The site
Botshabelo, Mpumalanga.
25041'58.53" S
29024'28.21" E

The Program
Productive landscape

Research Field
Human Settlement and Urbanism

Year Co-ordinator
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Study Leader
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DECLARATION

In accordance with regulation 4(e) of the General Regulations (G. 57) for dissertations and theses, I declare that this thesis, which I hereby submit for the degree Master of Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been submitted for any such degree, diploma or other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.

Anita Janeke

ACKNOWLEDGEMENTS

THANK YOU

My Heavenly Father, my ‘place of refuge’, for guiding me through the deepest waters and never forsaking me - Isa 43:2

To my family, thank you for your prayers and love, for believing in me and encouraging me. I love you with all my heart. I praise God for giving me you.

Nicola, Chanel, Barend, Mia, Jason, Stephanie, Megan, Wilme, Jan Diedeleff, Walter, Jean-mari, thank you for making this journey bearable. You guys are my home, away from home.

Prof. Arthur Barker and Jan Hugo for your valuable guidance throughout this year.

For anyone battling with the struggles of life (and architecture) know that He delights in you, you are beautifully and wonderfully made and lacking nothing to achieve what He has called you to. He gives strength and grace which surpasses all understanding.

Let your light shine - Matt 5:14-16
Hidden, 12 km from Middelburg, lies the historic mission village Botshabelo. Named Botshabelo, meaning “place of refuge” in the Pedi language as a symbol of a place that became a refuge for the people who fled from Sekhukhune land because of their faith.

Within 10 years of its establishment, Botshabelo was self-sustainable and it served as a trading post throughout the surrounding farmlands. Education was also seen as one of the driving factors behind the success of Botshabelo, however, the education system was severely affected by the Bantu Education Act, implemented in the 1950s. The apartheid legislation had many negative effects on Botshabelo, whose population predominantly consisted of Bapedi and Bakopa people, and eventually led to the forced removal of 100 families from the site. The site was then turned into an open air museum. In 2005 the families who were forcibly removed won a land claim in relation to Botshabelo and since then the site has been unused and its future is still uncertain.

This dissertation addresses the reintroduction of the Botshabelo Community Trust to the site, thereby creating a new narrative for the site, while evoking memories of the past.

The intention of this project is to protect Botshabelo’s value for the future, while creating continuity of experience between the past, present and future by using its narrative as a research method.

Versteek 12km buite Middelburg lê die historiese sendingdorpie Botshabelo. Benoem “Botshabelo, plek van toevlug” ’n simbool van ’n plek van toevlug vir die mense wat van Sekhukhune-land gevlug het weens hul geloof oortuiging.

Binne 10 jaar van sy vestiging was Botshabelo selfonderhoudend en het dit ’n soort handelspos geword in die omliggende omgewing. Onderwys was ook gesien as een van die bestuursfaktore wat die sukses van Botshabelo beheis, maar die onderwyssstelsel is ernstig benadeel deur die Wet op Bantoeonderwys, wat in die 1950’s geïmplementeer is. Die apartheidswetgewing het baie negatiewe gevolge vir Botshabelo gehad, waarvan die bevolking oorwegend bestaan uit die Bapedi- en Bakopa-mense, wat uiteindelik gelei het tot die gedwonge verwydering van 100 gesinne van die terrein.

Die waar is daarna in ’n opelugmuseum ontskyn, maar in 2005 het die gesinne wat tydens die Apartheid era verwyder is, ’n grondeis in verband met Botshabelo gewen. Sedertdien is die terrein ongebruik en die toekoms daarvan is nog onseker.

Hierdie proefskrif handel oor die hervestiging van die Botshabelo gemeenskap na die terrein, met die skep van ’n nuwe narratief vir die terrein, wat herinneringe uit die verlede terugroep.

Die bedoeling van hierdie projek is om Botshabelo se toekomstige waarde te beskerm. Deur gebruik te maak van ’n narratief navorsings metode is kontinuitêt van ervaring tussen die verlede, hede en toekoms geskep.
The implementation of the Bantu Education Act, the Anglo-Boer wars and the World Wars eventually led to Botshabelo’s decline as a community. The remaining missionaries at Botshabelo had to leave and in 1972 the remaining 100 Bakopa and Bapedi families of the congregation were forcibly removed from the site. This resulted in a period in which Botshabelo was opened to the public as an open air museum, with the addition of a Ndebele tribal village.

In 2005, the 100 families who were forcibly removed from the site successfully won a land claim case and plans are currently being established to reinstate these families at Botshabelo.

1.1 PROPOSED CONTEXT

Botshabelo as study field:

Botshabelo is a heritage resource that has immense national value. It is a place associated with both events of historical importance relating to apartheid and the diversity of cultures and their interactions.

Established in 1865, 12 km outside of Middelburg, by the German missionary Merensky and 245 native people of his congregation, Botshabelo quickly became a success of the Berlin Mission Society (Mminele 1983:32).

Within ten years, this community was completely self-sustainable and thirteen different types of schools and training facilities had been established. It was the mission’s vision to educate the native people of the congregation.

The implementation of the Bantu Education Act, the Anglo-Boer wars and the World Wars eventually led to Botshabelo’s decline as a community. The remaining missionaries at Botshabelo had to leave and in 1972 the remaining 100 Bakopa and Bapedi families of the congregation were forcibly removed from the site. This resulted in a period in which Botshabelo was opened to the public as an open air museum, with the addition of a Ndebele tribal village.

In 2005, the 100 families who were forcibly removed from the site successfully won a land claim case and plans are currently being established to reinstate these families at Botshabelo.

1.2 RESEARCH PROBLEM

It is argued though this dissertation that there is a pattern of static monument preservation in South Africa and a lack of understanding of the intangible heritage of places. This becomes evident at Botshabelo, a site which once consisted of a culturally diverse community of up to four thousand people, which now stands abandoned due to a lack of portrayal of its complex history.

Botshabelo is confronted with the unique situation of reintroducing the 100 families of the Botshabelo Community Trust to the site, while still maintaining its cultural and heritage value within the cultural heartland of Mpumalanga.

1.3 RESEARCH QUESTION

- How can Botshabelo be rehabilitated in order to protect its heritage significance, in both tangible and intangible measures?
- How can Botshabelo be regenerated as a socio-economic hub for the people of the Botshabelo Community Trust?
- How can architecture be used to find the commonality between preservation and regeneration in a cultural heritage landscape?

1.4 HYPOTHESIS

Architecture can regenerate public space at Botshabelo by hosting socio-economic activity.

It is argued that by reintroducing the 100 families of the Botshabelo Community Trust back into the historic village, this could be used to reinterpret Botshabelo’s future use, but it could also be used to portray a new interpretation of what life at Botshabelo used to encompass.

To be able to support this hypothesis a thorough understanding has to be gained about the heritage of the site, as well as the current conditions of the site, in support of its potential future development.
1.5 RESEARCH INTENTION

In response to the problem statement and research question, this dissertation will be guided by the following theoretical studies to inform an appropriate design response.

Heritage preservation

Botshabelo is currently an example of a heritage site that has become a static monument as a result of the way in which it has been preserved. The narrative of Botshabelo has been forgotten as a result of not creating a dynamic, interactive relationship between people and the heritage of the site.

This is a result of the lack of guidance in the South African legislation (Bakker & Muller 2010).

Storytelling as a model for Planning

The stories of Botshabelo are to be used to reclaim the inheritance of creativity and productivity of the old mission station.

Architecture and Nature

Using the landscape of Botshabelo as a means to create economic activity through the production and consumption of fruits and vegetables which can be grown on site, and through this creating a platform for interaction.

It becomes a system that facilitates the interaction of man with nature and man with man. The architecture becomes a mediator between man and nature, past and future.

