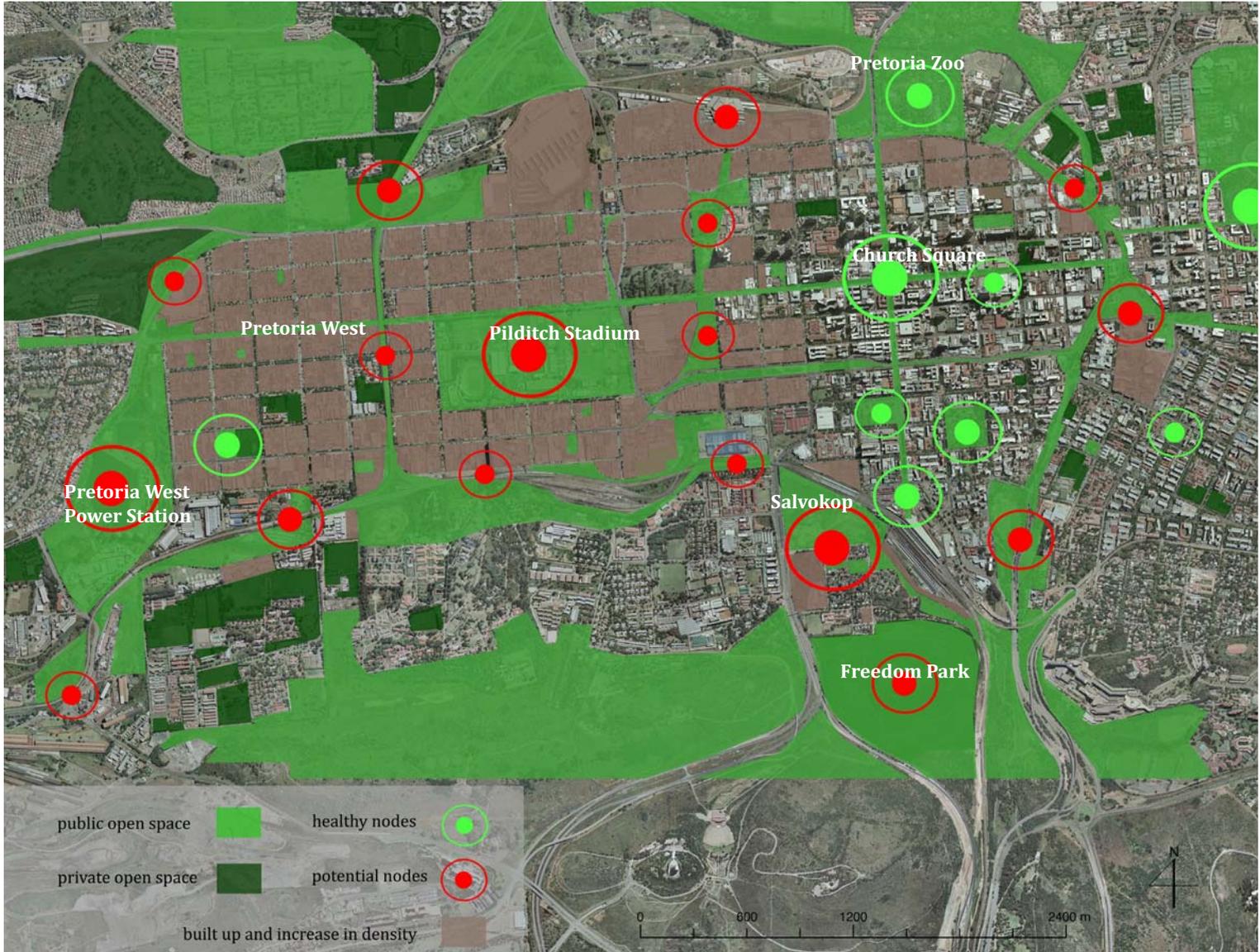


Illustration 74: Map of proposed open space network and densification framework

### 03 CITY ANALYSIS

#### 3.7.2 Vision

With these wastelands having the potential to become primary and secondary nodes in the city, one can visualize what these interesting enigmatic places can become. Illustrations 75-79 shows a broadstroke spatial vision for the wastelands in Pretoria and what they could and should become.



Illustration 75: Motorways and roads



Illustration 76: Railway stations



Illustration 77: Pretoria West Power Station



Illustration 78: Waste sites



Illustration 79: Berea park,

### 3.8 Potential sites in Pretoria

Subsequently, the above analysis presented four potential sites that could be investigated further for the purpose of this dissertation. These potential sites consist of all three types of waste-

land and have the potential to become important green nodes, green links and landmarks in the city.

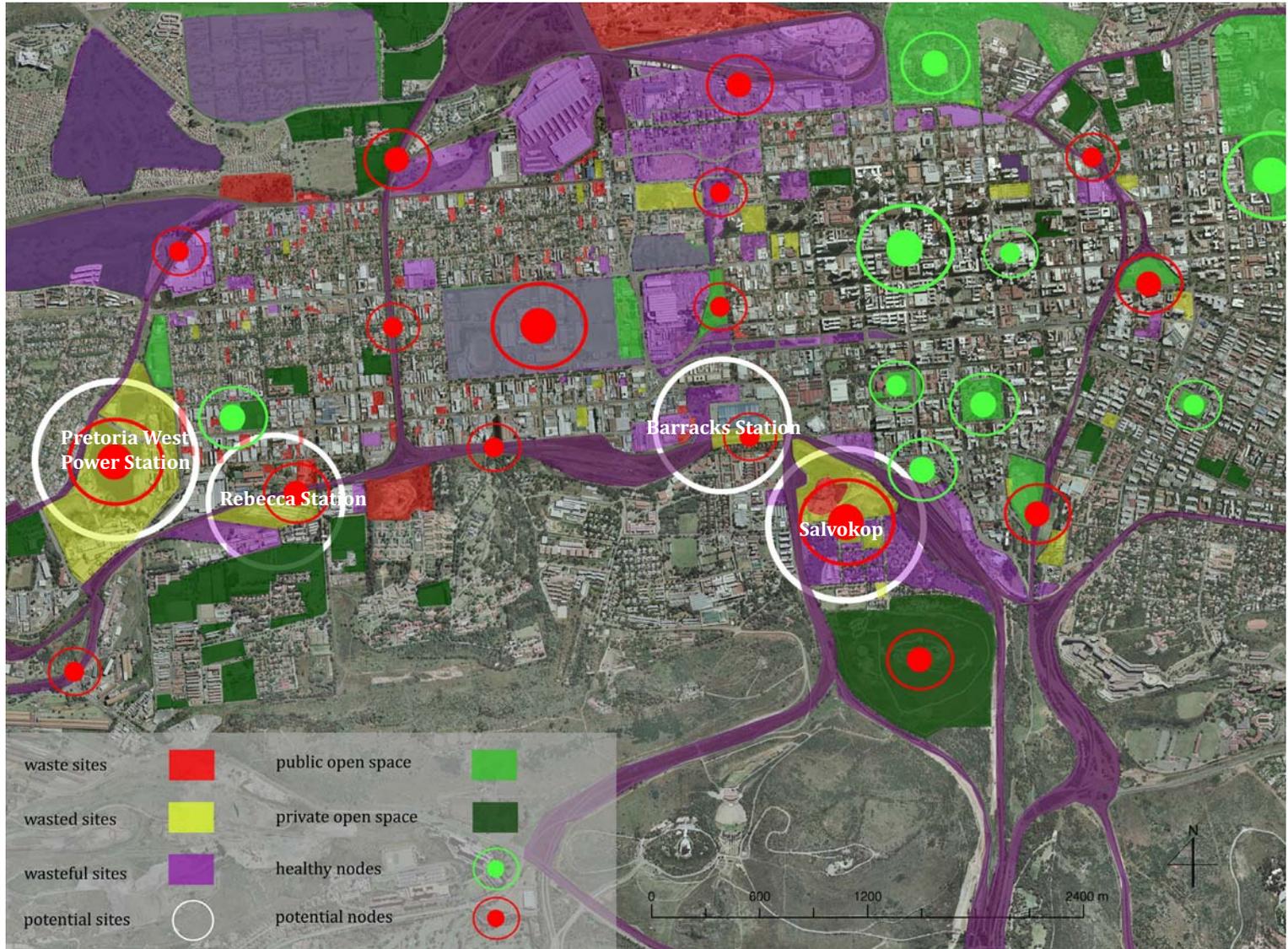


Illustration 80: Map of potential sites in Pretoria CBD and Pretoria West.

### 3.9 Site selection

A comparison of these potential sites in terms of their character, context, uses and physical features (see figure 3) revealed Salvokop as the most appropriate site needed to further the investigation. Salvokop boasts great potential, intriguing quality, richness in character and exciting challenges that are desperately shouting to be solved. The selected site consists of all three types of wastelands and falls under an important potential node. The site comprises structures and demolished structures and has an intriguing history. It is one of the largest, abandoned wastelands in Pretoria. The following chapter proposes a framework for Salvokop in order to inform further chapters leading to the final design.

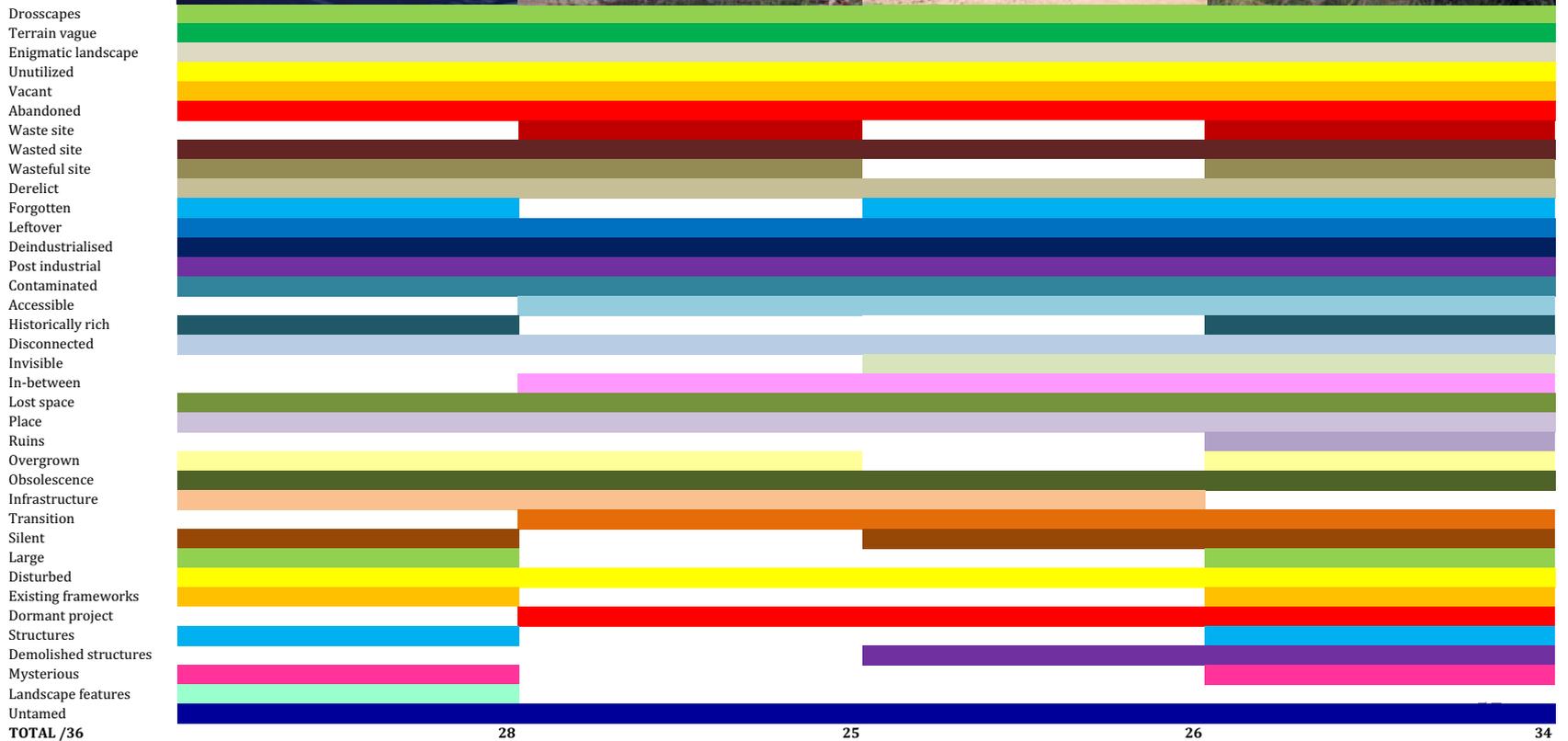
potential sites

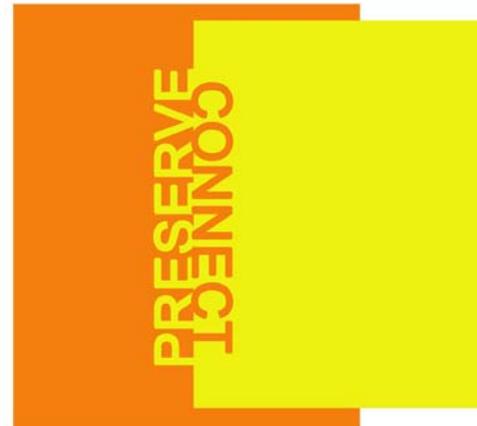
Pretoria West Power Station

Rebecca Station

Barracks Station

Salvokop





## CHAPTER 4\_SALVOKOP FRAMEWORK

## 4.1 Introduction

A group was formed to construct a framework for the larger Salvokop area. This group consisted of Zakkiya Khan (an interior architecture student), Karl-Robert Gloeck and Minette Teesen (both architecture students). The 'Proposed Salvokop Framework' will construct a context for the individuals to work in and respond to. A framework maintains that all who work in the area keep to an overall theme and concept, this resulting in a vision for Salvokop that is uniform and constant. The framework will assist and provide guidelines to each individuals design. Framework precedents were examined first to illustrate previous solutions and approaches to frameworks. An analysis of the area and its existing frameworks was also done to inform the group's decisions. A framework will be proposed for the area at the end of this chapter together with proposed concept sections.

## 4.2 Framework precedents

### 4.2.1 Boston's Emerald Necklace (1896)

**Location:** Boston and Brookline in Massachusetts, United

States of America

**Landscape architect:** Frederick Law Olmsted

**Description:** The Emerald Necklace consists of an 4.5 km<sup>2</sup> chain of parks linked by parkways and waterways. It gets its name from the way the planned chain appears to hang from the "neck" of the Boston peninsula, although it was never fully constructed. The Necklace comprises half of the City of Boston's park acreage, parkland in the Town of Brookline, and parkways and park edges of Massachusetts. More than 300,000 people live within its watershed area. The Emerald Necklace is the only remaining intact linear park.

**Critique:** Boston's Emerald necklace is a precedent dating back to 1896 that deals successfully with using landscape and green open space networks to drive development in a city and to keep it ecologically healthy. This project demonstrates landscape urbanism principles, principles that are driven by the idea that landscape instead of building is seen as the basic building block of the city (Waldheim, 2006: 11). This precedent illustrates that principles of landscape urbanism are not new and have been around for many years.



#### 4.2.2 Milan’s Green Plan Framework (2008)

**Location:** Milan, Italy

**Landscape architects:** LAND

**Description:** The city of Milan has been selected to host the 2015 Universal Exposition. Its themes include: feeding the planet and energy for life. As a result the city is focussing on connecting and linking green open spaces to create a green open space network that will provide a healthier and more liveable city. It consists of 1600 hectares with 72 km walking and cycling routes connecting the open spaces in the inner city to large metropolitan parks and open spaces on the boundaries of the city (Kipar, 2008: 45). The network includes green fields, parks, gardens, public squares, pedestrian routes, cycling routes and various modes of transport and other civil infrastructure. According to Kipar “Milan’s main goal is to become a greener city, able to organize a system that can recreate diffuse conditions of “naturalness” by connecting open urban spaces to large metropolitan parks and preserving and re-launching the residual cultivated fields” (ibid). The new PGT framework is based on “Densification on one side, permeability on the other” (Kipar, 2008: 45).

**Critique:** Milan’s Green Plan is a successful framework precedent that strives to create a balance between densification and permeability. The city of Pretoria is in desperate need of densification while permeability exists in the city but is not maximised. Furthermore, this precedent successfully illustrates landscape urbanism principles by bringing nature and city together and using landscape as a starting point for city frameworks and development, which is what the ‘Proposed Salvokop Framework’ will strive to achieve.

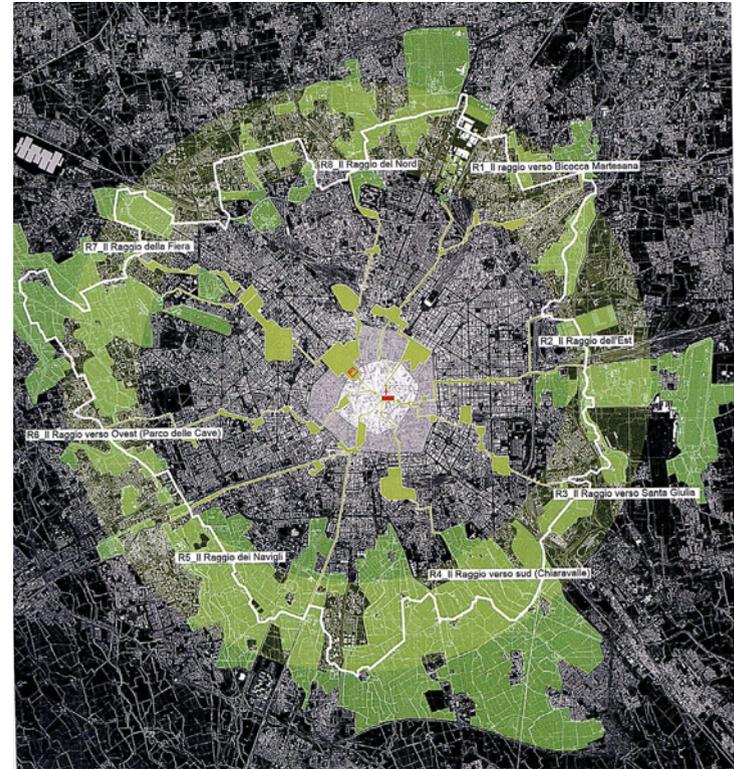


Illustration 82: The Milan “Green Plan”, a network of connected open spaces

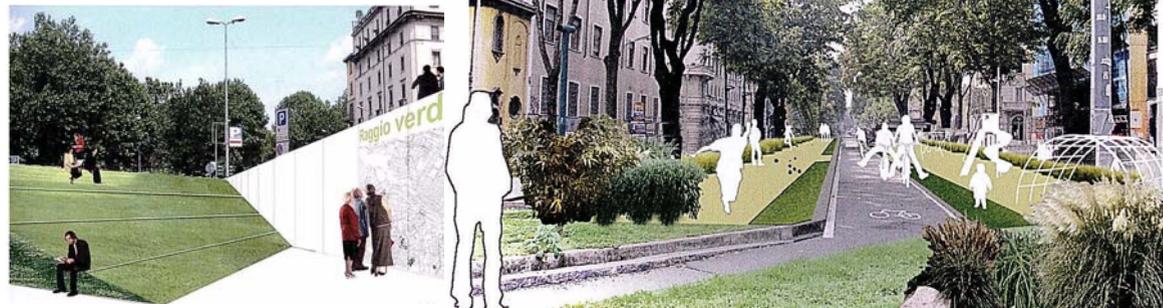


Illustration 83: The Milan “Green Plan”, a network of connected open spaces

### 4.3 SWOT analysis of Salvokop (strengths, weaknesses, opportunities and threats)

A study of the strengths, weaknesses, opportunities and threats of the site was done (see illustrations 84 - 87). The SWOT analysis shows that the framework needs to address and tackle weaknesses and threats such as the disconnection of Salvokop to the

city, the deteriorating state of the heritage fabric and the persistent nature of the alien invasive plant species. In addition, the framework needs to maximise and emphasise the strengths and opportunities such as the fine fabric set in contrast to the city, its central location and its interesting and captivating character.

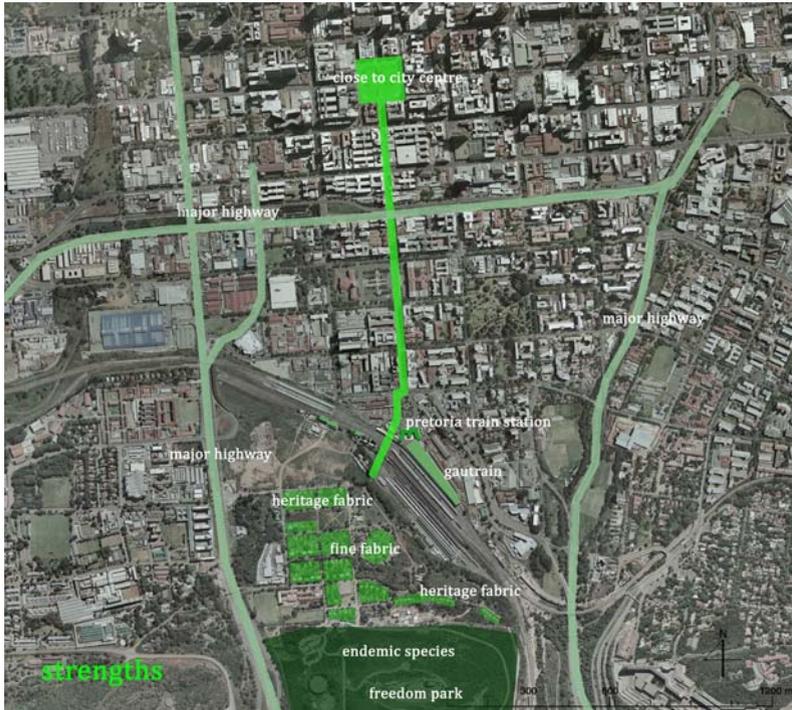


Illustration 84: SWOT analysis of the site - strengths



Illustration 85: SWOT analysis of the site – weaknesses

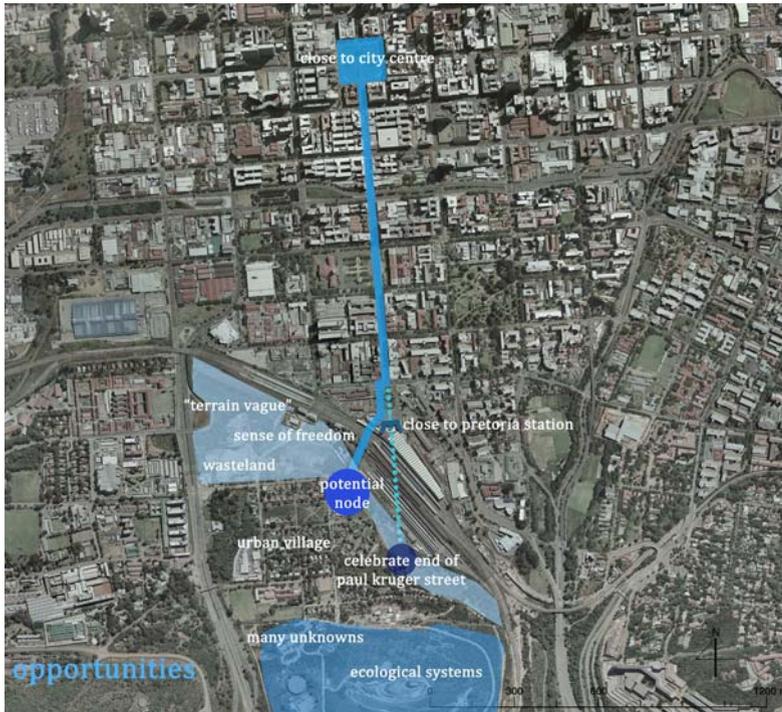


Illustration 86: SWOT analysis of the site – opportunities

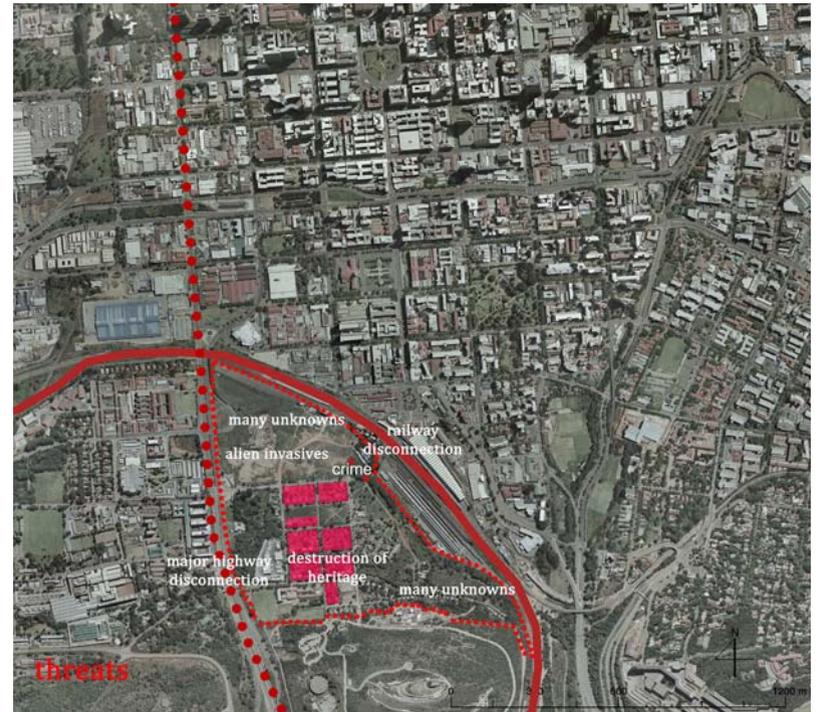


Illustration 87: SWOT analysis of the site - threats

#### 4.4 Problem statement

The isolated nature of Salvokop, caused by the railway, has led to the development of a unique character. This separation has however also resulted in a disconnectedness of energies and activities from the rest of the city. There is an existing contrast between the Pretoria CBD and Salvokop. Salvokop comprises a fine heritage fabric compared to the city's hard, harsh big blocks (see illustration 88).

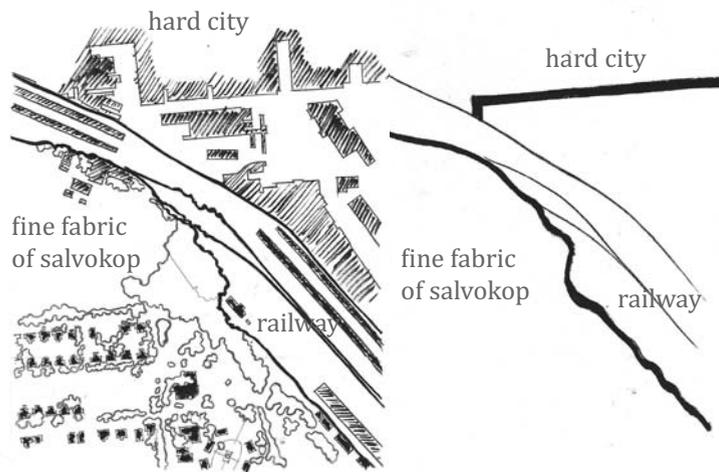


Illustration 88: Contrasting entities between city and Salvokop

#### 4.5 Theoretical background influencing framework - *Small Change* by Nabeel Hamdi

The framework focusses on 'network governance'. An inside-out structure of social organisations and enterprises held together by well-connected and well-networked systems rather than command and control hierarchies or power elites analogous to organic systems (Turnbull, cited in Hamdi, 2009:107).

#### 4.6 Definition of terms

##### **preserve**

- Maintaining the fabric of a place in its existing state and re-

tarding deterioration (Burra Charter, 1979).

- Maintaining the activities on grass root level and establishing a network (Hamdi 2004).
- Aspects of Salvokop that fall under the term *preserve*: **heritage**, conservation, **character**, identity, wastelands, social, ruins, ecology, railway, **urban fabric**, residential, informal trade, public space, processes, patterns, energies, industrial memory, breathing space, experience, **mnemo-technic devices**, catalyst, urban village, railway, sustainable, planning level, spatial level, chance encounter, movement, views, activities.

##### **connect**

- Bring together or into contact so that a physical and/or metaphysical link is established.
- To establish a relationship between unique edges.
- Aspects of Salvokop that fall under the term *connect*: route, **destination**, landmarks, waste, social, **economy**, **access**, **accessibility**, urban, activation, bridging, transport node, residential, informal trade, public space, industrial, tourism, breathing space, street edge, sustainable, **landscape urbanism**, urban farming, social housing, planning level, safety, prescription, catalyst, waste landscapes, energies, experience, spatial level, movement, views, **activities**.

#### 4.7 Analysis of existing Salvokop frameworks

An indepth examination of existing Salvokop frameworks in terms of strengths and weaknesses and the concepts of *preserve and connect* will in turn affect and influence the decisions made for the final 'Proposed Salvokop Framework' (see illustration 89 - 96).

4.7.1 GAPP Framework

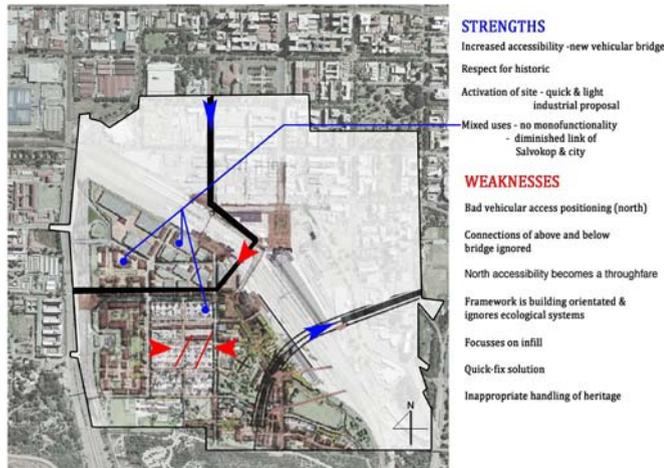


Illustration 89: GAPP Framework - strengths and weaknesses

4.7.2 Tshwane Open Space Framework

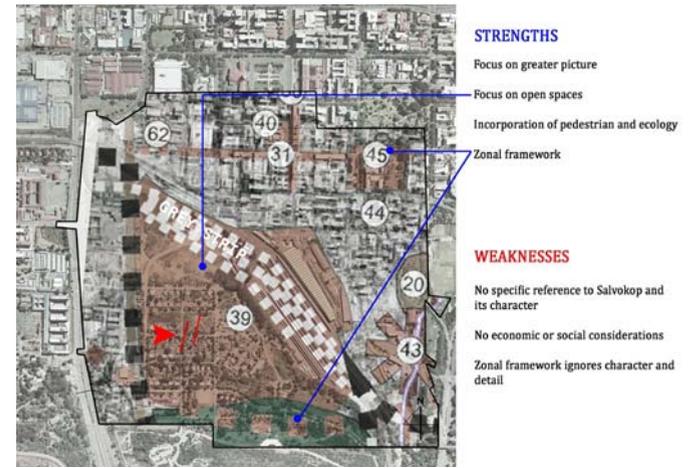


Illustration 91: Tshwane Open Space Framework - strengths and weaknesses



Illustration 90: GAPP Framework - preserve and connect

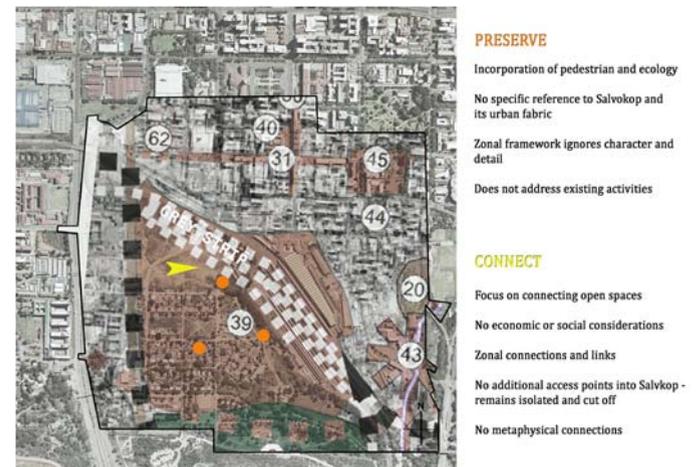


Illustration 92: Tshwane Open Space Framework - preserve and connect

04 SALVOKOP FRAMEWORK

4.7.3 Re Kgabisa Framework



Illustration 93: Re Kgabisa Framework - strengths and weaknesses

4.7.4 ARUP Framework



Illustration 95: ARUP Framework - strengths and weaknesses

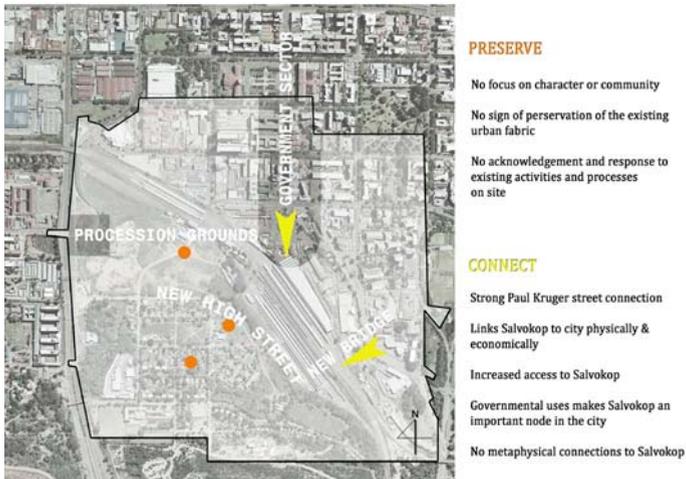


Illustration 94: Re Kgabisa Framework - preserve and connect



Illustration 96: ARUP Framework - preserve and connect



### 4.9 'Proposed Salvokop Framework' - concept sections

#### 4.9.1 Section A

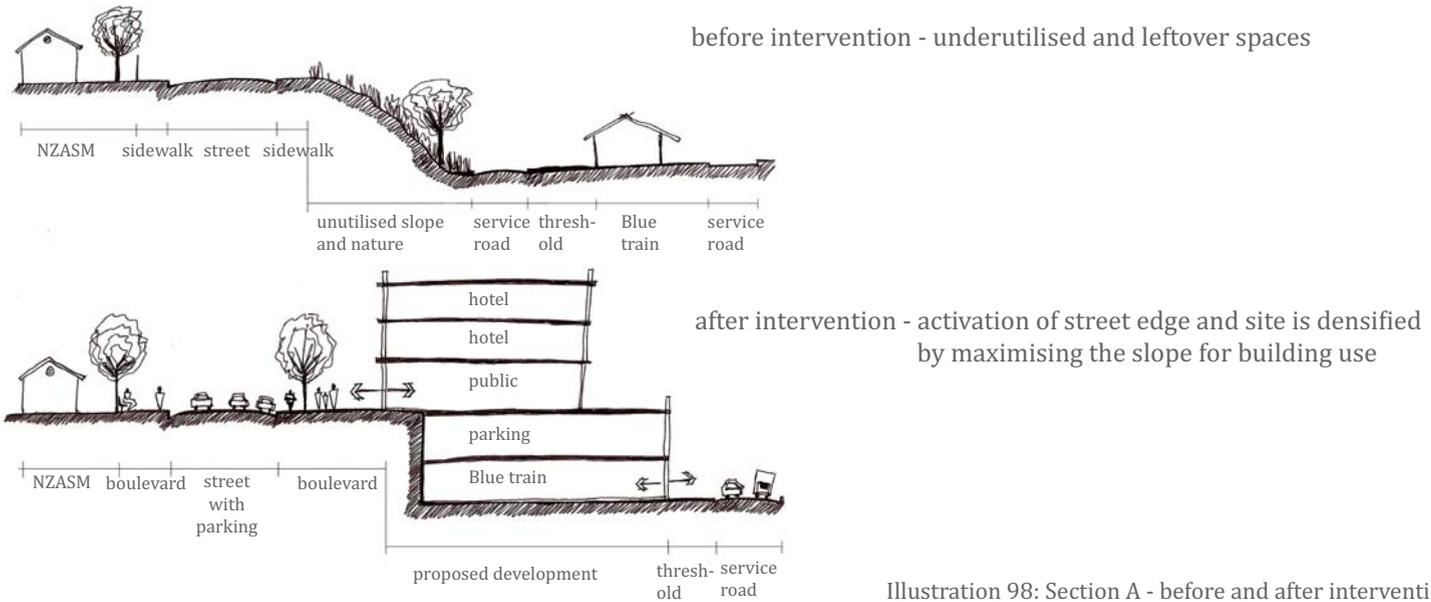
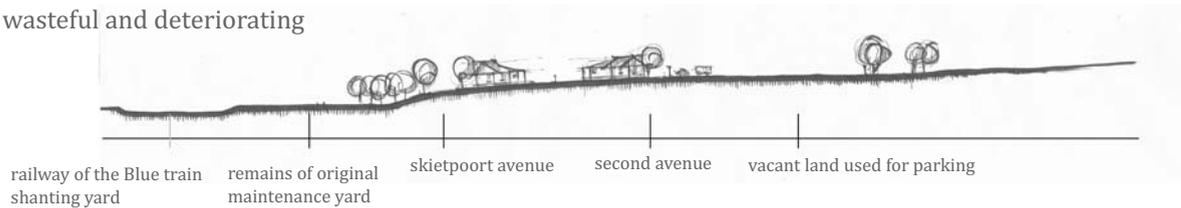


Illustration 98: Section A - before and after intervention

#### 4.9.2 Section B

before intervention - wasteful and deteriorating



after intervention - site is densified

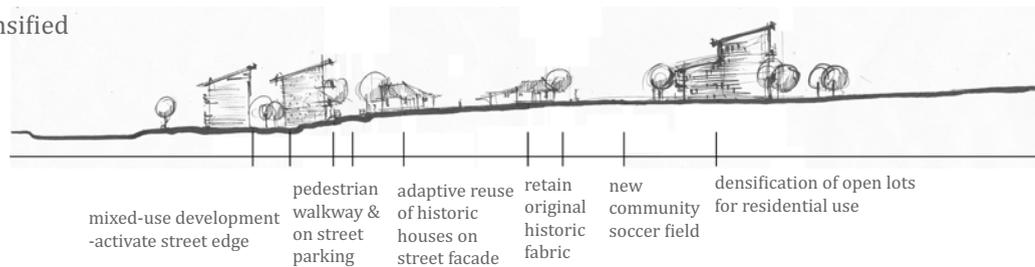
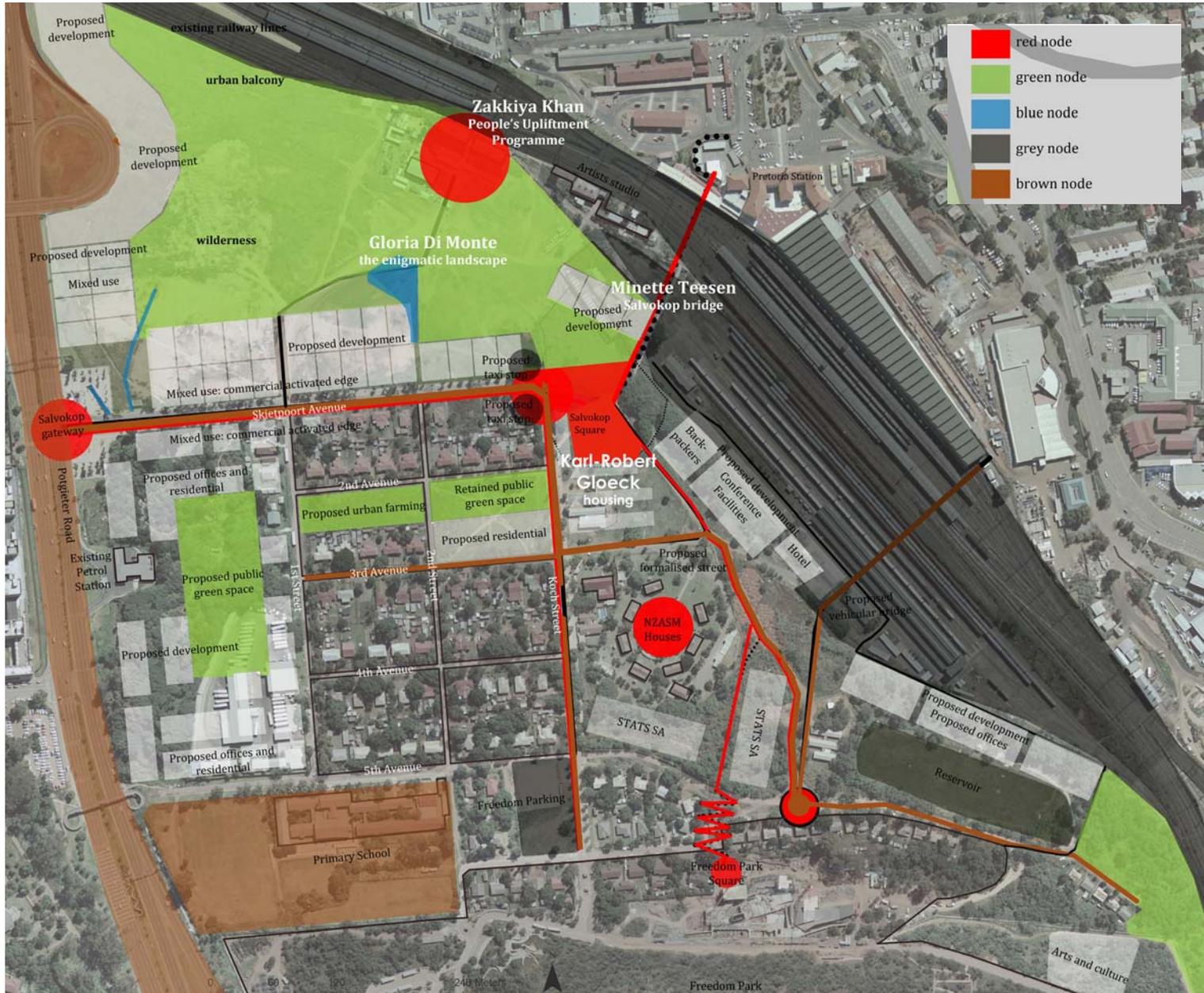


Illustration 99: Section B - before and after intervention



4.11 *Tshwane open space framework* principles applied to the 'Proposed Salvokop Framework'



**Tshwane open space framework node definitions**

**Red nodes** - consist of the most important “Place-making moments” in the city structure. Include landmarks, gateways, squares and culture historical elements or places.

**Green nodes** - areas within which ecological systems, processes and value are concentrated. They include important habitats for fauna and flora.

**Blue nodes** - include dams, wetlands, peat lands as well as any area defined by the presence of a permanent water body or water saturated soils, housing aquatic fauna and flora.

**Grey nodes** - include open space with services and urban utilities such as water reservoirs, quarries, landfill sites and cemeteries.

**Brown nodes** - include predominantly informal and formalised recreational Open Spaces, (such as resorts, recreational parks, sport facilities) as well as socio-economic centres (such as urban cores).

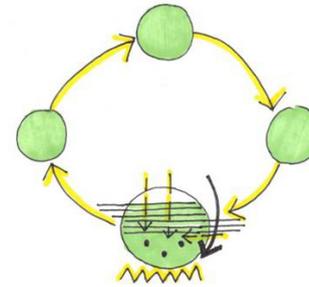
**4.12 Individual project response to the ‘Proposed Salvokop Framework’**

Illustration 102 illustrates each individuals parti diagram and how they will individually respond to the framework and its concepts of *preserve and connect*. Individually, the author of this dissertation will connect by creating a green open space network that links Salvokop to the rest of the city’s green open space network proposed on page 51. Visual connections of the wasteland will be made and the existing character will be retained, contributing to the preservation of the site and its qualities.

**4.13 Conclusion**

By preserving and connecting, Salvokop is fully activated without losing its character and fine heritage fabric. The ‘Proposed Salvokop Framework’ allows each individual to respond within their designs to this vision which ultimately contributes to the greater *Tshwane Open Space Framework* vision for Pretoria. The framework furthermore proposes a long term solution which allows the framework to adapt over time and not remain static. The following chapter consists of an in depth analysis of

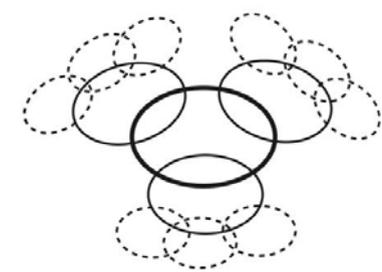
Salvokop in order to inform further chapters leading to the final design.



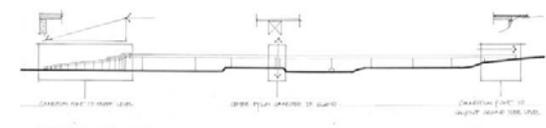
Gloria Di Monte



Zakkiya Khan



Karl-robert Gloeck



Minette Teesen

Illustration 102: Individual responses to ‘Proposed Salvokop Framework’ - parti diagrams



## CHAPTER 5\_SITE ANALYSIS

### 5.1 Introduction to Salvokop

On the south side of Salvokop lies Freedom Park, a controlled, powered and pedigree landscape worth millions. On the northern side, lies a large wasteland, enigmatic and abandoned, seemingly worth nothing (see illustration 103). The 'Proposed Salvokop Framework' has been diagrammatically summarised in terms of the theory and terms used in this dissertation in illustration 104. This illustrates the different types of landscapes and proposed interventions on the site. The large wasteland, adjacent to the Pretoria Station railway lines is the site that has been chosen to further test this investigation, due to numerous aspects, as pointed out earlier, these include its mysterious quality, its abandoned state, the diversity of wastelands that exist on the site and its intriguing history. The 'Proposed Salvokop Framework' visualises parts of this wasteland to remain open space in the city. This wasteland is to become a healthy node that forms part of the green open space network proposed on page 51. A design will be proposed and a sketch plan will be developed for the chosen site. Due to the important emphasis on the spatial and experiential level in this dissertation, the site analysis focussed primarily on discovering and uncovering the character and its richness. The aim was first to map and investigate the poetry and character of the site, and second to understand the site in terms of geology, vegetation, movement patterns and history.

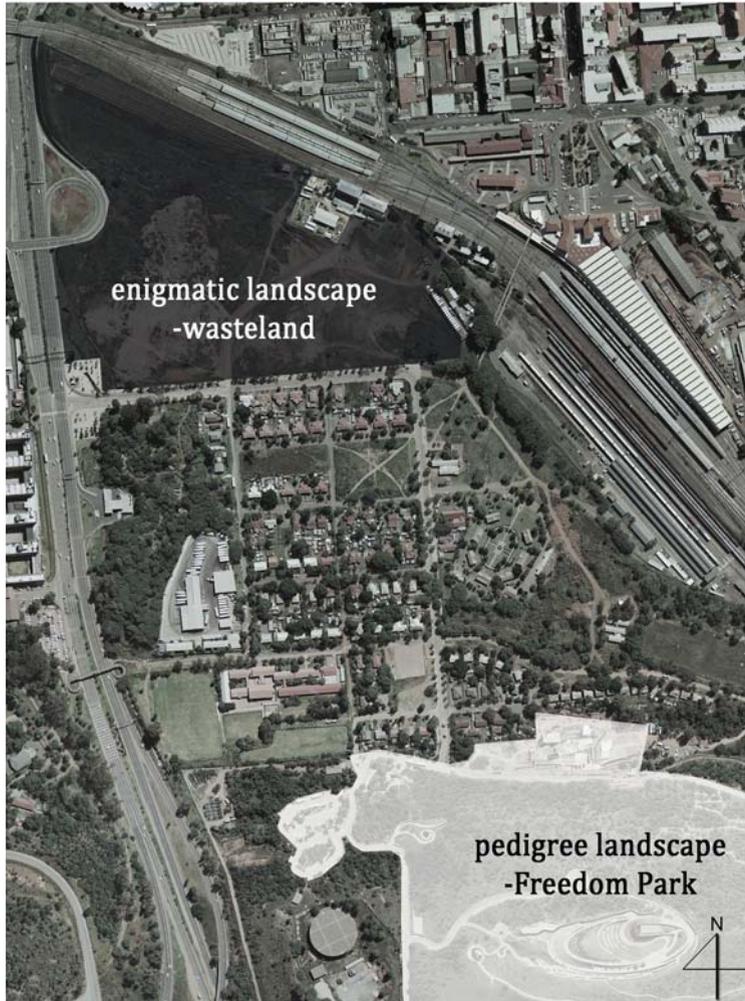


Illustration 103: Salvokop analysis of pedigree and enigmatic landscapes

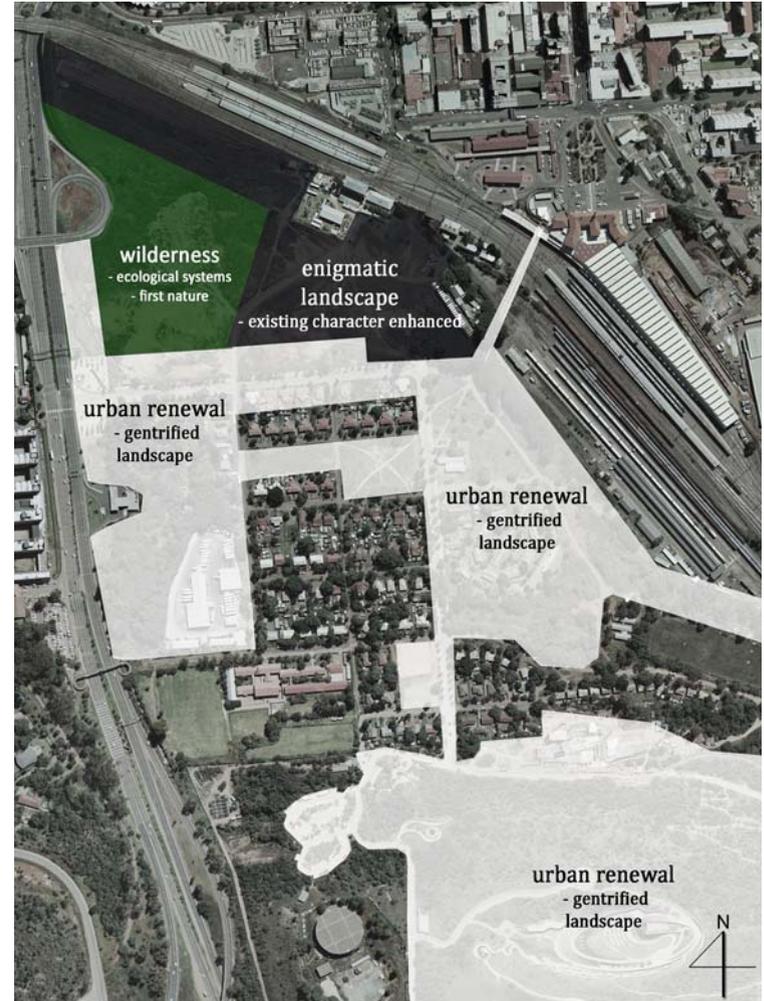


Illustration 104: 'Proposed Salvokop Framework' summary in terms of the authors theory

### 5.2 Wastelands in Salvokop

A zoomed in analysis of the site’s specific types of wastelands was done. As stated previously, a combination of waste, wasted and wasteful sites are present in Salvokop. Waste and dumping on the site consists of building rubble and domestic waste

which will need to be dealt with. Waste that can be reused and recycled should be kept on site to be utilised and adapted to the proposed landscape design. These include rusted waste bins, glass bottles, bottle tops, timber, broken bricks, concrete blocks and concrete manhole covers.

