TERRESTRIAL IMPACT ASSESSMENT REPORT

TERRESTRIAL ECOLOGY FOR THE PROPOSED PROSPECTING OF COPPER ON THE REMAINDER AND PORTION 1 OF SAMOEP 147 SITUATED IN THE NAMAQUALAND MAGISTERIAL DISTRICT WITHIN THE POFFADER LOCAL MUNICIPALITY, NORTHERN CAPE REGION.

THOMATREE FAMILY
The Last Standing Tree

ThomaTree Family (Pty) Ltd

22/11/2024

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DECLARATION OF INDEPENDENCE

I, Khantshi Ndivhuho, declare that I:

- 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.

Khantshi Ndivhuho (SACNASP 122250)

22/ 11/ 2024

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ABBREVIATIONS

BGIS	Biodiversity Geographic Information System (from SANBI)
BODATSA	Botanical Database of Southern Africa
CARA	Conservation of Agricultural Resources Act (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CR	Critically Endangered
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officers
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMP	Environmental Management Programme
EN	Endangered
ESA	Ecological support area
HGM	Hydro-geomorphic Approach
LC	Least Concern
MM	Millimetres
NEMA	National Environmental Management Act (No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
NT	Near Threatened
NWA	National Water Act (Act 36 of 1998)
NWCS	National Wetland Classification System
PA	Protected Area
PES	Present Ecological State
PRECIS	Pretoria Computerised Information System
QDGC	Quarter Degree Grid Cell
SABAP	Southern African Bird Atlas Project
VM	Virtual Museum
VU	Vulnerable
WULA	Water Use License Application

GLOSSARY

Alien species - Plant taxa in a given area, whose presence there, is due to the intentional or accidental introduction as a result of human activity

Biodiversity - Biodiversity is the variability among living organisms from all sources including inter alia terrestrial, marine and other aquatic ecosystems and ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems

Biome - A major biotic unit consisting of plant and animal communities having similarities in form and environmental conditions, but not including the abiotic portion of the environment.

Conservation - The management of the biosphere so that it may yield the greatest sustainable benefit to present generation while maintaining its potential to meet the needs and aspirations of future generations. The wise use of natural resources to prevent loss of ecosystems function and integrity.

Conservation - An indicator of the likelihood of that species remaining extant either in the present status day or the near future. Many factors are taken into account when assessing the conservation status of a species: not simply the number remaining, but the overall increase or decrease in the population over time, breeding success rates, known threats, and so on

Community - Assemblage of populations living in a prescribed area or physical habitat, inhabiting some common environment.

Critically - A taxon is Critically Endangered when it is facing an extremely

high risk of extinction Endangered - in the wild in the immediate future.

Declining - A taxon is declining when it does not meet any of the five IUCN criteria and does not qualify for the categories Threatened or Near Threatened, but there

are threatening processes causing a continuous decline in the population (Raimondo et al, 2009).

Ecological Corridors are roadways of natural habitat providing connectivity of various patches Corridors of native habitats along or through which faunal species may travel without any obstructions where other solutions are not feasible

Ecosystem - Organisms together with their abiotic environment, forming an interacting system, inhabiting an identifiable space

Edge effect- Inappropriate influences from surrounding activities, which physically degrade habitat, endanger resident biota and reduce the functional size of remnant fragments including, for example, the effects of invasive plant and animal species, physical damage and soil compaction caused through trampling and harvesting, abiotic habitat alterations and pollution

Endemic - Naturally only found in a particular and usually restricted geographic area or region

Habitat - Type of environment in which plants and animals live

Indigenous - Any species of plant, shrub or tree that occurs naturally in South Africa

Invasive species - Naturalised alien plants that have the ability to reproduce, often in large numbers. Aggressive invaders can spread and invade large areas

Mitigation - The implementation of practical measures to reduce adverse Impacts

Near Threatened - A Taxon is Near Threatened when available evidence indicates that that it nearly meets any of the five IUCN criteria for Vulnerable, and is therefore likely to qualify for a threatened category in the near future (Raimondo et al, 2009).

Plant Community - A collection of plant species within a designated geographical unit, which forms a relatively uniform patch, distinguishable from neighbouring

patches of different vegetation types. The components of each plant community are influenced by soil type, topography, climate and human disturbance. In many cases there are several soil types within a given plant community (Gobbat et al, 2004)

Vegetation - A complex of plant communities ecologically and historically (both in spatial and temporal terms) occupying habitat complexes at the landscape scale. Mucina and Rutherford (2006) state: "Our vegetation units are the obvious vegetation complexes

Vulnerable - A taxon is Vulnerable when it is not Critically Endangered or Endangered but meets any of the five IUCN criteria for Vulnerable and are therefore facing a high risk of extinction in the wild in the future (Raimondo et al, 2009)

1. INTRODUCTION

JNNS holdings (Pty) Ltd intend to undertake an application for proposed prospecting right of copper on the remainder and portion 1 of Samoep 147 situated in the Namaqualand magisterial district within the Poffader local municipality, Northern Cape region. Figure 1 and 2 indicates the location of the proposed area.

In preparing this **Terrestrial Biodiversity Study**, findings from the studies that were conducted in Poffador was consulted, as well as other pertinent sources, have been thoroughly consulted. The author acknowledges all work done prior to and utilized during the research process. This includes published studies, expert analyses, and data from various stakeholders, which have provided invaluable insights into the area's ecological conditions.

By triangulating information from multiple sources, this report aims to present a well-rounded assessment while maintaining ethical standards in report writing. This approach not only enhances the report's credibility but also ensures compliance with relevant laws and regulations governing the use of existing public information.

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

The study aims to assess terrestrial biodiversity sensitivity and determine the extent to which it will be affected and earmarked as areas of potential sensitivity that may be subject to impacts.

1.1. Terms of reference

In order to inform the required regulatory processes, an assessment of the associated terrestrial ecological features and wetland features was required. It is required that the assessment provides technical advice on the following information, applicable to the proposed prospecting on the site: a brief discussion on the vegetation types in which the study area is situated using available literature in order to place the study in context was summarized as follows:

- Investigation of the Ecological sensitivity of the proposed area
- Site Mapping, with ecological layers
- Determination of potential Ecological Impacts and Assessment, and
- Desktop Study Report showing comprehensive Desktop investigation of the site.
- Describe the baseline terrestrial ecology of the impact footprint.
- Assess the Conservation Importance of the terrestrial habitats represented within the study area; this will include predicting which threatened species of fauna and flora potentially occur.
- Make recommendations for mitigation measures.

1.2. Assumptions and limitations

In order to obtain a comprehensive understanding of the dynamics and diversity of the biota on a site, including species of conservation concern, studies should include investigations through the different seasons of the year, over a number of years, and extensive sampling of the area. This is particularly relevant where seasonal limitations to biodiversity assessments exist for the area of the proposed activity. Due to project time constraints inherent with Environmental Authorisation application processes, such long-term research is seldom feasible, and information contained within this report is based on a single field survey conducted during a single season.

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

A description of vegetation was based on the physical field surveys and site walkthrough and investigations as performed on site. Limited time was a constraint during field surveys. Results presented in this report are based on a snapshot investigation of the study site and not on detailed and long-term investigations of all environmental attributes and the varying degrees of biological diversity that may be present in the study site.

The wetland delineation as presented in this report is regarded as a best estimate of the wetland boundary based on the site conditions present at the time of assessment. Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur.

Once-off assessments such as this may potentially miss certain ecological information, thus limiting accuracy, detail and confidence. The assessment of impacts and recommendation of mitigation measures were informed by the site-specific ecological issues arising from the field survey and based on the assessor's working knowledge and experience with similar projects.

2. LEGISLATIVE REQUIREMENTS

A summary of the relevant sections of the acts that govern the activities and potential impacts to the environment associated with the development are listed below. It should be noted that these acts are listed below only with specific reference to biodiversity studies.

Table 1: Acts and regulations relating to the project

Legislation/Policy	Description
The Convention of Biological Diversity (Rio de Janeiro, 1992).	The purpose of the Convention on Biological Diversity is to conserve the variability among living organisms, at all levels (including diversity between species, within species and of ecosystems). Primary objectives include (i) conserving biological diversity, (ii) using biological diversity in a sustainable manner and (iii) sharing the benefits of biological diversity fairly and equitably.
South African Constitution 108 of 1996	The Constitution is the supreme law of the land and includes the Bill of rights which is the cornerstone of democracy in South Africa and enshrines the rights of people in the country. It includes the right to an environment which is not harmful to human health or well-being and to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.
Strategic Framework for	The development of a broad framework for sustainable development was initiated to provide an overarching and guiding National Sustainable Development Strategy. The Draft Strategic

