BIODIVERSITY BASELINE & RISK ASSESSMENT FOR THE SCHOOL DEVELOPMENT IN OLIFANTSNEK

Rustenburg, North West

July 2019

CLIENT

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Report Name	**BIODIVERSITY BASELINE & RISK ASSESSMENT FOR THE SCHOOL DEVELOPMENT**
Submitted to	Hydro Science
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	Lindi Steyn has a PhD in Biodiversity and Conservation from the University of Johannesburg. She specialises in avifauna and has worked in this specialisation since 2013.
Report Reviewer	**Andrew Husted** 
	Andrew Husted is Pr Sci Nat registered (400213/11) in the following fields of practice: Ecological Science, Environmental Science and Aquatic Science. Andrew is an Aquatic, Wetland and Biodiversity Specialist with more than 12 years' experience in the environmental consulting field. Andrew has completed numerous wetland training courses, and is an accredited wetland practitioner, recognised by the DWS, and also the Mondi Wetlands programme as a competent wetland consultant.
Declaration	The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, 2014 (as amended). We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principles of science.

DECLARATION

I, Lindi Steyn, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.

Lindi Steyn

Terrestrial Ecologist

The Biodiversity Company

July 2019

DECLARATION

I, Martinus Erasmus, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
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- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.

Martinus Erasmus

Terrestrial Ecologist

The Biodiversity Company

July 2019

Table of Contents

Tables

Figures

1 Introduction

The Biodiversity Company was appointed to conduct a biodiversity baseline and impact assessment for the proposed school and associated sport fields on portion 62 of the farm Commissiedrift 327JQ, Olifantsnek. The project falls in the Rustenburg Local Municipality in the North West Province.

A dry season terrestrial survey was conducted during the 8th of July 2019 by an ecologist. The survey primarily focussed on the development footprint area, referred to as the project area herein.

This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making with regards to the proposed project.

2 Project Area

The project area falls across the R24 road, approximately 600m from the Olifantsnek Dam. It is found 13km south of Rustenburg. The project area is surrounded by urban development with their associated infrastructure such as roads, powerlines and telephone lines. The location of the project area is presented in Figure 1.

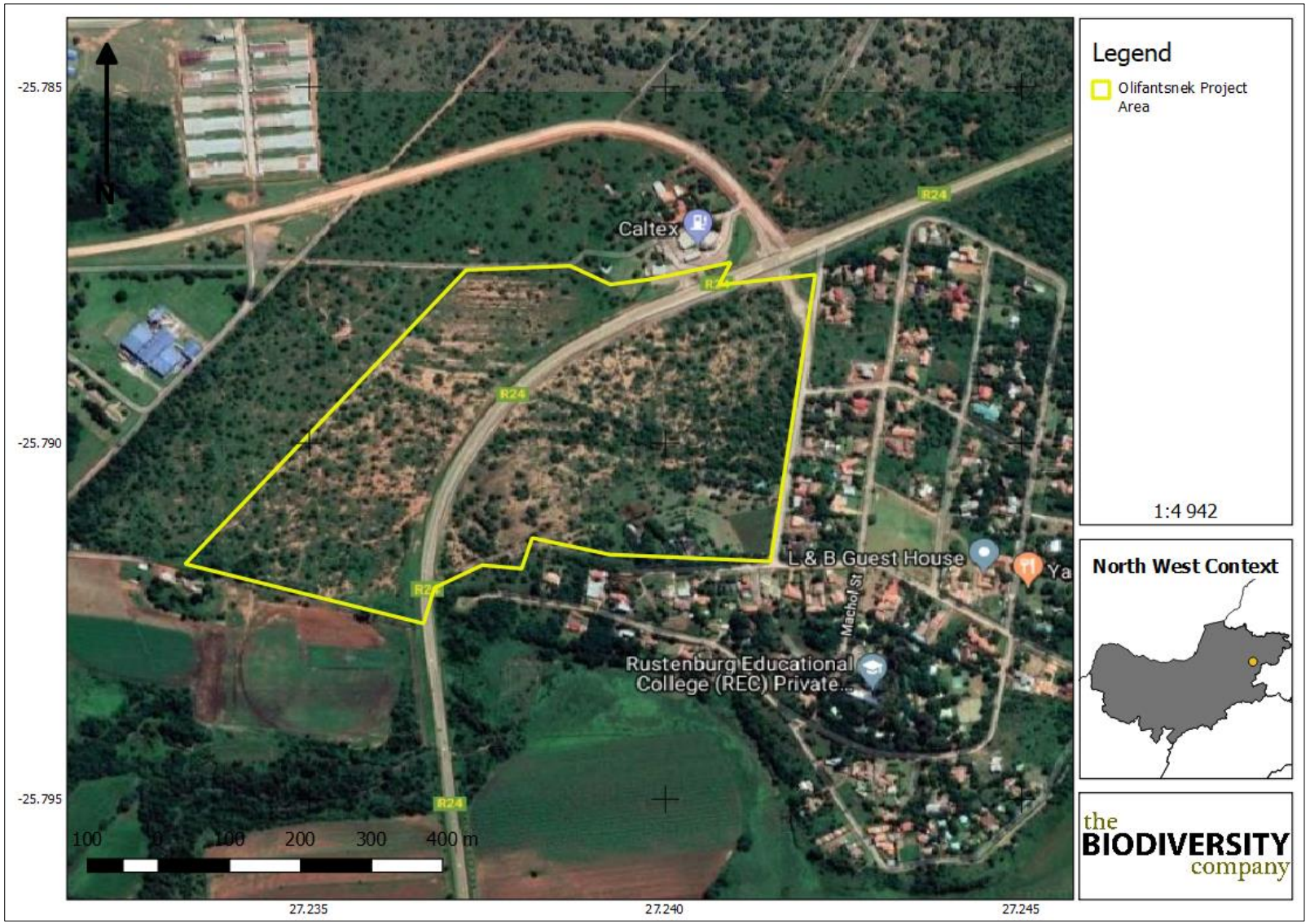

Figure 1:The general location of the proposed project area.

3 Scope of Work

The Terms of Reference (ToR) included the following:

- Desktop description of the baseline receiving environment specific to the field of expertise (general surrounding area as well as site specific environment);
- Identification and description of any sensitive receptors in terms of relevant specialist disciplines (biodiversity) that occur in the project area, and the manner in which these sensitive receptors may be affected by the activity;
- Identify 'significant' ecological, botanical and faunal features within the proposed development areas;
- Identification of conservation significant habitats around the project area which might be impacted by the proposed development;
- Site visit to verify desktop information;
- Provide a map to identify sensitive receptors in the project area, based on available maps, database information & site visit verification; and
- Identification of risk factors associated with the developments.

4 Limitations

The following limitations should be noted for the study:

- As per the scope of work, the fieldwork component of the assessment comprised of one assessment only, which was conducted during the dry season;
- This study has not assessed any temporal trends for the respective seasons; and
- Despite these limitations, a comprehensive desktop study was conducted, in conjunction with the detailed results from the surveys, and as such there is a high confidence in the information provided.

5 Methodologies

5.1 Geographic Information Systems (GIS) Mapping

Existing data layers were incorporated into GIS software to establish how the proposed project might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:

- Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018);
- Important Bird Areas 2015 – BirdLife South Africa (vector geospatial dataset); and
- North West Biodiversity Sector Plan (2015).

Field surveys were conducted to confirm (or refute) the presence of species identified in the desktop assessment. The specialist disciplines completed for this study included:

- Botanical;
- Fauna (mammals and avifauna); and
- Herpetology (reptiles and amphibians).

Brief descriptions of the standardised methodologies applied in each of the specialist disciplines are provided below. More detailed descriptions of survey methodologies are available upon request.

5.2 Botanical Assessment

The botanical study encompassed an assessment of all the vegetation units and habitat types within the project area. The focus was on an ecological assessment of habitat types as well as identification of any Red Data species within the known distribution of the project area. The methodology included the following survey techniques:

- Sensitivity analysis based on available remaining natural structural habitat; and
- Identification of expected floral red-data species (desktop analysis).

5.3 Literature Study

A literature review was conducted as part of the desktop study to identify the potential habitats present within the project area. The South African National Biodiversity Institute (SANBI) provides an electronic database system, namely the Botanical Database of Southern Africa (BODATSA), to access distribution records on southern African plants. This is a new database which replaces the old Plants of Southern Africa (POSA) database. The POSA database provided distribution data of flora at the quarter degree square (QDS) resolution.

The Red List of South African Plants website (SANBI, 2017) was utilized to provide the most current account of the national status of flora. Relevant field guides and texts consulted for identification purposes in the field during the surveys included the following:

- A Field Guide to Wild Flowers (Pooley, 1998);
- Guide to Grasses of Southern Africa (Van Oudtshoorn, 1999);
- Orchids of South Africa (Johnson & Bytebier, 2015);
- Guide to the Aloes of South Africa (Van Wyk & Smith, 2014);
- Medicinal Plants of South Africa (Van Wyk *et al.,* 2013);
- Freshwater Life: A field guide to the plants and animals of southern Africa (Griffiths & Day, 2016); and
- Identification Guide to Southern African Grasses. An identification manual with keys, descriptions and distributions (Fish *et al.,* 2015).

Additional information regarding ecosystems, vegetation types, and species of conservation concern (SCC) included the following sources:

- The Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2012);
- Grassland Ecosystem Guidelines: landscape interpretation for planners and managers (SANBI, 2013); and
- Red List of South African Plants (Raimondo *et al.,* 2009; SANBI, 2016).

5.4 Faunal Assessment (Mammals & Avifauna)

The faunal desktop assessment included the following:

- Compilation of expected species lists;
- Compilation of identified species lists;
- Identification of any Red Data or species of conservation concern (SCC) present or potentially occurring in the area; and
- Emphasis was placed on the probability of occurrence of species of provincial, national and international conservation importance.

The field survey component of the study utilised a variety of sampling techniques including, but not limited to, the following:

- Visual observations;
- Identification of tracks and signs; and
- Utilization of local knowledge.

Habitat types sampled included pristine, disturbed and semi-disturbed zones, drainage lines and wetlands.

Mammal distribution data were obtained from the following information sources:

- The Mammals of the Southern African Subregion (Skinner & Chimimba, 2005);
- Bats of Southern and Central Africa (Monadjem *et al.,* 2010);
- The 2016 Red List of Mammals of South Africa, Lesotho and Swaziland (www.ewt.org.za) (EWT, 2016);
- Animal Demography Unit (ADU) - MammalMap Category (MammalMap, 2017) (mammalmap.adu.org.za);
- A Field Guide to the Tracks and Signs of Southern, Central and East African Wildlife (Stuart & Stuart, 2013).

5.5 Herpetology (Reptiles & Amphibians)

A herpetofauna assessment of the project area was also conducted. The herpetological field survey comprised the following techniques:

- Diurnal hand searches - are used for reptile species that shelter in or under particular microhabitats (typically rocks, exfoliating rock outcrops, fallen timber, leaf litter, bark etc.);
- Visual searches - typically undertaken for species whose behaviour involves surface activity or for species that are difficult to detect by hand-searches or pitfall trapping. May include walking transects or using binoculars to view the species from a distance without the animal being disturbed;
- Amphibians – many of the survey techniques listed above will be able to detect species of amphibians. Over and above these techniques, vocalisation sampling techniques are often the best to detect the presence of amphibians as each species has a distinct call;
- Opportunistic sampling - reptiles, especially snakes, are incredibly elusive and difficult to observe. Consequently, all possible opportunities to observe reptiles are taken in order to augment the standard sampling procedures described above. This will include talking to local people and staff at the site and reviewing photographs of reptiles and amphibians that the other biodiversity specialists may come across while on site.

Herpetofauna distributional data was obtained from the following information sources:

- South African Reptile Conservation Assessment (SARCA) (sarca.adu.org);
- A Guide to the Reptiles of Southern Africa (Alexander & Marais, 2007);
- Field guide to Snakes and other Reptiles of Southern Africa (Branch, 1998);
- Atlas and Red list of Reptiles of South Africa, Lesotho and Swaziland (Bates *et al.,* 2014);
- A Complete Guide to the Frogs of Southern Africa (du Preez & Carruthers, 2009);
- Animal Demography Unit (ADU) - FrogMAP (frogmap.adu.org.za);
- Atlas and Red Data Book of Frogs of South Africa, Lesotho and Swaziland (Mintner *et al.*, 2004); and
- Ensuring a future for South Africa's frogs (Measey, 2011).

5.6 Dry Season Fieldwork

The dry season fieldwork and sample sites were placed within specific areas (i.e. target sites) perceived as ecologically sensitive based on the preliminary interpretation of satellite imagery and GIS analysis (which included the latest applicable biodiversity datasets) available prior to the fieldwork.

The focus of the fieldwork was therefore to maximise coverage and navigate to each target site in the field in order to perform a rapid vegetation and ecological habitat assessment at each sample site. Emphasis was placed on sensitive habitats, especially those overlapping with proposed development areas.

At each sample site notes were made regarding current impacts (e.g. litter, erosion etc.), subjective recording of dominant vegetation species and any sensitive features (e.g. rocky outcrops etc.). In addition, opportunistic observations were made while navigating through the project area. Effort was made to cover all the different habitat types within the limits of time and access. The geographic location of sample sites and site coverage are shown under the Results section.

5.7 Habitat Sensitivity

As per the terms of reference for the project, a GIS sensitivity map is required in order to identify sensitive features in terms of the relevant specialist discipline/s within the project area. The sensitivity scores identified during the field survey for each habitat are visually mapped to show where the proposed project overlaps with potentially sensitive areas.

Based on the results of the fieldwork, specialists will determine which sensitivities are applied to a particular area. Areas that are classed as sensitive are generally those which are considered to be in a natural condition or were found to contain (or provide habitat for) threatened faunal or floral species. The following classifications are used to describe the possible sensitivity rankings:

Absent – no natural habitats present, land completely transformed from its original structure and function with no organism's present;

Low – insignificant amounts of natural habitat or vegetation present. Existing habitat has been extensively transformed. Remaining vegetation dominated by alien invasive plant species;

Low-Moderate – existing habitats have been heavily transformed and little natural vegetation or habitats are present. Species diversity is considered low. Area may be considered otherwise moderately important (such as a movement corridor for fauna);

Moderate – existing habitats have been modified or transformed but an equal percentage of natural vegetation and habitats remain. Species diversity is considered moderate. Such habitat is considered to have a strong chance of successful rehabilitation if left to restore through natural succession processes;

Moderate-High – the majority of area is considered to be in a near-natural state. Species diversity is high, and the ecosystem function is healthy. Minor impacts may be present; and

High – the area is considered to be in a natural condition with high levels of species diversity. Alternatively, an area may be regarded as having a high sensitivity (even if the habitat is modified) but is found to be habitat, or a breeding area, for any SCC.

5.8 Key Legislative Requirements

The legislation, policies and guidelines listed below are applicable to the current project in terms of biodiversity and ecological support systems (Table 1). The list below, although extensive, may not be exhaustive and other legislation, policies and guidelines may apply in addition to those listed below.

Table 1: A list of key legislative requirements relevant to biodiversity and conservation in the North West Province

INTERNATIONAL	Convention on Biological Diversity (CBD, 1993) The United Nations Framework Convention on Climate Change (UNFCC,1994) The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1973) The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979)
NATIONAL	Constitution of the Republic of South Africa (Act No. 108 of 2006) The National Environmental Management Act (NEMA) (Act No. 107 of 1998) The National Environmental Management Protected Areas Act (Act No. 57 of 2003) The National Environmental Management Biodiversity Act (Act No. 10 of 2004) The National Environmental Management: Waste Act, 2008 (Act 59 of 2008); The Environment Conservation Act (Act No. 73 of 1989) National Environmental Management Air Quality Act (No. 39 of 2004) National Protected Areas Expansion Strategy (NPAES) Natural Scientific Professions Act (Act No. 27 of 2003) National Biodiversity Framework (NBF, 2009) National Forest Act (Act No. 84 of 1998) National Veld and Forest Fire Act (101 of 1998) National Water Act, 1998 (Act 36 of 1998) National Freshwater Ecosystem Priority Areas (NFEPA's) National Spatial Biodiversity Assessment (NSBA) World Heritage Convention Act (Act No. 49 of 1999) National Heritage Resources Act, 1999 (Act 25 of 1999) Municipal Systems Act (Act No. 32 of 2000) Alien and Invasive Species Regulations, 2014 South Africa's National Biodiversity Strategy and Action Plan (NBSAP) Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) Sustainable Utilisation of Agricultural Resources (Draft Legislation). White Paper on Biodiversity
PROVINCIAL	North-West Biodiversity Sector Plan of 2015 (READ, 2015).

6 Project Area

6.1 Desktop Spatial Assessment

The following features describes the general area and habitat, this assessment is based on spatial data that are provided by various sources such as the provincial environmental authority and SANBI. The desktop analysis and their relevance to this project are listed in Table 2.

Table 2: Desktop spatial features examined

Desktop Information Considered	Relevant/Not relevant	Section
Conservation Plan	The Olifantsnek project area falls in two different classifications; the northern and central portion fall in a CBA2 classification and the southern section fall in an ESA1 classification	6.2
Rocky Ridges	Irrelevant: North West does not have legislation regarding rocky ridges	-
Ecosystem Threat Status	Falls within a *LT* ecosystem	6.3.1
Ecosystem Protection Level	Falls in a *poorly protected* ecosystem	6.3.2
Protected Areas	The closest formally protected area (Magaliesberg Protected Natural environment) is approximately 500m north of the project area	6.4
NFEPA Rivers and Wetlands	The project area is found 160m away form a FEPA fish support river, while a FEPA wetland is found 380m from the project area	6.5
Mining and Biodiversity Guidelines	Irrelevant: No mining component	-
Important Bird and Biodiversity Areas	The project area falls within the Magaliesberg IBA	7.1.2.1.1

6.2 North-West Biodiversity Sector Plan

The North-West Department of Rural, Environment, and Agricultural Development (READ), as custodian of the environment in the North West, is the primary implementing agent of the Biodiversity Sector Plan. The spatial component of the Biodiversity Sector Plan is based on systematic biodiversity planning undertaken by READ. The purpose of a Biodiversity Sector Plan is to inform land use planning, environmental assessments, land and water use authorisations, as well as natural resource management, undertaken by a range of sectors whose policies and decisions impact on biodiversity. This is done by providing a map of biodiversity priority areas, referred to as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), with accompanying land use planning and decision-making guidelines (READ, 2015).

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (READ, 2015).

Ecological Support Areas (ESAs) are terrestrial and aquatic areas that are not essential for meeting biodiversity representation targets (thresholds), but which play an important role in

supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree or extent of restriction on land use and resource use in these areas may be lower than that recommended for CBAs (READ, 2015).

The Olifantsnek project area falls in two different classifications; the northern and central portion fall in a CBA2 classification and the southern section fall in an ESA1 classification (Figure 2).

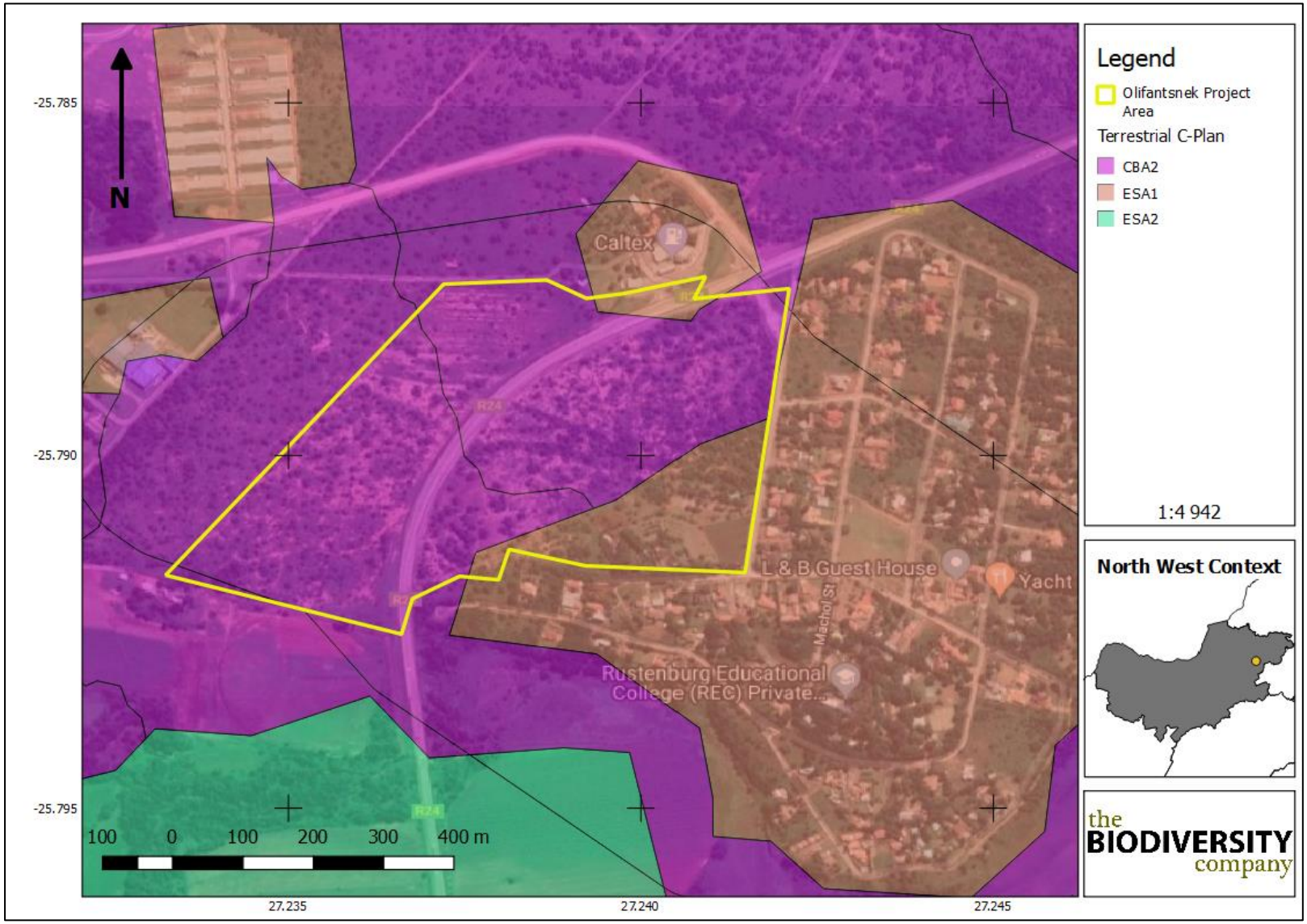

Figure 2: Project area in relation to the North West Biodiversity Sector Plan

6.3 National Biodiversity Assessment

The two headline indicators assessed in the NBA are ecosystem threat status and ecosystem protection level (Driver *et al.,* 2011).

