

# Transforming the Existing: Transportation Interchange/ Labour Market

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#### Conclusion:

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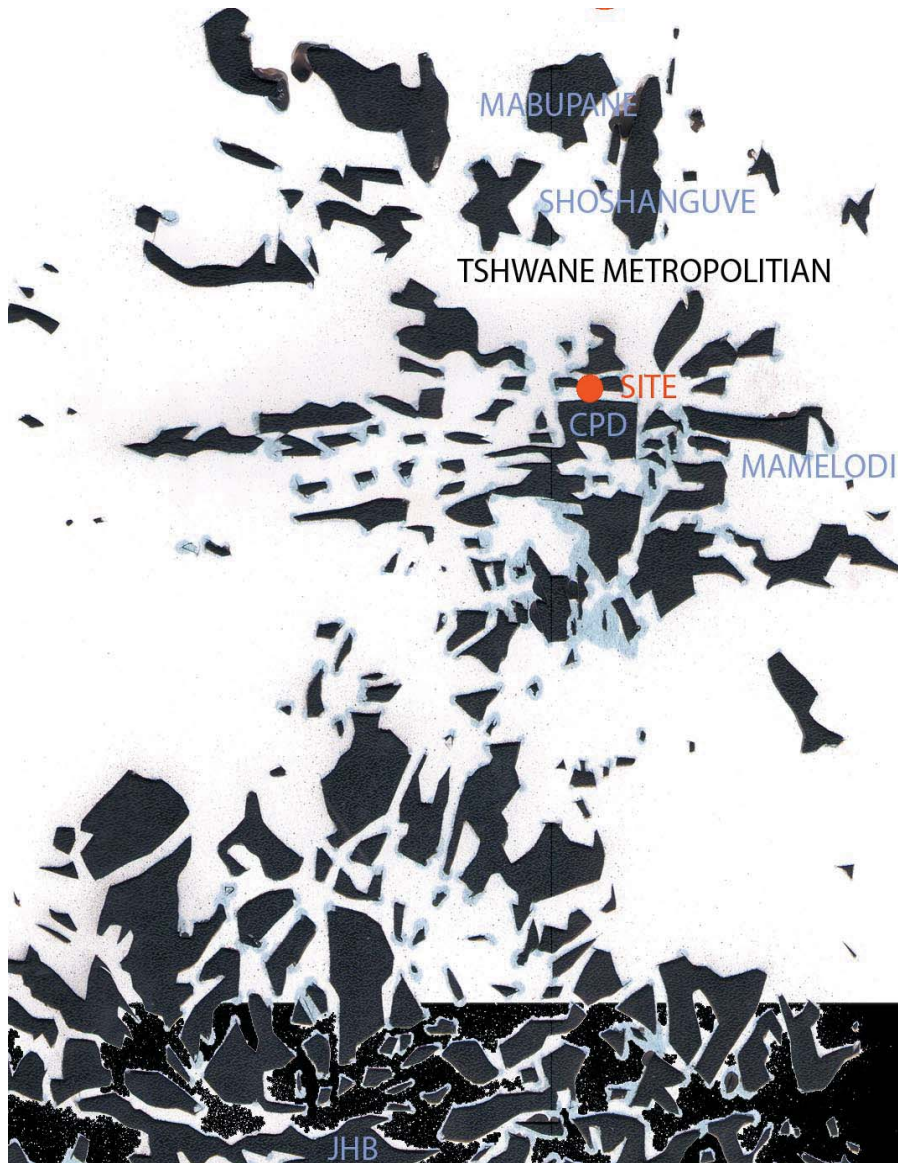
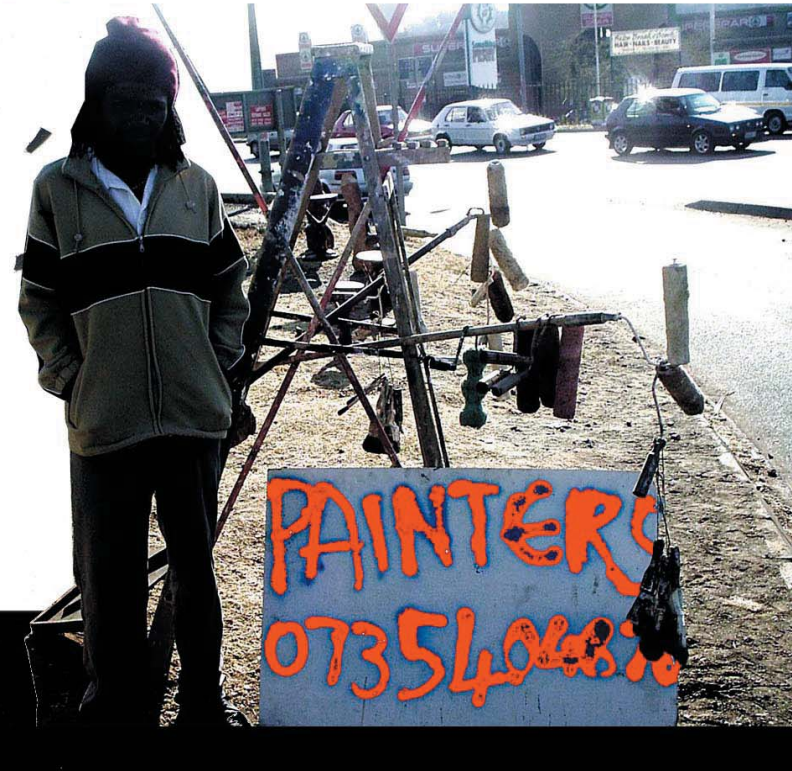


Fig 2: Tshwane's satellites of development in relation to Johannesburg. A local informal labourer's advertisement.





# Introduction

## Prologue

Cultural perceptions are of particular interest when conveyed in images. It is also interesting to observe the reactions of people, to not only cultural iconography but also to images made by the creative artists. If one explores these issues in the urban context of Tshwane (where the cultural identity could be argued to be isolated) interesting situations occur when isolated groups are confronted with social interplay amongst different cultures.

It is also important to note the way in which Tshwane is fragmented (fig 2) into 'pockets' of isolated developments and how people's perceptions of their society within these 'pockets' distort and vary in relation to that of societies outside (these 'pockets'). The city is remembered through experiences in its inhabitants' minds. People move in specific circles, each with its own varying perspectives and perceptions. Looking at a map of Tshwane, one finds varying degrees of isolation due to historical and geographical factors. The area around the Moot<sup>1</sup> therefore is an obvious location of interest, because of the physical and psychological isolation of its inhabitants.

<sup>1</sup> The word "moot" translate to "dale" or "Valley; Low area more or less enclosed by hills..."

## Problem Statement

### The transformational problem:

The northern part of the city is disconnected and these fragments of development degenerate due to a lack of infrastructure (fig 2).

### The labour problem:

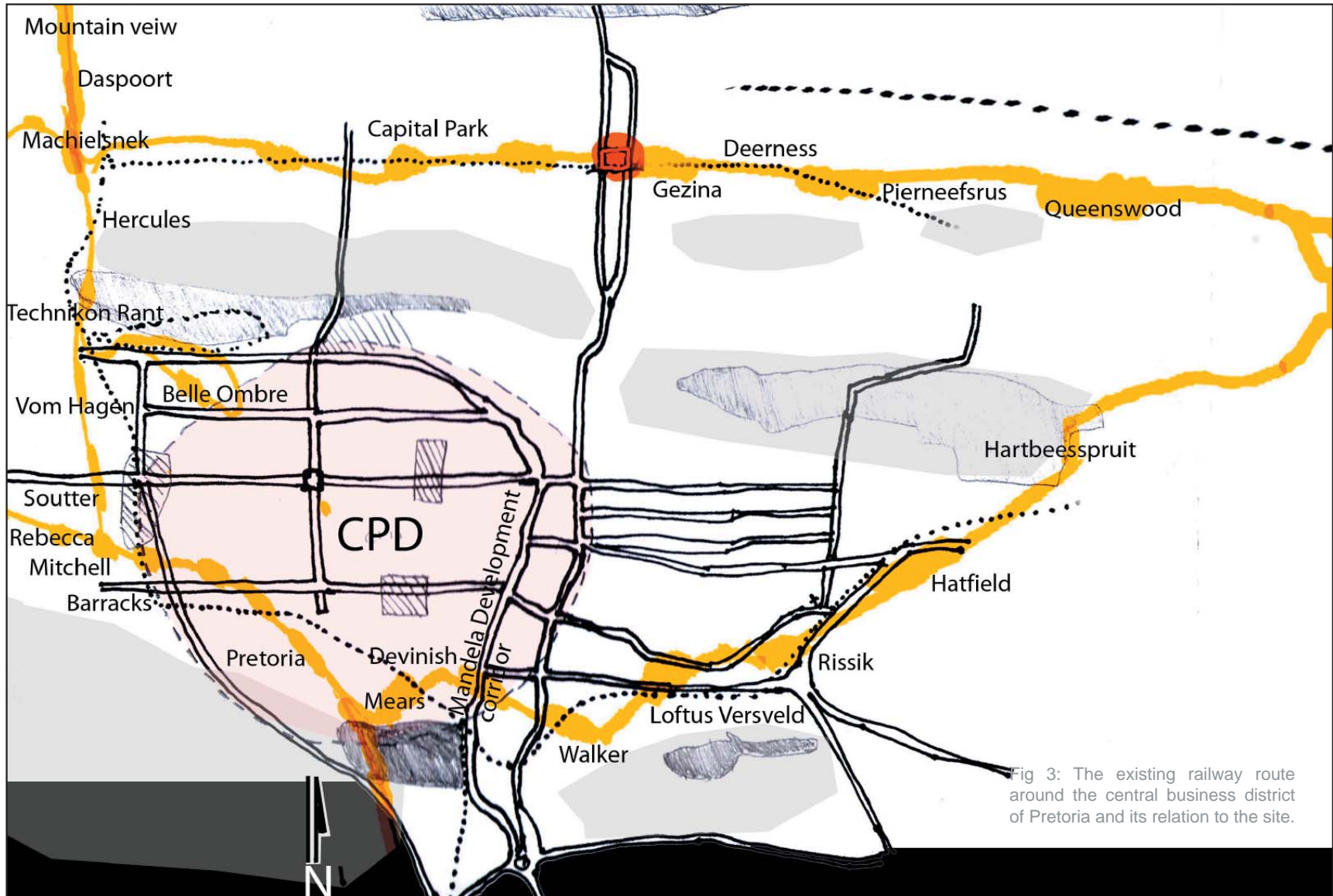
The context and spine of Voortrekker Street supports numerous light industries and in direct contrast to these are the many guilds, craftsmen and labourers waiting outside hardware and building warehouses in search of employment (fig 3).

### Sub-problems:

In order for the proposed Gautrain link to function properly, secondary transport systems will be needed to support it. A secondary ring rail system is needed so that train commuters can reach the Gautrain departure points. A ring track already exists, but the necessary stations and routes are not fully operational (fig 3). The existing Metro rail needs to be upgraded together with the prominent stations and the link with other public transportation systems needs to be strengthened.

Improved vehicular and pedestrian access is needed for the existing Gezina station, in order for it to function at optimal level.

The workforce using the station needs basic facilities, which is currently not provided, as well as an affordable and efficient platform to market their services. The station also does not operate as a northern entry point into the city in spite of its ideal location (fig 3).



## Statement of intent

The aim of this project is an attempt to alleviate both problems and the complications of their subsequent sub-problems. By integrating and accommodating a labour market with the existing and the future train networks, easier access will be created for craftsmen and labourers. Thus a friendlier pedestrian environment will be created and the integration of the isolated infrastructure of the Moot area with the rest of Tshwane will be achieved.

## Hypothesis

The position that will be taken in this study is one of an acceptance of the existing and investigative ways of its transformation (for optimal performance) to meet the aims of the project.

As Friedrich Schröder Sonnenstern said “The situation produces the philosophy, and that’s the best sort – the one that flows from the situation”. (Beinart, 1961: 2)

Therefore, the first step of investigation would be to map the conditions of the existing both from a purely physical and experiential part of view. This entails observation, many site visits and recordings to form a hermeneutical<sup>1</sup> approach. In

order to achieve this, the sketches, illustrations photo-logo and visual imagery will be viewed as a way of mapping the existing. A visual language is used, because it could be argued that it has more common understanding across the spectrum of humanity, than that of lengthy text.

<sup>2</sup> hermeneutic – interpretation; hermeneutical - interpret

## Organisational Method

An organisational method (see xxx) is employed as an aid to experience the complex nature of the inexhaustible urban situation. Moreover in the next section appropriate case-studies will be explored as precedents to provide insight into both the workings of transport interchange and labour markets. Influences on the design are in written in italics. Before tackling the design and technical aspect of the project (site, program, accommodation etc.) an analysis of the existing urban framework (*Proposed Tshwane Open Spaces Framework, 2005; The Tshwane Inner City Strategy, 2005*) will be a generator for the design, so that the existing situation can be weighed up to the proposed transformed.



## **Analysis:**

- Mapping the Existing
- Case Studies

# Mapping the Existing Urban Context

As previously mentioned due to the complicated nature of the urban problem, the layout of this section will be based on a simple method of organisation. The Cartesian grid is adapted to accommodate a series of maps on five identified categories. This method will incorporate information on many levels of scale, bringing the interwoven aspects of the urban context into a logical order (fig. 7).

In order to explain all the aspects of the urban context, five groups have been identified (fig. 6). The interwoven nature of these groups results in maps and diagrams that apply to more than one aspect and thus better communicated in a “datascape”. Slicing a bandwidth enables one to communicate ideas on multiple levels and overcome the restrictions of Cartesian thinking. Dividing this into digestible groups resulted the following:

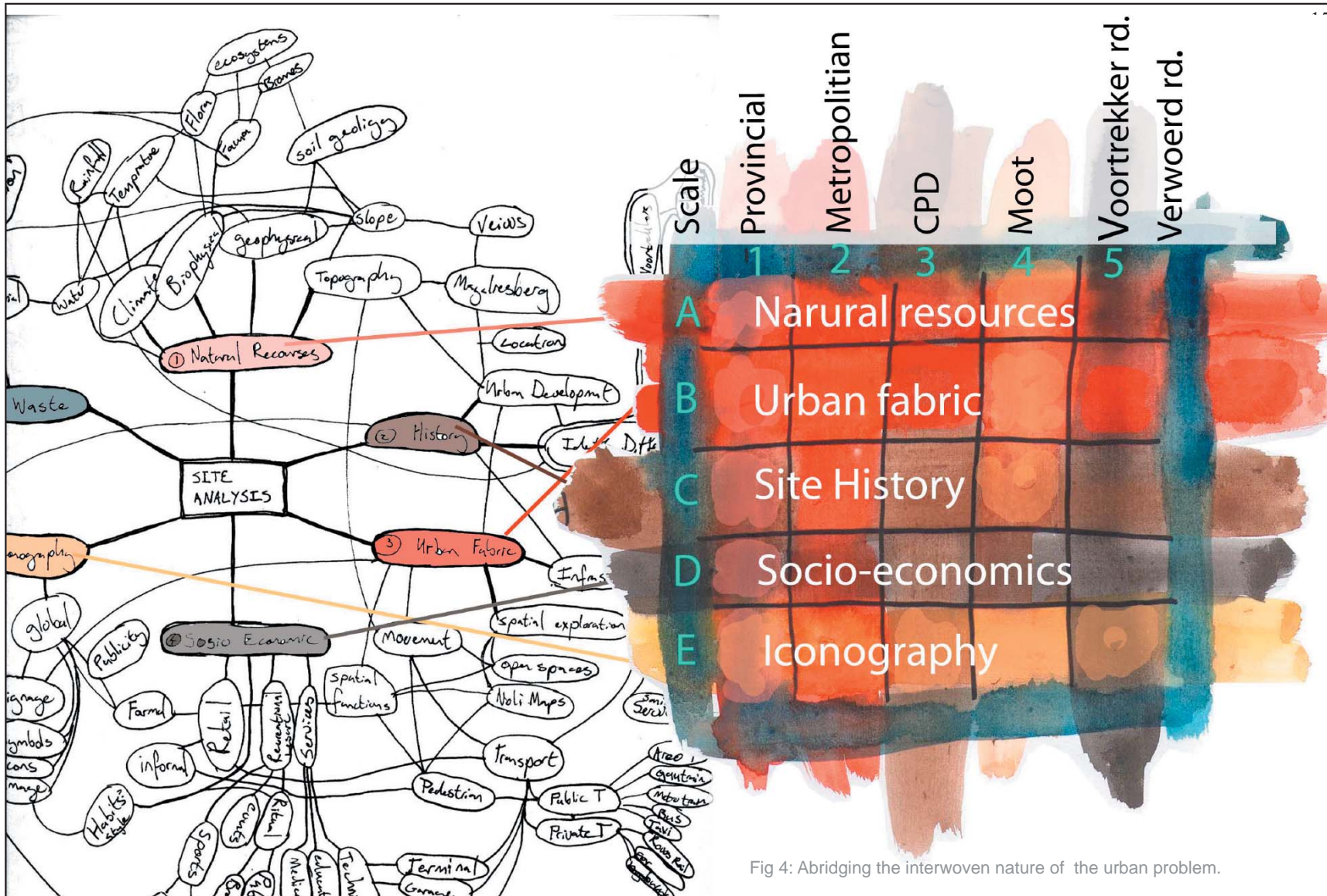


Fig 4: Abridging the interwoven nature of the urban problem.

## Groups

### A. Natural resources:

The topography of the site was there long before human intervention and still moulds the city. The foothill of the Magaliesberg starts in a place called Silverton and the range extends beyond the Hartbeespoort Dam in the direction of the neighbouring town Rustenburg. These physical barriers have largely contributed to the disconnected nature of the city.

### B. Urban fabric:

Man made elements in the landscape act as threads weaving together the parts of the city, to create a richly textured fabric. This includes telephone lines, storm water ditches, electrical lines and transportation infrastructure. Major road links (accessibility) stimulates growth and stitches development together. Traffic congestion (especially on the N1) suggests that these routes are not sufficient enough. The rapid rail link (Gautrain) increase accessibility of city and could alleviate some of the correlating problems. Secondary public transport systems can feed of this link creating nodes around the interchanges with important development potential.

The following strategic objectives have been identified by the Gautrans initiative:

- The Gautrain Rapid rail Link (Gautrain) must facilitate development in the Province.
- The project must contribute directly and indirectly to job creation.
- It must assist in unlocking the economic development potential of the Gauteng SDI projects and strengthen existing development corridor.

- It must improve accessibility and mobility in this development corridor
- It must develop an integrated public transport system, through the use of feeder and distribution systems.
- It must integrate Land-use and transportation planning in the corridor.
- It must assist in improving the image of public transport.

(Integrated station Functional areas guidelines, Draft 3. September, 2002.)

- Create or reinforce densities, to promote rider ship (Getting feet to the station)
  - Establish different land uses, thus, land uses that generate frequent trips and not extensive land uses where population density is low; and
  - Establish new urban form that embraces the train system.
- (South African government. 2001. Gautrans rapid rail link.)

### C. Site History:

Growth and time is inseparable. Investigating the past of the site, will give insights into its future.

Jeremy Cronin, (Deputy General Secretary of the South African Communist Party, ANC Member of Parliament) wrote in the journal *Urban Age* pg 9:

“Apartheid cities have unusual spatial contradictions”

“On the one hand, they are sprawling realities with density levels too low for sustainable public transport. This encourages further sprawl and growing car dependence. On the other hand, there is high density in the populous townships and informal settlements on the peripheries of our cities. In the apartheid era, these townships were deliberately surrounded by high speed freeways and rail-lines, like mediaeval moats but with the opposite intent – to protect what lay without.



"Marginalisation and containment, planned under apartheid, has often been unintentionally perpetuated in the post-apartheid period. For instance, two million low-cost houses have been rolled out nationally since 1994. But to meet this ambitious target, the bulk of the housing has been located on peripheral land. Access and mobility inequities have been deepened.

"This unwitting entrenchment of some of the apartheid spatial legacy has not been helped by neglect of public transport, or by a series of well-intended but inappropriate policies, tangled institutional arrangements and unsustainable interventions. The consequences are dramatically visible in our cities..." (Cronin, J 2006: 9)

#### **D. Socio-Economics:**

The dynamics of the urban context consists of many aspects formal and informal.

According to international Labour organisation "The contribution of the informal economy and street trading to South Africa's economy can be measured in two ways. The first way is to measure the number of people who have jobs in street trading. There is approximately half a million street traders in South Africa 1n 2000. The second way is to measure the goods that traders sell. Some people think that the economic contribution of street trade is not big in terms of money because most street traders earn so little. But in Durban alone, street traders sell about 28 tonnes of cooked mealies per day. This is equal to sales of about R200 000 per day, or R1 million in a five-day week! And this is only in Durban, and only mealies.

Some street traders are self-employed and some work for family members, sometimes with payment and sometimes without. Some street traders work for a wage. The '*bambelas*' in Durban are a good example of street traders working for a wage."( International labour Organisation. 2003: 8)

#### **E. Iconography:**

Image is the primary means used for navigation through the city. The site is situated in a visually competitive advertisement corridor, which is visually disorientating. Information broadens horizons and can be easily communicated across language and background barriers.

In *Learning from Las Vegas*, Venturi studied the dominance of signs over space, and how people react to the large signs at high speeds as he wrote "architecture of communication over space". One cannot help but compare the Las Vegas Strip to Voortrekker and Verwoerd road. The signs become perhaps more important than the buildings, which are merely decorated sheds. The signs and not the buildings, give the area character. Cars also travel at high speeds and signs compete with each other for the motorist attention.

Furthermore there are numerous similarities between Levitown, Las Vegas and the suburbs surrounding the site. Eclectic ornamentation on houses such as wagon wheel fences, statues of dwarfs and golf ball mailboxes on erect chains are used to identify and support the individualism of the owner.

Of further influence on the study were the following words of Venturi "... in the main the architect's concern should belong not with what ought to be but with what is – and how to help improve it now" (Venturi ,R:xxx)

## Scales

### 1. Provincial:

The relationships between the metro poles (The city of Johannesburg, The city of Tshwane and the Ekurhuleni Metropolitan Municipality) are of primary interest. Urban development patterns become apparent.

### 2. Metropolitan:

Tshwane is shattered into development satellites. This urban sprawl is a result of various aspects of the city's history of development of which some of the most observable reasons are the Apartheid urban engineering and the surrounding topography. Obvious needs become apparent which begins to inform the designing of a link.



Fig 5: South Africa in relation to the continent.



Fig 6: Gauteng Province.

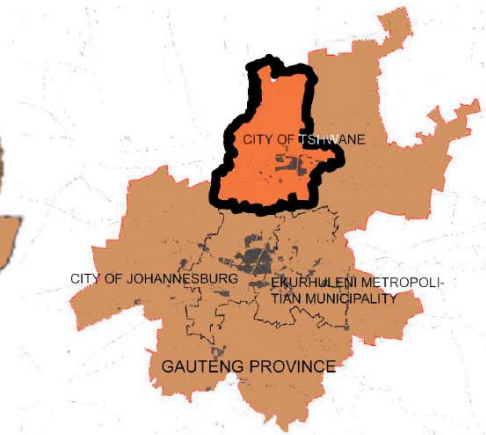


Fig 7: Scale 1 - The City of Tshwane in relation to the City of Johannesburg and Ekurhuleni Metropolitan Municipality

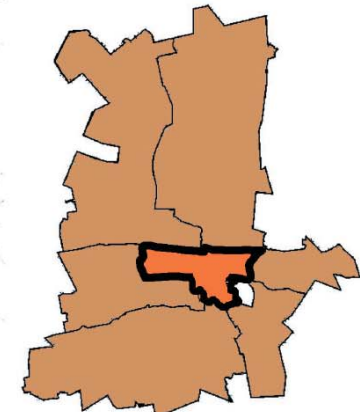


Fig 8: Scale 2 - The metropolitan City of Tshwane.

**3. CPD:**

This precinct includes the boundaries of the old Pretoria and gives one insight on the previous municipal view. The nature of the connection with the city centre also becomes apparent.

**4. Moot (dale):**

In the dale (The word “moot” translate to “dale” or “Valley; Low area more or less enclosed by hills...”) north of the central business district, with radiating development spines are obvious locations where interventions can be catalytic with considerable results (fig x).

**5. Voortrekker road. And Verwoerd road**

The most prominent spine of commercial and light industrial development runs north from the CPD across the railroad. The train platform is used as an entry to the city and a distribution point for employment seekers.

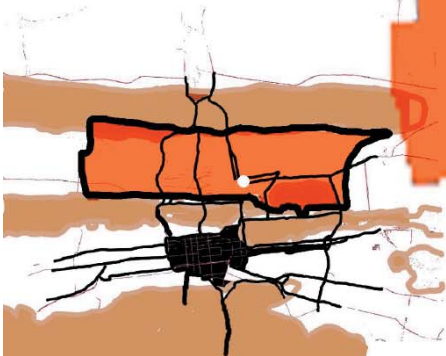


Fig 9: Scale 3 – The old city of Pretoria



Fig 10: Scale 4 – The Moot region

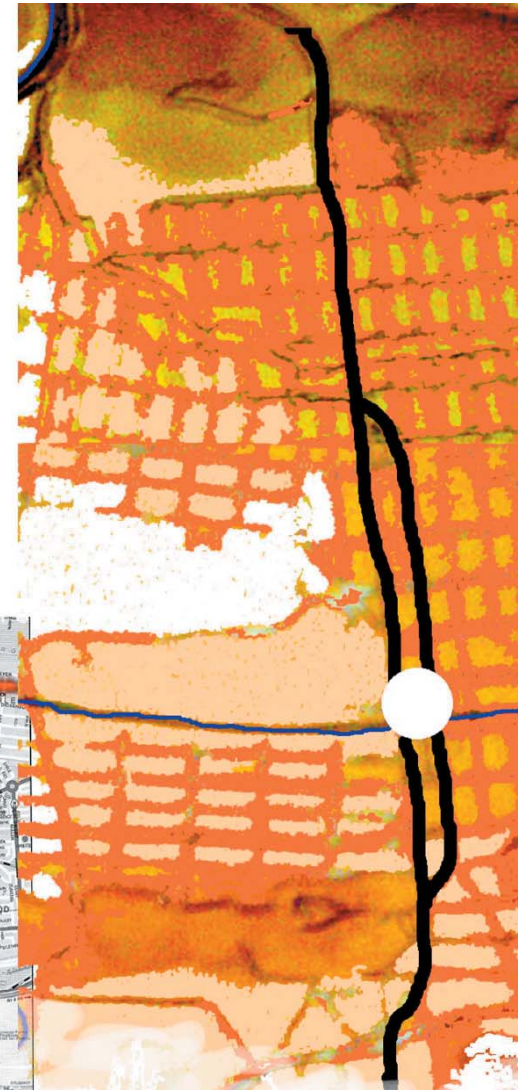


Fig 11: Scale 5 – Gezina suburb with Voortrekker and Verwoerd road

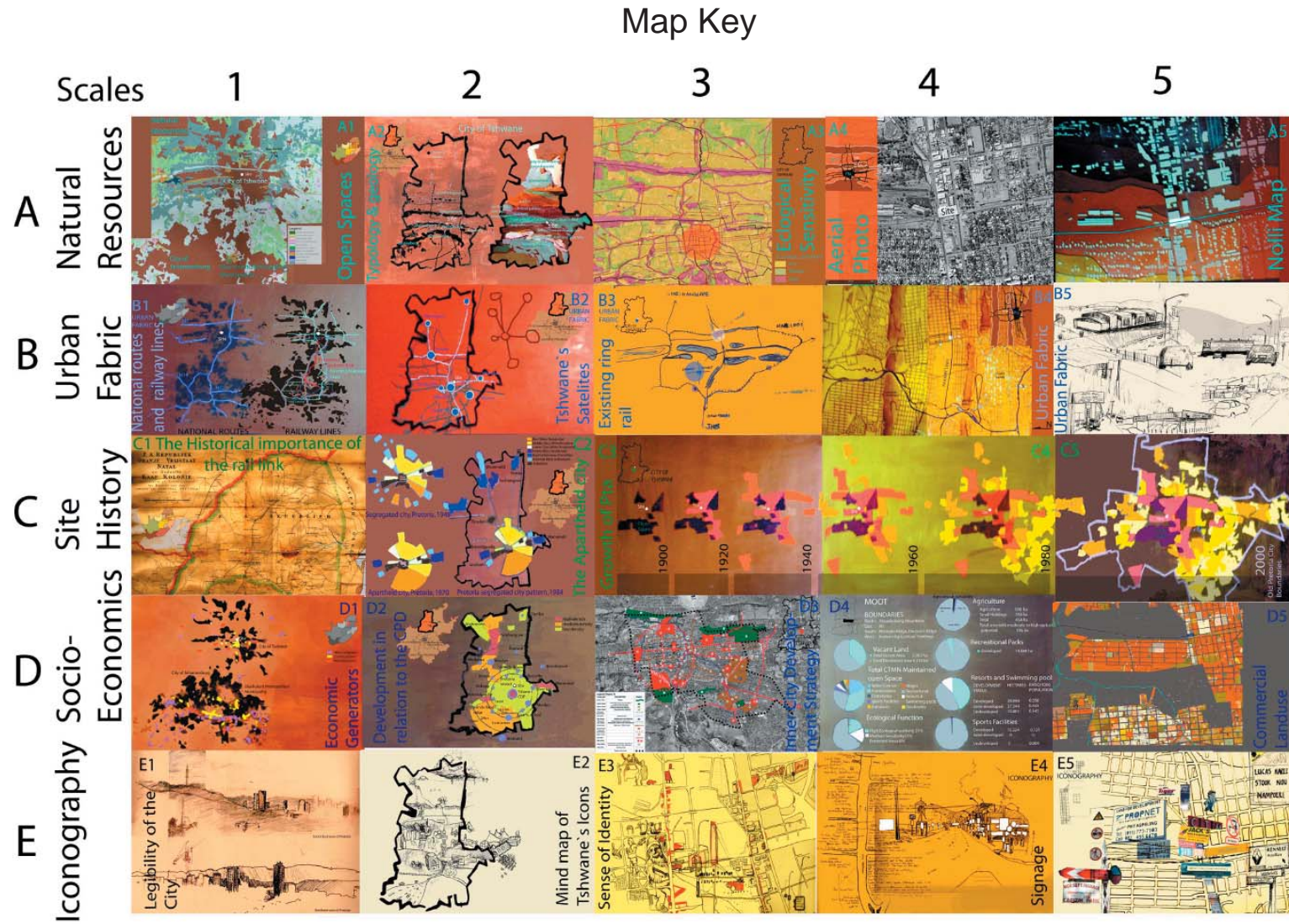
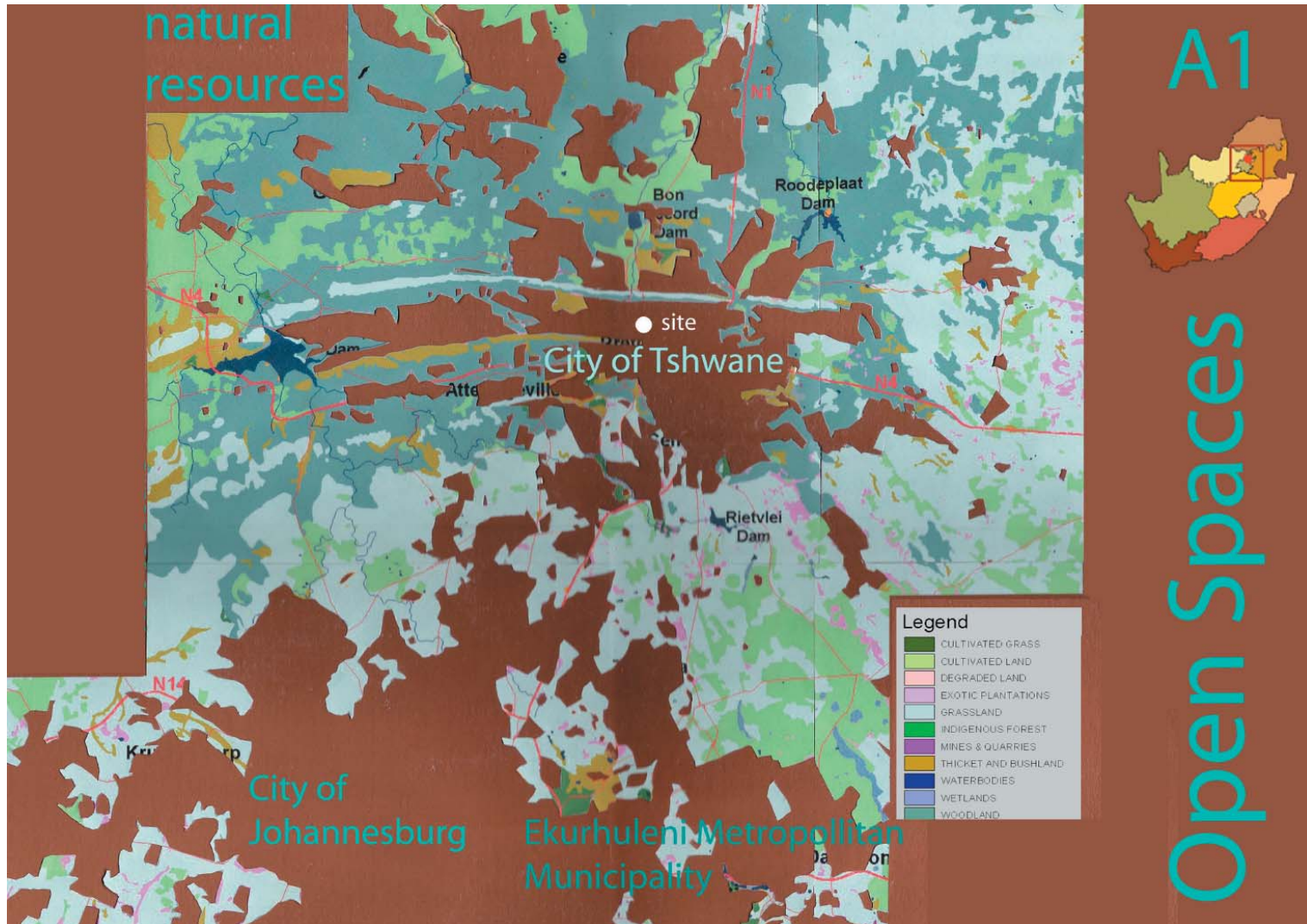


Fig 12 : Map Key

Fig 13: A1 Open Spaces around the City of Tshwane. The fragmented nature of the city has resulted in ample open spaces in between development pockets. These spaces should be managed to combat further urban sprawl and conserve the natural resources.



22 Fig 14: A2 Typology & Geology. The Magaliesberg mountain range runs east to west through the city of Tshwane and influences its urban planning. A break between Meintjieskop and Daspoortrant ridge results in notable development potential to the north. The soil conditions are stable and suitable to build on.

