The Refinery

FROM DEAD CITY SPACE TO VIBRANT HUB OF TALENT: THE CHALLENGE OF URBAN RENEWAL IN THE SOUTH AFRICAN CONTEXT

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FOR MY PARENTS ...

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1 Introduction

The Tshwane Inner City Development and Regeneration Strategy (City of Tshwane 2005:13) of 2005 identifies aspects of identity, entertainment, public space and safety as some of the urgent needs of the city of Tshwane.

The aspect of identity is perhaps a misnomer as the capital city has a strong bureaucratic and educational identity. It can be presumed that it is not the lack of identity per se, but rather that the city lacks the sense of play that most cosmopolitan cities have.

What does the city need? What does it want? What is lacking in our city? What brings people towards a city, a node, a point, a building? What has happened to the city's sense of play?

In order to address these problems, one would have to understand the principles of how to create vibrant, safe spaces in the city where people would want to spend their time. Which environments generate opportunities for people to interact?

The study will concentrate on theories addressing diversity and safety within urban environments, with a focus on the role played by the consumer. These theoretical principles will be tested on a real-world problem in the inner city of Tshwane.

The project will thus be approached from a practical point of view to present a realistic scheme to a potential client, while contributing to the regeneration of the inner city of Tshwane.

PROBLEM

What does the city need?
What does it want?

CAPITAL CITY → IDENTITY, CULTURE, **VIBE**

What are these things? → HOW? → SITE

What am I good at?

What makes a city?
What is lacking?
What is unique in to the city?

What brings people to a city?

ENTERTAINMENT
HISTORY
ADMINISTRATION

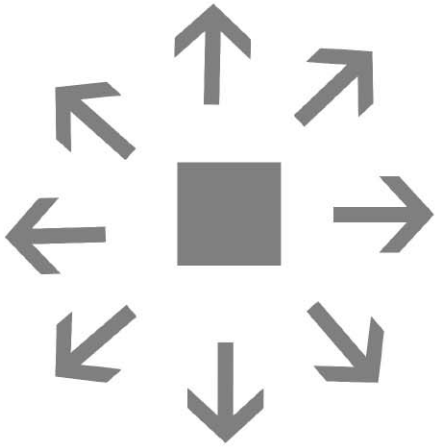
RESTAURANTS
BARS/JAZZ CLUBS
LOFT APARTMENTS
PERFORMANCE AREAS

URBAN CONTEXT

Where does the city want these? → PRECINCT
Tshwane Inner City strategy

GENERATOR
MAGNET

24HR



Combine with:
EDUCATION?
ACCOMMODATION?

SAFETY?

ONE SITE VS. INFILL

Just as the Technikon generated educational facilities?
Why not use what has worked before?

VS.

fig.2.1 - thought map

PRECEDENT

44 Stanley
Newtown
Catalyst Arts
Cafe Society
Manchester
Gentrification
Covent Garden
Greenwich Village
Soho
Montmartre

low rent = artistic demographic = **regenerated precinct** = rent increase = artists move out

Let the theory come out of the site...

2 Background

The City

Let us look at the city and the problems that exist within it. What does it need? What does it want? What is unique to our city? What is lacking? An analysis would have to be done of the universal as well as unique problems faced by a capital city such as Tshwane in order to address them.

The Tshwane Inner City Development and Regeneration Strategy (City of Tshwane 2005:13) of 2005 identifies ten characteristics that are lacking in the Inner City:

- Identity.
- Development.
- Housing.
- Residential facilities.
- Tourism, entertainment, recreation.
- Transport.
- Provision for pedestrian movement.
- Public spaces.
- Safety.
- Good management.

A series of e-mail surveys has revealed that the problem faced by our capital city is not the lack of identity per se but rather that the city lacks the vibrancy, excitement and energy that most cosmopolitan cities have. The city has always had a bureaucratic and educational identity and one would suppose that it takes a very unique individual to get excited about either. It is shocking to realise that even though we live and breathe within the cities we shape that we could be devoid of an opinion of our very own capital city. So how does one create the above mentioned characteristics within a city?

Currently people live, work, educate and administer within our city. In our consumer driven society people travel great distances to be entertained, to eat, to drink, to experience, to play. It is also apparent that within the South African context only commercial spaces are truly used as public space; the rest of the city is privately owned and fortified against the general public; with even government buildings limiting access to them.

Site Selection

The selection of a site was pertinent to the success of the project. The site had to be easily accesible and have existing users on, as existing energies on the site needed to be harvested and used site to generate a catalytic reaction in the urban fabric. Once again the Inner City Strategy was consulted in an attempt to question the validity of the strategy from within. (Three possible sites were identified as places where the city proposed the envisioned consumer functions to be located within the urban fabric. Each site was then carefully considered and a list of opportunities and constraints drawn up and compared by the author). The selected site is framed by Church Street on the south side, Vermeulen to the north, Du Toit to the west and Nelson Mandela to the east. The site currently houses some of the faculties of the Tshwane University of Technology and the Tshwane North College Campus. The choice of site was obvious as it contains an existing energy and a history of generating activity, and is located near the heart of the inner city. The site also lies at the intersection of two regional routes, is therefore conducive to the successful positioning of commercial activity and is easily located by people travelling from areas outside the inner city.

3 Brief

3.1 Problem Statement

3.2 The Project

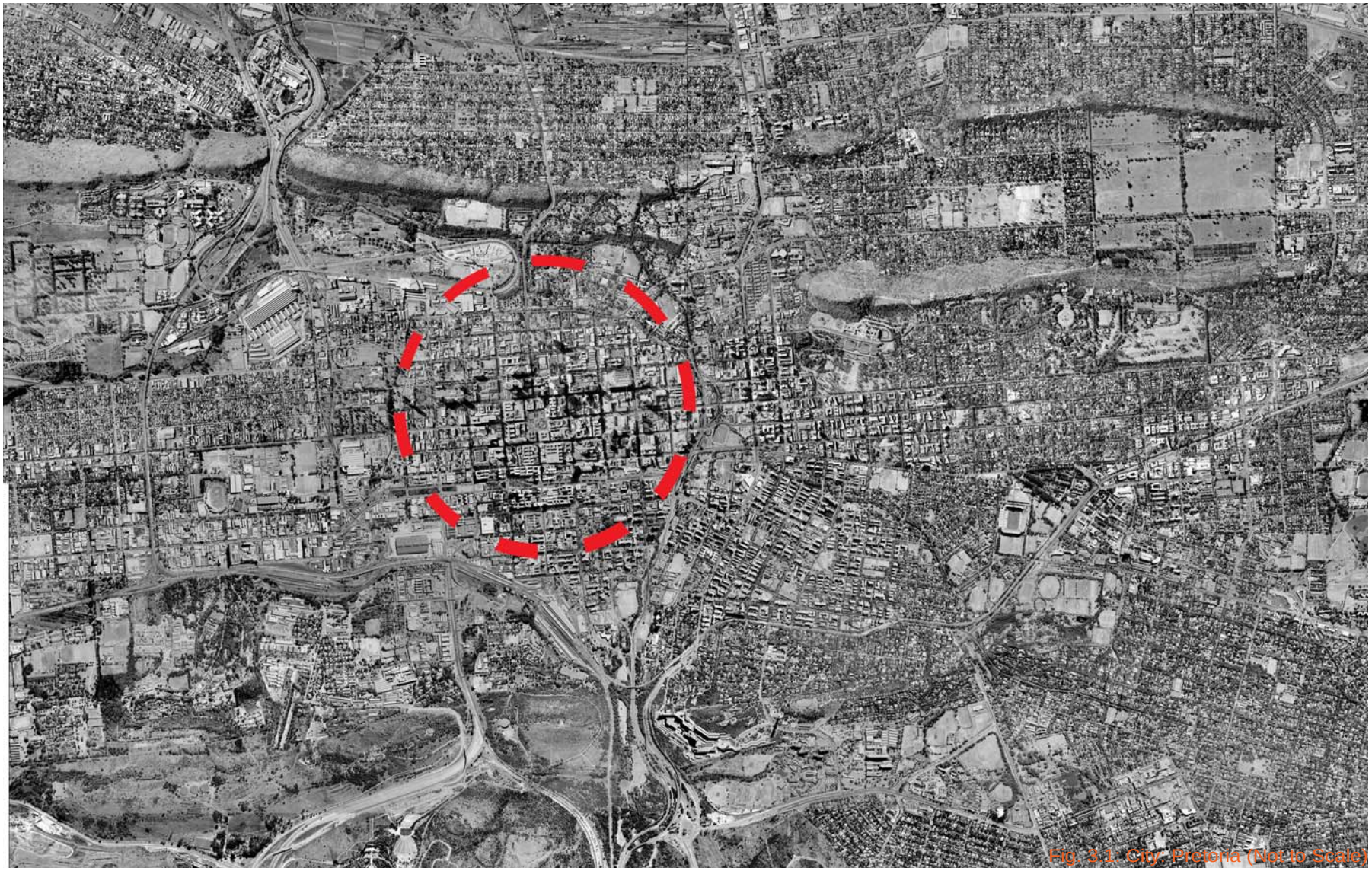


Fig. 3.1: City: Pretoria (Not to Scale)

3.1 Problem Statement

The Department of Education require that the inner city campuses of the Tshwane North College and the Tshwane University of Technology on the corner of Du Toit and Church Streets be converted to a mixed-use city block where students can directly interact with industry. The project is to be phased to allow for the restructuring of departments. Careful consideration must be given to the city context, addressing issues of safety and security. The project is aimed at a public-private partnership between the Department of Education and private investors, such as Atterbury Property and the Mandela Development Company. A mixed -use development as envisioned by the client incorporates elements of retail, theatre, restaurants, entertainment and residential uses of facilities thereby using the consumer market to generate urban renewal. The aim is to allow students to work in a commercial environment used by the public. Such a project is vital to realize the potential of students at the two institutions.

3.1.1 Sub-Problem One

The client provides the perfect opportunity for a commercially driven urban renewal project. The question arises of how our environments are shaped by the consumer driven paradigm and what role the architect has to play.

3.1.2 Sub-Problem Two

The location of the site in the inner city needs to be considered carefully in order to establish how the urban fabric can be changed to create a safe environment.

3.1.3 Sub-Problem Three

What legal implications would a development of this magnitude have?

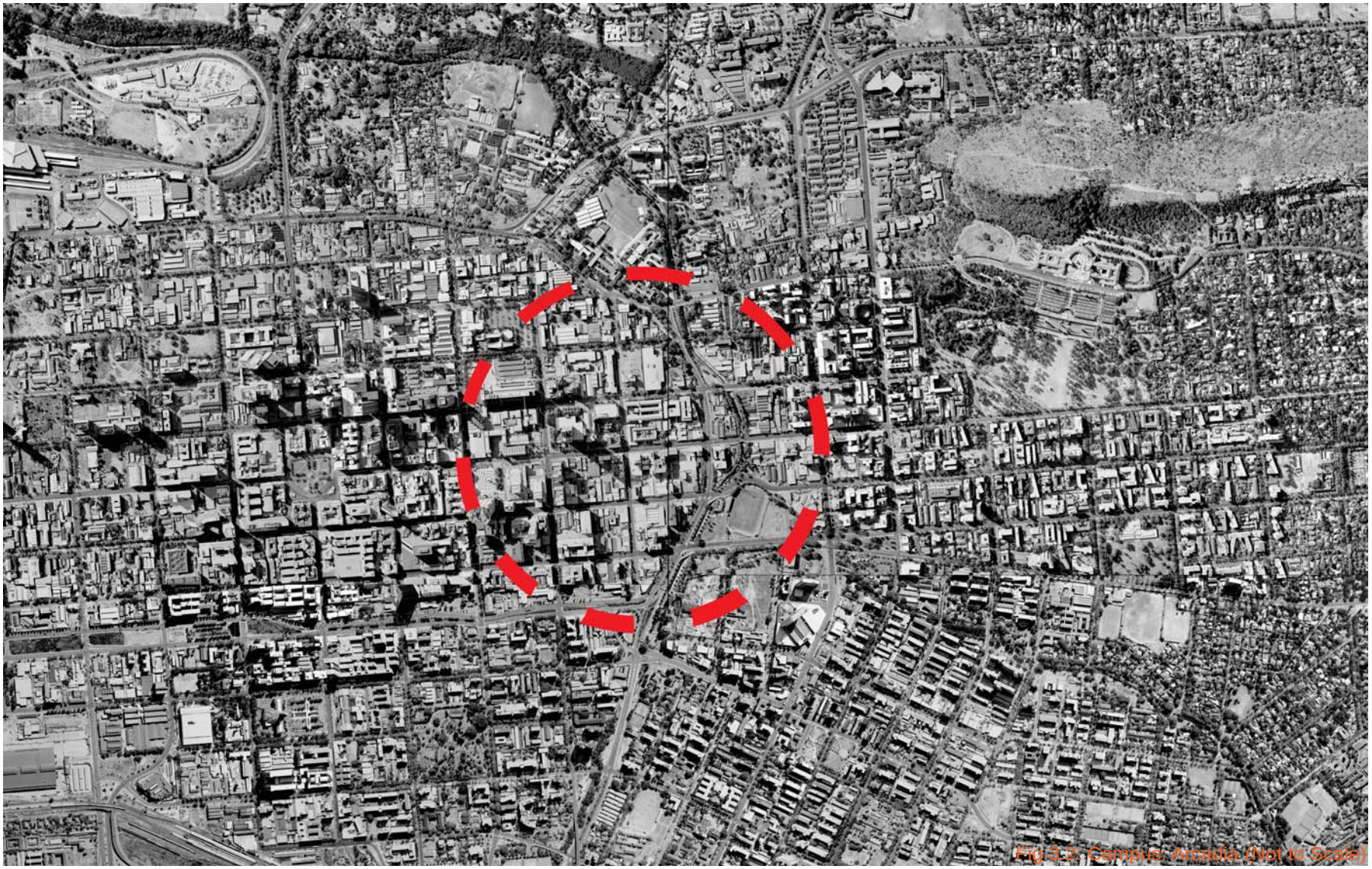


Fig 3.2: Campus: Arcadia (Not to Scale)

3.2 The Project

3.2.1 Introduction

An ‘incubator facility’ for the Tshwane University of Technology is envisaged for the south-east quadrant of its Arcadia Campus to form part of a greater mixed-use development for the entire city block. This facility will provide for postgraduate students to develop skills in order to open their own businesses while providing opportunities for the acquisition of capital.

The envisaged facility will operate on the same basis as the Innovation Hub, a Blue IQ project near the University of Pretoria aimed at developing innovative ideas in the science and technology industries. The facility will be focusing on the design and entertainment industries.

Graduate students will be given the opportunity to submit a business proposal to the facility. If the idea is proposed fresh and innovative, the graduate is accepted into a program known as Pre-Incubation, during which, for six months, the student receives mentorship to develop his/her idea further and prepare it for the business world. After this period the idea is reviewed. If found to be needed in the industry, graduates proceed to a two year Incubation Period during which they rent office space from the facility to develop their ideas further (Maboya, personal communication, 2006).

The vision behind the project is to create a vibrant and safe social space, part of a greater mixed-use development, where students can interact directly with the public.

3.2.2 The Aim of the Project

The stated aim is, firstly, to create a facility which empowers the previously disadvantaged demographic while providing for some of the needs of the Arcadia Campus of the Tshwane University of Technology.

Secondly, the project will encourage citizens to return to the inner city. It is hoped that they will understand that urban areas are made safe by interactive communities, not by the isolation of a gated and fenced-in society (Jacobs 1961:46).

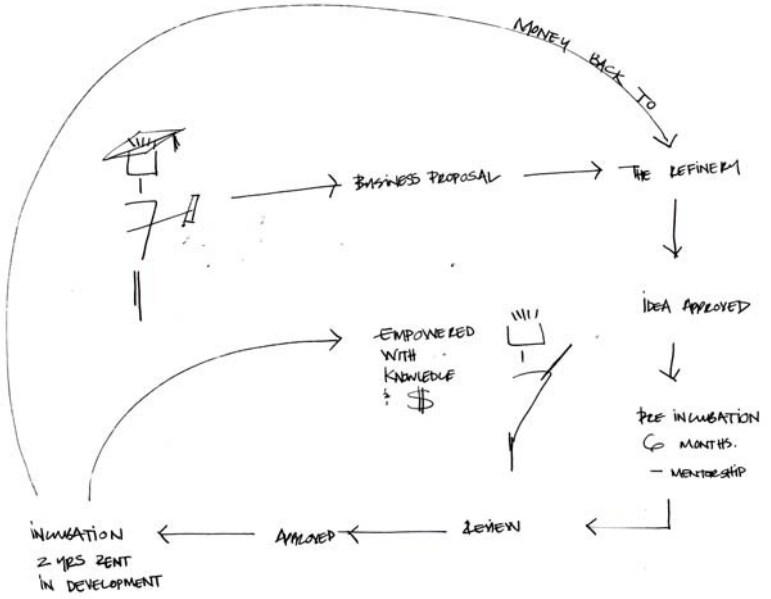


Fig. 3.3: The concept of Incubation

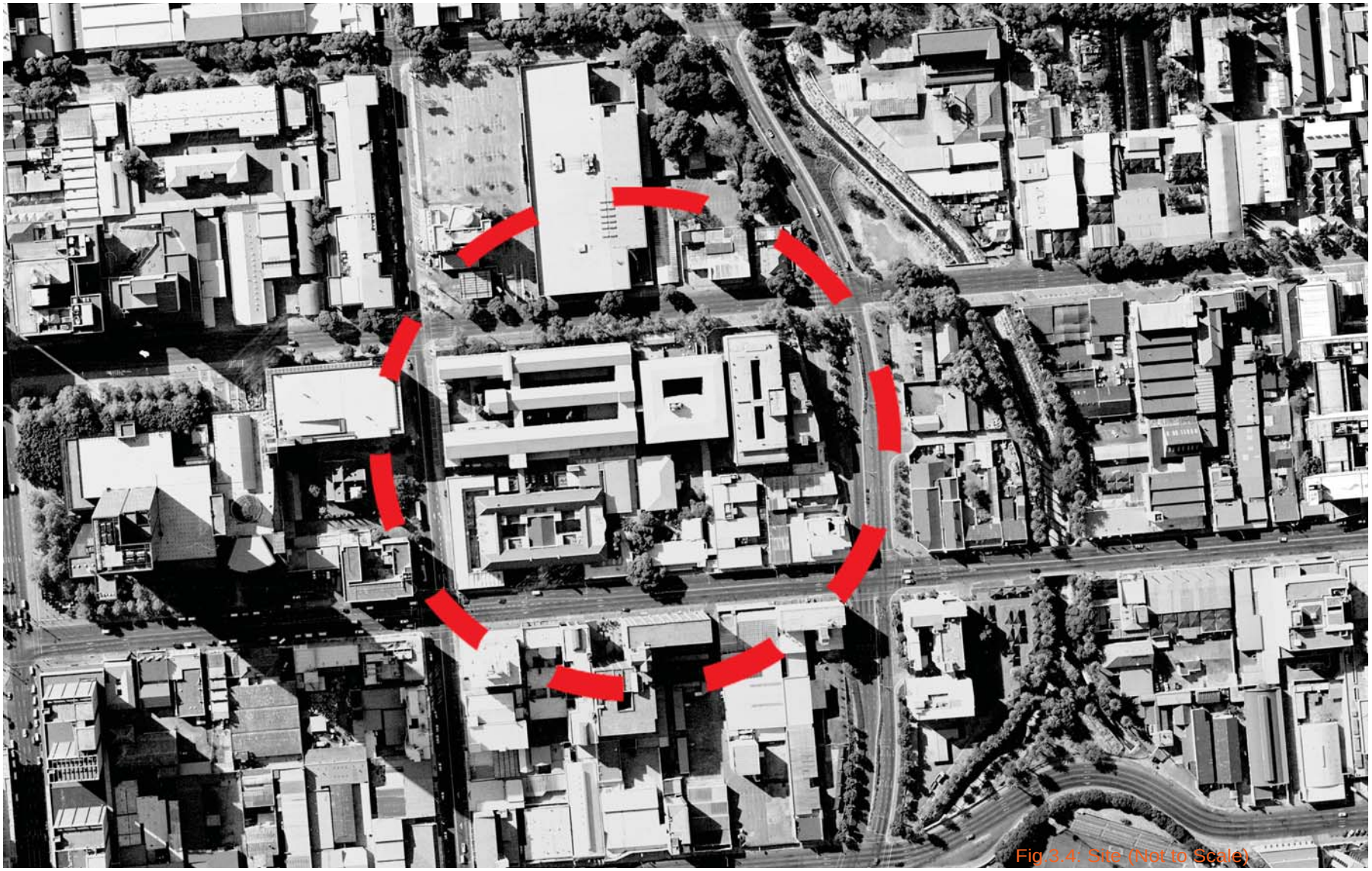


Fig 3.4: Site (Not to Scale)

3.2.3 Why an Incubation Facility?

An interview with Ronel Venter (Venter, personal communication, 2006), the marketing manager for Tshwane North College, has revealed that even though previously disadvantaged students might receive an education, the majority find it difficult to break into the commercial market. The result is that some brilliant and talented individuals are at a loss after receiving a tertiary diploma or degree.

The student will benefit through:

- Mentorship

The facility will provide an opportunity for such individuals to develop their ideas under the guidance of qualified mentors for six months, on a one to one basis arranged according to individual needs.

- Community

The bringing together of like-minded individuals will provide opportunities for the exchange and generation of new ideas from within (Maboya, personal communication, 2006).

- Acquisition of Capital

The opportunity for students to rent prime property in the inner city during the Incubation Period will allow for the acquisition of enough capital to develop their concept further.

Fig. 3.5: The logo of Tshwane University of Technology

Tshwane University of Technology will benefit through:

- Development

The development of its Arcadia Campus allows Tshwane University of Technology to develop prime property located in the heart of the inner city, providing an educational facility and receiving a financial return from rental. The location of the development will establish the image of the Tshwane University of Technology as a forerunner in empowerment.

The community will benefit through:

- Innovative Ideas

The development of ideas, otherwise lying dormant, will benefit the community in artistic ways. The opportunity for potential investors is endless as they will be able to shop for new talent which has been through an incubation process.

- The Development of the Inner City

The mixed-use development of the city block will create a node that will be used twenty-four hours a day. The facility will enable a previously fortified city block to be accessible and attract the general public back towards the inner city of Tshwane.

Fig. 3.6: The location of the three campuses of Tshwane University of Technology within Tshwane (not to scale)

3.2.4 Building Type

The proposed design project is a commercial building which displays the movements and activities of its users.

> *"…This last point, that the sight of people attracts still other people, is something that city planners and city architectural designers seem to find incomprehensible. They operate on the premiss that city people seek the sight of emptiness, obvious order and quiet. Nothing could be less true…"*
>
> *(Jacobs 1961:47)*

3.2.5 Client Profile

An interview with Piet Engelbrecht (Engelbrecht, personal communication, 2006), the Facilities Manager for Tshwane University of Technology, revealed the following:

- Tshwane University of Technology has three campuses located in and around the inner city of Tshwane.
- At present, all three campuses are running at very high costs due to inadequate facilities.
- It is believed that the consolidation of the campuses would result in a substantial saving.
- The Arcadia Campus, located in the inner city, is fully utilised to its capacity, so relocation to this facility would not be possible. The main campus, located in Pretoria West, would be the obvious choice for the consolidation as most departments are already on the campus.
- Any development would have to be phased so as to allow for the relocation of departments.
- The gated environment of the Arcadia Campus does not provide for increased safety due to the fact that most crime is internal.
- Each campus is responsible for its own funding, therefore outside investors have to be ot should be approached for the development of an incubation facility.

3.2.6 User Profile

Users:

The primary users of the facility will be graduate students in the Incubation Programme and their mentors. Their needs are to interact with the public while developing new ideas.

Initial Users:

The initial users will be the 4 000 students now using Tshwane University of Technology's Arcadia Campus. Their immediate needs: a safe area to study, especially after 17:00 during the week, and areas to socialise and interact between and after classes.

Potential Users:

Once the mixed-use development of the city block has taken place, the users will extend to include the students of the Tshwane North College and the general public. It is hoped that by utilizing the existing energies and users on the site, users from elsewhere in the city will be attracted.

Fig. 3.7: Current location of interested and affected parties on the city block.

3.2.7 Interested and Affected Parties

Tshwane North College and Tshwane University of Technology will be the primary role-players in the development of the mixed-use inner city campus. The land owned by Jeka Foams and Carburettor City will have to be purchased for the development of the city block.

3.2.8 Funding Agencies

Funding could be obtained from the Department of Education and private investors such as Atterbury Property and the Mandela Development Company, who are actively involved in the development of the Nelson Mandela Corridor.

3.2.9 Site Selection (alternatives)

Possible alternatives for the location of the facility were discussed in chapter 2.2 of this document. It could be located on one of the other campuses of Tshwane University of Technology, but because of the possible consolidation of departments to the Pretoria West Campus it gives Tshwane University the opportunity to develop prime city property which they already own in the inner city.

3.2.10 Methodology

- **City-wide context:**

Ways of integrating the city block as a site into the city will be investigated by an analysis of the city context.

- **Local context:**

A campus framework will be designed by analysing of the campus context in order to improve its accessibility and functioning as a mixed use development that would be used at all times of the day. The suitable location for an incubation facility will be identified within the campus.

- **Site context:**

The site will be selected according to the campus framework and analysed in order to produce an appropriate architectural intervention through the creation of an inclusive built environment (Geel 2005:12) . This environment will function as a link between students and the greater public through an incubation facility and will address some of the immediate needs of the current users of the campus.

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4 Theoretical Context

Consumerism vs. Architecture: an essay investigating how our environments are shaped by our consumer driven paradigm and the role of the architect within it.

Fig. 4.1: Shopping = ...

The Paradigm

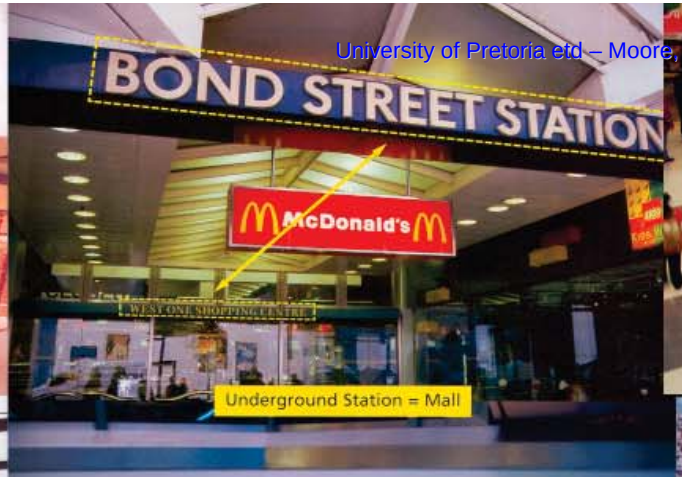
It is undeniable that we live in a consumer driven society and that it affects every aspect of our lives. Airports, museums, stations, universities, hospitals, cities and even entire countries are able to market themselves as products which can be consumed (Loeng 2001:135-154). Consumerism can be seen as a dominant force in the shaping of our environments and should be considered an important factor in the production of architecture (Chaplin 1998:7). Consumerist trends have to keep up with the most subtle changes in society resulting in the need for architecture to produce new forms in order to sustain the consumer market (Loeng 2001:131,155). While consumerism is politically wedded to capitalism it cannot be considered the absolute ideal. Capitalism brings with it a negative connotation, but due to the lack of a workable substitute it is difficult to imagine a radically different system or ideology in our lifetime (Chaplin 1998:7). It is imperative for the architect to act responsibly while utilizing the opportunities presented by the consumerist market.

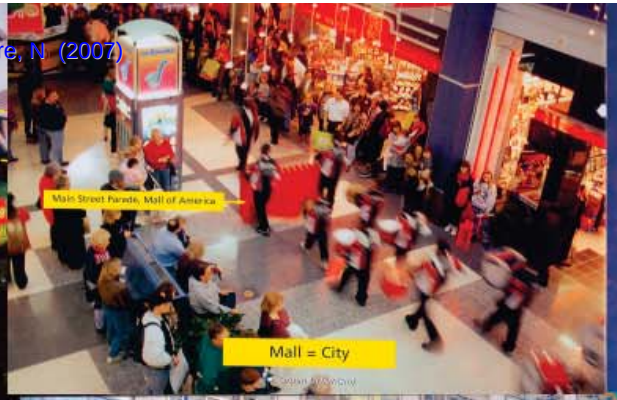
The Environment

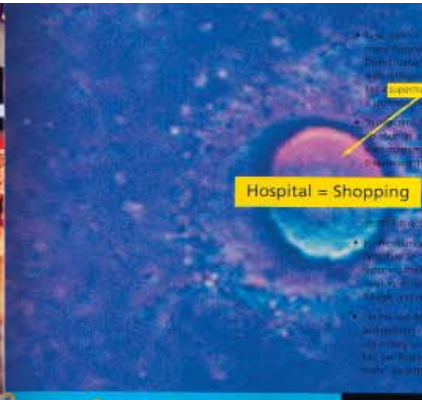
This need to consume has had a detrimental impact on the environment, causing the depletion of the earth's natural resources as a result of society's rate of unnecessary consumption. The consumer market has reacted by promoting the consumption of products that contribute to a cleaner environment. Environmental marketing uses the principle of ecological correctness to create a situation where the activist appears to become the corporation, which in turn makes a profit by using principles of sustainability. Environmental imperatives are thus seen as opportunities rather than constraints, aided by the fact that credibility and effectiveness are only measured by what the company actually achieves and not by what it intends to achieve. It seems apparent that architecture has reacted in a similar fashion, as sustainable building design becomes a sales technique, thereby allowing clients to feel as though they are saving the environment by spending money on an ecologically correct building(Cha 2001:319-306).

s a Mall . . . It's an Airport

. It's Both: The Latest Trend in Terminals







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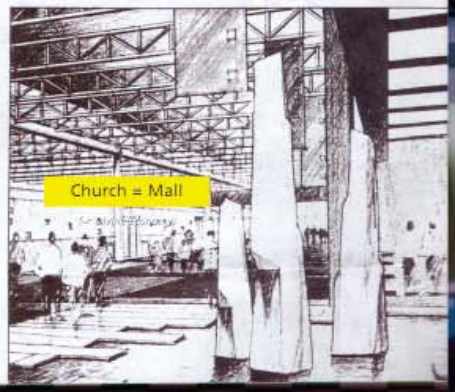
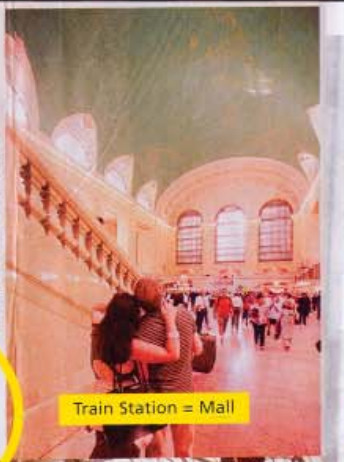


d Central Reborn
Beaux-Arts Mall

Becomes a Gateway to Shops

A landmark from the age of rail is updated for the age of retail.



The User

Similarly the user is lured into a world of guilt-free shopping. The commercial environment allows for inclusiveness - public spaces where people can roam, sit and talk. Partaking in commercial society can now be representative of an activity in which all can participate and which thereby unites all kinds of people (Loeng 2001:131,153). Ethical imperatives concerning ecology and sustainability are prioritized by consumers and thus shape the market in a subtle manner. It is ironic that, in a world driven by consumer choice, opportunities are lacking for the consumer to choose more responsibly. Architecture itself has become an object to be consumed and is thus also driven by consumer choice. Seductive imagery and lavish forms have raised the consumer's expectation of what architecture should be. It is, however, important to remember that, while architecture can be consumed by the user, the resultant space is ultimately where the user lives and experiences his/her everyday life. Concerning this consumerist activity, theory suggests that when a consumer alters a consumed object to suit his or her own purposes, the user is acting in an anti-consumerist way. Some can, through their direct action, consume the object completely. Architecture can therefore design for this consumption of space as does Viennese architect Friedensreich Hundertwasser, or discourage the user from altering his or her environment as in the works of Ludwig Mies van der Rohe (Chaplin 1998:7). This leaves the architect to choose how to approach the challenge of having a consumer as the primary user of space.

Fig. 4.2: Shopping = Airport; Church
Fig. 4.3: Shopping = Train Station
Fig. 4.4: Shopping = Underground
Fig. 4.5: Shopping = Education
Fig. 4.6: Shopping = City
Fig. 4.7: City = Mall
Fig. 4.8: Government = Shopping
Fig. 4.9: Shopping = Hospital; Military
Fig. 4.10: Duanne Hanson – Young Shopper

Le Corbusier did one unbuilt scheme for a boutique for Bat'a shoes, plus the "shopping streets" in the various Unité.

Mies did one unbuilt scheme for a department store in Berlin, as well as a "shopping concourse" in the Dominion Center.

Kahn did a shoe store and a paint store in the 1940s, as well as two unbuilt schemes for shoe stores.

What do you call an establishment designed by a high architect for the purveying of goods? That's right: a boutique.

Fig. 4.11: Architecture's Elite
Fig. 4.12: It's not a mall...

A chronology of shopping projects by high architects (Pritzker Prize winners in bold)

year	project	architect	city	type
1887	Marshall Field's Wholesale	H. H. Richardson	Chicago	dry goods store
1890	Second Leiter Building	William LeBaron Jenney	Chicago	dry goods store
1891	The Fair	William LeBaron Jenney	Chicago	department store
1891	Siegel-Cooper	William LeBaron Jenney	Chicago	department store
1903	Carson Pirie Scott	Louis Sullivan	Chicago	department store
1905	Tiffany & Co.	McKim, Mead & White	New York	multilevel store
1907	Steiner's Plume and Feather	Adolf Loos	Vienna	boutique
1911	Goldman & Salatsch	Adolf Loos	Vienna	multilevel store
1913	Knize's Men's Outfitters	Adolf Loos	Vienna	boutique
1915	Van Allen	Louis Sullivan	Clinton, IA	department store
1927	Recor	Gerrit Rietveld	Utrecht	boutique
1928	Schocken	Erich Mendelsohn	Chemnitz	department store
1928	Schocken	Erich Mendelsohn	Stuttgart	department store
1928	Zaudy	Gerrit Rietveld	Wesel	boutique
1929	G	Gerrit Rietveld	Cleef	boutique
1935	MG Electrical Center	Gropius & Fry	London	showroom
1935	Rockefeller Center (intl. Bldg.)	Reinhard, Harrison, et al.	New York	mixed-use (w/ mall)
1936	Bat'a (unbuilt)	Le Corbusier		boutique
1948	V. C. Morris	Frank Lloyd Wright	San Francisco	multilevel store
1949	Bond Clothing	Morris Lapidus	Chicago	multilevel store
1949	Milliron's	Gruen & Krummeck	Los Angeles	multilevel store
1952	traffic circulation reform (unbuilt)	Louis Kahn	Philadelphia	diagram
1953	Boston Center (unbuilt)	TAC, Belluschi et al.	Boston	urban renewal (w/ mall)
1953	Lijnbaan	Van den Broek & Bakema	Rotterdam	pedestrian mall
1954	Downtown Fort Worth (unbuilt)	Victor Gruen	Fort Worth	urban renewal (w/ malls)
1956	Mondawmin Center	Belluschi, Kiley, et al.	Baltimore	mall
1956	Roosevelt Field	**I. M. Pei**	Garden City	mall
1957	De Bijenkorf	Marcel Breuer	Rotterdam	department store
1958	Olivetti	Carlo Scarpa	Venice	showroom
1960	Tokyo Bay (unbuilt)	**Kenzo Tange**	Tokyo	megastructure
1962	Fun Palace (unbuilt)	Cedric Price	London	megastructure
1962	Sin Centre (unbuilt)	Mike Webb		megastructure
1963	Gavina	Carlo Scarpa	Bologna	showroom
1963	Neiman-Marcus	Edward Larrabee Barnes	Fort Worth	department store
1963	Walking City (unbuilt)	Archigram (Ron Herron)		megastructure
1964	Plug-In City (unbuilt)	Archigram (Peter Cook)		megastructure
1964	Neo-Babylone (unbuilt)	Constant Niewenhuis		megastructure
1965	Neiman-Marcus	**Kevin Roche**	Dallas	department store
1965	Retti Candle	**Hans Hollein**	Vienna	boutique
1967	CM	**Hans Hollein**	Vienna	boutique
1968	Dominion Center	Mies van der Rohe	Toronto	mixed-use (w/ mall)
1970	Design Research	Benjamin Thompson	Cambridge	multilevel store
1970	Centre Pompidou	Piano & Rogers	Paris	megastructure
1970	Macy's Rego Park	SOM	Queens	department store
1970	Derby Town Centre (unbuilt)	**James Stirling**	Derby	mixed-use (w/mall)
1972	The Commons	Cesar Pelli	Columbus, IN	mall
1973	IDS Center	**Philip Johnson**	Minneapolis	mixed-use (w/ mall)
1973	Unicoope Domus	**Alvaro Siza**	Porto	supermarket
1974	Schullin Jewelry	**Hans Hollein**	Vienna	boutique
1975	BEST ("Indeterminate Façade")	SITE	Houston	showroom
1975	Pacific Design Center	Cesar Pelli	Los Angeles	mall
1975	Fox Hills Mall	Cesar Pelli	Los Angeles	showroom mall
1977	BEST	**Robert Venturi**	Oxford Valley	showroom
1977	BEST ("Notch")	SITE	Sacramento	showroom
1979	BASCO	**Robert Venturi**	Bristol Valley	showroom
1980	Santa Monica Place	**Frank Gehry**	Santa Monica	mall
1982	Neiman-Marcus	**Philip Johnson**	San Francisco	department store
1982	Wulfen	Josef Paul Kleihues	Wulfen	mixed-use (w/ mall)
1983	Nino	**Alvaro Siza**	Porto	boutique
1984	Festival	**Tadao Ando**	Okinawa	mall
1985	Magasin d'Usine	Richard Rogers	Nantes	mall
1987	Bercy	Renzo Piano	Paris	mall
1988	Sawgrass Mills	Arquitectonica	Fort Lauderdale	mall
1988	Comme des Garçons	Toshiko Mori	New York	boutique
1988	Louvre	**I. M. Pei**	Paris	mixed-use (w/ mall)
1988	Centro Torri	**Aldo Rossi**	Parma	mall
1988	Edgemar	**Frank Gehry**	Santa Monica	mini-mall
1989	Collection Building	**Tadao Ando**	Tokyo	mixed-use (w/ mall)
1989	Carvalho Araujo	**Alvaro Siza**	Lisbon	boutique
1991	Haas-Haus	**Hans Hollein**	Vienna	mall
1992	Festival Disney	**Frank Gehry**	Marne-la-Valeé	mall
1992	Perugia Civic Center	**Aldo Rossi**	Perugia	mixed-use (w/ hypermarket)
1992	Esselunga	Mario Botta	Florence	mall
1992	BCE Place Galleria	Santiago Calatrava	Toronto	mall
1993	Diagonal Building	**Rafael Moneo**	Barcelona	mixed-use (w/ mall)
1993	UNY Gifu	**Aldo Rossi**	Gifu	hypermarket
1994	Euralille Center	Jean Nouvel	Lille	mall
1994	Lane Crawford Place	Kisho Kurokawa	Singapore	mixed-use (w/mall)
1995	Peek & Cloppenburg	**Gottfried Böhm**	Berlin	department store
1996	Friedrichstadt	Jean Nouvel	Berlin	mixed-use (w/ mall)
1996	Friedrichstadt	O. M. Ungers	Berlin	mixed-use (w/ mall)
1996	Friedrichstadt	Henry Cobb	Berlin	mixed-use (w/ mall)
1999	Paramus Park Mall	Michael van Valkenburgh	Paramus	mall renovation (landscape)
1999	Shopping Mall	Michael van Valkenburgh	Atlanta	mall renovation (landscape)

Fig. 4.13: Shopping Projects by High Architects

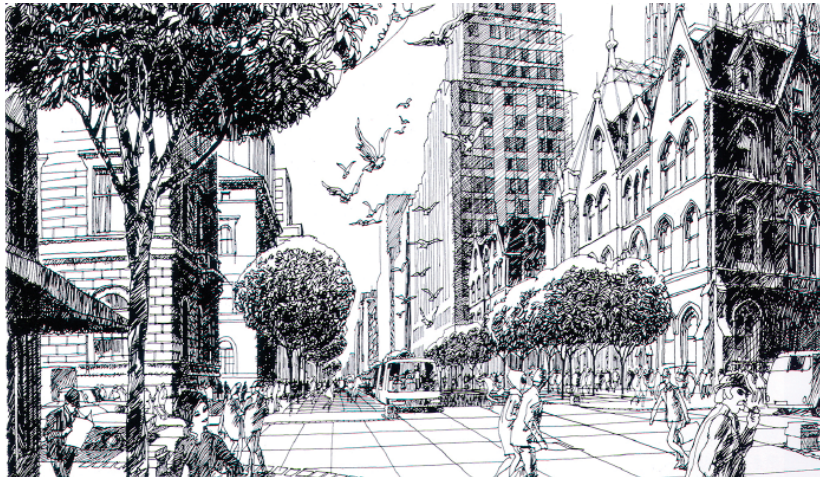
The Architect

In architecture there exists a mutual prejudice between architects who design commercially and those who do not, essentially between those who design for the masses and those who keep themselves distanced from the populist idea of retail architecture. This difference in approach has even resulted in a distinction between commercial 'firms' and the more design-orientated 'practices'.

