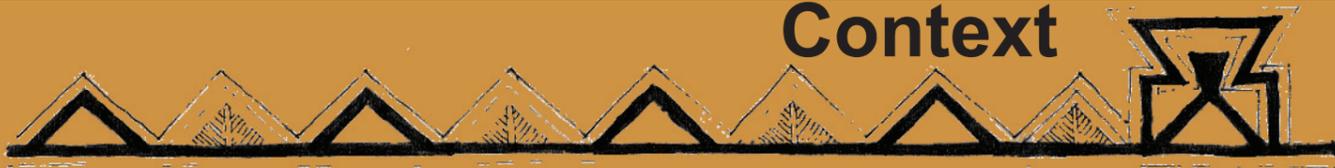


Chapter 2

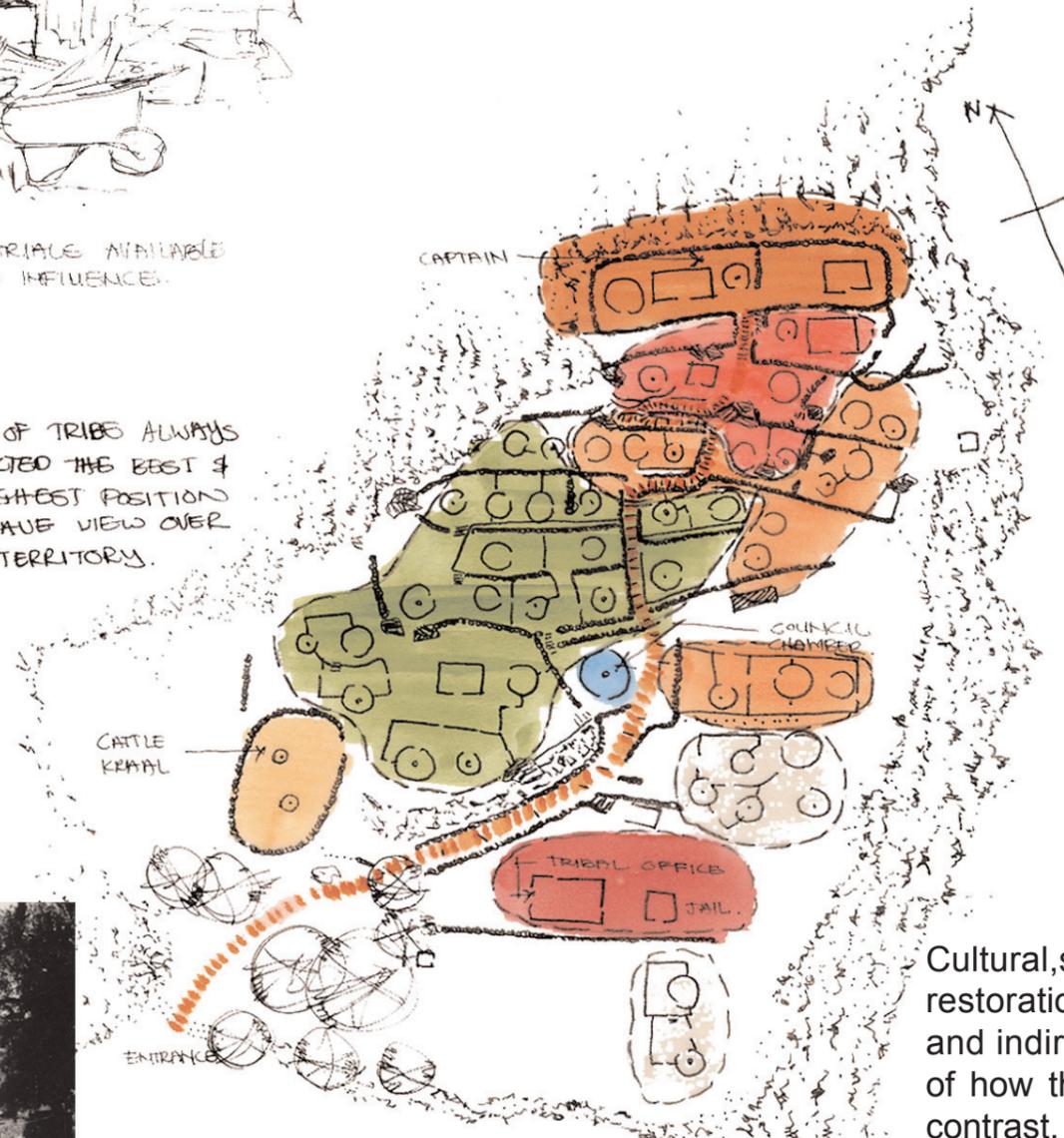
Context



INFORMEL SETTLEMENT.

NEW MATERIALS AVAILABLE & WESTERN INFLUENCE.

• HEAD OF TRIBE ALWAYS PROTECTED THE BEST & HIGHEST POSITION TO HAVE VIEW OVER HIS TERRITORY.



CAPTAIN KHAKHU. 1974.

*“Vernacular, anonymous, spontaneous, indigenous, rural.....
 Vernacular architecture does not go through fashion cycles.
 It is nearly immutable, indeed, unimprovable, and it serves its purpose to perfection.
 As a rule, the origin of indigenous building forms and construction methods is lost in the distant past.”*
 (Bernard Rudofsky, 1964)



Cultural, social, and economic history is needed in the establishment or restoration of self-esteem and identity. Acknowledgement of the direct and indirect influences on a specific setting is providing the parameters of how the “place” was formed and its futuristic potential. Harmony or contrast, forms the backbone of the response to the environment and an analysis of all influences will be the directive for its potential. The successful integration of these elements will contribute to the establishment of a more inclusive society based on common civic values.

2.1 Limpopo Province

Limpopo, 'home of peace', is situated at the north-eastern corner of South Africa. It shares international borders with Botswana in the north-west, Zimbabwe in the north and Mozambique in the east. Limpopo covers nearly 120 000 km² or 10% of South Africa, constituting an area only just smaller than Switzerland and Austria combined (Fig. 2.1.1).

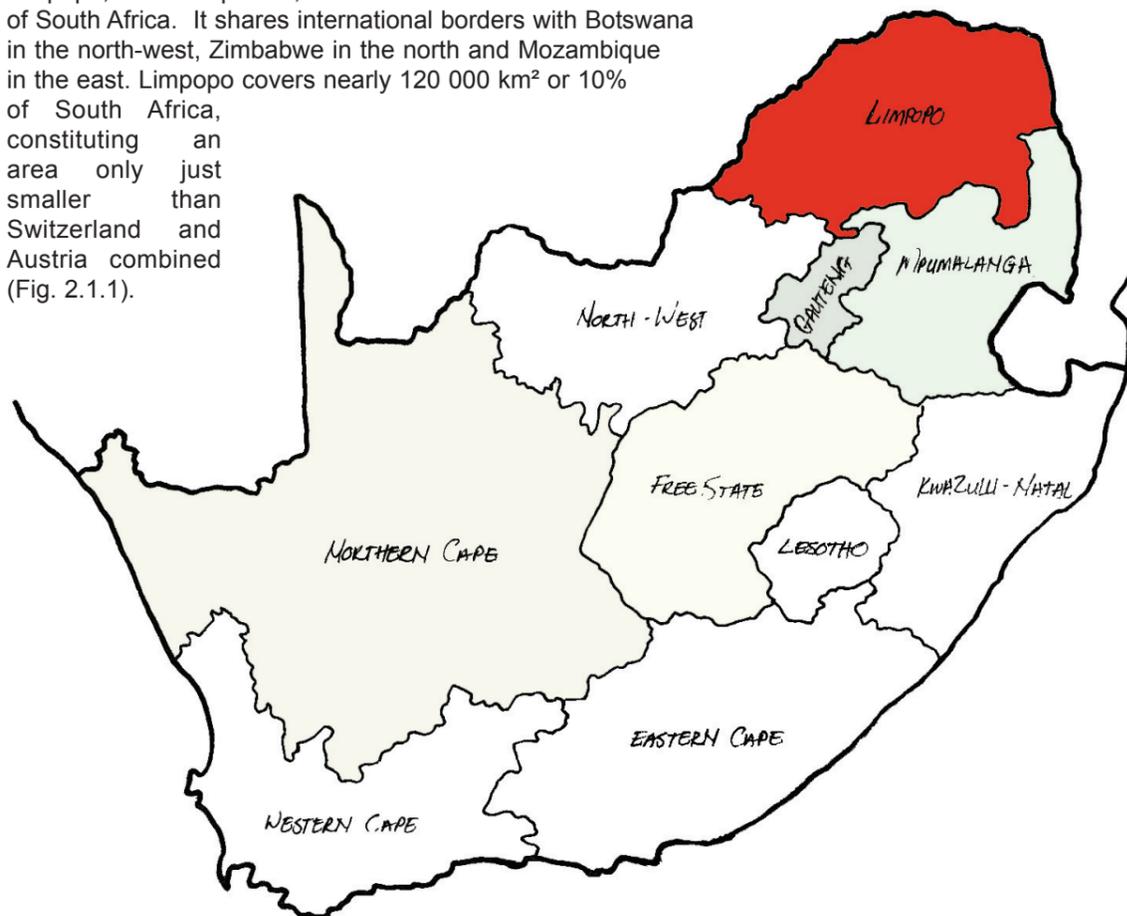


Fig. 2.1.1 Map of South Africa

Limpopo can be divided into four geographical regions. Capricorn region, which is derived from the tropic of Capricorn (which crosses this area) is set in the south. Waterberg Bushveld region, with great natural beauty of



Fig. 2.1.2 Geographical Regions

bushveld savannah and a rich wildlife heritage, situated in the west. Valley of the Olifants region with its scenic lush vegetated mountains and valleys in the east. Soutpansberg region which represents Limpopo, is situated in the most northern part of the province (Fig. 2.1.2).

