



## HISTORICAL CONTEXT

The investigation of historical context focus on the Apies River. The river is discussed through focussing on the name of the river, the state of the environment in the early days of Pretoria and the physical attributes of the river.

### The name

A Matabele tribe living in the river valley named the river Enzwabuklunga (orZwabuhlungu) which means 'painful' in reference to sharp edged dolomite stones in the river and at the fountains that hurt the wom-

en's feet when they fetched water from the river. Later on Tswana migrants called it Tshwane after a prominent chief of the time (van der Waal Collection). The current name was adopted from the prolific vervet monkeys that inhabited the area when the first settlers arrived in the Fountains Valley. (Bolsman, 2001, p. 170)

### The environment

- The Apies River valley was home to a large population of lions that were hunted and exterminated; the vervet monkeys' habitat was destroyed and they were killed and captured; hyenas and jackals were also driven off (Bolsman, 2001, p. 170).
- One of the earliest settlers wrote: "The trees along

the Apies River made a beautiful pleasance, remarkable for its scenery, and the place was blessed with a fine climate and an abundance of the purest water. In those days the central portion of the present city was covered by what we called bontbos, that is clumps and groups of trees with open space between, that gives the whole a parklike appearance, while mimosa [*mimosa sp.* are exotic invaders, thus the reference can be questioned] and the white flowered 'buffelpeer' [no known botanical name found], in spring filled the air with a sublime perfume" (Bolsman, 2001, p. 170).

- Trees in the valley included bushwillows (*Combretum sp.*), wild olives (*Olea europaea subsp. africana*), stinkwood (*Celtis africana*), wild currant (*Rhus pyroides*), 'bontbos' and 'buffelpeer', with camel thorn (*Acacia erioloba*) on the ridges (Bolsman, 2001, p. 170).
- Rose hedges that separated the properties and decorated the parks gave Pretoria the nickname of the 'city of roses' before the time of Jacaranda trees (Bolsman, 2001, p. 182).
- In 1912 two rows of date palms were planted along the river (van der Waal Collection).
- In the book, Eugene Marais 'Versamelde Werke', Marais recalls that in the early Pretoria, grass grew lush everywhere in town, with dense clumps of thorn trees fountains valley to where Lion Bridge now stands and less dense thorn trees from there to the north. The river was densely vegetated with trees and shrubs.
- Pretoria was well known for its water, the river was a dolomite stream with crystal clear water and in the deep pools, and even the smallest of stones could be seen on the river bed.
- The river banks were covered with ferns and cotton fields, varkblomme [assumed 'varkore' or arum lilies: *Zantedescia sp.*] in all the streams. A quarter of the river was diverted to supply water to the farms

and towns (Marais, 1984, pp. 757 - 759).

Figure 25 gives a glimpse of the Apies River valley in 1857, large expanses of grassland with clumps of trees was commonplace.

### The river

- Around 1835 when the first Voortrekkers settled at Fountains Valley, approximately 25 million litres of water entered the Apies River on a daily basis (Bolsman, 2001, p. 170).
- During 1875 a water wheel and mill (figure 26) was built on the river bank west of Lion Bridge (Bolsman, 2001, p. 40).
- In 1858 a series of channels and shallow furrows was built that fed water to the farms and homesteads (Bolsman, 2001, p. 14).
- 1894 saw the completion of Lion Bridge on Church street (van der Waal Collection).
- Frequent flash floods gave the river the nickname 'the Mighty Apes' and led to the start of its channelization (figure 28) in 1909 from Rissik Street to Du Toit Street after the loss of lives, cattle and repeated damage to property. (Bolsman, 2001, p. 133) The channel was completed in the late 1930's (van der Waal Collection) (figure 28).
- The City Lake project was abandoned in the 1980's, a lake would have been built at Trevenna (van der Waal Collection).
- Nelson Mandela Drive was introduced along the Apies River, crossing it in several places and replacing some of the smaller streets to form a major connectivity spine from Pretoria southwards.



FIGURE 25. PRETORIA IN 1872 BY THOMAS BAINES SHOWS THE CURRENT DAY LION BRIDGE TOWARDS THE CITY CENTRE



FIGURE 26. FARM HOUSE IN PRETORIA [WITH WATER WHEEL] BY W.H. THRONE DATED 19 AUGUST 1887 SHOWS THE WATER WHEEL AND MILL ON THE BANKS OF THE APIES RIVER WEST OF LION BRIDGE



FIGURE 27. THE APIES RIVER WITH MEINTJIES KOP, BY HENK PIERNEEF

The historical descriptions paint a much different picture of Pretoria and the Apies River than what the current day city dweller experience. The author needs to focus attention on the possibility that the channelization of the Apies River was not due to human modification of the land cover, topography or the introduction of impermeable surfaces; the ecosystem seemingly had a naturally erosive and dynamic character (figure 27) that can be ascribed to a myriad of conditions.