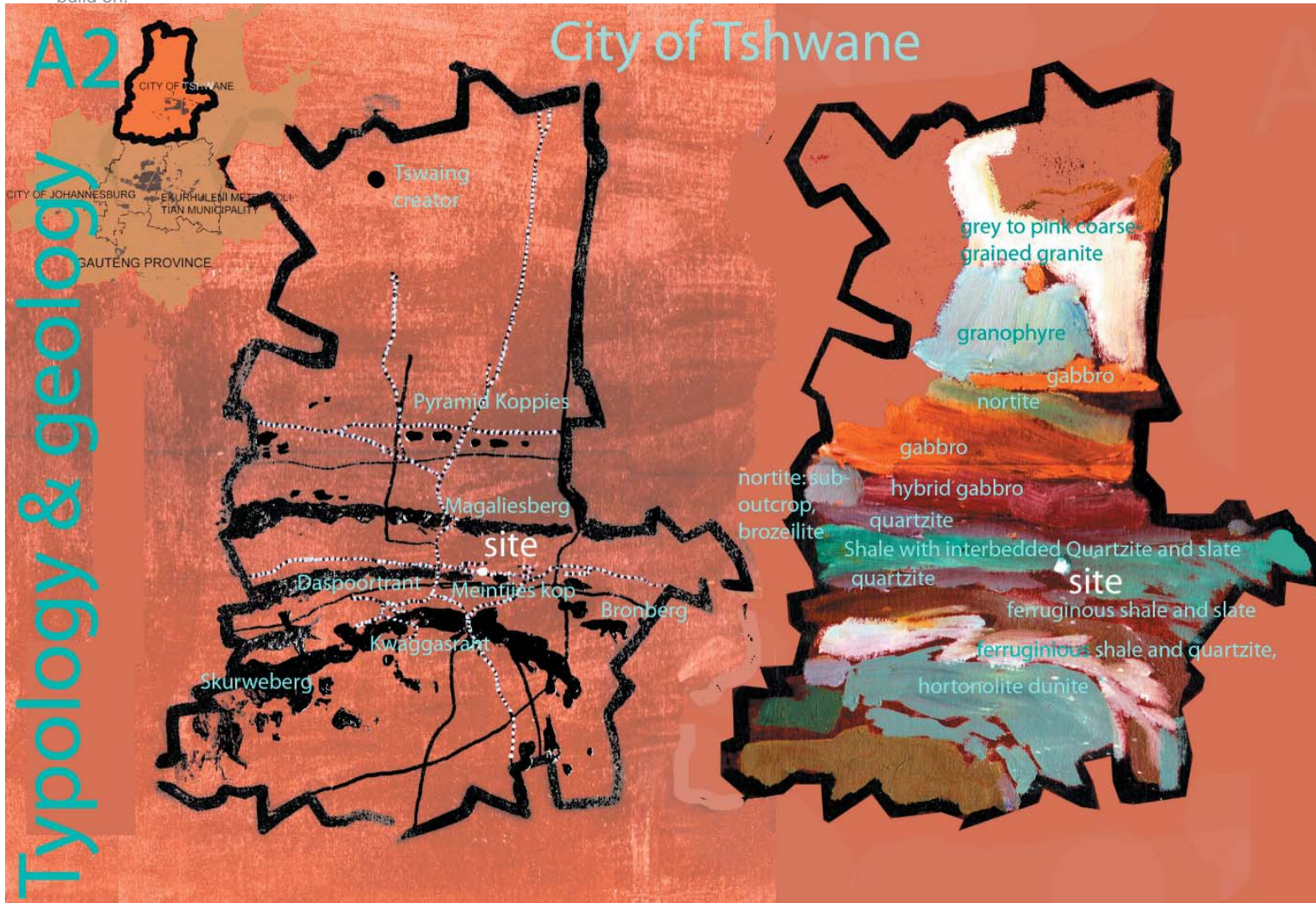
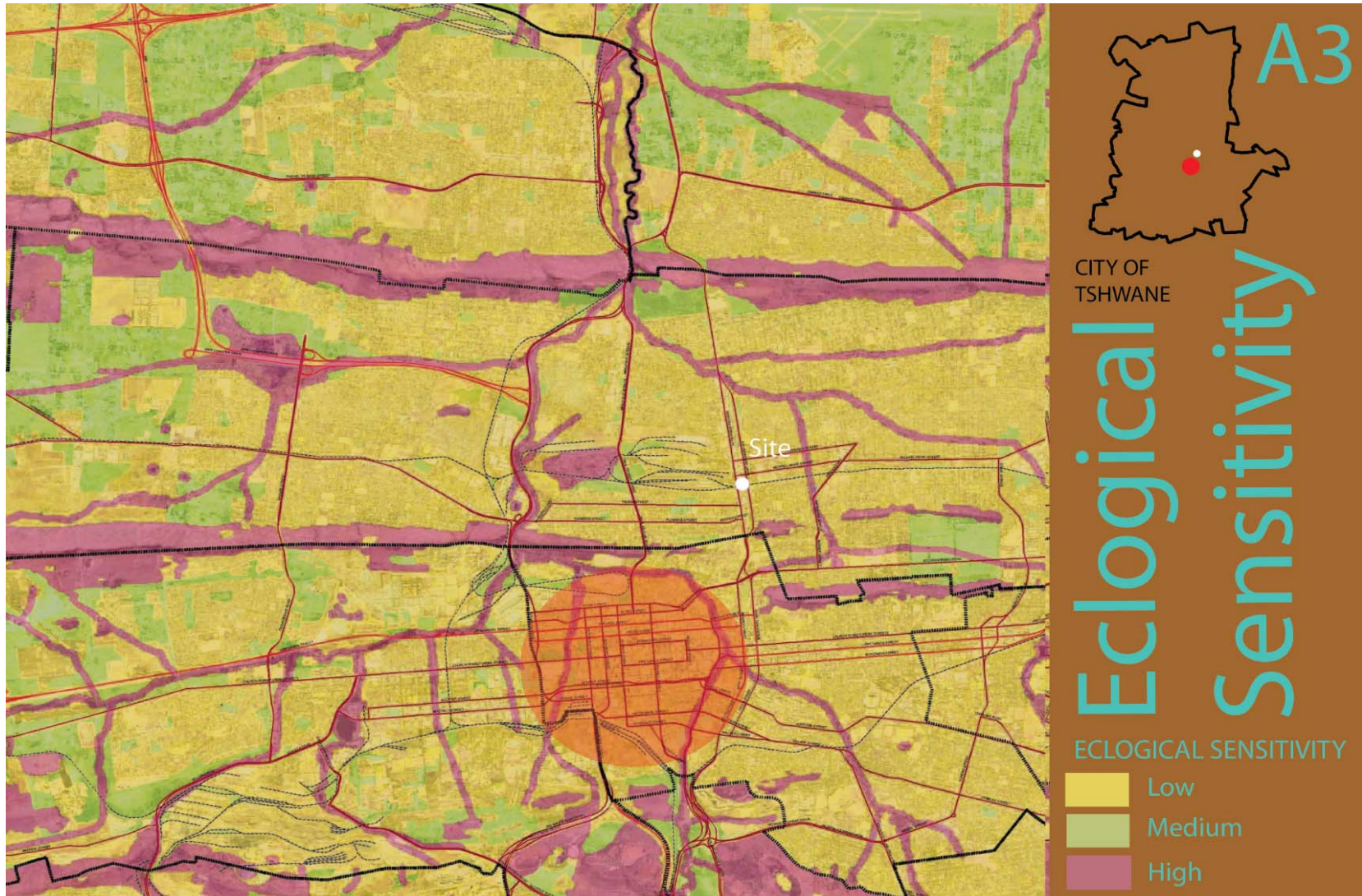


Fig 15: A3. Ecological Sensitivity. The site is situated on a brown field in a light industrial development strip.

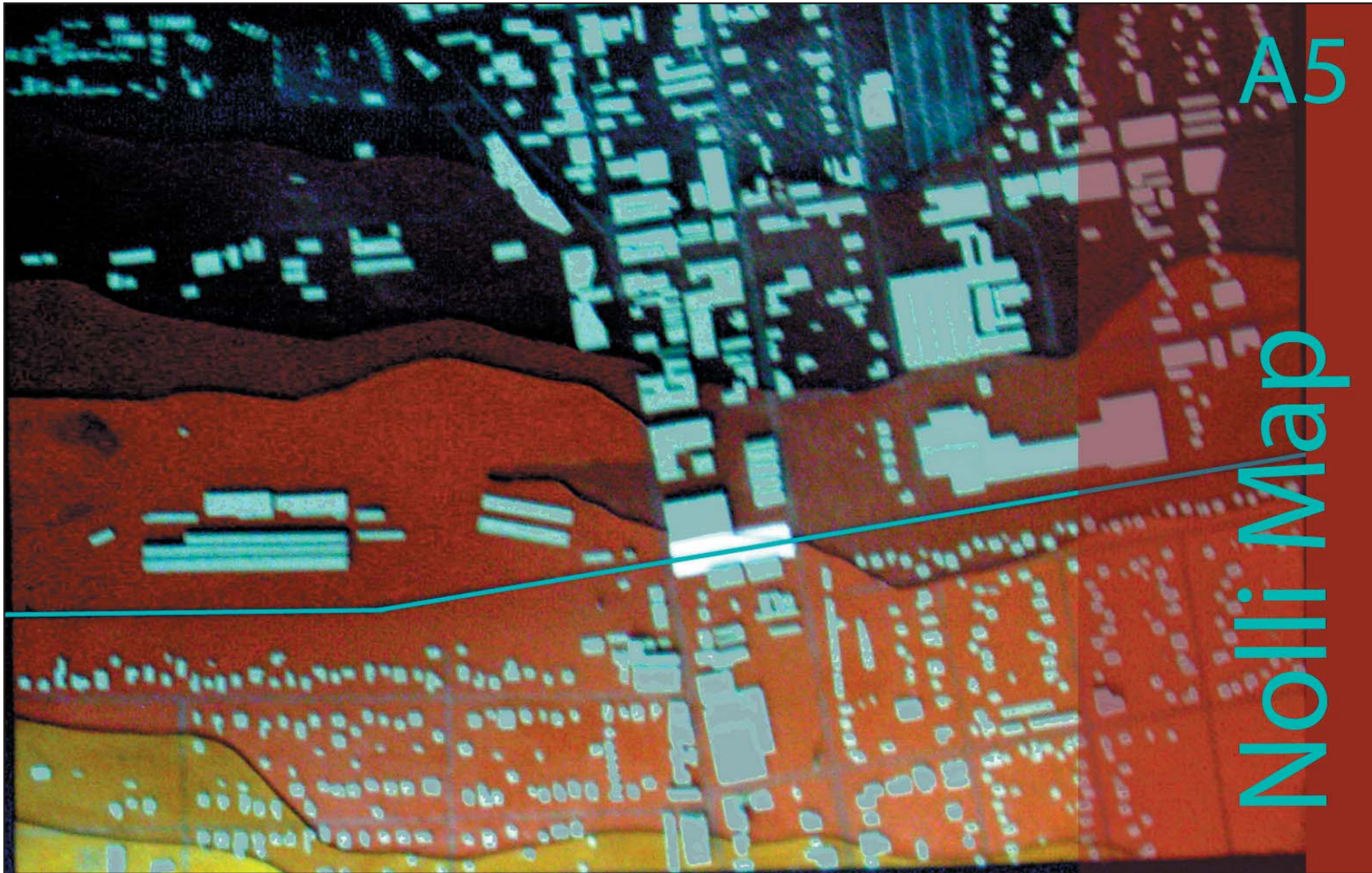


24 Fig 16: A4. Aerial Photo. The surrounding area of the site shows how a portion of previously mentioned light industries are sustained by major vehicular routes.





Fig 17: A5. Nolli Map. This map shows the build up environment and five meter contours descending to the top of the page.



26 Fig 18 .B1. National Routes and Railway Lines. Major road links (accessibility) stimulates growth, and traffic congestion suggests that these routes are not sufficient enough. The rapid rail link (Gautrain) increase accessibility of city and could alleviate some of these problems. Secondary public transport systems can feed of this link creating nodes around the interchanges with important development potential.

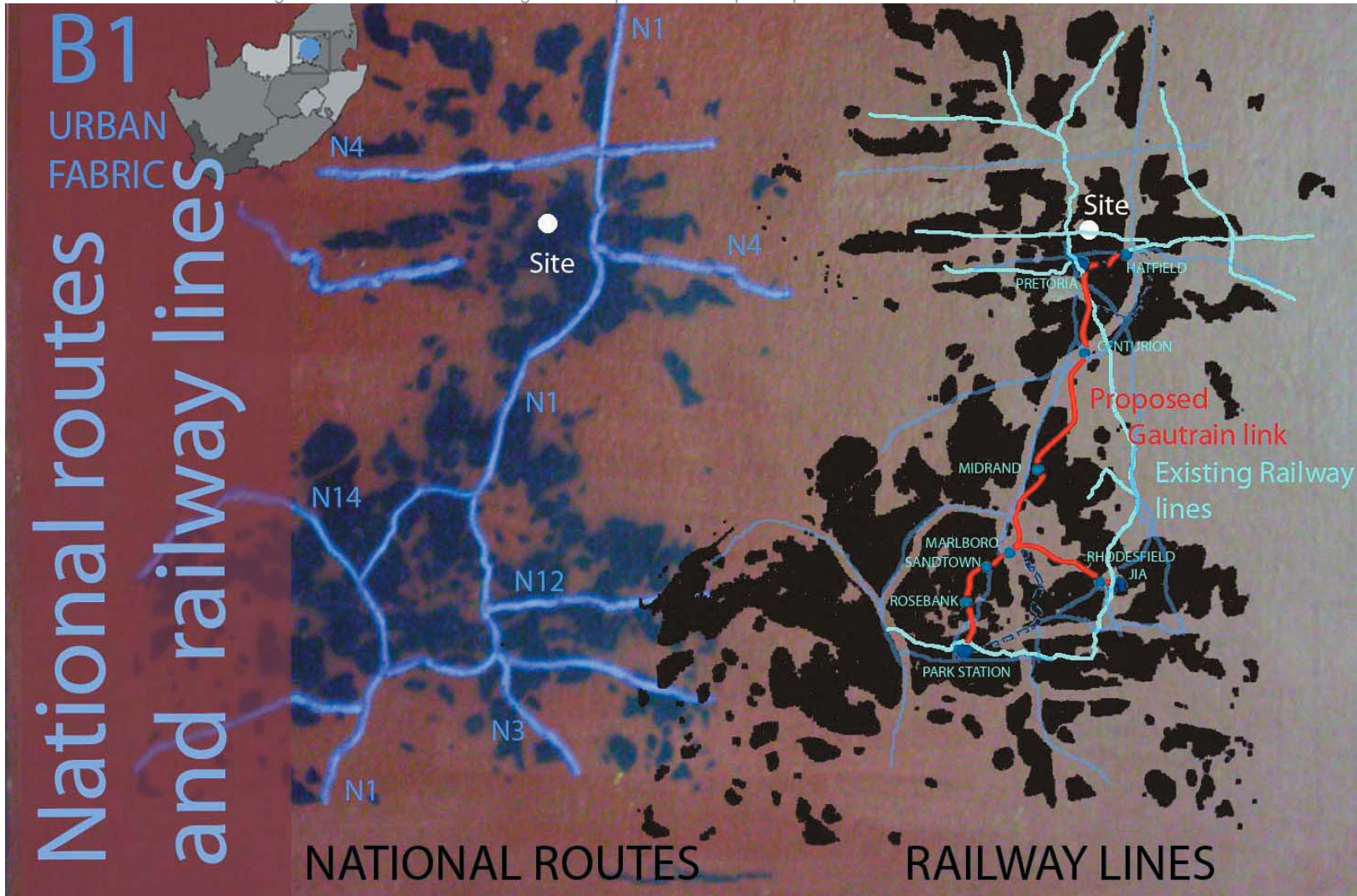
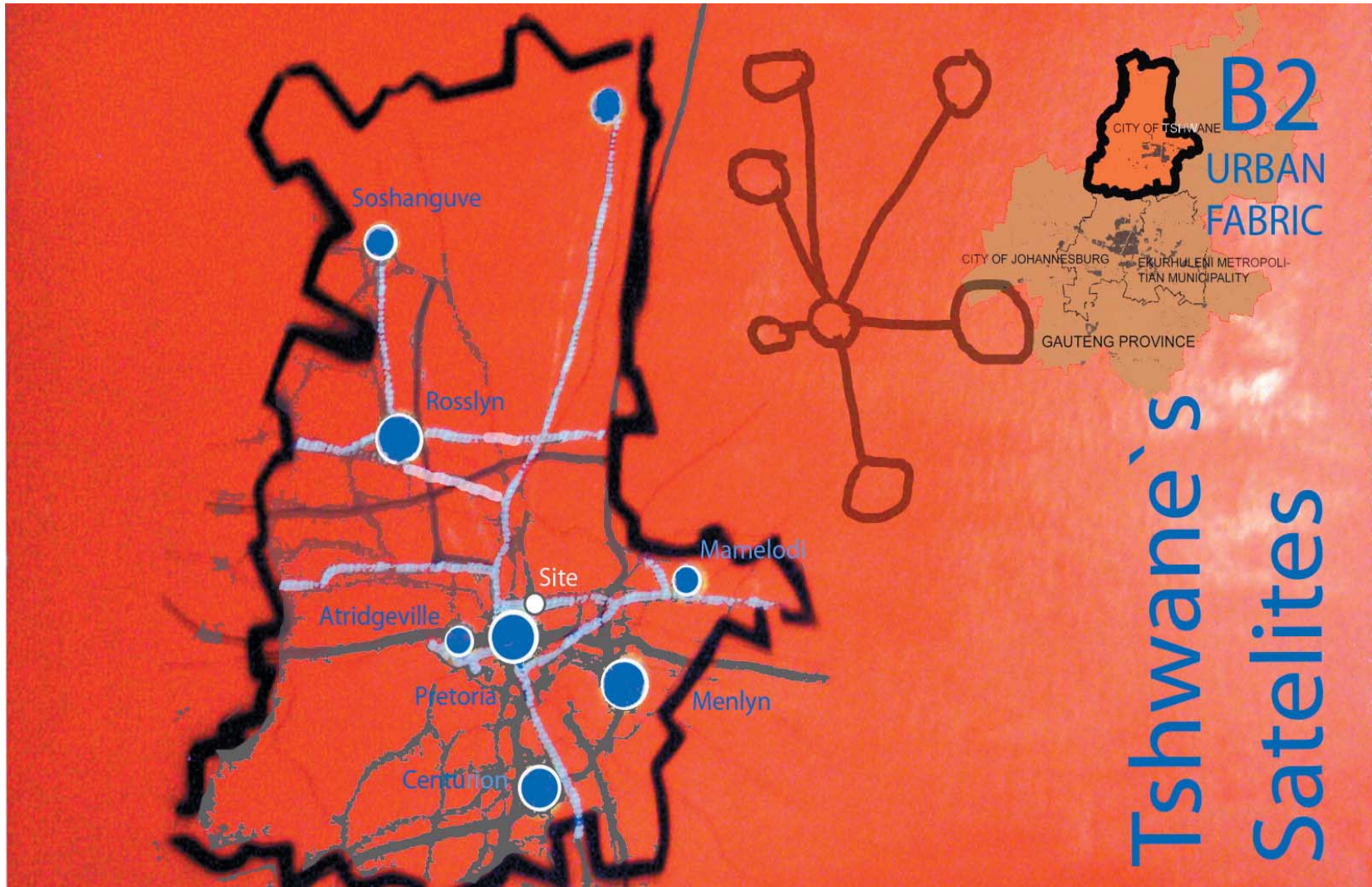


Fig 19 .B2. Tswane's Satalites. Primary economic nodes, as identified by the municipality of Tshwane, correlates to the existing infrastructure except for the north<sup>27</sup> nodes due to Apartheid urban Engineering (fig 25). These nodes were intentionally isolated with limited access and need to be reconnected.



28 Fig 20 .B3. The Existing Ring Railway Lines. The isolated northern development nodes all have access to the existing railway. These train routes radiate from Pretoria station and could be managed more sufficiently by incorporating a ring rail system, using the existing railway tracks. This is mostly an administrative and managerial problem although, more formal stations with adequate facilities are needed.

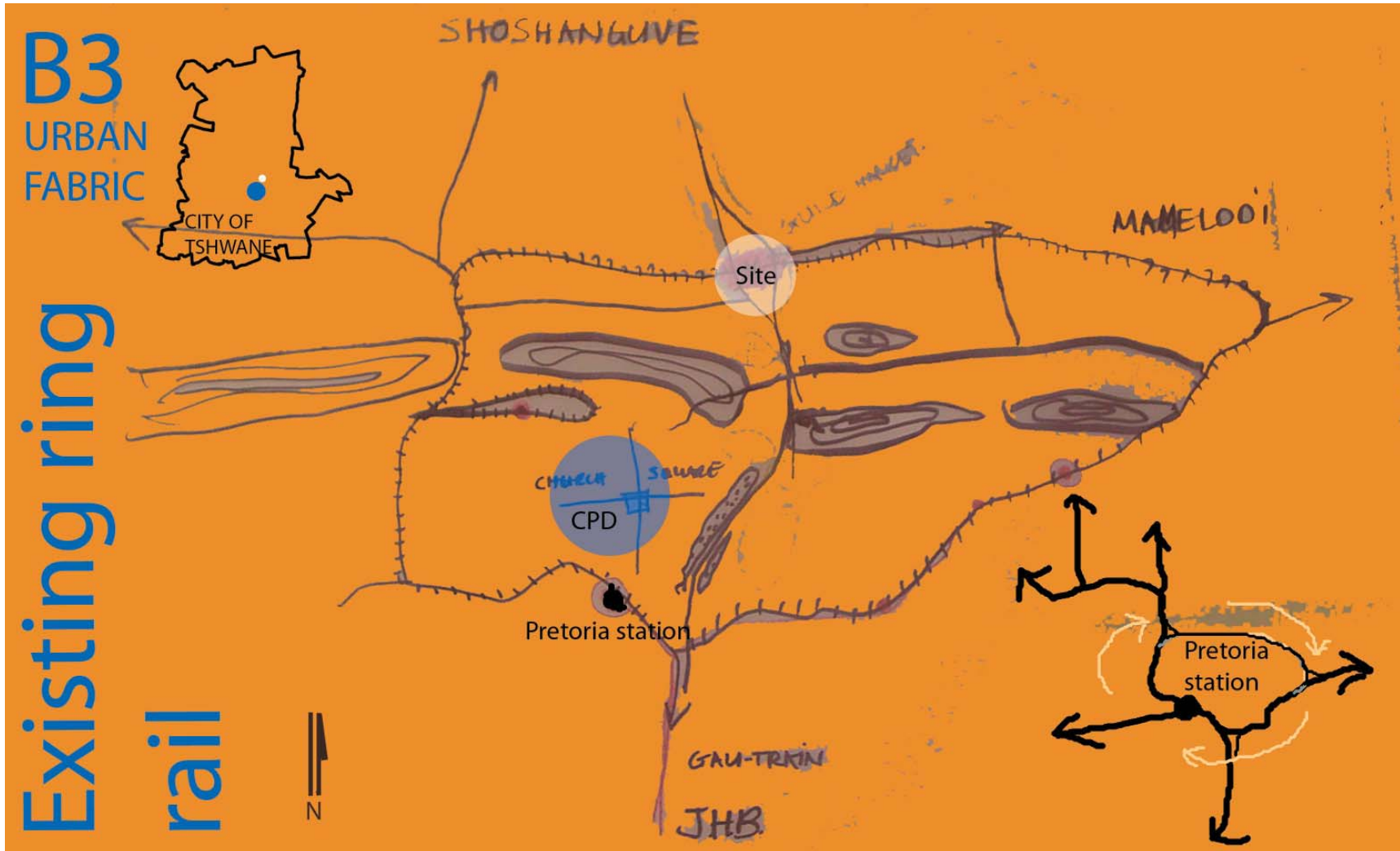


Fig 21.:B4. Urban Fabric. The roads and railway lines and ridges.

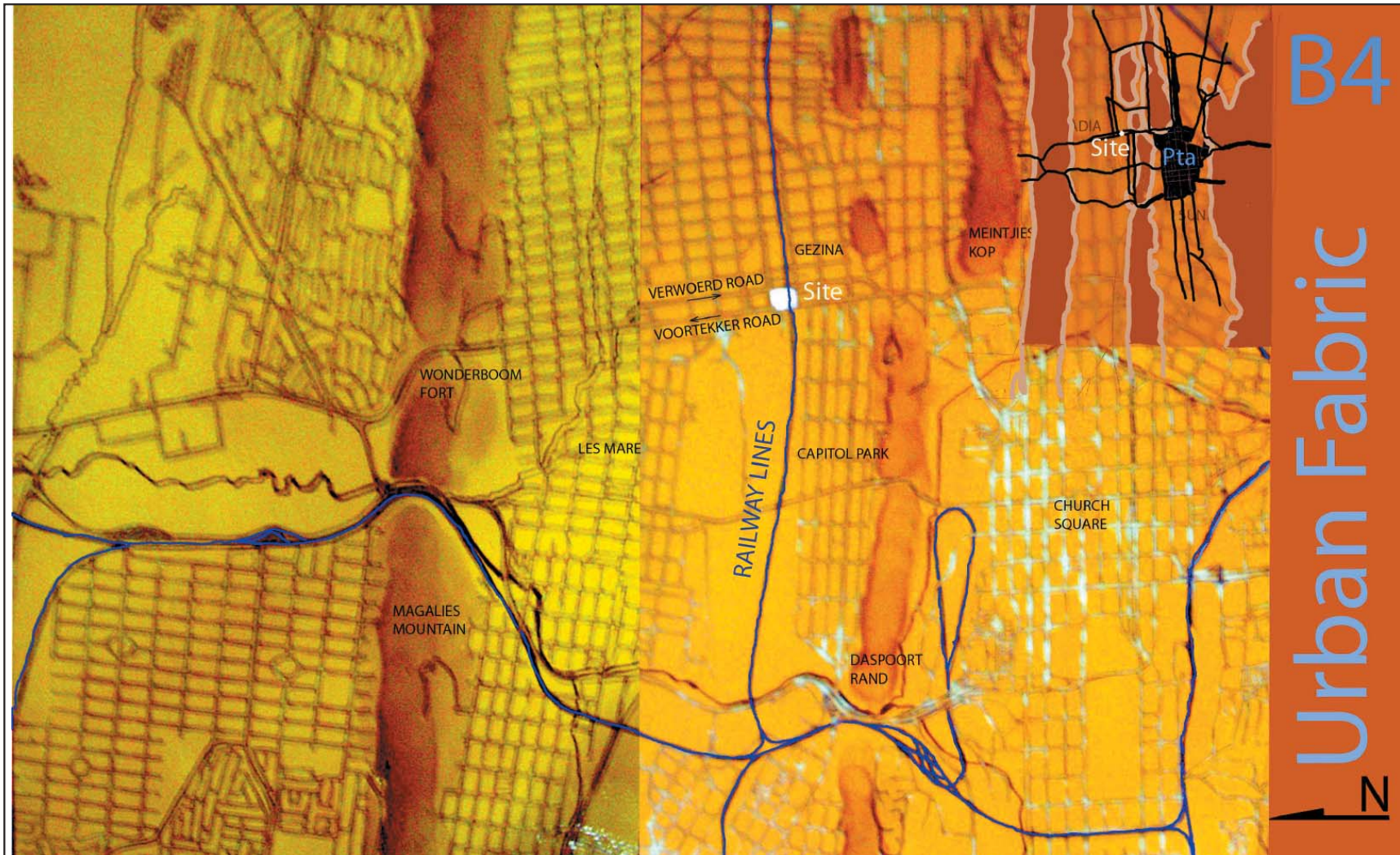


Fig 22: B5. Urban Fabric. The character of the streetscapes.



Fig 23: B5. Urban Fabric. The character of the surrounding railway entities.



32 Fig 24: C1. The historical importance to this specific rail link. The Zuid Afrikaanse Republic was formed to gain independence for the Afrikaner from the British owned Cape colony. The republic discovered gold and was thriving and needed a seaport to truly be independent. They built this railway line from Pretoria (City of Tshwane) to L.Marques (in the neighbouring Portuguese colony now Mozambique, Maputo). Shortly after construction was completed the Anglo-Boer war started and the link never reached its full potential.





Fig 25: C2. A segregated Pretoria engineered by Apartheid.

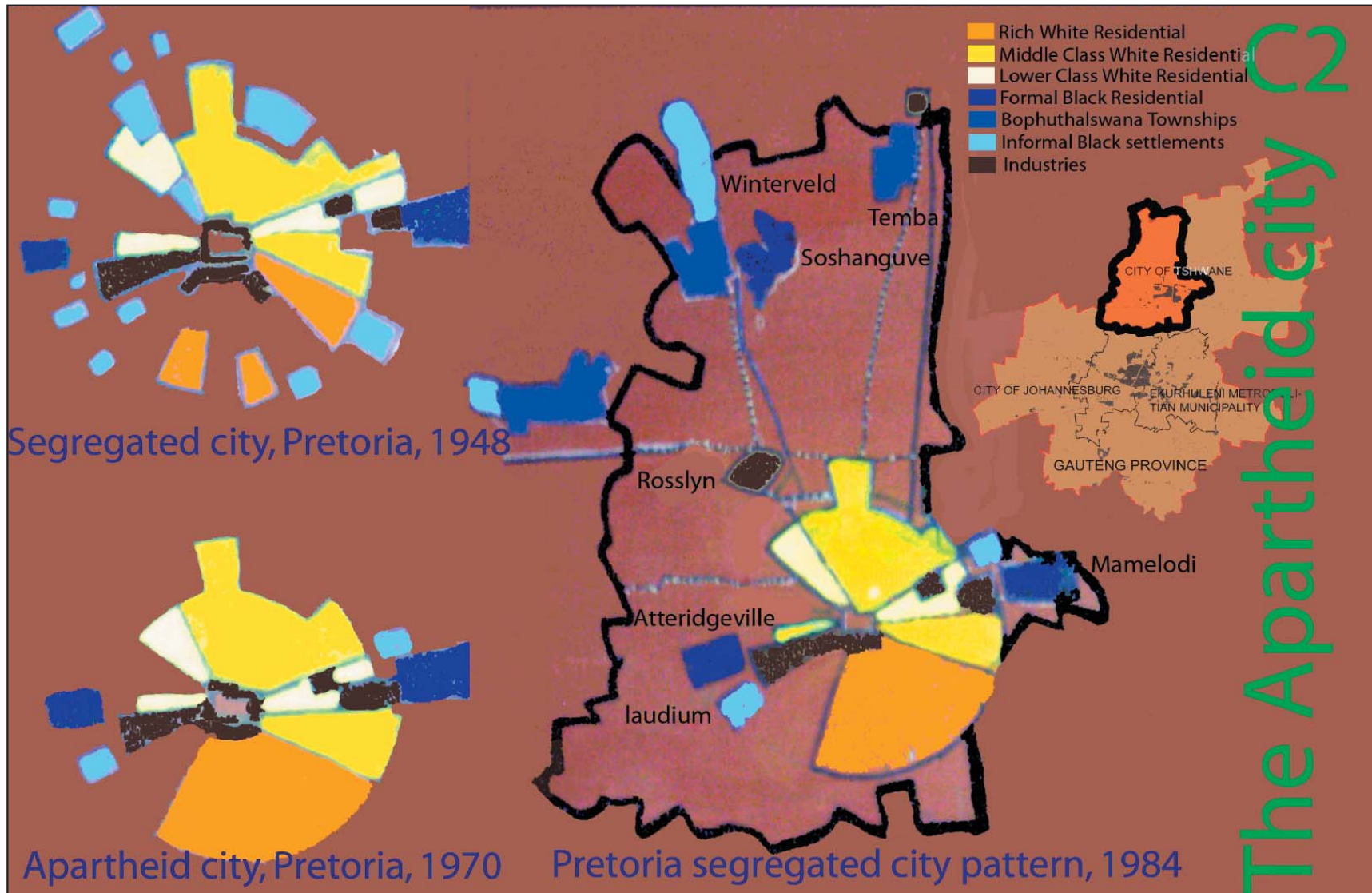
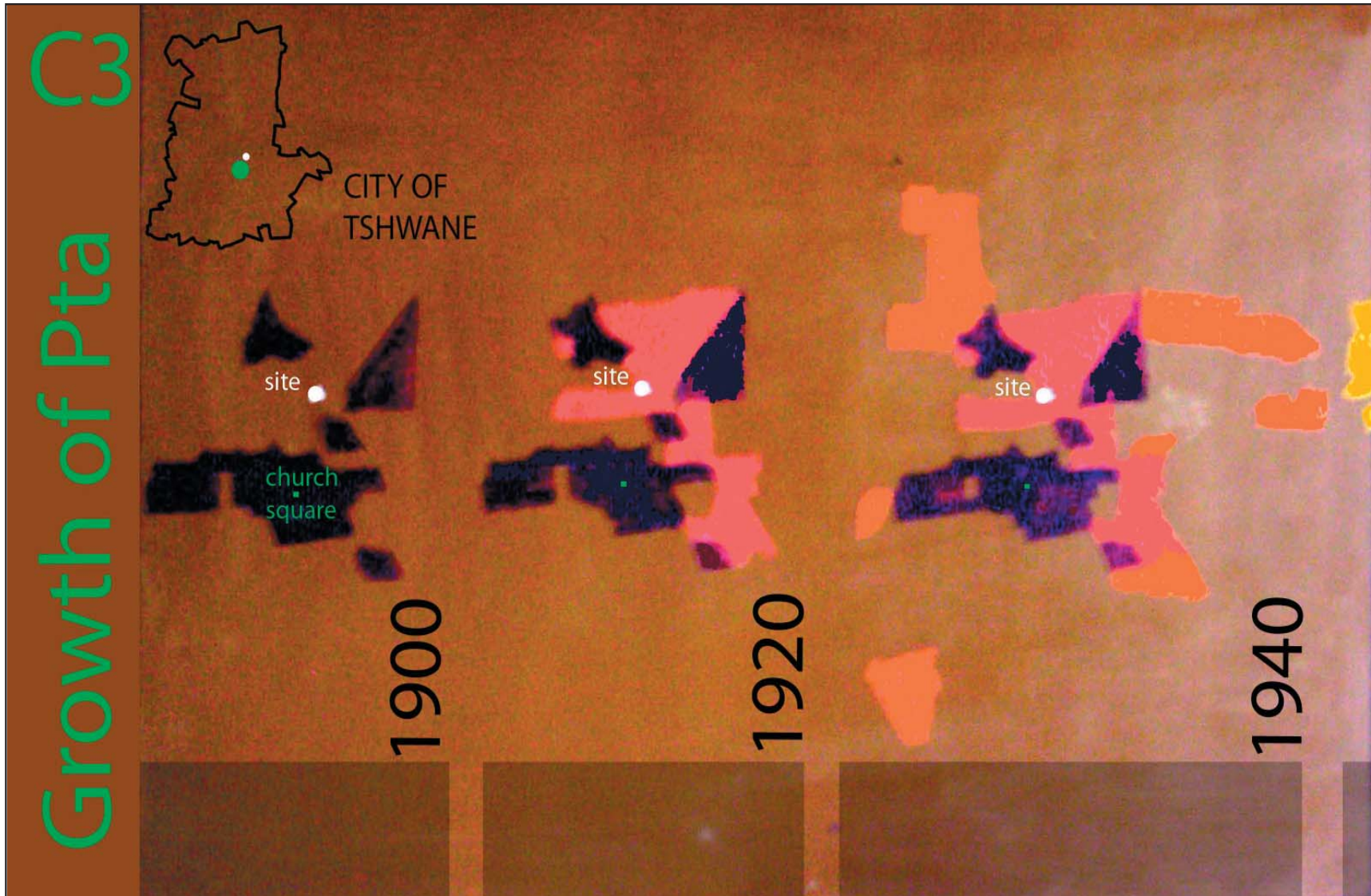
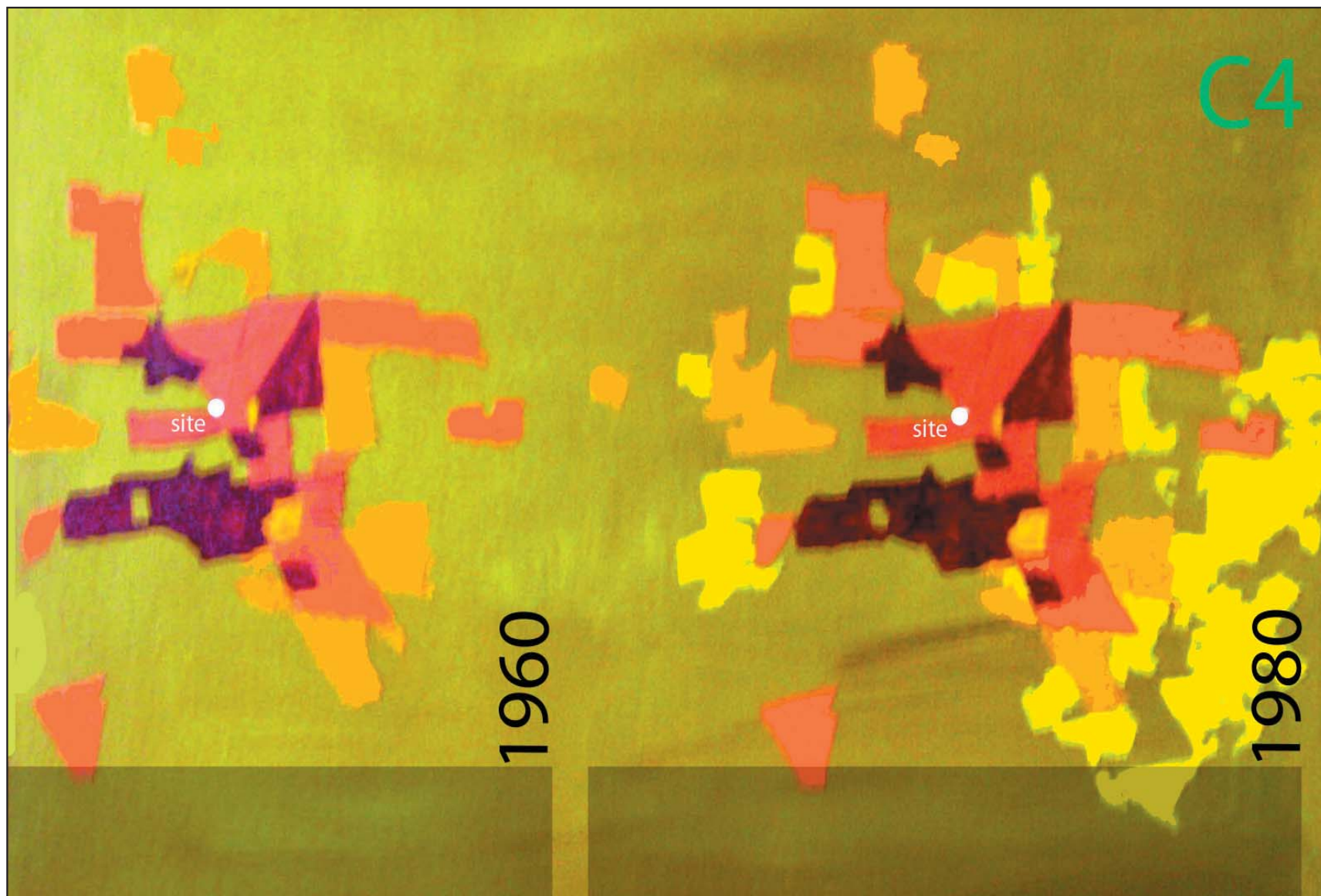


Fig 26-28: C3-5. The growth of the city from 1900-2000.





