



238 Vorster Ave.  
Glenvista  
Johannesburg South  
2190

[info@vahleingweadvisory.co.za](mailto:info@vahleingweadvisory.co.za)

22 July 2024

The Regional Manager  
DMRE: Northern Cape Region  
Private Bag X 6093  
Kimberley  
8300

Attention: Mrs. Thabelo Nempumbuluni  
Mr. Vincent Mula

Dear Sir,

**SUBMISSION: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT (EMPR) FOR PROSPECTING RIGHT APPLICATION OF DIAMOND AND SAND LISTED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO.107 OF 1998), IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE: GOMEZA TRADING (PTY) LTD**

**DMRE Ref No: NC 30/5/1/1/2/ (13823) PR**

The above-mentioned matter bears reference:

We hereby submit the environmental documents required for the above-mentioned application. We are submitting the following:

1. Environmental Impact Assessment Report and Environmental Management Programme.
2. Supporting documents attached as appendices
3. Specialist Studies

I hope you find this in order.

Yours Faithfully,

Nonhlanhla V Mokgane,  
Vahleingwe Mining Advisory and Consulting

# **GOMEZA TRADING (PTY) LTD**

## **ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

**ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE PROPOSED PROSPECTING RIGHT APPLICATION FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.**

**FILE REFERENCE NUMBER SAMRAD: NC 30/5/1/1/2 (13823) PR**

**NAME OF APPLICANT:** Gomezza Trading (Pty) Ltd

**TEL NO:** +27 83 995 0172

**POSTAL ADDRESS:** No 35 Lantana Str, Meyersdale Nature Estate,1448.

**PHYSICAL ADDRESS:** No 35 Lantana Str, Meyersdale Nature Estate,1448.

**FILE REFERENCE NUMBER SAMRAD: NC 30/5/1/1/2 (13823) PR**

This document has been prepared by:




---

Vahlengwe Mining Advisory and Consulting  
238 Voster Ave, Glenvista Ext 3 Johannesburg South,  
Glenvista, 2058  
+27 11 432 0062 | +27 74 569 7312  
info@vahlengweadvisory.co.za  
www.vahlengweadvisory.co.za

**Prepared for:**

Gomeza Trading (Pty) Ltd

Name	Responsibility	Signature	Date
Dimakatso Leholi	Report Compiler		July 2024
Cecil Dau	Report Compiler		July 2024
Nonhlanhla V Mogakane	Project Manager/Reviewer		July 2024

© 2024 Vahlengwe Mining Advisory and Consulting. All Rights Reserved.

This document has been prepared by Vahlengwe Mining Advisory and Consulting for sole use of our client (the "Client") in accordance with generally accepted consultancy principles, the budget for fees and the terms of reference agreed between Vahlengwe Mining Advisory and Consulting and the Client. Any information provided by third parties and referred to herein has not been checked or verified by Vahlengwe Mining Advisory and Consulting, unless otherwise expressly stated in the document. No third party may rely upon this document without the prior and express written agreement of Vahlengwe Mining Advisory and Consulting.

July 2024

## 1. IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation, or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has considered any minimum requirements applicable, or instructions or guidance provided by the competent authority to the submission of applications.

**It is therefore an instruction that** the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

**It is furthermore an instruction that** the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

## **2. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

The objective of the environmental impact assessment process is to, through a consultative process—

- (a) Determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) Identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) Describe the need and desirability of the proposed alternatives,
- (d) Through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
  - (i) The nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
  - (ii) The degree to which these impacts—
    - (aa) Can be reversed;
    - (bb) May cause irreplaceable loss of resources; and
    - (cc) Can be managed, avoided, or mitigated;
- (e) Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
  - (i) Identify and motivate a preferred site, activity, and technology alternative;
  - (ii) Identify suitable measures to manage, avoid or mitigate identified impacts; and
  - (iii) Identify residual risks that need to be managed and monitored

## LIST OF ABBREVIATIONS

<b>AIPs</b>	Alien Invasive Plants
<b>BID</b>	Background Information Document
<b>CMA</b>	Catchment Management Area
<b>CRR</b>	Comments and Response Report
<b>DEA</b>	Department of Environmental Affairs
<b>DMRE</b>	Department of Mineral Resources and Energy
<b>DWA</b>	Department of Water Affairs
<b>DWS</b>	Department of Water and Sanitation
<b>EA</b>	Environmental Authorisation
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EMPr</b>	Environmental Management Programme
<b>GDP</b>	Gross Domestic Product
<b>GIS</b>	Geographic Information Systems
<b>GNR</b>	Government Notice Regulation
<b>GPS</b>	Global Positioning System
<b>Ha</b>	Hectares
<b>HIA</b>	Heritage Impact Assessment
<b>I&amp;APs</b>	Interested and Affected Parties
<b>IBAs</b>	Important Bird Areas
<b>IHI</b>	Index for Habitat integrity
<b>WULA</b>	Water Use Licence Application
<b>Km</b>	kilometers
<b>M</b>	meters
<b>MPRDA</b>	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
<b>MR</b>	Mining right
<b>NAAQS</b>	National Ambient Air Quality Standards
<b>NBA</b>	National Biodiversity Assessment
<b>NCR</b>	Noise Control Regulations Act, 1989 (Act 73 of 1989)
<b>NEM: AQA</b>	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
<b>NEM: BA</b>	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
<b>NEM: WA</b>	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)
<b>NHRA</b>	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
<b>NWA</b>	National Water Act, 1998 (Act No. 36 of 1998)
<b>PR</b>	Prospecting Right
<b>PHRA-G</b>	Provincial Heritage Resources Authority of Gauteng
<b>PIA</b>	Palaeontological Impact Assessment
<b>SLM</b>	Siyancuma Local Municipality
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SAIAB</b>	South African Institute of Aquatic Biodiversity
<b>SANBI</b>	South African National Biodiversity Index
<b>SANS</b>	South African National Standards
<b>SAWS</b>	South African Weather Service
<b>SCC</b>	Species of Conservation Concern
<b>SIA</b>	Social Impact Assessment
<b>SMME</b>	Small Medium Enterprises
<b>SWMP</b>	Stormwater Management Plan
<b>TDS</b>	Total Dissolved Solids
<b>WMA</b>	Water Management Area
<b>WML</b>	Waste Management Licence

## **EXECUTIVE SUMMARY**

Gomez Trading (Pty) Ltd, hereafter referred as ‘the applicant’ or Gomeza’ has applied for a prospecting right for Diamond and Sand in in respect of Portion 1 of the farm Biesjesbult no.96 and Portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province, approximately 5.47 km East of Plooyburg, 29km Northwest of Ritchie town and 50km Southwest of Kimberly town.

The application for a prospecting right is in terms of Section 16 and permission to remove and dispose of mineral in terms of Section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (as amended) (MPRDA), and therefore, an Environmental Impact Assessment (EIA) process is required to acquire an Environmental Authorisation in terms of Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended) (NEMA). VahleNgwe Mining Advisory and Consulting (Pty) Ltd, hereafter ‘VahleNgwe’ has been appointed by Gomeza as the independent Environmental Assessment Practitioner (EAP) to facilitate the Environmental Authorisation (EA) processes for the proposed prospecting activities. The competent authority for the environmental authorisation process is the Department of Mineral Resources and Energy (DMRE), Northern Cape Province.

The proposed prospecting project triggers activities listed on Listing Notice 2 of the NEMA, therefore a

and Environmental Impact Assessment in terms of NEMA Government Notice Regulation (GNR) 982 (as amended) is required. The environmental impacts of the proposed project activities were determined by first identifying the environmental baseline and then conducting an environmental risk assessment to identify the significance of the impacts. The environmental impact assessment considered all phases of the project, including the site establishment, operational, rehabilitation and closure. The rating system used is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact.

The stakeholder engagement process, as part of the Environmental Authorisation process was conducted in terms of NEMA (as amended), which provides clear guidelines for stakeholder engagement during an EIA. Stakeholders therefore were afforded an opportunity to participate in the public review of the Draft EIA/EMPr Report from 06 June 2024 – 07 July 2024 to ensure that the assessment of impacts and proposed management of impacts addressed their concerns. Comments received during the 30-day comment period (from the Draft EIA review) are incorporated into this report, to be submitted to DMR for decision-making.



## Details of the Applicant

Table 1: Details of the Applicant

<b>Name of Applicant:</b>	Gomeza Trading (Pty) Ltd		
<b>Registration number (if any):</b>	2016/408745/07		
<b>Trading name (if any):</b>	Gomeza Trading (Pty) Ltd		
<b>Contact person:</b>	Vutomi Sight Siweya		
<b>Physical address:</b>	No 35 Lantana Str, Meyersdal Nature Estate, 1448		
<b>Postal address:</b>	No 35 Lantana Str, Meyersdal Nature Estate, 1448		
<b>Postal code:</b>	1448	<b>Cellphone:</b>	+27 83 379 8857
<b>Telephone:</b>	+27 83 379 8857	<b>Fax:</b>	0
<b>Email:</b>	vutomi@gomeza.co.za		

## Environmental Consultants

Vahlangwe Mining Advisory and Consulting (Pty) Ltd is the appointed independent Environmental Assessment Practitioner (EAP) to conduct the Environmental Impact Assessment Process for the proposed Prospecting Right application of Diamond and Sand in respect of portion 1 of the farm Biesjesbult no.96 and portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province.

Table 2: Details of the EAPs

<b>Company name:</b>	Vahlangwe Mining Advisory and Consulting (Pty) Ltd
<b>Contact person:</b>	Nonhlanhla N Mogakane
<b>Physical address:</b>	238 Voster Ave, Glenvista Extension 3, Johannesburg South, 2058
<b>Telephone:</b>	+2711 432 0062
<b>Email:</b>	<a href="mailto:info@vahlangweadvisory.co.za">info@vahlangweadvisory.co.za</a>

## Public Participation Process Methodology

A Public Participation Process (PPP) was initiated during the Scoping phase. It was undertaken as required in terms of regulation 41 of the EIA Regulations, 2014 (as amended), promulgated under NEMA. During the undertakings of the PPP, the environmental and social impacts are investigated, and all stakeholders affected by the project are afforded an opportunity to comment, raise concerns and contribute to the assessment to ensure that local knowledge, needs, and values are taken into consideration throughout the process.

During the EIA Phase, the following was undertaken, to provide opportunities for stakeholders to identify issues of concern and provide input on the application process:

- All landowners directly affected by the proposed project were identified and encouraged

to participate in the EIA process through hand delivery information [BID, Advert].

- Distribution of the draft EIA/EMPr Report which also served as a Background Information Document and Comment Sheet to all registered and identified I&APs.
- Placement of statutory advertisements in Noordkap Bulletins Newspaper on the **06<sup>th</sup> of June 2024**;
- Erection of On-Site Notice Boards at various locations within the study area.
- The draft EIA/EMPr Report was made available for public review and comment for a period of 30 days from **06 June 2024 to 07 July 2024**; and
- A public meeting with the interested and affected parties to discuss the draft EIA/EMPr Report was held at Plooyburg Intermediate Skool on the 24<sup>th</sup> of June 2024.

## Table of Contents

<b>1. Introduction.....</b>	<b>1</b>
<b>2. Contact Person and correspondence address. ....</b>	<b>2</b>
<b>2.1. Details of the EAP.....</b>	<b>2</b>
<b>2.2. Expertise of the EAP .....</b>	<b>2</b>
<b>2.2.1. The qualifications of the EAP (with evidence as Appendix 1) .....</b>	<b>2</b>
<b>3. Location of the overall Activity .....</b>	<b>4</b>
<b>4. Locality map.....</b>	<b>6</b>
<b>5. Description of the scope of the proposed overall activity .....</b>	<b>6</b>
<b>5.1. Operating Method.....</b>	<b>7</b>
<b>5.2. Project Activities .....</b>	<b>8</b>
<b>5.3. Listed and Specified Activities .....</b>	<b>10</b>
<b>6. Policy and Legislative Context .....</b>	<b>12</b>
<b>7. Need and desirability of the proposed activities. ....</b>	<b>19</b>
<b>8. Motivation for the overall preferred site, activities, and technology alternative .....</b>	<b>19</b>
<b>9. Full description of the process followed to reach the proposed preferred alternatives within the site. ....</b>	<b>21</b>
<b>9.1. Details of the development footprint alternatives considered.....</b>	<b>21</b>
<b>9.1.1. The property on which or location where the activity is proposed to be undertaken; . ....</b>	<b>21</b>
<b>9.1.2. The type of activity to be undertaken;.....</b>	<b>21</b>
<b>9.1.3. The design or layout of the activity;.....</b>	<b>21</b>
<b>9.1.4. The technology to be used in the activity;.....</b>	<b>22</b>
<b>9.1.5. The operational aspects of the activity; and.....</b>	<b>22</b>
<b>9.1.5. The option of not implementing the activity. ....</b>	<b>22</b>
<b>9.2. Details of the Public Participation Process Followed .....</b>	<b>23</b>
<b>9.3. Summary of issues raised by I&amp;APs .....</b>	<b>26</b>
<b>9.4. The Environmental attributes associated with the alternatives. ....</b>	<b>34</b>
<b>9.4.1. Baseline Environment .....</b>	<b>34</b>
<b>10. Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;.....</b>	<b>55</b>
<b>10.1. Criteria to Consider when Determining Severity of impacts: .....</b>	<b>55</b>
<b>10.1.1. The positive and negative impacts that the proposed activity and alternatives will have on the environment and the community that may be affected .....</b>	<b>60</b>
<b>10.1.2. The possible mitigation measures that could be applied and the level of risk.....</b>	<b>63</b>
<b>10.1.3. Motivation where no alternative sites were considered.....</b>	<b>63</b>
<b>10.1.4. Statement motivating the alternative development location within the overall site.</b>	

<b>10.2. Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site .....</b>	<b>63</b>
<b>11. Assessment of each identified potentially significant impact and risk .....</b>	<b>72</b>
<b>12. Summary of specialist reports.....</b>	<b>78</b>
<b>13. Environmental impact statement.....</b>	<b>84</b>
<b>13.1. Summary of the key findings of the environmental impact assessment; .....</b>	<b>84</b>
<b>13.2. Final Site Map .....</b>	<b>85</b>
<b>13.3. Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives; .....</b>	<b>86</b>
<b>13.4. Proposed impact management objectives and the impact management outcomes for inclusion in the EMP; .....</b>	<b>87</b>
<b>13.5. Final Proposed Alternatives .....</b>	<b>88</b>
<b>13.6. Aspects for inclusion as conditions of Authorisation. ....</b>	<b>88</b>
<b>13.7. Description of any assumptions, uncertainties, and gaps in knowledge.....</b>	<b>88</b>
<b>13.8. Reasoned opinion as to whether the proposed activity should or should not be authorised.....</b>	<b>88</b>
<b>13.8.1. Reasons why the activity should be authorized or not. ....</b>	<b>88</b>
<b>13.8.2. Conditions that must be included in the authorisation .....</b>	<b>89</b>
<b>13.9. Period for which the Environmental Authorisation is required.....</b>	<b>89</b>
<b>13.10. Undertaking: .....</b>	<b>89</b>
<b>13.11. Financial Provision: .....</b>	<b>90</b>
<b>13.11.1. Explain how the aforesaid amount was derived.....</b>	<b>90</b>
<b>14. Deviation from the Approved Scoping Report and Plan of Study.....</b>	<b>91</b>
<b>14.1. Deviations from the methodology used in determining the significance of potential environmental impacts and risks .....</b>	<b>91</b>
<b>14.2. Motivation for the deviation.....</b>	<b>91</b>
<b>15. Other Information required by the Competent Authority .....</b>	<b>91</b>
<b>15.1. Impact on the socio-economic conditions of any directly affected person. ....</b>	<b>91</b>
<b>15.2. Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. ....</b>	<b>91</b>
<b>16. Other matters required in terms of sections 24(4) (a) and (b) of the Act. ....</b>	<b>92</b>
<b>17. Environmental Management Programme Introduction. ....</b>	<b>94</b>
<b>17.1. Details of the EAP,.....</b>	<b>94</b>
<b>17.2. Description of the Aspects of the Activity. ....</b>	<b>94</b>
<b>17.3. Composite Map.....</b>	<b>94</b>
<b>18. Description of Impact Management Objectives Including Management Statements..</b>	<b>95</b>
<b>18.1. Determination of closure objectives .....</b>	<b>95</b>
<b>18.2. The process of managing environmental impacts .....</b>	<b>96</b>
<b>18.3. Potential risk of Acid Mine Drainage .....</b>	<b>97</b>

<b>18.4. Steps taken to investigate, assess and evaluate the impact of Acid Mine Drainage</b>	
97	
<b>18.5. Measures to be put in place to remedy any residual or cumulative impacts from acid mine drainage</b>	<b>97</b>
<b>18.6. Volumes and rate of water use required for the operation.</b>	<b>97</b>
<b>18.7. Has a water use licence been applied for?</b>	<b>97</b>
<b>18.8. Impacts to be mitigated in their respective phases</b>	<b>98</b>
<b>18.9. Impact management actions and outcomes</b>	<b>103</b>
<b>19. Financial Provision</b>	<b>106</b>
<b>19.1. Determination of the amount of Financial Provision</b>	<b>106</b>
<b>19.1.1. Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.</b>	<b>106</b>
<b>19.1.2. Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.</b>	<b>106</b>
<b>19.1.3. Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.</b>	<b>106</b>
<b>19.1.4. Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.</b>	<b>107</b>
<b>19.1.5. Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.</b>	<b>107</b>
<b>19.1.6. Confirm that the financial provision will be provided as determined.</b>	<b>107</b>
<b>20. Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including</b>	<b>108</b>
<b>20.1. Monitoring of Impact Management Actions</b>	<b>108</b>
<b>20.2. Monitoring and reporting frequency</b>	<b>108</b>
<b>20.3. Responsible persons</b>	<b>108</b>
<b>20.4. Time period for implementing impact management actions.</b>	<b>108</b>
<b>20.5. Mechanism for monitoring compliance</b>	<b>108</b>
<b>21. Indicate the frequency of the submission of the performance assessment/ environmental audit report.</b>	<b>110</b>
<b>22. Environmental Awareness Plan</b>	<b>111</b>
<b>22.1. Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.</b>	<b>111</b>
<b>22.2. Manner in which risks will be dealt with to avoid pollution or degradation.</b>	<b>116</b>
<b>23. Specific information required by the Competent Authority</b>	<b>116</b>
<b>24. Undertaking</b>	<b>117</b>

## LIST OF TABLES

Table 1: Details of the Applicant. ....	.viii
Table 2: Details of the EAPs .....	.viii
Table 3: Details of EAP.....	.2
Table 4: Expertise of EAP.....	.2
Table 5: Details of the Overall Activity Location. ....	.4
Table 6: Listed and Specified Activities.....	.10
Table 7: Policy and Legislative Context. ....	.12
Table 8: Summary of issues raised by I&APs .....	.26
Table 9: Consequences and Significance Rating.....	.56
Table 10: Impacts and Significance.....	.58
Table 11: Positive and negative impacts of the proposed activity.....	.61
Table 12: Likelihood rating system.....	.65
Table 13: Risk Analysis Matrix. ....	.65
Table 14: Identified and assessed impacts and risks the activity will impose on the preferred site.....	.67
Table 15: Assessment of the potentially significant impact and risk .....	.72
Table 16: Environmental Sensitivity of the proposed area .....	.78
Table 17: Summary of specialist reports. ....	.79
Table 18: Summary of specialist reports. ....	.84
Table 19: Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives .....	.86
Table 20: Closure components to the prospecting activities .....	.90
Table 21: Measures to rehabilitate the environment affected by the undertaking of any listed activity .....	.98
Table 22: Impacts management actions and outcomes .....	.103
Table 23: Compliance monitoring and frequency .....	.108

## LIST OF FIGURES

Figure 1: Cadastral Map .....	5
Figure 2: Locality map of the proposed area.....	6
Figure 3: Site plan map of the proposed area.....	11
Figure 4: Municipality Boundaries.....	34
Figure 5: Average climatic conditions for Kimberley.....	35
Figure 6: Wind Rose for Kimberley.....	36
Figure 7: Geology of Pixley Ka Seme Municipal District.....	37
Figure 8: Geology of the Application Area.....	38
Figure 9: Topographical Map of application area .....	39
Figure 10: Water Management Area Map .....	40
Figure 11: Quaternary Catchment .....	41
Figure 12: Hydrological Map of Application Area .....	42
Figure 13: Vegetation map of application area .....	44
Figure 14: Conservation Map of application area .....	46
Figure 15: Demographic information of SLM .....	47
Figure 16: Population group distribution of SLM.....	47
Figure 17: Age distribution of SLM .....	48
Figure 18: SLM language distribution .....	48
Figure 19: SLM Education Profile .....	48
Figure 20: Household services of SLM .....	45
Figure 21: SLM annual household income & household goods .....	49
Figure 22: Land use of the site .....	51
Figure 23: Environmental and Current Land use map .....	52
Figure 24: Final site plan .....	85
Figure 25: Composite map. ....	94

## **LIST OF APPENDICES**

Appendix 1: CV of the EAP

Appendix 2: Maps

Appendix 2A: Locality map and Regulation 2 (2)

Appendix 2B: Site plan map

Appendix 2C: Environmental and Land use map

Appendix 2D: Composite map

Appendix 3: Public Participation Process

Appendix 3A: Background Information Document

Appendix 3B: Interested and Affected Parties Registration Form

Appendix 3C: Proof of Newspaper Advert

Appendix 3D: Site Notice Report

Appendix 3E: I&APs Database

Appendix 3F: Comments and Response Report (CRR)

Appendix 3G: Public Consultation Meeting Document

Appendix 3H: Proof of Consultation with State Departments

Appendix 4: Environmental Sensitivity Screening Report

Appendix 5: Specialist Studies Reports



## **1. Introduction**

Gomez Trading proposes to undertake Diamond and Sand prospecting activities in respect of Portion 1 of the farm Biesjesbult no.96 and Portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. The site is located approximately 5.47 km North-East of Plooyburg, 29km North-West of Ritchie town and 50km South-West of Kimberly town.

Gomez Trading has appointed VahleNgwe Mining Advisory and Consulting (Pty) Ltd as the independent Environmental Assessment Practitioner (EAP) to conduct the environmental authorisation process. The proposed prospecting activities will include non-invasive and invasive techniques. The planned invasive activities entail trenching. The excavation will involve the trenching of five trenches, each with dimensions of 50 meters by 20 meters by 4 meters. Trenching locations cannot be considered at this stage because prospecting trenches can only be sited after desktop assessment, field mapping, and geophysical survey have been completed. The principle of sampling is to determine the quality and grade of the diamonds as well as the depth and extent at which the gravel is found. Gravel Thickness is expected to be 4m (i.e 5 000m<sup>3</sup>). Bulk sampling will be done by using machinery as well as labour. Excavators and rigid haul trucks will be used to remove the topsoil as well as possible diamondiferous gravel deposit where it then goes through a scrubber and is stockpiled.

The prospecting activities will be undertaken in four (4) phases for a total duration of 60 months, thus five (5) years. The prospecting right will be subjected to the renewal of another three (3) years should the prospecting programme not be completed within the first term of granting.

The proposed prospecting project triggers activities listed in Listing Notice 2 of the NEMA, and Environmental Impact Assessment process in terms of NEMA Government Notice Regulation (GNR) 982 (as amended) is required. The environmental impacts of the proposed project activities were determined by first identifying the environmental aspects and then conducting an environmental sensitivity assessment to identify the significant environmental aspects. The environmental impact assessment considered all phases of the project, including the site establishment, operational, rehabilitation and closure. The rating system used is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact.

## 2. Contact Person and correspondence address.

### 2.1. Details of the EAP

Table 3: Details of the EAP

<b>Company name:</b>	Vahlegwe Mining Advisory and Consulting (Pty) Ltd
<b>Contact person:</b>	Nonhlanhla N Mogakane
<b>Physical address:</b>	238 Voster Ave, Glenvista Extension 3, Johannesburg South, 2058
<b>Telephone:</b>	+27 11 432 0062
<b>Email:</b>	<a href="mailto:info@vahlegweadvisory.co.za">info@vahlegweadvisory.co.za</a>

### 2.2. Expertise of the EAP

#### 2.2.1. The qualifications of the EAP (with evidence as Appendix 1)

This section describes the EAP's qualifications and experience for the proposed Project. Appendix A contains the EAPs' curriculum vitae and degrees.

