1.1 Technologies of De-Faminliarisation

Defamiliarise
Technology
Defamiliarisation in the Project
Macro Context
GLOBAL SCALE OF THE STUDY
CITY SCALE OF THE STUDY
Topography
The City Past
The City Present
Wider Context of the Site
PRECINCT SCALE
The Framework
Study Area
Immediate Context of the Site
SITE SCALE
The Apies River and Watercourse
Watercourse
Stormwater
Roads
MACRO CLIMATE
MICRO CLIMATE
Influence of the climate on the design:
Social context
Economic context
Institutional context
TOWN PLANNING
Historical context
History of the immediate context of the site
Heritage Impact assessment
Defamiliarisation
PROJECT SCALE

2.1 Events: the Turning Point
3.1 Crossprogramming
4.1 Superimposition
5.1 The Mediated Metropolitan Shock
6.1 De-Structuring

Since the commencement of this dissertation and preceding investigation, an article written by Bernard Tschumi on the 'Six Concepts in Contemporary Architecture' proved to be of great influence and inspiration. The article was written in reaction to another article published in January 1991 in The New York Times by Vincent Scully, a respected architectural critic and historian. In the first article Scully affirming that 'the most important movement in architecture today, is the revival of the vernacular and classical traditions and their integration into the mainstream of modern architecture in its fundamental aspect: the structure of communities, the building of towns.'

Tschumi wrote 'Six Concepts in Contemporary Architecture' in defense of the architects that have been condemned to 'supreme silliness', because they do not support the revival of the vernacular and the classical. The purpose of the article by Tschumi was to pursue a short exploration of the issues that are addressed by the architects that do not fall into Scully's notion of contemporary architecture. The article aims to examine the concepts that, according to Tschumi, govern the making of architecture and cities at this particular point in time (Tschumi 1997:13). Interest in Tschumi's article arises from a non-belief in the revival of the above mentioned styles and traditions.

These six concepts are divided into six chapters where they will be investigated and applied throughout the design discourse. In addition there will be an elaboration of certain concepts and others will be explained as understood in our unique South African context. The first part of each chapter (written in gray) is an explanation of the concept by Bernard Tschumi and the second part is the application of the concept in the scope of the dissertation. Theories and work of other architects are mentioned and used to substantiate the six concepts under investigation. The concepts are applied in the project's design, not as a list to be followed, but rather as a tool to free the designer's ideas about the facets involved in the design project. At the end of the dissertation the project will be evaluated and a conclusion will be drawn on the applicability of these concepts in contemporary architecture. The designer will comment throughout the process on the triumphs and pitfalls of these concepts.

Reason for choosing these 6 Concepts

Through the ages there have been numerous methods and schools of thought used to educate, guide, evaluate and assist the design process in architecture, as well as all the relating disciplines such as town planning, urban design and ergonomics. In our school of architecture, we are fortunate enough to have had the freedom to learn and evaluate the various schools of thought for ourselves. The work and theory of Bernard Tschumi with the likes of Rem Koolhaas has been a great inspiration. The opportunity arose in this project to apply and evaluate Tschumi's theories and concepts on architecture.

Technology has defined our architecture and has been a part of our lives for centuries, it has a direct effect on the type of buildings we have, how we construct them and which materials we use to construct them. Developers and builders are easily convinced that the world of nostalgia, of comfort, of *geborgenheit* will be a better world to live in. The artificial world of nostalgia has no relevance to the technological advances of the past three centuries. What do we do when everything has been re-lived at least once, presented, re-presented and re-re-presented? These six concepts offer a paradigm shift to approaching the city, building, site, programme, function etc. in unparalleled amalgamations.

Concept I: **Technologies of defamiliarisation**

Defamiliarise

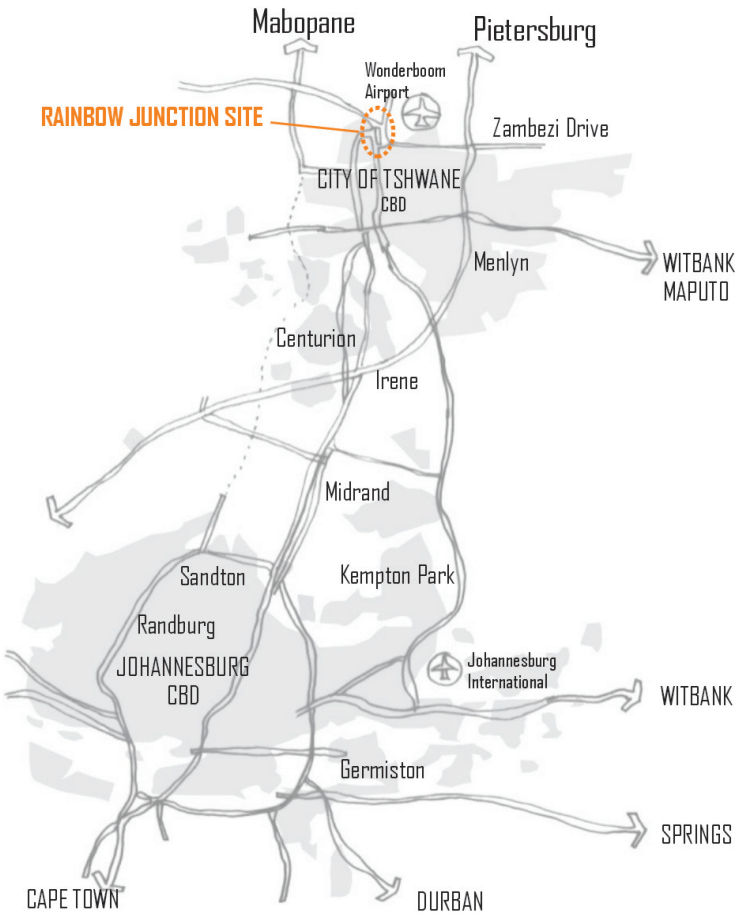
Architecture is in a condition of fragmentation and superficiality, according to Bernard Tschumi (1997:15). He offers a solution, that he bases on the ideology of our architectural past, to address the various aspects of society that causes this occurrence. The ideology of the past is based on familiarity with known images derived from 18th century classicism or even from 20th century modernism. Tschumi proclaims that the architect's role should be to defamiliarise instead of reaffirming the past.

