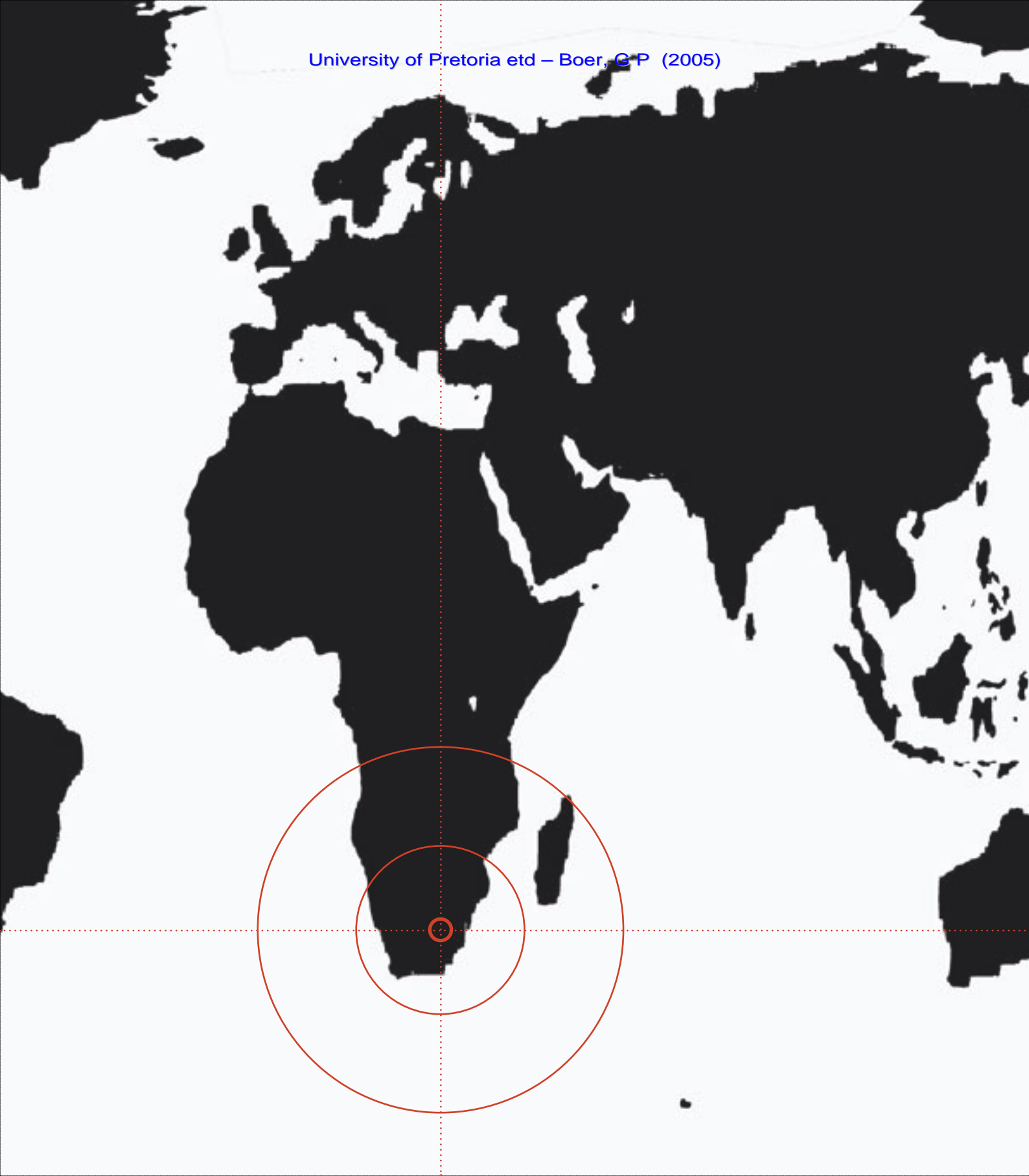


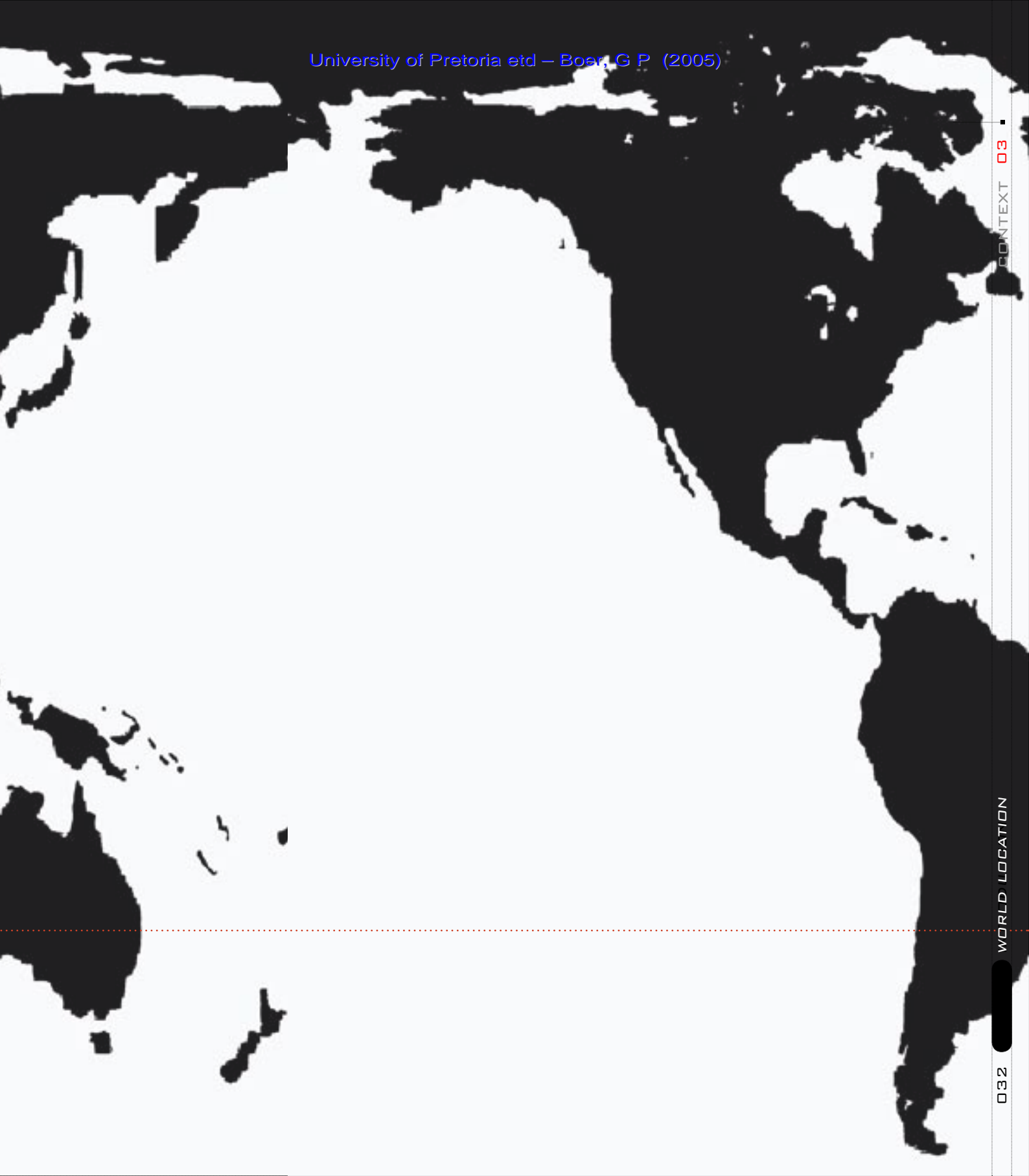
# CONTEXT STUDY CONTEXT ST



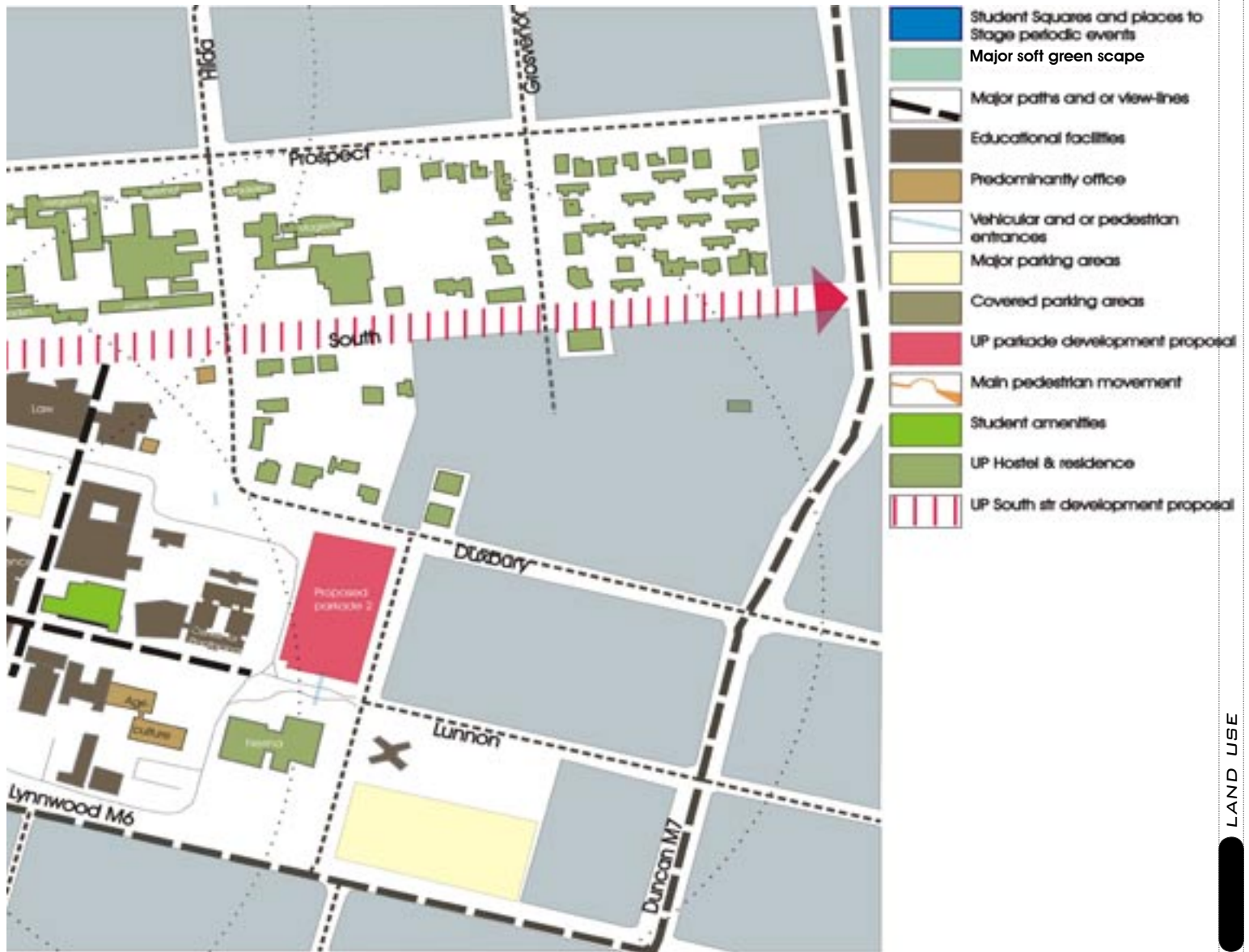
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### 3.1 DEVELOPMENT STRATEGIES

Current development strategies of the University of Pretoria focus on the expansion of the main campus in an easterly direction. The aftermath of such a decision is the development of a