1.6 RESEARCH METHODOLOGY

In order to formulate an appropriate architectural response, the following methods of research will be followed:

Historical Development of Botshabelo

(Mapping: documentary, oral, physical)

An in-depth analysis will be conducted by the author of both the physical heritage of Botshabelo as well as the narrative of Botshabelo as a means of understanding the site’s tangible and intangible narratives. There have also been a number of articles written by parties concerning the Botshabelo Community Trust’s house development scheme at Botshabelo which will form part of the understanding of the future use of the site.

Theoretical Exploration

The theoretical approach taken is one through which an understanding is gained of the heritage significance of Botshabelo (its identity and narrative) and how it could be developed to create a resilient community once again.

Precedents

A number of case studies will be discussed to gain an understanding of different heritage preservation and regeneration strategies, to inform the design approach of this project.

1.7 LIMITATIONS, DELIMITATIONS, ASSUMPTIONS

Although Botshabelo will be studied as a precinct, the design focus will be on the historical centre, which was identified as the third of zone of development throughout Botshabelo’s narrative.

It is assumed that the Botshabelo Community Trust will have ownership of the land and, as they have stated, are in favour of the protection of the heritage of Botshabelo (South Africa, 2015). Although Botshabelo has not officially been declared a national heritage site, it remains under the protection of the National Heritage Act (South Africa 1999).
Botshabelo's narrative reimagined through socio-economic activation of the cultural landscape. Commemorating its people through the everyday ritual of the land.

Botshabelo has developed as a palimpsest of cultures and events. Which precinct define direct socio-cultural and historic assumptions and connotations. It is also consists out of significant landscapes, from wilderness areas to cultural landscapes.

Botshabelo Statement of Significance

Botshabelo is a heritage resource that has immense national value. It is a place associated with both events of historical importance relating to apartheid and the diversity of cultures and their interactions.

Botshabelo embodies the history of both the Berlin Mission Society’s evangelistic endeavours in Southern Africa and the diversity of cultural groups that constitutes the people of South Africa. Subsequently the Mission Station was provisionally declared a national monument in 1979 to challenge the static preservation of architectural heritage by creating an environment that would facilitate social and economic growth for the families who are being reintroduced to the site.

Simultaneously, Botshabelo is confronted with the reintroduction of African people into a predominantly colonial heritage site and the need arises to find a synthesis between the existing heritage value, while creating a new architectural language of an African context. Botshabelo also presents the opportunity of creating awareness of biodiversity in a province which is largely confronted with extreme disruption of the landscape by coal mining industries.

Botshabelo’s significance as a cultural heritage landscape should be protected to secure its future value. By understanding the narrative of Botshabelo, one gains a collective understanding of how it became a sustainable community and economic core of its time. By the use of this knowledge a future narrative is created to safeguard its future.

Fig. 2.1: Botshabelo Location (Author 2017)

Introduction

The study by Le Roux, et al (2001) states the significance of Botshabelo being:

- It embodies the histories of many of the diverse cultural groups which comprise the peoples of South Africa.
- Extensive lands and associated infrastructure relating to the sustenance and administration of a Berlin Mission Station present a concrete record of their ways and practices.
- The palimpsest of routes and infrastructure relating to the place as one for rest and repairs on the trade route to the Zoutpansberg as recorded in the written histories of the early pioneers.
- Extant buildings (now dilapidated) associated with the higher learning of the education in the black community.
- A site associated with the historic event of land claims.
- Buildings (now derelict) associated with the first translation and printing of the Bible into Northern Sotho (Pedi).
- Buildings associated with black Christian missionaries.

Botshabelo has evolved as a cultural landscape, with significant landscapes from wilderness areas to cultural landscapes.
Botshabelo represents both the heritage of the Berlin Mission Society as well as the native African people who were part of the congregation and were forcibly removed from the site in 1972. However, currently most heritage commemoration is directed towards the German missionaries and not towards the native families who lived in the Motse.

Also, the 100 families comprising the Botshabelo Community Trust successfully won a land claim of Botshabelo in 2005 and plans have been made to resettle them at Botshabelo. However, these families would currently have no income to sustain themselves and would have to travel to surrounding towns for job opportunities.

Architectural issue

Since the forced removal of the remaining residents of Botshabelo in 1972, endeavours have been made to create a museum of this once thriving establishment. However, as a result of poor guidance in South African heritage legislation regarding intangible heritage, landscape, place, association and memory an emphasis has been placed on the static preservation of heritage sites (Bakker & Muller 2010:50). This approach avoids the complex narratives and the cultural dimensions that influence landscapes, resulting in a lack of interpretation of place (Bakker & Muller 2010:50). At Botshabelo the possibility of transferring the intangible values inherent to the site and which are imperative in understanding its traditions and formation of identity, is lost.

Regional issue

Botshabelo is situated within the cultural heartland of Mpumalanga, a place renowned for being a multi-cultural historical area, but its potential to provide a deeper understanding of Mpumalanga and its cultural history as well as its identity in post-apartheid South Africa, is being lost. Botshabelo also offers the opportunity of showcasing the beauty and importance of biodiverse landscapes. This becomes important in Mpumalanga which is known for the vast coal mining industry.
With the objective of understanding the development of Botshabelo, it becomes important to understand its historical and physical context. The intention of this dissertation is to gain a deeper understanding of what led to the success and simultaneous creation of a sustainable future. Theory is then reviewed that would be able to guide a conceptual development of an appropriate response to the context, followed by an appropriate suggestion of a program and clients which would facilitate the future sustainable development of Botshabelo.

The article is structured by describing the historical and physical context of Botshabelo, which is used as a tool to gain an understanding of what made Botshabelo prosper and what led to its eventual decline and gaining knowledge of its complex narrative. This information is then used to aid the understanding of what would be needed to create an environment which would commemorate the past, but simultaneously create a sustainable future. Theory is then reviewed that would be able to guide a conceptual development of an appropriate response to the context, followed by an appropriate suggestion of a program and clients which would facilitate the future sustainable development of Botshabelo.

Historical Context:
The Establishment of Botshabelo

Botshabelo was established in 1865 as a “place of refuge” when the German missionary, Alexander Merensky, fled from Sekukuni land as a result of the tribal chief not agreeing with the conversion of his people to Christianity (Le Roux, Fisher & Botes 2001:30).

Merensky at once sought out a place where he and the people of his congregation could settle. He was told by an agent that the perfect land had been found, but upon his arrival in Middelburg, he noted that the landscape became “depressingly flat and dry and dusty” (Le Roux et al. 2001:30). However, when he was taken onto a small dirt road through the bush, “the path dipped down towards a river, and in an incredible short time the surrounding changed. The grass stood high and green and the trees cast a soft shade over the wild flowers and little streams that meandered next to their path. The whole scene was placid and appealing. Merensky knew at once that he wouldn’t be doing any more searching. This was his new home, and he would call it “Botshabelo” – which meant “Refuge.” (Le Roux et al 2001:30).

From the first structures built at Botshabelo, it becomes apparent that the landscape was an informant for the settlement pattern.

The Fort, which was the first structure to be built, was built on the highest point of the site to allow for surveillance. The first settlement of houses occurred “the path dipped down towards a river,” (Le Roux et al. 2001:30). However, when he was taken onto a small dirt road through the bush, “the path dipped down towards a river, and in an incredible short time the surrounding changed. The grass stood high and green and the trees cast a soft shade over the wild flowers and little streams that meandered next to their path. The whole scene was placid and appealing. Merensky knew at once that he wouldn’t be doing any more searching. This was his new home, and he would call it “Botshabelo” – which meant “Refuge.” (Le Roux et al 2001:30).

