

Terrestrial Ecological Impact for the proposed
development of a chrome washing plant on
portion 50 of Farm Boschfontern 458 JQ at Brits,
Madibeng Local Municipality the North West
Province.

Document Control





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Author:	Lorato Rakuba	Date: 27/02/2025	
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Reviewed by	Dineo Makhubela	Date:	Signature: 
	Tshimangadzo Rasifudi	Date: 03 April 2025	
Approved by	Letladi Maisela	Date	
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1 Introduction

Segope Water and Environmental Services (henceforth called Segope Consulting) was appointed by UCM to conduct a terrestrial ecological and biodiversity sensitivity impact assessment for the purposed chrome washing plant on portion 50 of Boschfontern 458 JQ in the Madibeng Local Municipality under the Bojanala Platinum District Municipality.

1.1 Project location and description

Universal Chrome Minerals (Pty)Ltd (intends on developing a chrome washing plant on portion 50 of Boschfontern 458 JQ. The proposed site is located within the Madibeng Local Municipality under the Bojanala Platinum District Municipality.

The proposed site had previously been used for agricultural purposes, and is currently zoned for the agricultural use. The process to have the farm re-zoned for the purposes of the wash plant is in progress. The site is mostly grass with scattering of trees



Figure 1: Proposed site for the chrome processing plant

The geographic location of the proposed plant is:

25°43'16.4352" S 27°43'2.974" E

The nearest towns to the site are:

- Brits ± 16 km
- Mooinooi ± 19 km
- Hartbeespoort 26 km

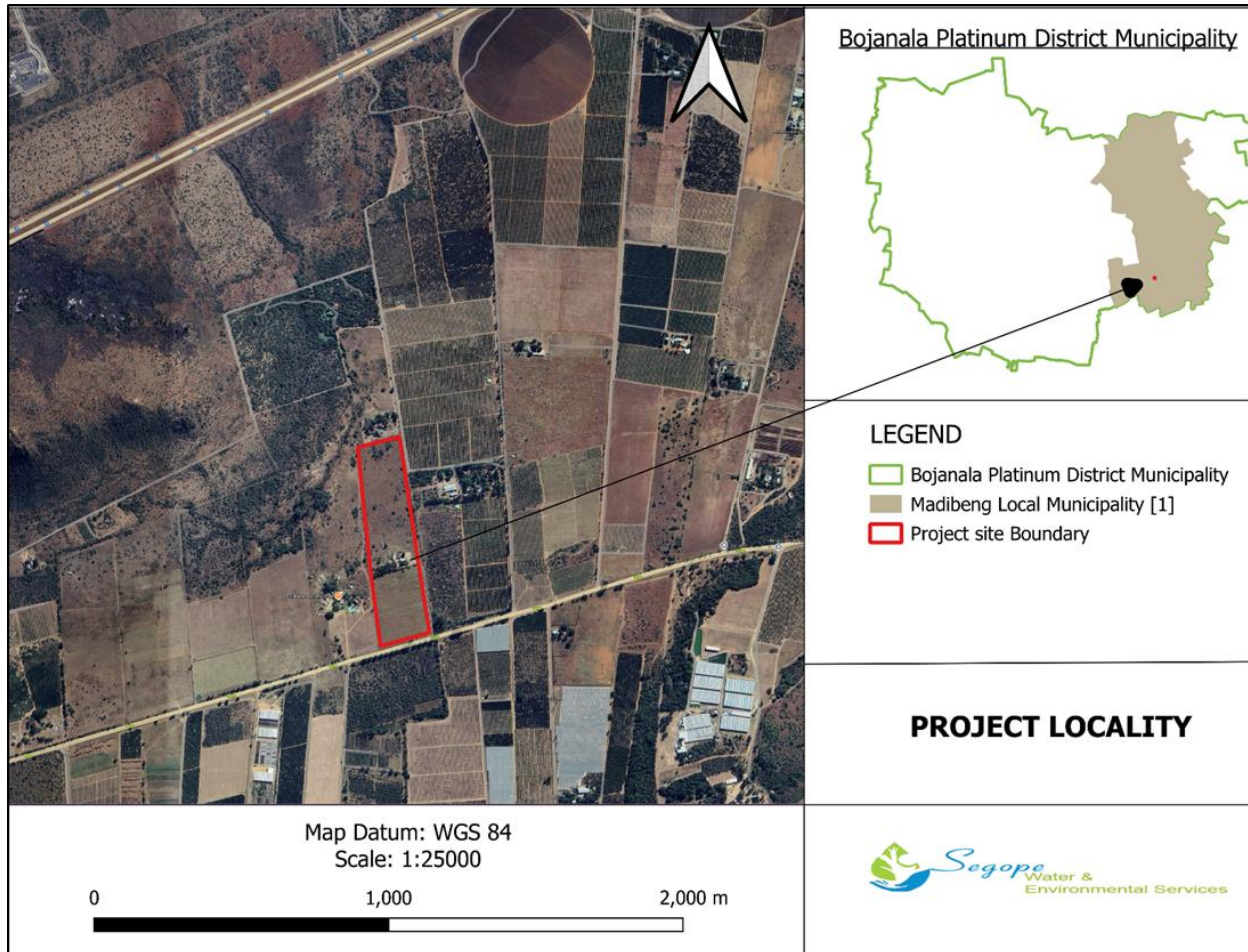


Figure 2: Locality map of the proposed chrome processing plant (Segope Consulting, 2025).

1.2 Terms of reference

The objective of this report was to identify the potential sensitivity of the ecosystem, plant species, animal species and to identify the potential impacts of the proposed chrome washing plant; the objectives are as follows:

- Identify plant and animal species of conservation concern (Red Data List, TOPS lists);

- Identify alien plant species and provide recommendations on the management of these species;
- Identify the potential impacts on faunal species in terms of habitat loss and fragmentation;
- Provide mitigation measures;
- Describe and map vegetation types of the study area;
- Describe the biodiversity and ecological state of the vegetation unit; and
- Identify and assess the impacts of development on the site's natural vegetation and faunal species in terms of habitat loss, fragmentation and degradation of key ecosystems and, where feasible, provide mitigation measures to reduce these impacts

1.3 Legislative framework

The Constitution of South Africa (Act No. 108 of 1996).

