

## A Memorable Landscape

Creating a Landscape using Ecological Design and Landscape Narrative Principles in the Faerie Glen Nature Reserve.





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## A Memorable Landscape

Creating a Landscape using Ecological Design and Landscape Narrative Principles in the Faerie Glen Nature Reserve.

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This thesis explores ways in which open space can be made memorable through the application of ecological design and landscape narrative principles.

The Faerie Glen Nature Reserve is located in the predominantly residential eastern suburbs of Pretoria and has been identified as an important open space due to its unique ecological sensitivity.

The hypothesis argues that through an understanding of the landscape narrative, interventions can be made in the reserve that will not negatively affect the ecological importance or the visual aesthetic of the reserve. These interventions will contribute to making a memorable landscape by reinforcing its beauty and *genius loci*.

The interventions in the reserve should increase the daily use of the Faerie Glen Nature Reserve and thus promote the reserve as a sustainable open space while preserving its ecological importance.

## Samevatting

Hierdie verhandeling ondersoek die metodes om oop ruimte onvergeetlik te maak, deur die toepassing van ekologiese ontwerp en landskap-naratief beginsels.

Die Faerie Glen Natuurreservaat is geleë in die grotendeels residensiële oostelike voorstede van Pretoria. Die natuurreservaat is geïdentifiseer as 'n belangrike oop ruimte, weens sy unieke ekologiese sensitiwiteit.

Die hipotese voer aan dat deur begrip van die landskapverhaal, ingrypings in die natuurreservaat gemaak kan word, wat nie tot die nadeel van die ekologiese belangrikheid of die visuele skoonheid van die reservaat sal wees nie. Hierdie ingrypings sal bydra tot die skepping van 'n heuglike landskap, deur die versterking van die landskap se skoonheid en *genius loci*.

Die ingrypings behoort die daaglikse gebruik van die Faerie Glen Natuurreservaat te verhoog en sodoende die reservaat as 'n volhoubare oop ruimte bevorder, terwyl dit die ekologiese belangrikheid behou.



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## Definitions of Terms

Ecological design	Any form of design that minimises environmentally destructive impacts by integrating itself with living processes (Van der Ryn and Cowan 1996: x).
<i>Genius loci</i>	<i>Genius loci</i> literally means genius of place. It is used to describe places that are deeply memorable for their architectural and experiential qualities (Frederick 2007:9).
Land art	An art movement which emerged in the 1960's and 1970's in which the landscape and works of art became inextricably linked. Artwork was ephemeral and eroded due to natural processes (Curl 2006:428).
Landscape narrative	The conceptual link between nature and society which is understood through analysis and personal experience in order to guide the design process in the creation of forms and memorable place.
Local park	A well developed, mono-functional, open space, typically within a residential context, that has a neighbourhood or local influence sphere and provides the surrounding residents free access and opportunity to social interaction, recreational play areas and passive recreational opportunities (TOSF 2006:iv).
Natural process	A process existing in, or produced by nature rather than by the intent of human beings.
Nature reserve	An area, declared, or regarded as having been declared, in terms of section 23 of the National Environmental Management Protected Areas Act, 2003 (Act 57 of 2003) as a nature reserve (TOSF 2006:iv)
Open space	Areas predominantly free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area (TOSF 2006:iv).
Sustainable development	Development that has integrated social, economic and environmental factors into planning, implementation and decision-making, so as to ensure that it serves present and future generations (TOSF 2006:vii).



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**Chapter1**

# **Introduction**



## Prologue

The nature reserve is an isolated island within a city to which it cannot relate, yet the ridge line stands out in its built up environment, its peaks are prominent from afar as beacons to its importance. The mountain draws you in with its sense of peace as it lies calmly as a backdrop to the constant rush and bustle of daily life.

Within its fenced boundary, magnitudes of tiny colourful flowers surround you as you walk along the narrow pathways which cut through the grassy plain. At one point in the reserve you can turn a full 360 degrees and not see a single indication of the built environment that surrounds you. If you close your eyes and listen, you will hear birds singing in the trees around you, the rustle of the grass as a cool breeze blows through it and the distant buzzing sound of crickets. A natural rock outcrop in the spruit forms a pool known as Weaver Pool which provides a tranquil setting to rest and take note of the magnificent view. The ridge is beautiful and has changed colour over the last month. The change in season has transformed the reserve from a dull brown to a lush green which contrasts the bright blue sky. The pool has attracted birds which have built their nests in the reeds above the shimmering water.

The vegetation changes as you ascend the slope, grassland turns into open woodland. The proteas are still blackened after the fires of the previous season and bulbs are in full-flower between clumps of fleshy new grass. Atop the ridge, vegetation is scattered in clumps between golden-brown rocky outcrops. Natural gravel from eroded shale covers the path which crunches under foot as you walk between shrubs and small trees. From here you can see as far as Centurion to the south and to the Magaliesberg mountains to the north-west. Below, the spruit snakes its way through the reserve with a fertile green ribbon of vegetation to either side of it, some of it flattened by the rushing water during the last thunderstorm when the river burst its banks. The wind is stronger here than below and provides relief as the sun beats down mercilessly onto the top of the ridge.

A giant *Combretum erythrollyllum* tree grows slightly off the path – it towers above you and envelops you in a network of its branches creating a cool, shady spot to ponder the splendour of the natural environment that surrounds you. As you look across the grassy plain, wave-like patterns are visible in the grass as the breeze blows through it while it shimmers gently in the sunlight. In the background, the ridge forms an elegantly curved backdrop to the reserve.



Figure 1.1 Faerie Glen Nature Reserve

This is the story of the place. It tells of a landscape that is rich in ecological attributes and natural beauty. Is there a way that the public be made aware of this by developing the reserve in such a way that it becomes more memorable? That it becomes a landscape that society will cherish and also come to understand? Reed (2005:16) notes that parks “not only provide a connection to nature, but that they are also places for social interaction, recreation, for unimagined and unanticipated activities, and, thankfully, places to do nothing.”

## **Background and Rationale**

Open space within the urban environment not only plays an important role in the preservation of natural systems and biodiversity, but also plays an essential role in the well being of human life and the way in which we deal with our surroundings and ever increasing pace of life. The Tshwane Open Space Framework (TOSF) defines open space as “areas predominantly free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area” (2006:5).

Unfortunately, the current rate of urbanisation within the city of Tshwane has resulted in the development of areas previously set aside to remain natural environments. Apart from the ecological concerns which arise as a result of this decrease in open space, negative psychological and physical effects can be observed within the populace of the city. It is therefore important to preserve existing open spaces as natural areas for human use.

Open space within the urban context is an important building block of the city for ecological, socio-economic and place-making purposes (TOSF 2006:6). It is therefore of utmost importance to design these spaces in order to extract maximum value from them. Already in 1971 Pim referred to the urgent need for “space for living” in South Africa (1971:39) – places for people to get away from the city – these open spaces provide refuge and have the capacity to provide places for escape and gratification while fulfilling important ecological roles within the radically changing urban context.

Open space in the city also has ecological importance and provides a last outpost for plant and animal species rapidly ejected from their natural environments. Waldheim (2006:43) states that we are in a time where “the general public is increasingly conscious of environmental issues,” and thus the opportunity arises to utilise open space to preserve and enhance what may be left of the natural environment and its inherent processes while





educating the public about them.

Landscape narrative is a continuous story engrained into the land. This story of the landscape includes the site, materials, and natural processes that created it and the cultural experience of being in it. Art forms an interesting position from which to view natural processes present in the landscape. Constantly in flux, the landscape becomes art – the earth as the canvas onto which nature continuously scores its changing patterns using wind, fire, water and erosion. Ecological planning forms the basis (logic) to any intervention, onto which an understanding of the narrative forms a further layer in which beauty, elegance and an overall poetry is brought to the landscape.

This narrative can be a powerful tool employed to emphasise the importance and understanding of the uniqueness of the landscape through the ‘telling’ of its own natural stories. Combined with ecological planning, an understanding of the inherent landscape narrative can be applied in the landscape to create memorable places which allow people to gain an understanding of and an appreciation for the natural environment, its intrinsic beauty and its processes that shape it over time.

The Faerie Glen Nature Reserve has been identified as a suitable site on which to identify an ecological sensitivity that will form the basis for planning and integration of a programme for the site. The reserve has been recognized as an important open space within the context of Pretoria as it is one of the last remaining eco-systems in Tshwane where both ridge (Bronberg Ridge) and floodplain (Moreleta Spruit) morphology naturally occur together and thus represents a unique “Middleveld” vegetation type (TOSF 2004:2). This recognition is sufficient reason to conserve the area as open space and not to develop it. Sensitivity mapping has been carried out on the site and this thesis will concentrate mainly on the notion of landscape narrative as the informant of the design process.

## **Research Goal**

This thesis aims to explore ways in which open space can be made memorable through the application of sustainable, ecological design and landscape narrative principles. These principles will be applied to the planning and design of the Faerie Glen Nature Reserve.

## **Problem Statement**

Current social and economic circumstances within the landscape of South Africa have led to isolated and undeveloped open spaces within the City of Tshwane. Although these open spaces are important, they remain underutilised by the public. Fences render them inaccessible to most people, further alienating them from their surroundings. Once isolated, these pockets of land are viewed as wasted spaces that may become lonely and dangerous, deterring visitors from enjoying the beauty of nature within the built environment. These open spaces are threatened by development and need to be transformed through landscape design into socially, economically and environmentally sustainable open space.

## **Hypothesis**

This thesis argues that through a number of interventions, an increase in the daily use of the Faerie Glen Nature Reserve will promote the reserve as a sustainable landscape. Furthermore, through an understanding of landscape narrative principles, the realization of these interventions will not negatively affect the ecological importance or the visual aesthetic of the nature reserve. Rather, they will enhance the experience of visiting the place by introducing interventions that highlight the landscape's beauty and *genius loci*, thus making it a memorable experience.

## **Research Questions**

1. Is the inherent landscape quality of a nature reserve enough to inform the layout of activities across the reserve while maintaining its ecological sensitivity?
2. How can interventions of a social public nature be made in a natural landscape to enhance its appeal without detracting from the visual aesthetic of the natural environment?
3. Can the concept of landscape narrative be applied to the creation of a memorable landscape?

## **Assumptions and Delimitations**

All decisions made by the author are based on current conditions within the reserve and the surrounding context of the Faerie Glen Nature Reserve. The principles contained in the Tshwane Open Space Framework and the Tshwane Integrated Development Plan are incorporated by the author as far

as possible but will not limit the application of design ideas as expressed in this thesis. Throughout the thesis, the author will attempt to anticipate future development, but aims mainly to deal with the current issues.

## Research Method and Methodology

This thesis proposes to evaluate historical precedent, contemporary theory and case studies to establish guidelines and principles for the development the Faerie Glen Nature Reserve.

The qualitative research method will be used for the purposes of this dissertation. This research method, as described by Leedy and Ormrod (2001:147), aims to gain understanding of the complexities of phenomena that occur in natural settings. This research method recognizes that the study matter may have multiple dimensions and layers, and therefore cannot be approached or understood from a singular point of view. The method for data collection is outlined in Figure 1.2. Figure 1.3 indicates a non-linear process research methodology that will be applied.

Research	Data Type
Theoretical investigation	Published documents
Site analysis	Published documents, observation
Precedent studies	Observation, interviews, reports, published documents

Figure 1.2 Qualitative data collection

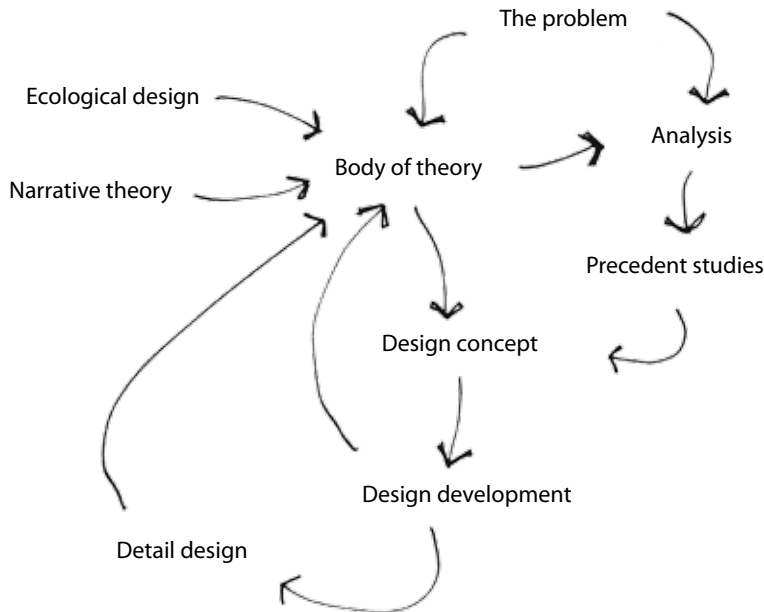


Figure 1.3 Research methodology to be followed



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**Chapter 2**

# **Theoretical Investigation**



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## Introduction

Latz (in Amidon 2001:2) describes the potential of landscape architecture as “the realization of abstract ideas about nature, ecology, and society.” Similarly, McHarg (in Vroom 2006:187) states that the landscape consists of three layers: the physical, the biotic and the human. The design of a successful landscape takes these layers into account and uses each in an innovative way to complement the other. It is important to be aware of these layers and their interrelationship, as well as the role of narrative in understanding and subsequent design of landscapes with regard to the natural features, processes and the memories associated with them.

## Ecological Design

Natural processes are understood through analysis. Ecological design principles provide a foundation for the inclusion of these natural processes in the design process. Van der Ryn and Cowan (1996:x) define ecological design as “any form of design that minimizes environmentally destructive impacts by integrating itself with living processes.” Ecological design thus provides a link between nature and culture and offers three strategies: conservation, regeneration and stewardship (Van der Ryn & Cowan 1996:21). The idea of conservation refers to the sustainable use of resources in such a way that they last longer, restoration implies that some form of damage has been done to the site and requires active restoration of resources while stewardship refers to the management of these resources in a sustainable manner.

According to Van der Ryn & Cowan (1996:51), five principles are promoted to ensure an ecologically sustainable approach to design (1996:51). These principles are: solutions grown from place, ecological accounting informs design, design with nature, everyone is a designer and make nature visible. Through the application of these principles, the inherent landscape narrative is identified by providing a link between the understanding of the natural processes (through analysis) and the experience of landscape.

## Landscape Narrative

The word narrative, from the Latin *gnarrus* and Indo-European *gna*, ‘to know’, implies knowledge acquired through actions and contingencies of lived experience (Turner 1981:163).

Narrative theory refers to the telling of stories, as well as to the way in which

they are told. Traditionally, a story is written by an author, possibly told by a narrator, read by a reader or viewed by a viewer. These 'conventional' stories have a beginning, middle and end where the author has full control of how the story may unfold. Narrative, however, does not stick within the strict parameters of a story. It may have neither a beginning nor an end, which results in it becoming open to various interpretations. The narrative is thus interpreted by how it is experienced and remembered. Prinsloo (2008) asserts that "landscapes are experienced to their greatest fulfillment, *ex situ* in memory".

We live our lives through stories and memories. Bruner (in Potteiger & Purinton, 1998:3) states that narrative is a fundamental way of thinking that is very different from the logico-scientific way of knowing. Paying attention to connections, coincidences and chance encounters and the subsequent selecting and sequencing of events, followed by the construction of a meaningful story is viewed as a more stimulating alternative than the searching for universal truth conditions which may be presented within a story. Narrative therefore can be expressed as a "language of time" (Ricoeur 1981: 166) or experience through time, delivering an "unpredictable end".

Narrative is inherently present in the landscape. The term landscape narrative, according to Potteiger & Purinton (1998:5), designates the "interplay and mutual relationship that develops between landscape and narrative". The palimpsest of the site, materials and natural processes all add to the intrinsic narrative of any landscape, which in continual flux, becomes the backdrop for the setting and telling of stories. Through thorough understanding of the site, its history and physical characteristics, the inherent narrative of the site can be understood. This narrative can then be used to provide a guideline for the development of the site and these stories become the memories of the experience of the place.

Narrative plays an important role in place-making. According to Johnstone (1990:120) places only exist because of the stories they have associated with them. Through this story based existence, the landscape is empowered to tell its own story. It is through this story that we are able to gain knowledge, and in the appreciation of place, memories are created. The Collins dictionary defines place as "a particular point or part of space or of a surface, especially that occupied by a person or a thing" (2004:1240), and therefore asserts that place should be experienced in a spatial capacity. Ricoeur (1981:167) however believes that narrative has the ability to combine the temporal and non-chronological configuration into spatial patterns and thus mediate the



crossing of temporal and spatial experience in order to compose place.

According to Rakatansky (in Swaffield 2002:136) “narrative need not be conceived as an explicit storyline grafted onto site”. Rather, it is embedded and contained in the landscape, inscribed by natural processes and cultural practices. These narratives, due to their nature, are in a constant state of progression through time and therefore become open narratives, dependant on changing environmental factors or institutionalised structures – these narratives, due to their nature, require “special attention, methods and time” in order to comprehend their story (Potteiger & Purinton, 1998:19).

The narratives of natural processes are important and should be taken into account as they represent a transformation of the landscape over time. Similarly, the narratives of ecology can be employed, through the use of metaphor, in order to communicate the intricacies of ecological processes (Potteiger & Purinton 1998:22). These processes have shaped the landscape over millions of years and will continue to be present and affect the landscape far into the future.

## Conclusion

In essence, it is not possible to define a preconceived programme for the intervention at the Faerie Glen Nature Reserve based only on the scientific analysis of the site. Rather, through analysis and cultural understanding of the processes, past and present on the site, the layer of inherent narrative will emerge. The analysis together with the cultural reading will then guide the design process that deals with site specific conditions and will thus provide the conceptual link between nature and society enabling a memorable place to emerge (Figure 2.1).

The design interventions in the reserve will allude to, and bring to life the narrative of the site. Stories will be fashioned by the people that visit the reserve and these stories will live on as memories determined by the experience of the place.

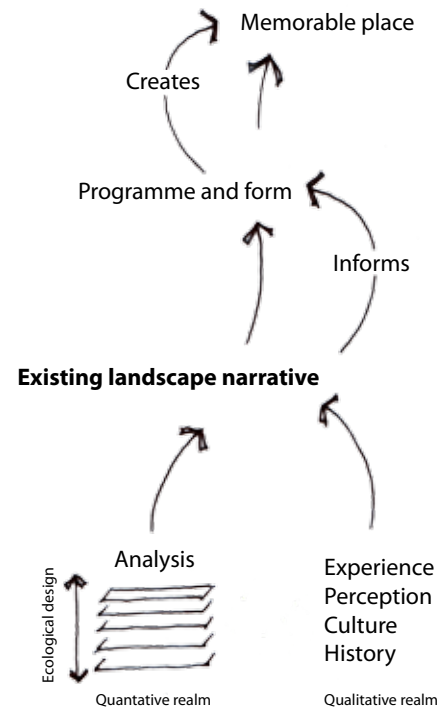


Figure 2.1 Landscape narrative



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**Chapter 3**

# **Analysis**

## Contextual Analysis

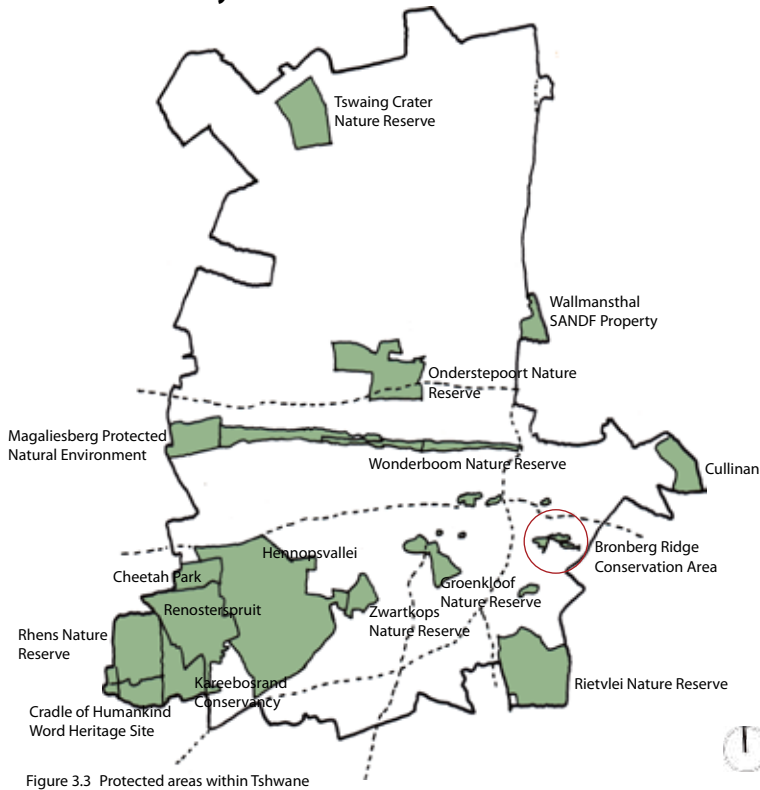


Figure 3.3 Protected areas within Tshwane



Figure 3.4 Bronberg ridge



Figure 3.1 South Africa



Figure 3.2 Gauteng Province

The Faerie Glen Nature Reserve is located in the predominantly residential eastern suburbs of Pretoria within the City of Tshwane. The reserve is a protected area (TOSF 2006:20) and covers an area of 124 hectares. It lies on the western end of the Bronberg Ridge Conservation Area, which is classified as a Class 2 ridge<sup>1</sup>.

The reserve owes its origin to Mr H. Struben, the owner of the farm Hartbeespoort 362-JR. Following his death the farm was subdivided and became incorporated into the metropolitan area of Pretoria.

In 1984, the City Council Department of Culture and Recreation decided to utilize the area as an open space.

<sup>1</sup> A ridge of which more than 5%, but less than 35%, of their surface area has been converted to urban development, quarries and/or alien vegetation (GDACE 2006:8).