Sustainable Development in South Africa	Framework for Sustainable Development (SFSD) in South Africa (September 2006) is a goal orientated policy framework aimed at meeting the Millennium Development Goals. Biodiversity has been identified as one of the key crosscutting trends in the SFSD. The lack of sustainable practices in managing natural resources, climate change effects, loss of habitat and poor land management practices were raised as the main threats to biodiversity.
National Environmental Management Act 107 of 1998	This is a fundamentally important piece of legislation and effectively promotes sustainable development and entrenches principles such as the 'precautionary approach', 'polluter pays' principle, and requires responsibility for impacts to be taken throughout the life cycle of a project NEMA provides the legislative backing (Including Impact Assessment Regulations) for regulating development and ensuring that a risk-averse and cautious approach is taken when making decisions about activities.
Environmental Impact Assessment (EIA) regulations	New regulations have been promulgated in terms of Chapter 5 of NEMA and were published on 07 April 2017 in Government Notice No. R. 326. Development and land use activities which require Environmental Authorisation in terms of the NEMA EIA Regulations, 2017, are in Listing Notice 3 (GG No. R.324, LN3) identified via geographic areas with the intention being that activities only require Environmental Authorisation when located within designated sensitive areas. These sensitive/geographic areas were identified and published for each of the nine (9) Provinces.
National Environmental Management: Biodiversity Act No 10 of 2004	The Biodiversity Act provides listing threatened or protected ecosystems, in one of four categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Protected (Government Gazette, 2011). The main purpose of listing threatened ecosystems is to reduce the rate of ecosystem and species extinction and includes the prevention of

	further degradation and loss of structure, function and composition of threatened ecosystems.
Conservation of Agricultural Resources Act 43 of 1967	The intention of this Act is to control the over-utilization of South Africa's natural agricultural resources, and to promote the conservation of soil and water resources and natural vegetation. The CARA has categorised a large number of invasive plants together with associated obligations of the land-owner, including the requirement to remove categorised invasive plants and taking measures to prevent further spread of alien plants.
National Forest Act 84 of 1998	The protection, sustainable management and use of forests and trees within South Africa are provided for under the National Forests Act (Act 84 of 1998).
National Environmental Management: Protected Areas Act 57 of 2003	This Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. It also seeks to provide for the sustainable utilization of protected areas and to promote participation of local communities in the management of protected areas.
United Nations Convention to Combat Desertification	South Africa has responded to the UN Convention to Combat Desertification by developing a National Action Plan. The aim of the NAP is to implement at current and future policies that affect natural resource management and rural development, and establish partnerships between government departments, overseas development agencies, the private sector and NGOs
The RAMSAR Convention	Emphasis is placed on protecting wetlands and implementing initiatives to maintain or improve the state of wetland resources.
New Partnership for Africa's	Wetland conservation and sustainable use is one of the eight themes under the environment initiative.

Development (NEPAD)	
The World Summit on Sustainable Development (WSSD)	The Implementation Plan highlights actions that reduce the risk of flooding in drought-vulnerable countries by promoting the restoration and protection of wetlands and watersheds.

2.1. Northern Cape Nature Conservation Act (Act No. 9 of 2009)

This Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; provides for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; provides for offences and penalties for contravention of the Act; provides for the appointment of nature conservators to implement the provisions of the Act; and provides for the issuing of permits and other authorisations. Amongst other regulations, the following may apply to the current project: Aquatic habitats may not be destroyed or damaged restricted activities involving protected animals and plants, including the uprooting, breaking, damage or destruction of listed plant species. The Act provides lists of species offered protection in the Province.

2.2. Study area

The proposed Prospecting of the Cupper is located on the remainder and portion 1 of Samoep 147 situated in the Namaqualand Magisterial District within the Poffader local municipality, Northern Cape region.

The coordinates are as follows:

- Southing: 29°14'50.90"S
- Easting: 19°20'56.38"E

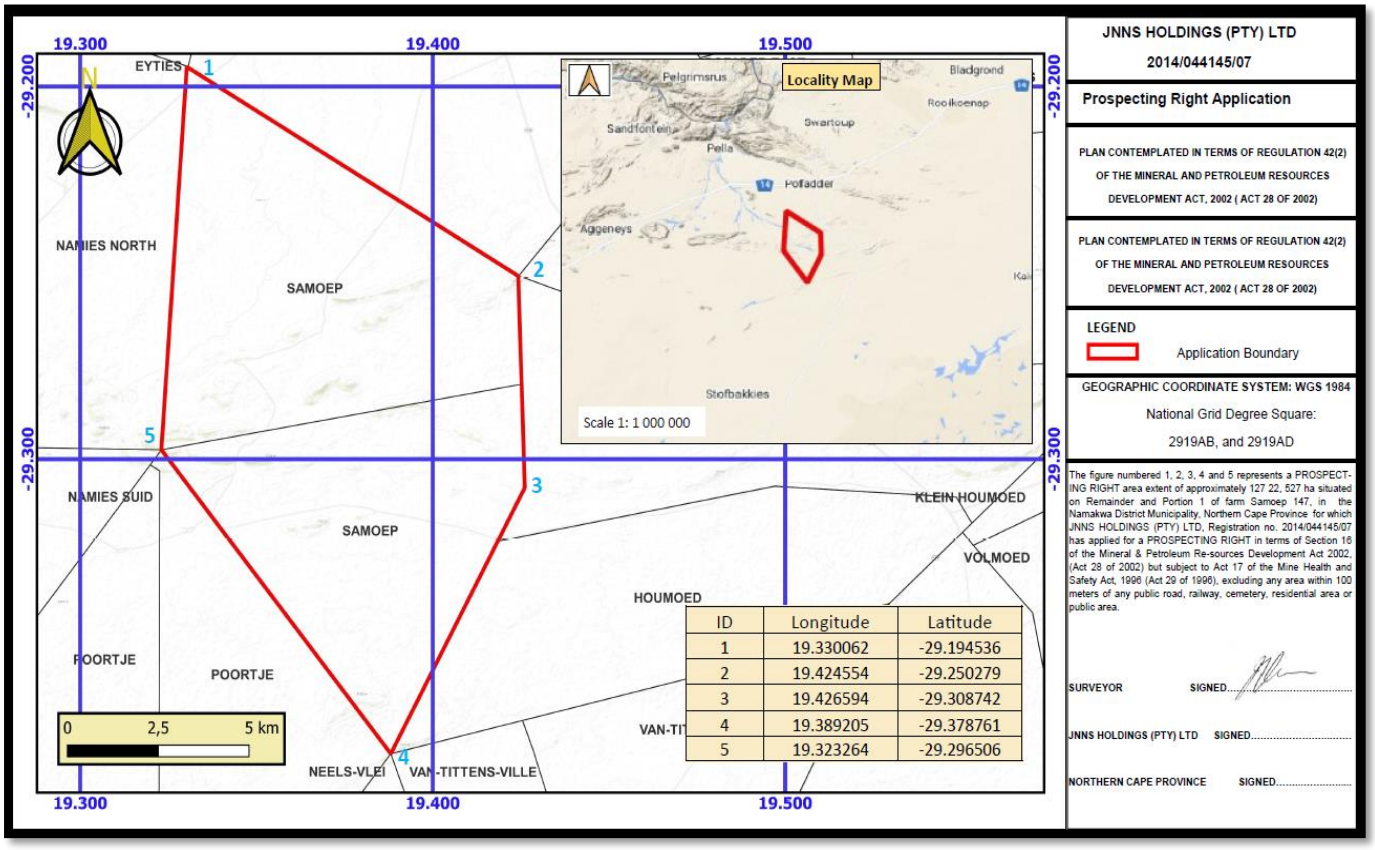


Figure 1: Locality map for the proposed site

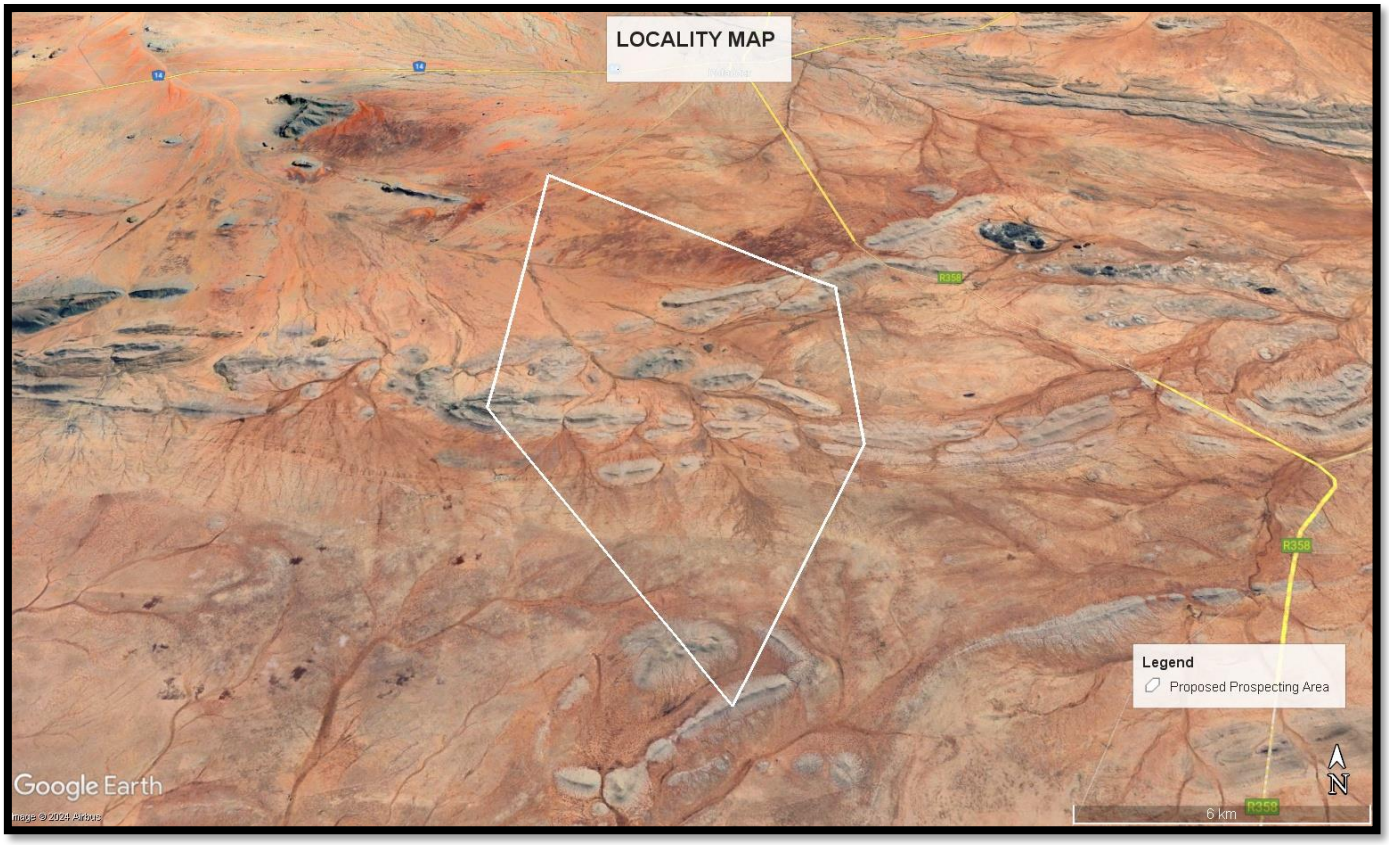


Figure 2: Google earth view of the proposed site

The above maps is showing an area of the extent of 12 897 Hectares of the proposed prospecting of the Cupper.