The first settlement of homes occurred along the ridge surrounding the fort. Here, huts were built as closely as possible. This layout, typical of the native’s village planning, was implemented as a security measure. If enemies attacked, they would not find the houses dispersed and easy to pick off one at a time.

Another informant of the landscape on the settlement pattern was the two streams leading to the Klein Olifant River. Initially the streams caused their surrounding land to be “swampy”. So the river’s water level was lowered by the removal of rock from the riverbed, by between 4 – 6 feet, as a result the stream’s water levels lowered and their surrounding land could be used for agriculture (Swanepoel 2015:11).

The Production of Landscape at Botshabelo

As people where permanently settling at Botshabelo, Merensky allowed the chiefs of each tribe to choose and develop the land they wanted (Le Roux et al 2001:19).

Once land was allocated to a family they started to clear the land immediately to plant orchards, vegetable gardens and corn, and the land was fertile enough to produce the required amount to sustain the community. They were able to grow a diverse amount of vegetables and fruits ranging from potatoes, beans, peas, cabbage, melons, sweet potatoes and fruits trees in their orchards; twenty different kinds of peaches, apricots, figs, quince, granadilla, apples, pears, plums, grapes and orange trees (Le Roux et al 2001:26).
Education at Botshabelo

This form of education was successful as the white community members had as much potential for spiritual and intellectual improvement as the white community members (Langhan 2000:25). Within 10 years, 13 types of schools had been opened at Botshabelo (Mminele 1983:54).

The missions ideology supported the belief that the native community members were cut off from funding and material support of their mission societies throughout the world, as in most cases they were cut off from funding and material support of their mission societies. The training institute at Botshabelo thus had to be closed during the wars.

With the inception of the Union of South Africa in 1910, the mission stations had to comply with new policies, both educational and political. The state became involved with the subject matter of what was taught. The state was now in charge of all educational outcomes and if the missionaries intended to continue with their endeavour to educate the people of Botshabelo, they needed to adhere to the new policies (Mminele 1983:137).

The foundation of Botshabelo’s role as education provider was abolished in 1950s with the introduction of the Bantu Education Act of 1953 by the National Party Government, which did not support the equal education of all people. The black natives of the community were no longer allowed to be educated as they used to be and many students had to leave the mission station to seek work elsewhere.

Eventually, in 1970, Botshabelo could no longer be sustained and was sold to the Middelburg Municipality. In 1972 the remaining 200 families were forcibly removed from the site, as a result of laws passed by the Nationalist Party Government. The Apartheid-era legislation can thus be seen as the final event that remodelled the form and destiny of Botshabelo (Swanepoel 2015:15).

Museumification of Botshabelo

The renovations that occurred throughout this period further developed the narrative of Botshabelo. The fort was considerably reconstructed and the 19th century buildings were renovated with modern elements, such as brick pillars being replaced with wooden supports (Swanepoel 2015:15). Also introduced to the site during this time is the open air Ndebele Village, which was constructed on the southern side of the Klein Olifants River. Originally this was a relatively popular attraction within the cultural landscape, but interest has waned over time and the museum is currently unrestored.

2005 land claims and current state of Botshabelo

Botshabelo was not under the control of the Transvaal Provincial Administration, as the eight farms which made up the whole of Botshabelo, was subject to a land claim in the 1990s from the families that were forcibly removed from the site. In 2005 the land was officially handed over to the Botshabelo Community Trust. However, to date, there have not been any final decisions pertaining to the future of Botshabelo. It is said that all parties have agreed that the historic core of Botshabelo should be maintained as a heritage attraction and be kept open to the public (Swanepoel 2015:15).
Three zones of development can thus be identified. Zone 1, which is north of the Klein Olifants River and above the Keerom Spruit, can be identified as the heart of the mission station. This is where the first huts were constructed, followed by the Fort and the first church, and later on a parsonage for Merensky and a second church. The first settlement occurred between the Fort and Merensky’s house and only remnants are left today of these Basotho dwellings (Swanepoel 2015:8).

On the southern side of the Keerom Spruit is zone 2, which was the land designated to the Bakopa and Bapedi tribes and was named the Motse. Situated further south of the Motse is the graveyard (Swanepoel 2015:8).

Zone 3, which is this dissertation study area, is on the western side of the stream which runs north-south into the Klein Olifants River, the first structure to be built there is a house for the missionary and master stonemason, Kupfernagel. This area became known as the workshop area, as this is where the trade school was situated (Le Roux et al 2001: 18).

The residential areas were built far enough away from the streams so as not to encroach on valuable arable land. The production of food was very important to sustain the community, having been described as starving for the first few months until the first harvest. Farm and garden lands were divided amongst the heads of each clan, keeping to the traditions of the people, these clan leaders were then responsible to distribute the land equally among the people (Le Roux et al: 18).

The typology of the buildings and the landscape

Buildings constructed during the first phase of development, in zone 1, were built out of packed stone with thatched roofs, which were in some cases later replaced by corrugated iron sheeting. The first settlement that occurred along the ridge adjacent to the fort is the most dilapidated and in most cases there are only remnants of walls and foundations. These huts were originally built with timber from the surrounding vegetation, however that led to the destruction of many trees in the area and as a result people were encouraged to build house walls with rock and roofs with thatch (Le Roux et al 2001: 18).

Additionally, areas surrounding the houses were cleared to create “lapa’s” or inner courtyards (Le Roux et al 2001: 18). The buildings were also arranged close to each other, end-to-end, so in case of an attack only the outer homesteads were in direct danger (Le Roux et al 2001: 18).

Only two years after settling they discovered clay on the site, which they then used to make fired bricks in kilns and Merensky’s parsonage was the first building to be constructed with brick (Le Roux et al 2001: 18).

Three buildings which were built in zone 3 were built in the same time period as those in zone 1, as they resemble the existing typology, of stone walls with thatch roofs. These buildings are the labourers’ houses, the gardener’s house and the wagon-making workshop. The wagon-making workshop was the most dilapidated building on the site and is assumed to have been restored, as it currently has a corrugated steel roof and its walls have been plastered (Swanepoel 2015:15), this can be viewed as an addition as one can see the original brickwork behind the peeling plaster.

There are a total of 84 buildings which were constructed at Botshabelo, of which only a number still exist, representing only a few of the building styles that once existed, as can be seen in figure 2.7 (Naude 1981:7). The diversity of architectural building types of Botshabelo is one of the aspects which makes it unique.

Another aspect which is unique to the landscape of Botshabelo is the use of low stone walls and terraces, which is characteristic of mission stations in South Africa in general, however most of these features do not currently exist on the site anymore (Swanepoel 2015:11). The landscape can be visually divided between the natural, untouched land, the fruit tree and vegetable gardens and larger crops, clearly defined by the grid patterns and the use of low stone walls.

Botshabelo can also be viewed as an engineered landscape (Swanepoel 2015:10). Land had to be cleared from stones and boulders, to allow space for the development of the roads and structures. The lowering of the levels of the streams so that the land could be used for agriculture is also an example how the landscape has been engineered.

The natural landscape was further transformed by the planting of European tree species, which were often associated with missionary residences and spaces such as graveyards. After settling the land was soon filled with fruit trees, which are characteristic of mission stations in South Africa in general.
FIRST DEVELOPMENT 1865
1. Fort Merensky
2. First Church
3. House Merensky
4A. Motse - Bakopa
4B. Motse - Bapedi

BUILDINGS BEFORE 1882
5. Church
6. Wagon and Cow Shed
7. Book Bindery
8. Wagon Workshop
9. First Seminary
10. House Pakendorf
11. Catering Building
12. School
13. House Gastrow
15. Cook's House
16. Teachers Residences
17. House Beuster

BUILDINGS AFTER 1882
18. House Seroti
19. Seminary (1908) Offices
20. Annex of Seminary
21. House Nitze
22. High School
23. House Baumbach
24. Youth Hostels
25. Workers Housing
26. Shed for Agricultural Implements
27. Ndebele Museum
28. Domestic Science Building

Fig. 2.7: Historical map of site development at Botshabelo (Author 2017)
Study field photographic documentation

Fig. 2.8: Site documentation of Botshabelo in its current condition (Author 2017)
Urban Proposal as a response to Context
Genadendal as development precedent

Location: Genadendal, Western Cape
Architect: Braaksma and Roos

Genadendal is used as a precedent to illustrate the conservation and regeneration of a historic mission station.

