



Secret City

Creating a living urban landscape in Pretoria's CBD

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“The landscape of the contemporary horizontal city is no longer a placemaking or condensing medium. Instead it is fragmented and chaotically spread, escaping wholeness, objectivity and public consciousness – terra incognita” (Berger 2005: 209).

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Project Summary

Programme: Pocket Parks
Site description: Voids within the urban fabric of the CBD
Client: Tshwane Municipality and private investors
Users: City users
Site Location: CBD to the East of Church square
GPS Coordinates: 25°44'44.39"S 28°11'23.24"E
Architectural Theoretical Premise: Developing a new social urban landscape typology that activates existing voids within the urban fabric of Pretoria
Research field: Urbanism and human settlements



Fig. 1: A birds eye view of Pretoria from Bothongo Heights tower

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My family

Naude, Shannon and Bernardine Visser

For their ever constant love and support in my every endeavour

I love you

and

Tom Nomico

For every reassuring word, every tear brushed aside and every moment together

Now and forever

Thank you

Abstract

This dissertation explores the potential of new public landscapes developed in small scale lost, or latent spaces within the urban fabric of Pretoria, in order to change the CBD into a living city that encourages urban regeneration through tactical intervention. The urban voids of Pretoria will be mapped and a site developed using a series of tactical interventions. The exploration of current pop-up trends and guerilla urbanism as a vehicle for urban renewal provides the basis for the phasing process.

Die skripsie ondersoek die potensiaal van nuwe publieke landskap ontwikkelinge van klein verlore, of versteekte ruimtes in die middestad van Pretoria. Die doel van die ondersoek is om die middestad van Pretoria te heronskep in 'n lewendige stad wat kan bydra tot stadshernuwing deur gebruik te maak van taktiese ingrypeninge. Die stedelike leemtes van Pretoria sal gedokumenteer wees en die gemerkde area sal ontwikkel word deur die gebruik van taktiese ingrypeninge. Die verkenning van die huidige "pop-up" neigings en "guerilla" verstedeliking as 'n voertuig vir stadshernuwing bied die basis vir die infasering proses.

Table of Contents

Acknowledgements	5	Design process	41
Introduction	9	4.1. Vision: Theatre of a living city	41
1.1. Problem Statement	9	• Daily Performance	41
1.2. Hypothesis	9	4.2. Site analysis	43
1.3. Research Methodology	11	• Urban Surface typologies	43
1.4. Research Questions	11	• Macroclimate	45
1.5. Aims	11	• Microclimate	45
1.6. Delimitations	11	• Noise	45
1.7. The Site	11	• Colour	45
Theoretical discourse	13	4.3. A process of development	47
2.1. A liveable city vs. a living city	13	4.4. Discover	47
2.2. A living city	15	4.5. Engage	51
2.3. Public Space	17	• Urban experiments	51
2.4. Latent Space	19	• Permanent	51
2.5. A new urban social landscape and landscape urbanism	19	• Temporary	53
2.6. Tactical urban renewal and precedent study	21	4.6. Support	53
• Tactical Urbanism	21	4.7. Invest	57
• Discover	21	• Context:	57
• Engage	23	• Permeability:	63
• Support	23	• Design for people:	69
• Invest	25	• Sustainability:	75
• Delight	25	4.8. Delight	75
2.7. Conclusion	25	Technical investigation	77
Context	27	5.1. Technical theatricality	77
3.1. Historic Urban Development	27	5.2. Sustainability	77
3.2. Recent Development	29	• Storm water	77
3.3. Urban Framework	31	• Grey water	77
3.4. Urban design principles	31	• Plant selection	81
3.6. Existing developments and historical significance	37	• Materials	83
• National Film, Video and sound Archive	38	• Energy requirements	83
• Bothongo Heights	38	5.3. Access	83
• Retail and offices	38	5.4. Pergola	85
• Capitol Towers South	38	5.5. Drawings	86
• Prudential Assurance building	38	Appendices	112
		6.1. Appendix A–Plant list	112
		Figure List	117
		References	119
		Declaration	121



Fig. 2: Pretoria Parks 1947 (above) and 2012 (below) from left to right Burgers Park, Church Square, Princes Park

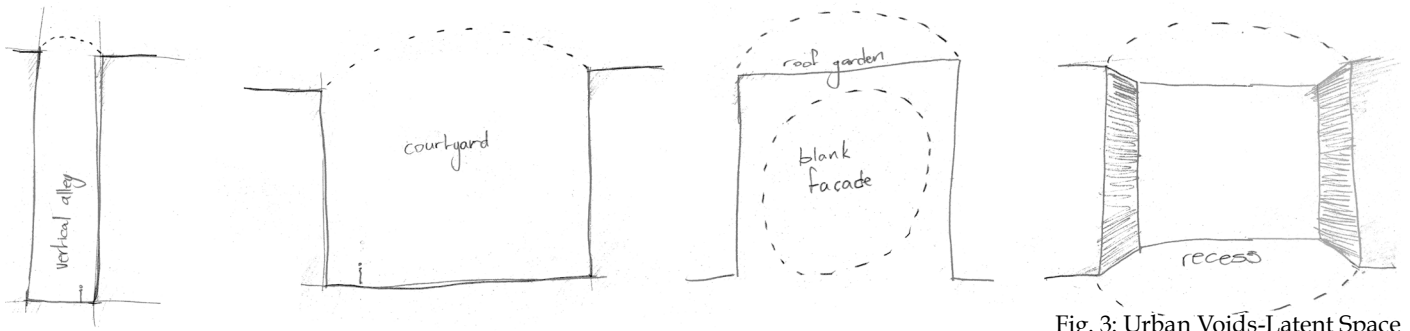


Fig. 3: Urban Voids-Latent Space

1

Introduction

1.1. Problem Statement

Pretoria is not a living city; the existing outside public spaces within Pretoria have become impoverished, and traffic has taken precedent over people and experience, leaving behind only the most necessary of activities, where people walk between spaces “because they have to, not because they want to” (Gehl 2003:14).

Based on the designs of European precedents in an attempt to emulate the many successful cities abroad, the large formal parks, while being valuable green spaces within the urban fabric of the city, have remained largely unchanged since they were built (Fig. 2) and offer very little potential for impulsive unplanned use.

The informal public landscape found on the streets of Pretoria is far more dynamic in nature. A spontaneous culture of informal vendors and pedestrians along the sidewalks and arcades of the city creates a thriving social landscape that lends itself to an economic retail culture that is both energetic and theatrical, but lacks legibility and thus discourages lingering.

Very rarely are there places created to facilitate pause; places to rest or wait for a few minutes between engagements, or where one can meet friends in a public forum that doesn't require a purchase of expensive food or services in exchange for a seat.

This dissertation suggests that there is a need for a third type of public space in the city that addresses the needs of users differently, creating spaces that promote the development of Pretoria as a living city (See Chapter

2) which encourages social interaction and fosters community spirit. These spaces should serve to improve the user experience and the overall quality of the urban environment.

However, new developments require substantial amounts of space which can be hard to find in a developed urban core such as that of the Pretoria CBD.

Historically the development of Pretoria is fragmented with many isolated developments of individual buildings that gave little or no consideration to the surrounding context. This fragmented development leads to the creation of urban voids which are of little value to those who own the land they occupy (Fig. 3). These voids typically occur between two or three buildings, and are usually fenced off and used as dumping grounds or private parking lots (Fig. 4).

1.2. Hypothesis

Urban voids have latent potential to support the proposed typology of public spaces that are both useful and exciting niches within the city fabric, not only as social meeting places but also ecologically. These small scale landscapes could collectively contribute to the overall sustainability of the city by dealing with issues such as storm water runoff, grey water recycling, heat island abatement and energy consumption in a very immediate way that benefit the surrounding buildings.

Existing voids can be developed over time through a series of tactical interventions that encourage public



Fig. 4: Urban voids—fenced off and used as dumping grounds



0 50 100 200 300 400
Meters

Fig. 5: Area of study

participation. By phasing the introduction of new public landscapes into these spaces it will be possible to assess their viability over time as people interact with the new interventions.

1.3. Research Methodology

An area of central Pretoria will be mapped with particular focus on identifying latent spaces and the existing arcades within that area, and the existing social spaces will be assessed with regards to activity levels, edges, noise and accessibility.

The mapping process will include a photographic study of each space, exploration of the heritage and functions of surrounding buildings, a void typology assessment as well as issues regarding ownership and connections to the larger network.

Thereafter one block will be identified to be designed and resolved according to a series of guidelines that will be identified through a combination of theory and precedent studies.

Clients would be identified per site. The requirements of the clients could include safety, access and appropriate functions. Issues of sustainability, return on investment (be it social, environmental or economic) and the heritage of the existing buildings would also be possible concerns.

1.4. Research Questions

What are the minimum requirements for creating successful public spaces?

How can these small hidden spaces be linked to create a coherent network of niches within the city, which can be articulated in a manner that will be beneficial to the users?

How can small scale latent spaces support urban ecology that would benefit the surrounding developments?

1.5. Aims

The aims of this study will be:

To explore the potentials of landscape interventions within the urban environment on a deliberately small scale, within a larger urban framework and attempt to create viable resolutions that will act as catalysts for further development.

To develop a new urban social typology that addresses issues regarding social and environmental sustainability, as well as introducing a new layer of art and culture into Pretoria that encourages self expression and social interaction.

To explore the potentials of landscape urbanism theory being applied to small scale urban interventions in the latent spaces of Pretoria.

The key aspect to be addressed would be the introduction of an urban framework that encourages the continued development and improvement of Pretoria into a more liveable city and ultimately into a living city. This would be linked into the existing pedestrian arcade tradition of the city and in turn support the development of a growing network of landscapes that celebrate the human element of the city.

1.6. Delimitations

This study will be executed on a small scale within four city blocks; while the connection to the street will be an important consideration, the detailed design of the actual street will not be a focus.

1.7. The Site

Four city blocks east of Church Square up to Van der Walt Street between Vermeulen Street and Pretorius Street (Fig. 5).

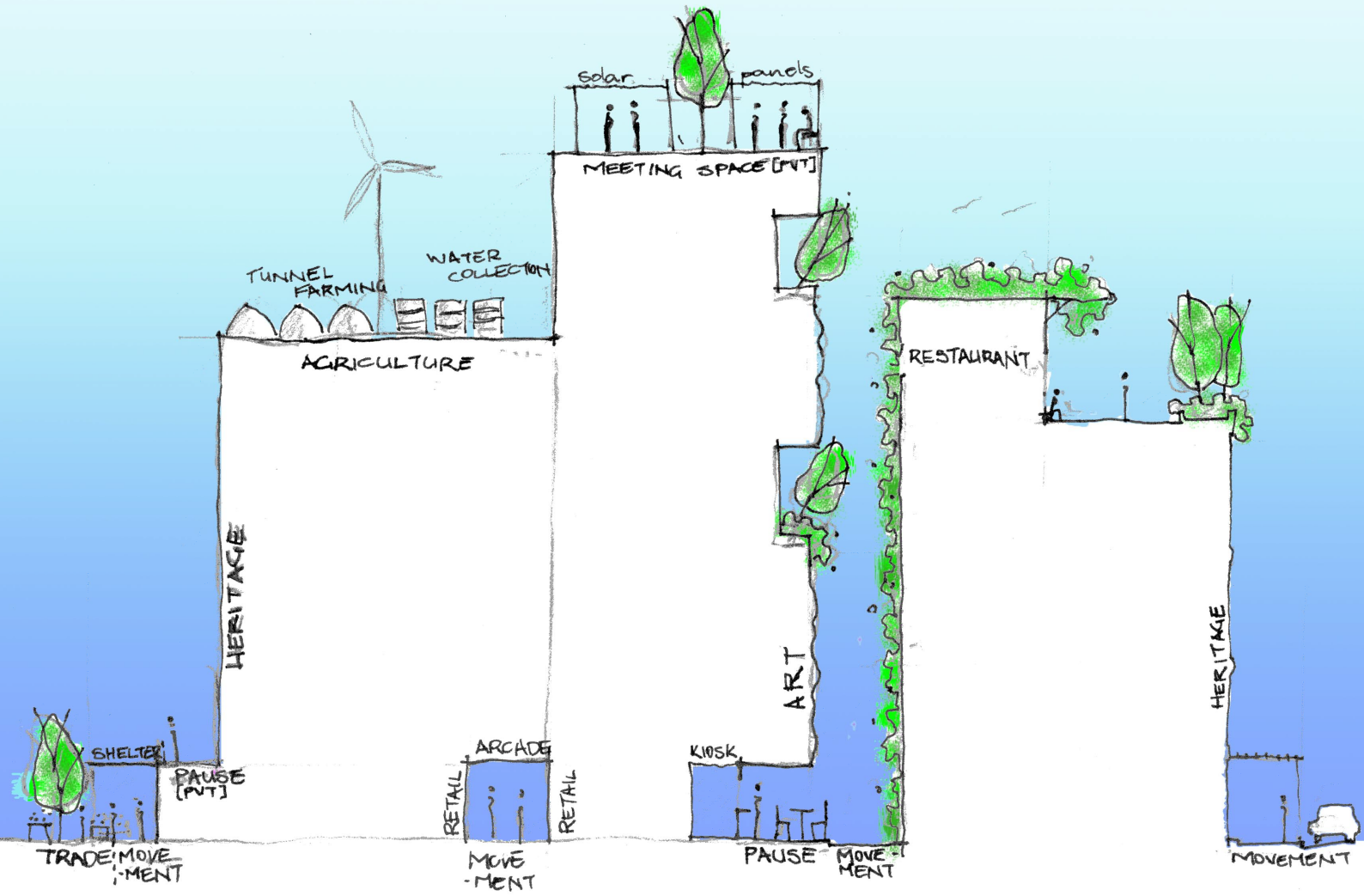


Fig. 6: Conceptual sketch of a living city

2 Theoretical discourse

2.1. A liveable city vs. a living city

A LIVEABLE city is a city which supports a good quality of life. Liveability is quantifiable, and perhaps the most recognisable measure of liveability is the Mercer liveability survey (Mercer 2011), which evaluates local living conditions in all the 221 cities it surveys worldwide. The living conditions are analysed according to 39 factors (further grouped into 10 categories) which will be measured against Pretoria CBD:

1. Political and social environment

- Pretoria is South Africa's national seat of government and since the 1994 election there has been general political stability. However, crime remains a serious and ever-present issue in all South African cities, which heavily affects the Mercer rating.

2. Economic environment

- The economic environment of Pretoria is divided: the formalised sector of the city is largely government funded, although many of the existing buildings in the CBD stand empty due to lack of funding, the informal sector operates on individual entrepreneurial efforts and much of the industry is focussed on the reselling of fresh produce and mass-produced imports

3. Socio-cultural environment

- South Africa as a whole, is still largely regarded as a third world country due to the shortcomings in the socio-cultural environment.

4. Health and sanitation

- The national health care and sanitation systems in place in Pretoria are plagued by lack of funds and subsequent union strikes which lead to inefficiency.

5. Schools and education

- Government-funded schools are abundant in Pretoria as well as several private schools and tertiary education facilities.

6. Public services and transportation

- Public transport is largely comprised of minibus taxi services as well as an old train and bus service that is largely used by the lower income groups of the city.
- The new Gautrain system that was built between Hatfield in Pretoria and Parktown in Johannesburg has become a well used and popular mode of transport amongst commuters.

7. Recreation

- Pretoria has a vibrant recreational culture that is localised around private developments. The few recreational outlets in the CBD are limited to informal gatherings in the city parks and a few coffee shops and

shebeens that are frequented by locals but which don't attract a wider clientele from surrounding areas.

8. Consumer goods

- Pretoria is the main distribution point for the greater Tshwane's fresh produce.

9. Housing

- Housing within the CBD is limited to a few low income blocks but the outlying suburbs are home to a mix of apartment blocks and larger private houses.

10. Natural environment

- The CBD of Pretoria is edged by two environmentally protected ridges that are home to a diverse range of flora and fauna.
- The overall climate of Pretoria is temperate, sunny and generally pleasant.

According to the 2011 survey results, out of 221 cities, Cape Town was ranked 88th, Johannesburg 94th and Pretoria did not make the top 100. However, this ranking system is dominated by wealthy European cities. If the ranking is seen in the context of the African continent alone, Cape Town, Johannesburg and Pretoria all fall within the top 10 liveable cities in Africa.

From the above it can be seen that although Pretoria may have some way to go before reaching the top of Mercer's list of liveable cities, the majority of factors that control the improvement of these characteristics are controlled by government, which leaves them constrained by policy and red tape.

"Urban life happens in places, not because of the city, but in spite of it"(Barbir 2012).

A LIVING city however, relates to the city as an organism; a man-made habitat which should support human life in a sustainable manner. It should be stimulating and rich in experience, and allow people to come into regular contact

and interact with one another (Gehl 1987:23).

Edoardo Salzano (1994) defined seven aims for a living city which will be measured against Pretoria CBD.

1. A living city has no boundaries: it is open to the whole world, and it is not segregated in any way, be it physical, economic or social.

- Still plagued by apartheid planning, Pretoria remains divided; the CBD is fringed by informal settlements that house the many urban poor who cannot afford other housing.
- Inner city residential living is limited to mostly tiny, low income units with bigger apartment blocks on the peripheries in Arcadia.
- A large number of Pretoria's infrastructure is government related, and the buildings are heavily secured with limited access.
- An increasing number of Pretoria's public arcades are being privatised and gated due to increasing crime rates.

2. A living city is marked by the complexity of its functions and by the richness of the subsequent social interaction cultivated by this mixed usage.

- While some complexity still exists in Pretoria in terms of mixed use development, many of the retail and housing components tend to cater only to lower income groups that frequent the city, while the corporate developments are aimed at higher income groups with very little mixing between the two.

3. A living city is a city where the town planners are able to manage the complexity and the dynamics so that it does not degenerate into congestion and anxiety.

- Vehicular traffic congestion is a real problem in the heart of Pretoria due to ineffective town planning that focuses on expanding the streets to accommodate ever increasing traffic instead of trying to reduce the number of cars.

4. A living city has a good relationship with its context and with the environment. It must respect its heritage

while moving ever forward to keep meeting the ever changing needs and desires of its inhabitants. It is a sustainable city that fights against waste of natural resources in order to satisfy the needs of the present inhabitants without reducing the capacity of future generations to satisfy their needs.

- Pretoria's parks have remained largely unchanged since they were first built (Fig. 2). The gardens have been maintained and they remain valuable green space in the city, but they lack new and exciting destination points that would draw people into them on a regular basis.
- Pretoria is not a sustainable city, the majority of the buildings and landscapes in the city are entirely dependent on municipal water and electricity.

5. A living city is the home of the community and must be built up, or restored, as a continuous coherent network where pedestrian routes bind together all the sites of social quality and of the community life.

- There is lack of "sites of social quality" in Pretoria. There are large green parks that function as social open space, and the rest of the social landscape is defined by shop fronts and street edges.
- The ground level of Pretoria is dominated by private cars and taxis. There is a lack of coherent pedestrian linkage between the social landscapes of the city.

6. A living city must have common spaces which become centres of social life and a sense of community.

- Pretoria has many common spaces that serve this purpose: most notably Church Square and the pedestrianised section of Church Street in the centre of the CBD.
- These common spaces are designed to meet the needs of the masses, and do not deal with the specific needs of individuals who may want to appropriate the said public space.

7. And finally, a living city is not built for the appearance and the glory of architects and city managers, but for the well-being of the citizens.

- Pretoria's historic core was initially designed to benefit the pedestrian, and many of these elements still exist today in the form of shaded walkways and an arcade system that permeates the core of the city.
- Over time many new government and bank buildings were introduced that had large impressive facades but left the streets to the cars, and thus fragmented the culture of pedestrian-oriented design.

One can clearly see that Pretoria is not a living city, however, it should be possible for small NGO's and private citizens and corporations to attempt to achieve the aforementioned aims.

2.2. A living city

In order for Pretoria to become a living city, the seven aims identified need to be met.

- The city needs to be opened up to the public, to create a physical permeability that allows people to interact with the city beyond just the building edges.
- A concentrated effort needs to be made to better integrate the different outlying areas of Pretoria into the urban framework of the city.
- The urban planning schemes of Pretoria need to shift focus from trying to alleviate traffic problems and instead try to increase the desirability of walking, thus decreasing the number of vehicles within the urban core.
- Sustainable design needs to become a minimum requirement for all new developments and upgrades. Water needs to be harvested and recycled, and alternative energy generation needs to be explored on every site. The alleviation of urban heat islands also needs to be addressed in order to create comfortable sustainable human environments.
- New functions and destinations need to be incorporated into the existing city framework that will draw new users into the city and also be of benefit to the existing users.
- New sites of social quality need to be introduced into Pretoria that will promote the well being of the

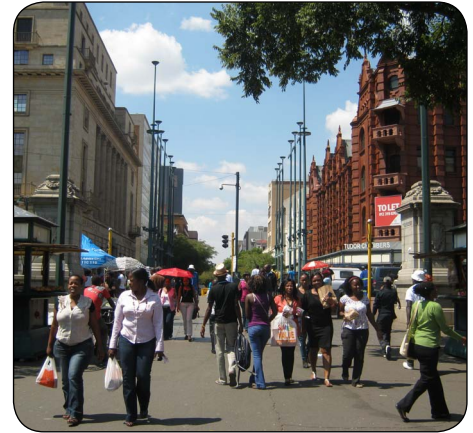


Fig. 7: Necessary activities



Fig. 8: Optional activities



Fig. 9: Locked public toilets

"A city can be measured by its public spaces. They mirror our culture and time; they cast reflections that tell us of the well-being of our inhabitants" (Wampler 1993: 68).

citizens and promote a sense of community. These changes can be brought about through the introduction of new sustainable public spaces that help fulfil the criteria outlined above, into the urban fabric of Pretoria.

“The life of cities occurs in public space. People activate public space in order to live the choices city life offers, and to project their identity and their desires into and onto a landscape that is a given and a constant” (Rasmuss 2005:1).

2.3. Public Space

public - adj.

of or concerning the people as a whole.
 open to or shared by all the people of an area or country.
 of or provided by the state rather than an independent, commercial company (Shorter Oxford English Dictionary 2007)

space - noun

the unlimited three-dimensional expanse in which all material objects are located (Collins English Dictionary 2003)

The Oxford and Collins dictionaries do not define the term “public space” as a whole, but from the above we can conclude that public space is an area or place not occupied by buildings that is open and accessible, where any person has a right to come.

A more specific definition is given by Beng-Huat and Edwards (1992:2) as “a location which is (i) designed, however minimally, such that (ii) everyone has the rights of access, (iii) encounters in it between individual users are unplanned and unexceptional, and (iv) their behaviour towards each other is subjected by rules none other than those of common norms of social activity.”

Jan Gehl (1987:11) divides outdoor activities in public spaces into three basic categories, each of which places very different demands on the physical environment:

- “Necessary activities” take place throughout the year, under nearly all conditions, and are more or less independent of the exterior environment due to their compulsory nature. These include walking between destination points and waiting for buses or taxis.
- “Optional activities” happen when the weather and the environment are inviting and encourage recreational use such as people watching, resting in the shade on a hot day, or conversely sitting in the sun on a cold day.
- “Social activities” happen spontaneously when there is a collection of people in a shared space, which implies that social activities are indirectly supported whenever necessary and optional activities are given better conditions in public spaces (Gehl 1987:11-14).

It is therefore fundamental to design an urban framework and master plan that first and foremost supports the necessary and optional activities in order to encourage the social activities.

Western and African concepts of public space are markedly different. An African view of the public realm can be understood as, “all space is public except when defined by ritual or private space”, while in a Western view “all space is private”, except for specifically designated public areas (Lloyd 2003:105 -107). To this end, much of the original public realm of Pretoria has been privatised through the addition of fences that limit public access, and the public spaces in Pretoria are becoming limited to a few scattered parks and squares, and the narrow strip of sidewalk between the building facades and the streets that has been appropriated as the functioning public landscape of the city.

These spaces, specifically Church Square and the Church Street pedestrian boulevard, tend to be fast paced and energetic. Informal vendors have appropriated much of these spaces in order to benefit from the constant flow of pedestrians travelling through them, but in turn can sometimes impede pedestrian flow (Fig. 7).

As busy as these spaces are, there is very limited access to seating, and pause space is very rare along the movement routes. Supposedly public toilets have been privatised and



Fig. 10: Latent Spaces



Fig. 11: Latent Space in Pretoria CBD—inverted figure ground study

are kept under lock and key (Fig. 9). This environment is physically draining over extended periods and thus discourages lingering which in turn discourages other social activities from developing.

2.4. Latent Space

The majority of public urban spaces in Pretoria are formed around movement corridors between destinations, but the potential of streets, sidewalks, verges and parking lots, and particularly the spaces left over between servitudes and building lines, as valuable public spaces are often left unexplored and unresolved.

Many names have been given to these spaces by urban theorists over time, most notably perhaps “lost space” coined by Roger Trancik. Trancik (1986:3) defines lost space as “the undesirable urban areas that are in need of redesign—antispaces, making no positive contribution to the surroundings or users.”

Daniel Winterbottom (2000), in his essay *Residual Space* Re-evaluated builds on the concept of lost space to identify three categories of residual space that commonly occur within every urban environment: non-spaces, leftover spaces and dual-use spaces.

- “Non-spaces” are often near roads and traffic interchanges and are as such seen from moving vehicles, at a high speed. As such, these landscapes become backdrops with limited detail or interest.
- “Leftover spaces” are not programmed and not connected to surrounding spaces. These spaces are usually created unintentionally, where new developments intrude into previously open spaces and create odd and often inaccessible voids within the urban fabric.
- “Dual-use spaces” are areas that are used only at certain times and are under-used at others, for example, parking lots that stand empty outside of business hours. (Winterbottom 2000:41)

The sites identified in this dissertation are by the above

classification, both left-over and dual-use spaces. These voids permeate the urban fabric of Pretoria (Fig. 10). The author has termed these voids as latent spaces.

la•tent/lātnt/

Adjective:

(of a quality or state) Existing but not yet developed or manifest; hidden; concealed.

(of a bud, resting stage, etc.) Lying dormant or hidden until circumstances are suitable for development or manifestation.

Much of the latent urban space between buildings in Pretoria is forgotten or has been repurposed as parking or informal storage space for the surrounding buildings. The latent potential is wasted, leading to undesirable spaces that have a negative effect on the areas that connect to them.

2.5. A new urban social landscape and landscape urbanism

From this research the author has determined that in order to recreate Pretoria as a living city there is a need for a new type of public landscape in the CBD, namely landscapes of a smaller scale than the existing formal public landscapes, i.e. landscapes that take advantage of the latent spaces identified within the framework.

“Landscape Urbanism 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 has become the lens through which the contemporary city is represented and the medium through which it is constructed” (Waldheim 2006:15).

Landscape urbanism theory advocates a design approach which embraces systems-thinking whereby urbanisation becomes a dynamic process defined by fluidity, spontaneous feedback, and non-linearity, looking for the potentials of an existing space and attempting to create spontaneous and unpredictable environments that are programmed by the end user (Corner 2006:23).

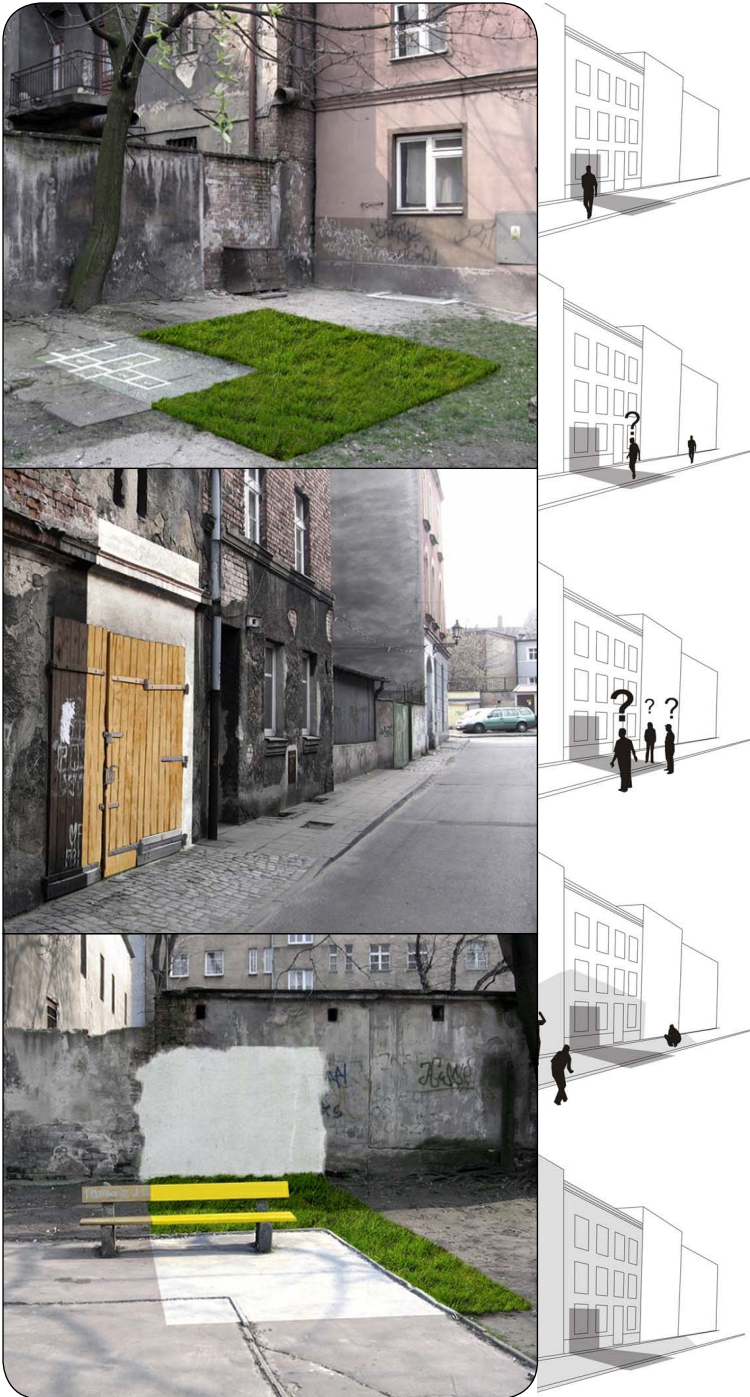


Fig. 12: City Acupuncture-Recipe for a better city.

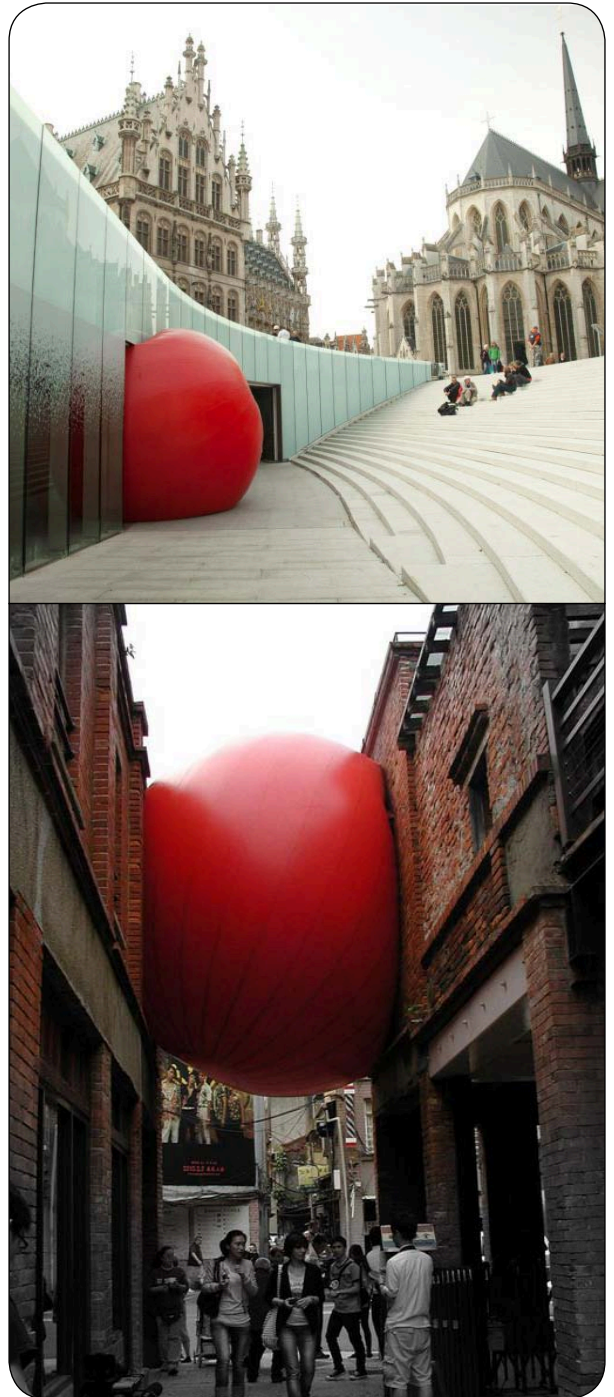


Fig. 13: The Red Ball Project

The majority of currently recognised projects developed within this body of knowledge are designed around large scale elements within the fabric of the city. Fresh Kills Park and the Highline project by Field Operations, for example, both focus on identifying large problematic spaces (a landfill and an abandoned railway respectively) within the city fabric, and reclaiming those spaces as public places that serve the communities around them.

Landscape urbanism is process oriented. It employs a process of strategies of development that are implemented over time. It should be possible to apply this approach to small scale interventions in latent spaces, in order to reclaim them as functional, sustainable places wherein city users can not only find relief by escaping momentarily from the busy streets, but also find creative outlets for self-expression. These spaces will serve as catalysts for the development of new functions that will improve the complexity and diversity of Pretoria.

2.6. Tactical urban renewal and precedent study

Tactical Urbanism

[One] “must vigilantly make use of the cracks that ... open in the surveillance of the proprietary powers. It poaches in them. It creates surprises in them” (de Certeau 1984:37).

There is a new movement of tactical urban renewal gaining momentum worldwide. Tactical urbanism involves the use of modest or temporary interventions within an existing urban environment to facilitate structural environmental change.

Michel de Certeau (1984:20) contrasts two ways that power is exercised in space: strategies and tactics. Strategies “conceal beneath their objective calculations their connection with the power that sustains them from within the stronghold of its own ‘proper’ place or institution.” Urban strategies are rigid, they allow for zoning and demarcation of space; invisible boundary lines that separate one lot from another. These strategies help impose order from a distance and shape the

“neutral landscape.” In essence strategies are enforced by committee and democratic decision and as such need to create a convincingly self-evident environment.

In contrast, tactics “are isolated actions or events that take advantage of opportunities offered by the gaps within a given strategic system. ... Tactics cut across a strategic field, exploiting gaps in it to generate novel and inventive outcomes.” (REBAR 2011:4).

Following research into the current trend of tactical urban renewal, a tactical approach consisting of five phases of implementation have been developed: **Discovery**, which focuses on creating awareness of a latent space. **Engagement** which attempts to involve the community in utilising said space, **Support**, which is the implementation of necessary infrastructure for continued use. **Investment**, which is the final design and implementation stage and **Delight**, which is an ongoing process of keeping the final design activated.

Discover

Owen Barfield (1973:48) discusses the concept of **strangeness** as medium for inducing a “felt change of consciousness” which can be understood as a change in ones perception of their surroundings. This altered perception encourages an increased awareness of the quality of ones environment and the inherent flaws and potentials therein.

Strangeness can be achieved through the insertion of new elements into an existing context that are obviously out of place and are understood as such, which in turn amplifies the existing context. This phenomenon has been explored by many communities and artists who are taking the initiative to improve their cities through the implementation of temporary installations within the urban fabric. Whether attracting attention to a need for new infrastructure or functions deemed lacking by the public or even just a frivolous project that inspires people to smile, these projects are increasing public awareness of the urban environment and encouraging people to



Fig. 14: Park(ing) day 2005
by REBAR



Fig. 15: The Grove—Edge conditions

actively participate in the improvement of their city.

Overall, these small projects are relatively inexpensive due to their small scale and can be implemented in early phases of development, creating the “seed” energy needed to support future development and encourage extended usage periods that support new functions, and foster spontaneous social interaction (Nickol 2012).

This concept was explored in a student competition entry entitled *City Acupuncture - Recipe for a better city* (Fig. 12). The project put forth a process of obvious isolated improvement in forgotten space. The assumption was that by highlighting the potentials of the space, the community would be inspired to extend the work and improve their city (Bolek, Stachowicz, Jozefiak 2007).

While the previous project was only theoretical, many artists have explored the appropriation of latent space. The Red Ball project by artist Thomas Martin (Fig. 13) is a simple installation involving a giant inflatable red ball which he wedges into a gap in the urban environment of many notable cities. Although the ball serves no function it draws large crowds of spectators and even has a small group of followers who travel around the city as the ball is relocated in order to photograph themselves with it.

While these small interventions are pivotal in highlighting gaps in the urban fabric of a city, they provide only a temporary function. These interventions will hold the public’s interest for only as long as they appear alien to the landscape. If they remain static they lose their strangeness over time and become part of the accepted landscape. They can however be seen as the first step in a process of achieving real urban renewal.

Engage

An extension of the temporary installations discussed is the concept of “pop-up” events and stalls that are gaining in popularity. These interventions have defined functions that allow them to hold the interest of the public for longer periods, while their transient nature make them

exciting additions to any urban environment, providing stimulation and encouraging people to engage with both the installation and other people.

These pop-ups can be anything from a group of actors armed with props performing to moveable caravans which remain in one place for short periods before moving on to make place for a new intervention, much like a circus or carnival, staying only for as long as they remain popular before moving on to find a new audience in a new place.

A popular example of this is the *park(ing) day* initiative, which encourages the public to appropriate metered parking bays along the edges of sidewalks and reclaim them as pop up parks. Proposed by REBAR in 2005, this open-source event now happens annually and as of 2010 there are more than 800 “PARK” installations in more than 180 cities.

“Park(ing) Day identifies the metered parking space as... a niche within the urban landscape, and redefines it as a fertile terrain for creative social, political and artistic experimentation” (REBAR 2011:2).

Individually, these parks make a very small difference to the urban environment, but collectively they are paving the way for an increased awareness of how much urban space is lost to cars and how much more beneficial that space could be if rezoned for public social space.

This increased awareness and change of perception regarding the value of urban parks has led to many US city agencies creating permit programs for merchants, organizations and citizens to convert metered parking spaces into permanent “Parklets” (REBAR 2011:15).