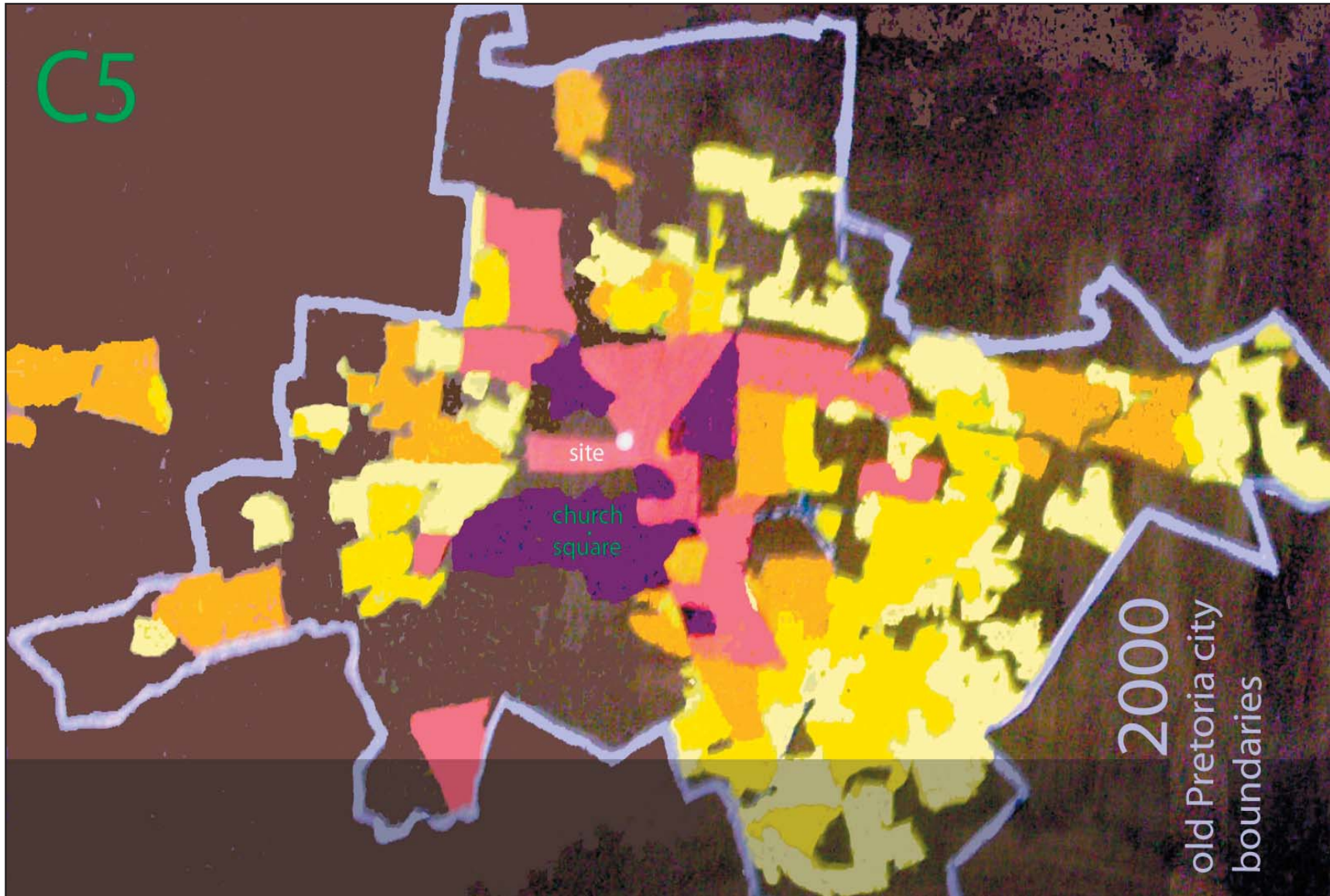


Fig 29: D1. Economic Generators

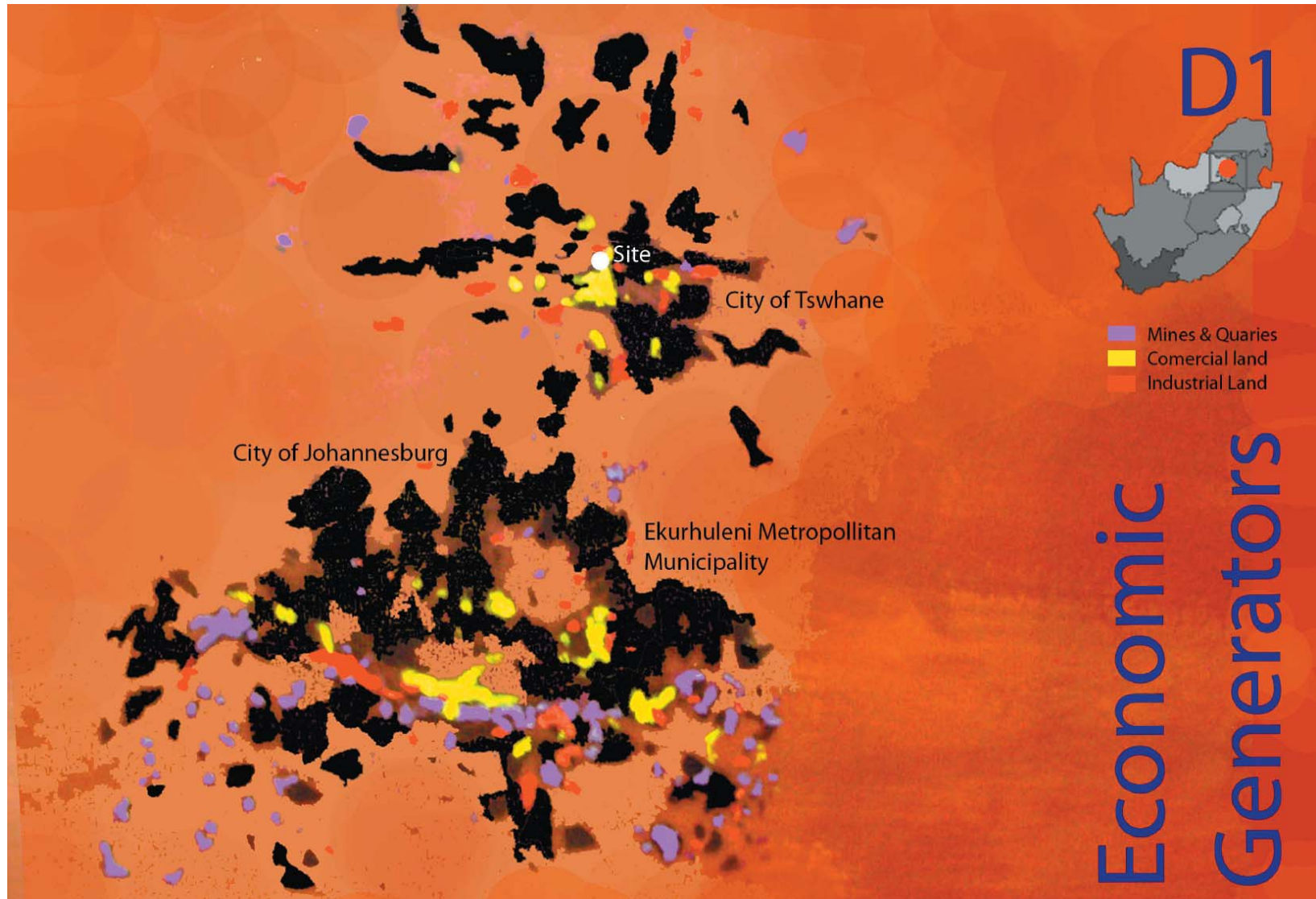


Fig 30: D2. Development in relation to the CPD

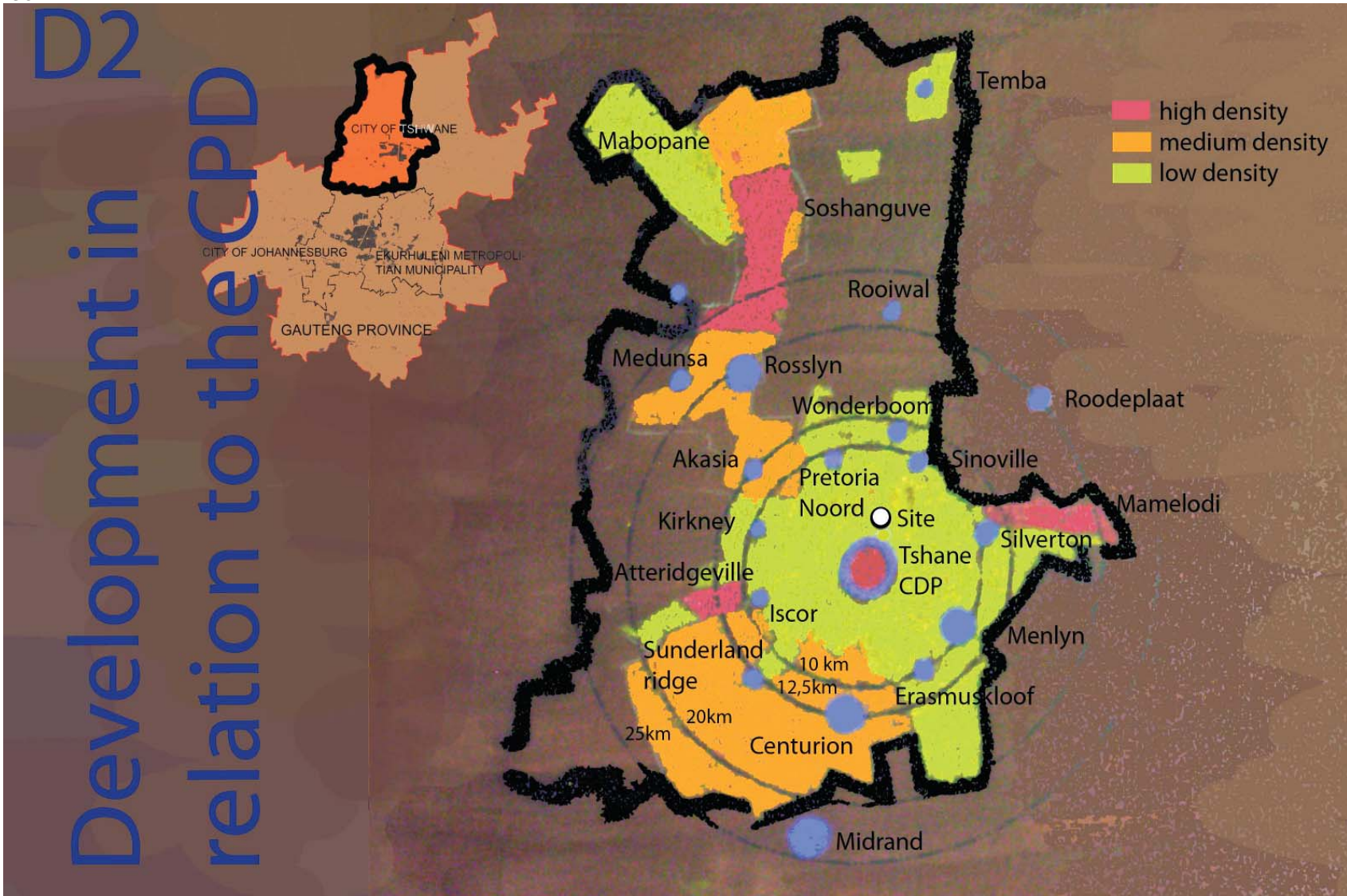


Fig 31: D3. The Inner City Development Strategy. The brown and red areas show the socio-economic municipal priorities. No32 is the MDC (Mandela Development Corridor) and the catalytic development could be linked with the site.

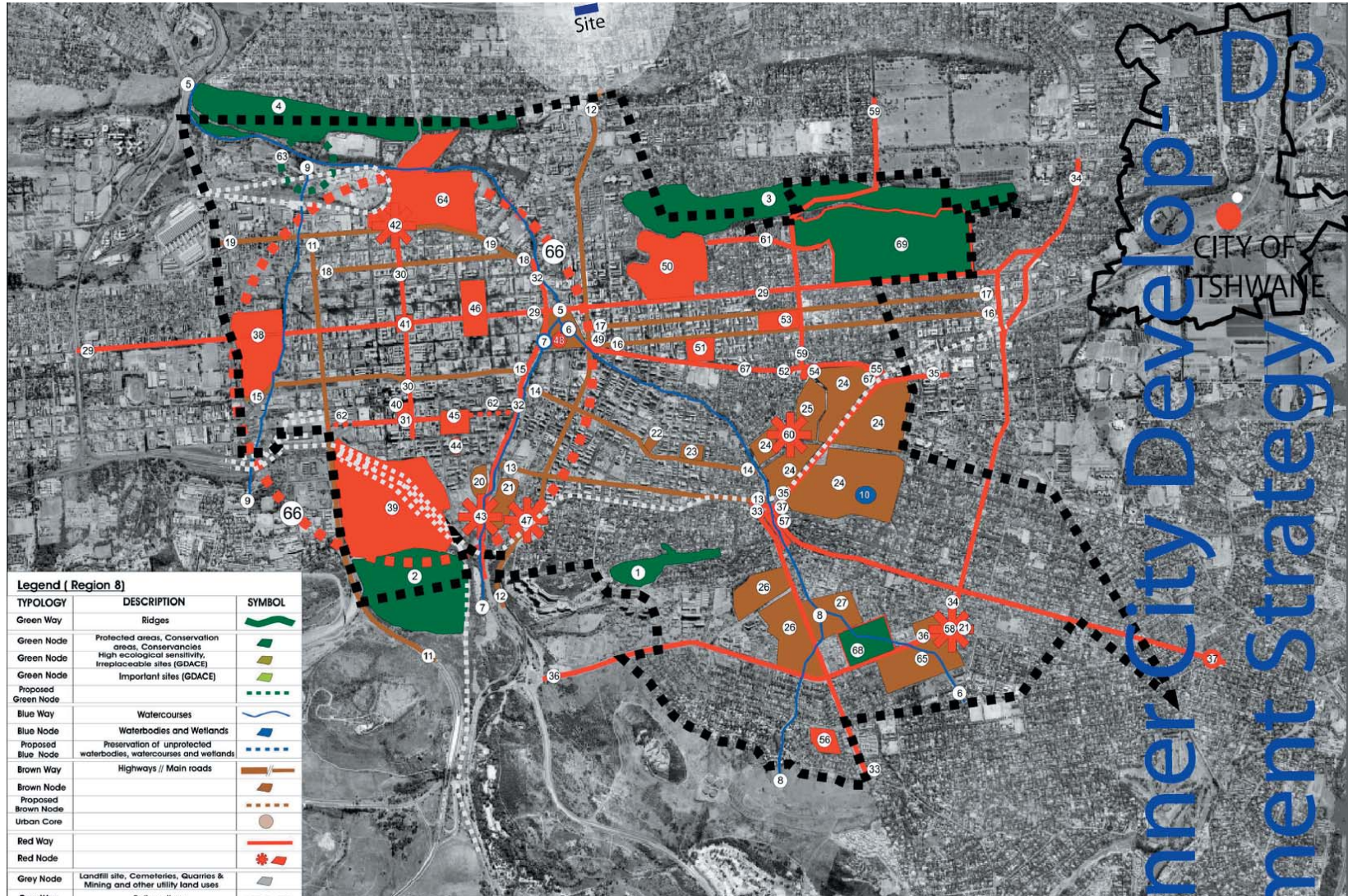


Fig 32: D4. Vital Statistics

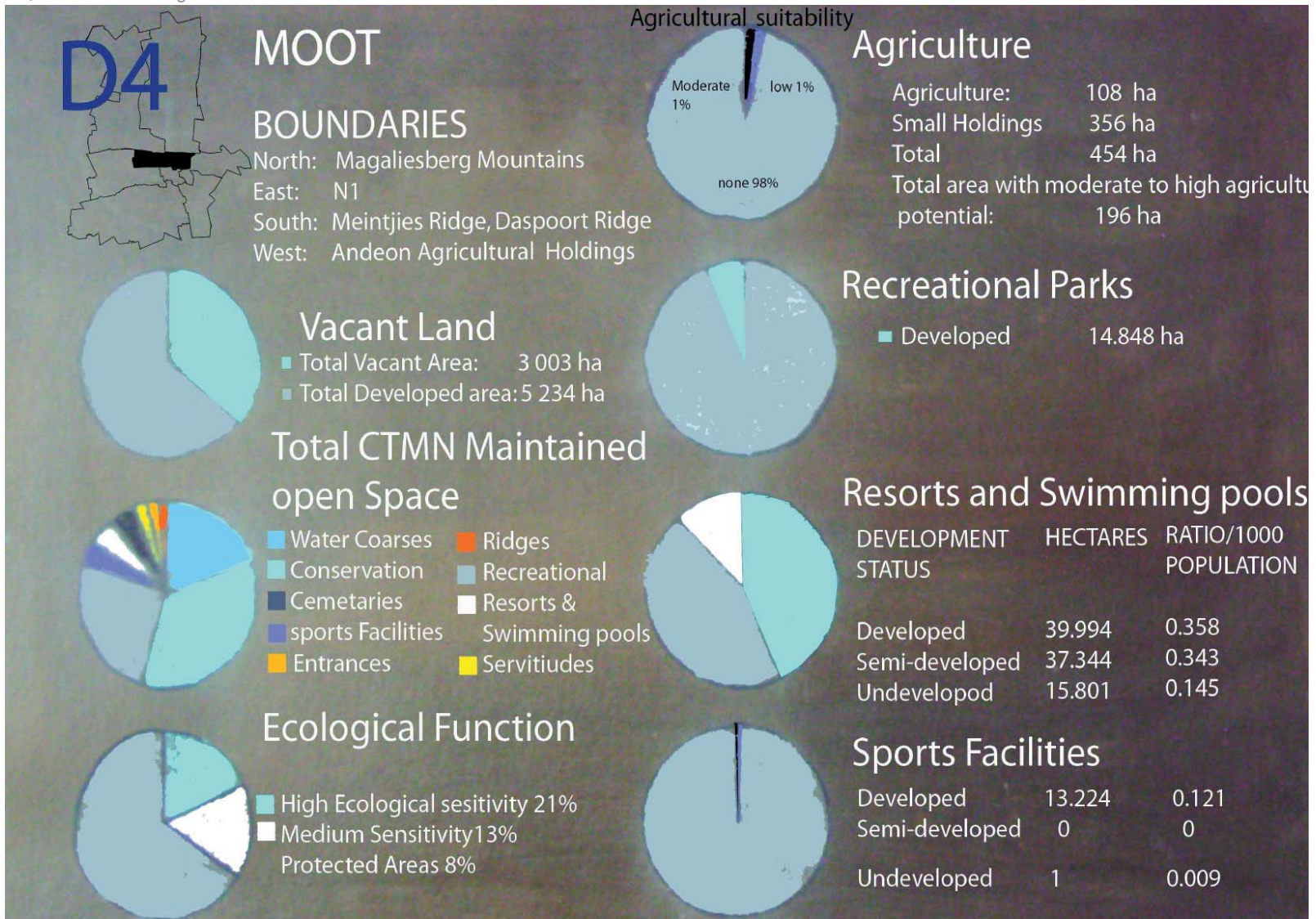




Fig 33: D5. Land Use. Orange – residential .Green –vacant. The rest shows different commercial and industrial use.



Fig 34: E1. Legibility of the City. Land marks in the area used to navigate



Fig 35: E2. Mind map of Tshwane. Perception map with the prominent landmarks and icons

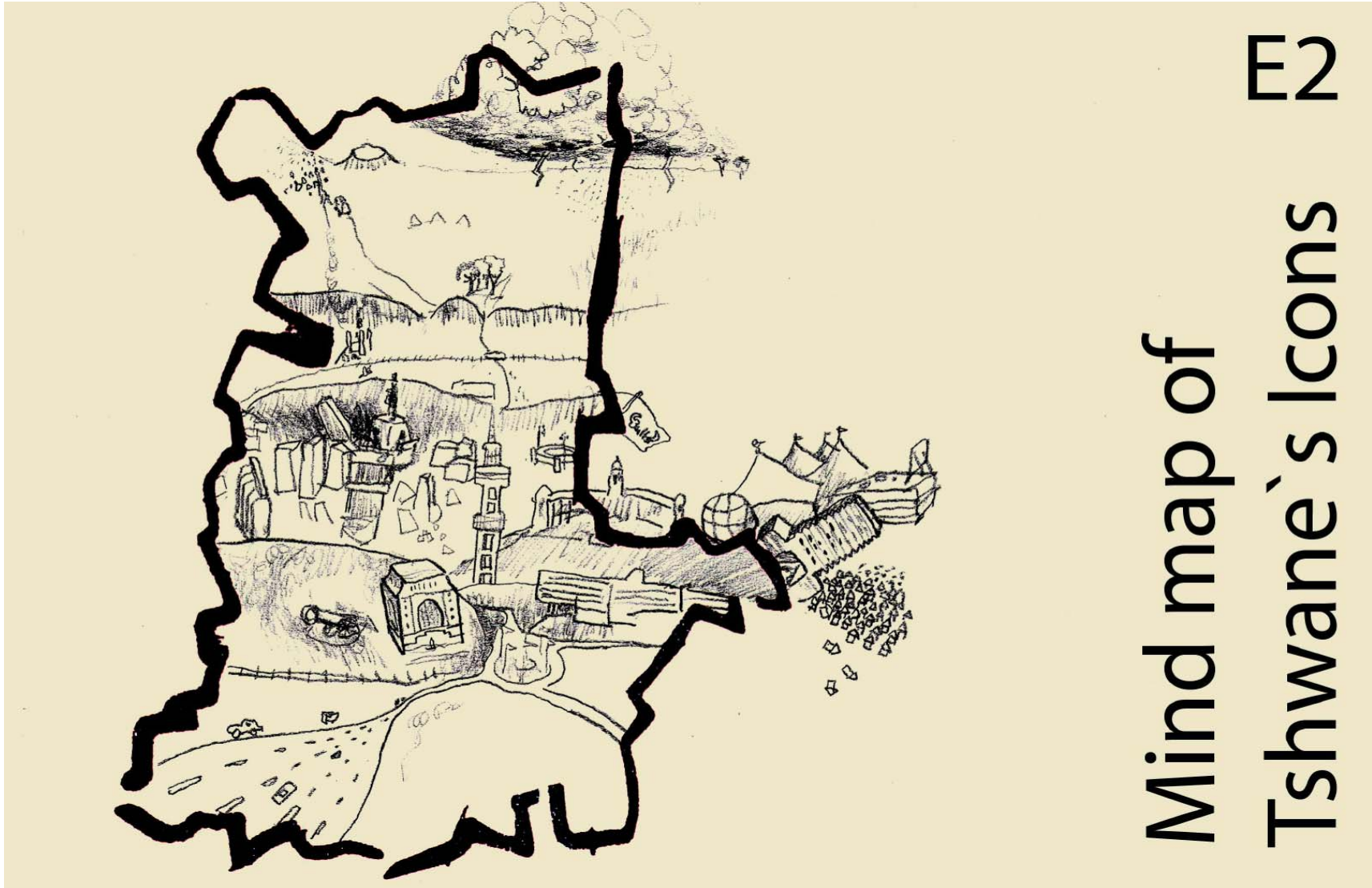


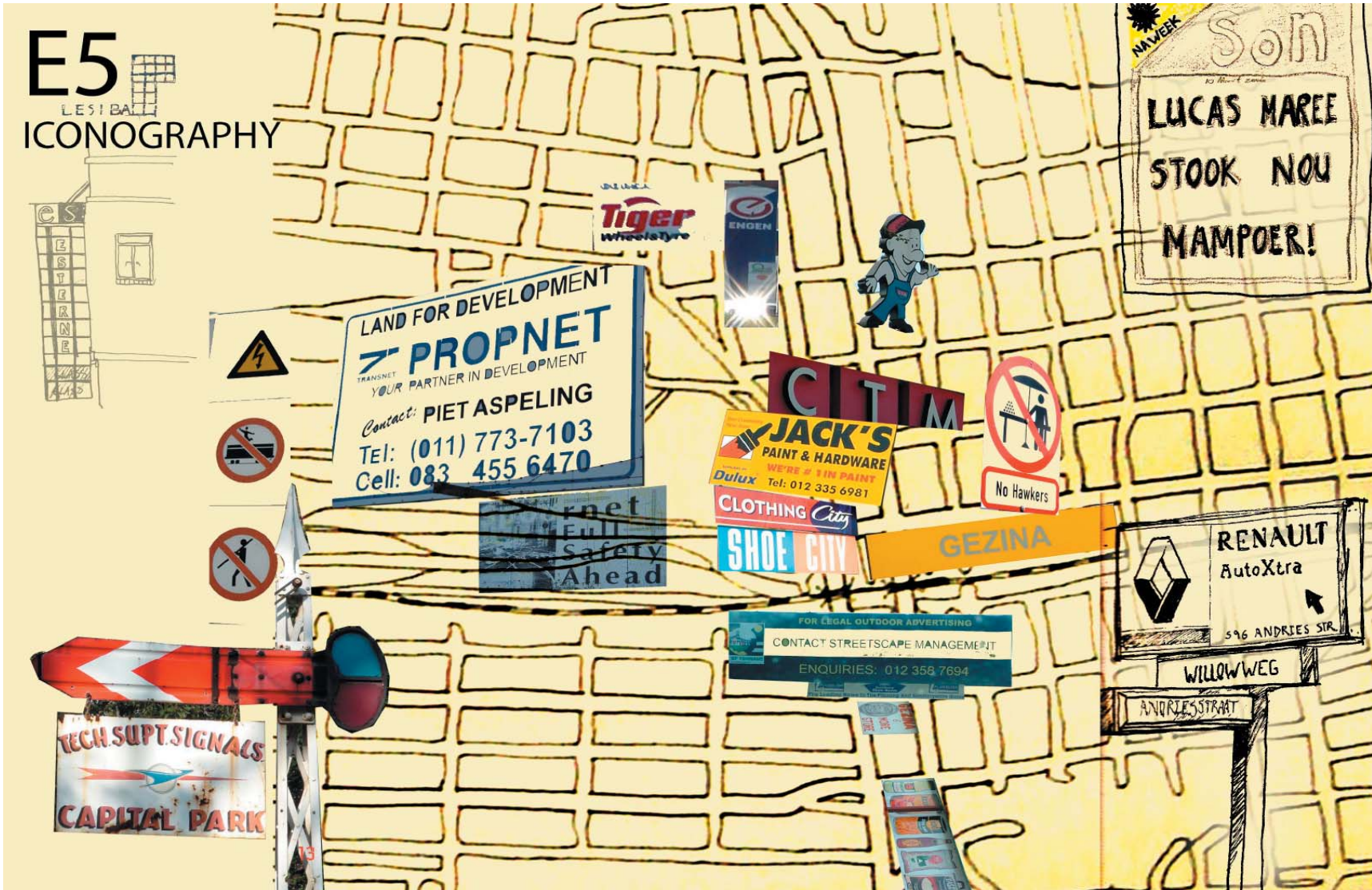
Fig 36: E3. Sense of Identity. The moot region is renowned for its eclectic ornamentation and ample signage. This has become part of the area's physical character and in most cases properly more important than its architecture.



Fig 37: E4. Signage looking north in Voortrekker road.



Fig 37: E4. Signage looking north in Voortrekker road.



# Case Studies

## 1. Metro Mall

Taxi and Bus Rank and Traders` Market, Johannesburg, Newtown, 1999, Architects: Urban solutions Architects & Urban Designers.

## 2. Warick Junction

Urban Renewal Project Berea, Durban, 2001, Architects: MA Gafoor; Kooblal & Steyn.

## 3. SESC Pompéia Factory,

São Paulo, Brazil, 1977-1986, Architect: Lina Bo Bardi

## 4. Huelva Bus Terminal

Doctor Rubio s/n, Huelva 1990-1994 Architects Cruz / Ortiz

## 5. Santa Justa Train Station

Avenida de Kansas City, Seville 1988-1991 architects Cruz / Ortiz



Fig 39: Photo collage of the Metro Mall



## 1. Metro Mall

Taxi and Bus Rank and Trader` Market, Johannesburg  
(1999)

Architects: Urban Solutions Architects & Urban Designers

This is an urban renewal intervention in Newtown Johannesburg. The site area is 2, 6 hectares, and stretches over two land parcels (fig x). This project links Braamfontein, north of Johannesburg, with Newtown. Busses, Taxis, Traders and its associations are integrated. A Large variety of trading spaces caters to different trader needs and means. These stalls consist of small floor spaces with concrete counters, larger roller shutter lock up cubicles and fully serviced outlets. Sufficient space for 800 traders, 25 busses and 2000 taxis are provided.

*This building's vibrant atmosphere and neatly organised informal commerce is qualities that will be made manifest in the proposed project. Insight in informal trader requirements is obtained when visiting this project. The legible transport organisation also contributed to resolving some of the circulation problems of this study.*

Fig 40: Interior view of a double volume entrance foyer. The two land parcels of which the site consists of. Sketch plan





## 2. Warwick Junction

Urban Renewal Project. Berea, Durban (2001)  
Architects: MA Gafoor: Kooblal & Steyn

One of South Africa's busiest transport and commercial nodes, Warwick Junction, is despite the fact that it is a rundown area with crime and unhygienic conditions, a vibrant and interesting part of Durban. The interchange comprises of the Berea Rail Station, the Victoria Street Bus Terminus, taxi ranks and numerous formal and informal markets. It is bisected by freeways and the N3 Eilat Viaduct overhead. Historically an apartheid creation of a modal interchange on the edge of the white city, the site was between the West Street Cemetery and an 'Indian' or 'Squatters' fruit and vegetable market. Its proximity to the city centre also made it an ideal location for municipal bus sheds. The low lying site was divided by a creek that drained the Western Vlei. In a 1997 the area was provided with new and upgraded facilities.

Two-thirds of the inner city's traders is accommodated at Warwick Junction to provide for the 460 000 people that pass through the area daily. The area accommodates "2000 taxis, 130 000 daily taxi departures, 140 000 daily departures on train and bus,...8000 market and kerb-side traders, 1200 bags of rubbish daily, 23 000 weekly customers through a 70m<sup>2</sup> formal sector butchery, prime formal business rentals between R70-90/m<sup>2</sup>." The approximate yearly turn over of R1 billion compared to that of the nearby Pavilion's R1,2 billion is impressive to say the least. The Herb Traders Market has 500 stall keepers and an estimated employment chain of 14 000 outside the Market. In the first year of trading, the annual turn-over was R170 million.

The Mealie Cooking Facility prepared cooked mealies with an estimated R1 million street value per week. The 28 bovine head cooks, produces 250 heads a day, that amounts to an annual income of R2,2 million.

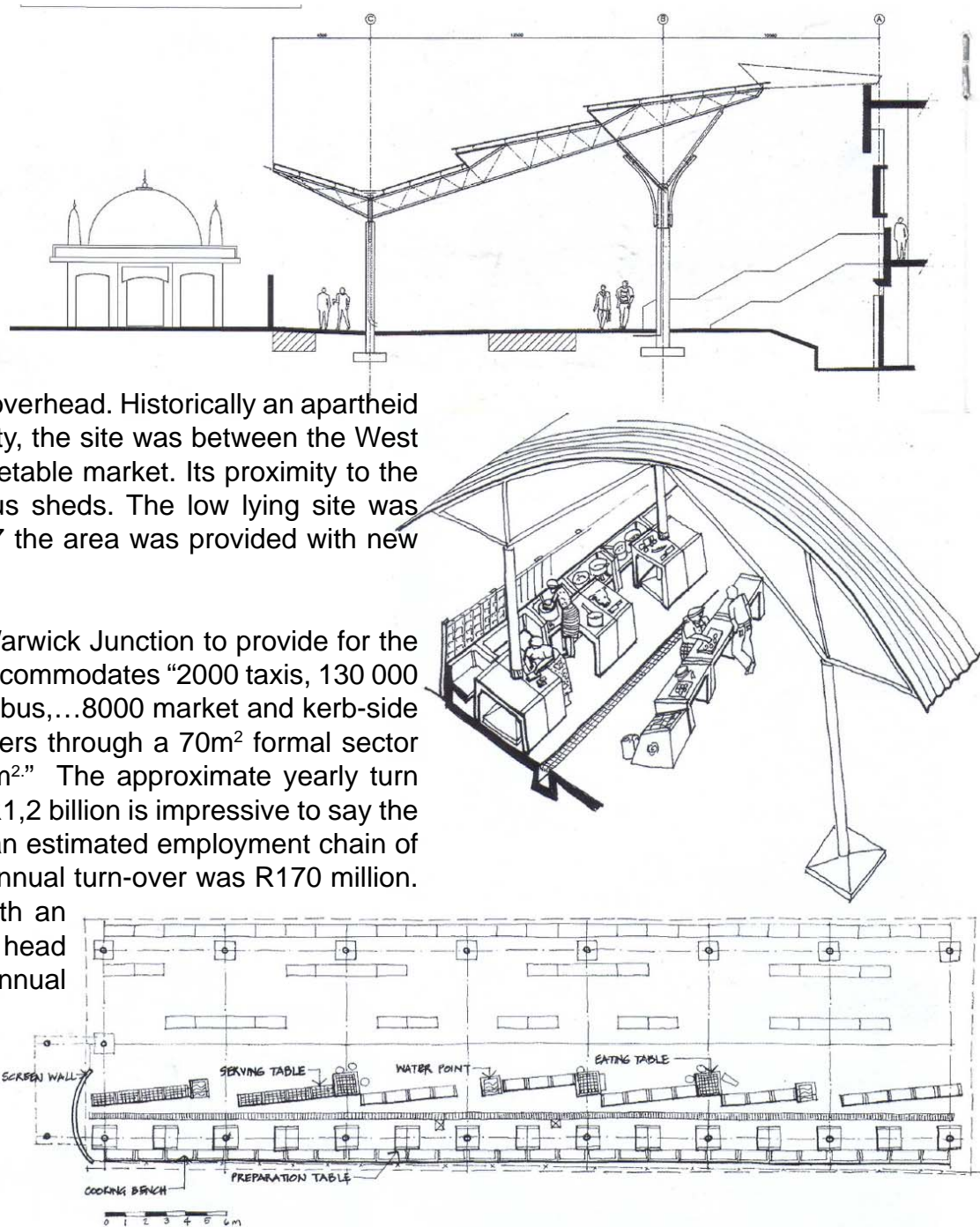


Fig 41: Opposite page. View of Herb trader stalls

Fig 42:

Top: Section of Hazrath Badsha Peer shelter (Brook Street)

Middle: Facility for Bovine Head Cooking (Warwick Avenue)

Bottom: Plan of the Facility for Bovine Head Cooking

(Warwick Avenue)



- |   |  |   |
|---|--|---|
| 1 Facility for Mielie Cooking: Matic + Van Zyl  | 5 Herb Traders' Stalls: OMM Design Workshop<br>Kooblal & Steyn | 9 Facility for Bovine Head Cooking:<br>Lees & Short     |
| 2 Pavement Stalls: Lee Sanders  | 6 Information Centre: Laren Beni Architect                     | 10 Pinafore Traders' Stalls:<br>Mike Legg Architects CC |
| 3 Traders' Stalls on Leopold Street Pedestrian<br>Bridge: Langa Makhanya & Associates | 7 Hazrath Badsha Peer Shelter:<br>Kooblal & Steyn              |   |
| 4 Market Road Bridge: OMM Design Workshop   | 8 Early Morning Market upgrade: MA Gafoor,                     |   |



The Queen Street vehicular onramp and Victoria Street off-ramp was left uncompleted. Pedestrian paths to connect the Victoria Street Bus Terminus and taxi ranks, as well as more space for herb traders were needed. So “the idea was born to use the ‘white elephant’-freeway spurs as sale overhead passages, build connecting bridges and transform the ramps into sheltered traders’ stalls.” The achievement of the Market Road Bridge, that connects the unused freeway and the on- and off-ramps, were described by architect Melinda Silberman as the “Best of the Century”, as it was the first structure to address informal trade. The structure consists of lightweight structures with shading devices of wattle branch. “The transient quality expresses the informal trading patterns of hawkers who ply their wares on the Bridge.”

The ‘Music Bridge’ (as it is colloquially known because of blaring radios) was designed to protect informal traders from the elements and to provide a safe pedestrian environment.

The Mealie Cooking facilities were developed to promote hygiene and safety. Experiments were also done by the project leader, in which he found wood fires to be a better option than gas fires, as gas fires can puncture drums due to high-pressure. Furthermore “a prototype sump was designed and integrated into the central drainage channel to trap mealie jackets and ash to avoid the sewage system becoming blocked.”

The Bovine Head Cooking facility was called for to address existing problems such as unhygienic cleaning and disposing of offal and blood into municipal stormwater systems. Pre-cast furniture, lockable water-points and pre-paid electricity systems were designed for the new facility. “Cookers will thus have pavement kitchens, comprising of a cooking bench, with sides to protect the primus flame from the wind, a stainless steel surfaced preparation table and a tiled serving

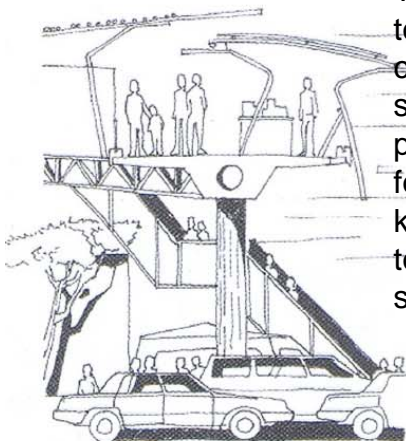
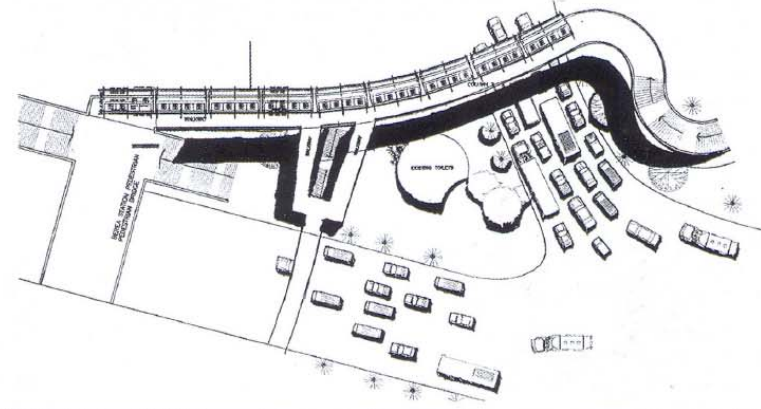
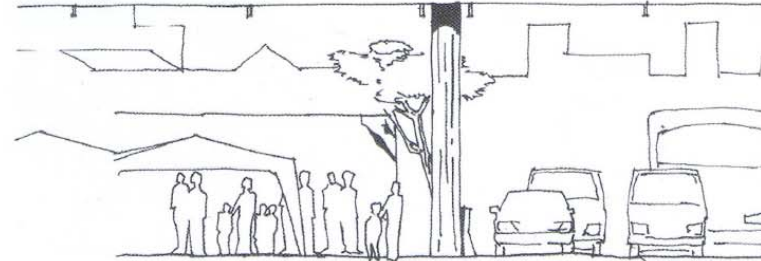


Fig 43: Opposite page. The Site.