Over the past 20 years communication has been used to defamiliarise our thoughts, beliefs and value systems by means of airing the views of women, gays and terrorists among others. Our perception of reality has increasingly become dismantled through the media, which lead to an intense sense of dissatisfaction among society. Tschumi (1997:15) advocates that in architecture defamiliarisation is a clear tool to move away from superficiality. For example: 'if the design of windows only reflects the superficiality of the skin's decoration, we should look for a way to do without windows. If pillars only echo the conventionality of a supporting frame, we might as well do away with it' (Ibid.).

Tschumi offers us a celebration of fragmentation, by taking advantage of this dismantling, celebrating our culture of differences through means of accelerating and intensifying the loss of certainty, of centre and of history (Tschumi 1997:15). This may seem quite harsh and crude, but it offers a positivism that we desperately need in a country like South Africa. We dwell on our past to find a sense of belonging that does not exist, because not everyone shares the same value system. We even try to find meaning in the history of other countries, and this has a negative influence on our architecture. If we embrace our fragmentation and celebrate the diversity of our culture, that is rooted in our historical traditions, without being too sentimental, we can strive to create a better future by building a sound history for the future generations of this country.

Technology

Technology is inextricably linked to our contemporary condition. In the past technology was used to dominate nature and it has slowly moved towards the development of an information soceity and the construction of the world as a set of images. According to Tschumi (1997:15) architects must once again understand and take advantage of the use and development of new technologies. In the words of French writer and philosopher Paul Virilio, 'we are not dealing any more with the technology of construction, but with the construction of technology. '



1.1 Map Indicating the Rainbow Junction Site in Relation to Johannesburg and the City of Tshwane

Defamiliarisation

Defamiliarisation is the first tool used to shatter the designer, the reader and user's association with the familiar, common, usual, dull and unexciting solutions to design problems that we encounter in the built environment each day. Firstly, we need to be 'familiarised' with the context of the design problem.

Architecture is the combinations of spaces, events and movements without hierarchy among these concepts. The context of the design problem and the physical context can be used as a generator for the combination of space, movement and event. Therefore the design solution is specific to the location and context of the problem.

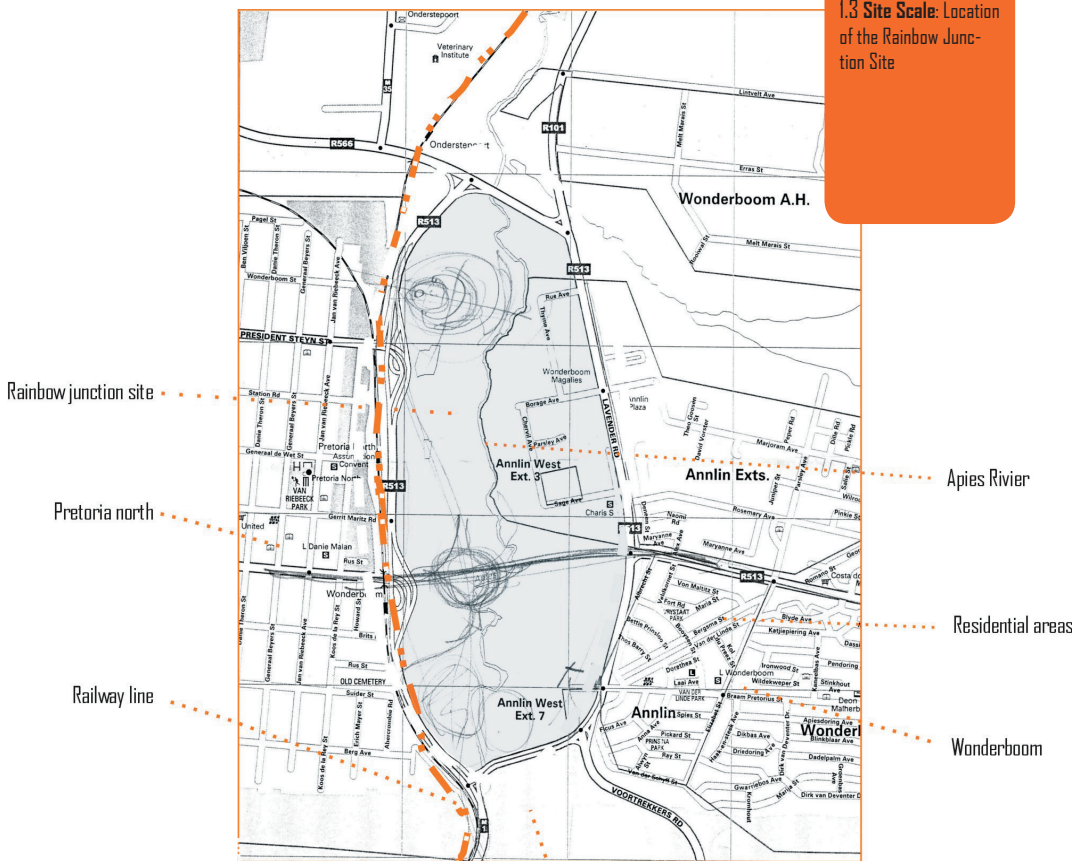
Through architecture, we can reflect excitedly on our contemporary society. Architecture by nature uses resources and energy to transform the existing biophysical landscape and through the design process architects impose structural form on the environment. It is inevitable that through architecture we will always have a great impact on the environment (Van Rensburg 2002:7).

