UNIVERSITEIT VAN PRETORIA
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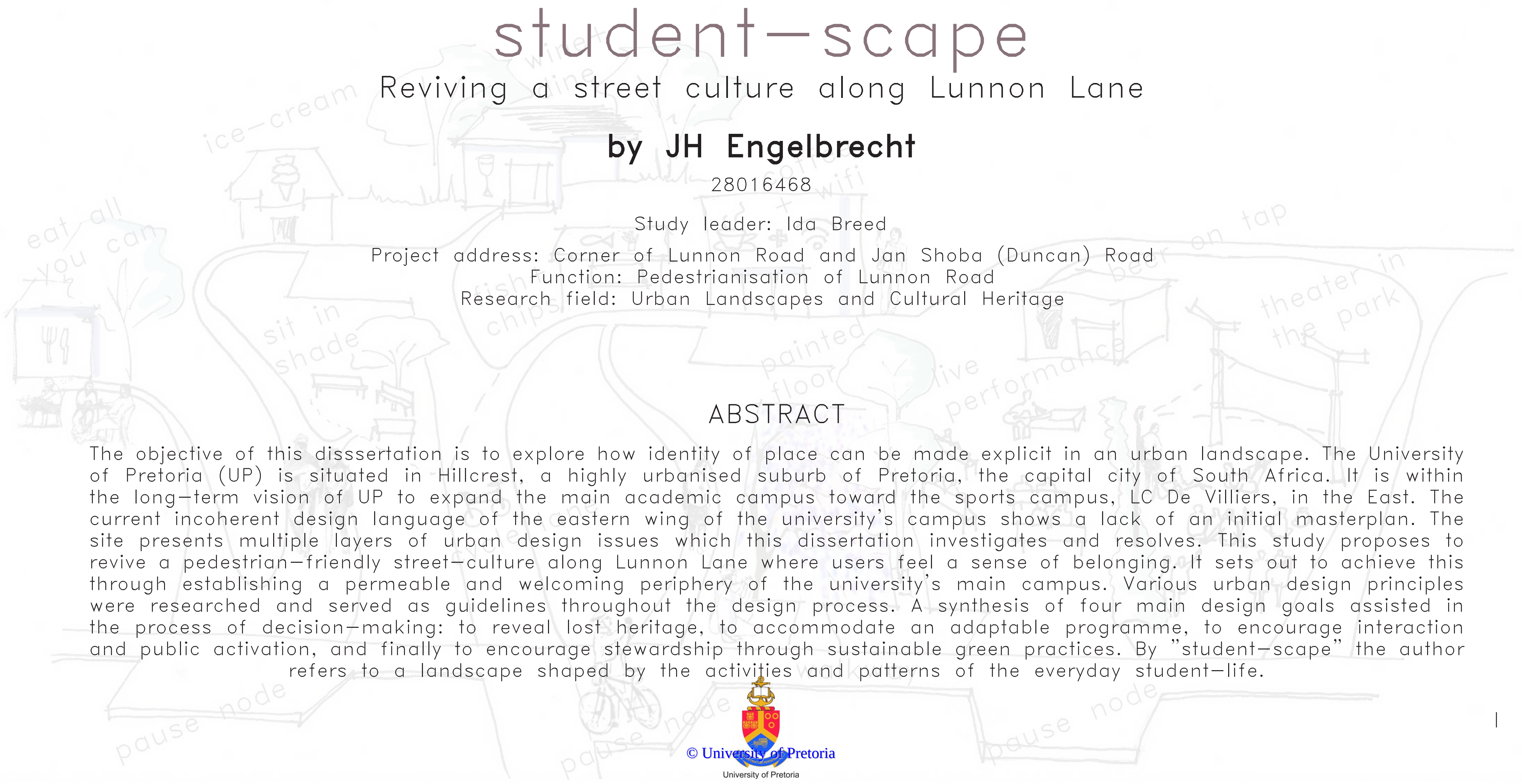
Submitted in the fulfilment of the requirements for the degree for Masters of Landscape Architecture (Professional) in the faculty of EBIT at the University of Pretoria 2014.



student-scape

Reviving a street culture along Lunnon Lane

by JH Engelbrecht

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Study leader: Ida Breed

Project address: Corner of Lunnon Road and Jan Shoba (Duncan) Road
Function: Pedestrianisation of Lunnon Road
Research field: Urban Landscapes and Cultural Heritage

ABSTRACT

The objective of this disssertation is to explore how identity of place can be made explicit in an urban landscape. The University of Pretoria (UP) is situated in Hillcrest, a highly urbanised suburb of Pretoria, the capital city of South Africa. It is within the long-term vision of UP to expand the main academic campus toward the sports campus, LC De Villiers, in the East. The current incoherent design language of the eastern wing of the university's campus shows a lack of an initial masterplan. The site presents multiple layers of urban design issues which this dissertation investigates and resolves. This study proposes to revive a pedestrian-friendly street-culture along Lunnon Lane where users feel a sense of belonging. It sets out to achieve this through establishing a permeable and welcoming periphery of the university's main campus. Various urban design principles were researched and served as guidelines throughout the design process. A synthesis of four main design goals assisted in the process of decision-making: to reveal lost heritage, to accommodate an adaptable programme, to encourage interaction and public activation, and finally to encourage stewardship through sustainable green practices. By "student-scape" the author refers to a landscape shaped by the activities and patterns of the everyday student-life.

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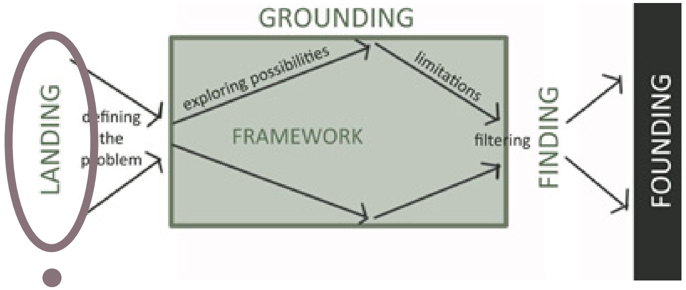
INTRODUCTION

1


GROUNDING
LANDING
defining the problem
exploring possibilities
limitations
FRAMEWORK
filtering
FINDING
FOUNDING

The first chapter will introduce the location of the project and the clients involved. The the main research question, sub-questions and hypothesis will determine the extent of the investigation. The chapter concludes with the author's approach to dealing with this urban landscape.

LANDING

Landscape architects face a big challenge and concern in South Africa today: to integrate the public and private urban sectors successfully in order to create useable public open spaces in spite of existing enclosed and privatized neighbourhoods. There is a need to turn dividing edges into versatile thresholds which will encourage street culture and increase community interaction. These thresholds should consider layers of historical and current rituals, social and spacial patterns, to determine appropriate and adaptable design solutions for future generational footprints. Boundaries and lost spaces are to emerge, and through an iterative dialogue with the surrounding context, to evolve and respond to contemporary cultures, without losing meaningful connections with the past (Poletto 2012).

> *"The urban site is not a stable place, but instead a transitory and multivalent space; an aggregation of ever-shifting scales, programmes and actors, all set within a temporal framework that holds both prior traces and future modification,"*
> (Kahn 1995:199).

PROLOGUE

LOCATION

THE WHERE

South Africa today is a developing country, although fragments of juxtaposing high technology urbanism are increasingly visible. Pretoria, being the capital city, continually grows and attempts to regenerate neglected neighbourhoods, to form contemporary architecture on a largely rural landscape environment.

This contrast causes various environmental, political and social concerns that affect the way professionals deal with the public urban landscape. Social discrimination and inequality, neighbourhood privatisation due to safety concerns and racism, are evident challenges in the capital city. Despite the existing challenges, new ingenuities are currently rising in this city, such as the Cool Capital Innitiative 2014, that show the love of people for their city. These initiatives are strongly supported by many students of the University of Pretoria.

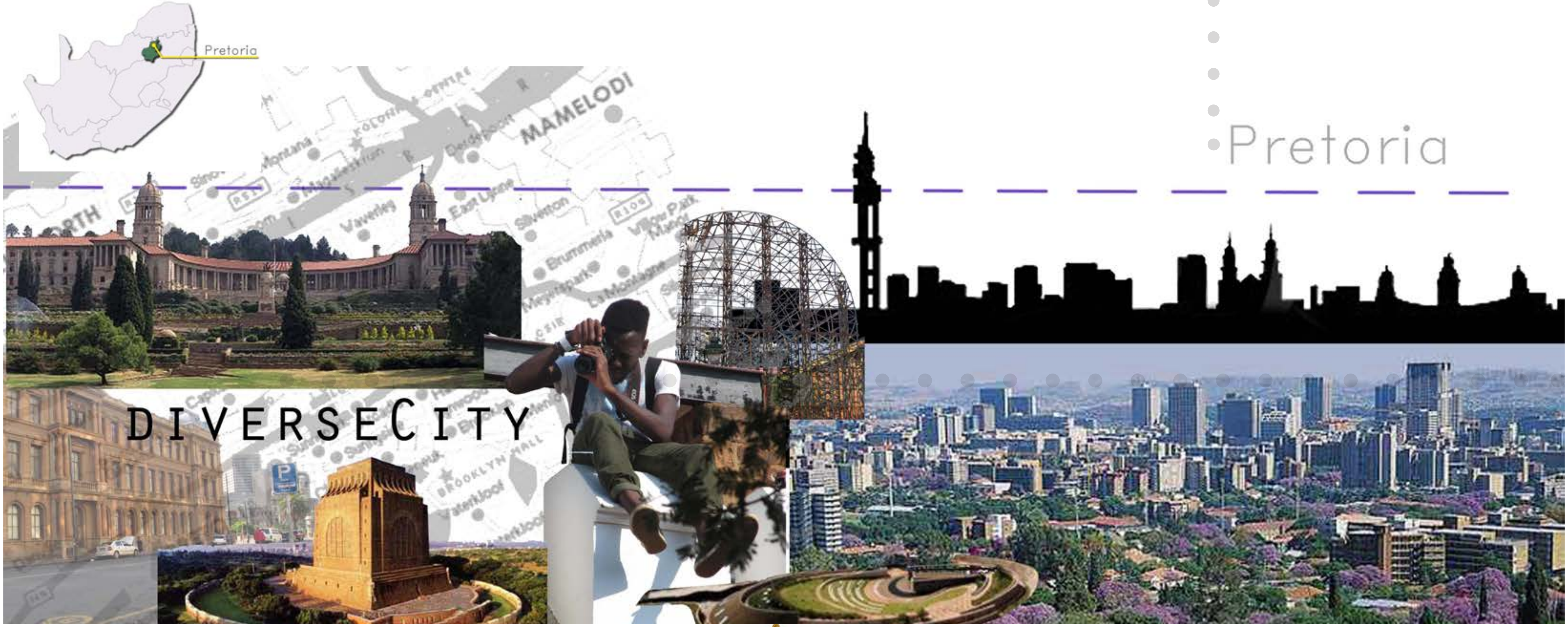


Figure 1.1: Collage of the capital city, Pretoria, Gauteng, South Africa (by author)

LOCATION

HILLCREST, PRETORIA

Lunnon Road stretches from
Herold street to Duxbury Road

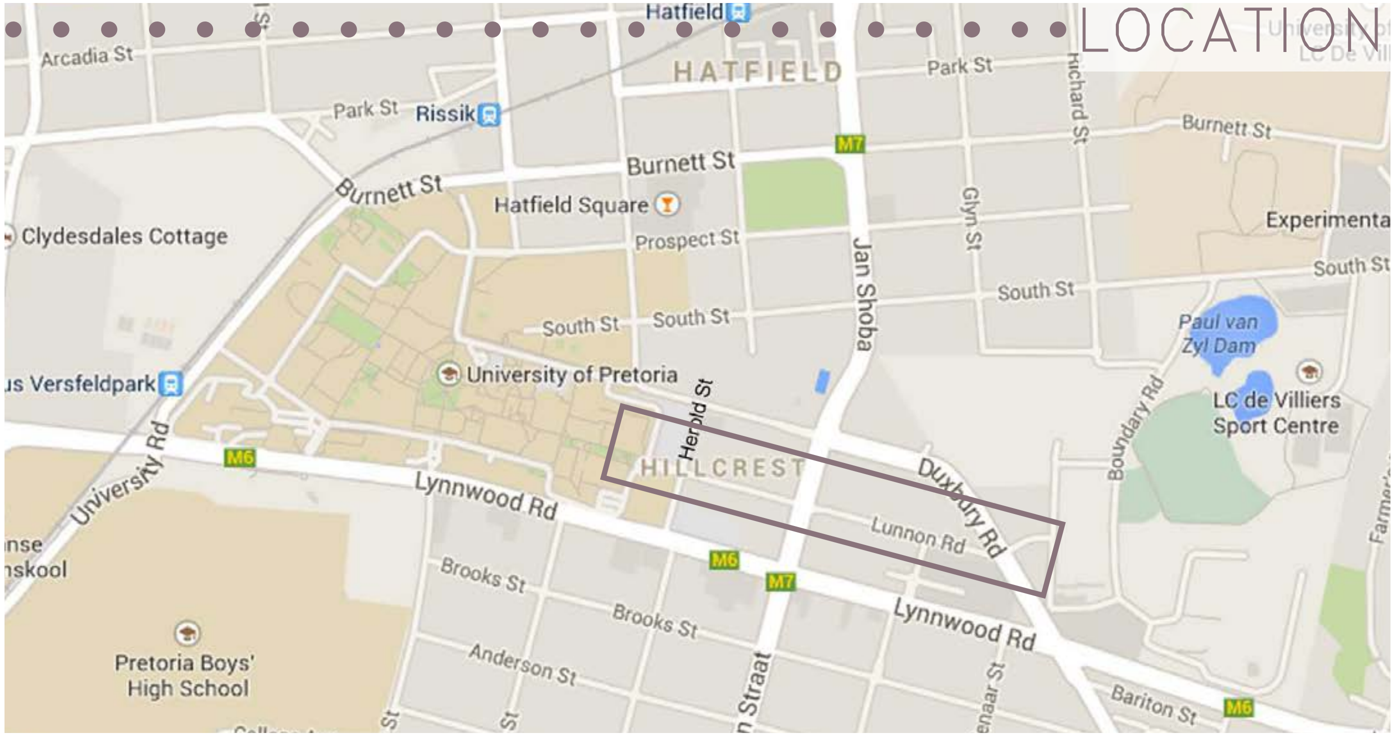

Hatfield
HATFIELD
Arcadia St
Park St
Rissik
Burnett St
Burnett St
Burnett St
Hatfield Square
Prospect St
Clydesdales Cottage
South St
South St
South St
South St
University of Pretoria
Versfeldpark
University Rd
M6
Lynnwood Rd
Herold St
HILLCREST
Duxbury Rd
Lunnon Rd
Jan Shoba
M7
Glyn St
Richard St
Experimenta
Paul van Zyl Dam
LC de Villiers Sport Centre
Boundary Rd
Brooks St
Brooks St
Anderson St
Lynnwood Rd
Bariton St
Pretoria Boys' High School
M6
M7

Figure 1.2: Hillcrest area, Pretoria. Indicating the location of UP and Lunnon Road (Google maps, 2014)

The study is located in the Hillcrest area of Pretoria, which is roughly 5km East of Pretoria's CBD. The site is situated within the area that forms part of the longterm vision for expansion of the University of Pretoria (UP) towards the East (the highlited yellow area on figure 1.3).

The main academic campus of UP currently stretches from University Road on the West, to Herold Street in the East (see figure 1.2)

Lunnon Road is the specific area of focus, as it serves as the spine for pedestrian circulation, yet presenting the most landscape architectural concerns and opportunities.

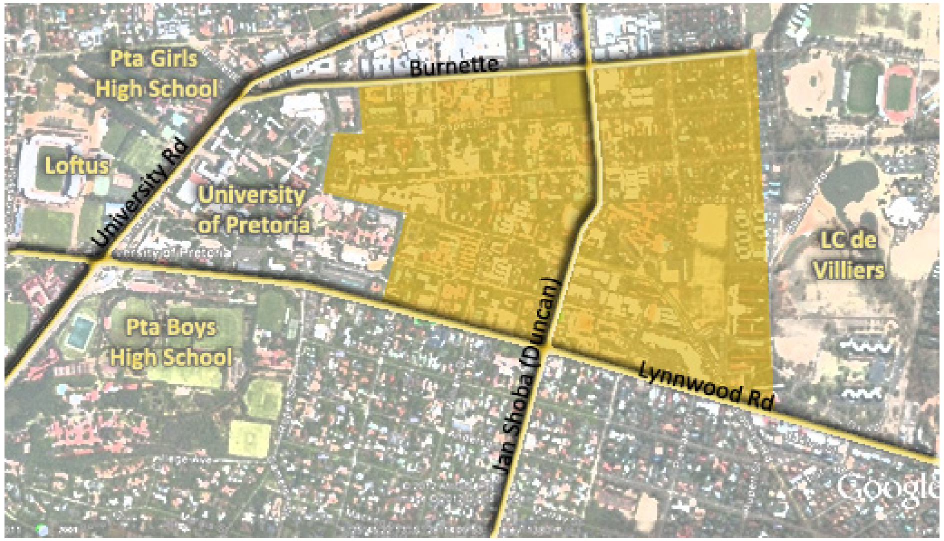

Pta Girls High School
Burnette
Loftus
University Rd
University of Pretoria
LC de Villiers
Pta Boys High School
Jan Shoba (Duncan)
Lynnwood Rd
Google

Figure 1.3: Area of expansion of UP toward LC De Villiers (Google Earth edited by author, May 2014)

THE WHO

Due to ownership and interests, the following three role players are considered the clients to the project, and their interest was considered in the decisions proposed in this dissertation.

Client: Tshwane City Planning and Environmental Management Department

University of Pretoria Facilities Management

SRC Student body of UP, UP students and the local general public

CITY OF TSHWANE
IGNITING EXCELLENCE

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

VSR / SRC

The study's focus

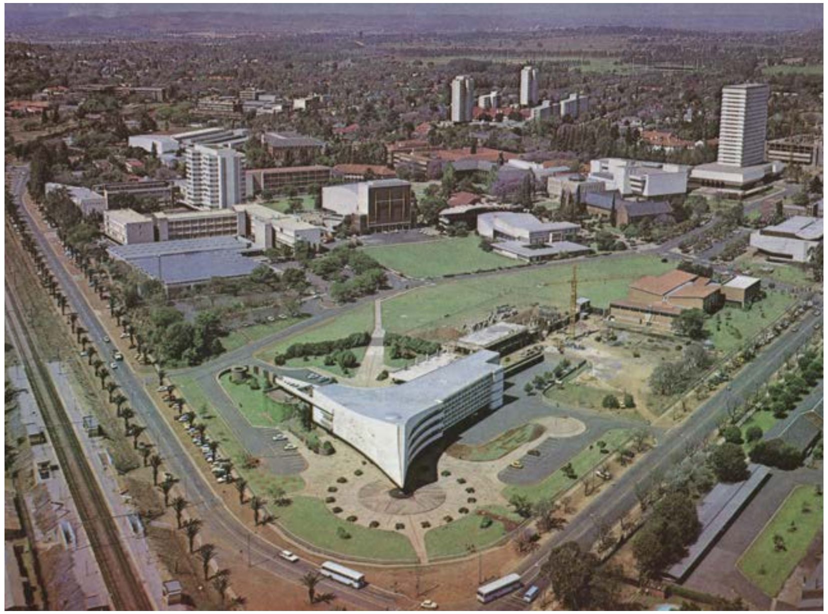


Figure 1.4: Flagship building at the University of Pretoria, *the Ship*, before the erection of UP's fences, as part of the character and identity of UP (UP Archives 2012)

The main campus of the University of Pretoria is a principal world-class university facility where currently more than 45 000 contact students spend the most significant and memorable years of their life. It is a multi-cultural social platform for people from all over the country to engage, socialize and operate (work, play, eat and sleep), in the quest to obtain higher education and become a key component of the country's economic driving force.

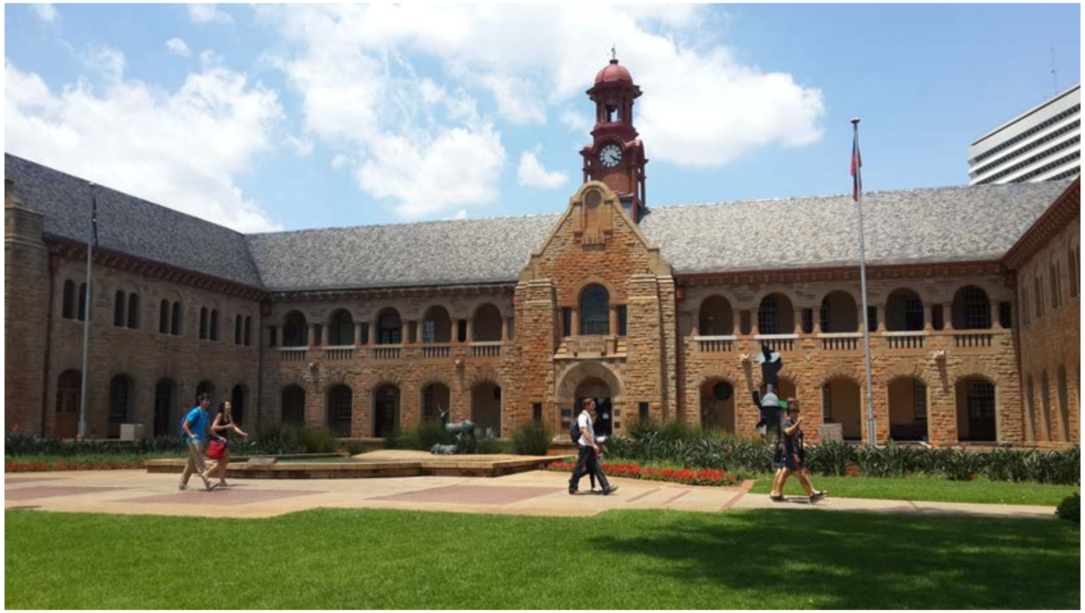


Figure 1.5: Another familiar building at the University of Pretoria, the *Old Arts* Building, as it looks today (Photo by Author)

The problem however, is that this 'platform' has an eroded identity since there has been a lack of guidance on the development of the campus. Many diverse buildings from various epochs have been added to the initial monuments like the Old Arts and the so-called 'Ship' (see fig 4 and 5). Thus, the general architectural language is not harmonious. As for the landscape, little effort has been made to unify the campus as an entity, which causes much confusion to the character of the university, forming an incoherent overall design-language. This is mainly due to the lack of an initial fixed campus vision and masterplan framework.

Is it possible that over the years, the university has started losing something very valuable and unique: a *student-scape** environment?

**A landscape shaped by the activities and patterns of the everyday student-life*

It is within the long–term vision of the university to expand the campus toward the East, ultimately connecting the main academic campus to the sports campus (LC de Villiers).

Within this area of interest, different sites of possible architectural intervention were considered (shown in figure 1.6).

The site on the corner of Lunnon and Jan Shoba (Duncan) Road was chosen as the area of focus for this specific study, since it held the most potential; it is a university owned property situated close to the centre of the area of expansion and presents various landscape architectural challenges and opportunities with regards to future campus expansion – especially in terms of encouraging non–motorised transport systems between UP and the residences.

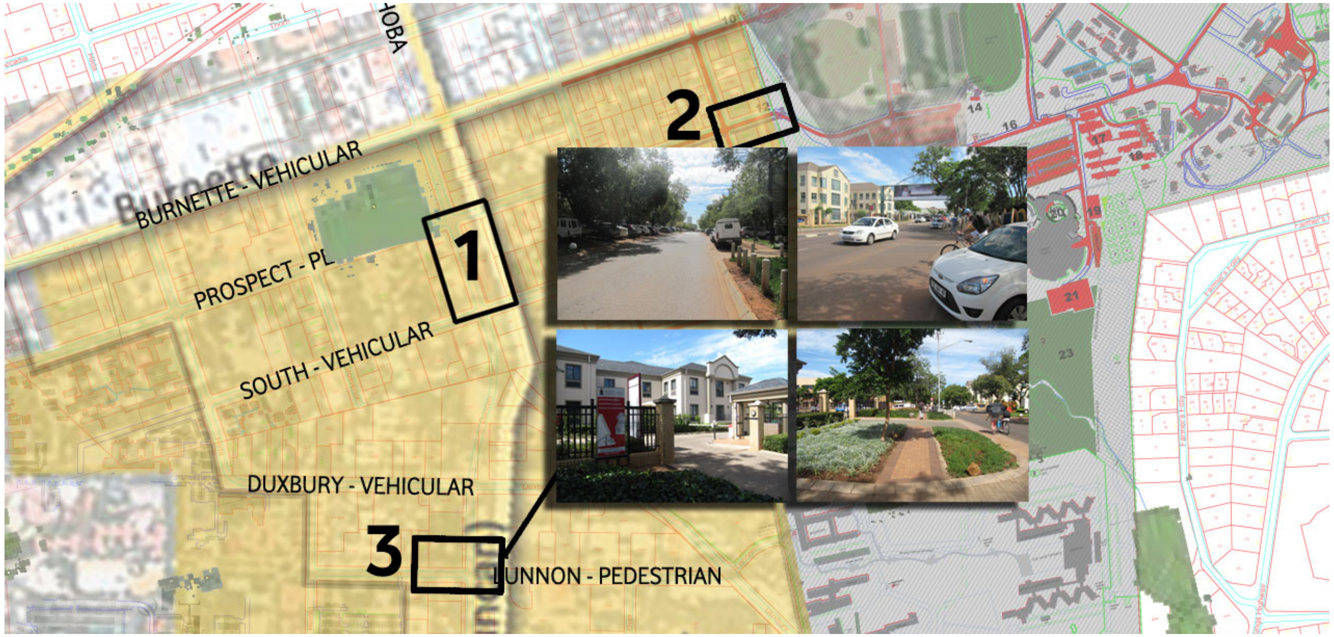


Figure 1.6: Site on corner of Lunnon and Jan Shoba (Duncan) Road (by author)

Research question:

How can identity of place be made explicit in an urban landscape?

Sub questions:

1. What forms the identity of place?
2. How can past events be recalled into the physical urban landscape?
3. How can identity of place be revitalized through current events?
4. How can celebrating the urban landscape reconcile changing social values?

Hypothesis:

A sense of identity can be strengthened through recalling past rituals and recognising current events, and celebrating them in the current urban landscape.

When considering the rapid building construction rate on campus in the past 50 years (figure 1.8), it seems the construction programme on main campus has disregarded previous cultural outdoor events. Hence these events have moved to the experimemtal farm, LC De Villiers, the outer perimeter around UP (figure 1.7) and private vicinities.

Appropriate urban design principles will be applied to the redesign of Lunnon Road, reclaiming pedestrian priority and avert the rapid construction rate from swallowing all the open green-space that our campus has left to offer. One must realise that with every brick being laid, a certain (natural and eco-systemic) sacrifice is made.

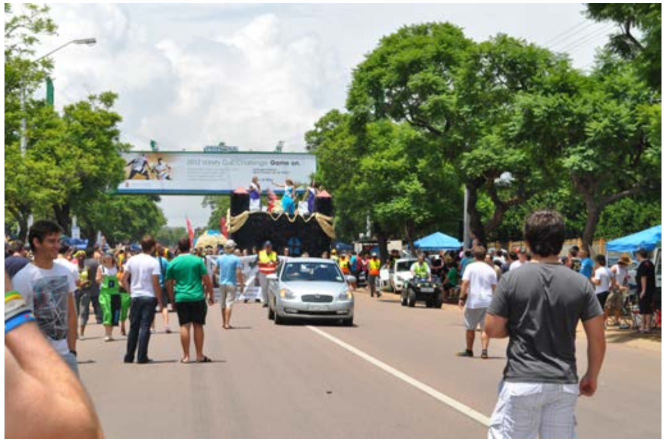


Figure 1.7: UP RAG procession in February 2012, an example of an event that moved to LC De Villiers (photo by author)

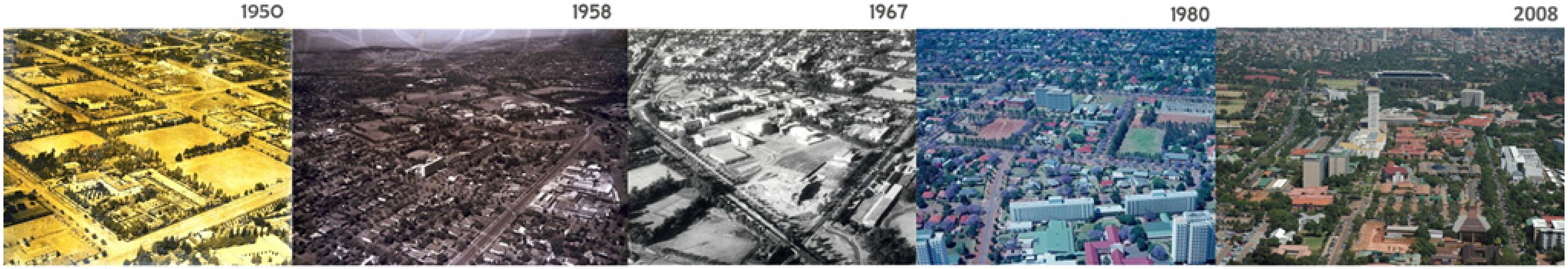


Figure 1.8: Development on main campus shows clear decrease of open and green spaces (UP Archives)

The continuous developments on main campus is proof of the economic growth of the university (fig 1.8). An increasing number of students are paying tuition fees and hence need more and bigger buildings to study in. The increase of buildings, however, causes a discouragement of former traditional student activities taking place in open spaces on main campus.

To prevent this from happening in the long-term expansion of UP, design guidelines will be investigated in this dissertation on how to arrange places for learning environments, provide platforms for social and cultural interchange, regenerate identity, protect significant heritage sites and rehabilitate green spaces for social and environmental purposes.

Assumptions and limitations:

- Assuming the future UP expansion plans materialises: the original or a similar vision of Brian Sandrock's 1965 plate 10 of Langtermynbeplanning (Dunstan, 2014).

- Limited to information not available from facilities management: many of the original drawings and masterplans have gone missing over time.

- Limited to the extent of assessing and changing current future development plans of expanding toward the West, and constructing a gallery over Lynnwood Road (South of UP main campus) instead of focusing on the eastern wing for expansion.

- There are several heritage sites on UP main campus. This dissertation will only focus on the heritage found in the eastern wing expansion of the university.

The dissertation will investigate:

- A well designed pedestrian and cycling link between main campus, LC de Villiers and UP men's residences (pedestrianisation).

- The existing open green spaces that need to be protected, connected and expanded according to the NARA document on authenticity of 1994.

- The current attitudes and perceptions of students towards UP campus facilities.

In order to design:

- A unified urban masterplan/framework for Lunnon Road to use as a reference for future developments within the existing framework.

- An open space system which will connect the University's premises to form a single unified campus identity and spatial eco-system.

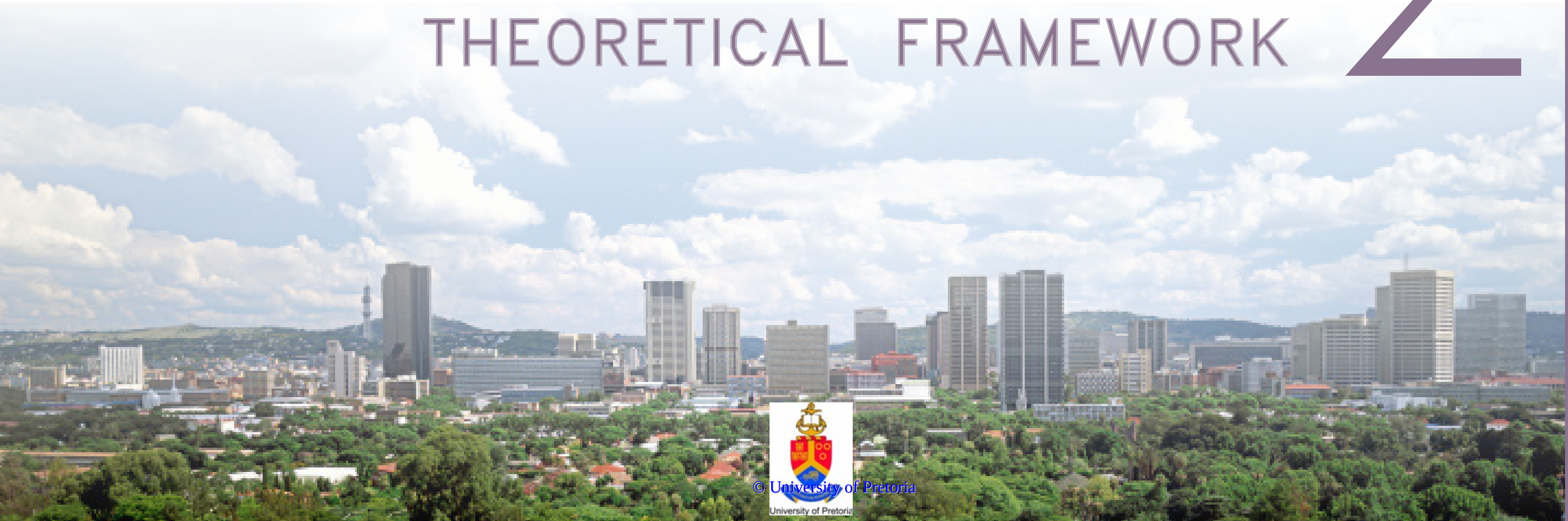
- A strategic pedestrian and cyclist link over Jan Shoba (Duncan) Road, at the critical intersection with Lunnon Road.

APPROACH

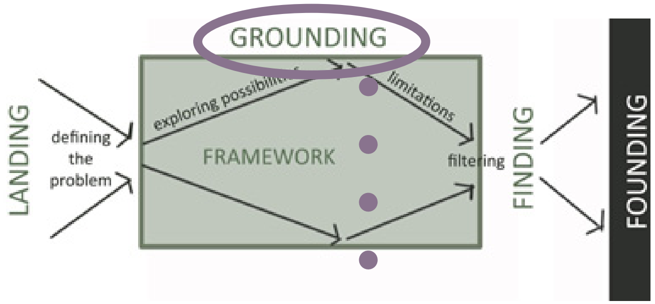
My approach is thus to create an exciting yet functional urban street–scape, addressing the periphery of the private and public urban environment as useable thresholds. The street–scape is to be informed by historical and current rituals and capable of adaption to potential changes in cultural and generational footprints. A self–organising city (Poletto, 2012) is a landscape which responds to the past, the present and the future context. Resilience and social interaction will be improved by reinstating a street–culture relevant to this urban framework (Wooley, 2003).

THEORETICAL FRAMEWORK

2



GROUNDING


GROUNDING
LANDING
defining the problem
exploring possibilities
limitations
FRAMEWORK
filtering
FINDING
FOUNDING

This chapter will discuss the research approach and structure of the chapters to follow in the dissertation. Through a comprehensive theoretical research and appropriate precedent studies, this chapter will set out to answer the research sub-questions listed in chapter one. The author will explore applicable design principles to apply throughout this project in order to create the desired street-culture.

Salm (2010) states that African cities are places of hope as well conflict, places of exchange as well as competition. He explains that the gap between the rich and poor is increasing and it leads to higher levels of violence.

"...but cities in Africa today and in the past are truly not any more dangerous than cities in the United States or anywhere in the world. Thus, the aim of good urban management should be to develop the relationship between public and private urban spaces. And there also lies a contradiction, because the general tendency in the world is to favour the privatization of urban problems, relying more and more on local communities to solve what the public sphere feels unable to solve. This is the modern urban bias," (Salm 2010).

Research structure

The research structure is done according to Christophe Girot's Four Trace Concepts (Girot 1999) which comprise of:

Landing: First site acknowledgement, it concerns the idea of "touching ground" and taking in the first moments of arrival through all senses. The landing will help to determine the general identity of the site.

Grounding: The second stage is an on-going understanding and discovery of the landscape through repeated visits. The grounding will help to guide the extents of the research.

Finding: The act and process of filtering through the data and discoveries of the grounding phase, using one's own insight.

Founding: Where the prior three steps gets synthesized into a transformed design.

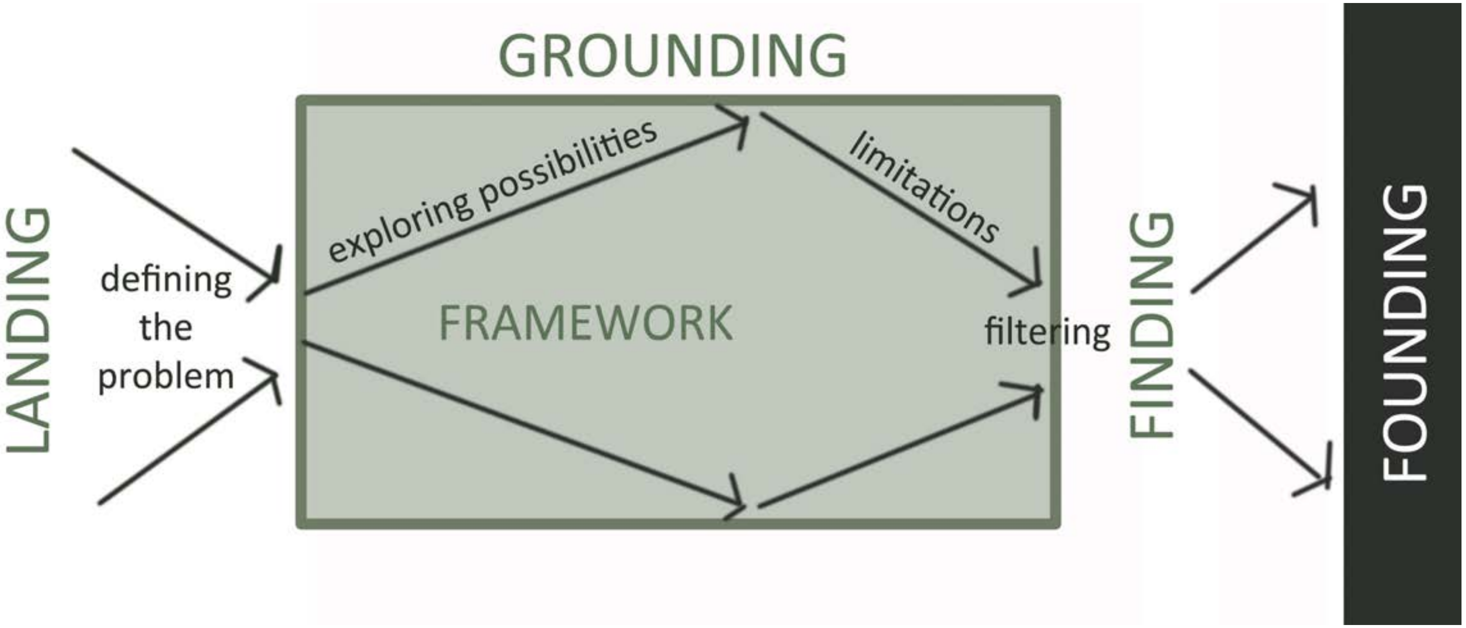

GROUNDING
LANDING
defining the problem
exploring possibilities
limitations
FRAMEWORK
filtering
FINDING
FOUNDING

Figure 2.1: Design approach (by author after Girot, 1999)

THE HOW

The research approach consists of methods regarded as the most appropriate exploration to create a street-scape for students, considering the interface of private versus public sectors.

Framework analysis:

The framework analysis will make use of three strategies:

1. Historical research method: Gathering articles, aerial photographs and other information relating to past events and developments.
2. Interpretive site analysis: Involves interviews, the *Flâneur**, cognitive layering and analogies. Meeting with architects and facilities management who are involved in the long-term expansion of UP.
3. Physical analysis: Site visits, photographs, aerial photographs, contours and topographic site analysis, circulation, thresholds and edges, scale, access, vegetation and nodes. The physical analysis will focus more specifically on the masterplan.

Framework:

Site analysis and data mapping through layering.

> If we do not observe and nurture the mannerisms in urban public spaces, the extremes of anti-social behaviour will drive the individuals living in this neighbourhood, even further apart (Montgomery 2010).

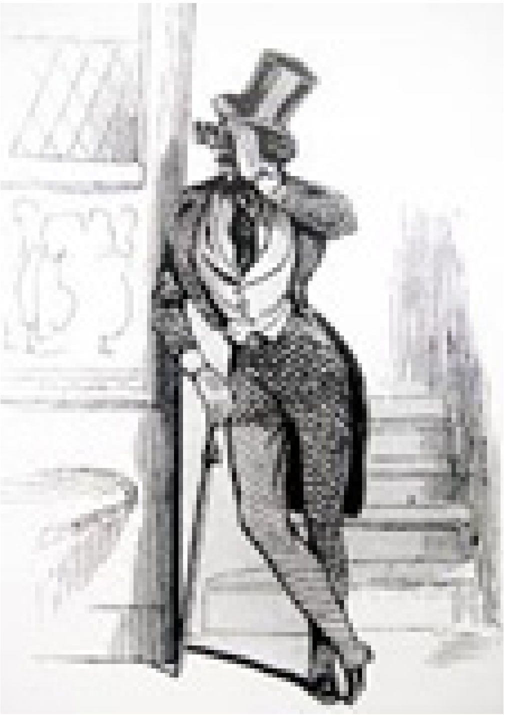


Figure 2.2: The Flaneur (Jenks, 1995)

*The term *Flâneur* comes from the French verb flâner, which means "to stroll," (Breed 2012). The flâneur is a 'multi-layered palimpsest' that allows us to move through the practical organisation of space to achieve an instinctive understanding of the function and purpose of the space (Jenks 1995). The *flâneur* method involves observing the social and spacial patterns, experiencing the different spaces (micro-climates, *genius-loci***, talking to site users, taking photos and interviews).

*** The genius-loci refers to the "sensitive perception of the spirit or nature of a place which often provides the key to charting the direction of future development," (Moughtin, 1999)*

Character of the context

A developed city (Pretoria) in a developing country (South Africa).

The South African landscape

(a developing country)

South Africa has contradictory realities ranging from communal to individualistic world views and different concepts of time and public space.

Pretoria is South Africa's administrative capital, commonly known as the "Jacaranda City" or the "Purple City" due to its annual display of purple flowers all over the city, during the month of October. The gap between the rich and poor becomes a striking reality as one walks through the different streets of this capital city of South Africa.
The affluence is regularly seen in the upperclass private vehicles and majestic houses, only a stonesthrow away from the familiar sleeping areas of the homeless. This leads to contrasting public behaviour and the lack of spacial interpretation of public spaces and street life.

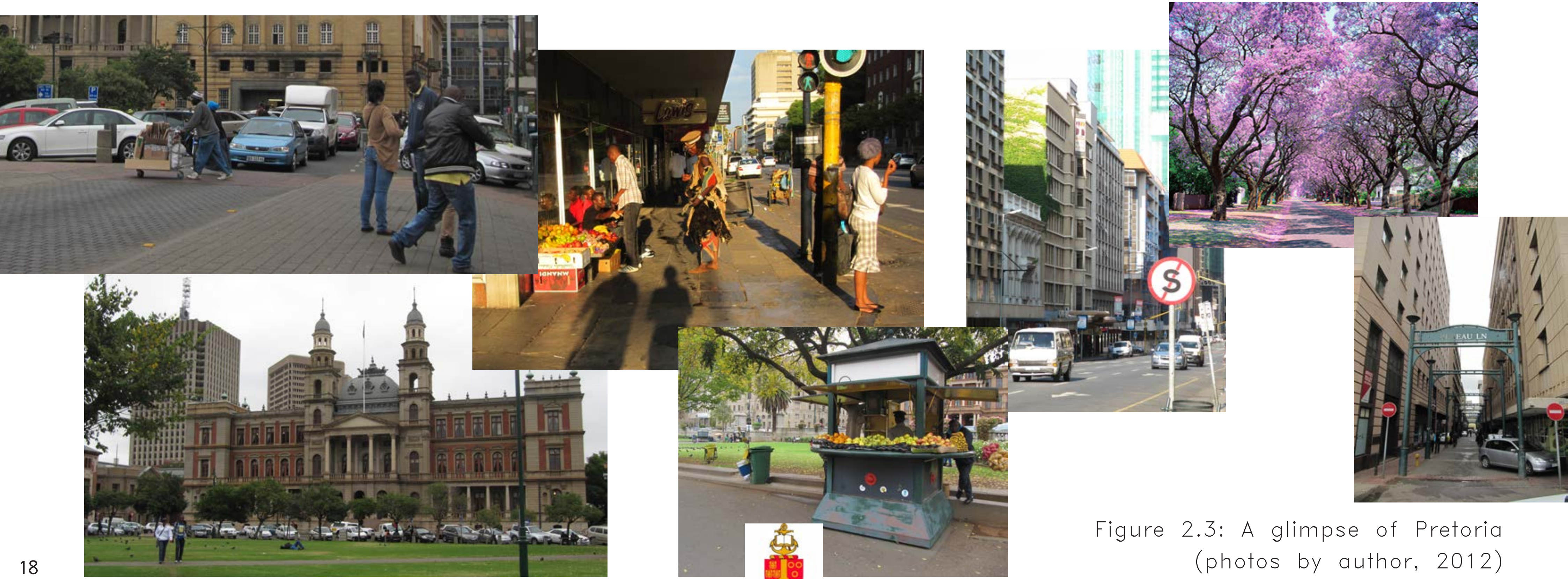


Figure 2.3: A glimpse of Pretoria
(photos by author, 2012)

Framework

The framework is informed by multiple fields of research and condensed according to the appropriateness set out by the hypothesis.

The priority of the different branches of research are organised in accordance with the design aims, intentions and delimitations.

The four sub–questions will be explored and design principles derived from the research theory.

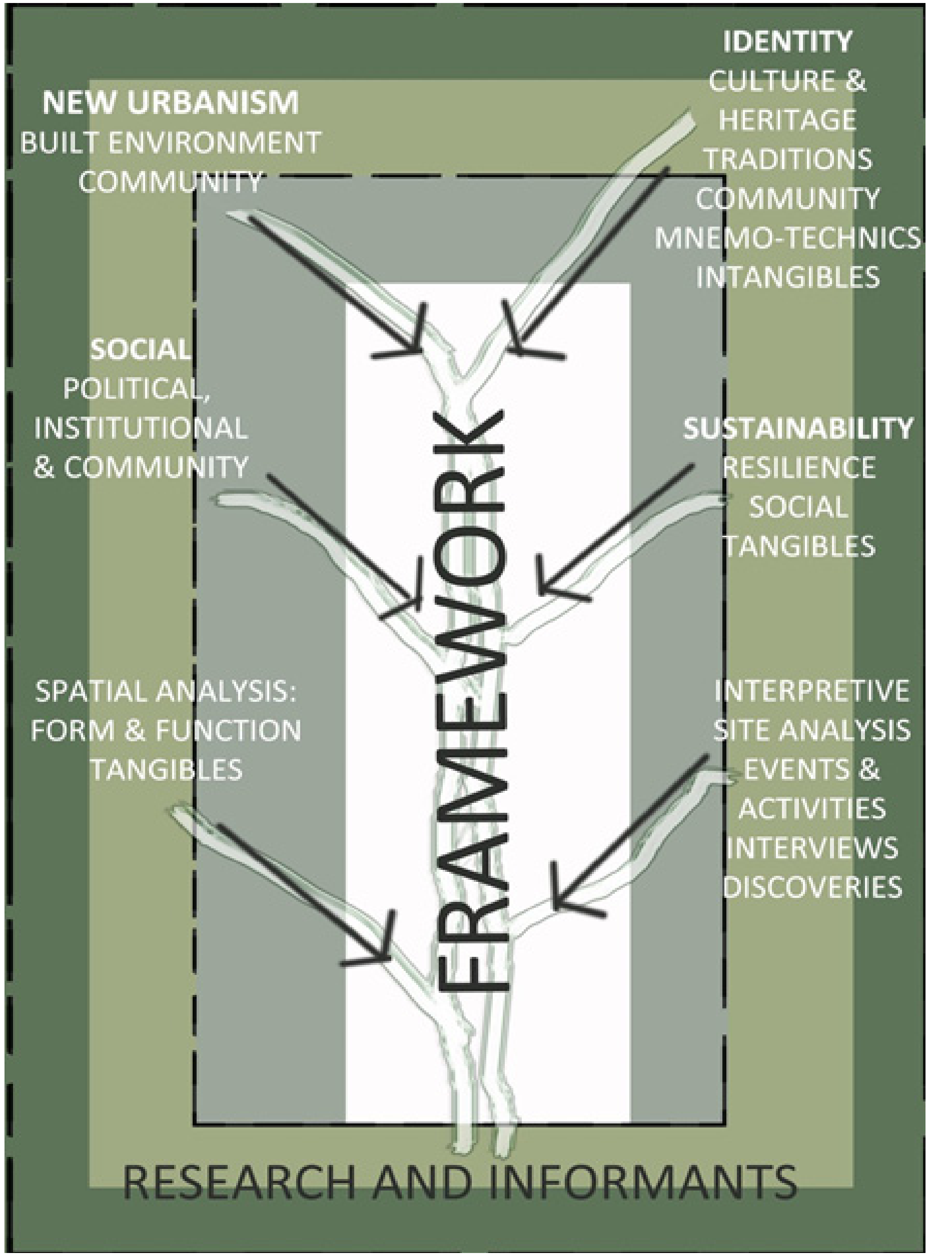

IDENTITY
CULTURE &
HERITAGE
TRADITIONS
COMMUNITY
MNEMO-TECHNICS
INTANGIBLES
NEW URBANISM
BUILT ENVIRONMENT
COMMUNITY
SOCIAL
POLITICAL,
INSTITUTIONAL
& COMMUNITY
SUSTAINABILITY
RESILIENCE
SOCIAL
TANGIBLES
SPATIAL ANALYSIS:
FORM & FUNCTION
TANGIBLES
INTERPRETIVE
SITE ANALYSIS
EVENTS &
ACTIVITIES
INTERVIEWS
DISCOVERIES
FRAMEWORK
RESEARCH AND INFORMANTS

Figure 2.4: Research tree showing various informants to the research (by author)

1. Identity of place

To understand the character of the present urban landscape, a multi-layered historical study of decades of planning is needed (Qvistrom 2013). It is therefore required to dig deeper into the *history of the developments* of the main campus of the university as well as the *broader context* in which it is established.

According to Hall (2001:3) "Sense of place, the heart and soul of community character and identity can be achieved only through deliberate action through the planning process. True communities do not just occur; they are born of a vision". Since there was no fixed campus vision to guide the university's developments to refer back to, other aspects were considered, like the community's interpretation of the university's landscape and other methods that will be discussed in the following section.

Stokowski (Steward, 1996:16) suggests that community identity is a reflection of heritage, and should frame development decisions. Davoudi explains a landscape identity as a narrative of the environment which is both a heritage and a local amenity, a tradable commodity, a problem, a sustainability and a risk Qviström 2013). Since the identity of the university is not clearly definable at present, a broader approach is considered to guide further developments in restoring the identity.

After interviewing 40 students on UP main campus, looking for a common sense of identity, I realised that there are two catagories of community that featured: one of the active and social student life, and one of the strict and organised conservative academic life.

Hall (2001:9) states that community is a concept that can be interpreted as a sense of *belonging*, a way of life, and diversity with a common purpose. We all want to belong; to stand for something, to relate to someone, to be proud of something, to share common-grounds with people. These intangibles make it easier to start a conversation or take part in an event.

Current elements and landmarks which define UP as per interpretive site analysis:

The '*Ship*' (Admin Building), the Old Arts Building, The'GW' student affairs building, Tukkie Laan, the Piazza, new Plant Science building, the Aula and its accompanying vast lawn area, the Mapungubwe Rhino and arts collection.

Conclusion:

The identity of UP is thus not confined to a physical landmark, landscape environment or a singular architectural style. The strong sense of belonging lies in the intangibles: the heritage, past and current events, rituals and daily activities that establishes the uniqueness of being a student at UP.

These intangibles will be studied in more detail in chapter 3.

Identity of place is thus the product of the physical landscape combined with the intangibles that establishes a community or sense of belonging.

The Identity or connotations with the University of Pretoria

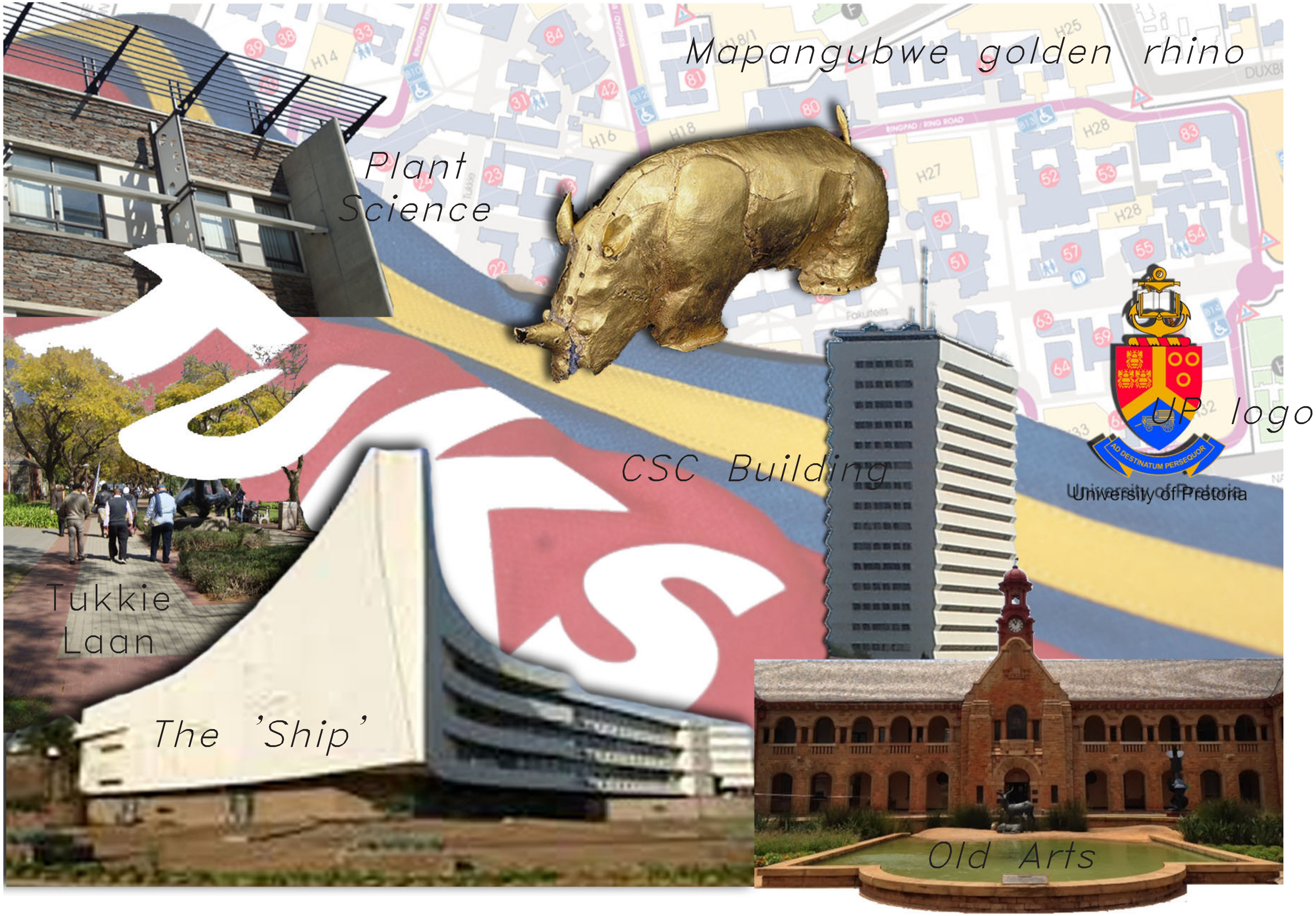

Mapangubwe golden rhino
Plant Science
UP logo
AD DESTINATUM PERSEQUOR
University of Pretoria
CSC Building
Tukkie Laan
The 'Ship'
Old Arts

Figure 2.5: Collage of the University of Pretoria (by author)

2. How can past events be recalled into the physical urban landscape?

In Recovering the City of Barcelona (Robbins, 2004) most of the projects that affected public squares were concerned with restoring the symbolic values – incorporate significant elements like sculptures, which had disappeared due to the excess functionality of design (Robbins, 2004).

Robbins argues (2004:24) that flexible forms and patterns and a prevalent theme which enhances common heritage and familiarity will build innovative networks of physical, cultural and social systems.
These three networks are also further explained by Le Febvre (1991) as overlapping elements of public space.

Design principle:

The emotional connection:

Hall (2001:69) states that when recalling specific emotions, the site user can feel more connected to their heritage. These are some examples of how emotions can be provoked:

- To evoke joy and excitement: colour, texture, pattern and surprise.

- For introspection and reverence: smooth curvy lines and rolling topography.

- For calming, soothing and reassuring: water, shade and the colour green.

- Anticipation and apprehension: sharp angles, hard surfaces, and warm colours (Hall, 2001).

Past events can be recalled into the physical urban land-scape by applying a common prevalent theme, and recalling specific emotions with which the site user can feel connected to their heritage (Hall, 2001). Forms of cultural objects and aesthetics can also help to serve as triggers of memory and references of familiarity.

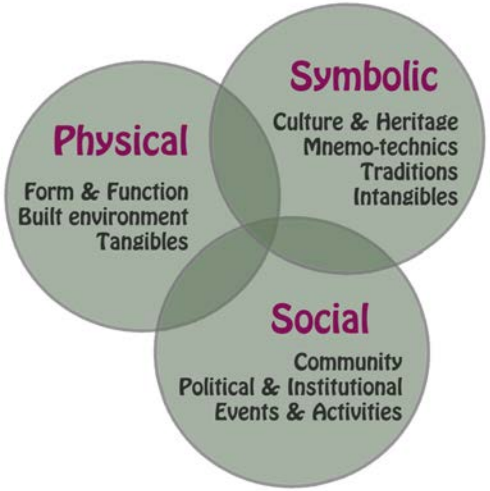


Figure 2.6: The elements of public space according to Le Febvre (1991)

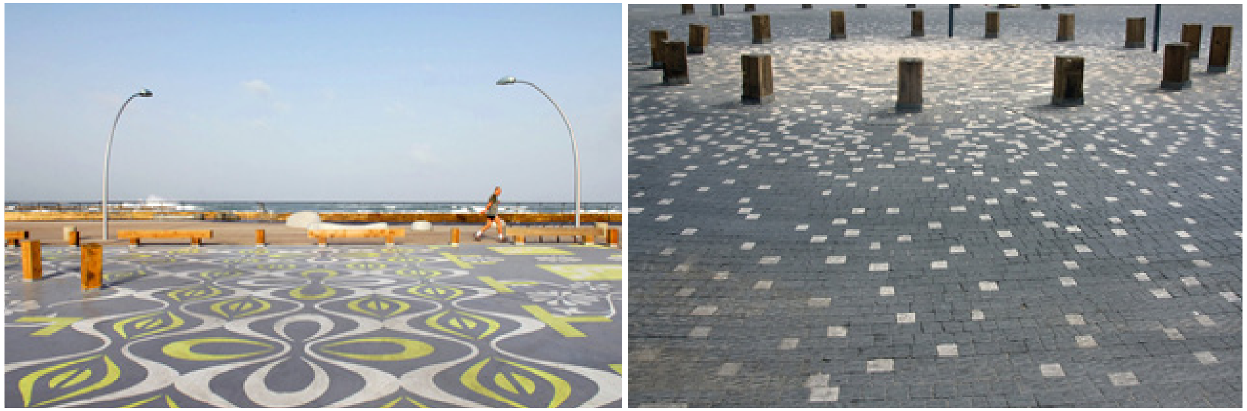


Figure 2.7: Tel Aviv Port Public Space by Mayslits Kassif Architects (photo by Daniela Orwin, 2012)

3. How can identity of place be revitalized through current events?

Three avenues were identified by reviewing current literature on the urban landscape: resilience, stewardship and changing social values.

Resilience is defined as the subsequent capacity for self-repair after a sustained natural or anthropogenic stress (Kouokam et al. 2012). To bring nature back into a highly urbanised setting, one creates an opportunity for regenerating biodiversity, reducing heat islands, introducing micro-climates, lowering air pollutants, reclaiming natural habitats and restoring local eco-systems (Koukam et al. 2012). The main concern on this site in Lunnon Road is to reduce heat islands and introduce micro-climates. Green pockets will be introduced to make this site more penetrable, comfortable and ultimately more resilient.

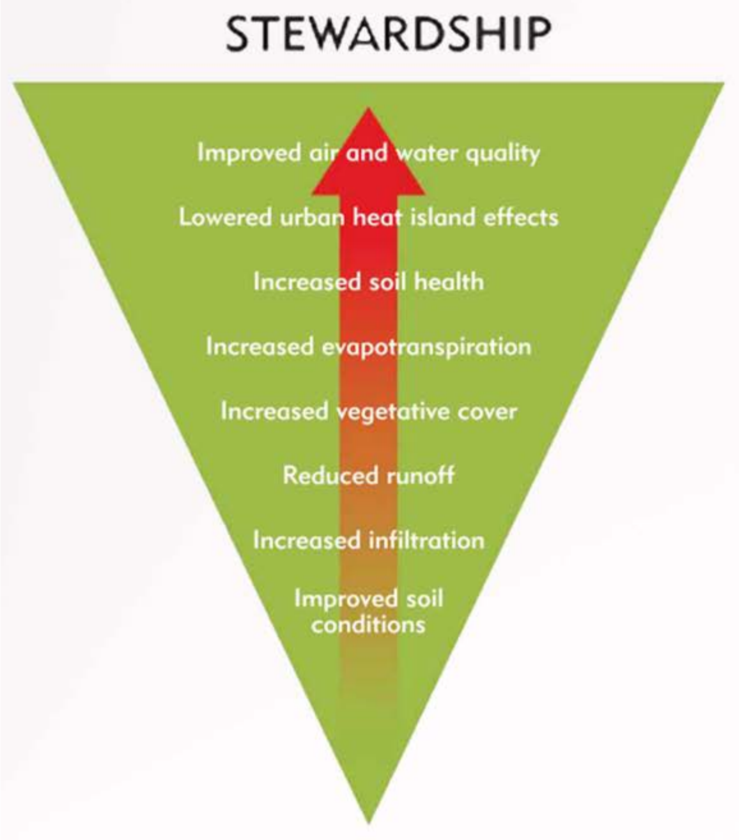
Figure 2.8: An illustration of resilience (Kouokam et al. 2012)

Stewardship:

Belonging creates a sense of stewardship which makes you instinctively protect that which you are proud of (Hall, 2001).

By strengthening the identity of place - applying the design principles of Hall (2001) and accommodating for student events and rituals - it will encourage site users to become stewards of their environment.

As seen in figure 2.9, Kouokam (2012) argues that when the specific issues of resilience in an urban landscape is addressed, stewardship will increase.



STEWARDSHIP
Improved air and water quality
Lowered urban heat island effects
Increased soil health
Increased evapotranspiration
Increased vegetative cover
Reduced runoff
Increased infiltration
Improved soil conditions

Figure 2.9: Stewardship principles, edited by author (Sustainable Sites Innitiative, 2009)

Paul Virilio (1997:20) points out that urbanisation today, deals with the effect of cocooning, because of shopping and working from home, online apartments and buildings. "The urbanization of real space is thus being overtaken by this urbanization of real time," (Poletto 2012).

Poletto (2012:3) argues that the disappearance of rural and open space due to urbanisation, is both physical, but mostly mental or psychogeographical, as a result of the emergence of a "real time world city". These real time citizens' spatio-temporal pull reduces to zero the perception of the journey across the nodes of the urban network.

It is therefore vital to make the everyday site-user aware of his or her surroundings by providing clear thresholds and opportunities for interaction. This will allow the user to consciously engage in the physical urban landscape, instead of passing through it as a "real time world" citizen (fig 2.10).

Figure 2.10: "Real time world" citizens (www.mylifetime.com.hk)

Figure 2.11: "Real time world" citizens focus on the destination, rather than the path (www.miteksystems.com)

Design principles from current anthropology

1. Sense of identity = culture + heritage + current use and users (after Lynch, 1969)

2. Focusing on a tenacious identity and sense of belonging through applying the emotional connection design principles (Hall, 2001), encourages community involvement and thus increases the value and use of open space (after Hall, 2001).

3. Study the past, do a thorough contextual study, involve the community and cater for a plurality and versatility in the design (Steward, 2004).

4. Hall states that we must begin again to think of our public communities in terms of the human scale rather than the vehicular scale (Hall, 2001). This will be explored through studying the five landscape principles according to Lynch (1969) at the end of chapter 2.

Site users will take stewardship and responsibility over a resilient physical landscape and interact with the urban open space if the space accomodates a variety of contemporary events. By directly engaging in the immediate context with fellow site users, the attention is drawn from "real-time world", toward actively participating.

4. How can celebrating the urban landscape reconcile changing social values?

Changing social values calls for a constant adaptation of public space and the need to separate the active user, from the passive user (Poletto 2012). The user who engages and participates and the passive observer should both be accommodated and still feel a sense of belonging. As the community emerges, the site evolves to cater for new events and opportunities.

Poletto (2012) describes emergent urban communities as dynamic, fluid and far from the equilibrium, ideal incubators of new cultural networks.
He goes on by introducing the "self-organising city" as having no limits in either time or space, no fixed or final configuration, playing an active role in the making of an open future, by acting as seeds for new *virtual plots** (2012:3). Poletto argues that a space should be organised in a logical way to allow multiple interactions and ultimately to trigger *self-organisation* through the *adaptive potential* in *changing environments* (2012:116).

Within this paradigm material organisation becomes prominent as the overall capacity of the structure to self-organise.

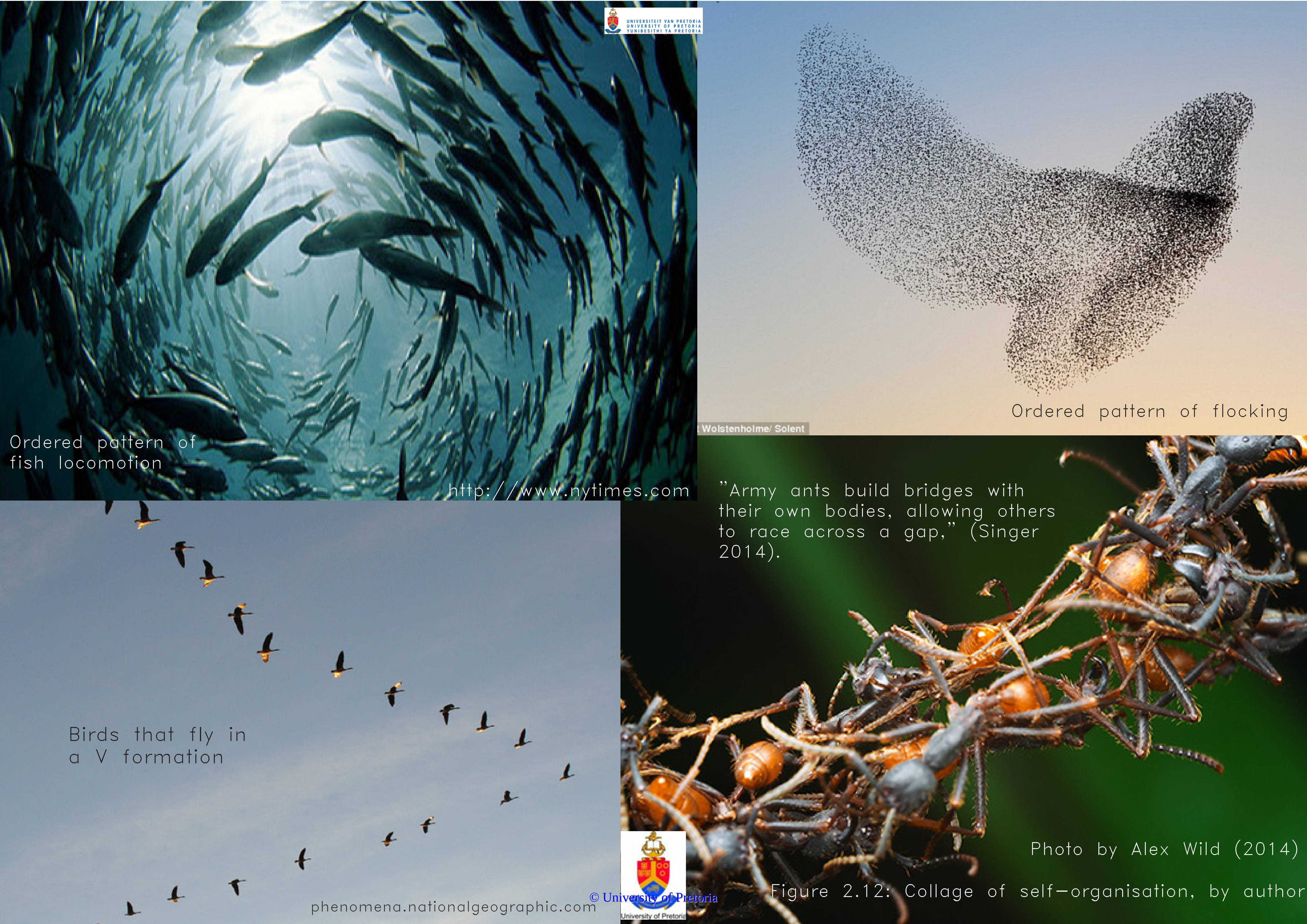
"Cities are built by actions of individuals from which patterns emerge of routine decisions... as individuals connect to what is locally optimal," and "...as cities gradually enable the population to indulge in positive decisions, they become more and more organic," (Poletto 2012).

Adaptable reconfiguration can be achieved by designing a simple platform on which temporary elements and objects can be placed and adapted to the current use and spacial patterns in the landscape.

There is, however, no guarantee that all virtual possibilities will become useful in the future, but overall it is worth trying, because what creates the future, is the experiment itself, the practice of experimentation which has no definite end (Poletto 2012). Guattari (2008:24) adds in his writings about the three ecologies that instead of clinging to common design recommendations we should be "implementing effective practices of experimentation,".

The physical urban landscape can reconcile changing social values when the design is based on self-organisation and adaptable reconfiguration. These, together with experimentation, are to become the norm for designing for continually evolving cities.

**virtual plots: organisational units of the city, measuring block for its spatial and temporal articulation/a unit of urban problem solving (Poletto 2012:4).*



Ordered pattern of fish locomotion

http://www.nytimes.com

Ordered pattern of flocking

"Army ants build bridges with their own bodies, allowing others to race across a gap," (Singer 2014).

Birds that fly in a V formation

phenomena.nationalgeographic.com

Photo by Alex Wild (2014)

Figure 2.12: Collage of self-organisation, by author

new urbanism...

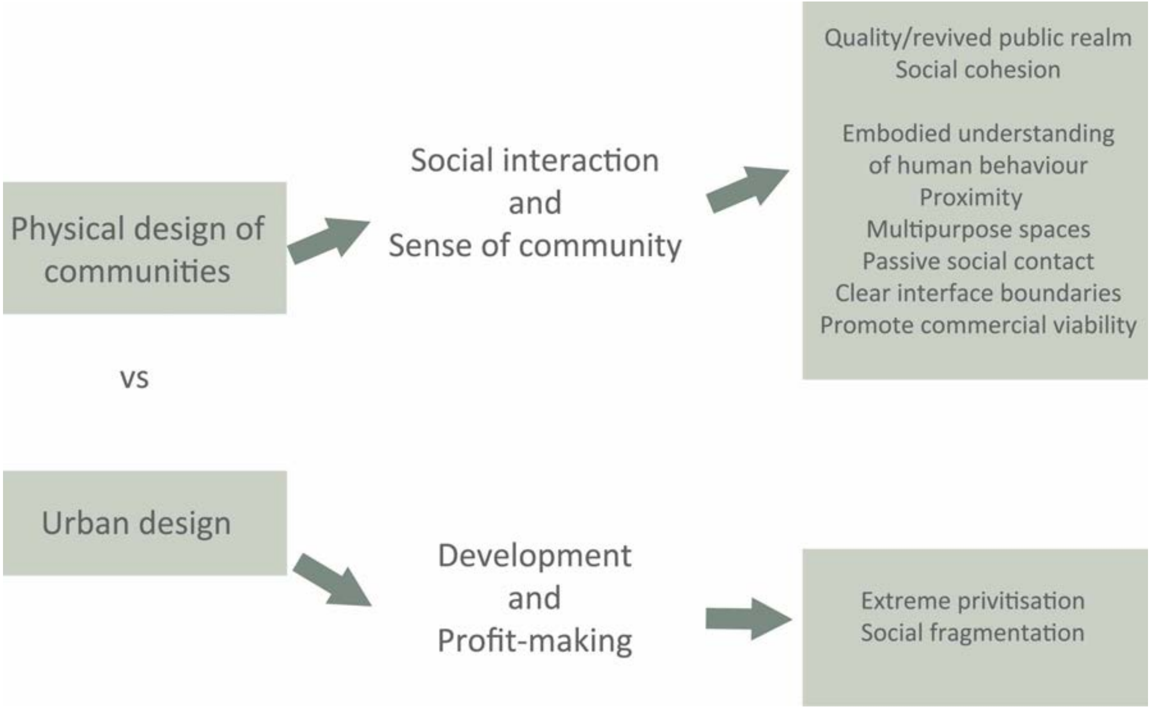
New Urbanists promise to restore the failures of civil environments through good/proper design principles. This will reintegrate dwelling, working, schooling, worshipping and recreation to put an end to the domination of the automobile. These principles will create a sense of place which will reinvigorate urban community (Robbins, 2004:216).

In contrast to the modernist reliance on a single masterplan to operate the city as a universal whole, the New Urbanists look to the particular of the local, since: "Each community shared a local vision and language of how to build their world." (Talen 1999). They shared common customs and culture that led them to create places that were a part of a larger, coherent, ordered and intrinsically beautiful whole (Robbins, 2004). Since there are no specific customs or a singular overall culture in this context, this approach will not work on this study area and emphasises the need for a single masterplan to harmonise the variety of cultures and events in this specific context. However, keeping to the principles of particularity and locality from New Urbanism.

Fransceco Careri (2012:38) describes the nomadic city as the path itself, being the most significant element in the void. He argues that the points of departure and arrival are less important, while the space in between is infact the space of going, the very essence of nomadism, "the place in which to celebrate the everyday ritual of eternal wandering," (Careri, 2012).

The flaneur is thus an appropriate and useful way to observe the path itself, observing the different activities and rituals, and self-organising organic patterns of repeated choices that currently exists in this urban open space. This will help to determine the possible magnets for social interaction and possible design interventions.

Hans-Ulrich Obrist encourages architects to create new appetites, new hungers, not just to solve problems. (Guattari, 2008)



Physical design of communities

Social interaction and Sense of community

Quality/revived public realm
Social cohesion

Embodied understanding of human behaviour
Proximity
Multipurpose spaces
Passive social contact
Clear interface boundaries
Promote commercial viability

vs

Urban design

Development and Profit-making

Extreme privitisation
Social fragmentation

Figure 2.13: New Urbanist Principles showing contrast between traditional approaches vs. the design of communities (edited from Talen, 1999)

Design principles:

To Lynch these five elements give form to a city: Paths, edges, districts, nodes and landmarks (Hall, 2001). This section will take a look at a summary of some of these design concepts which will be applied to this specific outer periphery of an institution within an urban setting.

Paths in pedestrian-dominated streets which optimises freedom of travel route choices and disperses traffic evenly: boulevards, streets, alleys, lanes, avenues and walkways.

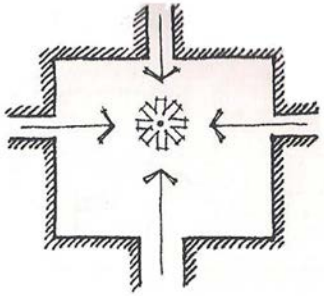
Walkways and pedestrian *edges* can be signalled by berms, landscape buffers, level changes and surface texture changes.

Nodes: specific points that have a name place recognition value. Points to and from which people travel, transition point between land uses, being thematic in nature.

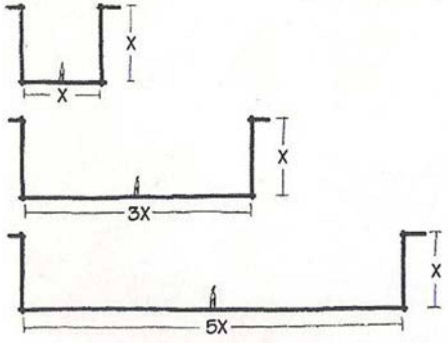
Landmarks are the reference point by all navigating the community, usually taking the form of great public spaces (eg. the Piazza on UP maincampus), artwork or a significant building (eg. The 'Ship' or Old Arts building). They contrast greatly with the background in which they are perceived, enhancing their visual quality in a landscape as beacons of reference points, which were evident in the interviews during the flaneur.

