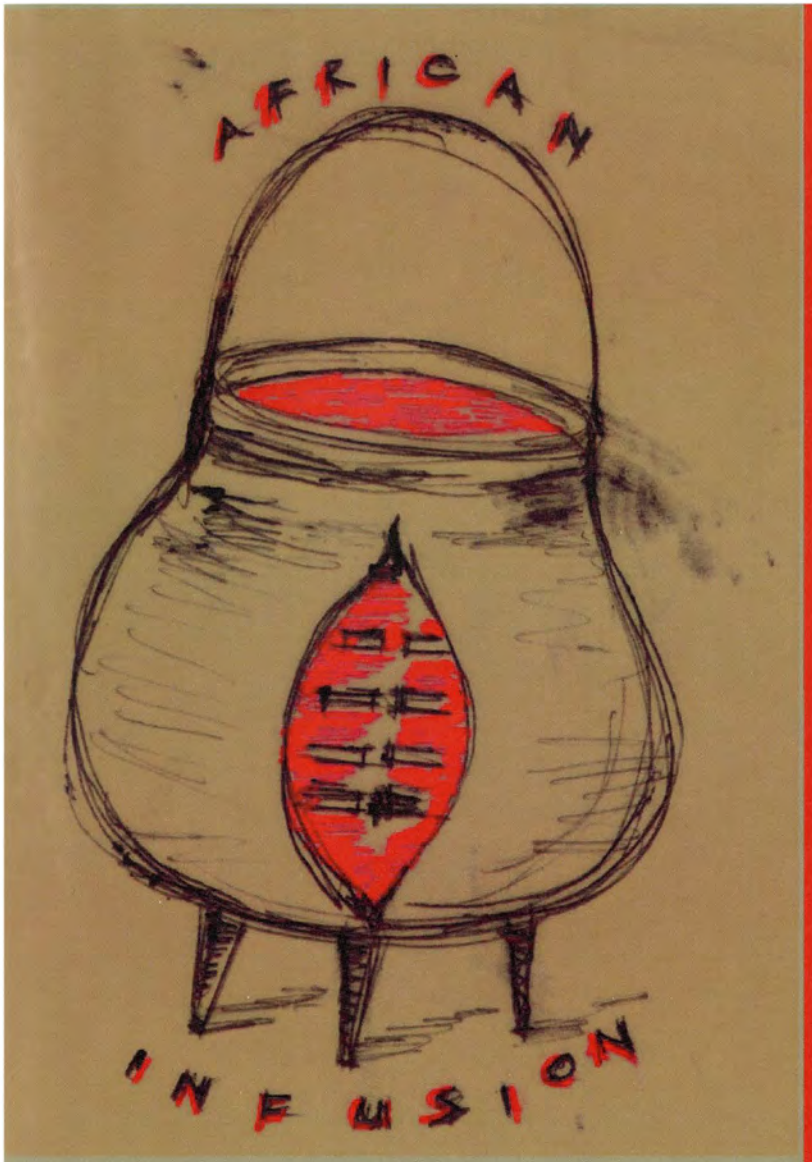
The discourse is concerned with the study of an establishment of an african museum typology, using the context of freedom park which alludes to traditional/south african leaders. The aim is to develop an architectural space creation method that is birthed from the original Zulu space making principles, but articulating the product into today's modern construction and technology.

Architecture - redefined for South Africa!

AFRICAN INFUSION



SUBMITTED BY: BUHLE N. MSIMANG

MENTOR: DR GWEN BREEDLOVE

SUBMITTED AS PART OF THE REQUIREMENTS FOR THE DEGREE OF MAGISTER IN ARCHITECTURE IN THE FACULTY OF ENGINEERING, BUILT ENVIRONMENT & INFORMATION TECHNOLOGY.

UNIVERSITY OF PRETORIA, DEPARTMENT OF ARCHITECTURE

NOVEMBER 2004

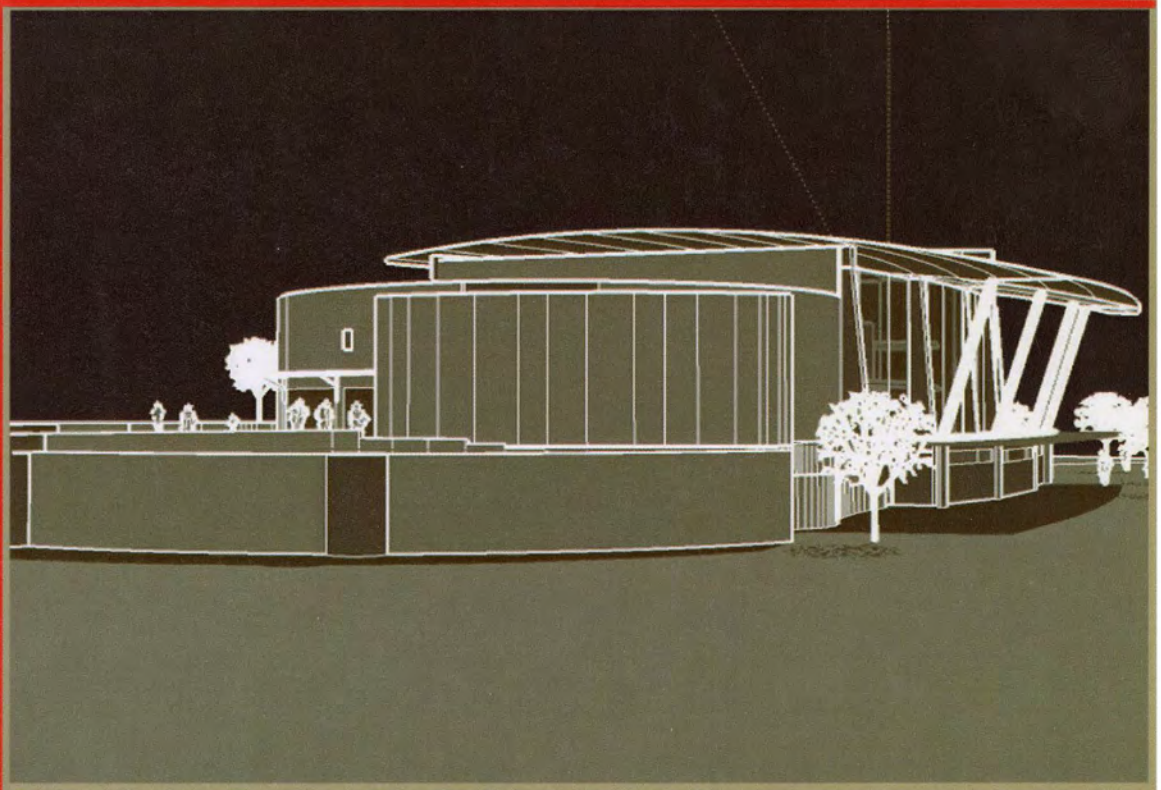


Figure 1 Northen East view of the Traditional Leader's Museum

AFRICAN INFUSION

"The beauty of this Architecture (vernacular, anonymous, spontaneous, indigenous, rural etc) has long been dismissed as accidental, but today we should be able to recognize it as the result of rare good sense in handling of practical problems." (Rudofsky,B. 1999;pp25)

Figure 6 CICC view of walkway

SUMMARY

"Architecture is to be a vessel" (Msimang, Buhle:Author)

In celebration of ten years of democracy, in South Africa I saw it fit and relevant to embark on a Research topic that is relevant to our country, Thus have some kind of impartation to the society of South Africa within the Architectural discourse.

This discourse is aimed at displaying how Architectural form can be generated using contextual and past historical methods, but interpolated into today's modern technology.

The project further endeavors to stimulate a story line that teaches about the past, present and the future King Shaka (King, Warrior and legend) and the Zulu people are used as a model in the context of this study, but the aim is to generate precedent for all different and diverse cultures of South Africa.

Thus three (3) is a very important numeric number throughout. It is a thread that is used to link a lot of aspects in bringing across the aim of this dissertation.

ssage from the Author:
Buhle bakwaMsimang Thabizolo,Nonkos

I would llike to thank my Lord and Saviour
to have brought me thus far in my education.
His Faithfullness to my life keeps me going!

The unfailing love of my family:Baba no Mama Ngiyabonga!
Mzinzi(for keeping me laughing in stressful times, thanks)
My second family Mama, Kentse and Kefuwe.
You are the best!

The support of friends; practising architects and educators:
Mrs Sizani Khoza;Thuli&Abram; Bontle Lentle; Coralie;
Mr Mphethi Morojele; Mr Gandhi Maseko;
Stella of Africorn Engineers; Prof Wegelen
Prof Smit; Rudolph; Prof Karel Bakker and special
thanks to Prof Vosloo. I learnt a lot!!!!in a short
space of time. Thanks Sir.Special thanks with great
appreciation to my mentor Dr Gwen Breedlove.

Technical support and time amd effort
to teach me a few things: Phila Msibi
and Hasan -Thanks guys without you
no one would be quite convinced!

Zulu history and amazing knowledge
attained Prof C.T Msimang. Special
thanks Nonkosi!

Last but not least the financial
support to make all the dreams
and visions a reality; CETA. Thank you

Figure 2 Photo of girls-"izintombi" seating to show respect

Ngokuzithoba, Ngiyabonga - In humility Thank you

Message from the Author:
Buhle bakwaMsimang Thabizolo,Nonkosi

This discourse is optimistic,
it is hopeful and furthermore
it is arguably idealistic. It is said
that faith is to believe in something
we cant see,

If we do not believe
in the prosperity of our nation -
It's history and rich culture and
Heritage, and the general
Improvement of its circumstances.
Then academic exercises like these
are unrealistic and in that sense futile.
The project proposed is aimed at
generating opportunity. (Fouche, Phillip;2002)

This project hopes to probe and support
the current issues of relevance in our country
South Africa. It is a dissertation that probes
current government projects. If the current client,
see it fit, they can even reinstate some ideas into
the complete Freedom Park hill development.
As a young South African I am proud and
patriotic about my country and I believe
that I can make a small and humble
contribution within the field of Architecture
with this project.

Figure 3 Sketch of concept development

PROLOGUE

Figure 5 Picture of the author at work

Figure 4 Image adapted from the Freedom Park brochure prepared by the Consortium

CONTENTS

Figure 7 UP students, cultural day

LIST OF ILLUSTRATIONS

ILLUSTRATION - INDEX

LISTOF ILLUSTRATIONS

ABBREVIATION	MEANING
CICC	Cape town international convention center
dev	development
bld	building
dwng	drawing
uthango	walling system
inxiwa	home consisting a number of dwelling units
iqhugwane	single dwelling "beehive" unit

Figure 7 UP students, cultural day

ILLUSTRATION-ABBREVIATIONS

The site in the context of Thaba Tshwane is enveloped by the rail and the strategic highways and byways. The significant aspect about the position of the site is that it is the first hill that one is faced with upon entering the city of Pretoria. This was one of the main reasons that the consortium decided to choose this site as opposed to the other two that were suggested.

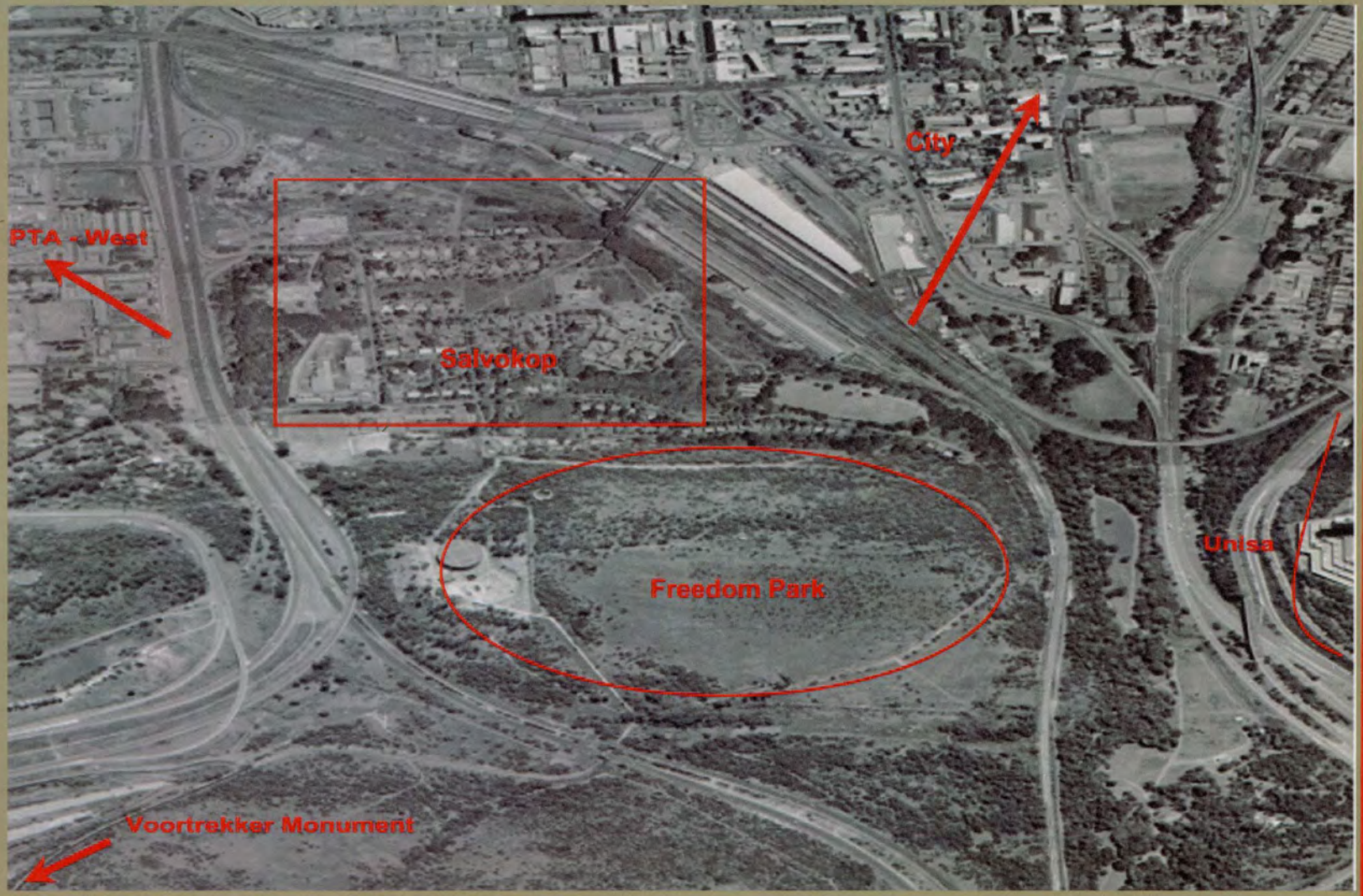


Figure 8 Aerial photo of Freedom Park and surrounding areas

The Freedom Park site is located on the hill to the south of the Salvokop hill, south west of Pretoria central and adjacent to the Ben Schoeman highway. On the remainder of portion 406 of the farm Pretoria town and townlands 351-JR. The approximated co-ordinates of the site are 11'30 and 25°46'. The site is currently owned by Transnet and is reserved for use by Spoornet. The size of the site is 35 hectares.

Figure 9 Aerial photo of adjacent roads

Figure 10 Aerial of the Freedom Park, hill site

General overview on the development principles:

- A hill top site - major attribute being the elevation, symbolism of a hill in Africa
- Orientation in relation to existing landmarks and associated visual axes
- Capitalizing on specific site characteristics - Gateways, edges, natural environment etc
- Integration of the building with the service infrastructure.
- A place of congregation to commemorate and celebrate
- Integration with Tshwane city activities and public access -

The zoning of the scheme's development is based on the framework developed by the Freedom Park Consortium. Based on the framework and environmental research, it has been concluded that constructing on the southern edge of the site will hamper with the sensetive vegetation. This village position on the northern edge was then chosen to comply with the environmental analysis. It also complies with the strategic axis' (Paul Kruger, Voortrekker Monument etc) , The development is also within close approximity to the main Freedom Park entrance - as this was an important requirement from the client as well.

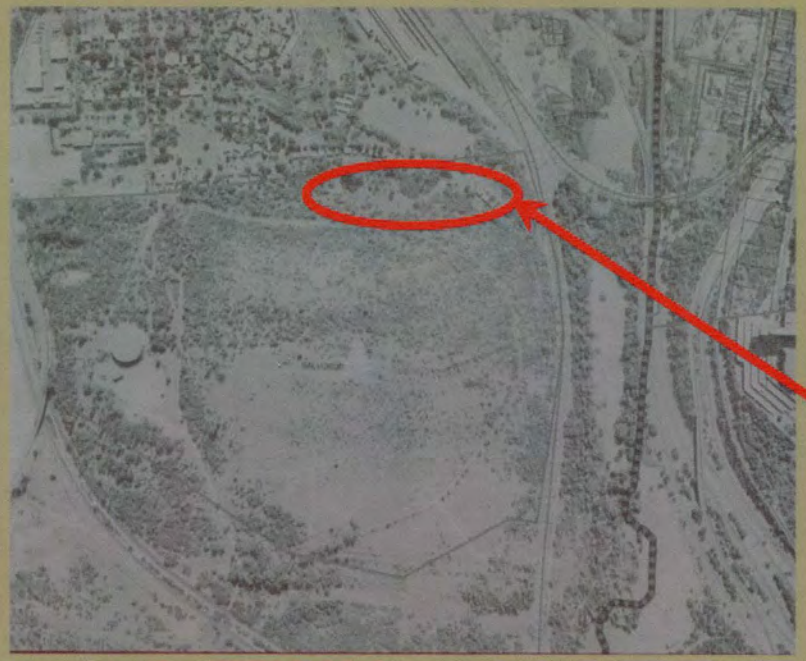


Figure 11 Aerial showing the zone of the development

Without compromising the design, the building village complies with most strategic needs set up in the development framework by the consortium.

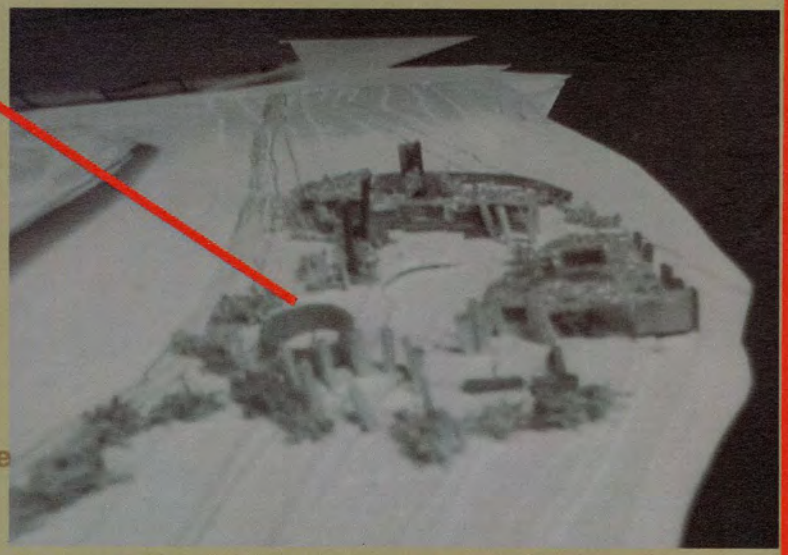
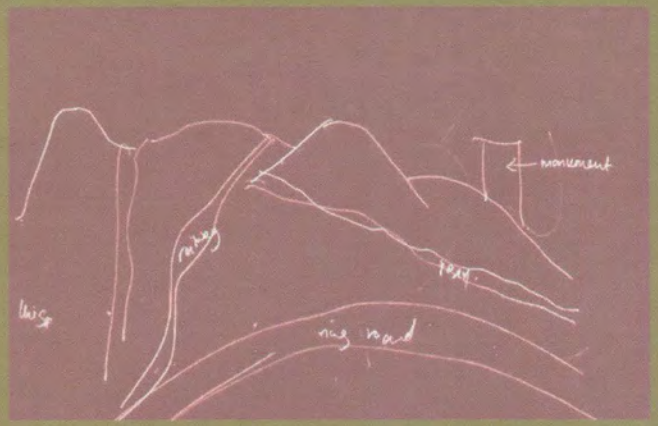
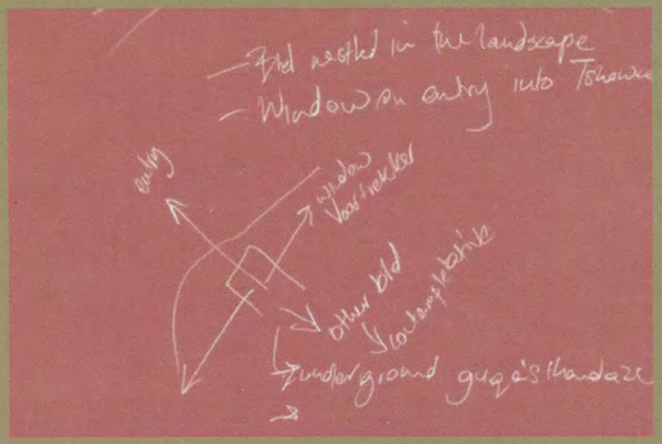
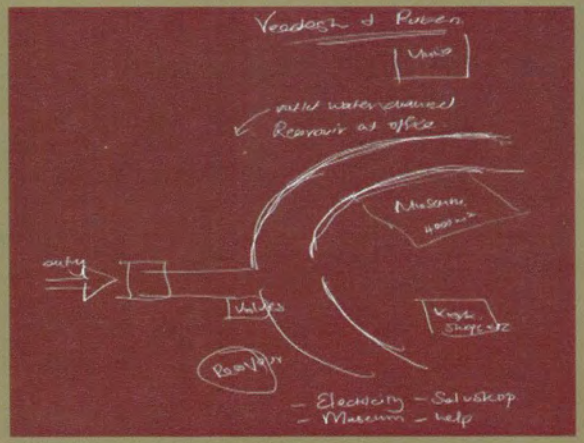


Figure 12 Concept model of the Museum Village



A number of sketches were drawn to develop a spontaneous reaction to the site with all its natural forms and conditions.





Figure's 13 Site response personal sketches

It was important to establish the forces that generate the energy in the site. The site is receiving a lot of national acclaim, it is thus important that one's response be not clouded by previous influences, but generate a unique esoteric response.

Figure 14 Map of KwaDukuza, Stanger

Figure 15 Shaka's house

Figure 16 Shaka's grave

Figure 17 Developed market on site

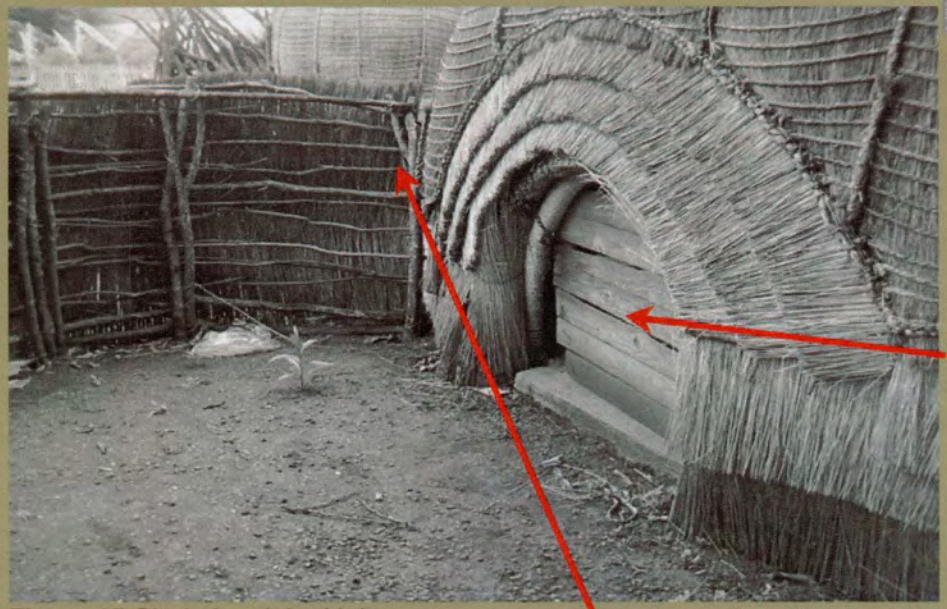
The idea that is generated from the concept and brief is to link the activies of the Museum Village to the actual sites where other and most real cultural activities will take place. One such site is the KwaDukuza, Stanger site in KwaZulu Natal. This site was initially nominated for this development, but there were a few hindrances. This was one of original homes of King Shaka. He died in this home and his original iqhugwane still stands today. His other homes like KwaGibixhegu could also be used as satellite sites.

SATELLITE - SITE

Significance of the kwaDukuza site

The King had several homes where he could stay. This is detailed in the sociology study of the Zulu people.Each home had significance to the King.i.e.. A place where he would go to think, a place where most of his armies would congregate, etc. This home was where he would go to rest after numerous battles. This site was made even more significant by the fact that this was the last home where the King was before he "khothama" (died). (The King was never referred to as being dead, but as kneeling or sleeping if its directly translated to English.) This site is even more significant than others because its one of the few homes that are still preserved today.

Figure 14 Map of KwaDukuza, Stanger



The second layer of ceiling the door, to protect against wild animals.

Figure 15 Shaka's original iqhugwane

The original "uthango" that protected the King's unit, within his bigger homestead.

The town of Stanger has now developed into a very busstling town.Its origins were in the years around 1825 July This was a town that was set up as a halfway house for King Shaka and his traders.These men were namely: Henry Frances; Fynn Lieut etc. King Shaka called this place Dukuza - which is translated a maze.It was in this area, that on the 24th Sept 1828, when King Shaka was waiting for the traders in the Nyakamubi kraal - He was assassinated by his brothers. The assassins took advantage of the confusion that was taking place, due to King Shaka being dissatiesfied with the quality of the goods brought by the traders.

The development of the Museum Village is to comply also with the City council's vision and the National vision. The council would like to see Pretoria as a " Global role player in education, research and development offering a wide range of investment opportunities. An attractive tourist destination rich in cultural assets and special places. A well governed city managed in partnership with its people. ..."

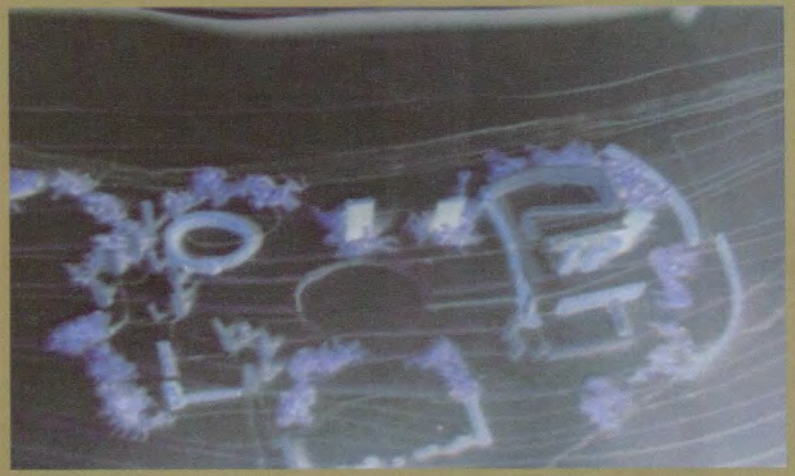
(Capitol Consortium, 1999)

The development of the Museum Village, aims to satisfy this vision and become a role player in enhancing Tshwane, Pretoria and the country of South Africa as a whole.

Figure's 18 Freedom Park phase 1 - developments

In the current site, Phase 1 has been completed. This has a bearing on the development of the second phase in terms of the materials and architectural languiage to be developed. It was said by the architects in the initial stages that a sense of place is developed, this is mostly evident in the "isivivane" garden. The Museum Village is to carry that language through.

Upon entering the development of the Museum, one has to show respect by greeting at the gate. "Khothama, ukhuluke ekhaya" (Bow and greet the home). This was the ancient practise, on entering every home. This will be interpolated by a mechanically controlled voice over at the gate. Upon the sensatisation of a person entering, a greeting will be resounded in English and other South African languages.



The Museum Village is generated from the Zulu way of formulating the home. This was made up of a number of houses, which belonged to different wives. The important ones being on the right hand side whilst the least important ones were on the left hand side. The home had one main house for the mother of the men of the house, in the case of a King's home- it was the King's private home. This was called "Indlunkulu" in both cases. The interpolation of this in the scheme-is in the formulation of five buildings, representing the different houses. The most important functions are placed on the right hand side, whilst the least important - the restaurant, services, multi media building are on the left. Indlunkulu is to be the main Museum, and the auxillary functions of the oral and interactive museum support it.

Figure's 19 Concept model development of Museum Vilage

Figure20 Existing phase one - isivivane, garden of rembrance

Figure 21 Ring road linking to the Museum Development

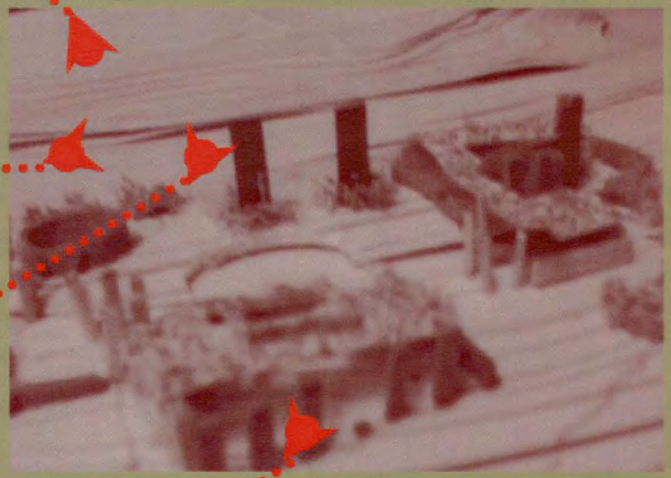


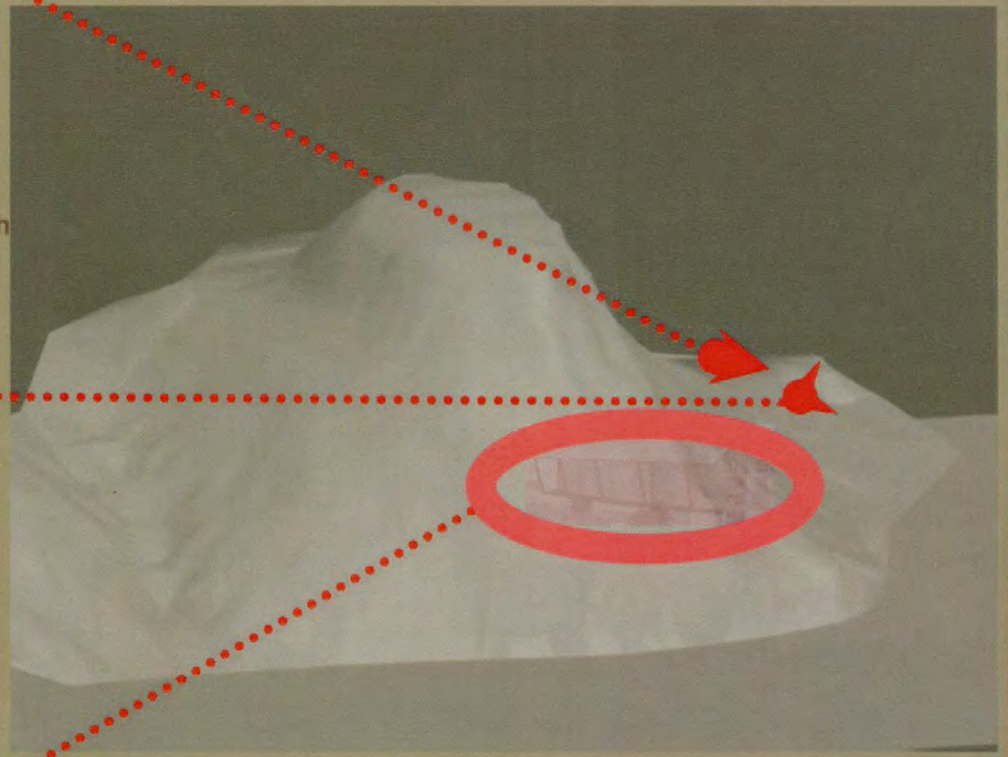
Figure 22 The existing barrier will be interpolated into "uthango" barrier

Figure 23 The northern edge of the site has vistas that link to the city.

edges and peripheries articulated in a circular meandering form in the 1st phase. Language to be carried through in the new Museum Development.

Esithumbanjini concept on the landscape

The buildings are to be part of the existing landscape



Museum-Indlunkulu development in the context of the site hill

Figure 24 3-d generated model of the site and the "indlunkulu"

WHY I CHOSE THE SITE OF FREEDOM PARK ?

The site of Freedom Park stood out as a single choice for the development of the Traditional Leader's Museum. A topic was chosen first and then a site that will be appropriate for the subject matter was investigated.

This was not the initial choice. The KwaDukuza site was initially chosen, but as a result of the establishment that already existed-a visitor's centre and the size of land being too small, it was no longer deemed a feasable choice.

The site of Freedom Park is a realistic site that is being investigated and a number of concepts are still being searched that will create what the government is on the look out for. This then makes the project relevant to the current issues and can thus render realistic solutions that could contribute to the enhancement of our country South Africa.

The incerpt below from President Thabo Mbeki concerning Freedom Park was written and it highlights all the values that the Museum Development is all about.

" The Freedom Park project is the most ambitious heritage project to be undertaken by the new democratic government.

While government has the tasks to ensure the transformation of our country and improve the material lives of our people, it also has a responsibility to tend to the well-being of our nation by exploring issues of heritage, identity and values in a way that. is accessible to all our people. Freedom Park must thus speak to the past, the present and future of the nation. Indeed it must speak to the broadest meaning of the term freedom, freedom from the terrible vagaries of nature, Freedom from socio-economic backwardness, freedom from prejudice and oppression, ensuring that the body, the mind and the soul are freed to explore and achieve their highest potential. " (Mbeki,T. 2003:pp1)

Figure 8 The Freedom Park aerial photograph

The scheme is about developing a Traditional Leader's Museum. This is in line with the development of the Freedom Park Hill.The celebration of different leaders that played a role in the development of the country - South Africa. The Museum is celebrating the legends, the heroes and the future leaders!

The title AFRICAN INFUSION was chosen for this scheme as it exposes the generic ideal of the scheme. It is a about a diverse mix of South African cultures that exist that are important, but as an academic excersise, a certain level of restriction is required, and for this reason the Zulu cultural buildings are investigated to set up a precedent that could be used in a similar manner for all other cultures as well.

The Museum encompasses everyone, and is about the celebration of a new South Africa, bearing in mind that this can be implemented with a certain adjustments in the concept to encompass the diverse scope of people living in South Africa.

Definition of culture in this context: A type of a people genre
i.e. Tswana, Afrikaner, Xhosa etc

The pot is symbolic of a whole mix of cultures being stirred together, whilst the shield represents the Zulu culture that is being investigated to generate the concept - main heart of the project philosophy.

Figure 25 sketch of the logo by the author

RHYTHMIC CHARACTER

MAIN IDEA - ZULU SPACE MAKING PRINCIPLES

"The life of a cultured people today has less and less to do with the abstract idea"
(Mondrian,P. 1917:pp102)

SOCIAL STRUCTURE

The whole concept of space making principles is similar to the notion of the space syntax, but different. This is dealing with the building at a smaller scale. There is no precedent for the urban context, but one can make informed decisions.

The early Zulu Architectural space making principles were adhering to natural & cultural principles.The structures were not self referential, i.e created just for the sake of themselves. The structures displayed a sense of understanding for the universal principles.

Figure 26 uMlobozane

HISTORY

Many aspects usually influence design simultaneously.The heart of the project is the Zulu space making principles. This is what drove most of the decision-making. As a designer, a process of ordering principles have been used that give rise to an ordering criteria which is namely:

- Axis:
- Rhythm:
- Texture:
- Hierarchy of spaces:
- Form:
- Urban contextual relationship:

Figure 27 Amavovo

ELEMENTS ADOPTED

These principles all together, may be said to generate an intrinsic Architectural language. This is what the main aim of the scheme is.

Figure 28 Izidlo

RHYTHMIC CHARACTER

AT THE MACRO SCALE

TRANSFORMATION

The important aspect to bear in mind concerning the transforming of the design is from the inception principles into form.

HIERACHY

Hirerachy is established by the important role that each building unit plays in the museum establishment,- this is mainly generated by the concept.

RHYTHM

Rhythm is generated by the movement in the museum exhibition /route.

" The principle that an architectural concept structure or organization can be altered through a series of discrete manipulations and permutations in response to a specific context or set of conditions without a loss of identity or concept " (Ching, FDK. 1996;pp27)

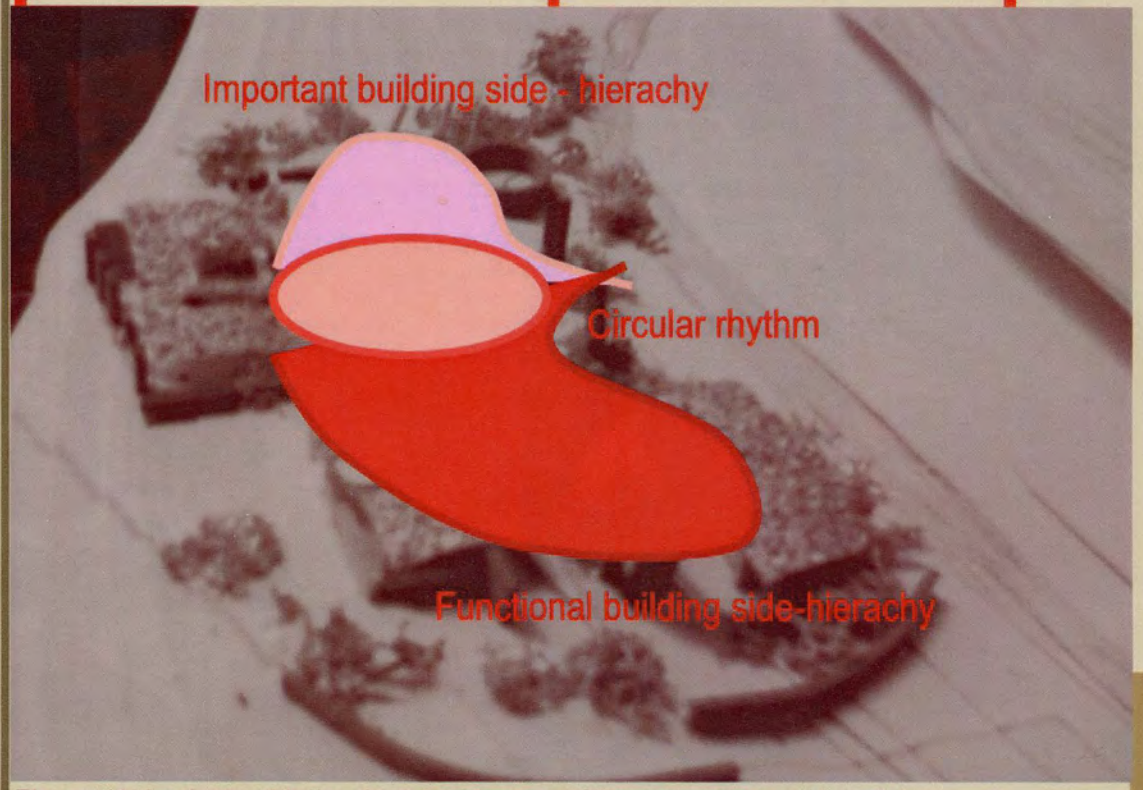


Figure 19 Analysis with the concept Museum Village development model

" The beauty of this Architecture (vernacular, anonymous, spontaneous, indigenous, rural etc) has long been dismissed as accidental but today we should be able to recognize it as the result of rare good sense in handling of practical problems. [Rudofsky; B-1999:pp20]

Figure 29 Zulu dancers - kusinwa indlamu



3. Zulu history related to King Shaka – Socio economic factors related to the research, parallels that can be drawn from the historical context.

In ancient Zulu tradition there is not much talk about the house but a home (umuzi hayi indlu)
History states that in AD 1300 the KwaZulu place was occupied by the clan called " Abathwa" . The actual Zulu people come from the "Mtungwa, which in turn come from the Mtungwa-Nguni which are ancestors of the Xhosa, Ndebele's , Mbo's and the Lala clans. The Nguni generation came to the transvaal in AD 1400. The Nguni tribe had a lot of livestock - hence they then needed a lot of grazing land. As a result of large numbers of these people seeking a place to graze, there were a few quarrels in such a way that Kings were then inaugurated that will look after the clans and their herd of livestock. This is how the Kings came about. The state of the kings then gave rise to new laws concerning the division of land.

The men of the house never referred to his land as his but as his Fathers.(Even though the father was deceased.) This is another way of saying the house belonged to the ancestors. This then gave rise to the rituals performed (i.e. whatever happened to this house had to be reported to the ancestors. If for a example and older son married and had children of his own, if he then decided to leave the old house "inxiwa"- a goat had to be slaughtered to tell the ancestors that he was leaving and that they must leave with him to the new house. This was done also to notify (and appease) them who of was staying behind in the old house. On his arrival in the new "inxiwa" they had to slaughter another goat to tell the ancestors that he has arrived in the new home they must come and reside with him now in the new home.)

In the Zulu history the building of the houses was different depending on your role in society. The construction of a house for a normal person was not like the building of a house for a king.

Starting with a house for a general person. It was the role of the men to search for the building materials and once that was done he had to call in a witch doctor/"inyanga" at night to put in the "izikhonkwane" reinforcing the house. This was done because the people in those days believed that if this was not done any person could come in and overtake the home. The doctor also left the house owner with "intelezi" which was a medicine/portion that he would use continuously even when he was gone. This was to be poured in front of the house every morning to protect the home.

Now once this is done a home can be built. A home consisted of a couple of houses and they had to be all built in order. The main house " Indlunkulu" was the most important house. It was usually a house to the sons mother and if deceased it belonged to the first wife. Then all other houses for different wives could even be built. After the houses had been built the "isibaya"/ kraal was built . Then the main fencing "uthango" around the whole home was built.

Mostly women got involved in the construction of the home, but both men and women were involved. This process of building is a huge feast, even passers by can help and they then get to feast with the family involved. The external frame is erected by men (the materials used are called umshashane, icibo, uthathawe ect). The circular form is then measured from the center "emsamo" and all the doors face "isibaya" the kraal outside, but have their backs to " uthango" the main yard fencing. The main celebrated structural form will be the roofing where an expert in - "Inyanga yokwakha" is invited.

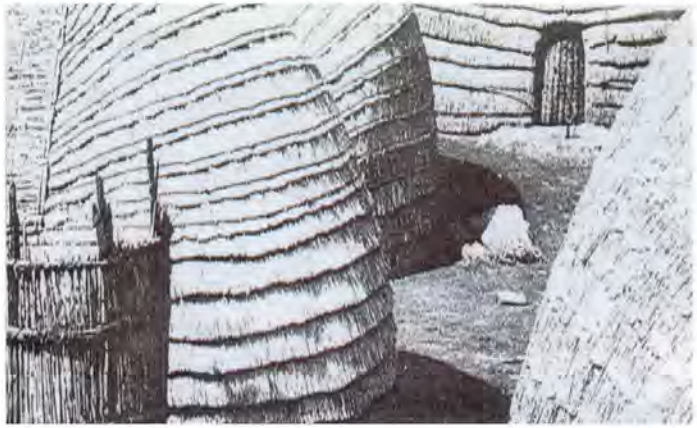
The women then come strategically at the laying on of the roofing material. They sew the grassed material onto the main structure. They will sew until they reach the bottom. This is why this is known in other Nguni clans as the "umguqaphansi" hut, which is to say go right to the bottom - but in actual fact in Zulu it is known as the " **Iqhugwane** " . After the external framework has been completed different internal structures are established. "Emsamo" is the first. It is here that they will prepare a place to put clothing, "eziko" will then be centrally placed. The flooring is then prepared. The place is grinded and smeared with "ubulongwe" (cow dung)as to create a final floor finish, normally known as screed in today's building technology. The black polish layer "unwali" is then the top "tile" and glazed coat allowing for a polished shiny look.

Construction of a King's homestead – in this home the "indlunkulu"/main house was in the middle of the homestead as well. There was also a house that was used for the storage of food and it was called "izinqolobane".The main house of the King was called "isigodlo". It is within the main "inxiwa" but it has its own "uthango"/ fencing separating it from the redt of the houses.The women were not allowed to enter this house unless the king was not around or the King has been deceased.

The structural component of this house was made up of 8 to 10 pillars which were 20 feet in height. Behind this house was the
"ilawu lenkosi house" which was the place for the King's activities. This hut was used for the Kings entertainment - either for the Kings parading of clothes – Imvunulo, or for his dinners - Lokudlela. This was either one or a couple of houses depending on how sophisticated the King was.At the rear of this house was the "izindlu zomdlunkulu" – These were the houses for the Kings attendants like the King's "insila" – (a person who attended to the king at all times. Who gave up his life and family to be with the King. He had to be a trustworthy person as he knew all the King's affairs), then preceded by the service quarters which were called "imvoko"

Then another outstanding feature in the King's homestead was a specific place for the King to wash. This was called "isihulugu" This was done that he should not bathe in the river like others so his dirt would not go with the river, this was considered bad luck if it should happen. In the design scheme this is interpolated as reflective pond, where a guest can sit and ponder on what he has seen. This is positioned on the eastern side of the Museum.This was then preceded by a space called " isibaya senkundla" This was a place for gathering in the King's quarters. It was also used to train his armies – " ukuvivinya amabutho "
In the Kings place there were always armies-"amabutho" and they would wait upon the King.The Kings home was constructed by his armies as opposed to a home of a normal person where even the whole community could get involved.

It was common custom for a King to have a couple of places. King Shaka likewise also had a couple of places. They were namely: "Bulawayo" – This was his home translated a place of death. This was because this was a place where he killed as a result of the hardship he experienced here when he was young being troubled by the eMalangeni and the Qwabe tribe



His second home was called "KwaKhangela" – This was a place next to the sea. He would go there to think and refresh and he would come back with fresh ideas for the war. The third place is "KwaDukuza" This was his home in Stengar, where he later died. This would be a place where our design project would place a satellite site. The fourth place was called "esiKlebheni" this was mainly used by Shaka's armies, his cousin "Mkabayi" stayed there too. Then there was a home called "kwaGibixhegu" This is a place where he killed a lot of elderly people as they were irritatingly old, no other reason. The last house mentioned is called "eKhilindini" - This house was built was built for Shaka's mom – Nandi.

The most important aspect about a Zulu home is that it had to bring honor. Honor in three areas. Firstly in law and tradition, secondly it had to bring honor to the ancestors, then thirdly it had to bring honor to the head of the house. Wheat her it be the men or the king of that home. The Museum development recognises and upholds this value.

Respect in the areas was shown in a number of ways, for example - In the articulation of the home the "iGceke" – the central area in front of the houses, This was a very respected area and there was a certain code of conduct to be adhered to in respect to this place. The bride of the home (umlobozane) was not to parade in this area. If she wanted to access the other houses in the homestead she had to go at the back of the houses.

"Uthango" – The fencing/walling

The significance of this is based on the factual knowledge that:

- The homestead had to have a gateway, one had to enter only at the gate no matter what the circumstance.
- If you were using a horse you had to get off your horse at the gate – This was a symbol of respect
- If you were a guest at the place/homestead, you had to say your greetings at the gate
- Upon entering the homestead at the gate, You had to proceed to the main place on your right hand side
- A second greeting was resounded again on entering the actual house.
- The King's homestead had more walling. His own house had another walling around.

Interpolation into design

- The whole museum "homestead" will have a walling structure,translated as a functional lighting device to symbolize its entity as an African living space
- The main building – "indlunkulu" will have its own walling interpreted through the landscape and building elements such as boulders, walkways, paving textures etc.
- The entrance greeting codes will be adapted for guests visiting the museum - text will be put on the doors in order to tell the guest to say something and then the doors will be automated via voice overs.
- The museum guests viewing progression will be on the right hand side as to respect the aspects of entering the homestead.
- The museum will have a main gate, but a second gate will be adapted for exit only. This is to assist in the flow of traffic, when many guests will be coming. The main gate will be the only way guests can access the buildings.
- The vehicular access will be limited until at the gate. This will again be a sign of respect for the Museum. People in wheelchairs and the elderly may be assisted by a use of an electronically operated motor-cart (This will be an exception rather than the norm)

"igceke" - The main outside space

The significance of this space to its people was that:

- One could never spill water in this area (If one did do that it was believed they caused lightning to come into the home)
- The bride "Umakoti womuzi-Umlobokazi" never crosses or move in the space during ceremonies
- The bride "Umakoti womuzi" never comes in the home with water on her head into the whole homestead, she has to get her load off at the gate and has to kneel, then her companions had to bring the loads/water to the respective areas.
- No one was to call out or shout or scream at anyone across the area, rather send a message by a kid.

Interpolation into design

- There will be a few "igceke" areas in the Museum homestead. This is so to address a number of activities that took place in these areas. The stringent respect codes will be adapted for the guests as well.
- No litter or any spillage should be allowed in this area
- During traditional performances, no one will be allowed to cross the area
- The public will be alerted that no screaming or shouting is allowed except during performances.

