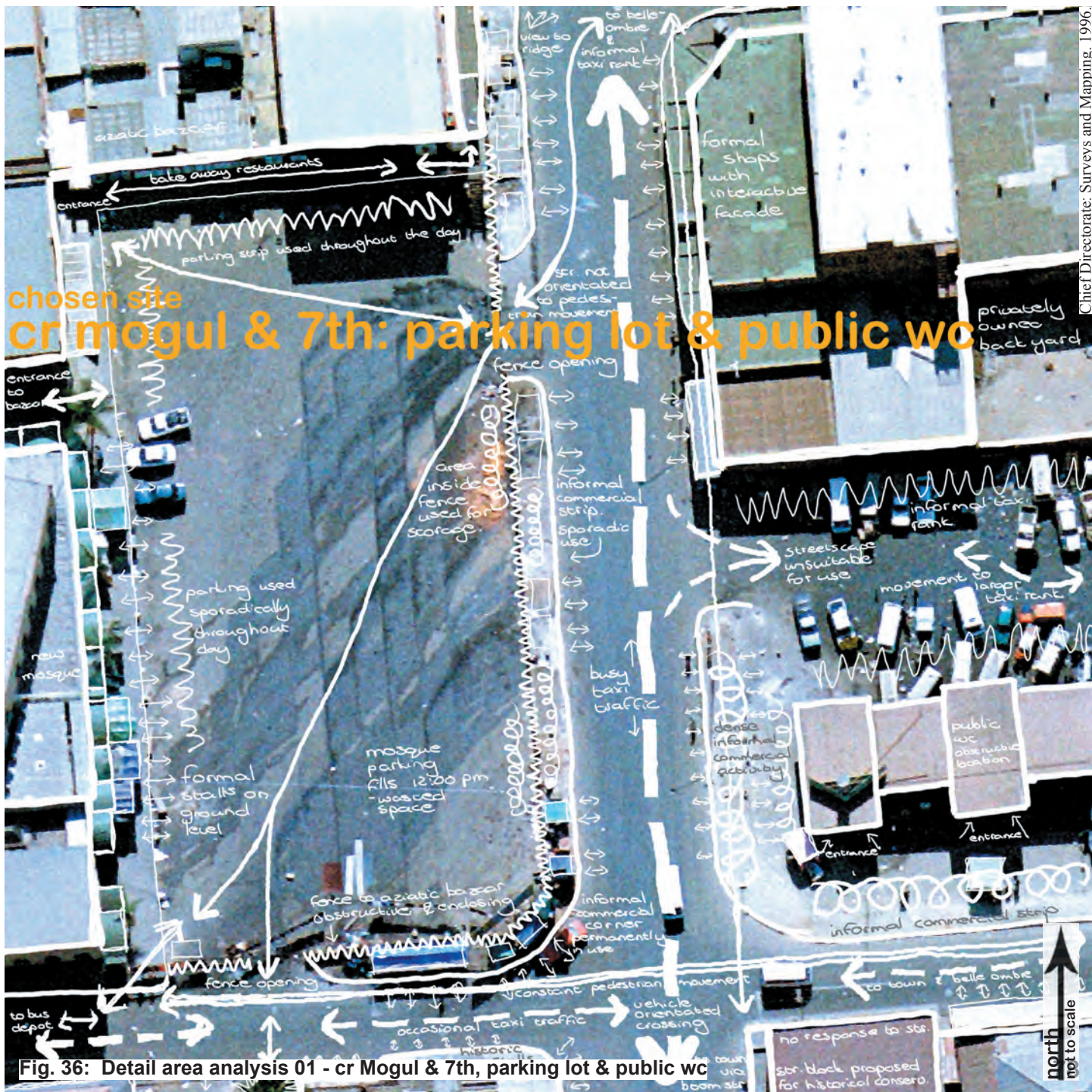






Fig. 35: Detail area analysis - area demarcation



chosen site  
cr mogul & 7th: parking lot & public wc

Fig. 36: Detail area analysis 01 - cr Mogul & 7th, parking lot & public wc



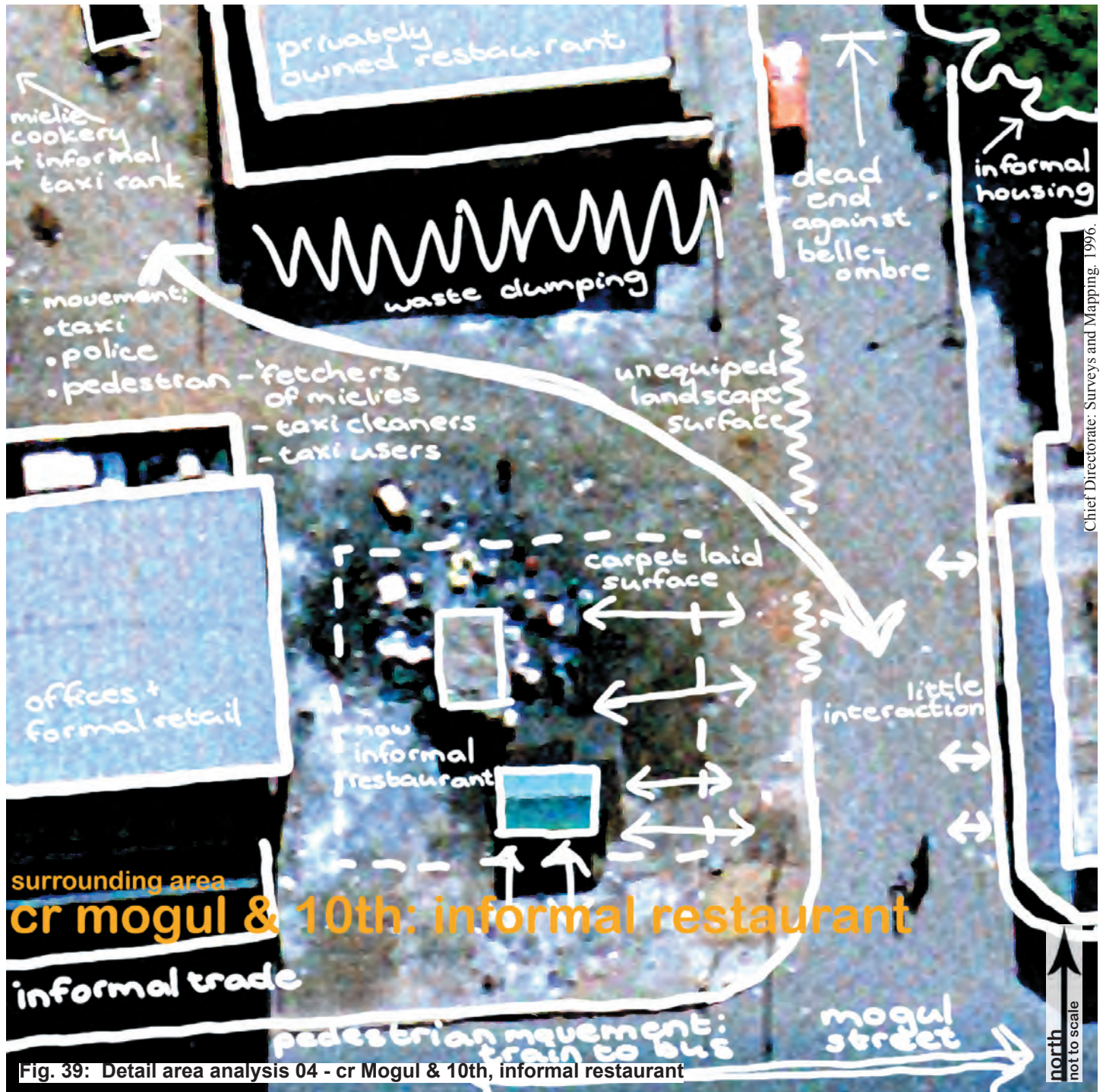
Chief Directorate: Surveys and Mapping, 1996.

Fig. 37: Detail area analysis 02 - cr Mogul & 7th, public wc



Chief Directorate: Surveys and Mapping, 1996.

Fig. 38: Detail area analysis 03 - termination Barber str, informal taxi rank



Chief Directorate: Surveys and Mapping, 1996.

