AVIFAUNA SCOPING ASSESSMENTS FOR THE PROPOSED SBPM & SCSC SOLAR FACILITIES FOR SIYANDA BAKGATLA PLATINUM MINE

Northam, Limpopo & North West Provinces

May 2022

CLIENT

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1 Introduction

1.1 Background

The Biodiversity Company was appointed to undertake a scoping assessment for the proposed SBPM & SCSC Solar Facilities for Siyanda Bakgatla Platinum Mine in Northam, Limpopo Province. The project infrastructure is located in both the Limpopo and also North West provinces. The project is located 6.5 km west from Northam. The scoping assessment comprises of an avifaunal assessment. The Northam focus area has been identified by the potential development area for the construction and operation of solar and battery facilities consisting of the following affected properties:

- SCSC (273 Ha); and
- SBPM (251 Ha) (Figure 1-2).

The approach was informed by the Environmental Impact Assessment Regulations. 2014 (GNR 326, 7 April 2017) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The approach has taken cognisance of the recently published Government Notices 320 (20 March 2020) in terms of NEMA, dated 20 March and 30 October 2020: "*Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation*" (Reporting Criteria). The National Web based Environmental Screening Tool has characterised the terrestrial theme sensitivity of the project area as "Very High". The animal sensitivity is rated as "Moderate".

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, as to the ecological viability of the proposed project.

1.2 Project Description

1.2.1 SBPM PV RE project, Limpopo Province

Main Street 1886 Proprietary Limited proposes the development of the Solar PV facility and associated infrastructure on a site bordering the eastern end of the Siyanda Bakgatla Platinum Mine area near Northam. The solar PV facility will comprise several arrays of PV panels, a Battery Energy Storage System (BESS), and associated infrastructure with a contracted capacity of up to 100MW.

The purpose of the proposed project is to generate electricity for exclusive use by the Siyanda Mine, following which any excess power produced will be distributed to the national grid, if applicable. The construction of the PV facility aims to reduce the Siyanda Mine's dependency on direct supply from Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint.

A preferred project site with an extent of ~1138 ha and a development area of 574 ha has been identified by Main Street 1886 Proprietary Limited as a technically suitable area for the development of the Solar PV Facility. The study area is located on Portion 4 of Farm Grootkuil 409. The project site falls within the Thabazimbi Local Municipality within the Waterberg District Municipality in the Limpopo Province. The site is located ~6.5 km west of the town of Northam and is accessible via the Swartklip Road which branches off the R510 provincial route.

Infrastructure associated with the solar PV facility will include:

- 100MW Solar PV array comprising PV modules and mounting structures.
- Inverters and transformers.
- Cabling between the project components.
- Battery Energy Storage System.

- On-site facility substation and power lines between the solar PV facility and the Mine and Eskom substation.
- Site offices, Security office, operations and control, and maintenance and storage laydown areas.
- Access roads, internal distribution roads.

Grid connection solution.

To evacuate the generated power to the Siyanda Mine, the grid connection solution consisting of the following is proposed:

The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows:

- two 6.6 km, 33 kV transmission lines to the Mortimer substation with four step down transformers (33/6.6 kV; 10 MVA).
- two 4.7 km, 33 kV transmission lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA).
- two 2.9 km, 33 kV transmission lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA).

The grid connection is proposed on the following properties:

- Portion 3 of Farm Grootkuil 409.
- Portion 4 of Farm Grootkuil 409.
- Portion 5 of Farm Grootkuil 409.

The development area of 574ha is larger than the area needed for the construction of a 100MW PV facility and will provide the opportunity for the optimal placement of the infrastructure, ensuring avoidance of major identified environmental sensitivities by the development footprint of ~240ha1. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the full extent of the larger development area will be considered in the Scoping Phase, and a development footprint within which the infrastructure of the PV facility and associated infrastructures will be located will be fully assessed during the EIA Phase.

1.2.2 SCSC PV RE project, Limpopo Province

*Note to specialist: Kindly make use of the project description included below as part of the specialist report. Please also ensure that the name of the project (i.e., SCSM solar PV RE project) and the applicant (i.e., Main Street 1886 Proprietary Limited) is used for the report and is consistent throughout.

Main Street 1887 Proprietary Limited proposes the development of the Solar PV facility and associated infrastructure on a site bordering the eastern end of the Siyanda Bakgatla Platinum Mine area near Northam. The solar PV facility will comprise several arrays of PV panels, a BESS, and associated infrastructure with a contracted capacity of up to 100MW.

The purpose of the proposed project is to generate electricity for exclusive use by the Siyanda Mine, following which any excess power produced will be distributed to the national grid, if applicable. The construction of the PV facility aims to reduce the Siyanda Mine's dependency on direct supply from Eskom's national grid for operation activities, while simultaneously decreasing the mine's carbon footprint.

A preferred project site with an extent of ~1138ha and a development area of 564 has been identified by Main Street 1887 Proprietary Limited as a technically suitable area for the development of the Solar PV

[1] The development footprint is the defined area (located within the development area) where the PV panel array and other associated infrastructure for Solar PV will be planned to be constructed. This will be the actual footprint of the facility, and the area which would be disturbed. The extent of the development footprint will be determined in the EIA Phase.

Facility with a contracted capacity of up to 100MW. The study area is located on Portion 3 of Farm Grootkuil 409. The project site falls within the Thabazimbi Local Municipality within the Waterberg District Municipality in the Limpopo Province. The site is located ~6.5km west of the town of Northam and is accessible via the Swartklip Road which branches off the R510 provincial route.

Infrastructure associated with the solar PV facility will include:

- 100MW Solar PV array comprising PV modules and mounting structures.
- Inverters and transformers.
- Cabling between the project components.
- Battery Energy Storage System (BESS).
- On-site facility substation between the solar PV facility and the Eskom substation.
- Site offices, Security office, operations and control, and maintenance and storage laydown areas.
- Access roads, internal distribution roads.

Grid connection solution.

To evacuate the generated power to the Siyanda Mine, the grid connection solution consisting of the following is proposed:

The power generated by the solar PV facility will be transferred to the three step up transformers at the on-site/plant substation. Power will then be delivered from each step-up transformer as follows:

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- two 4.7 km, 33 kV transmission lines to the Fridge substation with two step down transformers (33/6.6 kV; 10 MVA).
- two 2.9 km, 33 kV transmission lines to the Ivan substation with three step down transformers (33/11 kV; 10 MVA).
- One 132kV transmission line to the south west area of the project site where a new substation (to be assessed through separate Environmental Impact Assessment (EIA) processes) for the furnace is proposed to be built

The grid connection is proposed on the following properties:

- Portion 3 of Farm Grootkuil 409.
- Portion 4 of Farm Grootkuil 409.
- Portion 5 of Farm Grootkuil 409.

The development area of 574 ha is larger than the area needed for the construction of a 100MW PV facility and will provide the opportunity for the optimal placement of the infrastructure, ensuring avoidance of major identified environmental sensitivities by the development footprint of ~ 240ha[2]. To avoid areas of potential sensitivity and to ensure that potential detrimental environmental impacts are minimised as far as possible, the full extent of the larger development area will be considered in the Scoping Phase, and a development footprint within which the infrastructure of the PV facility and associated infrastructures will be located will be fully assessed during the EIA Phase

[2] The development footprint is the defined area (located within the development area) where the PV panel array and other associated infrastructure for Solar PV will be planned to be constructed. This will be the actual footprint of the facility, and the area which would be disturbed. The extent of the development footprint will be determined in the EIA Phase.