The Constitution of the Republic of South Africa is the supreme law of the land. As a result, all laws, including those pertaining to this Management Plan, must conform to the Constitution. The Bill of Rights - Chapter 2 of the Constitution, includes an environmental right (Section 24) according to which, everyone has the right: a) To an environment that is not harmful to their health or well-being; and b) To have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that: i. Prevent pollution and ecological degradation; ii. Promote conservation; and iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

National Environmental Management Act (Act 107 of 1998)

The objective of NEMA is: "To provide for cooperative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote cooperative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith." This report has been guided by the NEMA Principles detailed in Section 2 of the Act. NEMA introduces the "duty of care" concept, which is based on the policy of strict liability. This duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution, and may lead to the prosecution of responsible persons, including companies, for the conduct of the legal persons.

NEMA EIA Regulations (2014, as amended)

The NEMA EIA Regulations (2014, as amended) aim to avoid detrimental environmental impacts through the regulation of specific activities that cannot commence without prior Environmental Authorisation. Authorisation either requires a Basic Assessment or a Full Scoping and Environmental Impact Assessment, depending on the type of activity. These assessments specify

mitigation and management guidelines to minimize negative environmental impacts and optimize positive impacts.

National Environmental Management: Biodiversity Act (Act 10 of 2004)

This Act aims to manage and conserve the country's biodiversity by protecting species and ecosystems that require national protection, promoting sustainable use of indigenous biological resources, and ensuring the fair sharing of benefits arising from bioprospecting activities; essentially, it serves as the cornerstone of South Africa's biodiversity conservation efforts.

NEMBA National List of Threatened Ecosystems (GNR 1002 of 2011)

The National List of Ecosystems is in place for the ecosystems that are threatened and in need of protection. The NEMBA provides for listing of threatened or protected ecosystems in one of the following categories:

- Critically Endangered (CR) ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation;
- Endangered (EN) ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems;
- Vulnerable (VU) ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and
- Protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed as critically endangered, endangered or vulnerable.

NEMBA: Alien Invasive Species Regulations (2014)

The Alien and Invasive Species Regulations (2014) categorizes the different types of alien and invasive plant and animal species and how they should be managed:

- Category 1a Listed Invasive Species – species which must be combatted or eradicated.
- Category 1b Listed Invasive Species – species which must be controlled.
- Category 2 Listed Invasive Species – species which require a permit and must not be allowed to spread outside of the designated area.
- Category 3 Listed Invasive Species – species which are subject to exemptions in terms of section requiring a permit, but where such a species occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to regulation 3

2 Assessment Methodology

2.1 Data collection assessment approach

2.1.1 Desktop Assessment

A desktop assessment of the site was conducted in terms of current vegetation classifications and biodiversity programmes and plans. For the terrestrial flora, the consideration of the following has been included:

- The revised of the North West province, South Africa, vegetation map
- North West Biodiversity Management Act (Act 4 of 2016) Schedule 2- List of specially protected species- Kingdom Plantae
- SA Red Data List.
- 1976 List of Protected Trees (Government Gazette No. 9542 Schedule A) in the 1998 National Forest Act (NFA) as amended in November 2014.

Faunal distribution data was primarily sourced from the following web-based databases:

- The International Union for Conservation of Nature (IUCN) Red List of Threatened Species website;
- The Animal Demography Unit (AUD) Virtual Museum's Frog, Reptile and Mammal Maps;
- The iNaturalist Website; and
- The Global Biodiversity Information Facility (GBIF)

2.1.2 Site Assessment

The field survey was conducted on 11 November 2024. The survey was conducted on the extent of the proposed site where the infrastructure will be placed and the processing will take place. A walkthrough was conducted on the site and pictures of the plant species were captured. Any faunal species that were found on the site were noted.

2.2 Impact Assessment

The impact methodology used for this report was developed in line with the terrestrial biodiversity protocol, together with the impact ratings as required in appendix 1 and 2 of the EIA regulations (2014, as amended).

The following variables were considered when developing the impact methodology:

- **Nature:** This indicates whether the impact will have a positive or negative impact on the environment.
- **Type of impact:** This indicates whether the impact is direct/indirect or cumulative.
- **Significance:** The criteria in Table 1 are used to determine the overall significance of

an activity. The impact effect (which includes duration; extent; consequence and probability) and the reversibility/mitigation of the impact are then read off the significance matrix in order to determine the overall significance of the issue. The overall significance is either negative or positive and will be classified as low, moderate or high.

- **Extent:** the spatial scale to define the significance of the impact at various time scales as an indication of the duration of the impact.
- **Duration:** the temporal scale defines the significance of the impact at various time scales, as an indication of the duration of the impact.
- **Probability:** the likelihood of the impact taking place as a result of the project actions arising from the various alternatives.
- **Reversibility:** the degree to which the environment can be returned to its original/partially original state.
- **Irreplaceable loss:** the degree of irreplaceable loss which an impact may cause e.g. loss of non-regenerative vegetation or removal of rocky habitat or destruction of wetland.
- **Mitigation potential:** the degree of difficulty of reversing and/or mitigating the various impacts ranges from very difficult to easily achievable. Both the practical feasibility of the measure, the potential cost and the potential effectiveness is taken into consideration when determining the appropriate degree of difficulty.

