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**ECOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED  
WASTEWATER TREATMENT WORKS IN LANSERIA  
BUSINESS PARK, WITHIN CITY OF JOHANNESBURG  
METROPOLITAN MUNICIPALITY IN GAUTENG PROVINCE**



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**30 JANURY 2022**

## DOCUMENT CONTROL

<b>REPORT NAME</b>	MOLEPO, M. 2022. ECOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED WASTEWATER TREATMENT WORKS IN LANSERIA BUSSINES PARK WITHIN CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY IN GAUTENG PROVINCE	
<b>REFERENCE</b>	ME0005/Ecology	
<b>SUBMITTED TO</b>	Nali Sustainability Solutions (Pty) Ltd	
<b>AUTHORS</b>	Mokgatla Molepo <i>Pr. Nat. Sci</i> (009509)	

## **EXECUTIVE SUMMARY**

MATAVHA Environmental (Pty) Ltd was appointed by Nali Sustainability Solutions (Pty) Ltd to conduct an ecological study for the proposed wastewater treatment works in Lanseria within the City of Johannesburg Metropolitan Municipality, Gauteng.

### **Floral features:**

According to Mucina and Rutherford (2012), there is only one vegetation type found within the study site, namely Egoli Granite Grassland. The current vegetation composition of the study site has been transformed. This is due to previous borrow pits which were not rehabilitated.

### **Faunal features:**

Due to the smaller size of the property, mammals and reptiles were surveyed through direct and indirect methods, while birds were surveyed through direct methods. From the survey conducted, no Species of Conservation Concern were observed.

### **Conclusions and Recommendations:**

The study site is of low – medium ecological function. During construction phase all the watercourses should be avoided to prevent further degradation. Disturbed areas which will not be used, should be rehabilitated. Based on the outcome of this assessment, there are no evident fatal flaws that would prevent this development from being authorised, nor being conducted in a sustainable manner.

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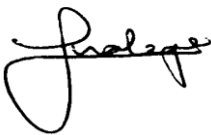
## DECLARATION OF INDEPENDENCE

I, Mokgatla Molepo, in my capacity as a specialist consultant, hereby declare that I:

- Act/acted as an independent specialist to Nali Sustainability Solutions (Pty) Ltd for this project.
- Do not have any personal, business, or financial interest in the project expect for financial remuneration for specialist investigations completed in a professional capacity as specified by the Environmental Impact Assessment Regulations, 2017.
- Will not be affected by the outcome of the environmental process, of which this report forms part of.
- Do not have any influence over the decisions made by the governing authorities.
- Do not object to or endorse the proposed developments but aim to present facts and my best scientific and professional opinion with regard to the impacts of the development.
- Undertake to disclose to the relevant authorities any information that has or may have the potential to influence its decision or the objectivity of any report, plan or document required in terms of the Environmental Impact Assessment Regulations, 2017.

## INDEMNITY

- This report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken.
- This report is based on a desktop investigation using available information and data related to the site to be affected, *in situ* fieldwork, surveys and assessments and the specialists best scientific and professional knowledge.
- The Precautionary Principle has been applied throughout this investigation.
- The findings, results, observations, conclusions and recommendations given in this report are based on the specialist's best scientific and professional knowledge as well as information available at the time of study.
- Additional information may become known or available during a later stage of the process for which no allowance could have been made at the time of this report.
- The specialist reserves the right to modify this report, recommendations and conclusions at any stage should additional information become available.
- Information and recommendations in this report cannot be applied to any other area without proper investigation.
- This report, in its entirety or any portion thereof, may not be altered in any manner or form or for any purpose without the specific and written consent of the specialist as specified above.
- Acceptance of this report, in any physical or digital form, serves to confirm acknowledgement of these terms and liabilities.



Mokgatla Molepo *Pr. Nat. Sci.* (009509)

24 January 2022

## **1. INTRODUCTION**

Humans alter their environment to suit their needs, to improve their quality of life, and to encourage economic growth. Generally, it is now accepted that development should be planned to make the best possible use of natural resources and to avoid degradation of the environment. Hence the need to pay explicit attention to environmental factors in the decision-making process. This should entail an accurate prediction and assessment of the impact of any development on the environment. It is essential for such assessment procedures to be developed alongside development planning, with the necessary mitigation that could inform development projects to conserve the natural environment.

MATAVHA Environmental (Pty) Ltd was appointed by Nali Sustainability Solutions (Pty) Ltd to conduct an ecological impact assessment for the proposed wastewater treatment works in Lanseria Business Park within City of Johannesburg Metropolitan Municipality, Gauteng Province.

A site visit was undertaken on the 15<sup>th</sup> of January 2022. The proposed project area is located approximately 700 m west of Lanseria Airport, in Gauteng (Figure 1). The site was accessed via R512 and Ashenti Road.

The following are the central coordinates of the site: 25°55'49.93"S, 27°54'44.49"E



Figure 1: Locality map of the project area.



## **2. TERMS OF REFERENCES**

The study included the following activities:

- Provide a broad-scale map of the vegetation of the proposed site;
- A description of the dominant and characteristic species within the broad-scale plant communities;
- Provide a list of Red data plant and animal species previously recorded within the study site, and information obtained from the relevant authorities and literature reviews;
- Identification of sensitive habitats and plant communities;
- Preliminary investigation of the impacts of the project and the provision of recommended mitigation measures; and
- Recommend practical mitigation measures to minimize or eliminate negative impacts and or enhance potential project benefits.

### **2.1. Objectives of this study**

- To provide a description of the flora and fauna occurring around the proposed project area.
- To provide description of any threatened species occurring or likely to occur within the study area in terms of the National Red List Status (SANBI, 2012) and Red Data List (IUCN, 2018) specifying species that are either: rare, threatened, endangered, or critically endangered.
- Determine conservation priority areas according to authorised Critical Biodiversity Areas (CBAs).
- To describe the available habitats on the study site including areas of important conservation value.
- Identify and assess the potential impacts associated with a proposed development.

The investigation determined how the habitats and biota may be affected by the current activities on the site. The significance ratings of the anticipated impacts were evaluated, and recommendations and deductions were made.

### **2.2. Assumptions, Limitations, Uncertainties, and Gap analysis**

- The findings, results, observations, conclusions and recommendations provided in this report are based on the author's best scientific and professional knowledge as well as available information regarding the perceived impacts on terrestrial environment.

- A description of vegetation was based on the physical field surveys and site walkthrough and investigations as performed on site.
- Results presented in this report are based on a snapshot investigation of the study site and not on detailed and long-term investigations of all environmental attributes and the varying degrees of biological diversity that may be present in the study site.
- The assessment of impacts and recommendation of mitigation measures were informed by the site-specific ecological issues arising from the field survey and based on the assessor's working knowledge and experience with similar projects.

### **3. SURVEY METHODS AND REPORTING**

#### **Climate**

The climate in the area is mild, and generally warm and temperate. In winter, there is much less rainfall than in summer. This location is classified as Cwa by Köppen and Geiger. The average annual temperature is 16.8°C while the rainfall here averages 675 mm. According to Köppen -Geiger system (Kottek et al. 2006), the study site falls within the Cwa climatic region.

#### **Biophysical Environment**

##### **Vegetation of the study site**

Floral diversity was determined by walkthroughs around the project area. To attain scientifically reliable results, obviously distinct vegetation communities were surveyed by selecting representative site in each homogenous unit. The vegetation units of Mucina and Rutherford (2006) were used as references but where necessary communities are named according to the recommendations of a standardised South African Syntaxonomic nomenclature system. By combining the available literature with the survey results, stratification of vegetation communities was possible.

Selected sites within the area were also searched for important species and the potential for Red Data Listed (RDL) and other important species were established, and cross referenced with New Plants of South Africa (POSA) database. The aim was to identify distinct vegetation types and to establish their integrity and representation in the study area. The veld types are described on a local level. The study site is covered, predominantly by graminoids and woody spece, with few shrubs and large alien trees. This type of vegetation has the potential to support a variety of faunal species including birds, but due to human settlements, very few animals can remain.

The natural vegetation type found in the area Egoli Granite Grassland (Fig. 5). Due to anthropogenic activities within the proposed project area, the natural vegetation has been transformed and there are presence of alien vegetation throughout the area.

## Vegetation & Landscape Features

Moderately undulating plains and low hills supporting tall, usually *Hyparrhenia hirta* dominated grassland, with some woody species on rocky outcrops or rock sheets. The rocky habitats show a high diversity of woody species, which occur in the form of scattered shrub groups or solitary small trees.

## Geology & Soils

Archaean granite and gneiss of the Halfway House Granite at the core of the Johannesburg Dome supporting leached, shallow, coarsely grained, sandy soil poor in nutrients of Glenrosa form. Small area is built by ultramafics. Dominant land types Bb and Ba.

## Distribution

This vegetation is found in Gauteng Province: Johannesburg Dome extending in the region between northern Johannesburg in the south, and from near Lanseria Airport and Centurion (south of Pretoria) to the north, westwards to about Muldersdrift and eastwards to Tembisa. It occurs on a varying altitude ranging between 1280-1660 m a.s.l (Bredenkamp & van Rooyen, 1996).

## Occurrence of important flora

Graminoids: *Aristida canescens* (d), *A. congesta* (d), *Cynodon dactylon* (d), *Digitaria monodactyla* (d), *Eragrostis capensis* (d), *E. chloromelas* (d), *E. curvula* (d), *E. racemosa* (d), *Heteropogon contortus* (d), *Hyparrhenia hirta* (d), *Melinis repens* subsp. *repens* (d), *Monocymbium cerasiiforme* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Andropogon eucomus*, *Aristida aequiglumis*, *A. diffusa*, *A. scabrivalvis* subsp. *borumensis*, *Bewisia biflora*, *Brachiaria serrata*, *Bulbostylis burchellii*, *Cymbopogon caesius*, *Digitaria tricholaenoides*, *Diheteropogon amplexans*, *Eragrostis gummiflua*, *E. sclerantha*, *Panicum natalense*, *Schizachyrium sanguineum*, *Setaria nigrirostris*, *Tristachya rehmannii*, *Urelytrum agropyroides*.

Herbs: *Acalypha angustata*, *A. peduncularis*, *Becium obovatum*, *Berkheya insignis*, *Crabbea hirsuta*, *Cyanotis speciosa*, *Dicoma anomala*, *Helichrysum rugulosum*, *Justicia anagalloides*, *Kohautia amatymbica*, *Nidorella hottentotica*, *Pentanisia prunelloides* subsp. *latifolia*, *Pseudognaphalium luteo-album*, *Senecio venosus*.

Geophytic Herbs: *Cheilanthes deltoidea*, *C. hirta*.

Small Tree: *Vangueria infausta*.

Tall Shrub: *Rhus pyroides*.

Low Shrubs: *Anthospermum hispidulum*, *A. rigidum* subsp. *pumilum*, *Gnidia capitata*, *Helichrysum kraussii*, *Ziziphus zeyheriana*. Succulent Shrub: *Lopholaena coriifolia*.