Figure 1:Typical site area.

Figure 2: Typical site area

2.3. Climatic conditions

The site falls within the west coast desert climatic zone of Southern Africa, which is typified by hot dry summers and cooler winters with little rain. The nearest town to the mining site is Springbok. Springbok lies on 982m above sea level Springbok's climate is a local steppe climate. There is not much rainfall in Springbok all year long. According to Köppen and Geiger, this climate is classified as BSk.

2.4. Nama-Karoo Biome

The Nama-Karoo Biome occurs on the central plateau of the western half of South Africa, at altitudes between 500 and 2000m, with most of the biome failing between 1000 and 1400m. It is the second-largest biome in the region.

The geology underlying the biome is varied, as the distribution of this biome is determined primarily by rainfall. The rain falls in summer, and varies between 100 and 520mm per year. This also determines the predominant soil type - over 80% of the area is covered by a lime-rich, weakly developed soil over rock. Although less than 5% of rain reaches the rivers, the high erodibility of soils poses a major problem where overgrazing occurs.

The dominant vegetation is a grassy, dwarf shrubland. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type and, like the shrubs, are deciduous in response to rainfall events.

The amount and nature of the fuel load is insufficient to carry fires and fires are rare within the biome. The large historical herds of Springbok and other game no longer exist. Like the many bird species in the area - mainly larks - the game was probably nomadic between patches of rainfall events within the biome. The Brown Locust and Karoo Caterpillar exhibit eruptions under similarly favourable, local rainfall events, and attract large numbers of bird and mammal predators.

Less than 1% of the biome is conserved in formal areas. The Prickly Pear Opuntia aurantiacaand Mesquite Prosopis glandulosa are the major alien invader species. Urbanization and agriculture are minimal, and irrigation is confined to the Orange River valley and some pans. Most of the land is used for grazing, by sheep (for mutton, wool and pelts) and goats, which can be commensurate with conservation. However, under conditions of overgrazing, many indigenous species may proliferate, including Threethorn Rhigozum trichotomum,

BitterbosChrysocoma ciliata and Sweet Thorn Acacia karroo, and many grasses and other palatable species may be lost

2.5. Broad Vegetation

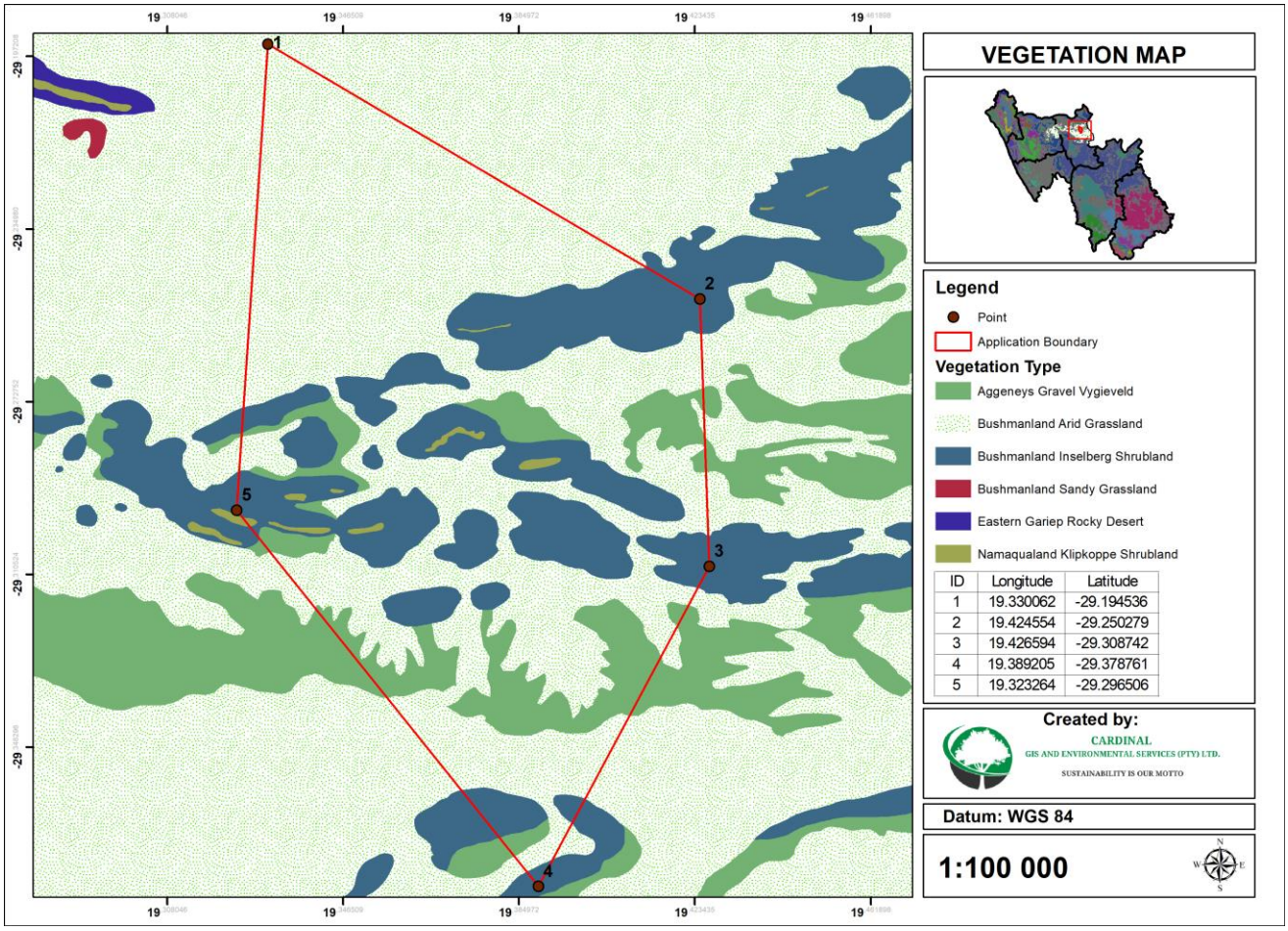


Figure 3: Broad-vegetation map for the site.

Table 2: Broad vegetation classification information

Vegetation Class	Vegetation & Landscape	Important Taxa	Conservation
Aggeneys Gravel Vygieveld Refer to figure 2	This vegetation type is situated on flat or slightly sloping plains, supporting sparse, low growing vegetation dominated by smallto dwarf lead-succulents of the families of resurrection grass	Adromischus nanus, dintherus puberulus, D.vanzylii, lapidaria margaretae, anacampseros bayeriana, conophytum achabense, C. angelicae subsp. Angelicae, C. burger, C. maughamii, C.praesectum, C. ratum, lithops dorotheae and L. julii subsp. Fulleri.	The conservation status is set as least threatened and none is conserved in statutory conservation areas
Bushmanland Arid Grassland Refer to figure 2	Bushmanland Arid Grassland is generally described as a sparsely vegetated (semi-dessert) low shrubland dominated by white grasses on gently sloping or irregular plains, which can, in years of abundant rainfall, have rich displays of annual herbs. However, the white grasses are usually prominent after recent rains.	**Small trees:** Acacia mellifera subsp. Detinens and boscia foetida subsp. Foetida. **Tall shrubs:** lyceum cinereum, rhigozum trichotomum, cadaba aphylla and parkinsonian Africana. **Herbs:** acanthopsis hoffmsnnseggiana, aizoon canariense, amaranthus praetermissus, barleria lichtensteiniana, and chamaesyce inaequilatera.	0.4% Conserved (Statutorily & other reserves)

Bushmanland inselberg shrubland	This vegetation occurs on the slopes of inselbergs and koppies. Northern Cape province system of prominent inselbergs and smaller koppies exposed over surrounding flat plains between 850 and 1150 m alt centered on the town of Aggeneys. The vegetation is sparse to dense with variable composition, mixture of lowgrowing grasses, leaf-succulent karoo shrubs, microphylous and spinescent karoo shrubs.	Brunsvigia comptonii, pachypodium namaquanum, and euphorbia virosa.	
Namaqualand klipkoppe shrubland **Refer to figure 2**	This vegetation occurs in low undulating areas, sometimes between mountains and sandy plains and catena supporting tall, deciduous woodlands Terminalia sercia and Bureka Africana woodland on deep sandy soils, low broad leaf Combretum woodland on shallow rocky or gravelly soils. Species of Acaia, Ziziphus and Euclea are found on the flats and lower slopes on eutrophic sands and some less sandy soils. A. Tortillis may dominate some areas on the valley. Grass-dominted herbaceous layer with relatively low basal cover on dystrophic sands. Much of the unit in the broad arc south of the Springbokvlakte is heavily populated by rural communities. Several alien plants are widely	Asparagus capensis, ballota Africana, calobota sericea, cheiridopsis denticulate, didelta spinose, eriocephalus microphyllus, eucalyptus species, euclea tomentosa, euphorbia mauritanica, euphorbia rhombifolia, and galenia Africana.	There are currently no formal conservation areas anywhere within Kamiesberg. There are also no current informal conservation networks in the area, such as conservancies or private nature reserves. A strong recommendation is thus made to establish a formal conservation network based on priority areas identified.

	scattered but often at low densities; these include Cereus jamacaru, Eucalyptus species, Lantana camara, Melia azedarach, Opuntia ficus-indica and Sesbania punicea.		