"Isibaya" – The kraal

The significance of this is based on the factual knowledge that:

- This was a central space in the home. It symbolized the family's wealth
- It was regarded as the most important space and treated with respect
- The cows therein were also treated with a lot of respect
- If any slaughtering was done, one was to never send any meat over the fence. This was a sign of disrespect
- The bride of the home never eats the meat until she has been initiated by the family to do so.
- Only men can milk the cows, if the family did not have a men able, a male from a nearby family did the job.
- If one is not from within the family they were not allowed to have the milk of that home
- If a female is encountered by a heard of cows in

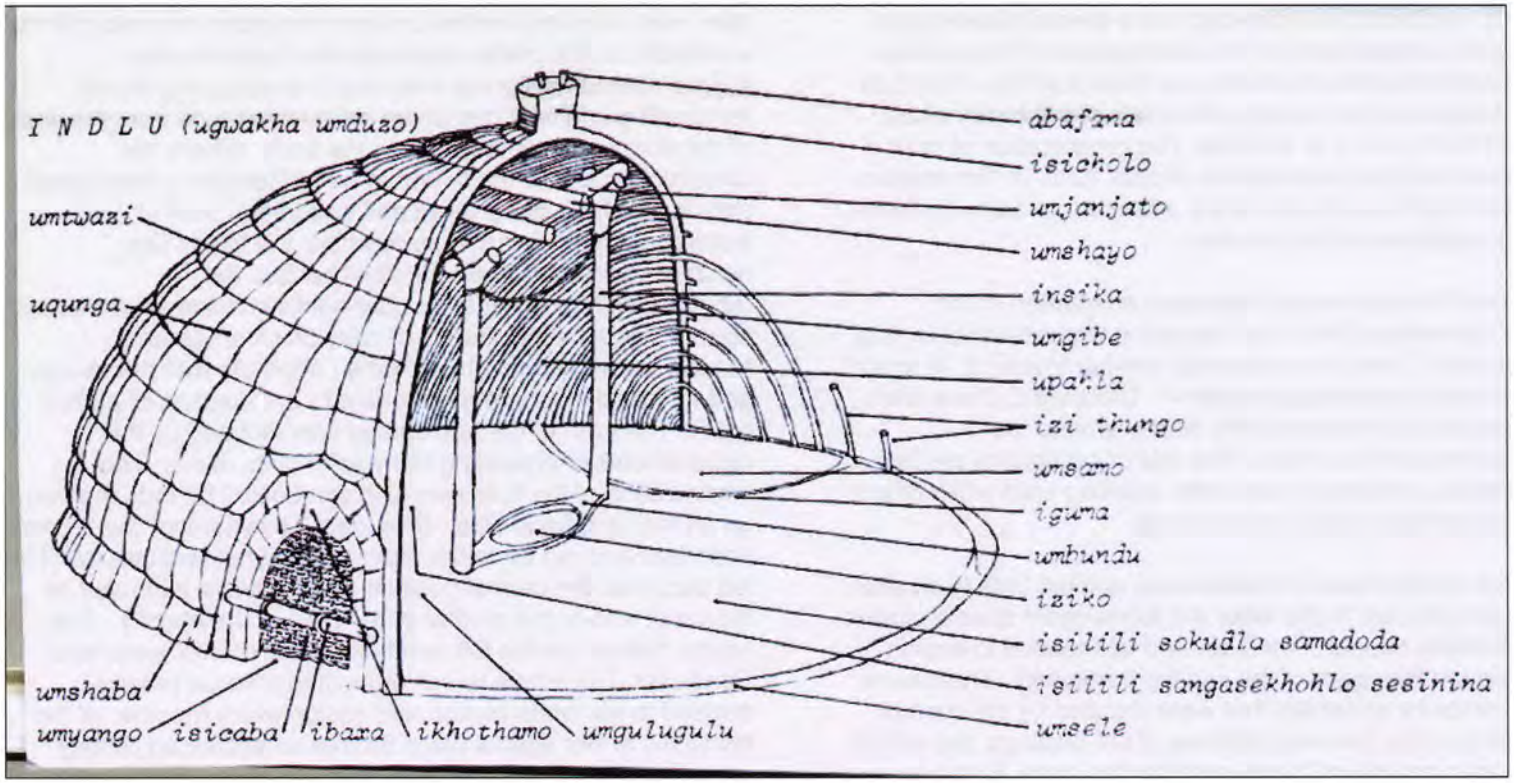
" Metaphors allow us to understand one domain of experience in terms of another, (they) can define reality through a coherent network of entailments that highlight some features of reality and hide others" (Lakoff and Johnson 1980:117; pp 156-158)

Most ceremonial functions involving large numbers of people were conducted in the open, the need for clear spans over large interiors was not urgently felt. The organization and aesthetic resources were directed more toward planning and ordering the environment, in the arrangement of the various units to accommodate domestic and ritual activities. The Zulu people formalized the homely universals of the family circle, circle of friends, circle of admires. The organization of most if not all their activities entailed the circular form. In the western form, this form survives as merely a form on an idiom for sport, drinking, applause or daily routine.

The form of the city was an ingenious adaptation of the isolated homestead, strict civil discipline was essential for it to function at all. There is no absolute number involved. At one of Shaka's home's mentioned earlier – " Gibixhegu" there were one thousand four hundred huts strung around the circumference of three miles. The rate of occupancy per hut was variable, some may have been dwelling units while others served as barrack rooms (dormitories)

The same construction principles were applied both to smaller and bigger palaces. In the latter the extravagant span a cluster of intermediate support. The standard unit tended to exploit the maximum free span of the sapling framework. There were requirements for portability that were dictated by the custom. Depending on the inherent stiffness of the saplings, the weight of the super incumbent thatch and the free span. Props occur in multiples and pairs. Externally the thatch is kept in place by means of grass ropes which are simply embedded in the thatch at both ends. Most elaborate and durable is the rope grid composed of longitudes radiating from a ring around the apex with latitudes knotted to them at regular intervals to form a network. In the colder highlands the thatch is often supplemented with grass mats laid in overlapping layers terminating in a final mat at the crest which runs from the lintel of the doorway over the apex to the back. Where the construction allows the thatch to be gathered in a finial great care is lavished on its finish and decoration both to ensure waterproofing at a crucial point where the thatch lies horizontally and because the finial houses the "abafana"/lightning ritual thunder-sticks invoked as protection against the lightning. Bands of criss cross ornaments reminiscent of bead work patterns , alternate with the swags and the festoons more appropriate to the medium of plaited grass. The form of the homestead was dictated by the requirements of protecting the wealth of its owner. The organization of the huts was also symbolic. The huts that ran up on the right hand side of the kraal " esokunene" were more important and ran up to the main or great hut "indlunkulu" (This hut occupied the central position at the isibaya and ruled by the great wife or the mother of the men of the home.) . The house that ran on the left hand side, "esokhohlo" were less significant. The whole layout embodied a social pattern devised to eliminate friction and assign every member of the family his or her rightful place as well as ensure an orderly succession when the patriarch died.

The Zulu people's capacity for organization emerges time and again over a wide range of localities in the welter of new forms and unfamiliar materials with which the unsophisticated builders are confronted. The innate discipline and ancestral pride is still manifested in scrupulously kept homesteads no matter how unconventional the form. The Zulu people's Architectural restraint relies on the textured effects inherent in the natural material. Their transitional architecture retains the classical qualities that in the past distinguished their traditional buildings.



One of the practices that was common amongst the Zulu people was the art of praise Song. This was done for any ceremonial act or where the King was to appear, a "praiser" had to say his praises for the King first before anything began. Only people who were skilled were allowed to do this and who had the right to say anything about the King. Oral literature is important in creating an understanding the people whose culture it is. The Zulu is divided into types of oral literature.

1. The Zulu traditional poetic genres
   - 1.1Izibongo – Oral praise poetry
   - 1.2. Izithakazelo – Oral clan praises
   - 1.3. Imilolozelo – Oral lullabies and children's songs
   - 1.4. Amaculo – Songs
   - **1.5.** Izaga - Proverbs
2. Zulu traditional prose genre's
   - 2.1 Izinganekwane – fables,folktales, myths and legends
   - **2.2** Izisho – idiomatic expressions:

Here is Shaka's summarized praise song in Zulu .Please note that most words are not translated as its almost impossible to do so without losing the meaning.

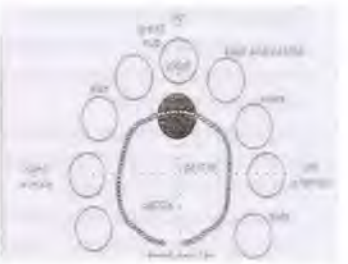
Dlungwane kaNdaba
Dlunglwane woMbelebele
UDlungwane emanxulumeni
Kwaze kwasa amanxuluma esabikelana…
UBayede kaNdaba
Undaba ngiyameba ngimuka naye
Ngimbuka kwehle izinyembezi….
Uvemvane lukaPhunga
Olumabal'azizinge sengathi abekiwe
Umzizim'ongamathunz' ezintaba
Khona kuhlwa kuhamb' abathakathi,
Ingqayingqayi kaPhunga noMageba
Umasengomahle inkonyane yenkomo
Kwangixaka ukukhaba kwalenkomo
Umoya womzansi wongenelo
Ohlez' ubangenela namgomyango
Oth' esadla ezinye wadl' ezinye
Wathi esadla ezinye wadl' ezinye
NDABEZITHA !

Shaka is used as a main figure because he was regarded as the main figure of the Zulu nationhood and the epitome of African brutality. In following this literarture one tends to follow Nitzhe's dictum that states that an isolated judgement is never true, it is only true in connection and in relation of many jugdements. This is the case with this study in a whole.The main keyword to this study is identity,

It is said that leadership that was imbued by Shaka was not necessarily defined by the leadership and organization which are primary virtues structured by science, technology and the tolerance of a white democratic judiciary. The story of Shaka has been built up over a century or more of *conflicting number of unrerliable accounts into a form predicted not on the strength of evidence, but on the demands of the European genre.*

There is a lot to document on Shaka, and this could be a study in itself. For the context of this dissertation though only information pertaining to the built environment and that linked in ways of how people lived will be deemed relevant.



This is a recent article, Fri 4th of June 2004, and some people still vote King Shaka as their favorite South African. This goes to show that past leaders are still very well regarded by the nation. So the traditional leaders museum will definitely be very appreciated by the public.

greatest South African?

esident Nelson Mandela and other contenders for the title of greatest South African are, clockwise to, FW de Klerk, Walter Sisulu, Gary Player, Brenda Fassie, Desmond Tutu, Hansie Cronje, Charlize be.

PICTURES: DARRYL HAMMOND, TOUCHLINE

in September, olwana Sangqu will announce itizen.

The SABC3 organisers say points to consider when making your selection include: What is greatness? What makes someone qualify to be a great South

Chris Hani and Ingrid Jonker; courage, Hector Petersen, Patricia de Lille, Natalie du Toit; and influence, JRR Tolkien, Winnie Madikizela-Mandela and Mark

run until the winner is announced in December.

Each documentary will be presented by a champion celebrity who will try to

My vote goes to King Shaka, nation builder

FRED KHUMALO

Opinion

JOHANNESBURG — Long before there was Nepad and the African renaissance, ages before South Africa was constituted as the republic it is today, King Shaka lived in an area now known as KwaZulu-Natal.

He was born of an extramarital liaison between King Senzangakhona of a small Zulu clan and one Nandi of the eLangeni people. From these humble beginnings he grew up to be one of the most famous sons of the African soil.

As an illegitimate child he was ill treated as a boy in a society that frowned upon "social rejects". He grew bitter, angry and ever ready to fight.

He and his mother finally settled among the Mthethwa clan, who gave them respite. There Shaka distinguished himself as a fighter.

His father Senzangakhona visited and was so impressed he told the young man that when he died he would become chief. But that was not to be.

GREAT WARRIOR: King Shaka is revered as one of South Africa's military heroes.

Before Senzangakhona died his many wives had influenced him to bequeath the chieftainship to another of his sons, Sigujana. But Shaka took his regiment from the Mthethwas and marched on Sigujana's chiefdom, where he killed his brother in battle.

That was the beginning of Shaka's kingdom. Once on the throne, Shaka set about revolutionising his army.

Warriors had used long spears that they threw at the approaching enemy. Shaka introduced a short, stabbing spear, the *ikluva*. It compelled his warriors to fight the enemy at close quarters with one instead of many spears.

Most importantly, he was the first

coats at Isandlwana in 1879. That loss is still considered the most humiliating defeat ever suffered by a colonial army.

The Isandlwana encounter changed the course of South African history.

Shaka started attacking neighbouring clans and incorporating them into his growing, ambitious Zulu formation.

He was murdered in 1828 when he was about 41, but in the 12 years of his reign he managed to incorporate many smaller clans into the Zulu nation.

The Zulus' might became a talking point all over the world and the British respected King Shaka highly.

Historians have argued that Shaka was bloodthirsty. But so were the British, the French and other successful colonisers. As all imperialists know, to expand you have to conquer. And that entails battle.

That truth is unpalatable in these politically correct times.

The reason Shaka is still remembered today — mentioned in the same breath as Napoleon Bonaparte, Hitler (minus the racist, fascist bit) and other pioneers and nation builders — is because of his success in fashioning a small Zulu clan into a powerful nation whose legacy is felt to this day.

People whose languages have their roots in *isiZulu* can be found as far afield as Zambia.

Census 2001 reports that Zulu is the mother tongue of 23,8 percent of the population, followed by Xhosa at 17,6 percent, Afrikaans at 13,3 percent, Pedi at 9,4 percent, and English and

SPACE MAKING PRINCIPLES

WHY ?

Architecture is a scientific discourse that needs to substantiate its findings from noteworthy findings. It is for this reason that its necessary after looking at the Zulu history that one then needs to work with the established principles to deduce findings that can start to set up answers for the question at hand - space making.

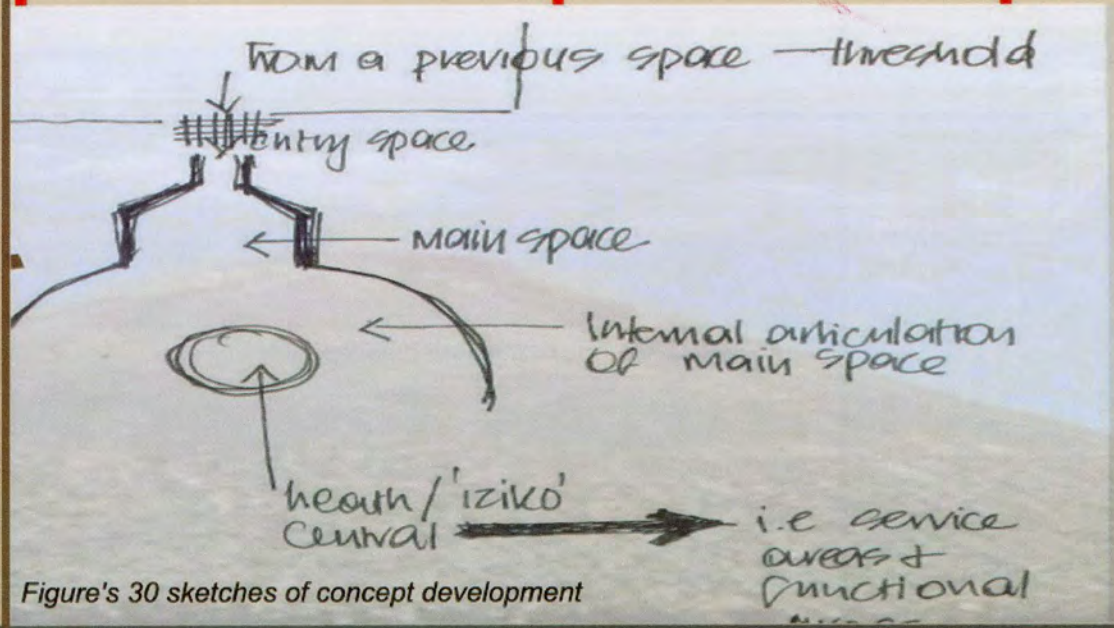
FOR WHO ?

This is done so one is able to set up a typology of public buildings that have cultural significance in understanding space articualtion. In the past only domestic scale buildings existed.

HOW ?

This is probably the most challenging and will hopefully be an ongoing question for a while until an answer that everyone is satiesfied with has been found.

The Museum development takes a bold stride in setting up principles that define the how. The establishment says: Use the principles in the concept but use contextual site, building technology and appropriate construction methods.



Figure's 30 sketches of concept development

SPACE MAKING PRINCIPLES

MAIN IDEA - ZULU ARCHITECTURAL SPACE MAKING PRINCIPLES AT MICRO SCALE

RHYTHM

The circular form establishes a rhythm to the form. This works well at an urban scale with the rather circular form of the site The scheme is developed as well to adhere to that concetric pattern that is naturally established, thus creating a rhythmic whole.

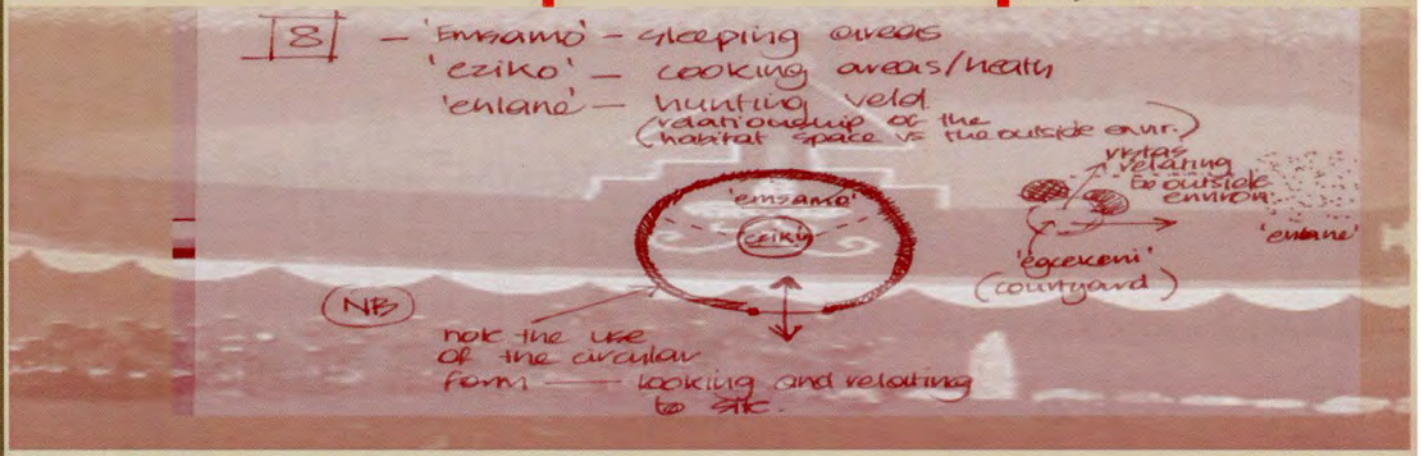
TEXTURE

The materials intially formed the texture.This is interpolated into the sheme development - where materials express the tectonic nature of the building.

AXIS

There is one main central axis established through the central space.

In the museum building this is so too. The main circulation space links all relevant points. The linear lines all jut out from the central "izinsika" structures - adhering to rhythmic axis established.



Figure's 30 Sketches of concept development

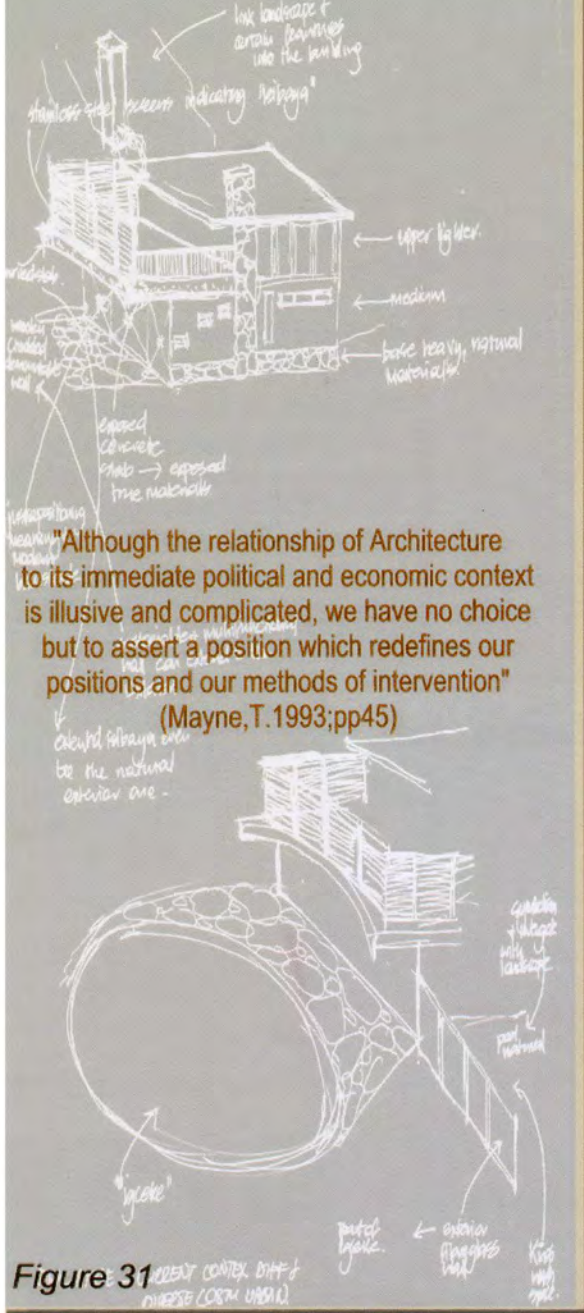


Figure 31

A building that create a series of fluid transitional spaces that reflect back to the context - nature (Msimang,B. 2004)

Figure 32 Concept model-development

SPACE MAKING PRINCIPLES

MAIN IDEA - ZULU ARCHITECTURAL SPACE MAKING PRINCIPLES AT MICRO SCALE

HIERACHY OF SPACES

From the development of the village the spaces are ordered accordinlgy. In the concentric form the right hand side is the most important side as to the left. Thus the important buildings are on the right and the supporting functions are on the left, restaurant, services etc. The "indlukulu" is also very significant and is placed symmetrically to the entrance. Its the first building that one comes accross upon entering the Museum Village establishment.

Within the establioshment,the public spaces also have hierachy. i.e "igceke" is more private than the "inkundla" space area.

Figure 33 copncept of the village

FORM

The form of the building is developed through the design aim and the architectural functional qualities. The most important aspect is finally for Architecture to be a vehicle of ordering objects and concepts into a form that WORKS!

Figure 31 development of form

URBAN CONTEXT

The analysis and developments made by the design consortium for the first phase were taken as they are.

The idea is to create a scheme that is not self referential but part of the existing urban fabric.

Figure 33 Village parking

MUSEUM SUBJECT MATTER

WHY THE CHOSEN BUILDING TYPOLOGY

NEED

There was already a need in Tshwane for such an establishment. This makes the development relevant and part of raising solutions in the transformation issues of our country.

EXPRESSION

One is able to express the ideas fully in such a building.

This becomes a pilgramage that the public will regard a s a place of pride and inspiration of their heritage.

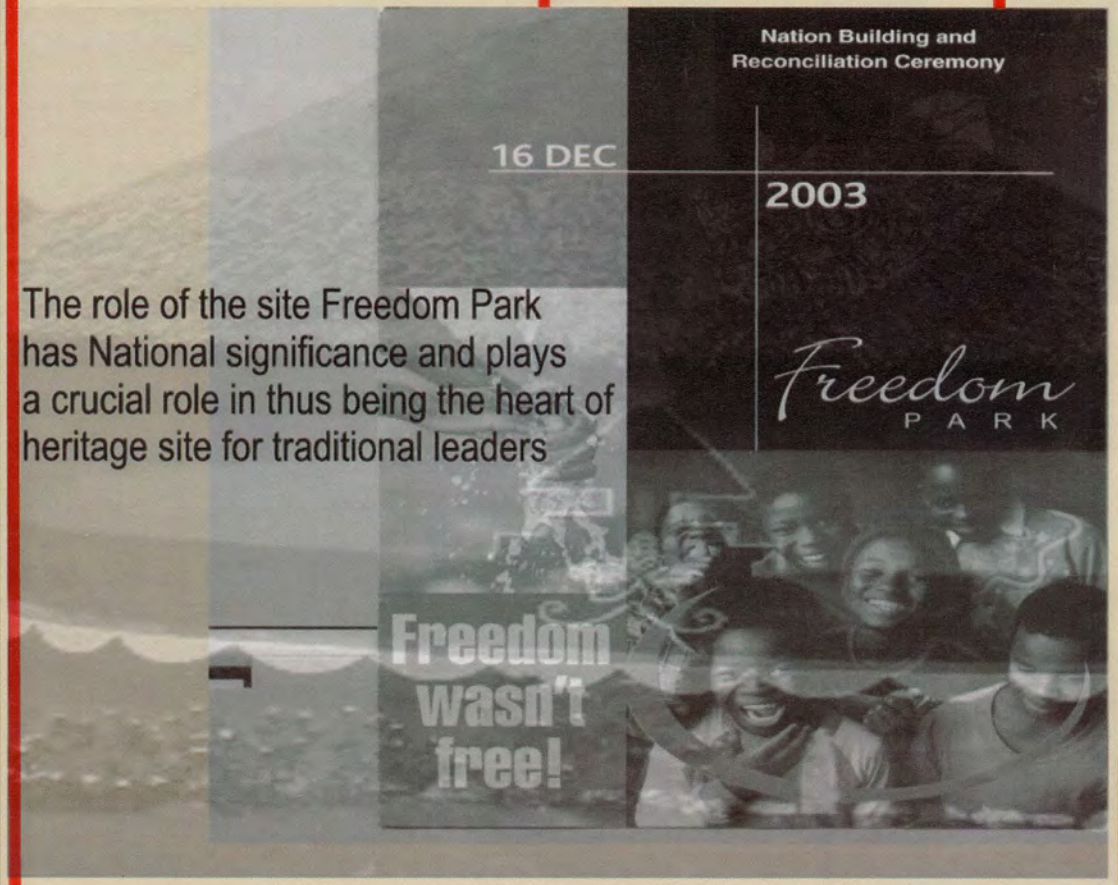
HISTORY/LEGACY

With a Museum building, one is able to leave a lasting impression for the public and for future generational public.

"Museums were intended primarily for the presentation of a dying past, that's why most were created. We are engaging here in thinking about the Museum's role in creating a public culture"(Inglis,S.2000; pp45)

Figure 35 Traditional Leader's Museum village concept model development

The role of the site Freedom Park has National significance and plays a crucial role in thus being the heart of heritage site for traditional leaders



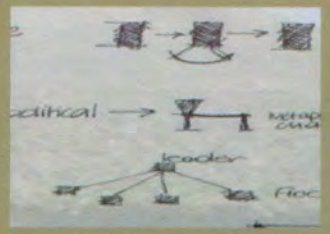


Figure 30 concept development

Figure 31 analysing iqhugwane

Figure 32 photo ofl inxiwa

CONCEPT

From the inception of the project the main aim was to bring about a language that will communicate the early"Zulu" way of doing things in the built environment, to today's modern building typology and context.

The concept of creating a home in the "inxiwa" form was the main driving force. The inxiwa consisted of a number of huts that made up the family unit.

The brief stated a need for a museum, which is for traditional leaders. The client wanted a place that will talk about the past, present and the future of South African leaders. The place that will teach all generations about their heritage.

The Zulu culture was then selected as a vehicle for stream lining ideas. Any South African culture could have been chosen. In this a choice of the main village was chosen. The ideas are carried from the artculation of the forms from the urban scale right to the interior detailing of structures.

The reason for chosing global construction methods is so a structure that is robust and durable can be achieved. A structure that is feasable in materials and financially in today's global age. This also makes the structure contextual.

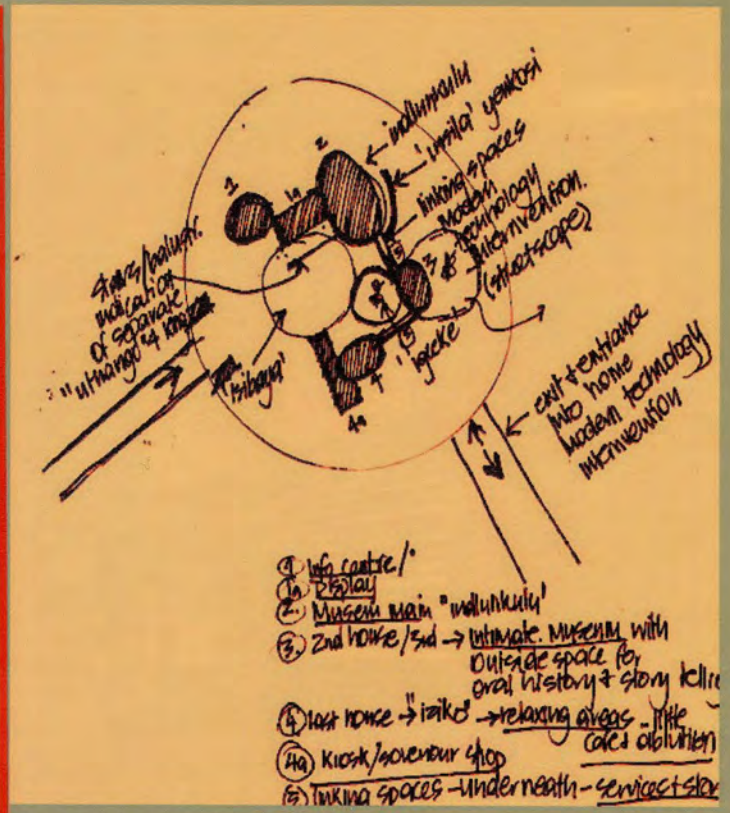


Figure 33 sketch development

THREE PILLARS THAT FORM THE CONCEPT AS A WHOLE

THE ENVIRONMENTAL ASPECTS OF THE SITE PLAYED AN INTERGRAL ROLE IN GIVING FORM TO THE BUILDING

TRADITIONAL SPACE MAKING

That is taken from the Zulu traditional space making techniques, and articulation of living that brings about form.

Figure 36 visitors in iqhugwane

GLOBAL TECHNOLOGY EXPLORATION

This means materials are employed that are globally used, with contemporary construction tecnhiques, this helps the building in its global influence.

Figure 37 detail of louvre system

ENVIRONMENTAL FACTORS

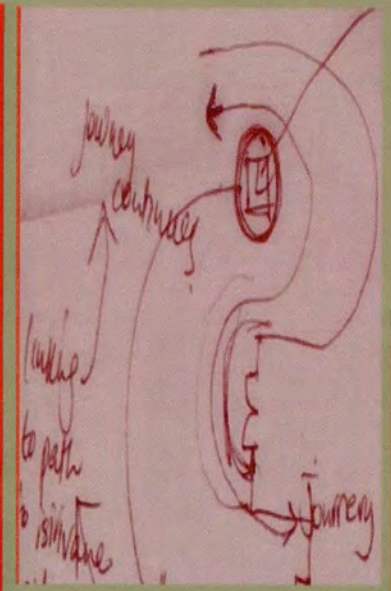
The site is a greenfield, thus any construction that is to be employed must be done with sensitivity. Intense environmental studies are done and used as part of decision making for construction.

Figure 38 photograph of environment of the site

COMPOSITION

BRINGING TOGETHER DIFFERENT ELEMENTS TO COMPOSE THE FORM

DEVELOPMENT FROM SITE CONDITIONS



meandering contour lines

Figure 39 sketch development

THE FORM EVOLVED AS A RESULT OF APPLYING DIFFERENT RESTRICTIONS ON THE ENVIRONMENTAL CONDITIONS AND THE CONCEPT. THE REFINING THOUGH WAS AS A RESULT OF MAKING THE WHOLE COMPOSITION FUNCTIONAL!

DEVELOPMENT FROM CONCEPT

Internal core generating auxillary functions

Figure 40 sketch development

DEVELOPMENT STRUCTURALLY

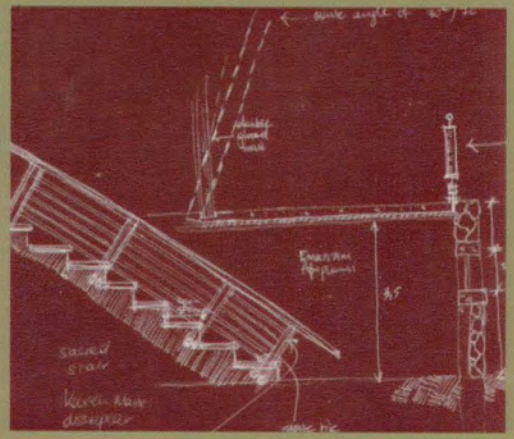


Figure 41 staircase development

CIRCULATION

"IZIKO" IS THE MAIN CIRCULATION AREA, WHERE ONE EXPERIENCES THE BUILDING AS A WHOLE.

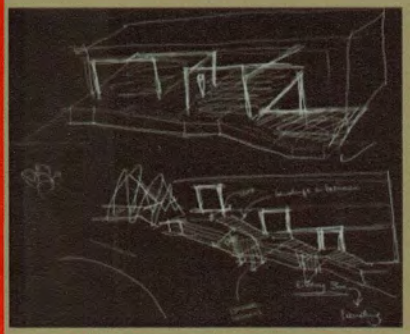
DEVELOPMENT FROM THE MASTERS

In the guggenheim Museum the central ramp might have been critisised that it occupied too much space than could actually be functional. In the High Museum of Art by Richard Meir we see a similar articulation. In this example though a different approach is taken with the ramp being used from the point of entry.In the African Infusion the same element of using the ramp to assist viewers into the building is adopted. The ramp is a good solution as it works for people in all physical conditions.

THE USE OF SPACE IS ARTICULATED WITH THE HEART OF THE CONCEPT IN MIND - AND THAT IS TO CELEBRATE THE CENTRAL SPACE. THIS IS EXCITING AND INTERESTING AS ONE CAN SEE HOW ARCHITECTURAL ELEMENTS OF DESIGN MERGE WITH THE AFRICAN TRADITIONAL CONCEPTS.

CIRCULATION CRITICAL ELEMENT - LIGHT

Light is used to inform and shape the spaces.Transparency and openings invite the viewer from one space to another. This light can also be said to accentuate the feeling of freedom in the space.
The vast glazed northern facade allows for unlimited light supply into the building, Whilst the clerestory louvre and glazed area allows for additional light.



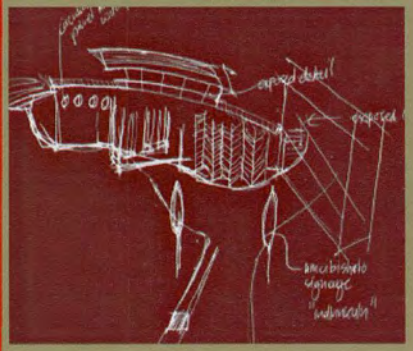


Figure 42 spatial development

Figure 43 picture law bld UP, glazing

CIRCULATION CRITICAL ELEMENT - AIR

Air circulation around strategic areas is dealt with in more detail in the services section. The area of vast volumes and spaces allows for easy air circulation.Whilst smaller areas have ample openings to allow air movement.

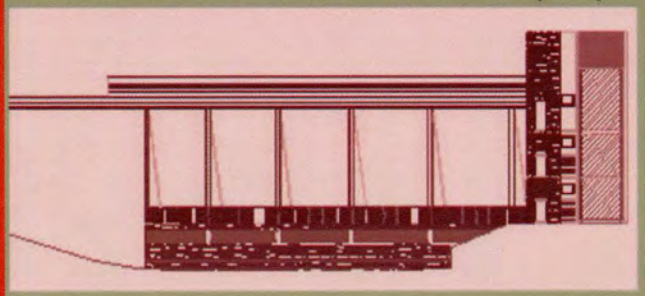


Figure 44 elevation development

FOCAL POINT

THE INDLUNKULU - MAIN MUSEUM IS THE FOCAL POINT OF THIS DEVELOPMENT

FORCES THAT GENERATE THE FOCAL POINT

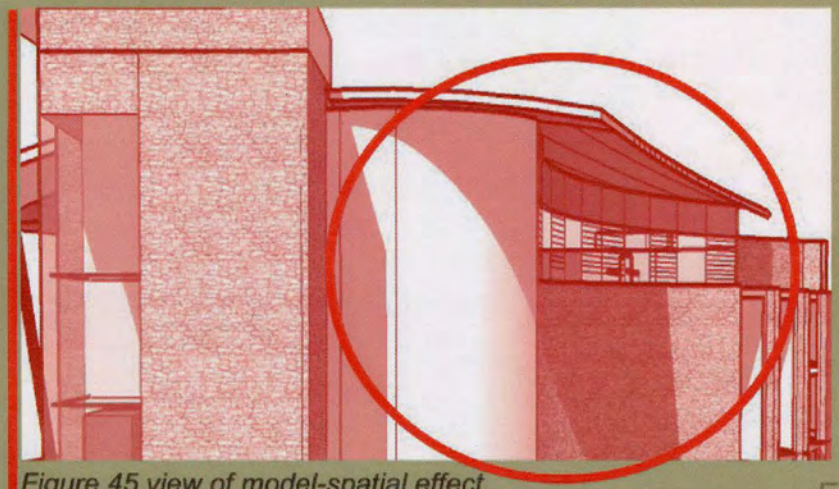


Figure 45 view of model-spatial effect

THE CENTRAL SPACE PLAYS A MAJOR ROLE, WHILST IT GENERATES THE SUPPORTING FUNCTIONS THAT ARE CLEARLY DISTINGUISHED.

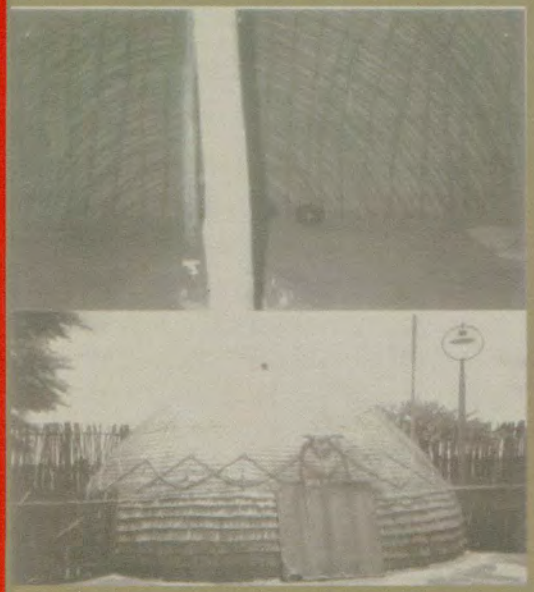
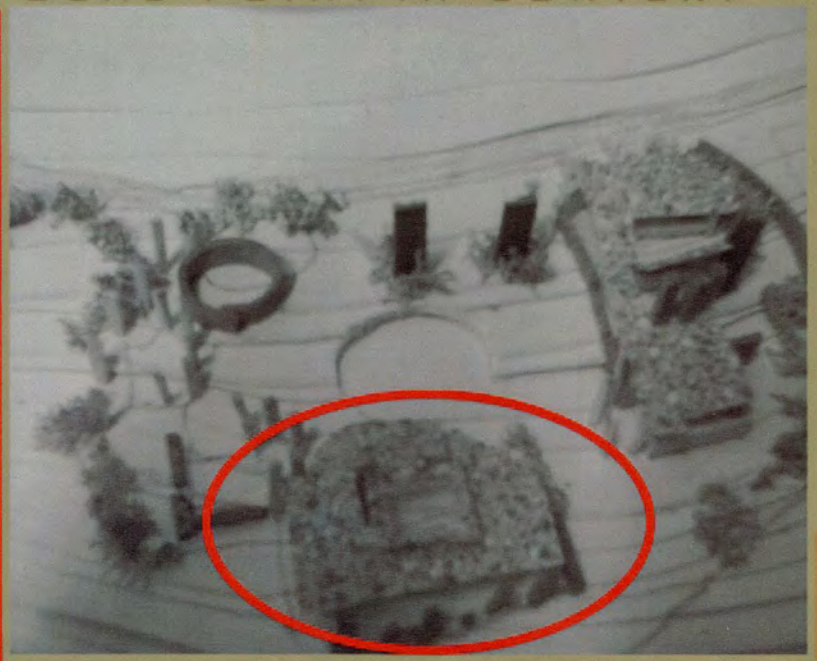


Figure 46 picture of original iqhugwane spatial qualities

FOCAL POINT IN CONTEXT



THE STRUCTURAL BASICS - POINT OF DEPARTURE

AIM

The structural and construction elements have been chosen with their role as significant members. It is important to note the number three (3) and its multiples as playing a significant role. This is from the tripod concept of the tri – king, legend and warrior,
Its encapsulated with the role of the museum – past, present and future.
Everything within construction is supported by this numeric order.

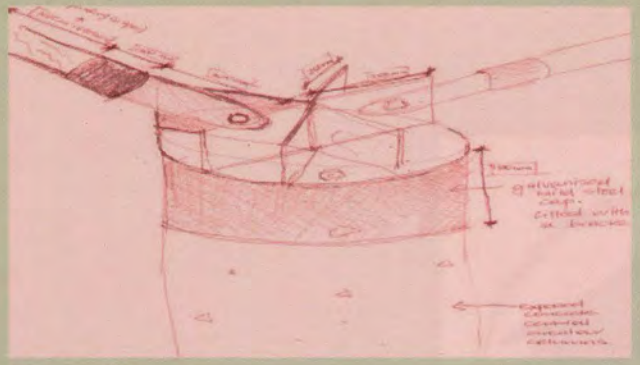


Figure 62

TO HAVE THE SAME POINT OF DEPARTURE
FOR EVERY IDEA - " THE HEART' OF THE PROJECT
HELPS CREATE A CONSICE LANGUAGE TECHNICALLY

DESIGN-AIM

Indlunkulu/Main Museum – Structural component consists of the original "izinsika" in a house as well as the frame which in this case is the four main concrete, stone clad "izinsika" with the curvilinear roof frame extending to the northern façade.

The izinsika /structural columns are carefully considered in their appearance and structural component. They are proportional to the gigantic space as they extend the whole 9m, they are 500mm thick in diameter without any taper, to be able to withstand the length of the extension. The top or the apex of the columns tapers in a carefully considered lattice work that is radial and joins to the roof member. The structure serves two functions of strength and stability as well as giving the aesthetic spatial arrangement to the whole space. The visual lines are all linked as to make the building read as a whole and avoid a lot of overwhelming features.

Figure 61 Precedent view of walkway

CRITICAL ASPECTS

DESIGN & ASSEMBLY

The solid shell as an order; rhythm and composition, windows and openings, method of openings and merging with outside, all stems from the "heart" of the project which is about the interpolation of original Zulu structures, and the way of living into today's modern building methods. The inside and outside merge.

The openings, their position and sizes are primarily determined by light and ventilation requirements, but in the same token it is also based on concept being articulated in that space. I.e the front doors are a good example- the concept of the Number three being articulated as well as tongue in cheak comment on the size of the doors - gigantic doors as opposed to the original minute doors. (Though the concept of layers is incorporated directly by having two skins to the door. The glazed door which helps maintain room temperature and helps the air conditioning system to work efficiently. While the final skin layer is for security and overall protection of the Museum entry.

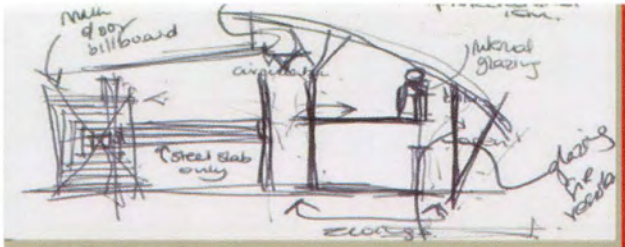


Figure 69 Section sketch development

"INDLU ENENSIKA INESISEKELO"

AN IDIOMATIC EXPRESSION SAYING A HOUSE THAT HAS STONG STRUCTURES/SUPPORT HAS A GOOD FOUNDATION TO SURVIVE ALL THE STORMS OF LIFE.

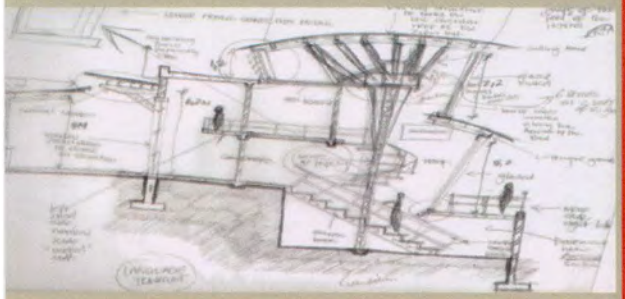


Figure 69 Section development

ELEMENT OF IZINSIKA/COLUMNS

CONCEPT

"Izinsika"(Columns) in the original "guqasithandaze"/beehive home, were used as structural supports as well as space articulating devices. The dermacation of areas/space within the house was through this central core called - iziko

Figure Insika eqhugwaneni - column structure

DESIGN

In the design it was necessary to have a central supporting elements due to the way the central circulation space is organised. These columns are repeated, equally spaced in order to span the distance of the vast Museum.

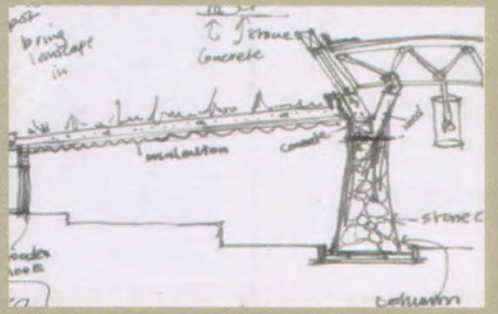


Figure Section development

CONSTRUCTION

The spec: 500diameter concrete column, with a rough cast finish and junctions used will be of steel with wooden struct members joining in tension to the roof.

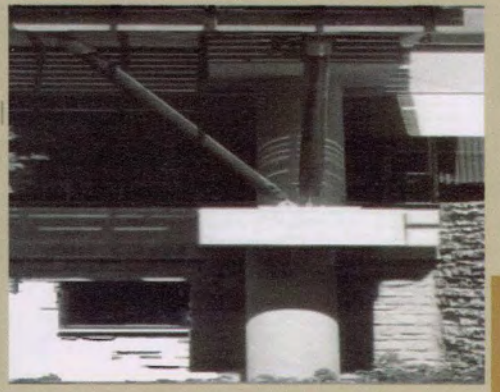


Figure Employment on precedent

CRITICAL ASPECTS - LIGHT STRUCTURE

BALUSTRADE

ITS IMPORTANT THAT A CLEAR UNDERSTANDING OF THE ARTEFACTS IS BORNE IN MIND WHEN THEY ARE APPLIED AS CONSTRUCTION ELEMENTS.

IHAWU IS WIDELY USED TODAY AS A SYMBOL BUT NOT WITH UNDERSTANDING OF ITS ORIGINAL FUNCTION. THIS IS UNDERSTOOD CLEARLY IN THIS CONTEXT OF THE TERRACE DESIGN BALUSTRADE IN THE MUSEUM DEVELOPMENT.

Figure 70 Emerald Hotel

Its not about the direct interpolation of the artefact, which shows little understanding of the symbolism of the artefact

CONCEPT

Figure 71 Imvunulo-dress-code

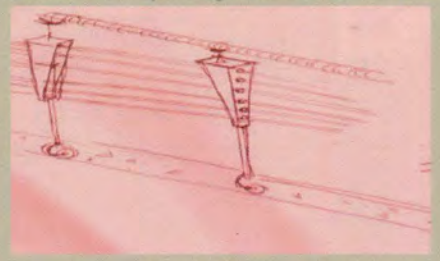
"Ihawu" is a very well known Zulu artefact. The importance of it is as a shield. The balustrde works as a shield to the main facade that is facing the city. It is the reason I have adopted the shielding concept to the balustrade.

linking bridge concept

DESIGN

Figure 72 sketch development

Understanding of the devise and its importance is explored -"ihawu" with contemporary materials - steel.



construction of the spear linking balustrade

CONSTRUCTION

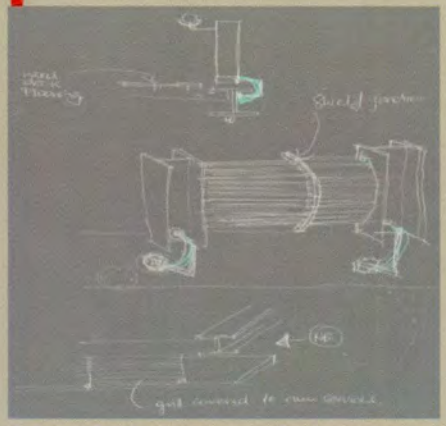
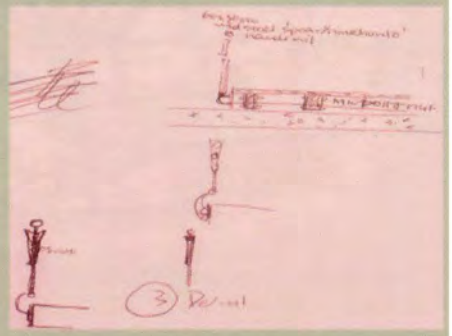


Figure 73 joinery detail development



joinery methods explored

CRITICAL ASPECTS - LIGHT STRUCTURE

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linking bridge concept

D ESIGN

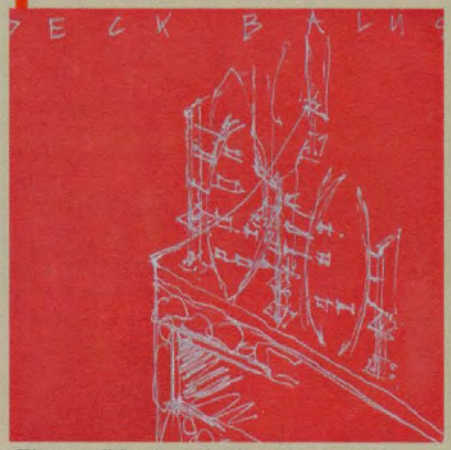
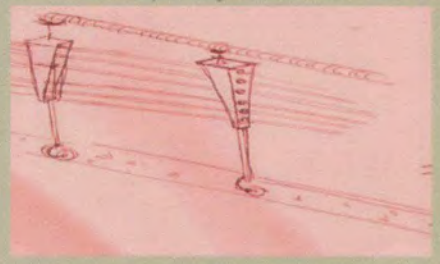


Figure 72 sketch development

Understanding of the devise and its importance is explored -"ihawu" with contemporary materials - steel.



construction of the spear linking balustrade

CONSTRUCTION

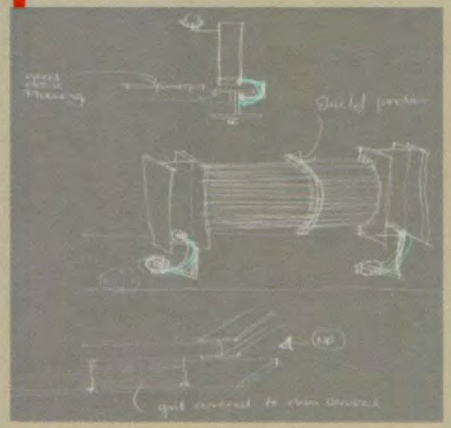
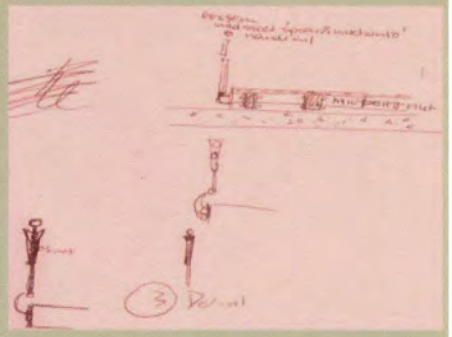


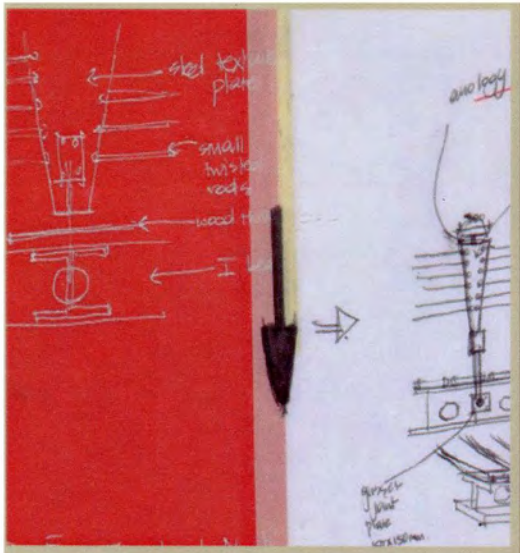
Figure 73 joinery detail development



joinery methods explored

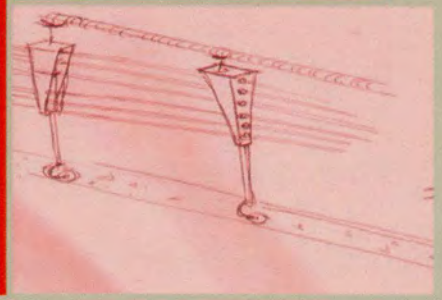
CRITICAL ASPECTS - LIGHT STRUCTURE

BALUSTRADE



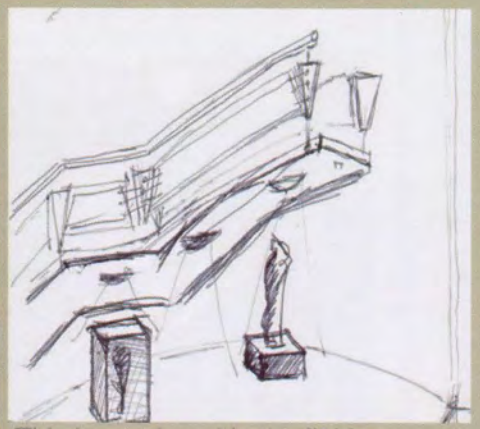
ITS IMPORTANT THAT A CLEAR UNDERSTANDING OF THE ARTEFACTS IS BORNE IN MIND WHEN THEY ARE APPLIED AS CONSTRUCTION ELEMENTS.