Limpopo is the fastest growing province in the country, twice the national GDP, the unemployment rate of 36.1% is the highest in South Africa, whereas, households under the poverty line of R800.00 per month, are 36.4%, which is worse than the national rate. The economy of Limpopo still relies on sectors based on natural resources, mainly mining and agriculture, the latter growing rapidly. Trade has a visible share in the provincial economy. Tourism is the high growth industry.

2.2 Soutpansberg Region

2.2.1 Location

The Soutpansberg region is named after the mountain range that stretches for 130km from west to east (fig. 2.2). The region has a variety of natural, geological, archaeological and cultural systems with a rich history dating back centuries when the San roamed the veld. The height above sea-level ranges from 700m to 1700m with the highest point of the Soutpansberg mountain range being 1780m above sea-level. These variations in the landscape gives this region its unique character and mysticism.

2.2.2. Climate

The Soutpansberg area is a summer rainfall area with temperatures averaging 30°C in summer and

20-25°C in winter. The northern region's summer temperatures can reach 40°C. This contributed to the establishment of early settlements in the southern parts where a higher rainfall during summer months occur (Fig. 2.2.1). The main wind direction is from the northwest. These winds are predominantly hot and dry (Fig. 2.2.2). Usage of land topography against climatic factors are evident in early Venda settlements in the region. This topographical influence will be discussed later in the chapter.



Fig. 2.2.1 Southern slopes of Soutpansberg mountains

Average daily minimum temperatures in degree Celsius

(South African Weather Bureau, 2005)

Year	2000	2001	2002	2003	2004
Summer (Oct - March)	16.3	16.6	15.9	17.0	17.5
Winter (Apr - Sept)	7.5	7.9	8.3	8.6	8.3

Average daily maximum temperatures in degree Celsius

(South African Weather Bureau, 2005)

Year	2000	2001	2002	2003	2004
Summer (Oct - March)	28.6	28.7	30.8	31.2	30.3
Winter (Apr - Sept)	24.4	25.5	25.9	25.7	25.1

Average monthly rainfall in mm

(South African Weather Bureau, 2005)

Year	Summer (Oct - March)	Winter (Apr - Sept)
1991	199.0	15.5
1992	116.3	19.6
1993	165.3	26.8
1994	102.0	10.2
1995	148.2	45.8
1996	285.6	104.3
1997	161.2	39.0
1998	191.6	40.9
1999	160.2	42.3
2000	477.7	58.7
2001	228.4	49.6
2002	115.7	23.0
2003	106.0	28.0
2004	188.4	33.5

Average daily Wind speed in m/s

(South African Weather Bureau, 2005)

Year	2000	2001	2002	2003	2004
	0.82	1.00	1.12	1.29	0.9



Fig. 2.2.2 Northern slopes of mountain range

2.2.3 Geology

The Soutpansberg sedimentary basin was formed about 1800 million years ago as an east west trending asymmetrical rift. This belt formed between two major crustal blocks, the Kaapvaal in the south and Limpopo belt in the north. Deposition started with basaltic lavas and was followed by sedimentary rocks, including red sandstones that derived their colour from iron oxides. The area was then block-faulted and uniformly tilted to the north. The landscapes as we see it today was formed during the last ± 60 million years through erosion (Fig. 2.2.3). These rocks are not well endowed with economic minerals, and only copper mineralization occurs which is sub-economic. Magnesite is produced from weathered ultramafic rocks. A number of thermal springs occur along major faults. These mountains receive high rainfall and recharge the regional groundwater especially in the northern region.



Fig. 2.2.3 Current visible geology



Fig. 2.2.4 Local produce

2.2.4 Economy

The region is well known for its agricultural diversity that ranges from vegetables, tropical and sub-tropical fruits and nuts, to cattle and game farming (Fig 2.2.4). The area, specifically, the Makhado district, are linked to the Maputo Development Corridor through the Phalaborwa Spatial Development Initiative. A network of road and rail corridors connecting Makhado (Louis Trichardt) to the major seaports will open up trade and investment. Tourism has grown significantly in this area, especially cultural tourism. Cultural experiences are becoming one of the highest priorities for tourists visiting this area because of its rich cultural heritage (Fig. 2.2.5). These economies have shaped the visual perceptions of this region. Traditional Venda villages are scattered through the mountainous areas, living with nature and the traditional farm settlements get the most out of



Fig. 2.2.5 Stairs at Mapungubwe hill

the small pieces of land.

2.2.5 Demography

A great multitude of diverse beings have moved through this area, enriching the area with history and culture. The first inhabitants being known to modern man were the Early Iron age people around AD350 (van der Waal, 1977). Through the following years up to 1700, a variety of tribes infiltrated this area and made a living off the land.

The current Venda tribe established themselves in this area around 1730 (Cameron, 1986). The Venda's only came into contact with western civilization in May 1836 when Louis Trichardt arrived in the Soutpansberg area. Louis Trichardt was the leader of the first group of emigrants from the Cape Colony into the then unknown interior (Theal, 1904). From 1836, western civilizations have been coming to this fair and fertile land. Its deep rich soil, abundant water, and lands covered with thick carpets of the most nutritious grasses, which are ideal for grazing. During this era, many hunters and traders started infiltrating this area through the south and southwest. The first 'white' settlement, Zoutpansberg, was established in 1848 and changed to Schoemansdal (Fig. 2.2.6) after 1855. After a war with the Venda's under Chief Makhado, the small town of Schoemansdal was evacuated. Chief Makhado was living between Schoemansdal and Louis Trichardt. He was succeeded by Chief Mphephu who was driven away by the Transvaal Republican forces in 1898 (van Warmelo, 1940). In 1898 the town Louis Trichardt (today Makhado) was established and seen as a major trading post with the local tribes and led to the development of this area in terms of agriculture and game hunting.

2.3 Makhado Municipality

Makhado (Fig. 2.3.1) is part of the Vhembe District which also includes Musina, Mutale and Thulamela. This area is said to be 'the land of the legend' because of its rich indigenous background. It covers 21 000 km² of the Limpopo Province. Indigenous African cultures thrive in this district.

Louis Trichardt, the urban centre of Makhado Municipality, consists of 265 informal towns and the formal towns of Waterval, Vleyfontein, Vuwani, Dzanani (formerly Makhado) and Tshikota, with vast rural areas in between. It is located

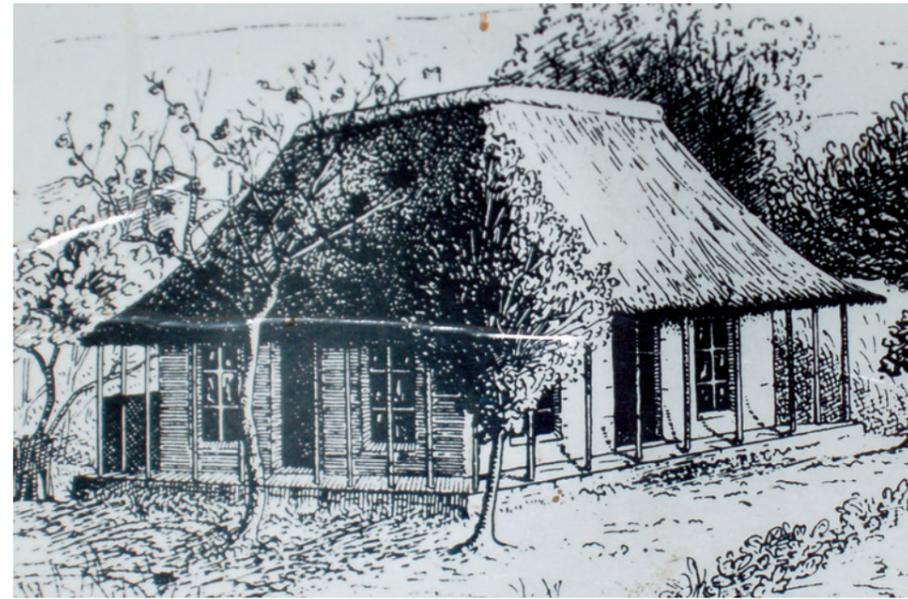


Fig. 2.2.6 The Schoemansdal Pasonage by Paul Mare

on the main route (N1) between South Africa and other African states (Zimbabwe, Botswana and Mozambique), 114 km south of Beit Bridge border post.