Table 1: Impact Assessment Methodology

Criteria	Categories	Description	Rating
Duration	Construction/Decommissioning phase only	The impact endures for only as long as the construction or the decommissioning period of the project activity. This implies that the impact is fully reversible	1
	Short Term	Between 3 and 5 years	2
	Medium Term	Between 6 and 15 years	3
	Long Term	More than 15 years	4
	Permanent	Over 40 years or resulting in a permanent and lasting change that	5

Criteria	Categories	Description	Rating
		will always be there.	
Extent	Localised	Impacts affect a small area of a few hectares in extent. Often only a portion of the project area.	1
	Study Area	The proposed site and its immediate environments	2
	Municipality	Impacts affect the municipality, or any towns within the municipality	3
	Regional	Impacts affect the wider district municipality or the North West Province as a whole.	4
	National	Impacts affect the entire country.	5
Likelihood	Definite	More than 90% sure of a particular fact. Should have substantial supportive data	1
	Probable	Over 70% sure of a particular fact, or of the likelihood of that impact occurring.	0.75
	Possible	Only over 40% sure of a particular fact, or of the likelihood of an impact occurring	0.5
	Unsure	Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.	0.25 and less
Impact significance	Low	The risk/impact may result in minor alterations	<3

Criteria	Categories	Description	Rating
		of the environment and can be easily avoided by implementing appropriate mitigation measures and will not have an influence on decision-making. Project can be authorised with low risk of environmental degradation	
	Moderate	The risk/impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures and will only have an influence on the decision-making if not mitigated. Project can be authorized but with conditions and routine inspections. Mitigation measures must be implemented.	3-9
	High	The risk/impact will result in major alteration to the environment even with the implementation on the appropriate	10-20

Criteria	Categories	Description	Rating
		mitigation measures and will have an influence on decision-making. Project can be authorized but with strict conditions and high levels of compliance and enforcement. Monitoring and Mitigation are essential	
	Fatally Flawed	The risk/impact will result in very major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making. The project cannot be authorized unless major changes to the engineering design are carried out to reduce the significance rating.	21-26
Type	Direct	Direct interaction of an activity with the environment	
	Indirect	Impacts on the environment that are not a direct result of the project or activity	
	Cumulative	Impacts which may result from a combination of impacts of this project and similar related project	

2.3 Assumptions, limitations and Gaps in the knowledge

This report was compiled using the available information, there are some limitation that need to be noted:

- To get a full understanding of the dynamics of the vegetation that is on the proposed site, it is important that surveys are repeated over several seasons and over a number of years. However, this kind of long-term study was not possible for this study due to the time constraints of the project.

3 Description of the biophysical environment

3.1 Climate

The climate of the Moot Plains Bushveld region is characterised by hot and wet summers, while having warm and dry winters. The average temperatures ranging between 10°C and 32°C. The average rainfall experienced in this region is 573 mm.

3.2 Geology

The study area overlies the Vlakfontein Subsuite which along with Skilpadnest Subsuite, Norite Formation, Dwars River Subsuite, Kolobeng Norite Formation, and Croydon Subsuite Formation forms the Lower Zone of the Bushveld Igneous Complex within its Rustenburg Layered Suite. These formations are mafic and ultramafic layered deposits of igneous rock and can be classed under the Mafic Igneous Sulphides. The rocks in this study area are primarily pyroxenite, harzburgite and norite. Towards the South, The Vlakfontein Subsuite begins contact with the eastern Transvaal basin, particularly the Rayton Formation and Magaliesberg Formation.

Geology of the Brits Project

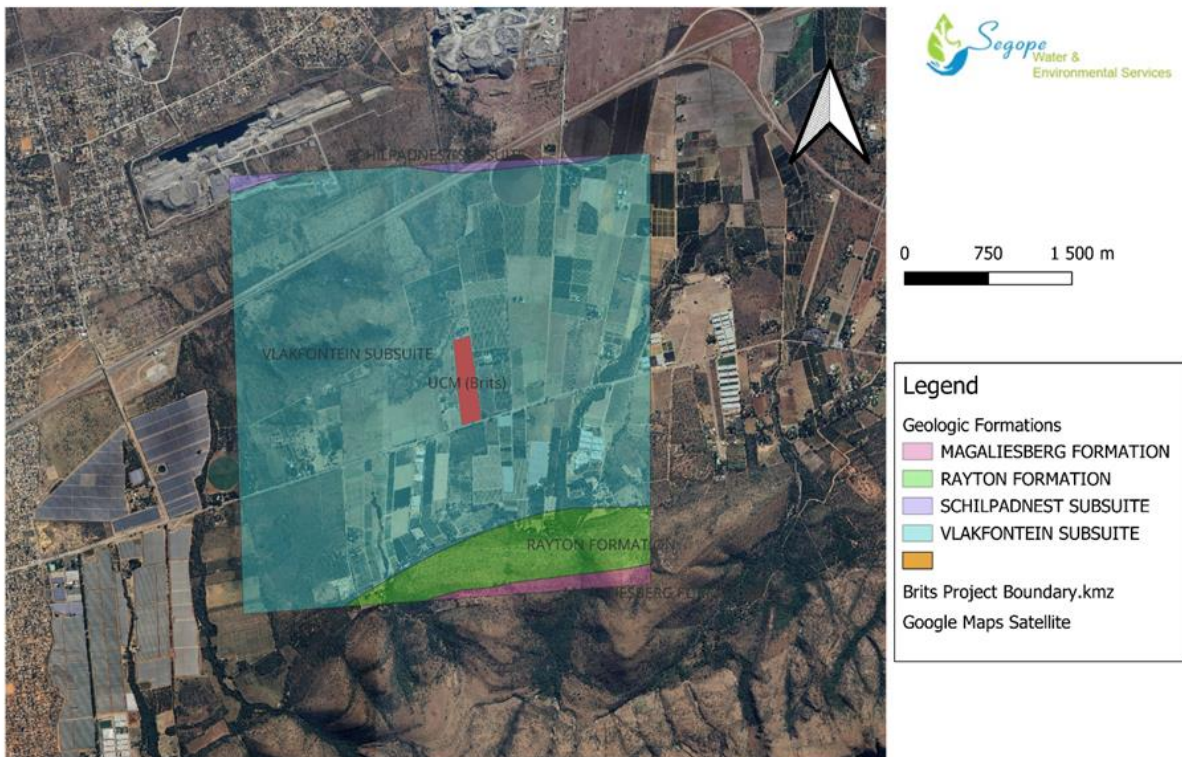


Figure 3: Geology Map of the proposed site (Segope Consulting, 2025)

3.3 Hydrological setting

The proposed site falls within the A21J quaternary catchment within the Crocodile (West) and Marico Water Management Areas.