Support

The development of these temporary interventions into more permanent urban landscapes will fuel a steady trend of urban renewal. In order to support the new increased usage, the utility of the site needs to be improved through the addition of new basic infrastructure to allow for universal access, functionality and sustainability.



Fig. 16: Sculptures in the public landscape



Fig. 17: The Golden Hand



Fig. 18: Flicks from the hill

In order to survive long term, the latent space needs to be accessible and it needs to be integrated into its context by connecting it to the surrounding buildings through the introduction of new supporting functions that will activate the edges and encourage continued use.

Braamfontein's new public square "the Grove" is a small scale terraced piazza, located just below Hotel Lamunu's alfresco lounge-bar, aimed at the growing numbers of students that were moving into the area to live in the new accommodation developed by South Point. This square used to be occupied by a tall office block, but the developers decided that the space would be more valuable as an urban square and demolished the building so that they could better access the latent space that existed between the buildings and create a public landscape that would benefit Braamfontein's inhabitants (South Point 2011).

However, when this square was first opened to the public the edges were dead due to the construction of the new retail developments being incomplete. The sheer walls of the surrounding buildings made the space uncomfortable. While the square functioned adequately as an organised event space, it failed to attract any spontaneous social interaction outside of those events.

Since the recent opening up of those retail edges - and the further opening of two blank walls to create new access from the other side of the city block - usage has increased dramatically. This unassuming little piazza now hosts a Weekend Flea Market and serves as a valuable all round public social gathering space in Braamfontein.

Invest

This stage will involve the demolition of unnecessary structures and the construction of new bold interventions that will permanently change the site into a public park.

Final development of latent space into functioning landscapes should be informed by the earlier stages of development and this stage requires a formalised design

intervention which should be moderated by a professional who can deal with the intricacies of landscape design. A series of guidelines are proposed in chapter 4.

Delight

Above all, the final intervention should have an element of delight that references the initial discovery phase. The site should be able to adapt to new functions without major reconstruction of the supporting infrastructure and encourage a tradition of repeat visits that contribute meaningfully to the social culture of the city.

The American Visionary Art Museum (AVAM) in Baltimore, Maryland is a popular museum in the United States of America that collects and displays works of art created by self taught artists. The AVAM campus is littered with large scale sculptural works that change on a fairly regular basis and encourage repeat visits to the facility. One of the most popular attractions to the museum however is their weekly "Flicks from the hill" outdoor family film screenings that take place in the warm summer months (Moskow, Linn 2010:198-201).

The theatre is informal, capitalising on the large open grassy hill on the adjacent property as seating and a large screen attached to the outer wall of the building. What makes it delightful is a giant golden hand by sculptor Adam Kurtzman that projects out of the wall and gives the impression of supporting the screen. This is an effective example of an element (the sculpture) that could be introduced in the discovery phase of development being carried through to the final development stage of a new latent space landscape.

2.7. Conclusion

The city can be made inherently more liveable through taking advantage of latent spaces as potential public places in which new urban social landscapes can be introduced, and by promoting a culture of tactical urban landscape development that benefits the environment both ecologically and socially.

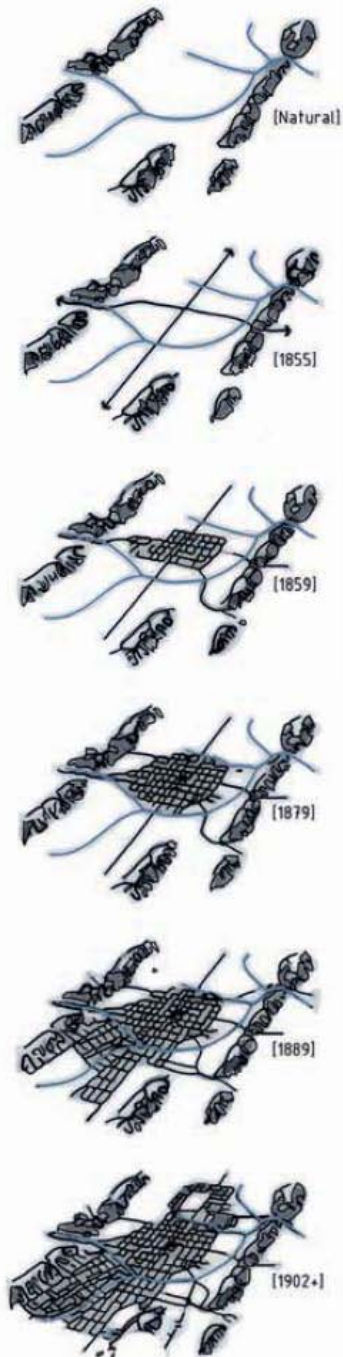


Fig. 19: Historic development of Pretoria



0 250 500 Meters



Fig. 20: Aerial photograph of Pretoria taken in 1947 [above] and 2011 [below]

3

Context

3.1. Historic Urban Development

The city of Pretoria was once a living thriving city full of people who lived and worked within its confines around the clock, but this original character has been lost over time.

The first Afrikaner settlers arrived in the present Pretoria area in 1840, and in 1854 the Nederlandse Gereformeerde Kerk's first congregation was established. On the 16th of November 1855 the town development of Pretoria Philadelphia was approved, and by 14 October 1931, Pretoria was declared a city (Ferreira 1989:57).

From the building of the first church on Church Square in 1857, Pretoria was designed on a Cartesian grid with the church at the centre. Development was centred between the existing ridges and river system. Jacaranda trees were introduced in 1906: their abundant use as street trees in the city led to Pretoria becoming known as Jacaranda City.

The street edge played an important role in Pretoria's historic core with buildings being constructed up to the building line, their verandahs spanning the street edge and promoting social interaction.

From an early stage, the long city blocks of Pretoria were interspersed with alley ways which allowed for ease of pedestrian movement. Over time these arcades were formalised to create the arcade system that still exists in the city today.

The inner city was continuously developed over a period

of over 100 years, with many of the original settlers buildings being torn down and replaced with bigger, better state-owned buildings with impressive facades to serve the growing administrative function of the city. In time the streets were left to the cars.

Pretoria was announced as the capital of South Africa in 1960 and in 1961 South Africa left the Commonwealth and became a republic. The city of Pretoria's growth accelerated, sprawling into low density residential areas and the city became progressively less pedestrian-oriented as private transportation become increasingly affordable and popular due to people moving out of the city to live in what was perceived as suburban paradise.

1969 saw amendments to the original Pretoria town planning scheme, and permitted building heights were increased to 138m which allowed the city to grow ever more upward with little regard for the street level interface.

By the 1970s awareness of the increasing urban fragmentation was growing and an attempt to re-introduce social elements into the urban fabric was made by breaking up the long city blocks with new interior mall systems and allowing building line setbacks, but this only caused a lack of coherence within the urban fabric of the city (Van der Waal 1989:46).

After the 1980s most big businesses left for the eastern suburbs and the city shut down after the work day ended. This led to many of the fine grain elements of the city being fenced off and locked up to prevent break-ins at



Fig. 21: A historical photograph (circa 1910) showing a view towards Church Square looking West down Church Street



Fig. 22: A recent photograph (2012) showing the same view towards Church Square looking West down Church Street

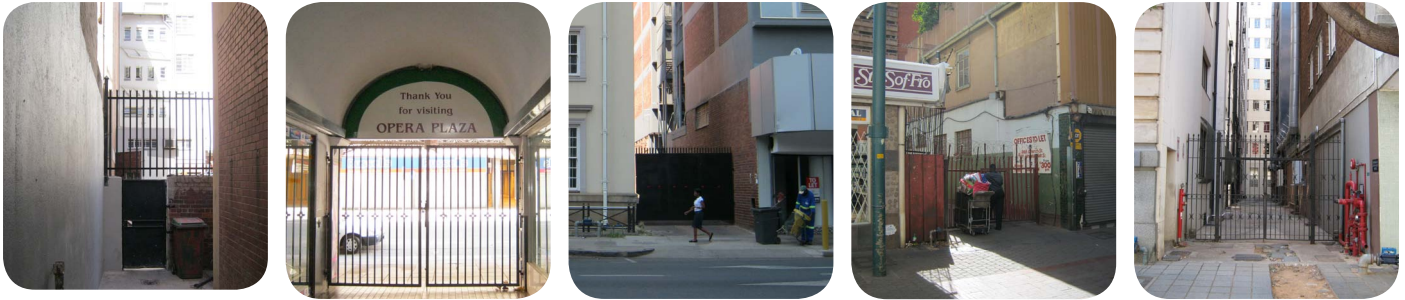


Fig. 23: Arcades and alley ways fenced off outside of business hours

night and over weekends (Fig. 23). Indeed, continued pressure from private property owners regarding access has led to the fencing off of many arcades (Fig. 24) which had previously been public domain and served as valuable pedestrian lanes.

3.2. Recent Development

Pretoria is now part of the greater Tshwane district that includes all the suburban development surrounding the city. In 2005 the Government launched a precinct regeneration plan focussing on turning the Paul Kruger and Church Street corridors into cultural heritage corridors for Pretoria's 150 year celebration. This was an attempt to reintroduce the focus on pedestrian-oriented development and encourage people to move back into the city (Fig. 22).

Much work is currently being done to encourage decreased use of private transport in the Tshwane district. Projects like the Gautrain and the Tshwane BRT system are aiming to increase usage of public transport to decrease congestion and promote sustainable living.

Slowly but surely Pretoria is taking on new life, government facilities are being upgraded regularly, and a growing number of businesses like Damelin and Edcon are investing in property in the City. This dissertation therefore aims to contribute to this trend of inner city rejuvenation.



Fig. 24: Burlington arcade Church Street entrance before (2006) and after (2012) it was fenced off



3.3. Urban Framework

The urban framework was based on the successful urban framework that was implemented in Melbourne, Australia. This framework was critically analysed and many of the basic principles were deemed to be applicable, with some slight alteration to the Pretoria CBD (Melbourne City Council 2006).

3.4. Urban design principles

1. Legibility:

The structure of the city should be evident at several different scales.

A. Macro level: The whole metropolitan region is organised around landscape features and lines of communication and movement and centres of activity.

A. Micro Level: The layout of individual streets and sites display recognisable patterns

- Pretoria is already organised by a cardo-decumanus grid and is thus legible at a macro scale
- Networks connecting nodes of activity at the micro scale should be implemented to better integrate the different outlying areas of Pretoria into the urban framework of the city. Nodes should include areas of rest where people can stay or wait for extended periods, and places that help individuals to orientate themselves within the city.

2. Connectedness:

Connection within the city is important to allow for uninterrupted intricate and variable movement patterns. This includes visual access as well as physical mobility. Universal access includes provision of mobility and visual impairments.

- Increasing the permeability and complexity of Pretoria will lead to improved public interfaces in the streetscape of the city.
- By breaking up the long city blocks of modernist Pretoria to mimic the vibrant human scaled fabric present in the north western precinct there will be improved mobility, as well as increased legibility and

connectedness between Central Pretoria and Pretoria West.

3. Diversity:

The city should offer a broad range of experiences and opportunities. Intensity and variety are two of the greatest attractions.

- The number of social spaces in Pretoria should be increased through the introduction of pocket parks that create new layers of civic and ecological use.
- New functions and destinations need to be incorporated into the existing city framework that will draw new users into the city and also be of benefit to the existing users.
- New social programs that benefit the people of the city through education will allow for self improvement and skills development.
- The life cycle of the city should be extended by reintroducing housing and its associated support programmes of education and culture. Over time a 24hr city can be cultivated.

4. Animation:

People attract people. Social places that are animated and vibrant encourage people to actively use the city

- Promote Pretoria as a walkable city that allows for chance encounters (low intensity). Repetitive lower intensity interaction leads to higher intensity social connections (acquaintances, friends) which will start generating increased social cohesion.
- The urban planning schemes of Pretoria need to shift focus from trying to alleviate traffic problems and instead try to increase the desirability of walking, thus decreasing the number of vehicles within the urban core.
- Activate spaces at different times during the day.

5. Continuity and change:

The public environment should locate people in time as well as space. It should contain some constants and new typologies.

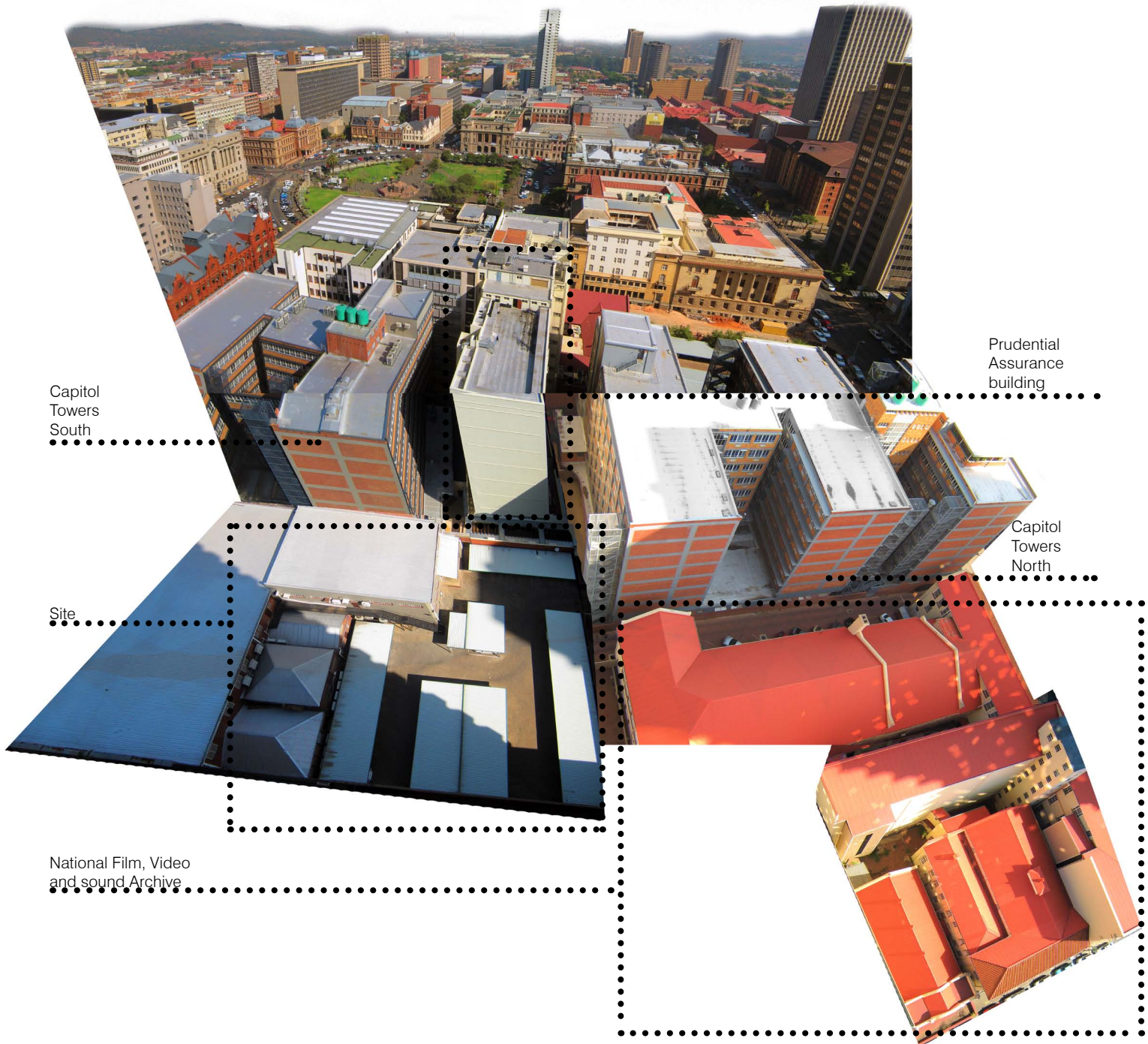


Fig. 25: Birds eye view of the site from the Bothongo Heights tower (B-See fig. 28)

- Pretoria is both a formal and informal city. The informal aspects of the city are in constant flux to meet the needs of the users. The formal city requires some new social typologies.
- Sustainable design needs to become a minimum requirement for all new developments and upgrades. Water needs to be harvested and recycled, and alternative energy generation needs to be explored on every site. The alleviation of urban heat islands also needs to be addressed in order to create comfortable sustainable human environments.

6. Authenticity:

The city embodies the culture, behaviours and other intangible elements that contain the spirit of the place or setting.

- All development needs to respond to the existing quotidian context.
- There needs to be a balance between Pretoria's tangible history as a Eurocentric construct, and the multicultural strata of use and flow of the city.

7. Equity:

Everyone has the right to use and enjoy the city, regardless of mobility, age, permanence or transience or social economic status. Everyone has the right to use a space; there should be an appropriate balance between public and private realms. People should be able to linger in the city without having to spend money.

- Universal access needs to be a base requirement throughout all of Pretoria to allow people of all ages and abilities to access the city equally.
- Public spaces are being transformed into markets of capitalism, where entry is controlled by one's ability to spend.
- The city needs to be opened up to the public in order to create a physical permeability that allows people to interact with the city beyond just the building edges.

3.5.

3.6. Existing developments and historical significance

The selected site (Fig. 27) is in the city block situated to the North East of Church Square, between Vermeulen Street, Andries Street and Church Street. This block is made up of 11 buildings of varying height and function that edge the selected site; a latent space currently used as a parking lot. The lot is owned and managed by City Property and is only accessible through Noordvaal Arcade and a private entrance off Vermeulen street, both of which are gated with limited key controlled access and a security guard.

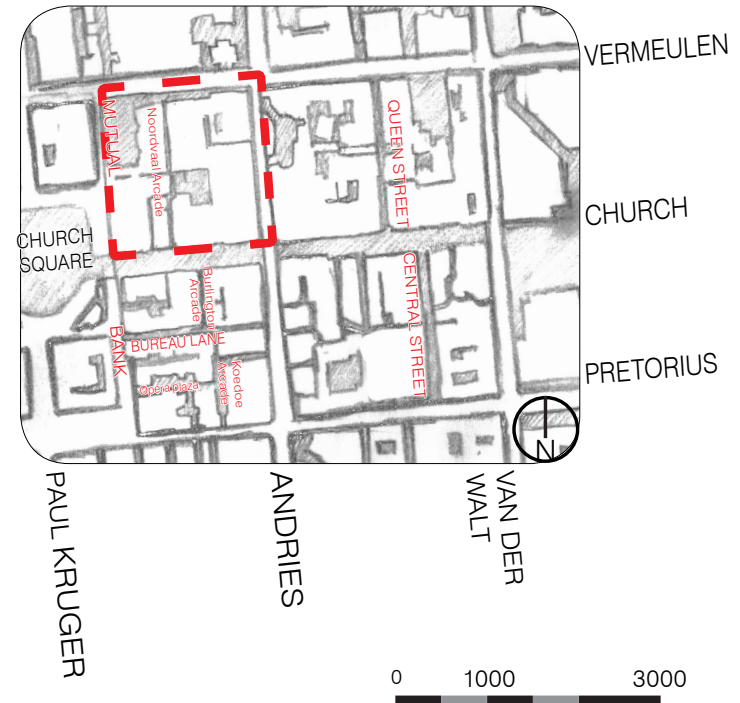


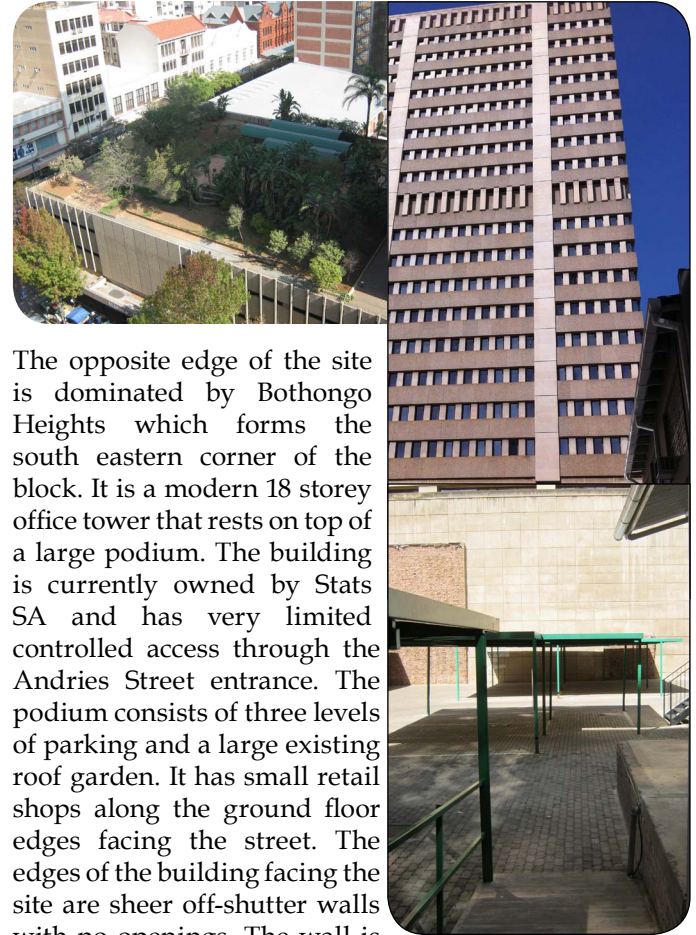
Fig. 26: Latent spaces around site



Fig. 27: Site map

As an important link to the site, the arcade must be made more visually permeable in order to encourage movement through the arcade and into the site.

Bothongo Heights ■



The opposite edge of the site is dominated by Bothongo Heights which forms the south eastern corner of the block. It is a modern 18 storey office tower that rests on top of a large podium. The building is currently owned by Stats SA and has very limited controlled access through the Andries Street entrance. The podium consists of three levels of parking and a large existing roof garden. It has small retail shops along the ground floor edges facing the street. The edges of the building facing the site are sheer off-shutter walls with no openings. The wall is 11m high and is a completely dead edge that dominates the site.

This edge needs to be activated to better serve the site. As it has no significant value within the block it is the most feasible edge to articulate and alter.



Noordvaal arcade ■

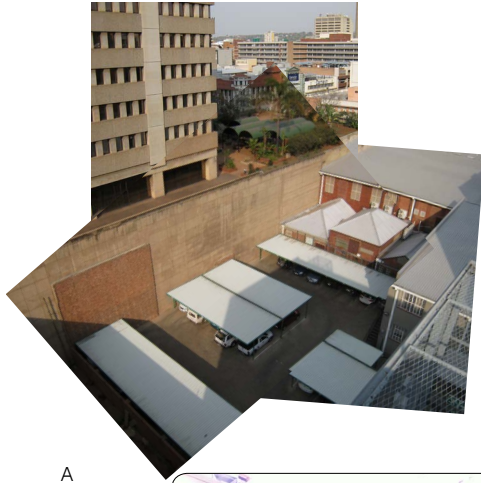
Noordvaal Arcade connects Church Street and Vermeulen Street, and runs under two large office buildings (Capitol Towers) which have retail use along the ground edges. The arcade is visually impeded in the centre by the edge of the Prudential Assurance building which extends into the arcade, which means that one cannot see from one end of the arcade to the other. This, coupled with the closing in of the large skylights that used to allow natural light into the space, means that Noordvaal Arcade has become a rather unpleasant artificially lit tunnel within the urban fabric of Pretoria.

Where the arcade edges the site, there is a high wall that blocks the lot from view except through the small access gate. This middle section of the arcade is open to the sky and is a much more pleasant space than the rest of the arcade. The level of the arcade is 1,1m higher than the finished level of the site.





Fig. 28: Site mapping and views



Prudential Assurance building ■

The Prudential Assurance building is an eight storey office block that is well used; it is in good physical condition and forms an important part of the building edge that faces onto Church Square.

The only changes that will be made to this building will be to the eastern facade that faces into the site. The retail edge on the ground floor in the arcade will be re-appropriated as an auxiliary space that will serve to better connect the arcade to the site.

The National Film Video and Sound Archives ■

The four buildings on the corner of Andries Street and Vermeulen Street form The National Film Video and Sound Archives (NFVSA) complex. This complex used to house The National Library of SA (NLSA), but the limited space saw the relocation of the NLSA to its new facility on Andries Street and the buildings were taken over by the NFVSA. The buildings are currently undergoing renovation as they upgrade the facility.

These buildings are all in a good condition and are protected under the National Heritage Resources Act as having national heritage status because they are older than 60 years.

The first of these buildings (a) serves as the northern edge of the site and was once the Extra-Curricular Building of the University of Pretoria before becoming the State Library. Constructed in 1918-1919 by the Public Works Department, this classically symmetrical three-storey building is stepped back from the street edge but has

- Latent space
- Buildings with heritage value
- Existing buildings
- Empty/Obsolete structures



National
Film, Video
and sound
Archive

Bothongo
Heights

Retail and
offices

Capitol
Towers
South

Prudential
Assurance
building

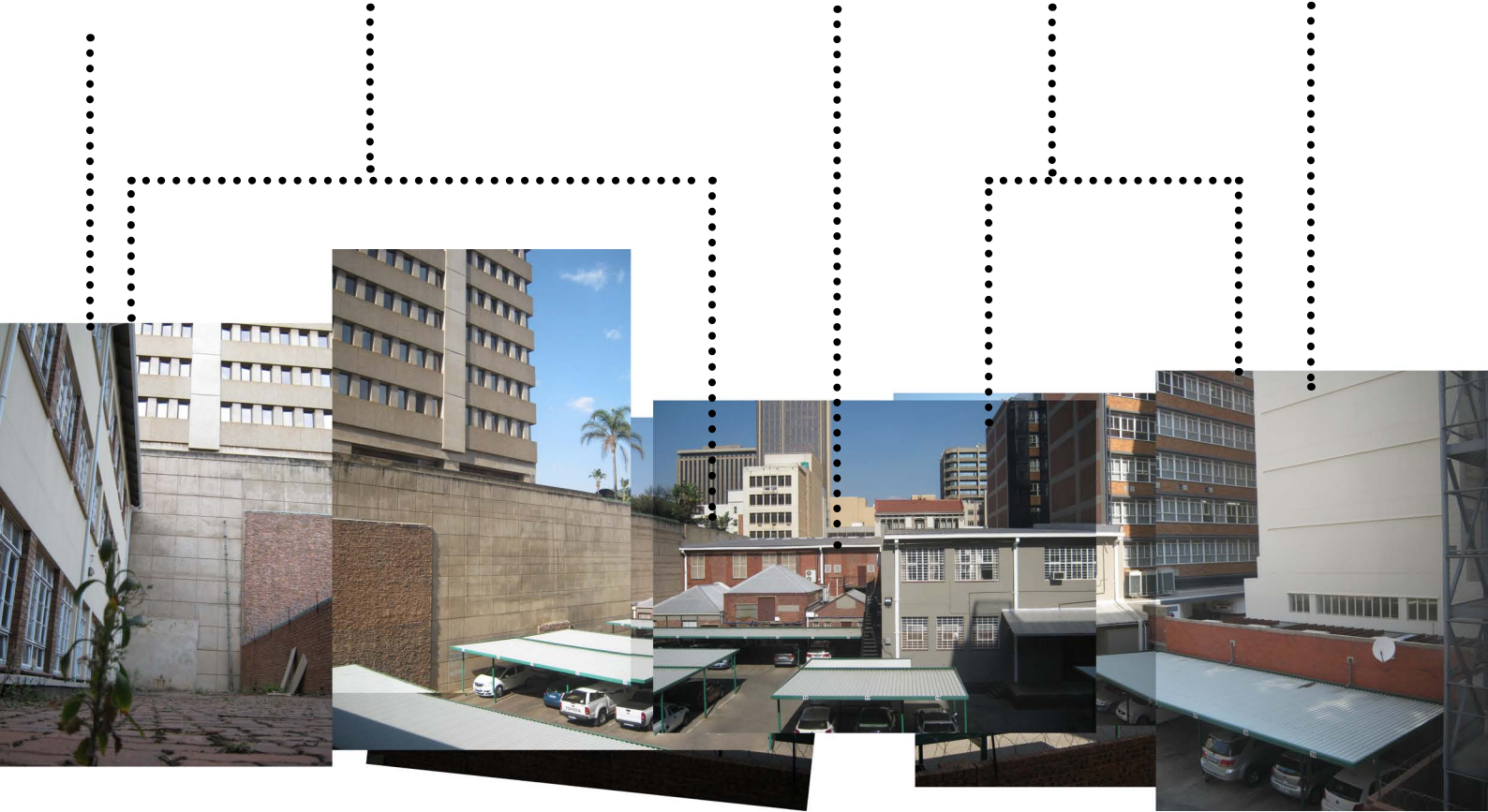
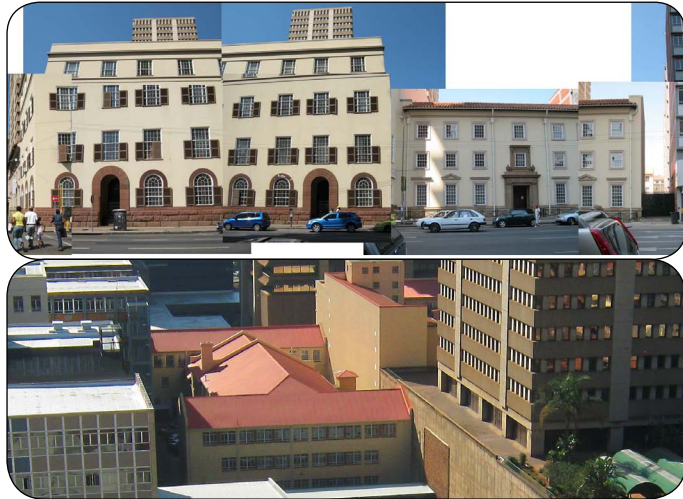


Fig. 29: The Site viewed from the Archive building

a low fence that runs against the walkway, effectively preventing any interaction between the building and passing pedestrians (Le Roux 1992:72).

The northern facade of the building is currently hidden behind a walled in courtyard that is used purely as temporary storage.

Directly next to this building on Vermeulen Street is a four storey corner building (b) with a flat roof and next to that on Andries Street is a small double storey building (c) that were used as the open library. The smaller building is theatrical and full of rich and unnecessary detail, perhaps because it was once a Vaudette theatre (Le Roux 1992:73).

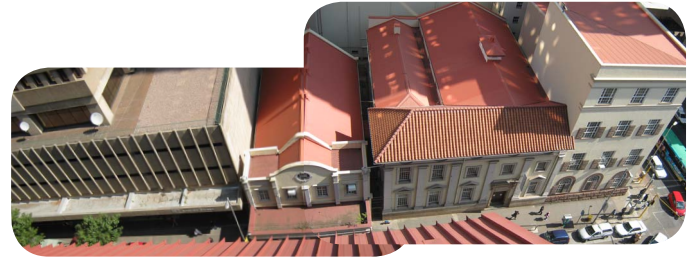


The fourth building (d) in this complex is a double storey with a central rounded gable. It was built in 1899 as a Baptist Church, before changing hands in 1920 to the Full Gospel Church who then sold it to the Bourke Trust, who then sold it in 1933 to the government. It was used as an annex to the State Library building and used as a bindery. It is currently empty and unused.

The complex encloses a small courtyard space that is currently dominated by a later addition to the corner building; this building is not significant and was used as additional storage for the library. Now that the library has moved the building has become redundant. By demolishing this building it will be possible to better

connect the archive buildings as a cohesive unit as well as create potential to connect the complex to the proposed site.

The NFVSA is a government archive and a valuable



resource centre for the audio-visual heritage of South Africa. The NFVSA collects audio-visual and related material such as sound recordings, slides, scripts and posters, made in or about South Africa. In so doing it preserves the audio-visual heritage of the country for future generations.

NFVSA has a library dealing with audio-visual material, as well as information on literature, music, sculpting, painting and theatre. There is a reading room where researchers and students can access the archive materials and make use of the computerised database.

The selected site has potential to be linked quite strongly with the archive complex in an effort to make it more accessible to the public and encourage the development of their Outreach Section whose aim is to take the “Cinema to the people” where disadvantaged communities can benefit from it (South African National Archives).

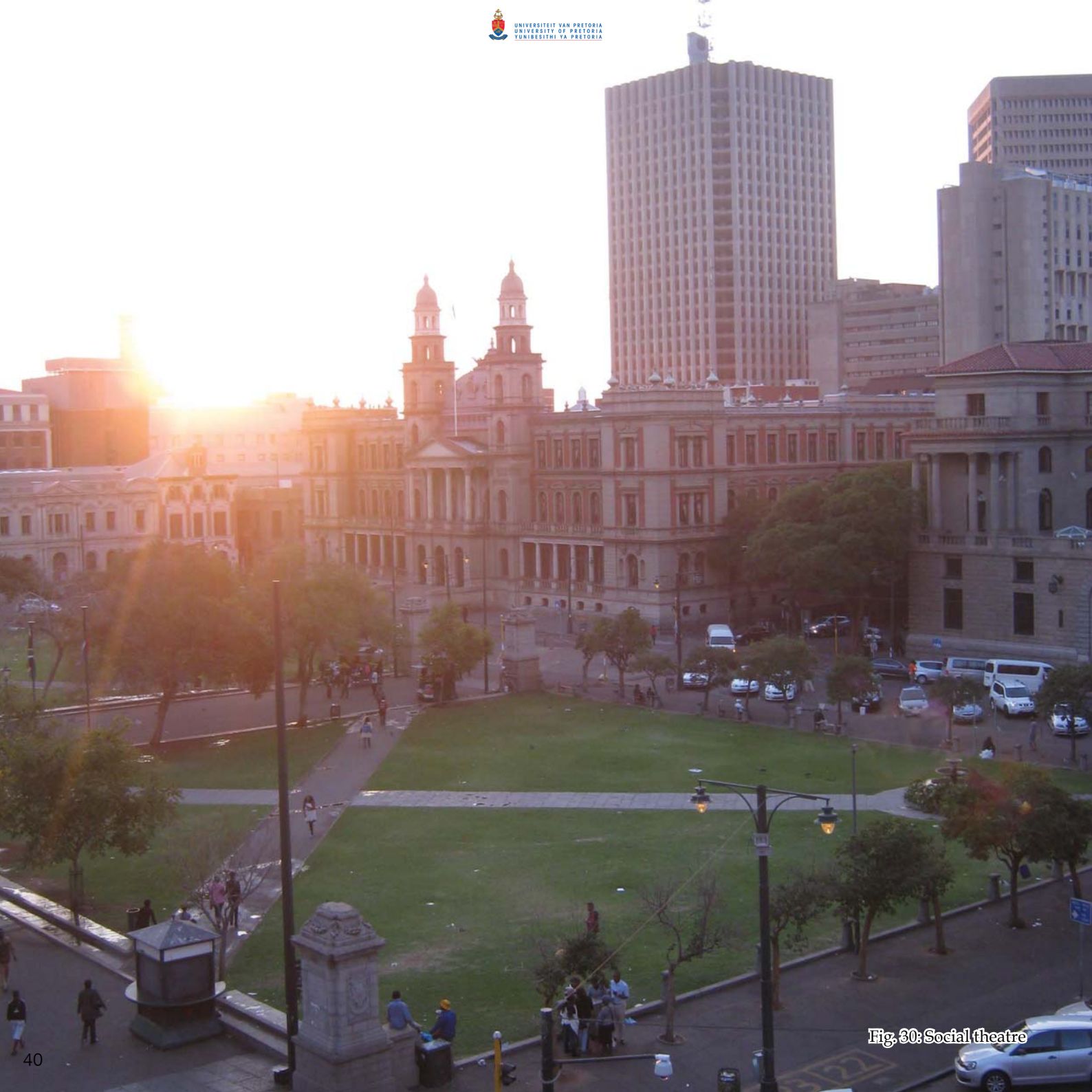


Fig. 30: Social theatre

4

Design process

4.1. Vision: Theatre of a living city

In order to transform the selected site into a living public landscape, the design process will need to address the pragmatic physical considerations of a social space as well as the underlying issues of economic input and social perceptions regarding the transformation of the latent space from a parking lot to a functioning public park.

The final design will be phased using the tactical approach outlined in chapter three and the introduction of strangeness through physical interventions within the landscape will play a pivotal role in the changing of both public and private perceptions of the value of the site over time.

The site will be left open to the sky and the central space unprogrammed to encourage spontaneous use as well as to leave space for large installations within the finished square.

The edges will be programmed using the tactical urban landscape development guidelines explored previously (see p21), and these edges will serve to define and articulate the flow of movement and usage of the site as well as connecting the site to its greater context and thus integrating it into the urban fabric of Pretoria.

The existing heritage of film and theatre on the selected site will form the basis of the design concept.

“I can take any empty space and call it a bare stage. A man walks across this empty space whilst someone else is watching him, and this is all that is needed for an act of theatre to be engaged” (Brook 1968:9).

Daily Performance

During business hours the city of Pretoria is animated, a social theatre of continuous production. The landscape of the city is a stage upon which the daily rituals of life become a chaotically orchestrated flow of movement, colour and noise against the grey backdrop of building facades.

Actors flow from one scene to another as either active protagonists or passive observers, all the while being observed by an audience of their fellows.

The rivers of cars and mountainous building facades of the city break the stage into a series of sets in which the landscape design defines the potential for self-expression. Where these landscapes allow, the nature of the daily production in one particular set will be varied from one day to the next, which encourages daily interaction. However, where the landscape is static and unable to support new use as defined by the actors, the set becomes monotonous and uninteresting.

The introduction of new daily performance through physical design interventions will assist the development of a landscape that is dynamic in nature: deciduous planting that grows and changes with the seasons, a water feature that uses storm water to create temporary displays, performance space that encourages spontaneous self expression.