fragmented campus that in future could become a functional west - east campus.

The parking problem of the University of Pretoria's main campus will only escalate if the built fabric continuous to defragment opposed to its densification.

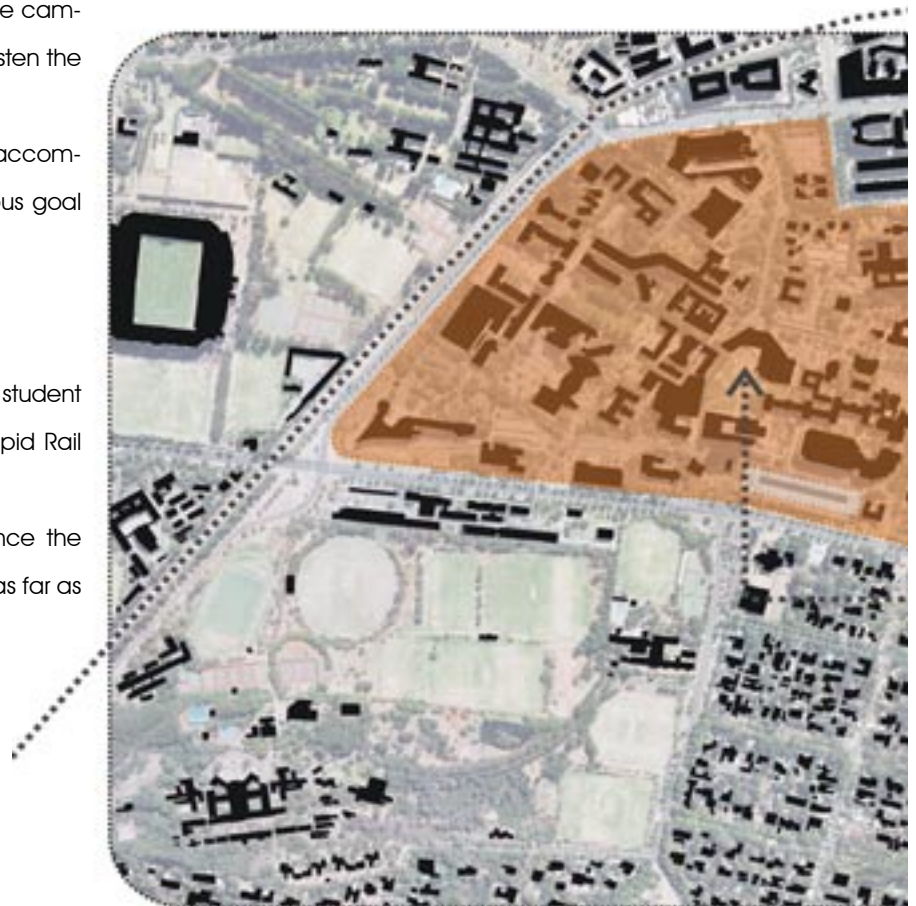
A series of proposed car parks surrounding the campus will alleviate the parking problem, but hasten the eastern expansion of the campus facilities.