2.6. Terrestrial threatened ecosystem

The South African National Biodiversity Institute (SANBI), in conjunction with the Department of Environmental Affairs (DEA), released a draft report in 2009 entitled "Threatened Ecosystems in South Africa: Descriptions and Maps", to provide background information on the List of Threatened Ecosystems (SANBI, 2009). The purpose of this report was to present a detailed description of each of South Africa's ecosystems and to determine their status using a credible and practical set of criteria.

The following criteria were used in determining the status of threatened ecosystems:

- Irreversible loss of natural habitat;
- Ecosystem degradation and loss of integrity;
- Limited extent and imminent threat;
- Threatened plant species associations;
- Threatened animal species associations; and
- Priority areas for meeting explicit biodiversity targets as defined in a systematic conservation plan.

In terms of section 52 (1) (a), of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), a new national list of ecosystems that are threatened and in need of protection was gazetted on 9 December 2012 (Government Notice 1002 (Driver *et. al.*, 2004). The list classified all threatened or protected ecosystems in South Africa in terms of four categories; *Critically Endangered* (CR), *Endangered* (EN), *Vulnerable* (VU), or *Protected*. The purpose of categorizing these ecosystems is to prioritize conservation areas in order to reduce the rates of ecosystem and species extinction, as well as preventing further degradation and loss of structure, function, and composition of these ecosystems. It is estimated that threatened ecosystems make up 9.5% of South

Africa, with critically endangered and endangered ecosystems accounting for 2.7%, and vulnerable ecosystems 6.8% of the land area. It is therefore vital that Threatened Terrestrial Ecosystems inform proactive and reactive conservation and planning tools, such as Biodiversity Sector Plans, municipal Strategic Environmental Assessments (SEAs) and Environmental Management Frameworks (EMFs), Environmental Impact Assessments (EIAs) and other environmental applications (Mucina *et al.,* 2006*)*. According to data sourced from South African National Biodiversity Institute (SANBI), the area is located within the **vulnerable** ecosystem.

2.7. Important Bird and Biodiversity Areas

Due to South Africa's high levels of habitat diversity, the country contains more than 840 avian species, encompassing approximately 7% of the world's avifauna (Fishpool & Evans, 2001). Various sites within the country have been identified as important for maintaining viable populations of endemic, range restricted and Threatened species. The primary aim of the Important Bird Areas program is to ensure the long-term conservation of important avifaunal habitats. They also provide essential benefits to people, such as food, materials, water, climate regulation and flood attenuation, as well as opportunities for recreation and spiritual fulfilment. By conserving IBAs, all the ecosystem goods and services they provide are preserved, which means in effect that a meaningful component of the South African economy (such as water management and agriculture) is supported (Marnewick et al., 2015a). Since the late 1970s, more than 12 000 IBAs have been identified in virtually all of the world's countries and territories, both on land and at sea. In 1998, 122 South African IBAs were identified and listed, with this inventory being revised to 112 IBAs in 2015 (Marnewick et al., 2015b). IBAs have also had considerable and increasing relevance when responses have been developed to a number of wider environmental issues, such as habitat loss,

ecosystem degradation, climate change and the sustainable use of resources (Marnewick et al., 2015a). According to Bird Life South Africa, one-third of the 112 IBAs located within South Africa are under threat by invasive alien vegetation, habitat modification/degradation and agricultural expansion (Marnewick et al., 2015). Further to this, 52% of IBAs fall outside formally Protected Areas, further complicating avian habitat conservation.

Based on the current delineation of IBAs in South Africa, the present study area is not associated with or in close proximity to any IBAs.

2.8. Description of the CBAs

Critical Biodiversity Areas and Broad Scale Ecological Processes Critical Biodiversity Areas (CBA) have been identified for all municipal areas of the Northern Cape Province and are published by SANBI (http://bgis.sanbi.org/). This biodiversity assessment identifies CBAs representing biodiversity priority areas that should be maintained in a natural to near-natural state. CBA maps show the most efficient selection and classification of land portions to be safeguarded so that ecosystem functioning is maintained, and national biodiversity objectives are met (see Table 3 for CBA land management objectives).

Table 3: Relationship between Critical Biodiversity Areas categories (CBAs) and land management objectives.

CBA category	**Land Management Objective**
Protected Areas (PA) & CBA 1	Natural landscapes: » Ecosystems and species are fully intact and undisturbed. • Areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern

	targets. If the biodiversity features targeted in these areas are lost then targets will not be met. • Landscapes that are at or past their limits of acceptable change.
CBA 2	Near-natural landscapes: » Ecosystems and species largely intact and undisturbed. • Areas with intermediate irreplaceability or some flexibility in terms of the area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising the ability to achieve targets. • Landscapes that are approaching but have not passed their limits of acceptable change.
ESA	Functional landscapes: • Ecosystem moderately to significantly disturbed but still able to maintain basic functionality. • Individual species or other biodiversity indicators may be severely disturbed or reduced. • Areas with low irreplaceability with respect to biodiversity pattern targets only.

ONA (Other Natural Areas) and Transformed.	Production landscapes: Manage land to optimise sustainable utilisation of natural resources.

The majority of the project site has been classified as Critical Biodiversity Area two (70%), whilst only 0.5% of the project site is listed as ESA. A description of the biodiversity categories located within the project site as well as the features underlying these categories and remarks based on a screening site visit, are provided below in Table 2 above.

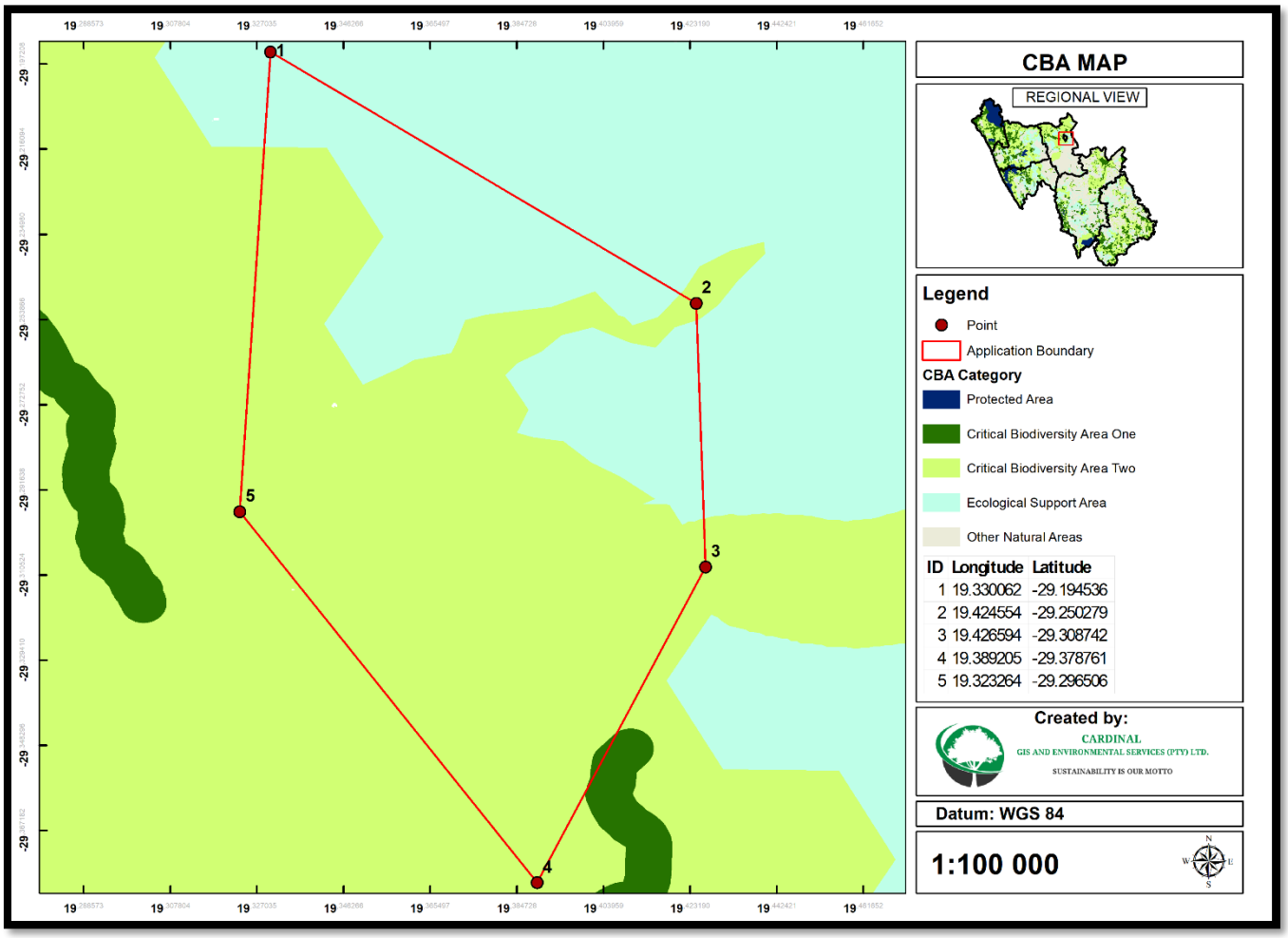


Figure 3: Map showing critical biodiversity area within the proposed project site.