Macro Context

GLOBAL SCALE OF THE STUDY

It is a prestigious achievement for South Africa to be the host for the 2010 Soccer World Cup. International expectations are high, and the country will have to comply with FIFA specifications, among others. Not having fixed venues for events like the FIFA World Cup, Rugby World Cup and Olympic Games allow for the development of cities and infrastructure that would not have

1.2 **City Scale** : Rainbow Junction Site Indicated in the City of Tshwane



1.3 **Site Scale**: Location of the Rainbow Junction Site

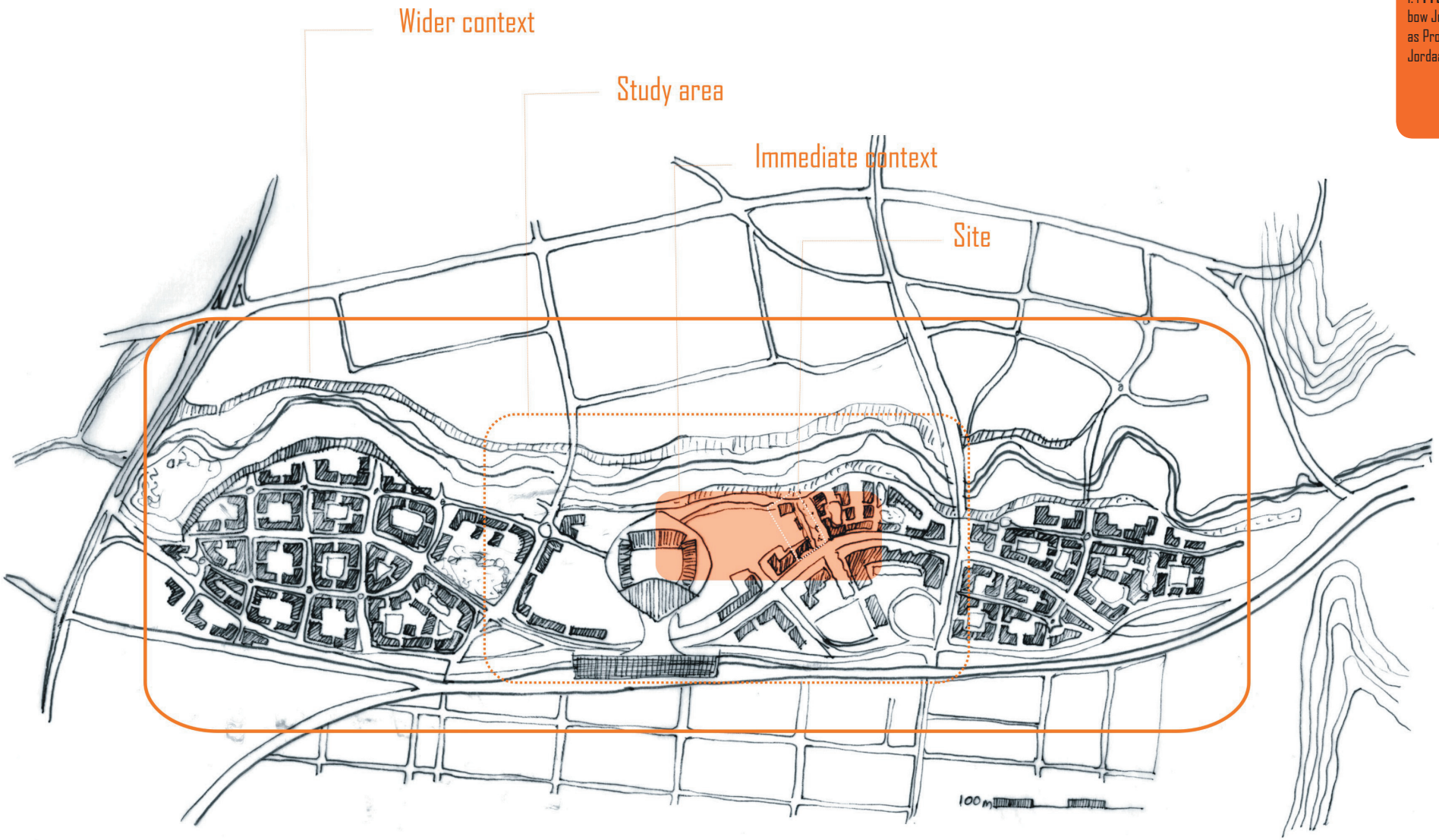
benefited otherwise. The eyes of world rest on the Soccer World Cup 2010 and the consequential developments that are taking shape throughout South Africa. There are various developments planned in most of the major cities in the country, running parallel to the one in Pretoria. This is a brilliant opportunity to equip ourselves as a tourist destination and a country with international standards of infrastructure.