CONCEPT



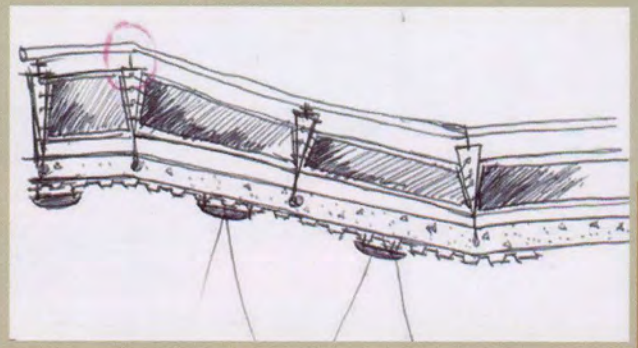
The second balustrade type uses the concept of Shaka's short spear. He invented this spear as to make his warriors stronger, being able to go at an enemy at a close distance - "umkhonto"

D ESIGN

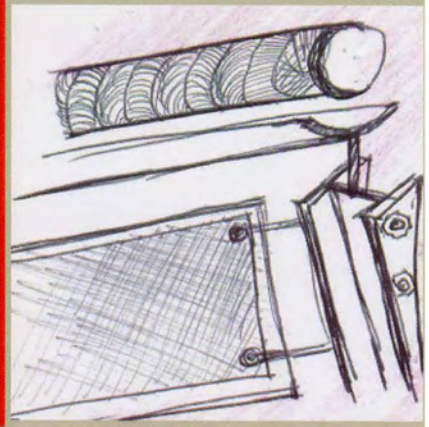


This is emploeyd in the linking bridges and the internal ramp balustrade made of glass panels.

The space under the ramp is utilised for different functional exhibits, no is regarded as a "dead" space.



CONSTRUCTION



3-d detail solution of the balustrad

The enclosed spaces are solid, but a rhytmic pattern is estabilieshed that is related to structural orders i.e light vs heavy, past vs contemporary etc. The construction method between outside and inside is similar, no clear distinct boarder exist, this allows the inside space to extend and dissolve to the outside spaces. Durability and ease of assembly is important with all elements.

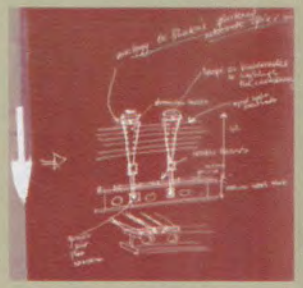


Figure 63 detail

Figure 63 precedent detail

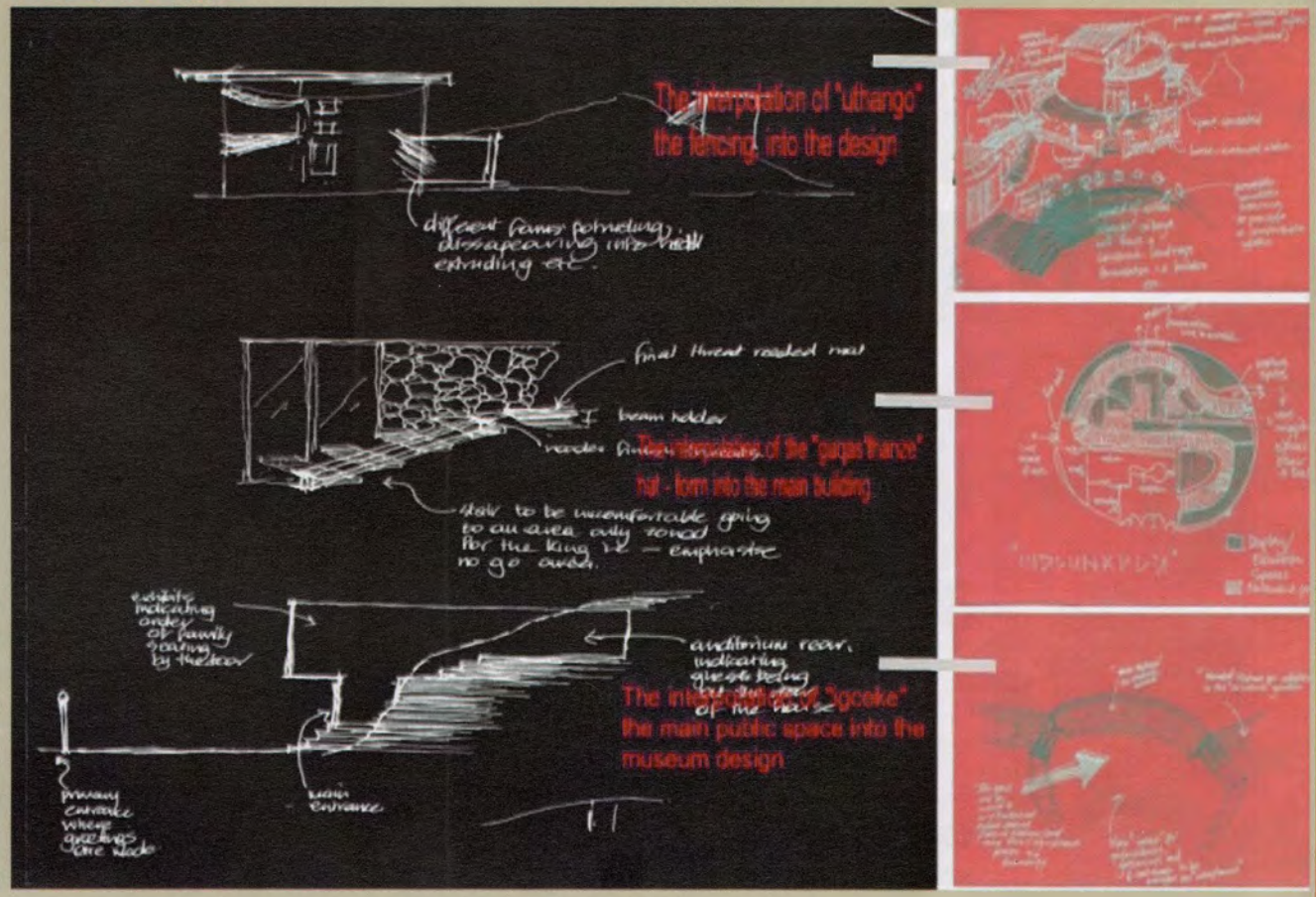


Figure 64 exploration sketches of building constuction elements

ASSEMBLY

CRITICAL ASPECTS - ROOF

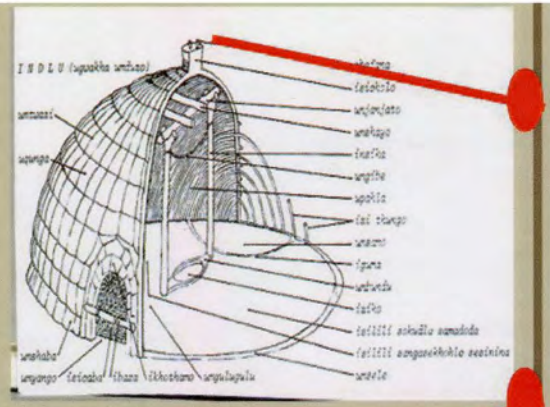


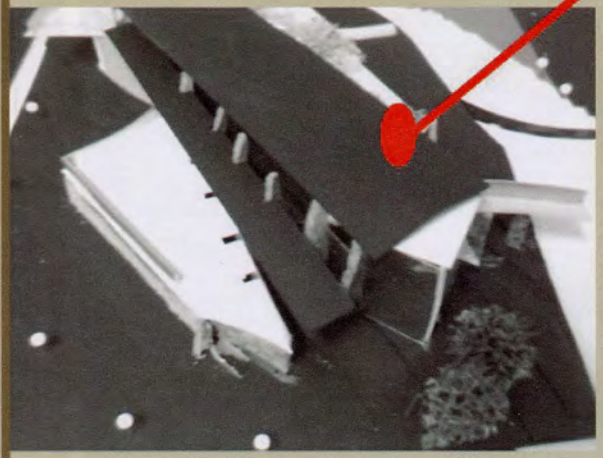
Figure 79 women with isicholo

THE ROOF OF THE BUILDING IS IMPORTANT AS IT IS SAID TO BE THE "HAT" OF THE BUILDING

CONCEPT

The original iqhugwane, the roof was jointly a wall structure semultaneously. The apex of the roof was called "isicholo" with 'abafana" as lightning conductors ontop of that.

The elderly womens headdress was from this apex, also called "isicholo"



DESIGN

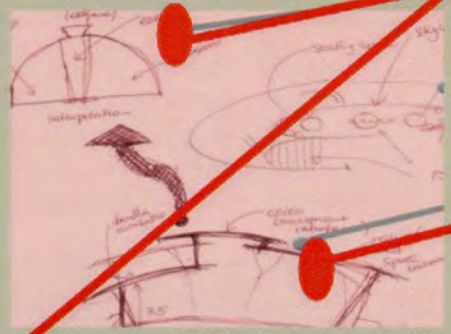
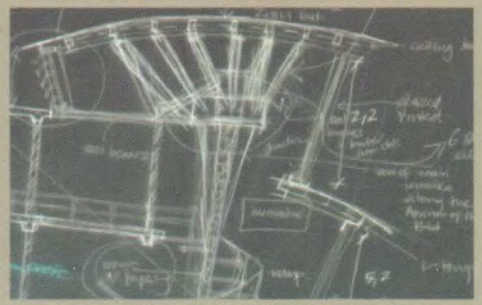


Figure 80 detail development of the roof

The roof's development initially was a direct translation of the concept, Through a refining process it was resolved and simplified to a single fold structure. This new roof form still maintained the essence of the whole concept.



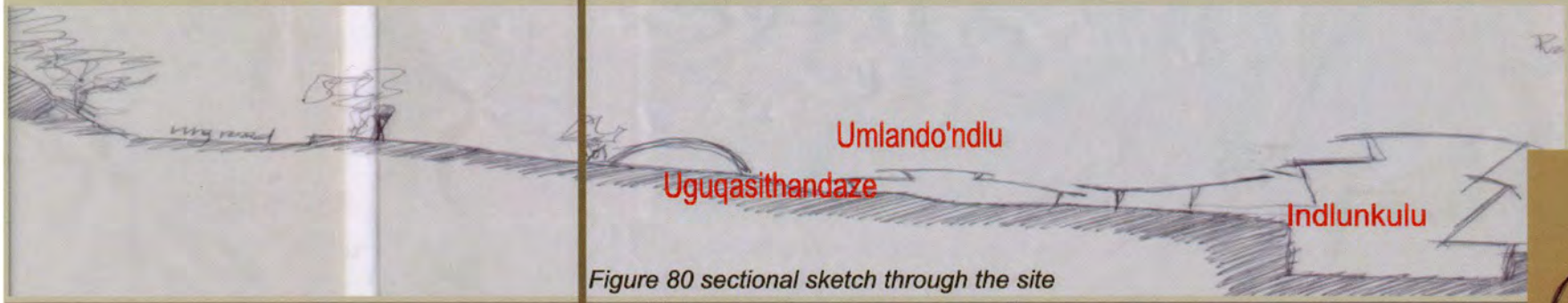


Figure 80 sectional sketch through the site

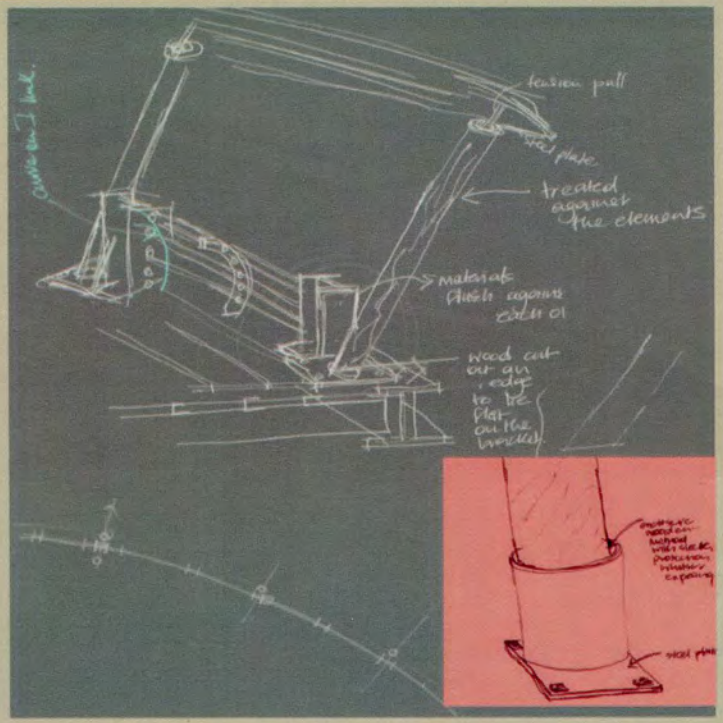


Figure 81 Development of structures that support the roof

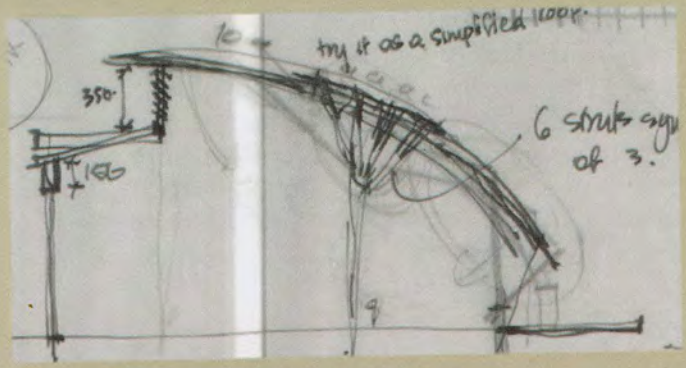


Figure 82 internal "insika" development

The roof sheeting is to fit into patented clips, Clips fixed through 38mm x 38mm steel spacers to prevent heat bridges. Insulation foil can be laid. There is a 20mm flakeboard ceiling where specified. The main lamined beam is in saligna wood.

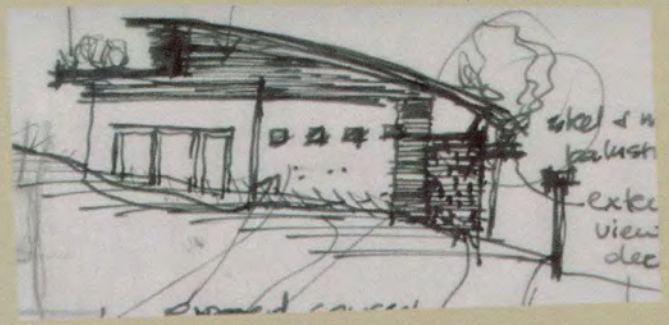


Figure 83 East view development of the roof

The resolved roof consists of elements that form part of the original concept understanding.
The roof is also resolved to the technical and service satisfaction. I.e The undulating curve also serves as a light screen to the vast glazing on the facade.

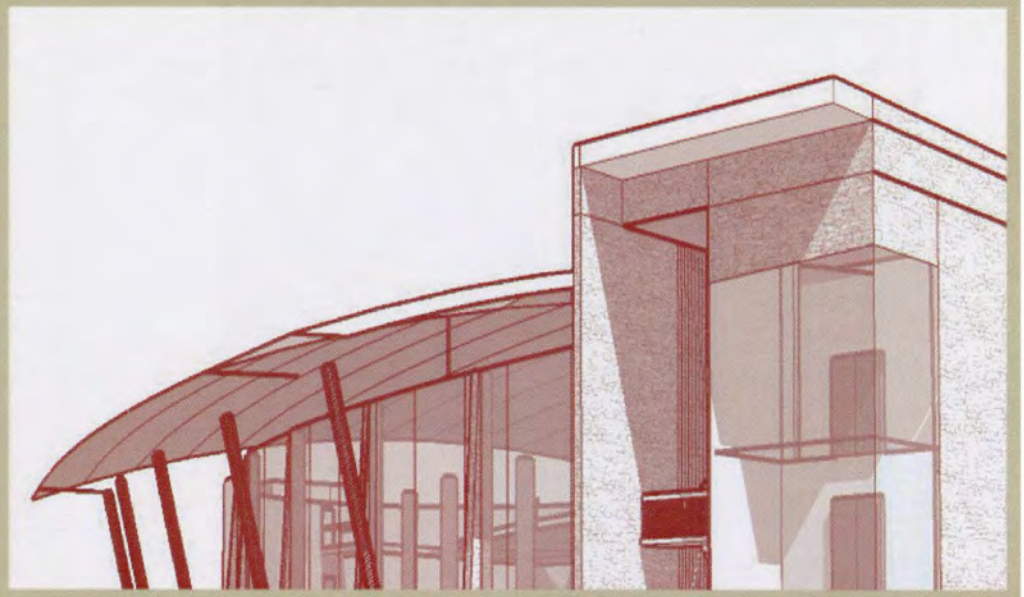
The apex is created through the ventilation ducts at the the top, while the light wooden structs that bring the roof down also serve as abafana and isicholo in their functional articulation.

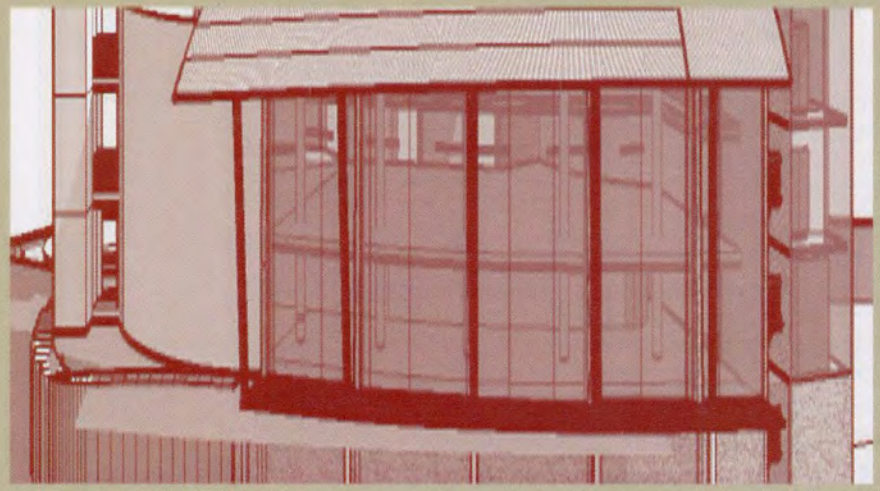
SPECIFICATIONS

The roof has a an aluminium finish with embossing textured to fit in with the landscape. Aluminum was a material of choice because of its corrosion resistance. Excellent formabilty quality and it is also sustainable in the long run because of its thermal quality. It easily prevents heat loss and thus reduce energy requirements by the air conditioning system.

The Mill Tech Spec from Hullet-Aluminium is sheets that are 7000mm x 500mm width from a thickness of 0.4 to 3.0mm. In this application a thickness of 2.0 will be chosen.

Ceiling Spec: 6.4mm reinforced plastered ceiling boards from rhinoboard gypsum industries limited or similar approved manufacturer, placed 400mm centres with 3mm galvanised clout nails spaced at 150mm centres.





Figure's 84 3-d views showing the resolution of the roof structure

ROOF GARDEN

The application of a roofgarden was carefully considered. It is a known fact that in previous applications the lifespan of plants planted is questionable. A 300mm soil bed is the requirement of soil surface that will be used.

The reason the roof garden choice is made as a construction element is in line with environmental and vieshed analysis considerations.When one stands at the apex of the site, even at the newly constructted "isivivane garden, they are able to see the sourthern edge of the Museum building. The northen edge is the curving roof which slowy dissapears as it curves down the city horizon.This leaves the sourthen edge exposed. It is therefore much more appealing if its exposed with plant material. This is natural and in line with the environmental quality of the site.

3 indegeneous plant materials have been chosen that are found in South Africa and that survive in extreme weather conditions. This makes it easier for their lifespan to be prolonged and thus are easier to maintain.

Figure 85 Section- part of the museum where the roof garden is

Carpobrotus edulis

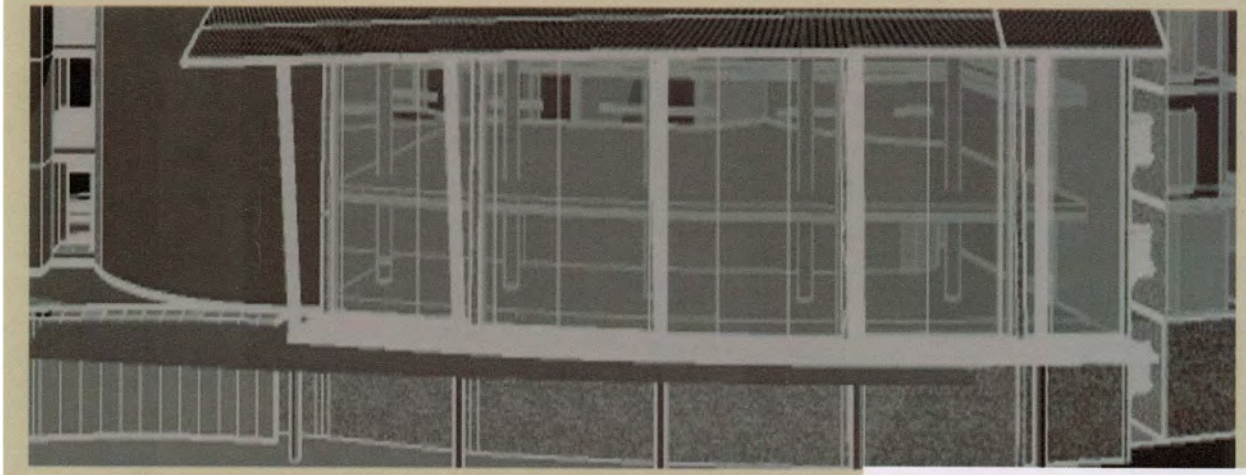
Arctotheca calendula

Lampranthus coccineus

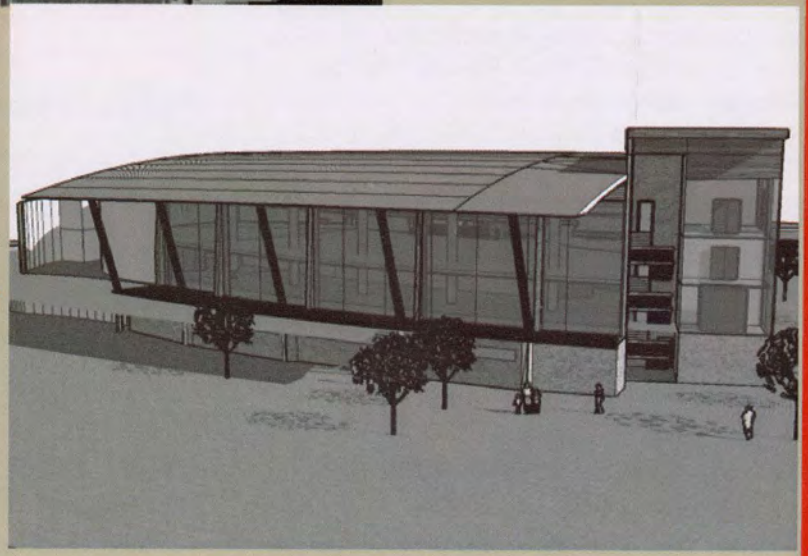
The visual quality of the choice of vegetation is also similar to the beautiful Pretoria townscape created by the aridly scattered Jakaranda trees.

GLAZING

The northern facade is fully glazed by the use of a curtain wall system. The openings serve as the main point of contact along the city elevation serving then as main vista points for the guests in the Museum.



The facade in this side of the building is articulated in such a way that one is able to be part of the external environment. The sun conditions are also suitable as to make this facade more exposed. The roof curving towards this strut allows itself to also serve as a shieldng device against the sunlight rays. The roof also helps maintain the lustre of the glass as the dust and other elements wont have direct exposure, thus minimize the occasions that this glazing will have to be cleaned.



Figure's 76 Northen facade views showing the glazing

CRITICAL ASPECTS - OPENINGS

DOORS: These are mainlly access devices, they are equally ventilation devices when applicable, i.e the service wing which is naturally ventilated.In this building a unique feature of the doors is them functioning as signage billboards. This is only applicable on the main 6m doors at the entrance when open.

WINDOWS: Windows are the main source of light into the building. The northen facade is mainly glazed as to allow light into the triple volume area.The windows used for ventilation are on the sourthern side of the building on the clerestory. These work on "economy system". Openings in other areas are mainly functional in terms of light and ventilation.

SHIELDING DEVICE: Shielding devices are used on the opening that are exposed To severe sun conditions, i.e the western facade. The shielding Louvre is made out of aluminum, and developed from a wooden structure. The main aim is for the system to be functional.

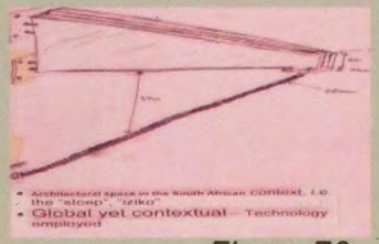


Figure 76

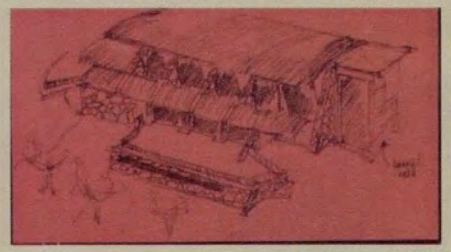


Figure 77

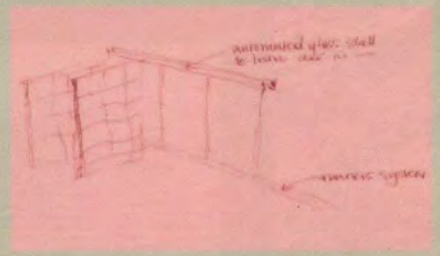
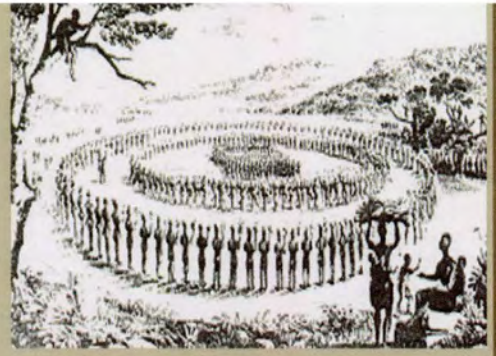


Figure 78

The main idea is that openings should form part of the building skin, and not create unessary openings, that is drawing from the original "iqhugwane" which had only one main opening. The weaving of the building skin was the nessary ventilatiion opening used.

STRUCTURAL ELEMENT - UTHANGO



THE TECTONIC CONCEPT OF THE BUILDING IS SIMPLE IT IS CONSTINTENTLY APPLIED THROUUGHT THE BUILDINGS. IT STEMS FROM THE GENERIC CONCEPT OF THE ORIGINAL BUILDINGS.

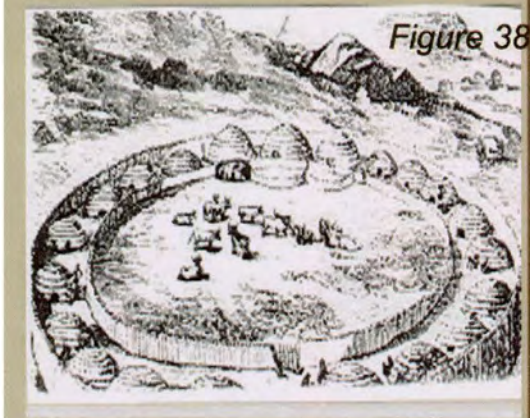


Figure 38

Figure 65 concentric forms resonating in armies and house/village construction

ORIGINILLAY EACH HOUSE HAD "UTHANGO" THIS WAS THE FENCING AROUND THE HOME. THE KING'S PLACE HAD ITS OWN "UTHANGO" AS WELL.

CONCEPT

A king's homestead - in this "inxiwa" the indlunkulu was in the middle of the homestead as well. There was also a house that was used for the storage of food and it was called "izinqulobane".The main house of the King was called "isigodlo". It is within the main "inxiwa" but it has its own "uthango"/ fencing separating it from the rest of the houses. The women were not allowed to enter this house unless the king was not around or the King had bowed-ekhotheme, which is to say dead. The protocol was to never say the King has died.

Figure 66 early fencing structure

DESIGN

The designs is interpolated into today's setting. The conept of "uthango" remains but it has been interpreted to be functional by using different elements and arriving at a lighting structure that is today's "uthango" around the "museum inxiwa"/Museum village.

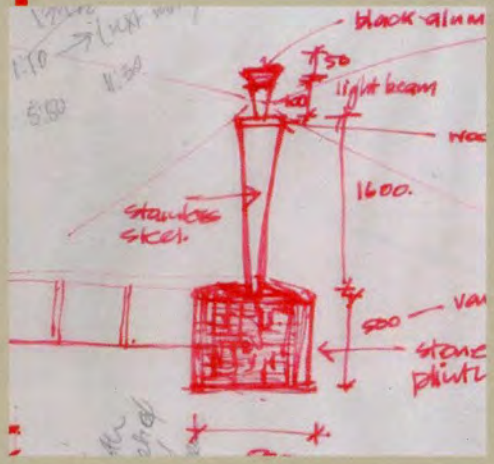


Figure 67 sketch of uthango development

CONSTRUCTION

The final product is a concrete column with a strong stone base where a small lighting devise radiates light in the Museum surrounds. Altogether forming a radiating "uthango"

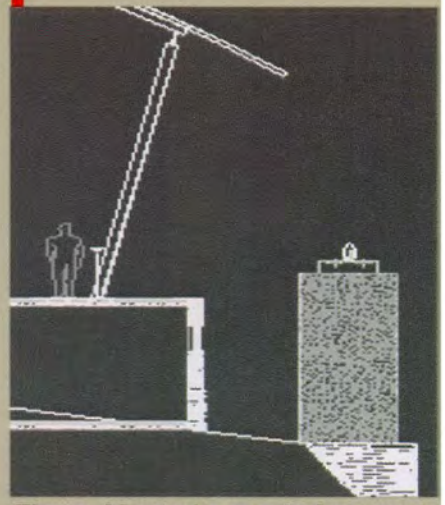


Figure 68 employment of concept

CRITICAL ASPECTS - LIGHT STRUCTURE
STAIRCASE TO AMATHOLE

THE STAIRCASE TO THE SACRED "AMATHOLE"/(ANCESTORS BUT IN THIS CONTEXT IT IS TO THE ARCHIVES AREA.)IS TO BE ROBUST YET ELEGANT. THIS IS A NEW/CONTEMPORARY ELEMENT THAT CANNOT EASILY BE LINKED TO ANY OF THE PAST ELEMENTS. ITS TREATMENT THEREFORE IS IMPORTANT AND INTRICATE.

CONCEPT

The concept is about having a sacred place within a house where the "amathole" were respected. A special area in the house where even food was kept for them

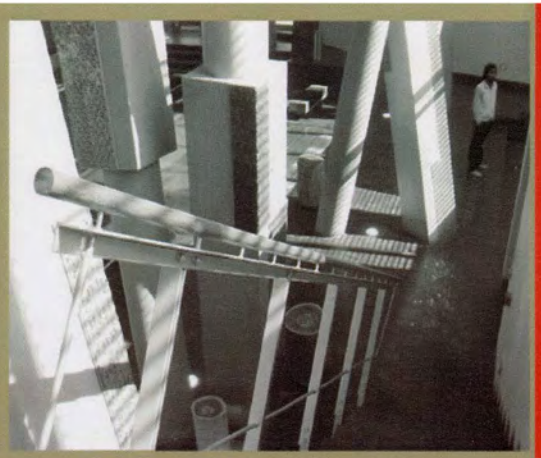
DESIGN

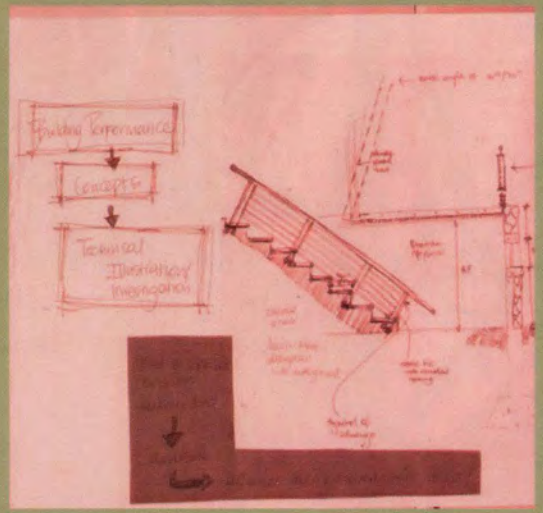
The concept is adopted,but celebrated in the contemporary manner of access through the staircase. The staircase is also working or taking advantage of the slope on the site.

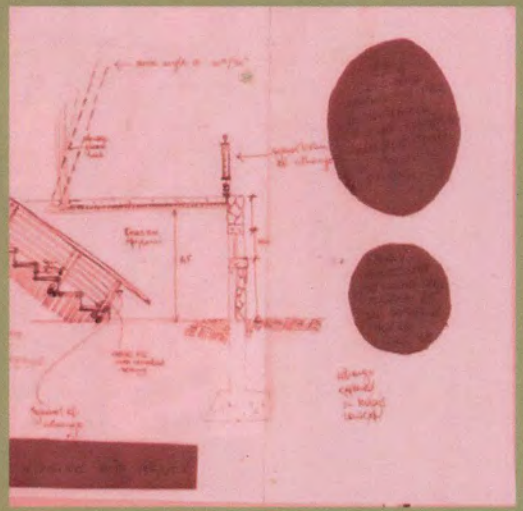
CONSTRUCTION

Light steel finish with a treated wood finish rail.30mm diameter.

Figure's 74 development idea of "amathole" - archive area, through sketches and photographs







The concept of descending to amathole is adapted from the cultural concept of respect. In the house these were places to be revered that even no one was allowed to stand. Archives are synonmous with history and thus have to be given respect. The stair, is a structural symbol of all of this.

The development of the staircase from a normal linear one to a circula stair is sigificant in the evolving nature of the ancestors and the mere refining of the structural elements.

Figure's 75 development of construction elements to support the concept idea

PRECEDENT STUDIES

1.CASE STUDY

MPUMALANGA LEGISLATURE, SOUTH AFRICA

We can be able to marry the advances of contemporary technical enquiry to the concepts. This building is one of the few precedents chosen, that one is able to link the technical enquiry to its set of concept. My scheme is not at all similar to the precedent, but it is able to identify with the notion of construction elements and also with the technical enquiry.This is done in such a way that some links have been established in developing my own technical language.

Figure 86 Mpumalanga legislature deck

2. PRECEDENTS

ROLE OF PRECEDENT STUDY IN THE DESIGN

2.1 Apartheid Museum

2.2 Hector Peterson Museum

2.3 Constitutional Court

2.4 Finish Embassy Buildings

2.5 Aalvo Aalto's buildings

2.6 Cape Town Convention Centre

2.7 General influences from Richard Meier and Frank Llyod Wright in form development

Precedents will be chosen for their significant role in certain aspects that embody what I am trying to interpolate as a designer.

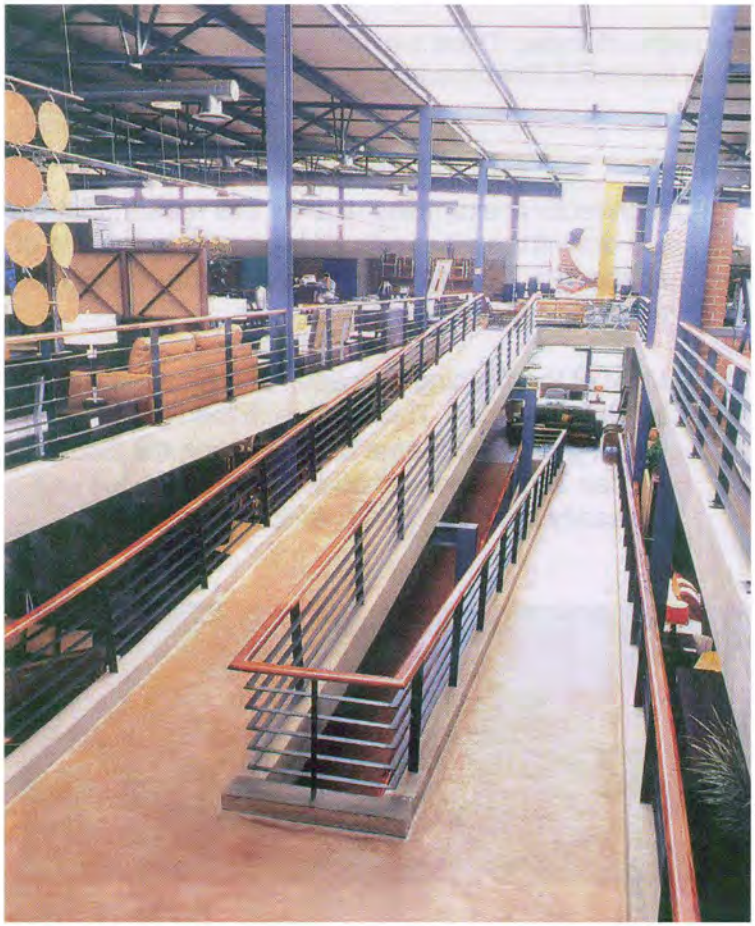
"*Architecture in South Africa is going through some significant noteworthy changes. There is a renewed interest in detail, texture, and light. The use of simple materials to create extraordinary features is fast becoming an admirable achievement - ingenuity is order of the day.*" (Fouche, Phillip).

South African Precedents

The Cape Town Convention Center is the initial precedent chosen. t has been investigated in terms of its role in dealing with execution of the design philosophy or concept into construction use of materials and the construction technology.

Precedents will also be drawn from literature and African artefacts in order to display the use of space. In some South African cultures the use of space in architectural design has not yet been fully explored, hence there are no readily available architectural examples. It is for this reason that we will draw from other arts - the parallel in the use of space. (I.e Zakes Mda's African literature which is rich in the African concepts)

Most of the building precedents to be used would be South African. This is done in the light of keeping with the theme of celebrating the South African context as well as exploring previous use of readily available South African materials.



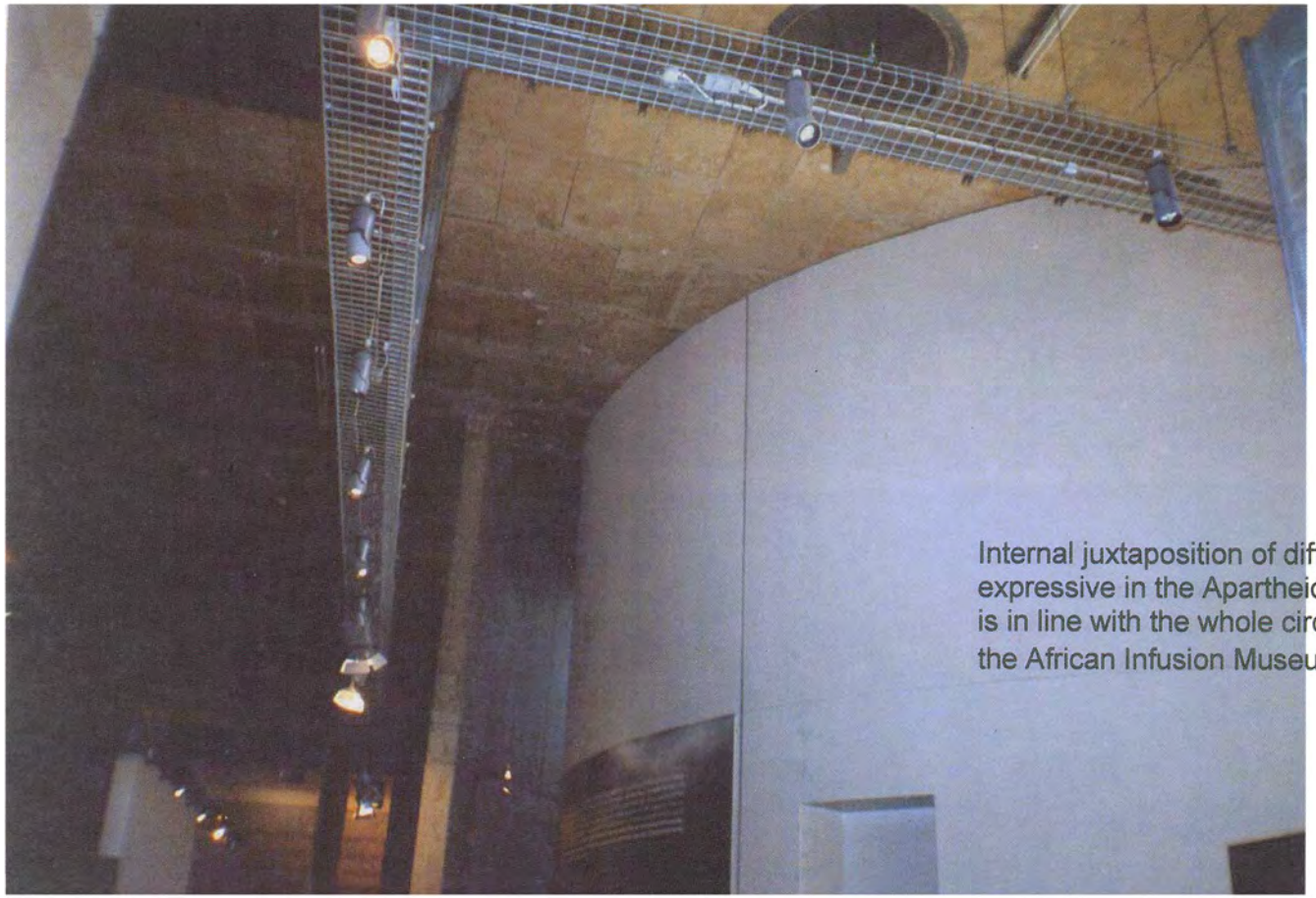
The articulation of movement in the building should be in such a way that all people can have access. The paraplegics, normal people alike. In the building there will be a circulation core that will allow for easy access.

The central core "iziko" in the building of the Museum will be mainly for circulation. The incorporation of the stairwell with a ramp and a lift will be secondary or ancillary

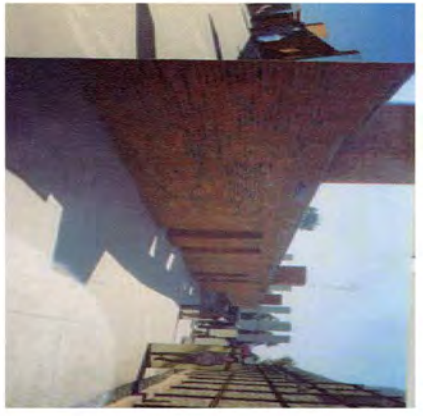
External linking spaces will be very significant as the buildings have to relate as a whole.

Although in the past no such typology existed, but the role of linking the spaces significantly in today's technology age can never be underestimated.

The way the entrance design is Articulated has to give the feeling about the whole place. The way this is articulated in the Apartheid Museum is expressive and done well. Ways in which this can be adopted into the Museum design are investigated And employed from this example.



Internal juxtaposition of different form is expressive in the Apartheid Museum and it is in line with the whole circular concept in the African Infusion Museum.



The interior finishes are to be natural and modern as they are displayed in the auditorium here, the auditoriums in the Museum will be used as technology centers where Video-conferencing and the likes can take place where the people in the city can be part of the actual i.e. ritual ceremonies that take place in the rural areas in KwaZulu Natal.

The use of carved wooden door panels at the newly built Constitutional Court in Johannesburg displays a splendid use of materials and allows the door to be any length by simply adding panels. There are twenty-seven panels which is a significant number pointing to the 27 legislations of freedom.

This will be also used in the entrance of the main Museum door. The significant number in this scheme is three (3). If the precise manner is used then the panels might have to be larger.

Different artist might be given a chance, using the same material and the same design restriction to design a panel of their own, adding to the beauty of the whole. This is also in line with the Zulu building method, as the whole community got involved in erecting the structure.

The incorporation of the text into the building (11 official South African language) will be investigated in the Museum at the entry where one has to use the ancient way of calling out – "ukukhuleka enxiweni"

The chandeliers use the symbolism of the trees falling as to carry the concept of Lekgotla throughout the design of the building. Hence in the scheme the concept of the Zulu inxiwa will also be carried out in the detailing.

The chairs are made out of the carved logs from the tree, again carrying the Lekgotla under the tree concept right through to the detail – The "esithumbanjeni" bench is one such example in the Museum development,

The Nguni hide represents the different attorneys at the court. The Zulu hide is part of the significant kraal symbolism. Strategic ways of incorporating aspects such as these will be brought across in the scheme. i.e The use of the material finish at the reception desk can be in a done in a similar way.

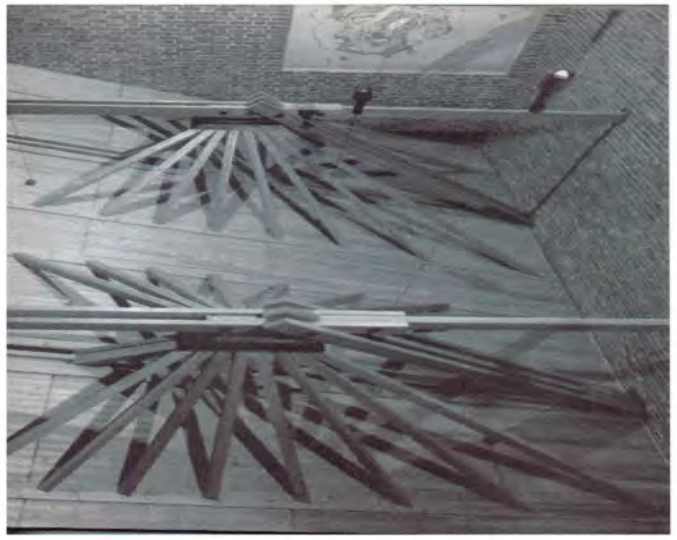
The structural construction of the columns is adopted for The Museum. The concept within which it works in the Museum is entirely different, but the use fits the purpose It is investigated for.

The symbols like the one used in the adjacent picture can be used (spiers as balustrade detail) but they must be used with an understanding that - that is not what defines a South African Architecture (or a building that draws symbolism from its rich heritage) but its rather about the space and articulation of the symbols and not merely symbols for symbols sake. How the symbols were generated with a particular meaning. Symbols can be used as an aesthetic symbols as long as that is done with an understanding and high sensitivity of what they mean.

International Precedents

Alvar Aalto – His understanding of form and space, expressed through materials is what is intriguing to me and a major link to my scheme.

The internal streetscape of Jyvaskyla University building is articulated in a similar manner as the one in the scheme, the main circulation route.

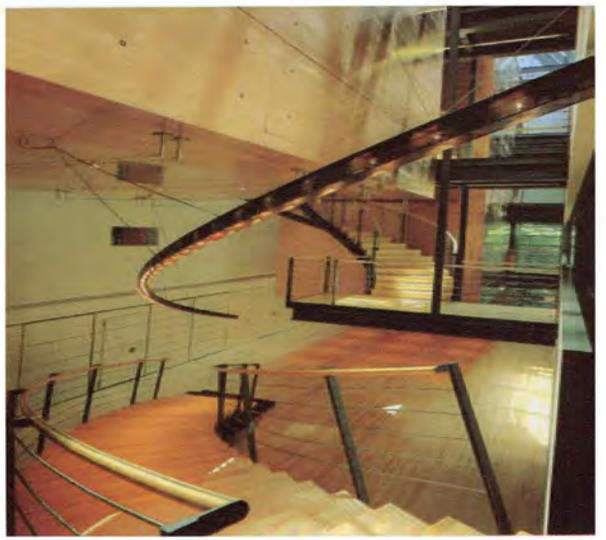


The roof structure of Saynatsalo Town Hall is intriguing in how materials are expressed with form. This is investigated in my scheme as the aesthetic look generated by the concept.

The articulation of materials and external form by Alvar Aalto is the desired result in my scheme for the external access spaces.How the wooden pergolas create external courtyards and spaces and the relation of that to the main building structure is expressed meticulously.

Saynatsalo Town Hall

The Finish Embassy in Moscow is a building that expresses the ideas of linking bridges in the Inxiwa-Museum Village very well. The materials and form are done expressively.

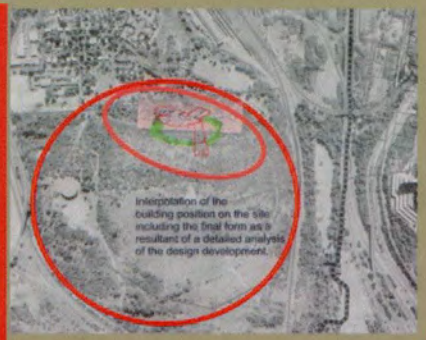


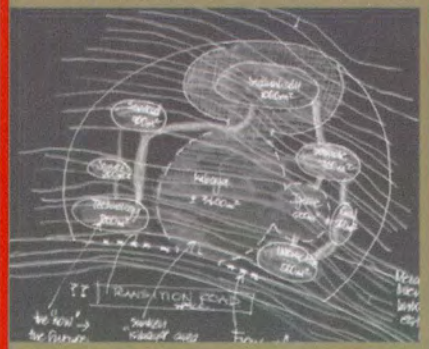
The elaborate yet robust staircase of the Finish Embassy in Washington is expressive of the route that one will be taking as they from the main foyer to the sacred “amathole” archive area.