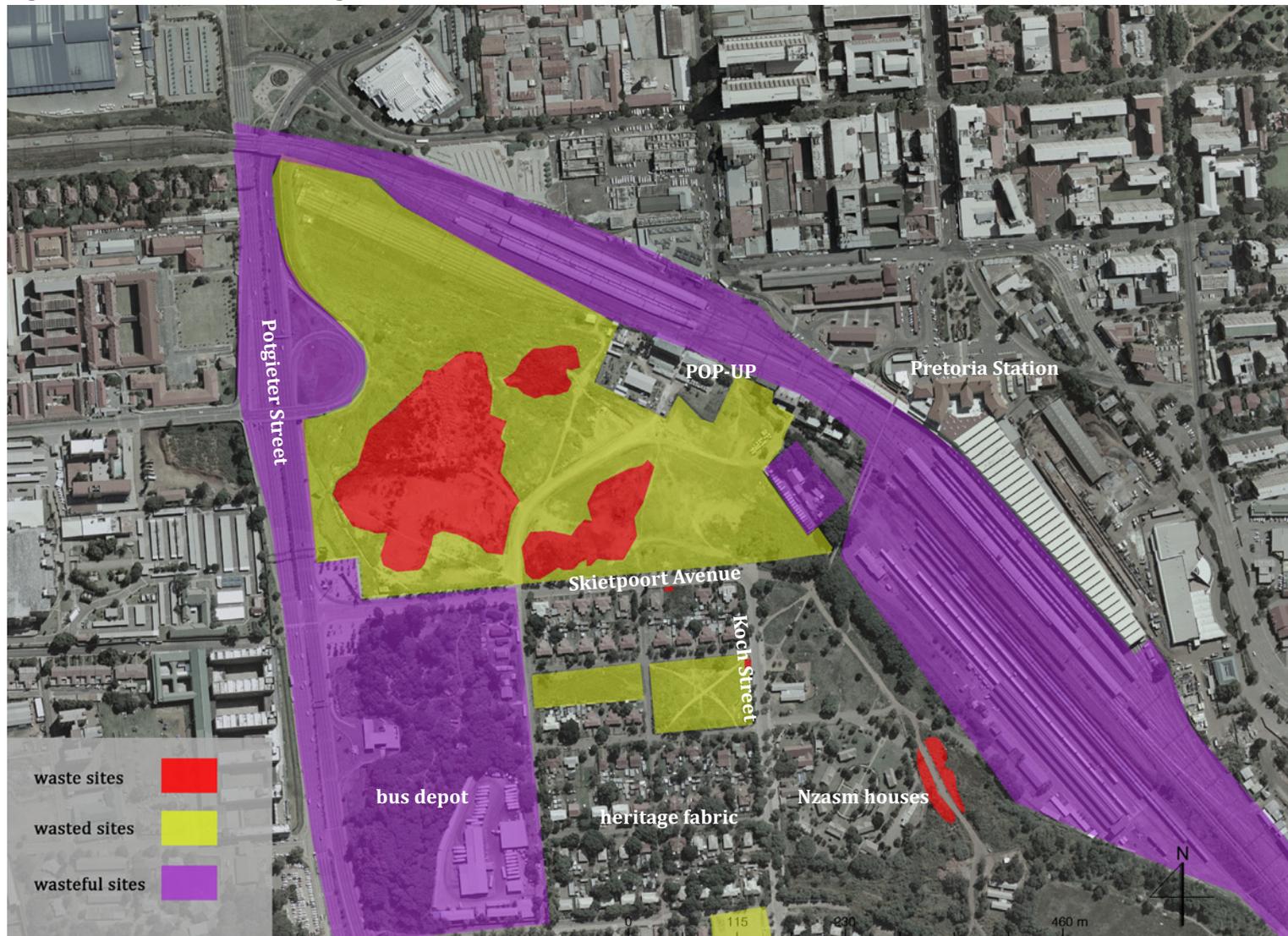


Illustration 105: Wastelands on the site

### 5.3 Intuitive response to Salvokop

Upon first visit to the site, an intuitive drawing revealed the first impressions of the site. Illustration 106 is a drawing that provides hints of the site's experience, emotion and character. On returning from the first visit with photographs, collages were composed to further expose the character (see illustration 107 and 108).

#### 5.3.1 Intuitive drawing

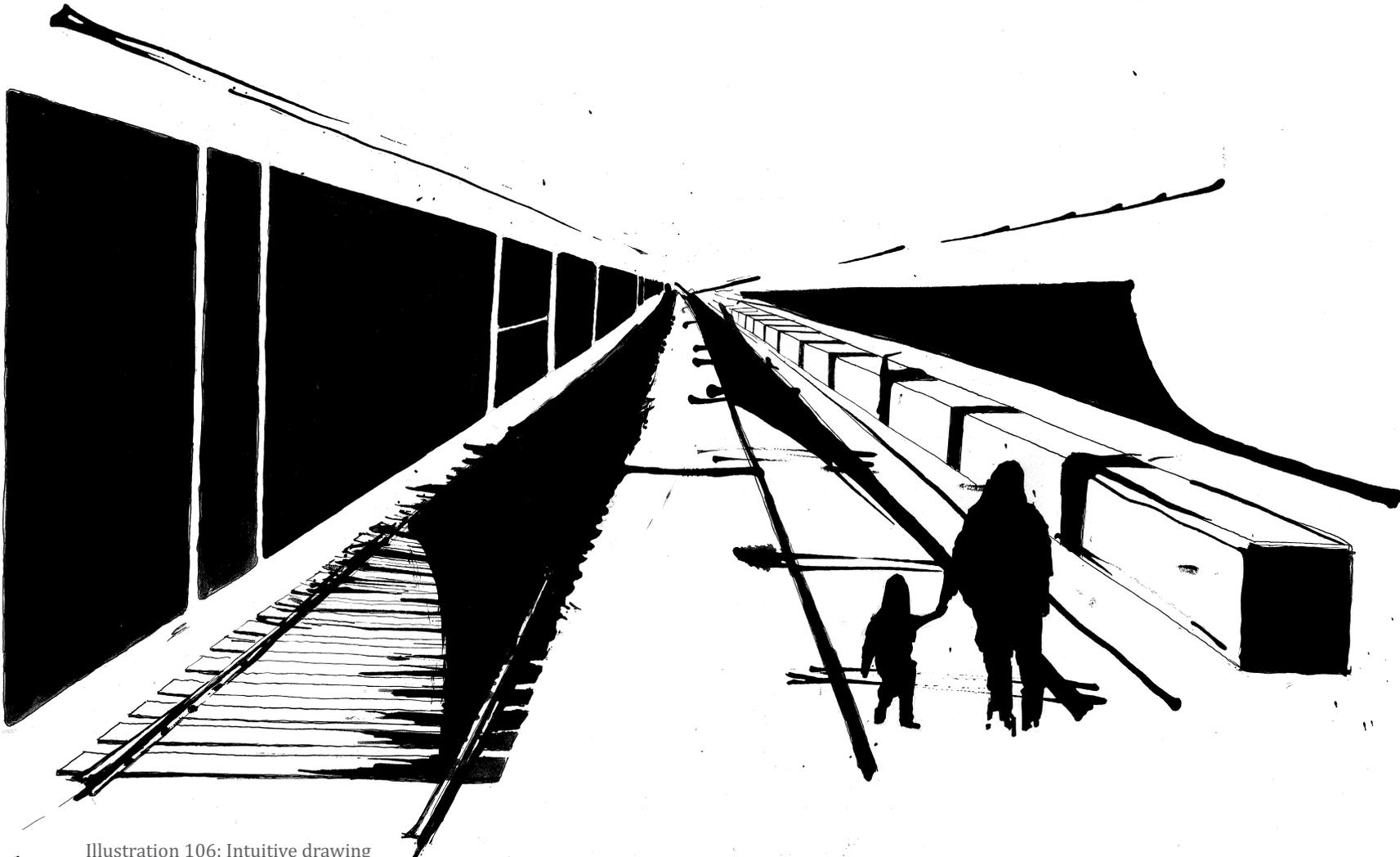


Illustration 106: Intuitive drawing

5.3.2 Salvokop collages

Wastelands are “spaces of freedom that are an alternative to the current profitable reality” and “... offer a sense of freedom and richness of unexpected possibilities” (Ignasi de Solà-Morales, 1995: 120). “Art’s reaction, as before with “nature” is to preserve these alternative, strange spaces” (ibid, 1995: 122).

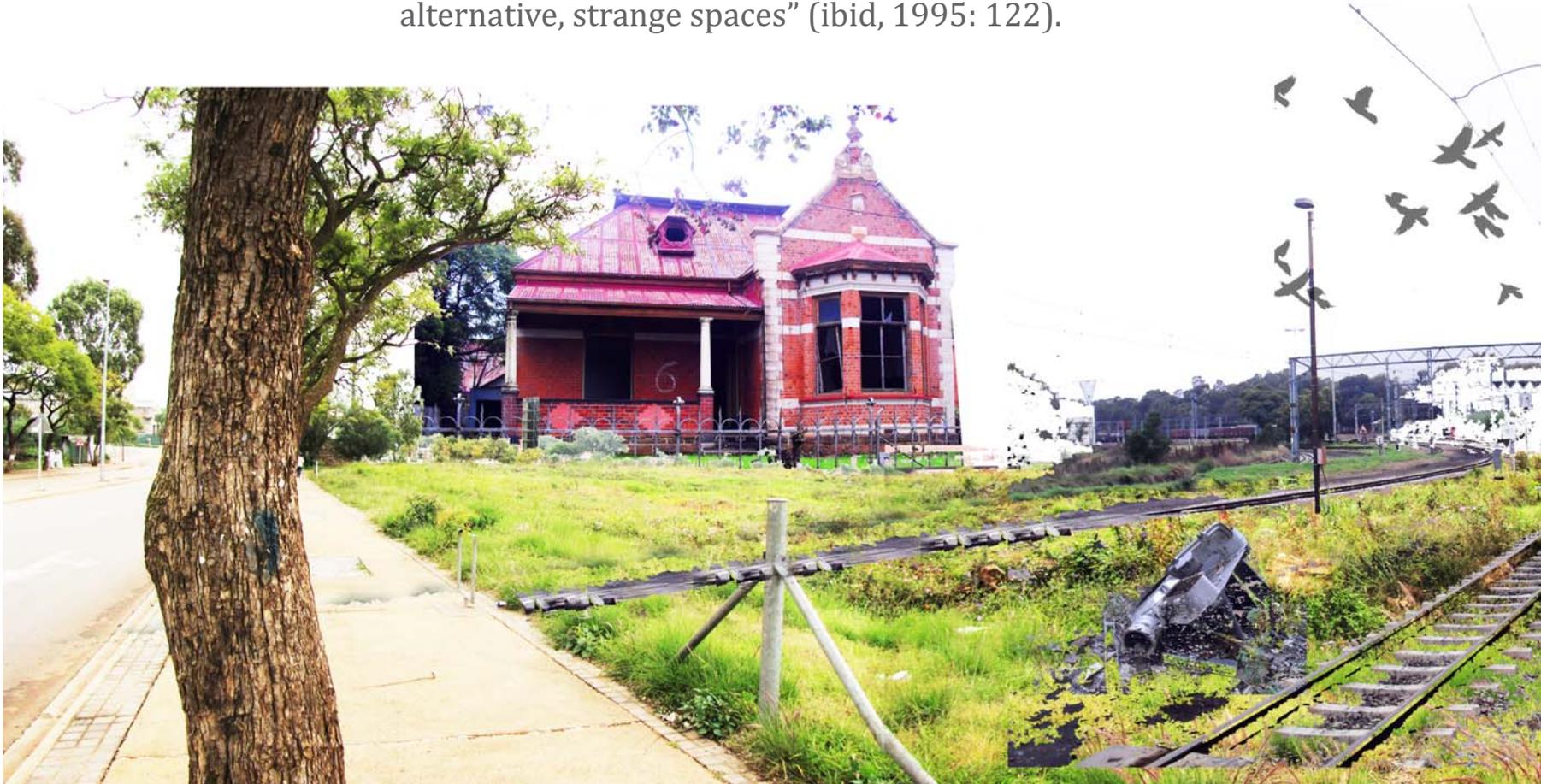


Illustration 107: Poetry of forgotten places, Salvokop collage



“Conversion of derelict land into parks in the IBA Emscher often led to destruction of that mysterious atmosphere between decay and revitalization that had made the sites so attractive” (Tate, 2001: 119).



Illustration 108: Poetry of forgotten places, Salvokop collage



### 5.4 Experiential map

An intuitive investigation was done showing the experiential and intangible aspects of the site. Illustration 109 demonstrated positive and negative feelings while walking through the site. This image illustrates overall positive and negative spaces, and reveals spaces with potential and challenging spaces.



Illustration 109: Intangible experiences on the site

### 5.5 Mapping of the poetry and character

In order to respond on a spatial level to the site, the existing intriguing, mysterious character and poetry needs to be mapped.

This exercise will point out the areas with potential that can be later focussed on in the design process (see illustration 110 - 113).



Illustration 110: References to photographs of poetic spaces on the site



Illustration 111: Character of Salvokop



Illustration 112: Character of Salvokop



Illustration 113: Character of Salvokop

### 5.6 Movement pattern analysis

Illustration 114 illustrates pedestrian, vehicular and railway movement patterns on the site. The site is characterised by two major transport axis' that hug Salvokop; the Potgieter highway on the west and the railway lines that run from north-west to south-east.

The pedestrian and some of the vehicular movement patterns in Salvokop are chaotic, unorganised and unpredictable. This aspect of the site especially on the wasteland gives it a mysterious uncontrolled character. The unpredictable nature of these movement patterns should be retained and enhanced as far as possible in the proposed design for the wasteland.



Illustration 114: Movement on the site

## 5.7 Geology analysis

A geotechnical investigation on the northern part of Salvokop, the site under investigation, was undertaken by VGI Geologists as part of a feasibility study done. The following geological features and aspects were uncovered

- The site is underlaid by dolomite and chert at great depth.
- The entire subsurface profile consists of Timehall Hill Shale (see illustration 115).
- The site has therefore no risk of sinkhole or doline formation.
- Extensively underlaid by fill material both above and below the surface and more locally buried concrete.
- Northern extremity appears to be a buried railway marshalling yard.
- Rehabilitation will be necessary prior to development by rubble removal or dynamic compaction).



Illustration 115: Geology types in Salvokop

The following facts are necessary when making design decisions in terms of rehabilitation, planting, soil and waterways. The site was transformed by human activities (bulldozer activities) and currently serves as a dumping site for domestic waste. Dumping on the site consists of household waste and building rubble. This type of waste consists of contaminants such as dioxins, cadmium, lead and hydrocarbons. According to Jacques Gerber, an ecologist, these are easy to deal with. Gerber recommended site clearance and the removal of the top 150mm of soil on the site. Dioxins are a class of chemical contaminants that are formed during combustion processes such as waste incineration, forest fires, and backyard trash burning. Cadmium is a metallic element that is released into the soil when household or industrial waste, coal or oil are burned. With the removal of the top layer of contaminated soil on the site, the design proposed must deal with the contaminated soil in creative ways instead of transporting it to another site.

In addition, existing waterways and slopes (see contours on illustration 116) should be retained and maximised in the design to retain as much water on the site and recharge groundwater, which will also contribute to retaining the existing character of the site and creating a sustainable landscape.



Illustration 116: Existing contours on site

## 5.8 Vegetation analysis

In terms of vegetation the site is environmentally disturbed and is classified as ‘disturbed urban temperate bushveld’ (see illustration 117). Some small portions of the site are overgrown by grass species characteristic of disturbed areas, the most dominant grass species being Kikuyu. A contextual study of the area was done by Newtown Landscape Architects. The results of this study can be seen in chapter 11, page 208-212. The site consists of indigenous trees, exotic species and alien invasives. Any indigenous trees and endemic species will be retained. Category three species will also be retained while category two and one alien invasives will be removed. Many of the large trees add to the character of the site and must therefore be retained. Groundcovers and shrubs will be removed as these are more than 60% invasive and exotic species, many of which are poisonous. There are several bush clumps with indigenous species, although invasive alien species have already started to transform the vegetation into exotic bush clumps. According to Siebert (2002: 4) of the 40 species recorded for this area, 30 (75%) are exotics (see Table 1, page 187-190). Ten percent (10%) of the exotic species have potential use, while 40% of the indigenous species are valuable to the local community. The high frequency of Category 1 alien invader species (22%) is an indication of an area of extremely low ecological value. Development in the most disturbed area should be encouraged. From an ecological point of view, the area has low environmental status, although it could be transformed into an indigenous, sustainable living area if waste dumping is stopped, invader species are controlled and more indigenous species are planted. Invasive alien street trees can be replaced by indigenous street trees, such as *Olea europaea*, *Combretum erythrophyllum*, *Rhus lancea*, *Harpephyllum caffrum*, *Ekebergia capensis*, *Trichilia emetica*, *Erythrina lysistemon*, *Acacia robusta* and *Acacia karroo* (Siebert, 2002: 5). A planting philosophy and specie list will be proposed for the rehabilitation and design of the area. Illustration 118, maps out the existing trees on the site.



Illustration 117: Vegetation types in Salvokop



Illustration 118: Existing trees on site

### 5.9 The history of Salvokop

Bordered by the southern edge of the city grid and adjacent to Pretoria Station, Salvokop is one of two suburbs in Tshwane with an important railway heritage. The timeline below illustrates the changes the area went through from 1939 to 2007. The wasteland in Salvokop was previously used as a railway maintenance yard. This was demolished in 1971 and has remained vacant and abandoned for 40 years. In addition, illustration 120 is a timeline that shows the history of the railway lines and how it has been in a state of continual flux from 1902

up until the present. These timelines should inform the design proposed due to the memory and past being so important in the approach followed in this dissertation. The railway timeline with its linearity and constant change should influence the form for the proposed design.

#### 5.9.1 Salvokop timeline



Illustration 119: Salvokop timeline



1991



2001



2007

5.9.2 Salvokop railway timeline

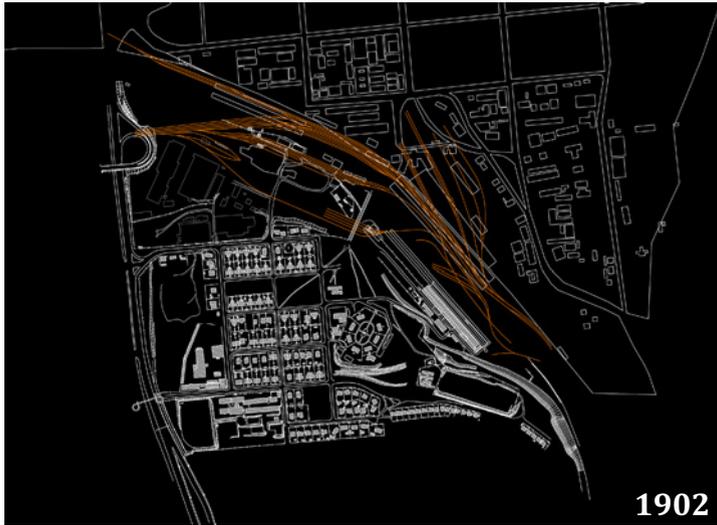
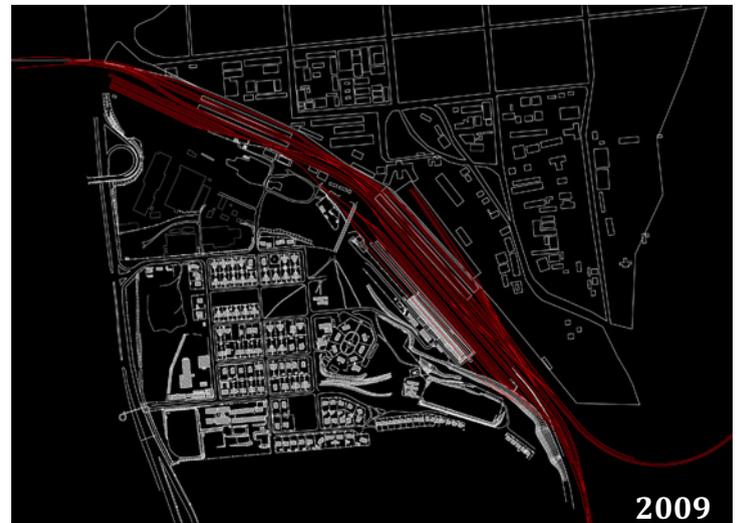
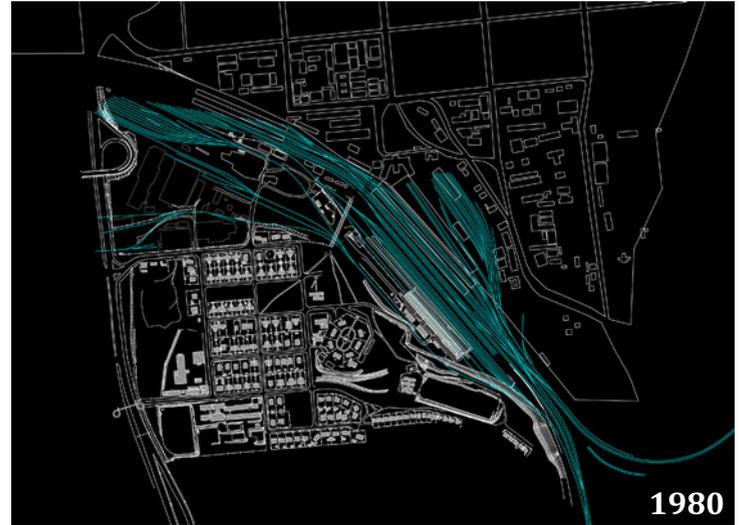
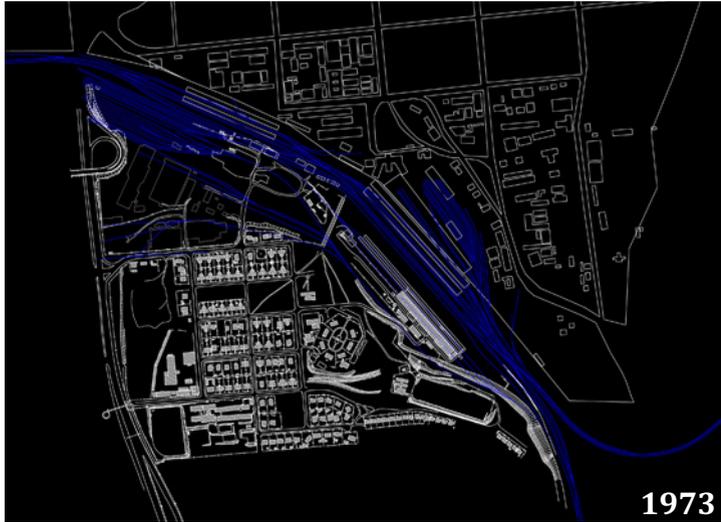


Illustration 120: Railway history 1902 - 2009



## 5.10 Conclusion

In conclusion, site analysis is key to a well-designed project. The analysis done in this chapter informs the preceding design and design process. Although abandoned and seemingly worth nothing, the analysis of the wasteland revealed the exact opposite. This site is full of moments, unpredictable surprises and a hidden history that needs to be enhanced. The site analysis done facilitates the understanding of the site and its special character. With this analysis and information the author is able to respond to the existing potential of Salvokop and begin developing a proposed design.

## CHAPTER 6\_DESIGN DEVELOPMENT

06 DESIGN DEVELOPMENT

**6.1 Introduction**

This chapter includes the process of further discovery and decision making. Precedent imagery influences the design development and detail design. From the site analysis completed, very different zones with different characteristics can be identified in the wasteland. These zones now need to be explored according to the design process proposed, first spatially and then on a planning level. Once completed the four zones need to be combined and developed to form a masterplan for the site.

**6.2 Precedent Imagery**

The precedent imagery evaluated provide visual stimulants of:

- Landscape designs implemented on wastelands;
- Projects that combine nature and wilderness with the city;
- Structural forms;
- Inclusion of natural processes and rehabilitation;
- Sculptural landscape interventions in the landscape;
- The use of materials and textures; and
- Place-making in the landscape.

121.1 Parc Andre Citroën, Paris, France, 1992 by Gilles Clément and Alain Provost.

121.2 Seattle Gas Works Park, Washington, USA, 1975 by Richard Haag.

121.3 Toronto Waterfront, Canada, 2006 by West 8.

121.4 Forum Homini, Sterkfontein, 2003 by Green inc.

121.5 The Hakone Japanese Tea Gardens.

121.6 Pedestrian bridge in Texas, USA. by Miro Rivera architects.

121.7 Lurie Garden, Millenium Park in Chicago, USA, 1998 by Kathryn Gustafson, Piet Oudolf, and Robert Israel.

121.8 Eggum, Lofoten, Norway, 2007 by Snøhetta Architects.

121.9 The Garden of the Anterior, 1975 by Bernard Lassus.

121.10 Three Bridges of Borneo/Sporenburg, Netherlands by West 8.

121.11 Tomba Brion - Vega by Carlo Scarpa, 1978.

121.12 Conical Tower, Great Enclosure, Great Zimbabwe Ruins, Zimbabwe.

121.13 and 121.14 Byxbee Park in California, USA, 2005 by Har-

greaves Landscape Architects and Planners.

121.15 Mill Race park, Columbus, Indiana, 1992 sculpture by Stanley Saitowitz.

121.16 and 121.17 Buenos Aires Reserva Ecologica, 1918 by Hargreaves Landscape Architects and Planners.

121.18 Botanic Bridge, Gwangju by West 8.



6.2.1 Precedent design imagery



### 6.3 Four places

As a result of the site analysis completed, which included the mapping of the poetry and character of the site, four main zones (see illustration 122) can be identified (namely i, ii, iii, iv). Each zone will be further explored in terms of the found objects in

that zone, and thereafter, spatial and planning explorations will be completed for each. In addition, this exercise proposes a planting and material palette that responds to and originates from the character of each place.

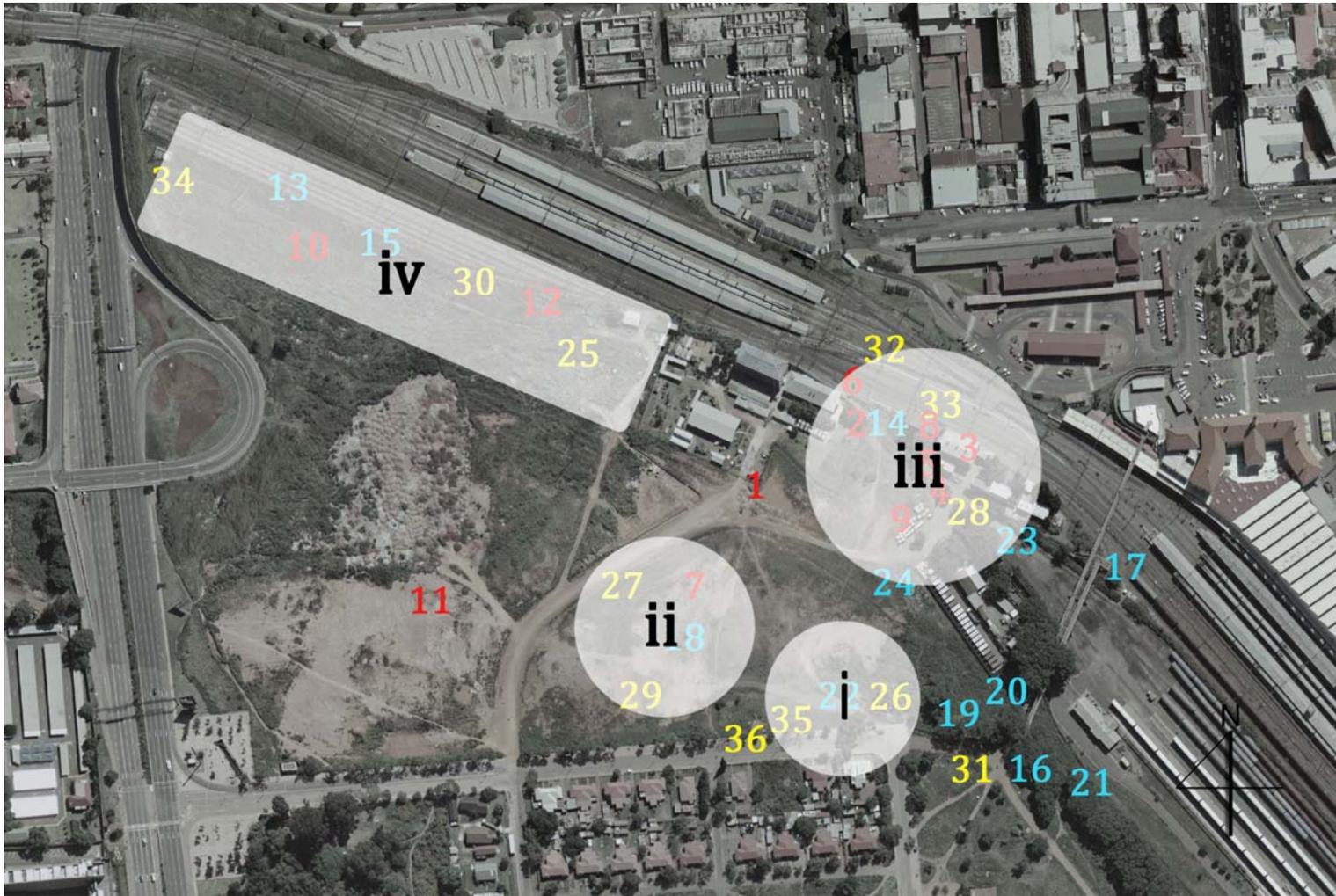


Illustration 122: Four places of poetry indicated

## 6.4 Place i

Found objects in this area include (see illustration 123):

- **dense vegetation;**
- **steep slope;**
- **sculptural powerline;** and
- **found materials.**

The spatial explorations for this zone consists of concept sections and digital images that propose possible design solutions (see illustration 124).

The experiential qualities that the dense vegetation provides to the area need to be maximised. The **dense vegetation** is somewhat reminiscent to an urban forest. The vegetation should define overgrown-like spaces such as an intimate tunnel-type space (see perspective, illustration 124). This enhances the already existing enclosed character of the space. In terms of planting, the best specimen trees will be retained due to their character, adding value while alien invasive category one and two species will be removed. Illustration 124 includes a planting palette of existing species in the zone. Indigenous species should be additionally planted to increase the vegetation density.

With regard to the existing **steep slope**, spatial concepts must focus on retaining and enhancing this characteristic. In addition, the slope should be better utilized by adding interesting sub-spaces at the top and bottom of the slope (see proposed section, illustration 124).

Assuming the 'Proposed Salvokop Framework' will be implemented, the existing powerlines will be removed and placed underground. However, the specific **sculptural powerline** in this zone will be respectfully retained with all cables and wiring removed. This will preserve the character that the powerline contributes to the Salvokop square, indicated in the 'Proposed Salvokop Framework'. The powerline should be used as a sculpture that announces the enigmatic landscape that follows. For

the purpose of this study, the square will not be focussed on or investigated as it is not a place that can be explored in terms of enigmatic landscapes.

With regard to **materials**, the existing red shale soil should inform colours for the material palette. Also, materials with rustic qualities should be used in this zone to respect the existing rough palette of textures.

A possible plan and grounding of these spatial responses is proposed in a concept planning exercise that follows (see illustration 125).

06 DESIGN DEVELOPMENT

6.4.1 Found object

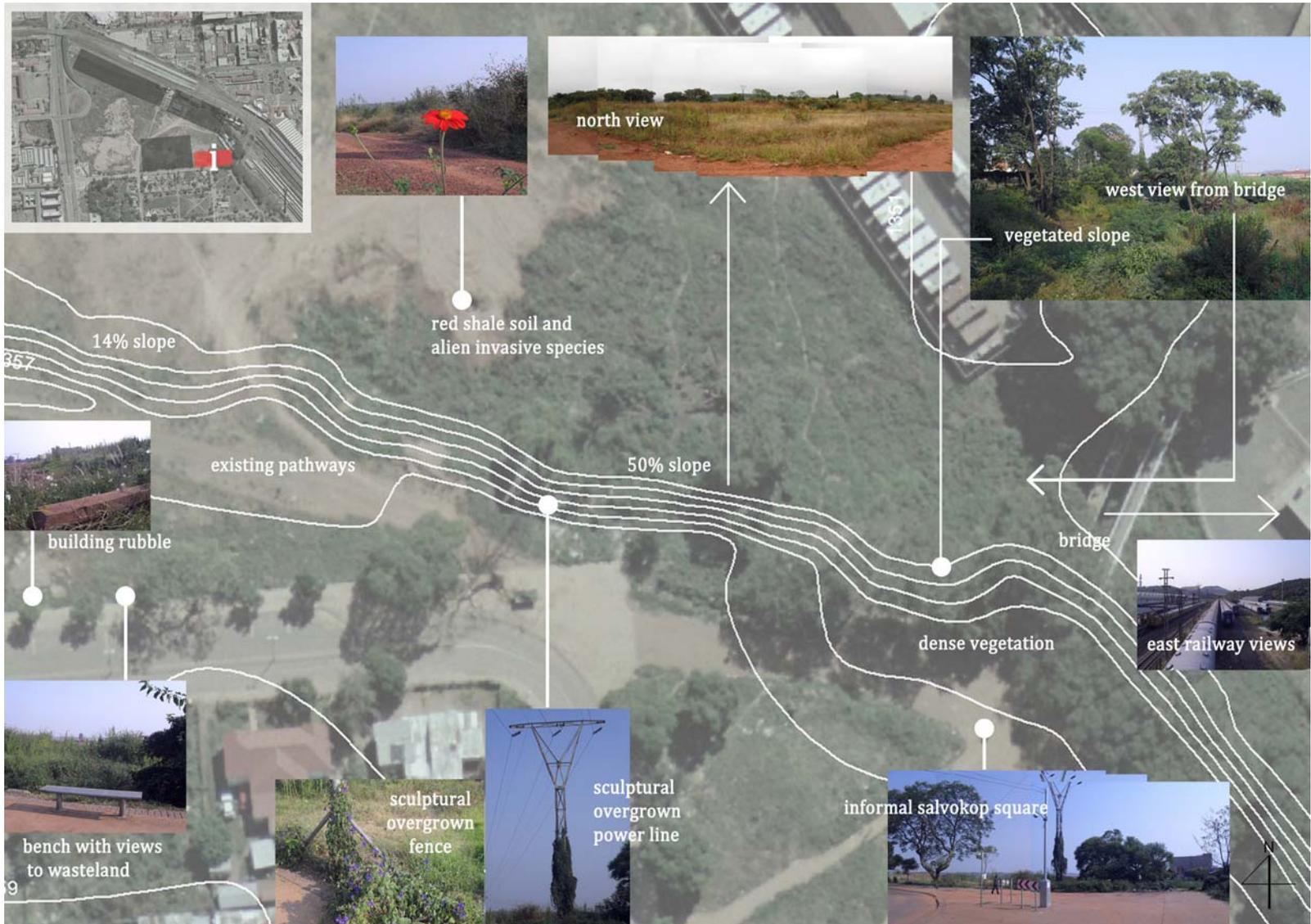


Illustration 123: Place i - Found objects

6.4.2 Spatial exploration

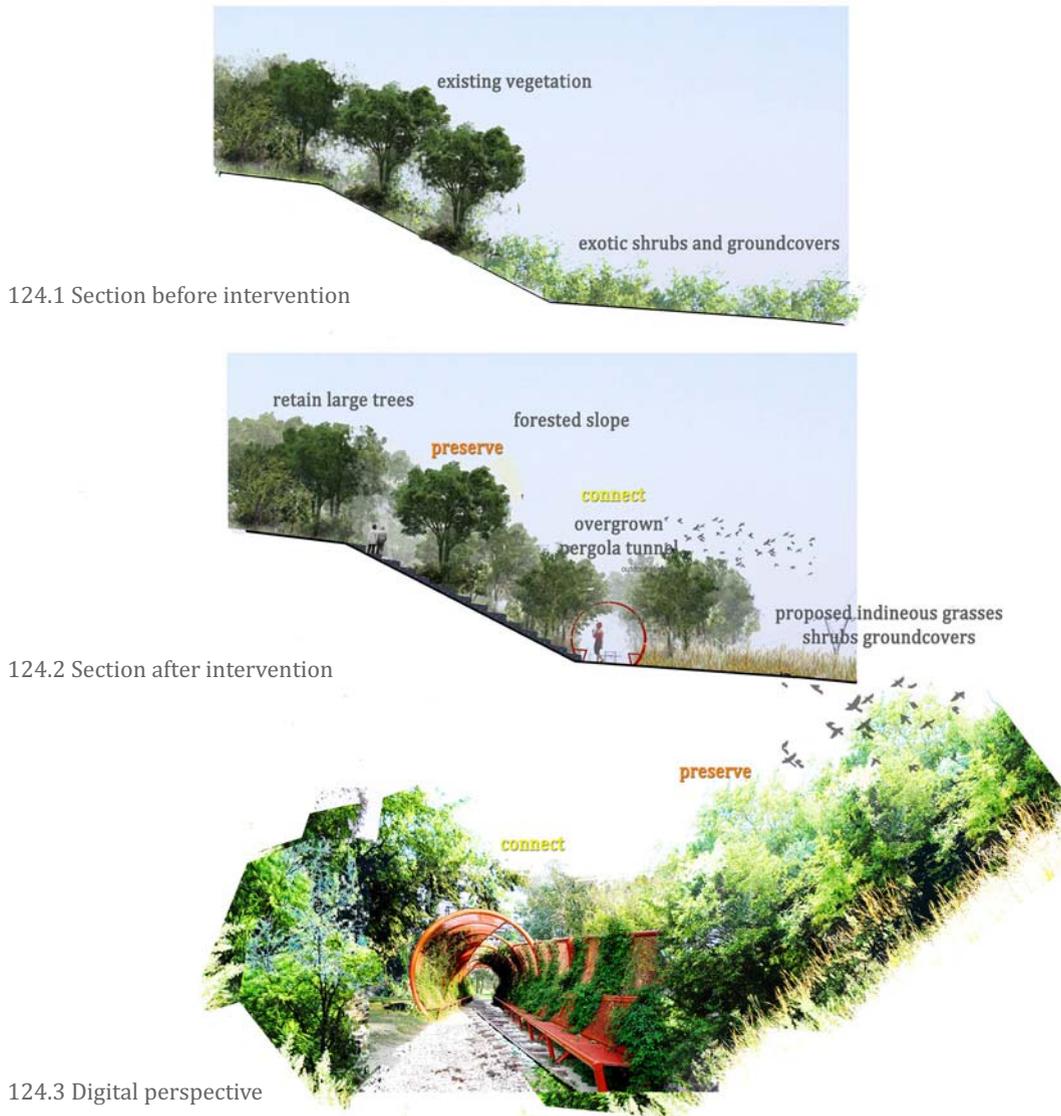


Illustration 124: Place i - Spatial exploration



124.4 Planting and materials

06 DESIGN DEVELOPMENT

6.4.3 Planning exploration

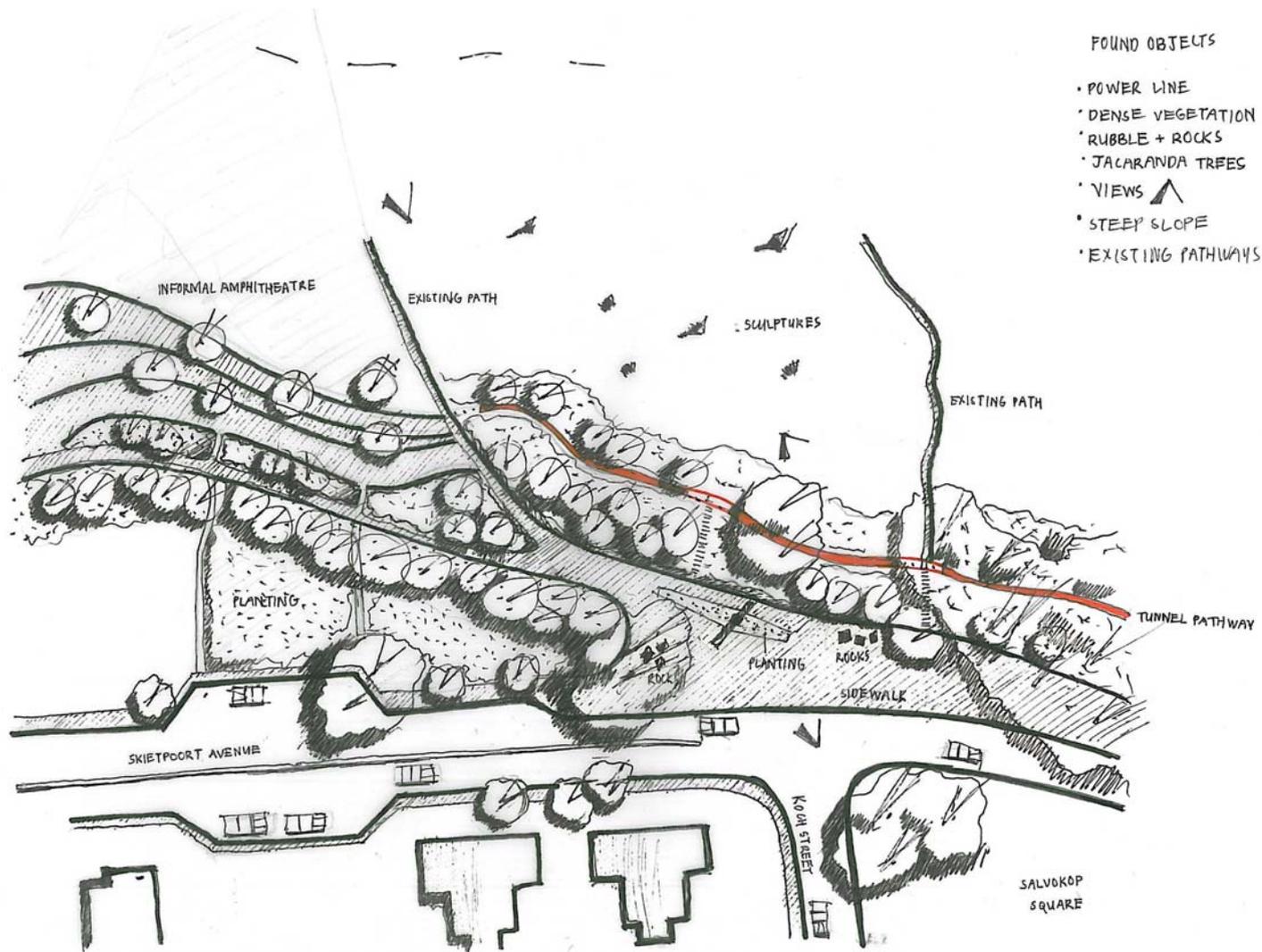


Illustration 125: Place i - Planning exploration

## 6.5 Place ii

Found objects in this area include (see illustration 126):

- **dumping mounds;**
- **an existing waterway;**
- **metal rusted rubbish bins;**
- **concrete piping covers;**
- **rubble, rocks and stones;** and
- **harsh conditions.**

The spatial explorations for this zone consists of concept sketches and sections that propose possible designs solutions (see illustration 127).

With regard to the **dumping mounds** present in this zone, one could enhance these by emphasising them as landmarks in the area.

The **existing waterway** should become a landscape feature and be maximised in order to contribute to creating a healthy ecological water system in Salvokop. This system can become an aesthetic landscape feature (see proposed section, illustration 127), and more importantly function as a stormwater catchment that cleans and retains all of Salvokop's stormwater to be used as irrigation for the landscape. By catching the area's stormwater and reusing it, one prevents further downstream flooding and allows for groundwater recharge. The water feature in this zone calls for a more public-type space such as an amphitheatre, however, calls for more intimate contemplative spaces around the water's edge.

The **metal rusted rubbish bins** and **concrete elements** in this zone should be reused and celebrated in the proposed design. The rubbish bins have sculptural qualities and by reusing them in the design, they become physical reminders and hints of the past. Appropriate waste in the area can be used to build tall waste sculptures that can be lit up at night and seen from far.

The **rubble and rocks** in the area can be reused to give a swale

and the edges of water interesting textures. The rocks can also be reused to create sub-spaces on the waters edge. Materials used needs to lend to the spatial qualities of the site, which is rough, rustic and textured. By reusing the rubble and rocks one retains the existing textures and feel of the site.

This area has **harsh conditions** in terms of the limited planting that exists. This character should be enhanced in a smaller part of the design, while the rest of the more public area needs to propose additional vegetation for shading.

A possible plan and grounding of these spatial responses is proposed in a concept planning exercise that follows (see illustration 128).

06 DESIGN DEVELOPMENT

6.5.1 Found object

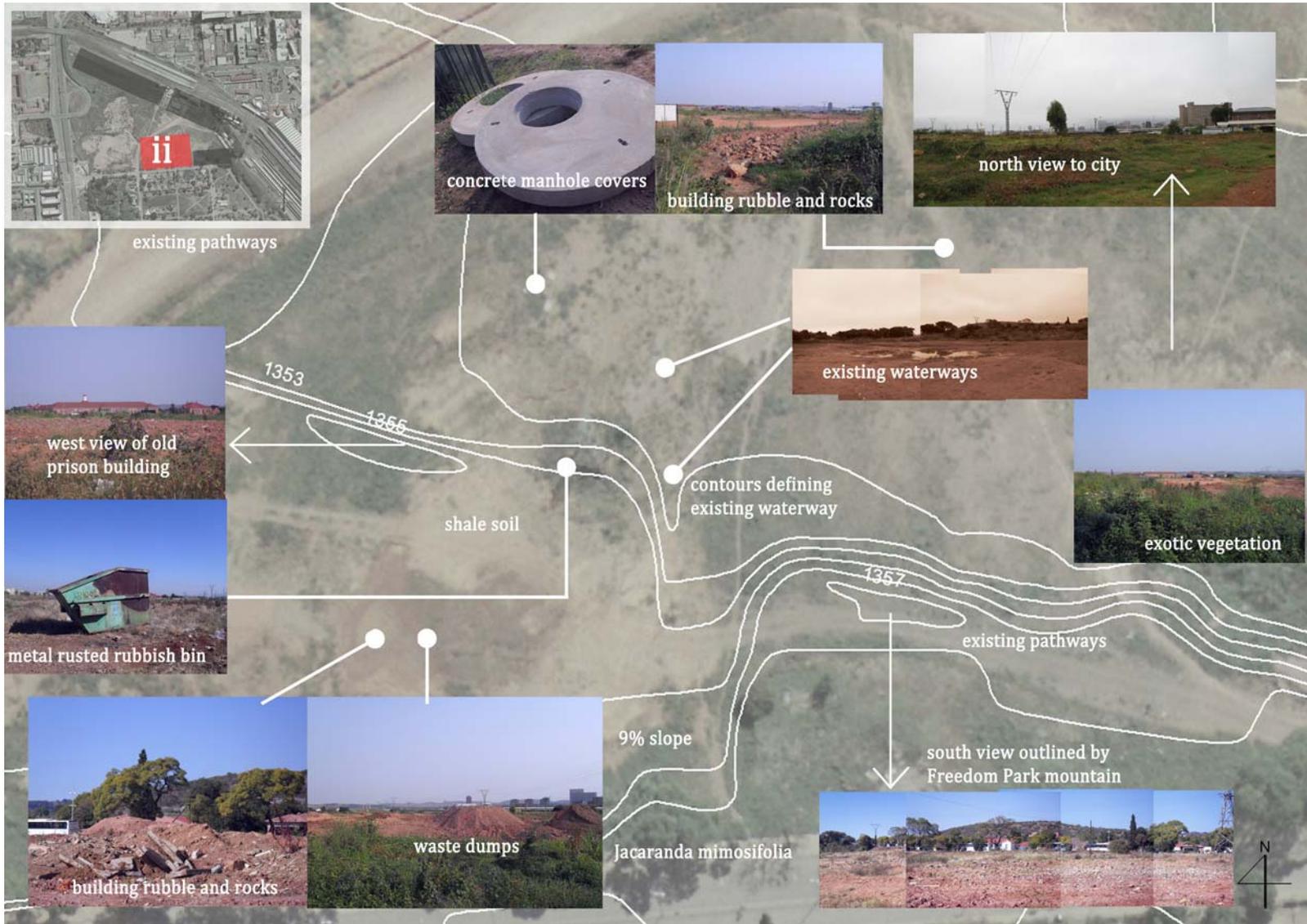
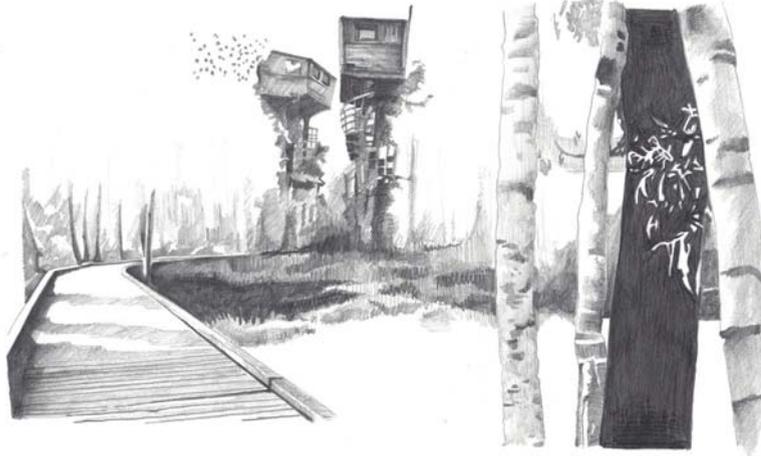
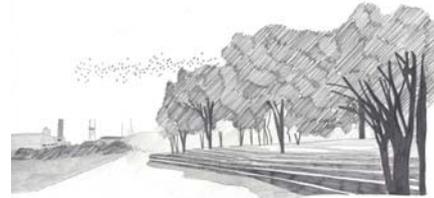


Illustration 126: Place ii - Found objects

6.5.2 Spatial exploration



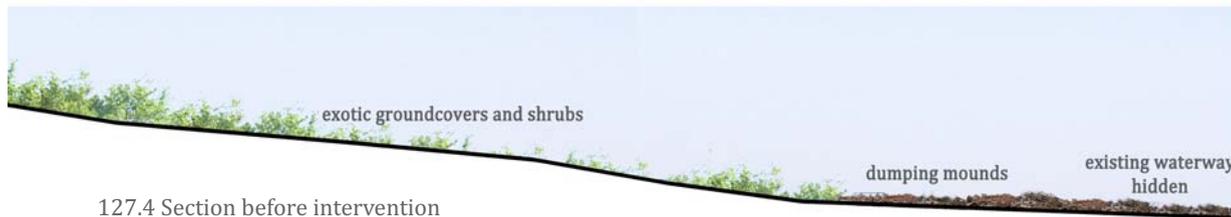
127.1 Perspective sketch



127.2 Perspective sketch



127.3 Perspective sketch



127.4 Section before intervention



127.5 Section after intervention

**planting palette**

**trees**

*Searsia leptodictya* (Mountain Karee)    *Senegalalia karoos* (Sweet thorn)

**shrubs**

*Gomphocarpus physocarpus* (Milkweed)

**forbes and geophytes**

*Sida dregei* (Spider-leg)    *Ipomoea cairica* (Morning glory)

**graminoids**

*Hyparrhenia tamba* (Blue thatching grass)    *Melinis repens* (Natal red top)    *Hyparrhenia hirta* (Common thatching grass)    *Cymbopogon excavatus* (Broad turpetine grass)

**material palette**

Rusted steel    Stainless steel    Concrete with rough finish

Building rubble    Scrap metal    Water

**ii**

127.6 Planting and materials

Illustration 127: Place ii - Spatial exploration

06 DESIGN DEVELOPMENT

6.5.3 Planning exploration

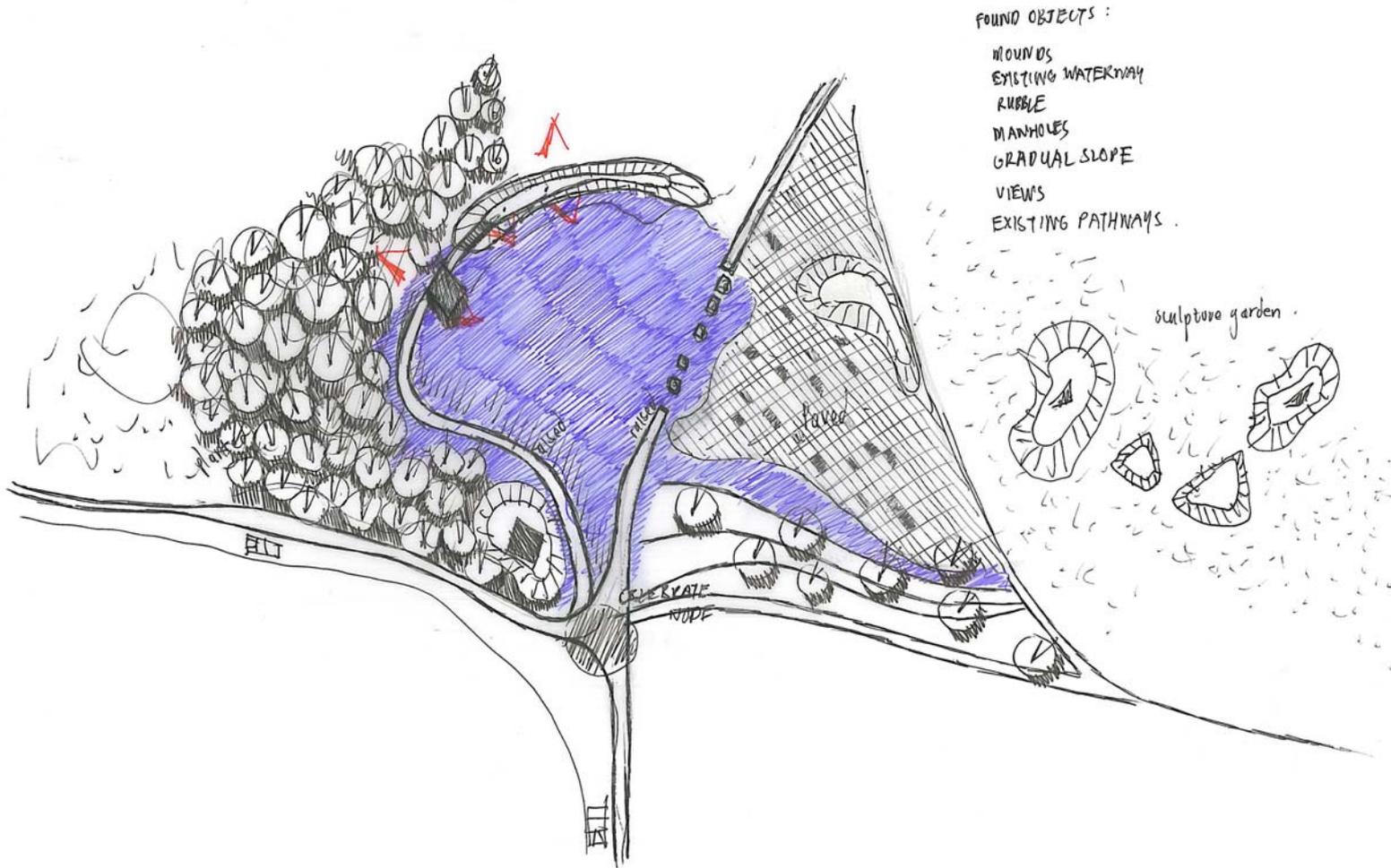


Illustration 128: Place ii - Planning exploration

## 6.6 Place iii

Found objects in this area include (see illustration 129):

- **a delapidated shed** with heritage significance, currently being used for storage of concrete elements and as shelter for the homeless;
- **old steelwork**: fences and an old railway water storage tank;
- **concrete boxes** storing cables;
- **unused railway lines**; and
- **POP-UP** (People's Upliftment Programme) training facility; and
- **found materials**.

