ECOLOGICAL REPORT

ECOLOGICAL SCAN FOR THE PROPOSED PROSPECTING ON PORTIONS 36, 37, 38, 39, 40 and 41 OF THE FARM BOEKENHOUTKLOOF 315, GAUTENG PROVINCE

Submitted to:
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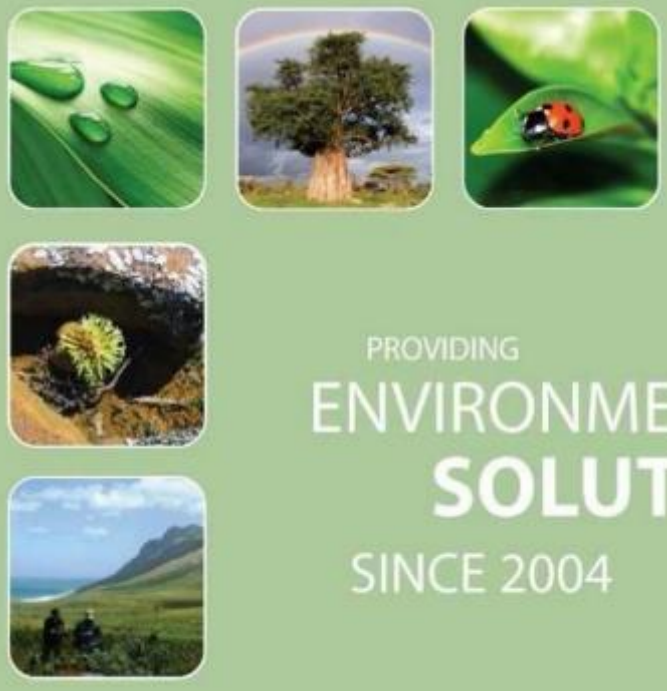

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PROJECT DETAILS

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Signature			
Date	08-01-2018	09-01-2018	09-01-2018

DISCLAIMER

Statement of Competence

I, **Liezl Taylor,** in my capacity as an environmental consultant, hereby declare that I:-

- Act as an independent consultant;
- Do not have any financial interest in the undertaking of this project or projects, other than remuneration for the work performed in terms of the National Environmental Management Act 107 of 1998;
- Have and will not have vested interest in the proposed activity nor will I engage myself in any conflicting interest associated with this project;
- I undertake to disclose and provide to the competent authority any material or information at my disposal regarding this project as required in terms of National Environmental Management Act 107 of 1998;
- Based on the information provided to me by the client and in addition to information obtained during the course of this study, I have presented the results and conclusion with regard to this project to the best of my professional ability;
- I reserve the right to modify aspects pertaining to this study should additional information become available through ongoing research and further work on this field;
- I undertake to have my work peer reviewed on a regular basis by a competent specialist in the field of study;
- I am duly qualified and experienced to undertake the work at hand;
- I am compulsorily registered as a Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP), registration number 118084.

Liezl Taylor (Cand. Sci. Nat.) Reg. 118084

Executive Summary

PURPOSE AND OBJECTIVE:

This document reports on an ecological scan completed for Klei Minerale (Pty) Ltd. – Boekenhoutkloof. The aim of this study is to provide guidance toward the possible incorrect removal of protected plants, the destruction of protected habitats and/or threatened fauna as well as to serve as a proactive management measure against ecological degradation that may be caused during the proposed prospecting for clay and sand mining purposes. This independent assessment forms part of the supporting documents of a prospecting rights application on Portions 36, 37, 38, 39, 40 and 41 of the Farm Boekenhoutkloof Nr. 315 in the Gauteng Province.

The baseline ecological survey was conducted during a site visit on 20 November 2017. The study focus is to determine the current ecological state of the affected area, and how this might be affected during the construction, operational and decommissioning phases of the proposed project.

This report makes recommendation on how best to preserve *those observed* facets of ecological importance relevant to the study area.

The baseline survey included an ecological scan which specifically aimed to deliver the following scope of works:

- Habitat and community classification including description of ecological state of the property;
- Faunal and floral inventories for the property;
- Determine the presence of any red data species (fauna and flora) and the potential for such species to occur on the property;
- Delineate any sensitive areas found within the assessment site, e.g. wetlands and rocky outcrops; and
- Discuss the spatial significance of the property and provide recommendations for preventing and mitigating environmental impacts.

METHOD AND APPROACH:

The study approach was a desktop assessment from which the required background information related to the physical habitat as well as probable fauna and flora biodiversity lists were established. This was achieved by utilizing the SANBI BGIS interface approach, inclusive of;

- A field assessment to identified and record (if any) the tree, grass, forb and exotic species that occur on the property on the area for soil stripping.
- A Red Data List Assessment which identified (if any) listed plant species.

LEGAL REFERENCES:

- National Environmental Management Act of 1998 (Act 107 of 1998)
- National Water Act of 1998 (Act 36 of 1998)
- National Environmental Management: Biodiversity Act 2004 (Act No, 10 of 2004)

KEY FINDINGS:

The main conclusions of the report are summarized in the subsections below.

Sensitivity Status

The study site is situated within a sensitive environment, including in close proximity to the Magaliesberg Protected Natural Environment which is protected under the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003). In terms of the Gauteng Conservation Plan, certain areas of the study site are classified as Irreplaceable, and others are identified as Ecological Support Areas. The study site is also situated within the Magaliesberg Important Bird Area (IBA). And the northern section of the study site is situated on a Class 2 Ridge area.

Vegetation

The study area is regionally located within the Savanna Biome and associated with the Moot Plains Bushveld vegetation type (Mucina & Rutherford, 2006). During the field visit it was noted that the majority of the assessment site is still natural vegetation, with some areas transformed into homesteads. Refer to Section 5.2.2 for a full description of the species present. Several Alien Invasive Species were also recorded on site (Table 7).

Fauna

Based on the predominantly natural state of the study area, various vegetation suitable as faunal habitats were observed, especially towards the northern region of the site. Various bird fauna diversity was observed on the day of the assessment. The area of concern has the correct attributes to successfully house a variety of animal species, especially in the northern woodland area. Free species migration is possible, even though some habitat fragmentation occurs.

No red data flora or fauna species were found during the assessment.

Wetlands

No wetlands or associated watercourses are present on the study area.

KEY RECOMMENDATIONS:

- Care must be taken to reduce impacts on the adjacent properties through the implementation of all the mitigation measures proposed by the specialists;
- No vegetation clearance except for the removal of alien invasive species will be allowed;
- An Alien and Invasive Species Management Plan must be implemented;
- Alien and weed species encountered on the property should be removed in order to comply with existing legislation (National Environmental Management: Biodiversity Act 2004 (act no. 10 of 2004) [as amended in 2014] alien and invasive species regulations, 2014);
- All remaining indigenous vegetation should be conserved where possible;
- A suitably qualified specialist (ecologist) to accompany the site manager to demarcate areas for prospecting, in order to avoid damaging sensitive vegetation;
- Only vegetation falling directly into demarcated access routes or project sites should be removed;
- Strict management of clean and dirty water systems needs to be undertaken in line with Government Notice Regulation 704 of the National Water Act to prevent impacts on the surrounding area. This is to prevent established ecosystems, whether microbial or visible, to degenerate due to contaminated water entering surface or groundwater sources;
- Should any sensitive or Red Data animal or bird species be encountered during the construction, operation and decommissioning activities, these should be relocated to natural areas in the vicinity. Any sensitive fauna that are inadvertently killed during earthmoving operations should be preserved as museum voucher specimens;
- Reduce the levels of disturbance on areas indicated by the Environmental Control Officer (ECO) as migratory routes of animals to minimise the negative impact on biodiversity;
- Environmental awareness training should include that no hunting, trapping or killing of fauna are allowed;
- Any lizards, snakes or monitors encountered should be allowed to escape to a suitable habitat away from disturbance;
- No animal should be intentionally killed, caught or collected during any phase of the project;
- General avoidance of snakes is the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area;
- According to the Departmental Policy: Development Guidelines for Ridges (2001), a 200m buffer zone is required around class 2 ridges (Refer to Figure 22). Development proposals within the buffer zone should proceed at least to EIA stage;

- Any stormwater cut-off channels should be kept as a natural as possible with gentle slopes (angle 45°or less) on the side away from the prospecting activities. These channels should enable, small animals, reptiles and amphibians which have fallen into the channel accidently to escape easily. If not, they could drown if the channels contain water or they may die of exposure when the channels are dry;
- For the safety of the animals it is not so much the width and depth of a drainage/storm water channel that are important, but the shape. If it has curved, smooth walls the animals that have fallen in will find it impossible to obtain purchase and will slip back time and time again and fall to the bottom of the channel. The channel must be designed in such a way as to prevent the smaller creatures from blundering in and dying. Safety features that could be incorporated into the drainage/storm water channel are the use of rough surfaces and rocks to allow trapped animals purchase, less curvature on the walls, a "step" in the slope of the wall and a "lip" along the edges of the channel which would either act as a deterrent to small animals or as an absolute physical barrier;
- Measures to prevent erosion should be implemented during all phases;
- During the Rehabilitation Phase, the following should be implemented:
    - All areas should be reshaped and levelled to resemble the pre-construction environment as far as possible.
    - All disturbed areas should be revegetated during the rehabilitation phase.
    - Re-profiling and sloping of areas at risk of erosion and incision as a result of construction activities should take place in order to maintain the ecological functionality of the area.

After conclusion of this Baseline Ecological Scan, it is the opinion of the ecologists that Portions 38, 39, 40 and 41 be utilised for prospecting activities. The northern portions (Portion 36 and 37) were found to be very sensitive and should preferably be excluded from physical prospecting activities. If the Competent Authority allows prospecting to take place on Portions 36 and 37, all recommendations should strictly be adhered to and a suitably qualified specialist (Ecologist) should accompany the Site Manager to demarcate areas for prospecting, in order to avoid damaging sensitive vegetation as identified during the specialist study and according to the sensitivity maps provided in this report. All activities taking place during the prospecting phases should be documented and the area rehabilitated to its natural state.

TABLE OF CONTENTS

LIST OF TABLES

TABLE OF FIGURES

LIST OF ABBREVIATIONS AND ACCRONYMS

DWS:	Department of Water and Sanitation
DWAF:	Department of Water Affairs and Forestry
EcoMP:	Ecological Management Plan
EMPr:	Environmental Management Programme
EMPrPA:	Environmental Management Programme Performance Assessment
EMSM:	Environmental Monitoring Systems Manual
MAMSL:	Meters Above Mean Sea Level
LUDS:	Land Use Decision Tool
MAP:	Mean Annual Precipitation
NEMA:	National Environmental Management Act
IUA:	Integrated Units of Analysis
PES:	Present Ecological State
RHP:	The River Health Programme
SASS:	South African Scoring System
TEMP:	Temperature
WMA:	Water Management Area

1. INTRODUCTION

Environmental Assurance (Pty) Ltd. – hereafter referred to as "ENVASS" - was appointed by Klei Minerale (Pty) Ltd. – hereafter referred to as "Klei Minerale" to undertake an ecological baseline assessment for the remaining semi-natural area on Portions 36, 37, 38, 39, 40 and 41 of the Farm Boekenhoutkloof 315 JR, where proposed prospecting is to take place (Refer to Figure 1). The site is situated approximately 10 km west of Pretoria, and falls within the City of Tshwane Metropolitan Municipality in the Gauteng Province.

2. OBJECTIVES OF THE ECOLOGICAL REPORT

This report focuses on the current ecological state of the region where the proposed prospecting area is located. This report makes recommendations on how best to preserve current facets of ecological importance, as observed during the assessment. It is consequently not to be seen as an impact assessment or audit report, but an objective baseline study of the ecology of the site.

This report will attempt to define the overall expected ecological impacts on the study area by assessing the resident fauna and flora within the associated habitat – with specific focus on the general impact(s) associated with prospecting activities. It will also provide a detailed summary of the findings and will assist in providing recommendations to management in order to minimise the impacts on the ecological resources of the area.

3. METHODOLOGY

This section details the different techniques and methods utilised to obtain the data for this report in order to assess the ecological integrity of the site based on the various inputs explained below.

3.1. Wetland Assessment

For the purpose of this assessment, wetlands are considered as those ecosystems defined by the National Water Act No. 36 of 1998 as:

"*land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.*"

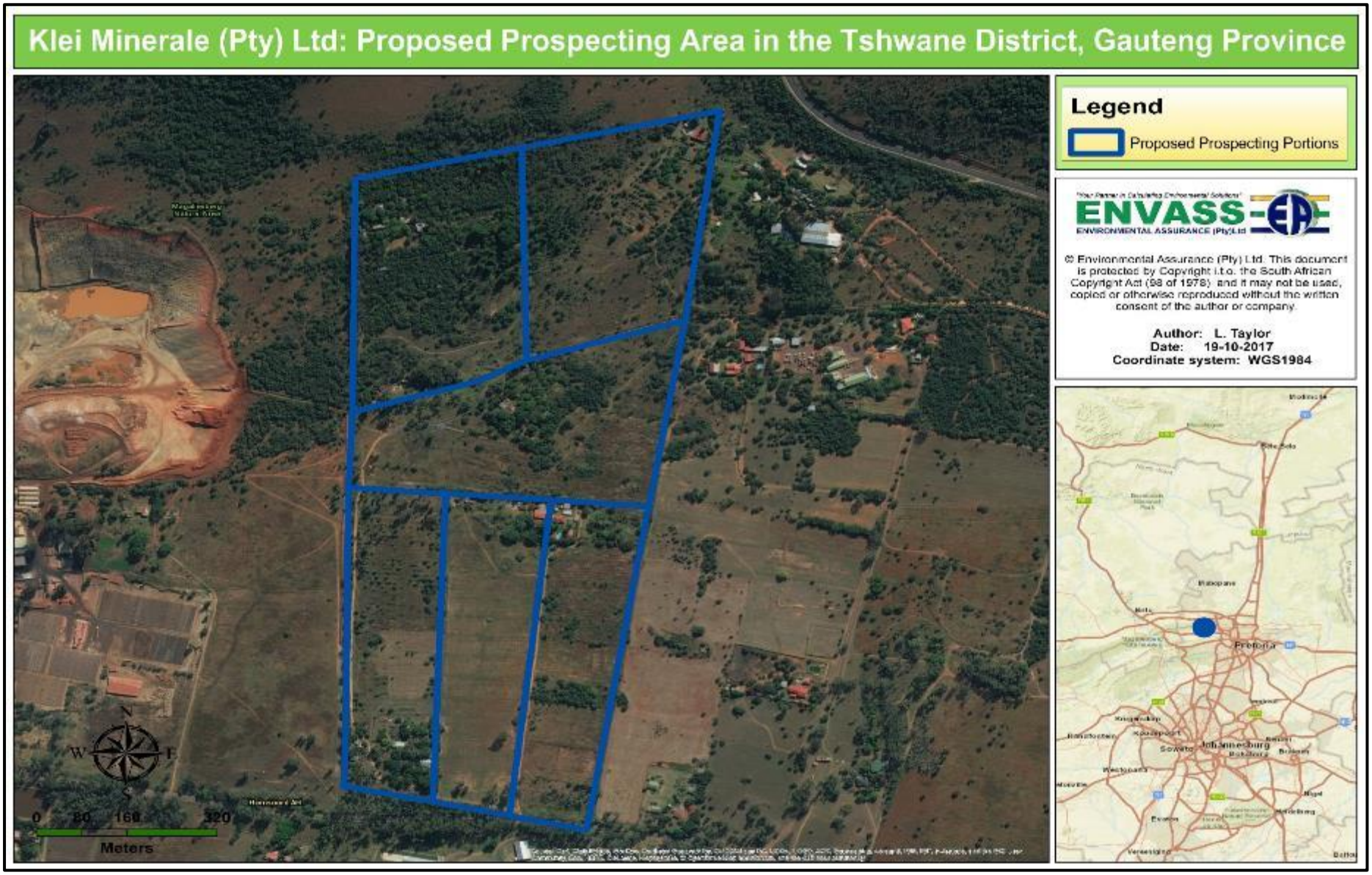


Figure 1: Locality Map of the Proposed Prospecting Site

3.1.1. Desktop Assessment

Examination of the National Freshwater Ecosystem Priority Areas (NFEPA)'s databases were undertaken for the proposed project. The NFEPA project aims to produce maps which provide strategic spatial priorities for conserving South Africa's freshwater ecosystems and supporting sustainable use of water resources. These strategic spatial priorities are known as Freshwater Ecosystem Priority Areas, or FEPAs. FEPAs are determined through a process of systematic biodiversity planning and involved collaboration of over 100 freshwater researchers and practitioners. They are identified based on a range of criteria dealing with the maintenance of key ecological processes and the conservation of ecosystem types and species associated with rivers, wetlands and estuaries (Macfarlane *et al*., 2009).