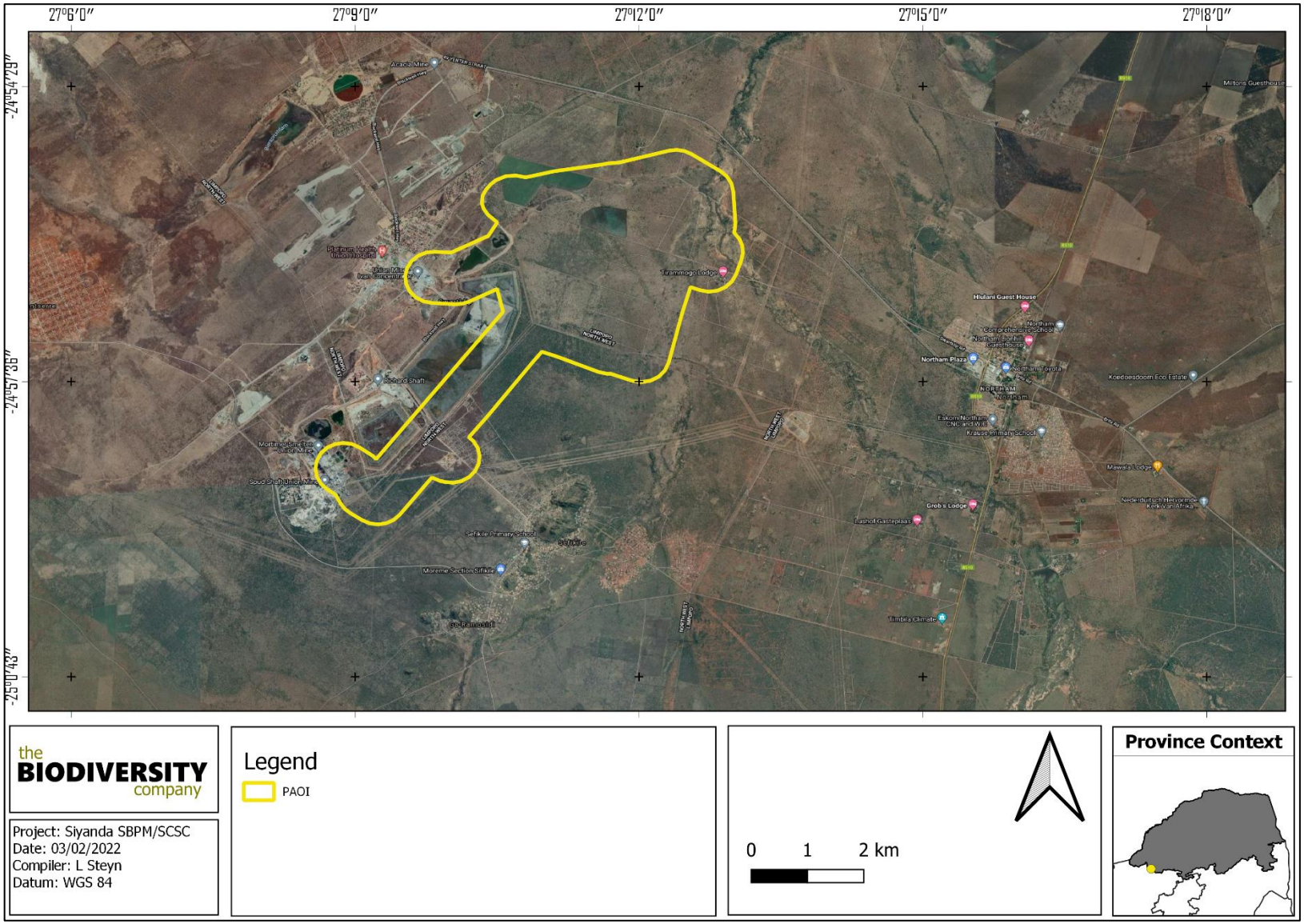

Figure 1-1 Proposed location of the project area in relation to the nearby towns

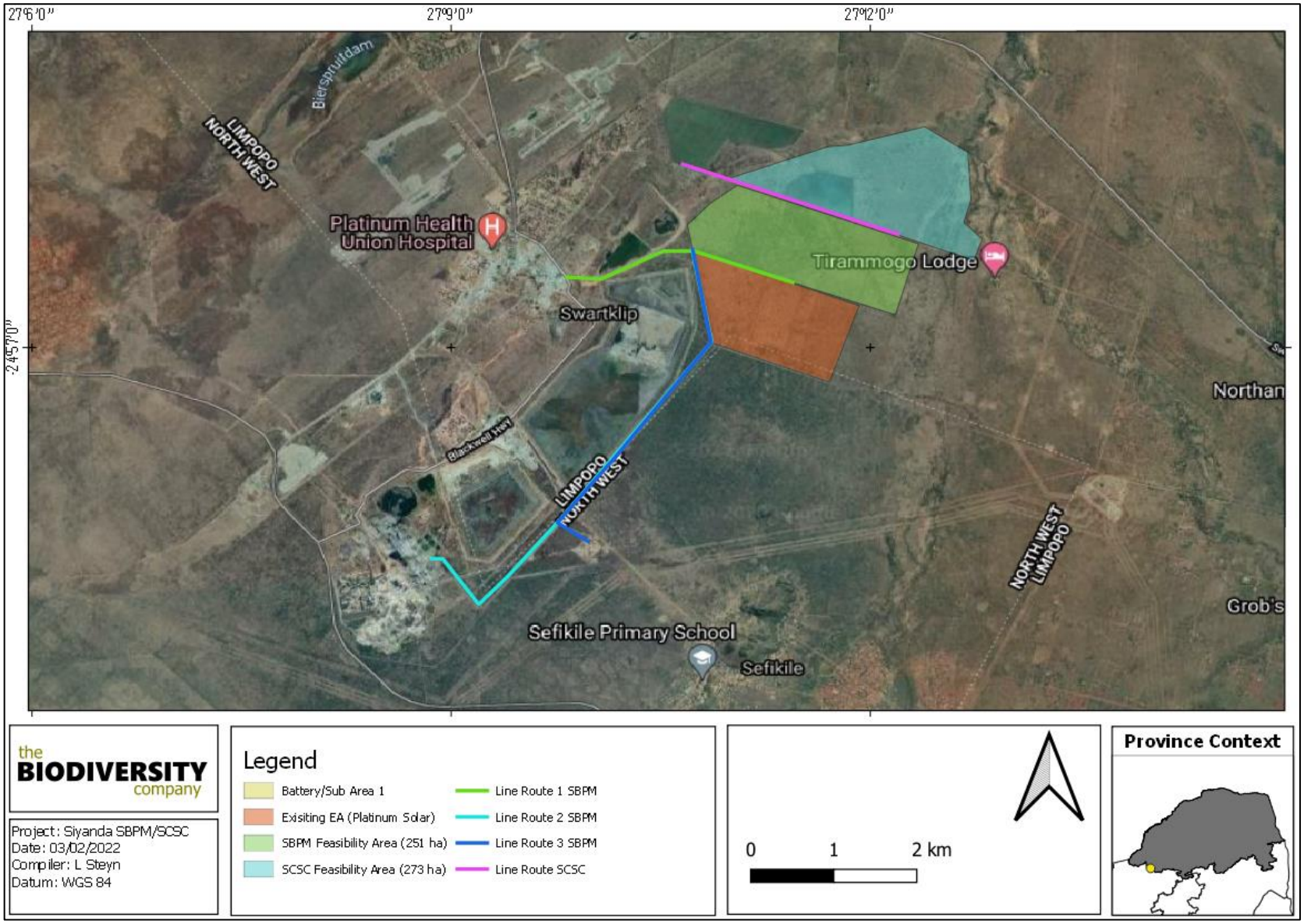

Figure 1-2 The various components of the project

1.3 Specialist Details

Report Name	**AVIFAUNA SCOPING ASSESSMENTS FOR THE PROPOSED SBPM & SCSC SOLAR FACILITIES FOR SIYANDA BAKGATLA PLATINUM MINE**
Reference	**SBPM/Siyanda PV**
Submitted to	savannah environmental
Report Writer	**Lindi Steyn**  Dr Lindi Steyn has completed her PhD in Biodiversity and Conservation from the University of Johannesburg. Lindi is a terrestrial ecologist with a special interest in ornithology. She has completed numerous studies ranging from basic Assessments to Environmental Impact Assessments following IFC standards.
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, 2017. 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 principals of science.

2 Scope of Work

The principle aim of the assessment was to provide information to guide the risk of the proposed activity to the ecological communities of the associated ecosystems and the agricultural potential within the project area. This was achieved through the following:

- Desktop assessment to identify the relevant ecologically important geographical features within the project area;
- Desktop assessment to compile an expected species list and identify possible threatened flora and fauna species that occur within the project area;
- A desktop description of the land type and soil characteristics for the area;
- Identify the manner that the proposed project impacts based on the screening assessment information and the desktop information, and evaluate the level of risk of these potential impacts; and
- Provide a high level description of potential impact scenarios for the project.

3 Key Legislative Requirements

The legislation, policies and guidelines listed below in Table 3-1 are applicable to the current project. The list below, although extensive, may not be complete and other legislation, policies and guidelines may apply in addition to those listed below.

Table 3-1 A list of key legislative requirements relevant to biodiversity and conservation in the Limpopo and North West Provinces

Region	Legislation / Guideline
International	Convention on Biological Diversity (CBD, 1993)
	The Convention on Wetlands (RAMSAR Convention, 1971)
	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 1996)
	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), Threatened or Protected Species Regulations
	Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, GNR 320 of Government Gazette 43310 (March 2020)
	Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, GNR 1150 of Government Gazette 43855 (October 2020)
	The National Environmental Management: Waste Act, 2008 (Act 59 of 2008);
	The Environment Conservation Act (Act No. 73 of 1989)
	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 (NWA) (Act No. 36 of 1998)
	National Spatial Biodiversity Assessment (NSBA)
	World Heritage Convention Act (Act No. 49 of 1999)
	Municipal Systems Act (Act No. 32 of 2000)
	Alien and Invasive Species Regulations and, Alien and Invasive Species List 20142020, published under NEMBA
	South Africa's National Biodiversity Strategy and Action Plan (NBSAP)
	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)
	Sustainable Utilisation of Agricultural Resources (Draft Legislation).
	White Paper on Biodiversity
	Limpopo Conservation Plan (2018)
Provincial	Limpopo Environmental Management Act (2003)
	North-West Biodiversity Sector Plan of 2015 (READ, 2015).
	The North West Biodiversity Management Amendment Bill, 2017

4 Methods

4.1 Desktop Assessment

The desktop assessment was principally undertaken using a Geographic Information System (GIS) to access the latest available spatial datasets to develop digital cartographs and species lists. These datasets and their date of publishing are provided below.

4.1.1 Ecologically Important Landscape Features

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

- National Biodiversity Assessment 2018 (Skowno et al, 2019) (NBA) - The purpose of the NBA is to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors. The NBA deals with all three components of biodiversity: genes, species, and ecosystems; and assesses biodiversity and ecosystems across terrestrial, freshwater, estuarine and marine environments. The two headline indicators assessed in the NBA are:
    - *Ecosystem Threat Status* – indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition.
    - *Ecosystem Protection Level* – indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. NP, PP or MP ecosystem types are collectively referred to as under-protected ecosystems.
- Protected areas - South Africa Protected Areas Database (SAPAD) (DEA, 2021) – The SAPAD Database contains spatial data pertinent to the conservation of South African biodiversity. It includes spatial and attribute information for both formally protected areas and areas that have

less formal protection. SAPAD is updated on a continuous basis and forms the basis for the Register of Protected Areas, which is a legislative requirement under the National Environmental Management: Protected Areas Act, Act 57 of 2003.

- National Protected Areas Expansion Strategy (NPAES) (SANBI, 2016) – The NPAES provides spatial information on areas that are suitable for terrestrial ecosystem protection. These focus areas are large, intact and unfragmented and therefore, of high importance for biodiversity, climate resilience and freshwater protection.
- Conservation/Biodiversity Sector Plans:

The **Limpopo Conservation Plan** was completed in 2018 for the Limpopo Department of Economic Development, Environment & Tourism (LEDET) (Desmet *et al.,* 2013). The purpose of the LCPv2 was to develop the spatial component of a bioregional plan (i.e., map of Critical Biodiversity Areas and associated land-use guidelines). The previous Limpopo Conservation Plan (LCPv1) was completely revised and updated (Desmet et al., 2013). A Limpopo Conservation Plan map was produced as part of this plan and sites were assigned to the following CBA categories based on their biodiversity characteristics, spatial configuration, and requirement for meeting targets for both biodiversity pattern and ecological processes:

- Critical Biodiversity Area 1 (CBA1);
- Critical Biodiversity Area 2 (CBA2);
- Ecological Support Area 1 (ESA1);
- Ecological Support Area 2 (ESA2);
- Other Natural Area (ONA);
- Protected Area (PA); and
- No Natural Remaining (NNR).

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 (Desmet et al., 2013).

Ecological Support Areas (ESA's) are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas and/or in delivering ecosystem services (SANBI, 2017). Critical Biodiversity Areas and Ecological Support Areas may be terrestrial or aquatic.

Other Natural Areas (ONAs) consist of all those areas in good or fair ecological condition that fall outside the protected area network and have not been identified as CBAs or ESAs. A biodiversity sector plan or bioregional plan must not specify the desired state/management objectives for ONAs or provide land-use guidelines for ONAs (Driver *et al.,* 2017).

Areas with No Natural Habitat Remaining (NNR) are areas in poor ecological condition that have not been identified as CBAs or ESAs. They include all irreversibly modified areas (such as urban or industrial areas and mines), and most severely modified areas (such as cultivated fields and forestry plantations). A biodiversity sector plan or bioregional plan must not specify the desired state/management objective or provide land-use guidelines for NNR areas (Driver *et al.,* 2017).