The **abandoned shed** should be restored and reprogrammed to become a utilised space. The eerie character of the shed and its abandoned quality should however be enhanced in the restoration.

Old **steelworks** and **concrete storage boxes** should be used as sculptural elements in the landscape. These can be enhanced with lighting and paving patterns (see section, illustration 130). Where possible, waste in the area should be reused and recycled. The engine, for example, can be reused as part of a waste sculpture and the **unused railway lines** can be reused in a paving design.

The **POP-UP training facility** should become an integral part of what happens on the entire wasteland. This is an existing organisation that can run and overlook the proposed landscape and its functions. The skills training in POP-UP includes activities such as admin, cookery and art workshops. This opportunity with its existing energy needs to be used to its full potential. For example, urban farming in the area can be overlooked and run by POP-UP. The vegetables and herbs produced from the urban farming can be used in cooking workshops and also be sold to other people and organisations to generate an income.

**Materials** in the area are also to be specified as rough, rustic and

textured. Reuse and recycling of existing elements is needed. Furthermore, materials selected should reflect materials used in the shed's structure (this includes corrugated iron which give it an old rough and rustic feel).

A possible plan and grounding of these spatial responses is proposed in a concept planning exercise that follows (see illustration 131 and 132).

06 DESIGN DEVELOPMENT

6.6.1 Found object

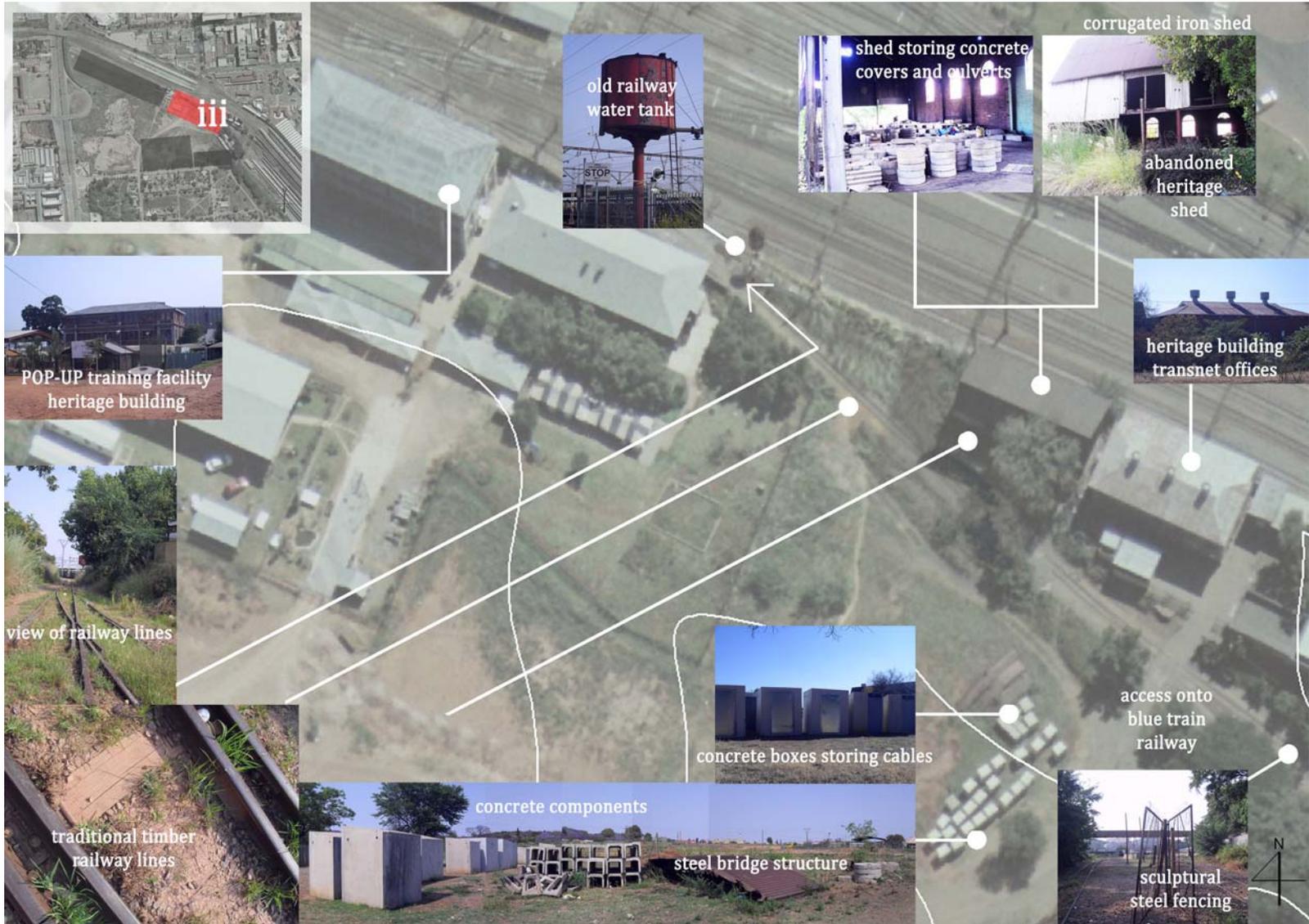
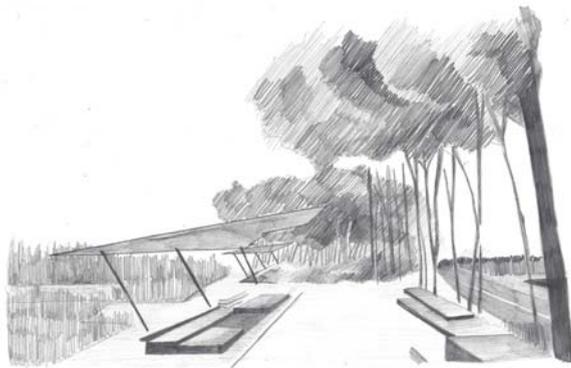


Illustration 129: Place iii - Found object

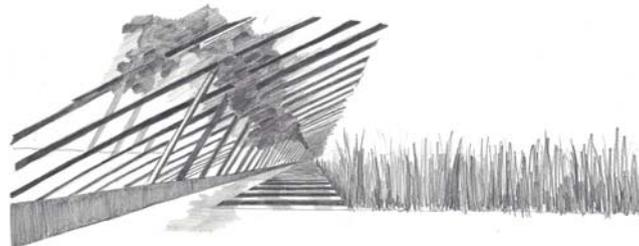
6.6.2 Spatial exploration



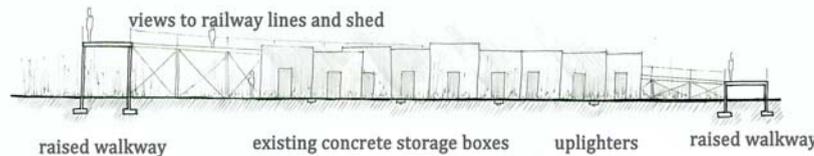
130.1 Digital perspective



130.2 Perspective sketch



130.3 Perspective sketch



130.4 Section after intervention

### planting palette

**trees**  
*Searsia leptodictya* (Mountain Karee)    *Senegalia karoo* (Sweet thorn)

**shrubs**  
*Gomphocarpus physocarpus* (Milkweed)

**forbes and geophytes**  
*Sida dregei* (Spider-leg)    *Ipomoea cairica* (Morning glory)

**graminoids**  
*Hyparrhenia tamba* (Blue thatching grass)    *Melinis repens* (Natal red top)    *Hyparrhenia hirta* (Common thatching grass)    *Cymbopogon excavatus* (Broad turpetine grass)

### material palette

Rusted steel    Rusted corrugated iron    Concrete with rough finish

Red tan charcoal brick pavers    Unused steel railway lines    Steel railway parts

Railway gravel and steel packaging cut outs    Rusty metal bars    Stainless steel grating

# iii

130.5 Planting and materials

06 DESIGN DEVELOPMENT

6.6.3 Planning exploration

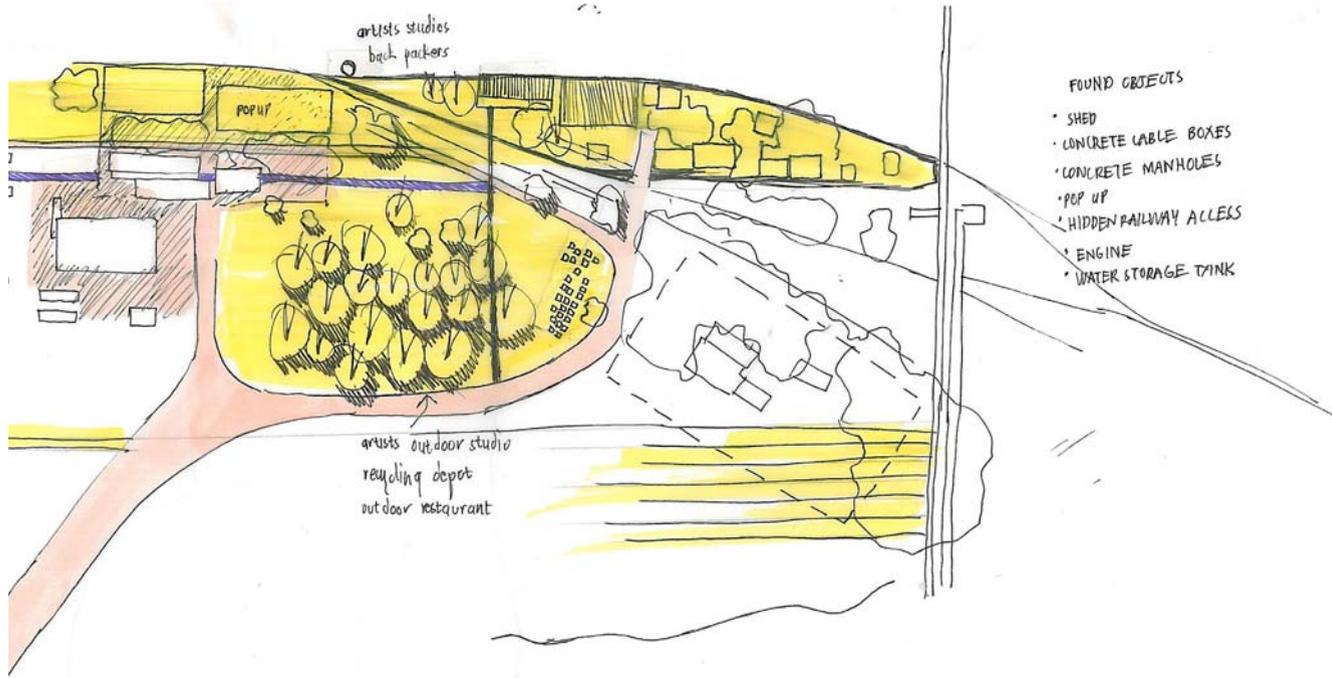


Illustration 131: Place iii - Planning exploration A

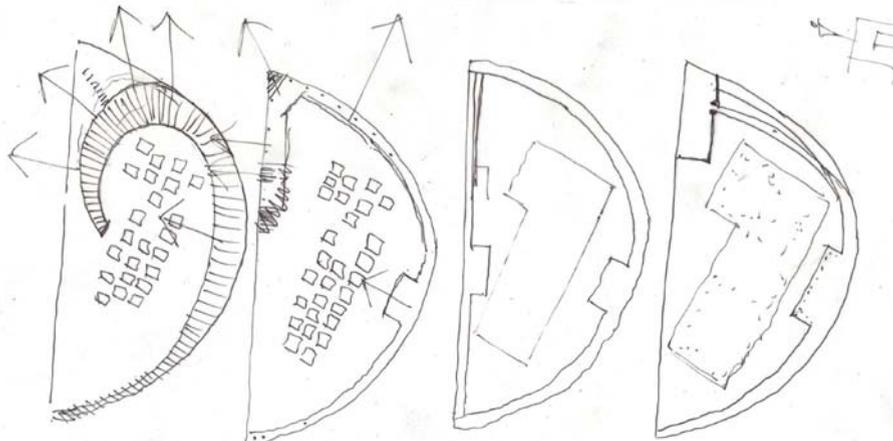


Illustration 132: Place iii - Planning exploration B

## 6.7 Place iv

Found objects in this area include (see illustration 133):

- **hidden unused railway lines;**
- **building rubble;**
- **views** onto the used railway lines that run from the Pretoria Station;
- a **linear railway space;** and
- **found materials.**

Existing **unused railway lines** are hidden under vegetation. These add a historic layer to the site and can be exposed and excavated. Their rhythm and proportions need to be repeated in the proposed design (see proposed sketches, illustration 134).

**Building rubble** can be reused on the site to add interesting textures or as outdoor furniture elements. For example, the concrete raft foundations can be used for seating in this zone or be stacked to create a feature (see proposed sketches, illustration 134).

**Existing views** onto the railway lines should be maximised. One can enhance these views by creating and designing an urban balcony that looks onto the railway lines and the city of Pretoria.

The **linearity of the space** also identifies it as a possible urban balcony with seating along its edges, as well as a movement space (see proposed sketches, illustration 134). The linearity of the site is additionally appropriate for urban farming, which is the lowest point of the entire site and therefore practical to catch water for irrigation. This is an informed and practical decision also due to its close proximity to the POP-UP training facility (as discussed previously). A long term vision includes a nursery for the site that will generate an income. In this area, structures used for the selling of plants and for a nursery can be positioned and shaped to respond to the linearity of the site (see proposed sketch, illustration 134).

**Materials** must be reused in the area and keep to the rough rus-

tic palette. A lack of planting in the area reduces the amount of trees and vegetation that needs to be removed for the urban farming. More planting can be proposed for shade in the public spaces such as the urban balcony where people will sit and observe.

A possible plan and grounding of these spatial responses is proposed in a concept planning exercise that follows (see illustration 135 and 136).

06 DESIGN DEVELOPMENT

6.7.1 Found object

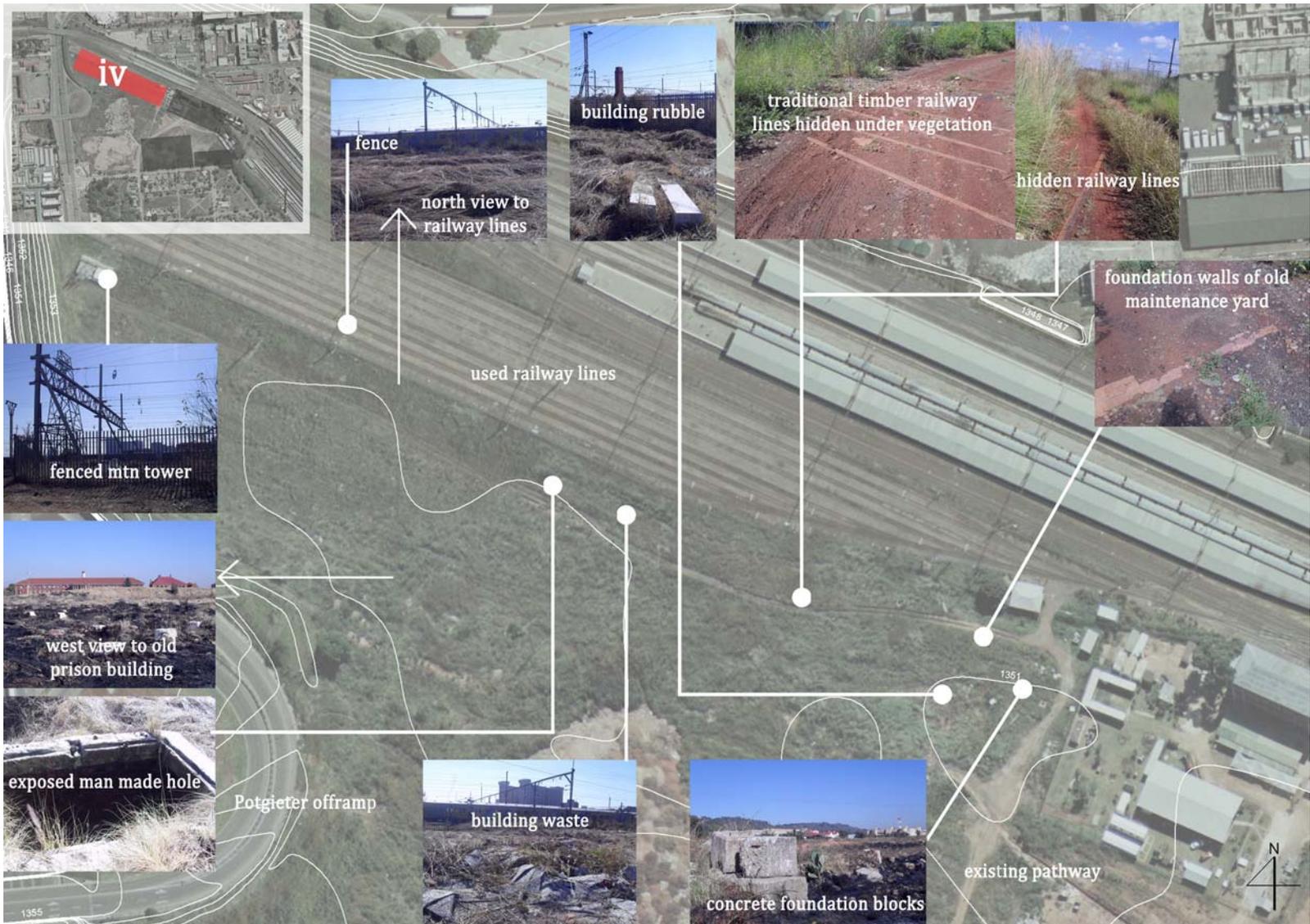
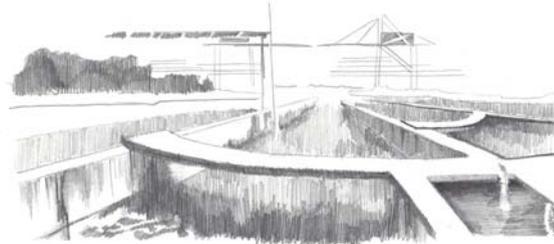


Illustration 133: Place iv - Found object

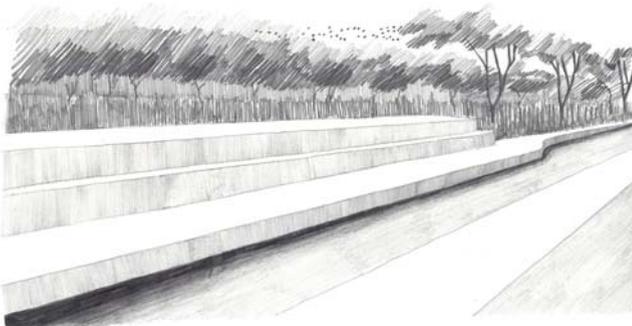
6.7.2 Spatial exploration



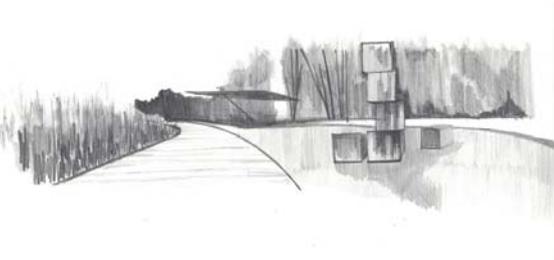
134.1 Perspective sketch



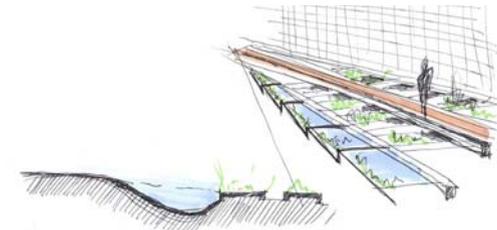
134.2 Perspective sketch



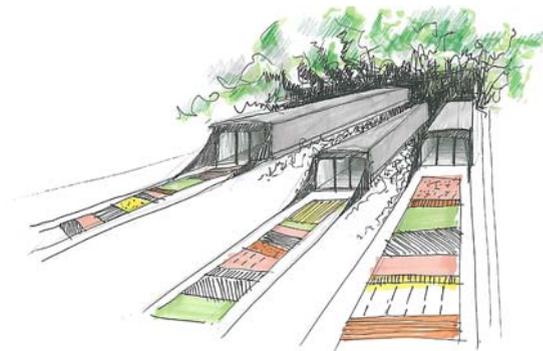
134.3 Perspective sketch



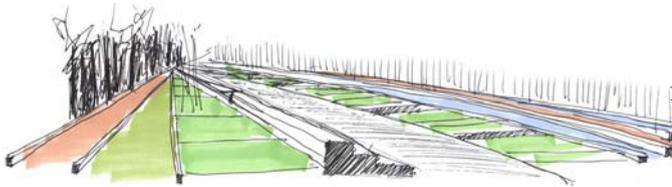
134.4 Perspective sketch



134.5 Perspective sketch



134.7 Perspective sketch



134.6 Perspective sketch

Illustration 134: Place iv - Spatial exploration

**planting palette**

**trees**

*Searsia leptodictya* (Mountain Karee)    *Senegalia karoo* (Sweet thorn)

**shrubs**

*Gomphocarpus physocarpus* (Milkweed)

**forbes and geophytes**

*Sida dregei* (Spider-leg)    *Ipomoea cairica* (Morning glory)

**graminoids**

*Hyparrhenia tamba* (Blue thatching grass)    *Melinis repens* (Natal red top)    *Hyparrhenia hirta* (Common thatching grass)    *Cymbopogon excavatus* (Broad turpetine grass)

**material palette**

Rusted steel    Red tan charcoal brick pavers    Concrete with rough finish

Concrete raft foundations on site    Steel cables    Rusty metal bars

**iv**

134.8 Planting and materials

06 DESIGN DEVELOPMENT

6.7.3 Planning exploration A

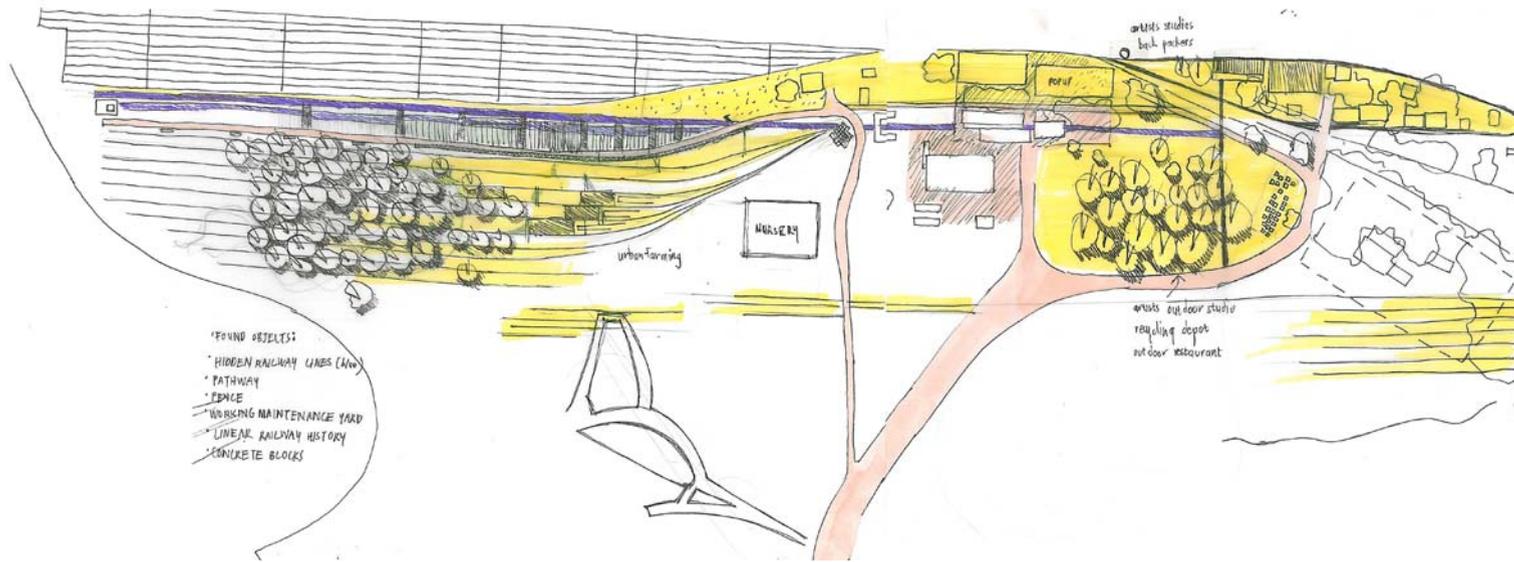


Illustration 135: Place iv - Planning exploration A

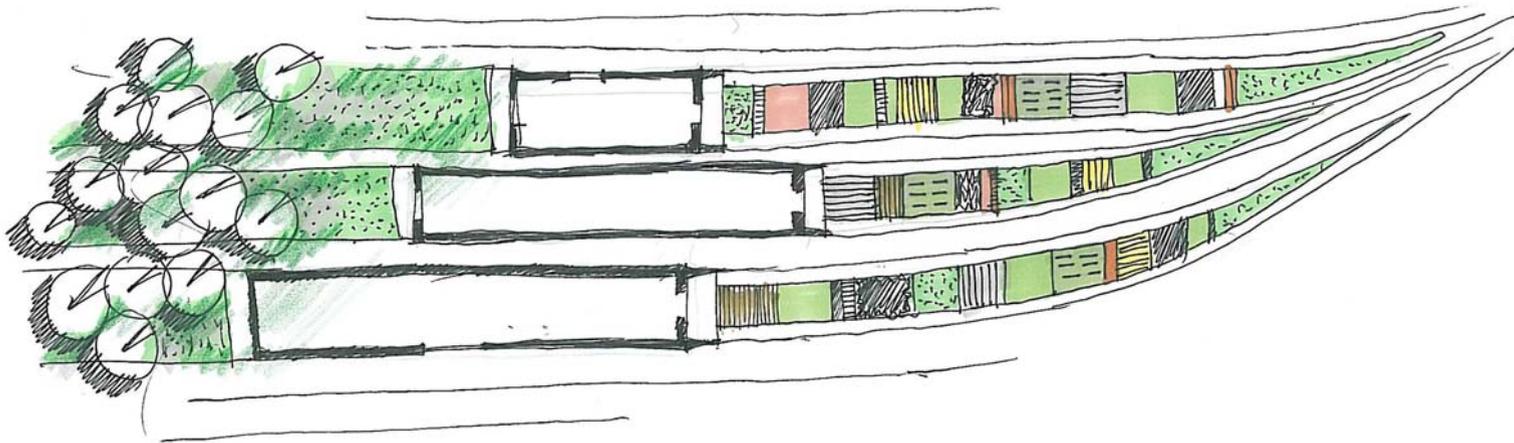


Illustration 136: Place iv - Planning exploration B

## 6.8 Masterplan development

With each zone recognised and conceptually celebrated, a masterplan can now begin to be developed with possible functions and proposed broadstroke designs for the area. Before going into detail, a zoomed out view assisted in deciding on an overall form that will inform the detail design to follow. Due to the railway history of the site that gave it its linearity, dynamic and almost mechanical form, the design on a masterplan level is intended to resemble these aspects. By studying the railway timeline on page 92 and 93, one will notice the railway lines almost cover the entire site. Rhythm and repetition of lines are used to specifically bear a resemblance to the site's past. Illustration 137 illustrates an exercise done that allowed the site to be looked at from a distance, in order to create a unifying and well-balanced composition for the masterplan to be developed from. These simplified drawings can be referred to as masterplan parti diagrams that show the essence of the broad design. Subsequent to these diagrams, a masterplan can now be developed in more detail while constantly referring to, developing, and reworking the four places identified above. Illustrations 138 to 144 demonstrate, on masterplan level, the design in its developing stages.

## 6.9 Conclusion

This chapter dealt with the discovery of four spatial places with great potential that resulted in a continually developing masterplan. Landscape architecture cannot primarily work in the spatial and experiential realm and therefore the proposed explorations and responses need to be tested against the needs of the site and the context in order to propose feasible solutions. The proceeding technical investigation will deal with land rehabilitation, stormwater, water budgets and contaminated soil, which will affect the design decisions ahead.

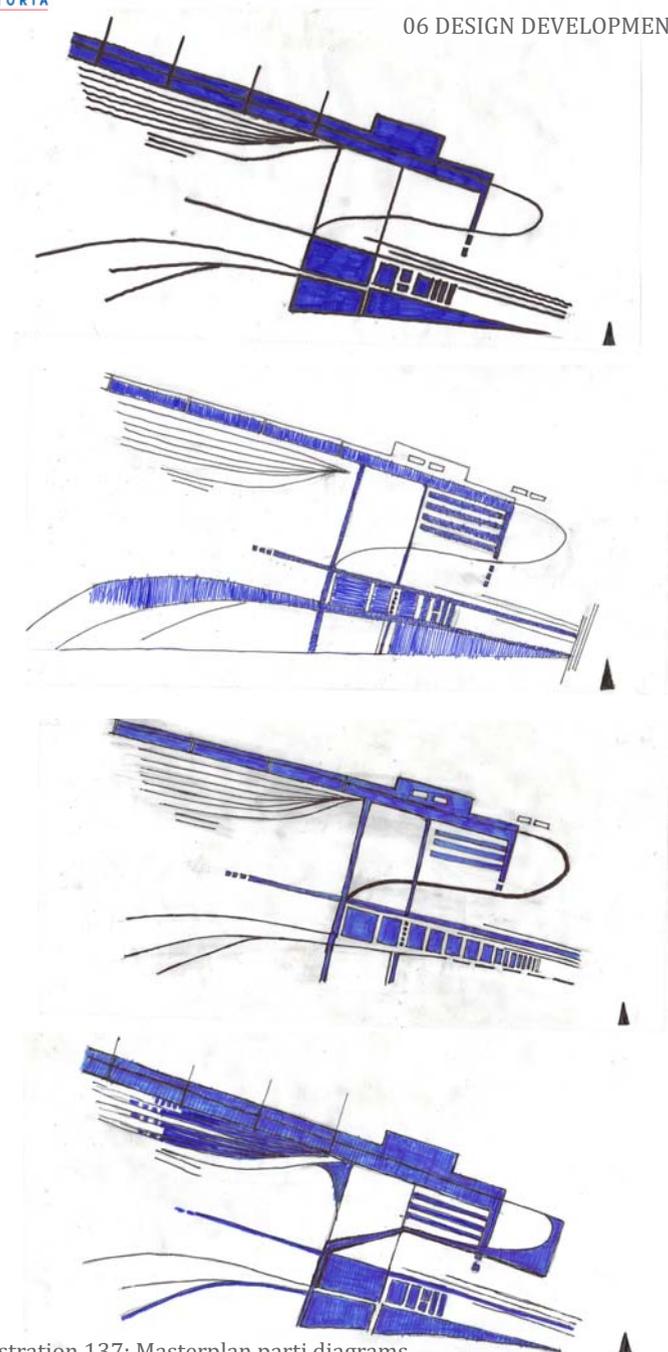


Illustration 137: Masterplan parti diagrams

06 DESIGN DEVELOPMENT

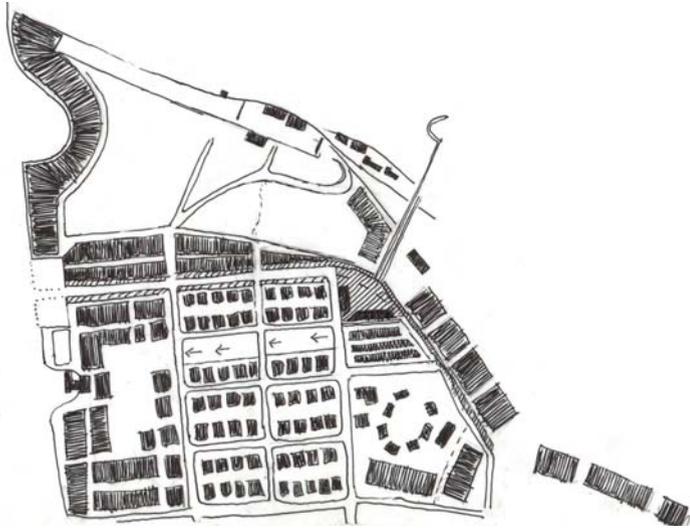


Illustration 138: 'Proposed Salvokop Framework' nolly sketch

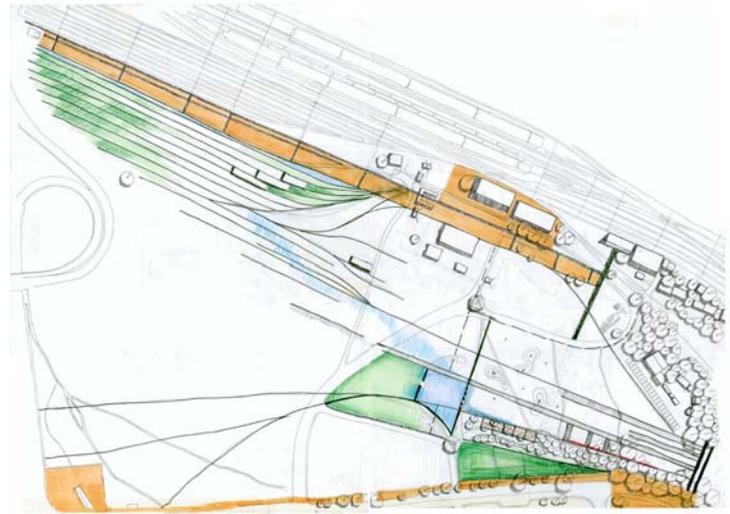


Illustration 139: Masterplan version 1



Illustration 140: Masterplan version 2

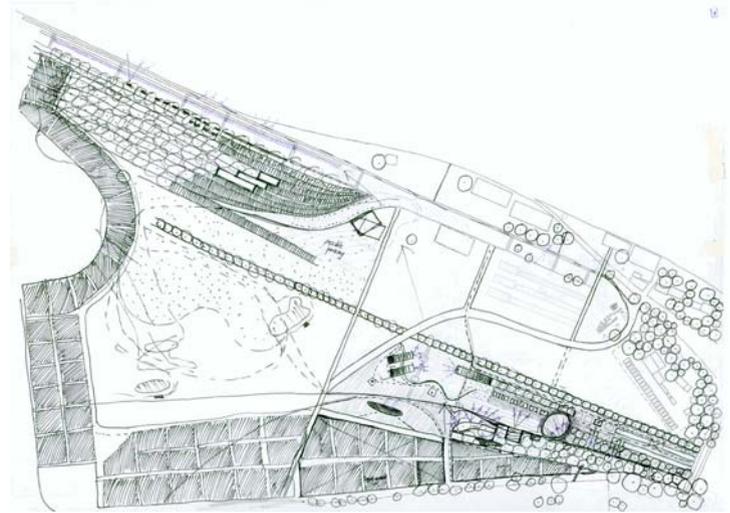


Illustration 141: Masterplan version 3

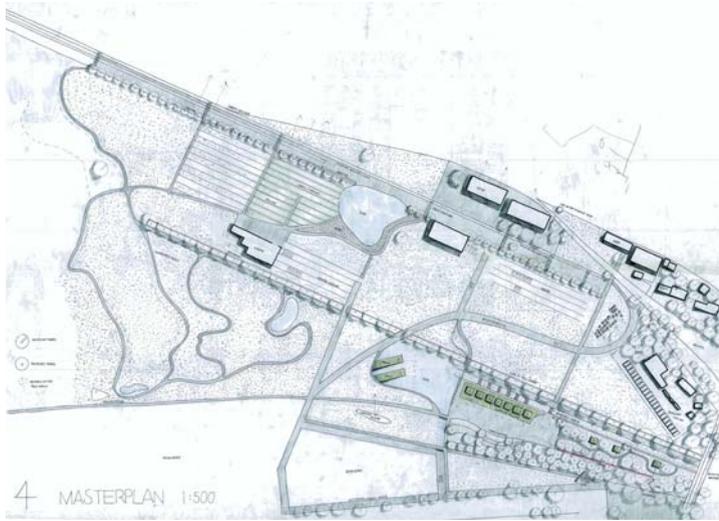


Illustration 142: Masterplan version 4

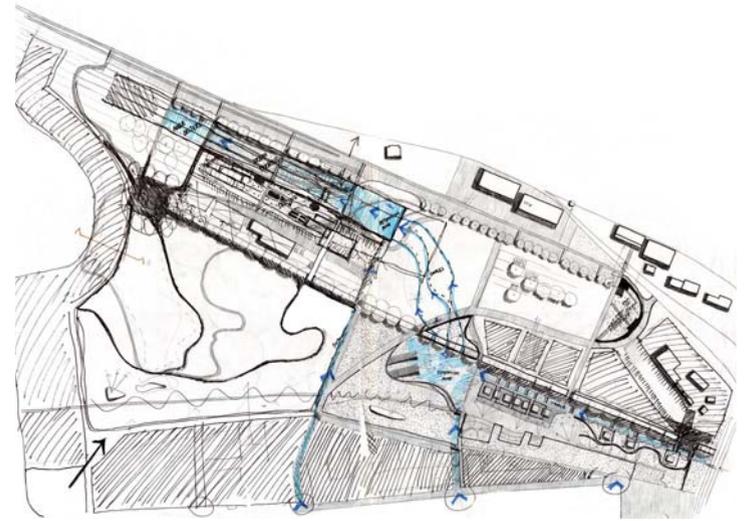


Illustration 143: Stormwater masterplan version 5

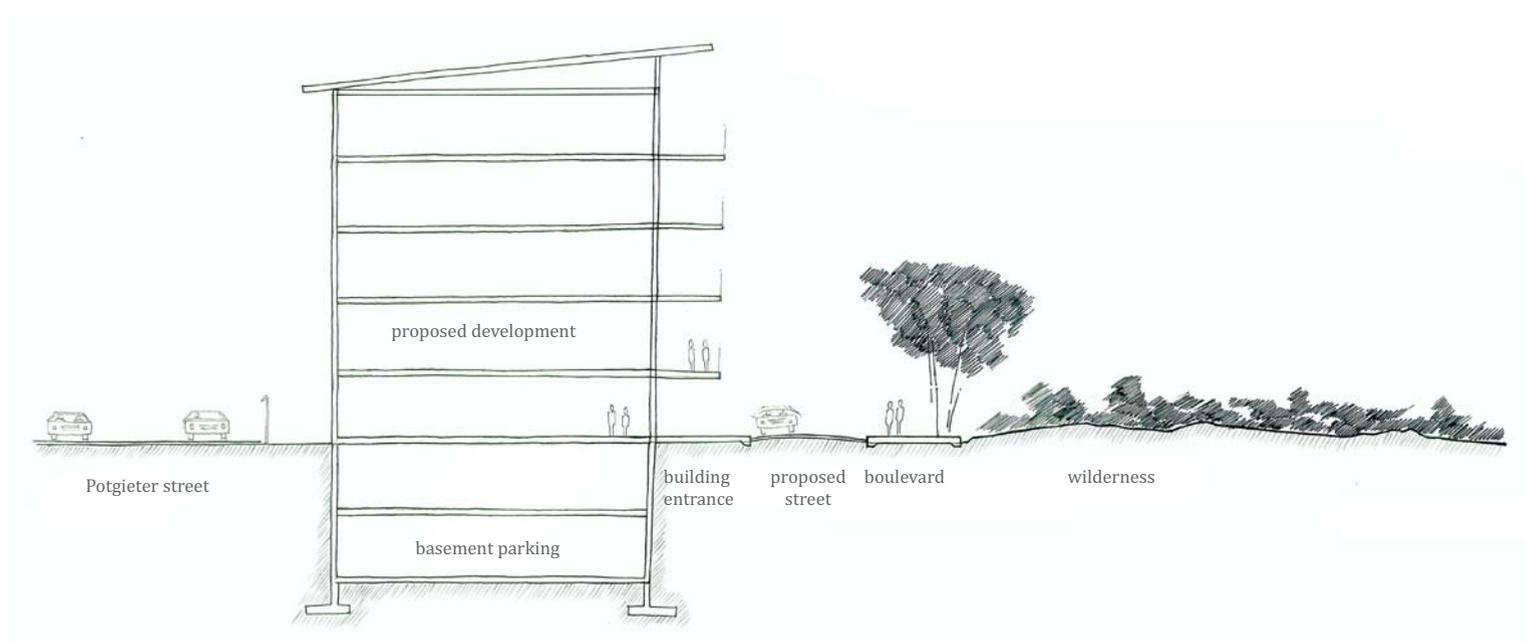


Illustration 144: Section through proposed development and wilderness



## CHAPTER 7\_TECHNICAL INVESTIGATION

## 7.1 Land Rehabilitation

Due to soil contaminants in the area and the significant amount of alien invasive species (as discussed on page 88 and 89), rehabilitation of the site is fundamental. Land rehabilitation is a long term process of returning the land in a given area to some degree of its former state, after some human or natural process has resulted in its damage. The rehabilitation process first begins with the removal of the contaminated soil. As stated previously, the top 150mm of soil needs to be removed. The amount of contaminated soil on site is calculated by multiplying the area, 51182.12m<sup>2</sup>, by a soil depth of 150mm, resulting in 7677.318m<sup>3</sup> of spoiled soil. This soil needs to be shifted and capped as soon as it is removed to prevent further contamination. Capping of contaminated soil is a method whereby the compacted soil is placed and covered in an enviromat. An enviromat is a product that consists of a bitumen layer that is enclosed in geotextile. This product prevents the contaminants in the soil from moving into deeper soil layers. After this step, a reno mattress is placed above the enviromat. A reno mattress is a wire cage mattress packed with rocks and stones. The reno mattress is then filled with soil, assisting vegetation to stabilise. If lawn is a desired surface for the mound, hyson cells need to be placed above the reno mattress and each cell filled with soil, that breaks the slope into pockets that prevent the soil from sliding down. Illustration 145 illustrates the above description. After removing the contaminated soil and reusing it to shape the earth, vegetation now needs to establish in the area. The deeper layers of soil that have now been exposed on the site needs to be ameliorated for vegetation to grow. Soil amelioration is a method which turns poor soil into healthy, fertile soil. Soil amelioration is the process of modifying soils to provide what the native or existing soils do not naturally provide. To improve poor soils, nutrients need to be added to the soil and the soil needs to be given texture. This can be achieved by adding compost and plant material to the soil. These agents automatically activate organisms and bacteria in the soil. After the soil has been ameliorated the site can be further rehabilitated. Rehabilitation of this area requires the removal of all alien invasive vegetation (see site specie study,

appendix 11.1) and the introduction of pioneer grass species. Pioneer species are species that are first established in an area where nothing is growing, or in an area that has been disturbed by human abuse of the land or natural disasters. These species are usually annuals, disappearing after the second year when perennials take over. The use of these pioneer species lead to ecological succession. Ecological succession, is the phenomenon or process by which a community progressively transforms itself until a stable community is formed.

The following pioneer grass species will be introduced:

- *Eragrostis rigidior*
- *Eragrostis curvula*
- *Paspalums*
- *Paspalum vaginatum*
- *Panicum maximum*
- *Cynodon dactylon*
- *Digitaria smutsii*
- *Digitaria eriantha*
- *Cenchrus ciliaris*

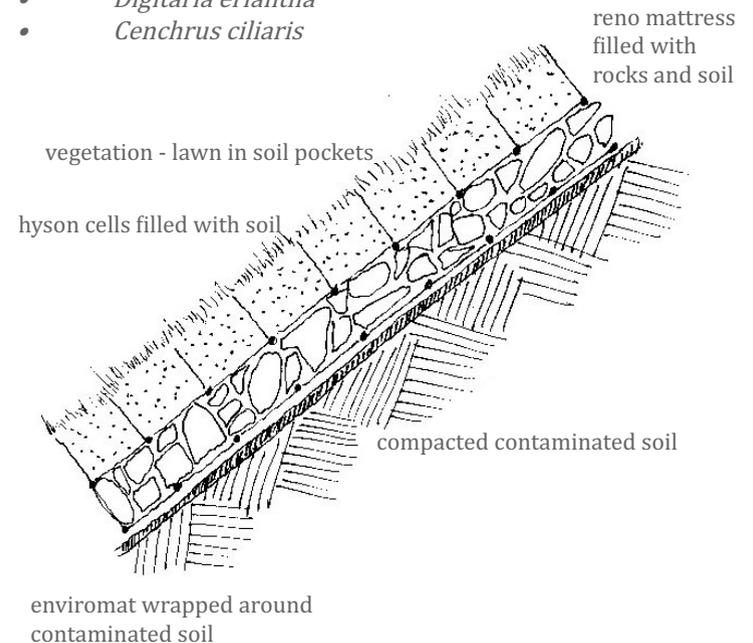


Illustration 145: Capping of contaminated soil

## 7.2 Stormwater investigation

In order to test the urban farming and retention pond functions proposed, catchment areas need to be calculated and a water budget needs to be done. The results of the water budget will indicate if all year round irrigation from stormwater is viable and practical. The urban farming and landscape design cannot depend on expensive potable water. The stormwater caught from catchments 2 and 3 will be retained and used on site (see illustration 146), while the stormwater from catchment 1 will be taken through stormwater inlets, past the proposed development on Skietpoort street and through to wild rivers in the proposed wilderness area. For this reason only stormwater in catchments 2 and 3 will be dealt with in detail.