Hall (2001) adds dominant features, sense of enclosure, hierarchy, structures and open space to the list:

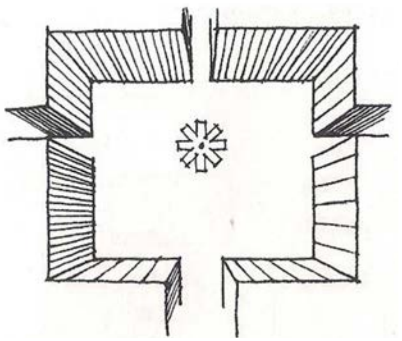
Dominant features: A focal point not only gives a space a reason for existance, but in so doing creates unity within the space.



Sense of enclosure: establish the scale of a space. The relationship between the height of the vertical elements and the horizontal distance to create a functional yet human scale. Ideal ratios fall between 2 or 3 horizontal units to 1 vertical unit.



Structures: prevent open space from 'flowing out of place' like a fluid. A holding space on human scale.



Open space: void zone between vertical elements can be positive/productive/planned or negative/wasted/deleterious.

The above concepts serve as building blocks to develop dynamic and liveable communities (Hall, 2001).

Therefore we can deduce that if we wish to promote social interaction between neighbouring people, one effective device is to use common entrances and paths, to increase the visual contact between path and other locations or to provide focal points.

Lynch warns us that sharp physical boundaries will, however, tend to divide people and discourage interaction (Lynch, 1969).

Human presence and public surveillance should rather create the sense of safety; front porches, windows and balconies facing the street, visibility and good lighting, well-maintained public spaces, opportunities for activities and public legibility are what makes a street inviting and secure (Robbins, 2004).

Public squares

Many ancient public squares and plazas over the world, are still being used today, for example the *Piazza Navona* in Rome (fig 2.14) which was built in the first century AD.

In this well-designed, enclosed public space, it is common to have weekly markets, local performances or simply to enjoy an outdoor lunch break.

These public spaces feature as prominent landmarks, where pedestrians would pause and linger. It serves as a meeting point, a lunch- or smoke-break spot, a place to engage with others and break away from the indoor office. It becomes a familiar destination on a route between the start and arrival of the normal site user's journey.

The landmark – in this case the fountain – itself becomes a magnet for people. These spaces allow users to act in any way they wish and use the space as they find it necessary for different events on various occasions (Steward, 2004).

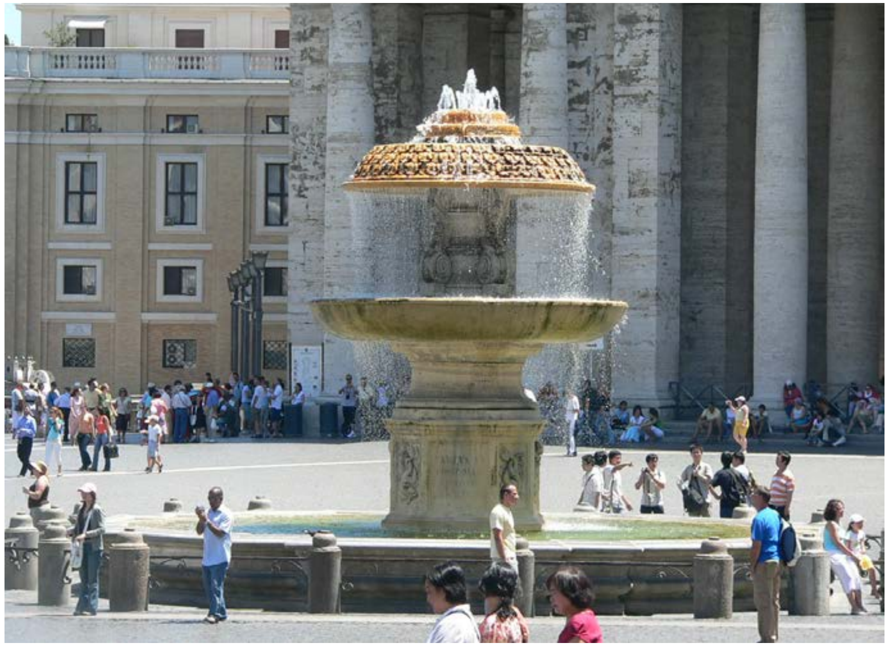


Figure 2.14: A long-standing public square in Rome, still buzzing with people today (photo by author, 2007)

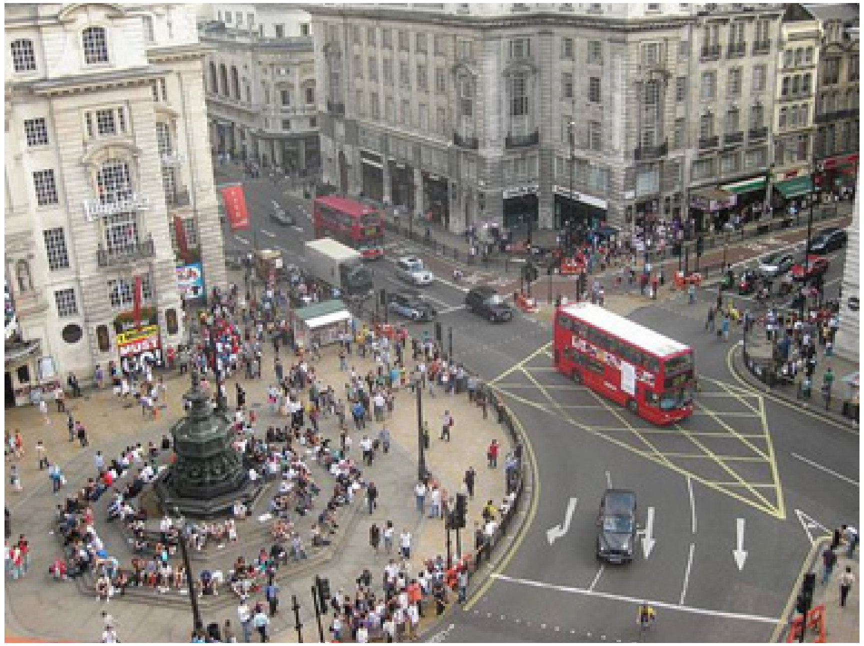


Figure 2.15: Piccadilly Circus, 2007 (photo by Matt Brown)

Precedents of institutional landscape environments

Robbins critiques the design of the structurally elegant Illinois Institute of Technology or IIT in Chicago, designed by Mies van der Rohe, as a good example of an "autonomous island that disregards its physical context," (2004:69). Mies designed the entire campus by solely looking at the programme that had just started taking form, not once doing a masterplan study (Robbins, 2004). This approach continued over the next twenty years through which Mies directed the project. It ended up in a structurally authentic and elegant design which, however, had to emerge from just a set of innovative buildings, to adapt as an integral part of a larger, more complex multifarious field (Robbins, 2004).

After studying the grid-like context of Chicago city itself, Mies played around with a couple of rectangular wooden blocks on a model scale rather than choosing to work only in plan. This method demonstrates to which extent he recognised the problem of this campus design to be a three-dimensional spatial issue of new developments.

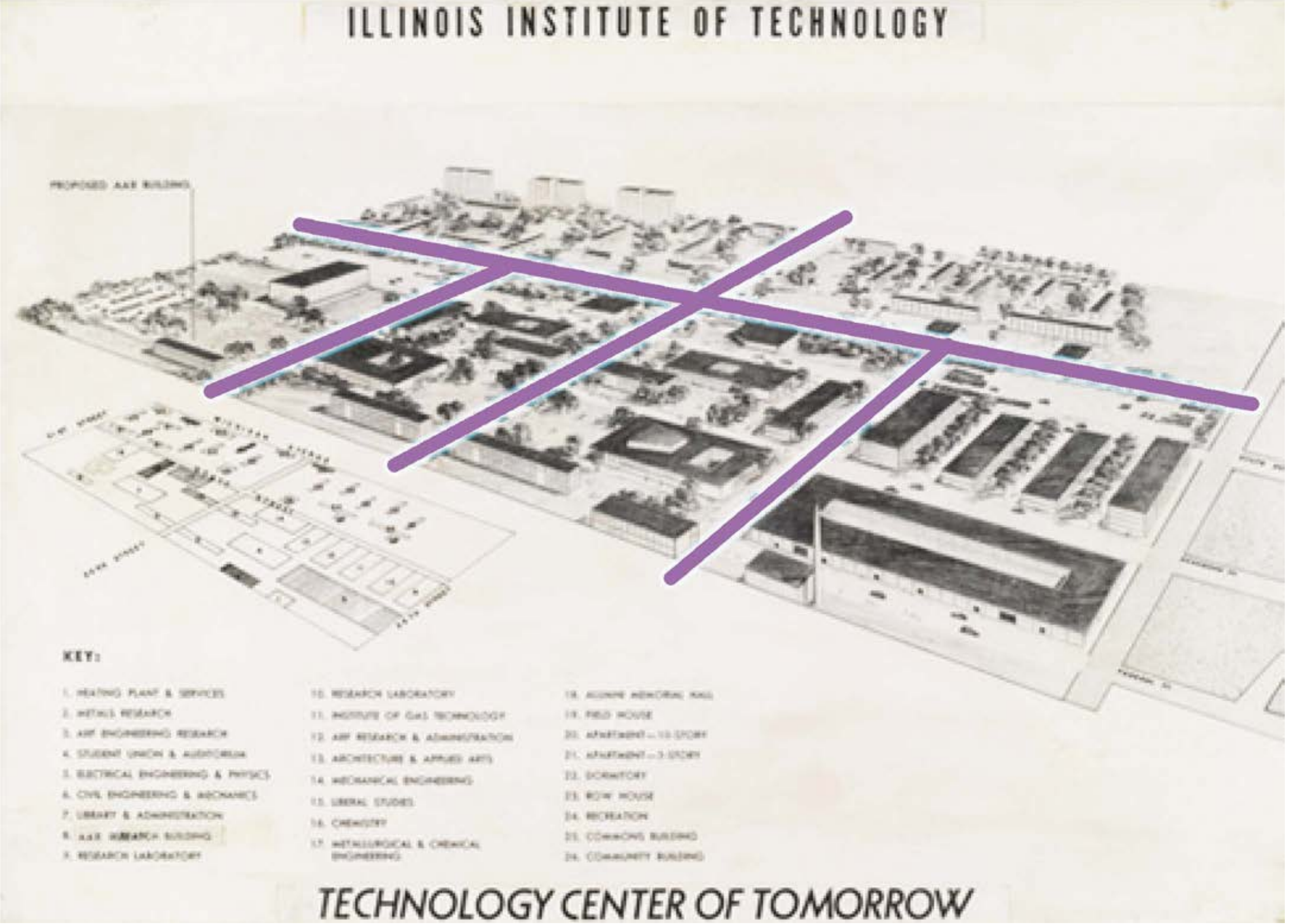

ILLINOIS INSTITUTE OF TECHNOLOGY
PROPOSED AAR BUILDING
KEY:
1. HEATING PLANT & SERVICES
2. METALS RESEARCH
3. ARF ENGINEERING RESEARCH
4. STUDENT UNION & AUDITORIUM
5. ELECTRICAL ENGINEERING & PHYSICS
6. CIVIL ENGINEERING & MECHANICS
7. LIBRARY & ADMINISTRATION
8. A.A.R. RESEARCH BUILDING
9. RESEARCH LABORATORY
10. RESEARCH LABORATORY
11. INSTITUTE OF GAS TECHNOLOGY
12. ARF RESEARCH & ADMINISTRATION
13. ARCHITECTURE & APPLIED ARTS
14. MECHANICAL ENGINEERING
15. LIBERAL STUDIES
16. CHEMISTRY
17. METALLURGICAL & CHEMICAL ENGINEERING
18. ALUMNI MEMORIAL HALL
19. FIELD HOUSE
20. APARTMENT – 10 STORY
21. APARTMENT – 3 STORY
22. DORMITORY
23. ROW HOUSE
24. RECREATION
25. COMMONS BUILDING
26. COMMUNITY BUILDING
TECHNOLOGY CENTER OF TOMORROW

Figure 2.16: Grid-layout of the Illinois Institute of Technology in 1944. A typical modernist masterplan (Robbins, 2004).

Positive: What can be learnt from this study is how Mies considers the campus programme to dominantly influence the permeability and three-dimensionality of new developments.

Negative: Modernist architecture tend to oppose New Urbanism design principles, and thus the fact that this approach completely ignored its entire context is a negative which should be avoided in the study of UP main campus. In this case, the New Urbanist approach is more appropriate.

Unlike conventional historical urban planning, Mies rearranged the communal and ceremonial spaces of the campus (the library, lobbies and student union) toward the periphery.

"Mies's perspectival views tend to draw the outsider into the campus, suggesting a continuum rather than a boundary. Each building would then have a transitional, public/private space between the exterior public world, and the interior private or academic world," (Robbins, 2004).

In 1942 the IIT President Henry Heald wrote a letter to Mies, suggesting that for aesthetic and security purposes, a wall be erected around the perimeter of the campus. While no reply is documented, Mies's answer lies in the campus permeability," (Robbins, 2004).

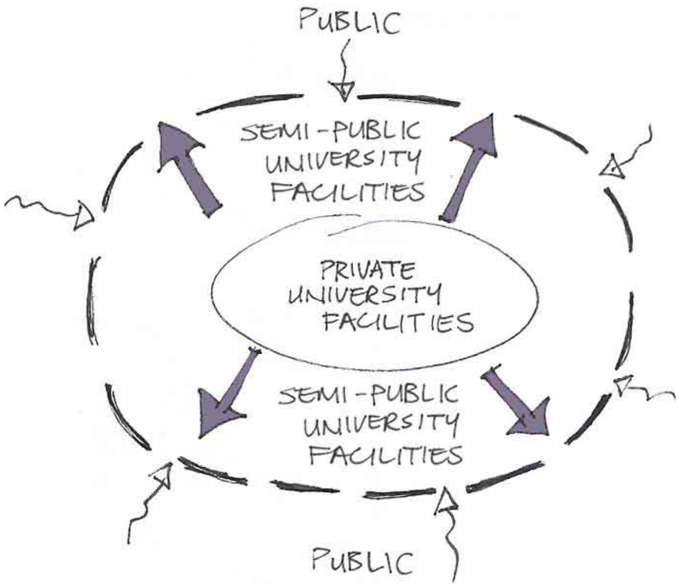


Fig 2.17: Periphery of facilities, by author

The permeability, allows new public spaces to form part of this continuum of the university (fig 2.17).

Robberts argues that new public spaces are needed to create platforms on which historical rituals can be celebrated and to encourage new cultural developments (Robbins, 2004). To avoid newly introduced public spaces from becoming ghettos, rearrangement and rehabilitation meant that the university had to relocate facilities there to attract students to these spaces, hence major public investments were made (Robbins, 2004).

Guattari (2008:12) summarizes Reiser and Umemoto's critique on Mies's geometric planning: "Mies's constraint of matter by ideal geometry is based on an essential notion: that matter is formless and geometry regulates it. When freed from such essentialising conception, matter proves to have its own capacities of self-organisation. It becomes a model not only for dealing with structure but for dealing with the feedback that occurs between multiple forces at work on a building,"

Stokowski and Steward recommend to focus on plurality, rather than a monolithic community identity (Steward, 2004). Their research showed that within any setting, one can expect from a group of residents to sense several community identities and that these inconsistent visions do affect land use and decision-making (Steward, 2004).

Plurality will influence this specific urban landscape by providing different options of travelling routes, pausing nodes, opportunities to partake in or simply observe activities and events. This will be elaborated on in chapter 6.

Conclusion

Identity of place is the product of the physical landscape combined with the intangibles that establishes a community. A prevalent theme throughout the intervention, with specific patterns and colours, which emotionally connects the user to the site and their heritage, will strengthen the sense of identity and belonging. When users feel they belong, they take stewardship over the physical landscape and effortlessly, naturally engage.
Intangibles like annual rituals, student events and social life will flourish if a well-designed space can accommodate a variety of uses for both the active and passive site user. This urban platform should be adaptable to changing social values and experiment with new design possibilities to create new appetites in a continually evolving city such as Pretoria. These theoretical underpinnings together with the contextual analysis in the following chapter, were used to define the design principles in chapters 4 and 6.

Table of design principles, derived from the theory, as a summary:

Case study:	Uses of space:	Design principles:
1. Piazza Navona	Piazza for weekly markets, lunch breaks and meeting point	Robust (simple, open and versatile) public space.
2. Piccadilly Circus	Commemoration of heritage, local performances, meeting place and reference point.	Commemoration: Landmark, interactive space designed for active participation and passive observance
3. Illinois Institute of Technology	Consider the programme of the campus as high priority. Experience three-dimensionality and human scale. Use the periphery as accessible and welcoming public spaces.	Programme and Form: Move fences and use building facades for space definition, vertical structures such as trees, landscape structures and changes in levels.
4. New Urbanism	The space between the departure and arrival points (the path) becomes the destination itself. A design that responds to the context.	Path as destination: Slow pedestrian movement and penetration into the landscape. Magnets along the path that draw the public and caters for daily activities (work, study, eat, drink and socialise).
5. Systemic Architecture (Poletto, 2012)	A self-organising and adaptive city. Catering for new appetites and future generations.	Self-organising city: Multi-purpose spaces, proximity, clear thresholds and boundaries, choices of travelling routes, moveable street furniture and adaptable open spaces.
6. Lynch (1969) and Hall (2001)	The emotional connection and sense of belonging	Sense of belonging: Colours of proposed planting, building material and textures of surface finishes. Constant use of familiar patterns, angles and lines, water, shade, nodes, sense of enclosure, structures, paths and walkways, edges and useable thresholds, open space and human scale.

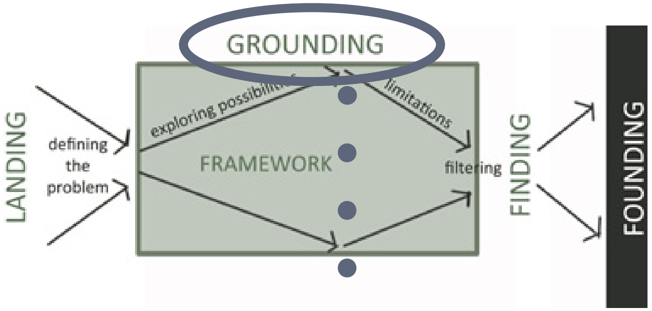
CONTEXTUAL ANALYSIS 3

1950

1958

1967

1980


GROUNDING
LANDING
defining the problem
exploring possibilities
limitations
FRAMEWORK
filtering
FINDING
FOUNDING

This chapter deals with the symbolic, social and physical context of the proposed framework. The symbolic context revealed an opportunity to unveil a lost heritage, while the social context explores the past and current events and activities of the local community. The physical context deals with the architectural language of the main campus, and concludes with an introduction to the site.

GROUNDING

Exploring the opportunities for meaningful design intervention.

Delimitations:

For the historical, cultural and social research mapping, the entire framework area will be considered: Lynnwood Road on the South, University Road on the West, Burnette Street on the North, eastward to Duxbury Road (fig 3.1).

For the detailed physical mapping: Lunnon Road (between Herold and Duxbury Road) will be zoomed into as a masterplan analysis.

The following aspects will be considered (fig 3.2):

1. Historical/symbolic context
2. Social context
3. Physical context

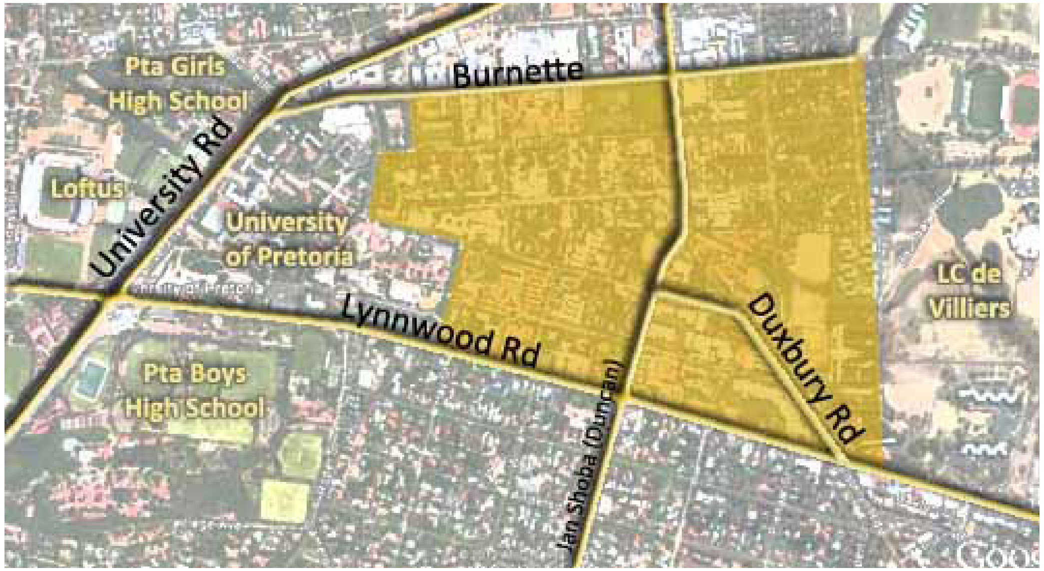

Pta Girls High School
Burnette
Loftus
University Rd
University of Pretoria
LC de Villiers
Lynnwood Rd
Duxbury Rd
Pta Boys High School
Jan Shoba (Duncan)

Figure 3.1: Orientation to the context (edited from Google Earth, by author)

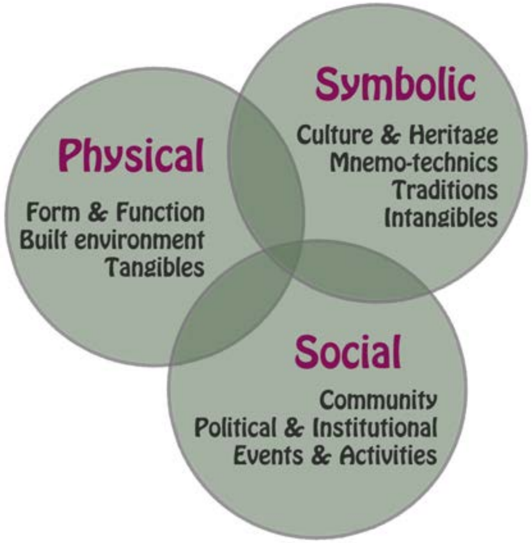

Symbolic
Culture & Heritage
Mnemo-technics
Traditions
Intangibles
Physical
Form & Function
Built environment
Tangibles
Social
Community
Political & Institutional
Events & Activities

Figure 3.2: The elements of public space according to Le Febvre (2001)

In 1908, students began their classes at the Transvaal University College (TUC) which was renamed to the independent University of Pretoria on 10 October 1930 (UP Archives).

UP had gradually expanded (fig 3.5) and although this is evidence of healthy economic growth, the added constructions have not followed a specific design language, thus, a masterplan from 1930 was studied (fig 3.4), to recall the past and argue whether it has some significance to extract and incorporate in future UP developments.

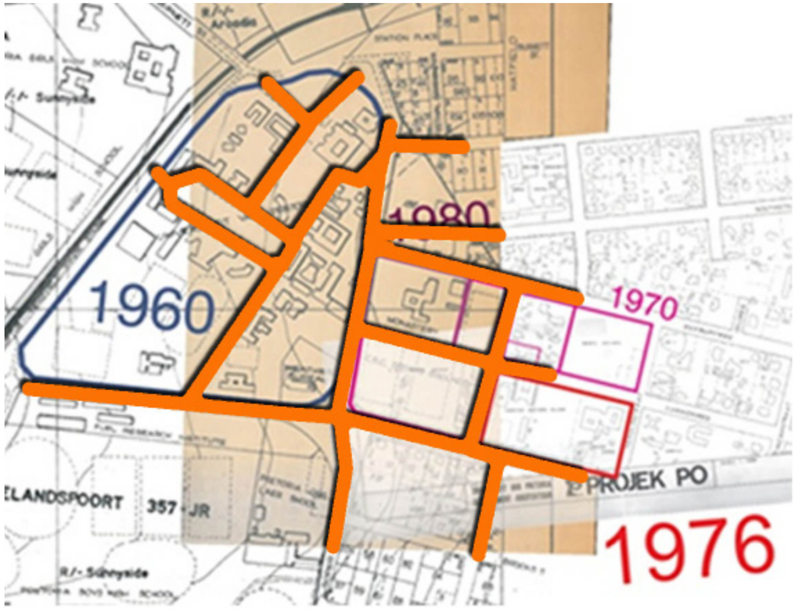


Fig 3.3: Traffic flow through campus in 1960s to 1990s, note the grid circulation (edited from UP Archives)

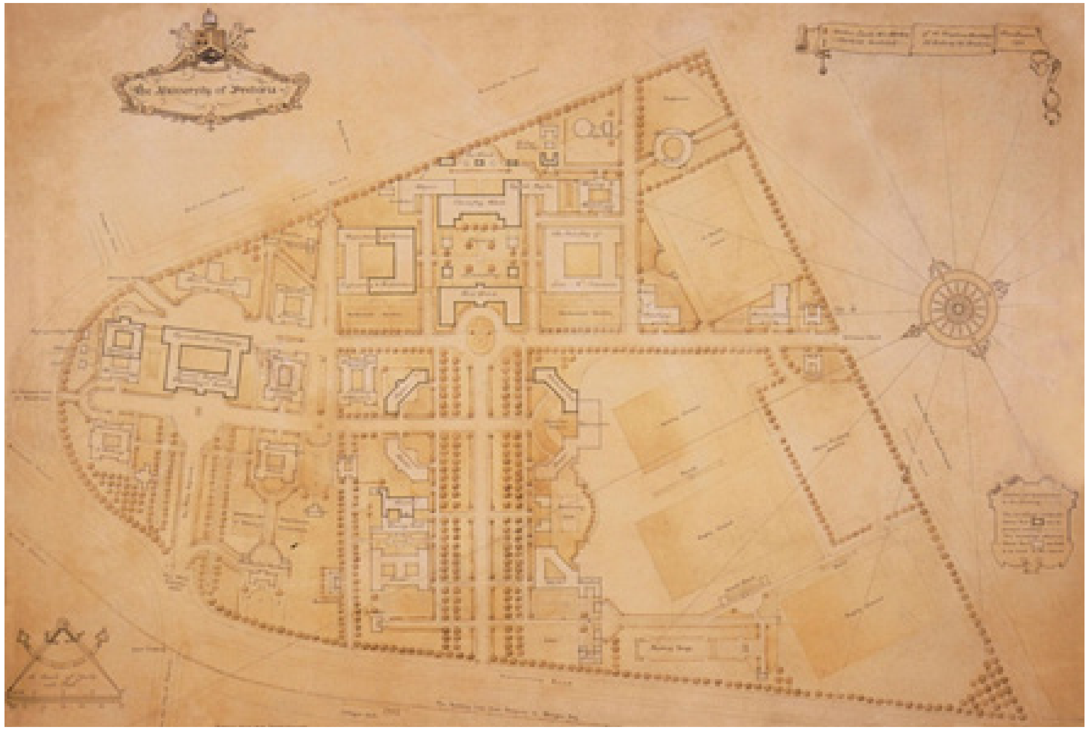
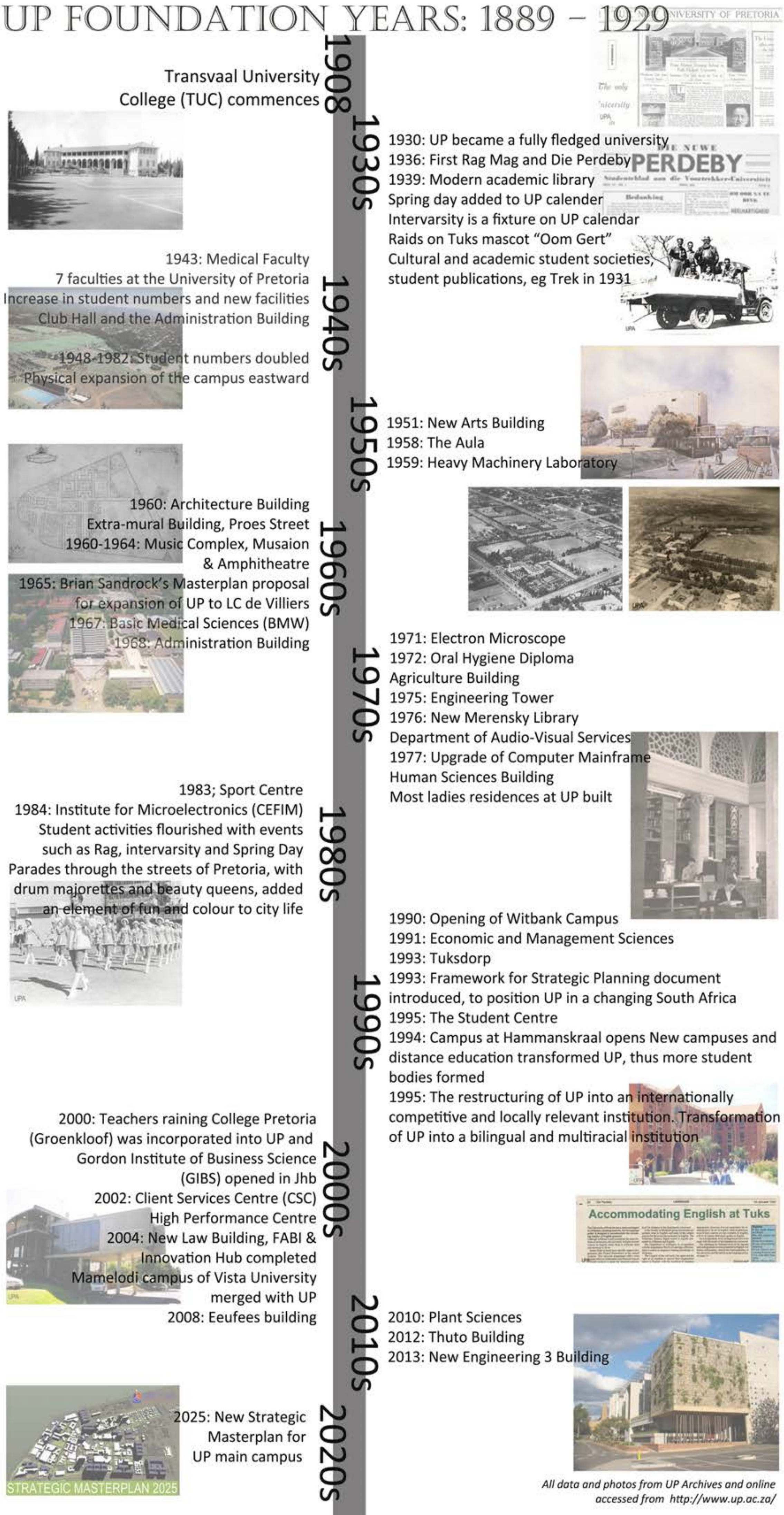


Fig 3.4: Masterplan of UP in 1930 (UP Archives)

The former permeability of the campus became evident in the research; a grid—like structure with various points to enter campus grounds without a fence or any blocked or redirected roads (fig 3.3). Public roads that used to run through campus as seen in fig 3.3 (eg. Tindal and Roper street), have been closed or redirected.

As seen in figure 3.10, UP main campus used to have many green open spaces for students to enjoy before the fence was erected. Today, UP main campus — which lies in the heart of Hatfield and Hillcrest area — functions like an island, totally closed to the general public. Fences have been put up all around the major boundaries of the university for safety measures, hence it become extremely impenetrable (fig 3.11).



UP FOUNDATION YEARS: 1889 – 1929

1908

Transvaal University
College (TUC) commences

1930s

1930: UP became a fully fledged university
1936: First Rag Mag and Die Perdeby
1939: Modern academic library
Spring day added to UP calender
Intervarsity is a fixture on UP calendar
Raids on Tuks mascot "Oom Gert"
Cultural and academic student societies,
student publications, eg Trek in 1931

1940s

1943: Medical Faculty
7 faculties at the University of Pretoria
Increase in student numbers and new facilities
Club Hall and the Administration Building
1948-1982: Student numbers doubled
Physical expansion of the campus eastward

1950s

1951: New Arts Building
1958: The Aula
1959: Heavy Machinery Laboratory

1960s

1960: Architecture Building
Extra-mural Building, Proes Street
1960-1964: Music Complex, Musaion
& Amphitheatre
1965: Brian Sandrock's Masterplan proposal
for expansion of UP to LC de Villiers
1967: Basic Medical Sciences (BMW)
1968: Administration Building

1970s

1971: Electron Microscope
1972: Oral Hygiene Diploma
Agriculture Building
1975: Engineering Tower
1976: New Merensky Library
Department of Audio-Visual Services
1977: Upgrade of Computer Mainframe
Human Sciences Building
Most ladies residences at UP built

1980s

1983; Sport Centre
1984: Institute for Microelectronics (CEFIM)
Student activities flourished with events
such as Rag, intervarsity and Spring Day
Parades through the streets of Pretoria, with
drum majorettes and beauty queens, added
an element of fun and colour to city life

1990s

1990: Opening of Witbank Campus
1991: Economic and Management Sciences
1993: Tuksdorp
1993: Framework for Strategic Planning document
introduced, to position UP in a changing South Africa
1995: The Student Centre
1994: Campus at Hammanskraal opens New campuses and
distance education transformed UP, thus more student
bodies formed
1995: The restructuring of UP into an internationally
competitive and locally relevant institution. Transformation
of UP into a bilingual and multiracial institution

2000s

2000: Teachers raining College Pretoria
(Groenkloof) was incorporated into UP and
Gordon Institute of Business Science
(GIBS) opened in Jhb
2002: Client Services Centre (CSC)
High Performance Centre
2004: New Law Building, FABI &
Innovation Hub completed
Mamelodi campus of Vista University
merged with UP
2008: Eeufees building

2010s

2010: Plant Sciences
2012: Thuto Building
2013: New Engineering 3 Building

2020s

2025: New Strategic
Masterplan for
UP main campus

All data and photos from UP Archives and online accessed from http://www.up.ac.za/

Figure 3.5: Historical timeline of developments (by author)

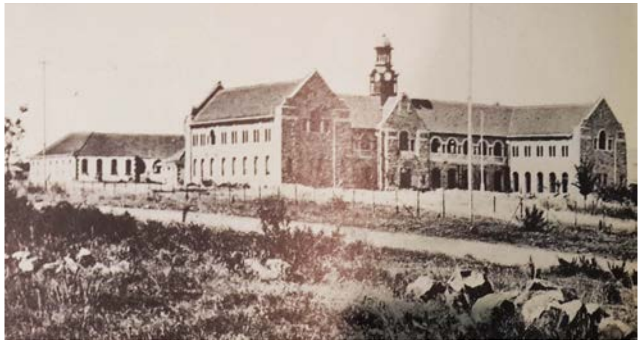


Fig 3.6: Photo of the Old Arts building directly after construction in 1910 (Tukkie Blad, 1970)

One can clearly see the expanse of vegetation all around the Old Arts. Alongside the building, a prominent walkway is visible, which dates back to 1910. Old photographs help to determine which landscape elements have been historically significant and have to be preserved. Former green areas on UP have now become areas for parking or construction of new buildings (fig 3.8).

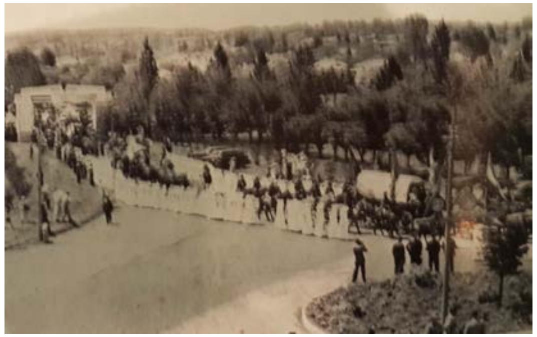


Fig 3.7: Ox waggons at UP entrance in Burnette street. Note the amount of pedestrians in white (Tukkie Blad, 1970)

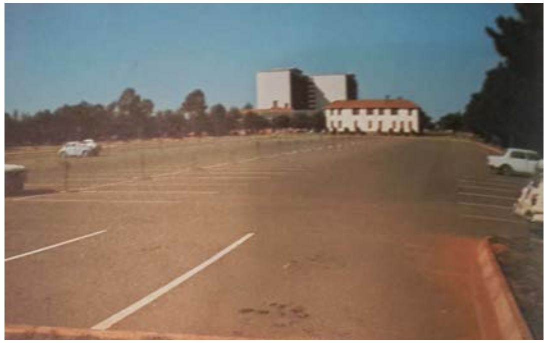


Fig 3.8: Vast open parking on the eastern side of campus (Tukkie Blad, 1970)

It seems as though the parking areas on main campus are still kept for long-term building construction projects as it happened in former years. On the sports campus (fig 3.9), tennis courts, tartar athletic running tracks and grandstands were erected. This causes a major decline in local eco-systems, micro-climates and biodiversity.

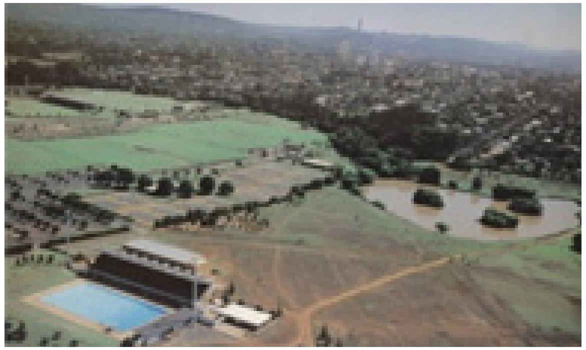


Fig 3.9: Former green areas on LC De Villiers (UP Archives)

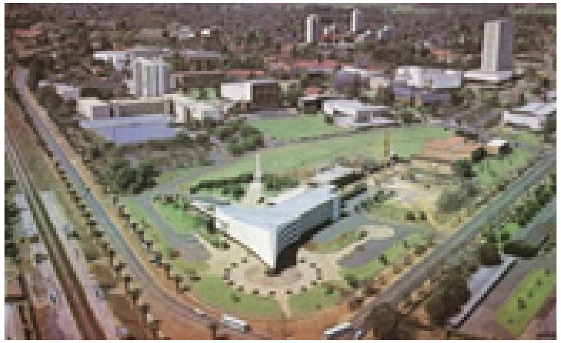


Fig 3.10: Former green areas around the *Ship* building on UP (UP Archives)

The landscape surfaces of the main campus became impervious; creating large heat-islands and stormwater management challenges. In fact, the entire city faces these same challenges. Through time, not only have the landscape surfaces become horizontally impenetrable to nature, but the main campus also became spatially inaccessible to the public domain (fig 3.11).

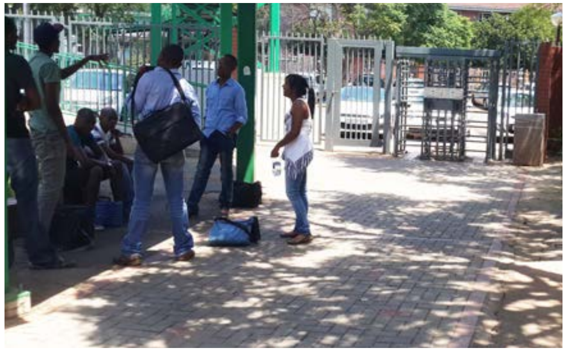


Fig 3.11: Fences and paved areas from within UP main campus today (Photo by author)

In terms of culture and heritage, several sites on UP main campus were identified (fig 3.12). This dissertation will focus on the most prominant heritage site found in the eastern wing expansion of UP.

The '*way of life*' or behaviour of the current site users involve studying, working, socialising, eating, sleeping and shopping. The beliefs and customs are diverse due to the mixed cultures, races and religions of the tertiary scholars.

Guidelines were studied on how to deal with the surrounding landscape of special buildings or landmarks.

Figure 3.12 illustrates green spaces to be protected, measured by the author according to the following research criteria (Wells, 2007):

1. Perimeters around proclaimed heritage sites (red)
2. Popularity of student-use
3. Special events in the space
4. Significant boulevards or axis

According to the Nara Document on authenticity of 1999, item six in the Heritage Act, summerizes that:

"Cultural heritage diversity exists in time and space, and demands respect for other cultures and all aspects of their beliefsystems. In cases where cultural values appear to be in conflict, respect for cultural diversity demands acknowledgment of the legitimacy of the cultural values of all parties," (Wells 2007).

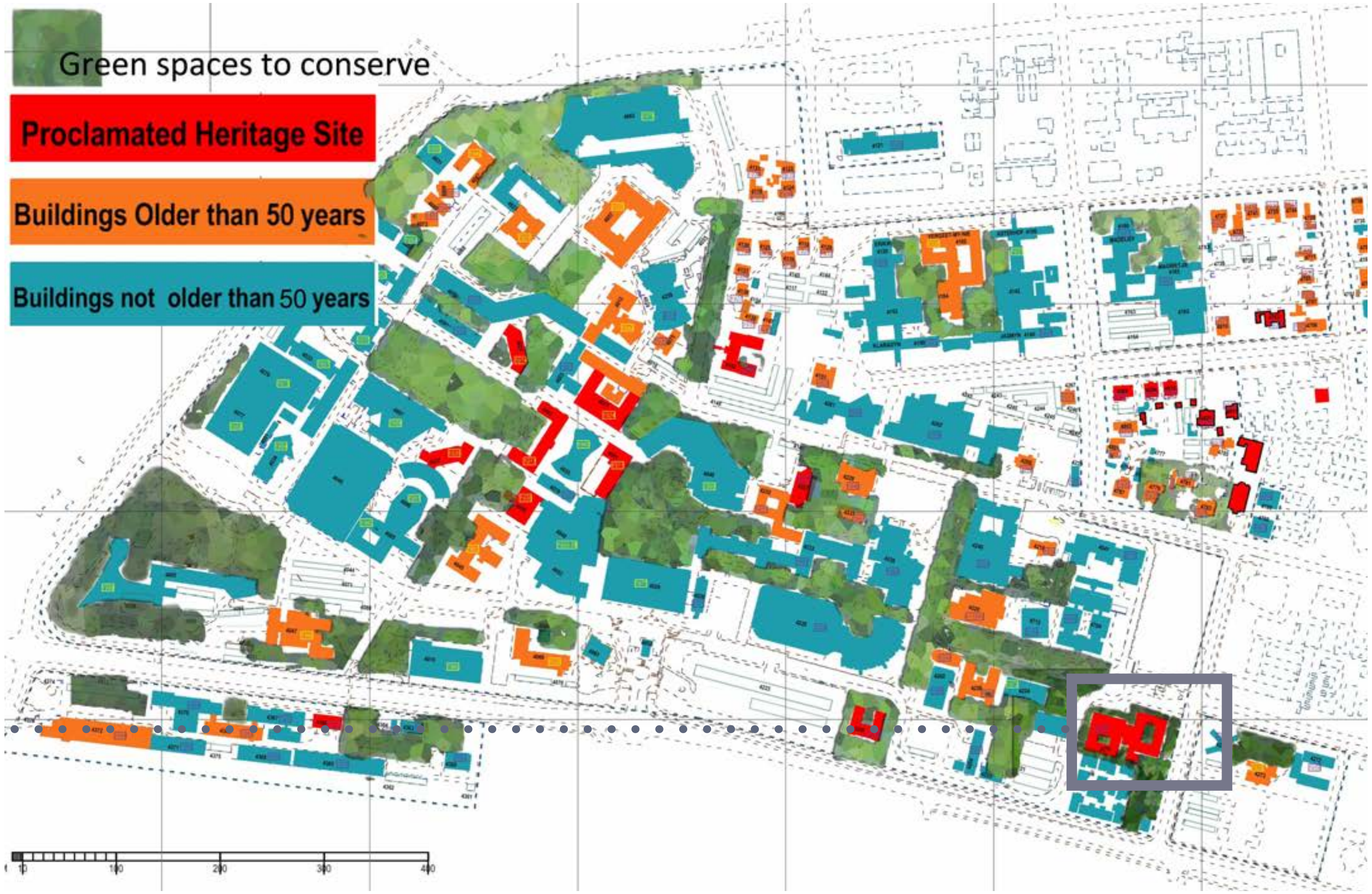

Green spaces to conserve
Proclamated Heritage Site
Buildings Older than 50 years
Buildings not older than 50 years
100
200
300
400

Fig 3.12: UP proclaimed heritage sites and green areas to be conserved in future developments (UP Archives, edited by author)

Since the dissertation focuses on the eastern wing of expansion, the author investigated the most prominent heritage building found in the vicinity (Nerina Ladies Residence) and studied its heritage.

The most prominent heritage building found in the eastern wing of the university's long-term expansion vision is Nerina Ladies residence (UP Archives), formerly known as

Lorento Convent School.

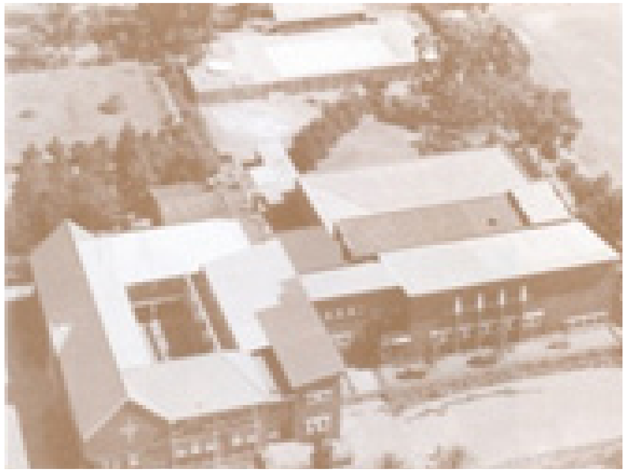


Fig 3.13: Former Loretto Convent School, now Nerina Ladies Residence, a National Heritage Building (UP Archives)

A significant event of cultural transformation occured during Apartheid in the 1970s, when the sisters of Loreto Convent stood up against the apartheid government and accepted a Malawian girl into their all white private school. They acted against national educational policies despite the imminent repercussions; the school would have to face major (governmental subsidies and other rights) consequenses as a result of their compassion.

After Chipo Kachingwe had been accepted into Loreto Convent, many other African embassies returned to South Africa since there was a glimmer of hope on the horizon, should they also follow in the footsteps of the Malawian ambassador (Hopkins, 1994).

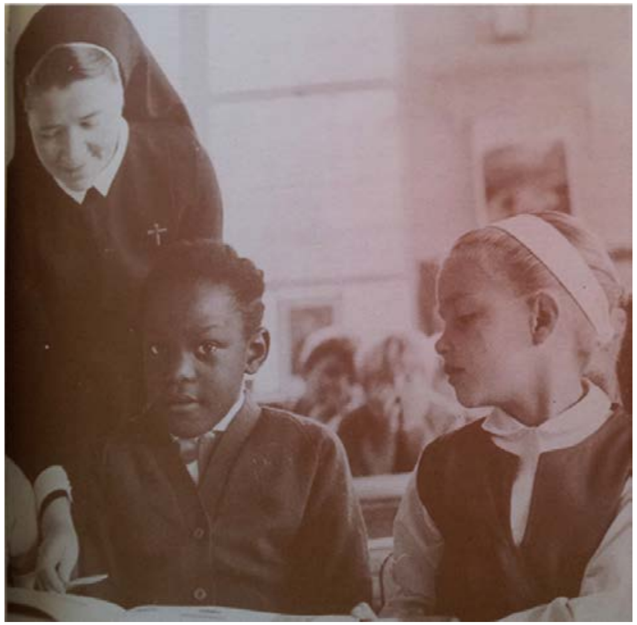


Fig 3.14: Sister Marie Brady, Chipo and Frances (Hopkins, 1994:53)

3. Social context

The main actors involved are:

Political and institutional

The main client is the University of Pretoria; facilities management have been a reference to the research. Private architectural firms and Tshwane Municipality were consulted.

Communities

Students and local residents are the main users of the site, although some offices also attract businessmen and various classes of employees.

Events and Activities

Current activities involve Tuks Rag procession, flash mobs, Tuks open day, Tuks welcoming day, Serrie, lenkmelodienk, Tuks career expos, Shavathon, residence raids and serenades, 'Zef troue', "Sleep", Pot-en-pons (www.up.ac.za). These events all occur on and around UP main campus and are traditions which contribute to the essential identity of the university, which should not only be accommodated but also encouraged.

There are a wide range of cultures to be considered in this institutional setting, which brings forth various dissimilarities in ways of life and habits. This could, however, rather be seen as an opportunity than a constraint, according to Careri (2002:420).

"Every little dissimilarity is an event, a useful landmark for the construction of a mental map composed of points (particular places) lines (paths) and surfaces (homogeneous territories) that are transformed over time." (Guattari 2008).

Guattari agrees with Bunschoten (2002:5) that public spaces must have a prototypical character; that they are instruments of change for a society... [it only gradually became] clear that in fact this combination between form – especially diagrammatic form – and the operational mechanism of a prototype together is the link between architectural space and urban dynamics," (2008:10).

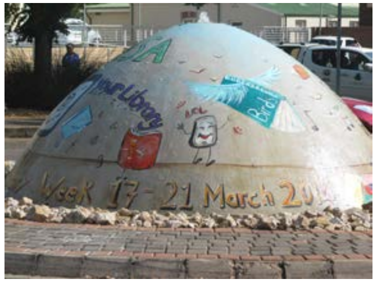


Fig 3.15: Events displayed on water feature in Hillcrest 2012 (photo by author)

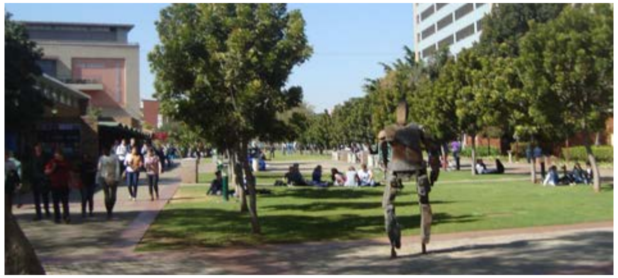


Fig 3.16: Students daily socialize on this campus lawn, photo by author

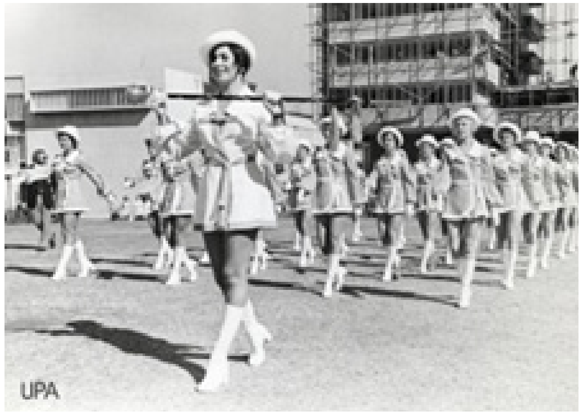


Fig 3.17: Former cultural activities that occured on UP eastern wing (UP Archives)

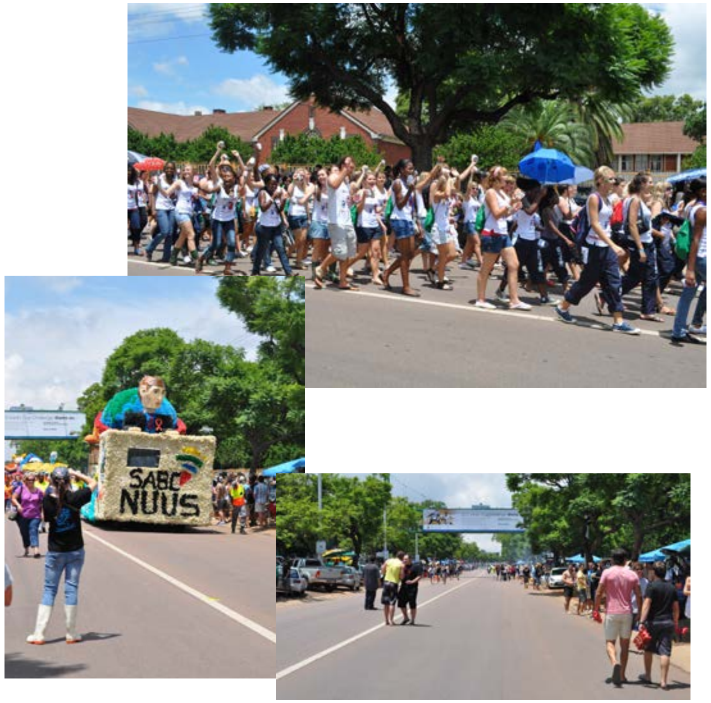


Fig 3.18: Events at UP: Tuks Rag protest 2012 (photos by author)

Interviews were conducted on UP main campus with approximately 40 students during February 2014, asking them to describe the campus and these were some of the responses:

It's nice in summer, but there's cars, like, everywhere; even on the walkways!"
– Lindiwe, 20

"UP campus is a safe environment for students to grow, however as we grow, we must keep in mind that campus has to grow as well. In a few years from now, we might not recognise our beginnings at all, bearing in mind the footprints of a new generation."
– Leannè, 26, Communication manager

"I enjoy having lunch on the lawn, it's a nice break between classes"
– Jessica, 19

"Campus is the place where you can meet with all your friends. Usually we meet under the those trees"
– Sarah, 23, Law student

"It feels like a huge engineering school, cold and hard"
– Chanel, 22, QS

"The ship, or admin building is an icon for UP isn't it?"
– Claire, 20, Fashion

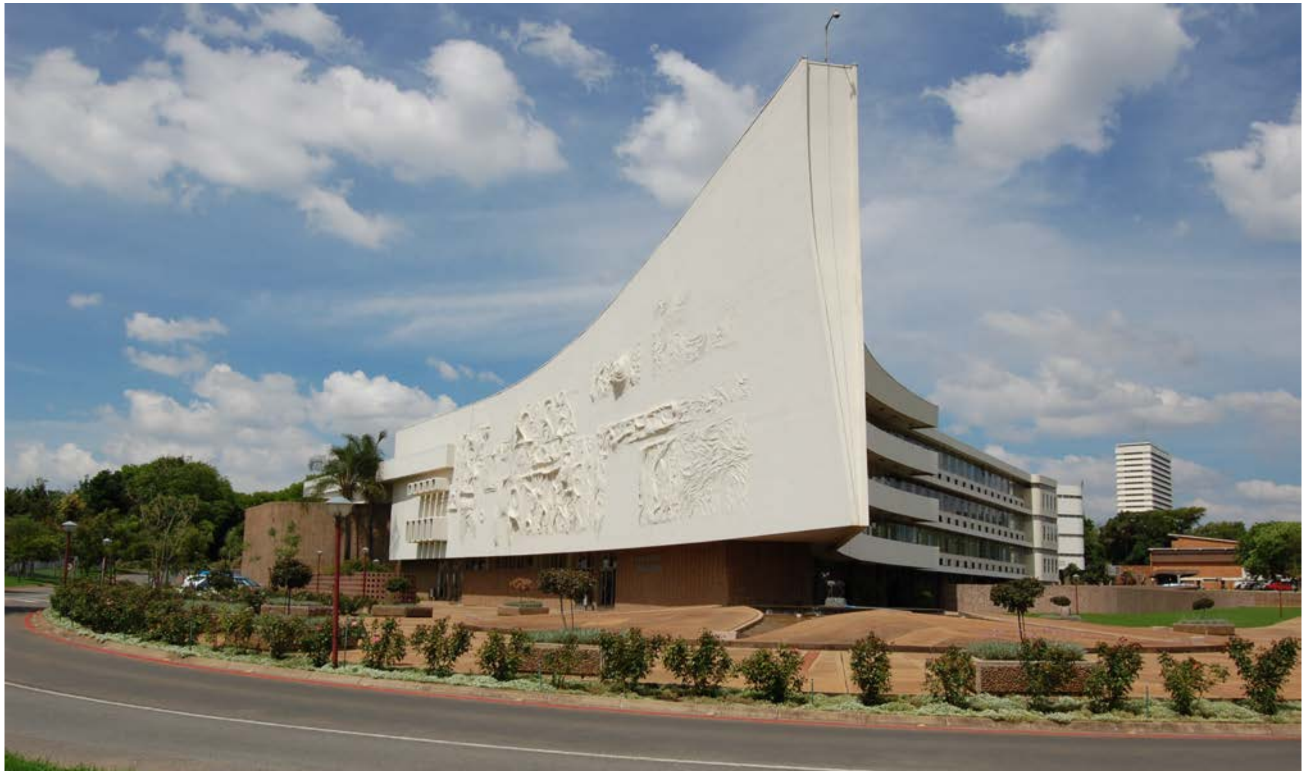


Fig 3.19: The *Ship* building (repository.up.ac.za)

When asked to describe the identity or character, these were the responses:
"There's lots of buildings, and they don't stop building!"
– Richard, 23, Geomorphology

"I don't think there's one specific character, it's a bit of everything"
– Marius, 24, Mechanical Engineering

"I feel like I walk into a prison every morning with all these fences [ha-haha]"
– James, 21

It seems that most students have not been paying much attention toward the landscape of the univesity, thus there is a definite lack of stewardship. When they are actually asked to consider it, they seem perplexed as to the identity of the university campus.

They do not feel a specific sense of belonging or responsibility towards it. Students do not feel that it is their concern, but rather the university's management concerns.

ARCHITECTURAL LANGUAGE OF UP EASTERN WING

Below are a few of the many private residences towards the east of the university's main campus belongs to UP. Many of these properties are rented out to private business owners and commercial companies. Others are zoned for residential or institutional land use.

It is important to study the character and activities occuring on these properties to provide guidelines for an overall masterplan vision and identify event-spaces and popular pedestrian routes. Spacial and social patterns will be studied to inform the design of the proposed masterplan. Design elements such as forms and patterns, textures and colours will aid in discovering the identity of place.

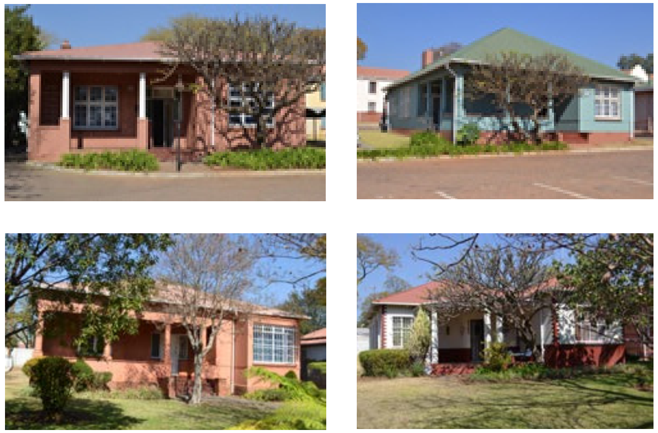


Fig 3.20: Similarities in some of the UP owned properties (photos by author)

LANDSCAPE IDENTITY OF UP

A better understanding of the use of the word *landscape*, can also help to determine appropriate identity.

Inspired by Scott (2008), Qvistrom (2010) and Davoudi (2012) the abstract term *landscape* has been interpreted as scenery, area, space, topography, land use, nature, polity, etc. (Qviström 2013). One can look to the existing patterns and elements concerning all aspects of the landscape. In this context, the ideal would be to provide a scenery, create an attractive and exciting space, increase mixed land use to cater for various social classes to interact. Lastly, to generate a versatile polity which can aid in providing freedom of choice for inhabitants and site users. This will indicate respect for all different cultures involved, as advised in item six of the Nara Document on authenticity (Wells 2007).

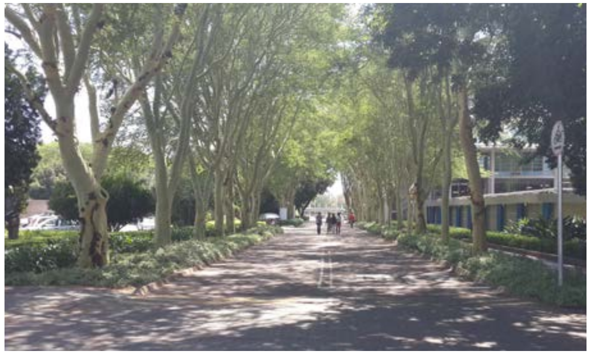


Fig 3.21: Ring Road on UP main campus, a popular vehicular route (photo by author)

Sections of tree avenues have been implemented on major circulation routes. Some however, seems more like after-thoughts and do not relate to each other or to the architecture on campus. The various public arts on campus do not form a specific pattern or speak a specific language, but appears rather random - without purpose or arrangement.

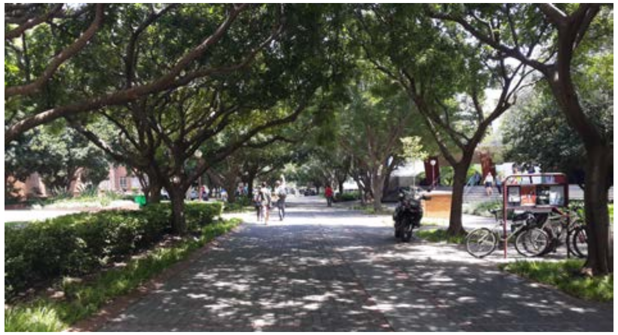


Fig 3.22: Tree avenues on UP main campus (photo by author)

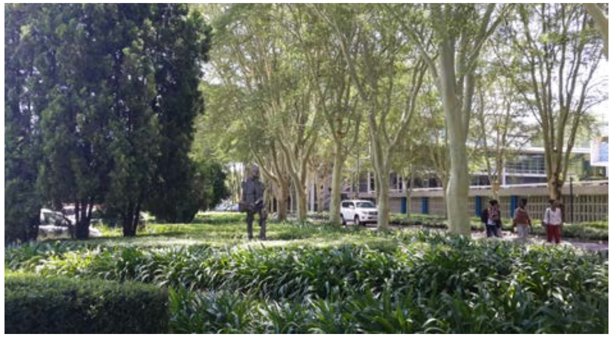
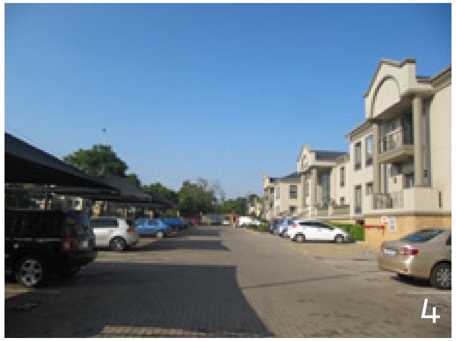
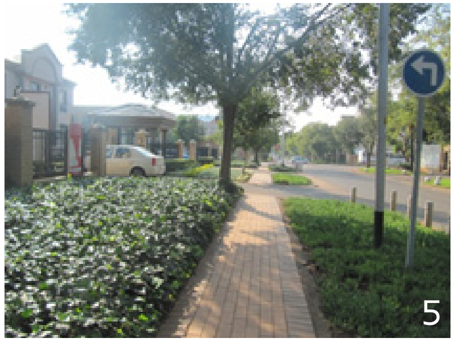


Fig 3.23: Fever tree avenues on UP main campus (photo by author)

INTRODUCTION TO THE SITE





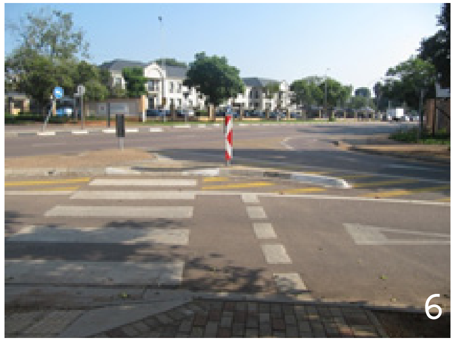


Fig 3.24: Site photos (by author, September 2014)

Lunnon Road is the specific area of focus, as it serves as the spine for pedestrian circulation, even though it presents various landscape architectural opportunities and concerns.

The chosen site is located on the corner of Lunnon Road and Jan Shoba (Duncan) Road. The property is owned by UP and is currently being used as an enterprise office building. It is easily accesssible and situated within a 5 minute walking radius from three large existing parking areas (see red areas in fig 3.25). It is located in the middle of the proposed expansion of UP main campus to LC De Villiers sports facilities. Lunnon Road is mostly used by students who travel between UP main campus entrance (a) and UP residences (b). Hillcrest shopping center (c) is also a major attraction for pedestrians, and lies within 10 minutes walking distance from the site (see fig 3.25).

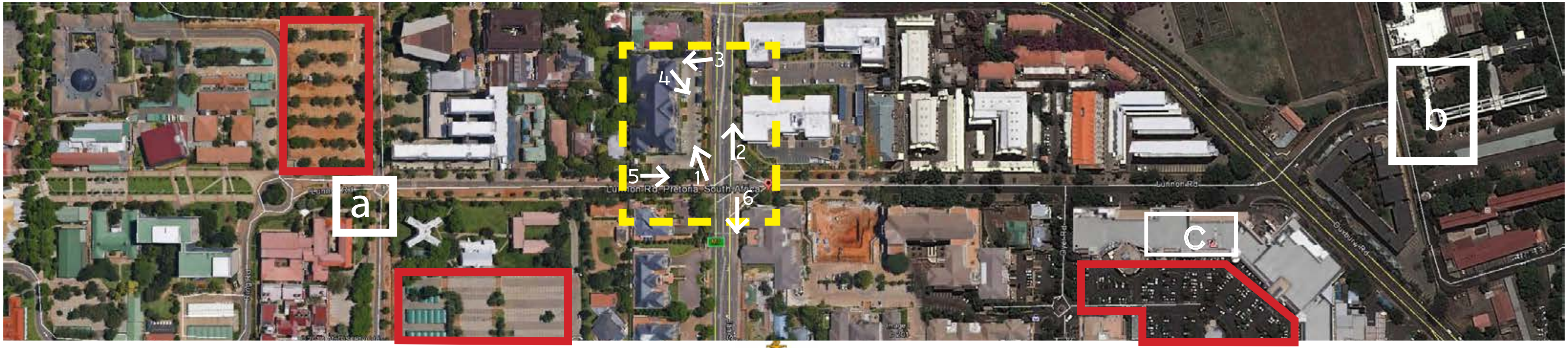


Fig 3.25: Google eath image of the overall masterplan in the framework, (edited by author, from Google Earth)

List of preliminary opportunities and contstraints as a summary:

Opportunities:

1. A lost heritage to celebrate within the framework.

2. Various existing intangibles which convey the identity of the university occur around the site.

3. Existing pedestrian–dominated streets on UP main campus.

4. The interviews indicated that the local community are active, helpful and that most students would want to be involved with the implementation of a unique student–space.

Constraints:

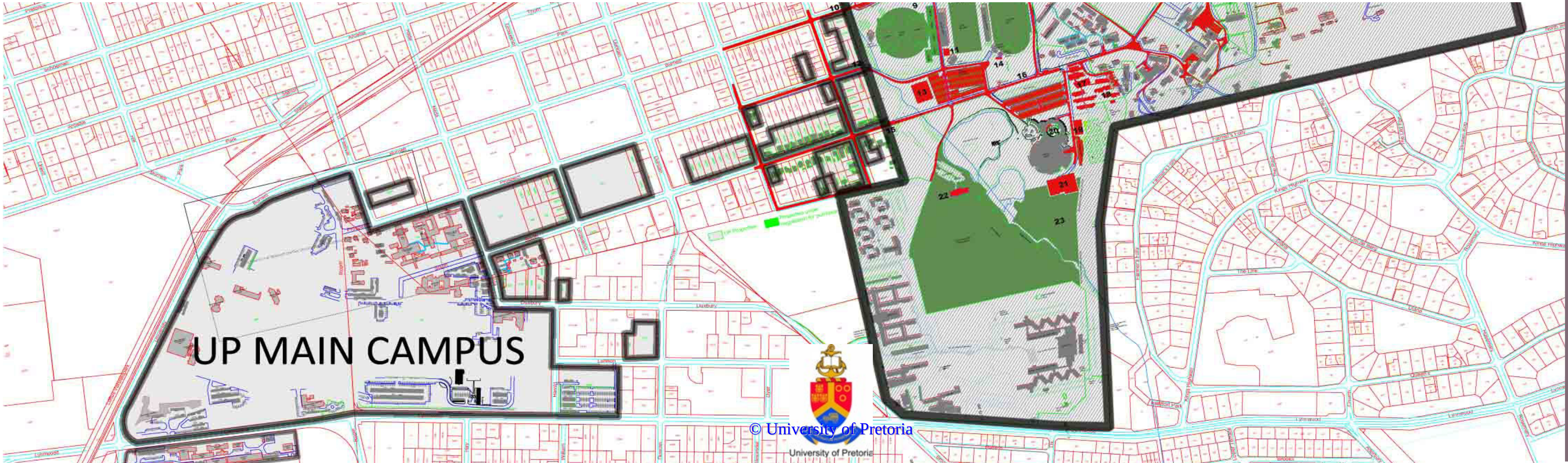
1. There is no singular tangible landscape element to determine or convey the specific identity of the university.

2. Vehicular and pedestrian permeability and circulation, especially on the site, is currently unsafe and restricted due to a lack of an initial long–term vision for expansion.

3. Fences all around the university restrict movement and access.

4

FRAMEWORK


UP MAIN CAMPUS
9
10
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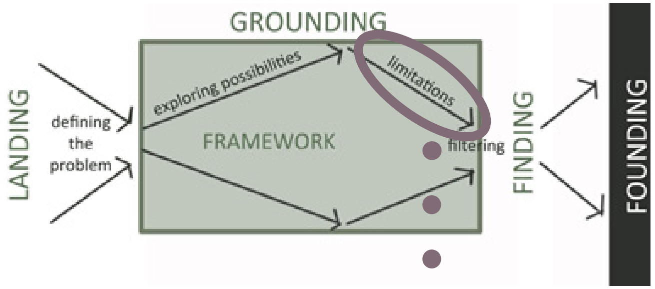
23

LIMITATIONS


GROUNDING
LANDING
defining the problem
exploring possibilities
FRAMEWORK
limitations
filtering
FINDING
FOUNDING

This chapter will deal with the analysis "findings" of the framework and possible design solutions and principles to apply to these findings for the framework that stretches from University Road on the far West to LC De Villiers on the far East (see figure 4.2).

THE HOW:

Historical, cultural and social mapping.

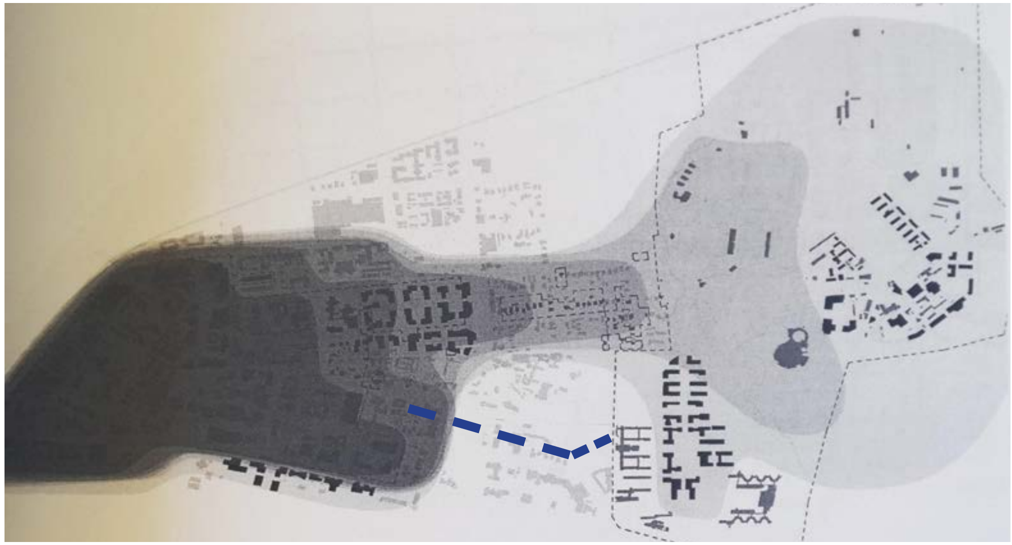


Fig 4.1: Urban framework for UP campus expansion, by Brian Sandrock in the 1960s (UP Archives)

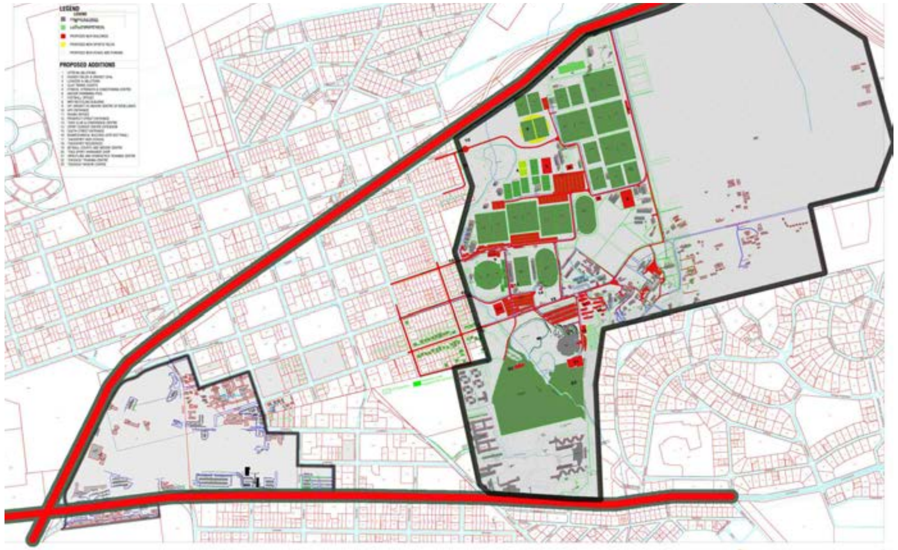


Fig 4.2: Barriers preventing expansion of UP to the West and South (by author)

The main campus of UP currently streches from University Road in the West, to Herold Street in the East.

The first and only urban design framework proposed for the growth of the university campus can be seen in a masterplan drawn by Brian Sandrock in the 1960s (fig 4.1).

When one considers the properties owned by UP (fig 4.2), it is clear that the growth leans toward South- and Prospect streets to ultimately connect to the sports campus (fig 4.1).

However logical it seems in theory, this proposal is not what is emerging from studying the current site condition.

The physical site analysis (fig 4.5 and 4.6) finds the most appropriate street for pedestrian potential and shows that most students currently use Lunnon Road (dashed line in fig 4.1) as the predominant movement spine between UP main campus and UP residences. Fewer properties are owned by UP in Lunnon Road, which presents an immediate challenge and opportunity: the challenge is to deal with the threshold between a semi-public streetscape and a large state institution while the opportunity presents a possibility for higher variety of land use.

Physical barriers (fig 4.2) include the Gautrain railway on the West, and busy Lynnwood Road on the South. These barriers will limit the growth of the university towards the East.

Main campus has however spilled out accross Lynnwood Road toward the South (called South campus) but this expansion has presented various safety hazards; the busy vehicular Lynnwood Road is to become a BRT (Bus Rapid Transit) route in the near future. In turn, this holds opportunities to connect to the inner city and Menlyn Mall.

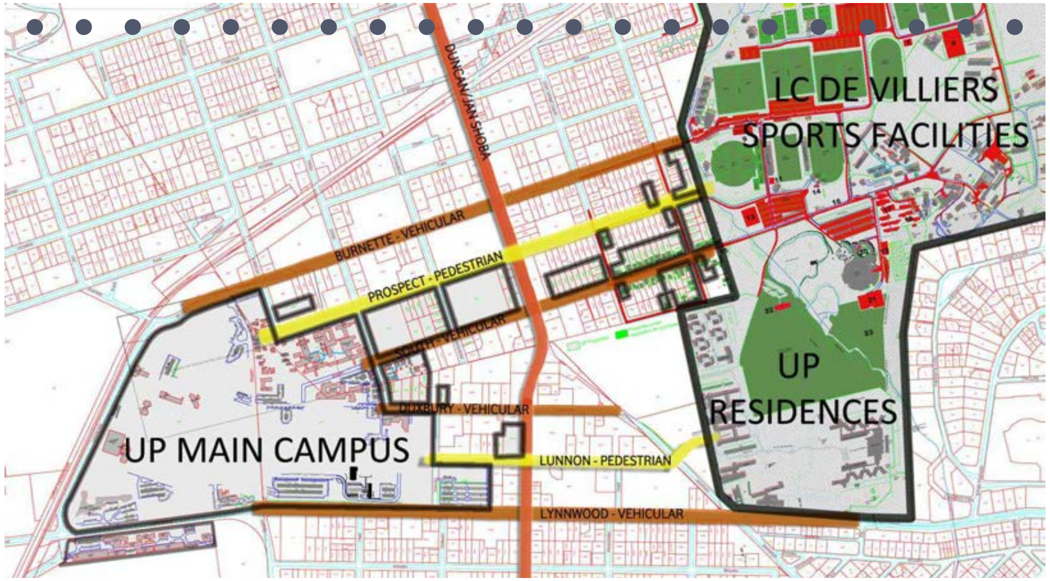

LC DE VILLIERS
SPORTS FACILITIES
UP RESIDENCES
UP MAIN CAMPUS
DUNCAN/JAN SHOBA
BURNETTE - VEHICULAR
PROSPECT - PEDESTRIAN
SOUTH - VEHICULAR
DUXBURY - VEHICULAR
LUNNON - PEDESTRIAN
LYNNWOOD - VEHICULAR

Fig 4.3: Streets connecting UP main campus to LC de Villiers (by author)

In the following pages, data mapping and layering was used to analise the site in more depth. All the images were produced by the author.