The World Cup development is also an opportunity to focus our attention on contemporary and future thoughts on design and sustainability. The Soccer World Cup event clearly creates a timeline distinguishing between the needs for the events leading up to the 2010, followed by the needs for events after the Soccer World Cup. Innovative solutions are encouraged to accentuate the big 'event' that can also benefit the community without being wasteful with resources.

CITY SCALE OF THE STUDY
Topography

The City of Tshwane lies among three prominent mountain ridges; the northernmost ridge is the Magaliesberg followed by the Witwatersberg further south and lastly the Schurweberg which forms the southern boundary of Tshwane. (As a result of the topography, the development of the city was forced into an easterly and westerly direction (Hedenrych & Swiegers 1999: 2).)

1.4 **Precinct Scale** : Rainbow Junction Framework as Proposed by the Holm Jordaan Group



The City Past

The original layout of the city is typically that of an apartheid city / fragmented city of ideological racial separation. 'South African cities have inherited a dysfunctional urban environment with skewed settlement patterns which are functionally inefficient and costly ' (City of Tshwane 2004: 19). The physical layout of Pretoria is distinctly different form Johannesburg; Pretoria has larger city blocks, wider streets and a lower density (Fisher 1998:59). (The city has dramatically transformed through the years by the increase in office space and buildings.) Towards the peak of development in the CBD, the atmosphere in the city was cosmopolitan; streets were lined with shops, restaurants and were crowded with shoppers.

The City Present

Constant change has inhibited growth and development in the inner city. Commercial development along major arterial routes has rapidly expanded and has had a negative effect on the CBD. Decentralisation of the city and suburban sprawl has lead to the growth of edge cities. Traditional functions that give a CBD a vibrant and cosmopolitan atmosphere have now moved outwards towards rural and residential areas (Capital Consortium 1999:5). The development of the eastern suburbs has had a detrimental effect on the CBD.

Wider Context of the Site
PRECINCT SCALE

The Rainbow Junction precinct development is located in the geographic new centre of the demarcated borders of the city of Tshwane. The allocated site on which the entire 2010 World Cup Soccer development will take place is in Annlin, just to the north of the Wonderboompoort, strategically located at the northern gateway to Tshwane. The opportunity arose for a world-class soccer/ rugby stadium and related development to be constructed on the property, linking the development of the Apies River to the intended public transport facilities at the Pretoria North Station. The urban areas to the west (Pretoria North) and southeast (Annlinn and Sinoville), surrounding the study area are intensely developed and well-established. The undeveloped agricultural holdings to the northeast are under developmental pressure for densification including group housing. Development in the area seems to happen chaotically, without a strong structure to guide it. There is no active interface with the Apies River, and has resulted in evasion, erosion, illegal dumping and a lack of storm water management (Jordaan 2002:2).

The Rainbow Junction precinct is bounded on the west by a major road (M1) and a railway line. The Apies River defines the eastern boundary of the precinct. The Wonderboompoort defines the southern boundary of the study area, while the K8 forms the northern boundary. Within the precinct, the site has a direct eastern interface with the Apies River conservation and development area. The new 2010 Soccer World Cup stadium is situated in the middle of the precinct and allows commuter interchange with the proposed project.