The assessment of the study site involved the investigation of aerial photography, GIS databases including the NFEPA and South African National Wetland maps as well as literature reviews of the study site in order to determine the likelihood of wetland areas within this site.

The following data sources and GIS information provided in **Table 1** was utilised.

Table 1: Information used to inform the desktop wetland assessment.

Data	Use	Source
Latest and Historic Google Earth ™ imagery	Used to assist with identifying potential areas within the study boundary for the presence of wetland systems.	Google Earth PRO™ On- line
River line	Mapping of watercourses outside of the study site.	Surveyor General
National Wetland Classification System	Assistance with information collection about the site and surrounding areas.	SANBI
National Freshwater Ecosystem Priority Area maps and database	Information gathering regarding the presence of FEPA wetlands on the site and within surrounding areas.	Water Research Commission, Implementation: Manual and Maps for FEPA area

3.2. Vegetation Assessment

A comprehensive study was carried out to document all species recorded in the area and to predict vegetation characteristics. This was augmented by a site visit and comprised of the following:

A walkover field survey of the site verifying the presence or absence of species predicted to occur on the site included:

a. Identification and location of keystone or indicator species that may be impacted;
b. Identify important habitats, including wetlands, grasslands and Savanah;
c. Identify areas of conservation and/or ecological importance;
d. Consider invasive alien plant status and rehabilitation potential of natural areas; and
e. An overall condition of the vegetation found in the area, including an assessment of cover and vegetation structure and were classified as vegetation communities

3.2.1. Conservation Priority and Sensitivity

The vegetation types were evaluated in terms of conservation priority according to the following categories:

- **High:** Ecologically sensitive and valuable land with high species richness and/or sensitive ecosystems and/or red data species that should be conserved. No development is to be allowed.
- **Medium-high:** Land that is partially disturbed but that is generally ecologically sensitive to development / disturbances.
- **Medium:** Land on which developments with a limited / low impact on the vegetation / ecosystem can be considered. It is recommended that certain portions of the natural vegetation be maintained in open spaces.
- **Medium-low:** Land of which small sections could be considered to be conserved, but where the area in general has little conservation value.
- **Low:** Land that has little conservation value where development will have an insignificant or no impact on the vegetation.

Sensitivity Areas that are of High and Medium-high conservation priority are regarded as High sensitivity areas in which developments should not be allowed

Areas that fall in the Medium, Medium-low and Low conservation priority categories are regarded as Low sensitivity areas in which development may be allowed.

Areas where other environmental factors such as high erodibility and steep slopes that play a significant role are regarded as Moderate sensitivity areas. Developments can be allowed in these areas if suitable mitigation measures can be implemented.

3.2.2. Alien and Invasive Species

Alien and Invasive plants are described as species which are ‘non-indigenous’ to an area and which have been introduced from other countries either intentionally (for domestic or commercial use) or accidentally; furthermore, they have the ability

to reproduce and spread without the direct assistance of people into natural or semi-natural habitats and are destructive to biodiversity and human interests (WESSA-KZN, 2008).

The defining legislation on Alien and Invasive Species in South Africa is the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) and the Alien and Invasive Species Regulations (Government Notice Regulation No. 598) (As amended in 2016). Each species is assigned to one of three categories based on the level of threat posed by the species and the legal status assigned to each:

- **Category 1a** – Plant species that must be combatted or eradicated.
- **Category 1b** – Plant species that must be controlled.
- **Category 2** – Plant species that must not be allowed to spread outside any property.
- **Category 3** – Plant species that when occurring in riparian areas must be considered to be category 1b Listed Invasive Species and must be managed according to regulation 3 of NEM:BA.

3.3. Faunal Assessment

The faunal investigation was focused on mammals, reptiles, amphibians and bird species. The following methodology was applied:

3.3.1. Mammals, Reptiles and Amphibians

- The data sets discussed above under "sources of information" were collected/collated and examined to determine the focus species for this study;
- The data was examined to determine the possible occurrence of any Red Data and non-Red Data species;
- The site was comprehensively assessed during a field investigation to determine fauna and faunal micro habitats present within the site. This included:
    - All animals (mammals, reptiles and amphibians) seen or heard; were recorded.
    - Use was also made of indirect evidence such as animal tracks (footprints, droppings and various burrow types) to identify animals.
    - Reptiles were actively searched for under suitable refuges such as loosely embedded flat rocks, logs and stumps and identified by actual specimens observed.
- Information was supplemented by historical records, personal accounts from residents within the study area and a comprehensive literature review; and
- The impacts of the proposed study on faunal species were predicted and mitigation measures were proposed.

3.3.2. Avifauna (Birds Species)

Generally, when predicting the impacts of a proposed study on birds, a combination of science, field experience and knowledge from the specialist is required. More specifically the methodology used to predict impacts of the proposed mine was as follows:

- The various data sets discussed above under “sources of information”, were collected/collated and examined with the aim of determining the focal species for this study.
- The data were examined to determine the location and abundance of species which may be susceptible to impacts from the proposed mine including both Red Data and non-Red Data species.
- The broader study area was visited during a one-day site visit. The site was thoroughly traversed to obtain a first-hand perspective of the proposed study, and to determine which bird micro habitats are present within the study site. This involved walking, taking photographs, and the use of bird call playbacks to identify bird life present within the proposed study area. Further to this, the observation of feathers and nests were used as species identification tools.
- All opportunist sightings were recorded throughout the study area.
- Avian micro-habitats and sensitive habitats for avifaunal communities were identified and mapped.
- The impacts of the proposed study on the avifaunal populations were then predicted by analysing data on impacts on wildlife around mining areas throughout South Africa.
- The likely occurrence of key avifaunal species was verified according to avifaunal distribution records obtained from the current SABAP2 project which commenced on 1 July 2007.

4. BACKGROUND INFORMATION AND DESKTOP ASSESSMENT

4.1. Surrounding Land Uses

The predominant land uses identified on the day of the assessment for the study area and surrounds included mining, industrial and residential areas, permanent agricultural holdings homesteads and informal settlements. The Klei Minerale Boekenhoutkloof mine and brick-making plant is situated to the West of the study area, Earlybird Poultry Farm to the South, and the Magaliesberg Natural Protected Area lies directly North of the study site. Situated approximately one-kilometre (1 km) East is the Klei Minerale Zandfontein Mine and brick-making plant. The land has been significantly disturbed by agriculture and mining activities, however, in the northern region large areas of natural land is protected.

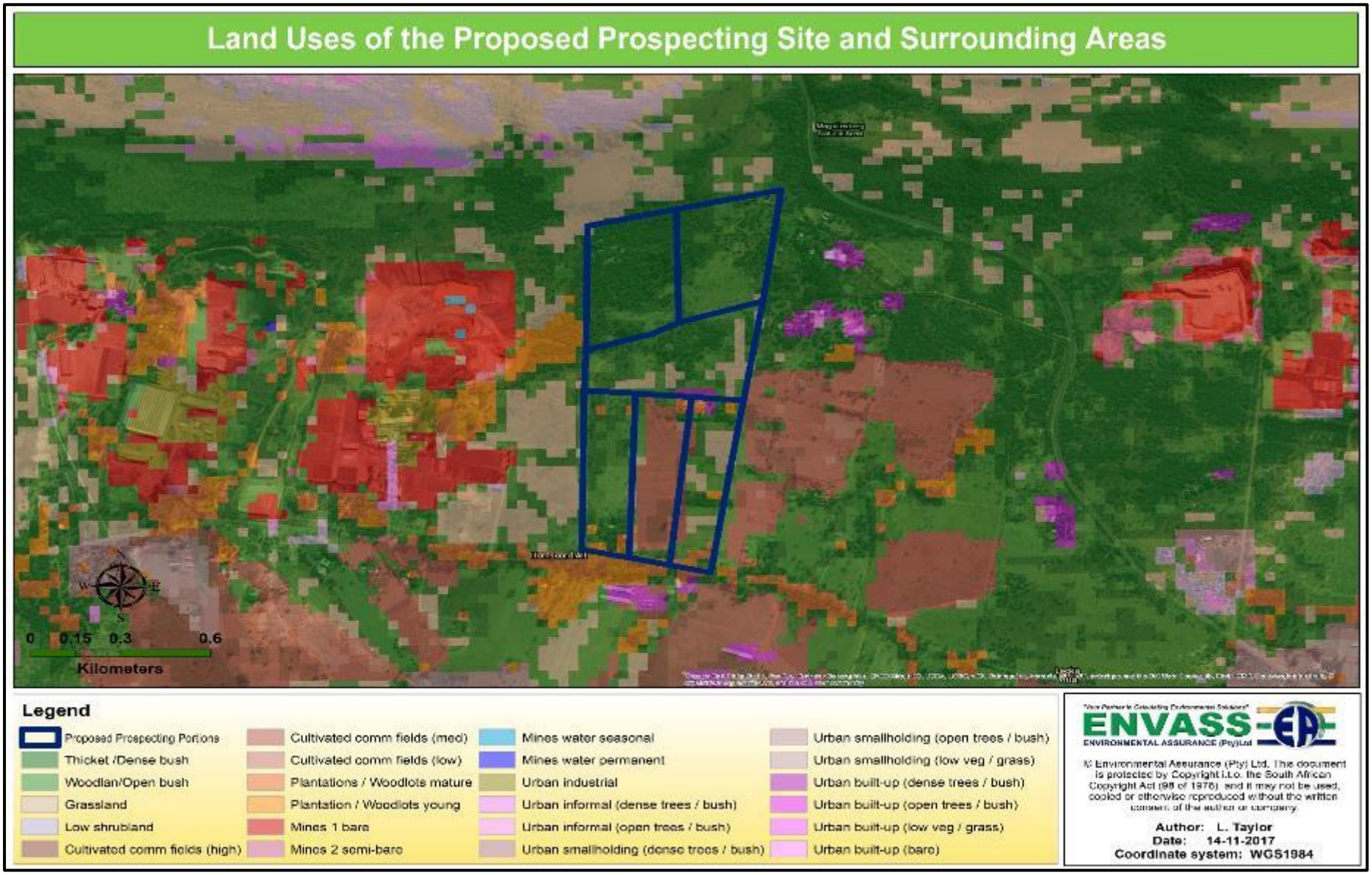


Figure 2: Surrounding Land Uses

4.2. Current Status

The proposed prospecting site is situated to the east of the existing Boekenhoutkloof operations. The area consists mostly of natural vegetation with a few residential houses and their associated structures present. The study site falls on six (6) portions of land. Each contains houses and their associated structures. The main land use is residential, with roads, fences and power lines present on site. The following figures show views of the site from different angles.

Figure 3: Natural veld make up the central part of the study site, towards the north more woodland vegetation is evident along the ridge.

Figure 4: Residential houses on small holdings (Portion 39) and their associated infrastructure.

Figure 5: Natural veld towards the north-western part of the site

Figure 6: View from Portion 39 towards the North of the proposed site.

Figure 7: Residential houses on small holdings and their associated infrastructure.

Figure 8: Natural veld towards the southern part of the site.

Figure 9: Maize crops on the site towards the South.

Figure 10: Natural open veld towards the west (eastern fence of Boekenhoutkloof).

Figure 11: Roads and Residential fence walls on the northern portions of the site.

Figure 12: Roads on the northern portions near houses.

Figure 13: Ridge areas towards the North-western region of the site

Figure 14: Ridge areas on the Northern region of the site

4.3. Ecoregion

According to the delineation provided by Dallas (2005), the Level 1 Ecoregions of the area, are the Western Bankenveld (7) and Bushveld Basin (8) (**Figure 15**).

