

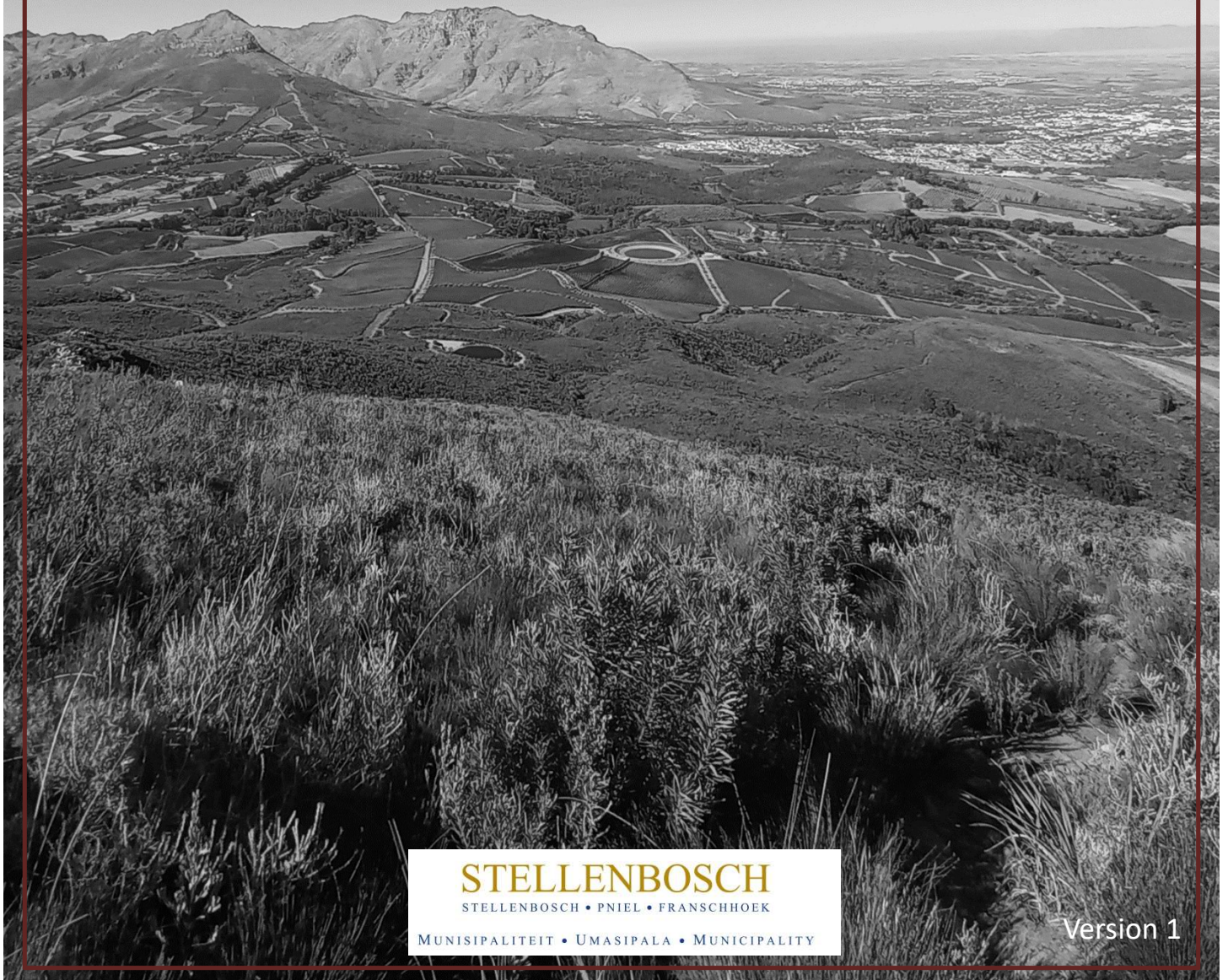


CONSULTATIVE DRAFT

IDAS VALLEY / BOTMASKOP NATURE AREA

ENVIRONMENTAL MANAGEMENT PLAN

May 2022



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MUNISIPALITEIT • UMASIPALA • MUNICIPALITY

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ABBREVIATIONS

CBA	Critical Biodiversity Area
DEA&DP	Department of Environmental Affairs and Development Planning
DEA	National Department of Environmental Affairs
DAFF	Department of Agriculture, Forestry and Fisheries
DWS	National Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
FPA	Fire Protection Association in terms of the National Veld and Forest Fire Act
GIS	Geographical Information System
IDP	Municipal Integrated Development Plan
MOU	Memorandum of Understanding
NEMA	National Environmental Management Act
NA	Nature Area
NFEPA	National Freshwater Ecosystem Priority Area
NPAES	National Protected Area Expansion Strategy
NSBA	National Spatial Biodiversity Assessment
PA	Protected Area
SAHRA	South African Heritage Resources Agency
SDF	Municipal Spatial Development Framework
UNESCO	United Nations Educational, Scientific and Cultural Organisation

1. INTRODUCTION

1.1 PURPOSE

The purpose of this Environmental Management Plan (EMP) is to establish a distinct vision and overarching goal for the management of the Idas Valley / Botmaskop Natura Area (from hereon referred to as the Idas Valley / Botmaskop NA or simply the NA) in context of the relevant legislation and associated regulations. Accordingly, the primary aims of this EMP include the following:

1. Facilitating the rehabilitation and long-term management of the Idas Valley / Botmaskop NA.
2. Promotion of a conservation ethos in the minds of the people of the area and the general public with the objective to create a shared responsibility to maintain the health, diversity and productivity of the area in a spirit of stewardship and caring.
3. Implementation of management practices that will benefit current and future generations.
4. Provision of sustainable outdoor recreational opportunities in the area.
5. Ensuring that future growth and development proposals for Stellenbosch are compatible with the vision, goals and objectives for the area and associated ecological systems.

1.2 VISION

In order to balance the management requirements of the Idas Valley / Botmaskop NA with the aspirations of all stakeholders and the place-specific environmental, social and economic constraints, the following vision is set for the area:

To manage and protect the Idas Valley / Botmaskop Nature Area as a sustainable and safe area which is recognised and valued for its environmental integrity and community-supporting functions.

1.3 OVERARCHING GOAL

The over-arching goal of the Idas Valley / Botmaskop NA is to contribute towards environmental sustainability and the conservation of biodiversity as a prerequisite for the latter. This EMP builds on the recognition that for biodiversity conservation to succeed, the maintenance of environmental integrity (as defined by ecological, economic and social criteria) must be one of the primary determinants of land-use planning and management.

Sustainability, under present circumstances, cannot be achieved without any form of management intervention and such intervention has to be financed to a significant extent. Accordingly, sustainable development projects or use within the area should ideally contribute towards the required financing of management activities in a spirit of partnership.

The CSIR (2002) states that sustainable development should *improve the state of any given situation*. Sustainable development requires a long-term, integrated, systems approach pertaining to economic, environmental and social issues. Fostering a strong sense of community and building partnerships and consensus among key stakeholders are important elements of sustainable development (CSIR, 2002). The International Union for the Conservation of Nature (IUCN) defined sustainable development as *'development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs'*.

The International Institute for Sustainable Development (IISD) (1995) states that sustainable development occurs at the intersection of three global imperatives, namely *human well-being*, *environmental integrity* and *economic efficiency*. The interactive model of sustainability illustrates that sustainable development occurs where the three imperatives interact within an 'interactive zone' (Figure 1). Development outside this 'interactive zone' will not be sustainable. Mebratu (1998).¹ The EMP builds on the following understanding of the three global imperatives:

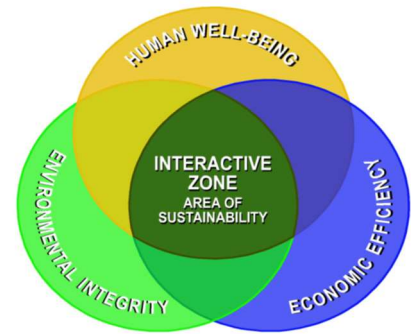


Figure 1: The interactive model of sustainability (Adapted from Mebratu, 1998).

1.3.1 Human Well-Being

Human well-being refers to both *material* and *spiritual* well-being. Material well-being refers to the absence of poverty. Spiritual well-being *inter alia* refers to the absence of inequality and being in a position to obtain new powers, emotionally, intellectually and physically and to be able to play a meaningful role in promoting and achieving sustainable development. It is recognised that the Idas Valley / Botmaskop NA has a significant impact on the well-being of the people of Stellenbosch and surroundings in terms of a number of important aspects.

1.3.2 Environmental Integrity

Environmental integrity refers to the relative '*wholeness*' of the environment. 'Environment' is defined as the aggregate of all external conditions and influences affecting the life of an organism. Environmental integrity is determined by the *value* of the environment or place (natural or human-made), with specific reference to its intrinsic, systemic, and/or instrumental value. The EMP builds on the recognition that the human-made environment is located within and 'contained' by the natural environment. The manner in which human settlements are developed, therefore, has an immense impact on the quality and integrity of the environment as a totality. It is therefore imperative that the human-made environment be planned, designed and developed in a manner that will ensure the maintenance of the values referred to above (i.e. intrinsic, systemic, and/or instrumental value). From a natural environmental perspective, ecological integrity is a key factor in the sustainable development equation. Ecological integrity *inter alia* requires that biodiversity is protected and essential ecological processes and services (e.g. water yield and quality, soil conservation, decomposition, etc.) are maintained. *Environmental health* is the key to sustainable development. The primary threat to environmental health is fragmentation of community-supporting ecosystems. Fragmentation generally leads to a cycle of environmental degradation, which subsequently influences the well-being of the dependent communities.

1.3.3 Economic Efficiency

Economic efficiency is understood as *the optimisation of benefit at the lowest cost*. It includes the innovative and efficient use of available resources. The Idas Valley / Botmaskop NA is an important public resource that has to be managed for the benefit of all concerned and in terms of best-practice management strategies in order to ensure efficiency.

¹ Mebratu, D. 1998: Sustainability and sustainable development: Historical and conceptual overview. *Environmental Impact Assessment and Review*, 18:493-520.

1.4 GUIDING PRINCIPLES

It is important that the following principles guide future management of the Idas Valley / Botmaskop NA:

- a) **Precautionary principle**: The precautionary principle refers to actions on issues considered to be uncertain. The principle is used by policy makers to justify discretionary decisions in situations where there is the possibility of harm from making a certain decision when extensive scientific knowledge on the matter is lacking. Precaution may be defined as *caution in advance* or *caution practised in the context of uncertainty*. The precautionary principle is an expression of a need by decision-makers to anticipate harm before it occurs.
- b) **Causal principle**: This principle indicates that default responsibility for rectification or mitigation of any particular impact rests with the entity which directly caused such impact. While the more well-known polluter pays principle is a subcategory of this, the causal principle applies not just to pollution but more generally to all impacts.
- c) **Integration principle**: The Integration principle refers not only to the cooperation between different social bodies, but also to the integration of different physical, biological and social realities and issues pertaining to a particular geographic area.
- d) **Cooperation principle**: Government as well as the private sector, non-governmental organisations and science all need to be involved to ensure sustainability. Successful long-term environmental management requires that all role players to act cooperatively to achieve a common goal.

1.5 MANAGEMENT OBJECTIVES

Further to achieving the above listed goals, the management objections for Idas Valley / Botmaskop NA are the following:

- a) **Water conservation** through the conservation of the catchment area with the aim of providing the optimal sustainable stream-flow or yield of high-quality water to the Idas Valley Dam and lower lying areas.
- b) **Nature conservation** by managing the area in accordance with ecologically acceptable principles and practices.
- c) **Outdoor recreation** by creating opportunities for place specific, sustainable, suitable environmental use and low intensity outdoor use.
- d) **Cultural activities** that are in line with place specific characteristics of the area, that are sustainable and that does not pose un-manageable risk.
- e) **Tourism and job-creation** through partnership with local partners.
- f) Providing opportunities for **research** that would benefit nature conservation and environmental management in general.

1.6 ADAPTIVE MANAGEMENT

The preparation of this management plan has been undertaken based on the guiding principles of adaptive management, which is a structured, iterative process in which decisions are made using the best available information, with the aim of obtaining better information through monitoring of performance (Figure 2). In this way, decision making is aimed at achieving the best outcome based on current understanding, whilst accruing the information needed to improve future management. Adaptive management can lead to revision of a part or if necessary the whole management plan.

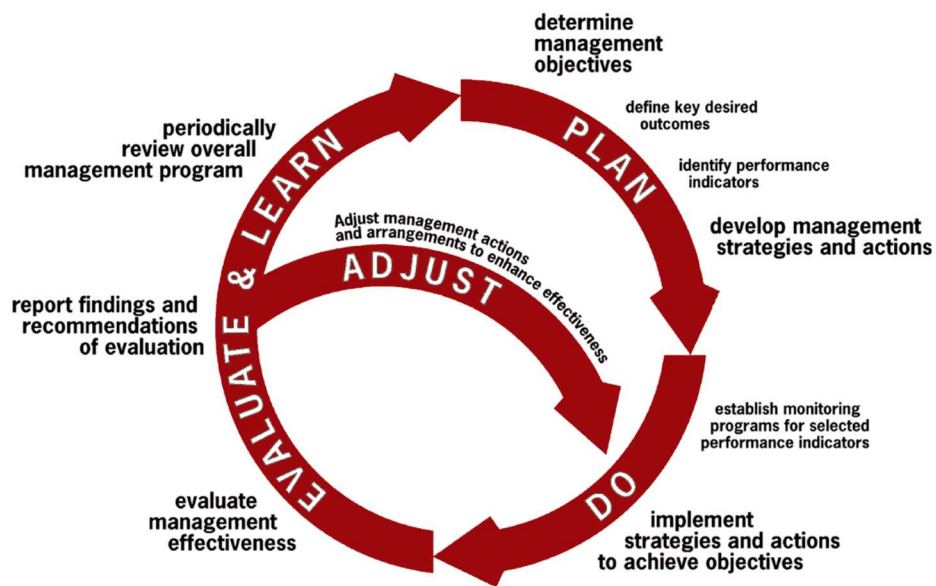


Figure 2: Adaptive Management Cycle (Management Strategy Evaluation, 2009)

Adaptive management enables landowners and managers to:

- a) learn through experience;
- b) take account of, and respond to, changing factors that affect the NA;
- c) develop or refine management processes; and
- d) adopt best practices and new innovations in biodiversity conservation management.

2. LOCATION AND EXTENT

2.1 LOCATION

The Idas Valley / Botmaskop NA is situated within Stellenbosch Municipality (the Municipality) on the north-western boundary of Stellenbosch town, just above (to the north, north-east and east of) Idas Valley (Figure 3). The Idas Valley portion of the NA is located north of the Helshoogte pass on the way to Pniel. Botmaskop is located south of the road, against the mountain side, as one exists Stellenbosch driving up the Helshoogte pass.

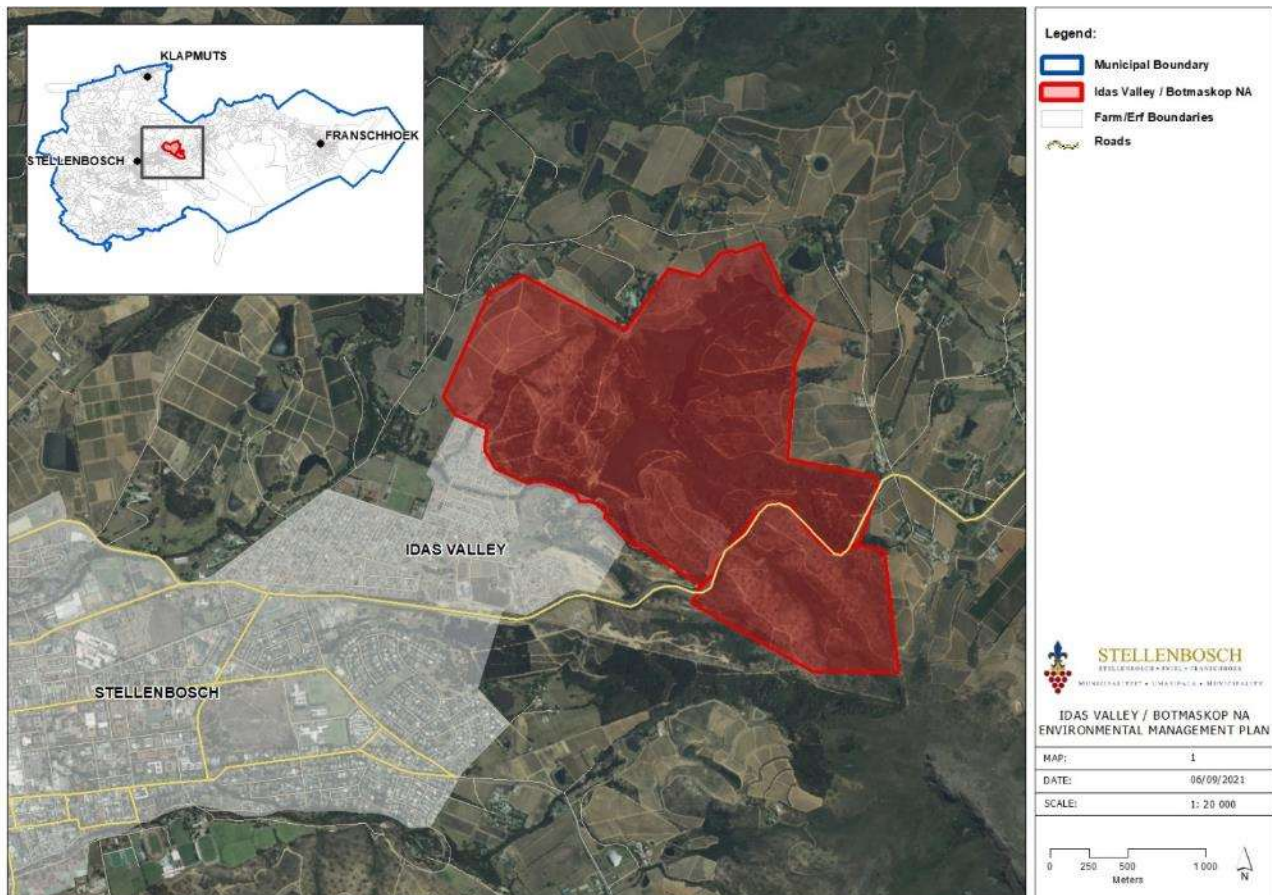


Figure 3: Idas Valley / Botmaskop NA in context of Stellenbosch town.