The town was originally named after the leader of the white emigrants from the Cape Colony in 1836, Louis Trichardt. After the democratic elections in 1994 the town was renamed Makhado. Chief Makhado was the one Venda leader, living in the area, that gave the then 1867 Transvaal Republican forces a lot of resistance to put the area under Transvaal Government control.

Makhado can be considered the gateway to African countries to the north. Previously this town was used as a drive through or one night stop-over town. The economic value of the rich indigenous cultures in the surrounding areas opened the possibilities for creating a product that makes this area more marketable as a destination (Fig. 2.3.2). Creation of cultural experiences is a product with an added scenic component which will enhance the attractiveness for especially the tourism market (Fig. 2.3.3).

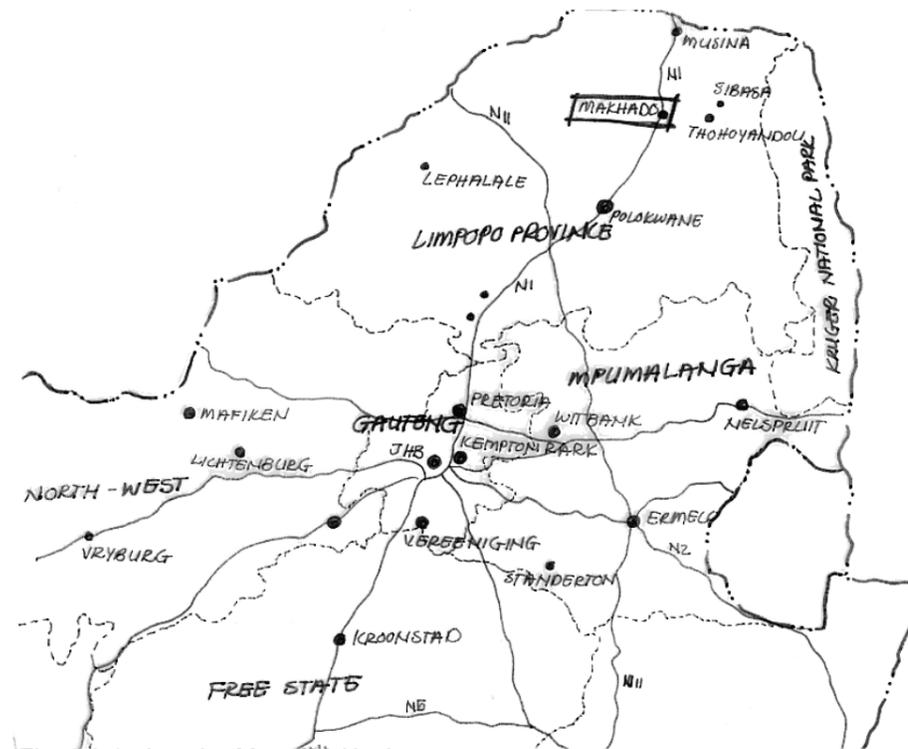


Fig. 2.3.1 Location Map of Makhado



Fig. 2.3.2 Local art gallery in Elim

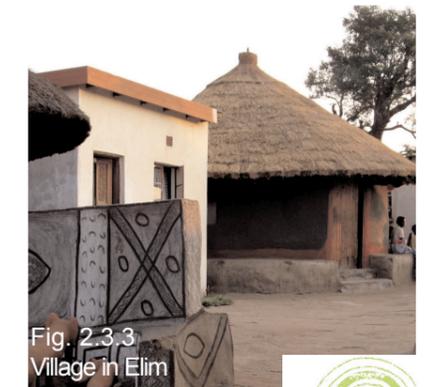


Fig. 2.3.3 Village in Elim

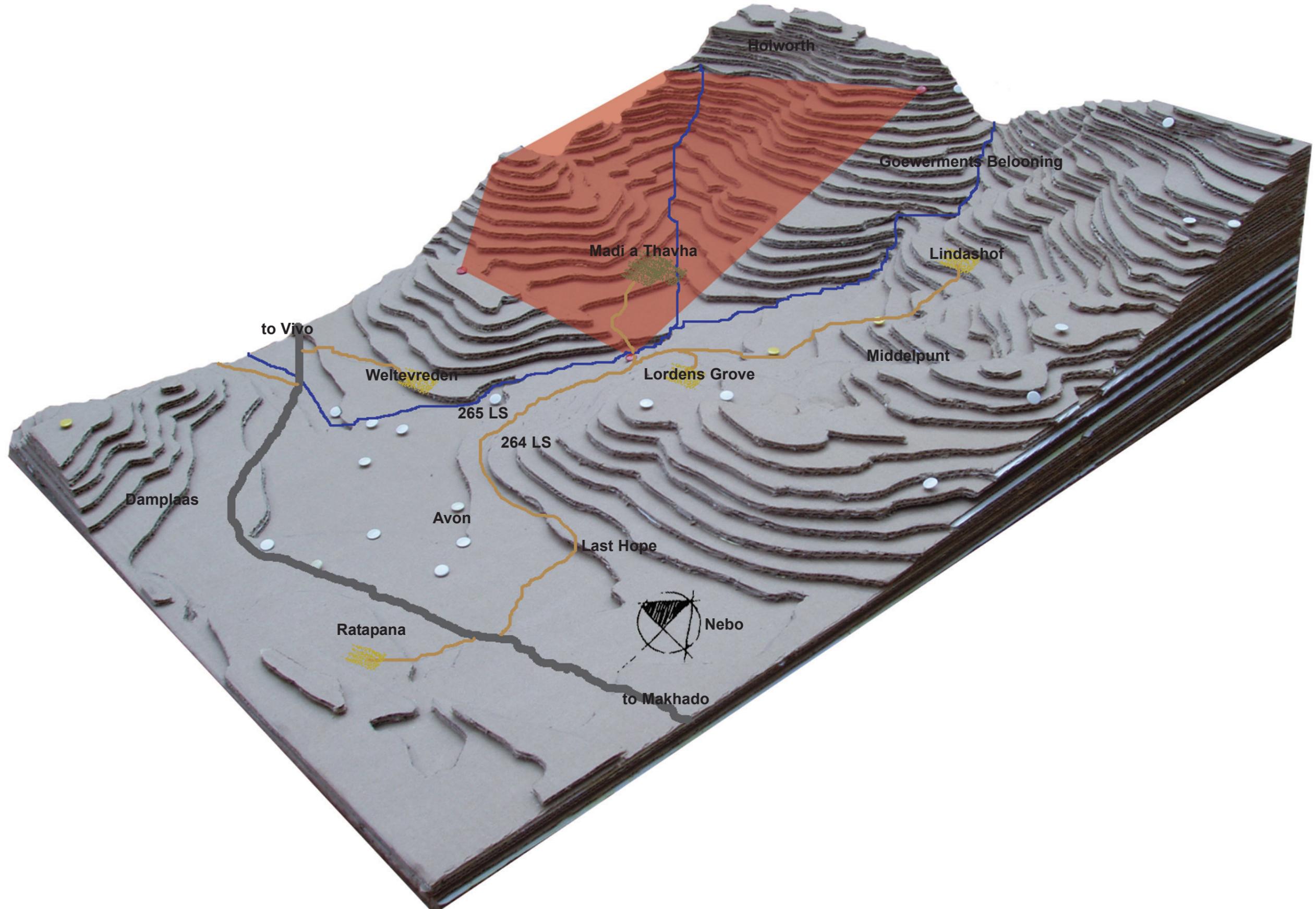


Fig. 2.4.1.1 Contour model of study area



Fig. 2.4.1.2 Location of Madi a Thavha Mountain Farm

2.4 Madi a Thavha Mountain Farm

2.4.1 Location

The farm covers an area of 350 hectares and is located in the Limpopo Province, 8 km west of Makhado on the R522 main road to Vivo. The farm is situated on the southern slopes of the Soutpansberg Mountain range (Fig. 2.4.1.2). Madi a Thavha is in close proximity to essential necessities. The existing permanent workforce reside on the farm but all have other houses off site where the rest of their families stay. These houses are located in the informal settlement of Tshiozwi (10km southeast of the farm) from where temporary staff, needed during harvesting are drawn. Transport for these people is provided by the farm owner. Makhado provides schools, churches, general stores and all other resources normally associated with urban developments. An airport is situated on the southwestern outskirts of Makhado.

2.4.2 Historical background

The name of the farm has changed from 'Samenkomst' through 'Nellies Gardens' to the current 'Madi a Thavha' Mountain Farm. This reflects the historical progressiveness that this land has gone through. Water is the most important component of existence on this land and this emphasis is directly related to the name: "water from the mountain" ('Madi a Thavha').

The current owner, Marcelle Bosch, nor any of the previous owners have attached any historical value to the farm. The first white farmer claiming this piece of land as his farm was in 1950. At that stage there were Venda people staying on a ridge located above the existing farmhouse (Fig. 2.4.2.1). This farmer forcefully removed them and the ruins of this Venda settlement is still visible today. This settlement belonged to Chief Mphephu's kraal which was situated further north of the existing farm boundaries.