Figure 3.5 Faerie Glen in its regional context



Figure 3.6 Western boundary - General Louis Botha drive



Figure 3.7 Northern boundary - palisade fence



Figure 3.8 Faerie Glen in its urban context

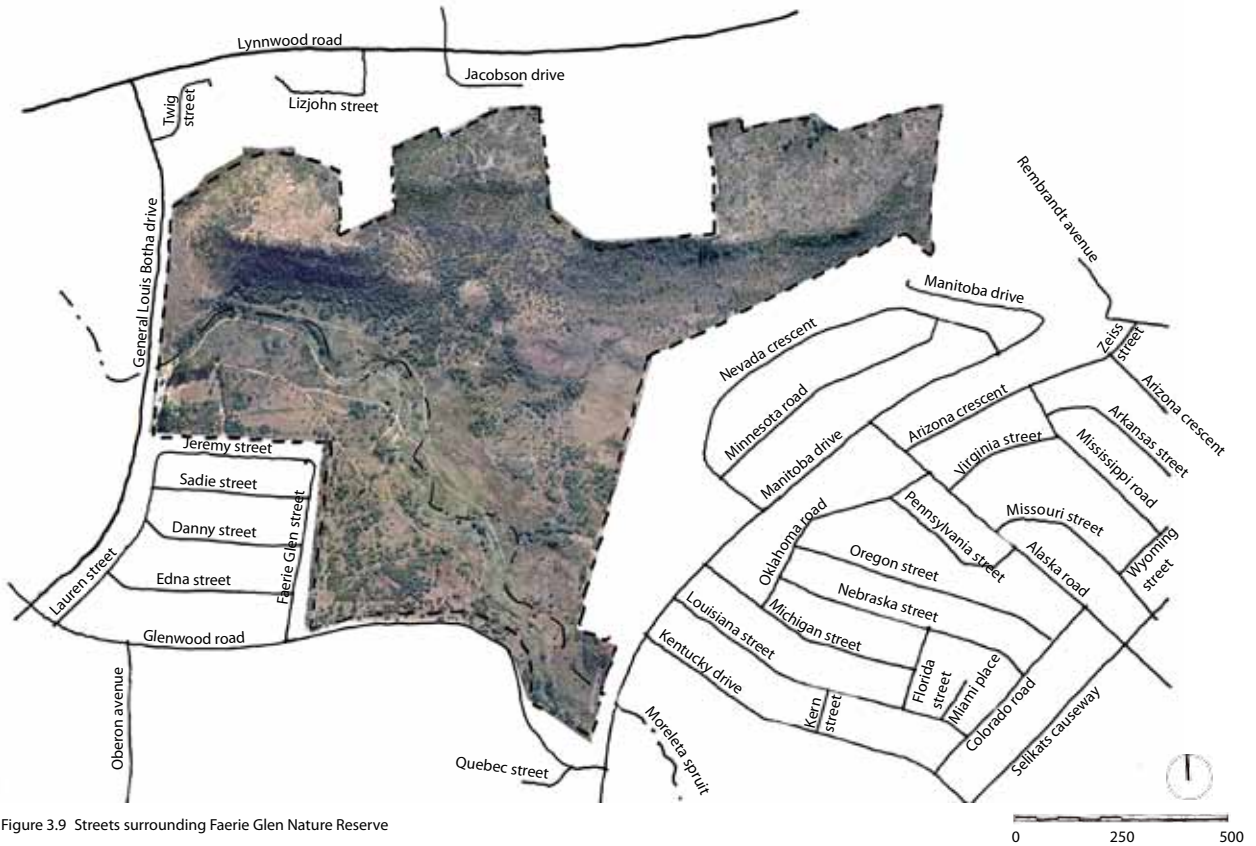


Figure 3.9 Streets surrounding Faerie Glen Nature Reserve

Faerie Glen Nature Reserve lies east of the N1 motorway and south of the N4 motorway. The reserve lies between four main roads: Lynnwood road to the north, Hans Strijdom drive to the east, Atterbury road to the south and General Louis Botha drive bordering it to the west. The only access to the reserve however, is from General Louis Botha drive. Roads immediately bordering the reserve are General Louis Botha drive, Jeremy street, Faerie Glen street, Glenwood road and Manitoba drive.

The Reserve is bordered by the suburbs of Lynwood Ridge, Die Wilgers, Lynwood Glen, Lynwood Park, Menlyn, Faerie Glen and Faerie Glen ext. 1.



Figure 3.10 South-eastern boundary - Glenwood road and Manitoba drive

### - Land Parcels

The Faerie Glen Nature Reserve is made up of various farms and erfes. These are:

- Hartebeestpoort 362-JR (Portion 83, 117, 119, 122, 123, 124, 125, 300, R/17, R/39).
- Kodoesnek 341-JR (Portion 3).
- Faerie Glen erf 800.
- Lynnwood Ridge erfes 421 (Portion 2), 422 and 465.

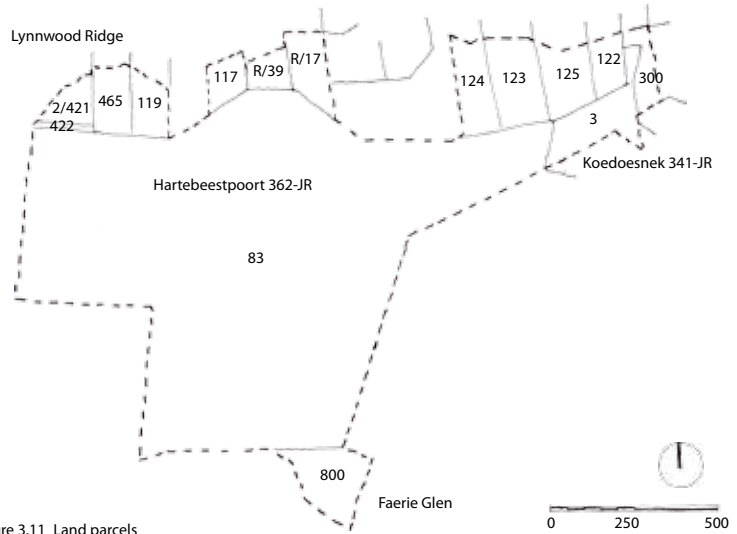


Figure 3.11 Land parcels

### - Land Use

Land use zoning around the Faerie Glen Nature Reserve is as follows:

	Special
	Single residential
	Medium density residential
	High density residential
	Agriculture
	Business
	Educational / research
	Government
	Hospital / Clinic
	Municipal
	Office
	Open space / sport



Figure 3.12 Land use surrounding Faerie Glen Nature Reserve

## - Servitudes

The following servitudes are present in the reserve:

A 30m servitude for high voltage powerlines runs along the western boundary (figure 3.14). No development may take place below the high voltage power lines.

A 6m servitude for the Petronet pipeline runs diagonally through the site (figure 3.15). No development may take place over the Petronet pipeline. Furthermore, no soil cover may be removed and no more than 3m of soil cover may be added within this servitude.

A 4m servitude for sewerage pipes runs parallel with the Moreleta spruit (figure 3.16).

The Faerie Glen sub-station is located in a fenced off section of the reserve in the south-eastern corner (figure 3.17).

The the Petronet and sewerage servitudes are located mostly in the 50 year flood line. Development may not take place in this zone.

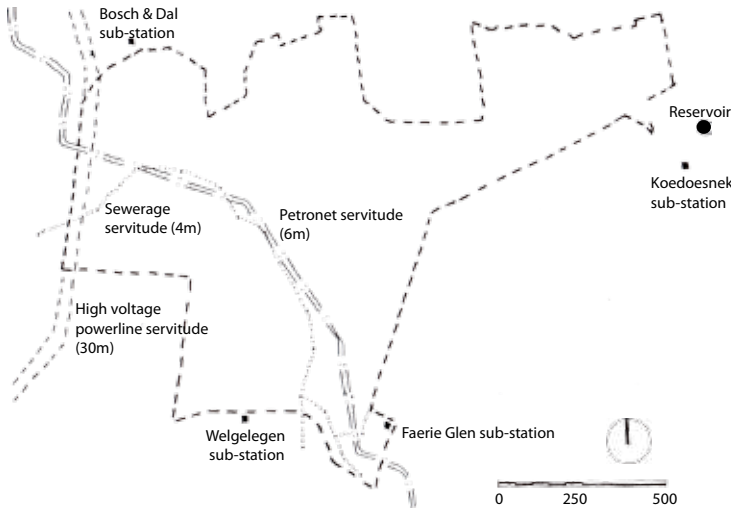


Figure 3.13 Servitudes in Faerie Glen Nature Reserve



Figure 3.14 High voltage powerlines



Figure 3.15 Petronet pipeline



Figure 3.16 Sewerage servitude



Figure 3.17 Faerie Glen sub-station



## Site Specific Analysis

### - Geology

The geology of the Faerie Glen Nature Reserve forms part of the Pretoria Group of the Transvaal Sequence. The group is estimated to be approximately 2 100 to 2 300 million years old (van der Neut in ECO Assessments 2004:7).

The Daspoort formation gives rise to the Bronberg Ridge which consists mainly of quartzite. The quartzite is underlain with the Strubenkop shale. The shale weathers into a clayey soil, and the other three rock types into a gravely or sandy soil. The area is covered with large quartzite boulders and extensive rock sheets. This results in shallow sandy soils. (ECO Assessments 2004:7)

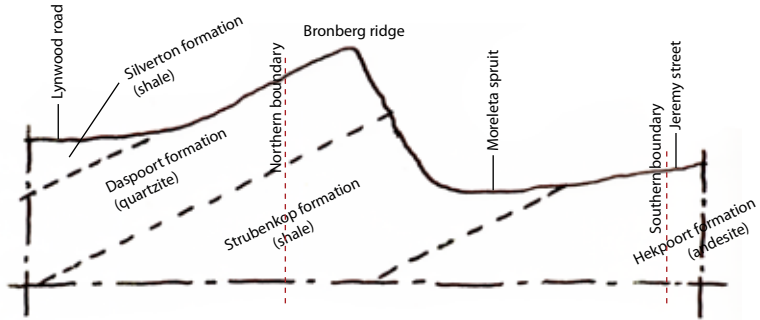


Figure 3.18 Geological section through Faerie Glen Nature Reserve



Figure 3.19 Andesite



Figure 3.20 Quartzite



Figure 3.21 Shale

### -Soils

Duplex, red sandy clay loam and rocky soils are present within the Faerie Glen Nature Reserve. On the southern slopes of the Bronberg ridge, rocky soils with little top soil are present. This area, marked 8 in Figure 3.22, is therefore seen and highly sensitive.

Most soil types within the reserve have a intermediate to high sensitivity as they provide specific conditions to vegetation present. However, the areas marked 4 and 5 in Figure 3.22 consist of sandy clay loam soils and are identified as areas where development could take place due to lower ecological sensitivity.

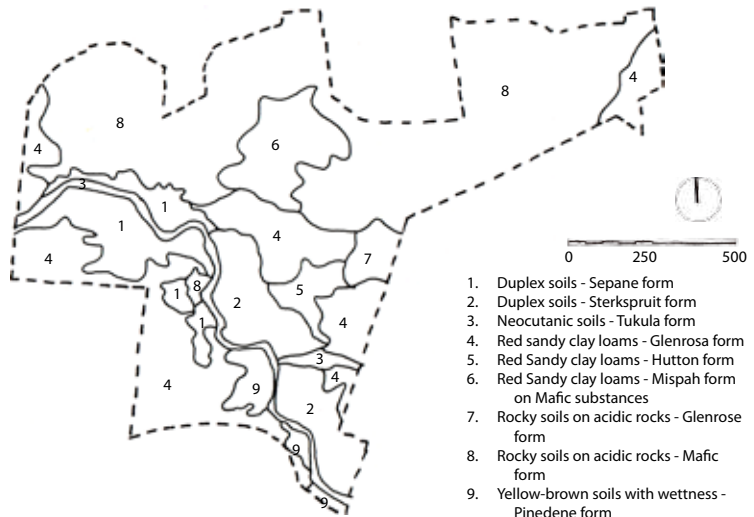


Figure 3.22 Soil types present in the Faerie Glen Nature Reserve

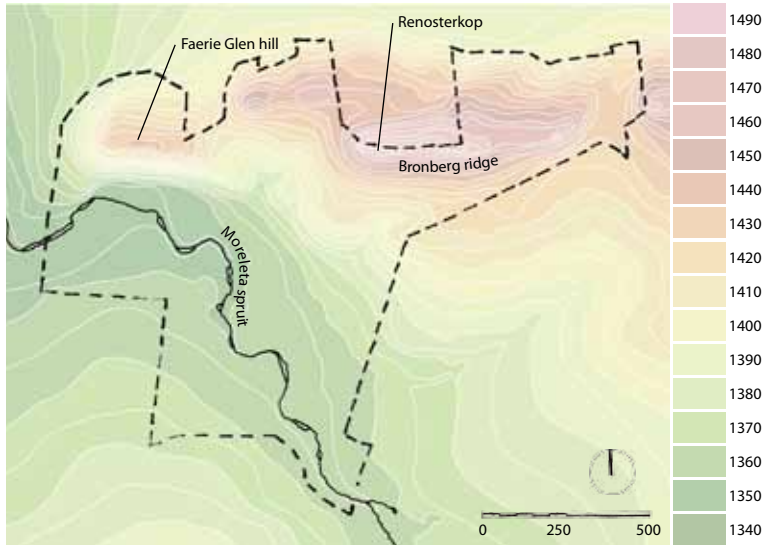


Figure 3.23 Topography of Faerie Glen Nature Reserve (elevation in metres above sea level)

## - Topography

The Faerie Glen Nature Reserve lies within the Bronberg Ridge. The most prominent features of this ridge are the cliffs which occur on the south-western side of the ridge which fall within the reserve.

The highest point in the reserve is Renosterkop (1482masl). The topography within the reserve ranges from gently undulating slopes to very steep.

The lowest point in the reserve (1352masl) is where the Moreleta spruit exits on the western boundary.

Furthermore, the reserve is an important area of Pretoria as it is one of the last remaining eco-systems in Tshwane where both ridge (Bronberg Ridge) and floodplain (Moreleta Spruit) morphology naturally occur together and represents a unique "Middlelevel" vegetation type (ECO Assessments 2004:2) as illustrated in Figure 3.24.

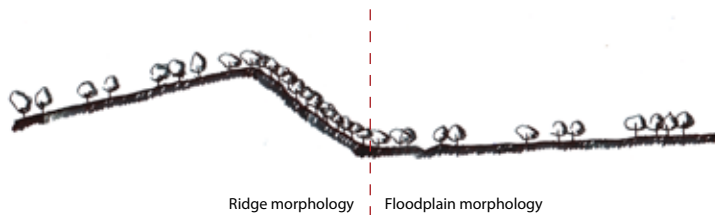


Figure 3.24 Ecological importance of Faerie Glen Nature reserve



Figure 3.25 Bronberg ridge

## - Climate

**Rainfall** - The average annual rainfall for Pretoria is 686mm. Thunderstorms occur frequently during the rainy season which is from October to March. The majority of the rain falls during the months of December and January. January (134mm) and July (3.9mm) are the wettest and driest months respectively.

**Temperature** - The average temperature for Pretoria is 18.1°C. The hottest months are December, January and February which have an average maximum temperature of 24.9°C. The coldest months are June and July which have an average minimum temperature of 11.2°C.

**Wind** - The prevailing wind direction is from the north-east. The average speed is 1.96m.s<sup>-1</sup>. The reserve is largely protected from high winds speeds by the Bronberg Ridge. The summit of the ridge however experiences severe winds during the months of August and September which are typical of the Highveld wind patterns.

**Humidity** - The average rate of evaporation is 2236mm per annum. The relative humidity at 14:00 fluctuates between 33% in July and 48% in February.

Figure 3.26 illustrates the sun angles for Pretoria at 12:00 in summer and 12:00 in winter.

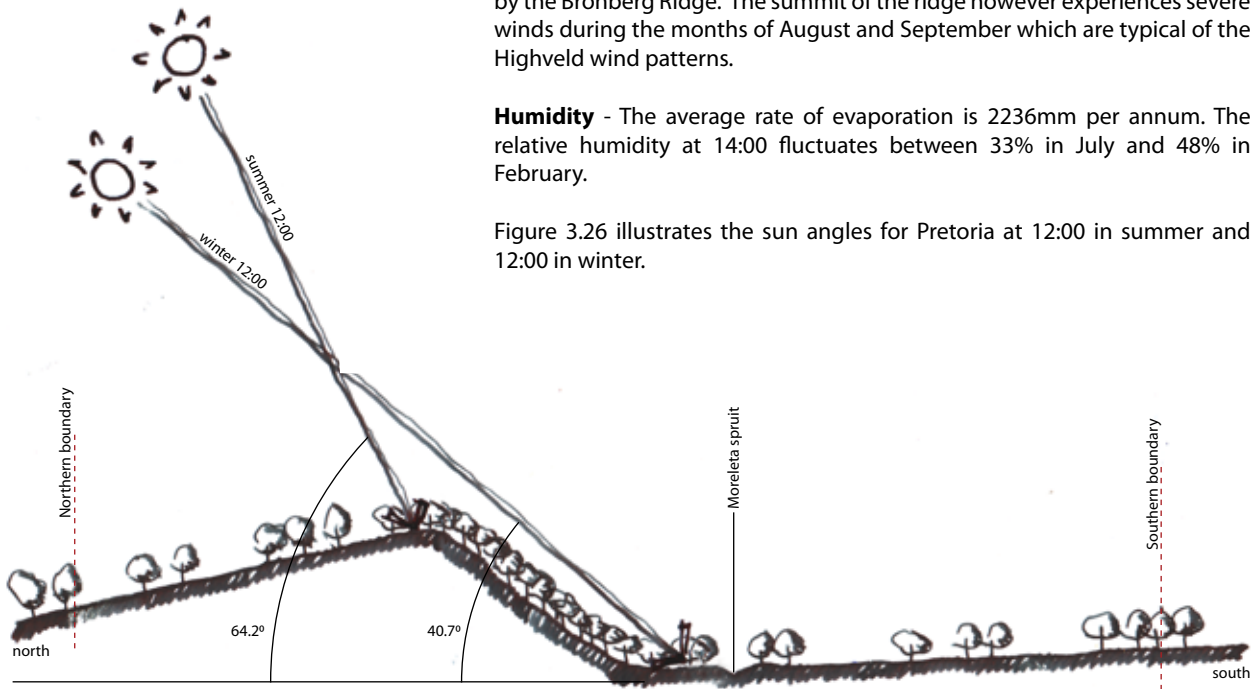


Figure 3.26 Sun angles for Pretoria

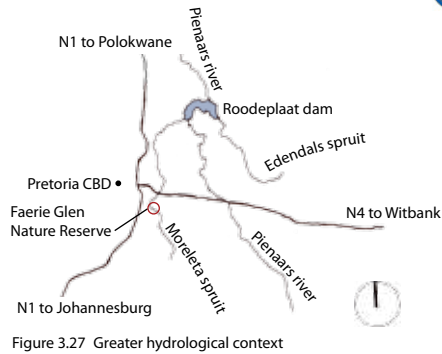


Figure 3.27 Greater hydrological context

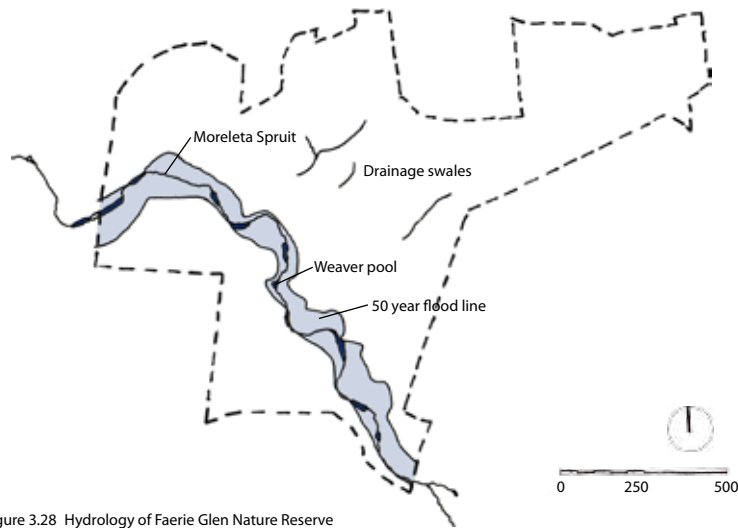


Figure 3.28 Hydrology of Faerie Glen Nature Reserve



Figure 3.29 Weaver pool

## - Hydrology

The Faerie Glen Nature Reserve falls within the Crocodile River catchment area. The Moreleta Spruit has its source in Bapsfontein river and is a tributary of the Pienaars river (ECO Assessments 2004:22).

The Moreleta Spruit is a perennial stream which dries and becomes stagnant during drought periods. Increased peak flow caused due to summer thunderstorms results in localised flooding within the reserve.

The Moreleta Spruit provides the only source of water to the reserve. Its elevation drops by approximately 11 metres from where it enters the reserve to where it exits.

A rocky outcrop within the stream near the middle of the reserve provides a natural pool known as Weaver pool (Figure 3.29).

An existing debris trap, which prevents large objects from flowing down the spruit, is located on the eastern boundary where the Moreleta Spruit exits the reserve (Figure 3.30).



Figure 3.30 Debris trap

## - Plant Communities

The Faerie Glen Nature Reserve falls within the Rocky Highveld Grassland vegetation type (Low et al 1998:39) and the vegetation is described as the Central Variation of Brakenveld by Acocks (1988:113). In addition, the reserve includes woodland elements that resemble the Waterberg Moist Mountain Bushveld and Mixed Bushveld vegetation types as defined by Low et al (1998:22,26).

Furthermore, 16 vegetation types were identified within the reserve in an strategic assessment carried out by ECO Assessments in 2004 as illustrated in Figure 3.31. A list of plant species present in the reserve is included as Appendix A.