The NA covers an area of ± 425 ha of which the Idas Valley area consist of 335 ha. The area is mainly bordered by farmland, the urban area of Idas Valley to the south-west and the mountainous natural landscape towards the Jonkershoek Mountains in the south.

The relevant property is municipal owned land and zoned for agricultural use. The largest portion of the area has been used for forestry purposes at some point. The Idas Valley Dam(s), which provides Stellenbosch town with potable water, is located within the NA.

2.2 LANDSCAPE PERSPECTIVE

Stellenbosch Municipality forms part of the Cape Winelands Biosphere Reserve (CWBR) which was approved by United Nations Educational, Scientific and Cultural Organization (UNESCO) and included in the World Network of Biosphere Reserve in 2007. The Idas Valley / Botmaskop NA forms

part of a system of nature and / or protected areas that collectively form the core and buffer areas of the CWBR. This system is based upon the principle that a system of protected areas is a key element of any strategy to maintain biodiversity and ecosystem functions on a larger regional scale. It is imperative that such a system be designed and managed to represent and protect the diversity of ecological processes, communities, species and gene pools (Global Biodiversity Strategy, 1992).

Various protected areas in the proximity of the Idas Valley / Botmaskop NA include Papegaaiberg Nature Reserve, Jan Marais Nature Reserve, Jonkershoek Conservancy, Bottelary Hills Renosterveld Conservancy, Hottentots-Holland Nature Reserve, Koopmanskloof Private Nature Reserve and Simonsberg Nature Reserve (Figure 4).

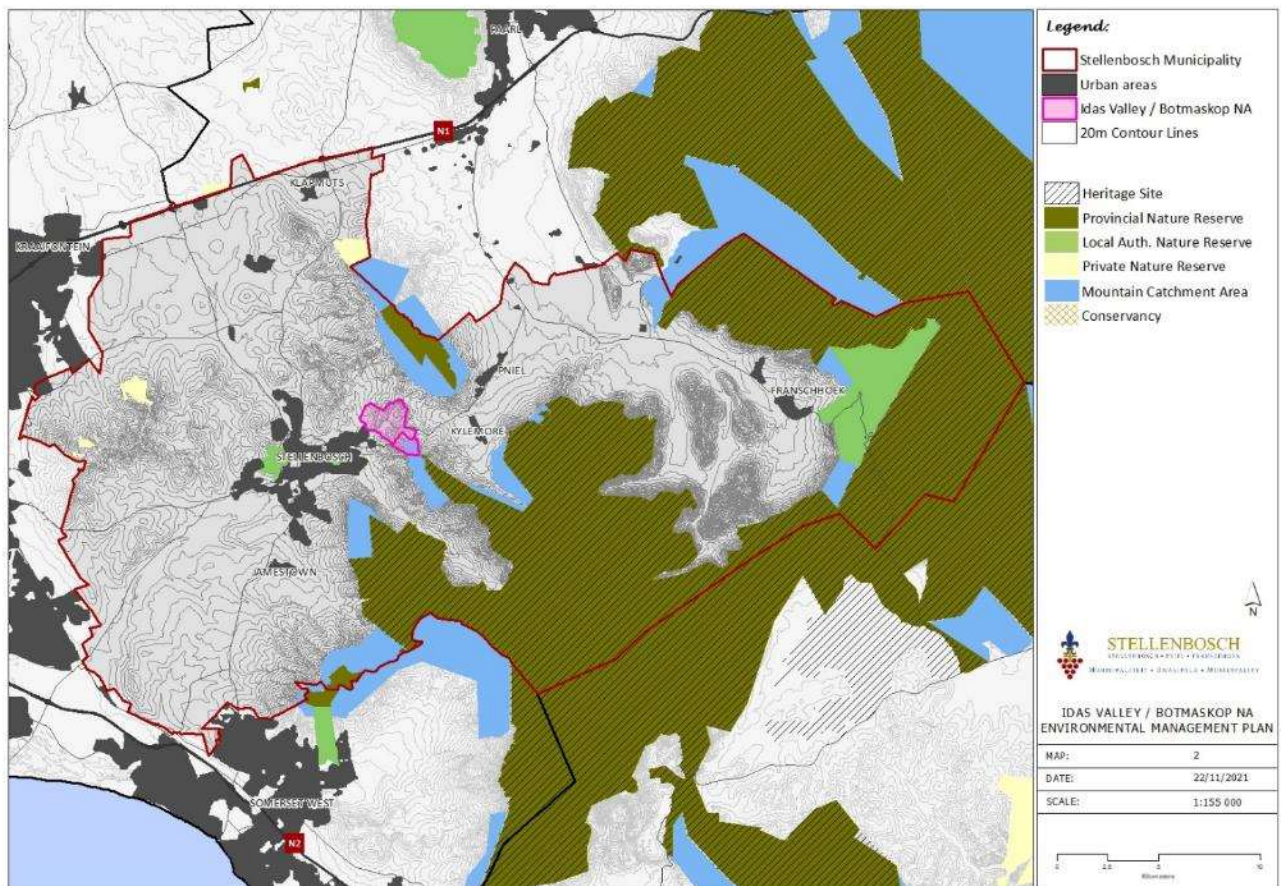


Figure 4: Idas Valley / Botmaskop NA in context of surrounding protected areas

2.3 PROPERTY INFORMATION

As mentioned above, the Idas Valley / Botmaskop NA consists of an area of approximately 425 ha, comprising of the following properties:

Table 1: Idas Valley / Botmaskop NA properties.

Property	Size (ha)
Portion 1 of Farm 169	20.5
Portion 1 of Farm 135	3.5
Portion 2 of Farm 135	0.1

Remainder of Farm 171	8.9
Remainder of Farm 170	15.5
Portion 1 of Farm 165	120.1
Remainder of Farm 119	237.7
Portion 4 of Farm 119	5.0
Portion 7 of Farm 119	3.5
Portion 8 of Farm 119	9.0

Most of these properties are located to the north of the Helshoogte Road, or the Idas Valley portion of the NA (Figure 5).

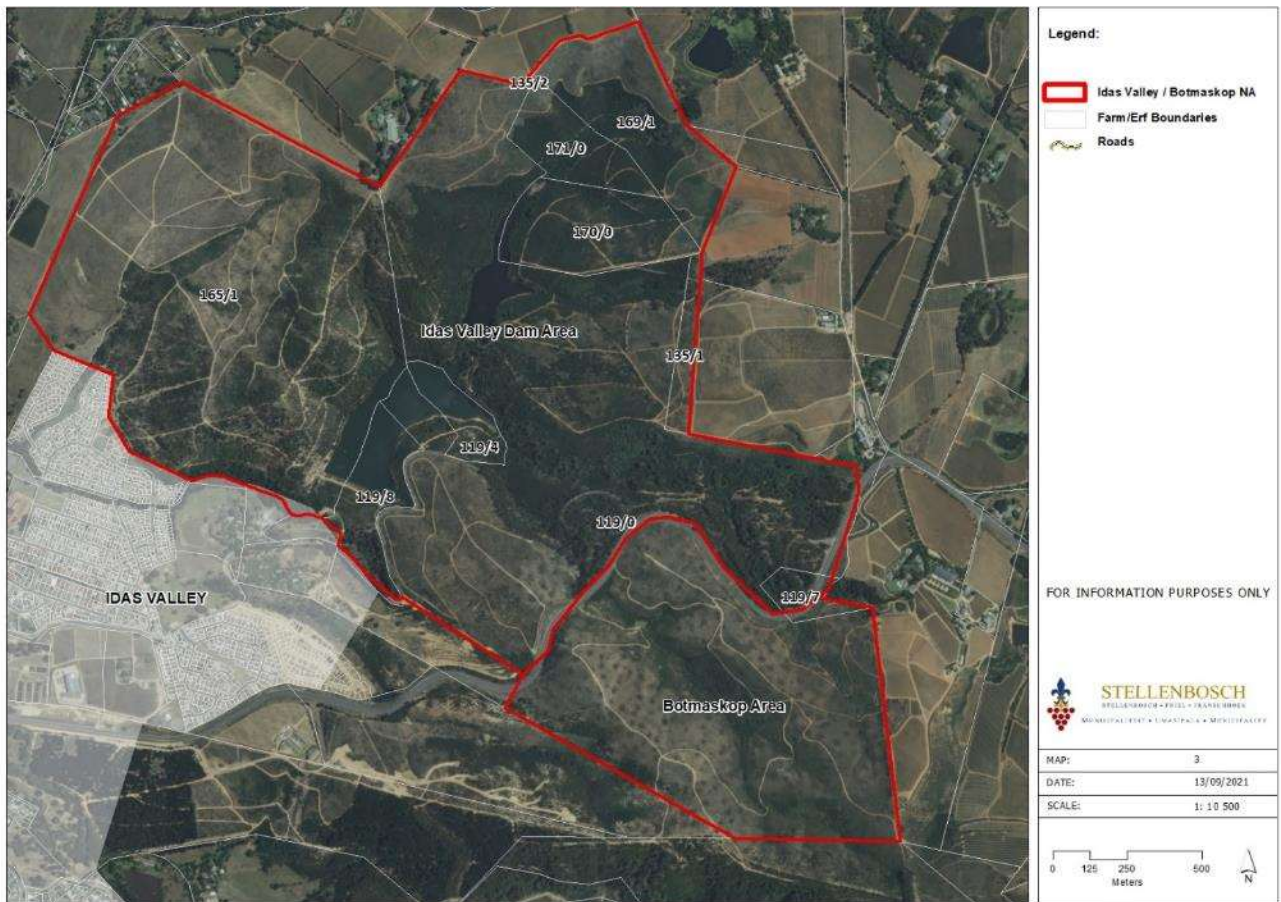


Figure 5: Property description.

3. LAND USES

3.1 WATER PROVISION

In the centre of the area are two catchment dams and associated Municipal infrastructure that plays an important role in providing Stellenbosch town with potable water. The use and maintenance of this infrastructure is important to make sure that water service delivery to the relevant dependant areas is provided in a sustainable manner over the long-term.

Maintenance of the NA, especially from an alien plant management point of view, will play a major role in improving water run-off from the dam’s immediate surrounding areas and drainage corridors.

3.2 OUTDOOR RECREATION

Having been a forestry area in the past the NA consists of a network of old service roads. The Old Helshoogte pass also cuts through the area (Figure 6). Given the scenic qualities of the area, the existing road network en proximity to Stellenbosch and surrounding local communities the Idas Valley / Botmaskop NA is a popular recreational use area used by cyclers, runners and hikers.

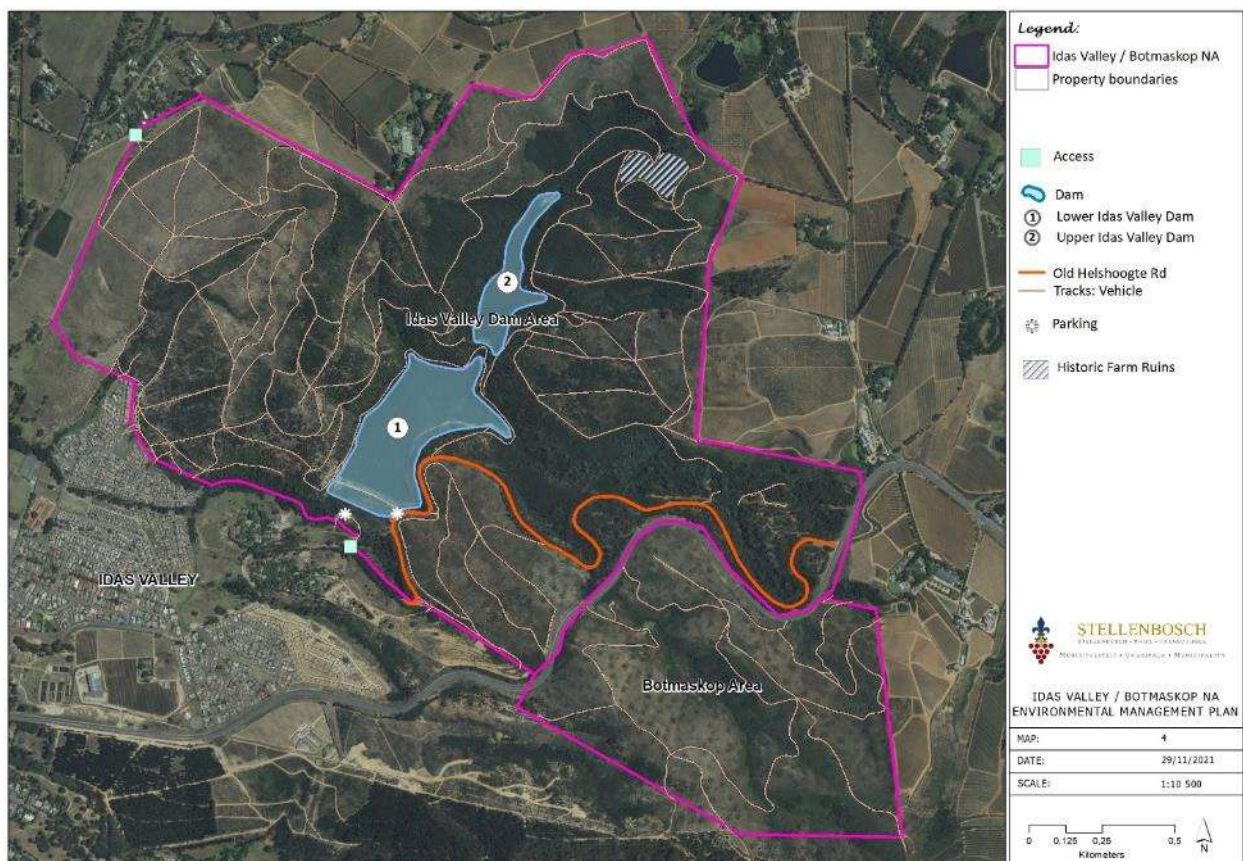


Figure 6: Existing infrastructure within the Idas Valley / Botmaskop NA.

3.3 OTHER USES

Other uses in the NA include the following:

Wood making: The NA is invaded, partly due to its use as forest area in the past, by a number of alien vegetation species ranging from plants to mature trees. This provides a resource to local contractors collect firewood. Each year a number of permits (issued as per the Council approved tarrif structure) that allows this activity within the Idas Valley area are issued by the Municipality. In terms of these permits issued the felling of trees are prohibited. Fallen- or trees felled by the Municipality is allowed to be processed.

Rastafarians: The Municipality have allowed the Rastafarian community to conduct religious activity as well as some gardening within a selected location within the NA.

Initiations: For more than a decade selected locations within the NA have been used for the annual initiations conducted by a number of African groups such as the Xhosa's and Basutu's. During these initiations the most of the NA is closed to the public.

Events: The Idas Valley / Botmaskop NA is the subject of numerous event applications, mainly associated with mountain-biking or trail-running.

Filming: The Municipality, from time-to-time, receives applications for filming or photoshoots within its nature areas, including the Idas Valley / Botmaskop NA.

4. PHYSICAL DESCRIPTION

4.1 CLIMATE

Stellenbosch Municipality has a typically Mediterranean climate. Summers are dry and warm to hot. Daytime temperatures range from 24°C to 35°C, with some February and March days rising to over 40°C. A south easterly wind often blows in summer bringing cooler air from the nearby coast. Winter is typically wet, windy and cold with daytime temperatures range from 10°C to 20°C. Rain is brought with north westerly winds. Stellenbosch normally receives about 673mm of rain per year. Snow is usually seen a couple of times in winter on the surrounding mountains. Spring and autumn daytime temperatures hover in the 20°C's.

4.2 TOPOGRAPHY, GEOLOGY AND SOIL

The Idas Valley / Botmaskop NA differs quite dramatically with low gullies (200m above see-level), rising hills all the way up towards Simonsberg Mountain in the Botmaskop area (600m above see-level). The area drains into the existing catchment dams and into the Krom River below (Figure 7).

The higher lying areas of Idas Valley / Botmaskop NA is dominated with rock with little to no soil. The lower lying, or western portion of the Idas Valley / Botmaskop NA consist of red and yellow freely drained mesotrophic to eutropic soils (Figure 8).