## Conservation

This vegetation is Endangered. Conservation target is 24% but only about 3% of this unit is conserved in statutory reserves (Diepsloot and Melville Koppies Nature Reserves) and a number of private conservation areas including Motsetse and Isaac Stegmann Nature Reserves, Kingskloof Natural Heritage Site, Melrose and Beaulieu Bird Sanctuaries as well as the Walter Sisulu National Botanical Garden. More than two thirds of the unit has already undergone transformation mostly by urbanisation, cultivation or by building of roads. Current rates of transformation threaten most of the remaining unconserved areas. There is no serious alien infestation in this unit, although species such as *Eucalyptus grandis*, *E. camaldulensis* and *E. sideroxylon* are commonly found. Erosion is moderate and very low.

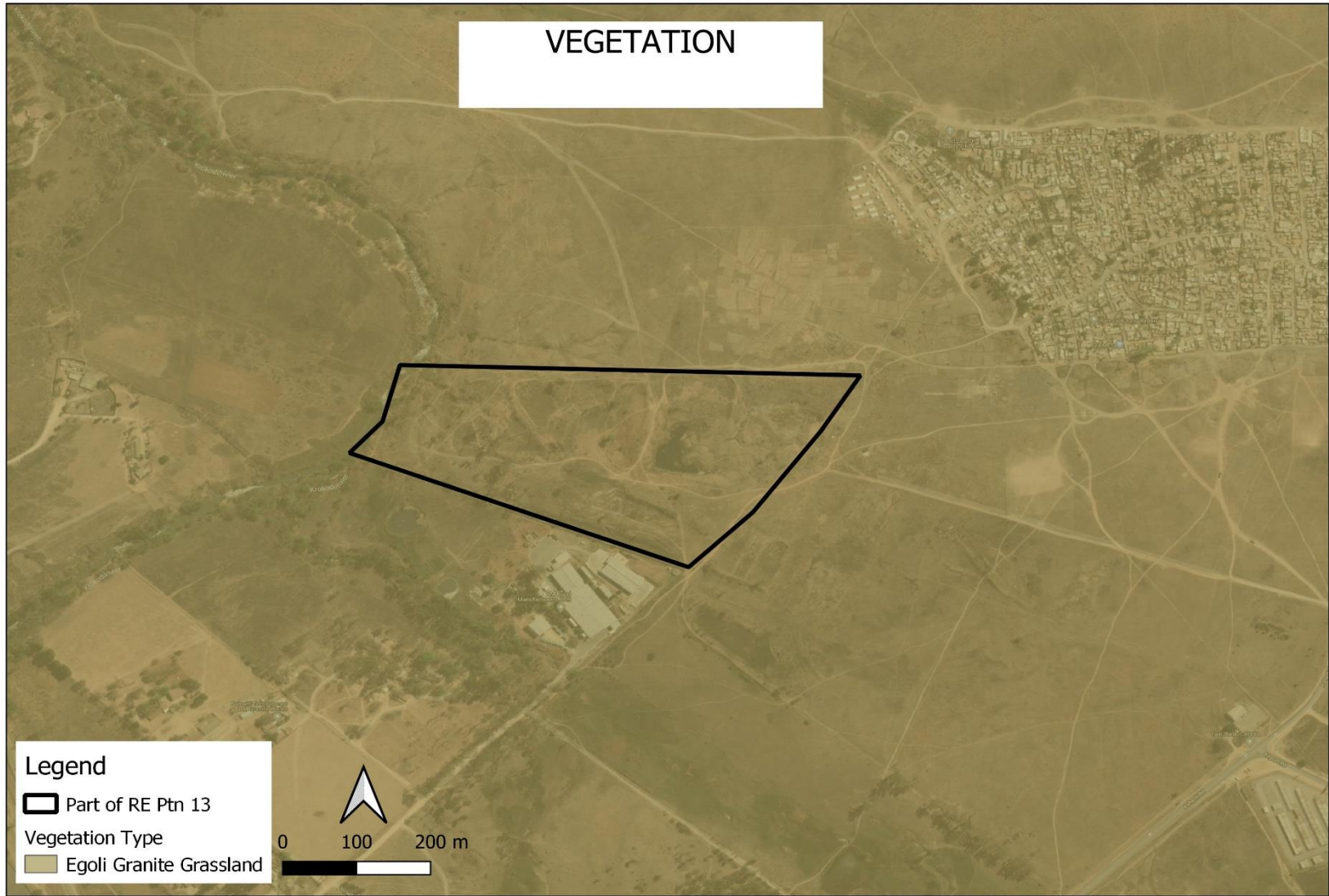


Figure 2: Vegetation map of the study site.

## **4. LEGAL REQUIREMENTS**

### **4.1. RELEVANT LEGISLATION**

#### *The Constitution of the Republic of South Africa Act (Act No. 108 of 1996) – Section 24.*

The Constitution is South Africa's overarching law. It prescribes minimum standards with which existing and new laws must comply. Chapter 2 of the Constitution contains the Bill of Rights in which basic human rights are enshrined. Government's commitment to give effect to the environmental rights enshrined in the Constitution is evident from the enactment of various pieces of environmental legislation since 1996, including the National Water Act, the National Environmental Management Act, etc.

The Constitution deals with the environment in Section 24 and proclaims the right of everyone:

- (a) To an environment that is not harmful to their health or well-being; and
- (b) To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
  - (i) Prevent pollution and ecological degradation;
  - (ii) Promote conservation; and
  - (iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

#### *National Environmental Management Act (Act No. 107 of 1998) (NEMA), as amended.*

NEMA replaces a number of the provisions of the Environment Conservation Act, 1989 (Act No. 73 of 1989). The Act provides for cooperative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote cooperative governance and procedures for coordinating environmental functions. The principles enshrined in NEMA guide the interpretation, administration and implementation of the Act with regards to the protection and / or management of the environment. These principles serve as a framework within which environmental management must be formulated. Section 2(4) specifies that "sustainable development requires the consideration of all relevant factors including aspects specifically relevant to biodiversity":

#### *National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA).*

NEMBA provides for the management and conservation of biological diversity and components thereof; the use of indigenous biological resources in a sustainable manner;

the fair and equitable sharing of benefits rising from bio-prospecting of biological resources; and cooperative governance in biodiversity management and conservation within the framework of NEMA.

National Water Act (Act No. 36 of 1998) (NWA).

The National Water Act (NWA) is a legal framework for the effective and sustainable management of water resources in South Africa. Central to the NWA is recognition that water is a scarce resource in the country which belongs to all the people of South Africa and needs to be managed in a sustainable manner to benefit all members of society. The NWA places a strong emphasis on the protection of water resources in South Africa, especially against its exploitation, and the insurance that there is water for social and economic development in the country for present and future generations.

The National Water Act, requires any development to secure Water Use Licences with the following activities:

Section 21 (a), abstractive use of water for construction (if possible and required).

Section 21 (c) and (i) use, i.e. river or wetland crossings, which includes any drainage lines by any infrastructure.

In terms of the definitions provided, activities included under Sections 21(c) and 21(i) are (amongst others) the construction of roads, bridges, pipelines, culverts and structures for slope stabilisation and erosion protection. DWS will however need to be approached to provide guidance on whether approval for Section 21 (c) and (i) water uses would be required.

GENERAL AUTHORISATION IN TERMS OF SECTION 39 OF THE NWA

According to the preamble to Part 6 of the NWA, “This Part established a procedure to enable a responsible authority, after public consultation, to permit the use of water by publishing general authorisations in the Gazette...” “The use of water under a general authorisation does not require a licence until the general authorisation is revoked, in which case licensing will be necessary...”

The General Authorisations for Section 21 (c) and (i) water uses (impeding or diverting flow or changing the bed, banks or characteristics of a watercourse) as defined under the NWA have recently been revised (Government Notice R509 of 2016). Determining if a water use licence is required for these water uses is now associated with the risk of degrading the ecological status of a watercourse. A low risk of impact could be authorised in terms of a General Authorisations (GA).

## Provincial legislation

In addition to national legislation such as Protected Areas Act No. 57 of 2003, National Environmental Management: Biodiversity Act No. of 2004 and Conservation of Agricultural Resources Act No. 43 of 1983, some of South Africa's nine provinces have their own provincial biodiversity legislation, as nature conservation is a concurrent function of national and provincial government in terms of the Constitution (Act 108 of 1996).

### 4.2.1. Gauteng Conservation Plan

The C-plan places different habitats in different categories. These categories need to be considered during the environmental assessment process. The categories are the following: Critical Biodiversity Areas (CBA's) and Ecological Support Areas (ESA's). The CBA's is in turn further divided into CBA Irreplaceable Areas and CBA Important Areas. According to the Gauteng conservation plan or C-plan a part the study site is classified as an Ecological Support Area, an Irreplaceable area and an Important area.

The Gauteng Conservation Plan or C-plan of 2012 version 3.3 as set out by the Gauteng Department of Agriculture and Rural Development (GDARD) main aim is to conserve as many representative habitats, species and ecological processes so as to maintain biodiversity. According to SANBI the main purposes of C-Plan 3.3 are:

- To serve as the primary decision support tool for the biodiversity component of the Environmental Impact Assessment (EIA) process;
- To inform protected area expansion and biodiversity stewardship programmes in the province;
- To serve as a basis for development of Bioregional Plans in municipalities within the province.

The C-Plan 3 considers the following biodiversity features:

- Plants (Including priority ranking of species of conservation concern in Gauteng);
- Bird habitat models;
- Invertebrates;
- Mammals;
- Fish;
- Reptiles;
- Pan clusters;
- Near pristine quaternary catchments;
- Bioclimatic zones;



- Carbon sequestration; and
- Primary vegetation.

The C-plan places different habitats in different categories. These categories need to be considered during the environmental assessment process. The categories are the following: Critical Biodiversity Areas (CBA's) and Ecological Support Areas (ESA's). The CBA's is in turn further divided into CBA Irreplaceable Areas and CBA Important Areas. According to the Gauteng conservation plan or C-plan a portion of the northern and western boundaries fall under Ecological Support Area, and Irreplaceable area. These are associated with drainage lines and rivers (Fig 3).