The streets that connect UP main campus to LC De Villiers sports facilities are shown in figure 4.3. The main vehicular roads are shown in orange and the most pedestrian-used streets are indicated in yellow. All grey-highlited areas are properties owned by UP. Lunnon Road is already a highly used pedestrian link toward Hillcrest Retail Center and UP men's residences.

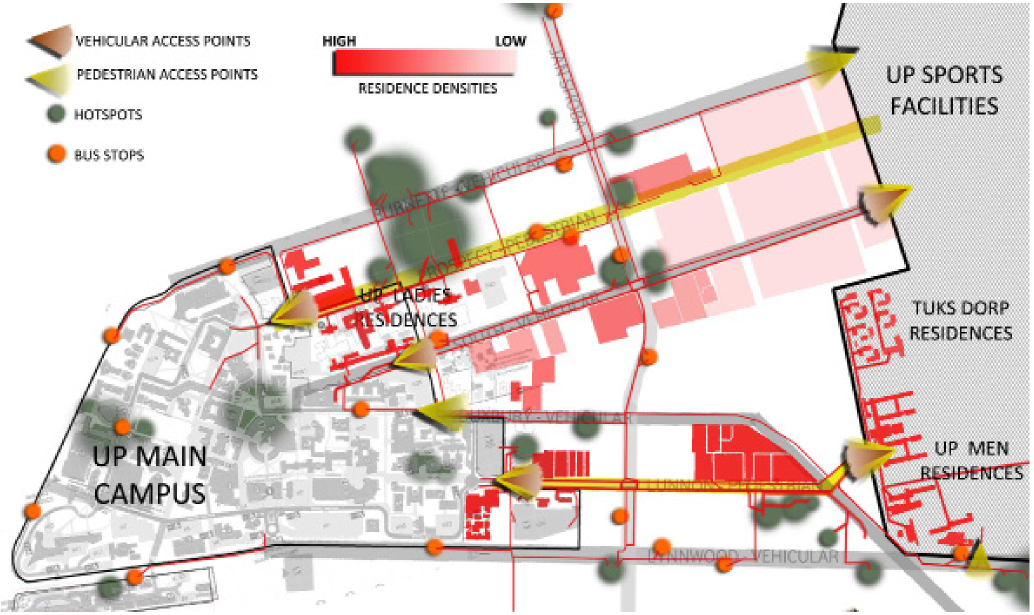

VEHICULAR ACCESS POINTS
PEDESTRIAN ACCESS POINTS
HOTSPOTS
BUS STOPS
HIGH
LOW
RESIDENCE DENSITIES
UP SPORTS FACILITIES
UP LADIES RESIDENCES
TUKS DORP RESIDENCES
UP MEN RESIDENCES
UP MAIN CAMPUS
BURNETTE - VEHICULAR
PROSPECT - PEDESTRIAN
DUXBURY - VEHICULAR
LUNNON - PEDESTRIAN
LYNNWOOD - VEHICULAR

Fig 4.4: Recreational hotspots, access points, density of accomodation and pedestrian routes (by author)

Most high-density residential zones are located along Lunnon Road, as seen in figure 4.4. Hence, more pedestrian movement is found within this street. Cyclists use Lunnon Road as the route to and fro UP main campus, not only because it is the shortest travelling distance, but also because it is the least used by vehicles, and thus relatively safe and quiet.

There are no existing bus stops along Lunnon Road, yet the amount of high density accomodation along Lunnon Road suggest an opportunity for public transit.
There are very few existing hotspots in this study area and since it is already a popular pedestrian route, it presents much opportunity for recreational hotspots.

Five framework principles will be drawn from the analysis.

1. Identify a critical link to serve as a spine between UP main campus and UP residences

2. Green areas to be conserved and rehabilitated to improve biodiversity, micro-climates and create an attractive space for students to linger

3. Provide a choice of route for circulation, according to the user's preference.

4. Design for safer streets.

5. Provide exciting activities and amenities to draw site users, predominantly students.

The aim is to integrate UP main campus to function as a permeable urban fabric within a suburban setting. To do away with privitisation by fences, encouraging social interaction on dedicated public platforms and to return back to the 1930s approach of a penetrable campus. In short, to make UP main campus, function as a part of Hilllcrest, and not to consume sections of Hillcrest to become part of the currently fenced-off island of the university.

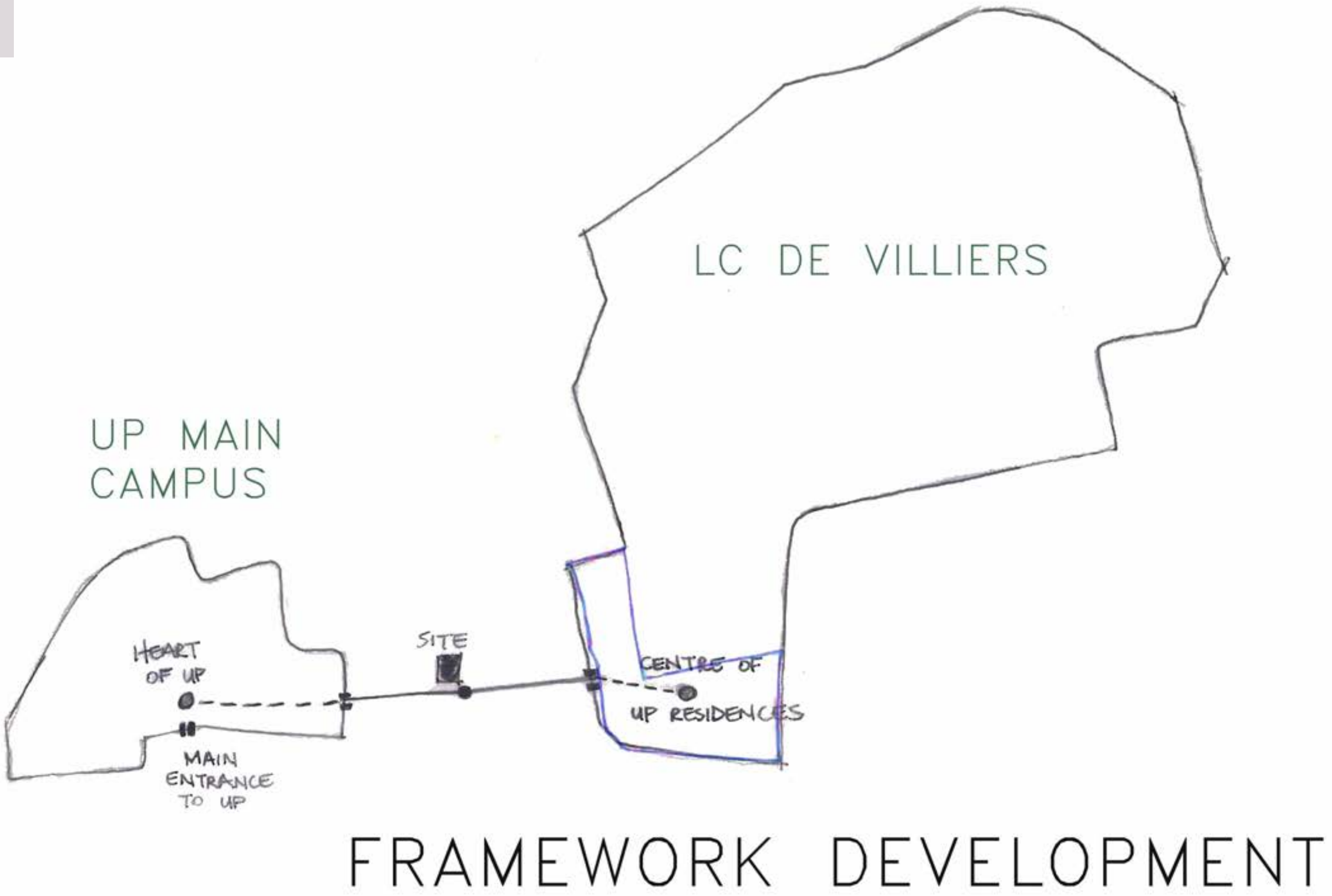


Fig 4.5: Urban framework linking UP main campus to LC De Villiers (by author)

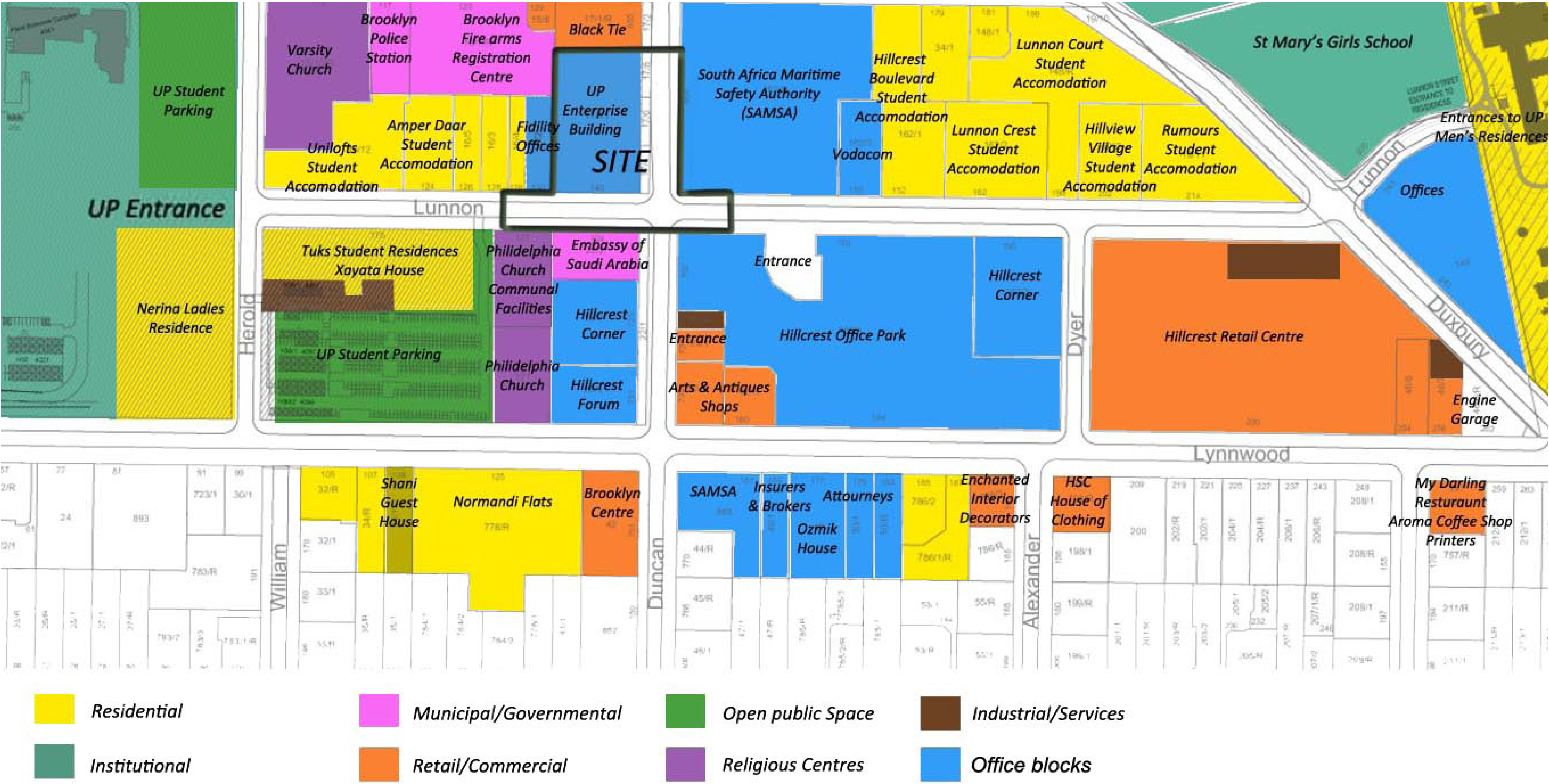

Varsity Church
Brooklyn Police Station
Brooklyn Fire arms Registration Centre
Black Tie
UP Student Parking
Amper Daar Student Accomodation
Unilofts Student Accomodation
Fidility Offices
UP Enterprise Building
SITE
South Africa Maritime Safety Authority (SAMSA)
Hillcrest Boulevard Student Accomodation
Vodacom
Lunnon Court Student Accomodation
Lunnon Crest Student Accomodation
Hillview Village Student Accomodation
Rumours Student Accomodation
St Mary's Girls School
Entrances to UP Men's Residences
Offices
UP Entrance
Lunnon
Nerina Ladies Residence
Tuks Student Residences Xayata House
UP Student Parking
Herold
Philidelphia Church Communal Facilities
Philidelphia Church
Embassy of Saudi Arabia
Hillcrest Corner
Hillcrest Forum
Entrance
Entrance
Arts & Antiques Shops
Hillcrest Office Park
Hillcrest Corner
Dyer
Hillcrest Retail Centre
Duxbury
Engine Garage
Lynnwood
Shani Guest House
Normandi Flats
Brooklyn Centre
William
Duncan
SAMSA
Insurers & Brokers
Attourneys
Ozmik House
Enchanted Interior Decorators
Alexander
HSC House of Clothing
My Darling Resturaunt
Aroma Coffee Shop
Printers
Residential
Municipal/Governmental
Open public Space
Industrial/Services
Institutional
Retail/Commercial
Religious Centres
Office blocks

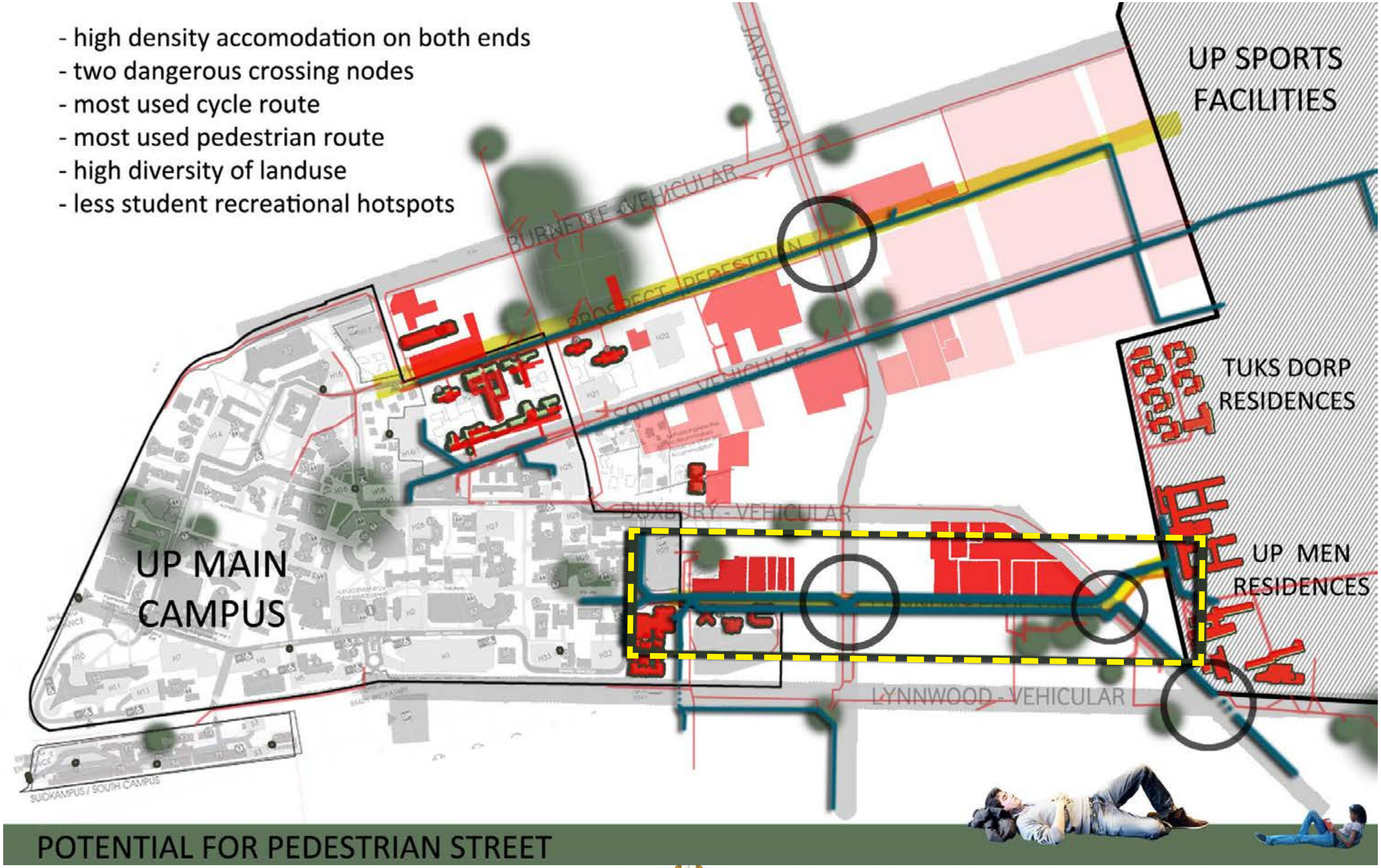
Figure 4.6: Mixed land use on Lunnon Road (by author)

Archimore (1993:34) argues that when place of residence is juxtaposed with places to work, shop or recreate, social integration of different incomes, races or ages is encouraged, since people will tend to walk more and drive less. It creates a multi–purpose space in which lingering is encouraged, allowing a setting for ”repetitive chance encounters” (Talen 1999:159). In this way the socio–political reality can become a matter that new developments in the urban landscape can address and amend (Archimore, 1993).

From the analysis:

The study of land–use identified many high–density student accommodation along Lunnon Lane (yellow areas on figure 4.6) and various office blocks in close proximitry. The brown and bright green highlited areas indicate vast existing parking areas all within a ten minute walking radius of the site, connecting the site to other pedestrian spaces. The orange highlited areas indicate retail centres and serve as existing magnets for visitor attraction.

From the data layering, Lunnon Road was chosen as the area of focus on basis of the following opportunities and challenges it presents:



- high density accomodation on both ends
- two dangerous crossing nodes
- most used cycle route
- most used pedestrian route
- high diversity of landuse
- less student recreational hotspots

POTENTIAL FOR PEDESTRIAN STREET

JAN SHOBA
BURNETT - VEHICULAR
PROSPECT - PEDESTRIAN
SOUTH - VEHICULAR
DUXBURY - VEHICULAR
LYNNWOOD - VEHICULAR
UP SPORTS FACILITIES
TUKS DORP RESIDENCES
UP MEN RESIDENCES
UP MAIN CAMPUS
SUIDKAMPUS / SOUTH CAMPUS

Figure 4.7: Area of focus within research framework (by author)

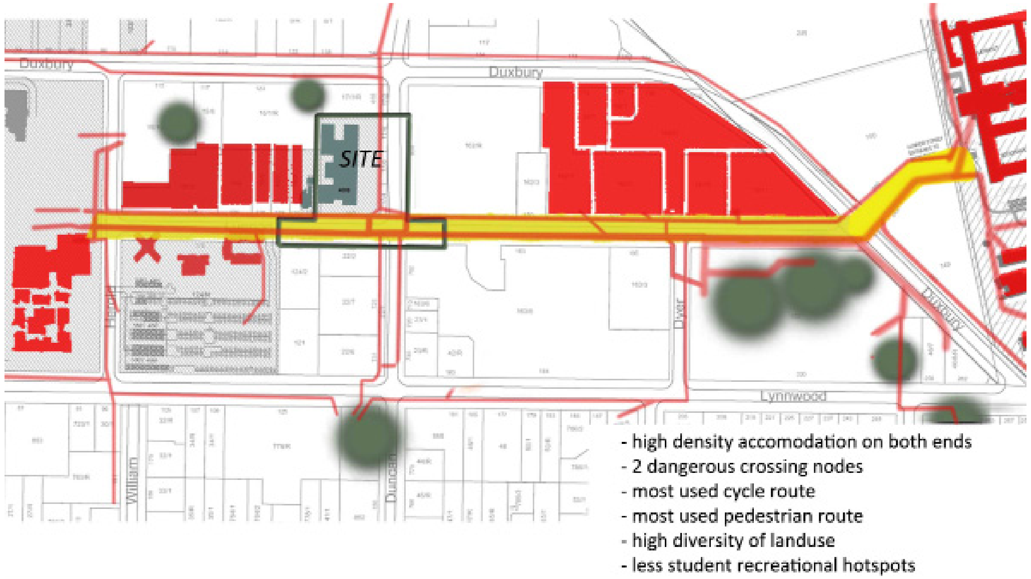

Duxbury
Duxbury
SITE
Duxbury
Lynnwood
William
Duncan
Dyer
- high density accomodation on both ends
- 2 dangerous crossing nodes
- most used cycle route
- most used pedestrian route
- high diversity of landuse
- less student recreational hotspots

Figure 4.8: Current circulation patterns and destinations (by author)

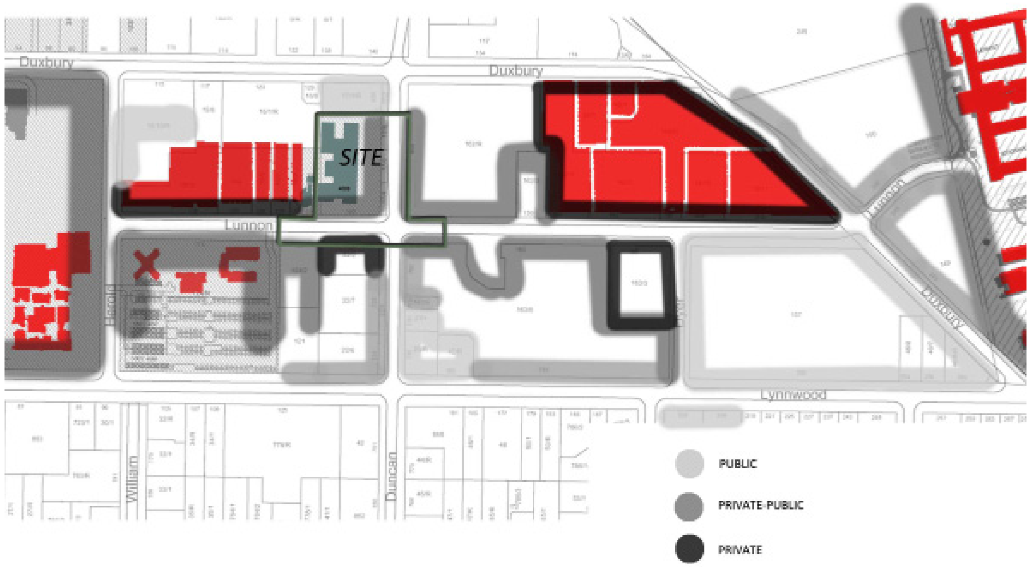

Duxbury
Duxbury
SITE
Lunnon
Lunnon
Duxbury
Herold
Lynnwood
William
Duncan
PUBLIC
PRIVATE-PUBLIC
PRIVATE

Figure 4.10: Existing thresholds identified on Lunnon Road (by author)

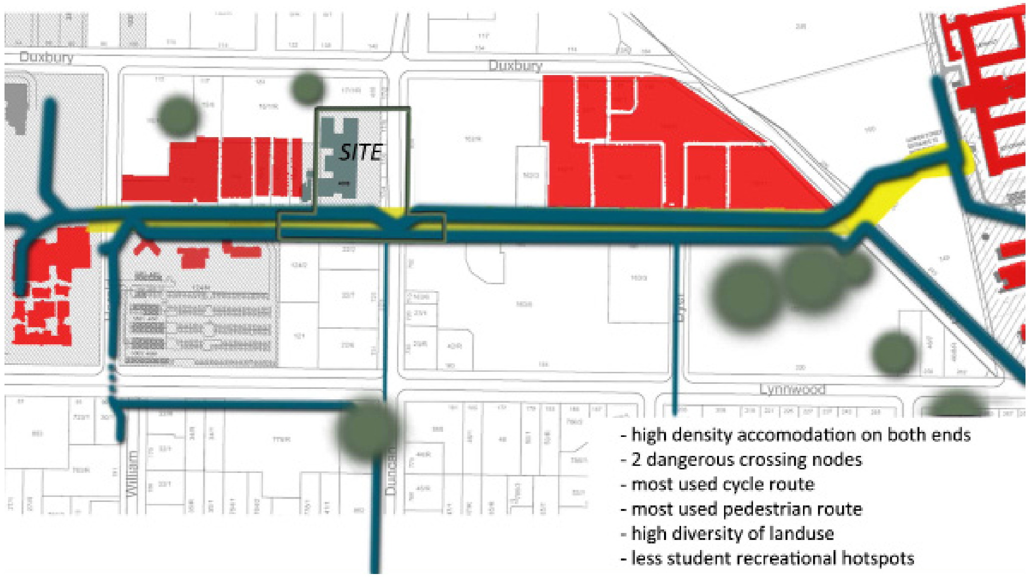

Duxbury
Duxbury
SITE
Lynnwood
William
Duncan
Dyer
- high density accomodation on both ends
- 2 dangerous crossing nodes
- most used cycle route
- most used pedestrian route
- high diversity of landuse
- less student recreational hotspots

Figure 4.9: Current high density student accommodation and cycling routes (by author)

Lunnon Road was chosen as the area of focus for the masterplan (see yellow dashed block in fig 4.7) and thus forms the basis for further design development (figure 4.8 onward).

Daily circulation patterns were observed (fig 4.8), the permanancy of barriers and feeds determined the different thresholds on the street (fig 4.10) and the high density student accommodation automatically presents many cycling routes, as documented in figure 4.9.

Conserve and revive green spaces

Most of the green areas, as seen in figure 4.11, are located along the borders of the road or behind fences in private properties (fig 4.12).

The study will explore the possibility of manipulating fences, expanding the width of road reserves and making the street narrower, to put emphasis on pedestrian priority over this street.

The street is currently aligned with a boulevard of beautiful *Celtis africana* trees which should be preserved and celebrated. Areas for pause–nodes which link to activities and amenities will be introduced at intervals along the street. The aim is to solve the issue of the dividing edge between public and private interface.

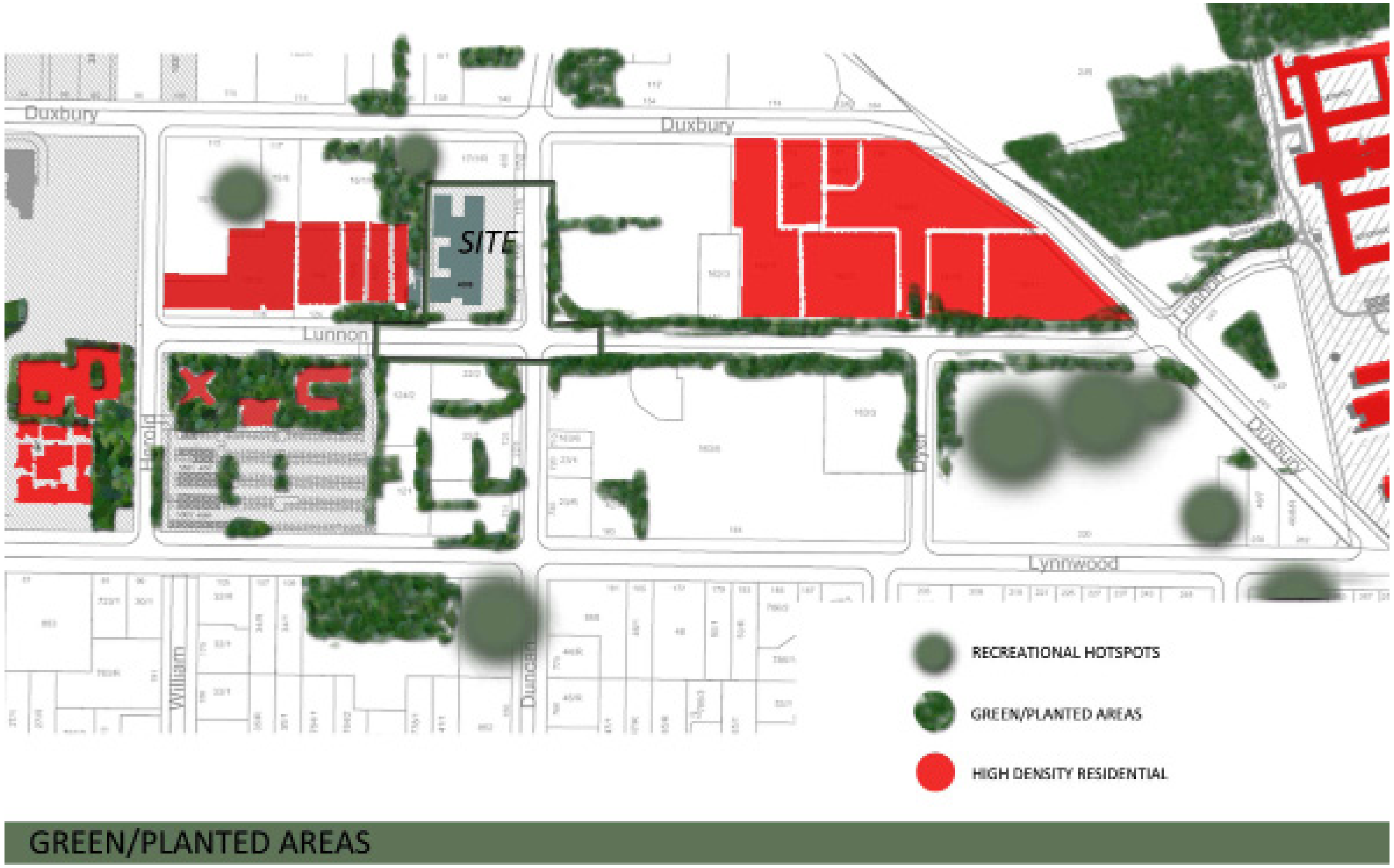

Duxbury
Duxbury
SITE
Lunnon
Lynnwood
Duxbury
William
Duncan
RECREATIONAL HOTSPOTS
GREEN/PLANTED AREAS
HIGH DENSITY RESIDENTIAL
GREEN/PLANTED AREAS

Figure 4.11: Existing green spaces in Lunnon Road to be conserved (by author)

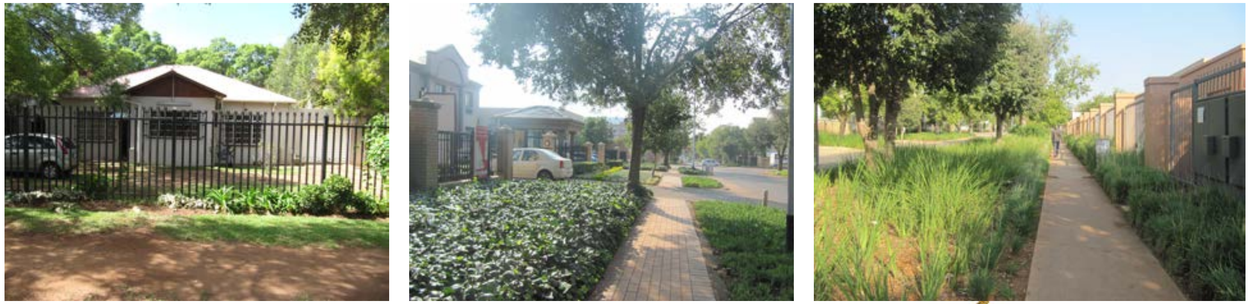


Figure 4.12: Existing green areas along fences in Lunnon Road (photos by author)

Framework Principle 2

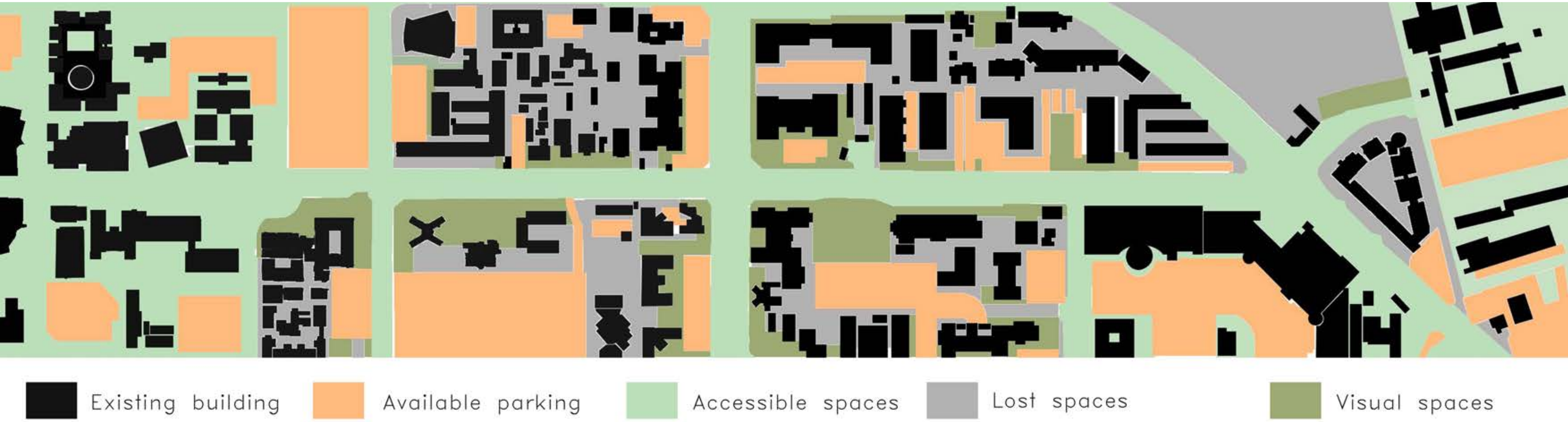

Existing building
Available parking
Accessible spaces
Lost spaces
Visual spaces

Figure 4.13: Existing open spaces were identified with the aim to preserve them as framework principle 1 stated (by author)

Lost spaces refer to spaces behind solid boundaries, while visual spaces can be viewed from Lunnan Road with restricted access.

Framework Principle 3

Provide a choice of circulation and pathways

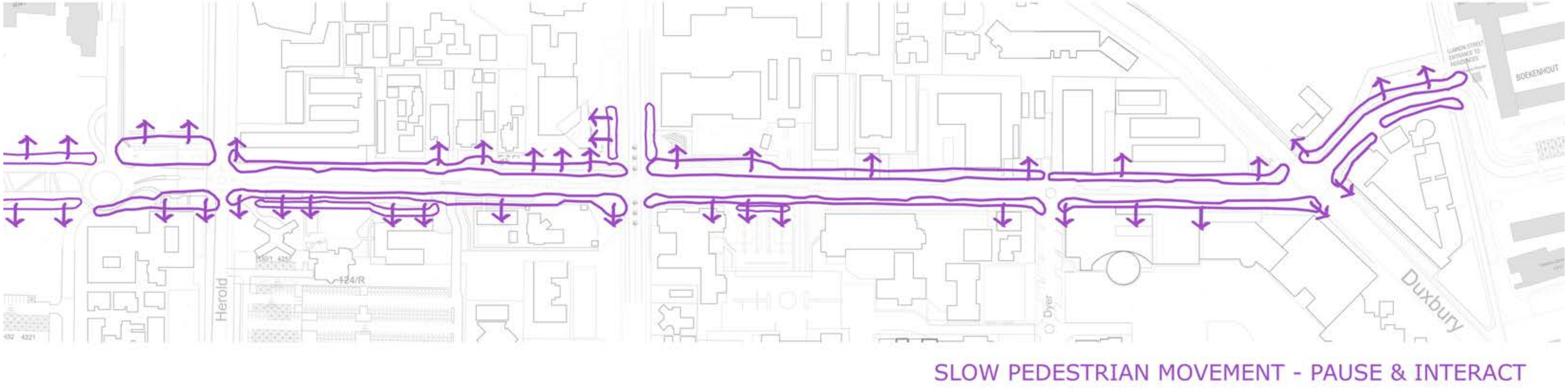

Herold
124/R
Dyer
Duxbury
BOEKENHOUT
SLOW PEDESTRIAN MOVEMENT - PAUSE & INTERACT

Figure 4.14: Proposed slow and interactive movement of pedestrians on either sides of the street (by author)

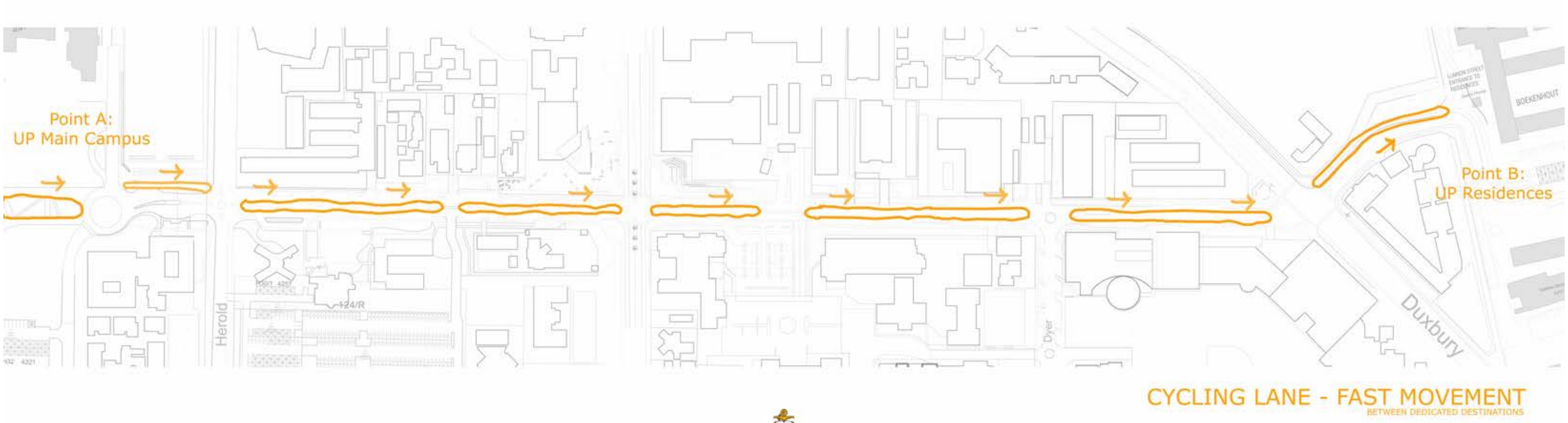

Point A:
UP Main Campus
Point B:
UP Residences
Herold
124/R
Dyer
Duxbury
BOEKENHOUT
CYCLING LANE - FAST MOVEMENT
BETWEEN DEDICATED DESTINATIONS

Figure 4.15: Proposed fast and rapid movement b ists in the centre of the road on an island (by author)

Framework Principle 3

Expansion of public accessible green spaces

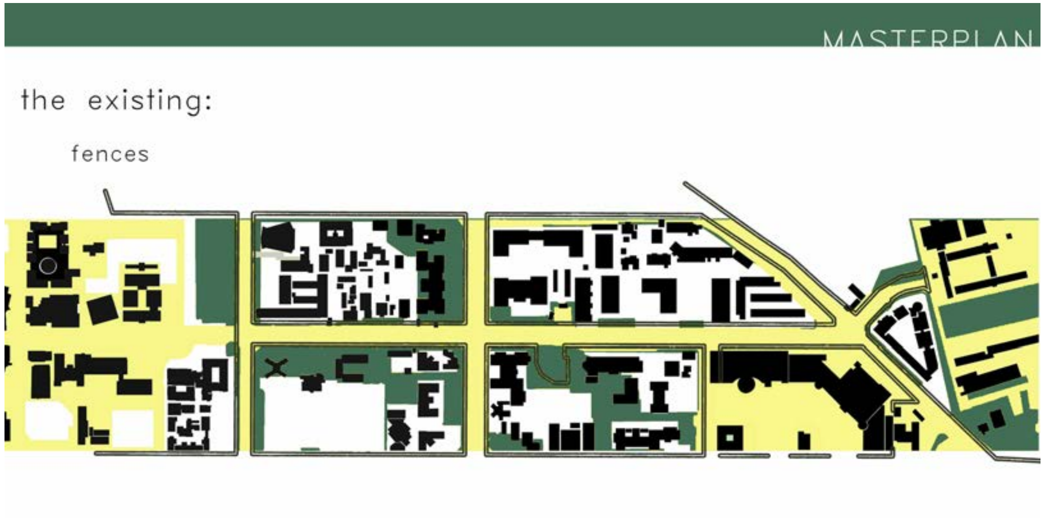

MASTERPLAN
the existing:
fences

Figure 4.16: Existing fences and visual open space (by author)

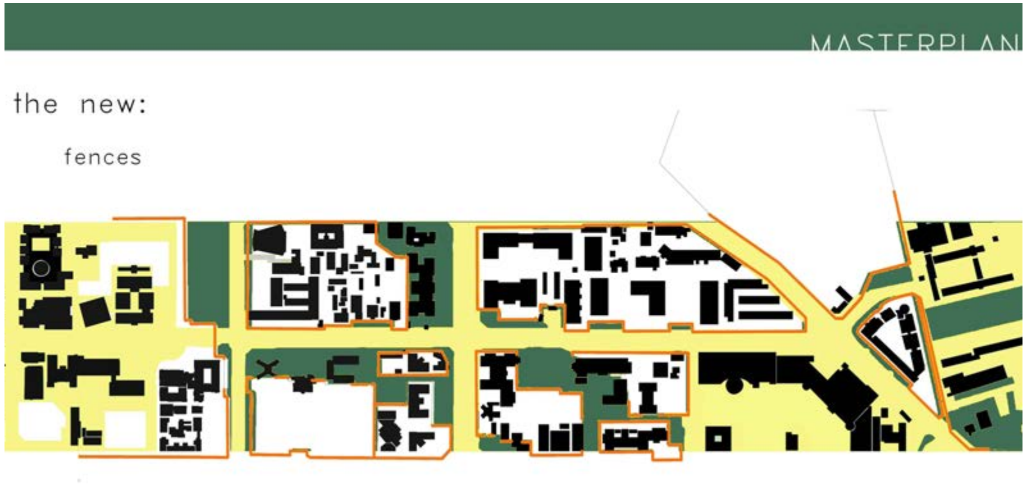

MASTERPLAN
the new:
fences

Figure 4.18: New fences and accessible spaces (by author)

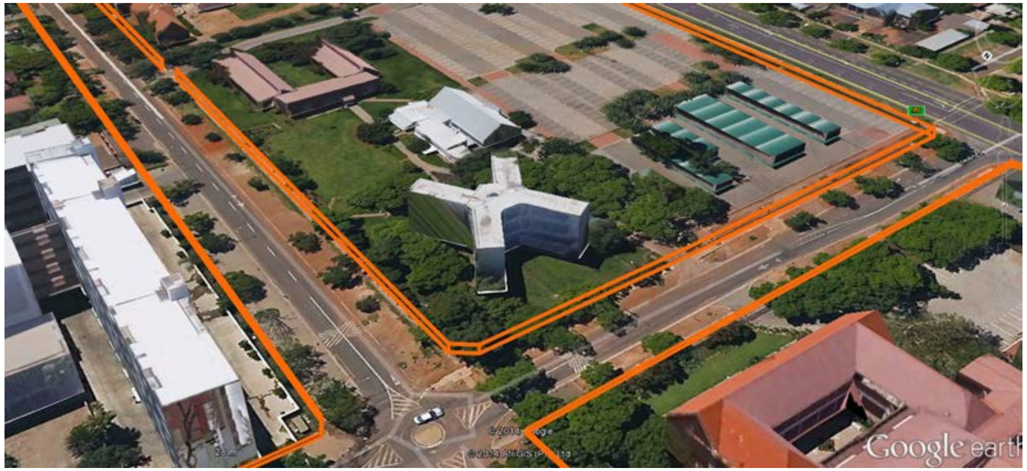

Google earth

Figure 4.17: Existing fences (by author)

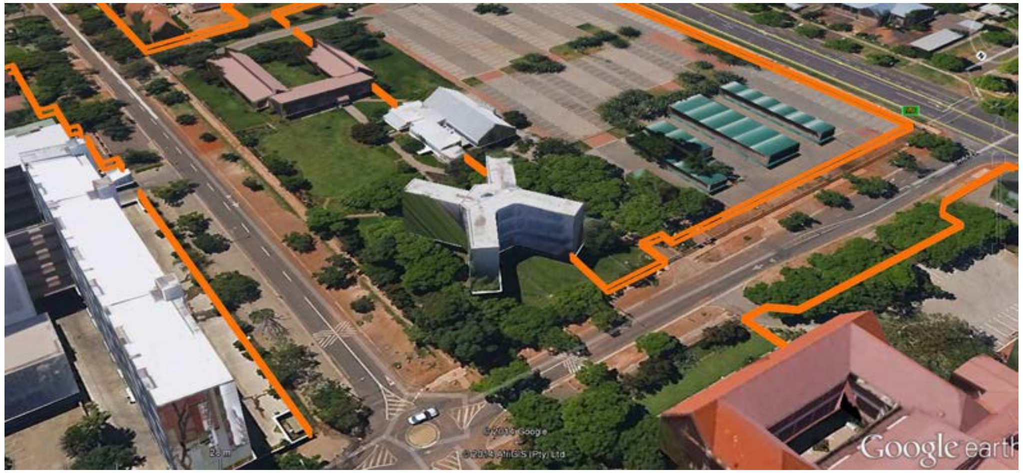

Google earth

Figure 4.19: New fences (by author)

Framework Principle 4

Design for safer streets

According to the report on *Making Safer Streets* (Sadik-Kahn, 2013), the following criteria has to be considered:

1. Design for safety

- Prioritise safety for all street users, particularly more vulnerable groups (children, the elderly, those with disabilities) and more vulnerable modes (walking, cycling).
- Design local streets for slower speeds to reduce crashes and to discourage cut through traffic.
- Test and evaluate innovative treatments, especially those successfully adopted in other cities.

2. Design to balance access and mobility

-Provide routes to move people and goods while improving the economy of the city, however not at the expense of safety and community needs. Thus: balance access within neighbourhoods with mobility through them.

- Accommodate access to emergency-vehicles, trucks and buses.
- Provide designated routes which are safe, accessible, convenient, and comfortable. Facilities for walking, bicycling and transit, especially at critical network nodes.

3. Design for context

Streets help define the character of neighborhoods (Sadik-Kahn, 2013). A street's design should interact with the surrounding context, including its history, land uses, and nearby landmarks. Street furniture, materials, and lighting helps to:

- Preserve the unique character of neighbourhoods.
- Support links to adjacent land uses by providing pedestrian access to and from major destinations and gathering spaces.
- Maintain a prevalent aesthetic within neighbourhoods and corridors.

4. Design streets as public spaces

Beyond their use for transporting people and goods, streets involve an elaborate network of public open spaces that can facilitate social, civic, and economic interactions.

- Expand usable public open space by reallocating underutilised roadway space for pedestrian plazas, expanded sidewalks, corner and mid-block kerb extensions, and opportunities for green planted areas.
- Design streets to be traffic-calming environments that encourage physical activity like walking, bicycling, and recreational activities.
- Provide sufficient public seating and bicycle racks.

5. Design for sustainability

Streets present opportunities to improve the overall environmental health of a city (Sadik-Kahn, 2013).

- Minimise impermeable surfaces.
- Maximise vegetation along streets.
- Use stormwater as irrigation sources.
- Maximise tree canopy cover to reduce road heat absorption.
- Maximise materials' life-spans, lower energy use and pollution associated with projects (to extract, transport, construct and maintain).

6. Cost-effective designs

Development of city streets requires large initial capitals. A list of commendable projects continually compete for a limited pool of funding (Sadik-Kahn, 2013). By having a cost-effective solution for a street design project, unforseen additions, changes and regular maintenance are affordable, should it be necessary after implementation.

- Compare initial capital costs to long-term lifecycle costs and benefits.
- Design streets to meet the city's future needs.
- Maintain a consistent design-review process to streamline project review.
- Establish clearly defined goals early in project development and focus on meeting those goals throughout planning and design.

Framework Principle 4

Design for safer streets

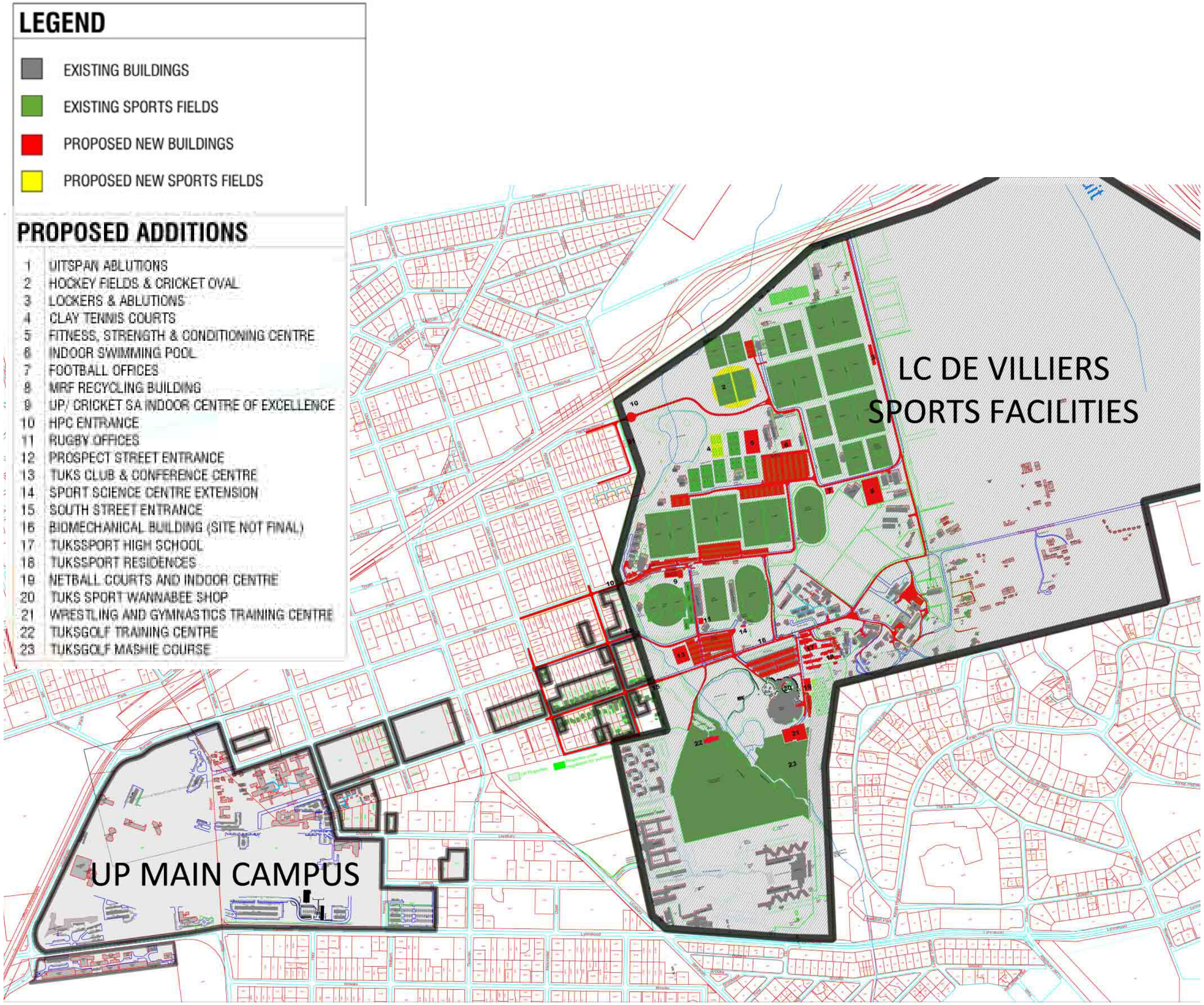

LEGEND
EXISTING BUILDINGS
EXISTING SPORTS FIELDS
PROPOSED NEW BUILDINGS
PROPOSED NEW SPORTS FIELDS
PROPOSED ADDITIONS
1 UITSPAN ABLUTIONS
2 HOCKEY FIELDS & CRICKET OVAL
3 LOCKERS & ABLUTIONS
4 CLAY TENNIS COURTS
5 FITNESS, STRENGTH & CONDITIONING CENTRE
6 INDOOR SWIMMING POOL
7 FOOTBALL OFFICES
8 MRF RECYCLING BUILDING
9 UP/ CRICKET SA INDOOR CENTRE OF EXCELLENCE
10 HPC ENTRANCE
11 RUGBY OFFICES
12 PROSPECT STREET ENTRANCE
13 TUKS CLUB & CONFERENCE CENTRE
14 SPORT SCIENCE CENTRE EXTENSION
15 SOUTH STREET ENTRANCE
16 BIOMECHANICAL BUILDING (SITE NOT FINAL)
17 TUKSSPORT HIGH SCHOOL
18 TUKSSPORT RESIDENCES
19 NETBALL COURTS AND INDOOR CENTRE
20 TUKS SPORT WANNABEE SHOP
21 WRESTLING AND GYMNASTICS TRAINING CENTRE
22 TUKSGOLF TRAINING CENTRE
23 TUKSGOLF MASHIE COURSE
LC DE VILLIERS SPORTS FACILITIES
UP MAIN CAMPUS

Figure 4.20: UP owned properties (by author)

In Lunnon Lane, a pedestrian-dominated street will be most effective to:

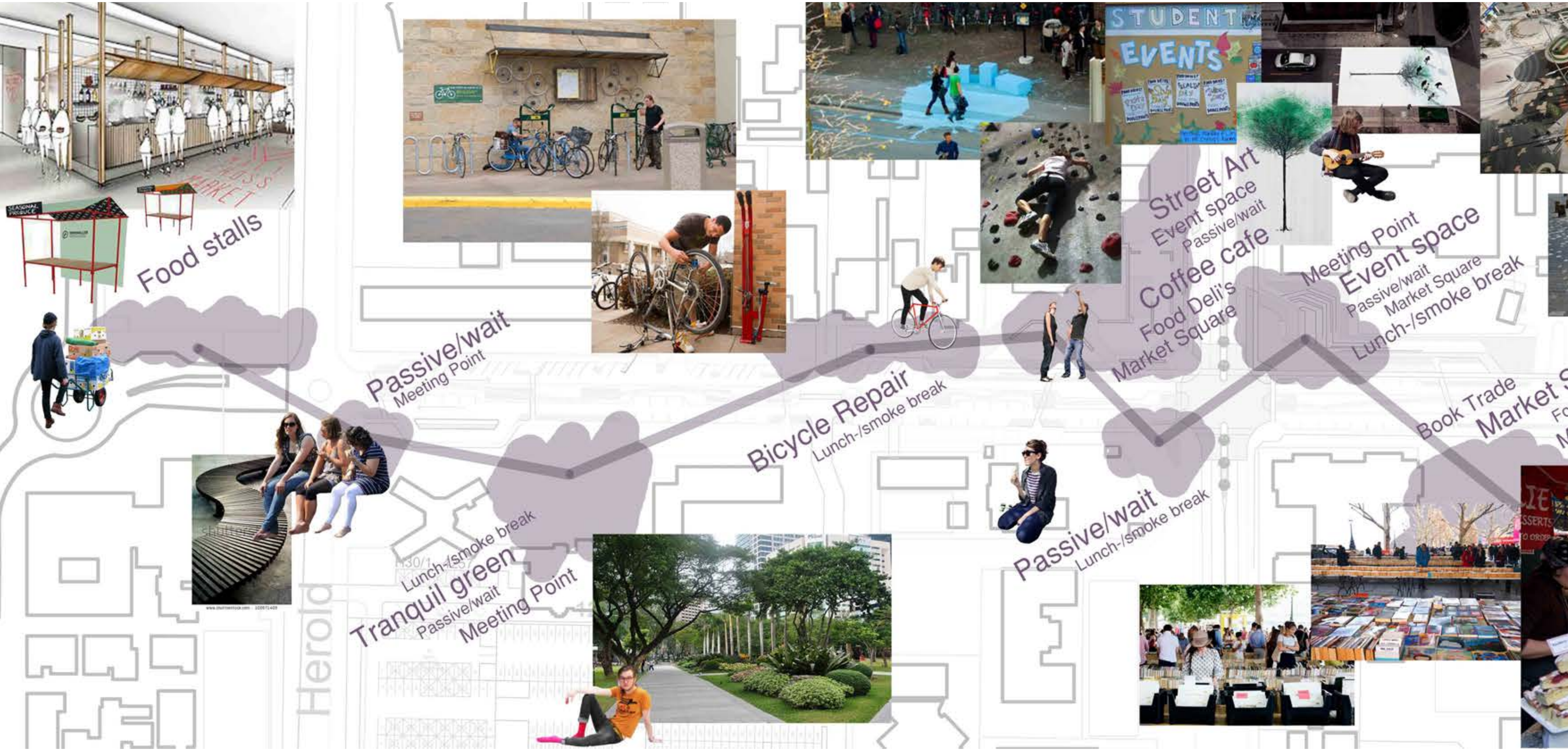
1. Prevent UP main campus from forming an even bigger impenetrable island in Hatfield.

2. Allow for passive surveylance on and around the site, to create a sense of safety by constant pedestrian presence and visibility.

3. Avoid vehicular congestion by designing traffic circulation patterns and options.

4. Provide access to all existing high-density student accommodation by allowing calm and limited vehicular movement.

5. Tend to the safety precautions of the *'Making Safer Streets'* report (Sadik-Kahn, 2013).


Food stalls
SEASONAL PRODUCE
Passive/wait
Meeting Point
Lunch-/smoke break
Tranquil green
Passive/wait
Meeting Point
Herold
Bicycle Repair
Lunch-/smoke break
STUDENT EVENTS
Street Art
Event space
Passive/wait
Coffee cafe
Food Deli's
Market Square
Passive/wait
Lunch-/smoke break
Meeting Point
Event space
Passive/wait
Market Square
Lunch-/smoke break
Book Trade
Market

Framework Principle 5

Provide exciting activities and amenities to draw site users, predominantly students.

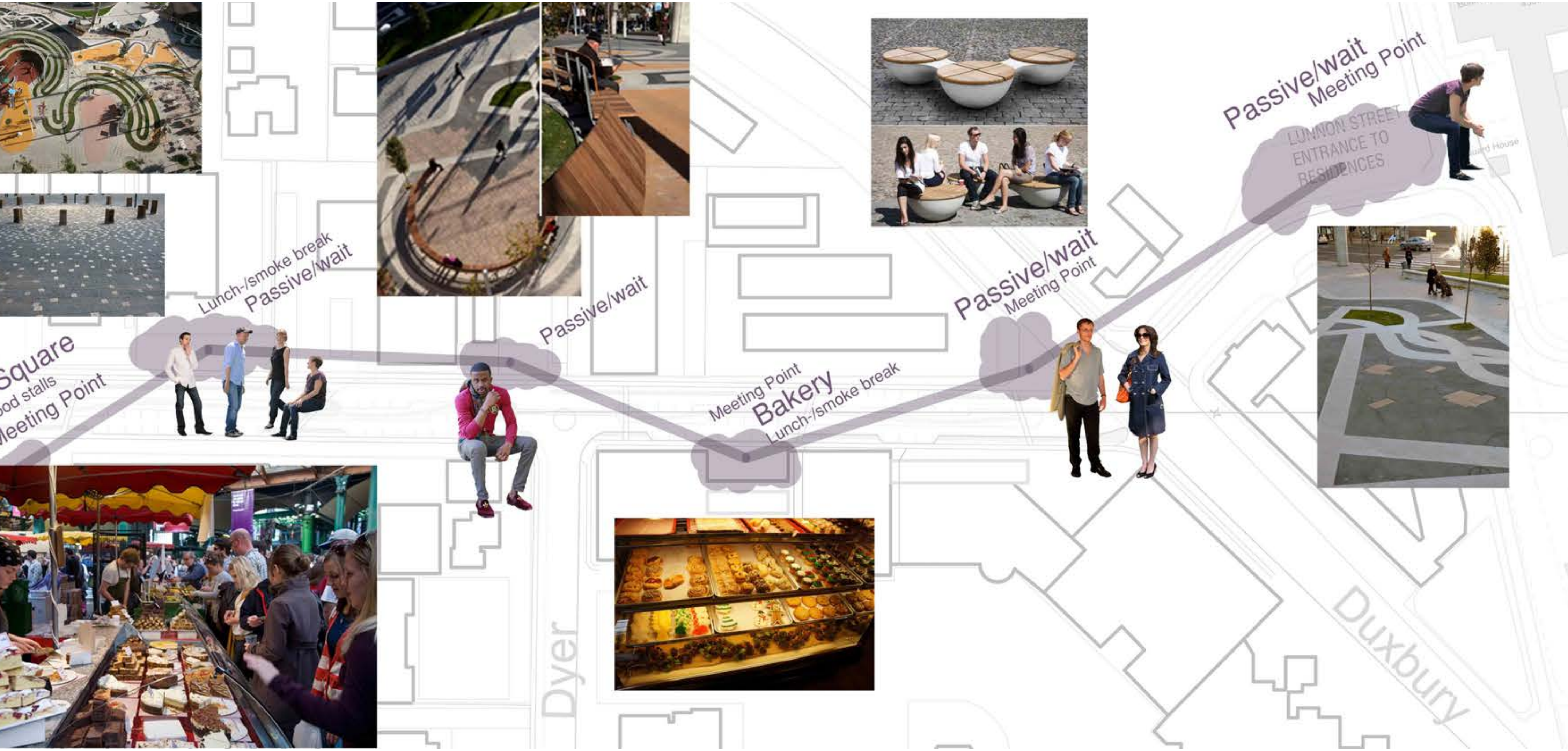
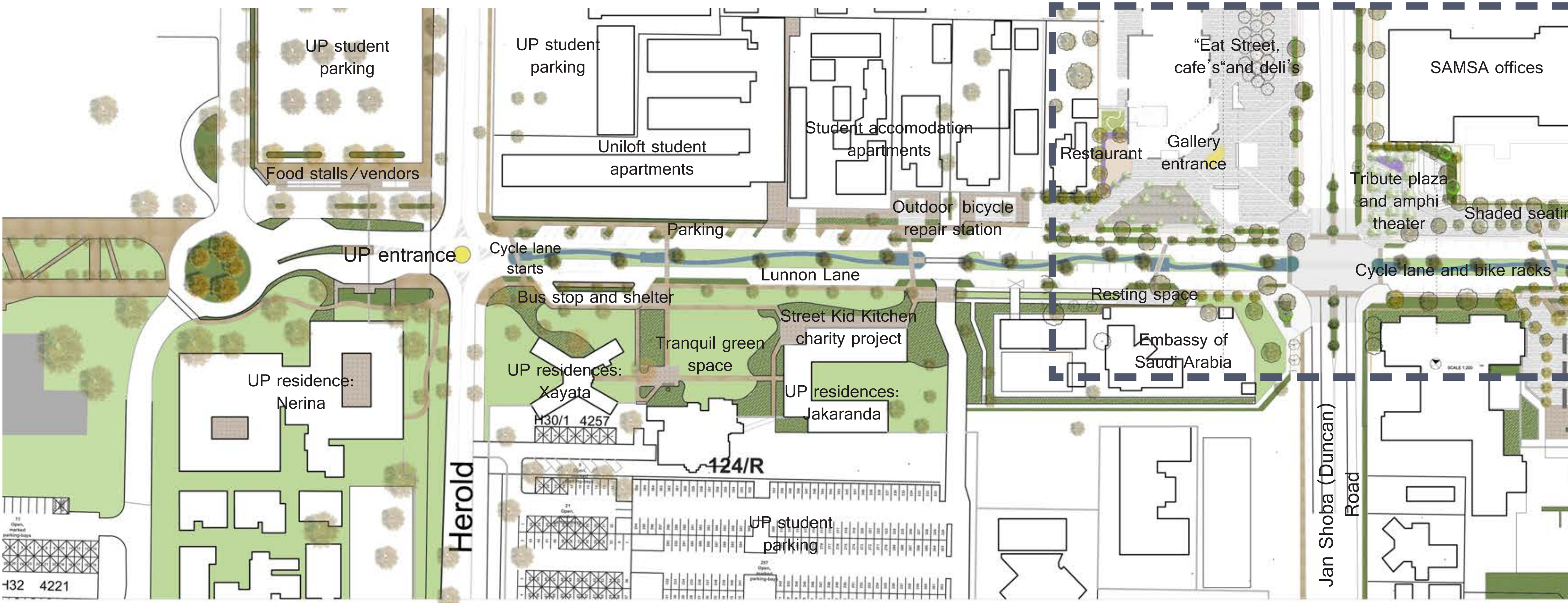

Square
od stalls
eeting Point
Lunch-/smoke break
Passive/wait
Passive/wait
Meeting Point
Bakery
Lunch-/smoke break
Passive/wait
Meeting Point
Passive/wait
Meeting Point
LUNNON STREET
ENTRANCE TO
RESIDENCES
Dyer
Duxbury

Figure 4.21: Magnets comprising of activities and amenities draw students to spatial nodes that link throughout the street (by author)


UP student parking
UP student parking
“Eat Street, cafe´s“and deli´s
SAMSA offices
Uniloft student apartments
Student accomodation apartments
Restaurant
Gallery entrance
Food stalls/vendors
Tribute plaza and amphi theater
Shaded seatin
Outdoor bicycle repair station
Parking
UP entrance
Cycle lane starts
Lunnon Lane
Cycle lane and bike racks
Resting space
Bus stop and shelter
Street Kid Kitchen charity project
Embassy of Saudi Arabia
Tranquil green space
UP residences: Xayata
UP residence: Nerina
UP residences: Jakaranda
H30/1 4257
124/R
Herold
UP student parking
Jan Shoba (Duncan) Road
4221
SCALE 1:200

Final Framework Proposal

The five framework principles informed the development of the final framework below.

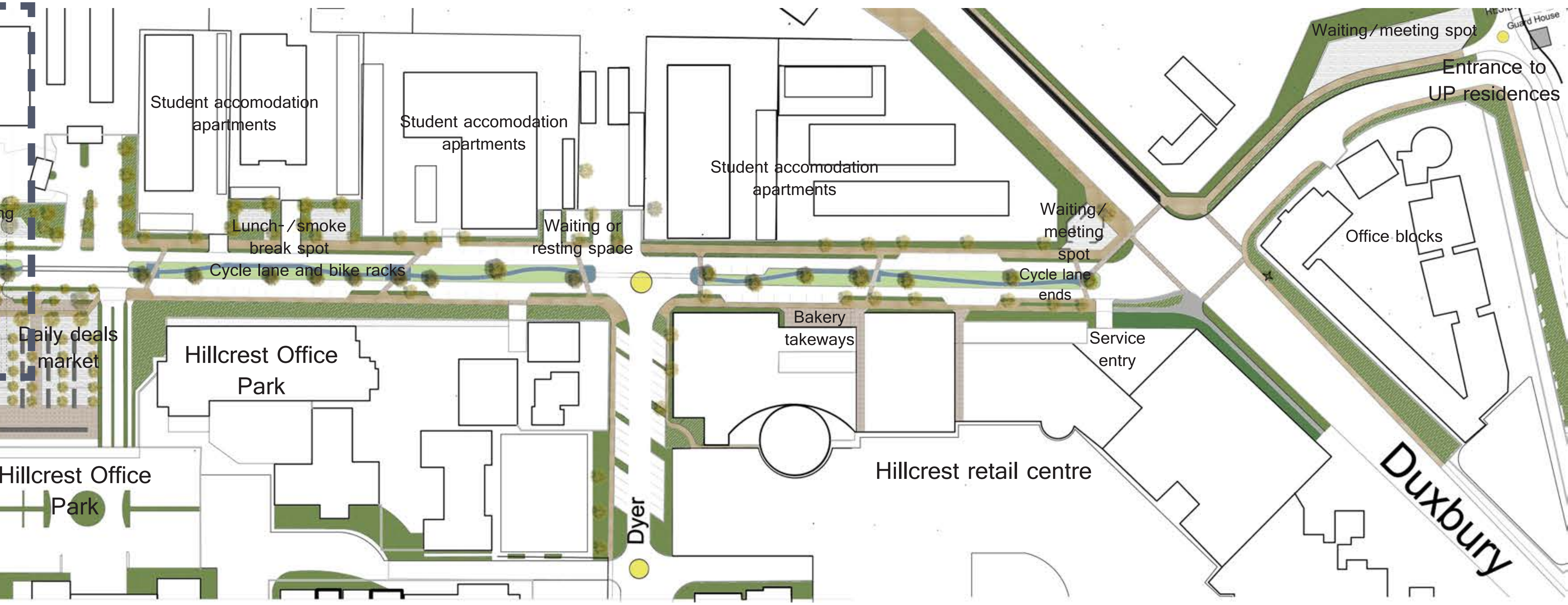

Student accomodation apartments
Student accomodation apartments
Student accomodation apartments
Waiting/meeting spot
Guard House
Entrance to UP residences
Office blocks
Waiting/meeting spot
Cycle lane ends
Lunch-/smoke break spot
Waiting or resting space
Cycle lane and bike racks
Daily deals market
Hillcrest Office Park
Bakery takeways
Service entry
Hillcrest Office Park
Hillcrest retail centre
Dyer
Duxbury

Figure 4.22: Proposed landscape Masterplan of Lunnon Lane (by author)

Based on the theoretical framework and site analysis, the following challenges and opportunities were identified for the framework area

Challenges:

- Lack of identity
- Unsafe pedestrian crossing
- Structures: open space is bleeding out towards Jan Shoba (Duncan) Road.
- Local crime
- Overwhelming sense of enclosure: fences
- Large areas of inaccessible and lost space
- Noise of busy Jan Shobe (Duncan) Road.
- Paths: there is no freedom of travel route choices.
- Hierarchy: no arranged variety of sizes of spaces to delineate the importance of landscape 'rooms'.
- Nodes: there are no existing places with prominent recognition of useable thresholds.
- Dominant feature or landmarks: there is no existing reason for visiting the site.

Opportunities

- Identity: current users, culture and historical significance.
- Passive surveillance: High density residences and student movement.
- Recreation: student activities, annual events and rituals.
- Circulation: Lunnon Lane is the most used cycling route to UP.
- Increase diversity of land use.
- Connectivity: Connect two big attractions: UP main campus and LC De Villiers. Also connecting to Hillcrest Retail Centre.
- Safety: visibility and pedestrian priority in shared streets.

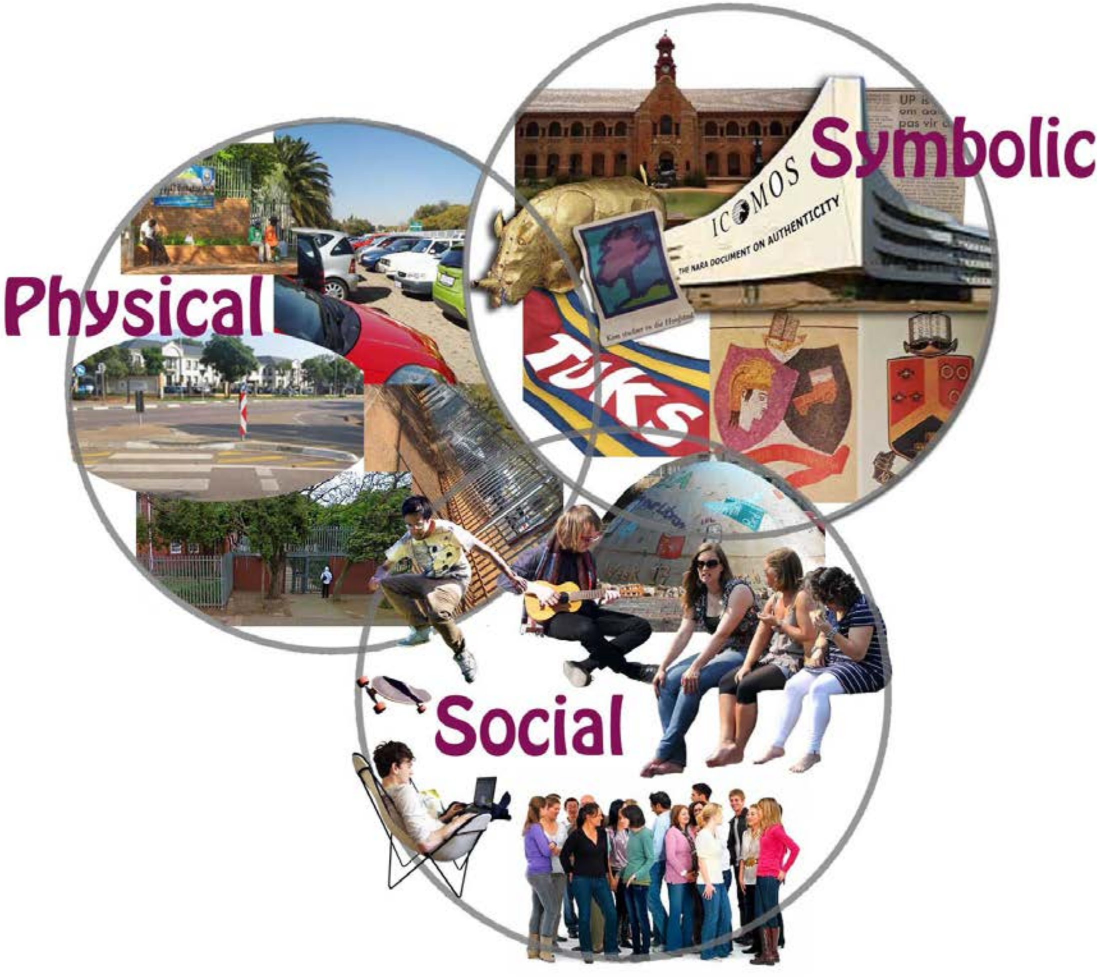


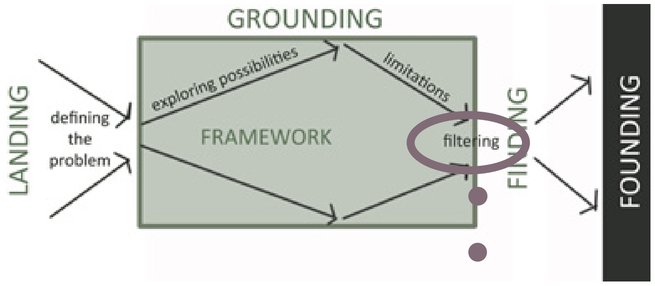
Figure 4.23: Elements of public space after Le Febvre (1991) by author

5

PRECEDENT STUDIES

Revive lost space
Public activation
Street art
Innovative street language
Awareness and interest
Making safer streets
Pedestrian-dominated streets

FILTERING


GROUNDING
LANDING
defining the problem
exploring possibilities
limitations
FRAMEWORK
filtering
FINDING
FOUNDING

This chapter takes a look at various successful and innovative precedents to determine appropriate design principles which will guide the design of the site in Lunnon Lane. These principles are in line with the theoretical research in chapter 2. It deals with the question: "How?"