Hazrath Badsha Peer shelter

Fig 44: Trader` Stalls Street Pedestrian Bridge



Fig 45: Market Road Bridge

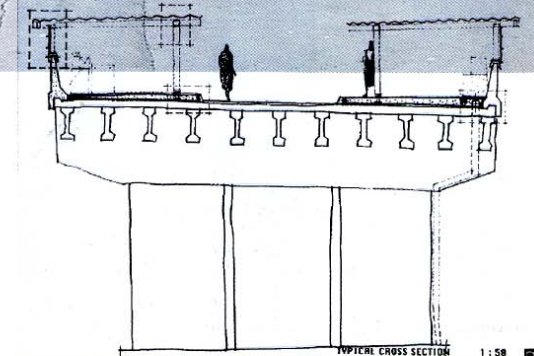


Fig 46: Herb Traders` stalls. Mealie Cooking. Pavement Stalls, Alice Street & Canongate Road



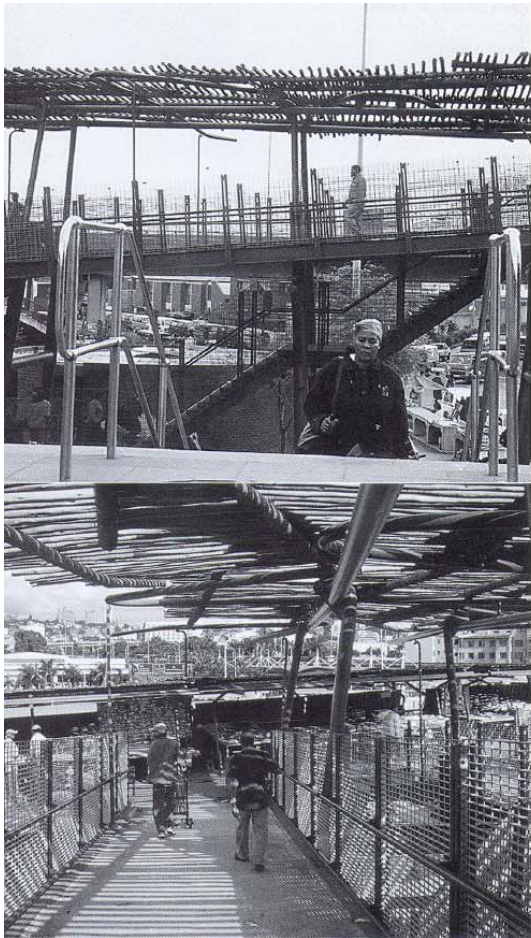
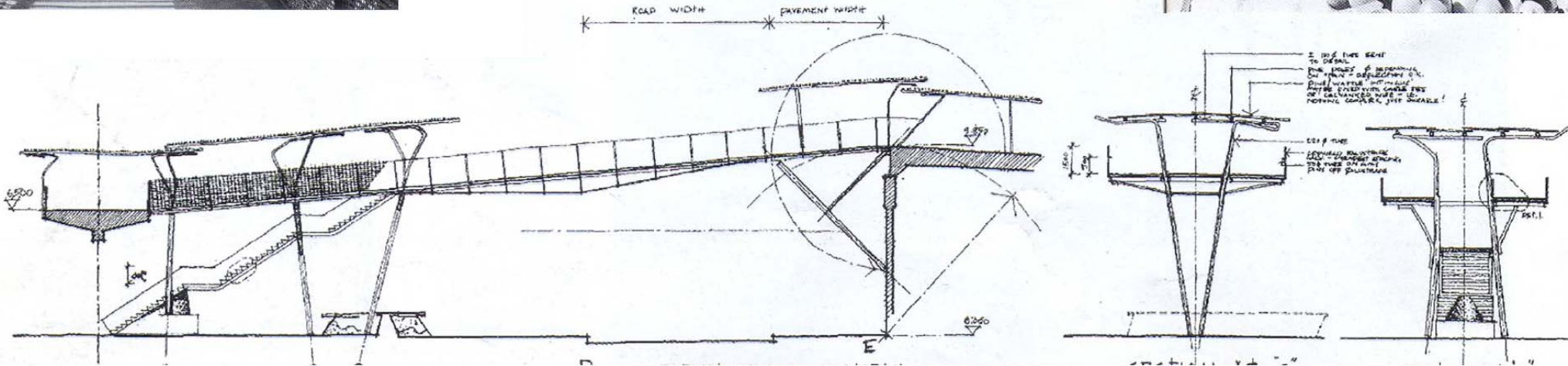


table. The floor drains into specially designed sumps lined with stainless steel sieves to catch any solid waste. Pre-treatment 'buckets' designed to separate fats and gelatine from liquid waste, will be allocated to each pair of traders." The facility was designed so that cooks can take ownership and pride in an aesthetically pleasing building.

What is inspiring in the design of the various parts of the Warwick Junction, is that most of it was revolutionary of its kind. Architecture of an international standard is used to address local South African issues (where else can you find designed Bovine Head Cooking facilities?). Another very influential aspect of the Warwick Junction, is the fact that the *existing* happenings of the site is addressed in order to improve these activities. The fact that the Warwick Junction has a lot of the same functions as that of the proposed design in Gezina, made it a very valuable precedent and an inspiration to find more solutions to problems specific to the area. Lastly, the vibrant atmosphere is also something that should be strived for.



Fig 47: Market Road Bridge



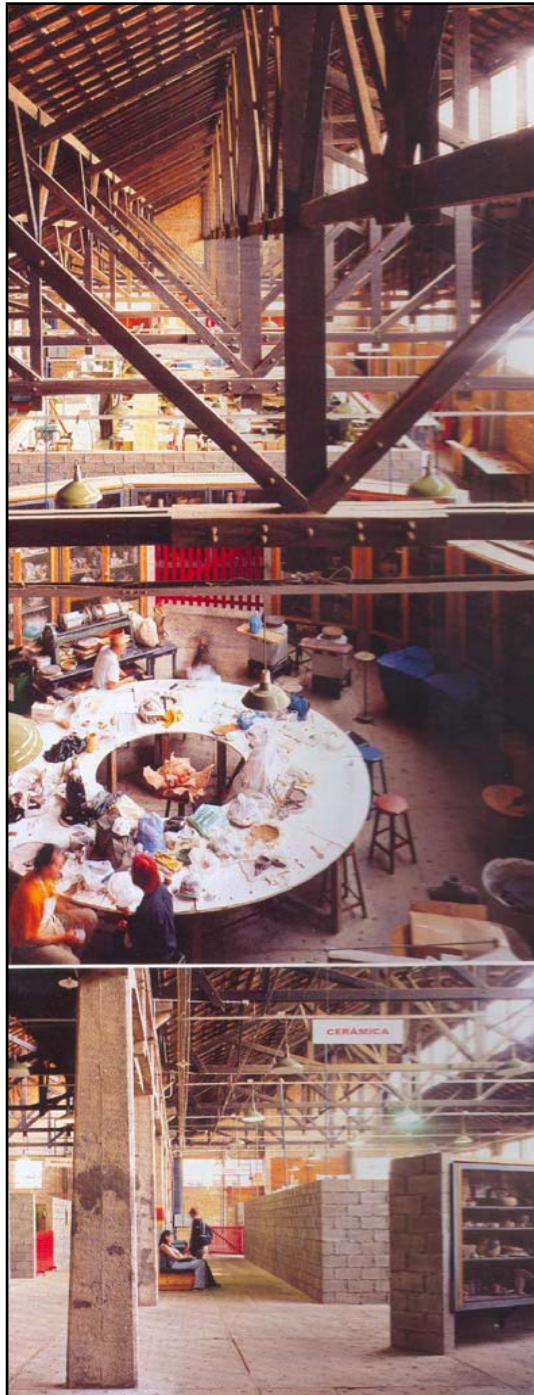
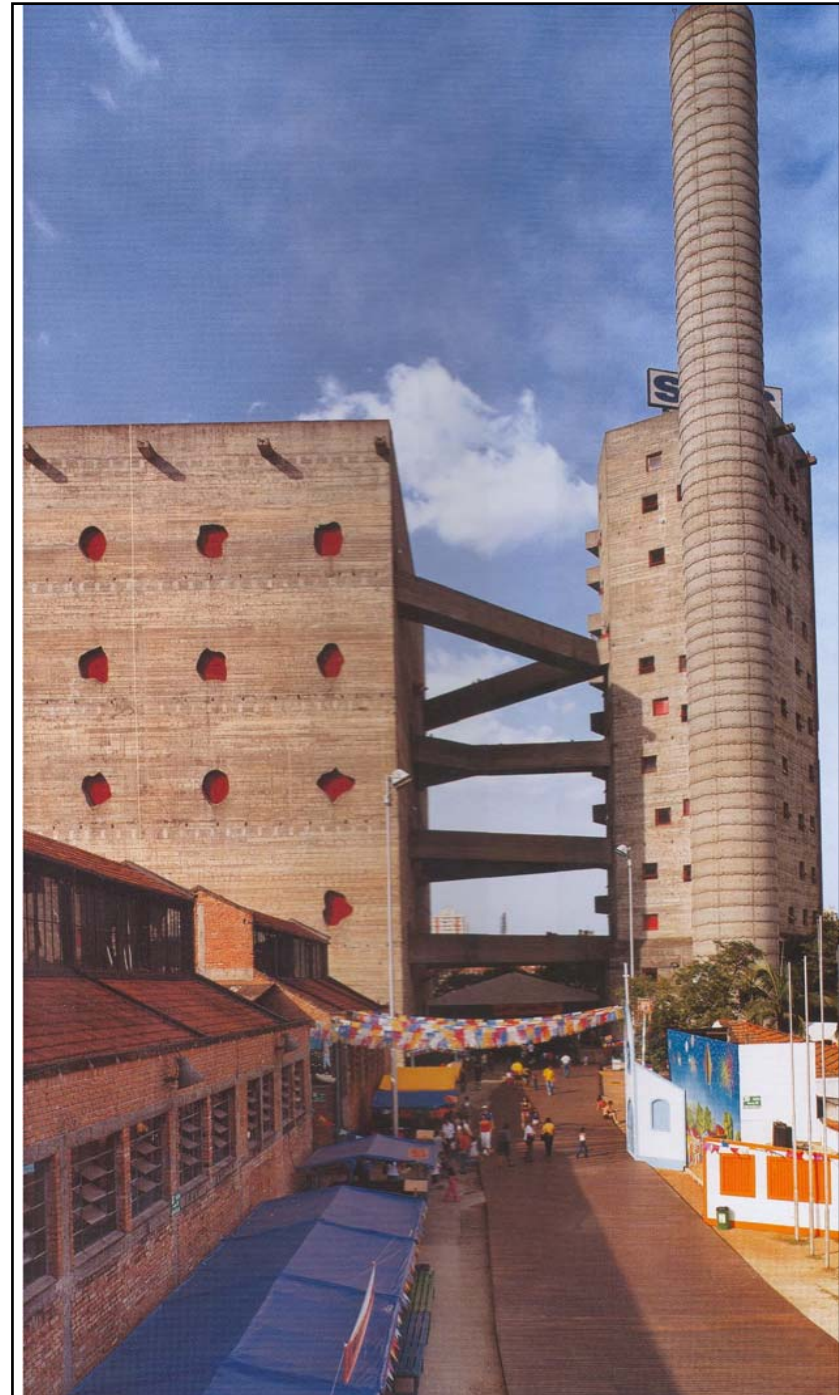


Fig 48: Interior of appropriated factory  
Fig 49: The transformed Factory  
Fig 50: Opposite page: the transformed Factory

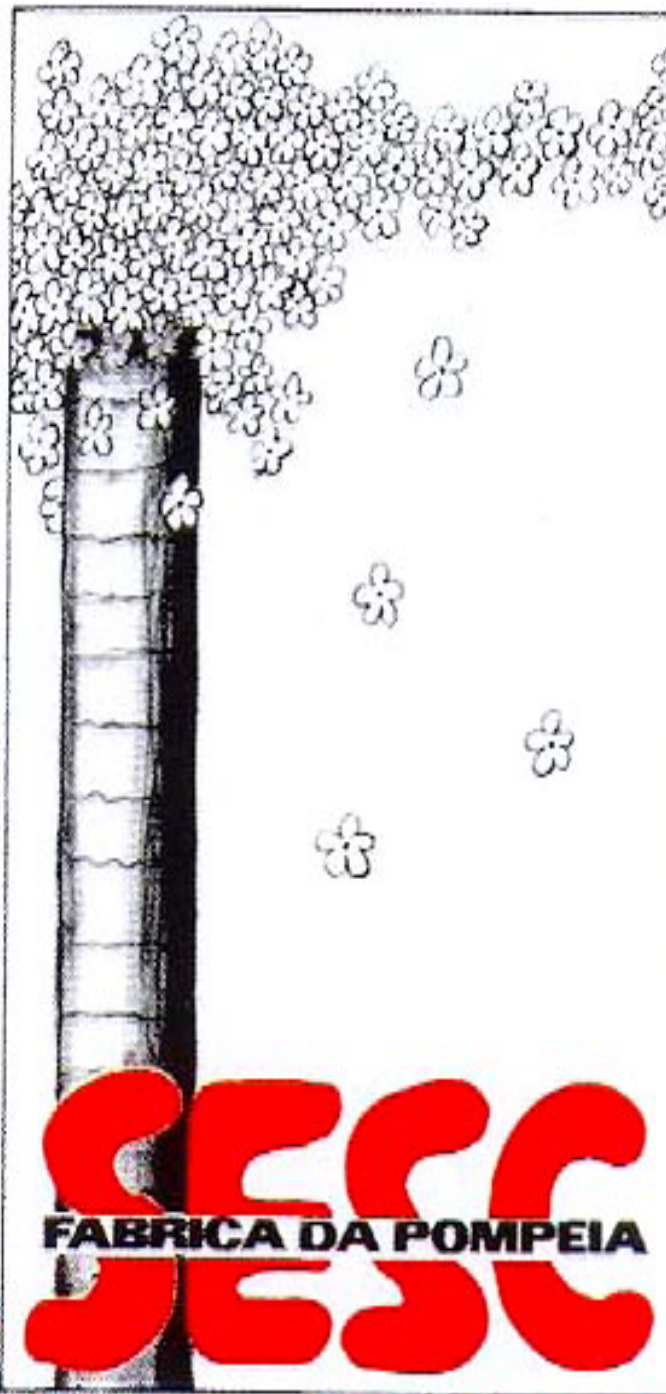


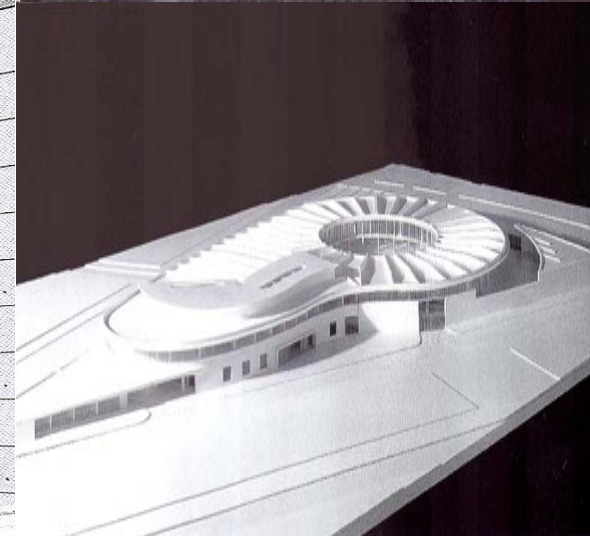
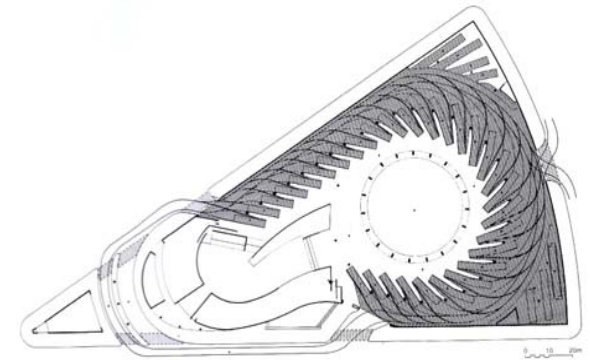
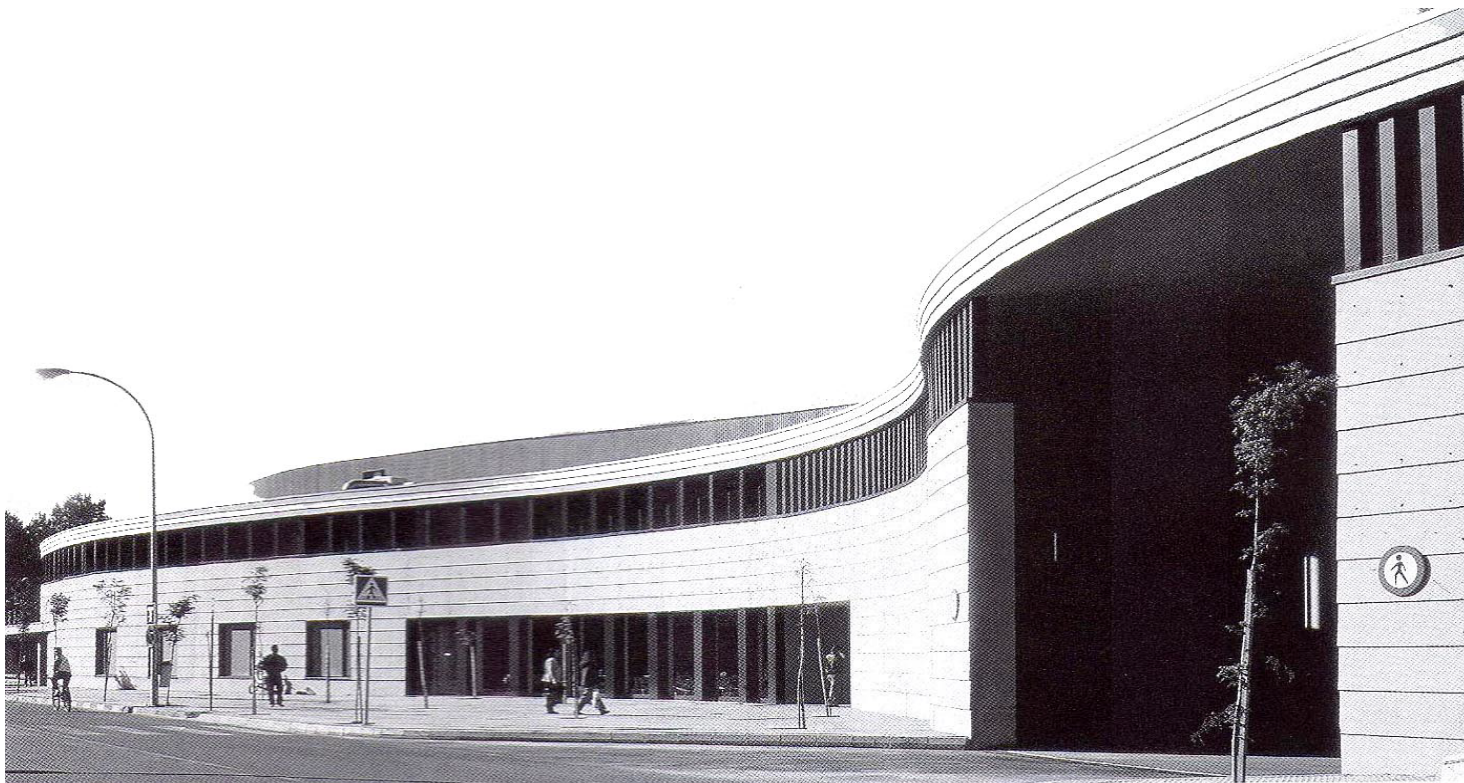


### 3. SESC Pompéia Factory, São Paulo, Brazil, 1977-1986, Architect: Lina Bo Bardi

“Lina was called on to envisage a sports and leisure centre for former workers in an ex-industrial area. The architect was presented with an old factory, fated to be demolished like many others in the vicinity. She decided to preserve the building and all the other materials and features that helped keep the memory alive of the old factory's existence on the spot. There was nothing nostalgic about this. Lina Bo Bardi preserved it in order to subvert it. Her work is the ally of leisure no longer it's opposite. She abstracts all that is unpleasant, repressive, violent and painful about work and instead relates to sensibility, freedom, imagination and libido. “(De Oliveira, Unknown: 23-24)

*Bo Bardi also used the approach of improving on that what is existing on the site, which is central to the design theme of the project. This project deals with large “warehouse type” structures, these large open spaces can feel very impersonal, and an attempt to create large spaces that communicates on a human scale will be made in the design.*





## 4. Huelva Bus Terminal

Doctor Rubio s/n, Huelva (1990-1994)

Architects Cruz / Ortiz

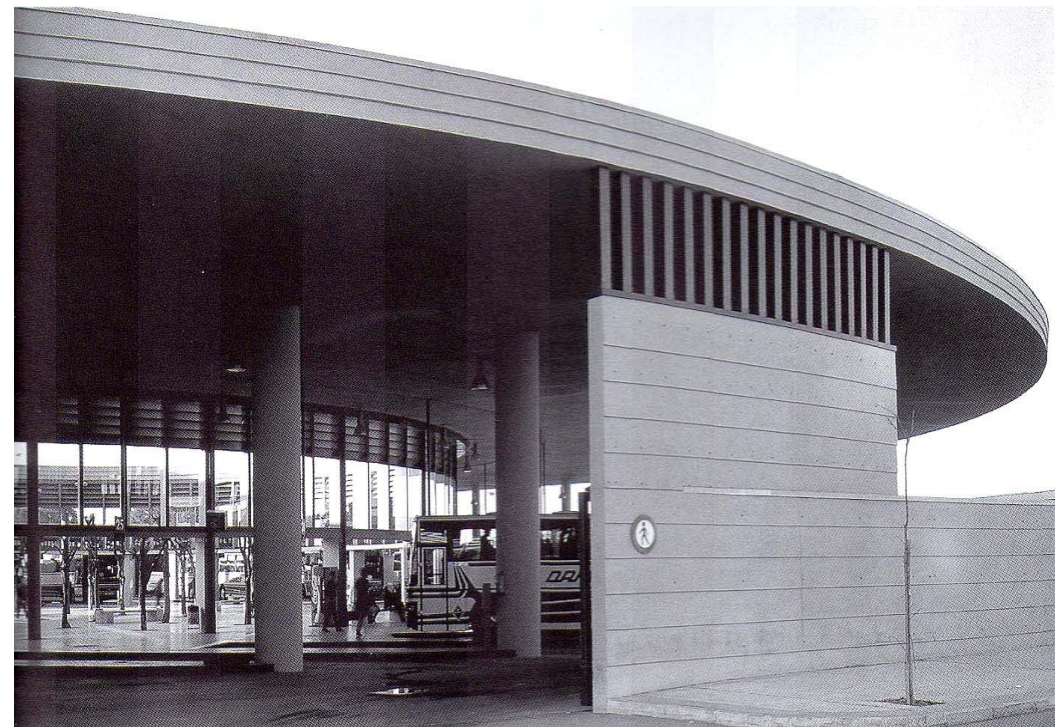
The new bus terminal for Huelva was to be located on a site in the form of a 33° sector with a radius length of 200 meters. The shape of the building stems directly from the terminal, and the ground plan meets a complex set of varied requirements.

On the ground floor, the passenger services are located around the main concourse, while the transport companies have their offices on the first floor, in an area also containing the staff rest rooms and changing rooms. The passengers concourse is formally linked with the platform zone around which the busses turn, in order to interrupt pedestrian traffic flows. The bus platforms have been designed around a large circular courtyard juxtaposing the garden and the busses. The result is one of the most outstandingly attractive parts of the plan.

However, an attempt has been made to re-establish the unity of the whole by covering it all with an enormous flat roof, 7 meter above the floor, bringing together the concourse and the bus shelter and avoiding the split between the two that tends to exist in such buildings.

*In the Huelva Bus Terminal the flowing elements of the building was influential. The most important influence however, was the manner in which the large, yet compact, bus turning circles were solved. The same fluidness of movement through the building can be considered necessary.*

Fig 51: Photo montage of the Huelva Bus terminal



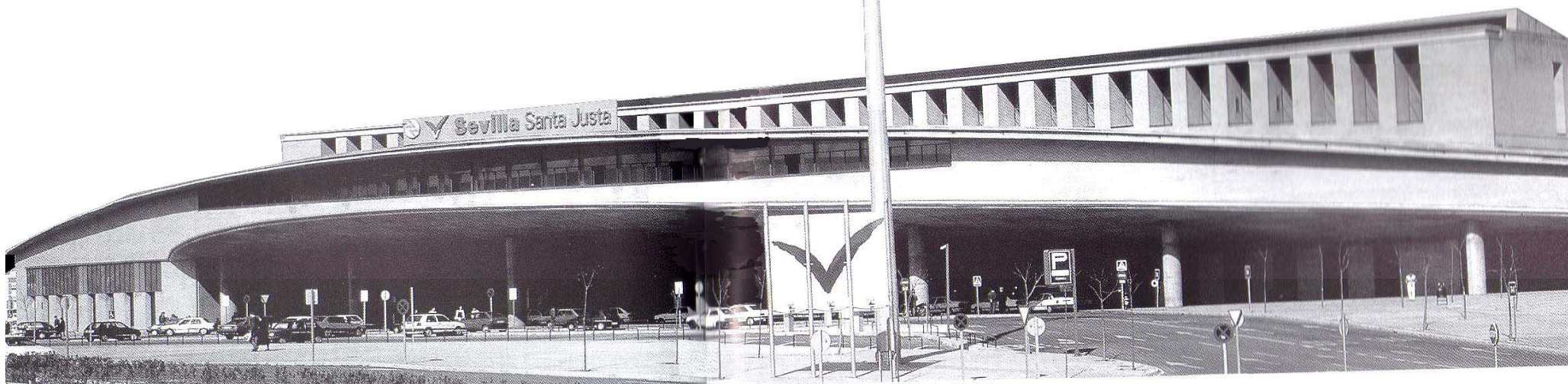
## 5. Santa Justa Train Station

Avenida de Kansas City, Seville (1988-1991)

architects Cruz / Ortiz

“The area chosen for the new central passenger station in Seville, although relatively near to the city centre, was a large site that had hardly been developed at all. The new station was expected to turn the surrounding neighbourhood into a busy urban nucleus. This effect was to be built over connecting neighbouring parts of the city previously separated.

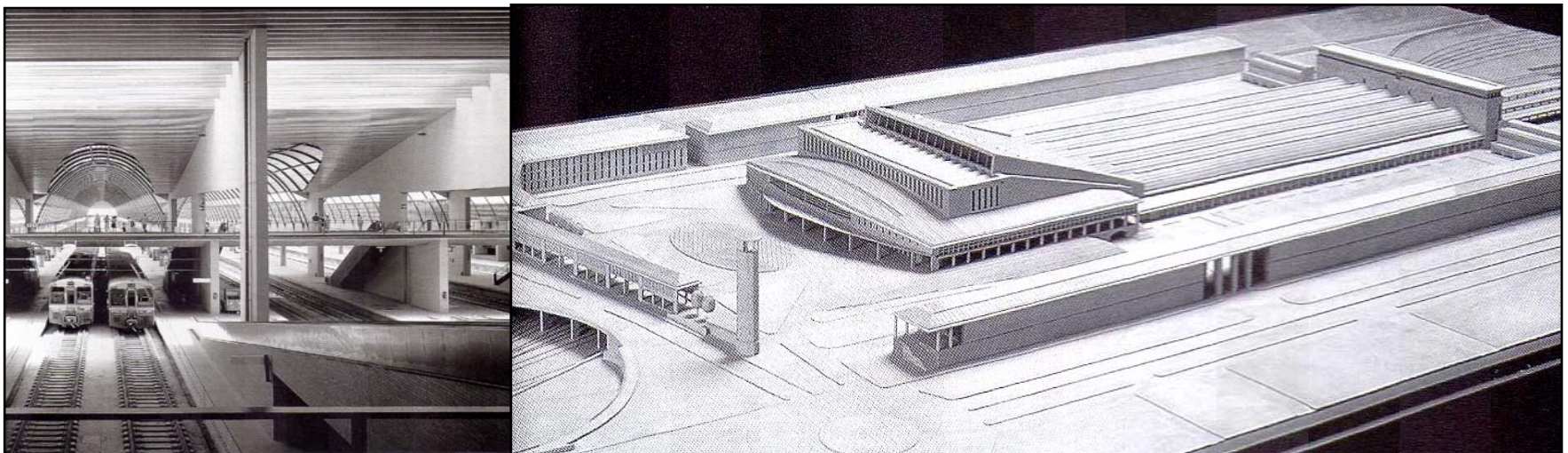
“It was thus considered vital, before starting on the design for the station building itself, to re-plan the large site inside which it was to be located.



“A three-storey building was designed with an average depth of 25 meters to run along nearly the entire perimeter of the site. This would position the building in homogenous surroundings more suitably laid-out than the old neighbourhood. Having a single building stretching along the edge of the site would also provide the old and the new streets with a uniform line of reference, configuration a wider area so that the station building and the generous spaces necessary for traffic and parking would not clash with the scale of the surrounding urban environment. Within a short period, the new activities were to create a sector of the city whose identity would revolve around the fact that it contained railway station. Until then, the Santa Justa Station project could not be considered complete.” (Moneo 1996 : 56)

*Of particular interest in the Santa Justa Train Station was the tectonics and flowing forms of the architecture. Other important factors that influenced the design were the connections on both sides of the railway and the ease in which movement is allowed to happen in the space. The abridging nature of the solution (caused by the obstructive problems related to the railway tracks) is relevant. The building is multilevel and the terminals cross over the tracks, thus enabling easy access from both sides*

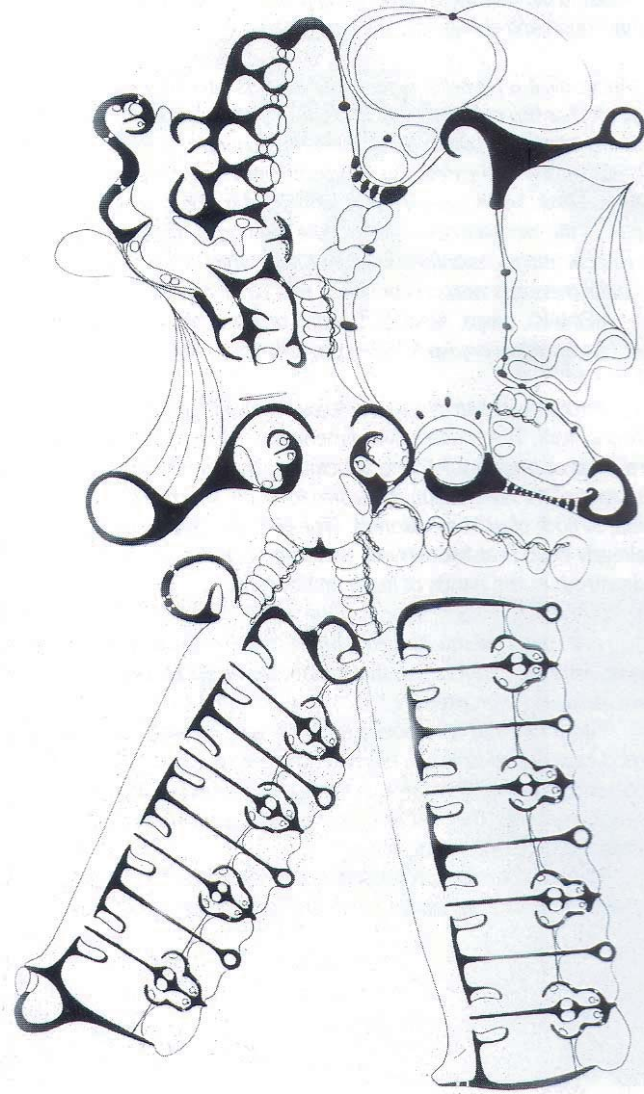
Fig 52: Photo montage of the Santa Justa Train Station





## Design Influences:

- **Design influences:**  
Architect Study: Amancio D` Alpoim Miranda (Pancho) Guedes  
Street Trading
- **Movement as form Generator.**





## Architect Study

### Amancio D` Alpoim Miranda (Pancho) Guedes

*Pancho Guedes (fig x) is an influential architect, painter and sculptor. He practiced in Lorenzo Marques (now Maputo), for 25 years after which he was exiled. He moved to Johannesburg and was professor and head of the Department of Architecture at the University of the Witwatersrand. Currently he still practices in Portugal. During previous studies numerous visits to Mozambique and his architecture was influential. He's multidisciplinary stance towards above mentioned disciplines is commendable.*

In an interview with Beinart published in the South African Architect, February 1999 he said:

“Building technology is primitive, and most buildings are done by small builders who use cheap labour and equipment. The standard building medium is concrete, either in block form or cast and the labourers who work with the concrete are craftsmen who have a natural understanding of the material. Formwork is generally of such a low quality however that plaster covering is essential and this has produced an almost universal surface solution”. ... (Beinart 1961: 28)

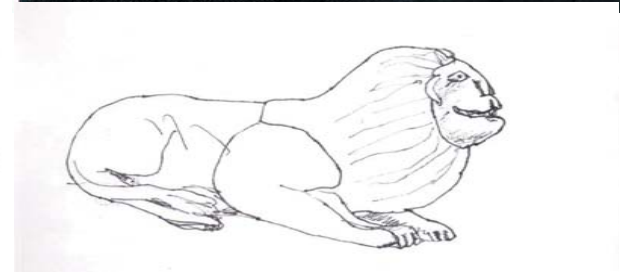
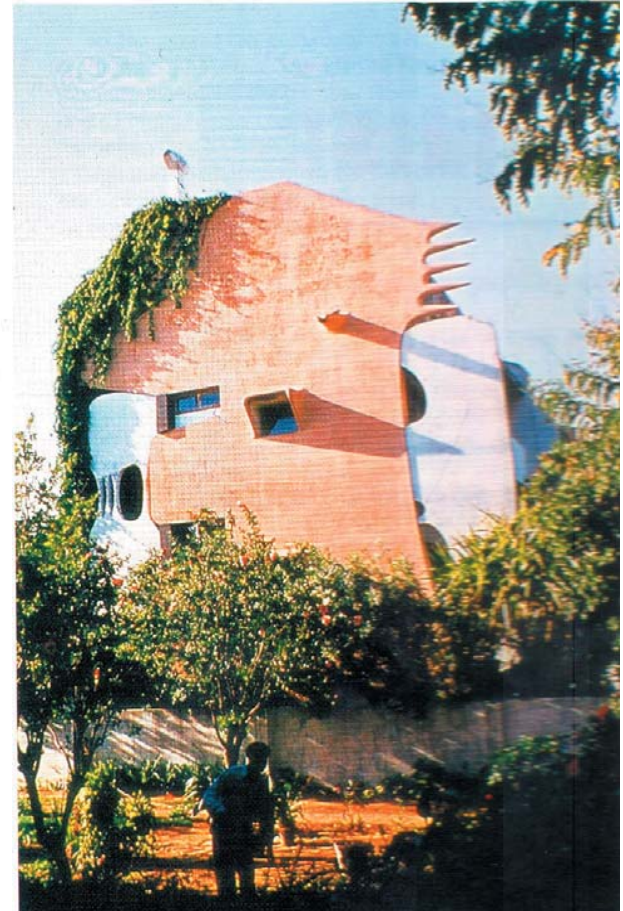
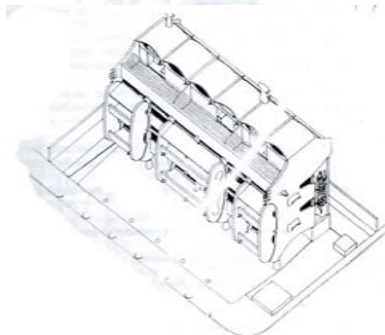
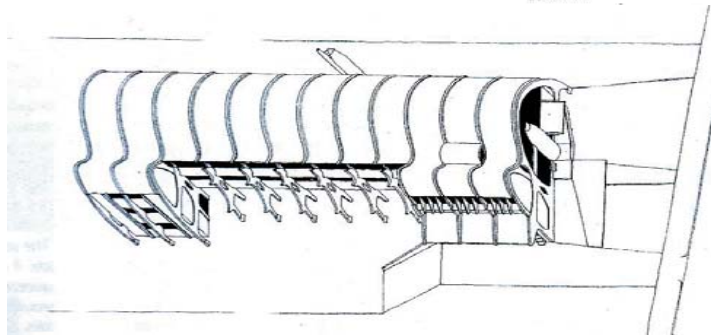
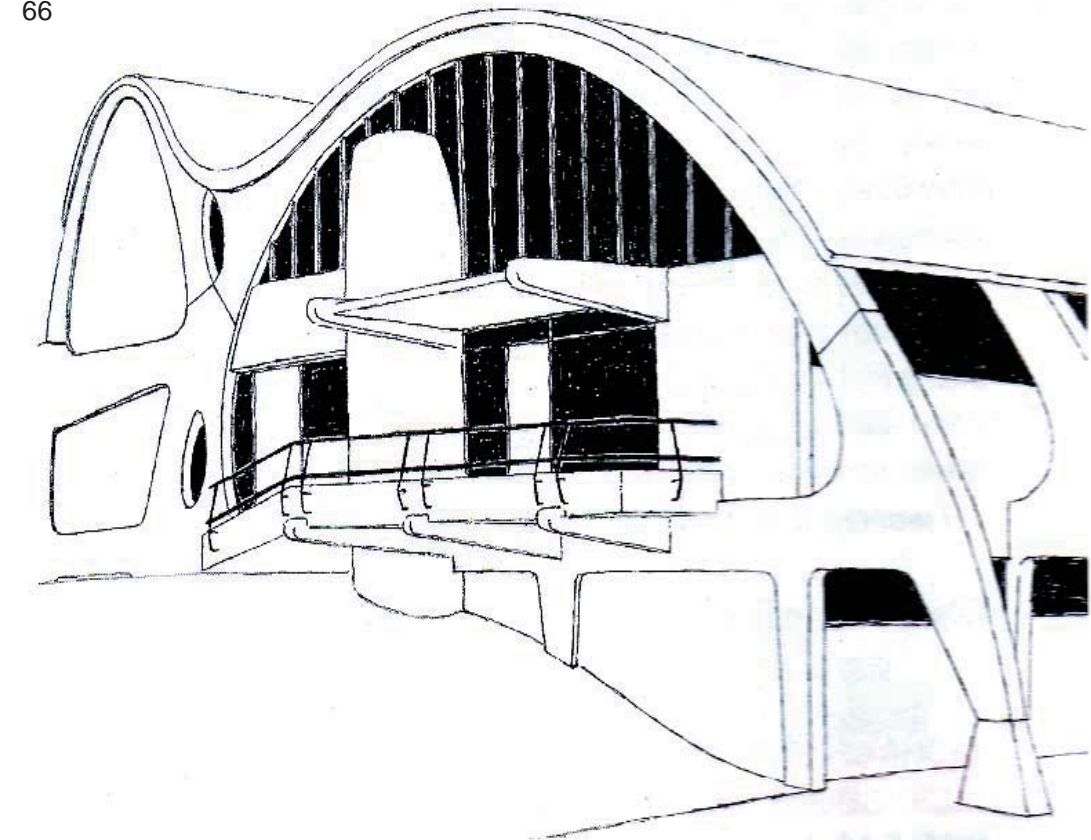
“Guedes has well understood the limitations of such an environment, and has made the fullest use of what technological facilities are available, developing traditional techniques and materials in new ways. He has capitalized on the great vitality which is released when an established culture finds new fertile soil – for in this state of coalition between the withering old and the crude and unformed new; the opportunities for innovation and change are tremendous”. ... (Beinart 1961: 28)

*Guedes understands available building materials and processes. (figx-x). He uses conventional and traditional ideas, which he integrates with the new (figx). Available resources and an understanding of its limitations results in architecture more suitable to context. Appropriating and accommodating the existing on various levels*

Fig 53: opposite page. Amancio D` Alpoim Miranda (Pancho) Guedes  
Fig 54: Right. Texture on Geudes` buildings.