6.3.1 Ecosystem Threat Status

Ecosystem threat status outlines the degree to which ecosystems are still intact or alternatively losing vital aspects of their structure, function and composition, on which their ability to provide ecosystem services ultimately depends (Driver *et al.,* 2011).

Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Threatened (LT), based on the proportion of each ecosystem type that remains in good ecological condition (Driver *et al.,* 2011).

The proposed project was superimposed on the terrestrial ecosystem threat status (Figure 3). As seen in this figure the project area falls across one ecosystem, which is listed LT.

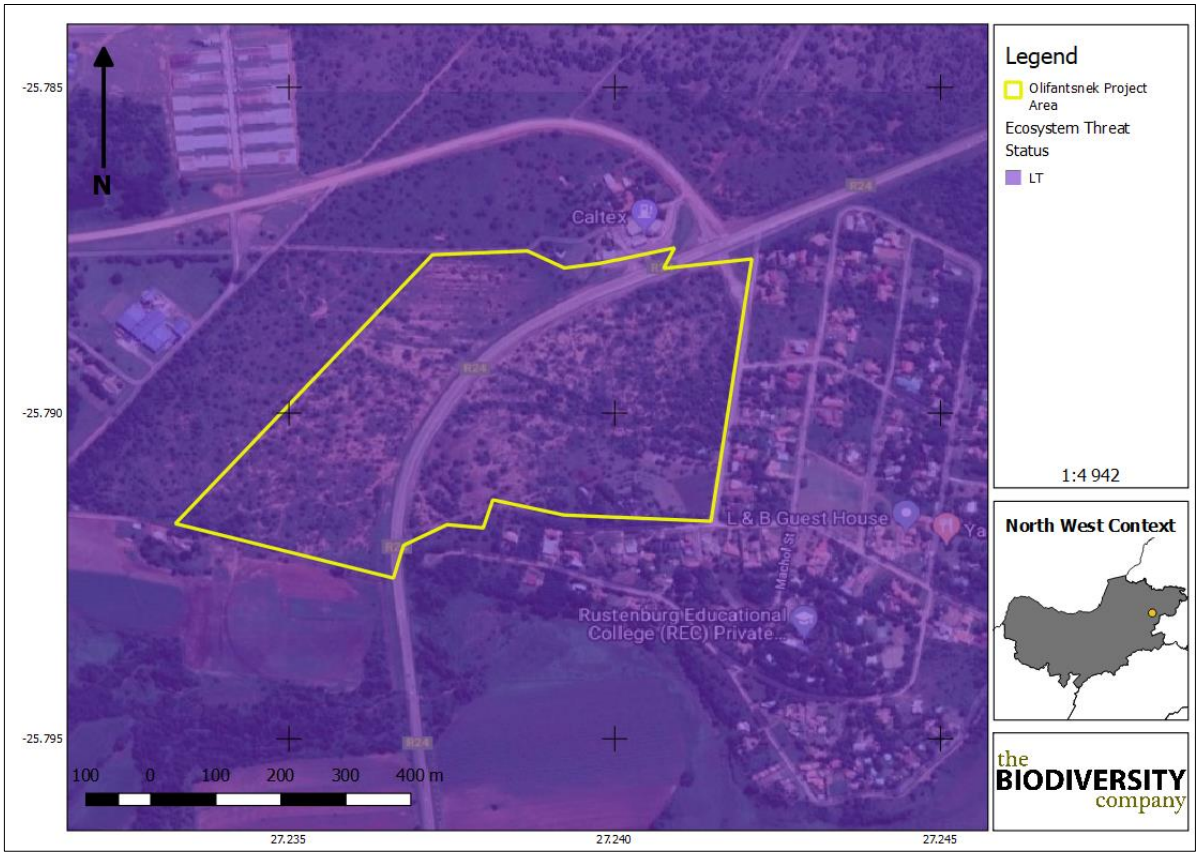

Figure 3: The project area showing the ecosystem threat status of the associated terrestrial ecosystems (NBA, 2012)

6.3.2 Ecosystem Protection Level

Ecosystem protection level tells us whether ecosystems are adequately protected or under-protected. Ecosystem types are categorised as not protected, poorly protected, moderately protected or well protected, based on the proportion of each ecosystem type that occurs within a protected area recognised in the Protected Areas Act (Driver *et al.,* 2011).

The project area was superimposed on the ecosystem protection level map to assess the protection status of terrestrial ecosystems associated with the development (Figure 4). Based on this the terrestrial ecosystems associated with the proposed project area are rated as *poorly protected*. This means that these ecosystem types (and associated habitats) are not well protected anywhere in the country (such as in nationally protected areas).

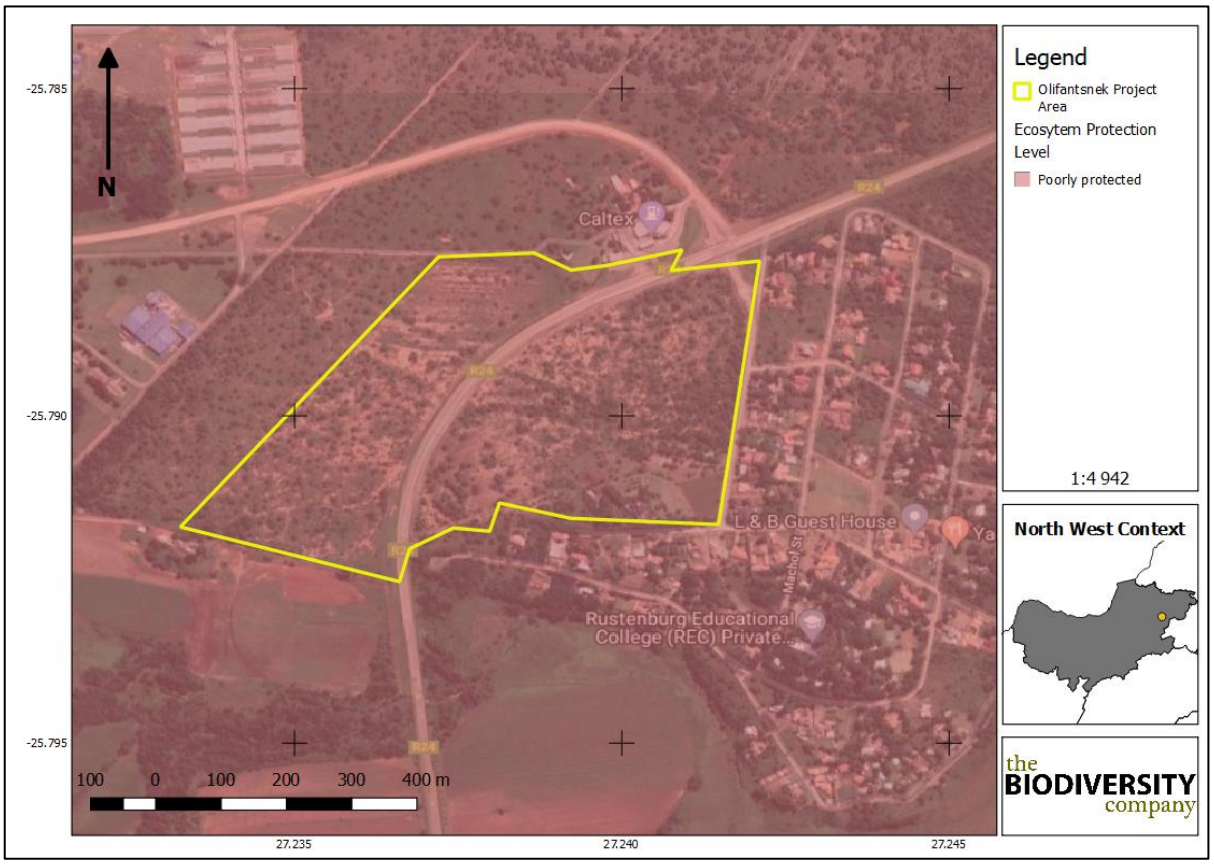

Figure 4: The project area showing the level of protection of terrestrial ecosystems (NBA, 2012)

6.4 Project in Relation to Protected Areas

Figure 5 shows the location of formally protected areas in relation to the project area. Formally protected areas refer to areas protected either by national or provincial legislation. Based on the SANBI (2010) Protected Areas Map and the National Protected Areas Expansion Strategy (NPAES) the project area does not overlap with, nor will it impact upon, any formally protected areas (Figure 5). The closest formally protected area (Magaliesberg Protected Natural environment) is approximately 500m north of the project area. The Kgaswane Nature Reserve also occurs relatively close to the project area and can be found 1.5km from the project area.

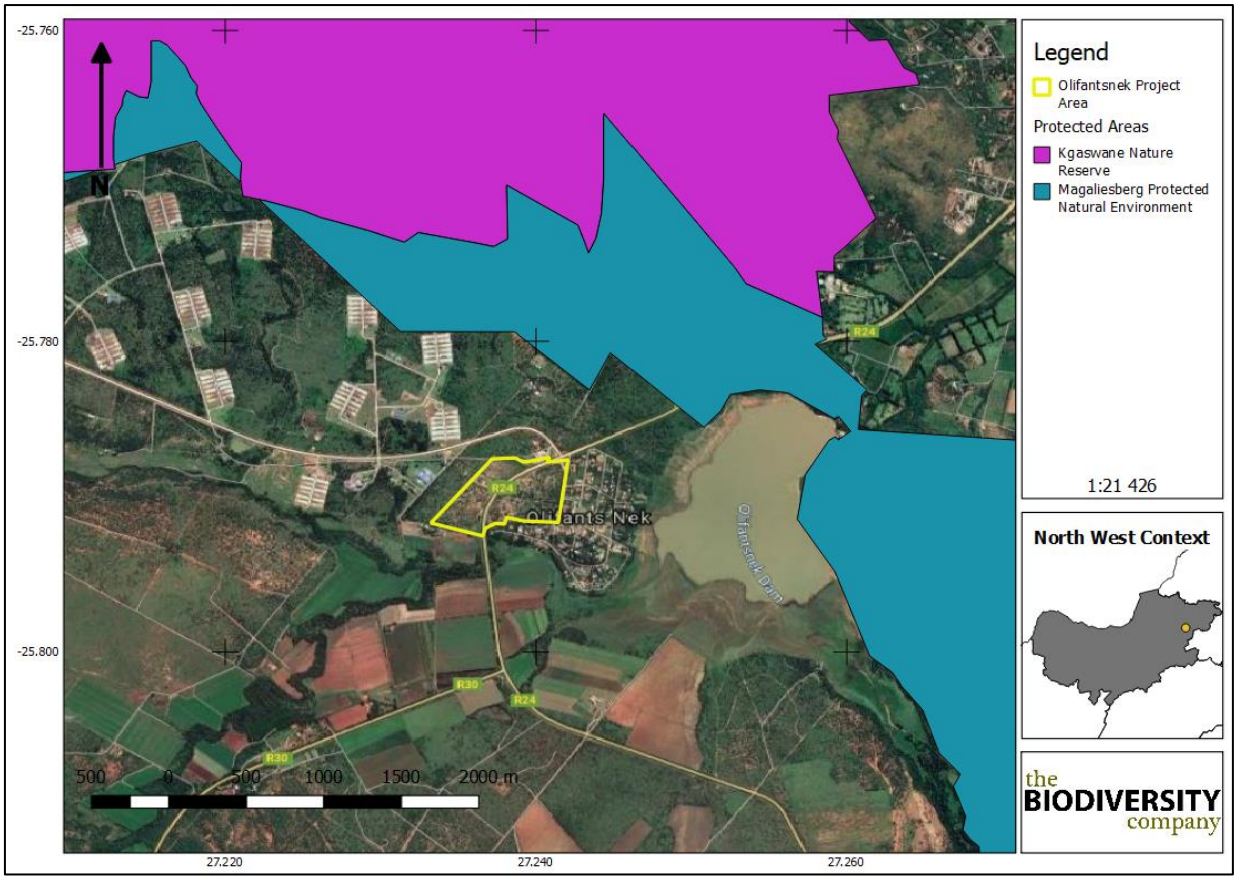

Figure 5: The project area in relation to the formally protected areas (NPAES, 2011)

6.5 National Freshwater Ecosystem Priority Areas Status

In an attempt to better conserve aquatic ecosystems, South Africa has recently categorised its river systems according to set ecological criteria (i.e. ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPAs) (Driver *et al*., 2011). The FEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act (NEM:BA) biodiversity goals (Nel *et al.,* 2011).

The project area is found 160m away from a FEPA fish support river (Figure 6), while a FEPA wetland is found 380m from the project area. Due to the nature of the development it is likely the river and wetland might be impacted.

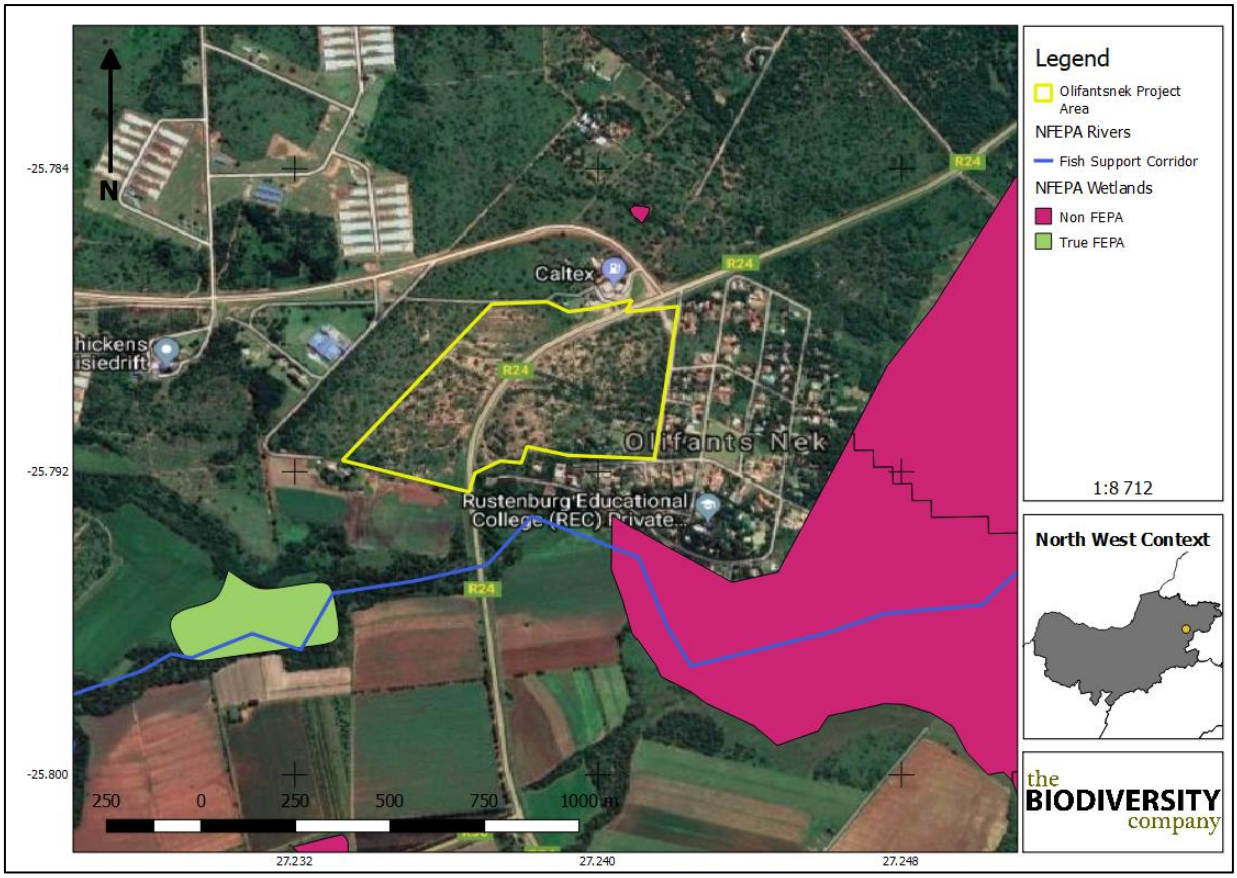

Figure 6: The project area in relation to the National Freshwater Ecosystem Priority Areas (BGIS, 2018)

7 Results & Discussion

7.1 Desktop Assessment

7.1.1 Vegetation Assessment

The site is situated in the Savanna biome. The savanna vegetation of South Africa represents the southernmost extension of the most widespread biome in Africa (Mucina & Rutherford, 2006). Major macroclimatic traits that characterise the Savanna biome include:

a) Seasonal precipitation; and

b) (Sub) tropical thermal regime with no or usually low incidence of frost (Mucina & Rutherford, 2006).

Most savanna vegetation communities are characterised by a herbaceous layer dominated by grasses and a discontinuous to sometimes very open tree layer (Mucina & Rutherford, 2006).

The savanna biome is the largest biome in South Africa, extending throughout the east and north-eastern areas of the country. Savannas are characterised by a dominant grass layers, over-topped by a discontinuous, but distinct woody plant layer. At a structural level, Africa's savannas can be broadly categorised as either fine-leaved (microphyllous) savannas or broad-leaved savannas. Fine-leaved savannas typically occur on nutrient rich soils and are dominated by microphyllous woody plants of the Mimosaceae family (Common genera include *Acacia* and *Albizia*) and a generally dense herbaceous layer (Scholes & Walker, 1993).

7.1.1.1 Vegetation Types

The Savanna biome comprises many different vegetation types. The project area falls within the Moot Plains Bushveld (Figure 7) vegetation type (Mucina & Rutherford, 2006).

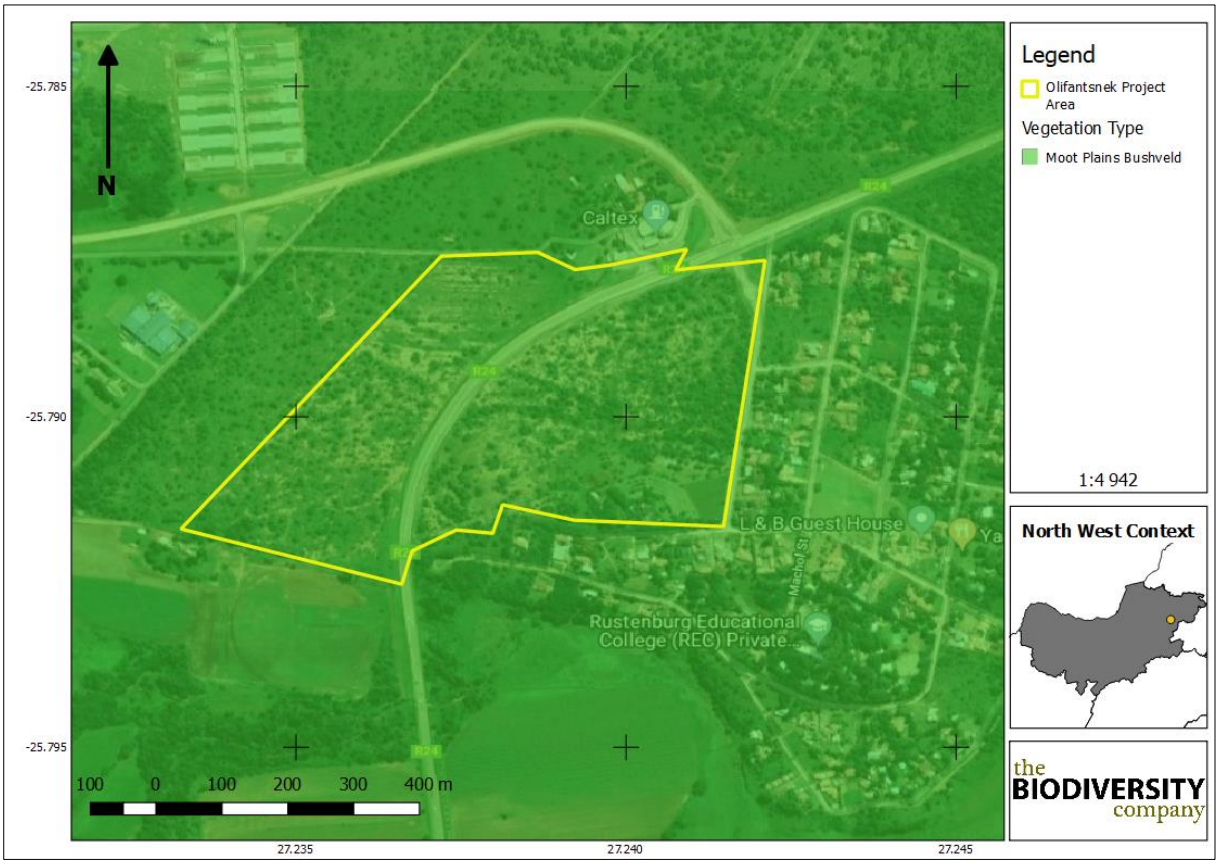

Figure 7: The project area showing the vegetation type based on the Vegetation Map of South Africa, Lesotho & Swaziland (BGIS, 2018)

7.1.1.2 Moot Plains Bushveld

Moot Plains Bushveld is found in the North-West and Gauteng Provinces. This vegetation type consists of open to closed, low, often thorny savanna dominated by various species of *Acacia* in the bottomlands and plains as well as woodlands of varying height and density on the lower hillsides. The herbaceous layer is dominated by grasses (Mucina & Rutherford, 2006).