Piccadilly Circus

This space is not lost

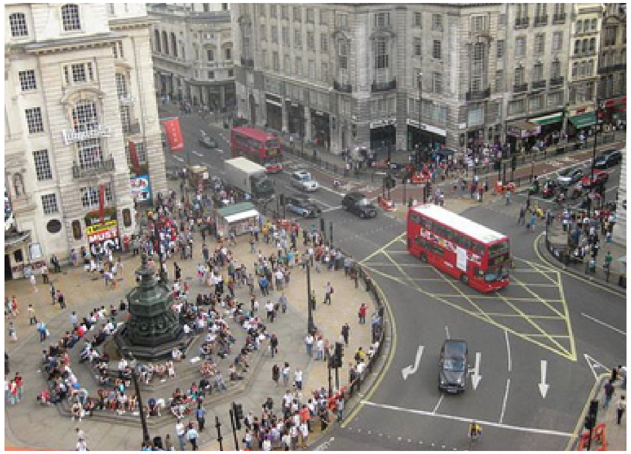


Figure 5.1: Piccadilly Circus during daytime (Sheppard, 2012)

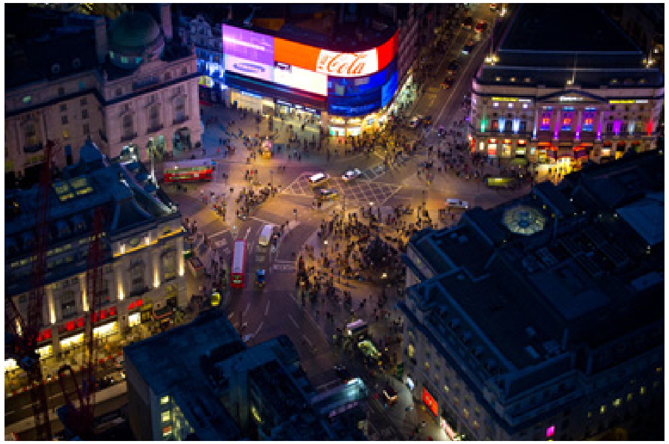


Figure 5.2: Piccadilly Circus at night (Sheppard, 2012)

Piccadilly Circus was established during 1819 at the intersection of Piccadilly and Nash's New Street. Being one of the two links that joined together the three sections of Regent Street, Piccadilly Circus has ultimately ceased to be a circus as such, however it has become the most famous place in the entire London (Sheppard, 2012).

What has made this space so successful and popular?

The idea of accommodating half-a-dozen shops and an arcade, was taken up in 1886 by the loquacious correspondent of The Builder (Robbins, 2004). He suggested that the centre of the new Circus should be used for public lavatories and a bus station surmounted by stalls for flower sellers (Sheppard, 2012). With greater wisdom Leonard Stokes, in a letter to the same paper, commented that most citizens have looked with wonder at the Piccadilly avenue. He proposed the erection of a fountain or statue in the centre of the Circus (Sheppard, 2012).

This is a remarkable example of how, what seemed to be a lost space, has turned into a popular landmark, an activity and event space, and even a global tourist destination.

Principles:

- Identify spaces which seem lost and use innovative design solutions to revive nodes where existing popular routes meet.

- Accommodate appropriate shops, stalls and other amenities along the periphery of useable open space.

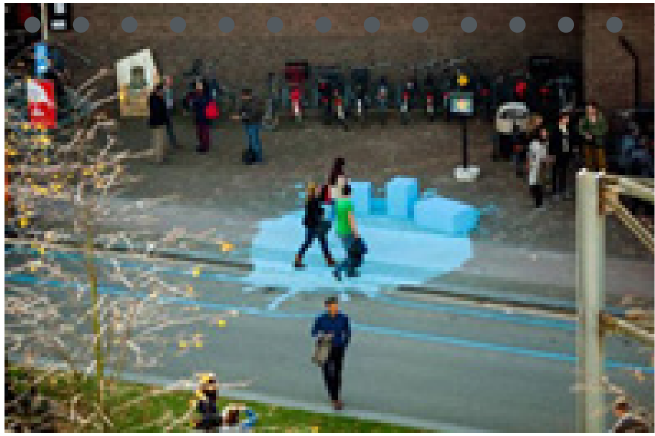
- A central statue or fountain allows for a specific meeting point within the landmark and attributes to the purpose of a space to exist.

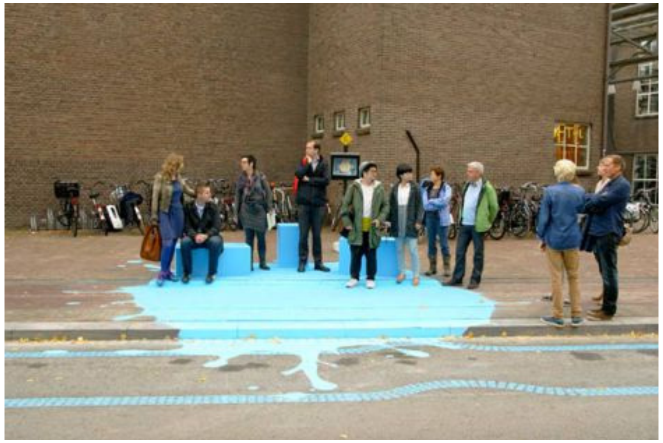
- Ensure that the space is well lit at night to provide optimal usage and safety of the site.

PUBLIC ACTIVATION

Dutch Design Week 2012

This street is active





One of the goals during the Dutch Design Week was to challenge the way the public interprets a resting space (Ellen 2012). This resting space interacts with a busy street sets up a notable area to wait for transportation. Izabela Boloz Studio in collaboration with Kasia Zareba created the installation called "Waiting Spot". The project was intended to mark the waiting area for the Mini Design Rides (a free taxi service that provides transportation during the Dutch Design Week).

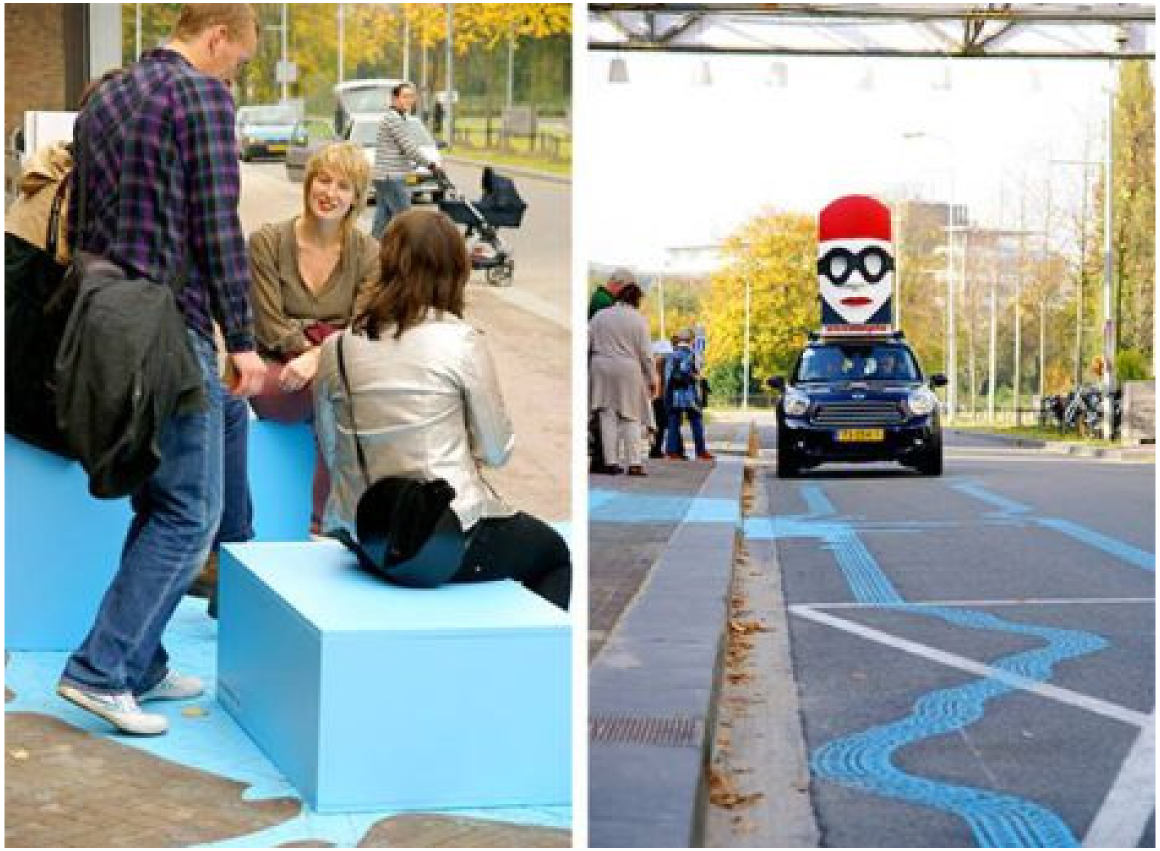


Figure 5.3: Bus stop "Waiting spot" in Eindhoven, Holland (Studio Izabela Boloz)

PRINCIPLE:
In this project we see the simple use of colour as a way to rethink the landscape. Blue tyre tracks emerge from the splat and mark the waiting area. This intervention on the sidewalk is visible from a distance and creates a fun, unique waiting environment than what people are used to.

Within the daily routine, the question becomes how much or little can we design to allow other to reinterpret public space. As seen in the above projects, small changes can make a huge impact on our communities and our ways of thinking. The architecture of our routine is malleable and has the opportunity to be challenged.

PUBLIC ACTIVATION

PEDESTRIAN CROSSINGS AND PARKING

This street is interactive

A major component of our day is spent interacting with public spaces. The problem I see is that public space has become repetitive. On our walk to work, lunch, or even to the car we rarely notice our surroundings such as the street, grass, and sky. Designers have a huge opportunity within the public realm to make interventions that can liven up a typical street–scape.

The Green Pedestrian Crossing in China challenges how we see the cross walk. The China Environmental Protection Foundation in collaboration with Jody Xiong, from the Chinese creative agency, DBD, illustrated how walking more and driving less can help to change the urban world. This installation is 12.6 x 7 meters and was created on white canvas. The individual canvas is on the pedestrian crossing in 15 cities in China with a huge bare tree drawn on it. On both sides of the sidewalks they placed large sponge cushions soaked in green paint. The pedestrians dip the soles of their shoes to transfer the colour onto the bare tree. With every step the image became 'greener'. This project was estimated to have 4 million people walk across it and created 132 trees on the crossings (Sheppard, 2012).

Principle:

Allow the user to interact effortlessly with the landsccape.

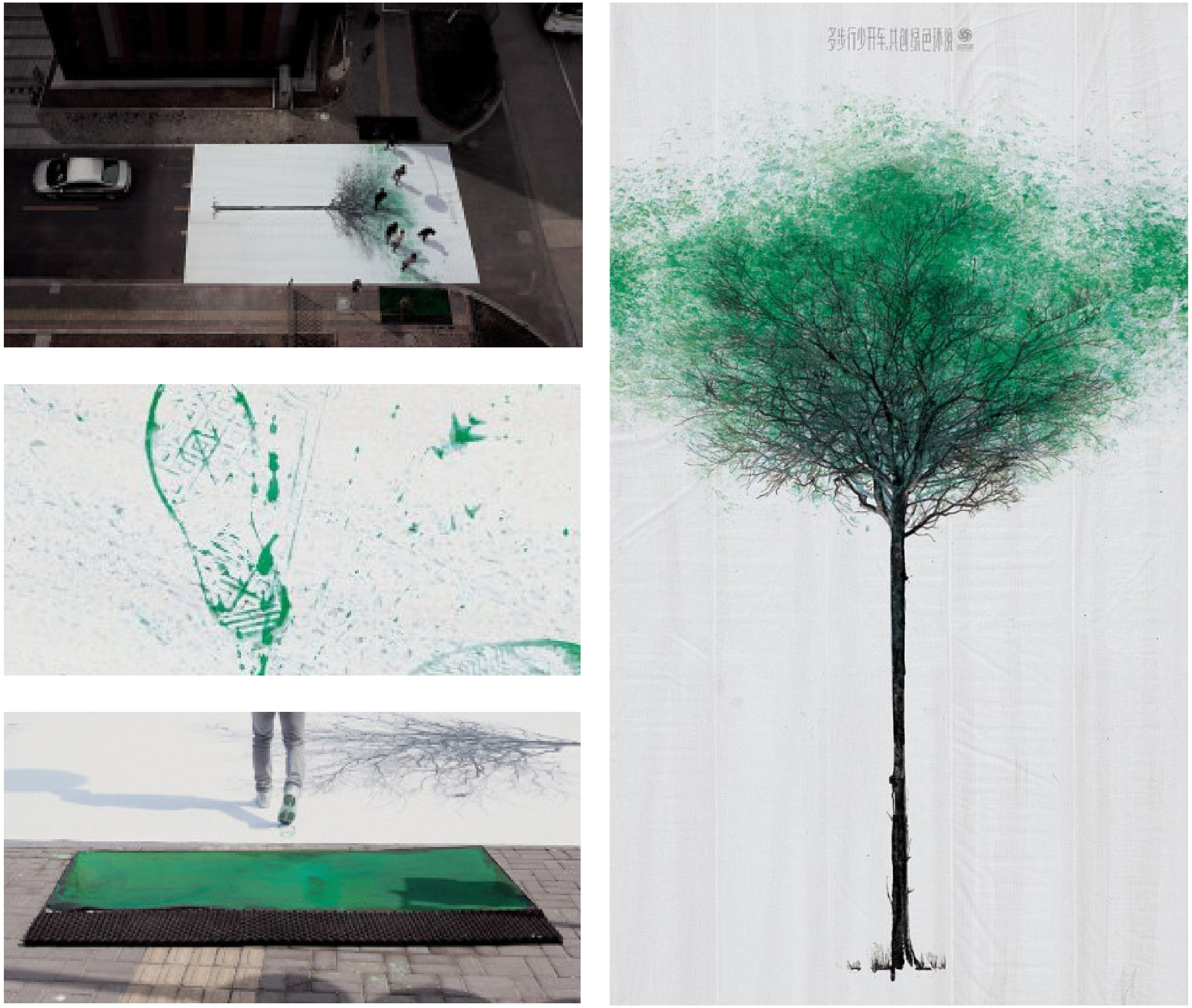


Figure 5.4: Pedestrian crosssings in China (Sheppard, 2012)

STREET ART

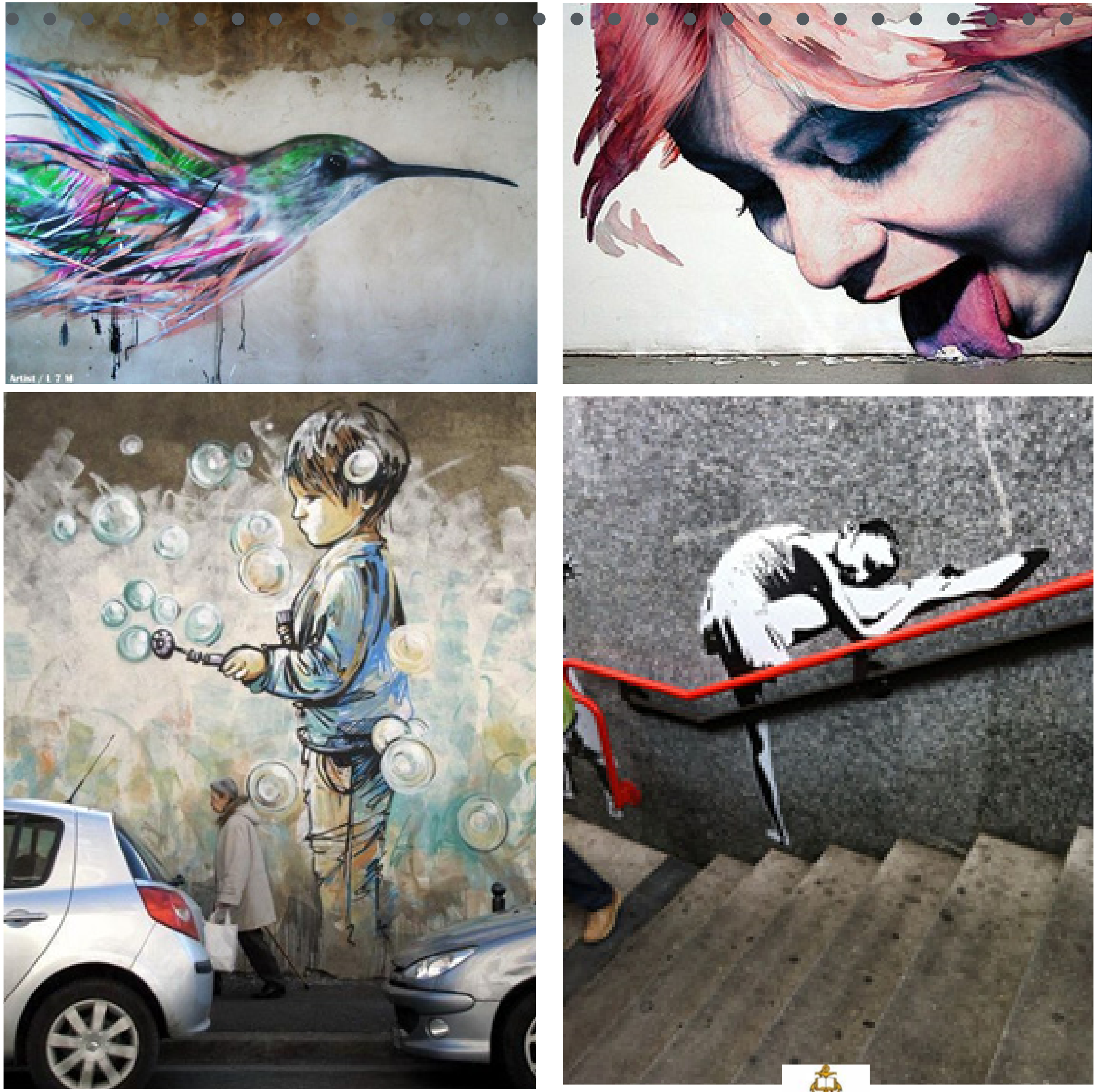


Figure 5.5: Wall paintings as grafitti (All images from pinterest.com)

This street is art

Originally used as a tool to mark territorial boundaries between social classes of urban youth, today street art is an interactive means of urban beautification and regeneration. Some people consider street art a nuisance, yet to others – especially students – it is a means of communicating perspectives; whether it is a fun, light hearted and unifying expression or one of conflict or rebellion. It serves as a platform to freely express political concerns and create awareness of events and occurences within a community.

It serves as a canvas to convey the mental condition of the local community and provides a public platform for social cohesion.

Principles:

– Encourage the urban youth to engage with dedicated platforms by exposing some hard surfaces in the landscape as dull and blank.

– Make sure these areas are easily accessible for a group of people and defined by clear edges.

– Provide legible signage at the dedicated spaces to encourage action.

This street is *fun*

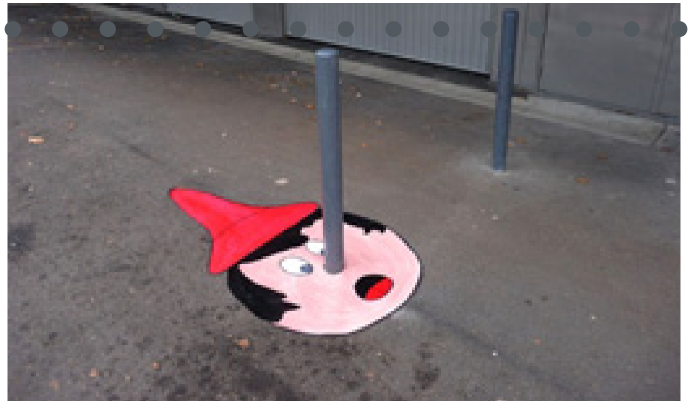


Figure 5.6: Pinnochio by a French artist OaKoAk (2011)

Street art has a successive progression and unlimited initiative of its own (fig 5.6 and 5.7). It is not only restricted to the traditional painting or drawing on surfaces but has evolved over time and today also includes the following:

- Temporary 3D street installations
- Stickers and stencils
- Mosaic
- Video or image (digital) projections
- Yarn bombing:

The art of knitting colourful patterns and wrapping it onto any form of existing landscape structure (fig 5.9).

Principle:

Today, intangible street art is the latest trend, such as "*Flash mobs*". Large open spaces/plazas can be used to perform a choreographed dance routine to introduce a new idea to the public or simply to have fun.

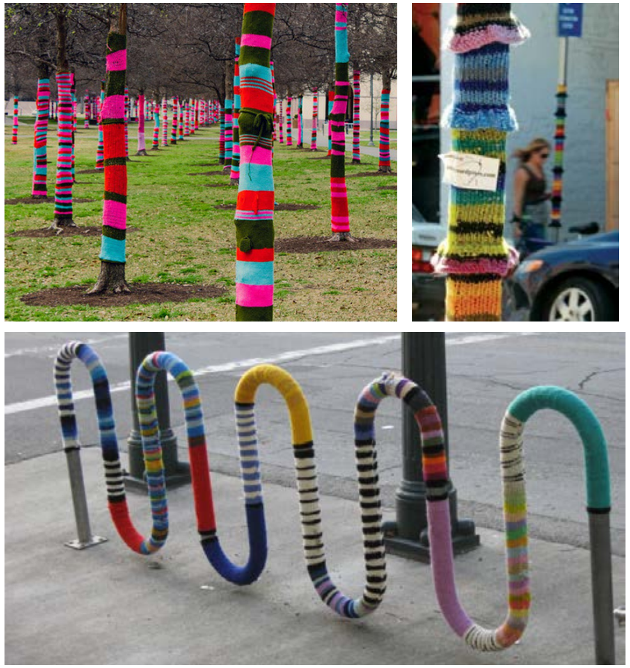


Figure 5.9: Yarn bombing (Photos by Ryan Harris, 2012)

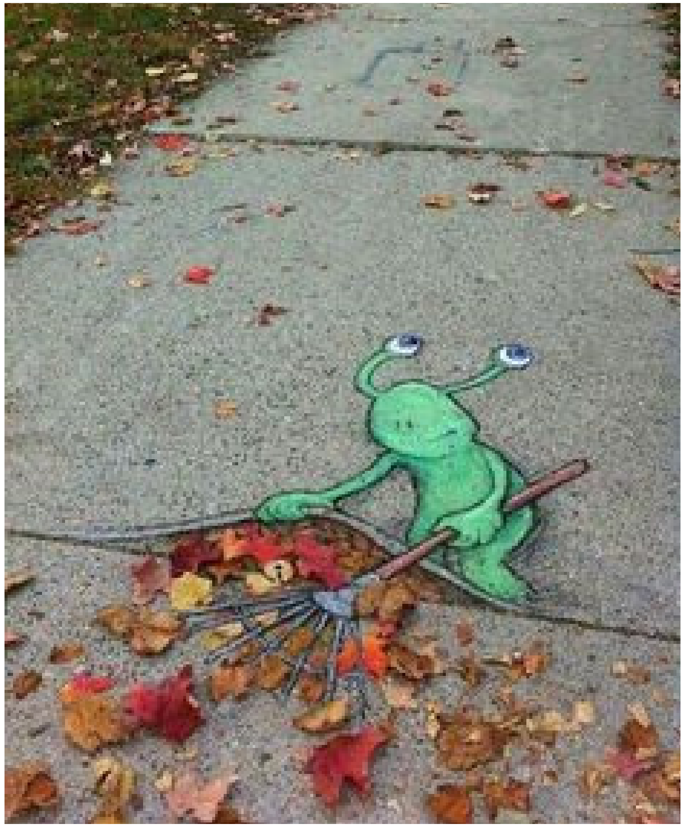


Figure 5.7: Chalk art on walkway (streetartutopia.com)

Figure 5.8: Flash mob as marriage proposal (Mihima, 2012)

Fig 5.10: Flash mob student initiative (Photo by Scott Beseler, 2009)

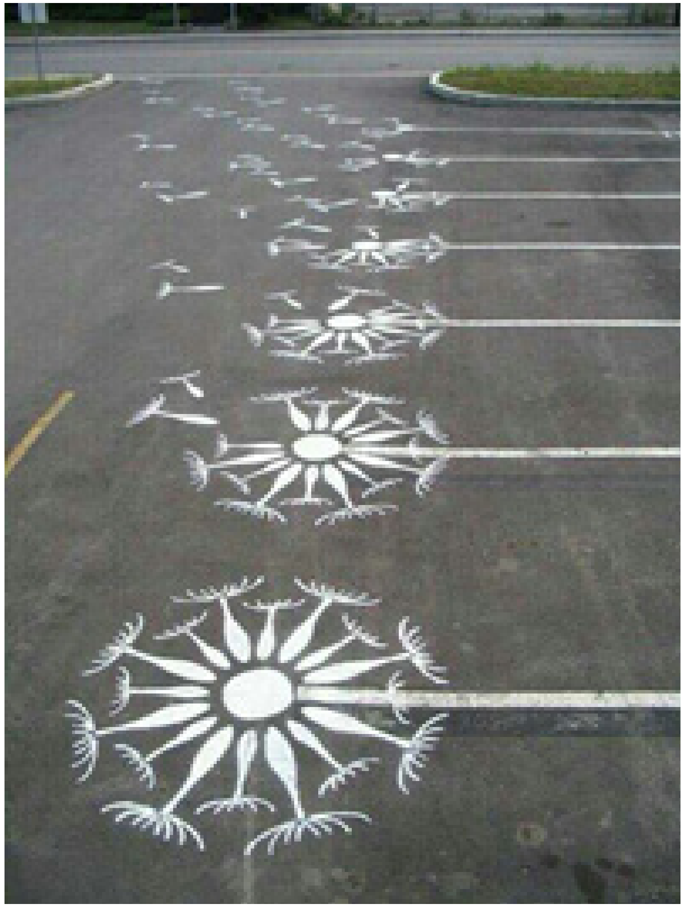


Figure 5.11: Playful parking paintings (media-cache-ec0.pinimg.com)

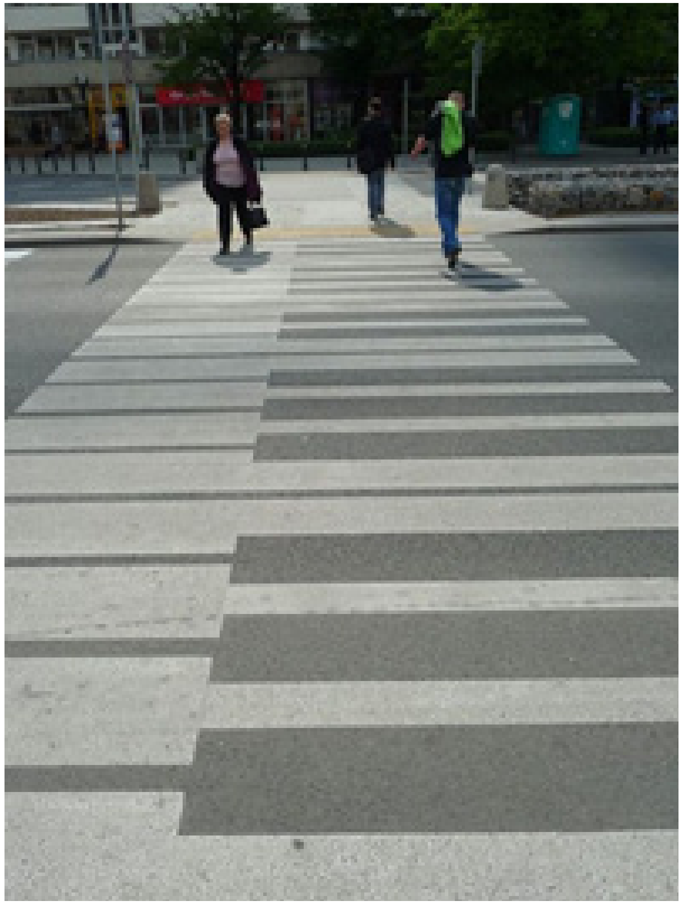


Figure 5.12: Piano pedestrian crossing (www.pinterest.com)

This street is your canvas

Public art provides opportunities for more interesting ways of dealing with common elements. Signs found in public spaces, will draw the eye of the public and make it an exciting and attractive space to linger. Students can be involved during installing public arts such as these to encourage landscape interaction. This will also contribute to the desired identity of place and ownership.

Principle:

-Transform common landscape signage and street elements into innovative and interesting landscape art.

-Involve the local community with these installations to encourage stewardship over the landscape.

Platz des 9. November 1989

(www.worldlandscapearchitect.com)

AWARENESS AND INTEREST

Platz der 9. November 1989 | Berlin Germany | Sinai

This street is ***interesting***

The only commemorative remains in Berlin after the Haulocast genocide were some parts of the wall and a simple double brick line that traces where the remainder of the Wall once stood, all around the city. Hundreds of artists from Berlin and around the world have contributed to the diverse collection of artwork on the wall's face to commemorate peace, reunification of the city and the dedicated people of Berlin (Holmes, 2014). The longest piece of the Berlin Wall still standing is at the East Side Gallery.

The exact place where the Berliner Wall fell, the border checkpoint at Bornholmer Straße, is now a space of remembrance for a single day: 9 November 1989.

Principle:

- Subtilties in the landscape create a heritage journey that lead toward a moment frozen in time (a landmark).

- Tree symbolism: Autumn-flowering cherry trees were planted on this site in a loose arrangement and grew gradually denser to form a "grove-like cluster echoing the growing crowds of East Berliners," who gathered at this spot (Holmes, 2014). "The cluster dismantles abruptly at the narrowest point of the corridor. This is the moment where the first GDR citizen was able to cross the bridge without identity papers," (Holmes, 2014).

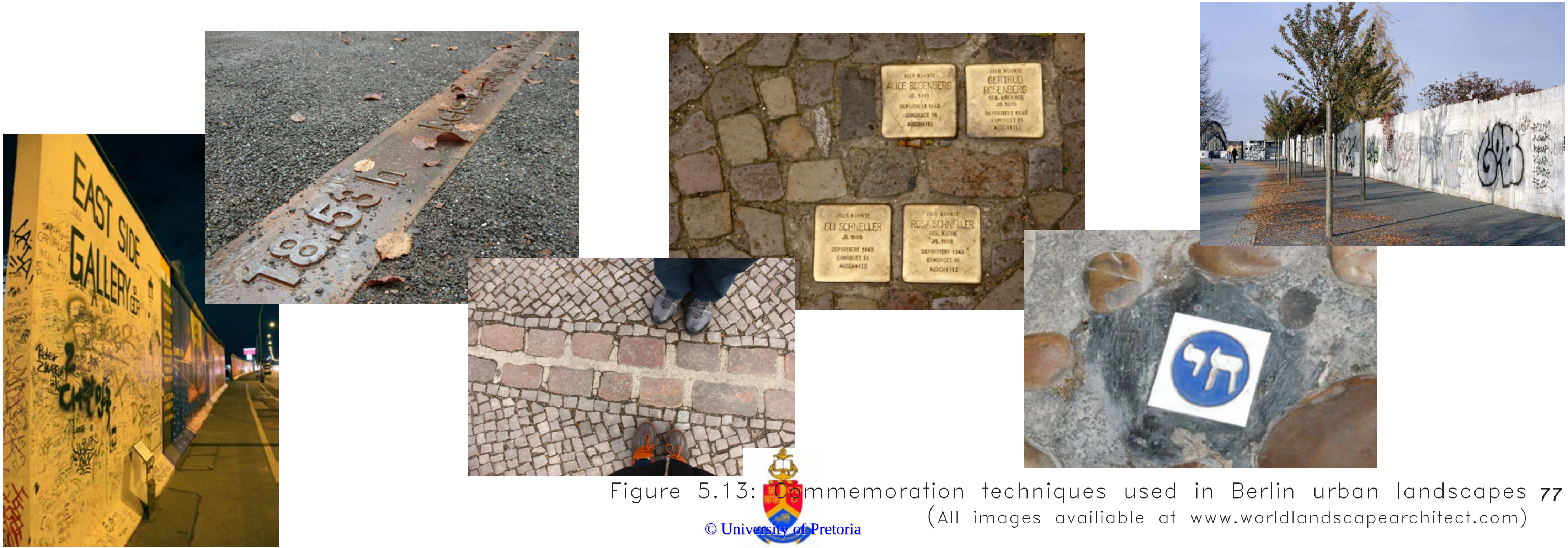


Figure 5.13: Commemoration techniques used in Berlin urban landscapes
(All images availiable at www.worldlandscapearchitect.com)

This street is *safe*

The New York City Department of Transportation did a study on street safety and documented the results in *Making Safer Streets* (2013).

The crashes or injuries which occured prior to regeneration of each intersection have significantly declined (fig 5.14 and 5.15).

MANHATTAN:
7th Ave & W 23rd St
Injury crashes down
by 63%
Treatments: 1, 2, 5,

QUEENS:
Jackson Ave &
Pulaski Br
Injury crashes down
by 63%
Treatments: 1, 3, 4, 5, 7

MANHATTAN:
Madison Ave &
E 135th St
Injury crashes down
by 18%
Treatments: 1, 2, 3, 4, 5,
6, 7

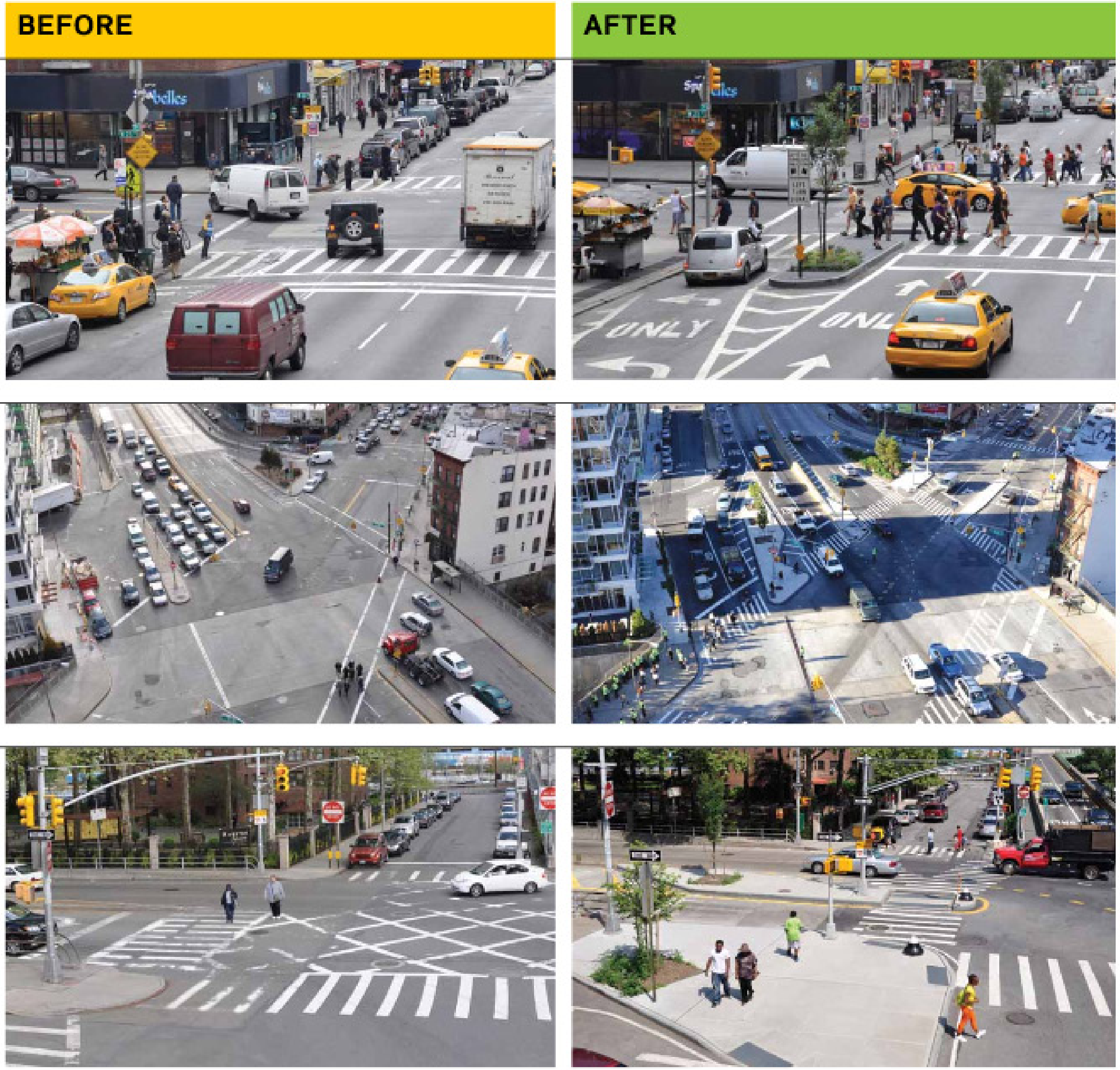


Figure 5.14: Make the Street Easy to Use: Results (Sadik-Khan, 2013)

Principles:

Some of the criteria used to design safer streets were the following (Sadik-Khan, 2013):

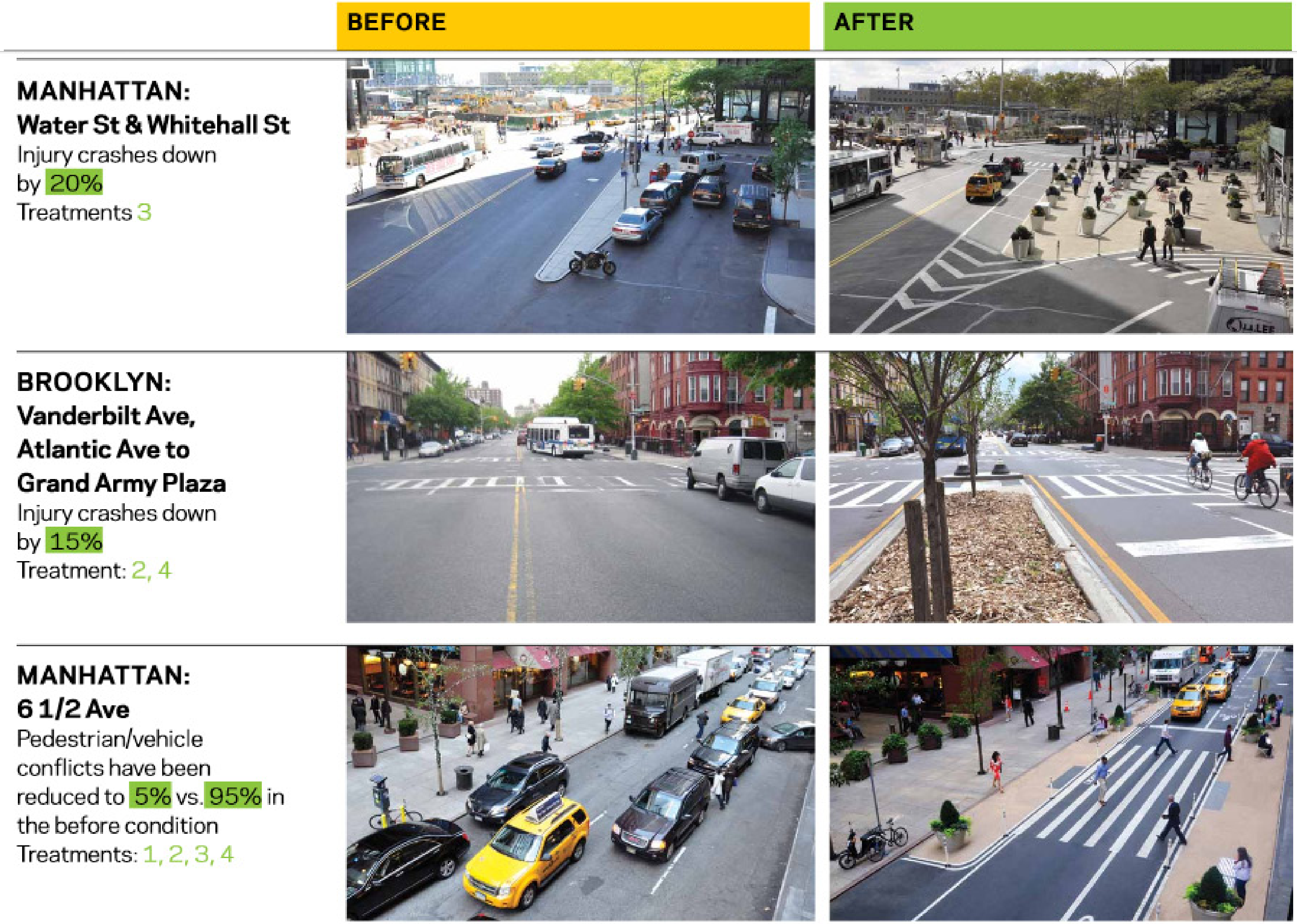
a) Kerb extensions: brings pedestrians into sightline of vehicles. Delayed turning light for vehicles: Allows pedestrians a headstart to cross a road with no conflict.

b) Crosswalks and pedestrian safety islands: pedestrians want to cross and wait midway through crossing the street, adds visual cues to presence of pedestrians and beautifies corridor.

c) Lane Designations: to clarify who belongs where, bicycle paths and lanes clearly giving the bicycle right of way.

d) Extend medians: widen and lengthen medians to tighten up vehicle space at intersections.

e) Create right angle intersections to slow vehicles turning into pedestrian crossings and shortens crossings distances.



MANHATTAN:
Water St & Whitehall St
Injury crashes down by 20%
Treatments 3

BROOKLYN:
Vanderbilt Ave, Atlantic Ave to Grand Army Plaza
Injury crashes down by 15%
Treatment: 2, 4

MANHATTAN:
6 1/2 Ave
Pedestrian/vehicle conflicts have been reduced to 5% vs. 95% in the before condition
Treatments: 1, 2, 3, 4

Figure 5.15: Make the Street Easy to Use: Results (Sadik-Khan, 2013)

TWO TYPES OF PEDESTRIAN STREETS

This street is pedestrian-dominated

According to Kaplin (2012) the two types of pedestrian streets are: 1. Pedestrian-dominated street and 2. Only pedestrian street. The author chose the first option to allow optimal vehicular circulation throughout the framework.

Pedestrian streets have to meet a set of criteria and can be acknowledged by some characteristic features in the following precedent studied; a pedestrian street in Budapest (Castroni, 2008).

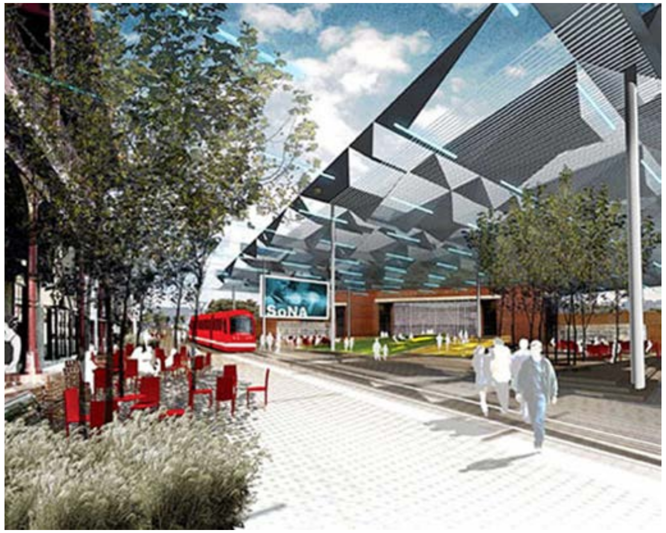


Figure 5.16: A pedestrian-dominated street in University of Arkansas, USA, (Kaplin, 2012).

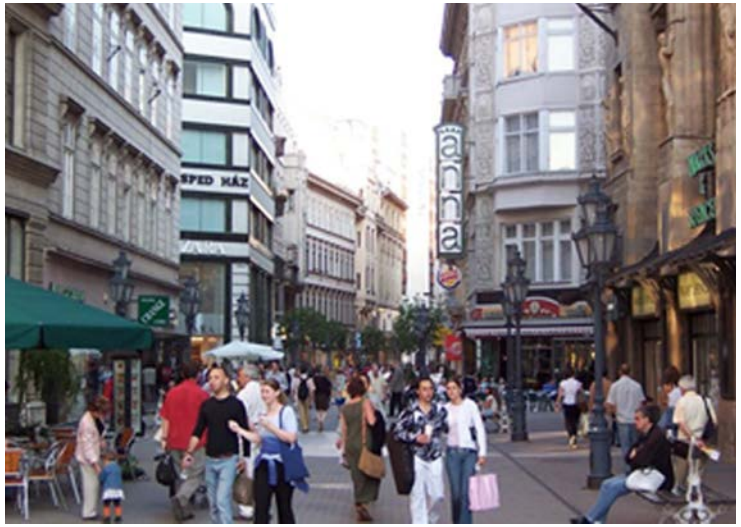


Figure 5.17: A pedestrian street in Budapest (Castroni, 2008)

A project in the USA, the Fayetteville 2030 Transit City Scenario, the Walton Arts Center at the university is to be integrated into the new shared street through a covered transit plaza.

This proposal illustrates how a traffic corridor can be reclaimed to make a great pedestrian environment, using green technologies and alternative power sources.

"...our land development patterns and transit solutions are by far the most effective solutions for tackling climate change and energy conservation," (Kaplin, 2012).

Shared streets are pedestrian-dominated streets that also accommodate motorised vehicles, here motorists are compelled to "behave socially".

Robbins (2004:218) implies the use of elements such as on-street parking, to protect the pedestrian from auto noise. Traffic calming devices slow traffic down, narrowing street widths, providing fewer traffic lanes, etc.

Principles:

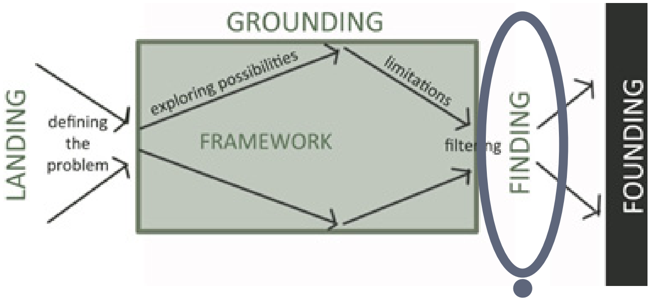
Characteristics of pedestrian streets as per Castroni (2008):

1. A substantial amount of accommodation along the street.
2. A big attractor (i.e. a university, or office buildings).
3. Parking spaces or transit stops.
4. Landscaping of the street (curved layout, monuments at the two ends).
5. Cafè's and bars with outdoor seating all along the street.
6. Events on the street all around the year (and a 'street events' company which organizes these events).

Vision
Narative
Design objectives
Design principles
Conclusion

6

DESIGN DEVELOPMENT


GROUNDING
LANDING
defining the problem
exploring possibilities
FRAMEWORK
limitations
filtering
FINDING
FOUNDING

The purpose of this chapter is to apply the design principles drawn from the theoretical research, contextual analysis and precedent studies to the sketchplan area of the site in order to meet the design objectives. The Sustainable Sites Initiative 2014 was continually referred to as a sustainability rating system.

FINDING

VISION

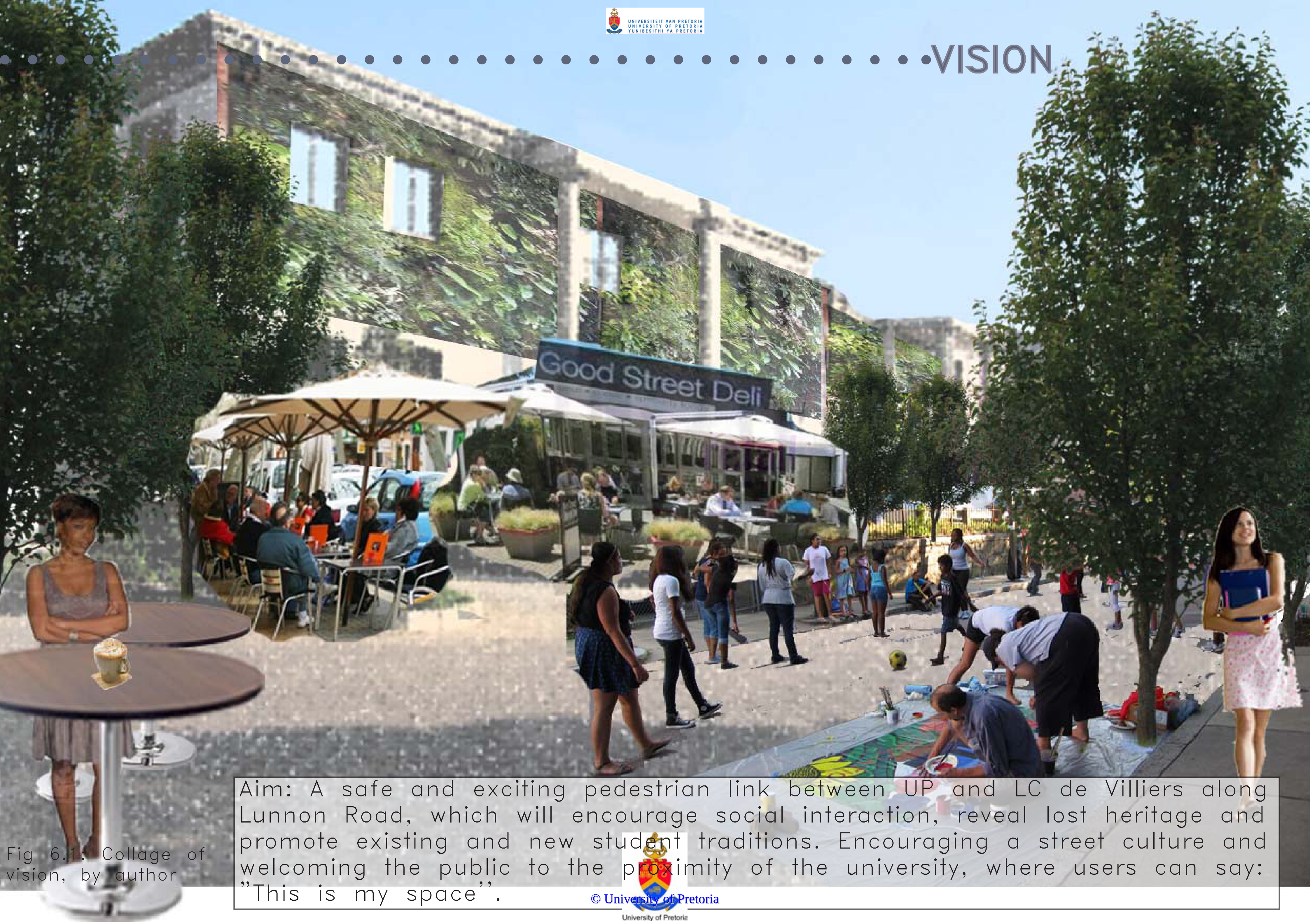


Fig 6.1: Collage of vision, by author

Aim: A safe and exciting pedestrian link between UP and LC de Villiers along Lunnon Road, which will encourage social interaction, reveal lost heritage and promote existing and new student traditions. Encouraging a street culture and welcoming the public to the proximity of the university, where users can say: "This is my space".

Sketchplan Narative

The author identified three design objectives which is achieved by six design principles drawn from the case studies discussed in chapter two. These principles have sub-guidelines which summarise the research objectives in order to achieve the ultimate three design objectives set out below. The proposed framework (chapter 4) served as a guide to determine the new building footprints, fence-lines and street layout.

Design objectives	Design principles	Precedents studied
1. A sense of belonging	1.1. Social inclusion 1.2. Synecdoche* 1.3. Commemoration	Safer streets in Manhattan and Queens (Sadik-Khan, 2013) Recovering the City of Barcelona (Robbins, 2004) Platz der 9. Berlin (Holmes, 2014)
2. A self-organising city	2.1. Path as destination 2.2. Adaptable programme 2.3. Public activation	Piccadilly Circus (Sheppard, 2012) Waiting spot, Eindhoven (Boloz, 2012) Pedestrian crossings, China (Sheppard, 2012)
3. Stewardship	3.1. Sustainable green practices 3.2. Participation and interaction 3.3. Emotional connection	Street art Lynch (1969) Hall (2001)

**Synecdoche: "a figure of speech in which a part is substituted for a whole or a whole for a part," (dictionary.reference.com)*

Fig 6.2: Group of students from different cultures (www.international–programs.com)

1.1. Social inclusion

The landscape should offer a mixed land use, to draw various social classes and cultures to feel comfortable in one space. Access and surfaces should accomodate disabled people and wheelechairs.

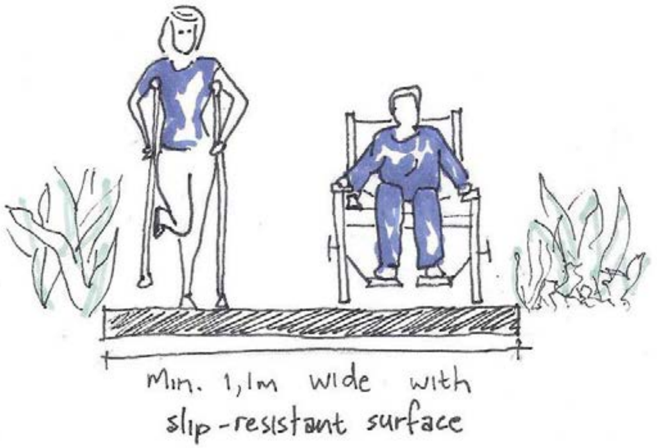


Fig 6.3: Universal design principles to accommodate comfortable access for all (by author)

1.2. Synecdoche

Strategic use of familiar plants, colours and textures to depict the identity of the University of Pretoria.

1.2.1. Planting strategy

Use of familiar planting species that are already existing on UP main campus. The choices of appropriate species will be discussed in more detail in the chapter 8.

1.2.2. Colour selection

Use of blue and yellow (building material and planting) colours to recall identity of the university and purple flowers to emphasise the character of the Jacaranda city.

1.2.3. Texture and pattern

Planting and paving patterns to create different ambiences: delicate and soft textures evoke a humble and intimate atmosphere while large, sharp and straight patterns give a robust and strong sense of place (Hall, 2001).

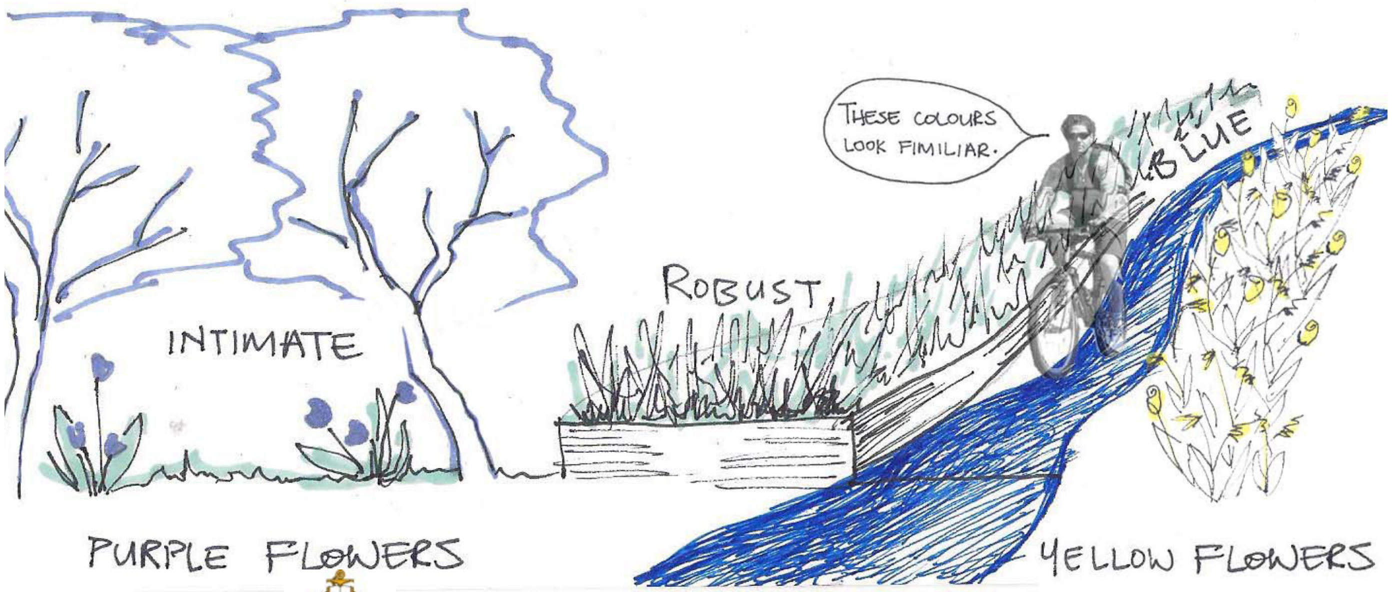


Fig 6.4: Colours and textures strengthen identity and Genius loci (by author)

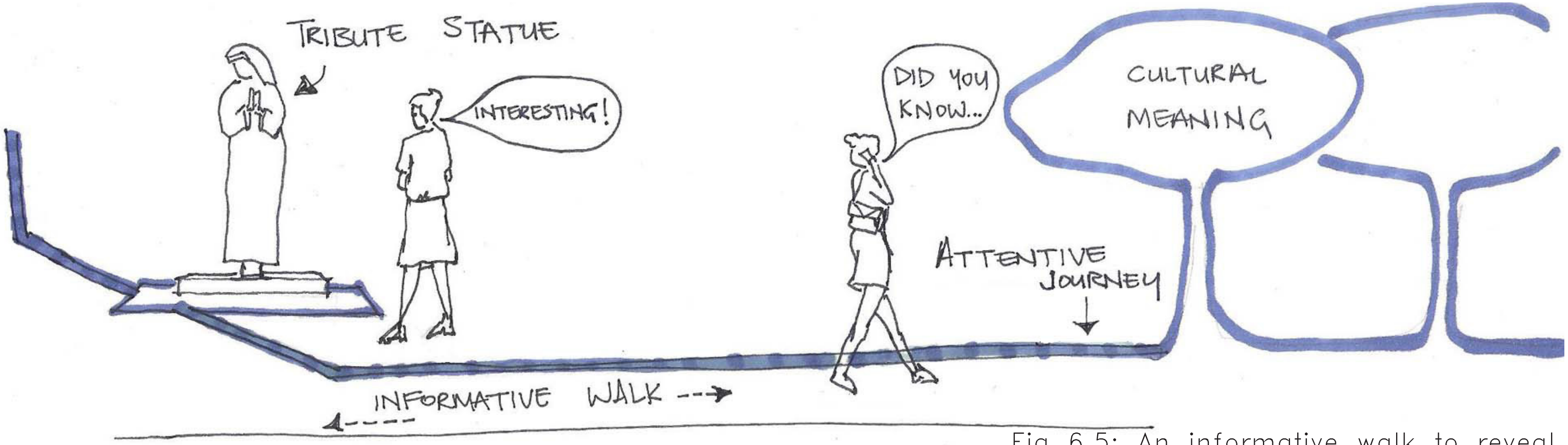


Fig 6.5: An informative walk to reveal lost heritage and create interest (author)

1.3. Commemoration

Landmarks or landscape structures

Public artworks serve as an effective tool to incite interest, create public awareness and celebrate heritage (Robbins, 2004). Heritage should not be "freezed" and viewed from a distance, but rather translated as a living heritage site in which the user engages continually (Baillie, 2014). Subtle elements can be introduced in the landscape to create an attentive journey through the memorial plaza as seen in the Platz der 9 in Berlin (Holmes, 2014). The cherry trees were used as landscape features to resemble the cluster of East Berliners who were the first to cross the bridge without identity papers (Holmes, 2014) and so trees can play a vital role in conveying a cultural message.

Robbins argues (2004:24) that a prevalent theme which enhances common heritage and familiarity will build innovative networks of physical, cultural and social systems. The prevalent theme can be achieved through the use of a familiar tree specie. One of the most commonly considered trees to have cultural value in Pretoria is the popular Wild Olive tree, which symbolises freedom and equality.

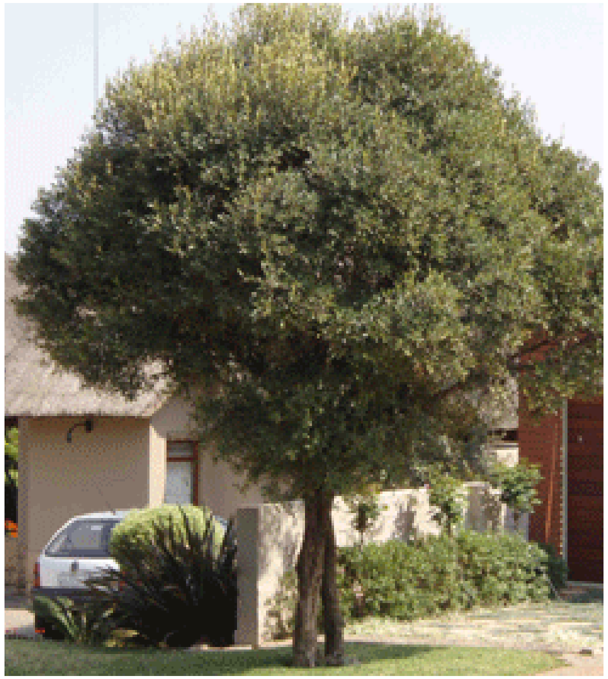


Fig 6.6: Wild Olive tree (www.treetraders.co.za)

2.1. The path is the destination

2.1.1. Slow pedestrian movement and penetration

By providing different route options, and frequent 'pause–nodes' and waiting areas along the walkway, pedestrians can filter into the landscape and linger in these nodes for longer (Guattari, 2008).

2.1.2. Magnets

By accomodating the basic needs of the site user, (eat, drink, study, work, socialize) "Hot–spots" can be identified (Waldheim, 2006) and serve as pedestrian magnets at intervals throughout the site.

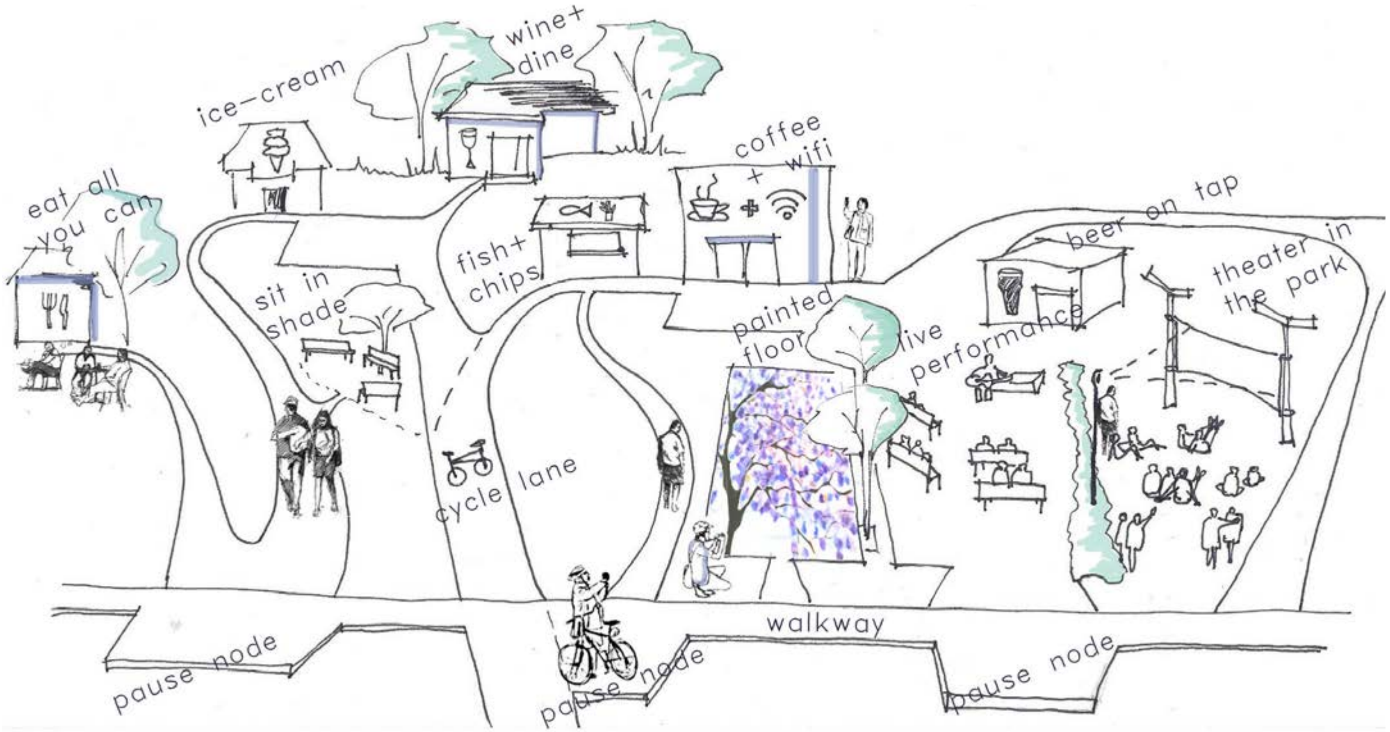

ice–cream
wine+ dine
coffee + wifi
eat all you can
fish+ chips
sit in shade
beer on tap
theater in the park
painted floor
live performance
cycle lane
walkway
pause node
pause node
pause node

Fig 6.7: Paths that spill out from the main walkway drawing users into the landscape through "hot–spots," (by author)

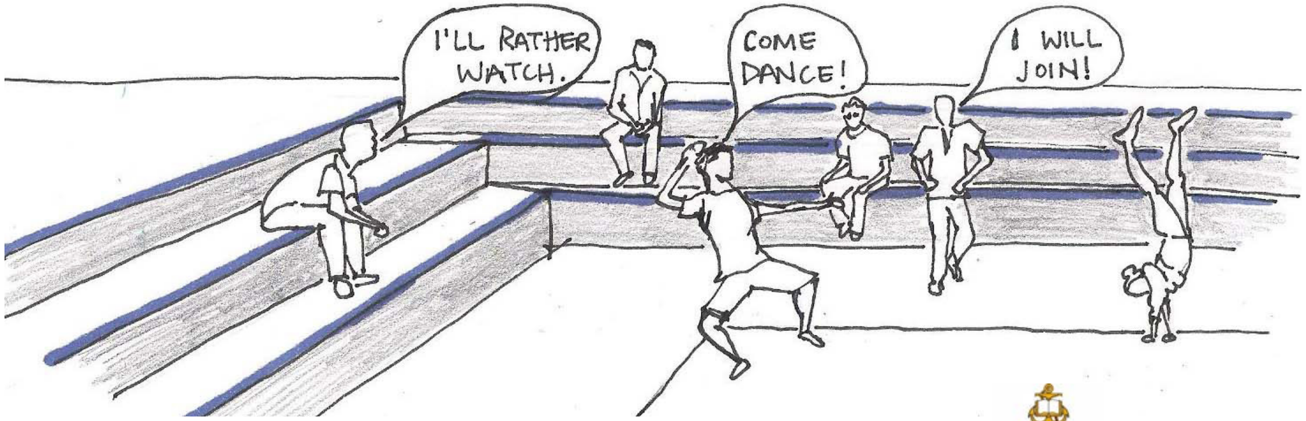

I'LL RATHER WATCH.
COME DANCE!
I WILL JOIN!

Fig 6.8: A space to participate or observe (by author)

2.1.3. Active participation and passive observance

After studying the '*way of life*' of the majority of the site users (students), the author found a lack of appropriate spaces for these intangibles to manifest. These spaces include platforms for entertainment where users can encourage each other to participate or to comfortably observe in a designated area.

2.2. Adaptable programme

2.2.1. Events and rituals

New and existing street events (as in chapter 2) can be accommodated by providing sufficient space that spill–out onto the street (fig 6.9). Other events are encouraged through designated, well defined areas on the site. Many of the events occuring on and around UP have the purpose to entertain and interact. These nodes will serve as prominent features or magnets in the development of the design.

A planting strategy helps to create comfortable spaces for events to occur year–round and to make this space an exciting and stimulating green street to linger. This will be discussed in more detail in chapter 8.

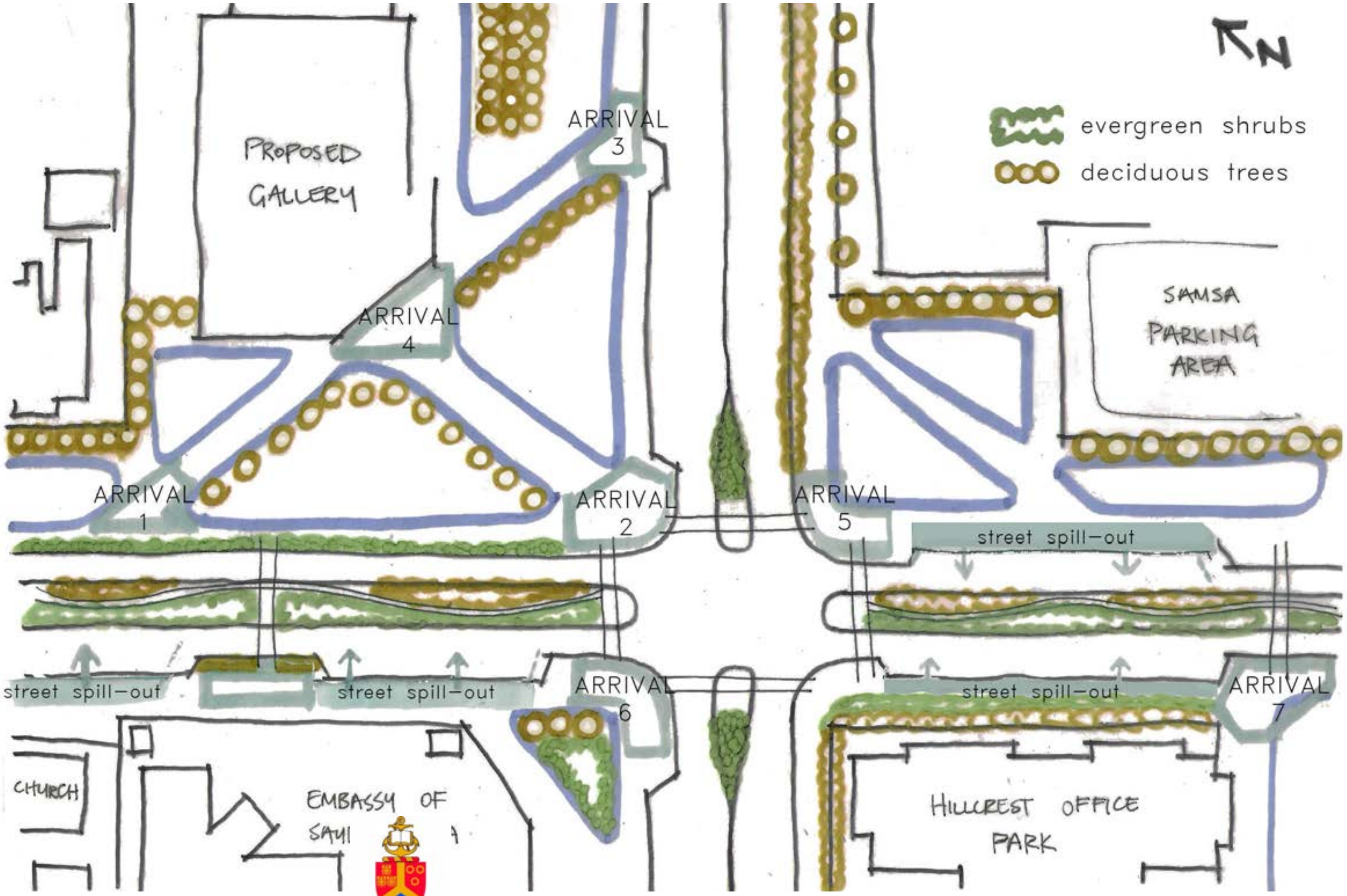

N
evergreen shrubs
deciduous trees
PROPOSED GALLERY
ARRIVAL 3
ARRIVAL 4
SAMSA PARKING AREA
ARRIVAL 1
ARRIVAL 2
ARRIVAL 5
street spill–out
street spill–out
street spill–out
ARRIVAL 6
street spill–out
ARRIVAL 7
CHURCH
EMBASSY OF SAUI A
HILLCREST OFFICE PARK

Fig 6.9: Arrival nodes, street spill–outs and strategic planting (author)

2.2.2. Making a safer street

The safety of these spaces and intersection must be carefully studied to accommodate large crowds and their movement and street crossing safely. According to the strategy for safer streets set out by the New York City Department of Transportation (Sadik-Khan, 2013), as studied in chapter 5, the criteria was considered (fig 6.10).

Legend

a) Kerb extensions

b) Crosswalks and pedestrian safety islands

c) Lane designations

d) Extend medians

e) Right angle intersections

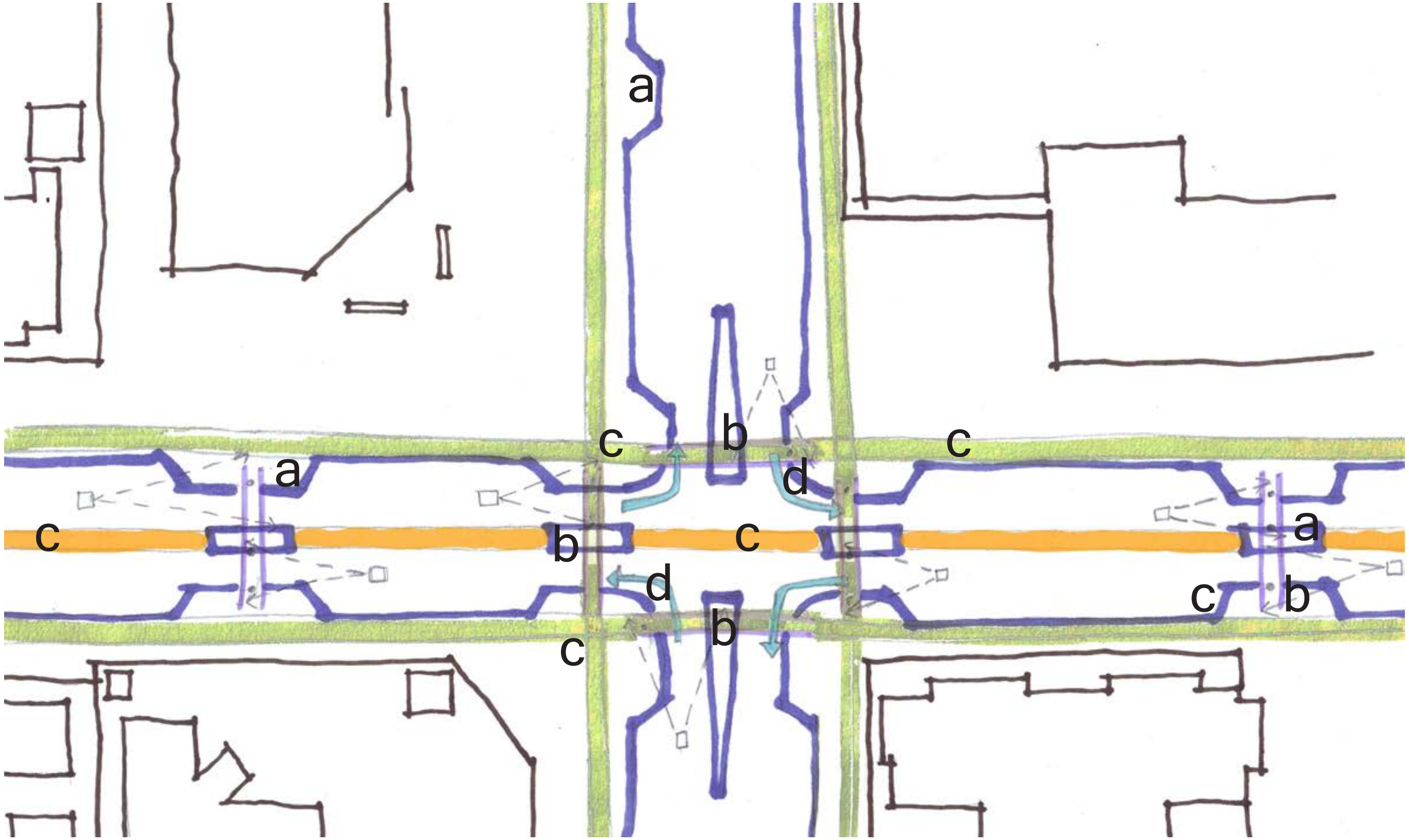


Fig 6.10: Strategies applied for safer streets, (by author)

2.2.3. Close proximitry and access

Common patterns of circulation through the site was observed to determine the placement of nodes, magnets and landscape features (fig 6.11). Close proximity to various land uses in the area provides an opportunity for a communal platform on which multiple and diverse activities and events may occur throughout the year.

Open spaces should be clearly defined to serve as arrival nodes or multi-purpose areas (Robbins, 2004). Visibility should be clear in these areas to create a sense of safety and to spot a friend easily. Movement patterns indicate avenues to be left open, legible and comfortable for pedestrian movement and it defines optimal locations for achieving the design goals.

Changes in levels will be used to define spaces with different functions (Robbins, 2004). Spaces will further be defined by the use of landscape structures (trees and other vertical structures) and a difference in planting heights to distinguish between private and public spaces (fig 6.12).

The author drew a diagramatic organisation of spaces (fig 6.11) in which the purple indicates the most likely pedestrian movement patterns after the framework has been implemented. The gold shows the vegetated areas as proposed in the framework.