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*gives ownership to its users. One can argue that African Architecture is architecture of innovation and appropriation. (figx-x)*

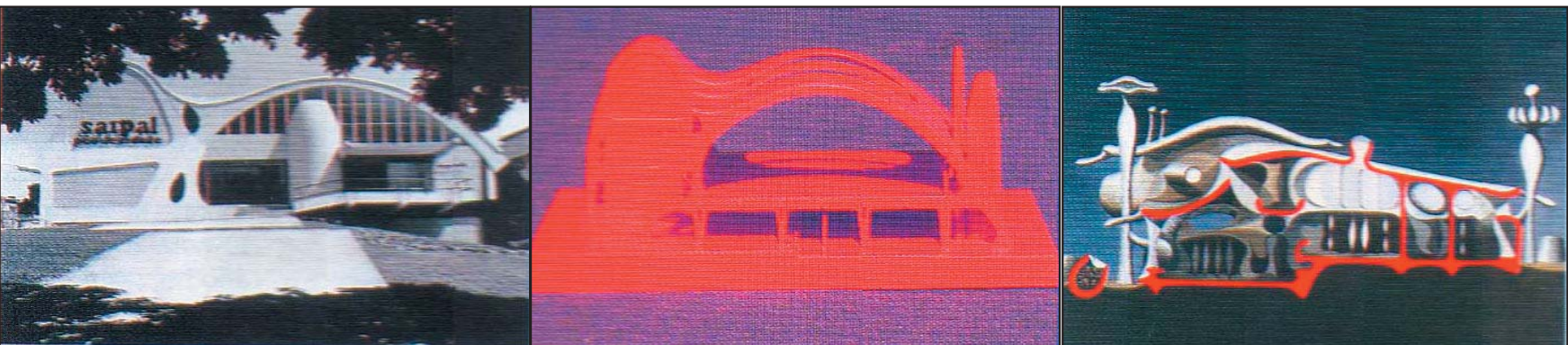
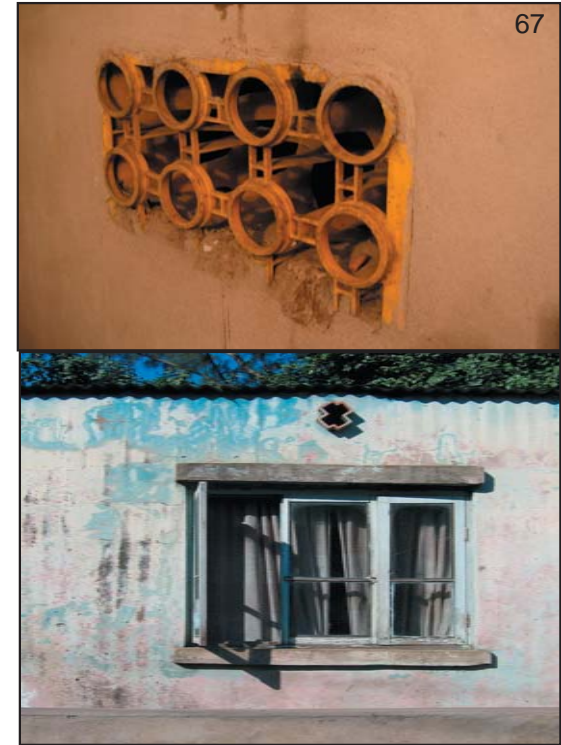
*Stilogueudes is his idiosyncratic style and consists of a bizarre and fantastic collection of buildings with fangs and spikes. These building have relative simple plans with elegantly sculpted sections. (figx-x)*

“Above all, it is his belief in the madness an irrationality which is much of all art that has contributed much to his architectural idiom. Guedes came to architecture through his painting and has continued painting ever since. He is obsessed with the desire to incorporate into his architecture the fluid forms witch he discovers in his paintings and sculpture. For him a large part of the architectural problem is the creation of a series of powerful, symbolic images, spontaneously produced, which transmit emotional and spatial messages with an immediate and passionate meaning.” (Beinart, 1961: 28)

*When visiting Guedes` buildings, even after years of neglect, it intrigues with admirable craftsmanship. His integrated approach of art and architecture is one that's attempted in this study.*

Fig 55: Opposite page: Left :Bread factory. Right: The smiling lion.

Fig 56: Top right: local Innovation in buildings. Bottom right: Bottom left: Bread factory







## Street trading

This section is a visual essay of traders, hawkers, “shibeens“, taxi depot, markets and entrepreneurs. These activities are usually situated on busy pedestrian movement routes. Thus transport nodes are usually associated with concentrated informal trade. The last two pages illustrate the existing public and private transport.

According to international Labour organisation “Some street traders are employed by an agent or shop to sell their goods on the street. Whether street traders are self-employed, or whether they receive some sort of wage or other payment, if they receive all their goods from one place, they have very little power over what they pay for goods and how much profit they make. Most street traders also lack power because they depend on someone else for equipment and trading space. “(International labour Organisation. 2003, 4)

These basic facilities are catered for in the design. An attempt to incorporate different particular needs was done.

Sometimes the interests of the different street traders are different. Organisations of street traders have to decide witch type of street traders can be members, and whose interests they will promote. Sometimes the interest of one group of traders can conflict with those of another .For example the

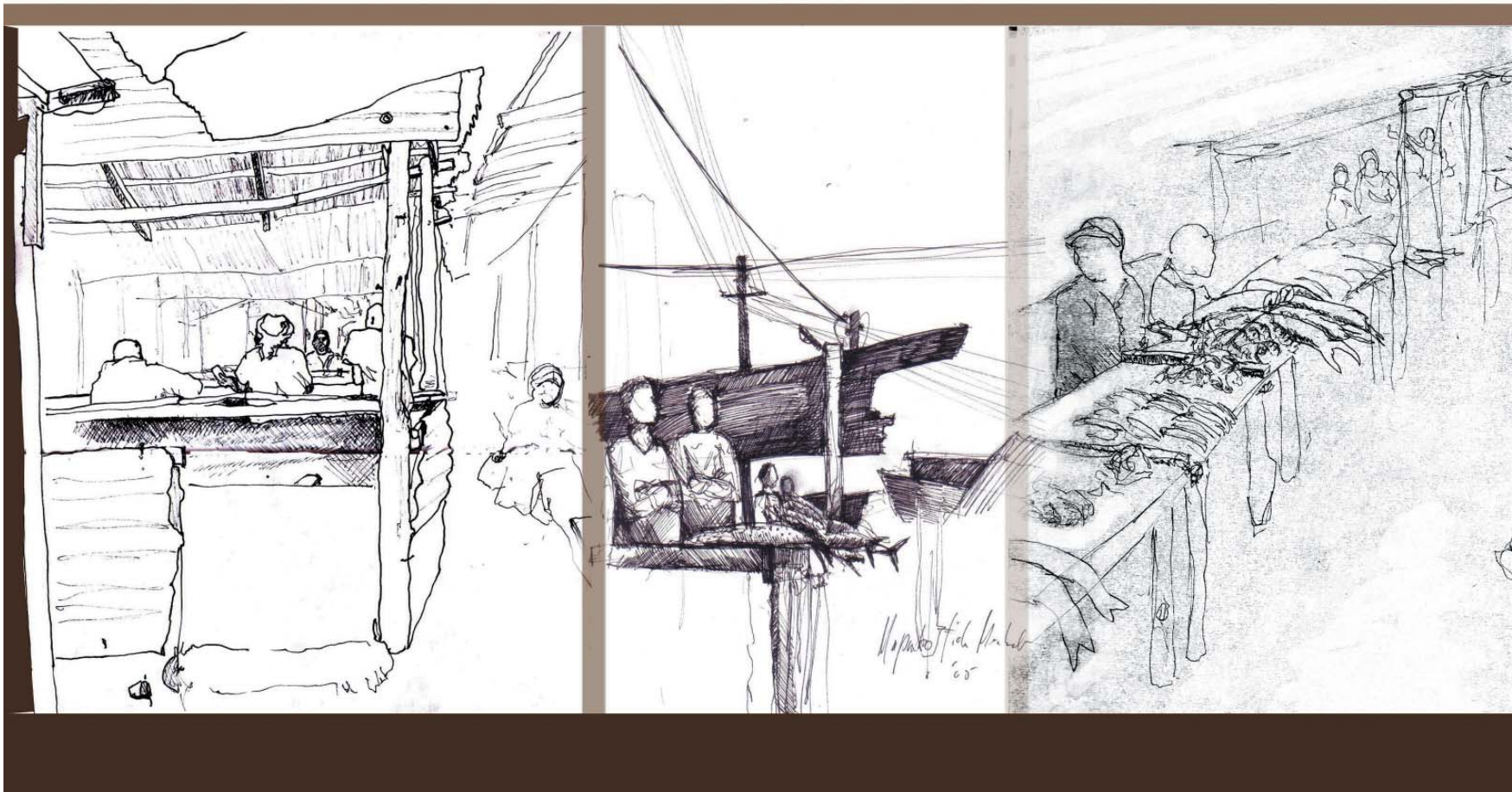
Fig 57: Photo montage of trading on the site

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'*bambelas* 'can conflict with the interest of the street traders who employ them. There can also be conflict between different groups of traders over licenses and space" (International labour Organisation. 2003, 4)

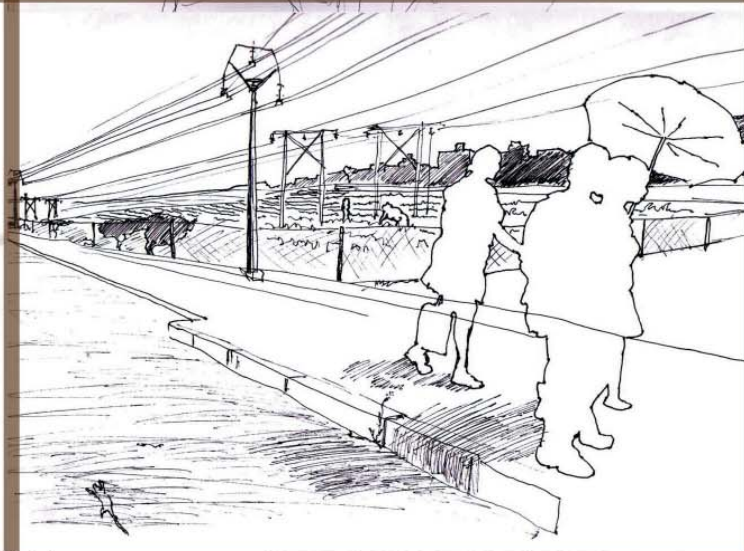
These indifferences is considered organisational problems and provision for zoning the layout of the trader stalls are made and discussed in the following section.

Fig 59: Visual essay on Informal trading





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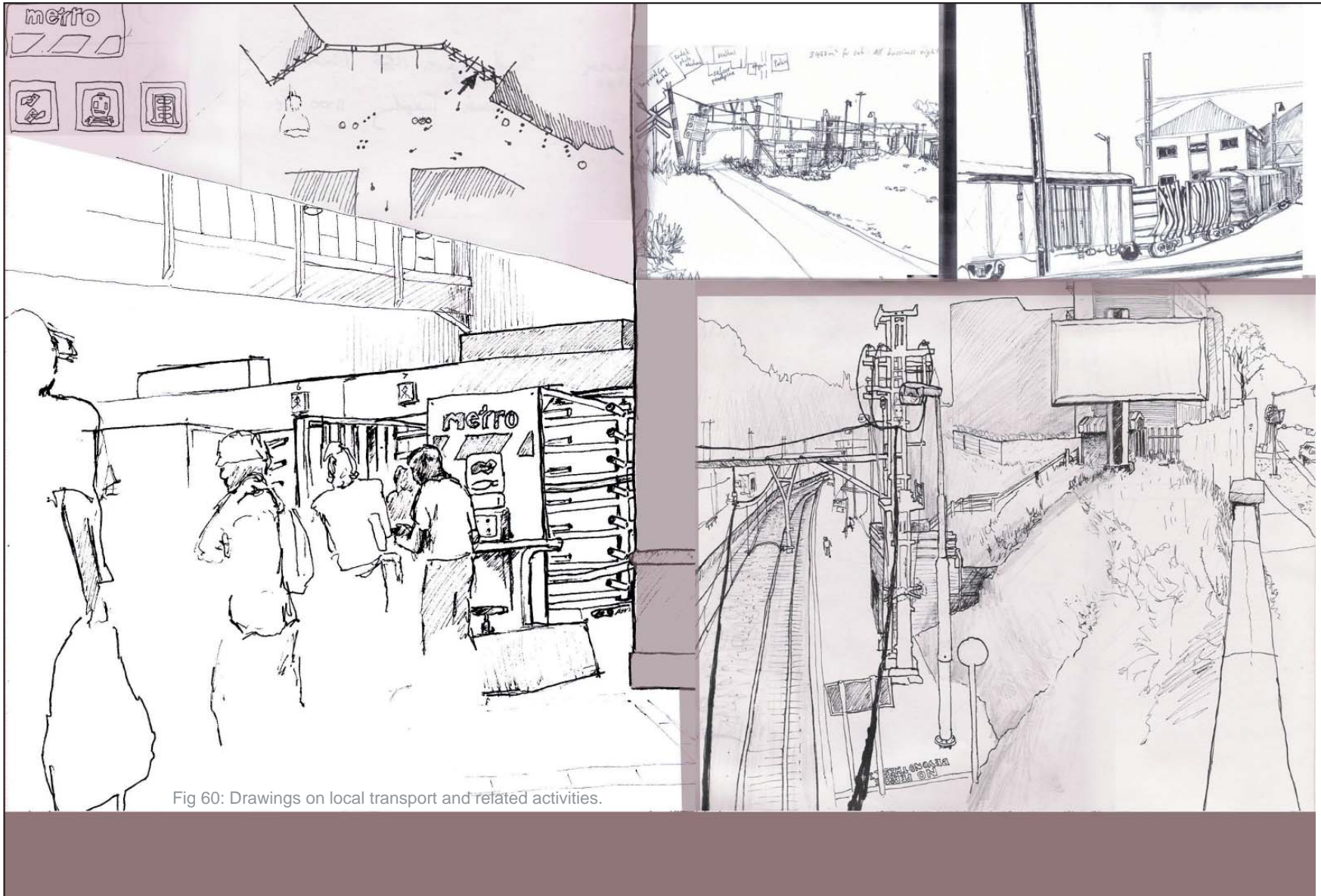
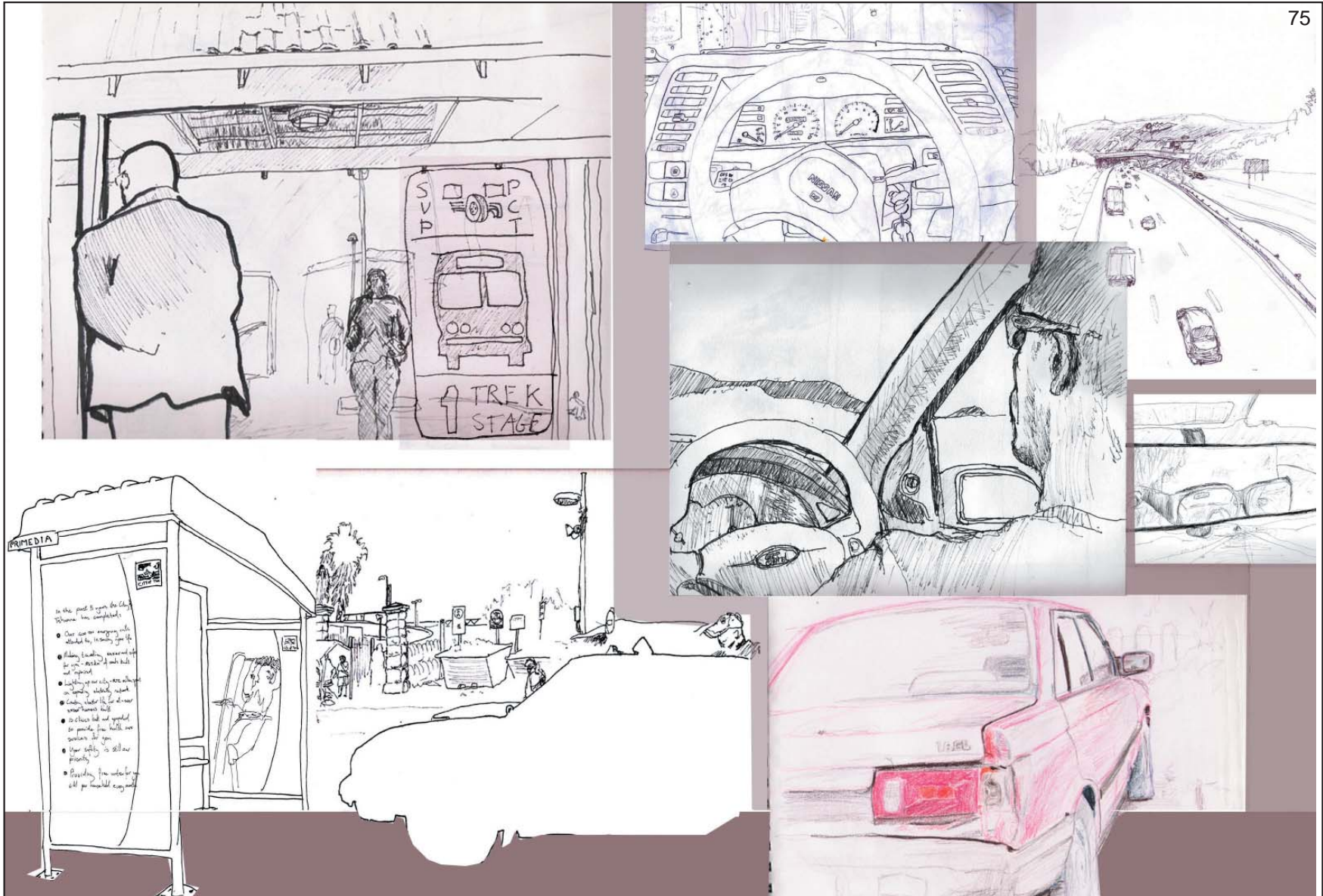
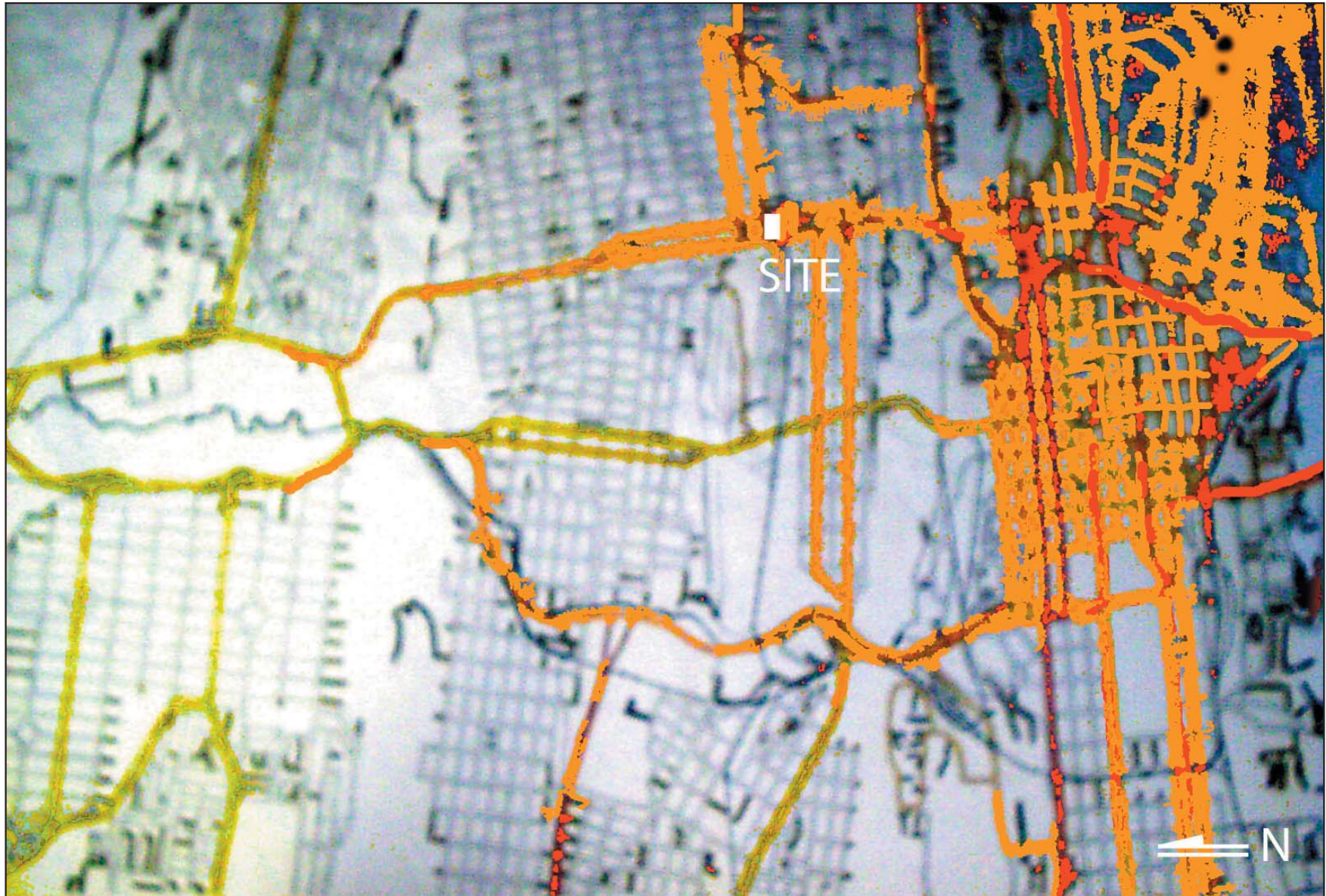


Fig 60: Drawings on local transport and related activities.





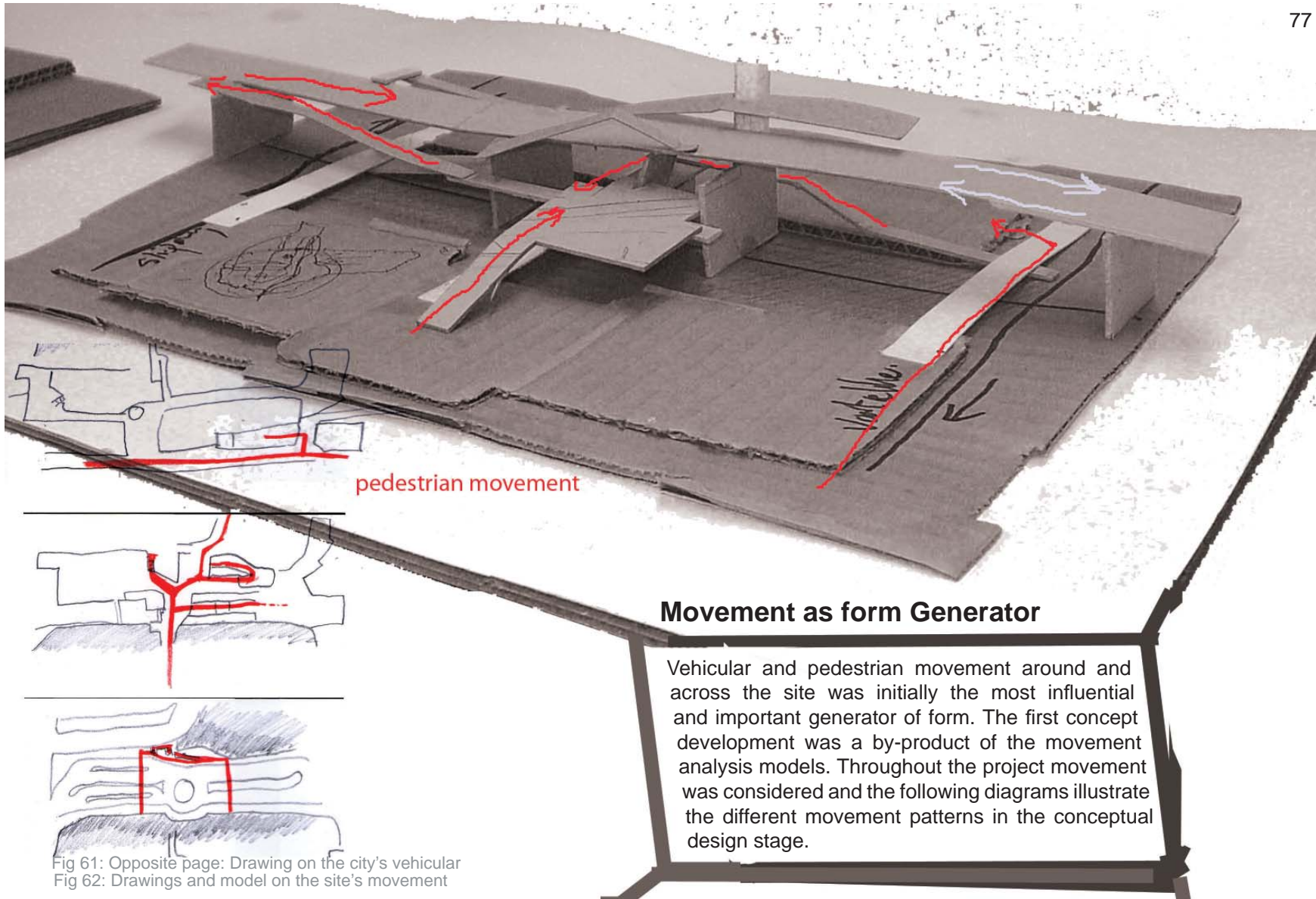
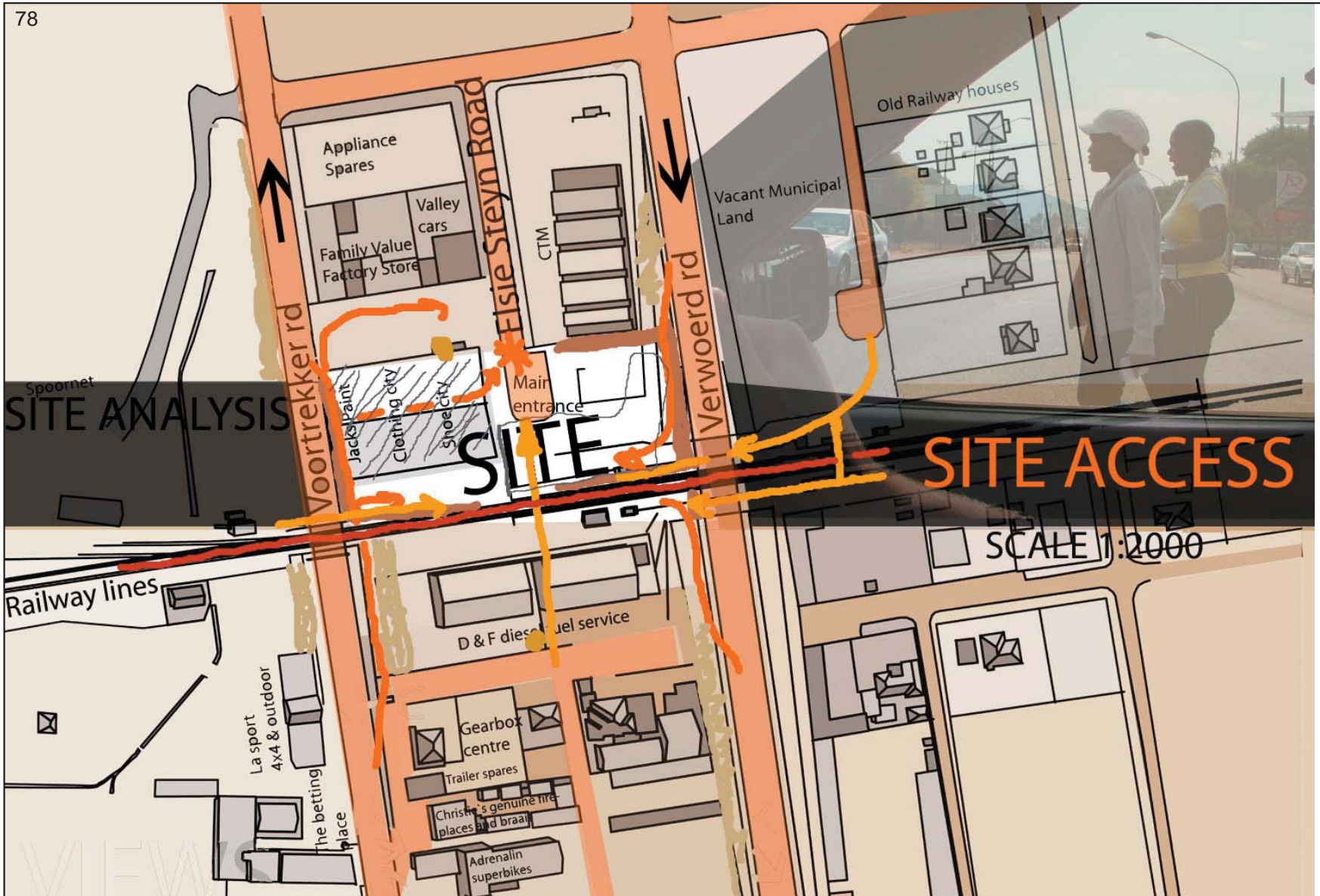


Fig 61: Opposite page: Drawing on the city's vehicular  
Fig 62: Drawings and model on the site's movement

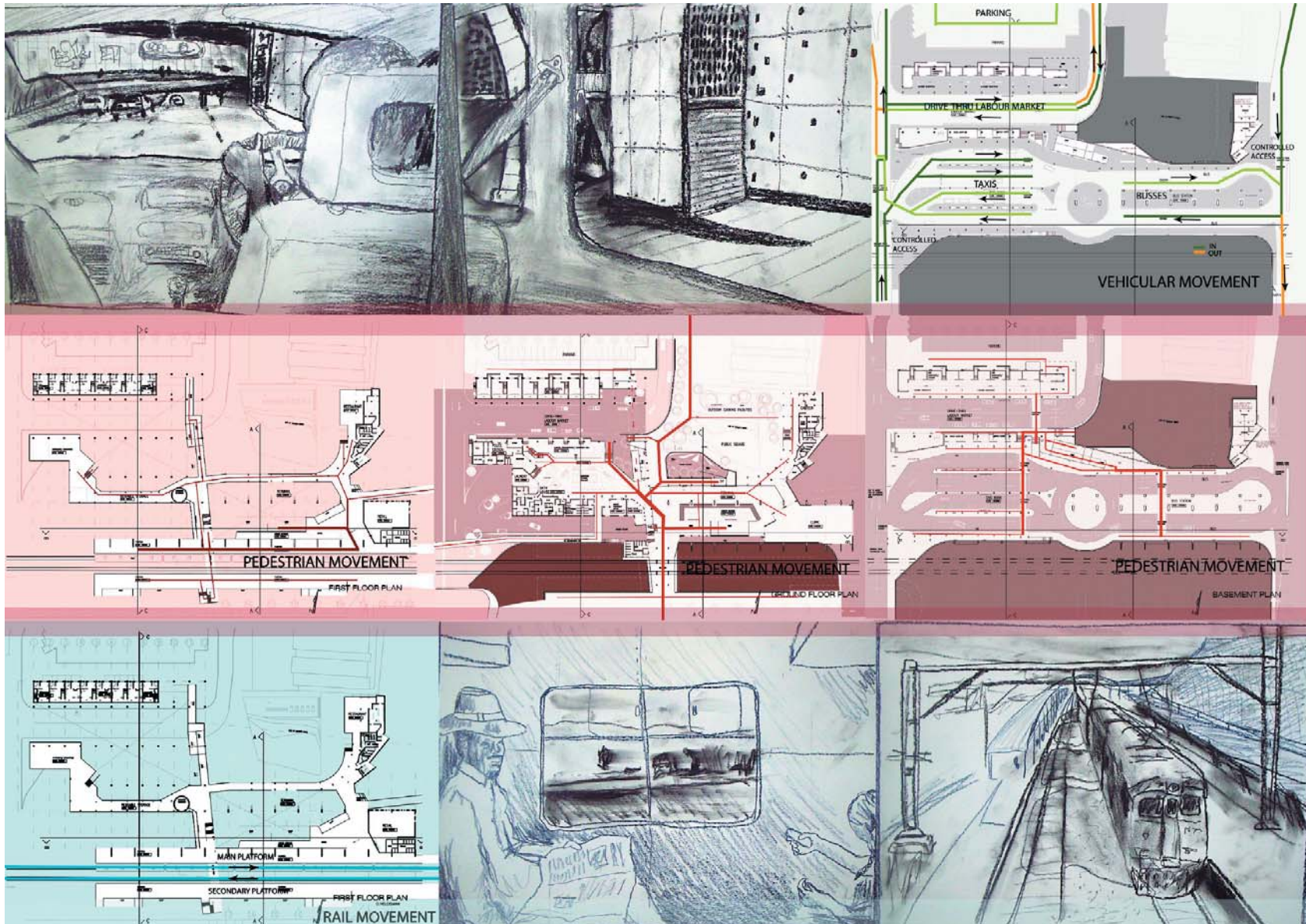


## Access

Access to the site is limited. Vehicles can only reach the site from Elsie Steyn road. Pedestrians can alternatively reach the site by walking over the Verwoerd road bridge. New access points were created on different layers. Building form was created by connecting these different access points and arranging functions around the movement routes.

Fig 63: Collage on access and movement..



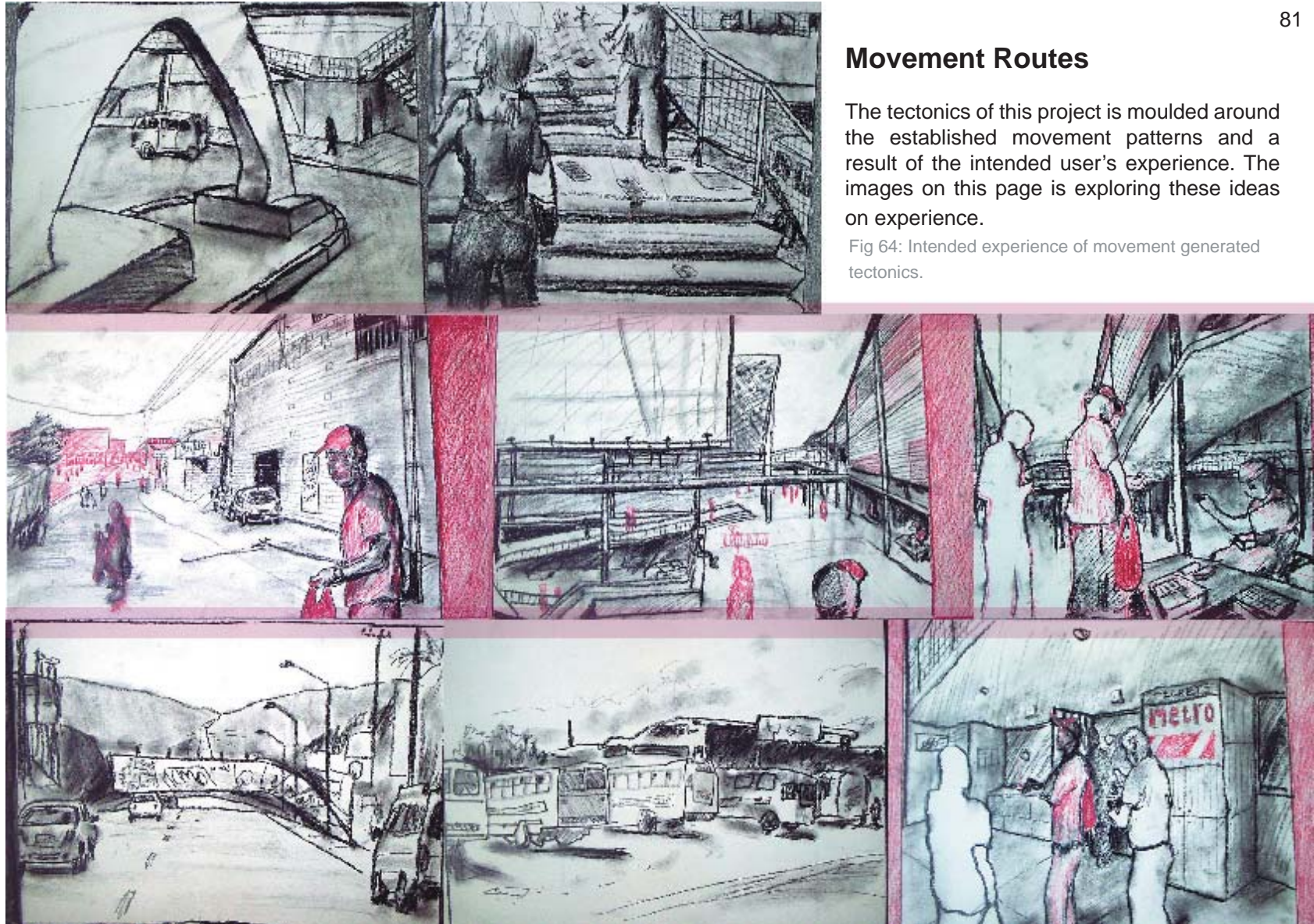




## Movement Routes

The tectonics of this project is moulded around the established movement patterns and a result of the intended user's experience. The images on this page is exploring these ideas on experience.

Fig 64: Intended experience of movement generated tectonics.