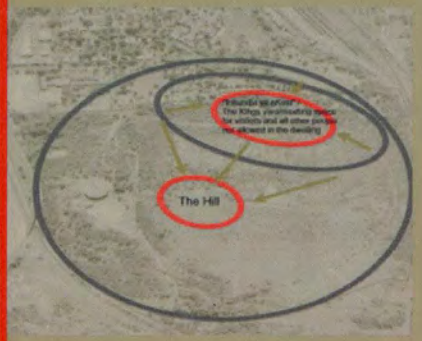
VISUAL DIARY

HOW FORM AND THE BUILDING DEVELOP THROUGH SKETCH DESIGN AND MODEL MAKING

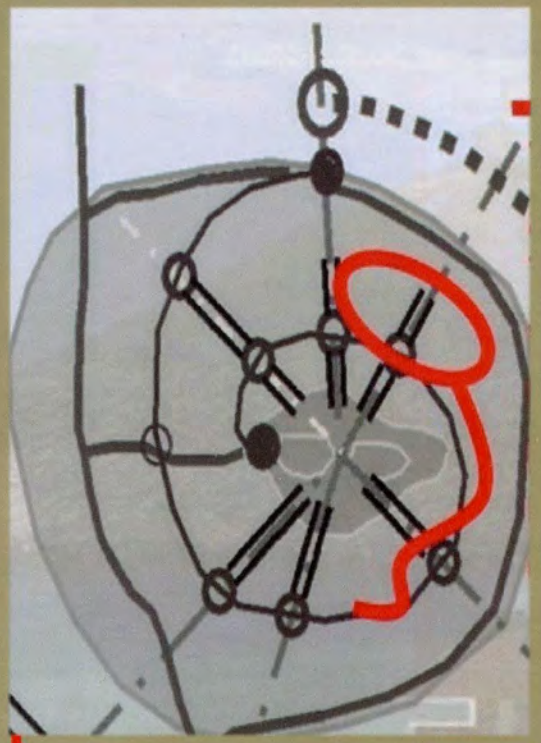
TRADITIONAL SPACE MAKING





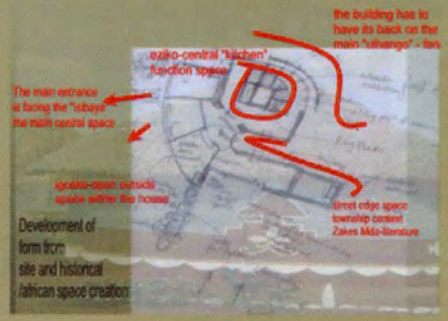


Figure's 51 skecthes of building's spatial development



THE CONCEPT OF THE SPIRAL WILL BE ADOPTED AND DEVELOPED FURTHER. THE MUSEUM FORMS A VISUAL LINK TO THE CITY, IE THE UNION BUILDINGS WHILST IT ALSO CONNECTS TO THE SPIRAL PATH THAT FLOWS TO THE ISIVIVANE GARDEN OF REMBRANCE.

Figure 52 picture taken from the Freedom Park framework presantation

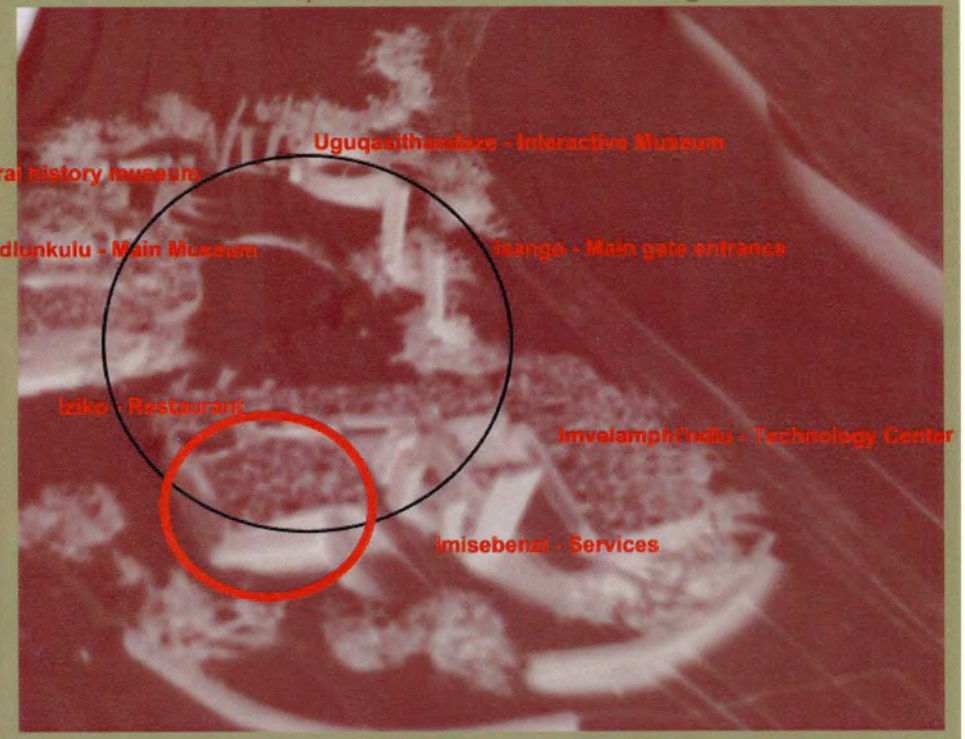


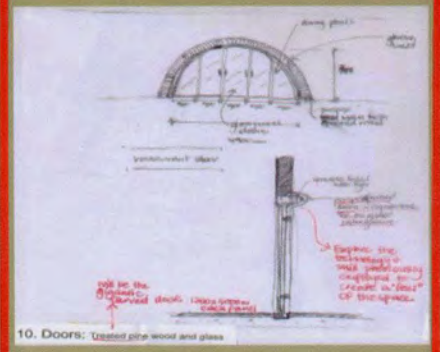
DESIGN DEVELOPMENT

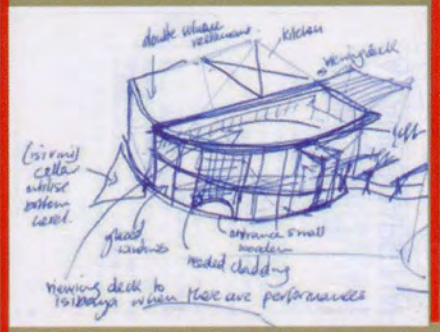
VISUAL DIARY

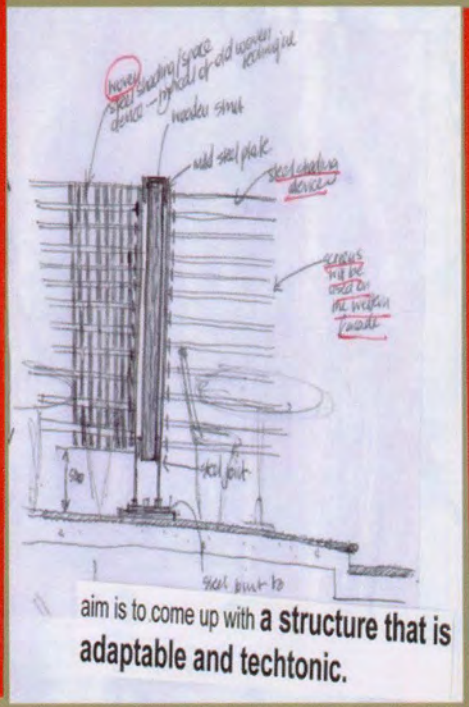
DESIGN OF RESTAURANT BUILDING

The restaurant building will not be designed in detail because of the scope of this excercise.The design principles adhered to are the same as the main museum - using the Zulu house's internal space articulation. The function of the building enhances the special features that are added like the restaurant shielding walls, terracing outside dining place and a smaller door on entry into a place(juxstaposed against the giganting doors in the main museum) and internal 'iziko' serving table.







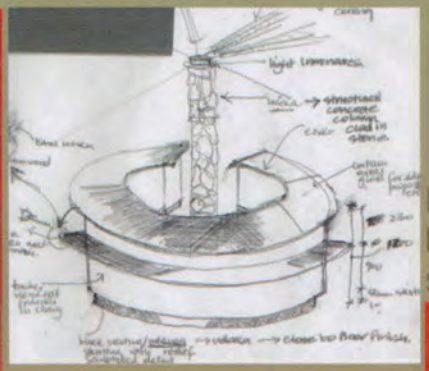


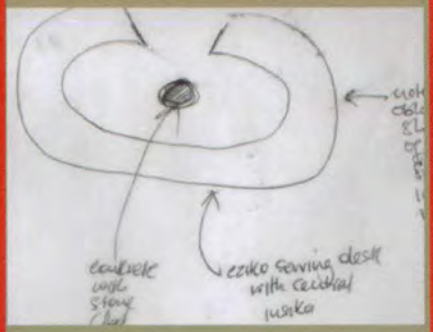
Figure's 47 development sketches of restaurant building design

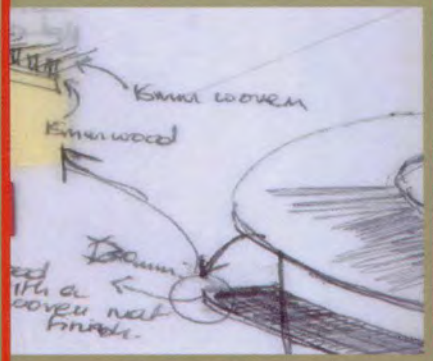
VISUAL DIARY

HOW FORM AND THE BUILDING DEVELOP THROUGH SKETCH DESIGN AND MODEL MAKING

DESIGN OF RESTAURANT BUILDING







In this building the eziko space is enforced by the central serving table, which is structural as well as functional.

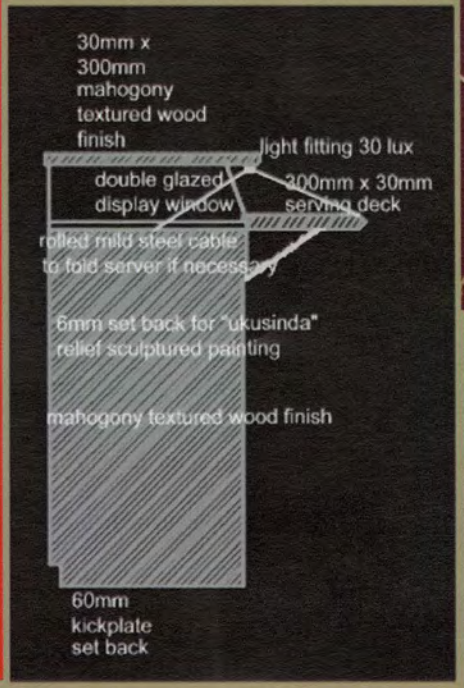


Figure 48 development sketches of serving table

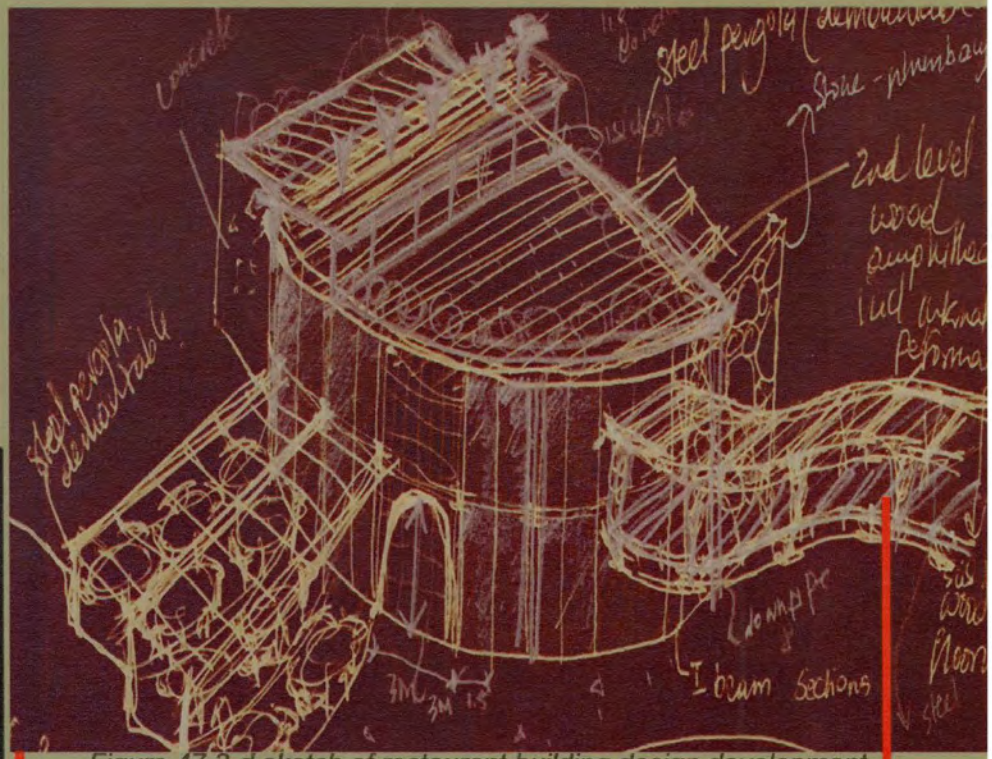


Figure 47 3-d sketch of restaurant building design development

The link from the Main Museum is part of the exhibition experiantial route that one takes from one building to another. The link is done so it becomes part of the landscape and the structure is a lightweight exposed bridge with balustrade "umkhonto- spier" design.
The principle is that it should not be too protected, as the guests must understand the initial space principles, how moving from one unit to another was.

DESIGN OF TECHNOLOGY BUILDING

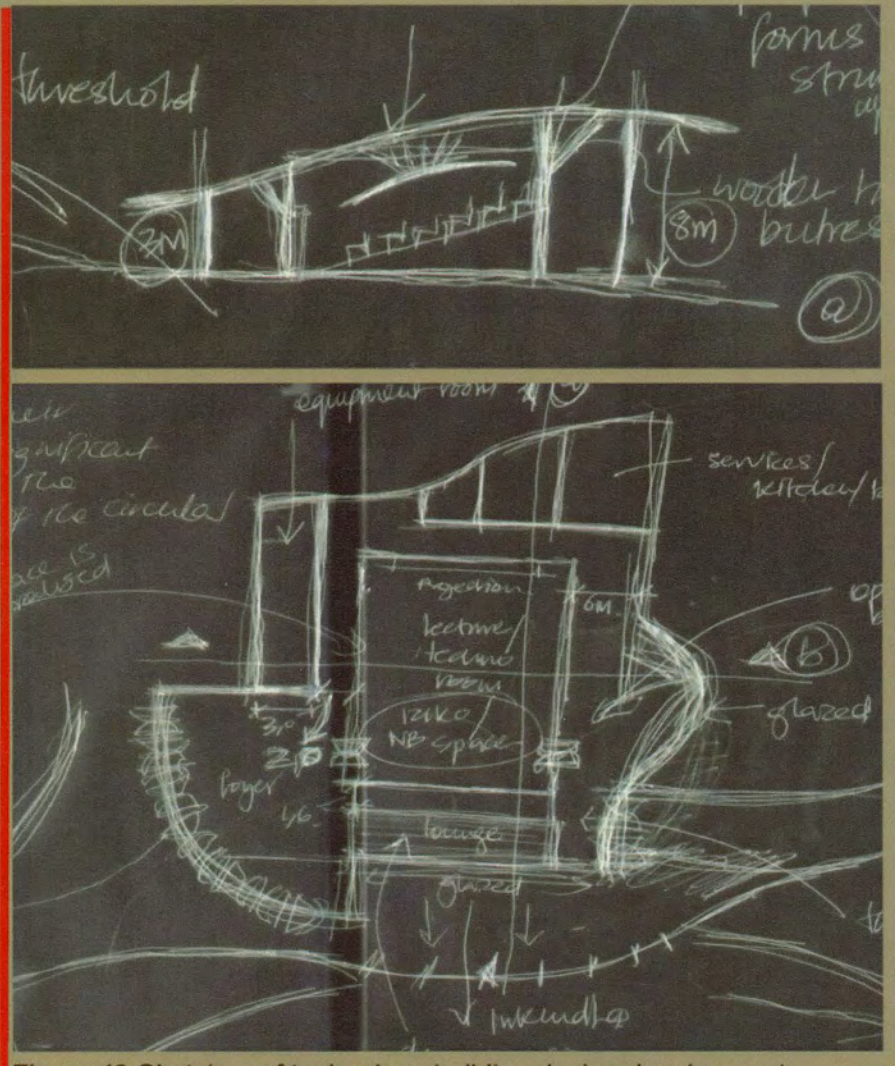


Figure 49 Sketches of technology building design development

The main function of the Technology building is to be able to use the latest technology to showcase the different activities and space usage that still take place in other places, i.e KZN. This is where the Stanger site plays an important role.

VISUAL DIARY

HOW FORM AND THE BUILDING DEVELOP THROUGH SKETCH DESIGN AND MODEL MAKING

DESIGN OF ORAL MUSEUM BUILDING

The oral museum plays a significant role in the museum experience. It is a building that will echo the stories told by historians of the legends. In the past most of the history was never documented but rather the history was conveyed orally, the essence of this is preserved in this establishment.

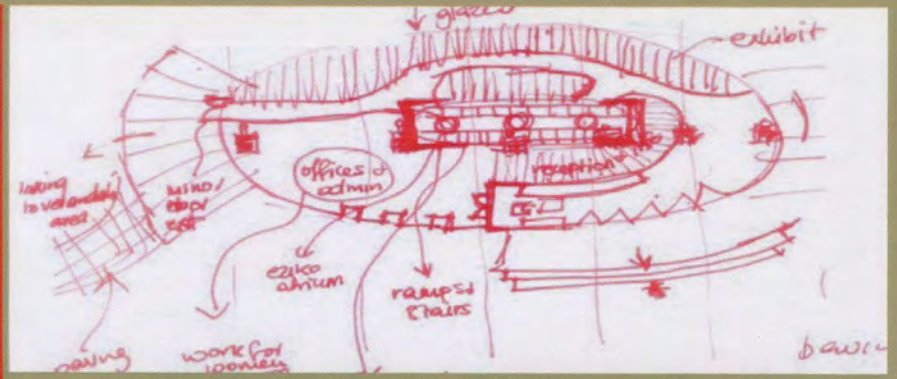
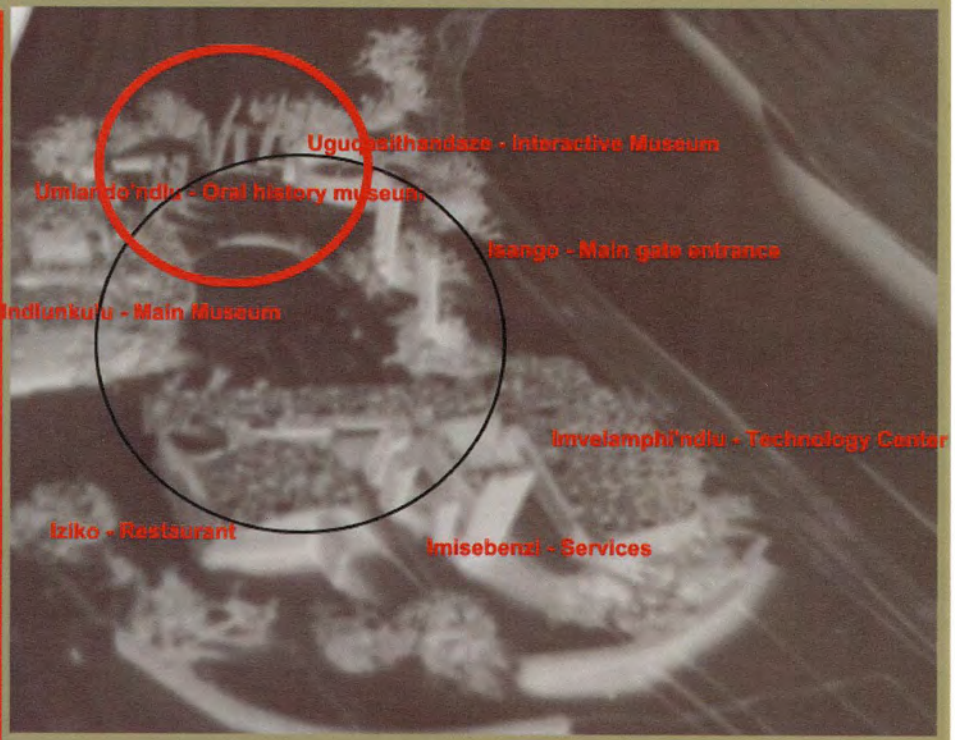


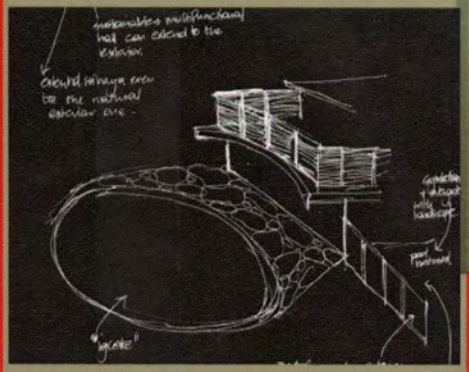
Figure 50 Sketches of development design of the oral museum building

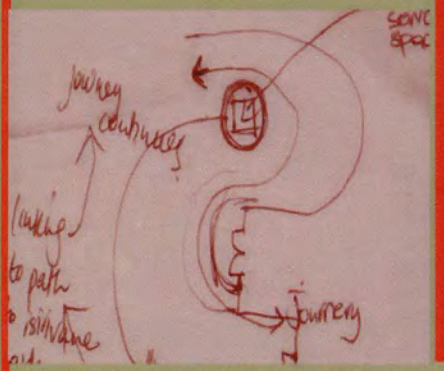


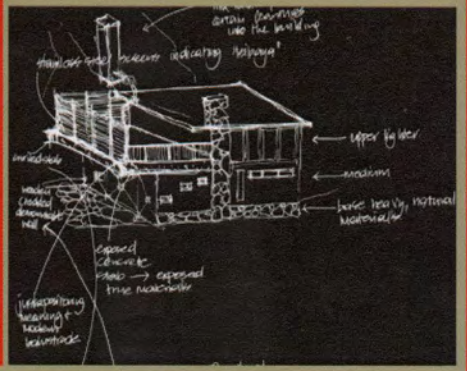
VISUAL DIARY

HOW FORM AND THE BUILDING DEVELOP THROUGH SKETCH DESIGN AND MODEL MAKING

DEVELOPMENT SKETCHES AND ANALYSIS







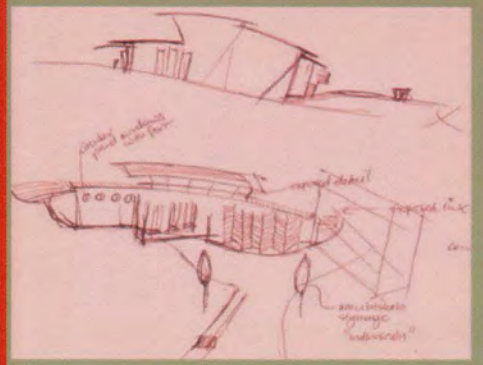
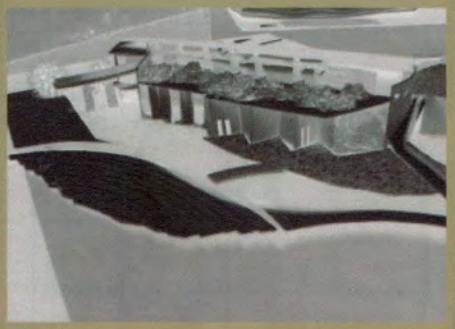
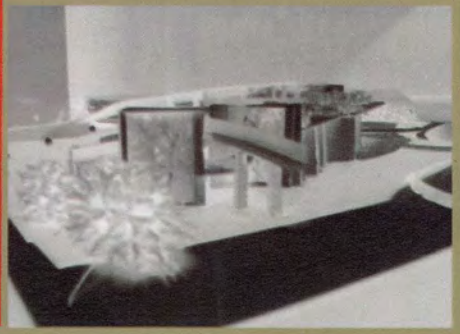


Figure 52 Development sketches of the building

VISUAL DIARY

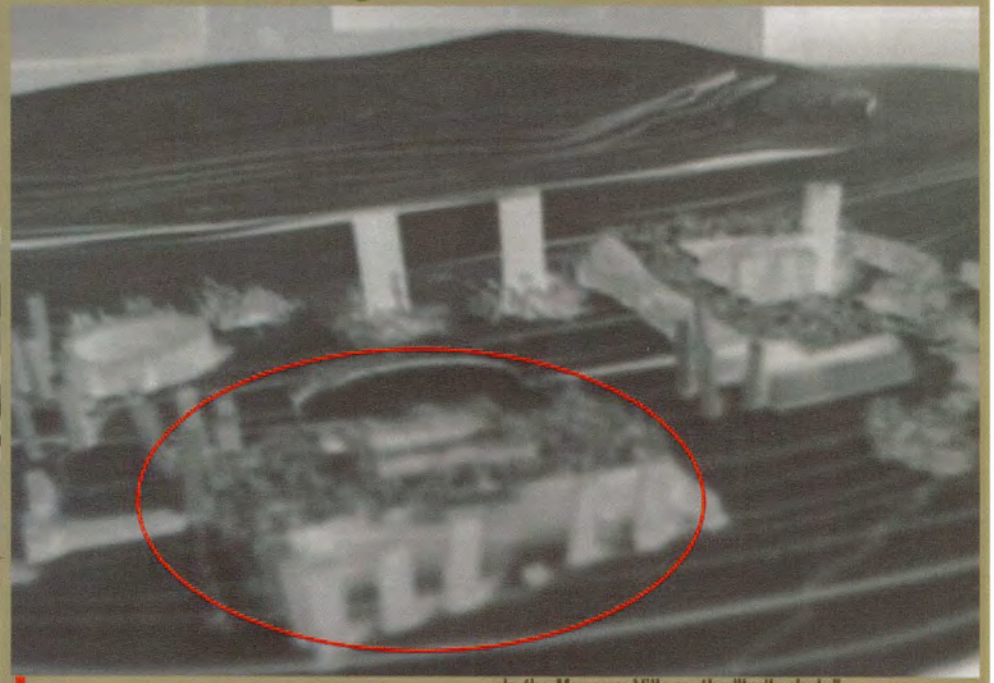
DEVELOPMENT- FORM THROUGH MODEL





Figure's 32 Concept model:development of the form

Form development was easily generated after constructing a model using all the previous constraints and the site contour environmental constraints. In generating the form the issues of practicalty were raised. That saw the building working as a well established, functional, comfortable, feasable and sustainable building.



In the Museum Village, the "Indlunkulu" or main Museum was the building designed in detail

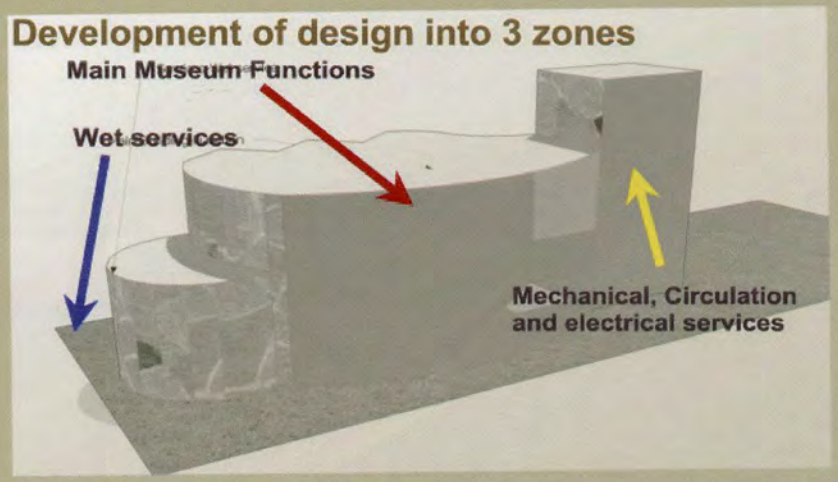


Figure 53 Block model of building volumes

The louver system in the building is designed in such a way that it can assist with the air flow. The louvers will have a damper motorized system that will be able to assist in them shutting and opening. This will function well especially when natural air is drawn from outside and carried through the duct system of the aircon. The louvres will also function with the stack effect system design, hence the clerestory. In case there is a power failure or the system in the aircon fails.

The air-conditioning system occupies 5% of the building floor area. This is in terms of the aircon specialist requirements.

The building is mechanicaly ventilated
This is efficient and sustainable in this building as it allows for all conditons to be satiesfied. With the louvre system; natural air is circulated through the duct. This is termed the "economy system".

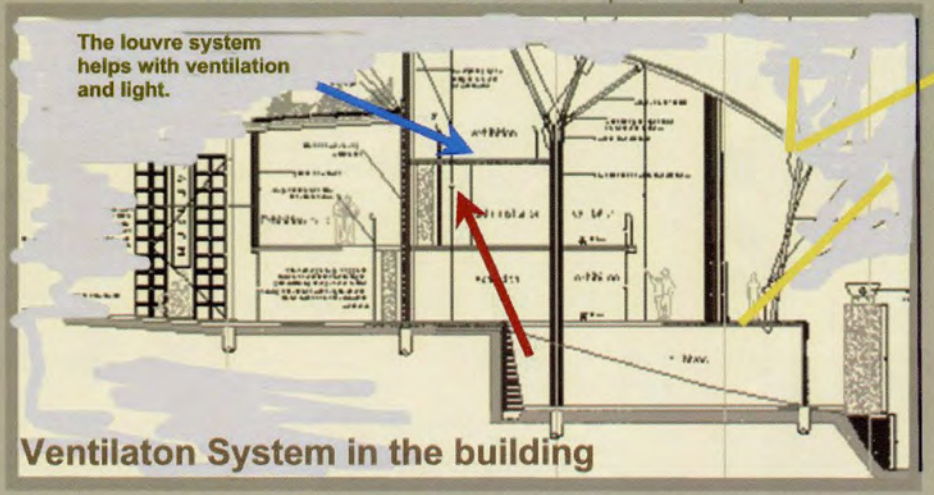


Figure 55 Section through the building exploring ventilation system

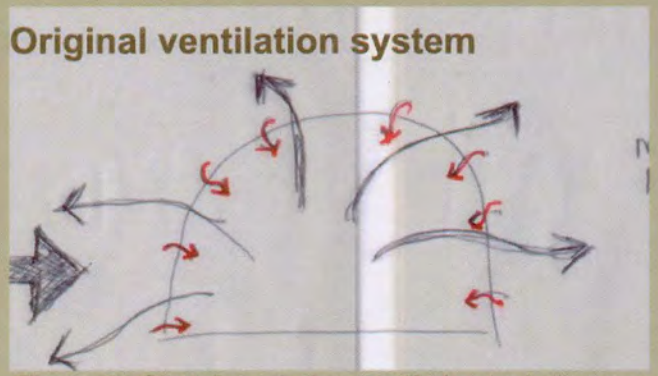
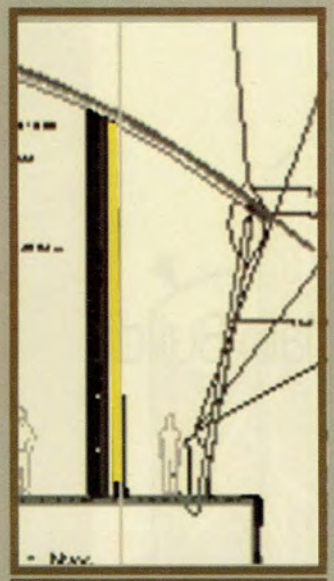
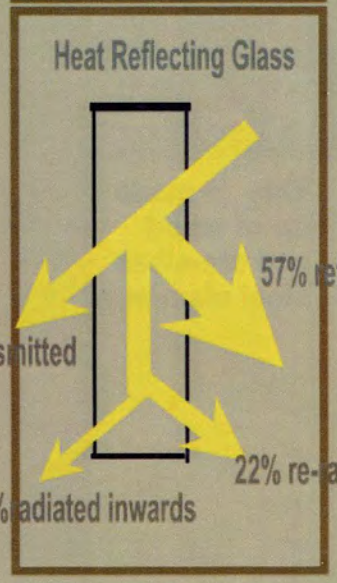


Figure 54 Sketch exploring ventilation techniques

The free standing servive (toilet block) is naturally ventilated. This is so to minimise cost and is efficient as this is a small stand alone structure that can be managed easily.





Glazing used on the northern facade is a curtain wall flush glazing. The glass chosen is a solarshied wich has a high reflective quality, as well as mirror content. This is because this glass is composed of a vacuum deposited metallic film which has a perfect outward vision and a tough plastic inner layer. This curtain wall in this application will be made of 12mm thick glass,with 1.5m height by 1.0m panels.

Its important that the main heat be reflected as to help reduce the heat that enters into the building, assisting with the amount of energy used to cool the building down.

Reflecting infra-red radiator, solar shield 2/20 with a total of 312.5 BTU's sq.ft.hr

Figure's 56 Exploring glazing requirements in the northern facade

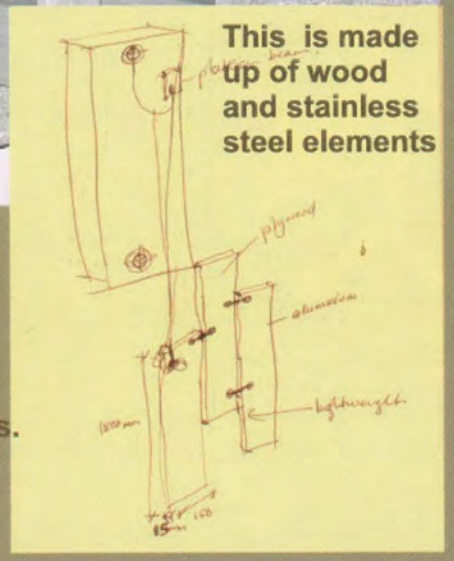
GLAZING SYSTEM

Packed stone - this helps formulate an identity in the already existing phase 1 structures, while also affording the building a sense of history and timelesness

The materials give rise to the tectonics of the building. Materials are chosen for their ability to enhance the concept, but not to replicate past examples.

Glass - transparency and air movemen, this complies with the concept principles.

Figure's 91 Exploring different materials in the building



This is made up of wood and stainless steel elements

The internal hanging struts in a concentric form in the museum lobby are mainly used for acoustics, but they also express the different qualities of materials. This establishes a good link between acoustic and material elements.

Treated wood juxtaposed with concrete, helps to enhance the sense of robustnestness while maintaning a sense of warmth in the building.

TECHNICAL CRITICAL ELEMENT - MATERIALS

DESCRIPTION

Materials are consistent with the concept. Lightweight contemporary materials. All materials will maintain their intergrity as far as possible, i.e. concrete is not treated but its exposed as it is.

Wooden elements bring lightness and warmth into the structure, this is evident in the tension struts, balustrade handrails, thread details on stairs and window frames. The major doors are also wooden and they create gigantic warm overhangs.

Figure 58 door fixtures

SELECTION

* Concrete
* Stone
* Glass
* Treated Wood
* Steel
* Aluminium
* Wire Mesh (for aesthetic features)
* Grass Mesh (for terrace insulation)
* Saligna wood on laminated beams

Figure 59 construction fixtures

METHOD

The construction method will be as equally important as the material itself. The best way will be to construct in such a way that the material is fully exposed

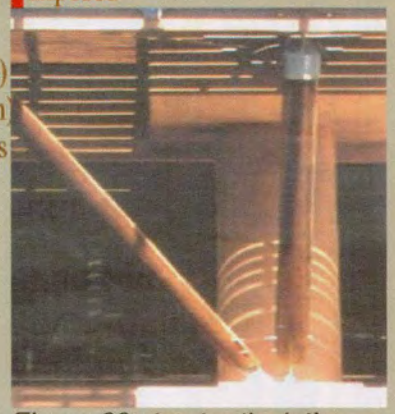
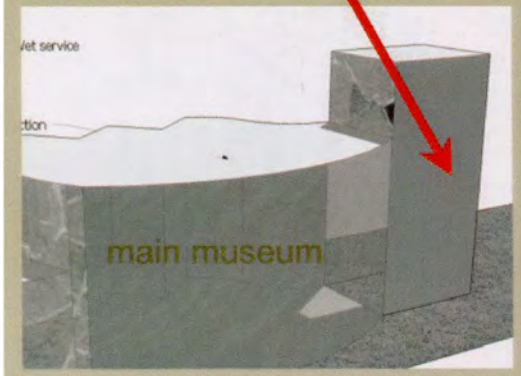


Figure 60 struct articulation

Techniques used in the original Zulu work with materials is borrowed with the understanding of the meaning thereof into today's technology era.

MATERIALS

MECHANICAL SERVICES - ELEVATOR



the elevator is a dynamic mechanical object

3-DIMENSIONAL VIEW

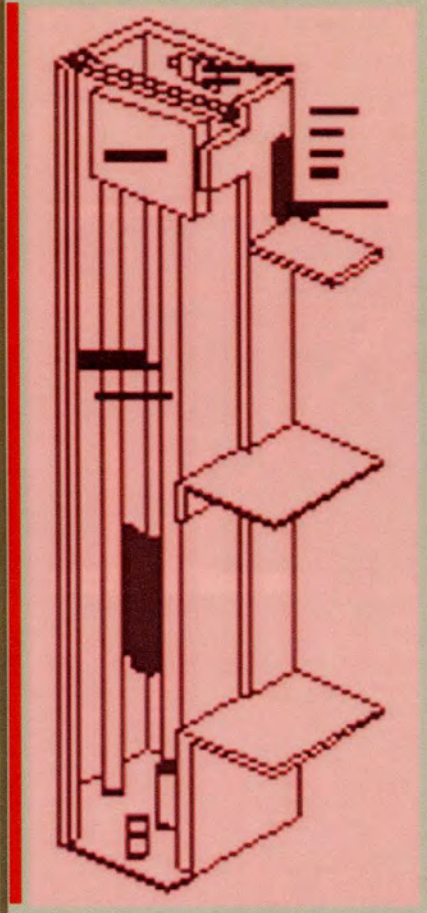


Figure 57 3-d drawing of the Gen2 lift

PLAN VIEW

SPECIFICATION

THE LIFT IS LOCATED ON THE WESTERN WING OF THE BUILDING, WHICH FORMS PART OF A MECHANICAL SERVICE WING. THE LIFT HAS ACCESS TO ALL THE FLOOR LEVELS IN THE BUILDING AND IS SUITABLE FOR USE BY THE PARAPLEGIC PERSONS IN THE BUILDING AS WELL.THE LOAD CAPACITY IS 1000KG, EQUIVALENT TO 13 PERSONS.

1. THE LIFT FUNCTIONS AS A TRANSPORTATION ELEMENT IN THE BUILDING
2. THE LIFT USED IS THE NEWLY DEVELOPED GEN 2 BY OTIS
3. THE BELTS ARE 20% LIGHTER THAN CONVENTIONAL ROPES WHICH RESULTS IN A MORE HOISTING POWER IN THE LIFT.
4. THE RIDE IS QUITER AS THE BELTS ARE POLYYURETHANE COATING.
5. THE MACHINE HAS PERMANENTLY SEALED BEARINGS, THUS REQUIRES NO OIL IN THE HOISTWAY. THIS RESULTS IN AN ENVIRONMENTALLY FRIENDLY LIFT.

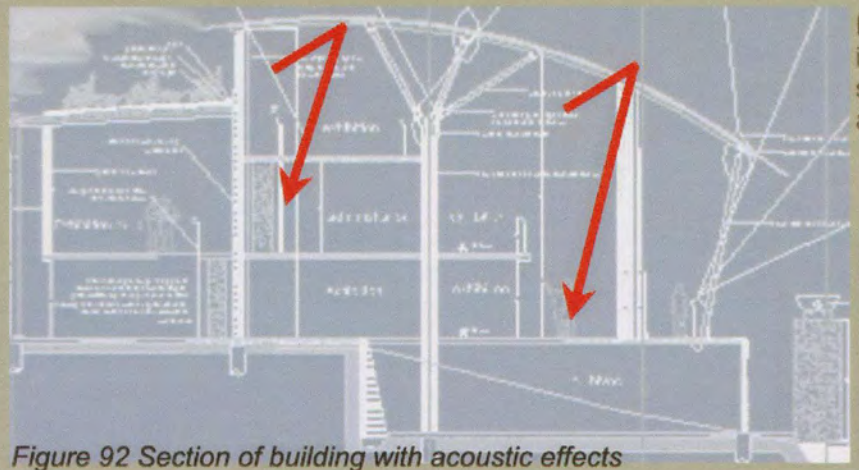
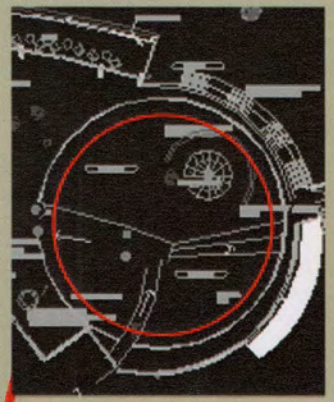


Figure 92 Section of building with acoustic effects

In the development the roof is used as as main insulation device. The ceiliing boards reflect sound efficiently. This is the most effective area of treatment.



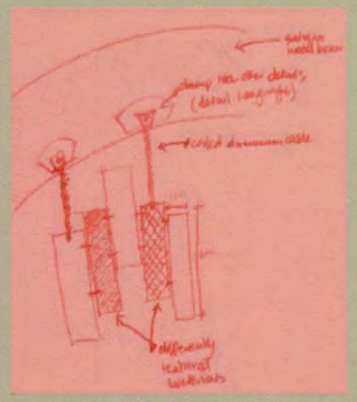


Figure 94 Plan showing zone of acoustic screens with the 3d-view of screens with acoustic effects

* Sound moves in an elastic medium
* Sound reduces with distance
* Sound is best absorbed in radial surfaces
* Each material has efficient of sound absorption

$$RT = \frac{\text{volume in ft}}{\text{absorption in ft sabin}} \times 0.049$$

$$8.2 = \left(\frac{44H}{v} \times \frac{\tan @}{2}\right)$$

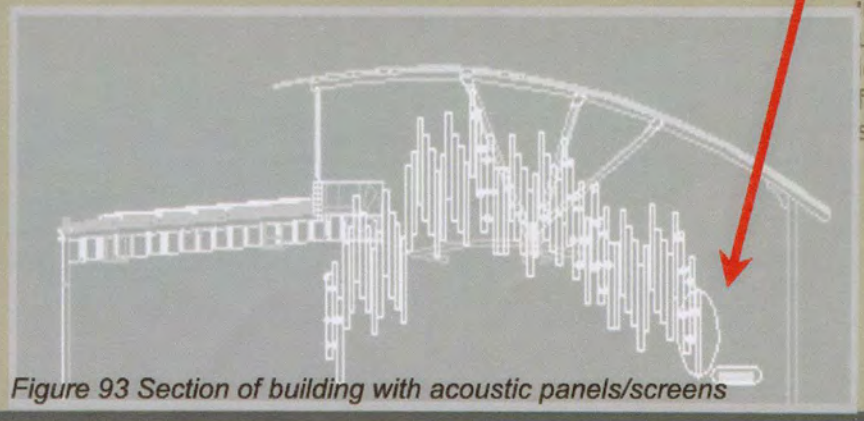
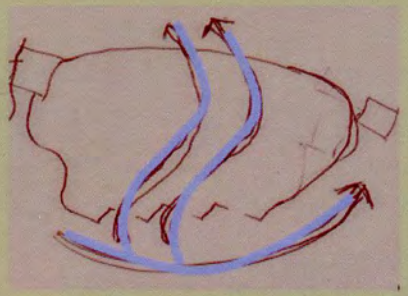


Figure 93 Section of building with acoustic panels/screens

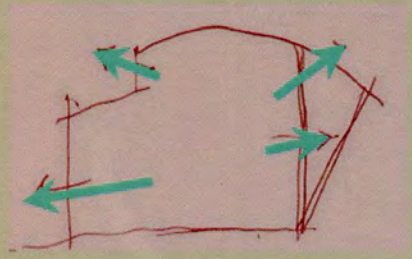
These concetrically arrranged struts are also employed to assist in the monitoring of internal sound. These are suspended absorbent units.They will reduce the reverberent sound level in the room.Reverberation is the noise feedback, and this is reduced by having sufficient sound absorbing materials in the room.

SUSTAINABILITY ASPECTS

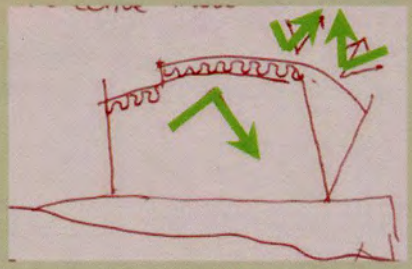


The form of the building allows airflow through and around the building envelope. The building is not high rised, therefore vertical air flow analysis is not applicable.

All buildings use energy to perform various functions. The function of the building determines the energy consumption level. In this Museum establishment the main consumption will be electricity.

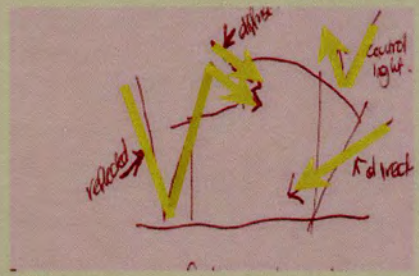


The thermal mass of the materials used can provide insulation and heat storing. Concrete and stone are able to do this sufficiently in this design, therefore these qualities are maximised in winter and controlled in summer or hotter days.



Reflective insulation will be used. This will perform to support the acoustic functions as well.

The solar radiation is highly variable. It can be influenced by a lot of factors, including topographic factors. North facing slopes are usually more prone to receive more radiation as opposed to south facing slopes.



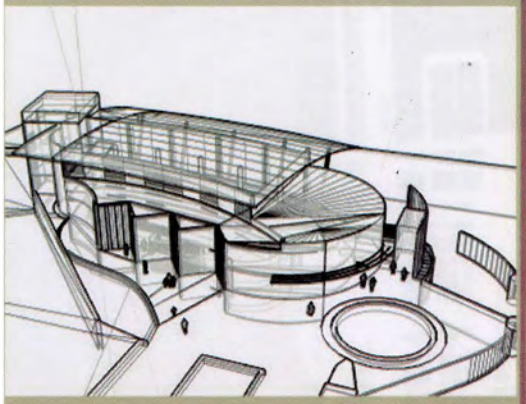
Daylighting comes in different forms. Direct light, reflected light, diffused light etc. Solar control devises are used to obstruct or reduce the permeance of light. The daylight factor is then measured by the ratio between the inside and outside intensity expressed as a percantage.

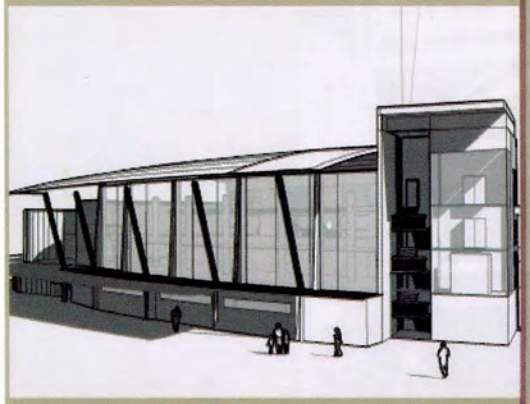
Figure 95 Sketch of section of building with sustainability effects

ELECTRICAL / LIGHTING

The "imisebenzi" / service house will house all the electrical services. The substation emergency generator and the main control room will be housed there. This building will be within easy access to the service road entrance. So as to allow for easy maintainance access.

The main electrical consumption in this Museum will be through electrical light fittings. The roof plan below shows the zones where most fittings will be placed. The east wing uses the photovoltaic lighting.