The Framework

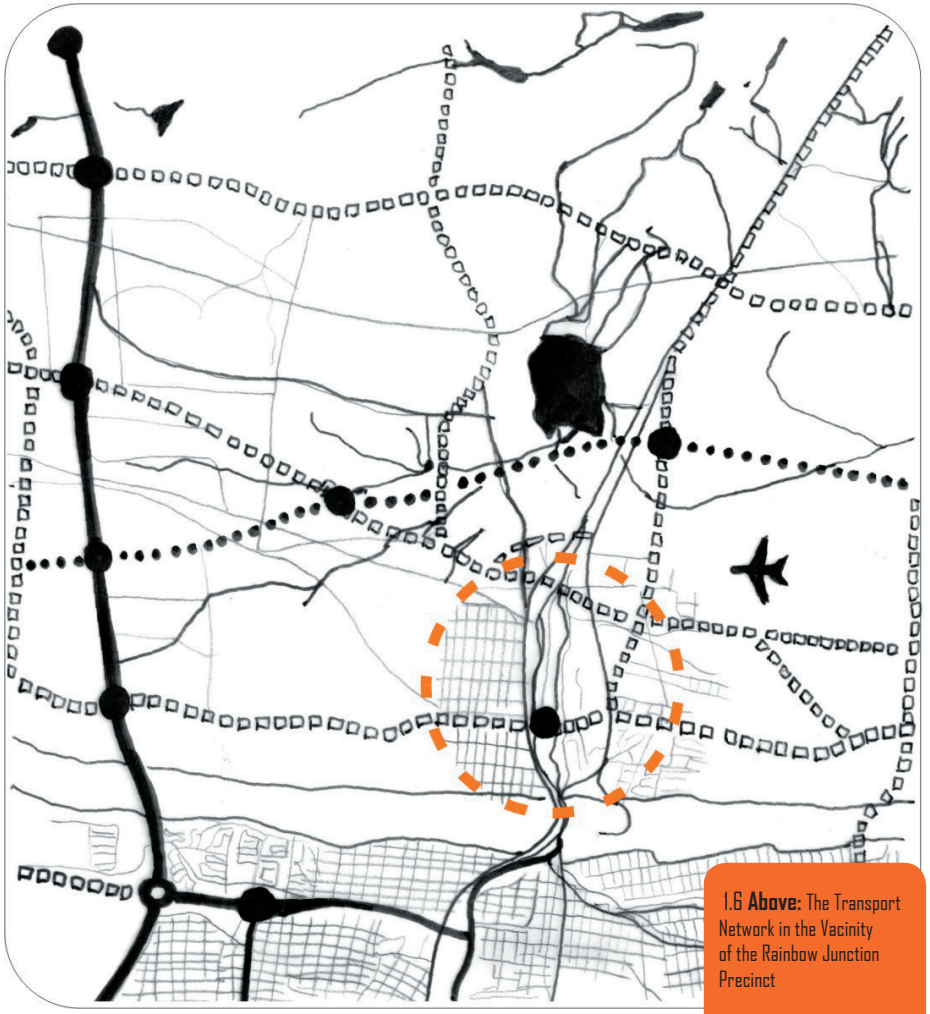
There is a Rainbow Junction development framework compiled by The Holm Jordaan Group. The framework is accepted as a given. The author did a revision on the framework and the majority of the improvements were included in a recent revision of the framework executed by The Holm Jordaan Group. The selected site falls with in this framework.

A Rainbow Junction development is made up of a soccer/ rugby/indoor sports stadium with sports, commercial and service retail developments, light industries and residential developments along the Apies River. A public transport inter-modal facility is also planned for the Pretoria North Station upgrade. The Rainbow Junction Stadium within the framework is to be a world-class facility for soccer. The aim is to develop the stadium as a premier sport and training venue for the capital, within the metropolitan district of Tshwane.

Study Area

The study area fig.[1.4] includes the activities, roads and buildings around the selected site within the given framework. The majority of movement in and around the site will be generated within the study area. The study area comprises of the new intermodal interchange, that will include the upgraded railway, bus terminals, taxi drop-off points etc. The intermodal interchange is detached from the precinct development by the MI. The development of the sport stadium includes a major bridge across the road that will be lined with shops and other facilities. There is also a passenger drop-off point

1.5 A View Towards the Magaliesberg Taken from the Site



1.6 **Above:** The Transport Network in the Vacinity of the Rainbow Junction Precinct

1.7 **Right:** A Water Furrow on the Farm on which the Proposed Rainbow Junction Precinct is Located

for the precinct and stadium on the MI, that will generate movement towards the stadium and sports grounds, this path will be a pedestrian walkway with very light traffic leading to the main road, river, sport stadium and sports grounds. The infrastructural aim of the transport is to minimise the use of the private car and encourage public transport, especially on days of sporting events.