# Existing Situation:

- **Site Identification.**
- **Site.**
- **Warehouse**

## The Existing Situation:

### Site Identification

“The Tshwane Metro’s City Development Strategy (CDS) pays particular attention to expanding the development potential of the currently underdeveloped northern areas of the city.” The northern parts of Tshwane was identified as a key area (zone of choice) where action can now be taken to make a significant difference in the future in order to turn Tshwane into a leading African capital.

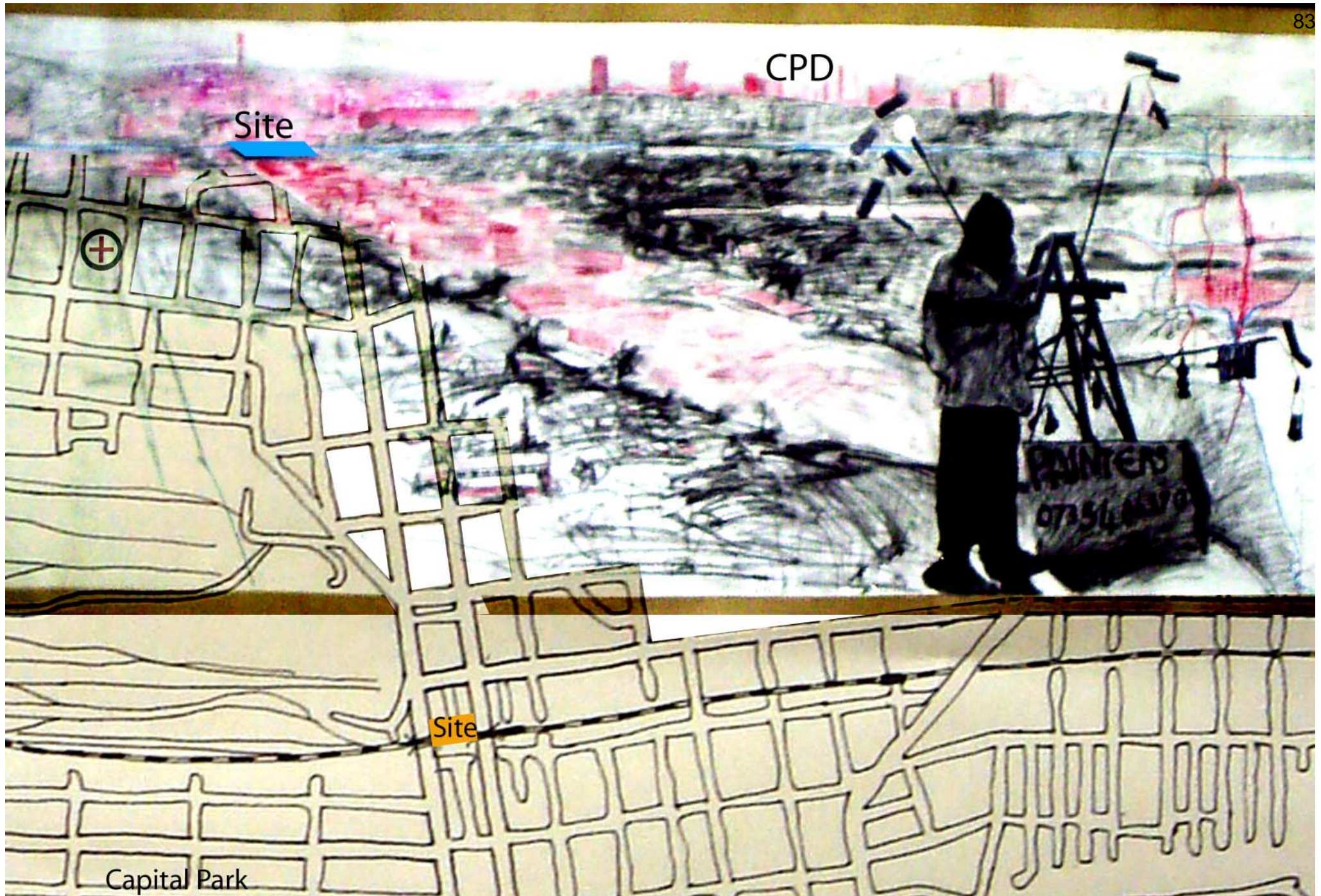
“The Tshwane city priorities are:

- Managing and developing infrastructure.
- Strengthening key economic clusters
- Ensuring community
- Safety
- Building and sustaining communities

The development of the north will have the largest impact on the city of Tshwane as approximately half of Tshwane`s population lives there without access to economic and other civic opportunities. The north is the area where mainly impoverished black people reside on the periphery of the current urban settlement.” (Skosana, A.2006: 12-13)

The site is located 2km north of Church Square (city centre), where the largest development spine (Voortrekker and Verwoerd road), intersects with the railway line. The identified site has the potential to become an imperative northern entry point of the inner city, creating not only easier physical access but also access to employment. This

Fig 65: Opposite page: The Voortrekker and Verwoerd road development spine radiating northwards from the CPD.



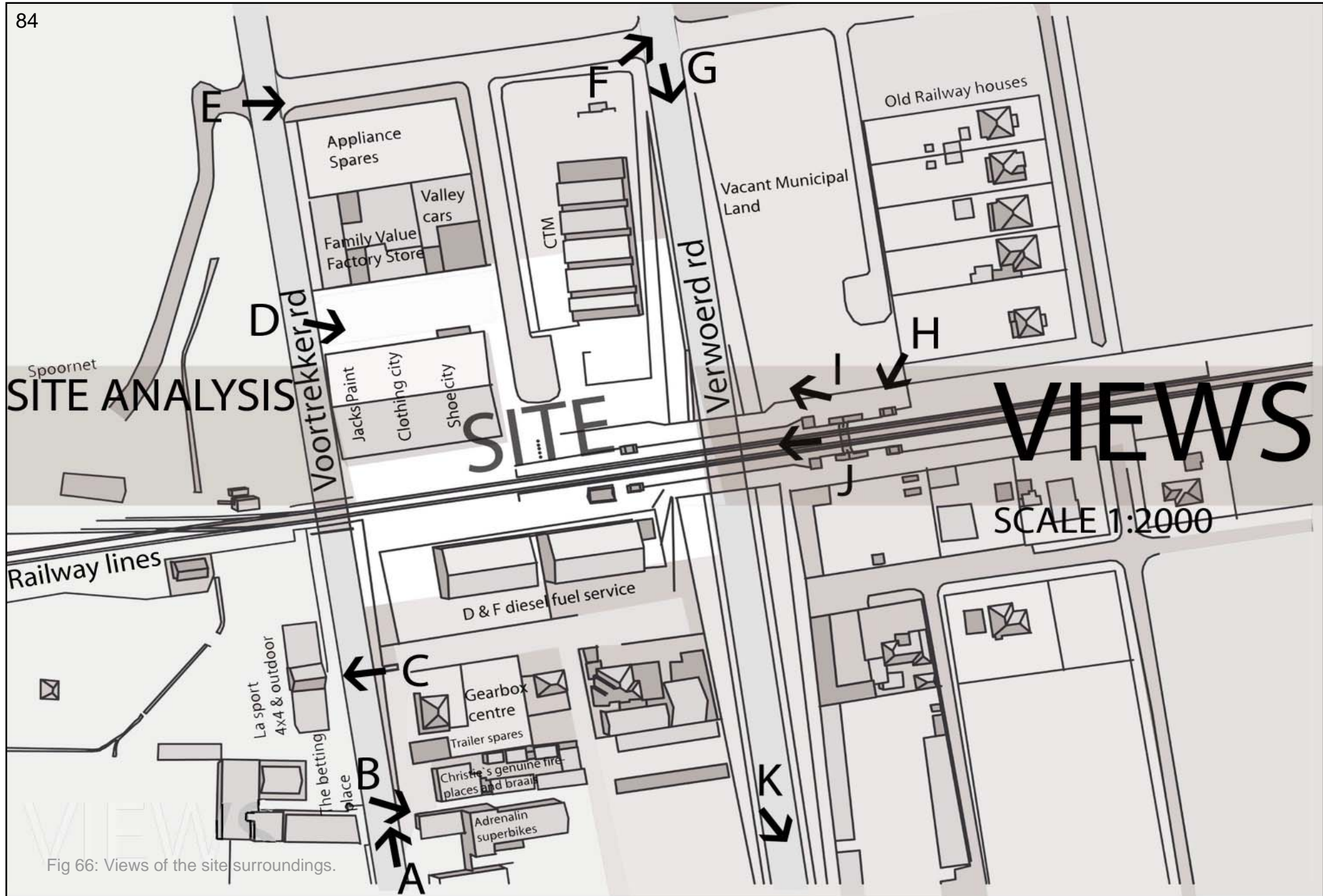


Fig 66: Views of the site surroundings.



A Railway bridge over Voortrekker rd



B Adrenalin Superbikes

C L.A. Sport

D Jacks Paint



E Auto Mall



F Leons Autobar

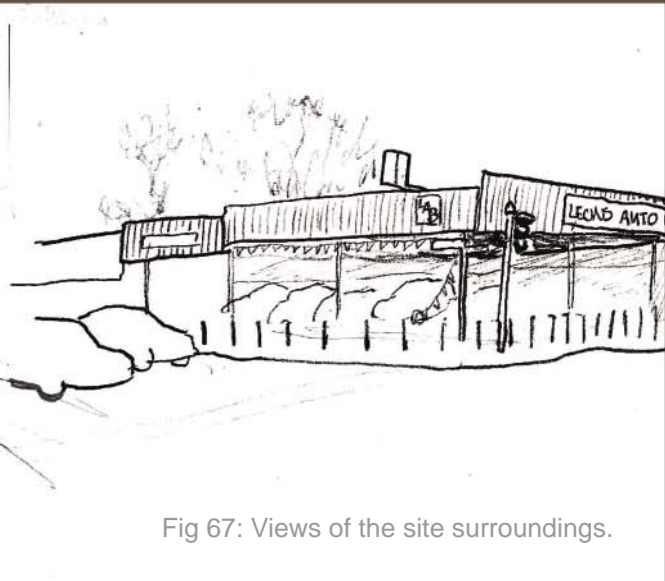


Fig 67: Views of the site surroundings.

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G Platform bridge over Verwoerd rd

H Gezina station platform

I CTM from pedestrian bridge

J Train on bridge over road

K Verwoerd rd

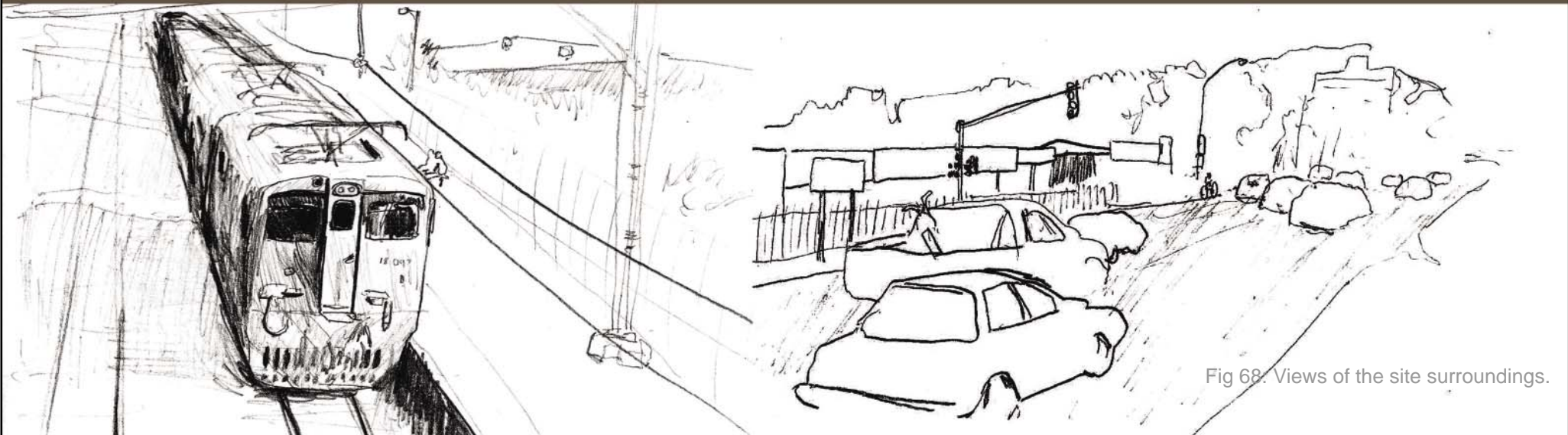


Fig 68. Views of the site surroundings.

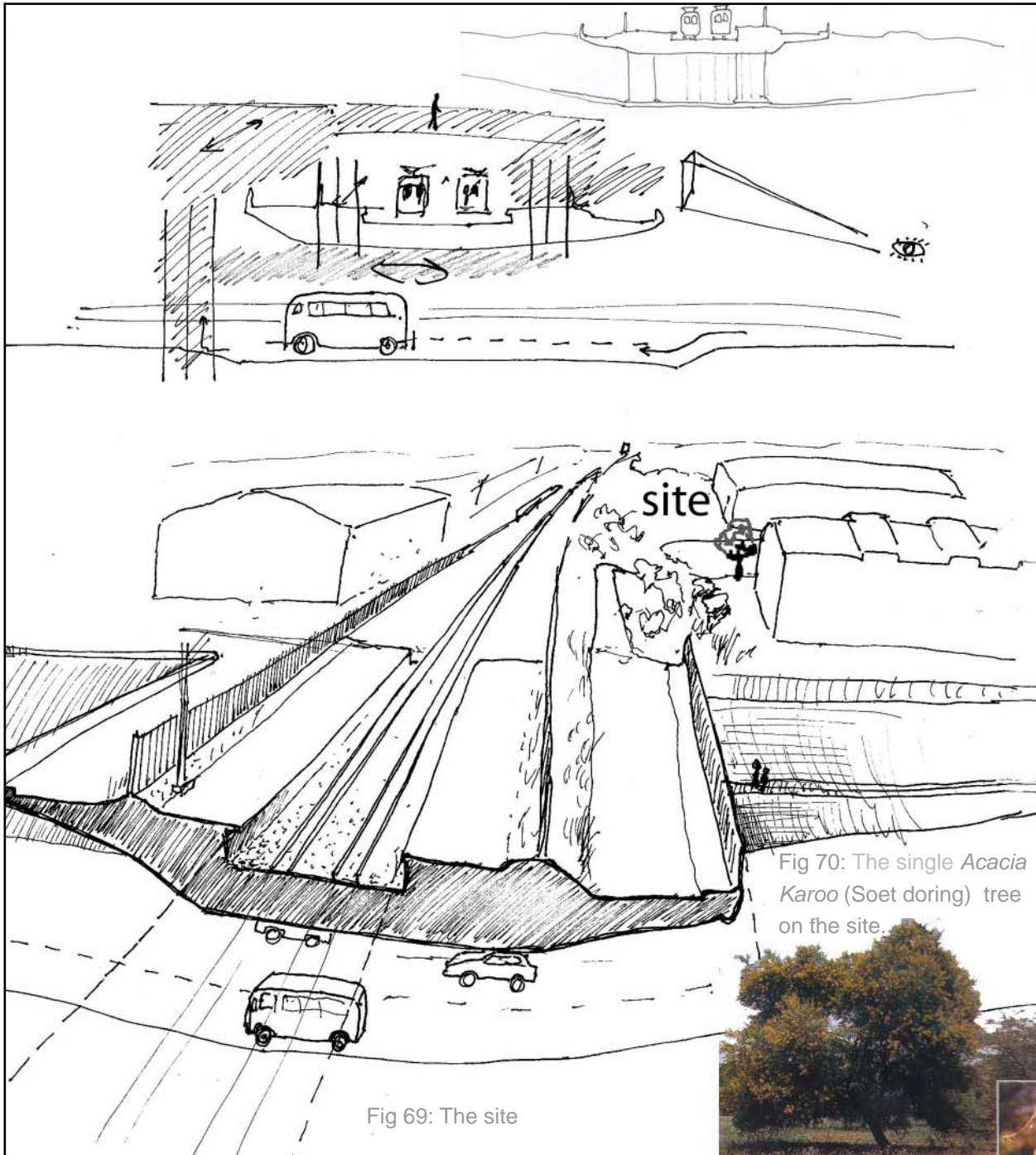


Fig 69: The site

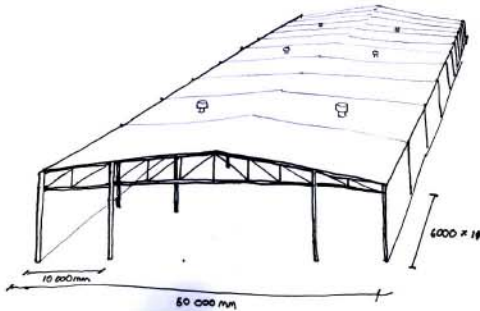
## The Site

The site is situated between Voortrekker rd and Verwoerd rd. It consists of the existing Gezina platform, a warehouse and a portion of municipal reserve between CTM and the railway tracks. Train commuters and hawkers are complaining about the safety hazards that the site houses. Access to the existing station is difficult and commuters have to walk through the site. A large *Acacia Karoo* is the only large tree on the site (figx).

Fig 70: The single *Acacia Karoo* (Soet doring) tree on the site.







**Warehouse**

The site is situated in an industrial area filled with warehouse type structures. The warehouse currently accommodates three tenants (Clothing City, Shoe City and Jack's Paint). The building consists of an uncomplicated steel structure with non-load bearing infill walls. The steel structure is bolted together and can easily be reassembled. This structure is a appropriated as a portion of the final design.

Fig 72: The warehouse on the site.

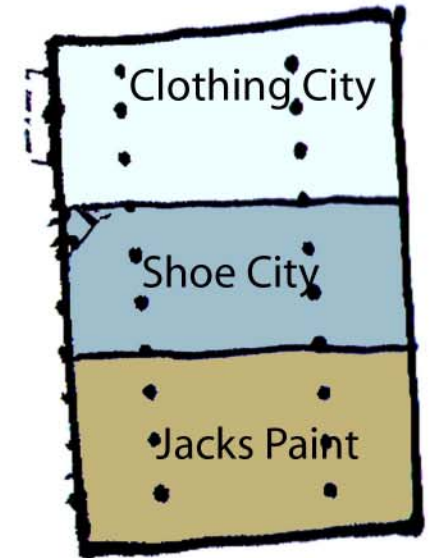
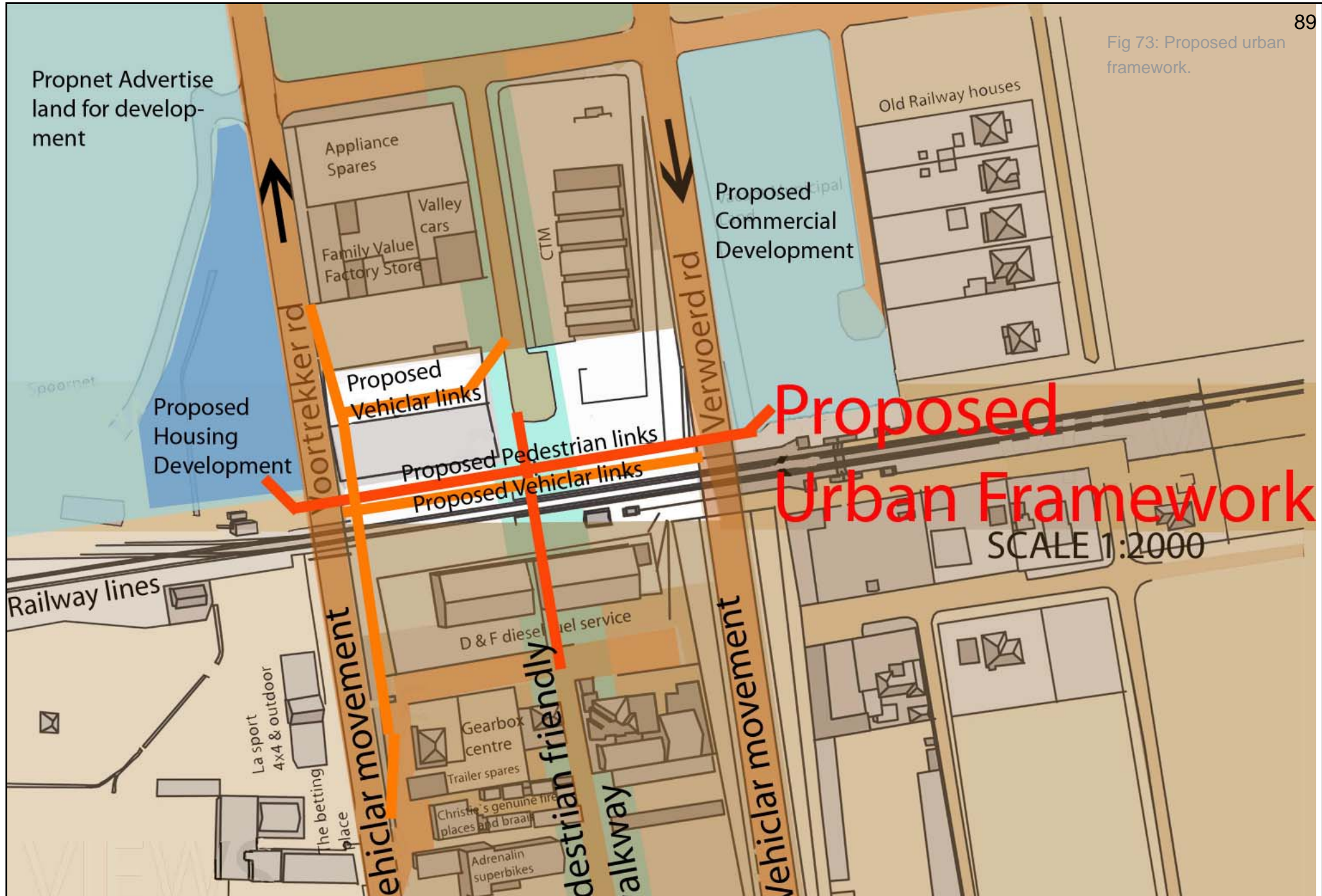


Fig 73: Proposed urban framework.



**Proposed Urban Framework**

SCALE 1:2000



# Proposed Transformation:

- User Requirements
- Design Development

## User Requirements

The building consists of an unconventional combination of functions. These functions each have a different set of requirements and sometimes share facilities. The current and possible future users determined these functions. The following lists the user requirements.

### Train Station

Function: Transportation link, basic facilitations

Critical Aspects: Circulation

Passenger details:

Temp booking hall 12C°

Day lighting  $\geq 1/5$  surface area

Ticket off from 1500 x 2000 upwards

Type of surface: rough, hard pigmented concrete with epoxy finish

Walling up to 1 750 high with impact-resistant lining

All doors and gates to withstand the heaviest of demand

Arrangements for storing bicycles very simple: hung up neatly by front wheel

room	size	standard
Terminal	1300 m <sup>2</sup>	(See table x)
Ticket office and information point	53 m <sup>2</sup>	7 ticket booths
Ablution	114 m <sup>2</sup>	14 female wc 6 male wc 7 u 3 par
Seating	118.1 m	Pre-cast concrete benches
Platforms	1709 m	4 platforms 90m long

### Informal Traders

Function: Commerce

Critical Aspects: Situated next to the main pedestrian movement routes

room	size	standard
Stalls	75,5 m <sup>2</sup>	+ -50
Storage	75,5m <sup>2</sup> +	Underneath pre-cast tables and additional storage(see labour market)

### Drive-through Labour Market

Function: Access to labour and skills, Workshops, Dormitories, Apartments, cleaning facilities.

Critical Aspects: Vehicular Access

room	size	standard
Market	2456 m <sup>2</sup>	
Management office	57 m <sup>2</sup>	200 lux
Exhibition space/ advertising/demonstrating	434 m <sup>2</sup>	16 drive through parking bays
Storage	208 m <sup>2</sup>	
Workshops	637 m <sup>2</sup>	
Cleaning facilities	155 m <sup>2</sup>	1-100 fall to drainage
Rainwater tank	23,5 m <sup>3</sup>	
Apartments	580 m <sup>2</sup>	3 x 4 bed dormitories 5 x 38 m <sup>2</sup> bachelors flats 3 x 40 m <sup>2</sup> 2bedrm flats
Ablution	72 m <sup>2</sup>	9 female wc 4 male wc 4 ur 2 par

### Bathroom

Function: Bathing

Critical aspects: Managing the rush-hour traffic, defensible clusters, damp

room	size	standard
Bathrooms	182 m <sup>2</sup>	18 Shower cubicles 4 Baths
Reception	31 m <sup>2</sup>	

### Laundry

Function: Cleaning bathhouse's towels open to public

room	size	standard
total	68 m <sup>2</sup>	Well ventilated

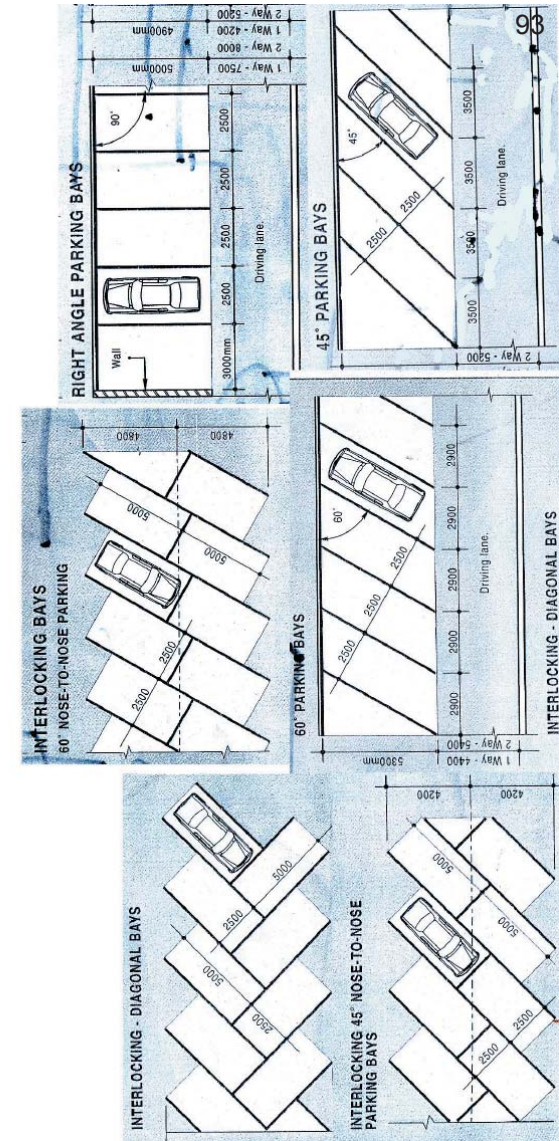


Fig 74: Parking bay requirements

**Clinic**

Function: Health care

room	size	standard
total	479 m <sup>2</sup>	200 lux

**Catering**

Function: Provision of food and drink

Critical aspects: Deliveries

room	size	standard
Restaurant	416 m <sup>2</sup>	Ablution facilities
Cafe-bars, small	221 m <sup>2</sup>	3 x cafe-bars
restaurants		2 x small restaurants
Outside cooking		10 x pre-cast braai facilities + wash-up and preparation surface
Storage	184 m <sup>2</sup>	Basement needs cavity walls to spec and pump

**Police Office**

Function: Public safety

Critical aspects: Passive surveillance, accessibility

room	size	standard
Reception	46 m <sup>2</sup>	Ablution facilities
Offices	106 m <sup>2</sup>	200 lux, kitchenette, lockers
Holding cell	50 m <sup>2</sup>	300 reinforced concrete walls, wc
Gun safe	12 m <sup>2</sup>	300 reinforced concrete walls, steel safe door to manufactures spec
Garage	115 m <sup>2</sup>	4 cars, 3 motorbikes

**Transport:**

**Taxi and bus depot**

Function: Transport

Traffic organisation *NB diagrams apply to driving on the right (German data)*

“Busses needs to take corners especially wide: turning spread needs special

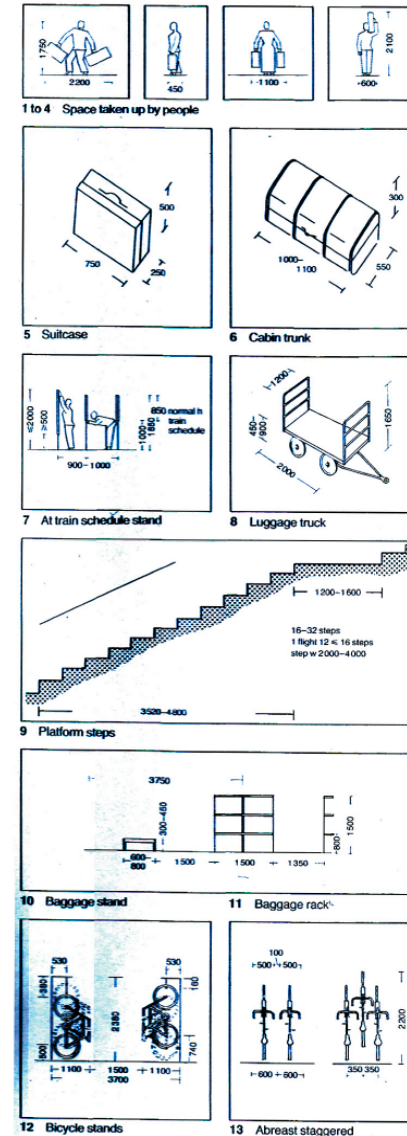


Fig 75: Related standards

watchfulness. Bus parks large and small an essential part of traffic planning. Bus stops should be under cover.” (Neufert xxx: 256)

Critical aspects: Access, Turning circles, Exhaust fume management

room	size	standard
Spaza shops	98 m <sup>2</sup>	Semi-basement
Taxi rank	2382 m <sup>2</sup>	24 parking bays
Bus	1331 m <sup>2</sup>	7 bus parking

Space requirements for platform areas

Platform type	without passing lane			with passing lane		
	parallel	At 45°	At 90°	parallel	At 45°	At 90°
Relation to line of arrival						
Platform (m)	24	24	24	<b>36-60</b>	36-60	36-60
Platform w (m)	3	3	3	<b>3.5-40</b>	3.5-40	3.5-40
No of loading points						
A. coaches	2	2	2	<b>2-3</b>	2-3	2-3
B. vehicles with trailers	1	1	1	<b>1-2</b>	1-2	1-2
Area of platform & arrival spur (m <sup>2</sup> )						
A. coaches	138	170	189	<b>293</b>	296	313
B. vehicles with trailers	276	340	378	<b>439</b>	444	470

(Neufert xxx: 256)

Space requirements for parking places

Relation to line of arrival	parallel	At 45°		At 90°	
1 each parking place (m)	32	12	24	12	24
Parking options	1. vehicle with trailer 2. coaches	1.coach	1. vehicle with trailer 2. coaches	1.coach	1. vehicle with trailer 2. coaches
W each parking place (m)	3.5	3.5	3.5	3.5	3.5
W arrival spur (m)	4.0	8.0	8.0	14	14

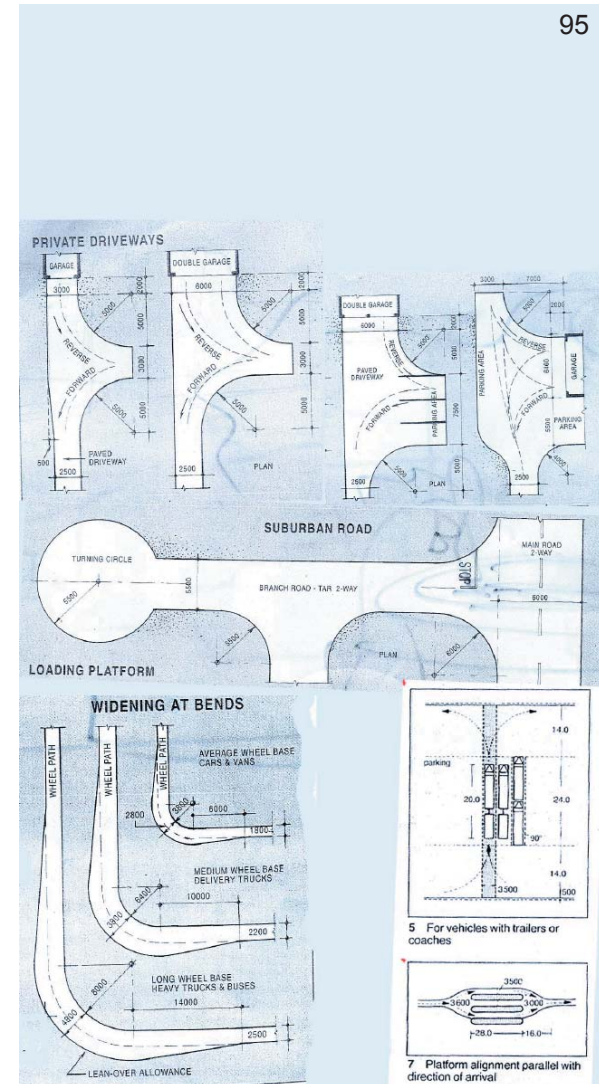


Fig 76: Turning circles



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# Design development

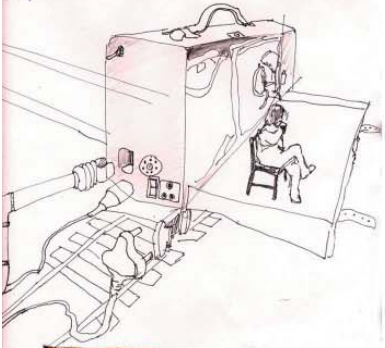
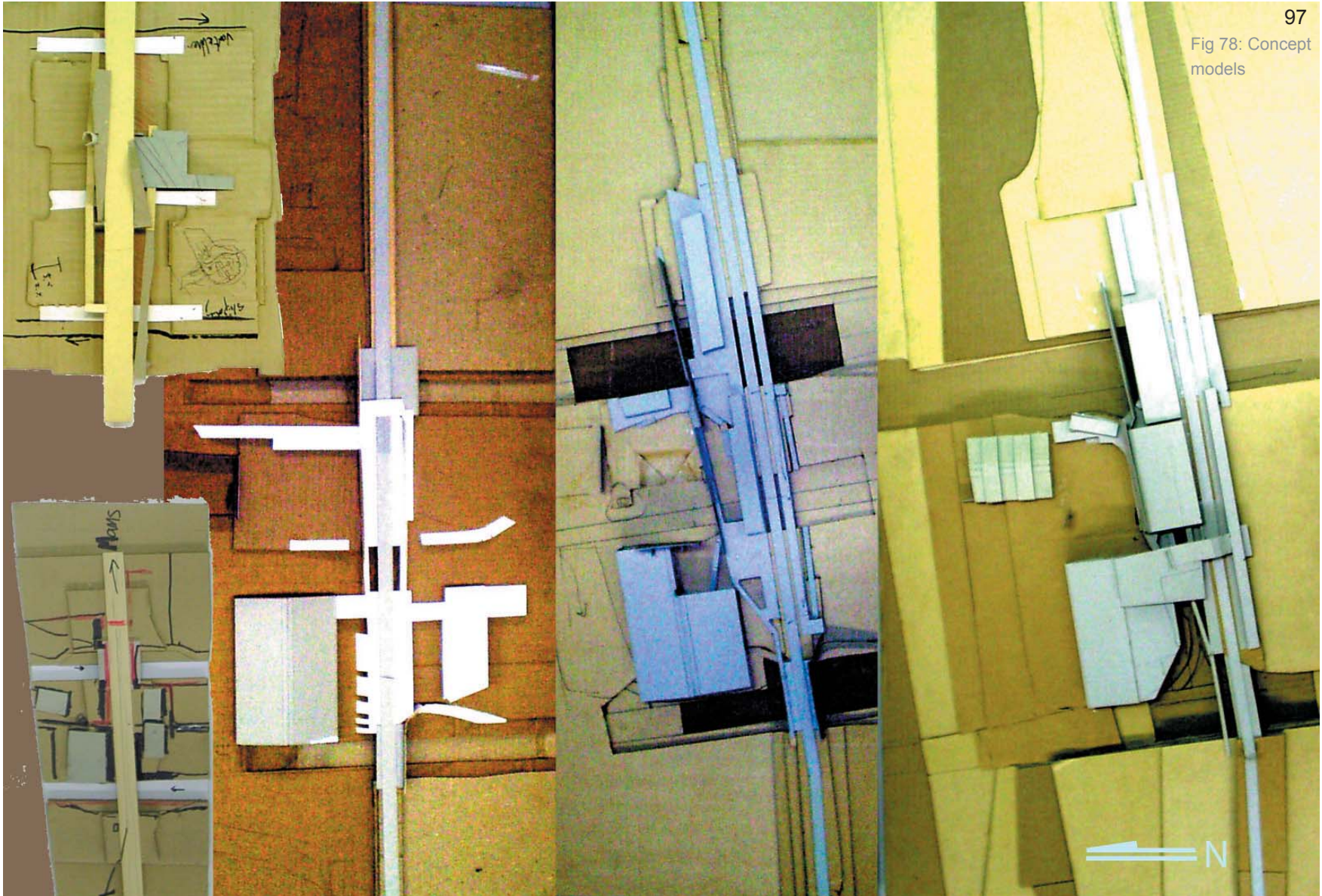


