

# Ecological Desktop Study

The proposed Diamonds alluvial & Diamonds general Mining Permit near Delportshoop on a certain portion of 3.5 hectares of a portion on the farm 350, Registration Division Barkly Wes, Northern Cape Province.

Reference No.: NC 30/5/1/3/2/10534MP

Prepared by

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## Introduction

Milnex 189 CC was contracted by Mr. N.P Seapa as the independent environmental consultant to undertake the Ecological Desktop Study for the Basic Assessment process for a Mining permit of Diamonds Alluvial and Diamonds General located approximately 15km South East of Delportshoop at Longlands; Registration Division Barkly Wes, Northern Cape Province. Milnex 189 CC is a specialist environmental consultancy with extensive experience in the mining industry which provides a holistic environmental management service, including environmental assessment and planning to ensure compliance with relevant environmental legislation. Milnex 189 CC benefits from the pooled resources, diverse skills and experience in the environmental and mining field held by its team that has been actively involved in undertaking environmental studies for a wide variety of mining related projects throughout South Africa. The Milnex 189 CC team has considerable experience in environmental impact assessment and environmental management, especially in the mining industry.

The EAP, Danie Labuschagne, which conducted the desktop study has experience in consulting in the environmental field. His key focuses are on environmental assessment, advice and management and ensuring compliance to legislation and guidelines, GIS and Water Use Licenses. He is currently involved in undertaking EIAs for several projects across the country. He's key qualifications include:

- Masters Degree in Environmental Management and Geography, North West University, SA.
- Honors in Environmental Management (Hons.Env.Man) (Cum Laude), North West University (NWU), SA.
- B. Sc in Geology and Geography, North West University (NWU), SA.
- Implementing Environmental Management Systems (ISO 14001) course from the CEM (Centre for Environmental Management).
- Environmental Law for Environmental Managers course from the CEM (Centre for Environmental Management).
- Environmental Management Systems ISO 14001 Audit: A Lead Auditor Course based on ISO 19011 and ISO 17021(SAATCA Registered) course at the CEM (Centre for Environmental Management).

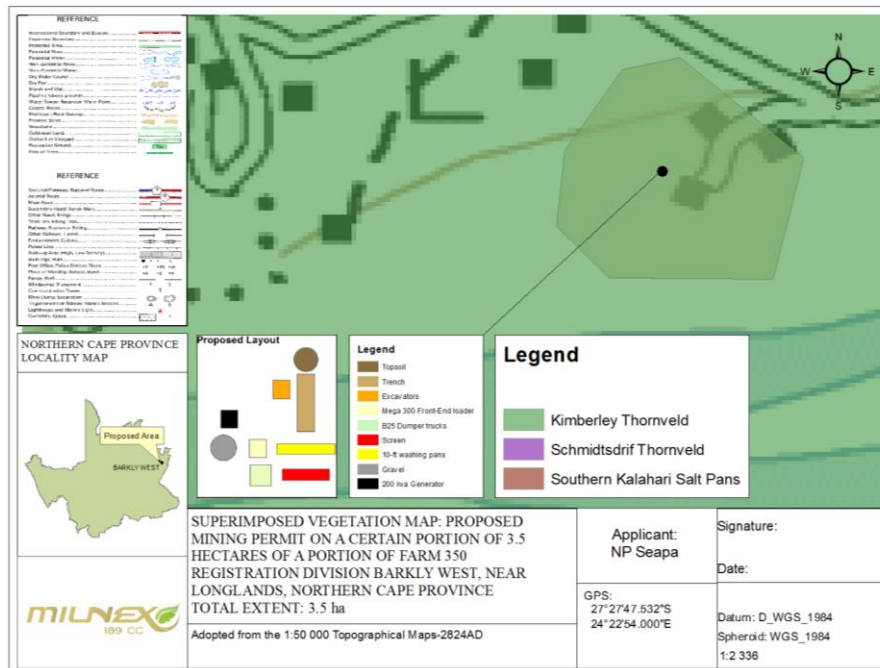
It should just be noted that Danie Labuschagne ***is not*** a qualified Ecologist.

The Ecological habitat status of the proposed mining permit area, was determined by means of a site visit and a desktop study. In this document a brief description of the ecology, as stated by Mucina and Rutherford (2006), will be given. This information will be supported with a map and site specific photographs.