There are three areas that form the essence of Genadendal, each relating to the other, but also having individual significant value. These are the valley, the werf and the mountain. The three hearts of Genadendal (Du Preez, Van Oers, Roos & Verhoef 2009:26).

The valley was where the original agriculture occurred and can be seen as the historical agricultural heart of Genadendal. However, it is hardly in use today, with only traces of the weaving paths and bridges remaining of which only some are still being used today. The valley has the potential to become an agricultural and tourist attraction (Du Preez et al 2009:26). The valley is not isolated and is connected to the werf at the heart of the horse shoe with the mountains behind it.

The werf is the historical religious heart of the settlement and thus the highest priority of restoration was focused here. It became important not to view the church and buildings as being the most important but to commemorate the importance of the overall layout of the werf, including the surrounding gardens, the windmill and the irrigation system (Du Preez et al 2009:27).

The mountains across from the mission werf is the historical natural heart of Genadendal and also have the potential for drawing visitors through hiking and cycling trails and also creating opportunity for agriculture (Du Preez et al 2009:27).

These three hearts each have individual value, but only as a whole do they represent the spirit of Genadendal. The focus of redevelopment was therefore focused on these three hearts to reveal the rich historical context of the place.

The following principles were used to guide the design process of the conservation of Genadendal (Du Preez et al 2009:29):
- Ecological significance conservation
- Focusing on the settlement development areas
- Main roads and paths
- Enhancing the spirit of the place by restoring the cultural and religious heart
- Introduction of new programmes

These principles were used to develop a feasible urban vision for Botshabelo.
Evident in the development pattern of Botshabelo is the importance of the landscape and how it was used for agriculture to sustain its people. With the 100 families of the Botshabelo Community Trust returning, an opportunity is presented to use the ritual of cultivating the land, which used to be a feature of everyday life at Botshabelo, to commemorate the past, but also to use agriculture to create a new narrative for Botshabelo’s future.

The intent is to reactivate the historical core of Botshabelo by using activities that are able to show visitors of the site a glimpse of how it used to be, but now using the land to teach visitors both about Botshabelo’s people and the value of the land which provides sustenance for man.

The historic core will thus be activated by reintroducing activity that is generated through convivial food spaces and by re-introducing the community in close proximity to the core, allowing visitors to learn about the land and the people. Galleries are also introduced throughout the site, in existing buildings, to commemorate people who grew up and were educated at Botshabelo.

These elements are activated by a heritage route that leads visitors through the three zones of development which have been identified, allowing for an overall experience of Botshabelo.

Fig. 2.14: Proposed master plan indicating the programmatic possibilities (Author 2017)
Precinct vision

Restaurant
Preserve Production Facility
Botany Research Facility
Gallery and story telling space - Wally Serote
Museum with Historic artefacts

Fig. 2.15: Proposed master plan for Zone 3 (indicating programming) (Author 2017)

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The built heritage of Botshabelo is seen as being a representation of its people and the diversity of cultures that once existed here. Therefore it becomes important to view all the buildings as important resources that should be protected. There are also pragmatic advantages of adapting existing structure, such as a significantly lower impact on the environment when compared to the development of new structures. However, these buildings’ value extend beyond their physical usefulness to the identity of Botshabelo and their contribution to the development of the history of this very specific context.

Adaptations to the built fabric allows the opportunity of creating a new “layer” of identity in the old structures, using new elements to highlight the existing identity. It provides the context for users to identify with the old identity and the opportunity for the public to become aware of and learn from the identity that used to exist.

The intention of this dissertation is to reintroduce socio-economic activity at Botshabelo, which would in turn create the possibility to maintain the built historic environment, through creating employment and ownership of the built environment. The proposed outcome is reactivating the historical core of Botshabelo to allow for interaction with the built environment and its narrative.

The Barra Charter (2000:5) provides the following guidelines when working in culturally significant heritage environments:
- The amount of physical change done to existing structures should be reduced to only what is necessary and should not alter the cultural significance.
- The degree of cultural significance determines the level of impact on the existing.
- Any adaptations must ensure that a multitude of cultural values and identities are able to coexist.
- The original intended experience and meaning of spaces are retained.
- Adaptations must provide some contrast, so as to provide legibility.

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- The original intended experience and meaning of spaces are retained.
- Adaptations must provide some contrast, so as to provide legibility.

Philipppe Robert in “Adaptations: New uses for old buildings” provides seven formal principles with regards to adapting heritage buildings (Robert:1989):
1. The building within
2. The building over
3. The building around
4. The building alongside
5. Recycling materials and vestiges
6. Adapting to a new function
7. Building in the style of

These principles are used throughout this project. Within the built heritage the approach taken is to build within, with elements such as the roof or low walls extending out of the existing buildings. This is done to create continuity between interior and exterior, the built environment and the landscape. The existing building’s functions have also been adapted.

Also, the new interventions are placed within the landscape alongside the existing heritage stone wall, becoming extensions of the wall.
By understanding the narrative of Botshabelo, it is clear that it was successful as a result of the land providing the means for the people to become self-sustainable and the educational focus of the mission institution, which empowered the people.

The proposed program for this dissertation is therefore one that hosts both social and economic activity through the production of the land. The landscape provides the possibility for the cultivation of fruits and vegetables, however, as a response to the colonial built heritage, the landscape will be used to reimagine the heritage of the African landscape. The gardens are therefore planted with African orphaned crops10.

The social nature of the programmes allows for the interaction between visitors of the site and the Botshabelo Community Trust, allowing for the intangible transfer of heritage through shared conversations. The proposed programmes are:

- a culinary cooking studio
- a botany research facility
- a botany library
- a herbarium
- a tea making facility
- a restaurant and deli
- a product production facility.

Three clients are identified who will be involved throughout the site ranging from everyday visitors to researchers and permanent staff.

Client 1: The Botshabelo Community Trust
The Botshabelo Community Trust will be involved throughout the project at various levels. The residents will be permanently living on the site, with their residence identified in the urban vision. Their involvement with the productive landscape provides the opportunity for economic activity to be generated through the culinary school, restaurant and deli.

Client 2: Slow Food International (Researchers)
Slow Food is an organisation that is working around the world to protect food biodiversity, creating links between producers and consumers and raising awareness of critical topics affecting our food systems. Their projects are aimed at promoting agriculture that is based on local biodiversity and respect for the land and the local culture in harmony with the environment. Another aim is to provide food sovereignty and access of good food sources to all communities (Slow Food International 2017).

Their education projects differ from most food education as they are rooted in the idea that food means pleasure, culture and conviviality. Their food classes take many different forms: school gardens, guided tastings, knowledge exchange between generations, practical workshops and meals with producers (Slow Food International 2017).

Client 3: The general public and partakers of the cooking school
The intention of this dissertation is to create an understanding of what the daily rituals of Botshabelo used to be, allowing the visitor to gain an understanding of the intangible heritage of the site while creating a new narrative by which the heritage can be celebrated and experienced, while also creating an awareness of the biodiversity which still exists at Botshabelo and connecting each visitor with the three natures present at Botshabelo.
The purpose of this pavilion is to allow visitors to discover the significance of agriculture and food biodiversity. This is achieved by creating a platform through which the variety of products that are protagonists of biodiversity can be explored and to create awareness of the need of adopting new consumption habits (Archdaily 2015).