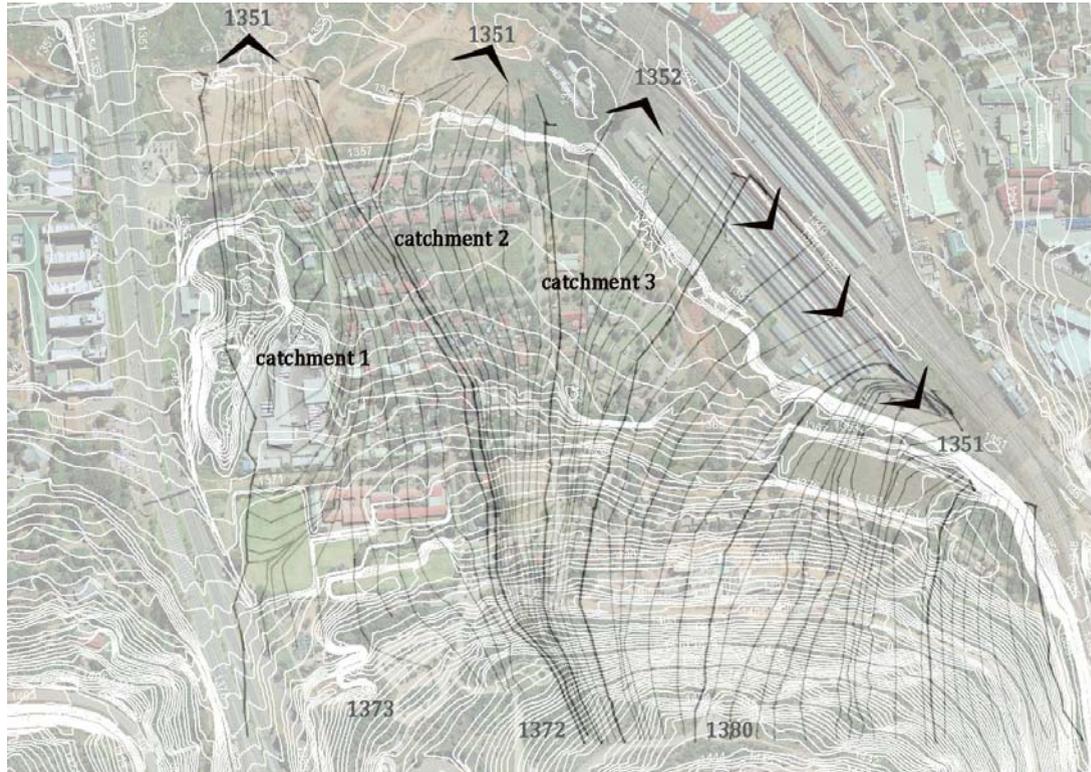


Illustration 146: Catchment areas

<b>Catchment 2</b>							
<b>Total area of catchment (m<sup>2</sup>)</b>	x	<b>Month</b>	<b>Ave. Rainfall (m)</b>	x	<b>Runoff co-efficient</b>	=	<b>Harvestable water/month (m<sup>3</sup>)</b>
29842.0518	x	January	0.122	x	0.45	=	1638.328644
29842.0518	x	February	0.106	x	0.45	=	1423.465871
29842.0518	x	March	0.091	x	0.45	=	1222.032021
29842.0518	x	April	0.033	x	0.45	=	443.1544692
29842.0518	x	May	0.022	x	0.45	=	295.4363128
29842.0518	x	June	0.006	x	0.45	=	80.57353986
29842.0518	x	July	0.01	x	0.45	=	134.2892331
29842.0518	x	August	0.01	x	0.45	=	134.2892331
29842.0518	x	September	0.021	x	0.45	=	282.0073895
29842.0518	x	October	0.06	x	0.45	=	805.7353986
29842.0518	x	November	0.117	x	0.45	=	1571.184027
29842.0518	x	December	0.117	x	0.45	=	1571.184027

Table 1: Harvestable water caught from catchment two

<b>Catchment 3</b>							
<b>Total area of catchment (m<sup>2</sup>)</b>	x	<b>Month</b>	<b>Ave. Rainfall (m)</b>	x	<b>Runoff co-efficient</b>	=	<b>Harvestable water/month (m<sup>3</sup>)</b>
71415.634	x	January	0.122	x	0.45	=	3920.718307
71415.634	x	February	0.106	x	0.45	=	3406.525742
71415.634	x	March	0.091	x	0.45	=	2924.470212
71415.634	x	April	0.033	x	0.45	=	1060.522165
71415.634	x	May	0.022	x	0.45	=	707.0147766
71415.634	x	June	0.006	x	0.45	=	192.8222118
71415.634	x	July	0.01	x	0.45	=	321.370353
71415.634	x	August	0.01	x	0.45	=	321.370353
71415.634	x	September	0.021	x	0.45	=	674.8777413
71415.634	x	October	0.06	x	0.45	=	1928.222118
71415.634	x	November	0.117	x	0.45	=	3760.03313
71415.634	x	December	0.117	x	0.45	=	3760.03313

Table 2: Harvestable water caught from catchment three

07 TECHNICAL INVESTIGATION

$$\begin{array}{rclcl} \text{Demand for urban} & \times & \text{Largest area} & = & \text{Volume of} \\ \text{farming/month} & & \text{of urban} & & \text{water required/} \\ \text{depth (m)} & & \text{farming (m}^2\text{)} & & \text{month (m}^3\text{)} \\ \\ 0.16 & \times & 10652.39 & = & \mathbf{1704.3824} \end{array}$$

$$\begin{array}{rclcl} \text{Evap./} & & \text{Area of} & & \text{Total} \\ \text{month} & \times & \text{urban} & = & \text{Evap./} \\ \text{(m)} & & \text{farming (m}^2\text{)} & & \text{month (m}^3\text{)} \\ \\ 0.035 & \times & 10652.39 & = & \mathbf{372.83365} \end{array}$$

**Catchments 2 & 3**

	<b>Total harvestable water/month (m<sup>3</sup>)</b>	-	<b>Irrigation required/ month (m<sup>3</sup>)</b>	-	<b>Evap./ month</b>	=	<b>Total (m<sup>3</sup>)</b>
January	5559.04695	-	1704.3824	-	372.83365	=	3481.8309
February	4829.991613	-	1704.3824	-	372.83365	=	2752.7756
March	4146.502234	-	1704.3824	-	372.83365	=	2069.2862
April	1503.676634	-	1704.3824	-	372.83365	=	-573.5394
May	1002.451089	-	1704.3824	-	372.83365	=	-1074.765
June	273.3957517	-	1704.3824	-	372.83365	=	-1803.82
July	455.6595861	-	1704.3824	-	372.83365	=	-1621.556
August	455.6595861	-	1704.3824	-	372.83365	=	-1621.556
September	956.8851308	-	1704.3824	-	372.83365	=	-1120.331
October	2733.957517	-	1704.3824	-	372.83365	=	656.74147
November	5331.217157	-	1704.3824	-	372.83365	=	3254.0011
December	5331.217157	-	1704.3824	-	372.83365	=	3254.0011

Table 3: Water budget calculations

### Water budget chart

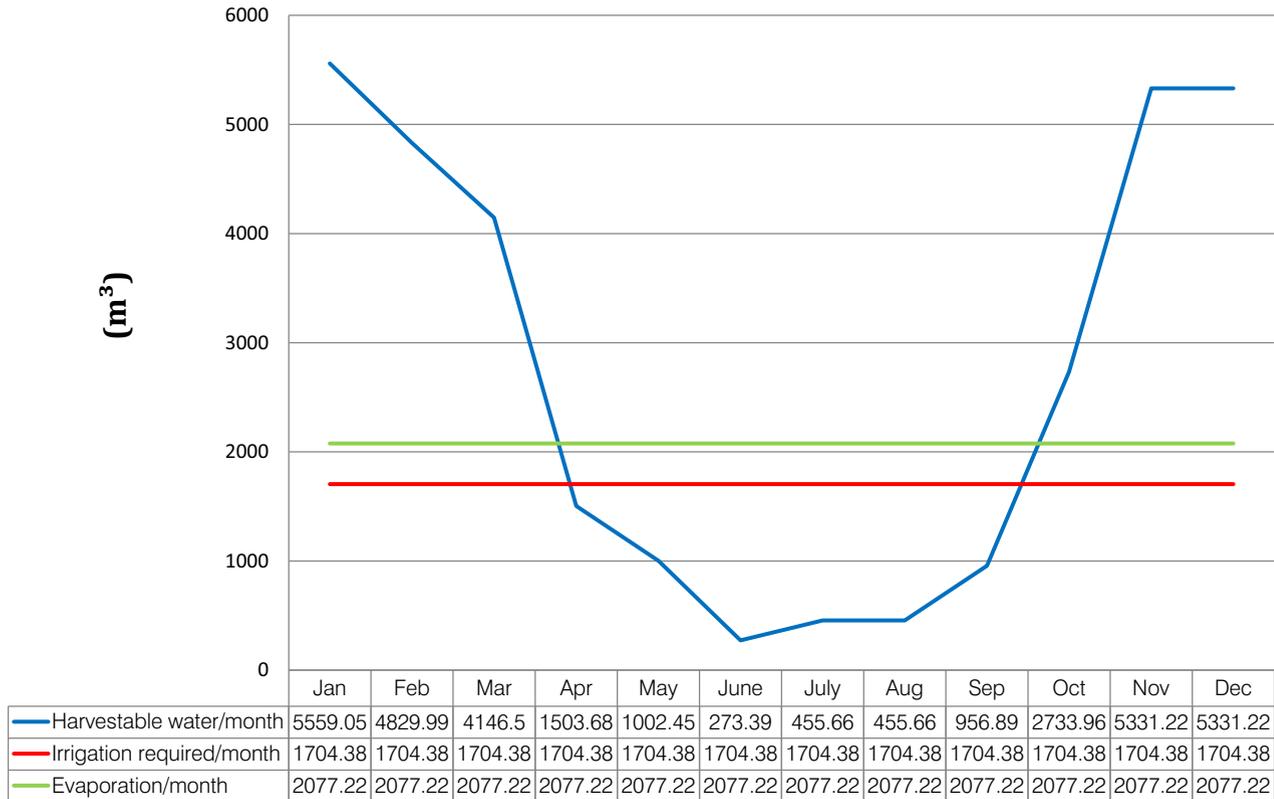


Figure 4: Water budget

Excess harvestable water (summer months) - loss of harvestable water (winter months)

$$\begin{array}{rcl}
 \text{Excess (m}^3\text{)} & & \text{Loss (m}^3\text{)} \\
 15468.63633 & - & -7815.56852 \\
 & = & \mathbf{7653.06781}
 \end{array}$$

07 TECHNICAL INVESTIGATION

Table 1 and 2 illustrate the amounts of harvestable water that can be caught per month from catchments 1 and 2. Table 3 and 4 illustrate a calculated water budget for the urban farming and retention pond proposed. From table 3 and 4, a conclusion can be made that stormwater caught from catchments 2 and 3, is more than sufficient to fill the proposed retention pond, and to irrigate the largest possible area for urban farming.

After establishing that sufficient amounts of stormwater can be caught to irrigate the proposed urban farming, an irrigation system needs to be investigated. The most appropriate and practi-

cal solution in this area is to use a controlled flood irrigation system which moves stormwater from a high point on the site to a low point. In more detail, stormwater moves from an irrigation dam into a sluice (see illustration 147 and 148), which is then manually controlled to flood different parts of the farming, each for a certain amount of time. Due to capturing and reuse, use of all stormwater, ponds and swales proposed in the design need to be lined to prevent any loss thereof. This can be achieved by using enviromats and reno mattresses (see illustration 148). Earth walls that surround the dam also need to consist of a clay core wall in order to prevent leakage.

7.3 Conclusion

The technical investigation informs the design in terms of land rehabilitation and stormwater systems. The investigation into land rehabilitation informs the long term phases of the project and provides amounts of contaminated soil which can be used to shape mounds in the design. The stormwater investigation informs the type of stormwater systems that need to be put into place on the site and also how to maximise the use of the stormwater. This investigation confirms that the design proposals following the spatial explorations are possible and feasible.

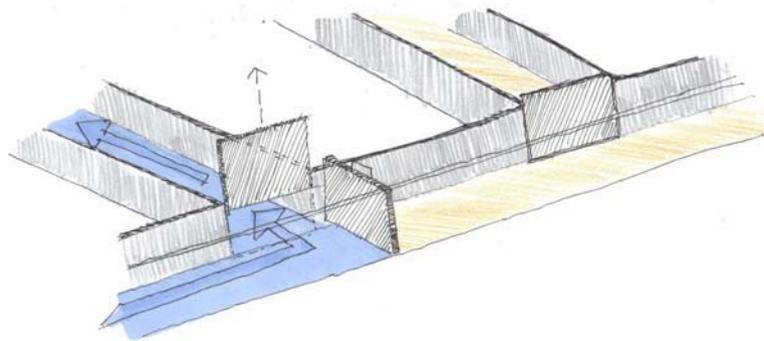


Illustration 147: A typical sluice system used for flood irrigation of urban farming

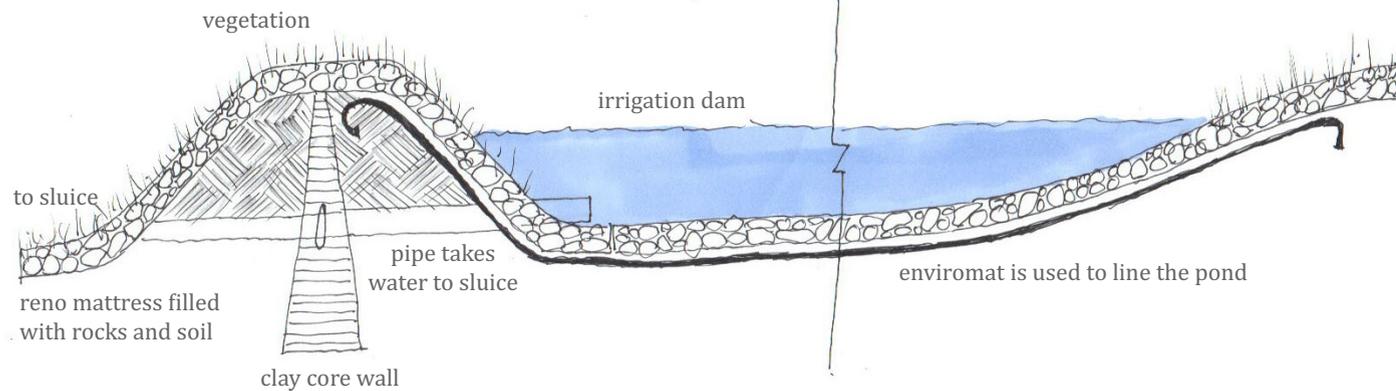


Illustration 148: Lined irrigation pond with earth walls



## CHAPTER 8\_DETAIL DESIGN

## 8.1 Masterplan

The masterplan consists of the following main zones:

- Place i - proposes maximising the slope and creating sub-spaces on, and next to the slope.
- Place ii - enhances the existing waterway as part of a greater ecological system and as a feature. In order to enhance the existing dumping mounds this zone uses the contaminated soil to shape the earth and create mounds that are characteristic of the dumping mounds. The amount of contaminated soil needed in this area is 5116.7 m<sup>3</sup>.
- Place iii - enhances the sculptural elements in the area. It proposes a raised walkway that provides views onto the existing used railway lines. Lighting is proposed to further enhance the concrete boxes. Place i, ii and iii fall under the definition of enigmatic landscapes. They are classified as a *third nature* (see Chapter 2, page 14 and 15). They are designed to enhance, and add adventure and exploration for man.
- Place iv - is proposed as urban farming that will be run by the POP-UP organisation and used by the community of Salvokop. This zone is laid out on a linear grid that relies on stormwater being caught and moved from the retention pond in place ii, through swales to the irrigation dam in place iv. From the irrigation dam the stormwater moves through pipes into a sluice system that relies on gravity to flood irrigate the farming. Any excess water thereafter will flow into another dam that will be used for aqua culture. Reeds will be grown in this dam, in order to provide POP-UP and its art workshops with reeds for arts and crafts. This zone is classified as *second nature* (see Chapter 2, page 14 and 15), due to its productive and agricultural value. In addition, place iii and iv together are designed as a linear urban balcony that look onto the railway lines.
- A wilderness zone - this zone will be where nature dominates over man and therefore becomes *third nature* (see Chapter 2, page 14 and 15). This zone will use 2560.62 m<sup>3</sup> of contaminated soil for the shaping of the earth.
- A development zone - where a proposed development will be implemented after the wilderness zone is complete. This

emphasises landscape urbanism principles where the landscape attracts, dictates and directs development.

This masterplan shows how landscapes should dictate the orientation and location of buildings.

The stormwater forms a large part of the layout for this masterplan. This stormwater system (see illustration 156) focusses on catching and using all water that falls on and around the site. Furthermore, this masterplan is a proposed vision for the future that should not be looked at as a once-off completed project, but rather as an on-going long term solution (see pages 192-195).



Illustration 149: Masterplan. Not to scale



## 8.2 Chosen site for further investigation

The author has chosen to focus on places i and ii for the detail design chapter (see illustration 150). The two zones were selected due to its close proximity to the proposed Salvokop square. The Salvokop square is an already existing point of energy, although currently informal, many people pass through it each day. A sketch plan; contours and heights plan; lighting and paving plan; sections; details and perspectives will be drawn up for these two zones.



Illustration 150: Chosen sites for detail design - i and ii

## 8.3 Sketch plan development

With the two places selected, a sketch plan can now begin to be developed in detail. Illustration 151 to 153 show the sketch plan in its developing and progressing stages.

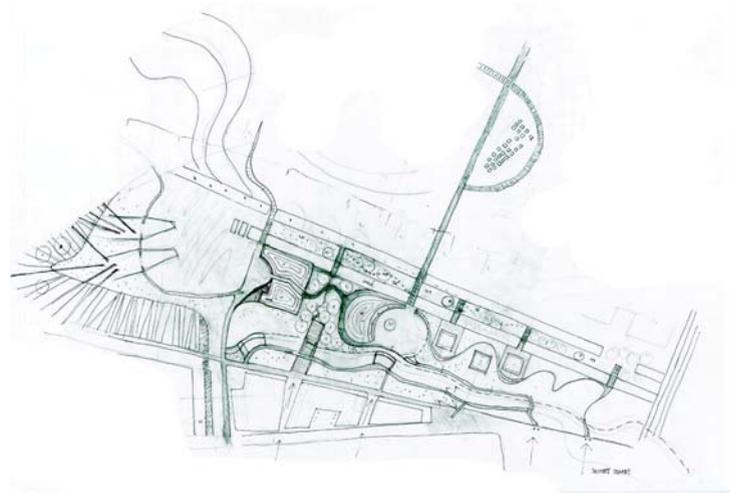


Illustration 151: Sketch plan version 1



Illustration 152: Sketch plan version 2

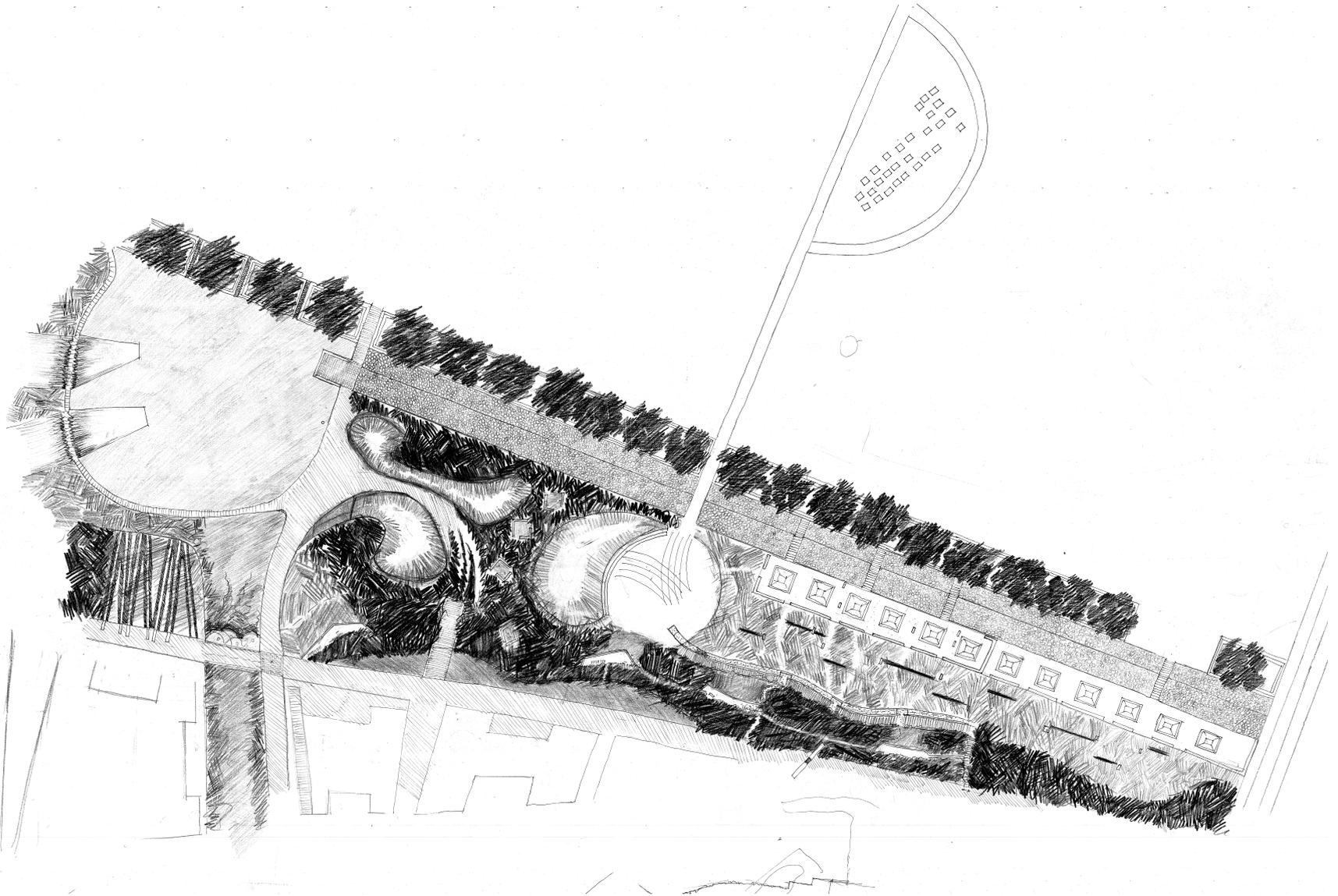
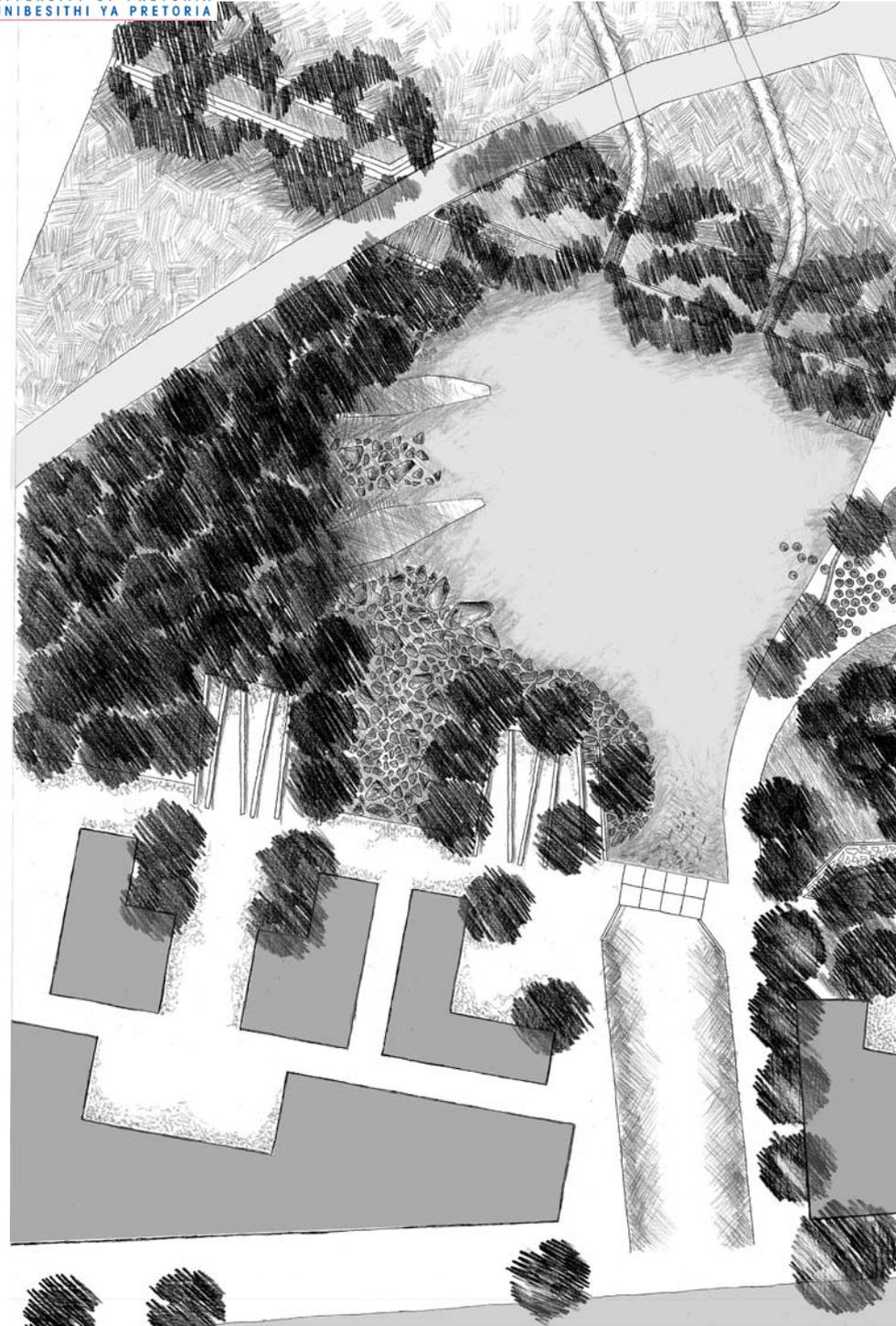
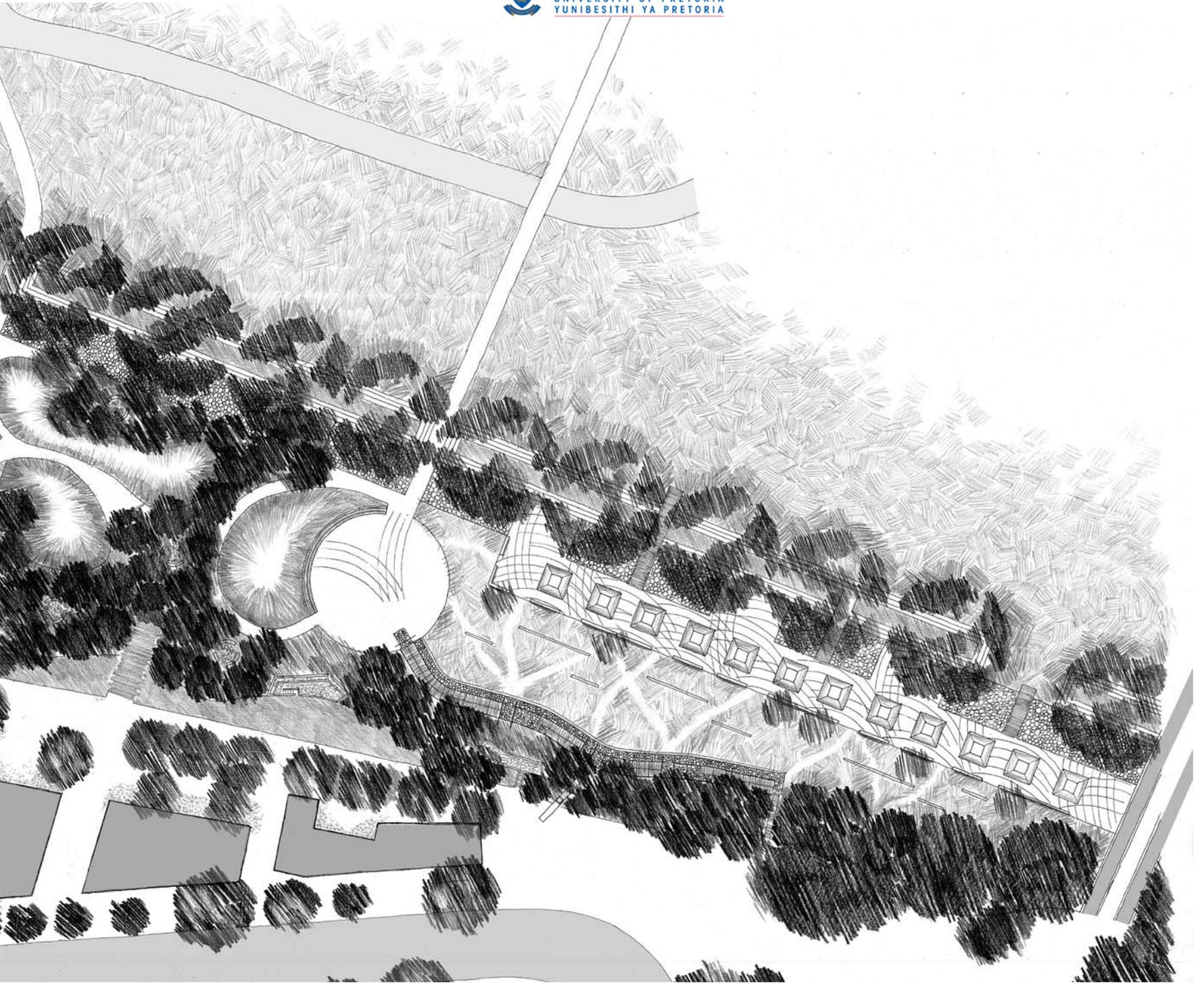


Illustration 153: Sketch plan version 3

## 8.4 Sketch plan

Places i and ii were designed to focus on the concept of enigmatic landscapes where adventure and exploration is encouraged, and where the unpredictable and uncontrolled is reinforced. The sketchplan aims to enhance the existing potentials of the site. A long pergola tunnel runs along the edge of the forested slope. This enhances the slope, taking one away from the controlled city and preparing one for the enigmatic landscape ahead. At random intervals the pergola tunnel opens to views of mounds that can become bases for sculptures. One can escape the tunnel and move across the veld grass to the sculptural mounds freely as there are no strict pathways that one must follow. Pathways have not been assigned to certain areas, due to the unpredictable chaotic pathway system that exists currently on the site. The omission of pathways allows people to wonder at liberty through the landscape, to landmarks and moments in the design. Hidden patterns in the veld grass are exposed after the seasonal veld grass burning takes place. The narrow pergola tunnel ends with an expansive view of a circular paved area hugged by a large mound. One moves from an enclosed and narrow space to an open, large and vast space. Illustration 176 on page 158 and 159 is a series of vignettes that demonstrate the experience of the pergola tunnel. The paving in the vast area as well as where the harsh sculptural mounds are, will be an exposed concrete aggregate. While the concrete is still wet, a truck will drive through and leave tyre imprints in the concrete, illustrating the process of transporting and moving contaminated soil to specific locations. Existing dumping mounds in the area are represented by mounds created from contaminated soil. Mounds are also used to hide views and open up views which create moments in the landscape. The bridges next to the sculptural mounds become playful but functional elements in the landscape. The bridges are placed over pockets of rocky swales type detention ponds surrounded by veld grass. The swales send stormwater through pipes to the irrigation dam north of the site. The forested areas create dense interesting places in contrast to the open vast spaces in the design. The forests also enhances the overgrown character of the wasteland





## 08 DETAIL DESIGN

where nature dominates. On route, through the pathless forest and large mounds, a water body comes suddenly into view with a dead eucalyptus tree lying in the foreground. The existing waterway is transformed into a retention pond which in turn becomes a feature. Different interesting public and private spaces have been designed along the water's edge. The public open area next to the retention pond reuses concrete covers found on the site in a paving detail. The openings of the covers will be planted, contributing to the overgrown character of the wasteland. A tree avenue runs along the entire site strengthening the linearity of the site and forming a main axis. This tree avenue will use the tallest indigenous tree species which will be visible from the city. This main axis will, in future, link two developments on opposite sides of the wasteland.

Existing waste bins will be retained and placed at public areas on the site. Unchanged and untreated, they become sculptures and physical reminders of the past. The southern part of the design sits on an urban edge next to proposed development. The building footprints have been orientated and located according to the landscape. On this edge the landscape bleeds into the buildings. Here the design provides seating, lawn and access to hidden outdoor rooms that have been cut into the steep slope. These spaces provide views onto the enigmatic landscape. A viewing deck is also designed on this urban edge. The deck allows one to move from an urban edge into a dense forest canopy.

In terms of safety, the design uses passive surveillance. With a variety of heights, views over the site are not obstructed. Furthermore, the site is adjacent to an existing energetic square, and the proposed development on the urban edge will increase users and surveillance over the site. Development around the intervention will include restaurants and other night-time activities. Together with lighting, the enigmatic landscape will become an intriguing active landscape at night.

The sketchplan focusses on creating different experiences and moments in the landscape.

The following four elements will be designed in detail:

- an outdoor room on the slope;
- bridge2 above the detention pond;
- the tunnel along the slope's edge; and
- the deck.

The detail designing and technicality of these elements will be further investigated to show how the characteristics and concepts of an enigmatic landscape can be reflected in the design to a detailed level.

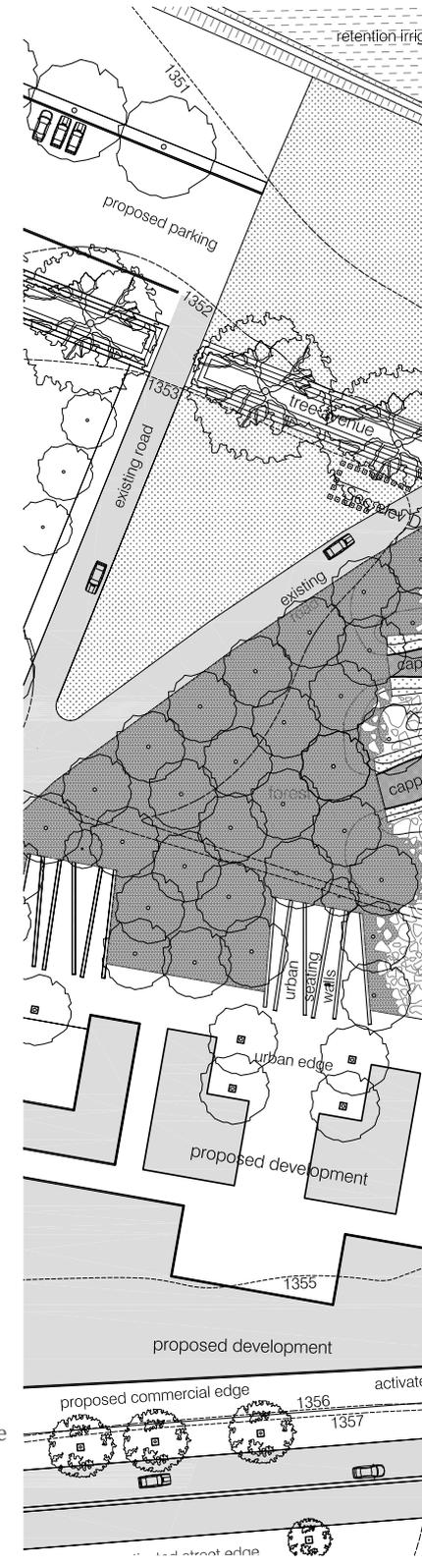
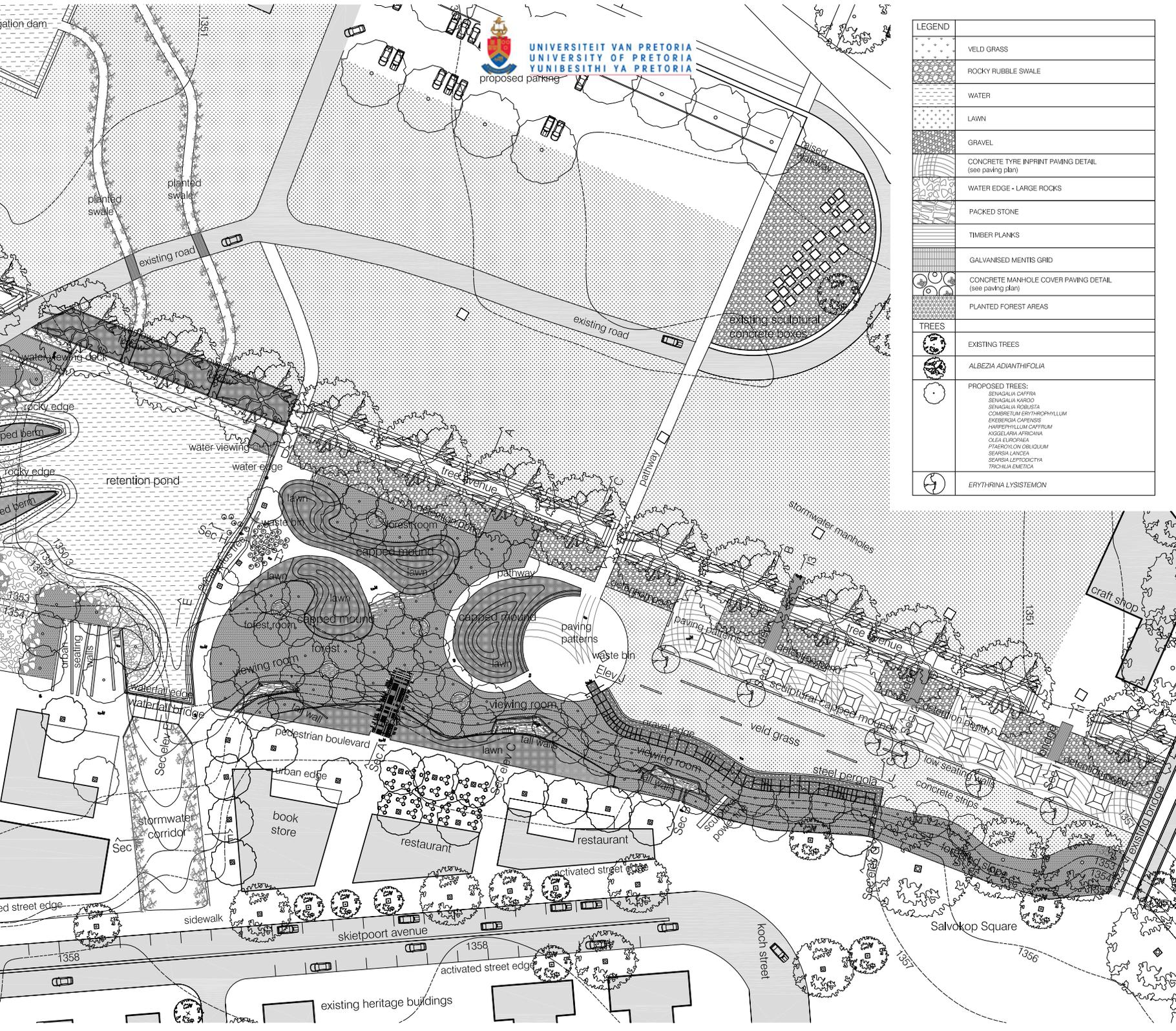


Illustration 155: Sketch plan. Not to scale



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LEGEND	
	VELD GRASS
	ROCKY RUBBLE SWALE
	WATER
	LAWN
	GRAVEL
	CONCRETE TYRE INPRINT PAVING DETAIL (see paving plan)
	WATER EDGE - LARGE ROCKS
	PACKED STONE
	TIMBER PLANKS
	GALVANISED MESH GRID
	CONCRETE MANHOLE COVER PAVING DETAIL (see paving plan)
	PLANTED FOREST AREAS
TREES	
	EXISTING TREES
	ALBIZIA ADIANTHIFOLIA
	PROPOSED TREES:
	<ul style="list-style-type: none"> <li>SENKALIA CAFFRA</li> <li>SENKALIA KARED</li> <li>SENKALIA ROBUSTA</li> <li>COMBRETUM ERYTHROPHYLLOM</li> <li>GREENERIA CAPENSIS</li> <li>MAPROPHYLLOM CAFFRUM</li> <li>PROCELARIA AFRICANA</li> <li>OLEA EUROPAEA</li> <li>PTERIDIUM OBOLIQUUM</li> <li>SEARSIA LANCEA</li> <li>SEARSIA LEPTODICTYA</li> <li>TRICHILIA EMETICA</li> </ul>
	ERYTHRINA LYSISTEMON

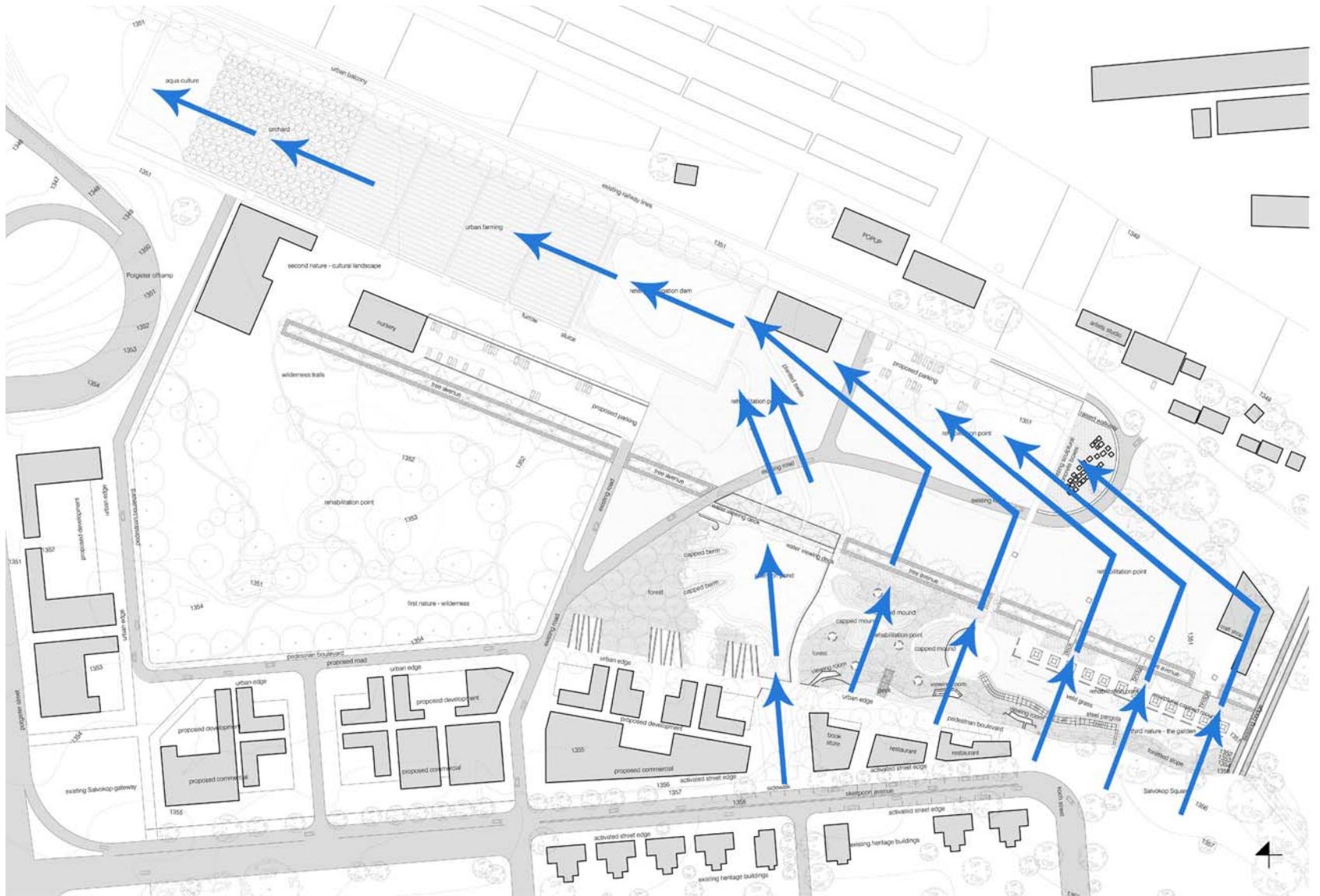


Illustration 156: Stormwater diagram

### 8.5 Three natures

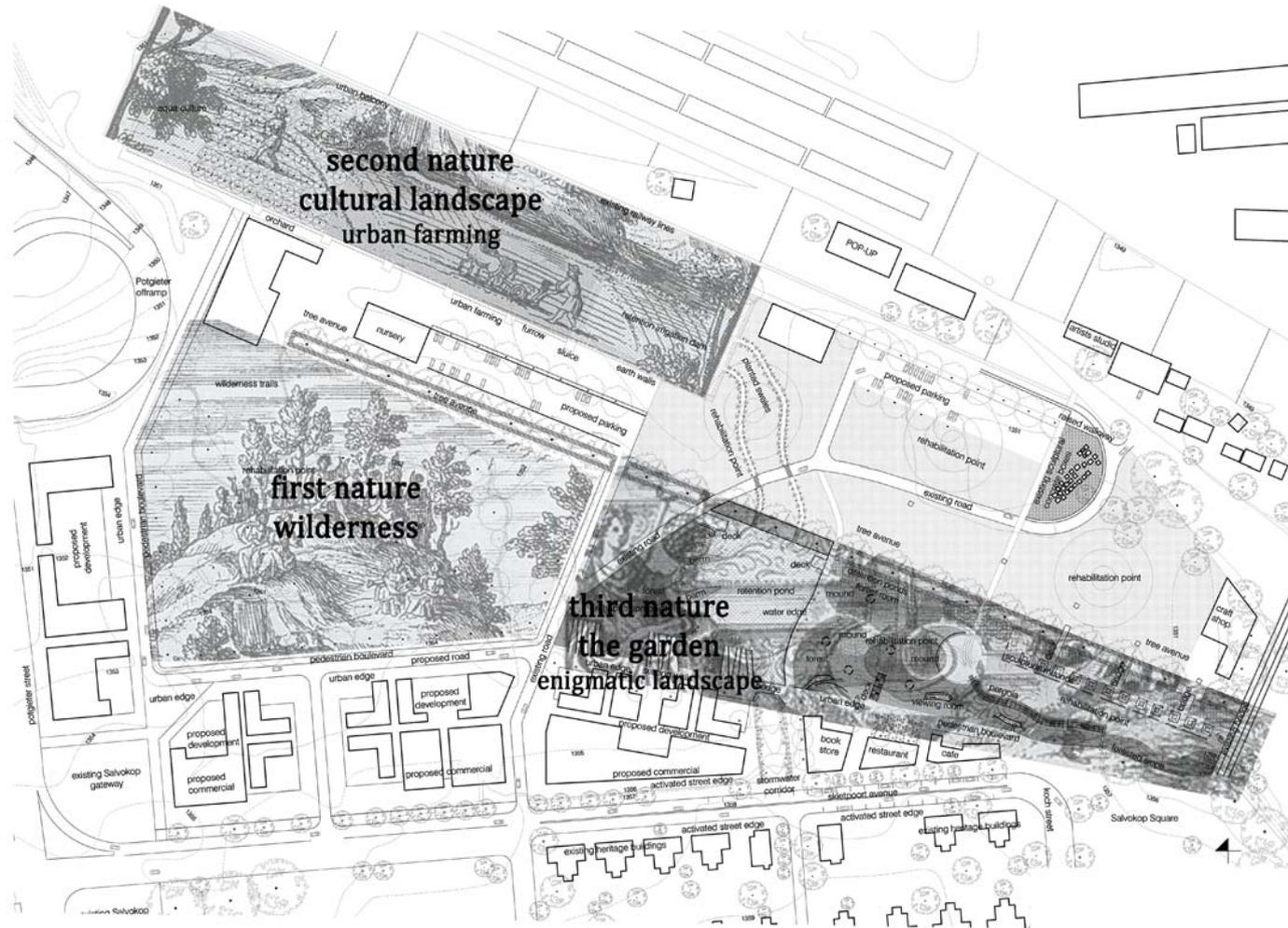


Illustration 157: Three natures in Salvokop

## 8.6 Planting strategy

According to Howette (1987:109) plants grow differently in a designed landscape than in nature. In the English countryside, Nan Fairbrother (as cited by Howette, 1987: 109-110) pointed out that:

“In natural growth the layers of the vegetation inter-mingle, with tall herbs growing through low shrubs and shrubs merging with trees, with no definition and with no gaps between them [.] Simply therefore to separate vegetation into grass, shrubs and trees immediately creates an unnatural effect [.] It is also unnatural if we omit a layer, as with trees in grass [;] or if we change the order of the layers, as by growing trees and shrubs with grass between them [.] Whatever the actual plants these common modifications of natural growth produce a garden effect”.

A more natural style of planting that takes natural competition into account and reflects the way plants grow in nature is a healthier approach. Due to this philosophy, a plant list is proposed for the designed zones. However, a planting plan for each zone will not be done due to the fact that the selected planting strategy takes its inspiration from natural processes, patterns and energies, and by proposing the exact location of exact species in fact goes against this approach. Furthermore, due to the long term rehabilitation of the project, a single planting palette cannot be defined for implementation across the wasteland. The planting list should serve as guidelines for planting.

Tree species used in the wilderness

- *Dombeya rotundifolia*
- *Faurea saligna*
- *Pappea capensis*

Specie used for the tree avenue

- *Albezia adianthifolia*

Forested slope

- *Senagalia karoo*
- *Searsia leptodictya*

Forested areas

- *Senagalia caffra*
- *Senagalia karoo*
- *Senagalia robusta*
- *Combretum erythrophyllum*
- *Ekebergia capensis*
- *Erythrina lysistemom*
- *Harpephyllum caffrum*
- *Kiggelaria africana*
- *Olea europaea*
- *Ptaeroxylon obliquum*
- *Searsia lancea*
- *Searsia leptodictya*
- *Trichilia emetica*

Lawn areas

- *Cynodon dactylon*

Water edges

- *Cyperus prolifer*
- *Juncus effusus*
- *Nymphaea caerulea*
- *Nymphaea capensis*
- *Paspalum vaginatum*
- *Typha capensis*

Shrubs and groundcovers

- *Acalypha angustata*
- *Aloe greatheadii var. davyana*
- *Anacampseros subnuda*
- *Asparagus laricinus*
- *Asparagus setaceus*
- *Asparagus virgatus*
- *Athrixia elata*
- *Berkheya radula*
- *Bonatea speciosa*
- *Gomphocarpus physocarpus*
- *Ipomoea cairica*
- *Side dregei*

Climax veld grasses

- *Cymbopogon excavates*
- *Cymbopogon plurinoides*
- *Hypparrhenia tamba*
- *Hypparrhenia hirta*
- *Melinis nerviglumis*
- *Melinis repens*

## 8.7 Material palette

In order to create a landscape that brings out the existing character, materials should foremost, where possible, be reused and recycled from the site. If not possible, materials specified should be easily available, sourced from local manufacturers and have a low embodied energy. Materials selected must have a rough, rustic textured quality that compliments the design and enhances the wastelands' rough and raw characteristics.



158.1



158.2



158.3



158.4



158.5



158.6

158.7



158.8



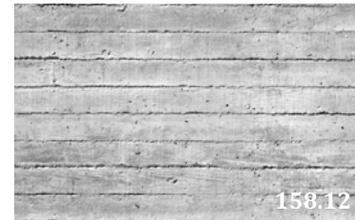
158.9



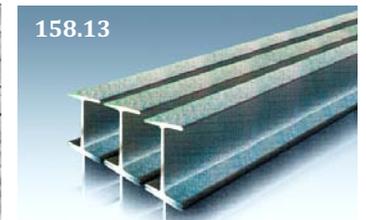
158.10



158.11



158.12



158.13



158.14



158.15



158.16

- 158.1 Existing concrete raft foundations
- 158.2 Existing concrete manhole covers
- 158.3 Existing building rubble and rocks
- 158.4 Existing scrap metal
- 158.5 Existing rusted waste bins
- 158.6 Existing unused railway lines
- 158.7 Existing railway gravel and steel packaging cut-outs
- 158.8 Existing steelworks
- 158.9 Existing rocks and gravel
- 158.10 Existing concrete components
- 158.11 Existing concrete components
- 158.12 Exposed concrete aggregate with brush finish
- 158.13 Steel I beams
- 158.14 Timber sleepers
- 158.15 Red aluminium grating
- 158.16 Stainless steel red tubing

## 8.8 Contours and heights plan

This plan illustrates the existing contours and manipulated contours of the proposed design. Heights assist in understanding the topography of the design. The variety of heights in the design allows for views over the landscape and city, and also assists in creating moments, thresholds and surprises in the landscape.

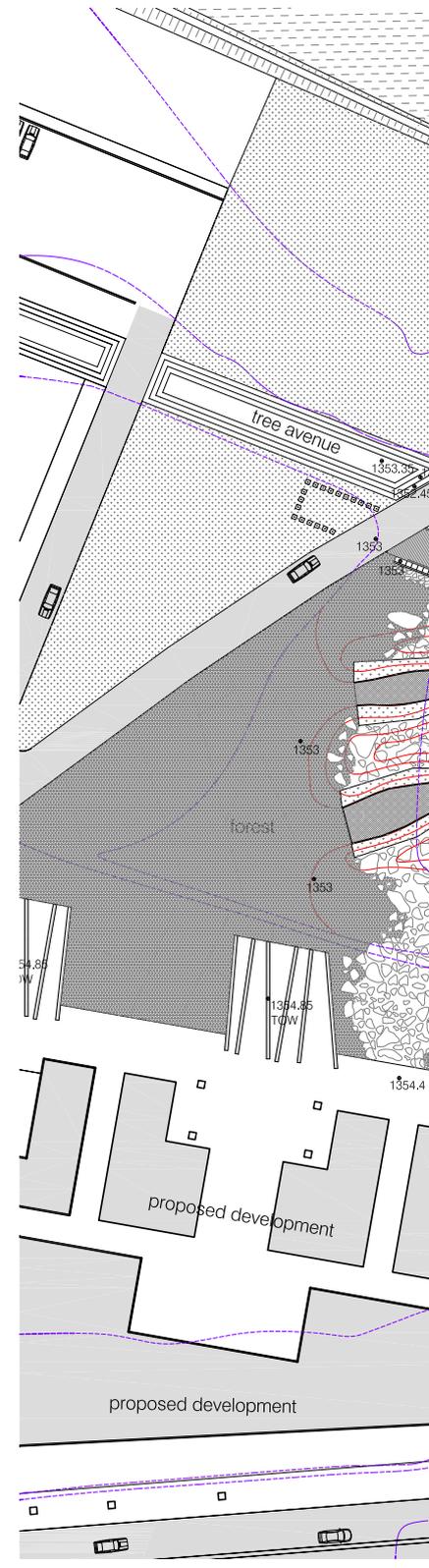
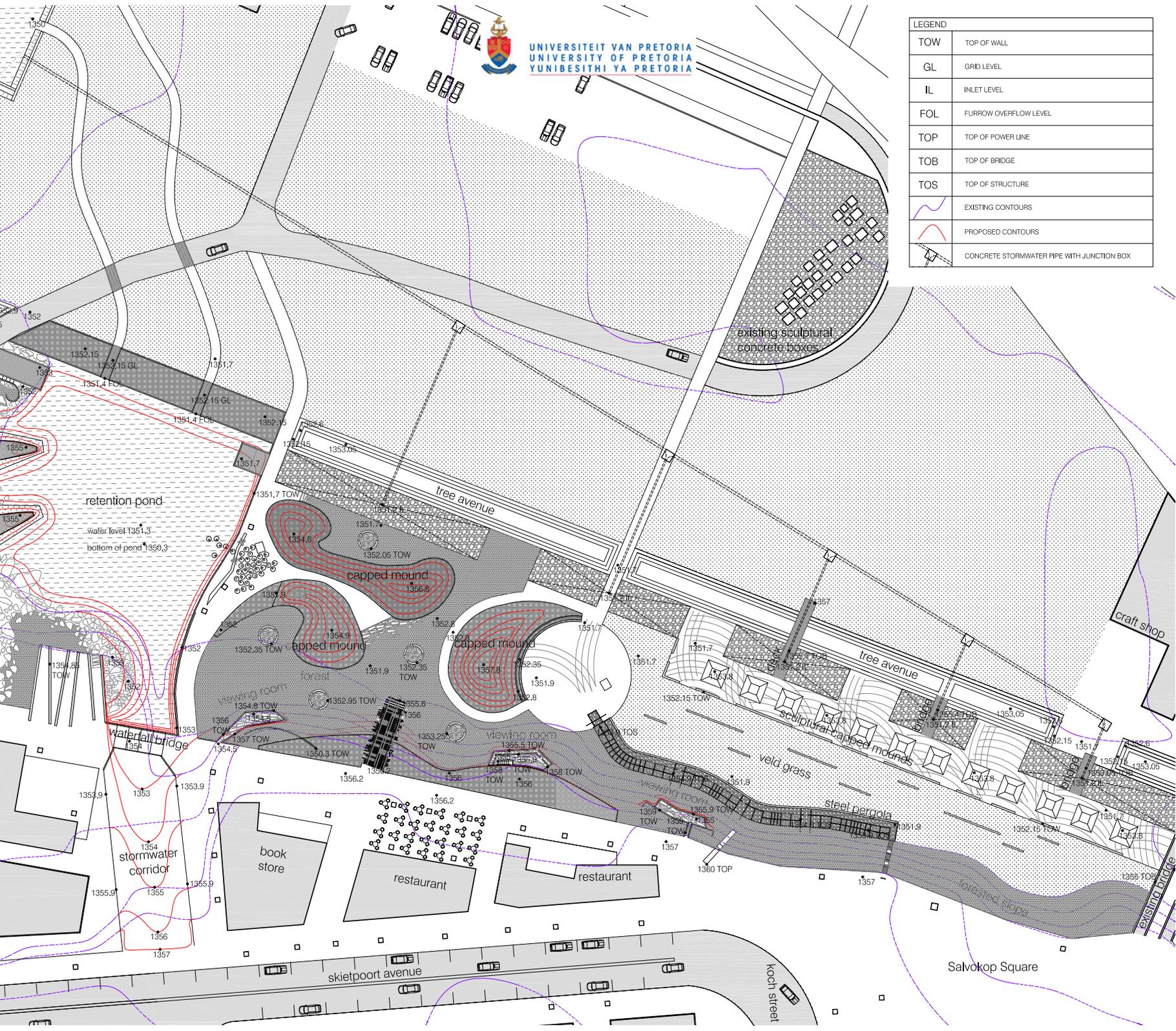


Illustration 159: Contours and heights plan. Not to scale



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LEGEND	
TOW	TOP OF WALL
GL	GRID LEVEL
IL	INLET LEVEL
FOL	FURROW OVERFLOW LEVEL
TOP	TOP OF POWER LINE
TOB	TOP OF BRIDGE
TOS	TOP OF STRUCTURE
	EXISTING CONTOURS
	PROPOSED CONTOURS
	CONCRETE STORMWATER PIPE WITH JUNCTION BOX



Salvokop Square

### 8.9 Lighting and paving plan

Lighting is used to enhance important features of the design, such as the steel pergola and the tree avenue. This allows the landscape to be safely used at night and to accentuate different parts of the design at different times of the day.

