



# 3



In order to understand the nature of the site, a study was done to analyse the surrounding context.

## CONTEXT

Fig 3.1 PROVINCES OF SOUTH AFRICA, GAUTENG AS FOCUS AREA



Fig 3.2 GAUTENG WITH TSHWANE AS FOCUS AREA



## 1 GREATER CONTEXT

The site is situated in the Republic of South Africa, in the province of Gauteng, in the greater municipal area of Tshwane, in the Pretoria CBD (see figures 3.1 - 3.4).

### PHYSICAL ATTRIBUTES - GROUND

#### GEOLOGY

Andesite and shales of the Pretoria Group underlay the Pretoria CBD (Purnell: 14). This group slopes 30° to the north. Shale is a clay-based soil, which means that foundations to any building in this area must be raft foundations to prevent cracking.

#### TOPOGRAPHY

Pretoria is situated on the Highveld escarpment. The CBD falls between the Daspoortrand in the north and the Skurweberge to the south. Pretoria is on average 1320m above sea level, with a general slope downwards towards the north (Purnell: 14).

The site is situated 1317m above sea level. It slopes down 1m from the south-western corner towards the north-eastern corner.

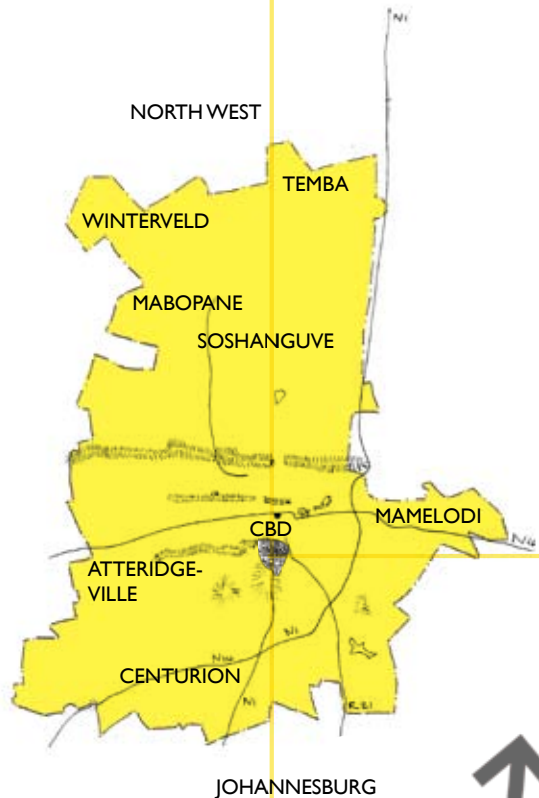


Fig 3.3 GREATER TSHWANE MUNICIPAL AREA; PRETORIA CBD AS FOCUS AREA

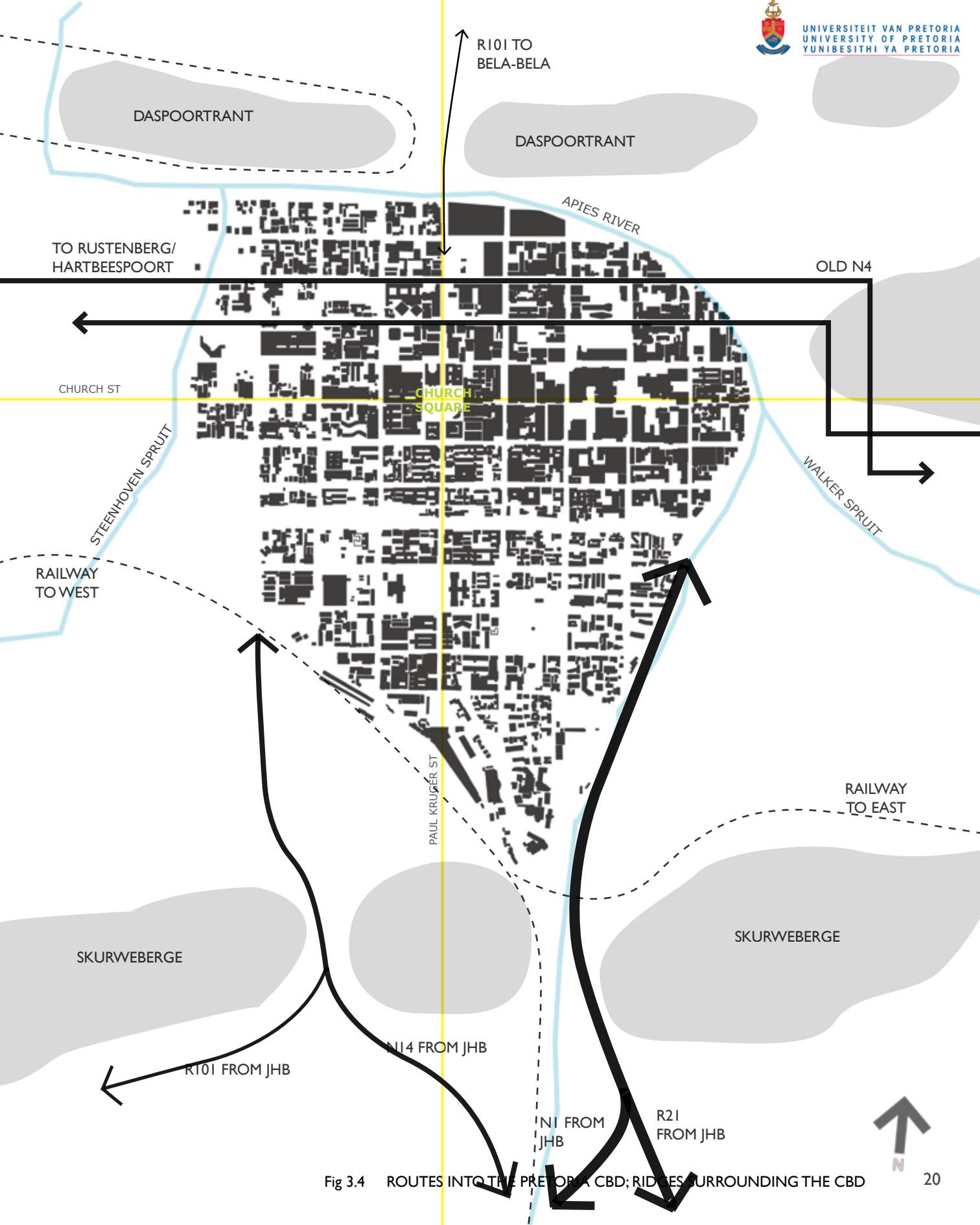


Fig 3.4 ROUTES INTO THE PRETORIA CBD; RIDGES SURROUNDING THE CBD

Ground water generally moves from south-east to north-west in the Pretoria CBD area. Most of the discharge of the Fountains Valley springs is used for water supply to the Pretoria CBD area. This results in ground water which is dependent on rainfall. Ground water levels thus rise and fall according to the amount of rain that the area has received, being shallow in times of high rainfall and deeper in times of drought (Purnell: 10).

The ground water level in the Pretoria CBD is very shallow, ranging between 3m and 6m below natural ground level (Purnell: 11). Basement structures need to be pumped to prevent the ingress of ground water.

## 2 THE SITE

The CBD is the focus area, as it hosts an abundance of offices, most from the middle and late twentieth century, and most in the preferred typology of the time – deep buildings with fluorescent lighting and air-conditioning. The CBD desperately needs an injection of healthy buildings as an alternative to these environments.