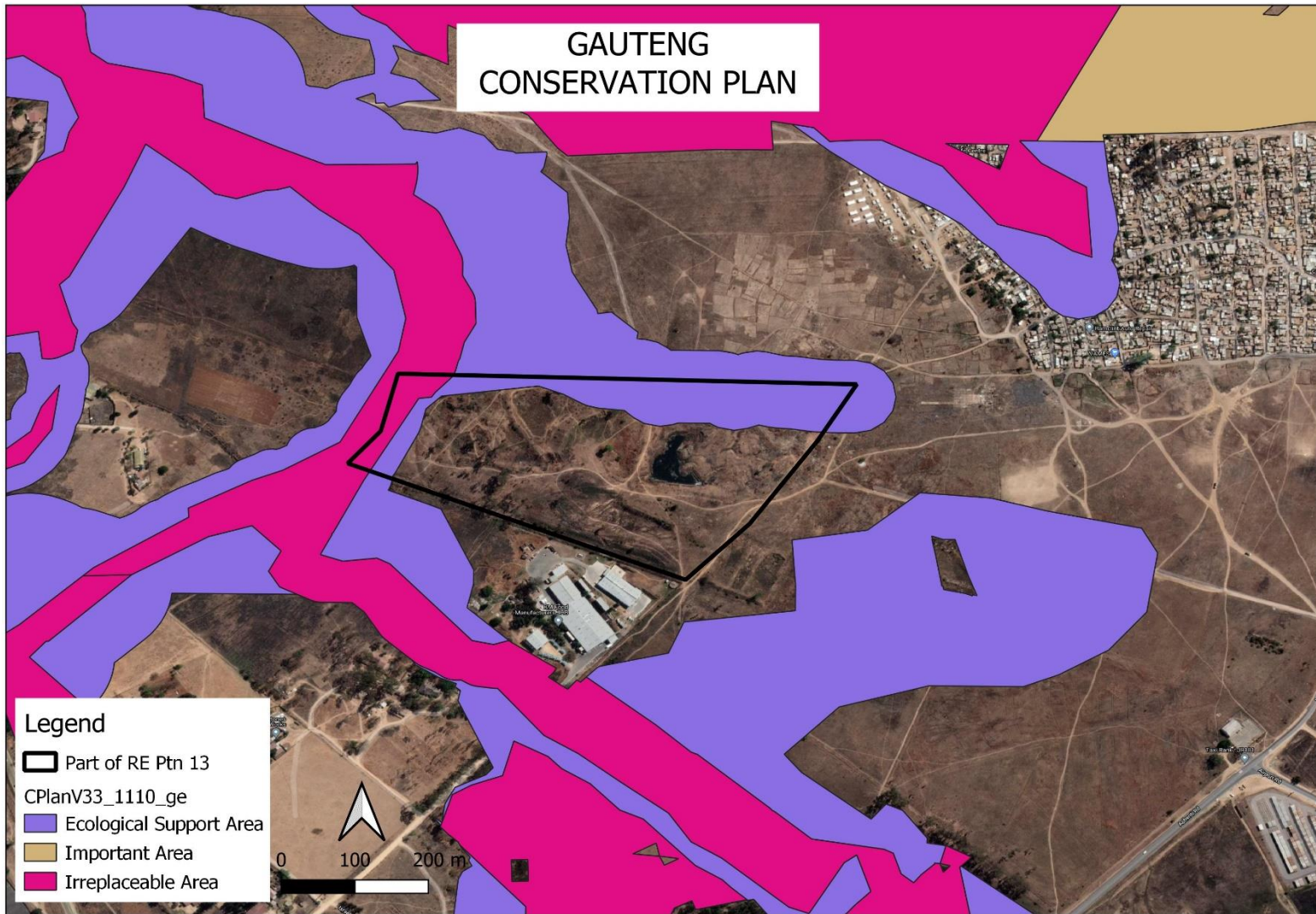


Figure 3: Gauteng C-Plan Map.

## **5. METHODOLOGY**

Our methodology included both background information search (Desktop) and field survey. Below is the method used in our study for each of the subfields of biodiversity and the limitations encountered:

### **6.1. Flora Study**

Transect walk method was used to identify the plants and vegetation structure occurring on the study site. Plants that could not be identified on site were photographed for later identification.

#### ***Limitations:***

- Duration of the field survey. Not all sections were covered during this phase.
- Plants that were not flowering at the time of the survey
- Sampling frequency

#### ***Recommendations:***

- Majority of the habitats have been transformed. Remaining alien plants should be eradicated and controlled.

### **6.2. Fauna Study**

Visual observations stand counts and indirect counts method were used to assess the animals occurring on the study site. Observations were made while walking through the site and while driving in some instances. The stand counts involved two observers who would sit quietly and wait for the animals to pass. Whereas the indirect counts included the searching of faecal matter/ pellets. Active search for reptiles and other small mammals was conducted by turning rocks and dead logs.

#### ***Limitations:***

- Duration of the field survey
- Sampling frequency
- Circadian rhythm of animals (diurnal animals could not be detected)

### **Red Data Analysis and Floral Assessment**

SANBI NEW POSA was compared to relevant literature detailing Protected and Red Data plant species lists in order to compile a list of Red Data plant species that may potentially

occur within the study area. Historical floral records of the surrounding area is listed in the appendix. The status is determined in table 1 below.

Table 1: Red Data Status definitions (SANBI, 2010).

<b>p- protected Species</b>		
<b>M- Medicinal species</b>		
<b>EX</b>	<b>Extinct</b>	A taxon is Extinct when there is no reasonable doubt that the last individual has died. Taxa should be listed as extinct only once exhaustive surveys throughout the historic range have failed to record an individual.
<b>EW</b>	<b>Extinct in the Wild</b>	A taxon is Extinct in the Wild when it is known to survive only in cultivation or as a naturalized population (or populations) well outside the past range.
<b>CR</b> <b>PE</b>	<b>Critically Endangered (Possibly Extinct)</b>	Critically Endangered (Possibly Extinct) taxa are those that are, on the balance of evidence, likely to be extinct, but for which there is a small chance that they may be extant. Hence, they should not be listed as Extinct until adequate surveys have failed to record the taxon.
<b>CR</b>	<b>Critically Endangered</b>	A taxon is Critically Endangered when the best available evidence indicates that it meets any of the five IUCN criteria for Critically Endangered and is therefore facing an extremely high risk of extinction in the wild.
<b>EN</b>	<b>Endangered</b>	A taxon is Endangered when the best available evidence indicates that it meets any of the five IUCN criteria for Endangered and is therefore facing a very high risk of extinction in the wild.
<b>VU</b>	<b>Vulnerable</b>	A taxon is Vulnerable when the best available evidence indicates that it meets any of the five IUCN criteria for Vulnerable and is therefore facing a high risk of extinction in the wild.
<b>NT</b>	<b>Near Threatened</b>	A taxon is Near Threatened when available evidence indicates that it nearly meets any of the five IUCN criteria for Vulnerable and is therefore likely to qualify for a threatened category in the near future.
<b>CRITICALLY RARE</b>		A taxon is Critically Rare when it is known to occur only at a single site but is not exposed to any direct or plausible potential threat and does not qualify for a category of threat according to the five IUCN criteria.
<b>RARE</b>		A taxon is Rare when it meets any of the four South African criteria for rarity but is not exposed to any direct or plausible potential threat and does not qualify for a category of threat according to the five IUCN criteria.
<b>DECLINING</b>		A taxon is Declining when it does not meet any of the five IUCN criteria and does not qualify for the categories Critically Endangered, Endangered, Vulnerable or Near Threatened, but there are threatening processes causing a continuing decline in the population.

<b>DDD</b>	<b>Data Deficient— Insufficient Information</b>	A taxon is DDD when there is inadequate information to make an assessment of its risk of extinction, but the taxon is well defined. Data Deficient is not a category of threat. However, listing of taxa in this category indicates that more information is required, and that future research could show that a threatened classification is appropriate.
<b>LC</b>	<b>Least Concern</b>	A taxon is Least Concern when it has been evaluated against the five IUCN criteria and does not qualify for the categories Critically Endangered, Endangered, Vulnerable or Near Threatened, and it is not rare, and the population is not declining.

## Ecological function

Ecological function relates to the degree of ecological connectivity between systems within a landscape matrix. Therefore, systems with a high degree of landscape connectivity amongst one another are perceived to be more sensitive and will be those contributing to ecosystem service (for example wetlands for water and food) or overall preservation of biodiversity. Conservation importance relates to species diversity, endemism (unique species or unique processes) and the high occurrence of threatened and protected species or ecosystems protected by legislation.

## Sensitivity scale

- **High ecological function:** Sensitive ecosystems with either low inherent resistance or resilience towards disturbance factors or highly dynamic systems considered to be stable and important for the maintenance of ecosystems integrity for example pristine grasslands, pristine wetlands and pristine ridges.
- **Medium ecological function:** Relatively important ecosystems at gradients of intermediate disturbances. An area may be considered of medium ecological function if it is directly adjacent to sensitive/pristine ecosystem.
- **Low ecological function:** Degraded and highly disturbed systems with little or no ecological function.
- **No Go Areas:** Areas that have irreplaceable biodiversity or important ecosystem function values which may be lost permanently if these ecosystems are transformed, with a high potential of also affecting adjacent and/or downstream ecosystems negatively.

## Conservation status of the vegetation

- **High conservation importance:** Ecosystems with high species richness which usually provide suitable habitat for several threatened species. Usually termed 'no-go' areas and unsuitable for development and should be conserved.

- **Medium conservation importance:** Ecosystems with intermediate levels of species diversity without any threatened species. Low-density development may be accommodated, provided the current species diversity is conserved.
- **Low conservation importance:** Areas with little or no conservation potential and usually species poor (most species are usually exotic).

***Cognisance was taken of the following environmental attributes and general information:***

- Regional and local vegetation
- Current status of habitats
- Red Data habitat suitability, and
- Digital photographs

***Phytosociological data accumulated include the following:***

- Plant species and growth forms
- Dominant plant species
- Cover abundance values, and
- Samples or digital images of unidentified plant species

The site was observed to be of **Low-Medium Ecological Function**. Sensitive areas are associated with watercourses.

## 6. RESULTS

Biological diversity everywhere is at great risk as a direct result of an ever-expanding human population and its associated needs for energy, water, food and minerals. Landscape transformation that is needed to accommodate these activities inevitably leads to habitat loss and habitat fragmentation, resulting in the mosaical appearance of undisturbed habitat within a matrix of transformed areas. These remaining areas of natural habitat are frequently too small to support the biodiversity that previously occupied the area, and the region loses its ecological integrity (Kamffer 2004). Conservation of the remaining ecosystem is vital and beneficial in the long run.

The assessment results revealed that the site has been transformed already due to existing borrow pits. Historical records faunal species previously recorded around the study area is listed in the appendices.

### Plants

Table 2: List of plant species recorded at the study site.

Species	Common Name	Growth Form	IUCN Conservation Status
<i>Helichrysum kraussii</i>	Curry Bush	Shrub	LC
<i>Celtis africana</i>	White Stinkwood	Tree	LC
<i>Asparagus laricinus</i>	Bergkatbos	Shrub	LC
<i>Setaria sphacelate</i>	Bristle Grass	Grass	LC
<i>Aristida congesta</i>	Tassel Three-awn	Grass	LC
<i>Hyparrhenia hirta</i>	Common Thatch Grass	Grass	LC
<i>Themeda triandra</i>	Red Grass	Grass	LC
<i>Aristida congesta</i> subs <i>congesta</i>	Cat's-tail Three-awned Grass	Grass	LC
<i>Eragrostis rigidior</i>	Curly leaf grass	Grass	LC
<i>Panicum maximum</i>	Buffalo grass	Grass	LC
<i>Themeda triandra</i>	Red grass	Grass	LC
<i>Imperata cylindrica</i>	Cotton wool grass	Grass	LC

### Weeds and Invasive Plants

#### Alien invasive species

Alien invasive species were recorded during the field surveys. Declared weeds and invaders have the tendency to dominate or replace the herbaceous layer of natural ecosystems, thereby transforming the structure, composition and function of natural ecosystems. Therefore, it is important that all these aliens be eradicated and controlled by means of an eradication and monitoring programme. Invader plants degrade

ecosystems through superior competitive capabilities to exclude indigenous plant species. Below is a discussion of the four categories of Invasive Alien Plants as per the National Environmental Management Biodiversity Act (NEMBA).