The historical context gives cues to the type of planting would historically appropriate to use, and hints at the state of the river that was lost.



FIGURE 28. CANALIZATION OF THE APIES RIVER BY PIETER WENNING SHOWS THE CHANNEL WITH YOUNG PALM TREES THAT DATES IT AFTER 1912

# THE CURRENT DAY CONTEXT

A lot has changed since the 1800's, Pretoria has grown from its humble beginnings into one of the largest cities in South Africa. The Apies River that originally separated the farms from the town is now bordered by development on all sides.

Figure 29 locates the study area and the site in Pretoria.

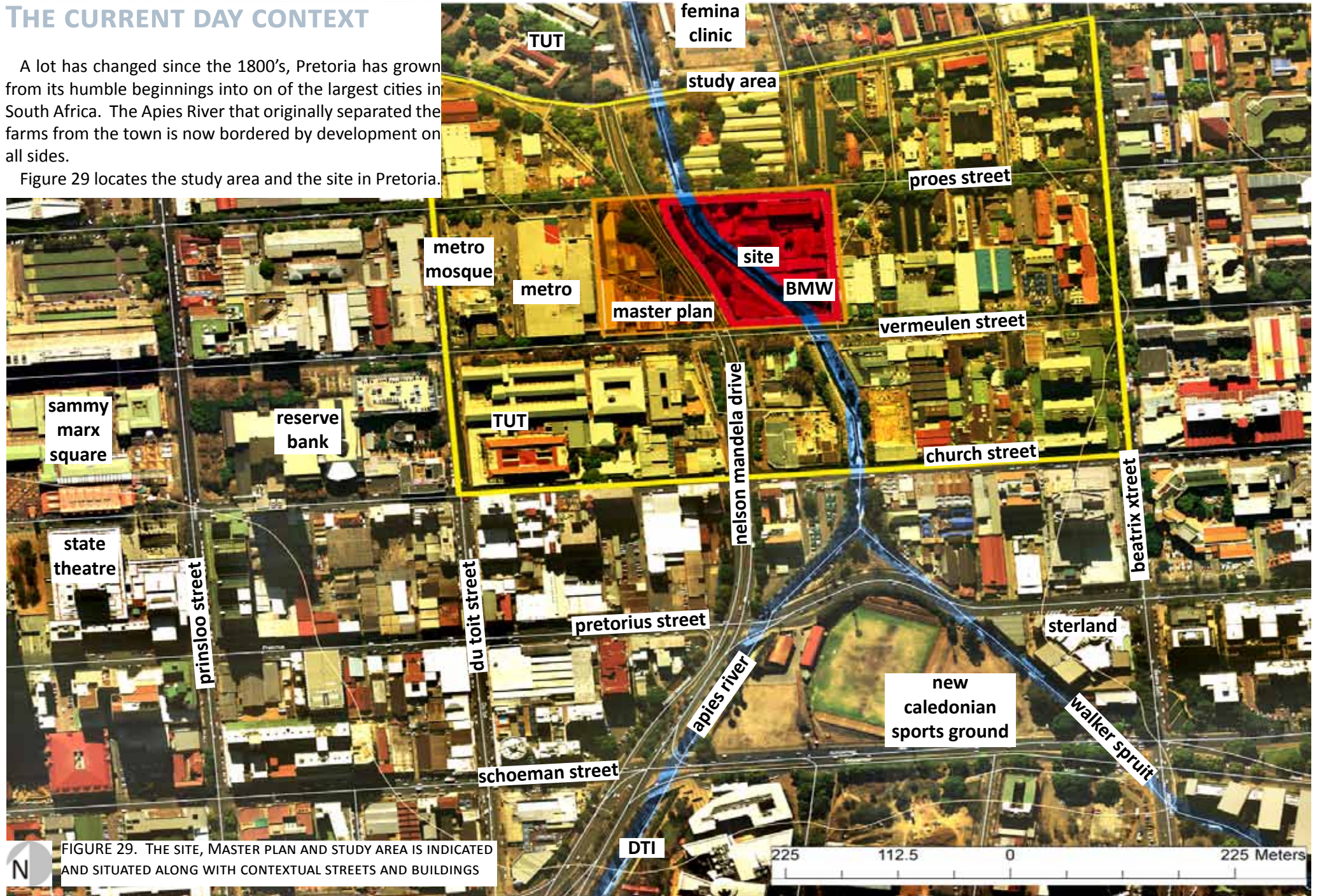


FIGURE 29. THE SITE, MASTER PLAN AND STUDY AREA IS INDICATED AND SITUATED ALONG WITH CONTEXTUAL STREETS AND BUILDINGS

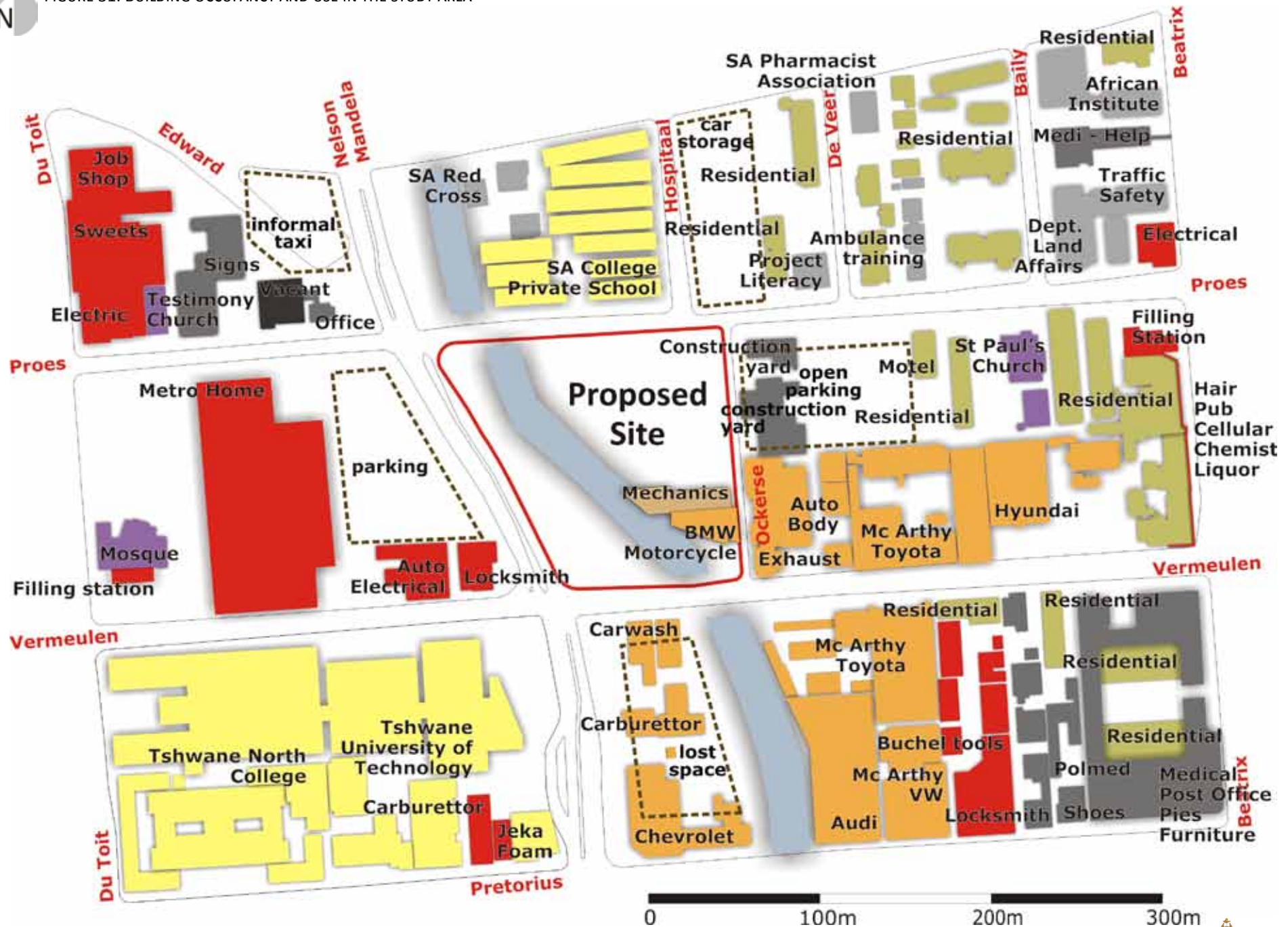


FIGURE 30. ZONES OF USE IN THE STUDY AREA - THE SITE IS SITUATED BETWEEN EDUCATIONAL, RETAIL, AND RESIDENTIAL AREAS





FIGURE 31. BUILDING OCCUPANCY AND USE IN THE STUDY AREA



## ZONING ON SITE AND CONSOLIDATION

Figure 32 illustrates the on site zoning. The following zoning is applicable on site.

### Business 1 zoning

25m height

FAR 3.0

Coverage 80%

Uses:

- Business
- Dwellings
- Government
- Guest House
- Institution
- Light Industry
- Parkade
- Parking
- Instruction
- Public worship
- Refreshment
- Residential
- Retail
- Shop
- Social hall
- Sport Club
- Vehicle retail
- Veterinary



## Public open space zoning

- Agriculture
- Market garden
- Picnic place
- Refreshment
- Recreation
- Sport club
- Telephone Masts

The intended program can be accommodated in the current zoning profile

## Consolidation

Figure 33 shows the Erf's that needs to be consolidated before the master plan (to the left) and the site development (to the right can take place).

The shape of the erf's on the right hand side gives clues to where the Apies river had run at the time of subdivision.