Table 4: Expertise of the EAP

<b>NAME</b>	Nonhlanhla V Mogakane
<b>QAULIFICATIONS</b>	BSc Hons Environmental Management
<b>RESPONSIBILITY ON PROJECT</b>	Project Reviewer
<b>PROFESSIONAL REGISTRATION</b>	EAPASA (Reg. No. 2022/6057) SACNASP (124022)
<b>EXPERIENCE</b>	Nonhlanhla is an environmental specialist with extensive multi sector experience and proven track record. She has over the years worked with both government and private sectors. She specialises in a wide range of areas, including mining, manufacturing, agribusiness, construction, and town planning etc. She obtained a BSc degree in Life and Environmental Science from the University of Johannesburg and thereafter, obtained an honours degree in Environmental Management from the University of South Africa, with research focusing on the investigation of ambient air quality and fugitive dust emissions around gold mine dumps in the context of South African legislative frameworks. This then sparked an interest in research, legislative & policy framework, as well as air quality and associated emissions within the industry. She has over the years acquired vast experience in air quality, carbon and the sustainability field which enabled her to provide services on various projects in different sectors. However, as an environmental consulting specialist, the experience spans beyond air quality and carbon accounting, she has considerable experience in the following fields: Environmental Authorisations, Compliance Auditing (ISO Management Systems as well as Licence Requirements), Water Resource Management & WULA, Waste Management, Socio Economic Specialist Studies, Ambient Noise Monitoring and GIS for Environmental Data analytical purposes. She is currently completing a degree in BCom Law. her inspiration to embark on this journey was inspired by the ESG principles and standards. Having extensive emission and carbon accounting expertise, the need to up-skill and improve governance and commercial knowledge became critical to enabling a holistic approach to sustainability, ESG and climate change adaptation in a developing

	country. The experience outlined above creates the perfect skill set for an integrated approach to sustainability management and climate change adaptation, which is both socially inclusive and economically sustainable.
<b>NAME</b>	Cecil Dau
<b>QUALIFICATIONS</b>	Bachelor of Earth Sciences in Mining and Environmental Geology
<b>RESPONSIBILITY ON PROJECT</b>	Report Compiler
<b>PROFESSIONAL REGISTRATION</b>	EAPASA Candidate (Reg. No. 2021/4434) SACNASP Candidate (154069)
<b>EXPERIENCE</b>	Cecil Dau is an environmental professional who has more than three (3) years of experience working in the Environmental Management field. He has more than one (1) year working as an Environmental Assessment Practitioner (EAP), two (2) years working as an Environmental Officer (Intern) at Gauteng Department of Agriculture and Rural Development, where he was processing applications received in terms of Section 24G of NEMA. He also worked as a Research Assistant Graduate for Water Research Commission. He is a seasoned Environmental Assessment Practitioner with a thorough understanding of the potential environmental and social impacts of mining activities in a variety of environmental settings. In the mining and environmental sectors, he has performed environmental assessments (BAR and S&EIR), Water Use Licence Application (WULA), and environmental compliance auditing. His core competencies include research and report writing, specialist report review and environmental impact assessment.
<b>NAME</b>	Dimakatso Leholi
<b>QUALIFICATIONS</b>	Diploma in Environmental Sciences
<b>RESPONSIBILITY ON PROJECT</b>	Report Compiler
<b>EXPERIENCE</b>	Dimakatso Leholi is an environmental sciences graduate who has two (2) years of experience working in the Environmental Sciences field. She has 10 months working as an Environmental Education Facilitator, 10 months as a Safety Health and Environment Consultant for a steel manufacturing company where she was implementing the ISO systems. The systems were ISO 14001 and ISO 45001 also doing monthly factory inspections. She currently has three (3) months experience as an Environmental Management Consultant intern with a thorough understanding of the potential environmental and social impacts of mining activities in a variety of environmental settings. In the mining and environmental sectors, she has performed environmental assessments (S&EIR) and environmental compliance auditing. Her core competencies include research and report writing, map making, specialist report review and environmental impact assessment.

### 3. Location of the overall Activity

The proposed prospecting right area is located on Portion 1 of the Farm Biesjesbult no.96 and Portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. The site is located approximately 5.47 km North-East of Plooyburg, 29km North-West of Ritchie town and 50km South-West of Kimberly town.

Table 5: Details of the overall activity location

<b>Farm Name:</b>	Portion 1 of the farm Biesjesbult no.96 and Portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province.
<b>Application area (Ha)</b>	3109.69 ha
<b>Administrative district:</b>	Herbert Municipal District, Northern Cape
<b>Distance and direction from nearest town</b>	The site is located approximately 5.47 km North East of Plooyburg , 29km North West of Ritchie town and 50km Southwest of Kimberly town within the Administrative District of Herbert, Northern Cape Province
<b>21-digit Surveyor General Code for each farm portion</b>	C0320000000000960001 C0320000000000990002 C0320000000000990003

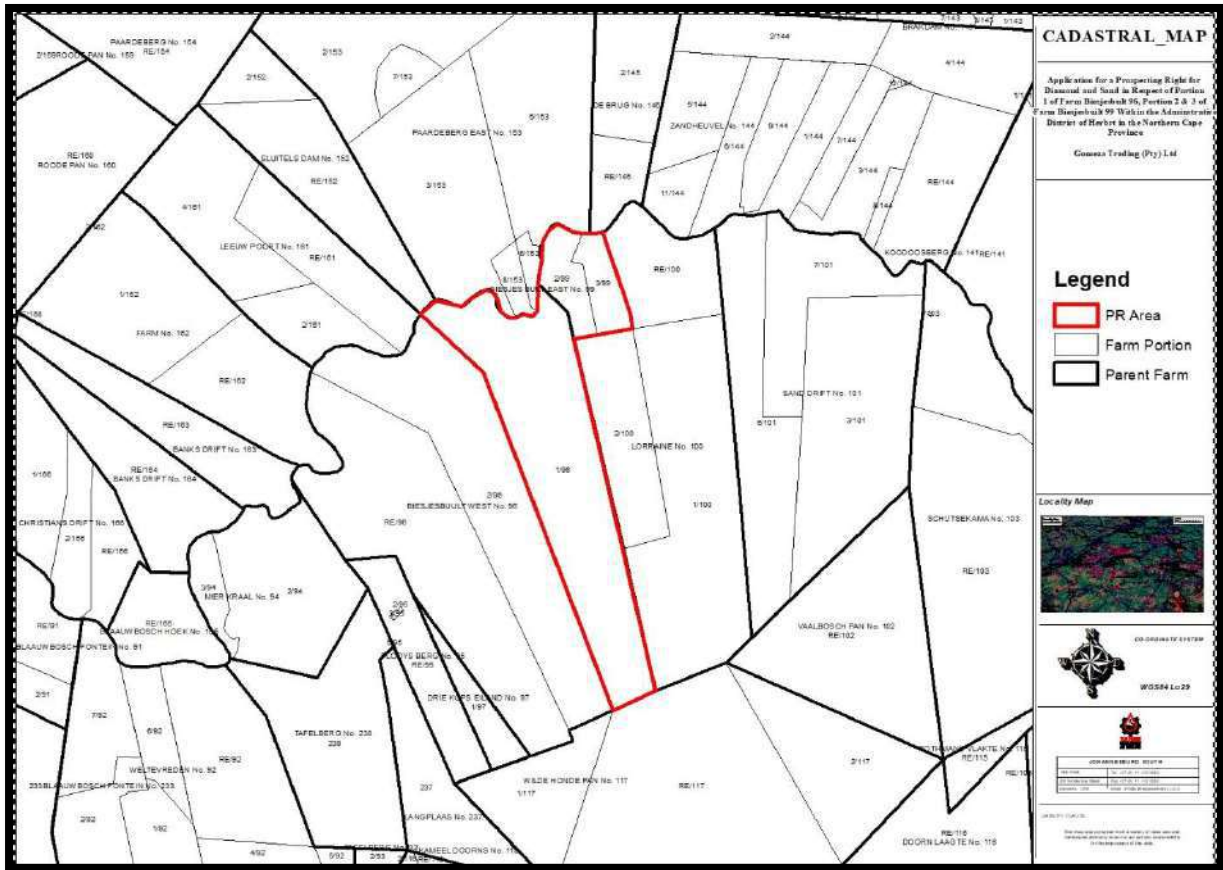


Figure 1: Cadastral Map

#### 4. Locality map

Attach a locality map at a scale not smaller than 1:250000 showing the nearest town and attach as **Appendix 2**

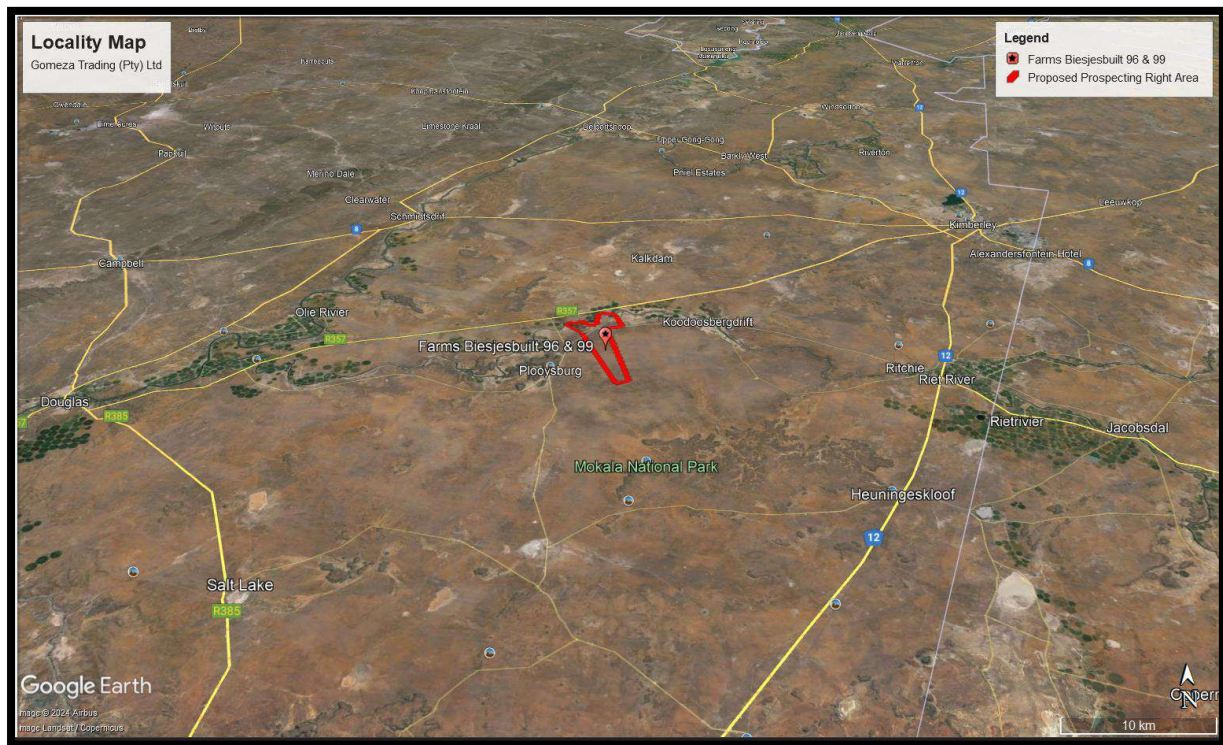


Figure 2: Locality map of the proposed area

#### 5. Description of the scope of the proposed overall activity

Attach a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site.

The proposed prospecting right application is for the prospecting of Diamond and Sand in respect of of Portion 1 of the Farm Biesjesbult no.96 and Portion 2 and 3 of the Farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province, covering an area extent of 3109.69 ha. The site is located approximately 5.47 km Northeast of Plooyburg, 29km Northwest of Ritchie town and 50km Southwest of Kimberly town. The proposed activities on site are as follows:

- **Site Establishment**

The applicant intends to utilize a bulldozer to clear vegetation for site establishment and the construction of the access roads.

- **Access Roads**

Existing roads will be utilized as far as possible, and areas of the least sensitivity will be chosen for access roads to the trenching sites.

- **Trenching**

The excavation will involve the trenching of five trenches, each with dimensions of 50 meters by 20 meters by 4 meters. Trenching locations cannot be considered at this stage because prospecting trenches can only be sited after desktop assessment, field mapping, and geophysical survey have been completed. The principle of sampling is to determine the quality and grade of the diamonds as well as the depth and extent at which the gravel is found. Gravel Thickness is expected to be 4m (i.e 5 000m<sup>3</sup>). Bulk sampling will be done by using machinery as well as labour. Excavators and rigid haul trucks will be used to remove the topsoil as well as possible diamondiferous gravel deposit where it then goes through a scrubber and is stockpiled.

- **Processing operations**

For processing diamondiferous gravel, two by sixteen-foot rotary pans will be used. All the material with a diameter of less than 0.5 mm will be dumped into the tailings dam once the diamondiferous material has been filtered. The larger diamondiferous gravels will be processed in an 18-foot rotational pan processing machine called a Dense Medium Separator (DMS).

### 5.1. Operating Method

- **Trenching**

The excavation will involve the trenching of five trenches, each with dimensions of 50 meters by 20 meters by 4 meters. Trenching locations cannot be considered at this stage because prospecting trenches can only be sited after desktop assessment, field mapping, and geophysical survey have been completed. The principle of sampling is to determine the quality and grade of the diamonds as well as the depth and extent at which the gravel is found. Gravel Thickness is expected to be 4m (i.e 5 000m<sup>3</sup>). Bulk sampling will be done by using machinery as well as labour. Excavators and rigid haul trucks will be used to remove the topsoil as well as possible diamondiferous gravel deposit where it then goes through a scrubber and is stockpiled.

- **Processing operations**

For processing diamondiferous gravel, two by sixteen-foot rotary pans will be used. All the material with a diameter of less than 0.5 mm will be dumped into the tailings dam once the diamondiferous material has been filtered. The larger diamondiferous gravels will be

processed in an 18-foot rotational pan processing machine called a Dense Medium Separator (DMS).

- **Power supply**

Diesel powered vehicles and machinery will be used for the proposed project.

- **Water Supply**

Water is anticipated to be trucked to the designated trenching sites and taken onto the property. As needed, water bowsers will be sent to the locations.

- **Waste management**

The waste will be generated from the operation include the general, scrap and hazardous waste. The waste is intended to be handled, separated, stored and disposed of accordingly.

The following waste types are generated at the operation:

General waste will include;

- Domestic Waste;
- Paper;
- Plastic;
- Cardboards;
- Tins; and
- Glass.

Hazardous Waste include oil storages and spillages from vehicles and equipment that requires a proper clean up and disposal. All hazardous waste will be removed offsite by a hazardous waste contractor who will issue a safe disposal certificate for the removal of hazardous waste as proof of safe disposal. The scrap waste produced consist of scrap metals, vehicle old parts and plant part generated during the fixing and maintenance. The scrap waste will also be collected by a contractor who dispose the waste at the appropriate scrap waste facilities and provides certificate of collection and disposal. The general waste is collected by the municipality and disposed the municipality landfill site.

## **5.2. Project Activities**

- **Site Establishment**

The applicant intends to utilize a bulldozer to clear vegetation for site establishment and the construction of the access roads.

- **Access Roads**



Existing roads will be utilized as far as possible, and areas of the least sensitivity will be chosen for access roads to the trenching sites.

- **Trenching**

The excavation will involve the **trenching** of five trenches, each with dimensions of 50 meters by 20 meters by 4 meters. Trenching locations cannot be considered at this stage because prospecting trenches can only be sited after desktop assessment, field mapping, and geophysical survey have been completed. The principle of sampling is to determine the quality and grade of the diamonds as well as the depth and extent at which the gravel is found. Gravel Thickness is expected to be 4m (i.e 5 000m<sup>3</sup>). Bulk sampling will be done by using machinery as well as labour. Excavators and rigid haul trucks will be used to remove the topsoil as well as possible diamondiferous gravel deposit where it then goes through a scrubber and is stockpiled.

- **Processing operations**

For processing diamondiferous gravel, two by sixteen-foot rotary pans will be used. All the material with a diameter of less than 0.5 mm will be dumped into the tailings dam once the diamondiferous material has been filtered. The larger diamondiferous gravels will be processed in an 18-foot rotational pan processing machine called a Dense Medium Separator (DMS).

### **Rehabilitation**

The concurrent rehabilitation will be conducted as far as possible at areas where trenching is complete. The final rehabilitation operation will include the following:

- Revegetation of the disturbed vegetation;
- Contouring the land to restore the natural drainage system;
- Rehabilitation of access roads;
- Rehabilitation of overburden and spoils;
- Rehabilitation of settling ponds; and
- General surface rehabilitation.

### **Decommissioning.**

The decommissioning phase will involve the following:

- Removal of infrastructure that can be used elsewhere

- Dismantling of processing plant and related structures
- Removal of the mobile containers;
- Final rehabilitation of the prospecting area footprint and all disturbed areas; and
- The general clean-up of all the redundant infrastructure.

### 5.3. Listed and Specified Activities

Activities associated with the proposed prospecting activities are identified as in the Listed Activities in the Listing Notice 2, Activity No. 19 of the NEMA Regulations GN R984 (as amended), which states that:

The removal and disposal of a mineral, which requires a permission in terms of section 20 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the permission.

The proposed activities also trigger Activity No. 27 of the EIA Regulations GN R983 (as amended), which states that: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-

- (i) the undertaking of a linear activity; or
- (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

Table 6: Listed Activities

<b>NAME OF ACTIVITY</b>	<b>AERIAL EXTENT OF THE ACTIVITY (HA OR M<sup>2</sup>)</b>	<b>APPLICABLE LISTING NOTICE</b> <i>GN R 983, GN R 984 or GN R 985 (as amended)</i>
Prospecting Right Application Area	3109.69 ha	GNR 984(as amended)
Planned invasive of 5 trenches at 50m length, 25m Breadth and 4m Depth.	25 000 m <sup>3</sup>	GNR 984(as amended)
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation	2,605	GNR 983 (as amended)
Site clearing (30m x 30m)	0.09 ha	Not Listed
Processing plant	0.015ha	Not Listed
Settling dams	0.25 ha	Not Listed
Geophysical survey	3109.69 ha	Not Listed
Geological field mapping	3109.69 ha	Not Listed
Access road (3m x 50m)	150m <sup>2</sup>	Not Listed

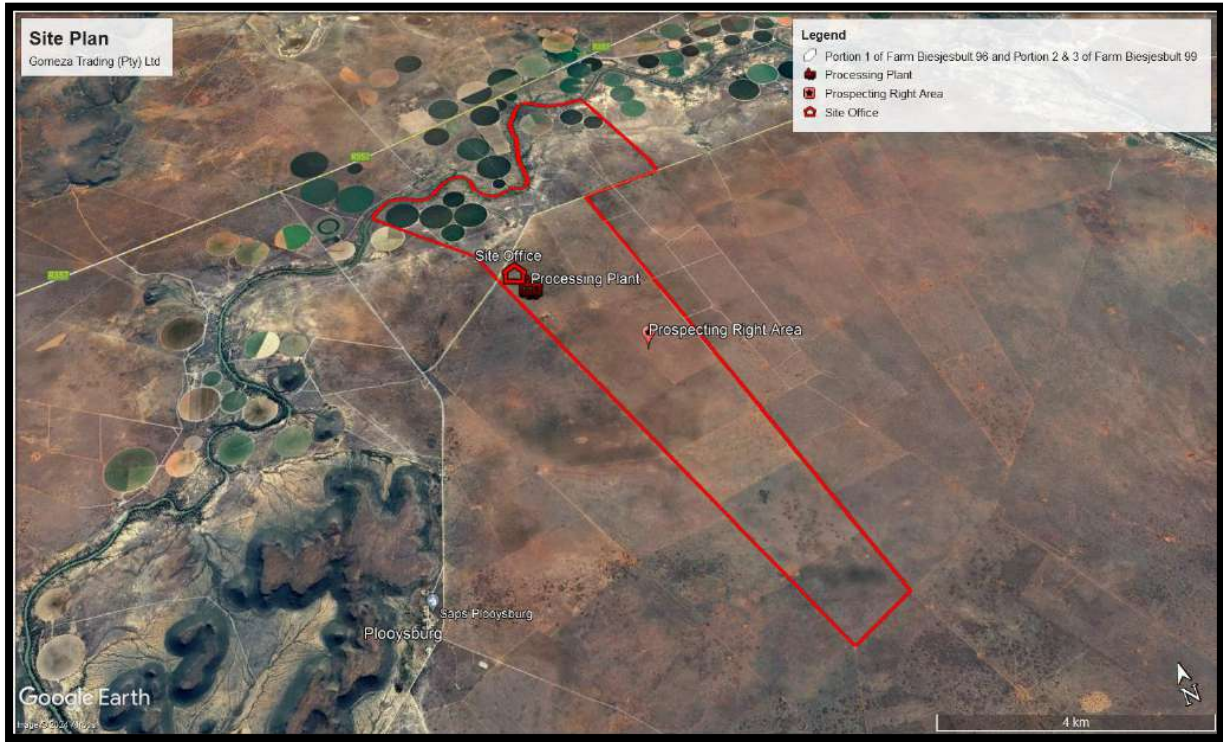


Figure 3: Site plan of the proposed area

## 6. Policy and Legislative Context

Table 7: Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied
<p><b><u>The Constitution of the Republic of South Africa, 1996</u></b></p> <p>Under Section 24 of the Constitution of the Republic of South Africa, 1996 (the Constitution) it is clearly stated that:</p> <p>Everyone has the right to</p> <p>a) an environment that is not harmful to their health or well-being; and</p> <p>b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -</p> <p>(i) Prevent pollution and ecological degradation;</p> <p>(ii) Promote conservation; and</p> <p>(iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</p>	<p>Vahlegwe Mining Advisory and Consulting is undertaking an EIA process to identify and determine the potential impacts associated with the proposed prospecting activities. Mitigation measures recommended will aim to ensure that the potential impacts are managed to acceptable levels to support the rights as enshrined in the Constitution.</p>
<p><b><u>National Environmental Management Act, 1998 (Act No. 107 of 1998) and EIA Regulations (as amended in 2017)</u></b></p> <p>The Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) (as amended) was set in place in accordance with Section 24 of the Constitution. Certain environmental principles under NEMA must be adhered to, to inform decision making for issues affecting the environment.</p> <p>Section 24 (1)(a) and (b) of NEMA state that:</p>	<p>Activities associated with the proposed prospecting activities are identified as in the Listed Activities in the Listing Notice 2, Activity No. 19 of the NEMA Regulations GN R984 (as amended).</p> <p>The proposed project also triggers Activity 27 of the NEMA Regulations GN 983 (as amended)</p>



<p>The potential impact on the environment and socio-economic conditions of activities that require authorization or permission by law and which may significantly affect the environment, must be considered, investigated, and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity.</p> <p>The EIA Regulation, 2014 was published under GN R 326 on 07 April 2017 (EIA Regulations) and came into effect on 07 April 2017. Together with the EIA Regulations, the Minister also published GN R 327 (Listing Notice No. 1), GN 325 (Listing Notice No. 2) and GN R 324 (Listing Notice No. 3) in terms of Sections 24(2) and 24D of the NEMA, as amended.</p>	
<p><b><u>The National Forestry Act, 1998 (Act No. 84 of 1998) (NFA)</u></b></p> <p>The Act regulates the management, conservation and utilisation of state and private forests in South Africa. Section 15(1) of the NFA states that no person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree, except under a license granted by the Minister; or in terms of an exemption published by the Minister.</p>	<p>Given the localized and temporary nature of biodiversity impacts anticipated, it is anticipated that specialist studies may not be necessary. Should any protected trees be affected by the project, Gomeza Trading (Pty) Ltd will apply for the necessary permits to either relocate or remove them.</p>
<p><b><u>Northern Cape Nature Conservation Act, 2009 (Act No.9 of 2009)</u></b></p> <p>The Act provides for the sustainable utilisation of wild animals, aquatic biota and plants; to provide for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; to provide for offences and penalties for contravention of the Act; to provide for the appointment of nature conservators to implement the provisions of the Act; to provide for the issuing of permits and other authorisations; and to provide for matters connected therewith.</p>	<p>The anticipated impacts of the proposed project are expected to be localized and kept at a moderate level through the implementation of mitigation and management measures. Acquisition of Flora and Fauna Permits from the Northern Cape Department of Agriculture, Rural Development and Land Reform (DAERL) will be necessary in cases where provincially protected or specially protected plant and animal species might be disturbed.</p>

<p><b><u>Mineral and Petroleum Resource Development Act, 2002 (Act No. 28 of 2002)</u></b></p> <p>The Act makes provision for equitable access to and sustainable development of the nation’s mineral and petroleum resources; and provide for matters connected therewith.</p> <p>Mineral and Petroleum Resource Development Act, 2002 (Act No. 28 of 2002): Mineral and Petroleum Resource Development Regulations GNR 527 of 2004;</p> <p>Section 7 (1). The prospecting work programme must contain:-</p> <p>(f). a description of how the mineral resource and mineral description of the prospecting area will be determined throughout – (i) the prospecting work to be performed;</p> <p>(ii) a geological survey to be carried out; and</p> <p>(iii). A geophysical survey to be undertaken.</p> <p>(g). a description of the prospecting method or methods to be implemented that may include -(i) Any excavations, trenching, pitting, and drilling to be carried out;</p> <p>(ii) Any bulk sampling and testing to be carried out; and</p> <p>(iii) Any other prospecting methods to be applied.</p>	<p>The proposed project is applied for in terms of Section 16 and permission to remove and dispose of mineral in terms of Section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (as amended) (MPRDA) and the planned activities are according to the scope of the PWP in terms of the Mineral and Petroleum Resource Development Act, 2002 (Act No. 28 of 2002): Mineral and Petroleum Resource Development Regulations GNR 527 of 2004.</p>
<p><b><u>National Environmental Management: Air Quality Act, 2004 (Act 39 Of 2004)</u></b></p> <p>The National Environmental Management: Air Quality Act, 2004 (No. 39 of 2004) (NEM: AQA) governs all aspects of air quality, including pollution prevention, national norms and standards, and the requirement for an Atmospheric Emissions Licence (AEL) for listed activities that emit pollutants into the atmosphere and have or may have a significant negative impact on the environment. Activities requiring an AEL are listed in GN No. 893 (22 November 2013), which was published in accordance with Section 21(1) ((b) of the NEM: AQA. According to Section 22 of NEM: AQA, no one may engage in a listed activity without an AEL.</p>	<p>The prospecting operation will not be conducting activities that may require the application for an AEL. Regulation 2 of NEMAQA: National Dust Control Regulations GN R827 (01 November 2013) indicates that the purpose of the Act is to prescribe general measures for the control of dust in all areas. Therefore, Gomeza will be required in terms of Regulation 6 and 7 of the Act to implement measures for</p>

	controlling dust and conducting an Ambient Air Quality Monitoring PM <sub>10</sub> respectively.
<p><b><u>National Water Act, 1998 (Act No. 36 of 1998) (NWA)</u></b></p> <p>The NWA ensures that water resources are used and protected in a sustainable and equitable manner. It is based on the principle that the National Government has overall responsibility and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, and that a person can only be entitled to use water if the use is permitted by the NWA.</p> <p>GN R 704 was published in June 1999 and aims to regulate the use of water for mining and related activities for the protection of water resources and states the following:</p> <ul style="list-style-type: none"> <li>• Regulation 4: No residue deposit, reservoir or dam may be located within the 1:100-year flood line, or less than a horizontal distance of 100 m from the nearest watercourse. Furthermore, person(s) may not dispose of any substance that may cause water pollution;</li> <li>• Regulation 5: No person(s) may use substances for the construction of a dam or impoundment if that substance will cause water pollution;</li> <li>• Regulation 6 is concerned with the capacity requirements of clean and dirty water systems, and</li> <li>• Regulation 7 details the requirements necessary for the protection of water resources.</li> </ul>	<p>The proposed prospecting project requires a WULA in terms of Section 21 of the NWA. All water management infrastructure will be designed to withstand a 24-hour rainfall event that occurs once every 1,000 years.</p> <p>A WULA will be compiled and submitted to the DWS as the decision-making authority in accordance with Section 21 of the NWA. The EIA process has assessed the potential impacts of prospecting activities on groundwater resources.</p>
<p><b><u>National Environmental Management: Waste Act, 2008</u></b></p> <p>The National Environmental Management: Waste Act of 2008 (No. 59 of 2008) (NEM: WA) governs all aspects of waste management, with a focus on waste avoidance and minimization. NEM: WA developed a system for categorizing and licensing waste management activities. Listed waste management activities that exceed</p>	<p>The prospecting activities will not be generating waste that will trigger or require the application of the Waste Management License in terms of the NEMWA. However, Gomeza must ensure that the waste generated must be</p>