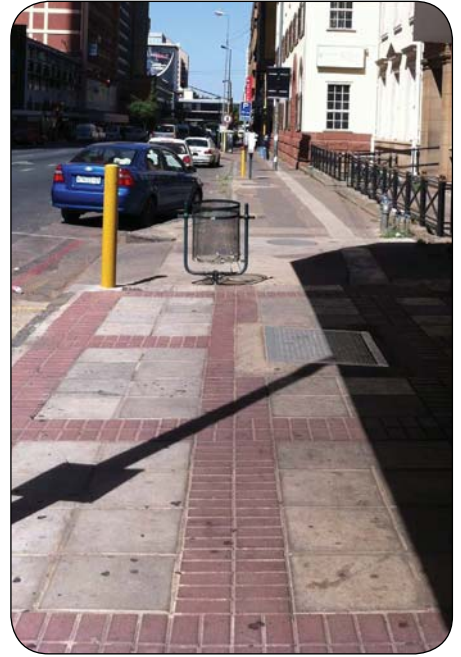
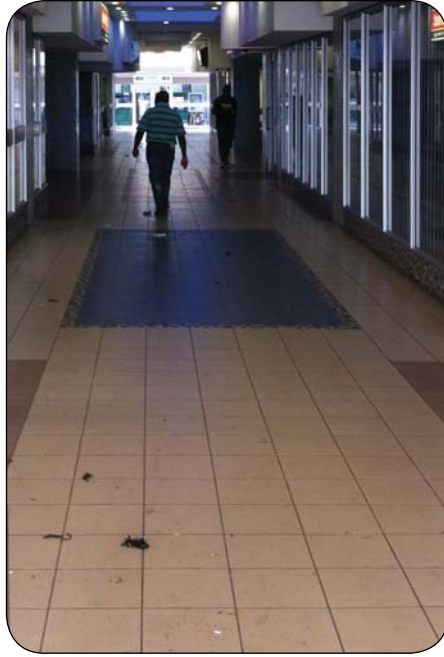


Fig. 31: Horizontal urban surfaces



Fig. 32: Blank/dead wall



Fig. 33: Service Wall

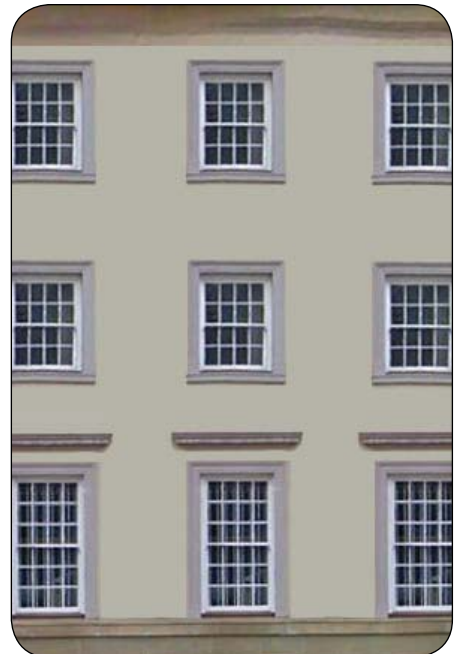


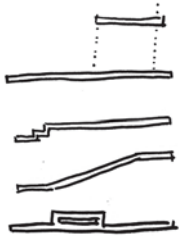
Fig. 34: Facade

4.2. Site analysis

Urban Surface typologies

Within the site there are several types of urban surfaces that need to be addressed both horizontally and vertically.

The horizontal ground plane is a surface that physically connects all the public space in the city and needs to be articulated to ensure safe and easy movement. Through the articulation of comfortable level changes, and choice of appropriate durable materials to reduce both wear and potential risks associated with public use, such as slipping, tripping or falling.



The ground plane will serve as a functional stage upon which the daily performances of life can be acted out.

The second type of surface is the vertical wall. The site is hidden between tall buildings and as such their walls define the edges of the site. These surfaces are invisible to the general public and as such are left untreated in terms of aesthetic considerations.



Vertical walls can be seen as the backdrops against which daily performances are viewed.

The existing vertical surface types can be sub-divided into three categories:

1. Blank/dead walls

- These walls are sheer vertical edges that do not allow physical or visual permeability.
- They do not allow any interaction between the site and the interior of the building.

Blank walls serve as potential backdrops for new interventions and art installations that will activate the edge and better connect the site to its immediate context.

2. Service walls

- These walls are articulated with pipes and vents that serve the buildings and need to remain accessible for maintenance.
- These service walls need to be articulated in such a way as to protect them from potential damage or vandalism by the public and also to protect the public from any danger that could be posed by hot pipes or vents.

Service walls can either be screened off or celebrated depending on their position.

3. Facades

- These walls are articulated with windows and doors that allow both visual and physical permeability between the building interior and the site.
- The more visible the site, the more likely people from surrounding buildings will be encouraged to explore and make use of the park.

Existing facades with heritage or aesthetic value should be celebrated and kept unobstructed wherever possible to improve passive surveillance of the site and visual permeability.

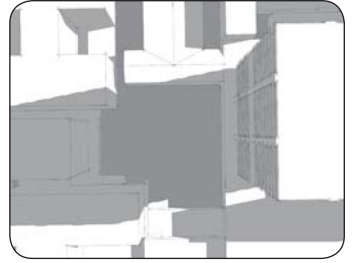
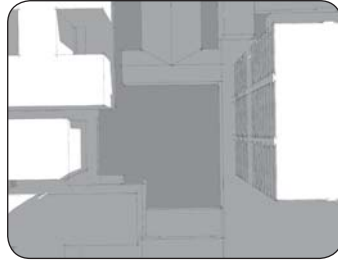
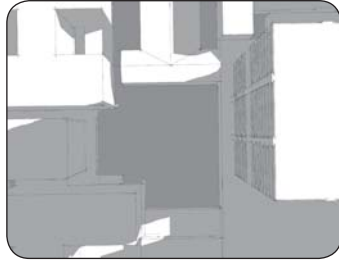
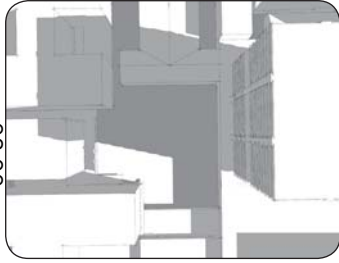
Summer

Autumn

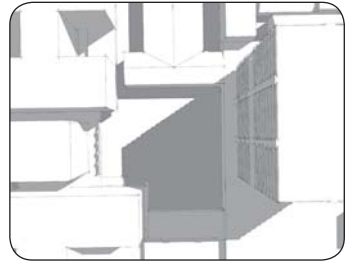
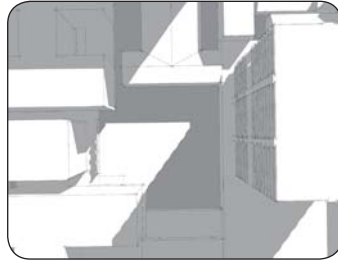
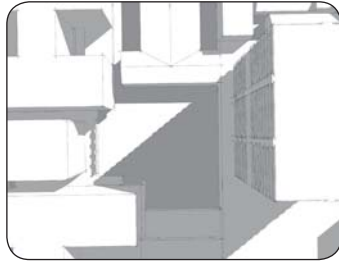
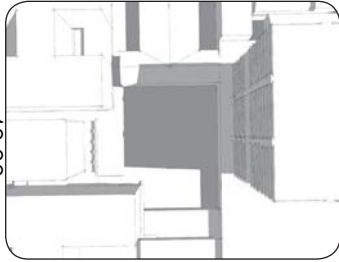
Winter

Spring

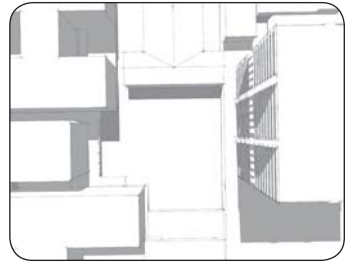
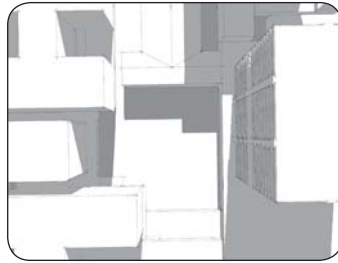
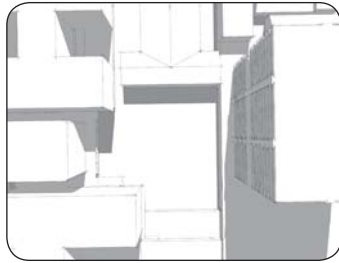
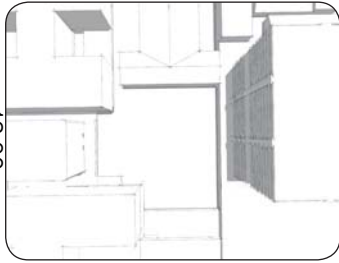
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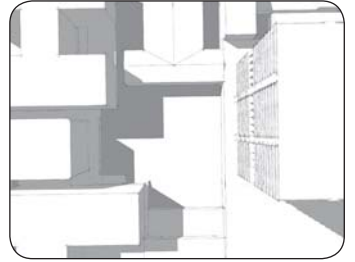
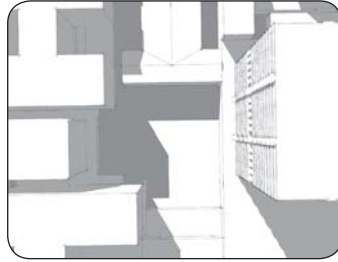
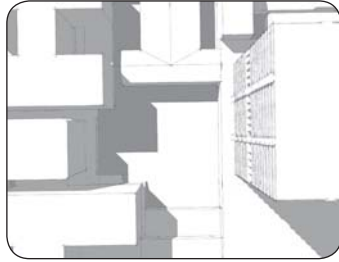
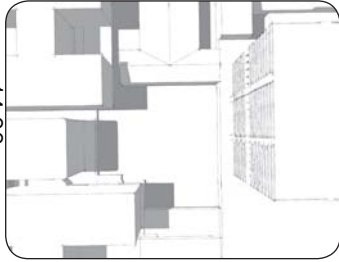
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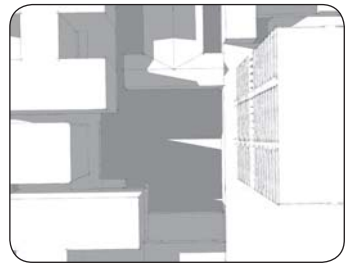
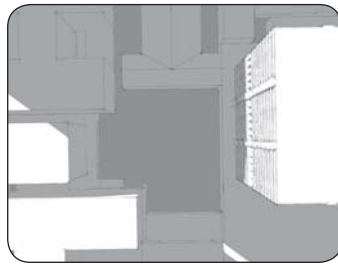
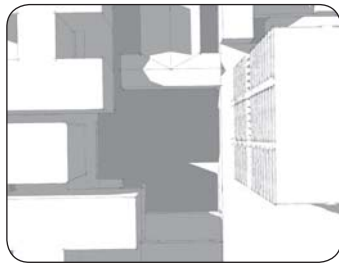
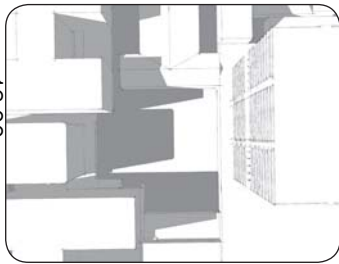
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14:00



16:00



Macroclimate

Pretoria has a temperate climate and is one of the most climatically pleasant areas in the country. The city experiences an average of 8.9 sunlight hours every day, with summer temperatures averaging about 29°C, and winter averaging about 19°C. There are occasional extreme heat waves and cold fronts that need to be considered and provided for through alternate shading and sun exposure.

The average number of rainy days per annum is 50-89 days and heavy rainfall is often accompanied by thunderstorms. Storm water should be collected and recycled for irrigation during dry periods which are common on the Highveld. Pretoria in general is fairly wind-still and winds come primarily from the northeast.

Microclimate

Due to the shading caused by the buildings the average temperature on the site is a few degrees lower than the average for Pretoria, but the ingress of sunlight and the sheltered nature of the site creates a pleasant environment during the colder months of the year.

The building edges protect the site from wind but limits natural ventilation (Bothma 2003). Increasing the physical permeability of the site to the street will improve the ventilation of the site and assist in regulating the comfort levels within the site during the summer months.

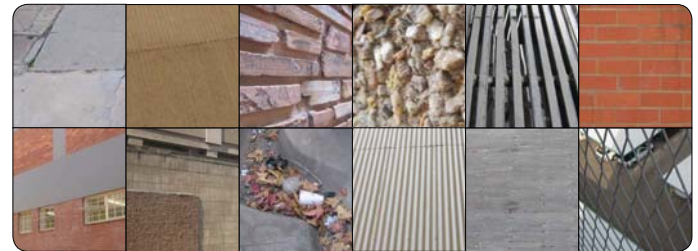
The site is located between several tall buildings which limit direct sunlight as discovered through an analysis of shadows during the year using a digital model. (Fig. 31) Reflected light contributes the majority of the light within the site which creates a pleasant level of natural light all day. The proposed design should take into consideration the limited amount of direct sunlight hours required for planting within the site.

Noise

The ambient noise level within the site is muted in comparison to the streets that edge them. Traffic sounds and voices are recognisable but vague and the surrounding offices do not contribute much noise beyond occasional drifting conversations or quiet music from an open window.

This existing quiet nature of the site contributes to the creation of the desired sense of strangeness but opening the site up to the street and to public use will increase the noise levels. The introduction of a new source of white noise will help counteract this increase and maintain the character of the site.

Colour



Colours in Pretoria's urban core tend to be very muted in terms of the physical built environment. Jacaranda trees transform the city once a year with their bright purple blooms but other than that the majority of the colour and vibrancy within the urban core is generated by the people within it.



The introduction of colour into the site will further enhance the sense of strangeness by creating a stark contrast between the new landscape and the existing urban streetscape.

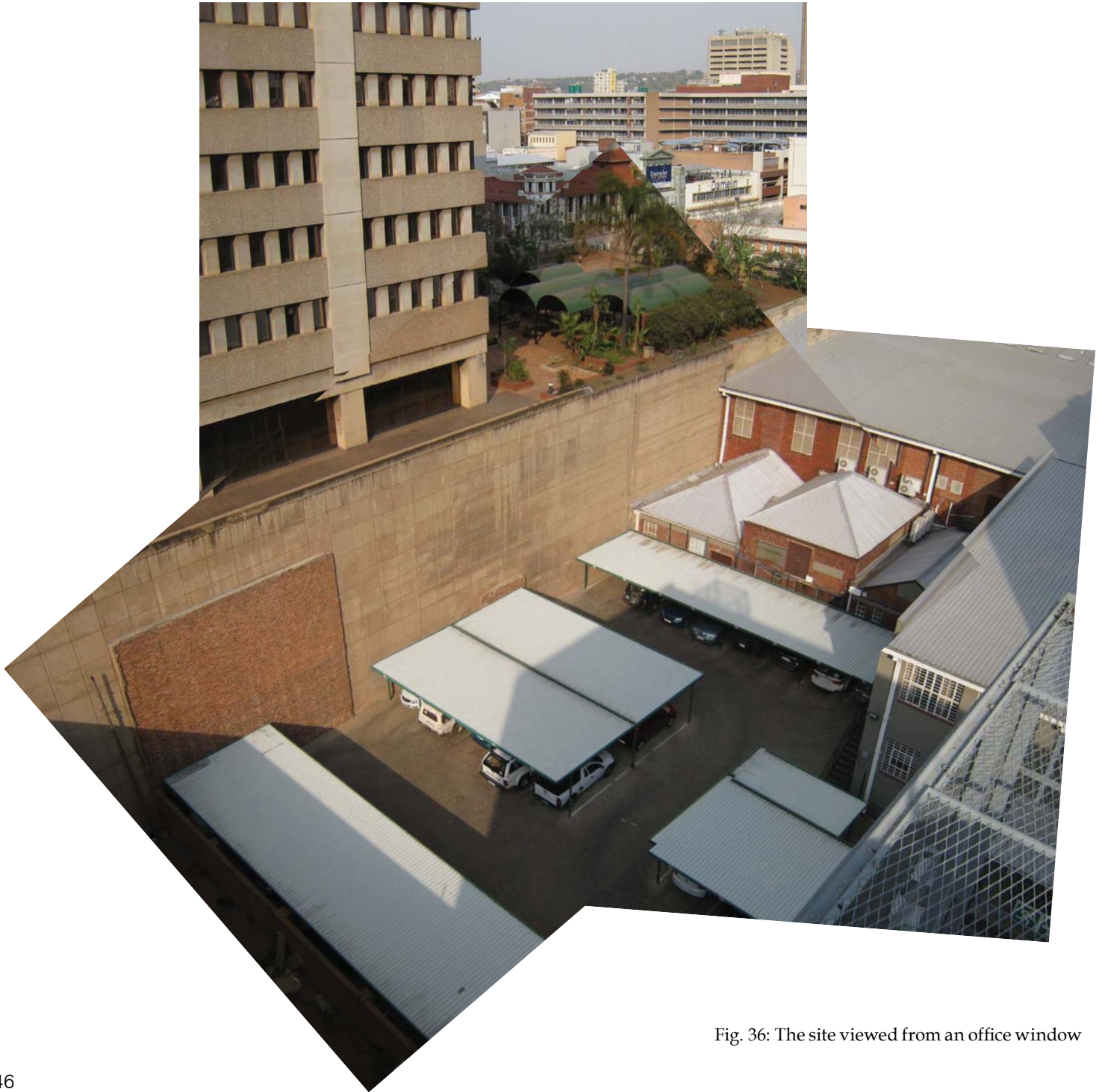


Fig. 36: The site viewed from an office window

4.3. A process of development

The development of latent spaces in Pretoria should follow a series of tactical urban landscape developments that embodies the following five elements:

Discovery, Engagement, Support, Investment and Delight (Fig. 47)

This specific site is owned by City Property as part of the Capitol Towers development. The development of this parking lot into an urban landscape can form an important part of the company's attempt to attract clients to invest in the new high end residential units they are currently marketing within the CBD.

When South Point developers created the Grove in Braamfontein, they sacrificed an entire office block to develop one small square. That project added valuable social space to the area which caused the demand for their residential units around the square to increase which in turn increased demand for the retail units edging onto the site.

The phasing process outlined below will ensure that the development of the site can be properly assessed for social and economic viability before permanently converting the site into a park.

4.4. Discover

In order to attract more attention to the site's latent potential a new strange element will be introduced that will be focussed on both ground level pedestrians and building users - who are able to view the site from above through their office windows (Fig. 36). To this end, the intervention needs to make use of both horizontal and vertical urban surfaces while retaining the existing weekday parking function.

The latent space identified is currently completely enclosed by buildings, except where it connects to the private vehicular access servitude and where it connects to Noordvaal Arcade. The edge between the site and the



Fig. 37: Noordvaal arcade edge with the site and access gate

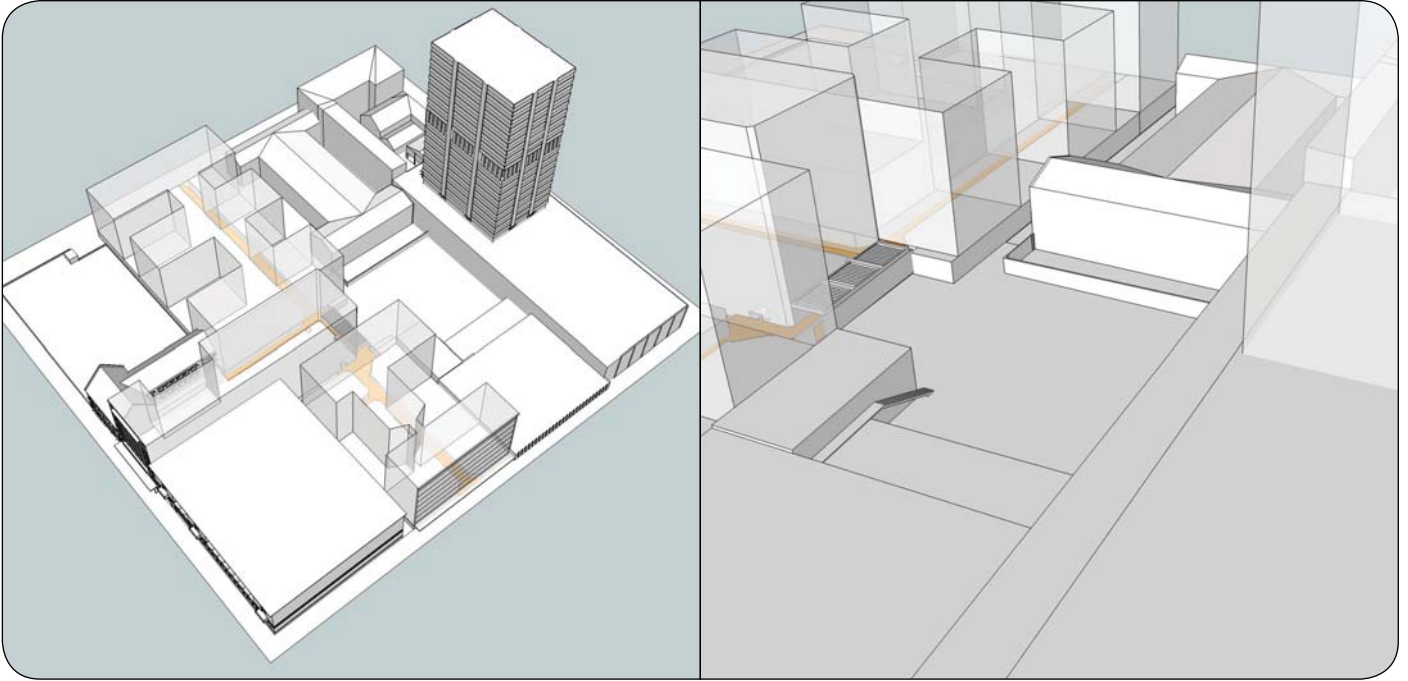


Fig. 38: Existing site

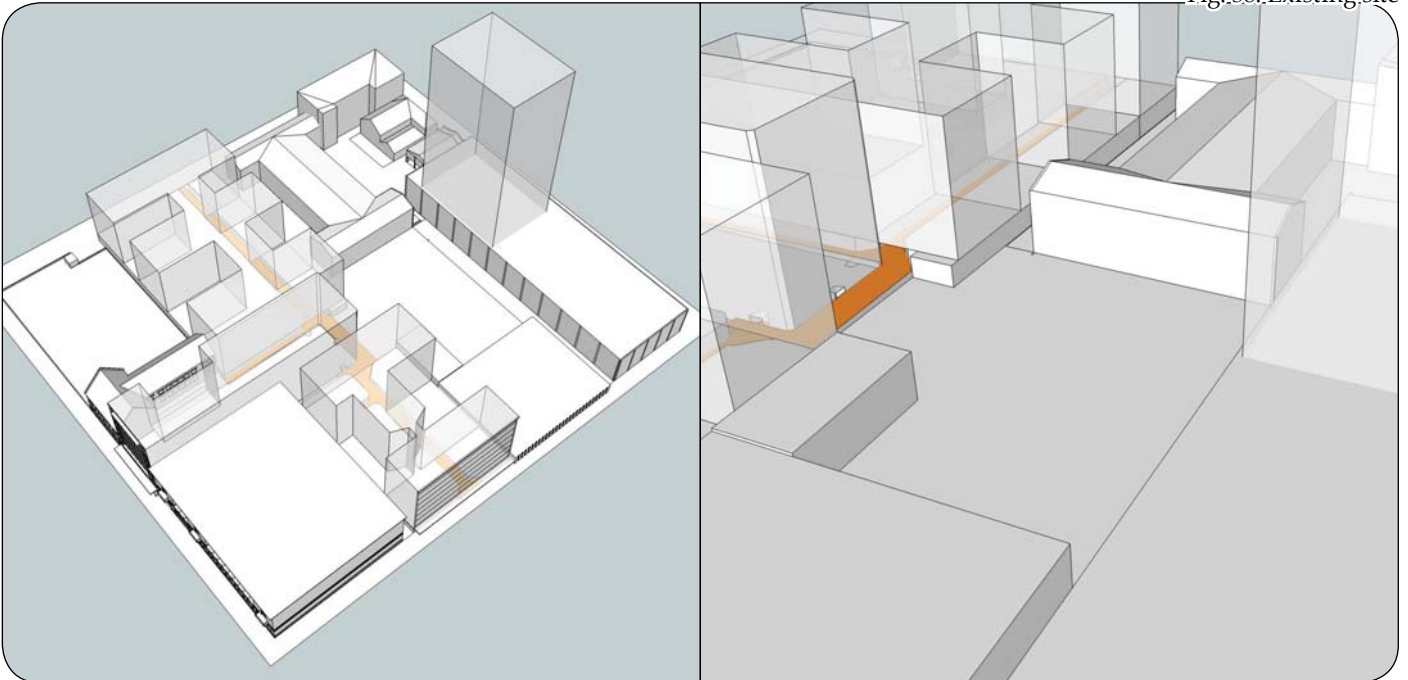
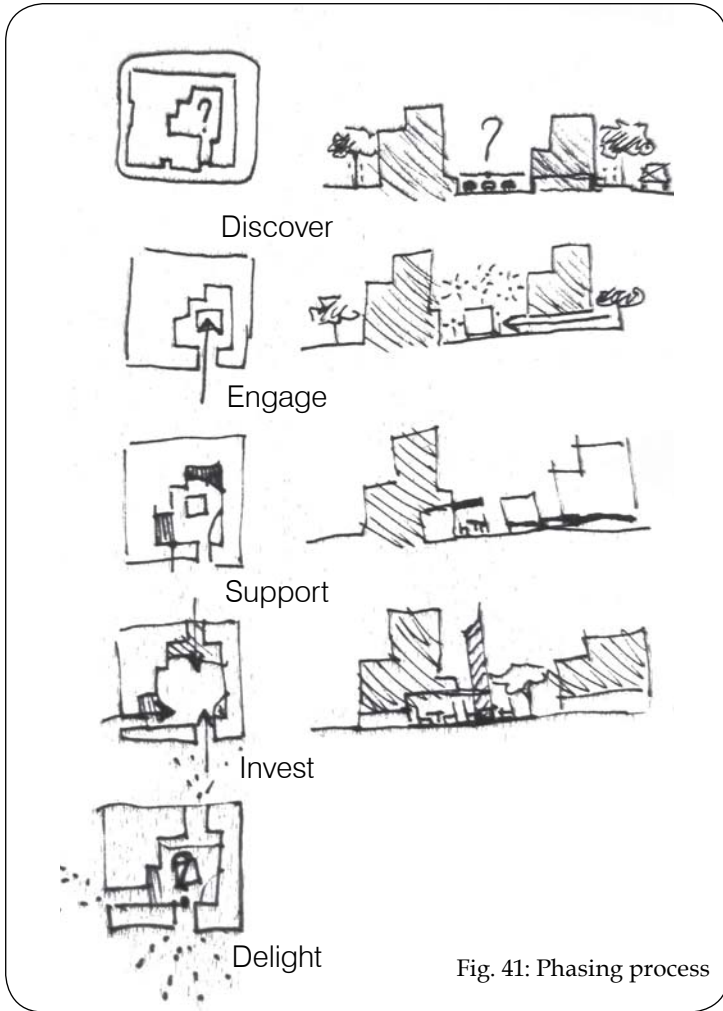


Fig. 39: Site after demolition of obsolete structures



arcade is defined by a high wall with a small pedestrian access gate that provides the only real visual access to the site (Fig. 37). By replacing the solid wall with a permeable fence, the site will become more visible to users of the arcade making the space more public.

This phase of development requires a bold intervention that encourages debate regarding its purpose in order to attract a larger audience through word of mouth. It should encourage speculation relating to the existing conditions and create a desire to enter and explore the space.

The proposed intervention is a kinetic sculpture that will create a low level of white noise as the wind moves through it, causing elements of the sculpture to collide with one another. As the site is relatively wind still on ground level, the sculpture will need to be elevated. The noise generated by the sculpture will create an additional impetus to investigate and discover the site.

The sculpture will be suspended over the parking lot by a cable strung between Bothongo heights and the arcade. The form was selected to pull the observers eye up toward the sky and create a sense of movement.

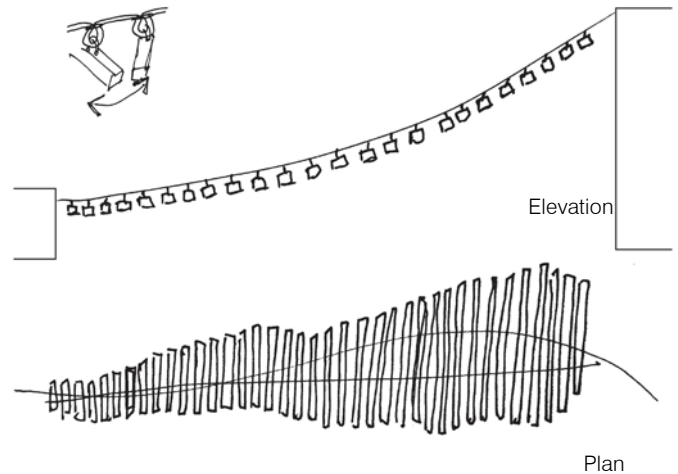


Fig. 40: Wind Sculpture

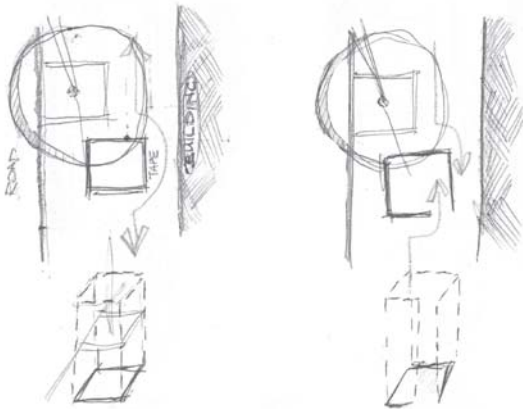


Fig. 44: Urban Experiments

"...The potential and significant field of action today is less the design of monuments and master plans than the careful modification and articulation of the urban surface" (Wall 1999: 247).



Fig. 42: Experiment 1



Fig. 43: Experiment 2

4.5. Engage

Soon after the initial discovery stage, it is important to assign new “pop-up” functionality that relates to the overall theatrical vision for the finished project. Precautions must be made so that these features do not interfere with the existing use of the space. This will create a dual-use environment that extends the life cycle of the site. Any structures that restrict the new functions should be removed in order to maximise spontaneous development opportunities.

Eugenio Barba wrote, in *The Essence of Theatre* (2002:16) that “the essence of theatre does not reside in its aesthetic quality or in its capacity to represent or criticize life... Theatre can be a social cell that embodies an ethos, a set of values that guide the refusals of each of its components.” Barba discusses the introduction of actor training based on exercises, and how these exercises “challenge daily automatisms” and become embedded in the extra-daily behaviour of the stage. These exercises aim to create variation in the way the actors respond and move within any given environment (Barba 2002:23).

While the city user cannot be expected to actively partake in training exercises, the potential exists to encourage increased awareness of the urban environment by altering the movement patterns and rhythms of actors within the theatre city through physical interventions.

Urban experiments

In an attempt to explore the potential of physical interventions within an existing landscape, the author conducted a series of urban experiments whereby a two dimensional shape was taped onto the ground plane of a busy thoroughfare and recorded the reactions of the users.

A simple square on the ground plane took on three dimensional proportions when noticed by the user. The footage revealed a marked aversion to stepping into the square and users were seen to consciously alter their

paths in order to avoid stepping into the perceived space within the square. While many busy pedestrians failed to notice the square until they found themselves inside it, they all found themselves disoriented by the strange element in a familiar landscape (Fig. 42).

Through steady foot traffic, one of the corners broke away from the closed shape and seemed to create a subconscious doorway in the perceived obstruction created by the square. Users were less inclined to completely avoid the square but most diverted from their paths enough to ensure that they entered through the dissolved edge (Fig. 43).

From these results one can conclude that it is possible to change the way in which people use a space through very subtle interventions. This perception on the user can have a strong presence which elicits a very notable effect.

The proposed interventions comprise both permanent and temporary elements as would be found in theatre design; the permanent being the stage upon which performances are played out, and the temporary being the sets which are changed for every show and often moved about during performances. These elements include backdrops, platforms and other scenery as well as props. This can be physically translated into the design of the site.

Permanent

One of the most prominent elements of the site is the 14m high rear facade of Bothongo heights. This blank wall serves as a dramatic backdrop to the existing site functions but is a completely impermeable dead edge.

The wall will be appropriated for use by the film archive and a section painted white to be used as a projection surface for weekly film screenings that will be open to the public. This will necessitate the removal of the shade structures in the centre of the space to allow the screen to be visible to individuals sitting on the ground.

The site will be accessible through the arcade and participants will be notified of film screenings by word of mouth and through social networking links.

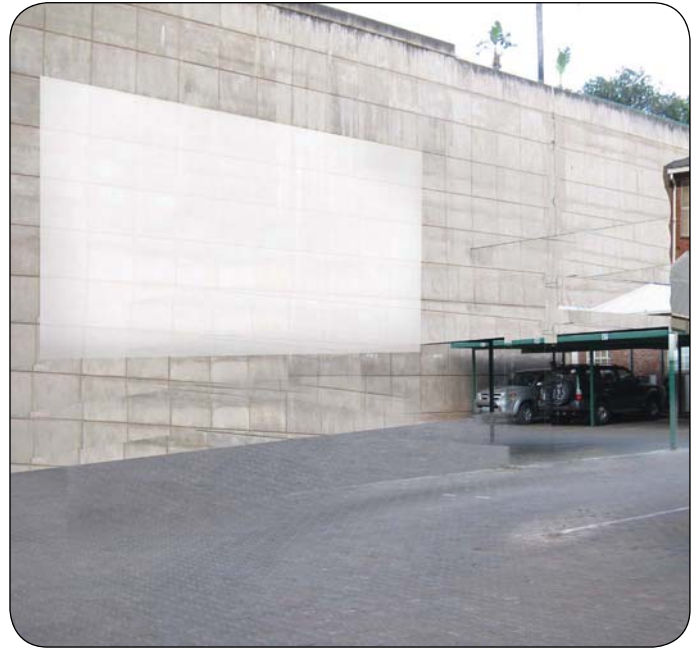


Fig. 45: Removal of parking structure and new painted projection screen

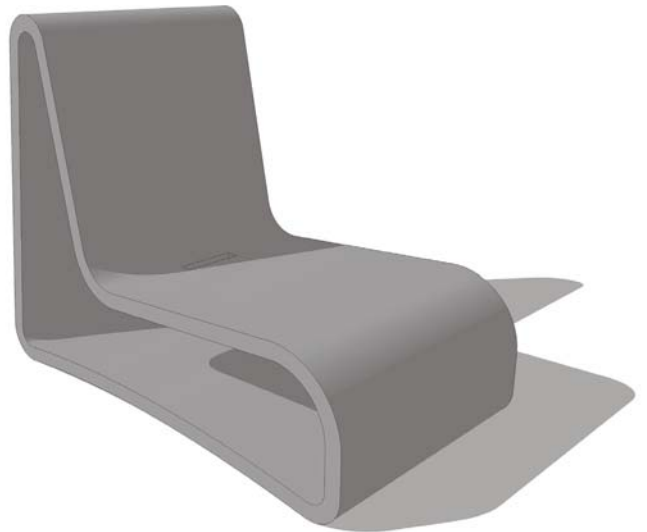
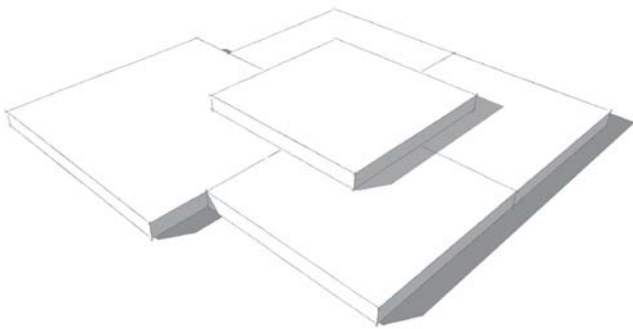


Fig. 46: Furniture

Food and drinks can be sold to generate revenue for future development. While this intervention is not viable during daylight hours when the film projections would be hard to see, it will encourage new night life within the CBD.

Temporary

Pop-up events are becoming increasingly popular in South Africa as marketing strategy for films and larger events and have been very successful as a tool for attracting large crowds of people from a wide variety of backgrounds. These pop-ups have the potential to become permanent installations over time if they prove popular with the community that uses them, but can be easily removed or changed if they don't.

Pop-up theatre performances and workshops can be initiated over weekends and holidays, where amateur theatre groups and enthusiasts can perform to a wider audience, who can simply enjoy the show on a sunny afternoon. These activities will form the nodes around which the community will gather and move within the site.

Many of these pop ups require nothing more than a few props and some imagination, but the formalisation of a demarcated performance space within the site can be beneficial in creating a sense of order that will assist the users to orientate themselves within the larger site.

A series of low platforms, that can be used as a makeshift stage or prop during performances, will be introduced to the site. They will be robust, easily moveable and adjustable to allow them to sit comfortably on the existing slope of the site, as well as link to other platforms. These platforms will be incorporated into the final development. The new painted screen and sculpture from the discovery phase will serve as a backdrop to the performances within the site when viewed from the arcade.

Seating plays an important role in any social space as they serve as a medium upon which individuals can rest or engage in extended conversation with one another. The proposed seats for the site will not be fixed to the ground

so that they can be easily moved aside when the site is being used as a parking lot during business hours, or shifted into any number of user defined configurations when the site is appropriated as a new social landscape over weekends.

Documenting the successes and failures of each pop up event and adapting the installations accordingly should inform the final design for the site.

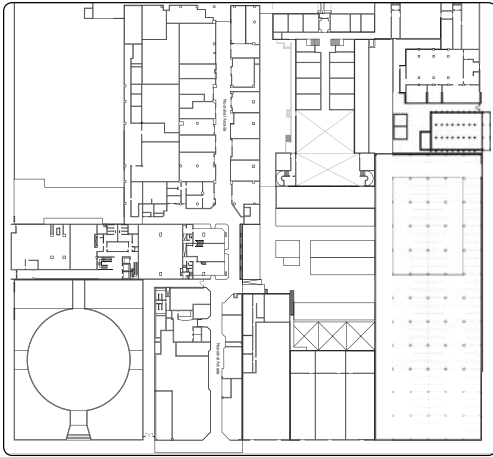
4.6. Support

Activation of the surrounding edges to support the new functions will ensure that the base social elements of a successful public space i.e. access to food, water, and ablutions (Whyte 1980) will be easily available and encourage continued use and a demand for further development.