## Vegetation Map

The exact coordinates of the proposed mining permit area are plotted to determine the vegetation unit(s), in which the proposed mining activities will take place. The data used, is that provided by Mucina and Rutherford (2006). A vegetation unit is defined by Mucina and Rutherford (2006) as a complex of plant communities ecologically and historically occupying habitat complexes at the landscape scale. According to

Mucina and Rutherford (2006) their vegetation units are the obvious vegetation complexes that share some general ecological properties such as position on major ecological gradients and nutrient levels, and appear similar in vegetation structure and especially in floristic composition.



**Figure 1:** Vegetation Unit Map

The result obtained by plotting the coordinates are as follow:

The proposed area falls within vegetation unit SVk 4, which is known as the Kimberley Thornveld. The Kimberly Thornveld is part of the Eastern Kalahari Bushveld Bioregion, which is a sub-bioregion for the Savanna Biome.

According to Mucina and Rutherford (2006:516), the Kimberley Thornveld vegetation covers the North West, Free State and Northern Cape Provinces: Most of the Kimberley, Hartswater, Bloemhof and Hoopstad Districts as well as substantial parts of the Warrenton, Christiana, Taung, Boshof and to some extent the Barkley West District. This thornveld is situated on an altitude of 1050m – 1400m.

The area often has slightly irregular plains with a well-developed tree layer with *Acacia Erioloba*, *A. tortillis*, *A. karoo* and *Boscia albitrunca* and a well-developed shrub layer with occasional dense stands of *Tarchonanthus camphoratus* and *A. mellifera*. Grass layer open with much uncovered soil.

**Some other important Taxa found on in the area:**

Tall Tree: *Acacia erioloba* (d).

Small Trees: *Acacia karoo* (d), *A mellifera* subsp. *detinens* (d), *A. tortilis* subsp. *heteracantha* (d), *Rhus lancea*.

Tall Shrubs: *Tarchonanthus camphoratus* (d), *Diospyros pallens*, *Ehretia rigida* subsp. *rigida*, *Euclea crispa* subsp. *ovato* *Grewia flava*, *Lycium arenicola*, *L. hirsutum*, *Rhus tridactyla*.

Low Shrubs: *Acacia hebeclada*, subsp. *hebeclada* (d), *Anthospermum rigidum* subsp. *pumilum*, *Helichrysum zeyheri*, *Hermannia comosa*, *Lycium pillifolium*, *Melolobium microphyllum*, *Pavonia burchelli*, *Peliostomum leucorrhizum*, *Plinthus sericeus*, *Wahlenbergia nodosa*.

Succulent Shrubs: *Aloe hereroensis* var. *hereroensis*, *Lycium cinereum*

Graminoids: *Eragrotis lehmanniana* (d), *Aristida canescens*, *A. congesta*, *A. mollissima* subsp. *argentea*, *Cymbopogon pospischilli*, *Digitaria argyrograpta*, *D. eriantha* subsp. *eriantha*, *Enneapogon cenchroides*, *E. scoparius*, *Eragrostis rigidior*, *Heteropogon contortus*, *Themeda triandra*.

Herbs: *Barleria macrotegia*, *Dicoma schinzii*, *Harpagophytum procumbens* subsp. *procumbens*, *Helichrysum cerastioides*, *Hermbstaedtia odorata*, *Hibiscus marlothianus*, *Jamesbrittenia aurantiaca*, *Lippia scaberrima*, *Osteospermum muricatum*, *Vahlia capensis* subsp. *vulgaris*.

Succulent Herbs: *Aloe grandidentata*, *Piранthus decipiens*.

Mucina and Rutherford (2006:517) also states that the conservation of this thornveld type, is Least Threatened with a target of 16%. Only 2% of this thornveld is statutorily conserved in Vaalbos National Park and in Sanveld, Bloemhof Dam and S.A. Lombard Nature Reserve. As much as 18% is already transformed, mostly by cultivation. Low erosion is associated with this type of thornveld. The area is mostly used for cattle farming or game ranching. Overgrazing leads to encroachment of *Acacia mellifera* subsp. *detinens*.

The EAP that compiled the report is also aware that the presence of *Acacia erioloba* dominates these areas, but during the desktop study no such tall tree was identified on site.

### **Protected Areas**

According to the data for the protected areas the certain portion of 3.5 hectares of a portion on the farm 350, does not fall within any protected area.