7.1.1.3 Important Plant Taxa

Based on Mucina & Rutherford's (2006) vegetation classification, important plant taxa are those species that have a high abundance, a frequent occurrence (not being particularly abundant) or are prominent in the landscape within a particular vegetation type. They note the following species are important taxa in the Moot Plains Bushveld vegetation type:

Small Trees: *Acacia nilotica* (d), *A. tortilis* subsp. *heteracantha* (d), *Rhus lancea* (d). Tall Shrubs: *Buddleja saligna* (d), *Euclea undulata* (d), *Olea europaea* subsp. *africana* (d), *Grewia occidentalis*, *Gymnosporia polyacantha*, *Mystroxylon aethiopicum* subsp. *burkeanum*.

Low Shrubs: *Aptosimum elongatum*, *Felicia fascicularis*, *Lantana rugosa*, *Teucrium trifidum*. Succulent Shrub: *Kalanchoe paniculata*. Woody Climber: *Jasminum breviflorum*.

Herbaceous Climber: *Lotononis bainesii*. Graminoids: *Heteropogon contortus* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Aristida congesta*, *Chloris virgata*, *Cynodon dactylon*, *Sporobolus nitens*, *Tragus racemosus*.

Herbs: *Achyropsis avicularis*, *Corchorus asplenifolius*, *Evolvulus alsinoides*, *Helichrysum nudifolium*, *H. undulatum, Hermannia depressa*, *Osteospermum muricatum*, *Phyllanthus maderaspatensis*.

7.1.1.4 Conservation Status of the Vegetation Type

According to Mucina & Rutherford (2006), this vegetation type is classified as VU. The national target for conservation protection is 19%, but only 13% are statutorily conserved mainly in the Magaliesberg Nature Area. About 28% has been transformed mainly by cultivation and urban and built-up areas. Some dense patches of various alien plants including *Cereus jamacaru*, *Eucalyptus* species, *Jacaranda mimosifolia*, *Lantana camara*, *Melia azedarach* and *Schinus* species occur in this vegetation type.

7.1.1.5 Plant Species of Conservation Concern

Based on the Plants of Southern Africa (BODATSA-POSA, 2016) database, 293 plant species are expected to occur in the project area. Figure 8 shows the extent of the grid that was used to compile the expected species list based on the Plants of Southern Africa (BODATSA-POSA, 2016) database, the red squares indicate botanical records within the area. The list of expected plant species is provided in Appendix A. Of the 293-plant species, no species are listed as being SCCs.

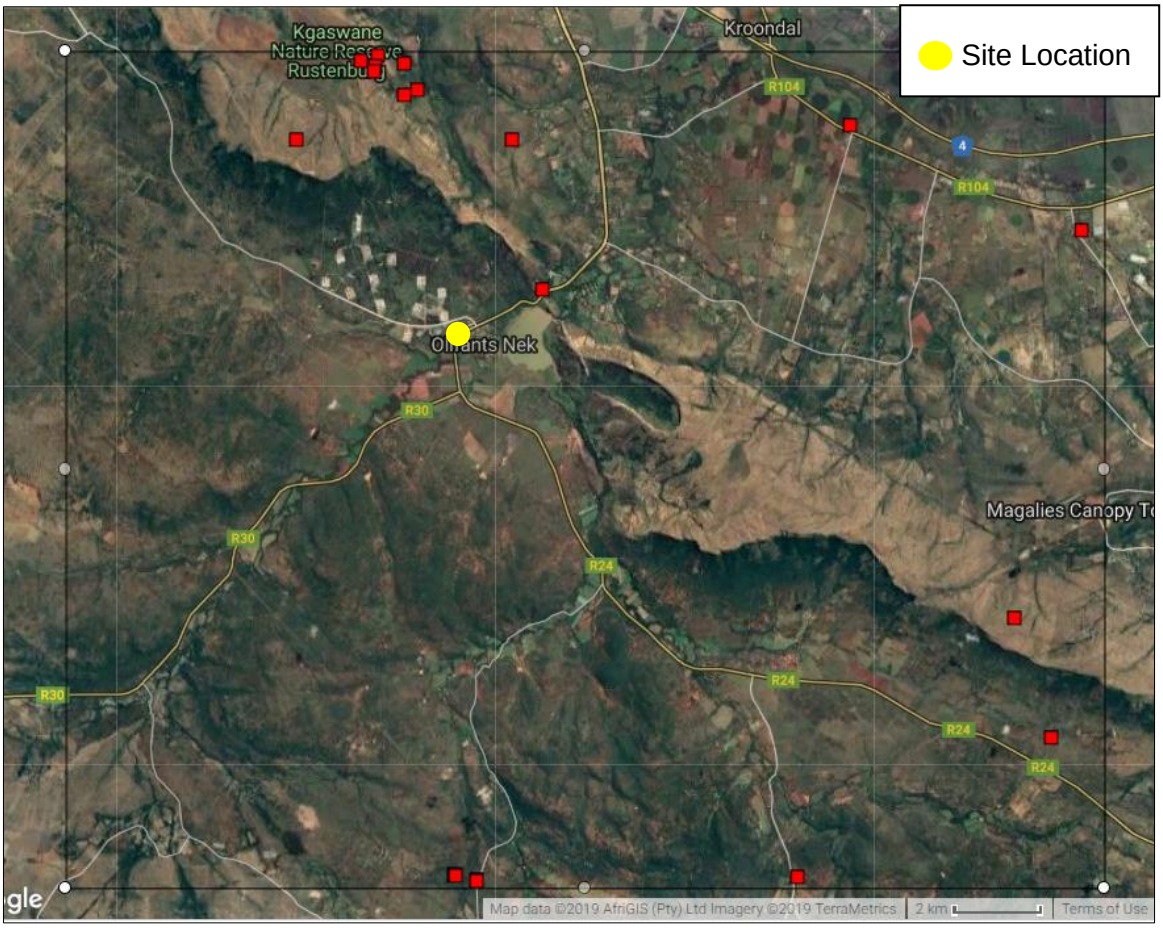

Figure 8: Map showing the grid drawn to compile an expected species list (BODATSA-POSA, 2016)

7.1.2 Faunal Assessment

7.1.2.1 Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2) database, 366 bird species are expected to occur in the vicinity of the project area (pentads 2550_2715; 2550_2710; 2550_2705; 2545_2715; 2545_2710; 2545_2705; 2540_2715; 2540_2710; 2540_2705). The full list of potential bird species is provided in Appendix B.

Of the expected bird species, nineteen (19) species are listed as SCC either on a regional scale or international scale (Table 3). The SCC include the following:

- One species which is listed as CR on a regional basis;
- Five (5) species that are listed as EN on a regional basis;
- Six (6) species that are listed as VU on a regional basis; and
- Seven (7) species that are listed as NT on a regional basis.

Table 3: List of bird species of regional or global conservation importance that are expected to occur in pentads mentioned above (SABAP2, 2018, ESKOM, 2015; IUCN, 2017)

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (ESKOM, 2015)	IUCN (2017)	
Alcedo semitorquata	Kingfisher, Half-collared	NT	LC	Moderate
Aquila rapax	Eagle, Tawny	EN	LC	Low
Aquila verreauxii	Eagle, Verreaux's	VU	LC	Moderate
Ciconia abdimii	Stork, Abdim's	NT	LC	High
Ciconia nigra	Stork, Black	VU	LC	Low
Circus ranivorus	Marsh-harrier, African	EN	LC	Low
Coracias garrulus	Roller, European	NT	LC	High
Eupodotis senegalensis	Korhaan, White-bellied	VU	LC	Low
Falco biarmicus	Falcon, Lanner	VU	LC	High
Glareola nordmanni	Pratincole, Black-winged	NT	NT	Moderate
Gyps africanus	Vulture, White-backed	CR	CR	Moderate
Gyps coprotheres	Vulture, Cape	EN	EN	Low
Mycteria ibis	Stork, Yellow-billed	EN	LC	Low
Oxyura maccoa	Duck, Maccoa	NT	NT	Low
Phoenicopterus ruber	Flamingo, Greater	NT	LC	Low
Polemaetus bellicosus	Eagle, Martial	EN	VU	Low
Rostratula benghalensis	Painted-snipe, Greater	NT	LC	Moderate
Sagittarius serpentarius	Secretarybird	VU	VU	Low
Sterna caspia	Tern, Caspian	VU	LC	Low

Alcedo semitorquata (Half-collared Kingfisher) is listed as NT on a regional scale and occurs across a large range. This species generally prefers narrow rivers, streams, and estuaries with

dense vegetation onshore, but it may also move into coastal lagoons and lakes. It mainly feeds on fish (IUCN, 2017). The possibility of occurrence is moderate due to the river that is found close to the project area, however it is lowered due to the proximity to urban development.

Aquila rapax (Tawny Eagle) is listed as EN on a regional scale and occupies dry open habitats from sea level to 3000 m. It will occupy both woodland and wooded savannah (IUCN, 2017). Due to its large distributional range the likelihood of occurrence of this species is rated as moderate, however the presence of suitable prey items is low and therefore the likelihood that it will be resident in the area also low.

Aquila verreauxii (Verreaux's Eagle) is listed as VU on a regional scale and LC on a global scale. This species is locally persecuted in southern Africa where it coincides with livestock farms, but because the species does not take carrion, is little threatened by poisoned carcasses. Where hyraxes are hunted for food and skins, eagle populations have declined (IUCN, 2017). Based on the expected habitat, the close proximity of the Magaliesberg mountains, the likelihood of occurrence of this species at the project site is rated as moderate.

Ciconia abdimii (Abdim's Stork) is listed as NT on a local scale and the species is known to be found in open grassland and savanna woodland often near water but also in semi-arid areas, gathering beside pools and water-holes. They tend to roost in trees or cliffs (IUCN, 2017). The existence of wet areas creates the potential for this species to occur in the area thus the likelihood of occurrence is rated as high.

Ciconia nigra (Black Stork) is native to South Africa, and inhabits old, undisturbed, open forests. They are known to forage in shallow streams, pools, marshes swampy patches, damp meadows, floodplains, pools in dry riverbeds and occasionally grasslands, especially where there are stands of reeds or long grass (IUCN, 2017). Ideal habitat is present in the project area, however due to the proximity to urban development the likelihood of occurrence is rated as low.

Circus ranivorus (African Marsh Harrier) is listed as EN in South Africa (ESKOM, 2014). This species has an extremely large distributional range in sub-equatorial Africa. South African populations of this species are declining due to the degradation of wetland habitats, loss of habitat through over-grazing and human disturbance and possibly, poisoning owing to over-use of pesticides (IUCN, 2017). This species breeds in wetlands and forages primarily over reeds and lake margins. There are some wetlands close to the project area, however it is unlikely that the species can be found in the project area.

Coracias garrulous (European Roller) is a winter migrant from most of South-central Europe and Asia occurring throughout sub-Saharan Africa (IUCN, 2017). The European Roller has a preference for bushy plains and dry savannah areas (IUCN, 2017). There is a high chance of this species occurring in the project area due to the habitat that is provided.

Eupodotis senegalensis (White-bellied Korhaan) is Near-endemic to South Africa, occurring from the Limpopo Province and adjacent provinces, south through Swaziland to KwaZulu-Natal and the Eastern Cape. It generally prefers tall, dense sour or mixed grassland, either open or lightly wooded, occasionally moving into cultivated or burnt land, which doesn't seem present in the project area thus likelihood of occurrence was rated as low (Hockey *et al,* 2005).

Falco biarmicus (Lanner Falcon) is native to South Africa and inhabits a wide variety of habitats, from lowland deserts to forested mountains (IUCN, 2017). They may occur in groups up to 20 individuals but have also been observed solitary. Their diet is mainly composed of small birds such as pigeons and francolins. The likelihood of incidental records of this species in the project area is rated as high due to the presence of many bird species on which Lanner Falcons may predate.

Glareola nordmanni (Black-winged Pratincole) is a migratory species which is listed as NT both globally and regionally. This species has a very large range, breeding mostly in Europe and Russia, before migrating to southern Africa. Overall population declines of approximately 20% for this species are suspected (IUCN, 2017). This species generally occurs near water and damp meadows, or marshes overgrown with dense grass. Due to it's migratory nature, this species will only be present in South Africa for a few months during the year and will not breed locally. There is a small amount of suitable habitat adjacent to the project area, however there is no habitat found in the project area and as such the likelihood of occurrence is rated as moderate.

Gyps africanus (White-backed Vulture) has a large range and only occurs throughout sub-Saharan Africa. Primarily a lowland species of open wooded savanna, particularly areas of *Acacia (Vachellia*). It requires tall trees for nesting. According to the IUCN (2017) this species faces similar threats to other African vultures, being susceptible to habitat conversion to agro-pastoral systems, loss of wild ungulates leading to a reduced availability of carrion, hunting for trade, persecution and poisoning. It is unlikely that this species can be found as a resident in the project area however, they might be found foraging in the area.

Gyps coprotheres (Cape Vulture) is listed as EN on both a regional and global scale. Cape Vultures are long-lived carrion-feeders specialising on large carcasses, they fly long distances over open country, although they are usually found near steep terrain, where they breed and roost on cliffs (IUCN, 2017). This species is known to occur in the Magaliesberg IBA, however due to the proximity to urbanization it is unlikely to be resident in the project area.

Mycteria ibis (Yellow-billed Stork) is listed as EN on a regional scale and LC on a global scale. This species is migratory and has a large distributional range which includes much of sub-Saharan Africa. It is typically associated with freshwater ecosystems, especially wetlands and the margins of lakes and dams (IUCN, 2017). Some waterbodies are found in close proximity to the project area, however due to the developed nature of the area the likelihood of occurrence is rated as low.

Oxyura maccoa (Maccoa Duck) has a large northern and southern range, South Africa is part of its southern distribution. During the species' breeding season, it inhabits small temporary and permanent inland freshwater lakes, preferring those that are shallow and nutrient-rich with extensive emergent vegetation such as reeds (*Phragmites spp*.) and cattails (*Typha spp*.) on which it relies for nesting (IUCN, 2017). The likelihood of occurrence of this species in the project area was rated as low as this shy species prefer more secluded areas.

Phoenicopterus roseus (Greater Flamingo) is listed as NT on a regional scale only. This species breed on large undisturbed alkaline and saline lakes, salt pans or coastal lagoons, usually far out from the shore after seasonal rains have provided the flooding necessary to isolate remote breeding sites from terrestrial predators and the soft muddy material for nest

building (IUCN, 2017). Due to the absence of its preferred habitat within the project area, combined the proximity of the urban area, the likelihood of occurrence is rated as low.

Polemaetus bellicosus (Martial Eagle) is listed as EN on a regional scale and VU on a global scale. This species has an extensive range across much of sub-Saharan Africa, but populations are declining due to deliberate and incidental poisoning, habitat loss, reduction in available prey, pollution and collisions with power lines (IUCN, 2017). It inhabits open woodland, wooded savanna, bushy grassland, thorn-bush and, in southern Africa, more open country and even sub-desert (IUCN, 2017). Large trees for roosting and nesting is absent from the project area and as such the likelihood of occurrence is rated as low.

Rostratula benghalensis (Greater Painted-snipe) shows a preference for recently flooded areas in shallow lowland freshwater temporary or permanent wetland, it has a wide range of these freshwater habitats which they occur in, in this case, some suitable habitat occur adjacent to the project area and as such the likelihood of occurrence is rated as moderate.

Sagittarius serpentarius (Secretarybird) occurs in sub-Saharan Africa and inhabits grasslands, open plains, and lightly wooded savanna. It is also found in agricultural areas and sub-desert (IUCN, 2017). The likelihood of occurrence is rated as low due to the absence of extensive grasslands and wetland areas present in the project area.

Sterna caspia (Caspian Tern) is native to South Africa and are known to occur in inland freshwater systems such as large rivers, creeks, floodlands, reservoirs and sewage ponds. Habitat suitability was found to be low and thus the likelihood of occurrence is low.

7.1.2.1.1 Important Bird and Biodiversity Areas

Important Bird and Biodiversity Areas (IBAs) are the sites of international significance for the conservation of the world's birds and other conservation significant species as identified by BirdLife International. These sites are also all Key Biodiversity Areas; sites that contribute significantly to the global persistence of biodiversity (Birdlife, 2017).

According to Birdlife International (2017), the selection of IBAs is achieved through the application of quantitative ornithological criteria, grounded in up-to-date knowledge of the sizes and trends of bird populations. The criteria ensure that the sites selected as IBAs have true significance for the international conservation of bird populations and provide a common currency that all IBAs adhere to, thus creating consistency among, and enabling comparability between, sites at national, continental and global levels.

The project area falls within the Magaliesberg IBA (Figure 9). 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. The most important trigger species in the IBA is the globally threatened Cape Vulture (*Gyps coprotheres*). The number of breeding pairs in the Skeerpoort colony seems to be stable at 200–250. Secretarybird (*Sagittarius serpentarius*) is the other globally threatened species in the IBA. Regionally threatened species are Lanner Falcon (*Falco biarmicus)*, Half-collared Kingfisher (*Alcedo semitorquata*), African Grass Owl (*Tyto capensis*), African Finfoot (*Podica senegalensis*) and Verreauxs' Eagle (*Aquila verreauxii*). 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 (*Calamonastes fasciolatus*) (Birdlife International, 2018). Even though the project area falls within this IBA,

due to the size of the IBA and the habitat found on the project area all the species do not have a very high likelihood of occurring in the project area.

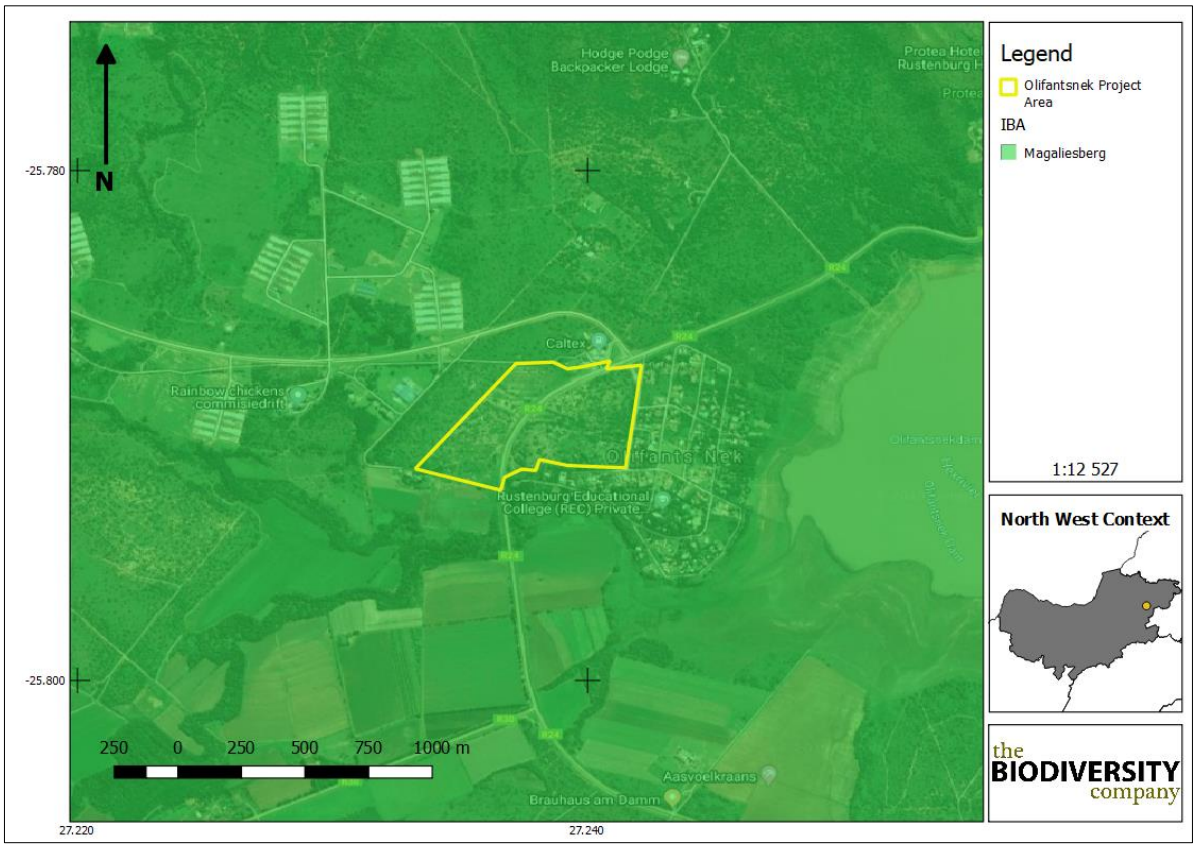

Figure 9: The project area in relation to defined IBA (Birdlife, 2017)

7.1.2.2 Mammals

The IUCN Red List Spatial Data (IUCN, 2017) lists 98 mammal species that could be expected to occur within the vicinity of the project area (Appendix C). Of these species, 17 are medium to large conservation dependant species, such as *Ceratotherium simum* (Southern White Rhinoceros) and *Equus quagga* (Plains Zebra) that, in South Africa, are generally restricted to protected areas such as game reserves. These species are not expected to occur in the project area and are removed from the expected SCC list. They are however still included in Appendix C.

Of the remaining 81 small to medium sized mammal species, fourteen(4) are listed as being of conservation concern on a regional or global basis (Table 4).

The list of potential species includes:

- Two (2) that is listed as EN on a regional basis;
- Four (4) that are listed as VU on a regional basis; and
- Seven (7) that are listed as NT on a regional scale.