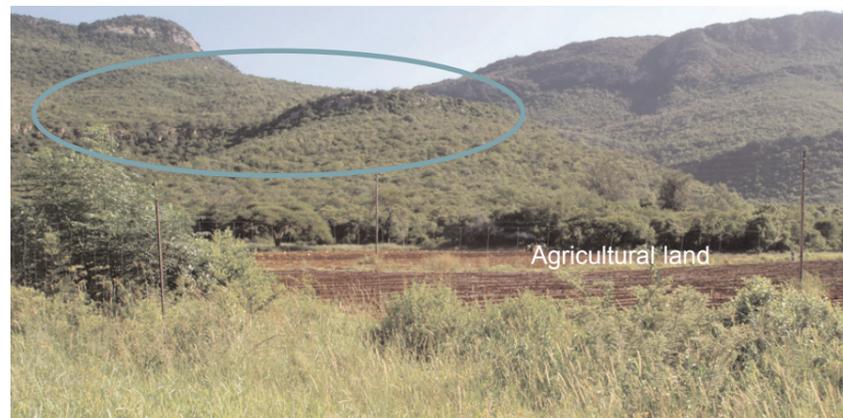


Fig. 2.4.2.1 Ridge where Venda village was located

2.4.3 Economy

The farm is currently functioning as an agricultural entity. The agricultural activities include the cultivation of tomatoes, sweet-corn, butternut, strawberries, cucumbers and green beans (Fig. 2.4.3.1). These products are supplied to the local market. A small portion can be described as subsistence farming but is almost omissible. Subsistence farming needs to play a bigger role in the development in order to become a more sustainable



Fig. 2.4.3.1 Packaging of sweetcorn

entity. Individual vegetable gardens, fruit orchards and poultry will add the much needed elements to develop subsistence farming to its highest potential.

2.4.4 Topography

The agricultural land is situated in a valley basin which was formed due to the geological activities over thousands of years. The valley basin is 800m above sea level, the landscape rises to 1300m above sea level forming the perimeter of the valley (Fig. 2.4.1.1). This basin creates a pocket for a private one on one interface with the environment. The valley basin opens to the south eastern corner, also the entrance to the farm, and gives the connection between basin and the cosmos.

2.4.4 Climate

The farm is located in a "water rich" area of the province. The average annual rainfall is higher on the southern slopes than on the northern slopes of the mountain range. The rainfall statistics given in paragraph 2.2.2, are however not a true reflection of the rainfall on the farm. The Levubu Weather station is sited east of Makhado in a much wetter area. Through analysis of incomplete data obtained from farm owners, an average of 40% will be deducted from the annual rainfall data received from the Levubu Weather station. The decrease in annual rainfall is evidence of the severe drought that occurred after the 2000 floods. The rain is mostly accompanied by heavy thunderstorms; hale occurs once or twice during the rainy season, which is from September to February (South African Weather Bureau).

Water sources on the farm consist of fountains and boreholes. These sources are sustainable because of the high water table inside the Soutpansberg mountains. No water can be pumped from the Sandriver due to servitude on the water. In the development, all rainwater will be harvested and used for watering of vegetable gardens, flushing of toilets and other non-human consumption.

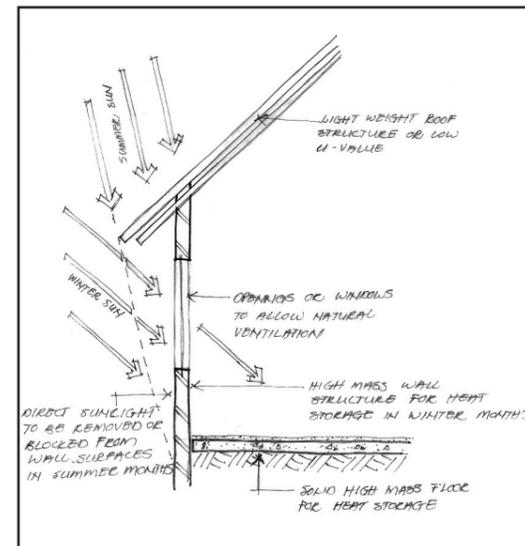


Fig. 2.4.4.1 Thermal inertia and flywheel effect

The high summer temperatures causes a build-up of heat in enclosed structures. Ventilation of structures are therefore crucial. Cold nights during the winter months are minimal. The cold evenings can be overcome by making use of passive solar design principles. Care must be taken concerning the fly-wheel effect in solid structures so that no heat is radiated to the inside of the building at the wrong time of the day (Fig. 2.4.4.1).

Wind speeds are low with a maximum average of 1.5 m/s. This is due to the topography of the area. The main wind direction is from the northwest but because of the enclosed basin, the wind tends to swirl around; similar to what can happen in big sport stadiums.

2.4.5 Sun angles

Autumn Equinox (21 March)	Spring Equinox (23 September)
Sunrise: 06:03am	Sunrise: 05:47am
Sunset: 06:18pm	Sunset: 06:04pm

Time	Altitude angle	Azimuth angle	Altitude angle	Azimuth angle
07:00am	11°	95°	15°	96°
08:00am	25°	102°	28°	103°
09:00am	38°	110°	41°	112°
10:00am	51°	122°	54°	125°
11:00am	61°	141°	63°	147°
12:00pm	67°	173°	67°	-178°

01:00pm	64°	-151°	62°	-144°
02:00pm	55°	-128°	52°	-123°
03:00pm	43°	-114°	40°	-110°
04:00pm	30°	-105°	27°	-102°
05:00pm	16°	-98°	13°	-95°
06:00pm	2°	-92°	2°	-89°

Winter Solstice (21 June)
 Sunrises: 06:39am
 Sunsets: 05:32pm

Summer Solstice (22 December)
 Sunrise: 05:11am
 Sunset: 06:54pm

Time	Altitude angle	Azimuth angle	Altitude angle	Azimuth angle
07:00am	3°	118°	21°	73°
08:00am	14°	124°	35°	77°
09:00am	25°	133°	48°	80°
10:00am	34°	145°	62°	82°
11:00am	41°	160°	76°	83°
12:00pm	44°	178°	89°	-84°
01:00pm	42°	-163°	77°	-85°
02:00pm	36°	-147°	63°	-83°
03:00pm	27°	-135°	49°	-80°
04:00pm	17°	-125°	36°	-77°
05:00pm	5°	-118°	23°	-73°
06:00pm	-1°	-112°	10°	-68°

Occupant comfort are mainly influenced by temperature. South Africa has an abundance of sunlight from a sustainable heat source, the sun.

Occupant comfort can be achieved more easily when the correct methods and techniques are used to manipulate the sun's rays in accordance with the structures we design.

The topography of the area will have a major influence on the sunrise and sunset times, thus adjusting the sun hour period (Fig. 2.4.1.1). This can have a big influence on solar installation which depend heavily on the number of hours daily these panels are exposed to direct sunlight. Passive solar design is also influenced negatively specifically in terms of natural heating of internal spaces. The less direct sunlight on a mass element, the less heat it can store for heating-up the required volumes. The sunrise and sunset angles will also give an indication of the protection needed on the eastern and western facades of buildings. The hot afternoon summer sun normally causes unwanted heating of internal spaces. Care must be taken to block this heat. According to Fig. 2.4.5.1, the sunset in mid winter is at 04:05pm, creating a problem as winter sun can be utilised to heat-up internal spaces. Placement of buildings on site are crucial in order to utilise the shorter winter sun hours to their highest potential.

Sunrise and Sunset Indicators

Date:	General Sunrise	General Sunset	Actual Sunrise	Actual Sunset	Sunlight loss per day
21 March	06:03am	06:18pm	06:42am	05:00pm	02h21min.
21 June	06:39am	05:32pm	07:25am	04:05pm	02h13min.
23 September	05:47am	06:04pm	06:20am	05:30pm	01h04min.
21 December	05:11am	06:54pm	05:50am	06:20pm	01h13min.