"An invisible hierarchy of value and merit exists within the profession which categorises and castigates those who build for profit, leaving more 'committed' architects the moral victors. This has created the situation in which what gets the highest accolades in the architectural press is not the vast majority of highly effective projects built but those considered aesthetically or theoretically worthy." *(Chaplin 1998:7)*

The architectural elite refuses to engage in retail architecture and even when they do, they prefer to describe commercial developments as something other than what they really are (Herman 2001:391). The architect's agenda seems to be at odds with commodification. The 'proper' calling would be to work towards some utopian ideal. It's as if architects strive to achieve well-designed surroundings for everyone, trying to free society from structures of desire (Chaplin 1998:7). The idea of "good" architecture is mostly related to projects like housing, schools, and museums; this is termed 'what "serious" architects do' . Stanley Marcus, CEO of Neiman-Marcus, described this dilemma very well when he said *"high architects do not understand shopping, nor do they want to*." (Herman 2001:392,395) It would appear that this refusal results in architects not realizing the potential of commercial architecture. It should be noted that architecture, while being a slow and ponderous process, cannot react quickly to consumerist pressures. Only at the most commercial end of the architectural 'spectrum' does an awareness of these reactions get built into the product: shop interiors and amusement arcades (Chaplin 1998:8). It is perhaps important that the architect makes public approval a higher priority than peer acceptance and starts creating architecture that serves the user and not merely the client.

Fig. 4.14: Jane Jacobs on the Streets of New York



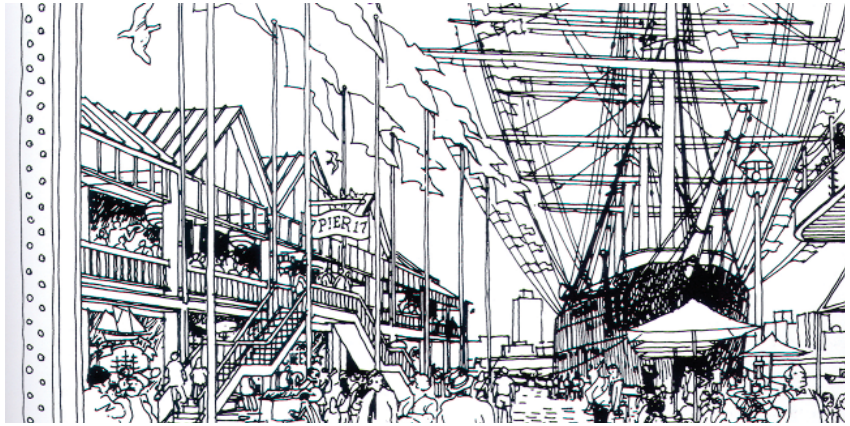


Fig. 4.15: Conceptual Sketch of South Street Seaport, New York City. 1981.
Fig. 4.16: Conceptual Sketch of Madison Avenue Mall, New York City. 1971.

Utilizing Consumerism

At its very core the commercial market strives to be accessible and appealing to the public and has been used as a tool to revive urban centres (Loeng 2001:153). Commercial developers have used the four conditions of Jane Jacobs in her “City Life Model” to create profitable environments. Although it could be surmised that this is not what Ms. Jacobs intended, it is what the commercial market needs to generate vibrant city spaces. The combination of twenty four hour usage, short blocks to increase movement and opportunities, a mix of buildings both in age and condition, and a sufficiently dense concentration of people proves to be a successful recipe to renew urban environments. As Jane Jacobs stated in her 1961 book “The Life and Death of Great American Cities”:

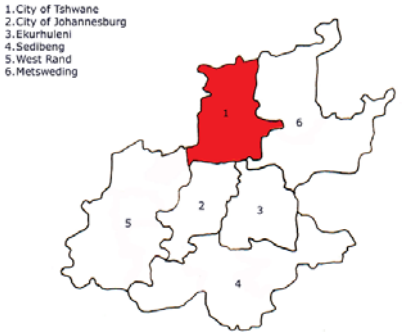
> *“The necessity for these four conditions is the most important point this book has to make. In combination, these conditions create effective economic pools of use... All four in combination are necessary to generate city diversity; the absence of any one of the four frustrates a district’s potential.”*
> *(Jacobs 1961:162).*

There is a need for areas to remain alive, a need for people to enjoy their environment. Leisure theory has even proved that, without spaces that cater for our need to relax and be entertained, we would be more dysfunctional. The motivating force behind progress in the 20th century has been consumption, so why not harness this energy and realize its potential rather than struggle against it? Increasingly, commercial areas are the places where the experiences of modern life occur - places where people meet, make friends, and share their experiences (Chaplin 1998:8). So why don’t we design for these experiences?

5 Physical Context

Analysis of the site has provided a host of opportunities and constraints. It has come to light that a collective partnership between postgraduate students of the University of Pretoria, the Tshwane University of Technology, the Department of Education and the Design Institute could result in the site becoming a centre where creative students find the link between their studies and the commercial world. The site has the potential to become a place where artistic students can learn commercial skills, while providing consumer facilities for the public. This partnership could lead to students living, working and playing on site. Why incorporate artistic students? Artistic individuals are most likely to move into an unknown and underutilised space, as they can see its potential and need spaces that are relatively cheap to rent. Once the area is 'gentrified' the artists move out and start the process somewhere else as in Soho, Montmartre and Covent Garden. This process has proved to be a successful tool in various applications and could easily be implemented in this context. The development has the potential to become a prototype for various applications throughout the inner city, but it would rely on a delicate composition of client, user and activity. Establishing a node at this site has the potential to create a dumb-bell effect between the pedestrian section of Church Street and the development, thereby generating activity along the street.

Fig. 5.1: Location of Gauteng in Africa
Fig. 5.2: Location of Gauteng in South Africa
Fig. 5.3: Location of the Tshwane Metropolitan Region in Gauteng
Fig. 5.4: Location of the Site in the Tshwane Metropolitan Region



5.1 Introduction

The development will focus on the Arcadia Campus of the Tshwane University of Technology, which is located on the eastern border of the inner city of Tshwane.

- Covering an area of approximately 30 585m^2, the site is near the centre of Tshwane.
- Tshwane is the capital city of South Africa with a population just under a million.
- Tshwane lies approximately 50 km north of O.R.Thambo Airport along the R21 highway.
- The site adjoins the eastern edge of the inner city formed by Nelson Mandela Boulevard.
- Its southern boundary is formed by Church Street, a major distribution road, giving good linkage to the heart of the city, Church Square, and the rest of Tshwane.
- The eastern boundary is formed by Nelson Mandela Boulevard, which is a continuation of the R21 highway which links the site to other towns nearby.
- The western boundary formed by Du Toit Street is the main source of pedestrian movement from the south and in particular the Sunnyside area.
- Vermeulen Street forms the boundary to the north and also serves as an important road link.

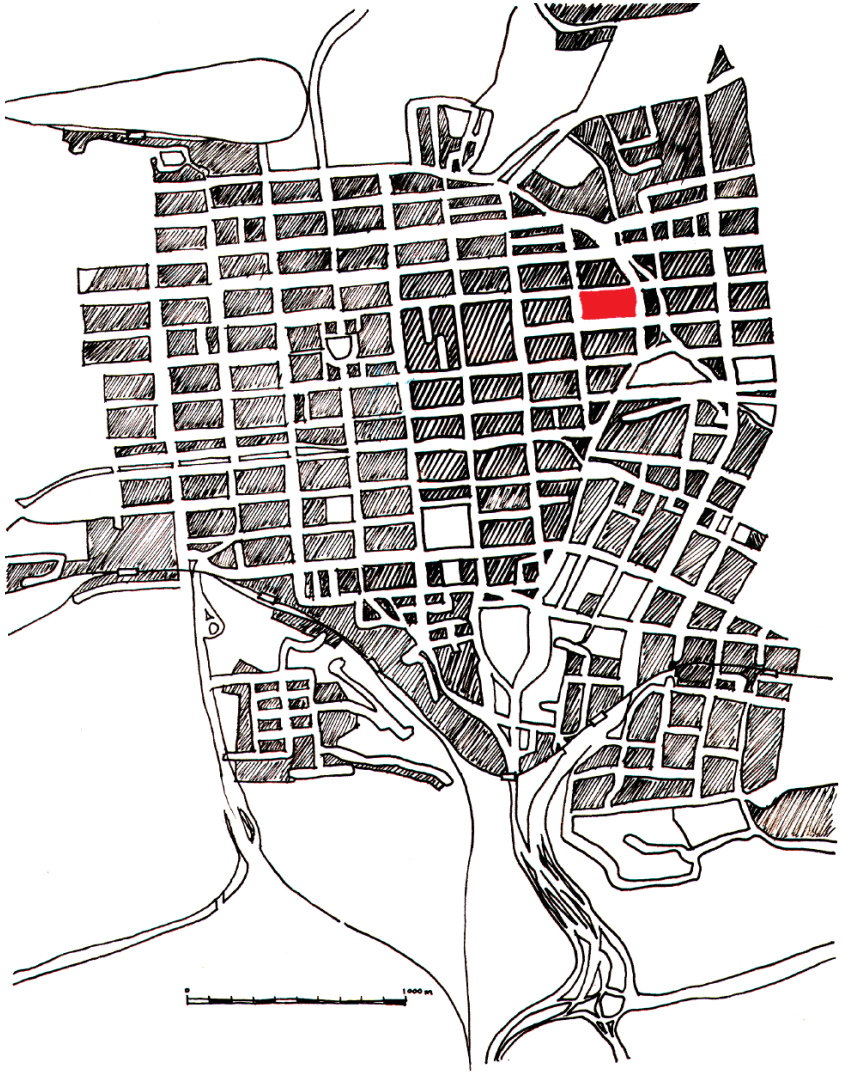


Fig. 5.5: Location of the Site in the City Grid

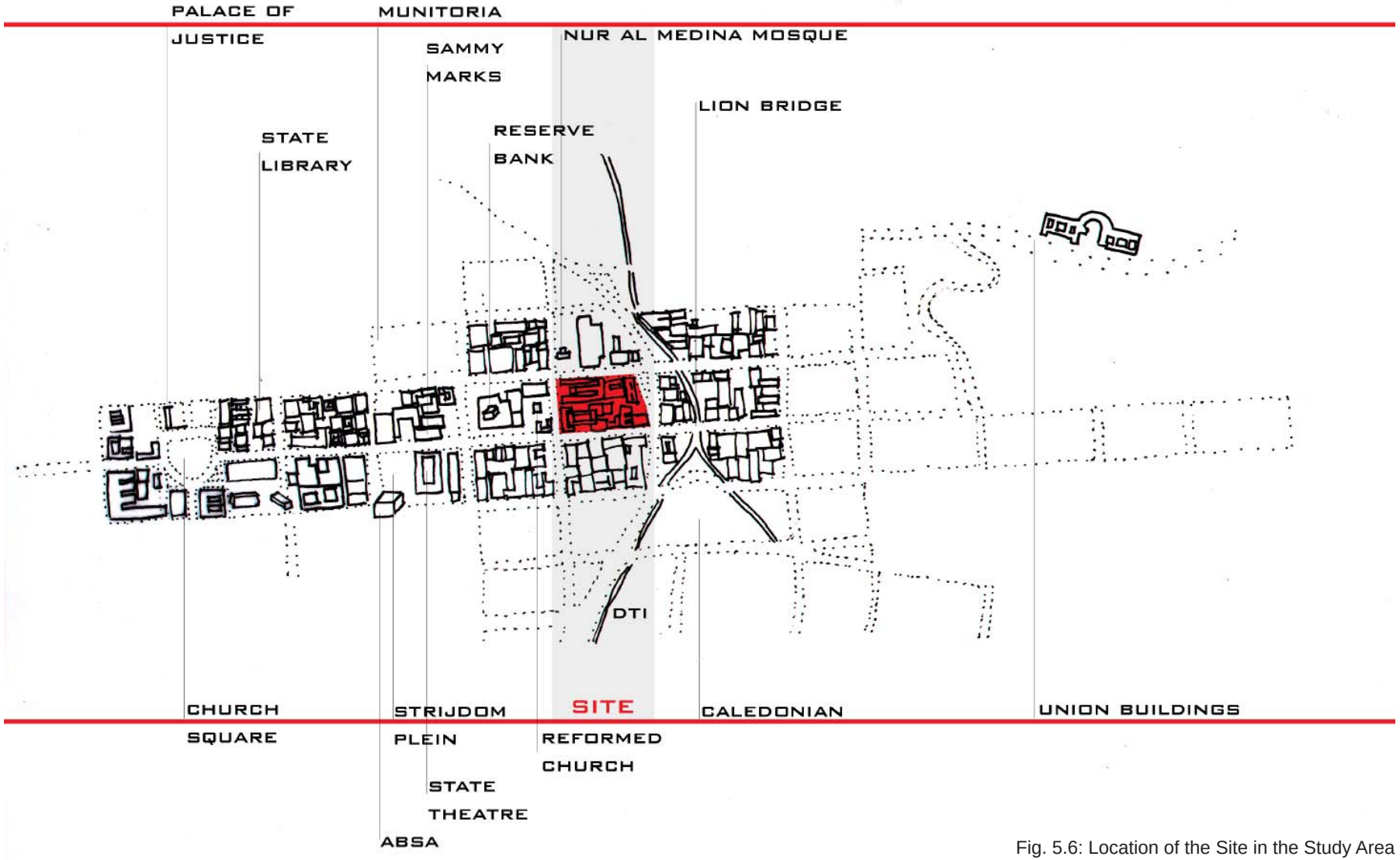


Fig. 5.6: Location of the Site in the Study Area

5.1.1 Local Area

The local area includes the blocks surrounding the campus as well as the regional connections along Church Street and Nelson Mandela Boulevard. The aim of studying this area is to highlight the opportunities and constraints presented by the city that have a direct influence on the site.

5.1.2 Site Area

The site is not a single erf but rather an entire city block bordered by the streets of Vermeulen, Du Toit, Church and Nelson Mandela Boulevard to the east. The campus of the Tshwane North College and the commercial sites on the south-eastern corner of the site will be incorporated, as the development will have an effect on the entire city block.

5.1.3 Historic Context

- For the last century the major part of the site has been used for educational purposes, starting with the Pretoria College in 1929.
- The Technikon, now known as the Tshwane University of Technology, occupied the remainder of the site until late in the 20th century when the restructuring of educational institutions resulted in the Tshwane North College occupying the western half of the site.
- The site contains two prominent buildings:

> The first, designed by Gordon Leith and built in 1929, is on the south-western corner of the site. Being older than 60 years it automatically receives a blanket protection by the South African Heritage Resources Agency as being of historical and architectural importance.

> The other building, designed by Norman Eaton was designed in the 1960's and therefore does not receive this blanket protection but is of architectural importance.

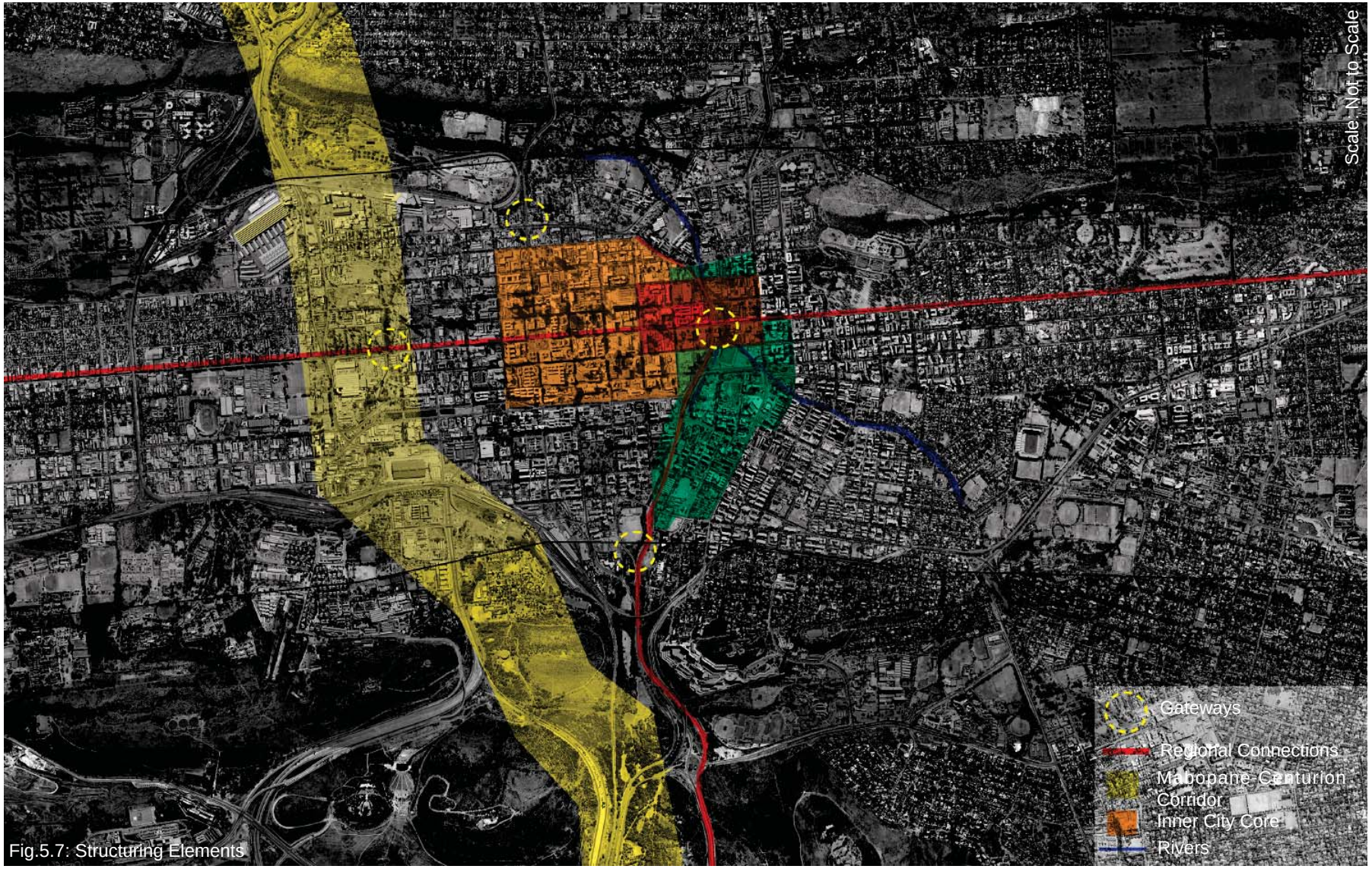


Fig.5.7: Structuring Elements

5.2 City-wide Context

5.2.1 Historical Context

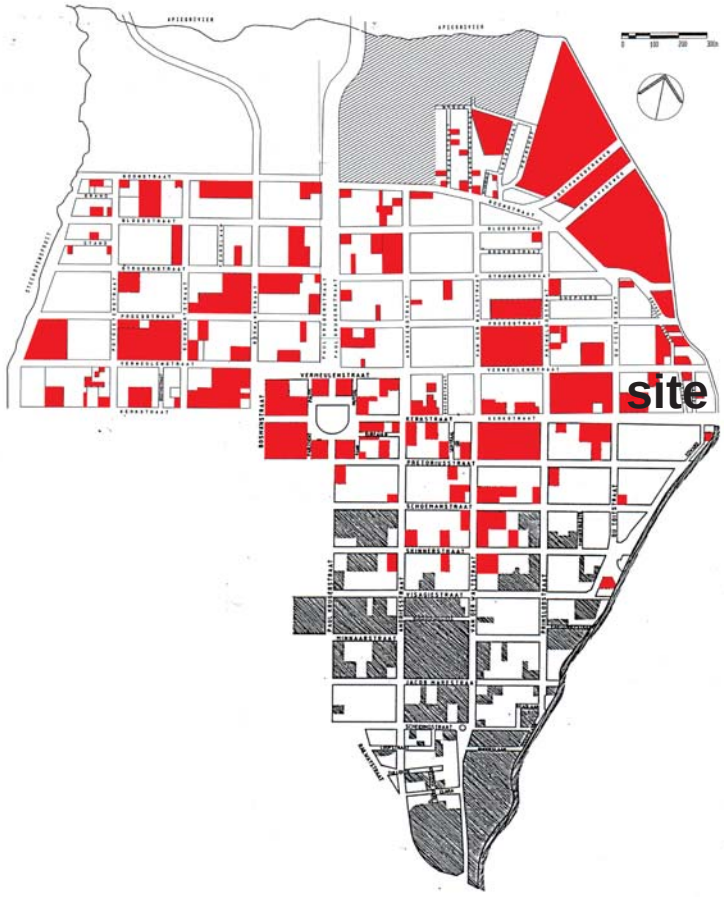


Fig.5.8: Historical Fabric of the Inner City of Tshwane

5.2.2 Location

As illustrated in Fig 5.7:

- The site is situated on the eastern edge of Tshwane's inner city.
- The site borders directly on two regional connections:
  - Church Street links the site to the rest of the city from Atteridgeville to Sinoville.
  - Nelson Mandela Boulevard links the site to Johannesburg along the R21.
- The site is thus an important regional gateway to the inner city.
- The site is positively situated for a commercial development.

Scale: Not to Scale

Fig.5.9: Building Block 2

5.2.3 Urban Concepts (see Fig.5.9)

An interview with mrs Esta Prins (Prins, personal communication, 2006), the town planner for the area at the City of Tshwane, revealed that the frameworks are at a very rudimentary stage of planning and there are no definite plans for the campus. According to mrs Prins, the frameworks are to be used as a guide for potential developers and propose a vision for the city and not specific sites. Where sites have been highlighted in the frameworks, they are merely suggestions and alternate ideas would be readily discussed and considered by the City of Tshwane.

5.2.3.1 Tshwane Inner City Development and Regeneration Strategy

- The Inner City Core is the area located within a 2,5 km radius from Church Square. The Tshwane Inner City Development and Regeneration Strategy has earmarked this area to focus on intensive development of office, retail, commercial and residential uses. The precincts of Arcadia and Sunnyside to the east of the inner city core are envisioned to be developed as high-density residential areas (City of Tshwane 2005:2).
- The site falls under the Cultural Circle set out by the Tshwane Inner City Development and Regeneration Strategy. The Cultural Circle is envisioned as a series of new contemporary cultural landmarks to be linked with a system of mono-rail and pedestrian routes (City of Tshwane 2005:18).

> *"The old Pretoria Technikon Building in the Inner City, which hosts many of the Tshwane University of Technology's arts faculties, should be upgraded and developed to further complement the Capital of Cultural."*
>
> *(City of Tshwane 2005:19)*

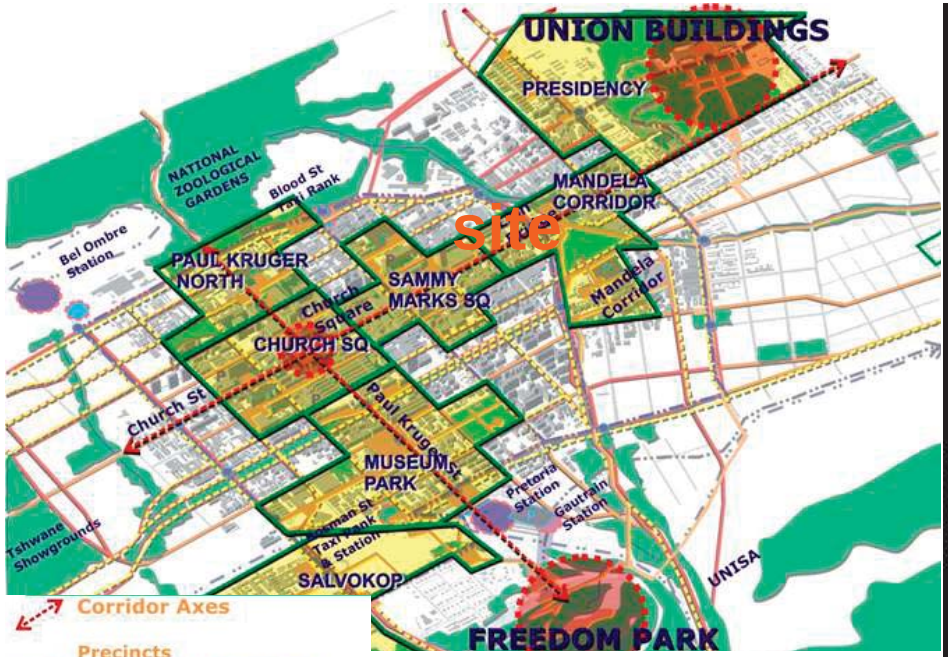


Fig.5.10: Site location within the GAPP framework.
Fig.5.11: Site location within the MDC framework.

- The following programs and actions are proposed for the development of the Cultural Circle:

  - *To identify and map all cultural assets.*
  - *To identify ways of upgrading existing facilities.*
  - *To formulate a strategy to package and market these attractions as part of a tourism strategy.*
  - *To develop a public amphitheatre/arena in the inner city for purposes such as public gatherings, music festivals and open air theatre.*
  - *To identify, market and facilitate opportunities for the development of cultural facilities such as museums, theatres and exhibitions.*
  - *To develop an Art-in-Public-Places program.*
  - *To formulate a plan to facilitate and sponsor public art in prominent areas within the capital precinct.*
  - *To formulate a policy whereby at least 1% of the budget of all capital projects must be allocated towards public art.*
  - *To formulate an action plan for the provision of support to the State Theatre through partnerships, sponsorships and incentives.*
  - *To formulate an action plan to attract major cultural events.*

(City of Tshwane 2005:19)

5.2.3.2 GAPP Framework

As illustrated in Fig 5.9:

- The site falls within the Mandela Corridor Precinct.
- Please refer to Appendix B for guidelines set out for this precinct.

5.2.3.3 The Mandela Development Corridor Framework

As illustrated in Fig 5.10:

- The site falls just outside the Mandela Development Corridor prepared by Urban Solutions.

Fig. 5.12: College Building

5.3 Local Context

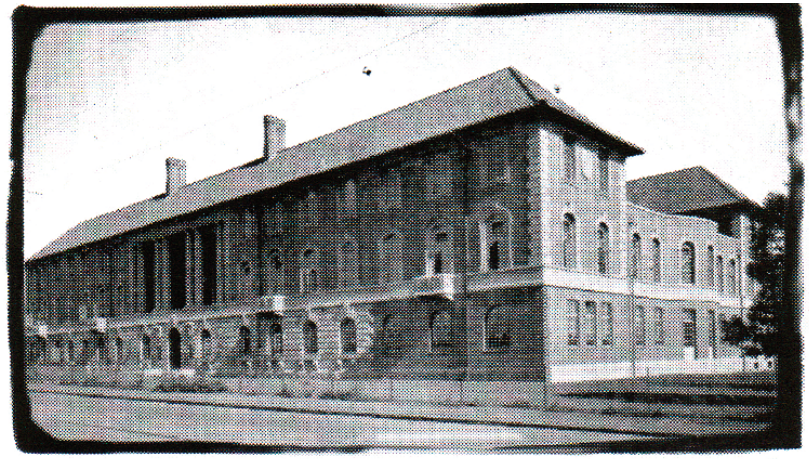
5.3.1 Historical Context

The city block in question has a rich educational history; the following forms an analogy with the historical development of the site.

The Establishment of Technikon Pretoria

Technical education in Pretoria began between 1897 and 1906 with the establishment of trades schools. The Pretoria Polytechnic School was opened in 1906 and was located in the East End School, the site north-west of the project area which now houses the eastern part of the Reserve Bank Building. The Pretoria Trades School and Polytechnic were to follow in 1909 when there was a need for new school premises and a hostel. In 1918 a Boys' Hostel was opened on the corner of Du Toit and Church Streets, where the main college building would later be built (Oberholzer 2002:3-25).

In 1926 the Pretoria Trades School and Polytechnic became known as the Pretoria Technical College, where all vocational education in Pretoria was offered. In 1926 the need for proper facilities became dire. Considering the poor condition of the Boys' Hostel on Church Street, it was considered to relocate it and erect a college building on its site. *Gordon Leith and Partners* were commissioned to design both buildings. Once the new hostel had been completed and the old one demolished, construction on the college building could begin in 1928 (Oberholzer 2002:29-36). **A lack of funds forced the College to forego the construction of the North-East Wing.**



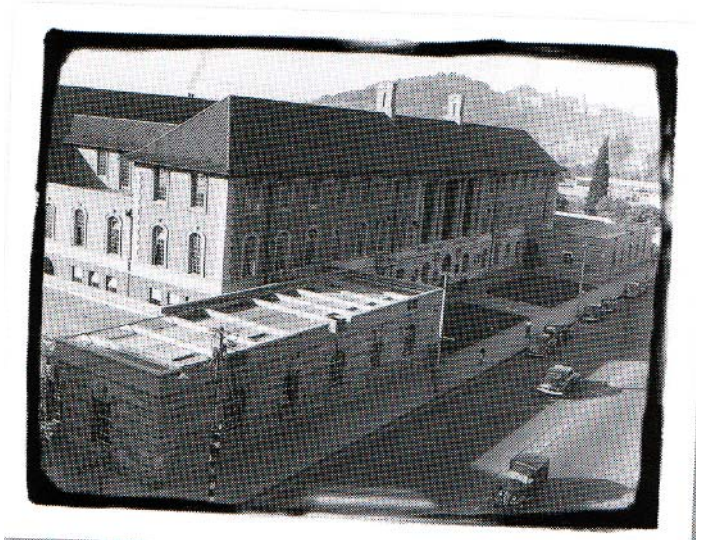


Fig.5.13: The College Building of 1930
Fig.5.14: The Main Building

Fig.5.15: Photograph of the space between the South and Middle

The cornerstone was laid by dr. D.F. Malan, Minister of Education, on the 27th of October 1928, but the building was only ready for occupation towards the end of 1929. By 1930 most of the classes were taught in the new building (Oberholzer 2002:37). This Neo-Classical building still stands with its symmetrical façade facing Church Street. It consists of a three-storey core under a steep clay-tile roof with two short single-storey flanks (bastions) under flat roofs. The ground floor is sandstone and forms a base for the face brick of the upper storeys. The central arched entrance has a recessed double-storey balcony above it, framed by six Doric columns. Sandstone decoration frames the windows and doors (Le Roux 1991:12).[1]

The faculties of physical education, domestic science and art were introduced into the College between 1927 and 1934. The training of apprentices was ceased in 1929 due to low student numbers. In 1937 the Technical Day School of the College became a separate entity known as the Technical High School which later would be known as the Tshwane North College. By 1942, the College facilities were still inadequate, but due to the war there was no financial support for expansion and only a basement was added to serve as a chemistry cellar. Between 1944 and 1945, extensions were made to the college building in the form bastions added to three corners of the building. These bastions were also designed by *Gordon Leith and Partners* and were built at a cost of £41 000. Between 1944 and 1953 the properties behind the college building were purchased (Oberholzer 2002:41-51). In 1945 plans for three buildings of four storeys' each were set aside for these plots. In 1949, severe hail damage had to be repaired on the college building and this further postponed the expansion of the college.

[1] The building is a well-known landmark in Church Street and is also the first building designed by Gordon Leith in Pretoria. It was completed in 1929. Leith, the first scholar of Herbert Baker, was also involved in the creation of the Union Buildings in 1911. His was the winning entry for the design of the main building for Technikon Pretoria, then known as the Pretoria Technical College. It was also the first building that Norman Eaton was involved in while he was still a student (Le Roux 1991:13).

The construction of the South and Middle Blocks began in 1951. Mr. A.V. Nunn and Mr.A.Slingerland were responsible for the contract. These blocks were connected on fourth-storey level. The buildings were officially inaugurated in 1953 even though the North Block was only completed in 1956. 1959 brought the construction of a technology building on the corner of Du Toit and Vermeulen Streets, which also housed the new Collegium Hall inaugurated in 1960 (Oberholzer 2002:82). In 1962 the east and west balconies of the college building were closed and in 1963 extensions were done to the existing library (Oberholzer 2002:83).

Fig.5.16: Photograph of the North and Middle Blocks

Fig.5.17: Photograph of the East Block

The East Block, designed by *Eaton and Louw Architects* and built by *Engel & Ruyter Contractors* was completed in 1967 (Oberholzer 2002: 90). Above this five-storey block a flat roof seems to float. The ground floor is of face brick and the other floors, while also face brick, are screened by a wall of light grey glazed-tile hollow blocks that serve as sun shading (Le Roux 1991:16). It is in good condition and was refurbished from 1995-2000.

The building is an important example of the later work produced by Tobie Louw in the office of Norman Eaton. The building, completed in 1970-1, is unashamedly Modern. It was built of simple materials and with direct construction methods. The emphasis is placed on the hollow block sun shading that serves as a functional skin wrapped around the building (Le Roux 1991:16).

In 1968 the Pretoria Technical College became known as The Pretoria College for advanced Technical Education. On March 23, 1971, it was resolved to go ahead with the construction of a new Science Building adjacent to the East Block. Designed by *Eaton and Louw Architects* and contracted by ***Mr Vic Moore****,* the building was fully taken into use in 1975, though sections were occupied since 1973 (Oberholzer 2002: 106-112).

Fig 5.18: Photograph of the East Block and Science Building

Fig.5.19: Photograph of Carburettor City and Science Building

On the third of April 1979 the name of the College was changed to Pretoria Technikon and during the following year, the main hall in the College Building was converted into a library. In 1988 the name changed once again to Technikon Pretoria, which it would remain until the formation of the Tshwane University of Technology (Oberholzer 2002:126-154).

The construction of the Technikonrand campus was started in 1983 with the appointment of Mr Piet Engelbrecht as project manager to co-ordinate the development of the new campus in Pretoria West. 1983 also brought with it the purchase of the Breytenbach Theatre which still forms part of Tshwane University of Technology's facilities. As from 1986 departments were moved to the new campus and by 1988 there were more buildings on the new campus than on the old. The cost of completion of the new campus by 2000 was already R320 000 000. In 1989 the transfer to the new campus was signed and by 1991 its address officially changed to the Technikonrand Campus, while the Church Street Campus became known as the Vermeulen Street Campus. In 1990 the main college building as well as the South, Middle and North Blocks were sold to Pretoria Technical College, which is now known as the Tshwane North College (Oberholzer 2002:172-175).

In 1993 the acquisition of the old Hillview High School resulted in the relocation of the art faculty and the formation of the new arts campus. In 1994 the Vermeulen Street Campus became known as the Arcadia Campus and by 1995 the Sasol Library, Administration Building, Student Centre, Gymnasium and Restaurant were added to the campus (Oberholzer 2002:176).

Fig.5.20: Photograph of links between East Block and Science Building

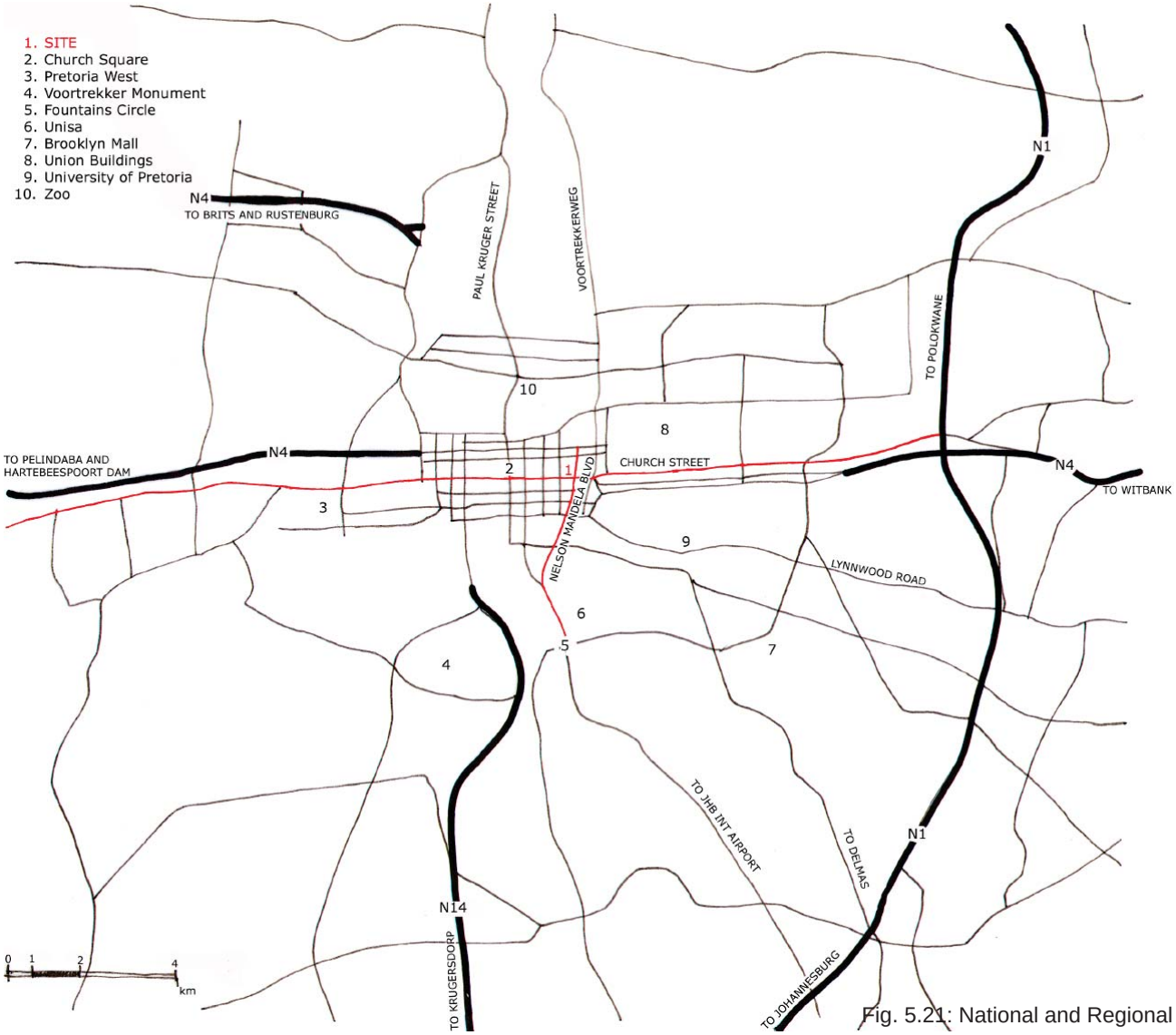


Fig. 5.21: National and Regional Connections to the Site

5.3.2 Location: Local Area

As illustrated in Fig.5.21:

The local area is bordered by the N4/Proes Street to the north, Pretorius Street to the south, Beatrix Street to the east and Prinsloo Street to the west. This is to ensure that an in-depth study of the city blocks surrounding the project area which is bordered by Vermeulen Street to the north, Church Street to the south, Nelson Mandela Boulevard to the east and Du Toit Street to the west.