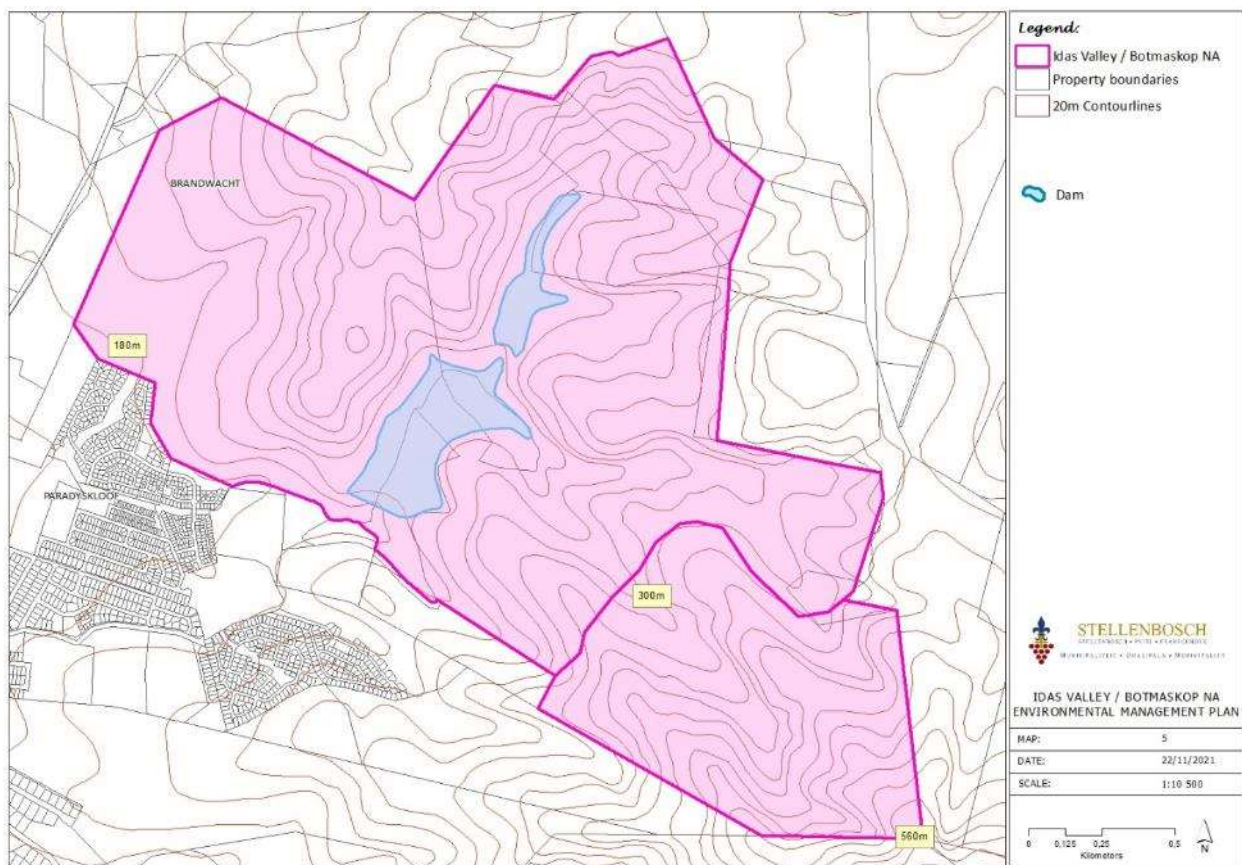


Figure 7: Idas Valley / Botmaskop NA topography

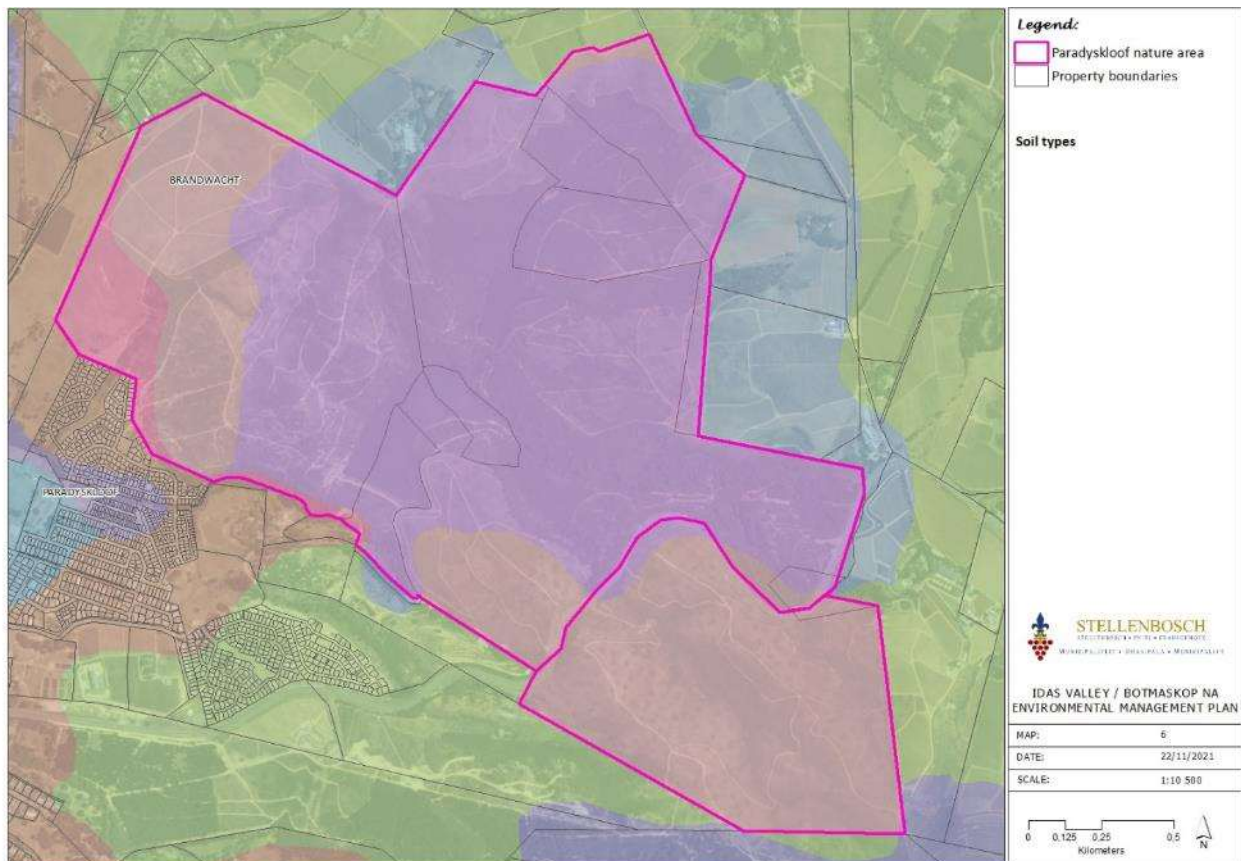


Figure 8: Idas Valley / Botmaskop NA soil

4.3 HYDROLOGY

Idas Valley / Botmaskop NA forms part of quaternary catchment² number G22G (Figure 9). Although the catchment of Idas Valley / Botmaskop NA seems rather insignificant it is important to note that the latter forms part of an integrated group of ecosystems that collectively determine the health of the total catchment. The primary threat to environmental health is fragmentation of the community-supporting ecosystems. Fragmentation generally leads to a cycle of environmental degradation, which in turn influences the wellbeing of the depending communities.

Ecosystems and / or catchments are mutually dependent on every natural component for their existence. The loss, or degradation, of one component affects all others. Hence the importance of conserving every part of a system that forms part of the natural water-cycle³.

The Krom River is approximately 5 km in length and rises in the Simonsberg Mountains some 9 km north-east of Stellenbosch. The river is dammed at the Idas Valley dams from where it flows through agricultural areas before entering Stellenbosch through Idas Valley. Before its confluence with the Plankenbrug River below the Plankenbrug Industrial Area the river flows through the central residential area of Stellenbosch. The quality of the Krom River is average to poor, mainly influenced by urban and agricultural run-off.

² Catchment (or catchment area) is defined as the entire land area from which water flows into a river. Catchments can be divided into smaller sub-catchments which are usually the area which drains a tributary to the main river or a part of the main river.

³ The water-cycle describes the natural process of moving water out of the oceans, into the atmosphere, onto land and back into oceans.

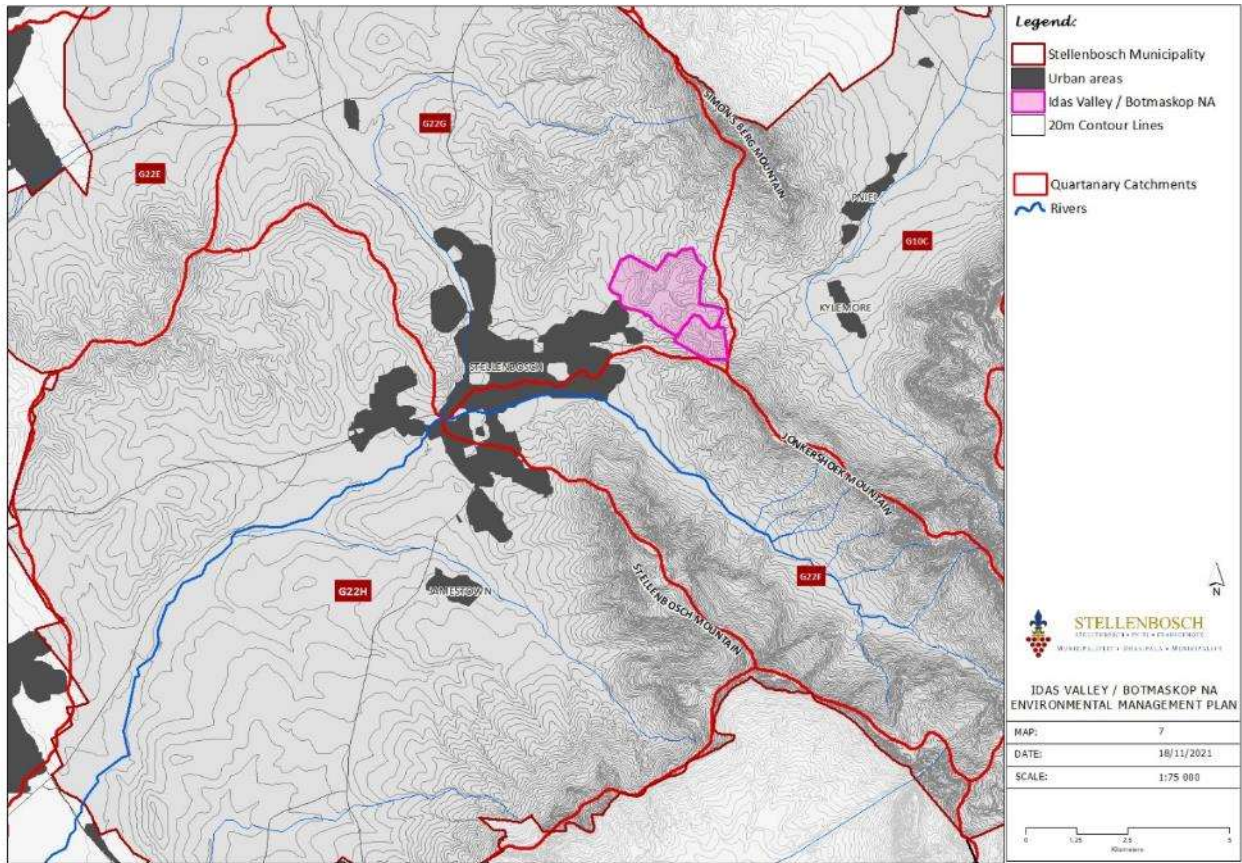


Figure 9: Catchment Area.

5. BIOPHYSICAL DESCRIPTION

5.1 FLORA

The Idas Valley / Botmaskop NA falls within the Cape Floral Kingdom which is inter-nationally recognised as one of the six Floral Kingdoms of the world. The unique Cape Floral Kingdom is the smallest, covering a mere 0,06% of the earth's surface, and is the only Floral Kingdom contained in its entirety within a single country (refer to Figure 10).

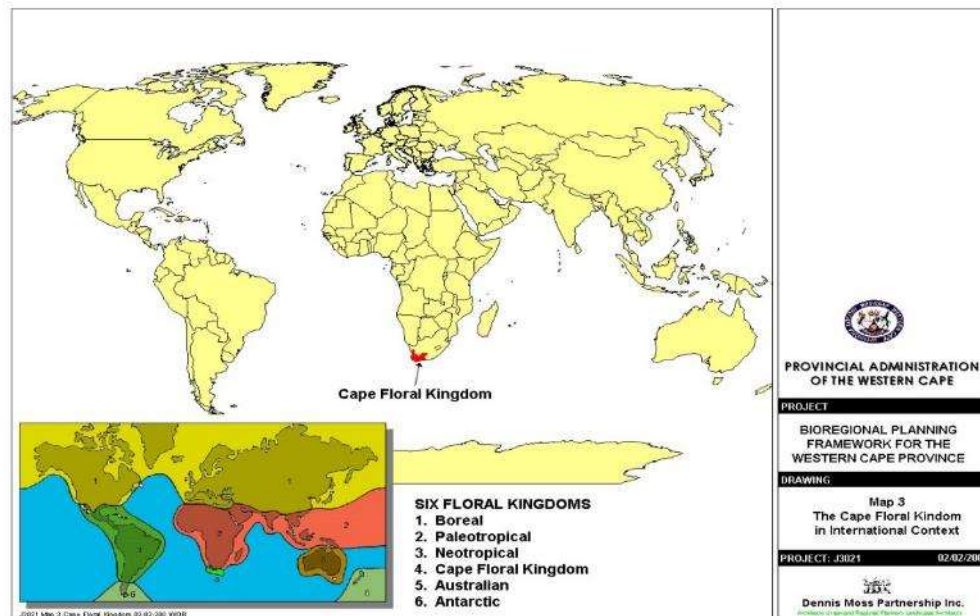


Figure 10: The Cape Floral Kingdom in International Context.

The Cape Floral Kingdom is of immense scientific importance. It covers only 4% of South Africa, but contains 45% of all plant species occurring in the country. About three-quarters of all plants in the South African Red Data Book occur in the Cape Floral Kingdom. The Cape Floral Kingdom is characterised by an exceptional richness in plant species and high endemism. More than 8 700 species are known to occur, with more than 68% being endemic. It, thus, compares with some of the richest floras worldwide, surpassing many tropical forest regions in floral diversity. The Cape Floral Kingdom comprises various biomes, namely Fynbos, Forest, Nama Karoo, Succulent Karoo, and Thicket. However, Low and Rebelo (1996)³ state that the contribution of Fynbos in terms of species richness, endemism, and fame, is so overwhelming, that the Cape Floral Kingdom is considered to be 'essentially Fynbos'.

Fynbos is the noun describing the unique flora that occurs exclusively in the South-Western Cape in a narrow band following the Cape Fold Mountains from north of Nieuwoudtville to near Port Elizabeth. Many Fynbos species are extremely localised in their distribution, with sets of such localised species organised into 'centres of endemism' (Low and Rebelo, 1996).

³ Low, A.B. & Rebelo, A.G. (eds). 1996. *Vegetation of South Africa, Lesotho and Swaziland*. Dept. Environmental Affairs and Tourism, Pretoria.

The uniqueness and value of Fynbos puts South Africans under the obligation to explore this unique natural heritage, to display it to the rest of the world, and to preserve it for future generations. To accomplish this, an understanding of the uniqueness of Fynbos and its complicated processes and ecological cycles, and the interdependence of its various components, is necessary. Research is the key to this understanding. The Fynbos Biome provides opportunities for specialised research to scientists and students from all over the world.

Although immensely impacted upon by invasion of exotic species, pollution, agriculture, forestry and trampling the natural vegetation of the Idas Valley / Botmaskop NA includes the following:

West Coast Renosterveld:

The area falls within an area that was once covered by West Coast Renosterveld. Remnants of the vegetation type still occur, comprising species such as Renosterbos (*Elytropappus rhinocerotis*), Wild Rosemary (*Eriocephalis africanus*), Dune Teabush (*Leysera gnaphalodes*), Jakkalsstert (*Anthospermum aethiopicum*) and Blombos (*Metalsia muricata*). These areas also comprise of herbaceous perennial grass cover including Redgrass (*Themeda triandra*) and Cape Terpentipe grass (*Cymbopogon marginatus*). Due to its threatened conservation status it is important that the West Coast Renosterveld in the Idas Valley / Botmaskop NA be rehabilitated and protected.

Thickets:

Clumps of Wild Olive (*Olea europaea* subsp *africana*), shrubs such as Blue Kuni-Bush (*Rhus glauca*), and Blueberry (*Diospyros glabra*) and geophytes such as Suurkanol (*Chasmanthe aethiopica*) and Arum Lily (*Zantedeschia aethiopica*) occurs in some of the areas in the Idas Valley / Botmaskop NA.

Riparian and riverine vegetation:

The Krom River flows through the foothills of the Idas Vally / Botmaskop NA. This river, together with its tributaries, are of significant importance being ecological corridors connecting the Hottentots Holland Mountains with natural areas in the Cape Flats. Although under pressure remnants of indigenous vegetation persist in and along the river. These includes trees such as Cape Willow (*Salix mucronata*), Spoonwood (*Hartogiella schinoides*), Wild Peach (*Kiggelaria africana*), Rock Candlewood (*Maytenus oleoides*) and Breede River Yellowwood (*Podocarpus elongatus*). Some attractive indigenous shrubs also occur including the Honey Bell Bush (*Freylinia lanceolata*) and Wild Sage (*Salvia Africana-caerulea*). The health of the river is largely dependant on the status of the riparian vegetation. The river is largely degraded due to the infestation of exotic plants such Oak (*Quercus robur*), Weeping Willow (*Salix babylonica*), Stinkbean (*Paraserianthes lophantha*), Port Jackson (*Acacia saligna*), Pittosporum spp and Elephant Ear (*Colocasia esculenta*). Additional factors that caused degradation of the river include pollution and eutrophication of the water due to over-fertilization of surrounding areas and upstream human activities.

In terms of the Western Cape Biodiversity Spatial Plan (2017) the NA is mostly depicted as Critical Biodiversity 2 and Ecological Support Area 2 (Figure 11). The various categories (CBA's [Critical Biodiversity Areas]) are defined in Table 2 below.