1/8	1/1173	12/808	8/808	9/808	1/808	1118
1/13	2/1173	1506	10/808	17/808	1/371	1090
	R1173		11/808	5/808	1/370	R/370
	R/14		2/808	6/808		
	2/14		13/808	20/808		
	4/14		4/808	18/808		

Erf's to be consolidated for master plan

Erf's to be consolidated for site development

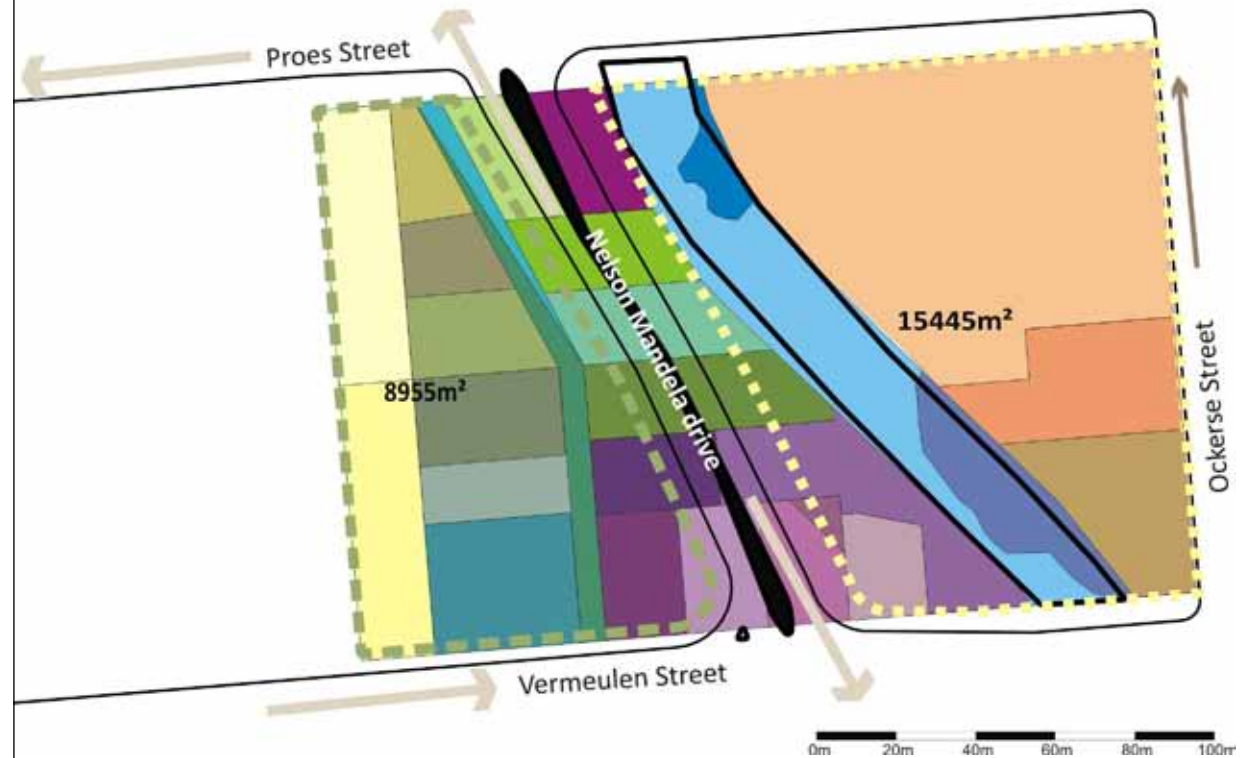
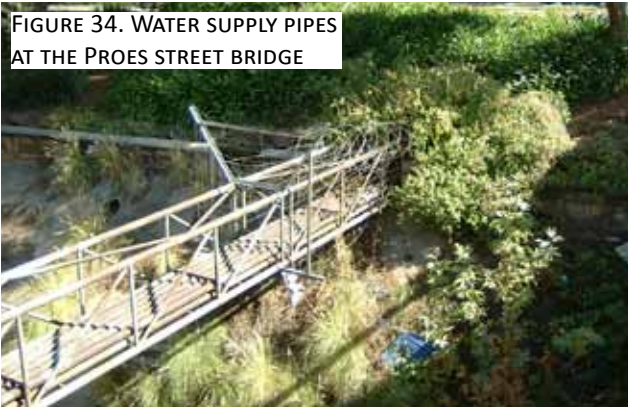


FIGURE 33. CONSOLIDATION



FIGURE 34. WATER SUPPLY PIPES AT THE PROES STREET BRIDGE



## RESTRICTIONS AND SERVICES

### Built to lines from framework

- Business and Public Open Space - 5m
- Apies River channel - 70% of buildings 7m & 30% of buildings 3m from the channel

### Built to lines from Tshwane Town-Planning Scheme

- Business and Commercial - 4,5m
- Public Open Space and undetermined - 5m

### Height restrictions:

- 18 storeys and no more than 1381m above mean sea level

### Parking requirements:

- Flats - 1/93m<sup>2</sup>
  - Offices - 1/116m<sup>2</sup>
  - Shops - 1/116m<sup>2</sup>
  - loading space of 7,5m x 4,5m
- (City of Tshwane Metropolitan Municipality, 2009)

## STATE OF THE ENVIRONMENT AND SITE EXPLORATION

Figure 36 explores the state of the environment on and around the site, looking at textures, colours and use.