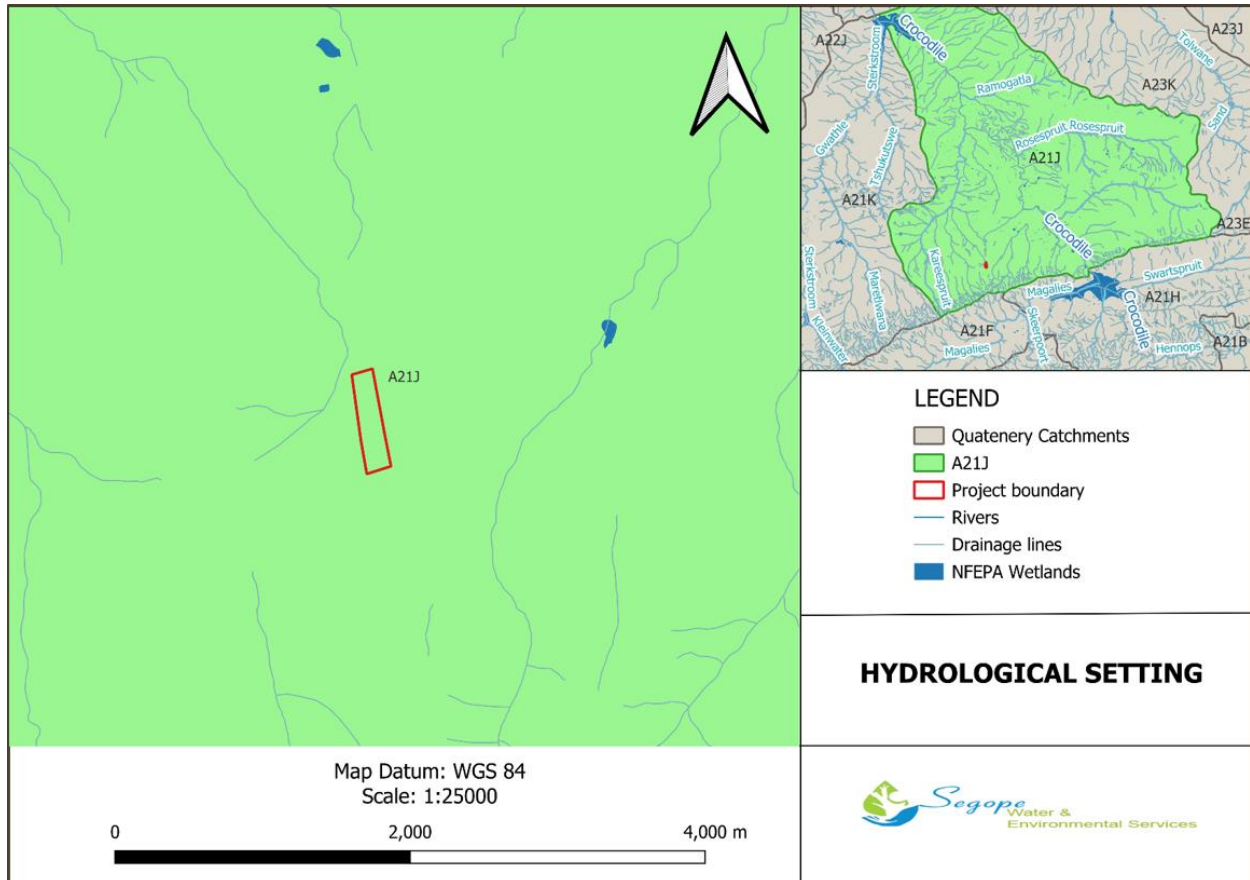


Figure 4: Hydrological Setting of the proposed site (Segope Consulting, 2025)