The local area shows that the project area is set in an urban area rich in heritage, where the close proximity of the Apies River will have a definite impact on any subterranean development. The blocks to the east of the project area are located within the Nelson Mandela Corridor and are thus zoned for upmarket development.

Fig.5.22: East-facing Photograph taken from the ABSA Building

5.3.3 Movement and Access (see fig.5.23)

- Although the site is regionally highly accessible, local access is poor, and with controlled pedestrian and vehicular movement to the city block, public access is limited.
- Vehicular access is limited to Du Toit Street and Nelson Mandela Boulevard, providing parking over 250 cars. Deliveries for the Tshwane University of Technology can make use of entrance on Vermeulen Street.
- There are two pedestrian entrances located on Church Street and two on Vermeulen Street.
- The Tshwane University of Technology provides a bus service which links all three their campuses. The current stop for the Arcadia Campus is located on Church Street which results in students forming a queue along the sidewalk stretching from their Church Street access point to Du Toit Street.
- The possible pedestrianisation of Church Street would warrant the relocation of the bus service to its original position in Du Toit Street or along Vermeulen or Nelson Mandela.

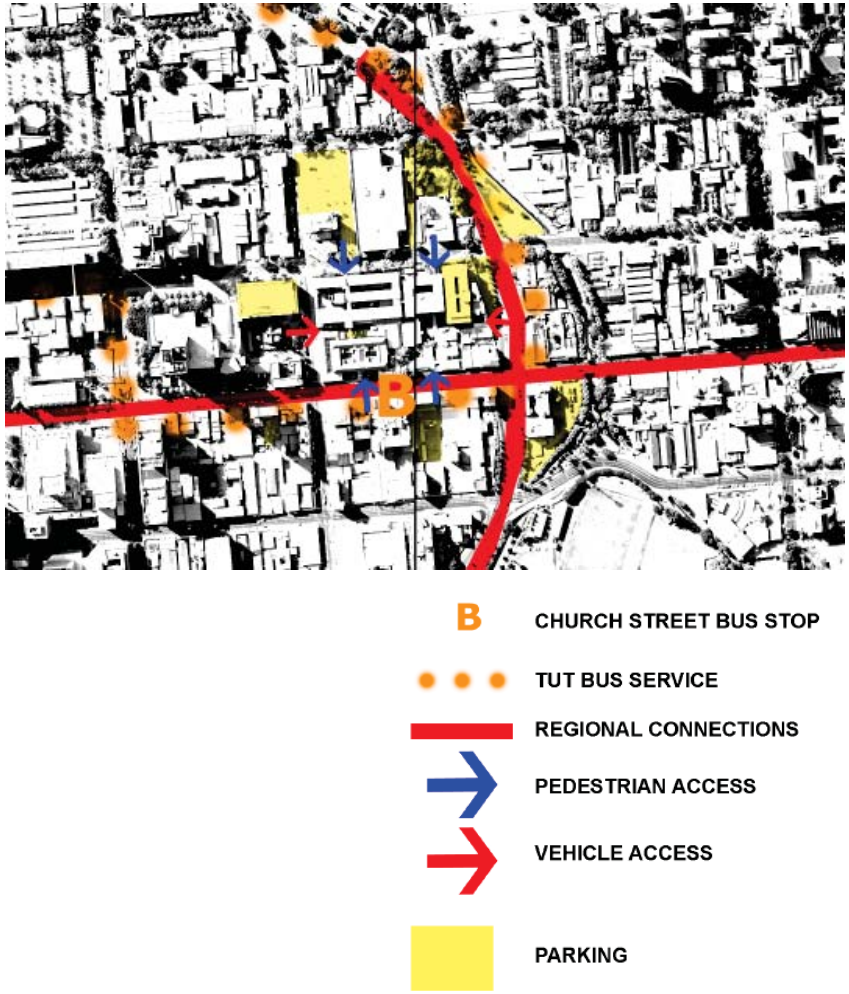


Fig.5.23: Local Area – Movement and Access

5.3.4 Land-use, Activity and Features (see fig.5.24)

- The campus is primarily surrounded by commercial, office and limited residential uses.
- Primary activities in the vicinity of the site include the Nur al Medina Mosque to the north and the Hervormde Kerk and Reserve Bank to the west.
- There are educational facilities in the proximity of the site.
- The site is bordered by a light industrial belt to the east consisting mainly of vehicle workshops which are envisioned to be redeveloped as part of the Nelson Mandela Corridor.
- The State Theatre, Church Square and Union Buildings are within twenty minutes walking distance of the site.

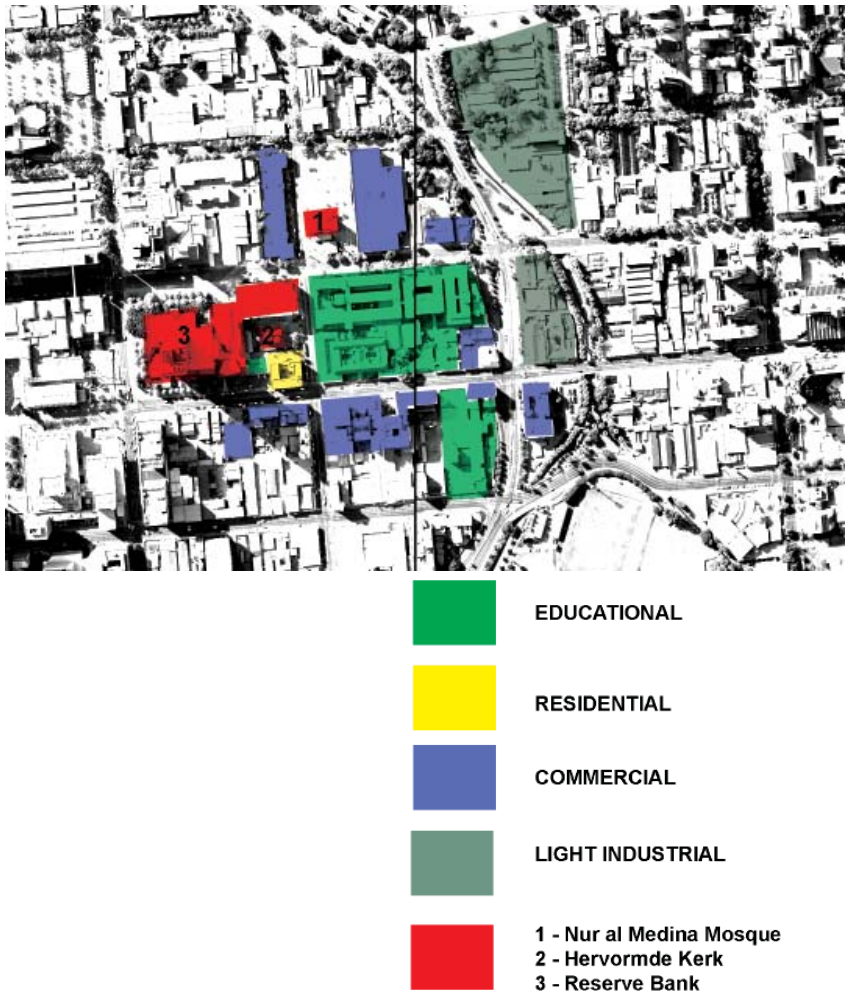


Fig.5.24: Local Area – Land-use, Activity and Features

Fig.5.25: Historical Fabric surrounding the Site

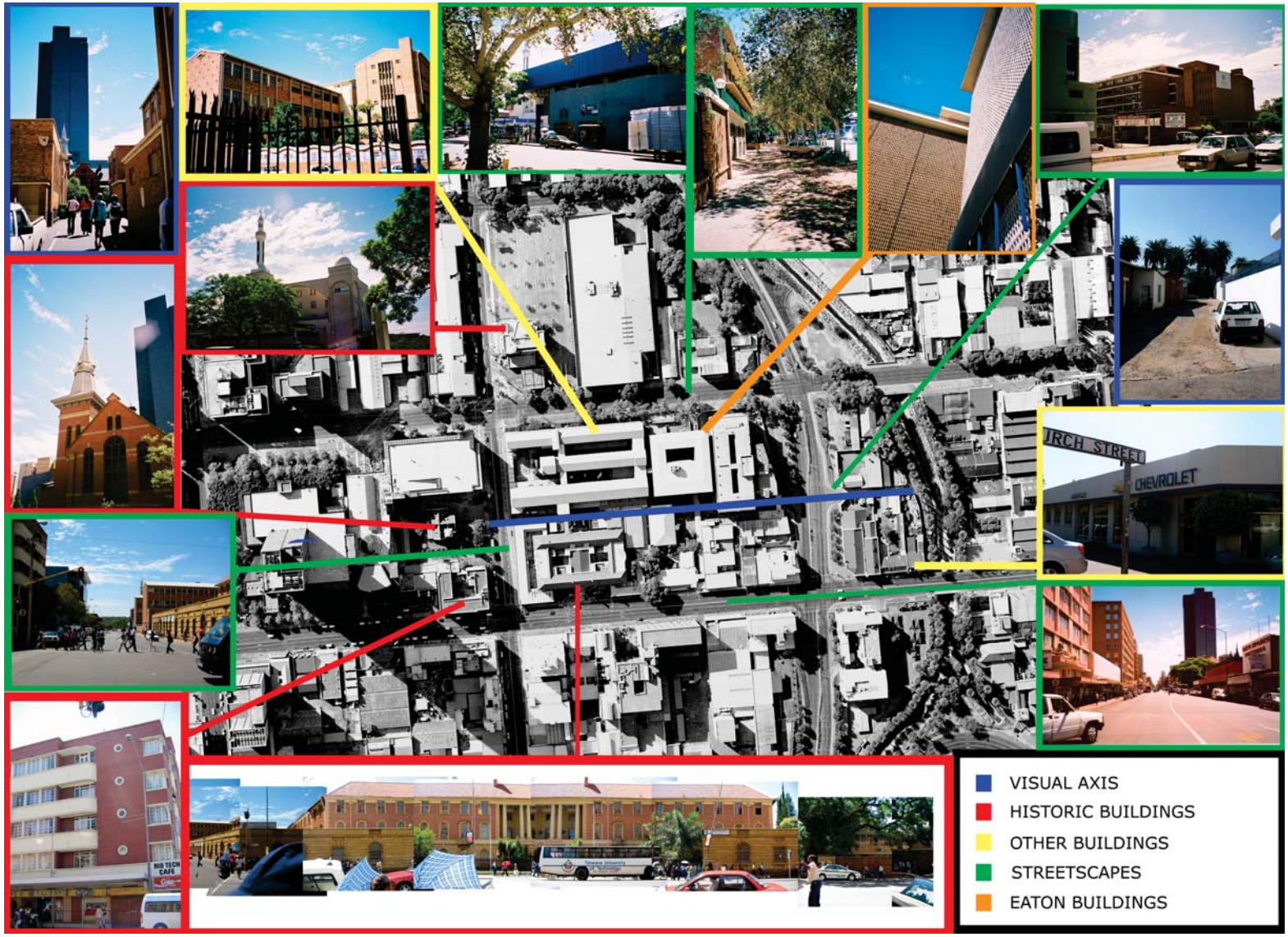
5.4 Site Context

5.4.1 Historical Context

(see fig.5.25)

Recommendations concerning the Heritage Context:

- The educational heritage of the city block is to be conserved and continued in any new development.
- Public access to identified structures should be incorporated into the envisaged framework.
- Guidelines for future development must be implemented in order to protect the integrity of the site and the identified buildings.
- New additions to the site must be clearly identifiable as being added at a later stage and must not attempt to copy existing structures.
- Attempts must be made to create an awareness of buildings of historical or architectural importance.



Scale: Not to Scale

Fig.5.26: Site Area

5.4.2 Location: Site Area

Fig 5.25:

- The site is situated in close proximity to the eastern gateway of Tshwane's inner city. It also falls within the Trans Africa Development Corridor as well as the Tshwane Economic Node.
- The site is linked exceptionally well on a regional as well as national scale by both road and rail.
- The regional connections of Nelson Mandela Boulevard and Church Street border directly on the site.
- The continuation of Nelson Mandela to the south leads to the R21 which links the site internationally via the O.R.Thambo Airport.
- Church Street connects the site to the rest of the city along an east-west axis.
- The site is easily accessible for residents of Tshwane as well as the greater population of Gauteng and South Africa.
- The site thus has the potential to play a key role in the regeneration of the city centre.

Fig.5.27: Site Area – Land Use and Activities

5.4.3 Environmental Context

- Please refer to Appendix C for analysis of the environmental context.

5.4.4 Land Use and Activities (see fig.5.27)

- As mentioned, the city block primarily houses educational facilities.
- The land uses include all the facilities needed for the running of both the Tshwane North College as well as some of the faculties of the Tshwane University of Technology.
- The Tshwane North College utilizes its limited facilities so as to create vibrant spaces within the campus.
- The Tshwane University Campus makes limited use of its open spaces while students cram into the library to socialize.
- Both campuses are functioning at maximum capacity and have little or no room for expansion on their existing campuses.

5.4.5 Land Available for Development

- The campus is at its maximum floor space ratio (Engelbrecht, personal communication, 2006). It is therefore evident that some facilities would have to make way for a new development

5.4.6 Built Environment (see fig.5.28)

The built environment contains buildings of historical or architectural importance and is completely surrounded by walls or fencing. The buildings are ineffectual where their intended functions are concerned, resulting in spaces like the library being used as a social space instead of an academic space.

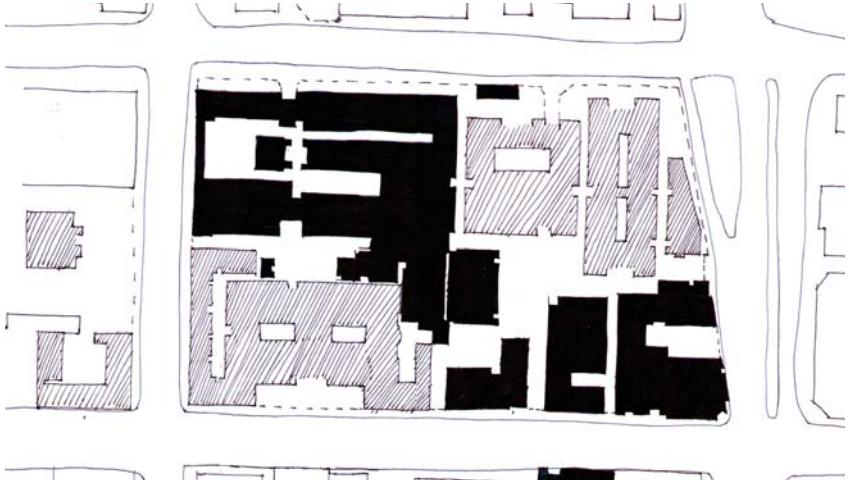
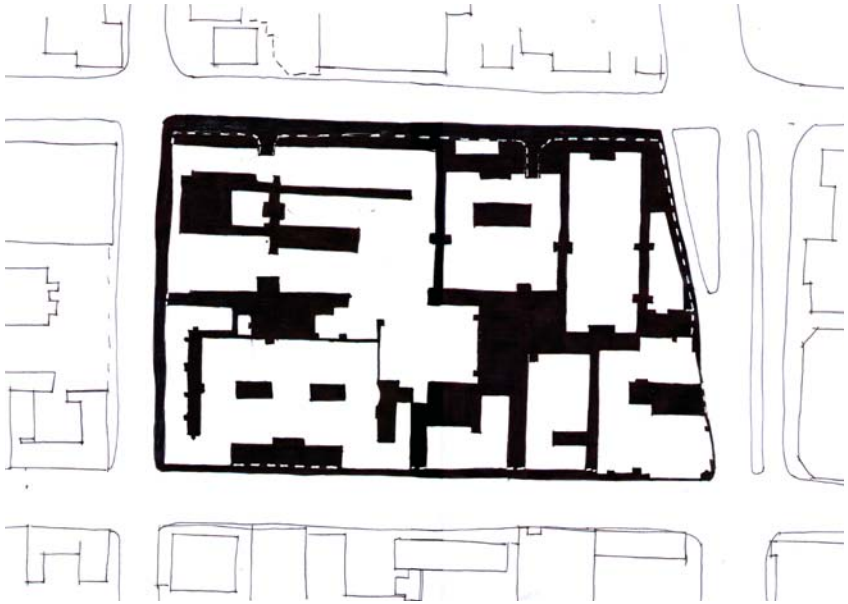


Fig.5.28: Site Area – Built Environment



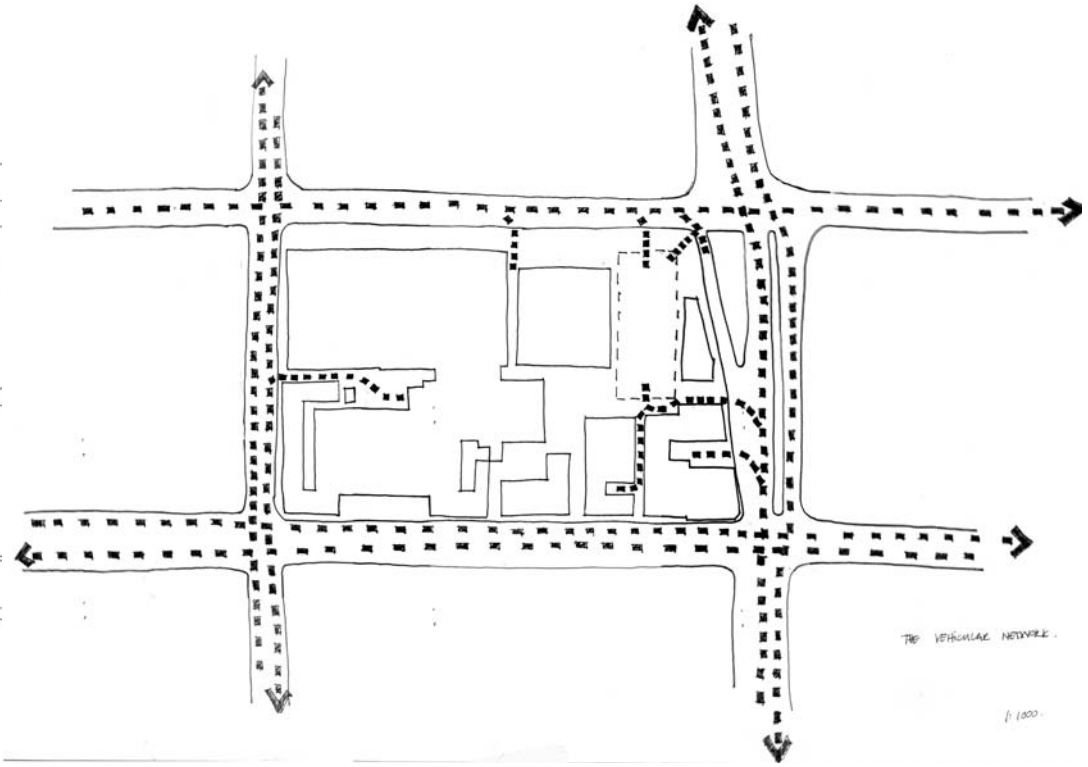


Fig.5.29: SIte Area – Pedestrian Movement
Fig.5.30: Site Area – Vehicular Movement

5.4.7 Movement and Access

The Pedestrian Network (see fig.5.29)

The campus pedestrian network consists of passages, courtyards and one landscaped garden. Pedestrian access is controlled by means of an identification system and the use of turnstiles at all entrances, where congestion is prevalent. Once inside the campus pedestrians move quickly over the concrete surfaces and are reluctant to linger in the cold, barren spaces between buildings. The result is that the public spaces are underutilized.

Vehicular Network (see fig.5.30)

The surrounding vehicular network consists of a boulevard framing the site to the east, an eastbound street to the north and dual direction streets to the west and south of the site. Controlled vehicle access is allowed from the east, north and west. The Tshwane University of Technology's bus stop is located to the south of the site which results in a long queue forming along Church Street, obstructing pedestrian movement into the city from the east.

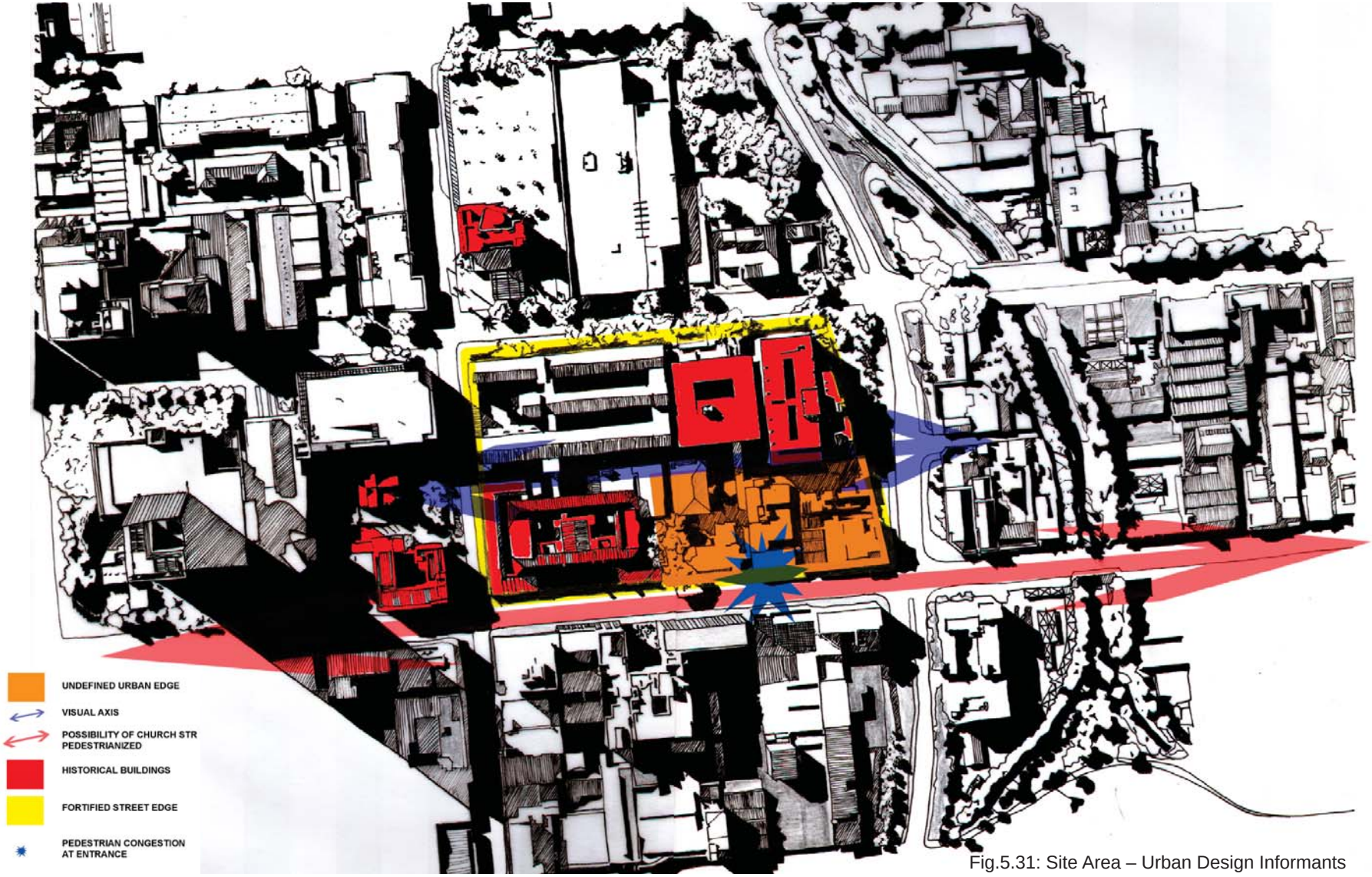


Fig.5.31: Site Area – Urban Design Informants

5.4.8 Urban Design Informants (see fig.5.31)

- The possible pedestrianisation of Church Street needs to be taken into consideration.
- The visual axes of the site need to be acknowledged.
- Serving and served areas need to be clearly defined within the new development.
- The south-east corner of the site is to be dealt with as to create a defined urban edge for the inner city to create a gateway experience.
- The historical buildings should be respected to provide attractions to the site and enhance users' experience of the site.
- The permeability of the site is to be dealt with as to still allow for security but easy access to the site.
- The congestion along Church Street is to be dealt with.
- Issues of public space should be dealt with so that the campus can become a part of the city instead of being a fortified island within the city fabric.
- Important buildings are to be dealt with so as to create a hierarchy of spaces that define public and private areas.

5.5 Context Analysis: Opportunities and Constraints

In terms of the opportunities and constraints concerning the development of a spatial development framework, several key issues were identified and then summarized into a brief statement.

5.5.1 Integration of the campus into the larger city fabric

The campus, which exists as a fortified island within the city fabric, does not lend itself to free interaction between the students and the public.

Integration Constraints

- Controlled access.
- Unattractive existing urban fabric.

Integration Opportunities

- Due to its function, the site has the potential to become a node of activity, playing an integral role in the regeneration of the inner city.
- The possibility exists of using the site to define the urban edge of the inner city and help create a sense of arrival when moving into the inner city.

5.5.2 Consideration of the Heritage Resources and their impact on development options

Heritage Constraints

- Existing resources are not well known and have to be promoted.

Heritage Opportunities

- Heritage conservation supports development through adding value, but special solutions are needed to make people aware of the value of historic buildings.
- Heritage conservation has a great impact on the sustainability of a development.

5.5.3 The creation of an interconnected, fluid figure of open space

The formation of a public and not merely private space is essential to the scale and character of the campus. The people who will potentially work, live and study on the campus need a clear definition of campus places to enrich their daily lives and their sense of identity. Since the campus is constructed of the typical stopgap approach to campus design (if it could be called such) there is no clear definition of space and functions seem to blend into one another. The smallest addition to the campus will affect the whole.

Open Space Constraints

- The configuration of the existing built fabric on the campus is very confusing.
- There is no defined open space.

Open Space Opportunities

- The demolition of buildings with no apparent historical or architectural importance could allow for the formation of open space which celebrates the buildings that do have historical or architectural importance.
- Removing the clutter of additions to exiting buildings on the campus could result in a clear, uncluttered definition of spaces and their intended functions.

5.5.4 The creation of accommodation on the campus

Accommodation Constraints

- The relocation of faculties will have to take place before accommodation can be provided on the campus.
- The refurbishment of classrooms into loft apartments will have to be considered carefully, as configuration of the existing built fabric on the campus is very confusing.
- There is no defined open space.

Accommodation Opportunities

- The need for student accommodation on the campus is clear as it would result in the campus being utilized twenty four hours a day.
- The North, South and Middle Blocks located on the north-west corner of the city block provides the perfect opportunity for the fashionable idea of loft living promoted for inner cities worldwide.

5.5.5 Creating a hierarchy of public and private domains

Domain Constraints

- At present, the confusing nature of the campus means that no clear definition of public and private space exists.

Domain Opportunities

- With the creation of clear public and private domains the user will be able to feel a sense of belonging by being prevented from accidentally stumbling into private spaces.

5.5.6 The creation of a user-friendly pedestrian network

Pedestrian Network Constraints

- The campus does not allow for the free movement of pedestrians through the site.
- Access is controlled and results in great congestion at entrances.
- Serving and served areas are undefined.

Pedestrian Network Opportunities

- The vast number of pedestrians passing the site provides the perfect opportunity to harvest from an existing energy source.
- Opening up the site to the passing pedestrians will allow the congestion to decrease and allow for the easy movement of pedestrians past entrances to the campus.
- A defined pedestrian network will prevent pedestrians from moving into service areas.

5.5.7 The creation of a sense of community and heighten ed opportunities for passive surveillance

Community Constraints

- The design of the campus does not allow for any form of interaction between its users.
- Once inside a building, users are unaware of what is happening on the outside and on the rest of the campus.
- Many passages hidden from passers-by pose a danger to users, especially at night.

Community Opportunities

- The creation of opportunities for students and public to interact would result in a greater sense of community to be cultivated on the campus.
- The opening up of isolated passages and limiting their use will result in opportunities for passive surveillance to increase.

Fig.5.32: Figure ground of existing

5.6 Conclusion

5.6.1 Vision at city scale

On an urban scale the proposed vision for the development has six key elements:

- The creation of a pedestrian open space system to allow for pedestrian movement from Sunnyside to filter through city blocks instead of being limited to streets and sidewalks.
- The possible pedestrianisation of Church Street would increase pedestrian movement along the southern border of the development.
- The definition of the urban edge would result in a gateway experience being created as people enter the inner city.
- The celebration of heritage on and around the site would make the public more aware of the value of historic buildings on the site.
- The creation of a public square as the heart of the development will invite people onto the site.
- The development of a node of activity will have the potential to generate the development of other sites in the inner city of Tshwane.

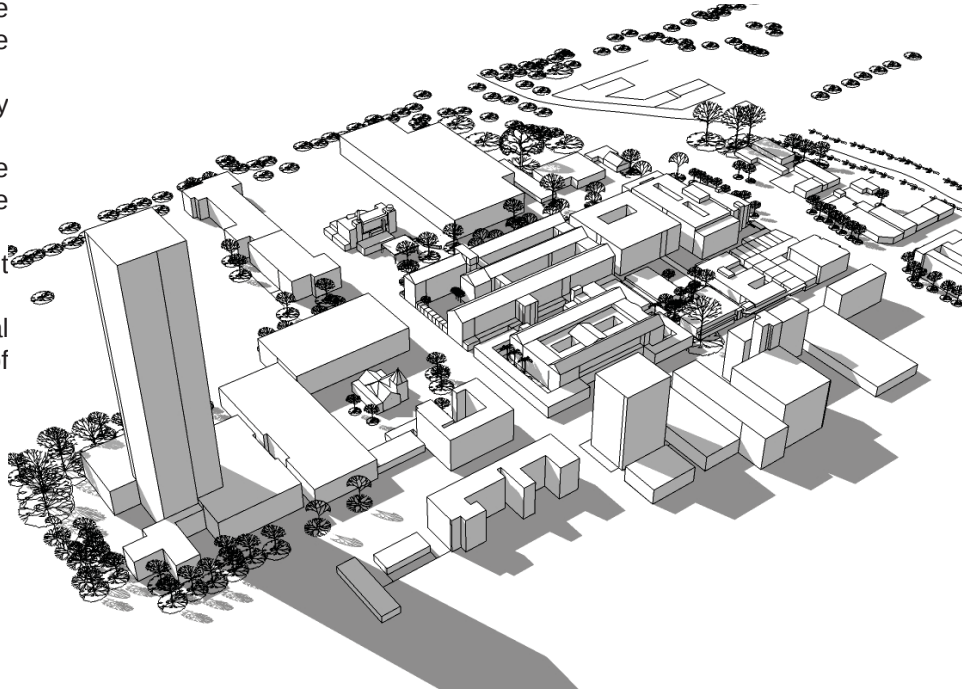


Fig.5.33: Existing

Fig.5.34: Figure ground of future vision

Scale 1 : 5000

5.6.2 Vision at campus scale

- Allow the general public to move freely onto the site, thereby making the campus a place where students and public can interact spontaneously.
- Develop a public square and a defined pedestrian network.
- Enhance a sense of appreciation for the heritage resources located on and around the campus.
- Define the urban edge of the site and in that way define the site as the edge of the existing inner city, enhancing a sense of arrival.
- Provide accommodation facilities within the new development.
- Define public and private spaces.
- Use existing and new vegetation as a tool to define spaces and buildings.

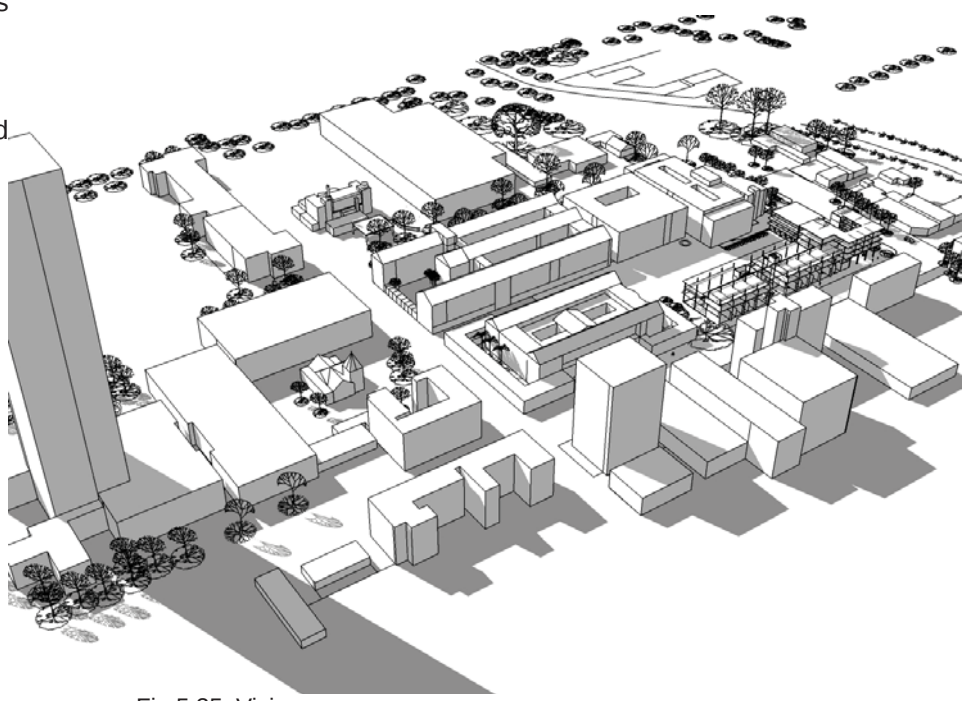


Fig.5.35: Vision

6 Legal Context

	FIGUUR	ERF No.	L.G. No.	TRANSPO
1.	AapFA	~~Gekons.~~ Erf ~~15~~ 1124	A 1936/50	25687/19
2.	abnoa	Erf No. 18	A951/20 ~~272/89~~	3271/18
3.	bcklb	~~Ged.B~~ Rest Erf 19	~~A 293/21~~	1725/18
4.	cKjkc	Ged. ~~B~~ 2 Erf 19	A 293/21	2090/19
5.	dBred	Ged. ~~B~~ 2 Erf 20	A 998/96	3093/18
6.	ersfe	Ged. ~~C~~ 3 Erf 20	1248/96	4145/18
7.	fsCgf	Ged. 4 Erf 20	2045/96 ~~3578/96~~	6052/1896
8.	gCDhg	Ged. ~~E~~ 5 Erf 20	A 3716/26	11387/1926
9.	hDEmh	Restant Erf 20	769/94	1914/1888
10.	EFGHqljm	~~Gekons. Erf 25~~ 1124	A 1347/39	11617/1939
11.	onqpo	Erf no. 24	~~272/89~~	3272/1890

EDUCATIONAL

GENERAL BUSINESS

EXISTING STREET

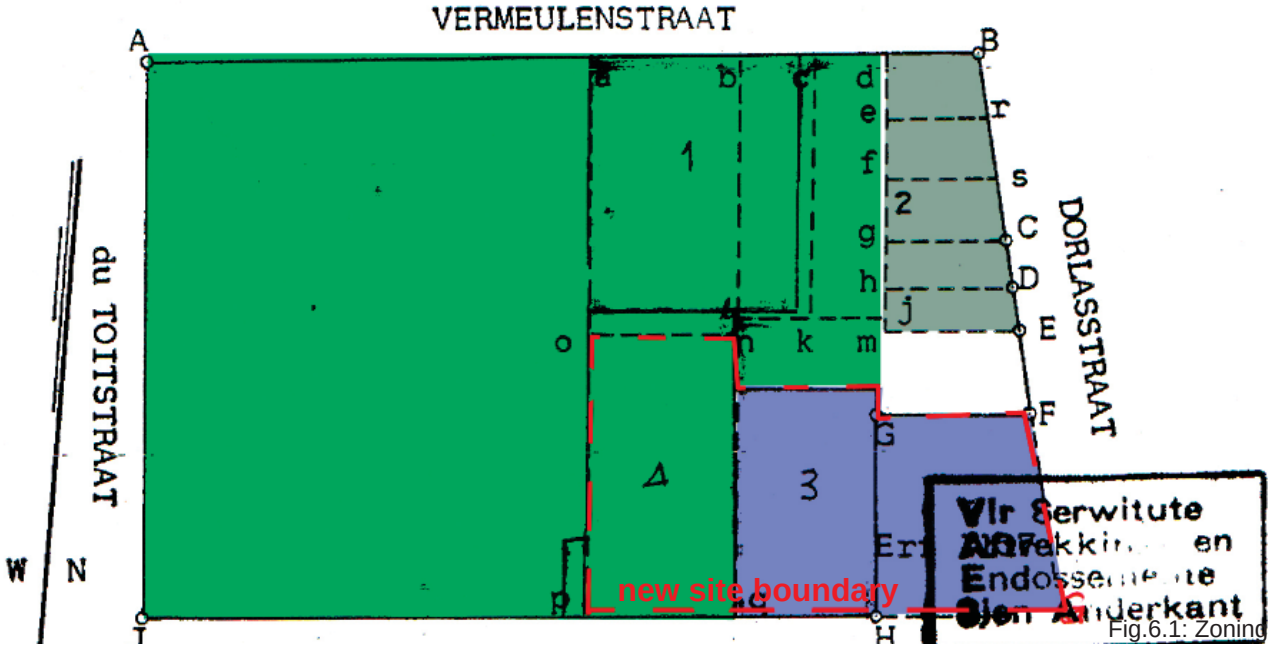


Fig.6.1: Zoning Diagram

Any new construction work must comply with the **SABS 0400** Building Regulations and all aspects thereof.

Refer to fig.6.1:

The city block comprises five erven zoned as an existing street, general business and educational. The Title Deeds (see Appendix D) give specific requirements for the properties and any future or planned development will call for the consolidation and possible rezoning of the properties.

The properties owned by Jeka Foams and Carburettor City will have to be purchased for the development of the city block.

An interview with mrs Esta Prins (Prins, personal communication, 2006), the town planner for the area at the City of Tshwane, revealed that the rezoning of the site will be readily considered by the City of Tshwane as they would like to encourage development similar to the new building for the Department of Trade and Industry, located on the corner of Schoeman Street and Nelson Mandela Boulevard, within the Mandela Corridor Precinct. Mrs Prins also revealed that if no parking was to be taken away, no additional parking would be necessary as the site falls within the area zoned for limited parking in the inner city of Tshwane.

The maximum floor space ratio has been reached for the city block and any new development would require the demolition of existing structures (see Appendix E). The South African Heritage Resources Agency is to be consulted if any structures of historical or architectural importance are to be changed, added to or demolished. Buildings older than 60 years fall under the protection of the National Heritage Resources Act of 1999 and should be treated in accordance thereof.