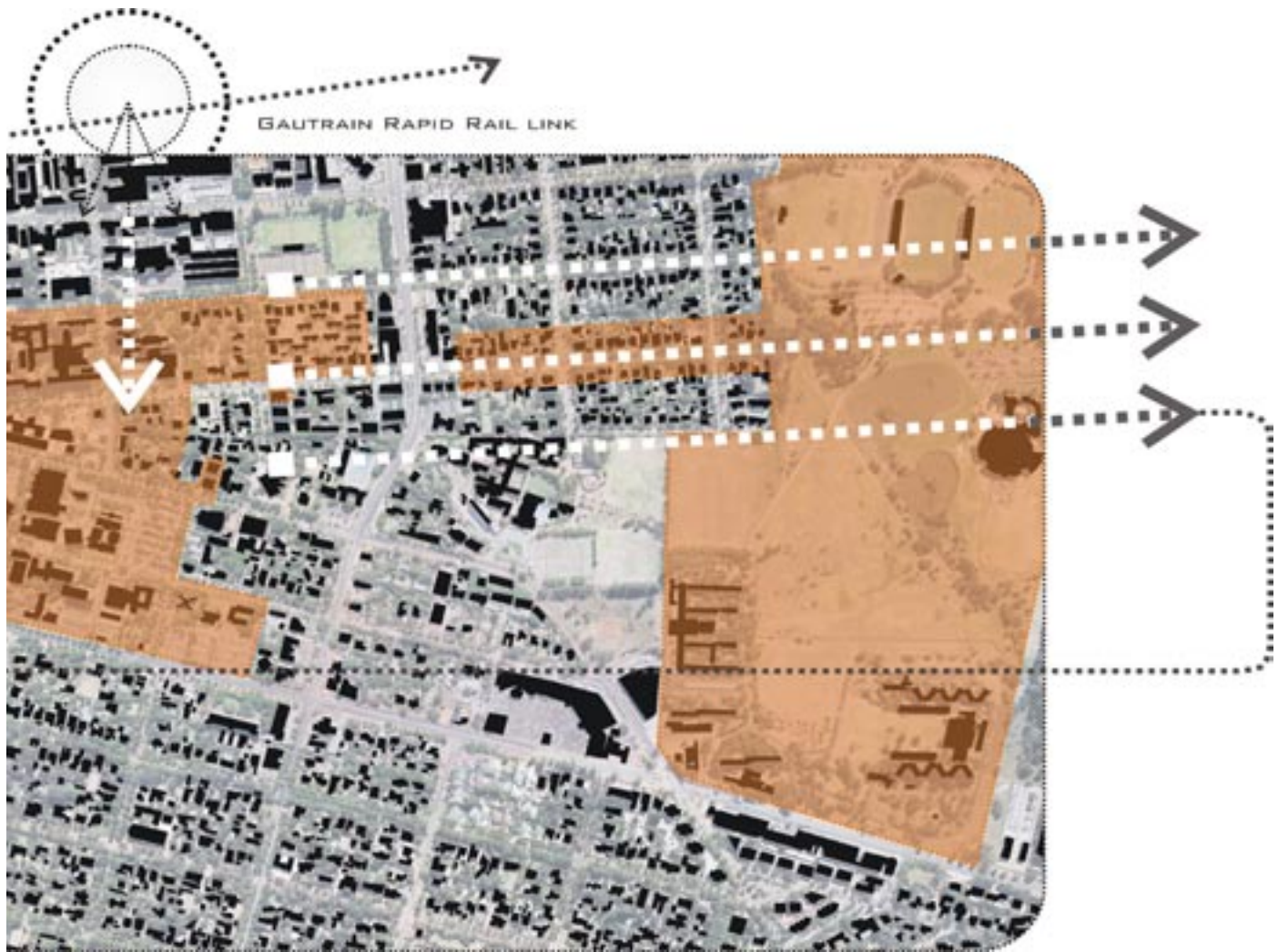
The concern of a campus should not be the accommodation of vehicles, but rather the conscious goal of pedestrianising its facilities.

Amelioration measures include:

- Upgrading shuttle services to and from student residential areas. It includes the Gautrain Rapid Rail station to be situated in Hatfield.

The introduction of the 'Gautrain' will enhance the accessibility of the campus for people living as far as Johannesburg.







### 3.2 URBAN PROPOSALS

The University of Pretoria is located in a suburban area of greater Pretoria.

The Municipality of Pretoria has conceded the densification of both Lynnwood- and Roper street. The vision for their development is of four to five storey buildings defining these arterials. The economic potential of this proposal will invariably lead to a more 'urban' character for the campus and surrounding areas.

Lynnwood- and Roper street will become both the definition and also the edge between the campus and residential outlying areas.

The School for the Built Environment should respond to the periphery of the current and future circumstances.



### 3.2.1 Public transport

The main campus was permeable to pedestrians prior to the construction of the palisade security fence. A number of bus stops were located in all the main arterials surrounding the campus. At present, most of the bus stops are obsolete due to the limited number of pedestrian access gates along the periphery of the campus. The site is ideally located at the main entrance to congregate all the existing bus stops into a specific point. A slipway from the M6 will improve traffic flow as the public transport vehicles currently stop in Lynnwood road, thereby adversely affecting traffic. Amelioration measures may include:

- The above mentioned slipway for vehicles travelling in a west-east direction.