3.4 Vegetation type

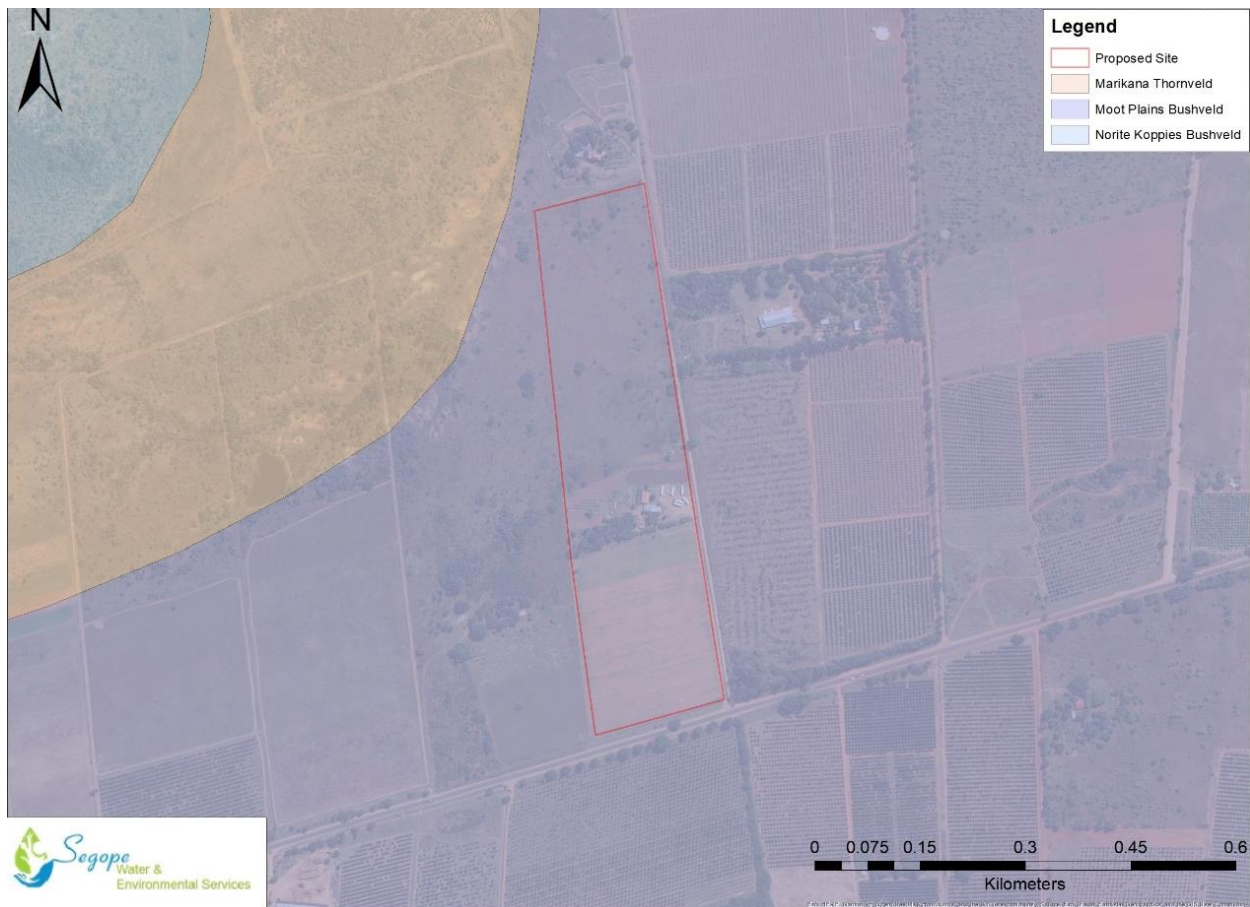


Figure 5: Vegetation Map of proposed site (Segope Consulting, 2025).

The proposed site falls in the Moot Plains Bushveld vegetation type. This vegetation type is made up mostly of a broad band on the rolling plains to the north and a narrow band on the hill sides to the south of the Magaliesberg Range. It is predominately made up of stony clay-loam soils. It is characterised by open to closed low-growing thorn savanna dominated by Acacia, and woodland that has varying height and density on the lower hill sides.

4 Species of Conservation Concern (SCC)

When conducting this study it is important to take into consideration the species that are important to preserve in order to ensure the continued biodiversity of the country, ensuring that these species do not go extinct. These are species either flora or faunal that are considered important and have to be conserved, these species are usually declining in numbers in the wild, and are put into categories according to how their abundance or lack thereof in the wild. These categories are:

- Extinct (EX)
- Extinct in the wild (EW)
- Critically Endangered (CR)
- Endangered (EN)
- Vulnerable (VU)
- Near Threatened (NT)

5 Alien Invasive Species

Alien invasive species are species that do not originate in a particular place and were intentionally or accidentally introduced by humans. These introductions have harmed the environment through loss of biodiversity, ecosystem disruption and food security. This then leads to increased poverty in some communities, and it has also led to some human health issues. These species can either be plants, animals, fungi or microorganisms.

5.1 Invasive alien plant species

Invasive alien plants (IAP) are known to be a threat to the biodiversity of South Africa. Some of the areas that have been directly impacted by these species are water resources, productive use of the land and the ecological function of some ecosystems. An estimated 1880 alien plant species have been introduced into the country and have been able to establish themselves. 559 of these species are considered invasive and then a further 560 of these are prohibited from being introduced into the country.

The invasive species are grouped into 4 categories and are managed according to the category they are placed in:

- Category 1a:

The species under this category must be eradicated immediately with all necessary steps. Authorised officials must be allowed to enter private properties to monitor, assist with or implement the eradication process. If an Invasive Species Management Programme has been developed, the person responsible for implementing it must eradicate the listed invasive species per such programme.

- Category 1b:

The species under this category must be controlled. Property owners and government departments must ensure that the listed invasive species within their properties are controlled. If an Invasive Species Management Programme has been developed, the person responsible for implementing it must eradicate the listed invasive species per such programme. Authorised officials must be allowed to enter private properties to monitor,

assist with or implement the eradication process. Any Category 3 listed species which occur within a Protected Area or Riparian (wetland) revert to Category 1b and must be controlled. The Minister may require any person to develop a Category 1b Control Plan for one or more Category 1b species occurring on a property.

- Category 2:

Any species listed under Category 2 requires a permit issued by the Department of Forestry, Fisheries and the Environment (DFFE) to carry out a restricted activity. A person in control of a Category 2 listed species must take all necessary measures to ensure that specimens of the species do not spread outside of the land or area, such as an aviary) specified in the permit.

- Category 3:

Category 3 listed invasive species are subject to certain exemptions in section 70 (1)(a) of the NEMBA Act, which applies to the listing of alien invasive species. Any Category 3 listed plant species in riparian areas, must be considered as Category 1b and the appropriate control measures instituted.

6 Results

6.1 Flora Assessment Results

The North West province is home to a variety of plant species, of which are some are native, exotic and invasive. The province is dominated by two major biomes; namely the Grassland and Savanna. The Grassland biome is characterised by grasses and other herbaceous plants, while the Savanna biome features a mixture of grasses, trees and shrubs.

The following species were identified during the site visit that took place on the 15th of November 2024 and another site visit was conducted on the 18th of March 2025.