3. METHODOLOGY

3.1. Terrestrial Biodiversity Assessment

The information provided in this terrestrial biodiversity report is based mainly on the observations that were made during the field survey and a review of the available reports that contain known and predicted biodiversity and ecological information regarding the proposed sites. A wide range of spatial data sets were interrogated, and relevant information was extracted for the study site. A basic ecological sensitivity analysis was performed to identify areas of special interest or concern. The various approaches used, and aspects taken into account are detailed below:

3.1.1. General

A desktop survey utilising aerial images and photography was undertaken to assemble background information regarding the different features and vegetation type present within the proposed project footprint including the buffer area. The site was then assessed on the 14 of November 2024 to ensure that the true floristic reflection of the site is recorded.

3.1.2. Vegetation

A desk-top study of the habitats of the red-listed and orange-listed species known to occur in the area was done prior to site assessment. Visual assessment was used to assess the abundance of floral and faunal species. The vegetation types of Mucina & Rutherford (2006) were also used as reference but where necessary communities are named according to the recommendations for a standardized South African syntaxonomic nomenclature system (Brown, L.R., Du Preez, P.J., Bezuidenhout, H., Bredenkamp, G.J., Mostert, T.H.C., and Collins, N.B. 2013). By combining the available literature with the survey results, stratification of vegetation communities was possible.

3.1.3. Fauna survey

The majority of mammals and reptiles are either very secretive, nocturnal, hibernate (reptiles), migrate (birds) or prefer specific habitat so sampling and identification was limited.

3.1.4. Mammals

Records of all mammal species recorded in the proposed site was obtained from the Virtual Museum (VM) website of the Animal Demographic Unit of University of Cape Town prior to the site visits. The site assessment was conducted for mammal species diversity by direct and indirect methods using mammal sightings, burrows, holes and also verified by mammal book (Skinner and Chimimba, 2005). No trapping was conducted during the field survey.

3.1.5. Alien invasive plants

Whilst one of the three of the vegetation types found on site were free from alien species, the other two vegetation types (Azonal and the Bushmanland Arid Grassland vegetation types) contained a few alien plant species. However, the extent of invasion within these vegetation types were low. However, especially the alien invasive Prosopis glandulosa var. torreyana pose a potential threat to the Azonal vegetation types. A total of 11 alien plant species were found on site. These were mostly associated manmade disturbances, for example dams, windmills, and kraals, which were scattered throughout the site.

Table 4: Alien plant species recorded in and around proposed prospecting area

Family	**Species**	**NEM:BA Category**
Amaranthaceae	*Salsola kali*	1b
Cactaceae	*Opuntia ficus-indica*	1b
Fabaceae	*Prosopis glandulosa var. torreyana*	3
Papaveraceae	*Argemone ochroleuca subsp. ochroleuca*	1b
Poaceae	*Lolium perenne*	

A total of 4 of the 5 alien plants are listed as invasive species in the NEM:BA Alien & Invasive Species Regulations.

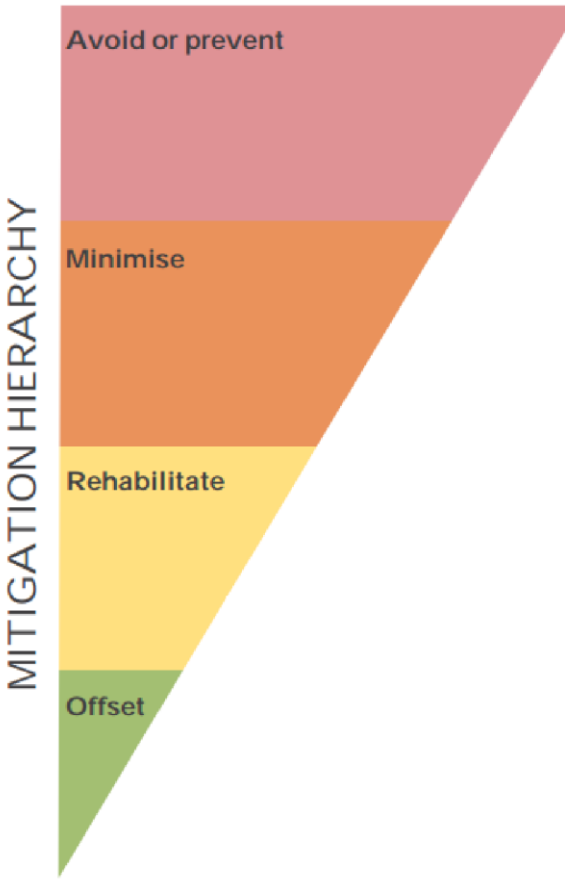
Declared weeds and invaders have the tendency to dominate or replace the herbaceous layer of natural ecosystems, thereby transforming the structure, composition and function of natural ecosystems. Therefore, it is important that all these transformers be eradicated and controlled by means of an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species (Henderson, 2001).

According to the published Alien and Invasive Species regulations in terms of section 97(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) four categories of problem plants are identified as:

- **Category 1a** plants are high-priority emerging species requiring compulsory control. All breeding, growing, moving and selling are banned.
- **Category 1b** plants are widespread invasive species controlled by a management programme.
- **Category 2** plants are invasive species controlled by area. Can be grown under permit conditions in demarcated areas. All breeding, growing, moving, and selling are banned without a permit.
- **Category 3** plants are ornamental and other species that are permitted on a property but may no longer be planted or sold.

4. IMPACT ASSESSMENT

Any activities associated with a natural system, whether historic, current, or proposed, will impact on the surrounding environment, usually in a negative way. The purpose of this phase of the study was to identify and assess the significance of the potential impacts and to provide a description of the mitigation required to limit the perceived impacts on the natural environment.



Consider options in project location, nature, scale, layout and technology to avoid potentially significant impacts on biodiversity. Where impacts would be highly significant, the proposed activity should not take place; alternatives should rather be sought. In these cases, it is inappropriate and unlikely to rely on the later steps in the mitigation hierarchy to provide effective remedy for impacts. Consider alternatives in the project location, scale, layout, technology and phasing that would minimise impacts on biodiversity and ecosystem services. Even in areas where residential impacts on biodiversity and ecosystem services are not highly significant, effort is advised to minimise impacts and avoid costly rehabilitation or offsets.

Rehabilitation of areas where impacts are unavoidable, and measures are taken to return impacted areas to a condition ecologically similar to their natural state prior to the activity. Although rehabilitation is important and necessary, it has limitations. Even with significant resources and effort, it almost always falls short of replicating the diversity and complexity of a natural system; residual negative impacts on biodiversity and ecosystem services will invariably still need to be offset.

Refers to compensating for remaining and unavoidable negative effects on biodiversity and ecosystem services. When every effort has been made to avoid or prevent impacts, minimise

and then rehabilitate remaining impacts to a degree of no net loss of biodiversity against biodiversity targets, biodiversity offsets can - in cases where residual impacts would not cause irreplaceable loss - provide a mechanism to compensate for significant residual (unavoidable) negative impacts on biodiversity.

Prospecting and its related activities can have the following types of impacts:

- Direct impacts are those impacts directly linked to the project (e.g. clearing of land). These can be temporary or remain as residual impacts;
- Indirect impacts are those impacts resulting from the project that may occur beyond or downstream of the boundaries of the project site and/or after the project activity has ceased (e.g. migration of pollutants from road surfaces);
- Induced impacts are impacts that are not directly attributable to the project, but are anticipated to occur because of the presence of the project (e.g. impacts of associated expansion of residential settlements with increased pressure on biodiversity);
- Cumulative impacts are those impacts from the project combined with the impacts from past, existing and reasonably foreseeable future projects that would affect the same biodiversity or natural resources.

Many of the above impacts are not only a result of the direct impact on a particular species, but rather due to what is known as the 'Edge Effect', which can be explained as follows: Ecosystems consist of a mosaic of many different patches. The size of natural patches affects the number, type and abundance of species they contain. At the periphery of natural patches, influences of

neighbouring environments become apparent; this then is the 'Edge Effect'. Patch edges may be subjected to degradation due factors such as increased levels of heat, dust, desiccation, disturbance, invasion of exotic species and other negative agents. Edges seldom contain species that are rare, habitat specialists or species that require larger tracts of undisturbed core habitat to survive in the long term. Fragmentation due to development reduces core habitat and greatly extends edge habitat, which causes a shift in the species composition, which in turn puts great pressure on the dynamics and functionality of ecosystems (Perlman & Milder, 2005).

4.1. Impact Assessment Criteria

Potential impacts of the proposed activity on the environment were assessed in terms a formalised method, whereby a typical risk assessment process was undertaken in order to determine the significance of the potential impacts without the application of mitigation/management measures. Once the significance of the impacts without the application of mitigation/management measures was known, the impacts were then re-evaluated, taking cognisance of the application of proposed mitigation/management measures provided in order to reduce the impact, thus enabling an understanding of the overall impact after the implementation of mitigation/management measures.

The NATURE of an impact refers to a description of the activity, inherent features, characteristics and/or qualities of the impact. Thus, each impact will be comprehensively detailed and contextualised prior to being assessed.

The EXTENT refers to the impact footprint. What that means is that if a species were to be lost then the extent would be global because that species would be lost to the world. If human health is threatened, then the impact is likely to be no more than local and possibly (in the case of a nuclear power station) regional.

The significance of the impacts will be assessed considering the following descriptors:

Table 5: Impact assessment table

Nature of the impact		
Positive	+	Impact will be beneficial to the environment (a benefit).
Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.

`Magnitude		
Minor	2	Negligible effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been altered significantly, and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been largely modified, and / or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been moderately modified, and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on biophysical or social functions / processes. Includes areas / environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent		
Site only	1	Effect limited to the site and its immediate surroundings.
Local	2	Effect limited to within 3-5 km of the site.

Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.
Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.
High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

Significance Points (SP) = (Magnitude + Duration + Extent) x Probability

The significance of the environmental impact is therefore calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥80), Medium (SP = 40-79) and Low (SP<20) significance as shown in the Table 6 below.