Figure's 97 3-d view of roof with bld

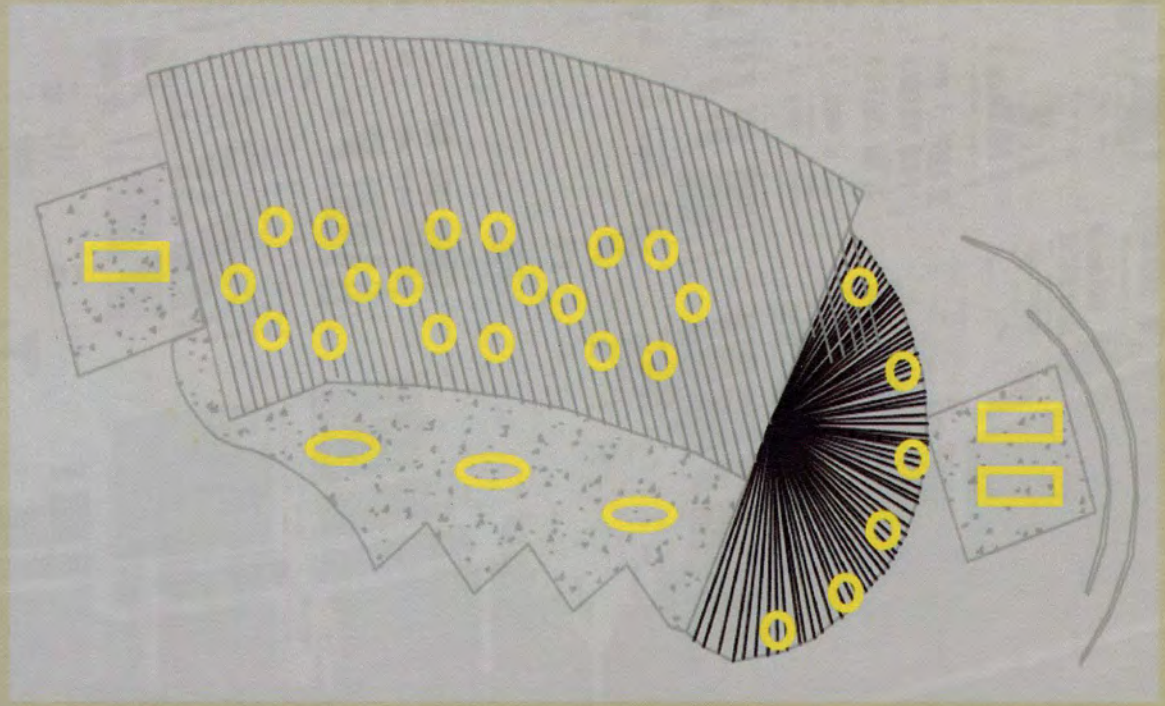
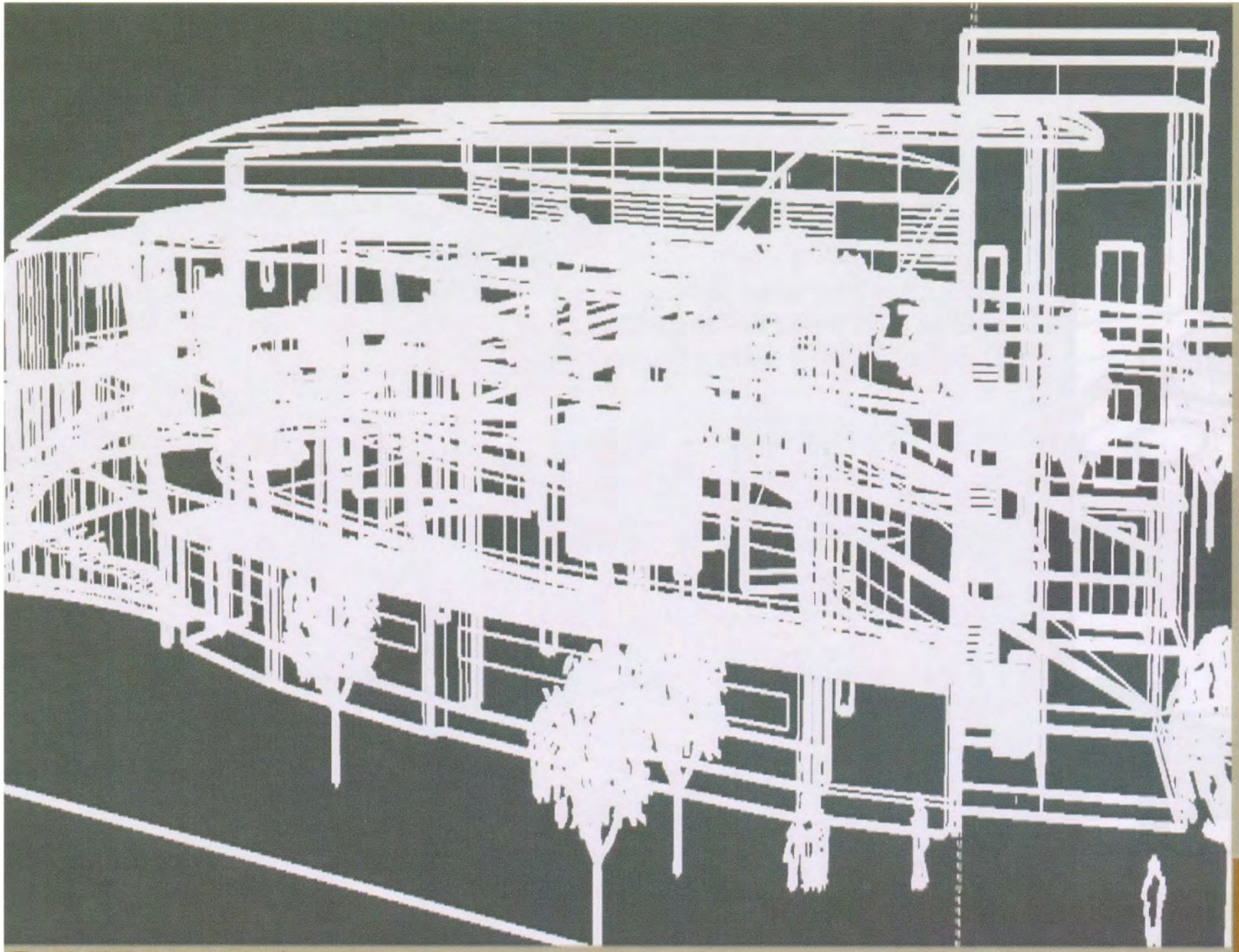
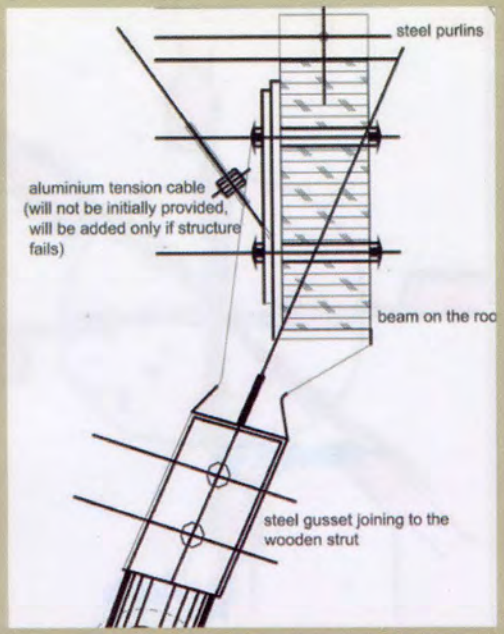
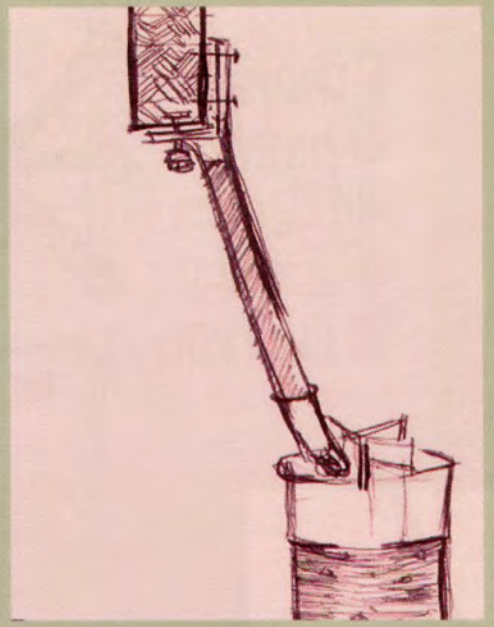


Figure 96 Roofplan with lighting positions



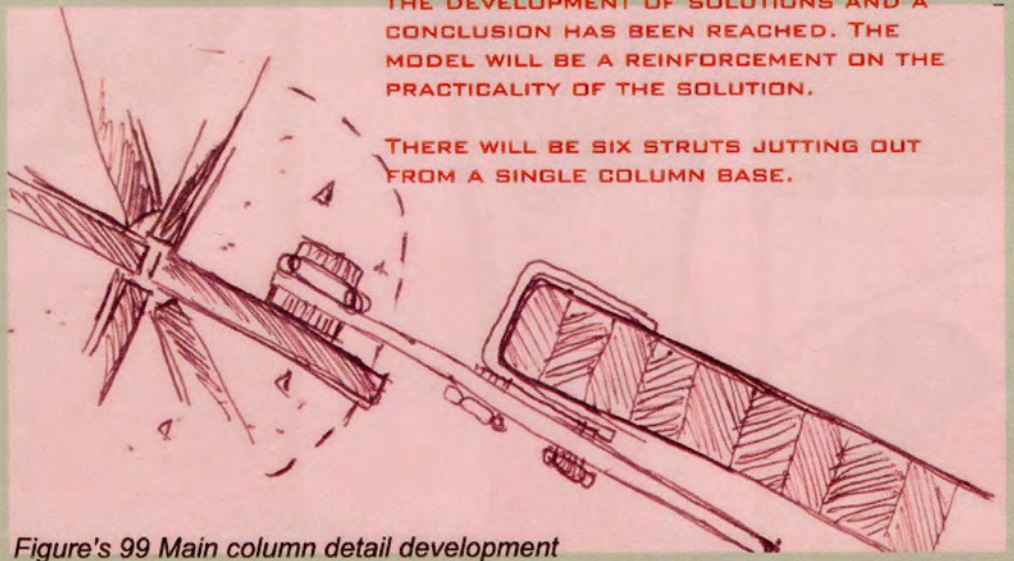
Figure's 98 Line perspective of the building

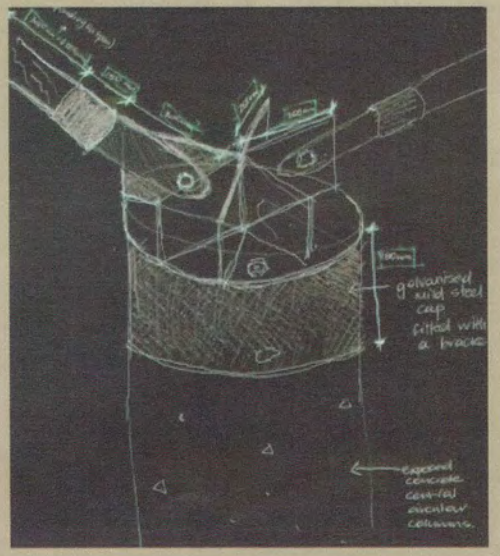




THE DEVELOPMENT OF THE DETAILING OF THE STRUCT COLUM HAS BEEN A CHALLANGE! NONETHELESS A CHALLANGE IS TO BE EMBRACED. SO I DID THE EXPLORATION DRAWINGS TO SHOW THE DEVELOPMENT OF SOLUTIONS AND A CONCLUSION HAS BEEN REACHED. THE MODEL WILL BE A REINFORCEMENT ON THE PRACTICALITY OF THE SOLUTION.

THERE WILL BE SIX STRUTS JUTTING OUT FROM A SINGLE COLUMN BASE.

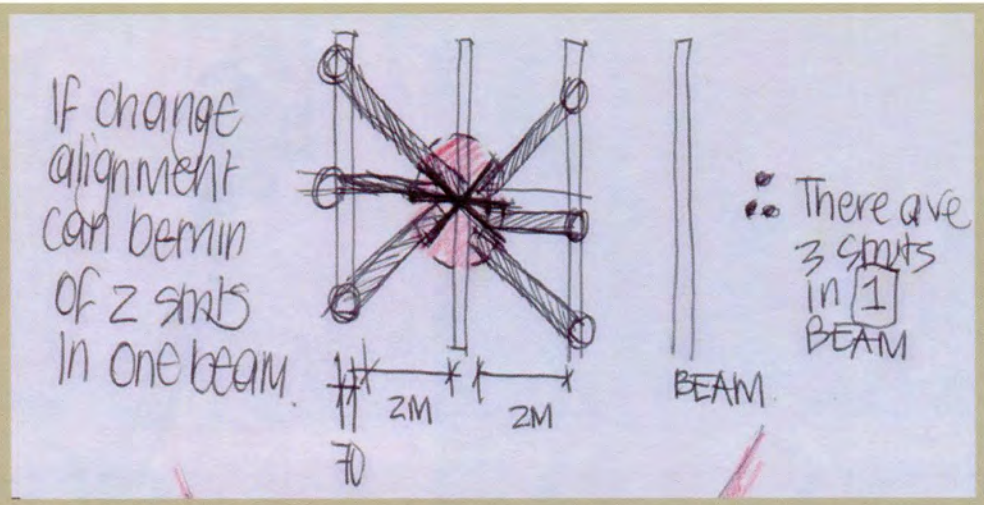


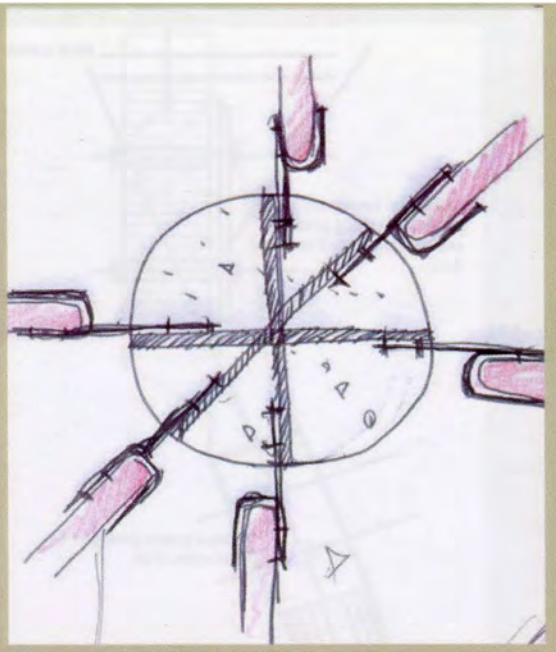


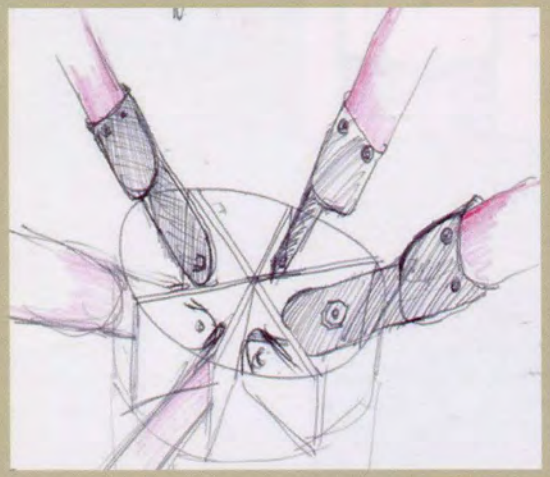
Figure's 99 Main column detail development

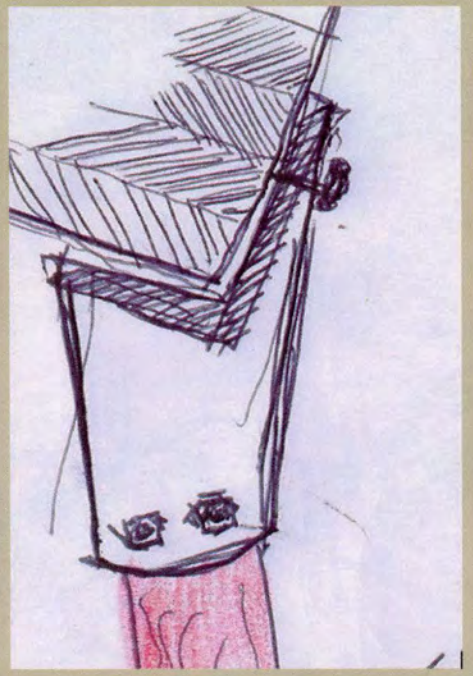
61a

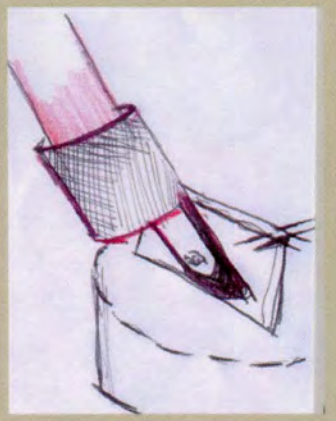
TECHNICAL DRAWINGS

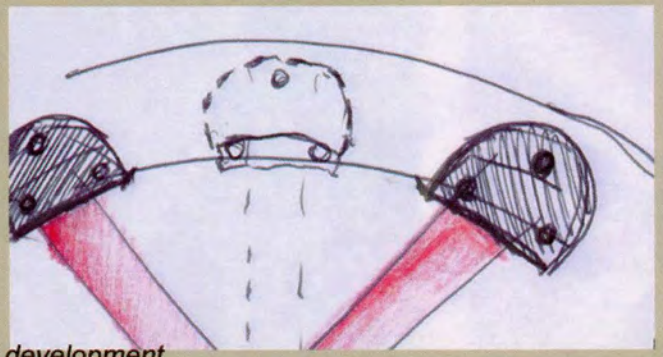






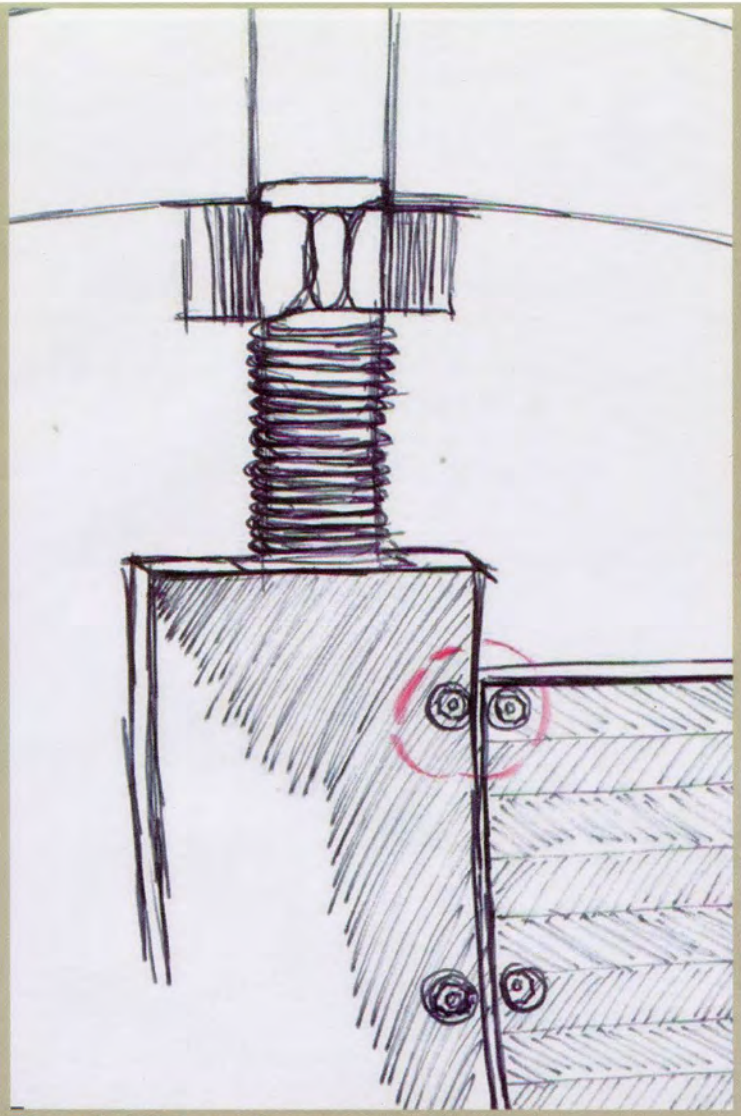






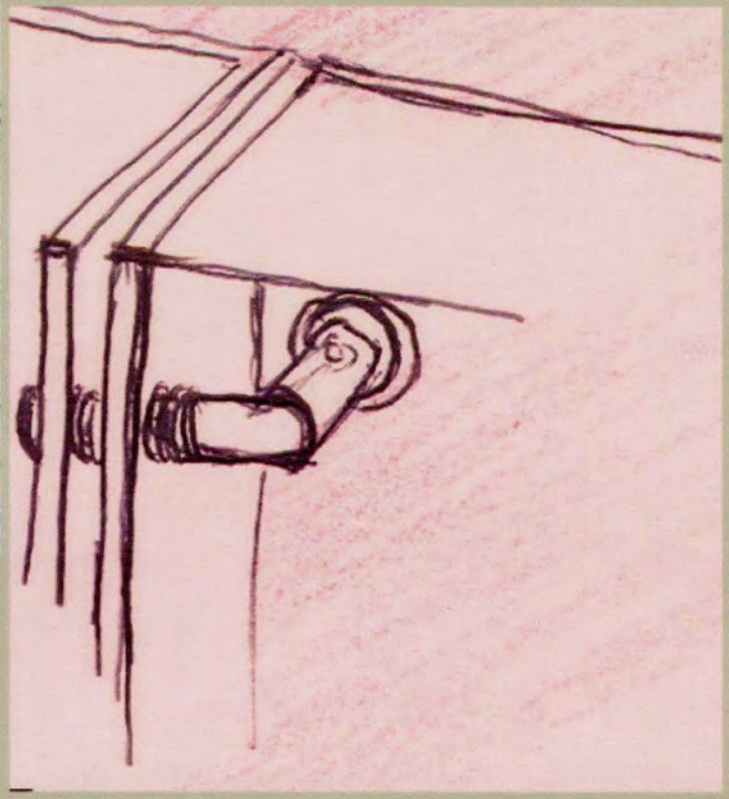
61b

Figure's 99 Main column detail development



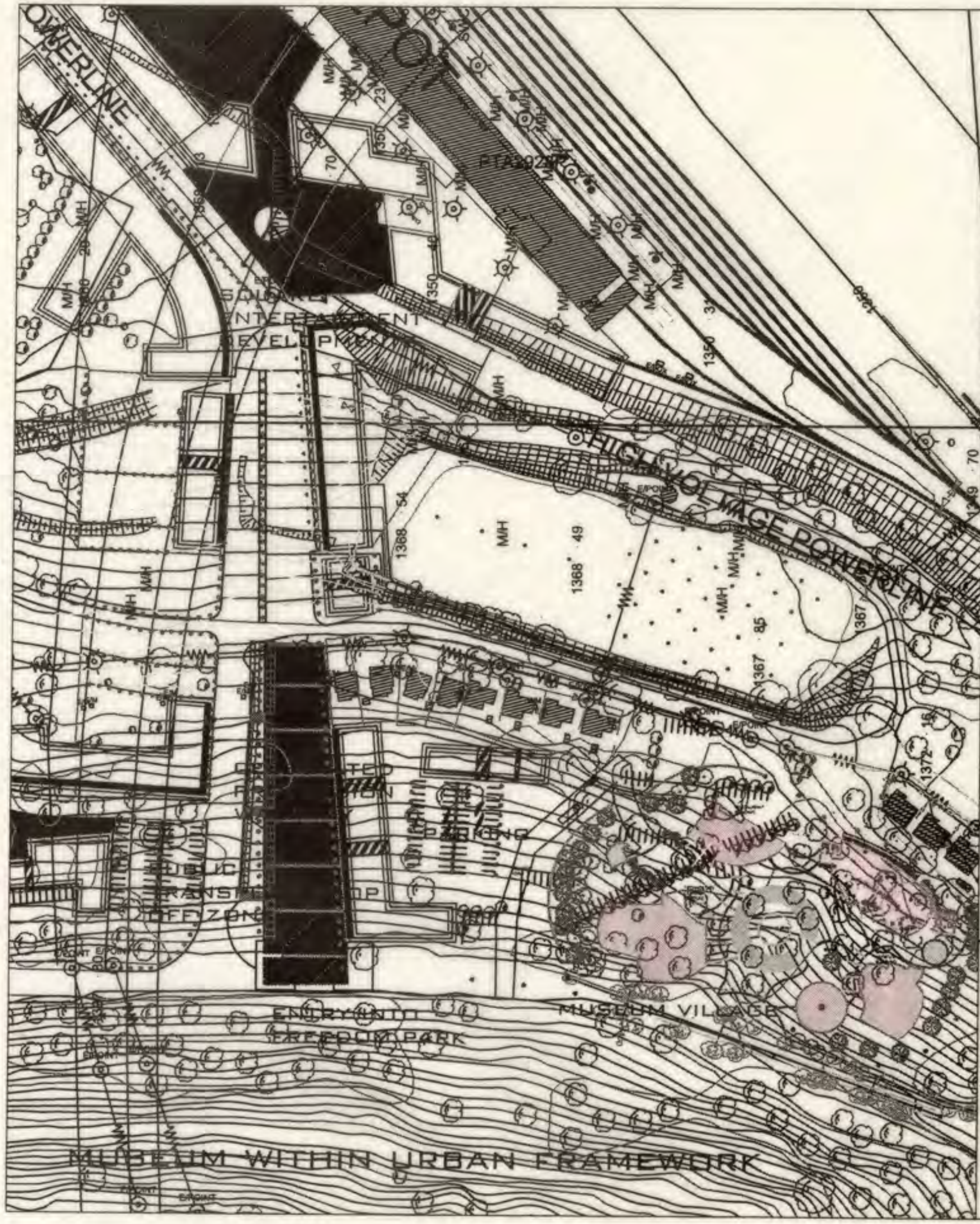
Figure's 100 Acoustic screen development

THE ACOUSTIC PANELS USED INTERNALY FORM AN OUTSTANDING INTERNAL AMBIENCE, THEIR DETAILING IS THUS CRUCIAL. THEY WORK AS INDEPENDENT STRUCTURAL ELEMENTS BUT USE THE SAME LANGUAGE OF DETAIL AS OTHER FIXTURES.