The pavilion exists of three wooden structures, which are archaic and almost primitive in design that define a triangular space which can be used as a courtyard or market space.

Throughout this project simple systems and materials have been applied to the design of these dwellings. This is done to blend in with the presence of Table Mountain, which is a backdrop to the site. The prominent curved seeping wall of the design is used to relate sculpturally to the form of Lion’s head and the curve of the boundary road (StudioMAS 2017).

The open spaces surrounding the building have been densely planted so that over time the house will become lost in a layer of plant life that provides an escape from the built-up city areas of Cape Town to create a natural sanctuary, being viewed as a sculptural extension of the landscape (StudioMAS 2017).

The building is intentionally designed to be engulfed by nature; trees, plants and small endemic wildlife that migrate between it and Table Mountain (StudioMAS 2017).
Oudebosch Eco Cabins
Informant: Conceptual and Technical
Location: Kogelberg Sanchem Link Nature Reserve, World Heritage Site
Architects: Architecture Co-op

The guiding principle of this project was to “touch the earth lightly”. This was achieved by making simple buildings situated on a place that would allow the interventions to blend into the landscape (Architecture co-op 2012).

A simple palette of materials is used, the structure being clad with timber lattice, texturing the surface to blend in even further with the surrounding landscape. Stone gabion walls are used to mirror the peaks of the Cape Fold Mountains, while implementing passive design systems (Architecture co-op 2012).

Babylonstoren
Informant: Programmatic
Location: Franschhoek
Architects: Malherbe Rust

At Babylonstoren the new architectural intervention retains the character of the existing buildings. The existing buildings were also restored and new guest housing was built on the footprint of old workers housing. Dilapidated outbuildings have been reprogrammed as restaurants and a new wine cellar has been constructed, being sunken into the ground to not disturb the overall scale of architecture on the site (Kotze, 2014).

In these examples, care was been taken to reinforce and enhance the existing, while adding new elements along similar design principles (Kotze, 2014).
A chronological understanding of Botshabelo is developed by synthesising a variety of narratives that were obtainable about Botshabelo and by gaining an understanding of the complex narrative that created this cultural landscape. This dissertation seeks to find an appropriate heritage response towards both the European heritage and the African heritage of the site.

An approach to dealing with land claims is developed that can sustainably facilitate a community of people that need to be socially and economically stimulated. At Botshabelo, the return of the families who were removed from the site allows the opportunity for visitors to the site to become directly involved with the rituals and people who used to exist there. This creates the opportunity for the transfer of intangible heritage by the interaction of the people.

The intangible heritage of Botshabelo also leads to the acknowledgement of the land. Botshabelo developed as a result of the landscape providing the possibility for agriculture. A distinct pattern was developed of buildings situated within the landscape for the optimal use of agricultural land, resulting in Botshabelo being sustainable within 10 years of first settling. Botshabelo is also situated within a biome which is classified as highly important and protected. Therefore the heritage of the land also becomes important, as acknowledged through the introduction of Botany studies and creating gardens which are planted with African orphaned crops and plants that can be foraged. This allows for the introduction and study of indigenous plants within this African landscape, striving to create a biodiversity “hotspot” within Mpumalanga.

Conclusion

Botshabelo has the power to change the negative perception about land claims by creating an environment in which the past heritage of the site can be commemorated, but a new narrative can be used to strengthen the value of the past while creating a future for the Mission station as a core attraction within the cultural heartland of Mpumalanga.

By reintroducing the Botshabelo Community Trust into the mission station, the opportunity is provided to use the past narrative of an educational, sustainable, economically efficient community to inform its future narrative. Here visitors to the site will be able to experience every aspect of the heritage of Botshabelo; the colonial built heritage, the African heritage of the landscape and Botshabelo as a biodiversity hub within Mpumalanga.

Botshabelo’s future narrative therefore becomes one where visitors are able to learn of its diverse history through the productive landscape and through the direct interaction with its people, creating interaction with the tangible and intangible heritage of the site.
3.1 DESIGN CONCEPT

Chapter 6 discusses the concept and expression of how the three natures present at Botshabelo are used to reestablish Botshabelo’s future value.

“The ecological worldview is that the separation between humans and “nature” is an illusion and that we (humans) are nature too… if we are to find a way of development leading towards a thriving future, it is essential that we reconnect to nature, that we relearn to be natural.” (Hes, D. & Du Plessis, C. 2015:45).

The intent of the architectural intervention is to create a series of moments throughout the site where the three natures, identified in the Theoretical Approach as outlined in Chapter Two, are experienced throughout the experience of the site. Connecting the person visiting the site with the original state of the landscape, the human intervention and an architectural response of how these elements of nature could merge.

The design exploration will be discussed as a response to the informants extracted from the previous chapters and the conceptual approach. From the article in Chapter Two, several key informants have been established that were used to guide the conceptual and design exploration. These informants include the projects intentions, the site’s context, the theoretical approach and the programmatic requirements. The culmination of these aspects provide guidance for design choices and together lead to the overall concept and the resulting architectural language.

For greater clarity, these six aspects will be reiterated.

3.1.1 ARCHITECTURAL INTENTIONS

The intention of this project is to rehabilitate Botshabelo in order to protect its heritage significance and future value. Guided by this premise, the architectural intention is to:

- Create new architectural language that can be easily differentiated from the existing, but is used to create a continuous experience of the site through showcasing both tangible and intangible qualities of the site’s heritage.
- Create an environment which draws humans closer to nature.
- Create architecture that seeks to advance the biodiversity and ecology of the site.

3.1.2 THEORETICAL APPROACH

In brief, the theoretical heritage approach taken is an interpretation from the Burra Charter: change as much as possible to take care of the place and make it useable, but otherwise change as little as possible to retain its cultural significance.

The architectural response is thus:

- To create a typology that relates to an African landscape, whilst respecting the existing architectural heritage.
- Architecture that is clearly differentiated from the existing typology. It is respectful to the heritage and cultural value by retaining the same scale of intervention and strives to create continuity between building and landscape, as to not intrude visually on the existing built fabric.

3.1.3 THE SITE AND CONTEXT

The aspects taken into consideration considering the context are:

- The intentional separation of the three natures discussed in the theory.
- The introduction of the 100 families back onto the site (the intent of this project is to create an environment through which stories can be shared between the locals and the visitor to the site, taking part throughout the project so that the intangible heritage of Botshabelo is shared with every visitor of the site, through tasting, cooking classes, agricultural workshops, etc).
- Contrasting the colonial architecture, by emphasizing the importance of the African landscape.
- The conceptual intention of creating a link between the three natures and using this to exhibit the heritage value of Botshabelo.

![Fig. 3.1: Proposed allocation of moments at Zone 3 (Author 2017)](image-url)
3.1.4 URBAN AND PRECINCT VISIONS

The design should respond appropriately to the precinct framework, which intends to activate the core of the historic village and creates a flow of movement through the chosen site to the rest of the precinct. The intervention is situated predominantly within the landscape to draw the visitor into the landscape into interaction with the people tending the fields and bringing the visitor closer to nature.

3.1.5 PROGRAMMATIC INFORMANTS

The programme creates the opportunity for socio-economic activity to be generated within the historic core of Botshabelo. It becomes a system that facilitates the interaction of man with nature and man with man. The architecture becomes a mediator between man and nature, past and future.