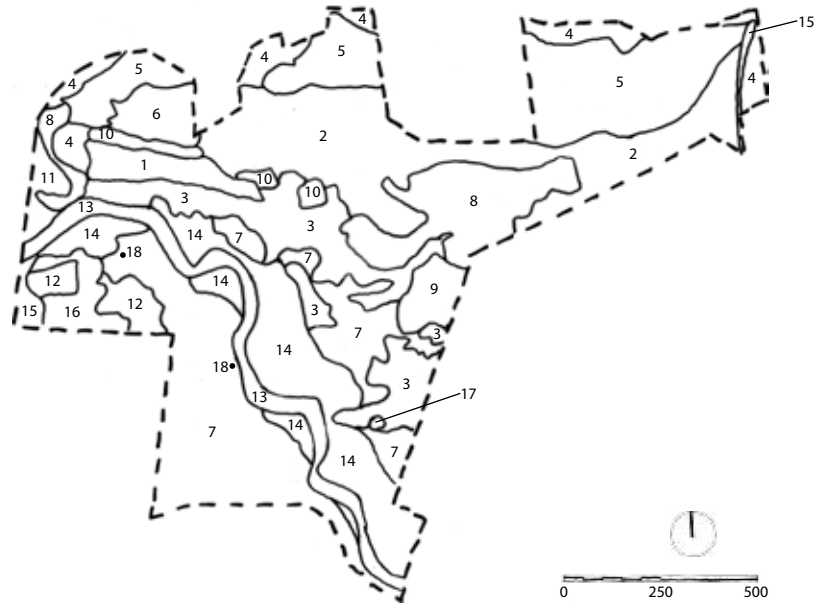


Figure 3.31 Vegetation types of Faerie Glen Nature Reserve

- |  |   |
|--|---|
| 1. <i>Dombeya rotundifolia</i> – <i>Acacia caffra</i> Closed woodland    | 9. <i>Themeda triandra</i> – <i>Melinis repens</i> Disturbed grassland      |
| 2. <i>Acacia caffra</i> – <i>Cussonia paniculata</i> Closed woodland     | 10. <i>Diheteropogon amplexens</i> Crest vegetation                         |
| 3. <i>Celtis africana</i> – <i>Rhus pyroides</i> Closed woodland         | 11. <i>Cymbopogon plurinodis</i> – <i>Diheteropogon amplexens</i> Grassland |
| 4. <i>Burkea africana</i> – <i>Ochna pulchra</i> Closed woodland         | 12. <i>Acacia karoo</i> Altered grassland                                   |
| 5. <i>Burkea africana</i> – <i>Ochna pulchra</i> Shrubland               | 13. <i>Combretum erythrophyllum</i> Riverine vegetation                     |
| 6. <i>Loudetia simplex</i> – <i>Tristachya rehmannii</i> Rocky grassland | 14. <i>Berkheya radula</i> Flood plain                                      |
| 7. <i>Acacia karoo</i> Open woodland                                     | 15. Disturbed areas   |
| 8. <i>Protea caffra</i> – <i>Themeda triandra</i> Grassland              | 16. <i>Acacia karoo</i> Disturbed woodland                                  |
|  | 17. <i>Combretum erythrophyllum</i> (large tree)                            |
|  | 18. Protected plant population  |



Figure 3.32 *Dombeya rotundifolia*



Figure 3.33 *Acacia caffra*



Figure 3.34 *Cussonia paniculata*



Figure 3.35 *Celtis africana*



Figure 3.36 *Rhus pyroides*



Figure 3.37 *Burkea africana*



Figure 3.38 *Ochna pulchra*



Figure 3.39 *Loudetia simplex*



Figure 3.40 *Acacia karoo*



Figure 3.41 *Protea caffra*



Figure 3.42 *Themeda triandra*



Figure 3.43 *Melinis repens*



Figure 3.44 *Diheteropogon amplexans*



Figure 3.45 *Cymbopogon plurinodis*



Figure 3.46 *Combretum erythrophyllum*



Figure 3.47 *Berkheya radula*

## - Red Data Species

"The ridges of Gauteng provide vital habitat for many threatened or Red List plant species" (GDACE 2006:4)

Various red data species are present in the Faerie Glen Nature reserve. A 200m buffer zone has been marked 1 in Figure 3.48 in accordance with the draft final Gauteng ridges policy (GDACE 2006:11). The reserve also provides potential habitats for various other red data species - these areas are marked 2 and 3 in Figure 3.48. A list of red data species found within the reserve follows:

### Plants

Milkweed (Asclepiadaceae) and  
Hyacinth (Hyacinthaceae)  
*Eulophia coddii*

### Mammals

*Atelerix frontalis* South African hedgehog  
*Chrysopalax villosus* Rough-haired golden mole

### Birds

*Alcedo semitorquata* Half collared kingfisher  
*Crex crex* Corncrake  
*Locustella fluviatilis*<sup>2</sup> River warbler  
*Podica senegalensis* African finfoot

<sup>2</sup> Although the *Locustella fluviatilis* is not a red data species it is considered rare and requires protection (Eco Assessments 2004:16).

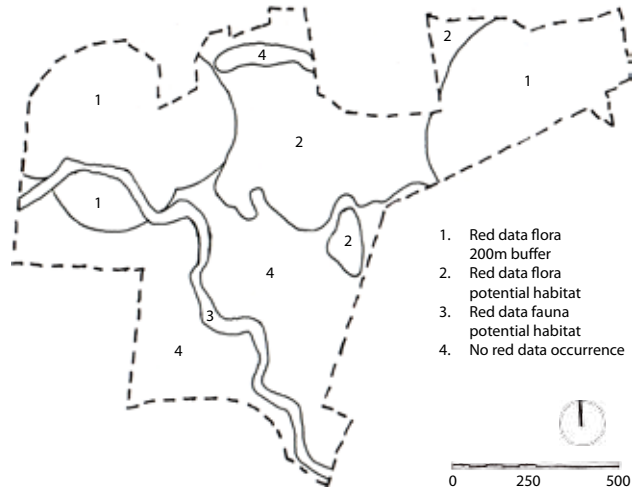


Figure 3.48 Red data occurrence in Faerie Glen Nature Reserve



Figure 3.46 *Atelerix frontalis*



Figure 3.47 *Chrysopalax villosus*



Figure 3.48 *Alcedo semitorquata*



Figure 3.49 *Crex crex*



Figure 3.50 *Locustella fluviatilis*<sup>1</sup>



Figure 3.51 *Podica senegalensis*

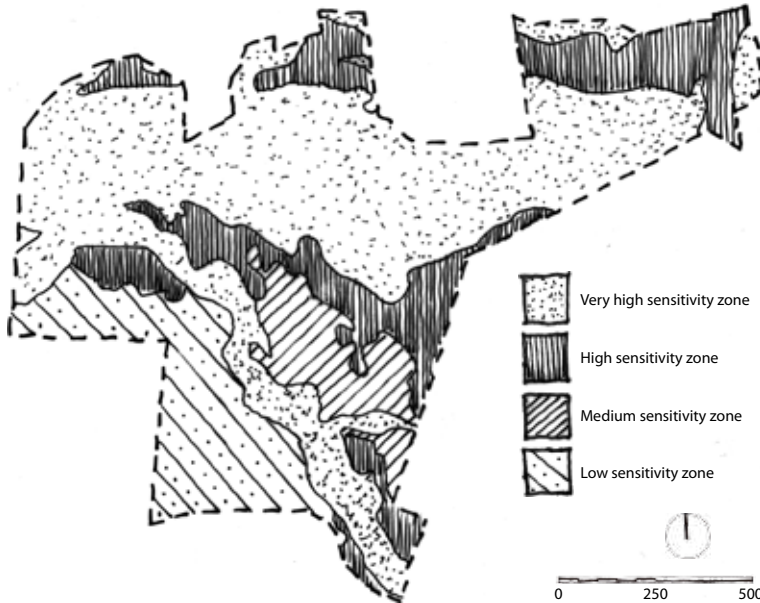


Figure 3.55 Ecological Sensitivity of Faerie Glen Nature Reserve

## - Ecological Sensitivity

The ecological sensitivity of Faerie Glen Nature Reserve takes into account the morphology, topography, geology as well as the presence of fauna and flora present in order to draw up sensitivity zones which forms a basis for the landscape development concept. Using GIS mapping, these layers are overlaid and values are given to establish the ecological sensitivity.

In a Strategic Environmental Assessment carried out by ECO Assessments in 2004, the reserve was found to contain 4 zones (Figure 3.55): Very high sensitivity, high sensitivity, medium sensitivity and low sensitivity. This sensitivity index is based on the presence or absence of red data species as well as the presence of ridges, rocky outcrops, wetlands and river systems - unique habitats which are protected because of the high instance of endangered species potentially occurring in such areas.

**Very High Sensitivity** - This zone includes areas on the southern side of the Bronberg ridge, as well as the banks along the Moreleta spruit. This zone contains protected and endangered or near endangered fauna and flora species and needs protection. Areas along the Moreleta spruit are severely affected by alien vegetation. The alien vegetation is to be manually cleared and rehabilitated in order to restore the riparian vegetation to its pristine state.

**High Sensitivity** - This zone includes areas on the crest, and along the southern footslope of the Bronberg ridge, as well as areas along the banks of the Moreleta spruit. This zone does not contain any protected or endangered fauna or flora species, but provides potential habitats for them. This zone should be conserved due to its limited distribution and habitat potential.

**Medium Sensitivity** - This zone is in a generally natural state but does not contain any fauna or flora species that require specific protection. The vegetation types encountered in these Medium sensitivity areas are also relatively wide spread across the Gauteng province.

**Low Sensitivity** - This zone is in a generally natural state and does not contain any fauna or flora species that require protection. It contains areas of disturbed vegetation and also plays host to a number of alien plant species.



## - Conservation and Development Opportunities

According to the Tshwane Open Space Framework (2006:47), development of the Faerie Glen Nature Reserve is restricted to that of educational purposes, appreciation for nature and upliftment of the arts by the City of Tshwane Metropolitan Municipality.

The reserve is divided into 3 conservation and development zones (Figure 3.56) based on its ecological sensitivity mapping.

**Zone 1** - This area has been identified as mostly having a very high ecological sensitivity and therefore has a high conservation requirement. The spruit is to be maintained in its natural state and control of alien vegetation through manual clearance and rehabilitation in order to restore the riparian vegetation to its pristine state. No permanent structures may be erected within the 50 year flood line, or within 32m of the centre line of the spruit (TOSF 2006:47) without authorisation from the local authority. Activities allowed within this zone include hiking trails and cycling routes.

**Zone 2** - This area has a lower ecological sensitivity and is therefore suitable for ecologically sensitive and low-impact development that serves an educational and recreational function. Activities allowed within this zone include bird hides and walkways.

**Zone 3** - This area has a low ecological sensitivity and is suitable for development and the erection of limited structures such as a small restaurant, ablution facilities and exhibition spaces.

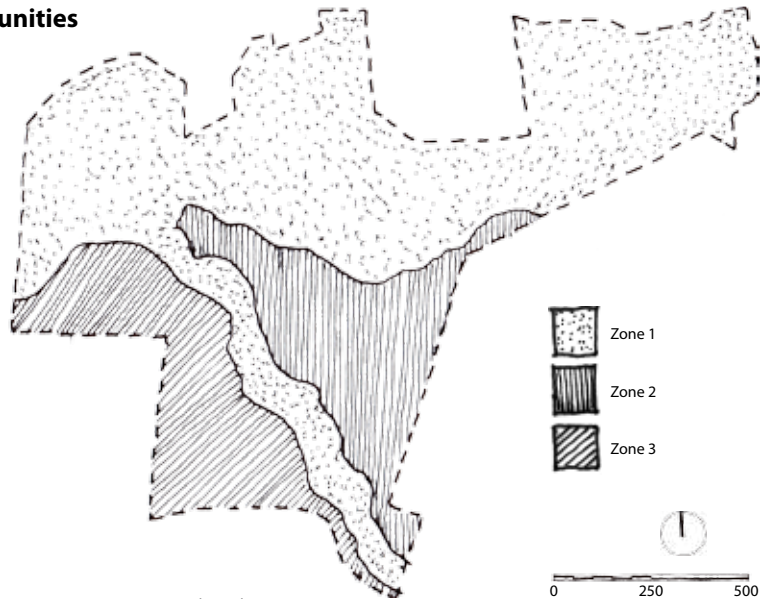


Figure 3.56 Conservation and Development Zones



Figure 3.57 Existing parking and entrance



Figure 3.58 Hadeda trail



Figure 3.59 Arboretum



Figure 3.60 Bird hide

## - Access and Activities

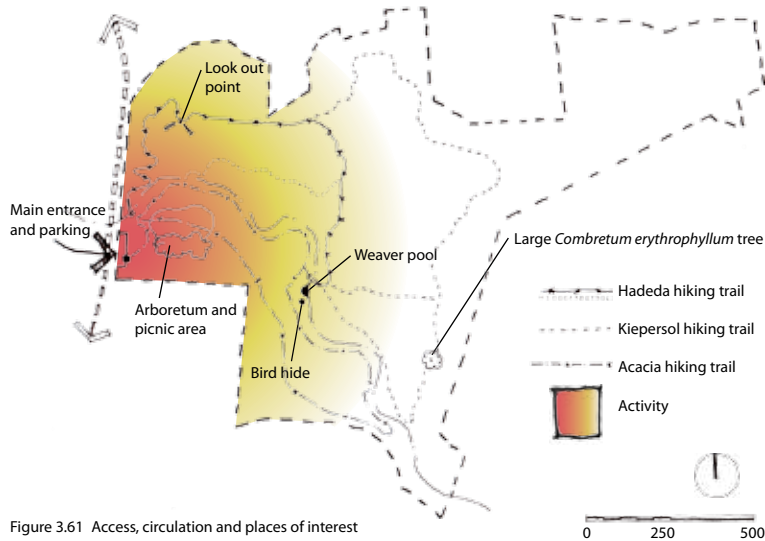


Figure 3.61 Access, circulation and places of interest

The reserve is currently completely fenced off with a palisade fence that runs the length of the perimeter of the reserve. An entrance, with parking (figure 3.57), is located off General Louis Botha drive. An admission fee of R5.00 is charged and a register needs to be signed. Due to the location of the existing entrance, activity in the reserve seems mainly limited to the western edge and central areas of the reserve.

There are 3 established hiking trails in the reserve. The hadeda, Kiepersol and Acacia trails cover a distance of approximately 9 kilometers and provide access to the main lookout points and places of interest in the reserve. The hadeda trail is paved with a concrete strip (figure 5.58) from the river crossing to the look out point at the top of Faerie Glen hill. This has become the main

activity path in the park further adding to the problem of the activity being limited to the western edge of the reserve. There is no river crossing provided in the south-eastern area of the reserve which limits circulation in this area.

Pathways around the reserve are well maintained and signage is clear and provides information to the visitor. The Friends of the Faerie Glen Nature Reserve have established an arboretum (Figure 3.59) near the current entrance along side a mowed grass picnic area. A bird hide has been erected at Weaver pool (Figure 3.60). A large *Combretum erythrophyllum* tree on the eastern side of the reserve provides a beautiful pause area. Activities that currently take place in the reserve include hiking, dog walking, mountain biking, bouldering, bird watching and jogging (Figures 3.62 - 3.65).



Figure 3.62 Mountain biking



Figure 3.63 Dog walking



Figure 3.64 Bouldering



Figure 3.65 Hiking

## Visual Analysis



Figure 3.66 View from Lynnwood road.



Figure 3.67 View from General Louis Botha drive.



Figure 3.68 Current entrance building with caretakers cottage to its left



Figure 3.69 Stormwater debris trap with pedestrian bridge behind it



Figure 3.70 View From Glenwood road



Figure 3.71 View from Manitoba drive



Figure 3.72 View from Renosterkop



Figure 3.73 View towards the city



Figure 3.74 View from look out point in summer



Figure 3.75 View from look out point in winter







Figure 3.77 View of the Bronberg Ridge from Glenwood road in winter



Figure 3.76 View of the Bronberg Ridge in summer





Figure 3.78 View from Weaver pool



Figure 3.79 View of the Moroleta spruit floodplain



Figure 3.80 View through the avenue of *Eucalyptus globulus* trees



Figure 3.81 Pathway through the *Celtis africana* - *Rhus pyriodes* closed woodland

## Summary

From analysis of the Faerie Glen Nature Reserve, various items have been identified that provide constraints and guidelines for the planning stage of the project.

### Contextual analysis

- General Louis Botha drive is a double carriage way and fast traffic makes access to and from the existing entrance of the reserve dangerous for both motor vehicles and pedestrians.
- There is only one entrance to the reserve currently, located on the western side of the reserve, it prevents east access from the surrounding residential areas.
- The reserve, although surrounded by residential areas, does not provides any access directly from these areas.

### Site specific analysis

- No development may take place on the Bronberg ridge which is classified as a Class 2 ridge.
- The Moreleta spruit runs diagonally through the site. The 50 year flood line has been identified and no development may take place in this zone or within 32m of the centre line of the spruit.
- The existing parking area lies largely within the 50 year flood line.
- 16 Plant communities are present in the reserve and need to be taken into account in the planting strategy.
- Red data species are present within the reserve and no development may take place in the potential habitats of these species.
- Based on the ecological sensitivity of the reserve, development is limited to specific areas.
- Activity in the reserve is concentrated in the western part due to the location of the existing entrance.
- Existing nature trails, an arboretum and bird hide are present in the reserve.

### Visual analysis

- It is clear from the images that the reserve is a beautiful place which provides vistas both to, and from the ridge.



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**Chapter 4**

# **Precedent Study**

## Nirox Foundation

Cradle of Humankind World Heritage Site, South Africa.

Formed in 2007, the Nirox Foundation is a private foundation situated in the Cradle of Humankind World Heritage Site. It offers an international and local artists residency programme and a sculpture garden.

**Sense of place** - The Nirox foundation has a strong sense of place due to the way in which it seems to be out of, and set apart from natural highveld vegetation of the Magaliesberg around it, creating a tranquil space for artists to work, and art to be displayed in.

**Intervention in the landscape** - The landscape has been masterfully sculpted - ponds, berms, footpaths and trees have been used cleverly to create individual display areas for various artworks. In one area, a lawned embankment forms an amphitheatre from which to enjoy a performance on a stage of English willow trees.

This project is a good example of how a new narrative can be applied as an additional layer to the landscape. In this case, the narrative of art has been applied and has successfully brought overall poetry and grace to the landscape thus making it a memorable place.



Figure 4.1 World garden with the natural highveld vegetation behind



Figure 4.2 Amphitheatre and stage



Figure 4.3 Sculpture in the landscape (reconstruction - Cradle to grave by Marco Cianfanelli, 2005/9)



## Walter Sisulu National Botanical Gardens

Roodepoort, South Africa.

Sunday picnic concerts, sponsored by SAPPI to promote our natural heritage, are held in the Walter Sisulu National Botanical Gardens every alternate Sunday throughout the year. The concerts provide a safe and friendly environment for the family relax and enjoy an afternoon out, bring together music and the outdoors.

**Sense of place** - The Witwatersrand ridge and the Crocodile river provide a beautiful backdrop to the stage, showcasing a rich variety of indigenous plant species while providing an acoustic barrier to further enhance the concert experience. To the left of the concert lawn a waterfall and black eagle nesting site add to the appeal of the gardens.

**Intervention in the landscape** - The gardens are intensively planted to showcase indigenous planting of the area. A large lawned area (also used for markets) and a simple stage are provided for the concerts.

This project illustrates how natural features can be utilised to enhance the visual experience of a place. In this case the morphology of the ridge as a natural process is used as the backdrop to the stage. Furthermore, this project shows how an intervention of a cultural nature indirectly exposes people to the natural environment.



Figure 4.4 Walter Sisulu National Botanical Garden Map



Figure 4.5 Concert stage



Figure 4.6 Families gathering under the trees for the picnic concert

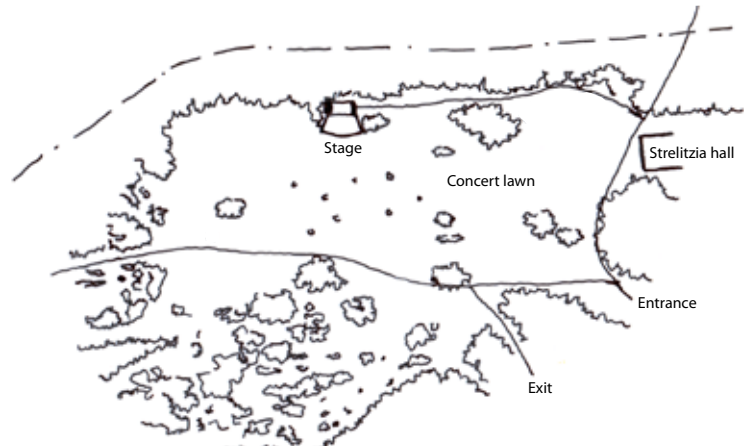


Figure 4.7 Sketch plan of the concert lawn

## Forum Homini Boutique Hotel

Cradle of Humankind World Heritage Site, South Africa.

This boutique hotel is an award winning project situated in a private nature reserve in the Cradle of Humankind World Heritage site.

**Sense of place** - A strong sense of place is created by acknowledging the surrounding Highveld context and using this to enhance the experience that the hotel provides. By allowing vegetation to grow over the buildings, the sense of place is grounded within the landscape.

**Intervention in the landscape** - The natural Highveld landscape was reinstated with the goal of creating “a seamless and effortless expression of landscape, building and art” (UGF 2007:18). Little of the architecture is visible above the landscape which limits the visual impact of the project.

This project illustrates how the history and cultural significance of a place can inform the design. In this case, the Highveld landscape becomes the design generator. This project shows how the visual impact can be minimalised by inserting buildings ‘into’ the landscape so that they do not distract from, and thus maintain the inherent narrative and poetry of the natural landscape.



Figure 4.8 Entrance to Forum Homini



Figure 4.9 Pathway to suites



Figure 4.10 View over the planted sod roofs



Figure 4.11 Timber platform overlooking the lakes of the region



Figure 4.12 Benches provide views over both lakes and the forest



Figure 4.13 The top of the box forms a further viewing platform

## Lookouts

Pinohuacho, Villarrica Volcano Area, Chile.