The area north of Church Square, which hosts, among others, the Palace of Justice, the Supreme Court, the Pretoria News offices and the Reserve Bank, is the focal point.

The site is situated on the corner of Mutual Street and Vermeulen Street, north-east of Church Square. It is a greyfield site – it is currently used as a parking lot. There is a slight slope from the south-west corner towards the north-eastern corner of the site. The site is orientated 5 degrees west of north.

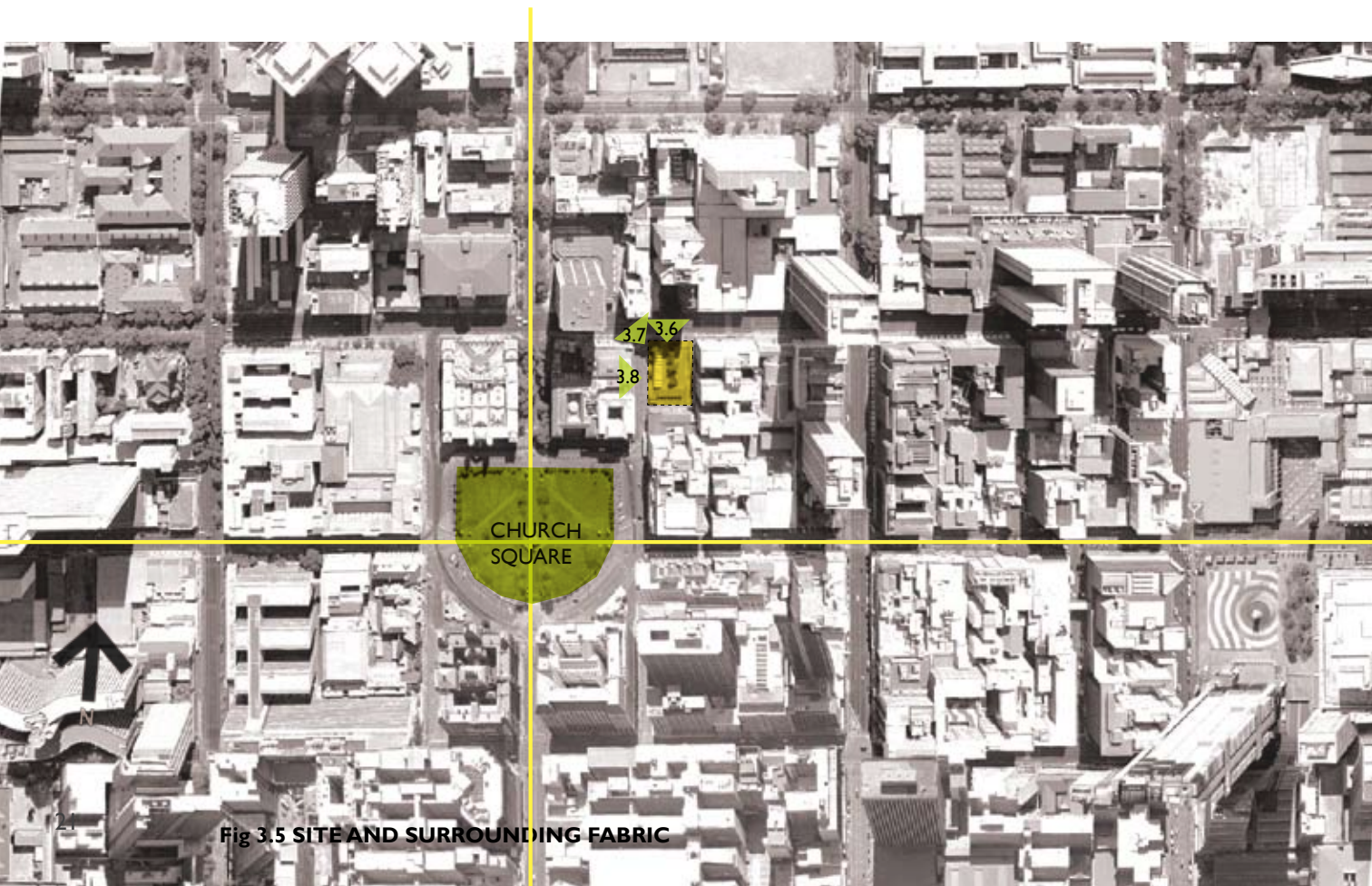


Fig 3.5 SITE AND SURROUNDING FABRIC



Fig 3.6 NORTHERN ASPECT - VIEW FROM VERMEULEN STREET



Fig 3.7 NORTH-WESTERN ASPECT - VIEW FROM VERMEULEN/MUTUAL STREET CORNER



Fig 3.8 WESTERN ASPECT - VIEW FROM MUTUAL STREET

### 3 THE USER

The site was identified for its proximity to the user, as well as for its urban nature.

The user is a white-collar worker in the CBD. Thousands of professionals commute to the CBD for work every day. The Reserve Bank alone hosts 1896 employees ([www.magnetcommunications.com](http://www.magnetcommunications.com)). Due to the scarcity of amenities available to them, lunch hours are spent indoors, at workstations, or at one of the three coffee shops in the vicinity (Van Niekerk & Van Niekerk, 2009). There is a gap in the market for amenities catering to the needs of professionals.

According to Van Niekerk & Van Niekerk (2009), buildings frequented by those in the legal profession (see figure 3.9) include:

1. Supreme Court
2. High Court Chambers
3. New Court Chambers
4. Palace of Justice
5. Registrar of Deeds
6. Magistrates' Court
7. Munitoria
8. Law Society

Amenities visited regularly include:

- a. Tribeca coffee shop
- b. Cafe Riche
- c. Wimpy
- d. Restaurant in the High Court Chambers
- e. Cafe at New Court Chambers

Users usually park:

- i. Hallmark Building
- ii. Schubart Street (for Magistrates Court)

It is clear that the amenities and workplaces of the users are concentrated in a small area. The site is ideally situated to cater to the needs of these users.