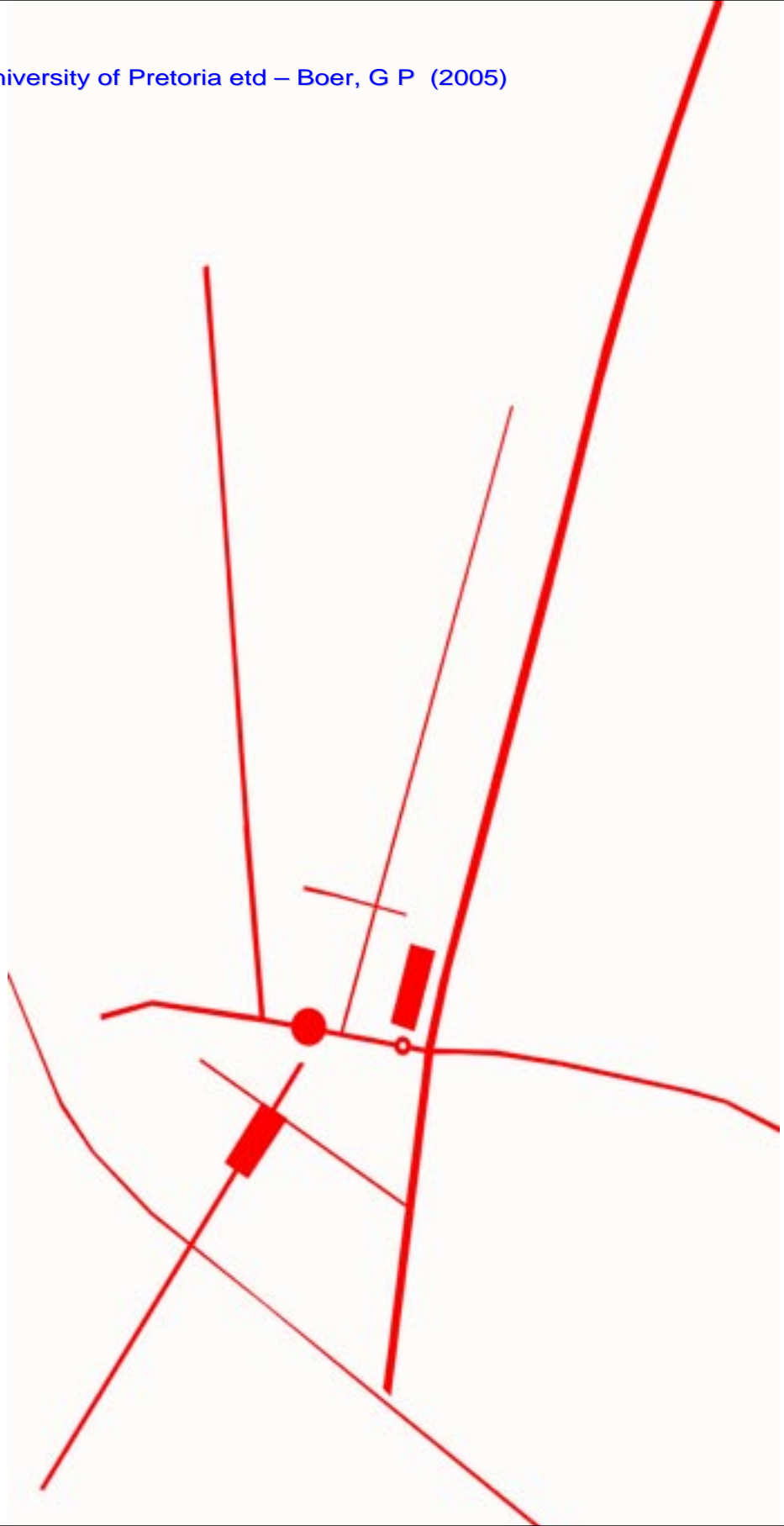
- Upgrading shuttle services to and from student residential areas. It includes the Gautrain Rapid Rail station to be situated in Hatfield. The introduction of the 'Gautrain' will enhance the accessibility of the campus for people living as far as Johannesburg.

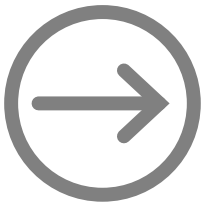


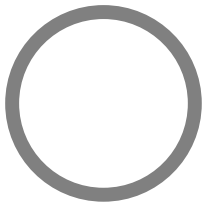
### 3.3 FIGURE-GROUND STUDY

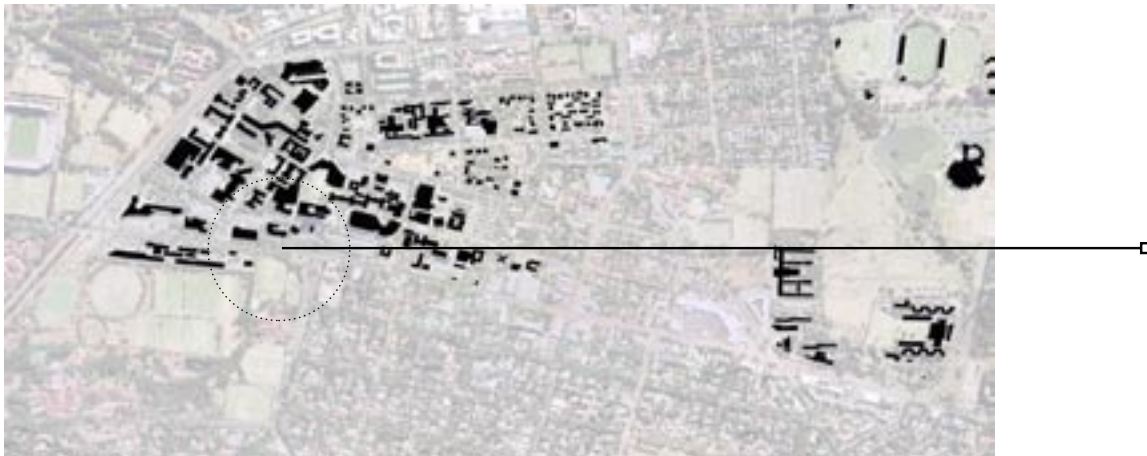
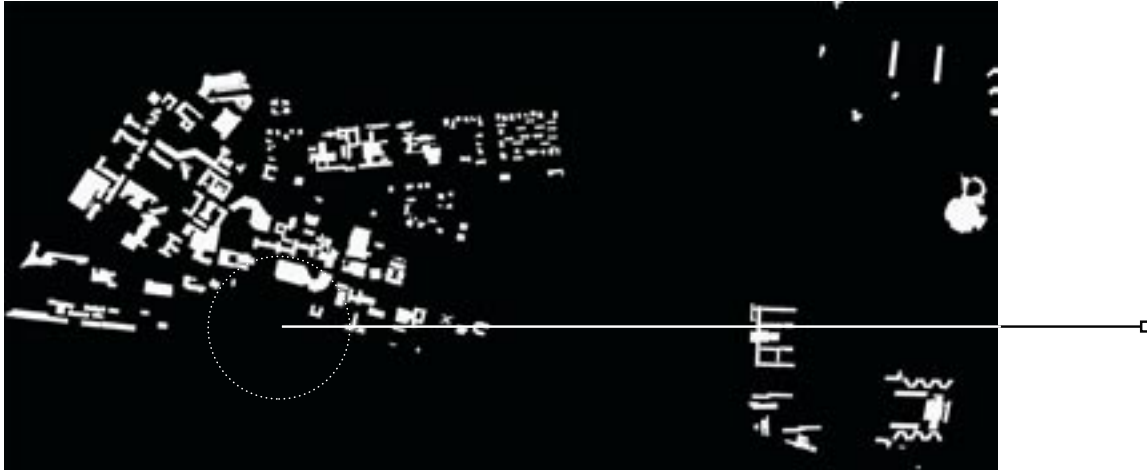
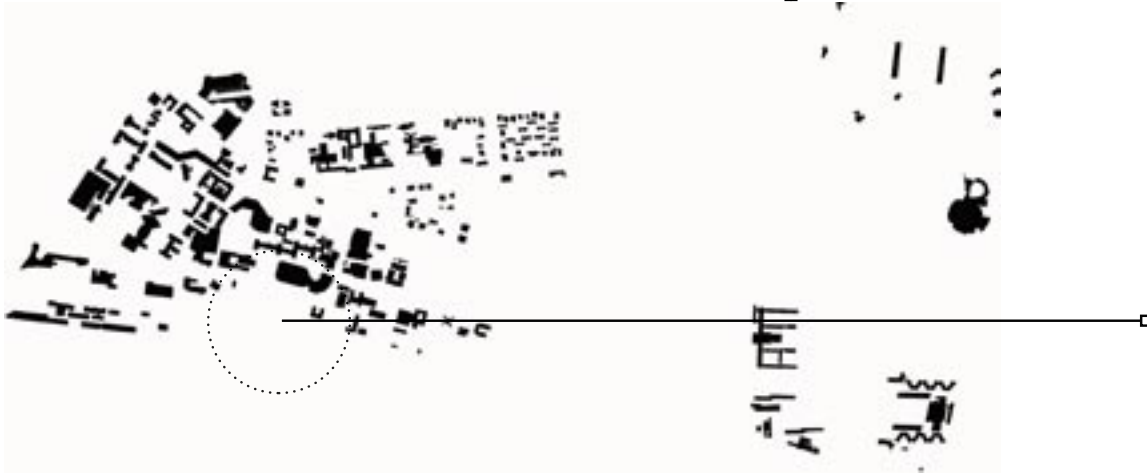
The study depicts the density of district developments. The defragmented nature of development stems from the educational hub consisting of the UP and myriad schools. Sports grounds surround the educational facilities and lends the area a more 'rural' character in terms of open space. Unfortunately, these open green spaces are not an integration of nature into the city, but only visual amenities. City parks are the by-product of the expanding metropolis since the nineteenth century. It is the manner in which the relationship to the landscape is portrayed. [Leupen et al 1997:174]. The landscape can also be viewed as a societal phenomenon which can be compared to language. The comparison to language, as the epitome of communication, is made to explain the manner in which a visual resource can be read and understood. The analogy is comparable only if its meaning can be discerned. (Nuevos Paisajes 1997)