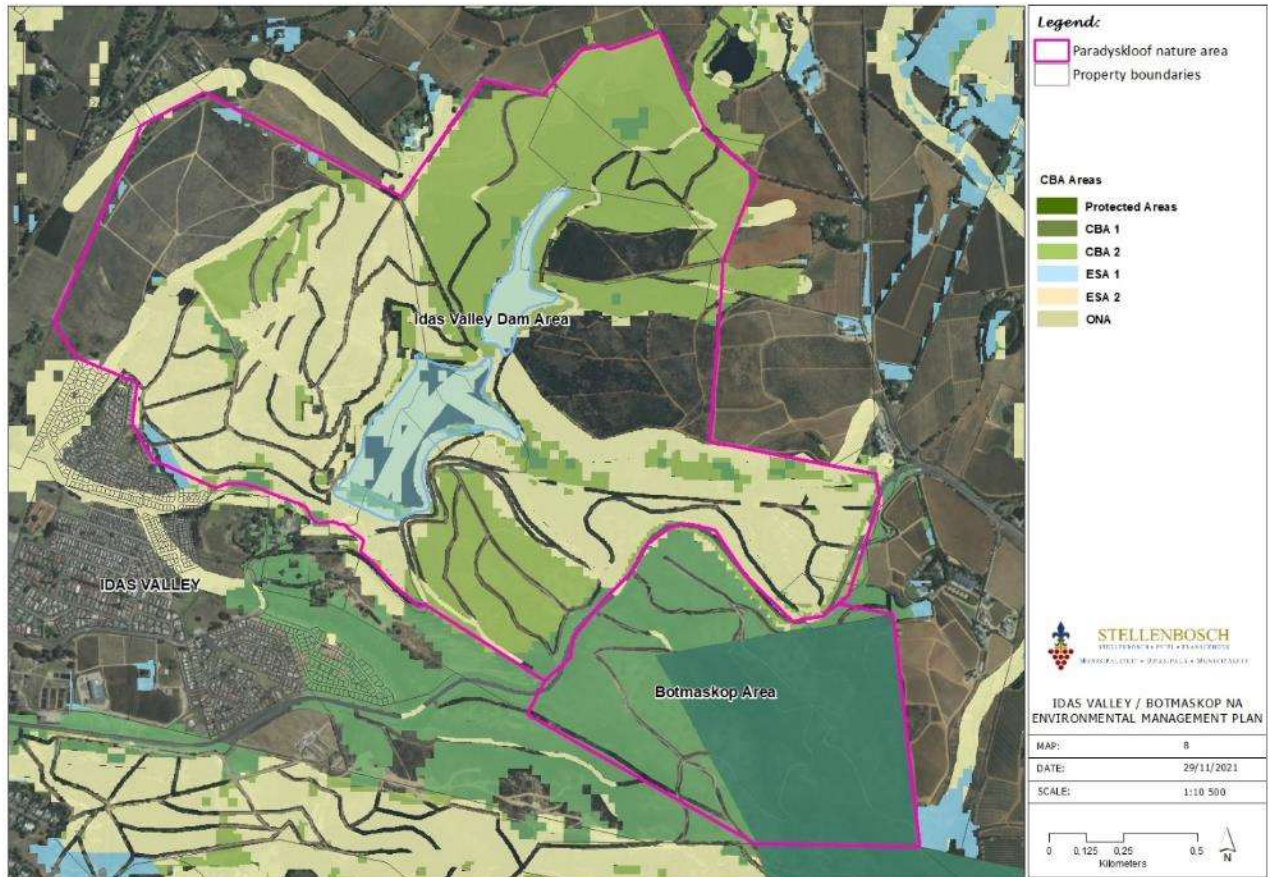


Figure 11: Critical Biodiversity Areas (Source: SANBI)

Table 2: Western Cape Biodiversity Spatial Plan map categories.

MAP CATEGORY	DEFINITION
Protected Area	Areas that are proclaimed as protected areas under national or provincial legislation.
CBA 1	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
CBA 2	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
ESA 1 ⁴	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.
ESA 2	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.
Other Natural Area	Areas that have not been identified as a priority in the current systematic biodiversity plan, but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem.

5.2 FAUNA

Due to its location few vertebrates occur within the NA. Species such as the Grey Mongoose (*Galerella pulverulenta*), Striped Polecat (*Ictonyx straitus*), Porcupine (*Hystrix africaeaustralis*) and

⁴ Ecological Support Area

Water Mongoose (*Atilax paludinosus*) are known to occur in the area. A significant number of indigenous bird species have been noted, including the Hamerkop (*Scopus umbretta*), Barn Owl (*Tyto alba*), Cape Eagle Owl (*Bubo capensis*), Cape Sugarbird (*Promerops cafer*) and the Malachite Sunbird (*Nectarinia famosa*).

6. MANAGEMENT POLICY FRAMEWORK

Chapter 41 of the NEM:PAA requires that management plans be compiled within the context of a policy framework. The EMP, in common with all protected areas, is to be developed and managed within the framework of guiding statutes and policy frameworks. The EMP is based upon and gives effect to a dedicated environmental management policy which is defined as ‘a statement by the organisation (i.e. the Management Authority) of its intentions and principles in relation to its overall environmental performance, which provides a framework for action and for the setting of objectives and targets’ (SABS ISO 14004:1996{E})⁵. In this regard, the primary policy statements are as follows:

- a) Cape Winelands Biosphere Reserve inter-governmental agreements: The NA, as part of the Cape Winelands Biosphere Reserve, will be managed in compliance with the applicable inter-governmental agreements upon which the Cape Winelands Biosphere Reserve is based. The reserve forms part of the CWBR core area.
- b) Planning and management context: Management of the reserve will be undertaken in context of all applicable levels of planning.
- c) Biodiversity conservation: Biodiversity is an imperative for environmental sustainability. A key objective in the management of the NA is to ensure that biodiversity in the study area is protected and enhanced.
- d) The Idas Valley / Botmaskop NA is an important part of a system of protected areas: The NA is to be managed as part of a system of protected areas.
- e) The Idas Valley / Botmaskop NA is a public resource: The NA is a public resource and should be available for the sustainable use of the entire community.

6.1 PLANNING AND MANAGEMENT CONTEXT

The Municipality has directed that the bioregional planning approach advocated by the Provincial Government of the Western Cape through its Bioregional Planning Policy and comprehensively described in the *Manual for application of Bioregional Planning in the Western Cape* (PGWC, 2003) be adopted in municipal planning projects.

The Municipality recognises that one of the critical determinants of the success of an EMP planned in term of the bioregional planning approach is the extent to which all spheres of government co-operate and co-ordinate their activities as it relates to the subject area (in this case, the Idas Valley / Botmaskop NA). This EMP therefore gives effect to the requirement that the planning and management of land units such as the NA should be undertaken within the context of distinct levels, namely the *international level*, *national level*, *provincial level*, *regional level* and the *local level*. Effective integrated planning at these levels requires innovative forms of institutional integration and social co-operation. Dialogue amongst all stakeholders, participatory planning and institutional flexibility are, therefore, essential to plan and manage effectively.

The NA responds to the international protocols and conventions of which South Africa and, consequently, all lower spheres government are a signatory to, and the relevant legislation, policy and regulations, the most important of which are summarised below.

⁵ SABS ISO 14004;1996(E)

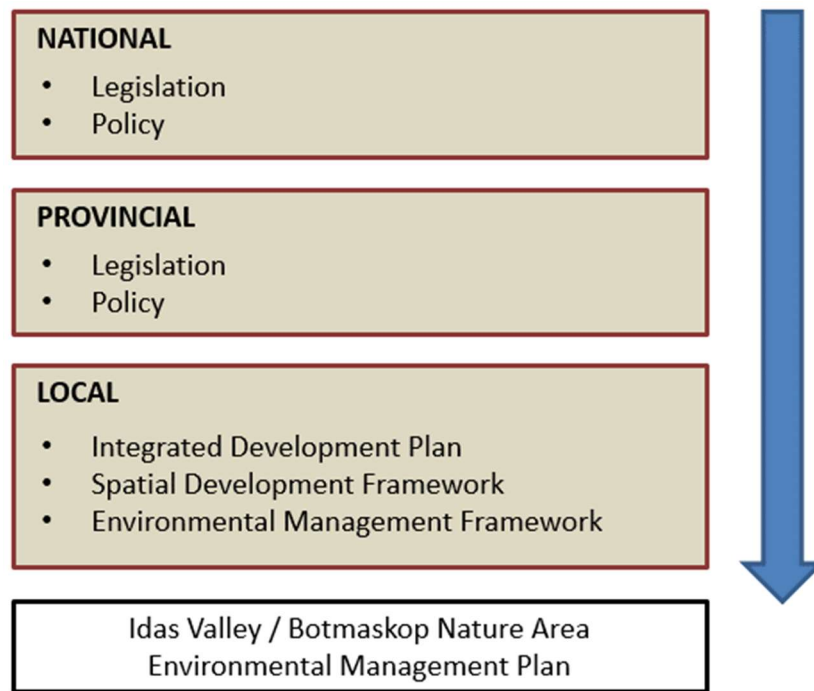


Figure 12: Planning levels applicable to the Idas Valley / Botmaskop NA EMP.

6.1.1 International Level

6.1.1.1 UNESCO'S MAB Program and Cape Winelands Biosphere Reserve Inter-Governmental Agreements

Stellenbosch Municipality has played a leading role in the establishment of the Cape Winelands Biosphere Reserve (CWBR), which aims to give practical effect to UNESCO's MAB (Man and the Biosphere) Program. This program was launched in 1971 by UNESCO, as a global initiative of international scientific co-operation dealing with people-environment interactions over the entire realm of bioclimatic and geographic situations of the biosphere. The MAB Program was designed to solve practical problems of resource management, and aims to fill gaps in the understanding of the structure and function of ecosystems, and of the impact of different types of human interaction. Key ingredients in the program are the involvement of decision-makers and local people in research projects, training and demonstration at the field level, and the bringing together of disciplines from the social, biological and physical sciences in addressing complex environmental problems. The application approved by UNESCO represents the overarching terms of agreement upon which the CWBR are premised. These refer to the:

- a) Fulfilment of the three functions of the biosphere reserve as stipulated in the *Statutory Framework of the World Network of Biosphere Reserves* (1995).
- b) Planning and management of the biosphere reserve in accordance with the bioregional planning approach of the PGWC as described in the *Bioregional Planning Manual*.

The Municipality is a signature to the inter-governmental agreement upon which the biosphere reserve is based and is consequently under the obligation to comply with and give effect to the terms of agreement.

6.1.1.2 Agenda 21

The Agenda 21⁶ agreements reflect global consensus and political commitment on developmental and environmental co-operation. Underlying the above agreements is the realisation that the international world cannot continue with present policies, which increase poverty, hunger, sickness and illiteracy and cause continuing deterioration of ecosystems on which life on earth depends. Agenda 21 provides a broad overview of issues pertaining to sustainable development, including statements on the basis for action, objectives, recommended activities and the means of implementation. Of particular relevance for the EMP are the following principles of Agenda 21:

- a) Integrated approach to the planning and management of land resources.
- b) Promoting sustainable human settlement development.
- c) Integrating environment and development in decision-making.
- d) Establishing systems for integrated environmental management and auditing.

6.1.2 National Level

6.1.2.1 South African Constitution

The South African Constitution, Act 108 of 1996, places an obligation on all to ensure that sustainable development is promoted and that the integrity of the environment is respected. In Section 24(b)(iii) of the Bill of Rights chapter of the Constitution, it is stated that 'everyone has the right to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that secure ecologically sustainable development and use of natural resources, whilst promoting justifiable economic and social development'.

6.1.2.2 National Environmental Management Act

Section 28 of the National Environmental Management Act, 107 of 1998 (NEMA), creates a general duty of care on every person to *take reasonable measures to prevent significant pollution or degradation of the environment from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment*. The Act provides for the preparation of environmental management plans by the relevant national departments involved in the management of the environment. The purpose of such plans is to co-ordinate and harmonise the environmental policies, plans, programs and decisions of the various national departments that exercise functions that may affect the environment or are entrusted with powers and duties aimed at the achievement, promotion, and protection of a sustainable environment, and of provincial and local spheres of government.

The NEMA Environmental Impact Assessment (EIA) Regulations in turn regulate activities which may impact on the environment as well as those that require environmental authorization. In this regard it must be noted that the competent authority for any activities occurring within Idas Valley / Botmaskop NA is the National Department of Environmental Affairs as the NA is located within the core area of the CWBR.

⁶ Agenda 21 is an international program, adopted by some 178 governments, to put sustainable development into practice around the world. It emerged from the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992.

6.1.2.3 National Environmental Management: Protected Areas Act

As stated previously, Act 57 of 2003 provides the legislative premise for the declaration and management of a Section 23 Nature Reserve. It makes provision for the *protection and conservation of ecologically viable areas representative of South Africa's biodiversity and its natural landscapes*. It makes provision for the *establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards and for intergovernmental co-operation and public consultation in matters concerning protected areas*. The purposes (Section 17 of the above Act) of the declaration of areas as protected areas are to:

- (a) *protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes in a system of protected areas;*
- (b) *preserve the ecological integrity of those areas;*
- (c) *conserve biodiversity in those areas;*
- (d) *protect areas representative of all ecosystems, habitats and species naturally occurring in South Africa;*
- (e) *protect South Africa's threatened or rare species;*
- (f) *protect an area which is vulnerable or ecologically sensitive;*
- (g) *assist in ensuring the sustained supply of environmental goods and services;*
- (h) *provide for the sustainable use of natural and biological resources;*
- (i) *create or augment destinations for nature-based tourism;*
- (j) *manage the interrelationship between natural environmental biodiversity, human settlement and economic development;*
- (k) *contribute to human, social, cultural, spiritual and economic development; or*
- (l) *rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.*

6.1.2.4 National Environmental Management: Biodiversity Act

The Protected Areas Act, 57 of 2003 must, in relation to a protected area, be read, interpreted and applied in conjunction with the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) which has the following objectives:

- a) To provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998 (Act 107 of 1998).
- b) To provide for the protection of species and ecosystems that warrant national protection.
- c) To provide for the sustainable use of indigenous biological resources.
- d) To provide for the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources.
- e) To provide for the establishment and functions of a South African National Biodiversity Institute.

Alien vegetation is also regulated through the NEM:BA.

6.1.2.5 National Water Act

The purpose of the National Water Act, 36 of 1998, is to ensure that South Africa's water resources are protected, used, developed, conserved and controlled in a manner that takes into account, amongst others, basic human needs, equitable access thereto, the promotion of efficient, sustainable and beneficial use of water, facilitation of social and economic development, and protection of aquatic and associated ecosystems.

6.1.2.6 National Veld and Forest Fire Act

Veld fires in South Africa are dealt with under the National Veld and Forest Fire Act, 101 of 1998. The purpose of the National Veld and Forest Fire Act is *to prevent and combat veld, forest and mountain fires throughout the Republic*. The Act places the duty on land owners to make provision for the management of veld fires on their own land. Failure to do so may result in penalties being enforced (refer to Section 24 and 25 of the above Act) and claims lodged against a landowner if the above Act's requirements were not met.

6.1.2.7 National Heritage Resources Act

South Africa's heritage are dealt with under the National Heritage Resources Act, 25 of 1999 which aims to *promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations*.

6.1.2.8 Conservation of Agricultural Resources Act

The purpose of the Conservation of Agricultural Resources Act, 43 of 1980 (CARA), is to provide control over the utilization of the natural agricultural resources in order to promote the conservation of soil, water sources and the vegetation and the combating of weeds and invader plants.

6.1.2.9 Spatial Planning and Land Use Management Act

The Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA), includes the following development principles:

The following principles apply to spatial planning, land development and land use management:

- (a) The principle of spatial justice*
- (b) the principle of spatial sustainability,*
- (c) the principle of efficiency,*
- (d) the principle of spatial resilience,*
- (e) the principle of good administration*

6.1.3 Provincial Level

6.1.3.1 Constitution of the Western Cape Province

The EMP supports and gives effect to the Constitution of the Western Cape (Act 1 of 1998). In terms of Chapter 10 of the Constitution, this province has to adopt and implement strategies to actively promote and maintain the welfare of the people and the environment of the Western Cape, including policies aimed at achieving inter alia the following:

- a) Safety and security.
- b) The protection or advancement of persons, or categories of persons, disadvantaged by unfair discrimination.
- c) The promotion of a market-orientated economy.
- d) The development of rural communities and the promotion of the welfare of rural workers.
- e) The protection of the environment of the Western Cape, including its unique fauna and flora, for the benefit of present and future generations.
- f) The protection and conservation of the natural historical, cultural historical, archaeological and architectural heritage of the Western Cape for the benefit of present and future generations.

6.1.3.2 Western Cape Provincial Spatial Development Framework

The Western Cape Provincial Spatial Development Framework (generally referred to as the PSDF) is aligned with the National Spatial Development Perspective (NSDP) and other national policy frameworks, and endorses the vision of the Western Cape Provincial Government to create '*A Home for All*'. The PSDF is purported to support the development growth path paved by the iKapa Elihlumayo Strategy and the other lead strategies.

6.1.3.3 Land Use Planning Act

The SPLUMA and the Western Cape Land Use Planning Act, 3 of 2014 (LUPA), require that spatial planning and development be guided by normative principles and that policy and plans should explicitly indicate how they would meet the requirements of such principles. These principles are:

- a) Justice: Fair allocation of public resources to ensure that the needs of the poor are addressed.
- b) Sustainability: Sustainable patterns of consumption and production should be supported, and ways of living promoted that do not damage the natural environment.
- c) Resilience: Vulnerability to environmental degradation, resource scarcity and climatic shocks must be reduced. Ecological systems should be protected and replenished. The resilience of all other forms of capital, including social, monetary and infrastructural capital should be enhanced to the extent possible.
- d) Efficiency
- e) Good governance: Good governance is the key to long-term sustainability.

6.1.3.4 Provincial Bioregional Planning Policy

As stated above, the PGWC is advocating a bioregional planning approach as described in the *Manual for application of Bioregional Planning in the Western Cape* (PGWC, 2003). The Stellenbosch Municipality has adopted the said approach for the planning, development and management of its area of jurisdiction.