<p>certain thresholds are subject to an impact assessment and licensing process. Activities in Category A necessitate a Basic Assessment, whereas activities in Category B necessitate a Scoping and EIA process.</p>	<p>properly managed through a Waste Management Programme (WMP).</p>
<p><b><u>National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA)</u></b></p> <p>The NEM:BA governs the management and conservation of South Africa's biodiversity within the framework established by NEMA. This Act also governs the protection of species and ecosystems that require national protection, as well as the management of invasive and alien species. The following regulations have been promulgated in accordance with the NEM:BA and are also relevant:</p> <ul style="list-style-type: none"> <li>• Alien and Invasive Species Lists, 2014 published (GN R.599 in GG 37886 of 1 August 2014);</li> <li>• National Environmental Management: Biodiversity Act, 2004: Threatened and Protected Species Regulations; and</li> </ul>	<p>During site assessment, three vegetation unit were noticed on site and these are cultivated area, open shrubland (covering more of the site) and the riverine vegetation (occurring along the Riet River). The open shrubland was found to having conservation status of medium to high due to the presence of protected plant species (<i>Vachellia erioloba</i> – Camel thorn) and also being able to provide habitat for the identified faunal species. This is similarly to the riverine vegetation which is of high conservation value due to it being the local corridor for faunal species as well as the NFEPA state of the Riet river.</p>
<p><b><u>National Noise Control Regulations, R.154 of 1992 (the Noise Regulations) promulgated in terms of Section 25 of the Environmental Conservation Act, 1989 (Act 73 of 1989)</u></b></p> <p>The National Noise-Control Regulations (GN R154 in Government Gazette No. 13717 dated 10 January 1992) (NCRs) form part of the Environmental Conservation Act and these Regulations apply to external noise.</p> <p>The NCRs differentiates between Disturbing Noise levels (which is objective and scientifically measurable which are generally compared to existing ambient noise level) and Noise Nuisance (which is a subjective measure and is defined as noise that “<i>disturbs or impairs or may disturb or impair the convenience or peace of any person</i>”).</p> <p>Local Authorities use Controlled Areas to identify areas with high noise levels. Restrictions have been set out for development that occurs in these Controlled Areas. These regulations make provision for guidelines pertaining to noise control and measurements. The regulations make reference to the use of the South African National Standards 10103:2008 (SANS) guidelines for the Measurement and Rating of Environmental Noise with Respect</p>	<p>The EMPr will include measures to control and manage noise.</p>



<p>to Land Use, Health, and Annoyance and to Speech Communication.</p>	
<p><b><u>The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)</u></b></p> <p>The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) is the main piece of legislation in South Africa that protects and regulates the management of heritage resources. The Act requires Heritage Resources Agencies, in this case in the South African Heritage Resources Agency (SAHRA) and the Provincial Heritage Resources Authority of Gauteng (PHRA-G), to be notified of any developments that may exceed certain minimum thresholds as soon as possible.</p>	<p>According to Ruins Archeo Heritage (2024), desktop research revealed that the project area would have been rich in Stone Age artefacts and the field survey noted that this was not the case within the proposed development site, as only a handful of isolated stone tools were found. SAHRA may approve the project as planned with special commendations to implement the recommendations here in made:</p> <ul style="list-style-type: none"> <li>• It is recommended that SAHRA/NCPHRA endorse the report as having satisfied the requirements of Section 38 (8) of the NHRA requirements;</li> <li>• It is recommended that SAHRA/NCPHRA make a decision in terms of Section 38 (4) of the NHRA to approve the proposed prospecting right application;</li> <li>• The identified burial sites trigger Section 36 of the NHRA and should be protected from proposed Prospecting activities;</li> <li>• The study area is littered with historical structures and buildings which are protected by Section 34 of the NHRA and no prospecting activities are to be conducted within the proximity of the structures;</li> <li>• Adequate 100m buffer should be provided</li> </ul>



	<p>between prospecting activities and identified burial sites, building and structures; and</p> <ul style="list-style-type: none"><li>• From a heritage perspective supported by the findings of this study, the project is supported. However, mining activities should be approved under observation that the dimensions do not extend beyond the area considered in this report.</li></ul>
--	---

## **7. Need and desirability of the proposed activities.**

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

The mining sector is very crucial to the South African economy. The success of the proposed prospecting activities and quantification of resources would lead to a potential viable economic mining activity. This will consequently boost the countries' current struggling economy, should the project advance to the mining phase. Mining will significantly contribute to local economic growth through direct job creation, future business opportunities, royalties, also contributing to the national gross domestic product and tax revenues.

It has been presumed that the proposed area may have reserves of Diamonds, which is based on the available geological information. The prospecting project will be necessary to ascertain the data in relation to the nature, location, and extent of the deposits within the proposed prospecting area. Prospecting will also determine whether there are any features that could affect the economic extraction of the minerals, should the project advance to the mining phase. Furthermore, if the target minerals are discovered, the information obtained from the prospecting activities will be required to determine how and where the minerals of interest will be extracted, as well as how much economically reserves are available within the proposed prospecting area.

Gomez Trading (Pty) Ltd anticipates that significant benefits from the area, should minerals be discovered, will accrue to the immediate area, the sub-region, and the Northern Cape Province. These benefits must be balanced against the costs of the area, including the impacts to the landowner. There is no reason why this proposed project should not be considered at this time, given the high likelihood of a reserve as demonstrated by other resources discoveries in the area.

## **8. Motivation for the overall preferred site, activities, and technology alternative**

- **Preferred site**

The mineral deposits occur in specific areas based on the geology of the area. It is for this case that based on the geology of the area, there may be the occurrence of the targeted mineral deposits within the proposed area. The proposed prospecting activities to be undertaken will determine and confirm the mineral occurrences, distribution, and the feasibility to mine the deposits in an environmentally sustainable and economic viable manner. There are no alternatives in terms of location for this project. The mineral deposits may exist in the proposed area and if the proposed prospecting activities in the proposed site prove or confirm the mineral occurrence, therefore, further steps will be taken for determining the methods to extract the targeted deposits.

- **Activities**

The prospecting activities will be undertaken for a total duration of 60 months, and thus five (5) years. The intended activities within the stipulated timeframes will be able to provide sufficient information to declare the occurrence of the targeted mineral deposits. If the intended outcome of the project is not achieved within the intended timeframes, therefore, the prospecting right will be subjected to the renewal by extending the period up to three (3) years as required in terms of the MPRDA, 2002 (Act No. 28 of 2002) (as amended). The prospecting activities will include the following activities:

- **Site preparation** which will include vegetation clearance and topsoil removal in some instances will be undertaken for the establishment of the trenching sites;
- **Construction of temporal access roads** to the site camp and trenching sites will be constructed where necessary within the proposed area;
- The excavation will involve the **trenching** of five trenches, each with dimensions of 50 meters by 20 meters by 4 meters
- **Processing** of diamondiferous gravel; and
- **Rehabilitation** of the overall site and **closure**.

- **Technology alternative**

The layout plan of the infrastructure has been planned to avoid sensitive areas as far as possible. The intended method of vegetation clearance will have minimal environmental impacts. The applicant intends to utilize a bulldozer to clear vegetation for site establishment and the construction of the access roads. Excavators and rigid haul trucks will be used to remove the topsoil as well as possible diamondiferous gravel deposit where it then goes through a scrubber and is stockpiled. There are no alternative technologies identified for the proposed prospecting activities in this regard.

## **9. Full description of the process followed to reach the proposed preferred alternatives within the site.**

NB! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

### **9.1. Details of the development footprint alternatives considered.**

With reference to the site plan as provided above and the location of the individual activities on site, provide details of the alternatives considered with respect to:

Alternatives are different ways of meeting the overall goal and requirement of a proposed activity. Alternatives aid in determining the best way to develop the Project, taking into account location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives, and the no-go alternative. Alternatives also aid in determining which activity has the least environmental impact.

#### **9.1.1. The property on which or location where the activity is proposed to be undertaken; .**

Prospecting sites and associated campsite location, processing plant and access routes are among the location alternatives considered for the proposed area. The location alternatives were opted for based on several criteria, including environmental considerations (how sensitive the area is in terms of soils, wetlands, groundwater, and so on), sensitive receptors (proximity to the Mokala National Park, communities and farmsteads), and the area's dependence on the necessary infrastructure.

#### **9.1.2. The type of activity to be undertaken;**

Alternative trenching sites cannot be considered at this stage because exploration trenches can only be sited after desktop assessment, field mapping, and geophysical survey have been completed. There were two alternatives considered which is constructing new roads or using existing roads and establishing tracks. The use of existing roads was preferred because of the impact on vegetation and potential erosion that the construction of new roads might have.

#### **9.1.3. The design or layout of the activity;**

Since this area will not require any complicated surface infrastructure, no design and layout alternatives for the proposed area were determined. Alternatives were considered for the location of the campsite and the processing plant. A static location near the entrance of the site, a mobile campsite, and an offsite campsite were among the alternatives. The alternative sites were determined based on the sensitivity of the proposed area.

#### **9.1.4. The technology to be used in the activity;**

The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed; therefore, no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

#### **9.1.5. The operational aspects of the activity; and**

- **Site Establishment**

The applicant intends to utilize a bulldozer to clear vegetation for site establishment and the construction of the access roads.

- **Access Roads**

Existing roads will be utilized as far as possible, and areas of the least sensitivity will be chosen for access roads to the trenching sites establishment.

- **Trenching**

The excavation will involve the **trenching** of five trenches, each with dimensions of 50 meters by 20 meters by 4 meters. Trenching locations cannot be considered at this stage because prospecting trenches can only be sited after desktop assessment, field mapping, and geophysical survey have been completed. The principle of sampling is to determine the quality and grade of the diamonds as well as the depth and extent at which the gravel is found. Gravel Thickness is expected to be 4m (i.e 5 000m<sup>3</sup>). Bulk sampling will be done by using machinery as well as labour. Excavators and rigid haul trucks will be used to remove the topsoil as well as possible diamondiferous gravel deposit where it then goes through a scrubber and is stockpiled.

- **Processing operations**

For processing diamondiferous gravel, two by sixteen-foot rotary pans will be used. All the material with a diameter of less than 0.5 mm will be dumped into the tailings dam once the diamondiferous material has been filtered. The larger diamondiferous gravels will be processed in an 18-foot rotational pan processing machine called a Dense Medium Separator (DMS).

#### **9.1.5. The option of not implementing the activity.**

The 'No-Go' alternative is the option to not conduct prospecting activities at the proposed project site. The No-Go alternative assumes that the site would remain in its current condition. The No-Go alternative would have no impact on the social and biophysical environment.

Gomez Trading intends on prospecting the proposed area to determine the availability of Diamond and Sand.

Should the minerals be found, the proposed prospecting project alone will result in job creation and support for local businesses.

Accordingly, the consequences of not undertaking the proposed project will diminish the potential positive impacts of this project on the workforce to be used for the prospecting project as well as on the mining project. Therefore, the No-Go alternative is considered undesirable at the local and regional level.

## 9.2. Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB! The affected parties must be specifically consulted regardless of whether they attended public meetings. Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

- **Stakeholder Identification**

Stakeholder engagement is an important part of the environmental decision-making process, and it forms part of the scoping phase as well as the impact assessment phase. The process is primarily intended to provide I&APs with the opportunity to understand the proposed project. Furthermore, the purpose of consultation with the landowner, key stakeholders, and I&APs is to provide them with the necessary information about the proposed project so that they can make informed decisions about whether the project will affect them, as well as to provide the EIA team with local knowledge of the area and raise concerns about the potential biophysical, socioeconomic, and cultural impacts.

Vahlengwe's approach recognizes that I&APs are diverse in character and in their project interest.

The following criteria were used to identify I&APs:

- **Zone of influence:** the physical location in relation to the project site and the potential impacts. In general, the closer the affected people live to the project site, the greater their interest and the greater the potential impact of the project;
- **Stakeholder values:** the value that the stakeholders attach to the area that could be affected by the project. This includes aspects such as livelihood, land use, property, cultural heritage and sense of place; and
- **Jurisdiction:** the mandate/influence of institutions over the regulatory process and public opinion.

Interested and Affected Parties (I&APs) representing the following sectors of society have been identified in terms of Regulation 42 of the EIA Regulations R982 (as amended):

- National Authorities;
- Provincial Authorities;

- Local Authorities;
- Ward Councillors;
- Parastatals/ Service Providers;
- Non-governmental Organisations;
- Local forums/ unions; and
- Landowners.

### **Draft EIA/EMPr Report Commenting Period**

Following the legislative requirements and good practice, it is important to develop documentation, which will be easily accessible to all stakeholders who would be affected or interested in the project. The following documents were developed and distributed to all stakeholders including the interested and affected parties. The various PPP materials which were used as part of the EIA processes are included as appendices to this report.

### **Background Information Document (BID):**

The BID aims to provide important information regarding the following:

- Project description of the proposed prospecting activities;
- The EIA and the PPP that was undertaken in support of the prospecting activities and relevant contact details;
- Details about how stakeholders could register as an Interested and Affected Party (I&AP) and be kept informed about the Project developments; and
- The public review and comment period for the draft EIA/EMPr Report.
- The BIDs were hand delivered to the affected and surrounding landowners. **I&APs Registration**

#### **Form:**

A registration form was distributed to the community attached to the BID for the registration of the I&APs.

#### **Site notice:**

An A3 sized site notices informing I&APs about the project information as per the published newspaper advert, were developed, laminated and erected at the boundary of the proposed site as required in terms of Section 24J of NEMA read with Regulation 41 EIA regulation notices were placed within the vicinity of the proposed project site at strategic locations where it was deemed to be visible to community.

#### **Newspaper advertisements:**



A newspaper advertisement, informing all Interested & Affected Parties (I&APs) residing in surrounding communities in close proximity to the proposed area within the jurisdiction of Herbert Municipality was published and included information about Gomezza intention to apply for a prospecting right for Diamond and Sand in respect Portion 1 of Farm Biesjesbult no.96 and Portion 2 & 3 of Farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. The newspaper publication was conducted through **Noordkap Bulletins** dated **06<sup>th</sup> June 2024**.

I&APs were informed to register any comments or concerns that they might have, regarding the proposed project by contacting EAP, via email through the provided comments request form or request additional information via the telephone. The EAP details were included in the advert, Background Information Document (BID) and site notice.

#### **Public meeting:**

A public meeting with the interested and affected parties to discuss the draft EIA/EMPr Report was held at the Plooyburg Intermediate Skool on the 24<sup>th</sup> of June 2024

#### **Notification E-mails and SMS**

A notification e-mails and SMS informing the registered I&APs of the public comment period for the draft EIA/EMPr were sent to the I&Aps.

#### **Draft EIA/EMPr Report Commenting Period**

The draft EIA/EMPr report was made available via the VahleNGWE Mining Advisory and Consulting website ([www.vahleNGWEadvisory.co.za](http://www.vahleNGWEadvisory.co.za)). Printed copies were made available for viewing at the locations where the draft scoping report was made available.



**9.3. Summary of issues raised by I&APs**

(Complete the table summarising comments and issues raised, and reaction to those responses)

Table 8: Summary of issues raised by I&APs

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
Landowner/s (Roscoe Lawrence)	24 June 2024	<ul style="list-style-type: none"> <li>• Is the EIA completed?</li> <li>• Where will trenches be located?</li> <li>• There are also potatoes on site.</li> <li>• The buildings on site that appear to be sixty (60) years old, can crumble at any time.</li> </ul>	<ul style="list-style-type: none"> <li>• EIA is not completed until we receive comments from I&amp;AP and incorporate them into the report.</li> <li>• They must first undertake non-invasive activities to determine where the minerals might be located.</li> <li>• Potatoes will also be added to crops on site.</li> <li>• If they look like they are sixty (60) years old, they cannot simply destroy them but must apply to SAHRA.</li> </ul>	<p>Sections (9.2 &amp; 15.1) Appendix 3F</p> <p>Section 9.1.2</p> <p>Section 9.4.1.3</p> <p>Sections (6; 12; and 15.2)</p>



			<ul style="list-style-type: none"> <li>We have until when to submit the comments/inputs because the EIA document is too big and requires time.</li> </ul>	<ul style="list-style-type: none"> <li>Today we are introducing the draft EIR, however you may still submit comments/inputs via phone call preferably email. However, if you have a comment today, it would be appreciated, and if you have a different concern after reading, please feel free to comment.</li> </ul>	Section 9.2
<b>Lawful occupier/s of the land</b>		-			
<b>Landowners or lawful occupiers on adjacent properties (Solomon Cefoka_Mokala National Park)</b>		24 June 2024	<ul style="list-style-type: none"> <li>According to the specialist results, there is just one species on site, however there are additional species on site.</li> <li>I see that the proposed project area is on the footprint (2 km) of Mokala national parks</li> </ul>	<ul style="list-style-type: none"> <li>Today's goal is to present the findings, and because you know the site better, you will advise that the specialist studies report was not detailed enough. You will then list species that require protection, and these measures will then be incorporated into the report, and the DMRE may impose conditions if they are not addressed efficiently.</li> <li>One option is to add a buffer zone to protect sensitive area.</li> </ul>	Section 6  Section 10.1.4 Table 14
<b>Municipal councillor</b>		-			



<b>Municipality</b>		21-June-24	No response to email	EAP sent email to consult Siyancuma Local Municipality ( <a href="mailto:angcongca@siyancuma.co.za">angcongca@siyancuma.co.za</a> ) on the draft Scoping Report	N/A
<b>Municipality</b>		21-June-24	No response to email	EAP sent email to consult Pixley Ka Seme District Municipality, Northern Cape ( <a href="mailto:tshekela@pkdsm.gov.za">tshekela@pkdsm.gov.za</a> & <a href="mailto:pixley@telkomsa.net">pixley@telkomsa.net</a> ), on the draft Scoping Report	N/A
<b>Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e South African National Parks (Mokala National Park)</b>		19 July 2024 Refer to the attached Letter (Appendix 3F)	SANParks' opinion is that the DEIR contains insufficient details to enable adequate public participation or informed decision-making. We recommend that the DEIR be amended to consider various shortcomings in the report: <ul style="list-style-type: none"> <li>to include an assessment of the potential impacts on Mokala National Park.</li> <li>to specify the size and locations of all of prospecting activities and infrastructure, along with mapped footprints.</li> <li>to indicate the locations of high-value biodiversity features that need to be avoided, along with a site map illustrating</li> </ul>	<ul style="list-style-type: none"> <li>The potential impacts on Mokala National National Park will be incorporated into the Final Environmental Impact Report (EIR) for submission to the Department of Mineral Resources and Energy (DMRE) for their review and decision-making process.</li> <li>The proposed prospecting activities are anticipated to disturb an area of 2,605 hectares in size, this includes the site camp, processing plant, trenching site, and access road. The precise placement of structures and the trenching site will be determined</li> </ul>	Sections (9.4.1.2;9.4.1.4.1;18.8) Tables (10 & 14)  Section 5.3



			<p>how prospecting activities are to be located to avoid and minimise impacts.</p> <ul style="list-style-type: none"> <li>to include a biodiversity offset study.</li> </ul>	<p>following the completion of non-invasive activities.</p> <ul style="list-style-type: none"> <li>A composite map (Section 17.3) illustrates that adequate 100m buffer should be provided between prospecting activities and surface water resources (i.e identified wetlands and Riet River).</li> <li>Given the localized and temporary nature of biodiversity impacts anticipated, it is anticipated that specialist studies may not be necessary. Should any protected trees be affected by the project, Gomeza Trading (Pty) Ltd will apply for the necessary permits to either relocate or remove them.</li> </ul>	<p>Section 17.3</p> <p>Sections (6 and 18.8)          Tables 10 and 14</p>
<p><b>Dpt. Land Affairs</b></p>		<p>21 June 2024</p>	<p>No response to email</p>	<p>EAP sent email to consult Department of Agriculture, Land reform &amp; Rural Development          (<a href="mailto:kgotso.moeketsi@dalrrd.gov.za">kgotso.moeketsi@dalrrd.gov.za</a> &amp; <a href="mailto:katshaba.mathibe@dalrrd.gov.za">katshaba.mathibe@dalrrd.gov.za</a> ) on the draft EIA/EMPr Report</p>	<p>N/A</p>



<p><b>Dept. Environmental Affairs</b></p>	<p>19 July 2024          Refer to the attached Letter (Appendix 3H)</p>	<ul style="list-style-type: none"> <li>• The Draft Environmental Impact Assessment Report (“DEIR”) must be revised to include all relevant environmental legislation with permit and license requirements.</li> <li>• Mining and Prospecting activities cannot be supported in Critical Biodiversity Areas (CBA’s) and the whole site is in CBA’s.</li> <li>• No fine-scale site sensitivity map is provided, clearly delineating the sensitive no-go areas and their buffers.</li> <li>• The prospecting application area is known for its critically endangered <i>Gyps africanus</i> vultures breeding in protected <i>Vachellia erioloba</i> trees. The avifauna impacts were inadequately assessed.</li> <li>• Nationally protected tree species may not be damaged, disturbed, cut or destroyed without a valid Forest Act License from the Department of Forestry, Fisheries and the Environment (DFFE).</li> <li>• Provincially protected and specially protected plant and animal species may not be disturbed without valid Fauna and</li> </ul>	<ul style="list-style-type: none"> <li>• All the relevant environmental legislations referenced in the letter dated 19 July will be incorporated into the Final Environmental Impact Report (EIR) for submission to the Department of Mineral Resources and Energy (DMRE) for their review and decision-making process.</li> <li>• According to the Northern Cape Conservation plan, the entire site falls with a critical biodiversity area. The section along the Riet River is classified as CBA 1 due to the river being a NFEPA and also acts a corridor for animals whereas the remainder of the site is classified as CBA 2 due to the occurrence of the national protected trees. Acquisition of Flora and Fauna Permits from the Northern Cape Department of Agriculture, Rural Development and Land Reform (DAERL) will be necessary in cases where provincially protected or</li> </ul>	<p>Section 6</p> <p>Sections 6 and 9.4.1.1 and Appendix 5</p>



			<p>Flora Permits from the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL) under the NCNCA.</p> <ul style="list-style-type: none"> <li>• Having a Prospecting Right does not exempt the holder of such right from complying with other applicable environmental legislation and permit and license requirements.</li> </ul>	<p>specially protected plant and animal species might be disturbed.</p> <ul style="list-style-type: none"> <li>• Given the localized and temporary nature of biodiversity impacts anticipated, it is anticipated that specialist studies may not be necessary. Should any protected trees be affected by the project, Gomeza Trading (Pty) Ltd will apply for the necessary permits to either relocate or remove them.</li> <li>• The anticipated impacts of the proposed project are expected to be localized and kept at a moderate level through the implementation of mitigation and management measures. Acquisition of Flora and Fauna Permits from the Northern Cape Department of Agriculture, Rural Development and Land Reform (DAERL) will be necessary in cases where provincially protected or specially protected plant and animal species might be disturbed.</li> </ul>	<p>Sections 6, Table 14, Sections 11 and 18.8</p> <p>Sections 6, Table 14, Sections 11 and 18.8</p>
--	--	--	--	---	---



<p><b>Other Competent Authorities affected          (Department of Water and Sanitation)</b></p>	<p>12 July 2024          Refer to the attached Letter (Appendix 3H)</p>	<ul style="list-style-type: none"> <li>It is noted from the report that water will be transported to the designated trenching sites and delivered onto the property. As necessary, water bowzers will be dispatched to these locations. The Department of Water and Sanitation will require the provision of an agreement letter.</li> <li>The applicant shall ensure that domestic waste and hazardous waste generated on site is removed from site and disposed at a registered disposal facility. Therefore, a service level agreement shall have to be signed for the removal and disposal of waste into approved landfill site. A signed copy of service agreement shall be submitted to the DWS to demonstrate that provision will be made to render such service.</li> <li>From the report, it is stated that chemical toilet facilities will be utilized for the employees. The Department supports the use of chemical toilets considering the lifetime of the project. Furthermore, the</li> </ul>	<ul style="list-style-type: none"> <li>The feasibility of groundwater extraction will be verified in consultation with the Department of Water and Sanitation (DWS). Should groundwater extraction be required, a Section 21(a) water use license will be necessary.</li> <li>Waste should be properly classified, separated, stored, and disposed at relevant disposal sites.</li> <li>Water is anticipated to be trucked to the designated trenching sites and taken onto the property. As needed, water bowzers will be sent to the locations.</li> <li>All laydown, chemical toilets should be restricted to least sensitive areas.</li> <li>The area where the vehicles and equipment will be stored and/or serviced should be bunded to avoid spillages into the soils;</li> <li>Fuel storage tanks should be placed in bunded areas to minimise fuel seeping into the ground as far as possible</li> </ul>	<p>Sections 18.6 and 18.7</p> <p>Table 14, Sections 5.1, 11 and 18.8</p> <p>Sections 5.1 and 18.8 and Table 14</p> <p>Table 14, Sections 11 and 18.8</p> <p>Table 14, Sections 11 and 18.8</p> <p>Table 14, Sections 11 and 18.8</p>
--	---	--	---	--





		<p>chemical toilets shall be used and be managed accordingly to applicable legislation.</p> <ul style="list-style-type: none"> <li>• Storage facilities: the applicant must ensure that fluids are stored and handled properly in a concrete or cement lined surface with berm walls to avoid any seepage into the groundwater resources and ensure that the design of the storage area is such that any leakages or spillages can be contained.</li> <li>• To ascertain if authorisation is required, you may contact Mr Sekwaila Khutjo (Water Use Manager: Water use authorisations) on (053) 830 8800 or Sekwailak@ws.gov.za.</li> </ul>		
--	--	--	--	--

**9.4. The Environmental attributes associated with the alternatives.**

(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical, and biological aspects)

**9.4.1. Baseline Environment**

**9.4.1.1. Type of environment affected by the proposed activity.**

(its current geographical, physical, biological, socio- economic, and cultural character).