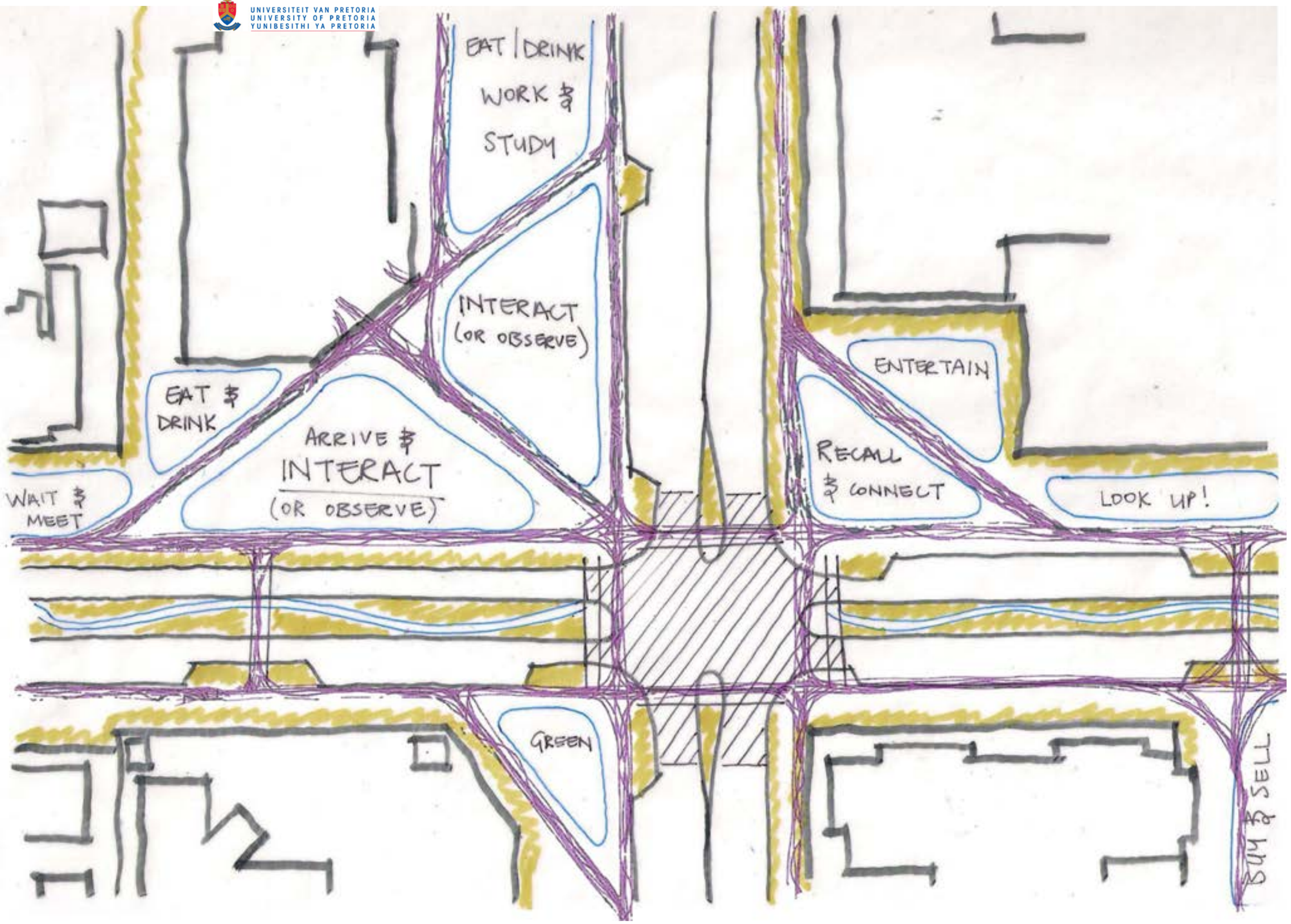


Fig 6.11: Diagramatic organisation of spaces (by author)

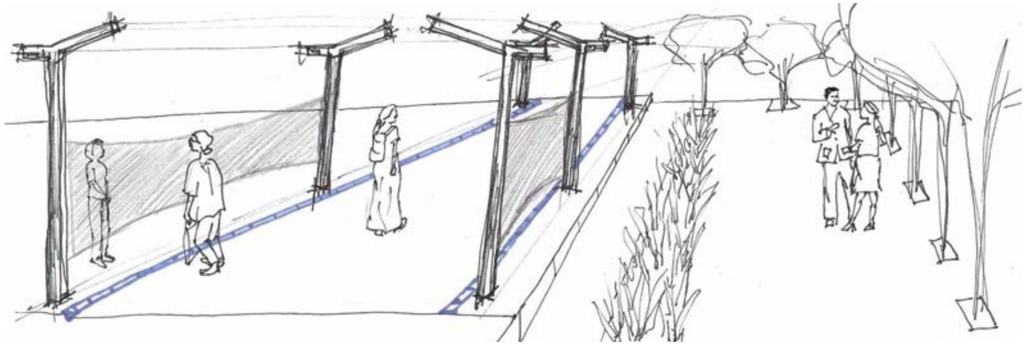


Fig 6.12: Spacial definition through landscape structures, (by author)

2.3. Public activation

2.3.1. Choice

Allowing users to choose between various opportunities and use of spaces in the urban landscape creates interest and curiosity. A variety of possibilities optimises the amount of users who will return to the site to explore the different options.

Choices of travelling routes: fast cycling lane and slow pedestriam movement walkways (chapter 4). Choice between public spaces with more pedestrian activity and private spaces, which are more quiet and secluded.

Various opportunities to interact: paint a concrete floor, rock climbing, observe or participate at the amphi-theatre, daily deals market (fig 6.13)

Magnets cater for choice in food/drink/events/recreation (fig 6.7).

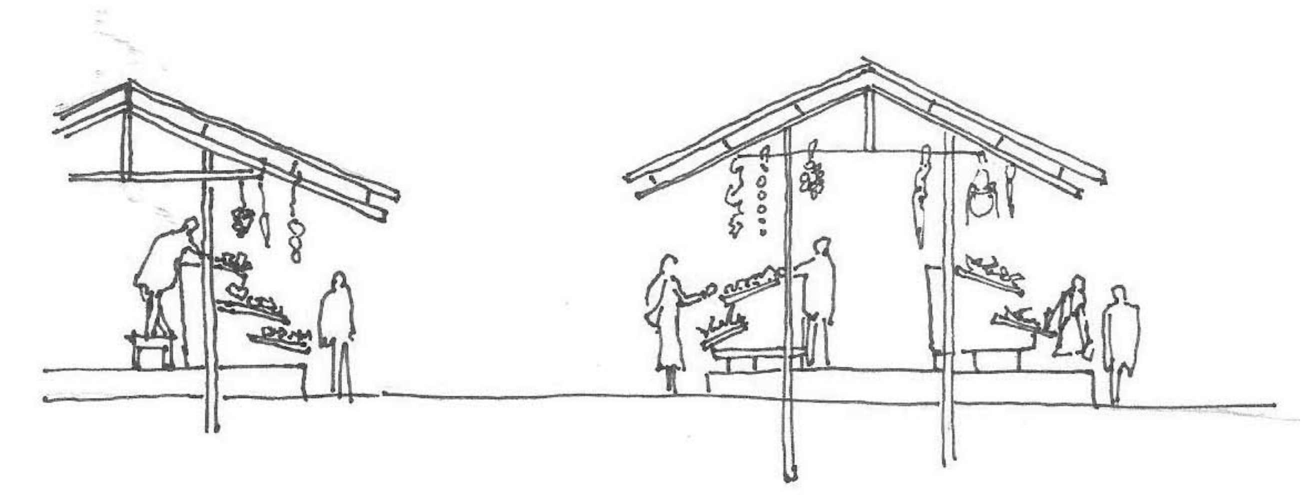


Fig 6.13: Daily deals market concept (author)

2.3.2. Robustness

Change is incorporated by the design of simple, open plan plazas that become multi-purpose spaces which allow for moveable street furniture and different events: temporary street galleries, market places and restaurant out-spills. Existing annual rituals that occur on and around UP such as RAG protests, serenade, fun-runs and other cultural events can redirect the routes and use the vicinities of this plaza to accommodate crowds safely. The university can utilise the space on variouus occasions like UP open days and as blood donation facilities.

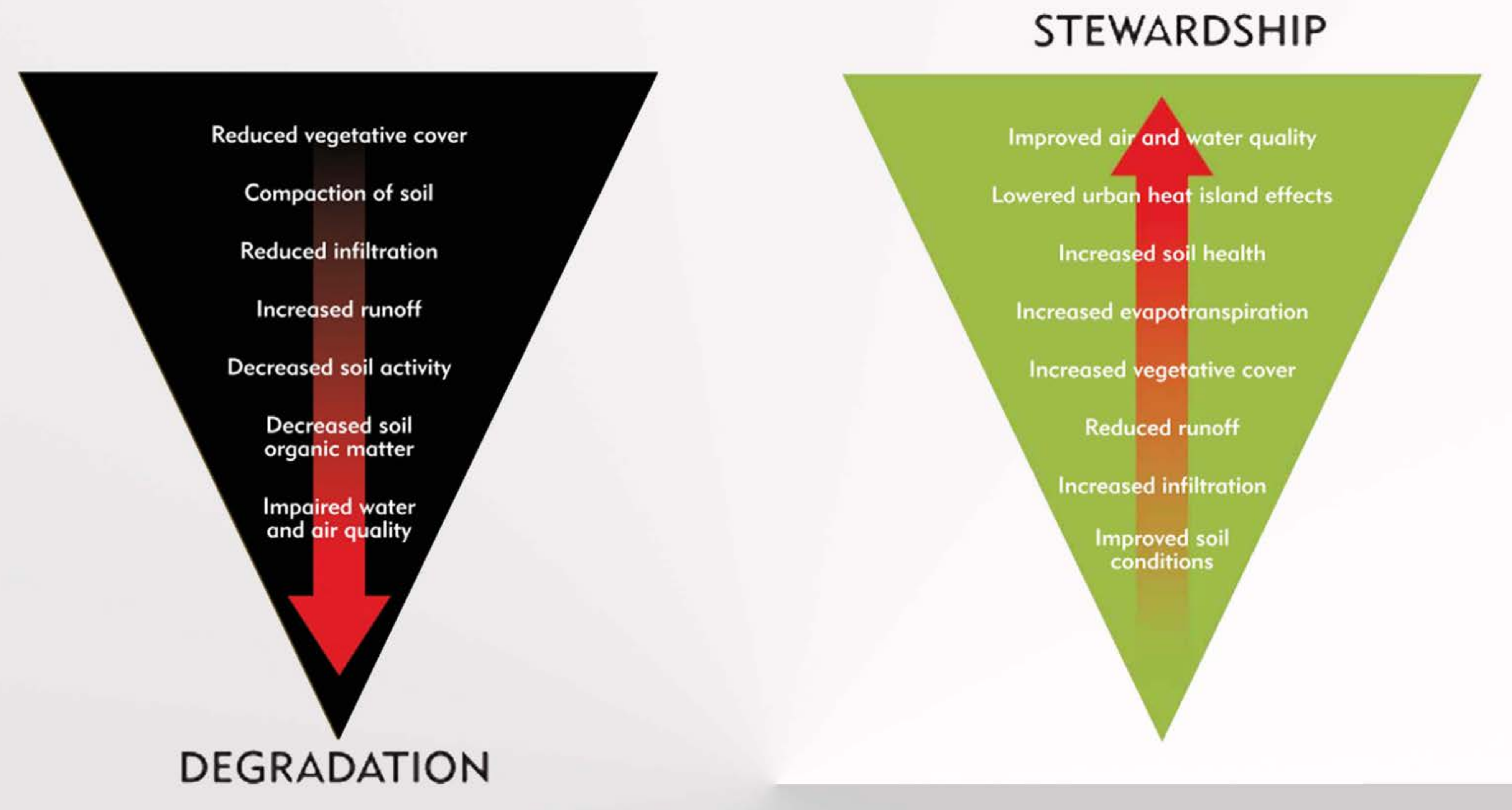

STEWARDSHIP
Reduced vegetative cover
Compaction of soil
Reduced infiltration
Increased runoff
Decreased soil activity
Decreased soil organic matter
Impaired water and air quality
DEGRADATION
Improved air and water quality
Lowered urban heat island effects
Increased soil health
Increased evapotranspiration
Increased vegetative cover
Reduced runoff
Increased infiltration
Improved soil conditions

Fig 6.14: Stewardship principles (edited from Sustainable Sites Innitiative, 2009)

3.1. Sustainable green practices

The following guidelines according to Sustainable Sites Initiative, Sites v2 Rating System For Sustainable Land Design and Development (2014) have been followed:

3.1.1. Rainwater harvesting

- Catchment and retention of surface runoff from hard surfaces (paving and roofs).
- Permeable paving to increase infiltration.
- Harvested water used for irrigation instead of potable water.
- Bio-swales and subsurface drainage that channels overflows to a water reservoire.

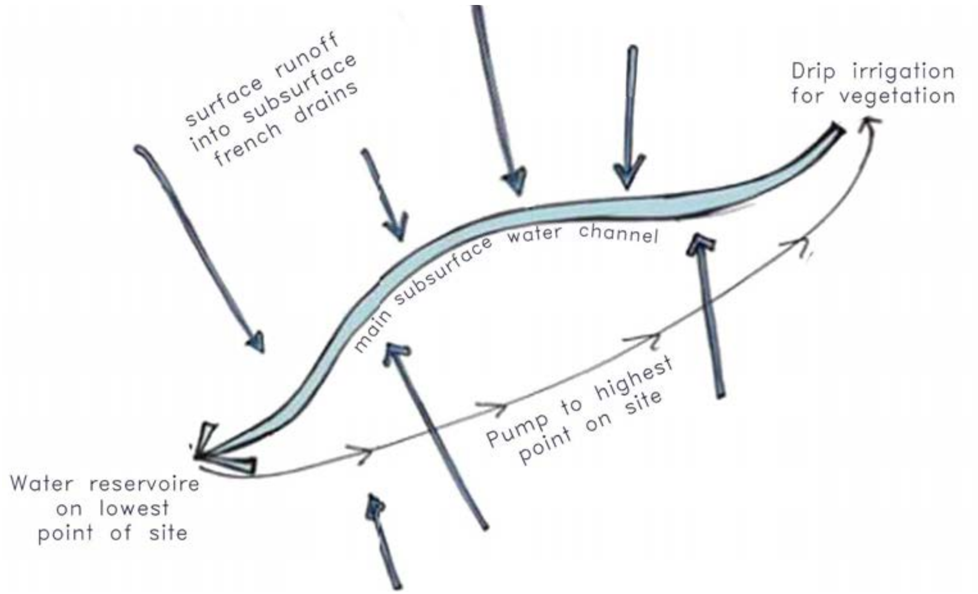

surface runoff into subsurface french drains
Drip irrigation for vegetation
main subsurface water channel
Pump to highest point on site
Water reservoire on lowest point of site

Fig 6.15: Proposed water harvesting strategy for Lunnon Lane (author)

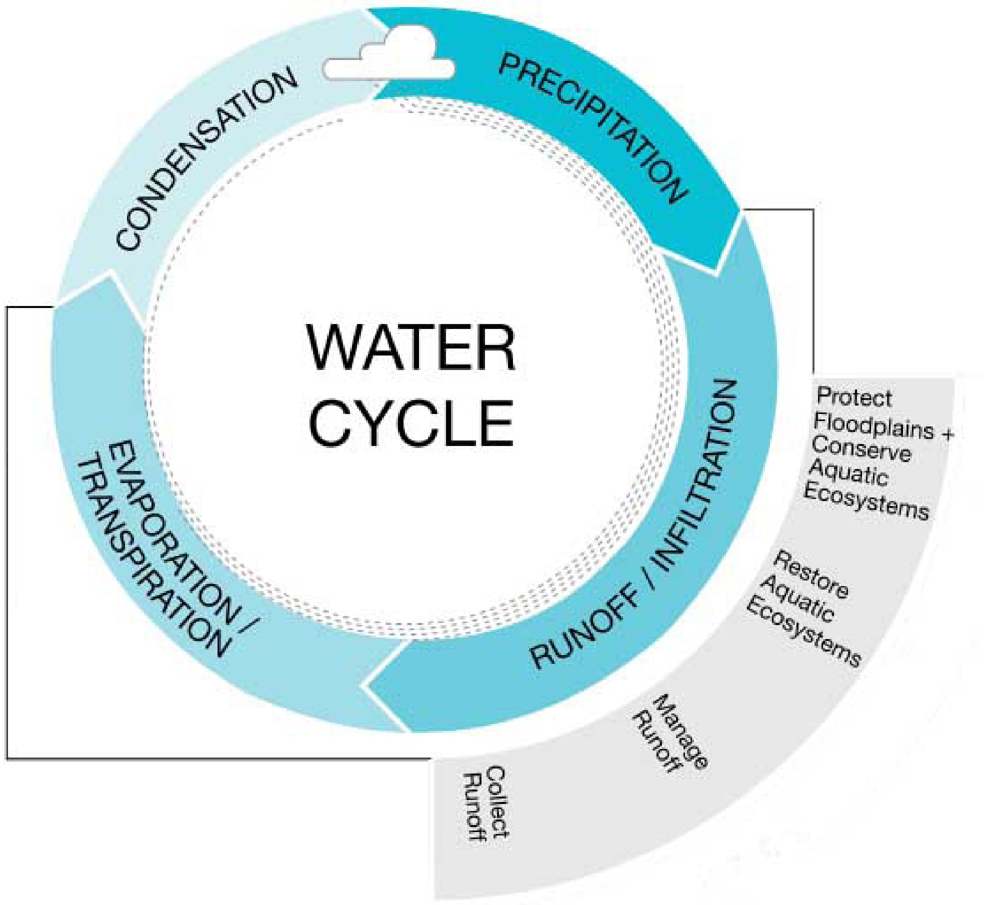

CONDENSATION
PRECIPITATION
WATER CYCLE
EVAPORATION / TRANSPIRATION
RUNOFF / INFILTRATION
Protect Floodplains + Conserve Aquatic Ecosystems
Restore Aquatic Ecosystems
Manage Runoff
Collect Runoff

Fig 6.16: The Sustainable Water Cycle (SSI 2014)

A curb–side rain garden through bio–swales

Bio–swales reduce runoff and increase infiltration, bioretention and evapotranspiration while creating habitats for reptiles and insects.

"*Bioretention* consists of a shallow vegetated or landscaped basin filled with engineered soil that is generally underlain by a stone drainage layer. Bioretention allows pollutants from sidewalk runoff to settle and filter out through the engineered soil, reducing the volume of water that is discharged from the system," (Kaplan, 2012).

Water catchment calculations and determining tank sizes will be studied in chapter 8 .

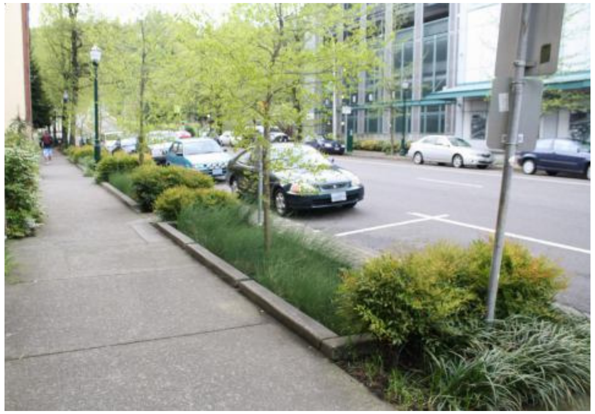


Fig 6.18: Bio–swales along road in Portland, US (landperspectives.com)

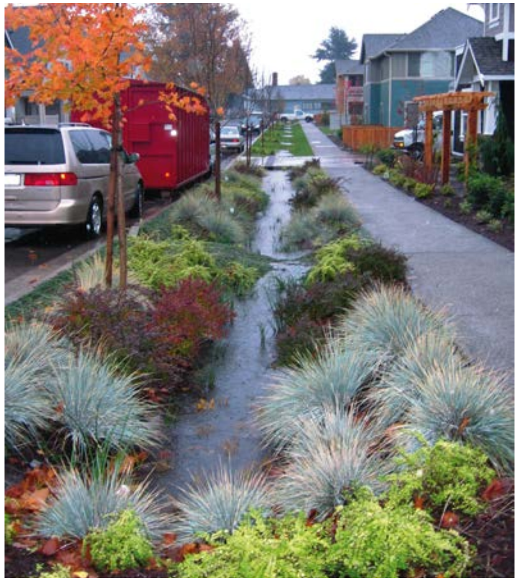


Fig 6.19: Bio–swales along road in Portland, US (landperspectives.com)

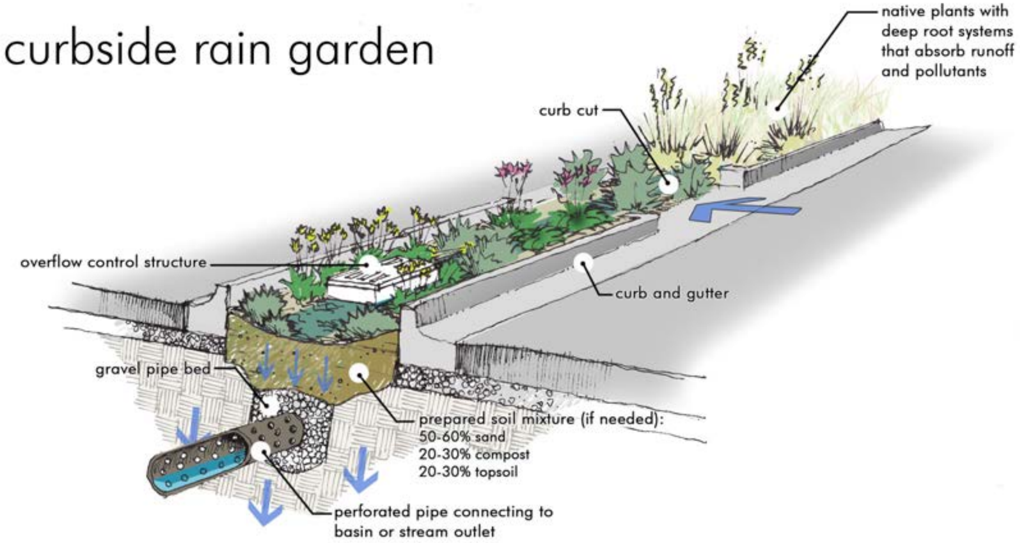

curbside rain garden
native plants with deep root systems that absorb runoff and pollutants
curb cut
overflow control structure
curb and gutter
gravel pipe bed
prepared soil mixture (if needed):
50-60% sand
20-30% compost
20-30% topsoil
perforated pipe connecting to basin or stream outlet

Fig 6.17: Operation of a typical curbside rain garden (thewhiteriveralliance.org)

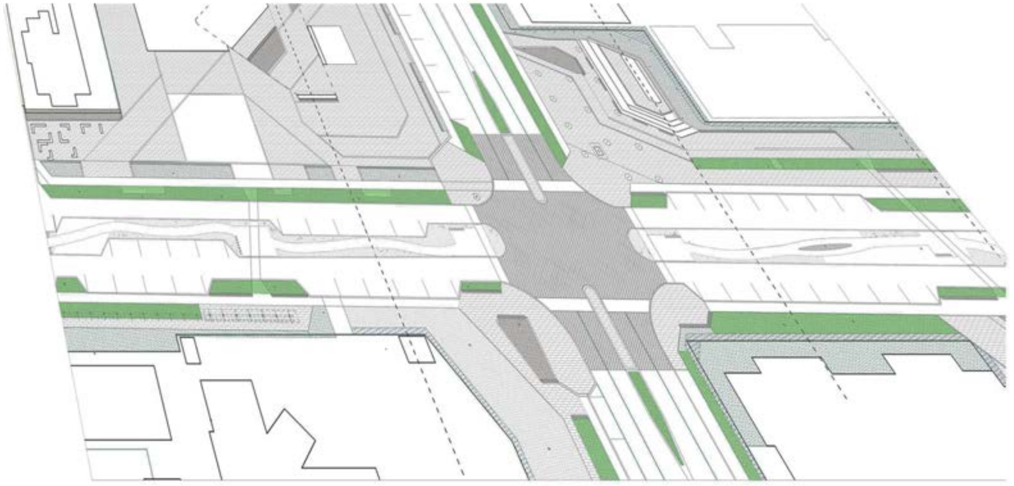


Fig 6.20: Areas suitable for harvesting surface runoff from roads to retain and channel it through bio–swales (author)

3.1.2. Material selection
(according to SSI 2014)

- Decrease materials sent to landfills
- Support the use of sustainable building products
- Use robust building materials economically.
- Use regional materials to reduce energy use for transportion and promote regional identity by supporting the use of local resources.
- Use recycled materials and avoid depletion of non-renewable resources.
- Eliminate the use of wood from threatened tree species.
- Consider using recycled plastic or composite lumber instead of wood.
- Identify material and product suppliers who can adapt and renovate reusable products
- Reuse salvaged materials and plants, which will contribute to a general increase in soil health.

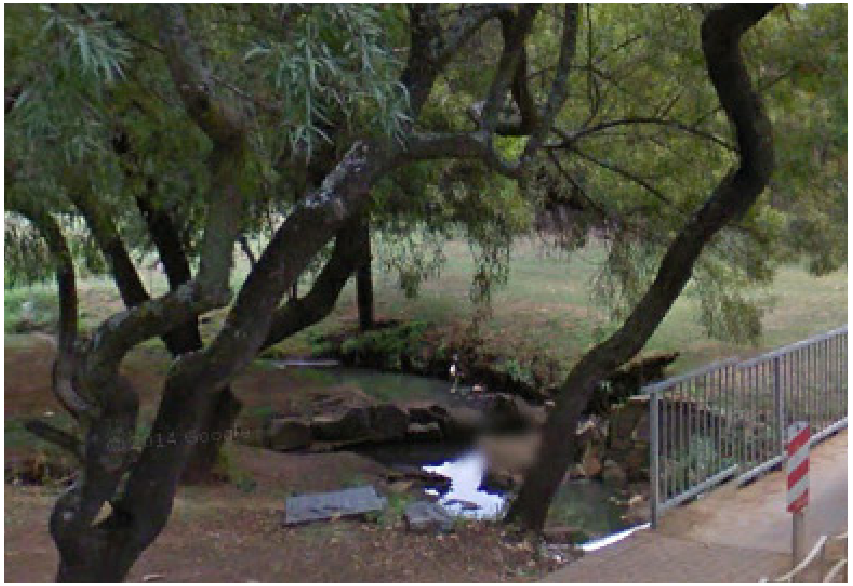

©2014 Google

Fig 6.22: River stones available around site (photo by author)

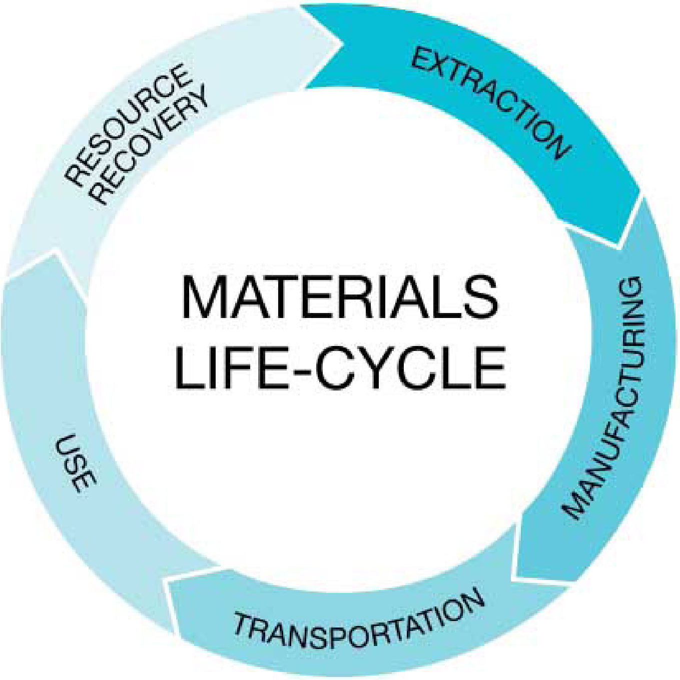

MATERIALS LIFE-CYCLE
EXTRACTION
MANUFACTURING
TRANSPORTATION
USE
RESOURCE RECOVERY

Fig 6.21: Material selection and life-cycle (SSI 2014)

Participation and interaction

PAPEIS
PLASTICOS
VIDROS
METAIS

Fig 6.23: Recycling initiatives (sustainablecitiescollective.com)

Lower urban heat-island affect:

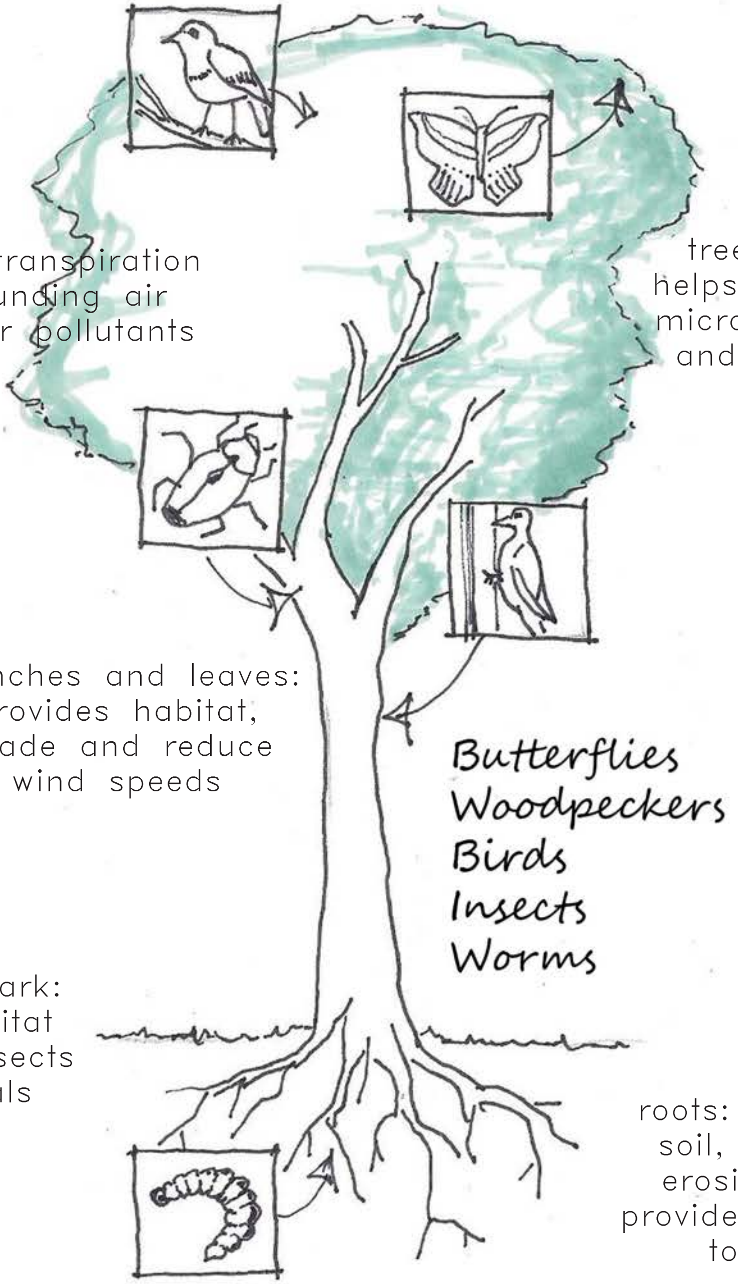
- Plant sufficient amounts of trees along Lunnon Road and on open paved areas, to create micro-climates.
- Avoid vast open paved areas

3.1.3. Transportation efficiency
(according to SSI 2014)

- Connect to multi-modal transit networks within a 0.8km walking distance from site.
- Encourage the use of bicycle transportation between UP main campus and LC De Villiers by connecting cycling lanes to project entrances.
- Create safe and exciting pedestrian routes.
- Widen road reserves and reduce the widths of existing roads to calm traffic and give priority to pedestrians.

3.1.4. Human Health + Well-Being
(according to SSI 2014)

- Protect and maintain cultural and historic places.
- Provide optimum site accessibility, safety, and wayfinding through clear visibility and good sight lines, a variety of options for access, landmarks and decision points or nodes.
- Identify areas that are quiet and could optimise the mental health benefits for site users: shade trees, visual and physical access to vegetation and mitigate elements of negative distractions.
- Support physical activity preferred by intended user groups (cycle lane and jogging route).
- Support social connection by providing sufficient seating at spaces that address micro-climate (moveable seating is preferred within enclosed or well defined spaces).
- Provide amenities, services, or activity spaces for moderate to large groups.
- Provide on-site food production and support the local economy.



leaves: evapotranspiration
cools surrounding air
and filters air pollutants

tree crown:
helps to create
micro-climates
and habitats

branches and leaves:
provides habitat,
shade and reduce
wind speeds

roots and bark:
provide habitat
for birds, insects
and animals

roots: stabilise
soil, prevent
erosion and
provide nutrients
to soil

Fig 6.24: Revive eco-systems to increase bio-diversity (by author)

3.2. Social interaction

-Spaces where users can sit in groups and interact with each other while waiting, eating or relaxing.
-Surfaces where students can interact with the landscape will encourage social interaction and events.

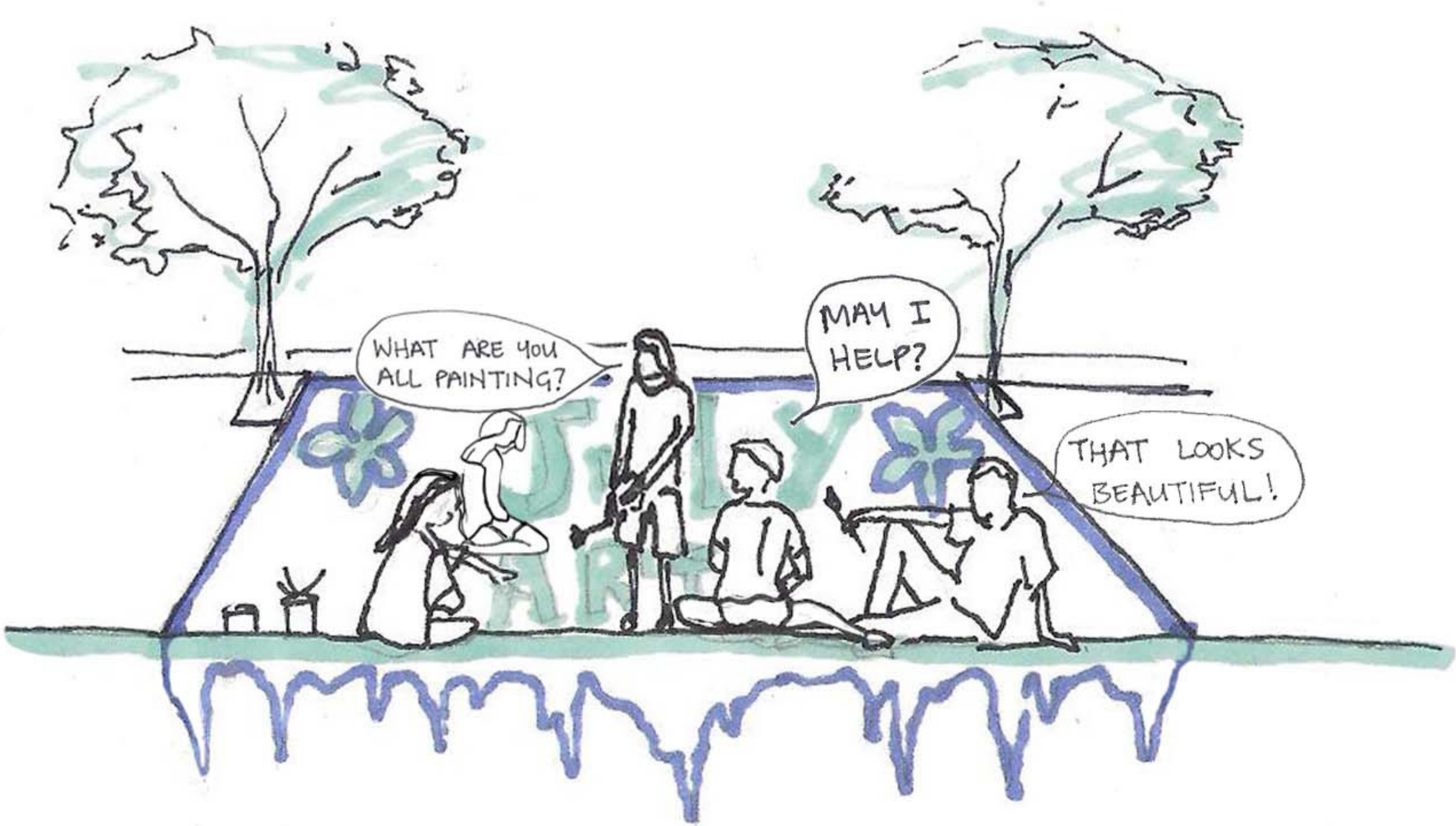

WHAT ARE YOU ALL PAINTING?
MAY I HELP?
THAT LOOKS BEAUTIFUL!

Fig 6.25: Interactive surfaces to involve the community and create awareness (by author)

3.3. Emotional connection

Hall states that when recalling specific emotions, the site user can feel more connected to heritage (2001:69). These are some examples of how emotions can be provoked:

- To evoke joy and excitement: colour, texture, pattern and surprise.
- For introspection and reverence: smooth and curvy lines, rolling topography.
- For calming, soothing and reassuring: water, shade and the colour green.
- Anticipation and apprehension: sharp angles, hard surfaces, and hot colours (Hall 2001).

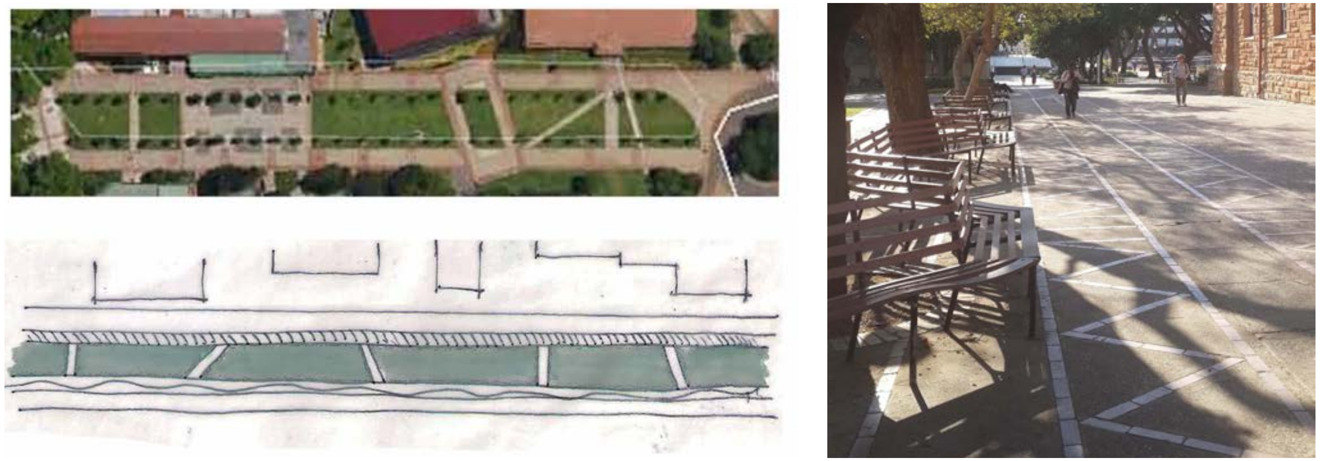


Fig 6.26: Patterns and colours, sharp angles and lines identified on UP main campus hardscape provokes feelings of anticipation and apprehension (Hall 2001) (photos by by author).

Patterns and lines: 45° angles:

The 45° angles are commonly found in the landscape of the main campus of the University of Pretoria. The constant use of fimiliar colours and patterns, angles and lines, will simultaneously serve as a synecdoche and remind the user of the fimiliarity with UP main campus itself.

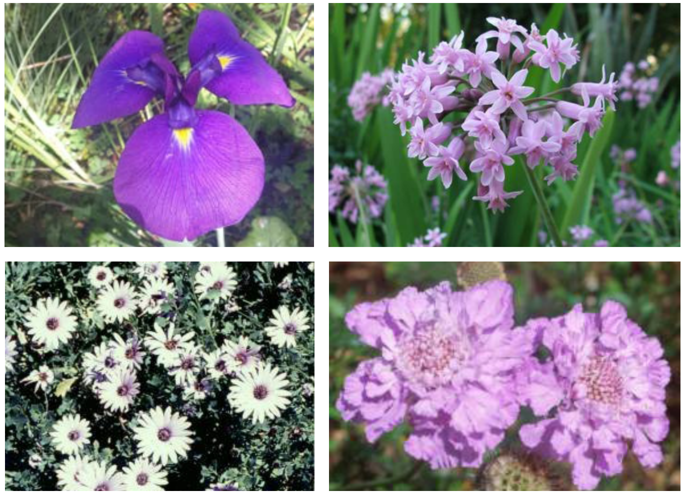


Fig 6.27 Flowers on main campus (Photos by by author)

Smooth, delicate and curvy flower textures enhances an intimate and calming ambience to provoke introspection and reverence (Hall, 2001). These plants are selected for spaces in the landscape where the site user is encouraged to linger or stroll. Shade, water and the colour green should be used to enhance the atmosphere of calmity and reassurance (Hall, 2001) at the memorial plaza, the private working or studying node and deli's along "*Eat street*" (chapter 8).

Sharp angles, straight and large flower textures contribute to apprehension and anticipation (Hall 2001). These plant species are selected to be placed along active corridors to encourage the user to walk faster to a dedicated node. This will further be explored in chapter 8 in the planting strategy.

Conclusion

It is clear that the three design objectives set out initially, a sense of belonging, a self–organising city and stewardship, are realistic and achieveable through careful consideration to all possible aspects that the design principles entail.

First: The sense of belonging in the urban landscape can be strengthened through social inclusion, *synecdoche* (when a part is used to resemble the whole) to reference the university's identity and commemoration. Restoring the lost heritage will create interest and awareness.

Second: A self–organising city can be achieved through viewing the path as destination, public activation, participation and an adaptable site programme. Genarate a comfortable, safe and exciting urban landscape which is adaptable to a range of events and rituals and capable of change for future generations.

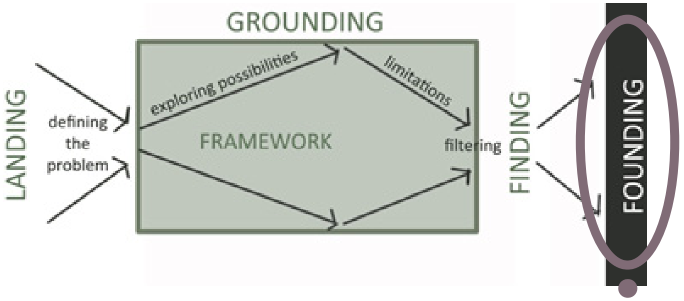
Third: Sustainable green practices, social interaction and the emotional connection will encourage stewardship where site users can say:

"This is my space, my university, my city and my pride"

SKETCHPLAN AREAS

7

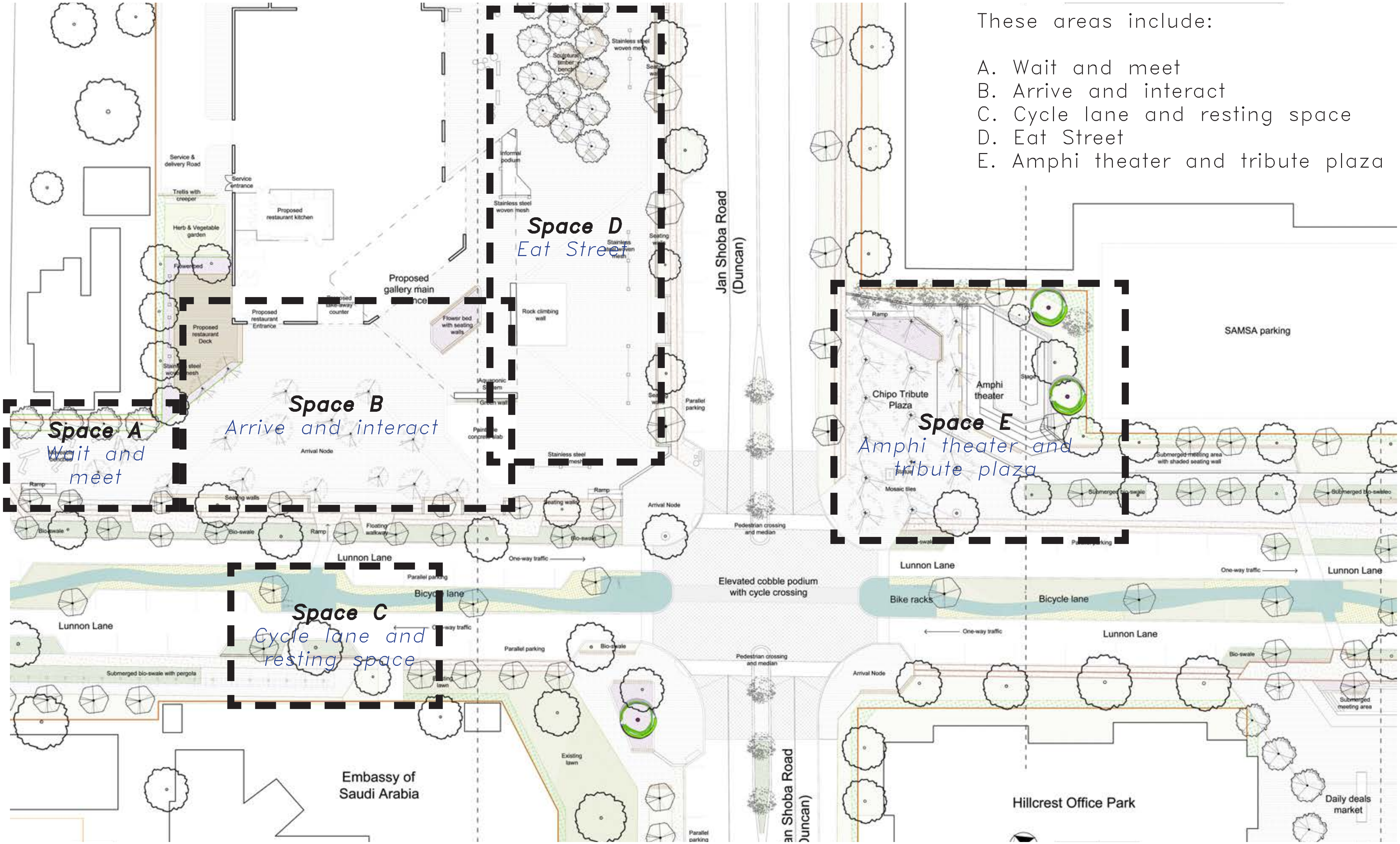
Landscape Sketchplan
Space A
Space B
Space C
Space D
Space E


GROUNDING
LANDING
defining the problem
exploring possibilities
limitations
FRAMEWORK
filtering
FINDING
FOUNDING

This chapter, the "founding", presents the final design solution to the sketchplan area, which is divided into five focus areas. After following the structured research (landing, grounding and finding), a programme and discription of the spaces are given together with the strategies the author used in each case.

FOUNDING

The sketchplan is devided into five spaces through which the technicality will be resolved. These spaces will convey the design goals previously set out.


Space D
Eat Street
Space B
Arrive and interact
Space A
Wait and meet
Space C
Cycle lane and resting space
Space E
Amphi theater and tribute plaza
Service & delivery Road
Trellis with creeper
Herb & Vegetable garden
Service entrance
Proposed restaurant kitchen
Proposed gallery main entrance
Proposed restaurant Deck
Proposed restaurant Entrance
Flower bed with seating walls
Informal podium
Sculptural timber bench
Stainless steel woven mesh
Rock climbing wall
Aquaponic System
Green wall
Arrival Node
Seating walls
Bio-swale
Ramp
Floating walkway
Lunnon Lane
Bicycle lane
One-way traffic
Parallel parking
Submerged bio-swale with pergola
Jan Shoba Road (Duncan)
Elevated cobble podium with cycle crossing
Pedestrian crossing and median
Chipo Tribute Plaza
Amphi theater
Stage
Mosaic tiles
SAMSA parking
Submerged meeting area with shaded seating wall
Bike racks
Hillcrest Office Park
Daily deals market
Embassy of Saudi Arabia
Existing lawn

These areas include:

A. Wait and meet
B. Arrive and interact
C. Cycle lane and resting space
D. Eat Street
E. Amphi theater and tribute plaza

Fig 7.1: The five focus areas on the site in Lunnon Lane (author)

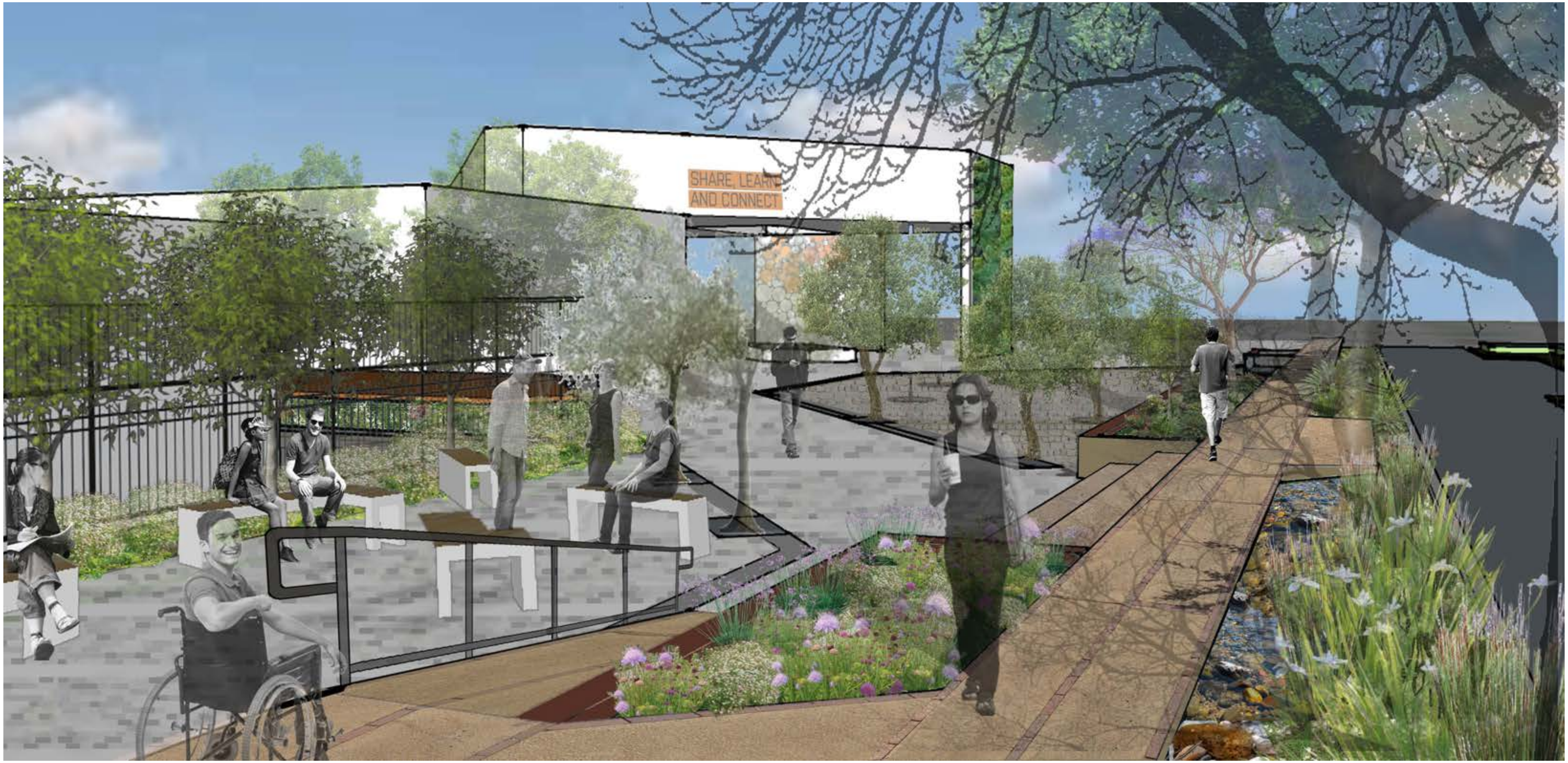


Fig 7.2: Perspective of space A (author)

Programme and description:

Space A is a comfortable and welcoming arrival to the site which introduces innovative and sustainable design solutions on how to deal with stormwater runoff from Lunnon Lane. The 45° angles in the patterns of the hardscape emotionally connects the user to the identity of the hardscape surfaces found on UP main campus. These lines follow critical movement patterns through the site and also evokes feelings of excitement and anticipation (Hall, 2001).

SPACE A:
WAIT AND MEET

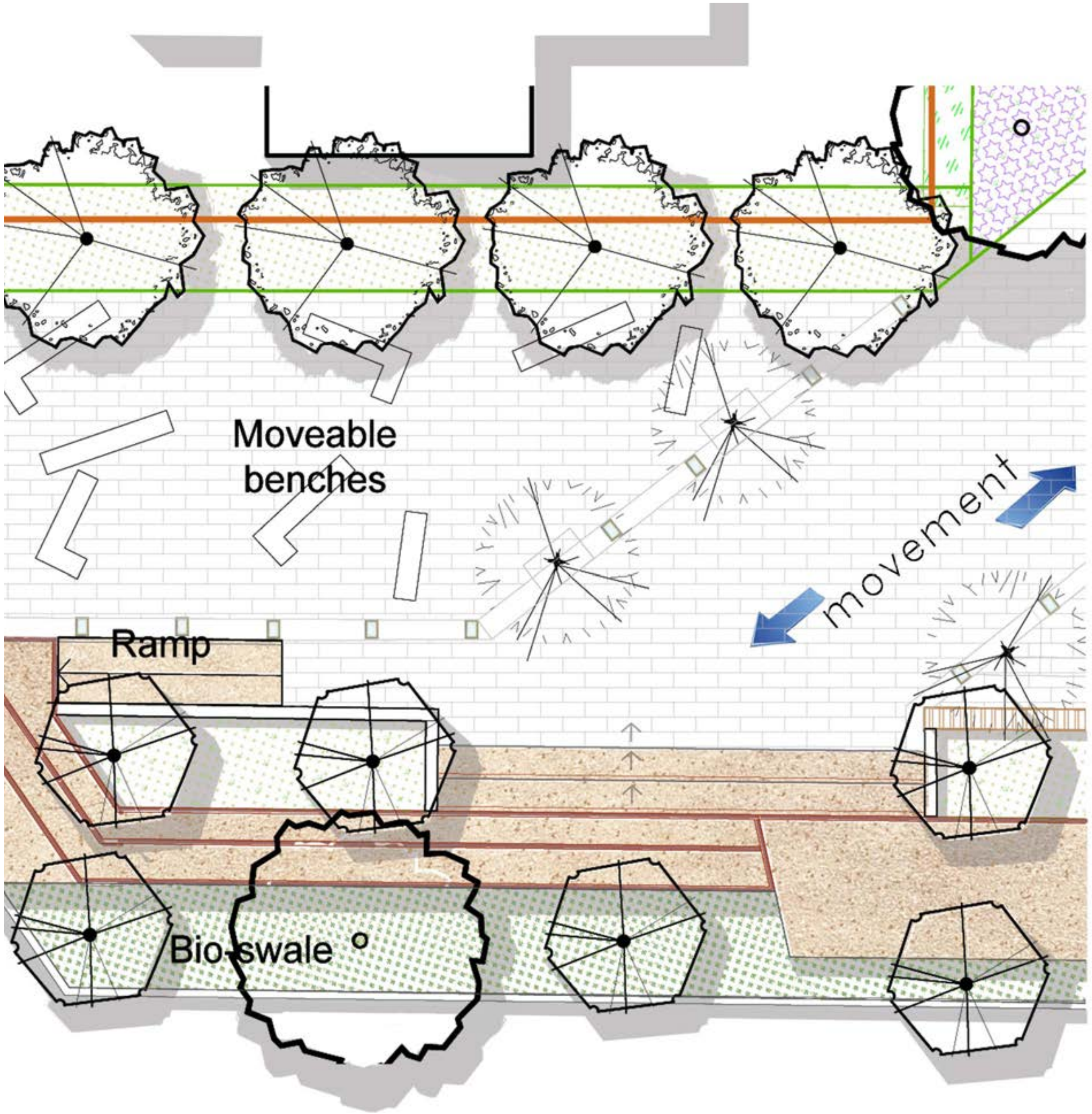


Fig 7.3: Space A, Wait and meet (author)

Strategy:

1. Social inclusion:
1.1. Universal design principles demands access for all.
1.2. Social connections are supported by well-defined, semi-enclosed seating spaces (achieved by level changes) to 'wait and meet'.

2. Synecdoche: UP planting species and paving patterns used as familiarity and reference to the main campus.

3. Close proximitry - Space A is a 5 minute walking distance to two existing public parking areas

4. Sustainable green practices (SSI 2014):
4.1. Bio-swales with subsurface drainage systems.
4.2. Permeable paving harvest surface runoff from paving.
4.3. Heat islands decreased to provide micro-climates for comfortable human spaces.
4.4. Local materials used: river stones from LC De Villiers to create habitats for reptiles, birds and insects, increasing the local biodiversity.
4.5. Sustainable building materials used: Saligna timber benches and seating walls avoid the depletion of threatened tree species.
4.6. Clear sightlines of access routes assist in wayfinding.

Programme and description:

The main arrival node is a versatile space to accommodate large crowds of people. It offers open space for events such as street galleries, markets and flash-mobs.

Space B presents the main entrance of the proposed gallery and other magnets such as a healthy food take-away and a restaurant. The proposed restaurant activates a lost corner on the site and boasts its own vegetable and herb garden on the northern facade (seen on the main sketchplan, fig. 7.1) for fresh on-site produce. The restaurant deck is protected from the warm northern sun through stainless steel woven mesh structures and replanted *Celtis africana* trees.

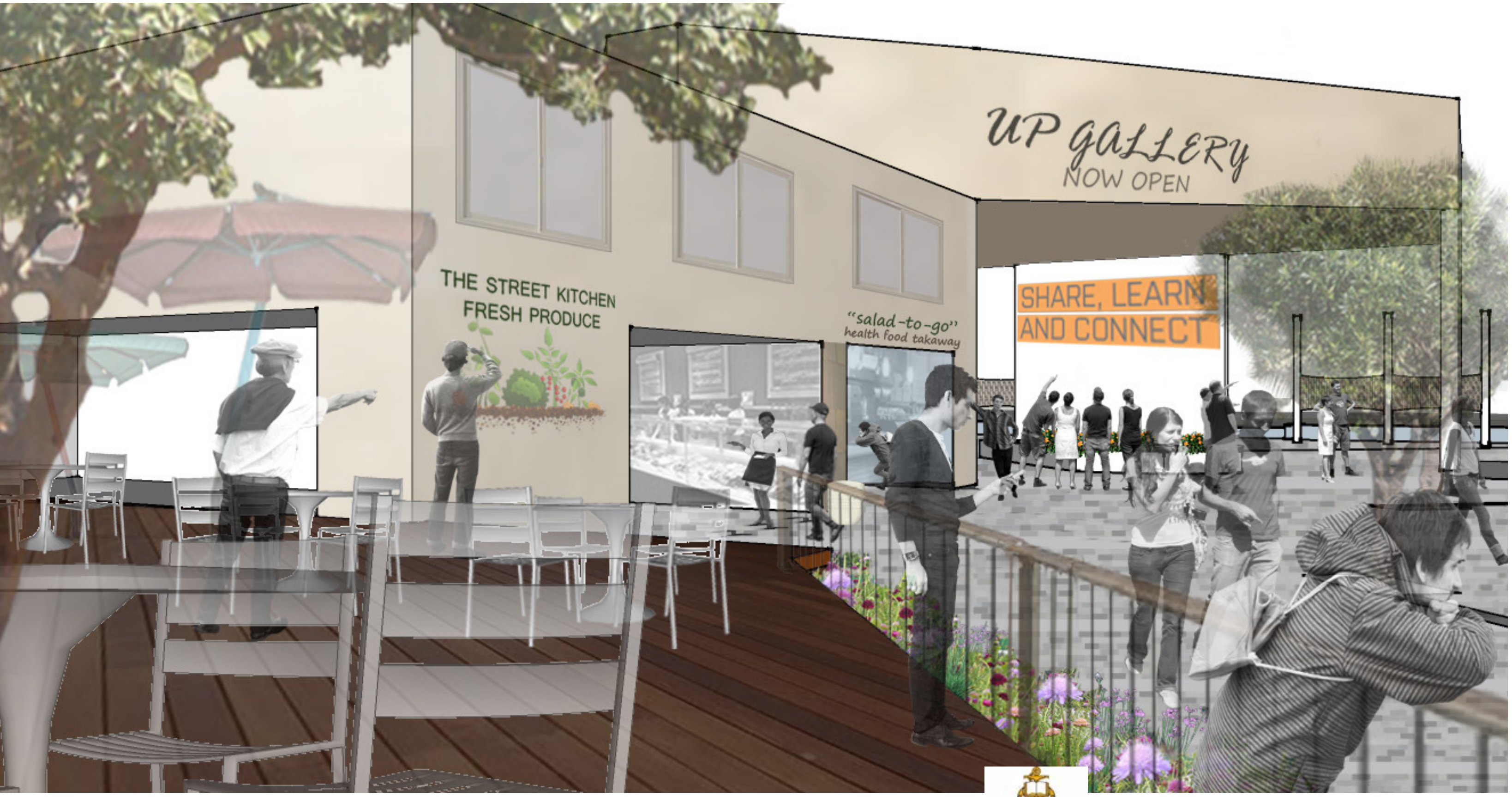


Fig 7.4: Restaurant and main entrance of proposed gallery (author)

The shaded courtyard is revived by a flower bed of yellow Clivias and an aqua-ponic system to educate students about sustainable water useage.

The paintable concrete slab adjacent to the green wall serves as an interactive landscape surface to create awareness of local events. It is a magnet which creates public interest and is situated along a popular pedestrian access route.

Trees are arranged in a loose pattern to serve as a relief of the strong geometry in the paving patterns. The floating walkway offers various choices of entry and the extended stairways may also serve as seating for observer groups.

SPACE B:

ARRIVE AND INTERACT

Strategy:

1. The proposed restaurant deck is a well defined secluded social space away from the buz of pedestrian activity.

2. Synecdoche: UP planting species, paving patterns and building material (sand-coloured exposed aggregate walkways and synthetic timber) used as familiarity and reference to the main campus.

3. Path as destination: frequent pause-nodes along the main walkway encourage users to slow their movement and penetrate into the landscape. Magnets such as the restaurant, painted concrete slab and gallery draw people into the site.

4. Public activation: the main arrival node has an adaptable programme for various events. An interactive paintable concrete surface encourages the site user to engage and leave their mark in the landscape.

5. The plaza is defined by a level difference (cut-and-fill terraces guided by existing contours) and trees that serve as beacons and create shade.

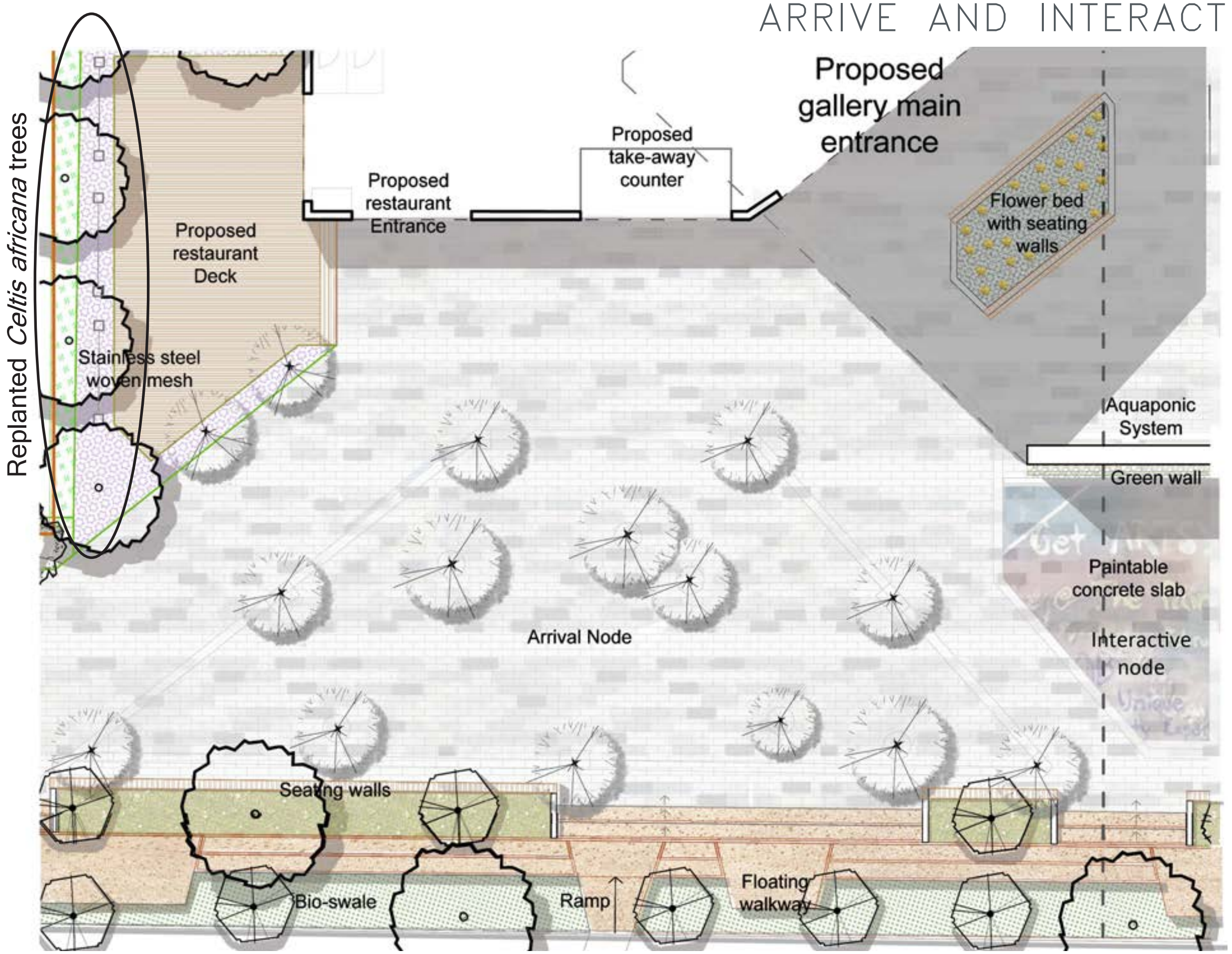

Replanted *Celtis africana* trees
Proposed restaurant Deck
Stainless steel woven mesh
Proposed restaurant Entrance
Proposed take-away counter
Proposed gallery main entrance
Flower bed with seating walls
Aquaponic System
Green wall
Paintable concrete slab
Interactive node
Arrival Node
Seating walls
Bio-swale
Ramp
Floating walkway

Fig 7.5: Space B, Arrive and Interact (author)

6. Sustainable green practices (SSI 2014):

6.1. *Celtis africana* trees that were removed in the road construction will be replanted along the restaurant's deck to provide a cooler micro-climate on the deck.
6.2. Dedicated lines of permeable paving harvest surface runoff from paving and channels it to a sub-surface water reservoire in space E.
6.3. Heat islands decrease by planting Wild Olive trees for human-scale spaces and shade.
6.4. Sustainable building materials used: Saligna timber benches and seating walls avoid the depletion of threatened tree species. Synthetic timber used in the construction of the deck (see chapter 8 for details).
6.5. Clear sightlines of access routes assist in wayfinding.

Programme and description:

Space C presents an area to rest in the shade of the fragrant Canary creeper that wraps the pergola in bright yellow flower and attract many species of butterflies. It is a calm, passive space to watch pedstrians, bicycles and cars go by.

The island offers a shaded bicycle rack and safe crossing for pedestrians, however, the signage reminds the users that this island is purposed for cyclists and not meant for pedestrians to linger.

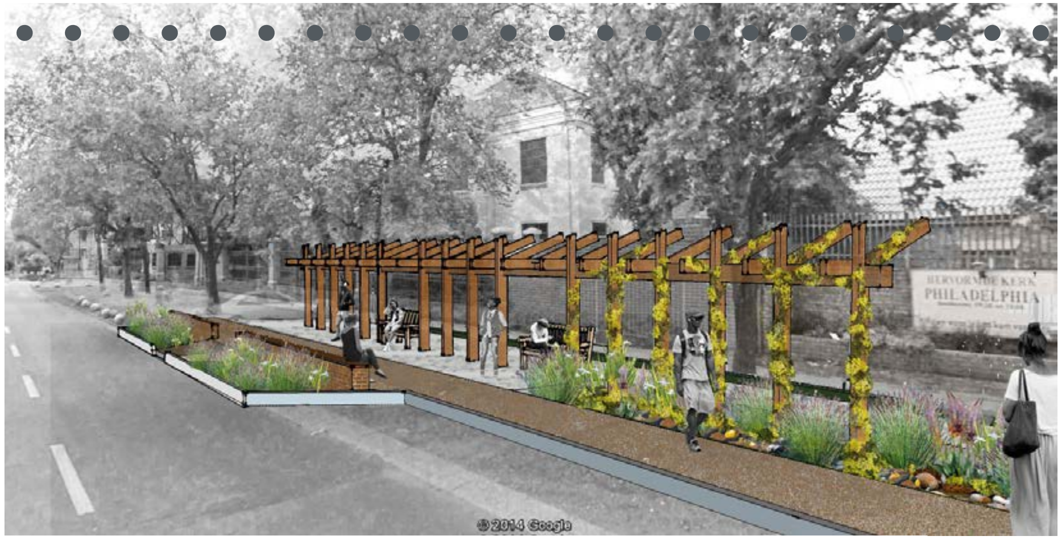

HERVORMDE KERK
PHILADELPHIA
©2014 Google

Fig 7.6: Pergola resting area (author)

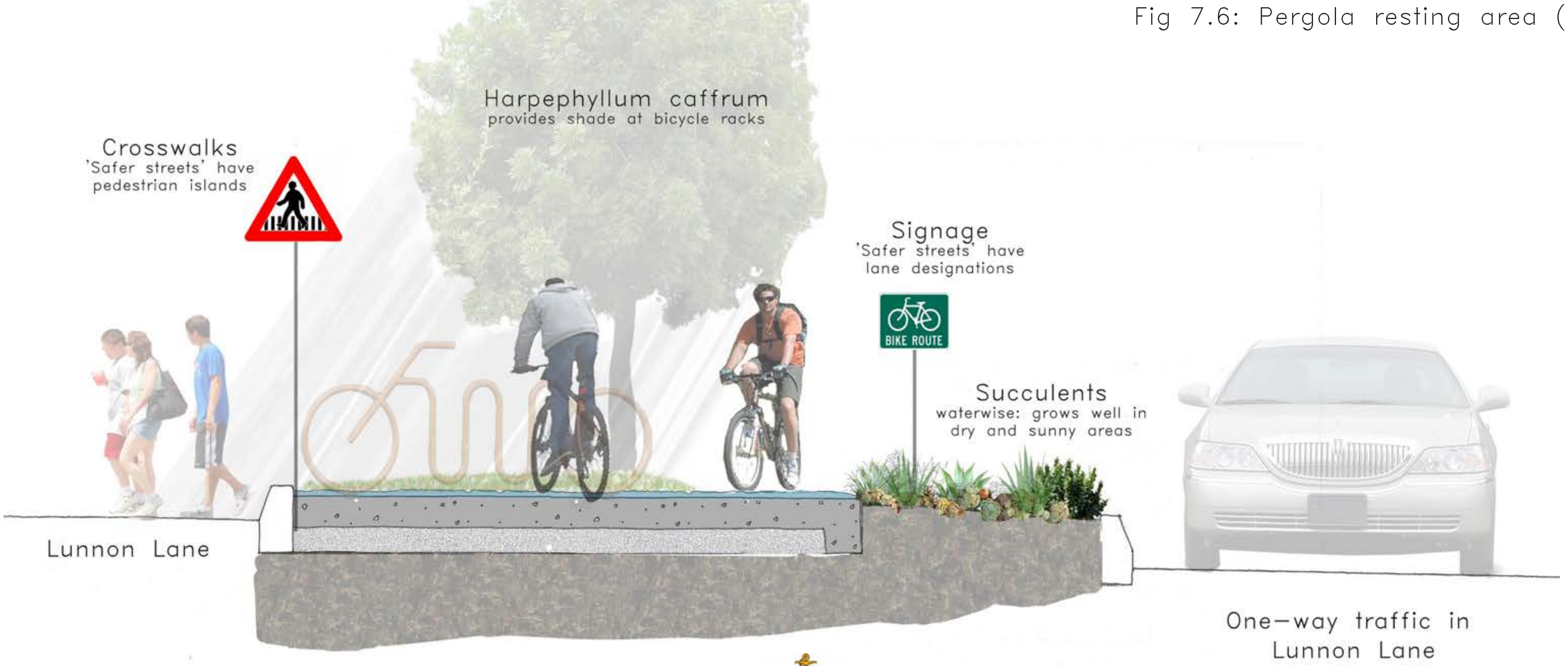

Harpephyllum caffrum
provides shade at bicycle racks
Crosswalks
'Safer streets' have
pedestrian islands
Signage
'Safer streets' have
lane designations
BIKE ROUTE
Succulents
waterwise: grows well in
dry and sunny areas
Lunnon Lane
One-way traffic in
Lunnon Lane

Fig 7.7: Section BB through cycle lane and pedestrian island (author)

SPACE C:
PERGOLA AND CYCLE LANE

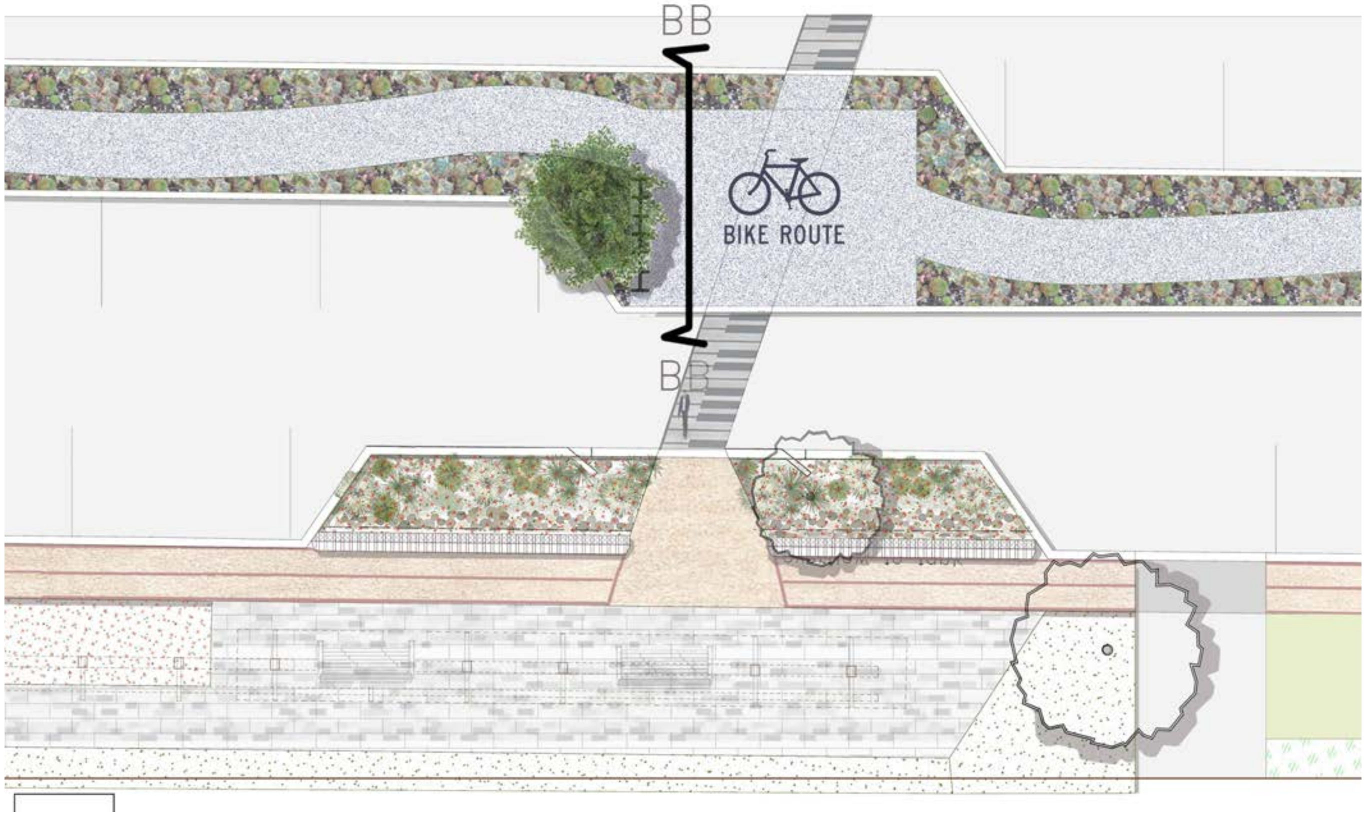


Fig 7.8: Space C, Cycle lane and resting space (author)

Strategy:

1. Social inclusion: pedestrian crossings and kerbs are level with Lunnon Lane and meets a ramp onto the final walkway level, with a slope less than 8.3%.