Two wooden viewing platforms provide opportunities for visitors to enjoy the majestic vista's of the region. The structures are constructed from abandoned tree trunks which were sourced from a found on a former logging hacienda. Each trunk was shaped on site during the construction process.

**Sense of place** - The Villarrica volcano provides the area with an innate sense of place due to its scale and prominence which the lookouts simply add to and enhance by means of directing views.

**Intervention in the landscape** - Lookout 1 (Figure 4.11 and Figure 4.12) consists of two benches placed on a 26 square metre platform which provides views over the lakes and native forests of the region. Lookout 2 (Figure 4.13 and Figure 4.14) is a 5 metre high timber box-like construction which frames a view of the Villarrica volcano.

The success of this projects lies in its simplicity. The lookouts are placed in the landscape as sculptural land art installations. The lookouts allude to the narrative of the Villarrica volcano by guiding views towards it and providing place for contemplation.



Figure 4.14 The timber box lookout frames the vista of the Villarrica volcano

## Cape Point

Cape Town, South Africa.

Cape Point is located at the extreme and south-western tip of Africa and provides scenic vistas over the Atlantic ocean and features of the Cape Peninsula.

**Sense of place** - The sense of place is grounded in the beauty of the sea, landscape and its features. The fynbos, which is endemic to the Cape region adds a further layer of ecological interest and sustainability to the place.

**Intervention in the landscape** - Various elements have been constructed in the landscape which provide visitors with facilities where they can eat, rest and enjoy the scenery. The buildings have been constructed in such a way that the landscape is allowed to grow over them and thus reduces their visual impact. Natural materials and endemic planting have been used to ensure the integration of the constructed landscape into its natural environment.

Cape Point is a good example of how the inherent narrative of the landscape can be use can be told through a series of interventions in an ecologically sensitive environment. These interventions provide opportunities for visitors to enjoy the beauty of the natural environment, and do not detract from the overall visual aesthetic of the surrounding natural environment.



Figure 4.15 Natural materials and endemic fynbos planting



Figure 4.16 The landscape is allowed to grow over the building



Figure 4.17 Cape Point



Figure 4.18 Buildings are pushed into the landscape



## Precedent Imagery





4.31



4.32



4.36



4.33



4.34



4.35



4.37



4.38



4.39



4.40



4.41



4.42



4.43



4.44





4.58



4.57



4.59



4.60



4.61



4.62

Figure 4.19 Vietnam Memorial, Washington DC by Maya Lin, 1999.

Figure 4.20 Big Bang by Thomas Mulcaire, 2008.

Figure 4.21 House in Wales, Wales by Future Systems, 1998.

Figure 4.22 Areas of Influence: Kunturu (Kuntrin), Australian Aboriginal Stone Placement by David Jones, 1976 - 1993.

Figure 4.23 Fire Art of Burning Man.

Figure 4.24 Congressional Medal of Honor Memorial, Indianapolis by Ninebark, 1999.

Figure 4.25 Burning a Fire Break.

Figure 4.26 Cap Roig Residential Development, l'Ampolla by Michèle & Miquel Arquitectes & Paisatgistes, 2006.

Figure 4.27 Maryhill Nature Overlook, Goldendale by Allied Works, 1999.

Figure 4.28 Puritama Springs, San Pedro de Atacama by Germán de Sol, 2000.

Figure 4.29 Electrical Substation, Albanatscha by Hans-Joerg Ruch, 1996.

Figure 4.30 Areas of Influence: Fuji Alignment - Homage to Mardarburdar by David Jones, 1976 - 1993.

Figure 4.31 Areas of Influence: Kunturu (Kuntrin), Australian Aboriginal Stone Placement by David Jones, 1976 - 1993.

Figure 4.32 Municipal Gardens, Dornbin by Rotzler Krebs Partners, 2003.

Figure 4.33 Diagonal Mar Park, Barcelona by EMBT Arquitectes, 2002.

Figure 4.34 Cadence Measures Movement, Miyag by Hiroki Hasegawa, 1993.

Figure 4.35 Rheingarten, Oberwesel, Germany by Victor Sanovec & Barbara Fuchs, 2000.

Figure 4.36 Wolfsburg State Horticultural Show, Wolfsburg by Büro Kiefer Landscape Architecture, 2004.

Figure 4.37 New Gardens in the Dycker Field, Jüchen by RMP Landscape Architects, 2002.

Figure 4.38 Cardada Intervention, Locarno by Paolo Bürgi, 2001.

Figure 4.39 Parc de la Ereta, Alicante by Obras Architets, 2004.

Figure 4.40 Parque da Juventude, São Paulo by Rosa Grena Kliass, 2004.

Figure 4.41 Tilla Durieux Public Park, Berlin by DS Landschaftsarchitekten, 2003.

Figure 4.42 Cargo Themed Garden - Center for Garden Art Castle Dyck, Jüchen by Relais Landscape Architects, 2002.

Figure 4.43 BUGA München, Munich National Horticultural Show, Munich by Rainer Schmidt Landscape Architects.

Figure 4.44 Chrystal Palace Concert Platform, Bromely by Ian Ritchie Architects, 1997.

Figure 4.45 Burning in the Flint Hills.

Figure 4.46 Amphitheatre, Millennium Park, Chicago by Frank Gehry, 2004.

Figure 4.47 Lightning Field, New Mexico, USA by Walter de Maria, 1977.

Figure 4.48 Allianz Arena, Munich by Vogt Landscape Architects, 2005.

Figure 4.49 Fire Patterns.

Figure 4.50 Farbfeld Gröden in Bloom, Brandenburg, Germany by Finis e.V, 2000.

Figure 4.51 Crowned Lapwing after Veld Fire.

Figure 4.52 Munich Airport Terminal 2, by Rainer Schmidt Landscape Architects, 2003.

Figure 4.53 Fire Sweeping Across the Prairie.

Figure 4.54 Waldpark, Potsdam by B + B stedebouw en landschapsarchitectuur, 1999.

Figure 4.55 Cap Roig Residential Development, l'Ampolla by Michèle & Miquel Arquitectes & Paisatgistes, 2004.

Figure 4.56 Epitaph Cylindrical II by Toshikatsu Endo, 1990.

Figure 4.57 Areas of Influence: Mardarburdar Alignment II by David Jones, 1989.

Figure 4.58 Rheingarten, Oberwesel, Germany by Victor Sanovec & Barbara Fuchs, 2000.

Figure 4.59 Feuerlinie, Cottsbus, Germany by Herman Prigann, 1991.

Figure 4.60 Back to Green / Charred Steps, St. Louis, Mississippi by David Nash, 1993.

Figure 4.61 Entrance Pavilion, Niau by Massimiliano Fuksas, 1993.

Figure 4.62 Flying a Kite.



## Summary

Evaluation of precedents has shown that:

- A narrative can be applied to the landscape in order bring an overall poetry and elegance to it.
- The natural environment can serve as the backdrop to social interaction and provides the opportunity to expose people the natural environment.
- Social interventions can be used to expose people to the natural environment and thus gain an appreciation for nature.
- The visual impact of a place can be maintained by allowing the historical narrative and *genius loci* to guide the design process.
- Interventions can be made in highly ecologically sensitive areas without detracting from or harming the narrative of the natural environment.

Precedent imagery evaluated provided visual stimulants:

- Art in the landscape
- Use of materials
- Structural form
- Inclusion of natural processes
- Situation of interventions into / onto the landscape



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Chapter 5

# Design Development



## A Personal Design Manifesto

Architecture and the landscape on which it exists should not be seen as separate entities. Rather, the two should be integrated as one through the process of design such that architecture becomes an extension of the landscape, and the landscape, an extension of architecture.

In order to design a successful landscape, a rigorous understanding of the site and its natural processes. After careful analysis and in addition to a well thought out design concept and programme, the outcome of the analysis will assist in directing the designer to a suitably sensitive and appropriate design solution that suits the site and fulfils the requirements of the project.

The landscape should be viewed as an ongoing process. A final product of landscape is unachievable as site conditions are in continuous flux, both above and below the earth's surface. In order to fully understand the site, it needs to be read as a palimpsest, its narratives – cultural, ecological, geographical – need to be exposed, read and understood, for this provides the designer with an indication of the site's functional capabilities and constraints.

I am interested in landscapes that merge into architectural structures, not only cutting into the land, but extending over it creating functional, interacting and multi-layered landscapes. Landscapes should include structural elements - these objects should not be purely functional, but should become sculptures that enhance the overall spatial quality of the design intervention.

The ideal landscape is a functional spatial arrangement providing public, private and transitional spaces. There should be a general interaction between these landscape spaces and an ultimate amalgamation of these spaces with regards to both the landscape and the architecture. A successful landscape enhances the original sites *genius loci* which relates to its past, yet permits and celebrates new and innovative design within it. It is through the layering of various services, functions, users and natural processes, in a contemporary, yet sensitive approach that allows the conception of the ideal or at least, a memorable landscape.

Throughout my approach to design, I search for technologically innovative and sensitive ways in which to merge landscape and architecture, such that landscape becomes an integral part of the urban built environment as a whole and in this way, landscape becomes the integral binding agent of the urban fabric.



## Conceptual Framework

In order for the Faerie Glen Nature Reserve to become a safe and vibrant place activity within the boundaries of the site needs to be increased. Access to the reserve needs to be made easier and the main entrance should be more prominent. The reserve as a whole should become more inviting.

Presently, the reserve is used mainly on the weekends, by people living in the immediate surrounding areas. Due to a lack of infrastructure within the reserve, only activities such as walking, dog walking and jogging take place. A few areas are provided for picnicking but none of these are particularly inviting and remain unused. Furthermore, the reserve makes no attempt to provide interest to young families. During the week, the reserve lies dormant and largely unused by people and is thus perceived as a security threat to the surrounding areas. However, from a natural perspective, the reserve remains a 'hive of activity' as is evident from the ecological analysis.

## Vision

Provide the Faerie Glen Nature Reserve with a unique identity and program it with spaces which, through ease of access, encourage activity throughout the week so that it becomes a destination not only to the local surrounding residents, but also to visitors from all over the region.

## Aims

Through an intervention in the landscape based on ecological design and landscape principles, the author aims to:

- Create a unique identity for the Faerie Glen Nature Reserve.
- Improve safety within the reserve.
- Provide ease of access to the reserve.
- Maintain the ecological importance of the reserve and provide a platform for it to be used as an educational tool.
- Provide spaces for social activities at a variety of scales.

## Approach

- Development should be kept to the edges of the reserve, and should, where possible, only take place in areas identified as low ecological sensitivity zones suitable for development in the chapter 3 analysis.
- No development should take place in the 50 year flood line or within 32m from the centre line of the Moreleta spruit.
- Retain and re-use infrastructure presently in the reserve.
- The Bronberg Ridge is a beautiful and ecologically important feature of the site. Any intervention should make full use of the vistas that this ridge provides - both from it and towards it.
- Due to the nature of the site, any intervention should be of a sensitive nature taking the natural environment and sense of place into account.
- Materials used should not compete with the visual aesthetic of the landscape, they should allow natural processes to change their appearance over time.

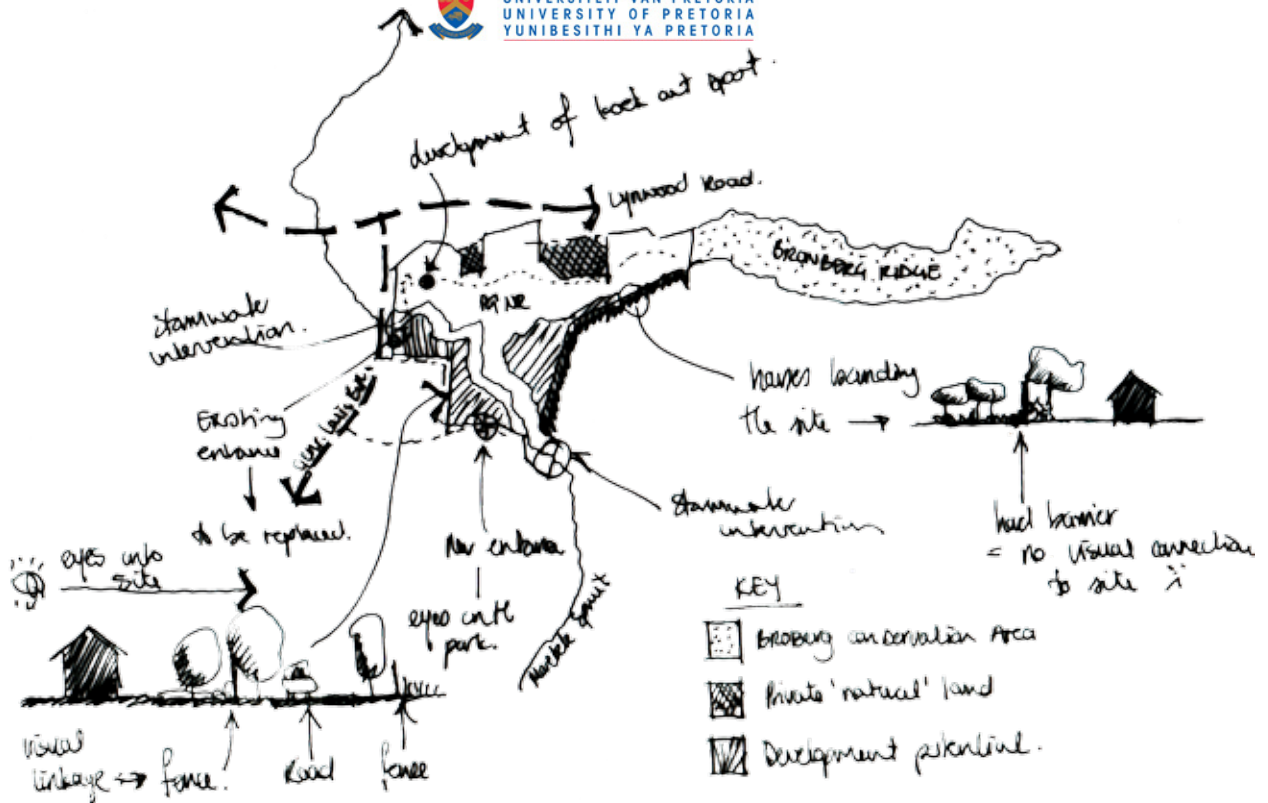


Figure 5.1 Conceptual framework diagram

Through this approach the author intends to create a place that respects and celebrates the landscape in which it lies, a place that is further shaped over time by environmental factors.

Figure 5.1 presents an initial framework concept drawn soon after an initial site visit in the early planning stages of the project. Although it notes various problems that may not have been addressed, on the whole it provides a good parti which later became the concept for the development framework for the reserve.

A further simplified version, Figure 5.2 becomes a parti diagram for the overall masterplan.

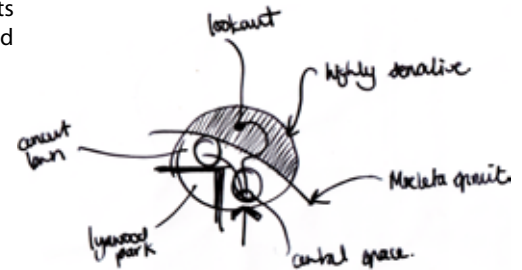
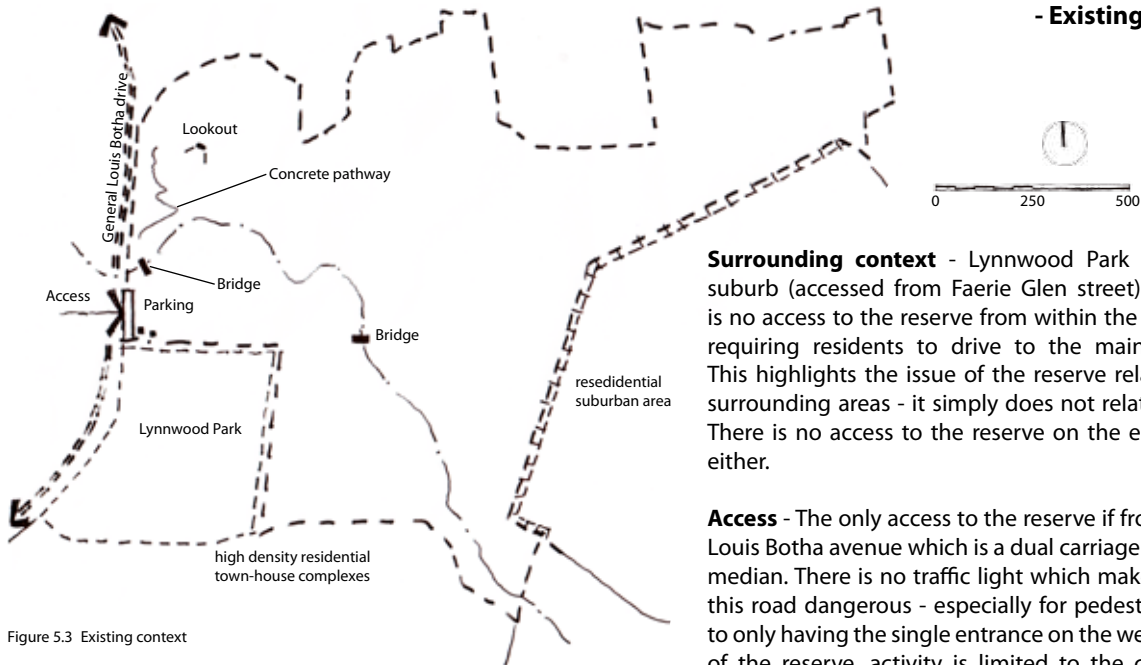


Figure 5.2 Parti diagram for masterplan



### - Existing situation

**Surrounding context** - Lynnwood Park is a gated suburb (accessed from Faerie Glen street) and there is no access to the reserve from within the gated area requiring residents to drive to the main entrance. This highlights the issue of the reserve relating to its surrounding areas - it simply does not relate to them. There is no access to the reserve on the eastern side either.

**Access** - The only access to the reserve is from General Louis Botha avenue which is a dual carriage way with a median. There is no traffic light which makes crossing this road dangerous - especially for pedestrians. Due to only having the single entrance on the western edge of the reserve, activity is limited to the central and western parts of the reserve resulting in quiet areas which become unsafe.

Figure 5.3 Existing context

**Parking** - The existing parking provides 70 bays with no possibility of overflow parking. 50% of the parking lies within the 50 year flood line.

**Bridges** - There are only two bridges across the Moreleta spruit in the reserve. One bridge is located at the western boundary and one in the centre of the reserve below Weaver pool. The lack of a bridge in the south-eastern area of the reserve limits circulation in this area.

**Pathway** - The concrete pathway to the lookout runs in close proximity to General Louis Botha avenue (Figure 5.4) and while walking on it you become more aware of the road which distracts from the experience of being in the nature reserve.

**Look out** - The position of the lookout point does not orientate the viewer to focus on the reserve but rather on the suburban areas west of the reserve.



Figure 5.4 Foot path to look out point

## - Proposed framework

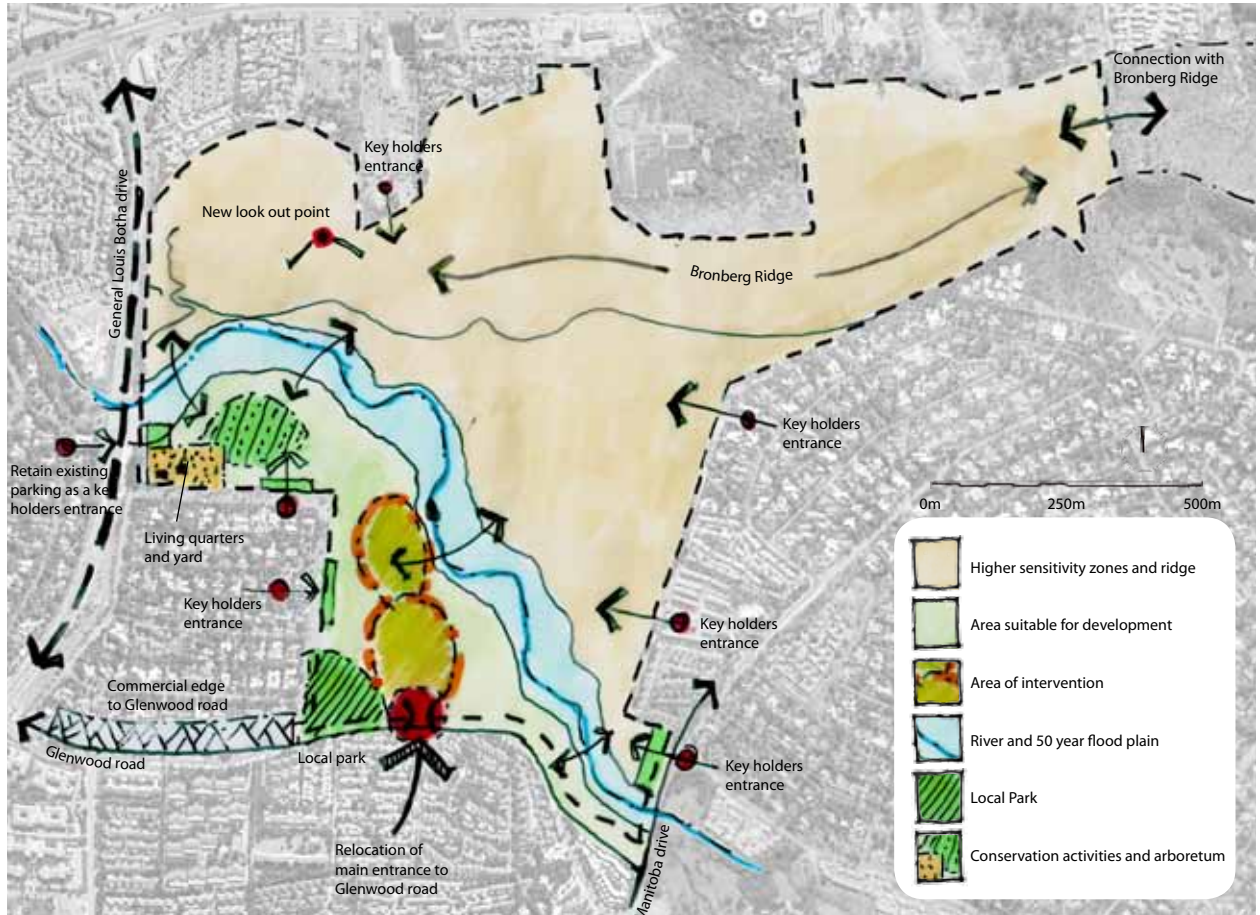


Figure 5.5 Proposed framework

The proposed framework for the Faerie Glen Nature Reserve (Figure 5.5) resolves the issues identified within the current context of the reserve. The most important items to note are that the main entrance to the reserve has been relocated to Glenwood road on the southern boundary and that additional access has been provided to the reserve by means of key holders entrances.