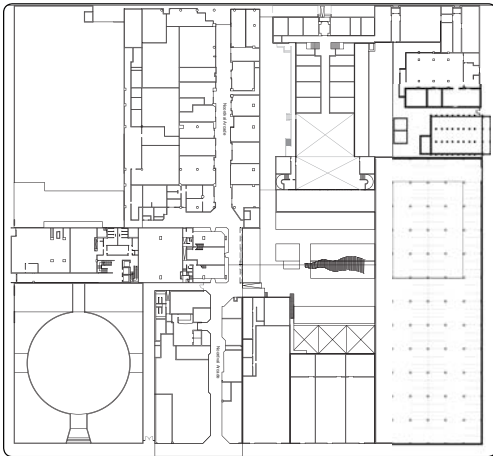
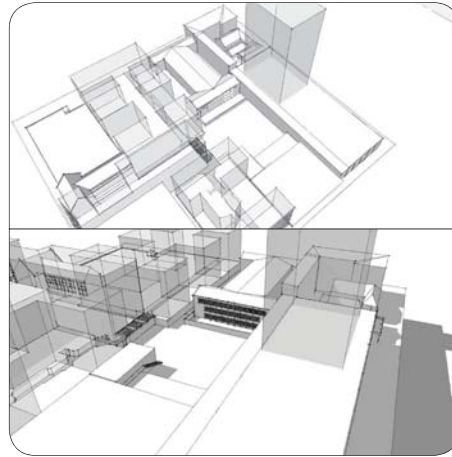
The retail units of the Prudential Assurance building protrude into Noordvaal Arcade and form the impermeable western edge of the site. The placement of the building creates a visual barrier within the arcade, blocking the line of sight between Church Street and Vermeulen Street. By consolidating the three units into one larger unit and retaining the existing glass display windows, a clear sight line through the arcade will become pronounced and should encourage thoroughfare and subsequent increased foot traffic to the site.

This new unit will be developed to act as a permanent foyer to the landscape and will house an information stand with adverts for upcoming events and a cafe with formalised tables and seating which will extend into the site through the articulation of the horizontal plane. Introducing wheelchair ramps, stairs and level seating areas will ensure universal accessibility, and allow for an improved user experience.

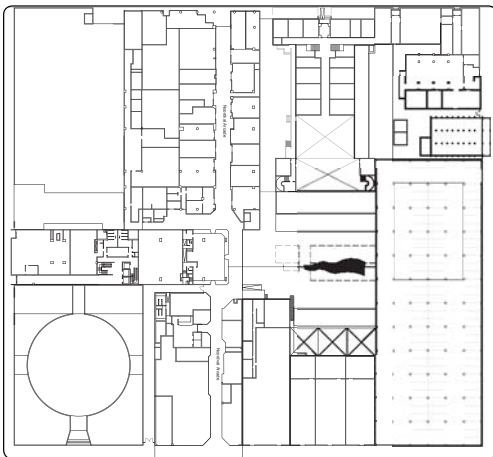
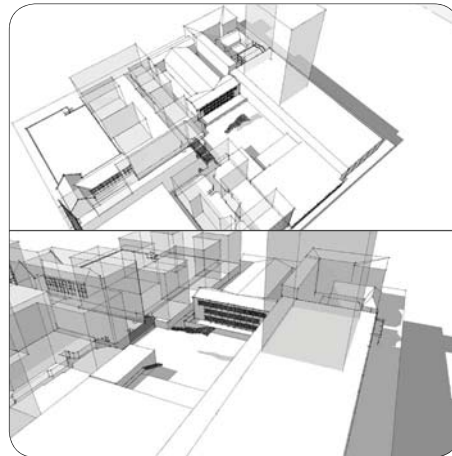
At this point of development, the temporary fence between Noordvaal Arcade and the site should be removed to encourage spontaneous use, as the original parking function of the latent space starts to become



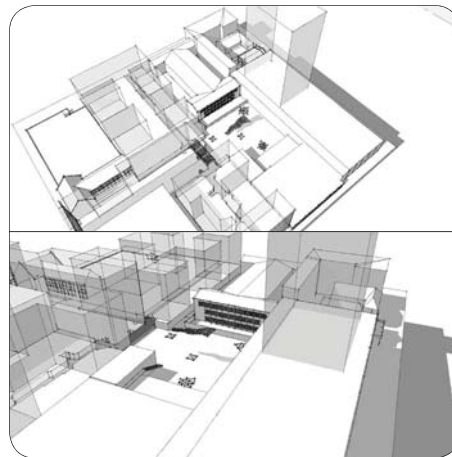
Existing

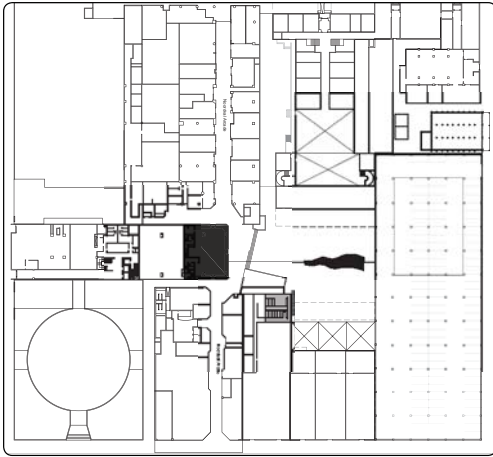


Discover

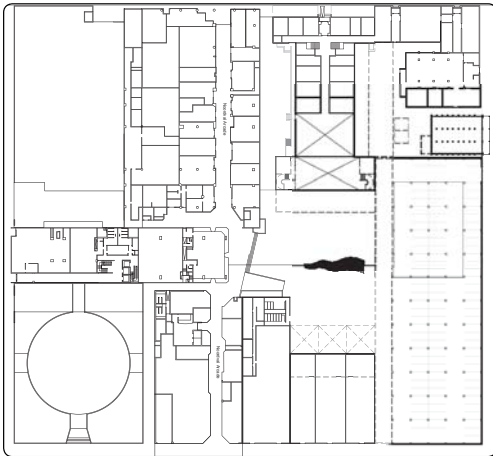
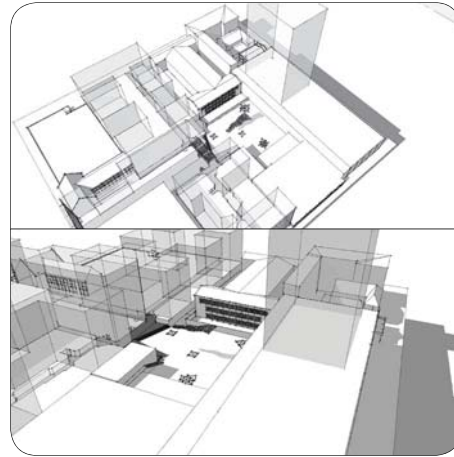


Engage

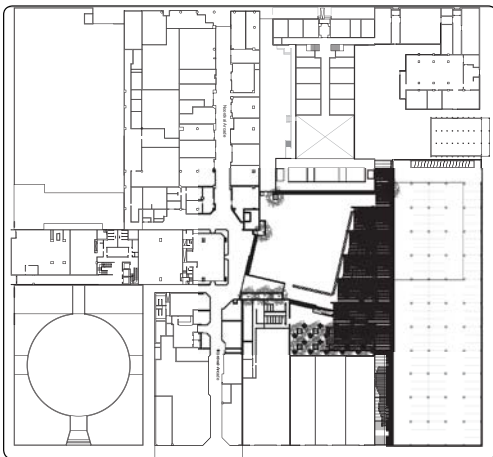
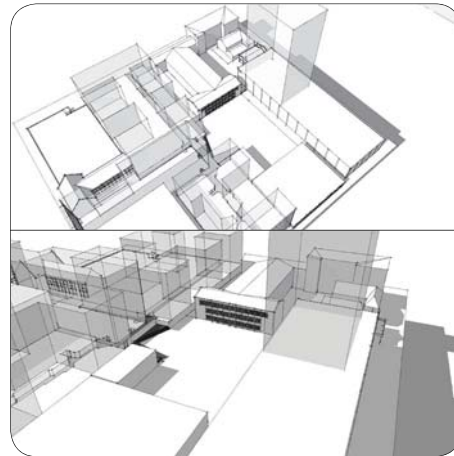




Support



Invest



Delight

Fig. 47: Tactical development of the site

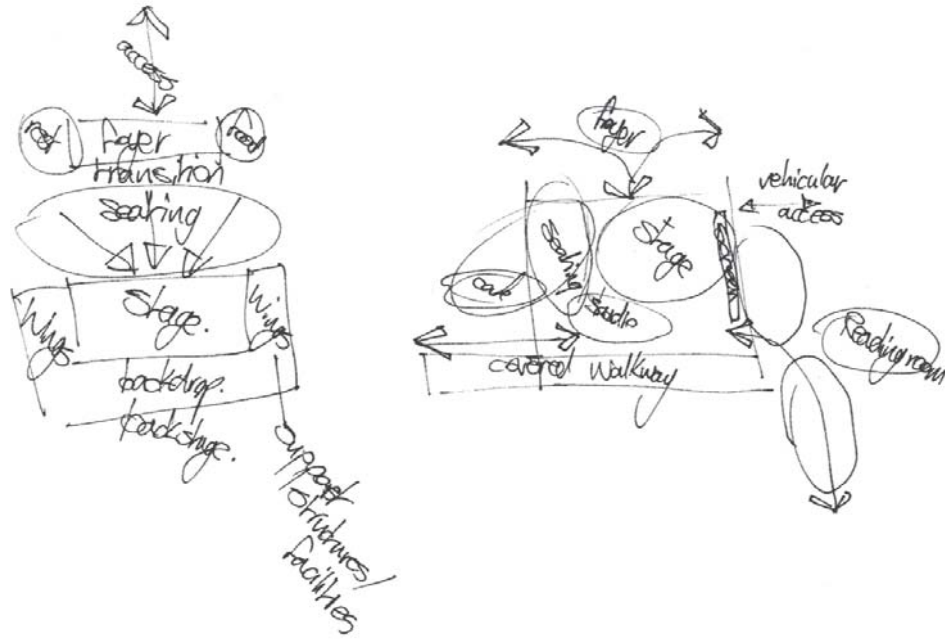


Fig. 48: Programmatic planning diagrams

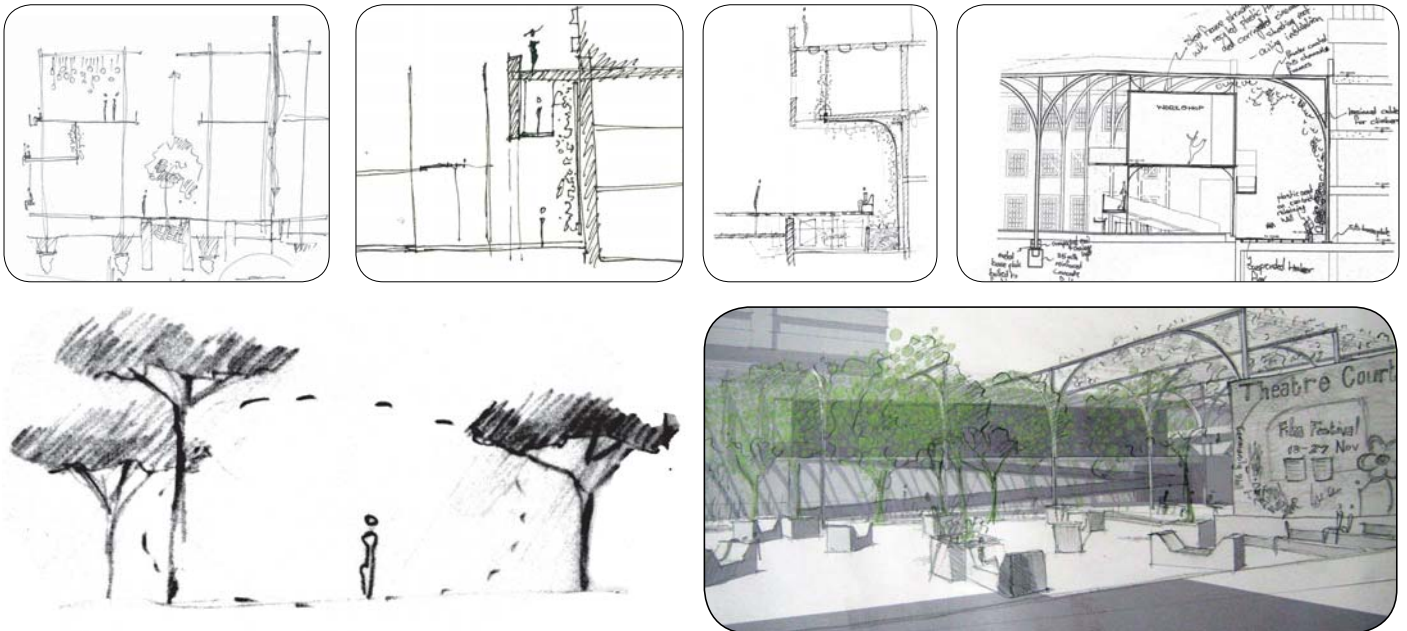


Fig. 49: Sectional development drawings

secondary to the functions of the new social landscape. Some parking bays will be permanently appropriated for use by the public and will be demarcated by the platforms introduced in the engagement phase.

Introducing new public toilets and developing the existing ground level edges to support the new landscape will bring an increased level of activity within the site as individuals will be tempted to linger within the space to enjoy a cup of coffee and chat with friends over their lunch breaks or after a performance.

After the implementation of these new supporting functions, the development should be assessed to determine any shortcomings within the original vision and then be amended and considered before a final design is approved.

4.7. Invest

This phase of development takes the vision for the site as well as the previous three levels of development and formalises the result into a functional and robust landscape design that can be implemented within the latent space.

The following is a schedule of accommodation and includes the necessary public elements that should be included in the finished park:

- Seating areas
- Food
- Transitional spaces
- Green spaces
- Quiet protected rest areas
- Covered areas for protection from the elements
- Public viewing area for film showings
- Open space for temporary installations with access to power points
- Public toilets/urinals
- Access to clean drinking water

A series of guidelines have been drawn up that are based on the seven aims of a living city (p.14) and can be used as a baseline for the minimum final design requirements of Pretoria's latent spaces.

Context:

- Context study should inform design: Investigate and retain elements of cultural/historical value wherever possible.
- Pretoria's heritage should be respected and dealt with in an appropriate manner.

As discussed in chapter 3, the archive complex is older than 60 years and as such is protected by the National Heritage Resources Act as having national heritage status.

In order to motivate the appropriation of the south wing of the old state library building as a garden and the opening up of the facade it is necessary to define a statement of significance that highlights what makes the building significant as a heritage building and what can be changed without reducing its value.

The value of the old state library lies in its street side facade and roof structure which relates it to the other buildings in the complex.

The northern facade on Vermeulen Street serves as the most important heritage element of the site. This facade connects with the rest of the archive complex and forms the vertical edge that defines the corner of Vermeulen Street and Andries Street, and the gabled wings of the building create defined edges that support the steel roof and form an important part of the complex aesthetic.

The southern facade, however, is utilitarian and unremarkable in comparison to the street edge facades, and it is currently hidden from view by a wall enclosing a service yard. The interior of the southern wing is unused, housing the old reading room of the library and two levels of unused storage space. The appropriation of this wing for development will not adversely affect the heritage value of the building and will serve as a valuable



Fig. 50: New entrance

Chalk
Zone
USCOO
It you
in Jan
write you
Definitely b
I love
Jacobeth
Museum
Museum
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Museum

contemplation space within the park.

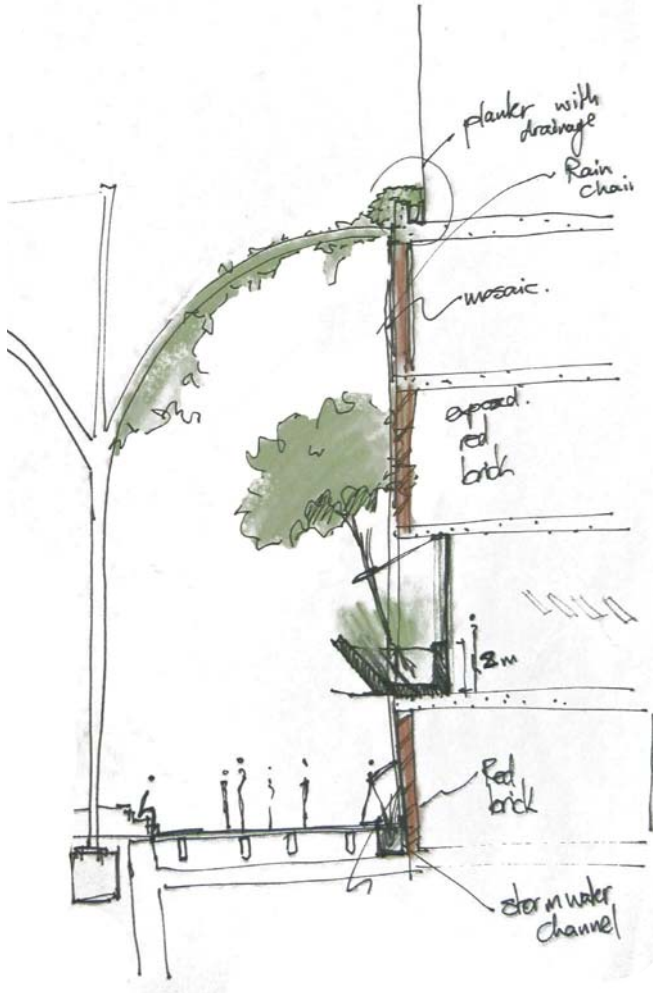
Including a small shop on the ground level that sells merchandise relating to South African film culture and a small coffee bar can provide a financial incentive for the appropriation of this wing.

The final design should be theatrical in nature, expressing the daily performance of the city. Creating a narrative of strangeness and delight within the site will compel users to move through it and explore the landscape. Each part of the journey through it will like a scene in a film. Every experience within each scene builds toward the experience of the next scene, and users control the level of interaction by choosing where to move and how long they choose to linger within any one scene.

Paving patterns that extend into the surrounding context from within the site will pull users toward the threshold where a public drinking fountain or a brightly coloured public bench will offer a moment of pause within the busy urban streetscape. Much like the system of curtains in a theatre can be used to conceal and reveal the wonders that hide behind them, the full extent of the site will be obstructed from view when viewed from outside, and only by crossing the threshold into the landscape will it be fully revealed.

The landscape is dominated by the large scale steel trellis that flies overhead and is covered with sweet smelling jasmine and honeysuckle. Trees protrude from the wall and create a strange romantic moment of discovery that pulls you forward (Fig. 50).

Rounding the corner of a small restaurant, a grove of trees (Fig. 51) and an overhead room are revealed to you, surrounded by a landscape of people talking, eating, fighting and laughing. An unpredictable soap opera of interaction and movement. Beyond the crowd a small theatre troupe bob and weave between one another in the middle of an open square as a group of children cheer. Music floats from the open doors of the



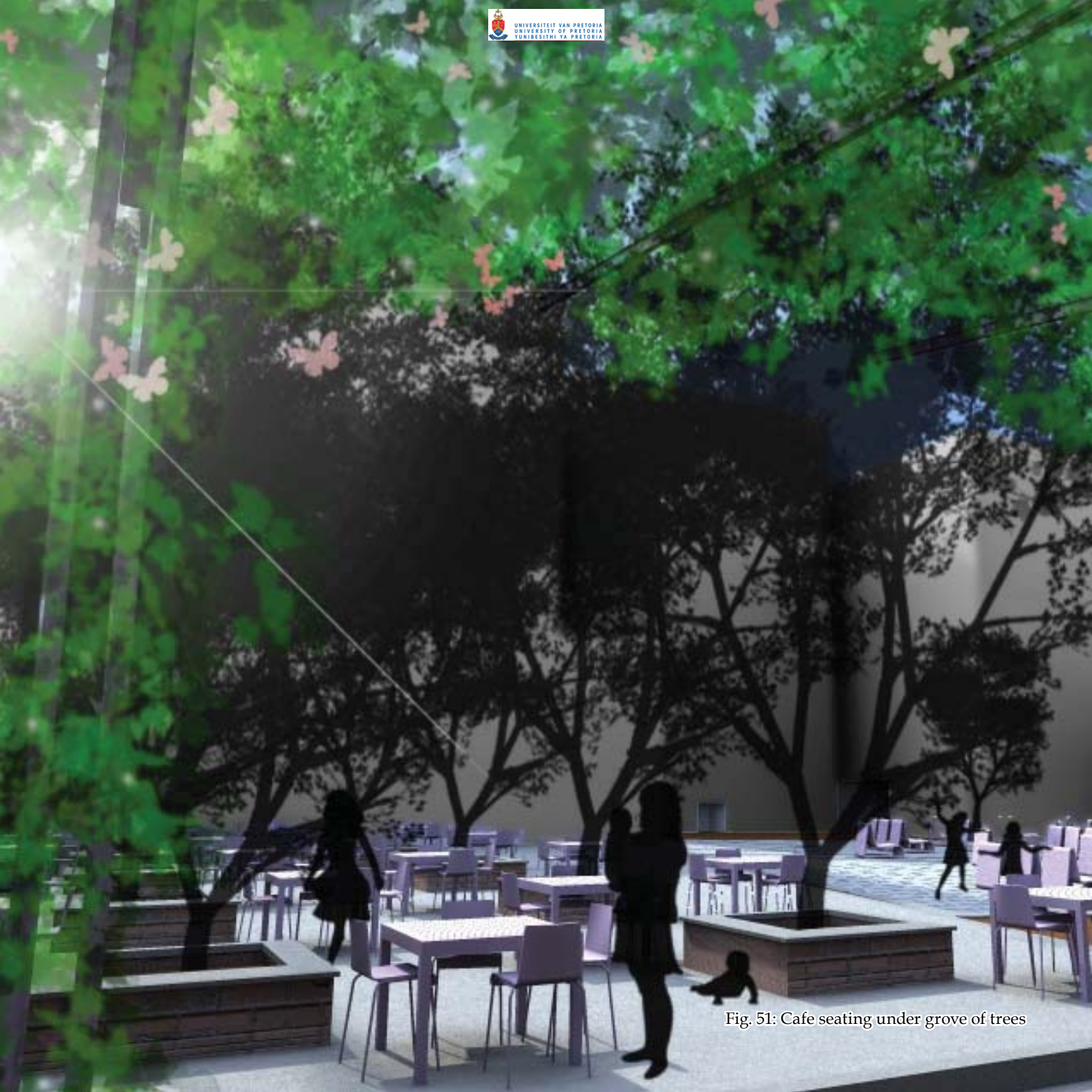


Fig. 51: Cafe seating under grove of trees





Fig. 52: Louvre media facade viewed from workshop



room, a studio space for performing art enrichment, as you look up to see a group of people in the middle of a dance routine.

You move forward towards the facade of a building that is animated with colour and movement (Fig. 52), behind which a hint of lush greenery is discernible. As you move closer the forms on the facade pixelate while those concealed behind them become clearer. As you cross through the threshold you enter into a soaring secret garden of hanging plants that seem to fall from the sky toward a quiet pool of water, a strange quiet place of contemplation within the confines of a hard, loud city (Fig. 55). The movement of people overhead pulls your attention to a robust staircase strangely at odds with the delicate garden which leads to a series of platforms overhead. Light pours through the transparent ceiling and the plants sway gently on a light breeze, reflected in the mirrored bottom of the water pool, a seemingly infinite hidden vertical garden (Fig. 56).

Permeability:

- Remove or repurpose unnecessary/obsolete structures.
- Activate dead edge spaces.
- Connect latent spaces to existing thoroughfares and arcades.
- Permanently open up existing fenced access routes.
- Ensure clear visual links that connect the space to the street.
- Create clear sight lines through site to improve sense of security.

The secluded nature of the park means that it runs the risk of becoming an unsafe pocket of illegal activity within the urban fabric of Pretoria. To counteract this, a section of the parking garage of Bothongo heights will be cut back the length of one parking bay to create a dramatic entrance to the square that serves to create a strong visual connection from Church Street through the square to the archive complex. The additional removal of the obsolete wing in the centre of the archive complex will allow the small

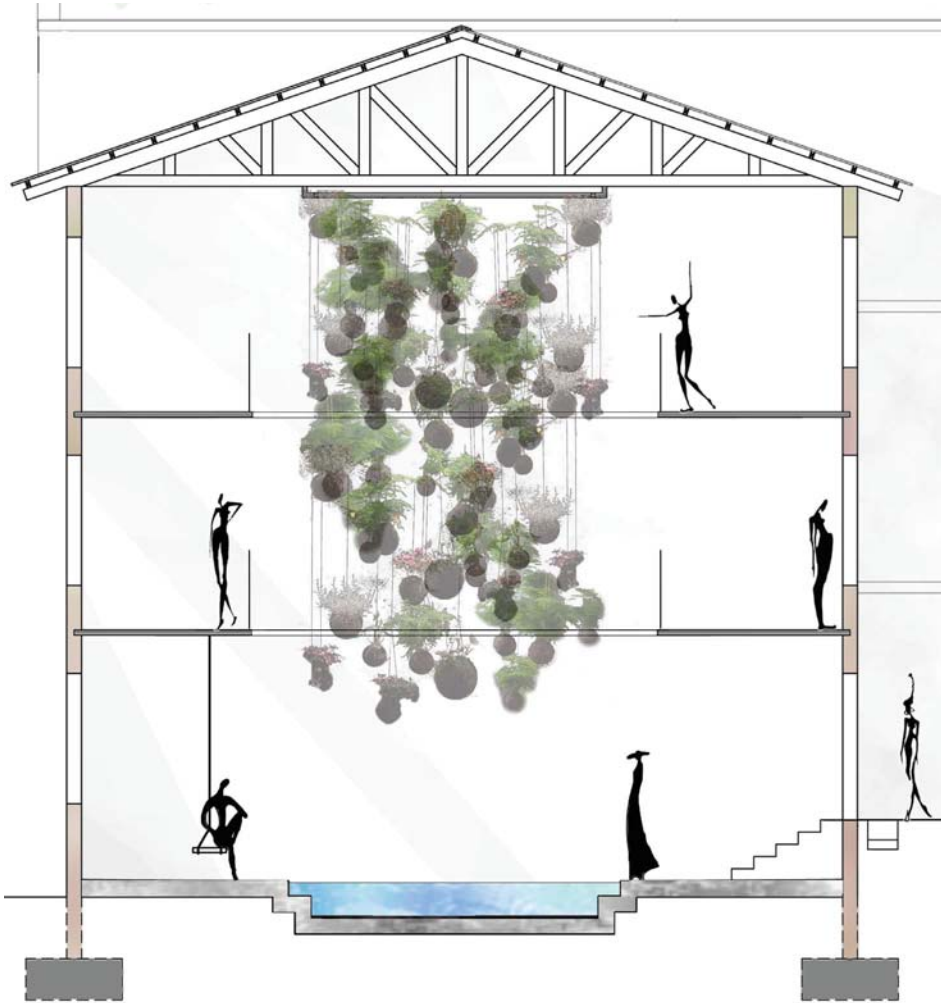


Fig. 53: Conceptual section through hanging garden

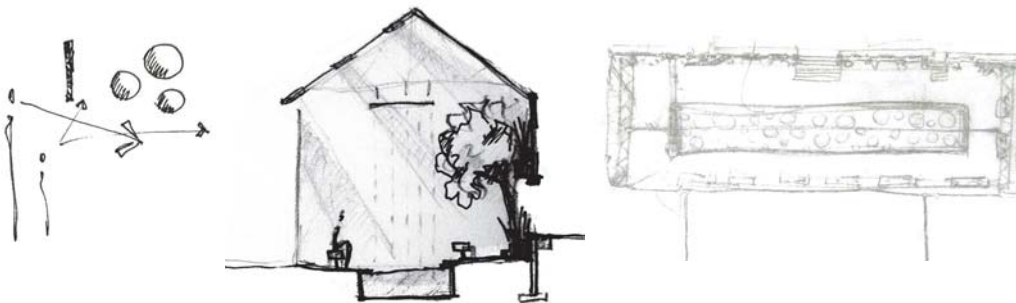


Fig. 54: Conceptual sketches hanging garden





Fig. 55: Interior view of hanging garden





Fig. 56: Vertical garden

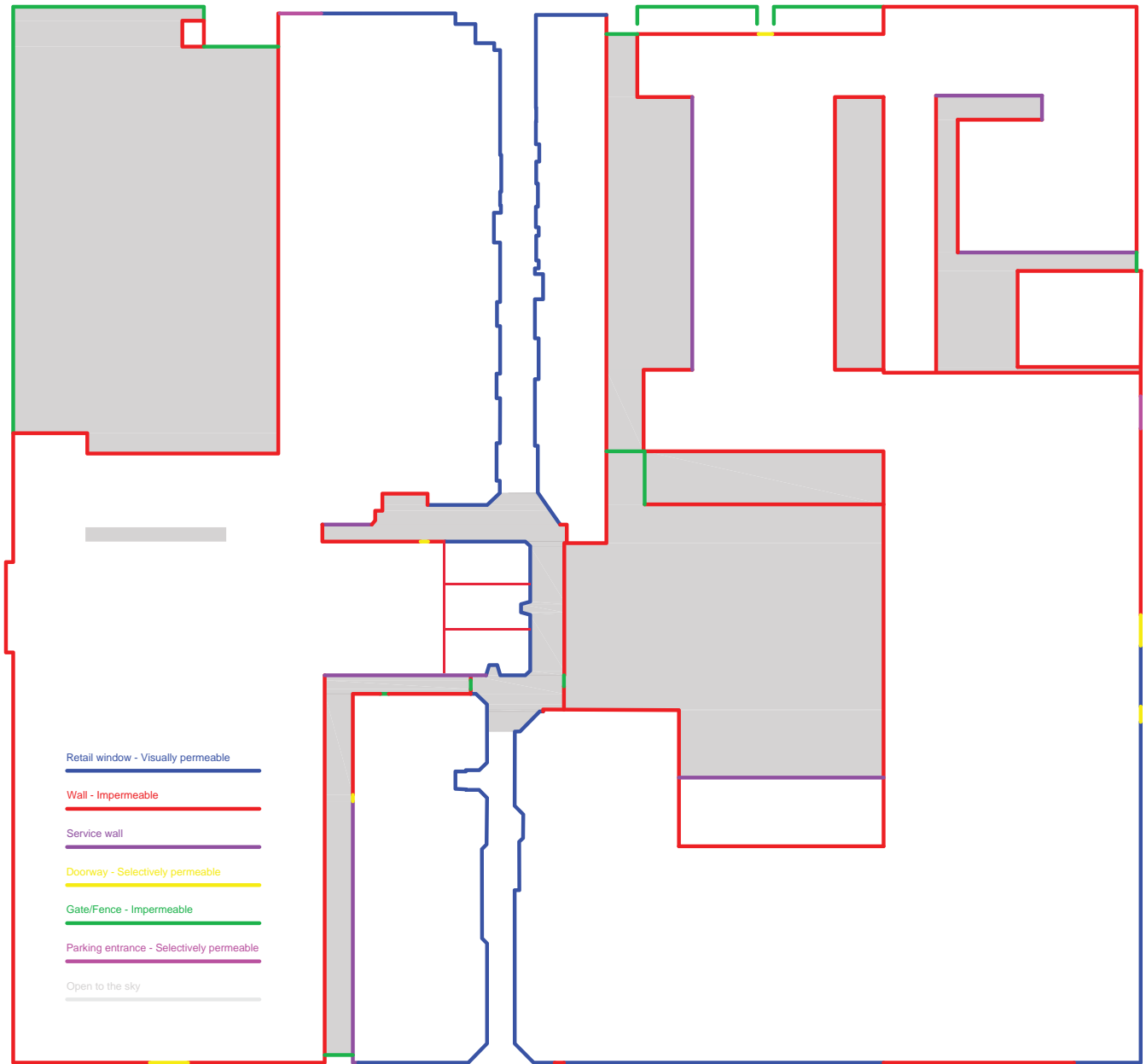


Fig. 57: Existing edge conditions

cramped spaces between the buildings to be consolidated into a small courtyard; a new latent space which can be linked to the site and by converting the empty church into a new entrance, will form a new connection through the site to Andries street which greatly improves the physical permeability of the block (Fig. 61)

The new entrance will be edged by the cut back beam and slab structure of the parking garage which will have new red brick infill and large tree planters reminiscent of theatre balconies that protrude into the space on the higher levels.

The other edge to this new entrance is the two story retail building on the southern edge of the site which will be re-configured to serve as a visually permeable edge between Church Street and the new landscape on the ground floor.

Design for people:

- All interventions should focus on the human experience and be scaled for pedestrians.
- Universal access through the inclusion of ramps and elevators. Create defined edges along which people can gather.
- Allow sufficient seating [a minimum of 1 linear metre of seating per 30m² of space. (Whyte 1980). Planters, ledges and stairs should all be low and comfortable to encourage people to linger.
- Provide some protection from fluctuating weather conditions: rain, wind, sun and cold.
- Provide food by including restaurants, cafes and kiosks.

Access throughout the site will be managed by introducing new ramps to ensure that all areas of the landscape can be reached by all users. An elevator and staircase will allow movement up to the suspended performance studio.

A new restaurant, smaller cafes and slightly higher end retail stores than what are currently available within the CBD will be introduced into the site, and where the new access route opens up the eastern facade of the building, a kiosk will serve affordable snacks and drinks for

lunchtime users with limited time.

A new LED screen will be fixed to the southern facade of the archive building to be used for weekly film screenings and to screen sporting events over weekends for public enjoyment. The screen will be positioned within a new louvred media facade that will transform the entire wall into a large dynamic art wall which can be used to advertise up coming events or simply to create a dynamic display of colour and form that will activate the space when there are no planned activities taking place.

The site will be left open to the sky to ensure maximum sunlight ingress and to allow for passive surveillance from the surrounding office blocks which will improve safety within the landscape. Groups of trees will be planted in the formalised seating areas to provide shading and to create a sense of comfortable human scale when seated beneath them.

The steel structure that supports the studio and defines the new movement route through the site will create a dramatic backdrop when entering the site from Noordvaal arcade and is reminiscent of the rigging of a traditional theatre from which scenery and backdrops would be suspended. The cables running between the members will support a curtain of plants that will create shade and a level of daily performance, in that the plants will grow and change every season.

The large open square will be unprogrammed to allow for a continued culture of temporary installations and pop-up interventions but the existing slope of the site presents a problem for ease of installation of larger structures. By levelling a section of the ground plane to not exceed a 2% slope the square will become inherently more usable.