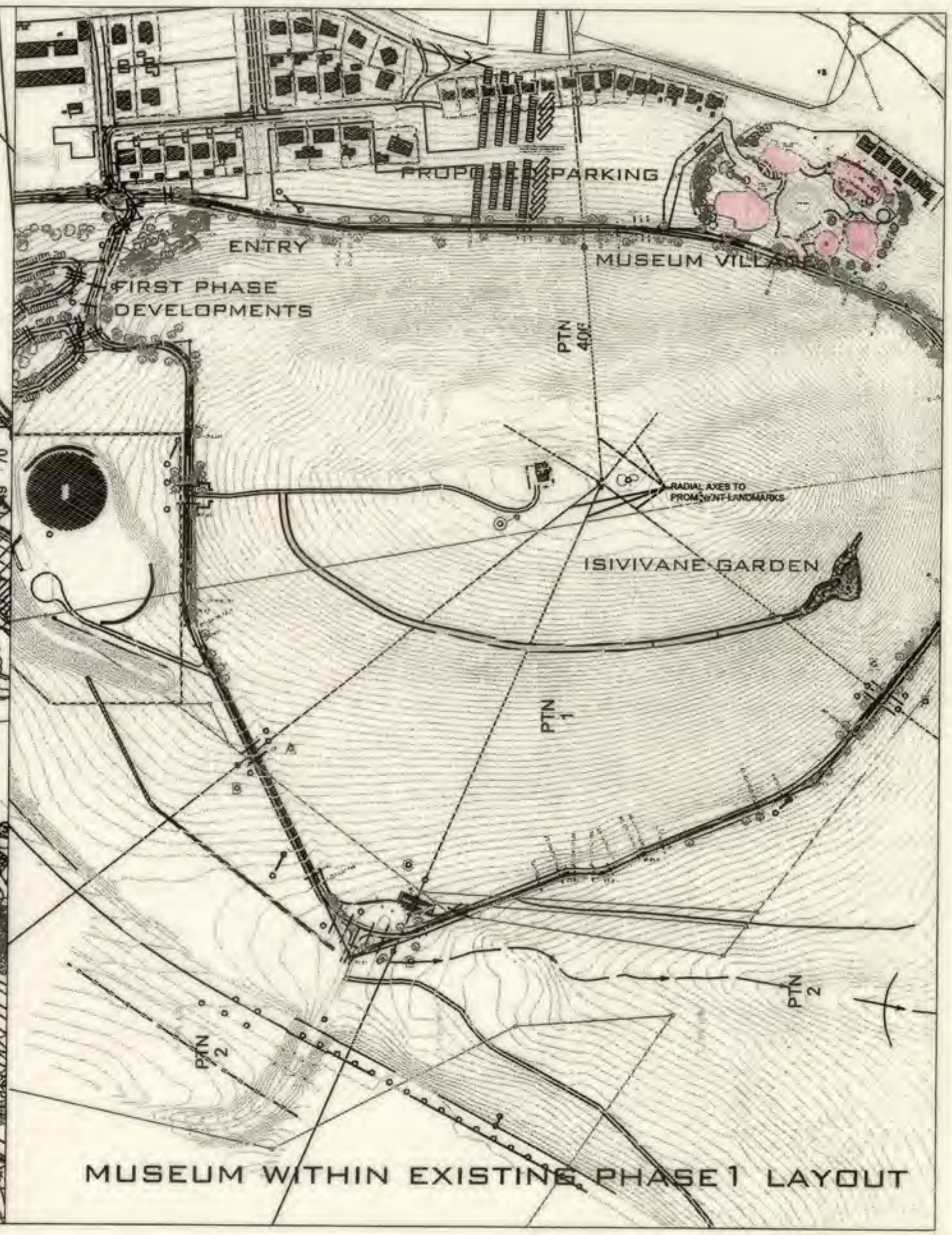


61d

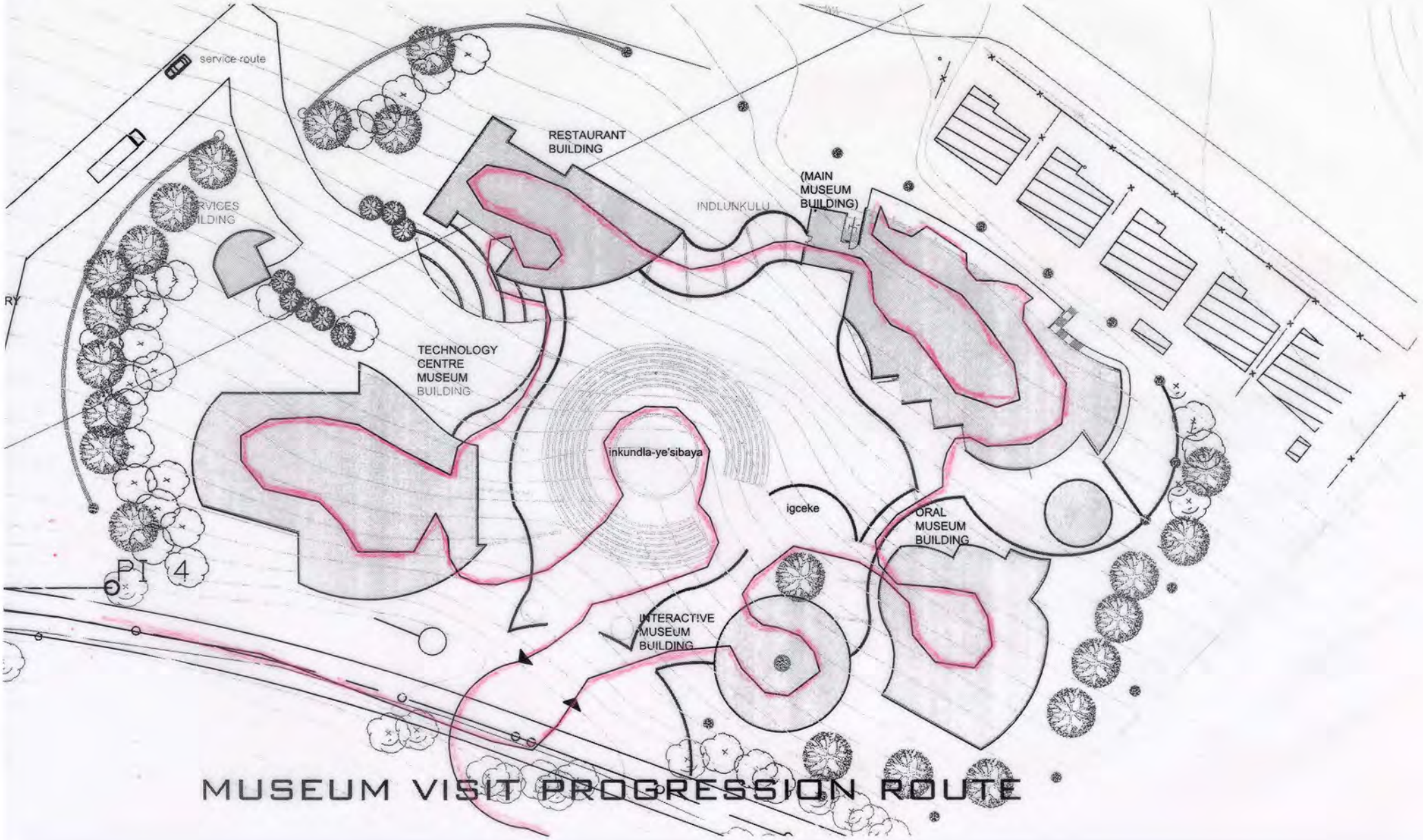
TECHNICAL DRAWINGS



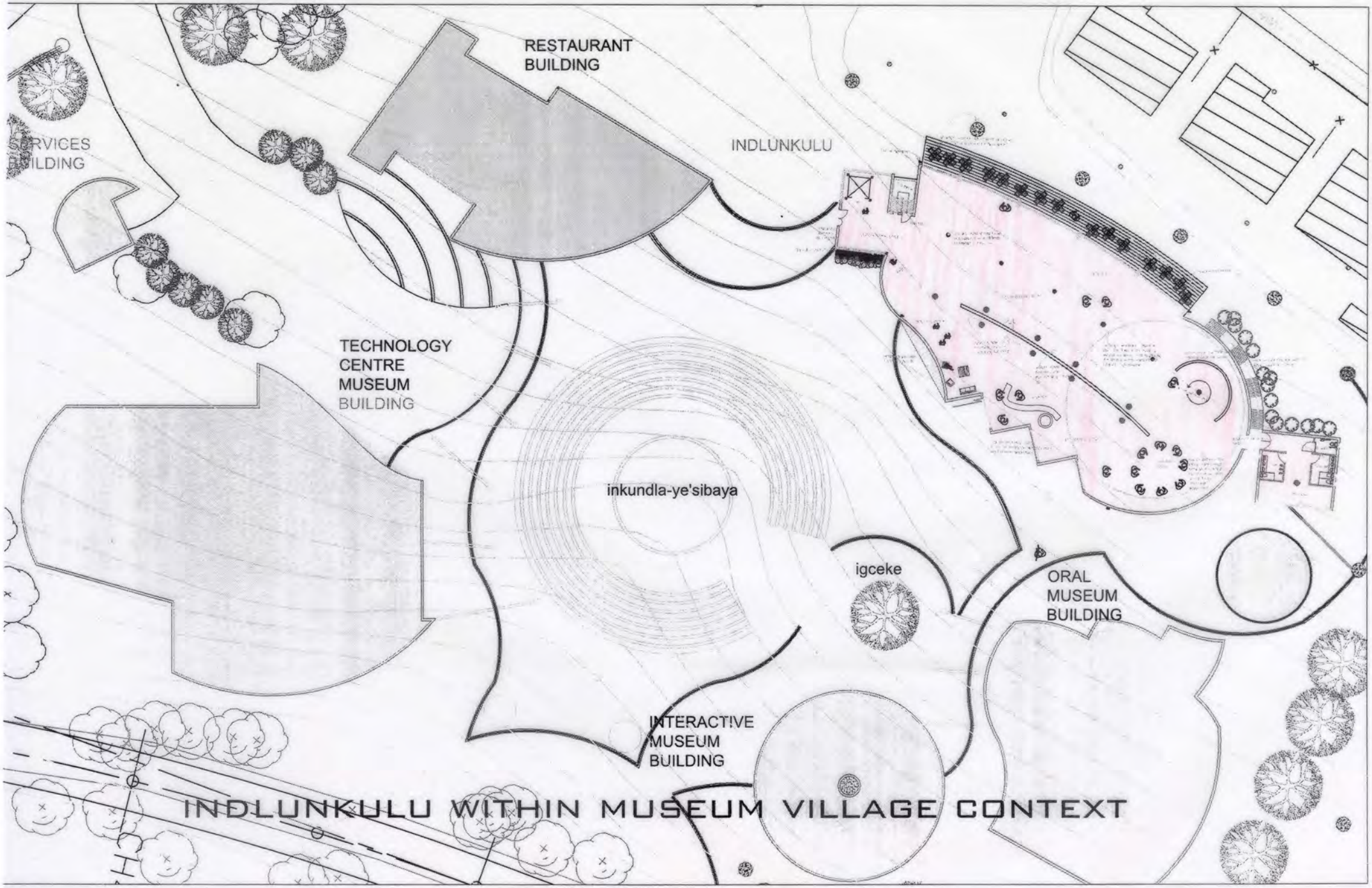
MUSEUM WITHIN URBAN FRAMEWORK



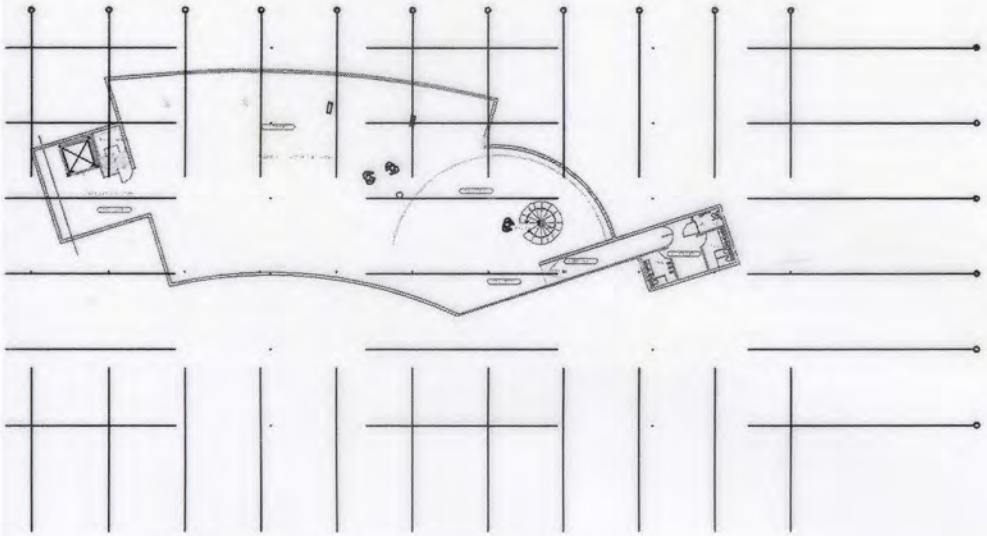
MUSEUM WITHIN EXISTING PHASE 1 LAYOUT

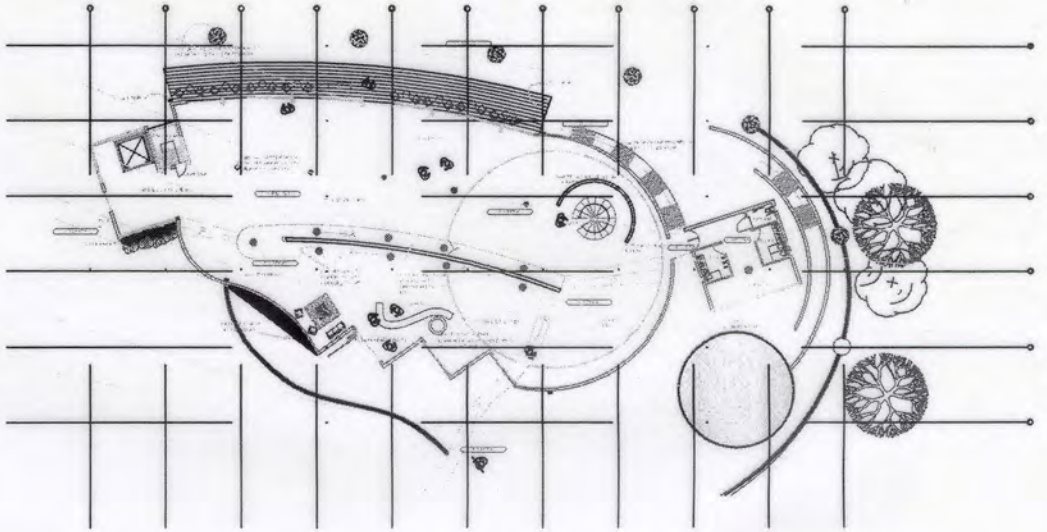


MUSEUM VISIT PROGRESSION ROUTE

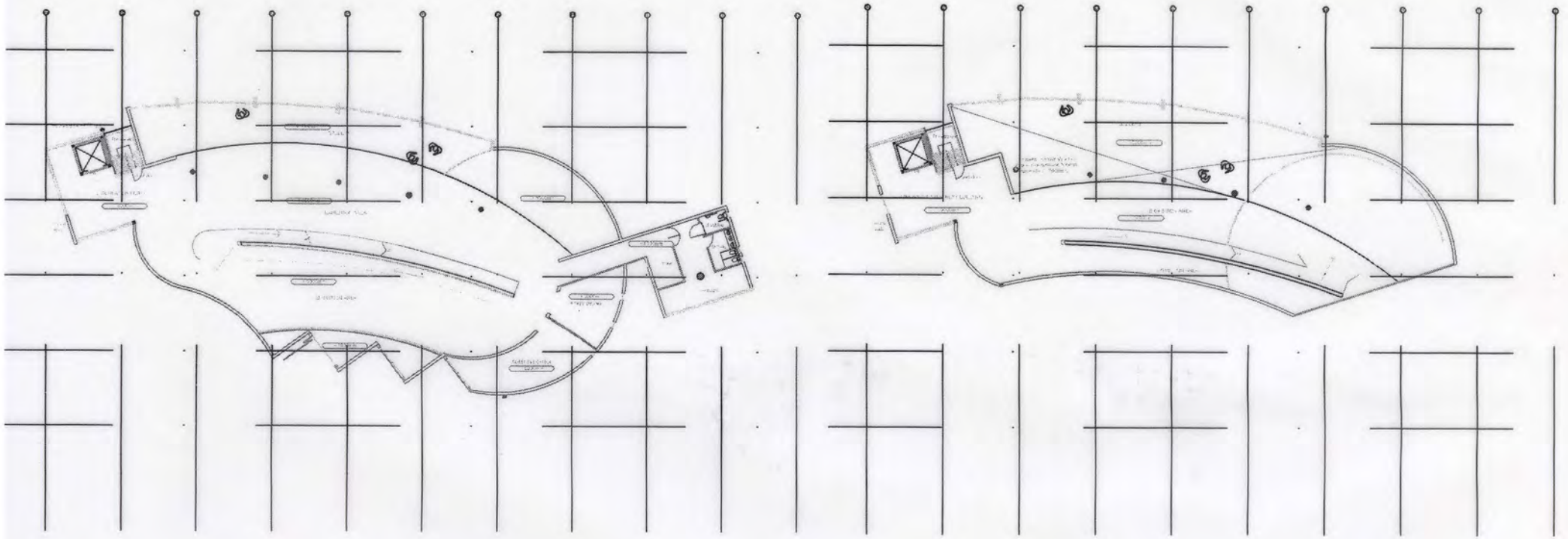


INDLUNKULU WITHIN MUSEUM VILLAGE CONTEXT

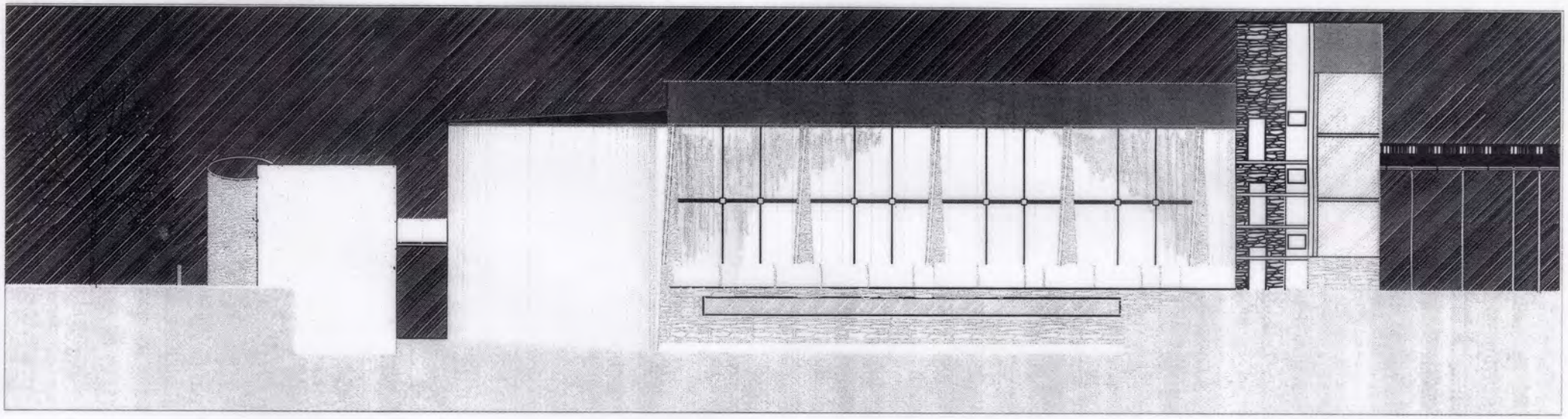




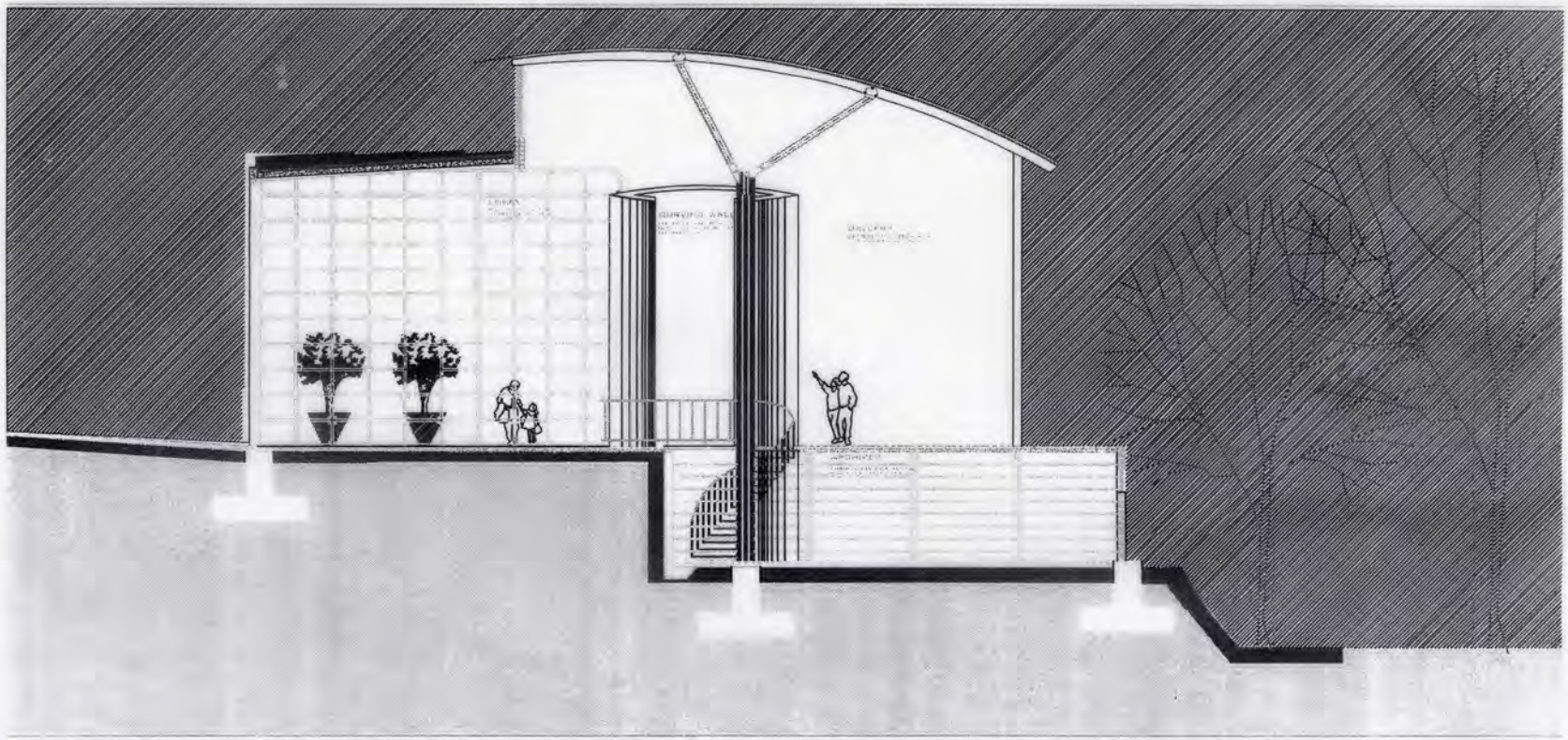
BASEMENT AND GROUND FLOOR PLAN



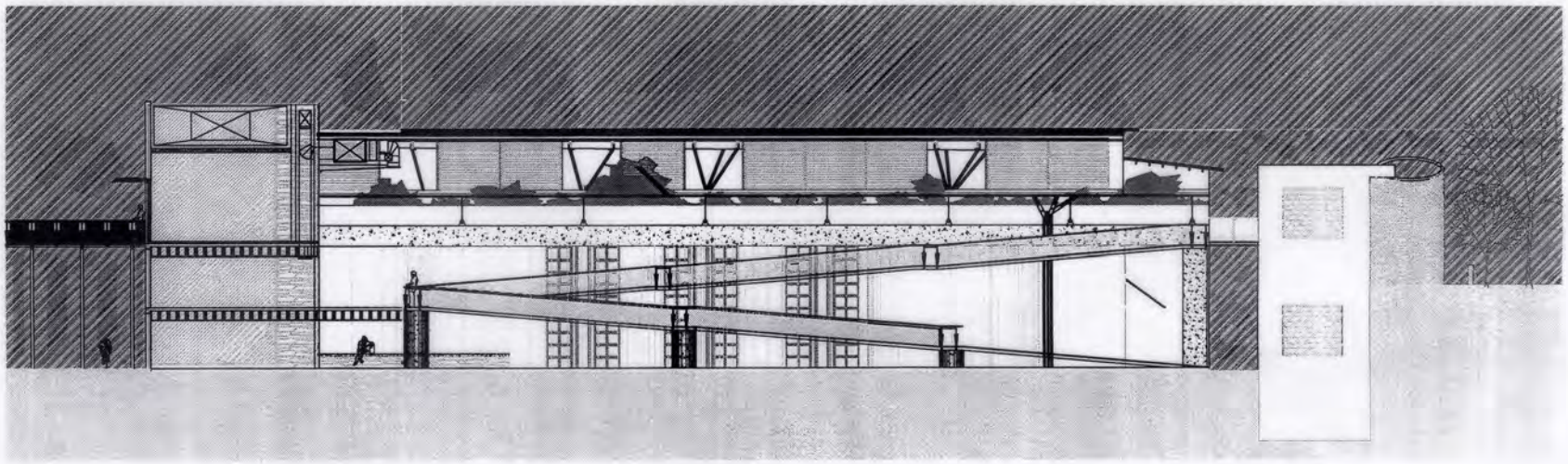
FIRST & SECOND FLOOR PLAN



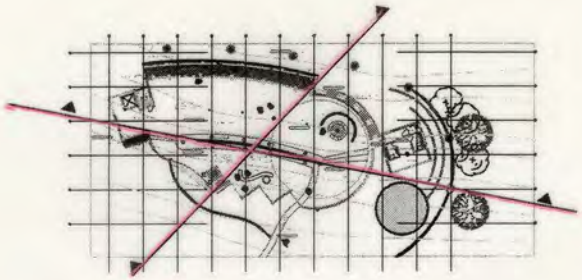
NORTH ELEVATION

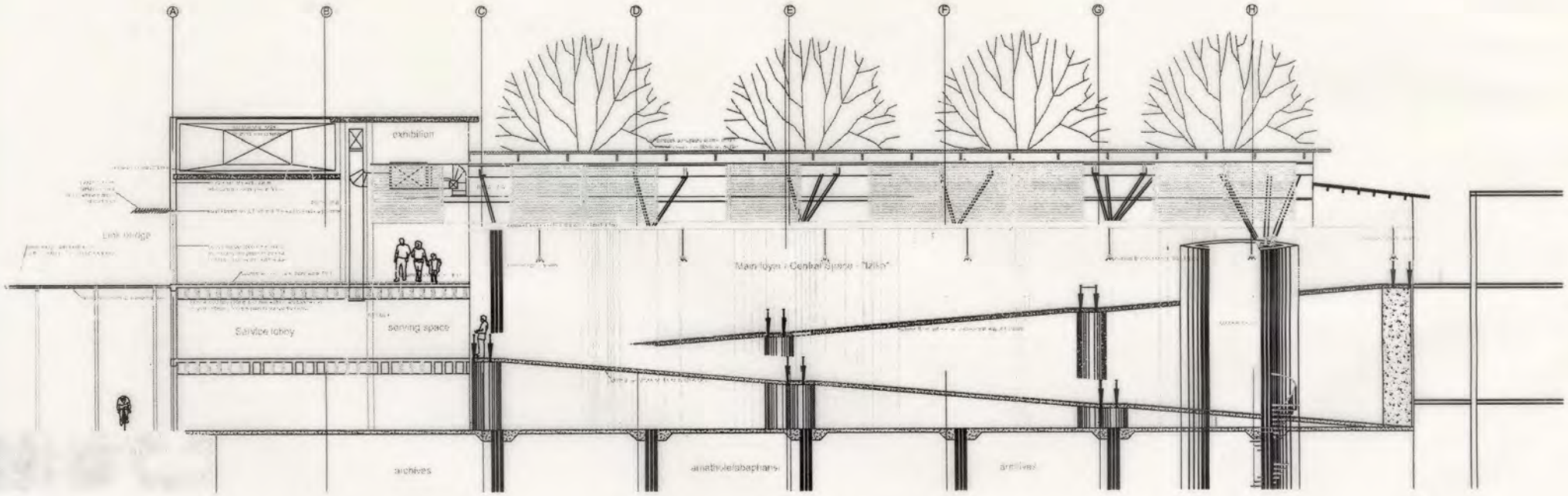


AMATHOLE SECTIONAL ELEVATION

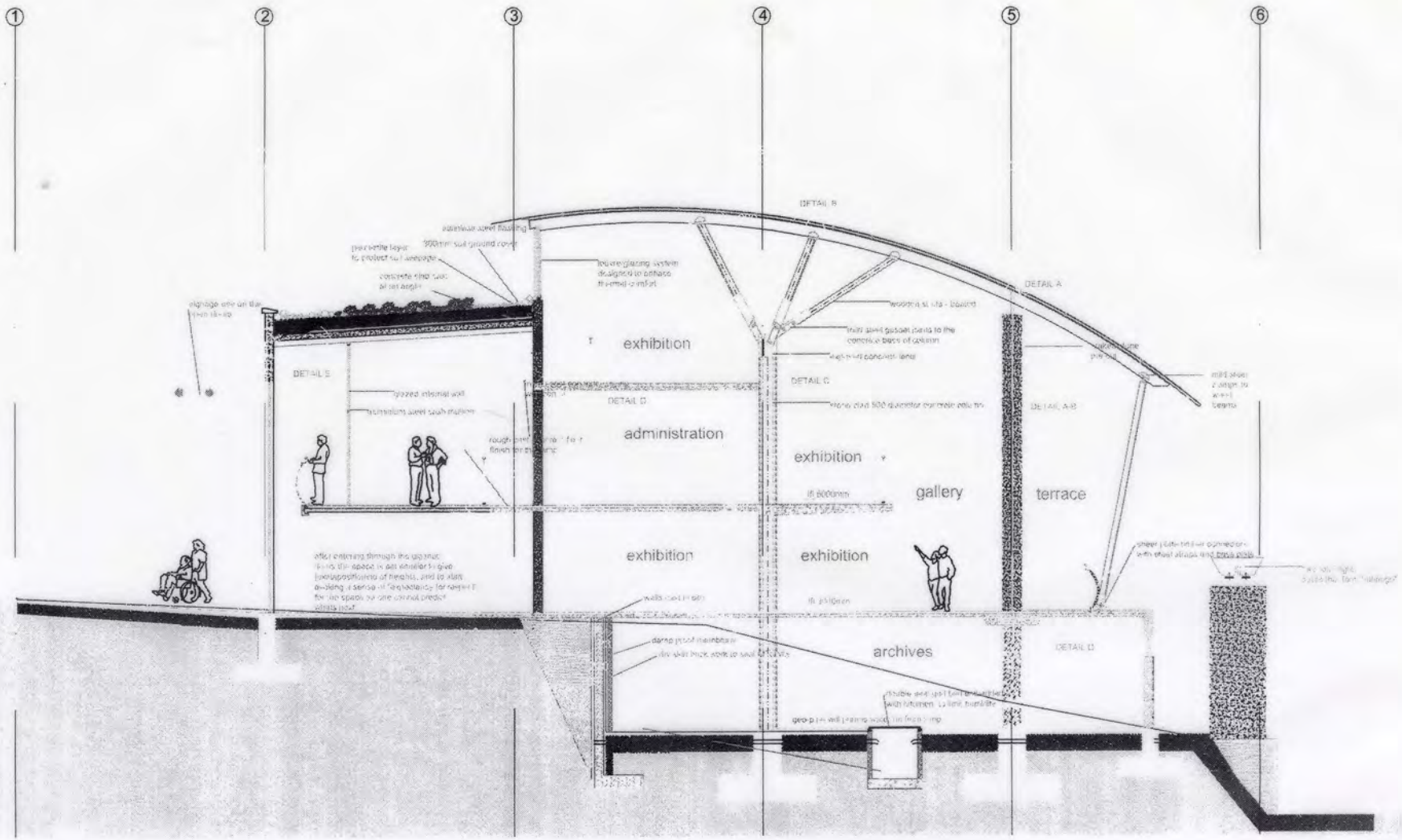


SOUTH ELEVATIONAL SECTION

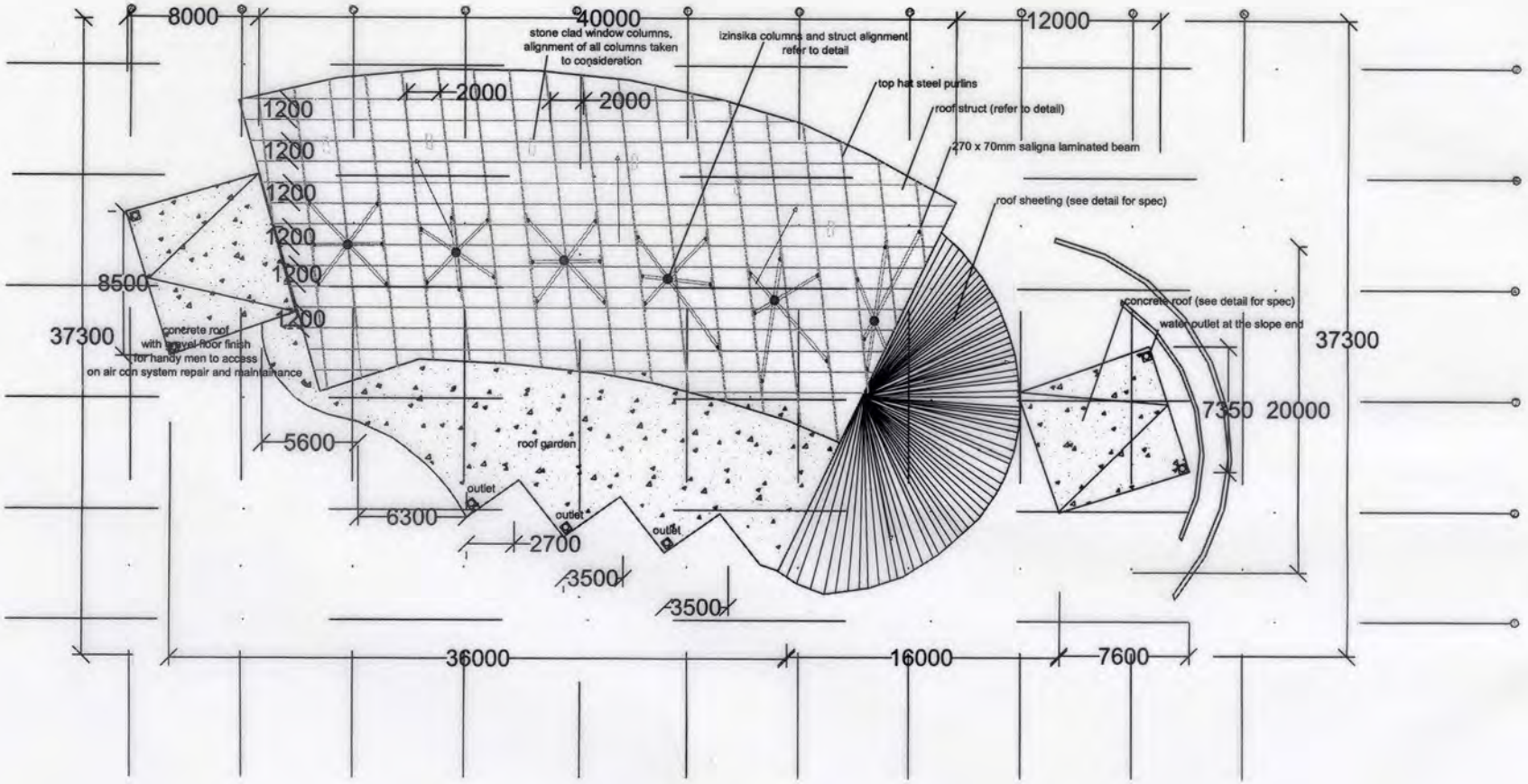




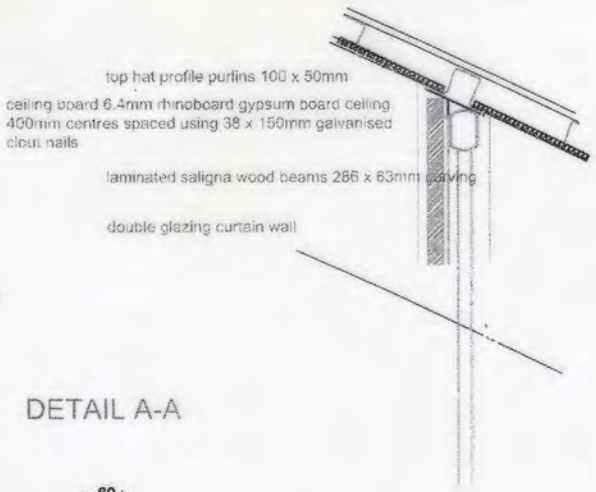
LONG SECTION



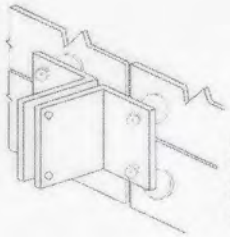
SHORT SECTION


8000
40000
12000
stone clad window columns, alignment of all columns taken to consideration
izinsika columns and struct alignment refer to detail
top hat steel purlins
roof struct (refer to detail)
270 x 70mm saligna laminated beam
roof sheeting (see detail for spec)
2000
2000
1200
1200
1200
1200
1200
1200
8500
37300
concrete roof with gravel-floor finish for handy men to access on air con system repair and maintainance
5600
roof garden
outlet
outlet
outlet
6300
2700
3500
3500
concrete roof (see detail for spec)
water outlet at the slope end
37300
7350
20000
36000
16000
7600

ROOF PLAN

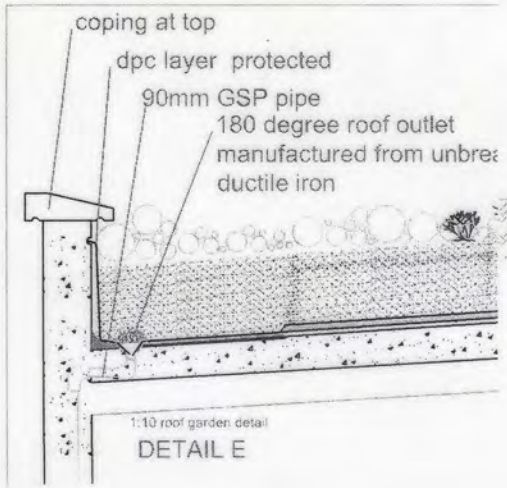


DETAIL A-A



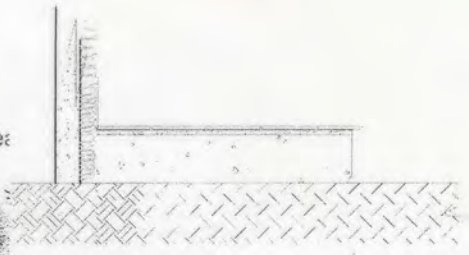
CURTAIN WALL:
DETAIL OF GLAZING JUNCTION PANELS.
FIXING FOR FOUR PANELS LINKING

DETAIL A-C



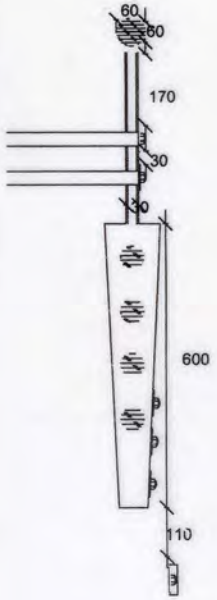
1:10 roof garden detail

DETAIL E



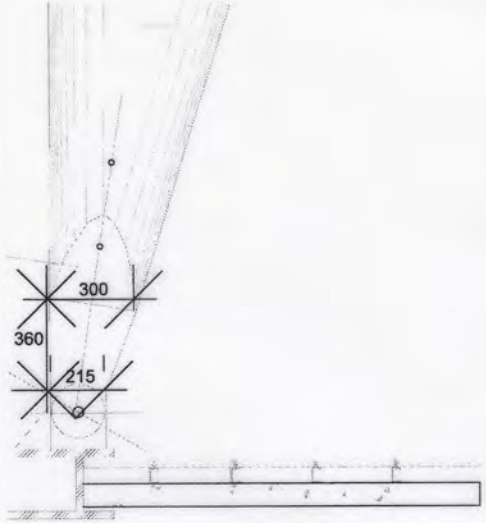
esithumbanjeni bench

DETAIL J



scale 1:5

DETAIL D



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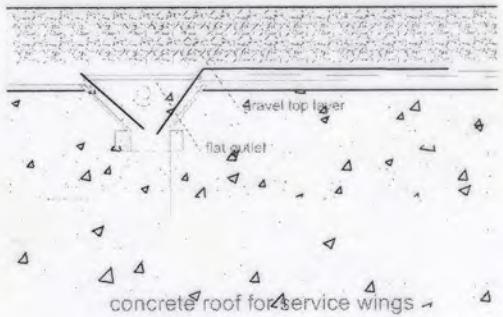

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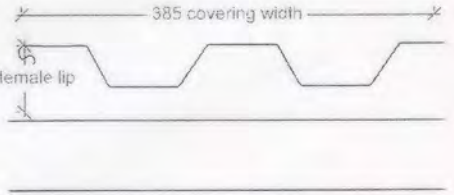
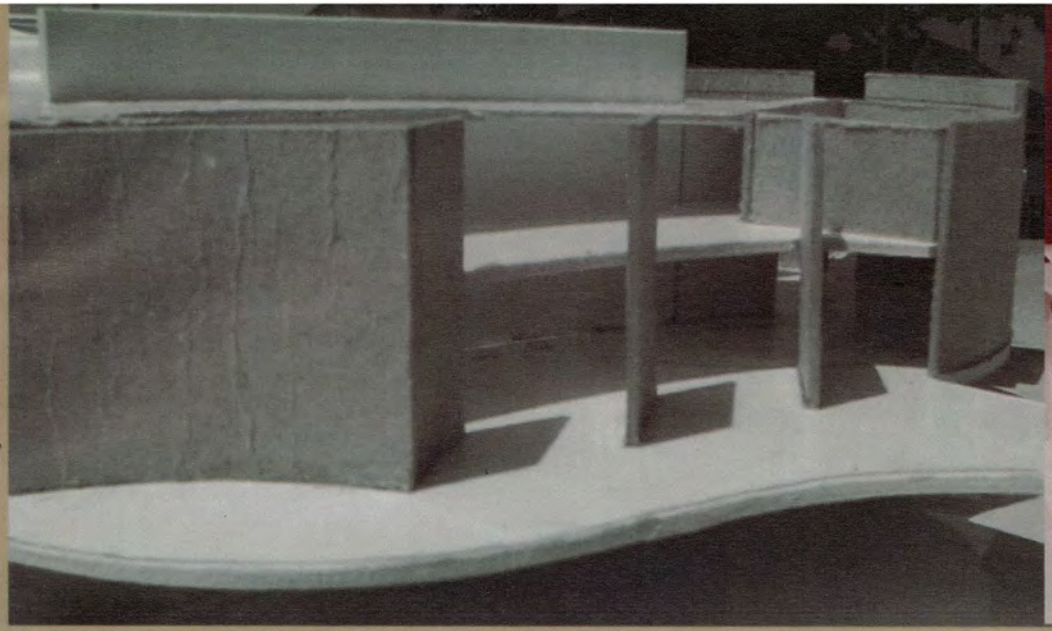


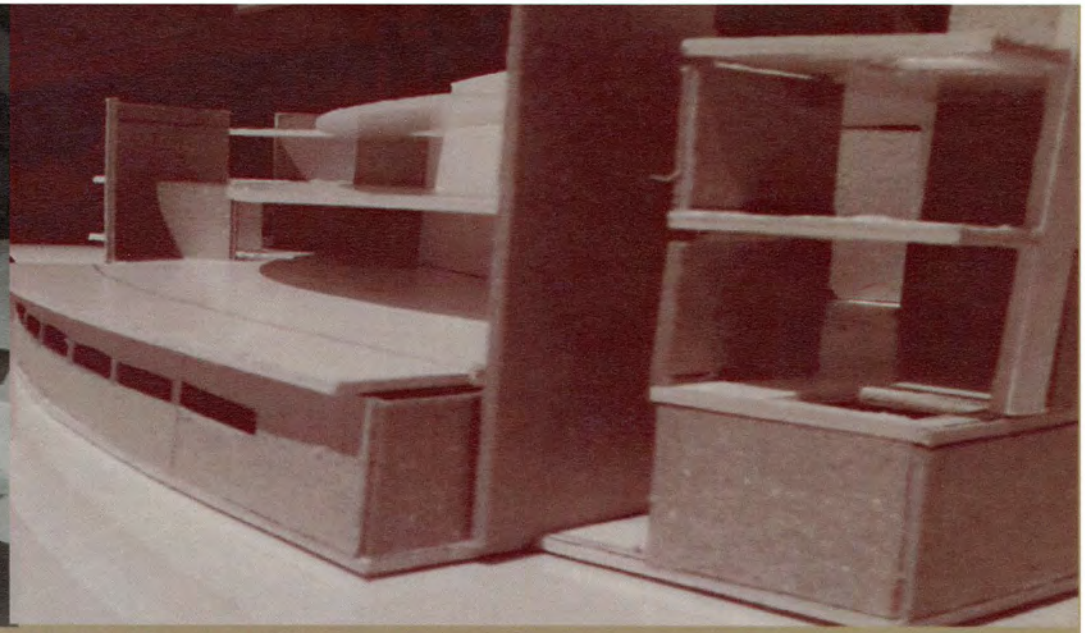
1,2m span for purlins, continous spans at 1,9m for a 0,7mm aluminium sheeting

1:10 roof sheeting profile

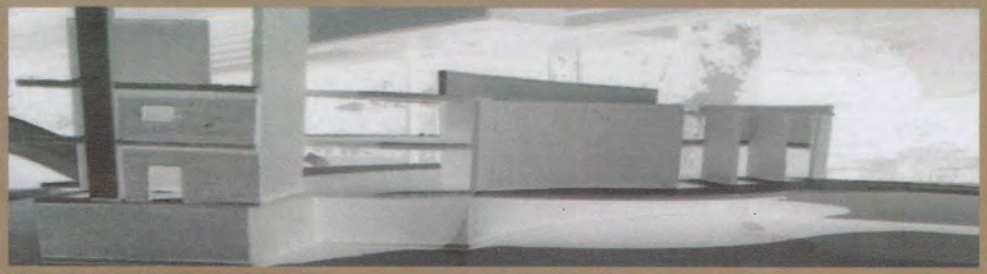
DETAIL F



Entry doors, reinforcing the triology number



Northern facade, different levels exposed



Southern western facade

FINAL MODEL DEVELOPMENT, RESOLUTION OF SPACES INTO THE NEW MUSEUM TYPOLOGY IN ZULU AFRICAN ARCHITECTURE.

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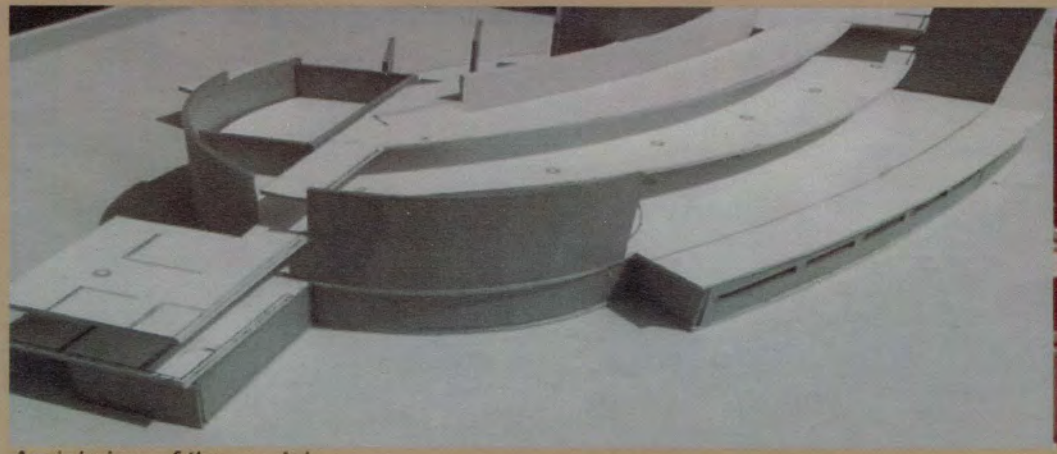
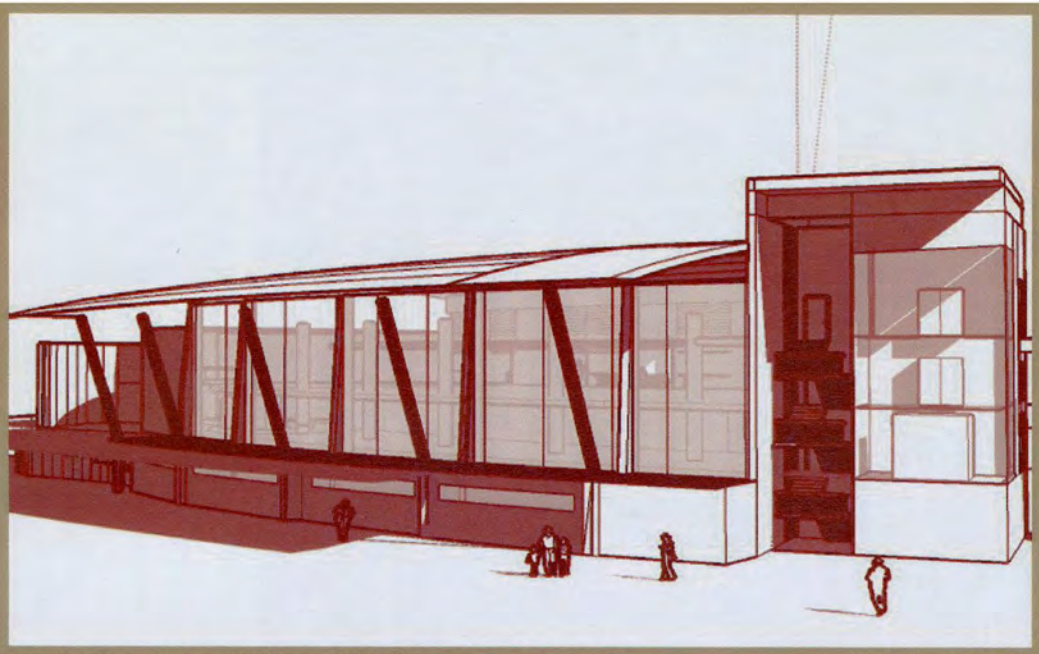
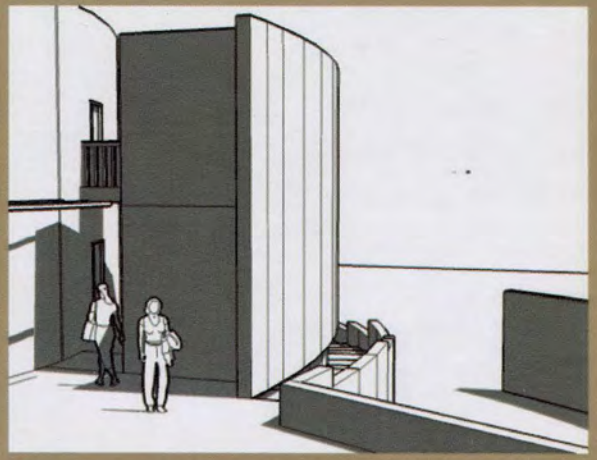


Aerial view of the model

Northern facade

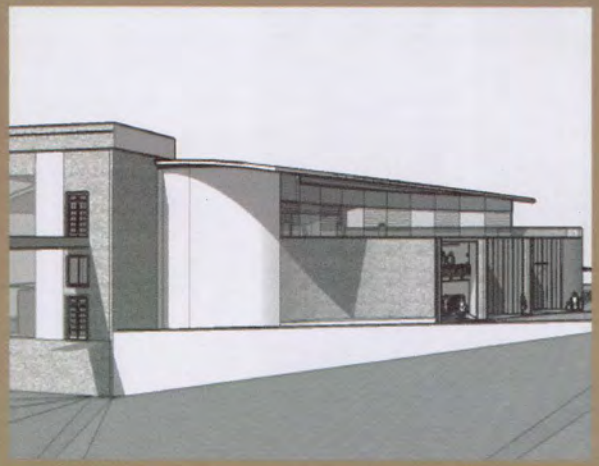


North view of the building with the mechanical wing

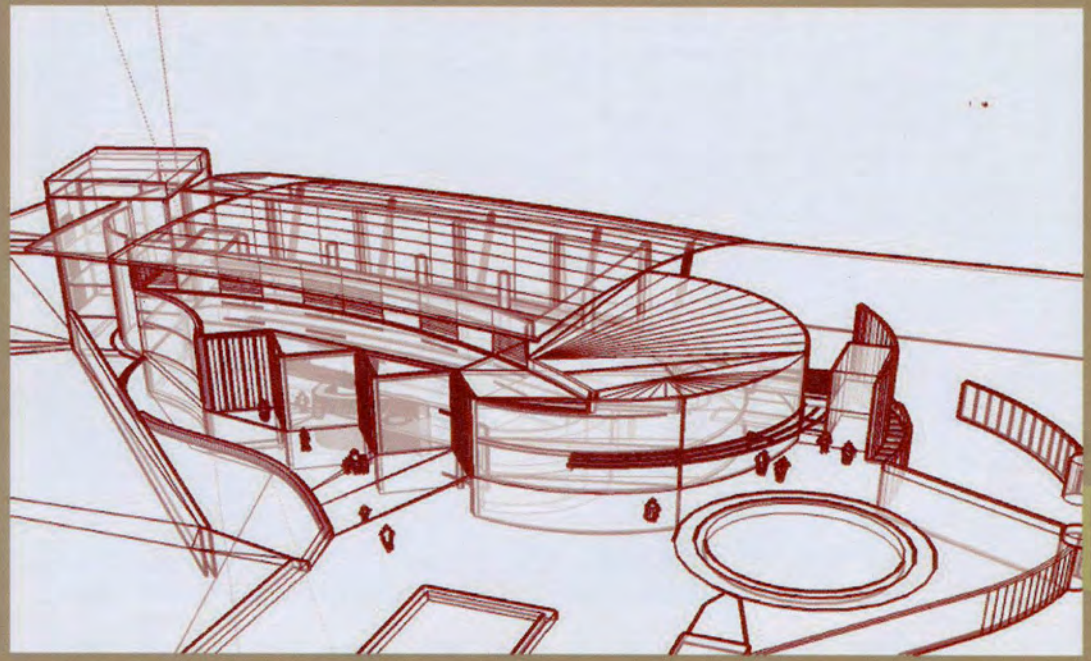


East view looking at the ablution block viewing the north

PERSPECTIVE VIEWS OF PARTS OF THE BUILDING TO SHOW ARTICULATION

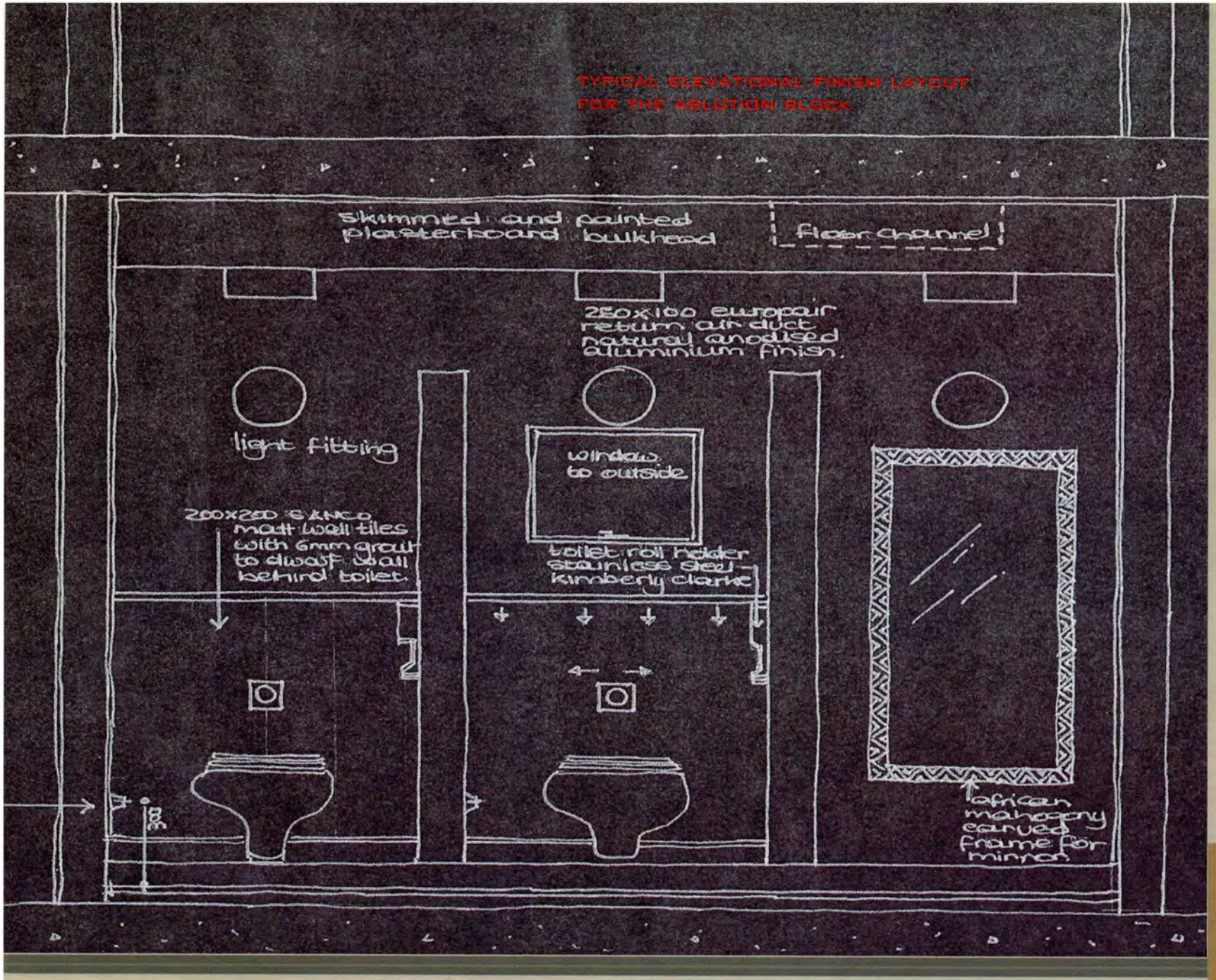


South West view with a link bridge to the next building



Aerial view of the building

TYPICAL ELEVATIONAL FINISH LAYOUT
FOR THE ABLUTION BLOCK



61h

TECHNICAL DRAWINGS

TO ANY DESIGNER:

TOOLS AND GUIDELINES TO IMPLEMENT THE PROJECT

APPENDIX A

Traditional Leaders Museum

**A building that will explore spatial conception in a traditional South African (Zulu) way,
Whilst exploring global trends in construction technology**

1.Brief Development-Summary

The design treatise will concern itself with the Museum development that celebrates South African traditional leaders. (The terminology - traditional leaders encompasses all South African historical leaders, as opposed to tribal leaders which only concern the subject with a certain genre of leaders i.e. African tribes only. South Africa is a diverse country with diverse cultures hence they should all be represented.) All cultural groups in South Africa will be represented. This will be highlighted by one leader- King Shaka as a prototype, for the limitations of this study. The context of this study will be at the Freedom Park site in Tshwane-Pretoria.

The essence of the principles that are embodied in the creation and use of African spaces will be brought across in the design of the museum whilst the building structural and technological expression will be represented by the latest technology trends in Architecture that are global. I.e The ancient Zulu hut was called " Guqa'sthandaze" (Which is means lets bow and pray or pay refuge.) The entrances were intentionally made to be shorter so as one to acknowledge the highness of the King one was forced to bow - This is just one example that explains the significance of different space function that could be employed in the design of the Museum although the technology used could remain high tech. More of these concepts will be dealt with in more detail in the design development phase.

The celebration of King Shaka's kingdom (The prototype of the leaders) will be highlighted in three ways. The king as *a leader* - This will be a design intervention in the old King Shaka's tomb place in Stanger. The King as a *warrior* - This will be celebrated at the King Stone in Stanger. These different aspects an interventions will all be brought together and reach the climax and celebrate *the legend* King Shaka - at the Traditional Leaders Technology Museum in Freedom Park. This lineage shows how the different leaders will be revealed through their contextual environment. This will bring more interaction and reality to the subject matter as opposed to traditional Museum exhibitions that seem detached to the subject matter.

The main aim is to embody the client's need of a heritage centre that celebrates South African heritage, history and culture. The museum will only be a small portion of what Freedom Park will be celebrating in the history of South Africa. Though the museum will be a small fraction of what this is all about it will play a vital and significant role in creating strides that pave way to the culmination of a celebrated South Africa - which is rich in its history and heritage.

Research will not only be celebrated in the cultural and historical heritage only, but the environmental heritage will be taken into consideration as well. The different bio-diverse environments available on all three sites will be investigated thoroughly. Detail design will only concern itself with the Traditional leader's Technology Museum that will be designed in Tshwane. **It is of vital importance to note that although this will be part of the site of Freedom Park. It is an independent dissertation. It uses the Freedom Park as a basis for a real problem issue (the client and the social need in the context) but it is not an entry in designing the Freedom Park Museum according to the framework prepared by the Freedom Park Trust in designing a Museum for this site.**

1.Brief development detail

1.1 Context/Site

The site is located in Pretoria (Tshwane) and it is to be a shrine (or a celebrated area) because of its location and significance to the client and the public. Pretoria represents civil power and the location of this Museum, in Pretoria and on the hill at the entry of the city is strategic. The buildings are to be an integral part of the site. The main driven idea is that the buildings are not to attract attention to themselves, i.e the terrain will be used to conceal some areas of the buildings. The area of Freedom Park site is 52 hectares; the museum was designated 46000sqm together with the auxiliary buildings. This museum will use only a fraction of that, probability is in the region of about 20 000sqm.This figure will change accordingly as the design develops. Detail context study is underway to highlight issues like:

- Total area to be used for the Museum
- Total area envisaged for the building area
- Significance of the location of the Freedom Park Site
- The terrain and the significance thereof
- Site context in relation to the Central Business District (CBD) of Pretoria (Urban sprawl implications)
- Site in relation to other monuments or other areas of National Significance next to the site
- How the site factors (such as terrain, weather, legal implications, environmental impact studies etc) will start informing the design

1.2 The client and the client requirements

The client is be the Department of Arts and Culture in KwaZulu Natal, together with the National Government's department of Arts and culture. (For this study the Freedom Park Trust will be excluded as the client as this will constrict the nature of the project, although their outline and research basis will be used)

The idea in this thesis is not to design an entry for the Freedom Park competition but to use the real issues highlighted by the Freedom Park trust to create an innovative design that has its own rules and design restrictions that will help in enhancing the South African Heritage.

The main problem to outline is to: Firstly create an evolving Museum that will be used by all the generations to learn and add to their culture and heritage. Secondly to develop the built environment technology basis, by using the latest methods of construction and materials in creating a South African identity in the Architectural context. Thirdly and lastly the project will be socially responsible in being a building that will be user friendly and be able to engage users in most levels and from all walks of life.(Socially responsible)

2. Study of context described

The context is the site of freedom Park and Stanger. These two sites will be examined for:

3.1 Environmental qualities
3.2 Cultural and heritage significance
3.3 Adjacent activities and or buildings
3.4 Urban development structure and future potential
3.5 Site forces as design generators

Freedom Park

KwaDukuza - Stanger

3. Needed precedents identified

Precedents will be chosen for their significant role in certain aspects that embody what I am trying to interpolate as a designer.

"Architecture in South Africa is going through some significant noteworthy changes. There is renewed interest in detail, texture, and light. The use of simple materials to create extraordinary features is fast becoming an admirable achievement - ingenuity is order of the day."
(Fouche, Phillip). The Cape Town Convention Centre is the initial precedent chosen, and still being investigated. Thus far it has been investigated in terms of its role in dealing with execution of the design philosophy or concept into construction, The use of materials and the construction technology.

Precedents will also be drawn from literature and African artefacts in order to display the use of space. In some South African cultures the use of space in architectural design has not yet been fully explored, hence there are no readily available architectural examples. It is for this reason that we will draw from other arts - the parallel in the use of space. (I.e Zakes Mda's African literature which is rich in the African concepts)

4.The schedule of accommodation and client activities proposed

Space defined	Area per sqm	Client utility needs For the space	Percentage in the total area - NB of the space
Museum -Village			
1.minor entrance	10sqm	private access	2%
2.entrance-ibala	20sqm	spatial understanding	5%
3.intermediary space	10sqm	relaxation	3%
4.linking passage	18sqm	practical access	15%
5.reception-orientation space	60sqm	practical	20%
6.terrace space	120sqm	recreation	10%
7.kitchens-iziko	80sqm	recreation	5%
8.breakaway rooms-emsamo	100sqm	spatial understanding	10%
9.formal dining-inkundla	160sqm	functional	20%
10.work areas	60sqm	functional	10%
11.information technology centre	1000sqm	experiential	40%
12.curio shop	60sqm	social responsibility	10%
13.ablution areas (footprint)	60sqm	practical need	5%
14.interaction area	800sqm	functional	20%
15.lecture theatre	200sqm	experiential	20%
16.central foyers	300sqm	spatial understanding	60%
17.public lounge	30sqm	recreation	20%

5.Directives in terms of design philosophy

The design philosophy will concern itself with the creation of spaces that deals with activities that take place - in the South African culture represented in that space. This will be the main driving force in design.(creation of space in an African context) The building skin will thus be a result of these areas or space created. The appropriate materials will be used to "clothe" the particular activity area. This will then result a product driven building.

The concept will be generated from a broader research of African identity. The building is to qualify its creation of space and thus create an identity that is different from that of Euro-centric origination. Like Hannes Meyer who looked at a house in its analysis of social factors, he not only viewed the house as a machine for living but also how it related to its social aspects. This will be so in my investigation of the Museum design. I will look at the social aspects in relation to space creation. This will result in a comprehensive building with different forms, organic forms juxtaposed against linear forms for legitimate reasons.
The design product will highlight three areas namely:

5.1 Heritage and conservation
5.2 Culture
5.3 Technology and flexibility

These design concepts will be carried out in all aspects affecting the design of this building. A holistic approach will be taken in investigating the incorporation of these three factors in the design.

6. Structure and the design of the research and thesis design document

The document will take on this format:

- Prologue
- Summary
- Contents
- Introduction
- Physical Attributes - Site Analysis and Context including the legal implications and climatic conditions
- Socio Political Attributes - Culture, need from the client and the user
- Precedent Studies
- Macro and Micro Scale - Implications of this design intervention on these levels
- Design - Development, axis, focal points, composition, structure, visual aspects and design approach
- Materials - Selection, availability, ingenuity, environmental qualities (sustainability)
- Technical Report
- Working Drawings
- Appendixes
- Illustration Index
- References

7.Materials

Readily available materials in South Africa such as steel, glass, stone and concrete will be used. They should embody the qualities that are to be created in terms of the character of the building. The construction methods must lend themselves to the latest global methods used as well as having an aesthetic appearance of a high tech building.

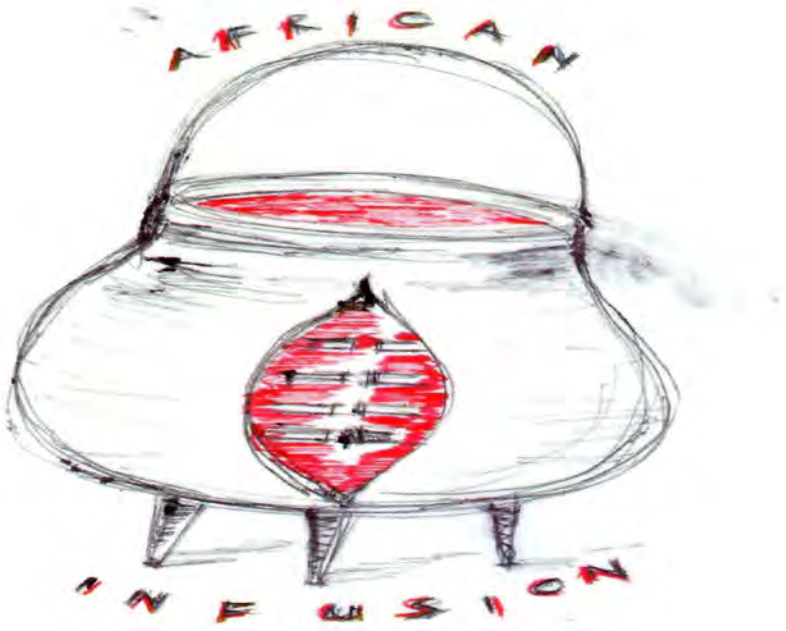
Further and thorough investigation is to be made in terms of the environmental qualities of the materials used as to serve the functions in the building, i.e solar panelling etc. The technical report will deal with a lot of issues concerning materials. This report will look at issues like:

- the tectonic concept
- assembly of materials
- "solid shell vs open shell "
- detailing of materials
- style - critical aspect of the high tech concept

8.Budget

" Buildings are not merely finished objects but the outcome of complex inclusive processes that have ramifications beyond the normal sphere of Architectural activity " (Muwanga)

The estimated budget for Freedom Park project is R380 million. The museum is a fraction of the estimated buildings envisaged for the site. It is going to be about 2000sqm. A proper quantity surveyors estimate can be obtained once the design has been finalised. The Initial capital investment will be obtained from government and foreign investors. The running costs will be generated by the users and the government.



TRADITIONAL LEADERS

INFUSION

MUSEUM (*A pot that boils with a fusion of all the rich South African cultures, with the focus on the Zulu.*)

LEADERS **Present** **Remember** **1.**	**WARRIORS** **Past** **Contemplate** **2.**	**LEGENDS** **Future** **Vision** **3.**	**Briefing Document**

Baseline Study

Summary of the project

This project discourse aims at the exploration of spatial design in a "South African" context while eluding this to the latest technological advances in the built environment sector. This will be done in the design vehicle of a Traditional Leaders Museum in the site of Freedom Park in Pretoria.

The aim is to design a state of the art building that is contextual whilst it develops a new design typology based on the design principles. In the same manner using technology techniques that can be cross referenced to other buildings in South Africa and abroad.

The building footprint is to be adaptable to the whole urban framework that exists. In designing this Museum in Freedom Park, one has to bear in mind the design philosophy of this Museum. The Museum consists of six buildings. These are used in a manner to interpolate the real " inxiwa" (a Zulu home consisting of a number of functional huts). The buildings in the Museum scheme form a coherent whole made up of different parts. These buildings are sub-dived into their function. They are namely;

1. Indlunkulu – The explorative museum – The most significant building
2. Uguqasithandaze – The interactive museum – The building that will show the evolution of the structure of the hut
3. Umlando 'ndlu – Oral history museum – The building that will be intimate and small to showcase the stories
4. Imvelaphi'ndlu – Technology museum – The building that will link the actual activities in KZN to the museum
5. Iziko – The supporting functions – Little tea restaurant and relaxing areas
6. Imisebenzi – Services house for the Museum – transformers, generators etc. Are housed

DESIGN DISCUSSION : As stated above the most important house is "iNdlunkulu" . I will discuss it in terms of what is envisaged in the building. This will be adopted in for the other buildings in the development.

Urban planning / Urban response

There has been a framework that has been developed by the Freedom Park Trust . The main consideration for the framework is a site that links and relates to the areas of significance in the greater Pretoria context.

Specific design implications as a result of the framework are related to the position of the building. The Northern slope as opposed to the ecologically sensitive southern slope. The other considerations are stated in detail in the context study document. For the sake of not being repetitive, they will not be stated here.

Architecture

Objectives
The aim is to design a building that meets all the standards of the criteria it has set up for itself. The facades are to be articulated in such a way that they are fitting to the environment and complement the spatial planning. Articulation due to the environmental qualities like the sun is of vital importance for the elevations.

Space planning
This is the fundamental part of the building as it is the most explorative and the most significant part of the research topic. The space planning of the building will evolve from the design concepts that come about as a result of the research.

Building Management Services (BMS)

Sound environmental practices have been given attention in order to get the Traditional Leader's Museum to perform as close as possible to a green building rating system.

Air conditioning systems in total with a capacity of ± 2,000kg of ice per hour provide cooling for the whole building.

The external devices like shading devices will be chosen in order to reflect glare, thus minimize the work of the cooling devices like the air conditioners.

All the plant and equipment are controlled by the state of the art Building Management System.

Fire protection

The building will be designed in such a way that in case of fire, the protection of users contents of the building and such is made safe for an evacuation process. The generation and the spread of smoke will be controlled and finally adequate access and equipment for detecting, fighting and controlling and extinguishing such fire will be fully provided.
Symbols used to read the tabled baseline document: [General SABS symbols]

- Fire Extinguisher : FE
- Fire Hydrant : FH
- Foam inlet : FI
- Fire main : FM
- Fire pump connection : FPC
- Fire Stopping : FS
- Heat detectors : HD
- Hose reel : HR
- Rising main : RM
- Reflux valve : RV
- Smoke detectors : SD
- Sprinkler System – SS
- Smoke extractor – SX
- Valve – V

For this type of building, a minimum of 1 fire exit is sufficient, but two will be provided on each wing as to accommodate for the population in the building. There will be four feeder routes to the fire escape. Each gathering/exhibition space will have four sprinkler systems. The basement will also have four sprinkler systems.

The width of escape routes that will be used will be 1,2m complying with the requirement of SABS of a maximum of 130 people at a time. Exceptions can be made in areas where cargo (i.e exhibit artifacts in this case might need to also be evacuated.) is to be transported. The width to be used will be 1, 8m.The walls will have a resistance of 10min before they can collapse.

Lighting and ventilation

Air requirements are measured by l/s. The quality of light is very important: level, dynamics, colour, direct and indirect glare. These are all factors to be considered and controlled. The main determining factor will be the visual tasks to be performed in that particular area.
Aspects like:

(NL) Natural lighting in each room
(AL) Artificial lighting needed and appropriate for the display and space
(T1) Types of lamps and luminaries
(EE) Elimination of ultraviolet light in all exhibit, storage and sensitive work areas
(FL) Flexibility – individually controlled task lighting vs general lighting
(VRL) Veiling reflections – bright reflections in task areas, display units have indirect lighting systems
(EL) Emergency lighting systems – separate circuit to light strategic routes for emergencies i.e. generator
(SP) Controls and switching patterns – control from central points, time control etc.

Noise and acoustics

Certain factors to be borne in mind that will have a general impact on the acoustic generation in the building:

- Seating (external sources of noise and vibration)
- Layout of the building – minimize noise from busy areas, in this context the highway edge etc.
- Structure of the building to minimize transmission of vibration to exhibit and sensitive work areas.
- Insulation of important areas (quite areas) from external noise
- Sound reduction value of external walls (not less than 50db)
- Sound reduction of fenestrations, i.e double or triple glazing may be necessary in some areas.
- Finishes – Absorbent ceiling and flooring to reduce impact noises.
- Requirement for specialized spaces – Auditorium, Multimedia rooms etc.

Acceptable maximum levels of background noises are:

Quite areas 30 – 35dB
Low noise areas (staff areas, enquiry desk etc) 45 – 50 dB
Noise areas (lobbies, stairs, etc) 50 – 60 dB

The Sustainable Built Assessment tool (SBAT) format is inserted below to indicate and to raise some more issues that are pertinent in the formulation of the baseline of this Museum development.

"Sustainable construction is a holistic process aimimg to restore and maintain harmony between the natural and built environments and create settlements that affirm human dignity and encourage economic equity"*Agenda 21,For Sust.Construtions in developing countries*

Subject		***Implementation/ Target***
Social	*Education, Health & Safety*	
Life long learning		Continual generational imparting of the vision towards the goal of replenishing and maintaining the environment
Security		The site is secluded and is has periphery fencing. There is limited access into the site, and the entry points are highly monitored, via electronic surveillance. surveillance. There will be security cameras

Participation and Control

Environmental Control

Materials that lend themselves to acute environmental control systems will be used. I.e. solar panels to shade and monitor glare that might be in the building due to intense light penetration.

Building Systems

The construction and the materials used will allow for user to ascertain the type and nature of the building. The construction detail thereof will be advanced enough to be part of today's technology

Social Interaction

The spaces will be designed and articulated in such a way that the users are able to engage or not engage at different social levels.
not everything will be designed, room will be left for spontaneous interaction

Amenity		Amenities will be designed according to the SABS standards, in that it will cater for the number of people allocated for the building
	Access to facilities	
Vehicular		All vehicles will access the site from the main gate into the ring road that circulates around the whole site.
Pedestrians		Pedestrians can also use the main entrance from Salvokop, they can also alternatively access the Museum through the pedestrian paths that circulate within the site past a a lot of places like the isivivane garden.
Access		There will be easily available but controlled access into the buildings and the site. Easy pathways and trails will be established along the routes of the buildings.

Signage

Inclusive Environments

Signage will be placed and zoned for all areas of significance, ie entry points different building types and circulation patterns within the environment and the building itself.

Interiors

The interiors and the furniture layout in the building will be of the same concept generation as is with the architectural structure The heart of the project generates ideas at all levels.

Thermal Comfort

Occupant Comfort

The buildings will be susceptible to adhere to the environmental standards that will allow the building to be thermally comfortable.

Lighting

Light plays a crucial role in the Habitable ability of the building. Therefore a number of solutions have been implemented. Functional light according to each area of functioning will be used. External lighting from windows will be minimized and profusely used in the entrance areas. The rest of the building will use artificial lighting as it will protruding from the landscape.

Ventilation

A combination of natural and artificial ventilation will be used. Artificial ventilation will be minimized as to achieve an environmentally friendly building.

Noise

Internal noise in the building will be monitored by the careful application of acoustic control. External noise will be subject to external forces like the wind, the water elements and any other forces.

Views

The building is located on a hill site which affords spectacular views.
The positioning of the building will take advantage of all the buildings or places of significance, like the Voortrekker Monument.

Economic

Local Economy

Redistribution of Wealth

Local contractors will be used in order to redistribute wealth back to the community

Local Material

The use of local materials will play a major role in this building Exercise. The materials will be collected from all different provinces, as to make Everyone contribute to the history.

Efficiency of use

Occupancy

The building will be used mostly during the day, by the people coming to exhibitions etc At night the building will be under a lot of security Protection

Shared use

Some spaces in the building will have shared or multifunctional purpose. These will include halls etc.

Servicing of space		There will be a clear distinction between serving and served spaces i.e eziko and inkundla areas
	Adaptability & Flexibility	
Structure		The design treatise concerns itself with technologically advanced structural design.
Internal Partitions		There will be minimal partitions used in order to allow spaces to flow into each Other well.
	Ongoing Costs	
Maintenance		As mentioned earlier, maintenance of the building will be done by the local builders who were involved in the construction process. Funds for ongoing maintenance work will be generated from The Freedom Park Trust.
Cleaning		The building will be made of different durable, textured surfaces, this will allow for cost effective maintenance.

Capital Costs

Shared Costs	The initial building costs will be shared between the client and the national government
Use of existing	There will be minimal use of any existing infrastructure to reduce costs as nothing is established on the site.
Proportions of Expenditure	The main proportion of expenditure will go towards maintenance costs This allows for a foresight into managing the building and the site.
Long term Income	Main income generator, will be from the visitors and guest visiting the museum and the site as a whole. A trust can also be reinstated with the client body that will raise funds that will cater for the long term financial needs of this museum.
Designer's Incetives	By designing a building that is able to relate to a lot of sites in the South African context, one is able to become part of history in a real sense. Thus the designer has a task of creating spaces that cater for a number of environments.

Environmental

Water

Water flows	There are existing water sources the two reservoirs. The main reservoir to be used is the one on the western side of the site.
Rain water	Rain water will be harvested of the roofs
Grey Water	Water that has been used for cleaning etc, could be reused for irrigation as well.
Water efficient devices	Water taps that have a minimum time of running will be used. This will monitor the running water.
Planting	The site will have profuse planting, thus a large quantity of water will be used in order to water the plants.

Energy Consumption & Resources	Main energy consumption will be for electricity usage will be drawn from existing power lines in Salvokop
Location	Main power/ energy sources will be located off site.
Ventilation Systems	The building will use a combination of passive and active ventilation according to the needs of the particular area/room
Heating and cooling systems	The air-conditioning systems will be installed for efficient cooling and heating of the building.
Appliance and Fittings	There will be video-conferencing equipment used in the satellite area.
Renewable Energy	There will be an aim to use a lot of Renewable energy.