## Masterplan Development

Various concept masterplans have been drawn up. Each masterplan is important in the process as it presented a slightly different approach and concept to deal with constraints as they arose in the course of research.

**Masterplan concept 1** - This masterplan was based on the concept of a central spine pathway that bisected the lower regions of the reserve. Various activity nodes were positioned along the path. Moving along the central pathway the visitor went through the a central core space containing a small restaurant, crossed the river and then arrived at a concert lawn that was sculpted out of the landscape. An additional entrance on the south-eastern boundary and neighbourhood park are proposed.

This masterplan maintained the original entrance in General Louis Botha drive which was identified as a problem due to the dangerous intersection. The central spinal pathway was also revised as it did not alleviate the problem of concentrated activity in the western part of the reserve.

**Masterplan concept 2** - This masterplan introduced a new concept of the patchwork landscape and was seen a land art installation on the landscape which could be viewed from the lookout points at the top of the ridge.

Fire breaks were burnt into the landscape in order to form the structuring element of the masterplan. Various activity spaces were created by the placing patches which consisted of different types of planting, hard surfaces and sports surfaces.

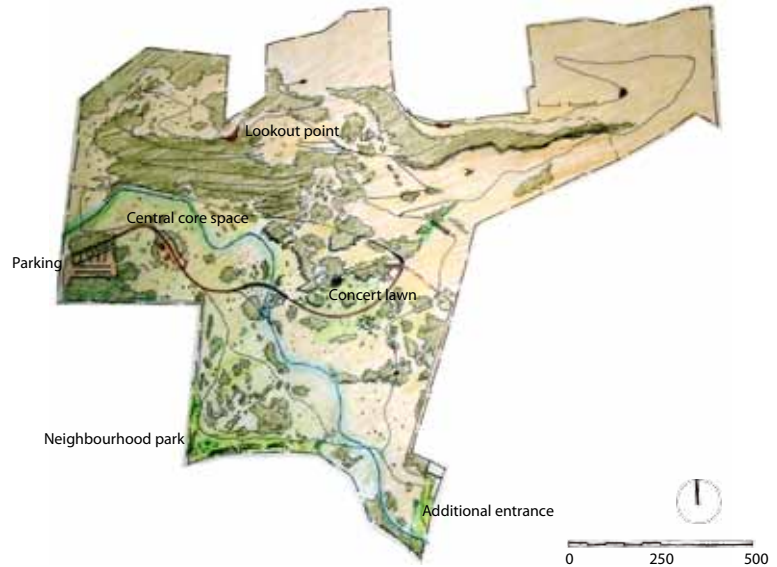


Figure 5.6 Masterplan concept 1

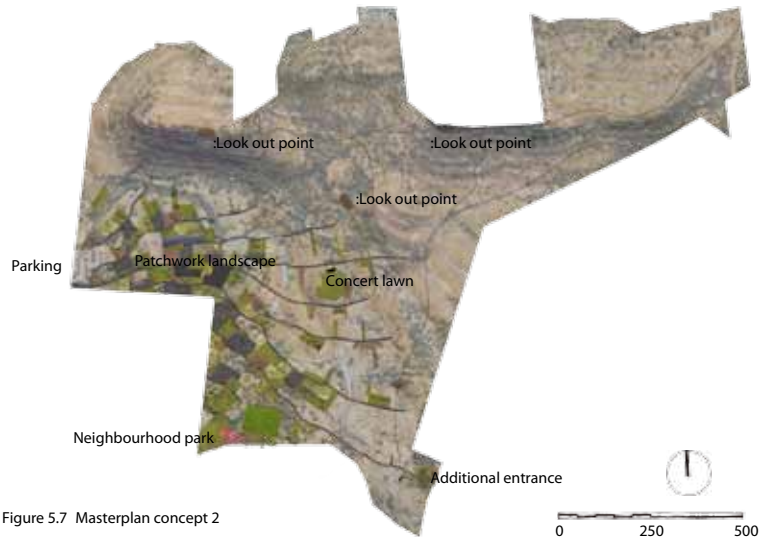


Figure 5.7 Masterplan concept 2

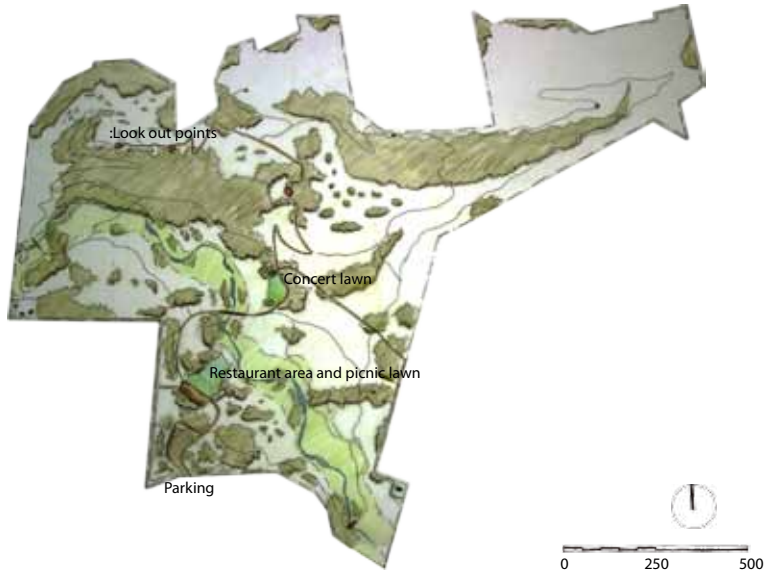


Figure 5.8 Masterplan concept 3

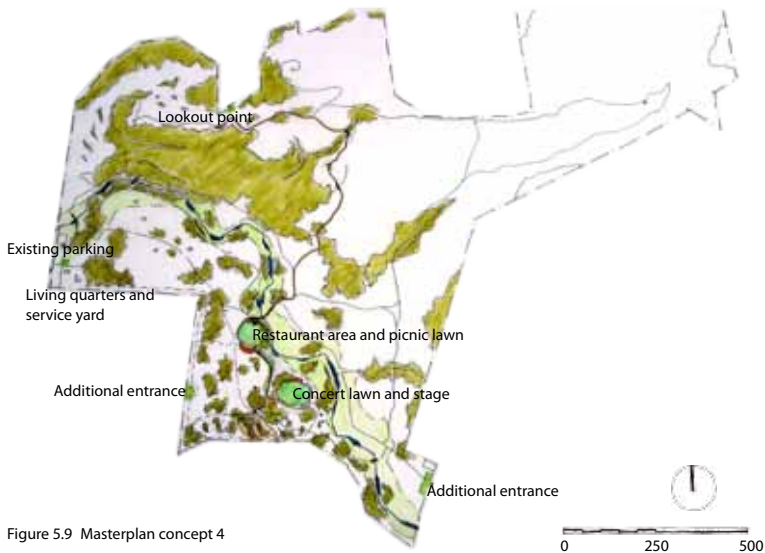


Figure 5.9 Masterplan concept 4

This concept was viewed as a ‘brutal’ intervention on the landscape for ‘arts sake’ and largely disregarded the ecological sensitivity of the reserve.

**Masterplan concept 3** - In this masterplan, the main entrance and parking have been relocated to Glenwood road. The concert lawn remains on the northern side of the Moreleta spruit while the restaurant area is moved to the south-western part of the reserve.

An investigation into the construction of the concert lawn as a wedge sculpted out of the landscape proved it to be an unsustainable option requiring the mass import of fill material into an area of intermediate ecological sensitivity in the reserve.

**Masterplan version 4** - In this masterplan both the restaurant area and the concert lawn are placed in the south-western area of the reserve. These areas are lower in ecological sensitivity. The main entrance remains in its relocated position on Glenwood road.

Additional key holders entrances are provided for ease of access for residents in the surrounding area.

This concept masterplan is used as a basis for the final masterplan.



Figure 5.10 Landscape masterplan



## - Final Masterplan

An understanding of the inherent landscape narrative has led to the development of a programme that emphasises the importance of the natural features and processes in the reserve.

The masterplan for Faerie Glen Nature Reserve provides places for social interaction in order to encourage an increase in the usage of the reserve and heighten the experience of visiting the reserve. It introduces a hierarchy of pedestrian circulation – visitors may move through the reserve to the main activity areas using the main pathway or move through the natural areas of the reserve using the nature trails which intersect with the main pathway at various places.

Activity nodes have been limited to the least sensitive areas of the reserve, and existing infrastructure has been adapted and re-used. Interventions in the landscape are located and orientated to gain maximum effect of the vistas provided by the Bronberg ridge in order to expose the story of the landscape and enhance the visual experience of the reserve, thus creating a more memorable landscape.

An explanation of each item on the masterplan follows:

**Main vehicular entrance and parking (1)** - The relocated entrance is in Glenwood road. The parking area is laid out around existing tree clumps and consists of paved roadways. The parking bays are paved with permeable grass blocks. An area of informal overflow parking is provided by means of a mowed veld grass. This parking area will be dealt with in more detail in the next chapter.

**Arrival plaza (2)** - This area consists of an arrival plaza and the main entrance building. This area will be dealt with in more detail in the next chapter.

**Pause junction (3)** - Located at the junction where the main pathway splits, one leading to the concert lawn and the other to the restaurant area and picnic lawn, this area provides information relating to reserve. This area also allows the first directed view of the Bronberg ridge. This area will be dealt with in more detail in the following chapter.

**Concert lawn and stage (4)** - A sculptural stage and an informal concert lawn provide the ideal area for Sunday picnic concerts or small musical

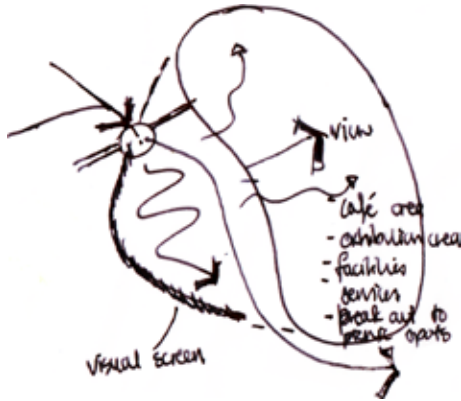


Figure 5.11 Restaurant area concept drawing

reviews. A plaza area and ablution facilities are provided to one edge while a sculpted lawn berm contains the other. This area will be dealt with in more detail in the next chapter.

**Restaurant area and picnic lawn (5)** - This area consist of a 'landscaper' building which is pushed down into the landscape. Natural vegetation grows over the roof and conceals the building preventing it from visually impacting the beauty of the reserve. This area includes a small restaurant, a kiosk and ablution facilities. This area will be dealt with in more detail in the following chapter.

**Timber deck and bridge (6)** - A timber deck spans the 50 year flood plain which falls into the high sensitivity zone. A small pause deck with a bench provides a place to quietly sit and enjoy the scenery as the Bronberg ridge is reflected in the surface of Weaver pool. This area will be dealt with in more detail in the following chapter.

**Bird hide (7)** - There is an existing bird hide at the Weaver pool. This bird hide is to be retained as a quiet pause area with a bench (Figure 5.12).

**Main pathway (8)** - This pathways runs as a central axis on the masterplan from the main entrance (1) and terminates at the main look out deck (9). In sloped areas, the pathway maintains a maximum slope of 1 to 15 with landing for every 1.5 metre rise. This pathway is laid out based on existing vegetarian clumps, items of interest and vistas (Figure 5.13).

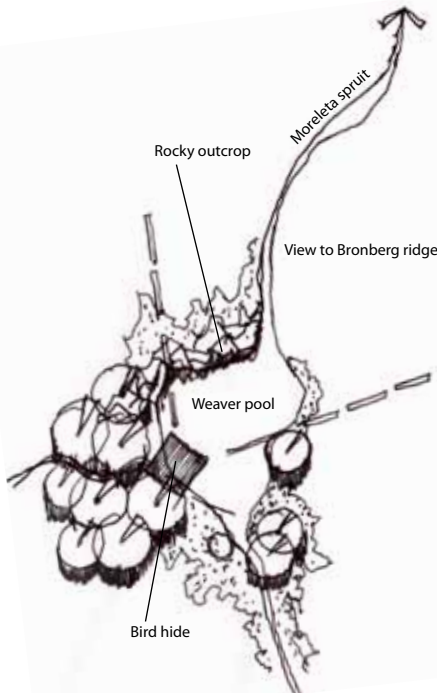


Figure 5.12 Bird hide and Weaver pool

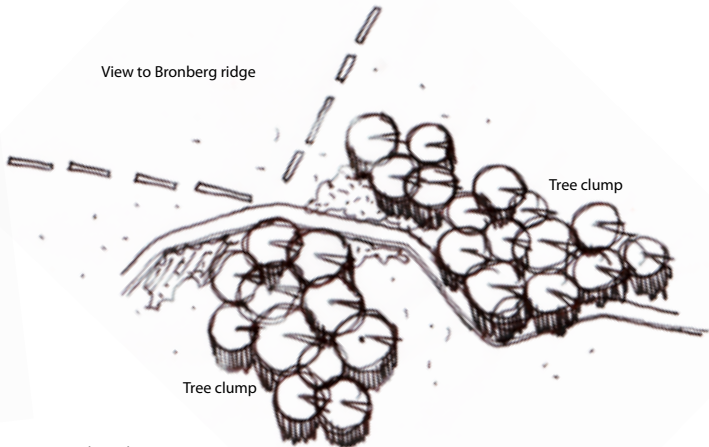


Figure 5.13 Pathway layout

**Main lookout deck (9)** - This deck forms the termination point of the main pathway and provides a rest area with views over the reserve, the landscape 'canvas' (16) and southwards as far as Centurion. Existing vegetation clumps and rock outcrops were taken into account while placing it due to the high ecological sensitivity of the ridge.

**Look out decks (10)** - This is a series of small decks that provide a pause area with a view over the landscape 'canvas' (16). These decks are situated between existing vegetation clumps and rock outcrops taking into account the high ecological sensitivity of the ridge and provide a bench which is shaded by established trees (Figure 5.14).

**Concrete footpath (11)** - There is an existing narrow concrete footpath which runs from the pedestrian bridge (12) up to the look out decks (10) at the top of Faerie Glen Hill. The path was constructed to prevent erosion caused by the high usage of this trail. This trail will be retained and integrated into the nature trails.

**Pedestrian bridge and stormwater intervention (12)** - There is an existing pedestrian bridge and stormwater intervention where the Moreleta spruit exits the reserve below General Louis Botha drive. These items are to be retained and the pedestrian bridge integrated into the revised nature trails.

**Existing parking and key holders entrance (13)** - The author has decided to retain the existing parking area off General Louis Botha avenue. This parking area will provide access to the living quarters, service yard, arboretum and conservation centre in addition to providing parking for a key holders entrance to the reserve (Figure 5.12).

**Living quarters and service yard (14)** - Two buildings are presently situated in this area - one is the building used in the past as the Plumbago tea garden which is currently used as the main entrance to the reserve. The other building is a newly constructed reserve manager's dwelling. The author proposes that a fence be erected around this area forming a service compound in which the reserve manager lives and in which all equipment necessary for the day to day running of and maintenance of the reserve is stored (Figure 5.15).

**Arboretum and conservation centre (15)** - There is an existing arboretum in the reserve which was started by the Friends of the Faerie Glen Nature Reserve. It is located next to the current main entrance. This arboretum showcases tree species that grow naturally in the Faerie Glen area. The author

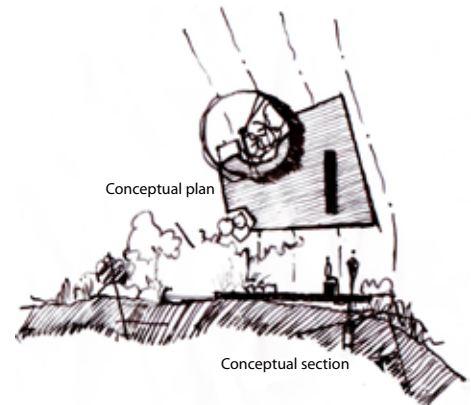


Figure 5.14 Viewing deck

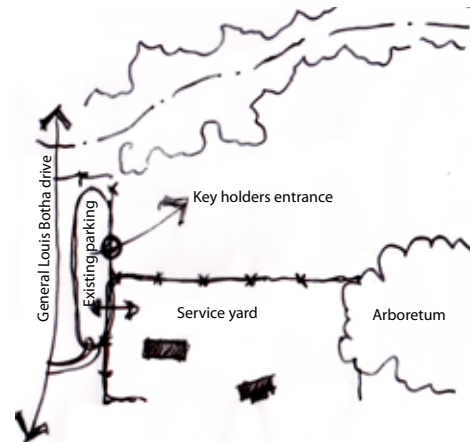


Figure 5.15 Existing parking, key holders entrance and service yard

proposes that a conservation centre is constructed in this area to promote the active conservation of endangered plant species found within the reserve - at present there are at least three identified red data plant species present in the reserve. The centre's position is determined by the location of the arboretum, its proximity to the service yard and access from General Louis Botha drive. The building should be built as high as possible above the 50 year flood line while retaining a visual buffer zone of vegetation between itself and the residents of Lynnwood Park (Figure 5.16).

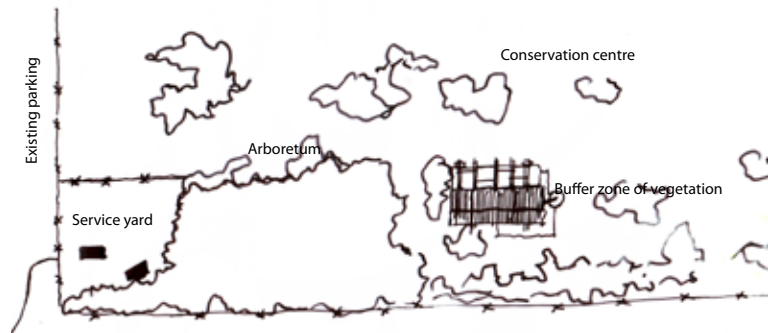


Figure 5.16 Location of conservation centre

**Landscape as 'canvas' (16)** - This area has been identified as a location for land art installations to take place due to its gradual slope, low ecological sensitivity and disturbed patches of vegetation. These installations will be partly visible from General Louis Botha drive (attracting visitors) but the main

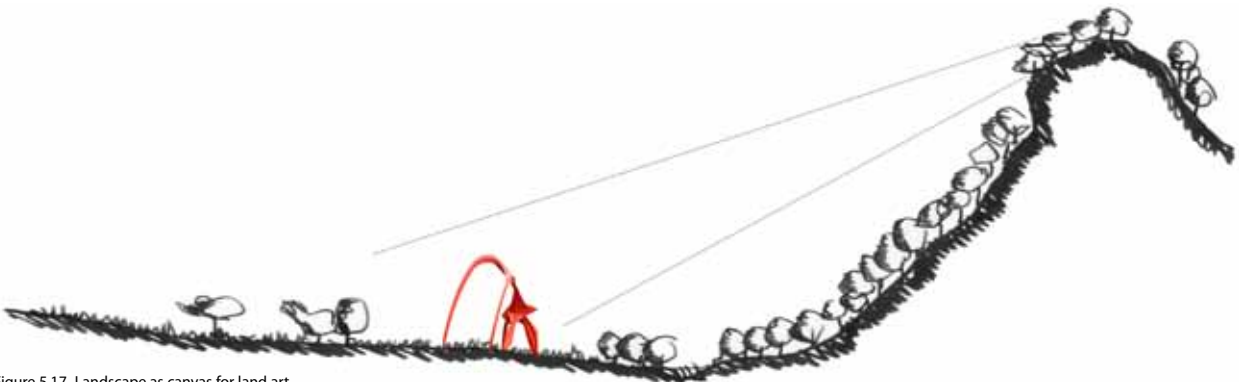


Figure 5.17 Landscape as canvas for land art

view will be from above, from a series of look out decks along the ridge (Figure 5.17).

**Informal river crossing (17)** - This is an existing crossing where the river is crossed by stepping on rocks. This crossing will be retained as part of the nature trail system.

**Key holders entrance (18)** - In order to obtain ease of access to the reserve the author proposes key holder entrances on the south-western and western boundaries. These entrance points, which are recessed slightly into reserve, will be provided with limited parking. Doubling as rest spots, these areas will be landscaped with benches, and a small lawned area, paved pathways and naturalistic planting (Figure 5.18).

**Local park (19)** - The south-western corner of the reserve is proposed as a local park which provides a public open space for the use of the surrounding residents. Limited parking will be provided. This park, partly located within the current fence line of the reserve and forms a buffer zone between the streetscape of Faerie Glen street and Glenwood roads and the new parking area for the reserve. A security check point into Lynnwood Park in Faerie Glen street will provide a secure eye over this park (Figure 5.19).

**River crossing (20)** - An additional river crossing is provided here in increase ease of pedestrian circulation through the site.