6.1.4 District Level

6.1.4.1 Cape Winelands District Municipality Integrated Development Plan

The Cape Winelands District Municipality set itself the broader goal of ensuring sustainable development through strategic management objectives. This will be achieved by adhering to the vision of the Municipality, namely to have *'a safe, prosperous and united Cape Winelands where all its people enjoy high standards of living'*. The Municipal IDP states that there is a dis-equilibrium between development initiatives and environmental sustainability. In order to address this problem the Municipality identified several strategies. One such strategy is *'to have data-driven sustainable livelihoods, premised on bioregional planning and in line with Agenda 21 that seeks to build and preserve the five forms of community capital (social, physical, natural, financial and institutional)'*.

6.1.4.2 Cape Winelands District Municipality Spatial Development Framework

The Cape Winelands District Municipality Spatial Development Framework conforms, to *inter alia*, the provincially-endorsed bioregional planning principles, but adds the principles of consistency and vertical equity. The latter assumes that the disadvantaged should be favoured above more advantaged people and refers to the distribution of impacts (who receives benefits or bears costs). The SDF classifies the Cape Winelands Biosphere Reserve as *a scale-informed value-adding management entity, operational within a sustainable paradigm, to support existing roles and responsibilities through structured participation and (scientific and local) knowledgeable input that responds to local conditions, needs and perceptions*. The SDF states that *on the regional and local level, the biosphere reserve is to facilitate coherent planning and land-use management in terms of the principles of sustainable development*.

6.1.4.3 Cape Winelands Biosphere Reserve Spatial Development Framework Plan

The Cape Winelands Biosphere Reserve Spatial Development Framework Plan includes plans, guidelines and strategies that give effect to the three functions of the Cape Winelands Biosphere Reserve namely, *development, conservation and logistical support*. As such this Spatial Development Framework Plan indicates which type of land-use should be undertaken in the Cape Winelands Biosphere Reserve, where it should take place, and how such land-use should be undertaken in order to be sustainable.

6.1.5 Local Level

6.1.5.1 Stellenbosch Integrated Development Plan

The Stellenbosch IDP includes a needs-analysis, which puts forward a number of needs for the area within which IDAS VALLEY / BOTMASKOP NA is located.

6.1.5.2 Stellenbosch Spatial Development Framework

The primary goal of the Stellenbosch SDF is to give practical effect to the mission statement of the people of the local municipal area, as expressed in the SDF of the Stellenbosch Municipality, namely: *'The spatial development framework of the Stellenbosch Municipality should be measured by the 'triple bottom line' of economic efficiency, environmental sustainability and social justice with an emphasis on the issues facing the rural and urban poor.'*

6.1.5.3 Stellenbosch Environmental Management Framework

The Stellenbosch Environmental Management Framework (SEMF), adopted by the Council of Stellenbosch Municipality (June 2019) describes the international, national, provincial and local context of environmental planning and management within the Municipality. It also:

- a) Describes the planning and management approach adopted in the Municipality
- b) Serve as a basis for the preparation of detailed management plans for specific areas or aspects, e.g. river management, fire management, pollution control, etc.
- c) Promote sustainable development throughout the Municipality in a manner that supports the intentions of NEPAD, Agenda 21 and Local Agenda 21.
- d) Promote the conservation of biodiversity both within and outside conservation areas.
- e) Provide a spatial framework and serve as a basis for the evaluation of development proposals in terms of site-specific criteria.
- f) Providing guidance to developers with regard to the planning and design of projects and the establishment of contractual agreements and appropriate partnerships with the municipality and the affected communities, the purpose of which is to ensure that each development brings sustainable benefit for all parties as well as the receiving environment.

In terms of the Spatial Planning Categories contained in the SEMF Idas Valley / Botmaskop is a designated A.a Area defined as a statutory protected area. In terms of the SEMF such areas are designated in terms of legislation for biodiversity conservation, outdoor recreation and non-consumptive resource use. *Conservation purposes are purposes normally or reasonably associated with the use of land for the protection of the natural and/or built environment, including the protection of the physical, ecological, cultural and historical characteristics of land against undesirable change.*

6.1.5.4 Stellenbosch Municipality: By-Law Relating Plantations, Parks, Gardens, Recreational Facilities and Nature Reserves (P.N. 373/1988)

According to the above by-law no person shall in or on premises, buildings, land, plantations, a commonage, enclosures, nature reserves, parks, gardens, open erven and spaces, picnic areas, nurseries, trees, sport and recreation facilities which are vested in or under control of the Council –

- (a) *disfigure or deface any post, railing, fence, seat, barrier, gate, notice board, plate, house, building, shed, urinal, closet, flag, mark or other article or thing by pasting thereon or affixing thereto in any way any bills, papers, placards or notices or by cutting, writing, stamping, painting, drawing or marking thereon in any way whatsoever,*
- (b) *remove, destroy, damage or deface any notice or sign*
- (c) *make a fire or commit any acts whereby a fire may be caused, except in places where fireplaces are provided;*
- (d) *saw, cut, gather, remove dig up, burn, pick or break any timber, tree, shrub, brushwood, fencing, pole, lawn, plants, fruits, flower or equipment, or climb therein or thereon or damage it in any way;*
- (e) *remove or disturb any soil or water at a place other than that specially provided by Council;*
- (f) *erect or cause to be erected any post, rail, fencing, tent, screen, stand, swing, building or construction of whatever nature without the written permission of the Council;*
- (g) *park, drive, ride pull or propel any type of vehicle except a manually operated wheelchair or perambulator when used for the conveyance of an invalid or a child;*
- (h) *leave any refuse, building waste, rubbish, paper, materials or any object except in containers provided for that purpose;*
- (i) *injure, kill, hunt, capture, or disturb any animal or bird, or damage or destroy the nest or eggs of any bird or interfere with the animal life in any other way;*
- (j) *break, damage, hurt, destroy, disfigure or remove any flora, fauna or nest of fauna or objects of historical or scientific interest or any property in the nature reserve;*
- (k) *introduce any flora, fauna, weapon, trap, net, explosive or poison into the nature reserve, or be in possession thereof in the nature reserve;*
- (l) *fire a fire-arm or an air-gun, discharge any firework, catapult or sling or throw a stone or other missile;*
- (m) *in any other way cause a nuisance, obstruction, disturbance or annoyance to the public, to brawl, fight, swear or use obscene, indecent or improper language, gamble, beg, behave in an indecent or offensive manner or drink intoxicating liquor;*
- (n) *sell or offer for sale or hire, or hawk or exhibit any article or distribute any pamphlet, book, handbill, or other matter; present any public entertainment; play a musical instrument, and deliver or say any speech, public address or prayer of whatever nature or sing any song or hold or participate in any public meeting or function unless he has previously obtained the written permission of the Council to do so;*
- (o) *enter upon any ablution or sanitary conveniences indicated as having been provided for persons of the opposite sex;*
- (p) *enter or leave other than by an entrance or exist provided for that purpose, or refuse to leave when requested to do so by an authorised officer of the Council or a member of the South African Police;*
- (q) *wash any article or animal under a tap, in a pond, fountain or in an ornamental pond or otherwise pollute water, or swim in a dam or wash any clothes or other things or pollute the water therein in any other manner, and*

(r) *perform any act whatsoever which may injure persons, damage or destroy any property.*

6.1.6 Human Resources/Administration Legislation

Furthermore, human resources and administration legislation include the following:

- a) Occupational Health and Safety Act, 1993
- b) Basic Conditions of Employment Act 3 of 1997
- c) Labour Relations Amendment Act, 66 of 1995
- d) Local Government Municipal Systems Act 32 of 2000
- e) Promotion of Equality/Prevention of Unfair Discrimination Act 4 of 2000
- f) Criminals Procedures Act
- g) Fire-Arm Act
- h) Fencing Act 31 of 1963
- i) Hazardous Substances Act 15 of 1973
- j) Land Survey Act 8 of 1997
- k) Promotion of Access to Information Act 2 of 2000
- l) Promotion of Administrative Justice Act 3 of 2000
- m) Regional Services Council Act 109 of 1985
- n) Skills Development Act 97 of 1998
- o) State Land Disposal Act 48 of 1961
- p) Subdivision of Agricultural Land Act 70 of 1970
- q) Tourism Act 72 of 1993
- r) Municipal Ordinance 20 of 1974

6.2 BIODIVERSITY CONSERVATION

The Idas Valley / Botmaskop NA EMP recognises that biodiversity is an imperative for environmental sustainability. Ecological functions of the natural systems are directly related to biodiversity. Biodiversity is the primary element in the maintenance of the resilience of ecological systems to external shocks and, thus, the ability of these systems to sustain the dependent communities. Accordingly, the key objective in the management of the NA is to ensure that biodiversity is protected and enhanced.

6.3 IDAS VALLEY / BOTMASKOP NATURE AREA AS PART OF A SYSTEM OF PROTECTED NATURE AREAS

The EMP recognises that the functions of protected nature areas go far beyond the usual perception of the term 'protection'. Such areas are immensely valuable, beyond their boundaries, in providing for the rehabilitation of environments, as nutrient sinks, for landscape stability, and for the replenishment of species, populations and communities. The primary objective of any system of protected nature areas would be as much to restore and manage ecosystems and their functions as to protect them. This emphasises that sustainability requires planning and management for biodiversity conservation across human dominated landscapes. *To achieve this, protected areas should no longer be considered as islands of conservation within a sea of development but as an integral part of each region as a whole in terms of biodiversity conservation* (Institute of Bioregional Resource Management).

As mentioned above, the Idas Valley / Botmaskop NA forms part of a system of *de jure* and *de facto* protected nature areas that collectively form the core and buffer areas of the CWBR. This system is based upon the principle that a system of protected areas is a key element of any strategy to maintain biodiversity and ecosystem functions on a larger regional scale. It is imperative that such a system be designed and managed to represent and protect the diversity of ecological processes, communities, species and gene pools (Global Biodiversity Strategy, 1992).

6.4 IDAS VALLEY / BOTMASKOP NATURE AREA AS A PUBLIC RESOURCE

The Idas Valley / Botmaskop NA forms part of the public open space system of Stellenbosch. As such, it is a public resource that is of value to the entire Stellenbosch community. Accordingly the NA should be available and accessible to the entire community to exercise their legitimate right to utilise such public resource in a sustainable manner. In this regard it is important that *government* (including the Municipality), *the community, corporate and other private interests, etc. share responsibility for co-ordinating land-use planning, for both public and private land and for defining and implementing development options that would ensure that human needs are met in a sustainable way* (WRI, 1992).

6.5 ADMINISTRATIVE FRAMEWORK

As stated previously the Municipality is acting in the capacity as Management Authority for the Idas Valley / Botmaskop NA. Stellenbosch Municipality's function, as it pertains to the management of the Idas Valley / Botmaskop NA are:

- a) To manage the NA in accordance with the approved management plan (EMP).
- b) To manage the NA in accordance with applicable legislation and municipal by-laws.
- c) Audit / monitor management actions and associated environmental impact.
- d) Reports to Council on the implementation of the EMP.

The Municipality in turn relies on the Friends of the Idas Valley / Botmaskop NA- (or similar) group for specific management activities as required. The management of the NA is an ongoing inclusive process that considers the changing and dynamic interests, needs and values of the people of Stellenbosch Municipality and those that have an interest in ensuring a prosperous future for the area. In this regard, it is important that the following be achieved:

- i) Continued participation, representation and involvement of all stakeholders promoting broad-based policy learning and capacity development.
- ii) Creating adequate and appropriate opportunities for community participation in decisions that may affect the area.
- iii) Developing and utilising the skills and capacities of the people living in the area in the management of the NA.
- iv) Encouraging on-going involvement of local people in the programs identified for the management of the NA.

6.6 PROCEDURES FOR PUBLIC PARTICIPATION

News regarding the Idas Valley / Botmaskop NA will be communicated to the public by way of Municipal newsletters, publications and in the local newspapers.

6.7 PRIMARY ENVIRONMENTAL THREATS

The primary threats to the ecology, aesthetic quality, catchment functions and general use and enjoyment of the Idas Valley / Botmaskop NA include the following:

Inappropriate Fire Regime: The Fynbos vegetation in the Idas Valley / Botmaskop NA requires a fire regime that provides for high intensity fires at intervals that range from 8 to 20 years, occurring in late-summer (i.e. February-March). As stated above, the Idas Valley / Botmaskop NA is managed as part of the Hottentots Holland Mountain Catchment Area, the fire management of which is undertaken in accordance with a '*minimum interference*' policy. The latter policy essentially implies that controlled burning, as a management practice, is largely excluded and that the emphasis falls on controlling 'unnatural' wildfires.

Due to the topography, climatic conditions, and factors such as land-uses on adjoining properties that are conducive to the starting of wildfires, and financial constraints that inhibit fire control activities, the Idas Valley / Botmaskop NA is particularly prone to wildfires that do not conform with its natural fire regime requirements. The latter could, in the long-term, have an adverse effect on the structure of the local plant communities, biodiversity in general, and the natural functioning of the NA as a catchment area. In addition, an inappropriate fire regime could have immensely negative cost-implications in that it generally upsets management programs such as alien plant eradication.

Over-utilisation by visitors: the Idas Valley / Botmaskop NA is a particularly attractive natural area and provides for a broad spectrum of recreation opportunities. It is, subsequently, a popular attraction for eco-tourists and sports persons practicing specific nature-related activities. The main potential problems in this regard include pollution, trampling of plants, disturbing of animals, soil compaction leading to unnatural erosion, and degradation of the social environment. It is imperative that the carrying capacity (both social and ecological) of the NA is not exceeded by visitors.

Alien Plant Infestation: The infestation of Fynbos areas by alien plants is known to be a primary threat to biodiversity in general (mainly due to habitat fragmentation), and catchment dynamics. In the latter regard, it is important to note that Fynbos has unique intrinsic water conservation capabilities and subsequently plays a critical role in the maintenance of the natural *water cycle*. In order to sustain the fundamentally important catchment function of the Idas Valley / Botmaskop NA it is, therefore, imperative to implement integrated eradication programs for alien plants.

Security (access control): The Idas Valley / Botmaskop NA is a large area that is a challenge to secure.

Pollution: The NA is a target for illegal dumping from time to time and regular clean-up of general pollution / waste is required.

Cultural / Agricultural use: The NA have, over the past 10 – 15 years, accommodated a number of uses associated with cultural rituals, tribal initiations and agriculture or plot farming. Although these uses have an important role to play in die local- community and society it does not align with the broader vision of the NA and use as a conservation area utilised for a range of recreation uses. Because fire plays such an important role in most of these cultural activities it also poses a risk to the NA as it is susceptible to the spread of fire as explained above.

6.8 OBJECTIVES

The following objectives are intended to provide the basis for the achievement of the vision set out above:

	Objective	Key Deliverable
Operational Management		
Legal compliance	To ensure legal compliance to all relevant legislation and policies.	Ensure that all legal requirements are met.
Access control / security	To improve safety of visitors to the area.	Effective access control and law enforcement.
Management effectiveness	To implement effective management systems.	Conduct audits
Infrastructure	To ensure the implementation of effective conservation management interventions. To enhance biodiversity protection and conservation. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	All infrastructure on the NA is adequately maintained.
Pollution / Waste control	To control pollution in the area.	Effective access control and law enforcement. Efficient waste collection services. Law enforcement.
Biodiversity Management		
Fire management	To ensure conservation of species and processes by maintaining and improving ecosystem functioning. To allow for natural fire processes to occur without impacting on safety and infrastructure. To implement effective integrated catchment management.	Reduce/prevent the spread of fires. Maintain partnerships to improve fire management. Reduce wildfires due to human negligence.
Invasive veg. management	To enhance biodiversity protection and conservation. To ensure conservation of species and processes by maintaining and improving ecosystem functioning.	Eradicate alien and invasive species. Prevent further introduction of aliens.
Wildlife management	To ensure effective conservation of species and processes by maintaining and improving ecosystem functioning. To enhance biodiversity protection and conservation.	Prevent the introduction of alien fauna species. Control invasive alien fauna.

		<p>Manage the introduction of fauna on the NA.</p> <p>Evaluate and monitor impact of fauna on the NA.</p>
Erosion prevention / control	<p>To ensure implementation of effective conservation management interventions.</p> <p>To enhance biodiversity protection and conservation.</p>	Prevent and mitigate soil erosion.
Monitoring / Baseline data collection	<p>To manage biodiversity knowledge to ensure effective conservation management.</p> <p>To implement measures to ensure resilience and persistence of biodiversity in light of climate change.</p> <p>To ensure the implementation of effective conservation management interventions.</p> <p>To ensure conservation of species and processes by maintaining and improving ecosystem functioning.</p>	<p>Create a biodiversity resource inventory.</p> <p>Implement monitoring programme.</p> <p>Implement research programme.</p> <p>Manage consumptive utilisation of biological resources.</p>
Biodiversity security	<p>To enhance biodiversity protection and conservation.</p> <p>To ensure conservation of species and processes by maintaining and improving ecosystem functioning.</p>	Improved security and safety of the biodiversity assets on the reserve.
Development		
Development of tourism opportunities	<p>To evaluate potential tourism opportunities.</p> <p>To implement effective management systems.</p> <p>To ensure legal compliance and implementation of authorised development plans.</p>	Development of tourism opportunities that generate revenue for the reserve.

The achievement of these objectives is addressed in the management directives dealt with below.

7. MANAGEMENT DIRECTIVES

This section comprises the management strategies and guidelines in terms of which the Idas Valley / Botmaskop NA is to be managed in order to achieve the objectives documented above. The management strategies and guidelines are addressed under the following themes:

- a) Administration
- b) Environmental Protection
- c) Land Use Management
- d) Environmental Auditing

Stellenbosch Municipality is the responsible party for all conservation and management actions to be implemented unless stated otherwise.