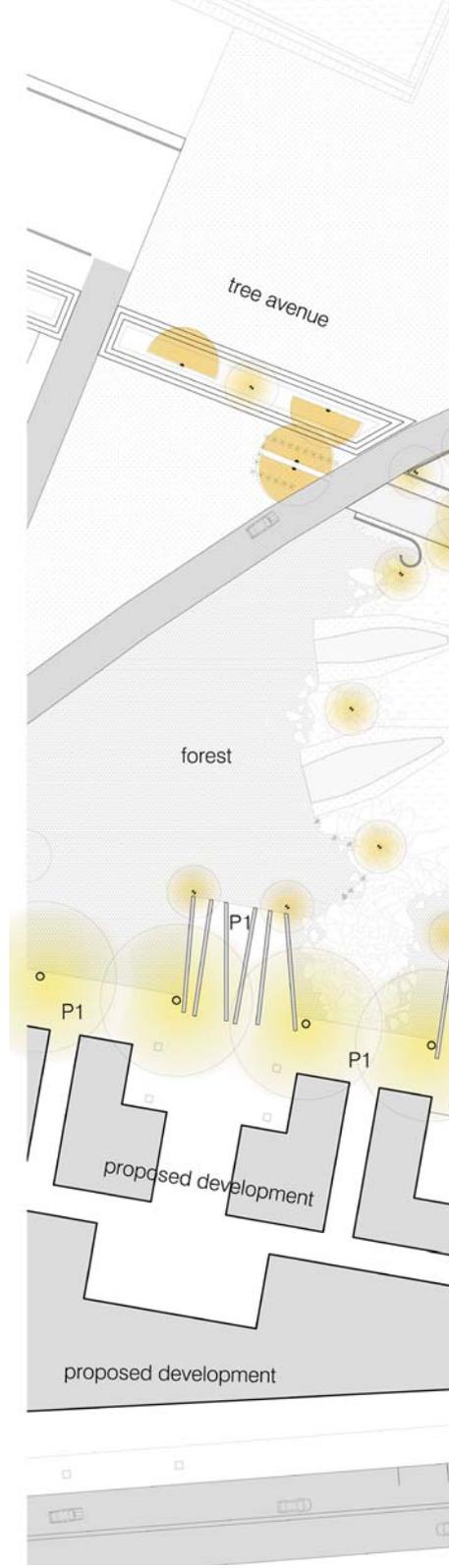
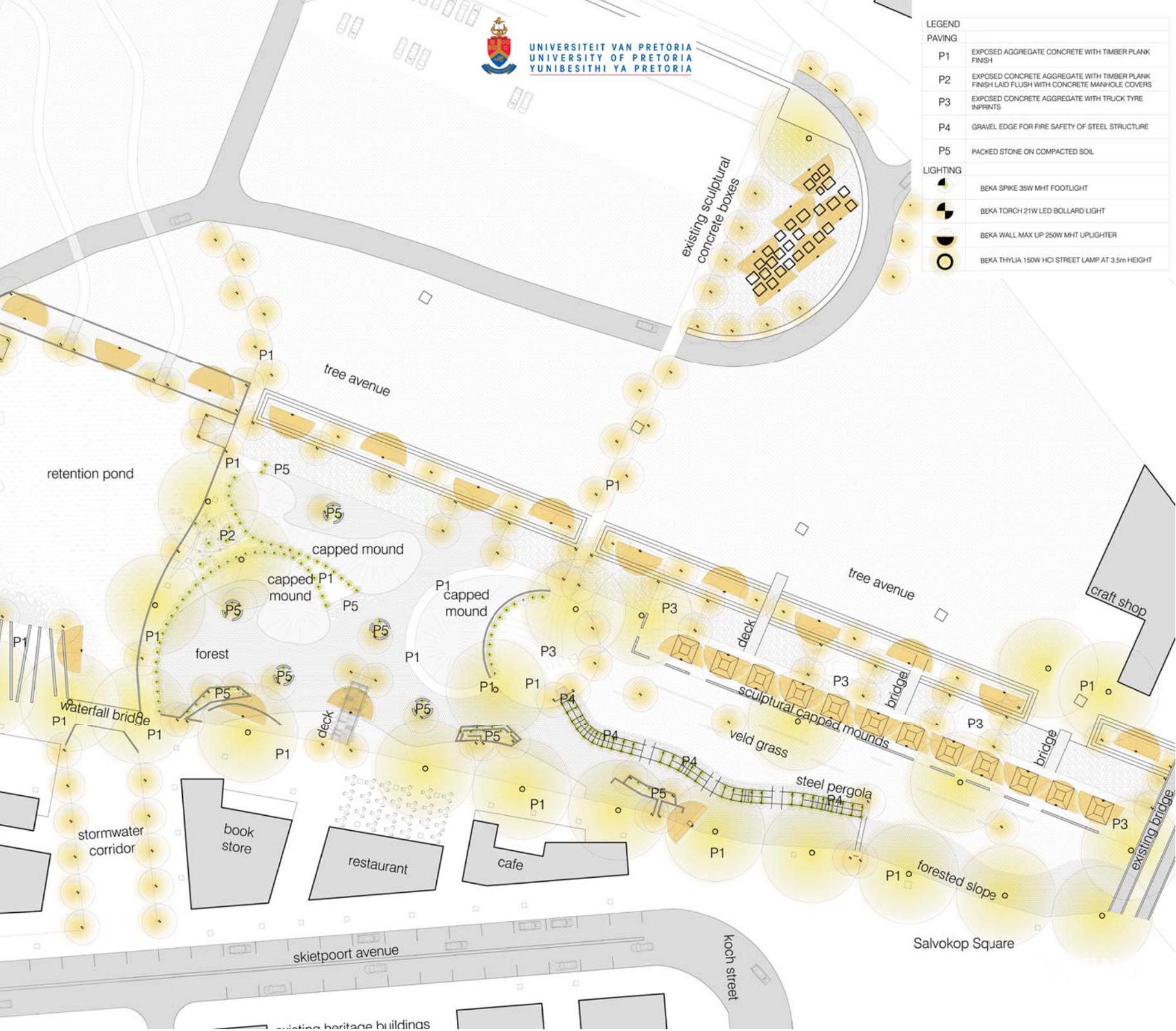


Illustration 160: Lighting and paving plan. Not to scale



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LEGEND	
PAVING	
P1	EXPOSED AGGREGATE CONCRETE WITH TIMBER PLANK FINISH
P2	EXPOSED CONCRETE AGGREGATE WITH TIMBER PLANK FINISH LAID FLUSH WITH CONCRETE MANHOLE COVERS
P3	EXPOSED CONCRETE AGGREGATE WITH TRUCK TYRE INPRINTS
P4	GRAVEL EDGE FOR FIRE SAFETY OF STEEL STRUCTURE
P5	PACKED STONE ON COMPACTED SOIL
LIGHTING	
	BEKA SPIKE 35W MHT FOOTLIGHT
	BEKA TORCH 21W LED BOLLARD LIGHT
	BEKA WALL MAX UP 250W MHT UPLIGHTER
	BEKA THYLIA 150W HCI STREET LAMP AT 3.5m HEIGHT



retention pond

tree avenue

existing sculptural concrete boxes

capped mound

capped P1 mound

P1 capped mound

forest

waterfall bridge

stormwater corridor

book store

restaurant

cafe

tree avenue

craft shop

deck

sculptural capped mounds

veld grass

steel pergola

forested slope

skietpoort avenue

Koch street

Salvokop Square

existing heritage buildings

8.10 Sections and details

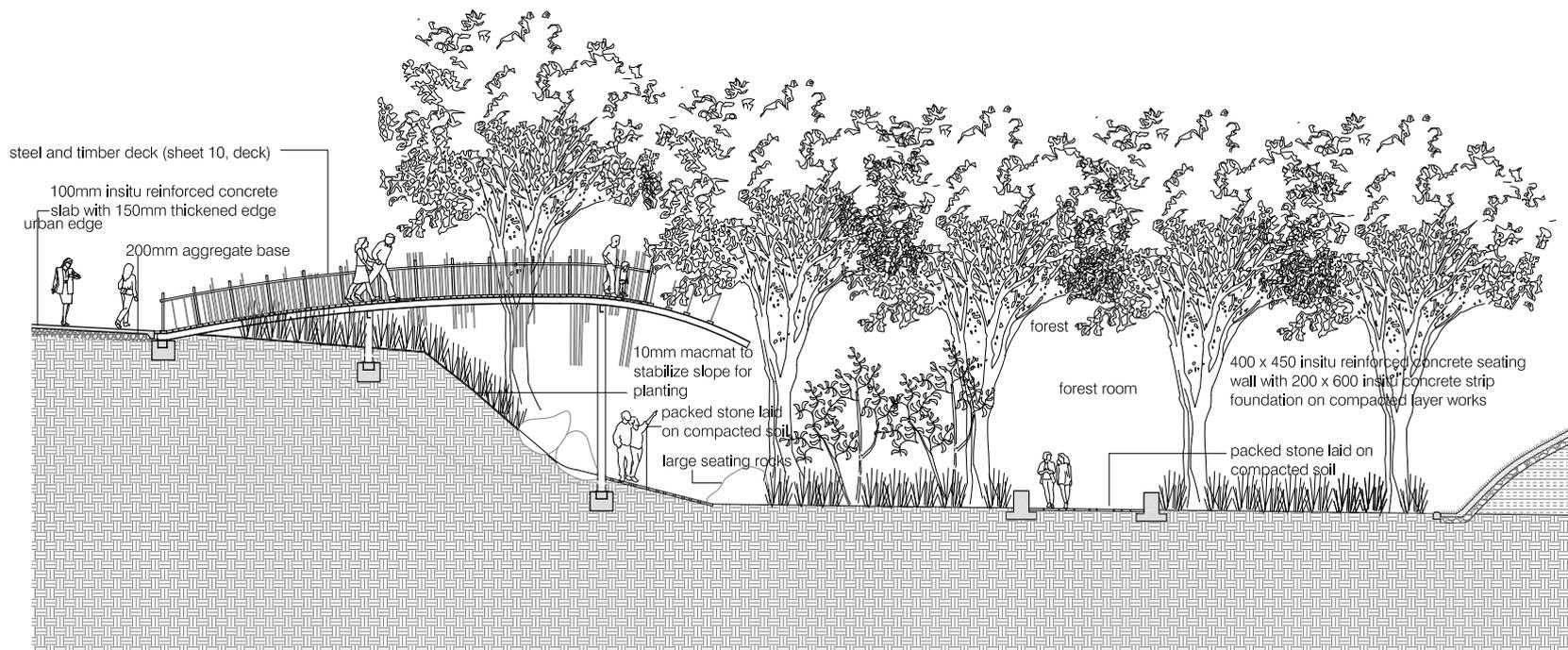
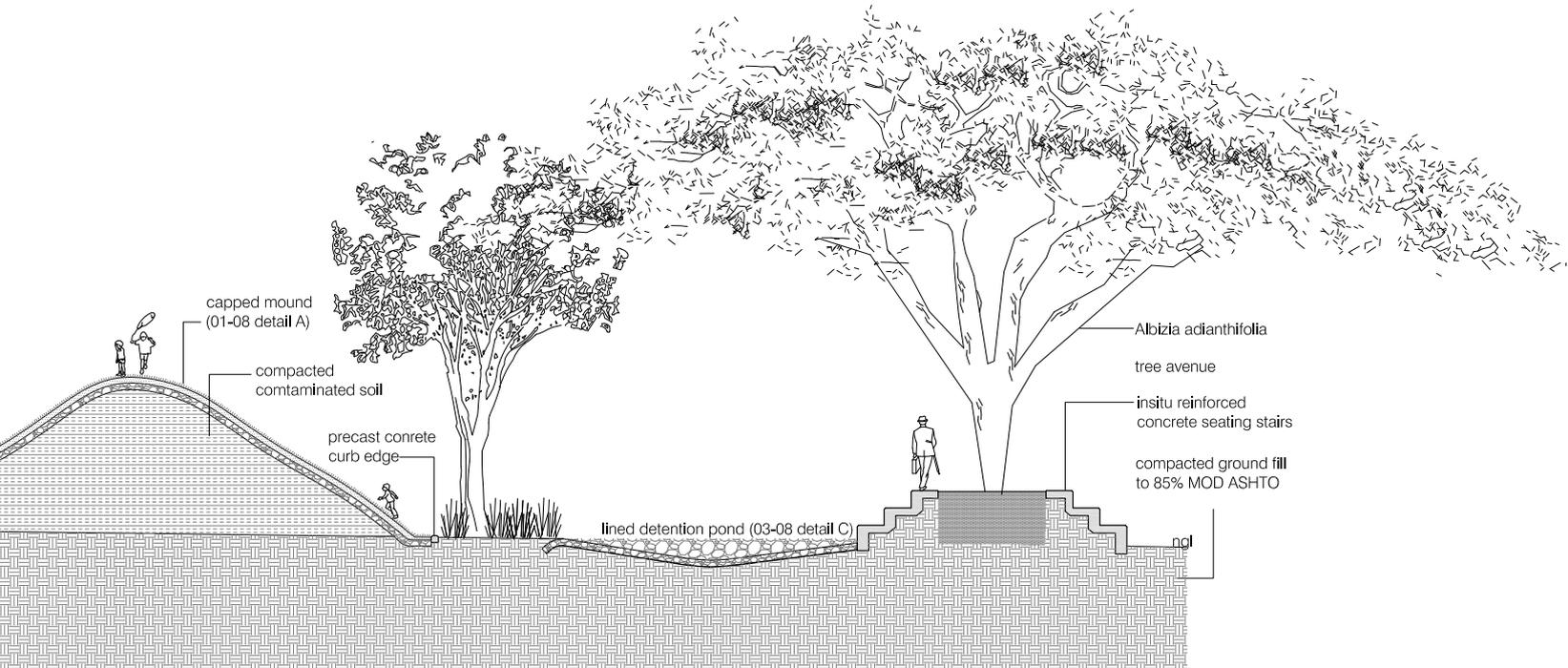


Illustration 161: Section A. Not to scale



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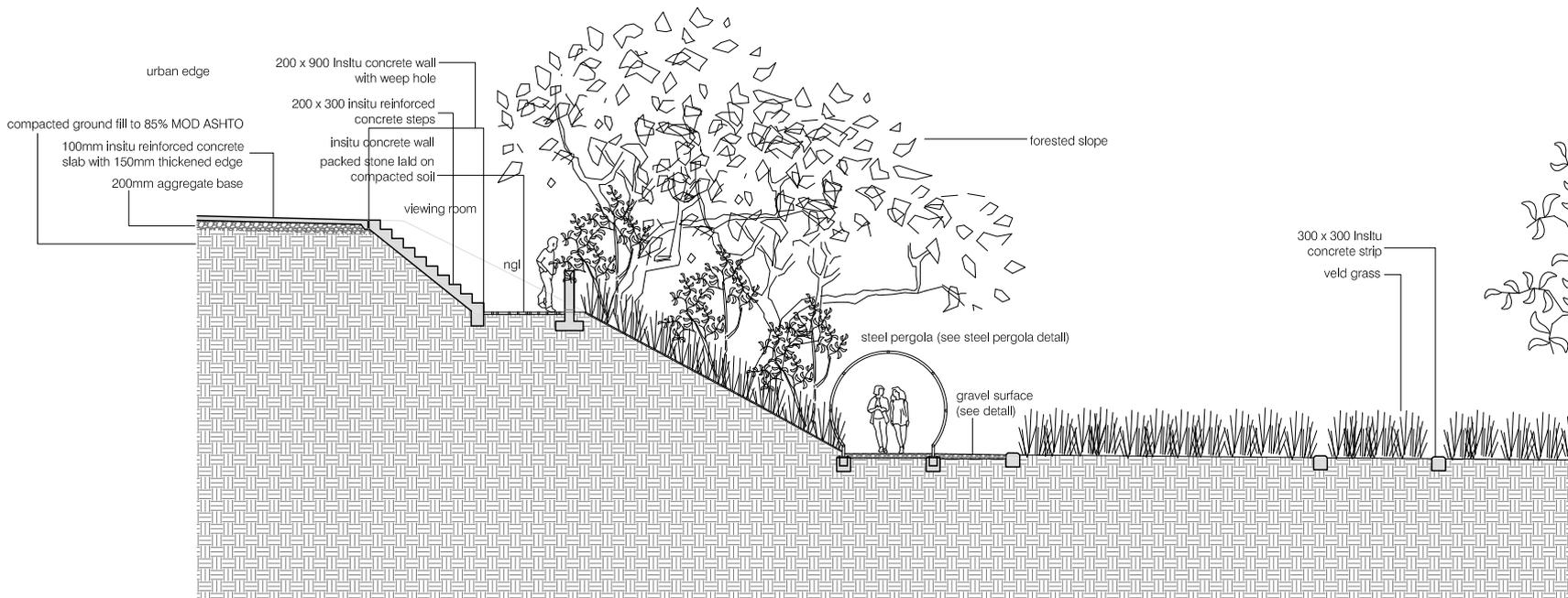
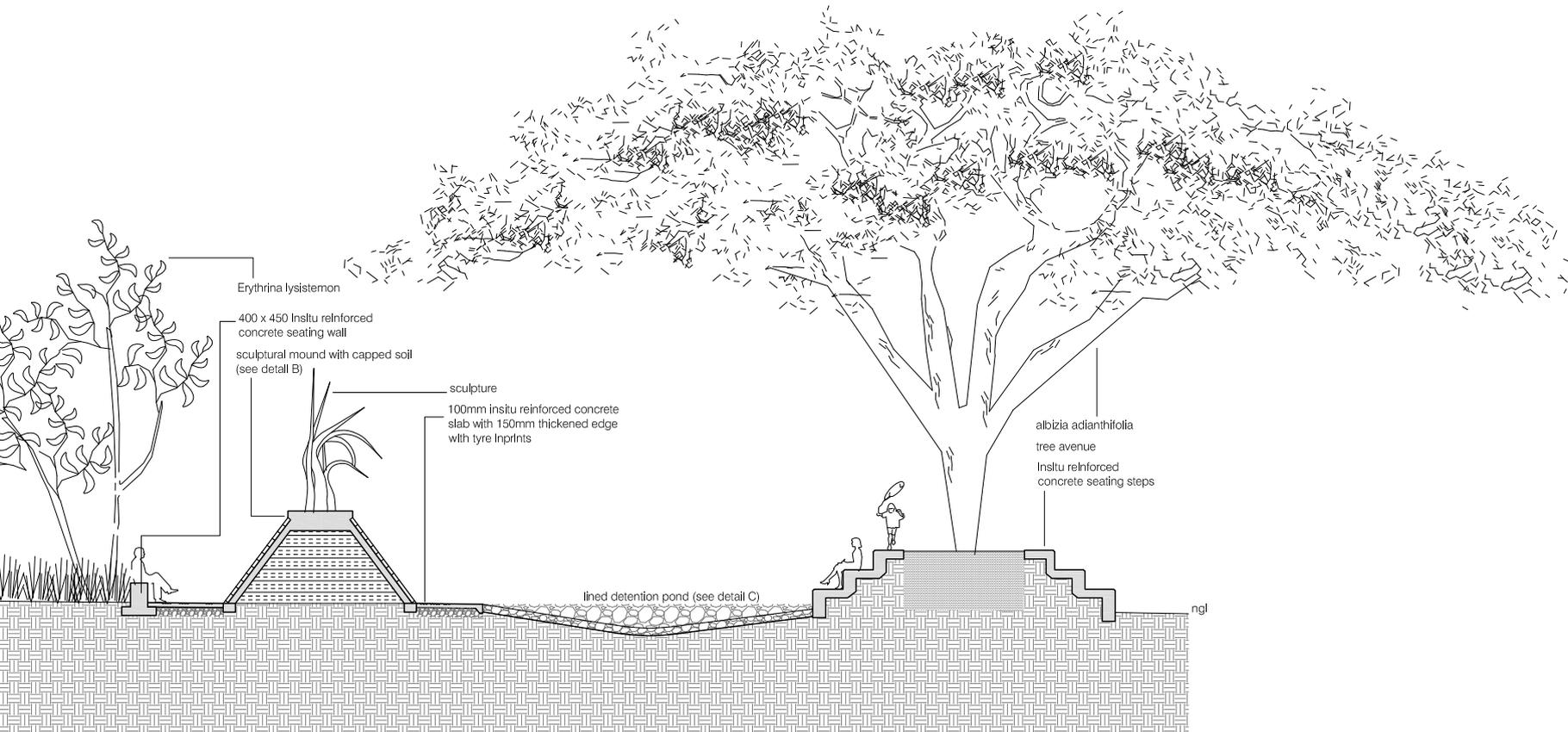


Illustration 162: Section B. Not to scale



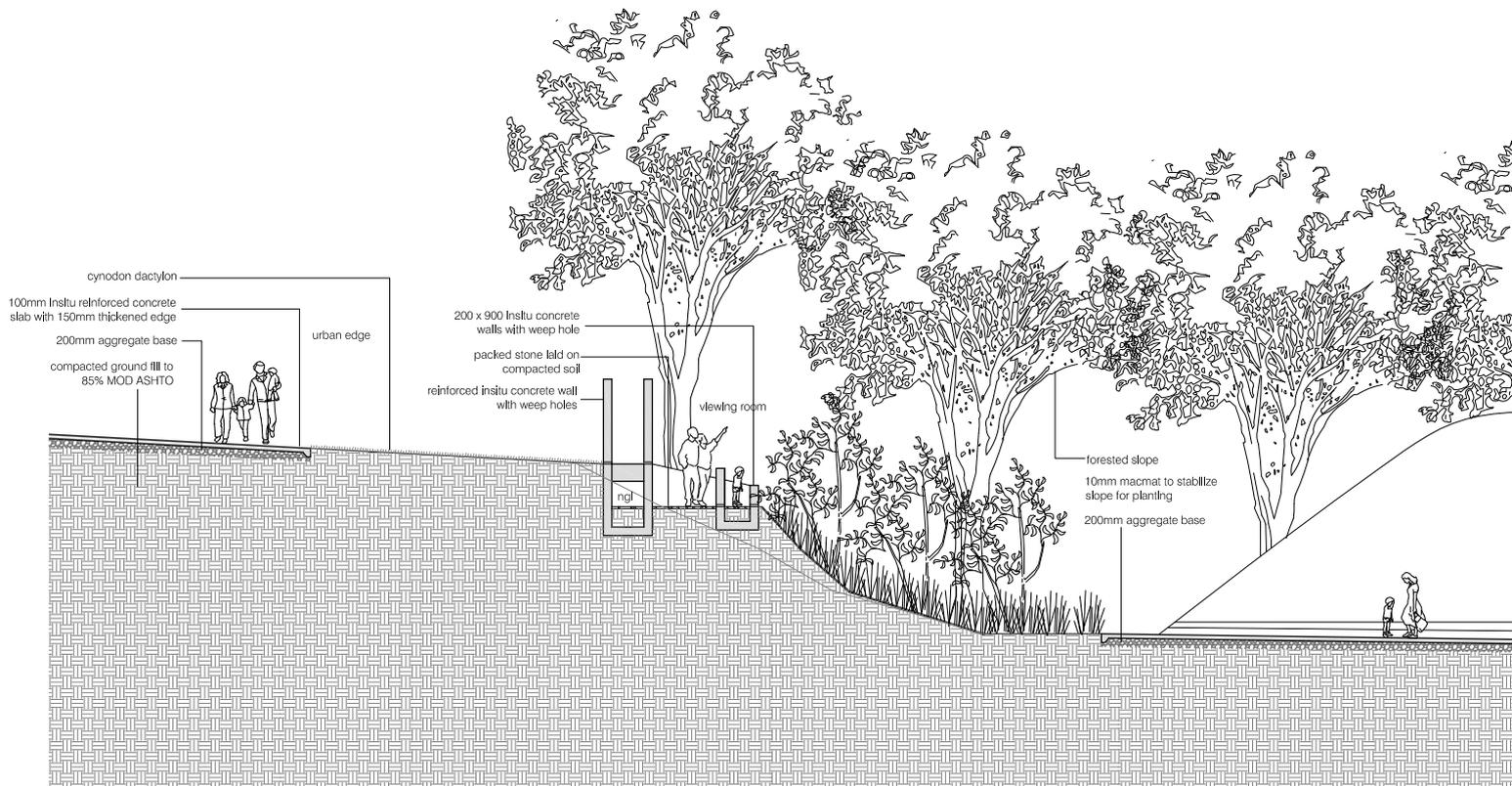
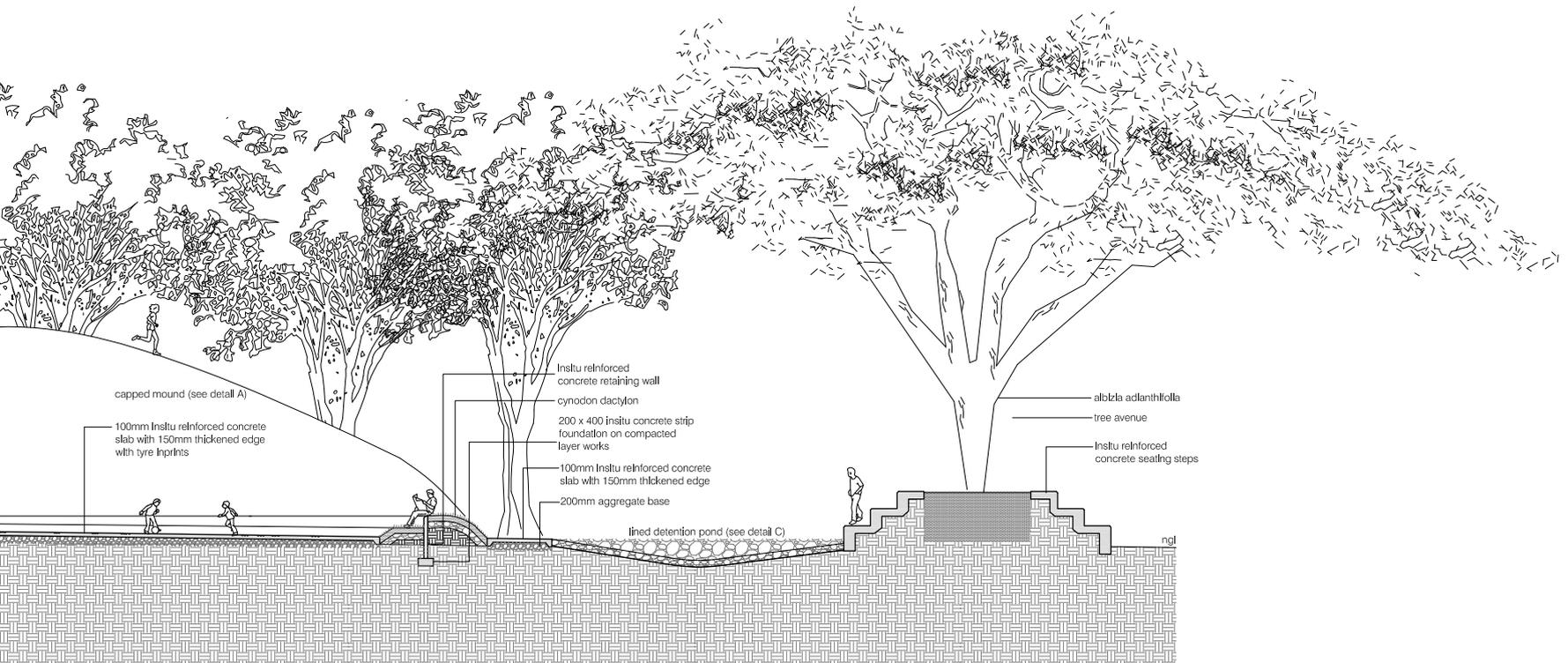


Illustration 163: Section elevation C. Not to scale



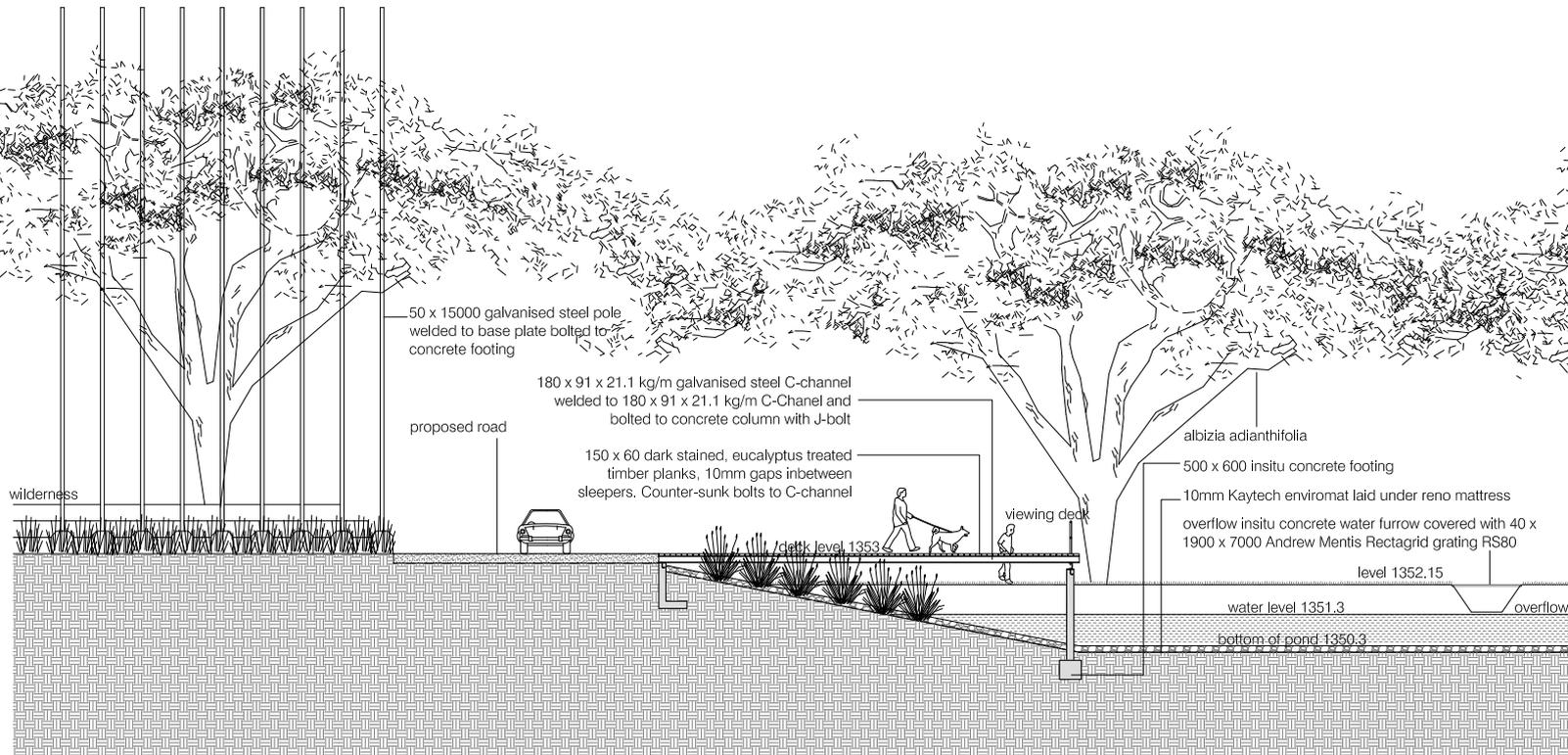
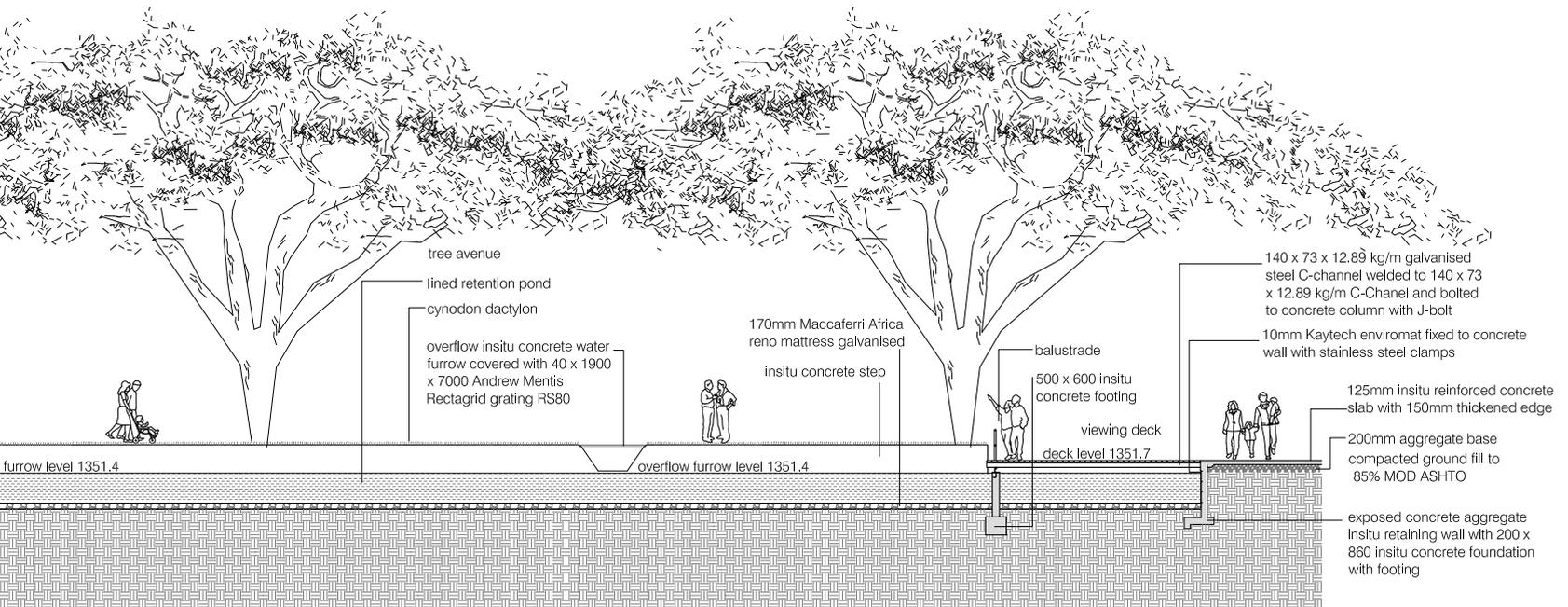