The Western Bankenveld region consist of a complex topography, varying from lowlands, hills and mountains to closed hills and mountains and relief ranging from moderate to high (Kleynhans *et al.* 2005). Mixed bushveld is the most definitive vegetation type, with several other Bushveld and Grassland types occurring in the region. This ecoregion measures approximately 19 365.5 km^2 in size. The Marico-, the Crocodile- (west), the Elands- (west) and the Pienaars river traverse this region and the perennial tributary of the Sand River has its source in the northern part of the ecoregion. **Table 2** summarises the Western Bankenveld ecoregion environment

Table 2: Western Bankenveld Ecoregion Attributes (Department of Water Affairs, 2012)

Main Attributes	Western Bankenveld
Terrain morphology: Broad division (dominant types in bold (Primary)	Plains; Low Relief; Plains; Moderate Relief; **Lowlands; Hills and Mountains; Moderate and High Relief;** **Open Hills; Lowlands; Mountains; Moderate to High Relief;** **Closed Hills; Mountains; Moderate and High Relief;**
Vegetation types (Dominant types in bold) (Primary)	**Waterberg Moist Mountain Bushveld; Mixed Bushveld;**

Main Attributes	Western Bankenveld
	Kalahari Plains Thorn Bushveld (limited); Clay Thorn Bushveld; (limited) Rocky Highveld Grassland; Dry Clay Highveld Grassland; (limited)
Altitude (m.a.m.s.l) (secondary)	900-1700
MAP (mm) (modifying)	400 to 700
Coefficient of Variation (% of annual precipitation)	20 to 35
Rainfall concentration index	60 to >65
Rainfall seasonality	Early to mid-summer
Mean annual temp. (°C)	14 to 22
Mean daily max temp. (°C) February	24 to 32
Mean daily max temp. (°C) July	14 to 24
Mean daily min. temp. (°C): February	12 to 20
Mean daily min. temp. (°C): July	0 to 6
Median annual simulated runoff (mm) for quaternary catchment	20 to 80, 80 to 100 (limited)

Kleynhans *et al.* (2005) describes the Bushveld Basin a region consisting predominantly of plains with a low relief. Mixed bushveld is the definitive vegetation type, while in the eastern area, plains with a moderate relief and lowlands with a moderate relief occur. The Bushveld Basin ecoregion measures approximately 32 460.1 km^2 in size. Several perennial rivers traverse the region, including the Olifants, Marico, Crocodile (West), Elands (West) and Pienaars. **Table 3** summarises the Bushveld Basin ecoregion environment:

Table 3: Bushveld Basin Ecoregion Attributes (Department of Water Affairs, 2012)

Main Attributes	Bushveld Basin
Terrain morphology: Broad division (dominant types in bold (Primary)	**Plains; Low Relief;** **Plains; Moderate Relief;** Lowlands; Hills and Mountains: Moderate and High Relief;

Main Attributes	Bushveld Basin
	Open Hills; Lowlands; Mountains: Moderate to High Relief; Closed Hills; Mountains: Moderate and High Relief (limited)
Vegetation types (Dominant types in bold) (Primary)	**Mixed Bushveld**; Clay Thorn Bushveld; Waterberg Moist Mountain Bushveld (limited)
Altitude (m.a.m.s.l) (secondary)	700-1700 (1700-1900 very limited)
MAP (mm) (modifying)	400 to 600
Coefficient of Variation (% of annual precipitation)	25 to 35
Rainfall concentration index	55 to >65
Rainfall seasonality	Early to mid-summer
Mean annual temp. (°C)	14 to 22
Mean daily max temp. (°C) February	22 to 32
Mean daily max temp. (°C) July	14 to 24
Mean daily min. temp. (°C): February	12 to 20
Mean daily min. temp. (°C): July	0 to 6
Median annual simulated runoff (mm) for quaternary catchment	20 to 100

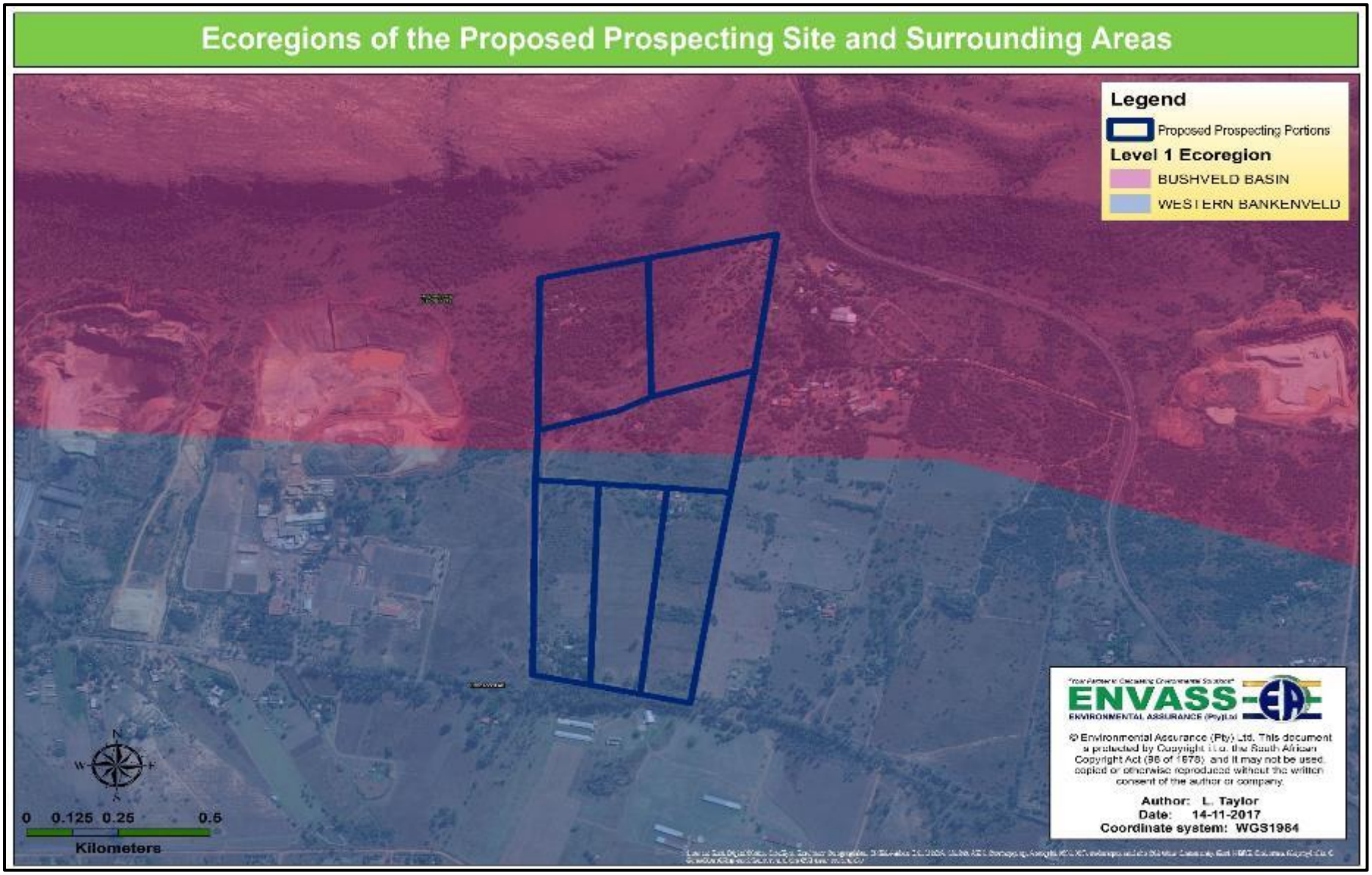


Figure 15: Ecoregions of the Proposed Prospecting Site

4.4. Quaternary Catchments and Associated Watercourses

The study area falls within the A21H Quaternary Catchment (**Figure 16**), and forms part of the newly formed Limpopo Water Management Area (WMA) (DWS 2016). The area previously fell within the Crocodile (West) and Marico Water Management Area (WMA), however, the Crocodile (West), Marico and Luvuvhu catchments were consolidated in the Limpopo WMA as per the Second Edition of the National Water Resource Strategy (NWRS-2, 2012).

4.5. The Biotic Environment

The natural characteristics and ecological importance of the various biotic ecosystems are described in the segments below.

4.5.1. Vegetation and Ecosystems

The proposed site for prospecting falls within the Savanna Biome (Mucina & Rutherford 2006), which is characterised by strong summer rainfall and dry winters. The Savanna Biome mainly comprises of an herbaceous layer dominated by grass species and a discontinuous to sometimes very open tree layer. Biomes are further divided into bioregions, which are spatial terrestrial units possessing similar biotic and physical features, and processes at a regional scale. The study area is situated within the Central Bushveld Bioregion and the Moot Plains Bushveld (SVcb 8) vegetation type (**Figure 17).** The northern portions of the study site are situated on an ecotone (a transitional area between two vegetation types or plant communities). This ecotone therefore consists of species from both Moot Plains Bushveld and Gold Reef Mountain Bushveld (SVcb9), however, the Gold Reef Mountain Bushveld will not be discussed in detail as the majority of the site is not situated within it. This vegetation type is Least Threatened with 22% of the 24% target already conserved, mainly in the Magaliesberg Nature Area. The succulent shrub *Aloe peglerae* and the succulent herb *Frithia pulchra* are both endemic to this vegetation type (Mucina & Rutherford 2006). The following species are known to occur within the Gold Reef Mountain Bushveld:

Small Trees

- *Acacia caffra*
- *Combretum mole*
- *Protea caffra*
- *Celtis africana*
- *Dombeya rotundifolia*
- *Englerophytum magalismontanum*
- *Ochna pretoriensis*
- *Rhus leptodictya*
- *Vangueria infausta*

Low Shrubs

- *Athrixia elata*
- *Pearsonia cajanifolia*
- *Rhus magalismontana* subsp. *magalismontana*
- *Rhus rigida* var. *rigida*

Woody Climber

- *Ancylobotrys capensis*

Graminoids

- *Loudetia simplex*
- *Panicum natalense*
- *Tristachya leucothrix*

Herbs

- *Helichrysum nudifolium*
- *Helichrysum rugulosum*
- *Pentanisia angustifolia*
- *Senecio venosus*
- *Xerophyta retinervis*

Geophytic Herbs

- *Cheilanthes hirta*
- *Hypoxis hemerocallidea*

- *Vangueria parvifolia*
- *Ziziphus mucronata*

Tall Shrubs

- *Grewia occidentalis*
- *Canthium gilfillanii*
- *Mystroxylon aethiopicum* subsp. *burkeanum*
- *Ehretia rigida* subsp. *rigida*
- *Gymnosporia buxifolia*
- *Schizachyrium sanguineum*
- *Trachypogon spicatus*
- *Alloteropsis semialata* subsp. *eckloniana*
- *Bewsia biflora*
- *Digitaria tricholaenoides*
- *Diheteropogon amplectens*
- *Sporobolus pectinatus*
- *Tristachya biseriata*
- *Pellaea calomelanos*

The main vegetation belt of the Moot Plains Bushveld occurs in the North-West and Gauteng Provinces, immediately south of the Magaliesberg from the Selons River Valley in the west through Maanhaarrand, filling the valley bottom of the Magalies River, proceeding east of the Hartbeestpoort Dam between the Magaliesberg and Daspoort mountain ranges to Pretoria (Mucina & Rutherford 2006). The Moot Plains Bushveld vegetation is classified as Vulnerable, with about 13% conserved in the statutory Magaliesberg Nature Area. Approximately 28% has been transformed by cultivation, urbanisation, and built-up areas. The following species are known to occur within this vegetation type (Mucina & Rutherford 2006):

Small Trees

- *Acacia nilotica*
- *Acacia tortilis* subsp. *heteracantha*
- *Rhus lancea*

Tall Shrubs

- *Buddleja saligna*
- *Euclea undulata*
- *Olea europaea* subsp. *africana*
- *Grewia occidentalis*
- *Gymnosporia polyacantha*
- *Mystroxylon aethiopicum* subsp. *burkeanum*

Low Shrubs

Succulent Shrub

- *Kalanchoe paniculata*

Woody Climber

- *Jasminum breviflorum*

Graminoids

- *Heteropogon contortus*
- *Cynodon dactylon*
- *Setaria sphacelata*
- *Themeda triandra*
- *Aristida congesta*
- *Chloris virgata*
- *Sporobolus nitens*

Herbs

- *Achyropsis avicularis*
- *Corchorus asplenifolius*
- *Evolvulus alsinoides*
- *Helichrysum nudifolium*
- *Helichrysum undulatum*
- *Hermannia depressa*
- *Osteospermum muricatum*
- *Phyllanthus maderaspatensis*

- *Aptosimum elongatum*
- *Felicia fascicularis*
- *Lantana rugosa*
- *Teucrium trifidum*
- *Tragus racemosus*

Herbaceous Climber

- *Lotononis bainesii*

4.5.2. Geology and Soils

The most significant rock formations of the area include Clastic sediments and minor carbonates and volcanics of the Pretoria Group, including the Silverton Formation, and some Malmani dolomites in the west. All of which are from the Transvaal Supergroup (Vaalian) (Mucina & Rutherford 2006). Soils are often stony with colluvial clay-loam but varied, and are typical of the Ae, Ba, Ea, Bc, Ac and less typical Fb land types.