7.1 ADMINISTRATION

The long-term sustainability of the area largely depends on its effective administration. Of key importance in this regard is that the principle of economic efficiency be given effect through the general administration of the area and that its positive role and functions in respect of the promotion of environmental integrity and human well-being be understood and supported at all levels. Institutional commitment to achieving effective administration of the Idas Valley / Botmaskop NA through, *inter alia*, the allocation of adequate budgets is of paramount importance.

Stellenbosch Municipality, through the Department: Community Services and its Nature Conservation section, is responsible for the management of the Idas Valley / Botmaskop NA. In terms of the principle of *inclusivity* the management of the Idas Valley / Botmaskop NA is an ongoing inclusive process that considers the changing and dynamic interests, needs and values of the people of Stellenbosch and those that have an interest in ensuring a sustainable future for the area. In this regard, it is important that the following be achieved:

- a) Continued participation, representation and involvement of all stakeholders promoting broad-based policy learning and capacity development.
- b) Developing and utilising the skills and capacities of the people living in the area in the management of the Idas Valley / Botmaskop NA.
- c) Encouraging on-going involvement of local people in the programs identified for the management of the Idas Valley / Botmaskop NA.

Accordingly, the Municipality is to facilitate the establishment of a Friends of the Idas Valley / Botmaskop NA or similar group that complies with and has the capacity to give effect to the above requirements. Whilst Stellenbosch Municipality is responsible for the general maintenance of the area and the implementation of this EMP it will rely on a Friends of the Idas Valley / Botmaskop NA group for specific management activities as required or where the Municipality is limited through capacity constraints.

Table 3: Guidelines for inception phase management

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
1	Compile an annual budget for the Idas Valley / Botmaskop NA.	Annual, when required before the start of the

		new financial year.
2	Facilitate the establishment of a Friends of the Idas Valley / Botmaskop NA (or similar) group. Should such group already exists formalise a working relationship between the Municipality and group.	On adoption of the Friends Group concept (and structure) by Council.
3	Solicit funds from potential donors.	Ongoing
4	Maximise financial income by determining and imposing appropriate tariffs for outdoor recreation and other uses.	On the approval of the EMP.
5	Plan and manage outdoor recreation by: <ul style="list-style-type: none"> • Identifying the most appropriate sites for various uses. • Formulating appropriate safety rules and emergency measures. • Formulating appropriate rules and regulations for controlling human behaviour. • Determining appropriate social and ecological carrying capacity. • Ensuring sustainable visitor management in accordance with an effective permit system. 	During the first year after the approval of the EMP.
6	Institute and maintain effective law enforcement.	During the first year after the approval of the EMP.

7.2 ENVIRONMENTAL PROTECTION

Natural resources are defined as *any materials, services and conditions that are necessary for the survival of living organisms, and have the potential to enhance quality of life. They are, in a sense, inherited by people, and are therefore part of the earth's (the natural) and people's (the cultural) heritage. Living resource conservation is specifically concerned with plants, animals and micro-organisms, and with those non-living elements of the environment on which they depend. Living resources have two important properties, the combination of which distinguishes them from non-living resources - they are renewable if conserved, and they are destructible if not* (Perry, 1954).

The intention and focus of environmental protection in the Idas Valley / Botmaskop NA is to facilitate the removal or mitigation of threats to the ecology of the NA, to restore the biodiversity and ecological integrity of the area to the extent that it can function as a self-sustaining system.

7.2.1 Alien Clearing

Invasive alien plants are plant species that have been introduced, either intentionally or unintentionally, to South Africa. They can reproduce rapidly in their new environments and, as mentioned above, tend to out-compete indigenous plants. The result usually includes a variety of negative ecological, social, and economic impacts. Invasive alien species pose the biggest threat to biodiversity after direct habitat destruction. All efforts must be made to control or, if possible, eradicate all invasive plants.

The Municipality has prepared and adopted the Stellenbosch Municipality Invasive Alien Management Plan (April 2017). In terms of this plan initial clearing methods must be follow-up and monitored to ensure successful clearing of invasive alien plants. Accordingly:

- a) Clearing efforts should initiate at the top of the infested areas, in terms of slope, and continue downwards. This will reduce erosion effect as well as minimize the re-establishment process of invasive alien plants within the cleared areas from overhead populations.
- b) Strategic placement of large tree trunks should reduce soil erosion on slopes after invasive alien clearing.
- c) Removal strategies for clearing invasive alien species in the area should be a combination of mechanical and chemical methods. All species should be removed mechanically by uprooting young plants and tree felling of larger trees (via axe or chainsaw), followed by the application of chemical herbicides to the cut surface to prevent resprouting. Each species has its own corresponding herbicide requirements to prevent resprouting activities and should be applied soon after tree felling. The use of herbicides may have negative effects on the health of soil composition and the natural ecosystem and should thus be used with caution and in reasonable / prescribed amounts.
- d) Continuous follow-up and removal of new seedlings after the initial clearing efforts are essential in order to clear the property of invasive alien plants. Follow-ups and monitoring should occur annually and remaining or re-established invasive species should be removed when located.

Table 4: Guidelines for alien clearing

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
7	Assess the NA to determine the degree of alien plant infestation.	Within a year of the approval of the EMP.
8	Map the areas that have been infested by alien plants as well as the degree of the infestation.	On the approval of the EMP. After an assessment has been conducted.
9	Map the areas that have been cleared of alien plants, indicating the date of operations, species removed and the current status of the portion of the site.	Annual as clearing is undertaken.
10	Implement the Stellenbosch Alien Invasive Plan (IAP) Management Plan (2017).	Annual between the months of September and May.

7.2.2 Flora

'Natural vegetation is the visual expression of the environment, it is a product of the action of environmental factors over time and hence can be a valuable indicator of potential productivity of ecosystems' (Bayer, 1970).

The introduction of non-endemic species in the Idas Valley / Botmaskop NA is forbidden.

As stated above, the NA falls within the Fynbos Biome. Fynbos has unique intrinsic water conservation capabilities and, subsequently, plays a critical role in the maintenance of the natural *water cycle*. The overriding objective of water conservation is the management of catchment areas so as to maintain an optimal sustainable yield of high quality water. Maintenance of water yield entails ensuring the capacity of the catchment area to yield water at historical flow rates. In the

case of the Idas Valley / Botmaskop NA, the latter objective essentially implies that the Fynbos vegetation in the NA must be kept in a healthy state.

Table 5: Guidelines for flora conservation

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
11	Institute research to identify sensitive habitats in the NA and immediate surroundings.	Once the vegetation has recovered to the extent that a reliable information can be gathered and conclusions can be drawn.
12	Institute scheduled research and monitoring to determine the recurrence of species.	Annually
13	Prevent the non-sustainable harvesting of plants used as traditional medicines by dedicated training and education of local people, law enforcement and monitoring.	Annually. Efficiency of strategies to be audited.
14	Simulate natural disturbance regimes to maintain historical vegetation composition.	Annually

7.2.3 Fauna

Biodiversity conservation essentially means conserving all the elements ('parts') of the natural environment. The mix of species in an ecosystem enables that system both to *provide* a flow of ecosystem services under given environmental conditions, and to *maintain* that flow if environmental conditions change.

The loss of biodiversity, therefore, limits the resilience of the affected ecosystem, which in turn, may have direct negative economic implications. Therefore, in order to promote biodiversity conservation in the NA it is imperative that the conservation of the faunal component receives appropriate attention.

Table 6: Guidelines for fauna conservation

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
15	Monitor and record occurrence of wildlife.	Continually
16	Prevent all forms of unnatural predation through on-going education and law enforcement.	On-going
17	Consolidate the natural habitats of endangered animal species.	On-going
18	Control all alien animal species.	On-going

7.2.4 Soil

Appropriate measures must be taken to protect areas susceptible to erosion by installing all the necessary temporary and permanent drainage works as soon as possible. Steep slopes and other areas prone to erosion must be maintained or restored according to the following guidelines:

- a) Warning signage displaying NO ENTRY, must be installed on all roads, trails or walkways that are permanently or temporarily closed. Physical barriers, using local natural material, may be constructed where NO ENTRY signs are not respected to prevent users from accessing such roads, trails or walkways.
- b) Existing erosion areas must be back-filled (using on-site material), compacted and restored to a proper condition.
- c) Roads, trails or walkways, permanently closed for use, must be:
 - i) ploughed,
 - ii) the top soil scarified (to make sure that no downhill trenches or drainage lines are created),
 - iii) water diversion walls created by hand at a distance of 10 metres apart (depending on the slope) leading 5 metres into the natural vegetation,
 - iv) and revegetated by either soughing or transplanting appropriate material.
- d) Areas, where the above measures are not sufficient, must be logged, parallel to the contour in order to prevent further soil erosion. Logs must be laid in lines 15 metres apart, depending on the slope (the steeper the slope the closer the barriers must be laid to each other). Logs must be secured by means of steel pegs hammered through a drilled hole on each end of the log (logs longer than 2 metre must be secured by an additional steel peg through the middle of the log). Where logs are laid across a road, the log must be laid up to a minimum of 1 meter past the edge of the road.
- e) Roads (to stay in use) must be graded to have a slight gradient to the inside (up-hill) (refer to Figure 13). A drainage ditch must be created on the inside of the road. Gravel humps must be created at an angle across roads to drain water from the road surface into to the drainage ditch. At selected locations (depending on the slope) furrows must be created across the roads surface to discharge the water collected in the drainage ditch. The guiding principle behind the creation of a drainage ditch and discharge furrows is to not allow water to reach a speed at which it will create erosion. After a rain event all roads must be inspected to determine if any maintenance is required.
- f) Erosion sites on bicycle tracks and walking trails must be logged following the contours and spaced vertically 0.8-1.2 meter apart, depending on the steepness of the slope.
- g) Logs must be untreated pine (or gum) poles of not less than 150 mm with a taper of not more than 75 mm over its length.
- h) Cut and fill slopes will be shaped and trimmed to approximate the natural condition and contours as closely as possible and be undulating. Levels, incongruous to the surrounding landscape, will be reshaped using a grader and other earthmoving equipment.

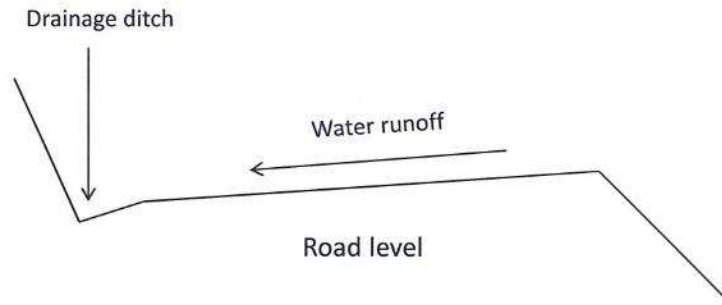


Figure 13: Road surface slope with a drainage ditch

Table 7: Guidelines for the conservation of soils

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
19	Restore erosion sites in accordance with the guidelines above.	On-going Quarterly photographic monitoring at fixed points. Annual auditing.
20	Inspect drainage ditches on all roads after exceptional rain event to determine whether maintenance is required.	On-going
21	Implement preventative measures on potential erosion sites. All roads and tracks, used or closed, are considered potential erosion sites.	On-going Annual auditing.
22	Prevent overuse of routes and sites susceptible to erosion through appropriate signage.	Monthly site inspection

7.2.5 Water

Water is a most critical natural resource in the region. All the sectors and communities in the Stellenbosch area are dependent on a sustainable supply of water from the relevant quarternary catchments and subterranean aquifers.

Land-use patterns largely influence the maintenance of water yield. Interference with the natural conditions in mountain catchment areas, e.g. draining, canalising or cultivating areas such as vleis, seepage areas, riparian areas and streambed alluvium, is detrimental to the proper functioning of a catchment. It is, therefore, of paramount importance for catchment areas to be managed appropriately.

Table 8: Guidelines for managing the Idas Valley / Botmaskop NA as part of the Krom River catchment

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
23	Remove all forms of pollution.	On-going
24	Manage invasive alien plants in terms of the Stellenbosch IAP Management Plan (2017).	On-going

7.2.6 Fire

The Idas Valley / Botmaskop NA is susceptible to fire due to activities on in the NA as well as land uses on adjoining properties. Any fire management regime must therefore provide innovative measures to combat the occurrence and spread of wild fires. The overarching fire management goals as it pertains to the Idas Valley / Botmaskop NA are to:

- a) Protect people and property.
- b) Protect natural and cultural resources from undesirable effects of fire.
- c) Suppress unwanted fire.
- d) Allow fire to assume its natural role in the ecosystem.
- e) Manage fire cooperatively with neighbouring land owners and other stakeholders.

The fire management regime of the Idas Valley / Botmaskop NA is premised upon the following risk management strategies:

Table 9: Fire management strategies

Management Strategies	Guidelines
a) Avoiding the risk	Prohibiting high-risk human activities in close proximity to the NA.
b) Reducing the hazard	Prescribed burning, preparation of firebreaks or manual clearing of fire hazards as well as regular inspections.
c) Reducing ignitions	Education and awareness programs, fire bans, reduction in activities during high-risk season or periods, efficient ignition investigation.
d) Reducing consequences	Contingency plans, community education programs for self-protection (lives and property), and building restrictions and standards for areas prone to veld fires.
e) Implementing an innovative artificial burning regime	Such regime and associated practices are to reduce the risk of wild fires spreading and causing extensive ecological and financial damage. Such artificial regime implies the creation of a mosaic of veld ages that will enhance the capacity of the area to and maintain its ecological functioning.

This EMP builds on the recognition that the threat of fires to the Idas Valley / Botmaskop NA and the relevant reasons for such threat are unique. Due to surrounding land uses and human behaviour wild fires will probably not be prevented through any measures taken. The solution lies in a combination of options (a), (b) and (c) above.

It is important to understand the basics of fire before preparation can be made for efficient control thereof. It is essential to note that three environmental components are required for a fire to occur. These are oxygen, heat and fuel (refer to Figure 14). Whilst the atmosphere contains 21% oxygen, only 16% oxygen needs to be in the air for a fire to start. Fuel is any living or dead material that will burn. If ignition occurs in the situation or environment where all three elements are present combustion will result and a fire will continue to burn until one of the three elements are removed. It is difficult to exclude oxygen from fires. Heat is considered a constant. However, a reduction in fuel will reduce the total energy output (refer to Figure 15). Fuel or more specifically the amount of fuel is the aspect that can be influenced most. It therefore becomes the most critical factor in the prevention and control of fire.

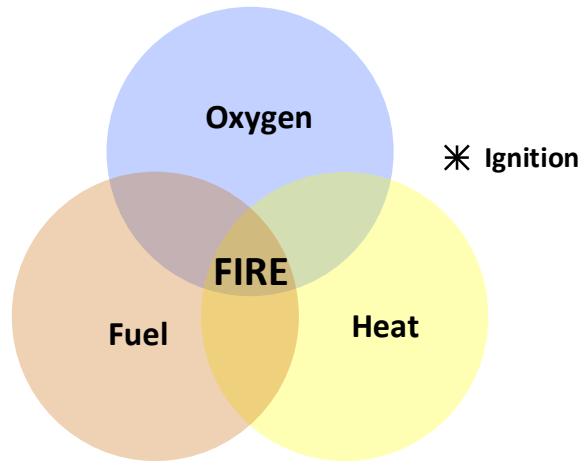


Figure 14: Basic elements of fire

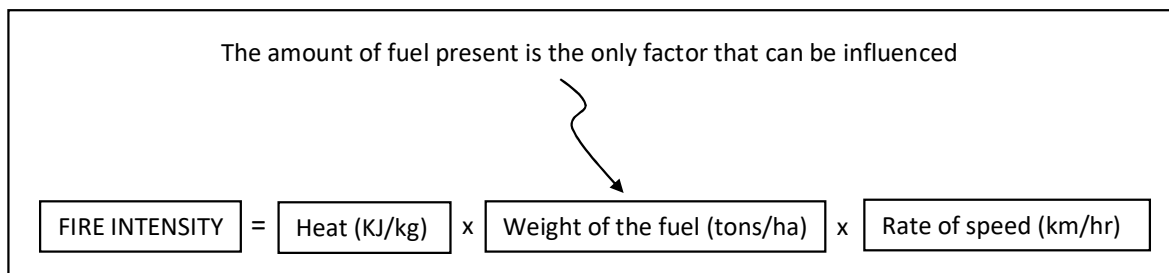


Figure 15: The factors determining the intensity of fire

Two ways of reducing the fuel load are alien vegetation clearing or control and the establishment and maintenance of firebreaks.

7.2.6.1 Alien Clearing

Invasive alien plants are characterised by being able to reproduce rapidly in their new environments, and this is usually due to a combination of factors, including:

- a) A lack of natural enemies in the new environment
- b) Resistance to local diseases and other plant pathogens
- c) Highly competitive growth and colonising strategies that provide them with a competitive edge, and an ability to out-grow local indigenous plants

Invasive alien plants can significantly alter the composition, structure and functionality of ecosystems and increase the fuel load for fires. They degrade the productive potential of the land, intensify the damage caused by veld fires and flooding, increase soil erosion, and impact on the health of rivers and estuaries.

7.2.6.2 Firebreaks

Fire breaks are cleared paths which will prevent the spread of fire by removing the fuel from the fire path. Section 12 of the National Veld and Forest Fire Act stipulates that every owner on whose land a veldfire may start or burn or from whose land it may spread must prepare and maintain a firebreak on his or her boundary between his or her land and any adjoining land. In terms of Section 13 of the

Act above a landowner is obliged to prepare and maintain a firebreak, with due regard to the weather, climate, terrain and vegetation. The firebreak must:

- a) be wide enough and long enough to have a reasonable chance of preventing a veldfire from spreading to or from the neighbouring land,
- b) not cause soil erosion, and must
- c) be reasonably free of inflammable material capable of carrying a veldfire across it.