**Category 1a:** invasive species that may not be owned, imported into South Africa, grown, moved, sold, given as a gift or dumped in a waterway. These species need to be controlled on your property, and officials from the Department of Environmental Affairs must be allowed access to monitor or assist with control.

**Category 1b:** invasive species that may not be owned, imported into South Africa, grown, moved, sold, given as a gift or dumped in a waterway. Category 1b species are major invaders that may need government assistance to remove. All Category 1b species must be contained, and in many cases, they already fall under a government sponsored management programme.

**Category 2:** These are invasive species that can remain in your garden, but only with a permit, which is granted under very few circumstances.

**Category 3:** These are invasive species that can remain in your garden. However, you cannot propagate or sell these species and must control them in your garden. In riparian zones or wetlands all Category 3 plants become Category 1b plants.

The presence of several weeds and poor-quality species strongly reflects the transformed and degraded nature of the study site. The infestation of the listed invasive plants is low-moderate and require intervention. The following weeds and invasive plant taxa were recorded within the study site.

*Table 3: List of weeds and invasive species for the study area*

Species	Common Name	Growth Form	IUCN Conservation Status
<i>Lantana camara</i>	Lantana	Shrub	Declared Category 1b
<i>Eucalyptus camaldulensis</i>	River red gum	Tree	Declared Category 1b
<i>Melia azedarach</i>	Syringa	Tree	Declared Category 1b
<i>Campuloclinium macrocephalum</i>	Pompom weed	Herb	Declared Category 1b
<i>Verbena bonariensis</i>	Tall Verbena	Herb	Declared Category 1b

## Birds

Birds are regarded as one of the most useful bioindicators, and they have been used extensively as models to determine ecosystem function (see review Koskimies 1989; Potts et al. 2014; Bregman et al. 2016). High levels of human disturbance as well as habitat transformation and degradation on the study site and adjacent areas would result in the disappearance of the more elusive bird species. Majority of the birds recorded



around the study site are generalists. All of the observed birds are all least concern, and no species of concern were noted.

Table 4: List of bird species recorded at the study site.

Species	Common Name	IUCN Conservation Status
<i>Vanellus armatus</i>	Blacksmith Lapwing	LC
<i>Corythaixoides concolor</i>	Grey go-away Bird	LC
<i>Ardea purpurea</i>	Purple Heron	LC
<i>Alopochen aegyptiaca</i>	Egyptian Goose	LC
<i>Bostrychia hagedash</i>	Hadedda Ibis	LC
<i>Tockus rufirostris</i>	Southern Red-billed Hornbill	LC
<i>Turdoides jardineii</i>	Arrow marked Barbler	LC
<i>Lybius torquatus</i>	Black-collared Barbet	LC
<i>Dicrurus adsimilis</i>	Fork-tailed Drongo	LC
<i>Cinnyris talatala</i>	White-bellied Sunbird	LC
<i>Uraeginthus angolensis</i>	Blue Waxbill	LC
<i>Oenanthe pileata</i>	Capped Wheater	LC
<i>Plectropterus gambensis</i>	Spur-winged Goose	LC

## Mammals

Most of the mammals were not observed during the survey considering the time in which the survey took place, but there was evidence of animal dung of different mammals. The mammals that could potentially occur within this area have been listed in the appendix.

## Reptiles

Herpetofauna do occur in human modified landscapes, so encouraging appropriate matrix land uses could contribute to their conservation. No reptiles were recorded during the survey.

## SENSITIVITY ANALYSIS

Vegetation has been used as a common biological indicator to identify the Present Ecological State (PES) or ecological health of ecosystems, given their overall ability to respond rapidly to disturbance. Conservative plant species are the most commonly affected species given their high conservatism status, high sensitivity, narrow distribution ranges and low tolerance to disturbance, these species are the first to be eradicated in disturbed conditions (Rocchio, 2007).

The sensitivity within the study area was predominantly low, with the exception of the western boundary which runs along the river. The area is classified as High Sensitivity. (Fig. 4). Most areas have been disturbed to a level where the current habitat offers little or no ecological function. Figure 5 shows some of the site vegetation and conditions.

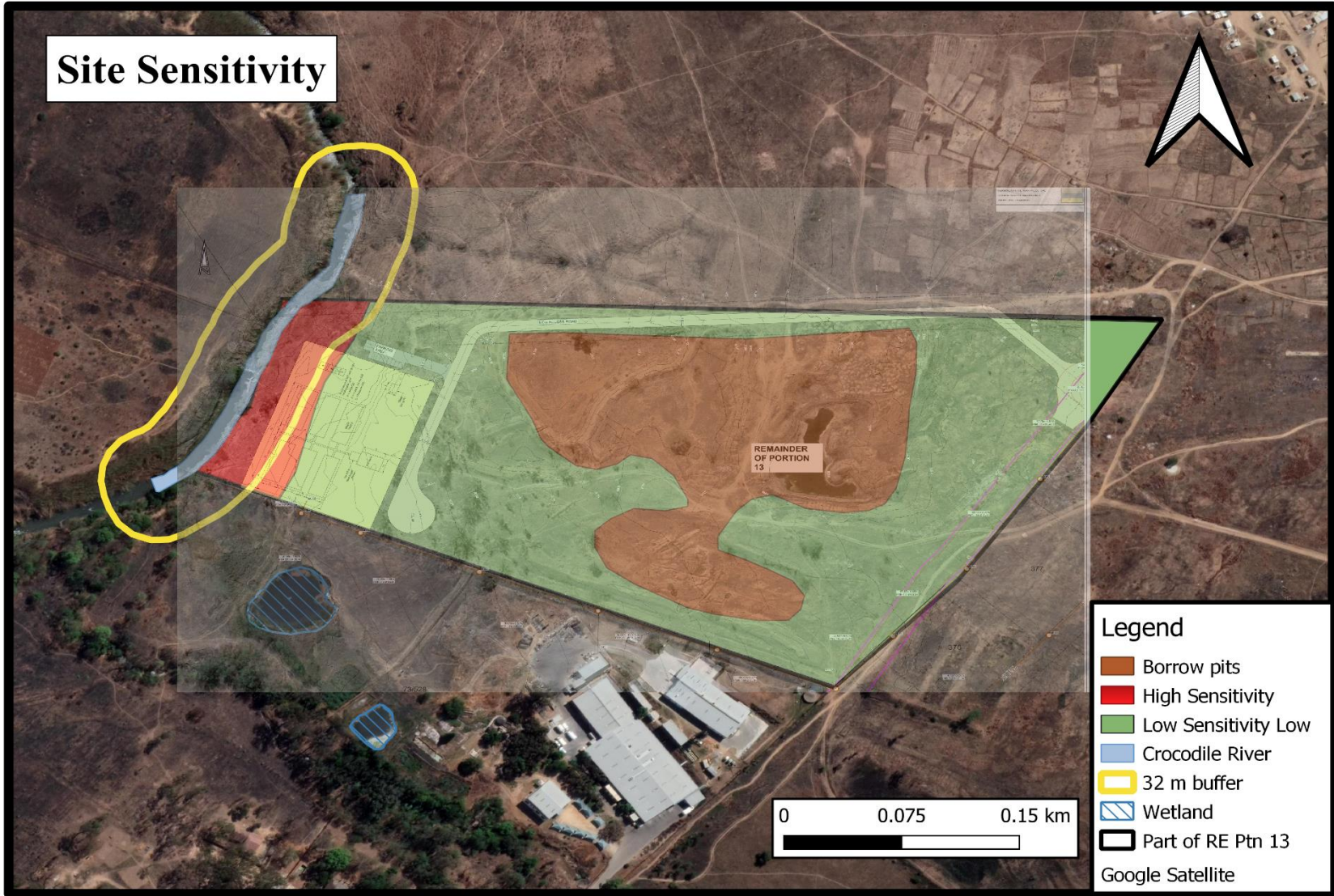


Figure 4: Site sensitivity of the study site.

View towards Crocodile River



Pompom weed



Seringa seedlings



Tall Verbena



Cotton wool grass



River red gum



Crocodile River on the site boundary



Borrow pit – Unrehabilitated



*Figure 5: Site conditions.*

## 7. IMPACT ASSESSMENT AND MITIGATIONS

### THE MAIN IMPACTS

- Permanent loss of vegetation on disturbed sites;
- Animal displacement;
- Soil erosion and sedimentation; and
- Introduction and spread of declared weeds and alien invasive plants: This may occur in disturbed areas and/or where propagules of these plants are readily available.

<b>Impact Phase: Construction</b>							
<b>Potential impact description:</b> Introduction of alien invasive plants Cleared areas which are not rehabilitated are likely to be invaded by aliens and pioneer plants.							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
Without Mitigation	L	H	M	Negative	M	H	H
With Mitigation	L	L	L	Negative	L	L	H
Can the impact be reversed?	This impact can be prevented through appropriate mitigation measures such as eradication.						
Will impact cause irreplaceable loss of resources?	No. If this impact is correctly addressed, then no loss of resources will occur.						
Can impact be avoided, managed or mitigated?	Yes. This impact can be avoided if appropriate mitigation measures are followed.						
Mitigation measures: <ul style="list-style-type: none"> <li>• Any cleared areas that are no longer or not required for construction activities should be re-seeded with locally sourced seed of suitable species. Bare areas can also be packed with brush removed from other parts of the site to encourage natural vegetation regeneration and limit erosion.</li> </ul>							

<b>Impact Phase: Construction</b>							
<b>Potential impact description:</b> Impacts on watercourses The major impact during this phase may result from infilling and impediment of watercourses							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
Without Mitigation	M	H	M	Negative	M	H	H
With Mitigation	L	M	L	Negative	M	M	H
Can the impact be reversed?	Yes, Watercourses can be rehabilitated.						
Will impact cause irreplaceable loss of resources?	No.						
Can impact be avoided, managed or mitigated?	Yes. All watercourses should be avoided.						
Mitigation measures:							
<ul style="list-style-type: none"> <li>• Watercourses must be cordoned off to prevent workers from encroaching into sensitive areas.</li> <li>• No washing of equipment is allowed near watercourses.</li> </ul>							

<b>Impact Phase: Construction</b>							
<b>Potential impact description:</b> Impacts on vegetation The major impact during this phase will result from vegetation clearance for construction purposes							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
Without Mitigation	M	H	M	Negative	M	H	H
With Mitigation	L	H	M	Negative	M	M	H
Can the impact be reversed?	No, once vegetation is cleared, it would not be possible to return it to its previous state.						
Will impact cause irreplaceable loss of resources?	No. The site has already been exposed to severe modifications. There is minimal intact vegetation remaining.						
Can impact be avoided, managed or mitigated?	No. Although mitigations will be provided, vegetation loss would be inevitable.						
Mitigation measures:							
<ul style="list-style-type: none"> <li>• All natural vegetation not required to be removed should be protected against damage.</li> <li>• All cleared areas not used for construction should be rehabilitated.</li> </ul>							

<b>Impact Phase: Construction</b>							
<b>Potential impact description:</b> Direct and indirect avifauna and faunal Impacts							
The construction phase will result in habitat loss, noise and disturbance on site. This will lead to direct and indirect disturbance of fauna. Slow-moving species such as the tortoises are likely to be killed by machinery.							
	<b>Extent</b>	<b>Duration</b>	<b>Intensity</b>	<b>Status</b>	<b>Significance</b>	<b>Probability</b>	<b>Confidence</b>
Without Mitigation	M	L	M	Negative	M	H	H
With Mitigation	L	L	L	Negative	M	M	H
Can the impact be reversed?	Yes. This impact can be prevented through appropriate mitigation measures.						
Will impact cause irreplaceable loss of resources?	No. No Species of Conservation Concern are likely to be impacted by the activities.						
Can impact be avoided, managed or mitigated?	Yes. Contractors should be informed about slow moving species that are likely to be crushed by construction vehicles.						
Mitigation measures:							
<ul style="list-style-type: none"> <li>• No animal may be hunted, trapped, snared or captured for any purpose whatsoever.</li> <li>• Speed of vehicles should be limited to allow for sufficient safety margins.</li> </ul>							

## **8. REHABILITATION**

The traditional definition of rehabilitation aims at returning the land in a given area to some degree of its former state after a particular process has resulted in its damage.