**Key holders entrance (21)** - In order to obtain ease of access to the reserve the author proposes key holder entrances on the south-western and western boundaries. These entrance points, which are recessed slightly

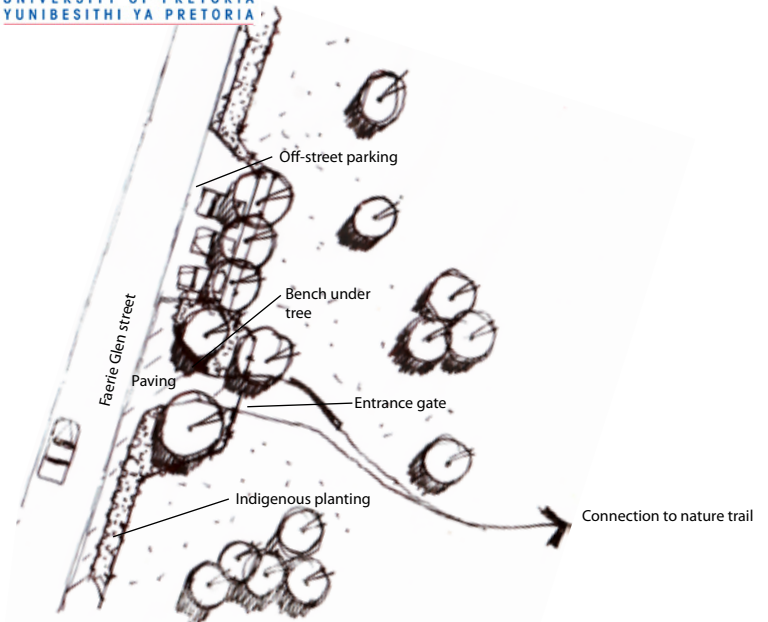


Figure 5.18 Key holders entrance

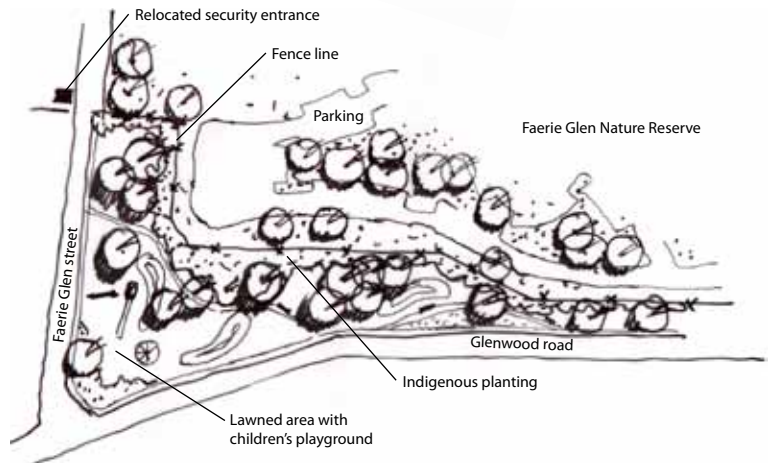


Figure 5.19 Local park





into reserve, will be provided with limited parking. Doubling as rest spots, these areas will be landscaped with benches, and a small lawned area, paved pathways and naturalistic planting.

**Pause area (22)** - A large *Combretum erythrophyllum* tree provides a tranquil and beautiful spot in with to create a small pause area, slightly off the nature trail which has a bench and a water point.

**Nature trails (23)** - Existing nature trails have been incorporated into the masterplan and link with main pathway. These nature trails allow visitors to move through the reserve without needing to use the main pathway or move through the main activity nodes.

**Key holders entrance and small local park (24)** - As there is no access to the reserve on its eastern boundary the author proposes that a key holders entrance is established. Furthermore, since there are no local parks in the area east of the reserve, the author proposes that a small local park is established as an extension of the key holders entrance.

**Look out point (25)** - A small informal lookout point along the nature trail denotes the highest point in the reserve, Renosterkop, at 1482 metres above sea level.

**Access to the Bronberg Ridge (26)** - The author proposes that a key system could be used in order for visitors to access nature trails across the entire Bronberg Ridge.

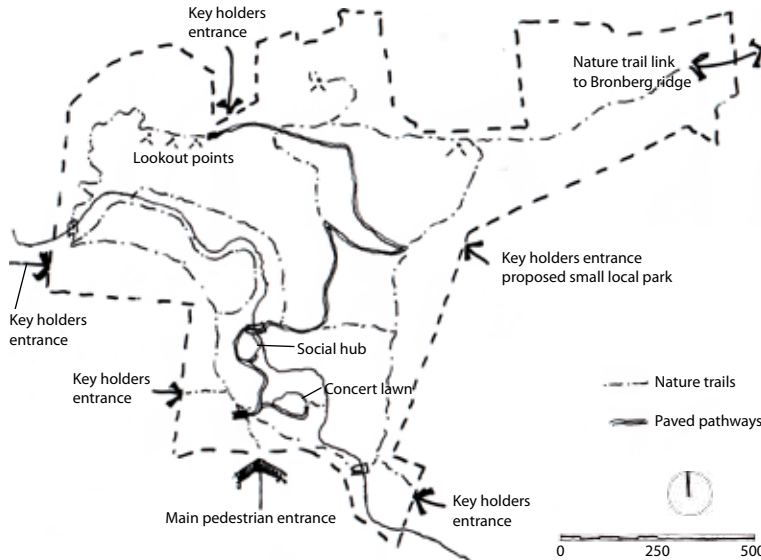


Figure 5.20 Pedestrian circulation



Figure 5.21 Vehicular circulation

## - Circulation

**Pedestrian circulation** - A main entrance is and numerous key holders entrances are provided to gain access to the reserve. A formalised paved pathway is provided from the main entrance to the lookout point at the top of Faerie Glen Hill. Numerous nature trails present in the reserve have been incorporated into the masterplan and link up with the the main pathway.

The nature trails provide visitors the opportunity to move through the reserve without having visit or pass through the main activity nodes within the reserve.

A new nature trail is proposed by the author that links the Faerie Glen Nature Reserve to the broader Bronberg Ridge.

**Vehicular circulation** - Vehicular circulation within the reserve is limited to the southern and eastern boundaries of the reserve. Parking is provided at the main entrance and at each of the key holders entrances.

A dirt road provides a link between the staff living quarters, service yard, conservation centre and the main entrance and parking area. A similar dirt maintenance road runs along the eastern boundary of the reserve. These dirt roads, in addition to providing vehicular routes, act as fire breaks during the drier times in the year.

A double track paved with grass blocks provides access for deliveries to the restaurant and the to the back of the stage.

## Conclusion

The masterplan proposed for the Faerie Glen Nature Reserve heightens the experience of the landscape and make it more accessible to a broader community. By conducting a thorough analysis and adhering to ecological design principles, development in the reserve has been limited to the least ecologically sensitive areas. Use of the site decreases as the conservation value increases (Figure 5.22). By limiting the main activity in the reserve to certain areas, the zones of higher conservation value are afforded an opportunity to be restored and conserved.

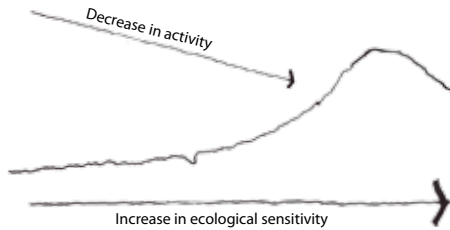


Figure 5.22 Activity on site

Through an understanding of the inherent landscape narrative a programme has been developed and then structures designed that emphasize the importance of the natural features and processes on the site. These highlight the reserve's importance within its context not only ecologically, but socially as well as a restorative and therapeutic place in the built environment for the local community.

Provision of additional entrances improves ease of access to the reserve. This in addition to the development of areas for social interaction at a variety of scales and uses facilitates an increase in visitors who may not be interested in visiting the reserve currently.

Visitors may make use of the main areas, or simply move through the site by means of the nature trails. Either way, they are exposed to the beauty of the site and through experience, memories are created in the landscape.

Through an understanding of the environmental performance, social inclusion and economic development, the implementation of this masterplan at the Faerie Glen Nature Reserve will result in the creation of a landscape that is both memorable and sustainable in the long term.



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Chapter 6

# Detail Design



Figure 6.2 Landscape sketch plan

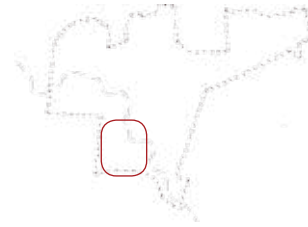


Figure 6.1 Detail design key

1. Parking
2. Arrival Plaza
3. Pause junction
4. Concert lawn and stage
5. Restaurant area and picnic lawn
6. Timber deck and bridge

The Author has chosen to focus on the southern part of the Faerie Glen Nature Reserve for the detail design chapter. This area includes the parking area, arrival plaza, pause junction, concert lawn, stage, restaurant area, timber deck and bridge.

Individual sketch plans, sections and details will be drawn up for each area as indicated in Figure 6.2.

## Material Palette

In order to create a landscape that is, and remains sustainable in the long term, materials should be used that are easily available, sourced from local manufacturers, have a low embodied energy and where possible, should be potentially recyclable. The maintenance requirement of each material was also taken into account as this also relates to the long term sustainability of a project.

Furthermore, as an aesthetic approach, materials have been chosen for their ability to withstand weathering and fade into the natural landscape thus reducing the visual impact of any intervention in the landscape on its surroundings.

**Exposed aggregate concrete paving** - Concrete paving with a fine exposed aggregate finish has been selected for the paved areas and pathways throughout this project. Organic shapes are easily paved due to the fluid nature of the material while exposed aggregate provides a non-slip finish.

Fly ash should be used in all concrete as a partial substitute for Portland cement. Fly ash is a by-product of the coal combustion process and is readily available in South Africa. Using fly ash offsets the carbon footprint by reducing the greenhouse gases emitted in the production of Portland cement. Furthermore, the addition of fly ash results in a decrease of water required in the mixing process and an improvement in the workability of the concrete.

**Nutmeg clay brick paver** - The nutmeg clay brick paver will be used to pave the road surfaces in the parking area. Clay paving bricks are locally manufactured and readily available.

**Off-shutter concrete** - Off shutter concrete will be used for the construction of the built structures. The bulk of this material grounds it firmly into the land while its versatility allows the easy construction of sculptural forms. Off-shutter concrete stains over time alluding to its age and the environmental factors acting on it.

Similarly to the exposed aggregate concrete, fly ash should be partially substituted for Portland cement.

**Precast concrete grass blocks** - The grass block reduces water runoff by



Figure 6.3 Black slate  
Figure 6.4 Exposed aggregate paving  
Figure 6.5 Nutmeg clay brick paver  
Figure 6.6 Off-shutter concrete  
Figure 6.7 Precast concrete grass block  
Figure 6.8 Red clay brick  
Figure 6.9 Sandstone tile  
Figure 6.10 Timber decking

decreasing the hard surface area of the paved surface. The block's surface area comprises roughly 75% plantable area and 25% concrete. The grass block will be used to pave parking bays in the parking and the road surface in the overflow parking.

**Red clay brick** - The red clay bricks has been chosen for its visual aesthetic and will be used for the mowing edges which define the main pathway. Red clay bricks are locally manufactured and readily available.

**Sandstone tile** - Sandstone is a soft stone that weathers easily. It has been selected as a coping tile protect the waterproofing on the planted roofs. This material has been chosen to compliment the off-shutter concrete.

**Slate** - Slate provides a strong visual contrast to the exposed aggregate paving in which it is set. Narrow slate tiles have been used to created an 'architectural kiss' where the similar materials of off-shutter concrete and exposed aggregate concrete paving meet. Slate tiles have also been used to create a shadow line on the stairs to make them more visible. Slate is readily available locally.

**Timber** - *Eucalyptus grandis* decking has been selected for the timber deck. As a category 2 invader species, *E. grandis* timber decking is readily available in locally. *Eucalyptus globulus* trees are present on the site and may be recycled in order to create sculptural furniture for the reserve.



## Planting Strategy

A sustainable planting strategy should be employed across the reserve in order to create a landscape that is, and remains sustainable for the long term. Trees, plants, and veld grass must be planted in order to offset the carbon footprint of the project.

Due to the nature of the project, a single planting palette cannot be defined for implementation across the reserve. 16 Vegetation types have been identified in the Faerie Glen Nature Reserve and these should serve as the guidelines for planting.

Plant and tree species are to be selected for each sketch plan area individually based on the predominant vegetation type of the immediate area as defined in Chapter 3.

All plant species used in this project are to be indigenous to the 'Middleveld' region. Planting is to be carried out in a naturalistic style which compliments the integration of the built structures into the landscape.

**Alien vegetation** - Alien invader species are to be manually cleared from the reserve and the areas affected should be rehabilitated in order to restore the vegetation to its pristine state. The timber from alien tree species cleared is to be recycled and used on site. Other plant material should be used as mulching unless it will negatively affect the indigenous planting.

**Lawned areas** - Grass species must be indigenous. Lawns must be kept mown and tidy and are to be irrigated with 22mm of water per week. Lawn cuttings are to be used for compost on site.

**Planted roofs** - The planted roofs will be hydroseeded with veld grass and should be irrigated with 15mm of water per week.

**Planters** - The planters are to be hydroseeded with veld grass which is interplanted with small herbaceous perennial and succulents plant species. These areas should be irrigated with 40mm of water per week.

**Trees** - Trees species are to be grown from seed in the arboretum and conservation centre then moved into the reserve once established.

**Veldgrass** - Hydroseed mixes are to be determined by the predominant



Figure 6.11 Alien invader - *Tithonia rotundifolia*  
Figure 6.12 Indigenous Lawn - *Cynodon dactylon*  
Figure 6.13 Planted roof - Forum Homini  
Figure 6.14 Planter - UJ Art Centre  
Figure 6.15 Trees - *Protea caffra*  
Figure 6.16 Veldgrass - *Melinis repens*

vegetation type that surrounds the hydroseeding area. Cut veld grass is to be used as mulching on site.

A plant list for the reserve is attached as Appendix A.

## Irrigation Strategy

Irrigation should take place in the early morning or late evening and a drip irrigation system should be used to prevent excess evaporation of water.

Irrigation requirements:

- Intensively landscaped areas 40mm per week
- Extensively landscaped areas 15mm per week
- Lawned areas 22mm per week

Rainwater is harvested from the parking area, arrival plaza, pause junction, concert lawn, stage, restaurant area and picnic lawn. This water is stored and pumped out to irrigate the landscape.

The volume of water required for irrigation annually has been calculated as: 8116.80m<sup>3</sup>. The volume of stormwater that can be harvested annually has been calculated as: 8280.47m<sup>3</sup>.

By placing water tanks centrally in the reserve, stormwater can be harvested and used for the irrigation of the landscape. By harvesting the stormwater, runoff is decreased and the occurrence of increased flow in the Moreleta spruit is reduced

It is therefore feasible to harvest rainwater in order to irrigate the landscape.

Water harvesting calculations have been attached as Appendix B.



Figure 6.17 Drip irrigation system

## Parking Area

The main entrance and parking area has been relocated to Glenwood road. The parking area is laid out around existing vegetation clumps and takes the slope of the area into account to prevent excess shaping of road surfaces.

A total 150 parking bays are provided. Of these, 70 are formalised with grass block paved bays and brick paved roads. The other 70 bays are informal and consist of cut grass bays and grass block paved roads. An area is provided to the west of the parking area in which busses are able to turn around.

The parking is linked via pedestrian paths to the entrance plaza where seating is provided. Natural planting is used in addition to the existing vegetation clumps as a buffer to decrease the visual impact of the parking area. Pedestrian crossings are raised from the road surface and serve as traffic calming elements.

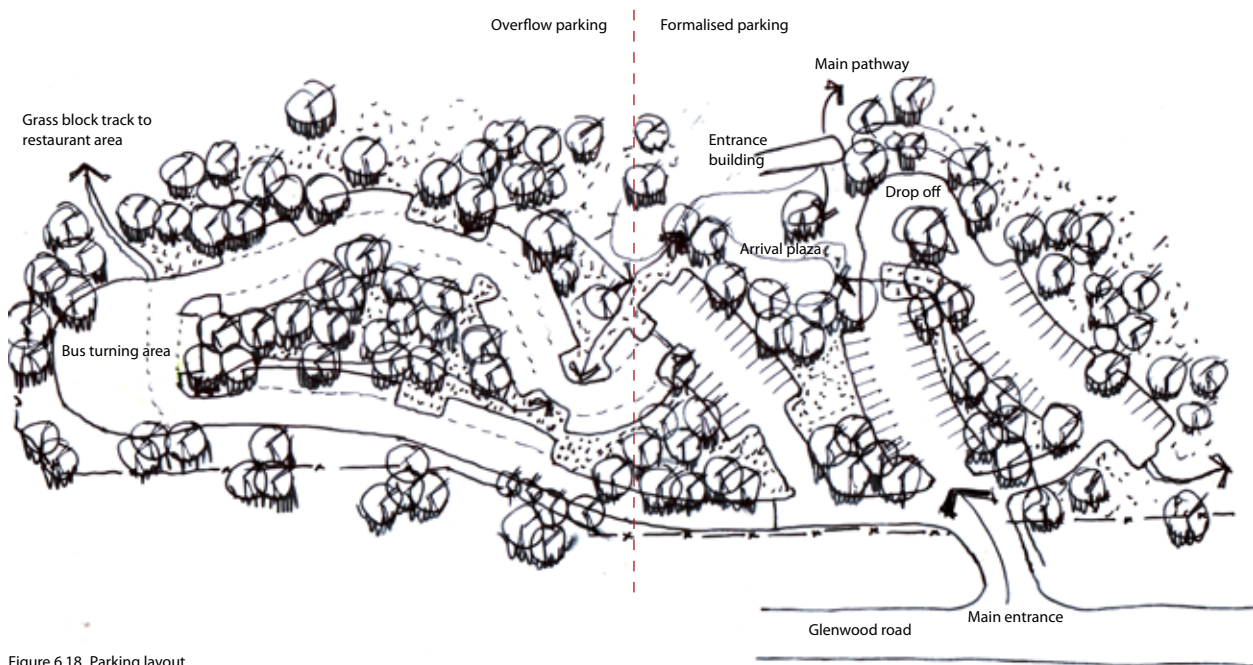


Figure 6.18 Parking layout



Figure 6.19 Parking sketch plan

## Arrival Plaza

The arrival plaza is located at the main entrance to the Faerie Glen Nature Reserve. The plaza is surrounded by bermed lawns which form a visual buffer between the plaza and the parking area. This space forms a transitional zone between the parking and the entrance to the reserve.

Seating walls are provided in the plaza for people who are waiting to meet friends or waiting to be picked up at thy drop off / pick up area.



Figure 6.20 Entrance building



Figure 6.21 Arrival plaza sketch plan



Figure 6.23 Detail A1 - Paving connection  
 Scale 1:20

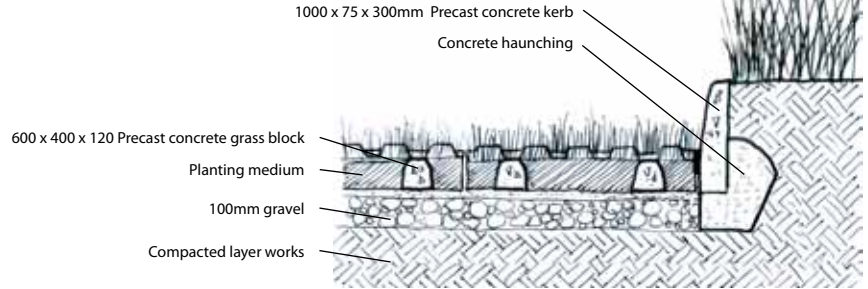


Figure 6.24 Detail A1 - Kerb detail  
 Scale 1:20



Figure 6.22 Section A - A through parking and arrival plaza

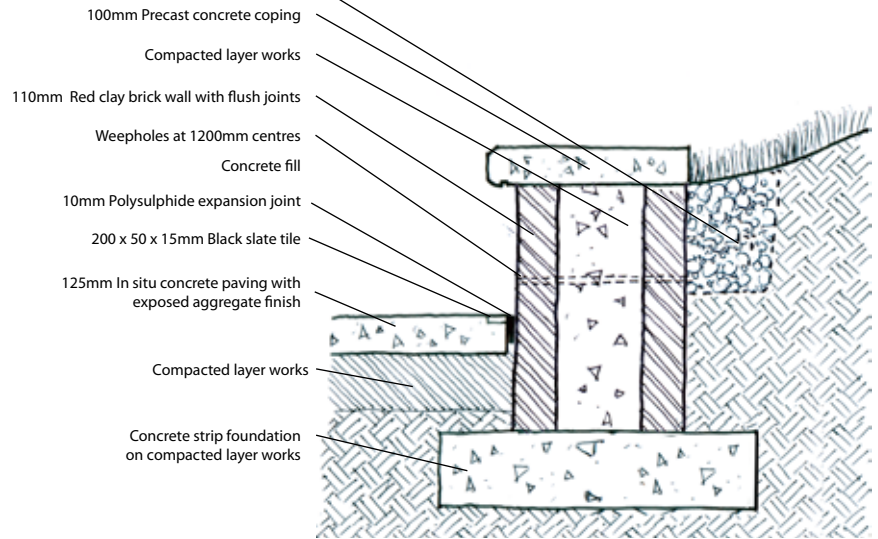


Figure 6.25 Detail A3 - Seating wall  
Scale 1:20





## Pause Junction

This area forms the junction at which the path splits to either the restaurant area or the concert lawn. The space is located on the edge of a dense grouping of trees, which add to the sense of place and feeling of enclosure. When approaching the space from the main entrance, a ramp is positioned in such a way to open up the view to the Bronberg Ridge with every successive step until you reach the upper level (Figure 6.26).



Figure 6.26 Pause junction ramp

Information about the reserve is displayed on the curved wall in order to allow visitors to understand and familiarise themselves with the reserve. This information includes details about the current ecological issues, activities in the reserve and information on the latest land art installation. The information conveyed to the visitor on this wall should be seen as a teaser of what the reserve holds in store for those who are prepared to spend some time and explore.