Fig. 39: Detail area analysis 04 - cr Mogul & 10th, informal restaurant



Fig. 40: Detail area analysis 05 - cr Bazaar & 7th, station entrance



Fig. 41: Detail area analysis 06 - Fifth avenue



Fig. 42: Detail area analysis 07 - Sixth street





Fig. 43: Detail area analysis 08 - Seventh street

Chief Directorate: Surveys and Mapping, 1996



Fig. 44: Detail area analysis 09 - Eighth street

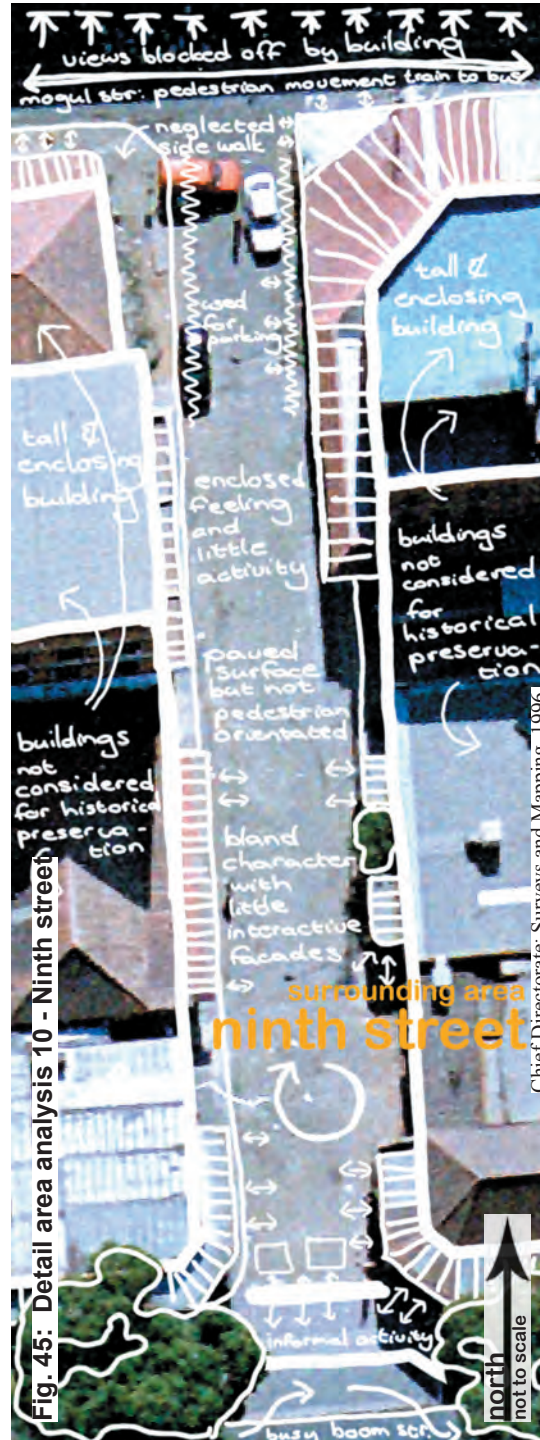


Fig. 45: Detail area analysis 10 - Ninth street

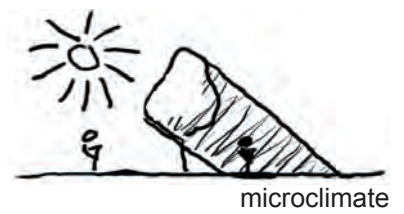


Fig. 46: Physical analysis

## PHYSICAL ANALYSIS

As this study is working within the Integrated Urban Design Framework for Marabastad it mostly derives its information from the analysis that was done on the natural environment as part of the framework<sup>99</sup>.

### Topography

**LOCATION:** The site is situated on the southern side of the Apies river which runs below the southern slope of the east-west orientated Witwatersberg (Daspoort ridge).

**SLOPE:** gentle – 1:36 from south-west to north-east.

**HEIGHT:** 1300m above sea level.

### Geology

**ORIGIN:** The area is of Precambrian origin and forms part of the Transvaal system – more specifically the Daspoort stage of the Pretoria series.