Illustration 164: Section elevation D. Not to scale



08 DETAIL DESIGN

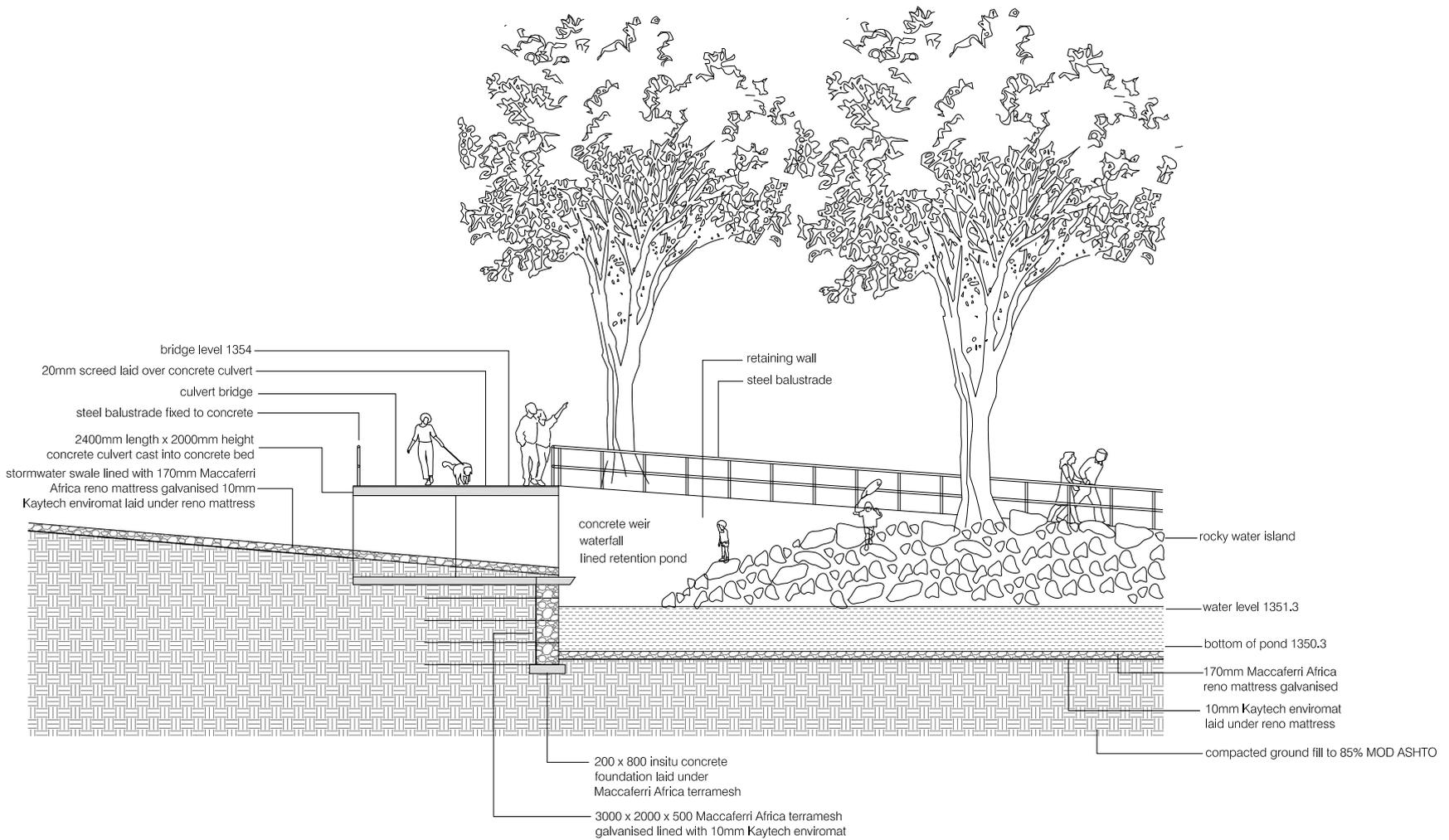


Illustration 165: Waterfall bridge. Section elevation E. Not to scale

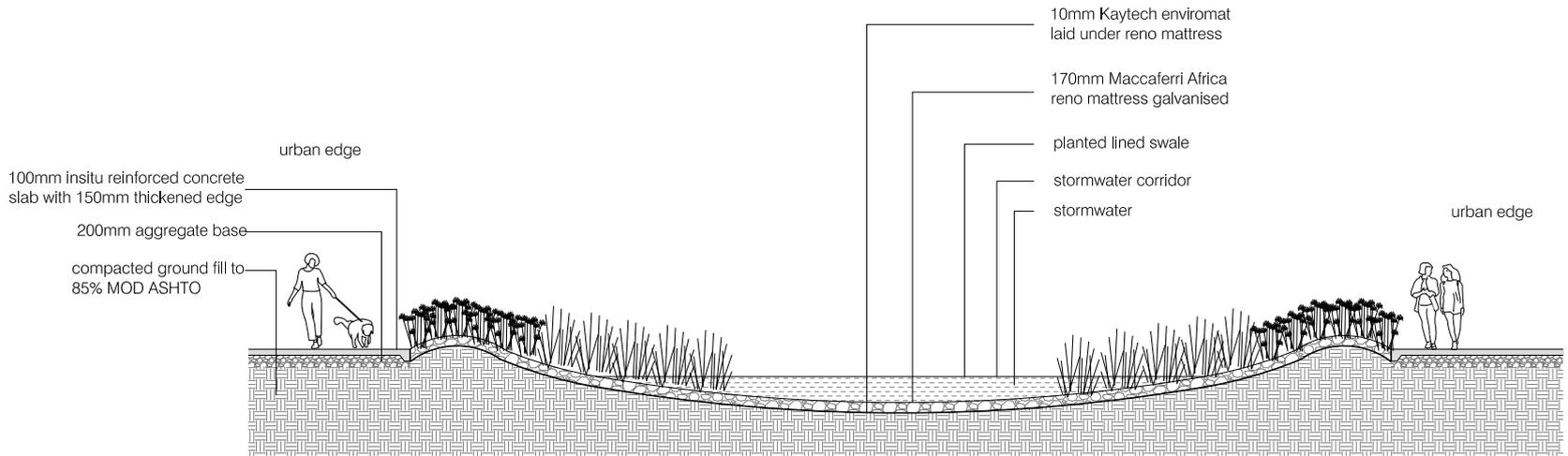


Illustration 166: Stormwater corridor. Section F. Not to scale

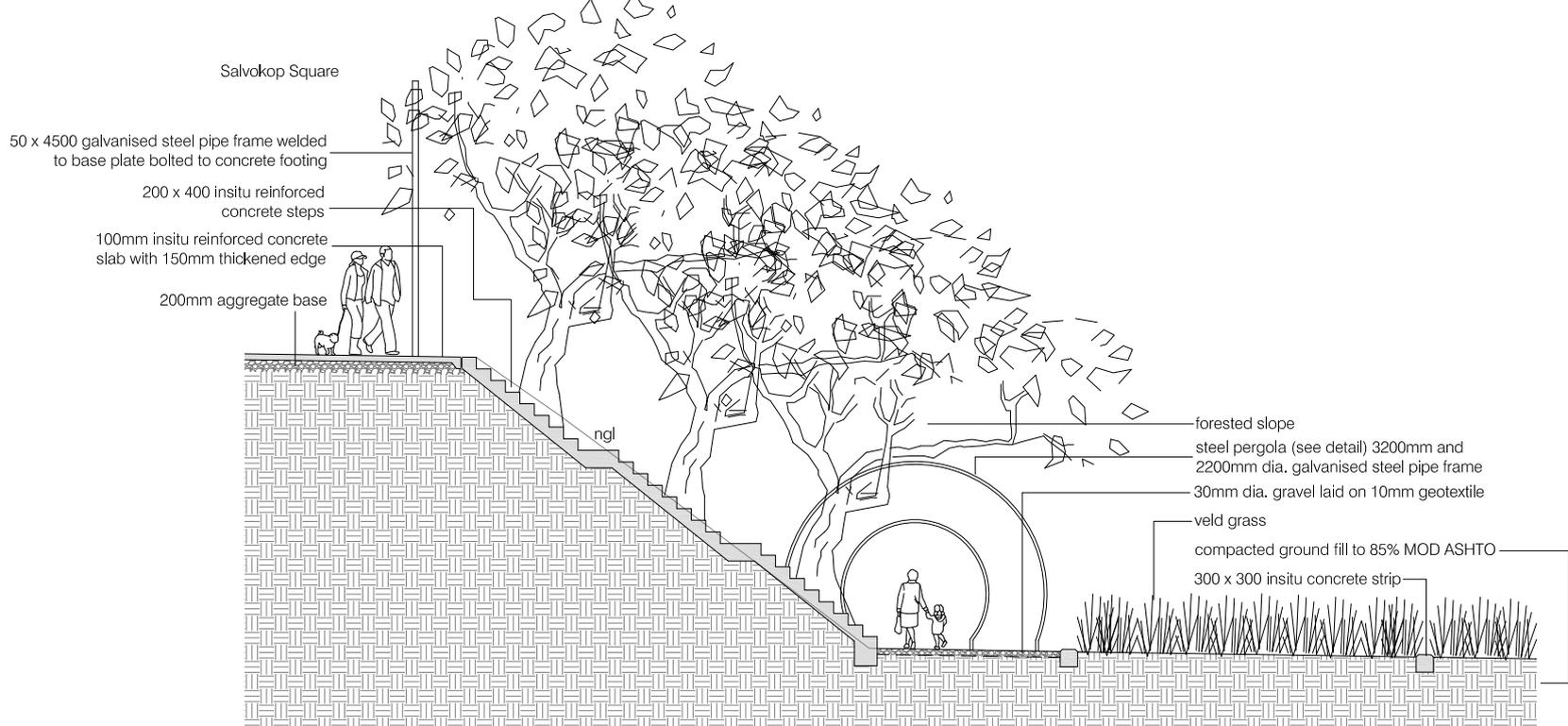


Illustration 167: Section elevation G. Not to scale

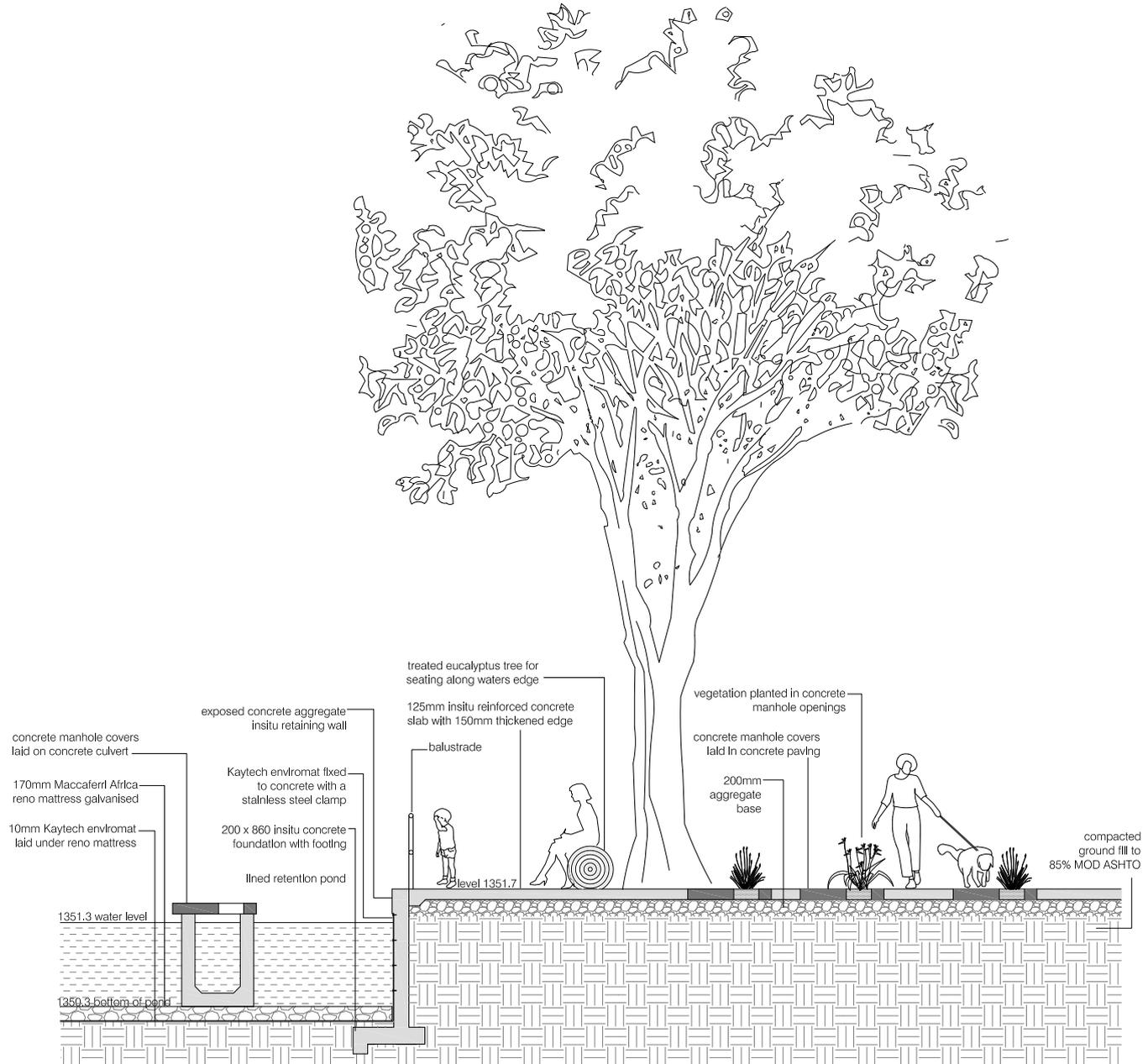


Illustration 168: Water edge. Section H. Not to scale

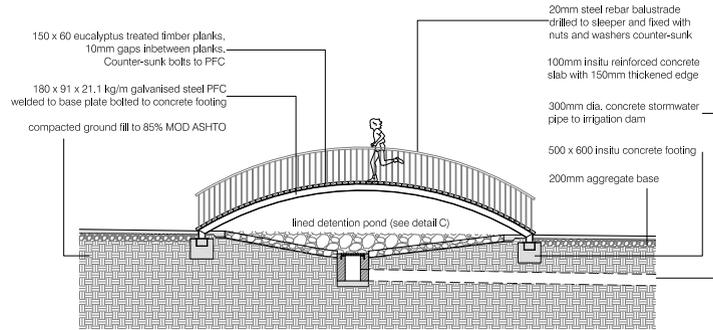


Illustration 169: Bridge 1 - Section I1. Not to scale

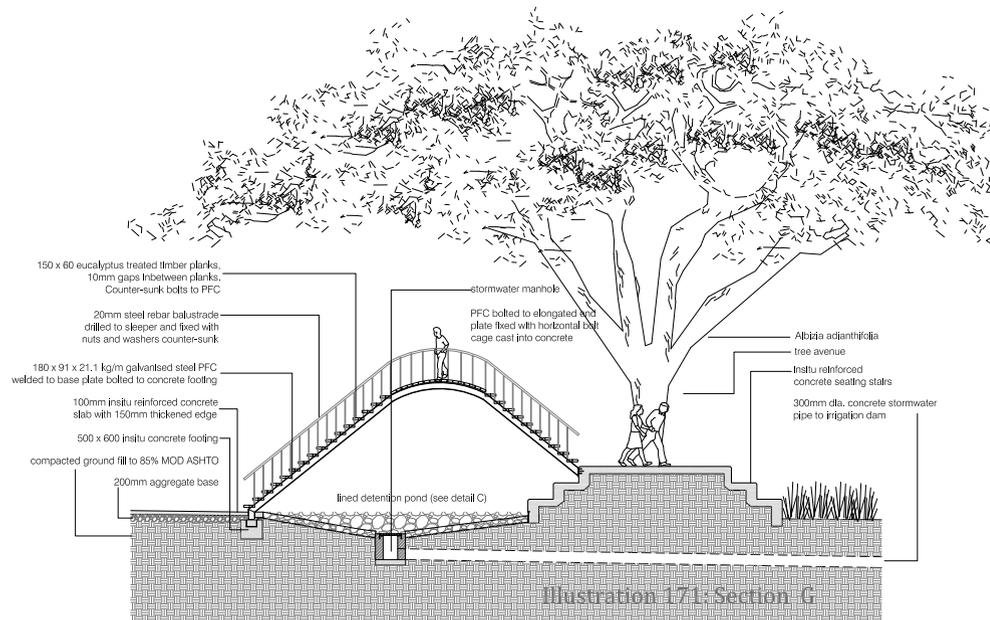


Illustration 170: Bridge 2 - Section I2. Not to scale

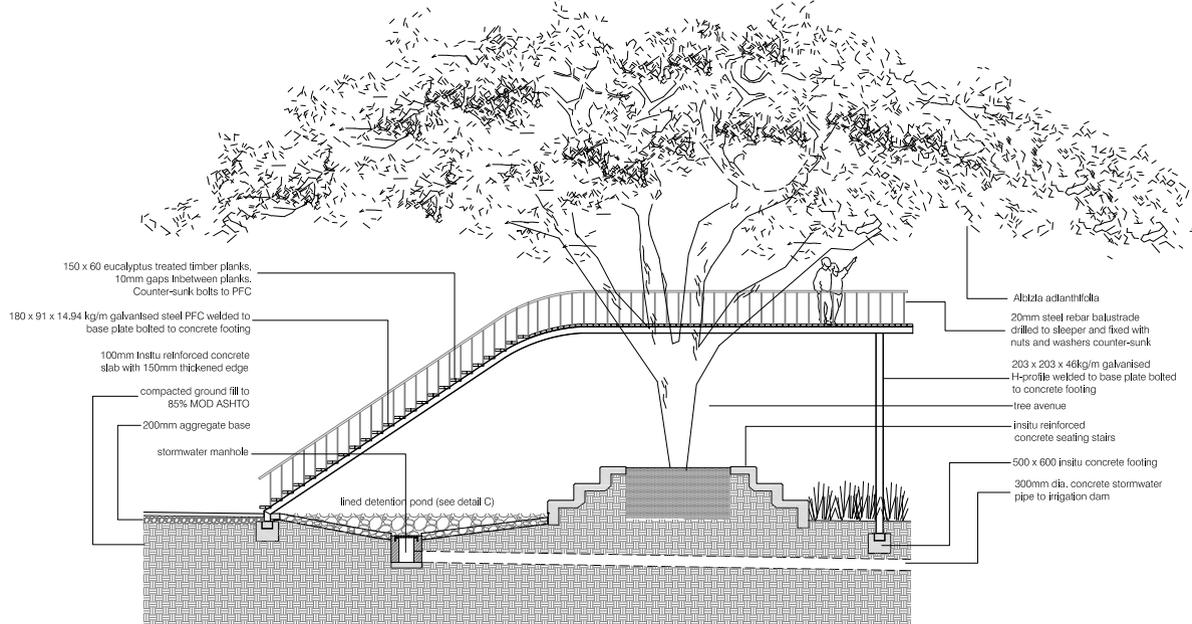


Illustration 171: Deck 3 - Section I3. Not to scale

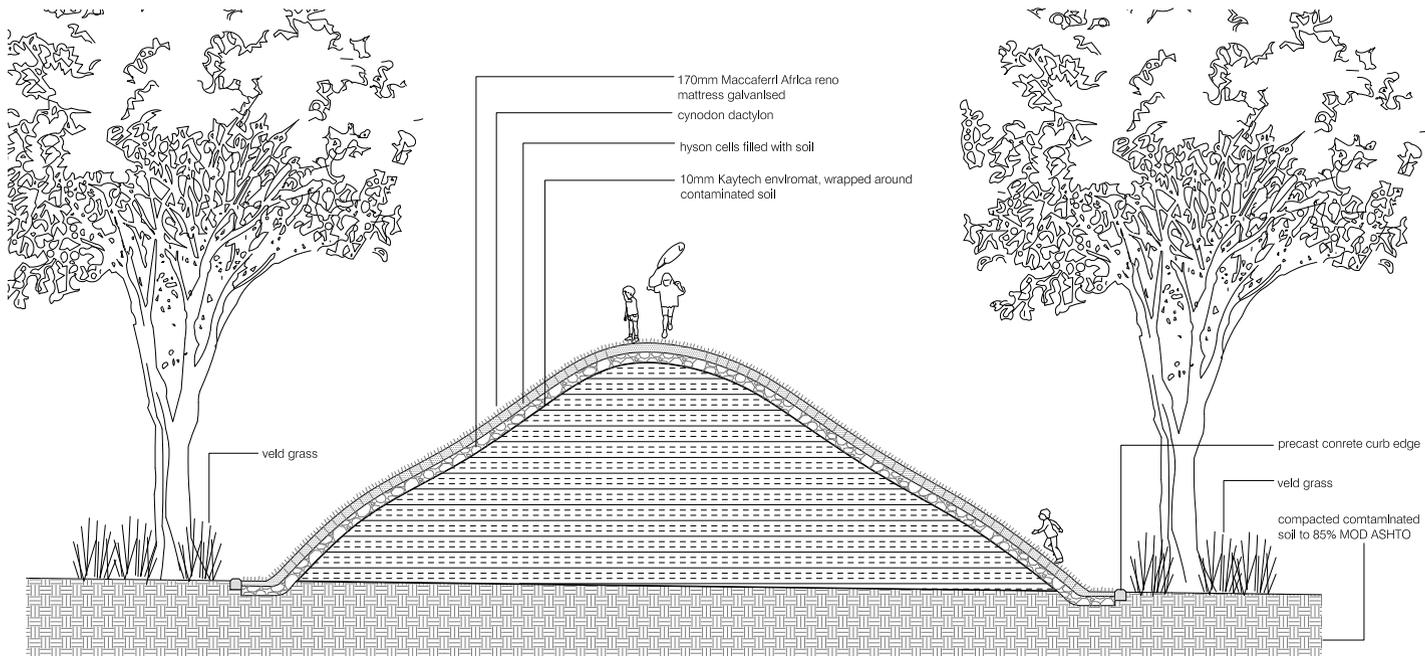


Illustration 172: Capped mound. Detail A. Not to scale



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8.11 Steel pergola

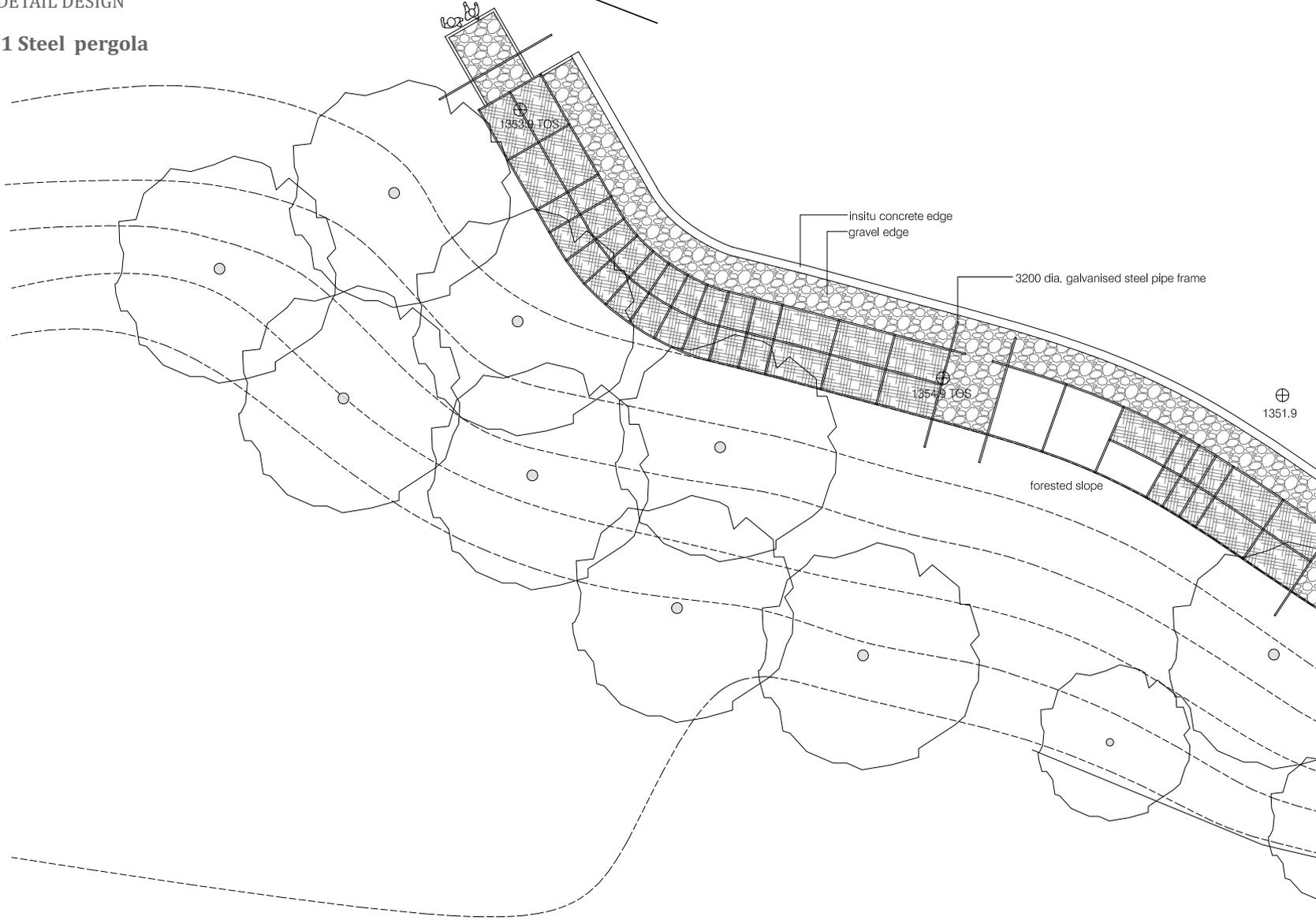
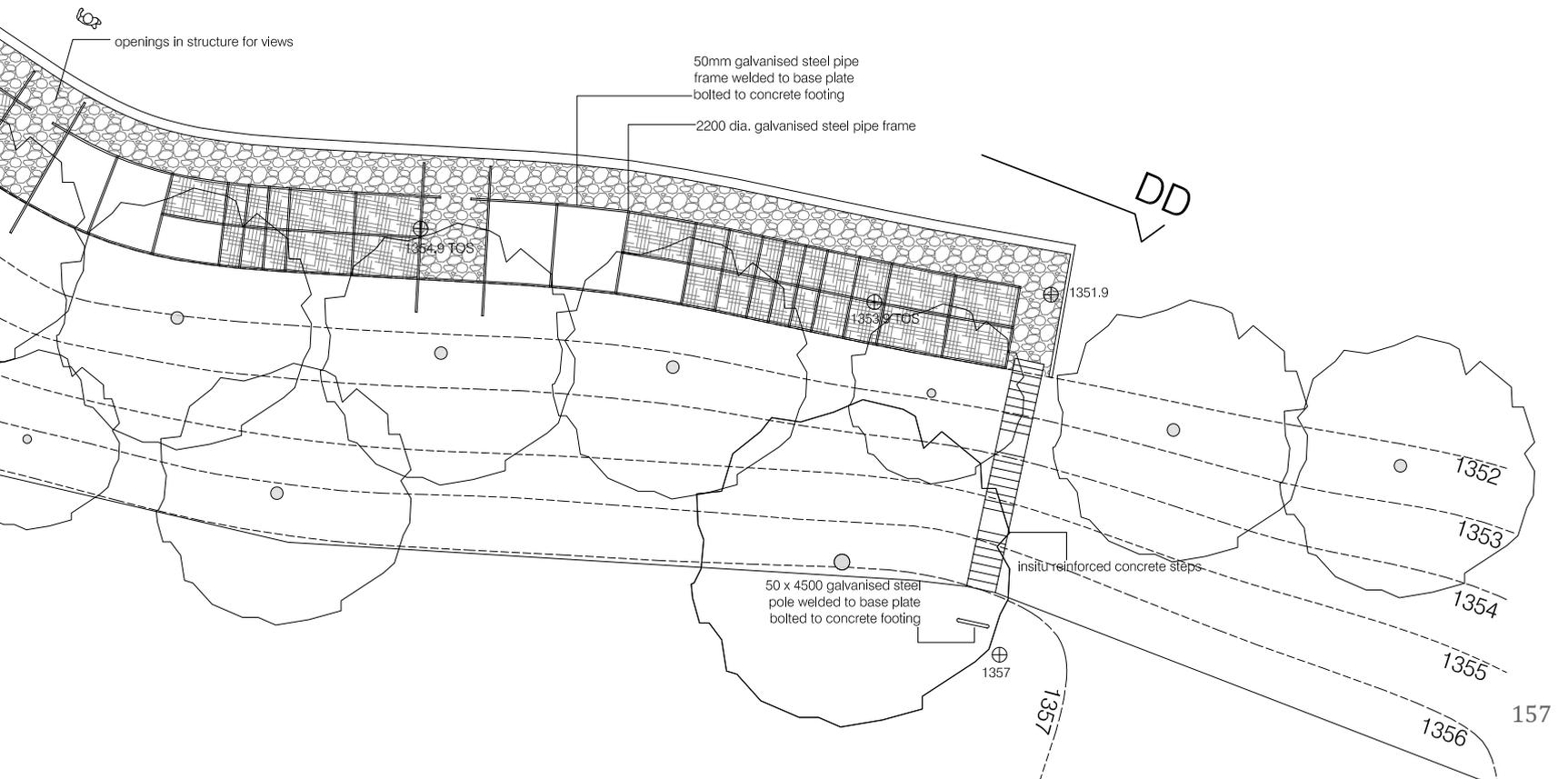


Illustration 175: Steel pergola plan. Not to scale



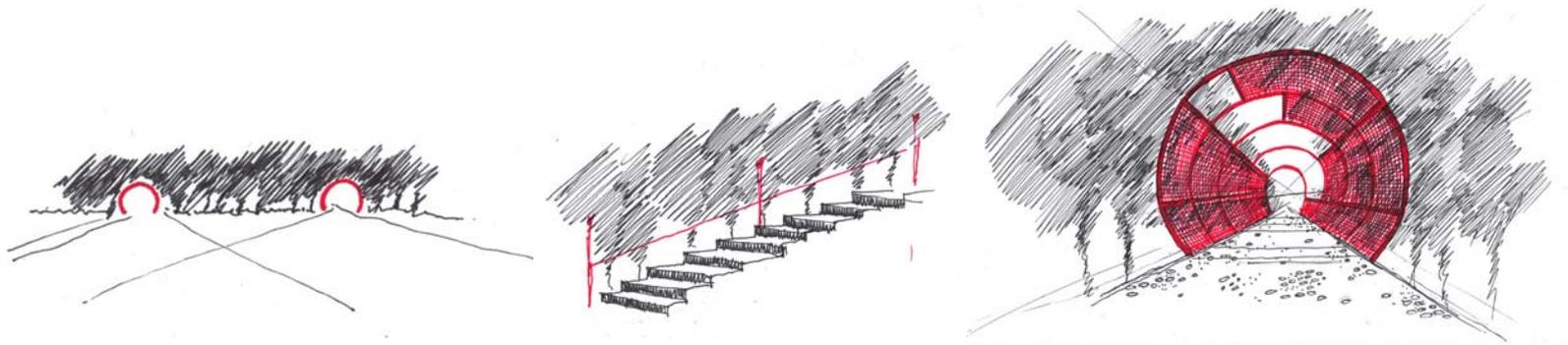


Illustration 176: Steel pergola vignettes

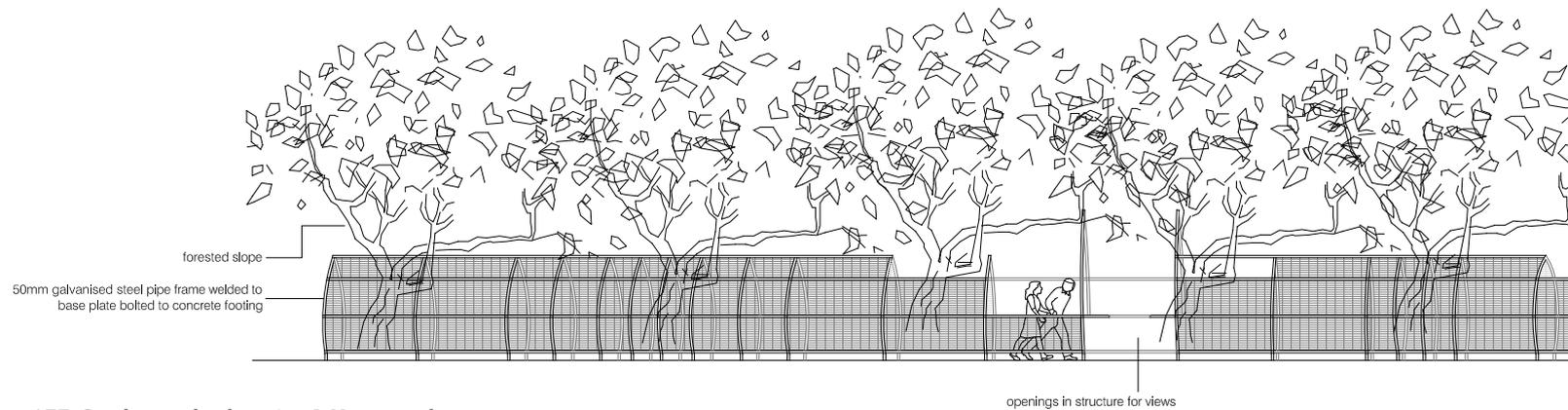
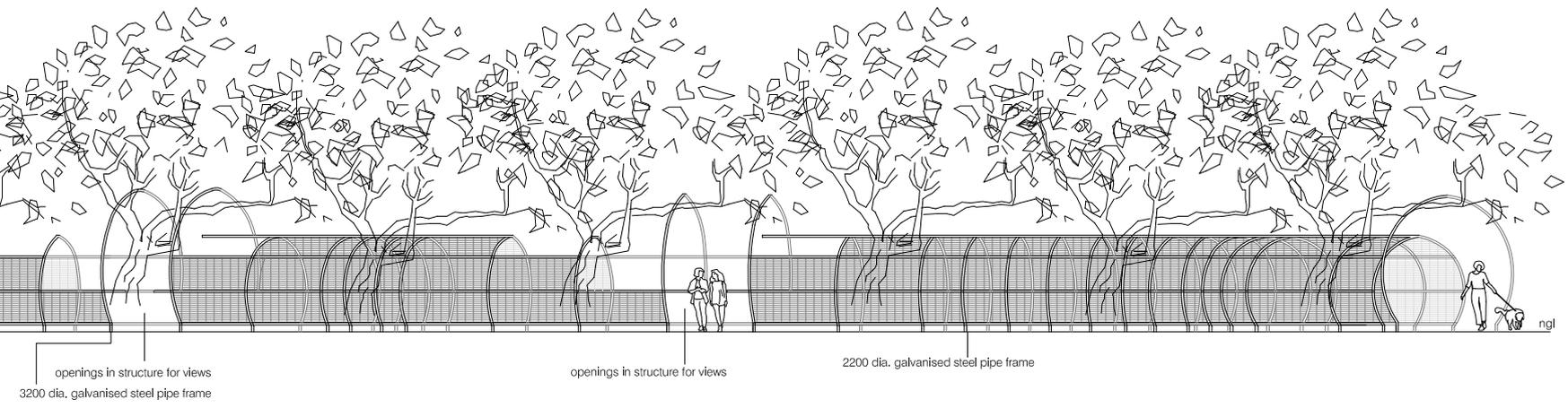
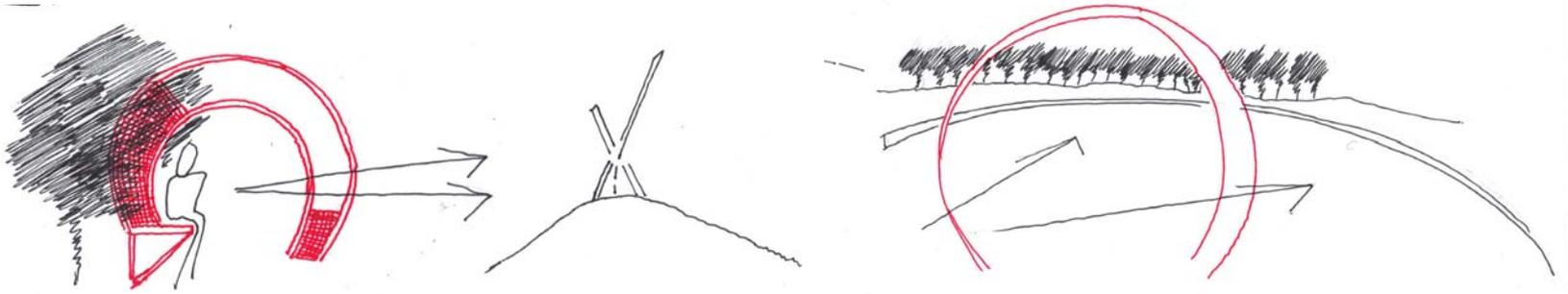


Illustration 177: Steel pergola elevation J. Not to scale



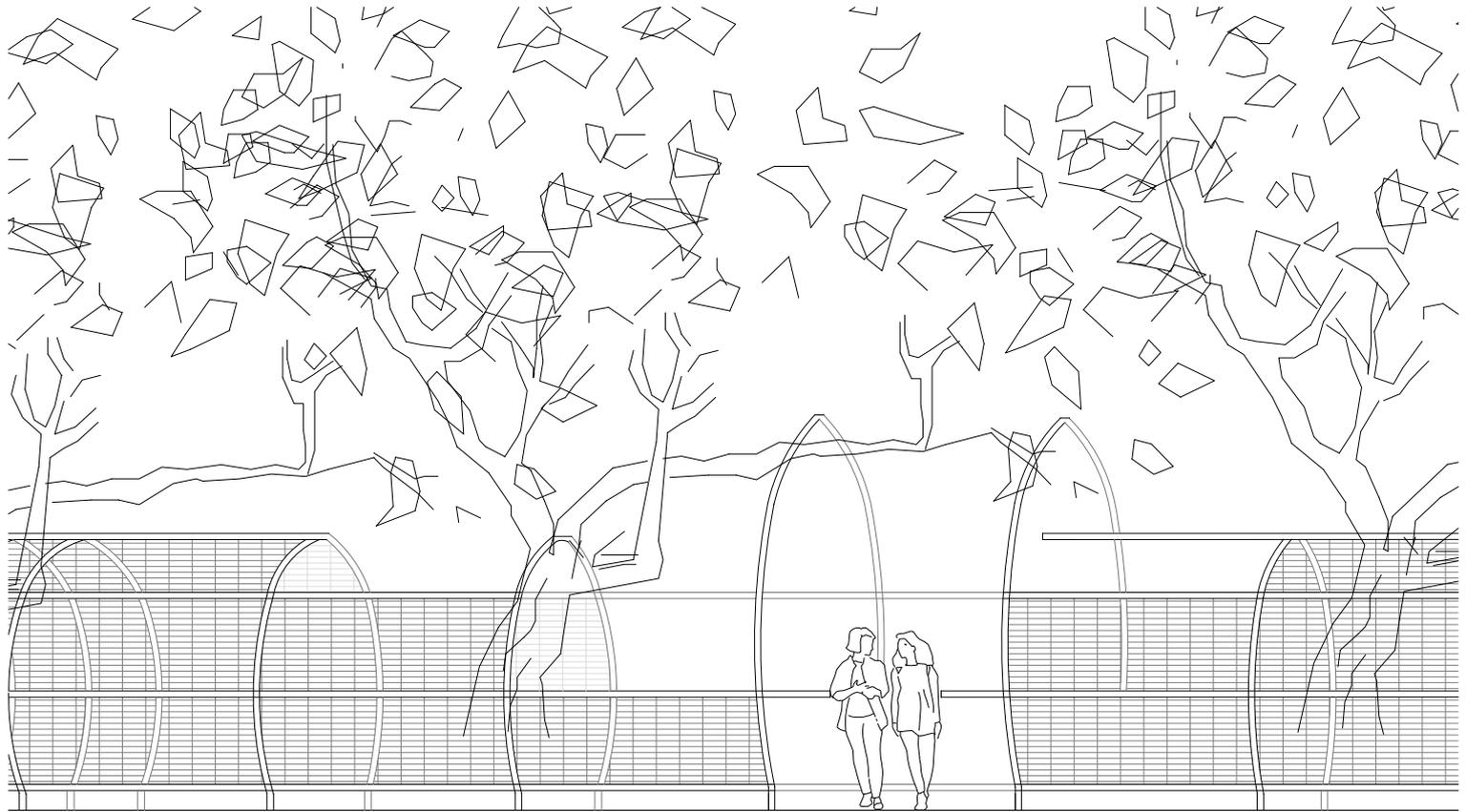


Illustration 178: Steel pergola detail elevation. Not to scale

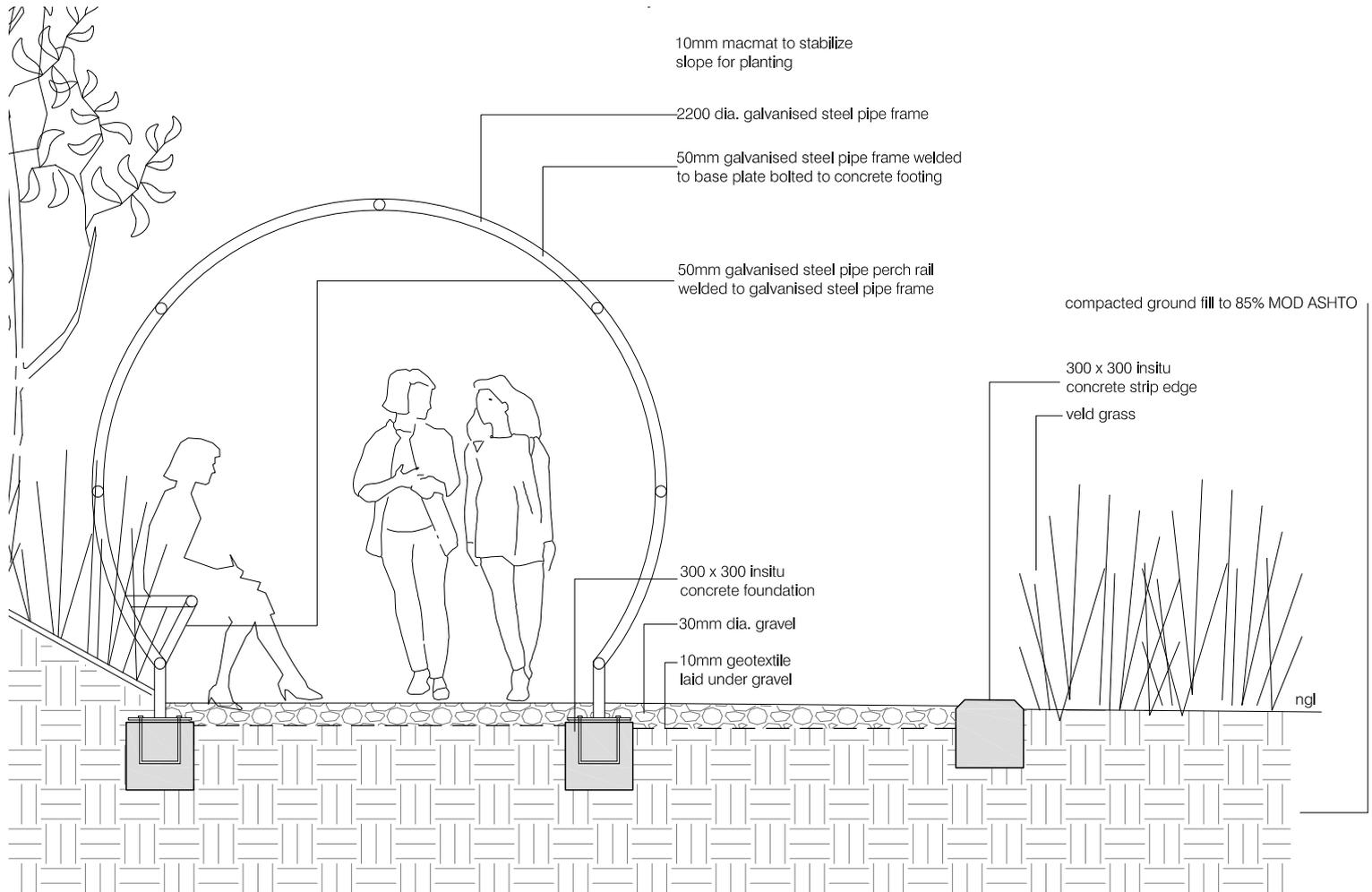


Illustration 179: Steel pergola detail. Not to scale

08 DETAIL DESIGN

8.12 Deck

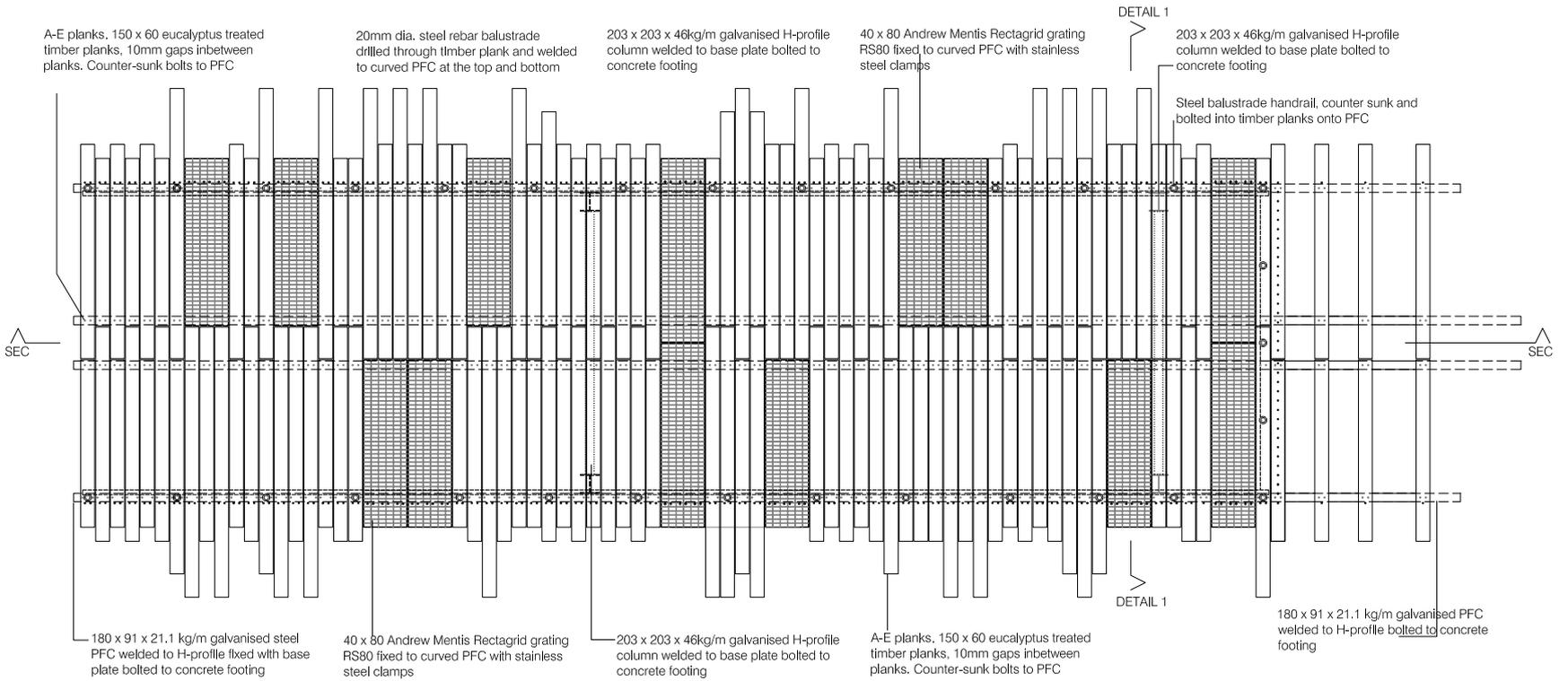


Illustration 180: Deck plan. Not to scale

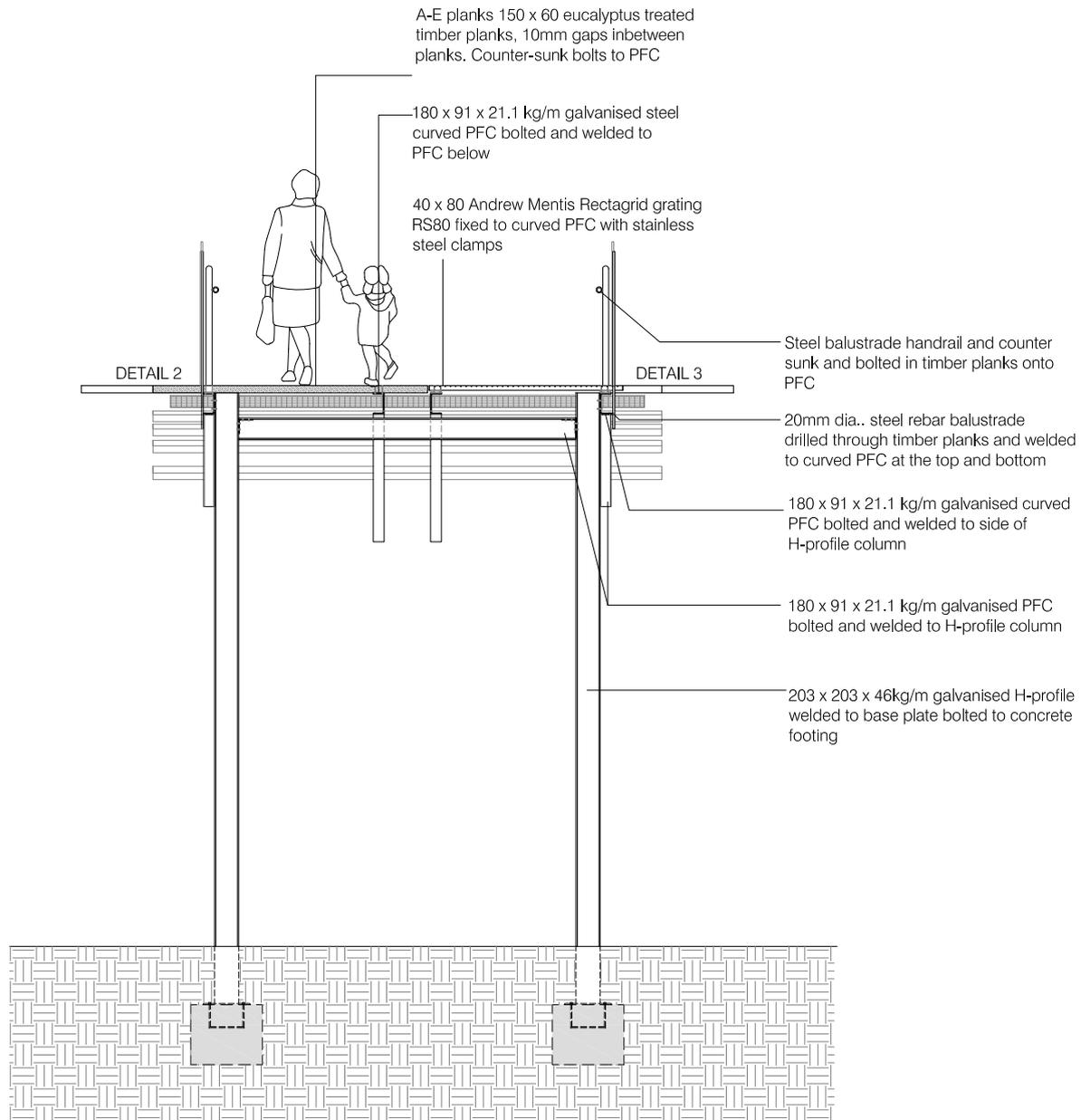


Illustration 181: Deck detail. Not to scale

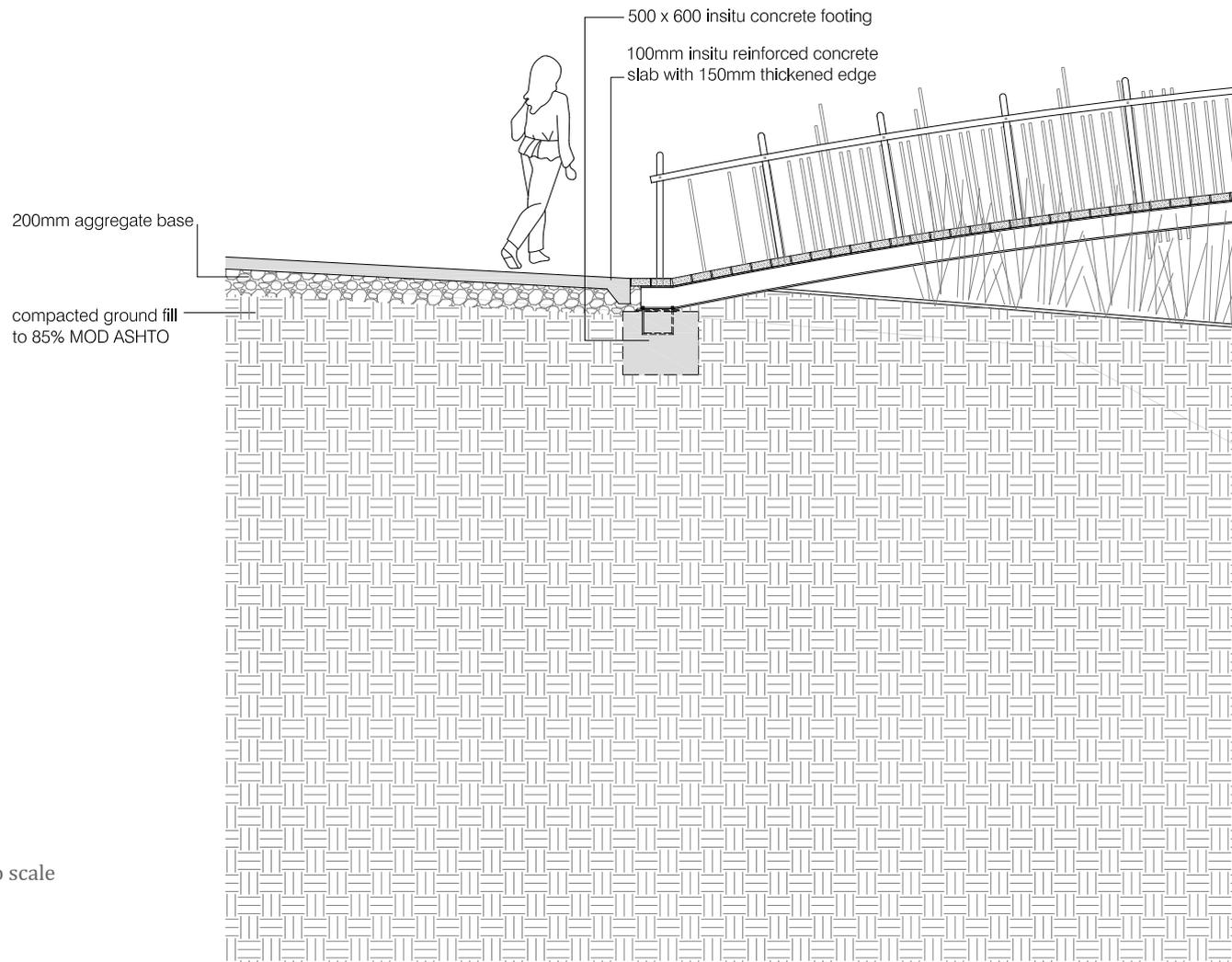
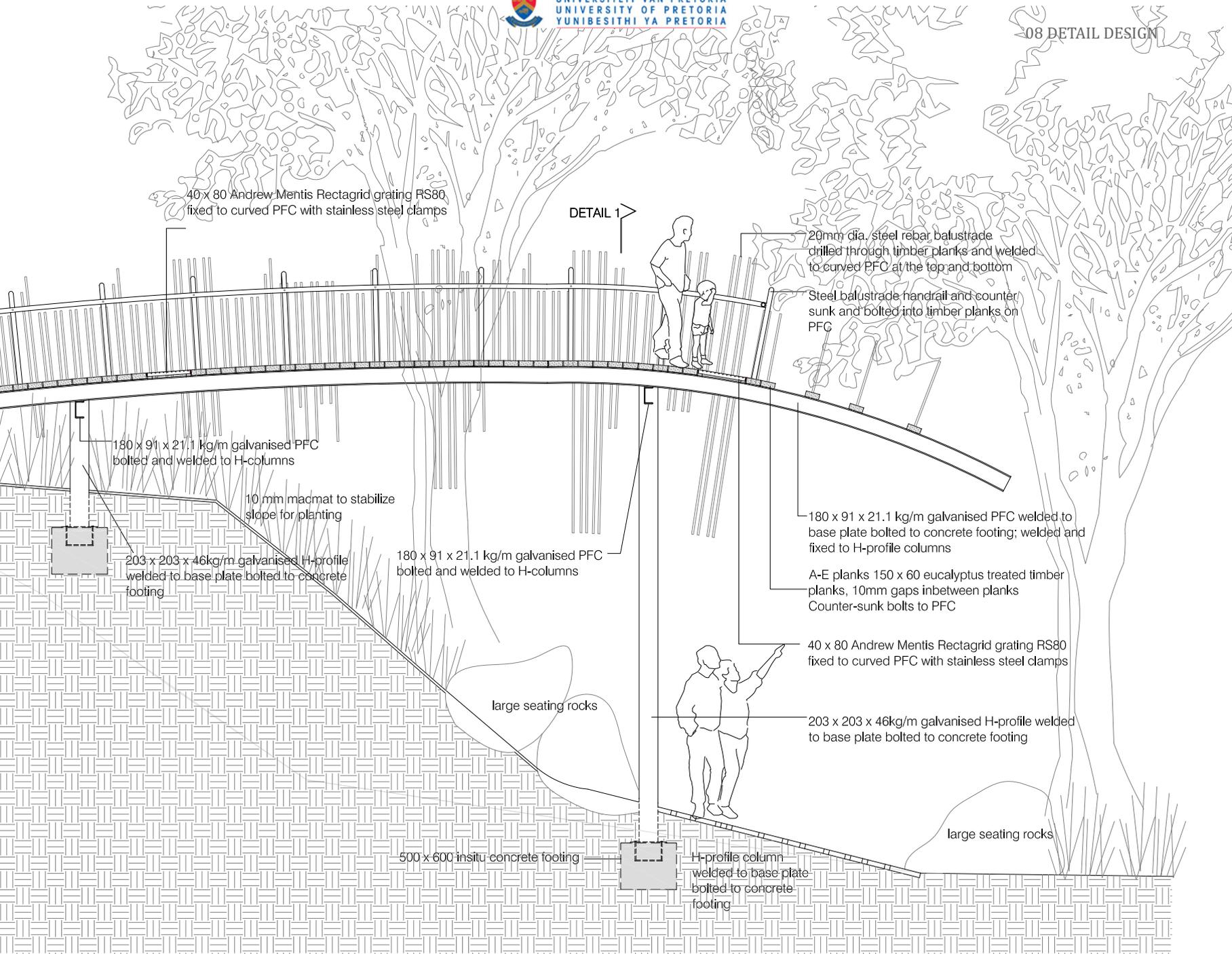


Illustration 182: Deck section. Not to scale



8.13 Rendered drawings

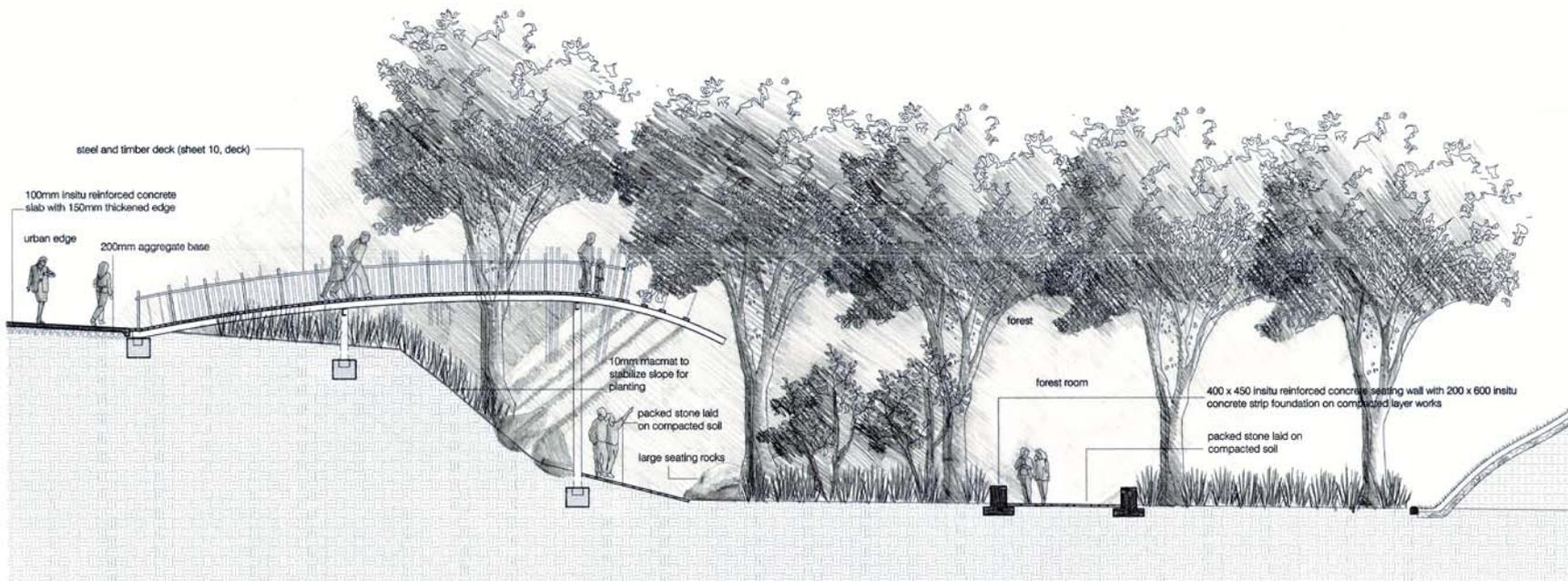
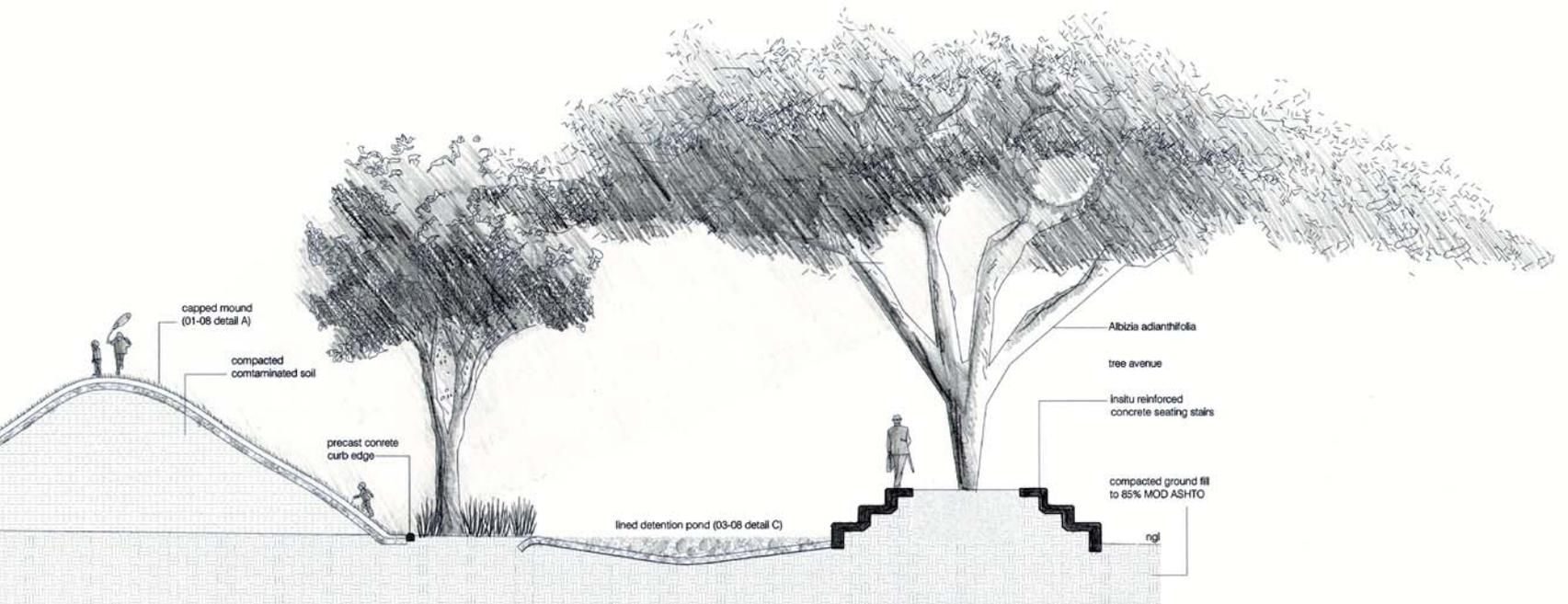
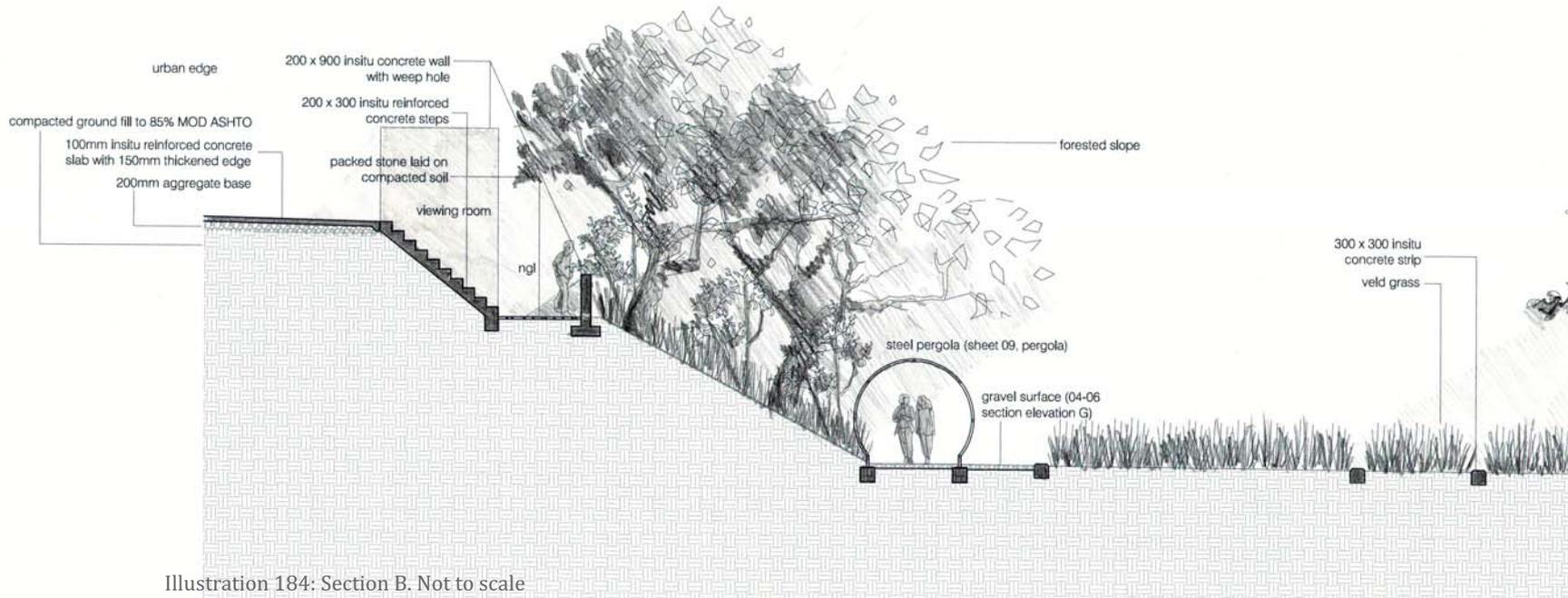
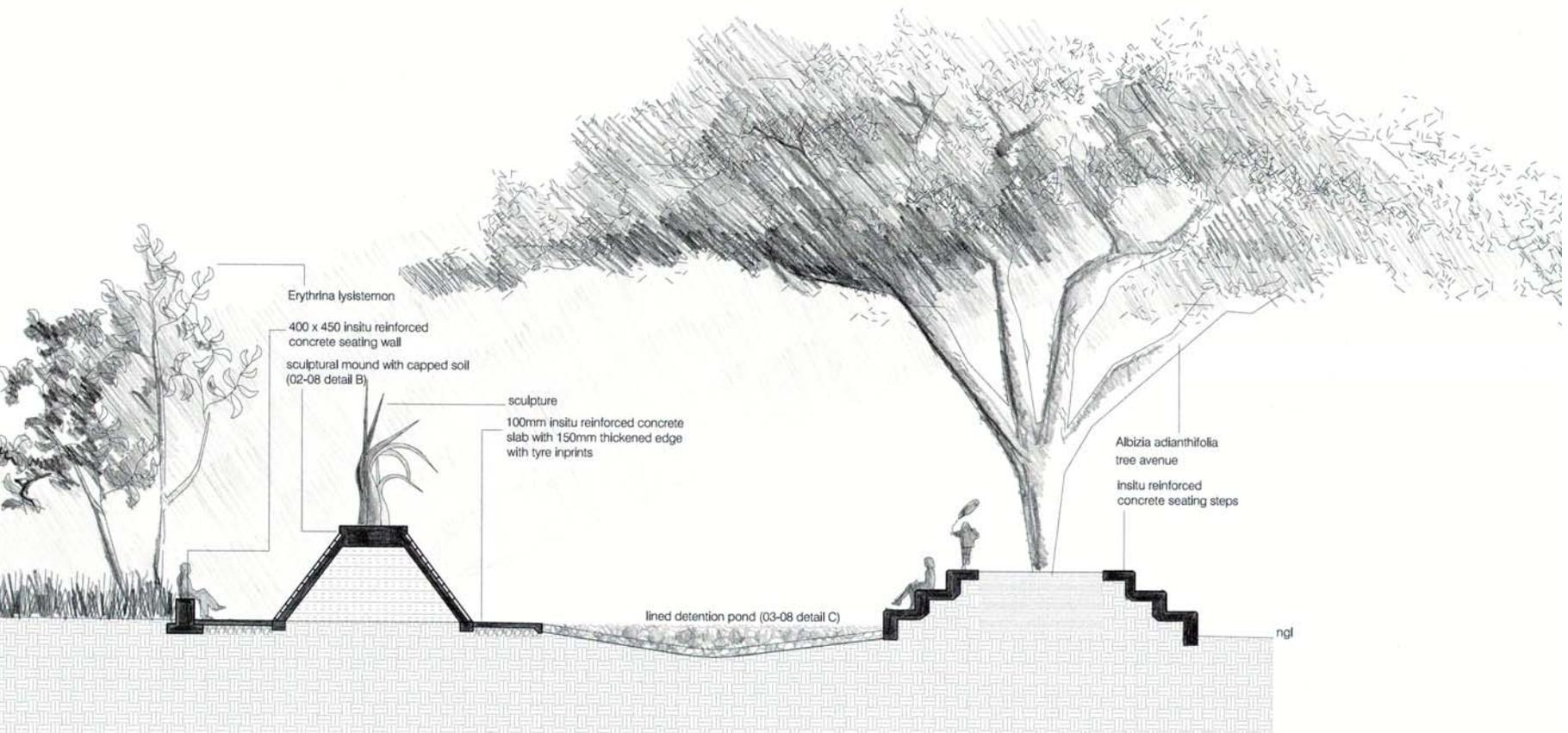