3.1.6 THE CONCEPT

The unique story of Botshabelo and how its people responded to the place, culture and nature created a narrative onto which the author intends to add a new narrative to ensure that the heritage value of the site is maintained and the future value is ensured. The tangible and intangible heritage of the site forms part of the concept of the contemporary narrative of the site, exposing the intangible and tangible heritage of Botshabelo in order to ensure the resilience of this historic place. This results in architecture that allows for the culmination of social, economic and ecological systems.

Fig. 3.2: Sketch of walkway through the heritage buildings (Author 2017)
The program requirements describe the range of people who would be visiting Botshabelo, each with their own intentions of activity on the site. The main route into Botshabelo therefore terminates in a parking area, which acts as a point of dispersal to the rest of the site. From this point, visitors could decide to take a meandering walk throughout the landscape to the research facility, cooking studio, restaurant or various product tasting rooms, or alternatively they could take a more direct route to these facilities on a walkway adjacent to the guiding heritage stone wall.

The route guided by the stone wall becomes a sort of pilgrim walk which narrates the value of Botshabelo. On this route, visitors encounter different thresholds to draw their attention to the surrounding landscape and built heritage. Simultaneously the intention of this route is to accentuate the existing heritage, which is viewed as being colonial, while introducing an African narrative back into the landscape of Botshabelo, one where all space is seen as being public and architecture is drawn into nature.

Spatial Intentions

Given the intention to create an awareness of the natural environment and the interaction with people tending to the agricultural fields and the nature of the programs, it was decided to place the new architectural intervention within the agricultural fields.

This allows the direct interaction with plants that are being researched within the research facility and also provides the opportunity for the cooking studio to become an interior (cooking) and exterior (foraging) experience.

Within the heritage fabric, elements of intervention are used to guide the visitor throughout the site, from nature one: the ‘wilderness’, through nature two: the built environment and into nature three: the agricultural fields.

The architectural intention is to reintroduce an African identity to Botshabelo, through the reinterpretation of the use of African materials that draw one into nature.

Research Facility and Library

The new architectural intervention is sunk to below eye level from the existing walkway to allow it to be unobtrusive against the existing heritage. It also intends to draw the users of the facilities into the landscape. As a result of this, the roof becomes a fifth elevation, to create transition between the view of the roof and the landscape.

The scale of the new intervention is respectful towards the existing, retaining the same proportions. However the building construction creates a contrast between the existing and the new architecture.

Cooking Studio

The architectural intention with the cooking studio is to create learning spaces and tasting and workshop experiences within the landscape, which is then drawn into the building. This transition is achieved by having gardens surrounding the cooking studio, with a permeable timber pergola structure that leads into the building where the food is cooked.

The cooking studio also becomes an extension of the walkway that leads to the rest of the site. The roof plane is extended over the walkway to draw people into the cooking studio and adjacent nursery.
3.3.1 **Iteration One**

Botshabelo’s historic village core is arranged in a unique manner and with the addition of new programmes, the following informants guided the layout of the routes which can be taken throughout the site:

1. The site is approached from the south.
2. There is a hierarchy of routes, the landscape route and the “pilgrim walk” being the two most important routes, with smaller routes branching off of them to create an experience of the whole site and all three natures, as discussed in the theoretical approach.
3. Access to the existing heritage buildings.
4. Integration of new interventions within the landscape and within the heritage buildings:
   - The integration of all three landscapes throughout the routes
   - Visual access (vistas) of vocal points
5. Access to the rest of the site.

This first exploration resulted in a spatial layout that encourages the experience of the whole site. As can be seen on the model there are various new interventions throughout the site, which becomes necessary as a result of programme requirements. However, there is a lack of hierarchy of importance and the additional building (cooking studio within the landscape) becomes an object in the landscape, instead of becoming an extension of the landscape within a built environment.

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**Fig. 3.6**: First model exploration to understand spatial arrangement (Author 2017)

**Fig. 3.7**: Layout and planning exploration (Author 2017)
3.3.2 Iteration Two

1 - As a response to the first iteration, it became apparent that the architectural intervention should be better integrated within the landscape and there should be a hierarchy of routes which guide the visitor throughout the site.

2 - The circulation throughout the site was reconsidered as to make the user aware of certain elements of the "three natures" at specific moments throughout the route.

The intentions of this iteration was to use the stone walls throughout the site and specifically the main stone wall adjacent to the main route, as sculptural elements that guide the user of the spaces into the building. It uses the walls to guide and form the architectural intervention throughout the heritage fabric as well as the new interventions.

Fig. 3.8: Model exploration of iteration two (Author 2017)

Fig. 3.9: Design development of layout and section development of iteration two (Author 2017)

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3.3.3 Iteration Three

The desired interaction with the landscape had not been fully realized in iteration two.

In this iteration there is an intention to draw the visitors into the landscape. Either to the pavilion (1) overlooking the whole site or placing the visitor within a space that allows visual access to all three natures (wilderness, built environment and agricultural landscape) to draw the user out into the agricultural landscape (2) and allowing the user to be immersed within the natural and agricultural landscape.

This is achieved by directing the movement throughout the site firstly into the heritage fabric, but then drawing the user out into the landscape through main walkways and programmatic experiences. This will facilitate activities such as guided produce tastings within the landscape to practical workshops within the landscape.

Fig. 3.10: Model exploration of iteration three (Author 2017)

Fig. 3.11: Design development of layout and section development of iteration three (Author 2017)
Fig. 3.12: Section exploration of production facility, pedestrian walkway and botany research facility (Author 2017)

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Fig. 3.13: Section exploration of cooking studio (Author 2017)
Fig. 3.14: Plan development of herbarium, production facility, restaurant and tea making facility (Author 2017)

Fig. 3.15: Plan development of botany research facility, library and cooking studio (Author 2017)
4.1 TECTONIC CONCEPT

As Botshabelo is viewed as being a colonial heritage site, the tectonic approach taken is one that honours an African identity. This intends to create a contrast between the existing and the new architectural intervention. This juxtaposition becomes the tool used to create continuity of architectural intervention throughout the site.

The approach of contrasting the existing heritage is taken to emphasise the existing while introducing an African identity throughout the site. The success of this approach lies in the degree of contrast between the existing and the new intervention and how they are successful as individual entities when they function apart. Bloesies (2012:45) argues that there are three approaches that can be taken when contrasting existing built heritage (extreme, refrained and referential) and that each approach could be equally successful. The only main objective should be that there is a degree of contrast, to be able to distinguish between old and new.

The degree of contrast throughout the new architectural intervention is determined by the programmatic requirements. Throughout the site the same scale and pattern of intervention is retained, therefore materiality becomes an important detail of differentiation between old and new.

4.2 HERITAGE CONSERVATION

The heritage village of Botshabelo has not officially been declared a national monument, however it remains under the protection of the 1999 Heritage Act that protects any building older than 60 years. Adaptive reuse is used as a means of justifying alterations made to the existing heritage fabric, with the guidance of the Burra charter (The Burra Charter 2000), to change as little as possible while attaining the most desirable effect.

The intention is to preserve the existing structure and only intervene architecturally where new programmes require change. Furthermore, to create a new intervention within the landscape, which relates to the programmatic requirement of providing facilities for the research of African plant species and crops under the threat of extinction and in this way preserving the heritage of the land.

Fig. 4.1: Conceptual collage of tectonic approach
(Author, 2017)
4.3 STRUCTURE AND MATERIALITY

Materiality

"Natural materials - stone, brick and wood allow our vision to penetrate their surfaces and enable us to become convinced of the veracity of matter. Natural materials express their age and history, as well as the story of their origins and their history of human use. All matter exists in the continuum of time; the patina of wear adds the enriching experience of time to the materials of construction..." - Pallasmaa (2005:31).

Pallasmaa argues that people are intrigued by being placed within processes that go beyond the span of individual life, that we have a need to feel that we are rooted within the continuum of time and that architecture has the ability to facilitate this experience.