Despite the east-west character of the UP, there exists a limited functional axis between places with an undefined spatial sequencing. It is an axis governed mainly by the automobile.













### 3.5 MACROCLIMATE

Pretoria is situated in the Northern Steppe climatic zone.

#### 3.5.1 Temperature\_

The maximum diurnal variation occurs during July.

Maximum monthly average is 28,6°C in January

Minimum monthly average is 4.5°C in Jun/July

#### 3.5.2 Humidity\_

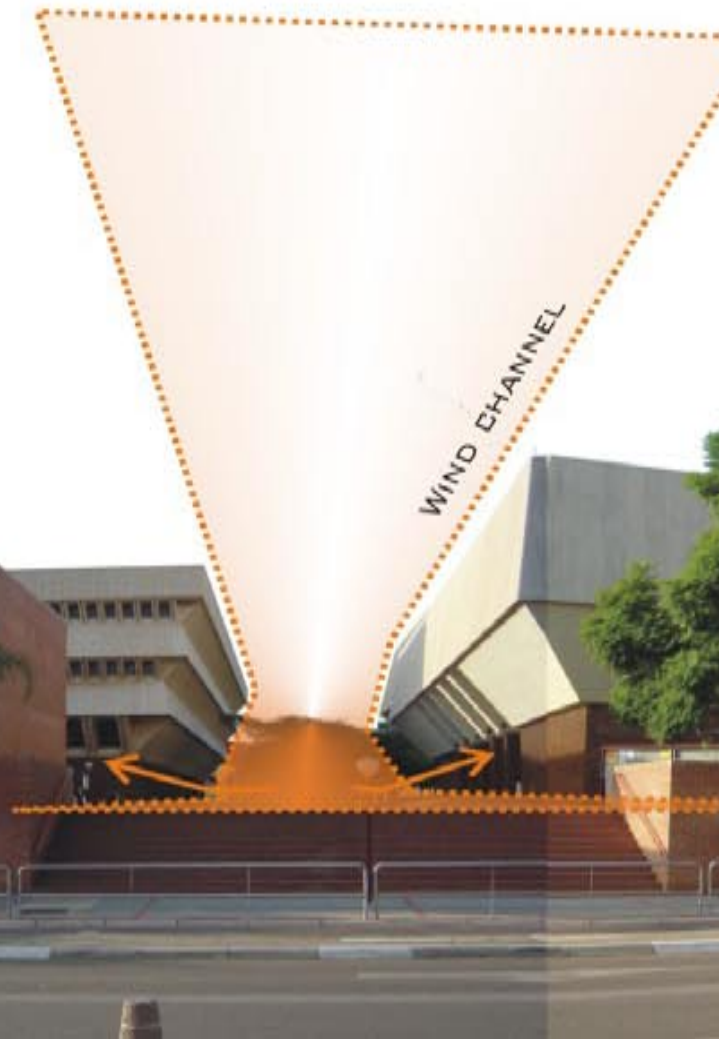
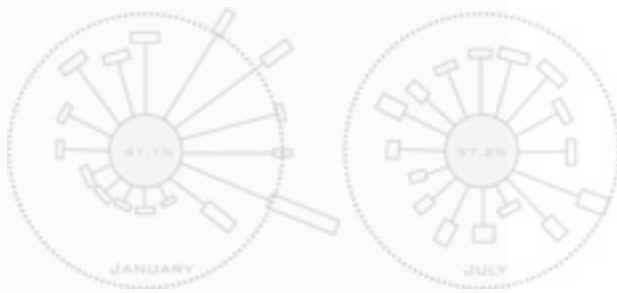
Average monthly humidity is 59%

#### 3.5.3 Winds\_

Summer: east-north-easterly wind direction to east-south easterly

Winter: south-westerly and north-east.

The density of the built fabric surrounding the site forms wind channels that alters micro scale atmospheric pressure, increasing wind velocity. The area between the Academic Information Centre and the Humanities building is an intense wind channel during late winter time.

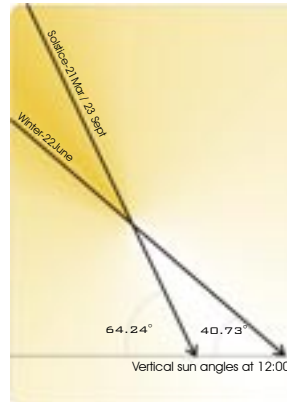


### 3.5.4 Vertical sun angles\_

Summer solstice [21 March / 23 September] \_  $64.24^\circ$

Winter solstice [22 June] \_  $40.73^\circ$

Solar incidence is high in the Pretoria region with a maximum of 80% sunshine in summer, and a minimum of 67% sunshine in winter. The percentages translate into solar radiation energy as 8Whr/m<sup>2</sup>/day in summer and 4.5Whr/m<sup>2</sup>/day in winter. [AAL 310, 2002:19].



### 3.6 MICRO CLIMATE

The existing built-fabric surrounding the site dictates the site-specific micro climate.