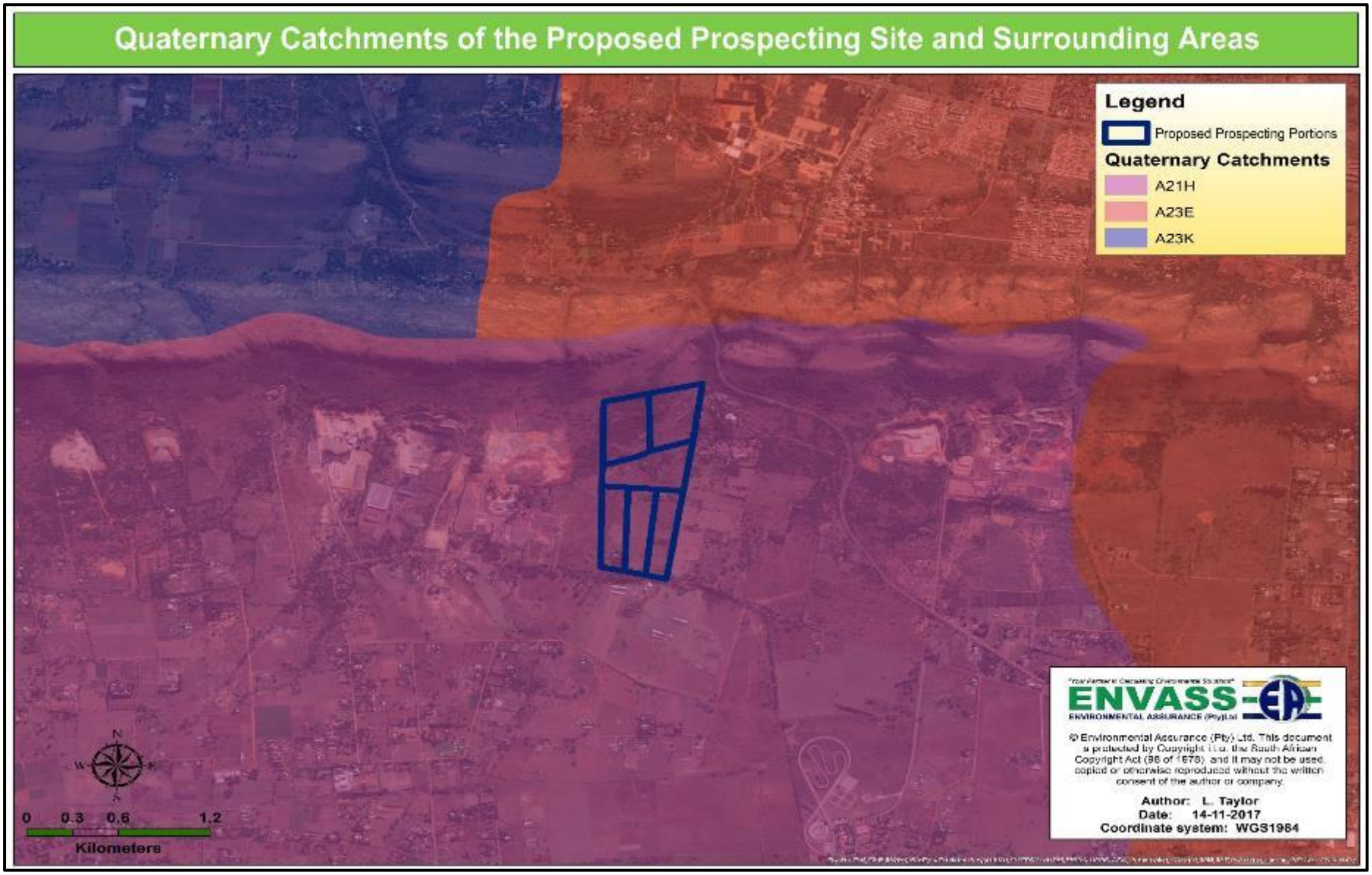


Figure 16: Quaternary Catchments

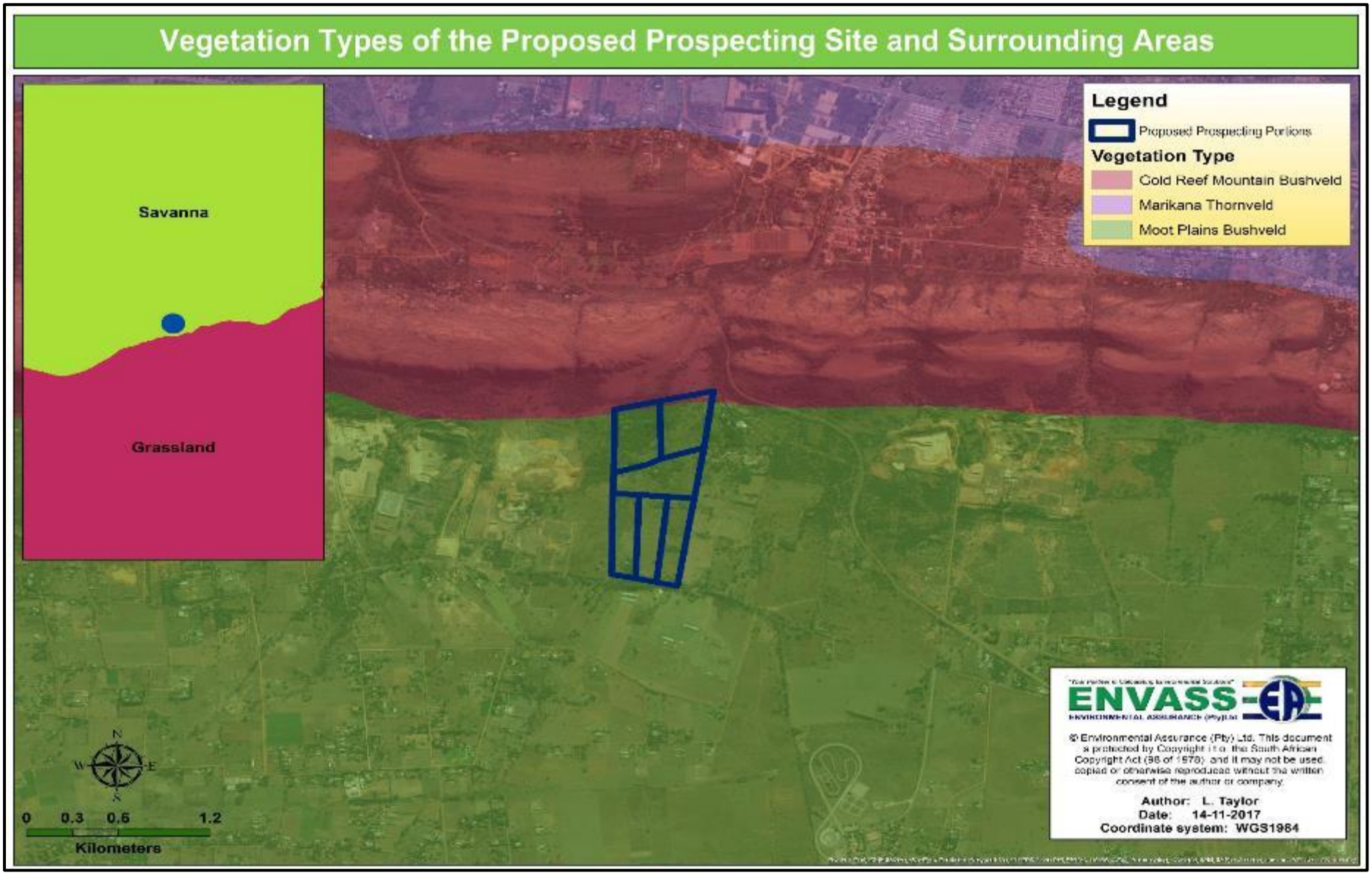


Figure 17: Vegetation Classification

4.6. Sensitivity Status

4.6.1. Protected Areas

The proposed site falls within the Magaliesberg Protected Natural Environment (**Figure 18**). This area has been protected under the Environment Protection Act since 1977 and more recently under the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003). Private landowners retain ownership; however, they are bound by restrictions on development. The Magaliesberg Protected Natural Environment is known to local landowners as the 'green belt' and all development is under the strict scrutiny of both provincial and national authorities.

4.6.2. Critical Biodiversity Areas

The Gauteng Conservation Plan 3.3 (2014) (C-Plan) focusses on the mapping and the management of biodiversity priority areas within the Gauteng Province. This conservation plan consists of Protected Areas, Important Sites and Irreplaceable Areas based on the presence of Red Data Species, Endemic Species and potential habitat for these species. Irreplaceable areas are essential in meeting targets set for the conservation of biodiversity in Gauteng Province. These areas, along with Ecological Support Areas (ESAs) are highly sensitive, and must be protected from transforming land uses.

Certain areas of the study site are classified as Irreplaceable, and others are identified as Ecological Support Areas in terms of the Gauteng Conservation Plan 3.3, 2014 (**Figure 19**). Irreplaceable areas have no replacements, and areas characterized by high irreplaceability values and high vulnerability ratings should receive priority conservation action.

4.6.3. Important Bird Areas

The study site is situated within the Magaliesberg Important Bird Area (IBA) (**Figure 20**). Most of this IBA falls within the Magaliesberg Protected Natural Environment. Previously known as the Magaliesberg and Witwatersberg IBA, this IBA consists mainly of the Magaliesberg range, which extends in an arc from just north-west of Rustenburg in the west to the N1 in the east near Pretoria (www.birdlife.org). To the south, the Witwatersberg range runs parallel to the Magaliesberg, extending from the town of Magaliesburg in the west to Hartbeespoort Dam in the east.

The most important trigger species in the IBA is the globally threatened Cape Vulture (*Gyps coprotheres*) which breeds at Nooitgedacht and at Skeerpoort. The Secretarybird is the other globally threatened species in the IBA. Regionally threatened species are Lanner Falcon (*Falco biarmicus*), Half-collared Kingfisher, African Grass Owl, African Finfoot and Verreauxs' Eagle. Biome-restricted species include White-bellied Sunbird (*Cinnyris talatala*), Kurrichane Thrush (*Turdus libonyanus*), White-throated Robin-chat (*Cossypha humeralis*), Kalahari Scrub Robin (*Erythropygia paena*) and Barred Wren-Warbler.

The most important threat to the trigger species in this IBA is the expansion of commercial, recreational and housing developments, which have decreased the area of land available for wild ungulates and domestic livestock, and hence the availability of food for vultures (www.birdlife.org). Collisions with man-made structures such as power lines is also a concern.

4.6.4. Ridges

Ridges are regarded as ecologically sensitive and must be protected from transforming land uses. The term "ridge" loosely refer to hills, mountains, koppies, gorges, etc. A Ridge is defined by the slope of the site. Any topographic feature in the landscape that is characterized by slopes of 5° or more (i.e. > 8.8%, > 1 in 11 gradient), as determined by means of a GIS digital elevation model, constitutes a ridge. According to the Departmental Policy: Development Guidelines for Ridges, all ridges in Gauteng have been classified into four classes based on the percentage of the ridge that has been transformed, mainly through urbanization, using the 1994 CSIR/ARC Landcover data.

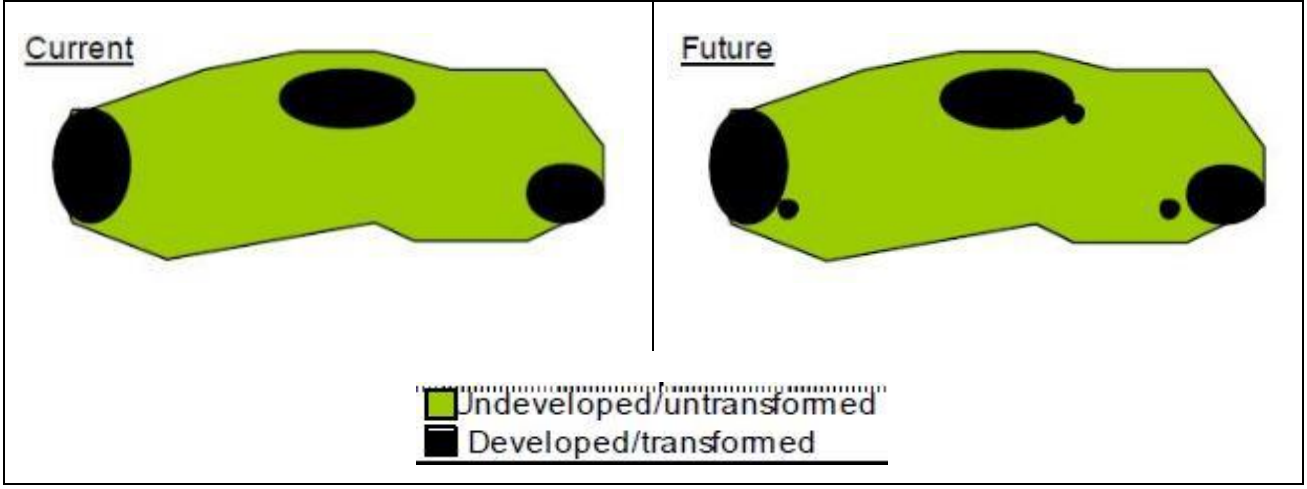
The Importance of Ridges:

- Ridges form biodiversity hotspots - They provide resources needed for survival, reproduction and movement, and ideal refuges for wildlife in an urbanized landscape.
- Ridges provide vital habitat for many threatened, rare and endemic species of fauna and flora.
- Invertebrates are reliant on hilltops as thermal refugia from winter cold air drainage. Ridges provide important habitat required for the completion of the life cycles of many invertebrates, many of which provide essential ecosystem services (e.g. pollination).
- Ridges form naturally existing corridors that can functionally interconnect isolated natural areas and therefore play an important role in wildlife dispersal.
- Other ecological processes associated with ridges, which are important for the maintenance and generation of biodiversity, include evolutionary processes, hydrological processes and pollination.
- Ridges provide aesthetically pleasing environments for the surrounding inhabitants and attract tourists and recreational users.

The northern section of the study site is situated on a Class 2 Ridge area (**Figure 21**). The Departmental development policy for ridges in Gauteng provided the following development guidelines w.r.t. Class 2 Ridge areas (Table 4):

Table 4: Policy Guideline for Developments within Class 2 Ridge Areas (Development Guidelines for Ridges 2001).

Ridge Type	% of Gauteng Ridges	Policy
Class 2 (5-35% transformed) includes parts of Magaliesberg, World Heritage site, Klipriviersberg, Bronberg, Skurweberg	40%	No further subdivisions will be allowed and consolidation of subdivisions will be encouraged. No-go development policy; low impact (e.g. tourism developments) will be considered requiring full EIA (including public participation exercise) with full set of specialist reports including (but not limited to): • An ecological study, including both functional (ecological processes including connectivity function of

Ridge Type	% of Gauteng Ridges	Policy
		ridge at a landscape level perspective) and compositional (biodiversity) aspects • A Red Data study for both fauna and flora • An invertebrate study • A hydrological / geohydrological study • A geotechnical study • A pollution study, including both air and water pollution • A social study, including cultural, historical and open space value aspects • A visual study • A study of service provision and access All specialist studies to examine cumulative impacts. Ecological footprint[2] of low impact developments to cover no more than 5% of a property. All impacts for these developments must be sufficiently mitigated. A management plan to maintain the ecological integrity of remaining property is required and implementation is the responsibility of the developer. A 200m buffer zone[1] of low impact development is required around class 2 ridges. Development proposals within the buffer zone should proceed at least to the mini EIA stage. DACEL undertakes to conduct Strategic Environmental Assessments for these ridge systems.
		

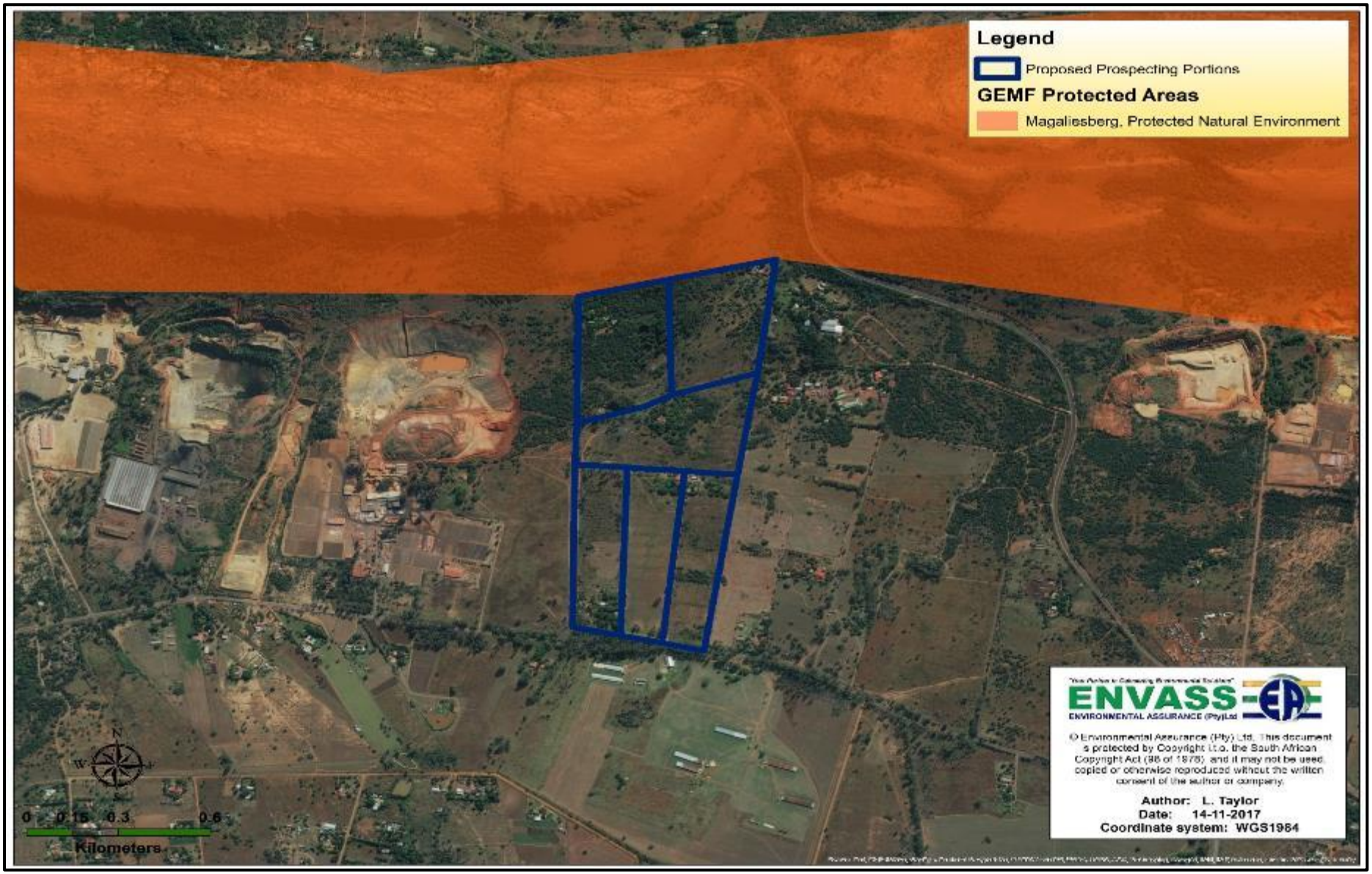


Figure 18: Protected Areas in accordance with the Gauteng Province Environmental Management Framework (GEMF) associated with the Proposed Prospecting Site and Surrounding Areas