Table 6: Definition of significance rating

Significance of predicted NEGATIVE impacts		
Low	0-20	The perceived impact will not have a noticeable negative influence on the environment and is unlikely to require management intervention that would incur significant cost.
Low to moderate	20-39	The perceived impact is considered acceptable, and application of recommended mitigation measures recommended.
Moderate	40-59	The perceived impact is likely to have a negative effect on the receiving ecosystem, and is likely to influence the decision to approve the activity. Implementation of mitigation measures is required, as is routine monitoring to ensure effectiveness of recommended mitigation measures.
Moderate to high	60-79	The perceived impact will have a significant impact on the receiving ecosystem, and will likely to have an influence on the decision-making process. Strict implementation of mitigation measures as provided is required, and strict monitoring and high levels of compliance and enforcement in respect of the impact in question are required.

High	80-100	The impact on the receiving ecosystem is considered of high significant and likely to be irreversible, and therefore highly likely to result in a fatal flaw for the project. Alternatives to the proposed activity are to be investigated as impact will have an influence on the decision-making process.

Table 7: Impact/Risk Assessment: Design and Prospecting Phase

Impact	Stage	Nature	Magnitude	Extent	Duration	Probability	Significance before mitigation	Significance after mitigation
Removal of the natural vegetation	Prospecting	Negative	Low (4)	Site only (1)	Long term (4)	Definite (5)	Moderate (45)	Low
Disturbance to animals on site	Prospecting	Negative	Low (4)	Site only (1)	Long term (4)	Definite (5)	Moderate (45)	Low
Increased soil erosion, increase in silt loads and sedimentation	Prospecting	Negative	Moderate (6)	Regional (3)	Long term (4)	High (4)	Moderate (52)	Low
Establishment and spread of declared weeds	Prospecting	Negative	High (8)	Site only (1)	Long term (4)	Definite (5)	High (75)	Low to moderate
Pollution due to oil and fuel spills, erosion, and ablution facilities.	Prospecting and maintenance	Negative	High (8)	Regional (3)	Long term (4)	High (4)	High (60)	Low
Pollution due to construction waste (such	Prospecting	Negative	High (8)	Local (2)	Medium Term (3)	Medium (4)	Moderate (52)	Low to moderate

as cement paper, steel and rubble)								
Impact on soil and water courses	Prospecting and maintenance	Negative	Very High (10)	Local (2)	Long Term (4)	Definite (4)	High(80)	Moderate

4.2. Mitigation: Design and Prospecting Phase

4.2.1. Mitigation from the Floristic Perspective

Avoid:

- Any direct impacts on any surrounding or remaining area with primary vegetation or any riparian habitats (except the clearing of alien invasive species):
    - Position any parking bays, temporary load-off areas or turning areas in sites that are already disturbed or dominated by alien invasive plants, however – where areas are dominated by alien invasive plants, ensure these are cleared before-hand to avoid distributing reproductive material by e.g. wheels of heavy machinery or clothing of staff;
- Prior to any new groundworks:
    - Conduct a walk-through survey during the peak growing season – between December and March – to establish which, how many and where Protected and Threatened plant species occur, and record the relevant GPS positions of such occurrences;
    - Geophytes and succulents that cannot be relocated directly into a remaining open area where they will not be disturbed again, should be relocated to other suitable area(s) as recommended by the responsible authorities.

Minimise damage to or degradation of remaining open spaces:

- Restrict all movement of vehicles and heavy machinery to permissible areas, these being designated road surface areas, turning points, parking bays or other operational areas:
    - No off-road driving beyond designated areas may be allowed;

- Parking areas of heavy machinery should be regularly inspected for oil spills and covered with an impermeable or absorbent layer or pans (with the necessary storm water control) if oil and fuel spillages are highly likely to occur;
- Prevent spillage of hydrocarbons and other pollutants, contain and treat any spillages immediately, strictly prohibit any pollution/littering according to the relevant EMP;
- No open fires may be lit for cooking or any other purposes, unless in specifically designated and secured areas.

Rehabilitate remaining open spaces:

- As part of rehabilitation of the remaining open spaces, all stockpiled materials must be entirely removed, and the area landscaped to merge into the surroundings;
- Rehabilitate and revegetate all areas that will not be modified or sealed as soon as practically possible;
- Regularly monitor the establishment of alien invasive species on and around the open spaces as part of the municipal alien control plan, and remove when detected during these monitoring periods, whenever possible before flowers or other regenerative material can be produced;
- Regularly remove litter that may have accumulated from open spaces.

4.2.2. Mitigation from the Faunal Perspective

Avoid:

- Direct destructive impacts on the sensitive faunal habitats. This can be achieved by:
    - The establishment and implementation of ecological buffer zones and open space systems. These act as important wildlife corridors and mist be incorporated into the final approved layout;

- Position any parking bays, temporary load-off areas or turning areas in sites that are already disturbed and have an associated low ecological sensitivity. Optimal sites would be those close to existing disturbances in order to localise impacts;
- Construct a permanent barrier to disable vehicle and machinery access to more sensitive faunal habitats;
- Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees.
- Dogs or other pets are not allowed to the worksite as they are threats to the natural wild animal

- Minimise damage to or degradation of remaining open spaces:
  - A low-speed limit should be enforced on site to reduce wild animal-vehicle collisions.
  - No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.
  - Severe contractual fines must be imposed and immediate dismissal on any contract employee who is found attempting to snare or otherwise harms remaining faunal species.
  - Hunting weapons are prohibited on site.
  - Contract employees must be educated about the value of wild animals and the importance of their conservation.
  - The ECO must conduct regular site inspections of removing any snares or traps that have been erected.
  - Employees and contractors should be made aware of the presence of, and rules regarding, flora and fauna through suitable induction training and on-site signage.

- Any faunal species located on the site during the construction phase, which cannot relocate themselves (e.g. fossorial species), must be moved to a more suitable location.

  This should be undertaken by a suitable qualified ecologist/faunal specialist;

- Prior to any new groundworks:
  - The implementation of an environmental awareness programme for all personnel during prospecting. This must focus on biodiversity issues pertaining to the degradation of sensitive habitats, collection of fauna and ensuring that no wildlife is harmed unnecessarily.

4.2.3. Alien invader management

- The best mitigation measure for alien and invasive species is the early detection and eradication of these species which will be ensured with the use of a monitoring programme.

4.2.4. Waste management

- Constant rehabilitation of erosion problems.
- Proper storage facilities of construction materials.
- Waste management is very important. Proper storage and removal strategy must be in place.
- Do not bury wastes on-site.

5. RESULTS OF THE ASSESSMENT

5.1. Features noticed during the site survey:

- Succulent vegetation coverage.

Figure 4: Succulent vegetation on the proposed site.

5.1.1. Natural Succulent vegetation

This vegetation occurs on the mountain within the proposed site. The vegetation is dominated by dwarf, succulent shrubs mostly *Cylindropuntia arbuscula*, of which the Vygies (*Mesembryanthemaceae*) and Stonecrops (*Crassulaceae*) are particularly prominent. Mass flowering displays of annuals (mainly Daisies Asteraceae) occur in spring, often on degraded or fallow lands. Grasses are rare, except in some sandy areas, and are of the C3 type. The number of plant species mostly succulents - is very high and unparalleled elsewhere in the world for an arid area of this size

Sensitivity aspects

- The natural succulent vegetation has an ecological functioning of medium - High;

- The suitability of this community for Red Data/protected species is considered low.
- Sections of the area have been cleared for access.

5.1.2. Mammals Diversity and Habitats

The IUCN Red List Spatial Data lists 65 mammal species that could be expected to occur within the vicinity of the project site. This is regarded as a moderately-low species diversity.

Of these species, eight are medium to large conservation dependant species, or species that had a historical range that included the project area, but with natural populations since becoming locally "extinct" in these areas. These species are now generally restricted to protected areas such as game reserves and protected areas, with most of these species being re-introduced in these areas.

Examples of such species are:

- African Wild Dog – *Lycaon pictus* (Endangered);
- Spotted Hyaena – *Crocuta crocuta* (Near Threatened);
- Lion – *pl* (Vulnerable);
- Cheetah – *Acinonyx jubatus* (Vulnerable);
- Hook-lipped Rhinoceros – *Diceros bicornis bicornis* (Endangered);
- Red Hartebeest – *Alcelaphus caama* (Not Evaluated);
- African Savanna Buffalo – *Syncerus caffer* (Least Concern); and
- Hartmann's Mountain Zebra – *Equus zebra* hartmannae (Vulnerable)

These species are not expected to occur in the project site and are removed from the expected Species of Conservation Concern (SCC) list. Of these 57 remaining mammals, only two species been previously recorded within the larger survey area (Quarter Degree Grids: 2919BA, 2919BB, 2919BD and 2920AA) according to the Animal Demographic Unit (ADU) database, indicating a significant undersupplying within the area (https://vmus.adu.org.za/vm_sp_list.php).

These recorded species are;

- Steenbok - *Raphicerus campestris* (No. of Records: 1)
- Bat-eared Fox – *Otocyon megalotis*.
- Aardwolf – *Proteles cristata*.
- Acacia Thallomys - *Thallomys paedulcus*.

- Striped Polecat – Ictonyx striatus

Site Visit Observations:

Of the remaining 57 small- to medium sized mammal species, One (1) indigenous mammal species have been observed refer to Table 4 through direct observations, camera trap photographs, Sherman traps, and/or the presence of visual tracks & signs. within the project site. These data represent strong evidence as to a potential low diverse and functional mammal assemblage populating the study area. Based on the various sampling techniques, the following mammals were the most frequently observed within the project site.

- Pygmy Hairy-footed Gerbil (*Desmodillus auricularis):* No physical records but numerous burrows);

Table 8: List of Mammalian species that has been observed within the project site.