#### 3.6.1 Vegetation

According to Ad Destinatum 1910-60, the vegetation existing in 1910 on the future campus-site, was primarily thorn trees [presumably various *Acacia*-species] and *Rhus Lancea*.

The existing vegetation is primarily perennial shade trees for the current parking area. The parking area is lined with *Sesiqua ceretonia* [Carob] trees.

### 3.7 USER GROUPS & ACTIVITIES

The School for the Built Environment is a faculty building that accommodates various departments. Being an educational facility, its primary users are invariably its students and their lecturers. The building accommodates the needs associated with the process of teaching.

### 3.8 STATUTORY REGULATIONS

Legal regulations

The Floor Area Ratio for developments on campus is 2.5, with a height restriction of six storeys [ $\pm 18\text{m}$ ]. If developments occur on existing parking areas, alternative parking should be provided.





3.9 CONTEXT\_HISTORICAL



POINT OF INFINITE DENSITY \_ SINGULARITY

± 12 billion years ago

Big Bang theory

< 10<sup>n</sup> of a second after bang where n=-43

Science unable to prove theories of genesis moment before critical point.

> 10<sup>n</sup> of a second after bang where n=-43

Planck time, or 10 to the minus 43. First fraction of a second in which known laws of physics apply. [National Geographic Oct 1999:25]

1 millisecond after expansion began

Featureless fireball\_ 30 million times denser than the sun and 50 billion times denser than lead. [National Geographic Oct 1999:20]

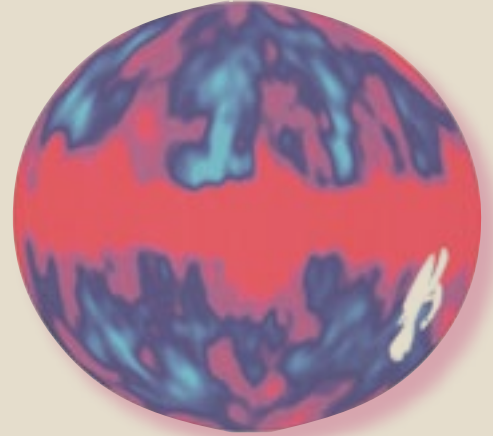
1 second after expansion began

Physical space expanded and thinned by 20 light years. [National Geographic Oct 1999:20]



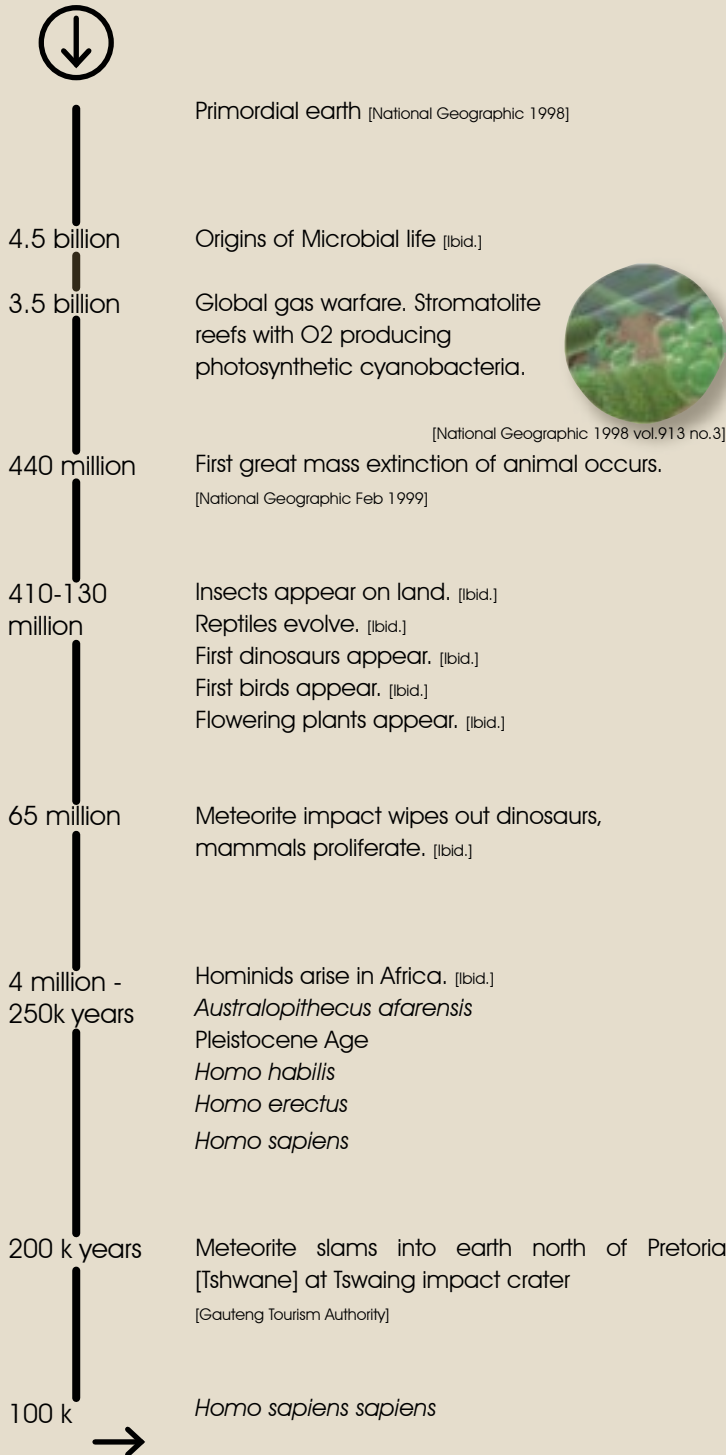
300 000 years after expansion began

Expanding fireball cool and thin enough to become transparent to light.



The farther out we look into space, the farther-back in time we see. Veil of fossil radiation dating 300 000 years after the big bang that permeates space. This is the limit of our view when the universe emerged from a state of hot plasma and became transparent. [National Geographic Oct 1999:30]







300 Clepsydra [water-clock] used in Greece. [Pascoe, L. C. et al. 1991]

250 Ctesibius constructed water-clocks at Alexandria  
Maya Hieroglyphs, wrote dates in symbolic figures. [Ibid.]

239 *Egypt: introduction of leap year into calendar.* [Ibid.]