- **Regional Setting**

The proposed project area falls within the jurisdiction of the Siyancuma Local Municipality, situated in the Pixley Ka Seme District Municipality, Northern Cape Province, as depicted in Figure 4. The site is located approximately 5.47 km North-East of Plooyburg, 29km North-West of Ritchie town and 50km South-West of Kimberly town.

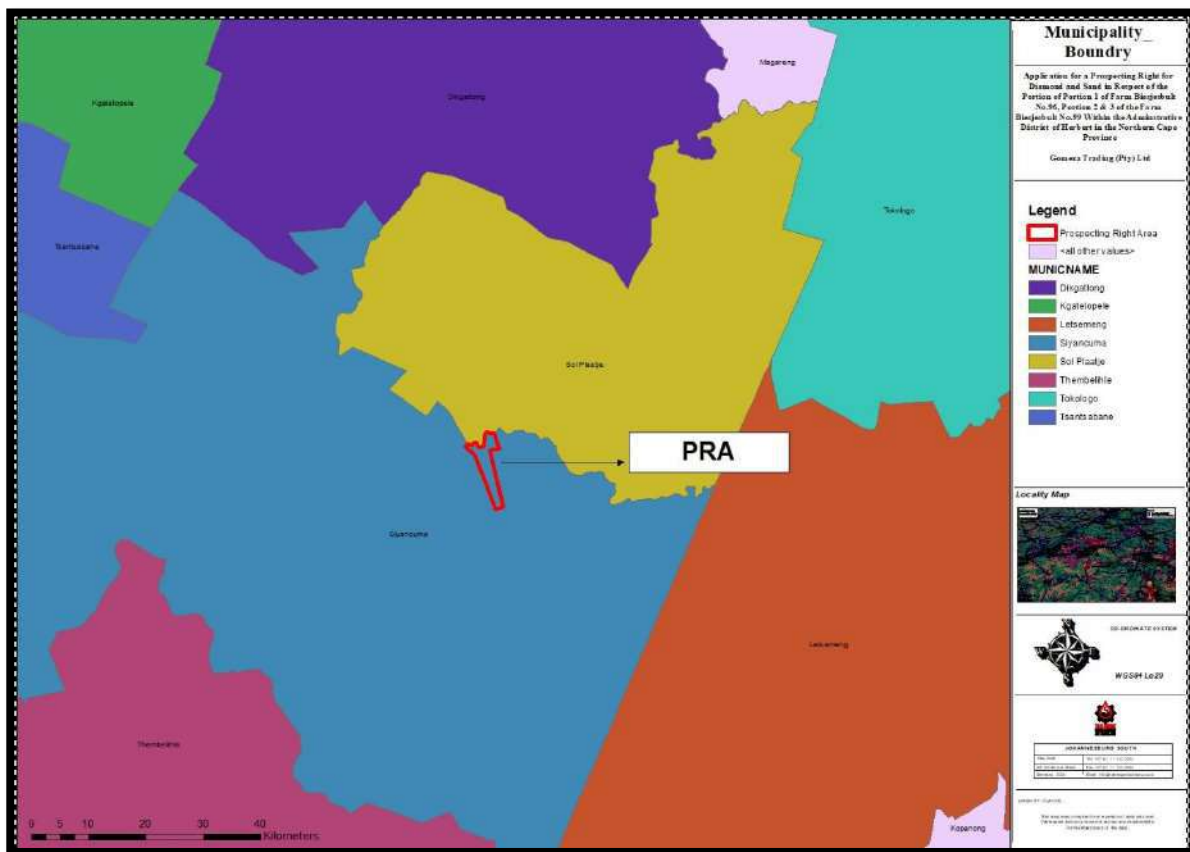


Figure 4: Municipality Boundaries

- **Climate**

The project area falls within the range of the Kimberly weather station, which is located in the southern hemisphere. The climate in application area is **subtropical semi-arid**, with mild, dry winters (during which it can get cold at night) and hot, sunny summers (during which thunderstorms can break out).The average annual temperature is 32°C whereas the annual precipitation is about 350 mm.

Siyancuma Local Municipality is located in the southern hemisphere, where January is the warmest month, with an average high of 32°C and low of 18°C whereas July is the coldest month with an average low of 2°C and high of 18°C. The month with the highest relative humidity is January while the month with the lowest relative humidity is September. The month with the rainiest days is February, with an average of 7.8 days and least rain in Kimberley is July, with an average rainfall of 3 millimeters.

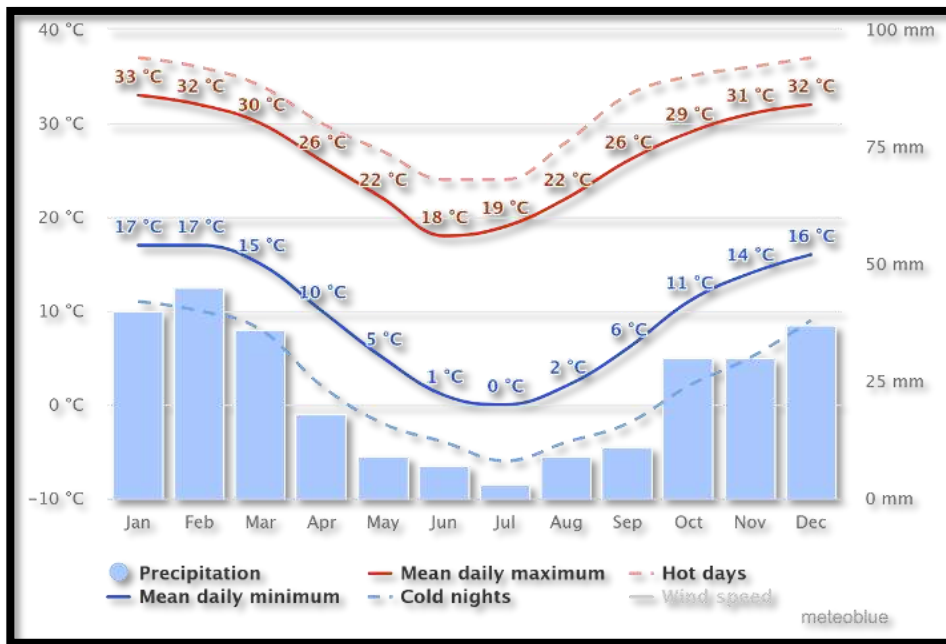


Figure 5: Average climatic conditions for Kimberley (<https://www.meteoblue.com>)

- **Wind**

The average hourly wind speed in Kimberley experiences mild seasonal variation over the course of the year. The windier part of the year lasts for 5.6 months, from July 19 to January 6, with average wind speeds of more than 3.7 meters per second. The windiest month of the year in Kimberley is October, with an average hourly wind speed of 4.3 meters per second. The calmer time of year lasts for 6.4 months, from January 6 to July 19. The calmest month of the year in Kimberley is March, with an average hourly wind speed of 3.2 meters per second.

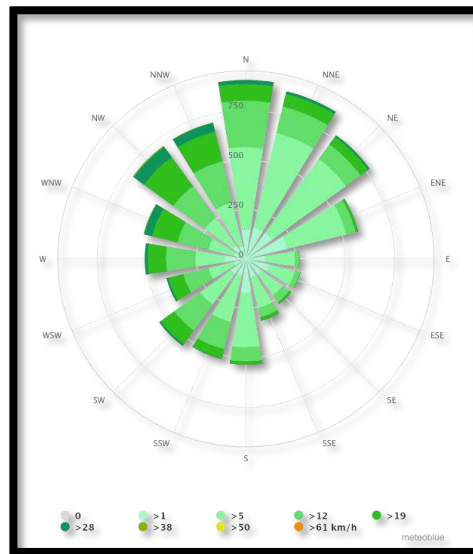


Figure 6: Wind Rose for Kimberley (<https://www.meteoblue.com>)

- **Geology and Soils**

The surface geology of the area comprises mainly of Quaternary sediments namely alluvial diamondiferous gravel, sand (red and grey aeolian dune sands), shale and andesite in places amygdaloidal and/or porphyritic with quartzite and conglomerate lenses near the bottom.

The early Quaternary sediments most likely cover the Karoo Supergroup particularly the Dwyka Group and the Ecca Group. The Dwyka Group is situated on the on glaciated Precambrian bedrock surfaces along the northern basin margin but overlies the Cape Supergroup in the south. This group consists of a selection of lithofacies types. The lithofacies types consist mainly of massive diamictite, stratified diamictite, massive carbonate-rich diamictite, mudrock with stones and mudrock facies. The Ecca Group consists of up to 16 formations. These formations mirror the lateral facies changes that characterize the Ecca Group Formation. The individual formations can be grouped into three geographical areas for descriptive purposes except for the Prince Albert and Whitehill Formation. These formations comprise mainly of sandstone, siltstone, mudrock, limestone and coal seams depending on the geographical areas (Johnson M.R et al., 2006).

Alluvial diamonds have been extracted from several areas within the Vaal and Orange River systems amongst others. These deposits are formed mostly on Ventersdorp Supergroup lava bedrock. The alluvial diamond deposits occur where the Vaal, Orange and Riet Rivers flow off the younger Karoo cover onto the hard basement. It is evident that all “calcrete caps” as well as the different fluvial terrace deposits are covered by gravel known as the “Rooikoppie” gravels. The Rooikoppie gravels characterize mobile, multi-cyclic deflation and gravitational deposits where surface scree deposits

and/ high fluvial deposits. These deposits are preserved and recycled repeatedly from one land to the next (Gresse, P.G., 2003). Due to the recycling process of material only the most resistant material such as quartz and chert will endure. For this reason, diamonds will only be present where the Rooikoppie gravels recycled older diamondiferous fluvial deposits. Unproductive fluvial deposits may overlie diamondiferous Rooikoppie gravels or the other way around.

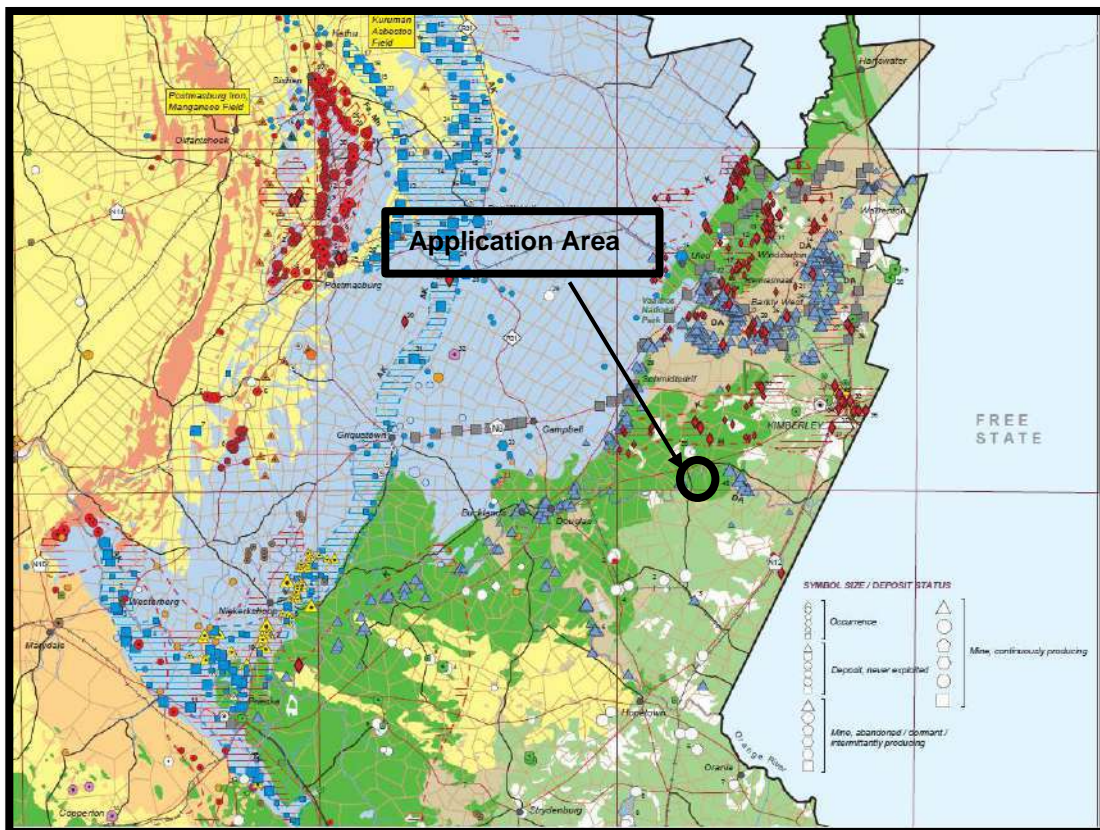


Figure 7: Geology of Herbert Municipal District (Source: Council of GeoScience)

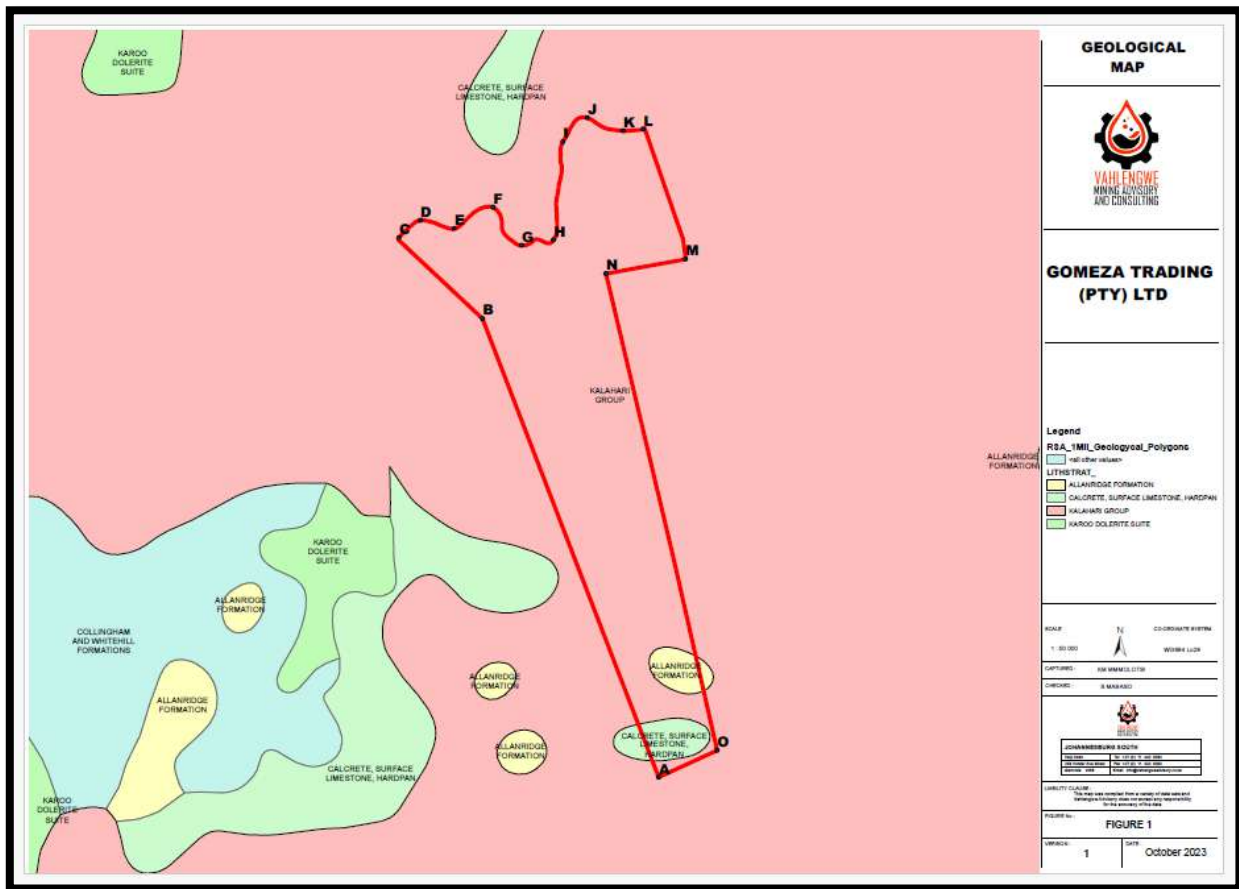


Figure 8: Geology of application area

- **Topography and Land Capability**

**Land capability** is the ability of land to support a given land use without causing damage. Land capability class definitions area as follows:

- Class I contains soils having few limitations for cultivation;
- **Class II** contains soils having some limitations for cultivation;
- **Class III** contains soils having severe limitations for cultivation;
- **Class IV** contains soils having very severe limitations for cultivation.

Study area is Class IV. Class IV contains soils having very severe limitations for cultivation

**Topography**

The application area is set in a relatively flat landscape (figure 9) with no prominent topographic features within the urban limits. The only "hills" are debris dumps generated by more than a century of diamond mining. The topography of an area dictates the ability to develop or not. Generally, flatter gentle sloping topographies allow for easier establishment of development. Slopes are generally gentle, less than 5% in most cases, but steeper terrain occurs in the hilly areas, up to >25% in places. The topography within 3 kilometres of application area contains *significant* variations in elevation, with a maximum elevation change of 158 meters and an average elevation above sea level of 1,220

meters. Within 16 kilometres also contains *significant* variations in elevation (212 meters). Within 80 kilometres contains *significant* variations in elevation (434 meters).

The area within 3 kilometres of application area is covered by *artificial surfaces* (97%), within 16 kilometres by *shrubs* (48%) and *grassland* (33%), and within 80 kilometres by *shrubs* (49%) and *grassland* (42%). There are several separate land types occurring within the area. Much of the study area consists of soils of varying characteristics in terms of colour and depth, from rich red soils to weak red soils and red-yellow clayey soils along streams. Deep soils along the rivers are potentially suitable for agricultural development, especially crop farming.

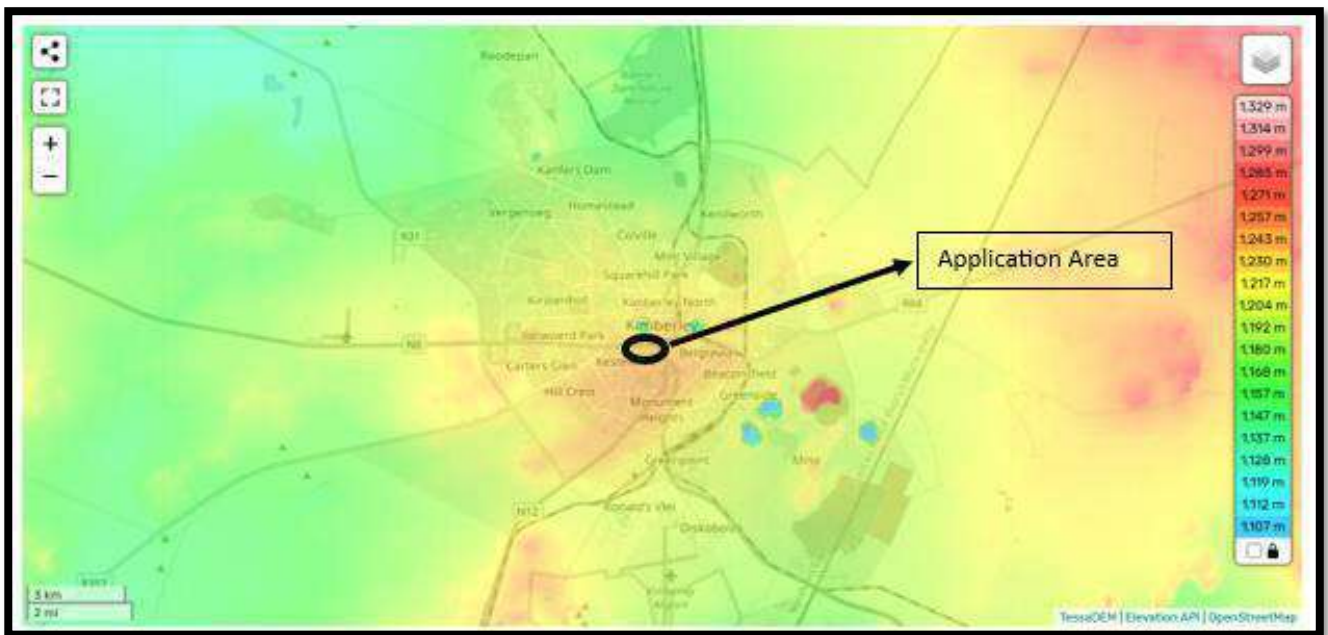


Figure 9: Topographical Map of application area

- **Hydrology**

The project area falls within the Middle Vaal Water Management Area as shown in Figure 10 below. Middle Vaal Management Area is also known as Water Management Area number 5. It is a crucial region for water resources management. It encompasses parts of the Vaal River catchment and is characterized by significant water usage for agriculture, industry, and domestic purposes.

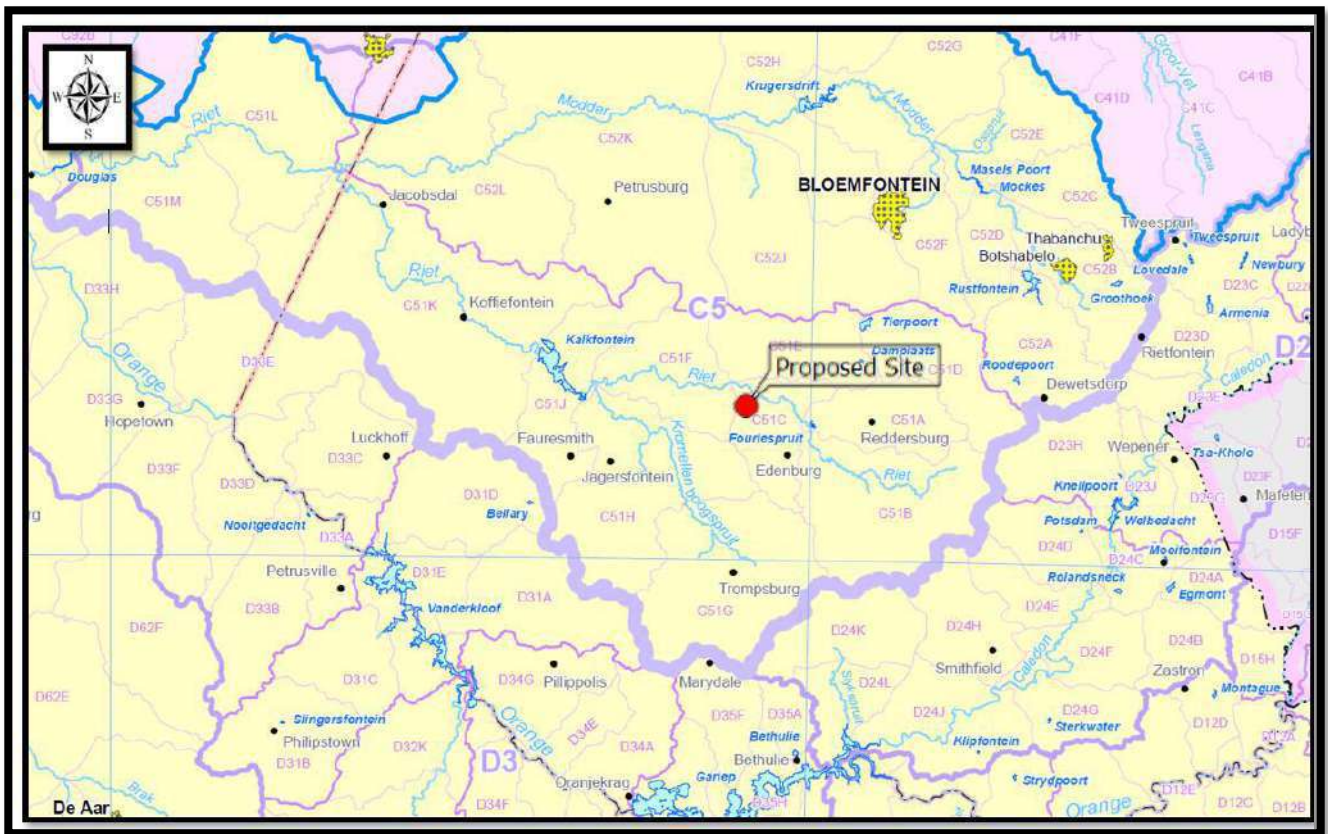


Figure 10: Water Management Area Map

The proposed site is bordered by the Riet River which forms part of the Modder-Riet River Catchment (C51L) and is part of the broader orange river system (Figure 11). The modder-Riet River Catchment is located in the Free State and Northern Cape Province, it is a water limited catchment. Historically, most of the Modder and Riet Rivers would typically have low water yields, with dry periods and pools forming in large endorheic areas. In order to distribute water, various canal systems and operating rules have been developed to transport water to the predominantly agricultural and domestic water users in the various parts of the catchment. Much of the water that is used in the catchment therefore originates from reservoirs and from outside the catchment, completely transforming it from its natural state. This change in land use and hydrology resulted in a concomitant change in water quality.