The effects of age, misuse and neglect are visible in surface finishes and general maintenance.

The site and surrounding area is rich with colour, texture and contrast. Cues for colours, textures and materials are abundant.

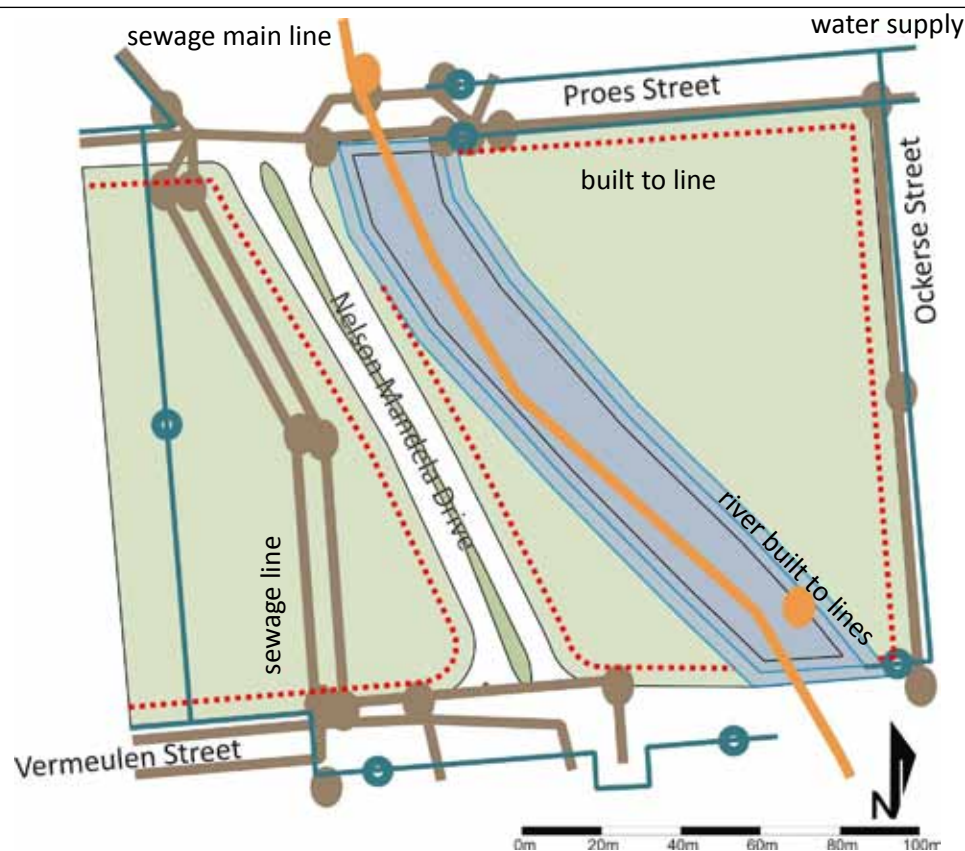
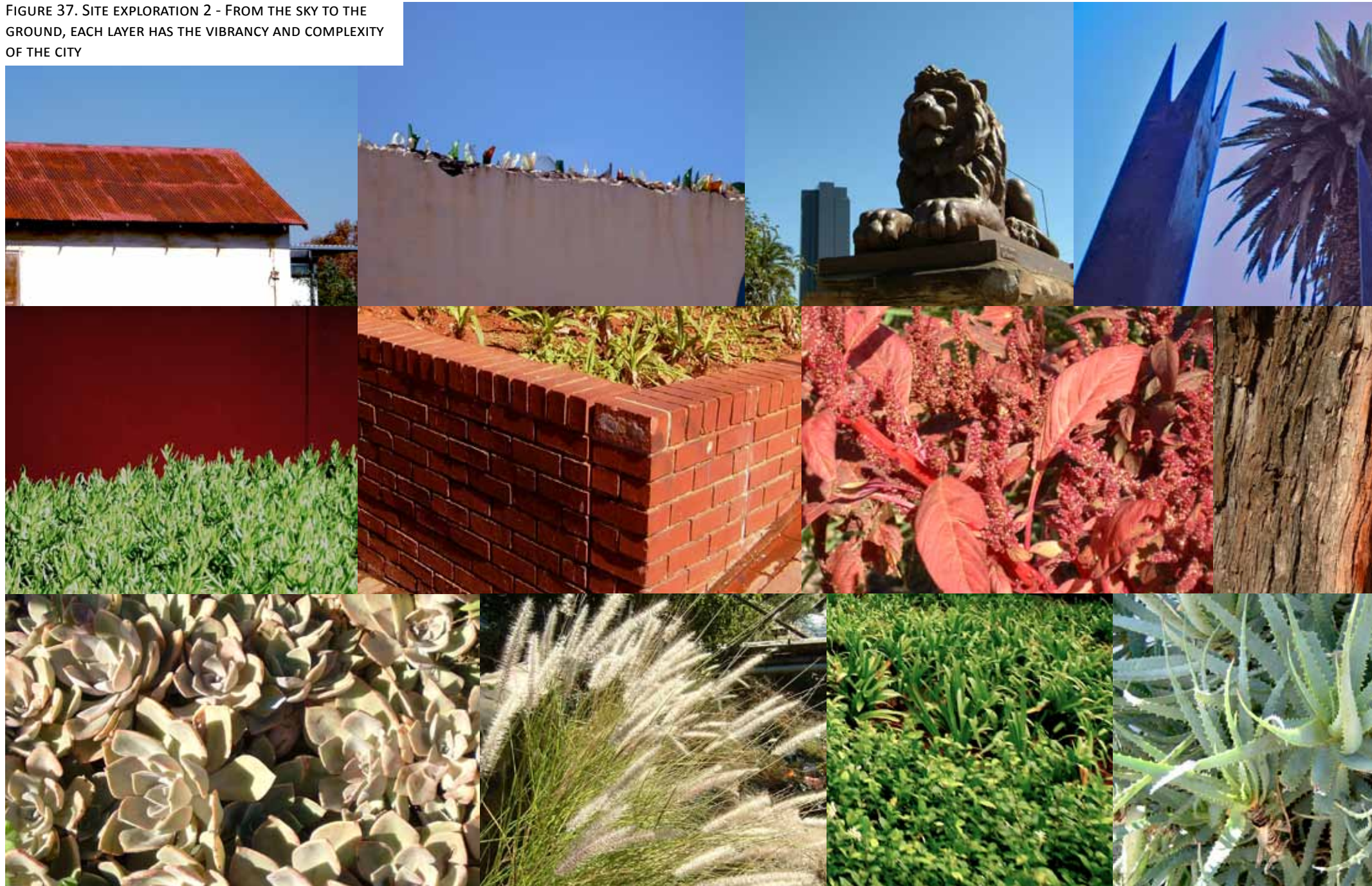