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).

- Important Bird and Biodiversity Areas (IBAs) (BirdLife South Africa, 2015) – IBAs constitute a global network of over 13 500 sites, of which 112 sites are found in South Africa. IBAs are sites of global significance for bird conservation, identified through multi-stakeholder processes using globally standardised, quantitative and scientifically agreed criteria; and

- South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer *et al.,* 2018) – A SAIIAE was established during the NBA of 2018. It is a collection of data layers that represent the extent of river and inland wetland ecosystem types and pressures on these systems.

4.1.2 Desktop avifaunal Assessment

The avifaunal desktop assessment comprised of the following, compiling an expected:

- Avifauna list, generated from the SABAP2 dataset by looking at pentads 2450_2700; 2450_2705; 2455_2700; 2455_2700; 2455_2705; 2455_2710; 2500_2700_2500_2705).

4.2 Terms of Methodology

4.2.1 Fauna Survey

The avifaunal field survey will be comprised of the following techniques:

- Visual and auditory searches - This typically comprises of meandering and using binoculars to view species from a distance without them being disturbed; and listening to species calls;
- Point counts for the avifauna; and
- Utilization of local knowledge.

Relevant field guides and texts that will be consulted for identification purposes included the following:

- Book of birds of South Africa, Lesotho and Swaziland (Taylor *et al.,* 2015); and
- Roberts – Birds of Southern Africa (Hockey *et al.,* 2005).

4.3 Terrestrial Site Ecological Importance

The different habitat types within the project area will be delineated and identified based on observations during the field assessment, and available satellite imagery. These habitat types will be assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of species of conservation concern and their ecosystem processes.

Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present on the site) and Receptor Resilience (RR) (its resilience to impacts) as follows.

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows. The criteria for the CI and FI ratings are provided in Table 4-1 and Table 4-2, respectively.

Table 4-1 Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria

Very High	Confirmed or highly likely occurrence of Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Extremely Rare or CR species that have a global extent of occurrence (EOO) of < 10 km^2. Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of an EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km^2. IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of Near Threatened (NT) species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very Low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

Table 4-2 Summary of Functional Integrity (FI) criteria

Functional Integrity	Fulfilling Criteria
Very High	Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts, with no signs of major past disturbance.
High	Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types. Good habitat connectivity, with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Only minor current negative ecological impacts, with no signs of major past disturbance and good rehabilitation potential.
Medium	Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts, with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.
Low	Small (> 1 ha but < 5 ha) area. Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and major current negative ecological impacts.
Very Low	Very small (< 1 ha) area. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts.

BI can be derived from a simple matrix of CI and FI as provided in Table 4-3.

Table 4-3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)

Biodiversity Importance (BI)		Conservation Importance (CI)				
		Very high	**High**	**Medium**	**Low**	**Very low**
Functional Integrity (FI)	**Very high**	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low

Biodiversity Importance (BI)		Conservation Importance (CI)				
		Very high	High	Medium	Low	Very low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor, as summarised in Table 4-4.

Table 4-4 Summary of Receptor Resilience (RR) criteria

Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to: (i) remain at a site even when a disturbance or impact is occurring, or (ii) return to a site once the disturbance or impact has been removed.

Subsequent to the determination of the BI and RR, the SEI can be ascertained using the matrix as provided in Table 4-5.

Table 4-5 Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI)

Site Ecological Importance		Biodiversity Importance (BI)				
		Very high	High	Medium	Low	Very low
Receptor Resilience (RR)	Very Low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very High	Medium	Low	Very low	Very low	Very low

Interpretation of the SEI in the context of the proposed project is provided in Table 4-6.

Table 4-6 Guidelines for interpreting Site Ecological Importance in the context of the proposed development activities

Site Ecological Importance	Interpretation in relation to proposed development activities
Very High	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e., last remaining populations of species, last remaining good condition patches of ecosystems/unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.

Site Ecological Importance	Interpretation in relation to proposed development activities
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The SEI evaluated for each taxon can be combined into a single multi-taxon evaluation of SEI for the assessment area. Either a combination of the maximum SEI for each receptor should be applied, or the SEI may be evaluated only once per receptor but for all necessary taxa simultaneously. For the latter, justification of the SEI for each receptor is based on the criteria that conforms to the highest CI and FI, and the lowest RR across all taxa.

4.4 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- The assessment area was based on the area provided by the client and any alterations to the footprint and/or missing GIS information pertaining to the assessment area would have affected the area surveyed;
- The species likelihood of occurrence is based on desktop information and might be changed after the two assessments;
- The impact assessment included is preliminary and is solely based on the screening survey and desktop information;
- The SEI included in the field summary section is pre-liminary and may change after the second survey; and
- No decommissioning phase impacts have been considered for this project. The life of operation is unknown and expected for perpetuity.

5 Results & Discussion

5.1 Desktop Assessment

5.1.1 Ecologically Important Landscape Features

The GIS analysis pertaining to the relevance of the proposed project to ecologically important landscape features is summarised in Table 5-1.

Table 5-1 Summary of relevance of the proposed project to ecologically important landscape features

Desktop Information Considered	Relevant/Irrelevant	Section
Ecosystem Threat Status	Relevant – Overlaps with a Least Concern ecosystem	5.1.1.1
Ecosystem Protection Level	Relevant – Overlaps with a Moderately Protected Ecosystem	5.1.1.2
Protected Areas	Relevant – The project area overlaps with the Rustenburg Platinum Mines (Union Section) Private Nature Reserve	5.1.1.4
Renewable Energy Development Zones	Irrelevant - The project area is 167 km for the closest REDZ	-
Powerline Corridor	Irrelevant- The project area falls 88km from the Northern Corridor	-
National Protected Areas Expansion Strategy	Relevant – The project area overlap with a NPAES protected area	5.1.1.4

Critical Biodiversity Area	Relevant – The project area overlaps with CBA2, ESA1, NNR and ONA classified areas	5.1.1.3
Important Bird and Biodiversity Areas	Relevant – Located adjacent to the Northern Turf Thornveld IBA	5.1.1.5
South African Inventory of Inland Aquatic Ecosystems	Relevant - The project area overlaps with two CR wetlands and is adjacent to 1 CR wetland	5.1.1.6
National Freshwater Priority Area	Relevant – The project area overlaps with an unclassified FEPA wetland and an unclassified FEPA river	5.1.1.7
Strategic Water Source Areas	Irrelevant- The project area is 57 km from the closest SWSA	-
Coordinated Waterbird Count	Relevant – 106 km from a CWAC site	-
Coordinated Avifaunal Road Count	Relevant – 112 km from the closest CAR route	-

5.1.1.1 Ecosystem Threat Status

The Ecosystem Threat Status is an indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. According to the spatial dataset the proposed project overlaps with a LC ecosystem (Figure 5-1).

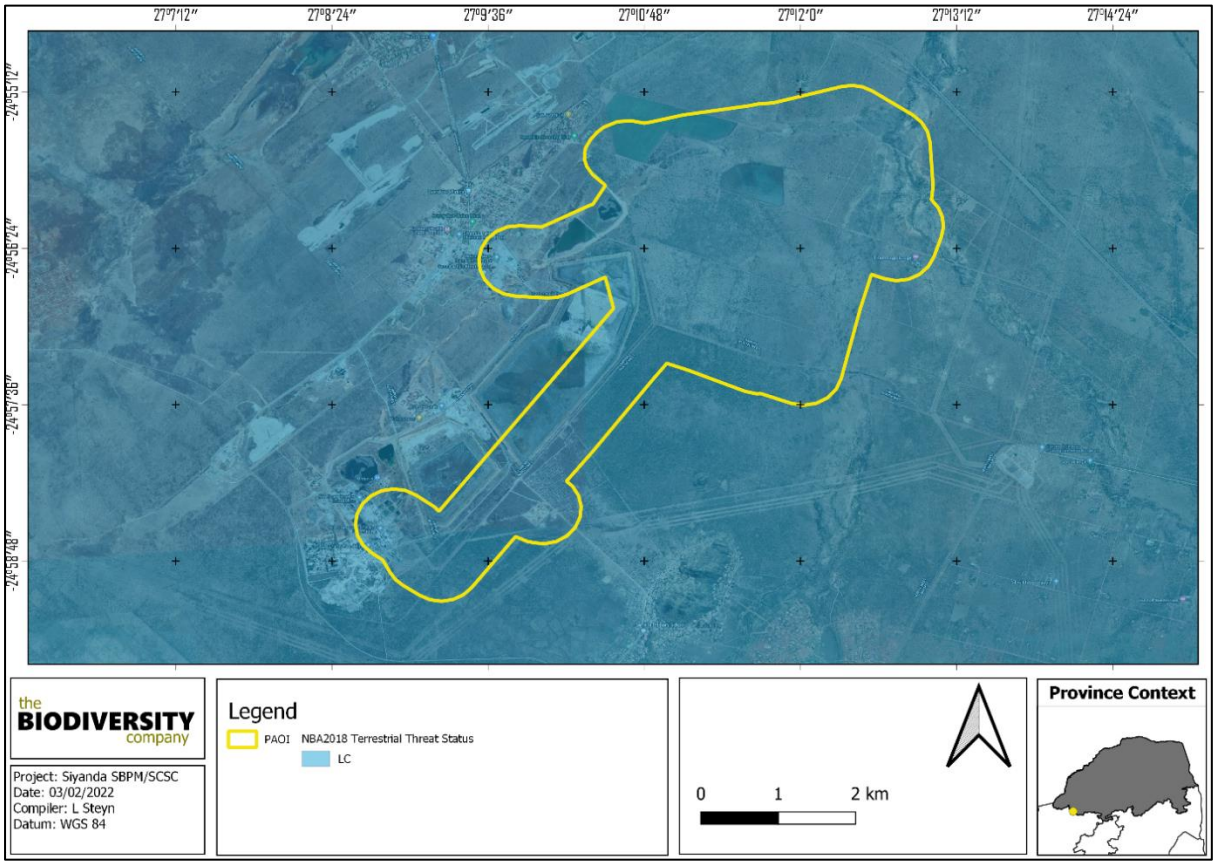

Figure 5-1 Map illustrating the ecosystem threat status associated with the project area.

5.1.1.2 Ecosystem Protection Level

This is an indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. NP, PP or MP ecosystem types are collectively

referred to as under-protected ecosystems. The proposed project overlaps with a MP ecosystem (Figure 5-2).