Rehabilitation requires that there is an attempt to imitate natural processes and reinstate natural ecological driving forces in such a way that it aids the recovery (or maintenance) of dynamic systems so that, although they are unlikely to be identical to their natural counterparts, they will be comparable in critical ways so as to function similarly (Jordan et al.1987). Rehabilitation should be based on an understanding of both the ecological starting point and on a defined goal endpoint and should accept that it is not possible to predict exactly how the disturbed area is likely to respond to the rehabilitation interventions.

During and post construction activities, all disturbed areas should be rehabilitated. This should be done using indigenous plant species.

## **9. CONCLUSION AND RECOMMENDATIONS**

Majority of the habitats that have been earmarked for the establishment of the wastewater treatment works have been exposed to severe levels of disturbance due to the borrow pits which were never rehabilitated.

The following are recommended:

- Watercourses must be avoided at all times except when moving across the sites. This should be done on existing crossings.
- All temporary stockpile areas including litter and dumped material and rubble must be removed on completion of construction.
- No painting or marking of vegetation shall be allowed. Marking shall be done by steel stakes with tags, if required.
- Only necessary damage must be caused: for example, unnecessary driving around in the site should not take place.

The impacts associated with the proposed wastewater treatment works are likely to be from Medium to Low after implementation of mitigation measures. Based on the outcome of this assessment, the permanent structures should be placed outside the 32 m buffer of the watercourse to prevent any possible pollution during construction. After a revision of the layout there would be no evident fatal flaws that would prevent this development from being authorised, nor being conducted in a sustainable manner.



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## 11. APPENDICES

### Appendix 1: Historical Faunal and Floral Records A, Mammal Records. Animal Demographic Unit

NO.	Family	Scientific name	Common name	Red list category	Number of records	Last recorded
1	Bovidae	<i>Aepyceros melampus</i>	Impala	Least Concern	28	2020-11-04
2	Bovidae	<i>Alcelaphus buselaphus</i>	Hartebeest		5	2014-03-06
3	Bovidae	<i>Alcelaphus buselaphus caama</i>	Red Hartebeest	Least Concern (2008)	2	2020-11-02
4	Bovidae	<i>Antidorcas marsupialis</i>	Springbok	Least Concern (2016)	1	2013-09-12
5	Bovidae	<i>Connochaetes sp.</i>	African Antelopes and Gnus		2	2014-03-02
6	Bovidae	<i>Connochaetes taurinus</i>	Blue Wildebeest	Least Concern (ver 3.1, 2017)	1	2020-11-03
7	Bovidae	<i>Connochaetes taurinus taurinus</i>		Least Concern (2016)	15	2015-04-19
8	Bovidae	<i>Damaliscus lunatus lunatus</i>	(Southern African) Tsessebe	Vulnerable (2016)	2	2013-09-07
9	Bovidae	<i>Damaliscus pygargus phillipsi</i>	Blesbok	Least Concern (2016)	20	2014-01-04
10	Bovidae	<i>Damaliscus pygargus pygargus</i>	Bontebok	Vulnerable (2016)	14	2013-02-11
11	Bovidae	<i>Hippotragus niger</i>	Sable Antelope	Least Concern (ver 3.1, 2017)	1	2014-06-15
12	Bovidae	<i>Kobus ellipsiprymnus</i>	Waterbuck	Least Concern (Ver 3.1, 2016)	3	2020-11-04
13	Bovidae	<i>Kobus ellipsiprymnus ellipsiprymnus</i>		Least Concern (2016)	14	2013-09-23
14	Bovidae	<i>Oryx gazella</i>	Gemsbok	Least Concern (2016)	1	2012-01-14
15	Bovidae	<i>Raphicerus campestris</i>	Steenbok	Least Concern (2016)	3	2013-09-23
16	Bovidae	<i>Sylvicapra grimmia</i>	Bush Duiker	Least Concern (2016)	1	2012-09-30
17	Bovidae	<i>Syncerus caffer</i>	African Buffalo	Least Concern (2008)	4	2014-06-15
18	Bovidae	<i>Taurotragus oryx</i>	Common Eland	Least Concern (2016)	10	2014-06-15
19	Bovidae	<i>Tragelaphus angasii</i>	Nyala	Least Concern (2016)	8	2014-06-15
20	Bovidae	<i>Tragelaphus strepsiceros</i>	Greater Kudu	Least Concern (2016)	34	2020-11-03
21	Canidae	<i>Canis mesomelas</i>	Black-backed Jackal	Least Concern (2016)	4	2017-11-26
22	Cercopithecidae	<i>Chlorocebus pygerythrus</i>	Vervet Monkey	Least Concern (2016)	2	2020-11-02
23	Cercopithecidae	<i>Papio ursinus</i>	Chacma Baboon	Least Concern (2016)	1	2017-01-08
24	Elephantidae	<i>Loxodonta africana</i>	African Bush Elephant	Vulnerable A2a (2008)	16	2015-04-11
25	Equidae	<i>Equus sp.</i>	Asses and Zebras		1	2014-02-22
26	Equidae	<i>Equus quagga</i>	Plains Zebra	Least Concern (2016)	15	2020-11-03

27	Felidae	<i>Acinonyx jubatus</i>	Cheetah	Vulnerable (2016)	9	2020-11-02
28	Felidae	<i>Caracal caracal</i>	Caracal	Least Concern (2016)	1	
29	Felidae	<i>Leptailurus serval</i>	Serval	Near Threatened (2016)	3	2003-10-13
30	Felidae	<i>Panthera leo</i>	Lion	Least Concern (2016)	11	2014-02-20
31	Giraffidae	<i>Giraffa giraffa giraffa</i>	South African Giraffe	Least Concern (2016)	16	2020-11-03
32	Herpestidae	<i>FAMILY Herpestidae</i>	Unidentified Herpestidae (mongoose)		1	2013-03-08
33	Herpestidae	<i>Herpestes sanguineus</i>	Slender Mongoose	Least Concern (2016)	1	2015-04-26
34	Herpestidae	<i>Mungos mungo</i>	Banded Mongoose	Least Concern (2016)	2	2015-04-11
35	Hippopotamidae	<i>Hippopotamus amphibius</i>	Common Hippopotamus	Least Concern (2016)	3	2014-01-02
36	Hyaenidae	<i>Hyaena brunnea</i>	Brown Hyena	Near Threatened (2015)	4	2003-10-15
37	Leporidae	<i>Lepus saxatilis</i>	Scrub Hare	Least Concern	3	2020-08-22
38	Macroscelididae	<i>Elephantulus brachyrhynchus</i>	Short-snouted Elephant Shrew	Least Concern (2016)	2	1987-05-15
39	Macroscelididae	<i>Elephantulus myurus</i>	Eastern Rock Elephant Shrew	Least Concern (2016)	8	1949-11-22
40	Muridae	<i>Aethomys ineptus</i>	Tete Veld Aethomys	Least Concern (2016)	1	1931-02-13
41	Muridae	<i>Gerbilliscus leucogaster</i>	Bushveld Gerbil	Least Concern (2016)	1	1948-07-28
42	Muridae	<i>Lemniscomys rosalia</i>	Single-Striped Lemniscomys	Least Concern (2016)	2	1987-05-15
43	Muridae	<i>Mus (Nannomys) minutoides</i>	Southern African Pygmy Mouse	Least Concern	2	2017-04-02
44	Muridae	<i>Thallomys paedulus</i>	Acacia Thallomys	Least Concern (2016)	3	1931-11-02
45	Mustelidae	<i>Mellivora capensis</i>	Honey Badger	Least Concern (2016)	4	2003-10-16
46	Nesomyidae	<i>Saccostomus campestris</i>	Southern African Pouched Mouse	Least Concern (2016)	3	1987-05-13
47	Sciuridae	<i>Paraxerus cepapi</i>	Smith's Bush Squirrel	Least Concern (2016)	4	2020-11-03
48	Soricidae	<i>Crociodura hirta</i>	Lesser Red Musk Shrew	Least Concern (2016)	1	2017-10-12
49	Suidae	<i>Phacochoerus africanus</i>	Common Warthog	Least Concern (2016)	17	2020-11-03
50	Viverridae	<i>Genetta genetta</i>	Common Genet	Least Concern (2016)	1	1932-10-23
51	Viverridae	<i>Genetta tigrina</i>	Cape Genet (Cape Large-spotted Genet)	Least Concern (2016)	1	2014-06-09

B, Reptile Records. Animal Demographic Unit.