Common Name	Scientific Name	Regional Status (2016)	Global Status (2015)	TOPS (NEMBA)	Endemic
Short-tailed Gerbil	*Desmodillus auricularis*	LC	LC		
Steenbok	*Raphicerus campestris*	LC	LC		

5.1.3. Reptile Diversity

The IUCN Red List Spatial Data lists 41 reptile species that could be expected to occur within the vicinity of the project site and include one tortoise, 13 geckos, 16 lizards, one chameleon and 15 snakes. This is comparatively moderate-low suggesting that reptile diversity at the site is likely to be fairly low.

Of these 41 reptile species, 15 have been previously recorded within the larger survey area (Quarter Degree Grids: 2919BA, 2919BB, 2919BD and, 2920AA) according to the Animal Demographic Unit (ADU) database, indicating significant under sampling within the region. Species that has been frequently observed within these QDGs are:

- Purchell's Gecko – *Pachydactylus prucelli* (No. of Records: 17); and
- Western Three-striped Skink – *Trachylepis occidentalis* (No. of Records: 4).

Figure 5: Picture showing Tent Tortoise *(Psammobates tentorius)*

Site Visit Observations:

Of the 41 reptile species that have a distribution that include the project area, seven (3) indigenous reptile species have been observed. through direct observations, within the project site.

However, it must be reiterated that the low diversity observed within the project site can most likely be attributed unfavourable climatic conditions. However, the area is still none the less, regarded as containing a potentially moderate-low diverse and functional reptile assemblage populating.

The following reptiles were the most frequently observed within the project site:

- Western Ground Agama (*Agama aculeata aculeata*): No of Records 2
- Southern Karusa Lizard (*Karusasaurus polyzonus*): No of Records 1
- Tent Tortoise *Psammobates verroxi*: No of Records 1

Table 9: List of Reptilian species that has been observed within the project site.

Common Name	Scientific Name	Regional Status (2016)	Global Status (2015)	TOPS (NEMBA)	Endemic
Tent Tortoise	*Psammobates tentorius*	NT	NT	Protected	
Agama aculeata aculeata	*Western Ground Agama*	LC	LC		

5.1.4. Protected Reptile Species

These are species that are either protected nationally within TOPS (Threatened and Protected Species Issued in terms of Section 56(1) of the National Environmental Management: Biodiversity Act, 2004) or provincially within Schedule 1 and 2 of the Northern Cape Nature Conservation Act No 9 of 2009.

Table 10: List of Protected reptile species (according to national provincial regulations) that have a distribution that include the project site.

Common Name	Scientific Name	TOPS (NEMBA)	Likelihood of Occurrence
Tent Tortoise	*Psammobates tentorius*	Protected	Confirmed

5.1.5. Amphibian Diversity

The IUCN Red List Spatial Data lists only eight amphibian species that occur within the region. Given the aridity of the site and lack of surface water in the area, this low diversity of amphibians is not surprising.

Of these eight amphibian species, only one species has been previously recorded within the larger survey area (Quarter Degree Grids: 2919BA, 2919BB, 2919BD, 2920AA) according to the Animal Demographic Unit (ADU) database.

- Common Caco – *Cacosternum boettgeri*

Screening Site Visit Observations:

No amphibian species have been recorded within the project area, however there are available habitat for these species and the likelihood of some of these species to occur.

The most likely amphibian species to inhabit the project site include:

- Tandy's Sand Frog – *Tomopterna tandyi*; and
- Common Caco – *Cacosternum boettgeri*

Impacts on amphibians are likely to be low given the limited extent of the development as well as low likely density of amphibians in the area. Although there are some available amphibian habitats these habitats are unlikely to be impacted by the proposed development.

6. DFFE National Screening Tool (April 2022)

Please take not the Site Screening Survey was conducted prior to the Scoping Phase Assessment and was accompanied by a Screen Survey Site Visit. All the findings and recommendations were made based on the information available at the time. The information provided within this Report as well as the Scoping Phase Report was used to finalize the layout of the facility in order to avoid all sensitive features as recommended within this report and the scoping phase report. Introduction and summary of the Screening Tool and the link between this tool and the newly gazetted Protocols for specialists. The Screening Tool, developed by the Department of Environmental Affairs ("DEA"), now Department Forestry and Fisheries of Environment, (DFFE), is a geospatial web-enabled application that aims to provide readily available information, known as 'spatial datasets', which enables applicants for Environmental Authorisation to screen their proposed site for environmental sensitivities. The Screening Tool provides site specific information to assist an applicant throughout the EIA process. The information provided includes, for example, zoning identification, applicable Environmental Management Frameworks or bio-regional plans, project specific requirements such as specialist studies, and the minimum information to be included in the EIA report. On 5 July 2019, the Minister of Environment, Forestry and Fisheries, Barbara Dallas Creecy, published a notice requiring that when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the Environmental Impact Assessment Regulations, 2014 (as amended) (the "EIA Regulations"), the applicant must submit the report

generated by the National Web Based Screening Tool (the "Screening Tool") with the application. This notice came into effect in October 2019.

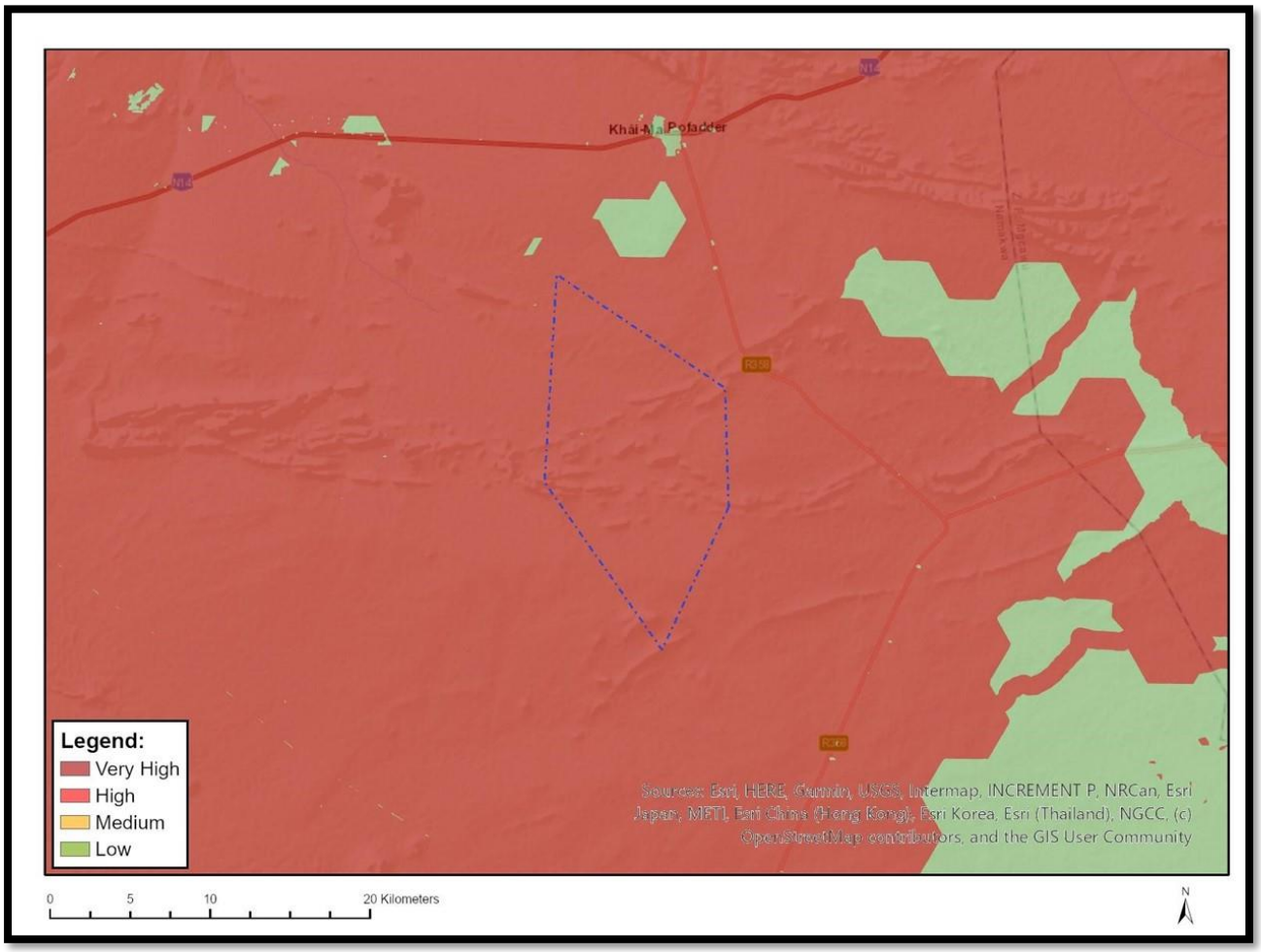


Figure 6: The National Web-Based Environmental Screening Tool map of the proposed prospecting, indicating sensitivities for the Terrestrial sensitivity theme. The Very High sensitivity classifications.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	CBA 1
Very High	CBA 2

Very High	ESA
Very High	FEPA Subcatchment
Very High	National Protected Area Expansion Strategy (NPAES)