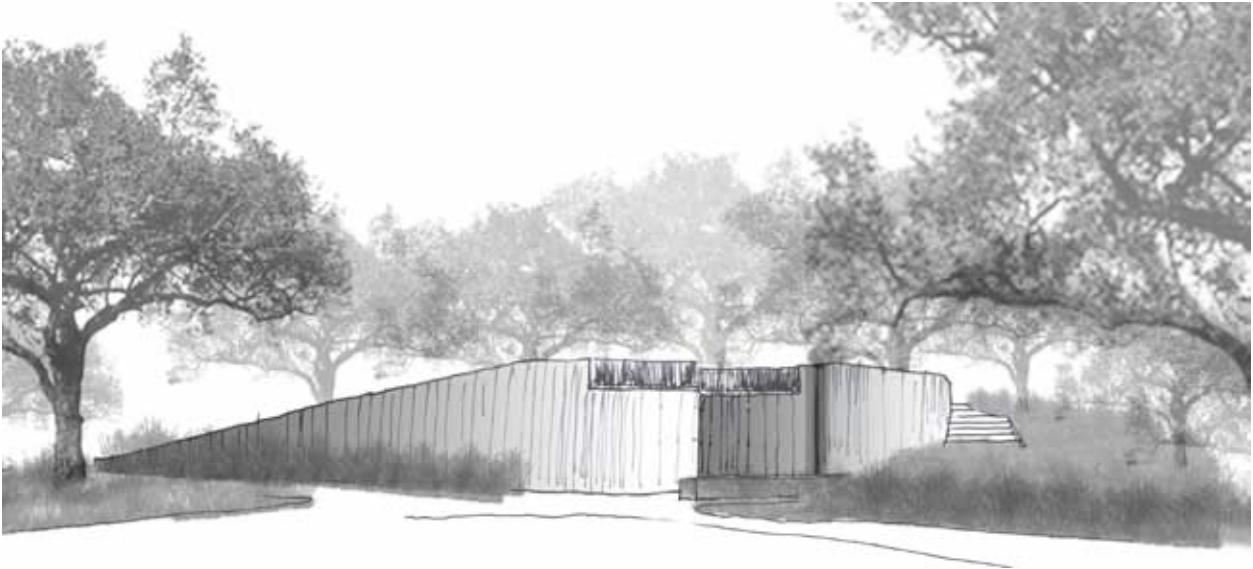


Figure 6.27 Pause junction



Figure 6.28 Pause junction sketch plan



Figure 6.30 Section B - B through pause junction



Figure 6.29 Section C - C through pause junction

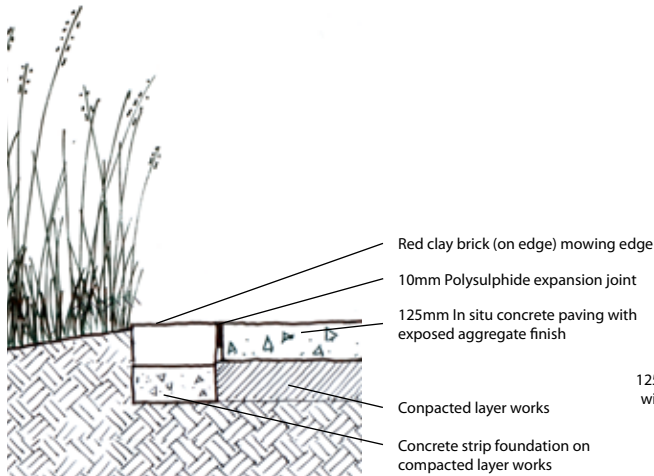


Figure 6.31 Detail B1 - Mowing edge  
Scale 1:20

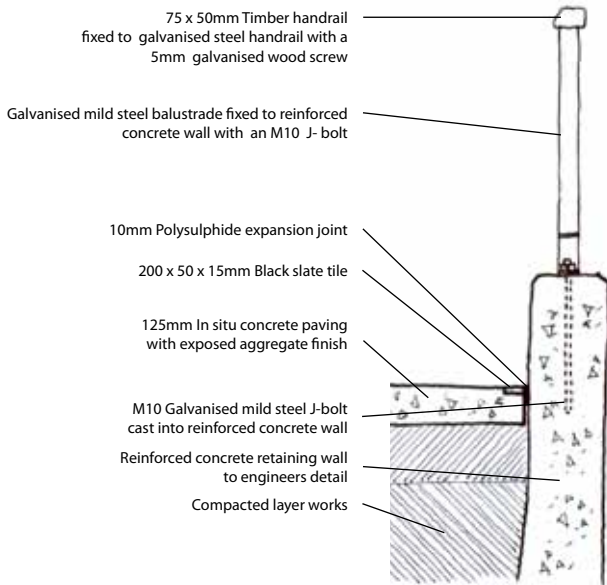


Figure 6.32 Detail B2 - Balustrade fixing  
Scale 1:20

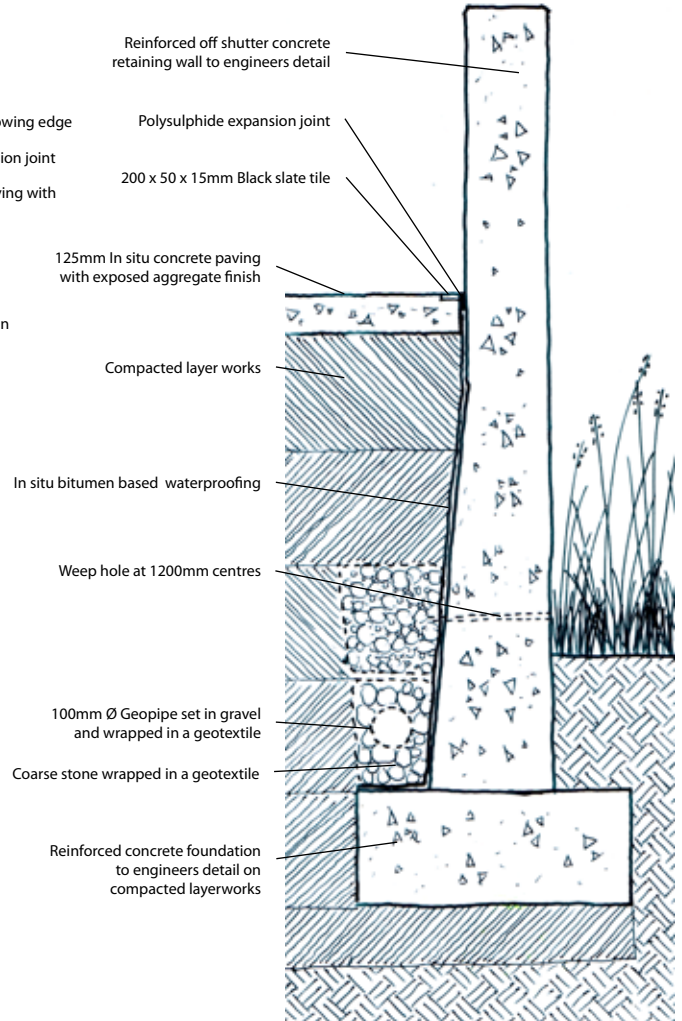


Figure 6.33 Detail C1 - Retaining wall  
Scale 1:20

## Concert Lawn and Stage

The concert lawn is an informal venue catering for music performances to audiences of up to approximately 350 persons. Seating walls created an informal terraced picnic lawn on which trees provide shade for the audience (who are welcome to bring along their own umbrellas). A plaza area acts as a foyer in which small stands can be erected for the sale of food if necessary. Ablution facilities are located in a 'landscaper' building to the south-west of the lawn.

The stage is designed as a sculptural object in the landscape. Grounded by heavy concrete walls, it sits nestled into an existing clump of trees. A light structure provides a frame on which indigenous creepers grow and provide shade for the performers while the Renosterkop provides a graceful backdrop to the ensemble. A grass block track provides vehicular link between the stage and the parking area for deliveries.

A berm holds the space by enclosing the south-eastern corner of the lawn as the trees become more sparse and the natural groundline falls away.

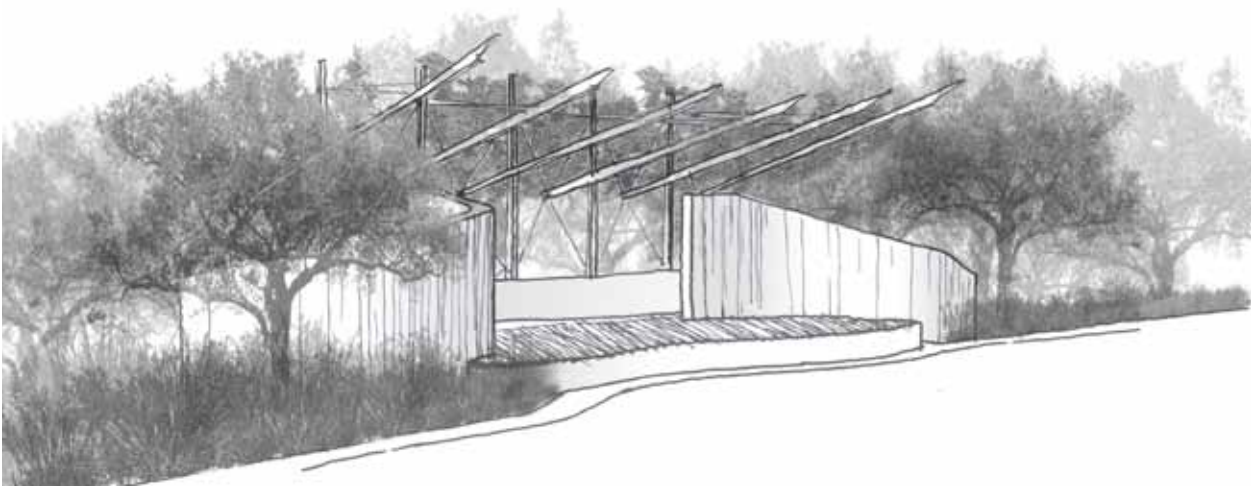


Figure 6.34 Stage



Figure 6.35 Concert lawn sketch plan

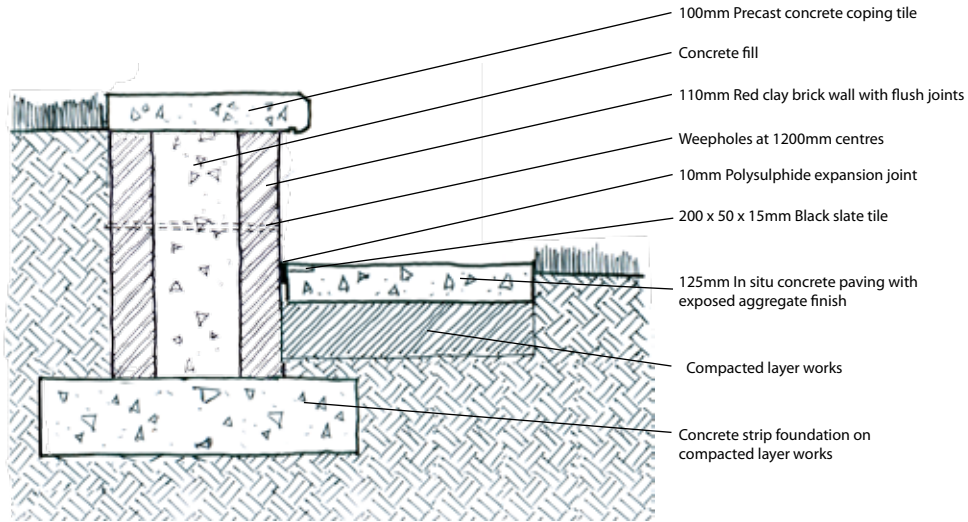


Figure 6.37 Detail D1 - Seating wall  
Scale 1:20



Figure 6.36 Section D - D through concert lawn





## Restaurant Area and Picnic Lawn



Figure 6.38 Entrance to plaza space

The 'landscaper' building is carefully located to remain hidden from the visitor almost up to the point at which you enter the plaza space in front of the kiosk between two retaining walls (Figure 6.38). The building is also positioned to gain maximum advantage of the view towards the Bronberg Ridge.

The building houses a small restaurant, a kiosk and ablution facilities. A large sculpted picnic lawn with children's play equipment stretches before the building which sits snugly within the landscape which grows over, under and 'through' it.

The restaurant area is shaded by a planted pergola and provides a view to the Bronberg Ridge as it rises up before you. A grass block track provides access for vehicles to the delivery area behind the restaurant from the main parking lot.

A sculpted lawn provides an area for families to picnic in small shaded pockets while children run and play. A playing berm provides a slide, tunnel, balancing poles and hanging bars to entertain the children while the parents relax under a tree, or at the restaurant.

A kiosk provides visitors with the option of stopping for a quick drink and snack en-route up to, or back from the lookout decks. The kiosk also stocks a limited range of nature related books and merchandise.

Ablution facilities are provided and consist of gents and ladies areas (each with a disabled stall and a baby changing station) and a communal hand washing area.

A nature trail leads off from the eastern side of the plaza and runs along the Moreleta spruit.

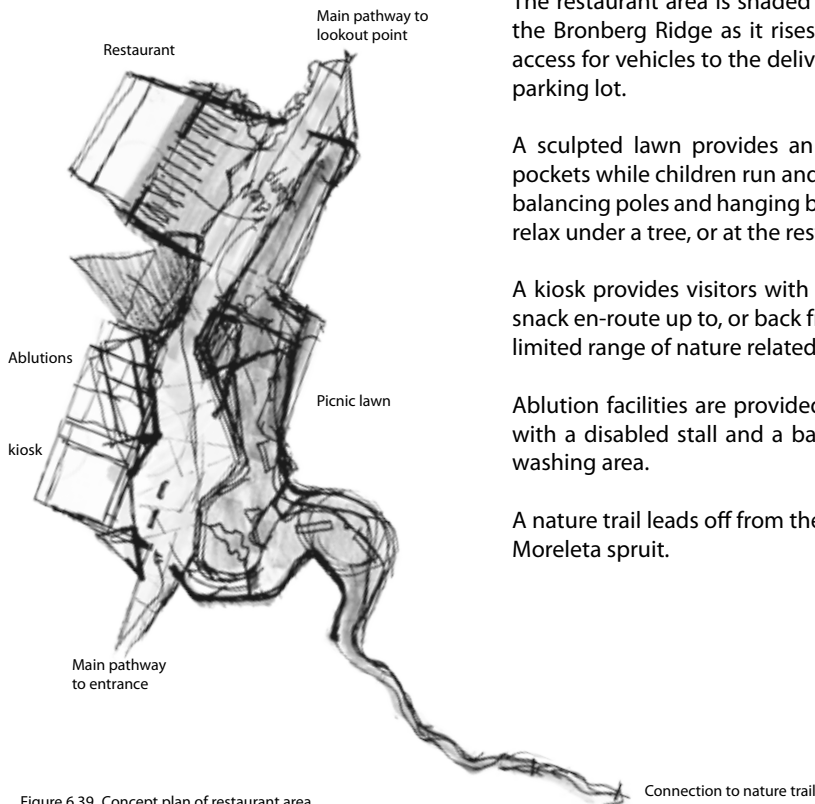


Figure 6.39 Concept plan of restaurant area



Figure 6.40 Restaurant area sketch plan

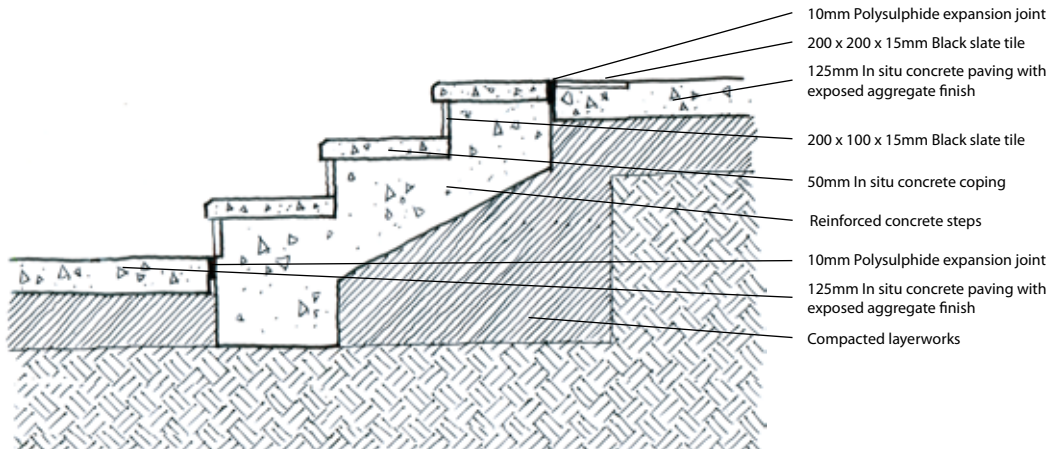


Figure 6.42 Detail E1 - Steps  
Scale 1:20



Figure 6.41 Section E - E through restaurant area

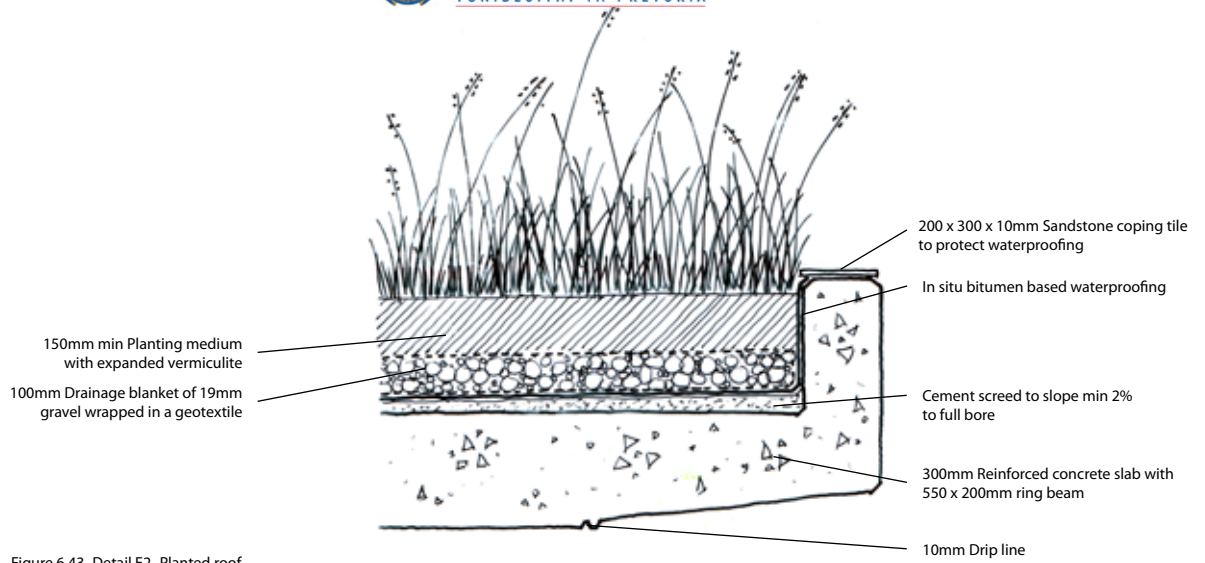
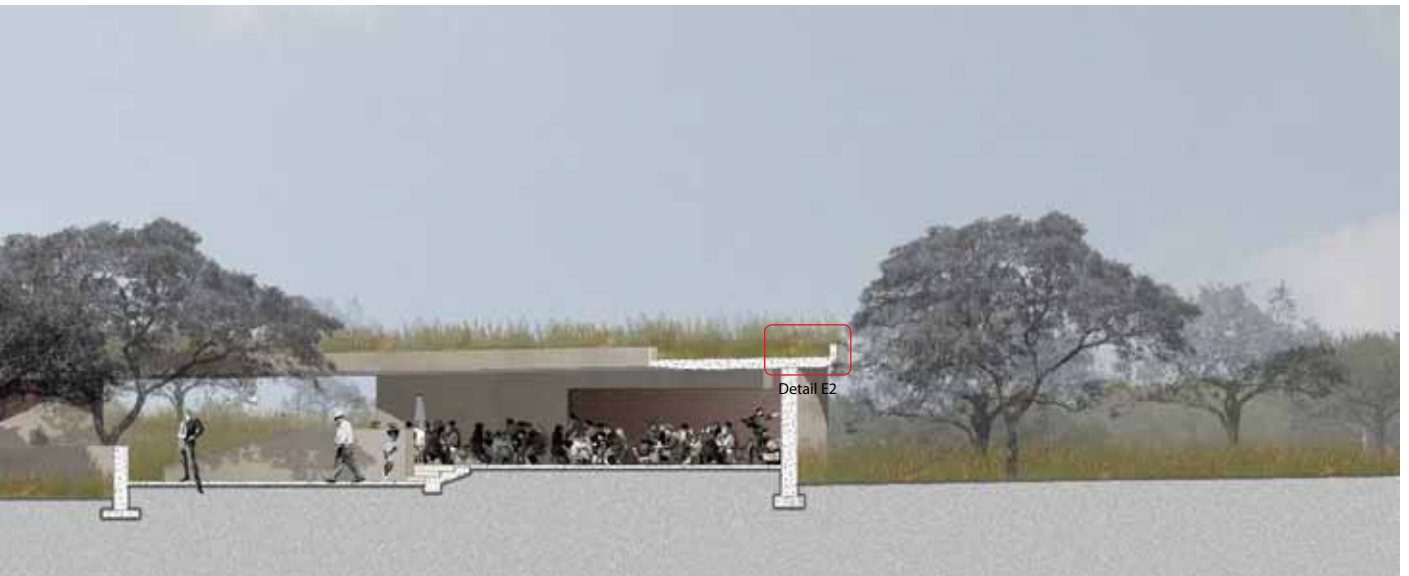


Figure 6.43 Detail E2 -Planted roof  
Scale 1:20



## Timber Deck and Bridge

The deck and bridge provide the main crossing of the Moreleta spruit on the main pathway between the restaurant area and lookout points. The deck spans the 1 in 50 year flood line which is included in the zone of highest ecological sensitivity.

A small pause area on the deck, separated by planting provides a place to sit and gaze over Weaver pool towards Renosterkop from a shaded bench. If you catch it at the right time of the day, you may see the reflection of Renosterkop on the surface of the water.