Time must be allowed for the approval of the consolidation of properties and demolition of existing buildings as this process will take several months.

7 Precedents

7.1	Campus	:	44 Stanley Avenue	— 7::1 —
7.2	Function	:	The Innovation Hub	
7.3	Structure	:	Nedbank Building	
7.4	Function	:	Inhyambane Market	
7.5	Structure	:	Law Faculty	
7.6	Structure	:	Daventry Road	

Fig.7.1 Main Courtyard @ 44 Stanley Avenue

7.1 Campus: 44 Stanley Avenue

> *"…the collection of buildings and open spaces that constitute 44 Stanley Avenue in Milpark, Johannesburg, have been transformed into a successful retail and commercial node. Its honesty, simplicity and human scale are among the qualities that make it so attractive."*
>
> *(Darroll, 2004:16)*

Project:

With minimum intervention, Brian Green, the developer of 44 Stanley Avenue, transformed the old AA workshops on the 8 000 m^2 site into a successful retail and commercial node.

> *"There's no fancy stuff… no glamour… nothing neo" in this cluster of old buildings. "There's nothing here that's not needed".*

He describes 44 Stanley Avenue as "accommodating, inclusive, comfortable".

"Our focus is on urban renewal and the task is to provide an unparalleled lifestyle centre…"

www.44stanley.co.za

"The sunlight in the courtyard and the sight of people seated on the raised veranda of the restaurant overlooking it, draw one in from the street, through the covered walkway."

(Darroll, 2004:17)

Concept:

The tenant mix was crucial and focused on entrepreneurial start-ups. All tenants were carefully selected for their creative spirit and passion for a concept aimed at reviving the area with energy, enthusiasm and new ideas.

Execution:

The project was an interactive process, where tenants could make decisions concerning signage, sun shading and detailing of individual shops. The loose grain and informality of the buildings and open spaces was to be retained, resulting in two courtyards being linked by a covered walkway, stairways linking office and retail, and an informal arrangement of eclectic shops.

Urban Renewal:

44 Stanley Avenue is located near the CBD of Johannesburg and thus could be considered a stepping stone for people from the northern suburbs to return to the inner city of Johannesburg. The development has sparked the refurbishment and conversion of various other buildings, creating spaces for film studios, Atlas Bakery, news rooms, the Media Mill and even residential facilities, i.e. the Refinery. Brian Green hopes to create places where people want to be and has already identified a site in the city centre for his next project.

Lessons Learned:

- The successful execution of one project to generate others and renew a derelict urban area.
- Respecting the existing fabric can result in an interesting combination of spaces.
- Involving the tenants gives rise to individual expressions and details making the place more believable than a standardized shopping mall.
- The presence of people attracts other people.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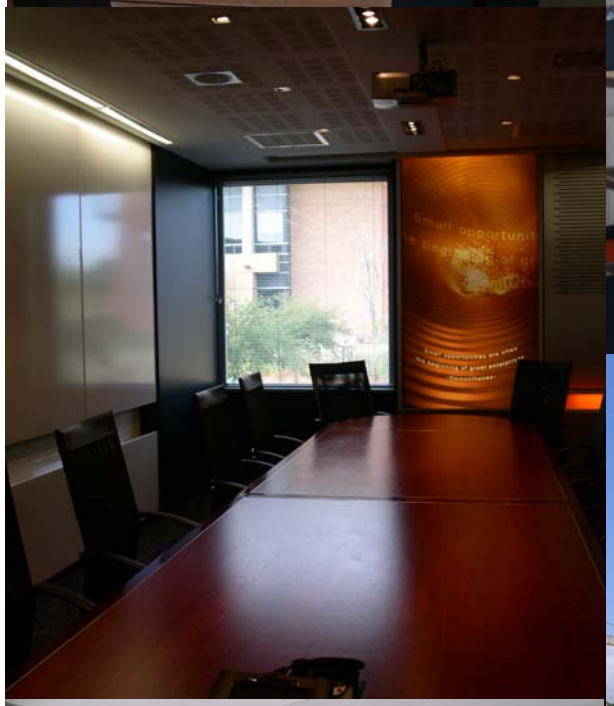

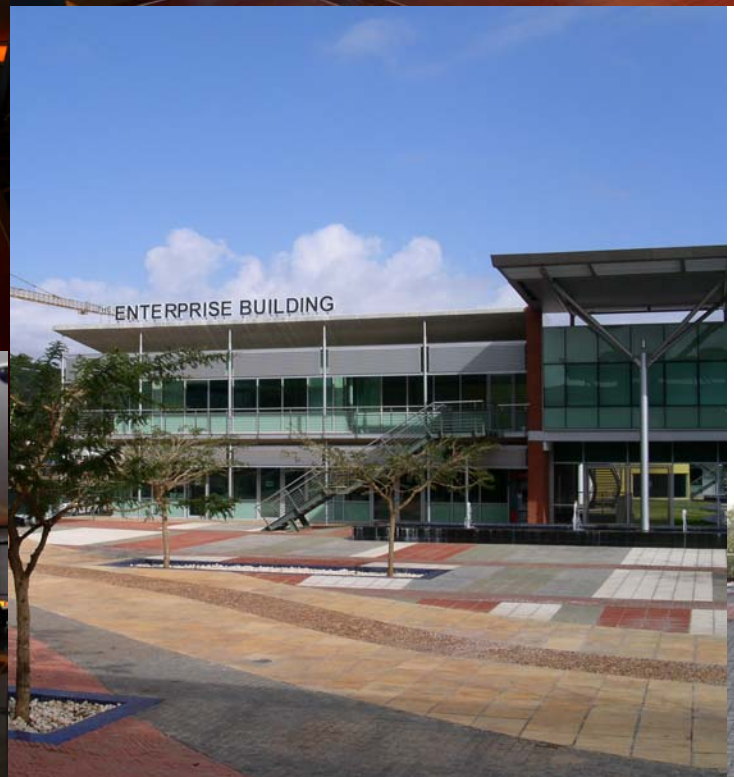
ENTERPRISE BUILDING


EUROPA HUB
maxum


Tribute to Innovation

7.2 Function: The Innovation Hub

Bring like-minded people together.

Incubation concept:

Graduates compile business plans and apply to become part of a pre-incubation process. Graduates are selected according to the innovative level of their ideas. Pre-incubation provides the graduates with rent-free premises for six months and with mentors in their particular field of study. The Innovation Hub recruits experts in the required fields to work as mentors. After the pre-incubation period, and if the industry makes use of an idea, the student graduates to the incubation period where he/she may rent an office for a period of two years to set up a business (Maboya, personal communication, 2006).

Blue IQ:

The Innovation Hub is one of the eleven provincial Blue IQ developments and serves as the first Science and Technology Park in South Africa. It is envisioned to be completed before 2010, with all land parcels sold off and developed. The Innovation Hub owns the Innovation Centre Building as well as the Enterprise Building. These buildings contain offices and conference facilities that can be rented by graduates or the public. A system of 'hot' offices exists where offices can be rented on a weekly basis.

State-of-the-art facilities are provided, with the latest in technical support. Europa@hub is the restaurant provided on the campus. It is thought that by bringing like-minded people together, innovative ideas can br generated from within (Maboya, personal communication, 2006).

Lessons Learned:

The Innovation Hub, although unique in its function, is no more than a state-of-the-art facility consisting of offices and conference facilities. It seems that the concept of a business incubator has little or no effect on the design of the building. The Knowledge Centre is linked to various universities and, although only an office, can source books within 3-4 days from any university library. This type of facility could be a useful tool in linking the three campuses of the Tshwane University of Technology.

Fig.7.14 Fingerprint identification system
Fig.7.15 Conference facilities
Fig.7.16 Tribute to innovation
Fig.7.17 Knowledge Centre
Fig.7.18 Enterprise Building
Fig.7.19 Display Panels
Fig.7.20 Europa@hub

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7.3 Structure: Nedbank Building 252 Church Street

- This seven-storey building designed by Norman Eaton is located within walking distance from the site.
- It consists of two six storey office blocks on either side of a courtyard on top of the mezzanine level and basement.
- **Service Core:** The office blocks are accessed on the western façade from a passage where lifts, stairwells, ducts and toilets are situated.
- **Floating Roof:** The roof houses water tanks, cooling towers, a caretaker's cottage and roof garden.
- The ground floor, clad in travertine marble, serves as a plinth.
- The other floors, placed above the plinth, are of specially designed face brick, with a hierarchy of openings enhanced through the use of varying brick sizes.
- The windows are deeply recessed into the building and have steel frames.
- The windows are framed by horizontal projections of face brick.
- Four bronze-clad columns frame the entrance leading to two bronze doors.
- Face brick and travertine are used throughout the building.
- The south-east corner has a water fountain (Le Roux 1991:7).

Lessons Learned:

- The use of a plinth, mid-section and floating roof are elements occurring throughout Tshwane.
- The use of a service core provides an easy consolidation of services.
- The use of materials enhance the hierarchies created in the design.
- The entrance is celebrated by the use of columns.

Fig.7.21 Church Street Facade of Nedbank Building
Fig.7.22 Windows
Fig.7.23 Water Fountain
Fig.7.24 Three Tiers
Fig.7.25 Floating Roof

7.4 Function: Inhyambane Market

Layout:

The market is made up of four courtyards framed by areas under roof. The open areas are planted with trees which allow for natural shelter to be provided overhead. No formal market structure is in place and vendors create their own spaces in and around the trees. Under roof the perishable goods are sold in a more forma organization.

Lessons Learned:

The use of trees instead of formal vending stands provides for a spontaneous interaction between seller and customer. The market has an informal vibrancy and is used throughout the day. The most sought-after spaces are those under the trees. Bringing natural elements like trees into the concrete of Tshwane's inner city could be used as an attraction for people driving or walking by the proposed development.

Fig.7.26 Inhyambane Market - Courtyard
Fig.7.27 Inhyambane Market - Stalls under trees
Fig.7.28 Inhyambane Market - Roofed areas
Fig.7.29 Inhyambane Market - Displays of goods
Fig.7.30 Inhyambane Market - Courtyard



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7.5 Structure: Law Faculty University of Pretoria

Layout:

The Law Faculty of the University of Pretoria, designed by Kruger Roos Architects in 2003 has a legible and rational structure. A long gallery runs from end to end on all floors, giving access to four functional zones: the lecture and seminar rooms, the linear library, the administration tower and the main auditorium. The building is designed in a clear and logical manner which makes it easy to orientate oneself and use the building.

Circulation:

The main circulation routes at ground and first floor level, including the main gallery which serves the upper floors, are outside but under cover. Four stairways and one set of lifts connect the circulation routes. The building can therefore make use of passive ventilation systems due to the significant decrease in depth of the building.

Structure:

The different spaces are all tied together with a functional grid of structural and load-bearing columns. The structure is well integrated with various spaces, creating a colonnade of deep columns along the library's south face and defining spaces with rows of colonnades, creating a rhythm along the façade's of the building. Uncluttered detailing and clear understandable spaces further improve the legibility of the building.

Facades:

The façade's are deliberately treated as transparent and translucent planes, allowing the inside to be seen from the outside and vice versa. The south façade of the library is completely glazed and allows a restful connection with the outside and spectacular view from outside of the interior spaces at night.

Lessons Learned:

This project represents a South African idiom and is furthermore located in Pretoria. The program is also highly significant and relates to an education building, housing different departments. The use of a rational structure can improve the legibility of a building. The proposed building could make use of such an element to orientate users of the campus and create a building which is legible and has defined spaces. The use of transparent façades could be used to increase interaction between interior and exterior spaces.

Fig.7.31 Law Faculty - Ground floor circulation
Fig.7.32 Law Faculty - South facade (library)
Fig.7.33 Law Faculty - Library circulation
Fig.7.34 Law Faculty - Suspended services
Fig.7.35 Law Faculty - Stairs
Fig.7.36 Law Faculty - Staircase

7.6 Structure: Daventry Road Lynnwood

Structure:

This concrete structure is being erected in Daventry Road in Lynnwood. The architects, Boogertman and Partners have designed an office building with an external staircase and a concrete roof which appears to float.

Roof:

The 'floating' concrete roof drains onto a second concrete roof which in turns takes the water down into the storm-water system. The roof is screeded to a fall and waterproofed with a torchon product. There are no full-bores or parapets on this upper and thus it appears as a thin concrete roof. The 255 mm roof slab is thinner at the edges (100 mm) and provided with a drip joint to prevent staining.

Facades:

The façade's are deliberately treated as transparent and translucent planes, allowing the inside to be seen from the outside and vice versa. The south façade of the library is completely glazed and allows a restful connection with the outside and spectacular view from outside of the interior spaces at night.

Lessons Learned:

The thinning of the roof slab would make the roof appear to float. The screed and waterproofing does create the desired effect. The proposed building for the Tshwane University of Technology will have to drain roof surfaces individually to prevent the migration of water to interior spaces.

Fig.7.37 Daventry Road - Roof
Fig.7.38 Daventry Road - Concrete slab
Fig.7.39 Daventry Road - Northern facade
Fig.7.40 Daventry Road - Windows
Fig.7.41 Daventry Road - Void for staircase
Fig.7.42 Daventry Road - Southern facade
Fig.7.43 Daventry Road - North-east corner

8 Design Discourse

Fig.8.1 Palisade fencing surrounding the campus

8.1 Campus Framework

8.1.1 Introduction: The Nature of the Problem

- The campus exists as a fortified island in the city grid.
- Its resultant isolation does not provide for increased safety as would normally be assumed.
- People on the campus do not know where they belong as there are no defined public and private spaces.
- Open spaces are not utilized and facilities are used incorrectly.
- The campus shuts down after 17:00 and becomes an unsafe environment for students attending evening classes.

Fig.8.2 Identification of Phase I & II

8.1.2 Identification of Phase I and II

The context analysis identified that the city block functions as two separate campuses, where one utilizes its facilities and the other regards certain spaces as cold and therefore uses other spaces incorrectly. The Tshwane North College, on the western side of the city block and is a vibrant buzz of energy where commercial activities that can be accessed by the public are already taking place. The Tshwane University of Technology, located on the eastern half of the city block, although also fragmented open spaces, fails to use these spaces effectively, resulting in areas such as the library being used for social instead of study space. Therefore, it is essential that the first intervention takes place on the Tshwane University of Technology Campus, as this is where the greatest need lies.

8.1.3 Phase I

Phase I is the development of an incubation facility on the south-east corner of the block, creating a defined public space and facilities for students after 17:00. For the purposes of this dissertation the design will focus on Phase I of the campus framework.

8.1.4 Phase II

Phase II will entail the conversion of the North, Middle and South Blocks into loft apartments from the first floor up. Commercial activities take up the entire ground floor. This floor will be expanded so as to open up onto the street and create an interactive street edge.

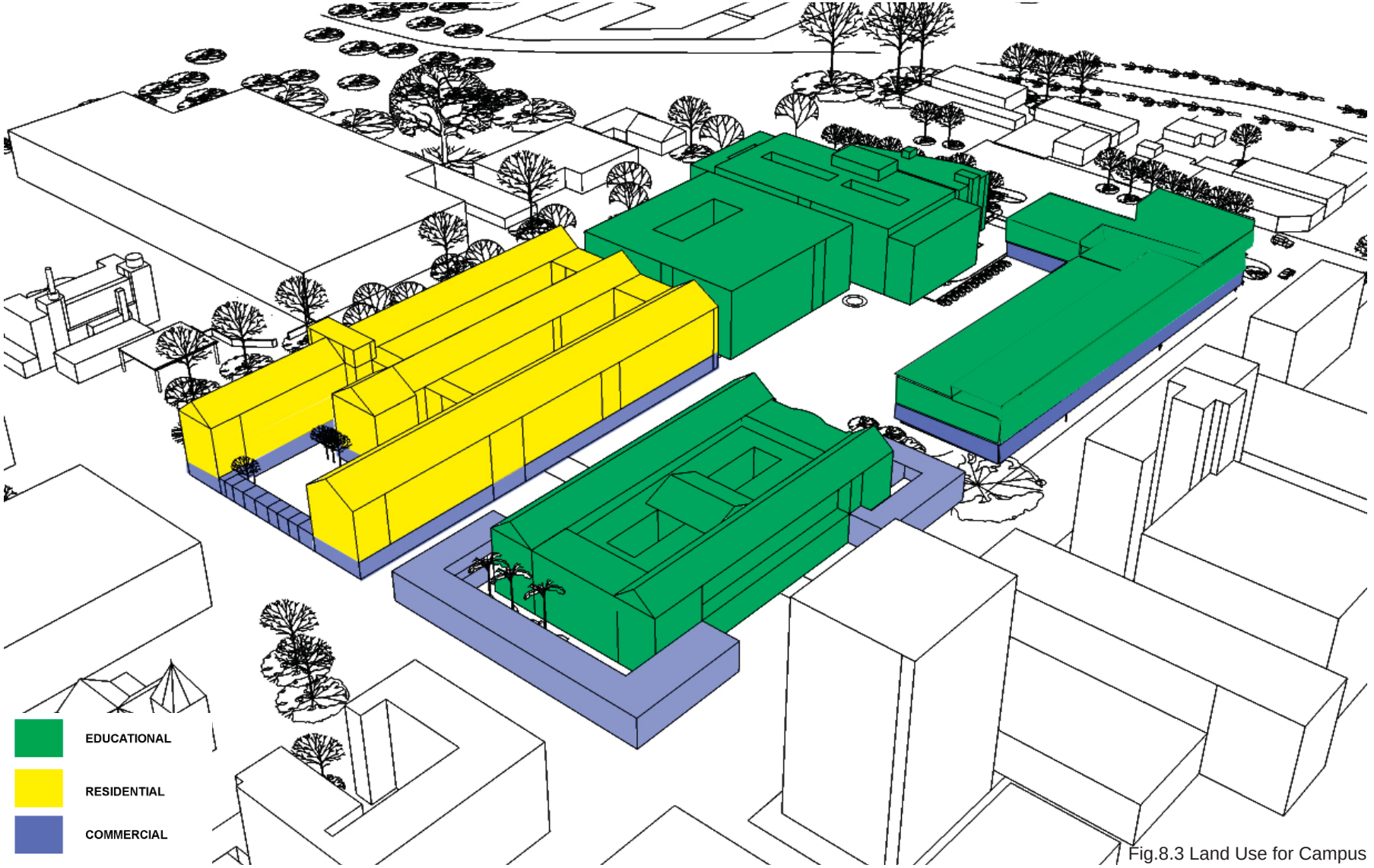


Fig.8.3 Land Use for Campus

8.1.5 Creation of a Public Square

It is important that the buildings of historic or architectural importance be celebrated to create an awareness of their value. It is suggested that a public square be created to celebrate the lattice work of the East Block building. The creation of a visual axis leading from this square towards the Hervormde Kerk to the west would create an awareness of the College Building.

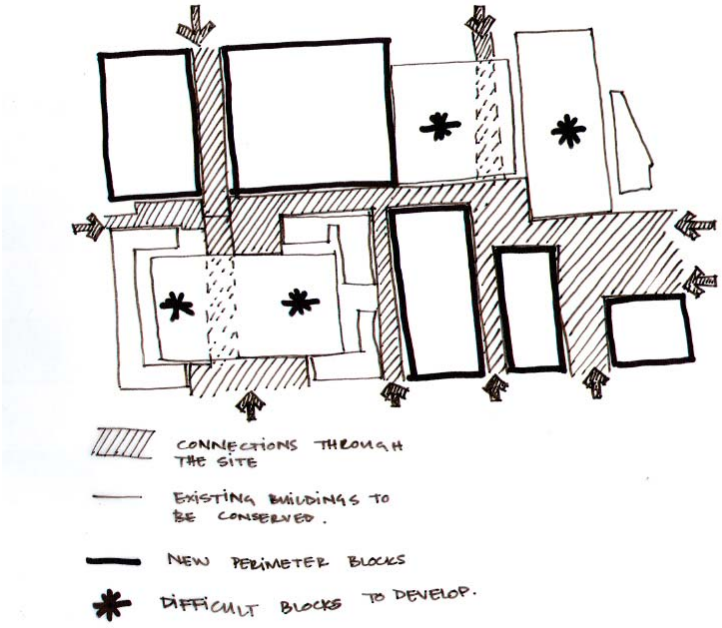


Fig.8.4 Existing Connections through the site

8.1.6 Conclusion

The vision for the campus would entail the demolition of various structures and walls, thereby opening the campus to the public. It is hoped that the successful creation of a city block full of people and energy would encourage development round the site, thereby making the campus a generator for urban renewal by harvesting and optimizing the energy of the site.

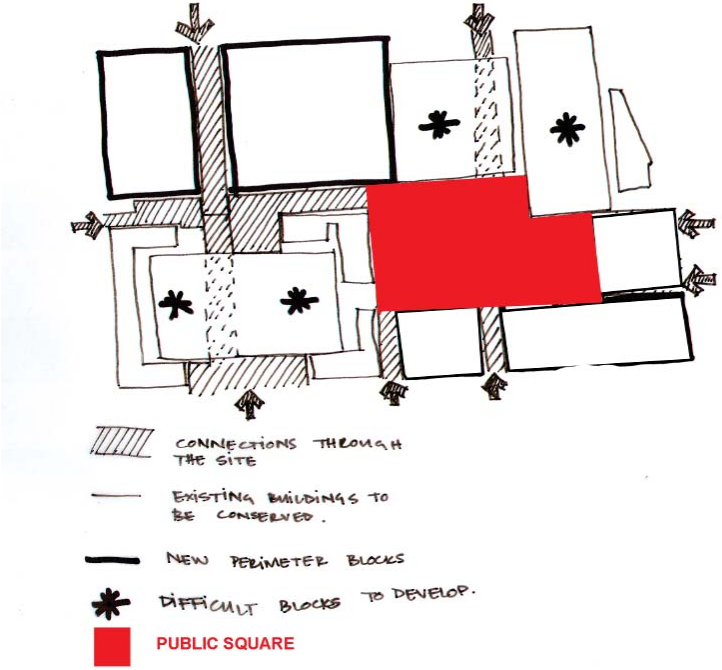


Fig.8.5 Proposed Location of Public Square

8.2 Programme

8.2.1 Summary of Primary Elements

Market

>> Provide a large market to allow for the informal trade of African spices.
>> The market should have easy access to water and washing facilities.
>> It is to be easily accessible to students and public users and is to be open, but with areas sheltered under roofs.

Line Shops

>> Provide line shops, to allow for adequate retail space along Church Street.
>> Window treatments should be transparent to allow optimum interaction between interior and exterior.
>> The line shops should be standardized and designed to be easily refitted every two years.

Studios

>> Allow for studios linking with the line shops.
>> Additional studios to function as pre-incubation facilities are required .
>> Studios should be visually linked to the outside to allow for increased student-public interaction.

Food Court

>> Provide a food court to facilitate pre-incubation kitchens and take-away facilities.
>> The food court should encourage the use of public open space.

Restaurant

>> Allow for an incubation restaurant bordering a courtyard.
>> The restaurant should be such that it can be easily refitted every two years.

Studio

>> Allow for a studio large enough to facilitate examinations and functions.
>> The studio should open onto the public square to create a transitional space between interior and exterior.

Study Centre

>> Provide a study centre large enough to accommodate students who need to study during the day and at night.
>> It should be located on a secondary level and air-conditioned to for optimum privacy.

Knowledge Centre

>> Provide facilities for internet access linking to the main campus of Tshwane University of Technology.
>> This facility can be semi-public and should be treated informally.

Offices

>> Provide facilities for the relocation of administration offices that have been demolished.
>> Ensure that offices for mentors, link easily with pre-incubation studios.

8.2.2 Accommodation – with approximate sizing

>>	Market	500 m^2
>>	Line Shops	600 m^2 (15)
>>	Studios linked with Line Shops	350 m^2 (14)
>>	Pre-Incubation Studios	700 m^2 (9)
>>	Food Court Outlets	150 m^2 (6)
>>	Pre-Incubation Kitchen	150 m^2
>>	Restaurant	200 m^2
>>	Incubation Kitchen	145 m^2
>>	Studio	240 m^2
>>	Study Centre	650 m^2
>>	Knowledge Centre	50 m^2
>>	Food Court Outlets	150 m^2 (6)
>>	Mentor Offices	240 m^2 (6)
>>	Administration Offices	480 m^2 (12)

Fig 8.6 Demolition

8.3 Introduction: The Site

As discussed in previous chapters the development of Phase I will require the demolition of 6 buildings on the campus. An analysis of these structures and their current functions is given in Appendix E.

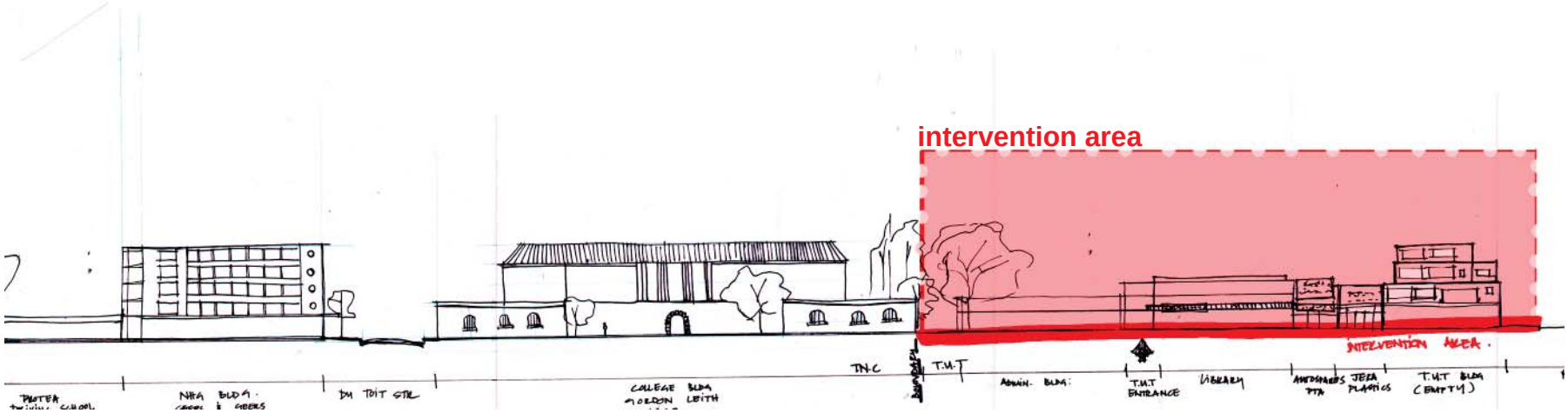


Fig.8.7 Elevation of existing

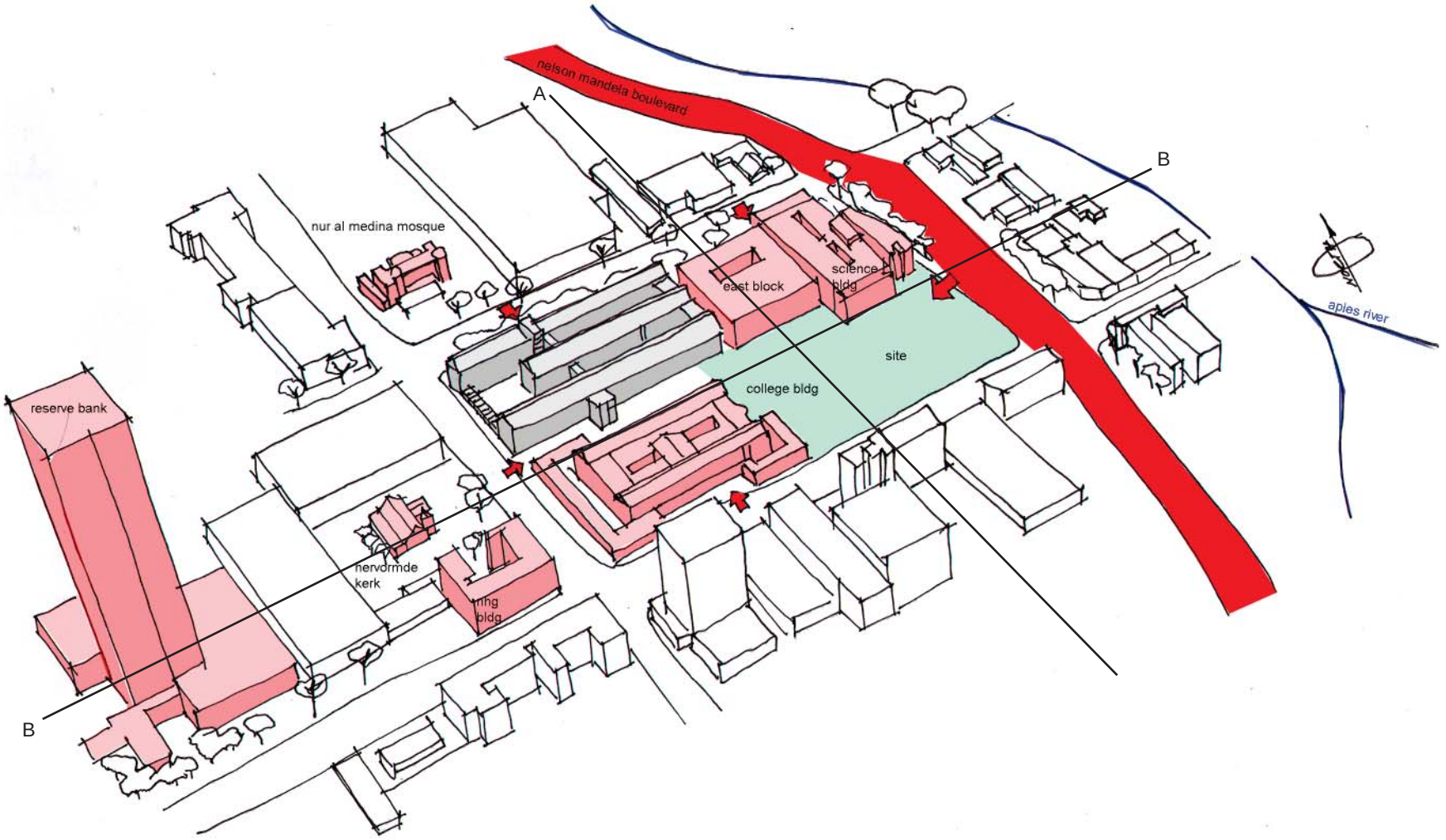
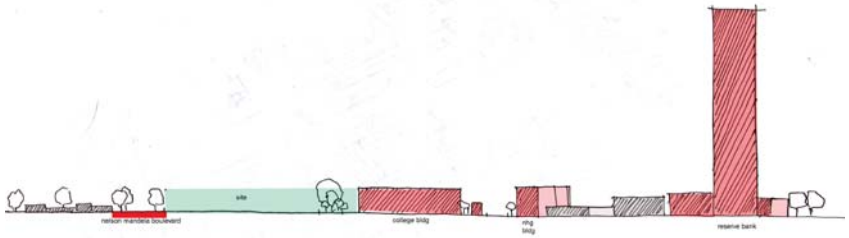


Fig.8.8 Site Forces

8.4 Site Forces

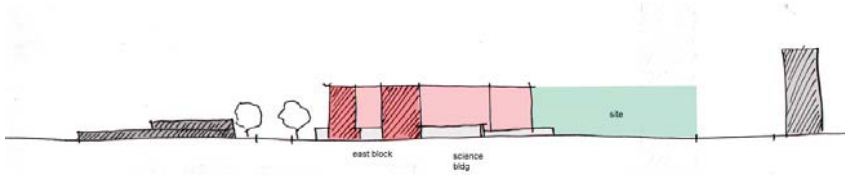
8.4.1 Roads & Access

- Nelson Mandela Boulevard, east of the proposed site, can be described as a river of traffic flowing past at a fairly high pace past. This roadway is mainly vehicular with limited pedestrian movement. The mezzanine and basement parking in the Science Building is accessed from Nelson Mandela Boulevard.
- Currently controlled access to the site results in limited public access and congestion at most entrances, especially at the Church Street entrance (as discussed in Chapter 5).



8.4.2 Urban Fabric

- The urban fabric surrounding the site is of a strong geometric nature.



8.4.3 Safety

- Even though the site functions as a fortified island in the city grid, this does not result in imporved safety.

Fig.8.9 Section through site A
Fig.8.10 Section through site B

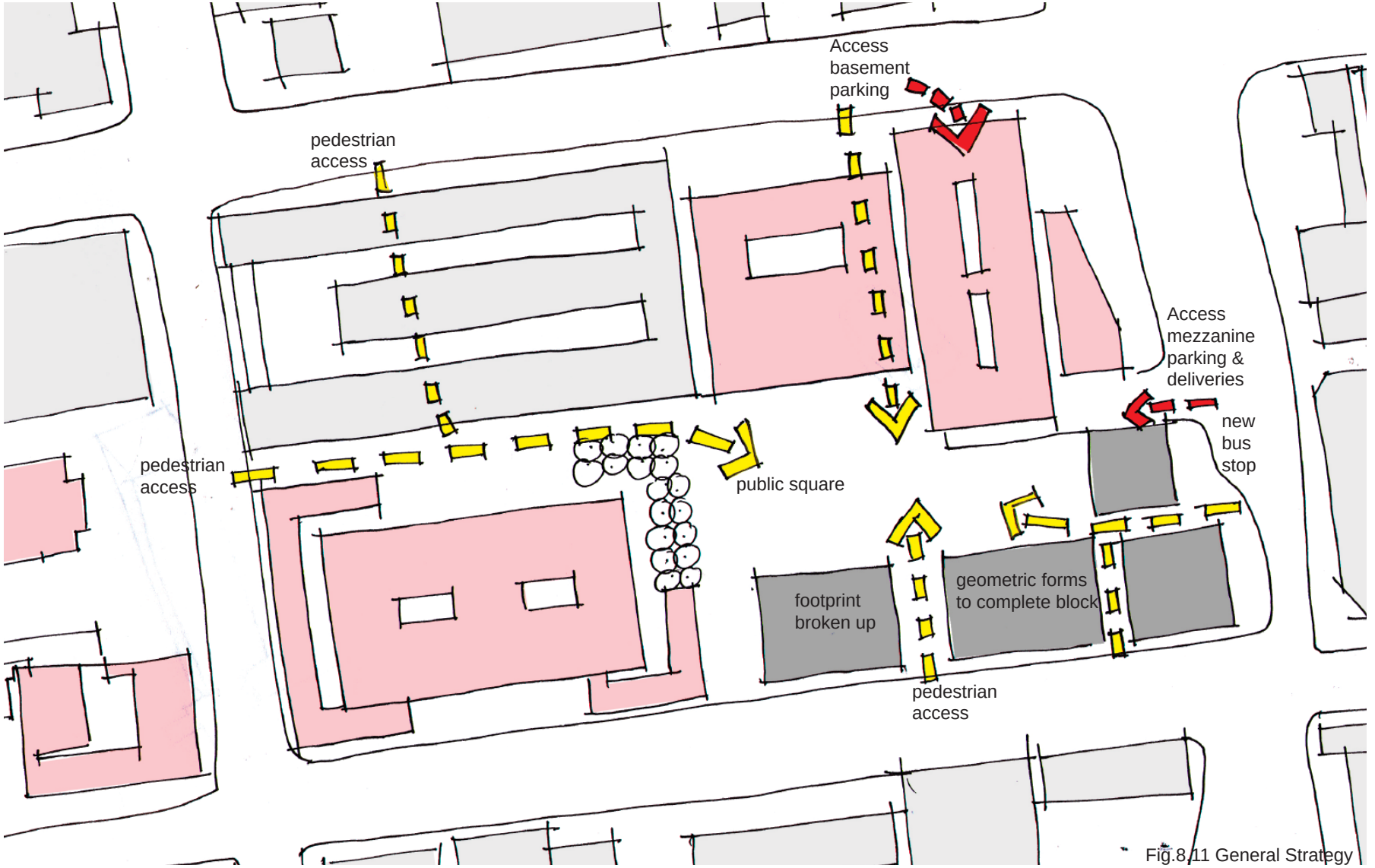


Fig.8.11 General Strategy

8.5 General Strategy

8.5.1 Roads & Access:

Use busy roads to provide access to services.
Enhance existing movement patterns to avoid congestion at entrances by breaking up the building footprint.

8.5.2 Urban Fabric:

Make use of strong geometric forms to complete the urban edge.

8.5.3 Safety:

Optimize passive surveillance and limit isolated passages to improve the safety of the campus.

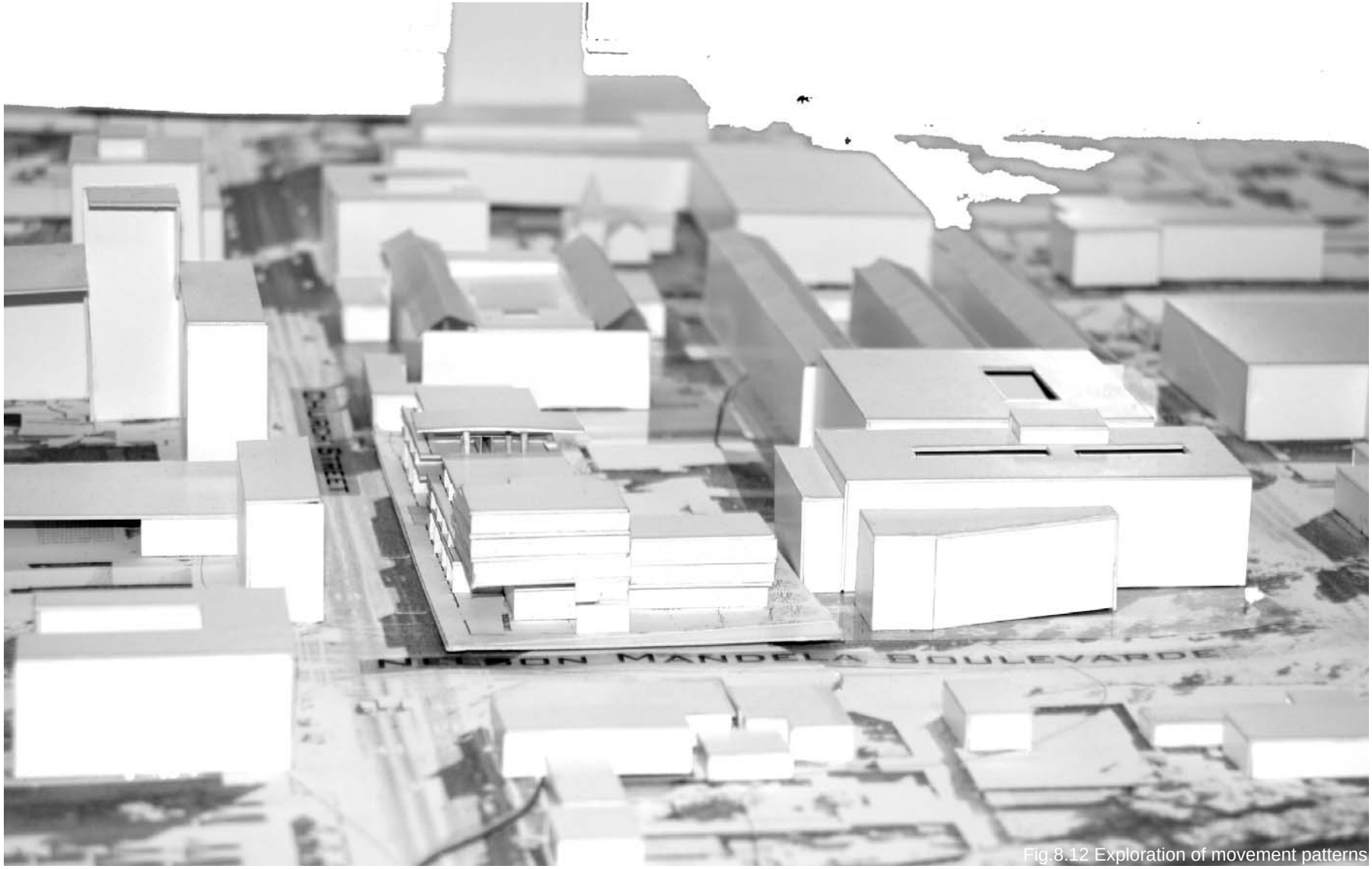


Fig 8.12 Exploration of movement patterns

8.6 Addressing Movement, Access and Permeability

8.6.1 Access

- Existing pedestrian movement patterns were analysed and the possibility of allowing movement through the new building was investigated in an attempt to increase the permeability of the site.
- The relocation of the bus stop to Nelson Mandela Boulevard allows for pedestrian access to the site from Nelson Mandela, through the market and from Church Street.
- It is envisaged that students would wait for busses in the food court, but in the event of their waiing at the bus stop, a threshold has been created by the continuation of trees between the building and the roadway.
- The possibility of creating a hierarchy of entrances was investigated, but eventually overpowered by the importance of the south-eastern corner aimed at creating a focal point.
- Access to the basement parking was reinstated at its original entrance on Vermeulen Street.
- Access to mezzanine parking on Nelson Mandela Boulevard would have to be retained and had to be designed for.