133 Posidonius, who observed relationship between tides and moon.

4 - 30 A. D. Jesus Christ born in Bethlehem  
Crucifixion

150 Ptolemy: Amalgest; an astronomical work where earth is placed at the centre of the universe

850 Acropolis of Zimbabwe  
Foundation of Salerno University [earliest known university]

870 *England: calibrated candles used to measure time*



963 Al Sūfi: Book of the Fixed Stars containing earliest record of a nebula [Andromeda]

1054 China: Observed supernova in Taurus

1090 Peking: water-driven mechanical clock

1150 *Solomon Jarchus: earliest known almanac*  
Europe: first appearance of mechanical clock

1400 Intercontinental exploration hasten exchange in animals, plants and microbes. [National Geographic Feb 1999.]

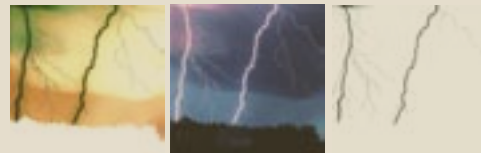
1473 *Nicolas Copernicus: 24 hour earth rotation cycle and refute idea that the earth is at the centre of the universe*

1609 Galileo constructed a telescope with 30 times magnification to see the moon's craters in 1609 and satellites of Jupiter in 1610.  
Kepler establish laws of planetary motion

1752 Franklin: proves that lightning is electricity in 1752 by flying a kite connected to a key



[National Geographic, November 1999, vol.196, no.5]



[National Geogrphic, November 1998, vol.194, no.5]



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1753

Carl Linnaeus: 'Philosophical Botanica' followed by 'Species Plantarum' - nomenclature of plants

1797

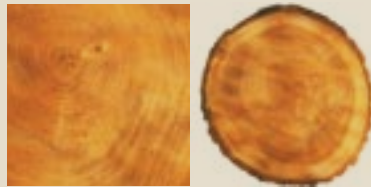
*William Smith: laid the foundation for geological eras.*

1859

Charles Darwin: 'Origin of Species'  
Mendel: genetic laws of heredity.

1867

*Pokorny: dated trees by ring-markings*



[VISI, 2004 p. 171]

1876

Standerton established

1887

Johannesburg Stock Exchange opened  
[Gauteng Tourism Authority]

1908

Pretoria Boys'-High school.

1909

Establishment of 'Transvaal Universiteit Kollege'  
T. U. K.



[Photo of T. U. K., UP Archive]

1915

Einstein: General theory of Relativity

1952

Contraceptive pill first manufactured [refer 1860 BC.]



1954

Total eclipse of the sun [next occurrence 2115]

1958

Electronic computers introduced

1980

Growth of 'Green' and 'Ecological' parties in Britain

PRESENT

The planet's sixth great extinction is already in progress.



[All dates and events: Pascoe, L. C. et al. 1991, except where otherwise indicated.]

UNIVERSITY OF PRETORIA  
HISTORICAL DEVELOPMENT PLAN





AERIAL PHOTOGRAPH OF UP\_1948



AERIAL PHOTOGRAPH OF UP\_OCT 1945



AERIAL PHOTOGRAPH OF UP\_1960

## University of Pretoria etd – Boer, G P (2005)



Artist impression of Transvaal University College (TUC) 1911. [Photo: UP Archive]



Photo of University of Pretoria 1943. [Photo: UP Archive]



The UP is located on the previous farm 'Elandspoot'. Eland sculpture on pillar at the western vehicular entrance of UP aptly named Elandspoot to retain some of the site's heritage.



## HISTORY

Time stands still.

History is captured.

These phrases describe the status quo of the buildings on the campus. Except minor alterations, the buildings remain true to their original design through continual maintenance. General Jan Smuts was one of the founding fathers of the University of Pretoria. In 1907 Smuts advocated the idea of a campus in Pretoria, separate from the old Transvaal University College in Johannesburg. [Fisher 1998:E2]. In its inception, the Transvaal University College fell under the British colonial rule. It converted to an Afrikaans-language institution only in 1930 under the influences of Gerard Moerdyk. From then onwards the architects of projects on the campus of the University fell under the authorship of Afrikaans-speaking architects. [Ibid]. Buildings on the campus of UP thus not only represent a summation of their individual specific time, but also of the Afrikaner culture.

## ARCHITECTURE OF MAIN CAMPUS\_UP

Historically, the site on which the main campus of the 'Transvaal University College', the progenitor of the University of Pretoria, is currently situated, formed part of the farm 'Elandspoor'. The farm included the whole area on which the current campus is situated up to the east of the Apies-river. Gert Bronkhorst owned Elandspoor until 1857 when it was sold to Jan Schutte. In 1875 it was appropriated by James Mears. [Ad Destinatum 1910-60:264].

At this time the farm stretched between the current Roper and University streets, and Burnett street in the north towards

the Pretoria Boys High school in the south. The farm was divided in two by an ox-wagon trail running from east to west - later known as College Avenue and currently as Lynnwood road.

In 1940, Gerard Moerdyk was responsible for a site layout plan for the campus. The idea for the quadrangle in front of the Old Arts building began to take shape. There existed a marked haphazard approach to buildings' placement prior to the 1950's. In 1953 Prof. A. L. Meiring defined the edge of the quadrangle by locating buildings around the periphery. He consciously strove to implement a more orderly campus plan, to facilitate place making. [Ad Destinatum 1910-60:272.]

## GROWTH OF THE MAIN CAMPUS

Prior to the 1970's the buildings on campus remained relatively horizontal in character. The verticality associated with some buildings on campus commenced from the 1970's onward. [Ad Destinatum II:225].

The continual growth in student numbers required an ever increasing number of facilities to accommodate them. In a report done in 1965 by Brian Sandrock, it was proposed that the campus expand eastwards. The aim of the proposal was a campus that stretched from the western extremity of University avenue to incorporate everything up to and including the Research farm. The campus would consist of an eastern and western part with the central area defined by the intersection of Roper and Lynnwood streets. [Ad Destinatum II:225].

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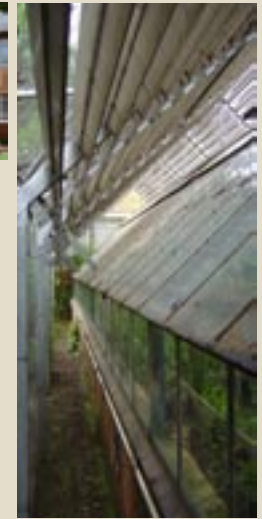
Old arts building 1911



Agriculture building  
1920



Merensky building  
1938



#### 1911\_OLD CHEMISTRY BUILDING

The Old Chemistry building was the first building on the old Transvaal University College campus. It was completed in 1911. The typology of the building is of a simplified Renaissance style. [Fisher 2004]

#### 1911\_OLD ARTS BUILDING

The credit for the design of the Old Art building is given to P. Eagle of the Public Works Department. In addition, credit has also been given to both G. Leith and J. S. Cleland also of the PWD. [Keith 1998:79]. The building is described as the most Bakerish of all the Baker School. [Ibid]. Elements which characterize the Baker School of design can be seen in the recessed centre in which the gable is situated topped by the tower and cupola. [Ibid]. The projecting flanking gables are adorned with Venetian windows. [Ibid.] The main influence on the typology of the building stems from the Late-Renaissance era in France. [Ad Destinatium 1910-60: 275]. The Old Arts building is contemporary with the Union Building in Pretoria, and Frank Lloyd Wright's Robie House, Chicago.

#### 1920\_AGRICULTURE BUILDING

The building was designed by J. Dey of the PWD in the Baker school tradition. It is a Cape Dutch Revival building, especially concerning the front gable. [Ad Destinatium 1910-60: 276].