NO.	Family	Scientific name	Common name	Red list category	Number of records	Last recorded
1	Agamidae	<i>Acanthocercus atricollis</i>	Southern Tree Agama	Least Concern (SARCA 2014)	7	2020-11-04
2	Agamidae	<i>Agama aculeata distanti</i>	Distant's Ground Agama	Least Concern (SARCA 2014)	1	1900-06-15
3	Chamaeleonidae	<i>Chamaeleo dilepis</i>	Common Flap-neck Chameleon	Least Concern (SARCA 2014)	3	2017-01-11
4	Colubridae	<i>Crotaphopeltis hotamboeia</i>	Red-lipped Snake	Least Concern (SARCA 2014)	9	2020-11-07
5	Colubridae	<i>Dasypeltis scabra</i>	Rhombic Egg-eater	Least Concern (SARCA 2014)	11	2017-04-02
6	Colubridae	<i>Dispholidus typus viridis</i>	Northern Boomslang	Not evaluated	3	1996-03-19
7	Colubridae	<i>Philothamnus hoplogaster</i>	South Eastern Green Snake	Least Concern (SARCA 2014)	2	2002-11-15
8	Colubridae	<i>Philothamnus semivariiegatus</i>	Spotted Bush Snake	Least Concern (SARCA 2014)	1	1900-06-15
9	Colubridae	<i>Telescopus semiannulatus semiannulatus</i>	Eastern Tiger Snake	Least Concern (SARCA 2014)	6	1989-02-06
10	Colubridae	<i>Thelotornis capensis capensis</i>	Southern Twig Snake	Least Concern (SARCA 2014)	5	1990-06-29
11	Crocodylidae	<i>Crocodylus niloticus</i>	Nile Crocodile	VU (SARCA 2014); LC (global, IUCN 2019)	1	1900-06-15
12	Elapidae	<i>Dendroaspis polylepis</i>	Black Mamba	Least Concern (SARCA 2014)	1	2007-12-07
13	Elapidae	<i>Naja annulifera</i>	Snouted Cobra	Least Concern (SARCA 2014)	4	2015-04-24
14	Elapidae	<i>Naja mossambica</i>	Mozambique Spitting Cobra	Least Concern (SARCA 2014)	5	1976-07-31
15	Gekkonidae	<i>Hemidactylus mabouia</i>	Common Tropical House Gecko	Least Concern (SARCA 2014)	2	2020-11-02
16	Gekkonidae	<i>Lygodactylus capensis</i>	Common Dwarf Gecko	Least Concern (SARCA 2014)	8	2020-11-02
17	Gekkonidae	<i>Pachydactylus affinis</i>	Transvaal Gecko	Least Concern (SARCA 2014)	3	1900-06-15
18	Gekkonidae	<i>Pachydactylus capensis</i>	Cape Gecko	Least Concern (SARCA 2014)	7	2017-02-04
19	Gerrhosauridae	<i>Gerrhosaurus flavigularis</i>	Yellow-throated Plated Lizard	Least Concern (SARCA 2014)	2	1981-12-16
20	Lacertidae	<i>Nucras holubi</i>	Holub's Sandveld Lizard	Least Concern (SARCA 2014)	3	2015-11-01
21	Lacertidae	<i>Nucras intertexta</i>	Spotted Sandveld Lizard	Least Concern (SARCA 2014)	5	2015-05-09
22	Lacertidae	<i>Nucras ornata</i>	Ornate Sandveld Lizard	Least Concern (SARCA 2014)	4	2002-11-24
23	Lacertidae	<i>Pedioplanis lineocellata lineocellata</i>	Spotted Sand Lizard	Least Concern (SARCA 2014)	2	2003-10-14
24	Lamprophiidae	<i>Amblyodipsas polylepis polylepis</i>	Common Purple-glossed Snake	Least Concern (SARCA 2014)	2	2016-11-12

25	Lamprophiidae	<i>Aparallactus capensis</i>	Black-headed Centipede-eater	Least Concern (SARCA 2014)	1	2016-12-17
26	Lamprophiidae	<i>Atractaspis bibronii</i>	Bibron's Stiletto Snake	Least Concern (SARCA 2014)	3	2020-11-07
27	Lamprophiidae	<i>Boaedon capensis</i>	Brown House Snake	Least Concern (SARCA 2014)	8	2018-01-02
28	Lamprophiidae	<i>Gracililima nyassae</i>	Black File Snake	Least Concern (SARCA 2014)	4	2016-12-21
29	Lamprophiidae	<i>Limaformosa capensis</i>	Common File Snake	Least Concern (SARCA 2014)	10	1900-06-15
30	Lamprophiidae	<i>Lycophidion capense capense</i>	Cape Wolf Snake	Least Concern (SARCA 2014)	2	1973-02-09
31	Lamprophiidae	<i>Prosymna bivittata</i>	Two-striped Shovel-snout	Least Concern (SARCA 2014)	3	2020-11-07
32	Lamprophiidae	<i>Psammophis angolensis</i>	Dwarf Sand Snake	Least Concern (SARCA 2014)	3	1983-03-17
33	Lamprophiidae	<i>Psammophis brevirostris</i>	Short-snouted Grass Snake	Least Concern (SARCA 2014)	13	2002-11-23
34	Lamprophiidae	<i>Psammophis trinasalis</i>	Fork-marked Sand Snake	Least Concern (SARCA 2014)	1	1900-06-15
35	Lamprophiidae	<i>Psammophylax tritaeniatus</i>	Striped Grass Snake	Least Concern (SARCA 2014)	4	1900-06-15
36	Leptotyphlopidae	<i>Leptotyphlops distanti</i>	Distant's Thread Snake	Least Concern (SARCA 2014)	2	1900-06-15
37	Leptotyphlopidae	<i>Leptotyphlops scutifrons scutifrons</i>	Peters' Thread Snake		2	2002-11-18
38	Pelomedusidae	<i>Pelomedusa galeata</i>	South African Marsh Terrapin	Not evaluated	1	2015-04-25
39	Pelomedusidae	<i>Pelusios sinuatus</i>	Serrated Hinged Terrapin	Least Concern (SARCA 2014)	6	2020-11-02
40	Pythonidae	<i>Python natalensis</i>	Southern African Python	Least Concern (SARCA 2014)	6	2020-02-29
41	Scincidae	<i>Mochlus sundevallii</i>	Sundevall's Writhing Skink	Least Concern (SARCA 2014)	2	1981-12-16
42	Scincidae	<i>Panaspis wahlbergii</i>	Wahlberg's Snake-eyed Skink	Least Concern (SARCA 2014)	6	1900-06-15
43	Scincidae	<i>Trachylepis capensis</i>	Cape Skink	Least Concern (SARCA 2014)	5	2002-11-18
44	Scincidae	<i>Trachylepis damarana</i>	Damara Variable Skink		1	2020-12-21
45	Scincidae	<i>Trachylepis punctatissima</i>	Speckled Rock Skink	Least Concern (SARCA 2014)	3	2002-11-21
46	Scincidae	<i>Trachylepis sp. (Transvaal varia)</i>	Skink sp. 1		1	1900-06-15
47	Scincidae	<i>Trachylepis varia sensu lato</i>	Common Variable Skink Complex	Least Concern (SARCA 2014)	10	2003-10-14
48	Scincidae	<i>Trachylepis varia sensu stricto</i>	Common Variable Skink		1	2020-11-02
49	Testudinidae	<i>Stigmochelys pardalis</i>	Leopard Tortoise	Least Concern (SARCA 2014)	6	2020-11-03
50	Typhlopidae	<i>Afrotyphlops bibronii</i>	Bibron's Blind Snake	Least Concern (SARCA 2014)	2	2002-11-22
51	Typhlopidae	<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake	Least Concern (SARCA 2014)	1	2016-12-17
52	Varanidae	<i>Varanus albigularis albigularis</i>	Rock Monitor	Least Concern (SARCA 2014)	1	2020-11-02
53	Varanidae	<i>Varanus niloticus</i>	Water Monitor	Least Concern (SARCA 2014)	8	2020-11-03
54	Viperidae	<i>Bitis arietans arietans</i>	Puff Adder	Least Concern (SARCA 2014)	15	2020-11-01

C, Frog Records, Animal Demographic Unit.

NO.	Family	Scientific name	Common name	Red list category	Last recorded
1	Bufonidae	<i>Poyntonophrynus fenoulheti</i>	Northern Pygmy Toad	Least Concern	1981-12-16
2	Bufonidae	<i>Schismaderma carens</i>	Red Toad	Least Concern	2020-12-21
3	Bufonidae	<i>Sclerophrys garmani</i>	Olive Toad	Least Concern (IUCN, 2016)	2020-11-07
4	Bufonidae	<i>Sclerophrys gutturalis</i>	Guttural Toad	Least Concern (IUCN, 2016)	2017-10-07
5	Hyperoliidae	<i>Kassina senegalensis</i>	Bubbling Kassina	Least Concern	2016-11-12
6	Microhylidae	<i>Phrynomantis bifasciatus</i>	Banded Rubber Frog	Least Concern	2016-11-12
7	Phrynobatrachidae	<i>Phrynobatrachus natalensis</i>	Snoring Puddle Frog	Least Concern (IUCN, 2013)	2017-04-02
8	Pipidae	<i>Xenopus laevis</i>	Common Platanna	Least Concern	2000-01-18
9	Ptychadenidae	<i>Ptychadena anchietae</i>	Plain Grass Frog	Least Concern	2017-04-02
10	Pyxicephalidae	<i>Amietia delalandii</i>	Delalande's River Frog	Least Concern (2017)	2017-03-25
11	Pyxicephalidae	<i>Cacosternum boettgeri</i>	Common Caco	Least Concern (2013)	2016-11-12
12	Pyxicephalidae	<i>Pyxicephalus adspersus</i>	Giant Bull Frog	Near Threatened	2017-01-07
13	Pyxicephalidae	<i>Pyxicephalus edulis</i>	African Bull Frog	Least Concern	2016-12-16
14	Pyxicephalidae	<i>Tomopterna sp.</i>			2017-01-07
15	Pyxicephalidae	<i>Tomopterna cryptotis</i>	Tremelo Sand Frog	Least Concern	2017-10-27
16	Pyxicephalidae	<i>Tomopterna natalensis</i>	Natal Sand Frog	Least Concern	2016-11-12

D, Avifaunal Records. SABAP2, Animal Demographic Unit.

No.	Common group	Common species	Genus	Species
1		Bokmakierie	<i>Telophorus</i>	<i>zeylonus</i>
2		Brubru	<i>Nilaus</i>	<i>afer</i>
3		Hamerkop	<i>Scopus</i>	<i>umbretta</i>
4		Neddicky	<i>Cisticola</i>	<i>fulvicapilla</i>
5		Quailfinch	<i>Ortygospiza</i>	<i>atricollis</i>
6		Ruff	<i>Calidris</i>	<i>pugnax</i>
7		Shikra	<i>Accipiter</i>	<i>badius</i>
8	Apalis	Bar-throated	<i>Apalis</i>	<i>thoracica</i>
9	Babbler	Arrow-marked	<i>Turdoides</i>	<i>jardineii</i>
10	Babbler	Southern Pied	<i>Turdoides</i>	<i>bicolor</i>
11	Barbet	Acacia Pied	<i>Tricholaema</i>	<i>leucomelas</i>
12	Barbet	Black-collared	<i>Lybius</i>	<i>torquatus</i>
13	Barbet	Crested	<i>Trachyphonus</i>	<i>vallantii</i>
14	Batis	Chinspot	<i>Batis</i>	<i>molitor</i>
15	Bee-eater	European	<i>Merops</i>	<i>apiaster</i>
16	Bee-eater	Little	<i>Merops</i>	<i>pusillus</i>
17	Bee-eater	White-fronted	<i>Merops</i>	<i>bullockoides</i>
18	Bishop	Southern Red	<i>Euplectes</i>	<i>orix</i>
19	Bishop	Yellow-crowned	<i>Euplectes</i>	<i>afer</i>
20	Boubou	Southern	<i>Laniarius</i>	<i>ferrugineus</i>
21	Bulbul	Dark-capped	<i>Pycnonotus</i>	<i>tricolor</i>
22	Bunting	Cape	<i>Emberiza</i>	<i>capensis</i>
23	Bunting	Cinnamon-breasted	<i>Emberiza</i>	<i>tahapisi</i>
24	Bunting	Golden-breasted	<i>Emberiza</i>	<i>flaviventris</i>
25	Bushshrike	Grey-headed	<i>Malaconotus</i>	<i>blanchoti</i>
26	Bushshrike	Orange-breasted	<i>Chlorophoneus</i>	<i>sulfureopectus</i>
27	Buzzard	Common	<i>Buteo</i>	<i>buteo</i>
28	Camaroptera	Grey-backed	<i>Camaroptera</i>	<i>brevicaudata</i>
29	Canary	Black-throated	<i>Crithagra</i>	<i>atrogularis</i>
30	Canary	Yellow	<i>Crithagra</i>	<i>flaviventris</i>
31	Canary	Yellow-fronted	<i>Crithagra</i>	<i>mozambica</i>
32	Chat	Familiar	<i>Oenanthe</i>	<i>familiaris</i>
33	Cisticola	Desert	<i>Cisticola</i>	<i>aridulus</i>
34	Cisticola	Levaillant's	<i>Cisticola</i>	<i>tinniens</i>
35	Cisticola	Rattling	<i>Cisticola</i>	<i>chiniana</i>
36	Cisticola	Wing-snapping	<i>Cisticola</i>	<i>ayresii</i>
37	Cisticola	Zitting	<i>Cisticola</i>	<i>juncidis</i>
38	Coot	Red-knobbed	<i>Fulica</i>	<i>cristata</i>
39	Cormorant	Reed	<i>Microcarbo</i>	<i>africanus</i>
40	Cormorant	White-breasted	<i>Phalacrocorax</i>	<i>lucidus</i>
41	Coucal	Burchell's	<i>Centropus</i>	<i>burchellii</i>
42	Cursor	Temminck's	<i>Cursorius</i>	<i>temminckii</i>
43	Crake	African	<i>Creccopsis</i>	<i>egregia</i>
44	Crake	Black	<i>Zapornia</i>	<i>flavirostra</i>
45	Crombec	Long-billed	<i>Sylvietta</i>	<i>rufescens</i>
46	Crow	Pied	<i>Corvus</i>	<i>albus</i>
47	Cuckoo	African	<i>Cuculus</i>	<i>gularis</i>
48	Cuckoo	Black	<i>Cuculus</i>	<i>clamosus</i>
49	Cuckoo	Diederik	<i>Chrysococcyx</i>	<i>caprius</i>
50	Cuckoo	Great Spotted	<i>Clamator</i>	<i>glandarius</i>
51	Cuckoo	Jacobin	<i>Clamator</i>	<i>jacobinus</i>
52	Cuckoo	Klaas's	<i>Chrysococcyx</i>	<i>klaas</i>
53	Cuckoo	Levaillant's	<i>Clamator</i>	<i>levaillantii</i>
54	Cuckoo	Red-chested	<i>Cuculus</i>	<i>solitarius</i>