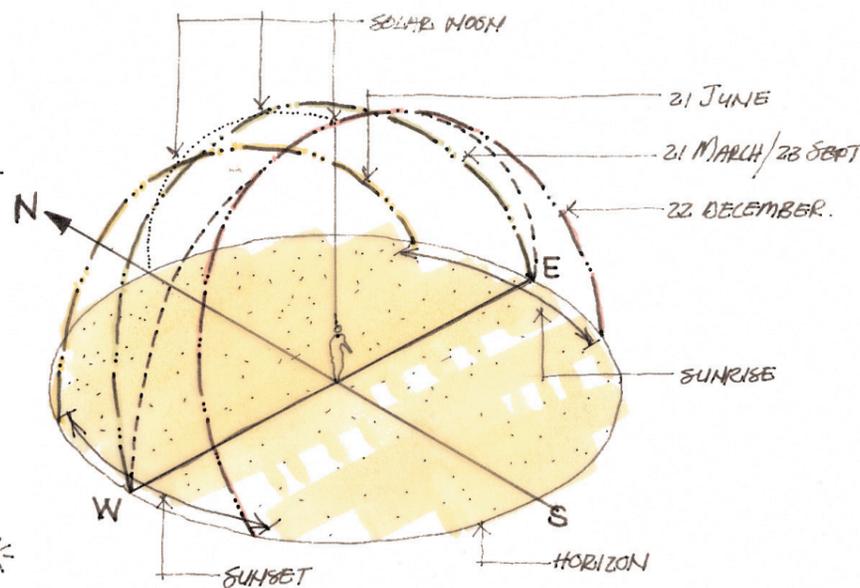
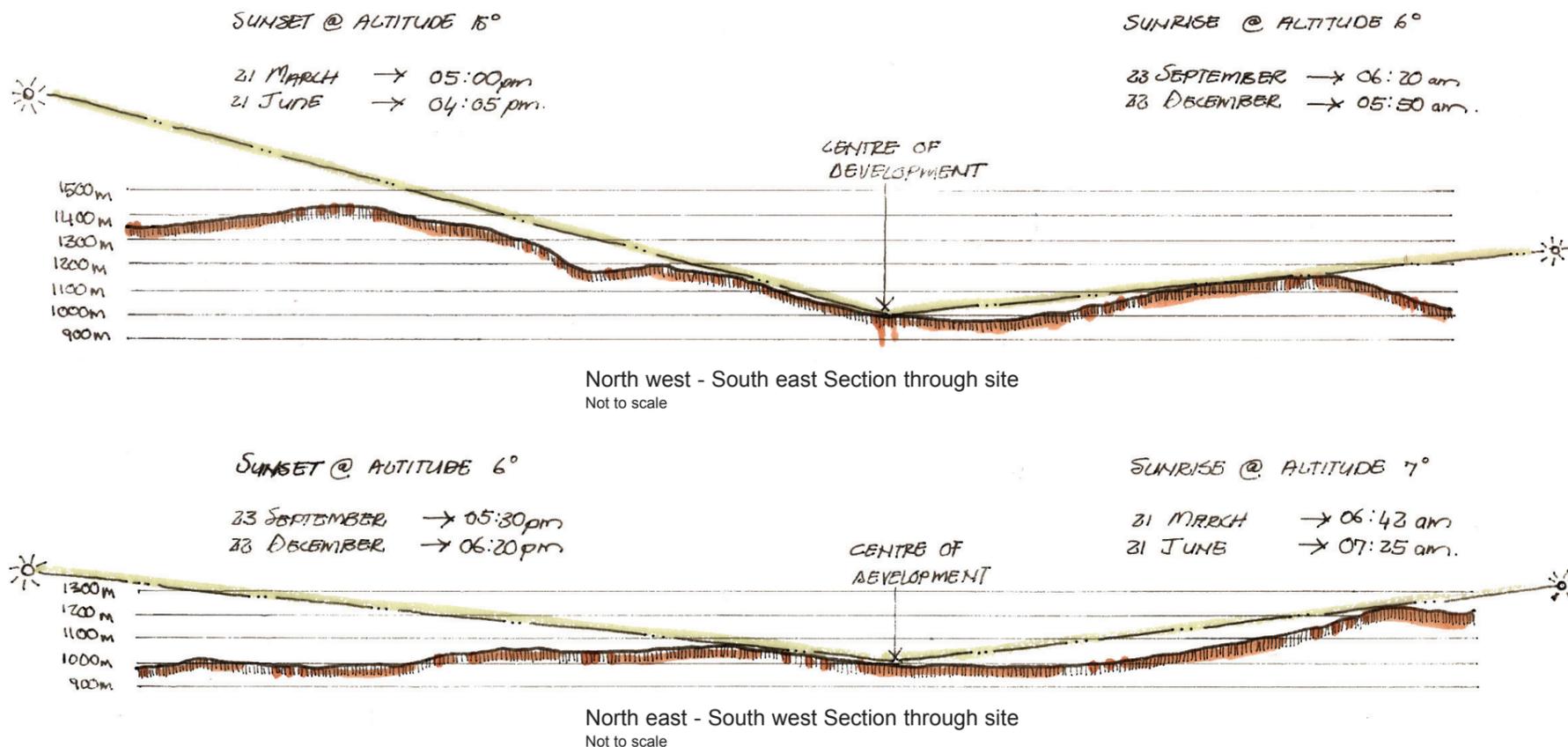
2.4.5 Fauna and Flora

An endless expanse of undulating indigenous bush characterises the landscape. Ten percent of the plants occurring in the Soutpansberg can be considered succulents. A succulent is a plant which has the ability to store water in one or more of its morphological components. The conditions that contributed to their evolution had to be related to periods when water were scarce. This is an indication that the Soutpansberg has gone through drought periods that led to the isolation of biological entities. Eight of the 33 succulents found in this area can be described as trees growing taller than 2m. Approximately 58% of all endemic species occur within the mist belt region and no fewer than 30% are restricted to this region. During drought periods, most of the high altitude mountain flora survives on the mist. Not much is known about mist and its interaction with the environment.

The abundance of vegetation must be handled with care so that their environment is not altered. Screening of buildings against the sun, view of hikers, tourist views, and maintenance factors can be done using the available natural vegetation. The vegetation can also be used to filter air going into buildings, and creation of private, semi-private and public spaces.

Approximately 8% of the farm is being cultivated. These activities have caused the invasion of alien plants. Bad environmental management by previous farm owners contributed to this invasion. All alien plant species will be removed in the new development.

Historically this area was roaming with game. The only wildlife still visible on the farm are baboons, one old leopard and a couple of bird species. Re-introducing game to the area will assist in the creation of a sense of place and destination for the farm development.



Sun's apparent paths through the sky during different seasons for latitude 23° south

Fig. 2.4.5.1 Sunrise and Sunset schedule



Fig. 2.4.6.1.1.1 Existing farmhouse, southeast elevation



Fig. 2.4.6.1.1.2 Existing packhouse and storeroom

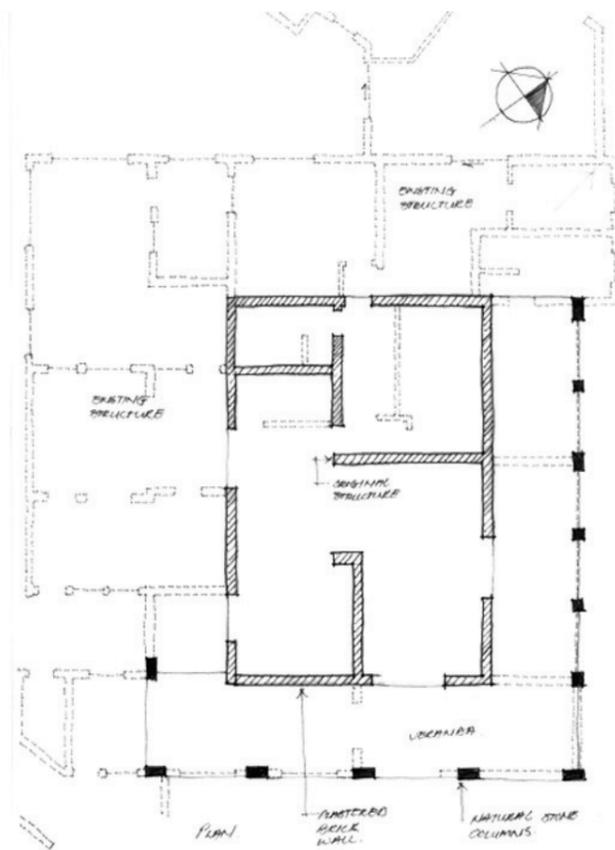
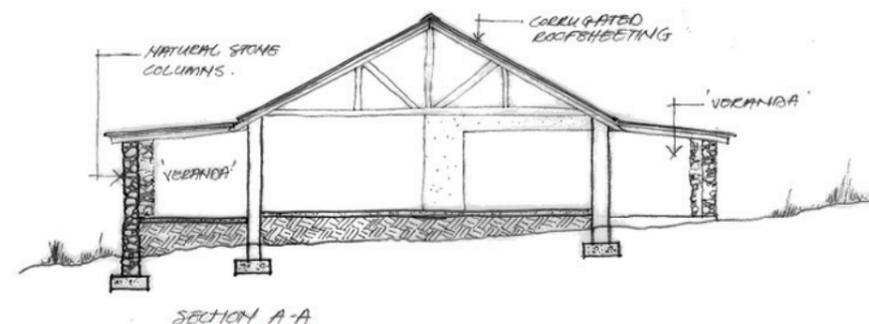
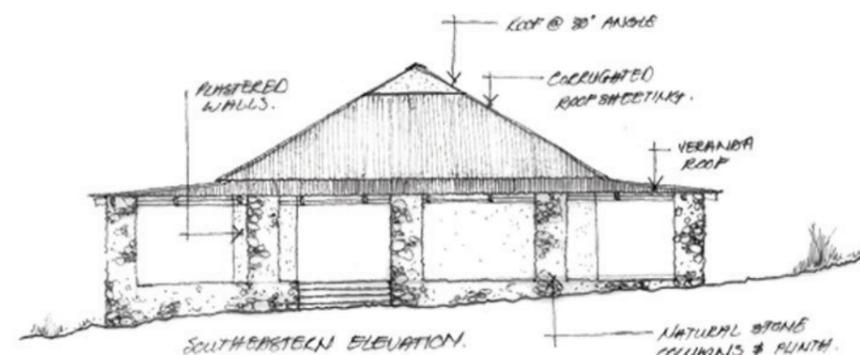


Fig. 2.4.6.1.1.3 Sketch of original style and form of existing farmhouse through assumptions and structure analysis



2.4.6 Building history of area

2.4.6.1 Farm methodology

2.4.6.1.1 Existing structures

The existing farmhouse (Fig 2.4.6.1.1.1) and outbuildings (Fig 2.4.6.1.1.2) reflect the influence of individual intuitiveness and required necessities of each farm owner. The main determinants for the forms of these structures are process generated. They fulfill their practical requirements and nothing more. The ordering and placement of these structures on the site has been driven by rational thought. The farmhouse, taken back to its simplest original form (Fig 2.4.6.1.1.3), signifies the methodology of historical farmhouses as was evident in the historical settlement of Schoemansdal (Fig 2.4.6.1.1.4). The original house (Fig. 2.4.6.1.1.3) made good use of the lean-to roof over the steep area to keep direct sunlight off the main walls. The eastern side of the building is also protected against early morning sun. The solid mass used for the main structure is utilised as a heat storer during the colder winter nights. The afternoon summer sun does not create a problem because of the earlier sunset due to the influence of the topography as illustrated in Fig. 2.4.1.