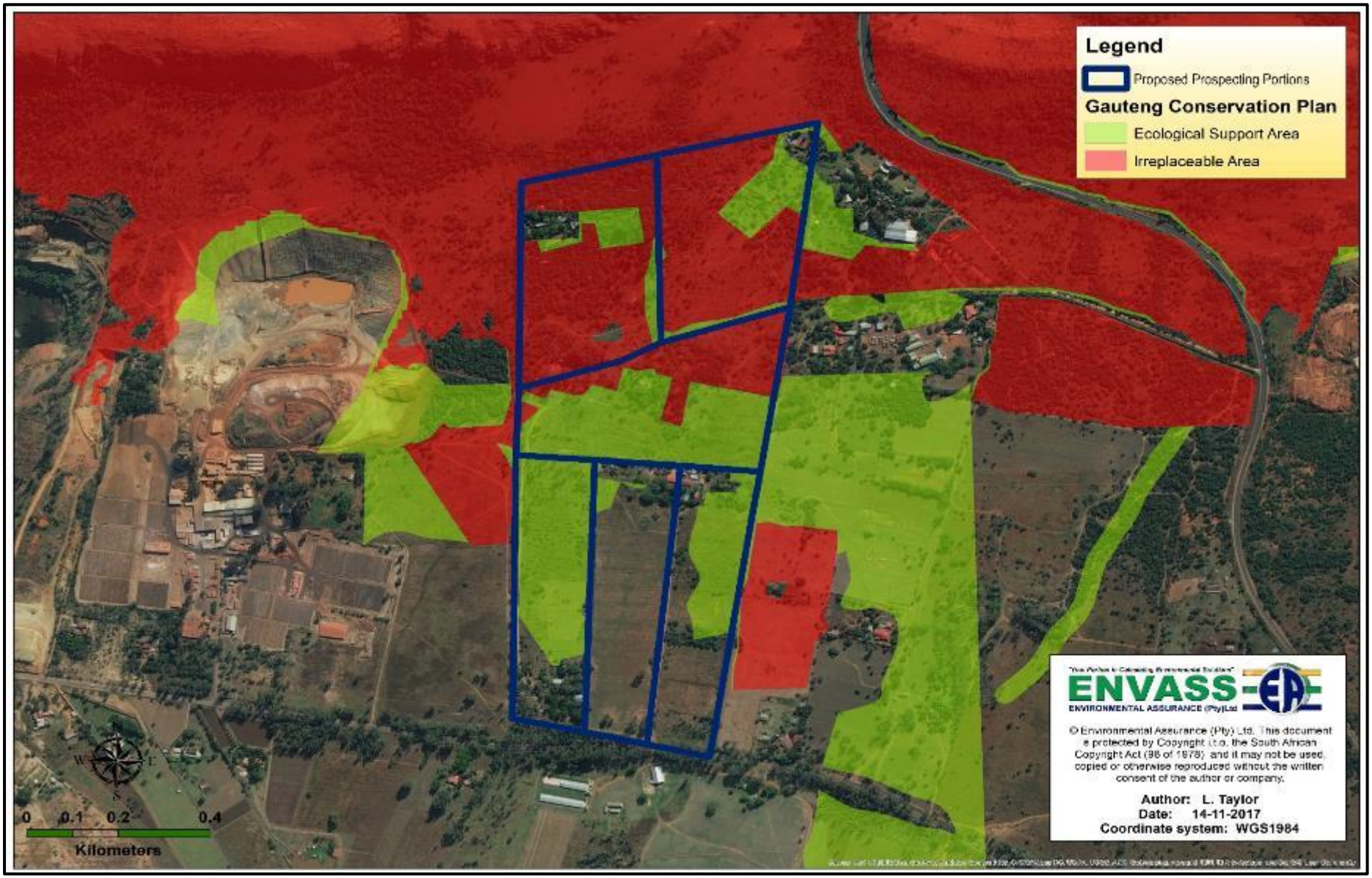


Figure 19: Sensitivity Status of the area according to the Gauteng C-plan.

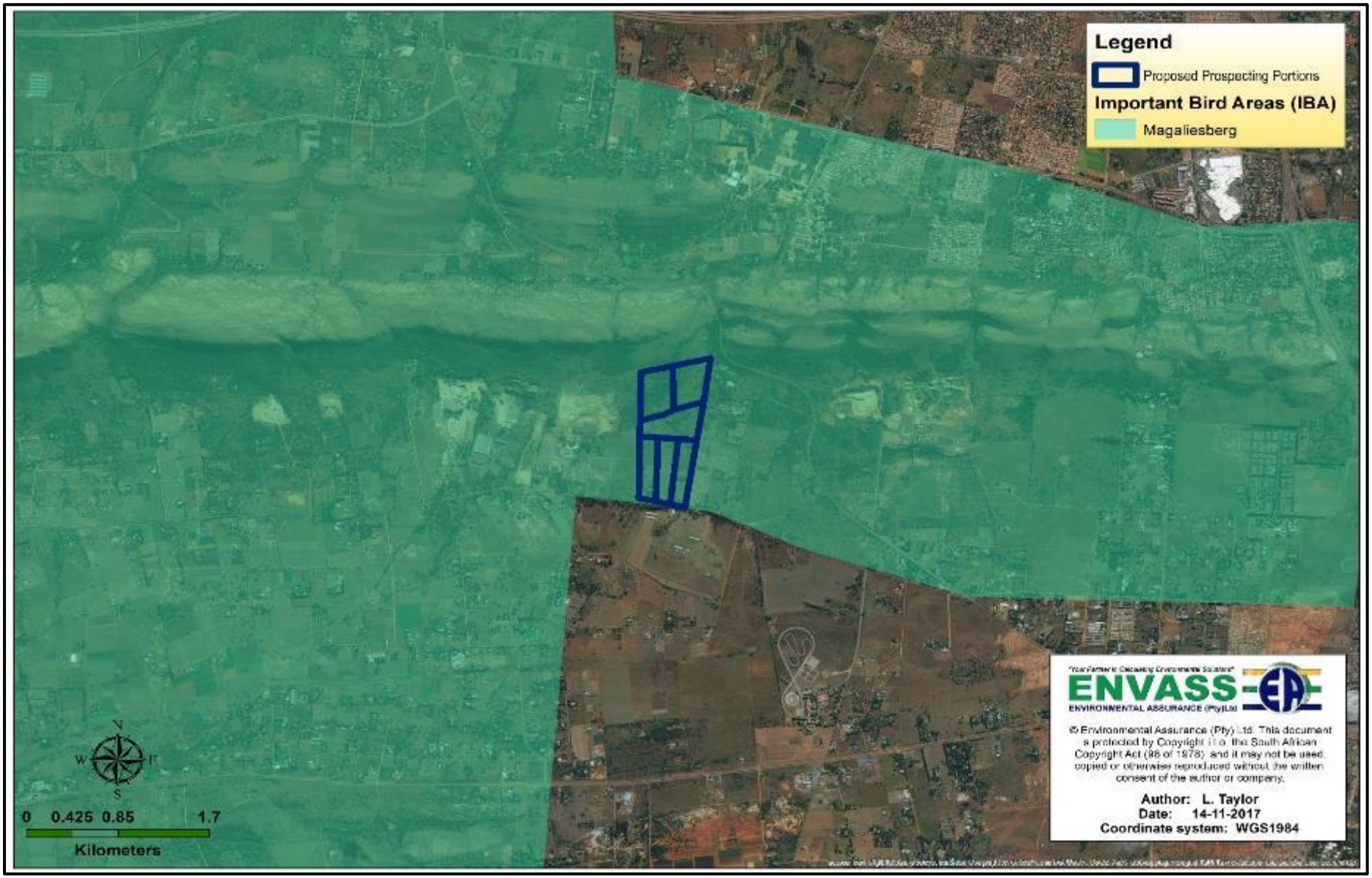


Figure 20: Important Bird Areas (IBAs) associated with the Proposed Prospecting Site.

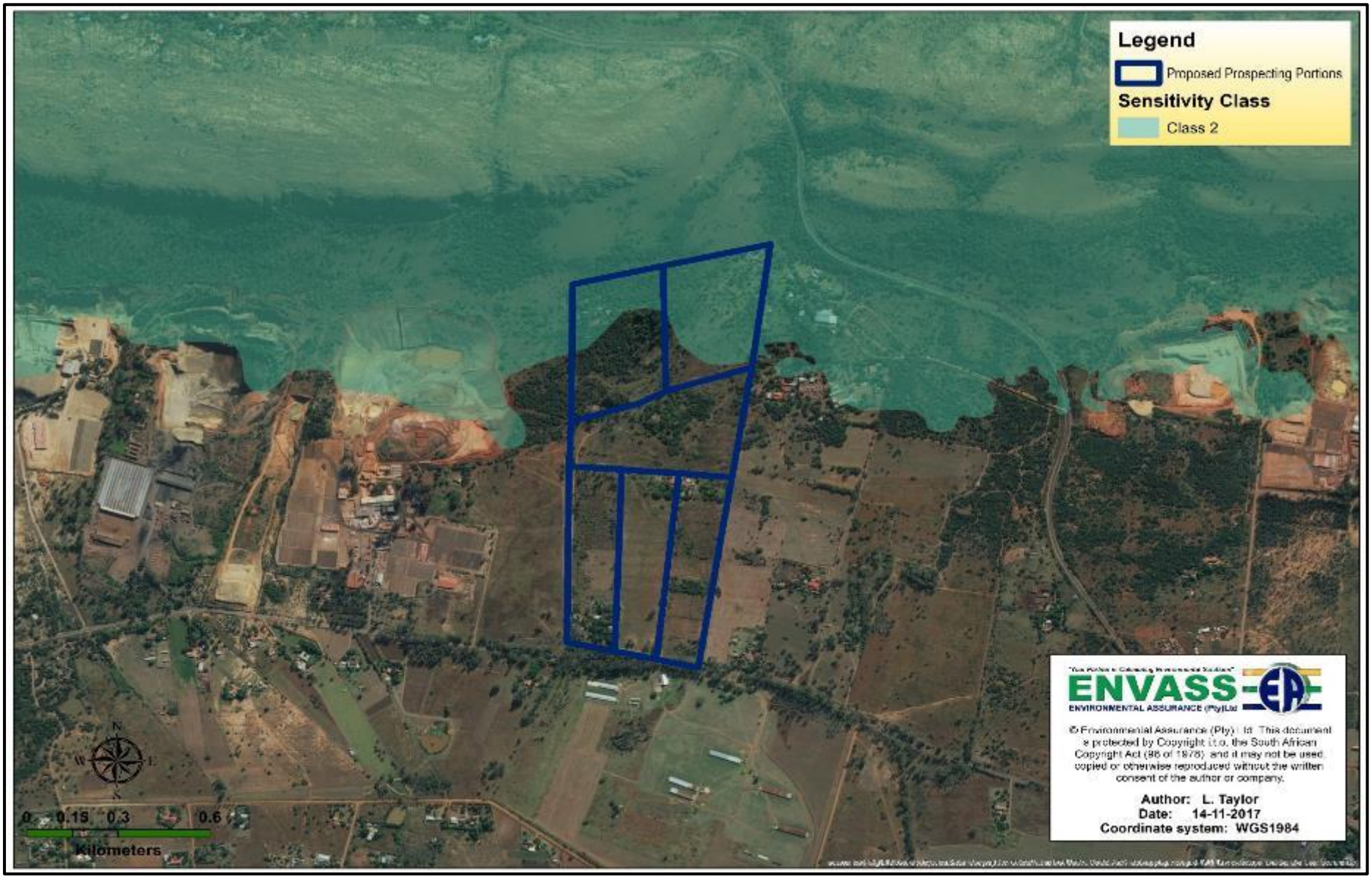


Figure 21: Ridge Sensitivity of the Proposed Prospecting Site and Surrounding Areas.

5. RESULTS

The field assessment took place on the 20th of November 2017. The state of habitat on site was found to be mostly natural, with some alien and invasive vegetation present. The site, especially towards the northern portions provide valuable shelter for animals. This section provides the findings of the various methodologies utilised during the assessment.

5.1. Wetland Delineation and Assessment

No wetlands or associated watercourses are present on the study area.

5.2. Ecological Assessment

5.2.1. Vegetation

The entire proposed mining site falls within the Moot Plains Bushveld vegetation type (Refer to **Figure 17**) which is classified as Vulnerable. The vegetation is predominantly natural with some houses present and a few roads and footpaths. Situated immediately north of the study site, is the Magaliesberg Protected Natural Environment. This area is protected, providing habitat to various faunal species of conservation concern.

Table 5: Description of the Vegetation Type Specific to the Study Area

Vegetation Type	Moot Plains Bushveld
Status	Vulnerable
Conservation Priority	High
Species Richness	Medium
Sensitivity	High
Need for Rehabilitation	Medium
Red Data Species	*Xerophyta adendorffii* Behnke – Vulnerable (VU)

5.2.2. Floral Assessment

Eleven (11) species of Alien and Invasive vegetation were recorded in the study area (**Table 7**). A full list of plant species identified during the assessment is presented in **Table 6**:

Table 6: Plant Species Recorded within the Study Area (SANBI 2017)

Plant Species	Alien and Invasive Species	Indigenous	Red List of Plants
Agave americana	X		
Agave sisalana	X		
Aloe maculata		X	Least Concern (LC)
Aloe marlothii		X	Least Concern (LC)
Ammi majus		X	Least Concern (LC)
Asparagus africanus		X	Least Concern (LC)
Campuloclinium macrocephalum	X		
Cereus jamacaru	X		
Convolvulus farinosus		X	Least Concern (LC)
Dimorphotheca jucunda		X	Least Concern (LC)
Echinopsis spachiana		X	Least Concern (LC)
Eucalyptus grandis	X		
Harrisia martinii	X		
Hypoxis rigidula		X	Least Concern (LC)
Jacaranda mimosifolia	X		
Lantana camara	X		
Leonotis ocymifolia		X	Least Concern (LC)
Melenis repens		X	Least Concern (LC)
Opuntia ficus-indica	X		
Pennisetum setaceum	X		
Phragmites australis		X	Least Concern (LC)
Pinus pinaster	X		
Scaevola plumieri		X	Least Concern (LC)
Searsia lancea		X	Least Concern (LC)
Senecio ilicifolius		X	Least Concern (LC)
Solanum elaeagnifolium	X		
Tagetes minuta		X	Least Concern (LC)
Vachellia karroo		X	Least Concern (LC)
Verbena bonariensis	X		

Category 1 a & b NEMBA invasive species and the removal of these plants are **compulsory** in terms of the regulations formulated under the, National Environmental Management: Biodiversity Act 2004 (act no. 10 of 2004) Alien and Invasive Species Regulations, 2014, as amended. Alien Invasive Plant infestation on site, could become a problem if not management accordingly.