In terms of Section 16 of the National Veld and Forest Fire Act the right or duty to prepare and maintain a firebreak prevails over any other prohibition in any other law on the cutting, disturbance, damage, destruction or removal of any plant or tree, except the owner must where possible, transplant any plant which is protected in terms of any law or where it is safe and feasible, position the firebreak so as to avoid such plant or tree.

A fire break is a means of access for personnel and equipment, to serve as a control line and to serve as a line from where a fire can be attacked from, for example by setting a backburn. The firebreaks are to be linked to access roads, thereby reducing the areas requiring preparation and increasing accessibility to the various sites. Locations where firebreaks are required vary. Individual circumstances will determine what type, width and length will be applicable. When constructing firebreaks it is important that all vegetation cover is removed and that only rocks and soil (minerals) are exposed. A fire can travel very slowly through the grass roots or decayed vegetation and great care must be taken to ensure that minimal earth is exposed throughout the length and width of the break. The following factors must be taken into account with the construction of firebreaks.

- Access: The placement of firebreaks on a slope must be determined by access to the break.
- Slope: Slope is the steepness of the land and has the greatest influence on fire behaviour. The steepness of the slope affects both the rate and direction of the fire spread. Fires usually move faster uphill than downhill and the steeper the slope, the faster the fire will move. This is because:
 - on the uphill side, the flames are closer to the fuel;
 - the fuels become drier and ignite more quickly than if on the level ground;
 - wind currents are normally uphill and this tends to push heat flames into new fuels;
 - convected heat rises along the slope causes a draft which further increases the rate of spread; and
 - burning embers and chunks of fuel may roll downhill into unburned fuels, increasing spread and starting new fires.
- Aspect: Aspect is the direction the land faces - north, south, east or west. The aspect of a slope influences a fire's behaviour in several ways:
 - southern aspects receive more direct heat from the sun, drying both the soil and the vegetation;
 - fuels are usually drier and less dense on southern slopes than fuels on northern slopes;
 - heating by the sun also causes earlier and stronger slope winds; and
 - on south-facing slopes, there will normally be higher temperatures, stronger winds, lower humidities, and lower fuel moistures.
- Terrain: *Terrain* or special land features may control wind flow in a relatively large area. Wind flows like water in a stream and will try to follow the path of least resistance. Ridges, trees, and rocks may alter wind flow and cause turbulence or eddies to form on the windward side of obstructions. Also, when wind flows through a restriction, such as a narrow canyon, it increases in strength. Wind movement can be critical in chutes or steep

v-drainages. These terrain features create a chimney effect, causing a forced draft, as in a stove chimney. Fires in these chutes or drainages spread quickly and are dangerous.

- Elevation
- Vegetation type
- Moisture content
- Size and shape of material
- Volume and area covered
- Fuel content (breaks alignment should avoid heavy fuel concentrations and be situated in areas with the lightest fuels possible).
- Wind direction (internal belts should as far as possible run parallel with prevailing winds).
- Spotting distance
- Firebreaks should be anchored, either to a natural barrier, road or another firebreak.
- Natural or existing barriers like roads, paths, streams, lakes, vleis, rivers, rock outcrops, or any other break in fuel should be utilise as far as possible.

There are four methods of preparing a firebreak and proper consideration should be given to each before commencing the preparation of a firebreak.

- i) Manual: Preparing a firebreak manually involves the utilisation of a team of workers working in a planned manner using manual tools.
- ii) Burning: After deciding where the belt is to go, an adequate tracer is cut around the entire belt, and then the belt itself is burnt. This is the most common form of preparing a firebreak.
- iii) Ploughing/brush-cutting: Ploughing/brush-cutting with a tractor is a common method of constructing breaks where the vegetation is low or has been previously removed. The positive thing with brush-cutting is that the roots are not destroyed and this will assist in reducing erosion on these breaks. Brush-cut material should be removed two months after cutting.
- iv) Application of herbicide: With this method herbicide is used to kill off all the plant growth in the firebreak.

There is currently a system of established and maintained firebreaks in the Idas Valley / Botmaskop NA (Figure 16). Most of the property boundaries to the north and west are lined with firebreaks as well as the sections along the Hells Hoogte pass.

Table 10: Guidelines for management of fire within the Idas Valley / Botmaskop NA

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
25	Maintain the existing firebreaks.	Annually Completed by end October
26	Conduct inspection of the area along with a representative of the local fire protection association to identify the need for additional firebreaks.	Immediately
27	Prepare firebreaks as required.	Completed by end October
28	Prepare and maintain a register of veld fires including the extent and date.	Compliance audited annually

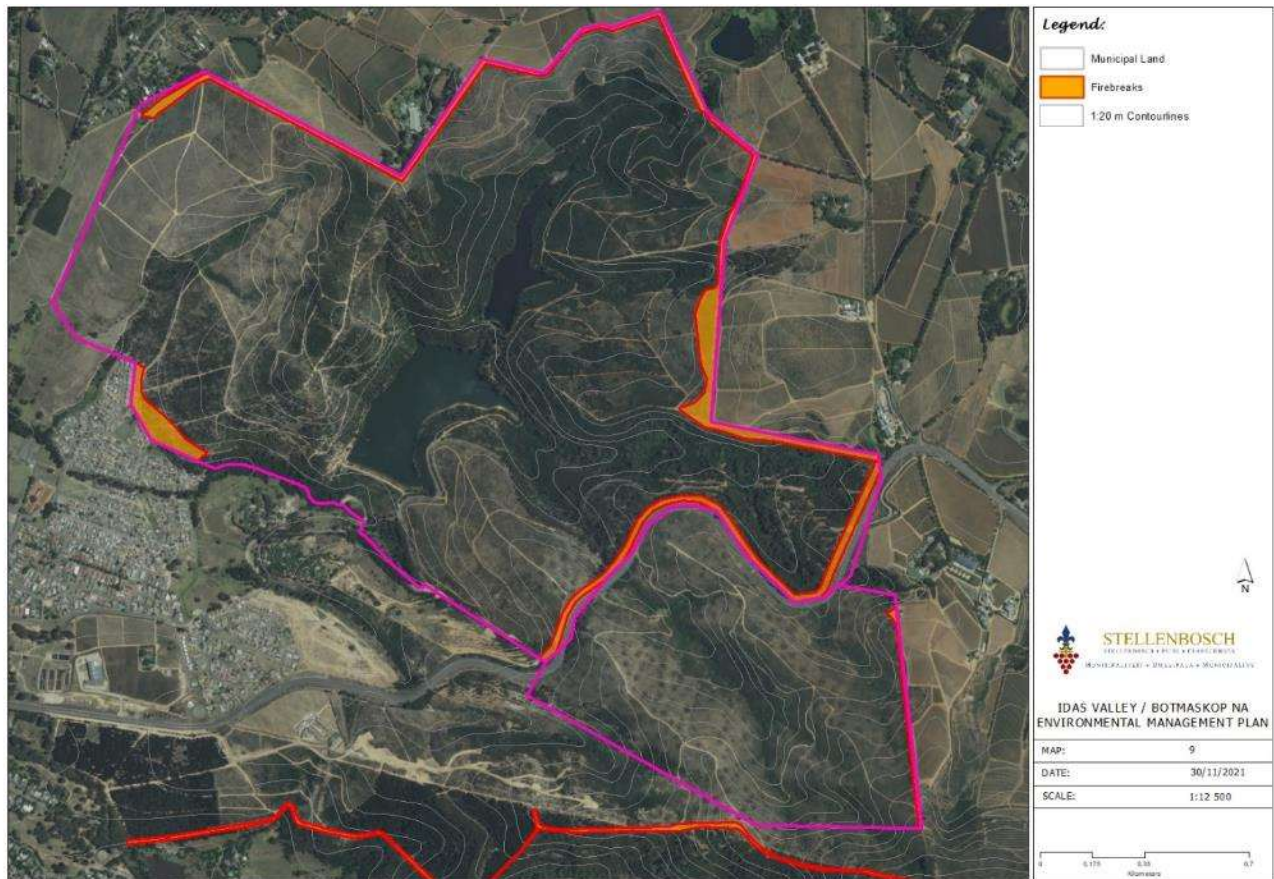


Figure 16: Firebreak within the Idas Valley / Botmaskop NA

7.2.7 Human-Made (Cultural) Environs

Development inevitably modifies the environment. In order to accommodate all of the functions of the Idas Valley / Botmaskop NA, it is important that a certain level of change or modification be accepted. However, such an acceptance requires responsible land ownership based on the following fundamental principles:

- a) **Embracing our ignorance:** In environmental management a prominent place is needed for human ignorance. Land ownership should include the obligation to use the land humbly, within the limits set by the land - limits that are often badly understood. The correlative rule is an acceptance of liability for land degradation and a pledge to do what is possible to restore it and of finding ways to avoid problems before they arise.
- b) **Sensitivity to place:** Given the complexity of nature and the paramount need to promote community well-being, land use norms must stimulate an attention to place and foster a willingness to tailor land uses to the characteristics and possibilities of each tract. Land uses must be set, not just by what is economically and physically possible in a place, but by the role of the tract of land in the surrounding ecosystem.
- c) **Promoting local knowledge:** Good land use is best understood as an art, tailored to the uniqueness of each place and sensitive to the possibilities and limits set by nature. Local knowledge is often tied to the terrain, soils, climate, hydrology, biodiversity, and economy of a place, arising by cautious, trial-and-error methods that environmentalists have come to call *adaptive management*.
- d) **Landscape-level planning:** Good ownership will include the owner's (or custodian's) participation in landscape-level planning. Land health cannot revive without plans that cover large areas, such as watersheds, ecosystems or bioregions.

Table 11: Guidelines for management the man-made environs

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
29	Ensure that development within the Idas Valley / Botmaskop NA fits with the scale, landscape and use of the area.	Ongoing
30	Record all significant archaeological manifestations. Institute research programmes to obtain reliable data of archaeological manifestations.	Annually
31	Control human impact on archaeological sites by instituting an effective permit system to control access.	Annually
32	Erect barriers and pathways/ board walks to regulate movement at sensitive sites.	Ongoing
33	Develop appropriate facilities and infrastructure.	Ongoing
34	Ensure appropriate management of the facilities and infrastructure.	Ongoing
35	Regulate the construction of roads, trails, and other facilities.	Ongoing

7.2.8 Tourism and Outdoor Recreation

It is imperative for the management of the Idas Valley / Botmaskop NA to be as professional and cost-effective as possible and to optimise the direct financial income that can be derived from its use. The Idas Valley / Botmaskop NA has an important function in terms of providing recreational opportunities for Stellenbosch and the region as a whole in that it provides for a number of nature-related opportunities that enhance regional tourism significantly. It is, therefore, important that the principle of economic efficiency be incorporated into the general management of the Idas Valley / Botmaskop NA and that its positive role and function in respect of the economic sectors (specifically tourism) be understood and promoted. Tourism is the fastest growing industry in the world. It is believed that tourism based upon protected areas could become South Africa's biggest industry in the 21st century. With imaginative marketing and appropriate pricing structures there is substantial financial income to be realised from tourism (Turpie & Siegfried, 1996). Wesgro (1992) confirms the above statements and describes tourism as the most important growth stimulus in the economic development of the Western Cape. Tourism influences a variety of economic sub-sectors such as trade, accommodation and catering, manufacturing, agriculture, angling, hunting, personal services and transport. Tourism thus contributes substantially to regional production and job creation.

Tourism has huge potential for stimulating sustainable growth and development in Stellenbosch. The region has a wealth of unique tourism resources, the primary intrinsic attributes being the exceptional aesthetic quality and uniqueness of its landscapes, a range of natural and cultural resources, a diversity of communities with unique cultures, and unique agricultural enterprises and land use forms. In addition, tourism is a cost-effective provider of employment, with strong linkages to the local economy, and it represents a substantial multiplier effect. Ecotourism¹¹, in particular, can provide economic justification for the conservation of areas that may otherwise not receive

¹¹ Eco-tourism is defined as 'purposeful travel to natural areas and resources to utilise these areas and resources, to increase the understanding of the cultural and natural history of the environment, taking care not to alter the environment, producing economic benefits that make conservation of natural resources beneficial to the local people'.

protection, and generate revenue for the management of these areas, and the upliftment of local communities.

However, tourism also has the potential for having a huge impact on the environment. Being one of the least regulated industries, tourism has the potential to induce devastating environmental and cultural changes. It is therefore important to develop tourism in a sustainable manner. To ensure sustainable growth and profitability in the tourism industry, the following challenges need to be faced:

- a) A substantial portion of the tourism benefits must find its way into the local communities.
- b) Ensure that all new developments in the natural environment qualify as unobtrusive and environment-friendly.
- c) Re-invest a substantial portion of tourism profits in the maintenance of the cultural and natural resources.
- d) Create a strong element of ecological and cultural awareness with tourists in order to ensure environmental sustainability.

Table 12: Guidelines for management of tourism and outdoor recreational opportunities

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
36	Involve entire community in tourism by developing and instituting educational programmes in local communities.	Annually
37	Ensure direct or indirect benefit to the total community by creating opportunities for the small business sector (e.g. sale of products, crafts, etc.). Promote the 'multiplier effect' or 'fringe benefits' of tourism (refer to additional jobs for local communities, improved local markets for products).	Ongoing

7.3 LAND USE MANAGEMENT

7.3.1 Management / Use Areas

Because the area has a spectrum of uses and comprises an area with variable degrees of degradation, ecological importance and topographical characteristics, a uniform set of management principles and rules for utilisation of the area is not feasible. The area must be retained as a public resource, used for recreational purposes on a daily basis whilst the environmental integrity of the area is protect at the same time. The management and use of the Idas Valley / Botmaskop NA is therefore predribed by way of defining the areas within which the various activities or use is allowed within.

The purpose of the zonation of the Idas Valley / Botmaskop NA is to control the intensity and type of use within the NA as well as the management focus in an effort to ensure the main goal of biodiversity conservation is met. Table 13 describes the various areas depicted by Figure 17 below.

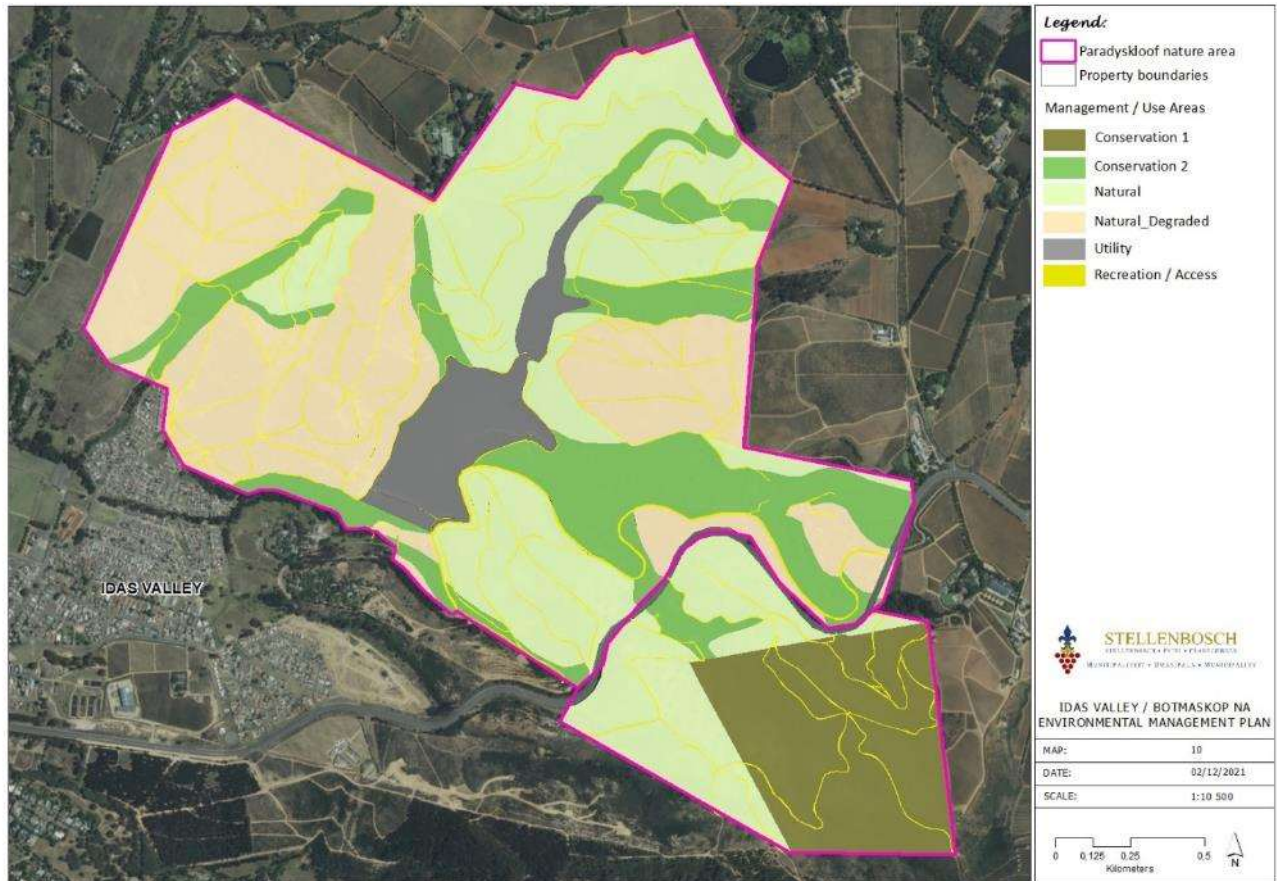


Figure 17: Idas Valley / Botmaskop NA Zonation.