**COMPOSITION:** Mostly localised Andesitic lava with interbedded agglomerate, shale and tuff.

**STABILITY:** Variable conditions from shallow lying solid rock to potentially expansive residual andesite soils. Residual soils can be found in the lower lying parts although they have mostly been washed away by the annual alluvial score.

### Surrounding watercourses

**STEENHOVEN SPRUIT:** Running from south to north it is a small tributary to the Apies river that today is nothing but a concrete stormwater canal with badly neglected open pieces of land on the side. At Belle Ombre station the water is routed through an underground stormwater culvert that starts at Boom street and extends northwards for 300m.

**APIES RIVER:** Coming through the CBD, this river passes on the northern side of Marabastad. Running in an east-west direction below the southern slope of the Witwatersberg, it is separated from the study area by the Belle Ombre railway loop and the municipal sewer works.

<sup>99</sup> Meyer Pienaar Tayob. *op.cit.* chap. 3.4.

## **Climate**

**TEMPERATURE:** Generally high throughout the year. During summer afternoons, the high temperature and relatively high local humidity levels combine to cause high levels of discomfort.

**PRECIPITATION:** Summer rainfall reaches an average of 741mm per year – heavy downpours and tunderstorms can bring up to 100mm of rain per hour. Hail storms are common and occasionally severe.

**CLOUD COVER:** 33% annually; 13% in July and 54% in December.

**HUMIDITY:** Ranging from 57% at 8:00am to 29% at 14:00pm in September and from 75% at 8:00am to 48 at 14:00pm in March.

**WIND:** Calm prevailing winds turn from north-east in the morning to north-west in the afternoons. Cold spells bring winds from the south during winter and in summer thunderstorms can cause turbulent wind patterns.

## **Microclimate**

**INFLUENCES:** The close proximity of the Apies river valley as well as the barrier shaped by the east-west running Witwatersberg have changing effects on the local climatic conditions.

**VEGETATION:** No existing vegetation on the chosen site with only a few trees in the area of the historic stalls and two palms around the periphery of the site.

**TEMPERATURES:** Lower average winter temperatures as the site is closer to the river.

**FROST:** Locally 89 days per year (60 days at the weather bureau higher up in Pretoria)

**DAY-NIGHT TEMPERATURES:** Higher differences between day and night temperatures in the lower parts of Marabastad.

**WIND:** The Witwatersberg barrier lessens the effect of the north-eastern morning winds while the north-western afternoon winds are funnelled through the Poort in the ridge.

**POLLUTION:** Together with the topographical barrier shaped by the ridge, the downward slope of Marabastad towards the river valley has a negative effect on the dispersion of air pollution. On still mornings when the north-

easterly winds are blocked off, the polluted air that is trapped by night inversion drifts down and builds up from the area near the sewage works towards the site.

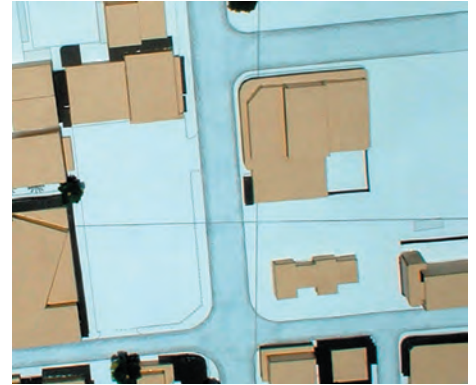
SUN-SHADE PATTERNS (Fig. 47): Although the winter sun casts a southward shadow from the 2-3 storey high buildings, most parts of the chosen site remains exposed to the sun until 16:00pm during this time of the year. During the summer months the early morning and late afternoon shadow patterns shift in a slightly northern direction. However, at 12:00pm on a summer afternoon, the sun angle is very close to 90 degrees and as such very thin strips of shadows are cast by the buildings. It is only at 18:00pm the sun is low enough to cast a shadow over the largest part of the site.



summer equinox 08:00am



summer equinox 10:00am



summer equinox 12:00pm



winter equinox 08:00am



winter equinox 10:00am



winter equinox 12:00pm

**Fig. 47: Sun-shade analysis**



summer equinox 14:00pm



summer equinox 16:00pm



summer equinox 18:00pm



winter equinox 14:00pm



winter equinox 16:00pm