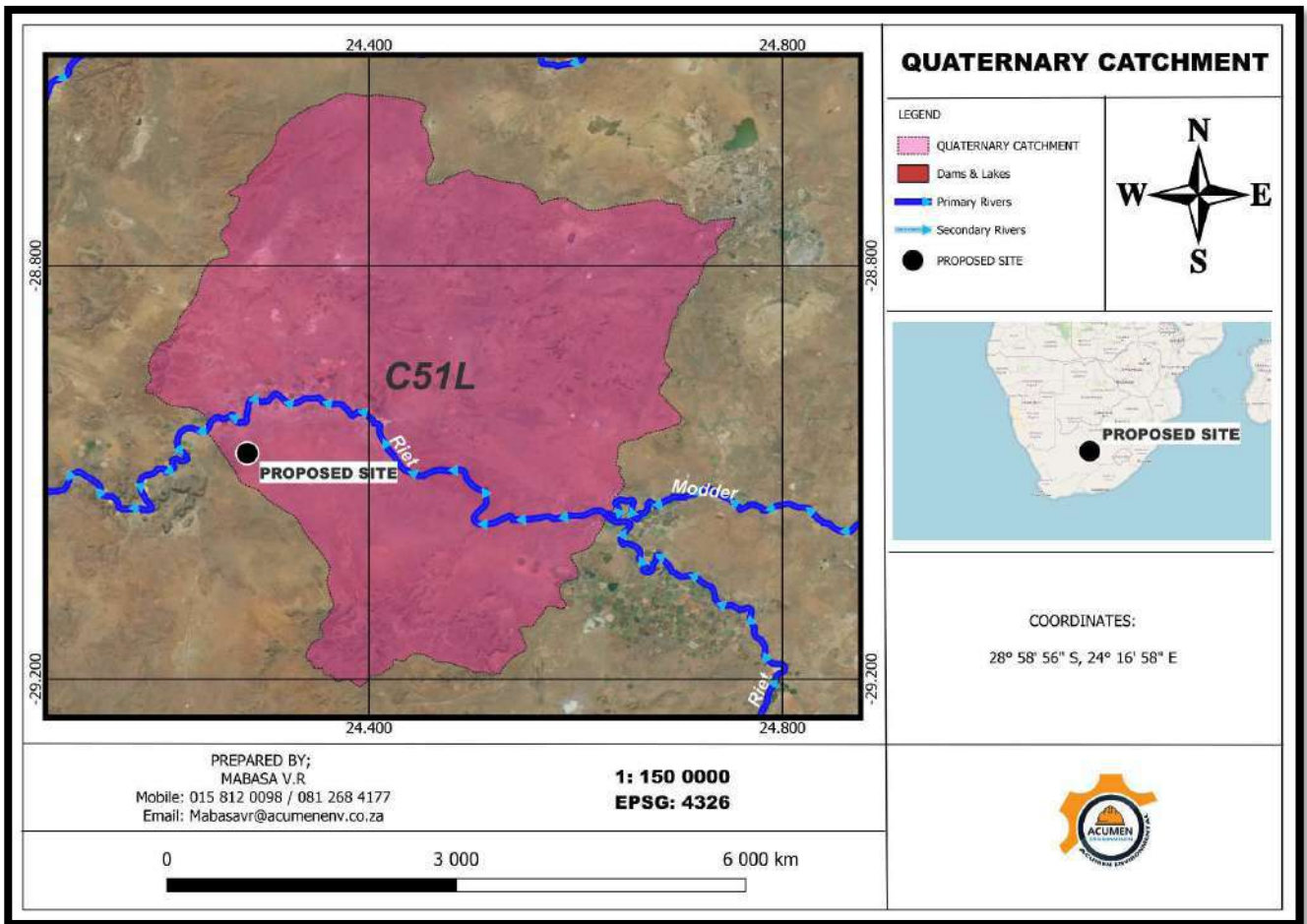


Figure 11: Quaternary Catchment

Groundwater typically forms through the concept of recharge. Surface water and rainfall form most of the groundwater recharge. The underlying geology of the Modder River catchment is mainly sedimentary rocks intruded by the massive dolerite's dykes. These numerous intrusive rocks reduce the pore spaces of the host rocks, thereby reducing the aquifer potential of the rocks. Therefore, the fractures are the only sources and target for abstracting large amounts of groundwater. This suggests that the recharge rates and sustainable yields are relatively low in the catchment area in general even though some towns are using the small amount for rural water supply. As a result of the rock type and minimal polluting surface activities, the quality of groundwater in the Modder River catchment is naturally satisfactory.

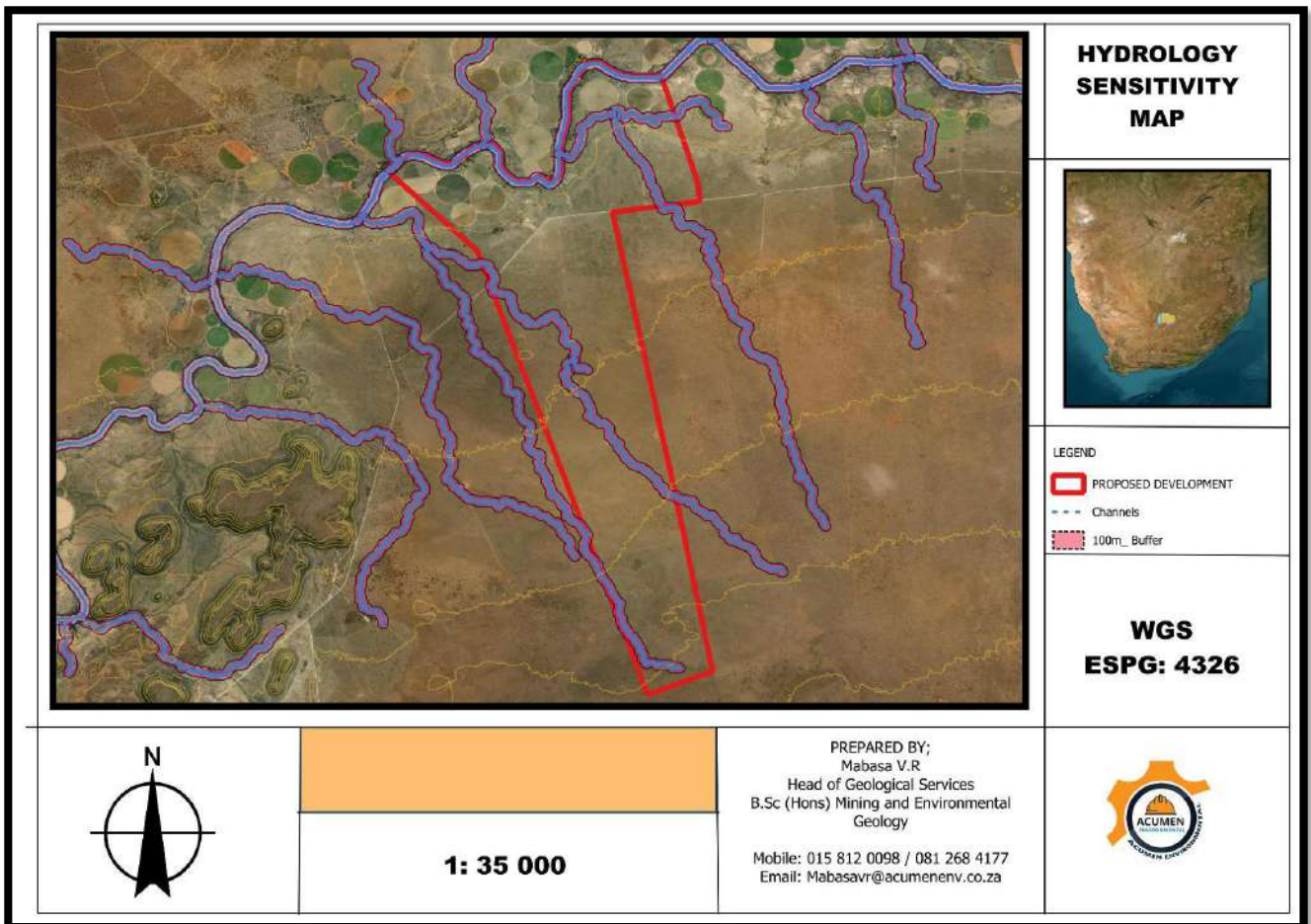


Figure 12: Hydrological Map of Application Area

- **Fauna and Flora**

The study area is distinguished by a variety of major vegetation types. Biesjesbult Farm is dominated by Savannah biome and Arizonal Vegetation, with Savannah covering 80% of the study area (figure 13). Savannas often referred to as tropical grassland, is a grassland biome characterized by widely spaced trees with an open canopy covering approximately 20% or the earth surface area. vegetation occurs on slightly to moderately undulating plains sloping generally down to the north with some hills in the southwest. It is a short and shrubby bushveld with a poorly developed grass layer. Important Flora includes:

**Grasses ;**

- *Bermuda Grass*
- *Elephant Grass and;*
- *Red Oat Grass*

**Tree/ Shrub ;**

- *Camel thorn (Acacia erioloba)*
- *Gnoibos (Acacia mellifera)*
- *Rosyntjebos (Grewia flava)*
- *Elandsboontjie (Elephantorrhiza elephantina)*
- *Tandpynbossie (Berula erecta)*
- *Dawidjiewortel (Cissampelos capensis)*

Important Fauna includes:

**Mammals;**

- *Kudu (tragelaphus strepsiceros)*
- *Aardvark (orycteropus afer)*
- *Lion (panther leo)*

**Birds ;**

- *Red-billed Hornbill (tockus erythrorhynchus)*
- *Lappet faced vulture (aegyptius tracheliotus)*
- *Greater Honeyguide (Indicator indicator)*

**Invertebrates;**

- *Bushman arrow-poison beetle (Diamphidia Nigro-ornata)*
- *Rhus flea beetles (blepharida)*
- *African honey bee (Apis mellifera scutellata)*

**Reptiles;**

- *African rock python (Python natalensis)*
- *Leopard tortoise (Geochelone pardalis)*
- *Black mamba (Dendroaspis polylepis)*

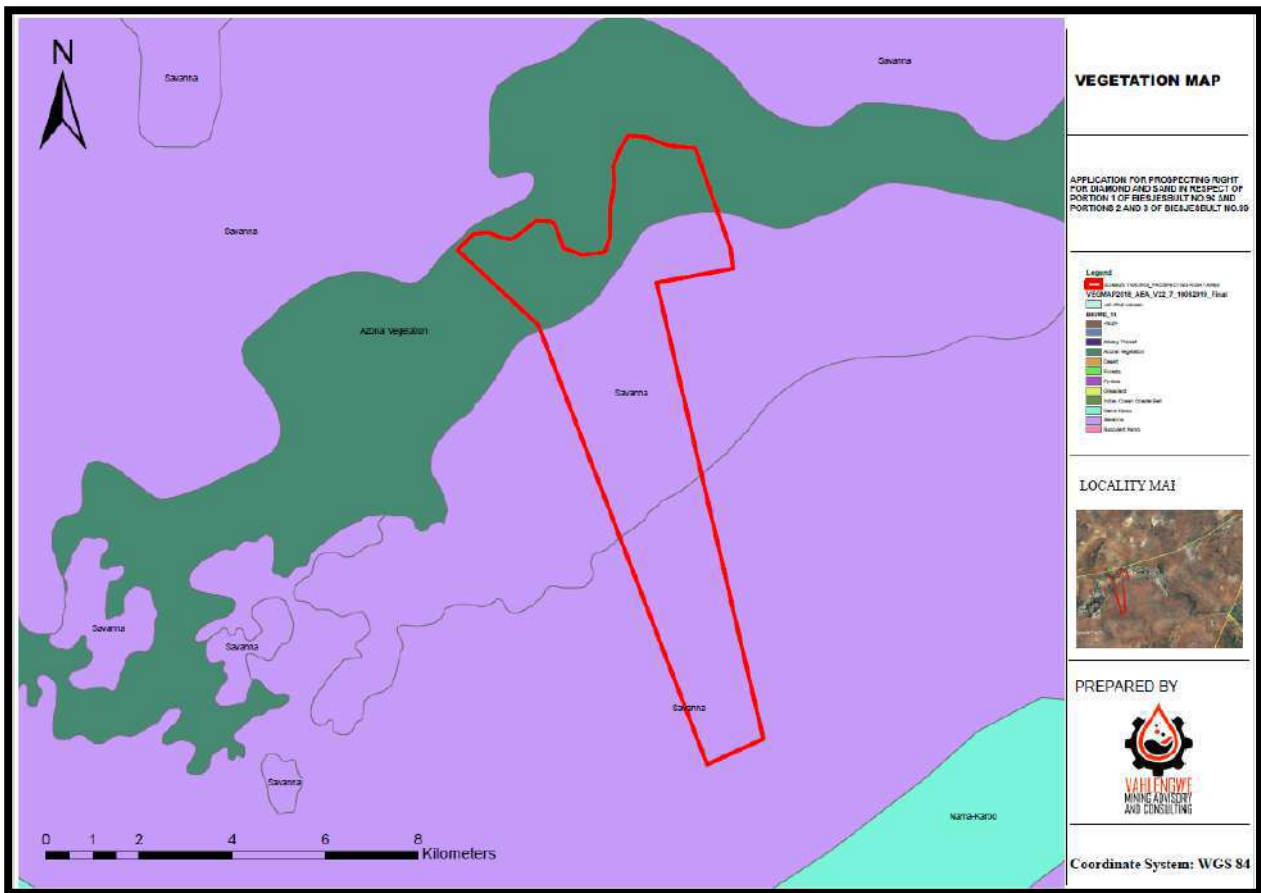


Figure 13: Vegetation map of application area

- **Sensitivity**

The proposed project area falls within the Critical Biodiversity Area one (1) and two (2) as depicted in the conservation area map below (Figure 14). According to READ (2015) “Critical biodiversity areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses and can include one or more of the following: threatened ecosystems, special and important habitats, areas of high irreplaceability, ecological/biodiversity corridors, and existing or proposed protected areas and protected area development nodes. CBAs can be divided into two categories, namely: CBA 1 and CBA 2”. According to data for Critical Biodiversity Areas the proposed project area falls within the CBA type 1 & 2. The management of the CBA type (2) areas is described in the Northern Cape Biodiversity Sector Plan (2015) as follows:

### **Critical Biodiversity Area type 1**

**Maintain in a natural or near-natural state that maximises the retention of biodiversity pattern and ecological process:**

- Ecosystems and species fully or largely 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 biodiversity features that are at, or beyond, their limits of acceptable change

### **Critical Biodiversity Area type 2**

**Maintain in a natural or near-natural state that maximises the retention of biodiversity pattern and ecological process:**

- Ecosystems and species fully or largely intact and undisturbed.
- Areas with intermediate irreplaceability or some flexibility in terms of meeting biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising the ability to achieve biodiversity targets, although loss of these sites would require alternative sites to be added to the portfolio of CBAs.
- These are biodiversity features that are approaching but have not passed their limits of acceptable change.

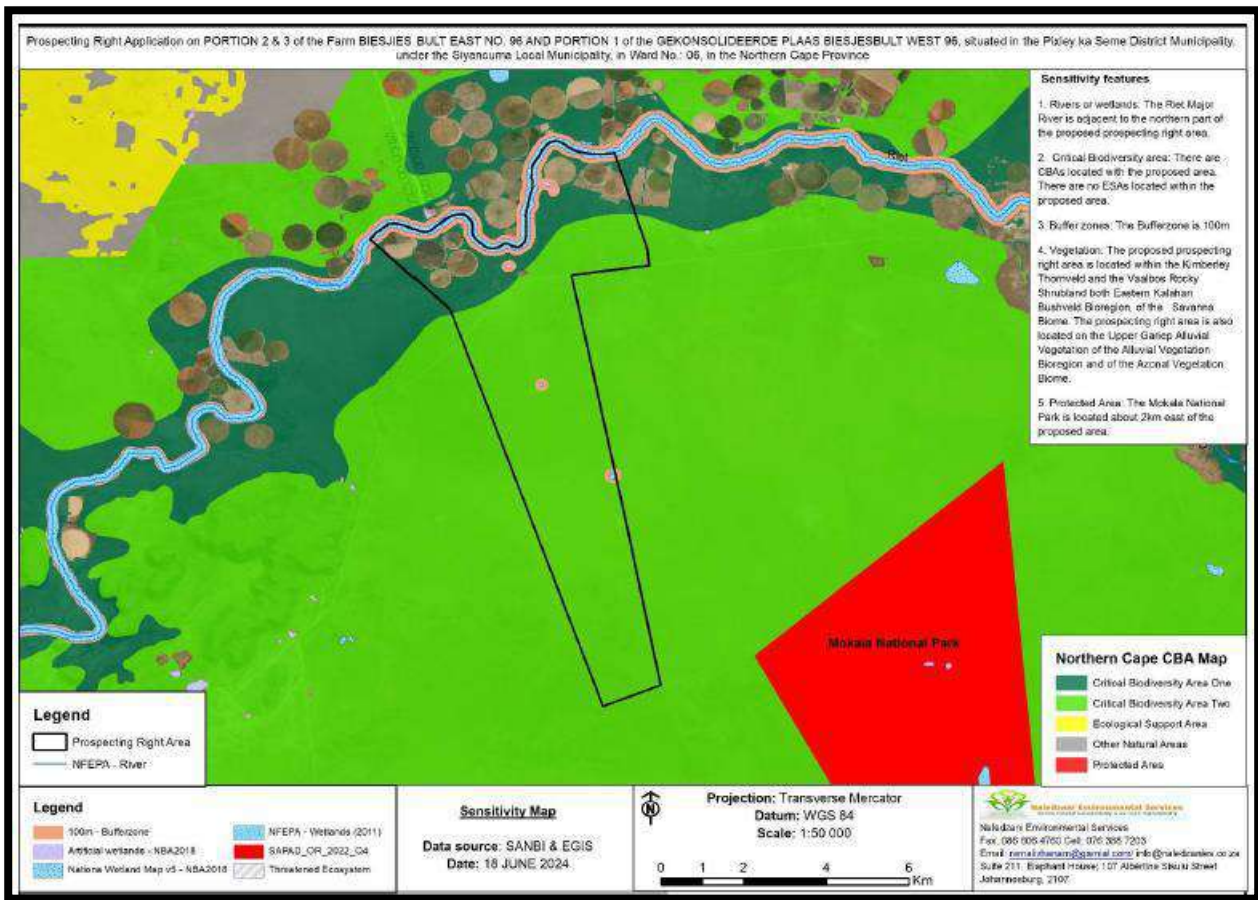


Figure 14: Conservation Map of application area

- Socio-economic characteristics**

The project area falls within the jurisdiction of the Siyancuma Local Municipality, situated in the Pixley Ka Seme District Municipality in Northern Cape Province. The site is located approximately 5.47 km Northeast of Plooyburg, 29km Northwest of Ritchie town and 50km Southwest of Kimberly town. In 2023 the Municipality reported having a population of 53 165 (See figure 15).

Demographic Information			
	2022	2016	2011
<b>Population</b>	53 165	35 941	37 076
<b>Age Structure</b>			
Population under 15	29.3%	26.2%	31.8%
Population 15 to 64	64.8%	67.8%	62.2%
Population over 65	6.0%	6.0%	6.0%
<b>Dependency Ratio</b>			
Per 100 (15-64)	54.4	47.5	60.8
<b>Sex Ratio</b>			
Males per 100 females	96.4	100.0	100.4
<b>Population Growth</b>			
Per annum	3.50%	-0.71%	n/a

Figure 15: Demographic information of SLM (source: 2022 census)

The municipality has a population density of 3.205  $KM^2$  and covers a total area of 16,587  $KM^2$ . The area is made up of majority Coloured population group (58.2%), followed by Black African (30.4%), White and Asian respectively (See Figure 16)

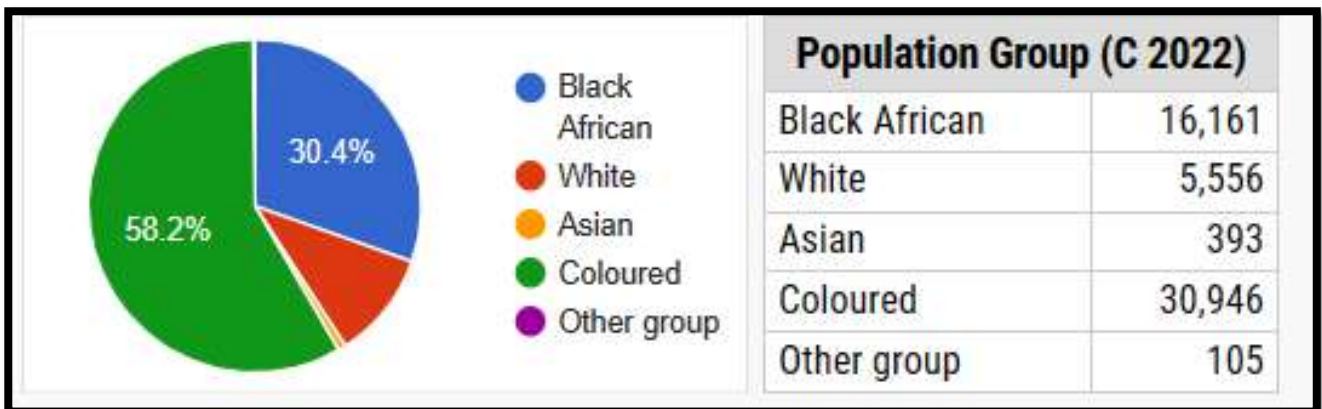


Figure 16: Population group distribution of SLM (source: 2022 census)

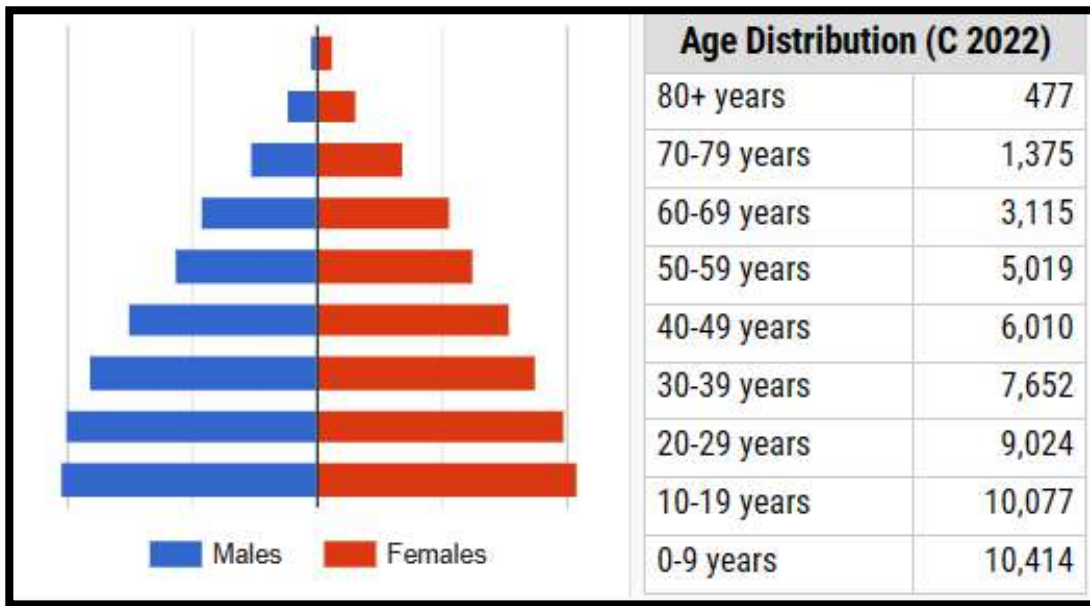


Figure 17: Age distribution of SLM (source:2022 Census)

According to figure 18, Majority of the population in Siyancuma Local Municipality is of school going age (below 19years old), Followed by Youth (20 29 years old & 30-39 Respectively) leaving the rest of the population above 40 years old. The female gender in municipality is relatively dominant than the male gender. The Dominant language in Siyancuma is Afrikaans (95%), followed by Tswana (5.1%), English (1.3%) Respectively. (See figure 18)

Siyancuma	
• Afrikaans	90.5%
• Tswana	5.1%
• English	1.3%
• Other	3.1%

Figure 18: SLM language distribution (Source: 2022 Census)

Figure 19 shows the education profile of the local Municipality according to the 2022,2016,2011 census respectively.

Education (aged 20 +)	2022	2016	2011
No schooling	8.6%	9.7%	16.7%
Matric	n/a	20.4%	16.8%
Higher education	5.6%	8.9%	5.3%

Figure 19: SLM Education Profile (source: 2022 Census)



Figure 20 shows household services available to the population according to the 2022,2016 & 2011 census respectively. As of 2022, 90.1% of the population has access to electricity for lighting, 73.9% of the population has flush toilets connected to the municipal sewer with 69.1% having access to weekly sewer refuse removal. Over half (50.8%) of the population has piped water inside their houses.

Household Services			
Flush toilet connected to sewerage	73.9%	59.7%	60.2%
Weekly refuse removal	69.1%	71.9%	62.3%
Piped water inside dwelling	50.8%	41.5%	41.4%
Electricity for lighting	90.1%	89.1%	82.2%

Figure 20: Household services of SLM (Source: 2022 census)

According to figure 21, the annual average income is R29 400, with 45% of the population earning between 10 -40k per year and 14% of the population having no source of income. Majority of the population having access to a stove (88%), TV (79%), Fridge (77%) and cell phone (84%) as household goods.