Table 4: List of mammal species of conservation concern that may occur in the project area as well as their global and regional conservation statuses (IUCN, 2017; SANBI, 2016)

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Aonyx capensis	Cape Clawless Otter	NT	NT	Low
Atelerix frontalis	South Africa Hedgehog	NT	LC	High
Crocidura mariquensis	Swamp Musk Shrew	NT	LC	Low
Eidolon helvum	African Straw-colored Fruit Bat	LC	NT	Moderate
Felis nigripes	Black-footed Cat	VU	VU	Low
Hydrictis maculicollis	Spotted-necked Otter	VU	NT	Low
Leptailurus serval	Serval	NT	LC	Low
Mystromys albicaudatus	White-tailed Rat	VU	EN	Low
Ourebia ourebi	Oribi	EN	LC	Low
Panthera pardus	Leopard	VU	VU	Low
Parahyaena brunnea	Brown Hyaena	NT	NT	Moderate
Pelea capreolus	Grey Rhebok	NT	LC	Low
Poecilogale albinucha	African Striped Weasel	NT	LC	Moderate
Redunca fulvorufula	Mountain Reedbuck	EN	LC	Low

Aonyx capensis (Cape Clawless Otter) is the most widely distributed otter species in Africa (IUCN, 2017). This species is predominantly aquatic, and it is seldom found far from water. Based on the absence of rivers, dams or wetlands in the project area itself and the fact that these animals do not travel extensively the likelihood of occurrence in the project area is rated as low.

Atelerix frontalis (South African Hedgehog) has a tolerance of a degree of habitat modification and occurs in a wide variety of semi-arid and sub-temperate habitats (IUCN, 2017). Based on the Red List of Mammals of South Africa, Lesotho and Swaziland (2016), *A. frontalis* populations are decreasing due to the threats of electrocution, veld fires, road collisions, predation from domestic pets and illegal harvesting. Although the species is cryptic and therefore not often seen, there is suitable habitat in the project area and thus the likelihood of occurrence is rated as high.

Crocidura mariquensis (Swamp Musk Shrew) has very specific habitat requirements. It occurs in close proximity to open water with a distinct preference for marshy ponds, and riverine and semi-aquatic vegetation such as reed beds (IUCN, 2017). It is considered to be common in suitable habitats. Suitable habitat cannot be found in the project area, and as such the likelihood of occurrence is rated as low.

Eidolon helvum (African Straw-coloured Fruit Bat) is listed as LC on a regional scale and NT on a global scale. This species has been recorded from a very wide range of habitats across the lowland rainforest and savanna zones of Africa (IUCN, 2017). Although considered to be widespread and abundant across its range, certain populations are decreasing due to severe deforestation, hunting for food and medicinal use (IUCN, 2017). This species is known to form large roosts and colonies numbering in the thousands to even millions of individuals (IUCN, 2017). No colonies of this species are known to occur in the project area or in the immediate

vicinity and, although individuals may occasionally be recorded, it is not expected to be resident within the project area and therefore it's likelihood of occurrence is rated as moderate.

Felis nigripes (Black-footed cat) is endemic to the arid regions of southern Africa. This species is naturally rare, has cryptic colouring is small in size and is nocturnal. These factors have contributed to a lack of information on this species. Given that the highest densities of this species have been recorded in the more arid Karoo region of South Africa. Their ideal habitat is not found in the project area, thus the likelihood of finding this shy species in the project area is rated as low.

Hydrictis maculicollis (Spotted-necked Otter) inhabits freshwater habitats where water is un-silted, unpolluted, and rich in small to medium sized fishes (IUCN, 2017). Aquatic habitats is not present in the project area and as such the likelihood of occurrence is rated a low.

Leptailurus serval (Serval) occurs widely through sub-Saharan Africa and is commonly recorded from most major national parks and reserves (IUCN, 2017). The Serval's status outside reserves is not certain, but they are inconspicuous and may be common in suitable habitat as they are tolerant of farming practices provided there is cover and food available. In sub-Saharan Africa, they are found in habitat with well-watered savanna long-grass environments and are particularly associated with reedbeds and other riparian vegetation types. Natural grasslands and wetlands are absent from the project area and therefor the likelihood of occurrence is rated as low.

Mystromys albicaudatus (White-tailed Rat) is listed as VU on a regional basis and EN on a global scale. It is relatively widespread across South Africa and Lesotho; the species is known to occur in shrubland and grassland areas. A major requirement of the species is black loam soils with good vegetation cover. Although the vegetation type is unsuitable and no black loam seems to be present on site, therefore the likelihood of occurrence of this species is rated as low.

Ourebia ourebi (Oribi) has a patchy distribution throughout Africa and is known to occur in South Africa. Populations are becoming more fragmented as it is gradually eliminated from moderately to densely settled areas (IUCN, 2017). Oribi occur in a variety of habitats – from savannahs, floodplains and tropical grasslands with moderate to tall grasses, to montane grasslands at low altitudes. Based on the proximity to urban development and the likelihood of persecution the chance of occurrence is rated as low.

Panthera pardus (Leopard) has a wide distributional range across Africa and Asia, but populations have become reduced and isolated, and they are now extirpated from large portions of their historic range (IUCN, 2017). Impacts that have contributed to the decline in populations of this species include continued persecution by farmers, habitat fragmentation, increased illegal wildlife trade, excessive harvesting for ceremonial use of skins, prey base declines and poorly managed trophy hunting (IUCN, 2017). Although known to occur and persist outside of formally protected areas, the densities in these areas are considered to be low. The likelihood of occurrence in the project area is rated as low due to the chance of persecution as well as the lack of suitable prey species.

Parahyaena brunnea (Brown Hyaena) is endemic to southern Africa. This species occurs in dry areas, generally with annual rainfall less than 100 mm, particularly along the coast, semi-desert, open scrub and open woodland savanna. Given its known ability to persist outside of

formally protected areas the likelihood of occurrence of this species in the project area is moderate to good.

Pelea capreolus (Grey Rhebok) is endemic to a small region in southern Africa, inhabiting montane and plateau grasslands of South Africa, Swaziland, and Lesotho. In South Africa, their distribution is irregular and patchy, and they no longer occur north of the Orange River in the Northern Cape, or in parts of the North-West Province (IUCN, 2017). Grey Rhebok can be found in suitable habitat which has rocky hills, grassy mountain slopes, and montane and plateau grasslands in southern Africa. They are predominantly browsers, and largely water independent, obtaining most of their water requirements from their food. Rocky habitat is not present in the project area and as such the likelihood of occurrence is low.

Poecilogale albinucha (African Striped Weasel) is usually associated with savanna habitats, although it probably has a wider habitat tolerance (IUCN, 2017). Due to its secretive nature, it is often overlooked in many areas where it does occur. There is sufficient habitat for this species in the project area and the likelihood of occurrence of this species is therefore considered to be moderate.

Redunca fulvorufula (Mountain Reedbuck) is listed as EN both regionally and globally. The South African population has undergone a decline of 61-73% in the last three generations (15 years) (IUCN, 2017). Mountain Reedbuck live on ridges and hillsides in broken rocky country and high-altitude grasslands (often with some tree or bush cover). There is not extensive mountainous regions in the project area, neither are there valleys and rocky ridges that this species may utilise and as such, the likelihood of occurrence for this species is rated as low.

7.1.2.3 Herpetofauna (Reptiles & Amphibians)

7.1.2.3.1 Reptiles

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the ReptileMap database provided by the Animal Demography Unit (ADU, 2017) 82 reptile species are expected to occur in the project area (Appendix D). Two (2) reptile SCC are expected to be present in the project area (Table 5).

Table 5: Expected reptile SCC that may occur in the project area

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Crocodylus niloticus	Nile Crocodile	VU	LC	Low
Pseudocordylus transvaalensis	Northern Crag Lizard	NT	NT	Low

Crocodylus niloticus (Nile Crocodile) prefers permanent water bodies with suitable sandy banks for basking and egg-laying. This species is often persecuted by people. No suitable rivers are found in the project area; thus the likelihood of occurrence is rated as low.

Pseudocordylus transvaalensis (Northern Crag Lizard) is categorised as NT on both a regional and a global scale. This species is threatened by the pet trade and is listed on CITES. Rocky habitat cannot be found in the project area, thus the likelihood of occurrence is rated as low.

7.1.2.3.2 Amphibians

Based on the IUCN Red List Spatial Data (IUCN, 2017) and the AmphibianMap database provided by the Animal Demography Unit (ADU, 2017) thirty (30) amphibian species are expected to occur in the project area (Appendix E).

One (1) amphibian SCC could be present in the project area according to the above-mentioned sources (Table 6).

Table 6: Amphibian SCC which may occur in the project area

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Pyxicephalus adspersus	Giant Bullfrog	NT	LC	Low

The Giant Bull Frog (*Pyxicephalus adspersus*) is a SCC that will possibly occur in the project area. The Giant Bull Frog is listed as NT on a regional scale. It is a species of drier savannahs. It is fossorial for most of the year, remaining buried in cocoons. They emerge at the start of the rains, and breed in shallow, temporary waters in pools, pans and ditches (IUCN, 2017). Suitable habitat is absent in the project area and as such the likelihood of occurrence is rated as low.

7.2 Field Survey

The field survey for the project area was conducted on the 8th of July 2019 by a terrestrial ecologist. During the surveys the floral and faunal communities within the project development footprint were assessed. The project area was ground-truthed on foot, which included spot checks in pre-selected areas to validate desktop data. Photographs were recorded during the site visits and some are provided in this section of the report. All site photographs are available on request.

7.2.1 Habitat Assessment

Habitats identified during the field visit can be seen in Figure 11. Three primary habitats were delineated for this assessment, namely: Degraded habitat, Secondary Bushveld and Transformed habitat.

Secondary Bushveld are the areas which are considered to have been disturbed from their natural state, currently and historically and is in a semi-natural state. Sections of bare soil are visible due to a combination of over grazing and anthropogenic activities (Figure 10).

The degraded area is an area which has been used as an agricultural field in the past, but has recovered somewhat from the transformed state it was in, however due to the extent of the previous disturbance, and the current impacts from the anthropogenic surroundings, the area is in a degraded state.

The transformed areas are the areas which have little to no natural areas left due to them being transformed for roads and other infrastructure.(Figure 10).

Figure 10: Habitats within the project area; A & B) Secondary Bushveld, C) Transformed Habitat and D) Degraded Habitat.

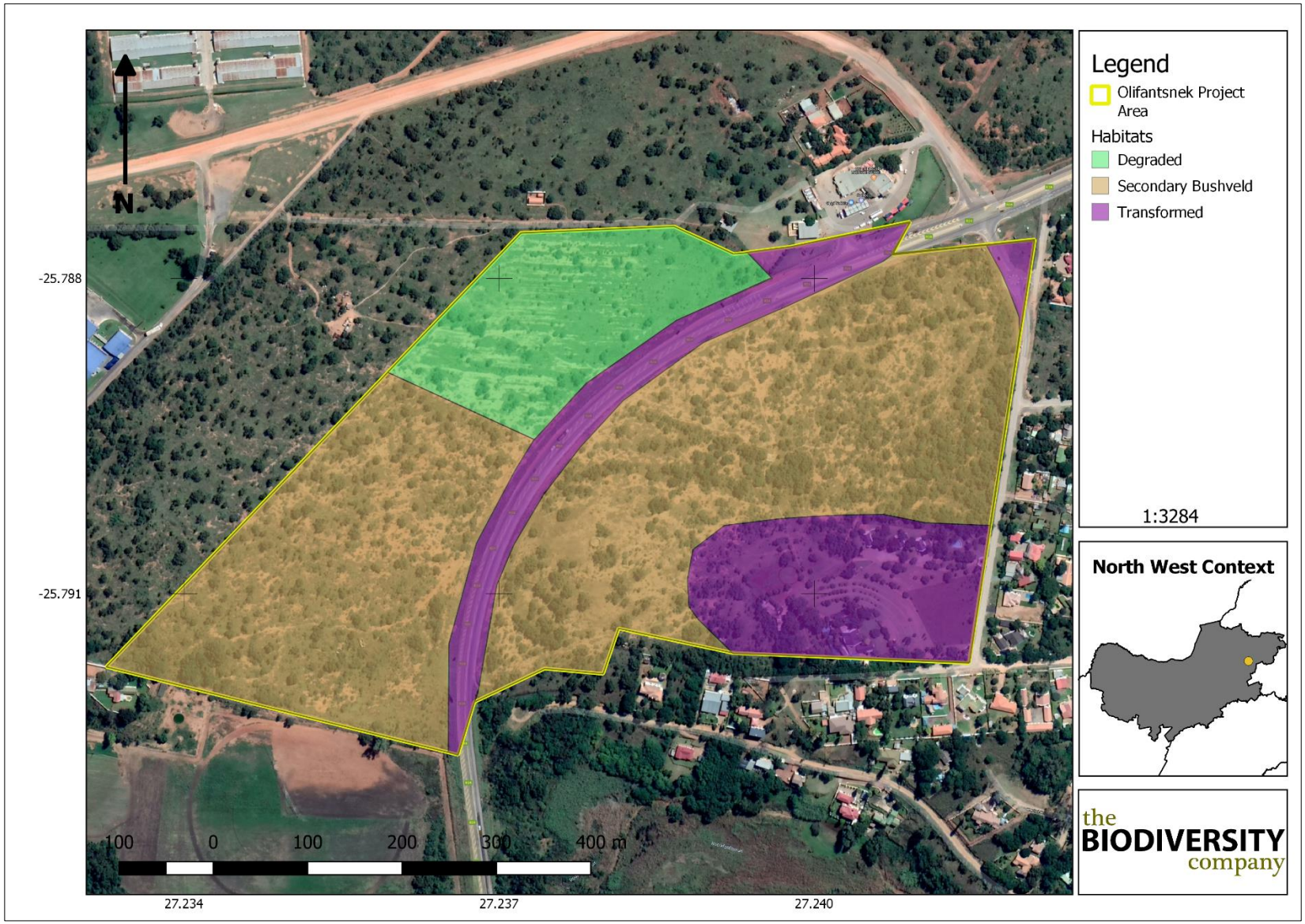

Figure 11: Habitats identified in the general project area

7.2.2 Vegetation Assessment

The vegetation assessment was conducted throughout the extent of the project area. A total of 52 tree, shrub and herbaceous plant species were recorded in the project area during the field assessment (Table 7). Plants listed as Category 1 alien or invasive species under the National Environmental Management: Biodiversity Act (NEMBA) appear in green text. Plants listed in Category 2 or as 'not indigenous' or 'naturalised' according to NEMBA, appear in blue text.

Table 7: Trees, shrubs and weeds recorded at the proposed project area

Scientific Name	Threat Status (SANBI, 2017)	SA Endemic	NEMBA Category
Achyranthes aspera			Not Indigenous; Naturalised
Aloe greatheadii	LC	No	
Alternanthera pungens			Not Indigenous; Naturalised
Argemone ochroleuca			NEMBA Category 1b
Aristida adscensionis	LC	No	
Aristida congesta* subsp *barbicollis	LC	No	
Aristida congesta* subsp *congesta	LC	No	
Bidens pilosa			Not Indigenous; Naturalised
Buddleja saligna	LC	No	
Carissa bispinosa	LC	No	
Cereus jamacaru			NEMBA Category 1b
Cymbopogon caesius	LC	No	
Cynodon dactylon			NEMBA Category 2
Datura ferox			NEMBA Category 1b
Digitaria eriantha	LC	No	
Ehretia rigida	LC	Yes	
Eragrostis rigidior	LC	No	
Eragrostis nitens	LC	No	
Eragrostis superba	LC	No	
Eucalyptus camaldulensis			NEMBA Category 1b
Euclea crispa	LC	No	
Felicia muricata	LC	No	
Grewia monticola	LC	No	
Gymnosporia buxifolia	LC	No	
Hermannia depressa	LC	No	
Heteropogon contortus	LC	No	
Hilliardiella oligocephala	LC	No	
Hyperthelia dissoluta	LC	No	
Kyphocarpa angustifolia	LC	No	
Lippia javanica			Not Indigenous; Naturalised
Macledium zeyheri	LC	No	
Melia azedarach			NEMBA Category 1b
Melinis repens	LC	No	

Morus alba			**NEMBA Category 2**
Olea europaea subsp africana	LC	No	
Opuntia ficus-indica			**NEMBA Category 1b**
Panicum maximum	LC	No	
Schkuhria pinnata			**Not Indigenous; Naturalised**
Searsia lancea	LC	No	
Senegalia galpinii	LC	No	
Setaria verticillata	LC	No	
Solanum panduriforme	LC	No	
Tagetes minuta			**Not Indigenous; Naturalised**
Themeda triandra	LC	No	
Trichoneura grandiglumis	LC	No	
Vachellia karoo	LC	No	
Vachellia robusta	LC	No	
Vachellia tortilis	LC	No	
Vangueria infausta	LC	No	
Verbena astrigera	LC	No	
Ziziphus mucronata	LC	No	
Ziziphus zeyheriana	LC	No	

7.2.2.1 Alien and Invasive Plants

Declared weeds and invader plant species have the tendency to dominate or replace the canopy or herbaceous layer of natural ecosystems, thereby transforming the structure, composition and function of these systems. Therefore, it is important that these plants are controlled and eradicated by means of an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species.

The National Environmental Management: Biodiversity Act (NEMBA) is the most recent legislation pertaining to alien invasive plant species. In August 2014, the list of Alien Invasive Species was published in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (Government Gazette No 78 of 2014). The Alien and Invasive Species Regulations were published in the Government Gazette No. 37886, 1 August 2014, and was amended in February 2018 in the Government Gazette No. 41445. The legislation calls for the removal and / or control of alien invasive plant species (Category 1 species). In addition, unless authorised thereto in terms of the National Water Act, 1998 (Act No. 36 of 1998), no land user shall allow Category 2 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland. Category 3 plants are also prohibited from occurring within proximity to a watercourse.

Below is a brief explanation of the three categories in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA):

- Category 1a: Invasive species requiring compulsory control. Remove and destroy. Any specimens of Category 1a listed species need, by law, to be eradicated from the environment. No permits will be issued.

- Category 1b: Invasive species requiring compulsory control as part of an invasive species control programme. Remove and destroy. These plants are deemed to have such a high invasive potential that infestations can qualify to be placed under a government sponsored invasive species management programme. No permits will be issued.
- Category 2: Invasive species regulated by area. A demarcation permit is required to import, possess, grow, breed, move, sell, buy or accept as a gift any plants listed as Category 2 plants. No permits will be issued for Category 2 plants to exist in riparian zones.
- Category 3: Invasive species regulated by activity. An individual plant permit is required to undertake any of the following restricted activities (import, possess, grow, breed, move, sell, buy or accept as a gift) involving a Category 3 species. No permits will be issued for Category 3 plants to exist in riparian zones.

Note that according to the regulations, a person who has under his or her control a category 1b listed invasive species must immediately:

- Notify the competent authority in writing
- Take steps to manage the listed invasive species in compliance with:
    - Section 75 of the Act;
    - The relevant invasive species management programme developed in terms of regulation 4; and
    - Any directive issued in terms of section 73(3) of the Act.

Six (6) Category 1b invasive plant species were recorded within the project area and it is recommended that an alien invasive plant management programme be implemented in compliance of section 75 of the Act as stated above. The NEMBA listed species identified within the project area are marked in green.

7.2.3 Fauna

7.2.3.1 Avifauna

Seventeen (17) bird species were recorded in the project area during the July 2019 survey based on either direct observations, vocalisations, or the presence of visual tracks & signs (Table 8 and Figure 12). No SCCs were observed, it is however possible that SCCs can occur in the area, based on the semi-natural state of the area.

Table 8: A list of avifaunal species recorded for the project area

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acridotheres tristis	Myna, Common	Unlisted	LC
Burhinus capensis	Thick-knee, Spotted	Unlisted	LC
Chalcomitra amethystina	Sunbird, Amethyst	Unlisted	LC
Cinnyris talatala	Sunbird, White-bellied	Unlisted	LC
Corythaixoides concolor	Go-away-bird, Grey	Unlisted	LC

Dicrurus adsimilis	Drongo, Fork-tailed	Unlisted	LC
Lanius collaris	Fiscal, Common (Southern)	Unlisted	LC
Passer domesticus	Sparrow, House	Unlisted	LC
Plocepasser mahali	Sparrow-weaver, White-browed	Unlisted	LC
Pycnonotus tricolor	Bulbul, Dark-capped	Unlisted	Unlisted
Streptopelia senegalensis	Dove, Laughing	Unlisted	LC
Sylvietta rufescens	Crombec, Long-billed	Unlisted	LC
Turdoides jardineii	Babbler, Arrow-marked	Unlisted	LC
Turdus litsitsirupa	Thrush, Groundscraper	Unlisted	Unlisted
Uraeginthus angolensis	Waxbill, Blue	Unlisted	LC
Vanellus armatus	Lapwing, Blacksmith	Unlisted	LC
Vanellus coronatus	Lapwing, Crowned	Unlisted	LC

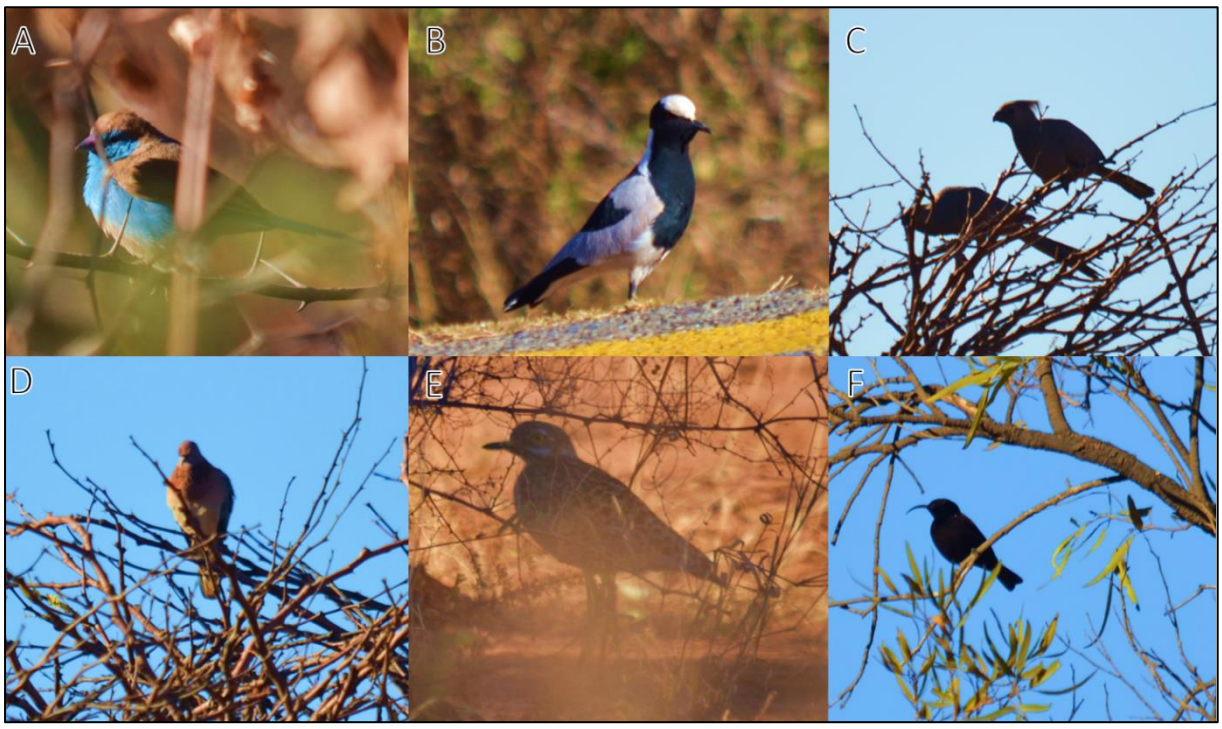

Figure 12: Some of the avifauna recorded within the project area: A) Blue waxbill (Uraeginthus angolensis), B) Blacksmith Lapwing (Vanellus armatus), C) Grey Go-away birds (Corythaixoides concolor), D) Laughing Dove (Streptopelia senegalensis), E) Spotted Thick-knee (Burhinus capensis) and F) Amethyst Sunbird (Chalcomitra amethystina)

7.2.3.2 Mammals

Overall, mammal diversity in the project area was low, with four mammal species being recorded during the July 2019 survey based on direct observations and/or the presence of visual tracks & signs (

Table 9 and Figure 13). The species observed are adaptable species, that can thrive in areas that has been somewhat disturbed. No SCCs were observed, however some might be present in the area.