Table 7: Alien Invasive Species Observed on Site

Plant Species	Common Name	Category (GNR-864 Alien and Invasive Species Lists, 2016)
Agave americana	Spreading century-plant	a. 3 in Western Cape b. Not listed elsewhere.
Agave sisalana	Sisal hemp, Sisal	2
Campuloclinium macrocephalum	Pompom Weed	1b
Cereus jamacaru	Queen of the night	1b
Eucalyptus grandis	Saligna gum, Rose gum	a. Category 1b within- i. riparian areas; ii. a Protected Area declared in terms of the Protected iii. Areas Act; or, iv. within a Listed Ecosystem or an ecosystem identified for conservation in terms of a Bioregional Plan or Biodiversity Management Plans published under the Act. b. Not listed within Nama-Karoo, Succulent Karoo and Desert biomes, excluding within any area mentioned in (a) above. c. Category 1b in Fynbos, Grassland, Savanna, Albany Thicket, Forest and Indian Ocean Coastal Belt biomes, but- i. Category 2 for plantations, woodlots, bee-forage areas, wind-rows and the lining of avenues. ii. Not listed within cultivated land that is at least 50 metres away from untransformed land, but excluding within any area in (a) above. iii. Not listed within 50 metres of the main house on a farm, but excluding in (a) above. iv. Not listed in urban areas for trees with a diameter of more than 400 mm at 1000 mm height at the time of publishing of this Notice, but excluding in (a) above.
Harrisia martinii	Moon cactus	1b
Jacaranda mimosifolia	Jacaranda	a. 1b in Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga and North-West.

Plant Species	Common Name	Category (GNR-864 Alien and Invasive Species Lists, 2016)
		b. Not listed for urban areas in Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga and North-West. b. Not listed within 50 metres of the main house on a farm in Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga and North-West, for trees with a diameter of more than 400 mm at 1000mm height at the time of publishing of this Notice, provided such tress are located outside riparian areas. c. d. Not listed elsewhere.
Lantana camara	Lantana, Tickberry, Cherry pie	1b
Opuntia ficus-indica	Mission prickly pear, Sweet prickly pear	a. 1b b. Spineless cactus pear cultivars and selections are not listed. c. The fruit of the sweet prickly pear is not listed if used for human consumption.
Pennisetum setaceum	Fountain grass	a. 1b b. Sterile cultivars or hybrids are not listed.
Pinus pinaster	Cluster pine	a. 2 for plantations and wind-rows. b. 1b elsewhere. c. National Heritage Trees or National Monument Trees in terms of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), are not listed. d. Except for "a" above, specimens with a circumference greater than 1.256 m at a height of 1000 mm at the date of publication of this Notice are not listed for urban areas in Cape Town, the Overberg District Council and Winelands District Council, except when in riparian areas or in a protected area or any property directly abutting a protected area, where they remain listed as Category 1b.
Solanum elaeagnifolium	Silver-leaf bitter apple	1b
Verbena bonariensis	Wild verbena, Tall verbena, Purple top	1b

5.3. Faunal Assessment

The most transformed areas are comprised of homesteads and roads. Based on the predominantly natural state of the study area, various vegetation suitable as faunal habitats were observed, especially towards the northern region of the site. Various bird fauna diversity was observed on the day of the assessment. The area of concern has the correct attributes to successfully house a variety of animal species, especially in the northern woodland area. Free species migration is possible, even though some habitat fragmentation occurs.

5.3.1. Mammals

Table 8 lists all the mammal species of conservation concern which could possibly occur on the study site in the Gauteng Province – several of these species have the potential to occur on site, especially on the northern region of the site due to its location next to the Magaliesberg Nature Area and the natural state of this part of the study area.

Table 8: List of Threatened Mammals Possibly Occurring on Site (IUCN, 2017)

Species	Red Listed Status	Recorded at Site During Survey	Likely to be Found Based on Habitat Assessment
Felis nigripes **Black-Footed Cat**	Vulnerable (VU)	No	**Yes**
Panthera pardus **Leopard**	Vulnerable (VU)	No	No
Aonyx capensis **African Clawless Otter**	Near Threatened (NT)	No	No
Hydrictis maculicollis **Spotted-Necked Otter**	Near Threatened (NT)	No	No
Ceratotherium simum **White Rhinoceros**	Near Threatened (NT)	No	No
Parahyaena brunnea **Brown Hyena**	Near Threatened (NT)	No	**Yes**
Equus quagga **Plains Zebra**	Near Threatened (NT)	No	No
Eidolon helvum **Straw-Coloured Fruit Bat**	Near Threatened (NT)	No	**Yes**
Mystromys albicaudatus **White-Tailed Rat**	Endangered (EN)	No	**Yes**
Diceros bicornis **Black Rhinoceros**	Critically Endangered (CR)	No	No
Chrysospalax villosus **Rough-haired Golden Mole**	Vulnerable (VU)	No	**Yes**
Neamblysomus julianae **Juliana's Golden Mole**	Endangered (EN)	No	**Yes**
Giraffa Camelopardalis **Giraffe**	Vulnerable (VU)	No	No

* All other species which could possibly occur are of Least Concern (LC)

5.3.2. Herpetofauna

The local occurrences of reptiles and amphibians are closely dependent on broadly defined habitat types, in particular terrestrial, arboreal (tree-living), rupiculous (rock dwelling) and wetland-associated vegetation cover. Three of these habitat types for Herpetofauna were present, namely, terrestrial, arboreal and rupiculuous habitat. The presence or absence of reptile and amphibian species was deduced based on their known distribution ranges. No individuals of Herpetofauna were recorded on the day of the assessment. **Table 9** lists all species of Herpetofauna which could possibly occur on the study site. All species are of Least Concern (LC).

Table 9: List of Threatened Herpetofauna Possibly Occurring on Site (IUCN, 2017)

Species	Red Listed Status
Amphibians	
Tomopterna cryptotis **Common Sand Frog**	Least Concern (LC)
Tomopterna tandyi **Tandy's Sand Frog**	Least Concern (LC)
Tomopterna natalensis **Natal Sand Frog**	Least Concern (LC)
Strongylopus fasciatus **Striped Stream Frog, Striped Grass Frog**	Least Concern (LC)
Pyxicephalus adspersus **African Bullfrog**	Least Concern (LC)
Amietia angolensis **Angola River Frog**	Least Concern (LC)
Xenopus laevis **African Clawed Frog**	Least Concern (LC)
Phrynobatrachus natalensis **Natal Dwarf Puddle Frog**	Least Concern (LC)
Cacosternum boettgeri **Boettger's Dainty Frog**	Least Concern (LC)
Breviceps adspersus	Least Concern (LC)
Semnodactylus wealii **Weale's Running Frog**	Least Concern (LC)
Kassina senegalensis **Senegal Running Frog**	Least Concern (LC)
Sclerophrys capensis	Least Concern (LC)
Sclerophrys gutturalis **Guttural Toad**	Least Concern (LC)
Sclerophrys garmani **Eastern Olive Toad**	Least Concern (LC)

Poyntonophrynus fenoulheti **Fenoulhet's Toad, Northern Pygmy Toad**	Least Concern (LC)
Phrynomantis bifasciatus **Banded Rubber Frog**	Least Concern (LC)
Schismaderma carens **African Red Toad**	Least Concern (LC)
Ptychadena porosissima **Ridged Frogs & Grass Frogs**	Least Concern (LC)
Sclerophrys poweri	Least Concern (LC)
Ptychadena anchietae **Anchieta's Ridged Frog**	Least Concern (LC)
Pyxicephalus adspersus **Giant Bullfrog**	Least Concern (LC)
Reptiles	
Chamaeleo dilepis **Flap-Necked Chameleon**	Least Concern (LC)
Afroedura nivaria **Drakensberg Flat Gecko**	Least Concern (LC)
Lamprophis aurora **Aurora House Snake**	Least Concern (LC)
Acontias gracilicauda **Slendertail Lance Skink**	Least Concern (LC)
Trachylepis punctatissima **Montane Speckled Skink**	Least Concern (LC)
Aparallactus capensis **Cape Centipede-Eater**	Least Concern (LC)
Prosymna ambigua **Angolan Shovel-Snout**	Least Concern (LC)
Psammophis subtaeniatus **Western Stripe-Bellied Sand Snake**	Least Concern (LC)
Psammophylax tritaeniatus **Striped Skaapsteker, Striped or Three-Lined Grass Snake**	Least Concern (LC)
Dasypeltis scabra **Common Egg Eater**	Least Concern (LC)
Philothamnus semivariegatus **Spotted Bush Snake**	Least Concern (LC)
Hemachatus haemachatus **Rinkhals**	Least Concern (LC)
Bitis arietans **Puff Adder**	Least Concern (LC)
Dendroaspis polylepis **Black Mamba**	Least Concern (LC)

5.3.3. Avifauna

The avifaunal species listed in **Table 10** are the species of conservation concern that are likely to occur on the study site. Refer to Annexure A for a full list containing all avifaunal species likely to occur on the study site. Approximately 370 potential bird species occur within the area, however none of the species of conservation concern were recorded on site. The bird species observed on the study site are the more common bird species associated with the various habitat systems and species that are able to adapt to areas transformed by man. However, the habitat systems on site will favour many of the mentioned Red Data avifaunal species due to the presence of suitable breeding, roosting and/or foraging habitat on and surrounding the study site and its close proximity to the Magaliesberg Nature Area, all forming part of the Magaliesberg IBA.

Table 10: Threatened Bird Species That Are Likely to Occur on Site (Birdlife SA 2017; IUCN 2017)

Species	Conservation Status		Recorded at Site During Survey
	Birdlife (2017)	IUCN (2017)	
Anthropoides paradiseus **Blue Crane**	Near Threatened (NT)	Vulnerable (VU)	No
Aquila rapax **Tawny Eagle**	Endangered (EN)	Least Concern (LC)	No
Aquila verreauxii **Verreaux's Eagle**	Vulnerable (VU)	Least Concern (LC)	No
Falco biarmicus **Lanner Falcon**	Vulnerable (VU)	Least Concern (LC)	No
Falco vespertinus **Red-footed Falcon**	Near Threatened (NT)	Near Threatened (NT)	No
Phoenicopterus roseus **Greater Flamingo**	Near Threatened (NT)	Least Concern (LC)	No
Alcedo semitorquata **Half-coloured Kingfisher**	Near Threatened (NT)	Least Concern (LC)	No
Certhilauda brevirostris **Agulhas Long-billed Lark**	Near Threatened (NT)	Not Recognised by BirdLife International (NR)	No
Circus ranivorus **African Marsh Harrier**	Endangered (EN)	Least Concern (LC)	No
Rostratula benghalensis **Grater Painted Snipe**	Near Threatened (NT)	Least Concern (LC)	No
Coracias garrulous **European Roller**	Near Threatened (NT)	Least Concern (LC)	No
Calidris ferruginea **Curlew Sandpiper**	Least Concern (LC)	Near Threatened (NT)	No
Sagittarius serpentarius **Secretary Bird**	Vulnerable (VU)	Vulnerable (VU)	No
Ciconia abdimii **Abdim's Stork**	Near Threatened (NT)	Least Concern (LC)	No

Ciconia nigra **Black Stork**	Vulnerable (VU)	Least Concern (LC)	No
Mycteria ibis **Yellow-Billed Stork**	Endangered (EN)	Least Concern (LC)	No
Leptoptilos crumeniferus **Marabou Stork**	Near Threatened (NT)	Least Concern (LC)	No
Gyps coprotheres **Cape Vulture**	Endangered (EN)	Endangered (EN)	No

6. CONCLUSION & RECOMMENDATIONS

This report focuses on the current ecological state of the area where the proposed site for future prospecting rights are located. The report makes recommendations on how best to preserve current facets of ecological importance, as observed during the assessment. It is consequently not to be seen as an impact assessment or audit report, but an objective baseline study of the ecology of the site.

The study site is situated within a sensitive environment, including in close proximity to the Magaliesberg Protected Natural Environment which is protected under the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003). In terms of the Gauteng Conservation Plan, certain areas of the study site are classified as Irreplaceable, and others are identified as Ecological Support Areas. The study site is also situated within the Magaliesberg Important Bird Area (IBA). And the northern section of the study site is situated on a Class 2 Ridge area.

The results of this study indicate that the study area is deemed sensitive, due to the current state of the site and its location. Portion 36 and Portion 37 seems to be the most sensitive, the northern sites. Several Red Data mammals and avifauna probably occur on or in the vicinity of the site. Long-term impacts can be severe.

Key Recommendations:

- Care must be taken to reduce impacts on the adjacent properties through the implementation of all the mitigation measures proposed by the specialists;
- No vegetation clearance except for the removal of alien invasive species will be allowed;
- An Alien and Invasive Species Management Plan must be implemented;
- Alien and weed species encountered on the property should be removed in order to comply with existing legislation (National Environmental Management: Biodiversity Act 2004 (act no. 10 of 2004) [as amended in 2014] alien and invasive species regulations, 2014);
- All remaining indigenous vegetation should be conserved where possible;
- A suitably qualified specialist (ecologist) to accompany the site manager to demarcate areas for prospecting, in order to avoid damaging sensitive vegetation;
- Only vegetation falling directly into demarcated access routes or project sites should be removed
- Strict management of clean and dirty water systems needs to be undertaken in line with Government Notice Regulation 704 of the National Water Act to prevent impacts on the surrounding area. This is to prevent established ecosystems, whether microbial or visible, to degenerate due to contaminated water entering surface or groundwater sources.