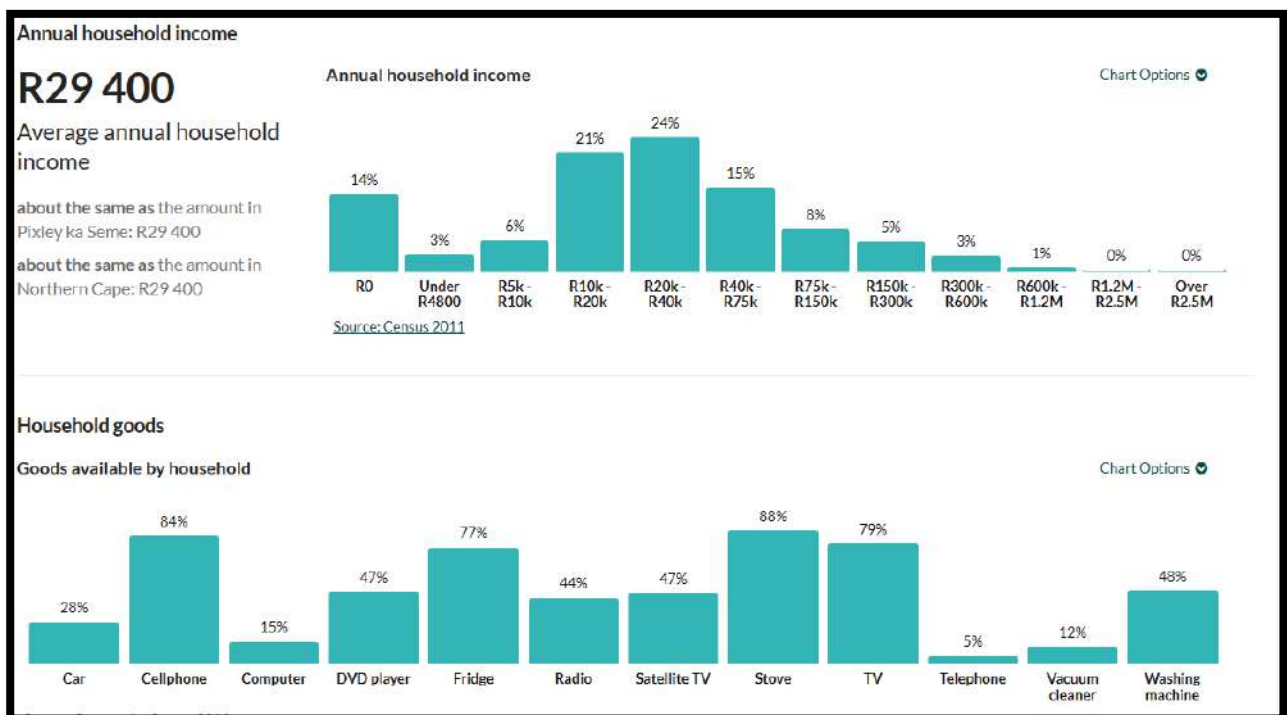


Figure 21: SLM annual household income & household goods (source :2022 Census)

#### **9.4.1.2. Description of the current land uses.**

The proposed project is situated about 1km south of the R357. There are agricultural activities which are being undertaken around and within the boundaries of the project area with the agriculture sector being the biggest job provider in the Siyancuma Local Municipality. The surrounding settlement types are the rural villages and the farm homesteads, with the closest settlements being Plooyburg at 5.41km and Bongani and it is 49.52km West of the application area. In a municipality context, other land uses include a conservation and tourism attraction area such as two National Parks (e.g Mokala National Game Reserve (2 km South-East of application area) and Witsand Nature Reserve (185.5km NW of application area) and several private game reserves. There is a Railway line 36.20 KM SW of the application area. There are no industrial activities in this municipality.

#### **9.4.1.3. Description of specific environmental features and infrastructure on the site.**

The project area is accessible via R357. In terms of sensitivity, the area falls within the Critical Biodiversity Area type two (2) & one (1) with the latter covering the least surface area. On the Northern side of the application area is boarded by the Riet River. Two types of natural wetlands were recorded on site, within the boundaries of the study areas. These are Depression or pans as well as Flood-plain wetlands. The area is an open veld wherein there are farm dwellings and cultivation activities being undertaken. The entire site is presently utilized for the cultivation of Lucerne, maize and potatoes, in addition to cattle farming. There are few farm holdings on the property (Figure 22).

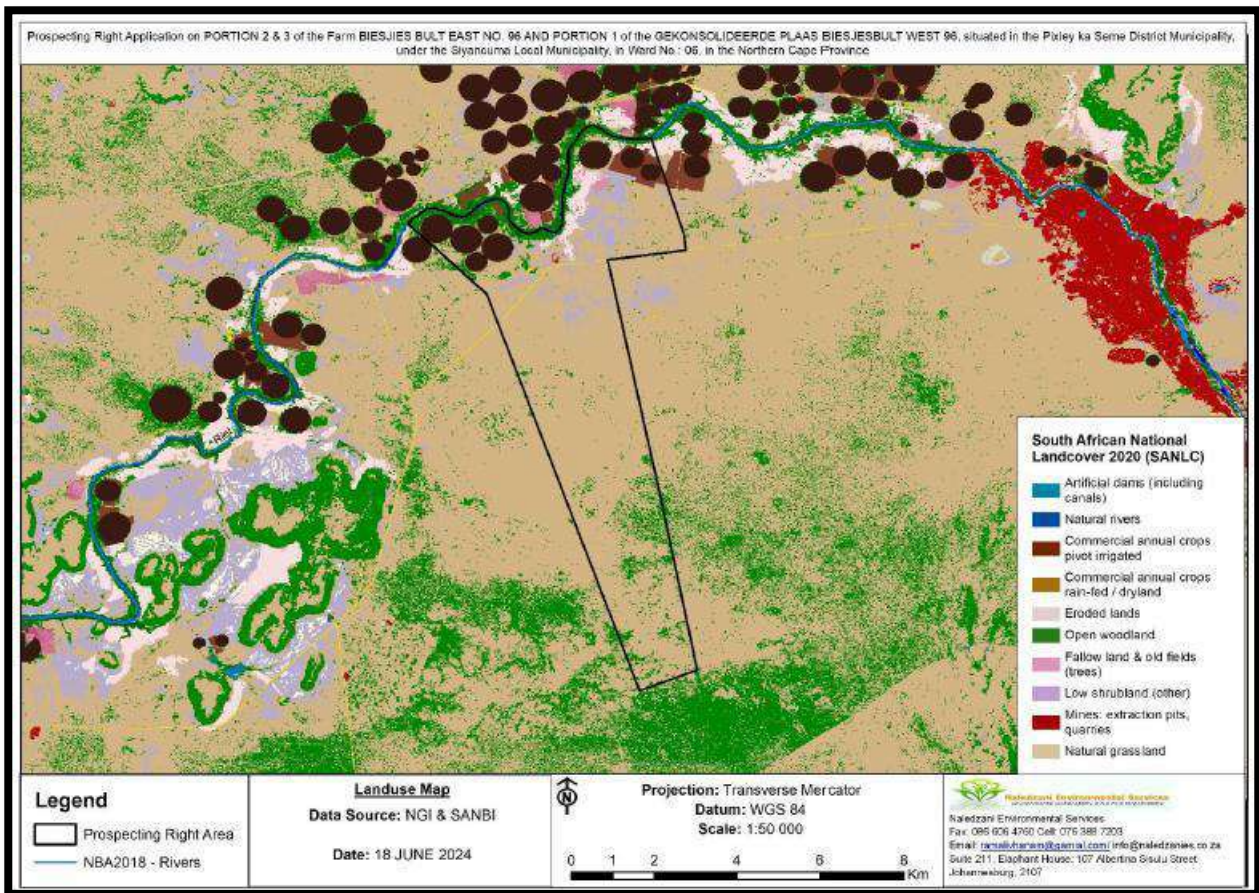


Figure 22: Land use of the site

**9.4.1.4. Environmental and current land use map**  
 (Show all environmental, and current land use features).

The environmental and current land use of the proposed area is shown on the map below (Figure 23).

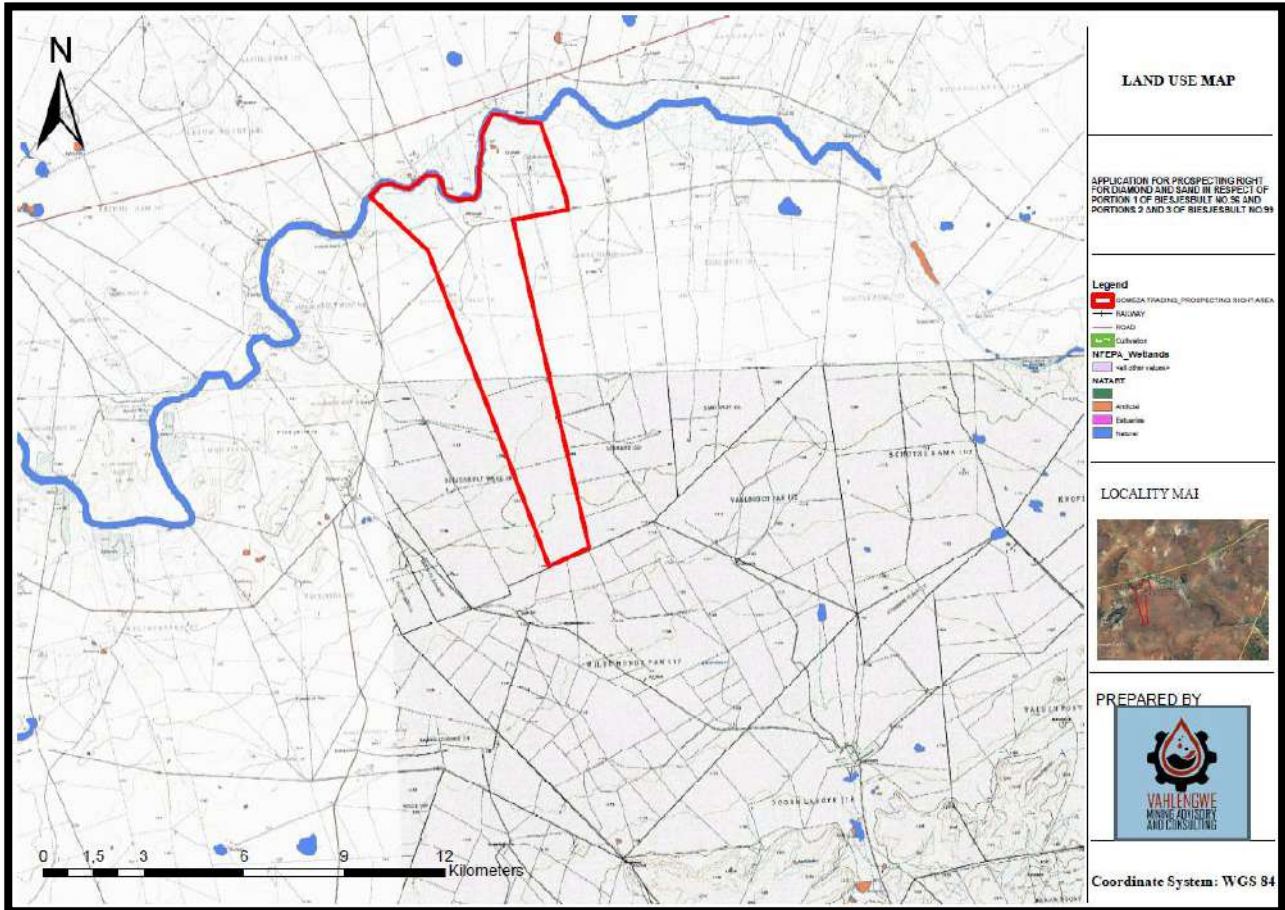


Figure 23: Environmental and Current Land use map

**9.4.1.4.1. Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts.**

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed, or mitigated).

**Project activities**

- **Site Establishment**

The applicant intends to utilize a bulldozer to clear vegetation for site establishment and the construction of the access roads.

- **Access Roads**

Existing roads will be utilized as far as possible, and areas of the least sensitivity will be chosen for

access roads to the trenching sites establishment.

- **Trenching**

The excavation will involve the **trenching** of five trenches, each with dimensions of 50 meters by 20 meters by 4 meters. Trenching locations cannot be considered at this stage because prospecting trenches can only be sited after desktop assessment, field mapping, and geophysical survey have been completed. The principle of sampling is to determine the quality and grade of the diamonds as well as the depth and extent at which the gravel is found. Gravel Thickness is expected to be 4m (i.e 5 000m<sup>3</sup>). Bulk sampling will be done by using machinery as well as labour. Excavators and rigid haul trucks will be used to remove the topsoil as well as possible diamondiferous gravel deposit where it then goes through a scrubber and is stockpiled.

- **Processing operations**

For processing diamondiferous gravel, two by sixteen-foot rotary pans will be used. All the material with a diameter of less than 0.5 mm will be dumped into the tailings dam once the diamondiferous material has been filtered. The larger diamondiferous gravels will be processed in an 18-foot rotational pan processing machine called a Dense Medium Separator (DMS).

- **Rehabilitation**

Various phases of the prospecting related activities from the site establishment, decommission and rehabilitation are associated with environmental impacts that may be major positive, negative and cumulative. The potential impacts are discussed per environmental features/ aspect below.

- **Visual**

Dust generation and creation of visual disturbance to the nearby communities and the wildlife in the Mokala National Park may occur from site clearance and establishment of the infrastructure.

- **Vegetation clearance**

The vegetation clearance due to the associated prospecting operations will allow for increased surface water runoff, which may lead to soil erosion and loss of topsoil.

- **Soils**

The removal of the topsoil may result in loss of topsoil life and nutrition and may disturb the natural sequence of soil layers thereby changing the soil and land capability. A change in soil capability will in consequently affect the end land use if not properly mitigated. The movement of heavy vehicles in the construction area will result in soil compaction, water runoff and soil erosion especially during the rainy season. Temporary storage of hazardous products may result in soil contamination through hydrocarbon spillages.

- **Surface Water**

The project area is bordered by the Riet River on the northern boundary, which forms part of the Modder-Riet River Catchment and is part of the broader orange river system. According to Acumen Environment (2024), the river is a vital water source for agricultural activities, including irrigation for crops such as maize and wheat. It also supports livestock farming in the region. The prospecting right operation anticipates a 100 m buffer from the water resources.

- **Groundwater**

According to Acumen Environment (2024), The Riet River interacts with the local groundwater systems, contributing to groundwater recharge in certain areas. This interaction is crucial for maintaining the water balance in the semi-arid environment. The excavations can result in groundwater contamination if the operation reach a water table. Groundwater may also be subjected to contamination due to hydrocarbons spillages and seepage into the ground.

- **Socio-Economic**

This project will create job opportunities for the local community members which will alleviate unemployment within the host community. Local businesses will also benefit from the procurement of goods and services that will sustain the project for the proposed period of the project. Project related employment has the potential to considerably improve the livelihoods and income stability of employees and their dependents.

- **Safety**

The prospecting equipment such as the dust control equipment, sprayers, equipment and vehicles, processing plant parts and pumps might be subjected to theft. These issues pose safety risks for law enforcement, affected landowners and adjacent communities. The prospecting site may be subjected to vandalism due to criminals seeking valuable items from the operation. Workers may sustain injuries related to the operation and material handling.

- **Health**

The proposed project is associated with the dust generation that contains fine particulate matter of which if inhaled may cause respiratory diseases to the workers. Exposure to silica material for an extended time may cause silicosis to workers.

- **Noise**

Noise disturbance to surrounding communities and wildlife in the Mokala National Park are expected to occur during prospecting operations due to the operating equipment and vehicles, and the processing plant.

## 10. Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;

### 10.1. Criteria to Consider when Determining Severity of impacts:

The ranking of impacts/determination of significance is estimated using two criteria, namely Consequence and Probability. These consider the contributing factors / criteria listed in the legislation. The definitions of each are provided below.

The **Consequence** of an impact resulting from an aspect is expressed as a combination of:

- **Nature** of impact: An indication of the extent of the damage (negative impacts) or benefit (positive impacts) the impact inflicts on natural, cultural, and/or social functions (environment).
- **Extent** of impact: A spatial indication of the area impacted (i.e., how far from activity the impact is realised).
- **Duration** of impact: A temporal indication of the how long the effects of the impact will persist, assuming the activity creating the impact ceases. For example, the impact of noise is short lived (impact ceases when activity ceases) whereas the impact of removing topsoil exists for a much longer period of time.
- **Frequency** of the impact occurring: An indication of how often an aspect, as a result of a particular activity, is likely to occur. Note that this does not assess how often the impact occurs. It applies only to the aspect. For example, driving takes place daily whilst other activities take place monthly while the resultant frequency of the impacts occurring will vary based on a number of factors.

**Magnitude/Severity** of an impact determines to what extent will the environment be destroyed or its functions be altered by the activity.

**Significance** of the impact is an indication of the importance of the impact in terms of both the physical extent and the time scale. It indicates the level of mitigation required.

Table 9: Consequences and Significance Rating

		<b>Nature of Impact:</b>		
<b>PROBABIL CONSEQUENCE</b>	<b>Low</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes are not affected.	<b>1</b>	
	<b>Low-Medium</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes are affected insignificantly.	<b>2</b>	
	<b>Medium</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes are altered.	<b>3</b>	
	<b>Medium-High</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes are severely altered.	<b>4</b>	
	<b>High</b>	Impacts affect the environment in such a way that natural, cultural and / or social functions and processes will temporarily or permanently cease.	<b>5</b>	
	<b>Scale/Extent of Impact:</b>			
	<b>Local</b>	The impacted area will only extend as far as the activity being conducted, e.g., the activity footprint	<b>1</b>	
	<b>site</b>	Impact occurs within a 20km radius of the site.	<b>2</b>	
	<b>Regional</b>	Impact occurs within a 100km radius of the site.	<b>3</b>	
	<b>National</b>	Impact occurs within South Africa.	<b>4</b>	
	<b>Duration of Impact:</b>			
	<b>Short-term</b>	The impact will either disappear with mitigation or will be mitigated through the natural processes in shorter time span.	<b>1</b>	
	<b>Medium-term</b>	The impact will last up to the end of the project phases, where after it will be negated. The impact will cease within 5 years if the activity is stopped.	<b>3</b>	
	<b>Long-term</b>	The impact will last for the entire operational phase and after the operational life of the operation but will be mitigated by direct human action or by natural processes thereafter.	<b>4</b>	
	<b>Permanent</b>	Intervention will not occur in such a way or in such a time span that the impact can be considered transient.	<b>5</b>	
	<b>Frequency of the Occurrence of the Impact:</b>			
	<b>Annually or less</b>	Impact occurs at least once in a year or less frequently.	<b>1</b>	
	<b>6 months</b>	Impact occurs at least once in 6 months.	<b>2</b>	
	<b>Monthly</b>	Impact occurs at least once a month.	<b>3</b>	
	<b>Weekly</b>	Impact occurs at least once a week.	<b>4</b>	
<b>Daily</b>	Impact occurs daily.	<b>5</b>		
<b>PROBABIL ITY</b>	<b>Probability of the Occurrence of the impact:</b>			
	<b>Improbable</b>	The possibility of the impact materializing is very low either because of design or historic experience.	<b>1</b>	
	<b>Probable</b>	The possibility of the impact materializing will occur to the extent that provision must be made thereof.	<b>2</b>	



	<b>Highly Probable</b>	It is most	<b>4</b>
	<b>Definite</b>	The impact will occur regardless of any prevention measures.	<b>5</b>
	<b>Magnitude of the impacts:</b>		
	<b>Low</b>	The impact alters the affected environment in such a way that the natural processes are not affected.	<b>2</b>
	<b>Medium</b>	The affected environment is altered; however, the functions and processes continue in a modified way.	<b>6</b>
	<b>High</b>	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.	<b>8</b>
<b>SIGNIFICANCE</b>	<b>Significance of the impact: Sum (Duration, Extent, Magnitude) x Probability</b>		
	<b>Negligible</b>	The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.	<b>&lt; 20</b>
	<b>Low</b>	The impact is limited in extent, with low to medium intensity and whatever the probability of the occurrence may be, the impact will not have a material effect on the decision and is likely to require the management intervention with increased costs.	<b>&lt; 40</b>
	<b>Moderate</b>	The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.	<b>&lt; 60</b>
	<b>High</b>	The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation	<b>&gt; 60</b>

This rating system is weighted in such a way as to set impacts that are very likely to occur, but have very little consequence, as Low significance. Similarly, impacts with serious consequences but that are unlikely to occur are rated lower, than impacts with serious consequences that are likely to occur.

Table 10: Impacts and Significance.

Aspect	Impacts	Extent	Duration	Magnitude	Probability	Significance	Reversibility	Replaceability
Soils and Land Capability	There will be a disturbance on the soil and erosion at the proposed prospecting area due to the vegetation clearance and the removal of the topsoil.	Local	Medium - Term	Medium	Highly Probable	Moderate	Irreversible	Irreplaceable
Vegetation	The potential impact of the proposed prospecting on the vegetation would occur at the prospecting area which result in loss of diversity, habitat and indigenous vegetation.	Local	Medium - Term	High	Definite	High	Irreversible	Replaceable
Animal life	<ul style="list-style-type: none"> <li>Animal life will be affected in the immediate vicinity of the operation.</li> <li>It is anticipated that the noise and general activity will keep the animal life away from the site while the prospecting is ongoing.</li> </ul>	Site	Medium - Term	High	Definite	High	Irreversible	Irreplaceable
Surface Water	The project area is bordered by the Riet River on the northern boundary, which forms part of the Modder-Riet River Catchment and is part of the broader orange river system. This may have an impact on the water quality and quantity due to siltation and contamination.	Regional	Medium - term	Medium	Probable	Moderate	Reversible	Irreplaceable
Ground water	The Riet River interacts with the local groundwater systems, contributing to groundwater recharge in certain areas. Groundwater contamination due to hydrocarbons seepages and trenching.	Regional	Medium - term	Medium	Probable	Moderate	Irreversible	irreplaceable
Air Quality/ Dust	Dust generation by vehicle movement on dust roads, processing of the material and during the trenching operations.	Site	Medium - Term	Medium	Highly Probable	Moderate	Reversible	Replaceable
Noise	Noise nuisance will be created by the prospecting trenches excavation, operating processing plant and vehicle movement.	Site	Medium - Term	Medium	Probable	Moderate	Irreversible	Replaceable
Cultural Heritage	The identified burial sites and historical structures and buildings should be protected from the proposed prospecting activities	Local	Medium - Term	Medium	Improbable	Moderate	Reversible	Replaceable

Visual	The prospecting activities will change the visual character of the property which will have negative impact to the nearby communities and the wildlife within Mokala National Park.	Site	Medium - Term	High	Definite	High	Irreversible	Replaceable
Socio-economic	The effect of this prospecting activity for employment and socio-economic regime would be positive.	Regional	Medium - Term	Medium	Probable	Moderate (positive)	Reversible	Replaceable
Safety	Equipment theft and property vandalism	Local	Medium - Term	Medium	Probable	Low	Reversible	Replaceable
Health	Health impact due to dust inhalation, occupational injuries.	Local	Medium - Term	Medium	Probable	Low	Reversible	Replaceable
Waste Generation	Waste nuisance and littering	Site	Medium - Term	Medium	Probable	Moderate	Reversible	Replaceable
Traffic and access	Prospecting activities generates additional traffic on the existing number of the moving vehicle going in and out of the site.	Regional	Medium - Term	Medium	Probable	Low	Reversible	Replaceable

### **10.1.1. The positive and negative impacts that the proposed activity and alternatives will have on the environment and the community that may be affected**

The impacts assessed has highlighted potential risks, important management strategies and control measures associated with the Project. It is considered that there are opportunities to substantially enhance and improve the potential impacts by undertaking a well-planned and effective operation. The project has associated positive and negative impacts. Such impacts are described in Table 11.



Table 11: Positive and negative impacts of the proposed activity.

Impact	Rating Pre-Mitigation	Construction	Operation	Decommission	Rating Post-mitigation
Positive (+)	Medium	<ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Support to local businesses and SMME's</li> <li>• Income generation for accommodation business sector</li> <li>• Contributing to the national's economy</li> </ul>	<ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Support to local businesses and SMME's</li> <li>• Income generation for accommodation business sector</li> <li>• Contributing to the national's economy</li> </ul>	<ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Land and soils capability restoration</li> <li>• Re-vegetation and regeneration of the indigenous vegetation</li> </ul>	Low
Negative (-)	Moderate	<ul style="list-style-type: none"> <li>• Visual nuisance</li> <li>• Health and Safety impacts</li> <li>• Surface and groundwater contamination</li> <li>• Impacts on traffic</li> <li>• Unsustainable job security</li> <li>• Disturbance on the landscape</li> <li>• Waste generation</li> <li>• Alien vegetation species invasion</li> <li>• Noise disturbances</li> </ul>	<ul style="list-style-type: none"> <li>• Visual nuisance</li> <li>• Health and Safety impacts</li> <li>• Surface and groundwater contamination</li> <li>• Impacts on traffic</li> <li>• Unsustainable job security</li> <li>• Disturbance on the landscape</li> <li>• Waste generation</li> <li>• Alien vegetation species invasion</li> <li>• Noise disturbances</li> </ul>	<ul style="list-style-type: none"> <li>• Visual nuisance</li> <li>• Health and Safety impacts</li> <li>• Surface and groundwater contamination</li> <li>• Impacts on traffic</li> <li>• Job losses</li> </ul>	Low
Negative (-)	High	<ul style="list-style-type: none"> <li>• Habitat disturbance</li> <li>• Vegetation disturbances</li> <li>• Loss of biodiversity</li> <li>• Soil erosion</li> <li>• Impacts on groundwater quality</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat disturbance</li> <li>• Vegetation disturbances</li> <li>• Loss of biodiversity</li> <li>• Soil erosion</li> <li>• Impacts on groundwater quality</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat disturbance</li> <li>• Vegetation disturbances due to vegetation clearance</li> <li>• Alien vegetation species invasion</li> </ul>	Medium



		<ul style="list-style-type: none"> <li>• Soils contamination</li> <li>• Visual nuisance to moving equipment and vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• Soils contamination</li> <li>• Visual nuisance to moving equipment and vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• Soil erosion</li> <li>• Impacts on groundwater quality</li> <li>• Waste generation</li> <li>• Visual nuisance to moving equipment and vehicles</li> </ul>	
--	--	---	---	--	--

#### **10.1.2. The possible mitigation measures that could be applied and the level of risk.**

All possible mitigation measures that could be applied to risks regarding the site layout are discussed and considered as part of the EIA process. The proposed mitigation measures for the assumed risks are discussed in detail under the EIA section.