Table 9: Mammal species recorded in the project area during the July 2019 survey

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Canis mesomelas	Black-backed Jackal	LC	LC
Hystrix africaeaustralis	Cape Porcupine	LC	LC
Lepus saxatilis	Scrub Hare	LC	LC
Paraxerus cepapi	Tree Squirrel	LC	LC

Figure 13: Some of the mammals recorded within the project area: A) Tree Squirrel (Paraxerus cepapi) and B) Scrub Hare droppings (Lepus saxatilis)

7.2.3.3 Herpetofauna (Reptiles & Amphibians)

Herpetofauna diversity was considered to be low in the area. No reptiles or amphibians were recorded in the project area, this is ascribed to the season in which the survey was undertaken. However, it is unlikely that the herpetofauna SCCs that are expected will occur in the area as there is a lack of aquatic habitat as well as a lack of suitable rocky habitat.

7.3 Area Sensitivity

The sensitivity scores identified during the field survey for each habitat were then visually mapped (Figure 14).

Areas that were classified as having low sensitivities are those areas which were deemed by the specialists to have been most impacted upon and/or were modified from their original condition due to factors such as overgrazing, human activity and/or presence of alien invasive species.

The areas that were classified with moderate are existing habitats have been modified or degraded, even though these areas area in a semi-natural state these areas are considered moderate due to the fact that the area is fragmented from other more natural areas.

It is important to note that this map does not replace any local, provincial or government legislation relating to these areas or the land use capabilities or sensitivities of these environments

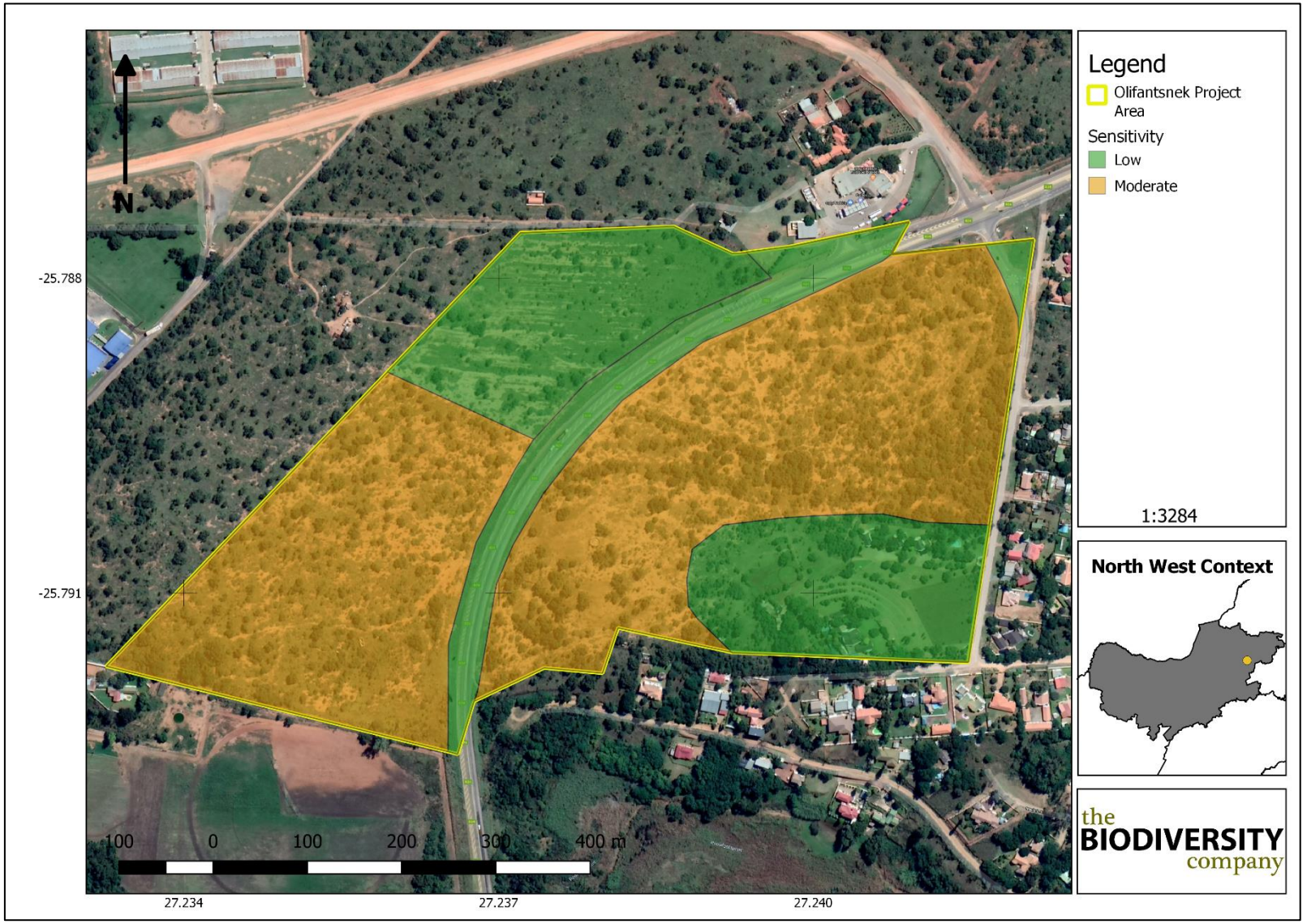

Figure 14: Habitat sensitivity map of the project area

8 Impact Assessment

In general, development-related activities can have significant impacts on biodiversity and ecosystem services, often causing irreversible and large-scale habitat loss across large areas or areas important for the provision of important ecosystem services.

Key impacts commonly associated with development activities are discussed below. The significance (quantification) of potential environmental impacts has been assessed in terms of the Guideline Documentation on EIA Regulation; Department of Environmental Affairs and Tourism, 2014 (Impact Assessment Methodology, Appendix 6).

8.1 Impact Assessment Methodology

Potential impacts were evaluated against the data captured during the desktop-and field assessment to identify relevance to the project area. The relevant impacts associated with the proposed project were then subjected to a prescribed impact assessment methodology which is available on request.

8.2 Current Impacts

During the field survey, the current impacts that are having a negative impact on the area were identified, and are listed below and some are shown in Figure 15;

- Old and current building infrastructure;
- Secondary roads and cleared areas;
- Livestock;
- Litter and rubbish;
- Invasive plant species; and
- Powerlines within the vicinity of the project area.

Figure 15: Impacts observed during the fieldwork A) Old buildings, B) Powerlines, C) rubble dumping, D) Alien plant species, E) Livestock enclosure and F) Gravel roads.

8.3 Identification of Potential Impacts

The activities will likely lead to the loss and destruction of habitats, direct mortalities and displacement of fauna and flora. The removal of natural vegetation to accommodate infrastructure can result in a reduction in the animal population numbers and species compositions within the area. Wildlife movement corridors will also be altered. A planning, construction and operational phase were considered. A closure phase was not considered as it is assumed this will be a long-term fixture, should the school be closed and demolished a rehabilitation plan needs to be compiled and followed. The potential impacts associated with the project are discussed below.

8.3.1 Planning Phase

The planning phase activities are considered a low risk as they typically involve desktop assessments and initial site inspections. This phase of the assessment would include, amongst others, site visits of various contractors, environmental and social impact

assessment and compiling of management plans. Only one minor impact was assessed regarding the planning phase:

- Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles.

8.3.2 Construction Phase

The following potential impacts were considered on biodiversity (including fauna and flora) based on the clearance for infrastructure as well as disturbances such as dust and noise:

- Destruction of, and fragmentation of, portions of the vegetation community (VU vegetation type);
- Loss of portions of CBA2 and ESA1, as well as a section of the Magaliesberg IBA; and
- Displacement of faunal community (including possible threatened or protected species) due to habitat loss, disturbance (noise, dust and vibration) and/or direct mortalities.

8.3.3 Operational Phase

The following potential impacts were considered on biodiversity (fauna and flora) during operational phase:

- Continued disturbance of vegetation communities (including portions of an ESA2, CBA1 and VU vegetation type);
- Encroachment by alien invasive plant species;
- Introduction of pest species (e.g. rats and flies) due to the new habitats that's created by the waste bins; and
- Ongoing displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances because of the increase in traffic in the area.

8.4 Assessment of Significance

The summary tables below show the significance of the potential impacts, the impacts were based on the desktop information and the infield survey.

8.4.1 Planning and Construction Phase

The table below (Table 10) presents the significance of potential planning phase impacts on the terrestrial ecosystems and biodiversity before and after implementation of mitigation measures. This aspect of the project scored low, it was however considered that tests and evaluations will need to be performed on site and as such the ratings were slightly increased pre-mitigations.

The impact on the flora community is rated as *moderately high* because of the classification of the vegetation type (VU), along with the type of construction and the fact that the vegetation will be removed completely. Post mitigations this impact was lowered to having a *moderate* rating. The impact on the fauna was considered moderate prior to mitigations and low post mitigations. The fauna species found in the area, are adaptable and if they do need to move into new habitat sufficient habitat is available adjacent to the project area.

*Table 10: Assessment of significance of potential **impacts** on terrestrial biodiversity associated with the development pre- and post- mitigation during the planning and construction phases*

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Temporary disturbance of wildlife due to increased human presence and possible use of machinery and/or vehicles.	2	2	3	3	3		2	2	2	3	2	
	One month to one year: Short Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Likely	**Low**	One month to one year: Short Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Possible	**Low**
Destruction of, and fragmentation of, portions of the vegetation community (VU vegetation type)	3	4	4	3	4		3	3	3	3	3	
	One year to five years: Medium Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Likely	**Moderate**
Loss of portions of CBA2 and ESA1, as well as a section of the Magaliesberg IBA	3	4	4	3	4		3	3	3	3	3	
	One year to five years: Medium Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Likely	**Moderate**

Displacement of faunal community (including possible threatened or protected species) due to habitat loss, disturbance (noise, dust and vibration) and/or direct mortalities.	3	4	3	3	4		3	3	3	2	3	
	One year to five years: Medium Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Highly likely	**Moderate**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology with limited sensitivity/importance	Likely	**Low**

8.4.2 Operational Phase

Continued disturbance to the vegetation community was given a moderately-high rating pre mitigation and was lowered to moderate post mitigation. The mitigations for this includes the demarcation of the access roads to ensure that adjacent vegetation is not impacted. Alien invasive plant species are likely to become a problem as the soil has been disturbed (Table 11). Prior to mitigations this impact was given a *Moderately-High* rating after implementing of an alien invasive management plan this impact was lowered to a *Low* rating. The level of waste in the area will increase, resulting in an increase in the increase in pest species. By following a waste management plan as well as pest control guidelines this *Moderately High* impact can be reduced to *Low*. During the operational phase it is assumed that the volume of traffic would increase based on the type of development (school). This increases the risk for fauna species and as such the impact prior to mitigations were rated as *Moderately-High* which was lowered to *Low* post mitigations. Mitigations implemented here includes speed bumps.

*Table 11: Assessment of significance of potential **impacts** on terrestrial biodiversity associated with the development pre- and post- mitigation during the operational phases*

Impact	Prior to mitigation						Post mitigation					
	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance	Duration of Impact	Spatial Scope	Severity of Impact	Sensitivity of Receiving Environment	Probability of Impact	Significance
Continued disturbance of vegetation communities (including portions of an ESA2, CBA1 and VU vegetation type)	5	4	3	4	3		5	3	3	3	3	
	Permanent	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Significant / ecosystem structure and function moderately altered	Ecology highly sensitive /important	Likely	**Moderately High**	Permanent	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Significant / ecosystem structure and function moderately altered	Ecology moderately sensitive/ /important	Likely	**Moderate**
Encroachment by alien invasive plant species	3	4	4	3	4		3	2	3	2	2	
	One year to five years: Medium Term	Regional within 5 km of the site boundary / < 2000ha impacted / Linear features affected < 3000m	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Development specific/ within the site boundary / < 100 ha impacted / Linear features affected < 100m	Significant / ecosystem structure and function moderately altered	Ecology with limited sensitivity/importance	Possible	**Low**
Introduction of pest species (e.g. rats and flies) due to the new habitats that's created	3	4	4	3	4		3	3	3	3	2	
	One year to five years: Medium Term	Regional within 5 km of the site boundary / < 2000ha	Great / harmful/ ecosystem structure and function	Ecology moderately sensitive/ /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear	Significant / ecosystem structure and function	Ecology moderately sensitive/ /important	Possible	**Low**

by the waste bins		impacted / Linear features affected < 3000m	largely altered					features affected < 1000m	moderately altered			
Ongoing displacement, direct mortalities and disturbance of faunal community (including multiple threatened species) due to habitat loss and disturbances because of the increase in traffic in the area.	4	3	4	3	4		3	3	2	3	3	
	Life of operation or less than 20 years: Long Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Great / harmful/ ecosystem structure and function largely altered	Ecology moderately sensitive/ /important	Highly likely	**Moderately High**	One year to five years: Medium Term	Local area/ within 1 km of the site boundary / < 5000ha impacted / Linear features affected < 1000m	Small / ecosystem structure and function largely unchanged	Ecology moderately sensitive/ /important	Likely	**Low**

8.5 Mitigation Measure Objectives

The focus of mitigation measures is, how can the impact on the fauna and flora be reduced.

8.5.1 Mitigation Measures for Impacts

The recommended mitigation and rehabilitation measures include the following:

- It is recommended that areas to be developed be specifically demarcated so that during the construction phase and operational phase, only the demarcated areas be impacted upon. All working areas must be clearly demarcated from surrounding areas and no persons should be allowed to enter these areas under any circumstances;
- Areas that were denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species
- Prior and during vegetation clearance any larger fauna species noted should be given the opportunity to move away from the construction machinery;
- A qualified ECO must be on site when construction begins to identify species that will be directly disturbed and to relocate fauna/flora that are found during the construction activities.
- Speed limits and speed bumps must be implemented in the area to lower the risk of road killings and dust generated in the area;
- As far as possible, no further loss of vegetation (unless it is unavoidable to do so otherwise) should be allowed, this can be achieved by demarcating the constructing area, as well as roads in the operational phase and prohibiting access to adjacent area;
- Existing access routes and walking paths must be made use of, and new routes limited;
- No trapping, killing or poisoning of any wildlife is to be allowed on site and within the surrounding area, including snakes, birds, lizards, frogs, insects or mammals;
- The duration of the construction should be minimized to as short term as possible, in order to reduce the period of disturbance on fauna and flora;
- Rehabilitation of the disturbed areas existing in the project area must be made a priority and any disturbed areas that do not form a direct part of the development or its landscaped gardens must be re-vegetated with plant species which are endemic to this vegetation type;
- Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site;
- The storage of the construction material to be built is not to be stored for extended periods of time and storage areas must be placed in low sensitivity areas;
- Staff should be educated about the sensitivity of faunal species and measures should be put in place to deal with any species that are encountered during the construction process;

- All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas; and
- Have action plans on site, and training for contactors and employees in the event of spills, leaks and other impacts to the surrounding environment.

9 Recommendations

The following recommendations are provided:

- A vegetation alien invasive management plan needs to be implemented;
- A waste management plan needs to be compiled and implemented; and
- A rehabilitation plan needs to be implemented in the disturbed area.

10 Conclusion

The completion of a study, in conjunction with the detailed results from the survey means that there is a high confidence in the information provided. The survey, which was completed, and the corresponding studies resulted in good site coverage, within the proposed footprint area, assessing the major habitats and ecosystems, obtaining a general species (fauna and flora) overview and observing the major current impacts.

It is clear from the regional ecological overview, as well as the baseline data collected to date that the project area is an assembly of different conditions and some that have been altered both historically and presently. Current impacts include secondary roads, dumping of rubble, housing, livestock, alien invasive plant species as well as powerlines and telephone lines. The areas classified as CBA1 and ESA2 according to the North-West Biodiversity Sector Plan have been altered and degraded to a state where they do not represent the definition of these areas and therefor have a reduced sensitivity.

However, despite these impacts, the remaining natural habitats exhibit a somewhat healthy ecological functionality, integrity and provide habitat for some generalist species. It is possible that the area can still host SCCs however none were observed during the field survey. Thus, it is imperative that the mitigations are strictly followed and adhered to.

11 Impact Statement

An impact statement is required as per the NEMA EIA regulations (as amended) with regards to the proposed development.

Based on the findings of this report, and the outcomes of the field surveys, it is the opinion of the specialists that the proposed development can be favourably considered. It is imperative that the recommendations and mitigations in this report be strictly adhered to.

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APPENDIX A: *Floral species expected to occur in the project area*

Family	Taxon	Author	IUCN	Ecology
Euphorbiaceae	*Acalypha glabrata var. glabrata*	Thunb.	LC	Indigenous
Euphorbiaceae	*Acalypha glabrata var. pilosa*	Thunb.	LC	Indigenous
Euphorbiaceae	*Acalypha villicaulis*	Hochst.	LC	Indigenous
Asteraceae	*Adenostemma caffrum*	DC.	LC	Indigenous
Lamiaceae	*Aeollanthus buchnerianus*	Briq.	LC	Indigenous
Rubiaceae	*Afrocanthium gilfillanii*	(N.E.Br.) Lantz	LC	Indigenous
Loranthaceae	*Agelanthus natalitius subsp. zeyheri*	(Meisn.) Polhill & Wiens	LC	Indigenous
Apiaceae	*Alepidea setifera*	N.E.Br.	LC	Indigenous
Poaceae	*Alloteropsis semialata subsp. eckloniana*	(R.Br.) Hitchc.	LC	Indigenous
Poaceae	*Alloteropsis semialata subsp. semialata*	(R.Br.) Hitchc.	LC	Indigenous
Asphodelaceae	*Aloe davyana*	Schonland		Indigenous; Endemic
Cyatheaceae	*Alsophila dregei*	(Kunze) R.M.Tryon	LC	Indigenous
Anacampserotaceae	*Anacampseros subnuda subsp. subnuda*	Poelln.	LC	Indigenous
Apocynaceae	*Ancylobotrys capensis*	(Oliv.) Pichon	LC	Indigenous
Poaceae	*Andropogon chinensis*	(Nees) Merr.	LC	Indigenous
Bryaceae	*Anomobryum julaceum*	(Schrad. ex G.Gaertn., B.Mey. & Schreb.) Schimp.		Indigenous
Melastomataceae	*Antherotoma debilis*	(Sond.) Jacq.-Fel.	LC	Indigenous
Icacinaceae	*Apodytes dimidiata subsp. dimidiata*	E.Mey. ex Arn.	LC	Indigenous
Poaceae	*Aristida aequiglumis*	Hack.	LC	Indigenous
Poaceae	*Aristida congesta subsp. congesta*	Roem. & Schult.	LC	Indigenous
Poaceae	*Aristida junciformis subsp. junciformis*	Trin. & Rupr.	LC	Indigenous
Poaceae	*Aristida spectabilis*	Hack.	LC	Indigenous
Poaceae	*Aristida stipitata subsp. graciliflora*	Hack.	LC	Indigenous
Poaceae	*Arundinella nepalensis*	Trin.	LC	Indigenous
Cyperaceae	*Ascolepis capensis*	(Kunth) Ridl.	LC	Indigenous
Asparagaceae	*Asparagus angusticladus*	(Jessop) J.-P.Lebrun & Stork	LC	Indigenous
Aspleniaceae	*Asplenium inaequilaterale*	Bory ex Willd.	LC	Indigenous
Aytoniaceae	*Asterella bachmannii*	(Steph.) S.W.Arnell		Indigenous
Aytoniaceae	*Asterella muscicola*	(Steph.) S.W.Arnell		Indigenous
Polytrichaceae	*Atrichum androgynum*	(Mull.Hal.) A.Jaeger		Indigenous
Pottiaceae	*Barbula eubryum*	Mull.Hal.		Indigenous
Acanthaceae	*Barleria pretoriensis*	C.B.Clarke	LC	Indigenous
Asteraceae	*Berkheya carlinopsis subsp. magalismontana*	Welw. ex O.Hoffm.	LC	Indigenous; Endemic
Asteraceae	*Berkheya seminivea*	Harv. & Sond.	LC	Indigenous; Endemic
Apiaceae	*Berula repanda*	(Hiern) Spalik & S.R.Downie	LC	Indigenous