55	Cuckooshrike	Black	<i>Campephaga</i>	<i>flava</i>
56	Darter	African	<i>Anhinga</i>	<i>rufa</i>
57	Dove	Cape Turtle	<i>Streptopelia</i>	<i>capicola</i>
58	Dove	Emerald-spotted Wood	<i>Turtur</i>	<i>chalcospilos</i>
59	Dove	Laughing	<i>Spilopelia</i>	<i>senegalensis</i>
60	Dove	Namaqua	<i>Oena</i>	<i>capensis</i>
61	Dove	Red-eyed	<i>Streptopelia</i>	<i>semitorquata</i>
62	Dove	Rock	<i>Columba</i>	<i>livia</i>
63	Drongo	Fork-tailed	<i>Dicrurus</i>	<i>adsimilis</i>
64	Duck	African Black	<i>Anas</i>	<i>sparsa</i>
65	Duck	Fulvous Whistling	<i>Dendrocygna</i>	<i>bicolor</i>
66	Duck	White-backed	<i>Thalassornis</i>	<i>leuconotus</i>
67	Duck	White-faced Whistling	<i>Dendrocygna</i>	<i>viduata</i>
68	Duck	Yellow-billed	<i>Anas</i>	<i>undulata</i>
69	Eagle	African Fish	<i>Haliaeetus</i>	<i>vocifer</i>
70	Eagle	Black-chested Snake	<i>Circaetus</i>	<i>pectoralis</i>
71	Eagle	Brown Snake	<i>Circaetus</i>	<i>cinereus</i>
72	Eagle	Wahlberg's	<i>Hieraaetus</i>	<i>wahlbergi</i>
73	Eagle-Owl	Spotted	<i>Bubo</i>	<i>africanus</i>
74	Egret	Great	<i>Ardea</i>	<i>alba</i>
75	Egret	Intermediate	<i>Ardea</i>	<i>intermedia</i>
76	Egret	Little	<i>Egretta</i>	<i>garzetta</i>
77	Egret	Western Cattle	<i>Bubulcus</i>	<i>ibis</i>
78	Eremomela	Burnt-necked	<i>Eremomela</i>	<i>usticollis</i>
79	Eremomela	Yellow-bellied	<i>Eremomela</i>	<i>icteropygialis</i>
80	Falcon	Amur	<i>Falco</i>	<i>amurensis</i>
81	Finch	Cut-throat	<i>Amadina</i>	<i>fasciata</i>
82	Finch	Red-headed	<i>Amadina</i>	<i>erythrocephala</i>
83	Finfoot	African	<i>Podica</i>	<i>senegalensis</i>
84	Firefinch	African	<i>Lagonosticta</i>	<i>rubricata</i>
85	Firefinch	Jameson's	<i>Lagonosticta</i>	<i>rhodopareia</i>
86	Firefinch	Red-billed	<i>Lagonosticta</i>	<i>senegala</i>
87	Fiscal	Southern	<i>Lanius</i>	<i>collaris</i>
88	Flufftail	Red-chested	<i>Sarothrura</i>	<i>rufa</i>
89	Flycatcher	African Paradise	<i>Terpsiphone</i>	<i>viridis</i>
90	Flycatcher	Fairy	<i>Stenostira</i>	<i>scita</i>
91	Flycatcher	Fiscal	<i>Melaenornis</i>	<i>silens</i>
92	Flycatcher	Marico	<i>Melaenornis</i>	<i>mariquensis</i>
93	Flycatcher	Pale	<i>Melaenornis</i>	<i>pallidus</i>
94	Flycatcher	Southern Black	<i>Melaenornis</i>	<i>pammelaina</i>
95	Flycatcher	Spotted	<i>Muscicapa</i>	<i>striata</i>
96	Francolin	Coqui	<i>Peliperdix</i>	<i>coqui</i>
97	Francolin	Crested	<i>Dendroperdix</i>	<i>sephaena</i>
98	Go-away-bird	Grey	<i>Crinifer</i>	<i>concolor</i>
99	Goose	Egyptian	<i>Alopochen</i>	<i>aegyptiaca</i>
100	Goose	Spur-winged	<i>Plectropterus</i>	<i>gambensis</i>
101	Goshawk	Gabar	<i>Micronisus</i>	<i>gabar</i>
102	Goshawk	Pale Chanting	<i>Melierax</i>	<i>canorus</i>
103	Grassbird	Cape	<i>Sphenoeacus</i>	<i>afer</i>
104	Grebe	Little	<i>Tachybaptus</i>	<i>ruficollis</i>
105	Greenshank	Common	<i>Tringa</i>	<i>nebularia</i>
106	Guineafowl	Helmeted	<i>Numida</i>	<i>meleagris</i>
107	Gull	Grey-headed	<i>Chroicocephalus</i>	<i>cirrocephalus</i>
108	Hawk-eagle	African	<i>Aquila</i>	<i>spilogaster</i>
109	Helmetshrike	White-crested	<i>Prionops</i>	<i>plumatus</i>
110	Heron	Black-crowned Night	<i>Nycticorax</i>	<i>nycticorax</i>
111	Heron	Black-headed	<i>Ardea</i>	<i>melanocephala</i>
112	Heron	Goliath	<i>Ardea</i>	<i>goliath</i>
113	Heron	Grey	<i>Ardea</i>	<i>cinerea</i>

114	Heron	Purple	<i>Ardea</i>	<i>purpurea</i>
115	Heron	Squacco	<i>Ardeola</i>	<i>ralloides</i>
116	Heron	Striated	<i>Butorides</i>	<i>striata</i>
117	Honey-buzzard	European	<i>Pernis</i>	<i>apivorus</i>
118	Honeybird	Brown-backed	<i>Prodotiscus</i>	<i>regulus</i>
119	Honeyguide	Greater	<i>Indicator</i>	<i>indicator</i>
120	Honeyguide	Lesser	<i>Indicator</i>	<i>minor</i>
121	Hoopoe	African	<i>Upupa</i>	<i>africana</i>
122	Hornbill	African Grey	<i>Lophoceros</i>	<i>nasutus</i>
123	Hornbill	Southern Red-billed	<i>Tockus</i>	<i>rufirostris</i>
124	Hornbill	Southern Yellow-billed	<i>Tockus</i>	<i>leucomelas</i>
125	Ibis	African Sacred	<i>Threskiornis</i>	<i>aethiopicus</i>
126	Ibis	Glossy	<i>Plegadis</i>	<i>falcinellus</i>
127	Ibis	Hadada	<i>Bostrychia</i>	<i>hagedash</i>
128	Indigobird	Purple	<i>Vidua</i>	<i>purpurascens</i>
129	Indigobird	Village	<i>Vidua</i>	<i>chalybeata</i>
130	Jacana	African	<i>Actophilornis</i>	<i>africanus</i>
131	Kestrel	Lesser	<i>Falco</i>	<i>naumanni</i>
132	Kingfisher	African Pygmy	<i>Ispidina</i>	<i>picta</i>
133	Kingfisher	Brown-hooded	<i>Halcyon</i>	<i>albiventris</i>
134	Kingfisher	Giant	<i>Megaceryle</i>	<i>maxima</i>
135	Kingfisher	Half-collared	<i>Alcedo</i>	<i>semitorquata</i>
136	Kingfisher	Malachite	<i>Corythornis</i>	<i>cristatus</i>
137	Kingfisher	Pied	<i>Ceryle</i>	<i>rudis</i>
138	Kingfisher	Striped	<i>Halcyon</i>	<i>chelicuti</i>
139	Kingfisher	Woodland	<i>Halcyon</i>	<i>senegalensis</i>
140	Kite	Black-winged	<i>Elanus</i>	<i>caeruleus</i>
141	Kite	Yellow-billed	<i>Milvus</i>	<i>aegyptius</i>
142	Korhaan	Northern Black	<i>Afrotis</i>	<i>afraoides</i>
143	Korhaan	Red-crested	<i>Lophotis</i>	<i>ruficrista</i>
144	Lapwing	African Wattled	<i>Vanellus</i>	<i>senegallus</i>
145	Lapwing	Blacksmith	<i>Vanellus</i>	<i>armatus</i>
146	Lapwing	Crowned	<i>Vanellus</i>	<i>coronatus</i>
147	Lark	Dusky	<i>Pinarocorys</i>	<i>nigricans</i>
148	Lark	Flappet	<i>Mirafra</i>	<i>rufocinnamomea</i>
149	Lark	Rufous-naped	<i>Mirafra</i>	<i>africana</i>
150	Lark	Sabota	<i>Calendulauda</i>	<i>sabota</i>
151	Mannikin	Bronze	<i>Spermestes</i>	<i>cucullata</i>
152	Martin	Brown-throated	<i>Riparia</i>	<i>paludicola</i>
153	Masked-weaver	Lesser	<i>Ploceus</i>	<i>intermedius</i>
154	Moorhen	Common	<i>Gallinula</i>	<i>chloropus</i>
155	Mousebird	Red-faced	<i>Urocolius</i>	<i>indicus</i>
156	Mousebird	Speckled	<i>Colius</i>	<i>striatus</i>
157	Myna	Common	<i>Acridotheres</i>	<i>tristis</i>
158	Nightjar	Fiery-necked	<i>Caprimulgus</i>	<i>pectoralis</i>
159	Nightjar	Rufous-cheeked	<i>Caprimulgus</i>	<i>rufigena</i>
160	Oriole	Black-headed	<i>Oriolus</i>	<i>larvatus</i>
161	Ostrich	Common	<i>Struthio</i>	<i>camelus</i>
162	Owl	Marsh	<i>Asio</i>	<i>capensis</i>
163	Owl	Southern White-faced Scops	<i>Ptilopsis</i>	<i>granti</i>
164	Owl	Western Barn	<i>Tyto</i>	<i>alba</i>
165	Owlet	Pearl-spotted	<i>Glaucidium</i>	<i>perlatum</i>
166	Oxpecker	Red-billed	<i>Buphagus</i>	<i>erythrorhynchus</i>
167	Painted-snipe	Greater	<i>Rostratula</i>	<i>benghalensis</i>
168	Pigeon	African Green	<i>Treron</i>	<i>calvus</i>
169	Pigeon	Speckled	<i>Columba</i>	<i>guinea</i>
170	Pipit	African	<i>Anthus</i>	<i>cinnamomeus</i>
171	Pipit	Buffy	<i>Anthus</i>	<i>vaalensis</i>
172	Pipit	Bushveld	<i>Anthus</i>	<i>caffer</i>