The levelling process will be facilitated by creating a retaining wall between the flat area and the rest of the site which will follow the existing gradient. This retaining wall will be low enough to be used as additional seating within the site. The integration of power inlets into this retaining wall will allow temporary exhibitors easy access to electricity without having to run unsightly

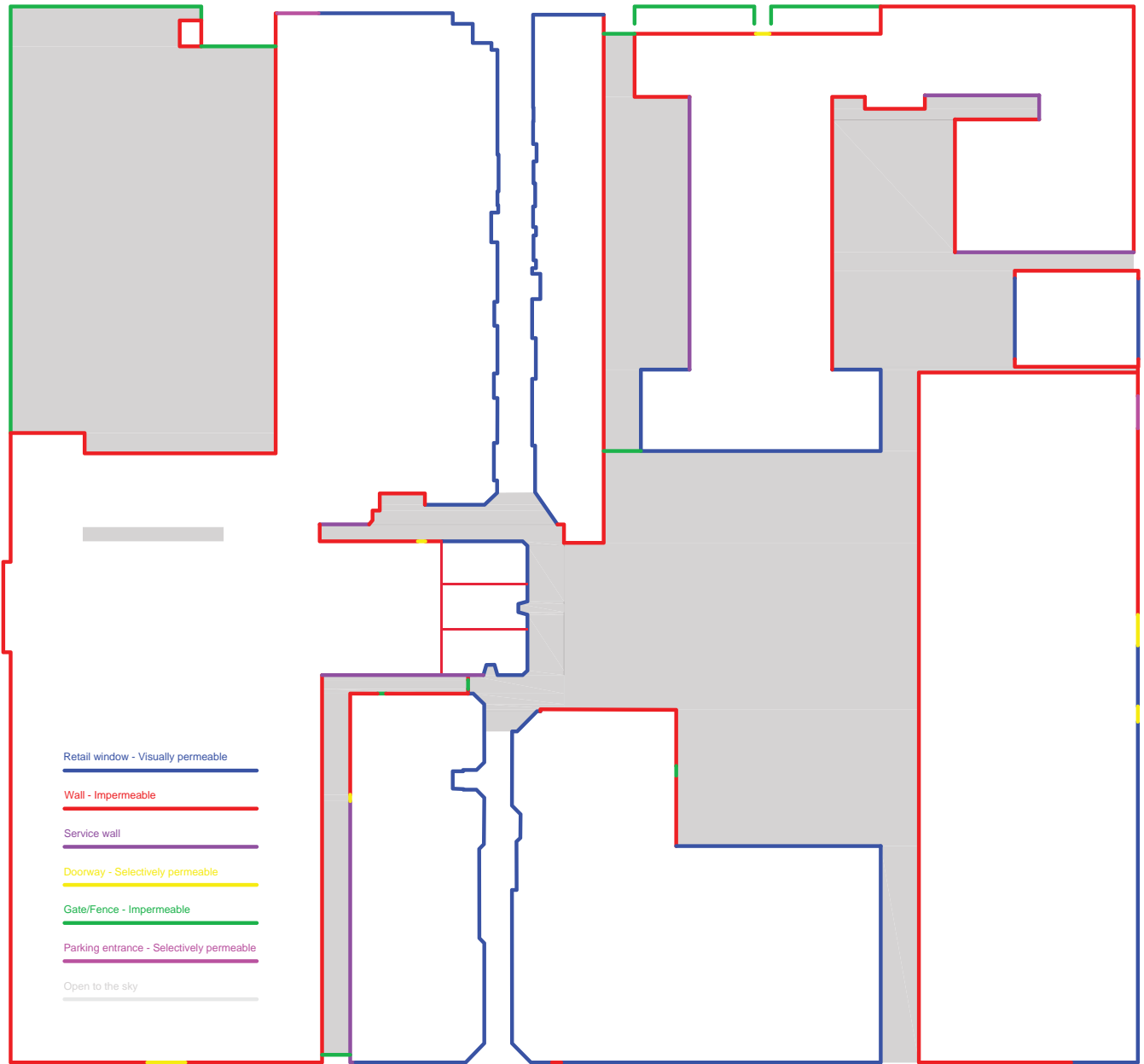


Fig. 58: New edge conditions

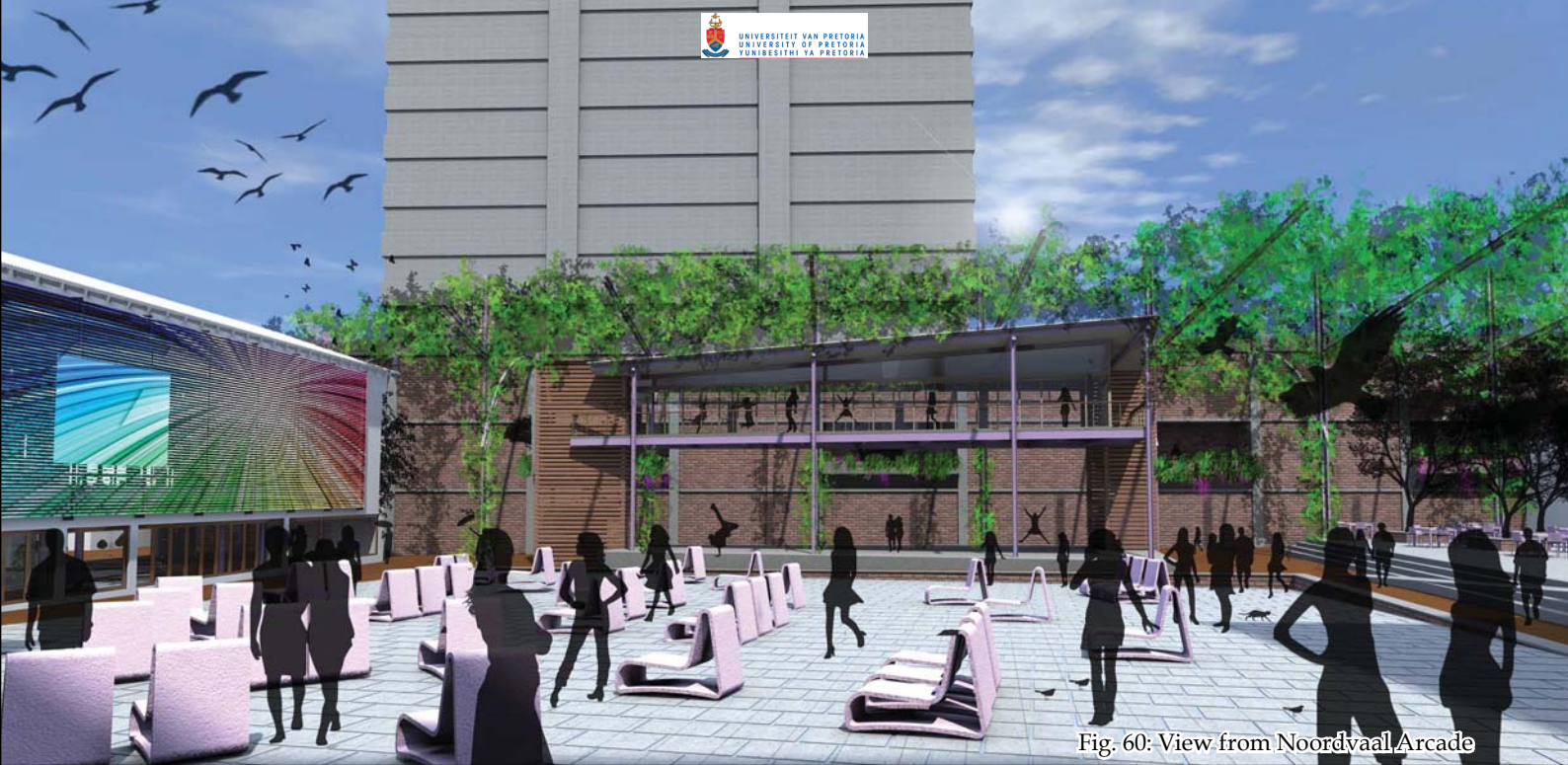


Fig. 60: View from Noordvaal Arcade

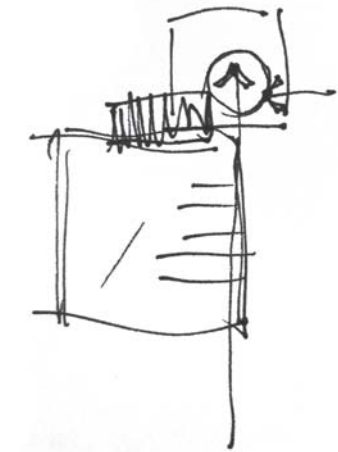


Fig. 59: Parti diagram of site



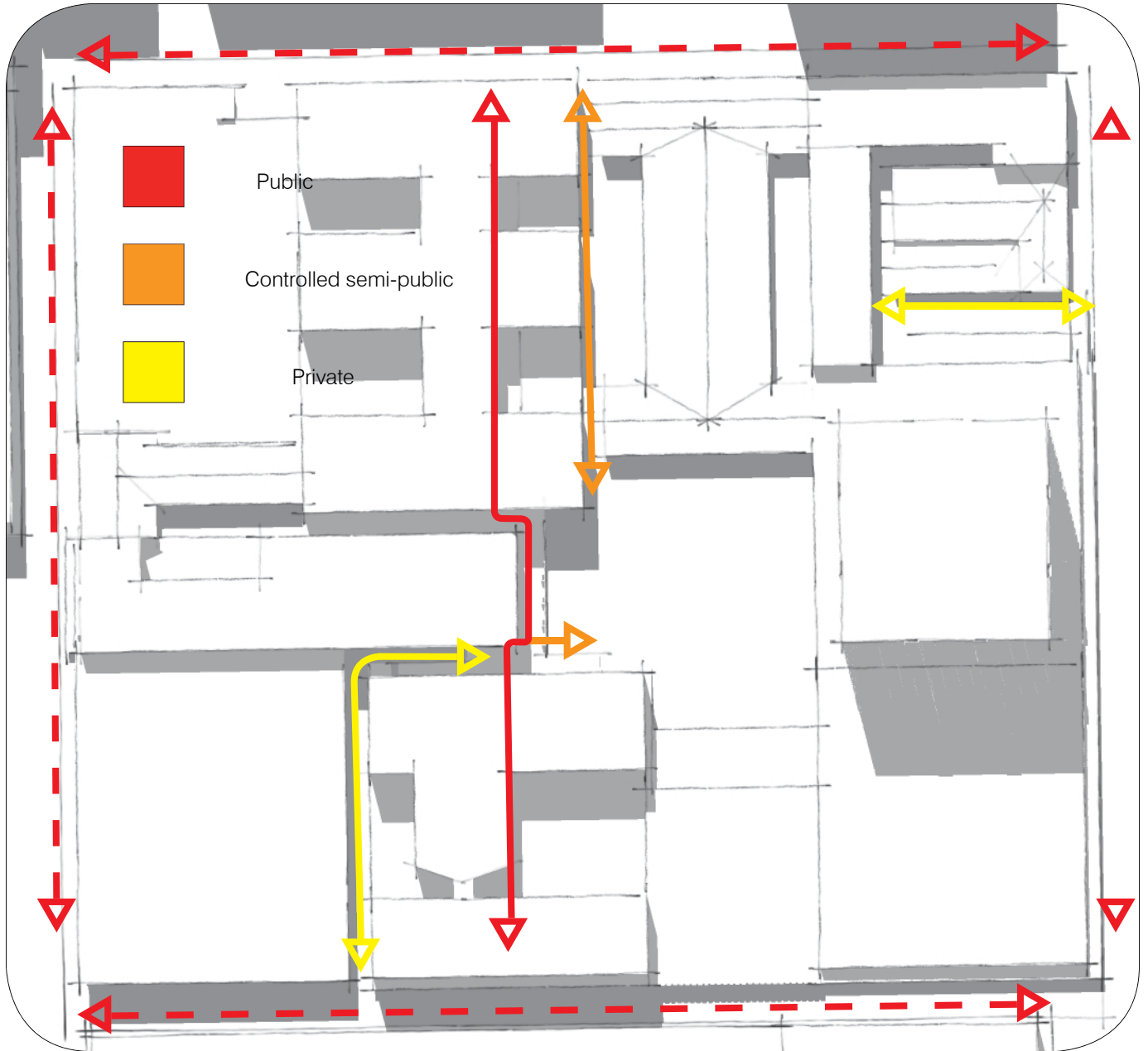


Fig. 61: Existing movement

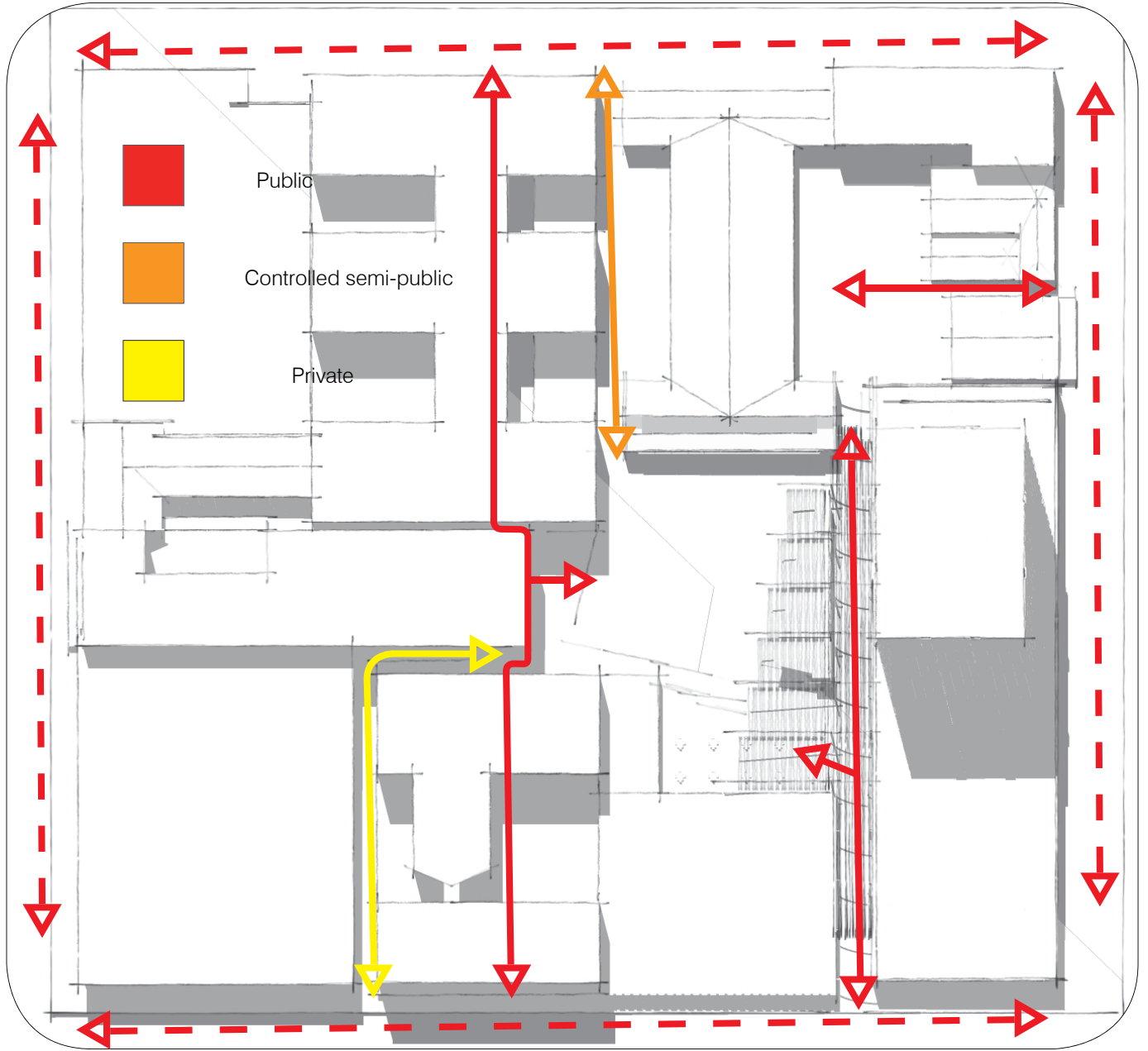
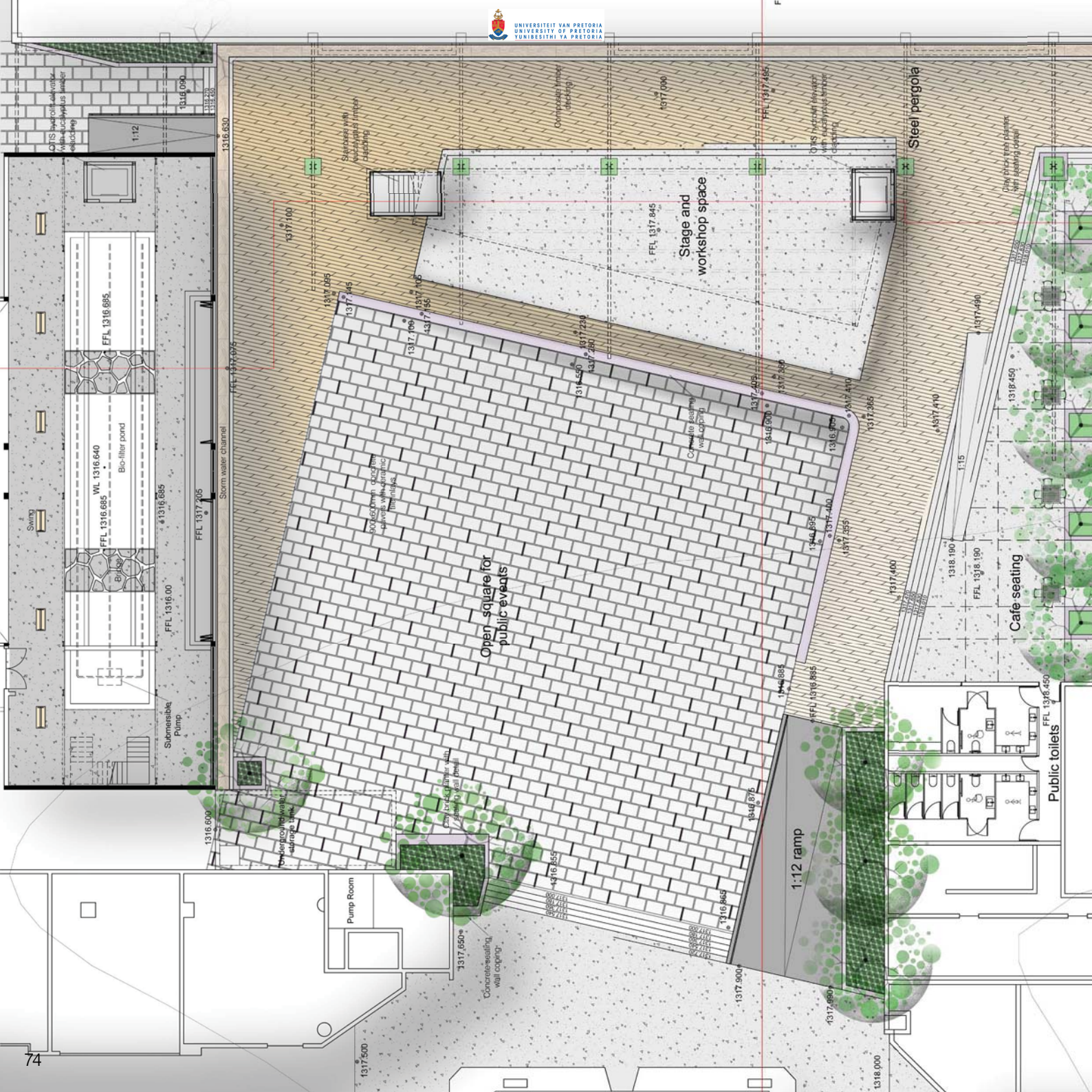


Fig. 62: New movement



cables across the length of the site from one of the cafes.

Sustainability:

- Introduce passive ecological systems that benefit the surrounding infrastructure and facilitate the increased sustainability of Pretoria as a whole, including but not limited to:
 - Storm water articulation and recycling
 - Grey water recycling and polishing
 - Alternative power generation – solar, wind etc.
- Plant deciduous trees, preferably in groups to create social gathering points that provide passive cooling through shading in the hot summer months.
- Ensure sufficient sunlight enters the site to facilitate the growth of all selected planting material.

The site needs to be a sustainable landscape that utilizes the on-site resources in a way that not only benefits the site, but the surrounding buildings too.

Storm water articulation on site is a major factor as the existing runoff from the surrounding buildings is presently being channelled into the storm water culverts and this precious resource is being wasted. By collecting this water in storage tanks on site and reusing it for irrigation and toilet flushing, the municipal water demands of this park on can be dramatically reduced.

The expression of storm water falling from the top of the Bothongo heights podium will introduce another element of daily performance to the site. In light rain events, water from the roof will trickle down a series of rain chains into a storm water channel on the ground plane but in heavier rain events the water will gush from the outlets and create

a 14m high cascading water feature that will exist only for the duration of the storm (Fig. 66).

Another valuable water source on site will come from harvesting and cleaning the grey water from hand basins in the office block bathrooms, as well as from the sinks in lunchroom kitchens. This water will have to be processed before storage or use, but can serve as a valuable water source for reuse within the surrounding buildings to reduce their municipal water demand.

Lighting will form an important role in extending the life cycle of the square beyond sun down, These lights will require energy which can be supplemented by introducing photo-voltaic (PV) panels to the roofs of the buildings where they will receive the most direct sunlight. The energy generated by these PV panels can be stored in batteries and will reduce the electricity expenses incurred.

The investment phase requires a more pronounced financial input from the client (city property) which will be counter balanced by the increase in demand for surrounding residential and retail units and subsequent higher rental income once the park is completed. The archive also has a small fund for use in expanding their public interface by creating awareness of their facility and functions which can be put toward the purchase of the screen and media facade.

4.8. Delight

Once the development has been completed and the new park is opened to the public, it is important to maintain the sense of delight that was inspired by the early development stages by carrying through the most successful social elements to the final programme.

The wind sculpture from the discovery stage will be installed as a permanent feature of the site, and the maintenance of a continued culture of temporary installations and events will help create diversity of experience to encourage repeat visits by the community that will ensure the continued success of the intervention.

Fig. 63: Ground floor sketch plan

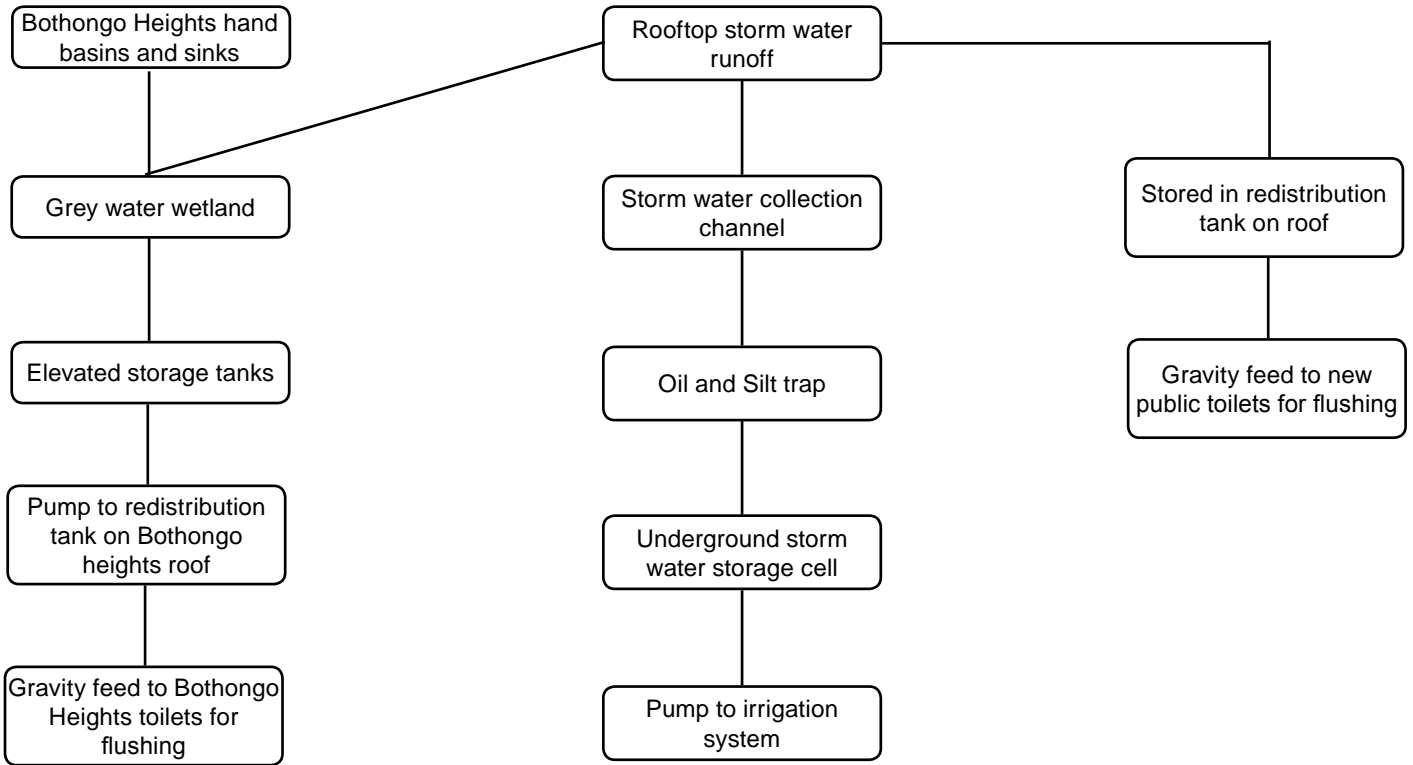


Fig. 64: Flow diagram illustrating movement of water through site

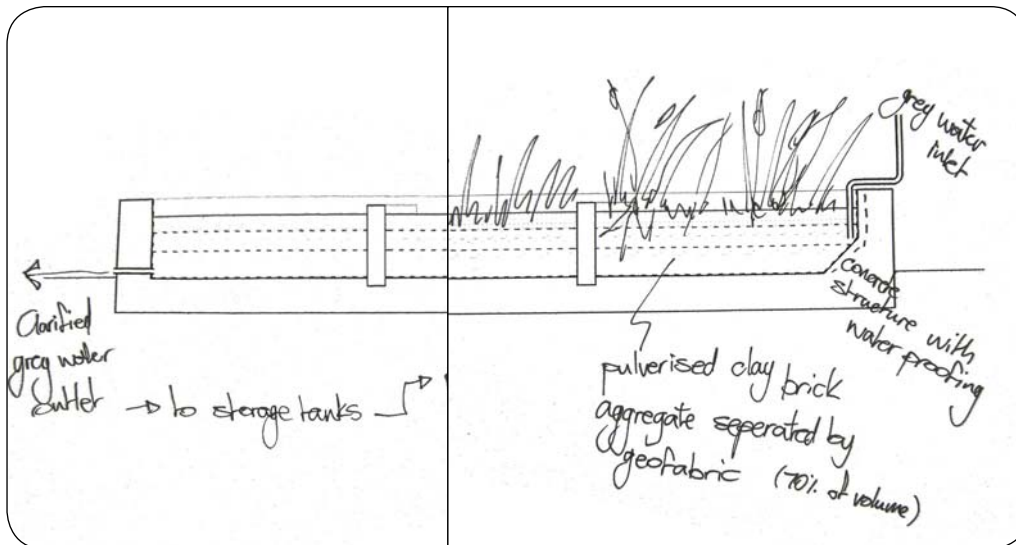


Fig. 65: Section through greywater wetland

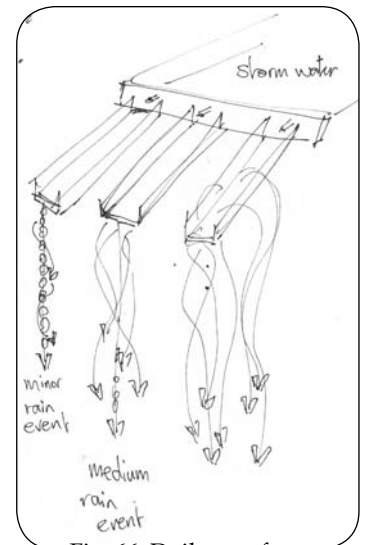


Fig-66: Daily performance of storm water

5 Technical investigation

5.1. Technical theatricality

The invested design stage of the site development is theatrical and expressive in nature. The technical expression will reflect elements of daily performance while ensuring that the social requirements of a sustainable public park are met. The structures and systems on site need to be robust enough to withstand daily use while still maintaining an air of strangeness which is vital to the theatrical expression of the design.

5.2. Sustainability

Sustainability is a key consideration for the development of Pretoria into a living city. Important considerations include water management, plant selection, material choices and energy consumption.

Storm water

Storm water from the building rooftops around the site drain into the site before being channelled into the storm water inlets on Andries Street. The water will be collected on site and recycled to reduce the demand for potable municipal water on site.

Water collected from the roofs of the Capitol towers South building and the Prudential assurance building will be directed through a silt trap into a storage tank above the new public toilets which will be used for toilet flushing. Grey water from the basins will be directly fed into the tree planters on site

The water within the site will be collected via a series of channels that direct the water through a silt and oil trap before depositing it into an underground collection tank at the lowest point of the site which is situated at the vehicular service entrance to the site. This ensures that the tank and trap are easily accessible for inspection and maintenance.

A pump room will be installed in the existing service yard of Capitol towers North building and will pump water to the automated irrigation system. Any excess water will overflow into the storm water sewers.

In order to determine the tank size required and to ensure sufficient water availability for the required irrigation a series of calculations were done.

Grey water

A new grey water recycling wetland on the roof of the Bothongo heights parking garage will be used to capture grey water generated in the office block and clarify it be reused within the building for toilet flushing. This system will offer a substantial reduction in the monthly municipal water expenses incurred by the building.

The wetland will be a subsurface flow system with pulverised clay brick aggregate reclaimed from the demolished structures on site and it will be constructed on the northern edge of the podium to ensure sufficient daily sunlight to maintain a healthy system. The structure will be of masonry construction with waterproofing and a selection of endemic water plants to aerate the water and reduce the risk of any unpleasant odours developing.

Water Availability Calcs

 Sources Grey water
 Storm water

1	Grey water	no. of units/ floor	no. of floors	no. of people	water wasted/unit	Total litres	m3/day	Total
	Hand was basins	8	18	50	1	7200	7.2	
	Sinks	2	18	50	1	1800	1.8	
								9

2	roofs / surfaces	Catchment 1	Catchment 2	Catchment 3	Catchment 4
	1				
	2		1282		
	3		427		
	4		344		
	5		196		
	6	1875			
	7			271	
	8			1190	
	9			1318	
	10				2078
	11				1206
	Total	1875	2249	2779	3284

10187 m2 of catchment area

3	Secret City Garden	Catchment Area (m2)	Run off co- efficient	Total (A X C)
		10187	0.85	8658.95

4		Rainfall in meters	a x c	Yield	
	January	0.136	8658.95	1177.6172	
	February	0.075	8658.95	649.42125	
	March	0.082	8658.95	710.0339	
	April	0.051	8658.95	441.60645	
	May	0.013	8658.95	112.56635	
	June	0.007	8658.95	60.61265	
	July	0.003	8658.95	25.97685	
	August	0.006	8658.95	51.9537	
	September	0.022	8658.95	190.4969	
	October	0.071	8658.95	614.78545	
	November	0.098	8658.95	848.5771	
	December	0.11	8658.95	952.4845	5836.1323

5	water available / a	m3	days or months or year	m3 / a	Total over all water
	Greywater	9	day	3285	
	Stormwater	5836.1323	year	5836.1323	
					9121.1323

Water need calculations

6		vertical wall	hanging garden	trees (50) (2	climbers	wall planters
		265	22	50	36.2	44.8
					1.75	
	Total	265	22	50	37.95	44.8

7			Irrigation Depth / Month (m/month)	Evaporation (m/month)	Irrigation depth + Evaporation (m/ month)	Total water demand
	Planting Area	Total Planting Area (m2)				
	Secret City Garden	419.75	0.16	0.03	0.19	79.7525

8						
	Month	Avg. precipitation / month	Yield (m3)	Total water demand	Monthly Balance	Total deficiency
	January	0.136	1177.6172	79.7525	1097.8647	
	February	0.075	649.42125	79.7525	569.66875	
	March	0.082	710.0339	79.7525	630.2814	
	April	0.051	441.60645	79.7525	361.85395	
	May	0.013	112.56635	79.7525	32.81385	
	June	0.007	60.61265	79.7525	-19.13985	19
	July	0.003	25.97685	79.7525	-53.77565	54
	August	0.006	51.9537	79.7525	-27.7988	28
	September	0.022	190.4969	79.7525	110.7444	
	October	0.071	614.78545	79.7525	535.03295	
	November	0.098	848.5771	79.7525	768.8246	
	December	0.11	952.4845	79.7525	872.732	
	Annual Average					101

Calculations for tank sizing

9	total deficiency in winter	101 m3
	contingency for no rain in january for 5 days	13m3
	Total tank size for irrigation	114m3

10						
	Toilets	l/flush	no of toilets	flushes/ toilet / day	per day	monthly (30 days)
		7	8	20	1120	33600
						m3
						33.6

11

Month	Avg. precipitation / month	Yield (m3)	Total water demand irrigation	Total water demand toilets	Overall total water demand	Monthly Balance	Total deficiency
January	0.136	1177.6172	79.7525	33.6	113.3525	1064.2647	
February	0.075	649.42125	79.7525	33.6	113.3525	536.06875	
March	0.082	710.0339	79.7525	33.6	113.3525	596.6814	
April	0.051	441.60645	79.7525	33.6	113.3525	328.25395	
May	0.013	112.56635	79.7525	33.6	113.3525	-0.78615	113
June	0.007	60.61265	79.7525	33.6	113.3525	-52.73985	53
July	0.003	25.97685	79.7525	33.6	113.3525	-87.37565	88
August	0.006	51.9537	79.7525	33.6	113.3525	-61.3988	62
September	0.022	190.4969	79.7525	33.6	113.3525	77.1444	
October	0.071	614.78545	79.7525	33.6	113.3525	501.43295	
November	0.098	848.5771	79.7525	33.6	113.3525	735.2246	
December	0.11	952.4845	79.7525	33.6	113.3525	839.132	
Annual Average							203

12

total deficiency in winter	203m3
contingency for no rain in january for 5 days	13m3
Total tank size for irrigation	216m3

13

Surplus
4678.20275

adequate water supply for tan

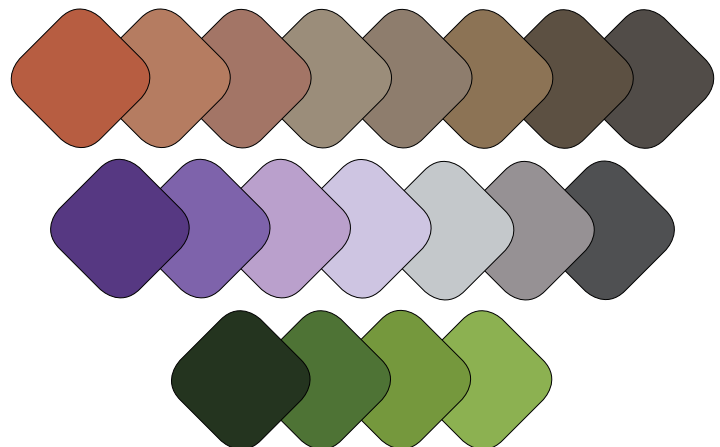
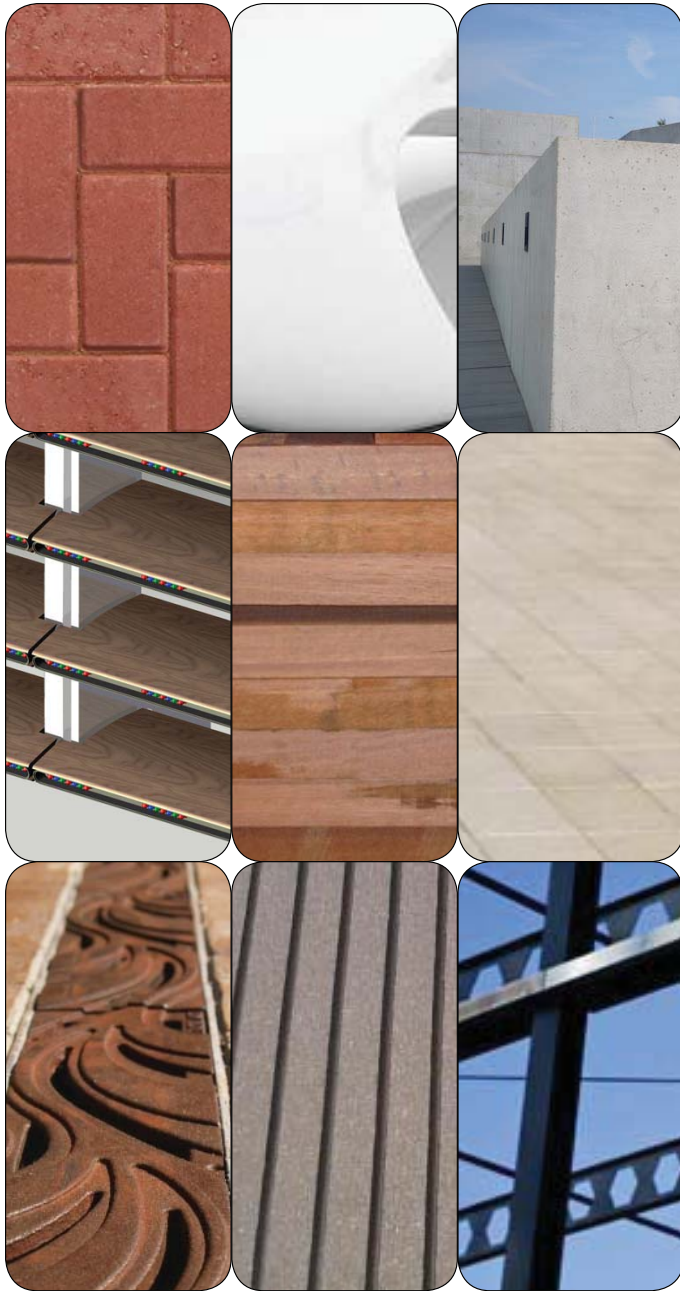


Fig. 67: Colour Palette



The crushed clay brick aggregate provides an increased surface area for anaerobic breakdown of pathogens and constitutes about 70% of the volume of the structure which needs to be factored into the sizing equations .

Plant selection

Planting within the site will help reduce the urban heat island effect that is prevalent in all urban centres worldwide. The plants selected for use are endemic to the South African bushveld biome in which Pretoria is situated. Endemic plant selection ensures that the water requirements for irrigation will be manageable with the available storm water. A wide variety of plants will be used to encourage the development of a functioning ecosystem that will be subject to a process of natural selection as certain plants will better adapt to the urban environment than others and will create a balanced environment of growth that requires minimal maintenance.

The varied nature of the planting environments on site required an analysis of the sizes of the fully grown plants as well as the light requirements of each. A table was drawn up of appropriate endemic bushveld plants which can be used (Appendix A - Plant list page 76).

The **trees** within the square need to be deciduous with a spreading crown to ensure sufficient shading in winter and sunlight ingress in winter. They need to have non-aggressive root systems to prevent damage to the paved surfaces and buildings and they should be tall enough to ensure clear lines of sight throughout the square.

The **creepers** on the trellis structure need to be fast growing and be easily cut back when the growth form becomes too dense. The bottom planters will require climbers that will support themselves on the cable structure and grow up and outward such as *Jasminum multipartitum*, while the top planters can be planted with scramblers like *Tecoma capensis* which will spread over the cables and fill in the trellis from above.

Fig. 68: Material Palette

The **hanging** 'kokedama' garden requires smaller

Ramp calculations

1:15 (ideal)

Ramp

1m rise = 15m run

4,3m rise = 64,5m run

Landings

4,3m rise/ 0,655m rise intervals for landings =6,6 landings

7 landings x 1,2m length = 8,4m total length of landings.

Total length of ramp = 64,5m + 8,4m = 72,9m

1:12 (minimum)

Ramp

1m rise = 12m run

4,3m rise = 51,6m run

Landings

4,3m rise/ 0,5m rise intervals for landings =8,6 landings

9 landings x 1,2m length = 10,8m total length of landings.

Total length of ramp = 51,6m + 10,8m = 62,4m

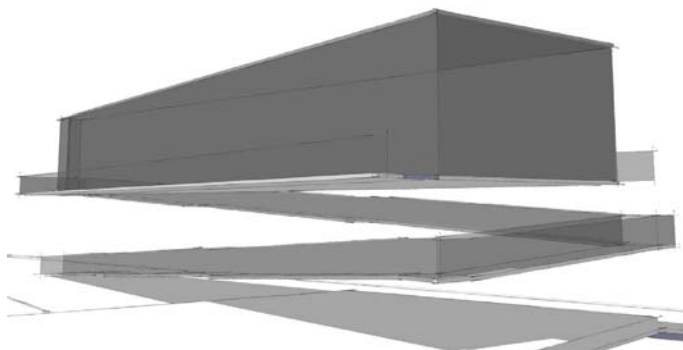


Fig. 69: 3D spatial exploration of 1:15 ramp

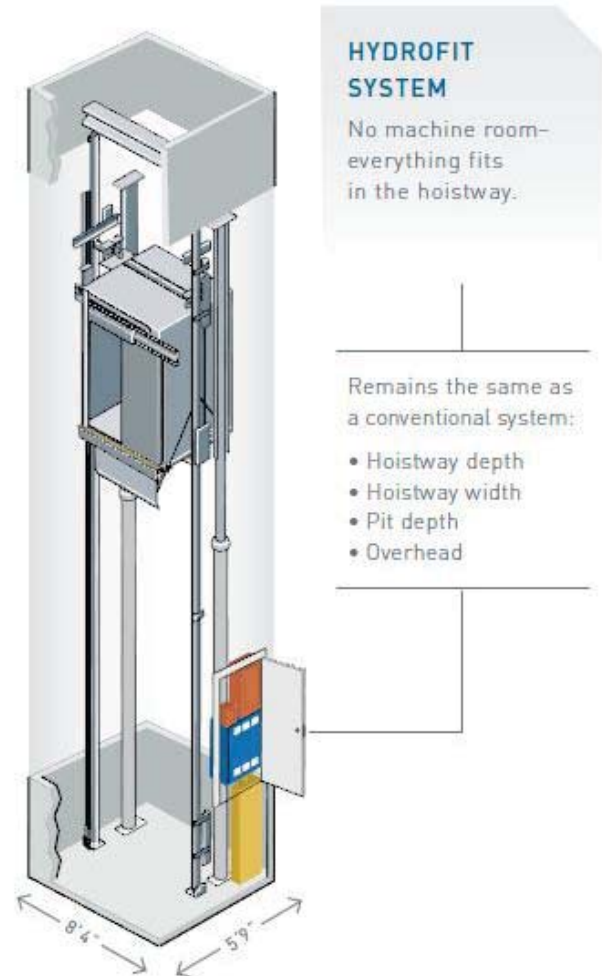


Fig. 70: Otis hydrofit elevator

individual plants that can tolerate low light levels. This practice of root binding limits the size of the plant and can be successfully applied using most plants. A wide selection of flowering shrubs will be utilised to encourage year round displays of changing colour and form.