Illustration 183: Section A. Not to scale







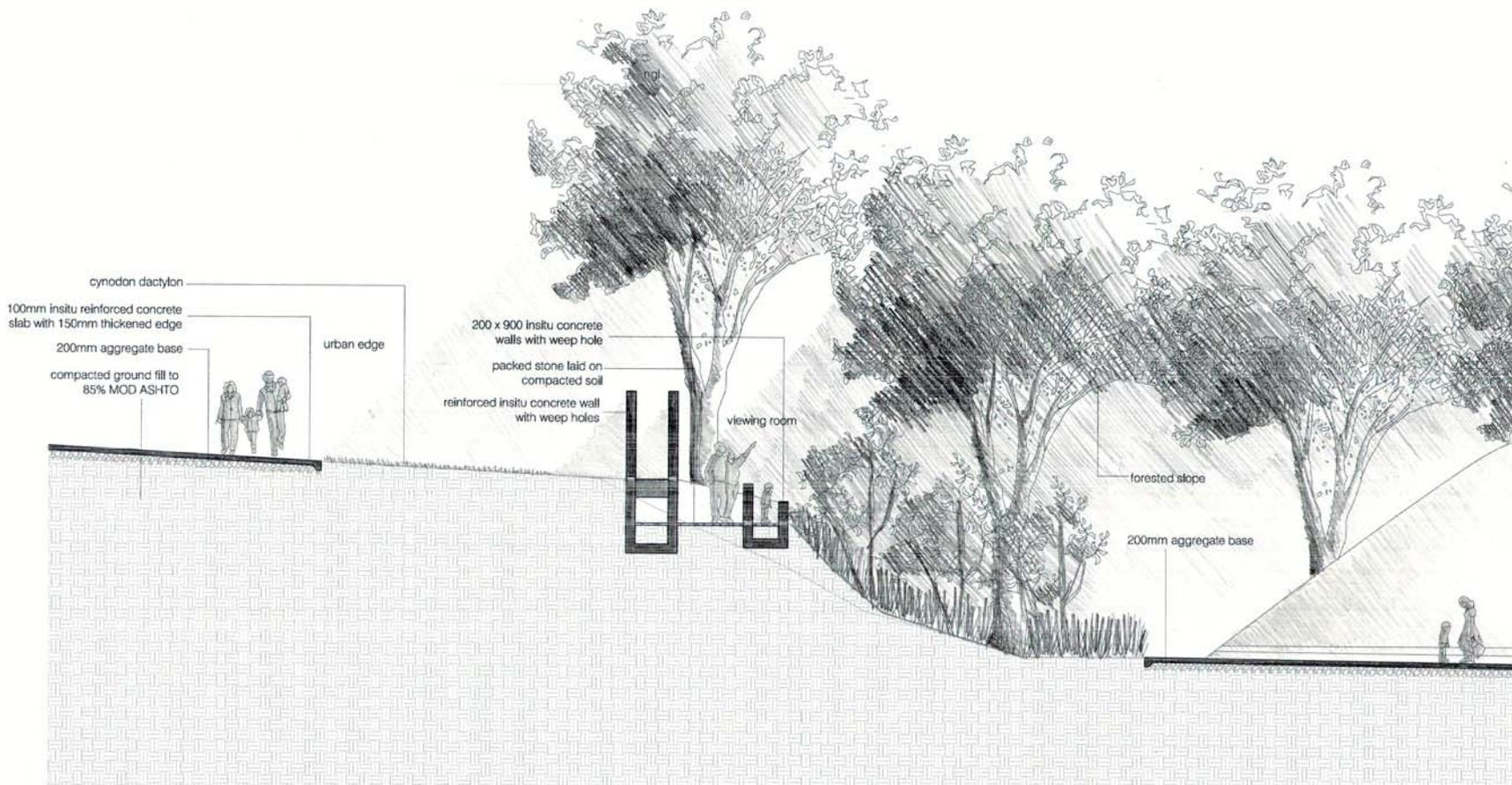
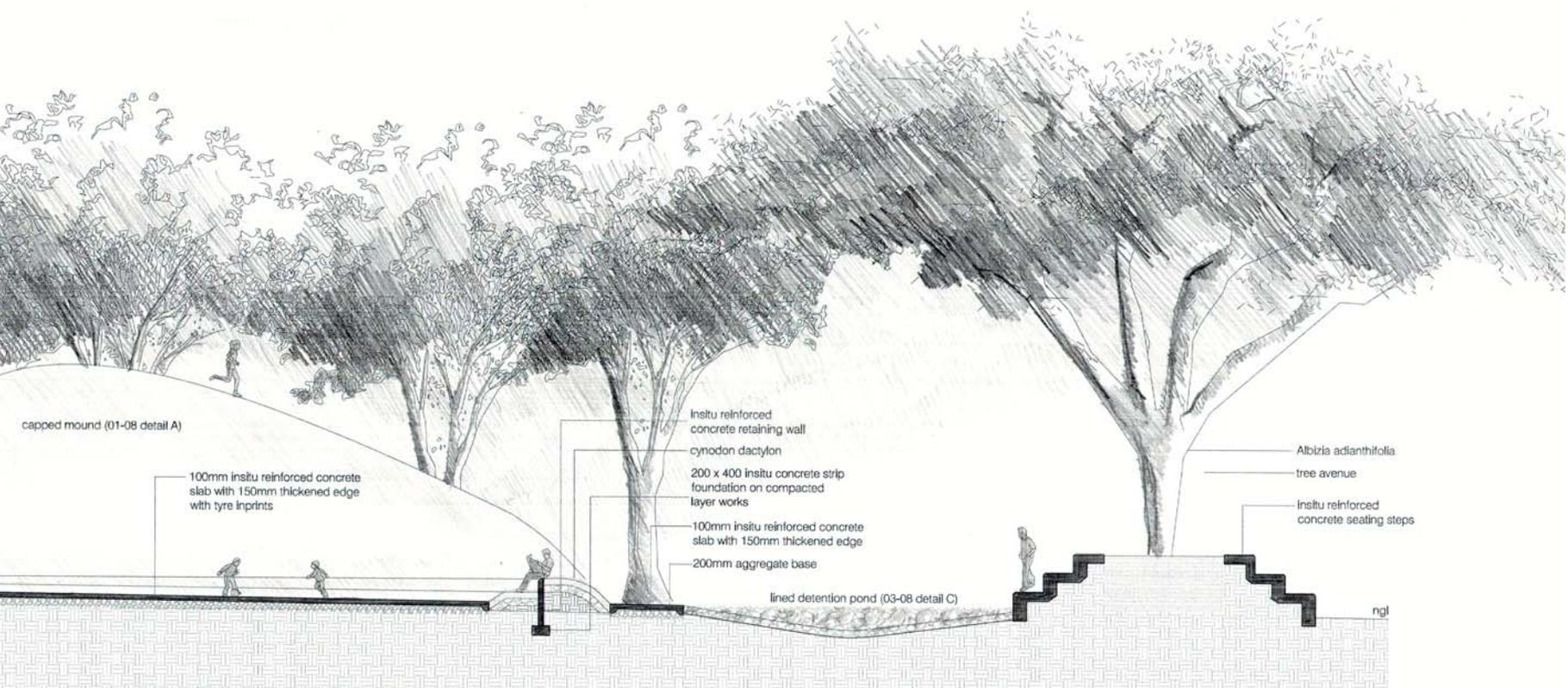


Illustration 185: Section elevation C. Not to scale



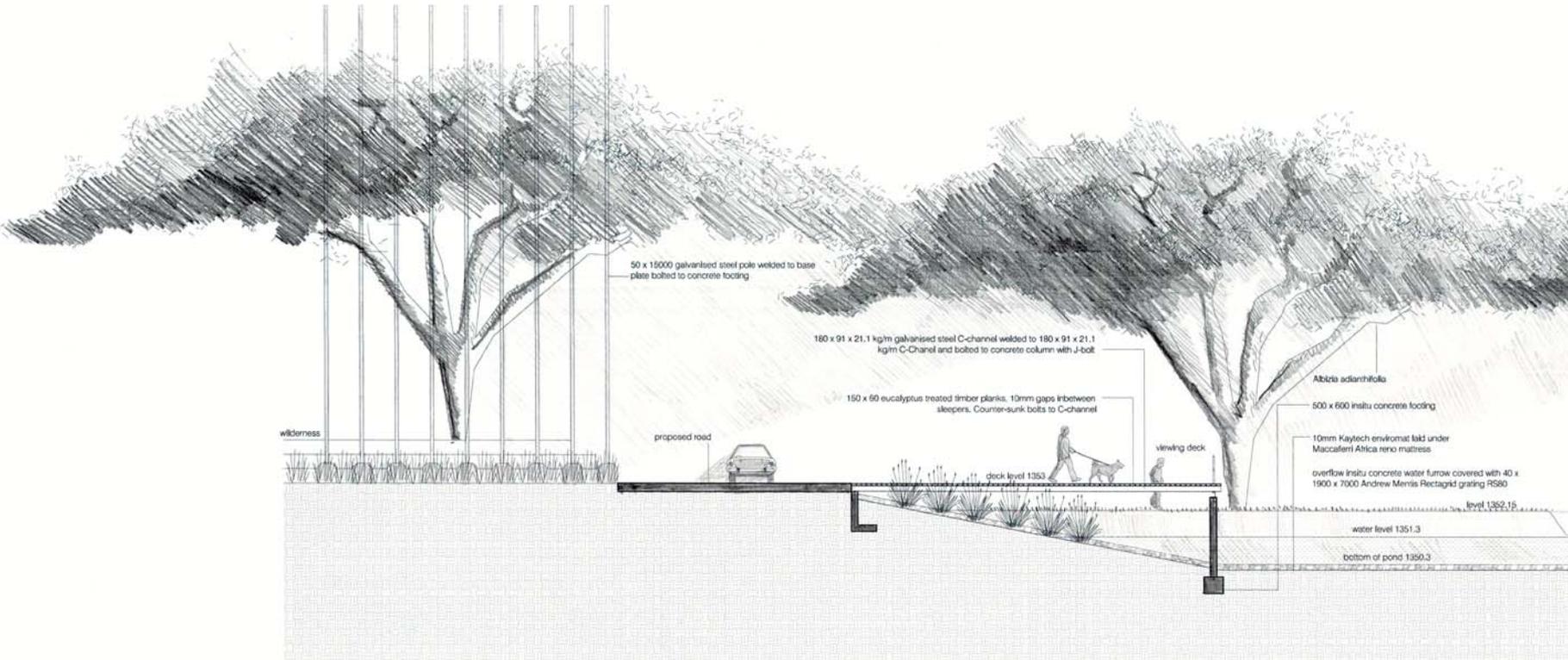
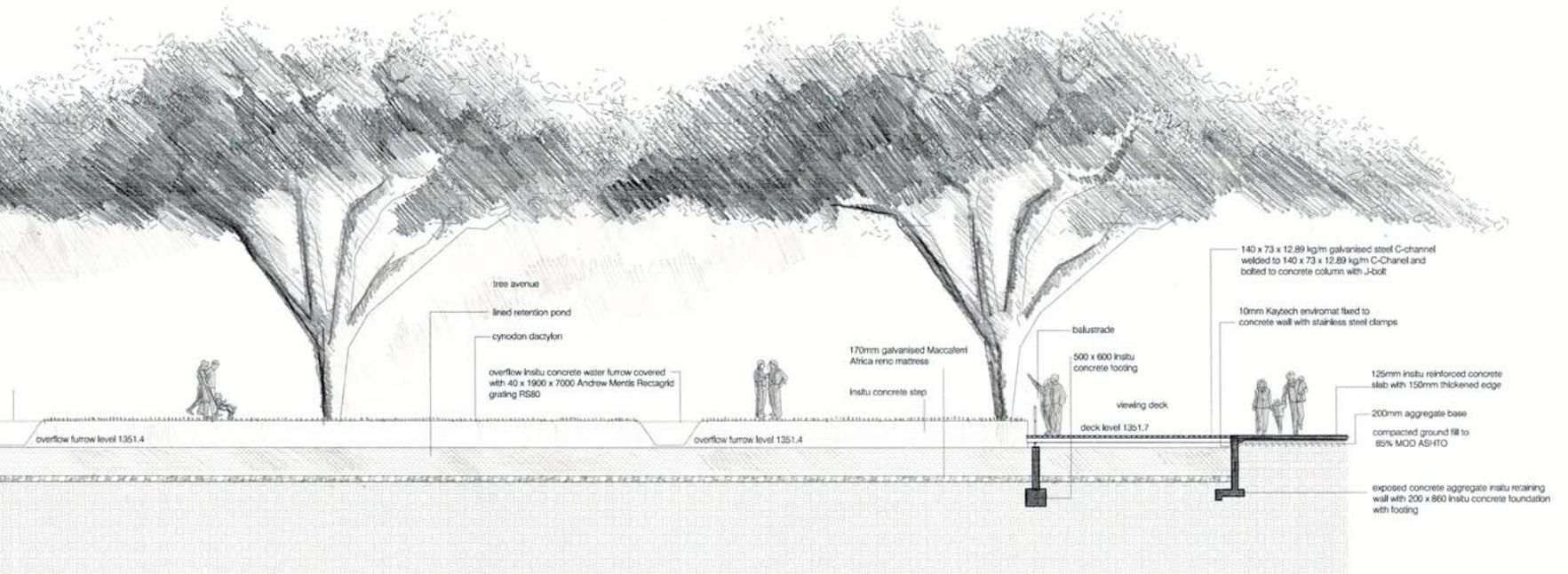


Illustration 186: Section elevation D. Not to scale



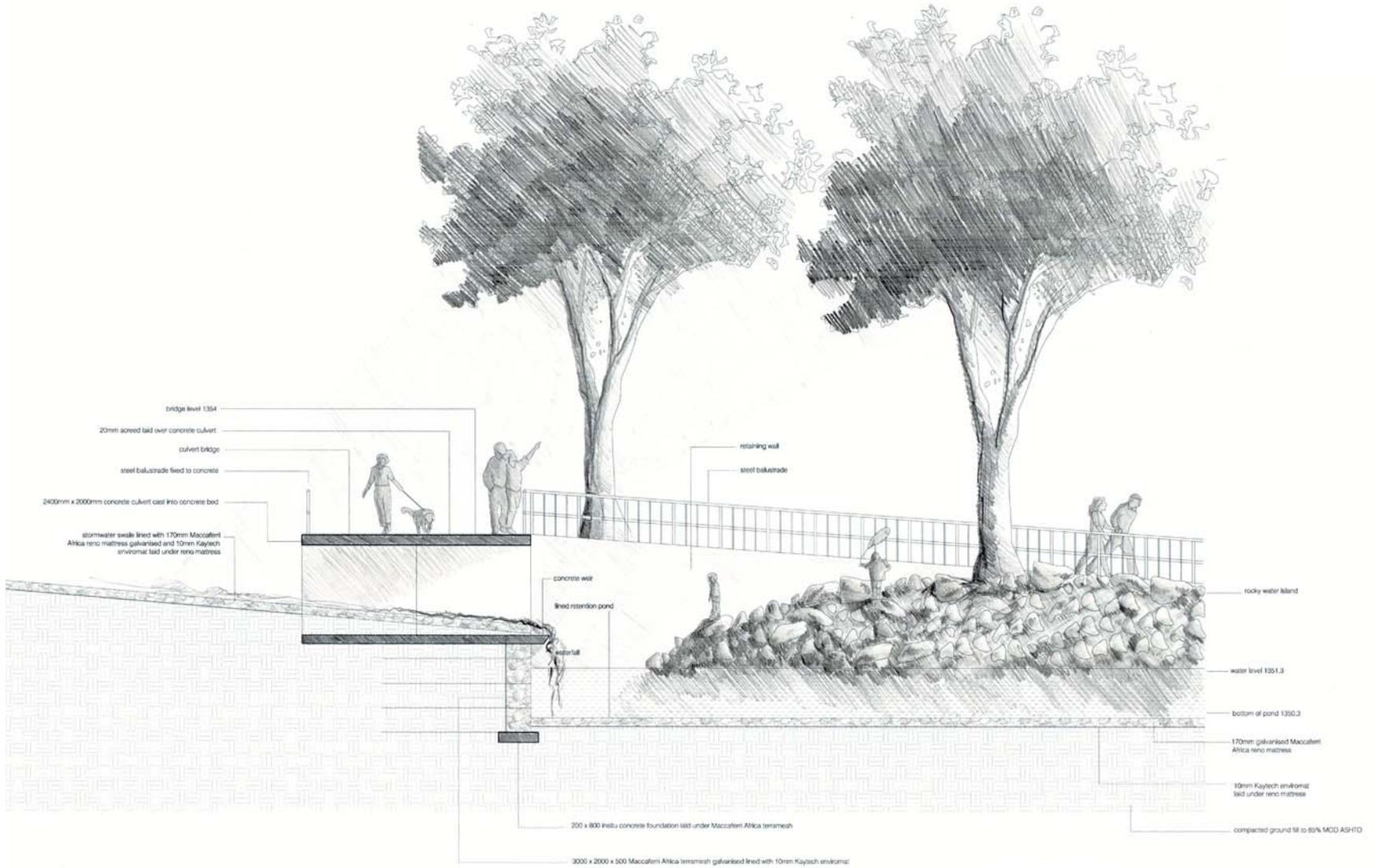


Illustration 187: Waterfall bridge. Section elevation E. Not to scale

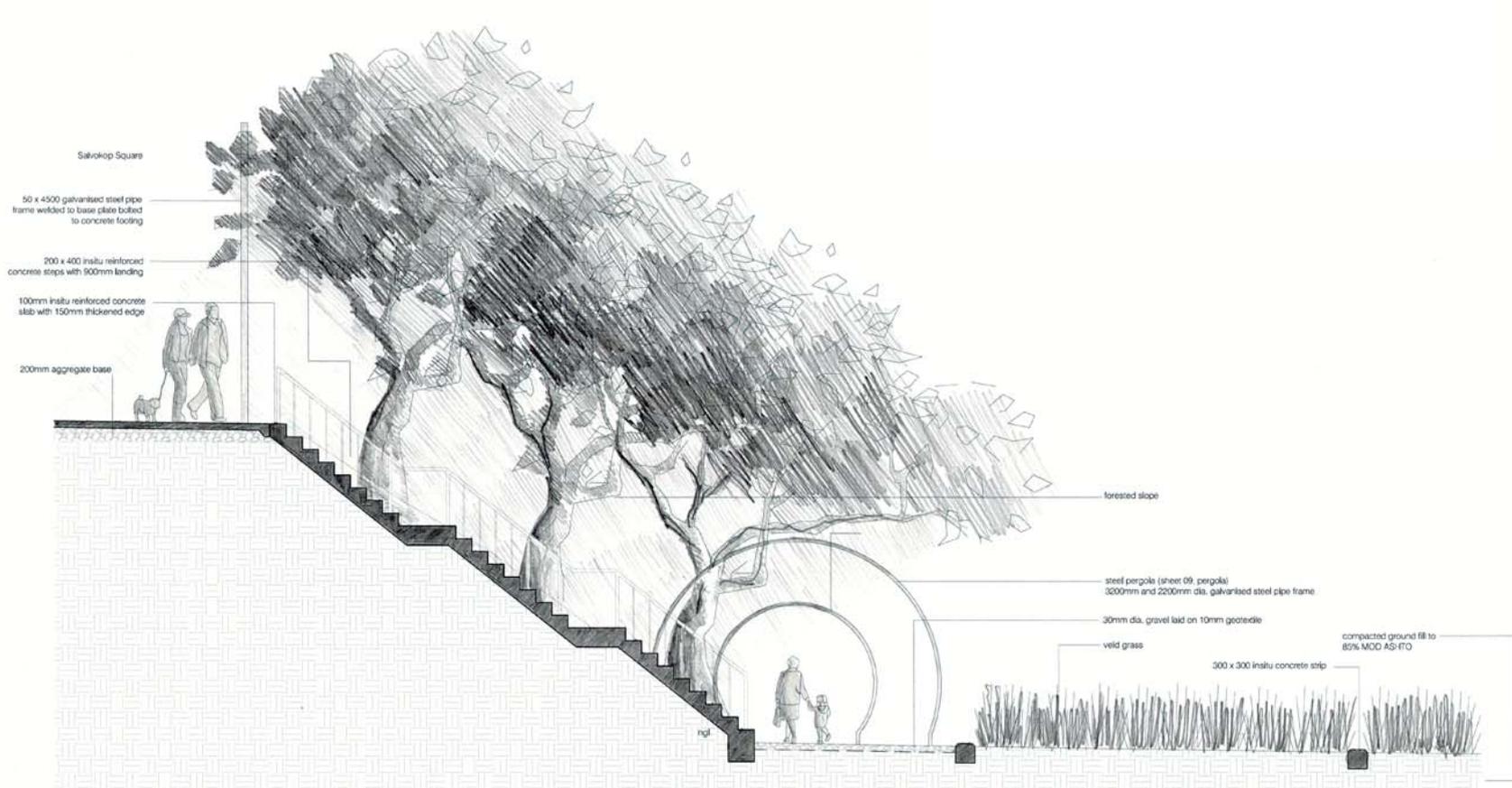


Illustration 188: Section elevation G. Not to scale

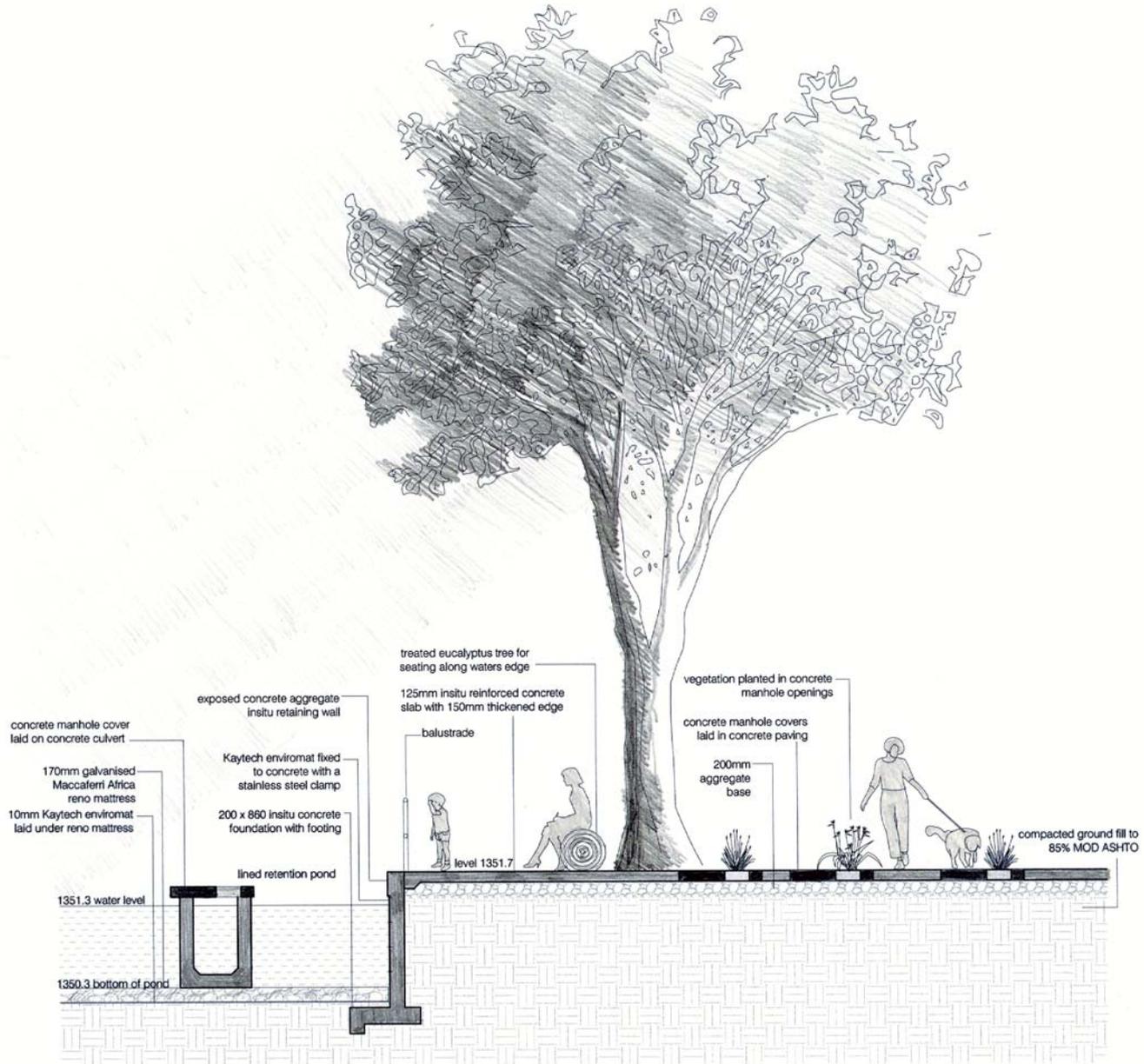


Illustration 189: Water edge. Section H. Not to scale

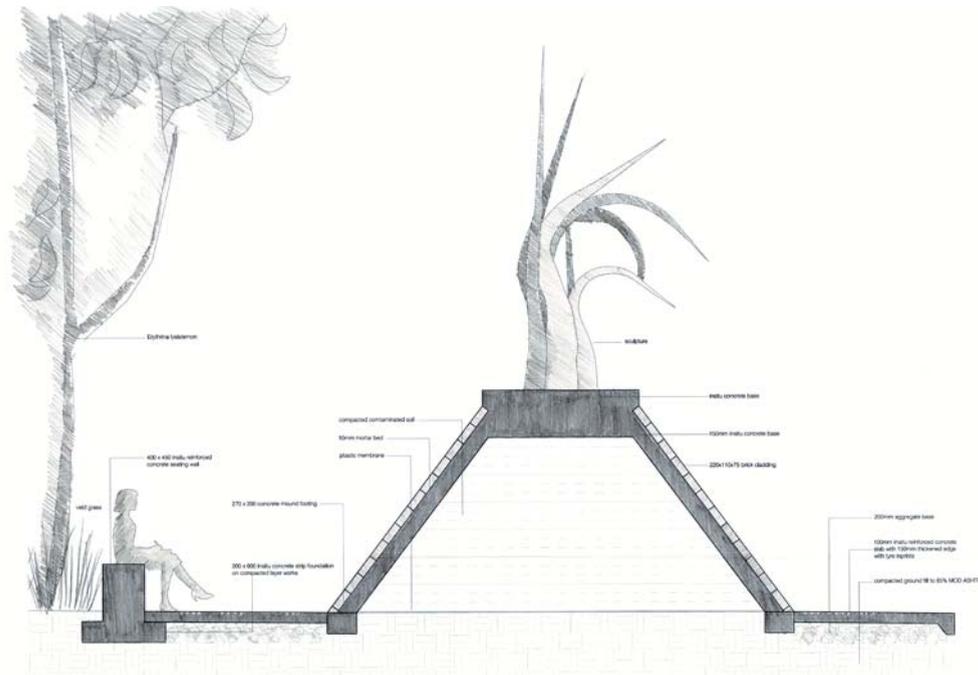


Illustration 190: Sculptural capped mound. Detail B. Not to scale

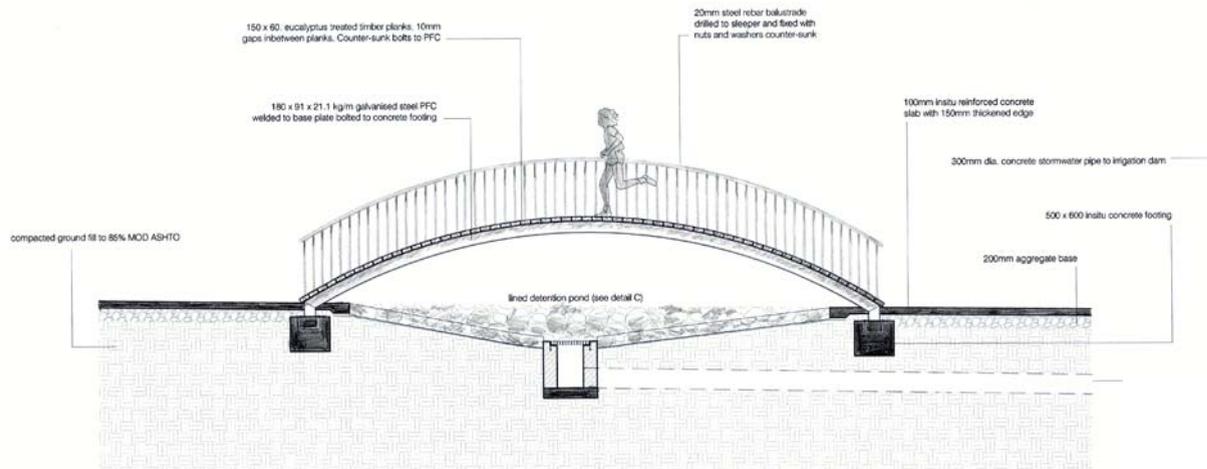


Illustration 191: Bridge 1 - Section I1. Not to scale

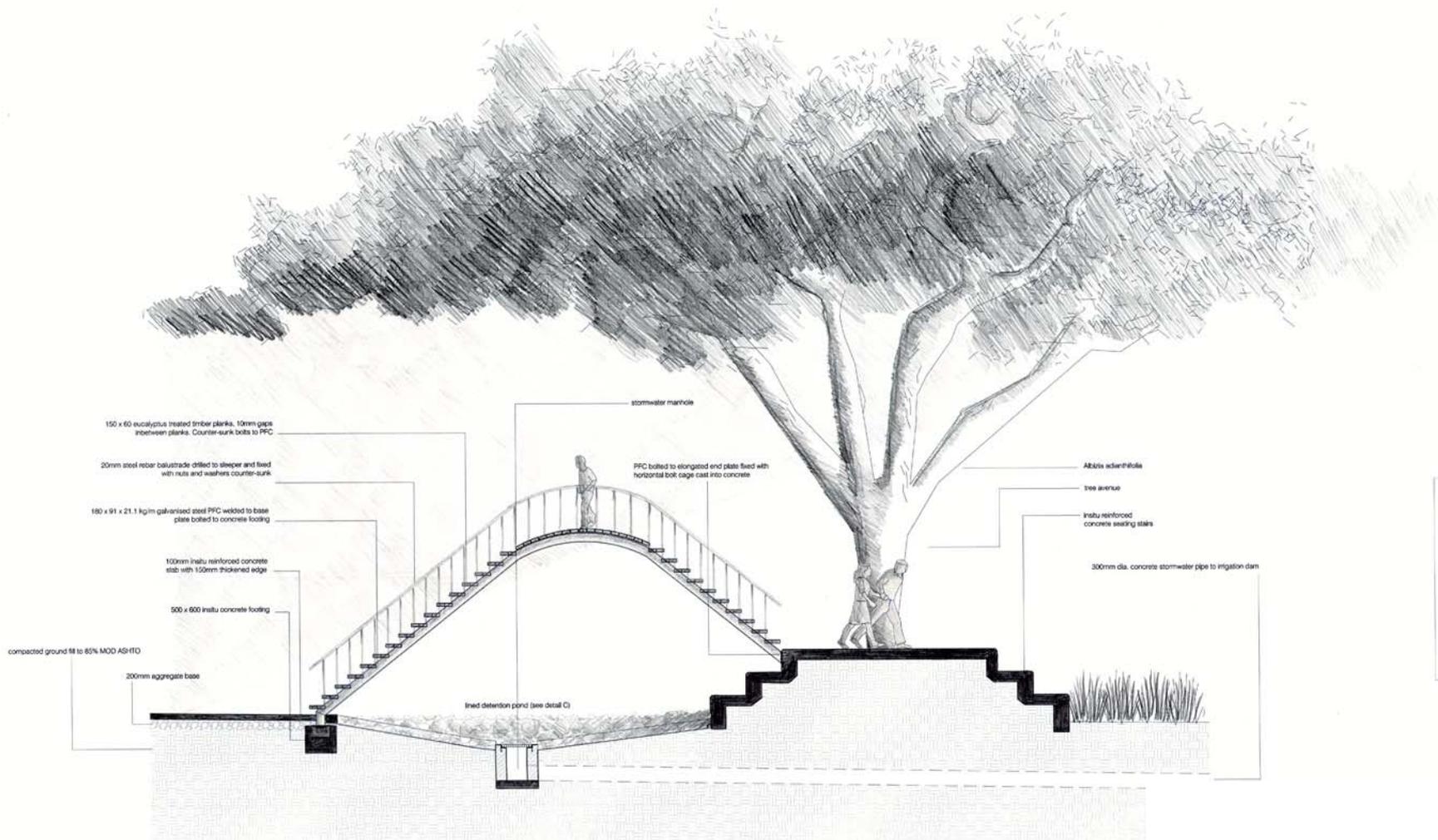


Illustration 192: Bridge 2 - Section I2. Not to scale

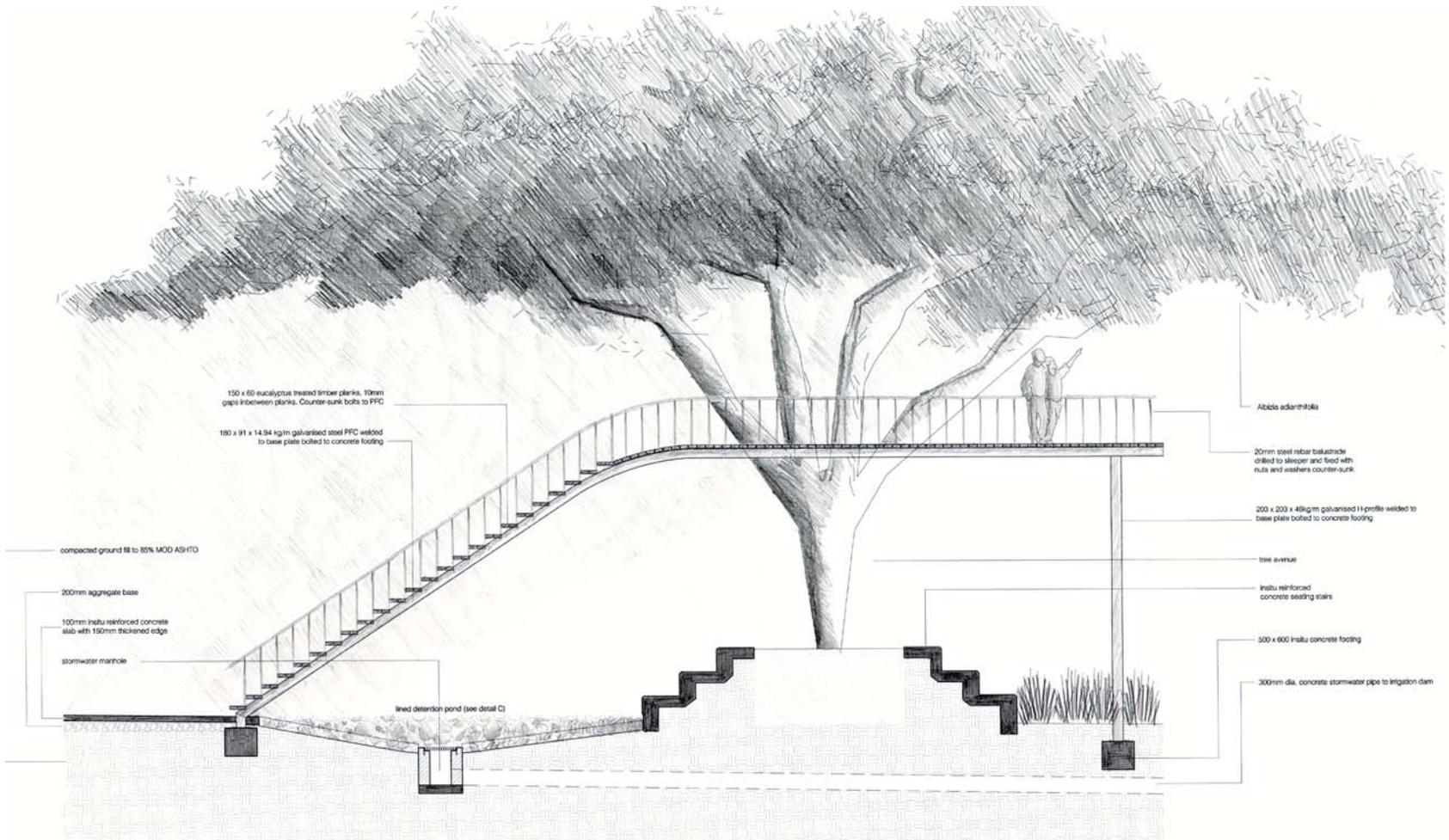


Illustration 193: Deck 3 - Section I3. Not to scale

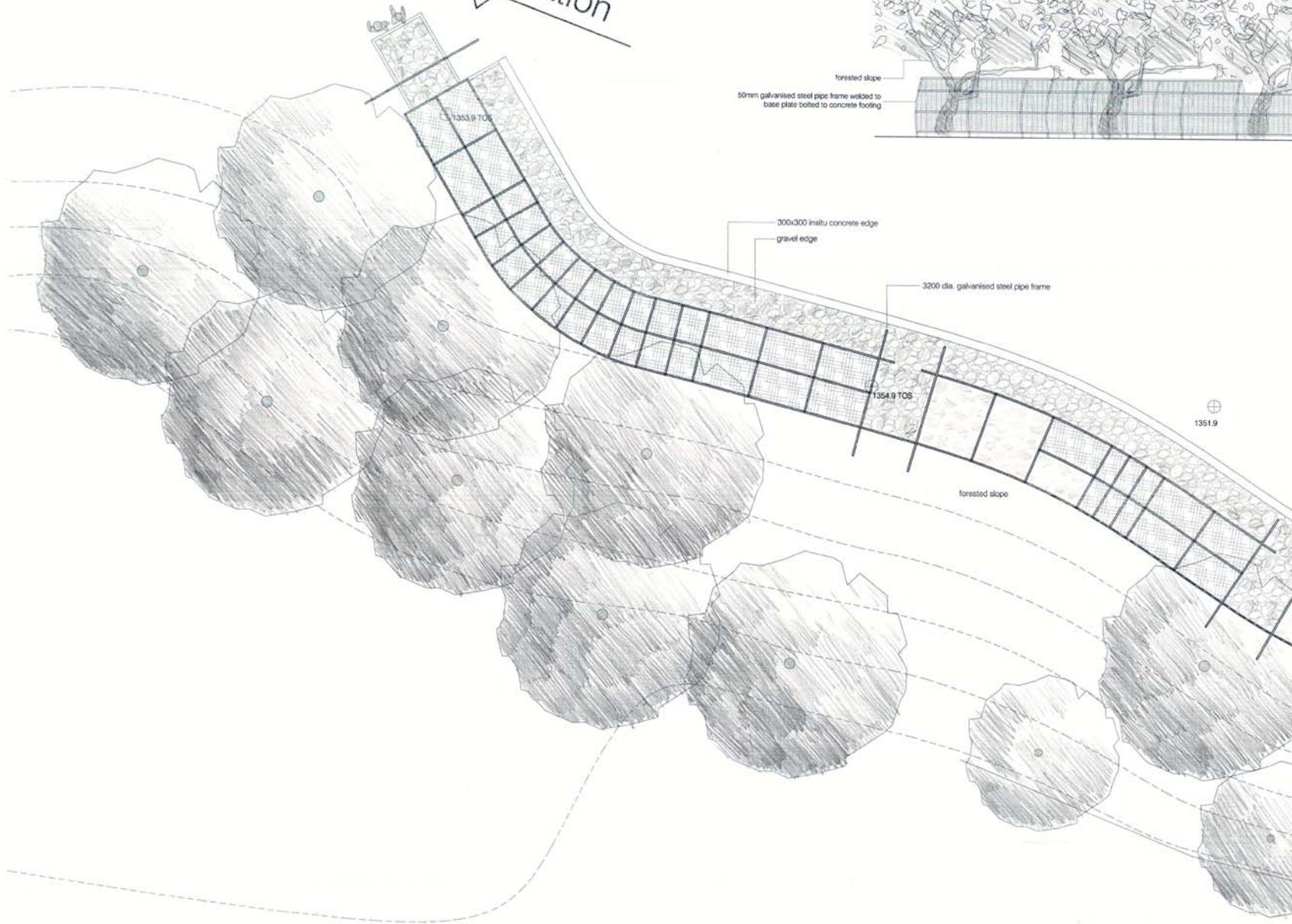


Illustration 194: Steel pergola plan. Not to scale





Illustration 196: Steel pergola detail elevation. Not to scale

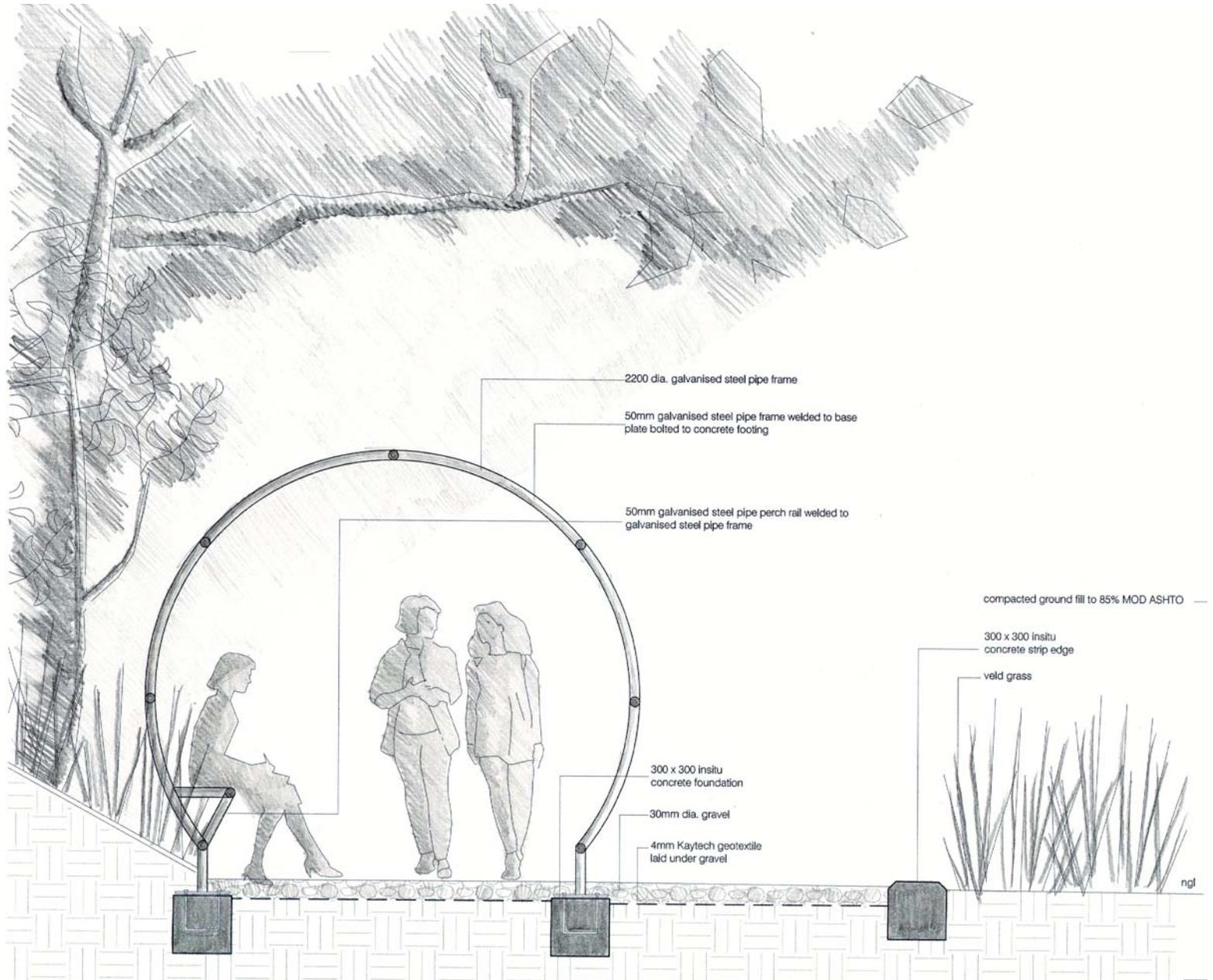


Illustration 197: Steel pergola detail. Not to scale

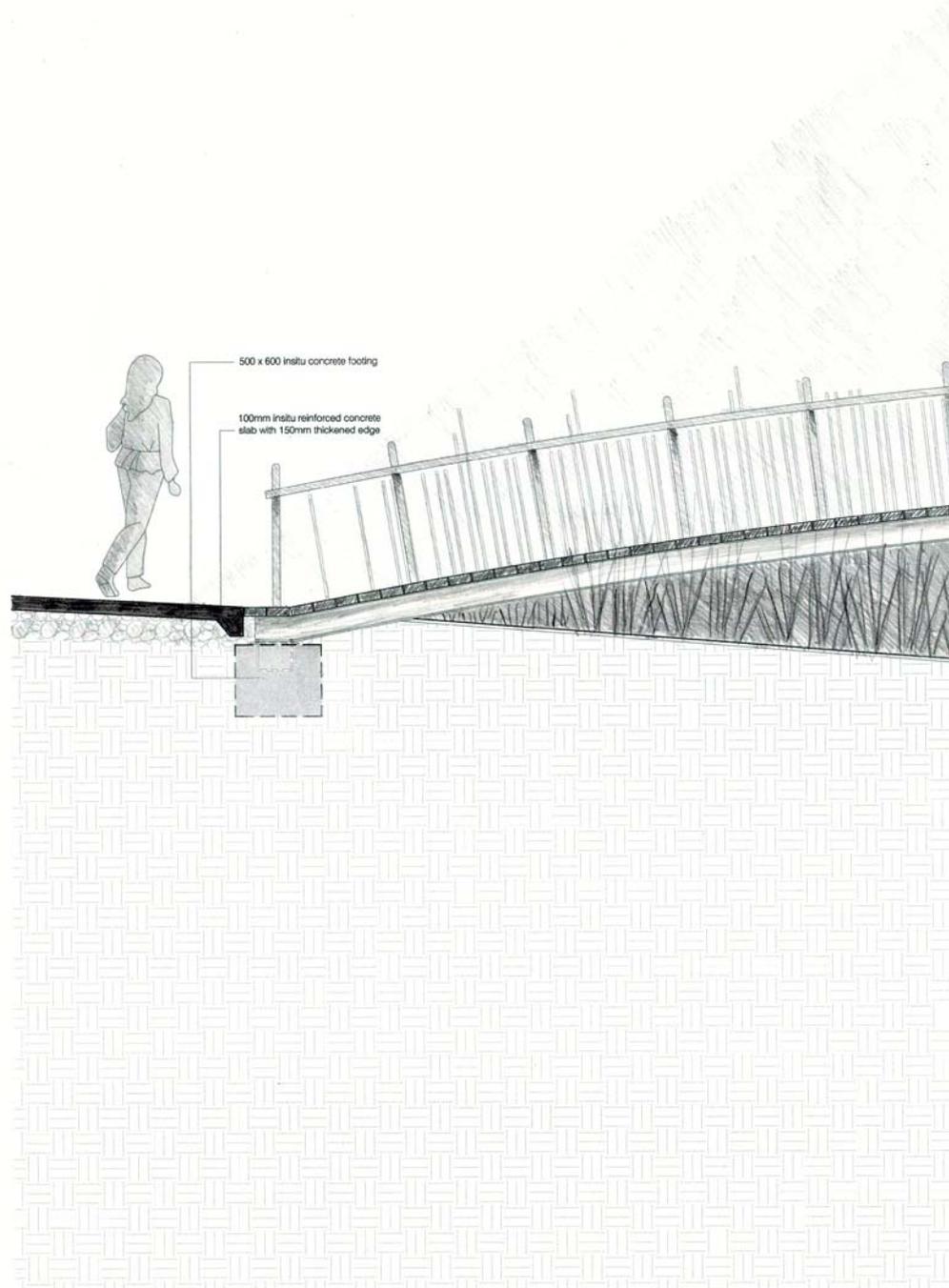
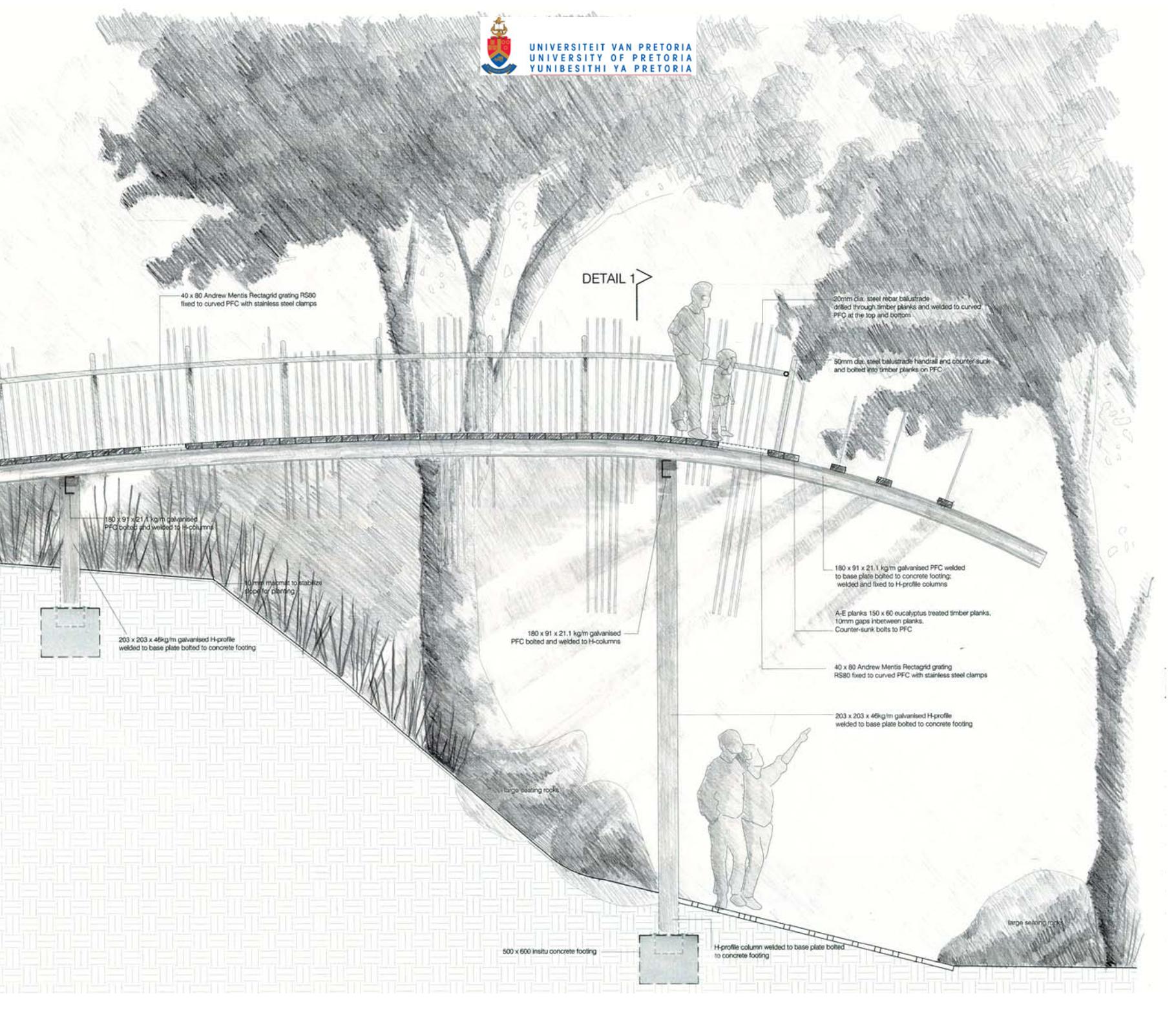