- Should any sensitive or Red Data animal or bird species be encountered during the construction, operation and decommissioning activities, these should be relocated to natural areas in the vicinity. Any sensitive fauna that are inadvertently killed during earthmoving operations should be preserved as museum voucher specimens.
- Reduce the levels of disturbance on areas indicated by the Environmental Control Officer (ECO) as migratory routes of animals to minimise the negative impact on biodiversity;
- Environmental awareness training should include that no hunting, trapping or killing of fauna are allowed;
- Any lizards, snakes or monitors encountered should be allowed to escape to a suitable habitat away from disturbance;
- No animal should be intentionally killed, caught or collected during any phase of the project;
- General avoidance of snakes is the best policy if encountered. Snakes should not be intentionally harmed or killed and allowed free movement away from the area;
- According to the Departmental Policy: Development Guidelines for Ridges (2001), a 200m buffer zone is required around class 2 ridges (**Refer to Figure 22**). Development proposals within the buffer zone should proceed at least to EIA stage;
- Any stormwater cut-off channels should be kept as a natural as possible with gentle slopes (angle 45°or less) on the side away from the prospecting activities. These channels should enable, small animals, reptiles and amphibians which have fallen into the channel accidently to escape easily. If not, they could drown if the channels contain water or they may die of exposure when the channels are dry;
- For the safety of the animals it is not so much the width and depth of a drainage/storm water channel that are important, but the shape. If it has curved, smooth walls the animals that have fallen in will find it impossible to obtain purchase and will slip back time and time again and fall to the bottom of the channel. The channel must be designed in such a way as to prevent the smaller creatures from blundering in and dying. Safety features that could be incorporated into the drainage/storm water channel are the use of rough surfaces and rocks to allow trapped animals purchase, less curvature on the walls, a “step” in the slope of the wall and a “lip” along the edges of the channel which would either act as a deterrent to small animals or as an absolute physical barrier;
- Measures to prevent erosion should be implemented during all phases;
- During the Rehabilitation Phase, the following should be implemented:
    - All areas should be reshaped and levelled to resemble the pre-construction environment as far as possible.
    - All disturbed areas should be revegetated during the rehabilitation phase.
    - Re-profiling and sloping of areas at risk of erosion and incision as a result of construction activities should take place in order to maintain the ecological functionality of the area.

After conclusion of this Baseline Ecological Scan, it is the opinion of the ecologists that Portions 38, 39, 40 and 41 be utilised for prospecting activities. The northern portions (Portion 36 and 37) were found to be very sensitive and should preferably be excluded from physical prospecting activities. If the Competent Authority allows prospecting to take place on Portions 36 and 37, all recommendations should strictly be adhered to and a suitably qualified specialist (Ecologist) should accompany the Site Manager to demarcate areas for prospecting, in order to avoid damaging sensitive vegetation as identified during the specialist study and according to the sensitivity maps provided in this report. All activities taking place during the prospecting phases should be documented and the area rehabilitated to its natural state.

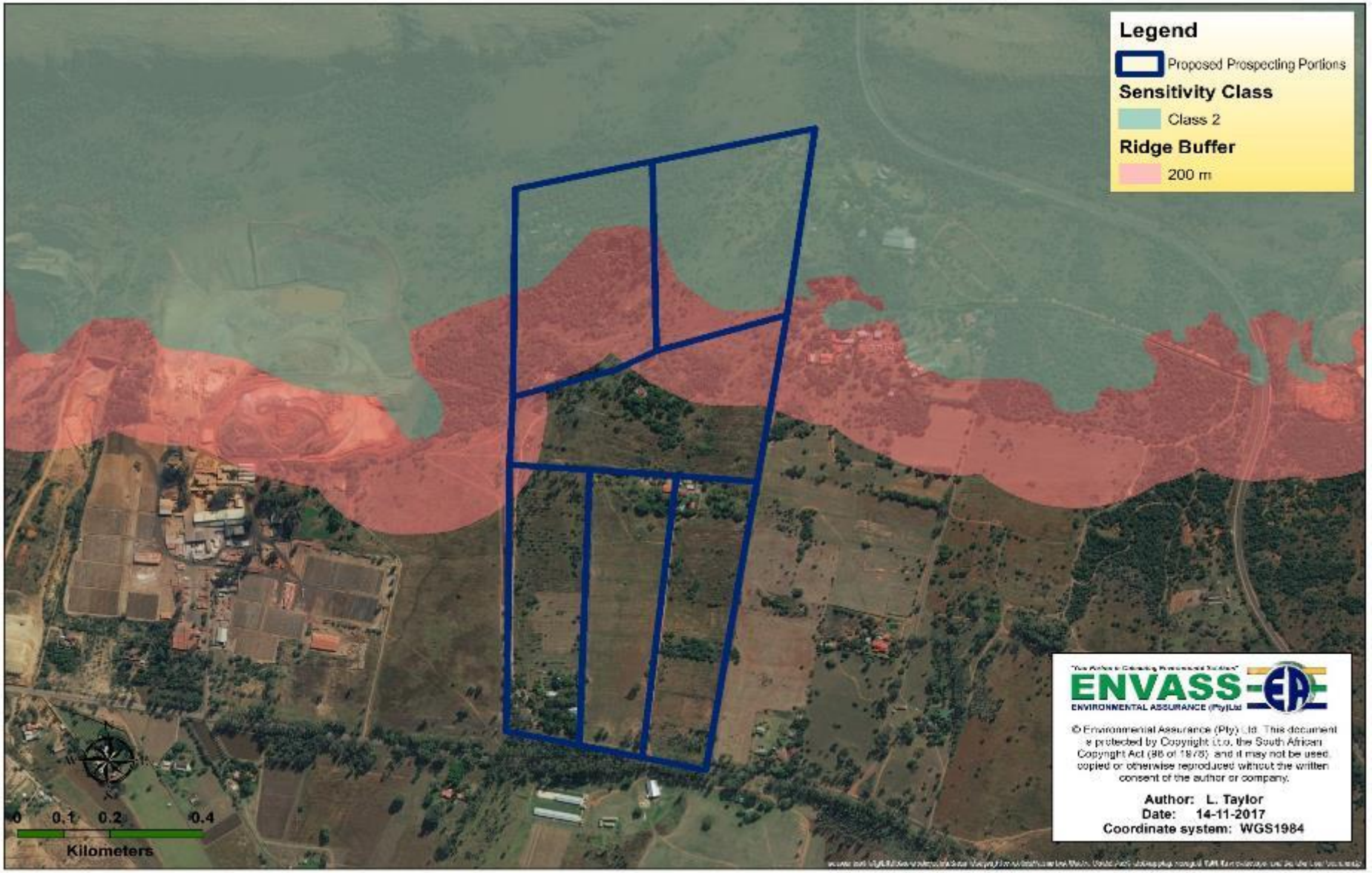


Figure 22: Proposed Ridge Buffer within the study site and surrounds.

Respectfully submitted,

L. Taylor

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Annexure A

List of Bird Species Possibly to Occur on the Study Area (SABAP2, 2017)

Nr.	Scientific Name	Common Name	Conservation Status	
			Birdlife (2017)	IUCN (2017)
1	Apalis, Bar-throated	*Apalis thoracica*		
2	Avocet, Pied	*Recurvirostra avosetta*		
3	Babbler, Arrow-marked	*Turdoides jardineii*		
4	Barbet, Acacia Pied	*Tricholaema leucomelas*		
5	Barbet, Black-collared	*Lybius torquatus*		
6	Barbet, Crested	*Trachyphonus vaillantii*		
7	Batis, Chinspot	*Batis molitor*		
8	Bee-eater, Blue-cheeked	*Merops persicus*		
9	Bee-eater, European	*Merops apiaster*		
10	Bee-eater, Little	*Merops pusillus*		
11	Bee-eater, Southern Carmine	*Merops nubicoides*		
12	Bee-eater, White-fronted	*Merops bullockoides*		
13	Bishop, Southern Red	*Euplectes orix*		
14	Bishop, Yellow	*Euplectes capensis*		
15	Bishop, Yellow-crowned	*Euplectes afer*		
16	Bittern, Dwarf	*Ixobrychus sturmii*		
17	Bokmakierie, Bokmakierie	*Telophorus zeylonus*		
18	Boubou, Southern	*Laniarius ferrugineus*		
19	Brubru, Brubru	*Nilaus afer*		
20	Buffalo-weaver, Red-billed	*Bubalornis niger*		
21	Bulbul, African Red-eyed	*Pycnonotus nigricans*		
22	Bulbul, Dark-capped	*Pycnonotus tricolor*		
23	Bunting, Cape	*Emberiza capensis*		
24	Bunting, Cinnamon-breasted	*Emberiza tahapisi*		
25	Bunting, Golden-breasted	*Emberiza flaviventris*		
26	Bush-shrike, Grey-headed	*Malaconotus blanchoti*		
27	Bush-shrike, Orange-breasted	*Chlorophoneus sulfureopectus*		
28	Buttonquail, Kurrichane	*Turnix sylvaticus*		
29	Buzzard, Jackal	*Buteo rufofuscus*		
30	Buzzard, Lizard	*Kaupifalco monogrammicus*		
31	Buzzard, Steppe	*Buteo buteo*		
32	Camaroptera, Green-backed	*Camaroptera brachyura*		
33	Camaroptera, Grey-backed	*Camaroptera brevicaudata*		
34	Canary, Black-throated	*Crithagra atrogularis*		
35	Canary, Yellow-fronted	*Crithagra mozambica*		
36	Chat, Anteating	*Myrmecocichla formicivora*		

37	Chat, Familiar	*Cercomela familiaris*		
38	Cisticola, Cloud	*Cisticola textrix*		
39	Cisticola, Desert	*Cisticola aridulus*		
40	Cisticola, Lazy	*Cisticola aberrans*		
41	Cisticola, Levaillant's	*Cisticola tinniens*		
42	Cisticola, Rattling	*Cisticola chiniana*		
43	Cisticola, Wailing	*Cisticola lais*		
44	Cisticola, Wing-snapping	*Cisticola ayresii*		
45	Cisticola, Zitting	*Cisticola juncidis*		
46	Cliff-chat, Mocking	*Thamnolaea cinnamomeiventris*		
47	Cliff-swallow, South African	*Petrochelidon spilodera*		
48	Coot, Red-knobbed	*Fulica cristata*		
49	Cormorant, Reed	*Phalacrocorax africanus*		
50	Cormorant, White-breasted	*Phalacrocorax lucidus*		
51	Coucal, Burchell's	*Centropus burchellii*		
52	Coucal, White-browed	*Centropus superciliosus*		
53	Courser, Temminck's	*Cursorius temminckii*		
54	Crake, African	*Crecopsis egregia*		
55	Crake, Black	*Amaurornis flavirostra*		
56	Crane, Blue	*Anthropoides paradiseus*	NT	VU
57	Crombec, Long-billed	*Sylvietta rufescens*		
58	Crow, Cape	*Corvus capensis*		
59	Crow, Pied	*Corvus albus*		
60	Cuckoo, African	*Cuculus gularis*		
61	Cuckoo, Black	*Cuculus clamosus*		
62	Cuckoo, Diderick	*Chrysococcyx caprius*		
63	Cuckoo, Great Spotted	*Clamator glandarius*		
64	Cuckoo, Jacobin	*Clamator jacobinus*		
65	Cuckoo, Klaas's	*Chrysococcyx klaas*		
66	Cuckoo, Levaillant's	*Clamator levaillantii*		
67	Cuckoo, Red-chested	*Cuculus solitarius*		
68	Cuckoo-shrike, Black	*Campephaga flava*		
69	Darter, African	*Anhinga rufa*		
70	Dove, Laughing	*Streptopelia senegalensis*		
71	Dove, Namaqua	*Oena capensis*		
72	Dove, Red-eyed	*Streptopelia semitorquata*		
73	Dove, Rock	*Columba livia*		
74	Drongo, Fork-tailed	*Dicrurus adsimilis*		
75	Duck, African Black	*Anas sparsa*		
76	Duck, Comb	*Sarkidiornis melanotos*		
77	Duck, Fulvous	*Dendrocygna bicolor*		
78	Duck, Mallard	*Anas platyrhynchos*		

79	Duck, White-backed	*Thalassornis leuconotus*		
80	Duck, White-faced	*Dendrocygna viduata*		
81	Duck, Yellow-billed	*Anas undulata*		
82	Eagle, Booted	*Hieraaetus pennatus*		
83	Eagle, Tawny	*Aquila rapax*	EN	LC
84	Eagle, Verreaux's	*Aquila verreauxii*	VU	LC
85	Eagle, Wahlberg's	*Hieraaetus wahlbergi*		
86	Eagle-owl, Spotted	*Bubo africanus*		
87	Eagle-owl, Verreaux's	*Bubo lacteus*		
88	Egret, Cattle	*Bubulcus ibis*		
89	Egret, Great	*Egretta alba*		
90	Egret, Little	*Egretta garzetta*		
91	Egret, Yellow-billed	*Ardea intermedia*		
92	Eremomela, Burnt-necked	*Eremomela usticollis*		
93	Eremomela, Yellow-bellied	*Eremomela icteropygialis*		
94	Falcon, Amur	*Falco amurensis*		
95	Falcon, Lanner	*Falco biarmicus*	VU	LC
96	Falcon, Peregrine	*Falco peregrinus*		
97	Falcon, Red-footed	*Falco vespertinus*	NT	NT
98	Finch, Cuckoo	*Anomalospiza imberbis*		
99	Finch, Cut-throat	*Amadina fasciata*		
100	Finch, Red-headed	*Amadina erythrocephala*		
101	Finch, Scaly-feathered	*Sporopipes squamifrons*		
102	Firefinch, African	*Lagonosticta rubricata*		
103	Firefinch, Jameson's	*Lagonosticta rhodopareia*		
104	Firefinch, Red-billed	*Lagonosticta senegala*		
105	Fiscal, Common (Southern)	*Lanius collaris*		
106	Fish-eagle, African	*Haliaeetus vocifer*		
107	Flamingo, Greater	*Phoenicopterus roseus*	NT	LC
108	Flufftail, Red-chested	*Sarothrura rufa*		
109	Flycatcher, Fairy	*Stenostira scita*		
110	Flycatcher, Fiscal	*Sigelus silens*		
111	Flycatcher, Marico	*Bradornis mariquensis*		
112	Flycatcher, Pale	*Bradornis pallidus*		
113	Flycatcher, Southern Black	*Melaenornis pammelaina*		
114	Flycatcher, Spotted	*Muscicapa striata*		
115	Francolin, Coqui	*Peliperdix coqui*		
116	Francolin, Crested	*Dendroperdix sephaena*		
117	Francolin, Orange River	*Scleroptila gutturalis*		
118	Francolin, Shelley's	*Scleroptila shelleyi*		
119	Go-away-bird, Grey	*Corythaixoides concolor*		
120	Goose, Domestic	*Anser anser*		