Fig 77: Design development



Fig 78: Concept models



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# Concept model no. 1

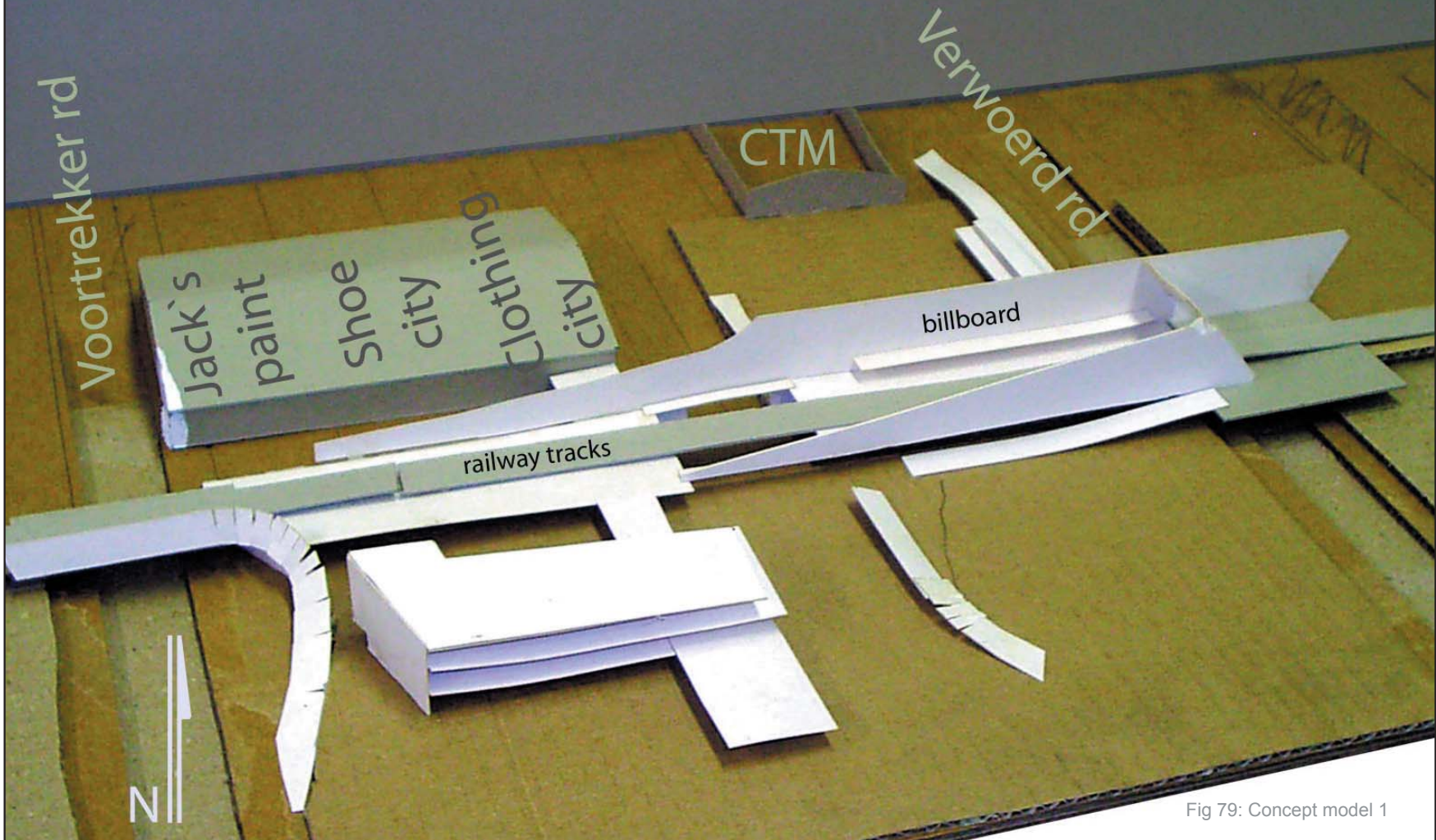


Fig 79: Concept model 1

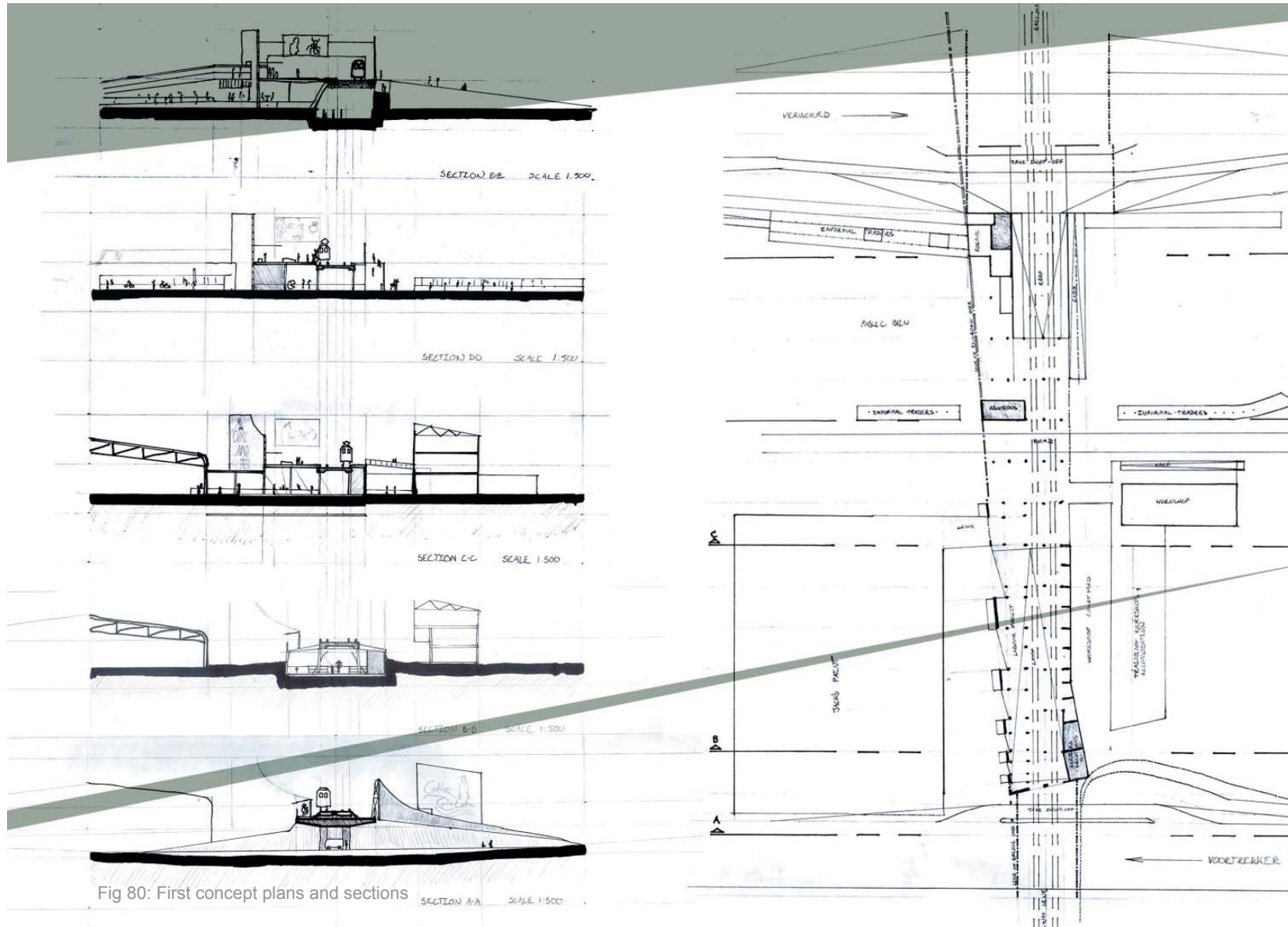


Fig 80: First concept plans and sections

100

# Concept model no.2

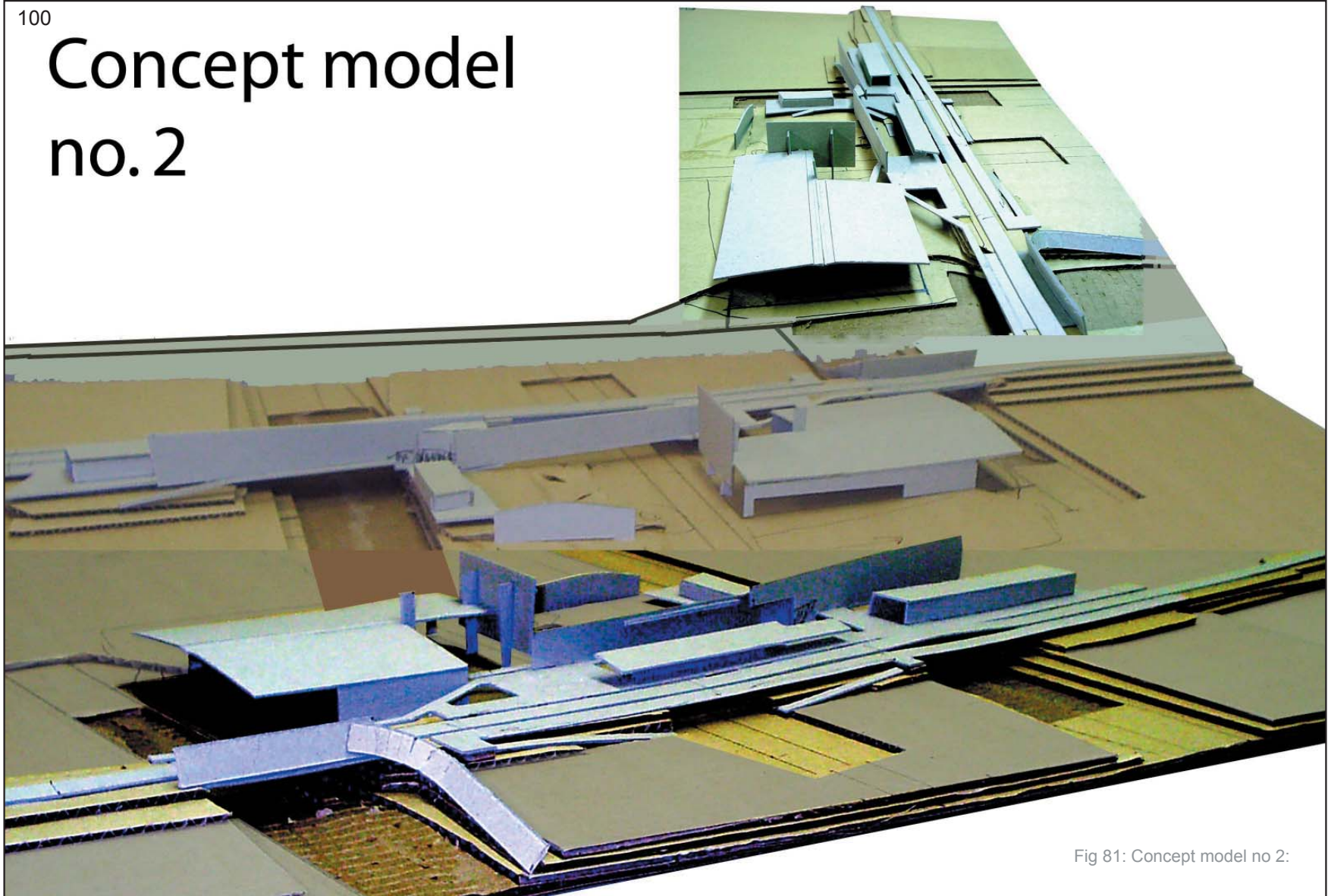


Fig 81: Concept model no 2:

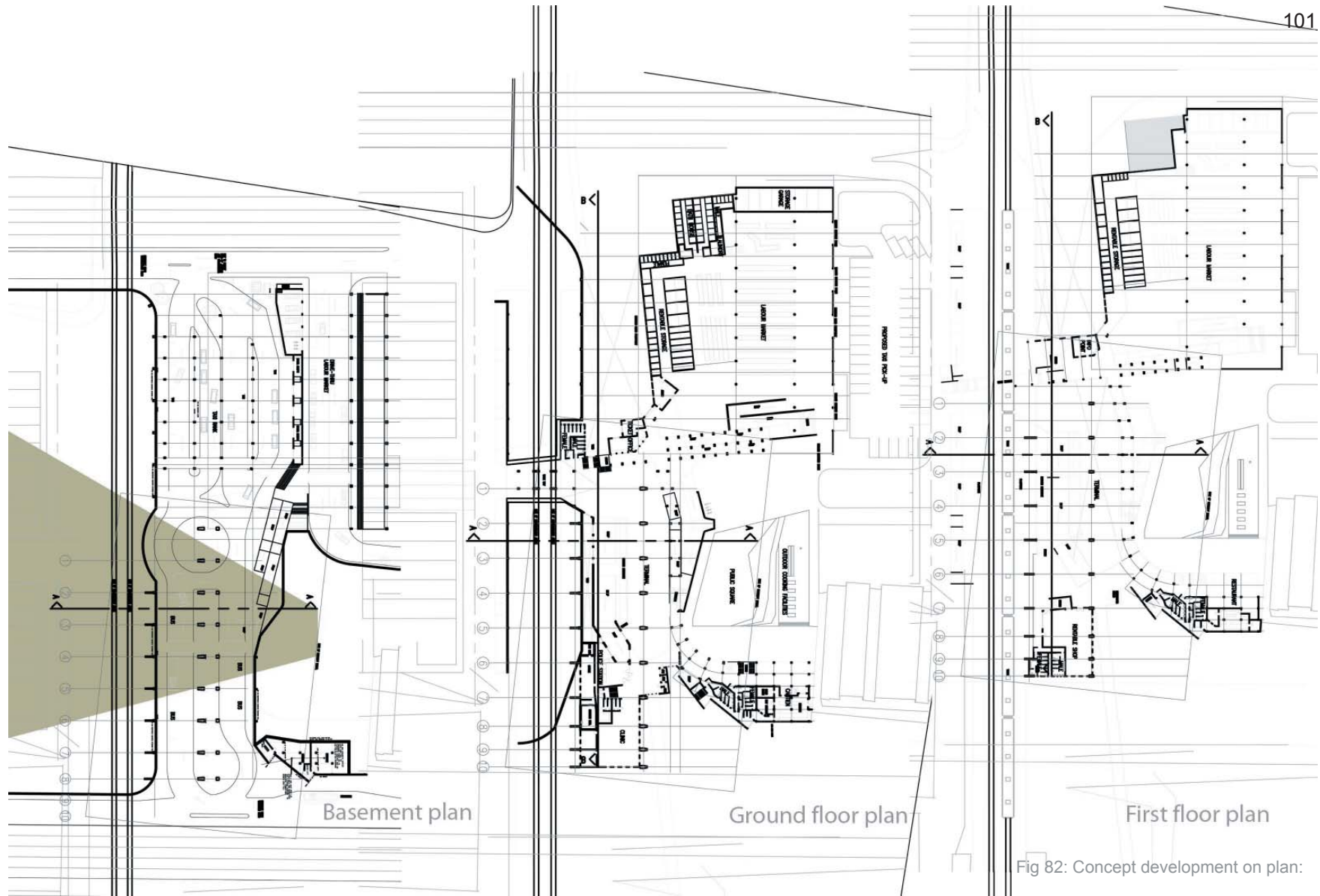


Fig 82: Concept development on plan:

102

# Concept Model no.3

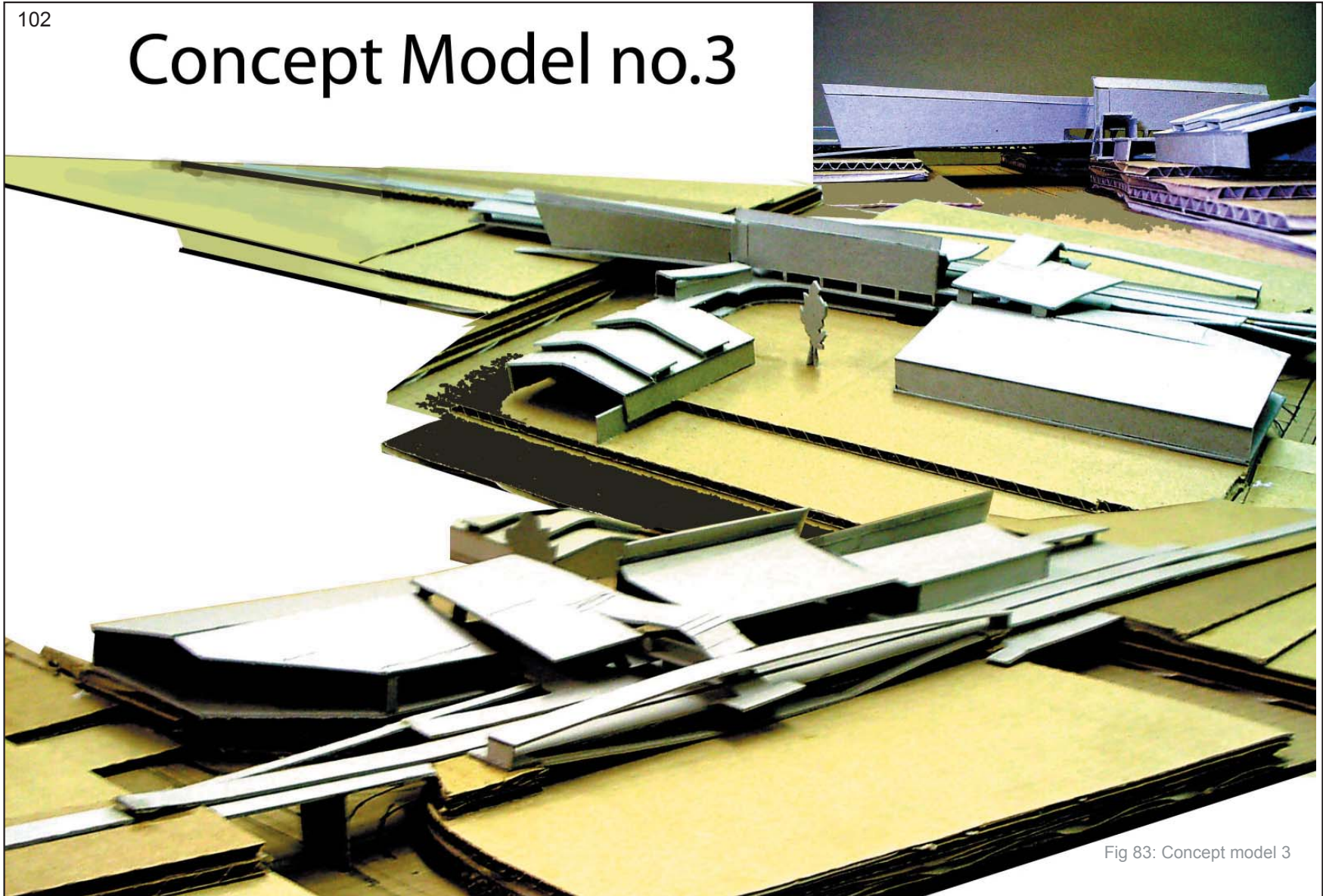


Fig 83: Concept model 3

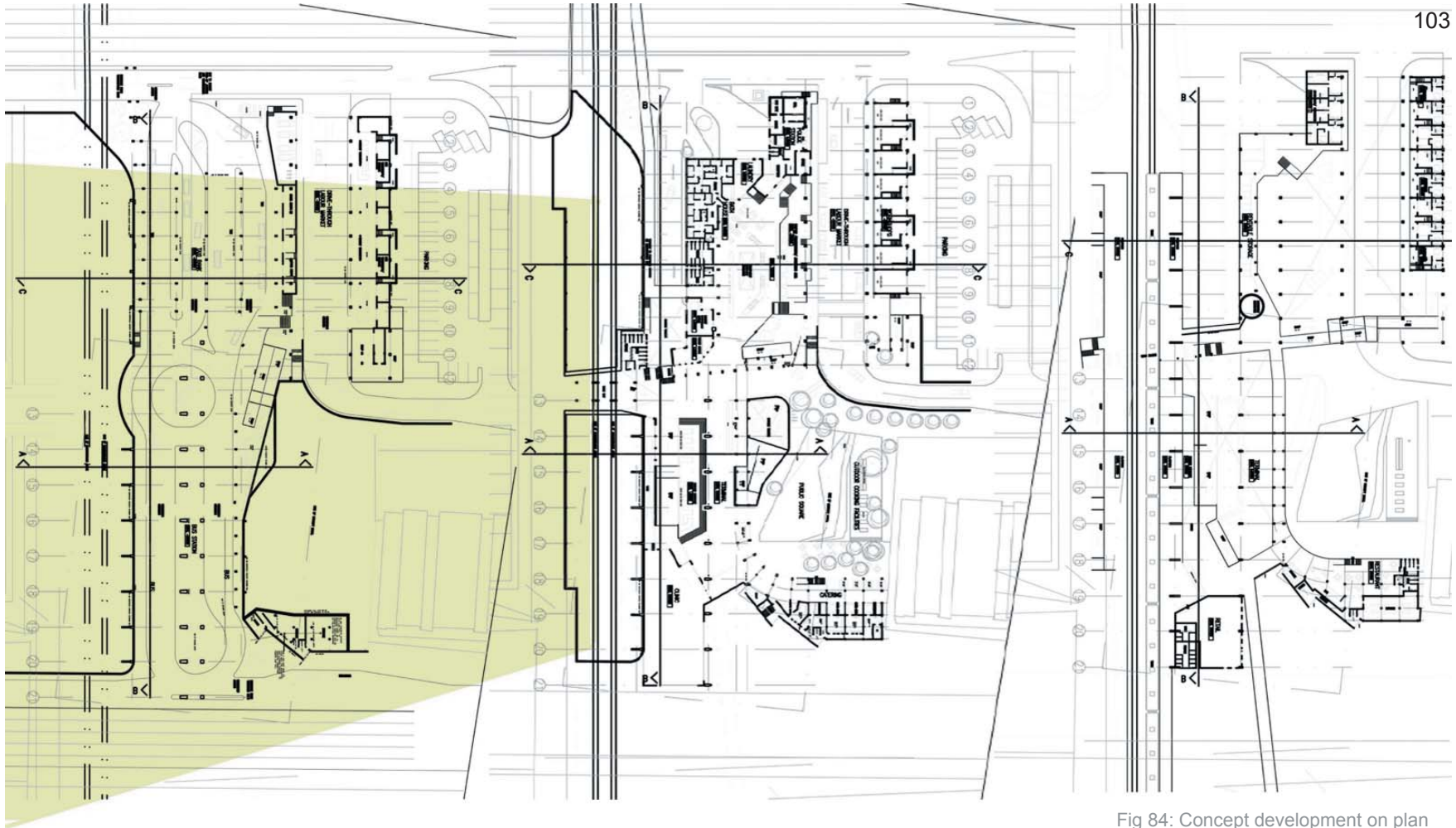


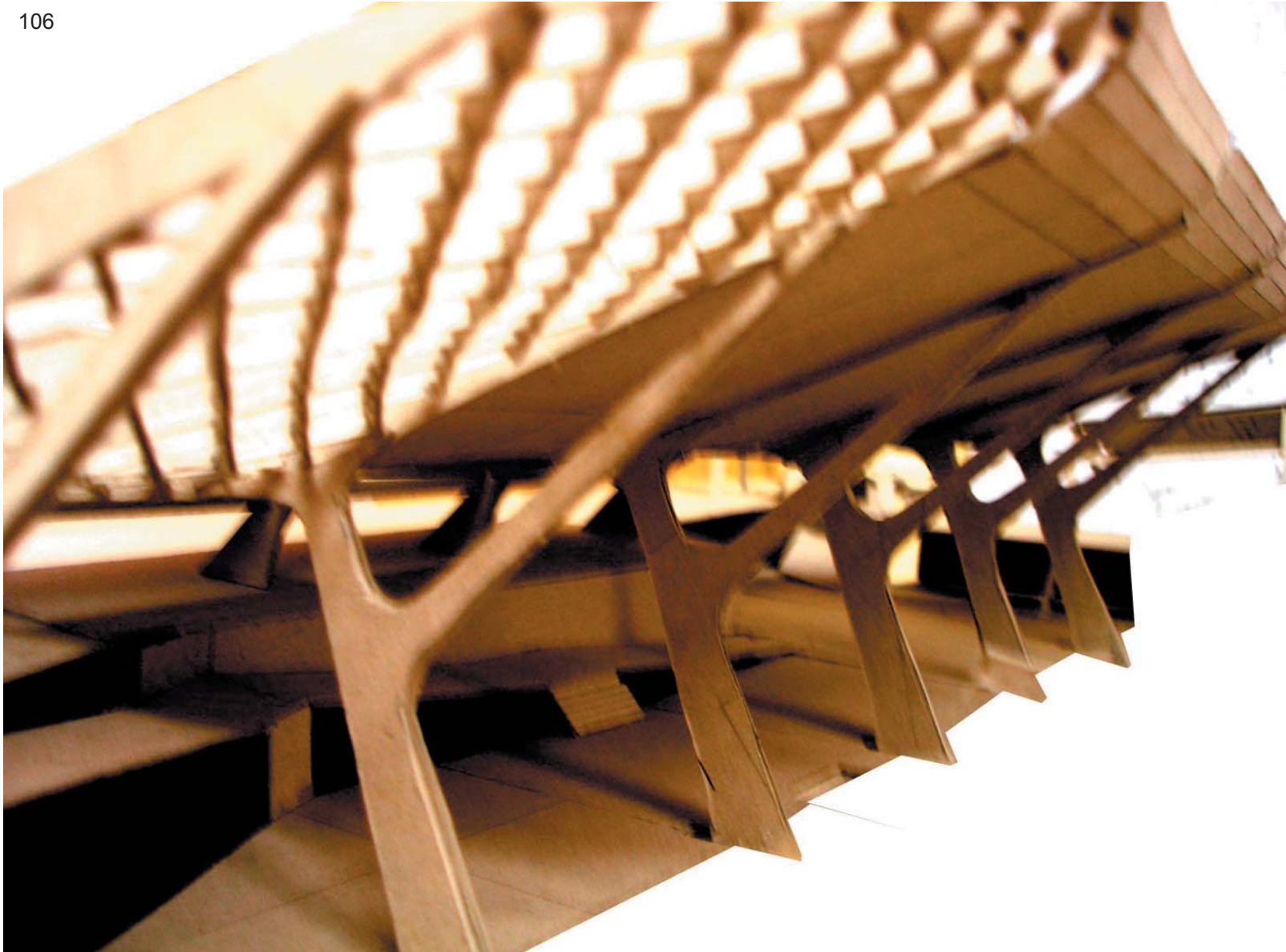
Fig 84: Concept development on plan

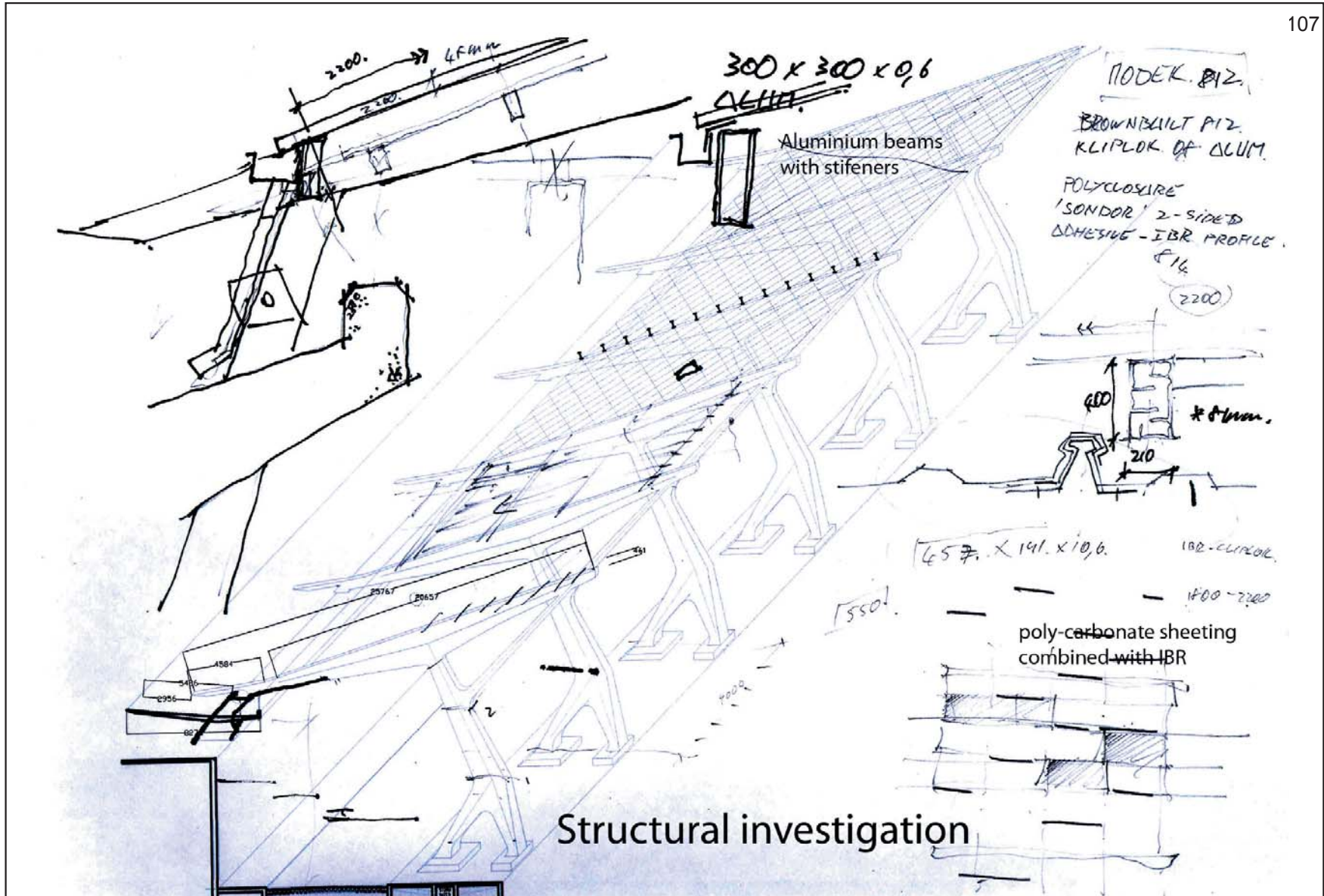




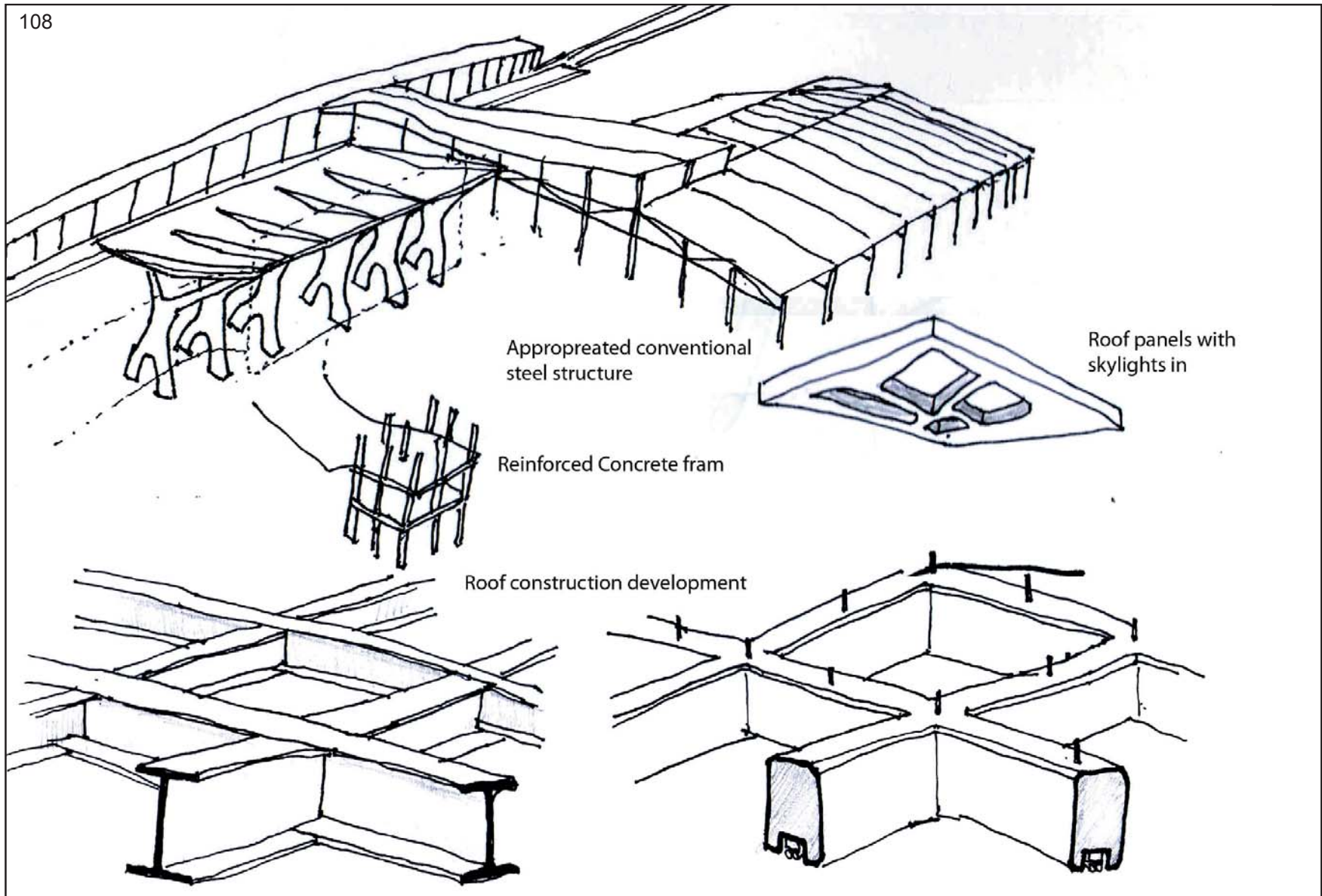
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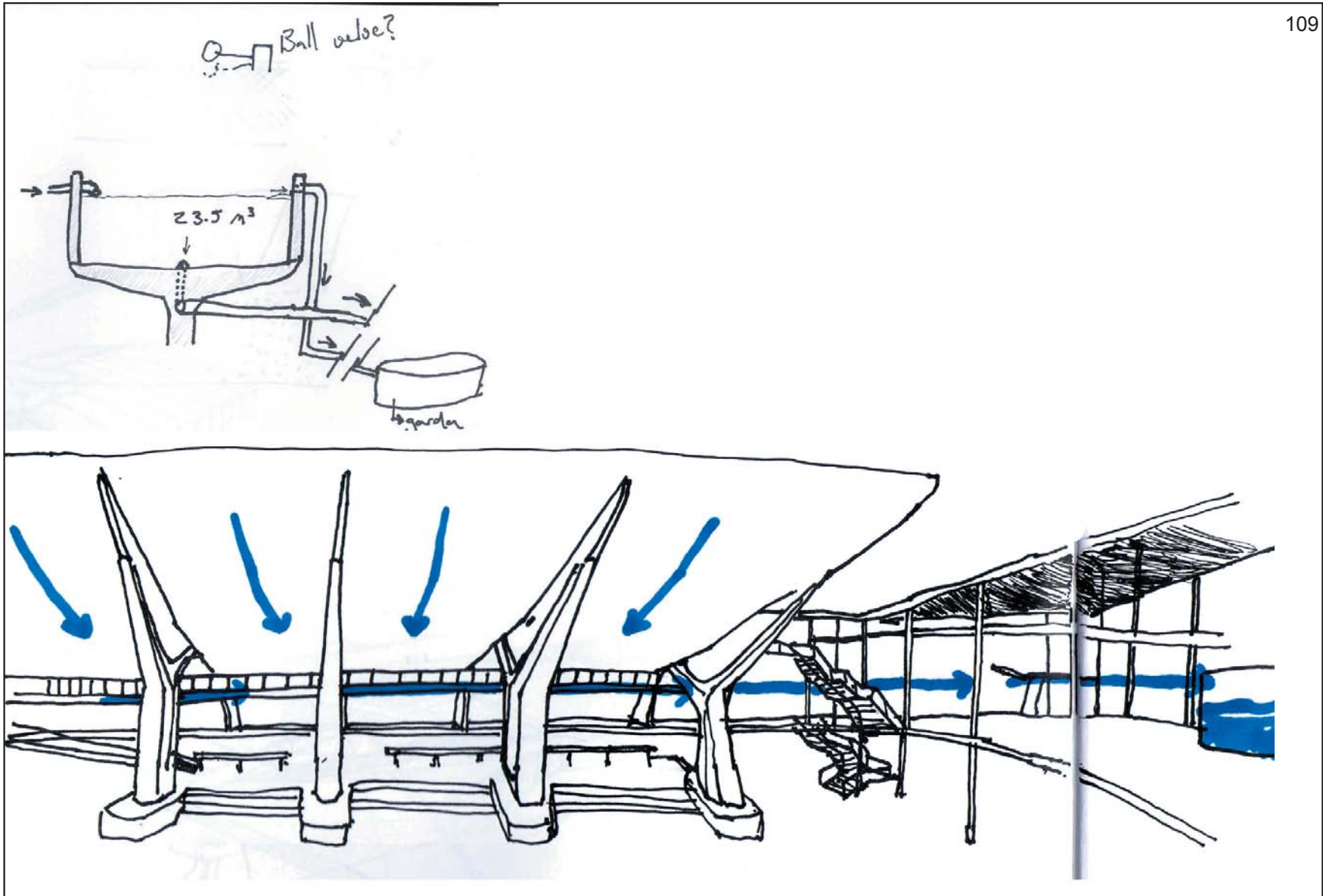
- Structural investigation
- Details