Illustration 198: Deck section. Not to scale



40 x 80 Andrew Mentis Rectagrid grating RS80 fixed to curved PFC with stainless steel clamps

DETAIL 1

30mm dia. steel rebar balustrade drilled through timber planks and welded to curved PFC at the top and bottom

50mm dia. steel balustrade handrail and counter rail and bolted into timber planks on PFC

180 x 91 x 21.1 kg/m galvanised PFC bolted and welded to H-columns

10mm mastic to stabilize riser for planting

203 x 203 x 46kg/m galvanised H-profile welded to base plate bolted to concrete footing

180 x 91 x 21.1 kg/m galvanised PFC bolted and welded to H-columns

180 x 91 x 21.1 kg/m galvanised PFC welded to base plate bolted to concrete footing, welded and fixed to H-profile columns

A-E planks 150 x 60 eucalyptus treated timber planks, 10mm gaps inbetween planks. Counter-sunk bolts to PFC

40 x 80 Andrew Mentis Rectagrid grating RS80 fixed to curved PFC with stainless steel clamps

203 x 203 x 46kg/m galvanised H-profile welded to base plate bolted to concrete footing

large seating rocks

large seating rocks

500 x 600 insitu concrete footing

H-profile column welded to base plate bolted to concrete footing

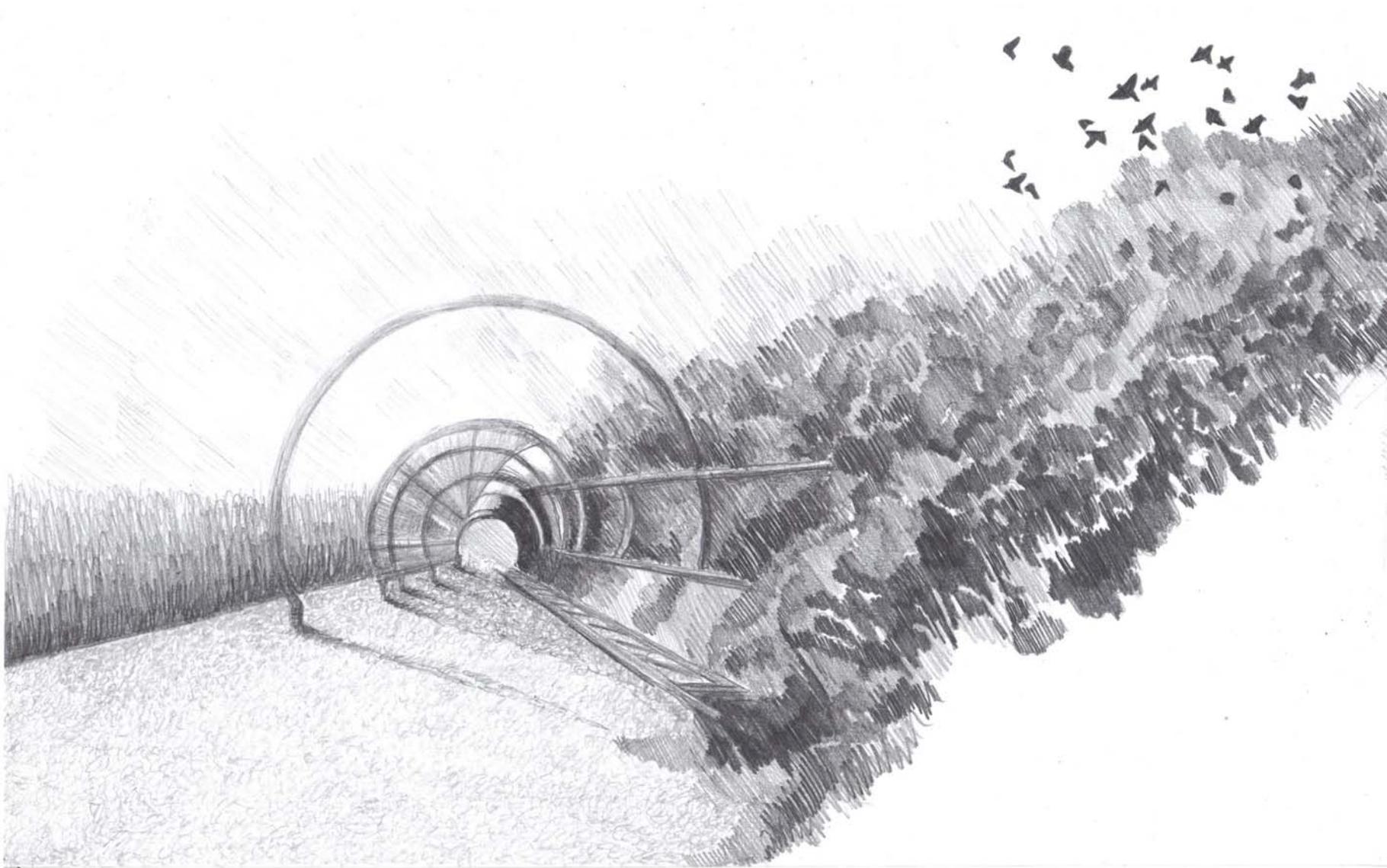
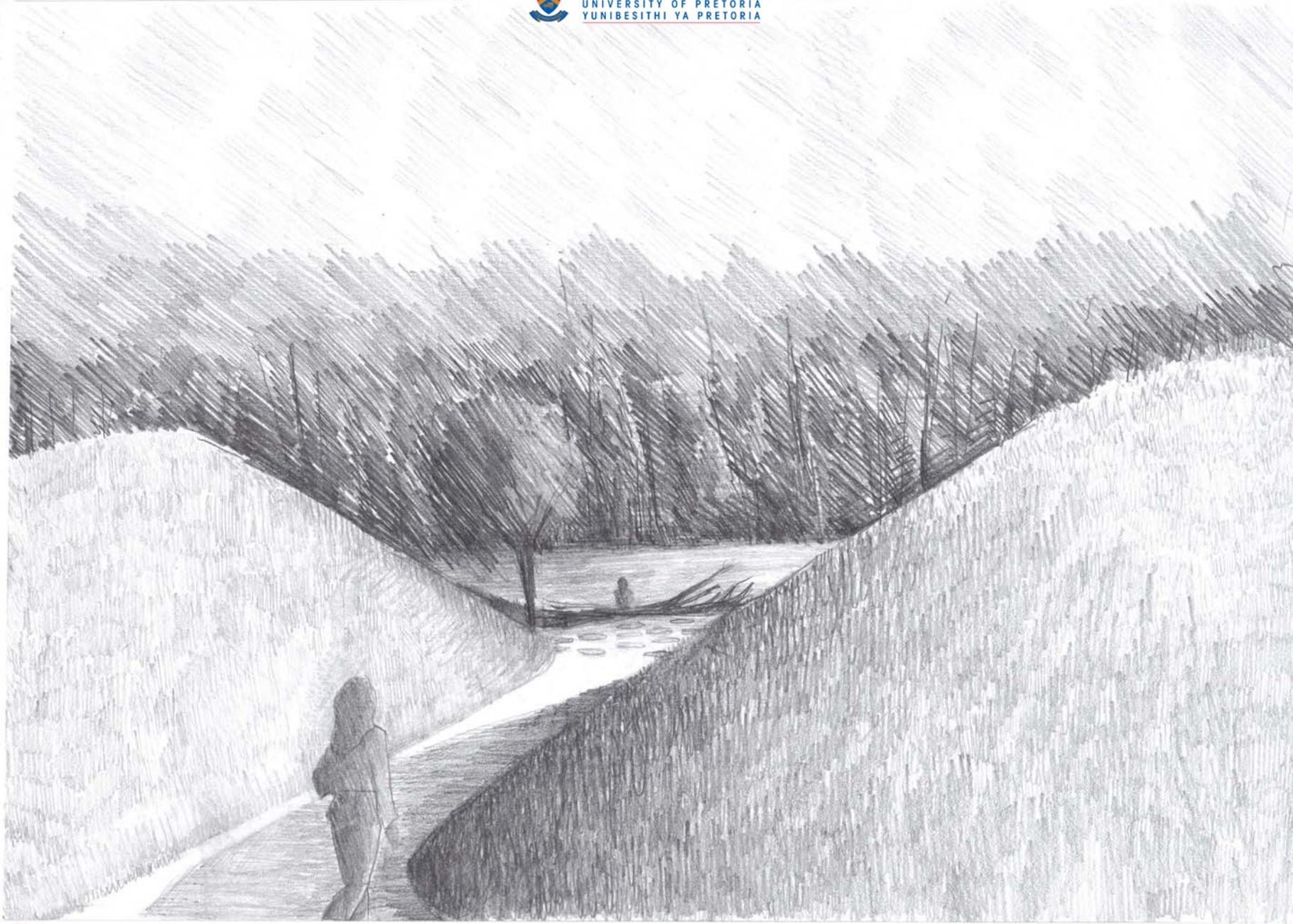




Illustration 200: Perspective



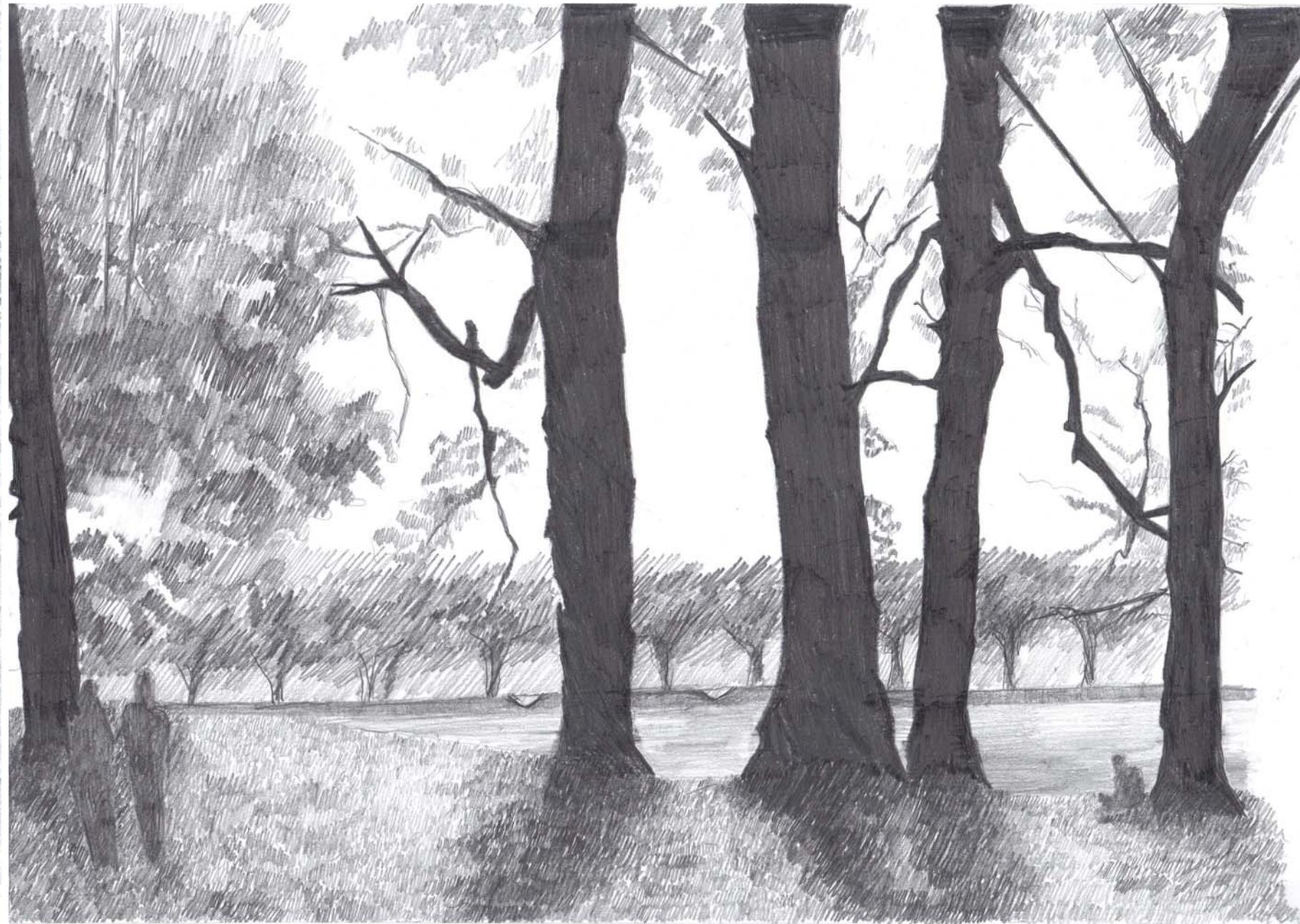


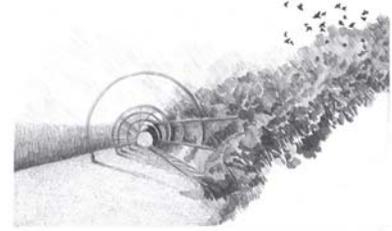
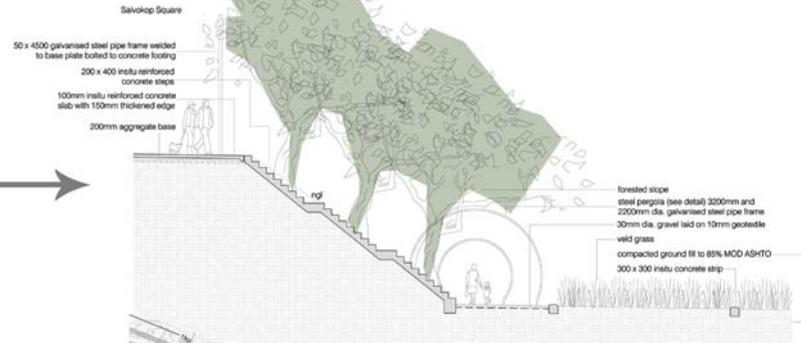
Illustration 202: Perspective

08 DETAIL DESIGN

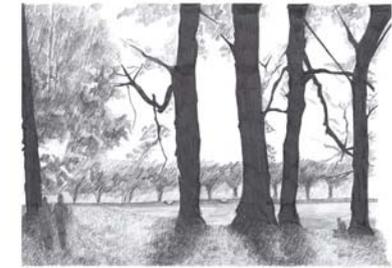
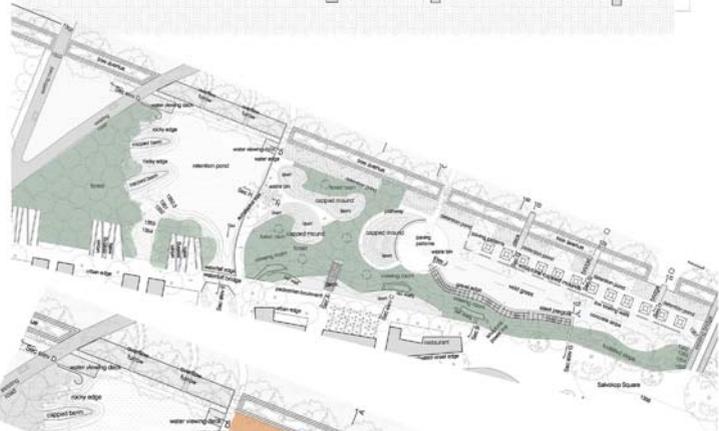
8.15 Design layers



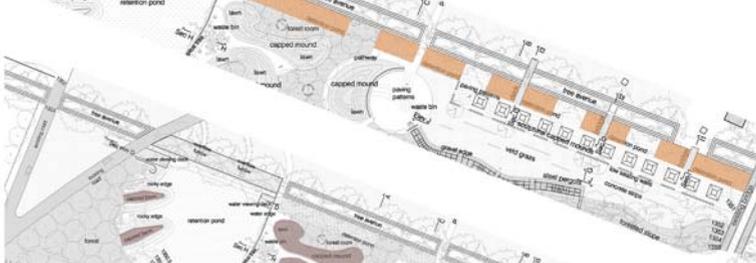
FORESTED SLOPE



FOREST - DENSE VEGETATION



RUBBLE



DUMPING MOUNDS





### 8.16 Masterplan phases

As this project and its theory emphasises long term solutions, the transformation phases of the wasteland become of utmost importance. Figure 5 illustrates a proposed timeline of the phas-

es. Furthermore, illustrations 205 to 207 propose intervention phases, from contaminated soil shifting and land rehabilitation to the implementation of the four places. This allows the design to adapt over time and not remain static. It celebrates indeterminacy and change.

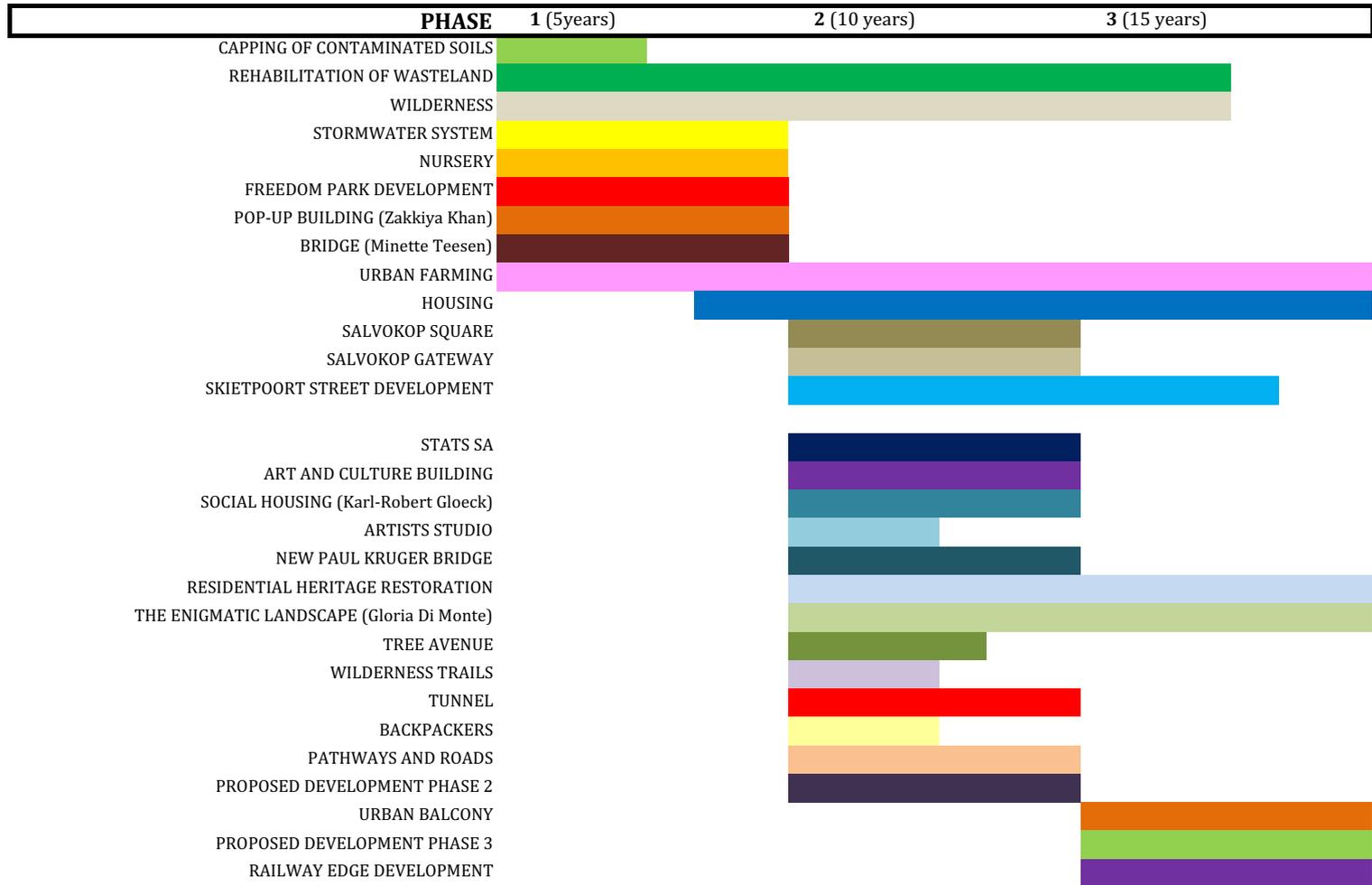


Figure 5: Project phases

8.16.1 Phase one



Illustration 205: Masterplan phase one

08 DETAIL DESIGN

8.16.2 Phase two



Illustration 206: Masterplan phase two

8.16.3 Phase three



Illustration 207: Masterplan phase three

### 8.17 Sustainability rating

The Sustainable Sites Initiative (SSI) tool was used in order to generate a sustainability rating for the proposed Salvokop intervention. The Sustainable Sites Initiative is a partnership of the American Society of Landscape Architects. This tool is used to establish and encourage sustainable practices in landscape design, construction, operations, and maintenance (The Sustainable Sites Initiative: Guidelines and Performance Benchmarks, 2009). The SSI rating system is designed to address three key areas: social, environmental, and economic, “[u]nless all three aspects are equally vibrant, true sustainability is not possible” (The Sustainable Sites Initiative: The Case for Sustainable Landscapes, 2009:9).

According to The Sustainable Sites Initiative (ibid), the Guiding Principles of a Sustainable Site include:

- Do no harm;
- Precautionary principle;
- Design with nature and culture;
- Use a decision-making hierarchy of preservation, conservation, and regeneration;
- Provide regenerative systems as intergenerational equity;
- Support a living process;
- Use a systems thinking approach;
- Use a collaborative and ethical approach;
- Maintain integrity in leadership and research;
- Foster environmental stewardship;

The prerequisites and credits are organized into nine sections that are based on the process of site development (ibid). The Salvokop intervention achieved the following ratings:

1. Site selection: 21/21
2. Pre-Design Assessment and Planning: 3/4
3. Site Design—Water: 44/44
4. Site Design—Soil and Vegetation: 46/51
5. Site Design—Materials Selection: 34/36
6. Site Design—Human Health and Well-Being: 30/32

7. Construction: 20/21

8. Operations and Maintenance: 17/23

9. Monitoring and Innovation: 10/18

The project achieved an overall sustainability rating of 228 points out of a total of 250 points which classifies it as a four star sustainable project (see table 8).

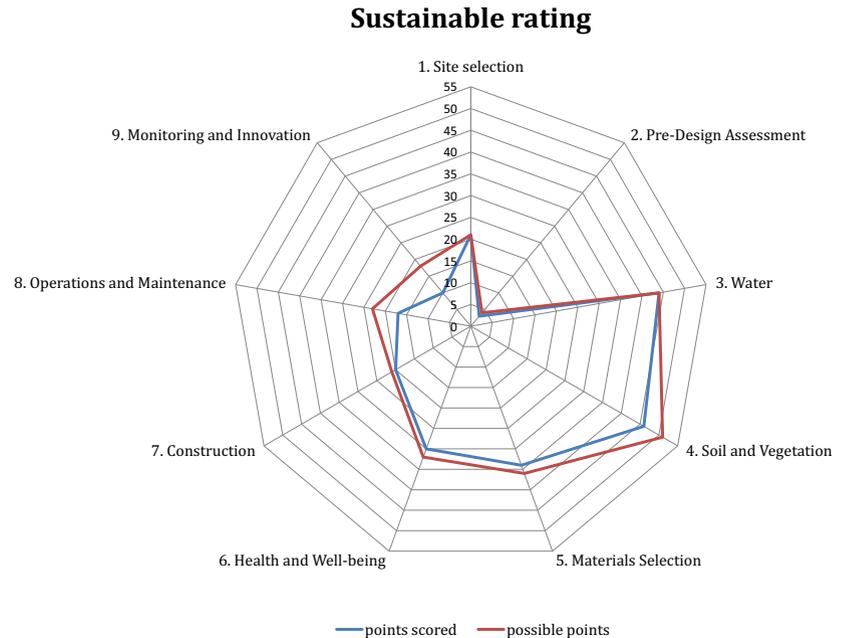


Figure 6: Sustainability rating chart



## CHAPTER 9\_CONCLUSION

## 9.1 Conclusion

### Reflection on the research questions

1. *Is there a need for designed enigmatic landscapes in a city, as opposed to 'non-place'?* With the abundance of non-place and non-site in cities there is a definite need for enigmatic landscapes. A city should inspire and rejuvenate the people that live in it on a daily basis, non-place and non-site lack these qualities. Currently, for people to be rejuvenated and refreshed, once in a long while they move as far away from the city and as close to nature as possible. People long for nature and wilderness and by using wastelands to bring them into a city we begin to incorporate all three types of natures as discussed on page 14 and 15. This dissertation is successful in terms of creating an awareness of the 'other' enigmatic landscape, opposite to the pedigree and non-sites that currently exist. It invites one into these mysterious zones in order to experience, rather than repress the enigmatic quality of wastelands. Being explorers by nature, the quest for discovery sparks something inside each one of us. The topic of the dissertation is very relevant to the time as more and more tired, nerve-shaken people search for something other than the non-place's a city provides.
2. *Can wastelands be transformed without losing their poetic character and if so what design methods and processes can be implemented to enhance the character of the site?* Wastelands have the potential to become enigmatic landscapes, in reaction to the 'non-place' of modernity, due to their mysterious character. The author deems the design process followed in this dissertation successful in terms of its ability to identify and enhance the very unique character of the wasteland in Salvokop. This proposed process proved very different to a conventional one, as it revealed a process and solution that enhanced and worked with the potentials of the site. The design process needed to start with intuitive responses, exploring found objects and spatial explorations and end with technical investigations and planning responses. Important to remember is that the de-

sign from the start was not programme specific, by the end of the design process programme became accidentally assigned to areas. The character of places informed possible programme.

3. *Can wastelands be developed into landscape space that will instigate urban densification?* The author hopes and thinks that wastelands can become the healing tissue that a city needs to reverse urban decay of form and fabric. Landscape should inform urban design and in this dissertation the landscape dictated the placing, orientation, form and phases of buildings and not *vice versa*.

In conclusion, this dissertation argues that a city's landscape assets such as working public parks, golf courses, water bodies, tree-lined promenades are seen as pedigree landscape attractions and non-sites. Missing from this are the mysterious crucial transitional landscapes such as railroad yards, vacant lots, derelict buildings, contaminated fields, industrial manufacturing and parking lots. The project aims to invite the user to explore this marginal space and experience both its liberating informality and its murky disorder. It neither fully romanticizes the space, nor fully condemns it. This dissertation seeks to successfully find a balance between simultaneously opening the space to the urban system, while preserving its standing as 'lost space' and 'wasteland'. It seeks to highlight both the freedom and the disruption that are inherent to these places. By extracting the layers (physical and non-physical) of the site through research and site analysis a landscape design was conceived, which, as a new layer, critically responds to this depth of context. This investigation found informed methods and processes on a planning and spatial level that allows wastelands to add value to the city without losing its poetic character.

The author previously generated design primarily on plan, leaving the spatial and experiential part of the design as an afterthought. The design process for this dissertation was therefore a challenge to the author to look at landscape architecture and its design processes from a very different perspective. Cur-

rently, one can ask whether landscape architecture has become obsessed with problem solving and has lost its inherent spatial quality. This dissertations aims to enhance and bring back the inherent poetic qualities of landscape through dealing with the wastelands in our cities.



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## CHAPTER 11\_APPENDICES

### 11.1 Salvokop specie study

A contextual study was done by Newtown Landscape Architects. The study area was divided into five different zones (Siebert, 2002: 3).

Zone 1: Open space between the new filling station and the residential area.

Zone 2: Open space between Potgieter street along the railway, passed Popup.

Zone 3: Open space behind Pretoria station (blue train depot) stretching along the housing offices towards the koppie area.

Zone 4: Open space between koppie and housing area (eastern corner of Salvokop).

Zone 5: Streets within the Salvokop residential area.

For the purpose of this dissertation zone 2 will be the focussed study area.

#### Disturbance Index

Each zone was categorised according to human disturbance (Siebert, 2002: 3-4):

1 - No disturbance.

2 - Little disturbance - vegetation almost in-tact.

3 - Moderately disturbed - significant cover of natural vegetation.

4 - Heavily disturbed - only small patches of natural vegetation remain.

5 - Extremely disturbed - nothing left of natural vegetation.

Specie Index (Siebert, 2002: 8).

E = Exotic.

I = Indigenous.

Iv = Invasive alien.

Iv1 = Category 1 alien: declared weed - prohibited, must be controlled or eradicated.

Iv2 = Category 2 alien: declared invader - allowed only in demarcated areas under controlled conditions. Iv3 = Category 3 alien: declared invader - no further planting allowed, no trade, existing plant may remain but must be prevented from spreading.

Ivp = Proposed declared weed.

**Zone 2**

**Vegetation type:** *Tipuana tipu* - *Eucalyptus grandis* - *Acacia karroo* - *Acacia saligna*

**% Bare soil:** 75

**Disturbance index:** 4

**General notes:** A large open area with several bush clumps. Very little of the natural vegetation remained. Bush clumps are currently waste deposit sites.

**Plant species list:**

**a) *Acacia karroo* clump**

Although indigenous species occur, alien species have already invaded this area. This clump is polluted by domestic waste.

Scientific name	Common Name	Abundance	Index (E; I; Iv)	Special notes
<b>Trees</b>				
<i>Tipuana tipu</i>	Tipu tree	1	E; Iv3	
<i>Acacia karroo</i>	Sweet thorn	4	I	Popular firewood, although no harvesting could be observed; gum is edible and contains medicinal properties
<i>Jacaranda mimosifolia</i>	Jacaranda	1	E; Iv3	Popular timber wood
<i>Rhus leptodictya</i>	Mountain karree	1	I	
<i>Ligustrum lucidum</i>	Privet	2	E; Iv3	Poisonous fruit
<i>Robinia pseudoacacia</i>	False acacia	1	E; Iv2	Poisonous
<i>Morus alba</i>	Mulberry	1	E; Iv3	Produce edible fruit
<b>Shrubs</b>				
<i>Solanum mauritianum</i>	Bugweed	4	E; Iv1	Poisonous (unripe fruit); leaves and stem irritate skin
<i>Gomphocarpus physocarpus</i>	Milkweed	1	I	
<i>Lantana camara</i>	Common lantana	2	E; Iv1	Fruit edible, but poisonous when unripe; other parts are also toxic; leaves irritate skin
<b>Forbs &amp; Geophytes</b>				
<i>Verbena bonariensis</i>	Wild verbena	4	E	
<i>Araujia sericifera</i>	Moth catcher; Bladder flower	2	E; Iv1	Poisonous; sap causes skin irritation
<i>Sida dregei</i>	Spider-leg	1	I	
<i>Convolvulus arvensis</i>	Field bindweed	2	E; Iv1	
<i>Ipomoea cairica</i>	Morning glory	2	I	
<b>Graminoids</b>				
<i>Hyparrhenia tamba</i>	Blue thatching grass	3	I	Used for thatching

Table 4: Zone 2 *Acacia karroo* clump plant species list by Franci Siebert of Newtown Landscape Architects

**b) *Tipuana tipu* clump**

This area has recently been burnt; only one indigenous species recorded here

Scientific name	Common Name	Abundance	Index (E; I; Iv)	Special notes
<b>Trees</b>				
<i>Tipuana tipu</i>	Tipu tree	4	E; Iv3	Wood harvested in this area
<i>Morus alba</i>	Mulberry	3	E; Iv3	Produce edible fruit
<i>Jacaranda mimosifolia</i>	Jacaranda	2	E; Iv3	Popular timber wood
<b>Shrubs</b>				
<i>Agave americana</i>	American agave	3	E; Ip	Poisonous to cattle; sap & spines cause irritant skin
<i>Lantana camara</i>	Common lantana	3	E; Iv1	Edible fruit, but poisonous when unripe; other parts are also toxic; leaves irritate skin
<b>Forbs &amp; Geophytes</b>				
<i>Ricinus communis</i>	Caster-oil plant	1	E; Iv2	Seed is highly toxic
<i>Tithonia rotundifolia</i>	Red sunflower	2	E; Iv1	
<i>Ipomoea cairica</i>	Morning glory	2	I	
<b>Graminoids</b>				
<i>Arundo donax</i>	Giant reed	4	E; Iv1	

Table 2: Zone 2 *Tipuana Tipu* clump plant species list by Franci Siebert of Newtown Landscape Architects

**c) *Acacia saligna* clump**

Indigenous *Ficus* species found here - harvested for wood. Waste dumping in this area.

Scientific name	Common Name	Abundance	Index (E; I; Iv)	Special notes
<b>Trees</b>				
<i>Acacia saligna</i>	Port jackson	3	E	Wood harvesting observed in this area
<i>Acacia karroo</i>	Sweet thorn	2	I	Wood harvesting observed in this area; Popular firewood, although no harvesting could be observed; gum is edible and contains medicinal properties
<i>Populus deltoides</i>	Match poplar	2	E; Ivp	
<i>Ulmus parvifolia</i>	Chinese elm	1	E; Ivp	
<i>Tecoma stans</i>	Yellow bells	3	E; Iv1	
<i>Senna didymobotrya</i>	Peanut butter cassia	1	E; Iv3	
<i>Ficus thonningii</i>	Common wild fig	1	I	Wood harvesting observed in this area; fibres from bark used in mat-making; 28 species of fig wasps associated with this fig

<i>Jacaranda mimosifolia</i>	Jacaranda	1	E; Iv3	Popular timber wood
<b>Shrubs</b>				
<i>Gomphocarpus physocarpus</i>		1	I	
<b>Forbs &amp; Geophytes</b>				
<i>Tithonia rotundifolia</i>	Red sunflower	2	E; Iv1	
<i>Ipomoea cairica</i>	Morning glory	1	I	
<i>Rumex</i> sp. (sampled for identification)		1	E	
<i>Ricinus communis</i>	Caster-oil plant	2	E; Iv2	Seed is highly toxic
<i>Tagetes minuta</i>	Khaki weed	2	E	Used to prevent insect attacks; contains essential oils
<i>Bidens pilosa</i>	Blackjack	2	E	Popular pot weed
<i>Sida dregei</i>	Spider-leg	1	I	
<b>Graminoids</b>				
<i>Pennisetum setaceum</i>	Fountain grass	3	E; Iv1	
<i>Melinis repens</i>	Natal red top	2	I	Important soils stabilizer
<i>Hyparrhenia hirta</i>	Common thatching grass	2	I	Popular thatching grass
<i>Cymbopogon excavatus</i>	Broad turpentine grass	4	I	

Table 5: Zone 2 *Acacia saligna* clump plant species list by Franci Siebert of Newtown Landscape Architects

**d) Open area**

This area is currently under construction (bulldozer activities)

Scientific name	Common Name	Abundance	Index (E; I; Iv)	Special notes
<b>Trees</b>				
<i>Schinus molle</i>	Pepper tree	1	E; Ivp	
<i>Grevillea robusta</i>	Silver Oak	2	E; Iv3	Sap causes skin and eyelids irritation
<i>Jacaranda mimosifolia</i>	Jacaranda	1	E; Iv3	Popular timber wood
<i>Morus alba</i>	Mulberry	2	E; Iv3	Edible fruit
<i>Phoenix canariensis</i>	Camary islands date palm	1	E	
<i>Eucalyptus</i> sp2. (sampled for identification)	Eucalypt	2	E	Wood harvested in this area
<b>Forbs &amp; Geophytes</b>				

Table 6: Zone 2 *open area* plant species list by Franci Siebert of Newtown Landscape Architects

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<i>Xanthium strumarium</i>	Large cocklebur	1	E; Iv1	Poisonous
<i>Ipomoea cairica</i>	Morning glory	2	I	
<b>Graminoids</b>				
<i>Pennisetum setaceum</i>	Fountain grass	3	E; Iv1	

e) *Eucalyptus* area

This area has been burnt; shacks in this area; dumping of domestic waste; very little remained from the natural vegetation

Scientific name	Common Name	Abundance	Index (E; I; Iv)	Special notes
<b>Trees</b>				
<i>Eucalyptus</i> sp.3 (sampled for identification)	Eucalypt	5	E	Wood harvested
<i>Schinus molle</i>	Pepper tree	2	E; Ivp	
<i>Acacia karroo</i>	Sweet thorn	1	I	Popular firewood, although no harvesting could be observed; gum is edible and contains medicinal properties
<i>Callistemon viminalis</i>	Bottle brush	1	E	
<i>Jacaranda mimosifolia</i>	Jacaranda	3	E	Popular timber wood
<b>Forbs &amp; Geophytes</b>				
<i>Rumex</i> sp. (sampled for identification)		1	E	
<i>Tagetes minuta</i>	Khaki weed	2	E	Used to prevent insect attacks; contains essential oils
<b>Graminoids</b>				
<i>Pennisetum setaceum</i>	Fountain grass	3	E; Iv1	

Table 7: Zone 2 *Eucalyptus* area plant species list by Franci Siebert of Newtown Landscape Architects

### 11.2 The Sustainable Sites Initiative rating system for the Salvokop Intervention

	(PR - Prerequisite)	CREDITS
<b>1. SITE SELECTION</b>		
1.1 Limit development of soils designated as prime farmland unique farmland, and farmland of statewide importance		PR
1.2 Protect floodplain functions		PR
1.3 Preserve wetlands		PR
1.4 Preserve threatened/endangered species and their habitats		PR
1.5 Select brownfields or greyfields for redevelopment		10 /10
1.6 Select sites within existing communities		6 /6
1.7 Select site that encourage non-motorized transportation and use of public transit		5 /5
<b>TOTAL</b>		<b>21 /21</b>
<b>2. PRE-DESIGN ASSESSMENT AND PLANNING</b>		
2.1 Conduct a pre-design site assessment and explore opportunities for site sustainability		PR
2.2 Use an intergrated site development process		PR
2.3 Engage users and other stakeholders in site design		3 /4
<b>TOTAL</b>		<b>3 /4</b>
<b>3. SITE DESIGN - WATER</b>		
3.1 Reduce potable water use for landscape irrigation by 50% from established baselines		PR
3.2 Reduce potable water use for landscape irrigation by 75% or more from established baseline		5 /5
3.3 Protect and restore riparian, wetland and shoeline buffers		8 /8
3.4 Rehabilitate lost stream, wetlands and shorelines		5 /5
3.5 Manage stormwater on site		10 /10
3.6 Protect and enhance on-site water resources and receiving water quality		9 /9
3.7 Design rainwater/stormwater features to provide a landscape amenity		3 /3

Table 8: The Sustainable Sites Initiative rating system for the Salvokop Intervention

3.8 Maintain water features to conserve water and other resources	4	/4
<b>TOTAL</b>	<b>44</b>	<b>/44</b>
<b>4. SITE DESIGN - VEGETATION AND SOIL</b>		
4.1 Control and manage known invasive plants found on site	PR	
4.2 Use appropriate, non-invasive plants	PR	
4.3 Create a soil management plan	PR	
4.4 Minimize soil disturbance in design and construction	5	/6
4.5 Preserve all vegetation designated as special status	5	/5
4.6 Preserve or restore appropriate plant biomass on site	8	/8
4.7 Use native plants	4	/4
4.8 Preserve plant communities native to the ecoregion	6	/6
4.9 Restore plant communities native to the ecoregion	5	/5
4.10 Use vegetation to minimise building heating requirements	3	/4
4.11 Use vegetation to minimise building cooling requirements	3	/4
4.12 Reduce urban heat island effect	5	/5
4.13 Reduce the risk of catastrophic wildfire	2	/3
<b>TOTAL</b>	<b>46</b>	<b>/51</b>
<b>5. SITE DESIGN - MATERIALS SELECTION</b>		
5.1 Eliminate the use of wood from threatened tree species	PR	
5.2 Maintain on-site structures, hardscape and landscape amenities	4	/4
5.3 Design for deconstruction and disassembly	2	/3
5.4 Reuse salvage materials and plants	4	/4
5.5 Use recycled content materials	3	/4
5.6 Use certified wood	4	/4
5.7 Use regional materials	6	/6
5.8 Use adhesives, sealants, paints and coatings with reduced VOC emissions	2	/2
5.9 Support sustainable practices in plant production	3	/3

5.10 Support sustainable practices in materials manufacturing	6	/6
<b>TOTAL</b>	<b>34</b>	<b>/36</b>
<b>6. SITE DESIGN - HUMAN HEALTH AND WELL-BEING</b>		
6.1 Promote equitable site development	3	/3
6.2 Promote equitable site use	3	/4
6.3 Promote sustainability awareness and education	4	/4
6.4 Protect and maintain unique cultural and historical places	4	/4
6.5 Provide for optimum site accessibility, safety and wayfinding	2	/3
6.6 Provide opportunity for outdoor physical activity	5	/5
6.7 Provide views of vegetation and quiet outdoor spaces for mental restoration	4	/4
6.8 Provide outdoor spaces for social interaction	3	/3
6.9 Reduce light pollution	2	/2
<b>TOTAL</b>	<b>30</b>	<b>/32</b>
<b>7. CONSTRUCTION</b>		
7.1 Control and retain construction pollutants	PR	
7.2 Restore soils disturbed during construction	PR	
7.3 Restore soils disturbed by previous development	8	/8
7.4 Divert construction and demolition materials from disposal	5	/5
7.5 Reuse or recycle vegetation, rocks and soil generated during construction	5	/5
7.6 Minimise generation of greenhouse gas emissions and exposure to localized air pollutants during construction	2	/3
<b>TOTAL</b>	<b>20</b>	<b>/21</b>
<b>8. OPERATIONS AND MAINTENANCE</b>		
8.1 Plan for sustainable site maintenance	PR	
8.2 Provide for storage and collection of recyclables	PR	
8.3 Recycle organic matter generated during site operations and maintenance	5	/6

8.4 Reduce outdoor energy consumption for all landscape and exterior operations	3	/4
8.5 Use renewable sources for landscape electricity needs	2	/3
8.6 Minimise exposure to environmental tobacco smoke	2	/2
8.7 Minimise generation of greenhouse gases and exposure to localized air pollutants during landscape maintenance activities	3	/4
8.8 Reduce emissions and promote use of fuel-efficient vehicles	2	/4
<b>TOTAL</b>	<b>17</b>	<b>/23</b>

9. MONITORING AND INNOVATION

9.1 Monitor performance of sustainable design practices	4	/10
9.2 Innovation in site design	6	/8
<b>TOTAL</b>	<b>10</b>	<b>/18</b>

**TOTAL POINTS** **225**

**FOUR STARS**

### 11.3 Model

The model illustrates the different vegetation heights in the design, from the prominent tree avenue, to the dense forests and the short and sharp rehabilitated veld grass.

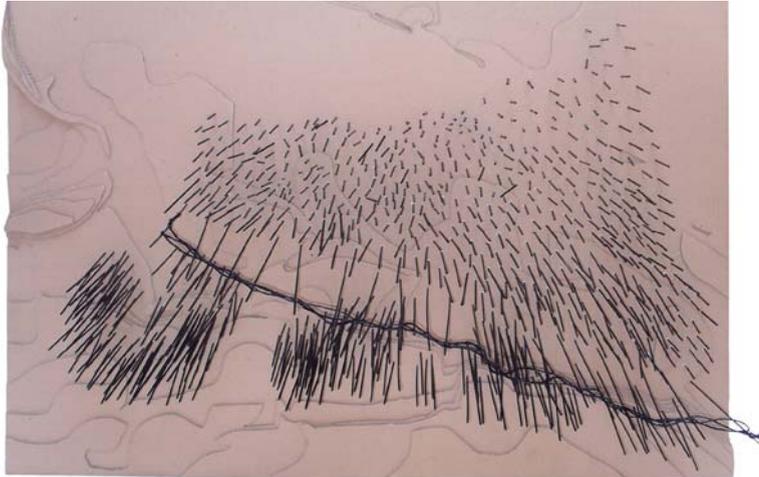


Illustration 208: Abstract model

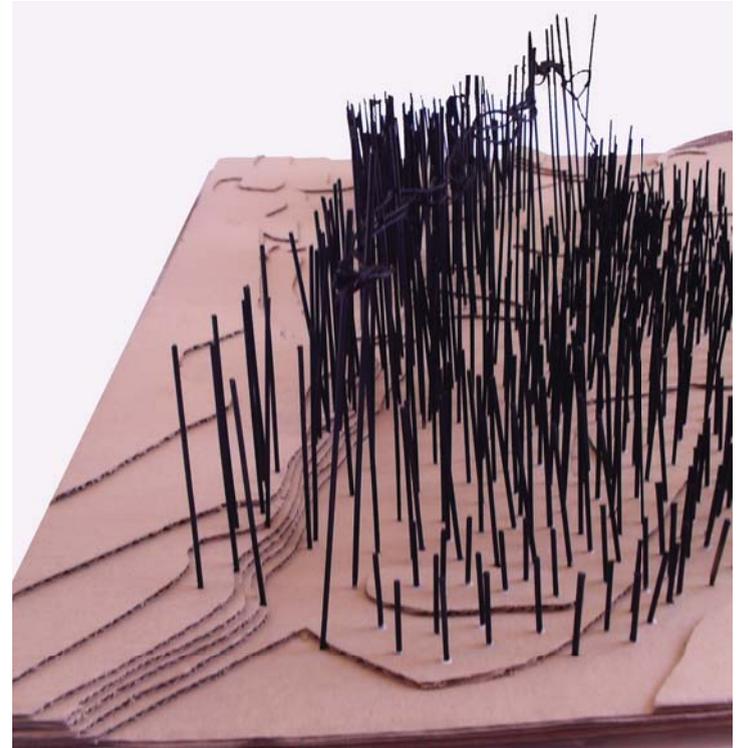


Illustration 209: Abstract model

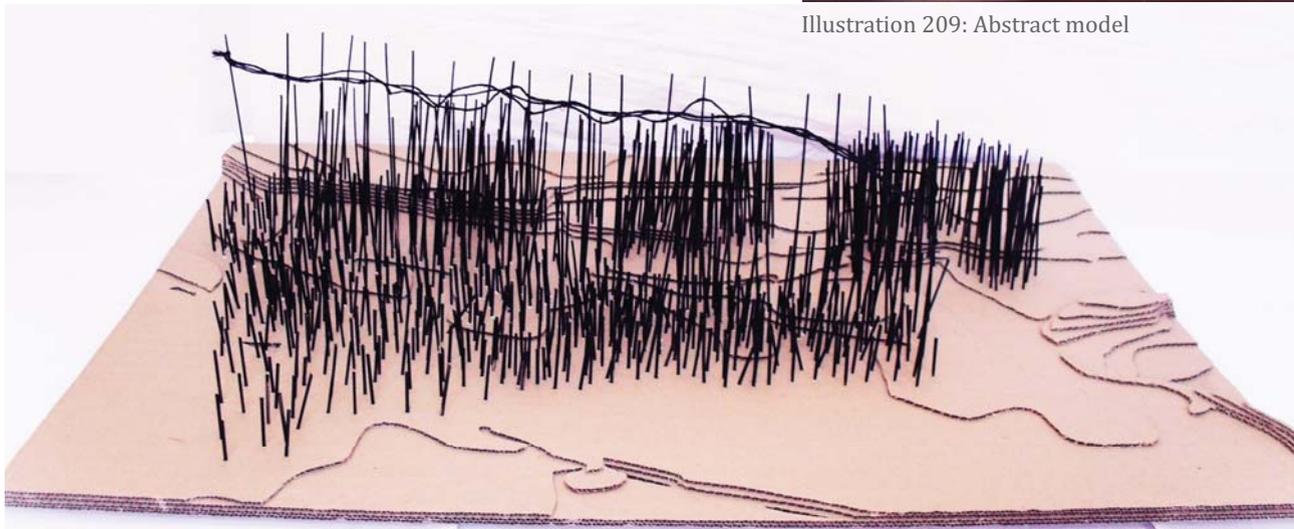


Illustration 210: Abstract model