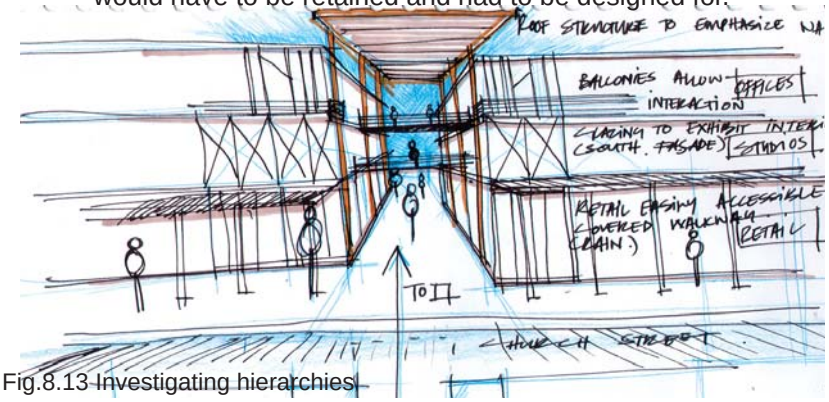


Fig.8.13 Investigating hierarchies

8.6.2 Private Spaces

- The courtyard and the spaces that would not be used for interaction with passers-by were placed along Nelson Mandela, so that they could be treated in a more private manner than the rest of the building.

8.6.3 The Public Square

- Where movement patterns converge, the opportunity arose for creating a public square.
- Taking into consideration the lattice work of the East Block and its architectural importance, it was decided to have the square step back from the building to highlight its importance.

8.6.4 Services and Deliveries

- Services are limited to cores.
- Deliveries and refuse collection are allocated to Nelson Mandela, with limited deliveries from Church Street in case of the possible pedestrianisation of Church Street.
- Not to interfere with the flow of traffic into parking areas, restaurant deliveries are to be limited to between 08:00 and 10: 00.
- The wind direction was taken into account to determine the placement of the refuse yard.

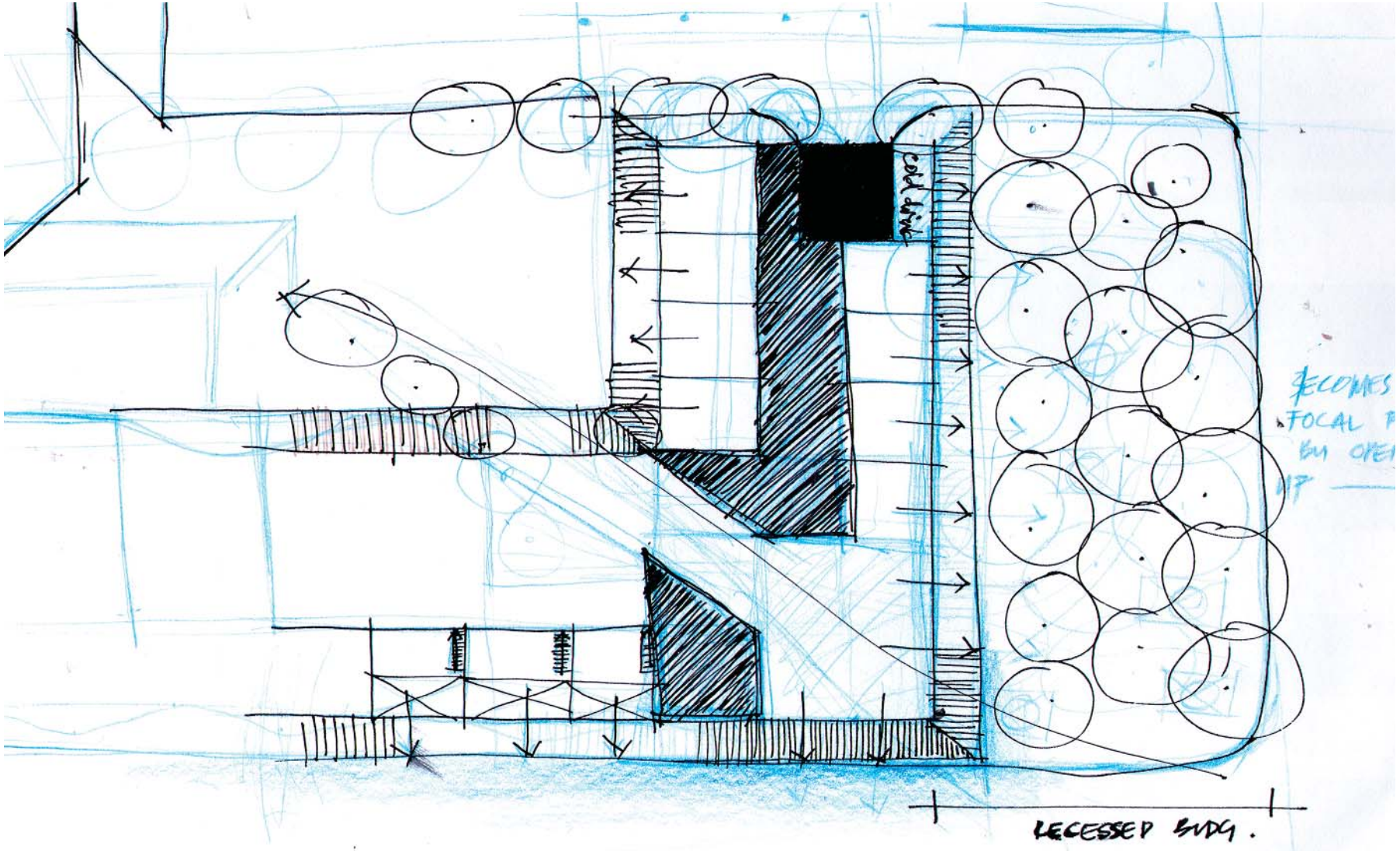


Fig.8.14 Exploration of corner

8.7 Addressing the Urban Fabric

8.7.1 Gateway

- As discussed in Chapter 4, the site is at the eastern gateway of Tshwane's inner city.
- The design would have to enhance a sense of arrival at the inner city.
- This is achieved by accentuating the corner of the proposed building, to create a 'gateway'.

8.7.2 The Corner

- The corner of the building was approached as a 'picture frame' where the activities of the occupants could be highlighted for passers-by and attract them to the development.
- The function of the corner needed to be carefully considered concerning it's proximity to deliveries and the bus stop.
- It was resolved to treat the corner as not merely an event space, but also as a function allowing movement to the courtyard.
- The market was thus placed at the corner as to provide enough activity to attract the passer-by and facilitate movement into the food court and public square.

8.8 Addressing Issues of Safety

- Passive surveillance is optimised by allowing work spaces to look out onto public spaces and vice versa.
- The building is to step down towards the courtyard to create a human scale and balconies are used to enhance opportunities for passive surveillance.
- The façade bordering Church Street is on an urban scale, with glazing to enhance inside/outside interaction.

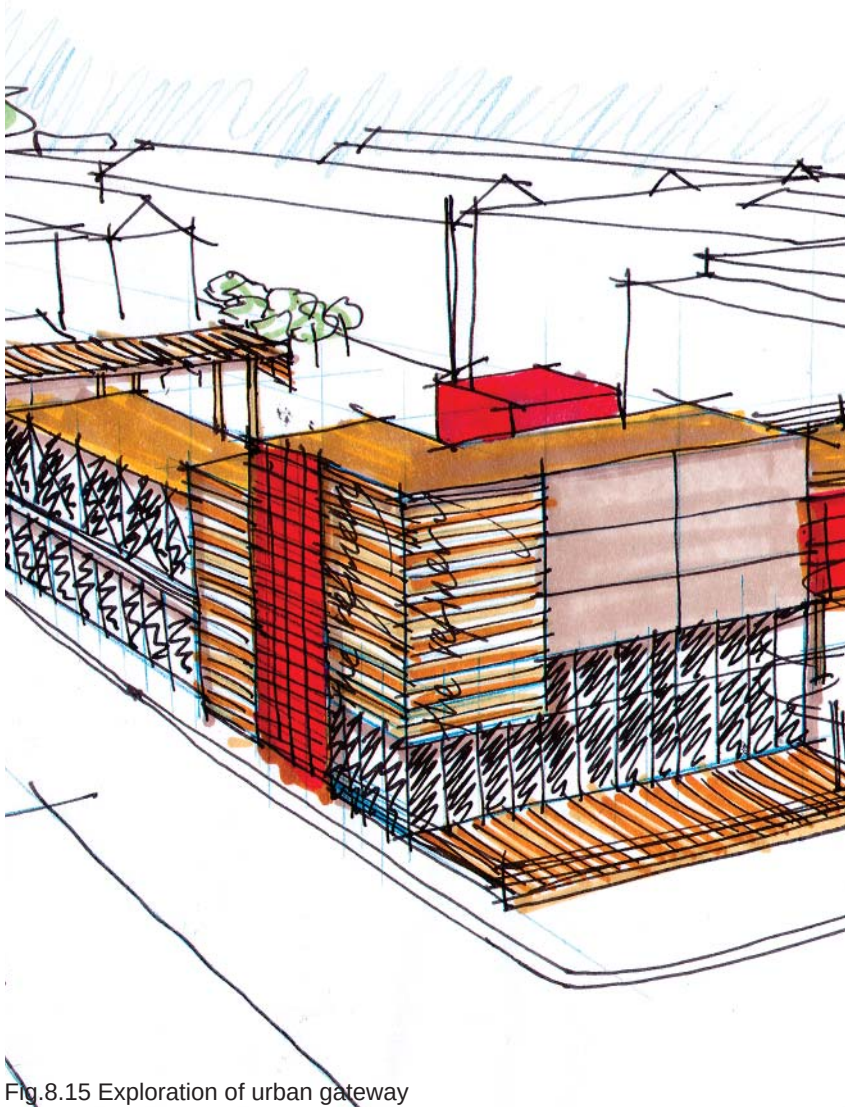
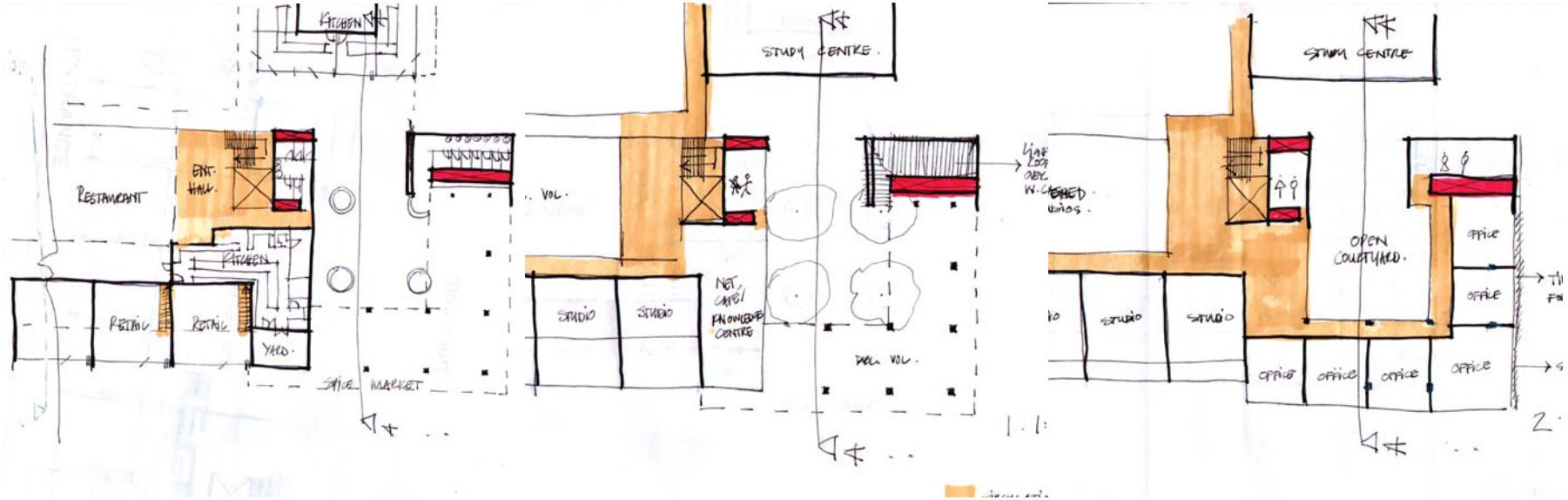


Fig.8.15 Exploration of urban gateway

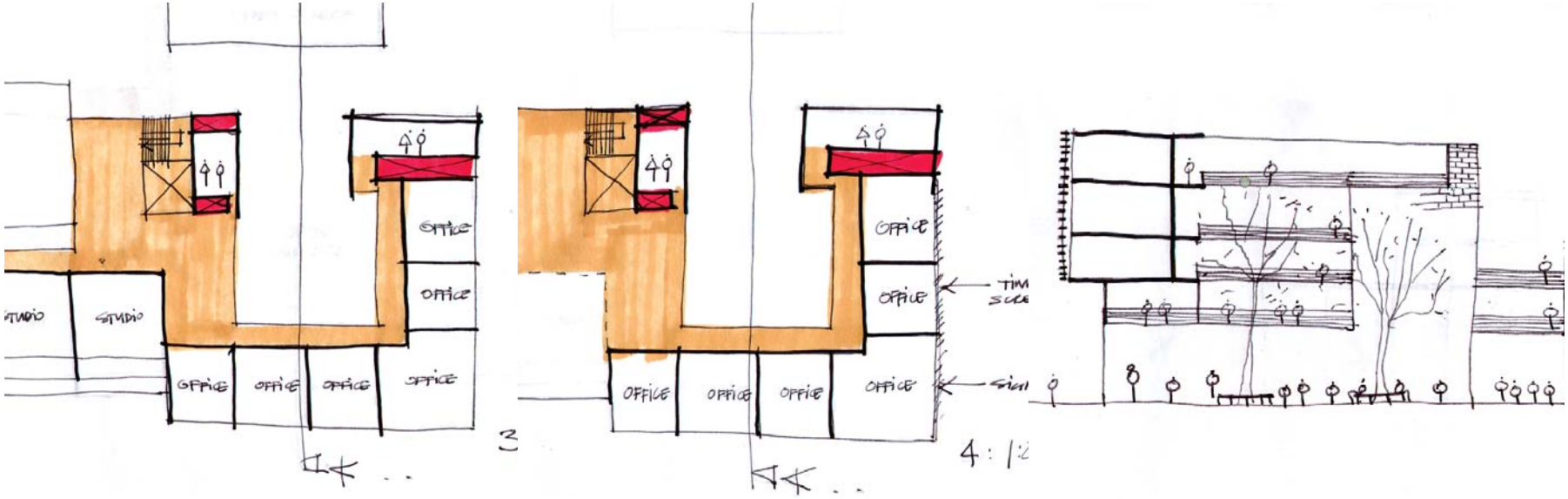
Fig.8.16 Conceptual plans of Market and Administration Block



8.9 4 Buildings

8.9.1 5 Storey: Market & Administration Block

The market is to be the stage on which activities will be set. Reflecting on the urban context of Tshwane, the double-volume market and line shops will function as an 'activity' plinth for the building. The trees form a focal point in the concrete city and provide natural shade for users. The market also allows for filtration into the food court and public square. The administration block above does not need to interact with the public, thus it is treated in a solid manner and located nearer to Nelson Mandela Boulevard.



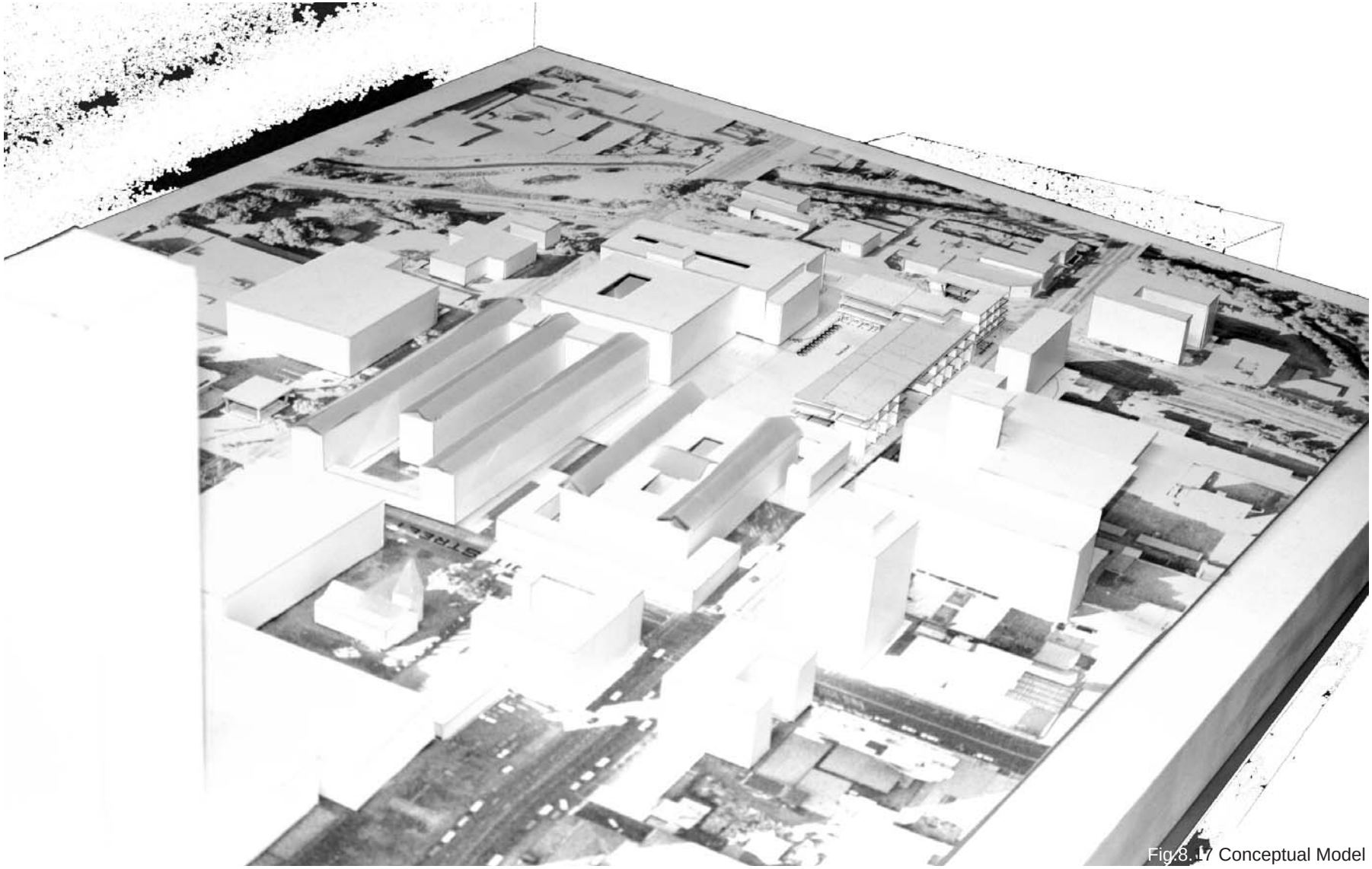


Fig.8. 17 Conceptual Model

8.9.2 3 Storey: Line Shops, Studios & Restaurant

As discussed, the aim of the line shops is to enhance an ‘activity’ plinth. Their south façades are glazed to allow optimum interaction between students and public. The restaurant spills out onto the courtyard and is a double-volume to distinguish it from the single-storey food court outlets. The circulation routes to the studios look into the restaurant, once again optimizing interaction between students and public.

8.9.3 3 Storey: Line shops, Studios & Main Studio

The line shops and studios function as above while the main studio is fully accessible from the square and is also used for functions and overflow examination space.

8.9.4 Food Court and Study Centre

The food court outlets are served by a centralised kitchen to allow mentors to teach multiple students simultaneously. As in the case with the administration offices, the study centre is also located near Nelson Mandela Boulevard as its function is more private.

8.10 Conclusion

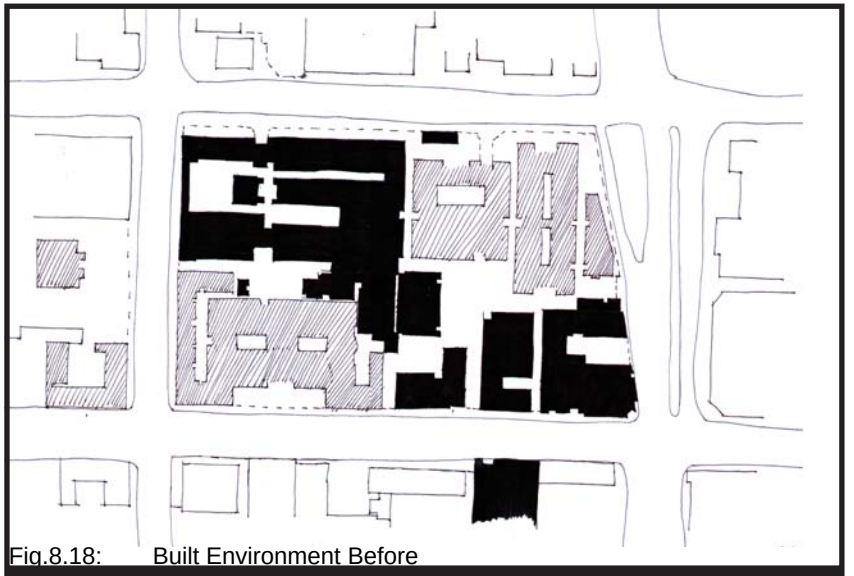


Fig.8.18: Built Environment Before

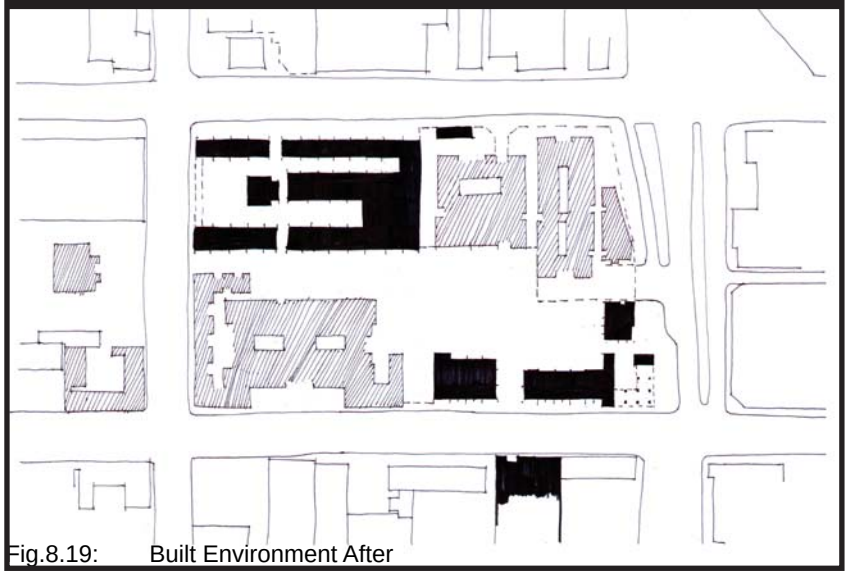


Fig.8.19: Built Environment After

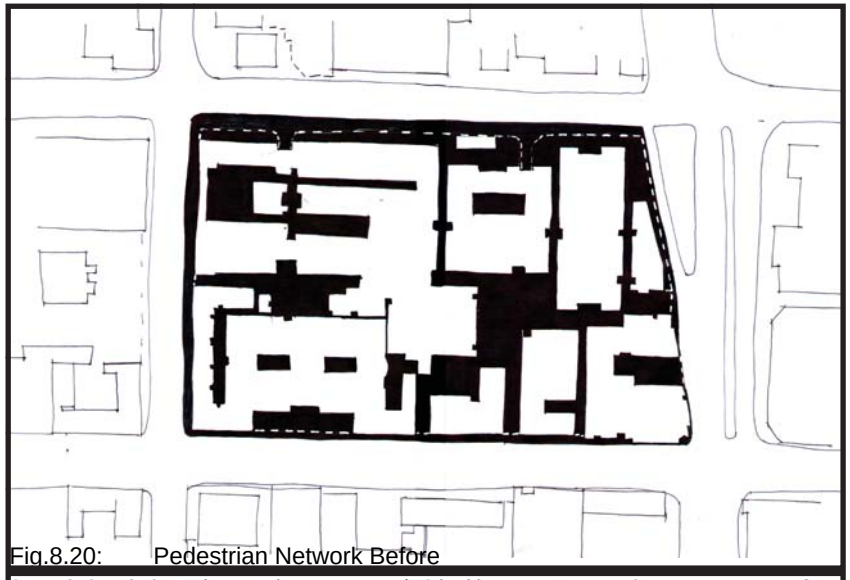


Fig.8.20: Pedestrian Network Before

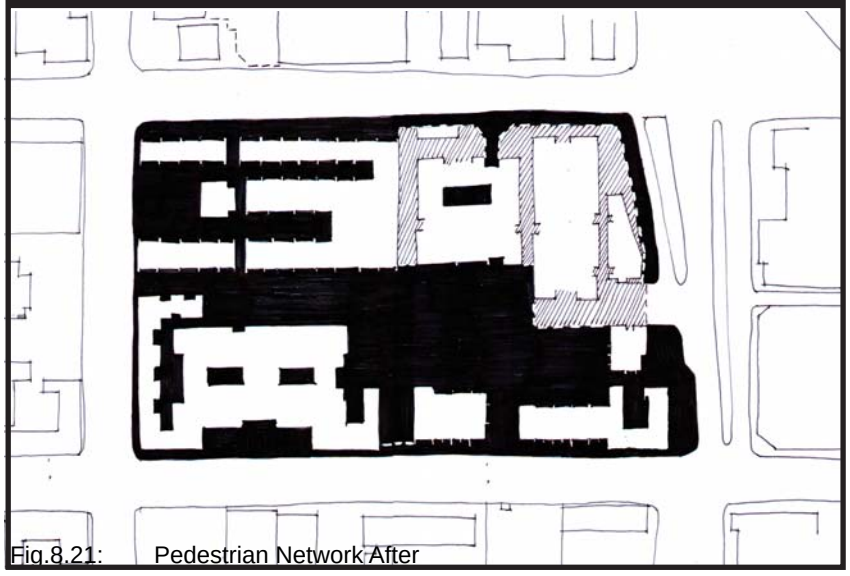


Fig.8.21: Pedestrian Network After

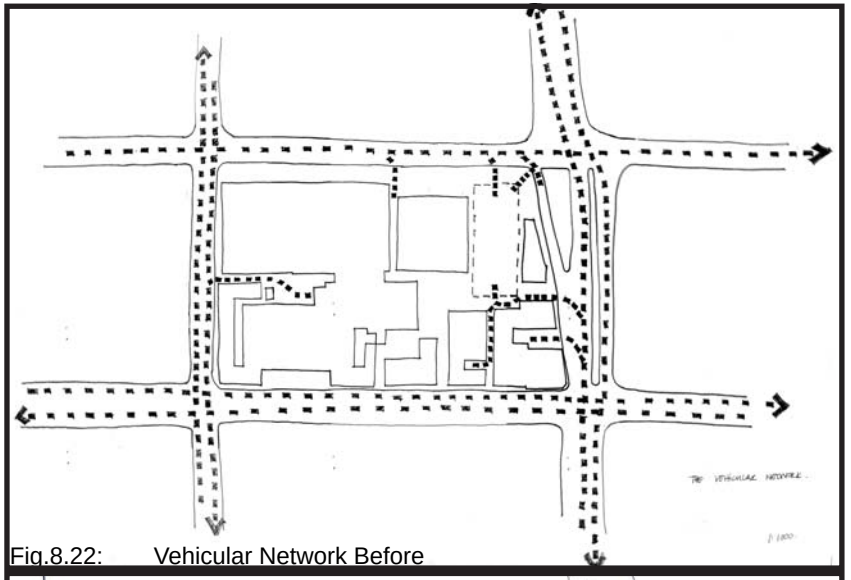


Fig.8.22: Vehicular Network Before

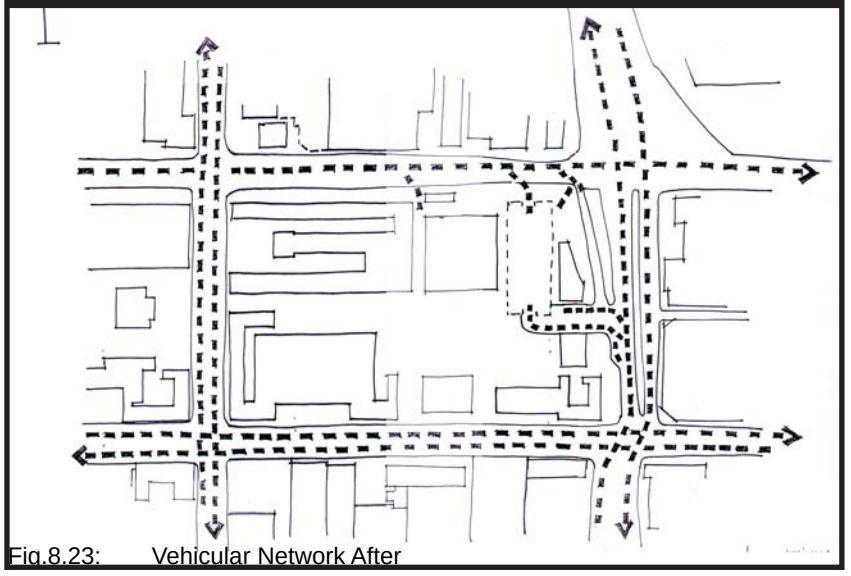


Fig.8.23: Vehicular Network After

9 Technical Investigation


MANDE

9.1 Introduction

The function of the building is to be reflected in its structure. Just as the talent, the driving force behind the student's creativity is to be revealed, so too is the building to reveal itself, not hiding behind layers of plaster and paint but being what it is meant to be, an honest building that does what it is supposed to do without attracting attention away from the rich heritage present on the site.

Fig.9.1 Conceptual Model

9.2 Materials

The building is to be as low-maintenance as possible, thus materials are to be chosen for their ability to weather well.

9.2.1 Brickwork

Red face brick is used for educational institutions throughout Tshwane and is thus being used to make the building read easily as an educational facility within the context of the city. Face bricks, although purchased at a higher cost than stock bricks, save the client maintenance costs as they do not need to be plastered and painted.

9.2.2 Glazing

As the building is to display the movements and activities of its users, the use of glass and structural glazing was imperative. A patented aluminium system with spider fixings is utilized to allow for maximum exposure of the interior.

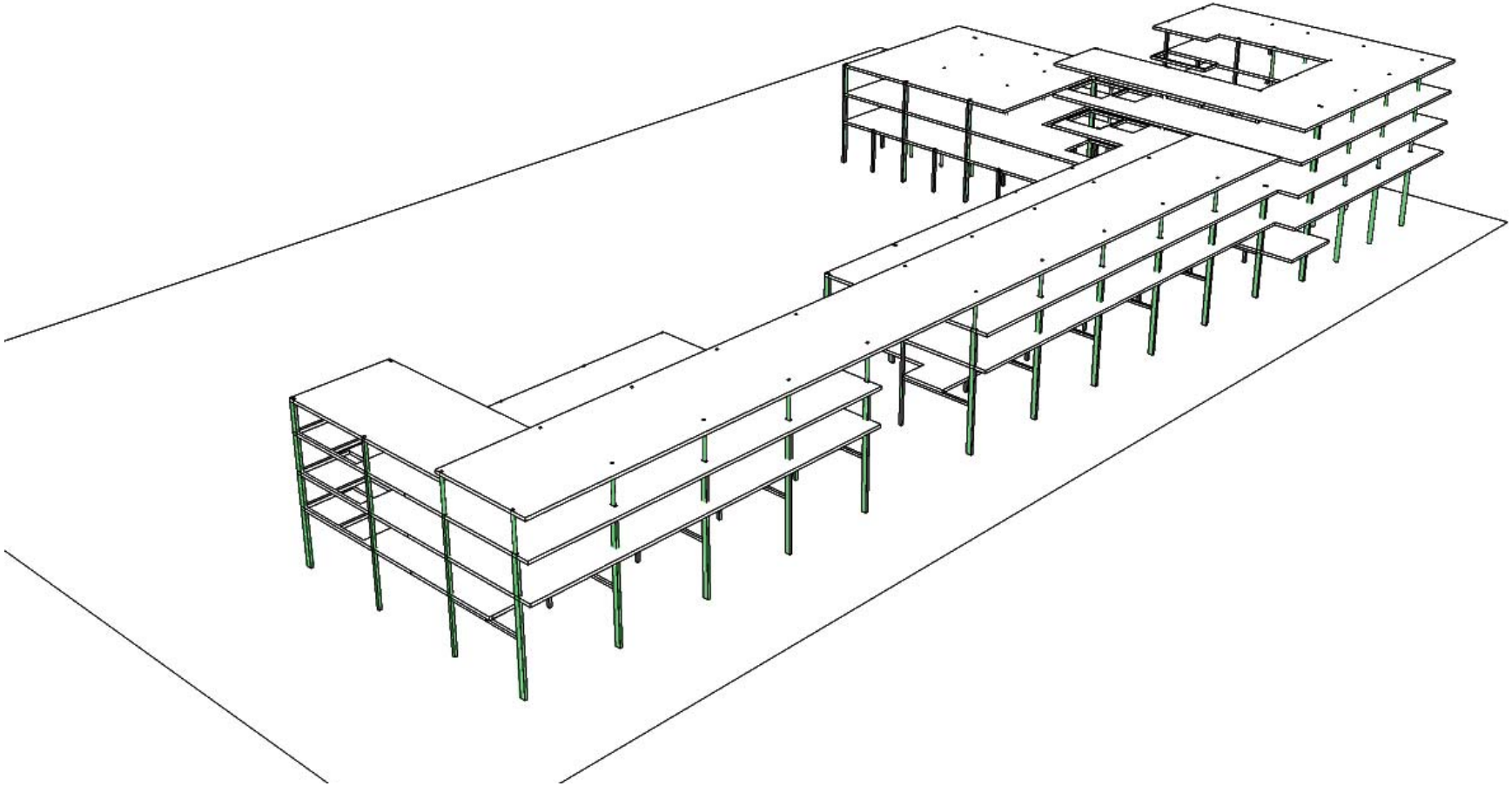
9.2.3 Timber

Balau timber is used for decking, handrails and sun-shading elements. The choice of timber was made for aesthetic and maintenance reasons. Once again a more expensive material was chosen for its long term advantages and low maintenance costs. The balau weathers to grey and does not need to be treated.

9.2.4 Steel

The use of steel is limited to staircases, with stainless steel being used for balustrades, once again employed for its low maintenance requirement.

Fig.9.2 Brickwork
Fig.9.3 Glazing
Fig.9.4 Glazing
Fig.9.5 Glazing
Fig.9.6 Shopfront
Fig.9.7 Stairs
Fig.9.8 Stainless Steel Balustrade
Fig.9.9 Glazing Detail



9.3 Structure

A concrete structure is selected for economic and heritage purposes.

A system of reinforced concrete columns, slabs and conservative use of reinforced concrete cantilevers and beams is used. The structure is exposed to take the idea of interaction further: the interaction of raw student talent with the public and the interaction of structure with materials.

9.3.1 Columns

There are 25 rectangular reinforced concrete columns (220 x 440 mm) which encase ø 85 mm rainwater down pipes. These columns are used where needed to aid storm-water drainage and to line up with masonry walls.

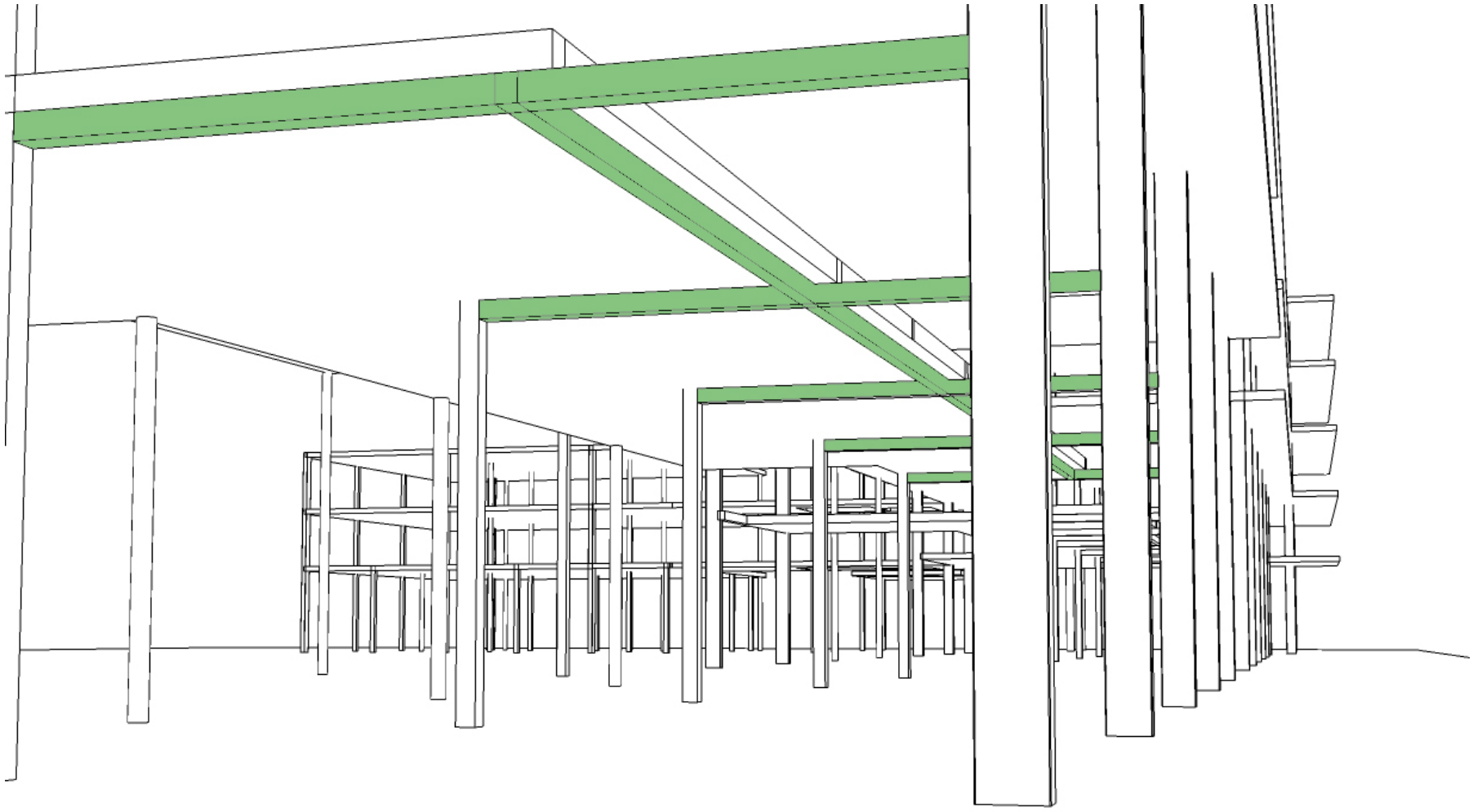
There are 5 circular reinforced concrete columns (ø 250 mm) which encase ø 85 mm rainwater down pipes. These columns are used where needed to aid storm-water drainage and to line up with sliding stacking doors.