#### **10.1.3. Motivation where no alternative sites were considered.**

The prospecting activities are intended to be conducted in search of the minerals that are being applied for. These minerals occur in specific areas depending on the geology of the area. The historical data shows that there could be the occurrence of such minerals in the area, and therefore, the prospecting activities are ought to be undertaken in the proposed site. The proposed site has existing access roads that will be used during the operational phase of the project and minimal infrastructure will be established due the project requirements and the site location.

#### **10.1.4. Statement motivating the alternative development location within the overall site.**

Based on the different studies conducted and the outcome from the public consultation during the public participation process, it has been concluded that all invasive prospecting activities will not be undertaken in sensitive areas wherein considerate buffer zones (100m) will be created from all identified environmental sensitive and 'no-go' area.

### **10.2. Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site**

#### **Environmental Impact Assessment (EIA):**

The purpose of the EIA Phase was to investigate the potential negative and positive impacts of a proposed project activities on the environment. The potential impacts were quantified to assess the significance that an impact may pose on the receiving environment. The objectives of the EIA process were to:

- Ensure that the project activities to be undertaken do not have a substantial detrimental impact on the environment by presenting management and mitigation measures that will avoid and/or reduce those impacts.
- Ensure that I&APs are informed, including the landowner, about the proposed project and the public participation process is properly followed.
- Ensure that I&APs are given an opportunity to raise concerns, and make input to understand their needs and expectations; and
- Provide a process aimed at enabling authorities to make an informed decision, especially in respect of their obligation to take environmental and social considerations into account when making those decisions.

The EIA process assessed the overall aspects that will be affected by the proposed project in relation to the activities to be conducted. A sensitivity report has been conducted to determine the sensitivity of the proposed area to make sound decision on the consideration and implementation of the mitigation measures of the impacts posed by the proposed activity.

- **Extreme**

These are unacceptable risks primarily critical in nature in terms of consequences in terms of the extensiveness and long-term environmental harm, permanent sacred site damage, fatality, and massive economic impacts that are effectively considered a possibility to almost certain to occur. Such risks significantly exceed the risk acceptance threshold and require comprehensive control measures, and additional urgent and immediate attention towards the identification and implementation of measures necessary to reduce the level of risk.

- **High**

Typically relate to significant to critical consequences including a major amount of environmental or heritage damage, and considerable safety, social or economic impacts that are inclined to cut across the possible to almost certain likelihood ratings. These are also likely to exceed the risk acceptance threshold and although proactive control measures have been planned or implemented, a very close monitoring regime and additional actions towards achieving further risk reduction is required.

- **Medium**

As suggested by the classification, medium level risks span a group of risk combinations varying from relatively low consequence / high likelihood to mid-level consequence / likelihood to relatively high consequence / low likelihood scenarios across environmental, social, and economic areas. These risks are likely to require active monitoring as they are effectively positioned on the risk acceptance threshold.

- **Low**

These risks are below the risk acceptance threshold and although they may require additional monitoring in certain cases are not considered to require active management. In general, such risks represent relatively low likelihood and low to mid-level consequence scenarios.

- **Very Low**

Impacts risks that are below the risk acceptance threshold and would at the most require additional monitoring and in many cases would not require active management. These risks can include unlikely to rare events with minor consequences and in essence relate to situations around very low probabilities of relatively minor impacts occurring.



Likelihoods have been categorised around the probability of occurrence, within the context of reasonable timeframes and frequencies given the nature of the anticipated project life. Levels of likelihood and the severity for the types of consequences that make up the risk rating determination are defined in the Table below:

Table 12: Likelihood rating system.

Rating	Likelihood	Definitions
5	Almost Certain	The event is expected to occur in most circumstances (The event is likely to occur once per year).
4	Likely	The event will probably occur in most circumstances (The event is likely to occur once every 1 – 2 years).
3	Possible	The event might occur at some time (The event is likely to occur once every 2 – 5 years).
2	Unlikely	The event could occur at some time (The event is likely to occur once every 5 – 10 years).
1	Rare	The event may occur only in exceptional circumstances (The event is unlikely to occur in any 10-year period).

### Risk Analysis Matrix

The risk controls are linked to the level of risk and opportunity for reduction to meet the project rehabilitation objectives and goals linked to an environmentally and socially responsible operation, and those requirements are part of the regulatory obligations and impact assessment guidelines. The table below provides a summary of the qualitative risk matrix adopted and the levels of risk for the various consequence and likelihood combinations.

Table 13: Risk Analysis Matrix.

		Severity of Consequence				
		Critical (5)	Major (4)	Significant (3)	Moderate (2)	Minor (1)
Likelihood of Consequence	Almost Certain (5)	Extreme	Extreme	High	High	Medium
	Likely (4)	Extreme	High	High	Medium	Medium
	Possible (3)	Extreme	High	Medium	Medium	Low
	Unlikely (2)	High	Medium	Medium	Low	Very Low
	Rare (1)	Medium	Medium	Low	Low	Very Low

The impact assessment will focus on the invasive activities of the project since they will have the potential to impact on the biophysical and the social environment of the proposed area. These activities include:

- Establishment of the office and equipment storage site;

- Installation of mobile offices and ablution facilities;
- Construction of temporal access road to the trenching sites;
- Excavation of Trenches and Bulk Sampling;
- Processing of materials; and
- Rehabilitation and closure

Table 14: Identified and assessed impacts and risks the activity will impose on the preferred site

Aspect	Impact	Mitigation Measures	*C	*L	*R
Vegetation	<ul style="list-style-type: none"> <li>Disturbance of sites and species of ecological importance;</li> <li>Loss of migration corridors, and access to nesting and refuge areas; and</li> <li>Displacement of animal habitat by clearing the vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>excavated areas must be clearly demarcated to control movement of personnel and vehicles, providing clear boundaries for the operational sites to limit the spread of impacts.</li> <li>Removal of vegetation must be undertaken in a phased approach to limit the number of plain areas at a time.</li> <li>A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs.</li> <li>No open fires are permitted within naturally vegetated areas.</li> <li>Temporary erosion control measures such as runoff berms that reduce flow velocity should be implemented around operation areas.</li> </ul>	Pre – Mitigation		
			3	4	H
			Post – Mitigation		
			1	3	L
Animal Life	<ul style="list-style-type: none"> <li>Animal life will be affected in the immediate vicinity of the operation;</li> <li>It is anticipated that the noise and general activity will keep the animal life away from the site while the operation is ongoing; and</li> <li>Movement of operation vehicles and machinery may result in collision with fauna, causing casualties of faunal species;</li> </ul>	<ul style="list-style-type: none"> <li>Environmental awareness and training for workers about the animal life on site.</li> <li>Killing of animals on site will be strictly prohibited and if animal is found must be safely removed from the operation.</li> </ul>	Pre – Mitigation		
			3	4	H
			Post – Mitigation		
			3	3	M
Soils and Land Capability	<ul style="list-style-type: none"> <li>The removal of vegetation associated with the prospecting activities will allow for increased surface water runoff, which may lead to change in topographical characteristics of the area;</li> <li>Land clearance during the prospecting operations may alter the natural sequence of soil layers thereby changing the soil and land capability;</li> </ul>	<ul style="list-style-type: none"> <li>Do not allow erosion to develop on a large scale before taking action.</li> <li>Removal of vegetation must be undertaken in a phased approach to limit the number of exposed areas at a time.</li> <li>Runoff from roads must be managed to avoid erosion and pollution problems.</li> </ul>	Pre – Mitigation		
			2	3	M
			Post – Mitigation		

	<ul style="list-style-type: none"> <li>The movement of heavy vehicles in the operation area will result in compaction of soil, water runoff and soil erosion especially during the rainy season;</li> <li>The equipment and vehicles may contaminate the soil due to accidental oil spillages.</li> <li>Loss of soil and land capability due to reduction in nutrient status because of de-nitrification and leaching due to stripping and stockpiling within the footprint areas.</li> </ul>	<ul style="list-style-type: none"> <li>Regular roads maintenance of eroded shoulders.</li> <li>A cleaned-up of any hydro-carbon spills on soil must be undertaken by trained personnel using commercially available emergency clean-up kits.</li> </ul>	1	3	L												
Surface water resources	<ul style="list-style-type: none"> <li>Contamination of water resources and deterioration of water quality because of soil erosion from wind and water on the exposed surfaces. Consequently, the soil erosion may increase turbidity and sedimentation of the nearby watercourses; and</li> <li>Disturbance of free drainage and runoff.</li> </ul>	<ul style="list-style-type: none"> <li>Remediate using commercially available emergency clean up kits;</li> <li>Operation and storage of machinery and mining-related equipment must be done outside of wetlands and rivers wherever possible, unless authorised by a WUL.</li> <li>Mechanical plant and bowsers must not be refuelled or serviced within or directly adjacent to any watercourse (including river and wetlands).</li> <li>Ensure that any rubbish is regularly cleared from the site, especially from wetlands/streams.</li> <li>Toilets should be located outside of the 1:100 yr. flood line of a watercourse or 50m or from any natural water bodies including streams and wetlands.</li> <li>Periodic visual inspections of on-site water quality, identifying the source of any rapid increases in turbidity of surface waters and remedying this where necessary such be performed by a qualified Environmental Officer. Water must be pumped out into a well- vegetated area some distance from any watercourse to facilitate sediment trapping and reduce the chance of sediment entering wetlands/streams.</li> <li>Implement soil pollution prevention methods;</li> <li>Contractors may only use designated toilets and waste disposal facilities; and</li> <li>Re-profiling and rehabilitation of the disturbed landscapes</li> </ul>	<table border="1"> <tr> <td colspan="3">Pre – Mitigation</td> </tr> <tr> <td>3</td> <td>4</td> <td>H</td> </tr> <tr> <td colspan="3">Post – Mitigation</td> </tr> <tr> <td>2</td> <td>3</td> <td>M</td> </tr> </table>			Pre – Mitigation			3	4	H	Post – Mitigation			2	3	M
Pre – Mitigation																	
3	4	H															
Post – Mitigation																	
2	3	M															
Groundwater resources	<ul style="list-style-type: none"> <li>Groundwater contamination due to chemicals and hydrocarbons seepage.</li> </ul>	<ul style="list-style-type: none"> <li>Remediate using commercially available emergency clean up kits; and</li> </ul>	<table border="1"> <tr> <td colspan="3">Pre-Mitigation</td> </tr> <tr> <td>3</td> <td>3</td> <td>M</td> </tr> <tr> <td colspan="3">Post-Mitigation</td> </tr> </table>			Pre-Mitigation			3	3	M	Post-Mitigation					
Pre-Mitigation																	
3	3	M															
Post-Mitigation																	

		<ul style="list-style-type: none"> <li>The applicant must ensure that fluids are stored and handled properly in a concrete or cement lined surface with berm walls to avoid any seepage into the groundwater resources and ensure that the design of the storage area is such that any leakages or spillages can be contained.</li> </ul>	2	2	L
Noise	<ul style="list-style-type: none"> <li>Increase in ambient noise levels during the operational phase; and</li> <li>Disturbances to faunal species and people within the neighbouring residential area during the operational phase.</li> </ul>	<ul style="list-style-type: none"> <li>Limiting the operation activities working hours to daylight hours (07h00 to 17h00) and not undertaking such activities at all on Sundays and public holidays;</li> <li>Applying an operating buffer of a minimum 500m, but preferably 1000m between prospecting operation and any dwellings and Mokala National Park;</li> <li>Develop effective complaints register that can be maintained on a regular basis and is accessible to interested and affected parties;</li> <li>It must be noted that the speed limit for driving within a community and prospecting site shall be limited to 40Km/h on exposed surfaces;</li> <li>Switching off equipment whilst it is not in use; and</li> <li>Implement both environmental noise monitoring and occupational noise monitoring.</li> </ul>	Pre – Mitigation		
			3	3	M
			Post – Mitigation		
			2	3	M
Air Quality/Dust	<ul style="list-style-type: none"> <li>Possible dust generation in some areas during the prospecting operations;</li> <li>Heavy dust deposition can have detrimental effects on plants if the leaves are smothered to the extent where transpiration and photosynthesis are affected;</li> <li>Emissions of fine particulate matter during the operational stage would have adverse health effects on wildlife and people within the proximity of the project site; and</li> <li>Generation of carbon emissions and ambient air pollutants from diesel and petrol fumes because of movement of vehicles and operation of machinery/equipment.</li> </ul>	<ul style="list-style-type: none"> <li>Conduct dust fall-out monitoring;</li> <li>Enforcing the speed limits to reduce dust created by moving vehicles;</li> <li>Roads in use will be subjected to dust suppression management measures; and</li> <li>Implement concurrent rehabilitation activities to minimise the number of exposed surfaces that would result in dust generation.</li> </ul>	Pre – Mitigation		
			2	3	M
			Post – Mitigation		
			1	3	L
Visual	<ul style="list-style-type: none"> <li>Visual disturbance due to site clearance;</li> <li>Dust generated during the prospecting operations; and</li> <li>View disturbance due to the placement of the equipment and offices used on site.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that all exposed surfaces are subjected to dust suppression; and</li> <li>Clearing of vegetation must be undertaken within the demarcated boundaries of the designated area only.</li> </ul>	Pre – Mitigation		
			3	3	M
			Post – Mitigation		
			2	3	M



Socio-economic	<ul style="list-style-type: none"> <li>The effect of the prospecting activities for employment and socio-economic regime would be positive, but very limited in extent.</li> </ul>	<ul style="list-style-type: none"> <li>Skill development and transfer;</li> <li>Maximise procurement of goods and services from local providers; and</li> <li>Supporting local recycling center and local scrap metal merchant;</li> </ul>	1	3	L
Cultural and Heritage Resources	<ul style="list-style-type: none"> <li>desktop research revealed that the project area would have been rich in Stone Age artefacts and the field survey noted that this was not the case within the proposed development site.</li> <li>The study identified two burial sites and historical structures and buildings</li> </ul>	<ul style="list-style-type: none"> <li>The identified burial sites trigger Section 36 of the NHRA and should be protected from proposed Prospecting activities;</li> <li>The study area is littered with historical structures and buildings which are protected by Section 34 of the NHRA and no prospecting activities are to be conducted within the proximity of the structures;</li> <li>Adequate 100m buffer should be provided between prospecting activities and identified burial sites, building and structures;</li> <li>If any heritage resources, including fossils, graves, or human remains, are encountered these must be reported to the authorities;</li> <li>In the event of obvious human remains the South African Police Services should be notified and public access should be limited</li> </ul>	Pre – Mitigation		
			3	3	M
			Post – Mitigation		
2	2	L			
Waste	<ul style="list-style-type: none"> <li>Waste Generation including general, scrap and hazardous waste; and</li> <li>If this waste is not stored correctly, can lead to environmental pollution including soil and water resources.</li> </ul>	<ul style="list-style-type: none"> <li>Classification and separation of the waste into general or hazardous must be implemented onsite into different coloured and labelled bins;</li> <li>Uncontrolled disposal of waste must strictly be prohibited on site;</li> <li>Waste shall not be buried or burned on site; and</li> <li>No dumping shall be allowed in or near the operational site</li> </ul>	Pre – Mitigation		
2	3	M			
Post – Mitigation					
1	3	L			
Safety	<ul style="list-style-type: none"> <li>Theft of equipment and the damage of infrastructure;</li> <li>Injuries to workers that may occur during the prospecting activities;</li> <li>The influx of job seekers in the area may result in an increase in petty crimes; and</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that there is a controlled access to the site by deploying security personnel who would also conduct security patrols to monitor the perimeters of the project site thereby providing an increased security presence;</li> </ul>	Pre – Mitigation		
2	3	M			
Post – Mitigation					

	<ul style="list-style-type: none"> <li>Inadequate communication channels may lead to community strife;</li> </ul>	<ul style="list-style-type: none"> <li>Consult with the local police branch to establish standard operating procedures for the control and/or removal of loiterers; and</li> <li>All project infrastructure should be contained in a fenced and secured area to prevent unauthorized access and potential health and safety risks.</li> </ul>	1	3	L
Health	<ul style="list-style-type: none"> <li>The dust generation with potentially particulate matter, which can be inhaled, causing respiratory diseases.</li> </ul>	<ul style="list-style-type: none"> <li>All area that are sources of dust must be subjected to dust suppression.</li> <li>Continuous dust monitoring should be carried out throughout the project undertakings.</li> <li>All employees will be issued with and instructed to wear the appropriated personal protective equipment (PPE).</li> </ul>	Pre – Mitigation		
			2	3	M
			Post – Mitigation		
			1	3	L
Traffic	<ul style="list-style-type: none"> <li>Increase in traffic volumes on existing traffic network; and</li> <li>Cumulative impact on the condition of farm roads around the mining area. surface condition;</li> </ul>	<ul style="list-style-type: none"> <li>Local speed limits and traffic laws shall apply at all times to minimise the occurrences of accidents on public roads;</li> <li>Remedy through emergency response procedures sections of existing road surfaces which have been impacted on by vehicular movement; and</li> <li>Existing road surfaces must be utilised and maintained within baseline levels.</li> </ul>	Pre – Mitigation		
			2	3	M
			Post – Mitigation		
			1	3	L
*C – Consequences *L – Likelihood of consequences *R – Residual Risks VL – Very Low L – Low M – Medium H – High					

### 11. Assessment of each identified potentially significant impact and risk

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

Table 15: Assessment of the potentially significant impact and risk

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASES	SIGNIFICANCE	MITIGATION TYPE	SIGNIFICANCE
Vegetation Clearance	<p><b>Vegetation</b></p> <ul style="list-style-type: none"> <li>• Destruction of natural vegetation</li> <li>• Invasion of alien and invasive vegetation; and</li> <li>• Exposure to erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Vegetation (flora);</li> <li>• Animal life (fauna); and</li> <li>• Soil and land capability</li> </ul>	Construction; Operational; and Decommissioning	High	<ul style="list-style-type: none"> <li>• Minimise site clearance to areas as per the approved site layout plan;</li> <li>• Avoid and protect sensitive or protected flora;</li> <li>• Implementation of the alien species eradication plan; and</li> <li>• Avoid loss of Fauna through conservation.</li> </ul>	Moderate
Excavations of prospecting trenches, material handling and rehabilitation	<p><b>Noise</b></p> <ul style="list-style-type: none"> <li>• Noise Generation</li> </ul>	<ul style="list-style-type: none"> <li>• Noise pollution</li> </ul>	Construction; Operational; and Decommissioning	Moderate	<ul style="list-style-type: none"> <li>• Conducting regular equipment maintenance to minimise noise generated by the operating equipment;</li> <li>• Limiting the operation times to daylight hours (07h00 to 17h00) on Mondays to Fridays, Saturdays (07h00 to 14h00) and no activities to be conducted on Sundays and public holidays; and</li> <li>• Maintaining a buffer of 500m between the operation area and dwellings and Mokala National Park.</li> </ul>	Low



Excavations of prospecting trenches, material handling and rehabilitation	<p><b>Visual</b></p> <ul style="list-style-type: none"> <li>• Visual impact of project activities</li> <li>• Visual impact on observers travelling along the roads and residents</li> </ul>	<ul style="list-style-type: none"> <li>• Topography and Visual Environment</li> </ul>	Operational and decommissioning	High	<ul style="list-style-type: none"> <li>• Minimise unvegetated areas as far as possible;</li> <li>• Conduct concurrent rehabilitation of all disturbed areas.</li> </ul>	Moderate
Excavations of prospecting trenches, material handling and rehabilitation	<p><b>Air Quality</b> Dust generation</p>	<ul style="list-style-type: none"> <li>• Dust fall &amp; nuisance from activities</li> </ul>	Operational and decommissioning	Moderate	<ul style="list-style-type: none"> <li>• Implementation of the dust suppression system;</li> <li>• Dust monitoring should be implemented;</li> <li>• Low vehicle speeds enforcement on unpaved surfaces; and</li> <li>• Maintain a buffer of 500m- 1000m between operational site and Mokala National Park.</li> </ul>	Low
Excavations of prospecting trenches, material handling and rehabilitation	<p><b>Soils and land Capability</b></p> <ul style="list-style-type: none"> <li>• Soil Compaction leading to erosion and sedimentation</li> </ul>	<ul style="list-style-type: none"> <li>• Soil and vegetation disturbance</li> </ul>	Operational and decommissioning	Moderate	<ul style="list-style-type: none"> <li>• No informal soil, additional or random routes should be developed in vicinity of the prospecting area;</li> <li>• Overburden material may not be dumped in a random manner. Specific sites must be agreed upon and adhered to allow the use of the overburden in landscaping or fill where required;</li> <li>• All vehicles should be inspected for leaks to prevent unnecessary spillages of diesel and oil on site that may lead to soil contamination;</li> <li>• Provide adequate erosion control measures where required;</li> <li>• No mixing of fertile soils with sub soils during the operation; and</li> <li>• Implement concurrent and re-vegetate all disturbed with locally indigenous species as soon as possible.</li> </ul>	Low

Excavations of prospecting trenches and concurrent rehabilitation	<p><b><u>Surface water and groundwater resources</u></b></p> <ul style="list-style-type: none"> <li>• Sedimentation and siltation of water courses</li> <li>• Alteration of natural drainage patterns</li> <li>• Contamination of water resources</li> <li>• Degradation of surface and groundwater quality</li> </ul>	<ul style="list-style-type: none"> <li>• Surface water quality</li> <li>• Groundwater quality</li> </ul>	Operational and decommissioning	High	<ul style="list-style-type: none"> <li>• Remedy the possible effects of alteration to natural drainage lines;</li> <li>• Implementing the hydrocarbon spillages management plan;</li> <li>• Ensure that wastewater is appropriately managed;</li> <li>• Implement the erosion control measures.</li> <li>• A groundwater monitoring programme to create a data base with baseline water level and water quality information; and</li> <li>• The applicant must ensure that fluids are stored and handled properly in a concrete or cement lined surface with berm walls to avoid any seepage into the groundwater resources and ensure that the design of the storage area is such that any leakages or spillages can be contained.</li> </ul>	Moderate
Excavations of prospecting trenches, material handling and rehabilitation	<p><b><u>Health and Safety</u></b></p> <ul style="list-style-type: none"> <li>• Health and safety of employees and surrounding communities</li> </ul>	<ul style="list-style-type: none"> <li>• Human health and safe working environment</li> </ul>	Operational and decommissioning	Low	<ul style="list-style-type: none"> <li>• All employees or sub-contractors entering site must be inducted to ensure the awareness of the developed health and safety plan;</li> <li>• Appoint a health and safety representatives during operations;</li> <li>• Conduct daily inspections and observations of on-site activities shall take place;</li> <li>• All incidents to be reported, recorded, investigated, and mitigated.</li> <li>• Employees or sub-contractors must be informed as to what required PPE is applicable in working sections, and must always be equipped with appropriate PPE;</li> <li>• Safety signs to be provided in areas considered as high-risk areas;</li> </ul>	Low

					<ul style="list-style-type: none"> <li>• Provided adequate first aid services on site; and</li> <li>• Promote ongoing health and safety awareness campaigns.</li> </ul>	
Vehicles and equipment storage and maintenance	<b><u>Soils and land Capability</u></b>	<ul style="list-style-type: none"> <li>• Soil contamination</li> </ul>	Construction; Operational; and decommissioning	Moderate	<ul style="list-style-type: none"> <li>• All vehicles should be inspected for leaks to avoid spilling diesel and oil on the job site, which could lead to soil contamination;</li> <li>• Spill kits should be available on site for cleaning oil spills;</li> <li>• The area where the vehicles and equipment will be stored and/or serviced should be bunded to avoid spillages into the soils; and</li> <li>• Drip trays should be placed under all stationary vehicle to capture all leakages and prevent seepage of hydrocarbons into the soils.</li> </ul>	Low
Fuel storage	<b><u>Soils and land Capability</u></b>	<ul style="list-style-type: none"> <li>• Soil contamination</li> </ul>	Construction; Operational; and decommissioning	Low	<ul style="list-style-type: none"> <li>• Fuel storage tanks should be placed in bunded areas to minimise fuel seeping into the ground as far as possible;</li> <li>• Spill kits should be available on site for cleaning oil spills and leaks;</li> <li>• Cleaned up oils should be properly stored and disposed.</li> </ul>	Low
Employment and procurement	<b><u>Socio-economic</u></b> <ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Local economic development</li> </ul>	Socio-economic conditions	Construction; Operational; and decommissioning	Moderate	<ul style="list-style-type: none"> <li>• Conduct consultation with local communities through the appropriate channels to ensure the use of local skills and businesses where possible;</li> <li>• Ensure local employment and local services providers are appointed where possible from the local area; and</li> <li>• Ensure that goods and services are procured from within the local area as far as possible.</li> </ul>	Moderate

Excavations of prospecting trenches	<p><b><u>Heritage</u></b></p> <ul style="list-style-type: none"> <li>Degradation of cultural significance heritage site</li> </ul>	<ul style="list-style-type: none"> <li>Loss of heritage &amp; palaeontological resources</li> </ul>	Construction; Operational; and decommissioning	Moderate	<ul style="list-style-type: none"> <li>The identified burial sites trigger Section 36 of the NHRA and should be protected from proposed Prospecting activities;</li> <li>The study area is littered with historical structures and buildings which are protected by Section 34 of the NHRA and no prospecting activities are to be conducted within the proximity of the structures;</li> <li>Adequate 100m buffer should be provided between prospecting activities and identified burial sites, building and structures;</li> <li>Conduct identification of all possible sites of archaeological value prior to the commencement of authorised work; and</li> <li>Identified sites must be clearly demarcated as no-go areas.</li> <li>In the event of obvious human remains the South African Police Services should be notified and public access should be limited</li> </ul>	Low
Transportation of the material	<p><b><u>Traffic Management</u></b></p> <ul style="list-style-type: none"> <li>Operating vehicles and access roads</li> </ul>	<ul style="list-style-type: none"> <li>Pressure on public transport infrastructure</li> <li>Socio-economic conditions</li> </ul>	Construction; Operational; and decommissioning	Moderate	<ul style="list-style-type: none"> <li>Existing road surfaces must be utilised and maintained within baseline levels.</li> </ul>	Low
Waste Generation	<p><b><u>Waste Management</u></b></p> <ul style="list-style-type: none"> <li>General, scrap and hazardous waste generation</li> </ul>	<ul style="list-style-type: none"> <li>Soil contamination</li> <li>Contamination of water resources</li> <li>Impacts on human health</li> </ul>	Construction; Operational; and decommissioning	Moderate	<ul style="list-style-type: none"> <li>Waste skips should be provided on site and must be removed from the site once their full capacity has been reached. The waste skips will typically contain domestic waste. No liquid waste will be placed in these skips;</li> <li>Hazardous waste should be properly stored and disposed;</li> </ul>	Low



					<ul style="list-style-type: none"><li>• Promoting the reduction, re-use, or recycle of waste where prevention is not possible;</li><li>• Waste should be properly classified, separated, stored, and disposed at relevant disposal sites;</li><li>• There must be a service agreement for disposal of waste from the municipality for disposal of domestic waste;</li><li>• Littering should be strictly prohibited, and waste generated by the workers that reside on site must be properly stored awaiting collection and proper disposal.</li></ul>	
--	--	--	--	--	--	--

**12. Summary of specialist reports.**

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):

A Screening Report for an Environmental Authorisation was generated from the Department of Environment, Forestry and Fisheries (DFFE) Web-based Environmental Screening Tool in terms of NEMA: EIA Regulations 2014 (as amended). The following is a summary of the environmental sensitivities of the site where the proposed prospecting activities are to be undertaken. The Screening Tool enables the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014 (as amended) whereby a Screening Report is required to accompany any application for Environmental Authorisation and as such the tool has been developed in a manner that is user friendly and no specific software or specialised GIS skills are required to operate this system (DFFE, 2021). Consequently, the prospecting activities will be undertaken on an area where there are no sensitivities.