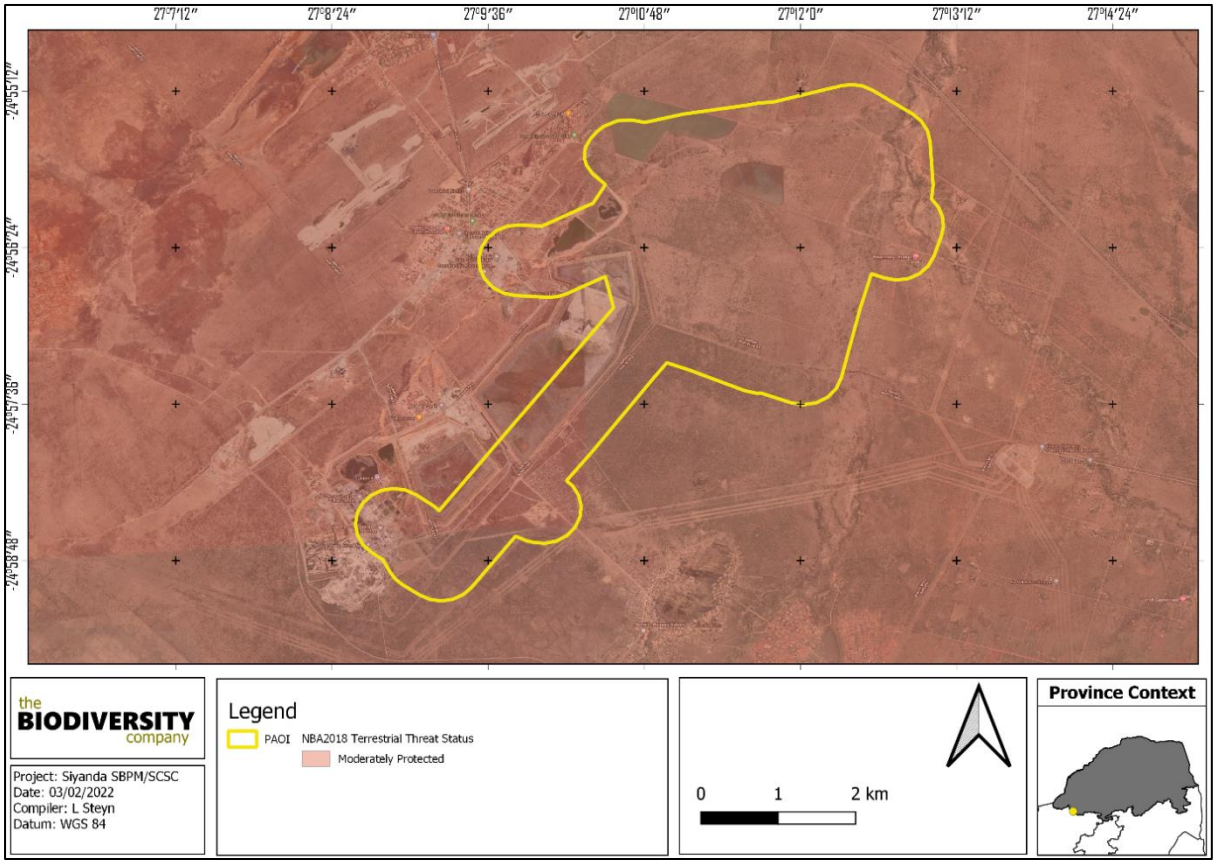

Figure 5-2 Map illustrating the ecosystem protection level associated with the project area

5.1.1.3 Critical Biodiversity Areas and Ecological Support Areas

The conservation of CBAs is crucial, in that if these areas are not maintained in a natural or near-natural state, biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (SANBI-BGIS, 2017).

The provincial CBA spatial data for the North West province indicates that both feasibility areas don't traverse any CBA nor Ecological Support Areas (ESAs) and Other Natural Areas (ONAs). Based on the Limpopo Conservation Plan the SCSC feasibility area traverses ESA1 and NNR areas, whereas the SBPM feasibility area traverses ESA1, NNR and ONA area.

The purpose of the Limpopo C-Plan (2018) is to inform land-use planning and development on a provincial scale and to aid in natural resource management. One of the outputs is a map of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). These are classified into different categories, namely Protected Areas, CBA1 areas, CBA2 areas, ESA1 areas, ESA2 areas, Other Natural Areas (ONAs) and areas with No Natural Habitat Remaining (NNR) based on biodiversity characteristics, spatial configuration, and requirements for meeting targets for both biodiversity patterns and ecological processes.

Figure 5-3 shows the project area superimposed on the Terrestrial CBA maps. The project area overlaps with CBA2, ESA1, NNR and ONA classified areas. Development in these areas is feasible, but developments other than the preferred biodiversity-compatible land-uses should be investigated in detail and the mitigation hierarchy applied.

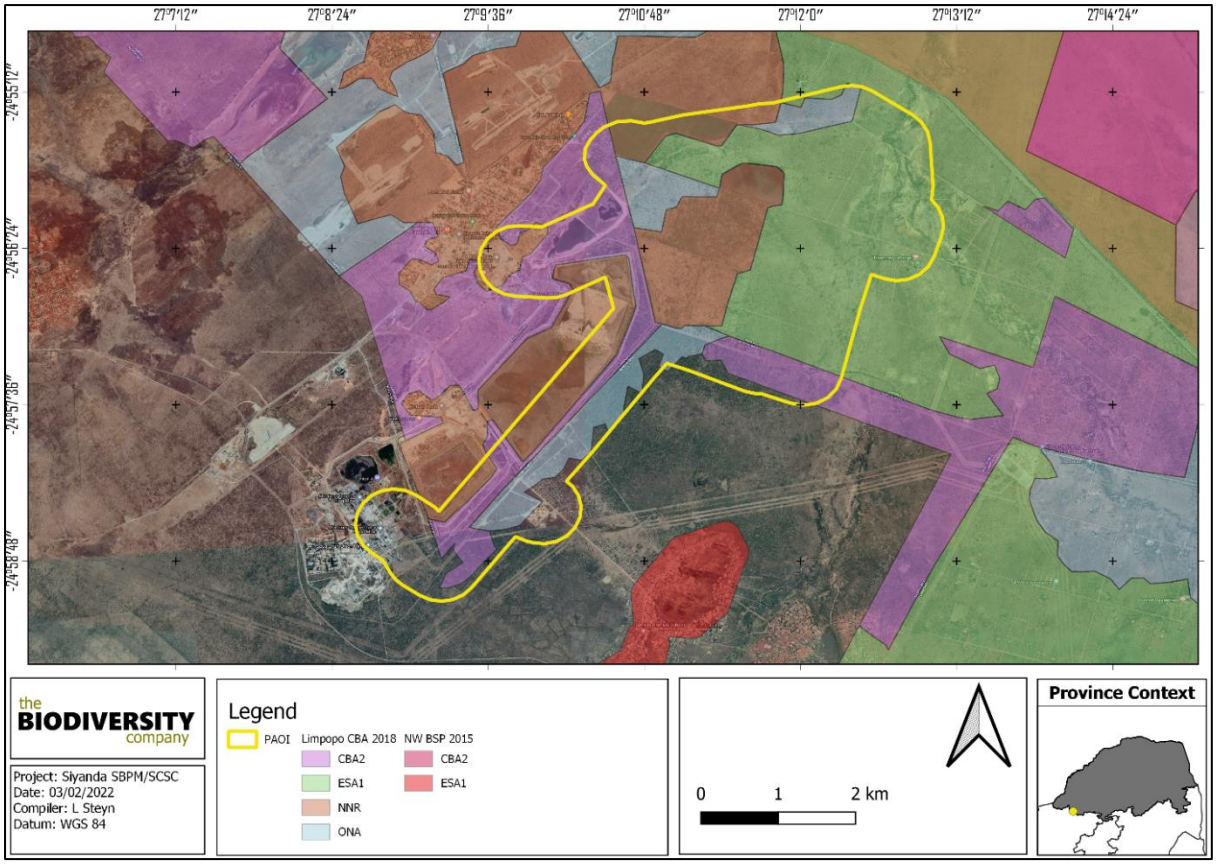

Figure 5-3 Map illustrating the locations of CBAs in the project area

5.1.1.4 Protected areas

According to the protected area spatial datasets from SAPAD (2021), the project area overlaps with the Rustenburg Platinum Mines (Union Section) Private Nature Reserve (Figure 5-4). From the imagery, and confirmed by the site visit, the portion of the reserve in which the project area is located is comprised of an old tailings dam in various stages of rehabilitation and is therefore not considered ecologically sensitive. Several additional private nature reserves are in close proximity to the project area. These are the Leopard Hills, Animalia, Youngs and Leeuwkopje private nature reserves. All of these reserves are within 5km of the project area which means that the project area is within the buffer zone of the nature reserves.