Therefore, both the substructure and superstructure become elements that are derived from natural materials which over time show the use of the space as the materials age. This places the users of these spaces in the continuum of time and allows a new narrative to be expressed through the use of these materials.

Substructure

The substructure of the new becomes a new interpretation of the existing. The rock walls which can be found throughout the site were used as elements which differentiated between spaces. These are reinterpreted as rock walls which now guide the visitor throughout the site and the buildings become extensions of the existing rock walls.

New walls become either guiding elements throughout the site or retaining structures, because of the lowered level of the new building. The new intervention becomes a representation of an African identity, using materials that have a cyclical nature resulting from an African perspective of the built environment. These materials become an extension of nature and the natural cycle of building and decay creating continuity throughout the use of materials that place one in the continuum of time and creates a narrative of use over time (Noble 2011:40).

Materiality thus becomes an important aspect of contrast between old and new and the creation of narrative over time.

Superstructure

The superstructure further develops the architectural intention of using materials that become an extension of nature and are of a cyclical nature by using a timber frame structure and a copper roof.

Experiencing the Site

The intention of the architectural intervention within the built heritage is to intervene only where necessary to create the desired experience of the three natures discussed in the theory chapter. The connections between the existing and new intervention becomes important to convey the concept of creating continuous experience of the site as a whole, with the new intervention being subtle at first and becoming more apparent as one moves through the site.

New walls become either guiding elements throughout the site or retaining structures, because of the lowered level of the new building. The new intervention becomes a representation of an African identity, using materials that have a cyclical nature resulting from an African perspective of the built environment. These materials become an extension of nature and the natural cycle of building and decay creating continuity throughout the use of materials that place one in the continuum of time and creates a narrative of use over time (Noble 2011:40).

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Given the history of Botshabelo as being a self-sustained community, it becomes important to create architecture that responds to this intangible heritage of the site. This is achieved by implementing passive design strategies such as the use of natural light, cross ventilation and creating a closed loop energy and water system.

Daylighting
The building is predominantly angled to the West and East as a response to the existing heritage. Therefore the new intervention allows for natural light through southern clerestories within the research and library spaces.

Windows exposed to harsh eastern and western sun exposure will be shaded by pergola structures with slatted screens.

Natural Ventilation
The predominant wind comes from the North East and South East. The buildings are orientated in such a way that the facades with the most openings are orientated within this range of wind direction to increase the effectiveness of cross ventilation within the single volume spaces.

Figs. 4.3: Conceptual sketch of Daylighting and Natural ventilation application (Author 2017)

Fig. 4.4: Diagram depicting predominant wind direction at Botshabelo (Author 2017)
Water Management

Throughout this project the practical and haptic use of water becomes an important aspect of the design. Rainwater that is harvested on the site is used to increase the haptic experience of space. This is done by creating water walls, a retention pond at the restaurant and cooking school and by using the heritage water furrows to direct water to cleaning and storage tanks.

The water is circulated in a semi-closed systemic loop. Water collected from roofs and external surfaces runs through the site by the existing heritage water furrows and is taken through multiple treatment chambers before being stored in a water reservoir (1, 2 and 3).

Grey water is passed directly through a fat trap and pumped to the wetland, where the water is then filtered by the plants and redirected into the stream leading to the Mohlotsi River.

Black water is directed to a septic tank which then leads into a soak away.

Water required for the irrigation of the agricultural fields is stored in a retention pond adjacent to the cooking studio and is taken through a series of water channels to irrigate the fruits and vegetable gardens.
**Water Calculations**

<table>
<thead>
<tr>
<th>FUNCTION (users)</th>
<th>m²</th>
<th>WeATER DEMAND (L/day)</th>
<th>RAIN WATER HARVEST(m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research facility: 0 staff (5 researchers, 1 receptionist)</td>
<td>83m²</td>
<td>wc - 8L [3x4 flush] hw - 2L [6x4] urinal - 1L [3x4] kitchenette - 4x20</td>
<td>Rain catchment 92m² Surface catchment 128m²</td>
</tr>
<tr>
<td>Library: 20 daily users</td>
<td>94m²</td>
<td>wc - 8L (10x1 flush) hw - 2L (10x1)</td>
<td>Rain catchment 102m² Surface catchment 172m²</td>
</tr>
<tr>
<td>Cooking School: 15 occupants</td>
<td>104 m²</td>
<td>wc - 8L [7x2] hw - 2L (15x4) urinal - 1L (8x2) kitchen - 65L [15]</td>
<td>Rain catchment 112m² Surface catchment 303m²</td>
</tr>
<tr>
<td>Restaurant: 50 daily users</td>
<td>250m²</td>
<td>wc - 8L [25x1] hw - 2L (50x1) urinal - 1L [25x1] kitchen - 65L [50 seats]</td>
<td>Rain catchment 275m² Surface catchment 1086m²</td>
</tr>
</tbody>
</table>

**Total black water/day**

584L/day

**Average monthly precipitation for Middelburg (mm)**

<table>
<thead>
<tr>
<th>Month</th>
<th>Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>109mm</td>
</tr>
<tr>
<td>Feb</td>
<td>90mm</td>
</tr>
<tr>
<td>Mar</td>
<td>81mm</td>
</tr>
<tr>
<td>Apr</td>
<td>51mm</td>
</tr>
<tr>
<td>May</td>
<td>17mm</td>
</tr>
<tr>
<td>Jun</td>
<td>5mm</td>
</tr>
<tr>
<td>Jul</td>
<td>5mm</td>
</tr>
<tr>
<td>Aug</td>
<td>7mm</td>
</tr>
<tr>
<td>Sept</td>
<td>23mm</td>
</tr>
<tr>
<td>Oct</td>
<td>58mm</td>
</tr>
<tr>
<td>Nov</td>
<td>15mm</td>
</tr>
<tr>
<td>Dec</td>
<td>11mm</td>
</tr>
</tbody>
</table>

**Average harvest per month (90% of surfaces)**

<table>
<thead>
<tr>
<th>Surface</th>
<th>Harvest per month</th>
</tr>
</thead>
<tbody>
<tr>
<td>3588m²</td>
<td>0.109m = 391.092m²</td>
</tr>
<tr>
<td>3588m²</td>
<td>0.090m = 322.92m²</td>
</tr>
<tr>
<td>290m²</td>
<td>0.051m = 129.988m²</td>
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<tr>
<td>655m²</td>
<td>0.017m = 60.996m²</td>
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<tr>
<td>21.5m²</td>
<td>0.006m = 12.93m²</td>
</tr>
<tr>
<td>21.5m²</td>
<td>0.005m = 17.94m²</td>
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<tr>
<td>25.1m²</td>
<td>0.007m = 25.116m²</td>
</tr>
<tr>
<td>82.5m²</td>
<td>0.023m = 18.852m²</td>
</tr>
<tr>
<td>243.9m²</td>
<td>0.068m = 163.292m²</td>
</tr>
<tr>
<td>412.6m³</td>
<td>0.115m = 476.65m³</td>
</tr>
<tr>
<td>398.3m³</td>
<td>0.111m = 442.98m³</td>
</tr>
</tbody>
</table>

**TOTAL WATER: 2450.604m³**

**Average monthly precipitation for Middelburg (mm)**

<table>
<thead>
<tr>
<th>Month</th>
<th>Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
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<td>Aug</td>
<td>7mm</td>
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<td>58mm</td>
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<td>Nov</td>
<td>15mm</td>
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<tr>
<td>Dec</td>
<td>11mm</td>
</tr>
</tbody>
</table>

**TOTAL WATER: 2450.604m³**


http://en.climate-data.org/location/10646/

**Waste and Composting**

Organic waste accumulated on the site through the waste of agriculture is stored in the composting pits, where it will be treated to produce decomposed organic matter to be later used as plant fertilizer.