FIGURE 35. RESTRICTIONS AND SERVICES - BUILT TO LINES, SEWAGE AND WATER SUPPLY LINES ARE INDICATED. A MAIN SEWAGE LINE LIES BELOW THE RIVER CHANNEL



FIGURE 36. SITE EXPLORATION 1 - THE STATE OF THE SITE AND SURROUNDING AREA

FIGURE 37. SITE EXPLORATION 2 - FROM THE SKY TO THE GROUND, EACH LAYER HAS THE VIBRANCY AND COMPLEXITY OF THE CITY





## SLOPE ANALYSIS

The site varies from extremely flat to extremely steep. Steep smooth concrete edges of the channel poses a danger. The north western part of the site and the channel has a slope 15% or steeper. The majority of the site has a slope of 0 - 5%.



FIGURE 39. VIEW NORTHWARDS INTO THE CHANNEL - THE OLD ROCK WALL ON THE RIGHT WAS BUILT AS AN HYDRAULIC STRUCTURE AND RAISES THE GROUND LEVEL AT THE BMW MOTORCYCLE SHOP ABOVE THE TOP OF THE CHANNEL



FIGURE 40. VIEW SOUTHWESTWARDS FROM THE PROES STREET BRIDGE - THE LEVEL DIFFERENCE FROM THE PROES STREET INTERSECTION TOWARDS THE CHANNEL DROPS BY MORE THAN 2.5M.



FIGURE 38. INSIDE THE CHANNEL - LOOKING NORTHWEST



FIGURE 42. VIEW FROM CORNER NELSON MANDELA DRIVE AND VERMEULEN STREET EASTWARDS - FORMALISED PLANTING



## ON SITE VEGETATION

The site is covered in weeds for the most part due to extensive demolition after 2007 (figure 42 and 43).

Informal parking on the southwestern corner of the site leaves a large part of the site with bare compacted soil.

Grass has established in some areas while invaders and pioneer plants grow on the edge of the channel. The pedestrian edges, especially along Nelson Mandela drive are planted with a mix of indigenous and exotic vegetation (figure 46), while Jacarandas and exotic trees occur.