Fig. 2.4.6.1.1.4 Watercolour presentation of Schoemansdal, A.B. Ellis, 1872

and entrance into the building are lacking. The only way that one is able to find the entrance is in the way in which vegetation and paving has been used. The vegetation does protect the building sufficiently against the climate. This however is immediately perceived as an after thought. The existence of possible roof ventilators indicates that the occupant comfort were taken into account when the original house was designed. These ventilators have however been closed-up for reasons unknown.

Usage of natural stone (Fig 2.4.6.1.1.5) obtainable from the area indicates the tradition of using locally available materials. This tradition can be traced back to the beginning of mankind. An architect who made extensive use of ordinary materials in his designs was Norman Eaton. He used these

materials in innovative ways to make the buildings grow out of the site. He interpreted indigenous African patterns on African screens and smeared lapa floors and walls. He also made extensive use of the rondawel, kraal and grain silos associated with indigenous African cultures. The reinterpretation of these forms gave rise to his individualism concerning regionalism.

The swinery (Fig. 2.4.6.1.1.6) indicates a possible existence of subsistence farming. No thought seems to have been given to the coherence of style between the facilities and even the programme was absent. No sense of place was established as each owner was preoccupied with making the most money in the shortest period of time; no long-term planning was implemented.



Fig. 2.4.6.1.1.5 Quartzite stone from area used as 'veranda' columns



Fig. 2.4.6.1.1.6 North eastern view of existing swinery and storeroom

2.4.6.1.2 Early settlements

In search of a farm methodology that 'fits' the rich historical content, an analysis of the earliest western civilization's settlements will provide a more thorough description of the historical context. Schoemansdal being the first (1855) recognized western settlement in the Limpopo Province presents us with the first forms of structures built by western civilization.

One of the most common temporary dwellings of the "Trekboers" is the 'kapsteilhuis' as seen in Fig 2.4.6.1.2.1. The materials and methods used to construct these buildings were chosen because of the quick and easy assembly/moving of these buildings. The name "Trekboers" indicates that they had a nomadic lifestyle for certain periods of their life. The 'Kapsteilhuis', as its name suggests, consists solely of a thatched roof, carried on a series of about eight couples and reaching right down to the ground. Before the poles are put in position, a trench was dug wherein the thatching and poles were placed. The soil help to prevent sideways pressure generated by the forces in the pole structure. The thatching helped keep the wind and rain outside the building. In its simplest form it has no walls and is in fact nothing more than the roof of a Cape house built at ground level. The connection to the Cape house comes from the fact that these people were all originally stationed for a short period, or actually lived in the cape colony, for a certain time. Eight or more pairs of poles, meeting at the top, are spaced at regular intervals, each pair is joined together by means of a tie-beam, 'hanebalk', all pegged together with wooden pegs and the battens, are secured across these couples to which bundles of reeds and thatch are sewn with "riempies", twine or grass rope (Fig 2.4.6.1.2.2).



Fig. 2.4.6.1.2.1 'Kapsteilhuis'

It was fairly dark inside these structures as the two small window openings, one in the end opposite the entrance and one in the side, were small compared to the internal volume. These window openings could be closed with wooden shutters when necessary. Inside the houses were divided by a simple partition into a bedroom and a living area. Cooking was done outside, either in the open air behind a reed screen or in a smaller cooking hut (Fig



Fig. 2.4.6.1.2.3 Developed 'Kapsteilhuis' with outside cooking area

2.4.6.1.2.3). The relation between the living area and cooking area reflects the social patterns of these people. All the social gatherings were done outside in the open under a tree or other shaded areas. The "Trekboers" made use of what the environment provided them with, to dwell. The floors were of ant-heap, smeared and made to shine by continued applications of linseed oil or ox blood, polished with a smooth stone (Fig 2.4.6.1.2.4). Furnishing of the spaces were kept to a minimum. This was also influenced by the size and space available on their ox-wagons

(Fig. 2.4.6.1.2.5) which was their main transport vehicle. The choice of materials used for construction were influenced by their weight. The whole structure could be taken down and transported on the ox-wagons with them as these were rather light compared to conventional building material. As Trekboers settled in this area more stable and durable structures were sought after. The provision of added security obtained from the



Fig. 2.4.6.1.2.5 Ox-wagon replica

establishment of a settlement gave the farmers the opportunity to build larger homesteads. These followed the pattern of their earlier dwellings except that they were longer and higher. The 'kapsteilhuis' was lifted onto low sod or stone walls smeared with cow dung, running along each side (Fig 2.4.6.1.2.6). These not only provided added support to the couples but also provided better protection against the climate for the occupants. More durable materials were used because a change in lifestyle was taking

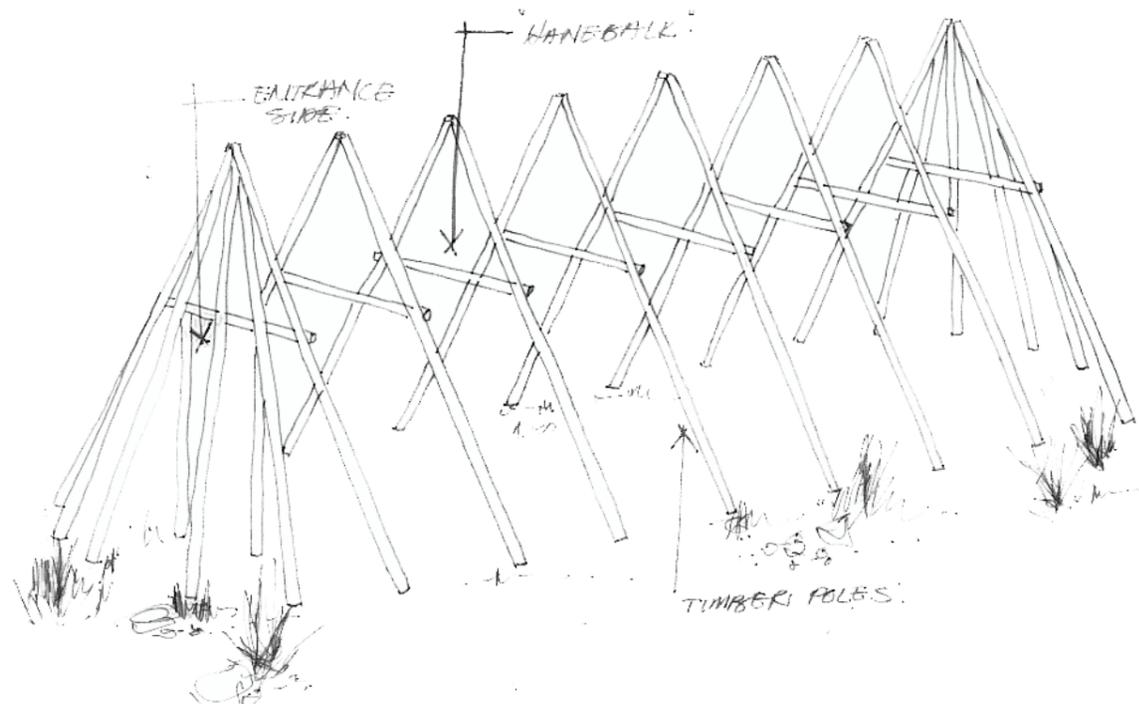


Fig. 2.4.6.1.2.2 Framework of a 'kapsteilhuis'



Fig. 2.4.6.1.2.4 Interior of 'Kapsteilhuis'



Fig. 2.4.6.1.2.6 'Kapsteilhuis' lifted onto low walls

place. The earlier nomads were now staying at specific places for longer periods. The connection between the cooking- and sleeping area was getting stronger; all the previous functions of the separate buildings were now combined under one roof. A materialistic shift was taking place and this new building configuration added to the security that was sought after. The external social activities shifted to the inside spaces. The connection between the environment and these people was slowly disappearing. People were creating these idealistic worlds within their structures, neglecting the environment which made their existence possible.