Immediate Context of the Site

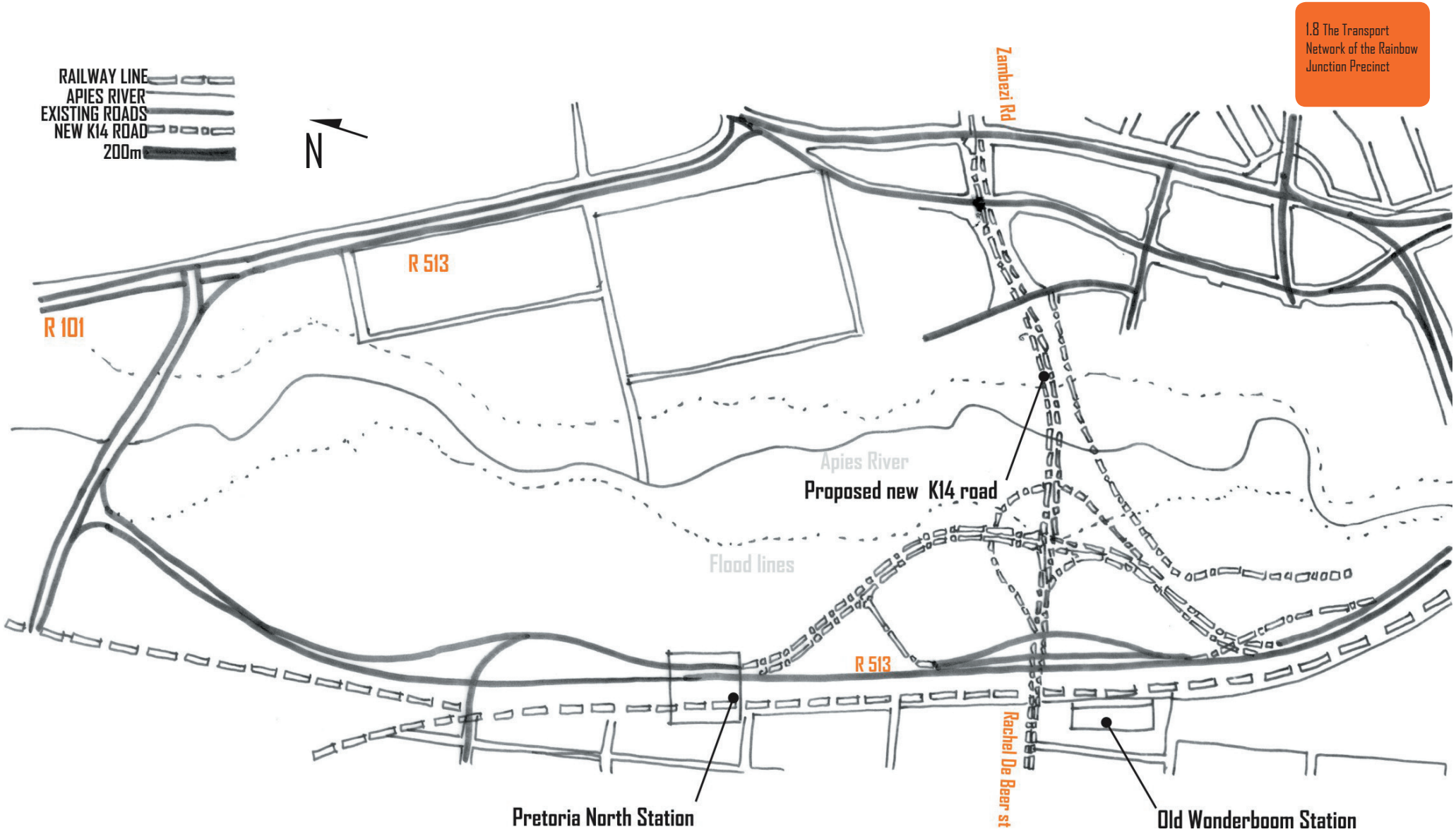
SITE SCALE

New K-Route
PWV-Route
National Freeway

The site is located on the main road of the Rainbow Junction Precinct and is on the periphery of the sports grounds/park. The sports grounds and park act as part of the green space included in the Apies River rejuvenation. The north-western side of the site is bordered by a retail related building, and on the south-eastern side there is a pedestrian walkway that leads to the river.

The Apies River and Watercourse

The City of Tshwane is originally a city in nature, but this aspect has been neglected in recent years. The Apies River and the ridges are natural features that are practically inaccessible. This conveys a negative social perception, when these places should have been the core of social and recreational open space system dictating the urban form. The open space system includes the Apies River, Walker Spruit and Steenhoven Spruit with several activity nodes along the spine: the National Zoological Gardens, the City Lake, the eastwards extension of the Museum Mall, Berea, the Fountains and the Groenkloof Nature Reserve. The interface with the Apies River on the site is of utmost importance to gain recreational public open space.



1.8 The Transport Network of the Rainbow Junction Precinct

Watercourse

The Apies River is still within its natural course, and has extensive flood plains with the flood line coming close to the existing M1, resulting in a smaller area that can be developed. The site has been set back to accommodate the 1 in 100 year flood line (Jordaan 1992:5). There are also two dams situated on the property. The larger dam, fed by a furrow system, is currently used for angling and other forms of recreation in Pretoria North (Bakker 2005:14).

The site is fairly level with a gentle slope towards the river. The close proximity of the farm to the river has for many years lead to the cultivation of the study area. Due to over-fertilisation and cultivation, the soil is no longer suitable for agricultural purposes. Soil conditions are rather poor along the river, and soil tests have to be conducted as a result of the floodplanes.

Stormwater

The Apies River currently carries enormous amounts of stormwater and due to the lack of stormwater management and illegal dumping, the river is currently under threat. Stormwater management and re-alignment of the Apies River is suggested. The stormwater will be gathered from all the sites and managed in an appropriate way as not to damage the river (Jordaan 1992: 5-6).

Roads

Pedestrian movement is generated around the site fig. [1.8] via the main road, passenger taxi drop-off, and the pedestrian walkways that lead to the river, sports grounds and stadium.