### Trees on site



*Jacaranda mimosifolia*



*Platanus x acerifolium*



*Phoenix canariensis*



*Invasive exotic shrub*



FIGURE 43. INVASIVE CREEPERS IN THE CHANNEL



FIGURE 44. GRASS IN CRACKS AND JOINTS



FIGURE 46. VIEW FROM CORNER NELSON MANDELA DRIVE AND VERMEULEN STREET NORTH



FIGURE 45. VIEW FROM CORNER NELSON MANDELA DRIVE AND PROES STREET EASTWARDLY



FIGURE 47. ON SITE VEGETATION



## USE AND SURFACE COVER

There are two buildings on site, a BMW motorcycle shop (figure 48) on the southeastern corner of the site and a Autobody and mechanic shop (figure 49) that is in disrepair.

Homeless people to use the shady spots and soft vegetation to live in (figure 51).

No maintenance and informal parking (figure 50) leads to bare patches of compacted soil.



FIGURE 48. BMW MOTORCYCLE SHOP



FIGURE 49. AUTOBODY AND MECHANIC SHOP



FIGURE 50. INFORMAL PARKING



FIGURE 51. HOMELESS PEOPLE

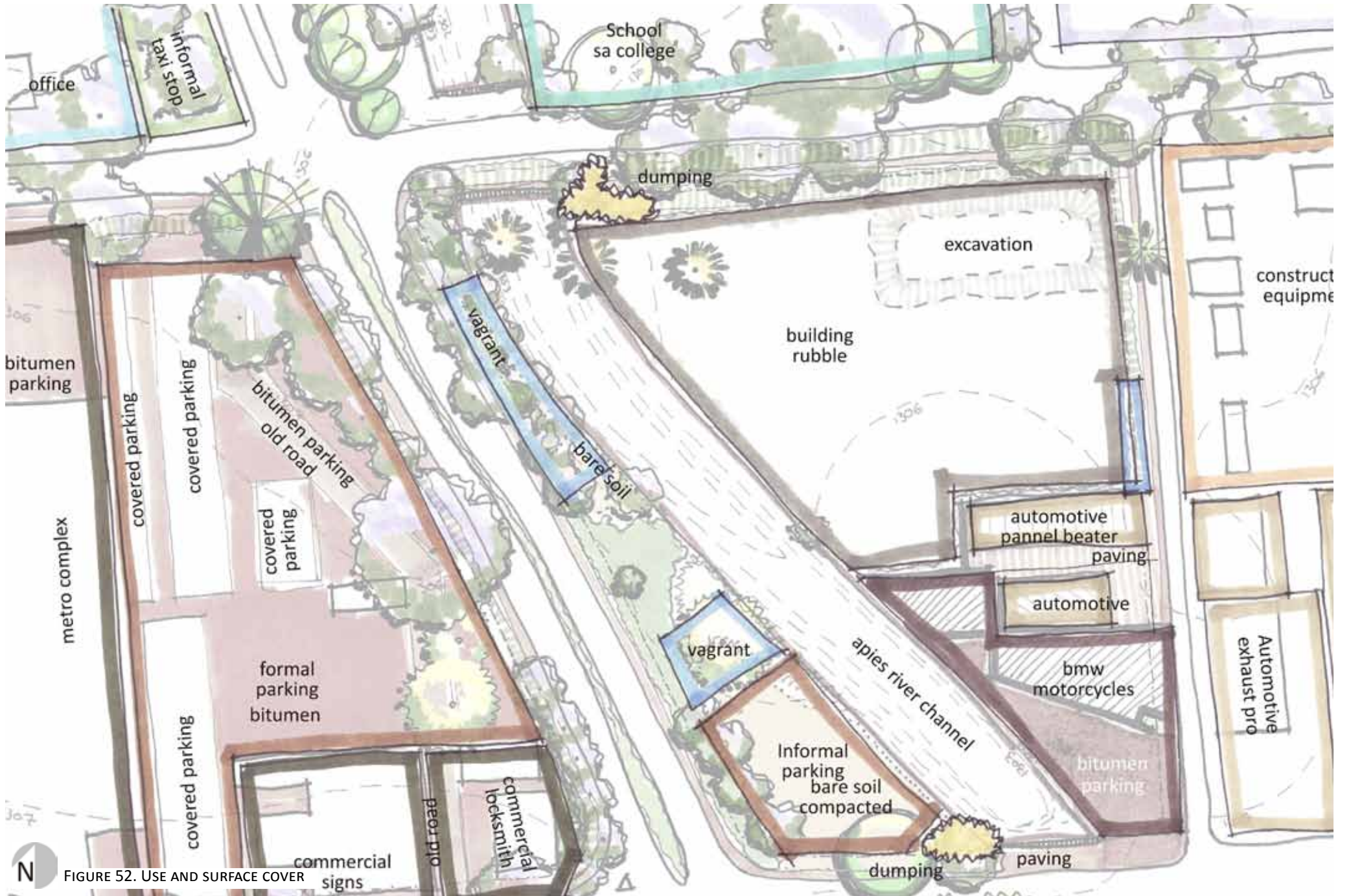


FIGURE 52. USE AND SURFACE COVER

## NOISE AND DANGER

Nelson Mandela Drive and the surrounding streets are part of a major movement corridor in the city and generates a considerable amount of traffic noise.