#### 1931\_OLD ADMINISTRATION BUILDING.

The Old Administration building was designed by Gordon

Leith with influences related to the French Mannerism of Thibault. It is contemporary with the Virginia Campus by Thomas Jefferson. [Fisher 2004]

#### 1930\_WEATHER BUREAU

The erstwhile Weather bureau was designed by Bauhaus trained, W. Fleischmann, in red-brick finished modern style. It currently accommodates The Centre for Augmentative speech.

#### 1938\_MERENSKY LIBRARY

The Merensky library was designed by Gerhard Moerdyk. The building was a first in a series of projects done by Moerdyk which is greatly symbolic. He consciously strove to 'Africanize' his architecture through the use of local materials and also through native African motifs and symbols. [Fisher 1998:E2]. Symbolic in the Merensky library is the indigenous granite hinting to great age of the African soil. [Ibid]. The zigzag stonework band symbolizes the archetypal symbol of water and fertility found in the native African cultures. The curving walls to the entrance is symbolic of an open Bible which reveals knowledge. [Fisher 1998:E2]. In its original form, a Foucault pendulum swung from the dome and inscribed its path in the central cut-out to the basement lending the building a '*universal even cosmic dimension*'. [Fisher 1998:E2]

#### 1943-59\_CHEMISTRY BUILDING

The new Chemistry building was designed by Moerdyk and Watson in the modern style, and finished with brick..

# University of Pretoria etd – Boer, G P (2005)

Administration building 1970



Amphitheatre, Musaiion 1960



Detail of external lighting, Botany building 1940-59



Engineering building 1956-60



Aula and Student Centre 1958





[Ad Destinatum 1910-60:278]. In 1956 a southern wing, designed by Carl Gerneke, was added to the chemistry building. Gerneke introduced the first cantilevered concrete staircase in South Africa on the eastern side of the building. [Fisher 2004].

#### 1940-59\_BOTANY BUILDING

The Botany building was also designed by Moerdyk and Watson on an L-shaped plan form. In 1956 a glass nursery designed by Strauss Brink was added to the Botany complex. [Ad Destinatum 1910-60:279]. Of interest is the Wagon-wheel ceiling in the main foyer.

#### 1946\_PHYSICAL EDUCATION BUILDING

The Department of Physical Education was designed by Basil South of Meiring Naudé with Burg, Lodge and Burg architects. It was executed in brown-yellow face brick and mono-pitched corrugated iron roof, with standard steel windows. The building has suffered numerous alteration but the simple detailing and essence still exists in its current state. [Fisher 1998:E2].

#### 1951\_NEW ARTS BUILDING

The new Arts building [the current Theology building] was designed by the architects Burg, Lodge and Burg. Although the building is more modern it sympathizes with the adjacent Old Arts building in its style and materials employed. [Ad Destinatum 1910-60:281].

#### 1956-60 ENGINEERING BUILDING

The engineering building was designed by the architects Meiring and Naudé. [Ad Destinatum 1910-60:282].

#### 1957\_A. E. DU TOIT AUDITORIUM

The A. E. du Toit Auditorium was designed by A. L. Meiring. It addresses the issue of noise ingress from the adjacent railway line and University Avenue by omitting fenestration. It accommodates a maximum of 700 and 250 people in the two auditoriums. The sculpture by Zoltan Borberéki on the southern wing was donated by prof. Meiring [Ad Destinatum 1910-60:283].

#### 1958\_AULA AND STUDENT CENTRE.

The Aula was designed by Karel Jooste in the architectural firm of Philip Nel. It boasted the first free-standing ribbon chair in South Africa as well as several other devices.

#### 1960\_MUSAION

Brian Sandrock was responsible for the design of the new 'Toonkuns akademie'. The complex consists of three parts where one is used as lecturing facility, one as auditorium and an open air amphitheatre.

#### 1960\_ARCHITECTURE AND QUANTITY SURVEYING BUILDING

The building was designed by the architecture staff adjacent to Lynnwood road. A requirement for draughting is 'soff' lighting mainly gained from indirect sunlight. Concurrently the whole southern façade was fenestrated despite



the occasional hale storm. The building employed the concept coined by Le Corbusier as 'free façade' to allow strip windows along its external walls. [Ad Destinatum 1910-60:283].

#### 1969-75\_NEW MERENSKY LIBRARY

The firm Louw, Marais Marquard and Kuhn was responsible for the design of the extension of the original Merensky library. The building consists of five levels, with a double volume at its entrance on ground floor. [Ad Destinatum II: 224].

#### 1970\_ADMINISTRATION BUILDING

The iconic design of the administration building is credited to one of the campus' main architects, Brian Sandrock. The building is known as 'Die Skip' or rather the Ship. Textures and relief patterns lend an interesting composition to the north-western curtain wall, also interesting is the suspension of the western concrete-wall on rubber blocks to allow differential expansion and contraction. The building consist of four levels accommodating various functions, one which is the Senate of the University. [Ad Destinatum II:226].

#### 1970\_ENGINEERING TOWER BLOCK

The Engineering Tower was the first vertical development on the campus of University. It is situated on the western extremity of the quadrangle and defines the spaces in terms of both distance and height. [Ad Destinatum II:228].

#### 1977\_HUMANITIES BUILDING

The unconventional building consists of lecturing facilities in the base which stretched over the previous Roper street, and 17 storeys of office space on top of the base. Influences in the design could be related to the adjacent New Merensky building. The remarkable appearance of the building lends an iconic image to the campus. [Ad Destinatum II:228].

#### 1972\_AGRICULTURAL SCIENCES BUILDING

The building consists of two wings each of which is nine storeys high.

#### 1973\_EDUCATIONAL BUILDING

The Educational Building was designed by the firm Louw, Marquard and Kuhn, and is situated adjacent to the Humanities building. The typology of the building is similar to the nearby Merensky and Humanity buildings. [Ad Destinatum II:229].



#### FUTURISM

The movement of Futurism inspires the imagination of the masses. Cinematic projections of the future such as 'Starwars' or 'Minority Report' extrapolate the 'what is' into 'what it may become', and thus influence societies perception of the world. As such, the concept of futurism can be seen as a time accelerator.

Time can be viewed either as a static entity defined by numbers, or time as experienced by an individual.

In the latter case, time exists because of the reality of an individual and becomes a non-entity without the individual. The future is therefore inherently void of the reality of the past and the present, and also that the future comes into being or evolves as time passes. [Bergson 1911:5-6]

Van Eyck 1969:171, proclaims that the only way for the present to lose its instantaneity is by acquiring temporal depth. Temporal depth can be explained by the past being gathered into the present and through the gathering body of experience that every individual possesses.

This is time rendered transparent.

The experience of an individual that Van Eyck professes is connected to the its specific past. Only by relating the past, including all the cumulative knowledge of mankind, can the present be understood.

It is "being aware of what 'exists' in the present - what has travelled into it: the projection of the past in the future via the created present" [Van Eyck 1969:171].

It is therefor impossible to sever the future of society, or rather architecture, from the past without rendering the present without temporal depth. The crux of Van Eyck's essay is in the notion of the unchanging condition of mankind in the light of change.