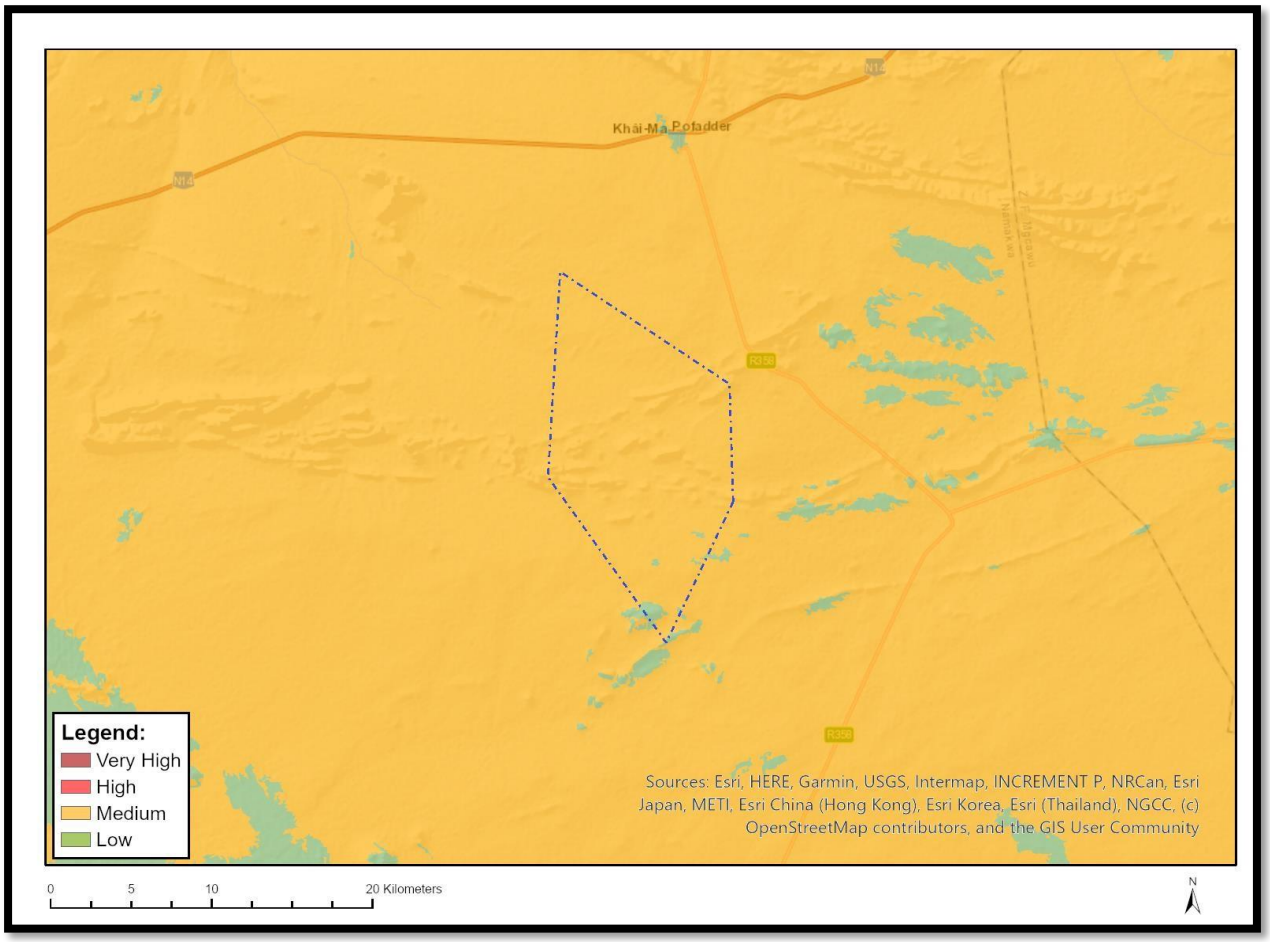


Figure 7: The National Web-Based Environmental Screening Tool map of the proposed prospecting, indicating sensitivities for the Plant sensitivity theme. The Medium sensitivity classifications.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

Medium	Sensitive species 425
Medium	Sensitive species 1157
Medium	Cephalophyllum fulleri
Medium	Sensitive species 854
Medium	Sensitive species 144

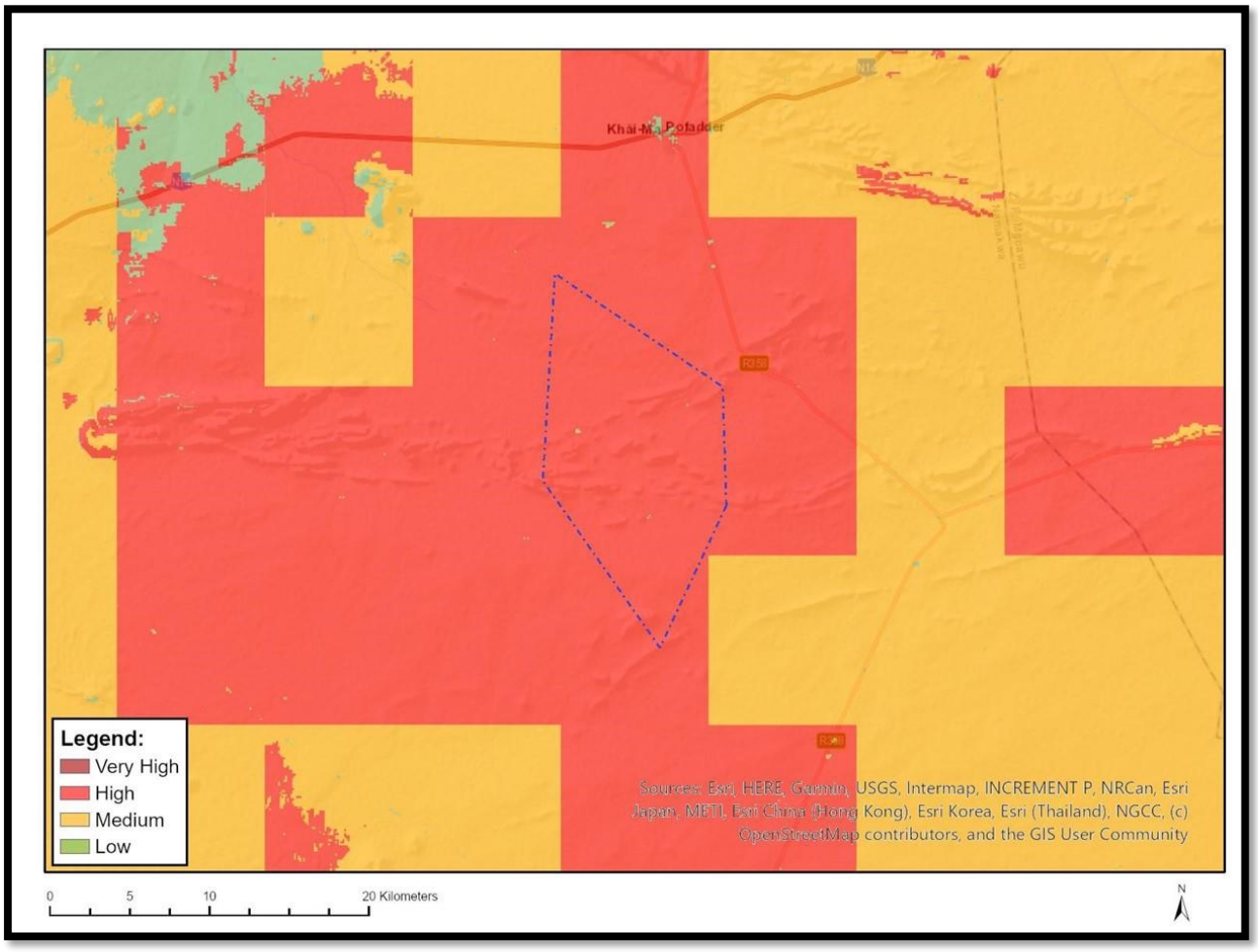


Figure 8: The National Web-Based Environmental Screening Tool map of the proposed prospecting, indicating sensitivities for the Animal sensitivity theme. The Medium sensitivity classifications.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Neotis ludwigii
High	Aves-Falco biarmicus
High	Aves-Aquila verreauxii
Low	Subject to confirmation
Medium	Aves-Sagittarius serpentarius
Medium	Aves-Aquila verreauxii

7. CONCLUSION AND RECOMMENDATIONS

- It is recommended that areas to be prospected to be specifically demarcated to movement of workers into sensitive areas.
- All Critical Biodiversity Areas, Irreplaceable and Optimal must be avoided for prospecting.
- Prospecting should focus mostly on complete transformed areas such as cultivated areas, and cultivated areas that overlap sensitive areas can be considered for prospecting.
- Areas of indigenous vegetation, even secondary communities, should under no circumstances be fragmented or disturbed further or used as an area for dumping of waste.

From the desktop assessment it seems the plant communities on the site were in a moderately disturbed condition, representing fragmented and vegetation. The proposed area for the prospecting is regarded as having a conservation value of Medium to Low due to the already disturbed area.

It is therefore important that the placement of the encroached prospecting sites including structures is done at an area that is already disturbed. The placement of bulk sampling sites must take into account the area that has intact vegetation coverage. The opportunity exists however, for the proposed prospecting to contribute significantly to conservation of biodiversity within the region, as not the whole area will be removed of vegetation but rather only the proposed bulk prospecting sites. Conservation of as much of the natural land in the area within the site as possible, and the creation of corridors linking

other natural areas would aid in conservation of ecosystems, flora and fauna. If efforts are made to initiate conservation of this habitat, and conservation is maintained after the closure of the prospecting, the net impacts on biodiversity will be positive.

It is then advised that prospecting may continue provided that the mitigation measures as suggested can be implemented, then the overall impact of the prospecting components would be of low overall significance, and it is unlikely that the prospecting would result in an overall net loss of biodiversity or long-term degradation of the receiving environment.

In the event that any rare/endangered/protected species are found in the proposed project footprint area, such species should be relocated to a similar location/habitat not more than 300 metres from its original location. A suitably qualified professional (an Ecologist or Botanist, should be contacted to advise and assist the proponent to ensure that the threatened species relocation process is undertaken appropriately and does not result in the death of the species being moved.

As far as possible, the proposed prospecting should target the area that have already been disturbed as well bush encroached area and no further loss of primary or secondary vegetation should be permitted. It is recommended that areas to be prospected must be demarcated to movement of workers into sensitive areas.

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