The plants selected for the wall planters will be a combination of small trees; *Heteropyxis natalensis* and *Bolusanthus speciosus*, and a shade tolerant mix of scrambling shrubs and ground covers that will hang over the edge of the planter.

The southern roof pitch of the archive wing in which this garden is constructed will be replaced with transparent sheeting to allow ingress of natural light into the garden. The steel sheeting removed from the archive will be recycled for use as the new roof on the studio structure.

Materials

Materials selected for use on site are to be locally sourced wherever possible from suppliers who ensure sustainable resource management (Fig. 68).

- Eucalyptus timber for the cladding of the workshop elevator and staircase as well as the decks.
- Composite decking for the new walkway linking the site to Church street which is durable and virtually maintenance free.
- Concrete pavers
- Red brick for the infill on the Bothongo heights wall which will be recycled as far as possible from the demolished structures on site.
- Powder coated steel for the pergola and support structure of the workshop as well as steel cables to support the planting.
- Concrete for in-situ casting of foundations, stairs, ramps and planters.
- Glass fibre reinforced concrete for the precast benches.

Energy requirements

Photovoltaic panels will provide energy to run the lights in the site while the water pumps will use municipal power.

5.3. Access

Universal access through the site requires the construction of access ramps at a minimum slope of 1:12 with a landing of no less 1.2m long for every 500mm rise, or a more comfortable slope of 1:15 with a landing for 665mm rise (SANS 10400-S 2011 :18)

Creating a ramp that would safely and comfortably reach the level of the studio space which is 4,3m above the ground level would require a ramp of 72,9m long at the ideal slope of 1:15 or 62,5m long at the minimum 1:12 slope.

Ramps of these lengths are unfeasible in the limited space available on site (approximately 50mx50m) and would render a large portion of the site underneath the ramp sterile (Fig. 69).

An elevator which is accessible from two sides to allow access from the ground level to the studio level, and requires less space than a ramp was selected as an alternative. Traditional traction elevator systems require a large machine room at the top of the shaft to operate the system which would not be feasible for the site, but compact systems exist that can cater to smaller developments with a limited rise.

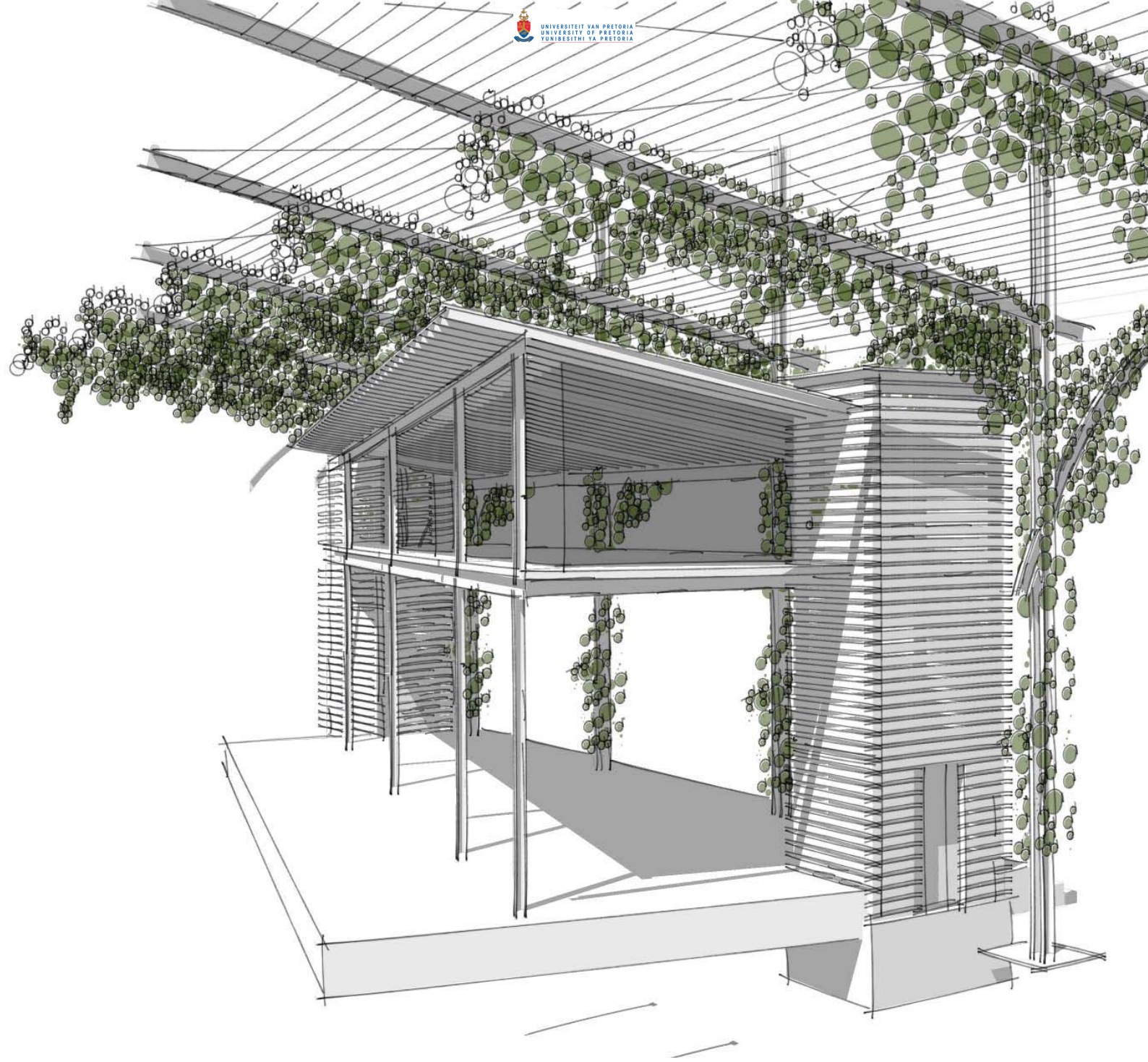
Two alternative systems were investigated:

- Machine-room less elevators

Machine-room less elevators have their machine system fitted within the shaft and do not require a machine room and they can navigate up to 30 stories.

- Hydraulic platform lifts

Hydraulic platform lifts ideally operate between two and five stories and require a pit depth of between 120mm and 1400mm.





A hydraulic lift was selected as it is a more affordable option and requires less substantial shaft construction in order to operate.

5.4. Pergola

The pergola is comprised of a series of steel frames comprising large steel channel profiles and intersecting I-beams, supported by a large reinforced concrete footing at the base and a steel plate fixed to the column structure of the Bothongo heights podium at 7,5m intervals. The cantilevering member is supported by a series of cables connected to the main support (Fig. 71).

This structure also supports the studio space which is a steel frame of similar construction to the frames, a reinforced concrete floor, glass walls and doors and a corrugated steel sheeting roof recycled from the archive building.

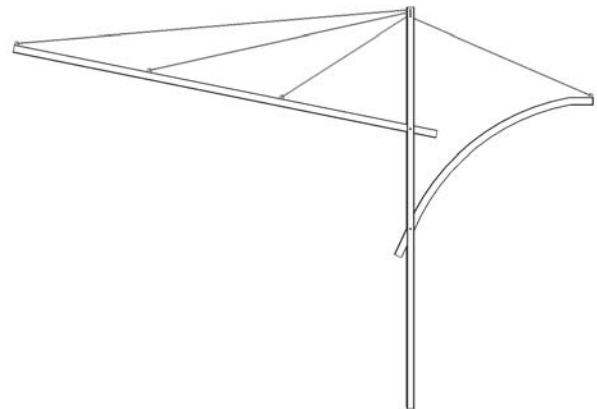
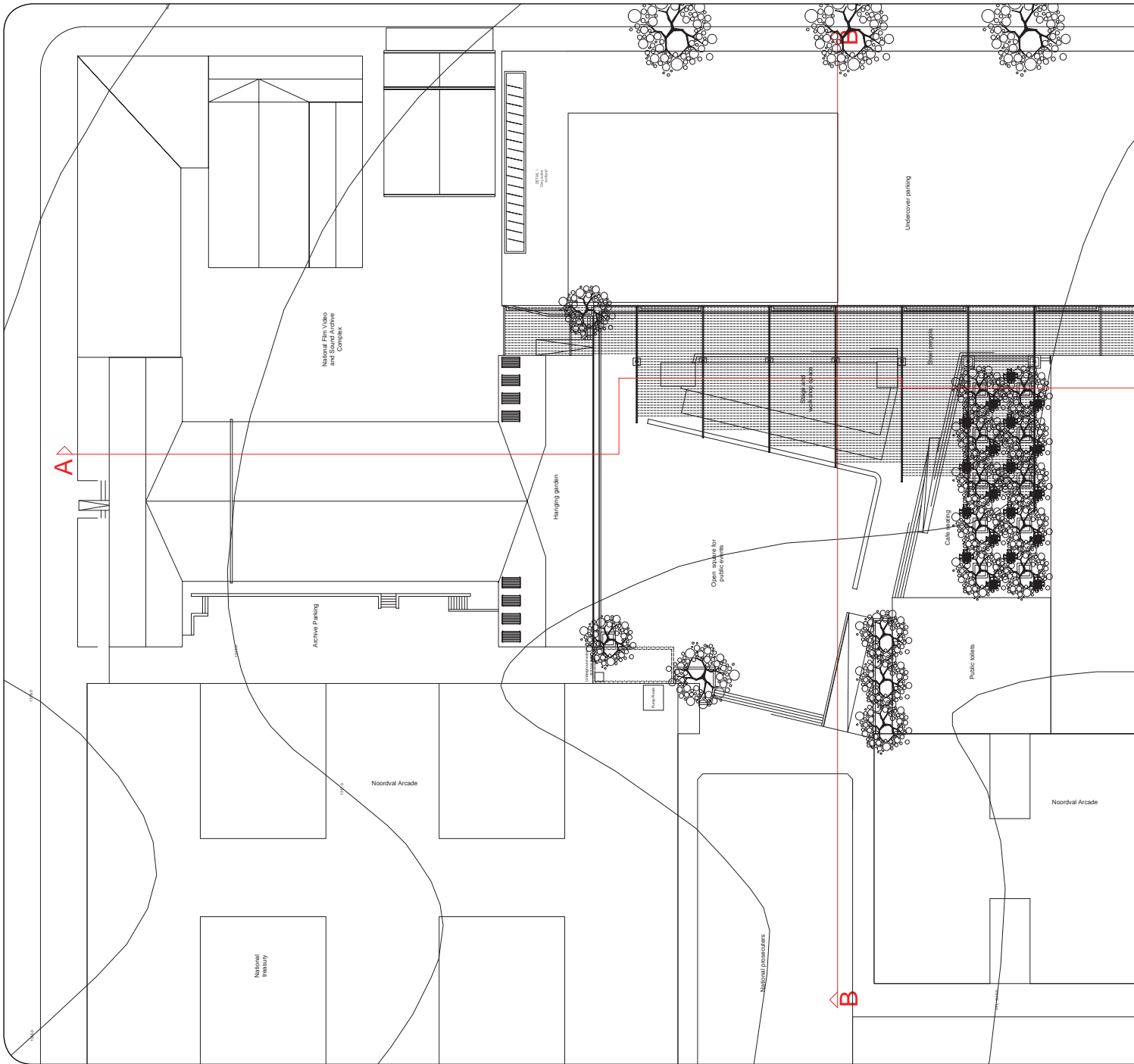


Fig. 71: Perspective of pergola structure



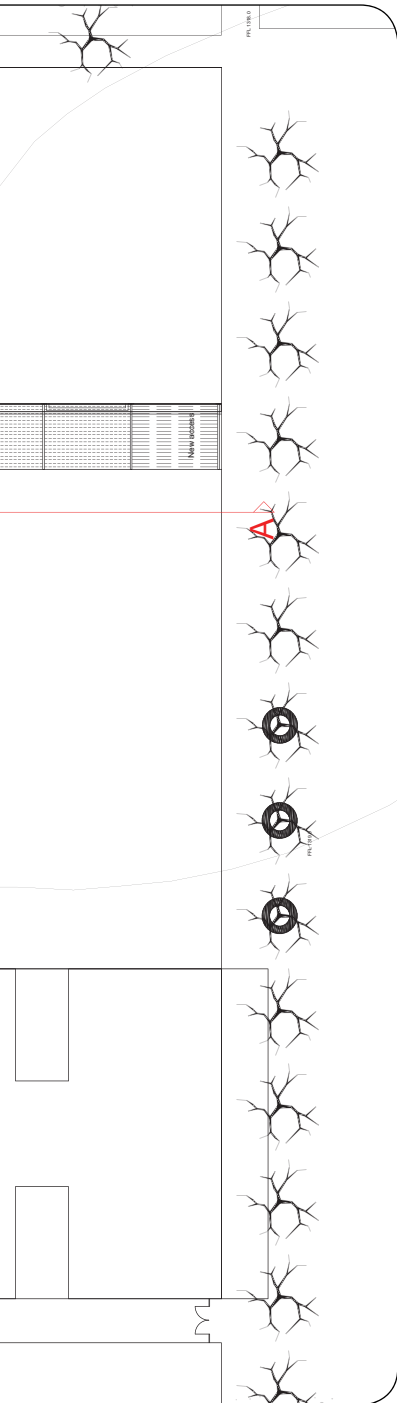


Fig. 72: Site Plan



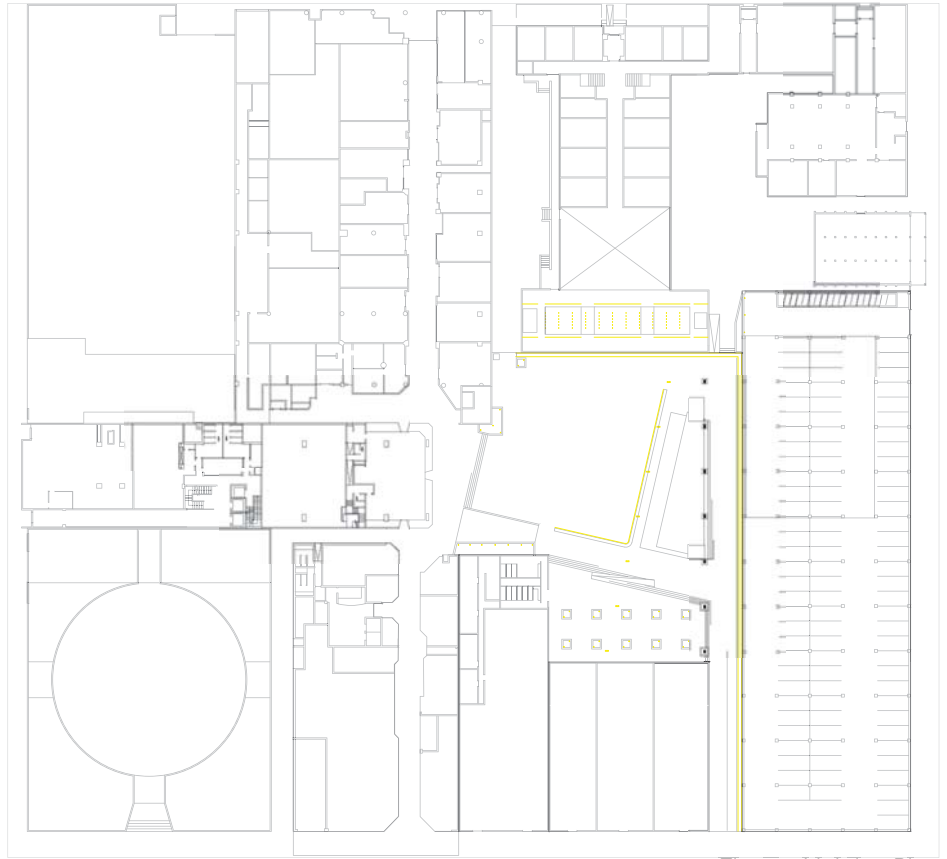
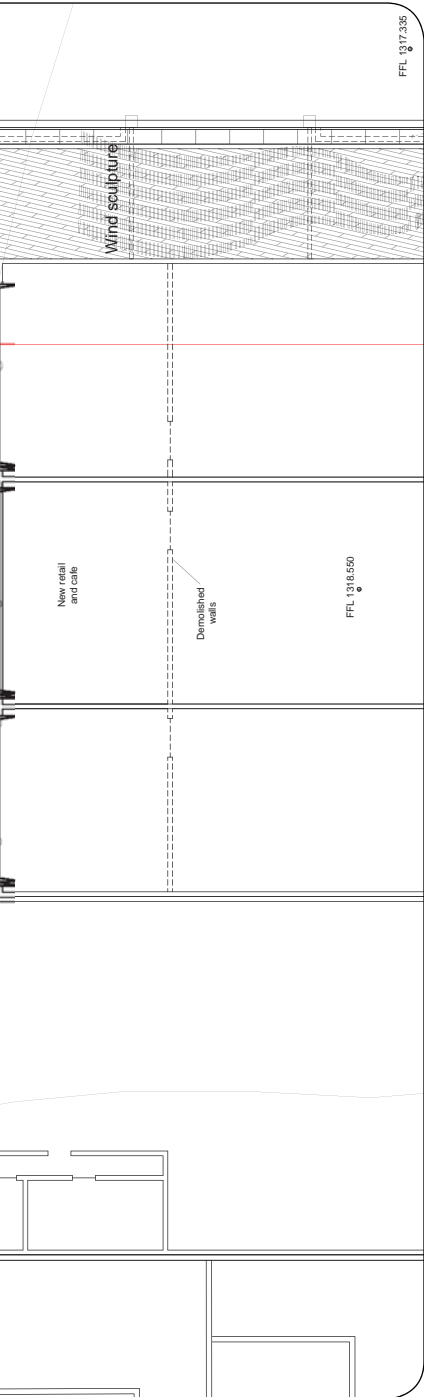
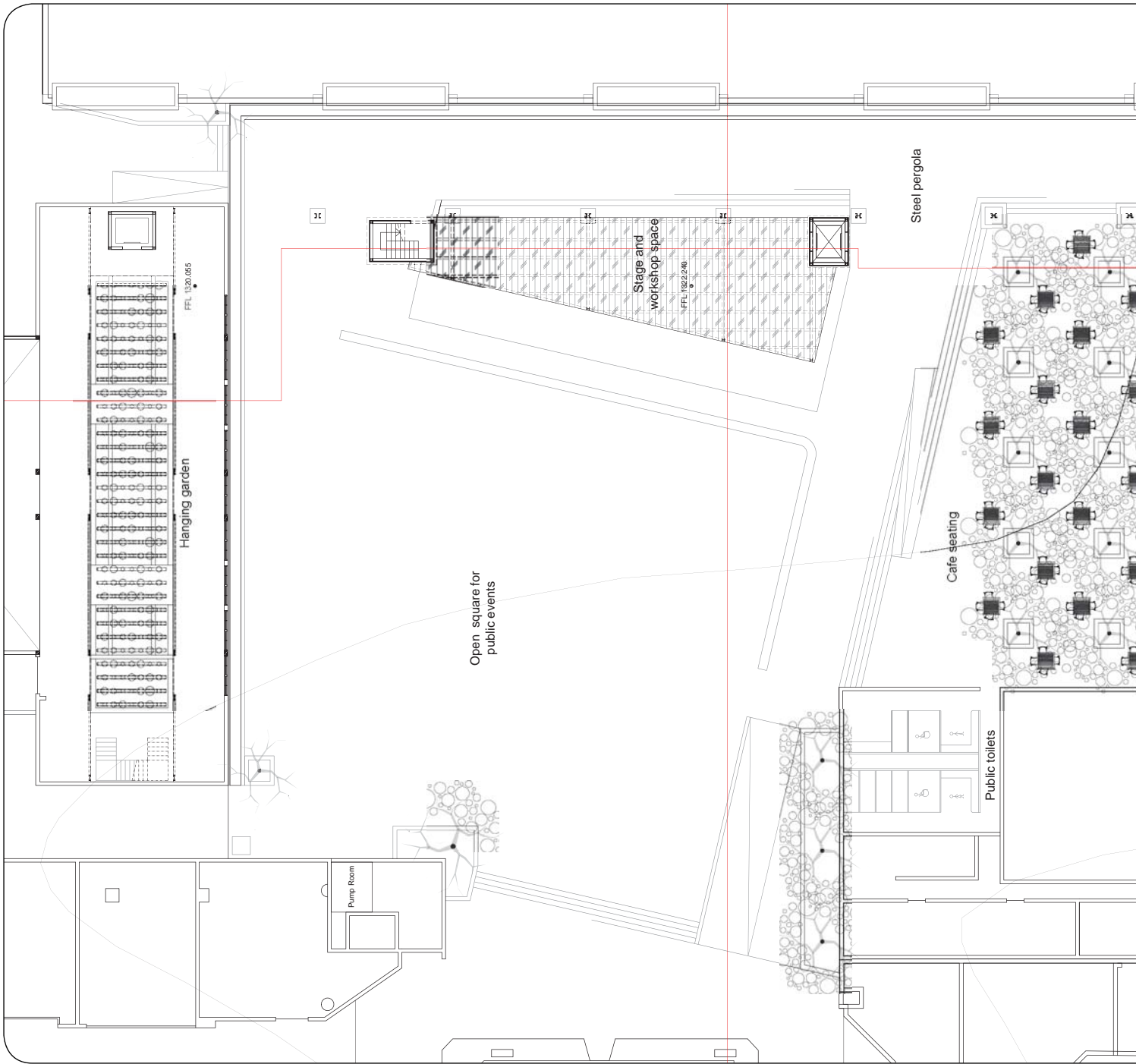


Fig. 73: Lighting Plan

Fig. 74: Ground Plan





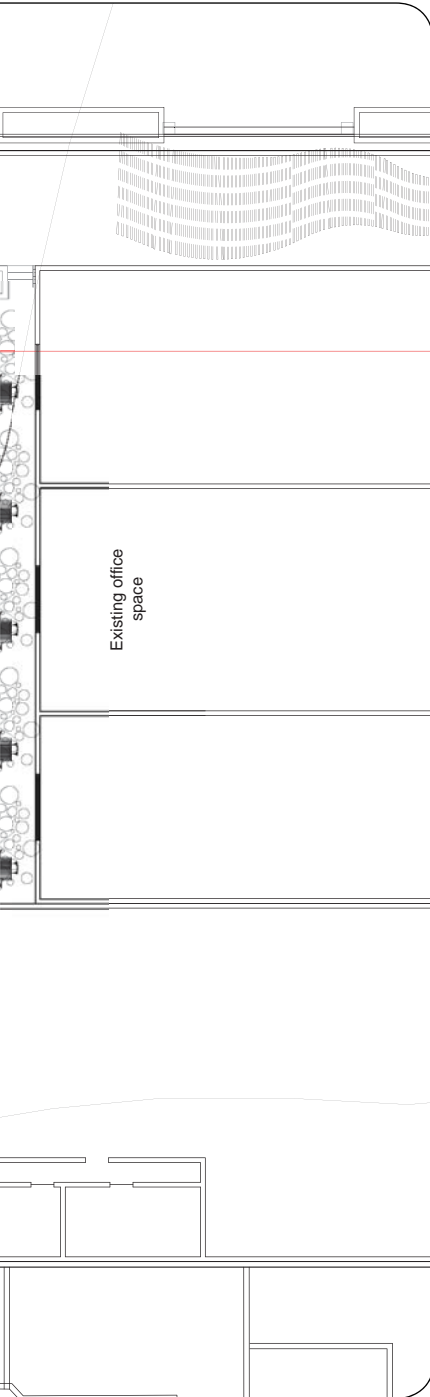
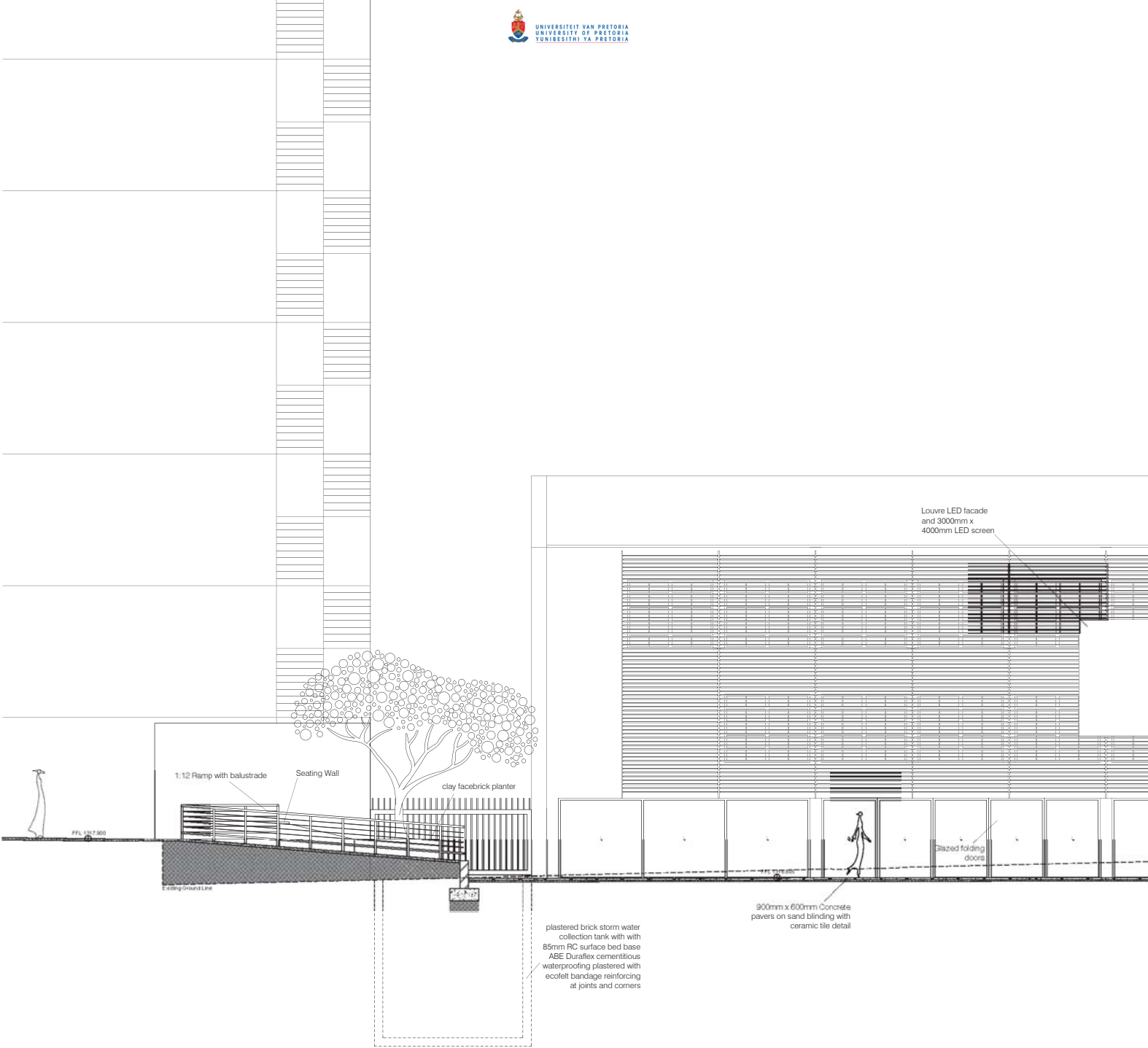


Fig. 75: First floor plan





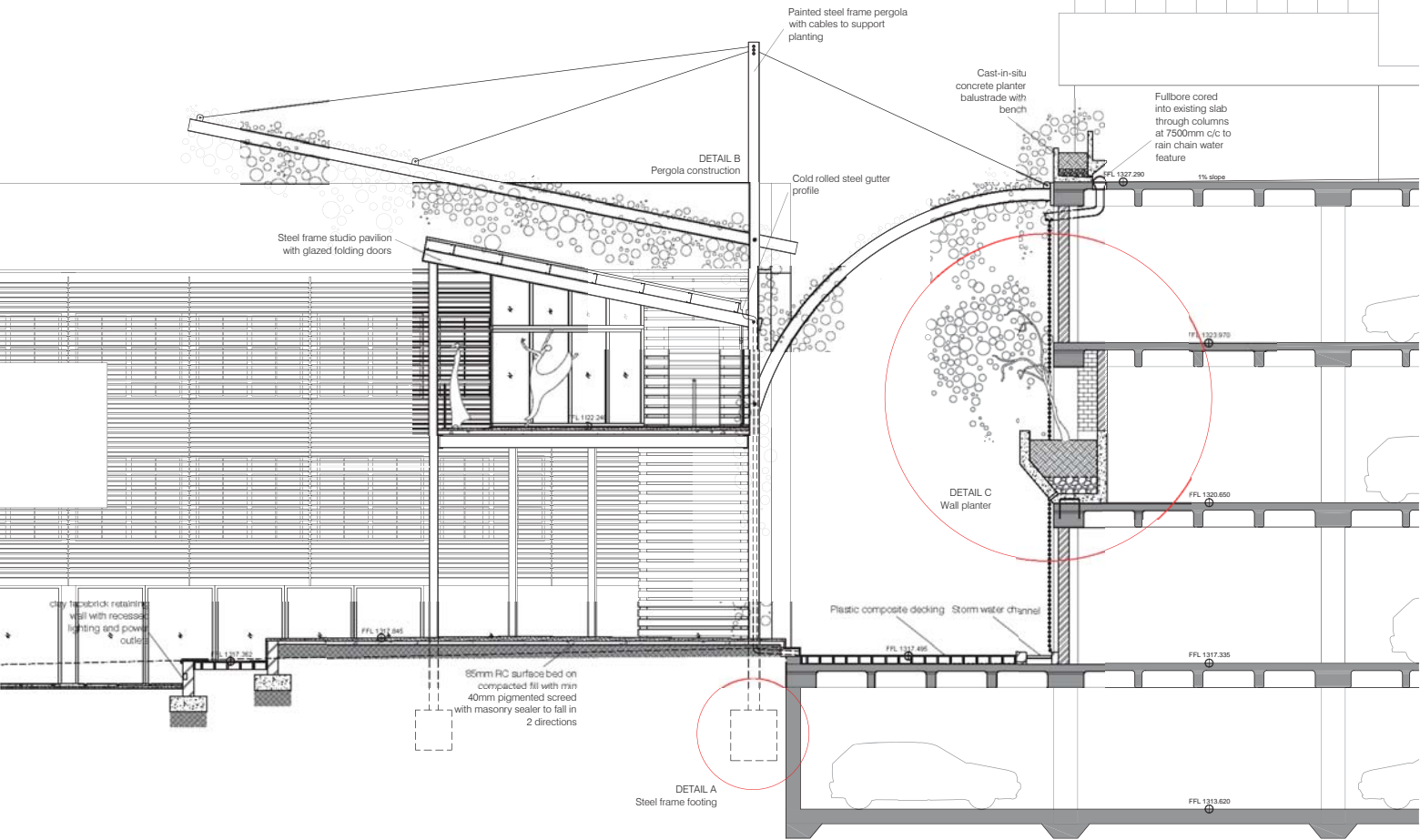
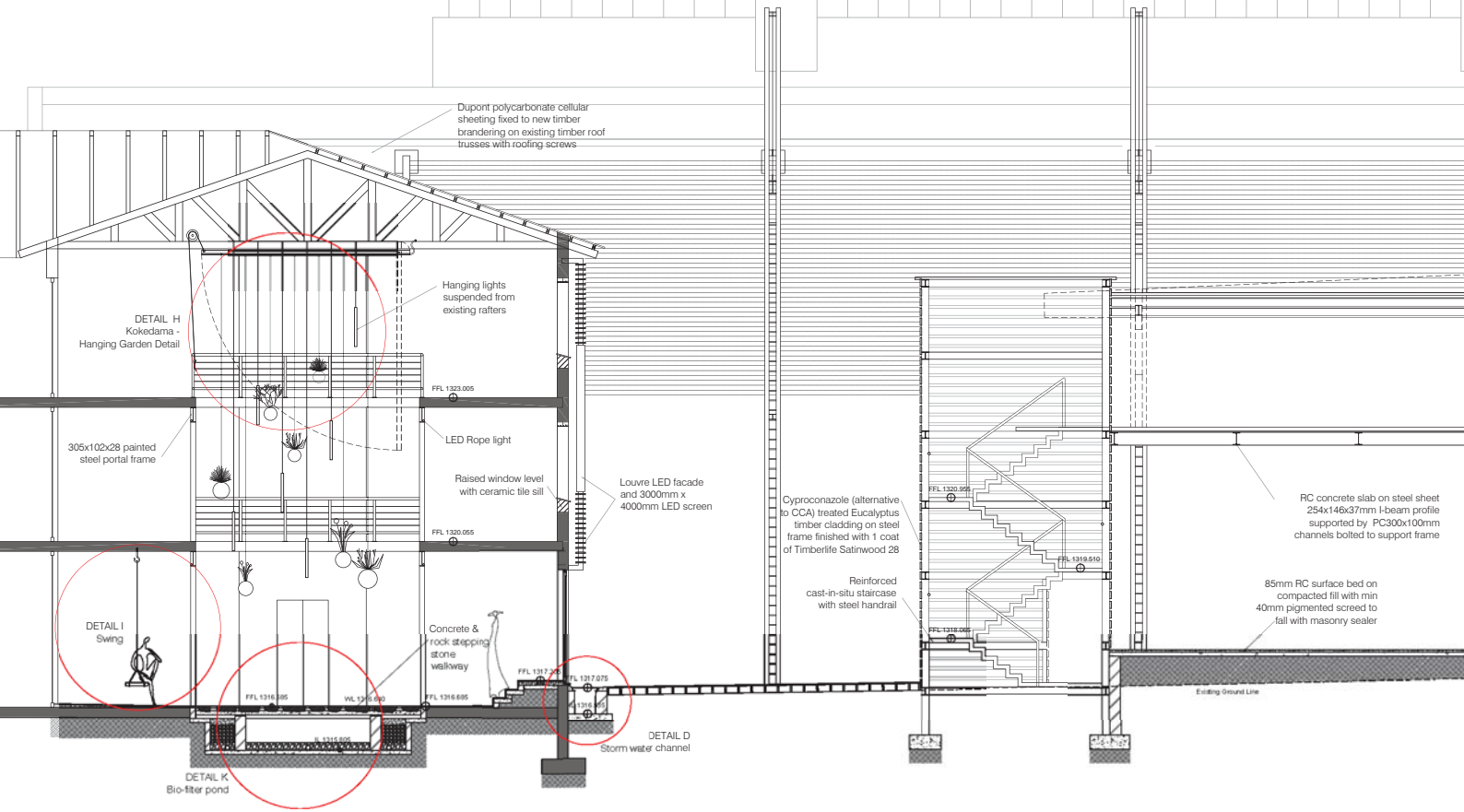