121	Goose, Egyptian	*Alopochen aegyptiaca*
122	Goose, Spur-winged	*Plectropterus gambensis*
123	Goshawk, Gabar	*Melierax gabar*
124	Goshawk, Southern Pale Chanting	*Melierax canorus*
125	Grassbird, Cape	*Sphenoeacus afer*
126	Grebe, Great Crested	*Podiceps cristatus*
127	Grebe, Little	*Tachybaptus ruficollis*
128	Green-pigeon, African	*Treron calvus*
129	Greenshank, Common	*Tringa nebularia*
130	Guineafowl, Helmeted	*Numida meleagris*
131	Gull, Grey-headed	*Chroicocephalus cirrocephalus*
132	Hamerkop, Hamerkop	*Scopus umbretta*
133	Harrier-Hawk, African	*Polyboroides typus*
134	Hawk-eagle, African	*Aquila spilogaster*
135	Hawk-eagle, Ayres's	*Aquila ayresii*
136	Helmet-shrike, White-crested	*Prionops plumatus*
137	Heron, Black	*Egretta ardesiaca*
138	Heron, Black-headed	*Ardea melanocephala*
139	Heron, Goliath	*Ardea goliath*
140	Heron, Green-backed	*Butorides striata*
141	Heron, Grey	*Ardea cinerea*
142	Heron, Purple	*Ardea purpurea*
143	Heron, Squacco	*Ardeola ralloides*
144	Hobby, Eurasian	*Falco subbuteo*
145	Honey-buzzard, European	*Pernis apivorus*
146	Honeybird, Brown-backed	*Prodotiscus regulus*
147	Honeyguide, Greater	*Indicator indicator*
148	Honeyguide, Lesser	*Indicator minor*
149	Hoopoe, African	*Upupa africana*
150	Hornbill, African Grey	*Tockus nasutus*
151	Hornbill, Damara	*Tockus damarensis*
152	Hornbill, Hybrid Damara/Red-billed	*Tockus damarensis/erythrorhynchus*
153	Hornbill, Red-billed	*Tockus rufirostris*
154	Hornbill, Southern Yellow-billed	*Tockus leucomelas*
155	House-martin, Common	*Delichon urbicum*
156	Ibis, African Sacred	*Threskiornis aethiopicus*
157	Ibis, Glossy	*Plegadis falcinellus*
158	Ibis, Hadeda	*Bostrychia hagedash*
159	Indigobird, Dusky	*Vidua funerea*
160	Indigobird, Purple	*Vidua purpurascens*

161	Indigobird, Village	*Vidua chalybeata*		
162	Jacana, African	*Actophilornis africanus*		
163	Kestrel, Greater	*Falco rupicoloides*		
164	Kestrel, Lesser	*Falco naumanni*		
165	Kestrel, Rock	*Falco rupicolus*		
166	Kingfisher, Brown-hooded	*Halcyon albiventris*		
167	Kingfisher, Giant	*Megaceryle maxima*		
168	Kingfisher, Half-collared	*Alcedo semitorquata*	NT	LC
169	Kingfisher, Malachite	*Alcedo cristata*		
170	Kingfisher, Pied	*Ceryle rudis*		
171	Kingfisher, Striped	*Halcyon chelicuti*		
172	Kingfisher, Woodland	*Halcyon senegalensis*		
173	Kite, Black	*Milvus migrans*		
174	Kite, Black	*Milvus migrans*		
175	Kite, Black-shouldered	*Elanus caeruleus*		
176	Kite, Yellow-billed	*Milvus aegyptius*		
177	Korhaan, Northern Black	*Afrotis afraoides*		
178	Korhaan, Red-crested	*Lophotis ruficrista*		
179	Lapwing, African Wattled	*Vanellus senegallus*		
180	Lapwing, Blacksmith	*Vanellus armatus*		
181	Lapwing, Crowned	*Vanellus coronatus*		
182	Lark, Agulhas Long-billed	*Certhilauda brevirostris*	NT	NR
183	Lark, Benguela Long-billed	*Certhilauda benguelensis*		
184	Lark, Cape Long-billed	*Certhilauda curvirostris*		
185	Lark, Eastern Long-billed	*Certhilauda semitorquata*		
186	Lark, Fawn-coloured	*Calendulauda africanoides*		
187	Lark, Flappet	*Mirafra rufocinnamomea*		
188	Lark, Karoo Long-billed	*Certhilauda subcoronata*		
189	Lark, Red-capped	*Calandrella cinerea*		
190	Lark, Rufous-naped	*Mirafra africana*		
191	Lark, Sabota	*Calendulauda sabota*		
192	Longclaw, Cape	*Macronyx capensis*		
193	Mannikin, Bronze	*Lonchura cucullata*		
194	Marsh-harrier, African	*Circus ranivorus*	EN	LC
195	Martin, Banded	*Riparia cincta*		
196	Martin, Brown-throated	*Riparia paludicola*		
197	Martin, Rock	*Hirundo fuligula*		
198	Martin, Sand	*Riparia riparia*		
199	Masked-weaver, Lesser	*Ploceus intermedius*		
200	Masked-weaver, Southern	*Ploceus velatus*		
201	Moorhen, Common	*Gallinula chloropus*		
202	Mousebird, Red-faced	*Urocolius indicus*		

203	Mousebird, Speckled	*Colius striatus*		
204	Mousebird, White-backed	*Colius colius*		
205	Myna, Common	*Acridotheres tristis*		
206	Neddicky, Neddicky	*Cisticola fulvicapilla*		
207	Night-Heron, Black-crowned	*Nycticorax nycticorax*		
208	Nightjar, Fiery-necked	*Caprimulgus pectoralis*		
209	Nightjar, Freckled	*Caprimulgus tristigma*		
210	Olive-pigeon, African	*Columba arquatrix*		
211	Oriole, Black-headed	*Oriolus larvatus*		
212	Oriole, Eurasian Golden	*Oriolus oriolus*		
213	Ostrich, Common	*Struthio camelus*		
214	Owl, Barn	*Tyto alba*		
215	Owl, Marsh	*Asio capensis*		
216	Owlet, Pearl-spotted	*Glaucidium perlatum*		
217	Painted-snipe, Greater	*Rostratula benghalensis*	NT	LC
218	Palm-swift, African	*Cypsiurus parvus*		
219	Paradise-flycatcher, African	*Terpsiphone viridis*		
220	Paradise-whydah, Long-tailed	*Vidua paradisaea*		
221	Parakeet, Rose-ringed	*Psittacula krameri*		
222	Parrot, Meyer's	*Poicephalus meyeri*		
223	Penduline-tit, Cape	*Anthoscopus minutus*		
224	Penduline-tit, Grey	*Anthoscopus caroli*		
225	Petronia, Yellow-throated	*Gymnoris superciliaris*		
226	Pigeon, Speckled	*Columba guinea*		
227	Pipit, African	*Anthus cinnamomeus*		
228	Pipit, Buffy	*Anthus vaalensis*		
229	Pipit, Long-billed	*Anthus similis*		
230	Pipit, Plain-backed	*Anthus leucophrys*		
231	Pipit, Striped	*Anthus lineiventris*		
232	Plover, Kittlitz's	*Charadrius pecuarius*		
233	Plover, Three-banded	*Charadrius tricollaris*		
234	Pochard, Southern	*Netta erythrophthalma*		
235	Prinia, Black-chested	*Prinia flavicans*		
236	Prinia, Tawny-flanked	*Prinia subflava*		
237	Puffback, Black-backed	*Dryoscopus cubla*		
238	Pygmy-Kingfisher, African	*Ispidina picta*		
239	Pytilia, Green-winged	*Pytilia melba*		
240	Quail, Common	*Coturnix coturnix*		
241	Quail, Harlequin	*Coturnix delegorguei*		
242	Quailfinch, African	*Ortygospiza fuscocrissa*		
243	Quelea, Red-billed	*Quelea quelea*		
244	Rail, African	*Rallus caerulescens*		

245	Reed-warbler, African	*Acrocephalus baeticatus*		
246	Reed-warbler, Great	*Acrocephalus arundinaceus*		
247	Robin-chat, Cape	*Cossypha caffra*		
248	Robin-chat, White-throated	*Cossypha humeralis*		
249	Rock-thrush, Cape	*Monticola rupestris*		
250	Rock-thrush, Short-toed	*Monticola brevipes*		
251	Roller, European	*Coracias garrulus*	NT	LC
252	Roller, Lilac-breasted	*Coracias caudatus*		
253	Roller, Purple	*Coracias naevius*		
254	Ruff, Ruff	*Philomachus pugnax*		
255	Rush-warbler, Little	*Bradypterus baboecala*		
256	Sandgrouse, Double-banded	*Pterocles bicinctus*		
257	Sandpiper, Common	*Actitis hypoleucos*		
258	Sandpiper, Curlew	*Calidris ferruginea*	LC	NT
259	Sandpiper, Marsh	*Tringa stagnatilis*		
260	Sandpiper, Wood	*Tringa glareola*		
261	Scimitarbill, Common	*Rhinopomastus cyanomelas*		
262	Scops-owl, African	*Otus senegalensis*		
263	Scrub-robin, Kalahari	*Cercotrichas paena*		
264	Scrub-robin, White-browed	*Cercotrichas leucophrys*		
265	Secretarybird, Secretarybird	*Sagittarius serpentarius*	VU	VU
266	Seedeater, Streaky-headed	*Crithagra gularis*		
267	Shelduck, South African	*Tadorna cana*		
268	Shikra, Shikra	*Accipiter badius*		
269	Shoveler, Cape	*Anas smithii*		
270	Shrike, Crimson-breasted	*Laniarius atrococcineus*		
271	Shrike, Lesser Grey	*Lanius minor*		
272	Shrike, Magpie	*Corvinella melanoleuca*		
273	Shrike, Red-backed	*Lanius collurio*		
274	Snake-eagle, Black-chested	*Circaetus pectoralis*		
275	Snake-eagle, Brown	*Circaetus cinereus*		
276	Snipe, African	*Gallinago nigripennis*		
277	Sparrow, Cape	*Passer melanurus*		
278	Sparrow, Great	*Passer motitensis*		
279	Sparrow, House	*Passer domesticus*		
280	Sparrow, Northern Grey-headed	*Passer griseus*		
281	Sparrow, Southern Grey-headed	*Passer diffusus*		
282	Sparrow-weaver, White-browed	*Plocepasser mahali*		
283	Sparrowhawk, Black	*Accipiter melanoleucus*		
284	Sparrowhawk, Little	*Accipiter minullus*		
285	Sparrowhawk, Ovambo	*Accipiter ovampensis*		
286	Sparrowlark, Chestnut-backed	*Eremopterix leucotis*		

287	Sparrowlark, Grey-backed	*Eremopterix verticalis*		
288	Spoonbill, African	*Platalea alba*		
289	Spurfowl, Natal	*Pternistis natalensis*		
290	Spurfowl, Swainson's	*Pternistis swainsonii*		
291	Starling, Cape Glossy	*Lamprotornis nitens*		
292	Starling, Pied	*Lamprotornis bicolor*		
293	Starling, Red-winged	*Onychognathus morio*		
294	Starling, Violet-backed	*Cinnyricinclus leucogaster*		
295	Starling, Wattled	*Creatophora cinerea*		
296	Stilt, Black-winged	*Himantopus himantopus*		
297	Stint, Little	*Calidris minuta*		
298	Stonechat, African	*Saxicola torquatus*		
299	Stork, Abdim's	*Ciconia abdimii*	NT	LC
300	Stork, Black	*Ciconia nigra*	VU	LC
301	Stork, Marabou	*Leptoptilos crumeniferus*	NT	LC
302	Stork, White	*Ciconia ciconia*		
303	Stork, Yellow-billed	*Mycteria ibis*	EN	LC
304	Sunbird, Amethyst	*Chalcomitra amethystina*		
305	Sunbird, Greater Double-collared	*Cinnyris afer*		
306	Sunbird, Malachite	*Nectarinia famosa*		
307	Sunbird, Marico	*Cinnyris mariquensis*		
308	Sunbird, White-bellied	*Cinnyris talatala*		
309	Swallow, Barn	*Hirundo rustica*		
310	Swallow, Greater Striped	*Cecropis cucullata*		
311	Swallow, Lesser Striped	*Cecropis abyssinica*		
312	Swallow, Pearl-breasted	*Hirundo dimidiata*		
313	Swallow, Red-breasted	*Cecropis semirufa*		
314	Swallow, White-throated	*Hirundo albigularis*		
315	Swamp-warbler, Lesser	*Acrocephalus gracilirostris*		
316	Swamphen, African Purple	*Porphyrio madagascariensis*		
317	Swift, African Black	*Apus barbatus*		
318	Swift, Alpine	*Tachymarptis melba*		
319	Swift, Common	*Apus apus*		
320	Swift, Horus	*Apus horus*		
321	Swift, Little	*Apus affinis*		
322	Swift, White-rumped	*Apus caffer*		
323	Tchagra, Black-crowned	*Tchagra senegalus*		
324	Tchagra, Brown-crowned	*Tchagra australis*		
325	Teal, Cape	*Anas capensis*		
326	Teal, Hottentot	*Anas hottentota*		
327	Teal, Red-billed	*Anas erythrorhyncha*		

328	Tern, Whiskered	*Chlidonias hybrida*		
329	Tern, White-winged	*Chlidonias leucopterus*		
330	Thick-knee, Spotted	*Burhinus capensis*		
331	Thrush, Groundscraper	*Turdus litsitsirupa*		
332	Thrush, Karoo	*Turdus smithi*		
333	Thrush, Kurrichane	*Turdus libonyanus*		
334	Thrush, Olive	*Turdus olivaceus*		
335	Tinkerbird, Yellow-fronted	*Pogoniulus chrysoconus*		
336	Tit, Ashy	*Parus cinerascens*		
337	Tit, Southern Black	*Parus niger*		
338	Tit-babbler, Chestnut-vented	*Sylvia subcaerulea*		
339	Turtle-dove, Cape	*Streptopelia capicola*		
340	Vulture, Cape	*Gyps coprotheres*	EN	EN
341	Wagtail, African Pied	*Motacilla aguimp*		
342	Wagtail, Cape	*Motacilla capensis*		
343	Wagtail, Yellow	*Motacilla flava*		
344	Warbler, Garden	*Sylvia borin*		
345	Warbler, Icterine	*Hippolais icterina*		
346	Warbler, Marsh	*Acrocephalus palustris*		
347	Warbler, Sedge	*Acrocephalus schoenobaenus*		
348	Warbler, Willow	*Phylloscopus trochilus*		
349	Waxbill, Black-faced	*Estrilda erythronotos*		
350	Waxbill, Blue	*Uraeginthus angolensis*		
351	Waxbill, Common	*Estrilda astrild*		
352	Waxbill, Orange-breasted	*Amandava subflava*		
353	Waxbill, Violet-eared	*Uraeginthus granatinus*		
354	Weaver, Cape	*Ploceus capensis*		
355	Weaver, Thick-billed	*Amblyospiza albifrons*		
356	Weaver, Village	*Ploceus cucullatus*		
357	Wheatear, Capped	*Oenanthe pileata*		
358	Wheatear, Mountain	*Oenanthe monticola*		
359	White-eye, Cape	*Zosterops virens*		
360	White-eye, Orange River	*Zosterops pallidus*		
361	Whitethroat, Common	*Sylvia communis*		
362	Whydah, Pin-tailed	*Vidua macroura*		
363	Whydah, Shaft-tailed	*Vidua regia*		
364	Widowbird, Long-tailed	*Euplectes progne*		
365	Widowbird, Red-collared	*Euplectes ardens*		
366	Widowbird, White-winged	*Euplectes albonotatus*		
367	Wood-dove, Emerald-spotted	*Turtur chalcospilos*		
368	Wood-hoopoe, Green	*Phoeniculus purpureus*		
369	Woodpecker, Bearded	*Dendropicos namaquus*		

370	Woodpecker, Cardinal	*Dendropicos fuscescens*
371	Woodpecker, Golden-tailed	*Campethera abingoni*
372	Wren-warbler, Barred	*Calamonastes fasciolatus*
373	Wryneck, Red-throated	*Jynx ruficollis*