173	Pipit	Plain-backed	<i>Anthus</i>	<i>leucophrys</i>
174	Plover	Three-banded	<i>Charadrius</i>	<i>tricoloris</i>
175	Pochard	Southern	<i>Netta</i>	<i>erythrophthalma</i>
176	Pratincole	Black-winged	<i>Glareola</i>	<i>nordmanni</i>
177	Prinia	Black-chested	<i>Prinia</i>	<i>flavicans</i>
178	Prinia	Tawny-flanked	<i>Prinia</i>	<i>subflava</i>
179	Puffback	Black-backed	<i>Dryoscopus</i>	<i>cubla</i>
180	Pytilia	Green-winged	<i>Pytilia</i>	<i>melba</i>
181	Quelea	Red-billed	<i>Quelea</i>	<i>quelea</i>
182	Robin-Chat	Cape	<i>Cossypha</i>	<i>caffra</i>
183	Robin-Chat	White-throated	<i>Cossypha</i>	<i>humeralis</i>
184	Roller	European	<i>Coracias</i>	<i>garrulus</i>
185	Roller	Lilac-breasted	<i>Coracias</i>	<i>caudatus</i>
186	Roller	Purple	<i>Coracias</i>	<i>naevius</i>
187	Sandpiper	Common	<i>Actitis</i>	<i>hypoleucos</i>
188	Sandpiper	Marsh	<i>Tringa</i>	<i>stagnatilis</i>
189	Sandpiper	Wood	<i>Tringa</i>	<i>glareola</i>
190	Scimitarbill	Common	<i>Rhinopomastus</i>	<i>cyanomelas</i>
191	Scrub Robin	Kalahari	<i>Cercotrichas</i>	<i>paena</i>
192	Scrub Robin	White-browed	<i>Cercotrichas</i>	<i>leucophrys</i>
193	Shoveler	Cape	<i>Spatula</i>	<i>smithii</i>
194	Shrike	Crimson-breasted	<i>Laniarius</i>	<i>atrococcineus</i>
195	Shrike	Lesser Grey	<i>Lanius</i>	<i>minor</i>
196	Shrike	Magpie	<i>Urolestes</i>	<i>melanoleucus</i>
197	Shrike	Red-backed	<i>Lanius</i>	<i>collurio</i>
198	Shrike	Southern White-crowned	<i>Eurocephalus</i>	<i>anguitimens</i>
199	Sparrow	Cape	<i>Passer</i>	<i>melanurus</i>
200	Sparrow	House	<i>Passer</i>	<i>domesticus</i>
201	Sparrow	Southern Grey-headed	<i>Passer</i>	<i>diffusus</i>
202	Sparrow-Weaver	White-browed	<i>Plocepasser</i>	<i>mahali</i>
203	Sparrowhawk	Little	<i>Accipiter</i>	<i>minullus</i>
204	Sparrowhawk	Ovambo	<i>Accipiter</i>	<i>ovampensis</i>
205	Spoonbill	African	<i>Platalea</i>	<i>alba</i>
206	Spurfowl	Natal	<i>Pternistis</i>	<i>natalensis</i>
207	Spurfowl	Swainson's	<i>Pternistis</i>	<i>swainsonii</i>
208	Starling	Burchell's	<i>Lamprotornis</i>	<i>australis</i>
209	Starling	Cape	<i>Lamprotornis</i>	<i>nitens</i>
210	Starling	Pied	<i>Lamprotornis</i>	<i>bicolor</i>
211	Starling	Red-winged	<i>Onychognathus</i>	<i>morio</i>
212	Starling	Violet-backed	<i>Cinnyricinclus</i>	<i>leucogaster</i>
213	Starling	Wattled	<i>Creatophora</i>	<i>cinerea</i>
214	Stilt	Black-winged	<i>Himantopus</i>	<i>himantopus</i>
215	Stint	Little	<i>Calidris</i>	<i>minuta</i>
216	Stonechat	African	<i>Saxicola</i>	<i>torquatus</i>
217	Stork	Abdim's	<i>Ciconia</i>	<i>abdimii</i>
218	Stork	Black	<i>Ciconia</i>	<i>nigra</i>
219	Stork	Marabou	<i>Leptoptilos</i>	<i>crumenifer</i>
220	Stork	White	<i>Ciconia</i>	<i>ciconia</i>
221	Stork	Yellow-billed	<i>Mycteria</i>	<i>ibis</i>
222	Sunbird	Amethyst	<i>Chalcomitra</i>	<i>amethystina</i>
223	Sunbird	Greater Double-collared	<i>Cinnyris</i>	<i>afer</i>
224	Sunbird	Malachite	<i>Nectarinia</i>	<i>famosa</i>
225	Sunbird	Marico	<i>Cinnyris</i>	<i>mariquensis</i>
226	Sunbird	White-bellied	<i>Cinnyris</i>	<i>talatala</i>
227	Swallow	Barn	<i>Hirundo</i>	<i>rustica</i>
228	Swallow	Greater Striped	<i>Cecropis</i>	<i>cucullata</i>
229	Swallow	Lesser Striped	<i>Cecropis</i>	<i>abyssinica</i>
230	Swallow	Pearl-breasted	<i>Hirundo</i>	<i>dimidiata</i>
231	Swallow	Red-breasted	<i>Cecropis</i>	<i>semirufa</i>

232	Swallow	South African Cliff	<i>Petrochelidon</i>	<i>spilodera</i>
233	Swallow	White-throated	<i>Hirundo</i>	<i>albigularis</i>
234	Swamphen	African	<i>Porphyrio</i>	<i>madagascariensis</i>
235	Swift	African Black	<i>Apus</i>	<i>barbatus</i>
236	Swift	African Palm	<i>Cypsiurus</i>	<i>parvus</i>
237	Swift	Little	<i>Apus</i>	<i>affinis</i>
238	Swift	White-rumped	<i>Apus</i>	<i>caffer</i>
239	Tchagra	Black-crowned	<i>Tchagra</i>	<i>senegalus</i>
240	Tchagra	Brown-crowned	<i>Tchagra</i>	<i>australis</i>
241	Teal	Red-billed	<i>Anas</i>	<i>erythrorhyncha</i>
242	Tern	White-winged	<i>Chlidonias</i>	<i>leucopterus</i>
243	Thick-knee	Spotted	<i>Burhinus</i>	<i>capensis</i>
244	Thrush	Groundscraper	<i>Turdus</i>	<i>litsitsirupa</i>
245	Thrush	Karoo	<i>Turdus</i>	<i>smithi</i>
246	Thrush	Kurrichane	<i>Turdus</i>	<i>libonyana</i>
247	Tinkerbird	Yellow-fronted	<i>Pogoniulus</i>	<i>chrysoconus</i>
248	Tit	Cape Penduline	<i>Anthoscopus</i>	<i>minutus</i>
249	Tit	Southern Black	<i>Melaniparus</i>	<i>niger</i>
250	Tit-Flycatcher	Grey	<i>Myioparus</i>	<i>plumbeus</i>
251	Wagtail	Cape	<i>Motacilla</i>	<i>capensis</i>
252	Warbler	Chestnut-vented	<i>Curruca</i>	<i>subcoerulea</i>
253	Warbler	Great Reed	<i>Acrocephalus</i>	<i>arundinaceus</i>
254	Warbler	Lesser Swamp	<i>Acrocephalus</i>	<i>gracilirostris</i>
255	Warbler	Little Rush	<i>Bradypterus</i>	<i>baboecala</i>
256	Warbler	Marsh	<i>Acrocephalus</i>	<i>palustris</i>
257	Warbler	Sedge	<i>Acrocephalus</i>	<i>schoenobaenus</i>
258	Warbler	Willow	<i>Phylloscopus</i>	<i>trochilus</i>
259	Waxbill	Black-faced	<i>Brunhilda</i>	<i>erythronotos</i>
260	Waxbill	Blue	<i>Uraeginthus</i>	<i>angolensis</i>
261	Waxbill	Common	<i>Estrilda</i>	<i>astrild</i>
262	Waxbill	Violet-eared	<i>Granatina</i>	<i>granatina</i>
263	Weaver	Cape	<i>Ploceus</i>	<i>capensis</i>
264	Weaver	Red-billed Buffalo	<i>Bubalornis</i>	<i>niger</i>
265	Weaver	Red-headed	<i>Anaplectes</i>	<i>rubriceps</i>
266	Weaver	Scaly-feathered	<i>Sporopipes</i>	<i>squamifrons</i>
267	Weaver	Southern Masked	<i>Ploceus</i>	<i>velatus</i>
268	Weaver	Thick-billed	<i>Amblyospiza</i>	<i>albifrons</i>
269	Weaver	Village	<i>Ploceus</i>	<i>cucullatus</i>
270	Wheatear	Capped	<i>Oenanthe</i>	<i>pileata</i>
271	White-eye	Cape	<i>Zosterops</i>	<i>virens</i>
272	Whydah	Long-tailed Paradise	<i>Vidua</i>	<i>paradisaea</i>
273	Whydah	Pin-tailed	<i>Vidua</i>	<i>macroura</i>
274	Widowbird	Red-collared	<i>Euplectes</i>	<i>ardens</i>
275	Widowbird	White-winged	<i>Euplectes</i>	<i>albonotatus</i>
276	Wood Hoopoe	Green	<i>Phoeniculus</i>	<i>purpureus</i>
277	Woodpecker	Bearded	<i>Chloropicus</i>	<i>namaquus</i>
278	Woodpecker	Cardinal	<i>Dendropicos</i>	<i>fuscescens</i>
279	Woodpecker	Golden-tailed	<i>Campethera</i>	<i>abingoni</i>
280	Wren-Warbler	Barred	<i>Calamonastes</i>	<i>Fasciolatus</i>