Fig. 76: Section A-A





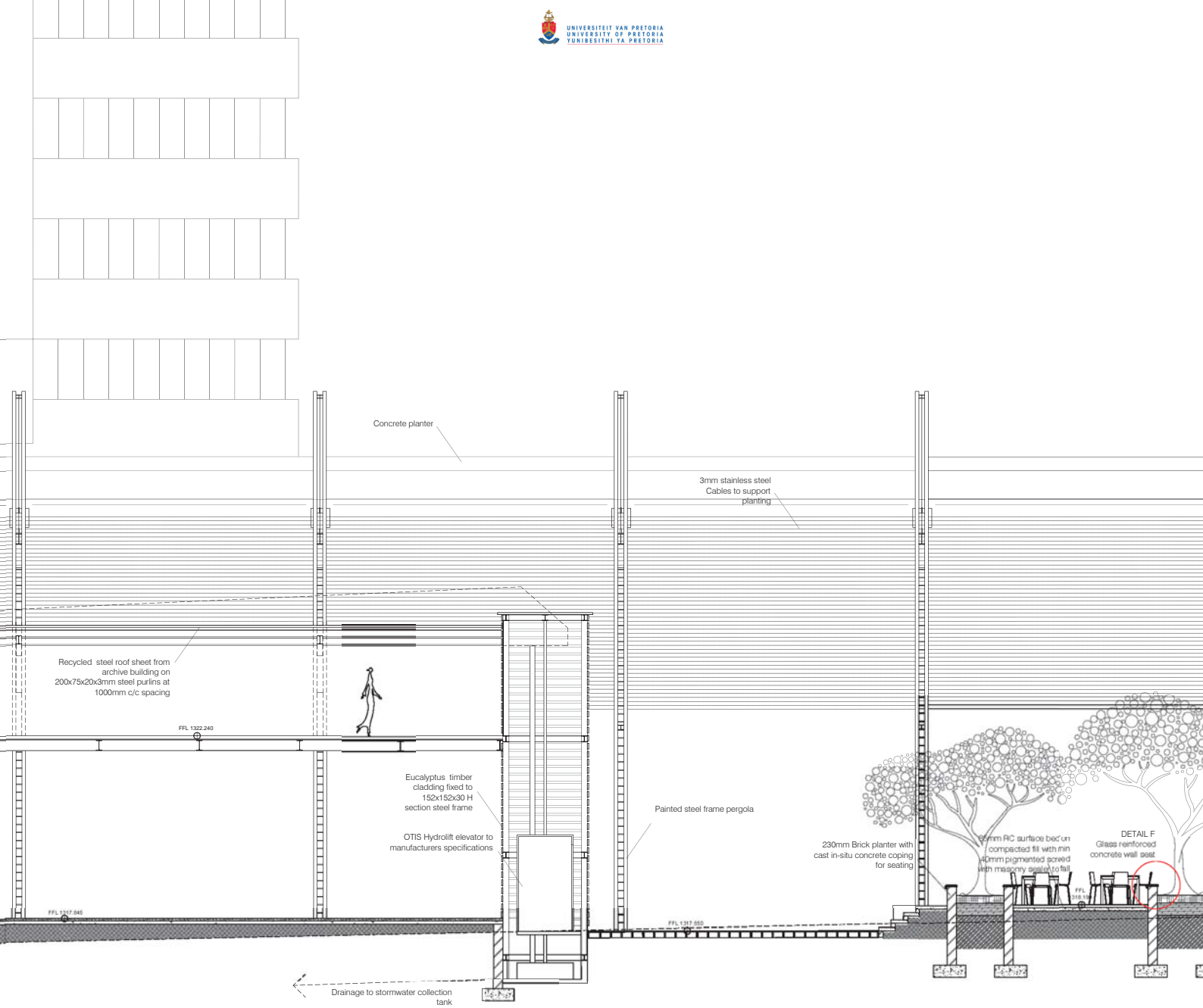
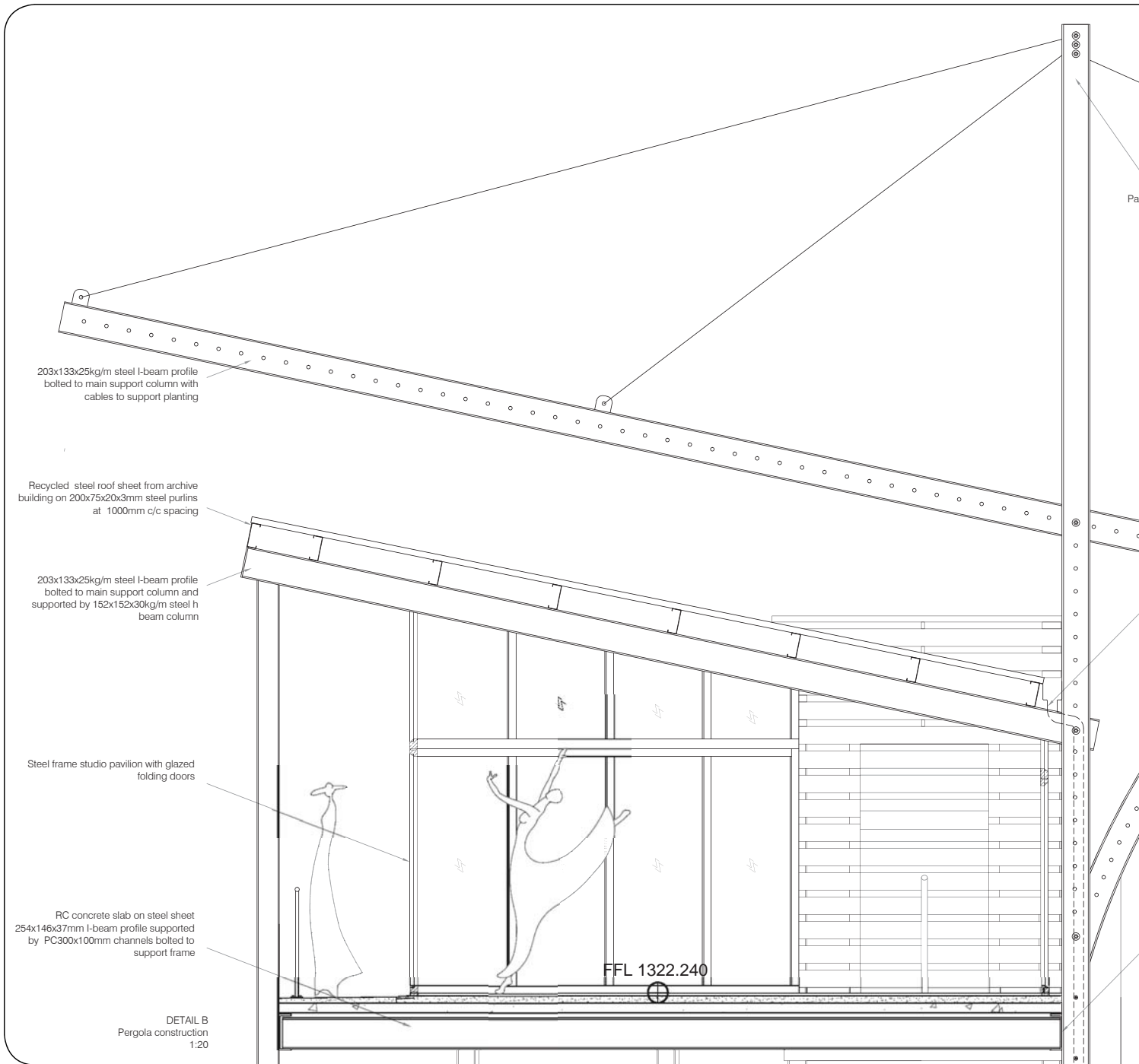
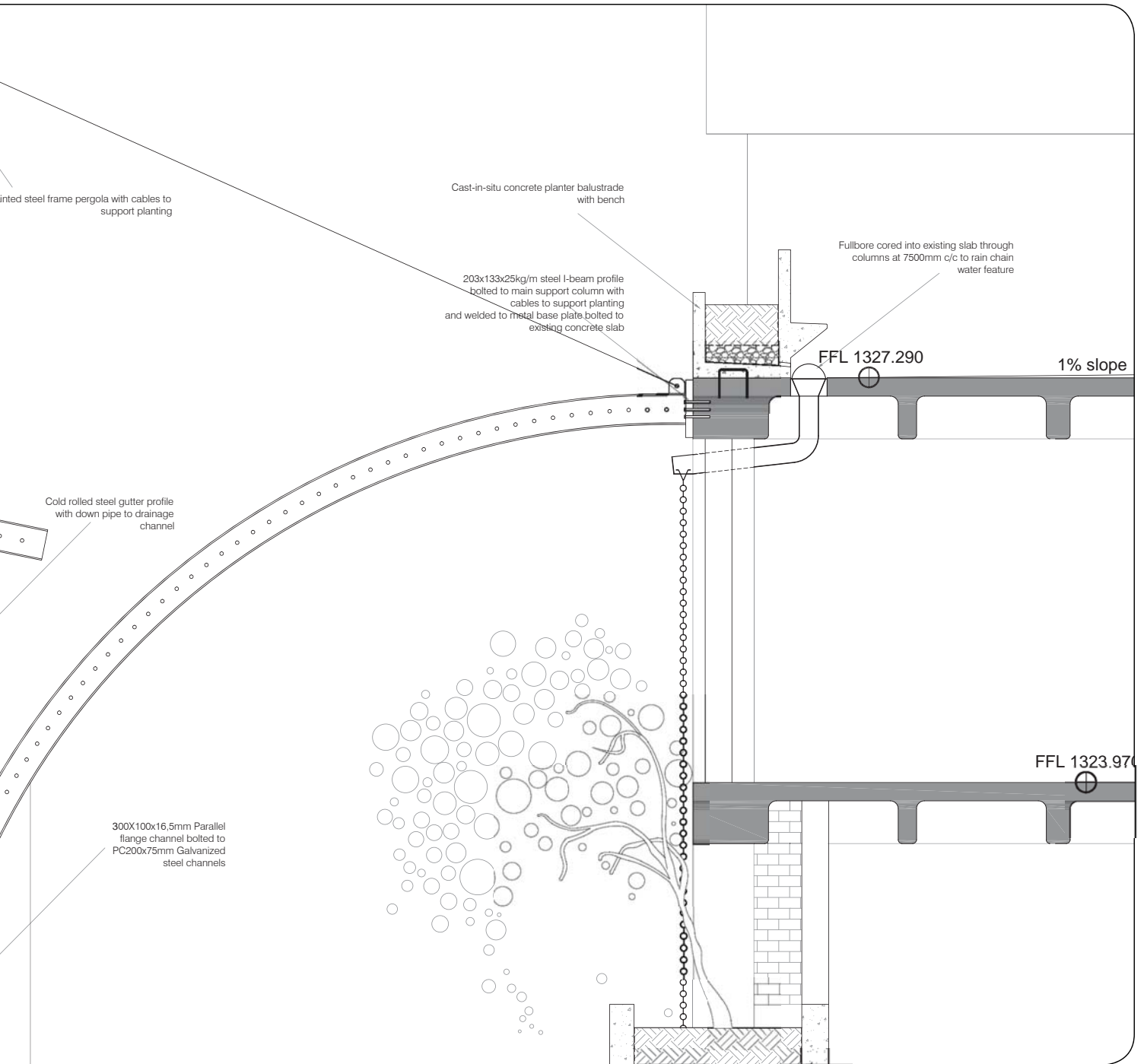
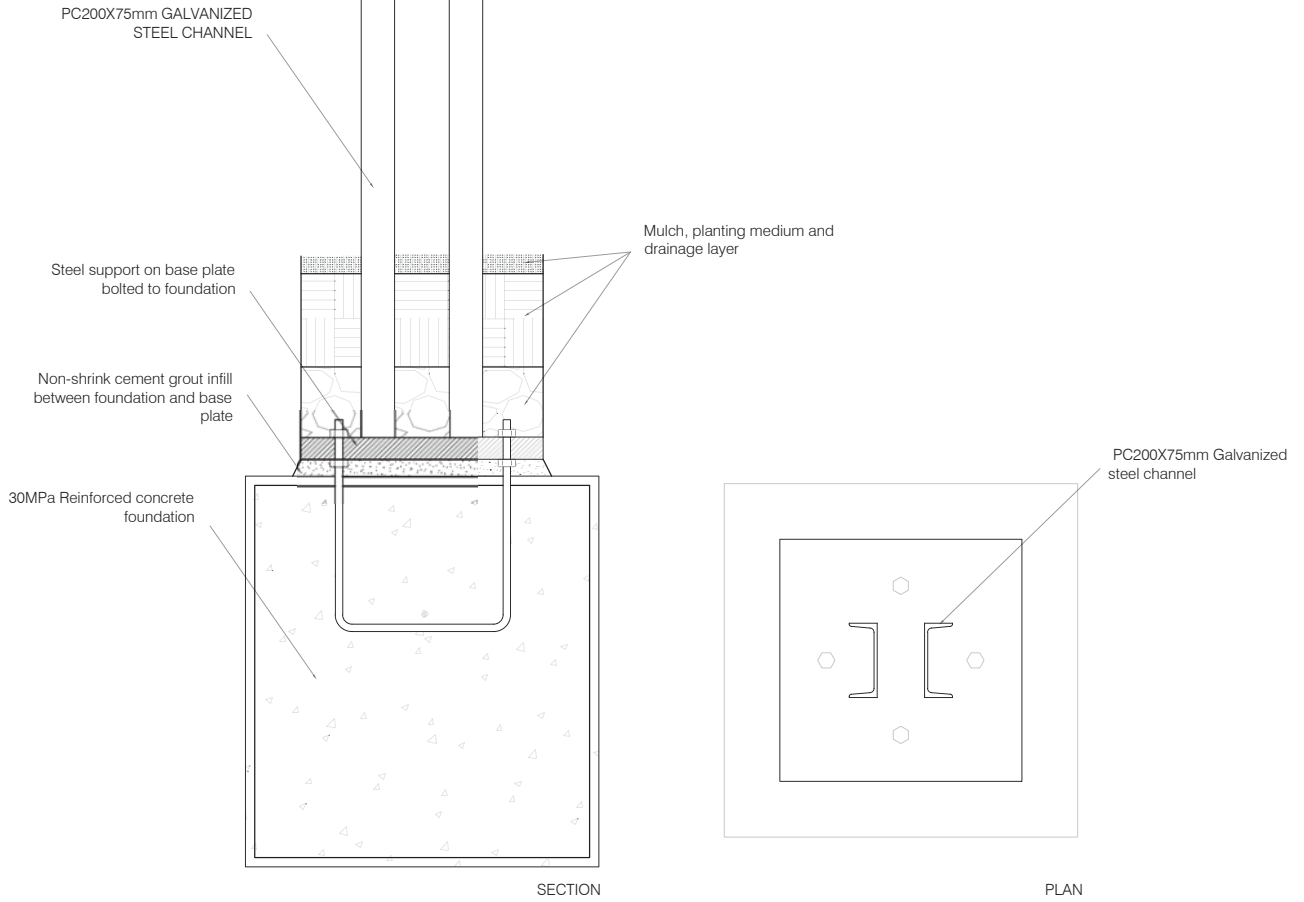


Fig. 77: Section B-B

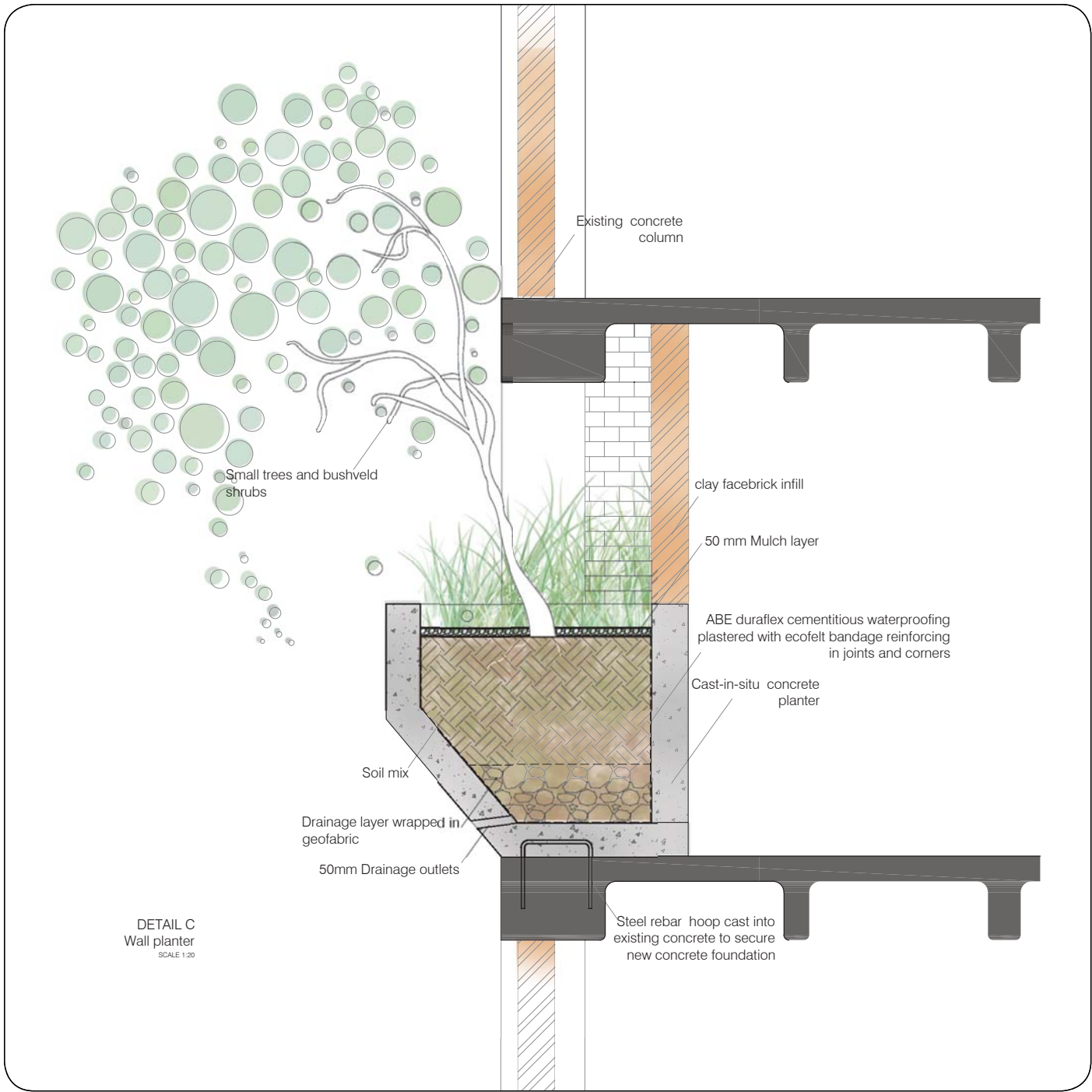




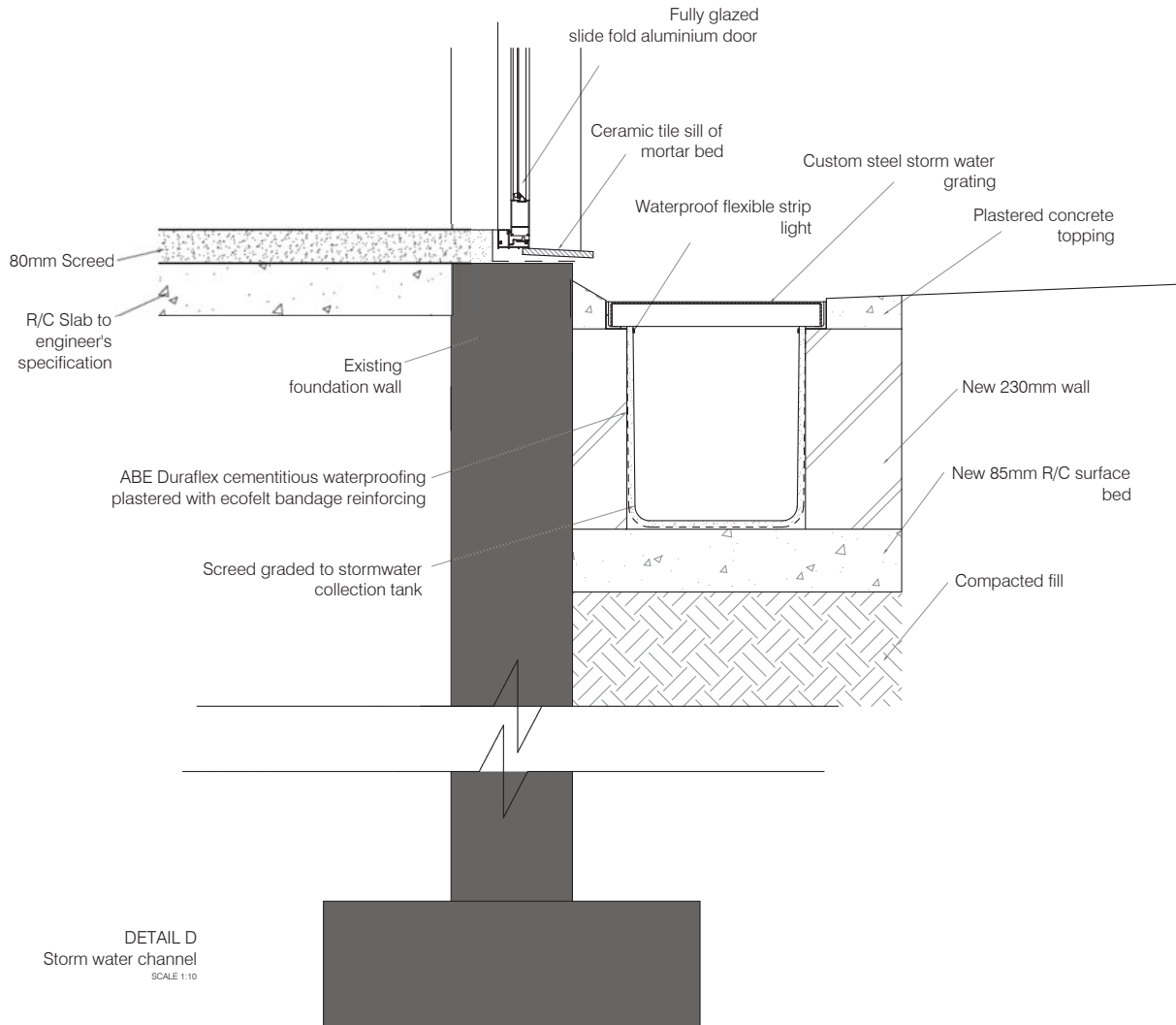


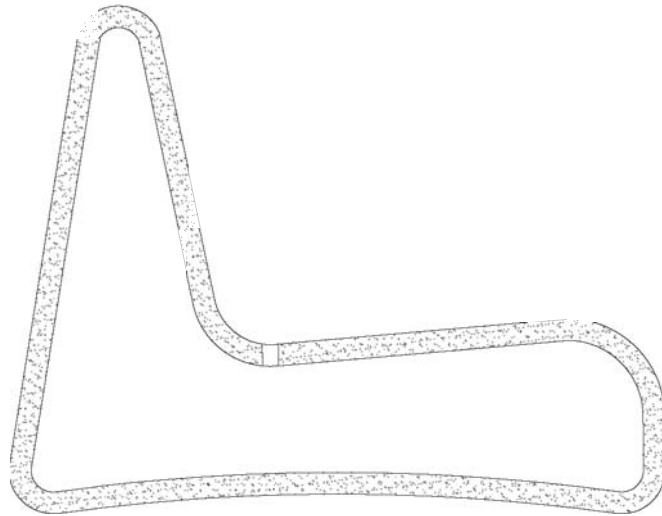


DETAIL A
Steel frame footing
SCALE 1:10

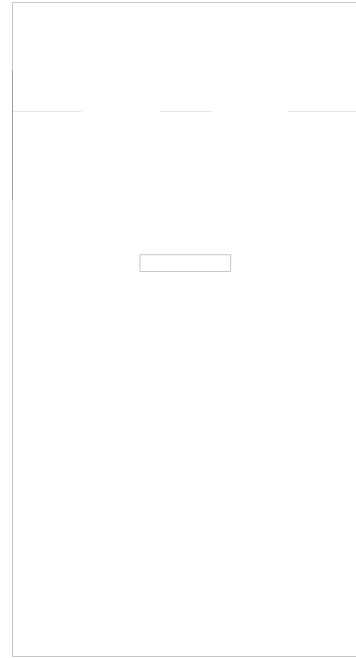


DETAIL C
Wall planter
SCALE 1:20



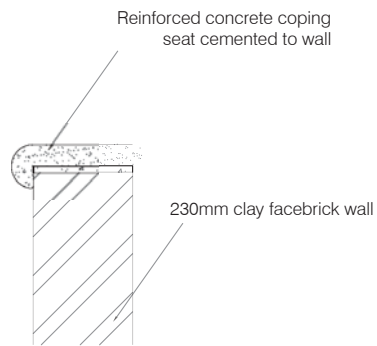


SECTION

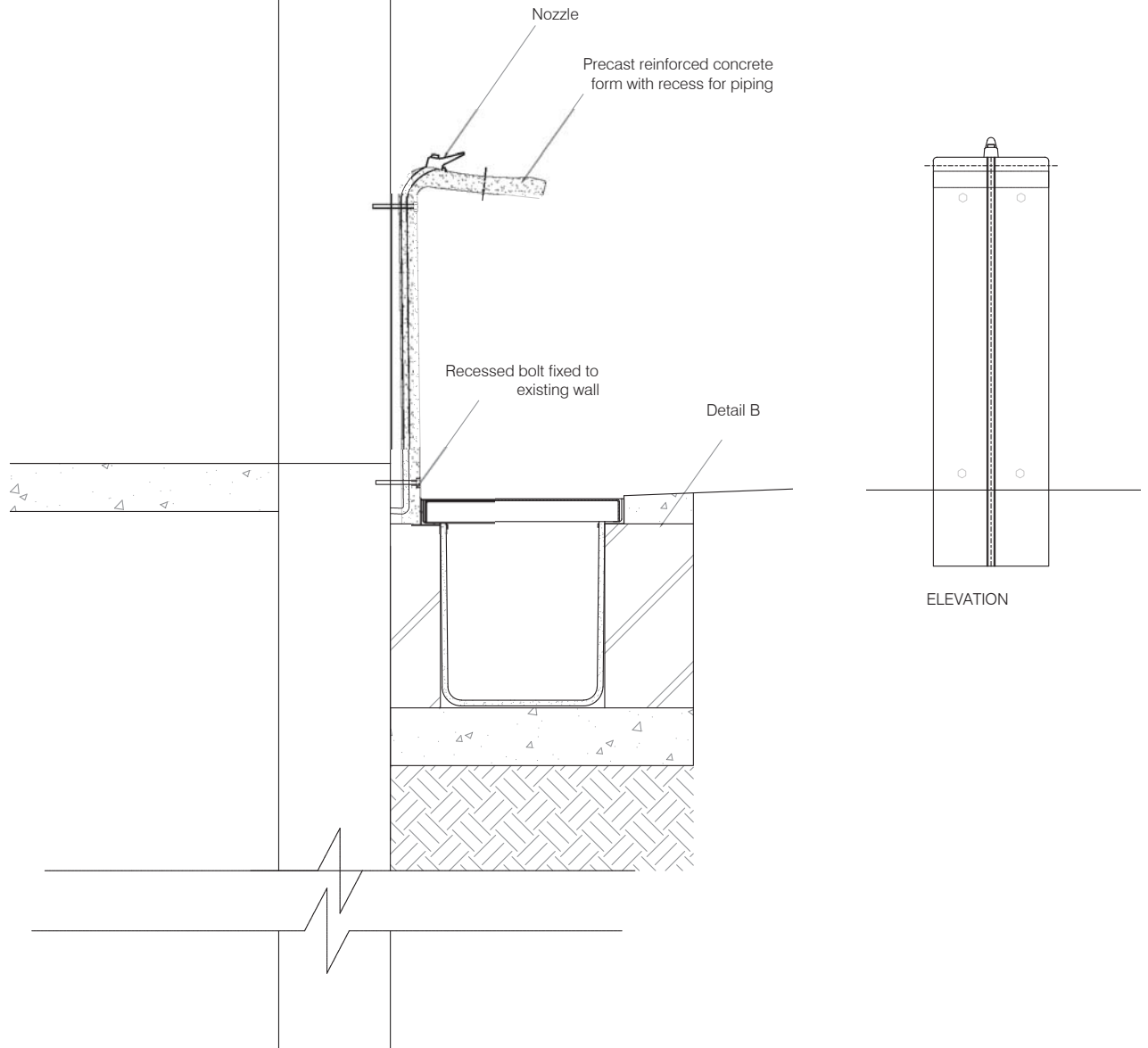


PLAN

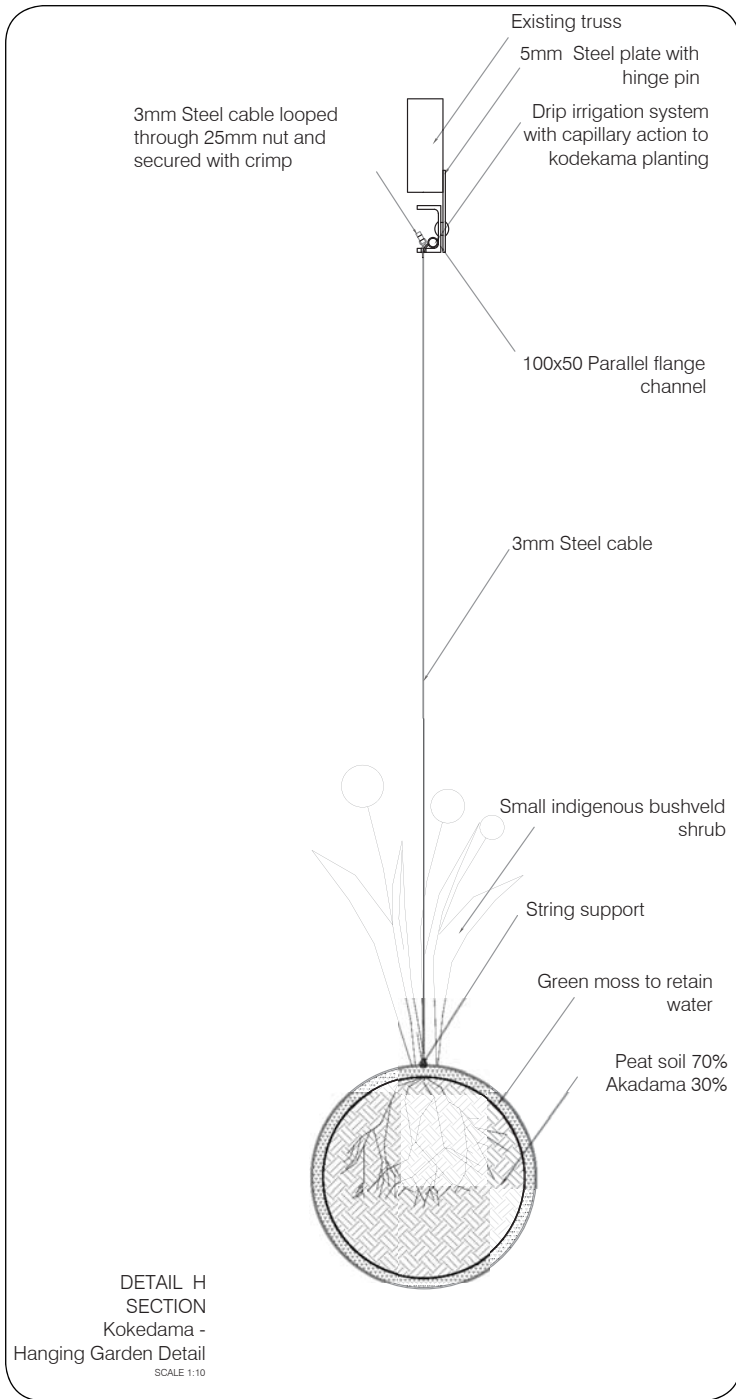
DETAIL E
Glass reinforced concrete seat
SCALE 1:10

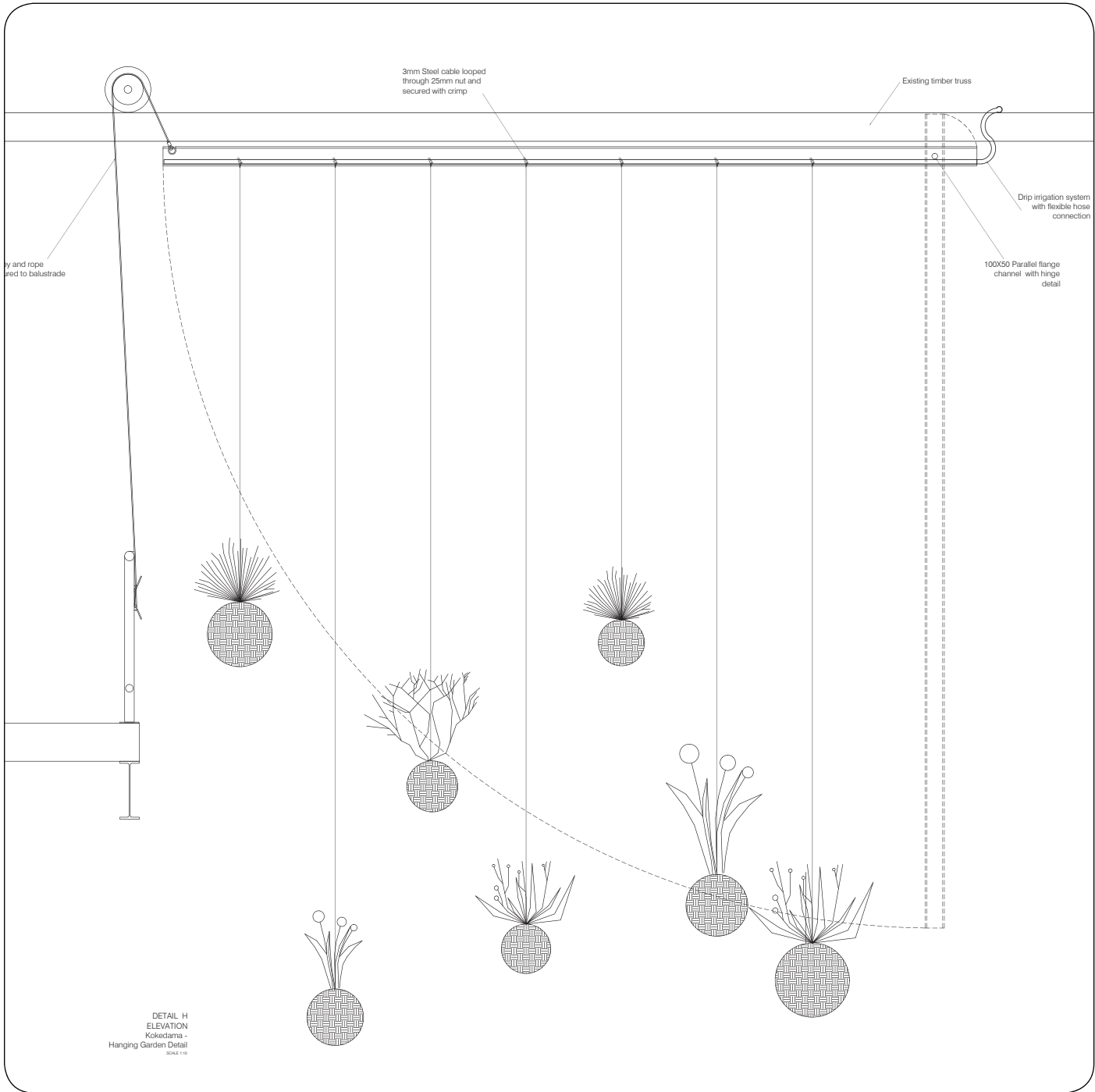


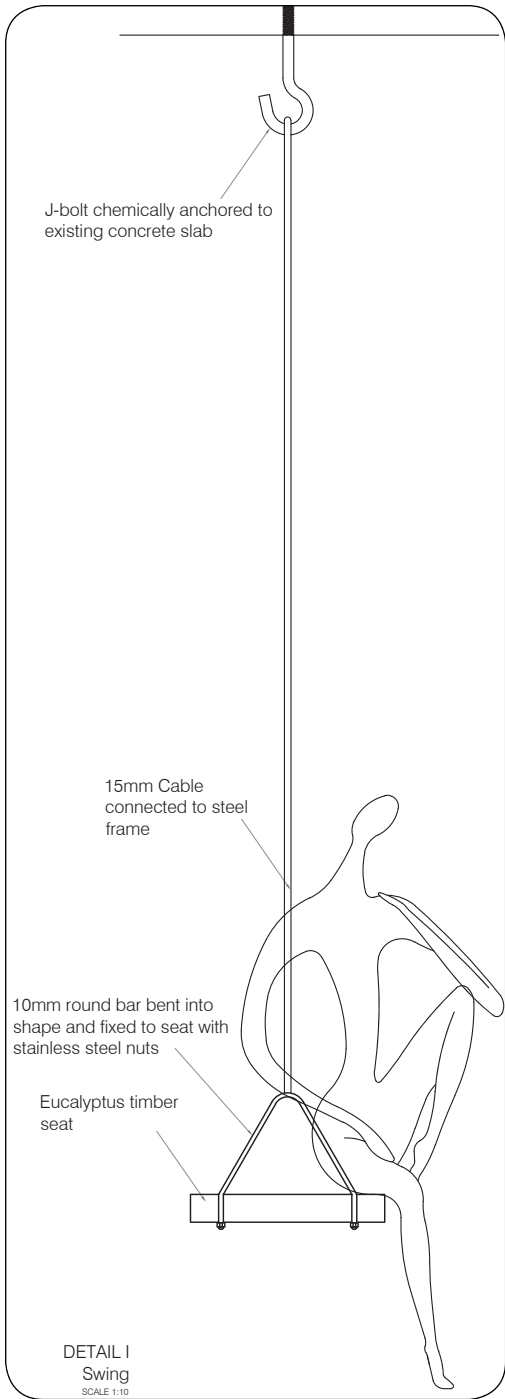
DETAIL F
Glass reinforced concrete
wall seat
SCALE 1:10

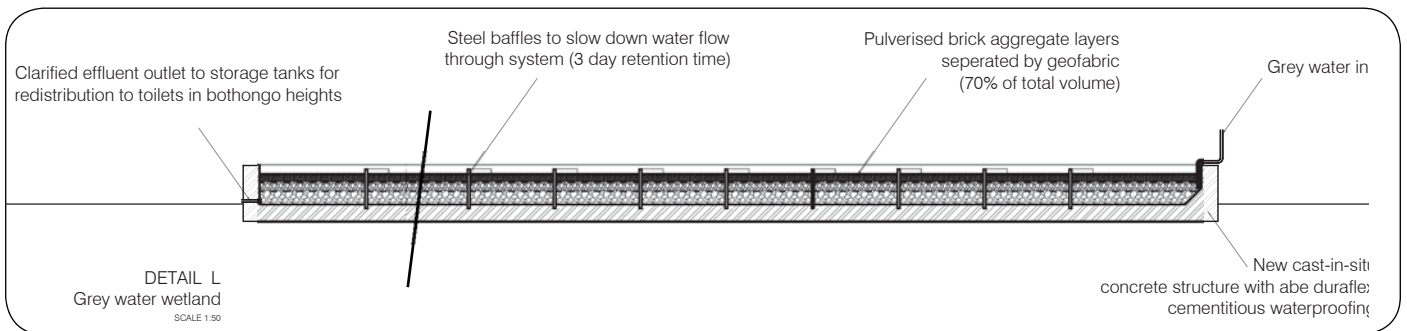
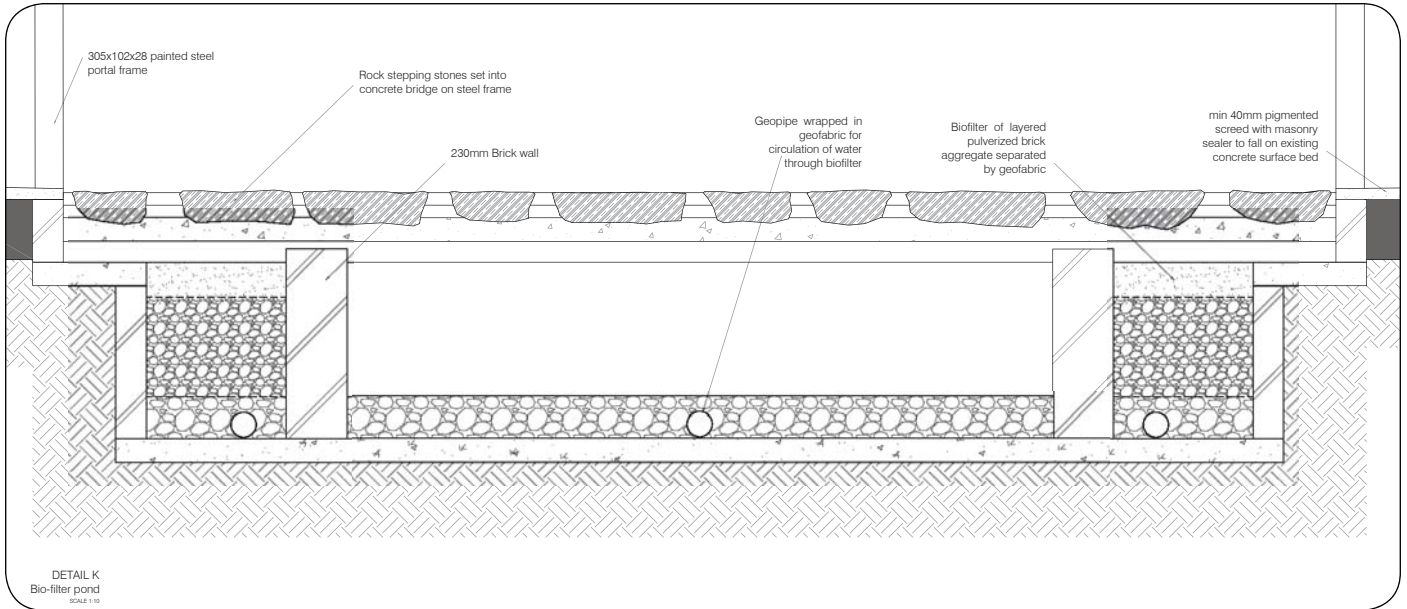