2. Synecdoche: *Harpephyllum caffrum* is a fimiliar tree specie used in the eastern expansion of UP campus and has been planted in an avenue where Lunnon Lane previously existed. This will further the existing landscape strategy of expansion toward the East.

3. Making Safer Streets:

3.1. Kerb extensions for pedestrians to enter into the sightlines of motorists.
3.2. Crosswalks and pedestrian safety islands also serve as a bicycle rack area.
3.3. Lane designations for legibility and to avoid traffic confusion.

4. Waterwise: succulents planted all along the cycle lane are able to with-stand droughts and full-sun.

5. The pergola provides a human scale to a rest area and shade for a comfortable micro-climate.

6. Material selection: The timber used for the pergola and street furniture, is from an abundant Eucalyptis specie to avoid depletion of threatened tree species.

7. Road sloped outward toward bio-swales to direct stormwater to kerb-inlets.

Programme and description:

Space D is named *Eat Street.* This is an eventful space with many possibilities. A rock–climbing wall is introduced since the university's previous one on the sports facilities had been closed. As you reach the top of this wall, students can view the university campus and see further than LC De Villiers. This is a fresh perspective and creates a new appetite as Poletto encourages architecture to achieve (2012:6).

Transparent stainless steel woven mesh structures provide shade in the landscape and can be used as surfaces for projecting images or even movies on. This allows for an outdoor theater where users can sit on the sculptural timber benches and watch a film and so these structures liven up the landscape in the evenings.

An informal podium encourages local users to share their talents as the appreciative audience sit on timber benches, under the impressive decidious Wild Pepper trees.

Deli's and cafè's arrange their out–spill spaces with loose furniture such as umbrellas moveable tables and planting pots.

Eventhough there are many elements to this space, it harmonises with each other as it caters for different social classes and cultures, and still presents vast open space to continue a street gallery exhibition or market space in conjunction with other activities discussed.

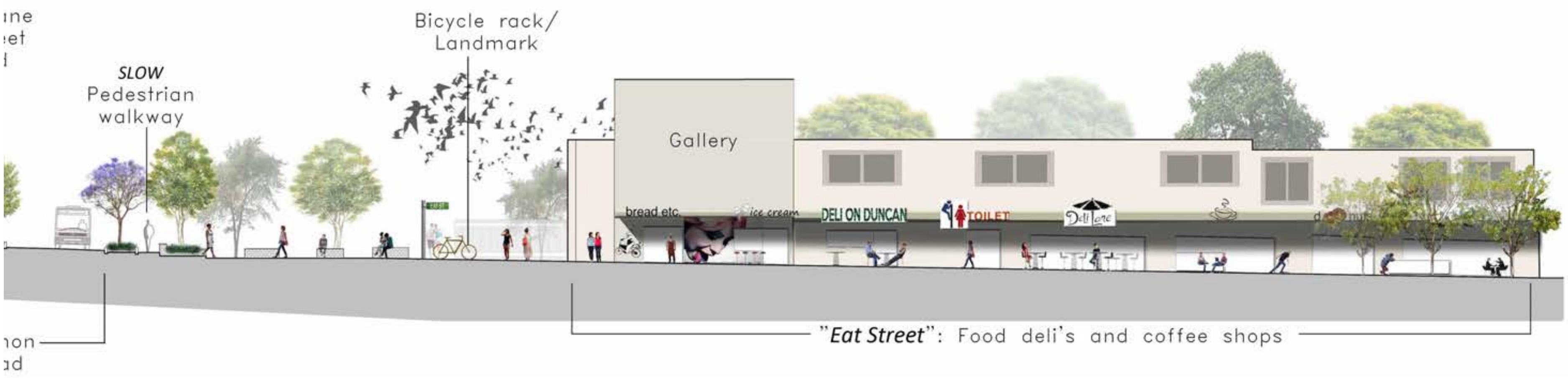


Fig 7.9: Section through *Eat Street* (author)

SPACE D:

EAT STREET

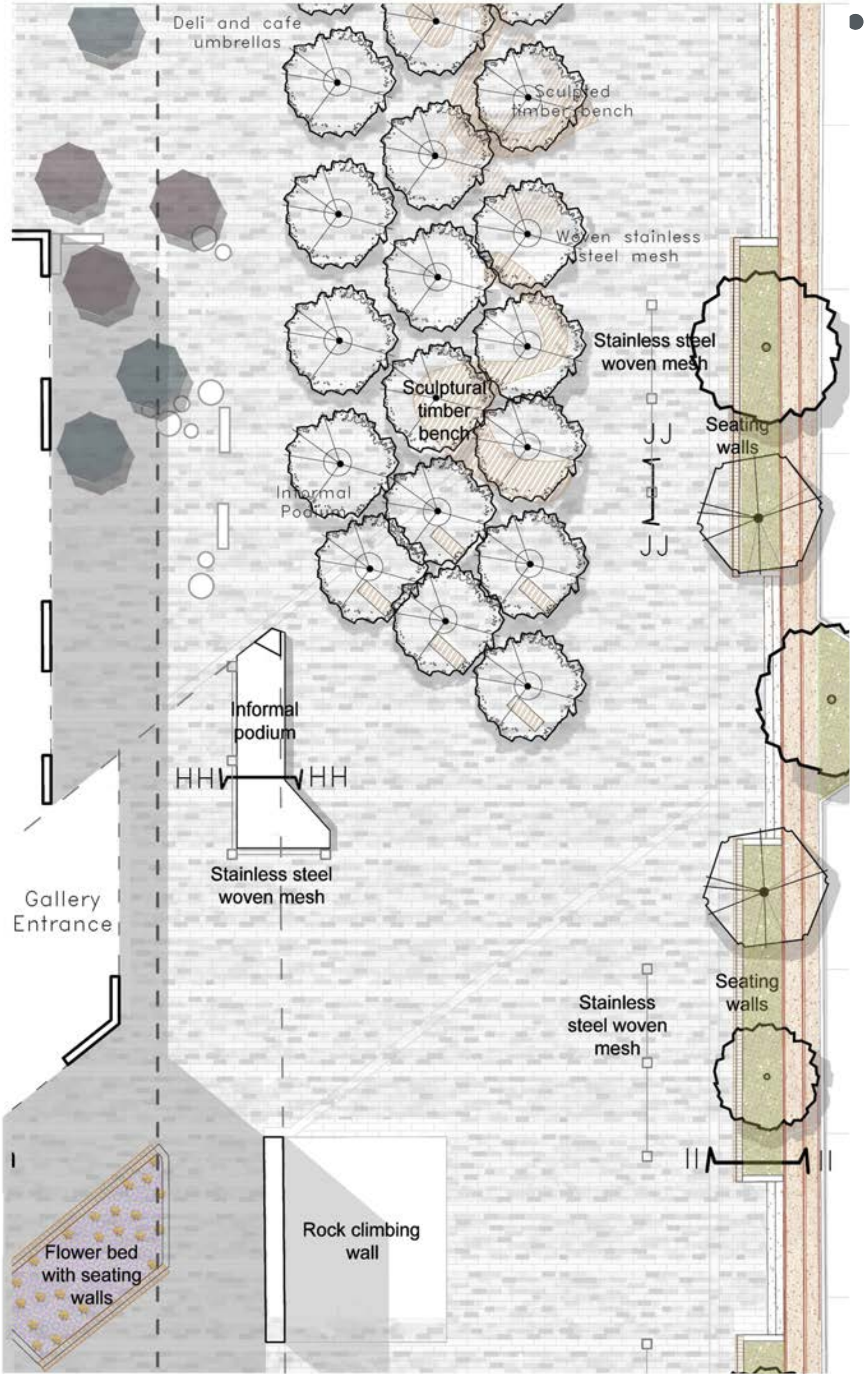

Deli and cafe umbrellas
Sculpted timber bench
Woven stainless steel mesh
Stainless steel woven mesh
Seating walls
Sculptural timber bench
JJ
JJ
Informal Podium
Informal podium
HH
HH
Gallery Entrance
Stainless steel woven mesh
Seating walls
Stainless steel woven mesh
II
Rock climbing wall
Flower bed with seating walls

Fig 7.10: Space D: *Eat street* (author)

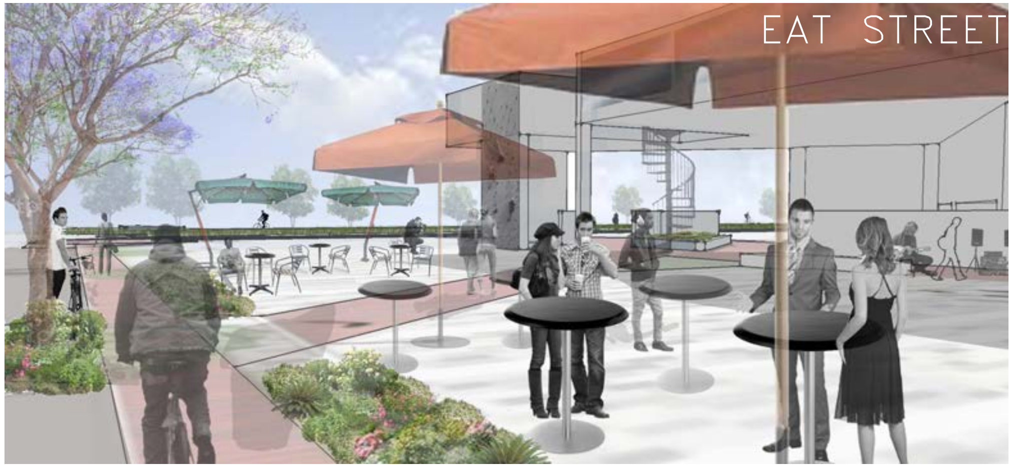


Fig 7.11: Perspective of *Eat Street* (author)

Strategy:

1. Path as destination:
1.1. Pause nodes and access options at intervals along the main walk-way encourages pedestrians to filter into the site
1.2. Magnets along Eat Street cater for basic needs of the user: to eat and drink, study and work, and to socialise.

2. Self-organising city:
2.1. Various options of recreation is accomodated.
2.2. Open space allows for an adaptable programme on site.
2.3. Loose street furniture allows for self-organization and provides comfortable human spaces and micro-climates.
2.4. Removing the fence allows for easier access and pedestrian circulation.

3. Sustainable green practices (SSI 2014):
3.1. Material selection: the timber used for all the street furniture, in Space D is from an abundant Eucalyptis specie to avoid depletion of threatened tree species.
3.2. Dedicated lines of permeable paving harvest surface runoff from paving and channels it to a sub-surface water reservoire.
3.3. Decidious trees lowers heat-islands and creates comfortable micro -climates.
3.4. Recycling initiatives in close proximity and easy access.

Fig 7.12: Sister Marie Brady, Chipo and Frances (Hopkins, 1994:53)

Programme and description:

The memorial plaza is not only a tribute to Chipo Kachingwe but also to edify the brave sisters of Loreto Convent Hillcrest, now known as Nerina ladies residence on the corner of Lunnon and Herold Street.

During the 1970s, the sisters of Loreto Convent stood up against the apartheid government and accepted this Malawian girl into their all-white private school. They acted against national educational policies despite the difficult consequences the school would have to face (governmental subsidies and other rights) as a result of their compassion.

The Chipo Tribute Plaza is a space of reverence and introspection. Mosaic inlays on the pavement leads the site visitor toward the statue of sister Marie Brady who helped Chipo to adjust to the all-white catholic school. She portrays the welcoming of democracy in its earliest stages.

The statue is 'planted' amongst a grid of Olive trees - which resemble freedom and peace - and has a backdrop of delicate purple flowers to create an intimate and calm space where users would linger.

The amphi theater slopes down along the existing natural contours with a beautiful backdrop of succulents planted in gabion pockets. The theater is lit up in the evenings with paving lights placed at random (see lighting strategy in chapter 8).

Comfortable timber seating and a 360° view onto vegetation makes this vast open space a popular lunch spot and a place of spiritual restoration.

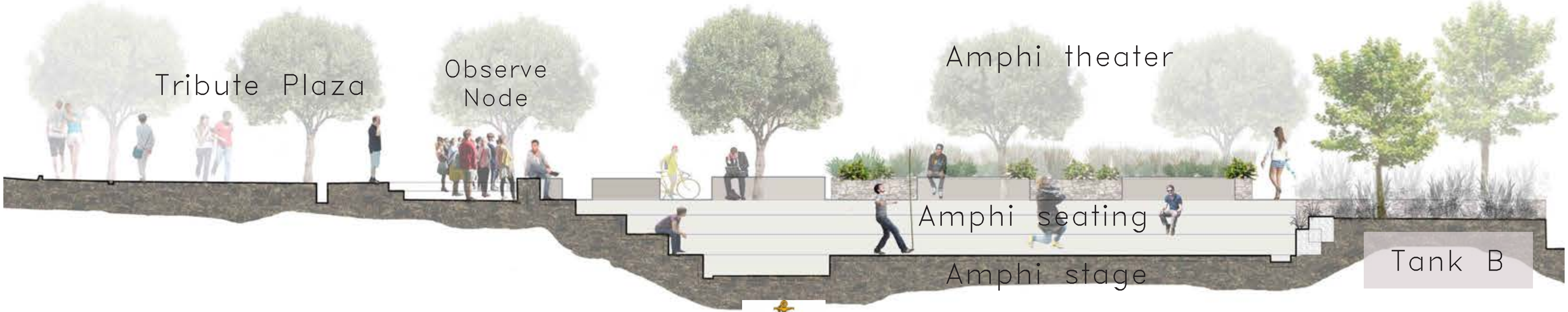


Fig 7.13: Section through amphi theater and memorial plaza (author)

SPACE E:

CHIPO TRIBUTE PLAZA AND AMPHI THEATER

Strategy:

1. Social inclusion:
1.1. The amphi theater is universally accessible.
1.2. Opportunities to actively participate or passively observe.
1.3. Encourages students' '*way of life*' by providing a platform for intangibles (existing and new traditions).

2. Synecdoche: Walkways continue as sand-coloured exposed aggregate for unity and reference to the main campus. 45° angles shape the seating of the amphi theater and allow for pedestrian circulation behind the audience.

3. Commemoration:
3.1. The informative journey reveals lost heritage and creates public interest.
3.2. Wild Olive tree convey a cultural message and maintain a prevalent theme.

4. Sustainable green practices (SSI 2014):
4.1. Recycling initiatives in close proximity and easy access.
4.2. Waterwise: succulents planted in gabions do not need regular watering. Water reservoire is situated behind the gabions (see fig 7.13).
4.3. Material selection: the timber used for amphi theater seating is from an abundant Eucalyptis specie to avoid depletion of threatened tree species.

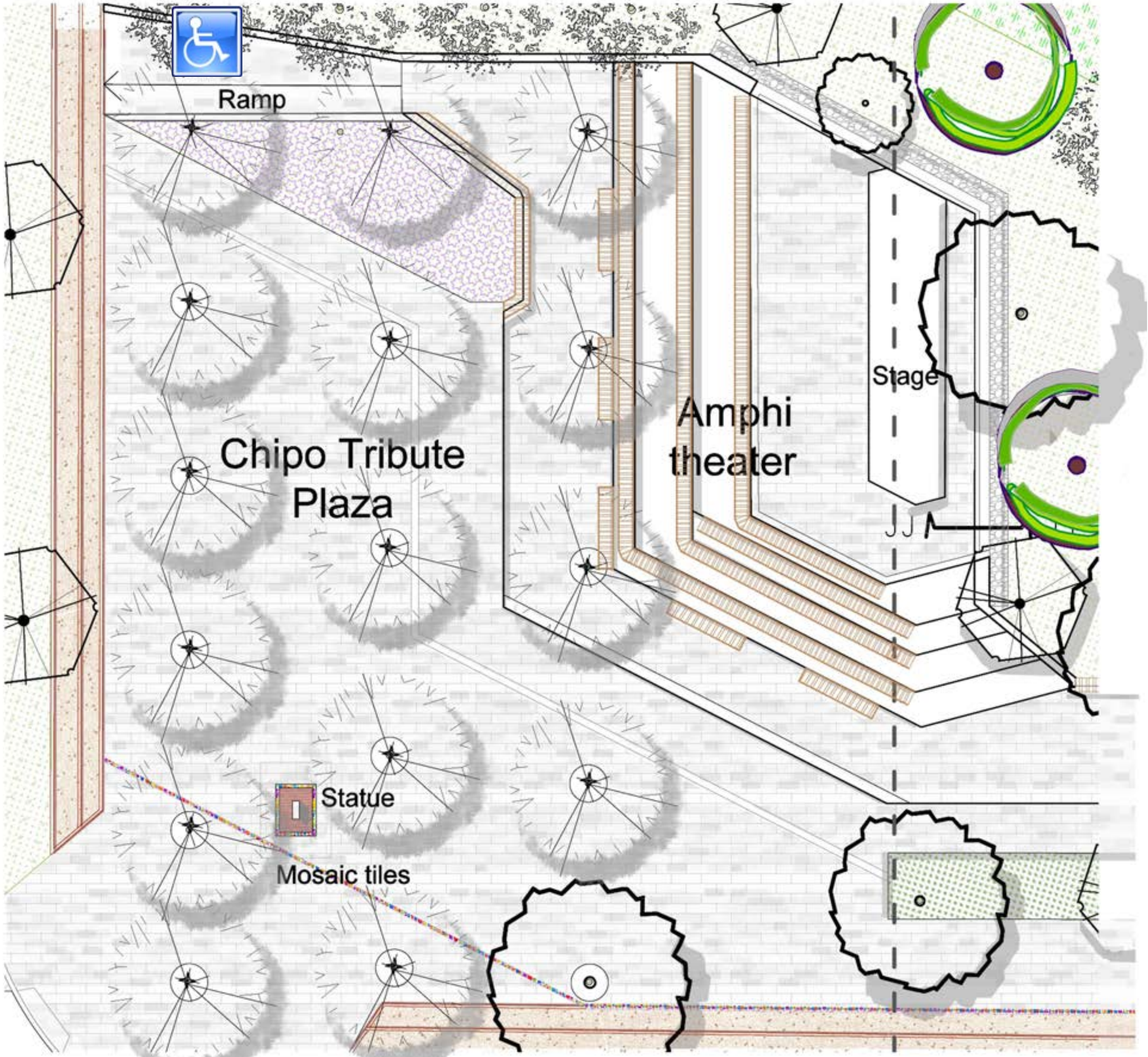
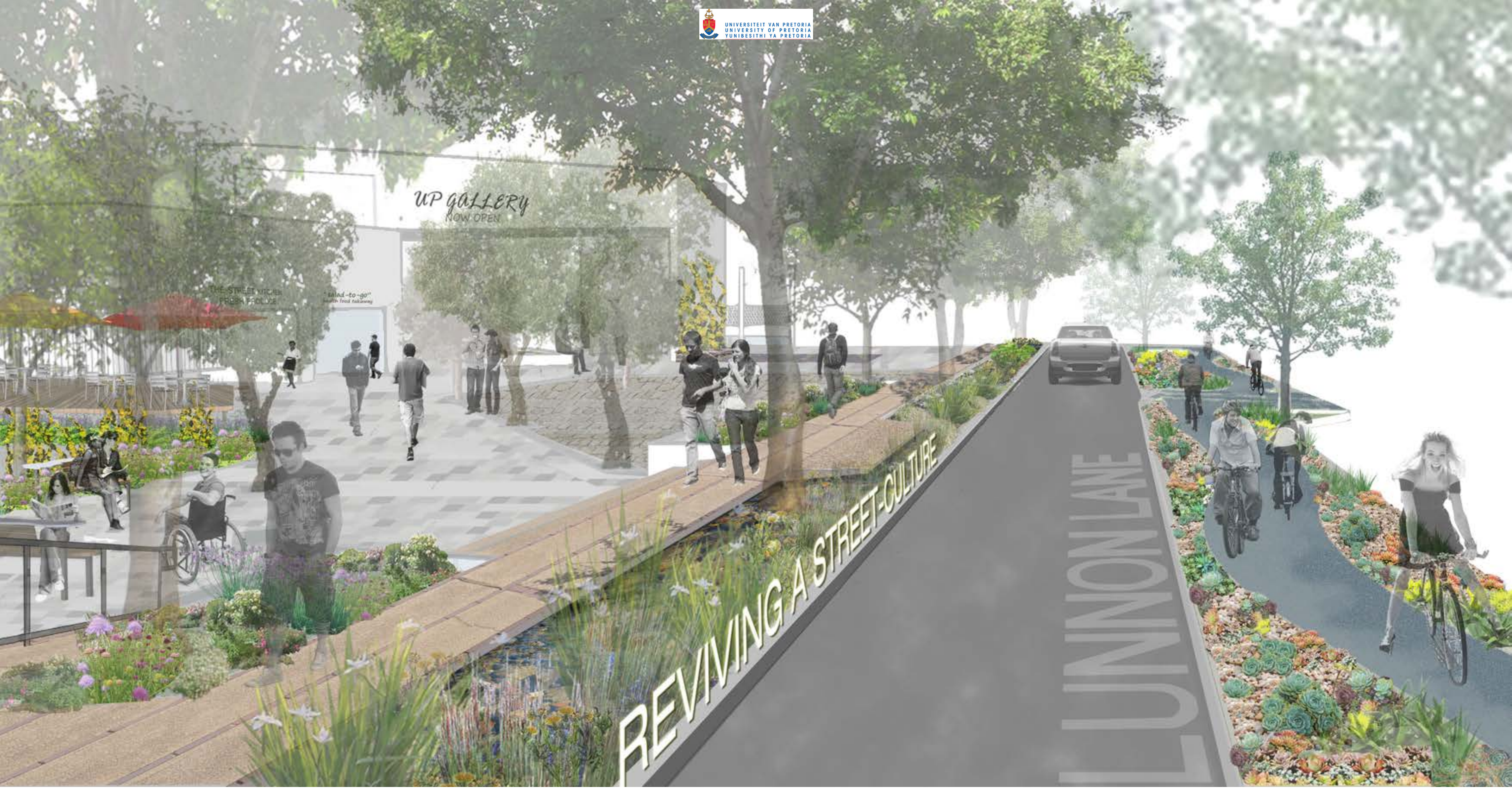
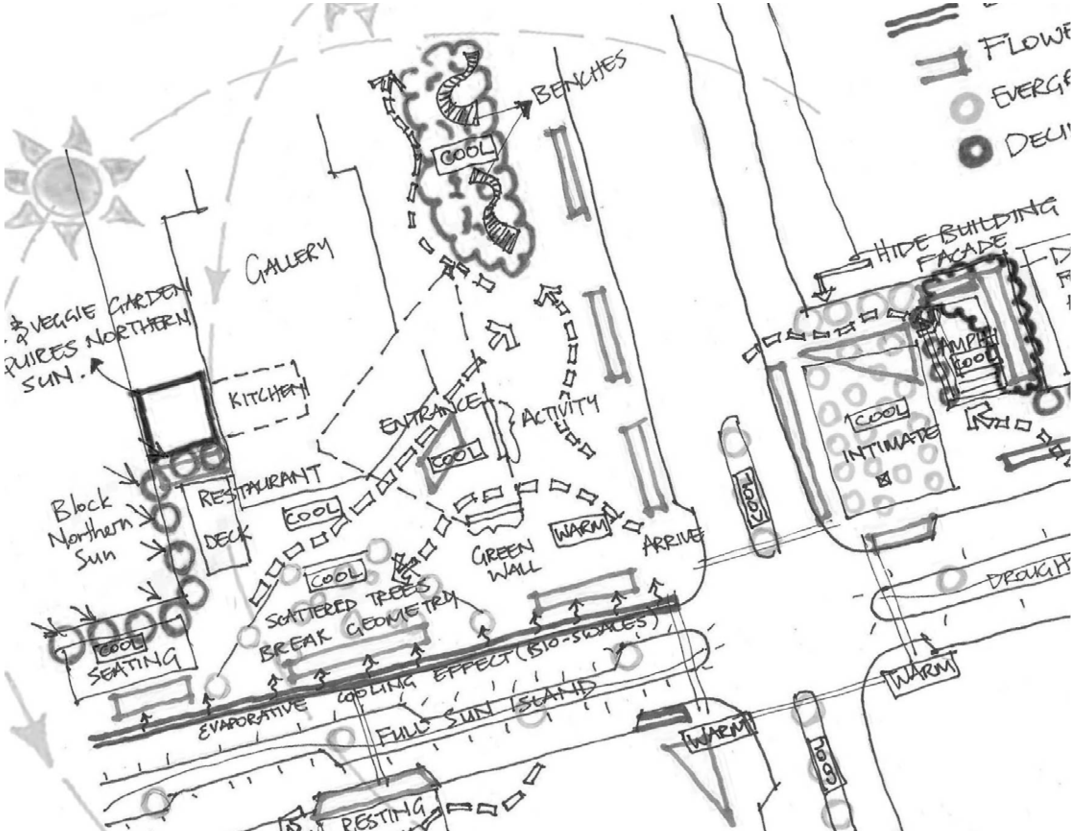


Fig 7.14: Plan of tribute plaza and amphi theater (author)


UP GALLERY
NOW OPEN
THE STREET KITCHEN
FRESH PRODUCE
"salad-to-go"
health food takeaway
REVIVING A STREET-CULTURE
LUNNON LANE


FLOWE
EVERG
DECI
BENCHES
COOL
GALLERY
VEGGIE GARDEN
QUIRES NORTHERN SUN.
KITCHEN
ENTRANCE
ACTIVITY
COOL
RESTAURANT
DECK
Block Northern Sun
COOL
COOL
GREEN WALL
WARM
ARRIVE
SCATTERED TREES BREAK GEOMETRY
COOL SEATING
EVAPORATIVE COOLING EFFECT (BIO-SWALES)
FULL SUN ISLAND
WARM
RESTING
JOG
JOG
HIDE BUILDING FACADE
AMPHI
COOL
COOL
INTIMATE
DROUGHT
WARM

Introduction
SSI 2014 rating system
Site hydrology strategies
Stormwater calculations
Planting strategy
Planting pallette
Planting plan
Lighting plan
Paving plan
Detailed construction sections
Furniture specifications
Proposed furniture

TECHNICAL INVESTIGATION

8

Introduction

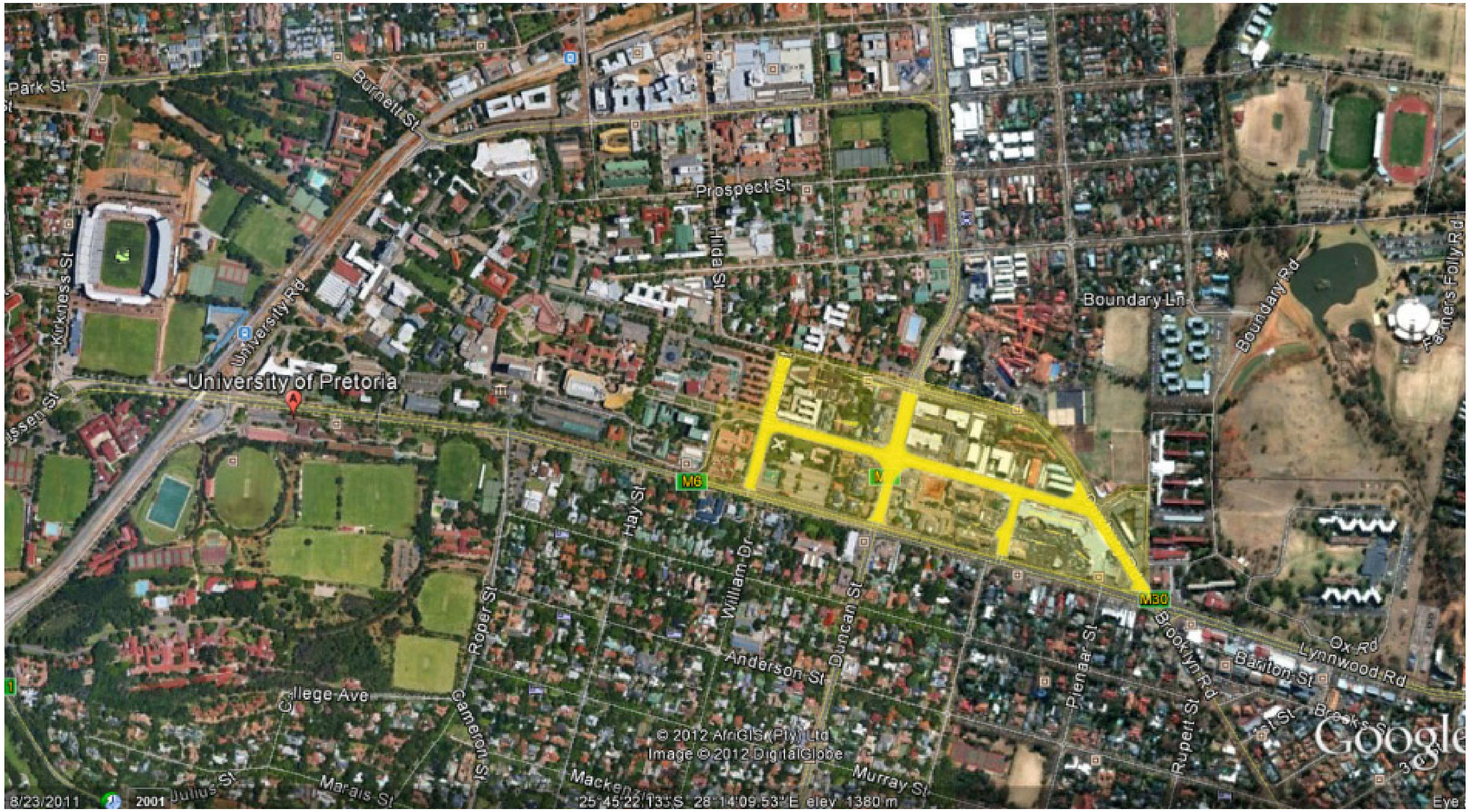

Park St
Burnett St
Prospect St
Hilda St
University Rd
Kirkness St
University of Pretoria
Boundary Ln
Boundary Rd
Farmer's Folly Rd
M6
Hay St
William Dr
Duncan St
Anderson St
Roper St
Cameron St
College Ave
Pienaar St
M30
Brooklyn Rd
Ox Rd
Lynnwood Rd
Barton St
Rupert St
Murray St
Marais St
Julius St
© 2012 AfriGIS (Pty) Ltd
Image © 2012 DigitalGlobe
8/23/2011
2001
25°45'22.13" S 28°14'09.53" E elev 1380 m
Google
Eye

Fig 8.1: The affected streets in context (edited from Google Earth by author)

In this chapter, the technical resolution for the sketchplan area will be investigated. This chapter includes sustainability approaches such as: site-hydrology strategies with stormwater calculations, food production and waste management systems, an appropriate planting strategy, opportunities for creating micro-climates and enhancement of biodiversity, level differences, detailed construction drawings of how different materials meet, a paving and lighting plan and finally street furniture design.

SSI 2014 rating system

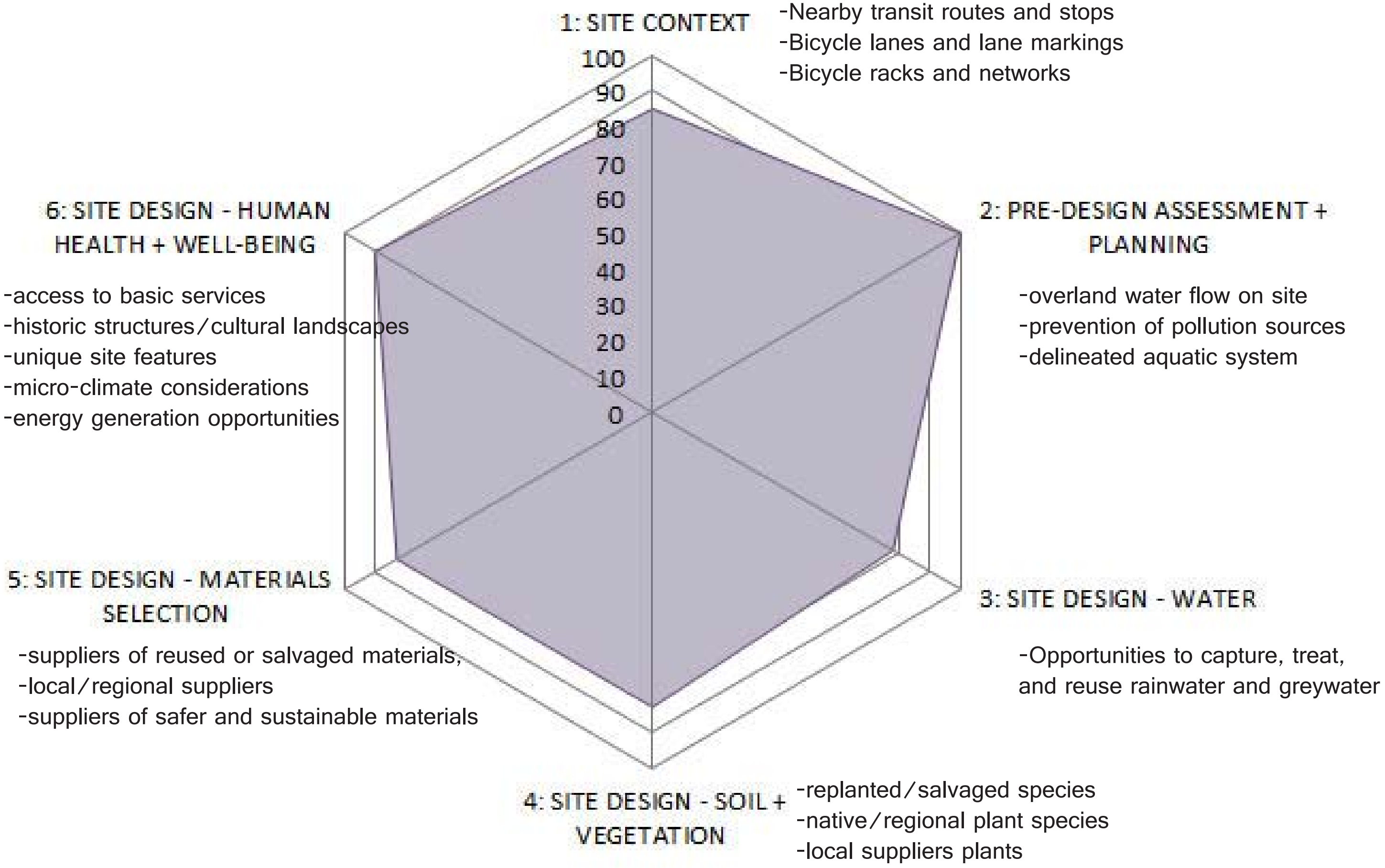


Fig 8.3: Graph illustrating the site´s performance of the SITES rating system (by author)

The Sustainable Sites Initiative 2014 rating system was used during the design of the sketchplan area. Six of the seven sections were studied and served as design strategies as explained in chapter 6. Figure 8.3 shows the site performance after applying these strategies to the design proposal.
The appendix contains the rating according to all criteria in full detail.

SECTION 1
SITE CONTEXT
SECTION 2
PRE-DESIGN ASSESSMENT + PLANNING
SECTION 3
SITE DESIGN – WATER
SECTION 4
SITE DESIGN – SOIL + VEGETATION
SECTION 5
SITE DESIGN – MATERIALS SELECTION
SECTION 6
SITE DESIGN – HUMAN HEALTH + WELL BEING
SECTION 7
CONSTRUCTION

Fig 8.2: The different sections of the SSI 2014

Site Hydrology

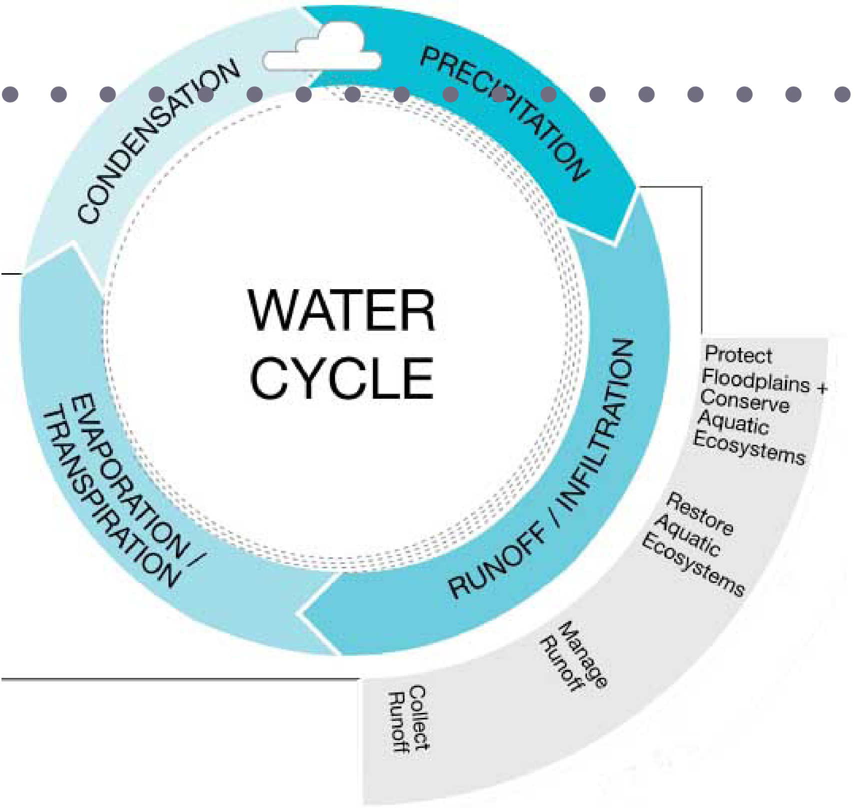

PRECIPITATION
CONDENSATION
WATER CYCLE
RUNOFF / INFILTRATION
EVAPORATION / TRANSPIRATION
Protect Floodplains + Conserve Aquatic Ecosystems
Restore Aquatic Ecosystems
Manage Runoff
Collect Runoff

Fig 8.4: Water cycle (Sustainable Sites Initiative 2014)

Systems of harvesting:

1. **Surface runoff from paved areas**: allocated pervious pavement drainage into sub-surface french-drains that lead to pvc pipes under the raised cobble intersection, also directed to reservoire B.

2. **Stormwater runoff from streets**: bio-swales along Lunnon road, overflow into perforated pipes (Fig 8.8) and channels to a sub-surface water reservoire (see B in fig 8.5) on the lowest point of the site.

3. **Roofwater harvesting** to feed proposed aquaponic water feature (seperate closed system) to be explored further by architects.

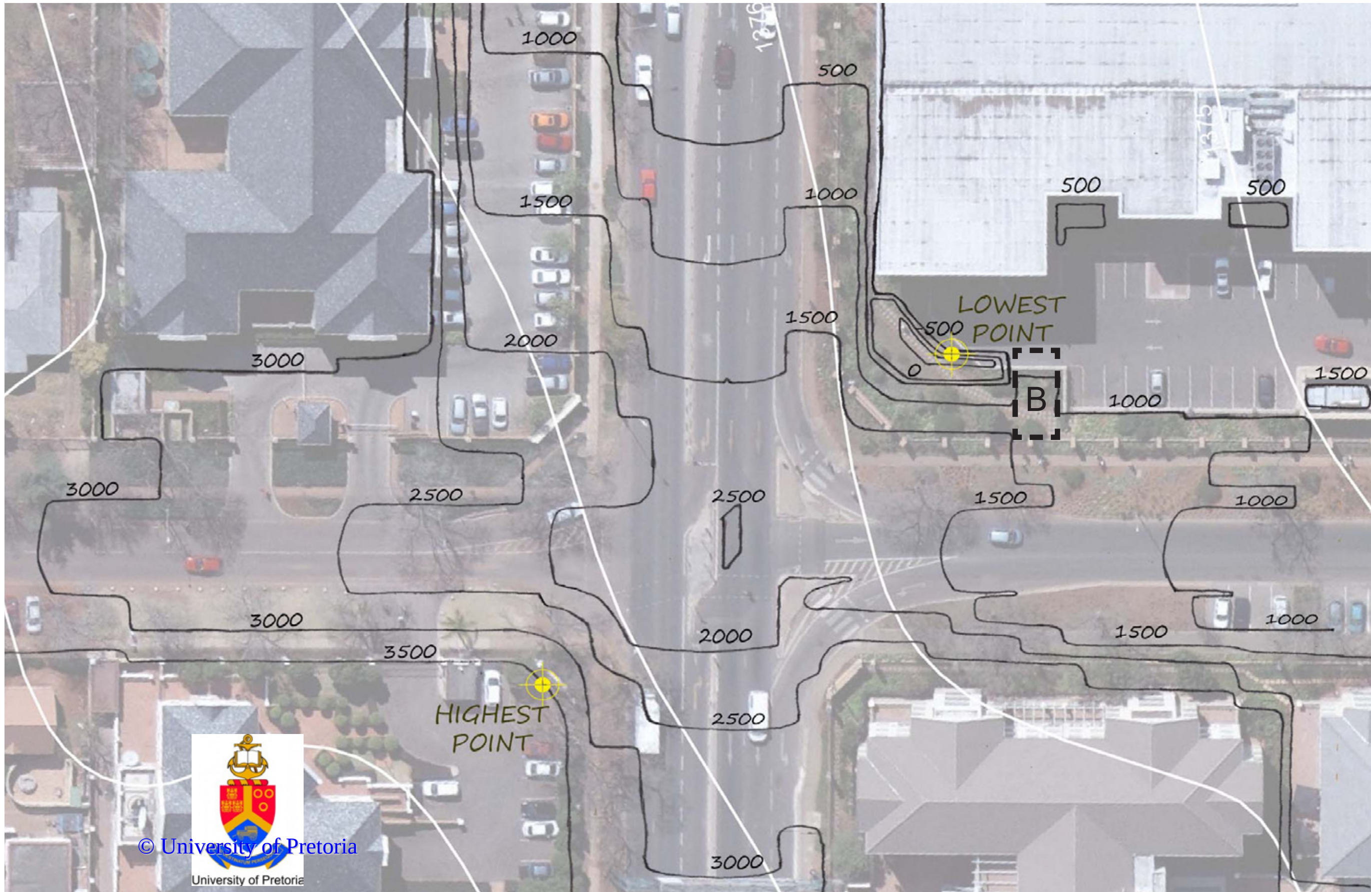

1000
500
1500
1000
500
500
LOWEST POINT
500
0
B
2000
3000
1500
1000
1500
3000
2500
2500
1500
1000
3000
3500
2000
1500
1000
HIGHEST POINT
2500
3000

Fig 8.5: Existing contour lines (by author)

Hydrology strategy 1

Surface runoff from paved areas

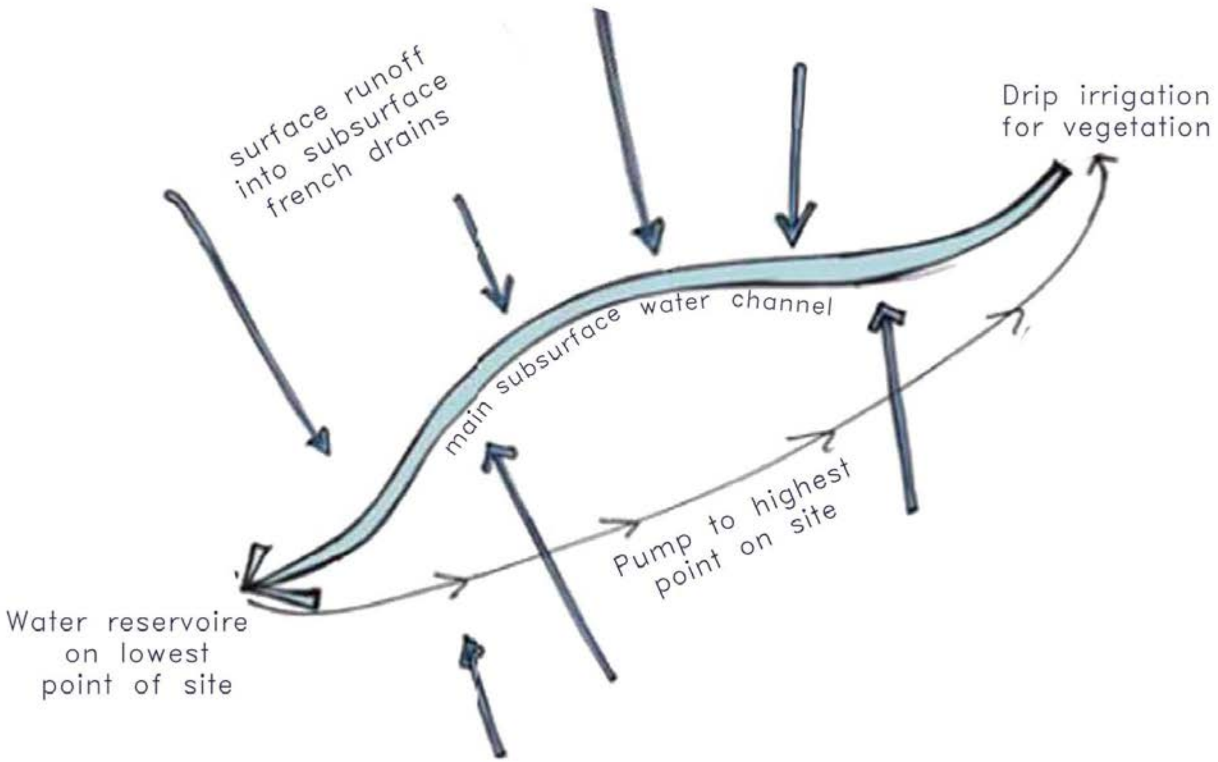

surface runoff into subsurface french drains
Drip irrigation for vegetation
main subsurface water channel
Pump to highest point on site
Water reservoire on lowest point of site

Fig 8.6: Water strategy diagram (by author)

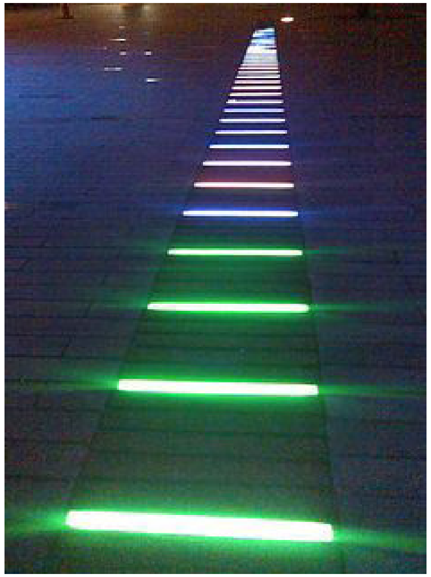


Fig 8.7: Permeable pavers with illuminating paving stones at 1200mm intervals (www.smartstones.co.za)

The orange arrows on figure 8.10 symbolise sub–surface drainage pipes (fig 8.8) covered by permeable concrete paving and pavement lights (fig 8.7). These pipes allow water supply to trees along these lines of which the remainder overflows to sub–surface water reservoire B (fig 8.10).

Hydrology Strategy 2

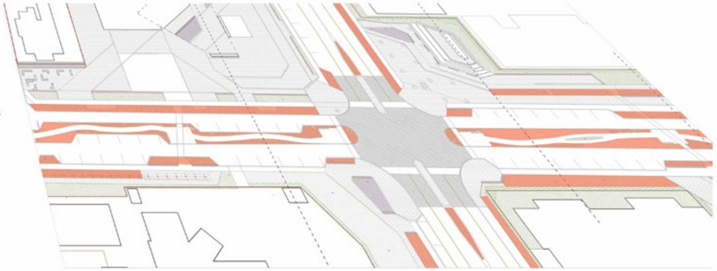
Stormwater runoff from streets

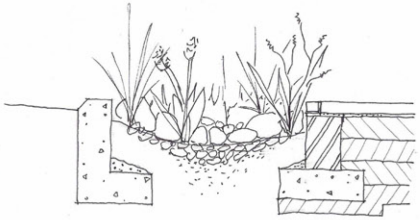
PRECEDENT STUDY:

The inner courtyard of the Meriwether, USA

http://lisastown.com/inspirationwall/category/green-street/

Wetland planting areas for stormwater collection





Sufficient water-holding capacity
in wetland planting areas

Bio-swale system:

Street runoff is diverted through kerb-cuts to the planters where it can be retained, filtered, infiltrated and evapotranspirated. The soil level in the planter is lower than the kerb flow-line to allow runoff to enter the planter through a kerb inlet. Excess runoff is directed into an overflow agricultural pipe that leads to reservoire B, then gets pumped to the highest point on the site to drip-irrigate dedicated vegetated areas. Bio-swales benefit the community through greening a significant sidewalk area and beautifying the neighbourhood aesthetics.

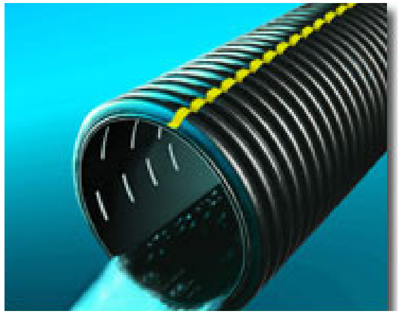
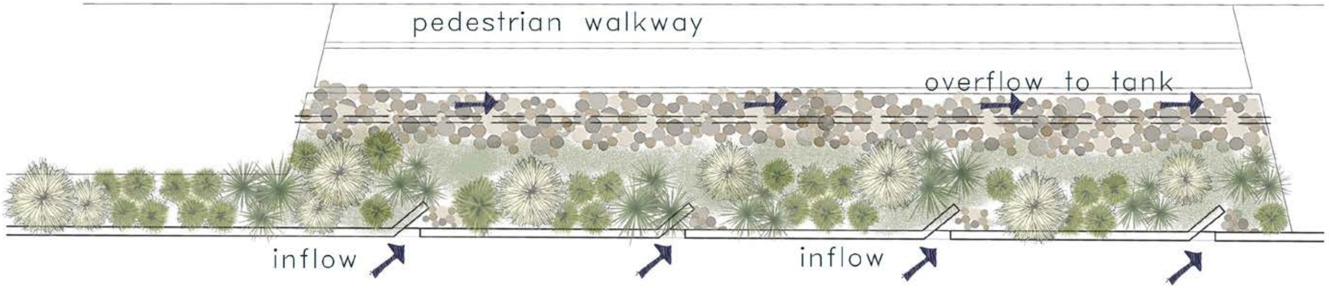


Fig 8.8: Drainex drainage pipe with drainage perforations (www.geotextilesafrica.co.za)



Lunnon Road

Fig 8.9: Bio-swale operation system (by author)

Stormwater Plan

Green arrows indicate the direction of runoff water from Lunnon Lane. Orange arrows indicate the direction in which the sub-surface drainage pipes flow, travelling from the existing higher contours down toward the lowest point on the site where these pipes enter the reservoire (tank B). The water is then pumped to the highest point on dedicated planted areas for drip-irrigation along the black arrows (A to H).

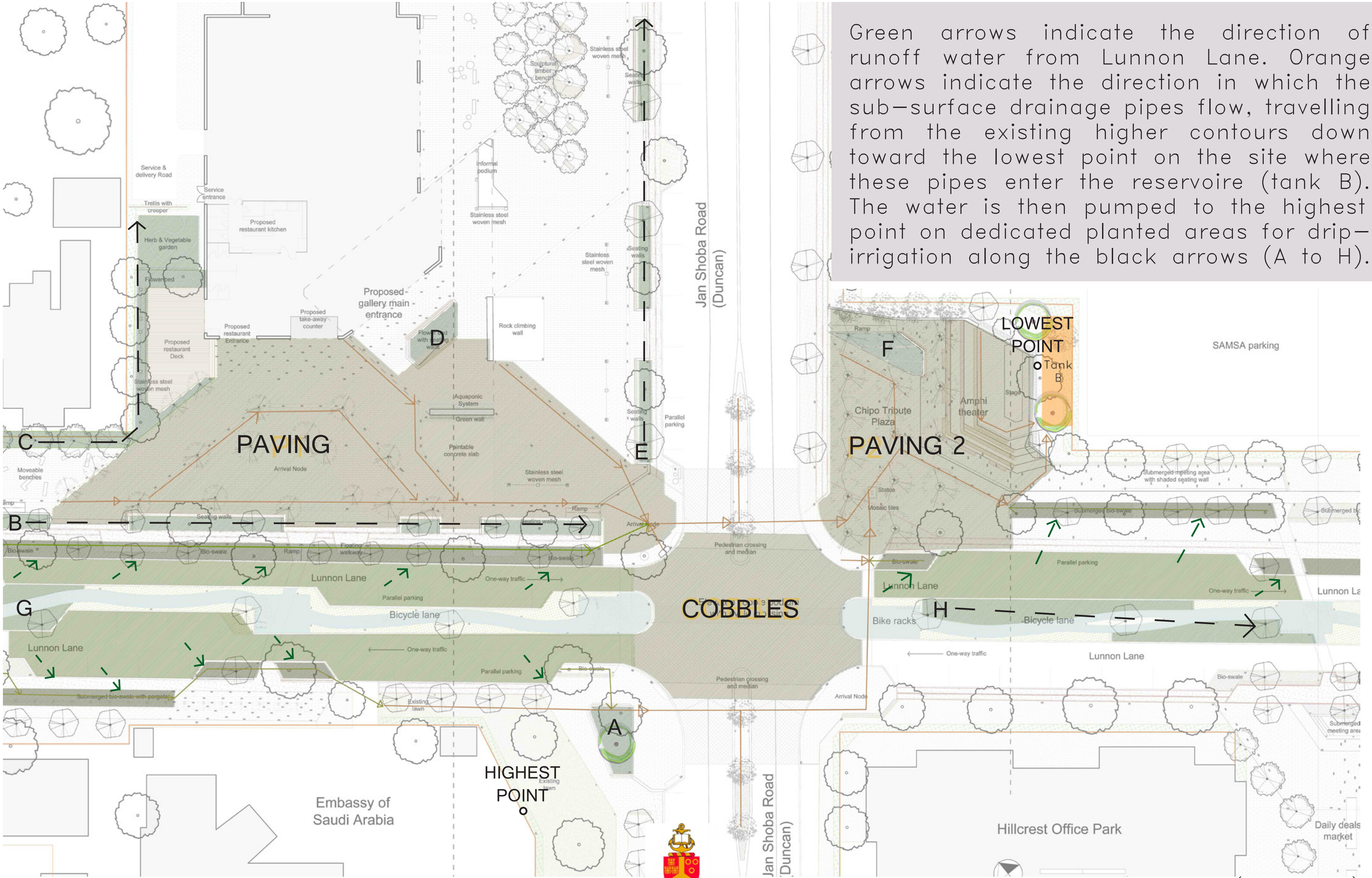

Service & delivery Road
Service entrance
Trellis with creeper
Proposed restaurant kitchen
Herb & Vegetable garden
Flowerbed
Proposed restaurant Deck
Stainless steel woven mesh
Proposed restaurant Entrance
Proposed take-away counter
Proposed gallery main entrance
Informal podium
Stainless steel woven mesh
Sculptural timber bench
Stainless steel woven mesh
Seating walls
Rock climbing wall
Aquaponic System
Green wall
Paintable concrete slab
Parallel parking
Jan Shoba Road (Duncan)
D
E
C
B
G
A
F
H
PAVING
Arrival Node
Moveable benches
Seating walls
Ramp
Bio-swale
Floating walkway
Lunnon Lane
Parallel parking
Bicycle lane
One-way traffic
Submerged bio-swale with pergola
Existing lawn
COBBLES
Pedestrian crossing and median
HIGHEST POINT
Embassy of Saudi Arabia
LOWEST POINT
Tank B
SAMSA parking
Ramp
Chipo Tribute Plaza
Amphi theater
Stage
PAVING 2
Statue
Mosaic tiles
Submerged meeting area with shaded seating wall
Submerged bio-swale
Parallel parking
Bike racks
Arrival Node
Hillcrest Office Park
Daily deals market

Fig 8.10: Lunnon Lane stormwater plan (by author)

Stormwater calculations

The following calculations indicate the maximum tank size required to store sufficient water for drip-irrigation to indicated planting areas (fig 8.10) throughout the dry season. In the first year, an additional water supply of 9400L in September and October is required. Since the pipes also partly supply water to dedicated trees, a runoff coefficient of 0.6 is presumed for the calculations. Note the green projection in the illustrated graphs that indicate how the remaining water in the reservoire, annually increases.

RAINWATER HARVESTING AND SIZING WATER TANKS

Q = C x A			
Paving 1	C = 0.6	Q=0.6 x 1091	655
Paving 2	C = 0.6	Q=0.6 x 605	363
Cobbles	C = 0.8	Q=0.9 x 430	387
ESTIMATED DESIGN DISCHARGE (Q):			**1405**

SUMMER IRRIGATION DEMAND:	0.18m/month	0.18
FALL IRRIGATION DEMAND:	0.16m/month	0.16
WINTER IRRIGATION DEMAND:	0.14m/month	0.14
SPRING IRRIGATION DEMAND:	0.16m/month	0.16

AREA TO BE IRRIGATED: **437** **437**

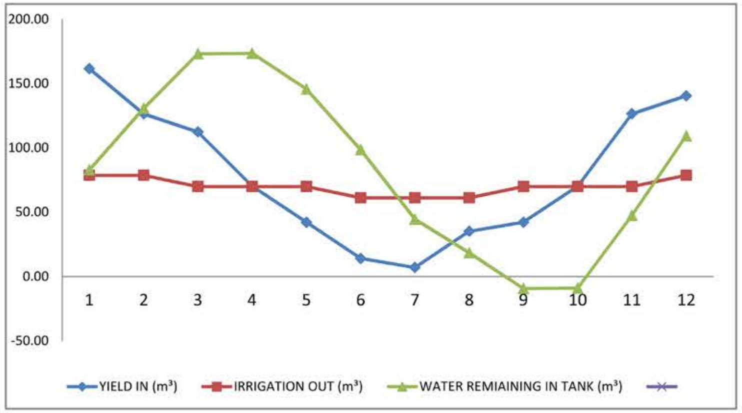
TOTAL SITE AREA: 8226.3m²

EFFECTIVE CATCHMENT AREA: **2126**

Surface runoff of pavement and cobble 2126

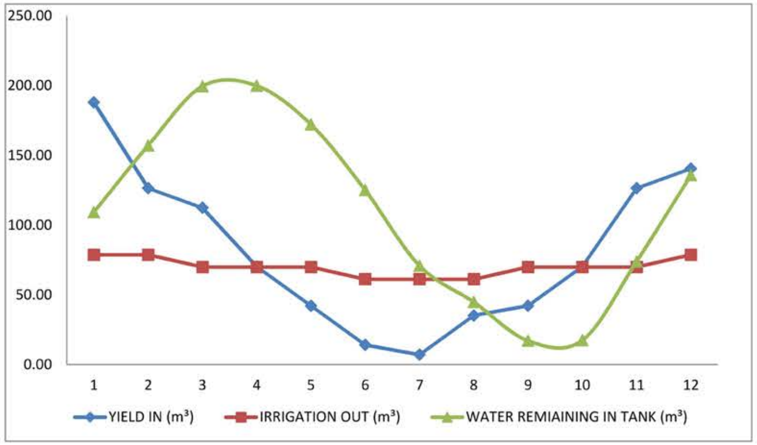
Max Tank size required	**244.105**

YEAR 1 WITH 0 WATER IN TANK				
MONTHS	**AVE RAINFALL/ MONTH**	**YIELD IN (m^3)**	**IRRIGATION OUT (m^3)**	**WATER REMAINING IN TANK (m^3)**
January	0.12	161.58 0.00	78.66	82.92
February	0.09	126.45 209.37	78.66	130.71
March	0.08	112.40 **243.11**	69.92	173.19
April	0.05	70.25 243.44	69.92	173.52
May	0.03	42.15 215.67	69.92	145.75
June	0.01	14.05 159.80	61.18	98.62
July	0.01	7.03 105.64	61.18	44.46
August	0.03	35.13 79.59	61.18	18.41
September	0.03	42.15 60.56	69.92	-9.37
October	0.05	70.25 60.89	69.92	-9.04
November	0.09	126.45 117.42	69.92	47.50
December	0.10	140.50 188.00	78.66	109.34
	TOTAL ANNUAL IRRIGATION DEMAND (m^3):		**839.04**	



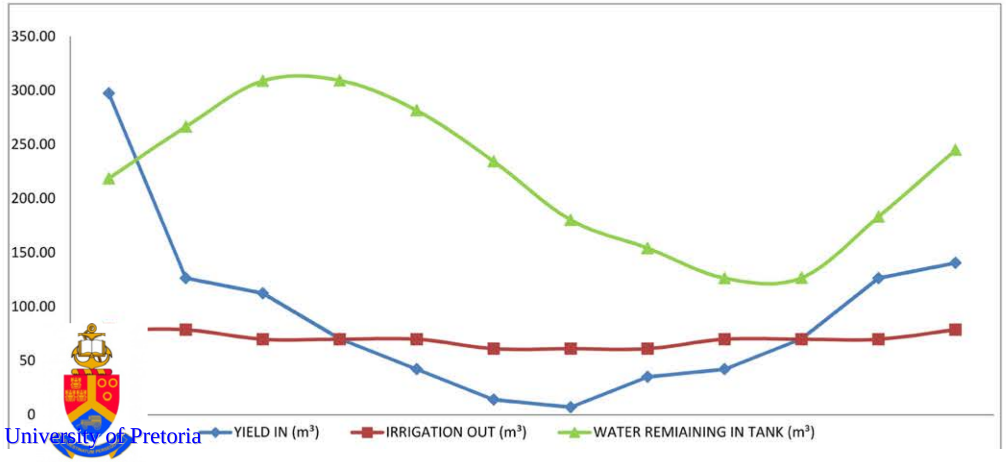
YEAR 2 WITH LEFT OVER WATER IN TANK

MONTHS	AVE RAINFALL/ MONTH	YIELD IN (m^3)	IRRIGATION OUT (m^3)	WATER REMAINING IN TANK (m^3)
January	0.12	161.58+122.78	78.66	109.34
		188.00		
February	0.09	126.45	78.66	157.13
		235.79		
March	0.08	112.40	69.92	199.61
		269.53		
April	0.05	70.25	69.92	199.94
		269.86		
May	0.03	42.15	69.92	172.17
		242.09		
June	0.01	14.05	61.18	125.04
		186.22		
July	0.01	7.03	61.18	70.88
		132.06		
August	0.03	35.13	61.18	44.83
		106.01		
September	0.03	42.15	69.92	17.06
		86.98		
October	0.05	70.25	69.92	17.39
		87.31		
November	0.09	126.45	69.92	73.91
		143.84		
December	0.10	140.50	78.66	135.76
		214.42		
	TOTAL ANNUAL IRRIGATION DEMAND (m^3):		839.04	



YEAR 3 WITH LEFT OVER WATER IN TANK

MONTHS	AVE RAINFALL/ MONTH	YIELD IN (m^3)	IRRIGATION OUT (m^3)	WATER REMIAINING IN TANK (m^3)	LEFT IN TANK AFTER WASTE OUT	WASTE OUT
January	0.12	161.58+135.76	78.66	218.67	218.67	0.00
		297.33	0.00		0.00	0.00
February	0.09	126.45	78.66	266.46	243.11	23.35
		345.12	0.00		0.00	0.00
March	0.08	112.40	69.92	308.94	243.11	65.83
		378.86	0.00		0.00	0.00
April	0.05	70.25	69.92	309.27	243.11	66.16
		379.19	0.00		0.00	0.00
May	0.03	42.15	69.92	281.50	243.11	38.39
		351.42	0.00		0.00	0.00
June	0.01	14.05	61.18	234.37	234.37	0.00
		295.55	0.00		0.00	0.00
July	0.01	7.03	61.18	180.22	180.22	0.00
		241.40	0.00		0.00	0.00
August	0.03	35.13	61.18	154.16	154.16	0.00
		215.34	0.00		0.00	0.00
September	0.03	42.15	69.92	126.39	126.39	0.00
		196.31	0.00		0.00	0.00
October	0.05	70.25	69.92	126.72	126.72	0.00
		196.64	0.00		0.00	0.00
November	0.09	126.45	69.92	183.25	183.25	0.00
		253.17	0.00		0.00	0.00
December	0.10	140.50	78.66	245.09	243.11	1.98
		323.75	0.00		0.00	0.00
	TOTAL ANNUAL IRRIGATION DEMAND (m^3):		839.04			



Thermal Study

A comprehensive thermal study of Pretoria's climate helped to determine the appropriate selection of plant species and strategic arrangement of space to create comfortable micro-climates (fig 8.13).

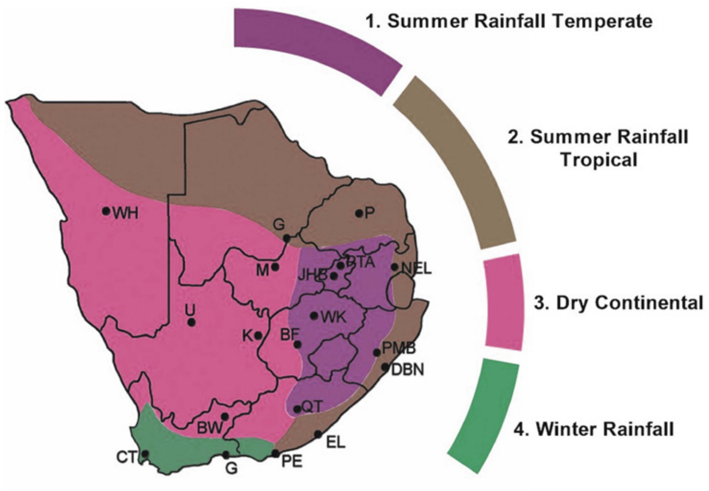

1. Summer Rainfall Temperate
2. Summer Rainfall Tropical
3. Dry Continental
4. Winter Rainfall
WH
G
P
M
JHB
PTA
NEL
U
WK
K
BF
PMB
DBN
QT
BW
EL
CT
G
PE

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Fig 8.11 Pretoria falls under a summer rainfall in a temperate climate (the-gardenermagazine.com)

Fig 8.12 shows the climate graph for the capital city of South Africa, Pretoria. It is clear that the winters are very dry, with the least amount of rainfall in July. The summers receive most rainfall, with January receiving the highest rainfall. The average temperatures are very comfortable while the minimum temperature never drops the freezing point.

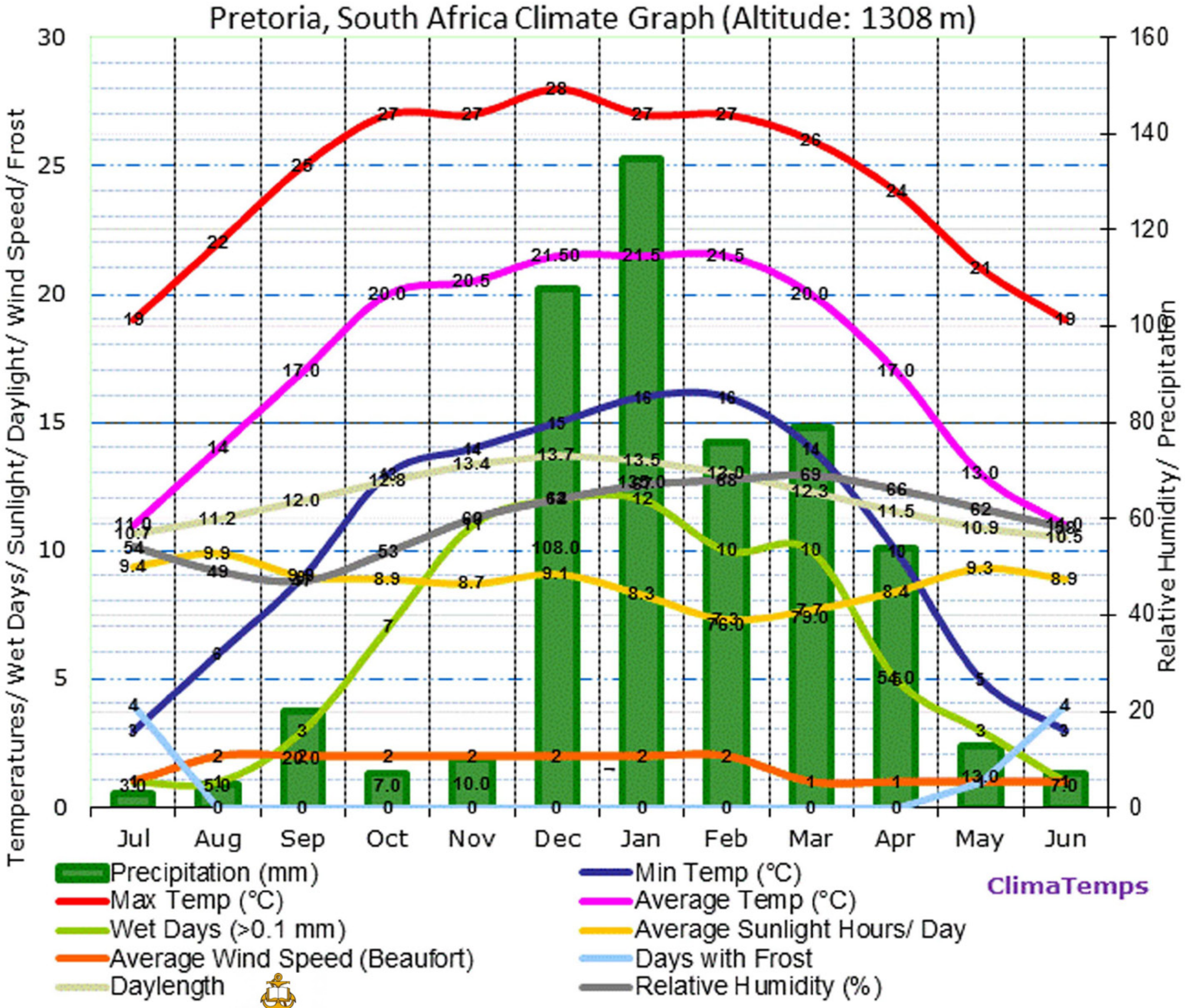


Fig 8.12: Climate graph for Pretoria (www.pretoria.climatemps.com)

Planting strategy and micro-climates

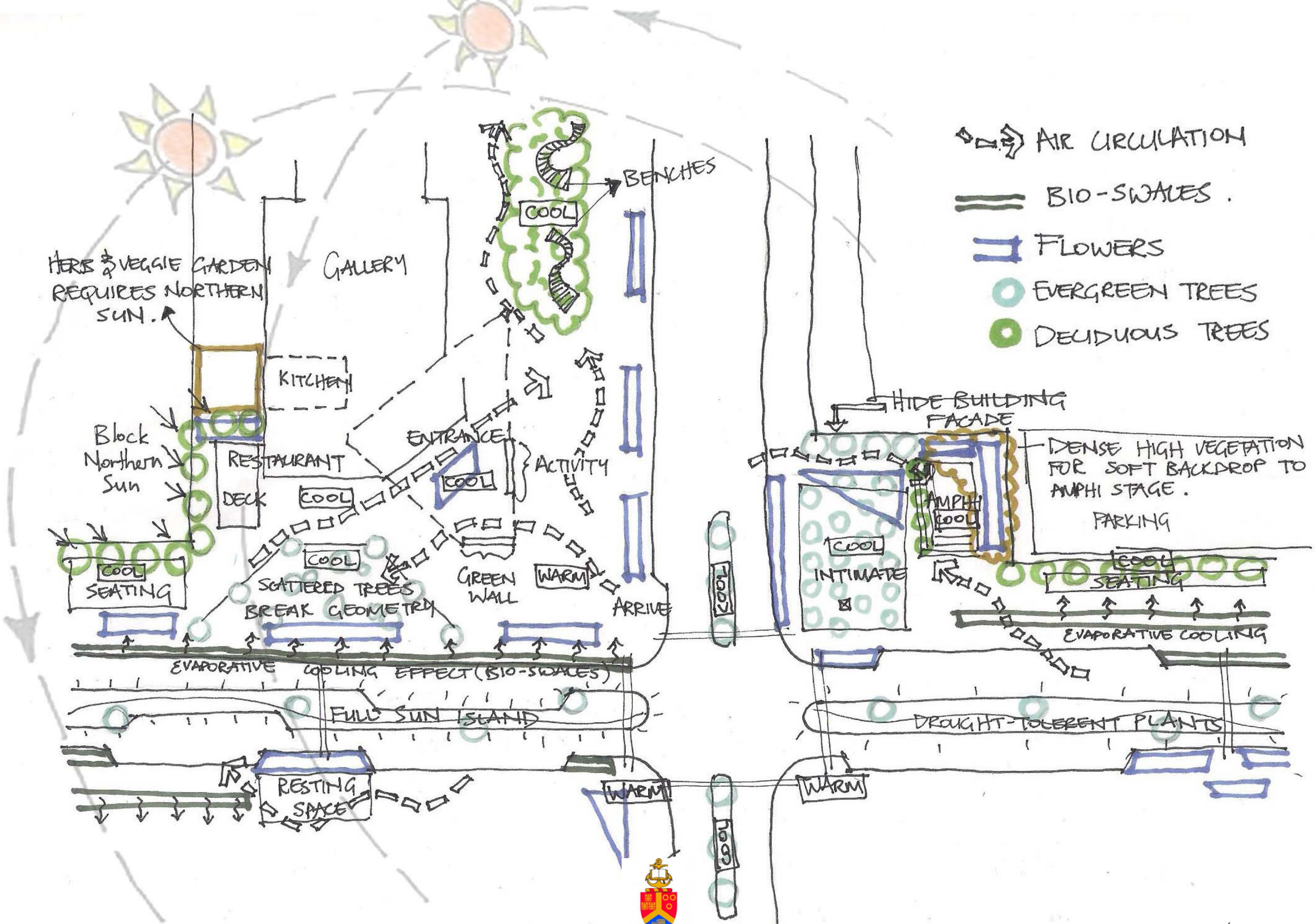

AIR CIRCULATION
BIO-SWALES.
FLOWERS
EVERGREEN TREES
DECIDUOUS TREES
BENCHES
COOL
HERB & VEGGIE GARDEN REQUIRES NORTHERN SUN.
GALLERY
KITCHEN
Block Northern Sun
RESTAURANT
DECK
COOL
ENTRANCE
COOL
ACTIVITY
COOL
SEATING
COOL
SCATTERED TREES BREAK GEOMETRY
GREEN WALL
WARM
ARRIVE
EVAPORATIVE COOLING EFFECT (BIO-SWALES)
FULL SUN ISLAND
RESTING SPACE
WARM
COOL
COOL
HIDE BUILDING FACADE
DENSE HIGH VEGETATION FOR SOFT BACKDROP TO AMPHI STAGE.
AMPHI
COOL
COOL
INTIMATE
PARKING
COOL
SEATING
EVAPORATIVE COOLING
DROUGHT-TOLERENT PLANTS
WARM

Fig 8.13: Planting strategy and micro-climate, (by author)

Planting Strategy

Plant species were selected by the author, according to the following criteria:

IDENTITY THROUGH SYNECDOCHE

- Common Daylily
  (*Hermerocallis lilioasphodelus)*
- Cape Thatching Reed
  (Elegia tectorum)
- Fragrant tulbaghia
  (Tulbaghia fragrans)
- White daisy bush
  (Tulbaghia fragrans)

Bio-swales

- Cape Thatching Reed
  (Elegia tectorum)
- Tall marsh senecio
  (Senecio inornatus)
- Juncus
  (Juncus kraussii)
- Swamp lobelia
  (Aristea capitata)

NATIVE SPECIES

Regionally indigenous species will strengthen the local identity of place, a prime objective of the study:

- Juncus
  (Juncus kraussii)
- Wild Pear
  (Dombeya rotundifolia)
- Wild Plum
  Harpephyllum caffrum
- Essenhout
  (Ekebergia capensis)

UP COLOURS

- Trailing gazania
  (Gazania rigens)
- Common yellow daylily
  (Hermerocallis lilioasphodelus)
- Helichrysum
  (Helichrysum molestum)
- Yellow shell-flower bush
  (Bowkeria citrina)

Waterwise

A new law will soon be passed that no water from boreholes may be used for irrigating the city's vegetation. UP is resolving to using more *succulents* as the future focus on expansion of campus landscapes.

Ambience

Delicate textures of flower petals create an intimate atmosphere to linger while large sharp plant textures seem more robust and encourages movement.