There are 5 circular reinforced concrete columns (ø 400 mm) which encase ø 85 mm rainwater down pipes. These columns are used in the market where needed to aid storm-water drainage and support a double volume where high levels of pedestrian movement can be expected.

There are 14 circular reinforced concrete columns (ø 220 mm). These columns are used where high levels of pedestrian movement can be expected.

There are 28 square reinforced concrete columns (220 x 220 mm). These columns are used where high levels of pedestrian movement can be expected.

Fig.9.10 Column Structure



9.3.2 Beams

Reinforced concrete beams have primarily been used in the line shops to facilitate their double volume. The beams serve to support the first-floor slab.

9.3.3 Slabs

Reinforced concrete slabs span no more than 8 m and are 255 mm thick.
Reinforced concrete coffer slabs span no more than 10 m and are 625 mm deep.

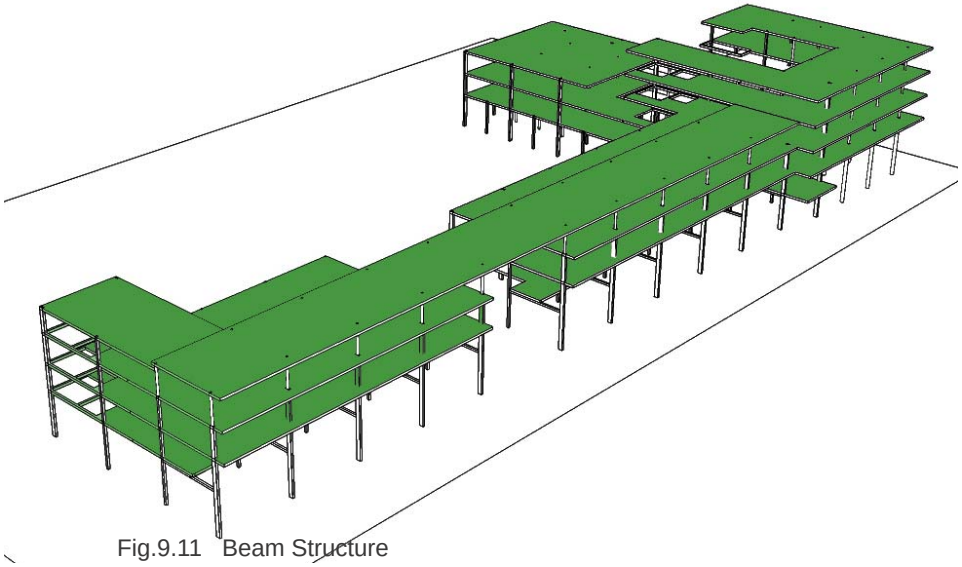
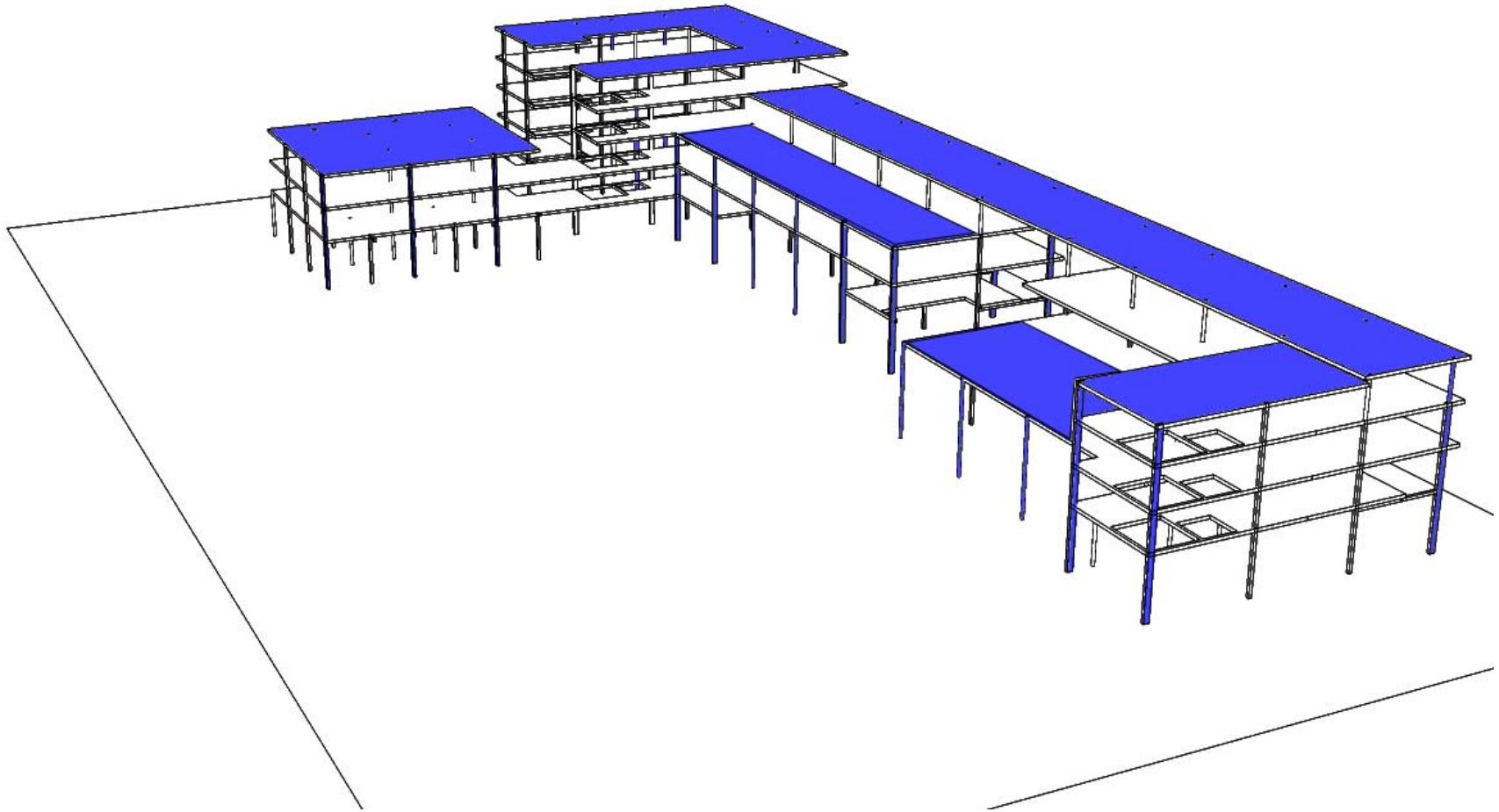


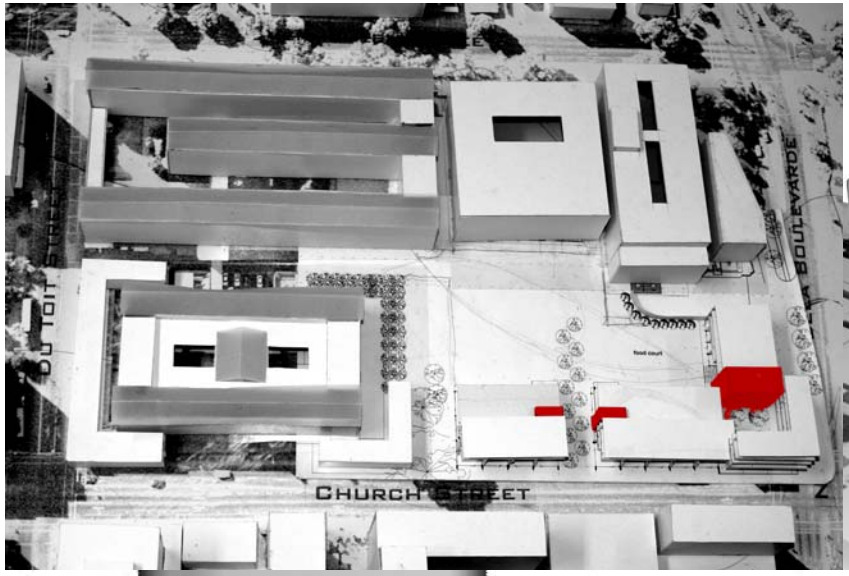
Fig.9.11 Beam Structure
Fig.9.12 Slab Structure

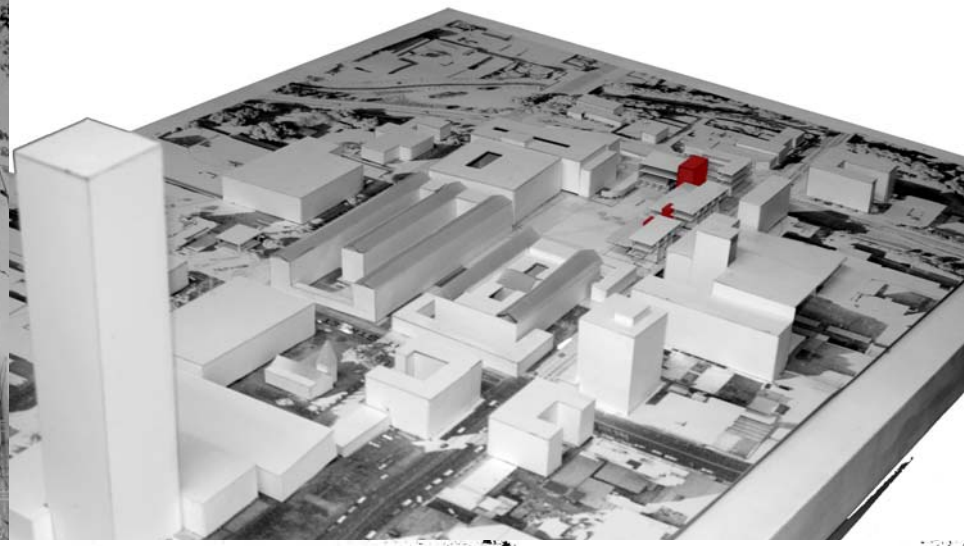


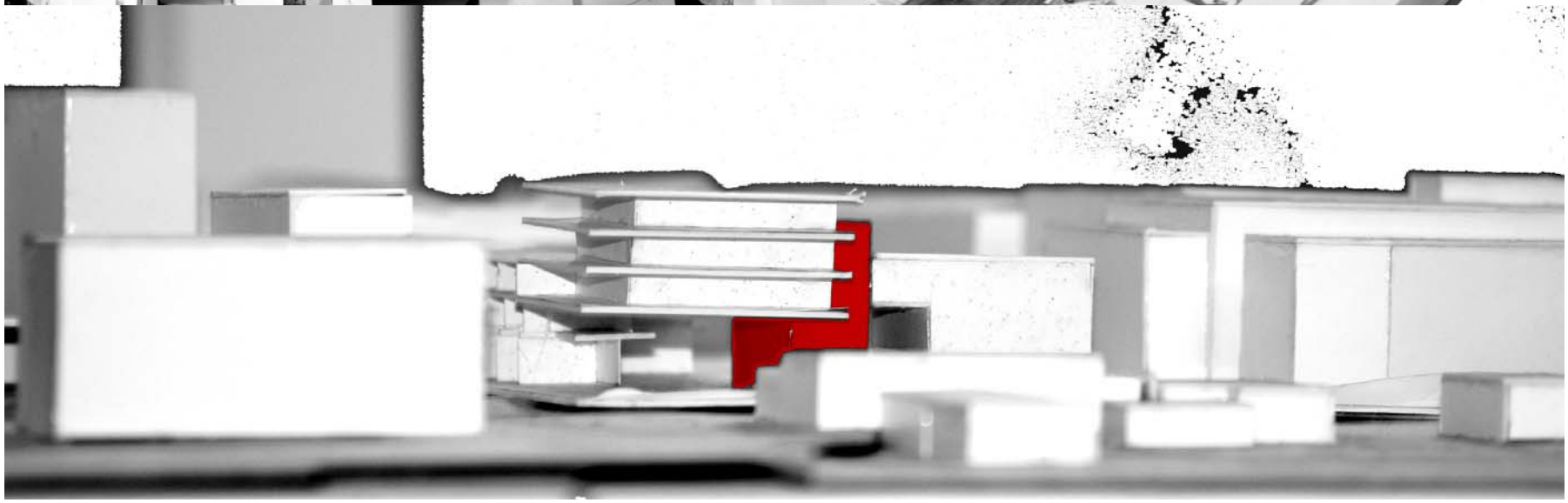
9.4 Storm-water

Storm-water drains off six horizontal surfaces sloped at 1:70 to full-bore outlets which drain in turn into ø 85 mm rainwater down pipes. The down pipes drain into ø 250 mm storm water channels which collect water within the site boundaries and connect to the municipal storm water system at 2 points.

Fig.9.13 Stormwater Drainage
Fig.9.14 Waterproofing


CHURCH STREET
food court





9.5 Service Cores

The use of service cores was investigated early on in the design, and the decision was made to concentrate vertical circulation, kitchens and toilets in central cores.

9.5.1 Circulation

The building contains two central vertical circulation cores, each containing a staircase and lift adequate for wheelchair use. Circulation routes are placed to allow for maximum surveillance of outside activities.

The western core serves two upper floors with the staircase continuing to the roof terrace. The circulation route frames the double volume of the studio on first floor level and is open but roofed on the second floor. All routes lead to an additional fire escape.

The eastern core serves five floors and has a bridge linking it to the study centre on first and second-floor level. The circulation route on first-floor level leading to the studios frames the double volume of the restaurant, while the circulation routes for all other floors are open but roofed. The circulation routes lead to two additional fire escapes. The circulation route to the administration offices looks down onto the market below.

Fig.9.15 Conceptual Model
Fig.9.16 Conceptual Model
Fig.9.17 Conceptual Model

9.5.2 Kitchens

There are two kitchens located in the building, one to serve the students in the Pre-Incubation Phase and a permanent kitchen to serve the restaurant used by students in the Incubation Phase.

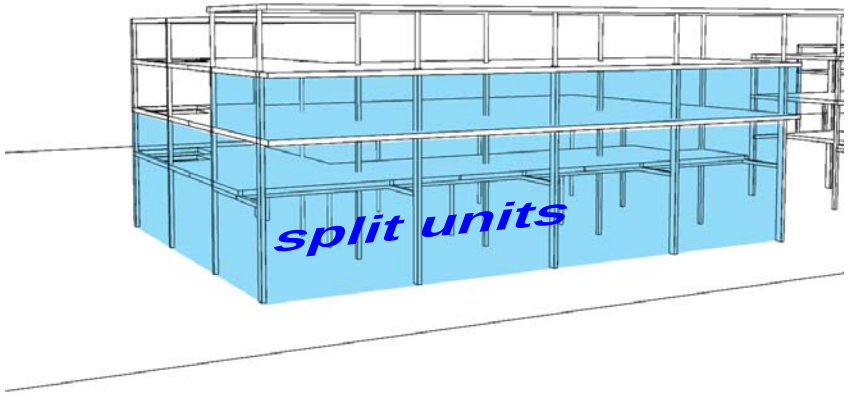
The Pre-Incubation Kitchen is a combined kitchen which functions to serve the six food court outlets located beneath the study centre. Students share facilities such as the goods store, cold room and wash bay. They each have an individual station at a centralized point for preparation and cooking, with separate serving stations near their individual outlets.

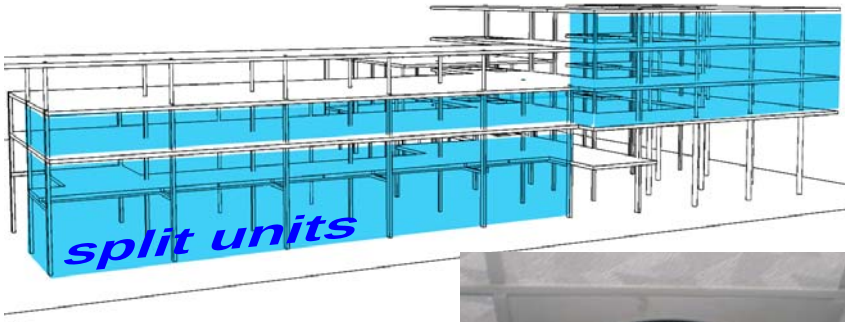
The Incubation Kitchen was designed according to commercial requirements and is approximately half the size of the restaurant.

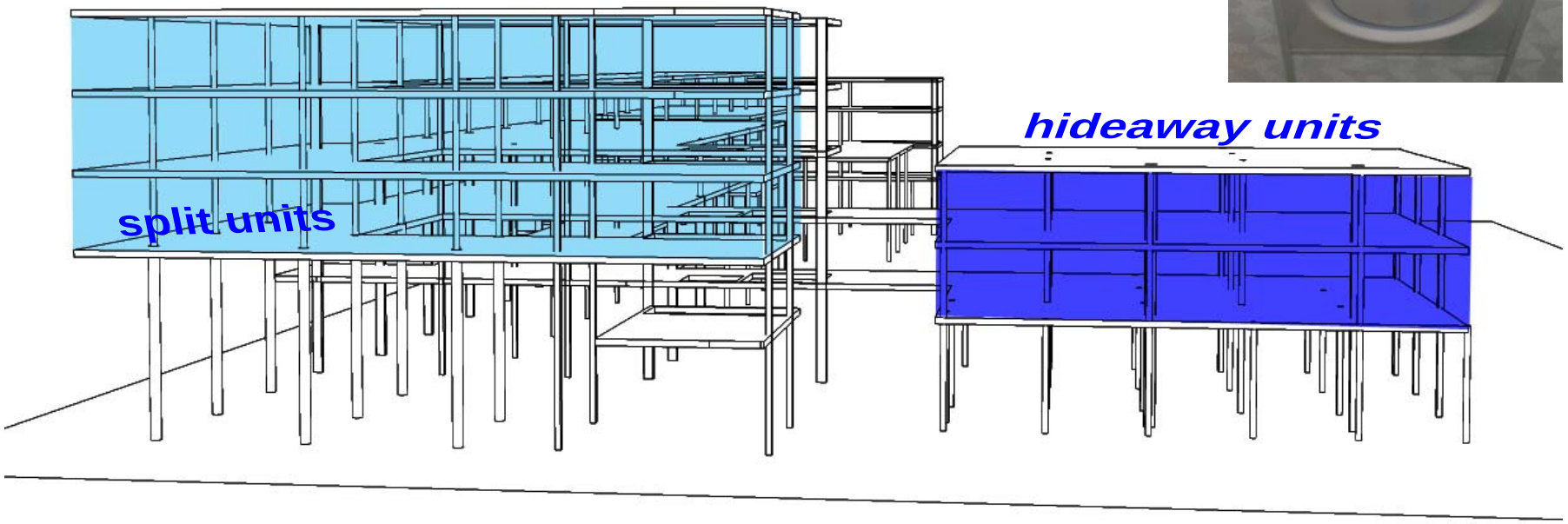
Both kitchens were designed with facilities for storage, preparation, cooking, serving, washing up and refuse removal. Circulation within kitchens had to be dealt with so that users passing each other would not hinder the performance of the kitchen.

9.5.3 Toilets

There are four toilet cores located within the building. The western toilets form part of the vertical circulation core, while the eastern toilets are adjacent to fire escapes, and the fourth serves the study centre. Toilets are all served by ducts and are divided into Gents and Ladies with unisex paraplegic toilets. Double entry doors with a ventilated lobby have been used for toilets in the restaurant and study centre.


split units


split units


split units
hideaway units

9.6 Air-conditioning

An interview with Pepe Stedman from Climatron (Stedman, personal communication, 2006) revealed that three types of ventilation would have to be used in the building. Different functions of interior spaces and cost implications ruled out the use if a centralized plant system. The three systems are as follows:

9.6.1 Split Units

26 split units are used in the line shops, studios, restaurant and offices. An under-ceiling split unit would have to be used as it can ventilate horizontally up to a distance of 10 m. The split units have exterior units which can be located on a roof or exterior wall but should not be placed further than a 20 m horizontal distance from the interior unit.

9.6.2 Hideaway Units

Hideaway units are used in the study centre. This allows for 100 m^2 to be ventilated by a single hideaway unit linked by flexible ducting to six ceiling outlets. 6 hideaway units will be needed to ventilate the two floors of the study centre.

9.6.3 Extraction

Kitchens and ducts are extracted only and require grills in doors and walls to allow for air replacement. Extraction from kitchens could provide a fire hazard and thus needs to be located on exterior walls. The filters in kitchens need to be cleaned regularly to reduce the risk of fire.

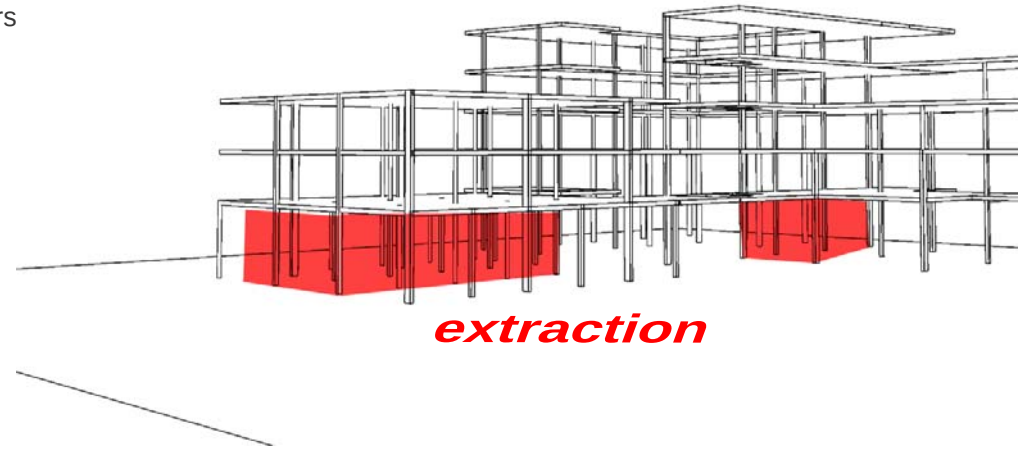
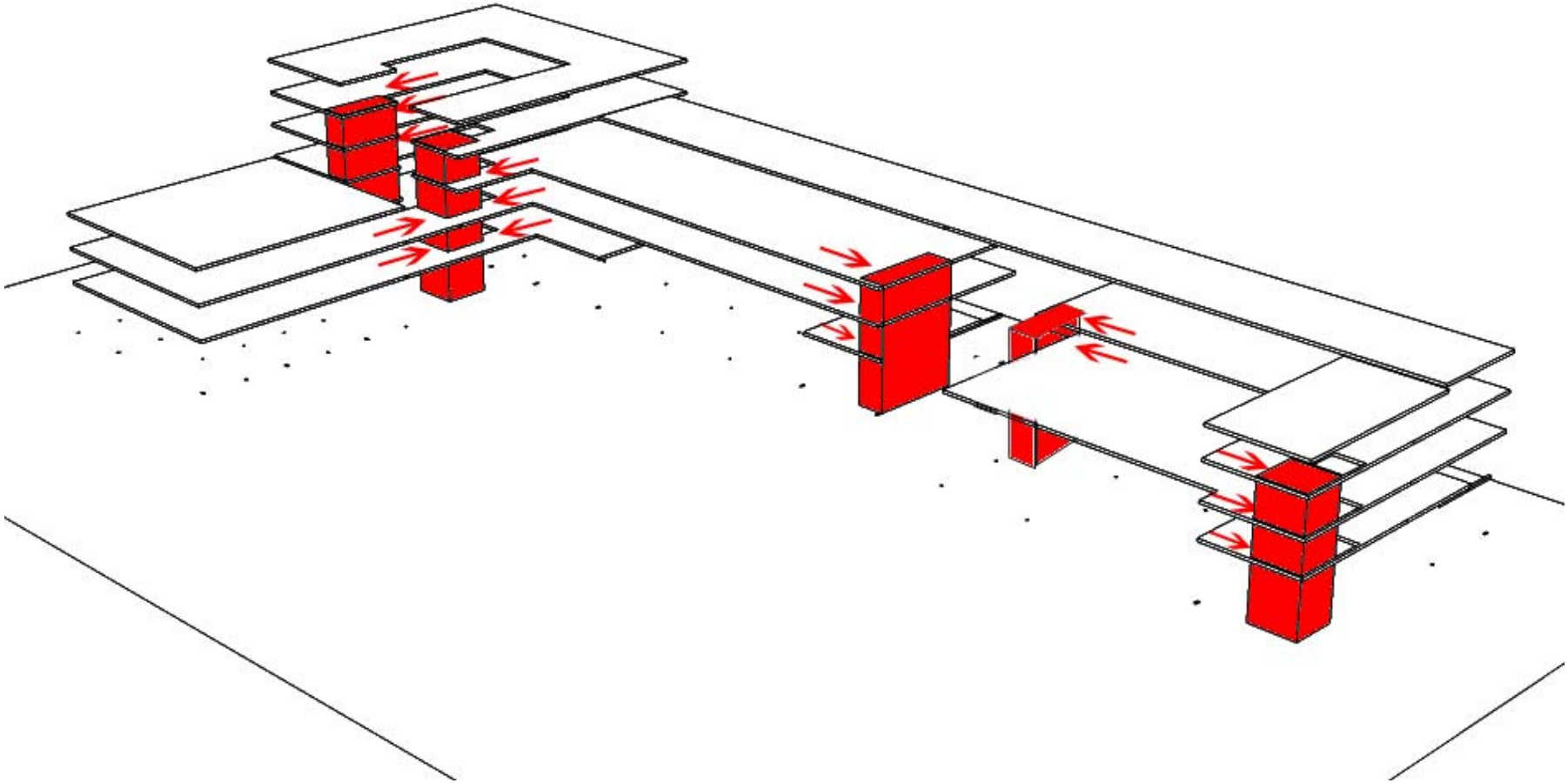


Fig.9.18 MCM Unit
Fig.9.19 Split Units - Western block
Fig.9.20 Split Units - Eastern block
Fig.9.21 Hideaway Unit
Fig.9.22 Hideaway Units - Study centre
Fig.9.23 Extraction from kitchens



9.7 Fire Strategy

The building has two main vertical circulation cores as well as three additional fire escapes which can open on ground level towards the outside but for security purposes will only be accessed from the interior of the building. Fire escapes are separated from the structure by fire doors at each level and by walls with a 120 minute fire resistance. A high-capacity sprinkler system with a dedicated water supply is fitted in the study centre, restaurant and kitchens. The sprinkler system is activated through a dual redundancy thermal activation system as per SABS 0139. Fire hydrants are placed at 30 m distances where the sprinkler system is not in place.
.

Fig.9.24 Fire Strategy

10 Appendices

10.1 Appendix A : Interviews

10.1.1 CITY OF TSHWANE

INTERVIEW WITH ESTA PRINS
Town Planner
estap@tshwane.gov.za
(012) 358 7942
15.03.2006
10:30

Site: Remainder and portion 7 of ERF 1161, Arcadia.
Current use: Educational.
Implication: Rezoning necessary and likely to be approved.
Possible developers:
Mandela Development Company.
Atterbury Property.
Current/historic use of buildings:
Contact institutions, SAHRA and Alf Vorster.
Ancillary supports:
Nelson Mandela Corridor Framework.
GAPP Framework.
Atterbury Property.
Urban Development Zone.
Parking – Table H.
Demand: Create facility to attract people.
Establish upmarket development along Nelson Mandela.
Must be a prime property development:
i.e. such as the DTI or new BMW showroom in Vermeulen Street
Rents/Yields: If land is state owned, it can be leased for private use.
Contact evaluation office.

Planning controls:
Rezoning required to allow for commercial or amusement use on the site.
Amusement (theatres) only allowed within general business zones with consent from the City of Tshwane.
Subsidies:
Public-private partnership: only if land is not government owned one can apply for a tax break or rebates on building fees.

Note:

Implementation of GAPP Framework very likely!
Money to be poured into development and improvement of Church and Paul Kruger Street.

10.1.2 CLIMATRON

INTERVIEW WITH PEPE STEDMAN
39 Webber Street
Selby
Johannesburg
082 458 3335
13.09.2006
10:00

10.1.3 INNOVATION HUB

INTERVIEW WITH NKHULU MABOYA
nmaboya@theinnovationhub.com
(012) 844 0027
072 808 3162
08.05.2006
09:00

Land parcels were sold and developed by purchaser.

Aim: To bring like minded people together.

Incubation concept:

Students set up business plans and apply to become part of the pre-incubation process. Graduates are selected according to the innovative level of their ideas. Pre-incubation allows the graduates with 6 months free rent with mentors provided in their particular field of study. The innovation hub recruits experts in that field to work as mentors. After the pre-incubation period and if the industry makes use of your idea you graduate to the incubation period where you may rent an office for a period of 2 years while you set up your business.

Blue IQ:

The hub is one of the 11 provincial Blue IQ developments and serves as the first Science and Technology Park in South Africa. It is envisioned to be completed before 2010 with all land parcels being sold off and developed. The hub owns the Innovation Centre Building as well as the Enterprise Building. These buildings contain offices and conference facilities that can be rented by graduates or the greater public. A system of hot offices exists where people can rent an office on a weekly basis.

State of the art facilities are provided with the latest in technical support. Europa@hub is the restaurant provided on the campus. It is thought that bringing like minded people together one can generate innovative ideas from within.

10.1.4 TSHWANE NORTH COLLEGE

INTERVIEW WITH RONEL VENTER
Marketing Manager
082 868 2546
10.05.2006

The College:

Tshwane North College is a FET (Further Education and Training) college operating as a vocational training college. After grade 9 (Standard 7) students can enrol in various programmes. The college has three campuses: the main campus located in Church Street and two more at Soshanguve and Mamelodi. The college is state-owned but has to raise its own funds to cover running costs.

The Students:

There are currently 18 000 students on the main campus. The college is unique in that students gather for assembly every morning at 07:30. They spend on average about R3 000 per day at the cafeteria alone! Space is limited on the campus but students are reluctant to attend classes at the other campuses. Students refer to the students at the main campus as 'coconuts' – white on the inside and black on the outside. Due to its stately appearance the principal attraction to the college is the historic main building of sandstone. On occasion potential students have applied for admittance without knowing anything about the college but just because they wanted to study there.

The College Building:

As previously stated, the college is state owned. The main college building requires a lot of maintenance and upkeep for which additional funds have to be raised, as monies received from the state may only be used for specific purposes. This leaves the college with a dilemma where funds are desperately needed for student facilities and where an historical building is falling into disrepair due to lack of maintenance.

Fund-raising:

The college is incredibly innovative in finding means to survive. It appears that this institution does not play the victim in any situation and rises to the occasion in all spheres. The college runs a number of businesses on its campus and two satellite businesses in the city – the Reserve Bank coffee shop and the restaurant for AVBOB. The satellite businesses are run by permanent staff, while the campus businesses are run by students.

Job Opportunities:

The students in the catering and hospitality programmes are in high demand and places such as Sun City would even employ someone with little or no experience for a salary up to R8 000 a month! This poses a problem for the college as students get offered jobs and leave without obtaining any qualifications. The spin side is that students who have talent in various other fields such as jewellery design often find themselves at a loss after completing their studies. Some, having won various accolades for their designs while studying, are barely able to make a living and end up doing nothing after their studies have been completed.

Long-term Plans:

The main problem at the college is the disorganization of departments since they merged to form the Tshwane North College. This has resulted in a great need for bigger facilities. The long-term plan is to consolidate departments and divide them up amongst the three campuses.

10.1.5 TSHWANE UNIVERSITY OF TECHNOLOGY

INTERVIEW WITH PIET ENGELBRECHT
Buildings and Estates/Geboue en Terreine
engelbrechtp@tut.ac.za
086 112121
(012) 382 4501
10.05.2006
09:00

Views:

Public-private partnership unlikely.
Collaboration between tertiary institutions highly improbable.

Current Situation:

Campus at maximum capacity, with a student body of over 2500. Van Aswegens building across the road is being rented for a further 1500 students. Library inadequate; need exists for study space and internet access. Student interaction is poor. Crime is viewed by students and staff to be internally driven by students and staff and comprises mostly theft. The campus would never be opened to the public.

Green Building on the corner of Nelson Mandela and Church:

Currently owned by TUT but not occupied due to present condition. Originally used as a brothel when purchased by TUT for R 750 000. Adjacent sites, Jeka Foams and Carburetor City, on the market for R 3 000 000 and R 5 000 000 respectively. Suggested to be demolished and redeveloped but due to lack of funds will be refurbished only to house the SRC.

Long-term plans:

Relocation of various departments and housing of SRC in Green Building. Deed of transfer is in TUT's name but any changes to the site have to be approved by the Department of Education. Any development required by the dean of the campus needs to be privately funded as TUT is lacking in funds and the Government only provides a subsidy of 40%. The owner of Metro (Cassim) would snatch up any opportunity to purchase the land.

Eaton Buildings:

Norman Eaton buildings are merely viewed as buildings and was refurbished between 1995 and 2000. Architect approached – Derick Stedall.

Businesses run by TUT:

Guest houses – NZASM and Cosmos.

All in all not a positive response to the idea of an incubation project as proposed, probably due to being in the business for 25 years and having typical Afrikaner mentality. Wants to know what's in it for TUT without giving anything back.

10.2 Appendix B : Frameworks

GAPP FRAMEWORK

Guidelines for the Mandela Corridor Precinct:

The built form in this precinct should be a mix of higher-quality modern retail, office and residential buildings, to move away from the existing lower quality edge-type built form. The key directives are as follows:

- All buildings should address the public spaces.
- The architecture should comply with the architectural guidelines.
- The general built form should be of the courtyard type.
- Height of buildings should relate to the public space dimensions and should attempt to highlight the Caledonian Sports Ground, and elsewhere attempt to create a consistent height of between 6-10 stories.
- The CTMM's current plans for the Apies River Walk and the Caledonian Sports Grounds should be considered as part of these guidelines.
- Materials to be used– sandstone, slate, concrete, glass, timber, transparent materials, plaster.

(GAPP 2006:158)

10.3 Appendix C: Environmental Context

Fig.10.1 Site Area - Environmental Context

10.3.1 Natural Systems

- The structure of the city is determined by a system of ridges, with the inner city cradled between the Langeberge and the Witwatersberge.
- The site is located within the inner city in close proximity to the Apies River, which indicates a shallow water table.
- The site is developed in its entirety with a garden surrounding the existing administration building and planted trees in courtyards and along Vermeulen and Nelson Mandela.

10.3.2 Topography

- The site slopes north-eastwards towards the Apies River but development has almost levelled it. Redevelopment of the site would require minimal cut and fill.

10.3.3 Existing Vegetation

- The trees bordering the site on Vermeulen Street are considered to have an important aesthetic value as they frame and soften the campus in contrast to the harsh edge provided by the Metro building on the Northern sidewalk.
- It is proposed that existing indigenous trees be kept in tact and maintained as far as possible.
- The vegetation planted in and around historic buildings are of particular importance and can be restored in many instances to its original state.

10.3.4 Climate

- Tshwane falls in the temperate eastern plateau region of Gauteng. Generally, this area predominantly consists grassland with scattered trees in the wetter parts. Summers are warm to hot, with fairly dry air, relieved by thunderstorms generated by thermal air movement. Hail is not uncommon. Winter days are pleasantly sunny with clear cold to very cold nights (Geel 2005: 27).
- The climate of temperate Eastern Plateau region is moderate and does not necessitate extreme governing principles for the design of buildings (Geel 2005:27).

10.3.5 Rain

- The rainy season occurs from November to March, peaking in January.
- Fifty to eighty days of rain can be expected annually.
- The high rainfall in the area can be harvested and stored for domestic use. Because of the possibility of hail in the area, the design of gutters need to be considered if rainwater is to be harvested (Geel 2005:27).

10.3.6 Climate Facts

▪ January temperatures:	20 to 25 °C
▪ June temperatures:	10 to 15 °C
▪ Prevailing winds:	N-E in summer and N-E to N-W in winter.
▪ Relative humidity:	30%
▪ Hours sunshine:	60%
▪ Average rainfall:	674 mm
▪ Winter solstice:	22 June - 44°
▪ Summer solstice:	22 December - 87° (Geel 18:2005).

10.5 Appendix C : Demolition

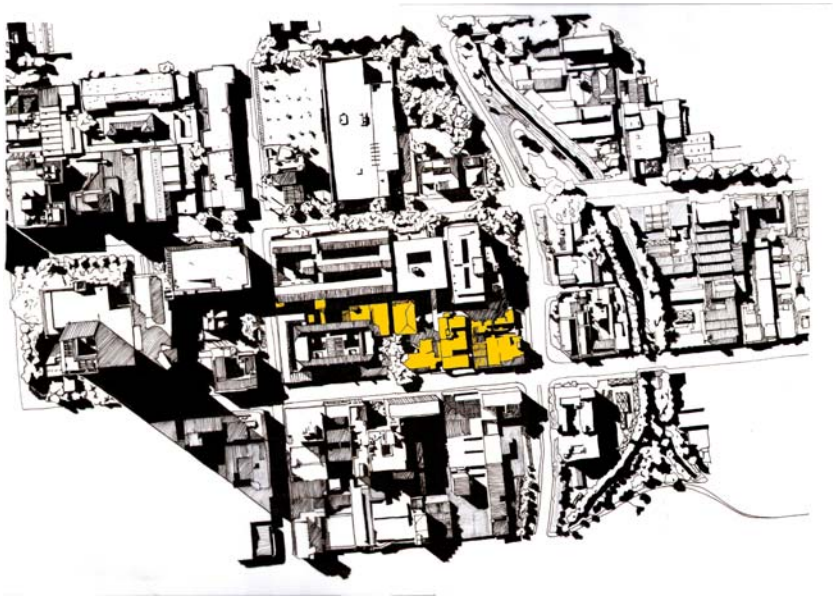


Fig.10.2: Legal Context – Diagram depicting buildings to be demolished

10.5.1 BUILDING 1

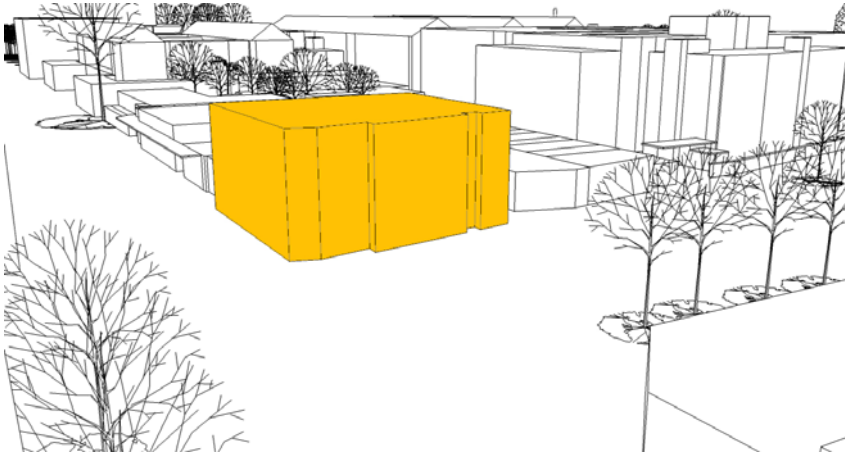


Fig.10.3: Legal Context – Building 1

ADDRESS: North Western corner of Nelson Mandela Boulevard and Church Street.
ERF #: 1161
OWNED BY: Tshwane University of Technology.
CURRENT USE: Retail on street level along Church Street, upper levels unoccupied.