Organic waste with higher embodied energy, such as the waste from the kitchens, will be taken directly to the bio digester.

The bio digester is located at the back edge of the historic village, which used to be used as a refuse dump. The composting pits will also be located here.

The bio digester uses anaerobic bacterial processes to convert organic waste products into methane gas as well as nutrient sludge. The sludge can be used further in the composting pits, while the methane gas is redirected through a biogas plant that is connected to butter ovens in the kitchens.

**Composting pits & potential site for Bio gas digester**

![Fig. 4.6: Proposed waste and composting system at Botshabelo (Author 2017)](https://en.climate-data.org/location/10646/)

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SUSTAINABLE BUILDING ASSESSMENT TOOL RESIDENTIAL

1.04

Sustainable Building Assessment Tool Residential

Achieved

SB SBAT REPORT

3.7

SB1 Project

Botshabelo: The Symbiosis of the land and the people.

SB2 Address

2504°58'53" S , 29°02'48'21" E

SB3 SBAT Graph

SB4 Environmental, Social and Economic Performance

<table>
<thead>
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<th>Score</th>
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SB5 EF and HDI Factors

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SB6 Targets

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<tr>
<td>Economic</td>
<td>68</td>
</tr>
<tr>
<td>Social</td>
<td>76</td>
</tr>
</tbody>
</table>
LOCATION INFORMANTS

Landscape as informant of settlement

SLOPE
Development occurs near the forest areas that were far enough away from the river, which caused the ground to be dry.

AGROECOLOGICAL ZONES (FUTURE)
The three main zones of development occurred near the natural division of the land by the streams. Two zones were farmland and one zone was residential. The river was near the forest areas, which caused the soil to be dry and the surrounding ground could be used for agriculture.

AMBLAND
The development of houses occurred at a reasonable distance from the streams, to be able to use the land in between for fruit and vegetable gardens. The gardens were also located on the higher ground areas.

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RESEARCH QUESTION

DESIGN CONCEPT

GENERAL ISSUE

REGIONAL ISSUE

PEOPLE EDUCATED AT BOTSHABELO

NATURE 1

EARTH AND SKY

NATURE 2

AGRICULTURAL LAND

NATURE 2

BUILT ENVIRONMENT

CONTINUUM OF ARCHITECTURAL THINKING

BOTSHABELO STATEMENT OF SIGNIFICANCE

Botshabelo is a heritage resource that has immense national value. It is a place associated with
both events of historical importance relating to apartheid and the diversity of cultures and their
interactions.

Botshabelo embodies the history of both the Berlin Mission Station’s Indigenous missionaries in
Southern Africa and the diversity of cultural groups that constitute the people of South Africa. Sub-
sequently the Mission Station was provisionally declared a national monument in 1979 by the then
governor of South Africa.

The site has significant and unique historical associations that are reflected in the buildings and
structures. The site also contains a variety of cultural landscapes that are representative of the
different cultures and practices of the people of South Africa.

The site is also significant for its association with the Indigenous missionaries who played a key
role in the establishment of the Berlin Mission Station.

The buildings associated with the mission station are of particular interest as they reflect the
architectural styles and practices of the time.

The site is a place of significant landscapes, from wilderness areas to cultural landscapes.
MATeRiALiTY

EXISTiNG

INHiTERIOR FiLooRE FiNiSH

Diag. hleat

CERamic WALL FiNiSH

Inparerish and hleged arish

Dry-stacke-d stone wails

ACCEnT WALLS

Concrete-glen wails

grass and granite walkways

INTERIOR FLooRE FiNiSH

permeable paving, ethno wood decking, gray stone aggregate

Corrugated metal roof sheeting

RoRoFi NiSH

standing seam copper, green-battened

CREeping PLANTS

Combrum bbraenurum (Hiccup Nut)

Jasmiun umulare (Widd Jassmire)

Mondia whiite (White's Ginger)

Evergreen, has scented white flowers, attracts birds

Evergreen and produces fruit that attracts birds

MEDicInE uSe

HERBS

VEGETABLES

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WORKSHOP ZONE PLAN
scale 1:200

RESEARCH ZONE PLAN
scale 1:200

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SECTION B-B
scale 1:50

PERGOLA DETAIL
scale 1:10
Daylighting
The building is predominantly orientated to the West and East as a response to the existing heritage. Therefore precautions had to be taken on the Eastern and Western facades to prevent glare and overheating of the buildings.

Daylight Simulation (Required light intensity 700 - 1000 Lux)
Revit Daylight Analysis

Ventilation
The predominant wind comes from the North East and South East. The buildings are orientated in such a way that smaller openings are located on the Eastern facade and larger openings on the Western facade, creating a stack effect. A sump is also located on the Eastern side of the buildings, allowing for evaporative cooling.

SBAT Analysis
The SBAT analysis was a useful tool to showcase the problems and opportunities that Botshabelo are facing. The first graph represents the current Botshabelo. With the implementation of the new development for the Botshabelo Community Trust, the results show that there is the possibility to host a thriving community. For the Botshabelo to achieve connection to the public is absent. By activating the site through the use of the fertile landscape, it generates the socio-economic activation of the site.

SUSTAINABLE BUILDING ASSESSMENT TOOL RESIDENTIAL

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Chapter 6

Conclusion
The intentions of this dissertation was to explore a means of rehabilitating Botshabelo, in order to protect its tangible and intangible heritage significance and ensure that its future value would be secured by the sustainable re-introduction of the Botshabelo Community Trust to the site.

The site context of Botshabelo is the most important aspect of consideration throughout the project. A thorough understanding of both the historical and physical context were required to enable a deeper understanding of the site’s intangible heritage. This ensured that an appropriate architectural response was undertaken.

This dissertation sets out to identify an architectural response that mediates between humans and nature, and the past heritage of Botshabelo and its future. A narrative approach was used to ground the architectural response and create a future narrative as response to the existing.

Botshabelo could thus once again become a refuge for the Botshabelo Community Trust, while opening its gates to the public. In this way the public are able to learn about Botshabelo’s past while contributing to the sustainability of its future.

As one moves throughout the site the architecture becomes a means through which the three landscapes present at Botshabelo are explored. The proposed architecture intends to maintain the integrity of the existing, while introducing a new architectural language that makes use of the weathering of materials that place visitors in the continuum of time.

By creating a continuous experience between the heritage fabric, nature, new architectural intervention and the productive landscape a new narrative is formed to create a vision of what Botshabelo used to be like. Celebrating its past, while ensuring the protection of its future value.

Fig. 5.1: Sketch of walkway through the heritage buildings  
(Author 2017)
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**REFERENCES**

Books


Articles


Government Publications


The Burra Charter. 2000. Burwood, Vic: Australia ICOMOS.


Dissertations


Websites


Endnotes

1. As understood by the article "Intangible heritage and community identity in post-apartheid South Africa" by Karel Bakker (Bakker & Muller 2010).

2. Who are the remaining families or descendants of the families who were forcibly removed from the site in 1972.


5. The roofs were initially built with thatch, because of the practicality relating to rapid temperature change (Le Roux et al 2001: 18).

6. This is only an estimate as many buildings are not recognisable within the landscape anymore (Naude 1981: 7).

7. A grid system used by the German missionaries to order the development of Botshabelo (Naude 1981: 7).

8. Marcus Tullius Cicero was a Roman statesman, scholar and writer (Balsdon unknown).

9. Bonfadio was an Italian philosopher (Thomas 2002).

10. Crop species which are being studied and are believed to have potential economically and nutritionally for Africa (African orphan crops 2017).