LEGEND

- OFFICES
- PARKING
- AMENITIES

Fig 3.9 OFFICES, PARKING AND AMENITIES WITHIN A 5 MINUTE WALKING DISTANCE 1:5000 24

### BUILDING FUNCTIONS

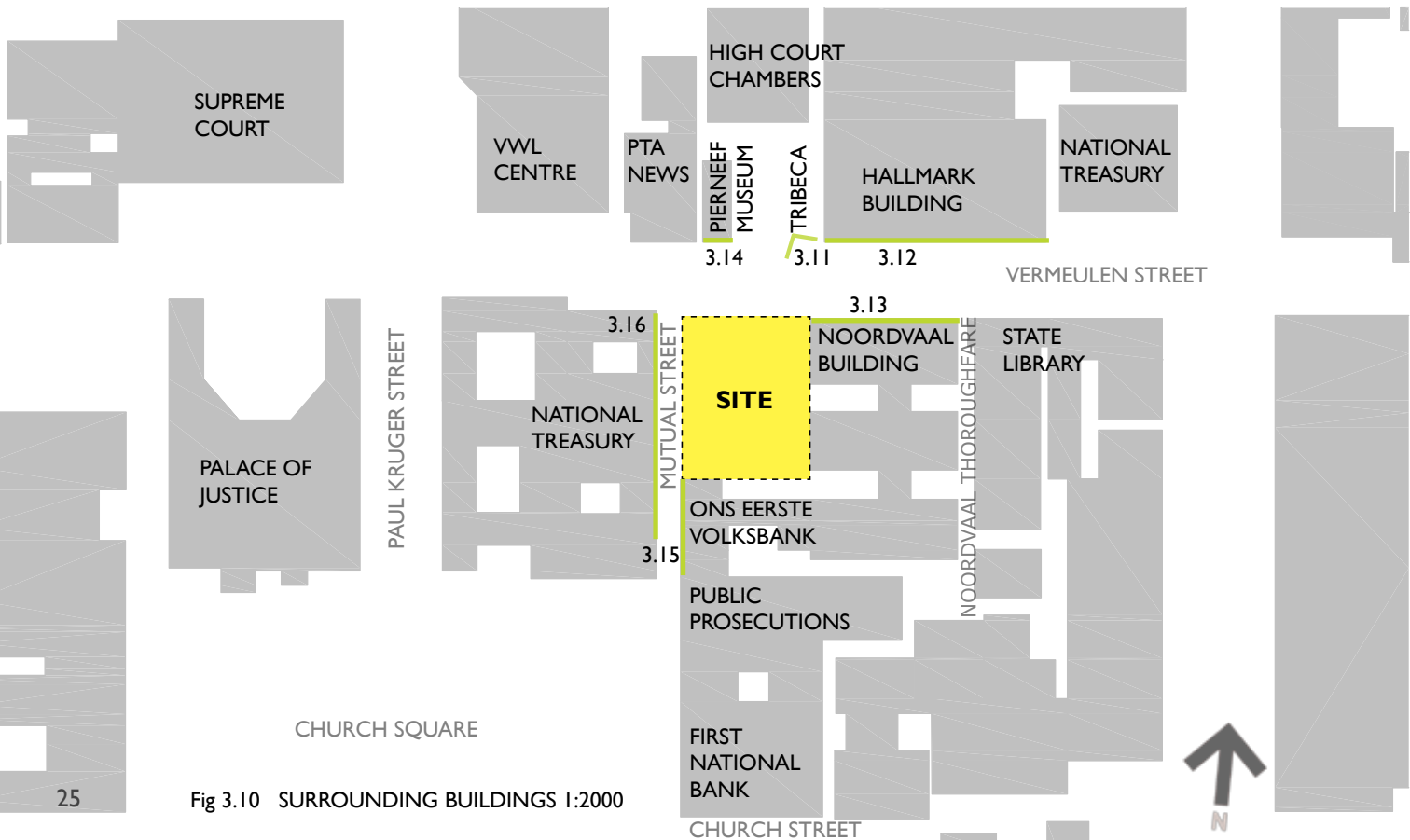
Traditionally, the buildings around Church Square host financial functions (banks) and public functions (theatre; government buildings). Buildings in Vermeulen Street host offices and courts of justice, with commercial uses on the ground floor of most buildings.

### PRETORIA NEWS

The Pretoria News building comprises commercial uses on ground floor, and 7 storeys of Pretoria News offices above. This building is in the International Style, with a reflective glass façade. Four protruding columns provide vertical emphasis, while metal kick plates accentuate the horizontal aspect of the building.

### PIERNEEF MUSEUM

The Pierneef Museum is a two-storey building from the early twentieth century. It was originally used as a cigarette factory, namely the Eureka Factory. Today it houses the Pierneef Museum, exhibiting some of the work of the artist by the same name. Built in an eclectic mix of styles, this building showcases the rare use of the residential atop a commercial use in old Pretoria (Botes & Le Roux. 1991: 62). This building has significant heritage value.



## TRIBECA CAFÉ

Situated on the ground floor of the High Court Chambers, and spilling out into the courtyard between the High Court Chambers and the Pierneef Museum, Tribeca is a café which has a very tranquil ambience despite being situated very close to the bustling Vermeulen Street.

## HIGH COURT CHAMBERS

This office tower of 30 storeys hosts the chambers of the High Court. Lower levels of the building in exposed concrete protrude from the ground floor, and step up with terraces until they merge with the main façade on the sixth floor. The verticality of the tower is balanced by the horizontal emphasis provided by exposed fair-face concrete strips, which alternate with reflective glass strip windows.

## HALLMARK BUILDING

The Hallmark building has a 3 storey street front, which hosts commercial uses on ground floor. Stepped back from the street is a 25 storey tower, which hosts the offices of the Department of Health. The building has basement parking below. On the street façade, a tiled concrete canopy cantilevers from the first floor to provide shade to the space below. Horizontal metal strips screen the façade from the street and terminate against a tiled concrete coping on roof level.

## NOORDVAAL BUILDING

The Noordvaal Building comprises an exposed concrete frame with yellow face brick infill. An exposed aggregate concrete canopy screens the sidewalk from the sun. The street façade comprises steel frame strip windows with alternating painted metal kick plates.

The building consists of 3 north-facing blocks connected in the middle of the blocks with narrow face brick corridors. Steel fire escape stairs are attached to the south-west side of each block.

This 8 storey building hosts commercial uses on ground floor and the Water and Sanitation department of the City of Tshwane Metropolitan Council above. The Noordvaal arcade runs through this building on ground floor level, parallel to Mutual Street, and provides a pedestrian connection between Vermeulen Street and Church Street.



Fig 3.11 HIGH COURT CHAMBERS + TRIBECA



Fig 3.12 HALLMARK BUILDING



Fig 3.13 NOORDVAAL BUILDING

## ONS EERSTE VOLKSBANK

This 2 storey building was built of small, red Kirkness face brick. It has a hipped roof of red tiles. The Ons Eerste Volksbank has heritage and cultural value because of its association with the rise of Afrikaner nationalism in the 1930s. It was built as part of the drive to enhance the Afrikaner economy and culture in the Great Depression (Botes & Le Roux. 1991: 70). The building is currently unoccupied, and belongs to the National Treasury.

## NATIONAL TREASURY (PREVIOUSLY THE RESERVE BANK)

The National Treasury is a 5 storey building, with its main façade facing Church Square. Designed by Sir Herbert Baker, and built in 1926 in the Italian Renaissance style, its rough sandstone base forms a 2 storey plinth which becomes a balustrade wall above (Botes & Le Roux. 1991: 68). The façade above is of smooth sandstone blocks. A hipped tiled roof covers the building. This building has heritage value.

## DIRECTOR OF PUBLIC PROSECUTIONS

The Church Square façade of this narrow 8 storey building consists of polished granite on ground floor and terrazzo on the levels above. Protruding columns create a strong vertical articulation of the façade (Botes & Le Roux. 1991: 71). This building hosts the offices of the Public Prosecutor.

## 5 METAPHYSICAL ATTRIBUTES - LIGHT + AIR

Environments do not only consist of physical elements. Metaphysical elements, such as environmental quality, also contribute to the overall environment. The author investigated internal environmental quality as well as the environmental quality of surrounding streets.

Fig 3.14 PIERNEEF MUSEUM



Fig 3.15 ONS EERSTE VOLKSBANK



Fig 3.16 NATIONAL TREASURY



## INTERNAL QUALITY OF SURROUNDING BUILDINGS

Three of the surrounding buildings were investigated - the Noordvaal Building; the High Court Chambers and the Pretoria News. Aspects which were investigated are lighting; ventilation; contact to nature and general atmosphere.

Overall, the quality of internal spaces may be classified as 'unhealthy'. In all of the buildings, interiors have a generic quality. The Noordvaal and High Court Chambers buildings have internal corridors and offices to both sides, while the Pretoria News has many open plan offices, and only certain offices boxed off. This open plan system is a slight improvement to the central corridor model, as it offers all workers access to a piece of nature (sky), and invites sunlight deeper into the building. All three buildings make extensive use of fluorescent lighting and air conditioning for environmental comfort.