2.4.6.2 Venda Methodology

2.4.6.2.1 Origin

The only buildings on the farm that have historical significance are the ruins of a few Venda huts up on a ridge north east of the existing farmhouse. Only outlines of where the structures were are visible. These huts were part of Chief Mphephu's kingdom. The Venda people are mainly in the old Vendloland but have moved around in the area because of inter-community disputes.

It is believed that the Venda originally came from the Congo area. There is still a tribe that speaks a similar language, Tshivenda, in the Congo valley. They moved down to present day Zimbabwe, where a split occurred in the original group. Part of the group followed the chief Thohoyandou and crossed the Limpopo river in the 17th century. They settled in the Soutpansberg range and mixed with the people that inhabited the area before them: the VhaNgona. The mix of VhaKaranga and VhaNgona groups led to the creation of many small groups/clans with similarities but also differences which are gathered under the name VhaVenda. Venda people are surrounded by myth, legends, stories of witchcraft and all sorts of terrorizing stories which helped this minor group to stay on the map and survive surrounded by huge groups such as the Shona, the Tswana, the north Sotho, the Nguni, and the Tsonga.

The traditional Venda homestead was mainly formed by the climate, topography, availability of material, and technical knowledge of the members of the tribe. These factors are not the only determinants. According to Rapoport (1969) '----- house form is not simply the result of physical forces or any single casual factor, but is the consequence of a whole range of social-cultural factors as seen in their broadest terms'(Fig 2.4.6.2.1.1). The form being a cylindrical wall with tapered roof is associated in Africa with tribes practising agriculture. This form carries a more permanent character than the dome-shaped roofs in Africa associated with nomadic livestock herdsman. For the purpose of this study, the building forms will be interpreted by acknowledging the social-cultural factors and focus mainly on the rationale.



Fig. 2.4.6.2.1.1 Venda hut at Mbilwe photo by A.M. Duggan-Cronin

The huts are relatively small with simple structures. One of the reasons for this is that a large part of life is being spent outside the huts which are mainly used for sleeping and cooking. The material used for building these structures, timber, soil, and grass, is proof of the way in which the Venda's technical creations are associated with the natural environment wherein they live (Fig 2.4.6.2.1.2).



Fig. 2.4.6.2.1.2 Material used for construction of structures

2.4.6.2.2 Physical forces

The Venda 'stat', *modi*, was the typical Venda living pattern (Fig 2.4.6.2.2.1) but for the purpose of the study a detailed investigation will only be done on the Venda 'kraal'. A 'kraal' is where a man with his wife, or wives, and their children live. After the need to live together disappeared at the start of the 19th century the 'statte' started to disappear. The structure and layout of a 'kraal' and 'stat' are very similar with the biggest difference being that the 'kraal' is a lot smaller in physical surface area.

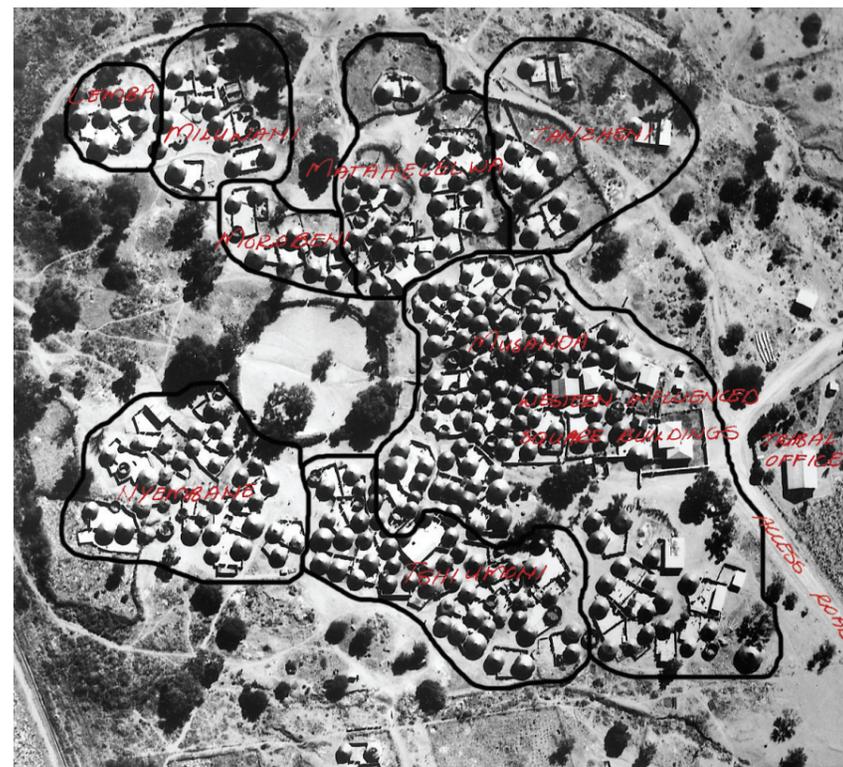


Fig. 2.4.6.2.2.1 Living zones of chief Mphephu's "stat" (1974)

A 'kraal' was normally fenced with planted thorn bushes. The entrance, *khoro*, at the lowest point, is directly connected with the living areas without an internal courtyard, as is practiced in a 'stat' (Fig 2.4.6.2.2.2). The living hut, *nndu*, (Fig 2.4.6.2.2.3) and cooking hut, *tshitanga*, (Fig 2.4.6.2.2.4) are placed opposite each other with the cooking hut normally at a lower level than the living hut. In front of every hut is a partitioned off area used as a yard. The head of the 'kraal' lives on the highest point of the site with his wives on the lower areas. When a very steep site is chosen for the 'kraal', terraces are used for the placement of each hut. The terraces are supported by low stone walls.



Fig. 2.4.6.2.2.2 Living terraces at Thengwe Low dividing walls between structures are either built of raw bricks or built-up with soil to a height of 1200 mm and are roughly 200 mm

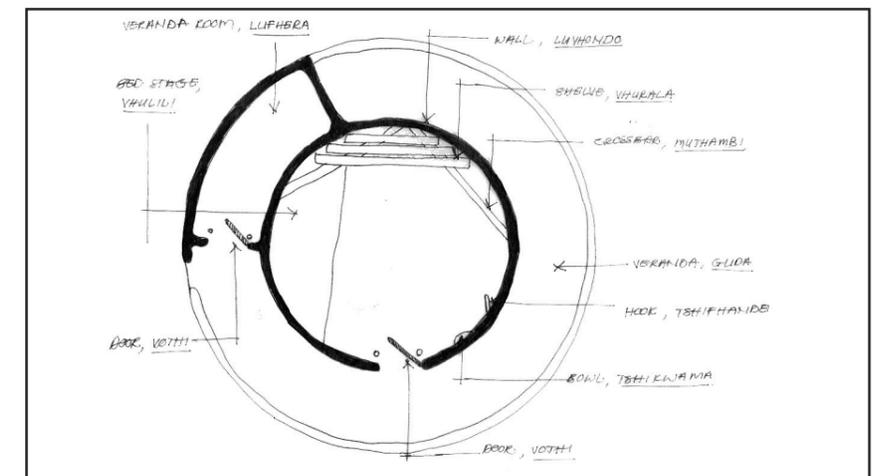


Fig. 2.4.6.2.2.3 Living hut plan

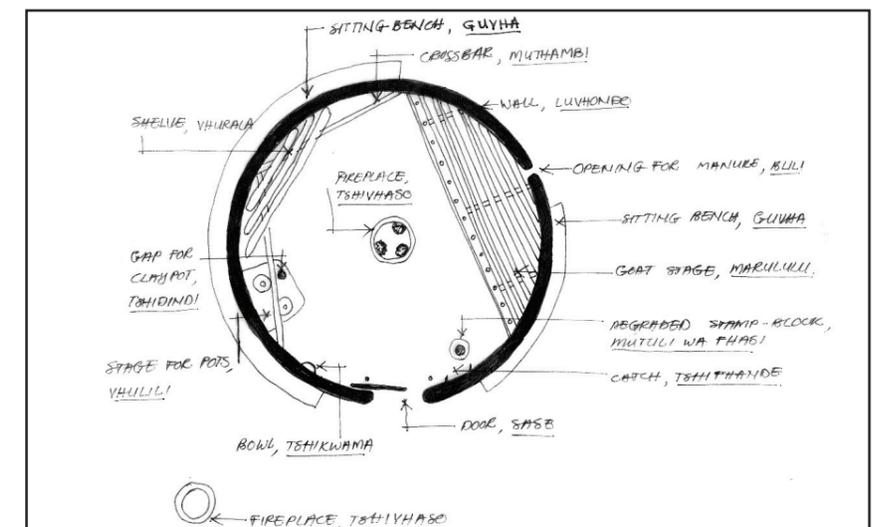


Fig. 2.4.6.2.2.4 Cooking hut plan

thick. These walls are similar to the veranda walls with a sitting bench, *gurha*, against the hut wall (Fig 2.4.6.2.2.5). Two meter high timber poles, are also used as dividing screens. The screens were called *mup funda* (Fig 2.4.6.2.2.6). The dividing walls between huts are never enclosed. There is always an opening of roughly 800mm and similar connecting openings to adjacent households. These low walls are built around sleeping - and cooking huts and stretch from hut to hut or at rights-angles to a terrace wall or other dividing screens (Fig 2.4.6.2.2.7). The floor of the yard that is formed between these walls is sometimes finished with pot fragments. These were done for strengthening of the floor and decoration, *makolo*.