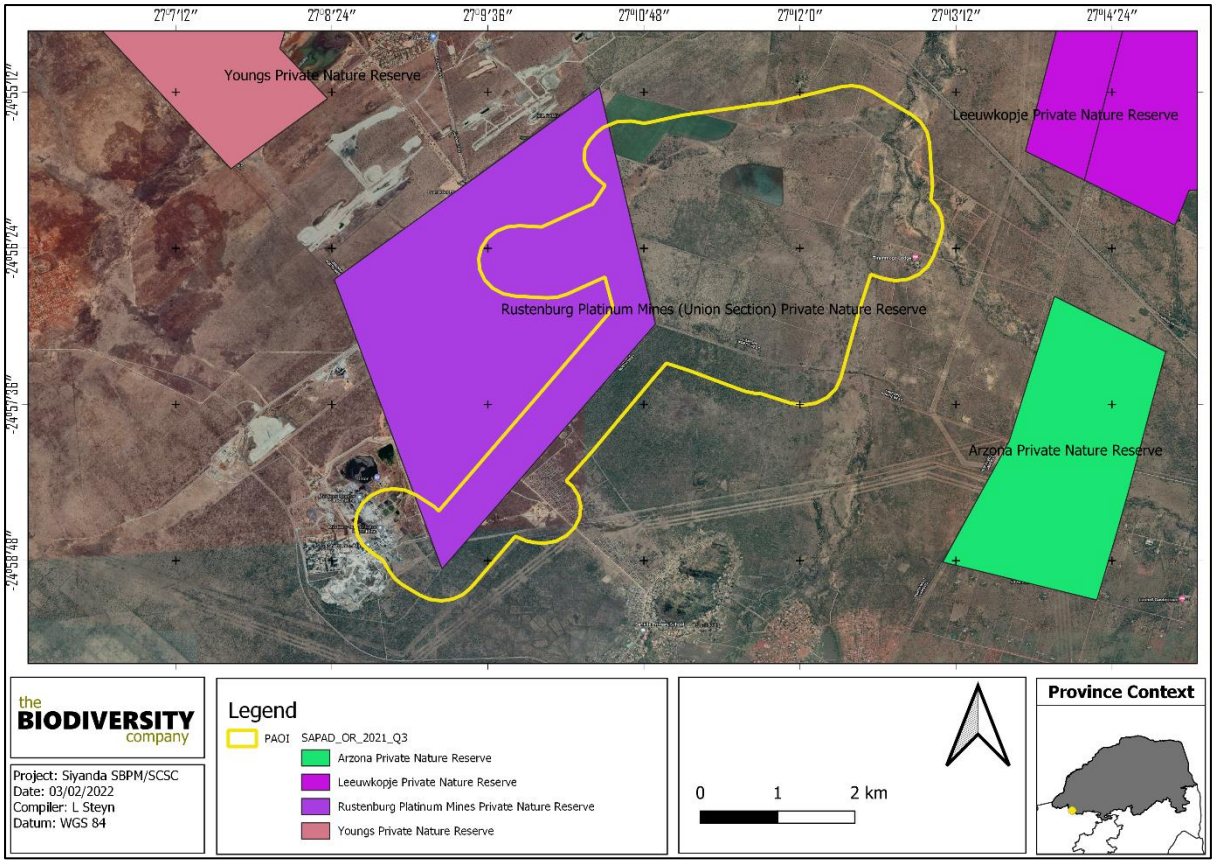

Figure 5-4 The project area in relation to the protected areas

5.1.1.5 National Protected Area Expansion Strategy

National Protected Area Expansion Strategy 2016 (NPAES) areas were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with a strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for finescale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2016). The project area overlaps with an NPAES protected area as can be seen in Figure 5-5. Developments in these areas must be mitigated to an acceptable level.

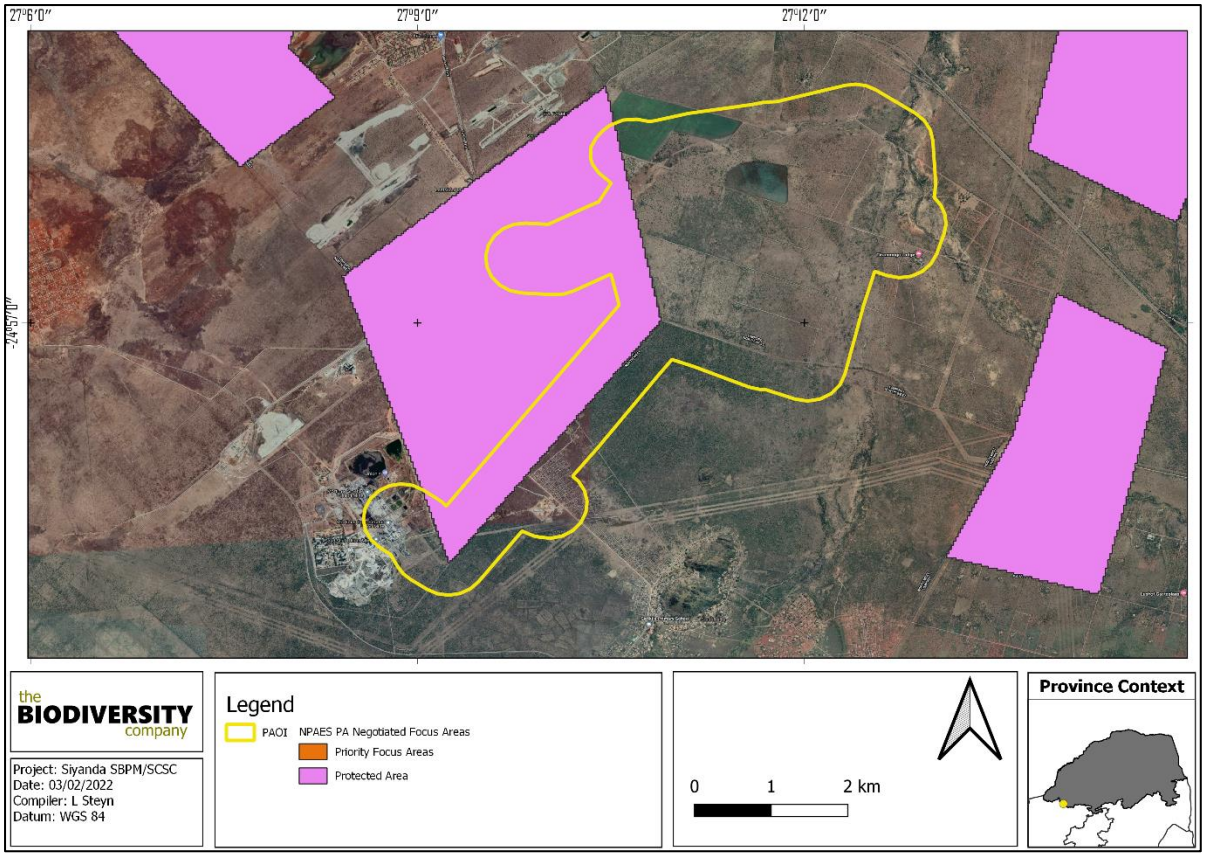

Figure 5-5 The project area in relation to the National Protected Area Expansion Strategy

5.1.1.6 Important Bird and Biodiversity Area

Important Bird & 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. Figure 5-6 shows the project area is adjacent to the Northern Turf Thornveld IBA.

The Northern Turf Thornveld IBA consists of a group of privately owned farms that forms a triangle delineated roughly by the Crocodile River in the east and the Bierspruit River in the west; the confluence of these two rivers is approximately 3 km south-west of Thabazimbi. This IBA is important as it is home to the Yellow-throated Sandgrouse *Pterocles gutturalis and* is regarded as the core of the resident South African population (Birdlife South Africa, 2015B).

Other important birds in the IBA include the Secretarybird *Sagittarius serpentarius*, Kori Bustard *Ardeotis kori*, Lanner Falcon *Falco biarmicus* and Black-winged Pratincole *Glareola nordmanni*.

Common biome-restricted species found within this IBA include Kurrichane Thrush *Turdus libonyanus*, White-throated Robin-Chat *Cossypha humeralis*, Burchell's Starling *Lamprotornis australis*, White-bellied Sunbird *Cinnyris talatala* and the fairly common Kalahari Scrub Robin *Erythropygia paena* (Birdlife South Africa, 2015B).

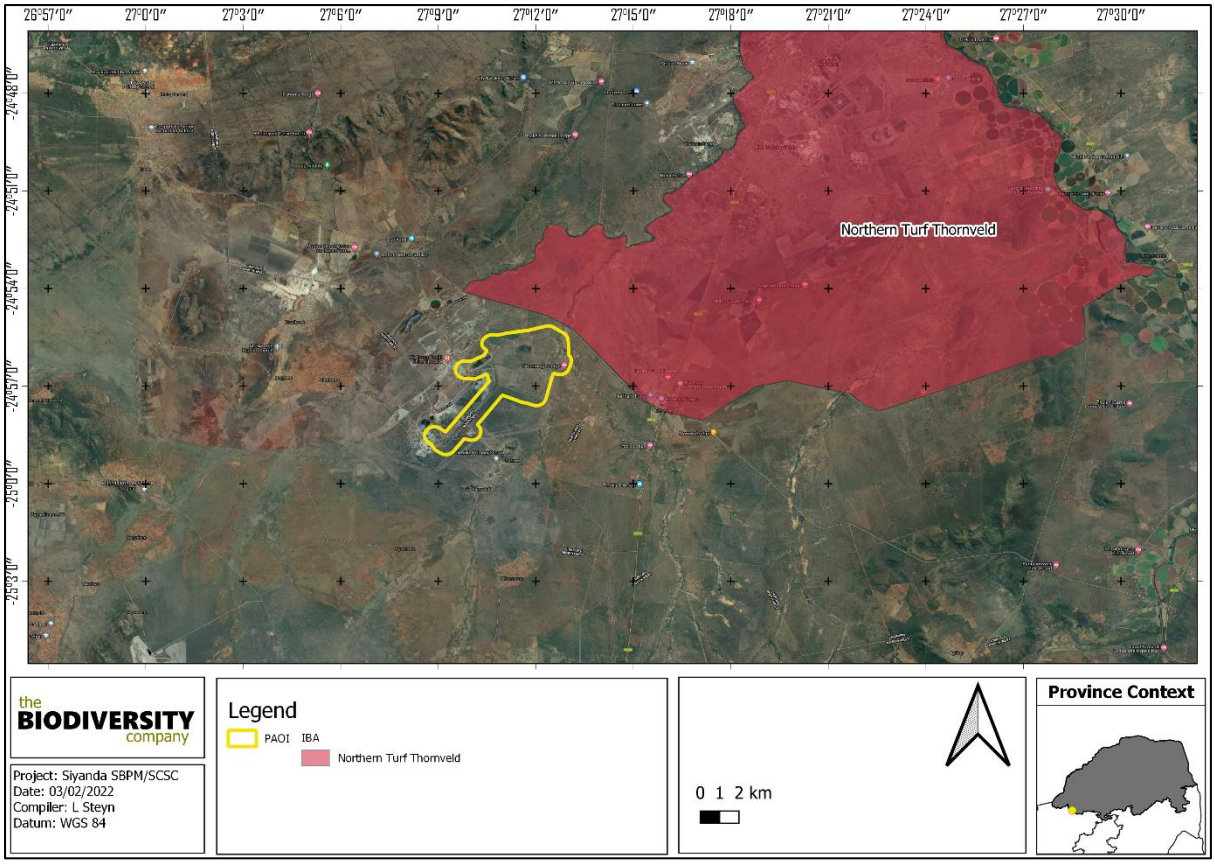

Figure 5-6 The project area in relation to the Northern turf thornveld IBA

5.1.1.7 Hydrological Setting

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was released with the NBA 2018. Ecosystem threat status (ETS) of river and wetland ecosystem types are based on the extent to which each river ecosystem type had been altered from its natural condition. Ecosystem types are categorised as CR, EN, VU or LT, with CR, EN and VU ecosystem types collectively referred to as 'threatened' (Van Deventer *et al.,* 2019; Skowno *et al.,* 2019). The project area overlaps with CR NBA rivers and borders on a CR wetland (Figure 5-7).