Blechnaceae	*Blechnum attenuatum*	(Sw.) Mett.	LC	Indigenous
Bryaceae	*Brachymenium acuminatum*	Harv.		Indigenous
Bryaceae	*Bryum apiculatum*	Schwagr.		Indigenous
Bryaceae	*Bryum argenteum*	Hedw.		Indigenous
Scrophulariaceae	*Buddleja saligna*	Willd.	LC	Indigenous
Cyperaceae	*Bulbostylis burchellii*	(Ficalho & Hiern) C.B.Clarke	LC	Indigenous
Cyperaceae	*Bulbostylis contexta*	(Nees) M.Bodard	LC	Indigenous
Fabaceae	*Burkea africana*	Hook.	LC	Indigenous
Burmanniaceae	*Burmannia madagascariensis*	Mart.	LC	Indigenous
Leucobryaceae	*Campylopus introflexus*	(Hedw.) Brid.		Indigenous
Leucobryaceae	*Campylopus pyriformis*	(F.W.Schultz) Brid.		Indigenous
Rubiaceae	*Canthium suberosum*	Codd	LC	Indigenous
Apocynaceae	*Carissa bispinosa*	(L.) Desf. ex Brenan	LC	Indigenous
Scrophulariaceae	*Chaenostoma leve*	(Hiern) Kornhall	LC	Indigenous
Pteridaceae	*Cheilanthes hirta var. hirta*	Sw.	LC	Indigenous
Amaranthaceae	*Chenopodium schraderianum*	Roem. & Schult.		notIndigenous; Naturalised
Thelypteridaceae	*Christella gueinziana*	(Mett.) Holttum		Indigenous
Ranunculaceae	*Clematis brachiata*	Thunb.	LC	Indigenous
Cleomaceae	*Cleome maculata*	(Sond.) Szyszyl.	LC	Indigenous
Cleomaceae	*Cleome monophylla*	L.	LC	Indigenous
Euphorbiaceae	*Clutia pulchella var. franksiae*	L.	LC	Indigenous; Endemic
Cucurbitaceae	*Coccinia adoensis*	(A.Rich.) Cogn.	LC	Indigenous
Combretaceae	*Combretum molle*	R.Br. ex G.Don	LC	Indigenous
Commelinaceae	*Commelina africana var. africana*	L.	LC	Indigenous
Commelinaceae	*Commelina modesta*	Oberm.	LC	Indigenous
Crassulaceae	*Crassula swaziensis*	Schonland	LC	Indigenous
Linderniaceae	*Craterostigma wilmsii*	Engl. ex Diels	LC	Indigenous; Endemic
Fabaceae	*Crotalaria distans subsp. distans*	Benth.	LC	Indigenous
Fabaceae	*Crotalaria sphaerocarpa subsp. sphaerocarpa*	Perr. ex DC.	LC	Indigenous
Euphorbiaceae	*Croton gratissimus var. gratissimus*	Burch.	LC	Indigenous
Cucurbitaceae	*Cucumis melo subsp. melo*	L.	LC	Indigenous
Araliaceae	*Cussonia transvaalensis*	Reyneke	LC	Indigenous; Endemic
Poaceae	*Cymbopogon marginatus*	(Steud.) Stapf ex Burtt Davy	LC	Indigenous
Orchidaceae	*Cynorkis kassneriana*	Kraenzl.	LC	Indigenous
Cyperaceae	*Cyperus cyperoides subsp. pseudoflavus*	(L.) Kuntze	LC	Indigenous
Cyperaceae	*Cyperus leptocladus*	Kunth	LC	Indigenous
Cyperaceae	*Cyperus margaritaceus var. margaritaceus*	Vahl	LC	Indigenous
Lobeliaceae	*Cyphia stenopetala*	Diels	LC	Indigenous
Aizoaceae	*Delosperma sp.*			
Asteraceae	*Dicoma anomala subsp. anomala*	Sond.	LC	Indigenous

Iridaceae	*Dierama mossii*	(N.E.Br.) Hilliard	LC	Indigenous
Poaceae	*Diheteropogon amplectens var. amplectens*	(Nees) Clayton	LC	Indigenous
Ebenaceae	*Diospyros lycioides subsp. guerkei*	Desf.	LC	Indigenous
Ebenaceae	*Diospyros lycioides subsp. lycioides*	Desf.	LC	Indigenous
Ditrichaceae	*Ditrichum difficile*	(Duby) M.Fleisch.		Indigenous
Malvaceae	*Dombeya rotundifolia var. rotundifolia*	(Hochst.) Planch.	LC	Indigenous
Salicaceae	*Dovyalis zeyheri*	(Sond.) Warb.	LC	Indigenous
Hyacinthaceae	*Drimia altissima*	(L.f.) Ker Gawl.	LC	Indigenous
Droseraceae	*Drosera collinsiae*	N.E.Br. ex Burtt Davy	LC	Indigenous
Dumortieraceae	*Dumortiera hirsuta*	(Sw.) Nees		Indigenous
Rubiaceae	*Empogona lanceolata*	(Sond.) Tosh & Robbr.		Indigenous
Onagraceae	*Epilobium hirsutum*	L.	LC	Indigenous
Onagraceae	*Epilobium salignum*	Hausskn.	LC	Indigenous
Poaceae	*Eragrostis acraea*	De Winter	LC	Indigenous
Poaceae	*Eragrostis curvula*	(Schrad.) Nees	LC	Indigenous
Poaceae	*Eragrostis gummiflua*	Nees	LC	Indigenous
Poaceae	*Eragrostis racemosa*	(Thunb.) Steud.	LC	Indigenous
Poaceae	*Eragrostis stapfii*	De Winter	LC	Indigenous
Poaceae	*Eragrostis superba*	Peyr.	LC	Indigenous
Ericaceae	*Erica woodii var. woodii*	Bolus	LC	Indigenous
Rosaceae	*Eriobotrya japonica*	(Thunb.) Lindl.		notIndigenous; Naturalised; Invasive
Fabaceae	*Eriosema squarrosum*	(Thunb.) Walp.	LC	Indigenous
Ebenaceae	*Euclea crispa subsp. crispa*	(Thunb.) Gurke	LC	Indigenous
Hyacinthaceae	*Eucomis montana*	Compton	LC	Indigenous
Orchidaceae	*Eulophia streptopetala*	Lindl.	LC	Indigenous
Euphorbiaceae	*Euphorbia pulcherrima*	Willd. ex Klotzsch	NE	notIndigenous; Naturalised
Proteaceae	*Faurea saligna*	Harv.	LC	Indigenous
Moraceae	*Ficus ingens var. ingens*	(Miq.) Miq.		Indigenous
Moraceae	*Ficus thonningii*	Blume		Indigenous
Fissidentaceae	*Fissidens bryoides*	Hedw.		Indigenous
Fissidentaceae	*Fissidens curvatus var. curvatus*	Hornsch.		Indigenous
Fissidentaceae	*Fissidens ovatus*	Brid.		Indigenous
Fissidentaceae	*Fissidens plumosus*	Hornsch.		Indigenous
Fissidentaceae	*Fissidens rufescens*	Hornsch.		Indigenous
Fissidentaceae	*Fissidens sciophyllus*	Mitt.		Indigenous
Fissidentaceae	*Fissidens sp.*			
Commelinaceae	*Floscopa glomerata*	(Willd. ex Schult. & J.H.Schult.) Hassk.	LC	Indigenous
Fossombroniaceae	*Fossombronia crispa*	Nees		Indigenous
Fossombroniaceae	*Fossombronia gemmifera*	Perold		Indigenous

Fossombroniacea e	*Fossombronia straussiana*	Perold		Indigenous
Iridaceae	*Freesia grandiflora subsp. grandiflora*	(Baker) Klatt	LC	Indigenous
Cyperaceae	*Fuirena stricta var. stricta*	Steud.	LC	Indigenous
Funariaceae	*Funaria rottleri*	(Schwagr.) Broth.		Indigenous
Colchicaceae	*Gloriosa modesta*	(Hook.) J.C.Manning & Vinn.	LC	Indigenous
Apocynaceae	*Gomphocarpus fruticosus*	(L.) W.T.Aiton		Indigenous
Celastraceae	*Gymnosporia buxifolia*	(L.) Szyszyl.	LC	Indigenous
Celastraceae	*Gymnosporia polyacantha subsp. vaccinifolia*	(Sond.) Szyszyl.	LC	Indigenous; Endemic
Amaryllidaceae	*Haemanthus humilis subsp. humilis*	Jacq.	LC	Indigenous
Asteraceae	*Helichrysum acutatum*	DC.	LC	Indigenous
Asteraceae	*Helichrysum aureonitens*	Sch.Bip.	LC	Indigenous
Asteraceae	*Helichrysum cerastioides var. cerastioides*	DC.	LC	Indigenous
Asteraceae	*Helichrysum epapposum*	Bolus	LC	Indigenous
Asteraceae	*Helichrysum kraussii*	Sch.Bip.	LC	Indigenous
Asteraceae	*Helichrysum lepidissimum*	S.Moore	LC	Indigenous
Asteraceae	*Helichrysum mundtii*	Harv.	LC	Indigenous
Asteraceae	*Helichrysum setosum*	Harv.	LC	Indigenous
Malvaceae	*Hermannia burkei*	Burtt Davy	LC	Indigenous
Malvaceae	*Hermannia floribunda*	Harv.	LC	Indigenous
Malvaceae	*Hermannia lancifolia*	Szyszyl.	LC	Indigenous; Endemic
Malvaceae	*Hermannia sp.*			
Iridaceae	*Hesperantha coccinea*	(Backh. & Harv.) Goldblatt & J.C.Manning	LC	Indigenous
Malvaceae	*Hibiscus sp.*			
Apocynaceae	*Huernia transvaalensis*	Stent	LC	Indigenous; Endemic
Aquifoliaceae	*Ilex mitis var. mitis*	(L.) Radlk.	LC	Indigenous
Fabaceae	*Indigastrum burkeanum*	(Benth. ex Harv.) Schrire	LC	Indigenous
Fabaceae	*Indigofera arrecta*	Hochst. ex A.Rich.	LC	Indigenous
Fabaceae	*Indigofera melanadenia*	Benth. ex Harv.	LC	Indigenous
Convolvulaceae	*Ipomoea magnusiana*	Schinz	LC	Indigenous
Poaceae	*Ischaemum fasciculatum*	Brongn.	LC	Indigenous
Cyperaceae	*Isolepis fluitans var. fluitans*	(L.) R.Br.	LC	Indigenous
Acanthaceae	*Justicia betonica*	L.	LC	Indigenous
Crassulaceae	*Kalanchoe lanceolata*	(Forssk.) Pers.	LC	Indigenous
Aizoaceae	*Khadia acutipetala*	(N.E.Br.) N.E.Br.	LC	Indigenous; Endemic
Achariaceae	*Kiggelaria africana*	L.	LC	Indigenous
Asphodelaceae	*Kniphofia ensifolia subsp. ensifolia*	Baker	LC	Indigenous
Hyacinthaceae	*Ledebouria ovatifolia*	(Baker) Jessop		Indigenous
Poaceae	*Leersia hexandra*	Sw.	LC	Indigenous
Fabaceae	*Leucaena leucocephala subsp. leucocephala*	(Lam.) de Wit	NE	notIndigenous; Naturalised

Orchidaceae	*Liparis bowkeri*	Harv.	LC	Indigenous
Cyperaceae	*Lipocarpha chinensis*	(Osbeck) J.Kern	LC	Indigenous
Verbenaceae	*Lippia javanica*	(Burm.f.) Spreng.	LC	Indigenous
Fabaceae	*Listia heterophylla*	E.Mey.	LC	Indigenous
Lophiocarpaceae	*Lophiocarpus tenuissimus*	Hook.f.	LC	Indigenous
Lophocoleaceae	*Lophocolea sp.*			
Asteraceae	*Lopholaena coriifolia*	(Sond.) E.Phillips & C.A.Sm.	LC	Indigenous
Poaceae	*Loudetia simplex*	(Nees) C.E.Hubb.	LC	Indigenous
Aytoniaceae	*Mannia capensis*	(Steph.) S.W.Arnell		Indigenous
Celastraceae	*Maytenus undata*	(Thunb.) Blakelock	LC	Indigenous
Malvaceae	*Melhania acuminata var. acuminata*	Mast.	LC	Indigenous
Sapotaceae	*Mimusops zeyheri*	Sond.	LC	Indigenous
Poaceae	*Monocymbium ceresiiforme*	(Nees) Stapf	LC	Indigenous
Lobeliaceae	*Monopsis decipiens*	(Sond.) Thulin	LC	Indigenous
Geraniaceae	*Monsonia angustifolia*	E.Mey. ex A.Rich.	LC	Indigenous
Myricaceae	*Morella pilulifera*	(Rendle) Killick	LC	Indigenous
Fabaceae	*Mundulea sericea subsp. sericea*	(Willd.) A.Chev.	LC	Indigenous
Myrsinaceae	*Myrsine africana*	L.	LC	Indigenous
Myrsinaceae	*Myrsine pillansii*	Adamson	LC	Indigenous
Celastraceae	*Mystroxylon aethiopicum subsp. aethiopicum*	(Thunb.) Loes.	LC	Indigenous; Endemic
Asteraceae	*Nidorella hottentotica*	DC.	LC	Indigenous
Stilbaceae	*Nuxia congesta*	R.Br. ex Fresen.	LC	Indigenous
Urticaceae	*Obetia tenax*	(N.E.Br.) Friis	LC	Indigenous
Ochnaceae	*Ochna holstii*	Engl.	LC	Indigenous
Ochnaceae	*Ochna pretoriensis*	E.Phillips	LC	Indigenous
Ochnaceae	*Ochna pulchra*	Hook.f.	LC	Indigenous
Calymperaceae	*Octoblepharum albidum*	Hedw.		Indigenous
Rubiaceae	*Oldenlandia herbacea var. herbacea*	(L.) Roxb.	LC	Indigenous
Oleaceae	*Olea capensis subsp. enervis*	L.	LC	Indigenous
Oleaceae	*Olea europaea subsp. cuspidata*	L.		Indigenous
Oleandraceae	*Oleandra distenta*	Kunze	LC	Indigenous
Apocynaceae	*Orbea lutea subsp. lutea*	(N.E.Br.) Bruyns	LC	Indigenous
Osmundaceae	*Osmunda regalis*	L.	LC	Indigenous
Anacardiaceae	*Ozoroa paniculosa var. paniculosa*	(Sond.) R.Fern. & A.Fern.	LC	Indigenous
Anacardiaceae	*Ozoroa paniculosa var. salicina*	(Sond.) R.Fern. & A.Fern.	LC	Indigenous
Rubiaceae	*Pachystigma macrocalyx*	(Sond.) Robyns	LC	Indigenous
Rubiaceae	*Pavetta zeyheri subsp. zeyheri*	Sond.	LC	Indigenous
Malvaceae	*Pavonia clathrata*	Mast.	LC	Indigenous
Geraniaceae	*Pelargonium luridum*	(Andrews) Sweet	LC	Indigenous
Poaceae	*Pennisetum macrourum*	Trin.	LC	Indigenous
Apocynaceae	*Pentarrhinum insipidum*	E.Mey.	LC	Indigenous

Piperaceae	*Peperomia tetraphylla*	(G.Forst.) Hook. & Arn.	LC	Indigenous
Polygonaceae	*Persicaria madagascariensis*	(Meisn.) S.Ortiz & Paiva		Indigenous
Bartramiaceae	*Philonotis dregeana*	(Mull.Hal.) A.Jaeger		Indigenous
Bartramiaceae	*Philonotis hastata*	(Duby) Wijk & Margad.		Indigenous
Rhamnaceae	*Phylica paniculata*	Willd.	LC	Indigenous
Phytolaccaceae	*Phytolacca dioica*	L.		notIndigenous; Naturalised; Invasive
Pittosporaceae	*Pittosporum viridiflorum*	Sims	LC	Indigenous
Pteridaceae	*Pityrogramma argentea*	(Willd.) Domin	LC	Indigenous
Aytoniaceae	*Plagiochasma rupestre var. rupestre*	(J.R.Forst. & G.Forst.) Steph.		Indigenous
Aytoniaceae	*Plagiochasma rupestre var. volkii*	(J.R.Forst. & G.Forst.) Steph.		Indigenous
Lamiaceae	*Plectranthus hereroensis*	Engl.	LC	Indigenous
Lamiaceae	*Plectranthus ramosior*	(Benth.) Van Jaarsv.	LC	Indigenous; Endemic
Poaceae	*Pogonarthria squarrosa*	(Roem. & Schult.) Pilg.	LC	Indigenous
Polytrichaceae	*Pogonatum capense*	(Hampe) A.Jaeger		Indigenous
Asteraceae	*Polydora angustifolia*	(Steetz) H.Rob.	LC	Indigenous
Polygalaceae	*Polygala hottentotta*	C.Presl	LC	Indigenous
Polygalaceae	*Polygala rehmannii*	Chodat	LC	Indigenous
Polytrichaceae	*Polytrichum commune*	Hedw.		Indigenous
Portulacaceae	*Portulaca grandiflora*	Hook.	LC	Indigenous; Endemic
Portulacaceae	*Portulaca pilosa*	L.	LC	Indigenous
Portulacaceae	*Portulaca quadrifida*	L.	LC	Indigenous
Urticaceae	*Pouzolzia mixta var. mixta*	Solms	LC	Indigenous
Proteaceae	*Protea caffra*	Meisn.		Indigenous
Proteaceae	*Protea gaguedi*	J.F.Gmel.	LC	Indigenous
Proteaceae	*Protea welwitschii*	Engl.	LC	Indigenous
Asteraceae	*Psiadia punctulata*	(DC.) Vatke	LC	Indigenous
Pteridaceae	*Pteris friesii*	Hieron.	LC	Indigenous
Pteridaceae	*Pteris vittata*	L.	LC	Indigenous
Celastraceae	*Pterocelastrus echinatus*	N.E.Br.	LC	Indigenous
Marattiaceae	*Ptisana fraxinea var. salicifolia*	(Sm.) Murdock	NE	Indigenous
Lamiaceae	*Pycnostachys reticulata*	(E.Mey.) Benth.	LC	Indigenous
Rubiaceae	*Pygmaeothamnus zeyheri var. zeyheri*	(Sond.) Robyns	LC	Indigenous
Fagaceae	*Quercus robur*	L.		notIndigenous; Cultivated; Naturalised; Invasive
Racopilaceae	*Racopilum capense*	Mull.Hal. ex Broth.		Indigenous
Apocynaceae	*Raphionacme velutina*	Schltr.	LC	Indigenous
Vitaceae	*Rhoicissus tridentata subsp. cuneifolia*	(L.f.) Wild & R.B.Drumm.	NE	Indigenous
Fabaceae	*Rhynchosia confusa*	Burtt Davy	NE	Indigenous
Fabaceae	*Rhynchosia totta var. venulosa*	(Thunb.) DC.		Indigenous

Ricciaceae	*Riccia albolimbata*	S.W.Arnell		Indigenous
Ricciaceae	*Riccia atropurpurea*	Sim		Indigenous
Ricciaceae	*Riccia cavernosa*	Hoffm.		Indigenous
Ricciaceae	*Riccia crystallina*	L.		Indigenous
Ricciaceae	*Riccia okahandjana*	S.W.Arnell		Indigenous
Ricciaceae	*Riccia volkii*	S.W.Arnell		Indigenous
Bryaceae	*Rosulabryum capillare*	(Hedw.) J.R.Spence		Indigenous
Rubiaceae	*Rothmannia capensis*	Thunb.	LC	Indigenous
Celastraceae	*Salacia rehmannii*	Schinz	LC	Indigenous; Endemic
Anacardiaceae	*Schinus molle*	L.	NE	notIndigenous; Naturalised; Invasive
Poaceae	*Schizachyrium jeffreysii*	(Hack.) Stapf	LC	Indigenous
Poaceae	*Schizachyrium sanguineum*	(Retz.) Alston	LC	Indigenous
Cyperaceae	*Schoenoplectus brachyceras*	(Hochst. ex A.Rich.) Lye	LC	Indigenous
Salicaceae	*Scolopia mundii*	(Eckl. & Zeyh.) Warb.	LC	Indigenous
Anacardiaceae	*Searsia magalismontana subsp. magalismontana*	(Sond.) Moffett	LC	Indigenous
Anacardiaceae	*Searsia pyroides var. gracilis*	(Burch.) Moffett	LC	Indigenous
Anacardiaceae	*Searsia rigida var. rigida*	(Mill.) F.A.Barkley	LC	Indigenous; Endemic
Gentianaceae	*Sebaea bojeri*	Griseb.	LC	Indigenous
Sematophyllaceae	*Sematophyllum brachycarpum*	(Hampe) Broth.		Indigenous
Sematophyllaceae	*Sematophyllum sphaeropyxis*	(Mull.Hal.) Broth.		Indigenous
Asteraceae	*Senecio othonniflorus*	DC.	LC	Indigenous
Asteraceae	*Senecio pleistocephalus*	S.Moore	LC	Indigenous
Fabaceae	*Senegalia caffra*	(Thunb.) P.J.H.Hurter & Mabb.	LC	Indigenous
Fabaceae	*Senna occidentalis*	(L.) Link	NE	notIndigenous; Naturalised; Invasive
Asteraceae	*Seriphium plumosum*	L.		Indigenous
Poaceae	*Setaria sphacelata var. sphacelata*	(Schumach.) Stapf & C.E.Hubb. ex M.B.Moss	LC	Indigenous
Poaceae	*Setaria sphacelata var. torta*	(Schumach.) Stapf & C.E.Hubb. ex M.B.Moss	LC	Indigenous
Malvaceae	*Sida dregei*	Burtt Davy	LC	Indigenous
Sphagnaceae	*Sphagnum capense*	Hornsch.		Indigenous
Sphagnaceae	*Sphagnum truncatum*	Hornsch.		Indigenous
Fabaceae	*Sphenostylis angustifolia*	Sond.	LC	Indigenous
Poaceae	*Sporobolus congoensis*	Franch.	LC	Indigenous
Poaceae	*Sporobolus festivus*	Hochst. ex A.Rich.	LC	Indigenous
Poaceae	*Sporobolus pectinatus*	Hack.	LC	Indigenous; Endemic
Orobanchaceae	*Striga bilabiata subsp. bilabiata*	(Thunb.) Kuntze	LC	Indigenous
Orobanchaceae	*Striga gesnerioides*	(Willd.) Vatke	LC	Indigenous