A concrete bridge spans the spruit. Its retaining walls are guarded by gabions and reno-mattresses from damage due to increased flow in the spruit caused by storms.

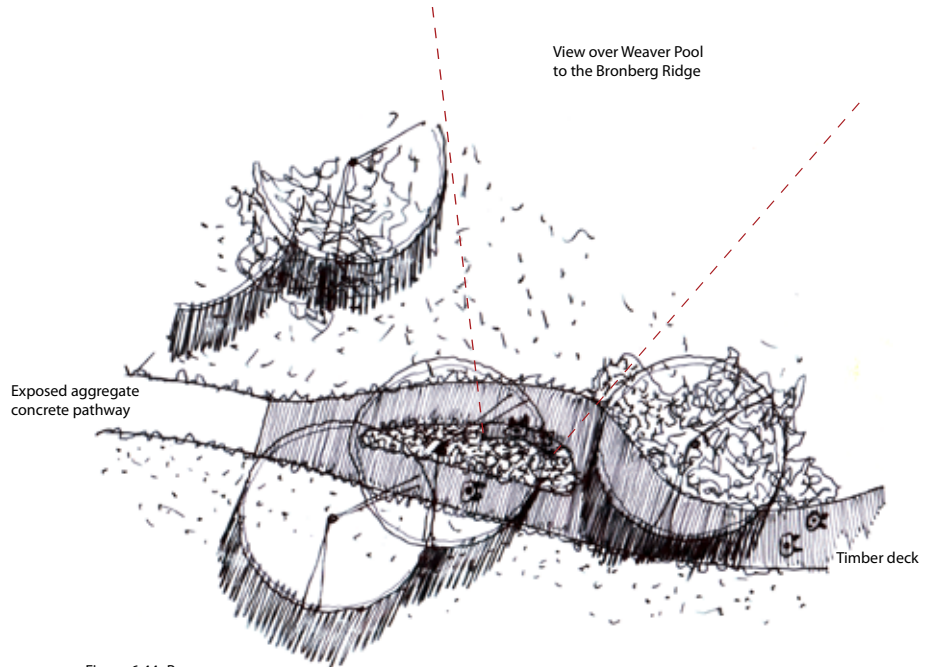


Figure 6.44 Pause area



Figure 6.45 Deck and bridge sketch plan

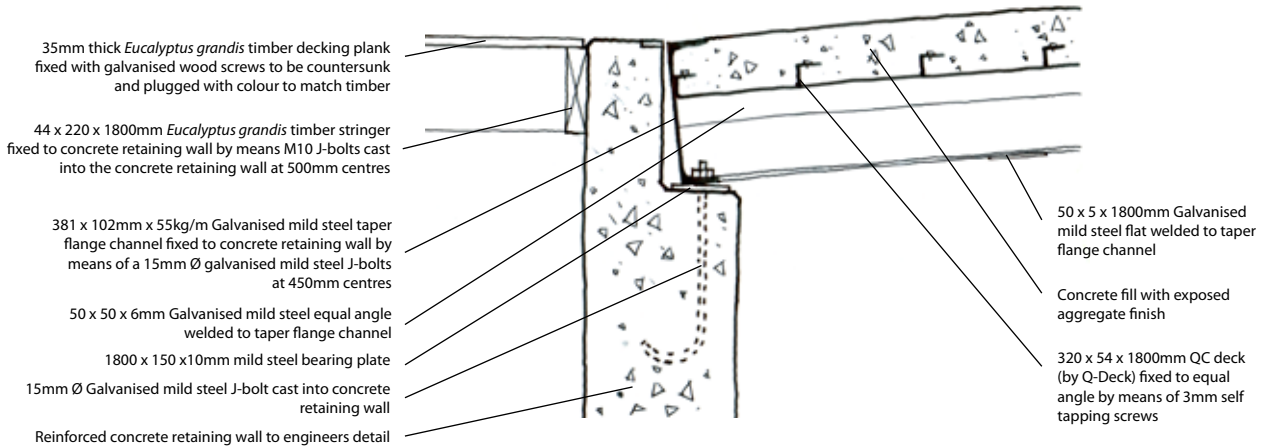


Figure 6.47 Detail F1 - Timber deck and bridge connection  
Scale 1:20



Figure 6.46 Timber deck and bridge sketch plan

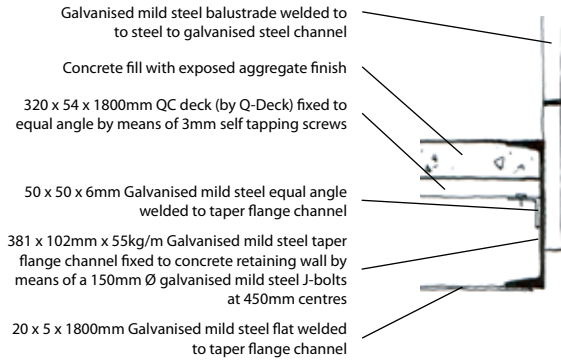


Figure 6.48 Detail section F2 through bridge edge  
Scale 1:20

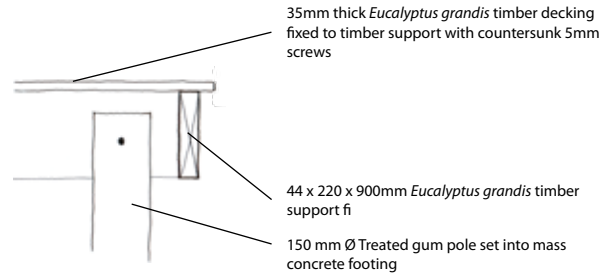


Figure 6.49 Detail F3 - Timber deck edge  
Scale 1:10





## Sustainability Rating

The Sustainable Building Assessment Tool (SBAT) was used in order to generate a sustainability rating for the proposed intervention at the Faerie Glen Nature Reserve. The SBAT rating system was developed to support sustainable development in the context of developing countries and sets out 15 objectives under the headings of economic, social and environmental that should be aimed for in buildings (CSIR, 2007).

The SBAT rating system is designed to deal with habitable buildings and thus cannot be applied purely to the landscape. In this case, it has been used to assess the 'landscaper' structures proposed by the author.

The project achieved the following ratings out of 5:

Social:	4.6
Economic:	3.7
Environmental:	3.7

The project achieved an overall sustainability rating of 4.0 out of 5 which classifies the interventions as 'good'.

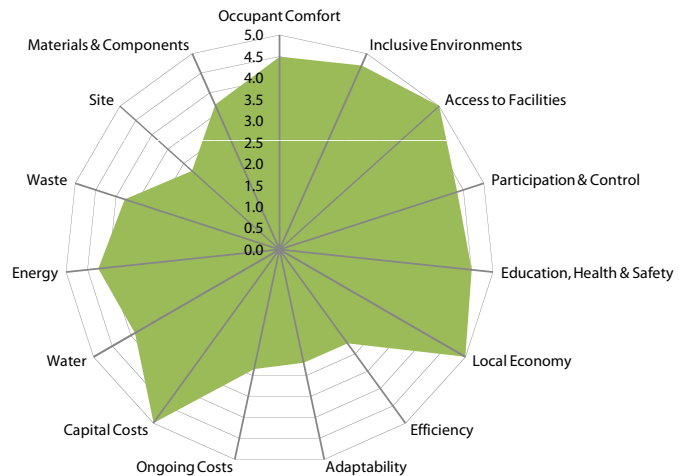


Figure 6.50 SBAT rating for Faerie Glen Nature Reserve



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**Chapter 7**

# **Conclusion**

The Faerie Glen Nature Reserve is an important open space within Pretoria due primarily to its ecological significance. By providing additional access to the reserve and facilities within it, the importance of the reserve was reinforced both as a public open space and as an ecologically sensitive site that appeals to a broader community.

An understanding of the site through analysis and cultural reading guided the design process to deal with site specific conditions that related to the inherent narrative contained within the landscape. By applying ecological design principles during the design stage, it was possible to use the inherent landscape quality to guide the layout of activities across the reserve and thus maintain its ecological sensitivity.

Based on this layout, social public interventions were made in the landscape in order to make it more appealing to a broader community. These interventions had their logic based in ecological design and this, together with a reading of the landscape narrative, successfully brought an aspect of poetry into the design which resulted in an integration of landscape and designed form thus limiting the visual impact of the interventions on the natural environment.

Landscape narrative was used to create places of memory in the landscape, and thus in totality, a memorable landscape. This was accomplished through an explicit understanding, and experience of the site which allowed the beauty to be unlocked. Memorable places are created through experience of place and the ensuing memories associated with that place. By understanding the inherent narrative and acknowledging the beauty and ecological sensitivity of the site, the experience of place is deepened and thus a memorable and sustainable landscape is created at the Faerie Glen Nature Reserve.

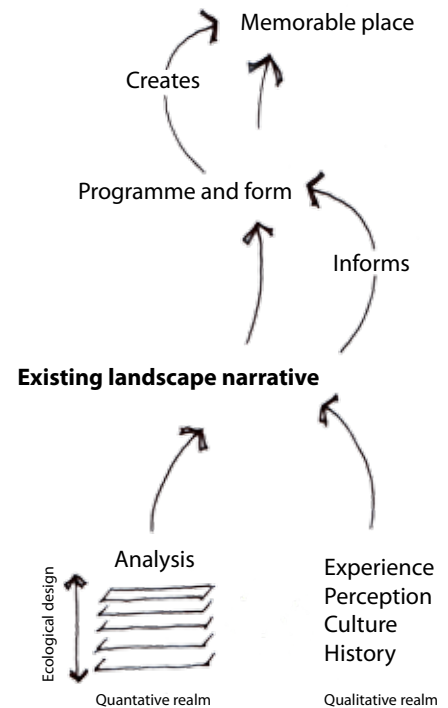


Figure 7.1 Landscape narrative



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## Appendix A

### Plant list for the Faerie Glen Nature Reserve

#### - Trees

<i>Acaia caffra</i>	<i>Maytenus undata</i>
<i>Acacia karroo</i>	<i>Mimusops zeyheri</i>
<i>Acokanthera oppositifolia</i>	<i>Mundulea sericea</i>
<i>Aloe marlothii</i> subsp. <i>Marlothii</i>	<i>Nuxia congesta</i>
<i>Ancylobortys capensis</i>	<i>Ochna pulchra</i>
<i>Berchemia zeyheri</i>	<i>Ochna pretoriensis</i>
<i>Brachylaena rotundata</i>	<i>Osyris quadripartite</i> ( <i>O. lanceolata</i> )
<i>Buddleja saligna</i>	<i>Pappea capensis</i>
<i>Buddleja salvifolia</i>	<i>Pavetta gardeniifolia</i>
<i>Burkea Africana</i>	<i>Pittosporum viridiflorum</i>
<i>Canthium gilfillanii</i>	<i>Psyrax livida</i>
<i>Canthium mundianum</i>	<i>Protea caffra</i> subsp. <i>caffra</i>
<i>Carissa bispinosa</i>	<i>Rhus leptodictya</i>
<i>Cassinopsis ilicifolia</i>	<i>Rhus pyroides</i>
<i>Cassine burkeana</i>	<i>Rhus zeyheri</i>
<i>Celtis africana</i>	<i>Rhamnus prinoides</i>
<i>Combretum erythrophyllum</i>	<i>Rhoicissus tridentate</i>
<i>Combretum molle</i>	<i>Rothmannia capensis</i>
<i>Cussonia paniculata</i>	<i>Salix mucronata</i>
<i>Diospyros lycioides</i>	<i>Strychnos pungens</i>
<i>Dyospyros whyteana</i>	<i>Tapophyllum parvifolium</i>
<i>Dodonea angustifolia</i>	<i>Vangueria infausta</i>
<i>Dombeya rotundifolia</i>	<i>Zantoxylum capense</i>
<i>Dovyalis zeyheri</i>	<i>Zimania caffra</i>
<i>Ehretia rigida</i>	<i>Ziziphus mucronata</i>
<i>Elephantorrhiza burkei</i>	
<i>Englerophytum magalismontanum</i>	<b>- Flowering plants and bulbs</b>
<i>Euclea crispa</i>	<i>Acalypha angustata</i>
<i>Grewia occidentalis</i>	<i>Aloe greatheadii</i> var. <i>davyana</i>
<i>Gymnosporia heterophylla</i>	<i>Anacampseros subnuda</i>
<i>Gymnosporia polyancantha</i>	<i>Asparagus laricinus</i>
<i>Halleria lucida</i>	<i>Asparagus setaceus</i>
<i>Heteropomorpha trofoliata</i>	<i>Asparagus virgatus</i>
<i>Kiggelaria africana</i>	<i>Athrixia elata</i>
<i>Lannea discolour</i>	<i>Berkheya radula</i>
<i>Maerua cafra</i>	<i>Bonatea speciosa</i>
<i>Maytenus tenuispina</i>	



*Boophane disticha*  
*Chironia palustris*  
*Convolvulus sagittatus*  
*Crinum bulbispermum*  
*Cryptolepis oblongifolia*  
*Dichapetalum cymosum*  
*Elephantorrhiza elephantine*  
*Eucomis autumnalis*  
*Eulophia welwitschii*  
*Eulophia ovalis* subsp. *Bainesii*  
*Gerbera ambigua*  
*Gerbera pillesiloides*  
*Gladiolus crassifolius*  
*Gnidia capitata*  
*Graderia subintegra*  
*Helichrysum kraussii*  
*Helichrysum nudifolium*  
*Helichrysum coriaceum*  
*Hermannia depressa*  
*Hypoxis acuminata*  
*Hypoxis rigidula*  
*Indigofera hiliaris*  
*Ipomoea bathycolpos*  
*Landolphia capensis*  
*Lippia javanica*  
*Nolettia rarifolia*  
*Perinaria capensis*  
*Pearsonia sissilifolia*  
*Pelargonium luridum*  
*Pellaea calomelanos*  
*Pentarrhinum insipidum*  
*Pentanisia angustifolia*  
*Plantago lanceolata*  
*Polygala hottentotta*  
*Ruellia cordata*  
*Rhynchosia nitens*  
*Scabiosa columbaria*  
*Scadoxus puniceus*  
*Senecio isatideus*  
*Sphenochilus angustifolia*  
*Stoebe vulgaris*

*Tephrosia enlongata*  
*Tritonia nelsonii*  
*Verbena bonariensis*  
*Verbena tenuisecta*  
*Vernonia galpinii*  
*Vernonia natalensis*  
*Vellozia retinervis*  
*Ziziphus zeyheriana*

**- Grasses**

*Aristida congesta* subsp. *barbicolis*  
*Aristida junciformis*  
*Brachiaria serrata*  
*Choris pycnotrix*  
*Cymbopogon excavates*  
*Cymbopogon plurinoides*  
*Cynodon dactylon*  
*Digitaria eriantha*  
*Diheteropogon amplexens*  
*Eloinurus muticus*  
*Eragrostis biflora*  
*Eragrostis chloromelas*  
*Eragrostis curvula*  
*Heteropogon contortus*  
*Hyparrhenia hirta*  
*Ishaemum fasciculatum*  
*Loudelia simplex*  
*Melinis nerviglumis*  
*Melinis repens*  
*Panicum maximum*  
*Panicum natalensis*  
*Setaria lindenberghiana*  
*Setaria sphacelata*  
*Sorgum bicolor*  
*Themeda triandra*  
*Tristachya leucothrix*  
*Tristachya rehmannii*

## Appendix B



### Stormwater and Irrigation Calculations Summary

<b>Stormwater collected (m<sup>3</sup>)</b>	
Parking and entrance plaza	5147.23
Pause junction, concert lawn and stage	1874.50
Restaurant area and concert lawn	1258.74
Total	<b>8280.47</b>

<b>Irrigation requirement(m<sup>3</sup>)</b>	
Parking and entrance plaza	1420.80
Pause junction, concert lawn and stage	4608.00
Restaurant area and concert lawn	2088.00
Total	<b>8116.80</b>



## Parking and Entrance Plaza

<b>Stormwater</b>				
	<b>Ave. Rainfall (mm)</b>	<b>Ave. Rainfall (m)</b>	<b>Evap./ month (mm)</b>	<b>Evap./ month (m)</b>
January	254.5	0.25	140.00	0.014
February	103.5	0.10	140.00	0.014
March	101.5	0.10	140.00	0.014
April	48.5	0.05	140.00	0.014
May	31.5	0.03	140.00	0.014
June	42	0.04	140.00	0.014
July	13	0.01	140.00	0.014
August	14.5	0.01	140.00	0.014
September	41.5	0.04	140.00	0.014
October	93.5	0.09	140.00	0.014
November	142	0.14	140.00	0.014
December	132.5	0.13	140.00	0.014
			less:	Runoff co-efficient

<b>Irrigation requirement</b>		
	<b>Irrigation/ month (m)</b>	<b>Area to be irrigated (m<sup>2</sup>)</b>
Intensive landscaping	0.16	200
Extensive landscaping	0.06	1000
Lawned areas	0.088	300



Hard Area (m <sup>2</sup> )	Runoff (m <sup>3</sup> )	Soft Area (m <sup>2</sup> )	Runoff (m <sup>3</sup> )	Total catchable runoff (m <sup>3</sup> )
5100	1226.55	6800	1635.4	
5100	456.45	6800	608.6	
5100	446.25	6800	595	
5100	175.95	6800	234.6	
5100	89.25	6800	119	
5100	142.8	6800	190.4	
5100	-5.1	6800	-6.8	
5100	2.55	6800	3.4	
5100	140.25	6800	187	
5100	405.45	6800	540.6	
5100	652.8	6800	870.4	
5100	604.35	6800	805.8	
	4337.55		5783.4	
0.08	347.00	0.8	4626.72	
	3990.55		1156.68	<b>5147.23</b>

Irrigation/ month (m <sup>3</sup> )	Irrigation/ year (m <sup>3</sup> )	Total irrigation Required (m <sup>3</sup> )
32	384	
60	720	
26.4	316.8	
	<b>1420.80</b>	<b>1420.80</b>



### Pause Junction, Concert Lawn and Stage

<b>Stormwater</b>				
	<b>Ave. Rainfall (mm)</b>	<b>Ave. Rainfall (m)</b>	<b>Evap./ month (mm)</b>	<b>Evap/ month (m)</b>
January	254.5	0.25	140.00	0.014
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April	48.5	0.05	140.00	0.014
May	31.5	0.03	140.00	0.014
June	42	0.04	140.00	0.014
July	13	0.01	140.00	0.014
August	14.5	0.01	140.00	0.014
September	41.5	0.04	140.00	0.014
October	93.5	0.09	140.00	0.014
November	142	0.14	140.00	0.014
December	132.5	0.13	140.00	0.014
			less:	Runoff co-efficient

<b>Irrigation requirement</b>		
	<b>Irrigation/ month (m)</b>	<b>Area to be irrigated (m<sup>2</sup>)</b>
Intensive landscaping	0.16	100
Extensive landscaping	0.06	1000
Lawned areas	0.088	3500



Hard Area (m <sup>2</sup> )	Runoff (m <sup>3</sup> )	Soft Area (m <sup>2</sup> )	Runoff (m <sup>3</sup> )	Total catchable runoff (m <sup>3</sup> )
1200	288.6	5500	1322.75	
1200	107.4	5500	492.25	
1200	105	5500	481.25	
1200	41.4	5500	189.75	
1200	21	5500	96.25	
1200	33.6	5500	154	
1200	-1.2	5500	-5.5	
1200	0.6	5500	2.75	
1200	33	5500	151.25	
1200	95.4	5500	437.25	
1200	153.6	5500	704	
1200	142.2	5500	651.75	
	1020.6		4677.75	
0.08	81.65	0.8	3742.2	
	938.95		935.55	<b>1874.50</b>

Irrigation/ month (m <sup>3</sup> )	Irrigation/ year (m <sup>3</sup> )	Total irrigation Required (m <sup>3</sup> )
16	192	
60	720	
308	3696	
	<b>4608.00</b>	<b>4608.00</b>





## Restaurant Area and Picnic Lawn

<b>Stormwater</b>				
	<b>Ave. Rainfall (mm)</b>	<b>Ave. Rainfall (m)</b>	<b>Evap./ month (mm)</b>	<b>Evap/ month (m)</b>
January	254.5	0.25	140.00	0.014
February	103.5	0.10	140.00	0.014
March	101.5	0.10	140.00	0.014
April	48.5	0.05	140.00	0.014
May	31.5	0.03	140.00	0.014
June	42	0.04	140.00	0.014
July	13	0.01	140.00	0.014
August	14.5	0.01	140.00	0.014
September	41.5	0.04	140.00	0.014
October	93.5	0.09	140.00	0.014
November	142	0.14	140.00	0.014
December	132.5	0.13	140.00	0.014
			less:	Runoff co-efficient

<b>Irrigation requirement</b>		
	<b>Irrigation/ month (m)</b>	<b>Area to be irrigated (m<sup>2</sup>)</b>
Intensive landscaping	0.16	200
Extensive landscaping	0.06	900
Lawned areas	0.088	1000



Hard Area (m <sup>2</sup> )	Runoff (m <sup>3</sup> )	Soft Area (m <sup>2</sup> )	Runoff (m <sup>3</sup> )	Total catchable runoff (m <sup>3</sup> )
1000	240.5	2800	673.4	
1000	89.5	2800	250.6	
1000	87.5	2800	245	
1000	34.5	2800	96.6	
1000	17.5	2800	49	
1000	28	2800	78.4	
1000	-1	2800	-2.8	
1000	0.5	2800	1.4	
1000	27.5	2800	77	
1000	79.5	2800	222.6	
1000	128	2800	358.4	
1000	118.5	2800	331.8	
	850.5		2381.4	
0.08	68.04	0.8	1905.12	
	<b>782.46</b>		<b>476.28</b>	<b>1258.74</b>

Irrigation/ month (m <sup>3</sup> )	Irrigation/ year (m <sup>3</sup> )	Total irrigation Required (m <sup>3</sup> )
32	384	
54	648	
88	1056	
	<b>2088.00</b>	<b>2088.00</b>