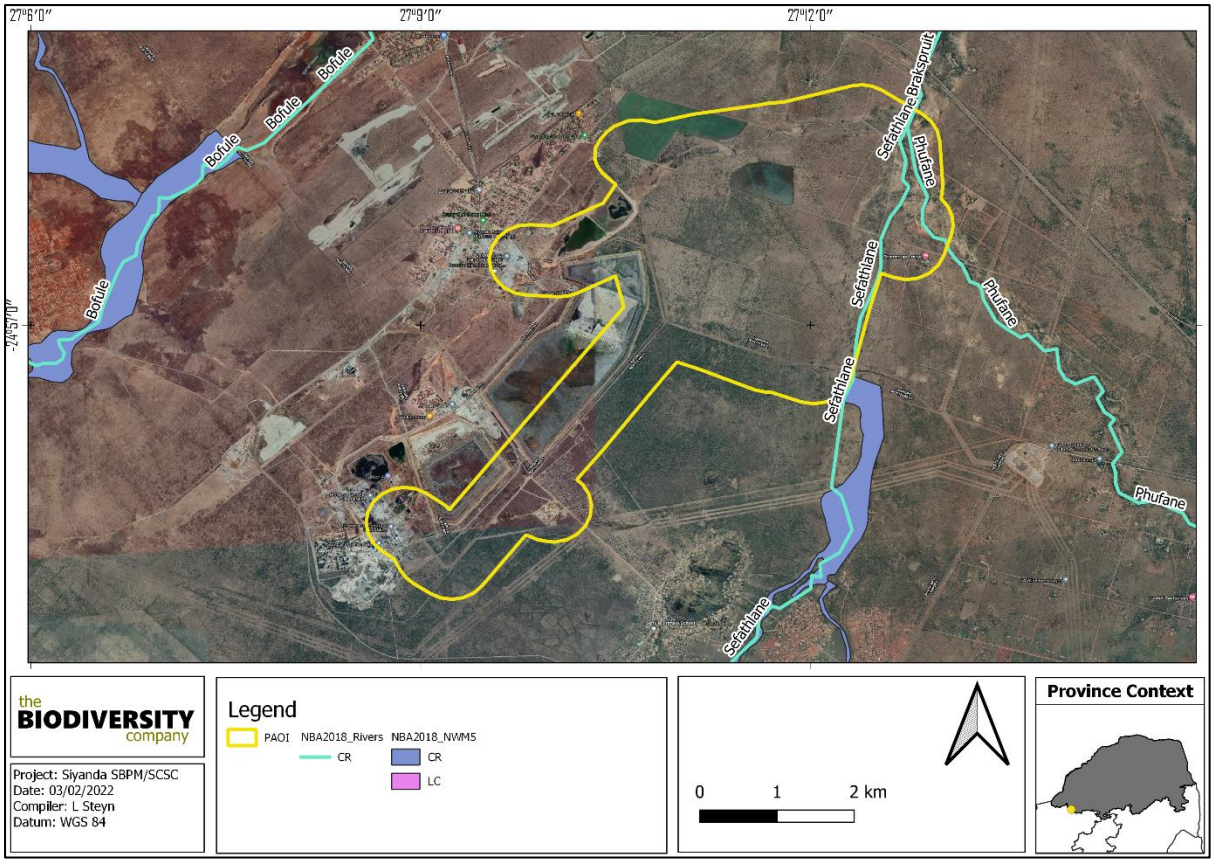

Figure 5-7 Map illustrating ecosystem threat status of rivers and wetland ecosystems in the project area

5.1.1.8 National Freshwater Ecosystem Priority Area Status

In an attempt to better conserve aquatic ecosystems, South Africa has 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's (NEM:BA) biodiversity goals (Nel *et al.,* 2011).

Figure 5-8 shows the project area overlaps with unclassified FEPA wetlands and unclassified FEPA rivers.

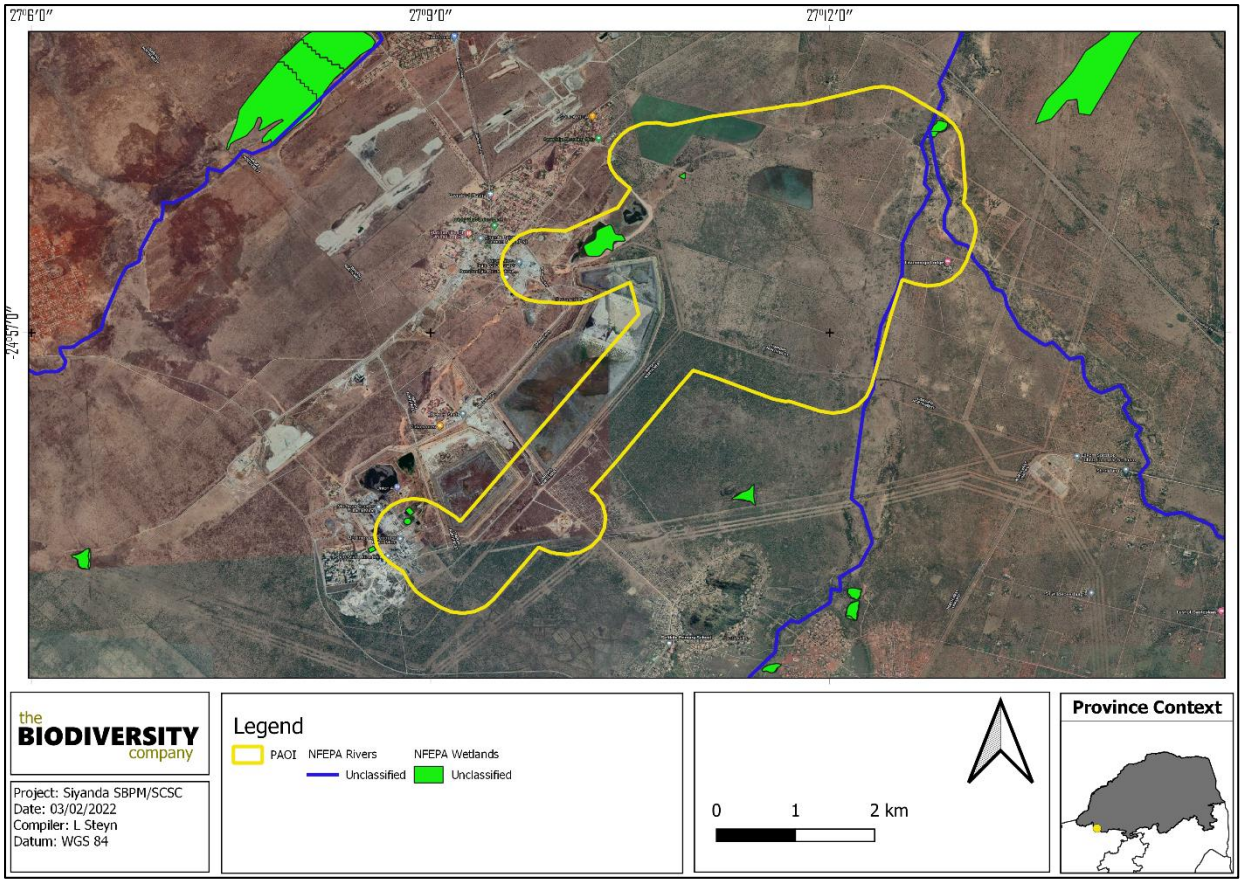

Figure 5-8 The project area in relation to the National Freshwater Ecosystem Priority Areas.

5.1.2 Faunal Assessment

5.1.2.1 Avifauna

The SABAP2 Data lists 306 avifauna species that could be expected to occur within the area (The full list will be provided in the final assessment). Ten (10) of these expected species are regarded as threatened (Table 5-2). Three of the species have a low likelihood of occurrence due to lack of suitable habitat and food sources in the project area. The likelihood of occurrence is also related to the disturbed nature of the project area.

Table 5-2 Threatened avifauna species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Ardeotis kori	Bustard, Kori	NT	NT	Low
Ciconia nigra	Stork, Black	VU	LC	Low
Coracias garrulus	Roller, European	NT	LC	Moderate
Falco biarmicus	Falcon, Lanner	VU	LC	High
Glareola nordmanni	Pratincole, Black-winged	NT	NT	Low
Mycteria ibis	Stork, Yellow-billed	EN	LC	Moderate
Polemaetus bellicosus	Eagle, Martial	EN	EN	High
Pterocles gutturalis	Sandgrouse, Yellow-throated	NT	LC	High
Sagittarius serpentarius	Secretarybird	VU	EN	High

Tyto capensis	Grass-owl, African	VU	LC	High

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 moderate chance of this species occurring in the project area as they prefer to forage in open areas.

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 natural veld condition and the presence of many bird species on which Lanner Falcons may predate.

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). The presence of some water bodies within the project area creates a high possibility that this species may occur there.

Polemaetus bellicosus (Martial Eagle) is listed as EN on a regional scale and 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). Suitable foraging and breeding area is found in the project area.

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 high due to the extensive grasslands and wetland areas present in the project area.

Tyto capensis (African Grass-owl) is rated as VU on a regional basis. The distribution of the species includes the eastern parts of South Africa. The species is generally solitary, but it does also occur in pairs in moist grasslands where it roosts (IUCN, 2017). This species specifically has a preference for nesting in dense stands of the grass species *Imperata cylindrica*. Wetlands with suitable habitat can be found in the project area therefore the likelihood of occurrence is rated as high.

6 Impact Risk Assessment

6.1 Avifauna Impact Assessment

Anthropogenic activities drive habitat destruction causing displacement of avifauna and possibly direct mortality. Land clearing destroys habitat and can lead to the loss of local breeding grounds, nesting sites and movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for avifauna species and may reduce animal populations and species compositions within the area.

Portions of the project area are classified as CBA1 and ESA2, these areas also border a CR wetland and overlap with CR rivers. The importance of these areas are highlighted by the number of avifauna SCCs expected. A total of five avifauna SCCs were given a high likelihood of occurrence, while a further two were given a moderate likelihood of occurrence. Based on the desktop and initial screening assessment information it can be said that majority of the project area will have a high sensitivity rating.