Major roads surround the precinct with intense traffic movement concentrated at certain crossing points. The M1 on the western side of the precinct is a multi-lane facility, with access into the precinct at 600 m intervals. This road is also the main access to Pretoria North and joins the K8 (the Rosslyn Road) with a T-junction, thereby also providing access to Rosslyn, Akasia and the developments further to the west (Jordaan 1992:6).

The planned K14 road bisects the precinct (Jordaan 1992:5). A safe and pedestrian friendly environment will be created along this high order road by implementing traffic calming devices.

MACRO CLIMATE

Considerable temperature fluctuations occur within the municipal district. The climate beyond Wonderboompoort towards the north of the Magaliesberg becomes subtropical. The city of Tshwane in general has a moderate climate with summer temperatures ranging from 15°C - 30°C and between 6°C - 23°C in winter. The average rainfall is 700 mm per year and occurs mainly as thunderstorms in the late afternoon and evenings during summer months. There is an average of 50-89 rainy days per annum.

MICRO CLIMATE

The river on the south-eastern side of the site will effect the micro climate of the site. Napier (2000: 9.14) states that when air cools down at night, the cooler air falls to the lowest level, which will be the river, with warmer temperatures above. The air will flow down the slope to the river as long as there are no obstructions.

1.9 An Aerial Photo-graph of the Farm on which the Proposed Rainbow Junction Precinct is Located

Influence of the climate on the design:

The three buildings will be incorporated into the landscape to make use of optimal outdoor sporting activities within the park.
Each building will optimise interior and exterior living areas.
Shading devices will be used to manipulate solar penetration. while allowing enough light and air into the building.

Social context

The study area has remained undeveloped for a number of years; it has become the haven for crime, dumping, illegal settlement and unmanaged public facilities such as taxi ranks and informal markets. There are only a few people living on the site, and the surrounding areas should benefit from the new social infrastructure (Jordaan 1992:8).

Economic context

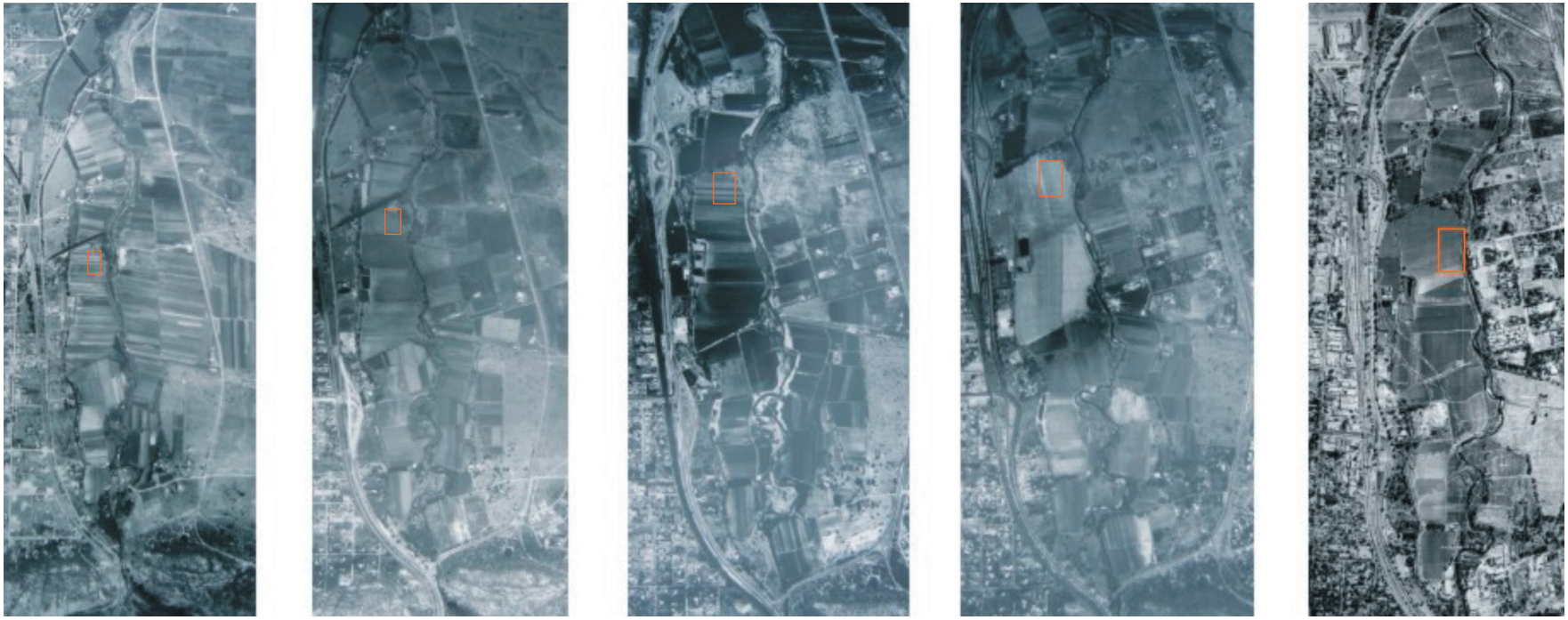
With the extension and the final demarcation of the City of Tshwane, the provision of facilities within the City of Tshwane has moved towards the northern areas. With the development thrust towards the north, it becomes more important to create jobs, allow accessibility and to secure social upliftment for the area.