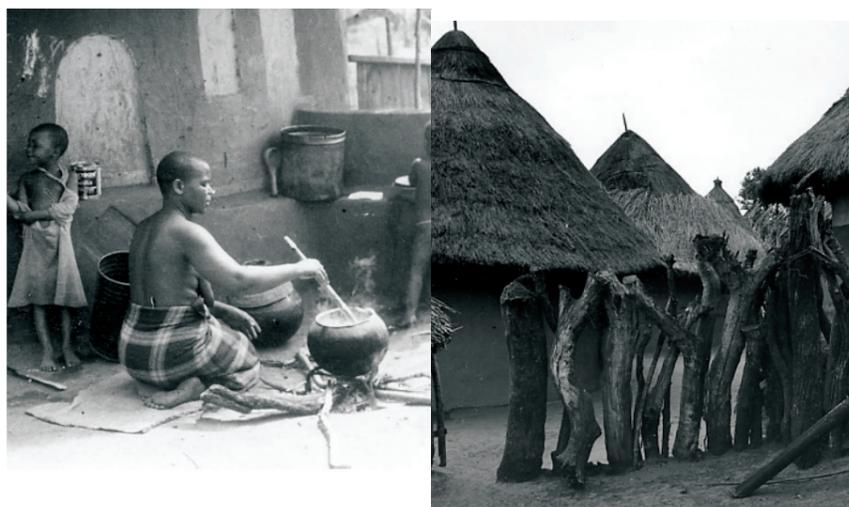


Fig. 2.4.6.2.2.5 Sitting bench

Fig. 2.4.6.2.2.6 Timber screens

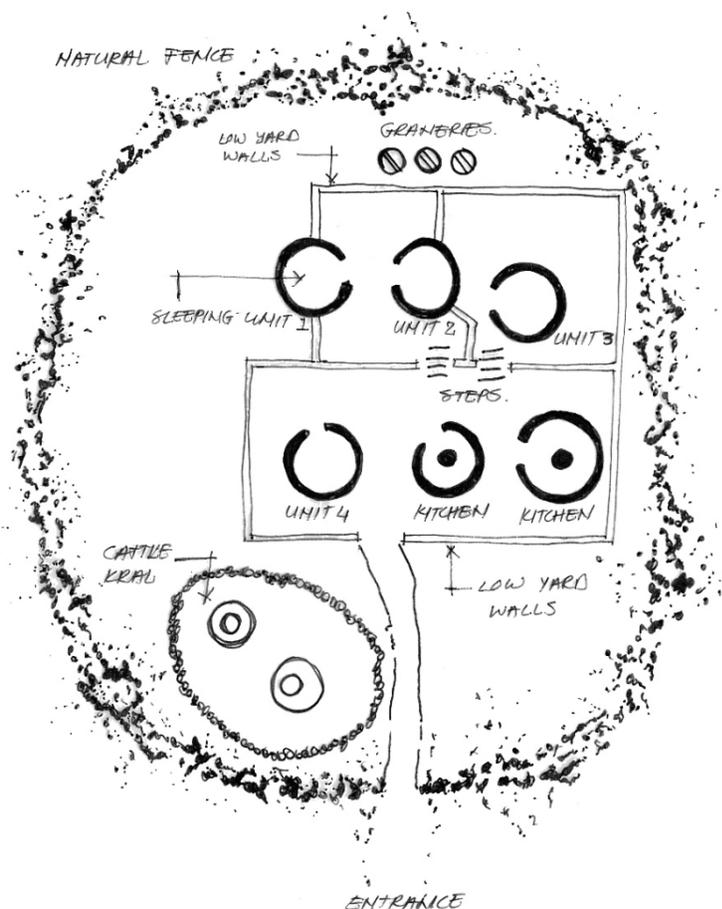


Fig. 2.4.6.2.2.7 'Kraal' plan layout

The architecture of the Venda is unique in the sense that no other group in southern Africa uses a "front and back" hierarchical differentiation of distinction. In these groups distinctions are made using a system of hierarchical differentiation based on a concept of "left and right". Due to the topography of the areas where the Venda normally build their homesteads, the terms "front and back" are synonymous to "downhill" and "uphill". This differentiation can be seen in the domestic unit, where the units associated with the wife/wives will be positioned downhill from those used by the father of the family (Fig 2.2.4.6.2.2.7). The same arrangement are made between the family head and his sons, with their units being located downhill and in front of their fathers'. Another important difference with other groups is in polygamous marriages, where the Venda father has his own dwelling including his own courtyard, kitchen and granary. With other groups, the first wife's dwelling is seen as those of the father. This means that, except the head wife, no hierarchy of positioning for the subsequent wives are followed. The location of their dwellings are determined by personal preference and group negotiations.

2.4.6.2.3 Decorations

The areas that are decorated in the Venda homesteads are all plaster finished surfaces, although the surfaces are not equally decorated. Decorations are geometric and authentic. Authentic decorations are simple drawings of plants, animals, and people but it is in the minority (Fig. 2.4.6.2.3.1). Geometrical decorations include a variety of conventionalised motives (Fig 2.4.6.2.3.2 and 2.4.6.2.3.3). These decorations are applied to yard walls and used as moulded frames around an entrance. They are also used as a dividing line between the top and bottom wall surfaces on the outside of huts. These decorations include: concentric circles, diamond shapes, a combination of these circles and diamond shapes into a butterfly, chevron, and parallel stripes. Moulded decorations are also used in decoration of the huts. The threshold, *tshikhuvha*, is 200-300mm high and 200mm wide

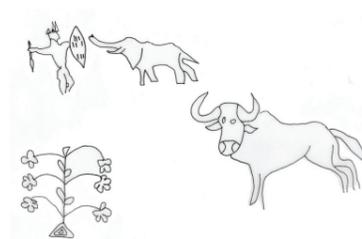


Fig. 2.4.6.2.3.1 Authentic

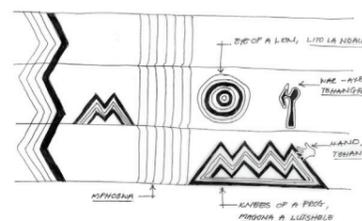


Fig. 2.4.6.2.3.2 Geometric

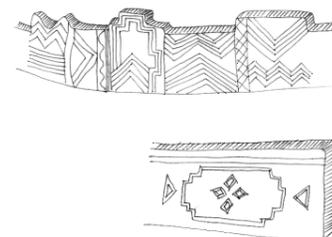


Fig. 2.4.6.2.3.3 Geometric



Fig. 2.4.6.2.3.4 Threshold



Fig. 2.4.6.2.3.5 Low yard wall

built in front of the door. The threshold is sometimes extended up to a metre past the door on either side (Fig 2.4.6.2.3.4). The low yard walls are decorated with stepped or corbelled raw brick (Fig 2.4.6.2.3.5).

These structures were built in the most effective ways possible. The practical approach is complimented by the use of a variety of forms and textures that are reflected in the architectonic use of defined openings, creative texture patterns, and relief work. Through the use of fingers, hands, cloths and brushes symbolic designs are created that give these simple homesteads a sense of place.

2.4.6.2.4 Western influence

New building forms originated after the western influence (1836). The rectangular plan was adopted because of new materials and construction techniques being available. The Venda did not copy everything from western civilization, because they build to generate space and give them protection against the climate. The first structures in the traditional 'stat' that took on a western style were those of the chief (Fig 2.4.6.2.4.1). The western style of buildings with its rectangular plan and corrugated roof sheeting are today seen as status symbol and the ideal of many a Venda.



Fig. 2.4.6.2.4.1 "Western" rectangular building



Fig. 2.4.6.2.4.2 Compacted earth blocks



Fig. 2.4.6.2.4.3 20th Century Venda "ideal"

The Venda homestead uses a lot of timber to build. The strains that were put on the environment to keep supplying the building materials, made the Venda realise the need to look for alternative materials. With the western influence already visible, acceptance of these changes were becoming imminent. This gave rise to the rectangular building blocks (Fig 2.4.6.2.4.2) and rectangular plan as well.

Other changes that are happening are the traditional stone walls that are build with cement. Wall decorations are done with paint bought in shops. Fences and cattle dens are now done with wire and steel droppers (Fig 2.4.6.2.4.3). All the old building techniques are being replaced with new ones. New materials are being accepted and the knowledge of the old materials and techniques is starting to disappear.

Endemic architecture combined with new available technologies based on traditional usage and knowledge will make the positive expectations that are being sought. Local materials must be used. It is ecologically efficient, thus adapted to the climate, fauna, flora and social patterns.