Table 2: Tree species found on site

Scientific Name	Common Name	Conservation Status	Ecology
<i>Afrocarpus falcatus</i>	Outeniqua yellowwood	Least Concern	Indigenous
<i>Faidherbia albida</i> (<i>Delilw</i>) A. Chev	Ana Tree	Least Concern	Indigenous
<i>Ledebouria revolute</i> (<i>L.F</i>) Jessop	Common African hyacinth	Least Concern	Indigenous

Scientific Name	Common Name	Conservation Status	Ecology
<i>Aloe greatheadii</i> <i>Schonland</i>	Spotted Aloe	Least Concern	Indigenous
<i>Vachellia Karoo</i> <i>(Hayne) Banfi & Galasso</i>	Sweet Thorn	Least Concern	Indigenous
<i>Ziziphus mucronata</i> <i>wild.</i>	Buffalo thorn	Least Concern	Indigenous
<i>Erythrina lysislemon</i> <i>Hutch.</i>	Common coral tree	Least Concern	Indigenous

Table 3: Grasses found on site

Scientific Name	Common Name	Conservation Status	Ecology
<i>Paspalum disticum</i> L.	Knot grass	Least Concern	Indigenous
<i>Microchloa kunthii</i>	Kunth's small grass	Least Concern	Indigenous

Table 4: Invasive species found on site

Scientific Name	Common Name	Rating
<i>Cyanthillium cinereum</i>	Little iron weed	Not rated
<i>Veronica peregrina</i> L	Purslane speedwell	Not rated
<i>Lantana viburnoides</i> Forsak. <i>Vahl</i>	Common Lantana	Category 1b- NEMBA
<i>Albizia Lebbeck</i> (L) Benth. <i>Biris Tree</i>	Lebbeckboom	Category 1b- NEMBA

No SCC and no protected species were found on either the site visit of the 15th November 2025 or the 18th March 2025.



Picture 1: Plants found on site (Segope Consulting, 2024 and 2025)



Picture 2: Plants found on site (Segope Consulting, 2024)

6.2 Faunal Assessment Results

The North West province is home to a diverse number of faunal species. The species recorded within the province are as follows:

- mammalian is 121;
- reptile is 102;
- amphibian is 23; and
- avian is 480.

6.2.1 Mammalian species

No mammalian species were observed during the site visit.

6.2.2 Amphibians species

No amphibian species were observed during the site visit

6.2.3 Reptiles species

No reptiles were observed on site during the site visit

6.2.4 Avian species

No avian species were observed on site.

7 Potential Impact of the Chrome Processing Plant

The impacts listed below were identified and were considered as part of the terrestrial ecology of the proposed site:

- Habitat Destruction.
- Habitat fragmentation.
- Spread of alien invasive species.
- Decrease in protected tree species population.
- Soil erosion.

Impact 1: Habitat destruction and fragmentation

Construction of any infrastructure on the site will lead to the direct loss of vegetation. This could lead to the overall reduction of vegetation at a localised level and have some consequences on the wider population of the plants. This could lead to a loss of sensitive species and the fragmentation of the sensitive habitats

Impact 2: Establishment and spread of alien invasive species

Factors that contribute to the establishment and spread of these species is largely due to the clearance of vegetation, movement in and out of the site by trucks to the site, movement of personnel in and out of the site. These species tend to be more abundant near infrastructural disturbance. Leading to impact on the hydrological system, change in the chemical composition of the soil, change in species composition and the loss of disturbance of sensitive species.

Impact 3: Loss of protected tree species.

There are trees within South Africa that are protected under the National Forestry Act (Act 84 of 1998) on a national level and under the North West Biodiversity Management Act (Act 4 of 2016) provincially. Any disturbance of these trees whether cutting, trimming, or removal requires that a permit. The loss of these species could lead to the loss of genetic variation of the affect species, the reduction in the population distribution of the affect species.

Impact 4: Soil erosion caused by vegetation clearance.

Clearance of vegetation may lead to increased soil erosion and can result in the change in plant species composition due to loss of soil stability and change in chemical composition of the soil. Loss of soil layer may occur due to increased run off.

8 Impact Assessment Matrix

Table 5: Impact matrix for habitat destruction

Impact Description		Impact Type	Extent (E)	Duration (D)	Potential	Likelihood	Impact Rating & Significance	Mitigation & Management Measures
Impact	Direct	Significance without Mitigation						All vegetation clearance must be limited to the approved areas. All areas affected by the construction must be rehabilitated using indigenous plant species. If possible, vegetation clear should occur in the winter season so not to disturb the breeding season of some bird species
Impact Direction:	Negative	Existing Impact	2	4	8	0.7 5		
Aspect	Clearance of vegetation	Projected Impact	2	4	8	0.7 5		
Potential Impact		Significance with Mitigation						
		Residual Impact	2	2	4	0.2		
		Reversibility	Moderate reversibility					
		Irreplaceability	Moderate irreplaceability					
		Cumulative Impact						Description of Cumulative Impact
Habitat destruction and fragmentation		Cumulative Impact	2	1	2	0.2	The current vegetation make-up of the proposed shows that there is an encroachment of alien species as a result of the area being previously used as farmlands. The removal of the vegetation on site could increase the chances of alien species establishing and further breaking up the size of indigenous species	
		Confidence	Medium					

Table 6: Impact matrix for the loss of individual protected species

Impact Description		Impact Type	Extent (E)	Duration (D)	Potential	Likelihood	Impact Rating & Significance	Mitigation & Management Measures
Impact	Direct	Significance without Mitigation						An ECO together with qualified botanist/ecologist should do a walkabout and tag all the protected trees that need to be removed. The appropriate tree removal permit should be obtained from the Department of Forestry, Fisheries, and the Environment.
Impact Direction:	Negative	Existing Impact	2	3	4	0.7 5		
Aspect	Clearance of vegetation	Projected Impact	2	3	4	0.7 5		
Potential Impact		Significance with Mitigation						
		Residual Impact	2	2	2	0.2 5		
		Reversibility	Low reversibility					
		Irreplaceability	Low irreplaceability					
Loss of individual protected species		Cumulative Impact						Description of Cumulative Impact
		Cumulative Impact	1	1	1	0.1		
		Confidence	High					

Table 7: Impact matrix of the spread of alien invasive species

Impact Description		Impact Type	Extent (E)	Duration (D)	Potential	Likelihood	Impact Rating & Significance	Mitigation & Management Measures
Impact	Direct	Significance without Mitigation						Alien invasive plants that are found on the proposed site must be controlled through either chemical or physical removal means. An Alien Species Management Plan must be drafted and implemented to ensure that these species are controlled.
Impact Direction:	Negative	Existing Impact	2	3	8	0.7 5		
Aspect	Clearance of vegetation	Projected Impact	2	3	8	0.7 5		
Potential Impact		Significance with Mitigation						
Spread of invasive plant species		Residual Impact	2	2	2	0.2		
		Reversibility	High reversibility					
		Irreplaceability	Low irreplaceability					
		Cumulative Impact						Description of Cumulative Impact
		Cumulative Impact	2	1	4	0.7 5		
		Confidence	Medium					If alien invasive plants are left unattended they have the potential to out compete indigenous vegetation within the proposed site and the areas around it.