Loganiaceae	*Strychnos usambarensis*	Gilg	LC	Indigenous
Pallaviciniaceae	*Symphyogyna brasiliensis*	Nees & Mont.		Indigenous
Pallaviciniaceae	*Symphyogyna podophylla*	(Thunb.) Nees & Mont.		Indigenous
Pottiaceae	*Syntrichia laevipila*	Brid.		Indigenous
Talinaceae	*Talinum caffrum*	(Thunb.) Eckl. & Zeyh.	LC	Indigenous
Targioniaceae	*Targionia hypophylla*	L.		Indigenous
Thelypteridaceae	*Thelypteris confluens*	(Thunb.) C.V.Morton	LC	Indigenous
Pottiaceae	*Tortella xanthocarpa*	(Schimp. ex Mull.Hal.) Broth.		Indigenous
Cannabaceae	*Trema orientalis*	(L.) Blume	LC	Indigenous
Bruchiaceae	*Trematodon intermedius*	Welw. & Duby		Indigenous
Bruchiaceae	*Trematodon longicollis*	Michx.		Indigenous
Malpighiaceae	*Triaspis glaucophylla*	Engl.	LC	Indigenous; Endemic
Poaceae	*Tricholaena monachne*	(Trin.) Stapf & C.E.Hubb.	LC	Indigenous
Poaceae	*Trichoneura grandiglumis*	(Nees) Ekman	LC	Indigenous
Pottiaceae	*Trichostomum brachydontium*	Bruch		Indigenous
Malvaceae	*Triumfetta pilosa var. tomentosa*	Roth	NE	Indigenous
Asteraceae	*Ursinia nana subsp. leptophylla*	DC.	LC	Indigenous
Lentibulariaceae	*Utricularia welwitschii*	Oliv.	LC	Indigenous
Valerianaceae	*Valeriana capensis var. capensis*	Thunb.	LC	Indigenous
Santalaceae	*Viscum verrucosum*	Harv.	LC	Indigenous
Campanulaceae	*Wahlenbergia denticulata var. denticulata*	(Burch.) A.DC.	LC	Indigenous
Pottiaceae	*Weissia latiuscula*	Mull.Hal.		Indigenous
Convolvulaceae	*Xenostegia tridentata subsp. angustifolia*	(L.) D.F.Austin & Staples	LC	Indigenous
Velloziaceae	*Xerophyta viscosa*	Baker	LC	Indigenous
Cucurbitaceae	*Zehneria scabra*	(L.f.) Sond.		Indigenous

APPENDIX B*: Avifaunal species expected to occur in the project area*

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Accipiter melanoleucus	Sparrowhawk, Black	Unlisted	LC
Accipiter minullus	Sparrowhawk, Little	Unlisted	LC
Accipiter ovampensis	Sparrowhawk, Ovambo	Unlisted	LC
Acridotheres tristis	Myna, Common	Unlisted	LC
Acrocephalus arundinaceus	Reed-warbler, Great	Unlisted	LC
Acrocephalus baeticatus	Reed-warbler, African	Unlisted	Unlisted
Acrocephalus gracilirostris	Swamp-warbler, Lesser	Unlisted	LC
Acrocephalus palustris	Warbler, Marsh	Unlisted	LC
Actitis hypoleucos	Sandpiper, Common	Unlisted	LC
Actophilornis africanus	Jacana, African	Unlisted	LC
Afrotis afraoides	Korhaan, Northern Black	Unlisted	LC
Alcedo cristata	Kingfisher, Malachite	Unlisted	Unlisted
Alcedo semitorquata	Kingfisher, Half-collared	NT	LC
Alopochen aegyptiacus	Goose, Egyptian	Unlisted	LC
Amadina erythrocephala	Finch, Red-headed	Unlisted	LC
Amadina fasciata	Finch, Cut-throat	Unlisted	Unlisted
Amandava subflava	Waxbill, Orange-breasted	Unlisted	Unlisted
Amaurornis flavirostris	Crake, Black	Unlisted	LC
Amblyospiza albifrons	Weaver, Thick-billed	Unlisted	LC
Anaplectes rubriceps	Weaver, Red-headed	Unlisted	LC
Anas capensis	Teal, Cape	Unlisted	LC
Anas erythrorhyncha	Teal, Red-billed	Unlisted	LC
Anas hottentota	Teal, Hottentot	Unlisted	LC
Anas platyrhynchos	Duck, Mallard	Unlisted	LC
Anas smithii	Shoveler, Cape	Unlisted	LC
Anas sparsa	Duck, African Black	Unlisted	LC
Anas undulata	Duck, Yellow-billed	Unlisted	LC
Anhinga rufa	Darter, African	Unlisted	LC
Anomalospiza imberbis	Finch, Cuckoo	Unlisted	LC
Anser anser	Goose, Domestic	Unlisted	LC
Anthus caffer	Pipit, Bushveld	Unlisted	LC
Anthus cinnamomeus	Pipit, African	Unlisted	LC
Anthus leucophrys	Pipit, Plain-backed	Unlisted	LC
Anthus lineiventris	Pipit, Striped	Unlisted	LC
Anthus similis	Pipit, Long-billed	Unlisted	LC
Anthus trivialis	Pipit, Tree	Unlisted	LC
Anthus vaalensis	Pipit, Buffy	Unlisted	LC
Apalis thoracica	Apalis, Bar-throated	Unlisted	LC
Apus affinis	Swift, Little	Unlisted	LC
Apus apus	Swift, Common	Unlisted	LC
Apus barbatus	Swift, African Black	Unlisted	LC
Apus caffer	Swift, White-rumped	Unlisted	LC

Apus horus	Swift, Horus	Unlisted	LC
Aquila rapax	Eagle, Tawny	EN	LC
Aquila spilogaster	Hawk-eagle, African	Unlisted	LC
Aquila verreauxii	Eagle, Verreaux's	VU	LC
Aquila wahlbergi	Eagle, Wahlberg's	Unlisted	LC
Ardea cinerea	Heron, Grey	Unlisted	LC
Ardea goliath	Heron, Goliath	Unlisted	LC
Ardea melanocephala	Heron, Black-headed	Unlisted	LC
Ardea purpurea	Heron, Purple	Unlisted	LC
Ardeola ralloides	Heron, Squacco	Unlisted	LC
Asio capensis	Owl, Marsh	Unlisted	LC
Aviceda cuculoides	Hawk, African Cuckoo	Unlisted	LC
Batis molitor	Batis, Chinspot	Unlisted	LC
Bostrychia hagedash	Ibis, Hadeda	Unlisted	LC
Bradornis mariquensis	Flycatcher, Marico	Unlisted	LC
Bradornis pallidus	Flycatcher, Pale	Unlisted	LC
Bradypterus baboecala	Rush-warbler, Little	Unlisted	LC
Bubo africanus	Eagle-owl, Spotted	Unlisted	LC
Bubo capensis	Eagle-Owl, Cape	Unlisted	LC
Bubo lacteus	Eagle-owl, Verreaux's	Unlisted	LC
Bubulcus ibis	Egret, Cattle	Unlisted	LC
Buphagus erythrorhynchus	Oxpecker, Red-billed	Unlisted	Unlisted
Burhinus capensis	Thick-knee, Spotted	Unlisted	LC
Buteo rufofuscus	Buzzard, Jackal	Unlisted	LC
Buteo vulpinus	Buzzard, Common	Unlisted	Unlisted
Butorides striata	Heron, Green-backed	Unlisted	LC
Calamonastes fasciolatus	Wren-warbler, Barred	Unlisted	LC
Calandrella cinerea	Lark, Red-capped	Unlisted	LC
Calendulauda africanoides	Lark, Fawn-coloured	Unlisted	LC
Calendulauda sabota	Lark, Sabota	Unlisted	LC
Calidris minuta	Stint, Little	LC	LC
Camaroptera brevicaudata	Camaroptera, Grey-backed	Unlisted	Unlisted
Campephaga flava	Cuckoo-shrike, Black	Unlisted	LC
Campethera abingoni	Woodpecker, Golden-tailed	Unlisted	LC
Campethera bennettii	Woodpecker, Bennett's	Unlisted	LC
Caprimulgus europaeus	Nightjar, European	Unlisted	LC
Caprimulgus pectoralis	Nightjar, Fiery-necked	Unlisted	LC
Caprimulgus rufigena	Nightjar, Rufous-cheeked	Unlisted	LC
Caprimulgus tristigma	Nightjar, Freckled	Unlisted	LC
Centropus burchellii	Coucal, Burchell's	Unlisted	Unlisted
Cercomela familiaris	Chat, Familiar	Unlisted	LC
Cercotrichas leucophrys	Scrub-robin, White-browed	Unlisted	LC
Cercotrichas paena	Scrub-robin, Kalahari	Unlisted	LC
Certhilauda semitorquata	Lark, Eastern Long-billed	Unlisted	LC
Ceryle rudis	Kingfisher, Pied	Unlisted	LC
Chalcomitra amethystina	Sunbird, Amethyst	Unlisted	LC

Charadrius pecuarius	Plover, Kittlitz's	Unlisted	LC
Charadrius tricollaris	Plover, Three-banded	Unlisted	LC
Chersomanes albofasciata	Lark, Spike-heeled	Unlisted	LC
Chlidonias hybrida	Tern, Whiskered	Unlisted	LC
Chlidonias leucopterus	Tern, White-winged	Unlisted	LC
Chlorocichla flaviventris	Greenbul, Yellow-bellied	Unlisted	LC
Chrysococcyx caprius	Cuckoo, Diderick	Unlisted	LC
Chrysococcyx klaas	Cuckoo, Klaas's	Unlisted	LC
Ciconia abdimii	Stork, Abdim's	NT	LC
Ciconia ciconia	Stork, White	Unlisted	LC
Ciconia nigra	Stork, Black	VU	LC
Cinnyricinclus leucogaster	Starling, Violet-backed	Unlisted	LC
Cinnyris afer	Sunbird, Greater Double-collared	Unlisted	LC
Cinnyris mariquensis	Sunbird, Marico	Unlisted	LC
Cinnyris talatala	Sunbird, White-bellied	Unlisted	LC
Circaetus cinereus	Snake-eagle, Brown	Unlisted	LC
Circaetus pectoralis	Snake-eagle, Black-chested	Unlisted	LC
Circus ranivorus	Marsh-harrier, African	EN	LC
Cisticola aberrans	Cisticola, Lazy	Unlisted	LC
Cisticola aridulus	Cisticola, Desert	Unlisted	LC
Cisticola ayresii	Cisticola, Wing-snapping	Unlisted	LC
Cisticola chiniana	Cisticola, Rattling	Unlisted	LC
Cisticola fulvicapilla	Neddicky, Neddicky	Unlisted	LC
Cisticola juncidis	Cisticola, Zitting	Unlisted	LC
Cisticola lais	Cisticola, Wailing	Unlisted	LC
Cisticola rufilatus	Cisticola, Tinkling	Unlisted	LC
Cisticola textrix	Cisticola, Cloud	Unlisted	LC
Cisticola tinniens	Cisticola, Levaillant's	Unlisted	LC
Clamator glandarius	Cuckoo, Great Spotted	Unlisted	LC
Clamator jacobinus	Cuckoo, Jacobin	Unlisted	LC
Clamator levaillantii	Cuckoo, Levaillant's	Unlisted	LC
Colius colius	Mousebird, White-backed	Unlisted	LC
Colius striatus	Mousebird, Speckled	Unlisted	LC
Columba arquatrix	Olive-pigeon, African	Unlisted	LC
Columba guinea	Pigeon, Speckled	Unlisted	LC
Columba livia	Dove, Rock	Unlisted	LC
Coracias caudatus	Roller, Lilac-breasted	Unlisted	LC
Coracias garrulus	Roller, European	NT	LC
Coracias naevius	Roller, Purple	Unlisted	LC
Corvus albus	Crow, Pied	Unlisted	LC
Corvus capensis	Crow, Cape	Unlisted	LC
Corythaixoides concolor	Go-away-bird, Grey	Unlisted	LC
Cossypha caffra	Robin-chat, Cape	Unlisted	LC
Cossypha humeralis	Robin-chat, White-throated	Unlisted	LC
Coturnix coturnix	Quail, Common	Unlisted	LC
Creatophora cinerea	Starling, Wattled	Unlisted	LC

Crithagra atrogularis	Canary, Black-throated	Unlisted	LC
Crithagra flaviventris	Canary, Yellow	Unlisted	LC
Crithagra gularis	Seedeater, Streaky-headed	Unlisted	LC
Crithagra mozambicus	Canary, Yellow-fronted	Unlisted	LC
Cuculus clamosus	Cuckoo, Black	Unlisted	LC
Cuculus gularis	Cuckoo, African	Unlisted	LC
Cuculus solitarius	Cuckoo, Red-chested	Unlisted	LC
Cursorius temminckii	Courser, Temminck's	Unlisted	LC
Cypsiurus parvus	Palm-swift, African	Unlisted	LC
Delichon urbicum	House-martin, Common	Unlisted	LC
Dendrocygna bicolor	Duck, Fulvous	Unlisted	LC
Dendrocygna viduata	Duck, White-faced Whistling	Unlisted	LC
Dendroperdix sephaena	Francolin, Crested	Unlisted	LC
Dendropicos fuscescens	Woodpecker, Cardinal	Unlisted	LC
Dendropicos namaquus	Woodpecker, Bearded	Unlisted	LC
Dicrurus adsimilis	Drongo, Fork-tailed	Unlisted	LC
Dryoscopus cubla	Puffback, Black-backed	Unlisted	LC
Egretta alba	Egret, Great	Unlisted	LC
Egretta ardesiaca	Heron, Black	Unlisted	LC
Egretta garzetta	Egret, Little	Unlisted	LC
Egretta intermedia	Egret, Yellow-billed	Unlisted	LC
Elanus caeruleus	Kite, Black-shouldered	Unlisted	LC
Emberiza capensis	Bunting, Cape	Unlisted	LC
Emberiza flaviventris	Bunting, Golden-breasted	Unlisted	LC
Emberiza impetuani	Bunting, Lark-like	Unlisted	LC
Emberiza tahapisi	Bunting, Cinnamon-breasted	Unlisted	LC
Eremomela icteropygialis	Eremomela, Yellow-bellied	Unlisted	LC
Eremomela usticollis	Eremomela, Burnt-necked	Unlisted	LC
Eremopterix leucotis	Sparrowlark, Chestnut-backed	Unlisted	LC
Estrilda astrild	Waxbill, Common	Unlisted	LC
Estrilda erythronotos	Waxbill, Black-faced	Unlisted	LC
Euplectes afer	Bishop, Yellow-crowned	Unlisted	LC
Euplectes albonotatus	Widowbird, White-winged	Unlisted	LC
Euplectes ardens	Widowbird, Red-collared	Unlisted	LC
Euplectes orix	Bishop, Southern Red	Unlisted	LC
Euplectes progne	Widowbird, Long-tailed	Unlisted	LC
Eupodotis senegalensis	Korhaan, White-bellied	VU	LC
Falco amurensis	Falcon, Amur	Unlisted	LC
Falco biarmicus	Falcon, Lanner	VU	LC
Falco naumanni	Kestrel, Lesser	Unlisted	LC
Falco peregrinus	Falcon, Peregrine	Unlisted	LC
Falco rupicoloides	Kestrel, Greater	Unlisted	LC
Falco rupicolus	Kestrel, Rock	Unlisted	LC
Falco subbuteo	Hobby, Eurasian	Unlisted	LC
Fulica cristata	Coot, Red-knobbed	Unlisted	LC
Gallinago nigripennis	Snipe, African	Unlisted	LC

Gallinula chloropus	Moorhen, Common	Unlisted	LC
Glareola nordmanni	Pratincole, Black-winged	NT	NT
Glaucidium perlatum	Owlet, Pearl-spotted	Unlisted	LC
Granatina granatina	Waxbill, Violet-eared	Unlisted	LC
Gyps africanus	Vulture, White-backed	CR	CR
Gyps coprotheres	Vulture, Cape	EN	EN
Halcyon albiventris	Kingfisher, Brown-hooded	Unlisted	LC
Halcyon chelicuti	Kingfisher, Striped	Unlisted	LC
Halcyon senegalensis	Kingfisher, Woodland	Unlisted	LC
Haliaeetus vocifer	Fish-eagle, African	Unlisted	LC
Himantopus himantopus	Stilt, Black-winged	Unlisted	LC
Hippolais icterina	Warbler, Icterine	Unlisted	LC
Hirundo abyssinica	Swallow, Lesser Striped	Unlisted	LC
Hirundo albigularis	Swallow, White-throated	Unlisted	LC
Hirundo cucullata	Swallow, Greater Striped	Unlisted	LC
Hirundo dimidiata	Swallow, Pearl-breasted	Unlisted	LC
Hirundo fuligula	Martin, Rock	Unlisted	Unlisted
Hirundo rustica	Swallow, Barn	Unlisted	LC
Hirundo semirufa	Swallow, Red-breasted	Unlisted	LC
Hirundo spilodera	Cliff-swallow, South African	Unlisted	LC
Indicator indicator	Honeyguide, Greater	Unlisted	LC
Indicator minor	Honeyguide, Lesser	Unlisted	LC
Ispidina picta	Pygmy-Kingfisher, African	Unlisted	LC
Ixobrychus minutus	Bittern, Little	Unlisted	LC
Jynx ruficollis	Wryneck, Red-throated	Unlisted	LC
Lagonosticta rhodopareia	Firefinch, Jameson's	Unlisted	LC
Lagonosticta rubricata	Firefinch, African	Unlisted	LC
Lagonosticta senegala	Firefinch, Red-billed	Unlisted	LC
Lamprotornis nitens	Starling, Cape Glossy	Unlisted	LC
Laniarius atrococcineus	Shrike, Crimson-breasted	Unlisted	LC
Laniarius ferrugineus	Boubou, Southern	Unlisted	LC
Lanius collaris	Fiscal, Common (Southern)	Unlisted	LC
Lanius collurio	Shrike, Red-backed	Unlisted	LC
Lanius minor	Shrike, Lesser Grey	Unlisted	LC
Larus cirrocephalus	Gull, Grey-headed	Unlisted	LC
Lophaetus occipitalis	Eagle, Long-crested	Unlisted	LC
Lophotis ruficrista	Korhaan, Red-crested	Unlisted	LC
Lybius torquatus	Barbet, Black-collared	Unlisted	LC
Macronyx capensis	Longclaw, Cape	Unlisted	LC
Malaconotus blanchoti	Bush-shrike, Grey-headed	Unlisted	LC
Megaceryle maximus	Kingfisher, Giant	Unlisted	Unlisted
Melaenornis pammelaina	Flycatcher, Southern Black	Unlisted	LC
Melierax canorus	Goshawk, Southern Pale Chanting	Unlisted	LC
Melierax gabar	Goshawk, Gabar	Unlisted	LC
Merops apiaster	Bee-eater, European	Unlisted	LC
Merops bullockoides	Bee-eater, White-fronted	Unlisted	LC

Merops hirundineus	Bee-eater, Swallow-tailed	Unlisted	LC
Merops pusillus	Bee-eater, Little	Unlisted	LC
Milvus aegyptius	Kite, Yellow-billed	Unlisted	Unlisted
Milvus migrans	Kite, Black	Unlisted	LC
Mirafra africana	Lark, Rufous-naped	Unlisted	LC
Mirafra apiata	Lark, Cape Clapper	Unlisted	LC
Mirafra fasciolata	Lark, Eastern Clapper	Unlisted	LC
Mirafra passerina	Lark, Monotonous	Unlisted	LC
Mirafra rufocinnamomea	Lark, Flappet	Unlisted	LC
Monticola brevipes	Rock-thrush, Short-toed	Unlisted	LC
Monticola rupestris	Rock-thrush, Cape	Unlisted	LC
Motacilla aguimp	Wagtail, African Pied	Unlisted	LC
Motacilla capensis	Wagtail, Cape	Unlisted	LC
Muscicapa striata	Flycatcher, Spotted	Unlisted	LC
Mycteria ibis	Stork, Yellow-billed	EN	LC
Myioparus plumbeus	Tit-flycatcher, Grey	Unlisted	LC
Myrmecocichla formicivora	Chat, Anteating	Unlisted	LC
Nectarinia famosa	Sunbird, Malachite	Unlisted	LC
Netta erythrophthalma	Pochard, Southern	Unlisted	LC
Nilaus afer	Brubru	Unlisted	LC
Numida meleagris	Guineafowl, Helmeted	Unlisted	LC
Nycticorax nycticorax	Night-Heron, Black-crowned	Unlisted	LC
Oena capensis	Dove, Namaqua	Unlisted	LC
Oenanthe monticola	Wheatear, Mountain	Unlisted	LC
Oenanthe pileata	Wheatear, Capped	Unlisted	LC
Onychognathus morio	Starling, Red-winged	Unlisted	LC
Oriolus larvatus	Oriole, Black-headed	Unlisted	LC
Ortygospiza atricollis	Quailfinch, African	Unlisted	LC
Otus senegalensis	Scops-owl, African	Unlisted	LC
Oxyura maccoa	Duck, Maccoa	NT	NT
Pandion haliaetus	Osprey, Osprey	Unlisted	LC
Parisoma subcaeruleum	Tit-babbler, Chestnut-vented	Unlisted	Unlisted
Parus cinerascens	Tit, Ashy	Unlisted	LC
Parus niger	Tit, Southern Black	Unlisted	Unlisted
Passer diffusus	Sparrow, Southern Grey-headed	Unlisted	LC
Passer domesticus	Sparrow, House	Unlisted	LC
Passer melanurus	Sparrow, Cape	Unlisted	LC
Passer motitensis	Sparrow, Great	Unlisted	LC
Pavo cristatus	Peacock, Common	Unlisted	LC
Peliperdix coqui	Francolin, Coqui	Unlisted	LC
Pernis apivorus	Honey-buzzard, European	Unlisted	LC
Petronia superciliaris	Petronia, Yellow-throated	Unlisted	LC
Phalacrocorax africanus	Cormorant, Reed	Unlisted	LC
Phalacrocorax carbo	Cormorant, White-breasted	LC	LC
Philomachus pugnax	Ruff	Unlisted	LC
Phoenicopterus ruber	Flamingo, Greater	NT	LC