Sounds from the nearby Metro mosque (figure 54) adds character to the site and a nearby informal taxi rank generates noise.

The steep edges of the Apies River channel and the seasonal floods pose serious physical dangers. The abandoned site and run down state of Ockerse Street (figure 53) on the eastern side of the site creates opportunity for criminals.



FIGURE 53. VIEW OF OCKERSE STREET ACROSS THE SITE



FIGURE 54. THE MOSQUE AT METRO



FIGURE 55. NOISE AND DANGER

## WATER QUALITY IN THE APIES RIVER CHANNEL

*“Tshwane’s scarce water resources are under tremendous pressure, with water quality of streams deteriorating during its course through the Tshwane area, especially with relation to bacteriological quality.*

*The Apies River average faecal coliform [pollution by human waste] count at Skinner Street is 6000/ml and 32141/ml at Onderstepoort (counts above 100 is risky for bathing and washing of laundry). The monitoring network needs to be expanded and specific measures implemented to improve water quality.”* (City of Tshwane Metropolitan Municipality, 2005)



FIGURE 56. SKYLINE TO THE SOUTHWEST FROM CNR. PROES AND OCKERSE STREET

## CONCLUSIONS FROM THE CONTEXT AND ANALYSIS

The position of the site in the city, in terms of pedestrian movement and the need for open space in the city and study area, makes it ideal for green public open space.

The Apies River is a under-utilised resource both on site and in the rest of the city. The river has a rich history in its name, physical history and its core role in the establishment of the city. The social and ecological role that this river needs to play are issues that needs to be addressed.

Although the site is a brown field site, open space in the city is rare and needs to be conserved and the use thereof must be optimised. This combination of under-utilised resources holds a lot of potential to create a meaningful open space in the city.

The current openness of the site allows for views of the city centre skyline to the west (figure 56) and glimpses of the Union Buildings to the east (figure 57). These views are important as they link the site to the broader context of the city.

Most of the site is in a state of disrepair and mismanagement. Introducing context appropriate use will address the issues of inappropriate use, the danger associated with abandonment and destructive informal use.



FIGURE 57. GLIMPSE OF UNION BUILDINGS FROM NELSON MANDELA DRIVE EASTWARDS

## DESIGN GOALS AND OBJECTIVES

The design objective is to create a place of repose in the city, a breathing space. The grid of the city block collides with the river channel and divides the site in two parts. This haphazard intersection and bisection of the site needs to be addressed through a unification of the site. The concrete channel does not only divide the site, but it also divides the city. By unifying the site, a great step will be taken towards unifying the city. The open character of the site needs to be celebrated and protected. The scale of the city scale should be reduced on site to address human proportions.

**These design objectives will be addressed through the following Citywide and Site specific issues:**

### **Citywide**

- Implement the vision of the Nelson Mandela Student Urban Design Framework (group work of the author 2009) through providing a network of social public open spaces along Nelson Mandela drive and the Apies River that is safe, accessible, and responds to the history of the river and the city;
- Outline and implement a basic catchment management plan along with envisioned projects along the Apies River in support of the frameworks and design.

### **Site specific**

There are three major problems with the Apies River channel that should be conceptually addressed for the whole river and for the specific site:

- A small base flow year round which must be protected, cleaned and utilized for its potential of recreation and habitat restoration
- Dangerous flash floods that needs to be accommodated in controlled flood planes
- Harsh concrete channel that needs to be addressed and softened whilst maintaining the function of a collect an remove channel that the river has sadly been turn into

### **Design a vibrant public open space**

- Create an appropriate on site micro-climate for pedestrians, students, school children and nearby residents
- Entice use throughout the day by providing opportunities for a wide variety of use, such as retail facilities, playground and tuck shop facilities for schools from nearby, both in lunch breaks and after school, restaurants and cafés that attracts patrons on weekends and evenings
- Enhance and protect the openness of the site through providing a building edge that focuses inwards towards the core of the site

- Expose the ecological, historical and cultural memory of the site by introducing a memory of where the river used to run (abstracted from the SG diagrams of the Erfs), by reintroducing vegetation that was removed (descriptions from historical records and books), by celebrating and using the existing flood control rock wall and on site buildings

## Ecology

- Introduce constructed systems that supports components of ecology by focussing on water as a critical building block
- Incorporate the prominent themes from the ecosystem service analysis
  - Conserving water sources and the systems they support while optimising the use of on-site water and reducing the use of potable water
  - Introducing and preserving existing natural and on site region appropriate biomass
  - Using renewable- and waste minimising materials that does not pollute through manufacturing application or after installation
  - Optimise human use and health benefits by integrating the on site systems to improve the experience of man's environment