Table 8: impact matrix on soil erosion

Impact Description		Impact Type	Extent (E)	Duration (D)	Potential	Likelihood	Impact Rating & Significance	Mitigation & Management Measures
Impact	Direct	Significance without Mitigation						Vegetation clearing should only be done in areas where work is being carried out. Erosion control measures must be put in place throughout the construction, operations and decommission phases. without work being conducted in that specific area. Revegetation of cleared areas must be undertaken as soon as possible. Topsoil stockpiles must be protected from erosion. Topsoil must be protected from getting washed into drainage ways.
Impact Direction:	Negative	Existing Impact	2	4	8	0.7 5		
Aspect	Clearance of vegetation	Projected Impact	2	3	8	0.7 5		
Potential Impact		Significance with Mitigation						Description of Cumulative Impact Erosion of topsoil will lead to difficulty of establishment of vegetation cover as Topsoil contains seeds and organic materials needed for cover establishment.
Soil Erosion	Residual Impact	2	3	4	0.5			
	Reversibility	Moderately reversibility						
	Irreplaceability	Low irreplaceability						
	Cumulative Impact							
	Cumulative Impact	2	2	4	0.5			
Confidence		Medium						

9 Biodiversity Assessment

9.1 Critical Biodiversity and Ecological Support Area of the Project

Critical biodiversity areas (CBA) are terrestrial and aquatic features that are important for retaining biodiversity and supporting continued ecosystem functioning and services. These form the key output of a systematic conservation assessment and are the biodiversity sectors inputs into multi-sectoral planning and decision making tools (Desmet et al, 2009).

The purpose of CBA's is to inform land-use planning and the land-use guidelines. As well as to promote sustainable development by avoiding loss or degradation of important natural habitat and landscapes in these areas and the landscape as a whole. CBA's can also be used to inform protected area expansion and development plans (Desmet et al, 2009).

The use of CBA here follows the definition laid out in the guideline for publishing bioregional plants (Anon, 2008):

- CBA 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. These areas need to be maintained in a natural or near-natural state so that biodiversity conservation targets can be met. Keeping an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses (Desmet et al, 2009).
- Ecological support areas (ESA) these areas that are not important for meeting biodiversity representation targets/thresholds. However, they play an important role in supporting the ecological functioning of CBA and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for CBA (Desmet et al, 2009).

The land management objectives of these biodiversity areas:

CBA 1(natural landscapes):

- Ecosystems and species fully intact and undisturbed.
- These are 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.
- These are landscape 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 area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets.
- These are landscapes that are approaching but have not passed their limits of acceptable change.

ESA (Functional landscapes):

- Ecosystems moderately to significantly disturbed but still able to maintain basic functionality.
- Individual species or other biodiversity indicators may be severely disturbed or reduced.
- These are areas with low irreplaceability with respect to biodiversity pattern targets only

According to the screening tool the proposed site falls within CBA2 and ESA2. Through the ground-truthing exercise of a site visit that took place on **14 November 2024**. It was noted that the proposed site has been transformed and has been used for agricultural activities, it is there no longer in its natural state.



Figure 6: Map showing the CBA and ESA distribution of the proposed site

9.2 Nationally Threatened Ecological Class

In the latest Terrestrial Ecosystem Threat Status assessment of 2018, Moot Plains Bushveld, where the proposed site is situated, is considered to be of Least Concern. The map below shows that the proposed site does not fall into a threatened ecosystem. It is close to an ecosystem (Marikana Thornveld) that is considered vulnerable.



Figure 7: Map of threatened ecosystems (Segope Consulting, 2025).

9.3 National Protected Areas Expansion Strategy (NPAES)

The proposed site does not fall within a formally protected area. The nearest protected area to the site is about 1km to the south of the site and is a mountain range as indicated in the map below.