Generative modeling

The whole brief concentrates on designing around the amazingly beautiful and sensitive landscape. The buildings form part of the landscape.

Brown/Green Field

The method of bringing materials to site will try by all means to avoid creating brown fields, instead the existing green field will be maintained. The system of movable clearing sites will be adopted.

Neighboring Buildings

The nature of the brief and site has no immediate neighboring buildings. Thus there is minimal impact on the contextual built environment.

Occupant
Comfort

% of spaces that are within a certain distance from the window will be monitored as to allow for good thermal comfort in the place.

Inclusive Environments
(wayfinding, space, fiitings and furniture

The movement within the building will allow for easy way finding. People will have the main circulation space. The other spaces will feed from the main space.

Education, Health &
Safely

Awareness will be raised with signage in the building to avoid accidents and any safety hazards that may occur.

Structural and Civil Works

The structural works and civil works will be designed for feasibility by the structural engineer while maintaining the architects design specifications.

Electrical Installation

The substation will be on site in the service building as to allow for easy accessibility for fixing etc. The toilet block that will be naturally ventilated will make use of photovoltaic systems. This system uses the sun as a source of generating electricity. It converts part of the spectrum to electricity. This is appropriate for buildings with small loads like the service block. This energy is then stored in a battery.

Security Installation

High security measures will be adhered to in this development. The cars will be parked off site but adjacent to the development. The access to the cars will be controlled and access from the cars to the building will be controlled by minimizing entry /exit points. Entrance by the public will be only from the ring road and the "ukukhuleka "method which is part of the design investigation will be used to understand the operation of the "home", but it will also assist in heightening security.

Access from one building to the other will be via walkways and link bridges. These links will allow for the external/internal atmosphere in the development. At night the doors to the different buildings will be controlled via access control mechanisms.

Security lighting will also be used, especially when one approaches "ibala" and "isibaya" areas. The light will go on as to alarm the visitor that they are in an important public space while protecting them from strangers.

Vertical Transportation

Most of the vertical circulation will happen within the building. The internal core as per the early buildings in the inxiwa, will be used for circulation. The linking with ramps and stairs though will be part of the circulation pattern. This will be articulated in such a way that the buildings follow the order of the movement through the museum. In the Main Museum building there will be a main circulation core, consisting of a ramp and a circular stair. In the west wing of the building there will be a lift core exposed by a glazed covering and able to be within easy access to the next building and the main central circulation core area.

Wet services

There will be a service core in each building but everything will be controlled in the service house. For wet services, this is where the sanitary services will link with that of the whole development on the hill and link then with the now upgraded wet services of Salvokop. In the Main Museum building the east wing will be another service wing for most wet services linking to the ablution areas.

The design articulation of some roofs will allow for rainwater drainage and thus one will be able to reuse the water for irrigation etc, thus making the development more sustainable in the utilization of water. The internal drainage (retaining wall system) will pump the water (gray-water) up the building and allow the water to be re-used as well for irrigation

Traffic Report

The traffic report will be adopted as it was in the Freedom Park development prepared by the appointed traffic engineers. This information will be made available on request if deemed relevant.

Landscape design and overview

The landscape design of this facility will adopt an approach that will complement the design aspects raised and also possibly on the external features use as much landscape articulation as opposed to built structure. This will and can form part of another whole design investigation delivered by a qualified landscape architect.

: CIRCULATION

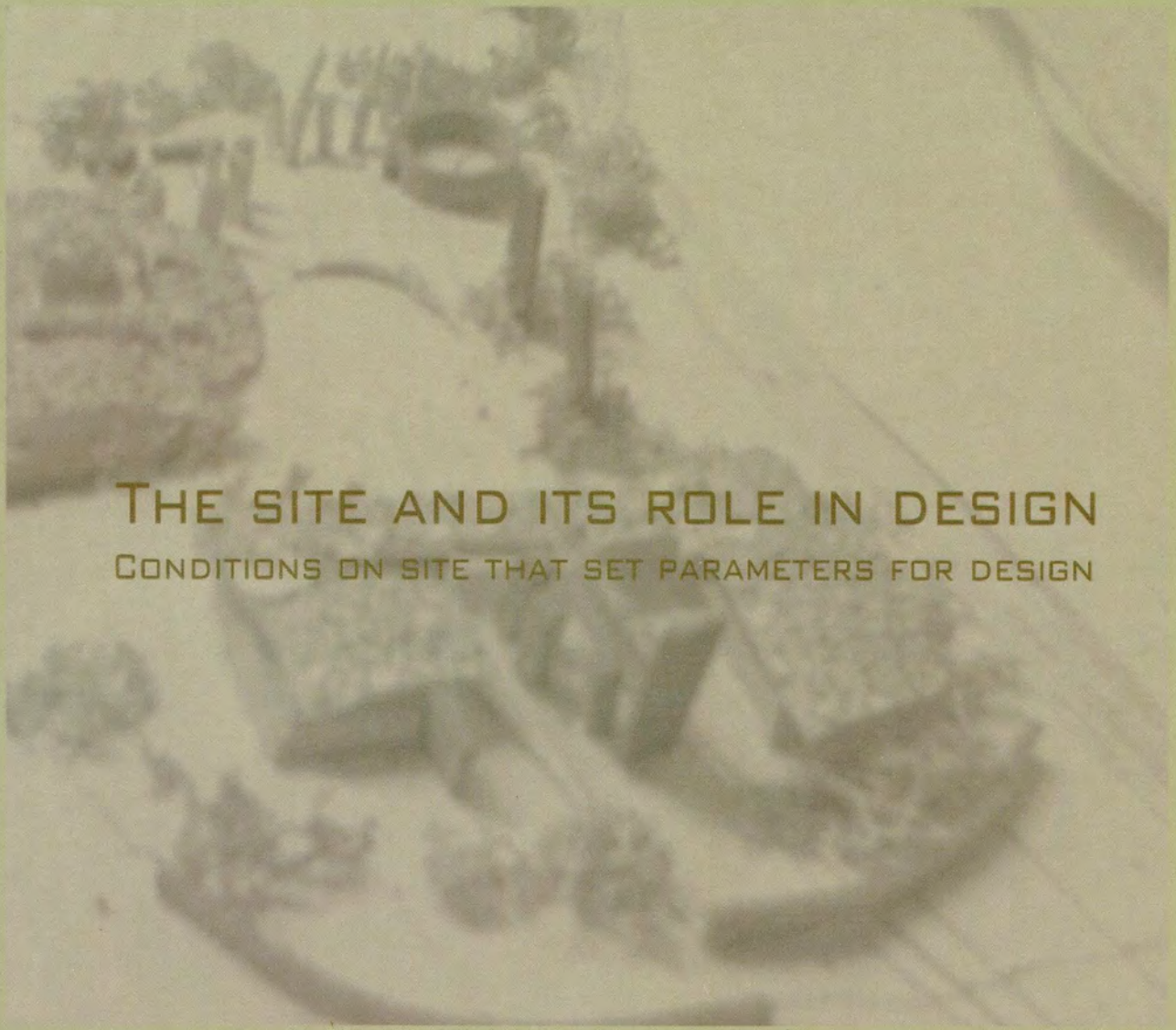
AA1: Ramps in the building will be a minimum of 1,2m wide. The ramps will be created at 1:12 slope as per SABS standards.
AA2: Circulation stairs will also be a minimum of 1, 2m wide. Handrails will be on the right side of the risers.
AA3: The option of utilizing lifts will adhere to the SABS standards.

: EXTERNAL ELEMENTS

SS2: The ramp measured from center is at the gradient of 1:12 as per SABS standards
The clear trafficable surface is 1.2m, complies with the 1.1m minimum
The ramp surface material is textured concrete, which complies with the slip resistance, requirement
SS3: The lift core complies with the minimum internal dimension of 1.1m and 1,4depth
SS3.2 The light by the lift will be 80 lux – providing for the vast area.

: SERVICES

PP15.1 There will be a discharge vent on the east wing of the service area. The discharge stack will be continued upwards to form a stack vent.
PP16 The sizes of the discharge pipes will be according to the SABS regulation, conforming to the sizes of the sanitaryware chosen
PP17 Drains shall all lead to the main outlet on the east of the building complying with the sizes stipulated in the SABS standard
PP20 The ventilation ducts: In the main foyer and the open volume space will be below the floor structure and concealed by side and bottom paneling with timber veneer on sides and PVC finish below.
RR5 Connection to the main storm water reticulation and sewer reticulation will be at the ring road, from where they will connect to the main systems provided by the municipality / local authority for Salvokop. (This has been upgraded from its historic state of capacity) All connection methods will adhere to the SABS standards.



THE SITE AND ITS ROLE IN DESIGN

CONDITIONS ON SITE THAT SET PARAMETERS FOR DESIGN

APPENDIX B

63

Context Studies

1. Background/ Introduction

The government saw Freedom Park as a project that will tend to the well being of the nation by exploring the issues of heritage, identity, and values that are accessible to all. (Diversity that is well appreciated) The Freedom Park talks about the past, the present and the future. Traditional Leaders Museum is then about part of the history of the past leaders and about teaching the current generation about their history whilst being an inspiration for future leaders.

Freedom Park is a global fort while being a monument for all humanity. The creation of the site seeks to give a silent heritage and to reconcile the past with the future. This is the reason the main aim of the physical structures is to create physical structures that will house memories, spirit and hopes of people from the early times into the future. That is why the president alludes to this place as "A hollowed place that inspires all to continue the infinite journey of Freedom from ignorance, superstition, fear, poverty, oppression and violence". The story of South Africa narrated and displayed at Freedom Park , begins 3.6 billion years ago, when awesome geological events saw the birth of the earth. South Africa's unique beginnings see her emergence as the cradle of humanity– the place where human life evolved over millions of years. To help develop a country that is a cradle of humanity into the home of human Freedom!"

The client for the development identified three sites initially. They were namely; Old teacher's training college, Meintjieskop, and Salvokop. Only Salvokop fulfilled the criterion that was set by the client. The proposed site was or is called " the place of the eland " This strategic hill, Freedom Park is also called "Dithabeng tsa mmamogale" various people have come and gone. Different eras have seen different gatekeepers, baKgatla, baPedi, the Boers, the British, the last have left evidence of their fortifications, the ruins of the fort Tullichewan. Each traveler who was here has a different story to tell. At the summit-the ridge that is where most delicate memories are housed, surrounded by the beauty and abundance that is nature. "Here also our wound are caressed and the secrets of our future whispered by the wind strengthening our resolve." [Morojele, Mphethi]

The site has the conservation status of 1.38%, which is lower than the recommended international guideline of 10%. Construction operations pose groundwater and surface water population risk. Floral species have been identified and they may be exposed to some risk due to anticipated construction activities and influx of visitors during operation. An appropriate environmental management plan will be adopted, that will address measures for both construction and operational phases. This is elaborated further in the SBAT document contained in the Baseline Study.

Freedom Park site is located on the hill to the south of the Salvokop hill, south west of Pretoria central and adjacent to the Ben Schoeman highway. On the remainder of portion 406 of the farm Pretoria town and town lands 351-JR. The approximated co-ordinates of the site are 11'30 and 25°46'. The site is currently owned by Transnet and is reserved for use by Spoornet. The size of the site is 35 hectares.

The site is located in Pretoria (Tshwane) and it is to be a shrine (or a celebrated area) because of its location and its significance to the client and the public. Pretoria represents civil power and thus the location of this Museum in Pretoria and on the hill at the entry of the city is strategic. The buildings are to be an integral part of the site. The main idea is that the buildings are not to attract attention to themselves, i.e the terrain will be used to conceal some areas of the buildings. The Traditional Leader's Museum was designated 46000sqm together with the auxiliary buildings as per the Freedom Park's Trust requirements. This museum establishment as per brief setup on this project will only use a fraction of that area. Detail context and Baseline study will highlight issues like:

- Total area to be used for the Museum
- Total area envisaged for the building area
- Significance of the location of the Freedom Park Site
- The terrain/ridge and the significance thereof
- Site context in relation to the Central Business District (CBD) of Pretoria (Urban sprawl implications)
- Site in relation to other monuments or other areas of National Significance next to the site
- How the site factors (such as terrain, weather, legal implications, environmental impact studies etc) will start informing the design decisions in generating the Museum structure.

2. Site Locality and physio-graphy

Freedom Park site is located on the hill to the south of the Salvokop hill, south west of Pretoria central and adjacent to the Ben Schoeman highway. On the remainder of portion 406 of the farm Pretoria town and townlands 351-JR. The approximated co-ordinates of the site are 11'30 and 25°46'. The site is currently owned by Transnet and is reserved for use by Spoornet. The size of the site is 35 hectares.

Freedom Park is situated within the greater context of Salvokop. Salvokop is situated between the Pretoria station to the north and Maria van Riebeeck with Fountain Valley in the East. Potgieter Street to the West and the Voortrekker Monument to the Southwest.The Freedo,m Park Hill within Salvokop is part of the Transvaal supergroup and more specifically the Timeball Hill formation of the Pretoria group.

Timeball Hill formation – It comprises of three major units namely the lower shale unit, the Klapperkop member and the upper shale unit. The shale of the Timeball hill formation has an average dip of 25 N and a strike of 165. The Klapperkop member overlies the lower Timeball Hill formation with a gradational contact which is seldom exposed.

The site is located approximately 1 km northeast of the Voortrekker Monument on Struben's Street. The highest point on the koppie is 145 1 m above sea level (MSL). The northen slopes of the site is fairly steep at 12 degrees, with the southern slopes slightly less steep. A non perennial stream is located to the west and south of the site. The Weinert N value of the site area is 2,4 and thus the dominant mode of weathering is a chemical decomposition with fairly deep soil profiles expected.

The Freedom park was initially proposed on the ridged line which forms part of the Skurweberg complex. This is part of the Timeball hill formation of the Pretoria group which forms a natural bowl. The complex includes Klapperkop, Skanskop, Magazine Hill, Salvokop and the Fountains ridgeline.

3. The urban context

- The Freedom Park is located on the Salvokop Hill which is a hill situated on the Southern entrance of Pretoria.
- The modern city of Pretoria was established in 1855-1860
- Since those early days, Pretoria was declared the Capital of Zuid Afrikaasche Republiek, till this day that title still holds.
- The urban planning of Pretoria, was initially laid from Church square.
- The axis of Freedom Park coincides with the axis of Paul Kruger Street.
- Major architectural landmarks from the Salvokop Hill are the Union buildings (architect: Herbert Baker) , Unisa and Voortrekker Monument (architect: Gerard Moerdyk)
- The idea is that today's buildings that are being erected in the city center, suburbs etc, do not contribute to the meaning of place. The Museum to be built will try and bear these aspects into mind when it is being formulated.

Landscape design guideline from the framework consisted of the following

- Development should occur mostly in the northern urban facing slopes
- Limit development on the southern slopes to pedestrian access and conserve the grassland plant communities
- Retain existing natural vegetation, can also help screen off areas into the parking
- Pathways should meander and not take on the straight path

These stringent rules are outlined in the Integrated Environmental Management guideline (IEM). This is a document set out to guide the development process by providing a positive interactive approach to gathering and analyzing data concerned with environmental aspects of the site development. This document also allows for an open participatory approach, that is pro-active and enhances positive planning.

4. Archeological Information

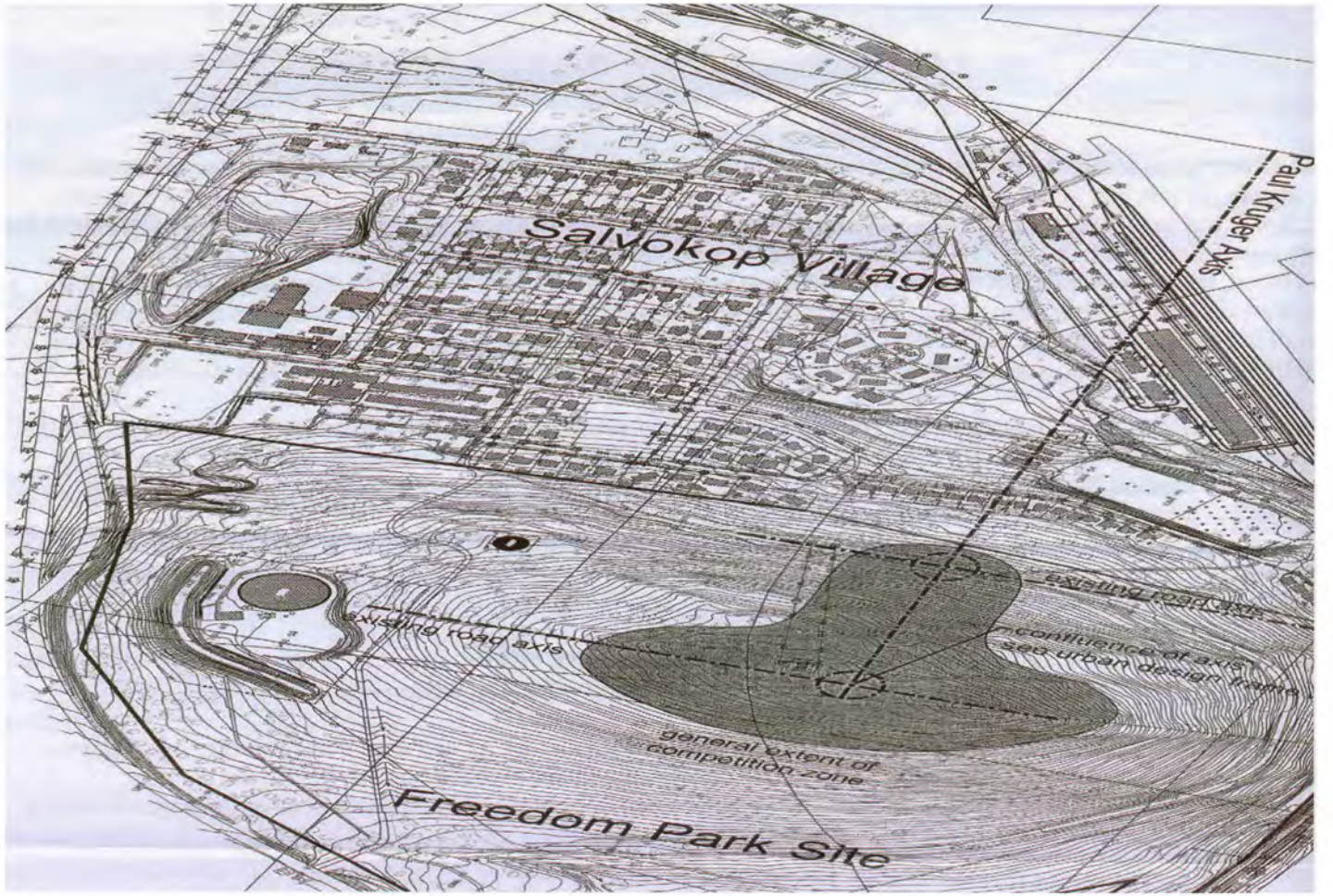
The legislation information stipulates that no archeological remains remain on site. Any remaining must be noted and evaluated. Oral history survey reveals that Mr Sifiso Ndlovu assisted with the oral history that conveys some of the information available. Upon inspection of the site it was revealed that Salvokop hill consists of a single geological structure of which the backbone is the Magaliesberg sandstone (quartzite) with the South and North faces consisting of decomposed shale. As a result of its freestanding result, the hill is because of the two faults that run north south on either side of it. The magma outpouring of the ingenious bushveld complex has influenced the earth's crust by pushing up three ranges of the hill around its edge at this point. The location of the site is indicated by the position of the "Timeball Hill" (An important geological term created by the original authors as part of creating philosophies concerning the post-struggle/war introspection as a contribution to world peace)

The difference in the temperature and rainfall has created two ecological systems to the north and to the south of the hill. To the south it is open grassland, interspersed with *Protea caffra*. Towards the north and the west a definite " bushveld" flora occurs. There were about 16 species identified on site.

Apart from the small fortification on the summit of the hill, there does not occur any archaeological material of importance on this hill. There does not occur any archeological material of importance on this hill that is at present exposed. The old existing telecommunications building and tower cannot at present be termed " archeological"

The word Salvokop hill is derived from the word "Salvo" which is associated with military, denoting the simultaneous firing of the artillery or other guns. "Kop" or "koppie" denotes a hill. So the direct meaning would be "Salvo-Hill".

Fort Tullichewan was built in December 1880 towards the east of the crest of the hill, named after a scottish castle in Britain. Fort Tullichen also served as a signal post to the British forces during the war of 1880-1881, which monitored the boer movements. There is very little that remains of the fort. The fact that it occupies basically the central point of the eastern summit of the hill will cause some problems with design of the Freedom Park project.


Salvokop Village
Paul Kruger Axis
existing road axis
existing road axis
confluence of axis
see urban design frame
general extent of
competition zone
Freedom Park Site

5. Habitat Survey of Freedom Park

Special consideration had to be given for the habitat requirements of all the red data species which may occur in the area. The vegetation is described as Bankveld A61 by Acocks (1988) or as a rocky highveld grassland by Bredenkamp & van Rooyen (1996) and is a transitional type between the high inland plateau grassland and the lower inland plateau bushveld. 65% of this area is transformed and 1,38% conserved. The vegetation is highly threatened by urbanization and frequent burning. The study area is in essence a free standing koppie.

The Transvaal Ndebele has been recognized as the first occupants around Pretoria. The name Tshwane to the early Ndebele history referes to a type of grass along the banks of the Apies river (which was earlier called "Ezwebuhlungu"). This grass was called "inkonyane etshwane" as briefly stated in the introduction.

The red sandy soil is high in gravel content, and on the slopes there are overly solid rocky planes. However pure rocky outcrops are absent. The entire site is heavily wooded, primarily with indigenous trees. Exotic trees such as pine (*pinus spp.)*and gum (*Eaucalpus*) – occur as minority element.

The following species were found on the site: (attached information adapted as it is from the document prepared by Africon)

Mammals

I	*? Suncus infinitesimus*	Least dwarf shrew
	? Suncus varilla	Lesser dwarf shrew
	** Crocidura cyanea*	Reddish-grey musk shrew
	? Crocidura silacea	Peters' musk shrew
	** Crocidura hirta*	Lesser red musk shrew
R	*? Atelerix frontalis*	Hedgehog
	? Epomophorus wahlbergi	Wahlberg's epauletted fruit bat
	** Taphozous mauritianus*	Tomb bat
	** Tadarida aegyptiaca*	Egyptian free-tailed bat
	** Eptesicus capensis*	Cape serotine bat
	** Scotophilus dinganii*	Yellow house bat
	** Scotophilus borbonicus*	Lesser yellow house bat
	? Nycteris thebaica	Common slit-faced bat
	? Rhinolophus clivosus	Geoffroy's horseshoe bat
	? Hipposideros caffer	Sundevall's leaf-nosed bat
	? Galago moholi	Bushbaby
	** Lepus saxatilis*	Scrub hare
	Cryptomys hottentotus	**Common mole rat**
	? Graphiurus murinus	Woodland dormouse
	** Rhabdomys pumilio*	Striped mouse
	** Mus musculus*	House mouse
	** Mus minutoides*	Pygmy mouse
	** Mastomys coucha*	Natal multimammate mouse
	? Thallomys paedulcus	Tree rat
	** Aethomys namaquensis*	Namaqua rock rat
	** Aethomys chrysophilus*	Red veld rat
	** Rattus rattus*	House rat
	** Tatera leucogaster*	Bushveld gerbil
	** Saccostomus campestris*	Pouched mouse
	** Dendromus melanotis*	Grey pygmy climbing mouse
	** Dendromus mystacalis*	Chestnut climbing mouse
	** Felis catus*	Domestic cat
	** Canis familiaris*	Domestic dog
	** Genetta genetta*	Small-spotted genet
	** Genetta tigrina*	Large-spotted genet
	** Cynictis penicillata*	Yellow mongoose
	** Galerella sanguinea*	Slender mongoose

Reptiles and amphibians

CLASS: REPTILIA		Probability of occurrence
ORDER: SQUAMATA	**LIZARDS/SNAKES**	
Suborder: LACERTILIA	**LIZARDS**	
Family: Gekkonidae	**Geckos**	
Lygodactylus capensis capensis	Cape Dwarf Gecko	Low
Pachydactylus capensis	Cape Thick-toed Gecko	Medium
Pachydactylus affinis	Transvaal Thick-toed Gecko	Confirmed
Family: Agamidae	**Agamas**	
Agama aculeata distanti	Distant's Ground Agama	Low
Family: Scincidae	**Skinks**	
Mabuya punctatissimus	Speckled Skink	Medium
Mabuya capensis	Cape Skink	Low
Panaspis wahlbergii	Wahlberg's Snake-eyed Skink	Low
Family: Gerrhosauridae	**Plated Lizards**	
Gerrhosaurus flavigularis	Yellow-throated Plated Lizard	Low
Suborder: SERPENTES	**SNAKES**	
Family: Typhlopidae	**Blind Snakes**	
Typhlops bibronii	Bibron's Blind Snake	Low
Typhlops lalandei	Delalande's Blind Snake	Low
Family: Leptotyphlopidae	**Thread Snakes**	
Leptotyphlops c. conjunctus	Eastern Thread Snake	Medium
Leptotyphlops scutifrons	Peter's Thread Snake	Low
Family: Atractaspididae	**African Burrowing Snakes**	
Atractaspis bibronii	Bibron's Stiletto Snake	Low
Aparallactus capensis	Cape Centipede-eater	Low
Family: Colubridae	**Typical Snakes**	
Lamprophis fuliginosus	Brown House Snake	Low
Lycophidion capense	Cape Wolf Snake	Low
Psammophylax rhombeatus	Spotted Skaapsteker	Medium
Philothamnus hoplogaster	Green Water Snake	Low
Dasypeltis scabra	Common Egg-eater	Medium
Family: Elapidae	**Cobras, Mambas & others**	
Hemachatus haemachatus	Rinkhals	Low
Family: Viperidae	**Adders**	
Bitis arietans	Puff Adder	Low
CLASS: AMPHIBIA	**AMPHIBIANS**	
Order: ANURA	**FROGS**	
Family: Bufonidae	**Toads**	
Bufo gutturalis	Guttural Toad	Low
Bufo rangeri	Ranger's Toad	Low
Family: Ranidae	**Common Frogs**	
Tomopterna natalensis	Natal Sand Frog	Low
Tomopterna cryptotis	Tremolo Sand Frog	Low

Some of the bird species on site

Rob No.	SCIENTIFIC NAME	COMMON NAME	Habitat preference A	B	C	D
63	*Ardea melanocephala*	Black-headed Heron	X	X	L	X
71	*Bubulcus ibis*	Cattle Egret	X	X	H	L
81	*Scopus umbretta*	Hamerkop	X	X	L	H
94	***Bostrychia hagedash***	**Hadeda Ibis**	L	H	M	H
126	*Milvus migrans*	Black Kite	L	L	L	L
940	*Milvus aegyptius*	Yellow-billed Kite	L	M	L	H
127	*Elanus caeruleus*	Black-shouldered Kite	L	L	L	L
131	***Aquila verreauxii***	**Verreaux's (Black) Eagle**	M*	M*	X	X
136	*Hieraaetus pennatus*	Booted Eagle	L*	L*	X	X
137	*Hieraaetus ayresii*	Ayres's Hawk-Eagle (NT)	L*	L*	X	X
149	*Buteo vulpinus*	Steppe Buzzard	L	L	L	M
156	*Accipiter ovampensis*	Ovambo Sparrowhawk	X	X	X	M
157	*Accipiter minullus*	Little Sparrowhawk	X	M	L	H
158	*Accipiter melanoleucus*	Black Sparrowhawk	X	X	X	L
169	*Polyboroides typus*	African Harrier-Hawk (Gymnogene)	L	L	X	L
171	*Falco peregrinus*	Peregrine Falcon (NT)	L*	L*	X	X
188	*Peliperdix coqui*	Coqui Francolin	L	L	L	X
199	*Pternistes swainsonii*	Swainson's Spurfowl	M	L	M	L
203	*Numida meleagris*	Helmeted Guineafowl	H	M	H	H
255	*Vanellus coronatus*	Crowned Lapwing	X	X	H	L
258	*Vanellus armatus*	Blacksmith Lapwing	X	X	L	L
260	*Vanellus senegallus*	African Wattled Lapwing	X	X	L	L
297	*Burhinus capensis*	Spotted Thick-knee (Dikkop)	X	M	H	H
348	*Columba livia*	Rock Dove (Feral Pigeon)	H	H	H	M

726	***Laniarius ferrugineus***	**Southern Boubou**	L	**H**	X	H
739	*Laniarius atrococcineus*	Crimson-breasted Shrike	X	L	X	X
748	*Dryoscopus cubla*	Black-backed Puffback	M	H	X	H
745	*Tchagra australis*	Brown-crowned (Threstr.) Tchagra	H	H	L	M
744	*Tchagra senegala*	Black-crowned Tchagra	H	H	L	M
746	***Telophorus zeylonus***	**Bokmakierie**	**H**	H	M	M
753	*Prionops plumatus*	White-crested (White) Helmet-Shrike	L	L	X	L
757	*Acridotheres tristis*	Common Myna (**EXT**)	H	H	H	H
761	*Cinnyricinclus leucogaster*	Violet-backed (Plumcol.) Starling	X	L	X	L
764	*Lamprotornis nitens*	Cape Glossy Starling	M	H	L	M
769	*Onychognathus morio*	Red-winged Starling	H	H	L	M
787	***Cinnyris talatala***	**White-bellied Sunbird**	**H**	**H**	M	H
792	*Chalcomitra amethystina*	Amethyst (Black) Sunbird	H	H	M	H
796	***Zosterops pallidus***	**Cape White-eye (END)**	**H**	**H**	L	H
801	*Passer domesticus*	House Sparrow	M	M	M	M
805	*Passer melanurus*	Cape Sparrow	H	H	H	H
804	*Passer diffusus*	Southern Grey-headed Sparrow	H	H	H	H
807	*Amblyospiza albifrons*	Thick-billed Weaver	L	L	M	M
813	*Ploceus capensis*	Cape Weaver	M	M	L	H
814	***Ploceus velatus***	**Southern Masked-Weaver**	H	**H**	H	H
821	*Quelea quelea*	Red-billed Quelea	H	H	H	H
824	*Euplectes orix*	Southern Red Bishop	M	M	M	M
829	*Euplectes albonotatus*	White-winged Widowbird	M	M	M	M
831	*Euplectes ardens*	Red-collared Widowbird	L	L	M	M
841	***Lagonosticta rhodopareia***	**Jameson's Firefinch**	M	**H**	M	H
844	*Uraeginthus angolensis*	Blue Waxbill	L	L	L	L
846	*Estrilda astrild*	Common Waxbill	L	L	H	H
856	*Amadina erythrocephala*	Red-headed Finch	L	L	X	L
857	*Lonchura cucullata*	Bronze Mannikin	H	H	H	H
860	*Vidua macroura*	Pin-tailed Whydah	M	M	M	M
869	***Serinus mozambicus***	**Yellow-fronted (-eyed) Canary**	H	**H**	H	H
870	***Serinus atrogularis***	**Black-throated Canary**	H	**H**	H	H
881	*Serinus gularis*	Streaky-headed Seedeater	H	H	M	H
885	*Emberiza capensis*	Cape Bunting	M*	M*	L	X
886	***Emberiza tahapisi***	**Cinnamon-breasted (Rock) Bunting**	**H***	**H***	M	L

(Names in bold were actually seen on site.) **END** = Southern African endemic or near endemic, **EXT** = Birds Exotic to Southern Africa.

Red Data Species Categories (Barnes, 2000)
EX = Extinct, **EW** = Extinct in the wild, **RE** = Regionally extinct, **CR** = Critically Endangered **EN** = Endangered, **VU** = Vulnerable, **NT** = Near threatened, **LC** = Least Concern, **DD** = Data Deficient and **NE** = Not evaluated.

6. Climatic conditions (environmental aspects, climate, topography, physio-graphy, geology of the study area

Table 1:

Climatic data for Pretoria

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave
Maximum av monthly temperature (*c)	28,6	28	27	24,1	21,9	19,1	19,6	22,2	25,5	26,6	27,1	28	24,8
Minimum average monthly temperature (*c)	17,4	17,2	16	12,2	7,8	4,5	4,5	7,6	11,7	14,2	15,7	16,8	12,1
Average monthly amplitude (K)	11,2	10,8	11	11,9	14,1	14,6	15,1	14,6	13,8	12,4	11,4	11,2	12,7
Average monthly relative humidity (%)	58,0	59,5	60,0	59,5	55,0	53,0	50,0	46,0	45,0	49,5	54,0	56,5	53,8
Average monthly rainfall (mm)	136	75	82	51	13	7	3	6	22	71	98	110	56,2
Rham 72	74	76	78	76	75	71	64	61	64	68	70	75	70,8
Rhpm 44	45	44	41	34	31	29	28	29	35	40	43	44	36,9

Table 2:

Vertical sun angle at 12:00 solar time

	Latitude (South)	Solstice (21March/23Sept)	Winter (22 June)
Pretoria	25.77"	64,23"	40,73

The total mean annual rainfall for the region is 674mm of which 83% falls in the summer months October to March.

Temperature – Maximum temperatures are recorded during the summer months with temperatures averaging at 24, 8°C and Lows averaging 12.1°C during winter months.

Wind – The prevailing wind direction in the region is North East at frequency of 14% but also tend to turn North East with a frequency of 10%. The hourly wind speed analysis is shown in the table below.

Wind rose for Pretoria

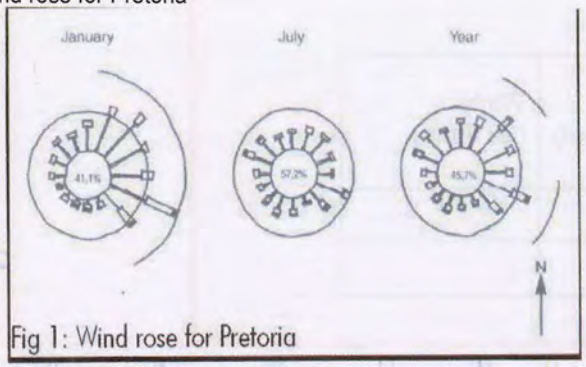
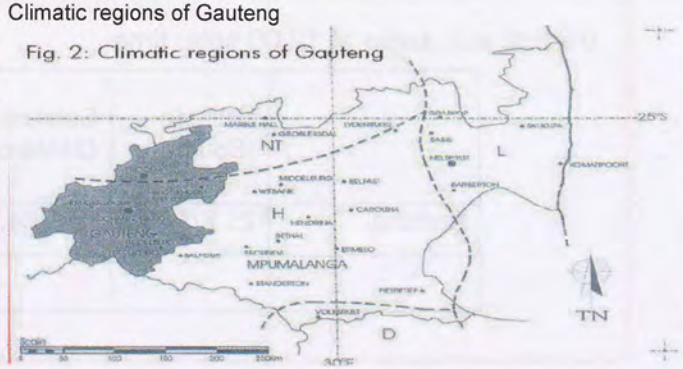


Fig 1: Wind rose for Pretoria

Climatic regions of Gauteng



7. Geology and Soils

Salvokop is mostly composed of the shale and quartzite dipping north between 35 to 60. Interlaid between these quartizite layers from the Klapperkop member. The southern side of the hill consists predominantly of shale where the slope is less steep. AStructural geological evidence is visible on the eastern sided of the hill in the form of folds and faults. The south side is predominantly of shale. The site can be divided into three (3) geo-technical soil zones.

- zone 1 – underlain with weathered and closely fractured soft to hard rock quartzite at depths of less than 0.5m below surface
- zone 2 - underlain by hillwash and pebble marker horizons, with very loose consistency to max depths of 0.5m below surface
- zone 3 - underlain with by loose to very loose soil material and medium dense residual with depths down to 2.5m.

Soils are of poor agricultural potential. The preliminary investigations have revealed that foundations for heavy structures be excavated down to atleast 5m depth for the new development. The shale is more suitable, the barong on it may vary from 300kPa (in the fault zone) to 3 Mpa
Designing with the sites geological features can enhance a sense of place. I.e. integrating rocks into viewing areas or pathways

Hydrology – The Apies river flows near the eastern boarder of the proposed site.

Storm-water – The locality of the hill site allows it to drain naturally in all directions. On the eastern side it drains naturally to the Apies river and on the western side of the canal running parallel to the Ben Schoeman highway.

Groundwater – No groundwater was found in any of the trial pits during the geotechnical study conducted in 2001. The average electrical conductivity (EC) value of 34 mS/m and mean pH of 7, 2 indicate that the quality of the ground water is excellent and generally acceptable for irrigation, stock and domestic use.The topography on the site can provide vertical separation and more privacy for individual structures. Changes in topography can also enhance the way and vary the way the visitors experience the site. The are factors to be borne in mind in a steep slope like this namely;

- Protection of soil and vegetation are critical
- The size of the footprint of the building is to be minimized as much as possible\
- Walkways are to be elevated in sensitive areas.

The highest point of the koppie is 1 451m above sea level. (MSL) The northern slopes of the koppie are fairly steep at approximately 12 degrees with the southern slopes of the koppie slightly less so.

Rocks present on the Salvokop comprise a variety of reddish shale with minor interbedded fine-grained quartizite and magnetite quartizite beds varying in thickness. Bonding of the recrystillized quartz grains are such that rocks obtain a sugary texture in slightly weathered parts.Significant of all the ridges formed by the Timeball Hill shale and quartiziteare the small lateral offsets of the formation boundaries due to strike-slip faulting, which defines the poorts crosscutting the east-west ridges. Significant of the broad deformation zone along which the inclined quartizite beds of the hanging wall were displaced to the south.

Structural evolution of the area can be summarized as follows:

- Northward tilting of the strata
- Strike slip faulting-slightly rotating the site
- North trending joints sets developed
- Normal faulting along several fault zones
- Bedding parallel shortening between the faults
- Sub-horizontal jointing and thrusting displacing the normal faulted zones

The areas in the north and the south of Pretoria are more prone to seismic risk. This is due to faulting in the mined-out areas. This is the nature of the site. The inter-granular and fractured aquifer-the water bearing properties of the shale formations are generally more favorable than those of the quartzite due to their great susceptibility to weathering. The ground water yield potential is classified as low , between 5 and 40m below surface. This site is probably closer to the 40m marks due to topography.

The average electrical conductivity (ec) value of 34 mS/m and mean pH value of 7,2 (this being applicable to the site) indicate that the quality of the groundwater is excellent and acceptable for irrigation and domestic use.

It is not recommended that large heavy structures be founded in the unconsolidated or residual soils in the faulted area on the northern slope of the koppie. Upon the completion of the a geo-technical investigation it was deciphered that the area was zoned into three zones of similar geo-technical conditions expected namely:

Zone1-favourable for development, since the slope angle is relatively low. (North Side)
Zone2-Induced slope failures are expected during construction. (South Side)
Zone3-Small area at the crest, poor founding conditions are expected and extra precaution has to be taken during construction

TABLE 10.6.1: GEOLOGICAL CLASSIFICATION FOR URBAN DEVELOPMENT			
CONSTRAINTS		SITE CONDITION	CLASS
A	Collapsible soil	No collapsible material identified on site. First layer of colluvium might be collapsible. Too thin for concern.	1
B	Seepage	No seepage encountered in test pits.	1
C	Active Soil	Laboratory tests indicate generally low heave potential in the residual shale. Only FP26 low to medium heave potential.	1
D	Highly compressible soil	The colluvial layer could be moderately compressible.	1
E	Erodability of soil	Low due to thin colluvial layer.	1
F	Difficulty of excavation to 1,5m depth	Problems expected across the whole site, especially on the crest and northern face where quartzite outcrop occurs.	2 / 3
G	Undermined ground	No known undermined areas.	1
H	Instability in areas of soluble rock	Soluble rocks not present.	1
I	Steep slopes	Whole site characterised by steep slopes.	2
J	Areas of unstable natural slopes	Possible induced slope instability.	1 / 2
K	Areas subject to seismic activity	Thrust fault identified on site.	1
L	Areas subject to flooding	Drainage features to the western and southern boundaries of the site.	1

	Class 1 ridges	Class 2 ridges	Class 3 ridges	Class 4 ridges
Percentage transformed	0-5% transformed	5-35% transformed	35-65% transformed	65-100% transformed
Policy	Strict no-go policy	No-go development policy	(A) Low and (B) high impact development areas	
Development	No further development allowed	Low impact developments	Contain development within transformed area.	Proposed developments could be exempted from EIA process if not sensitive.
Subdivision	No further subdivisions allowed, consolidation of subdivisions encouraged.	No further subdivisions allowed, consolidation of subdivisions encouraged.	(A) No further subdivisions allowed, consolidation of subdivisions encouraged.	No further subdivisions allowed, consolidation of subdivisions encouraged.
Strategic Env. Assessment		Klipriviersberg		
Buffer zone	200m low impact development	200m low impact development	(A) 200m low impact development	
Special conditions	Full EIA and public participation with specialists if not concur with GDACEL no-go policy.	Full EIA with specialists. implementation of ecological management plan.	(A) Full EIA and public participation with specialists. (B) Exempt from EIA unless	Exempt from EIA unless: Red data sp. Recorded. Open space larger than 4 ha or if surrounding

8. Vegetation

Flora

The vegetation is described as Bankveld A61 by Acocks (1988) or as rocky highveld grassland by Bredenkamp & van Rooyen (1996) The vegetation on the slopes is typical highveld montane and along the edges of the koppie it is ecotonal. The ecotone offers habitats for mammal species typical of highveld grassland plains.

Fauna

The substrate is very rocky and the soil is high in gravel content. Therefore no burrowing mammals other than the common mole rat can occur. With birds four(4) major habitants were identified namely:

- Protea caffra veld
- Dense mixed woodland
- Open grassland

Two species were identified as being near threatened likely to use the Bronberg, Salvokop, and the Langeberg mountain range for local migration. These *are Ayres ' Eagles Hieraaetus ayresii* and *Peregrine Falcon Falco peregrinus*. The development of the site will not have a negative impact on the future existence of these two species.

Amphibians and Reptiles – None of the known Red dataherpetofauna species are likely to occur on this site.
Butterflies – Freedom Park contains a variety of habitats, as the consequence the butterfly diversity is relatively high.
The site is small but comprises ecologically diverse habitats offering variation from one slope to the other and does warrant conservation consideration as a whole. The proposed urban development will have no impact on the national conservation biology. Endemic planting should be incorporated into all the new developments on site.

Though the site is rocky and steep in its slopes – No rocky outcrops offering shelter for rock-dwelling species exist. Four major bird types were identified on site: *Protea caffra veld, Dense mixed woodland, Open grassland, Non permanent marshy depression in gum plantation*.

Two species are classified as near threatened, and may use the site for migration. They are *Ayres' Eagle H. ayreslii and Peregrine Falcon F. peregrinus*. It is stated that the development of the site will not have a negative impact on the future existence of these two species.

All alien plants are to be removed to stop their further spreading and that only indigenous plants that occurred naturally were to be used for landscaping purposes. It is also advisable that much of the natural bio-diversity be retained.

To summarize it can be stated that although the site is small relative to others, it comprises of ecologically diverse habitats offering variation from the slope. None of the mammals can be considered rare or endangered on the national scale. No rare or endangered plant, vertebrate species or butterflies will be placed in jeopardy by the development. The number of birds and species could increase in the new development by good planning and landscaping.

9. South African Heritage Resources

An archeological fort has been discovered on Salvokop. Authorisation from the South African Heritage Resources Agency (SAHRA) has been asked - if the fort could not be incorporated into the design or if it had to be demolished for future development.

There has been no oral history connected to the people living in Salvokop hill, the South African History will follow as well by a document prepared for the Freedom Park Trust on heritage, which has direct implications on the development of this site.




9.1. Heritage component (adapted as it is from Heritage study by Ms Khensani Maluleke – done for the competition)

" SECTION A: THE PRE-COLONIAL PERIOD

(i) Genesis

- Geological Formation
- Continental Drift Theories
- Continental Formation
- Climatological Factors
- Fossil evidence (Glossopteris and Mesosaurus)
- Rock Structures
- SA mineral complex: Gold, Platinum, Diamond as Geological consequences

(ii) Evolution of Life

Part One: Palaeontological Criteria

- 20 to 70 million years ago
- 10 to 20 million years ago
- 10 to 1 million years ago

- The Hominidae

- Australopithecus Robustus
- Australopithecus Africanus
- Homo habilis
- Homo erectus
-

Part Two: The Archaeological data

(iii) Africa, the Cradle of Mankind

- The Genus Homo: Homo Sapiens
- The Genus Homo: (Pre-sapiens): Homo erectus
- The Genus Homo: (Pre-sapies): Homo habilis
- The Genus Australopithecus
- The Earliest Hominids
- Early Hominid culture
- The Hominidae and early technology

(iv) Human Period

Part Three: Linguistic Data

- Linguistic Groups
- Different Languages and Dialects
- Languages and Culture/Material and Non Material;

  - Music
  - Dance
  - Hunting
  - Agriculture

(v) The use of Advanced Tools and Technology

- The Earliest Stone Tools: Old wan Industial Complex
- The Acheulian Industrial Complex
- The Final Acheulian or Fauresmith
- The Middle Stone Age
- The Late Stone Age
- The Early Iron Age

(vi) Humanity's Dominance of Nature

- Adaption to the environment
- Creation of technological environment
- Qualitative changes in society

(vii) African Pre-History Art

- Techniques, Types and Styles

Techniques

- Cosmology
- Engravings
- Religion
- Paintings
- Jewellery
- Pottery
- Sculpture, etc

Types and Styles

- Motives and meanings

(viii) The Historical Dimension of Art as a Document

- The ecological environment
- The human context
- Influences and migrations
- Aesthetics
- A simplified view of racial theories

The Emergence of Political Societies

- Technological developments
- Social interaction
- The historical movement

SECTION B: THE STRUGGLE HISTORY PERIOD

The Struggle for International Trade and Its Implications for Africa

- Emergence of mercantile economy
- Renaissance influence
- Slave trade
- Arrival of New European Powers
- Africa as a Cradle of Labour and Exploitation

African Political, Economic and Social Structures during 1500-1800

New Social Structures

- The Spread of "Feudal" Structures
- Architectural and Artistic Developments

New Economic Structures

- Trading-Post Economy
- Shared co-operative economy
- Sharing through co-operation

New Political Structures

Population Movements and the Emergence of New Socio-Political Forms in Africa

- The form of population mobility
- Mobility and land use
- Typology of usual population movements

- Geographical –Expansion
- Diaspora
- Mass migration
- Band migration
- Elite migration

South Africa: c. 1500 – 1800

Advent of Colonialism

- Voyagers of Discovery in and around the Cape (The effects of mercantilism and capitalism)
- Colonialism – Portuguese Mariners and Classical Writing
- The Settlers
- Jan Van Riebeck and the Free Burghers
- Who did Jan van Riebeck meet?
- Engagement and conflict with Indigenous people
- Introduction to Slavery and what Africa lost
- Importation of Slaves
- British occupation of the Cape and the "Great Trek"
- Emerging changes to ownership of land
- Assessment of different forms of colonialism: Dutch, English etc

Colonialism and Indigenous State

- Escalation of colonial terrorism and early wars of resistance
- Qualitative leap in the struggle from Resistance to Offensive
- George Grey and the cattle killings
- Creation of the new socio-cultural order
- Missionary influence and its impact on Education, Religion and Cultural life of the Indigenous people
- Emergence of the strong confederacies leading to the formation of the Zulu State (Mfecane)

Commercialization of Minerals and the Inception of Exploitation

- Changing ownership of land: Corporatization
- "Discovery" of Diamond
- :Discovery" of Gold
- Systematisation of migratory labour
- Indentured Labour

The Age of Industrialization

- Urbanisation/Rural depopulation
- Anglo-Boer war-African experience of the war
- The Armed Africans in the Anglo-Boer war
- Marginalization of Africans during and after the war (Formation of concentration camps along racial lines)
- Scorched Earth Policy
- Exclusive settlement at Vereeniging in 1902
- Attempts to consolidate South Africa as a White man's country
- Bambatha Rebellion of 1906 – Significance; Large major armed struggle precipitated by the land issue
- South African Native Convention of 1909
- South Africa Act of 1909

The Birth of South Africa as a Geo- Political Entity

The Formation of the Union in 1910 leading to Consolidation of White power

Qualitative Leap in the Struggle – The growing realization of the need for a black resistance against a united white domination

The Birth of the National Project through the Formation of the S.A Native National Congress in 1912

DIFFERENT FACES OF THE STRUGGLE

Highlights of the Struggle – I

"Constitutional" and "Peaceful" Methods of Resistance 1912-1949

- Native Land Act of 1913
- Anti-Pass Campaigns 1913-1960
- Formation of ICU
- Protest Against Hertzog Bills, 1936
- African Mine Workers Strike, 1946
- Nationalists came to power in 1948
- Repressive legislation
- Afrikaner empowerment

Highlights of the Struggle – IIPeriod of "Non Violent Resistance and Protest" 1949-1961 (Programme of Action)

- Campaign of Defiance Against Unjust Laws, 1952
- Congress of the people, 1955 – Broadening the concept of the nation
- Apartheid Ideology vs. The Freedom Charter
- Treason Trial
- Statements from the Dock
- External Influences – African Nationalism and the inception of liberation on African States
- South Africa: the Peasants Revolt
- Africanists assert their position- Birth of PAC
- The Introduction of the Bantustan System
- Harold Mac Milan Speech "Winds of Change"
- The Women's Struggle – Woman's League, Black Sash: Social history of women in the rural and urban areas .e.g. The Cato Manor Incident, Anti Pass Campaign, the effects of the migrant labour systems etc.
- The Worker's Struggles – Council of Non-European Trade Union SACTU, NUMSA, COSATU, UWUSA etc

Highlights of the Struggle – III

From Protest to Challenge – Era of Violent Confrontation 1961-1994

- Banning of liberation Movements
- Rivonia Trial
- Imprisonment of Political Leadership to Robben Island
- Period of Political lull inside and shift of the struggle to exile
- Underground Military Wings 1961-1994
- Underground Documents 1960-1990
- Underground Operations
- Re-emergence of organized resistance through student movement
- Higher level of mobilization
- Intensification of Armed struggle
  Incidents
- Cross border Raids
- Labour movements intensification

Consolidation of the National Project through the Rise of Alternative Structures

- Federation of South African Women
- South African Coloured People's Congress (SACPC)
- South African Congress of Democrats (SACOD)
- South African Congress of Trade Unions (SACTU)
- South African Indian Congress (SAIC)
- The Women's League
- The Youth League
- Congress of South African Trade Unions (COSATU)
- South African Communist Party
- Inkatha Freedom Party
- Pan African Congress

The Transition

Apartheid in distress and Negotiations leading to Democratic Elections, 1986-1994

- Campaigns for the Release of Political Prisoners
- Unbanning of Political Organizations
- Mass Based Organizations with particular reference to civics
- Intensification of the Armed Struggle – Internal struggle underground
- Introduction of Tricameral Parliament and resistance to it.
- Proxy Wars – Covert operations
- Talks about Talks
- Collapse of the Homelands

World against Apartheid and International Solidarity with the Liberation Struggle

This section contains documents produces by or about international bodies and individuals in support of the liberation struggle

- Dr W.E.B. Dubois, African –American intellectual and leader of Pan African Movement
- The Reverend Dr.Martin Luther King, Jr, Leader of the Civil Rights Movement in the United States
- Mahatma Gandhi (1869-1948). "...in a way I belong to South Africa."
- Archbishop Trevor Huddleston (1913-1998). Isitwalandwe. President of the Anti-Apartheid Movement, London
- Sean McBride, S.C., Foreign Minister of Ireland (1948), United Nations Commissioner for Namibia and leader of organizations for human rights and peace
- Pandit Jawaharlal Nehru (1889-1964). Prime Minister of India, 1947-1964
- Julius Nyerere (1922-1999). President of Tanzania 1960-1985
- Olof Palme (1927-1986). Prime Minister of Sweden, 1969-76, 1982-86. A leader of the Socialist International
- Bishop Ambrose Reeves (1899-1981), Former Bishop of Johannesburg
- Paul Robeson (1898-1976). African-American athlete, actor and singer; fighter against racism and colonialism
- Jean-Paul Sartre (1905-1980). French philosopher writer. "Those who are Confronting Apartheid should know that they are not alone"

United Nations and Agencies

- United Nations
- United Nations Agencies

Other Intergovernmental Organisations

- Non-aligned Movement
- Organisation of African Unity
- Commonwealth

Countries and Regions

- India
- Nordic Countries

Anti-Apartheid and Solidarity Movement

- British Anti-Apartheid
- International Defence and Aid Fund for South African (IDAF)
- Afro-Asian Peoples'Solidarity Organisation (AAPSO)
- Other

- Socialist International

Boycotts as an Alternative Tool for Resistance

- Academic Boycott
- Consumer Boycott
- Economic Boycott- Precipitated Arms and Oil Embargoes
- Cultural Boycott
- Sports Boycott
- International Conferences and Seminars

Campaigns

- Campaign for the Release of Political Prisoners
- Campaign against Bank Loans

Biographies of Prominent Leaders, Militants and Martyrs

- Former Political Leaders and Activists

- Famous Historical Figures

SECTION C: POST APARTHEID SOUTH AFRICA

Democracy, Reconciliation and Nation Building

- Government of National Unity
- Reconstruction and Development Programmes
- New Alliances
- Truth and Reconciliation Commission
- Bill of Rights
- Constitution

National Symbols, National Anthem **" (end of report for Freedom Park)**

10. Construction and rehabilitation phase: Environmental Management Plan (EMP)

The EMP describes the mitigation measures to be implemented during the construction and the rehabilitation phases of the Freedom Park project. A single EMP is adapted for the whole project although the project may be undertaken in different phases and by different environment control officers (ECO) on site. The main objective of the EMP is to ensure the long-term sustainability of the project.