Inadequate solar shading is provided, and is compensated for by the use of air conditioning (all buildings) and curtains (Noordvaal and High Court Chambers). Windows on the Pretoria News facades are tinted, which provides some level of glare control. Windows are mostly either inoperable (Noordvaal), or left closed, as they interfere with the air conditioning. These are the only contact with nature (sky). Some of the employees think that the buildings they work in are very unhealthy, as the conditions are dry and uncomfortable. Many suffer from dry eyes, sneezing, coughing and chronic cold symptoms (see Appendix C).

## SURROUNDING ENVIRONMENTAL QUALITY

Streets in the vicinity of the site either have a harsh, urban quality to them, or an inviting quality. This may be attributed to the presence of street trees. In the immediate area surrounding the site and to the south thereof, most of the streets have hard interfaces, which are very urban and do not invite the elements of nature in (see figure 3.19 next page).

Although some street trees occur in Vermeulen Street, this street mainly has a harsh quality to it, which may be attributed to its use as an artery from the CBD to the east of Pretoria. Mutual Street does not have street trees, and has a harsh interface, but the southern edge of the street is softened by the view towards Church Square.

Fig 3.17 PRETORIA NEWS INTERNAL QUALITY



Fig 3.18 INTERNAL QUALITY OF NOORDVAAL BUILDING



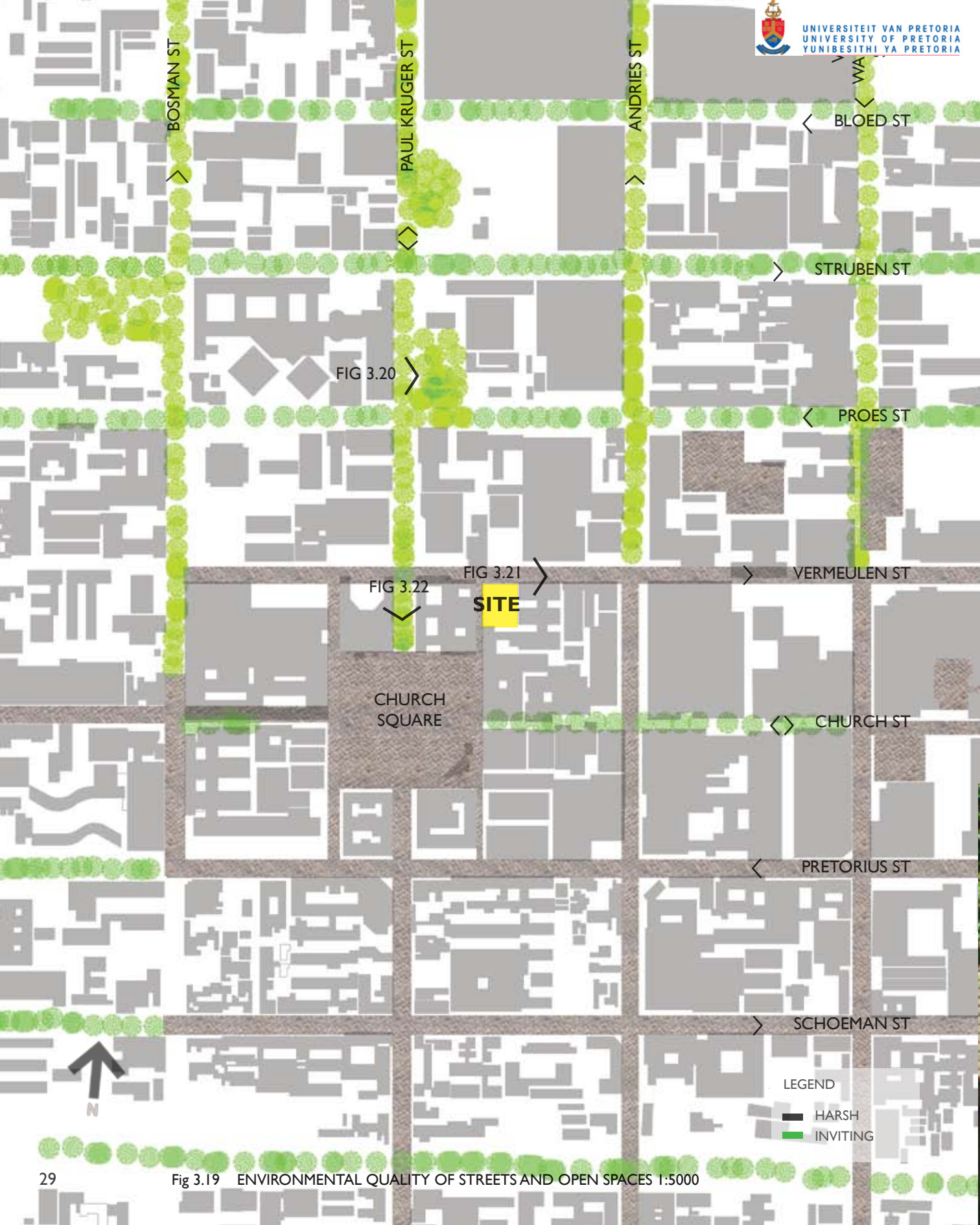


Fig 3.19 ENVIRONMENTAL QUALITY OF STREETS AND OPEN SPACES 1:5000



Fig 3.20 PAUL KRUGER STREET - GREEN SPACE



Fig 3.21 VERMEULEN STREET - VIEW TOWARDS THE EAST. HARSH ENVIRONMENT



Fig 3.22 PAUL KRUGER STREET - VIEW TOWARDS CHURCH SQUARE NORTH - INVITING ENVIRONMENT

The massing and height of buildings in the area exhibit the preferred typology of the period they were designed in. Different models of the 'ideal city' were followed throughout Pretoria's history. Buildings from the 19th and early 20th century form a continuous street edge, and are generally between 2 and 8 storeys high. The height also reflects the importance of the area they surround; buildings adjacent to Church Square were higher than most others of the time.

In the middle and late 20th century, Le Corbusier's ideal of a 'city in a landscape' was followed. This was the era of the motor car, and the city was designed for them. Towers were the preferred typology in the middle and late 20th century, as the High Court Chambers and VWL centre show.

In contemporary urbanism, the focus has shifted from the fast-moving motor car to the pedestrian, who experiences the city at a slower pace, and from eye level. Interactive street edges and human scale is important, and will enhance the quality of this urban environment.