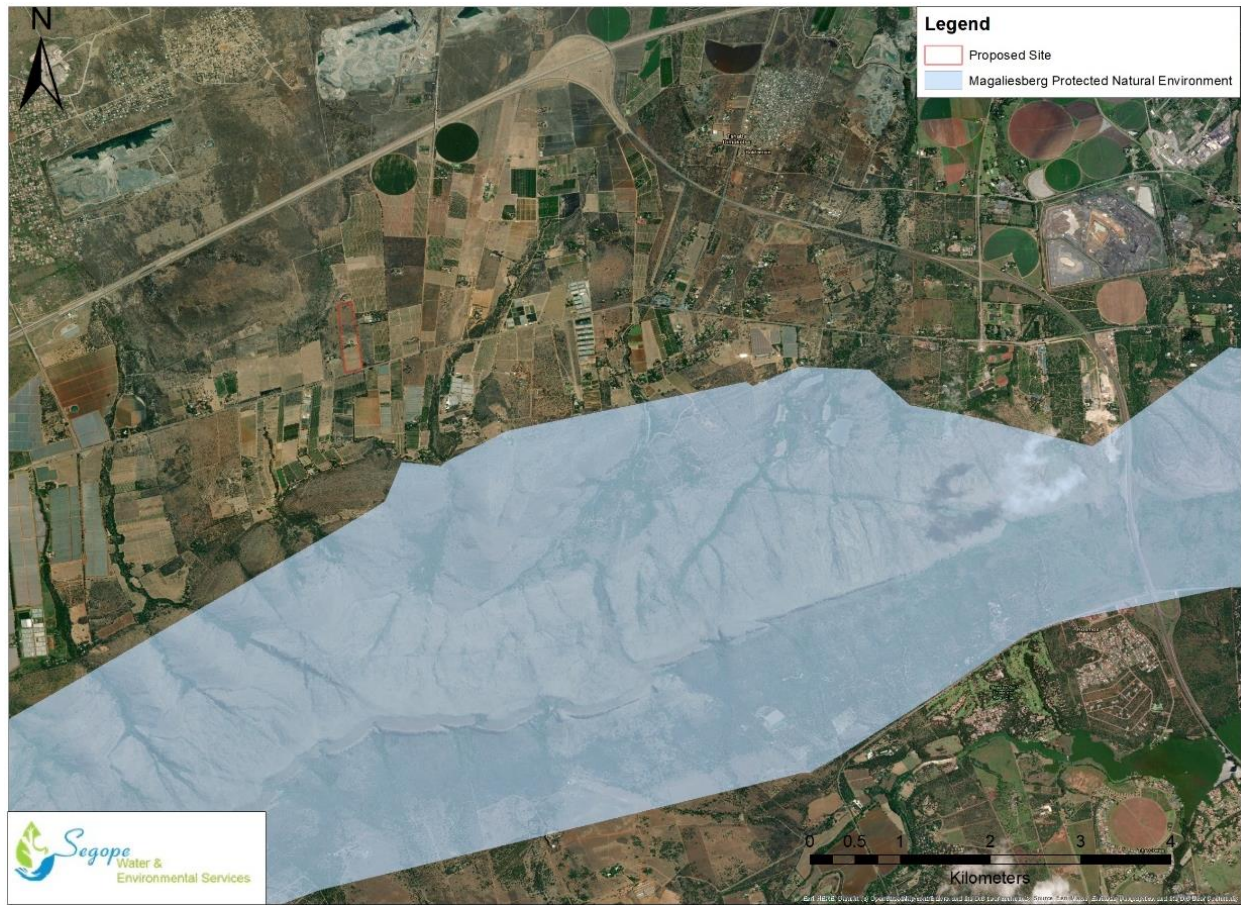


Figure 8: Map of protected areas

10 Recommendations

All the mitigation measures that are provided in this report must be implemented during the Planning and Design, Construction, Operational and Decommissioning phases of this proposed activity.

Prevent Impact	Minimise Impact	Mitigate Impact
Planning and Design Phase		
<p>All required permits must be obtained for the removal and/or disturbance of any protected or SCC found on the proposed site.</p>	<p>All designs must ensure that there is as minimal loss as possible of any vegetation that is indigenous and as near natural. Only the vegetation that is found within the demarcated footprint of the proposed site may be removed or disturbed</p>	<p>An Alien Vegetation Management Plan must be developed by the Contractor before the commencement of any construction. This plan must be approved by the appointed ECO before it can be implemented.</p> <p>A rehabilitation plan must be developed by the project manager as part of the method statement and must be implemented during both the construction and the operational phases. A method statement must be approved by the appointed ECO before it can be implemented</p>
Construction Phase		
<p>A walkthrough must be done of the proposed development site. This should be done in collaboration with a qualified botanist to identify the SCC that occur on site. This should be done during the flowering season. No SCC plants may be removed without the relevant permits.</p>	<p>The ECO must monitor for any potential SCC that were not identified during the walkthrough</p>	<p>All vegetation clearing must be kept within the demarcated boundary of the proposed site's footprint</p>

<p>No staff and members or contractors may capture, collect or eat any faunal species found on site.</p>	<p>A search and rescue mission must be conducted for any faunal species that may occur on site, before any clearing activity may take place</p>	<p>Any faunal species that die as a result of construction activities must be documented. (i.e. photographed, coordinates taken. Identified).</p> <p>The appointed ECO must ensure that they monitor that all construction activities are within the demarcated boundary of the proposed project.</p> <p>If possible clearing of the trees on site should be carried out in the winter season, so not to disturb any birds that nest and rear their young under the spring and summer months.</p>
<p>Construction vehicles and any machinery may not go to areas demarcated as highly-sensitive, ‘no-go’ or areas that are outside of the project boundary.</p>	<p>Vehicles and machinery must meet best practice standards</p>	<p style="background-color: #cccccc;"></p>
<p>All vegetation clearing must be kept within the demarcated boundary of the proposed site’s footprint</p>	<p>Topsoil must be stored in areas of low sensitivity and used for the rehabilitation of impacted areas that are not required during the operational phase</p>	<p>All areas that are impacted by the construction activities must be rehabilitated according to the Rehabilitation Plan. As soon as construction work is completed.</p> <p>Only species that are indigenous must be used for the rehabilitation process.</p>
<p>Operational Phase</p>		
	<p>The Alien Invasive Management Plan must be implemented. The ECO must ensure to monitor that this plan is implemented effectively</p>	<p>The rehabilitation Plan must be implemented during the operational phase</p>
<p>Decommissioning Phase</p>		

		The alien invasive management plan for the site must be implemented.
		Only indigenous species must be used for rehabilitation
		ECO must be appointed to oversee the rehabilitation process

11 Discussion and Conclusion

Any development on natural areas completely alters the vegetation patterns and faunal habitats, leaving these habitats vulnerable to significant impacts, not only to the environment but ecological services that these habitats provide to the humans in the surrounding areas. Therefore, it is important to ensure rehabilitation of disturb areas and to implement any mitigation measures that will assist in conservation efforts.

The site for the proposed processing plant has been transformed through agricultural activities, the site had patches of herbaceous vegetation on it, which was an intertwinement of invasive and indigenous species, the trees on site are scattered throughout the site.

When the processing plant is constructed all open areas must be rehabilitated with indigenous species that are found within the area. Soil erosion should be prevented as far as possible. An Invasive Alien Plant species management plan must be implemented to ensure that these species do not establish within the site, where they are established management of these species, out be carried out as per the management plan.

The impact of the processing plant may have on the environment can be minimised through the implementation of the mitigation measures and the recommendations that are detailed in this report.

12 References

- Desmet.et.al.2009. North West Province Biodiversity Conservation Assessment Report.
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