For The traditional leader's Museum, a similar EMP is adopted as that of the Freedom Park project. An environmental control officer (ECO) is assigned to the project. His/Her task is to ensure that environmental management plan is implemented in the development of the project. The ECO then has to place certain measures to ensure communication such as the : site instruction entries, ECO diary entries, Method statements etc. When construction is complete the ECO compiles the environmental completion statement to the various authorities, stating that the EMP has been complied to.

The contractor will supply water from offsite sources approved by the ECO. The idea that no new Brownfield may be created but they must try and use existing Brownfield. The construction camp must ensure that there is minimum impact on the environment. No litter will be allowed on site. The contractor will conduct regular clean ups to keep the site litter free. Noise reduction and dust surpression will be adopted in all construction activities.

There are areas not deemed exclusion zones, but are environmentally sensitive area (ESA); these are:

- Rare, endangered or indigenous vegetation
- Steep slopes, prone to erosion
- The remains of the old fort
- Natural drainage channels

These areas may not be used unless a written motivation has been forwarded to the ECO. The height of the stockpiled soil may not exceed 2.5m.

Handling of construction material and site storage will be earmarked in areas for construction. Exception will be made for storing of explosives, which are to be stored off site. Access and using of access roads, will be done with minimum disruption to the residence of Salvokop. As all roads lead through the Salvokop Village.

Steep slopes are to be protected against erosion, thus a land fill structure will be implemented. Storm-water drainage will be designed to fit with the natural drainage of the Koppie, draining naturally to all sides. The contractor will comply with relevant safety regulations in providing safe drilling conditions and working equipment. This is also applicable for any blasting that is to occur on site. A final EMP will be drafted for the specific design to assess site applicability.

A fire management plant is required for the site, With reference to grasslands that need to be burnt every three years. This is important as it ensures that the dead grass base is removed and new growth is stimulated. This is also applicable for many other plant species that need fire for seed germination.

11.Visual Impact Studies

The main aspects have been adopted from the studies conducted with regards to this project, Like the Landscape report prepared by Newton Landscape Architects. The main aspects are:

Visual character:

- Natural vistas are encouraged to be incorporated into the design whenever possible.
- On site visual intrusion should be avoided, aspects such as roads etc
- Natural vistas should be promoted
- A natural building "look" should be promoted by using natural materials
- The natural gateway aspect into the City of Pretoria must be maintained by this development.
- Development should occur on the northern slope of the koppie
- Keep parking on the areas of the site where the conservation value of the plant community is low
- Pathways are to wind or meander up the slope and not take on the straight pattern.

Visual receptors:

- Those aspects that look towards the site
- The site has valued landscape in or at different levels, Nationally, regionally, and locally.

View shed Analysis: (map3)

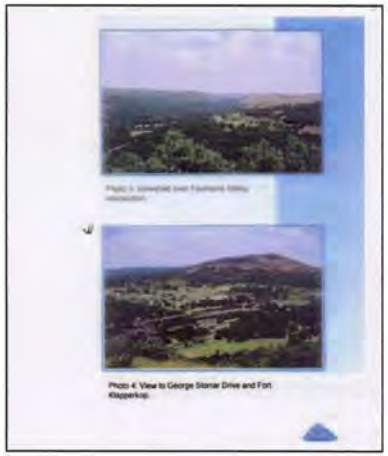
This evaluation is used to determine the realistic view distances (expressed as observer proximity) for the determination of short, medium and long distance visual impacts.

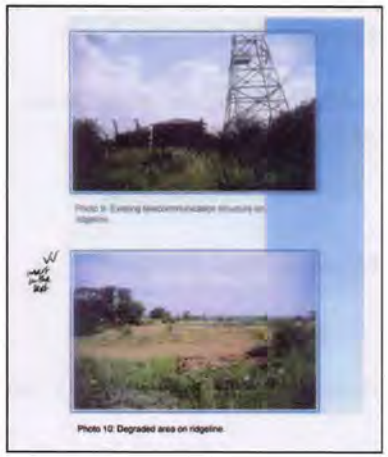
The result of the assessment revealed that due to the effect of the Pretoria bowl, most of the immediate viewer proximity within the 500m radius will have most significant viewer proximity. It also revealed that most of the viewer incidence will occur along the major routes that access the city to the south.

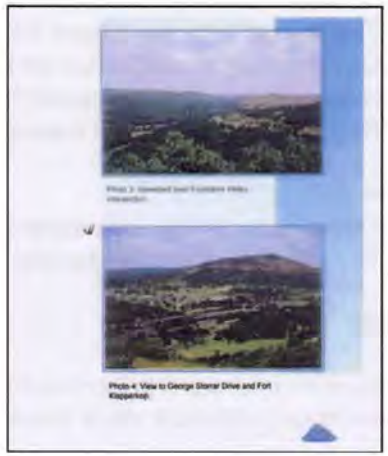
ADD MAPS >>>>>>>>>>>>>see attached

To conclude one can safely say that each development determines its own environmental visual "fit". The most important aspect to consider is to make sure that the development is integrated into enhancing or maintaining the sense of place of the ridgeline and the bowl. This is further enhanced by considering small factors, such as -Making sure that all supporting structures and infrastructure are screened by planting, All illumination and lighting structures in the ring road and in the buildings should be unobtrusive and downward. The buildings should be as far as possible be based on an organic form.

The traffic analysis will be adopted as it was on the preparation for the Freedom Park competition as prepared by the allocated traffic engineers. This document will be made available on request.

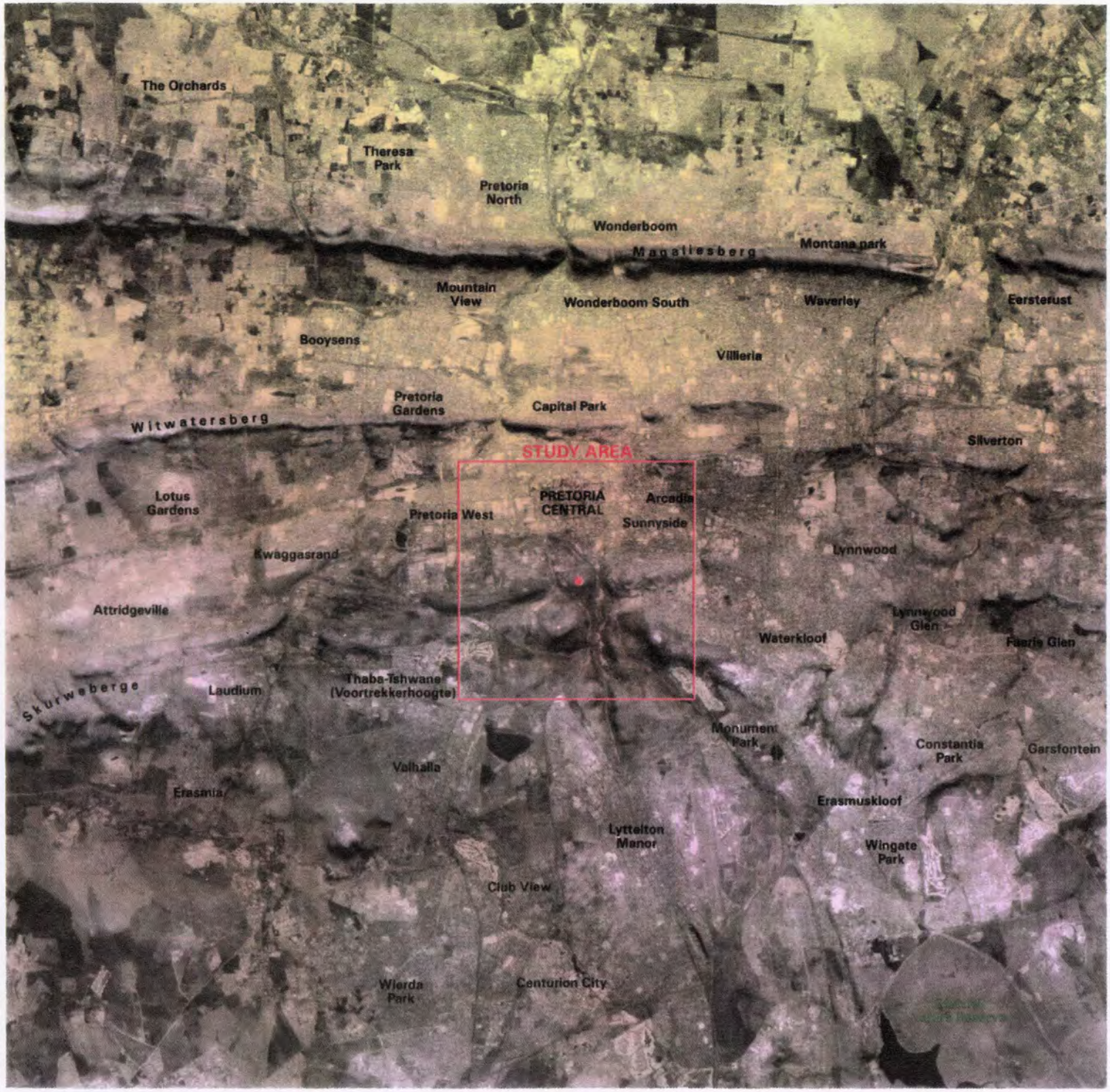






FREEDOM PARK
Visual Impact Assessment

Map 1: Orientation



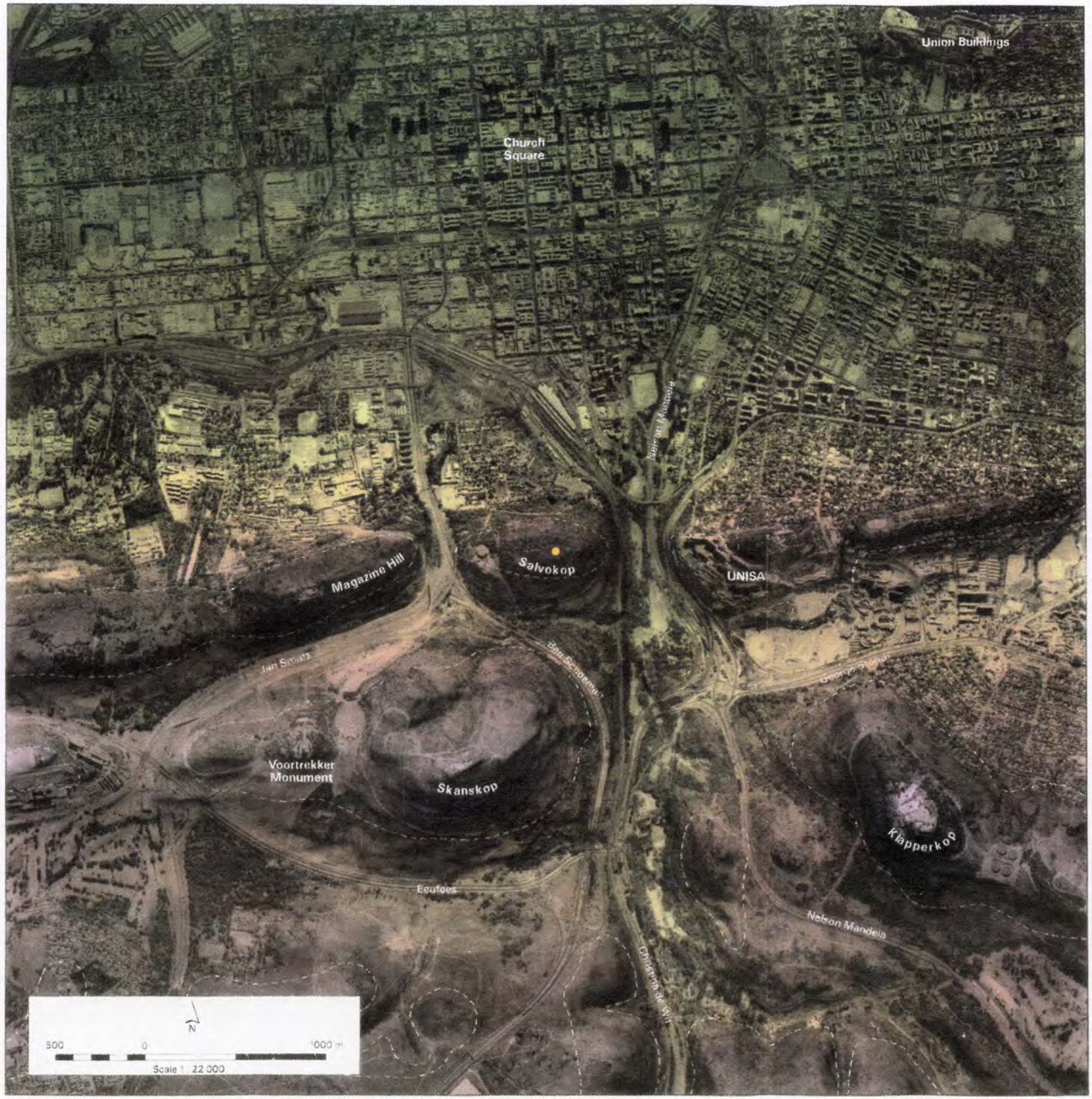
Tshwane Metropolitan Area

MetroGIS

AFRICON

FREEDOM PARK
Visual Impact Assessment

Map 4: Topography (Shaded Relief)

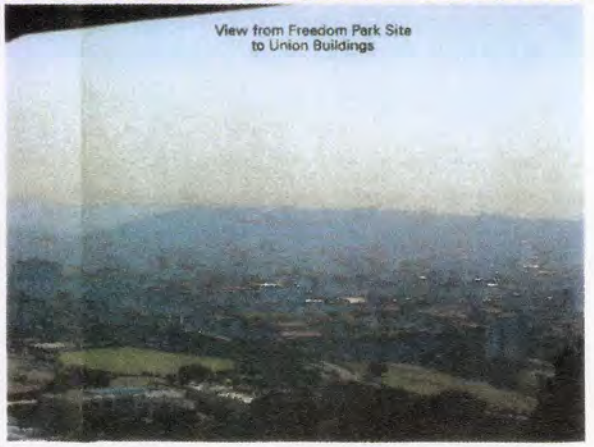


Elevation above Mean Sea Level (m)

1285	1375	1465	1555
1300	1390	1480	
1315	1405	1495	
1330	1420	1510	
1345	1435	1525	
1360	1450	1540	

Freedom Park Monument Site

Crests and Ridges (Visually Sensitive and Exposed Topographic Features)



MetroGIS

AFRICON

FREEDOM PARK
Visual Impact Assessment

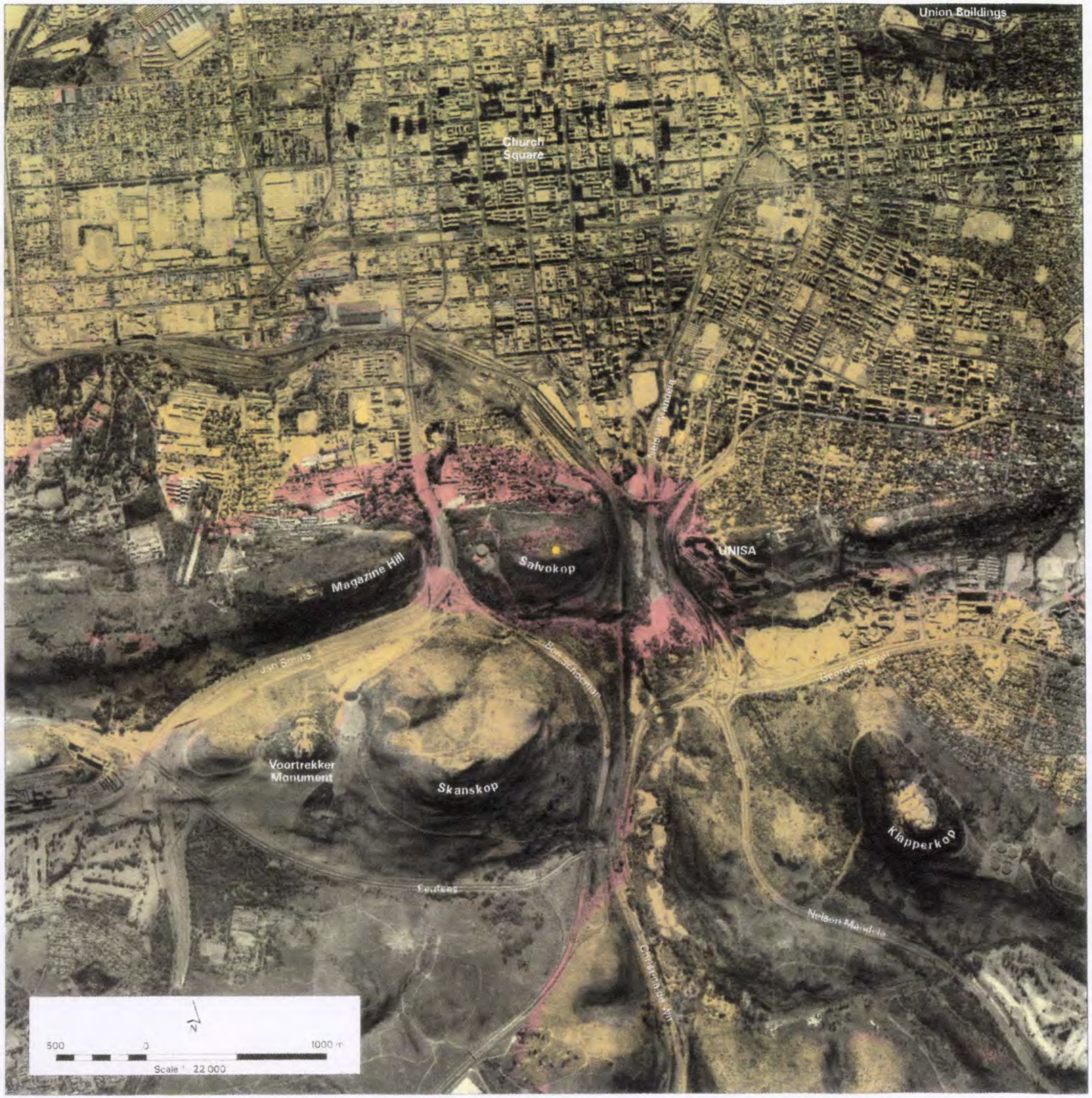
Map 5: Visual Exposure

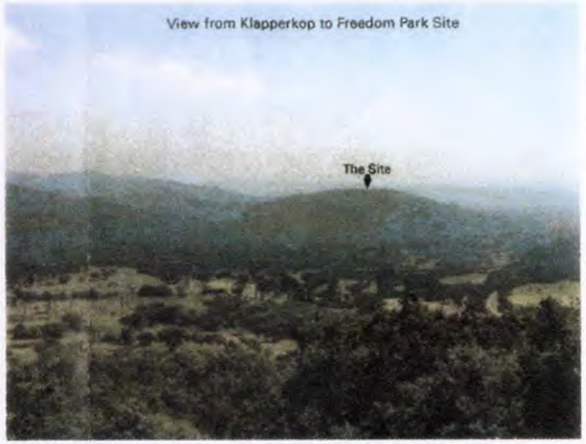
Visible Area (Structure height = 5m above ground level)

Visible Area (Structure height = 15m above ground level)

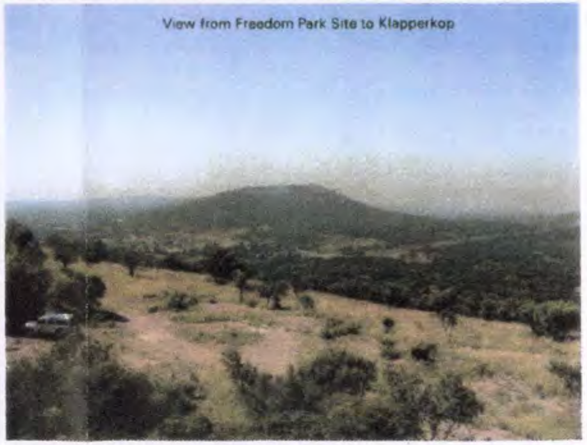
Visible Area (Structure height = 15m above ground level)

Freedom Park Monument Site



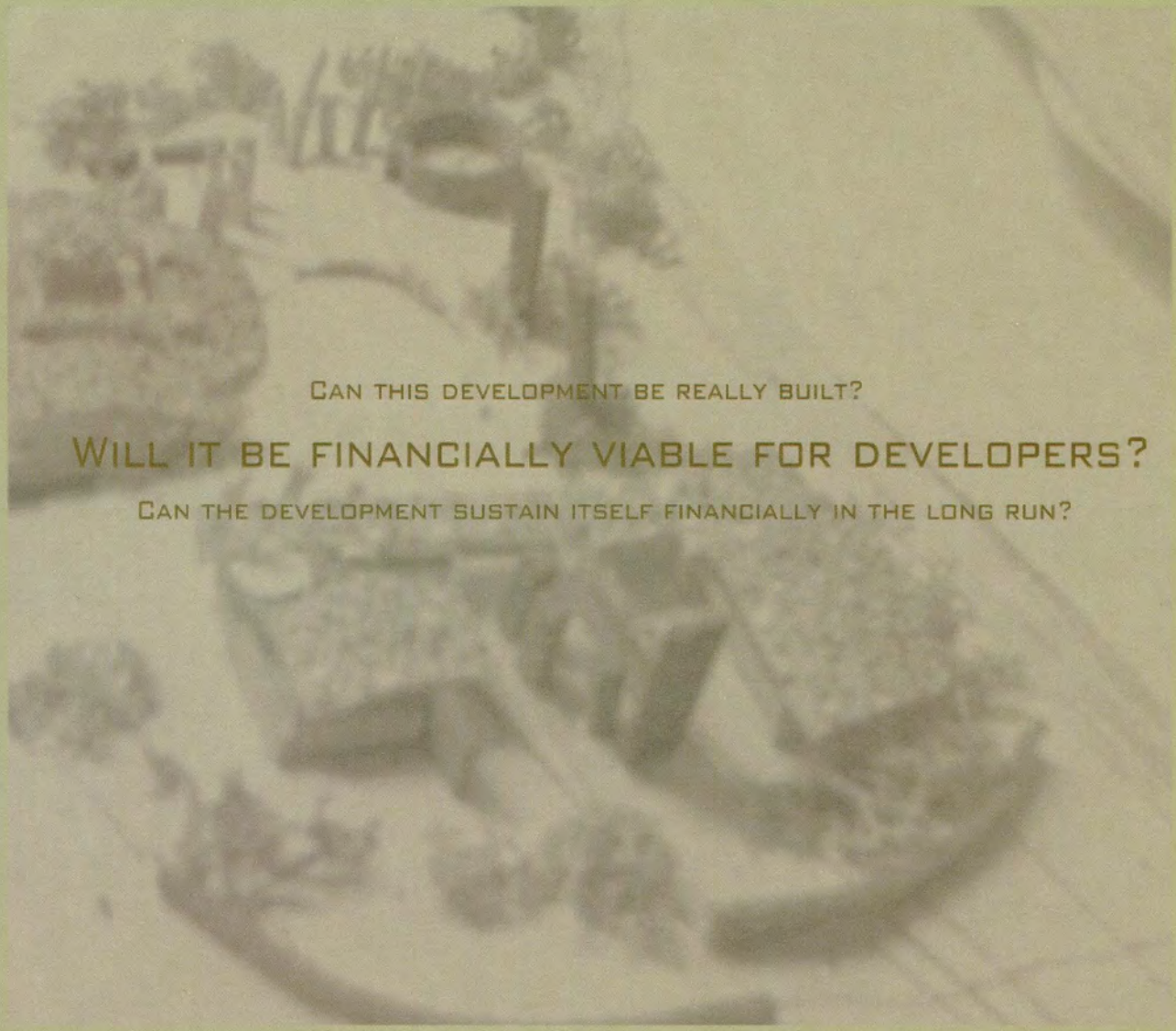


View from Klapperkop to Freedom Park Site


View from Freedom Park Site to Klapperkop

MetroGIS

AFRICON



CAN THIS DEVELOPMENT BE REALLY BUILT?

WILL IT BE FINANCIALLY VIABLE FOR DEVELOPERS?

CAN THE DEVELOPMENT SUSTAIN ITSELF FINANCIALLY IN THE LONG RUN?

APPENDIX C

Summary of the project (history of the project)

The project is the development of a traditional Leader's Museum in Freedom Park. The building footprint of this Museum is set up like in the Traditional Zulu homestead – consisting of a number of buildings which create the whole.

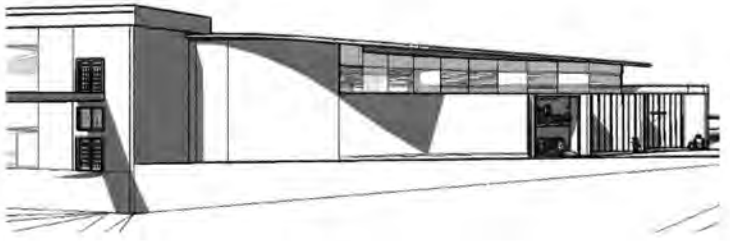
For the purpose of the exercise the main Museum building (Indlunkulu) will be considered for calculation. This makes it easier for assessing feasibility as opposed to using the whole complex.

Model view of the Museum complex

Client and client requirements

The client body consists of the Freedom Park Trust, The National Department of Arts and Culture. The interested and affected parties like Transnet. The client body will generate the funds and administer the running and maintenance of the Museum. Their main requirements are to raise a center that will talk about the diverse South African history as well as give good signposts into the current and future state.

View of the building



A. Construction Area

It is the sum of the covered and enclosed floor area of the building. This will
Be calculated on the main Museum's floor area, which consists of four (4) levels.
Namely: Underground, ground, first floor and second floor

Museum Exhibition (second flooor)	2500 – 60 – 100 –72	=	2268 sqm
Temporary Exhibition (ground floor)	5 x 80	=	400sqm
Entrance Foyer	5 x 40	=	200sqm
Ablution	60sqm x 4	=	240sqm
Lift core	10 x 10	=	100sqm
Administration floor (first floor)	84 x 25	=	2100sqm
Museum Archives (ground floor)	84 x 25	=	2100sqm
Breakaway rooms	2(10 x 3)	=	60sqm
Staff room&kitchennete	4 x 8	=	32 sqm
			7500 sqm

TOTAL CONSTRUCTION AREA

B. **Rentable Area**

	rent per/annum	area	income/pa
Museum Exhibition Area	R2500	2268	R5 670 000.00
Administration floor	R1000	2100	R2 100 000.00
Temporary Exhibition	R1500	400	R 600 000.00
		4768sqm	**R 8 370 000.00**

TOTAL RENTABLE AREA

Total gross income per annum	R 8 370 000.00
Less non recoverable expenses at 15%	R 125 550.00
Total Gross Income before vacancies	R 8 244 450.00
Total Gross income after vacancies at 5%	R 7 832 227.50
Plus 14% VAT pa	R 8 928 739.50
Net annual income	R 8 926 739.50

Efficiency use ratio = $\frac{\text{rentable area}}{\text{Construction area}}$

$= \frac{4768}{7500}$

= **0.63**

C. **Usable Area**

Museum Exhibition (second flooor)	2268 sqm
Temporary Exhibition (ground floor)	400sqm
Administration floor (first floor)	2100sqm
Museum Archives (ground floor)	2100sqm
Breakaway rooms	60sqm
Staff room&kitchennete	32 sqm
TOTAL USABLE AREA	**6960 sqm**

D. Shop Area is not applicable in this building, it is in another building not used for calculation, and the total area of that building which consists of only the shop and supporting functions is 700sqm.

E. Land Costs

Land value	R 35 000 000.00
Market Value (current)	R 35 000 000.00
Municipal Value 75%	R 26 250 000.00
Land costs	
Geotechnical Investigation 5%	R 1 750 000.00
Rezoning costs at 10%	R 3 500 000.00
TOTAL	**R 38 500 000.00**

F. Total Capital Expenditure

Function	Floor area	cost/m per annum	cost
Museum Exhibition	2268 sqm	R2500	R 5 670 000.00
Temporary Exhibition	400sqm	R1500	R 600 000.00
Entrance Foyer	200sqm	R 100	R 20 000.00
Ablution	240sqm	R 60	R 14 400.00
Lift core	100sqm	R5000	R 500 000.00
Administration floor	2100sqm	R1000	R 2 100 000.00
Museum Archives	2100sqm	R500	R 1 050 000.00
Breakaway rooms	60sqm	R100	R 6 000.00
Staff room &kitchenette	32 sqm	R50	R 1 600.00
TOTAL CURRENT BUILDING COSTS			**R 16 252 000.00**

G. Escalation

Pre – Construction Period

Rezoning	2 months
Material collection	1 month
Tender process	3 months
	6 months

Construction Period

Earth moving	1 month
Foundations	2 months
Structure walls	5 months
Roof construction	2 months
Finishes&Interiors	4 months
Landscsaping	4 months
	18 months

Pre-construction escalation	6 months @ 8%	R 650 080.00
Tender price		R 16 902 080.00

Construction Period escalation 18months @ 9% R 2 194 020.00

ESTIMATED TOTAL BUILDING ESCALATING COST **R 19 096 100**

H. Return on Investment (ROI)

Sundries

Legal	R 25 000.00
Rates and Taxes	R200 000.00
Plan approval fees	R 30 000.00
TOTAL`	R255 000.00

Amount borrowed(Land cost, estimated building cost, professional fees and sundries)(Please note professional fees calculated at 7% of escalating building costs) **R59 187 827.00**

Financial Costs

Financial fees

Sundry	R 255 000.00
Esc. Bld cost	R19 096 100.00

Cash flow factor 0.63 x 19 351 100

R 12 191 193

TOTAL FINANCIAL COSTS

Bonds	@ 5% amount borrowed	**R 2 959 391.35**
NET TOTAL CAPITAL OUTLAY		R 62 147 218.35
Vat at 14%		R 70 847 828.91

ROI = $\frac{\text{Net annual Income}}{\text{Net total capital outlay}}$

= $\frac{\text{R 8 926 739.50}}{\text{R62 147 218.35}}$

= 14.37%

I. Risk Sensitivity Analysis

Scenario A: When income increases to 5%

$$\frac{\text{R 8 926 739.50}}{\text{R65 254 579.27}}$$

= 13.67%

Scenario B: When income decreases to 12%

$$\frac{\text{R 8 926 739.50}}{\text{R53 794 632.20}}$$

= 16.59%

Legal implications for the research – Thesis dissertation

The legal aspects play a vital role in a research of this nature. It is to be noted that I am not going to delve in the issues on the acquisition of land. All the issues that have been dealt with in the framework will be taken as it is. I will investigate issues pertaining to the actual program have set for myself - The construction of the Museum and aspects relating to this type of building on the site.

The laws that have been tabulated indicate the laws that are relevant to this project in all its aspects. The first stage looks at the land the site is on. These are – laws marked :(A) in the next following pages.

The second aspect of the site that is significant is the environmental aspects of the site. Before any building project takes place, one needs to investigate the involved aspects and environmental aspects that are to be affected by the construction of this nature. These are – laws marked :(B) in the next following pages.

The last aspect of the legal implications deals with the aspect of the nature of this building. What the implications will be once the building is complete and designed. The different building parties involved in the Museum construction. These laws are – laws marked : (C) in the next following pages.

1. National Heritage Resource Act no 25 of 1999 (B)

2. Environment Conservation Act no 73 of 1989 (B)

3. Human Right's Act (A)

4. Development Facilitation Act no 67 of 1995 (B)

5. National Building Regulations and Building Standards Act , Act 103 of 1977 (C)

6.Machinery and Occupation Safety Act 1983,Act no 6 of 1983 (Subject to things like ventilation) (C)

7. Native Land Act of 1913 (A)

8.Ridges Act (B)

9.National Environment Management Protected Areas Act no 57 of 2003 (B)

10.Spatial Data Infastructure Act no 54 of 2003 (B)

11.Broad-Based Black Economic Empowerement Act no 53 of 2003 (A)

12.Environment Conservation Amendment Act no 50 of 2003 (B)

13.National Environmental Management Amendment Act no 46 of 2003 (B)

14.Traditional Leadership and Governance Framework Act 41 of 2003 (C)

16.International Trade Administration Act no 71 of 2002 (A)

15.Broadcasting Amendment Act no 64 of 2002 (A)

16. Promotion of Equality and Prevention of Unfair Discrimination Amendment Act no 52 of 2002 (A)

17.Cultural Laws Amendment Act no 36 of 2001 (A)

18.Architectural Profession Act no 44 of 200 (C)

19.Landscape Architectural Profession Act 45 of 2000 (C)

20.Construction Industry Development Board Act No 38 of 2000 (C)

21.National House of Traditional Leaders Amendment Act no 20 of 2000 (C)

22. South African Citizenship Act 88 of 1995 (A)

23. Promotion of National Unity & Reconciliation Amendment Act (A)

24. Land Administration Act no 2 of 1995 (A)

25. Human Rights Commission Act no 54 of 1994 (A)

26.Environment Conservation Amendment Act no 52 of 1994 (B)

27. Restitution of land Rights Act no 22 of 1994 (A)

28.Regulations of Gathering Act no 205 of 1993 (C)

29.Abolition of Restrictions of Free Political Activity Act no 206 of 1993 (A)

30. Land Tax Act - [Land acquisition] (A)

Figure 87 CICC street view

Figure 88 Constitutional Court

Figure 89 Hector Peterson Museum

This interview section is included to give an overview of the people contacted in the research of this study. Their input was valuable no matter how small in the solutions and information gathered about the research. The feedback was accessed and included in the text and findings accordingly. The questions give the reader the scope of the questions that were asked in the interviews.

Appendix A

1.Interview with Mphethi Morojele of MMA Architects

Introduce my topic on tribal leader's museum in Freedom Park, want direction in terms of its relevance, feasibility and marketability. (Mention that this will be a final sattelite venue for the other activities happening in the rural areas, this will be showcased with King Shaka as an example.)

1.In terms of the building typologies, how did the consortium come about the respective uses?

_____

_____

_____

2. I have explained what I envisage this museum to be, now I have adopted aspects from the framework which I believe best describe what I am trying to emulate. Do you in your own light think that what I am proposing is in line with what was planned and do you believe that this will be feasible in the scale that is planned and was thought about? (Adopted aspects of place of rembrance and contemplatation, (monumentalism), end of journey (politically), Relevance of heritage, historically and culturally.

_____

_____

_____

3. In the framework it is planned that the library and the museum be in the same phase of construction. Why is that and what did you have in mind? Why was it also proposed that the museum be a sunken one? Is this because of the terrain?

4. You have been involved in a number of projects that involved urban development and planning, naming the transport facilities for inner JHB CBD that you did in conjunction with Albonico and Sack Architects and urban planners. I believe in these projects you are creating catalysts that are to help in the growth of the city. How in your own light can Freedom Park be a catalyst in the city development of Tshwane? There have been a lot of theories but whether these are feasible as opposed to being idealistic is a questionable matter. Can you share some wisdom in this?

5. In the general South African context do you think that these projects(freedom Park an the likes) help in shaping and establishing a South African identity in Architecture?

6. This last question is to deal with a subject that is very close to my heart that is the subject of identity of South African Architecture vs Eurocentric Architecture. We want to create an identity for Architecture in our context but yet being globally relevant. How do we do that? How do we create an ethnographic identity?
I believe in this being like this quote says" *Afrocentric Architecture should manifest in its spatial characteristics - the ability to address unique approaches to universal activities*" (Hughes : 1992)

Appendix B

Interview with the Freedom Park Trust – Hendrik Prinsloo

1.In the Freedom Park competition you chose three entries – What were the underlying design principles that these schemes had that all the others never had? Explain what was the main thing the board was looking for?

2. If I was to design this successfully would it ever be considered on the second Phase of Freedom Park?

3.With my main design criteria – Is this justified in terms of the criteria stipulated for the heritage aspects of Freedom Site?

4.In terms of what the presidents office wants to build – is it feasible economically in the long term and what or rather how do you want the Public to react to these Monuments?

5.The history of South Africa is loaded with political connotations. Is this another project that has a lot of political sensitivity or is it merely a historic memorial that will not be functional without alluding to the political context.

Appendix C

Interview with the Architect – Kruger Ross Architects (Precedents) – Mr Ross

"A good building is the one that responds to its current environment and answers the question set upon it – Deveolps its own identity and language – details etc. in that particular context"

Appendix D

Interview with the Freedom Park Landscape Architect – Graham Young

1. The aim is to keep the factual information as it is and to also adopt the latest decisions taken in the formulation of the Framework. As an academic exercise is this a feasible assumption or do you think I should still delve into resolving urban issues? And possibly giving new concepts to the framework?

2. Still in the urban context – What do you mean in the publication in stating Salvokop and the hill as " real time learning research laboratory? "

3.
4. As a landscape architect you are very inclined to know where the ecologically sensitive areas are on the site. In Freedom Park – this is a huge hill with a lot of ecologically sensitive areas. If I was a novice how would you explain to me the best possible areas to build. Firstly not taking into account the already developed areas on the hill like the Isivivane garden and secondly taking them into account. Do you agree with the building footprint developed on the framework?

5. Since your involvement in the Freedom Park Trust – Do you know why the site for this establishment was zoned in this hill? Was it part of the urban regeneration or was it merely choosing an accessible site in Pretoria the capital of South Africa? Forming a gateway into the city?

6. In the recent handing over of the Isivivane garden – What is your interpratation on the role of the landscape architect in the context of Freedom Park ? How are the buildings envisaged to relate to the immediate surroundings and the bio-diverse landscape? What are some of the legal implications involved in erecting a building in this landscape – answer {Presentation to the school by Graham]

7. Please note I am not designing a building with the design guidelines for the Freedom Park Architectural Competition. This is a stand alone project that uses the site of Freeedom Park and incorporates the very well established issues that are raised – socially in an urban context etc.

Appendix E

Interview with Architect – of Afritex – (African concepts designers)

The interview was quite informal with no stringent questions. It was mainly an impartation session. The main aspects outlined were;

- In an African context, a house is not a structure as it known in the Western context
- The design of a home was based on the current family unit
- The typology of a building that existed in African context was mainly a domestic size building.
- There are certain principles that governed the formulation of space and the articulation of that space
  These were mainly;
  The knowledge of whether the space was private or public
  The relation of space to another areas
  The use of place i.e. The place of rest

- The entry to a "homestead" was usually only at one point
- The living area was central, whether it was internal or was external
- If one investigates Township Architecture, one can see how the people interpolated the space the lived in, mostly the old " match box" houses to go according to their culture. i.e The entrance was usually from the back from the visitors, even though a front door existed, they still felt the guest could not immediately go to a private area, without prior acknowledgement.
- One can also see parallels of use of space with people who move into urban areas. Even if their space is restricted, they find ways and means of interpolating their spaces into what they are accustomed to.
- Space is a significant factor in African Architecture as opposed to the aesthetic appeal of a building.

Appendix F

Interview with Mr Mzo Sergayi of Unisa and Ms Refilwe Ragolile of the University of Pretoria African Studies

Appendix G – Interview with CT Msimang, Zulu History expert

(Okuningi engikwaziyo ngikuthole kwezinye izincwadi nasencwadini oyibhalile "Kusadliwa ngoludala")
Indabuko yesizwe samaNguni – uZulu (The origins of the Nguni tribe of the Zulu's)

1. Shaka was known as a brutal King, but the aspects that I would like to highlight are of King Shaka as a King, Warrior, and as a Legend. Do you have something to say in general concerning that?

2. He apparently had a number of homes including the one at Stanger-KwaDukuza, KwaGibixhegu, ect. Besides the last home he died in, kwaDukuza, are some of his homes still available to be viewed? and what precisely used to happen in those places in the olden days?

3. The homes in the ancient times looked like they were all never built on a slope? How did they articulate the slope as the KZN area is quite full of steep hills.

4. The concept of "isibaya" and "ibala" is not quite clear to me. Could you please clarify these spaces in detail and if "isibaya" was central to the home, how could such a space hold the whole "imfuyo" of that " inxiwa" in the home context.
(I can elaborate on the Tswana articulation of that)

5. Inxiwa leNkosi is said to be slightly different to that of the normal persons, is it at all possible that you could reiterate the differences and clarify the role of "isihegulu" The place where a King would bath. What was the significance of that space?

6. Indlu/ uguqasithandaze wayehlukaniswe ngezigaba ezithize, indawo yamathole, iziko, etc. Kwakuyini isizathu sokuthi abesilisa nabasifazane bahlale ngezandla ezehlakune?

7. Ingxenye yabesifazane esikhathini esedlule yayinjani? Ngabe babexhasa ngani ekwakhiweni komuzi? (njengoba kuphawulwa ukuthi wonke umuntu wayefaka isadla.)

8. Did people actually stay in the huts or did they just simply use them for sleeping only? And what was the maximum capacity that one unit could hold?

9. Ukukhanya ngabe kwakungena kanjani kulendlu? Okunye ngezifundo samanje sikubiza ngokuthi " ithermal comfort" Ngabe babekucabangile ukusebenza kwalendlu esimweni sezulu ababehlala kuso? Ngabe uma indlu le ubungayiqhathanisa nezinye uyibeke eGauteng, ibingasebenza njengoba ibisibenza la KwaZulu Natal? (lokhu kumayelana nakho ukumelana nesimo sezulu)

10. Wawukhuleka uthini uma ungena enxiweni leNkosi? – osemqoka uyena unkosi uShaka belu.(explain the interpolation of this in the museum)

11. Entsheni yanamhlanje, ngabe ngokubona kwakho yini esemqoka emasikweni ethu endabuko okungamelanga isilahlekele nakancane? ngoba phela esikhathini esiphila kuso, kuningi esikutshelwayo ngempilo etc. Kafuphi, uma uShaka ubesaphila nabo okhokho bethu ngabe bebangathokoza uma sisifundisani isizukulu sanamuhla?

12. Lombuzo uxhumana nowedlule – umayelana nayo le"Museum" Ngabe ikuphi okubalulekile okungakhangiswa esizweni sethu nakubo abantu bakwamanye amazwe.


AFRICAN INSPIRATION
VIVA SOUTH AFRICA !!!!
OH MOTHER AFRICA
ARE MUSEUMS SUFFERING FROM
ARCHITECTURAL OVERLOAD?

APPENDIX E

Article review – "Oh Mother Africa – Ethnic design in the 21st Century" by Cara Reilly

Reflecting the local context or pandering to feelings of obligation? What is the role of ethnic design in South African buildings? (Ref: Reillly, Cara:2003, Planning:April edition)

This article expresses different views from a number of designer's concerning what is implied by African or South African design. Monica asks a very significant question that in this day and age of high –tech, multifunctional buildings, how do we pick up on the local context and culture? Pierre of PHD designs goes on to say that in our exposure in the global market, how do we express Africanism? These are crucial questions that the current designer's are dealing with.

Its important to note that there is an intertwined issue of political correctness that is coming into play. After 1994 there was a need to respond to social issues in our country. The designer's then felt the need or obligation to reflect an African context in design. There result was where African elements were incorporated to localize the structure.

The devastation though lies with what Steve de Nokolits of Head Interior's terms – "Pedestrian taste appeal in Architecture, which is as a result of no stability in Architecture. This he alludes to design that is neither international nor local – ie the Classic forms that are rising up in our built forms. That is the current office parks and golf estate housing.

South Africa is forced to leave its colonial Heritage due to current political issues. The author argues that contemporary African Heritage needs to look at influences of the entire African continent. "Africanism " is an expression of indigenous, Islamic and Western cultures. I strongly agree with this view point, and that is why I have run away of monopolizing my topic by naming it only tribal leaders museum as opposed to traditional leader's museum. This means it encompasses the whole scope of Traditional South African leader's in history. It is then said that if one is to develop an African / South African culture in design – One cannot ignore previous influential cultures but must draw on them for a new cultural expression!

The argument rises that it is not good to simply take the icons and imitate them, but rather to re-interpret them and give them a fresh approach. It is a consensus decision that the techniques, spaces, and textures inherent in the country and not specific to a culture have to be focused on. The needs of the people using the building, have to be a number one priority.

Inkondlo (Praise Song in full) – Indikimba yameqhawe Sithuli sikaNdaba by J.M Khumalo (Poem - praise song for the King)

Nkonyane yenkosi
Wena ongumhlahlandlela
Owachamsela ngeyakho imihelo

Wena kaNdaba
Ingebalwe eyakho imisebenzi
Obakho ubuchule nobungoti,
Bungefaniswe.
Lapho wena uzalela
Lapho Ndaba ufukamela kunzima
Kunzima wazinikela wazichitha
Wazichuth' amaqumbu
Khona lawe machwane ayinkombisa
Ezothokomala abe ngamadoda
Abe amakhosikazi aqotho

Nkonyane yenkosi izwe likubonile
Idlebe lonkana lingufakazi
Lapho wehla wenyuka
Uyotheza ehlanzeni
Emasimini ulima, utshala, uhlakula
Usapho lwakho lukuhaqe kukho konke

Nembala Mageba
Yonke imijuluko inomuvuzo
Ngisho ngoba wena ukhulise ngenduku
Wena uyaliele waqondisa izigwegwe
Kufanele Ndaba uhlabe ikhefu,
Uphumule S'thuli ze udle
Izagwaca nezinyoni zabantwana bakho

Wena Ndabezitha uluthwale kanzima
Wabekezela kunzima
Wawubekezelela isithwathwa

Nakub' amakhaza ayeshubisa umkhantsha
Imimoya kungubhungubhengu nobuwishiwishi
Izintuli zikaNtulikazi zithe bhe
Kodwa wena waqolotha
Kungathi usinga impumalanga

Wena mtwana
Wawusinga impumalanga
Nanxa wawusentshonalanga
Wawusentshonalanga nginawe
Sasikhona sonke lapho
Sikhona thina empilweni
Mhla umdondoshiya ongizalayo
Usisulu somfundisi
Elifulathela leli
Kwaba Mnyama, kwababuhlungu
Kwajiya kwamuncu
Lapho sikwengM Ndaba
Esimnyama isithunzi

Beza bakwangama ngeziluhlaza
Okwesibhakabhaka abozalo

Wena wenkosi
Ngithi makabongwe ophezulu
Makadunyiswe
Ngoba wakhipha amandla namaqubu
Okufukamela wakho amachwane

Ngithi Khumu!

Wena kaMfende
Angigeqi magula Ndaba
Ndab' angimuki
Ndabezitha Mageba
S'thuli sikaNdaba
Nkonyane yenkosi
Wena kasandla siyagaya
Wena Mageza embizeni
Kwabotshwala!
Khula Ndaba
Khula uze ukhokhobe.

Young;Graham& Darrol; Leigh;2004; Freedom Park – A landscape narrative - Text from the urban green file May/June 2004; Published in South Africa.

The main aim is to create a center with a deeper understanding of South Africa and its heritage culture. It will also stand as a beacon of hope for the future. The site as it was with my choice as well was chosen for its symbolic historical significance. The ecological survey done by Newtown landscape architects was adopted in the development of the Traditional Leader's Museum.
The findings revealed that Salvokop was a natural quartzite ridge - a site of significant ecological value. These studied defined the areas for development - it is with respect to these environmental findings that development on the site will be on the northern edge, which also affords easier access from the entrance of the established Freedom Park precinct. The landscape development concept locates all elements required in the precinct with response to the sensitivity of the site.

A master plan was then prepared with the first phase of development, which consists of the "isivivane" garden of remembrance and contemplative areas.

What's adopted here is the way the "isivivane" area is constructed, with reference to African history, but with globally/universally recognizable symbols and structures. Symbols are not transferred literally but rather interpolated with today's imagery. This is a very important thread throughout the envisaged development of the Museum.

The concept of "Lesaka" and "Lekgotla" are looked at within the Zulu culture which talks about the same space in their "isibaya" and "inkundla" The use of the Zulu culture is to focus the threads that one is drawing from and this then forms similar links to all the other diverse cultures in South Africa.

The Museum will follow on the "isivavane " garden's design with its simplicity but with an in depth understanding of the symbolism and its qualitative choice of materials.

Article review – "Viva South Africa! " by Pieter C. Le Roux

The article starts off by remarking that South Africans continue to believe that imported is better than local, and that all we have to do is to aspire to be like "them". It is strongly believed that it is time to discard that mentality and embrace our South African first class, world-class value! Pieter further puts in an unique way by saying that we, as South Africans tend to pay much attention to what is happening on the other side of the fence where the grass appears to be much greener, but then we find ourselves amazed at the world's fascination with South Africa. It is time I personally agree as well that we as architects and designers should set an example of being proud South Africans and proclaim – Viva South Africa, and maybe *Viva South African Architecture!!!!!*

Article review – "African Inspiration" by Kirsten Alexander

This article has a more positive attribute, by remarking that the general public is becoming more proud of our South African Style. The question though remains what exactly is this style? The article does not seem to have the answers and this goes to show that is the resounding question in the many minds of the designers. The Museum scheme development of mine is a stride towards probing an answer but does not pose to answer all the questions and the remarkable question of what is an a South African Architectural style!

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