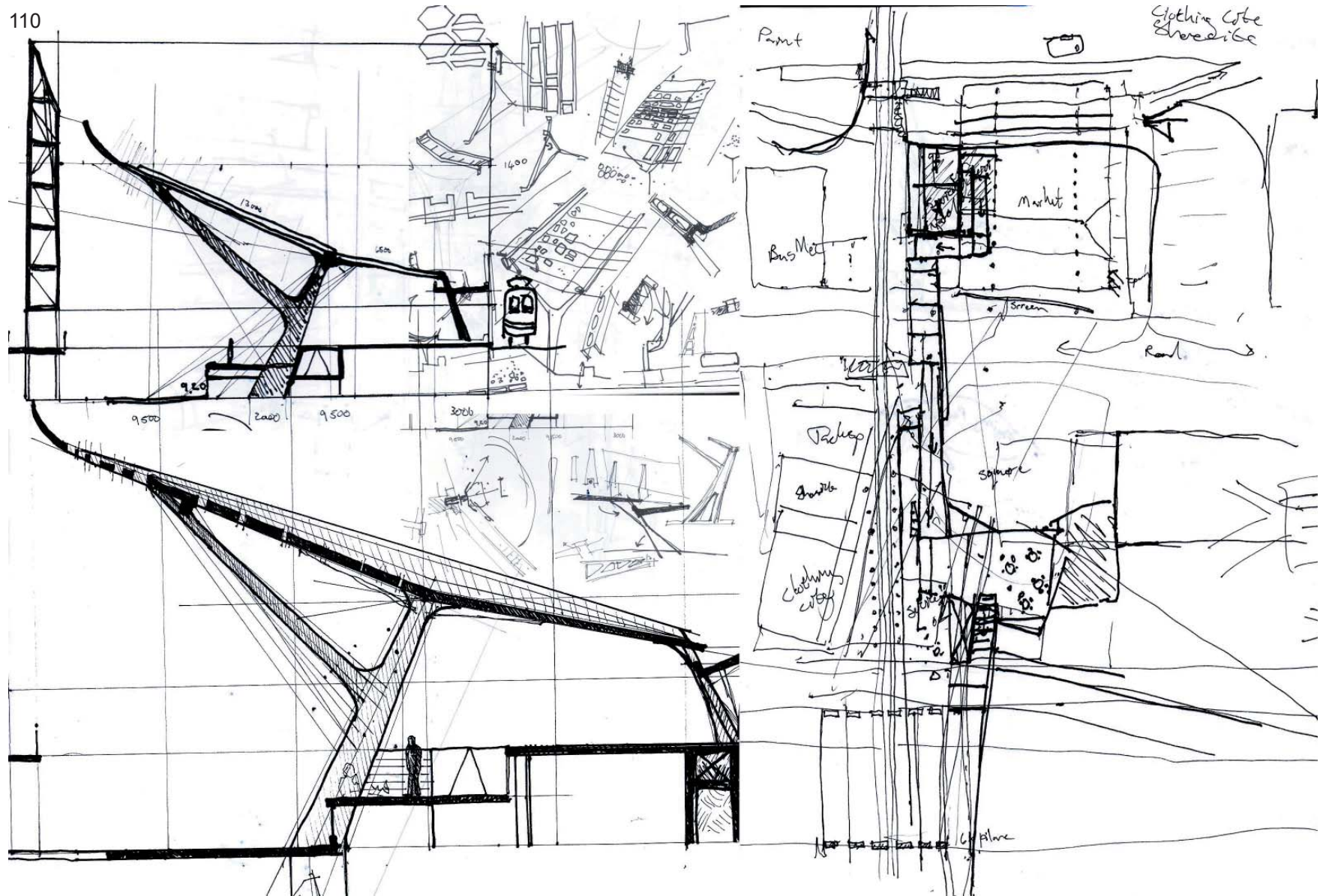


Structural investigation





110

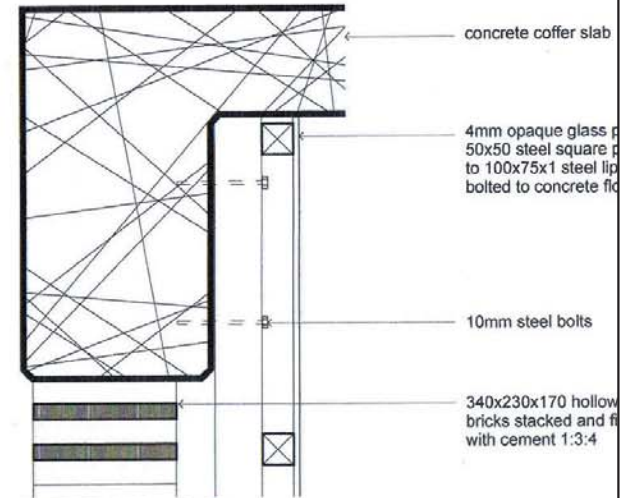
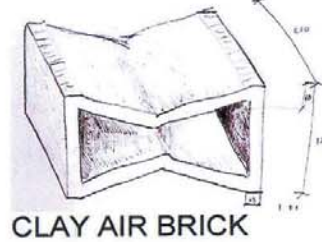
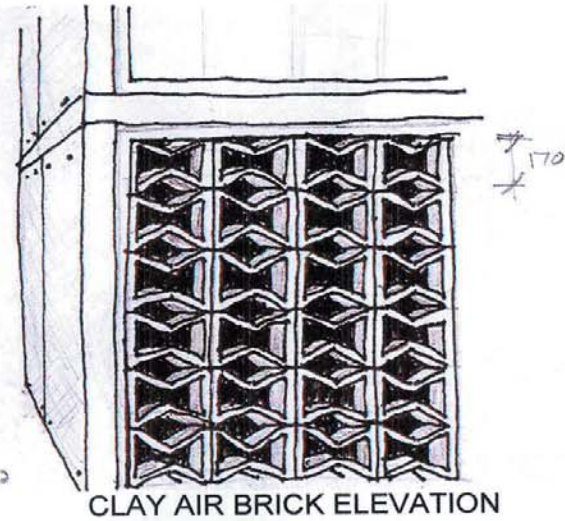


### **Details**

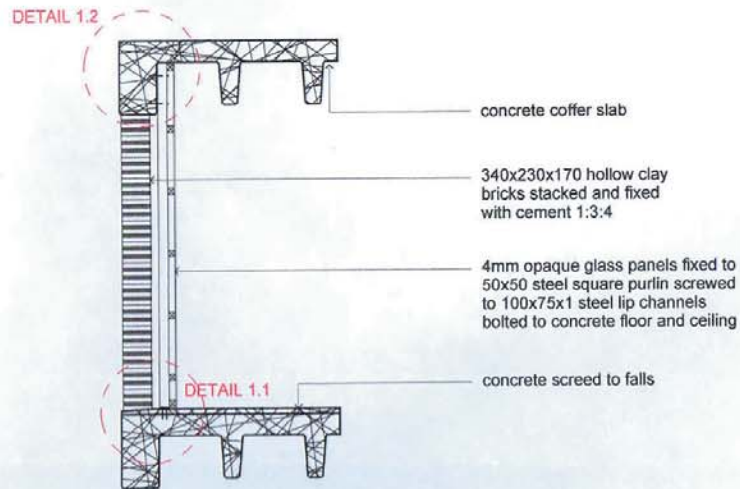
1. Airbrick
2. Equipment Cleaning Facilities
3. Tables
4. Structure
5. Retaining wall



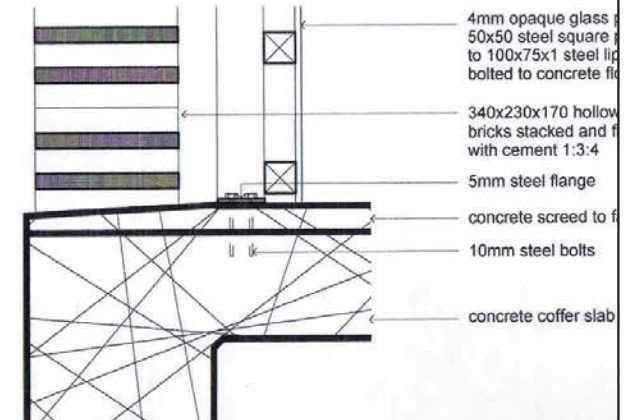
112



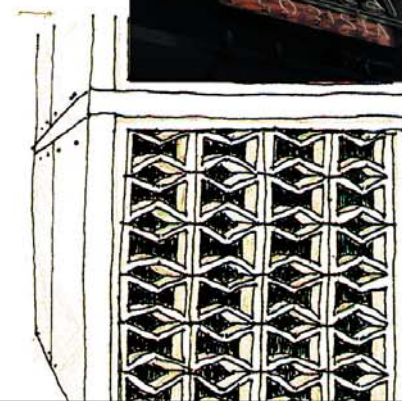
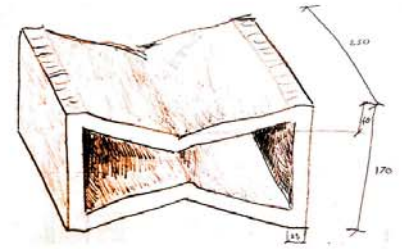
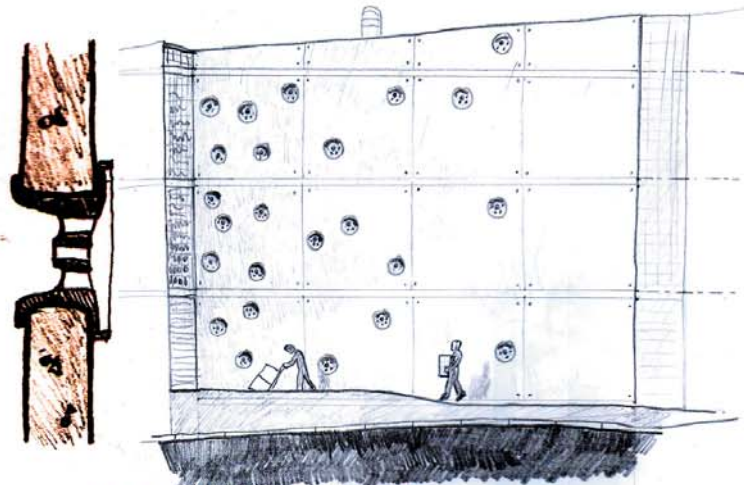
**DETAIL 1.2**  
scale 1:10  
BRICK AND STEEL/GLASS  
STRUCTURE CEILING CONNECTION



**DETAIL 1**  
scale 1:50

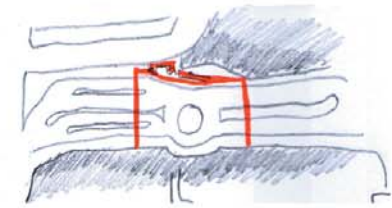
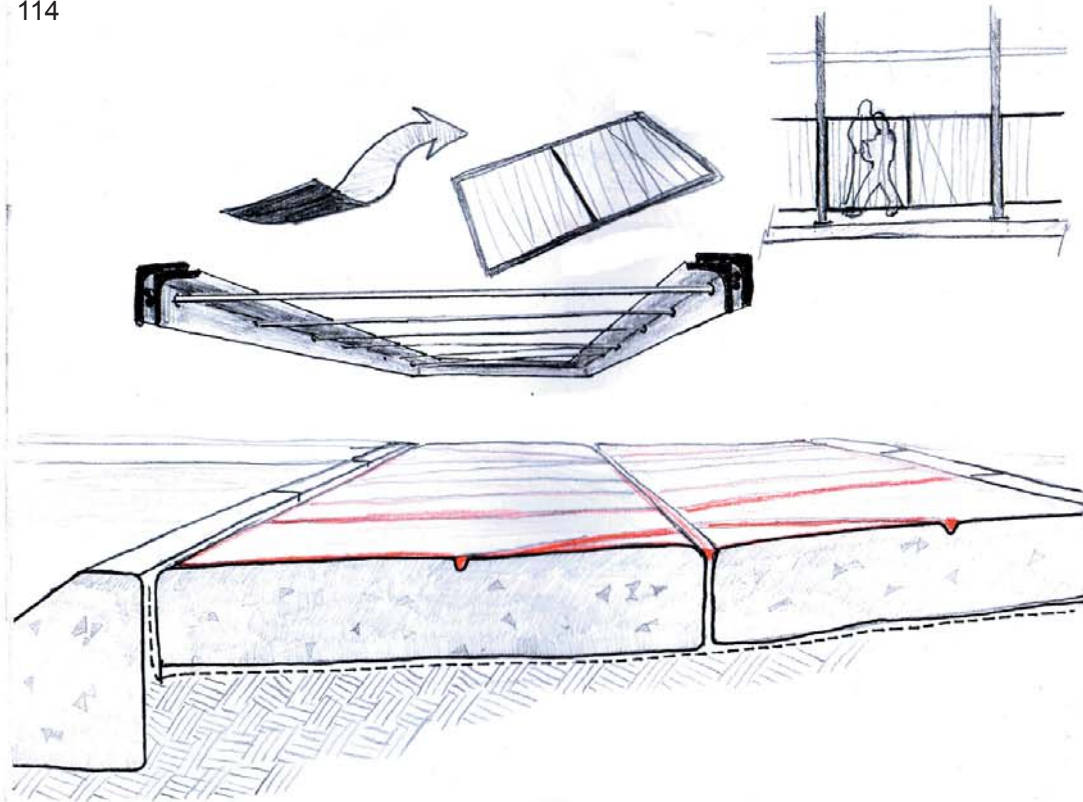


**DETAIL 1.1**  
scale 1:10

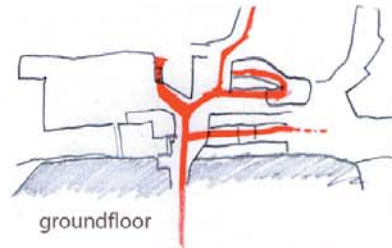


DETAIL 1  
AIRBRICKS AND RECYCLED  
RIM VENTILATORS

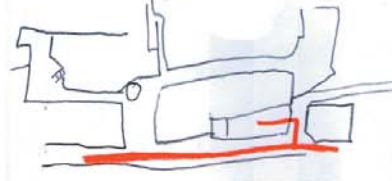
114



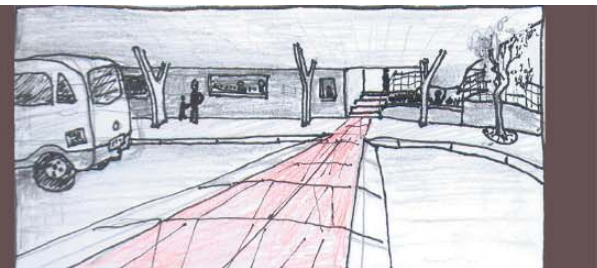
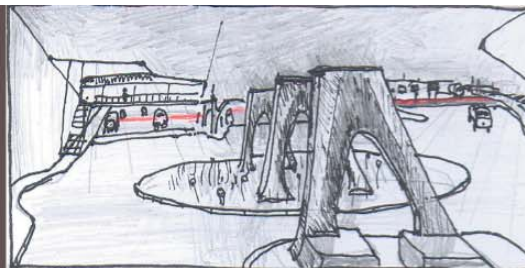
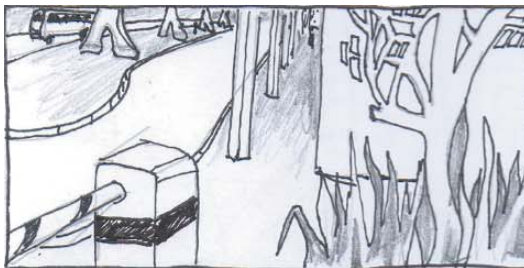
basement

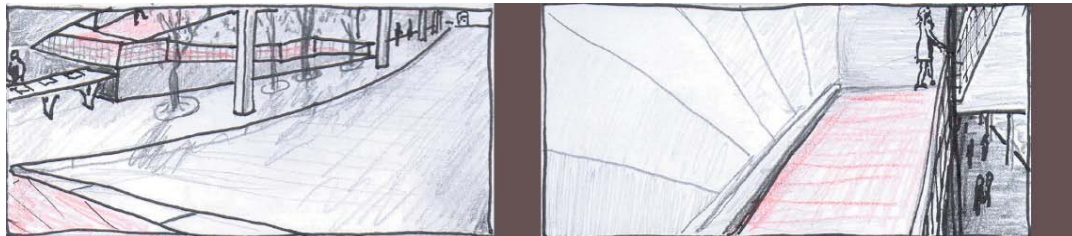
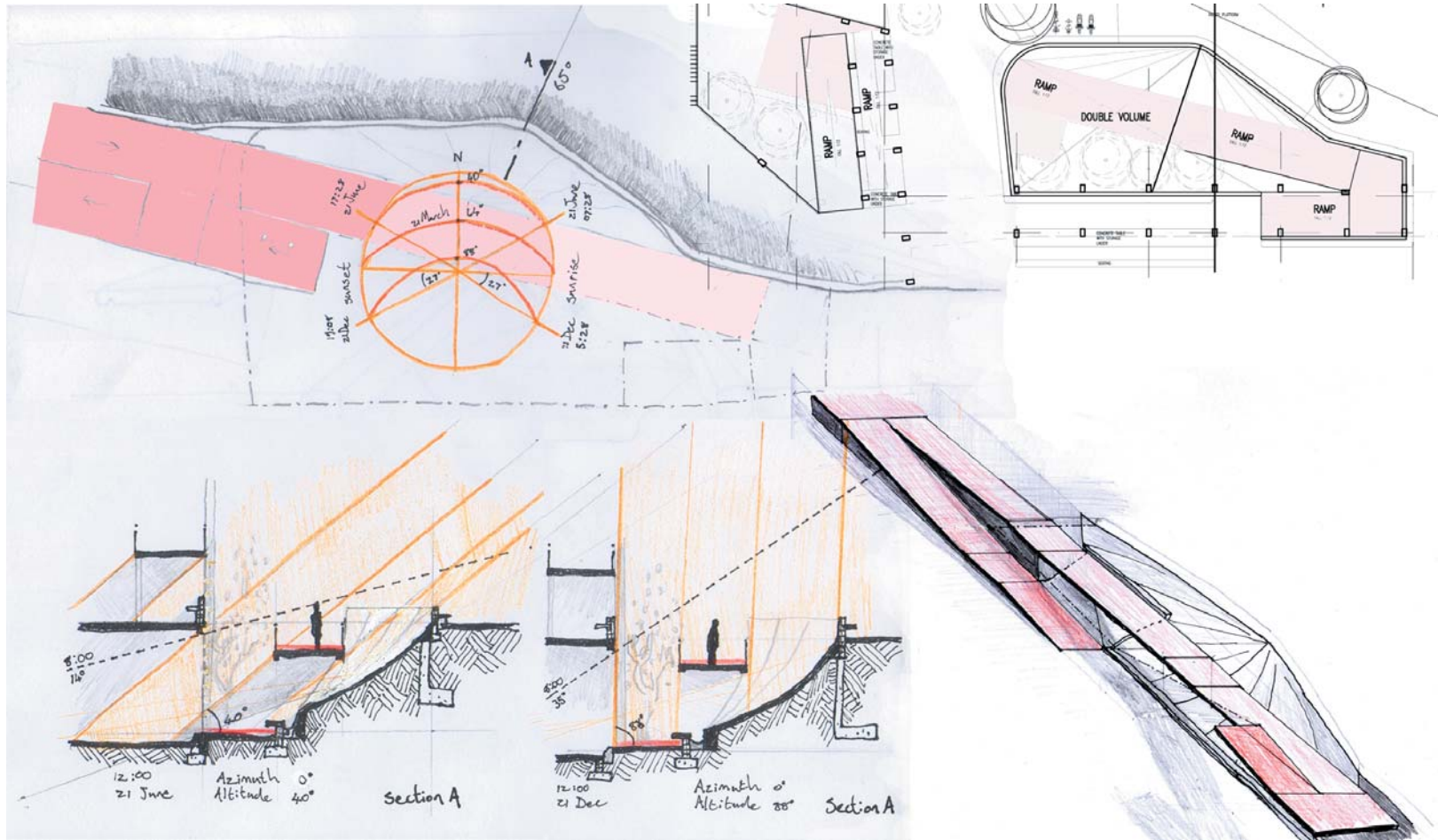


groundfloor



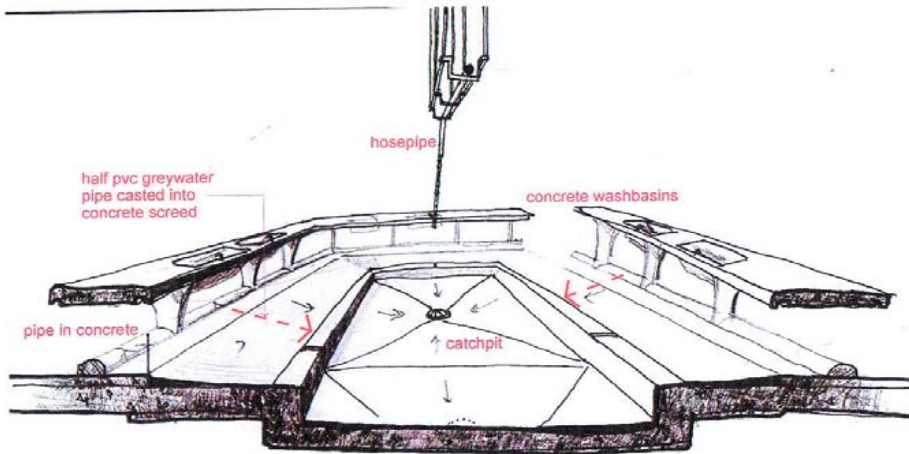
first floor



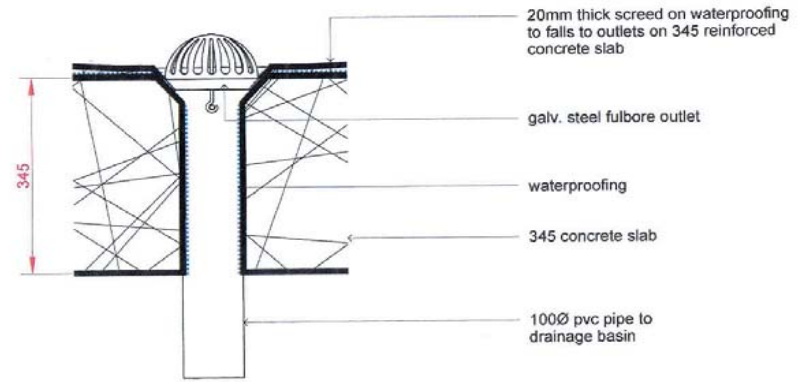


DETAIL :  
ramp

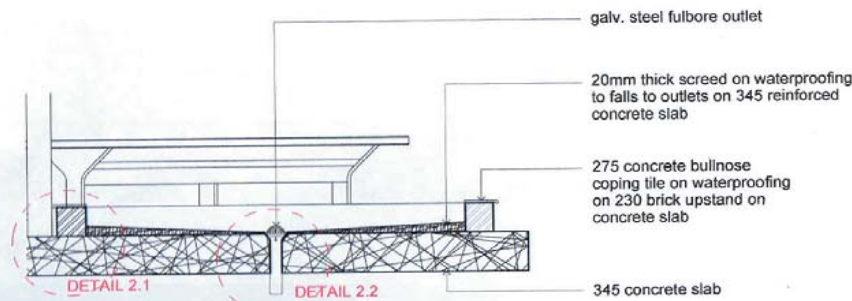
116



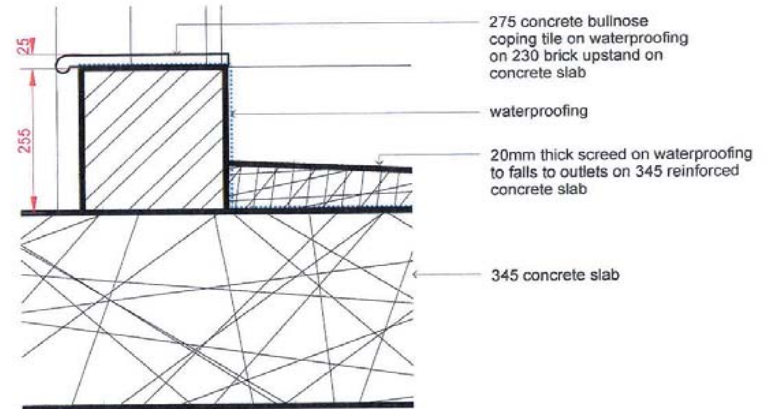
PERSPECTIVE DETAIL OF EQUIPMENT CLEANING FACILITIES



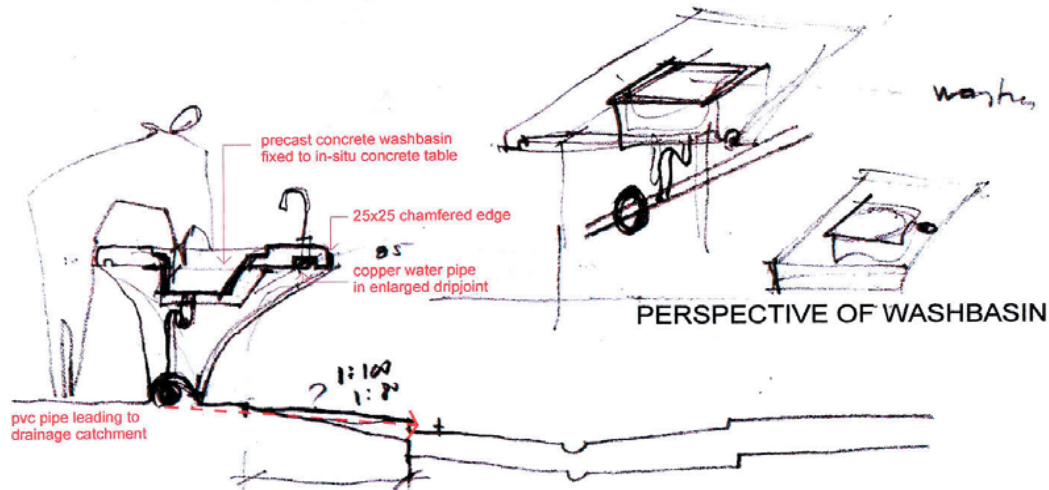
DETAIL 2.2  
scale 1:10  
WATER OUTLET DETAIL



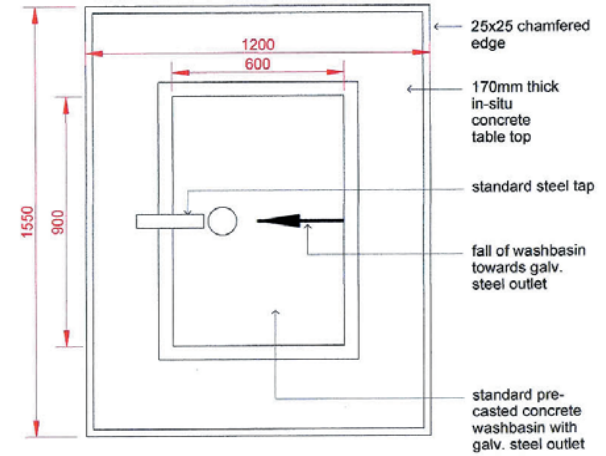
DETAIL 2  
scale 1:50  
HOLLOW CLAY AIR BRICKS WITH GLAZING ON INSIDE



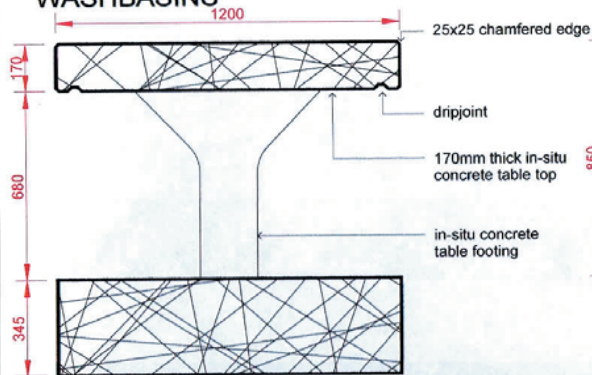
DETAIL 2.1  
scale 1:10  
BRICK UPSTAND WITH WATERPROOFING



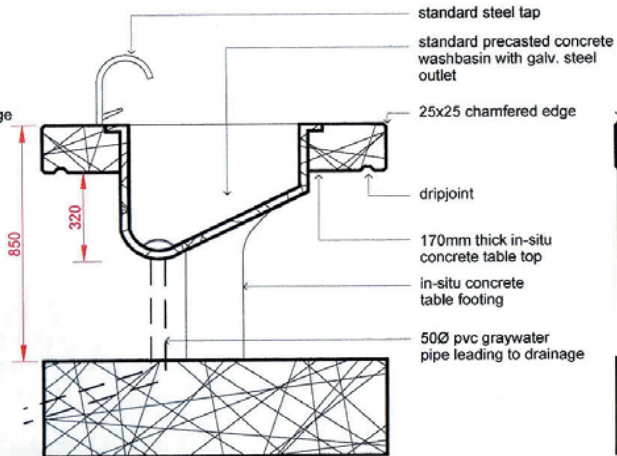
PERSPECTIVE OF WASHBASIN



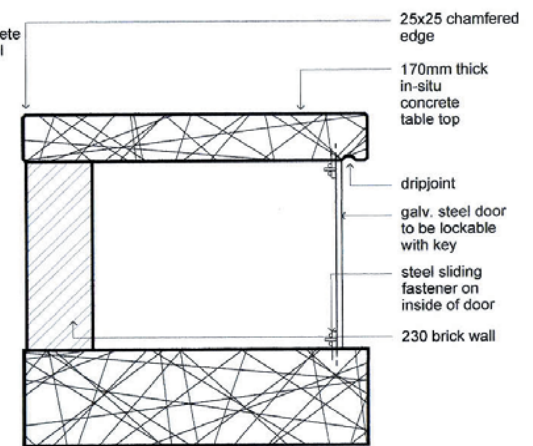
PERSPECTIVE DETAIL AND SECTION OF EQUIPMENT CLEANING FACILITIES WASHBASINS



DETAIL 3.1  
scale 1:20  
CONCRETE TABLE  
STRUCTURE

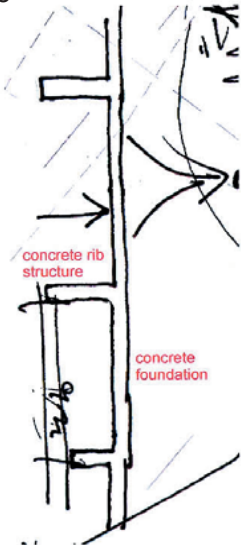


DETAIL 3.2  
scale 1:20  
CONCRETE WASHBASIN  
STRUCTURE

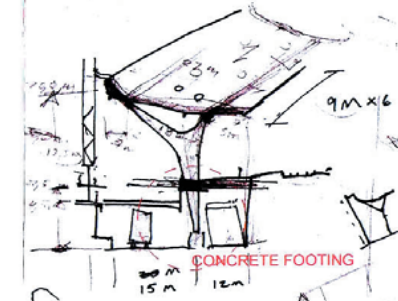


DETAIL 3.3  
scale 1:20  
CONCRETE TABLE  
WITH LOCKABLE DOORS

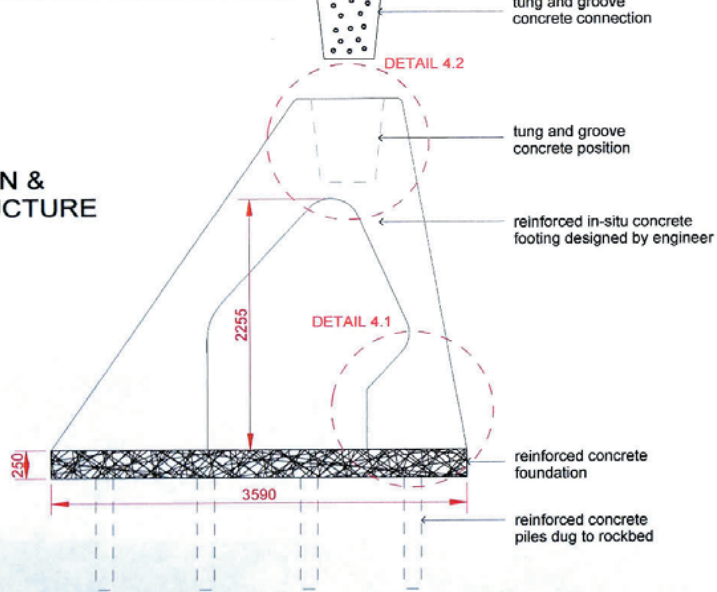
118



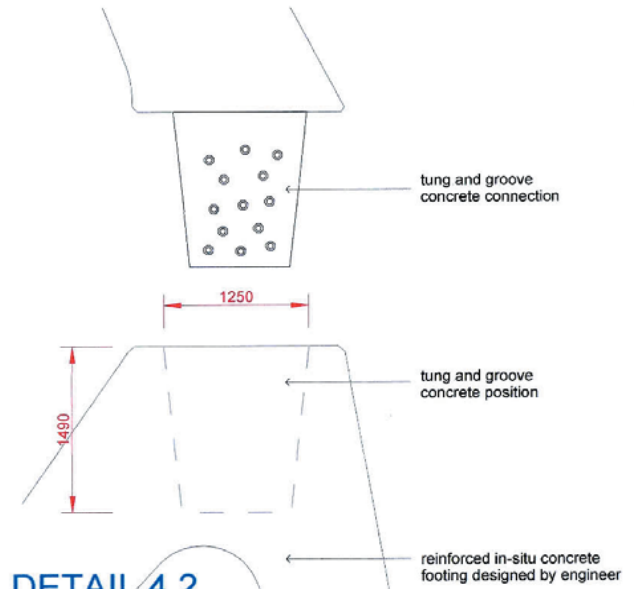
PLAN OF FOUNDATION & CONCRETE RIB STRUCTURE



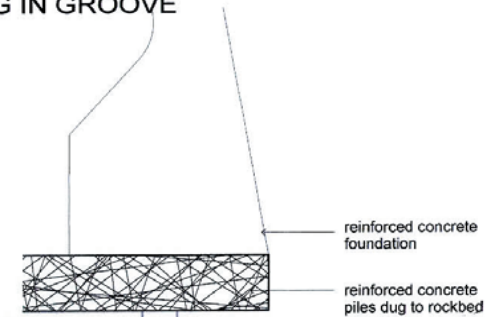
CONCEPTUAL PERSPECTIVE DRAWING OF ROOF & CONCRETE STRUCTURE



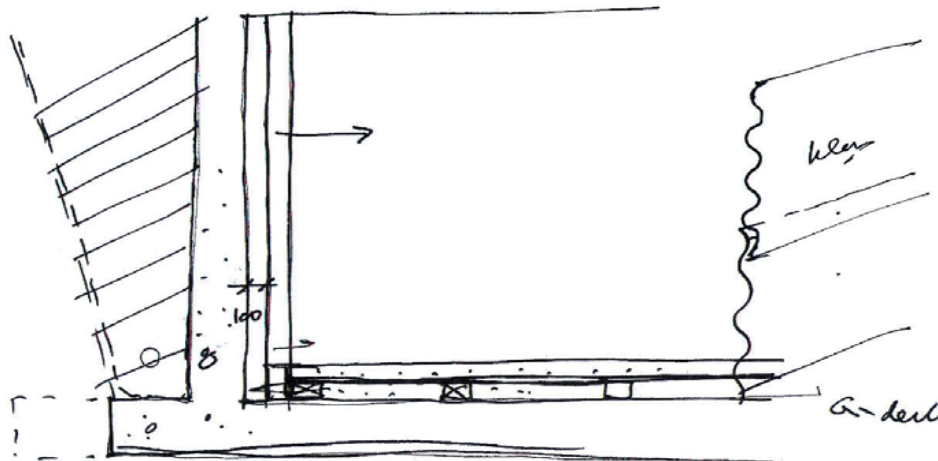
DETAIL 4  
scale 1:50  
IN-SITU STRUCTURAL CONCRETE FOOTING



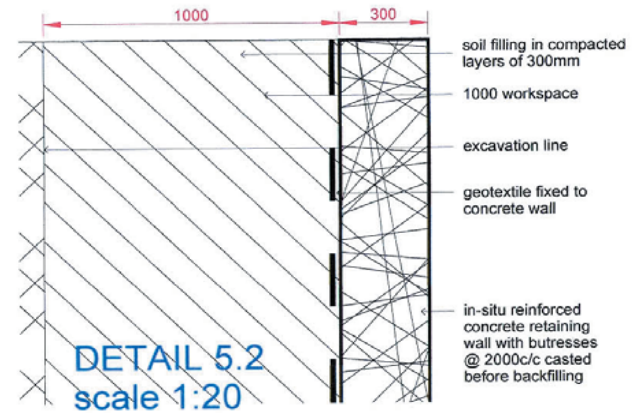
DETAIL 4.2  
scale 1:25  
STRUCTURAL CONCRETE TUNG IN GROOVE



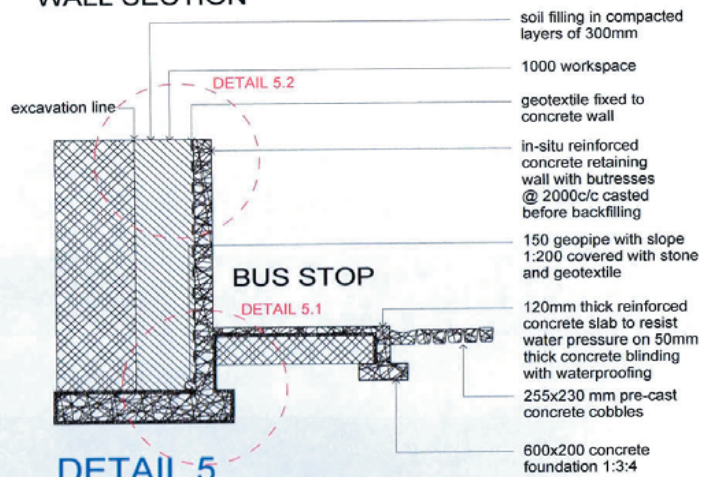
DETAIL 4.1  
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IN-SITU STRUCTURAL CONCRETE FOOTING



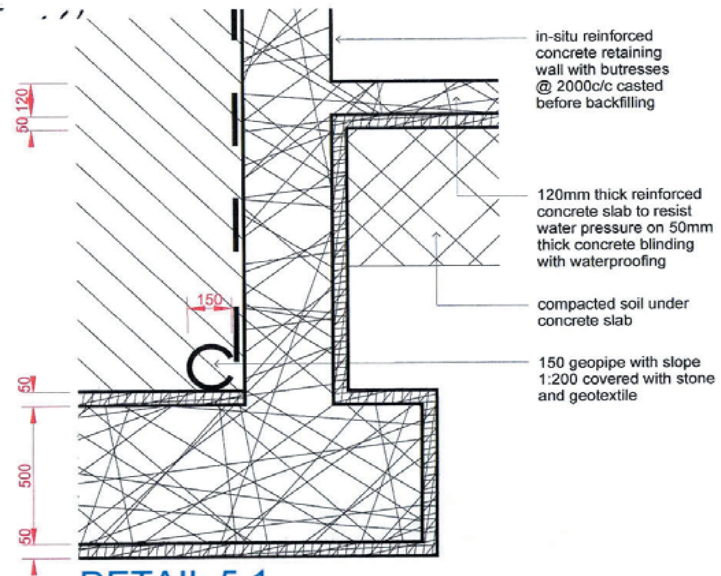
CONCEPTUAL RETAINING WALL SECTION



DETAIL 5.2  
scale 1:20  
WATERPROOFING IN RETAINING WALL



DETAIL 5  
scale 1:100  
STRUCTURAL RETAINING WALL



DETAIL 5.1  
scale 1:20  
GEOTEXTILE AND PIPE







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