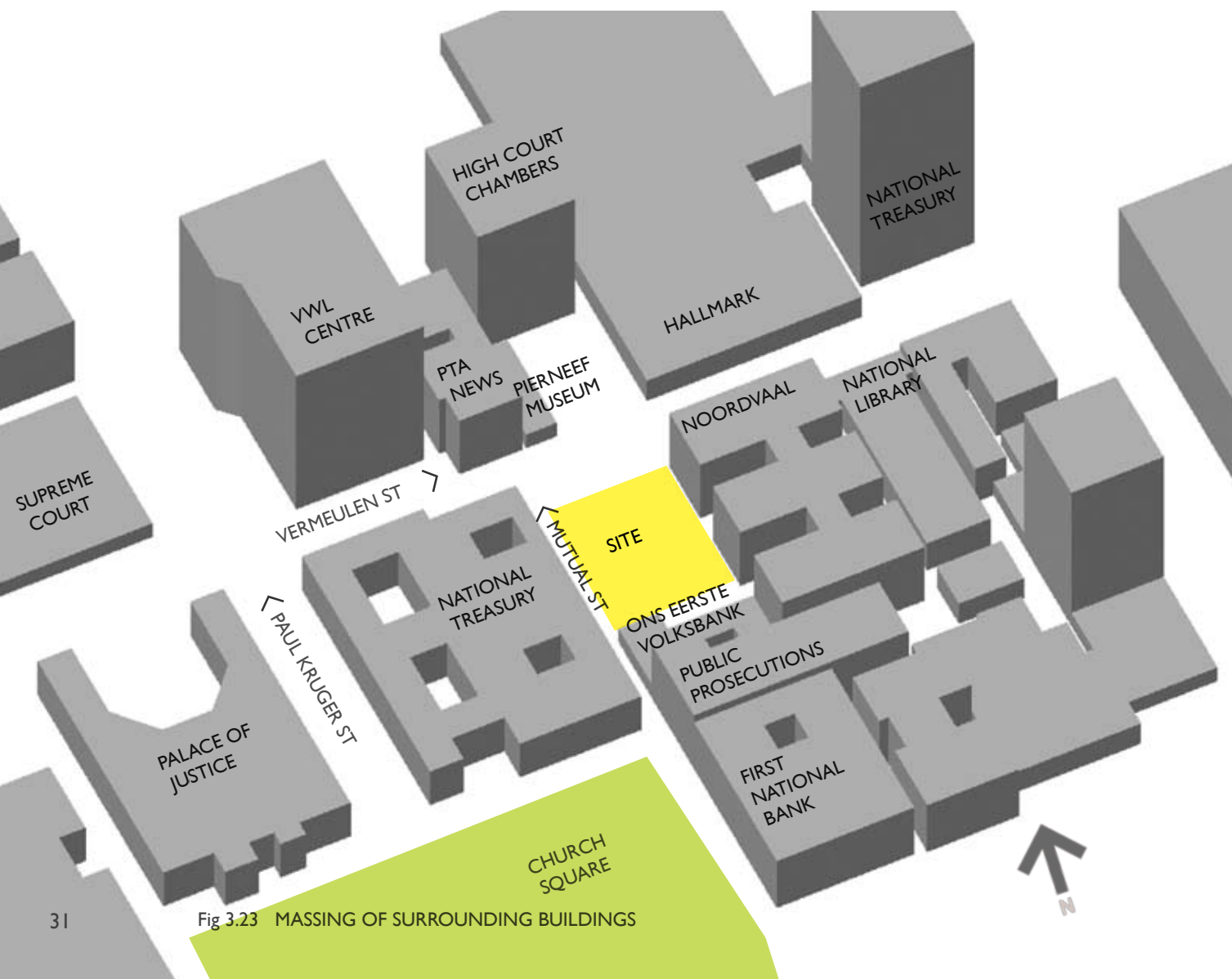


Fig 3.23 MASSING OF SURROUNDING BUILDINGS

### MACRO CLIMATE

#### LIGHT

Pretoria is situated in the Highveld eco-region, which has a temperate climate. The average summer maximum temperature (January) is 29°C; the average minimum 18°C. In winter (June), the average maximum is 19°C; the minimum 5°C. Pretoria receives an average of 13.7 hours of sunshine per day in January, and 10.6 hours in June (Schulze. 1980: 22). The quality of daylight in Pretoria is bright, and can often be harsh. Façades which are exposed to direct sunlight thus need to provide solar shading in order to avoid glare and to prevent the interior of the building from heating up too much.

#### WATER

Pretoria has an average yearly rainfall of 674mm, with summer rainfall, between December and February. January has the highest average rainfall in 24 hours, which is 160mm. Rainfall in this area is characterised by thunderstorms (big amounts of rainfall in a small amount of time) and the area tends to suffer from drought periodically (Schulze. 1980: 23). To cater to these conditions, rainwater outlets and down pipes must be adequate, and rainwater harvesting may be utilised to cater for the dry months.

#### AIR

Pretoria is a wind-calm region. Average wind speeds in summer are 5.5km/h and 2km/h in winter. During thunderstorms, NNE winds reach around 6km/h, but wind is mostly in the ESE direction in summer and SSE direction in winter. On winter afternoons, winds can reach up to 12km/h in the NNW to WNW direction (Schulze. 1980: 235).

### METAPHYSICAL IMPACT OF THE CLIMATE

#### HEALTH IMPACT OF THE TEMPERATE CLIMATE

Pretoria is situated in the Highveld grassland biome. Many different species of grasses, as well as of flowering plants occur in this region. These flower in the spring, and cause the onset of hay fever and related symptoms, such as watery eyes, a runny nose and sneezing (Boon et al. 2006: 729). Warm summer weather can also cause heat fatigue and fainting.

The Highveld winter is associated with the onslaught of upper respiratory infections - people are more prone to viruses such as the common cold and influenza during this season (De Beer. 2009).

The design of a building thus needs to react to the climate to avoid extreme temperatures, and in order to create a thermally comfortable and healthy environment.

The climate of Pretoria influences the way people use spaces. In summer, people in the CBD walk under canopies for the shade it provides, and gather in shaded spaces. Shadows provide psychological relief from harsh sunlight (Millet, 1996:17). When late-afternoon thunderstorms suddenly break out, the city buzzes with people running for cover and opening umbrellas. In winter, people tend to look for sunny spots to bask in the sunshine.

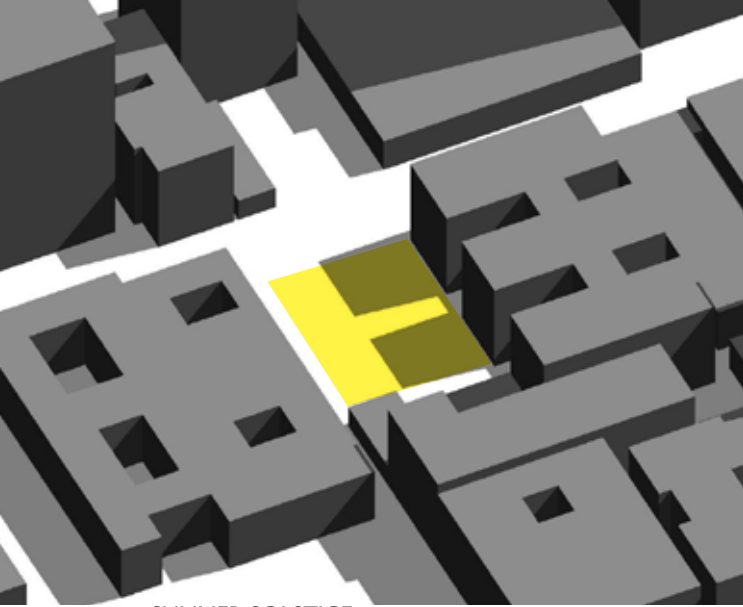
Covered stoeps are popular in South African culture because of their relation to the pleasant climate. The temperate climate of Pretoria makes it enjoyable to spend time outdoors. For a building to relate to the climate, it should also relate to the way people use spaces in that climate.