-Wild Olive tree *(Olea europaea subs[p. Africana)*
-Wild Pear Tree *(Dombeya rotundifolia)*
-Flowering species
-Grasses

Jacaranda city

Planting Plan

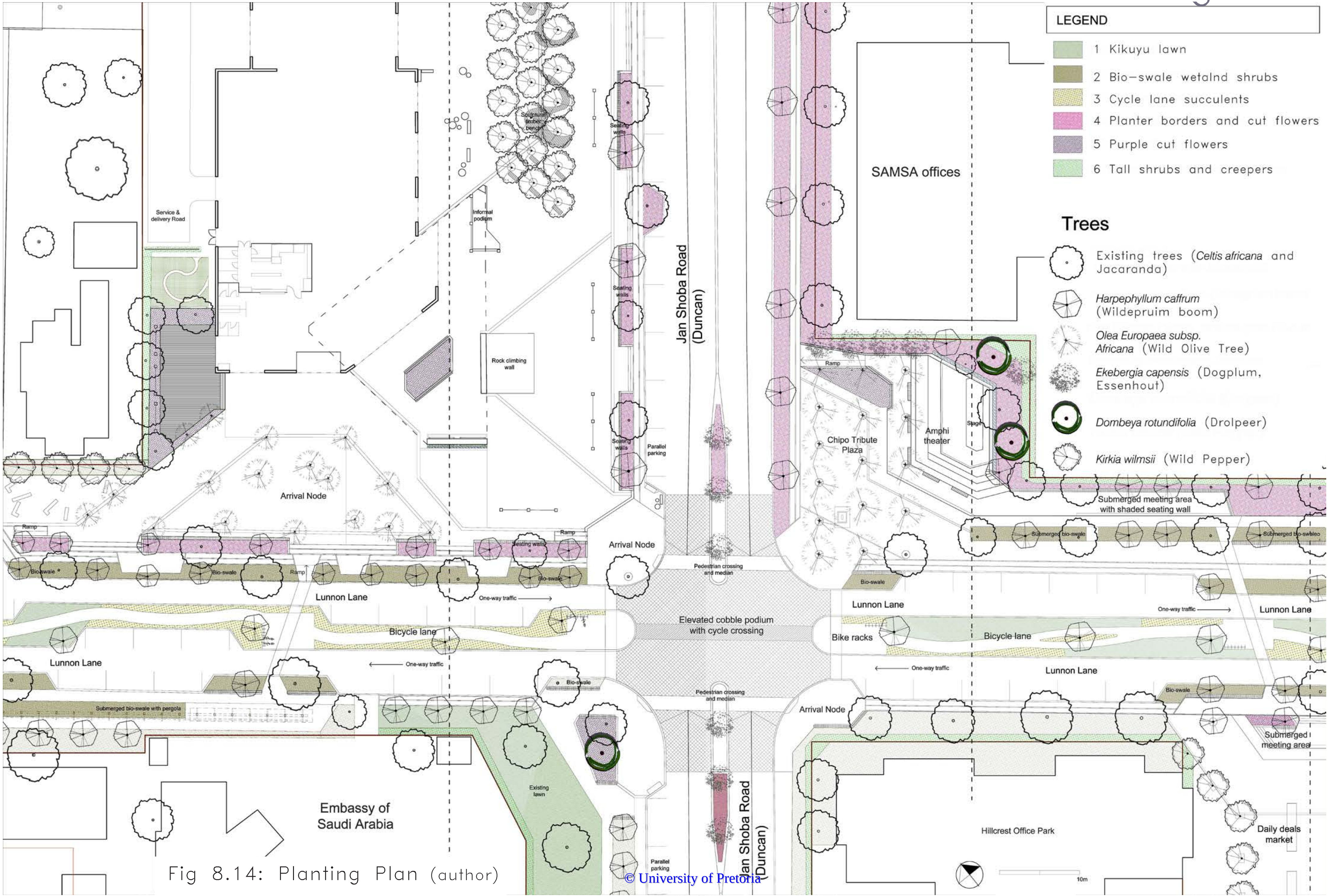

LEGEND
1 Kikuyu lawn
2 Bio—swale wetalnd shrubs
3 Cycle lane succulents
4 Planter borders and cut flowers
5 Purple cut flowers
6 Tall shrubs and creepers
Trees
Existing trees (Celtis africana and Jacaranda)
Harpephyllum caffrum (Wildepruim boom)
Olea Europaea subsp. Africana (Wild Olive Tree)
Ekebergia capensis (Dogplum, Essenhout)
Dombeya rotundifolia (Drolpeer)
Kirkia wilmsii (Wild Pepper)
SAMSA offices
Jan Shoba Road (Duncan)
Service & delivery Road
Sculptural timber bench
Informal podium
Rock climbing wall
Seating walls
Parallel parking
Arrival Node
Ramp
Bio-swale
Seating walls
Lunnon Lane
One-way traffic
Bicycle lane
Submerged bio-swale with pergola
Pedestrian crossing and median
Elevated cobble podium with cycle crossing
Chipo Tribute Plaza
Amphi theater
Stage
Submerged meeting area with shaded seating wall
Submerged bio-swale
Bike racks
Submerged meeting area
Existing lawn
Embassy of Saudi Arabia
Hillcrest Office Park
Daily deals market
10m

Fig 8.14: Planting Plan (author)

2. Bio-swale wetlands plants

Species were chosen for their ability to thrive in water periodically

Japanese Iris (*Iris kaempferi*) is an attractive easy-growing plant that loves water and forms a dense clump of erect foliage. Flowers August-January

Swamp lobelia (*Lobelia anceps*) Fast growing species especially in warm, damp conditions. Flowers November-June.

Tall marsh senecio (*Senecio inornatus*) is commonly found along roadsides and stream bank water and assist in stabilising the ecosystem. Flowers December-March.

Sagebush (*Syncolostemon transvaalensis*) is fragrant, robust and well suited to the rockery and in a mixed border. Flowers September-December.

Blousuurkanol (*Aristea capitata*) Fast growing alternative to Agapanthus, loves water.
Flowers October-November.

River bell (*Phygelius aequalis*) prefers wet rocky areas in semi-shade to sunny areas, is a robust herbaceous perennial up to 1m tall. Flowers November-May.

3. Cyce lane succulents

Species that are able to withstand long periods of drought and love full sun

Imphamba lentaba (*Eulophia ensata*) loves full sun and drought-resistant, should be kept completely dry during winter, in a sunny area. Flowers November-March

Jade plant, pink joy (*Crassula ovata*) flowers best in a sunny position in June-August. Sweetly scented. Its swollen roots give it the ability to survive. droughts.

Tongue-leaved mesemb (Eng.); Tongblaarvygie (*Glottiphyllum regium*) Non-destructive roots, planted right next to structures.
Flowers November-March

Bushy bulbine (*Bulbine abyssinica*) prefers full sun, dry and rocky areas.
Flowers September – May

Golden spurge (*Euphorbia mauritanica*) enjoys full sun to semi shade areas, suitable for dry rock gardens. Flowers August - October.

Kommadagga crassula (*Crassula socialis*) for shallow soil and rocks, ideal for stone walls and small empty spaces.
Flowers September – October

Planting Pallette

Flowering species

Latin Name	Comon Name	Photo	Origin	Reason	Area and qualities	Flowering time
Gazania rigens	Gazania		RSA	Many already on site and UP main campus, hardy and waterwise, flower attracts various insects	Frost-resistant and drought-tolerant, waterwise garden plant for highveld gardens. Plant in full sun, as the flowers will only open in full sun and close in the evening. Plant as groundcover, border to a flower bed, in a **rockery** or against a slopes	September-January
Scabiosa incisa	Scabious		RSA	Attractive purple flower compliment Jacaranda tree, draws butterflies, easy to grow and most rewarding. Abundance of flowers from spring to summer	Full sun and well-drained soil. Can survive with very little water during the summer but will produce much lusher growth with a compost mulch and occasional good watering. Usually planted as front edge of flower-beds	September-December
Dimorphotheca eckloni	White daisy bush (Eng.); Sondagsrivier madeliefie (Afr.)		RSA	Many already on site and UP main campus, compliments purple flowers and attracts butterflies and bees	Grow mostly in sandy soil on steep slopes or at the base of cliffs, must be planted in full sun. They can be mass-planted as a groundcover, as a border to a shrubbery or to line pathways	
Tulbaghia fragrans	Sweet wild garlic, Fragrant tulbaghia (Eng.); Soetwildeknoffel (Afr.)		RSA	Many on UP main campus, purlpe emphasizes jacaranda and sweet scent which attracts butterflies	It prefers a position in light shade, or partial shade such as morning sun and afternoon shade. Plant it in well-drained, good garden soil. drought tolerant and will grow in almost any soil, but will perform better with **regular watering**	September-May
Hermerocallis lilioasphodelus	Common Yellow Daylily		Asia	Many already on UP main campus, complements Gazania rigens, attractive flower	Full sun, **moist soils**	
Scilla natalensis	Blue mountain Lily (Eng.) Blouberglelie (Afr.)		RSA	Purlpe emphasizes acaranda, attractive lternative for Agapanthus	Ideally suited to a variety of habitats from sunny slopes, **rocky hills**, cliffs and ledges, to damp cliff faces, near waterfalls, in moist depressions, on the **edges of streams** and vleis (wetlands). Sunny or semi-shaded position, in good, compost enriched soil.	October

Planting Pallette

Trees

Dogplum, Essenhout (*Ekebergia capensis*).
Reason: Already on site, great to use as a street tree, non-aggressive root system and scented flowers from September to November and is 15m in height. Birds enjoy the fruit on this tree.

Wild Olive Tree (*Olea Europaea subsp. Africana*)
Reason: Tree symbolises freedom and translates the freedom of the democracy and Chipo Kachingwe's part in it. Neatly shaped evergreen tree with a dense grey-green foliage. Lightly scented white to greenish flowers are followed by small, spherical fruits which ripen purple-black, eaten by humans, birds and other animals.

© M D HEPPLEWHITE & WITKOPPEN WILDFLOWER NURS

Wild Plum (*Harpephyllum caffrum*)
Reason: Many trees on and around the site, and this tree will further the landscape theme of the existing Wild Plum avenue planted in the eastern wing of UP, where Lunnon Road previously extended. It should be planted in soil or vegetated areas, preferably not in pavements. It is an evergreen tree that grows up to 15m tall.

© M D HEPPLEWHITE & WITKOPPEN WILDFLOWER NURSERY

Wild Pear, Drolpeer (*Dombeya rotundifolia*)
Reason: Tree is native to and commonly seen in Pretoria Will provide a delicate atmosphere and attractive backdrop to the amphi theatre stage. Deciduous, fast growing tree, usually 3-6m tall. Flowers July-September. Frost and drought resistant. Masses of white blooms which appear before the leaves from. larval food plant for the Ragged Skipper (Caprona pillaana) butterfly.

Wild pepper (*Kirkia wilmsii*)
Reason: This tree stores water in its roots, enabling it to survive short periods of drought. Deciduous, medium to large tree with a rounded crown and showing beautiful autumn colours from April to May. Flowers October-December.

6 Tall plants and creepers

Canary creeper (*Senecio tamoides*). A popular, cheerful, colourful, easy-to-grow climber that needs little maintenance and resembles the yellow colour of UP. The long, green, smooth stems need support to climb and this can be provided by a trellis, pergola, or other support devices. Flowers March-July

Masses of golden yellow flowers and this creeper literally drips with flowers when in full bloom, with a delightful aromatic scent.

Yellow shell-flower bush (*Bowkeria citrina*) is an attractive tall shrub (3x2m) to plant along fences. Fragrant yellow flowers that have a similar shape as Jacaranda's flower, but yellow in colour and attract bees. It grows well in full sun and in good rainfall areas. Frost tolerant but cannot withstand drought. When crushed, the leaves give off a pleasant lemony aroma. Flowers November-June.

Closed loop waste management system

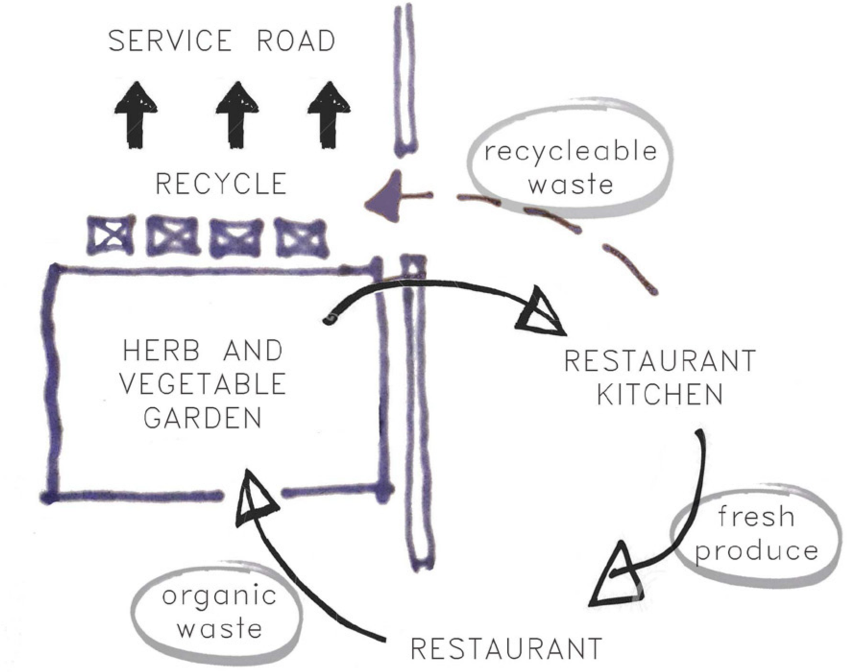

SERVICE ROAD
RECYCLE
recyclable waste
HERB AND VEGETABLE GARDEN
RESTAURANT KITCHEN
fresh produce
organic waste
RESTAURANT

Fig 8.15: Food production and waste management (by author)

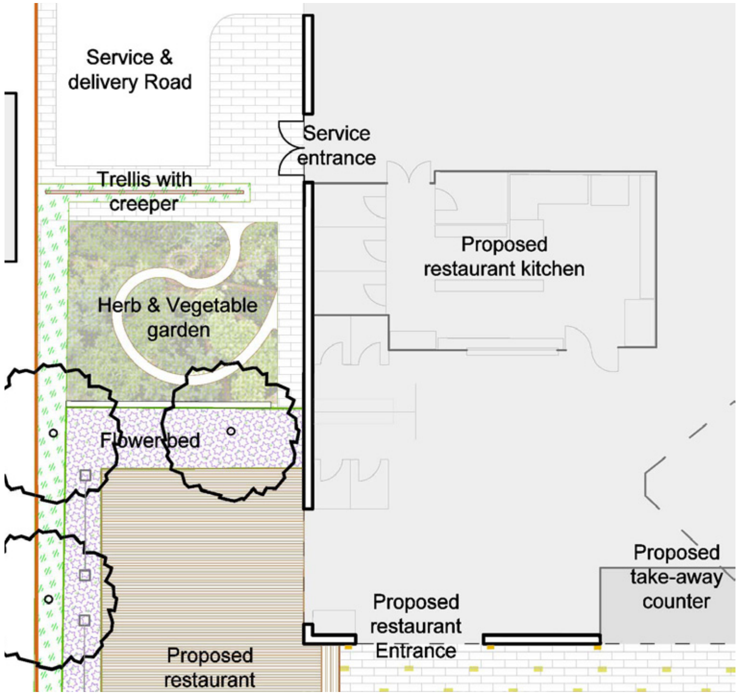

Service & delivery Road
Service entrance
Trellis with creeper
Proposed restaurant kitchen
Herb & Vegetable garden
Flowerbed
Proposed take-away counter
Proposed restaurant Entrance
Proposed restaurant

Fig 8.16: Plan of restaurant, kitchen and vegetable garden (by author)

Food production and waste management

The proposed restaurant uses fresh produce from the vegetable and herb garden. The staff at the restaurant implement and maintain this 'herb and veggie' garden and maintain it by feeding it the appropriate organic wastes from the same restaurant. The composting area should be kept in closed containers well seperated from the restaurant deck with a bed of sweetly scented flowers to disguise any possible unpleasant smells. The wastes are recycled at a nearby dedicated area adjacent to the service road behind the restaurant's kithen.

Lighting plan

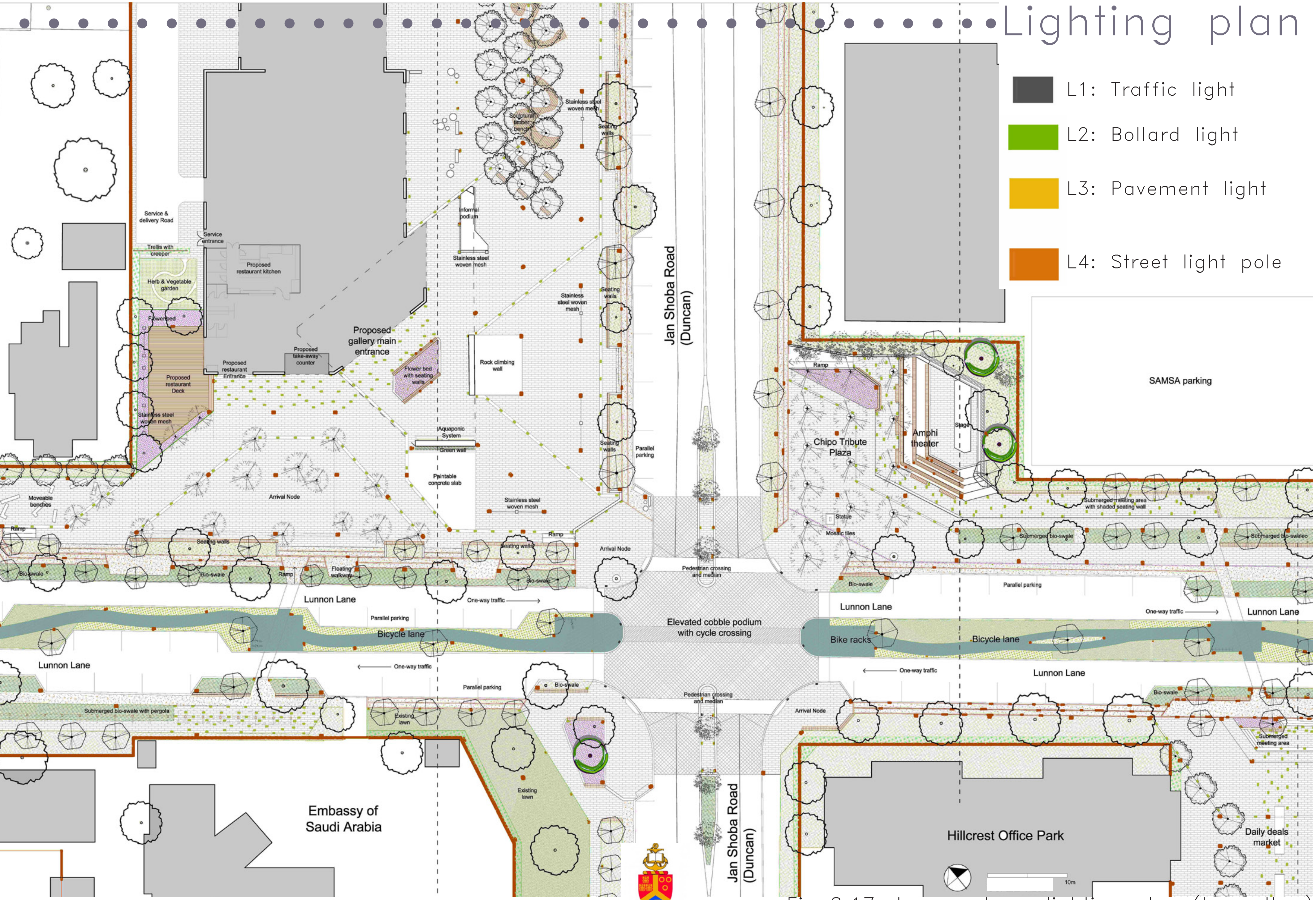

⬛ L1: Traffic light
🟩 L2: Bollard light
🟨 L3: Pavement light
🟧 L4: Street light pole
Stainless steel woven mesh
Seating walls
Sculptural timber bench
Informal podium
Stainless steel woven mesh
Service & delivery Road
Service entrance
Trellis with creeper
Proposed restaurant kitchen
Herb & Vegetable garden
Flowerbed
Proposed restaurant Deck
Stainless steel woven mesh
Proposed restaurant Entrance
Proposed take-away counter
Proposed gallery main entrance
Flower bed with seating walls
Rock climbing wall
Aquaponic System
Green wall
Paintable concrete slab
Stainless steel woven mesh
Arrival Node
Moveable benches
Ramp
Seating walls
Bio-swale
Ramp
Floating walkway
Bio-swale
Seating walls
Ramp
Arrival Node
Parallel parking
Jan Shoba Road (Duncan)
Pedestrian crossing and median
Elevated cobble podium with cycle crossing
Lunnon Lane
One-way traffic
Parallel parking
Bicycle lane
Lunnon Lane
One-way traffic
Parallel parking
Bio-swale
Submerged bio-swale with pergola
Existing lawn
Existing lawn
Embassy of Saudi Arabia
Pedestrian crossing and median
Jan Shoba Road (Duncan)
SAMSA parking
Ramp
Chipo Tribute Plaza
Amphi theater
Stage
Statue
Mosaic tiles
Submerged meeting area with shaded seating wall
Submerged bio-swale
Submerged bio-swaleo
Bio-swale
Parallel parking
Lunnon Lane
One-way traffic
Lunnon Lane
Bike racks
Bicycle lane
One-way traffic
Lunnon Lane
Arrival Node
Bio-swale
Submerged meeting area
Hillcrest Office Park
Daily deals market
10m

Fig 8.17: Lunnon Lane lighting plan (by author)

"Research has demonstrated that high–quality white light offers many clear advantages over yellow light. For example, the ambience is perceived as brighter, colors appear more natural and it's easier for pedestrians and cyclists to recognize the faces of other people and obstacles on the street. This greater clarity improves the general feeling of security... High–quality white light is the 'green switch' solution for outdoor installations," (Outdoor Luminaires Catalogue, 2011)

L1: Pavement lighting

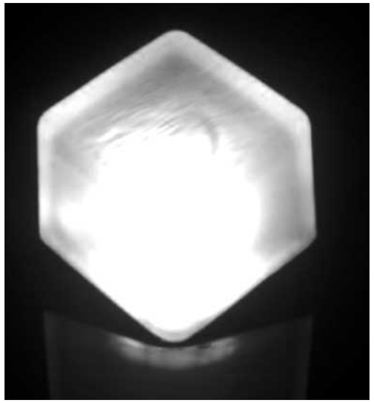
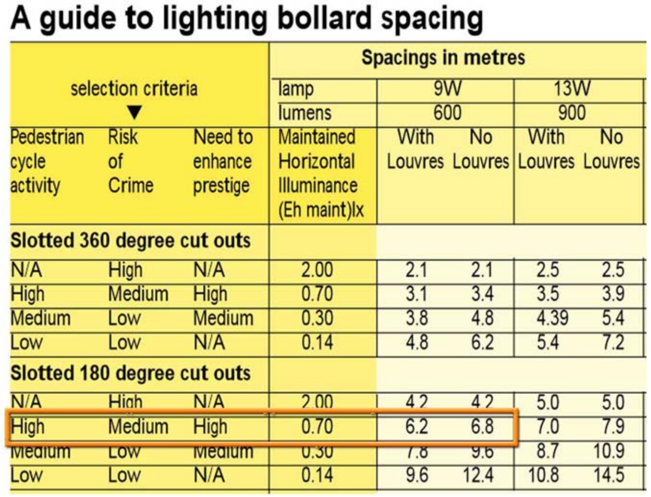


Fig 8.18: 73 x 63 x 63mm Moon white Illuminating paving stones
LED Life Span: Up to 100 000 hour
power supply: 24V DC

(www.octalight.com)

L2: Bollard lighting



A guide to lighting bollard spacing

selection criteria ▼			Spacings in metres				
			lamp	9W		13W	
			lumens	600		900	
Pedestrian cycle activity	Risk of Crime	Need to enhance prestige	Maintained Horizontal Illuminance (Eh maint)lx	With Louvres	No Louvres	With Louvres	No Louvres
Slotted 360 degree cut outs							
N/A	High	N/A	2.00	2.1	2.1	2.5	2.5
High	Medium	High	0.70	3.1	3.4	3.5	3.9
Medium	Low	Medium	0.30	3.8	4.8	4.39	5.4
Low	Low	N/A	0.14	4.8	6.2	5.4	7.2
Slotted 180 degree cut outs							
N/A	High	N/A	2.00	4.2	4.2	5.0	5.0
High	Medium	High	0.70	6.2	6.8	7.0	7.9
Medium	Low	Medium	0.30	7.8	9.6	8.7	10.9
Low	Low	N/A	0.14	9.6	12.4	10.8	14.5

Fig 8.19: A guide to blard spacing, (www.l–v.com.au)

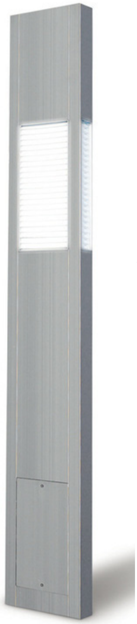
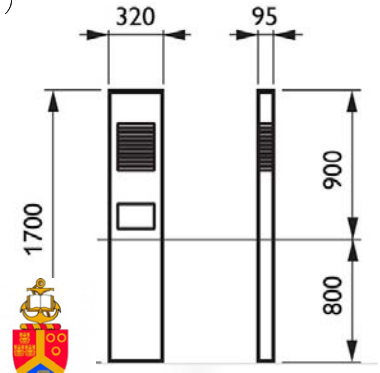


Fig 8.20: HGP429 (bollard version) Master PL_L 4 Pin/2Gl/24W. Luminaire supplied with embedded mounting root. Main application: Shopping, pedestrian and residential areas, parks and gardens. (www.park3.weebly.com)



L3: Street light pole

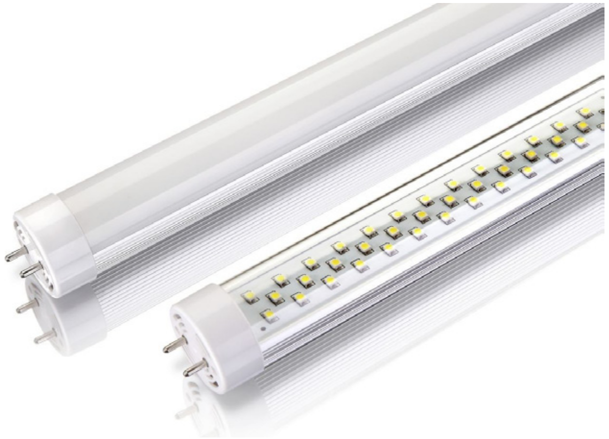


Fig 8.21: Brand / Model: Afrison Led T8 600mm Tube mounted on a 4500mm high streel pole as seen in technical details (Section JJ). (www.afrison.co.za)

Additional lighting can be installed by staff to enhance the ambience of an intimate nightscape (fig 8.22).

Fig 8.22: Market lights, photo by author

Paving plan

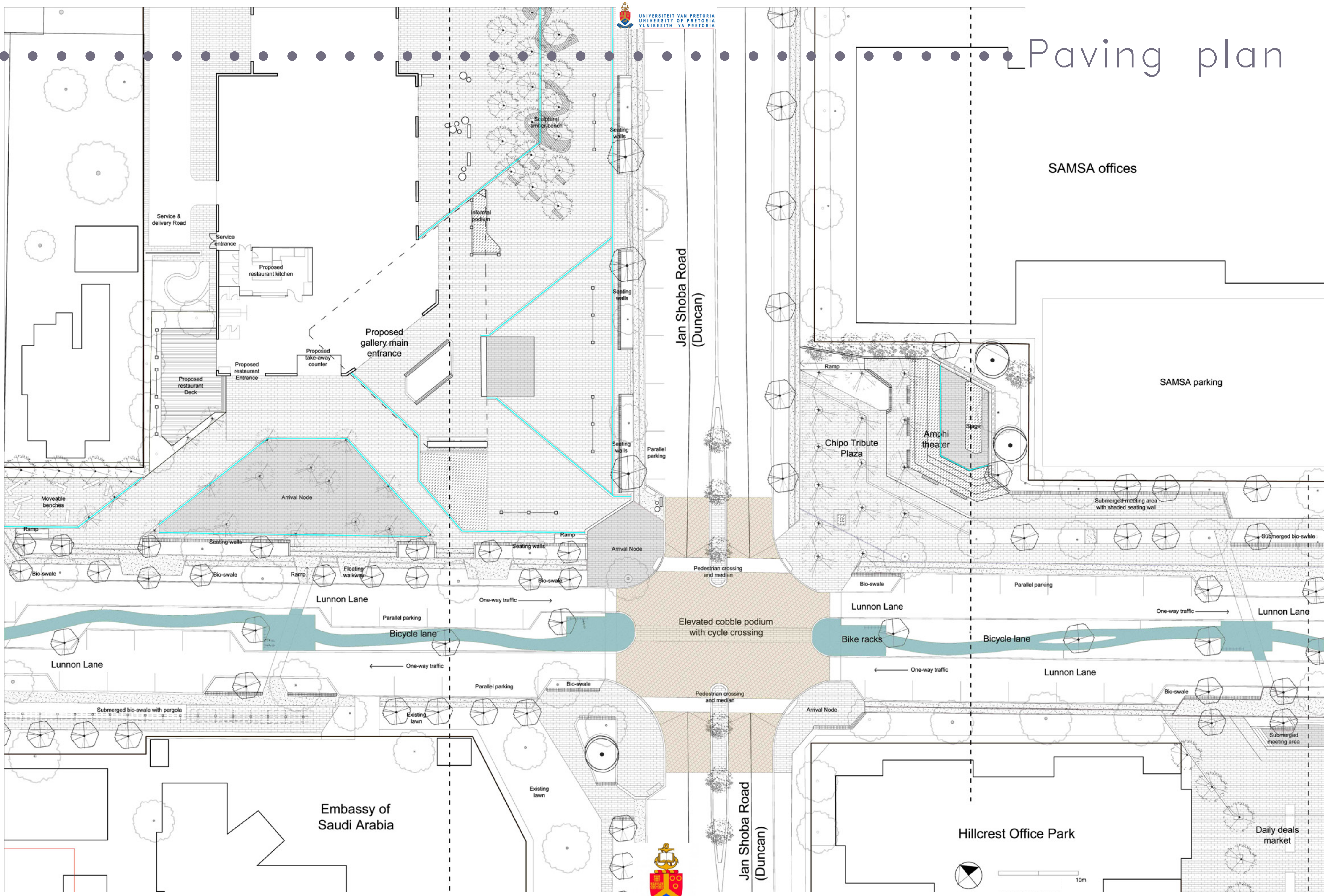

Sculptural timber bench
Seating walls
Informal podium
Service & delivery Road
Service entrance
Proposed restaurant kitchen
Proposed gallery main entrance
Proposed take-away counter
Proposed restaurant Entrance
Proposed restaurant Deck
Seating walls
Seating walls
Parallel parking
Jan Shoba Road (Duncan)
SAMSA offices
SAMSA parking
Ramp
Chipo Tribute Plaza
Amphi theater
Stage
Submerged meeting area with shaded seating wall
Submerged bio-swale
Moveable benches
Ramp
Arrival Node
Seating walls
Seating walls
Ramp
Arrival Node
Bio-swale
Bio-swale
Ramp
Floating walkway
Bio-swale
Pedestrian crossing and median
Bio-swale
Parallel parking
Lunnon Lane
One-way traffic
Lunnon Lane
One-way traffic
Lunnon Lane
Parallel parking
Bicycle lane
Elevated cobble podium with cycle crossing
Bike racks
Bicycle lane
Lunnon Lane
One-way traffic
Lunnon Lane
One-way traffic
Parallel parking
Bio-swale
Pedestrian crossing and median
Arrival Node
Bio-swale
Submerged bio-swale with pergola
Existing lawn
Submerged meeting area
Existing lawn
Embassy of Saudi Arabia
Jan Shoba Road (Duncan)
Hillcrest Office Park
Daily deals market
10m

Fig 8.23: Lunnon Lane paving plan, by author

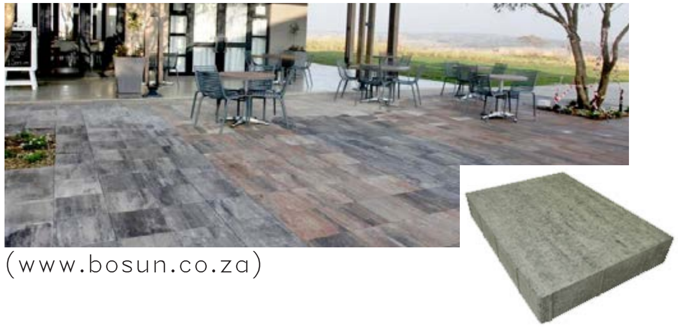
Paving specifications

These pavers were chosen due to their colours which reflect the colours in the hardscapes of the university's main campus

LEGEND

- ▨ Earth Cobbles stones
- ▨ Charcoal grey Cobbles stones
- ▨ Light grey Concrete pavers
- ▤ Eva-tech's composite decking
- ▤ Pretreated Saligna timber finish
- ▨ Sand-coloured exposed aggregate walkway
- ▨ Concrete slab with steel floated finish
- ▨ French drain grid for stormwater
- ▨ Gabions according to detail
- ▨ Cobblestone surface
- ▨ Blue rubber wetpour surface
- ╲ Mosaic tile inlay
- ╲ Semi-face red brick inlay
- ╲ Proposed fence-line
- ▣ Landmark: Statue of sister Marie Brady
- ╲ Permeable paving

Fig 8.24: 300x400x60mm light grey Large Urban Pavers



(www.bosun.co.za)

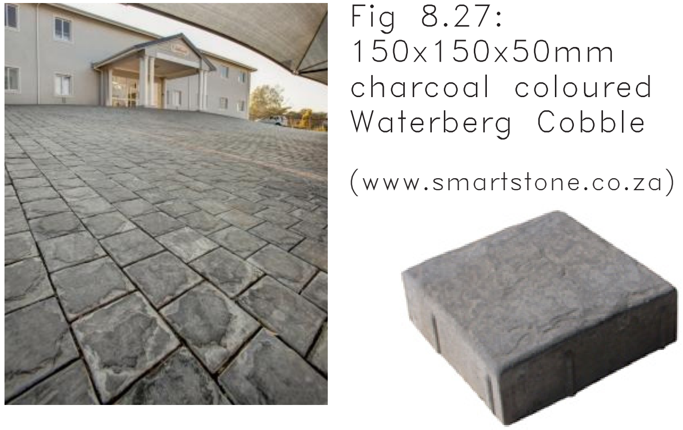
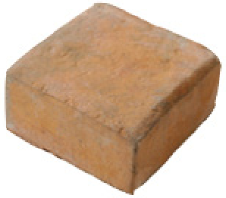


Fig 8.27: 150x150x50mm charcoal coloured Waterberg Cobble

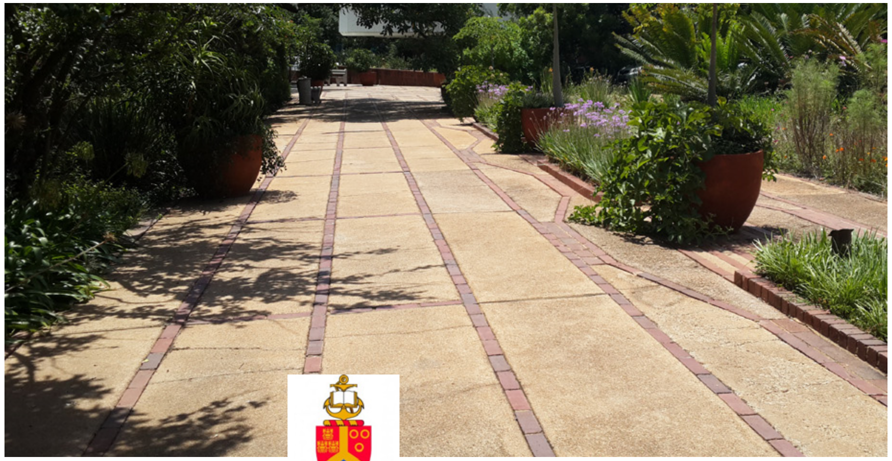
(www.smartstone.co.za)

Fig 8.25: 103x103x50mm Earth coloured Contractor's Cobble for intersection



(www.smartstone.co.za)

Fig 8.26: Sand-coloured exposed aggregate and Red brick as per UP specifications (photo by author)



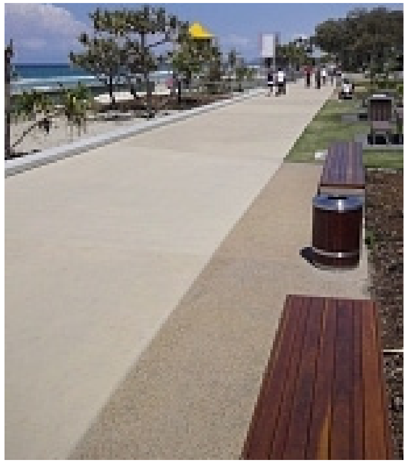


Fig 8.28: Floated concrete finish with Desert Buff pigment

(www.concretecolour-systems.com.au)

Detail construction sections

referring to the five areas identified in the sketchplan

Space A

The floating walkway enhances a feeling of pedestrian acknowledgement and priority while providing clear visual sightlines. Wetland plants are planted amongst riverstones (found on LC De Villiers) that serve as a water retention bio-swale along Lunnon Lane. This bio-swale creates an opportunity for evaporative cooling along the main pedestrian walkway and habitats for insects and invertebrates, frogs and reptiles.

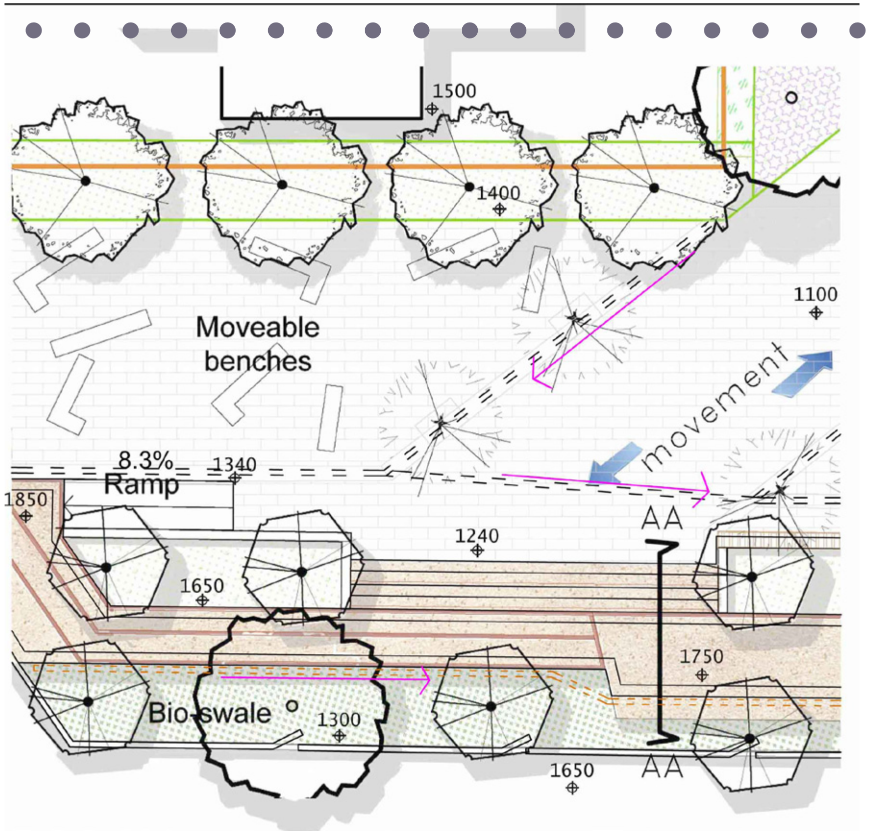

1500
1400
1100
Moveable benches
movement
8.3% Ramp
1340
1850
1240
AA
1650
1750
Bio-swale
1300
1650
AA

Fig 8.29: Space A, Waiting and meeting space (author)

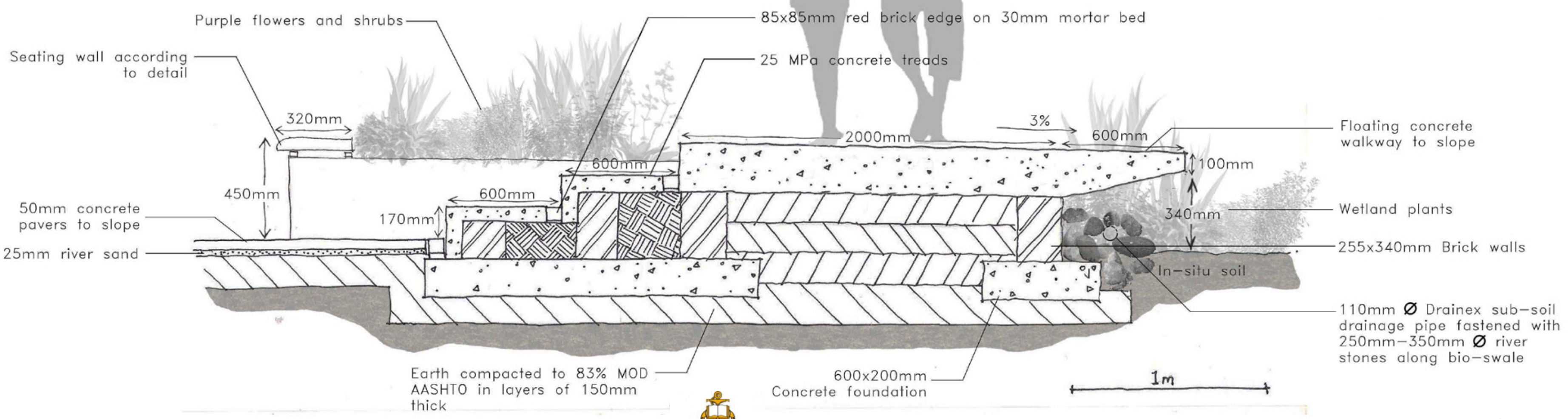

Purple flowers and shrubs
Seating wall according to detail
85x85mm red brick edge on 30mm mortar bed
25 MPa concrete treads
320mm
450mm
600mm
600mm
170mm
2000mm
3%
600mm
100mm
340mm
Floating concrete walkway to slope
Wetland plants
255x340mm Brick walls
In-situ soil
50mm concrete pavers to slope
25mm river sand
110mm Ø Drainex sub-soil drainage pipe fastened with 250mm-350mm Ø river stones along bio-swale
Earth compacted to 83% MOD AASHTO in layers of 150mm thick
600x200mm Concrete foundation
1m

Fig 8.30: Section AA, through floating walkway (author)

Detail construction sections

Space B

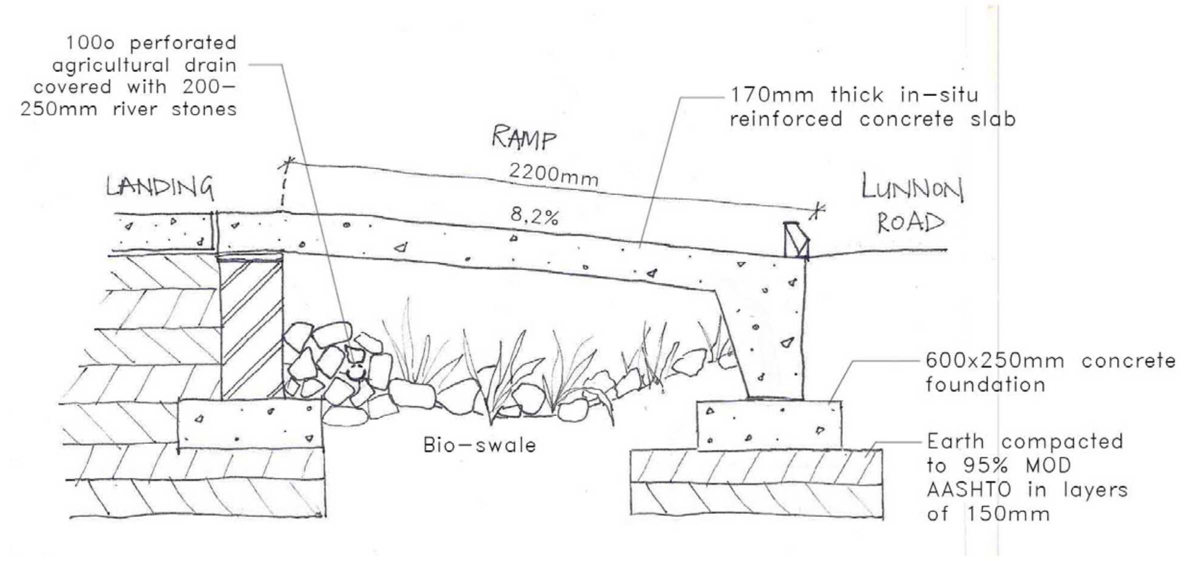

100ø perforated agricultural drain covered with 200–250mm river stones
RAMP
2200mm
8,2%
LANDING
170mm thick in–situ reinforced concrete slab
LUNNON ROAD
600x250mm concrete foundation
Bio–swale
Earth compacted to 95% MOD AASHTO in layers of 150mm

Fig 8.31: Section through floating walkway ramp onto kerb (author)

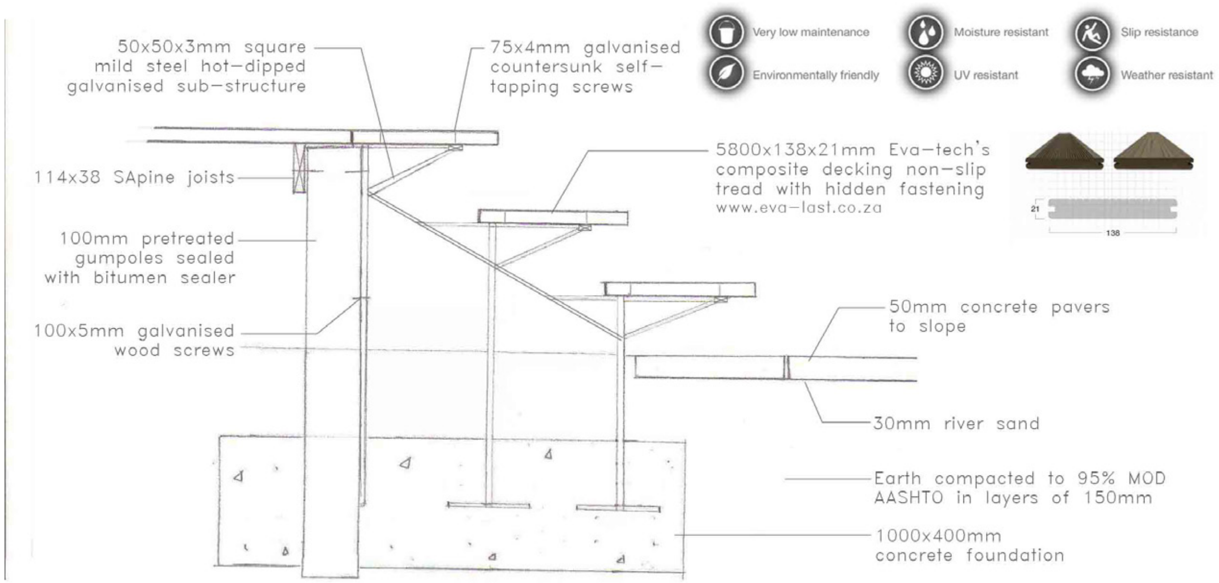

50x50x3mm square mild steel hot–dipped galvanised sub–structure
75x4mm galvanised countersunk self–tapping screws
Very low maintenance
Moisture resistant
Slip resistance
Environmentally friendly
UV resistant
Weather resistant
114x38 SApine joists
5800x138x21mm Eva–tech's composite decking non–slip tread with hidden fastening www.eva–last.co.za
21
138
100mm pretreated gumpoles sealed with bitumen sealer
100x5mm galvanised wood screws
50mm concrete pavers to slope
30mm river sand
Earth compacted to 95% MOD AASHTO in layers of 150mm
1000x400mm concrete foundation

Fig 8.32: Section BB, through strairs onto deck (author)

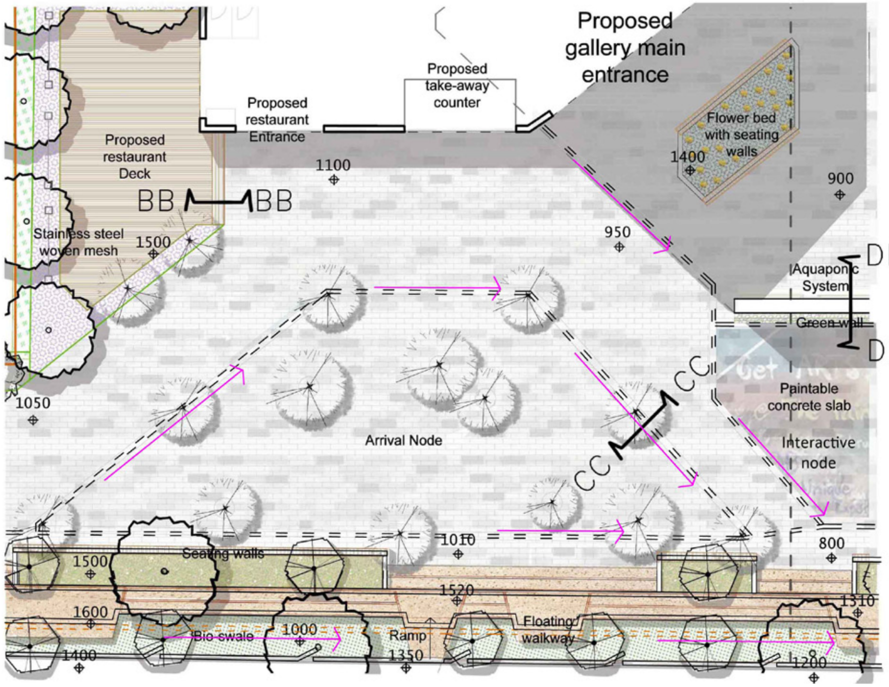

Proposed gallery main entrance
Proposed take-away counter
Proposed restaurant Entrance
Proposed restaurant Deck
Flower bed with seating walls
1400
1100
900
BB
BB
Stainless steel woven mesh
1500
950
DD
Aquaponic System
Green wall
DD
Paintable concrete slab
CC
CC
Interactive node
Arrival Node
1050
1010
800
1500
Seating walls
1520
1310
1600
Bio swale
1000
Ramp
1350
Floating walkway
1400
1200

Fig 8.33: Space B, Arrive and interact (author)

Space B includes a proposed restaurant with a deck, which activates a lost space on the North–Western corner of the site. The floating walkways allow universal access to and from a street crossing (fig 8.31). An aquaponic system, on the inner side of the proposed green wall, creates interest and draws users deeper into the site. The paintable concrete slab is placed along the permeable pavers which define a prominent pedestrian route and allow water absorbtion should the slab need to be washed.

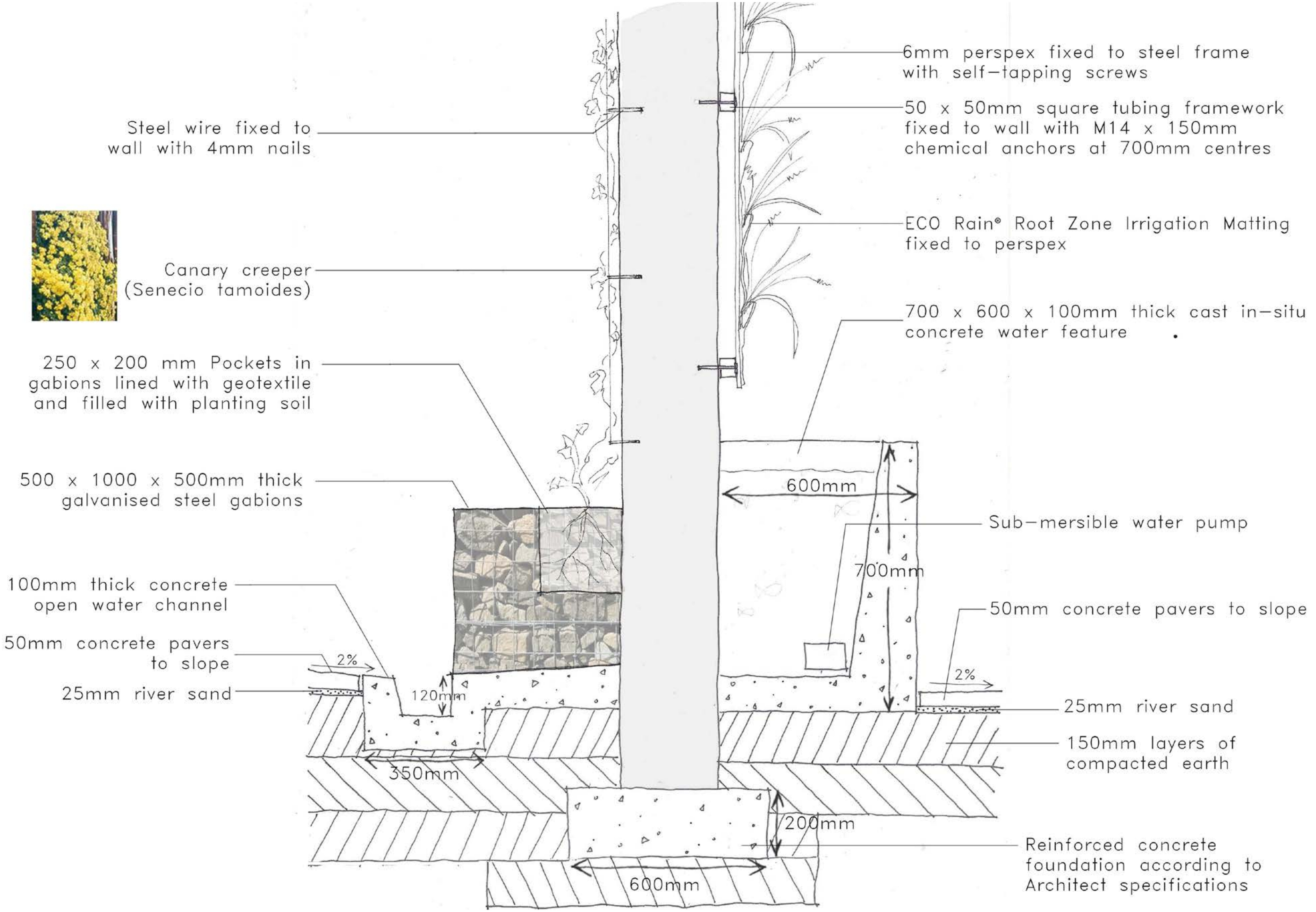
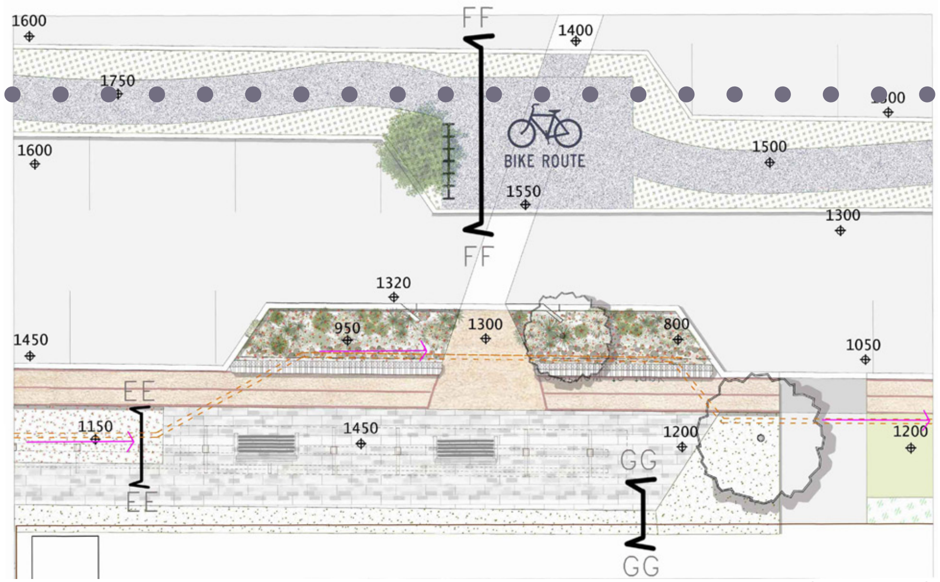

6mm perspex fixed to steel frame with self-tapping screws
Steel wire fixed to wall with 4mm nails
50 x 50mm square tubing framework fixed to wall with M14 x 150mm chemical anchors at 700mm centres
ECO Rain® Root Zone Irrigation Matting fixed to perspex
Canary creeper (Senecio tamoides)
700 x 600 x 100mm thick cast in-situ concrete water feature
250 x 200 mm Pockets in gabions lined with geotextile and filled with planting soil
500 x 1000 x 500mm thick galvanised steel gabions
600mm
Sub-mersible water pump
700mm
100mm thick concrete open water channel
50mm concrete pavers to slope
50mm concrete pavers to slope
2%
2%
120mm
25mm river sand
25mm river sand
150mm layers of compacted earth
350mm
200mm
Reinforced concrete foundation according to Architect specifications
600mm

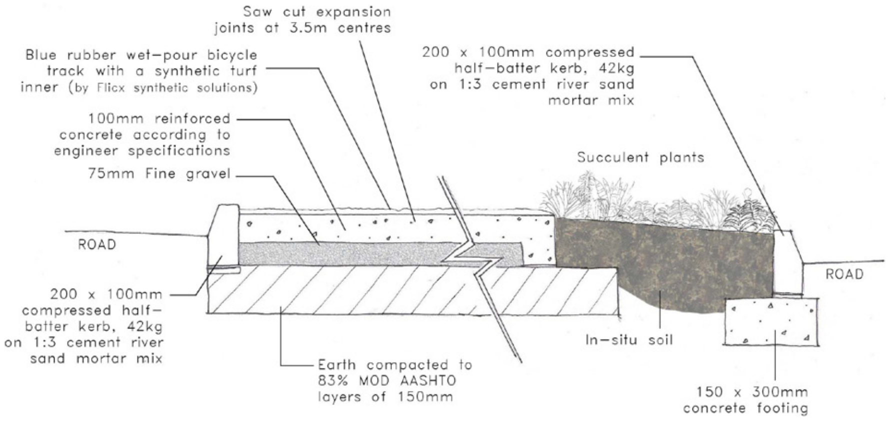
Fig 8.34: Section DD, through green wall and aquaponic system (author)

Detail construction sections
Space C



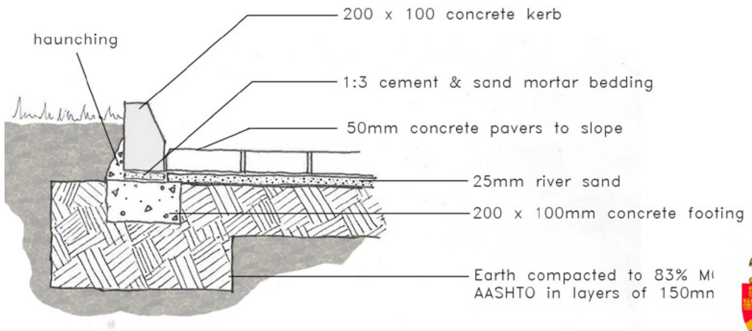
FF
1600
1400
1750
1600
BIKE ROUTE
1500
1550
1300
1320
950
1300
800
1450
1050
EE
1150
1450
1200
1200
GG

Fig 8.35: Space C, Cycle lane and resting space (author)



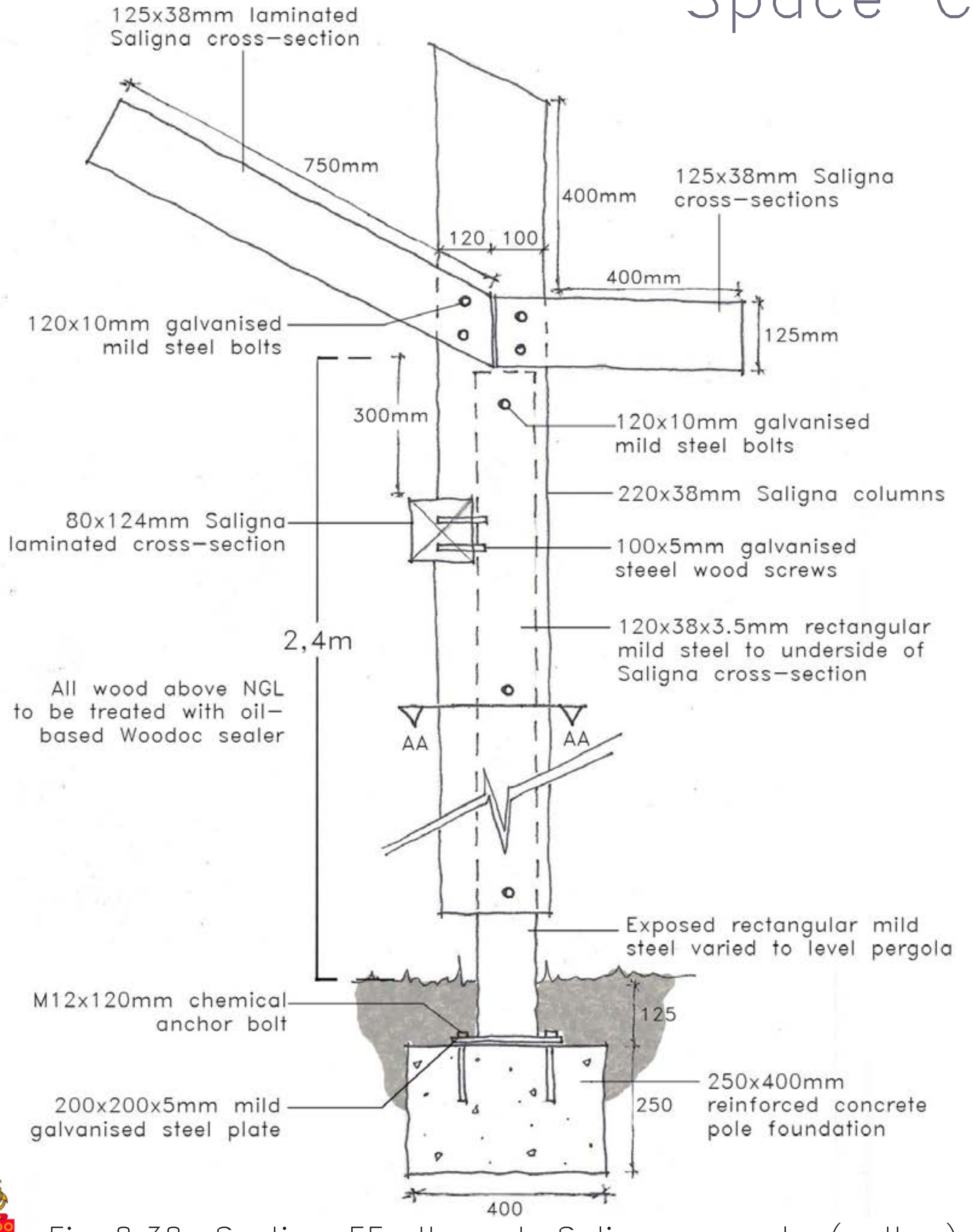
Saw cut expansion joints at 3.5m centres
Blue rubber wet-pour bicycle track with a synthetic turf inner (by Flicx synthetic solutions)
200 x 100mm compressed half-batter kerb, 42kg on 1:3 cement river sand mortar mix
100mm reinforced concrete according to engineer specifications
75mm Fine gravel
Succulent plants
ROAD
ROAD
200 x 100mm compressed half-batter kerb, 42kg on 1:3 cement river sand mortar mix
Earth compacted to 83% MOD AASHTO layers of 150mm
In-situ soil
150 x 300mm concrete footing

Fig 8.36: Section FF, through Saligna pergola (author)



haunching
200 x 100 concrete kerb
1:3 cement & sand mortar bedding
50mm concrete pavers to slope
25mm river sand
200 x 100mm concrete footing
Earth compacted to 83% M
AASHTO in layers of 150mm

Fig 8.37: Section GG, through walk-way edge (author)



125x38mm laminated Saligna cross-section
750mm
400mm
125x38mm Saligna cross-sections
120 100
400mm
120x10mm galvanised mild steel bolts
125mm
300mm
120x10mm galvanised mild steel bolts
220x38mm Saligna columns
80x124mm Saligna laminated cross-section
100x5mm galvanised steeel wood screws
2,4m
120x38x3.5mm rectangular mild steel to underside of Saligna cross-section
All wood above NGL to be treated with oil-based Woodoc sealer
AA
AA
Exposed rectangular mild steel varied to level pergola
M12x120mm chemical anchor bolt
125
250
250x400mm reinforced concrete pole foundation
200x200x5mm mild galvanised steel plate
400

Fig 8.38: Section EE, through Saligna pergola (author)

Detail construction sections
Space D

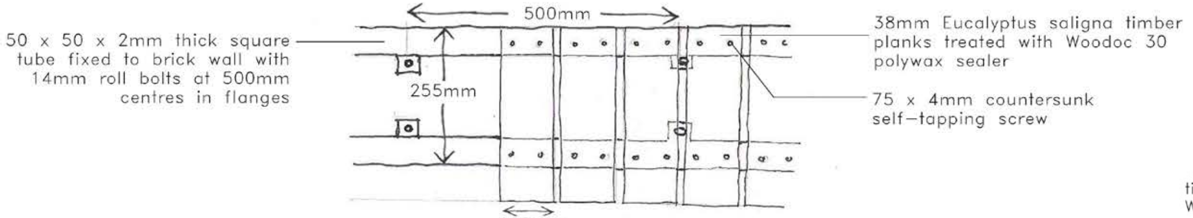

500mm
50 x 50 x 2mm thick square tube fixed to brick wall with 14mm roll bolts at 500mm centres in flanges
255mm
38mm Eucalyptus saligna timber planks treated with Woodoc 30 polywax sealer
75 x 4mm countersunk self-tapping screw
100mm

Fig 8.39: Detailed plan through seating wall (author)

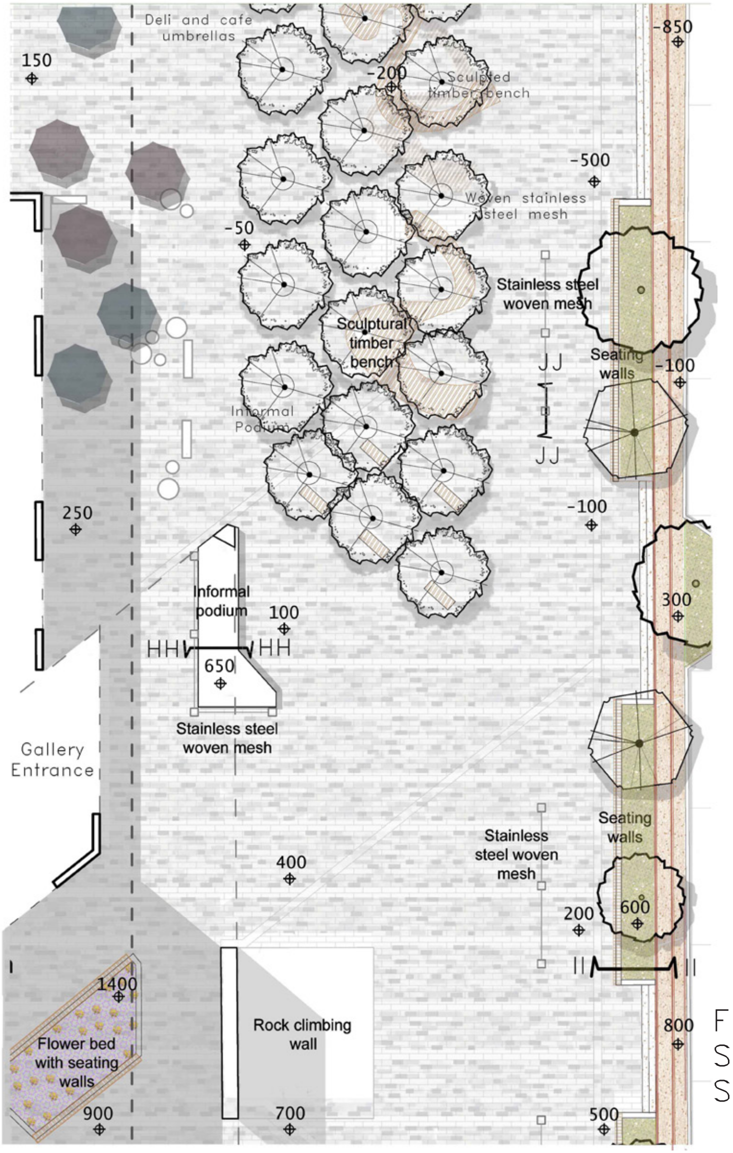

Deli and cafe umbrellas
150
-850
-200
Sculpted timber bench
-500
Woven stainless steel mesh
-50
Stainless steel woven mesh
Sculptural timber bench
JJ
Seating walls
-100
Informal Podium
JJ
250
-100
Informal podium
100
300
HH
HH
650
Stainless steel woven mesh
Gallery Entrance
Seating walls
Stainless steel woven mesh
400
200
600
II
II
1400
Flower bed with seating walls
Rock climbing wall
800
900
700
500

Fig 8.40: Space D, Eat Street (author)

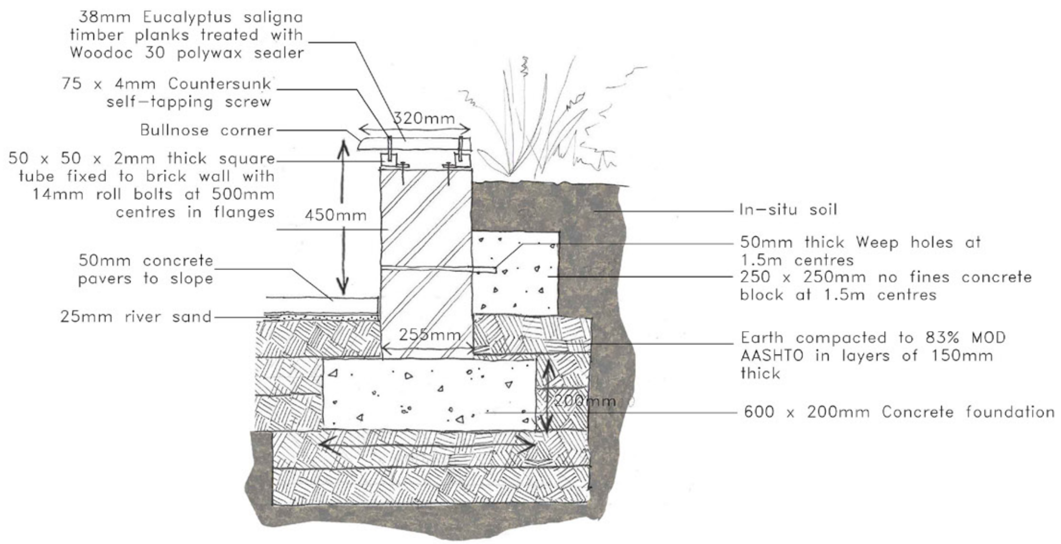

38mm Eucalyptus saligna timber planks treated with Woodoc 30 polywax sealer
75 x 4mm Countersunk self-tapping screw
Bullnose corner
320mm
50 x 50 x 2mm thick square tube fixed to brick wall with 14mm roll bolts at 500mm centres in flanges
450mm
In-situ soil
50mm thick Weep holes at 1.5m centres
250 x 250mm no fines concrete block at 1.5m centres
50mm concrete pavers to slope
25mm river sand
255mm
Earth compacted to 83% MOD AASHTO in layers of 150mm thick
200mm
600 x 200mm Concrete foundation

Fig 8.41: Detail section through seating wall (author)

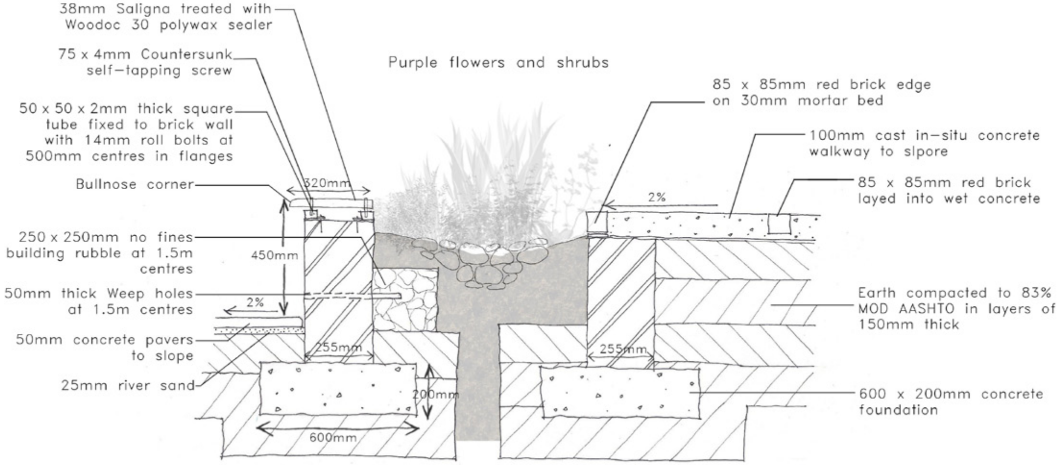

38mm Saligna treated with Woodoc 30 polywax sealer
75 x 4mm Countersunk self-tapping screw
Purple flowers and shrubs
85 x 85mm red brick edge on 30mm mortar bed
50 x 50 x 2mm thick square tube fixed to brick wall with 14mm roll bolts at 500mm centres in flanges
100mm cast in-situ concrete walkway to slpore
Bullnose corner
320mm
85 x 85mm red brick layed into wet concrete
2%
250 x 250mm no fines building rubble at 1.5m centres
450mm
50mm thick Weep holes at 1.5m centres
2%
Earth compacted to 83% MOD AASHTO in layers of 150mm thick
50mm concrete pavers to slope
255mm
255mm
25mm river sand
200mm
600 x 200mm concrete foundation
600mm

Fig 8.42: Section II: Through green wall and aquaponic system (author)

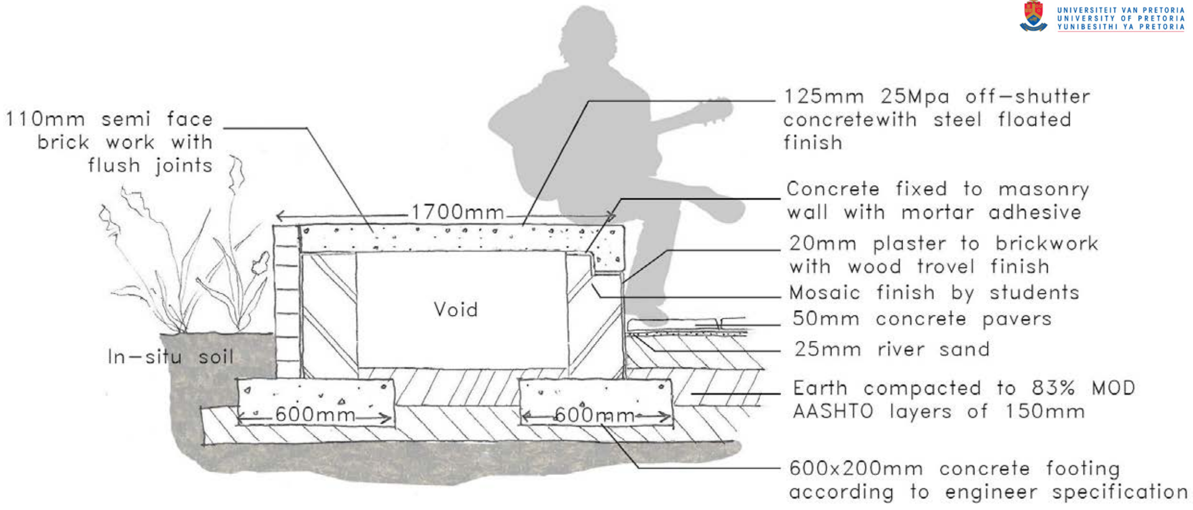
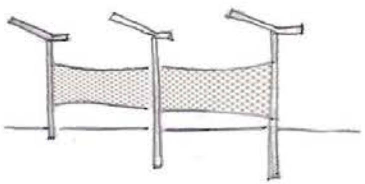