The Tshwane University of Technology purchased the land for R 750 000 but has not been able to occupy the building due to its dilapidated state. The building was previously used as a brothel and was extended without approval from the City Council of Tshwane. The structure is deemed unsafe by the Facilities Manager mr Piet Engelbrecht and has been severely vandalized. He proposes that the building be demolished, but due to lack of funds this would not be possible at the moment. Extensive renovations would have to be made and is envisioned to house the Tshwane University of Technology's Student Representative Council.

CONCLUSION: Demolition advisable.

Fig.10.4: Building 1 – Corner of Church Street and Nelson Mandela Boulevard

10.5.2 BUILDING 2

Fig.10.5: Legal Context – Building 2

ADDRESS: 440 Church Street
ERF #:
OWNED BY: Jeka Foam and Plastics.
CURRENT USE: Retail.

Double-storey face-brick building used for retail; owner requests R3 000 000 for purchase.

CONCLUSION: Demolition advisable.

Fig.10.6: Building 2 – Church Street

10.5.3 BUILDING 3

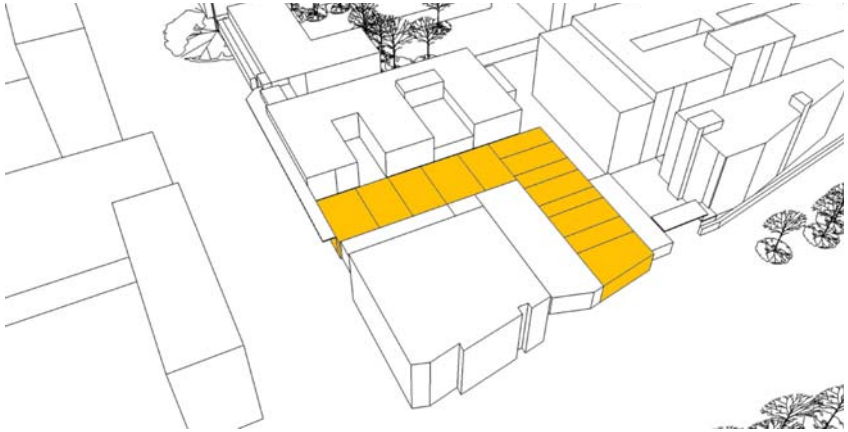


Fig.10.7: Legal Context – Building 3

ADDRESS: 436 Church Street
ERF #:
OWNED BY: Auto Spares Pretoria, Carburettor City.
CURRENT USE: Service and repair of vehicles.

Provision of spares on Church Street and workshops leading to Nelson Mandela Boulevard. Double-storey face-brick with ramp on Nelson Mandela.

CONCLUSION: Demolition advisable.

Fig.10.8: Building 3 – Entrance on Nelson Mandela Boulevard

10.5.4 BUILDING 4

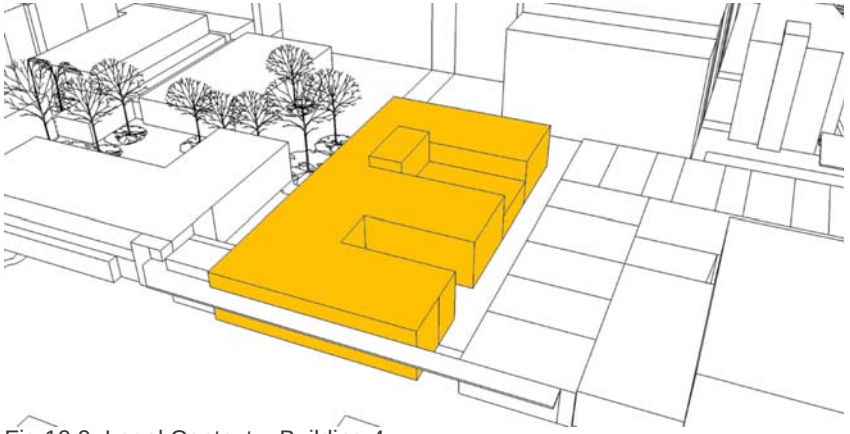


Fig.10.9: Legal Context – Building 4

ADDRESS: Arcadia Campus 175 Nelson Mandela Drive
ERF #: 1161
OWNED BY: Tshwane University of Technology.
CURRENT USE: Sasol Library.

Opened in 1995 (Oberholzer: p176), the library functions more as a social and study area for the current campus situation rather than a library. For this reason the facility is at maximum capacity and does not meet the needs of the students.

CONCLUSION: Facility inadequate, demolition advisable.

Fig.10.10: Building 4 – View of building from Nelson Mandela entrance to the campus

Fig.10.11: Building 4 – Church Street Façade

10.5.5 BUILDING 5

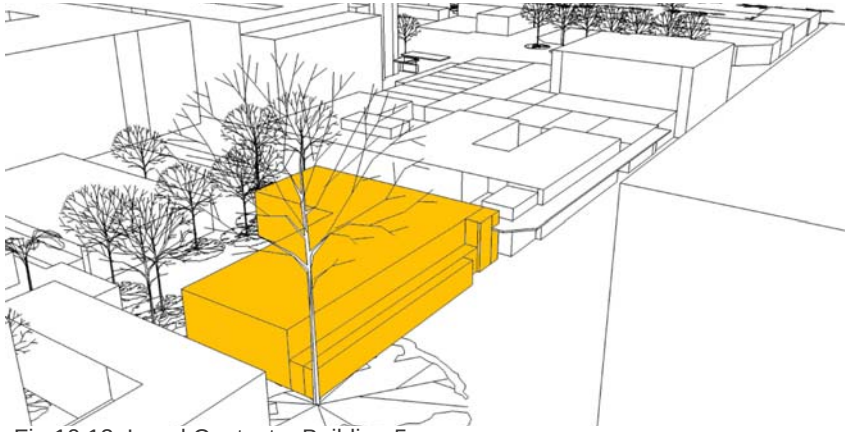


Fig.10.12: Legal Context – Building 5

ADDRESS: Arcadia Campus, 175 Nelson Mandela Drive
ERF #: 1161
OWNED BY: Tshwane University of Technology.
CURRENT USE: Administration Building.

Added to the campus in 1995 (Oberholzer: p177), this building serves as offices for the administration staff. These functions could easily be accommodated in a new development as they require no direct interface with the street.

CONCLUSION: Facility can be easily relocated.

Fig.10.13: Building 5 – Church Street Façade

10.5.6 BUILDING 6

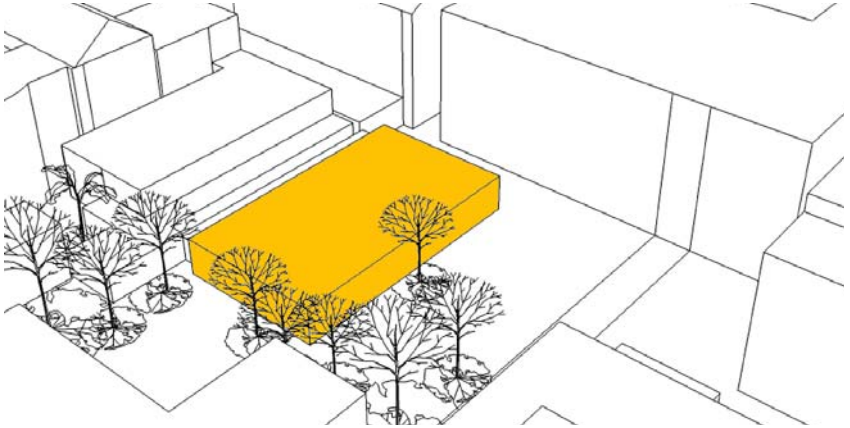


Fig.10.14: Legal Context - Building 6

ADDRESS: Arcadia Campus, 175 Nelson Mandela Drive
ERF #: 1161
OWNED BY: Tshwane University of Technology.
CURRENT USE: Examination hall.

Added to the campus in 1995 (Oberholzer: p177), the single-storey hall serves as an examination facility.

CONCLUSION: Facility can be easily relocated.

Fig.10.15: Building 6 – Wall dividing Tshwane North College and Tshwane University of Technology

10.5 Appendix D : Analysis Methodology

PHASE 1 ► **SITE DESCRIPTION** ► **SITE VISIT** ► **MAPS** ► **USES** ► **ANALYSIS** ►

DISCUSSION

- location
- history
- **VISION**

*CONTEXTUAL ANALYSIS
*AERIAL PHOTOGRAPHS
1:500 000
1:75 000
1:10 000
1:2 500
*DEFINE STUDY AREA, PRECINCT AND SITE
*MAKE APPOINTMENT TO SEE SCHALK
*CONSUMERISM
how can it draw people into the inner city?
how can it generate activity?
how can it create vibrancy?
*PUBLIC/PRIVATE PARTNERSHIP
commercial education?

CONTEXT ANALYSIS FILE 2
HISTORICAL CONTEXT FILE 2
CONSUMER THEORY FILE 2
HARVARD GUIDE TO SHOPPING
PRO FORMA FILE 2

- main access routes
- places of interest/activity

*URBAN FORM ANALYSIS
*LAND USE ANALYSIS
*PHOTOGRAPH AT DIFFERENT TIMES OF THE DAY.
*IDENTIFY MOVEMENT PATTERNS
pedestrian
public transport
public vehicle usage

PHOTO'S FILE 2
MORNE'S THESIS FILE 2

INTERPRETATION

- interpret the information gathered into a legible form through maps and diagrams

*URBAN CONSERVATION ANALYSIS
*MOVEMENT & TRANSPORT ANALYSIS
*INVESTIGATE SCALE COMPARING:
regional
metropolitan
sub-metropolitan
local (incl. study area and project area)

CONTEXT ANALYSIS FILE 2

CONTACT

- local authority & organizations
- local estate agents
- **VISION**

*URBAN DESIGN CONCEPT
Frameworks
public and private vision for the site
Identify
opportunities
constraints
possible functions
role of the site
various scales
Future scenario
are there proposed plans?
long and short term

CONTEXT ANALYSIS FILE 2
PRO FORMA FILE 3
COUNCIL FILE 2
TSHWANE FRAMEWORK FILE 1
MDC
Amanda Jacobs
(012) 358 8710
TOWN PLANNER
Esta Prins
(012) 358 7942
estap@tshwane.gov.za
KOPANONG
METRO PLANNING
Riana du Plessis
(012) 358 7838
Brendan Vandayar
(012) 358 4508
ATTERBURY PROPERTY
Piet Viljoen

- analyze uses to arrive at a spatial arrangement of compatible use.
- zone areas for use.
- **VISION**

*DEVELOPMENT VISION
Housing
different types
Infrastructure
water
sewer
electricity
Commerce
commercial activities
access to them
Industry
industrial activities
access to them
Public amenities
hospitals
police
schools
post office
church etc.
Zoning
current zoning regulations
Tourism
heritage
tourist facilities
museums etc.
Densities & population
do people live there?
How do people make money?
income distribution
Green Structure
other uses within green areas

GIS
EXISTING DIGITAL PLANS
ARCHITECT
Alf Vorster
(012) 358 8078
TOWN PLANNER
Johnny Coetzee
082 770 1408
DEMOGRAPHICS
www.demarcation.org.za
TSHWANE UNIVERSITY OF TECHNOLOGY
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(012) 318 6229
Gert Delport
(012) 318 4517
TSHWANE NORTH COLLEGE
Ronel Venter
(012) 401 1600
082 868 2546

ZONE ANALYSIS ►

●consider each zone to locate the position of magnets and secondary functions.

● VISION

*PROPOSED LAND USE
*PROPOSED PUBLIC FACILITIES /URBAN CONSERVATION
*PROPOSED CIRCULATION & ACCESS
*PROPOSED LANDSCAPE & OPEN SPACE
*STRATEGIC COMPONENTS

FEASIBILITY CHECK ►
SPREADSHEETS

● set up spreadsheets to continually monitor viability while designing.

*CURRENT VALUE
*VALUE AFTER DEVELOPMENT
*FEASIBILITY OF THE PROJECT
*POSSIBILITY OF IMPLEMENTATION

STREET ►
CLASSIFICATION

● residential
● all purpose
● assign widths to streets according to use intensity.

● consider the junctions
● design the junctions to clow traffic & allow pedestrian movement.
● critically analyze pedestrian movement.

BLOCK SIZE ►
CHECK
● check that blocks are of adequate size to house the proposed use.

*SET UP ACCOMMODATION LIST
*MODEL CURRENT SITUATION
*MODEL CHANGES

SUMMARY ►

● summarize the scheme after considering permeability and variety.

● shown on a map with relevant diagrams and text.

● VISION

PHASE 2

EVALUATION DEPARTMENT
Highest and best use.
Ben Espach
(012) 358 8376

GIS
TRAFFIC DEPARTMENT
Lloyd Muti
(012) 358 7839

INNOVATION HUB
Dr Neville Comins (CEO)
(012) 844 0024/1
Lindsay Prescott (Campus Viewing)
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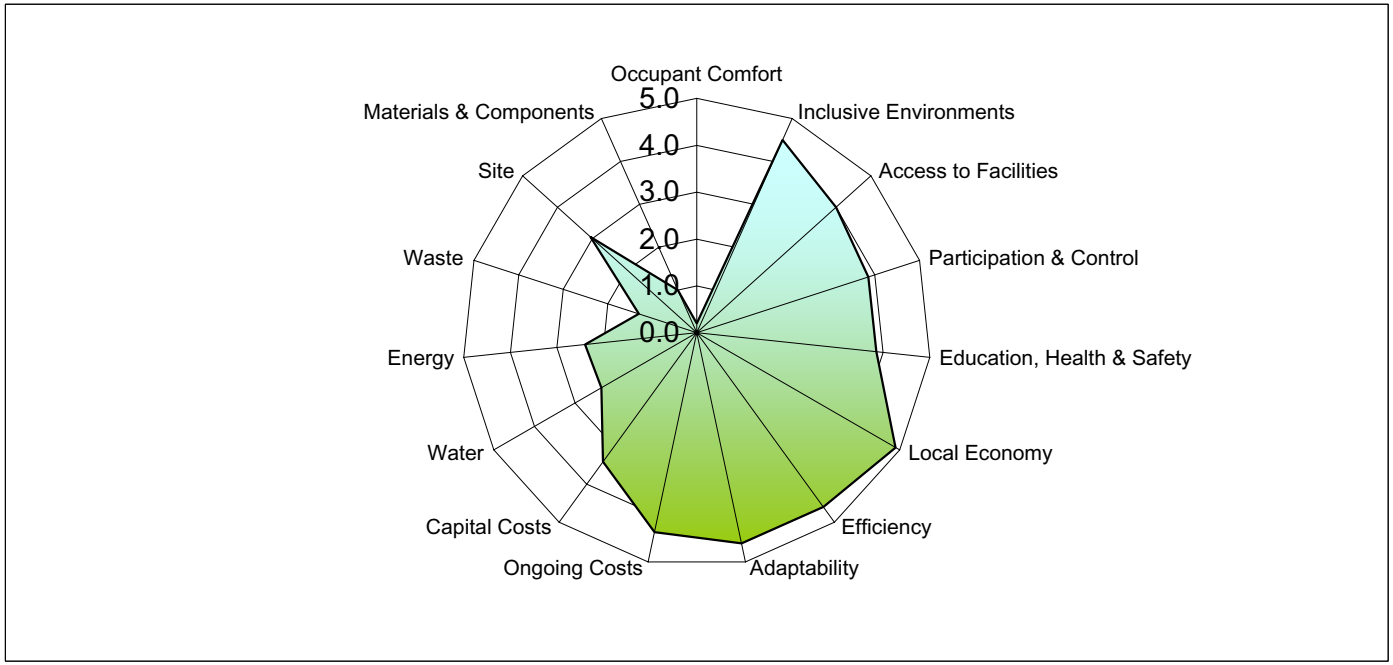
lprescott@innovationhub.com
TSHWANE UNIVERSITY OF TECHNOLOGY
Piet Engelbrecht
(012) 318 4501

10.6 Appendix E : Baseline Document

SUSTAINABLE BUILDING ASSESSMENT TOOL (SBAT- P) V1

PROJECT		ASSESSMENT	
Project title:	The Refinery	Date:	14/10/2006
Location:	Tshwane	Undertaken by:	Natalie Moore
Building type (specify):	Educational/Commercial	Company / organisation:	Tshwane University of Technology
Internal area (m2):		Telephone:	Fax:
Number of users:		Email:	
Building life cycle stage (specify):	Design/Construction/Operation		



Social	3.3	Economic	4.4	Environmental	2.0

Overall	3.2

Building Performance - Social

	Criteria	Indicative performance measure	Measured	Points	Quantified modelled or measured performance data
SO 1	**Occupant Comfort**	Explanatory notes		0.2	http://greenbuilding.ca/
SO 1.1	Daylighting	% of occupied spaces that are within distance 2H from window, where H is the height of the window or where there is good daylight from skylights	20	0.2	
SO 1.2	Ventilation	% of occupied spaces have equivalent of opening window area equivalent to 10% of floor area or adequate mechanica system, with upolluted air source	0	0.0	
SO 1.3	Noise	% of occupied spaces where external/internal/reverberation noise does not impinge on normal conversation (50dbA)	0	0.0	
SO 1.5	Thermal comfort	Tempreture of occupied space does not exceed 28 or go below 19ºC for less than 5 days per year (100%)	0	0.0	
SO 1.5	Views	% of occupied space that is 6m from an external window (not a skylight) with a view	0	0.0	
SO 2	**Inclusive Environment**	Explanatory notes		4.5	
SO 2.1	Public Transport	% of building (s) within 400m of disabled accessible (20%) and affordable (80%) public transport	100	1.0	
SO 2.2	Information	Comprehensive signage provided (50%), Signage high contrast, clear print signage in appropriate locations and language(s) / use of understandable symbols / manned reception at all entrances (50%)	70	0.7	
SO 2.3	Space	% of occupied spaces that are accessible to ambulant disabled / wheelchair users	100	1.0	
SO 2.4	Toilets	% of occupied space with fully accessible toilets within 50m along easily accessible route	90	0.9	
SO 2.5	Fittings & Furniture	% of commonly used furniture and fittings (reception desk, kitchenette, auditorium) fully accessible	90	0.9	
SO 3	**Access to Facilities**	Explanatory notes		4.0	
SO 3.1	Children	All users can walk (100%) / use public transport (50%) to get to their childrens' schools and creches	50	0.5	
SO 3.2	Banking	All users can walk (100%) / use public transport (50%) to get to banking facilities	100	1.0	
SO 3.3	Retail	All users can walk (100%) / use public transport (50%) to get to food retail	100	1.0	
SO 3.4	Communication	All users can walk (100%) / use public transport (50%) to get to communication facilities (post/telephone/internet)	100	1.0	
SO 3.5	Exercise	All users can walk (100%) / use public transport (50%) to get to recreation/excercise facilities	50	0.5	
SO 4	**Participation & Contro**	Explanatory notes		3.9	
SO 4.1	Environmental control	% of occupied space able to control their thermal environment (adjacent to openable windows/thermal controls)	75	0.8	
SO 4.2	Lighting control	% of occupied space able to control their light (adjacent to controllable blinds etc/local lighting control)	75	0.8	
SO 4.3	Social spaces	Social informal meeting spaces (parks / staff canteens / cafes) provided locally (within 400m) (100%)	100	1.0	
SO 4.4	Sharing facilties	5% or more of facilities shared with other users / organisations on a weekly basis (100%)	75	0.8	
SO 4.5	User group	Users actively involved in the design process (50%) / Active and representative management user group (50%)	60	0.6	
SO 5	**Education, Health & S**	Explanatory notes		3.9	
SO 5.1	Education	Two percent or more space/facilities available for education (seminar rooms / reading / libraries) per occupied space (75%). Construction training provided on site (25%)	75	0.8	
SO 5.2	Safety	All well used routes in and around building well lit (25%), all routes in and around buildings visually supervised (25%), secure perimeter and access control (50%), No crime (100%)	50	0.5	
SO 5.3	Awareness	% of users who can access information on health & safety issues (ie HIV/AIDS), training and employment opportunitie easily (posters/personnel/intranet site)	100	1.0	
SO 5.4	Materials	All materials/components used have no negative effects on indoor air quality (100%)	60	0.6	
SO 5.5	Accidents	Process in place for recording all occupational accidents and diseases and addressing these	100	1.0	

Building Performance - Economic

	Criteria	Indicative performance measure	Measured	Points
EC 1	**Local economy**	Explanatory notes		4.9
EC 1.1	Local contractors	% value of the building constructed by local (within 50km) small (employees<20) contractors	90	0.9
EC 1.2	Local materials	% of materials (sand, bricks, blocks, roofing material) sourced from within 50km	100	1.0
EC 1.3	Local components	% of components (windows, doors etc) made locally (in the country)	100	1.0
EC 1.4	Local furniture/fittings	% of furniture and fittings made locally (in the country)	100	1.0
EC 1.5	Maintenance	% of maintenance and repairs by value that can, and are undertaken, by local contractors (within 50km)	100	1.0
EC 2	**Efficiency**	Explanatory notes		4.6
EC 2.1	Capacity	% capacity of building used on a daily basis (actual number of users / number of users at full capacity*100)	100	1.0
EC 2.2	Occupancy	% of time building is occupied and used (actual average number of hours used / all potential hours building could be used (24) *100)	90	0.9
EC 2.3	Space per occupant	Space provision per user not more than 10% above national average for building type (100%)	100	1.0
EC 2.4	Communication	Site/building has access to internet and telephone (100%), telephone only (50%)	100	1.0
EC 2.5	Material & Components	Building design coordinated with material / component sizes in order to minimise wastage. Walls (50%), Roof and floors (50%)	70	0.7
EC 3	**Adaptability**	Explanatory notes		4.3
EC 3.1	Vertical heights	% of spaces that have a floor to ceiling height of 3000mm or more	100	1.0
EC 3.2	External space	Design facilitates flexible external space use (100%)	100	1.0
EC 3.3	Internal partition	Non loadbearing internal partitions that can be easily adapted (loose partioning (100%), studwall (50%), masonary (25%)	25	0.3
EC 3.4	Modular planning	Building with modular stucture, envelope (fenestration) & services allowing easly internal adaptaptation (100%)	100	1.0
EC 3.5	Furniture	Modular, limited variety furniture - can be easily configured for different uses (100%)	100	1.0
EC 4	**Ongoing costs**	Explanatory notes		4.4
EC 4.1	Induction	All new users receive induction training on building systems (50%), Detailed building user manual (50%)	100	1.0
EC4.2	Consumption & waste	% of users exposed on a monthly basis to building performance figures (water (25%), electricity (25%), waste (25%), accidents (25%)	75	0.8
EC 4.2	Metering	Easily monitored localised metering system for water (50%) and energy (50%)	80	0.8
EC4.3	Maintenance & Cleaning	% of building that can be cleaned and maintained easily and safely using simple equipment and local non-hazardous materials	80	0.8
SO 4.5	Procurement	% of value of all materials/equipment used in the building on a daily basis supplied by local (within the country) manufacturers	100	1.0
EC 5	**Capital Costs**	Explanatory notes		3.4
EC 5.1	Local need	Five percent capital cost allocated to address urgent local issues (employment, training etc) during construction process (100%)	100	1.0
EC5.2	Procurement	Tender / construction packaged to ensure involvement of small local contractors/manufacturers (100%)	100	1.0
EC 5.3	Building costs	Capital cost not more than fifteen % above national average building costs for the building type (100%)	90	0.9
EC5.4	Technology	3% or more of capital costs allocated to new sustainable/indigenous technology (100%)	50	0.5
EC 5.5	Existing Buildings	Existing buildings reused (100%)	0	0.0

Building Performance - Environmental

	Criteria	Indicative performance measure	Measured	Points
EN 1	**Water**	Explanatory notes		2.4
EN 1.1	Rainwater	% of water consumed sourced from rainwater harvested on site	0	0.0
EN 1.2	Water use	% of equipment (taps, washing machines, urinals showerheads) that are water efficient	40	0.4
EN 1.3	Runoff	% of carparking, paths, roads and roofs that have absorbant/semi absorbant/permeable surfaces (grassed/thatched/looselaid paving/ absorbant materials)	20	0.2
EN 1.4	Greywater	% of water from washing/relatively clean processes recycled and reused	90	0.9
EN 1.5	Planting	% of planting (other than food gardens) on site with low / appropriate water requirements	85	0.9
EN 2	**Energy**	Explanatory notes		2.4
EN 2.1	Location	% of users who walk / cycle / use public transport to commute to the building	100	1.0
EN 2.2	Ventilation	% of building ventilation requirements met through natural / passive ventilation	40	0.4
EN 2.3	Heating & Cooling	% of occupied space which relies solely on passive environmental control (no or minimal energy consumption)	40	0.4
EN 2.4	Appliances & fittings	% of appliances / lighting fixtures that are classed as highly energy efficient (ie energy star rating)	30	0.3
EN 2.5	Renewable energy	% of building energy requirements met from renewable sources	30	0.3
EN 3	**Waste**	Explanatory notes		1.3
EN 3.1	Toxic waste	% of toxic waste (batteries, ink cartridges, flourescent lamps) recycled	80	0.8
EN 3.2	Organic waste	% of organic waste recycled	50	0.5
EN 3.3	Inorganic waste	% of inorganic waste recycled.	0	0.0
EN 3.4	Sewerage	% of sewerage recycled on site	0	0.0
EN 3.5	Construction waste	% of damaged building materials / waste developed in construction recycled on site	0	0.0
EN 4	**Site**	Explanatory notes		3.1
EN 4.1	Brownfield site	% of proposed site already disturbed / brownfield (previously developed)	100	1.0
EN 4.2	Neighbouring buildings	No neighbouring buildings negatively affected (access to sunlight, daylight, ventilation) (100%)	100	1.0
EN 4.3	Vegetation	% of area of area covered in vegetation (include green roofs, internal planting) relative to whole site	25	0.3
EN 4.4	Food gardens	Food gardens on site (100%)	0	0.0
EN 4.5	Landscape inputs	% of landscape that does not require mechanical equipment (ie lawn cutting) and or artificial inputs such as weed killers and pesticides	80	0.8
EN 5	**Materials & Componen**	Explanatory notes		1.0
EN 5.1	Embodied energy	Materials with high embodied energy (aluminium,plastics) make up less than 1% of weight of building (100%)	0	0.0
EN 5.2	Material sources	% of materials and components by volume from grown sources (animal/plant)	20	0.2
EN 5.3	Ozone depletion	No materials and components used requiring ozone depleting processes (100%)	0	0.0
EN 5.4	Recyled / reuse	% of materials and components (by weight) reused / from recycled sources	0	0.0
EN 5.5	Construction process	Volume / area of site disturbed during construction less than 2X volume/area of new building (100%)	80	0.8

10.10 Appendix F : List of Figures

10.11 Appendix H : Bibliography

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  Tel: 086 112121
  Cell: (012) 382 4501
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  Contact Details:
  E-mail: nmaboya@theinnovationhub.com
  Tel: (012) 844 0027
  Cell: 072 808 3162
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  Contact Details:
  E-mail: estap@tshwane.gov.za
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  Contact Details:
  Address: 39 Webber Street, Selby, Johannesburg.
  Cell: 082 458 3335
- VENTER, Ronel. Interview conducted on the 10th of May 2006.
  Cell: 082 868 2546

11 Technical Documentation

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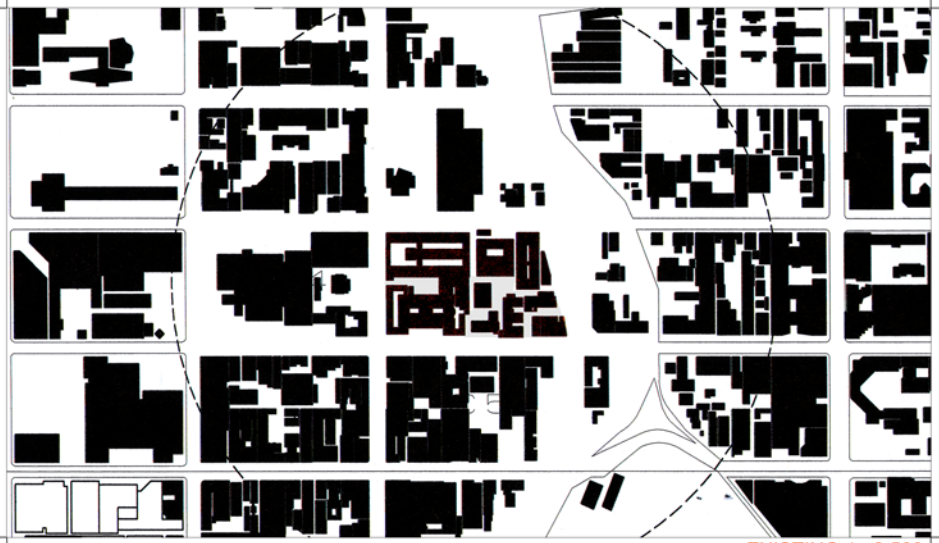

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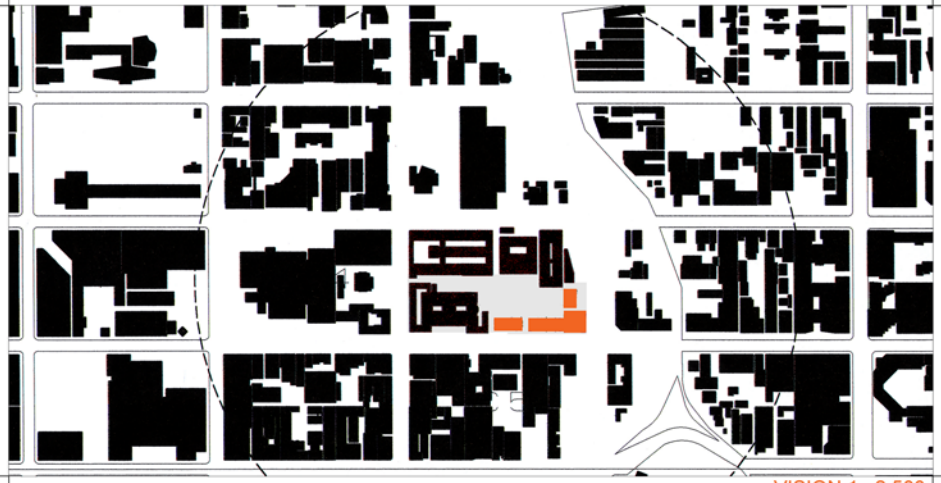

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FIGURE GROUND ANALYSIS

The Refinery

An Incubator for the Refinement of Talent in Tshwane's Inner City

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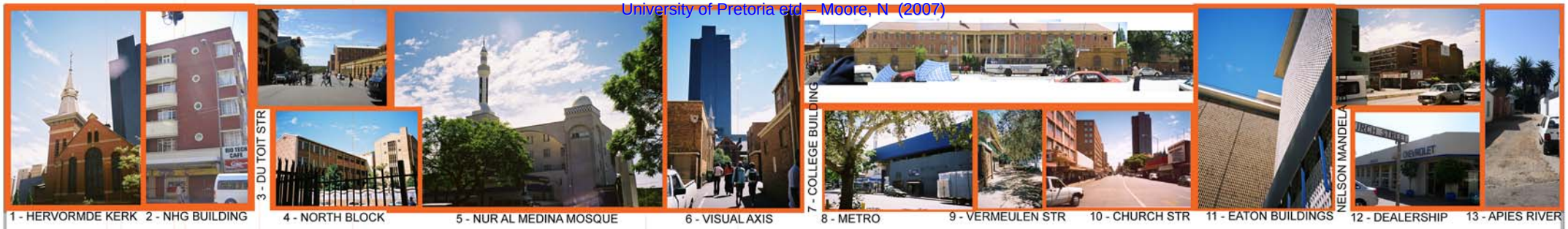

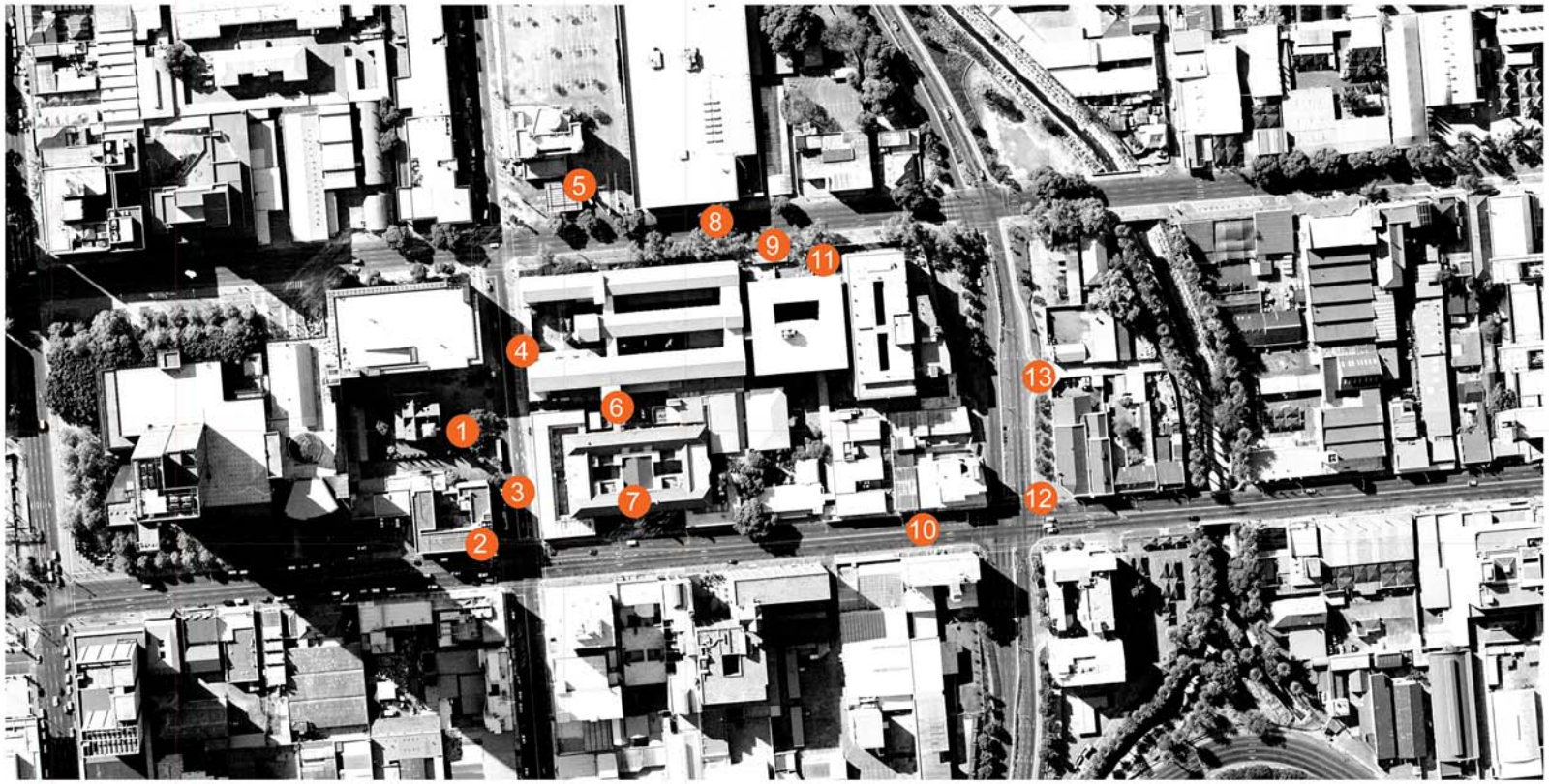

PHOTOGRAPHIC ANALYSIS

The Refinery

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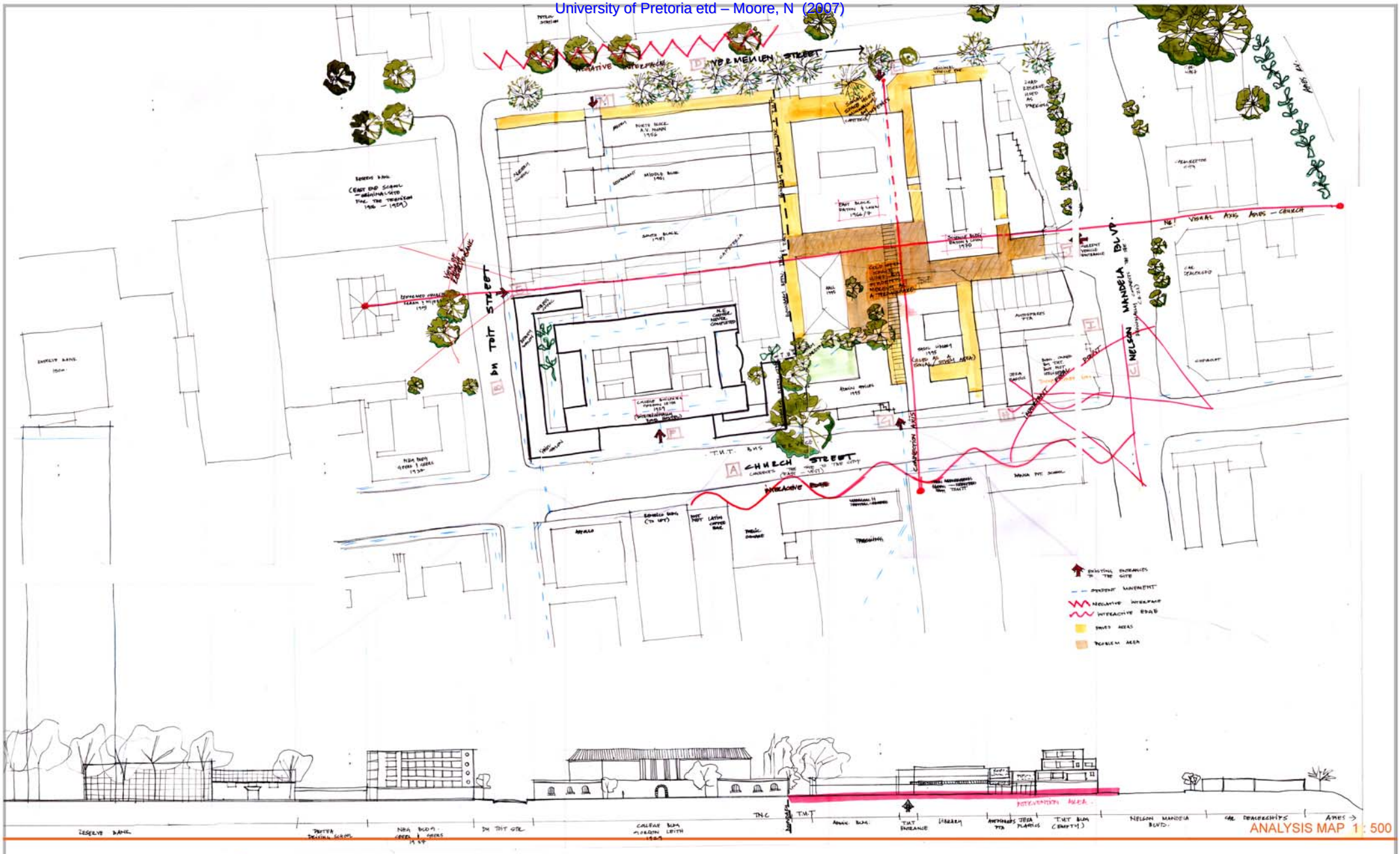