DETAIL G
Drinking Fountain
SCALE 1:10









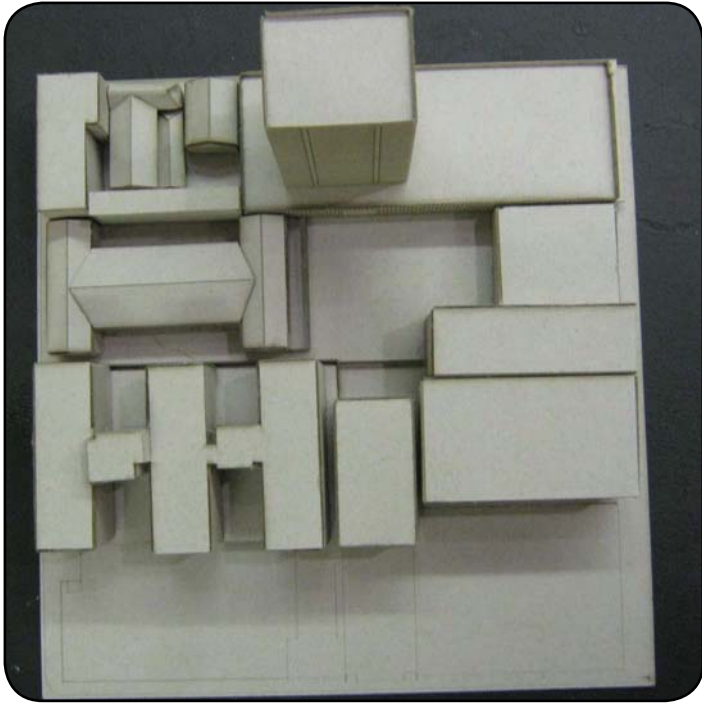


Fig. 78: Final presentation

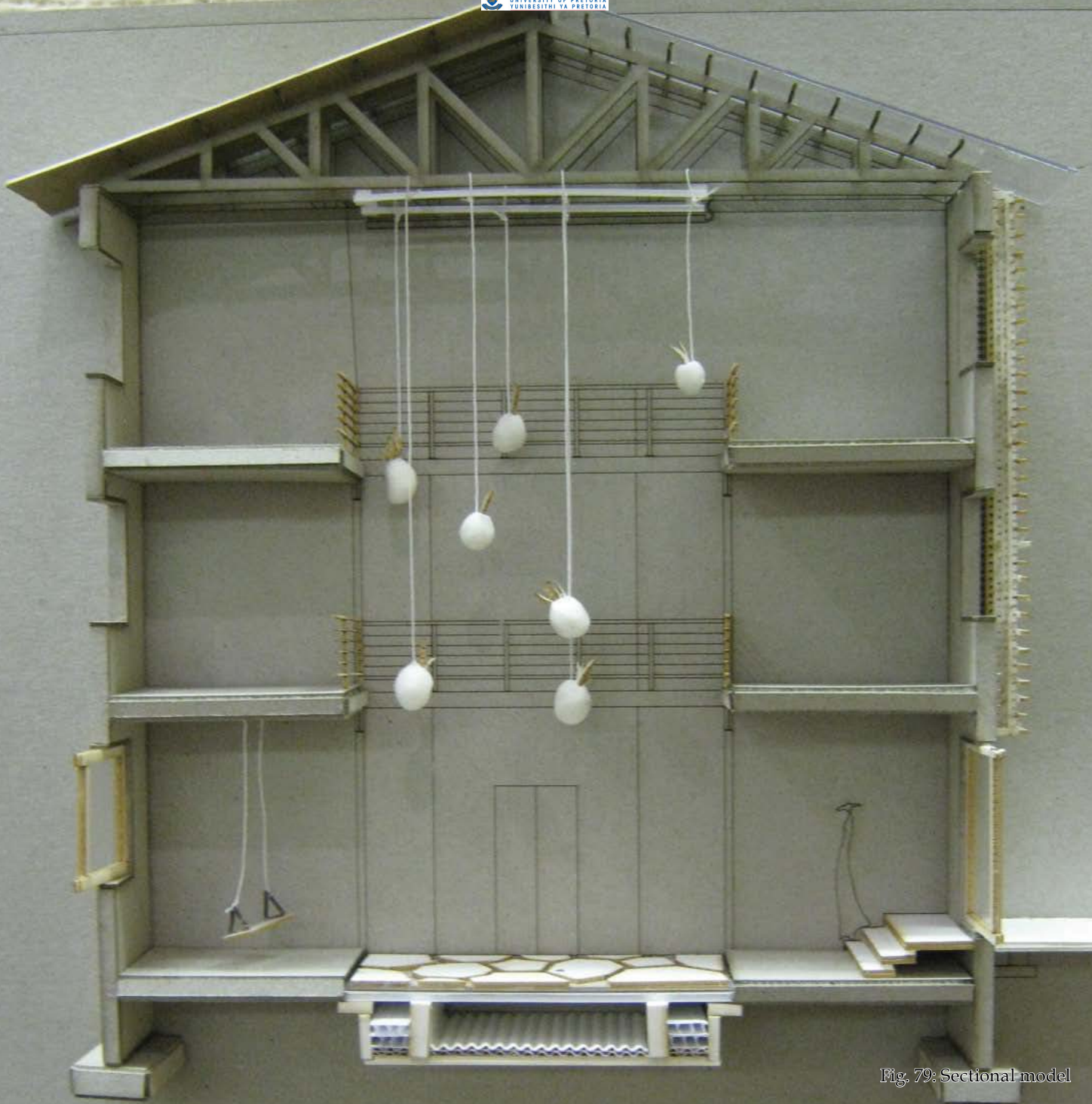


Fig. 79: Sectional model



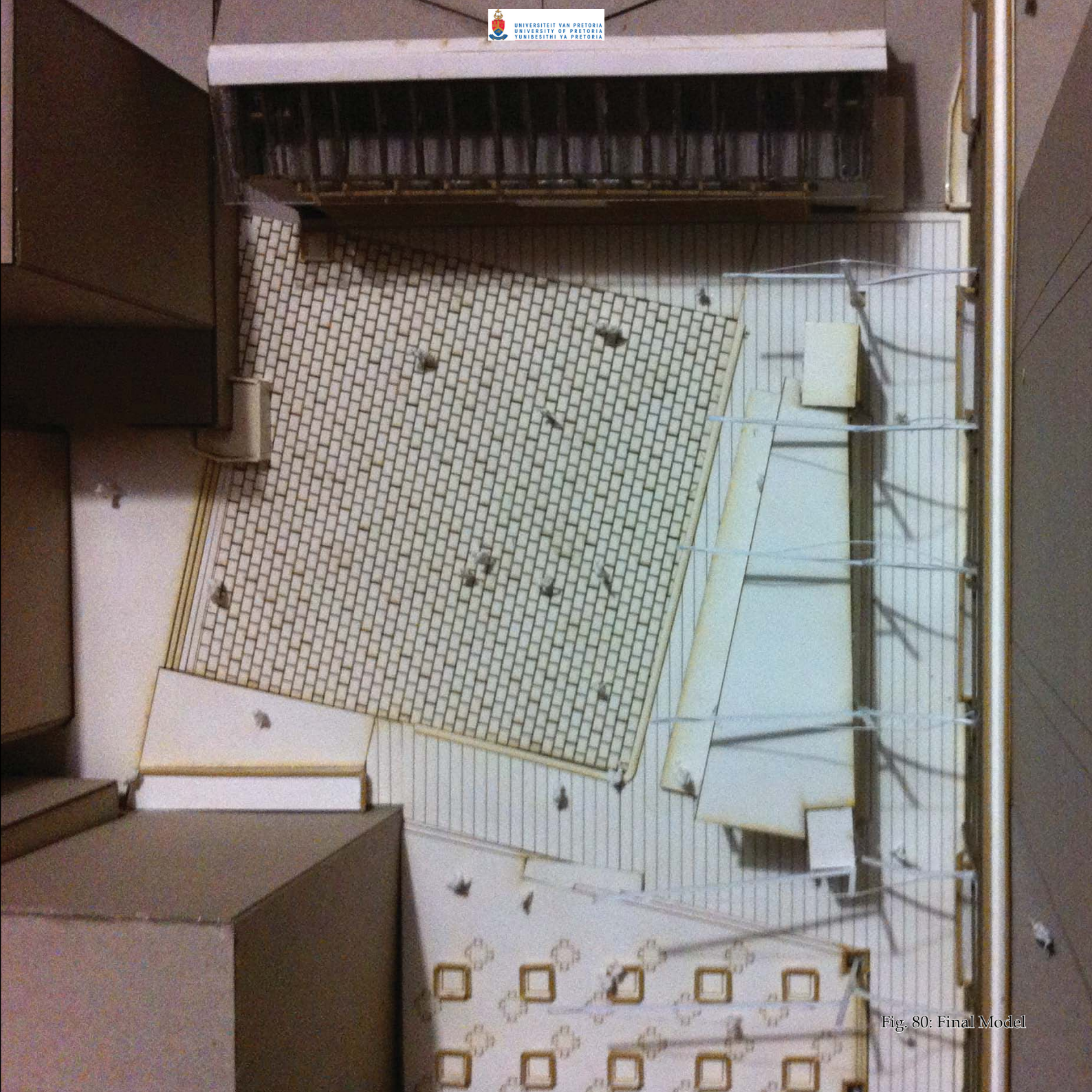


Fig. 80: Final Model

7 Appendices

6.1. Appendix A–Plant list

AQUATIC PLANTS								
Floating Aquatics								
NAME	COMMON NAME/S	FORM	FLOWER COLOUR	IN FLOWER	GROWTH RATE	HEIGHT	SUN/SHADE	
<i>Crinum paludosum</i>	Vlei lily	tufted	white	12-1	slow	0.5m	sun	
<i>Cyperus prolifer</i>	Dwarf papyrus	tufted	brown	2-4	fast	0.6-0.5m	sun	
<i>Cyperus papyrus</i>	Papyrus	tufted	brown	10-1	fast	2-4m	sun	
<i>Cyperus sexangularis</i>	Bushveld sedge	tufted	brown	1-12	fast	1.5m	sun	
<i>Ficus capreifolia</i>	Sandpaper fig	spreading	yellow	9-2	fast	2-5m	sun	
<i>Ficus pygmaeum</i>	Dwarf fig	spreading	red/black	12-5	fast	1m	sun	
<i>Ficus verruculosa</i>	Water fig	spreading	red	1-8	fast	3-5m	sun	
<i>Juncus kraussii</i>	Rietbiesie	tufted	brown	12-1	fast	1m	sun	
<i>Juncus lomatophyllus</i>	Aloe rush	spreading	brown	9-1	fast	0.2m	sun	
<i>Phragmites australis</i>	Common reed	tufted	green	12-7	fast	2-4m	sun	
<i>Schoenoplectus corymbosus</i>	Plume sedge	tufted	brown	11-3	fast	1-2m	sun	
<i>Schoenoplectus scirpoides</i>	Estuary reed	tufted	brown	1-12	fast	2.8m	sun	
<i>Sium repandum</i>	Water parsnip	tufted	yellow	1-4	fast	1.5m	sun	
<i>Typha capensis</i>	Bulrush	tufted	brown	9-4	fast	1-2m	sun	
Submerged and Floating								
NAME	COMMON NAME/S	FORM	FLOWER COLOUR	IN FLOWER	GROWTH RATE	HEIGHT	SUN/SHADE	
<i>Aponogeton junceus</i>	Cape pond weed	submerged	white	10-4	fast			
<i>Aponogeton stuhlmanii</i>	Natal aponogeron	floating	white	1-3	fast			
<i>Azolla pinnata</i>	Duckweed fern	free-floating	inconspicuous	-	fast			
<i>Brasenia schreberi</i>	Watershield	floating	red	11-3	fast			
<i>Ceratophyllum demersum</i>	Feather-leaf water parsley	submerged	greenish	11-3	fast			
<i>Ipomoea aquatica</i>	Water morning glory	floating	pink	5-10	fast			
<i>Lagarosiphon ilicifolius</i>	Water rope Watertou	submerged	white	19-5	fast			
<i>Ludwigia ocravalvis</i>	Shrubby ludwigia	erect	yellow	1-12	fast			
<i>Ludwigia stolonifera</i>	Pregnant ludwigia	floating	yellowish	1-12	fast			
<i>Marsilea macrocarpa</i>	Water clover	floating	brown	1-12	fast			
<i>Nymphaea lotus</i>	Lotus water lily	floating	yellow	11-3	fast			
<i>Nymphaea nouchali</i> var. <i>caerulea</i>	Cape water lily	floating	blue, white	9-4	fast			
<i>Nymphoides indica</i> subsp. <i>indica</i>	Floating hearts	floating	white	9-2	fast			
<i>Nymphoides indica</i> subsp. <i>occidentalis</i>	Floating hearts	floating	white	9-3	fast			
<i>Ottelia exserta</i>	Ottelia	floating	white	1-7	fast			
<i>Potamogeton crispus</i>	Curly leaved potamogeton	submerged	pink/white	7-12	fast			
<i>Trapa natans</i>	Water chestnut	floating	white	1-12	fast			
<i>Vallisneria aethiopicum</i>	Eelgrass	submerged	white	10-4	fast			

CLIMBERS							
NAME	COMMON NAME/S	FORM	FLOWER COLOUR	IN FLOWER	GROWTH RATE	HEIGHT	SUN/SHADE
<i>Adenia fruticosa</i>	Bottle adenia	climber	greenish	9	medium		shade
<i>Bauhinia galpinii</i>	Pride-of-de-Kaap	climber	red	11-6	medium		sun
<i>Carissa edulis</i>	Climbing num-num	scrambler	white	3-5	medium		sun/ shade
<i>Cissus cactiformis</i>	Cactus vine	climber	yellow	9-12	medium		sun/ shade
<i>Cissus rotundifolius</i>	Round leaf succulent vine	climber	greenish	10-2	fast		sun/ shade
<i>Combretum microphyllum</i>	Flame climbing bushwillow	twiner	red	7-11	medium		sun
<i>Combretum mossambicense</i>	Knobly creeper	twiner	white	8-9	medium		sun
<i>Combretum oxystachyum</i>	Bottlebrush combretum	scrambler	orange to red	1-4	fast		sun/shade
<i>Jasminum fluminense</i>	Bushveld jasmine	twiner	white	7-6	medium		sun/ shade
<i>Jasminum multipartitum</i>	Star jasmine	twiner	white	9-1	medium		sun/ shade
<i>Sarcostemma viminale</i>	Caustic vine	twiner	white	1-12	medium		sun
<i>Senecio viminalis</i>	Climbing senecio	scrambler	white	12-1	fast		sun
<i>Sphegamnocarpus pruriens</i> subsp. <i>Galphimifolius</i>	Lesser moth-fruit creeper	twiner	yellow	11-3	fast		sun
<i>Strophanthus speciosus</i>	Forest poison rope	climber	yellow	8-9	medium		sun/shade
<i>Tecoma capensis</i>	Cape honeysuckle	scrambler	orange, red, yellow	6-11	medium		sun/semi-shade
<i>Tinospora fragosa</i>	Aaron's rod	twiner	greenish	7-9	fast		sun/shade

GROUNDCOVERS							
NAME	COMMON NAME/S	FORM	FLOWER COLOUR	IN FLOWER	GROWTH RATE	HEIGHT	SUN/ SHADE
<i>Crassula capitella</i> subsp. <i>Sessilicymula</i>	Waterberg crassula	tufted	cream	3-4	fast		sun/shade
<i>Crassula pellucida</i> subsp. <i>Brachypetala</i>	Trailing beads crassula	flat	white	12-4	fast		light shade
<i>Plectranthus amboinicus</i>	French thyme	decumbent	white	2-5	fast		light shade
<i>Plectranthus neochilus</i>	Smelly spur-flower	decumbent	purple	9-4	fast		full sun/ light shade
<i>Plectranthus petiolaris</i>	Dutch-pipe spur-flower	decumbent	violet/ purple	2-5	fast		light shade
<i>Plectranthus tettensis</i>	Tete spur-flower	flat	purple	3-5	fast		light shade
<i>Plectranthus unguentarius</i>	Kaoko spur-flower	erect	white	4-5	fast		full sun
<i>Plectranthus verticillatus</i>	Gossip spur-flower	flat	white	3-5	fast		shade
<i>Sansevieria aethiopicum</i>	Smalblaar skoonma-se-tong	spreading	cream	11-1	slow		light shade

SHRUBS							
NAME	COMMON NAME/S	FORM	FLOWER COLOUR	IN FLOWER	GROWTH RATE	HEIGHT	SUN/ SHADE
<i>Anisotes formosissimus</i>	Tall ribbon-flower	erect	orange	1-12	fast	1-2m	sun
<i>Anisotes rogersii</i>	Orange ribbon-flower	spreading	orange	1-12	medium	1-1.5m	sun/shade
<i>Barleria albostellata</i>	Soutpansberg barleria	spreading	white	1-5	fast	1-3m	sun
<i>Barleria prionitis</i>	Thorny orange barleria	rounded	yellow	3-5	fast	1m	sun/light shade
<i>Barleria rotundifolia</i>	Bush veld thorny violet	rounded	yellow	12-7	fast	1.5m	sun/shade
<i>Bauhinia tomentosa</i>	Yellow bauhinia	rounded	yellow	11-5	medium	1-2m	sun
<i>Bauhinia urbaniana</i>	Pink bauhinia	spreading	white	2-10	medium	2-3m	sun
<i>Calpurnia aurea</i>	Natal laburnum	rounded	yellow	12-2	fast	2-3m	sun
<i>Carissa bispinosa</i>	Lowveld num-num	spreading	white	11-4	medium	1-2m	sun/shade
<i>Catophractes alexandri</i>	Trumpet-thorn	erect	white	9-5	medium	1-3m	sun
<i>Chorisochocha transvaalensis</i>	Waterberg ribbon-bush	erect	mauve/pink	3-5	fast	1-2m	sun/ light shade
<i>Combretum oxystachum</i>	Bottlebrush combretum	spreading	orange to red	1-5	fast	1-5m	sun/shade
<i>Combretum platypetalum</i>	Kamakaba	erect	red	7-8	medium	1-2m	sun/shade
<i>Croton pseudopulchellus</i>	Small lavender croton	spreading	yellow	11-12	medium	1-2m	sun/shade

<i>Diospyros natalensis</i>	Small-leaved jackal-berry	spreading	white	7-11	slow	3-5m	sun/shade
<i>Dombeya autumnalis</i>	Rock wild pear	erect	white	1-8	medium	2- 5m	sun
<i>Dombeya burgessiae</i>	Pink wild pear	rounded	white/ pink	11-4	fast	2-3m	sun
<i>Dombeya cymosa</i>	Smooth wild pear	rounded	white	4-7	fast	2-3m	sun
<i>Dombeya kirkii</i>	River wild pear	rounded	white	4-6	fast	2-3m	sun
<i>Dombeya pulchra</i>	Silver dombeya	rounded	white	11-4	fast	2-4m	sun
<i>Duvernoia aconitifolia</i>	Bushveld pistol bush	erect	white	8-5	fast	1-3m	sun/shade
<i>Dyschoriste rogersii</i>	Bushveld ribbon-flower	erect	mauve	1-12	fast	1.5m	sun/shade
<i>Erythrina humeana</i>	Dwarf coral tree	erect	red	9-2	medium	1-3m	sun
<i>Erythrina lavissima</i>	Broad-leaved coral tree	spreading	red	7-10	slow	3-5m	sun
<i>Erythrophysa transvaalensis</i>	Transvaal red balloon	rounded	red	9-10	medium	3-4m	sun
<i>Freylinia tropica</i>	Waterberg honey bells	spreading	purple/white	10-12	fast	1-4m	sun
<i>Gardenia volkensii</i> subsp.							
<i>Spathulifoli</i>	Bushveld gardenia	rounded	white	8-12	slow	3-5m	sun
<i>Grewia flava</i>	Velvet raisin	spreading	yellow	10-3	medium	1-2m	sun
<i>Hyperacanthus amoenus</i>	Thorn gardenia	erect	white	11-3	slow	3-5m	sun/shade
<i>Jamesbrittenia grandijlora</i>	Blue paintbush	erect	blue	11-3	fast	1-2m	sun/shade
<i>Karomia speciosa</i>	Mauve Chinese hats	erect	pink/purple	3-7	medium	2-5m	sun
<i>Madura africana</i>	African osage-orange	spreading	white	3-5	medium	2-3m	sun
<i>Maema rosmarinoides</i>	Needle-leaved spider bush	rounded	white	7-10	medium	2-5m	sun/shade
<i>Metarungia longistrobis</i>	Sunbird bush	spreading	brownish	9-4	medium	3.0m	sun/shade
<i>Mundulea sericea</i>	Cork bush	erect sun	purple	10-1	medium	2-5m	sun
<i>Ochna natalitia</i>	Natal plane	spreading	yellow	9-12	medium	2-4m	sun/shade
<i>Ochna serrulata</i>	Small-leaved plane	spreading	yellow	9-11	medium	1-3m	sun/shade
<i>Orthosiphon labiatus</i>	Pink sage	spreading	light purple	2-5	medium	1-1.5m	sun/shade
<i>Orthosiphon tubiformis</i>	Bushveld pink sage	spreading	light purple	2-5	medium	1m	sun/shade
<i>Pavetta cooperi</i>	Pompon bride's bush	spreading	white	12-2	medium	1- 3m	sun/shade
<i>Petalidium bracteatum</i>	Ruacana petalidium	spreading	red	9-5	fast	1-3m	sun/shade
<i>Petalidium coccineum</i>	Kaoko petalidium	spreading	red	7-1	fast	3m	sun/shade
<i>Portulacaria afra</i>	Spekboom	spreading	pink	10-2	medium	2-5m	sun
<i>Pycnostachys urticifolia</i>	Slender pycnostachys	erect	blue	11-3	fast	1-2m	sun
<i>Rhigozum zambesiacum</i>	Mopane pomegranate	spreading	yellow	9-12	medium	3-7m	sun
<i>Ruspolia hypocrateriformis</i>	Red ruspolia	rounded	bright red	12-7	medium	1-2m	sun
<i>Ruttya fruticosa</i>	Jammy mouth	spreading	red	10-3	medium	3-4m	sun/shade
<i>Ruttya ovata</i>	White jammy mouth	rounded	white	7-9	medium	1-2m	sun/shade
<i>Ruttya x Ruspolia</i>	Phyllis van Heerden	spreading	pink	11-4	medium	2.0m	sun
<i>Sclerochiton ilicifolius</i>	Spiny white-lips	erect	white	10-1	medium	1-2m	sun/shade
<i>Searsia batophylla</i>	Bramble currant	spreading	yellow/green	10-11	medium	3.0m	sun
<i>Tetradenia riparia</i>	Ginger bush	erect	light purple /white	2-10	fast	1-3m	sun
<i>Tinnea barbata</i>	Blue lip-flower	erect	blue	8-9	medium	3-5m	sun/shade
<i>Tinnea rhodesiana</i>	Purple lip-flower	erect	purple	9-3	fast	2.5m	sun
<i>Turraea floribunda</i>	Honeysuckle tree	erect	cream	11-12	medium	3-5m	sun
<i>Turraea obtusifolia</i>	Lesser honeysuckle tree	rounded	white	11-4	slow	1-5m	sun
<i>Tylosema esculenta</i>	Gemsbok bean	spreading	yellow	10-4	medium	3.0m	sun
<i>Vernonia colorata</i> subsp.							
<i>Colorata</i>	Lowveld bitter-tea	erect	light purple	12-3	fast	2-3m	sun
<i>Vernonia myriantha</i>	Eared vernonia	erect	mauve	4-9	fast	2-6m	sun/part shade
<i>Xylothea kraussiana</i>	African dog-rose	spreading	white	11-3	medium	1-7m	sun/shade

TREES							
NAME	COMMON NAME/S	FORM	FLOWER COLOUR	IN FLOWER	GROWTH RATE	HEIGHT	SUN/ SHADE
<i>Acacia galpinii</i>	Monkey thorn	spreading	yellow	9-10	medium	15-25m	
<i>Acacia haematoxylon</i>	Grey camel thorn	spreading	yellow	11-3	slow	3-8m	
<i>Acacia haereroensis</i>	Arid hook thorn	spreading	yellow	11-2	slow	4-8m	
<i>Acacia karoo</i>	Sweet thorn	rounded	yellow	11-3	fast	4-12m	
<i>Acacia kirkii</i>	Flood-plain thorn	spreading	cream	9-10	medium	3-8m	
<i>Acacia luederitzii</i> var. <i>retinens</i>	Balloon thorn	rounded	cream-white	11-3	medium	3-8m	
<i>Acacia mellifera</i> subsp. <i>mellifera</i>	Kaoko black thorn	spreading	cream	7-10	medium	2-4m	
<i>Acacia nigrescens</i>	Knob thorn	rounded	white	8-11	slow	8-20m	
<i>Acacia nilotica</i> subsp. <i>kraussiana</i>	Scented thorn	umbrella	yellow	9-1	slow	7-10m	
<i>Acacia rejiciens</i> subsp. <i>rejiciens</i>	Red umbrella thorn	umbrella	yellow	12-1	slow	3-9m	
<i>Acacia robusta</i> subsp. <i>robusta</i>	Robust thorn	erect	white	7-10	medium	15-25m	
<i>Acacia senegal</i> var. <i>rostrata</i>	Three-hook thorn	spreading	white	5-8	medium	3-8m	
<i>Acacia sieberiana</i> var. <i>woodii</i>	Paperbark thorn	umbrella	white	9-11	fast	5-10m	
<i>Acacia xanthophloea</i>	Fever tree	erect	yellow	9-11	fast	10-15m	
<i>Adansonia digitata</i>	Baobab	spreading	white	10-2	medium	5-15m	
<i>Azelia quanzensis</i>	Pod mahogany	spreading	orange-red	7-11	fast	10-15m	
<i>Albizia antunesiana</i>	Purple-leaved false-thorn	spreading	yellow	9-10	medium	3-8m	
<i>Albizia harveyi</i>	Bushveld albizia	spreading	white	10-12	medium	10-12m	
<i>Albizia tanganyicensis</i>	Paperbark false-thorn	spreading	cream	8-10	slow	5-10m	
<i>Albizia versicolor</i>	Large-leaved false-thorn	spreading	cream	10-11	medium	8-12m	
<i>Baikiaea plurijuga</i>	Zambezi teak	erect	light purple	12-3	medium	8-16m	
<i>Balanites aegyptiaca</i>	Single green-thorn	erect	green-white	11	slow	3-5m	
<i>Berchemia discolor</i>	Brown ivory	rounded	yellow	11-12	medium	8-18m	
<i>Bolusanthus speciosus</i>	Tree wisteria	rounded	blue/ purple	9-10	slow	4-8m	
<i>Boscia albimma</i>	Shepherd's tree	rounded	yellowish	8-10	slow	4-7m	
<i>Erythrina decora</i>	Namib coral tree	erect	red	9-2	medium	4-8m	
<i>Erythrina lysistemon</i>	Common coral tree	rounded	red	7-8	medium	8-15m	
<i>Faidherbia albida</i>	Ana tree	erect	cream	5-7	fast	20-30m	
<i>Ficus bubu</i>	Bubu fig	erect	green	11-3	fast	8-10m	
<i>Ficus burkei</i>	Common wild fig	spreading	brown	7-1	fast	10-20m	
<i>Ficus glumosa</i>	Hairy rock fig	spreading	yellow	1-7	slow	3-8m	
<i>Ficus ingens</i>	Red-leaved rock fig	spreading	red	7-12	slow	1-15m	
<i>Ficus sycomorus</i>	Sycamore fig	rounded	reddish	7-12	fast	10-20m	
<i>Galpinia transvaalica</i>	Transvaal privet	spreading	white	11-5	medium	5-6m	
<i>Guibortia coleosperma</i>	Bastard mopane	spreading	cream-white	12-5	medium	6-8m	
<i>Gyrocarpus americanus</i>	Propeller tree	spreading	yellow/green	3-5	medium	4-8m	
<i>Heteropyxis natalensis</i>	Lavender tree	rounded	yellow/green	12-3	medium	4-7m	
<i>Kigelia africana</i>	Sausage tree	spreading	purplish	8-10	medium	6-15m	
<i>Kirkia acuminata</i>	White syringa	spreading	cream	10-11	medium	6-15m	
<i>Kirkia wilmsii</i>	Mountain syringa	spreading	cream	10-12	slow	4-8m	
<i>Mimusops zeyheri</i>	Transvaal red milkwood	rounded	cream	8-11	slow	5-15m	
<i>Mystroxydon aethiopicum</i>	Kooboo-berry	rounded	yellowish-green	10-11	medium	4- 1m	
<i>Ochna pulchra</i>	Peeling plane	rounded	yellow	8-11	slow	3-5m	
<i>Peltophorum africanum</i>	African wattle	spreading	yellow	9-2	medium	5-10m	

<i>Philenoptera violacea</i>	Apple-leaf	erect	purple	9-11	medium	4-10m	
<i>Pterocarpus angolensis</i>	Transvaal teak	umbrella	yellow	9-11	medium	10m	
<i>Pterocarpus rotundifolius</i>	Round-leaved teak	rounded	yellow	9-11	medium	8m	
<i>Rauvolfia cajfra</i>	Quinine tree	erect	white	7-10	medium	6-20m	
<i>Salix subserrata</i>	Safsaf willow	spreading	white	3-4	medium	4-7m	
<i>Schinziophytum rautanenii</i>	Manketti tree	erect	yellowish	11-2	medium	4-8m	
<i>Schotia brachypetala</i>	Weeping boer-bean	erect/ spreading	red	9-10	slow	10-15m	
<i>Sclerocarya birrea subsp. Caffra</i>	Marula	spreading	pink	9-11	medium	7-17m	
<i>Searsia lancea</i>	Karree	spreading	yellowish	7-1	medium	4-8m	
<i>Searsia leptodictya</i>	Mountain karree	spreading	yellowish	2-5	medium	4-8m	
<i>Searsia pendulina</i>	White karree	spreading	yellowish	8-11	medium	4-8m	
<i>Senna petersiana</i>	Monkey-pod	spreading	yellow	8-10	fast	3-8m	
<i>Spirostachys africana</i>	Tamboi	erect	yellowish	9-12	slow	5-10m	
<i>Steganotaenia araliacea</i>	Carrot tree	erect	green	8-10	fast	3-7m	
<i>Sterculia africana</i>	African star-chestnut	erect	greenish	9-11	slow	5-12m	
<i>Sterculia murex</i>	Lowveld star-chestnut	spreading	yellowish	7-10	slow	7-10m	
<i>Sterculia quinqueloba</i>	Large-leaved star-chestnut	erect	yellow	3-5	medium	5-10m	
<i>Syzygium cordatum</i>	Waterberry	erect	cream	8-11	fast	5-15m	
<i>Terminalia brachystemma</i>	Bastard cluster-leaf	spreading	cream	10-2	medium	3-6m	
<i>Terminalia sericea</i>	Silver cluster-leaf	erect	cream	9-1	medium	4-6m	
<i>Trichilia emetica</i>	Bushveld mahogany	spreading	yellow/green	8-10	medium	9m	
<i>Xanthocercis zambesiaca</i>	Nyala tree	spreading	yellow	9-12	slow	20-30m	
<i>Ziziphus mucronata</i>	Buffalo-thorn	spreading	yellow-green	10-4	medium	3-5m	

8 Figure List

- Fig 1: A birds eye view of Pretoria from Bothongo Heights tower.
- Fig. 2: Pretoria Parks 1947 (Aerial photograph 1947, University of Pretoria Geography Department).
 Pretoria Parks 2012 (Aerial photograph 2012, University of Pretoria Geography Department).
- Fig. 3: Urban Voids—Latent Space (Author 2012).
- Fig. 4: Urban voids—fenced off and used as dumping grounds (Author 2012).
- Fig. 5: Area of study (Aerial photograph 2012, University of Pretoria Geography Department).
- Fig. 6: Conceptual sketch of a living city (Author 2012).
- Fig. 7: Necessary activities (Author 2012).
- Fig. 8: Optional activities (Author 2012).
- Fig. 9: Locked public toilets (Author 2012).
- Fig. 10: Latent Spaces (Author 2012).
- Fig. 11: Latent Space in Pretoria CBD - inverted figure ground study (Author 2012).
- Fig. 12: City Acupuncture - Recipe for a better city. (Bolek, Stachowicz, Jozefiak, 2007).
- Fig. 13: The Red Ball Project (Martin, T. 2012)
- Fig. 14: Park(ing) day 2005 by REBAR (REBAR. 2011).
- Fig. 15: The Grove - Edge conditions (Author 2010).
 (southpointhospitality).
- Fig. 16: Sculptures in the public landscape (https://www.facebook.com/theavam/photos_stream).
- Fig. 17: The Golden Hand (Eric Salisbery, Flickr from the Hill).
- Fig. 18: Flickr from the hill (<http://www.flickr.com/photos/visitmybaltimore/4776158856/sizes/1/in/photostream/>).
- Fig. 19: Historic development of Pretoria (Alkayyali 2011 - Adapted from Jordaan, G.J. 1989. Pretoria as Urbs Quadrata. *Architecture SA* p.26-29.
- Fig. 20: Aerial photograph of Pretoria taken in 1947 (Aerial photograph 1947, University of Pretoria Geography Department).
 (Aerial photograph 2011, University of Pretoria Geography Department).
- Fig. 21: A historical photograph (circa 1910) showing a view towards Church Square looking West down Church Street (<http://www.flickr.com/photos/hilton-t/6593194967/sizes/o/in/photostream/>).
- Fig. 22: A recent photograph (2012) showing the same view towards Church Square looking West down Church Street (Author 2012).
- Fig. 23: Arcades and alley ways fenced off outside of business hours (Author 2012).
- Fig. 24: Burlington arcade Church Street entrance before (Nomico, T. 2006).
 and after (Author 2012).
- Fig. 25: Birds eye view of the site from the Bothongo Heights tower (Author 2012).
- Fig. 26: Latent spaces around site (Author 2012).
- Fig. 27: Site map (Author 2012).
- Fig. 28: Site mapping and views (Author 2012).
- Fig. 29: The Site viewed from the Archive building (Author 2012)
- Fig. 30: Social theatre (Author 2012).
- Fig. 31: Horizontal urban surfaces (Author 2012).
- Fig. 32: Blank/dead wall (Author 2012).
- Fig. 33: Service Wall (Author 2012).
- Fig. 34: Facade (Author 2012).

- Fig. 35: Shadow study (Author 2012).
Fig. 36: The site viewed from an office window (Author 2012).
Fig. 37: Noordvaal arcade edge with the site and access gate (Author 2012).
Fig. 38: Existing site (Author 2012).
Fig. 39: Site after demolition of obsolete structures (Author 2012).
Fig. 41: Phasing process (Author 2012).
Fig. 40: Wind Sculpture (Author 2012).
Fig. 44: Urban Experiments (Author 2012).
Fig. 43: Experiment 2 (Author 2012).
Fig. 42: Experiment 1 (Author 2012).
Fig. 45: Removal of parking structure and new painted projection screen (Author 2012).
Fig. 46: Furniture (Author 2012).
Fig. 47: Tactical development of the site (Author 2012).
Fig. 48: Programmatic planning diagrams (Author 2012).
Fig. 49: Sectional development drawings (Author 2012).
Fig. 50: New entrance (Author 2012).
Fig. 51: Cafe seating under grove of trees (Author 2012).
Fig. 52: Louvre media facade viewed from workshop (Author 2012).
Fig. 53: Conceptual section through hanging garden (Author 2012).
Fig. 54: Conceptual sketches hanging garden (Author 2012).
Fig. 55: Interior view of hanging garden (Author 2012).
Fig. 56: Vertical garden (Author 2012).
Fig. 57: Existing edge conditions (Author 2012).
Fig. 58: New edge conditions (Author 2012).
Fig. 59: Parti diagram of site (Author 2012).
Fig. 60: View from Noordvaal Arcade (Author 2012).
Fig. 61: Existing movement (Author 2012).
Fig. 62: New movement (Author 2012).
Fig. 63: Ground floor sketch plan (Author 2012).
Fig. 65: Section through greywater wetland (Author 2012).
Fig. 64: Flow diagram illustrating movement of water through site (Author 2012).
Fig. 66: Daily performance of storm water (Author 2012).
Fig. 67: Colour Palette (Author 2012).
Fig. 68: Material Palette (Author 2012).
Fig. 69: 3D spatial exploration of 1:15 ramp (Author 2012).
Fig. 70: Otis hydrofit elevator (Otis 2011).
Fig. 71: Perspective of pergola structure (Author 2012).
Fig. 72: Site Plan (Author 2012).
Fig. 73: Lighting Plan (Author 2012).
Fig. 74: Ground Plan (Author 2012).
Fig. 75: First floor plan (Author 2012).
Fig. 76: Section A-A (Author 2012).
Fig. 77: Section B-B (Author 2012).
Fig. 78: Final presentation (Author 2012).
Fig. 79: Sectional model (Author 2012).
Fig. 80: Final Model (Author 2012).

9

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In accordance with Regulation 4(e) of the General Regulations (G.57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree Master of Landscape Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

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

I further declare that this thesis 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.

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