110mm semi face brick work with flush joints
1700mm
Void
In-situ soil
600mm
600mm
125mm 25Mpa off-shutter concretewith steel floated finish
Concrete fixed to masonry wall with mortar adhesive
20mm plaster to brickwork with wood trovel finish
Mosaic finish by students
50mm concrete pavers
25mm river sand
Earth compacted to 83% MOD AASHTO layers of 150mm
600x200mm concrete footing according to engineer specification

Fig 8.43: Section HH, through performance podium (author)



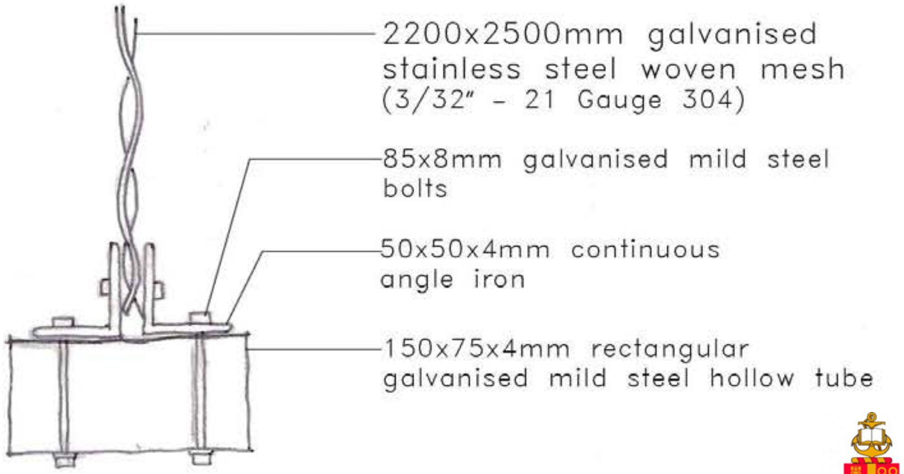

2200x2500mm galvanised stainless steel woven mesh (3/32" - 21 Gauge 304)
85x8mm galvanised mild steel bolts
50x50x4mm continuous angle iron
150x75x4mm rectangular galvanised mild steel hollow tube

Fig 8.44: Section through light pole (author)

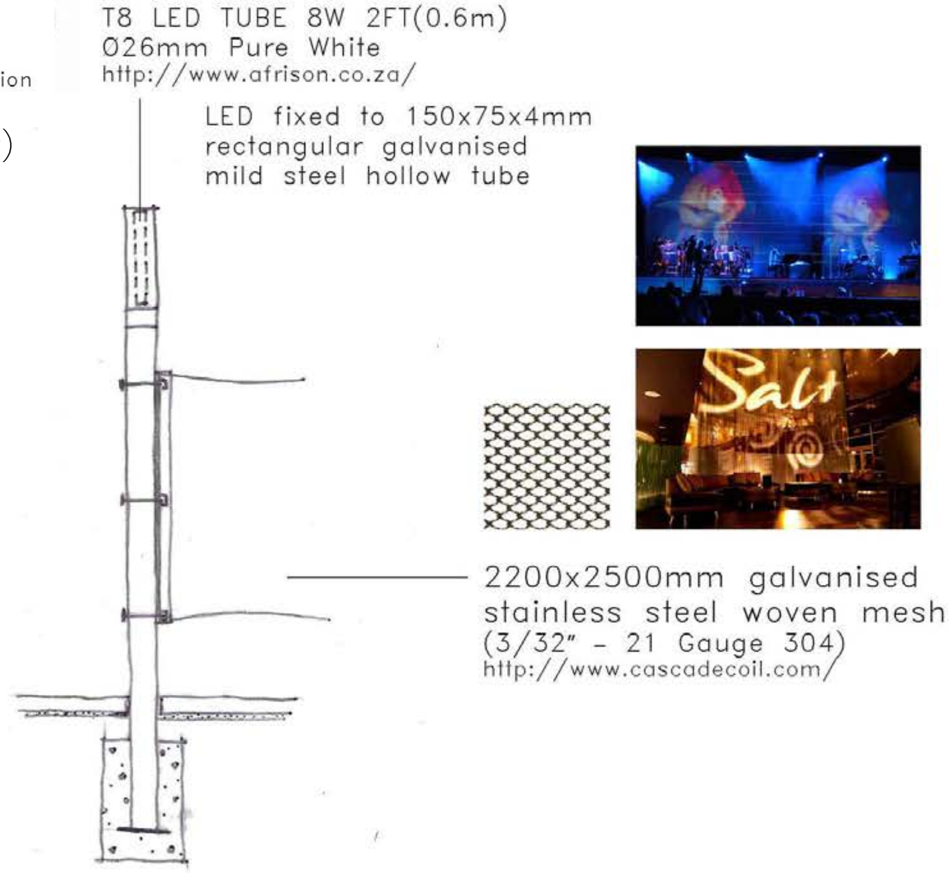

T8 LED TUBE 8W 2FT(0.6m) 026mm Pure White
http://www.afrison.co.za/
LED fixed to 150x75x4mm rectangular galvanised mild steel hollow tube
2200x2500mm galvanised stainless steel woven mesh (3/32" - 21 Gauge 304)
http://www.cascadecoil.com/

Fig 8.45: Section JJ, through seating wall (author)

Detail construction sections

Space E

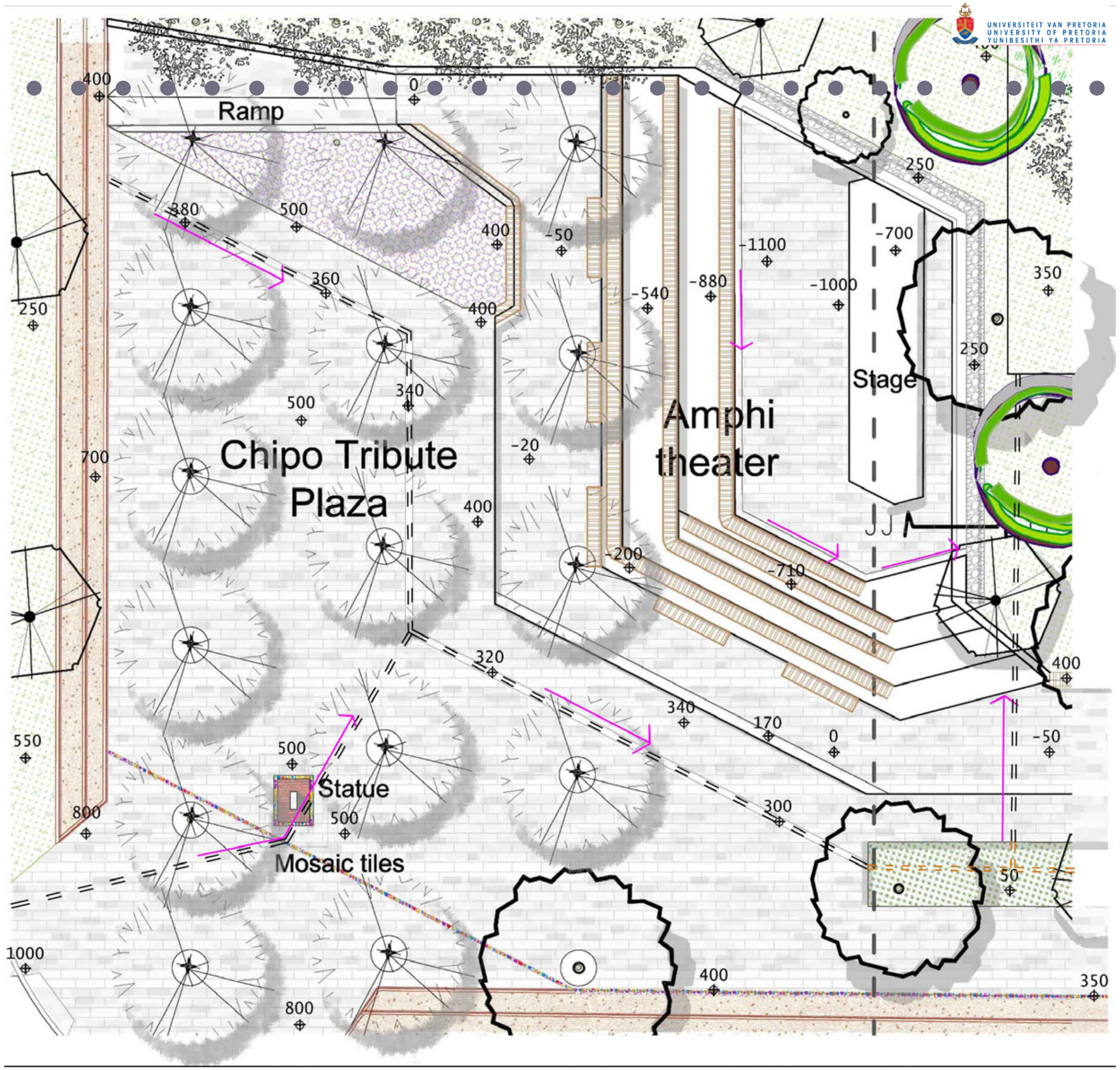

Ramp
Chipo Tribute Plaza
Amphi theater
Stage
Statue
Mosaic tiles
400
0
380
500
400
-50
360
400
250
-540
-880
-1100
-1000
-700
250
350
250
500
340
-20
700
400
200
-710
320
340
170
0
-50
400
550
500
500
800
300
50
1000
800
400
350

Fig 8.46: Space E, Chipo Tribute Plaza and amphi theater (author)

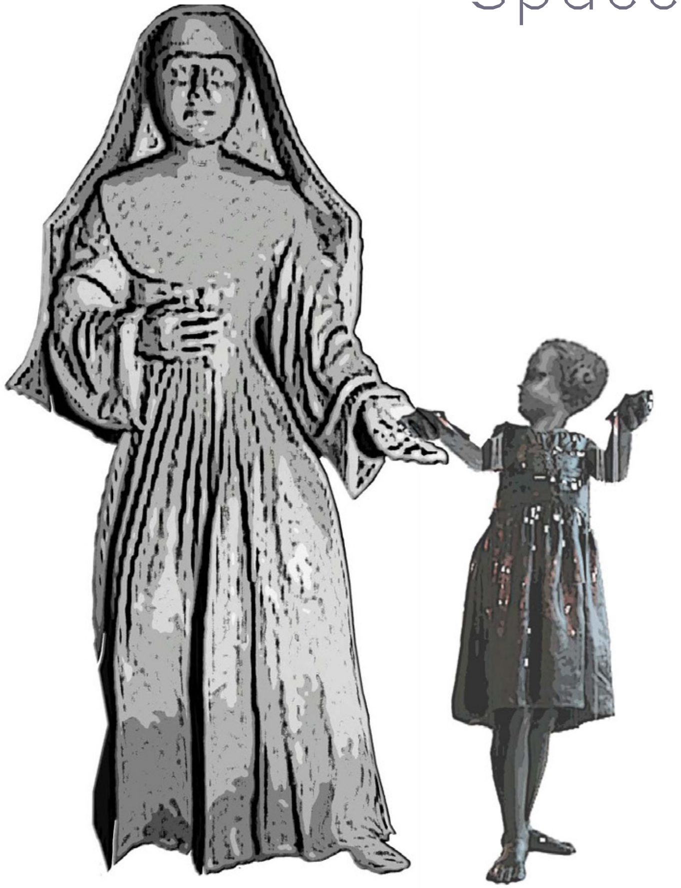


Fig 8.47: Statue of sister Marie Brady and Chipo (blessedmariannecope.org, edited by author)

This free standing statue of sister Marie Brady is hidden amongst a grid of Wild Olive trees, symbolising that this heritage has also been hidden from the public. The discovery of the statue creates a newfound awareness of this lost heritage. It is made of bronze metal and fixed onto a podium of a red brick pattern, which serve as a reference back to Nerina ladies residence. The mosaic inlay tells the story of this unrecorded, yet significant event that occured at the end of Lunnon Lane.

These gabions serve as a backdrop to the amphi's stage and a retaining wall for the soil around the sub-surface water reservoire. They act as litter filters when surface runoff seeps through them into the concrete stormwater channel (fig 8.48). Succulents are planted in double-lined geotextile to soften the backdrop of the stage.

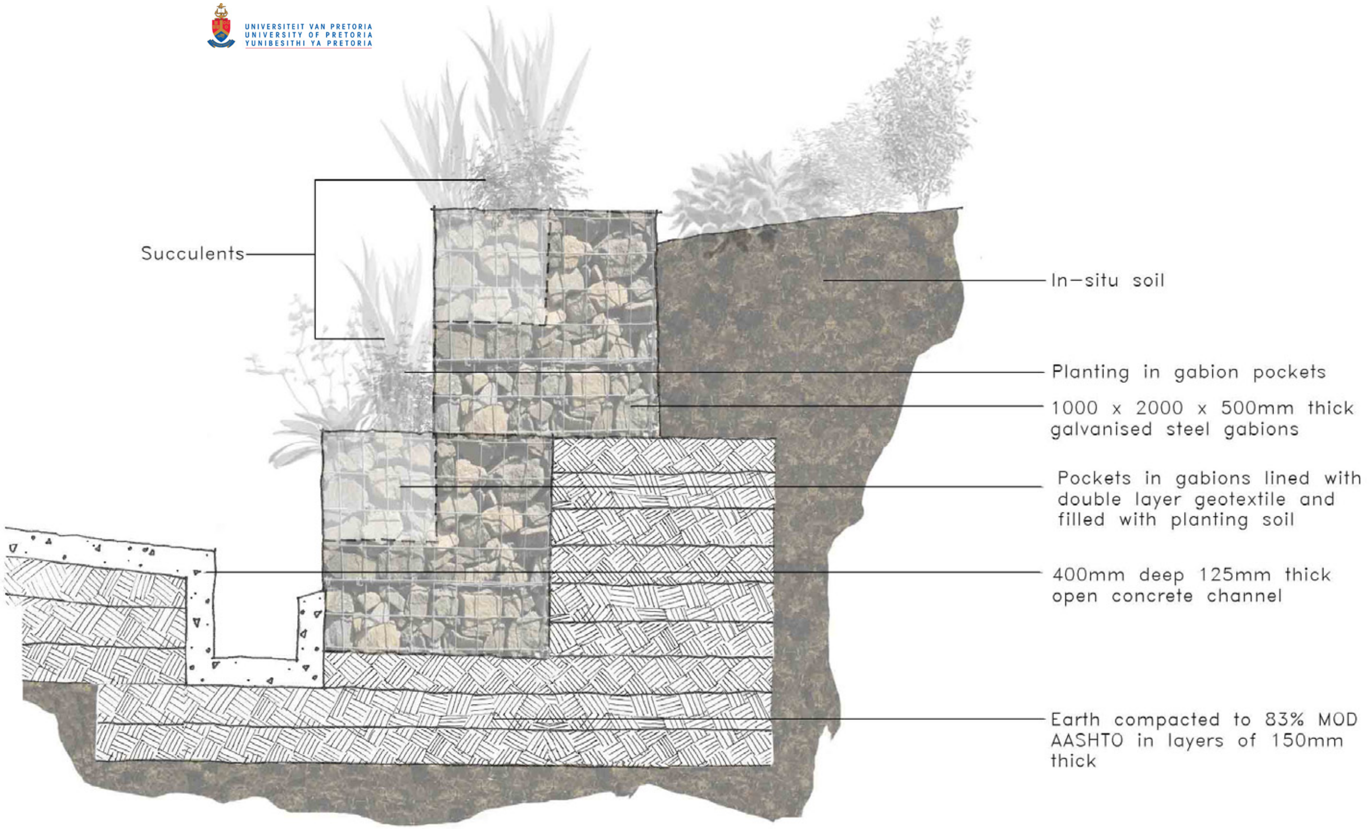

Succulents
In-situ soil
Planting in gabion pockets
1000 x 2000 x 500mm thick galvanised steel gabions
Pockets in gabions lined with double layer geotextile and filled with planting soil
400mm deep 125mm thick open concrete channel
Earth compacted to 83% MOD AASHTO in layers of 150mm thick

Fig 8.48: Section JJ, through gabion stage backdrop (author)

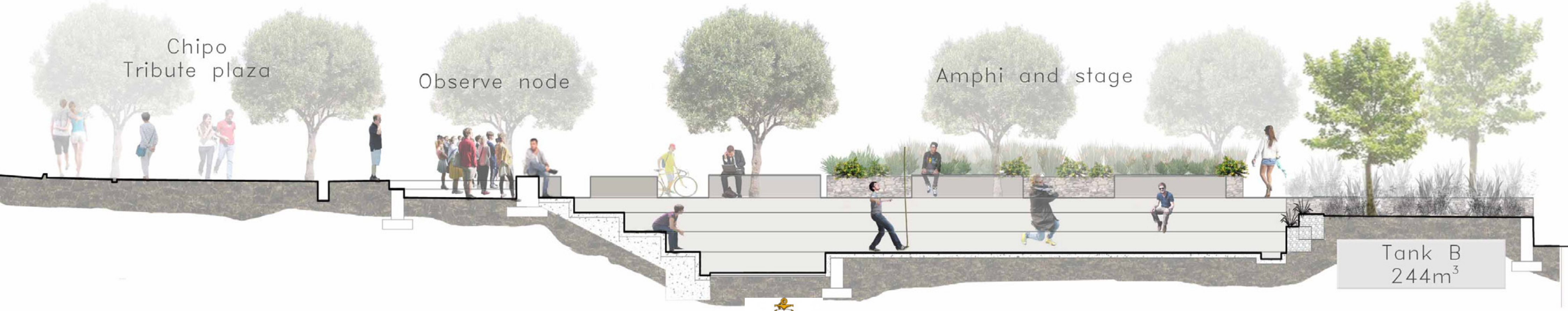

Chipo Tribute plaza
Observe node
Amphi and stage
Tank B 244m^3

Fig 8.49: Section through Tribute Plaza and amphi theater (author)

Furniture specifications

Strategy: The street furniture on this site should evidently relate to the existing street furniture on UP main campus. The idea is to find identity in all landscape elements, especially benches and litter bins which students use daily. The author will explore innovative ways to translate the existing design language into a more sustainable, versatile and economic approach to the design of Lunnon Lane's proposed street furniture.

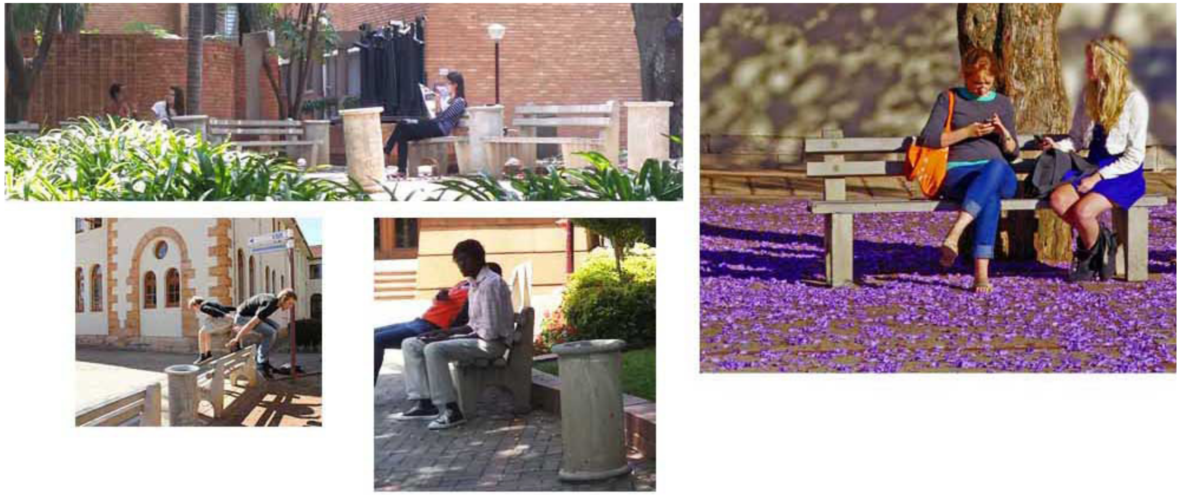


Fig 8.50: Existing street furniture on UP main campus (photos by author)

The street furniture was designed according to the following three criteria:

Aesthetics: The identity of the university should be portrayed in the street furniture, thus the author proposed similar materials and geometry to convey UP's identity. Materials: Smooth concrete finish is similar to UP street furniture however timber is more comfortable in all weather conditions.

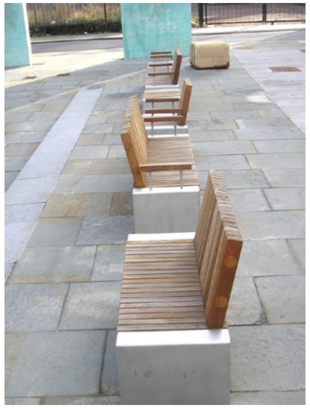


Fig 8.51: Benches outside stadium in Ancoats, Manchester (www.woodscape.co.uk)

Programme: As seen in figure 8.50, students use street furniture for active sports and games, as well as seating and sometimes even napping. The aim is to cater for versitality, yet simplicity in the design of the benches.

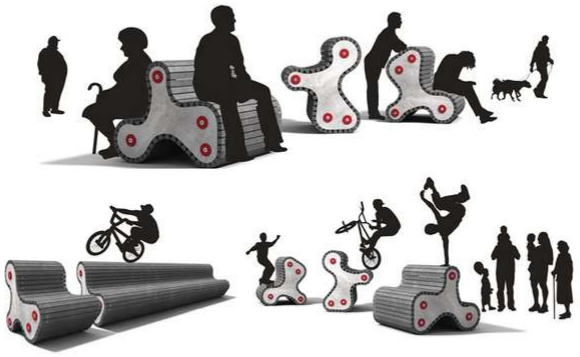


Fig 8.52: Multi-purpose benches (www.architecturelover.com)

Economy: Through efficient design, large costs and natural resources can be minimised through material use and robustness. Figure 8.54 is a prototype to use for the design of the amphi theater seating while figure 8.55 is an economic option for moveable benches.

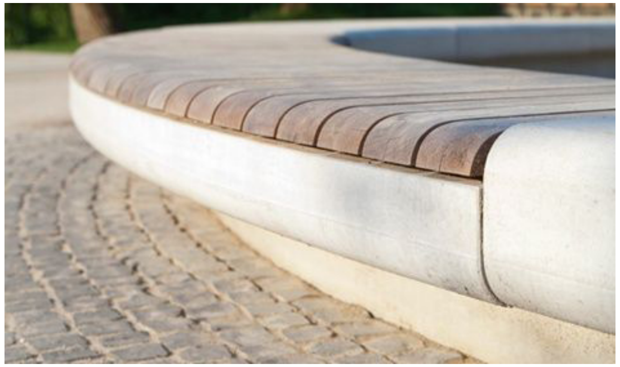


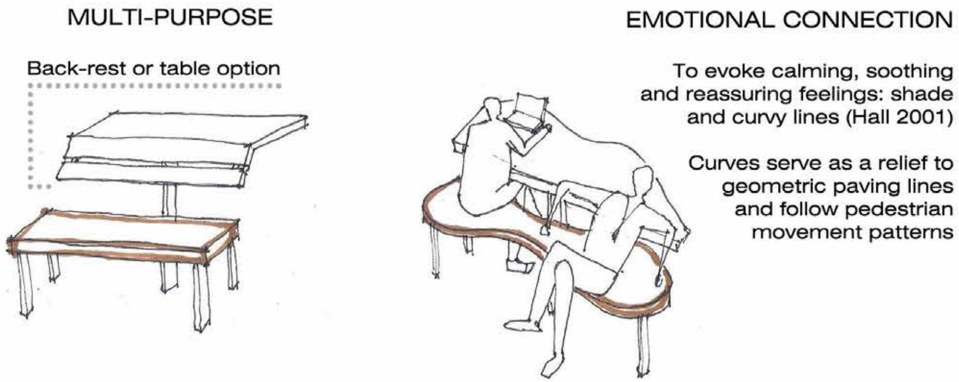
Fig 8.53: Timber and concrete planter seating wall (cutedecision.com)

Furniture specifications

design strategy:

BENCHES →

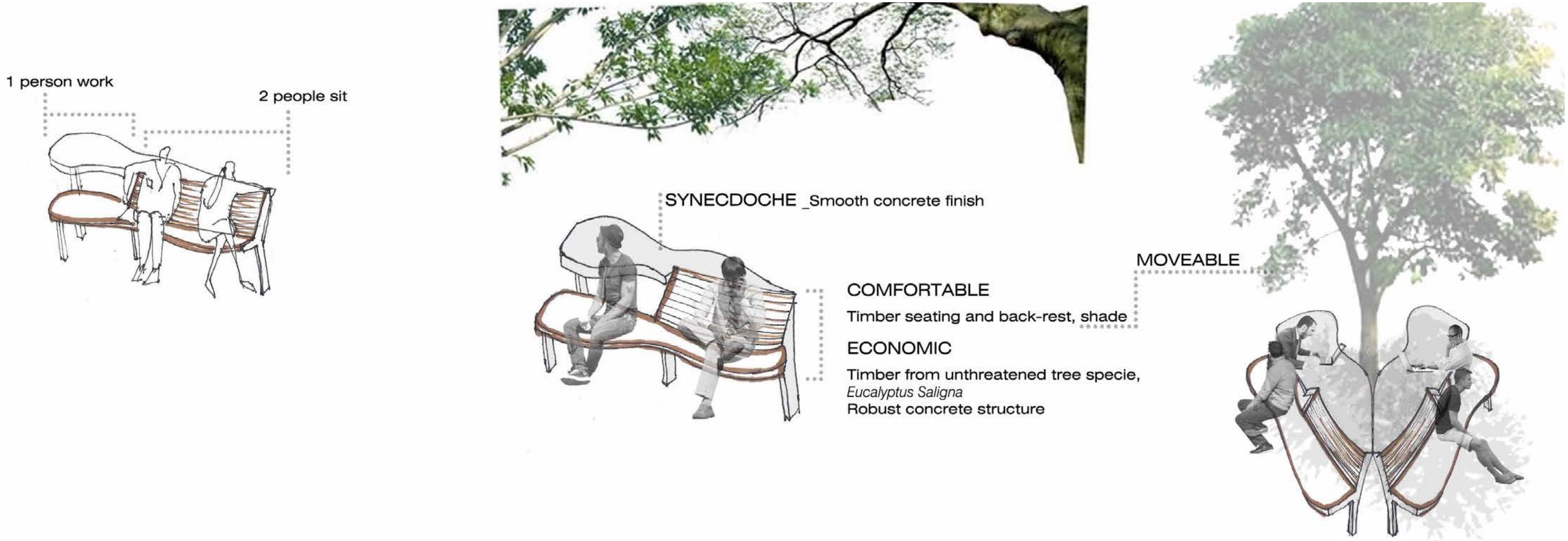
- MULTI-PURPOSE _RELAX, WORK, PLAY, SOCIALISE (Polletto 2012)
- COMFORTABLE _TIMBER, SHADE (Lynch, 1969)
- SYNECDOCHE _UP MATERIALS AND COLOURS (Robbins, 2004)
- EMOTIONAL CONNECTION_(Hall 2001)
- ECONOMIC _MATERIAL RESOURCES AND LIFE-CYCLE (SSI 2014)
- MOVEABLE _LIGHT BUT STABLE


MULTI-PURPOSE
Back-rest or table option
EMOTIONAL CONNECTION

To evoke calming, soothing and reassuring feelings: shade and curvy lines (Hall 2001)

Curves serve as a relief to geometric paving lines and follow pedestrian movement patterns

Fig 8.54: Multi-purpose and emotional connection (by author)


1 person work
2 people sit
SYNECDOCHE _Smooth concrete finish
MOVEABLE

COMFORTABLE

Timber seating and back-rest, shade

ECONOMIC

Timber from unthreatened tree specie, *Eucalyptus Saligna*
Robust concrete structure

Fig 8.55: Synechdoche and moveable furniture (by author)

Proposed furniture

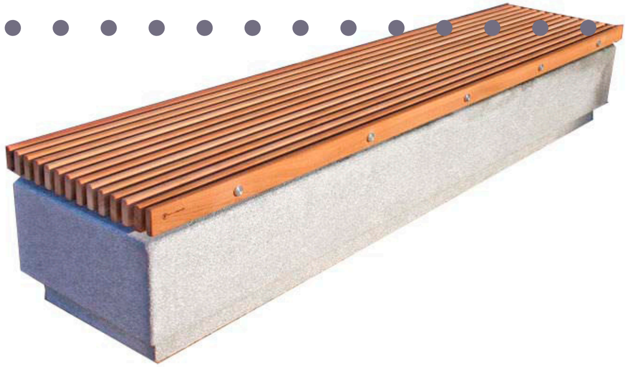


Fig 8.56: Proposed permanent benches for Lunnon Lane (by author)

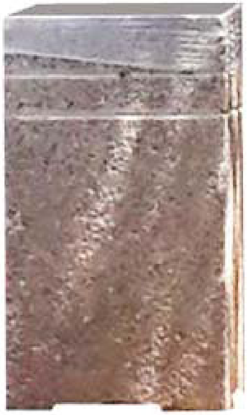


Fig 8.59: Existing dustbins on UP main campus (by author)

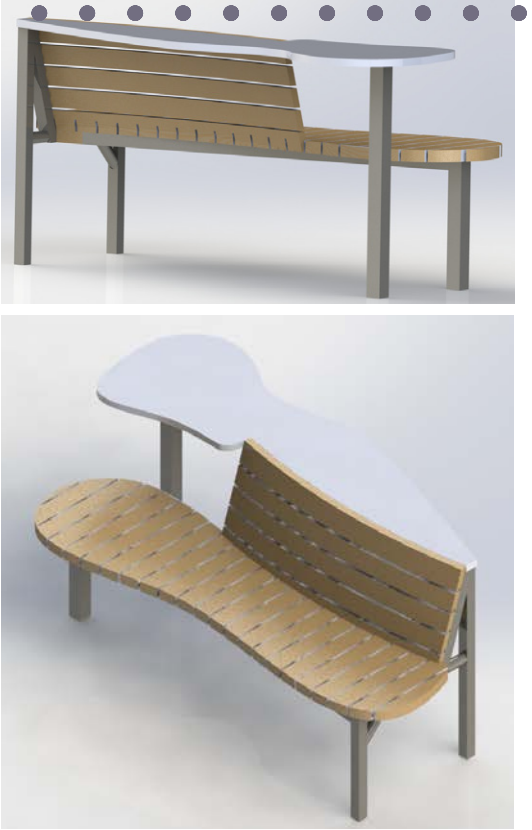


Fig 8.57: Proposed moveable benches for Lunnon Lane (by author)

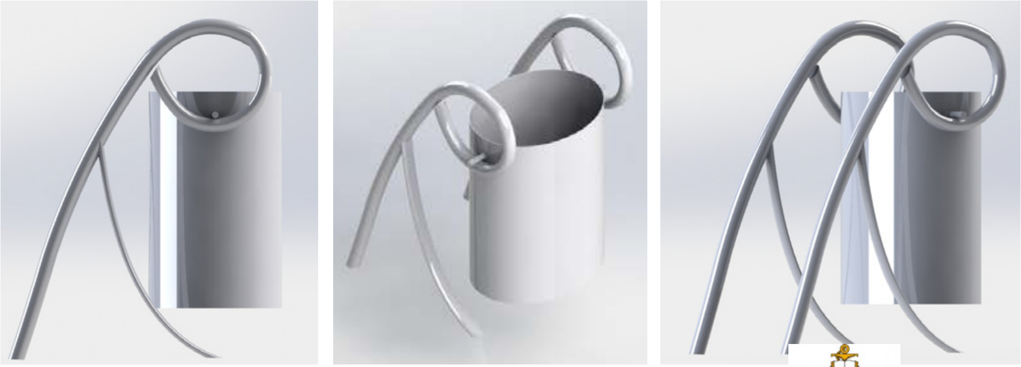


Fig 8.60: Proposed dustbins for Lunnon Lane (by author)

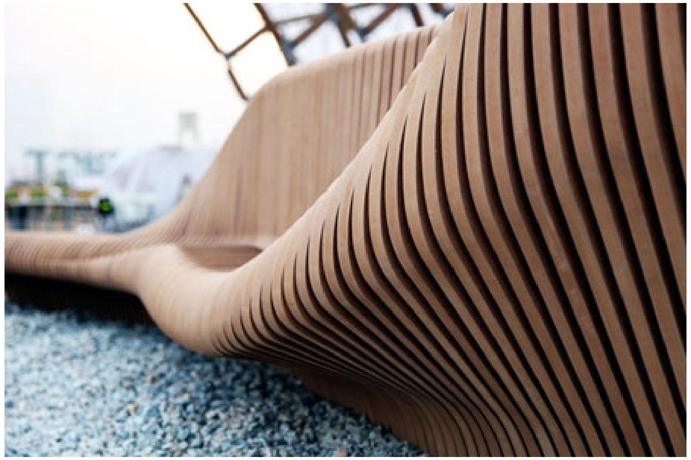


Fig 8.58: Linger Bench by Alvin Tjitrowirjo (www.dezeen.com)

The author introduces street furniture that resembles the existing furniture on UP main campus, yet renovated to look more contemporary.

The design of the existing dustbins on UP main campus are proposed to be upgraded by adding a timber finish to them, which will relate to the design of the benches (fig 8.60). The top of these bins will be covered with a galvanised steel fitting to reduce unwanted smells.

Besides the proposed seating walls, three other benches are introduced: permanent benches (fig 8.56), moveable benches (fig 8.57) and two sculptural timber benches (fig 8.58). The move-able benches allow for self-organisation while the sculptural timber benches are situated along "Eat Street" and can be used for resting or as seating for an outdoor theater. The materials used in the proposed furniture will strengthen the university's identity throughout this site.

9

CONCLUSION AND BIBLIOGRAPHY

Student initiatives

INTRODUCTION

This chapter will deal with the necessity of the issue. It reveals three current initiatives that have recently (July–October 2014) started to take place on and around the site: 1. Cool Capital 2014, 2. Small Steps Initiative and 3. a spontaneous initiative by local students. These efforts by the local community confirm the users' needs for a more pedestrian-friendly environment.

1. Cool Capital 2014

Tuks students have recently started to take initiative in creating awareness to motorists that they should heed to the vulnerable pedestrians that have to cross busy streets. The activation involves the use of a roll-out zebra crossing in streets that need one, such as Burnette and Jan Shoba (Duncan) Road. Two traffic assistants bearing reflective jackets, hold signs which read "Stop in the name of Love" – "Before you break our bones". The outcome of this initiative in Hatfield leaves pedestrians with a sense of safety, self-worth and acknowledgement. The activation was however a very temporary solution for a real long-term problem: being the capital city, Pretoria is in desperate need of more pedestrian-friendly streets, especially in this suburb.

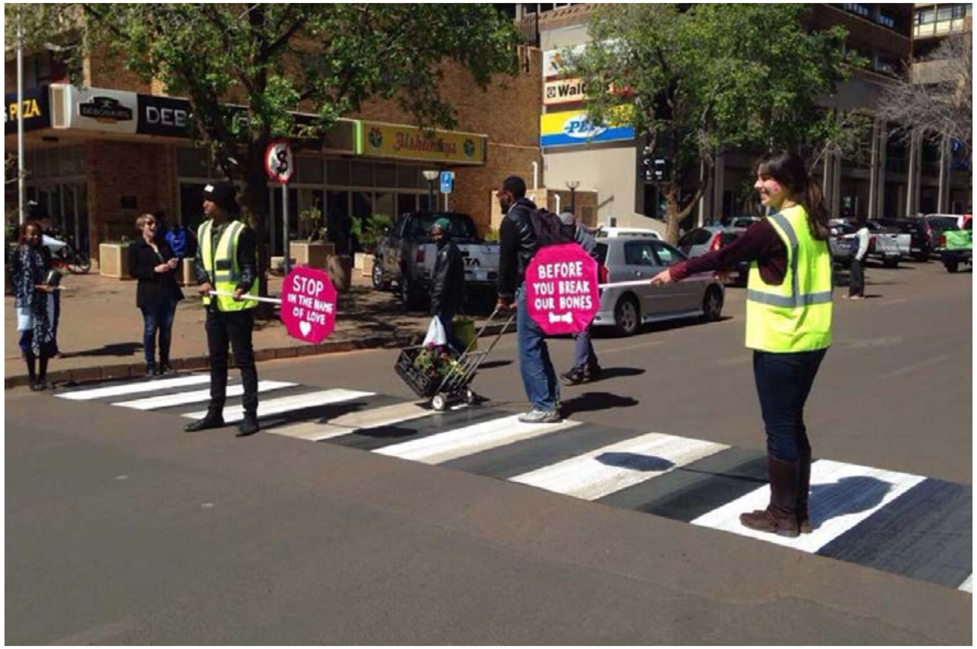

STOP IN THE NAME OF LOVE
BEFORE YOU BREAK OUR BONES

Fig 9.1: Cool Capital Initiative 2014 (www.coolcapital.co.za)

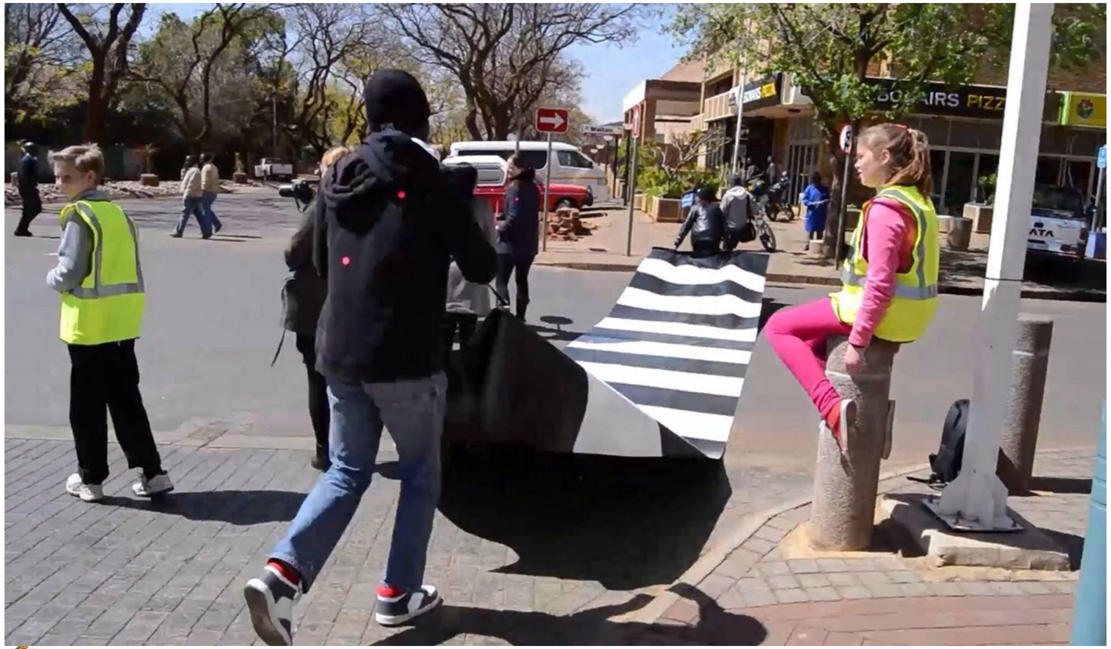


Fig 9.2: Cool Capital Initiative 2014 (www.coolcapital.co.za)

2. Small Steps Initiative 2014

Among many students, Hatfield is known to be a concrete jungle (Trollip, 2014). However, every few steps there is a crack in the concrete floor or a brick or cobble stone in a walkway missing, where soil spills out. A student at UP, Jean-Louise Lamont took initiative to plant small gardens in these cracks to beautify the imperfections of the vast hardscape areas. Jean-Louise called her contribution to public activation: "Small Steps Initiative," (www.coolcapital.co.za).

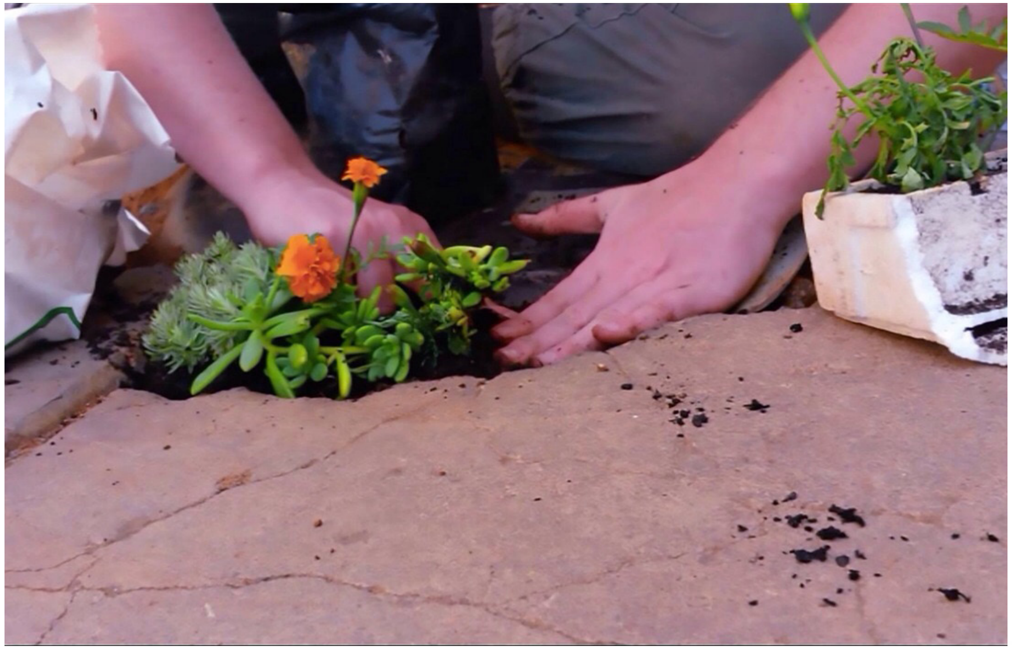


Fig 9.3: Small Steps Initiative (www.coolcapital.co.za)

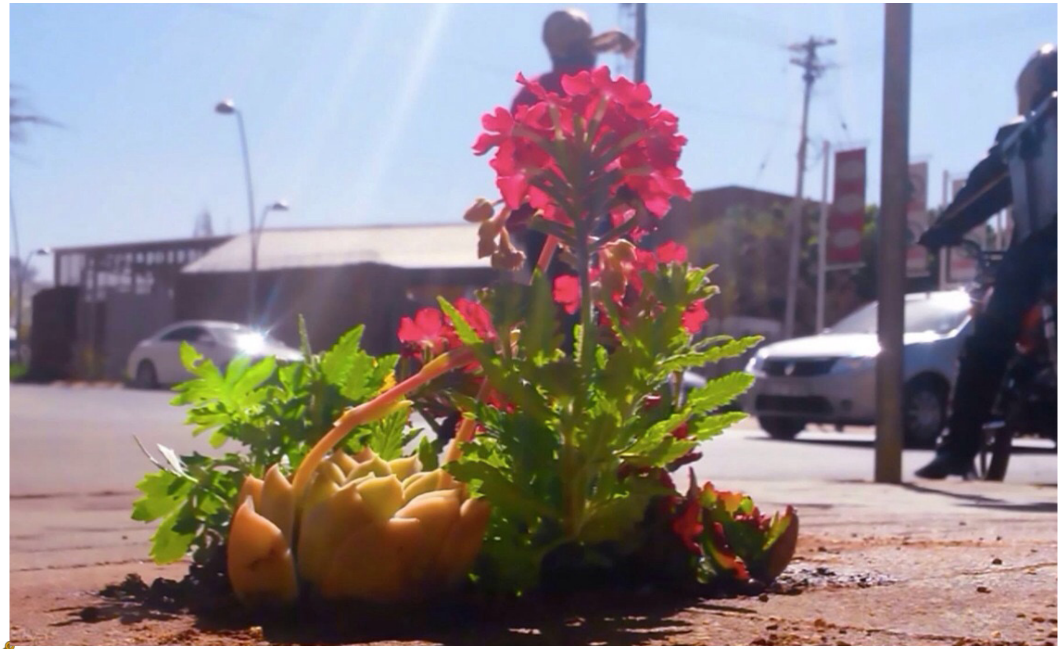


Fig 9.4: Small Steps Initiative (www.coolcapital.co.za)

2. Small Steps Initiative 2014

This initiative was implemented by the local community (predominantly UP students) and demonstrates upliftment in social interaction and stewardship (Fig 9.6). These small steps to a resilient city, has already made a difference in the attitude and awareness of the regular site user in their physical environment to engage as a social participator rather than to pass by as a 'real-time' world citizen.

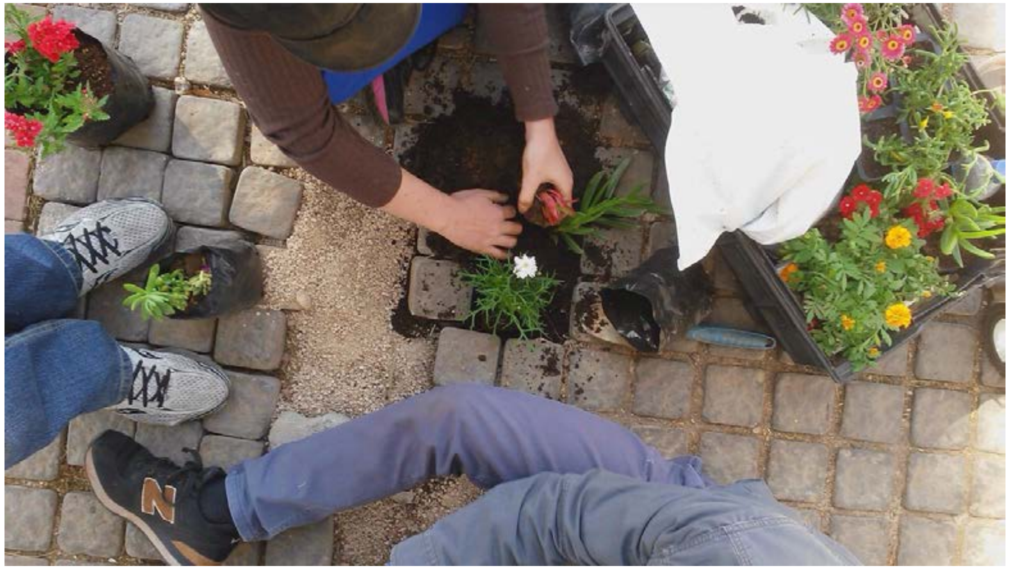


Fig 9.5: Small Steps Initiative (www.coolcapital.co.za)

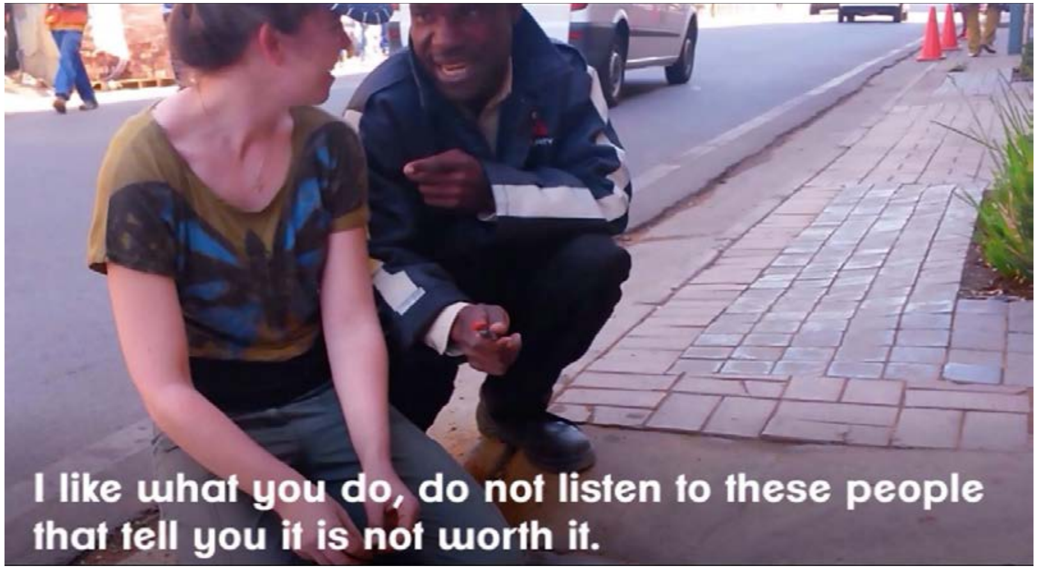

I like what you do, do not listen to these people that tell you it is not worth it.

Fig 9.6: Small Steps Initiative (www.coolcapital.co.za)

Student initiatives

3. A spontaneous initiative by local students

Amongst other initiatives taken around the site, the author discovered another public activation during a recent site visit on 1 September 2014. On Lunnon Lane, close to the corner of Jan Shoba (Duncan) Road, bright splotches of magenta paint was used over a text stencil to communicate the following words: "WE WANT A BIKE LANE" (fig 9.7). This confirms the urgency of creating a safe and exciting pedestrian dominated street, addressing the existing landscape architectural challenges and responding to the site users' pleads.

Conclusion

In conclusion, the three design objectives set out in chapter 6 was met:

1. A sense of belonging was proposed through social inclusion by universal design and a mixed land use, finding identity in synecdoche and commemorating a lost heritage.

2. A self-organising city was proposed to invigorate public spaces, turning the path into a destination through pedestrian infiltration toward specific magnets, allowing an adaptable programme for safer streets that accommodates annual events, rituals and various other student traditions, also encouraging public activation through choice of engagement opportunities.

3. Stewardship was proposed through sustainable green practices that follow Sustainable Sites Initiative guidelines of 2014. Platforms allow for participation and interaction. The emotional connection was enhanced by appropriate planting strategies, hardscape forms and patterns to evoke the desired feelings in the journey through this public urban landscape.

New urbanism guidelines (Robbins, 2004) and design principles that give form to cities (Lynch, 1969) aided throughout the entire design process to achieve the appropriate principles to ultimately nurture a street-culture where pedestrians feel they belong.

WE

WANT

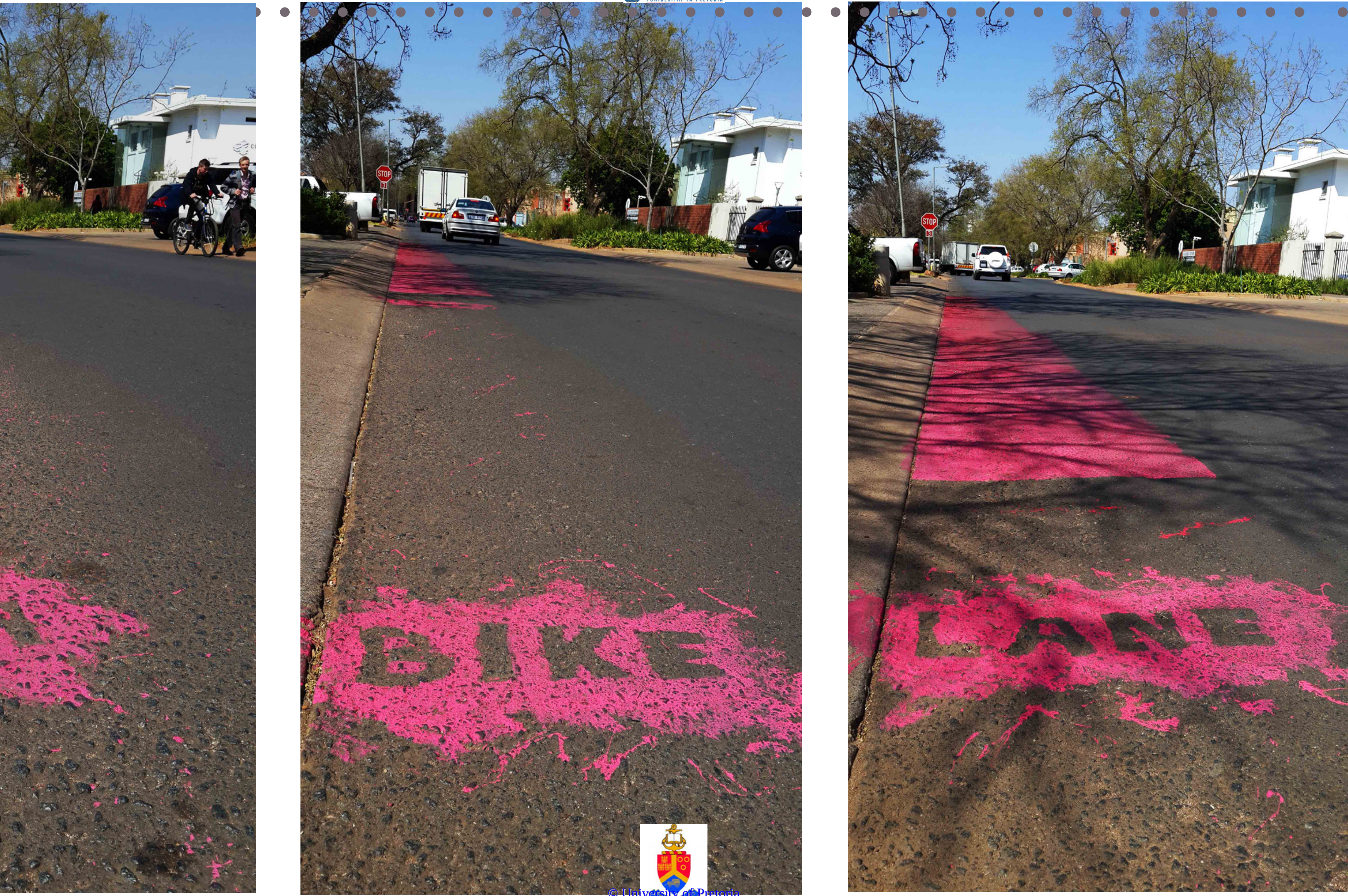

STOP
BIKE
LANE

Fig 9.7: Initiative by local students Photos by author

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Dries Verbeek, Pr Arch MI Arch PIA, Director of Neo Dimensions Architects, Menlo Park (Personal interview, February 18, 2014)
Jason Sampson, Curator of Botany Dept, University of Pretoria (Personal interview, September 19, 2014)
Neal Dunstan, PrLArch, BL (Pret), Dept Facilities Management, University of Pretoria (Personal interview, February 13, 2014)
Tebogo Twala, Student Representative Council (SRC)

Website sources served as guidance:

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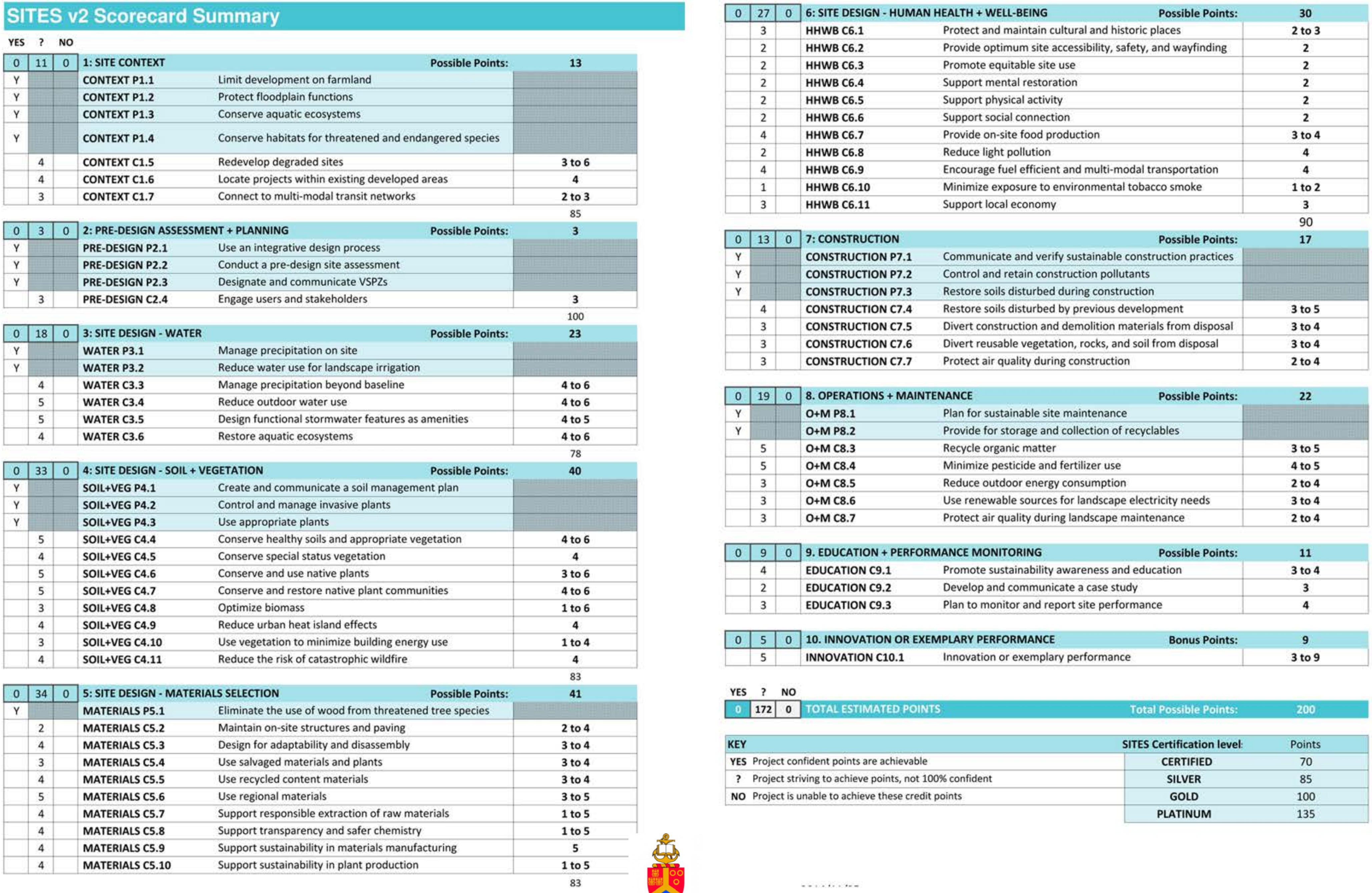
Appendix

Project Name: Reviving a Street Culture in Lunnon Lane



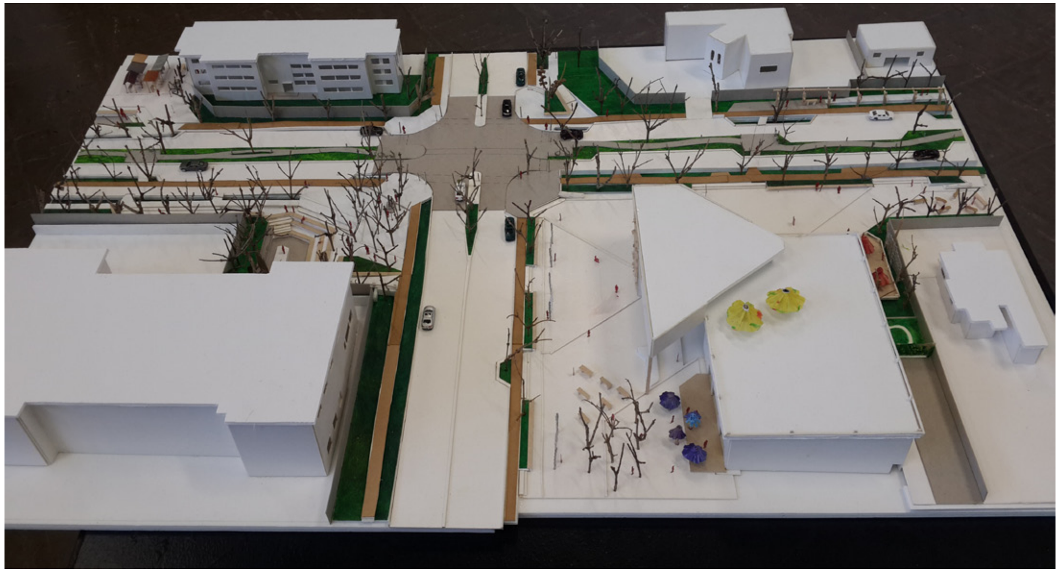
SITES v2 Scorecard Summary

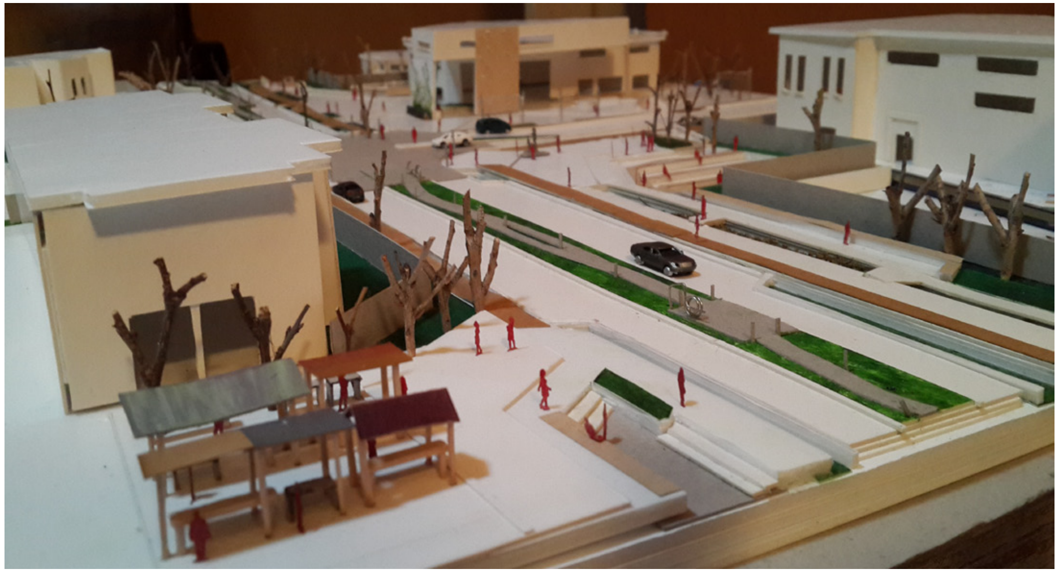
YES	?	NO			
0	11	0	**1: SITE CONTEXT**	**Possible Points:**	**13**
Y			**CONTEXT P1.1**	Limit development on farmland	
Y			**CONTEXT P1.2**	Protect floodplain functions	
Y			**CONTEXT P1.3**	Conserve aquatic ecosystems	
Y			**CONTEXT P1.4**	Conserve habitats for threatened and endangered species	
	4		**CONTEXT C1.5**	Redevelop degraded sites	**3 to 6**
	4		**CONTEXT C1.6**	Locate projects within existing developed areas	**4**
	3		**CONTEXT C1.7**	Connect to multi-modal transit networks	**2 to 3**
					85
0	3	0	**2: PRE-DESIGN ASSESSMENT + PLANNING**	**Possible Points:**	**3**
Y			**PRE-DESIGN P2.1**	Use an integrative design process	
Y			**PRE-DESIGN P2.2**	Conduct a pre-design site assessment	
Y			**PRE-DESIGN P2.3**	Designate and communicate VSPZs	
	3		**PRE-DESIGN C2.4**	Engage users and stakeholders	**3**
					100
0	18	0	**3: SITE DESIGN - WATER**	**Possible Points:**	**23**
Y			**WATER P3.1**	Manage precipitation on site	
Y			**WATER P3.2**	Reduce water use for landscape irrigation	
	4		**WATER C3.3**	Manage precipitation beyond baseline	**4 to 6**
	5		**WATER C3.4**	Reduce outdoor water use	**4 to 6**
	5		**WATER C3.5**	Design functional stormwater features as amenities	**4 to 5**
	4		**WATER C3.6**	Restore aquatic ecosystems	**4 to 6**
					78
0	33	0	**4: SITE DESIGN - SOIL + VEGETATION**	**Possible Points:**	**40**
Y			**SOIL+VEG P4.1**	Create and communicate a soil management plan	
Y			**SOIL+VEG P4.2**	Control and manage invasive plants	
Y			**SOIL+VEG P4.3**	Use appropriate plants	
	5		**SOIL+VEG C4.4**	Conserve healthy soils and appropriate vegetation	**4 to 6**
	4		**SOIL+VEG C4.5**	Conserve special status vegetation	**4**
	5		**SOIL+VEG C4.6**	Conserve and use native plants	**3 to 6**
	5		**SOIL+VEG C4.7**	Conserve and restore native plant communities	**4 to 6**
	3		**SOIL+VEG C4.8**	Optimize biomass	**1 to 6**
	4		**SOIL+VEG C4.9**	Reduce urban heat island effects	**4**
	3		**SOIL+VEG C4.10**	Use vegetation to minimize building energy use	**1 to 4**
	4		**SOIL+VEG C4.11**	Reduce the risk of catastrophic wildfire	**4**
					83
0	34	0	**5: SITE DESIGN - MATERIALS SELECTION**	**Possible Points:**	**41**
Y			**MATERIALS P5.1**	Eliminate the use of wood from threatened tree species	
	2		**MATERIALS C5.2**	Maintain on-site structures and paving	**2 to 4**
	4		**MATERIALS C5.3**	Design for adaptability and disassembly	**3 to 4**
	3		**MATERIALS C5.4**	Use salvaged materials and plants	**3 to 4**
	4		**MATERIALS C5.5**	Use recycled content materials	**3 to 4**
	5		**MATERIALS C5.6**	Use regional materials	**3 to 5**
	4		**MATERIALS C5.7**	Support responsible extraction of raw materials	**1 to 5**
	4		**MATERIALS C5.8**	Support transparency and safer chemistry	**1 to 5**
	4		**MATERIALS C5.9**	Support sustainability in materials manufacturing	**5**
	4		**MATERIALS C5.10**	Support sustainability in plant production	**1 to 5**
					83
0	27	0	**6: SITE DESIGN - HUMAN HEALTH + WELL-BEING**	**Possible Points:**	**30**
	3		**HHWB C6.1**	Protect and maintain cultural and historic places	**2 to 3**
	2		**HHWB C6.2**	Provide optimum site accessibility, safety, and wayfinding	**2**
	2		**HHWB C6.3**	Promote equitable site use	**2**
	2		**HHWB C6.4**	Support mental restoration	**2**
	2		**HHWB C6.5**	Support physical activity	**2**
	2		**HHWB C6.6**	Support social connection	**2**
	4		**HHWB C6.7**	Provide on-site food production	**3 to 4**
	2		**HHWB C6.8**	Reduce light pollution	**4**
	4		**HHWB C6.9**	Encourage fuel efficient and multi-modal transportation	**4**
	1		**HHWB C6.10**	Minimize exposure to environmental tobacco smoke	**1 to 2**
	3		**HHWB C6.11**	Support local economy	**3**
					90
0	13	0	**7: CONSTRUCTION**	**Possible Points:**	**17**
Y			**CONSTRUCTION P7.1**	Communicate and verify sustainable construction practices	
Y			**CONSTRUCTION P7.2**	Control and retain construction pollutants	
Y			**CONSTRUCTION P7.3**	Restore soils disturbed during construction	
	4		**CONSTRUCTION C7.4**	Restore soils disturbed by previous development	**3 to 5**
	3		**CONSTRUCTION C7.5**	Divert construction and demolition materials from disposal	**3 to 4**
	3		**CONSTRUCTION C7.6**	Divert reusable vegetation, rocks, and soil from disposal	**3 to 4**
	3		**CONSTRUCTION C7.7**	Protect air quality during construction	**2 to 4**
0	19	0	**8. OPERATIONS + MAINTENANCE**	**Possible Points:**	**22**
Y			**O+M P8.1**	Plan for sustainable site maintenance	
Y			**O+M P8.2**	Provide for storage and collection of recyclables	
	5		**O+M C8.3**	Recycle organic matter	**3 to 5**
	5		**O+M C8.4**	Minimize pesticide and fertilizer use	**4 to 5**
	3		**O+M C8.5**	Reduce outdoor energy consumption	**2 to 4**
	3		**O+M C8.6**	Use renewable sources for landscape electricity needs	**3 to 4**
	3		**O+M C8.7**	Protect air quality during landscape maintenance	**2 to 4**
0	9	0	**9. EDUCATION + PERFORMANCE MONITORING**	**Possible Points:**	**11**
	4		**EDUCATION C9.1**	Promote sustainability awareness and education	**3 to 4**
	2		**EDUCATION C9.2**	Develop and communicate a case study	**3**
	3		**EDUCATION C9.3**	Plan to monitor and report site performance	**4**
0	5	0	**10. INNOVATION OR EXEMPLARY PERFORMANCE**	**Bonus Points:**	**9**
	5		**INNOVATION C10.1**	Innovation or exemplary performance	**3 to 9**

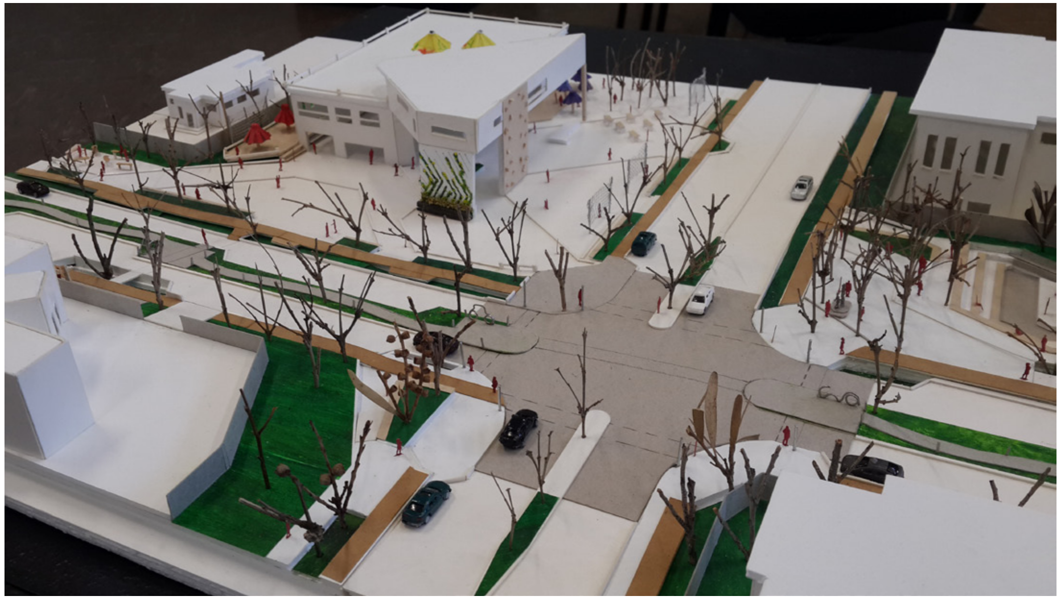
YES	?	NO			
0	172	0	TOTAL ESTIMATED POINTS	Total Possible Points:	200

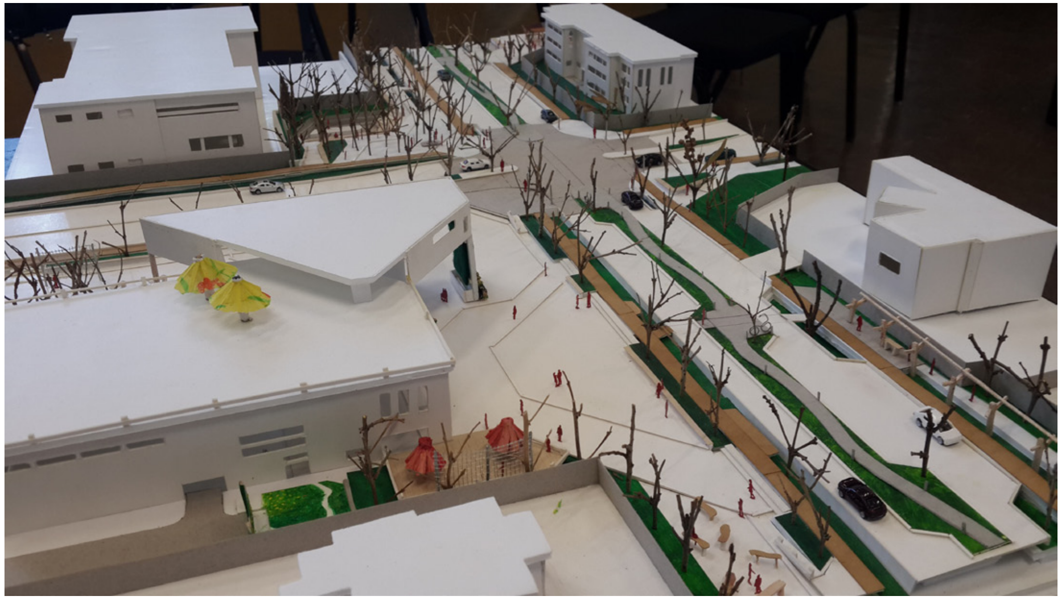
KEY		**SITES Certification level:**	Points
YES	Project confident points are achievable	**CERTIFIED**	70
?	Project striving to achieve points, not 100% confident	**SILVER**	85
NO	Project is unable to achieve these credit points	**GOLD**	100
		PLATINUM	135

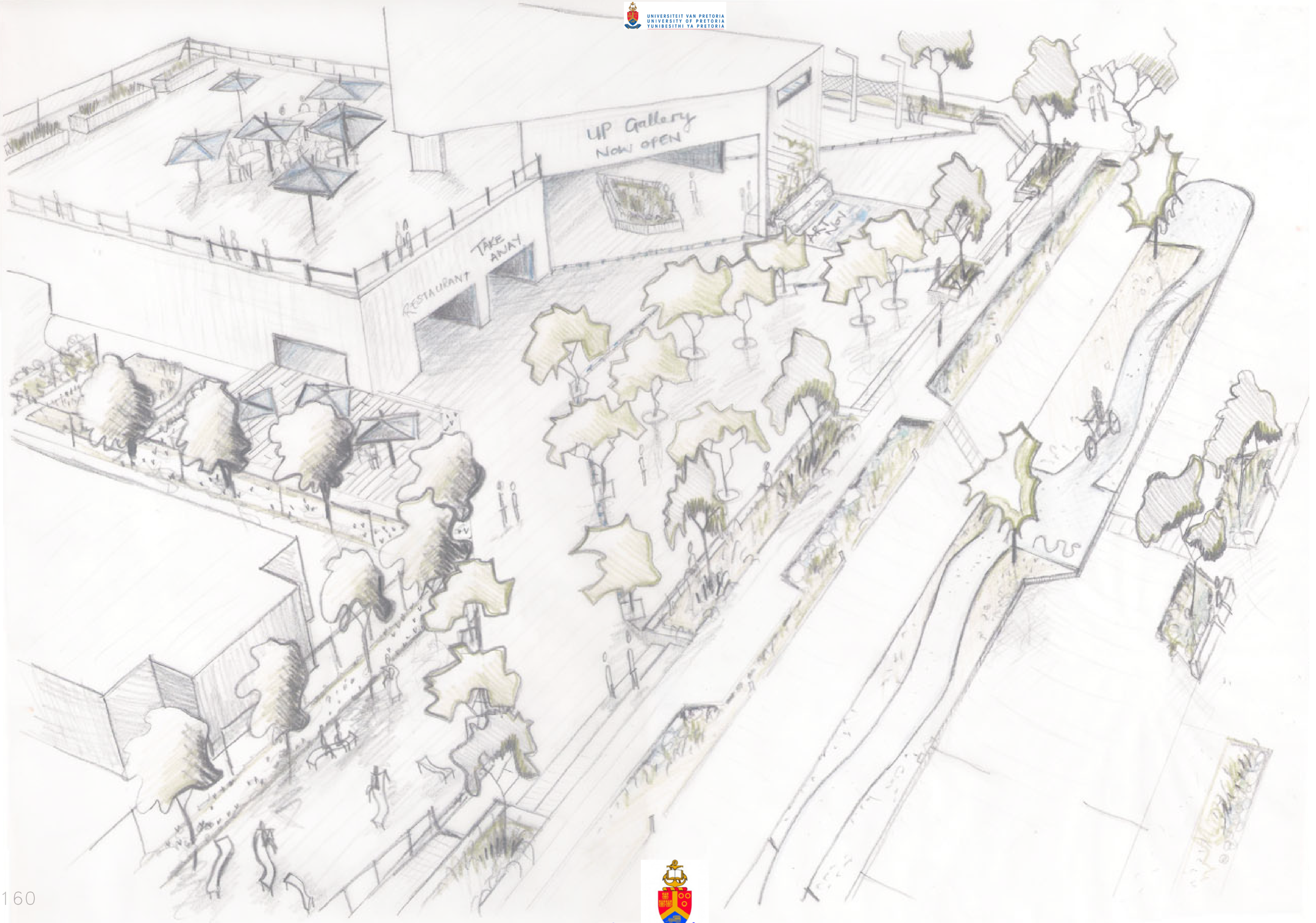
Photos of the model










UP Gallery
Now OPEN
TAKE AWAY
RESTAURANT
ART NOW

(by author)