ANALYSIS MAP 1 : 500

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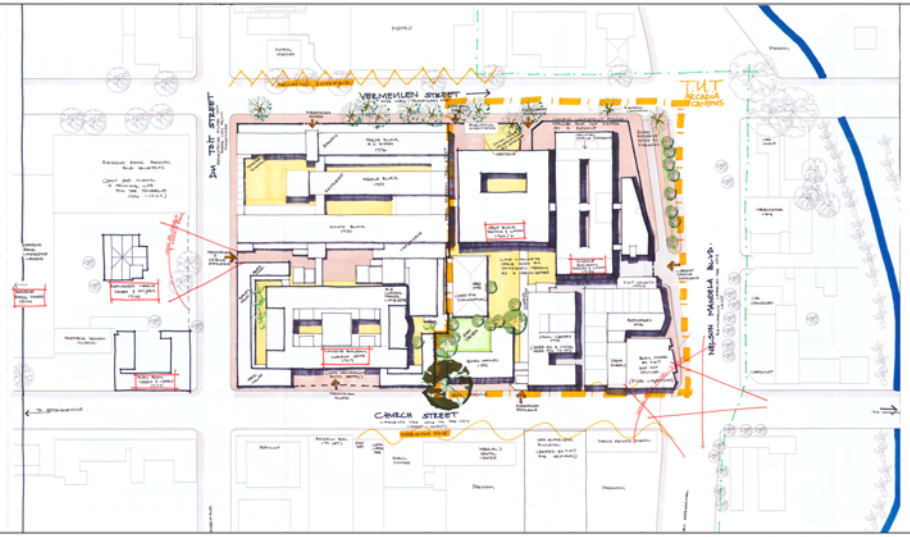

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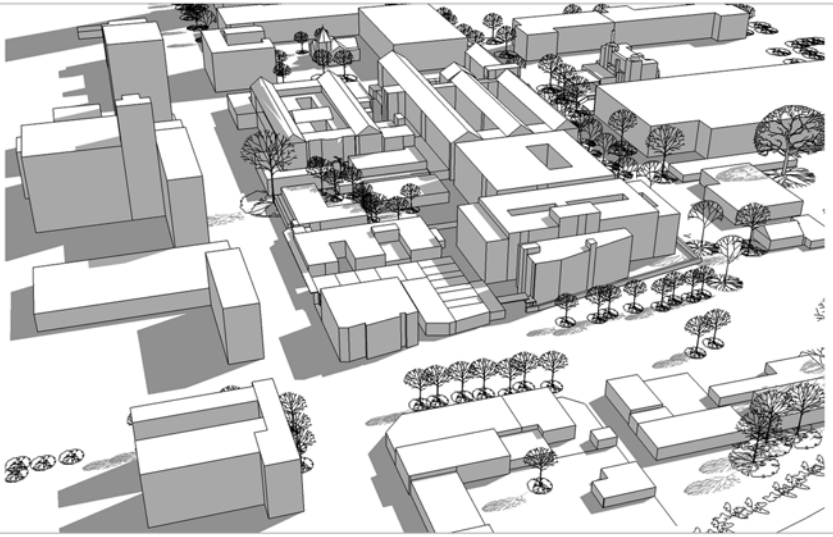

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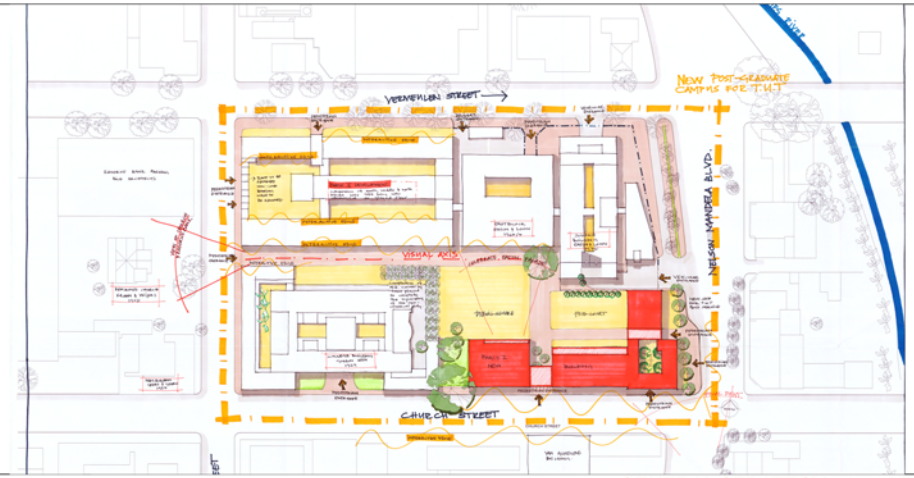

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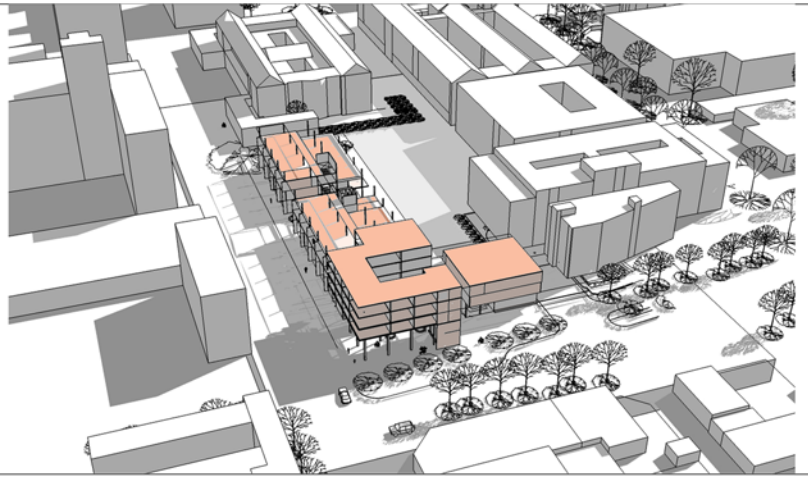

VISION

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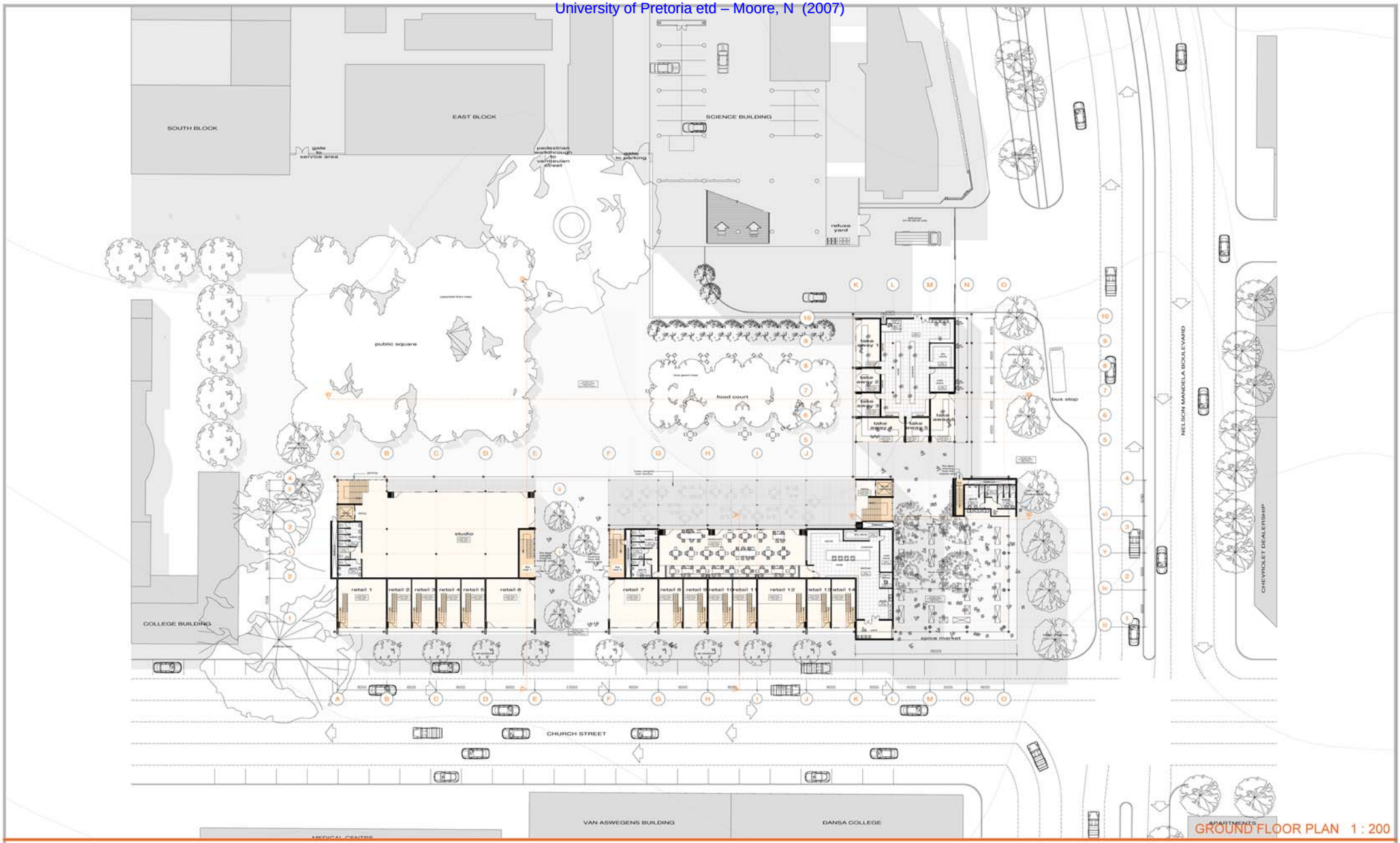

GROUND FLOOR PLAN 1 : 200

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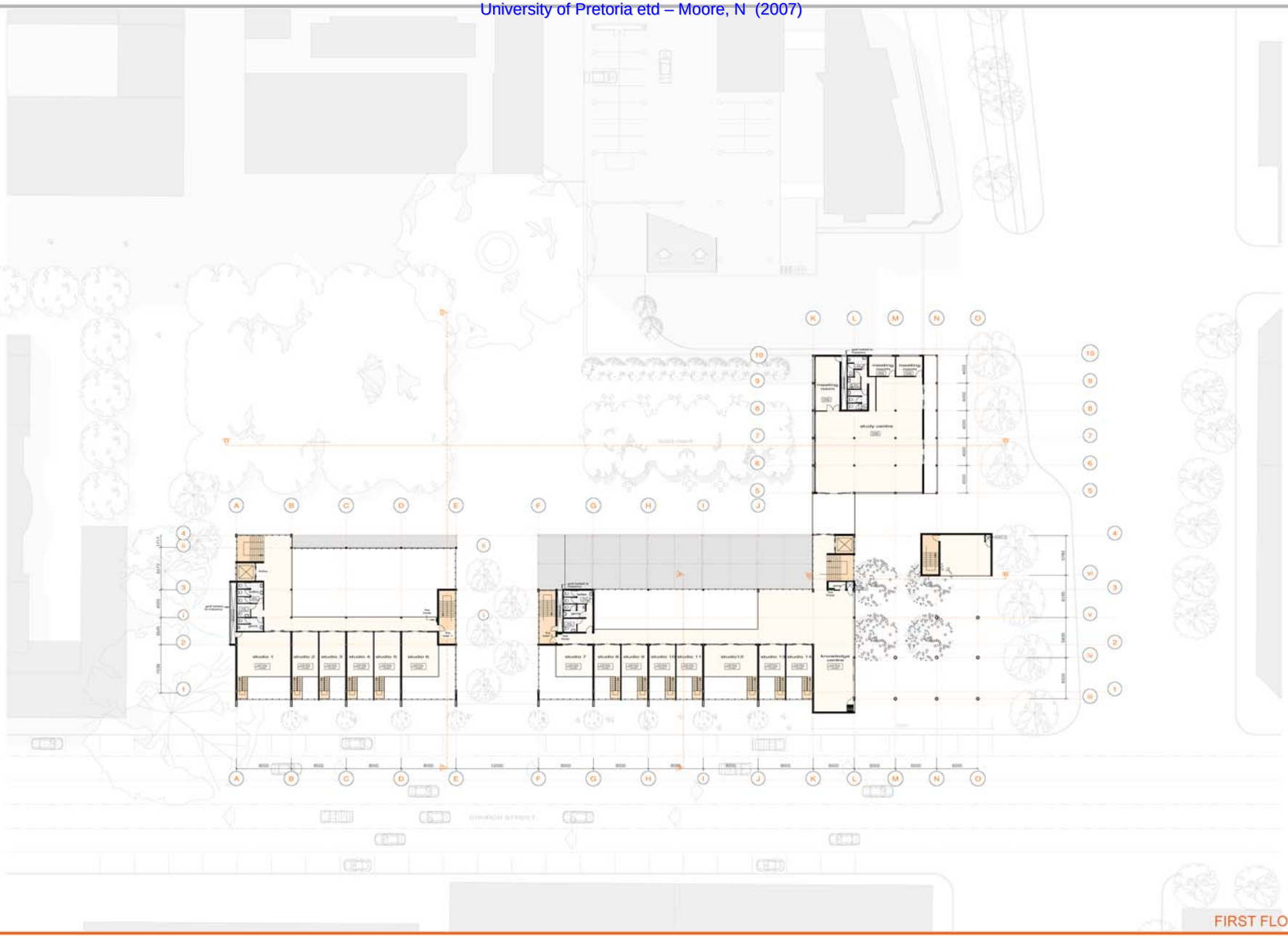

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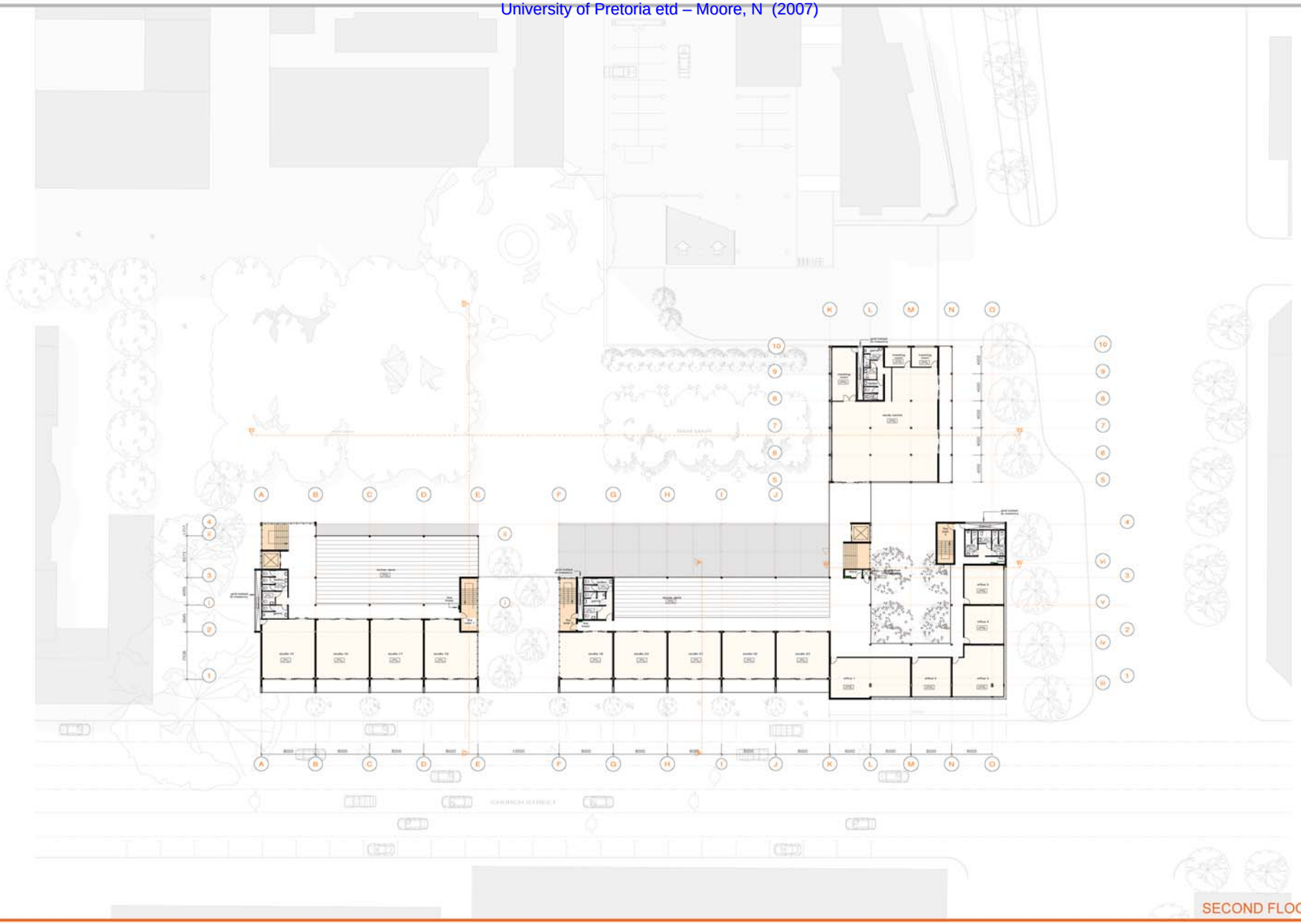

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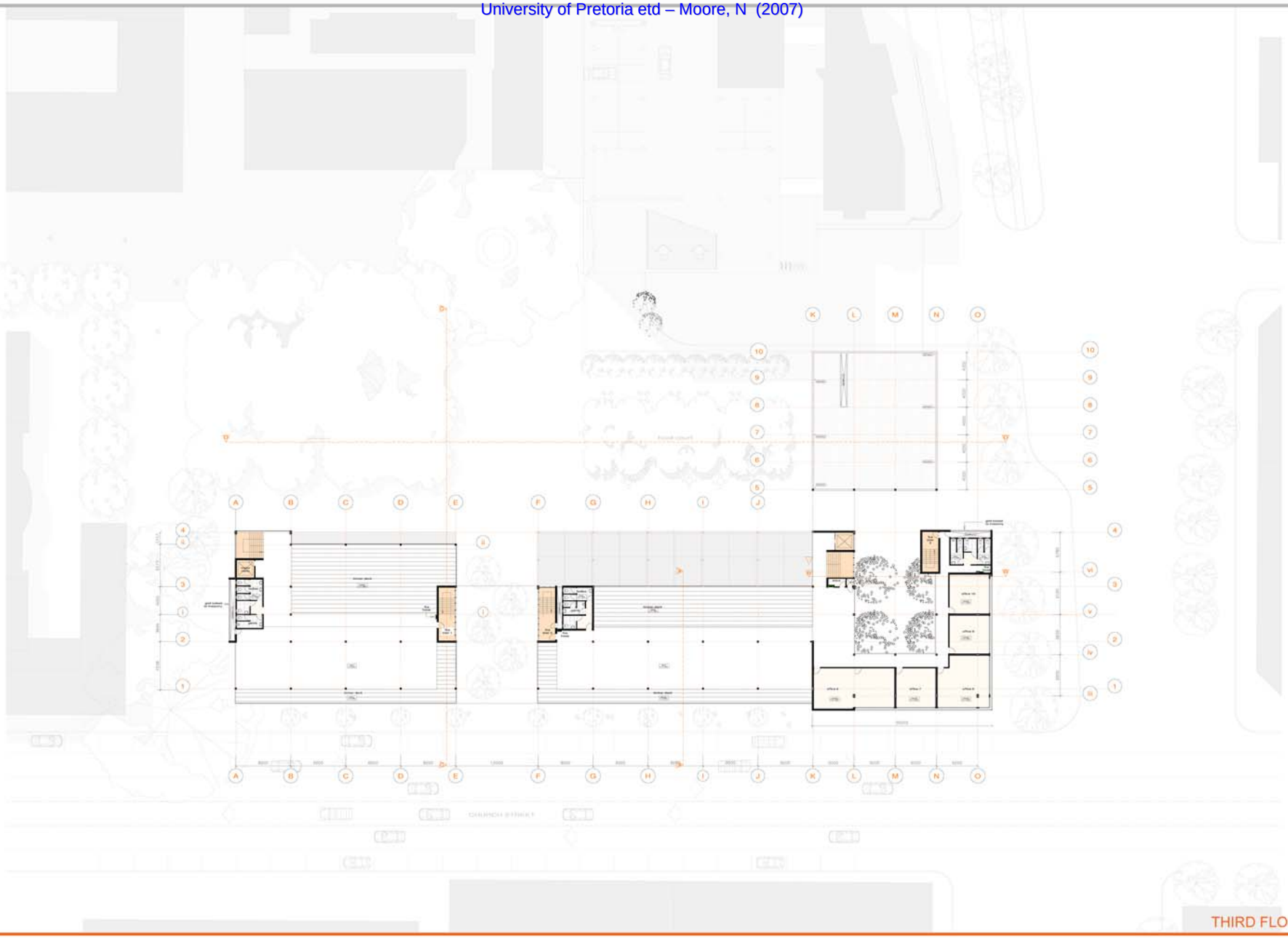

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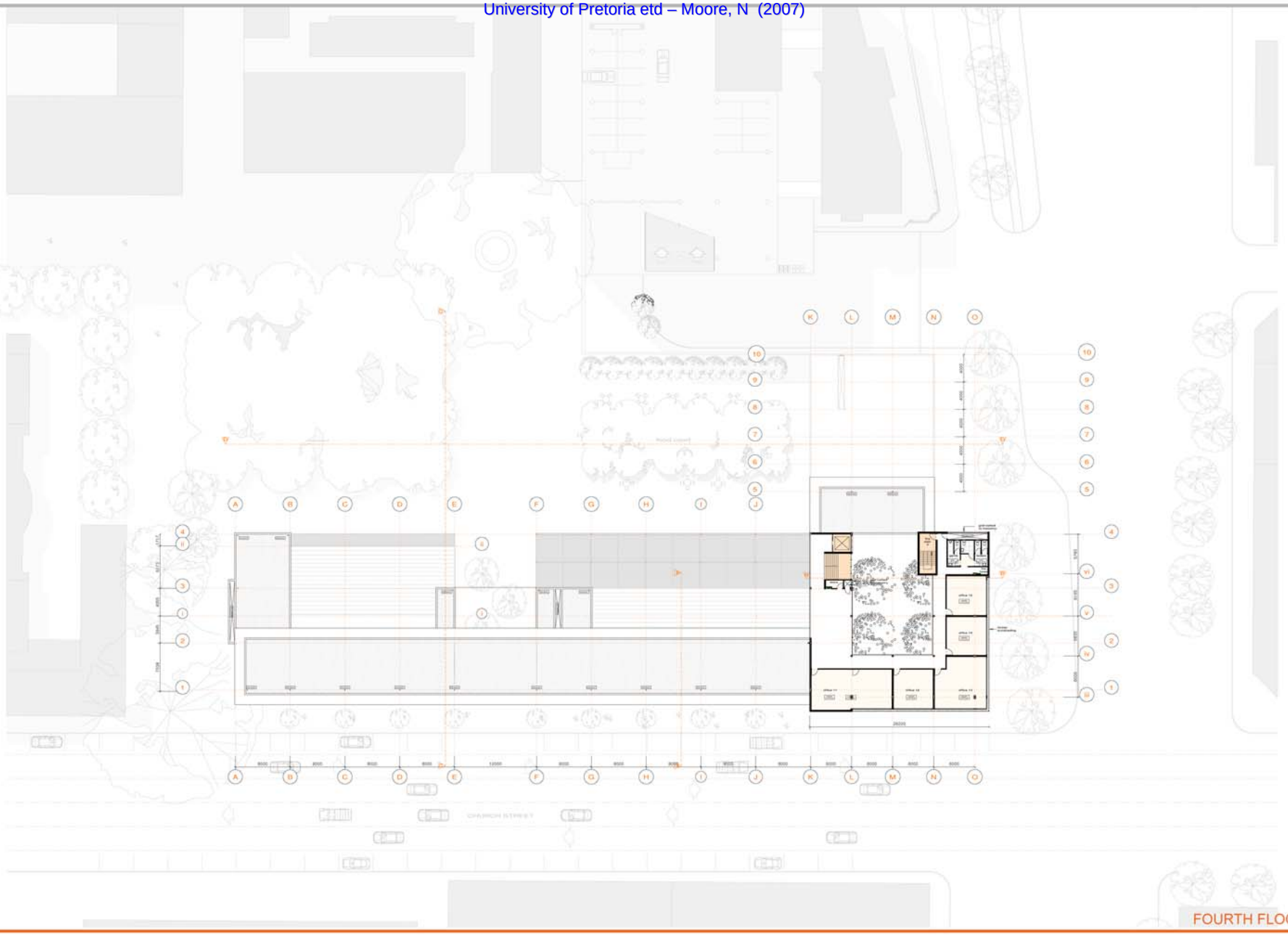

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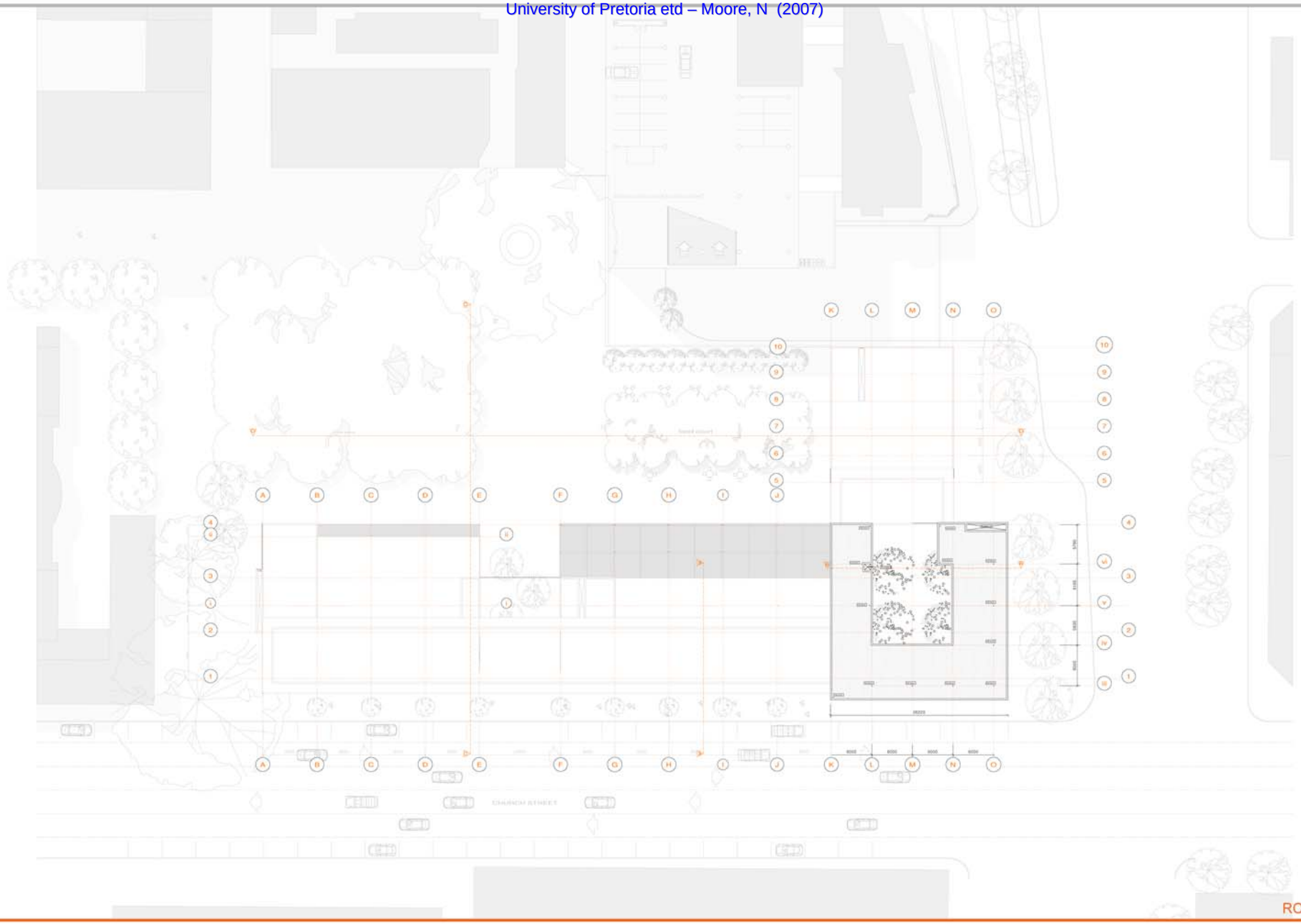

ROOF PLAN 1 : 200

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NELSON MANDELA BOULEVARD ELEVATION

ELEVATIONS 1 : 100

CHURCH STREET ELEVATION

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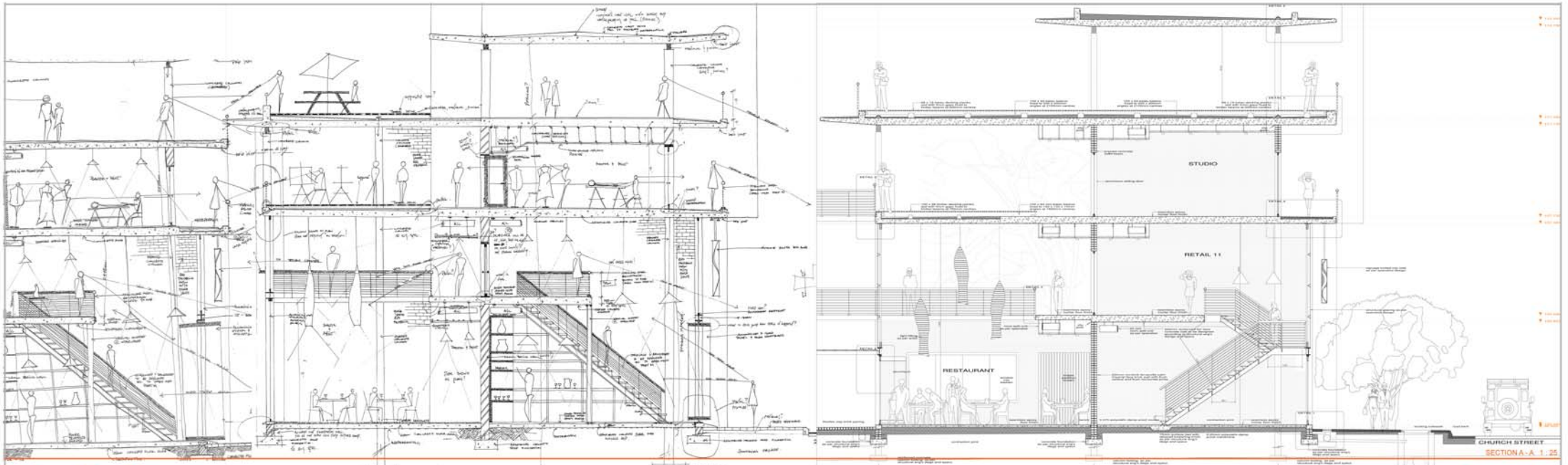

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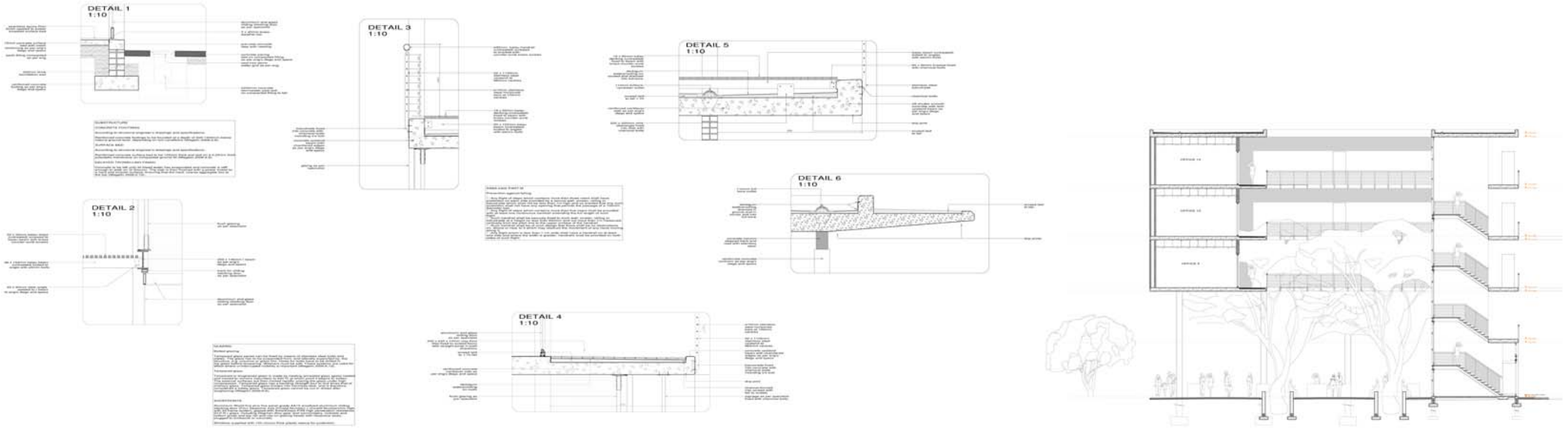

SECTION B - B 1 : 50

The Refinery

An Incubator for the Refinement of Talent in Tshwane's Inner City

12 Conclusion

This study has taken into account: the needs of inner city development, the parameters and challenges presented by an educational facility and the city context. These were all researched and resolved architecturally in a scheme which could be presented to potential investors and developers.

This scheme addresses the development of students from theory to practice and helps to integrate them into the commercial sector in a workable and pleasing environment. By making the scheme viable for investors to develop the site in conjunction with the Technikon creates a realistic opportunity for a public-private partnership, which will benefit the City of Tshwane by creating a node which is accessible to all.

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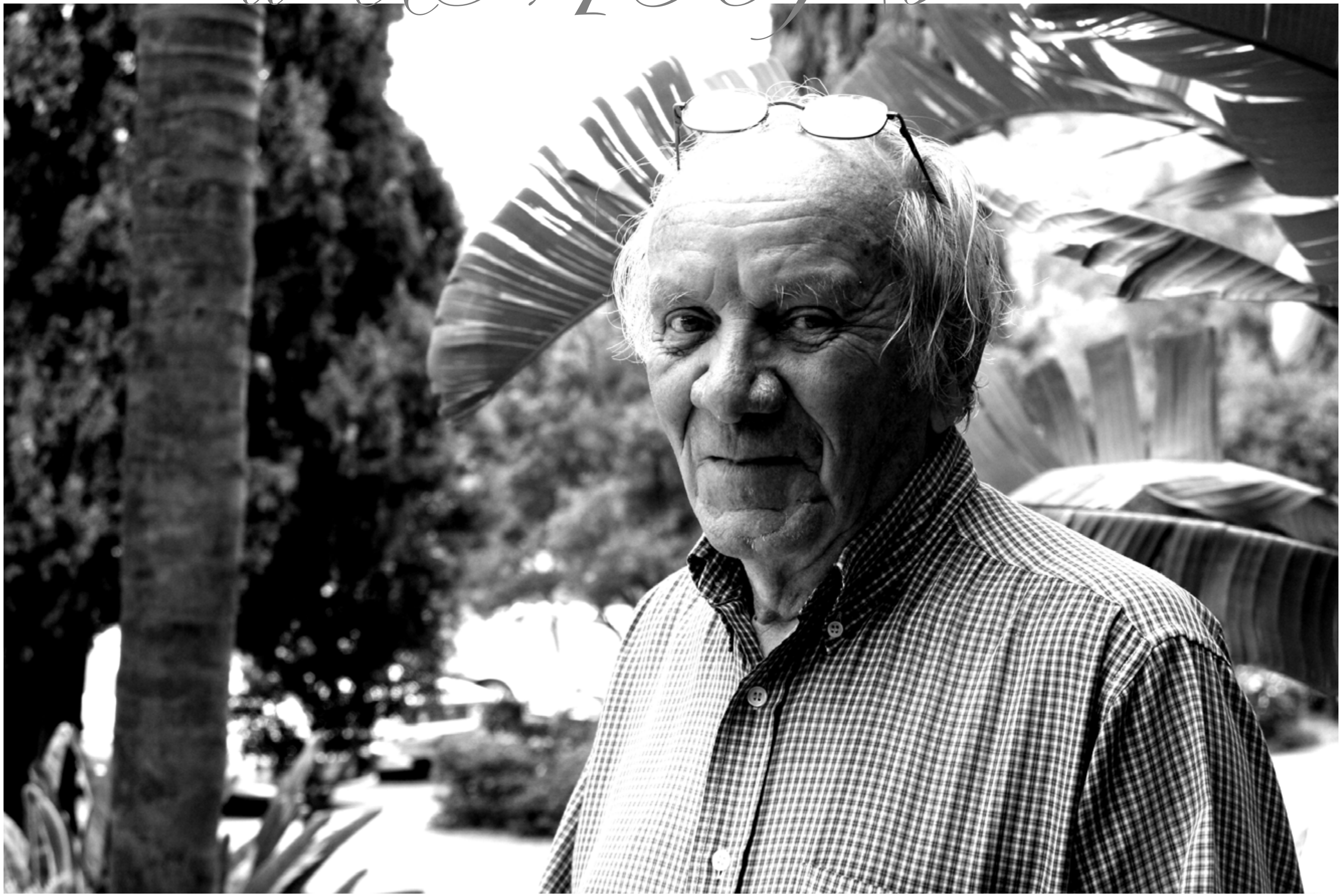


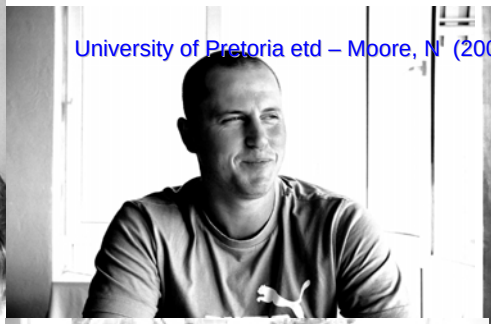







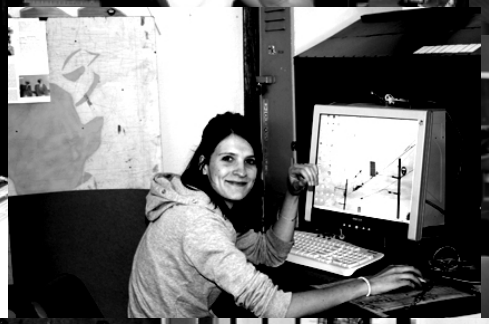



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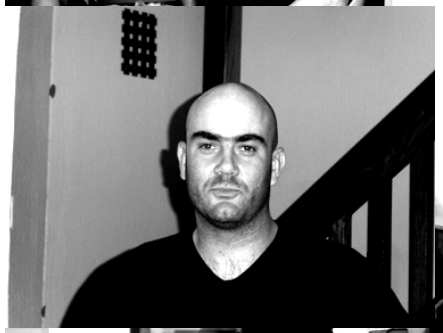




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For God did not give us a spirit of timidity (of cowardice, of craven and fawning fear), but He has given us a spirit of power and of love and of calm and well-balanced mind, discipline and self-control... 2 Timothy 1:7