## MICRO CLIMATE

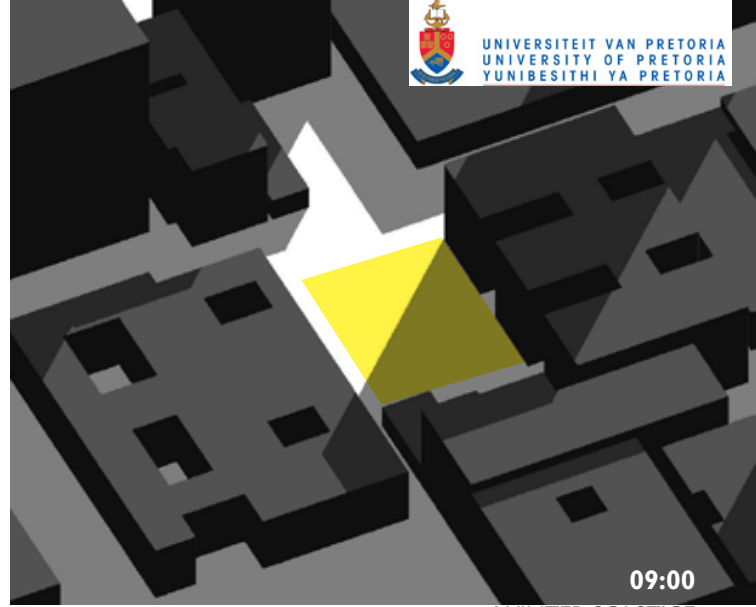
The site is protected from prevailing winds by adjacent buildings. The site receives ample sunlight in summer, and is partially in shade most of the day in winter (see shadow study, figure 3.25).

Summer tends to be hot and wind-still in Pretoria, thus the building needs to make use of solar shading and cooling devices. Although winter temperatures are mild, the building will be in shade for most of the day, and should make use of suitable heating devices.



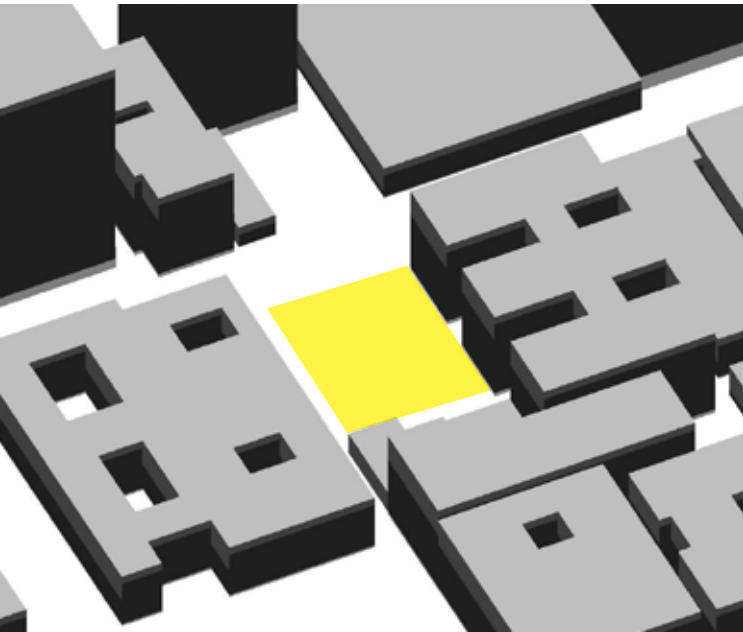


SUMMER SOLSTICE

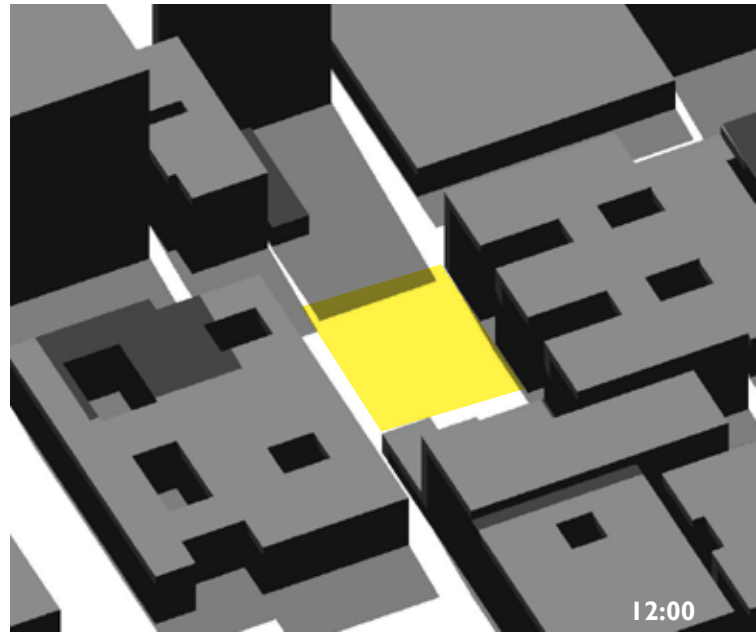


09:00

WINTER SOLSTICE

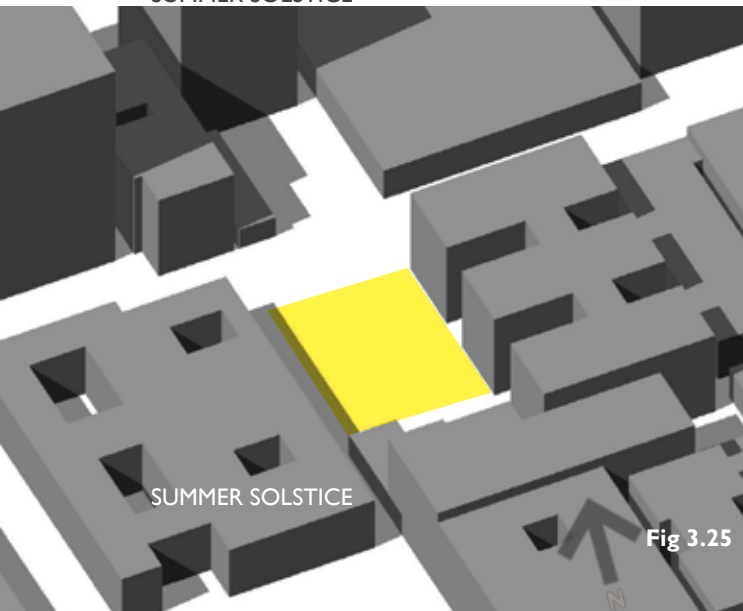


SUMMER SOLSTICE

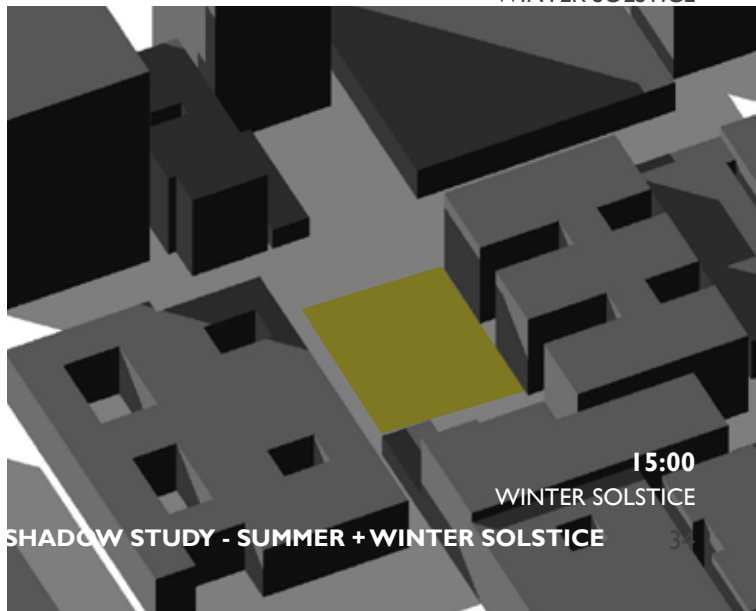


12:00

WINTER SOLSTICE



SUMMER SOLSTICE



15:00

WINTER SOLSTICE

Fig 3.25

SHADOW STUDY - SUMMER + WINTER SOLSTICE



# SWOT ANALYSIS

The SWOT (Strengths Weaknesses Opportunities Threats) analysis presents the strengths and weaknesses of the site. An analysis of the noises in the area and ground floor uses are also illustrated.