Phoeniculus purpureus	Wood-hoopoe, Green	Unlisted	LC
Phylloscopus trochilus	Warbler, Willow	Unlisted	LC
Platalea alba	Spoonbill, African	Unlisted	LC
Plectropterus gambensis	Goose, Spur-winged	Unlisted	LC
Plegadis falcinellus	Ibis, Glossy	Unlisted	LC
Plocepasser mahali	Sparrow-weaver, White-browed	Unlisted	LC
Ploceus capensis	Weaver, Cape	Unlisted	LC
Ploceus cucullatus	Weaver, Village	Unlisted	LC
Ploceus intermedius	Masked-weaver, Lesser	Unlisted	LC
Ploceus velatus	Masked-weaver, Southern	Unlisted	LC
Podiceps cristatus	Grebe, Great Crested	Unlisted	LC
Pogoniulus chrysoconus	Tinkerbird, Yellow-fronted	Unlisted	LC
Polemaetus bellicosus	Eagle, Martial	EN	VU
Polyboroides typus	Harrier-Hawk, African	Unlisted	LC
Porphyrio madagascariensis	Swamphen, African Purple	Unlisted	Unlisted
Prinia flavicans	Prinia, Black-chested	Unlisted	LC
Prinia subflava	Prinia, Tawny-flanked	Unlisted	LC
Prionops plumatus	Helmet-shrike, White-crested	Unlisted	LC
Prodotiscus regulus	Honeybird, Brown-backed	Unlisted	LC
Psophocichla litsipsirupa	Thrush, Groundscraper	Unlisted	Unlisted
Pternistis natalensis	Spurfowl, Natal	Unlisted	LC
Pternistis swainsonii	Spurfowl, Swainson's	Unlisted	LC
Ptilopsis granti	Scops-owl, Southern White-faced	Unlisted	Unlisted
Pycnonotus nigricans	Bulbul, African Red-eyed	Unlisted	LC
Pycnonotus tricolor	Bulbul, Dark-capped	Unlisted	Unlisted
Pytilia melba	Pytilia, Green-winged	Unlisted	LC
Quelea quelea	Quelea, Red-billed	Unlisted	LC
Rallus caerulescens	Rail, African	Unlisted	LC
Recurvirostra avosetta	Avocet, Pied	Unlisted	LC
Rhinopomastus cyanomelas	Scimitarbill, Common	Unlisted	LC
Rhinoptilus chalcopterus	Courser, Bronze-winged	Unlisted	LC
Riparia cincta	Martin, Banded	Unlisted	LC
Riparia paludicola	Martin, Brown-throated	Unlisted	LC
Rostratula benghalensis	Painted-snipe, Greater	NT	LC
Sagittarius serpentarius	Secretarybird	VU	VU
Sarkidiornis melanotos	Duck, Comb	Unlisted	LC
Sarothrura rufa	Flufftail, Red-chested	Unlisted	LC
Saxicola torquatus	Stonechat, African	Unlisted	LC
Scleroptila levaillantii	Francolin, Red-winged	Unlisted	LC
Scleroptila levaillantoides	Francolin, Orange River	Unlisted	LC
Scleroptila shelleyi	Francolin, Shelley's	Unlisted	LC
Scopus umbretta	Hamerkop, Hamerkop	Unlisted	LC
Sigelus silens	Flycatcher, Fiscal	Unlisted	LC
Spermestes cucullatus	Mannikin, Bronze	Unlisted	Unlisted
Sphenoeacus afer	Grassbird, Cape	Unlisted	LC
Sporopipes squamifrons	Finch, Scaly-feathered	Unlisted	LC

Stenostira scita	Flycatcher, Fairy	Unlisted	LC
Sterna caspia	Tern, Caspian	VU	LC
Streptopelia capicola	Turtle-dove, Cape	Unlisted	LC
Streptopelia semitorquata	Dove, Red-eyed	Unlisted	LC
Streptopelia senegalensis	Dove, Laughing	Unlisted	LC
Struthio camelus	Ostrich, Common	Unlisted	LC
Sylvia borin	Warbler, Garden	Unlisted	LC
Sylvia communis	Whitethroat, Common	Unlisted	LC
Sylvietta rufescens	Crombec, Long-billed	Unlisted	LC
Tachybaptus ruficollis	Grebe, Little	Unlisted	LC
Tachymarptis melba	Swift, Alpine	Unlisted	LC
Tchagra australis	Tchagra, Brown-crowned	Unlisted	LC
Tchagra senegalus	Tchagra, Black-crowned	Unlisted	LC
Telophorus sulfureopectus	Bush-shrike, Orange-breasted	Unlisted	LC
Telophorus zeylonus	Bokmakierie, Bokmakierie	Unlisted	LC
Terpsiphone viridis	Paradise-flycatcher, African	Unlisted	LC
Thalassornis leuconotus	Duck, White-backed	Unlisted	LC
Thamnolaea cinnamomeiventris	Cliff-chat, Mocking	Unlisted	LC
Threskiornis aethiopicus	Ibis, African Sacred	Unlisted	LC
Tockus erythrorhynchus	Hornbill, Red-billed	Unlisted	LC
Tockus leucomelas	Hornbill, Southern Yellow-billed	Unlisted	LC
Tockus nasutus	Hornbill, African Grey	Unlisted	LC
Trachyphonus vaillantii	Barbet, Crested	Unlisted	LC
Treron calvus	Green-pigeon, African	Unlisted	LC
Tricholaema leucomelas	Barbet, Acacia Pied	Unlisted	LC
Tringa glareola	Sandpiper, Wood	Unlisted	LC
Tringa nebularia	Greenshank, Common	Unlisted	LC
Tringa stagnatilis	Sandpiper, Marsh	Unlisted	LC
Turdoides bicolor	Babbler, Southern Pied	Unlisted	LC
Turdoides jardineii	Babbler, Arrow-marked	Unlisted	LC
Turdus libonyanus	Thrush, Kurrichane	Unlisted	Unlisted
Turdus smithi	Thrush, Karoo	Unlisted	LC
Turtur chalcospilos	Wood-dove, Emerald-spotted	Unlisted	LC
Tyto alba	Owl, Barn	Unlisted	LC
Upupa africana	Hoopoe, African	Unlisted	LC
Uraeginthus angolensis	Waxbill, Blue	Unlisted	LC
Urocolius indicus	Mousebird, Red-faced	Unlisted	LC
Urolestes melanoleucus	Shrike, Magpie	Unlisted	LC
Vanellus armatus	Lapwing, Blacksmith	Unlisted	LC
Vanellus coronatus	Lapwing, Crowned	Unlisted	LC
Vanellus senegallus	Lapwing, African Wattled	Unlisted	LC
Vidua chalybeata	Indigobird, Village	Unlisted	LC
Vidua funerea	Indigobird, Dusky	Unlisted	LC
Vidua macroura	Whydah, Pin-tailed	Unlisted	LC
Vidua paradisaea	Paradise-whydah, Long-tailed	Unlisted	LC
Vidua purpurascens	Indigobird, Purple	Unlisted	LC

Vidua regia	Whydah, Shaft-tailed	Unlisted	LC
Zosterops virens	White-eye, Cape	Unlisted	LC

APPENDIX C: *Mammals species expected to occur in the project area*

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Aepyceros melampus	Impala	LC	LC
Aethomys ineptus	Tete Veld Rat	LC	LC
Aethomys namaquensis	Namaqua rock rat	LC	LC
Alcelaphus buselaphus	Hartebeest	LC	LC
Antidorcas marsupialis	Sclater's Shrew	LC	LC
Aonyx capensis	Cape Clawless Otter	NT	NT
Atelerix frontalis	South Africa Hedgehog	NT	LC
Atilax paludinosus	Water Mongoose	LC	LC
Canis mesomelas	Black-backed Jackal	LC	LC
Caracal caracal	Caracal	LC	LC
Ceratotherium simum	White Rhinoceros	NT	NT
Civettictis civetta	African Civet	LC	LC
Connochaetes gnou	Black Wildebeest	LC	LC
Connochaetes taurinus	Blue Wildebeest	LC	LC
Crocidura cyanea	Reddish-grey Musk Shrew	LC	LC
Crocidura fuscomurina	Tiny Musk Shrew	LC	LC
Crocidura hirta	Lesser Red Musk Shrew	LC	LC
Crocidura mariquensis	Swamp Musk Shrew	NT	LC
Cryptomys hottentotus	Common Mole-rat	LC	LC
Cynictis penicillata	Yellow Mongoose	LC	LC
Damaliscus lunatus	Tsessebe	VU	LC
Damaliscus pygargus	Blesbok	LC	LC
Dendromus melanotis	Grey Climbing Mouse	LC	LC
Desmodillus auricularis	Short-tailed Gerbil	LC	LC
Diceros bicornis	Black Rhinoceros	EN	CR
Eidolon helvum	African Straw-colored Fruit Bat	LC	NT
Elephantulus brachyrhynchus	Short-snouted Sengi	LC	LC
Elephantulus myurus	Eastern Rock Sengi	LC	LC
Epomophorus wahlbergi	Wahlberg's epauletted fruit bat	LC	LC
Eptesicus hottentotus	Long-tailed Serotine Bat	LC	LC
Equus quagga	Plains Zebra	LC	NT
Felis nigripes	Black-footed Cat	VU	VU
Felis silvestris	African Wildcat	LC	LC
Galago moholi	Southern Lesser Galago	LC	LC
Genetta genetta	Small-spotted Genet	LC	LC
Gerbilliscus brantsii	Highveld Gerbil	LC	LC
Gerbilliscus leucogaster	Bushveld Gerbil	LC	LC
Giraffa camelopardalis	Giraffe	LC	VU
Graphiurus microtis	Large Savanna African Dormouse	LC	LC
Herpestes sanguineus	Slender Mongoose	LC	LC
Hipposideros caffer	Sundevall's Leaf-nosed Bat	LC	LC
Hippotragus niger	Sable Antelope	VU	LC
Hydrictis maculicollis	Spotted-necked Otter	VU	NT

Hystrix africaeaustralis	Cape Porcupine	LC	LC
Ichneumia albicauda	White-tailed Mongoose	LC	LC
Ictonyx striatus	Striped Polecat	LC	LC
Lemniscomys rosalia	Single-striped Mouse	LC	LC
Leptailurus serval	Serval	NT	LC
Lepus saxatilis	Scrub Hare	LC	LC
Lepus victoriae	African Savanna Hare	LC	LC
Mastomys coucha	Multimammate Mouse	LC	LC
Mellivora capensis	Honey Badger	LC	LC
Mungos mungo	Banded Mongoose	LC	LC
Mus indutus	Desert Pygmy Mouse	LC	LC
Myotis tricolor	Temminck's Hairy Bat	LC	LC
Mystromys albicaudatus	White-tailed Rat	VU	EN
Neoromicia capensis	Cape Serotine Bat	LC	LC
Nycteris thebaica	Egyptian Slit-faced Bat	LC	LC
Oreotragus oreotragus	Klipspringer	LC	LC
Orycteropus afer	Aardvark	LC	LC
Oryx gazella	Gemsbok	LC	LC
Otocyon megalotis	Bat-eared Fox	LC	LC
Otomys angoniensis	Angoni Vlei Rat	LC	LC
Otomys irroratus	Vlei Rat (Fynbos type)	LC	LC
Ourebia ourebi	Oribi	EN	LC
Panthera pardus	Leopard	VU	VU
Papio ursinus	Chacma Baboon	LC	LC
Parahyaena brunnea	Brown Hyaena	NT	NT
Pedetes capensis	Springhare	LC	LC
Pelea capreolus	Grey Rhebok	NT	LC
Phacochoerus africanus	Common Warthog	LC	LC
Poecilogale albinucha	African Striped Weasel	NT	LC
Procavia capensis	Rock Hyrax	LC	LC
Proteles cristata	Aardwolf	LC	LC
Raphicerus campestris	Steenbok	LC	LC
Rattus rattus	House Rat	Exotic (Not listed)	LC
Redunca arundinum	Southern Reedbuck	LC	LC
Redunca fulvorufula	Mountain Reedbuck	EN	LC
Rhabdomys pumilio	Xeric Four-striped Mouse	LC	LC
Rhinolophus darlingi	Darling's Horseshoe Bat	LC	LC
Rhinolophus simulator	Bushveld Horseshoe Bat	LC	LC
Saccostomus campestris	Pouched Mouse	LC	LC
Sauromys petrophilus	Flat-headed Free-tail Bat	LC	LC
Scotophilus dinganii	Yellow House Bat	LC	LC
Steatomys krebsii	Krebs's Fat Mouse	LC	LC
Steatomys pratensis	Fat Mouse	LC	LC
Suncus varilla	Lesser Dwarf Shrew	LC	LC
Suricata suricatta	Suricate	LC	LC
Sylvicapra grimmia	Common Duiker	LC	LC

Syncerus caffer	African Buffalo	LC	LC
Tadarida aegyptiaca	Egyptian Free-tailed Bat	LC	LC
Taphozous mauritianus	Mauritian Tomb Bat	LC	LC
Thallomys paedulcus	Tree Rat	LC	LC
Tragelaphus oryx	Common Eland	LC	LC
Tragelaphus scriptus	Cape Bushbuck	LC	LC
Tragelaphus strepsiceros	Greater Kudu	LC	LC
Vulpes chama	Cape Fox	LC	LC
Xerus inauris	Cape Ground Squirrel	LC	LC

APPENDIX D: *Reptile species expected to occur within the project area*

Species	Common Name	Conservation Status	
		Regional (SANBI, 2016)	IUCN (2017)
Acanthocercus atricollis	Southern Tree Agama	LC	LC
Acontias gracilicauda	Thin-tailed Legless Skink	LC	LC
Acontias occidentalis	Savanna Legless Skink	LC	Unlisted
Afroedura nivaria	Drankensberg Flat Gecko	LC	LC
Afrotyphlops bibronii	Bibron's Blind Snake	LC	LC
Agama aculeata distanti	Eastern Ground Agama	LC	LC
Agama atra	Southern Rock Agama	LC	LC
Amblyodipsas polylepis	Purple Gloss Snake	Unlisted	Unlisted
Amblyodipsas ventrimaculata	Kalahari purple-glossed snake	Unlisted	LC
Aparallactus capensis	Black-headed Centipede-eater	LC	LC
Aspidelaps scutatus scutatus	Common Shield Snake	LC	Unlisted
Atractaspis bibronii	Bibron's Stiletto Snake	LC	Unlisted
Bitis arietans arietans	Puff Adder	LC	Unlisted
Boaedon capensis	Brown House Snake	LC	LC
Causus defilippii	Snouted Night Adder	LC	Unlisted
Chamaeleo dilepis	Common Flap-neck Chameleon	LC	LC
Chondrodactylus turneri	Turner's Gecko	LC	Unlisted
Cordylus jonesii	Jones' Girdled Lizard	LC	Unlisted
Cordylus vittifer	Common Girdled Lizard	LC	LC
Crocodylus niloticus	Nile Crocodile	VU	LC
Crotaphopeltis hotamboeia	Red-lipped Snake	LC	Unlisted
Dasypeltis scabra	Rhombic Egg-eater	LC	LC
Dendroaspis polylepis	Black Mamba	LC	LC
Dispholidus typus	Boomslang	LC	Unlisted
Gerrhosaurus flavigularis	Yellow-throated Plated Lizard	LC	Unlisted
Gracililima nyassae	Black File Snake	LC	LC
Heliobolus lugubris	Bushveld Lizard	LC	Unlisted
Hemidactylus mabouia	Common Tropical House Gecko	LC	Unlisted
Hemirhagerrhis nototaenia	Eastern Bark Snake	LC	Unlisted
Homopholis wahlbergii	Wahlberg's Velvet Gecko	LC	LC
Ichnotropis capensis	Ornate Rough-scaled Lizard	LC	Unlisted
Kinixys lobatsiana	Lobatse hinged-back Tortoise	LC	LC
Kinixys spekii	Speke's Hinged-Back Tortoise	LC	Unlisted
Lamprophis aurora	Aurora House Snake	LC	LC
Leptotyphlops scutifrons scutifrons	Peters' Thread Snake	LC	Unlisted
Limaformosa capensis	Common File Snake	LC	Unlisted
Lycodonomorphus rufulus	Brown Water Snake	LC	Unlisted
Lycophidion capense capense	Cape Wolf Snake	LC	Unlisted
Lygodactylus capensis capensis	Common Dwarf Gecko	LC	Unlisted
Matobosaurus validus	Common Giant Plated Lizard	LC	Unlisted
Meroles squamulosus	Common Rough-scaled Lizard	LC	Unlisted
Mochlus sundevallii	Sundevall's Writhing Skink	LC	LC

Monopeltis capensis	Cape Worm Lizard	LC	LC
Naja annulifera	Snouted Cobra	LC	Unlisted
Naja mossambica	Mozambique Spitting Cobra	LC	Unlisted
Nucras holubi	Holub's Sandveld Lizard	LC	Unlisted
Nucras intertexta	Spotted Sandveld Lizard	LC	Unlisted
Pachydactylus affinis	Transvaal Gecko	LC	LC
Panaspis wahlbergi	Wahlberg's Snake-eyed Skink	LC	Unlisted
Pedioplanis lineoocellata lineoocellata	Spotted Sand Lizard	LC	Unlisted
Pelomedusa galeata	South African Marsh Terrapin	Not evaluated	Unlisted
Pelusios sinuatus	Serrated Hinged Terrapin	LC	Unlisted
Philothamnus semivariegatus	Spotted Bush Snake	LC	Unlisted
Platysaurus guttatus	Dwarf Flat Lizard	LC	LC
Platysaurus minor	Waterberg Flat Lizard	LC	LC
Prosymna ambigua	Angolan Shovel-snout	Unlisted	LC
Prosymna bivittata	Two-Striped Shovel-Snout	LC	Unlisted
Psammobates oculifer	Serrated Tent Tortoise	LC	Unlisted
Psammophis angolensis	Dwarf Sand Snake	LC	Unlisted
Psammophis brevirostris	Short-snouted Grass Snake	LC	Unlisted
Psammophis jallae	Jalla's Sand Snake	LC	Unlisted
Psammophis subtaeniatus	Stripe-bellied Sand Snake	LC	LC
Psammophylax tritaeniatus	Striped Grass Snake	LC	LC
Pseudaspis cana	Mole Snake	LC	Unlisted
Pseudocordylus transvaalensis	Northern Crag Lizard	NT	NT
Python natalensis	Southern African Python	LC	Unlisted
Rhinotyphlops lalandei	Delalande's Beaked Blind Snake	LC	Unlisted
Scelotes limpopoensis limpopoensis	Limpopo Dwarf Burrowing Skink	LC	Unlisted
Smaug breyeri	Waterberg Dragon Lizard	LC	LC
Stigmochelys pardalis	Leopard Tortoise	LC	LC
Telescopus semiannulatus semiannulatus	Eastern Tiger Snake	LC	Unlisted
Thelotornis capensis	Southern Twig Snake	LC	LC
Trachylepis capensis	Cape Skink	LC	Unlisted
Trachylepis damarana	Damara skink	Unlisted	LC
Trachylepis margaritifera	Rainbow Skink	LC	LC
Trachylepis punctatissima	Speckled Rock Skink	LC	LC
Trachylepis striata	Striped Skink	LC	Unlisted
Trachylepis varia	Variable Skink	LC	LC
Varanus albigularis albigularis	Southern Rock Monitor	LC	Unlisted
Varanus niloticus	Water Monitor	LC	Unlisted
Xenocalamus bicolor australis	Waterberg Quill-snouted Snake	LC	Unlisted

APPENDIX E: *Amphibian species expected to occur within the project area*

Species	Common Name	Conservation Status

		Regional (SANBI, 2016)	IUCN (2017)
Amietia angolensis	Angola River Frog	LC	LC
Amietia delalandii	Delalande's River Frog	LC	Unlisted
Breviceps adspersus	Bushveld Rain Frog	LC	LC
Breviceps mossambicus	Mozambique Rain Frog	LC	LC
Cacosternum boettgeri	Common Caco	LC	LC
Chiromantis xerampelina	Southern Foam Nest Frog	LC	LC
Hildebrandtia ornata	Southern Ornate Frog	LC	LC
Hyperolius marmoratus	Painted Reed Frog	LC	LC
Kassina senegalensis	Bubbling Kassina	LC	LC
Phrynobatrachus mababiensis	Dwarf Puddle Frog	LC	LC
Phrynobatrachus natalensis	Snoring Puddle Frog	LC	LC
Phrynomantis bifasciatus	Banded Rubber Frog	LC	LC
Poyntonophrynus fenoulheti	Northern Pygmy Toad	LC	LC
Ptychadena anchietae	Plain Grass Frog	LC	LC
Ptychadena mossambica	Mozambique Ridged Frog	LC	LC
Ptychadena porosissima	Striped Grass Frog	LC	LC
Pyxicephalus adspersus	Giant Bullfrog	NT	LC
Pyxicephalus edulis	African Bullfrog	LC	LC
Schismaderma carens	African Red Toad	LC	LC
Sclerophrys capensis	Raucous Toad	LC	LC
Sclerophrys garmani	Olive Toad	LC	LC
Sclerophrys gutturalis	Guttural Toad	LC	LC
Sclerophrys poweri	Power's Toad	LC	LC
Sclerophrys pusilla	Flatbacked Toad	LC	LC
Strongylopus fasciatus	Striped Stream Frog	LC	LC
Strongylopus grayii	Clicking Stream Frog	LC	LC
Tomopterna cryptotis	Tremelo Sand Frog	LC	LC
Tomopterna krugerensis	Knocking Sand Frog	LC	LC
Tomopterna natalensis	Natal Sand Frog	LC	LC
Tomopterna tandyi	Tandy's Sand Frog	LC	LC
Xenopus laevis	Common Platanna	LC	LC