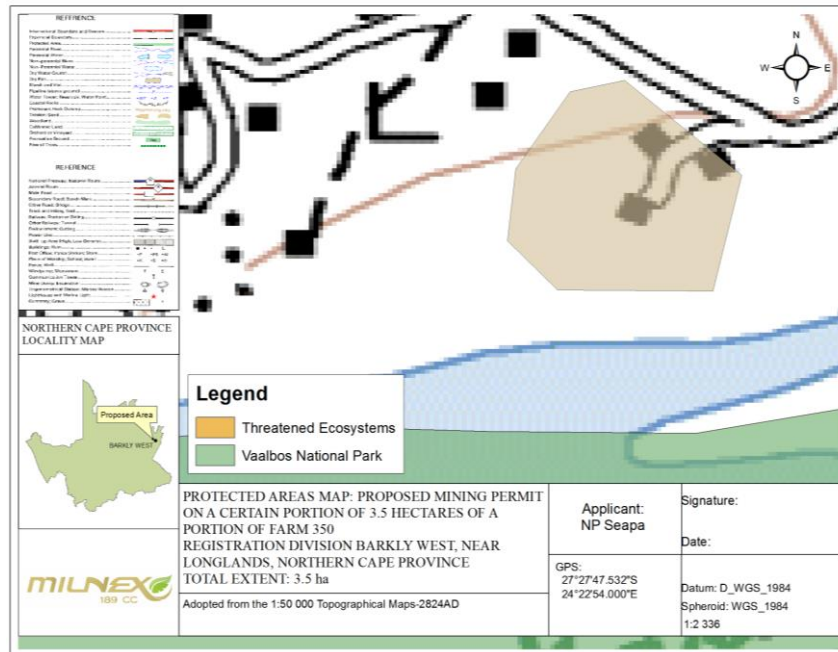


Figure 2: Protected Areas Map

### Critical Biodiversity Area

According to B-GIS “Critical biodiversity areas (CBAs) are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services”, therefore the purpose of CBA’s is simply to indicate spatially the location of critical or important areas for biodiversity in the landscape.

According to the figure 3 the proposed area does not fall within a Critical Biodiversity Area

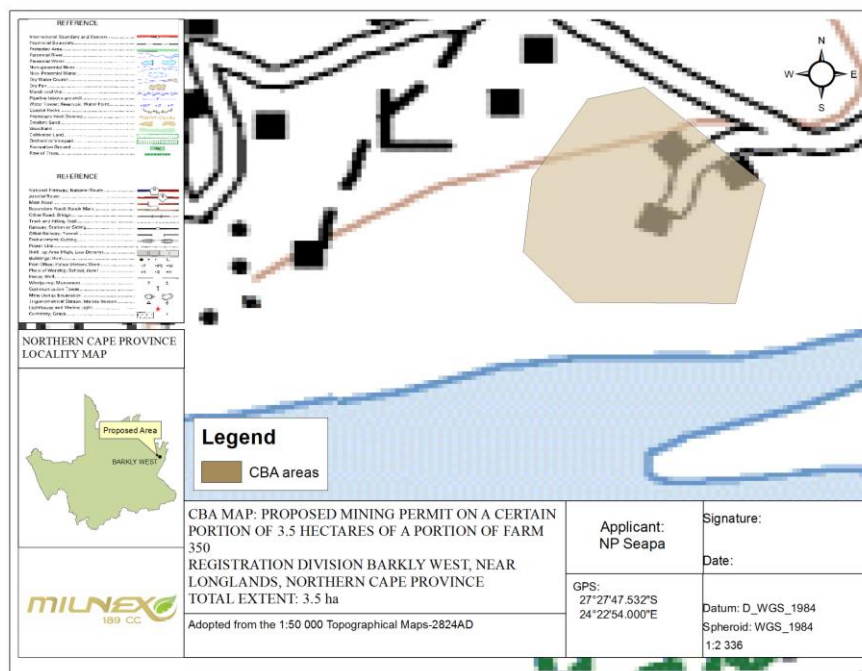


Figure 3: CBD maps

## Recommendations

- The EAP shall be notified should the occurrence of the tree, *Acacia erioloba*, or any other valuable Flora specie be identified. If the EAP finds that the mining activities will have an impact on such a tree(s)/flora specie or that the tree/flora specie needs to be removed, the needed permit will be applied for.
- Vegetation clearance, if any, should be kept to the minimum required for the operation.

The EAP herewith confirms the correctness of the information provided in this report.



Signature of the EAP: Danie Labuschagne

Date: 14/06/2016