Fig 3.26 SITE STRENGTHS 1:2000

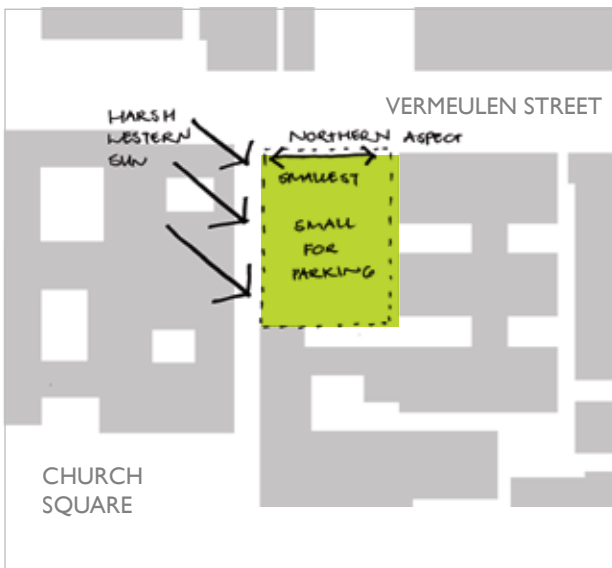


Fig 3.27 SITE WEAKNESSES 1:2000

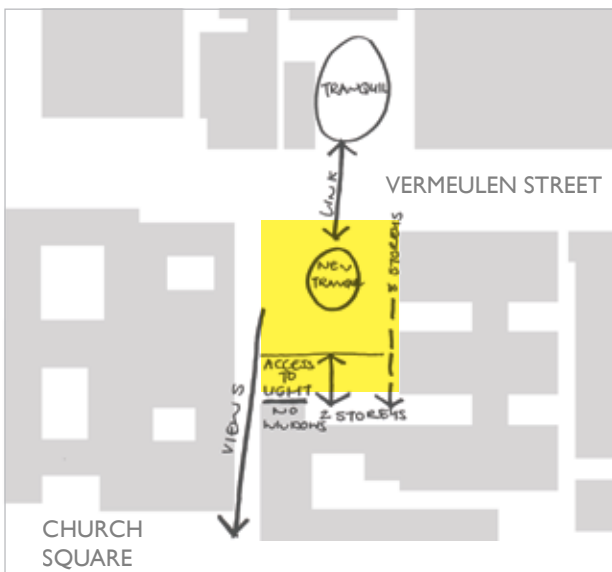


Fig 3.28 SITE STRENGTHS 1:2000

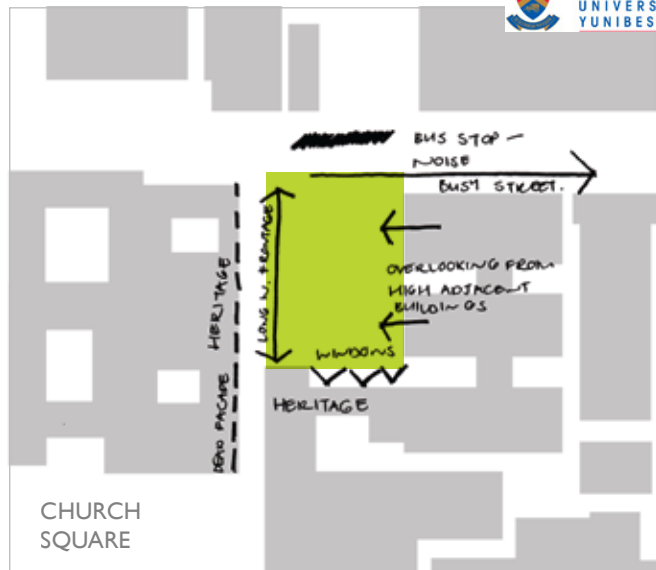


Fig 3.29 SITETHREATS 1:2000

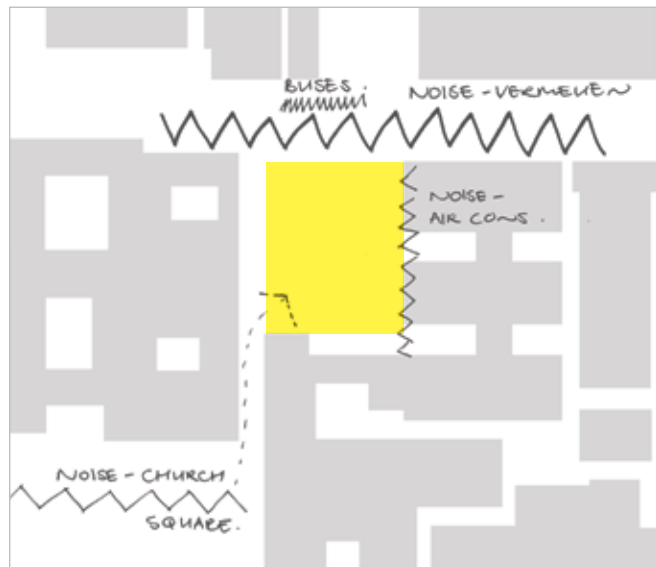


Fig 3.30 NOISE POLLUTION 1:1000



Fig 3.31 GROUND FLOOR USES 1:1000

## 9 LEGAL SITE INFORMATION

### OWNERSHIP

Erven 1/3381 and R/3381 were consolidated in 1991. The servitudes for light and access to R/3381 were cancelled in this process. In 2005, the National Treasury bought the site for R3million, and is currently using the northern part of the site (previously R/3381) for visitors' parking. The Ons Eerste Volksbank (see below) on the previous erf 1/3381 is currently unoccupied, although the National Treasury plans to move some of its offices into the building.

This thesis is based on the assumption that the National Treasury sub-divided Erf 3381 into the previous erven 1/3381 and R/3381. The site for this study is Erf R/3381, which borders Vermeulen Street. It is also assumed that the previous servitudes will be valid once more.

### STATUTORY REQUIREMENTS

The site is located in Zone 6: Business 1. Height zone 1 applies, as well as Coverage Zone 1.