Table 13: Idas Valley / Botmaskop NA Management / Use Areas

Area	DEFINITION / DESCRIPTION
Conservation 1	Area with formal protection status. With the Idas Valley / Botmaskop NA this is the Hottentots-Holland Mountain Catchment Area. Human impact in this area must be minimal and kept free from any alien vegetation.
Use	<ul style="list-style-type: none"> • Conservation • Research • Rehabilitation
Conservation 2	Mainly consist of ecological corridors. Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. User activities with minimal impact allowed in these areas.
Use	<ul style="list-style-type: none"> • Conservation • Research • Rehabilitation
Natural	Mainly consist of ecological corridors. Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. User activities with minimal impact allowed in these areas.
Natural Degraded	
Use	<ul style="list-style-type: none"> • Research • Rehabilitation
Utility	Municipal infrastructure.
Use	<ul style="list-style-type: none"> • Provision of Municipal services
Recreation / Access	Infrastructure to access the area / recreational use.

Use	<ul style="list-style-type: none"> • Research • Cycling • Hiking • Trail-running • Approved events
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Applying Cape Nature’s zoning classification of protected areas most of the Idas Valley / Botmaskop NA can be defined as Nature Access (see Figure 18 / Table 14).

Table 14: Idas Valley / Botmaskop NA Management / Use Areas (Cape Nature Zoning)

Area	DEFINITION / DESCRIPTION
Nature Access	<p>Conservation: To manage and direct visitor use, and plan infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts. Allows for minimal or more intensive biodiversity management intervention.</p> <p>Users: To provide easy access to natural landscapes with low expectation of solitude at all times. Buffer to primitive zone.</p>
Development-Low	<p>Conservation: To locate the zone and infrastructure to minimise impact on sensitive environments. To actively manage users and visitor impacts on adjacent sensitive areas. Provide additional protection to sensitive or threatened habitats, species or other features. Areas with degraded or transformed footprints.</p> <p>Users: To provide access to adjacent natural landscapes with little expectation of solitude.</p>
Development-Management	Location of infrastructure. Areas with extensive degraded or transformed footprints.

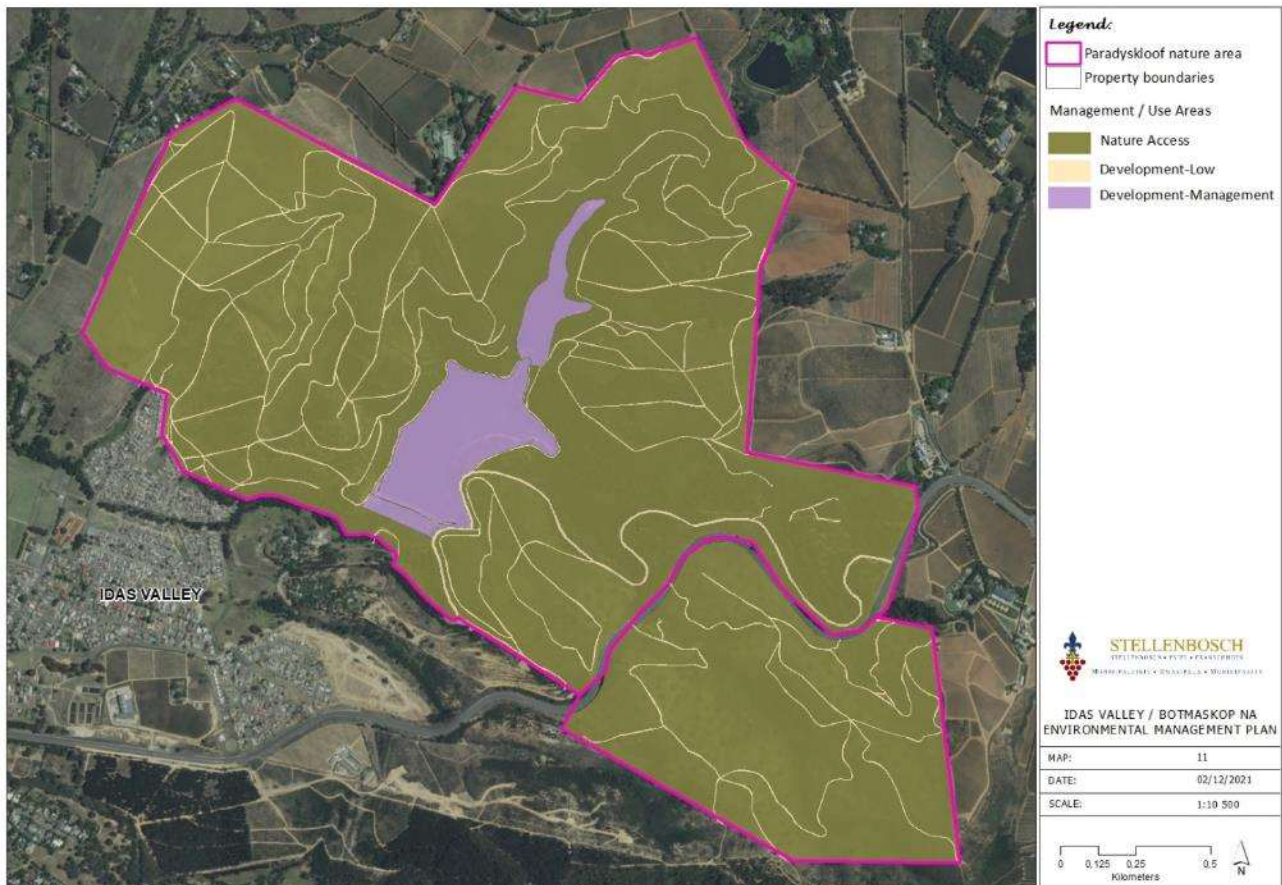


Figure 18: Idas Valley / Botmaskop NA Cape Nature Zonation.

Table 15: Guidelines for management of the Idas Valley / Botmaskop NA Management / Use Areas

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
38	Communicate the applicable use areas and associated appropriate activities through signage at the entrance and on-site.	Immediately after EMP approval.
39	Conserve and protect Conservation areas.	Audited
40	Inspect recreation areas within Conservation and Natural areas to assess the impact of use and degradation.	Annually
41	Implement necessary rehabilitation works where required.	Ongoing

7.3.2 Recreational Use

A primary function of the Idas Valley / Botmaskop NA is to enhance the well-being of the people of Stellenbosch Municipality and those visiting the area. Accordingly, the Idas Valley / Botmaskop NA has an important role, namely to provide the foundation for recreational and tourism opportunities which are environmentally compatible.

Rules applicable to the recreational use of the area are:

- a) Entry and use is at a person's own risk. Stellenbosch Municipality and/or its employees shall not be liable for any damage, loss, theft, injury, accident or death suffered by any person, howsoever caused.
- b) No lighting of fires.
- c) No smoking.
- d) Only approved / designated roads, trails or tracks may be used. The construction or clearing of new roads, trails or tracks are prohibited.
- e) Public vehicle / motorised access to the area is prohibited unless authorised.
- f) Visitors to comply to all signage including access signage and route markers.
- g) Any user of the area utilising the area for hiking, cycling or any other permitted activity must be equipped with the necessary safety gear and equipment.
- h) All users must utilize the area in a manner that considers the enjoyment and safety of other users.
- i) Various routes (roads, tracks or trails) may exclude particular activities such as cycling. In such cases where a route is temporarily closed for rehabilitation or maintenance, or permanently excludes a particular use, appropriate signage will be installed to communicate such information which must be adhered to as in (f) above.

Table 16: Guidelines for management of recreational use of the Idas Valley / Botmaskop NA

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
42	Audit all roads, trails and tracks and update maps accordingly. Decide on the appropriate use (or decommissioning / rehabilitation) thereof and install appropriate signage.	Immediately after EMP approval.
43	Maintain existing roads, trails and tracks to be fit for recreational use.	Ongoing
44	Inspect roads, trails and tracks to be fit for recreational use.	Monthly during summer or after heavy rain events. Weekly during summer.

45	Repair damaged roads, trails and tracks.	Ongoing
46	Close routes that require maintenance or rehabilitation and are not deemed to be safe for recreational use by installing appropriate signage and access barriers.	Ongoing
47	Inspect and maintain signage and route markers throughout the area.	Monthly

7.3.3 Access Control

Access control, or the lack thereof, is a threat to the management of the area influencing secondary threats such as the security of the area, vandalism and fire. Existing access control is inadequate and must be addressed. Access control requires that the perimeter of the area is secure and access regulated. Although the NA needs to be secured from a security point of view it is important to recognise that the area remains a public resource and needs to be accessible to the local community.

Table 17: Guidelines for management access control

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
48	Audit existing access-points to the NA.	Immediately and ongoing
49	Audit existing access control infrastructure.	Immediately
50	Audit existing locks and ownership of keys.	Ongoing
51	Keep a register of key-holders.	Ongoing
52	Investigate the financial aspects fencing the area.	Immediately
53	Deploy additional staff with direct communication with law enforcement to monitor the area.	Immediately and ongoing

7.3.4 Municipal Infrastructure

The Idas Valley / Botmaskop NA houses municipal infrastructure. It is important that the Municipality are able to access, maintain and effect required improvements to these infrastructure. Although the importance of these works can not be underestimated it must be planned and executed in a manner that has the least possible impact on the area.

Table 18: Guidelines for management of municipal infrastructure

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
54	Maintain all infrastructure in good working order.	Ongoing
55	Development proposals or plans for maintenance work within the Idas Valley / Botmaskop NA to be circulated to the Department: Community Services for input.	Ongoing

7.3.5 Events

The Idas Valley / Botmaskop NA is an important resource used for spiritual, scientific, educational, recreational and tourism opportunities. Stellenbosch Municipality receives various applications for

events in the Idas Valley / Botmaskop NA for consideration. It is the Municipality's responsibility to ensure that such events are compatible with the area, that such an event does not present an unreasonable threat or impact to the area that cannot be avoided or mitigated and that the area ultimately benefit from such an event. In order to give effect to the potential of the Idas Valley / Botmaskop NA in this regard events must be used as a way to create a strong element of ecological and cultural awareness with event organisers and participants in order to ensure environmental sustainability. The following applies to events in the Idas Valley / Botmaskop NA:

- (i) Events are to be held in a manner that has the least possible negative environmental impact.
- (ii) Event applications must be submitted timeously for consideration, preferably 90 day prior to such an event.
- (iii) Potential impacts of an event must be considered by the municipality and an approval granted only if such impact is considered to be acceptable or is of such a nature that the likely impacts can be avoided and/or mitigated.
- (iv) The applicant applying for an event license is to provide a scope of the proposed event activities, an assessment of the likely environmental impacts of such activities, recommended mitigation measures to be implemented and the degree to which the proposed mitigation measures are expected to address the identified environmental impacts.
- (v) An application for an event in a nature area is to be circulated to the relevant municipal department tasked with the management of such an area for consideration, comment and the provision of conditions before a decision for the granting/refusal of an event license is made.
- (vi) An applicant may be liable for an application fee, the criteria of which have been approved by the Council of Stellenbosch Municipality.
- (vii) An event license granted is only valid upon acceptance of the set conditions for the hosting of the particular event and payment made of the application fee by the event organizer.
- (viii) Unless specified otherwise, the event organizer assumes responsibility for the event's compliance to conditions imposed during the granting of an event permit.
- (ix) The event organizer is responsible for any rehabilitation to a nature area damaged or degraded during an event. The scope of such rehabilitation work will be the restoration of an area to the state prior the hosting of the relevant event.
- (x) In the event that rehabilitation work is required the municipality may direct an event organizer to investigate, evaluate and assess the impact of specific activities and report thereon and to complete rehabilitation measures before a specified reasonable date.
- (xi) The Municipality may exempt an organizer from a prohibition contained in this EMP. Such exemption must be strongly motivated for and only approved under strict conditions to avoid / mitigate risks associated with such exemption.

Table 19: Guidelines for events in the Idas Valley / Botmaskop NA

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
56	Consider all events in the area in terms of the above criteria.	Ongoing
57	Development a set of application fees for submission to Council.	Immediately after EMP approval.

7.3.6 Development

It is imperative that the integrity of the Idas Valley / Botmaskop NA be protected through appropriate planning and management intervention. Accordingly any physical development in the Idas Valley / Botmaskop NA is to be planned and implemented to have the least possible impact and to have any such impact mitigated. Development within the Idas Valley / Botmaskop NA must reflect the principles described in Section 8.2.7 above.

Table 20: Guidelines for development

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
58	Development proposals within Idas Valley / Botmaskop NA to be circulated to the Department: Community Services for comment.	Ongoing

7.4 ENVIRONMENTAL AUDITING

This EMP builds upon the notion that uncertainty (or lack of knowledge) about the status and function of ecosystems can be addressed in an *adaptive management strategy* - an approach that relies on continual assessment and adjustment. Although repeated revision of management decisions is at the core of adaptive management, this does not threaten resource security, rather it provides for sustainability of resource use. Threats to resource security can be minimised if management objectives are set clearly. In addition, adaptive management will reduce the sort of pressure that stymies action because initial choices are not viewed as final. The dimension of continual improvement is embodied in adaptive management. Continual improvement is defined as the process of enhancing management actions to achieve improvements in overall performance (i.e. remaining dynamic). It is achieved by continually evaluating environmental performance against set environmental policies, objectives and targets with the purpose of identifying opportunities for improvement. Accordingly, the Idas Valley / Botmaskop NA is a dynamic document which is subject to updating and amendment in accordance with the results of monitoring and auditing and the outcomes of on-going scientific research.

7.4.1 Auditing Strategies

Table 21: Auditing actions

REF -NR	ACTIONS/IMPLEMENTATION	TIME FRAME
59	Audit all documented impacts of management actions on the environment.	Annually in October.
60	Implement procedures for handling incidents of non-conformance with the EMP.	Annually in October.
61	Manage environmental records, including the results of audits and reviews.	Immediately after EMP approval.
62	Submit audit report to the Council.	Annually in October.

7.4.2 Auditing Procedures

The environment audit to be undertaken is a methodical examination of the site's environmental information to verify whether, and to what extent, the management actions have complied with set performance criteria. The review of the EMP on a five-year basis is based upon the results of the

environmental audits the objective being to ensure its continuing appropriateness and effectiveness.

The environmental audit consists of three stages, namely *pre-audit*, *on-site audit* and *post-audit*. Pre-audit includes the administrative issues associated with planning the audit, selecting the institution to conduct the audit, and preparing the audit protocol. The main purpose of the pre-audit stage will be to develop an audit plan, based on the most recent information and the results of the previous year's audit. The audit plan must also address where the audit is to be conducted, what the scope and objectives of the audit are, how the audit will be conducted (keeping in mind that the results of the audit must be comparable to previous year's audit results), and when the audit is to be conducted.

The on-site audit involves the recording of required information. The audit team gathers information by observation, conducting photographic studies, taking measurements, and conducting tests as was determined during the pre-audit stage. During the on-site audit stage the strength and weaknesses of the methods of information gathering must be evaluated in order to determine whether the process of auditing is effective in achieving its goal. In keeping with the adaptive management approach, the auditing process must also be looking for continual improvement. All the information obtained is recorded and a comprehensive record of the audit and the state of affairs produced.

The audit report is completed during the post-audit stage. Such report will reflect previous results, current results, and recommended improvement goals. The audit report will also indicate failures or deficiencies and recommendations for corrective actions.

7.4.3 Environmental Indicators

Table 21: Environmental Indicators for the auditing process (*Environmental Indicators for National State of the Environment Reporting* [DEAT, 2002]).

ENVIRONMENTAL MANAGEMENT	
Environmental Management	EM01 – Multilateral environmental agreements EM02 – Budgetary allocation to natural resource management EM03 – Budgetary allocation to environmental education EM04 – Budgetary allocation to environmental research EM08 – Voluntary use of environmental accounting and reporting EM10 – Environmental reporting by the Municipality
BIODIVERSITY & NATURAL HERITAGE	
Species Diversity	BD01 – Threatened and extinct species per taxonomic group BD02 – Endemic species per taxonomic group BD03 – Alien (non-indigenous) species per taxonomic group BD04 – Population trends of selected species BD05 – Distribution and abundance of selected alien species
Habitat Change	BD06 – Extent of conserved area BD08 – Disturbance regimes: fire frequency
Resource Value	BD11 – Contribution to job creation: eradication of alien species
LAND USE	
Land Use	LU01 – Land cover LU02 – Land productivity vs potential
Land Condition	LU03 – Soil loss LU04 – Land degradation

8 VALIDITY

The Idas Valley / Botmaskop NA EMP is based upon and aims to give effect to a long-term vision for the area which is not subject to *ad hoc* or short-term amendment. However, in terms of the principle of continual improvement the EMP is subject to revision in accordance with the results of on-going monitoring and auditing to be undertaken as described in Chapter 7.4. It will be valid, in its current form, for a period of 5 years from the date approved by Council of Stellenbosch Municipality after which revision has to be considered.

Within this period addition or amendments to the EMP can be considered by the Management Authority. These additions or amendments will be added to the document as addendums before being included in the document on revision. Examples of such addendums may include documents such as:

- a) Updated maps,
- b) Founding documentation on the proposed “Friends of the Idas Valley / Botmaskop NA”,
- c) Updated rules on recreation, access, events, etc.

9 CONCLUSION

The Idas Valley / Botmaskop NA EMP is a mechanism intended to facilitate the achievement of the vision set for the area. The EMP and its associated processes of community participation, education and performance auditing presents an opportunity for all concerned to participate in the long-term management of the area for the benefit of the current and future generations. The implementation of the EMP presents the first step in such process. This document should therefore not be seen as a final product, but rather as a step towards the implementation of integrated bioregional planning as *‘an organised process that enables people to work together, think carefully about the potential and problems of their region, set goals and objectives, define activities, implement projects, take actions agreed upon by the communities, evaluate progress and refine their approach’*.