Table 6-1 Scoping evaluation table summarising the impacts identified to terrestrial biodiversity

Impact **Biodiversity loss/disturbance**			
Issue	**Nature of Impact**	**Extent of Impact**	**No-Go Areas**
Destruction, fragmentation and degradation of habitats and ecosystems	Direct impacts: » Disturbance / degradation / loss to vegetation and habitats » Ecological corridors are disrupted » Habitat fragmentation Indirect impacts: » Erosion risk increases » Fire risk increases » Increase in invasive alien species	Local	Water resources and buffer area
Spread and/or establishment of alien and/or invasive species	Direct impacts: » Loss of vegetation and habitat due to increase in alien species Indirect impacts: » Creation of infrastructure suitable for breeding activities of alien and/or invasive species » Spreading of potentially dangerous diseases due to invasive and pest species	Local	None identified at this stage
Direct mortality of avifauna	Direct impacts: » Loss of SCC species » Loss of avifauna diversity Indirect impacts: » Loss of diversity and species composition in the area. » Possible impact on the food chain	Regional	None identified at this stage
Reduced dispersal/migration of fauna	Direct impacts: » Loss of genetic diversity » Isolation of species and groups leading to inbreeding Indirect impacts: » Reduced seed dispersal » Loss of ecosystem services	Regional	None identified at this stage
Environmental pollution due to water runoff, spills from vehicles and erosion	Direct impacts: » Pollution in watercourses and the surrounding environment » Avifaunal mortality (direct and indirectly) Indirect impacts: » Ground water pollution » Loss of ecosystem services	Local	None identified at this stage
Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust, heat radiation and light pollution.	Direct impacts: » Disruption/alteration of ecological life cycles due to noise » Reduced pollination and growth of vegetation due to dust leading to reduced habitat » Avifaunal mortality due to light pollution (nocturnal species becoming more visible to predators) » Heat radiation could lead to the displacement of species Indirect impacts: » Loss of ecosystem services	Local	None identified at this stage
Staff and others interacting directly with fauna (potentially dangerous) or poaching of animals	Direct impacts: » Loss of SCCs or TOPS species Indirect impacts: » Loss of ecosystem service » Loss of genetic diversity	Local	None identified at this stage

Description of expected significance of impact
The development of the area could result in the loss or degradation of the habitat and vegetation, most of which is still in a natural condition and supports a number of avifauna species. The construction of the solar facility could also lead to the displacement/mortalities of the avifauna and more specifically SCC avifauna species. The operation of the facility could result in the disruption of ecological life cycles. This could be as a result of a number of things, but mainly due to dust, noise, light pollution and heat radiation. Leaks, spillages or breakages from any of these could result in contamination of the receiving water resources. Contaminated water resources are likely to have an effect on the associated biota.

Gaps in knowledge & recommendations for further study

- This is completed at a desktop level only.
- Identification and descriptions of habitats.
- Identification of the Site Ecological Importance.
- Location and identification of SCCs as well as in the case of fauna their location of the nests/dens.
- Determine a suitable buffer width for the identified features.

Recommendations with regards to general field surveys

- Field surveys to prioritise the development areas, but also consider the 500 m PAOI.
- Fieldwork to be undertaken during the wet season period.
- Avifauna assessment field work to be conducted over two seasons to ensure migratory species are considered.

6.1.1 Cumulative Impacts

Cumulative impacts are assessed in context of the extent of the proposed project area; other developments in the area; and general habitat loss and transformation resulting from other activities in the area.

The impacts of projects are often assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation this provides a good method of assessing a project's impact. However, in areas where baselines have already been affected, or where future development will continue to add to the impacts in an area or region, it is appropriate to consider the cumulative effects of development. This is similar to the concept of shifting baselines, which describes how the environmental baseline at a point in time may represent a significant change from the original state of the system. This section describes the potential impacts of the project that are cumulative for fauna and flora.

Localised cumulative impacts include the cumulative effects from operations that are close enough to potentially cause additive effects on the environment or sensitive receivers (such as nearby solar farm activities within the area). These include dust deposition, noise and vibration, disruption of corridors or habitat, groundwater drawdown, groundwater and surface water quality, and transport.

Long-term cumulative impacts due to extensive solar development footprint, powerlines and substations can lead to the loss of endemic species and threatened species, loss of habitat and vegetation types and even degradation of well conserved areas (Table 6-2).

Table 6-2 Cumulative impact of the solar plant and battery system

The development of the proposed infrastructure will contribute to cumulative habitat loss within CBAs/ ESAs and thereby impact the ecological processes in the region.

	Overall impact of the proposed development considered in isolation	**Cumulative impact of the project and other projects in the area**
Extent	Moderate (3)	High (4)
Duration	Moderate term (3)	Long term (4)
Magnitude	Low (4)	High (8)
Probability	Probable (3)	Highly probable (4)
Significance	**Medium**	**High**
Status (positive or negative)	Negative	Negative
Reversibility	High	Low
Irreplaceable loss of resources?	Yes	Yes

Can impacts be mitigated?	Yes
Mitigation:	
• This impact cannot be mitigated as the loss of vegetation is unavoidable.	
Residual Impacts:	
Will result in the loss of: » CBA2 & ESA1 » Endemic species; » SCC avifauna species; » Portions of a NPAES; and » Niche habitats.	

6.2 First Field Assessment Summary

A field assessment was conducted 4-8 April 2022, during this survey the 134 bird species were recorded of which three were SCCs. The SCCs recorded were Lanner Falcon (*Falco biarmicus*) (VU- regionally), White-backed Vulture (*Gyps africanus*) (CR-regionally and internationally) and Yellow-throated Sandgrouse (*Pterocles gutturalis*) (NT- regionally). These species were recorded on numerous occasions spread throughout the project area. Of the 134 species 18 species were identified that would be at risk for powerline collisions, electrocutions or habitat loss due to the development. These species are listed in Table 6-3.

Table 6-3 Species at risk for collisions, electrocutions and habitat loss

Common Name	Scientific Name	RD (Regional, Global)	Collisions	Electrocution	Habitat Loss
African Darter	*Anhinga rufa*		x		x
African Fish Eagle	*Haliaeetus vocifer*		x	x	
African Hawk Eagle	*Aquila spilogaster*		x	x	
Black-chested Snake Eagle	*Circaetus pectoralis*			x	
Black-headed Heron	*Ardea melanocephala*		x	x	
Egyptian Goose	*Alopochen aegyptiaca*		x	x	
Gabar Goshawk	*Micronisus gabar*		x		
Glossy Ibis	*Plegadis falcinellus*		x	x	
Green-backed (Striated) Heron	*Butorides striata*		x		
Hadeda (Hadada) Ibis	*Bostrychia hagedash*		x	x	
Hamerkop	*Scopus umbretta*		x		
Helmeted Guineafowl	*Numida meleagris*			x	
Lanner Falcon	*Falco biarmicus*	VU, LC	x		x
Marsh Owl	*Asio capensis*		x	x	x
Spur-winged Goose	*Plectropterus gambensis*		x	x	
White-backed Vulture	*Gyps africanus*	CR, CR	x	x	x
White-faced Whistling Duck	*Dendrocygna viduata*		x	x	
Yellow-throated Sandgrouse	*Pterocles gutturalis*	NT, LC			x

The biodiversity theme sensitivity, as indicated in the screening report, was derived to be Very High, (Figure 6-1) while the fauna sensitivity was rated as ‘Moderate’ (Figure 6-2).

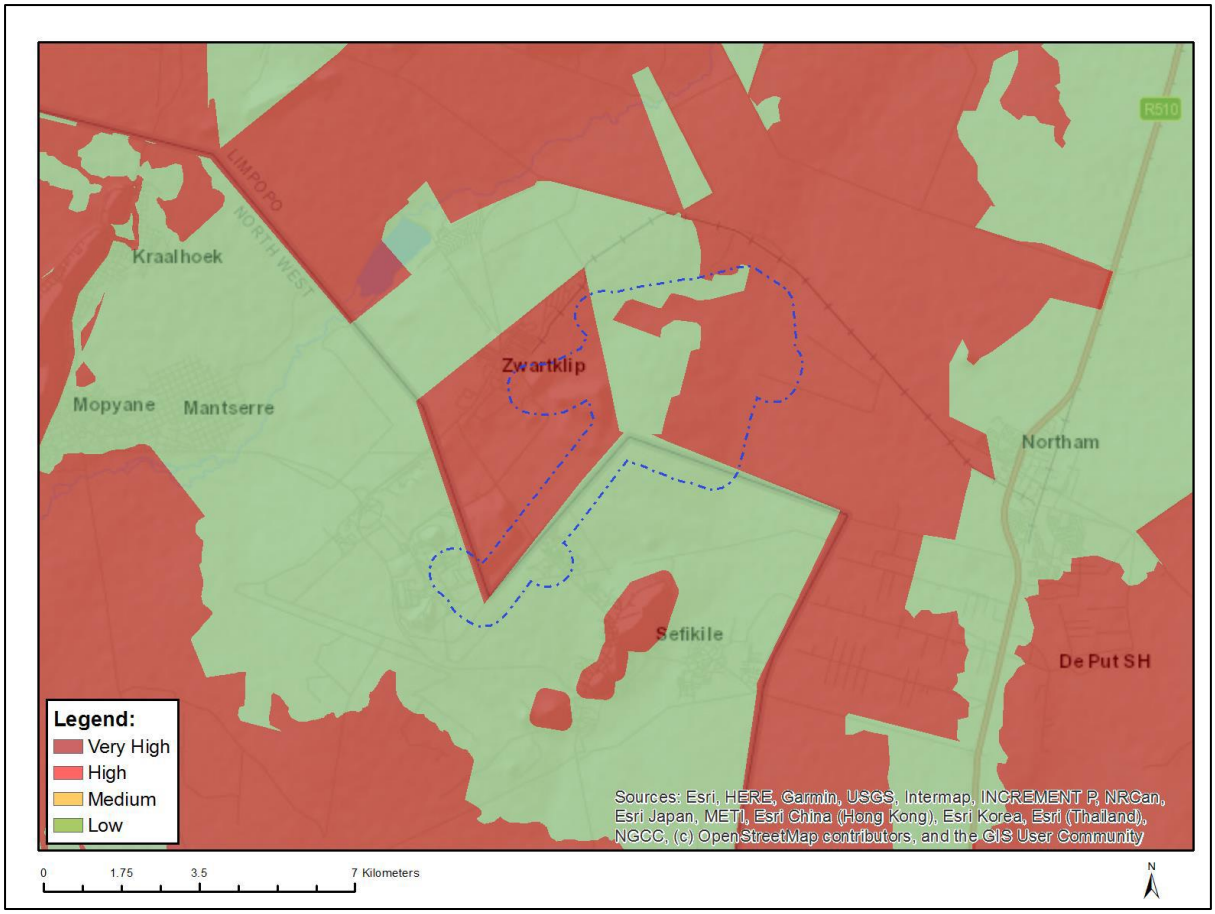

Figure 6-1 Terrestrial Biodiversity Theme Sensitivity, National Web based Environmental Screening Tool.