The economic study of the market area has revealed that the population size of the primary catchment area is 659 651. The bulk of the population in the market area is under the age of 15 and 71.5% of the residents are not economically active. The average monthly household income for the primary catchment area is R2 026.17 per month (Jordaan 1992:9).

An extract out of the Rainbow Junction Framework states:

'The development concept must be planned in such a way that it captures a niche market. This niche market focus needs to be directly connected to the sport function of the stadium, meaning it relies on sport brands' (Jordaan 1992:14-16).

It is apparent that the intended niche market is not the population catchment surrounding the new development. This has various implications: firstly this development will not better the lives of the surrounding community, the facilities will most probably only be used on days of sporting events, and the niche market is non-existent in the area and will be 'imported' from surrounding areas, meaning that not much is gained.



1.10 Aerial Photographs of the Farm on which the Rainbow Junction Precinct is Proposed. **From Left:** 1939, 1948, 1958, 1970 and 2003

In terms of the development framework the need for the creation of a social and economic catalyst in the north of Pretoria, does imply the inclusion of the general population catchment area. The basic needs such as housing, access to facilities and transport infrastructure should be met foremost. These needs should be accommodated in the development at the initial stages, to create the feet and the energy for the development, to be accepted into the area and truly uplift the surrounding urban fabric.

For the development to truly become a catalyst (to allow corridor development), the needs of the majority of the population should be included. Through the acknowledgement and inclusion of the catchment population, the aim is to uplift the area through a timeline of events so that they become the niche market of the development, focusing on human needs rather than sporting needs. The sporting needs and stadium will be regarded as a catalyst that will work together with the rest of the development to create a strong node in the north.

Institutional context

TOWN PLANNING

According to the City of Tshwane Integrated Development Plan:

- the study area is indicated as "urban" with a secondary metropolitan node indicated in the vicinity of the site.
- the Apies River flood area and river bed is reserved for open space and conservation.
- the precinct area is reserved for, techno parks, offices, sport and recreation, industries, commercial and hotels (City of Tshwane 2004:19).

Historical context

History of the immediate context of the site

Since the Stone and Iron Ages communities have inhabited the land, culminating in permanent colonial settlement in the 1850s. The original farm Wonderboom 311 (now 302 JR) is named after the famous Wonderboom tree. It was one of the largest historical farms in the Greater Tshwane area, covering fertile lands to the south and north of the Wonderboom Mountain (part of the Magaliesberg range) (Bakker 2005:9). Traces left on the land of historical value, as determined by the heritage impact study, are to be integrated into the landscape of the precinct

Heritage Impact assessment

An extract out of the Heritage Scoping Report: Proposed Sport Stadium and Associated Commercial uses known as Rainbow Junction, City of Tshwane, Gauteng Province, conducted by Cultmatrix:

'The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the boundaries of the area in which it is proposed to develop the proposed sport stadium and associated commercial facilities, known as Rainbow Junction, located on certain portions of the farm Wonderboom 302 JR.'

Based on what was found and its evaluation, it is recommended that the proposed development can continue in the area, on condition of acceptance of the following recommendations:

Retention, preservation and re-use of significant buildings, structures, trees and other features,
Mapping and recording of those features older than 60 years that can be demolished,

Retaining the visual memory of the entire site by incorporating the structure, order and relationships of the heritage landscape in the new Rainbow Junction landscape design' (Bakker 2005:1).

Defamiliarisation

PROJECT SCALE

The accelerated loss of history that Tschumi mentions is applied in a search of a design language for the project by looking to the future and not simply a literal translation of our architectural past. This approach applies the concept of defamiliarisation through the break with known images. The building aims to use new combinations of known material and spaces, attempting to arrive at a meaning in architecture for the future. Defamiliarisation becomes a tool to move away from superficial buildings that convey no meaning. This is done by the active involvement of the designer throughout the whole process of conception and execution as opposed to building design through fax or repetition.

Various aspects are investigated to celebrate defamiliarisation, dismantling and our culture of differences. The level of differences within the building is based on the variety of users that do not necessary have anything in common. Architecture as a political system dictates where we can and cannot go within a building. The building aspires to create a network of spaces and paths within the building to encourage the users to use the spaces as they choose. The building dismantles the concept of a traditional building by creating an interaction between the spaces and the users.

Defamiliarise does not mean that everything must be unfamiliar. The building is to present itself through the unique combination of the known, and that will defamiliarise the user from his own frame of reference.

> ' Neither the finest material nor the most advanced technology need enter a work of monumental character for the same reason that the finest ink was not required to draw up the Magna-Carta' Louis Kahn (Frampton 1996:210).

The building is to be an expression of the materials used and not a style that includes or excludes. The spaces are created and the events generated by the users; giving cultural identity to the place. The building will set the stage to anticipate the unexpected, as the building is free to be what it needs to be at any point in time.

Technologies of information change our utilisation of space, and those changes will be anticipated in the design of the building. The use of technology in the building is linked to the technologies of construction and the expression of the tectonic aspects of the building.