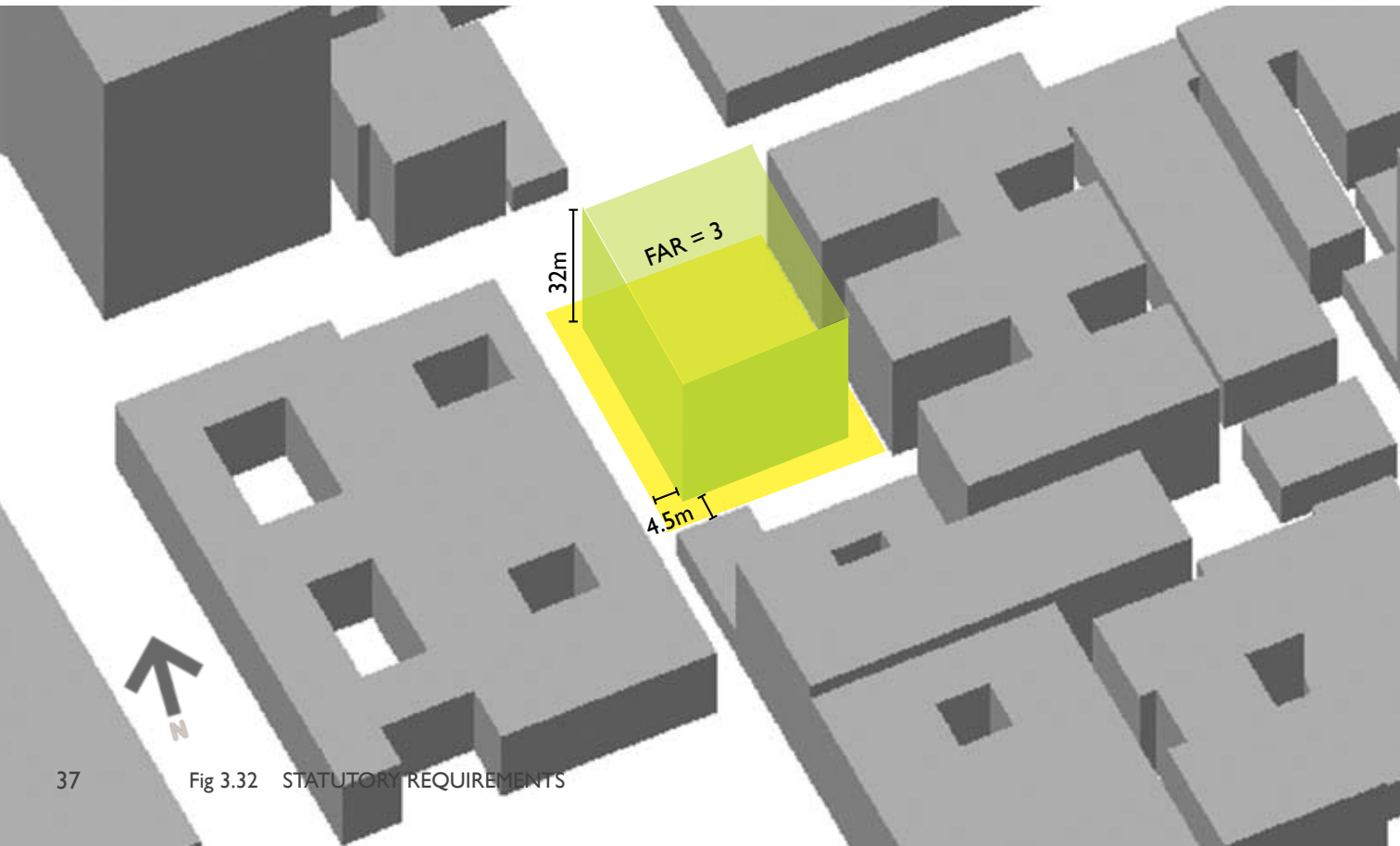
A Floor Area Ratio (FAR) of up to 3 is acceptable. ( $1612\text{sqm} \times 3 = 4836\text{ sqm}$ ).

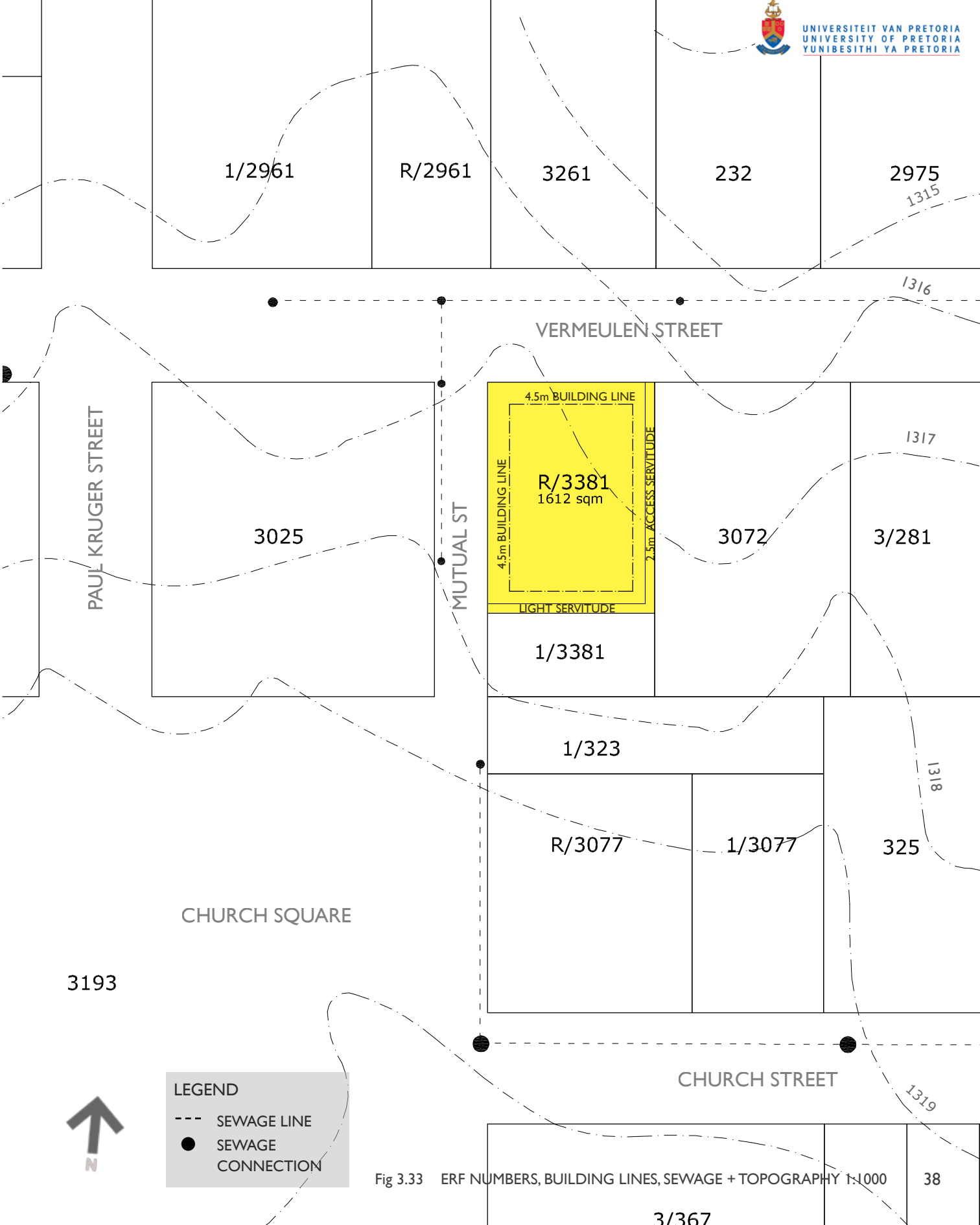
Height max 32m (around 10 storeys)

80% coverage

Building lines 4.5m all around (to be relaxed).

No parking is required on the site, as it falls in Zone A of the Tshwane Town-Planning scheme (see Appendix A).





**LEGEND**

- SEWAGE LINE
- SEWAGE CONNECTION

Fig 3.33 ERF NUMBERS, BUILDING LINES, SEWAGE + TOPOGRAPHY 1:1000