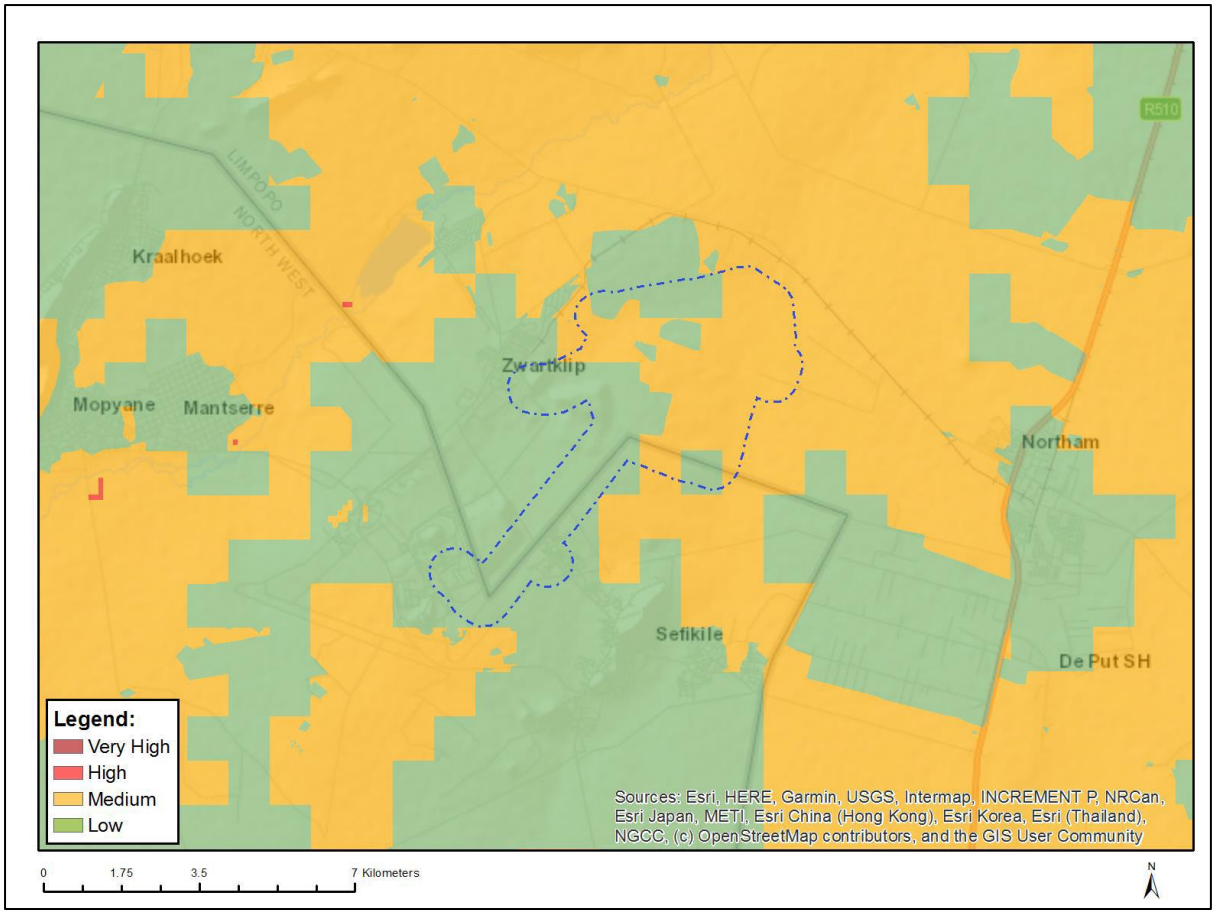

Figure 6-2 Fauna Theme Sensitivity, National Web based Environmental Screening Tool.

Pre-liminary sensitivities were compiled for the avifauna study based on only the first survey. Based on the criteria provided in Section 4.3 of this report, all habitats (full description of the habitats to be provided after the second survey) within the assessment area of the proposed project were allocated a sensitivity category (Table 6-4). The sensitivities of the habitat types delineated are illustrated in Figure 6-3.

Table 6-4 SEI Summary of habitat types delineated within field assessment area of project area

Habitat	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance
Wetlands	High	High	High	Medium	High
Degraded Bushveld	High	High	High	Medium	High
Disturbed Bushveld	Low	Low	Low	Medium	Low
Fragmented Bushveld	Medium	Medium	Medium	Medium	Medium
Transformed	Very Low	Very Low	Very Low	High	Very Low

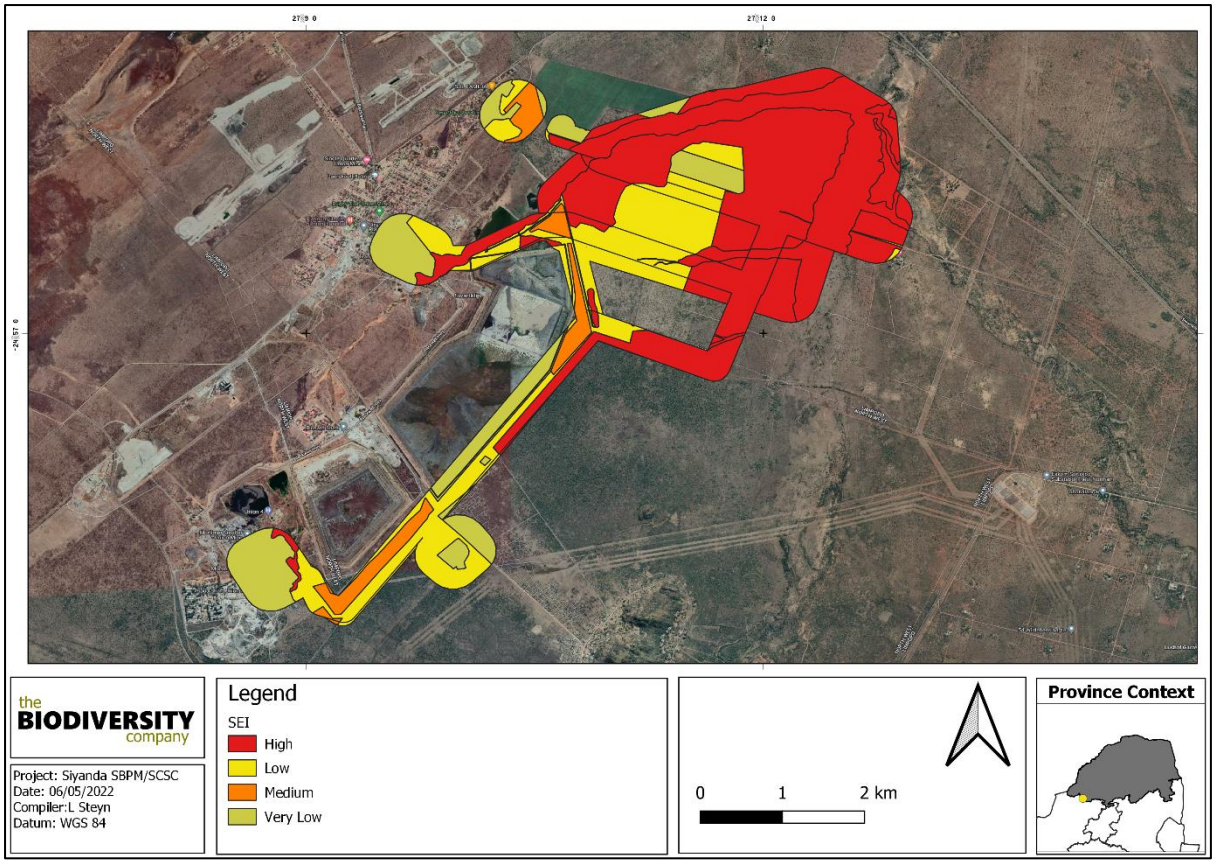

Figure 6-3 Pre-liminary sensitivities based on the first avifauna assessment

Interpretation of the SEI in the context of the proposed project is provided in Table 6-5.

Table 6-5 Guidelines for interpreting Site Ecological Importance in the context of the proposed development activities

Site Ecological Importance	Interpretation in relation to proposed development activities
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

7 Conclusion

Based on the desktop assessment it can be said that the project area is sensitive, with the Secondary Bushveld habitat unit classified as a low sensitivity. There is a moderate-high likelihood of species of conservation concern occurring. This assumption is based on the CBA2, ESA1, NPAES (protected area), Northern Turfveld IBA and CR rivers found in and around the project area. The pre-liminary results also support this assumption.

A totsl of 306 avifauna species could be expected to occur within the area, with ten (10) of these expected species regarded as threatened. A field assessment was conducted 4-8 April 2022, during this survey the 134 bird species were recorded of which three were SCCs. The SCCs recorded were Lanner Falcon (*Falco biarmicus*) (VU- regionally), White-backed Vulture (*Gyps africanus*) (CR-

regionally and internationally) and Yellow-throated Sandgrouse (*Pterocles gutturalis*) (NT- regionally). These species were recorded on numerous occasions spread throughout the project area. Of the 134 species 18 species were identified that would be at risk for powerline collisions, electrocutions or habitat loss due to the development. A second survey is scheduled, thereafter information will be provided detailing habitats, species densities and also a supporting impact assessment.

8 References

Bates, M.F., Branch, W.R., Bauer, A.M., Burger, M., Marais, J., Alexander, G.J & de Villiers, M.S. (Eds). 2014. Atlas and Red List of Reptiles of South Africa, Lesotho and Swaziland. Suricata 1. South African Biodiversity Institute, Pretoria.

BirdLife International. 2016a. Afrotis afra. The IUCN Red List of Threatened Species 2016: e.T22691975A93331501. http://dx.doi.org/10.2305/IUCN.UK.2016-3.RLTS.T22691975A93331501.en.

IUCN. (2021). The IUCN Red List of Threatened Species. www.iucnredlist.org

SADAP (South Africa Protected Areas Database) and SACAD (South Africa Conservation Areas Database) (2021). http://egis.environment.gov.za

SANBI-BGIS. 2017. Technical guidelines for CBA Maps: Guidelines for developing a map of Critical Biodiversity Areas & Ecological Support Areas using systematic biodiversity planning.

Skowno, A.L., Raimondo, D.C., Poole, C.J., Fizzotti, B. & Slingsby, J.A. (eds.). 2019. South African National Biodiversity Assessment 2018 Technical Report Volume 1: Terrestrial Realm. South African National Biodiversity Institute, Pretoria.

Van Deventer, H., Smith-Adao, L., Mbona, N., Petersen, C., Skowno, A., Collins, N.B., Grenfell, M., Job, N., Lötter, M., Ollis, D., Scherman, P., Sieben, E. & Snaddon, K. 2018. South African National Biodiversity Assessment 2018: Technical Report. Volume 2a: South African Inventory of Inland Aquatic Ecosystems (SAIIAE). Version 3, final released on 3 October 2019. Council for Scientific and Industrial Research (CSIR) and South African National Biodiversity Institute (SANBI): Pretoria, South Africa.

9 Appendix Items

9.1 Appendix A – Specialist Declaration of Independence

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

Biodiversity Specialist

The Biodiversity Company

May 2022