Table 16: Environmental Sensitivity of the proposed area

THEME	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme			X	
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Paleontology		X		
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

As indicated above, a low rating indicates that the impacts are unlikely to occur. A medium rating indicates that the impact is likely/almost likely to occur, and a high rating means that the impact is possible/almost certain. A very high rating indicates that the impact on the proposed environment is certain to occur.

The screening tool indicates that Agriculture, Aquatic and Terrestrial Biodiversity themes of the proposed site are very high, indicating that the likelihood of the impact occurring is high. The Archaeological and Cultural Heritage and Plant species sensitivities on site are low.

Table 17: Summary of specialist reports.

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Phase 1: Heritage Impact Assessment	<p>Desktop research revealed that the project area would have been rich in Stone Age artefacts and the field survey noted that this is not the case within the proposed development site, as only a handful of isolated stone tools were found. This however can be attributed to the fact that the study area is not on pristine ground having undergone various land use practices, also archaeological material may exist on the subsurface and can only be identified as chance finds during prospecting. The developer should therefore be aware of the potential for chance find remains and the applicant and contractors are urged to lookout for chance finds during prospecting. The study noted that the proposed prospecting right area is within a heavily disturbed landscape. The area has been heavily disturbed by pipeline and electrical infrastructure, farming and cattle ranching activities. The field survey identified a scatter of stone tools within the study area, the stone tools were found in different sites within the study area. The study also noted that two burial sites (<b>DBS01</b> and <b>DBS02</b>) exist within the study area and therefore are protected by Section 36 of the NHRA. It was also noted that the study triggers Section 34 of the NHRA as old buildings and farm structures exist within the study area.</p>	<input checked="" type="checkbox"/>	<p>Sections: 9.4.1.1; 9.4.1.4.1; 10.1; 10.2; 11; 15.2; 18.9; 20</p>



	<p>The procedure for reporting chance finds has clearly been laid out and if this report is adopted by SAHRA, then there are no archaeological reasons why the Proposed Prospecting Right Application cannot be approved. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of this heritage report, there are no significant cultural heritage resources barriers to the proposed development project. SAHRA may approve the project as planned with special commendations to implement the recommendations here in made:</p> <ul style="list-style-type: none"> <li>• It is recommended that SAHRA/NCPHRA endorse the report as having satisfied the requirements of Section 38 (8) of the NHRA requirements;</li> <li>• It is recommended that SAHRA/NCPHRA make a decision in terms of Section 38 (4) of the NHRA to approve the proposed prospecting right application;</li> <li>• The identified burial sites trigger Section 36 of the NHRA and should be protected from proposed Prospecting activities;</li> <li>• The study area is littered with historical structures and buildings which are protected by Section 34 of the NHRA and no prospecting activities are to be conducted within the proximity of the structures;</li> <li>• Adequate 100m buffer should be provided between prospecting activities and identified burial sites, building and structures; and</li> <li>• 6. From a heritage perspective supported by the findings of this study, the project is supported. However, mining activities should be</li> </ul>		
--	--	--	--



	approved under observation that the dimensions do not extend beyond the area considered in this report.		
Hydrological Impact Assessment	The floodlines represent the calculated conditions possible during the 1:100-year return period floods as it assumed that the storm would occur over the full catchment and the stream will convey a peak flood. The nearest river systems that could cause a potential 1: 100-Year flood <b>do not encroach on the floodline on the majority of the site except where “solid Red lines” are indicated, and development should be avoided in such areas. Development should proceed as intended.</b>	<input checked="" type="checkbox"/>	Sections: 9.4.1.1; 9.4.1.4.1; 10.1; 10.2; 11; 15.2; 18.9
Ecology and Wetland Impact Assessment	<p>During site assessment, three vegetation unit were noticed on site and these are cultivated area, open shrubland (covering more of the site) and the riverine vegetation (occurring along the Riet River). The open shrubland was found to having conservation status of medium to high due to the presence of protected plant species (<i>Vachellia erioloba</i> – Camel thorn) and also being able to provide habitat for the identified faunal species. This is similarly to the riverine vegetation which is of high conservation value due to it being the local corridor for faunal species as well as the NFEPA state of the Riet river.</p> <p>Therefore, when choosing areas to be prospected, the applicant should take into account to avoid these species. A permit application regarding protected flora as well as the harvesting of indigenous vegetation need to be lodged with the Northern Cape Department of Environment and Nature Conservation prior to any clearance of vegetation</p> <p>The area along the Reit River is also of medium to high conservation due to the presence of a floodplain wetland as we all the NFEPA state (Riet River).</p>	<input checked="" type="checkbox"/>	Sections: 9.4.1.1; 9.4.1.4.1; 10.1; 10.2; 11; 15.2; 18.9



	<p>Prospecting along this river will lead to sedimentation as well as destruction of the wetland. Should DWS authorises the prospecting on the water bodies such prospecting should rather take place during the low flow or low rain fall season to limit sedimentation.</p> <p>It is recommended that the management measures stipulated in this report be included into the proposed projects official EMP and that these are assessed for efficacy during all phases of the project and adapted accordingly to ensure minimal disturbance of the study areas' ecology.</p> <p>Other specific conclusions and recommendations are listed below.</p> <ul style="list-style-type: none"> <li>• All licences must be obtained prior to prospecting;</li> <li>• All ablution facilities must be placed far away from the water bodies including their buffer zone;</li> <li>• Where possible, construction along water bodies should proceed during the dry winter months (low or zero flow periods) in order to limit the potential for erosion linked to high runoff rates;</li> <li>• An alien and invasive management plan must be adhered to at all times; and</li> <li>• Ensure active re-vegetation of cleared/mined areas as being important in-order to limit erosion potential.</li> <li>• Where possible, mining along water bodies should proceed during the dry winter months (low or zero flow periods) in order to limit the potential for erosion linked to high runoff rates, as to prevent sedimentation on the Orange River</li> </ul>		
--	--	--	--



	it is clear that the destruction of the natural habitat within the mining area is inevitable. The significance of the impacts will be affected by the success of the mitigation measures implemented and the rehabilitation programme for the mining area.		
--	--	--	--

Attach copies of Specialist Reports as Appendices

### 13. Environmental impact statement

#### 13.1. Summary of the key findings of the environmental impact assessment;

The assessed impact ratings after implementation of the mitigation measures described above are as follows:

Table 18: Summary of the Environmental Impact Assessment

Impacts	Activity Phases	Significance	
		Pre – Mitigation	Post – Mitigation
Flora and Fauna	Construction, Operational, and Decommission	High	Moderate
Noise	Construction, Operational, and Decommission	Moderate	Low
Visual	Construction, Operational, and Decommission	High	Moderate
Air Quality/Dust	Construction, Operational, and Decommission	Moderate	Low
Soils and Land Capability	Construction, Operational, and Decommission	Moderate	Low
Surface Water	Construction, Operational, and Decommission	Moderate	Low
Groundwater Resources	Construction, Operational, and Decommission	Low	Low
Health and Safety	Construction, Operational, and Decommission	Low	Low
Socio – Economic	Construction, Operational, and Decommission	Moderate	Moderate
Cultural and Heritage Resources	Construction, Operational, and Decommission	Moderate	Low
Traffic	Construction, Operational, and Decommission	Low	Low
Waste	Construction, Operational, and Decommission	Moderate	Low

Most of the identified impacts will occur for a limited period and the extent of the impacts will be localised. All the identified impacts can be suitably mitigated with the residual impact ratings being of **low** significance. After the prospecting activities have been completed and the land will be rehabilitated with an intent to return it to its pre-prospecting impacts state.

### 13.2. Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. Attach as **Appendix 3**.

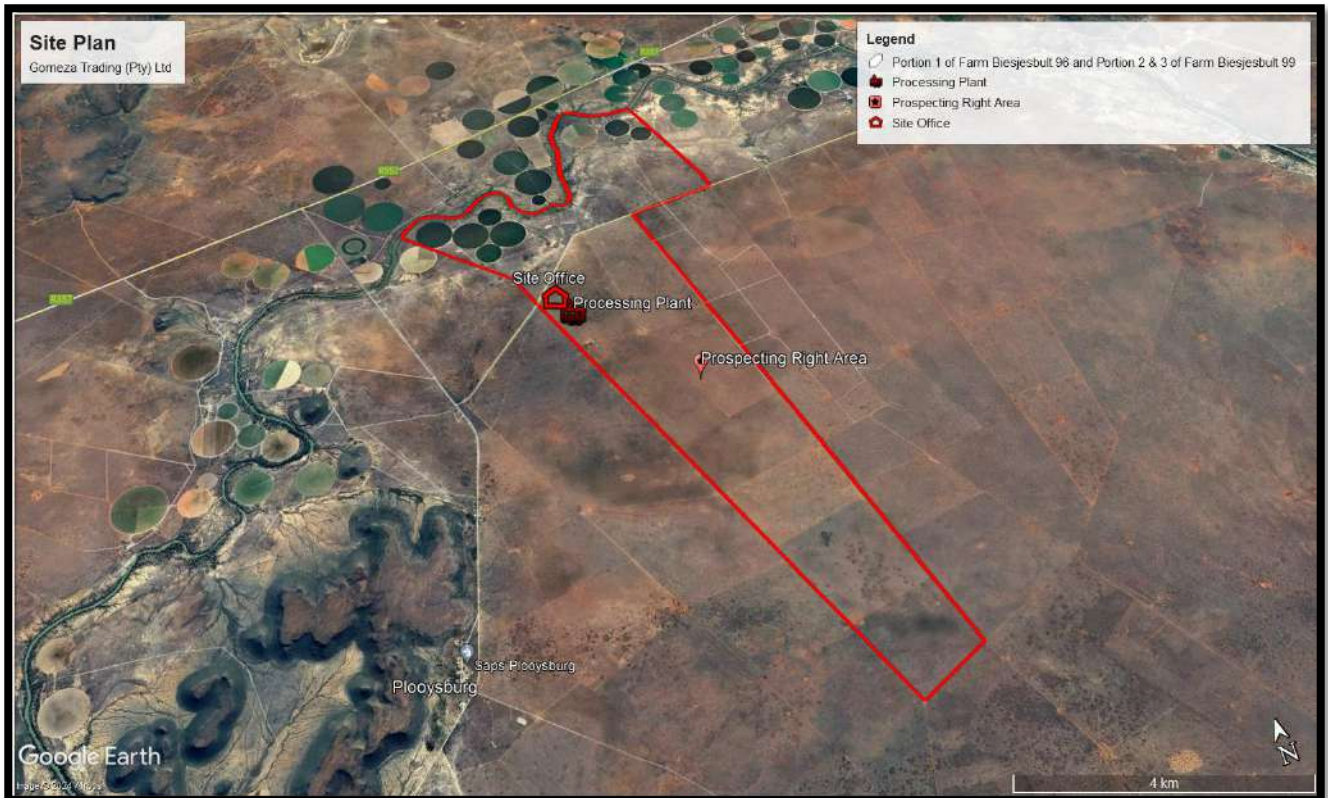


Figure 24: Final site plan

**13.3. Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;**

Table 19: Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

<b>Proposed Activity</b>	<b>Aspects</b>
Non – Invasive Activities	No impacts on site
<b>Positive</b>	
Invasive Activities: Site establishment, Operation and decommission	Potential for neighbouring communities to benefit from assistance with shared land management responsibilities.
	The opportunity of implementing processes around feral animal control.
	<ul style="list-style-type: none"> <li>• Opportunities for indigenous employment and economic development;</li> <li>• Requirement for the supply of the goods and services from the local businesses; and</li> <li>• Requirement for short-term accommodation and thus benefiting the house rental and accommodation sector.</li> </ul>
	<ul style="list-style-type: none"> <li>• Supporting local recycling centre and local scrap metal merchant; and</li> <li>• Metals such as steel and copper wire will be collected in designated areas prior to removal from site for recycling.</li> </ul>
<b>Negative</b>	
Invasive Activities: Site establishment, Operation and decommission	<ul style="list-style-type: none"> <li>• Soil compaction and soil erosion due to the movement of heavy vehicles in the on-site; and</li> <li>• Soil contamination due to hydrocarbon spillages from the fuel storages and vehicles.</li> </ul>
	<ul style="list-style-type: none"> <li>• Introduction of alien vegetation;</li> <li>• Loss of flora and fauna;</li> <li>• Ecological and habitat destruction.</li> </ul>
	<ul style="list-style-type: none"> <li>• Erosion and sedimentation leading to soil scouring and increased turbidity of water courses and drainage lines downstream.</li> </ul>
	<ul style="list-style-type: none"> <li>• Contamination of groundwater due to chemicals and hydrocarbons seepage.</li> </ul>
	<ul style="list-style-type: none"> <li>• Noise nuisance due to moving vehicles and operating equipment.</li> </ul>
	<ul style="list-style-type: none"> <li>• Dust creation during clearance, placement of infrastructure and the trenching operations.</li> </ul>
	<ul style="list-style-type: none"> <li>• Increased visual intrusion due to the operation activities and the movement of the operating equipment and vehicles.</li> </ul>
	<ul style="list-style-type: none"> <li>• Project is unsustainable in terms of job security due to the life of project.</li> </ul>
	<ul style="list-style-type: none"> <li>• Indigenous resources, values, and aspirational impacts.</li> </ul>
	<ul style="list-style-type: none"> <li>• Waste generation including the domestic, scrap and hazardous waste.</li> </ul>
	<ul style="list-style-type: none"> <li>• Inheritance of occupational health problems and exposure to occupational hazards.</li> </ul>
<ul style="list-style-type: none"> <li>• Addition to the existing traffic of the movement of vehicles</li> </ul>	

#### **13.4. Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;**

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

The objectives of the EMPr will be to:

- Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts;
- Ensure that the prospecting activities are conducted in a sustainable manner;
- Develop an approach that will ensure compliance with relevant legislations; and
- Provide a management plan that is effective and practical for implementation.

Through the implementation of the proposed mitigation measures it is anticipated that the identified environmental impacts can be managed and mitigated effectively.

- Heritage/cultural resources can be managed by avoidance of known resources and through consultation with landowners/stakeholders.
- Noise generation can be managed through consultation and restriction of operating hours and by maintaining equipment and applying noise reduction equipment if necessary;
- Visual intrusion can be managed through consultation with landowners/stakeholders and by use of screens (natural vegetation or shade cloth etc);
- Dust generation can be managed by limiting as far as possible the exposure of surfaces, application of dust suppression methods on exposed surfaces and use of water during prospecting activities;
- Soil disturbance and clearance of vegetation at trenching areas will be limited to the absolute minimum required and disturbed areas will be re-vegetated with locally indigenous species as soon as possible;
- A Terrestrial Biodiversity impact assessment has been conducted to protect biodiversity and to ensure that impacts of protected and vulnerable species are prevented, and where impacts cannot altogether be prevented, they must be minimised and mitigated and/or managed.
- Manage as far as possible the soil, surface water and groundwater contamination due to hydrocarbons by conducting proper vehicle maintenance, refuelling with care to minimise the chance of spillages, placing the fuel storage tanks on bunded areas or impermeable structures and by having a spill kit available on each site where prospecting activities are in progress;
- Conduct an appropriate public consultation and conflict resolution during stakeholder consultation phases. All prospecting personnel will be made aware of the local conditions and

sensitivities in the prospecting area and local residents are treated with respect and courtesy at all times.

### **13.5. Final Proposed Alternatives**

As the environmental studies formed the basis for the layout plan, it was already taken into account in the initial plan that the activities should be carried out in such a way that potential environmental impacts are avoided and minimised. Where impacts cannot be avoided, mitigation and management measures have been provided.

### **13.6. Aspects for inclusion as conditions of Authorisation.**

(Any aspects which must be made conditions of the Environmental Authorisation)

It is the opinion of the EAP that the following conditions should form part of the authorisation:

- Maintain a buffer of 100m from a water course;
- Maintain a minimum 100m buffer from the Mokala National Park and any infrastructure or dwelling; and
- I&APs should be engaged on a regular basis to address any complaints brought about the prospecting activities.

### **13.7. Description of any assumptions, uncertainties, and gaps in knowledge.**

(Which relate to the assessment and mitigation measures proposed)

It is VahleNGWE Mining Advisory and Consulting (Pty) Ltd opinion that no knowledge gaps or uncertainties exist regarding the investigations undertaken by specialist studies as part of the Gomeza Prospecting Right and associated Environmental Authorisation Application.

### **13.8. Reasoned opinion as to whether the proposed activity should or should not be authorised**

#### **13.8.1. Reasons why the activity should be authorized or not.**

The applicant is committed to conduct the prospecting activities in a sustainable manner and to comply with the prescribed environmental legislations in order to protect the environment and manage as far as possible the impacts associated with the project. Therefore, the applicant will ensure that:

- The prospecting program will be developed in a phased manner commencing with non-invasive activities to bring refinement to understanding of the geological variance;
- the environmental impacts associated with the prospecting activities are deemed to be minimal provided that the proposed mitigation is implemented;
- In the event that the success exceeds expectations/assumptions, the financial guarantee will be reviewed annually and variation in the planned work programme will be revised in line with Section 102 of the MPRDA;



- With appropriate care and consideration, the impacts resulting from the prospecting activities can be suitably avoided, minimised, or mitigated;
- With implementing the appropriate rehabilitation activities, the impacts associated with the prospecting activities can be reversed; and
- Without implementation of prospecting activities, the knowledge concerning the potential mineral resource within the prospecting right area will not be confirmed.

### **13.8.2. Conditions that must be included in the authorisation**

The following conditions could form part of the authorisation:

- Maintain a buffer of 100m from a water course;
- Maintain a 50m (preferably 100m) buffer from any infrastructure or dwelling;
- Maintain at least 1km buffer from Mokala National Park;
- Conduct a heritage survey of the identified trenches sites and access routes across undisturbed land once these are known and prior to any activities being undertaken at these sites;
- The applicant must ensure that fluids are stored and handled properly in a concrete or cement lined surface with berm walls to avoid any seepage into the groundwater resources and ensure that the design of the storage area is such that any leakages or spillages can be contained.
- Conduct relevant independent ecology assessment (if not conducted) to ensure that the prospecting activities are not conducted on environmentally sensitive areas.
- Implement the impact management and monitoring measures as set out in the EMPr together with the monitoring to measure the effectiveness of the EMPr.; and
- Landowners and land occupiers should be engaged prior to any site activities being undertaken once the camp and trenches sites have been determined.

### **13.9. Period for which the Environmental Authorisation is required.**

- The authorisation is required for the duration of the prospecting right which is an initial 5 years plus a potential to extend the right by an additional 3 years. Therefore, a total period of 8 years is required.

### **13.10. Undertaking:**

- The undertaking is provided at the end of the EMPr.

### 13.11. Financial Provision:

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

A financial provision of approximately **R467 836.00** has been budgeted for the prospecting programme over 5 years, for rehabilitation activities.

#### 13.11.1. Explain how the aforesaid amount was derived.

The financial provision calculations were undertaken in terms of the guidelines provided within the “DMR Guideline Document for The Evaluation of The Quantum of Closure-Related Financial Provision Provided by a Mine” (DMR, 2005). The closure components for the prospecting activities are summarised on the table below:

Table 20: Closure components to the mining activities

Components	Extent	Description
1. Dismantling of processing plant and related structures	150m <sup>3</sup>	A processing plant to process the diamondiferous gravel will be established on site.
2(A). Demolition of steel buildings and structures	0m <sup>2</sup>	There will be no steel structures
2(B). Demolition of reinforced concrete buildings and structures	0m <sup>2</sup>	Only mobile offices and ablutions will be put on site and removed upon closure of the project
3. Rehabilitation of access roads	60m <sup>2</sup>	There are temporary access roads that will require rehabilitation
4(A). Demolition and rehabilitation of electrified railway lines	0m	There are no electrified railway lines
4(B). Demolition and rehabilitation of non-electrified railway lines	0m	There are no non-electrified railway lines
5. Demolition of housing and/or administration facilities	0m <sup>2</sup>	There is no housing that will require demolition
6. Opencast rehabilitation including final voids and ramps	0	Only prospecting trenches will be excavated during the project activities
7. Sealing of shafts, adits, and inclines	0m <sup>3</sup>	There are no shafts, adits nor inclines on site
8(A). Rehabilitation of overburden and spoils	0 ha	The spoils from the trenching will be used to backfill the trenches.
8(B). Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	0ha	There will be no processing waste deposits and evaporation ponds
8(C). Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	0ha	There will be no wastewater being generated on site
9. Rehabilitation of subsided areas	0ha	The prospecting activities are not associated with subsidence
10. General surface rehabilitation	2,605 ha	The area that will require rehabilitation will include the site camp, trenching sites and access roads
11. River diversions	0m	The prospecting area is not associated with river diversions
12. Fencing	0m	Fencing would not be required
13. Water management	0ha	There will be water circulation dams that will need to be rehabilitated
14. 2 to 3 years of maintenance and aftercare	0ha	All disturbances will be subjected to rehabilitation

## **14. Deviation from the Approved Scoping Report and Plan of Study**

### **14.1. Deviations from the methodology used in determining the significance of potential environmental impacts and risks**

This submission to the DMR for Gomez Trading (Pty) Ltd.'s Prospecting Right Application is being undertaken in terms of Section 16 of the MPRDA and NEMA, EIA Regulation GN 982, as amended. On April 10, 2024, DMR, as the competent authority, accepted a Scoping Report compiled in accordance with NEMA for the Listed Activities. However, the study plan and methodology adopted in this EIA report do not deviate from the DMR-accepted Scoping Report.

### **14.2. Motivation for the deviation**

No deviations were undertaken from the approved Scoping Report from the DMR.

## **15. Other Information required by the Competent Authority**

### **15.1. Impact on the socio-economic conditions of any directly affected person.**

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling, or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an **Appendix**..

An extensive consultation process with I&APs was undertaken during the scoping and environmental impact assessment phases of the application. The purpose of the consultation is to provide affected persons the opportunity to raise any concerns they may have. The comments, concerns and suggestions received have been recorded in the Comment and Response Report (CRR). The CRR is included in this Environmental Impact Assessment Report to be submitted to the DMRE for decision making.

### **15.2. Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.**

(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

According to Ruins Archeo Heritage (2024), desktop research indicated that the project area was likely to be rich in Stone Age artifacts. However, a subsequent field survey revealed that this is not the case within the proposed development site, as only a few isolated stone tools were discovered. This discrepancy can be attributed to the fact that the study area has undergone various land use practices and is not in a pristine condition. Additionally, archaeological materials may exist below the surface and can only be identified as chance finds during prospecting activities. The Phase I Cultural-Heritage Impact Assessment study for the prospecting noted that the proposed prospecting right area is within a heavily disturbed landscape. The area has been heavily disturbed by pipeline and electrical infrastructure, farming and cattle ranching activities. The field survey identified a scatter of stone tools within the study area, the stone tools were found in different sites within the study area. The study also noted that two burial sites (**DBS01** and **DBS02**) exist within the study area and therefore are

protected by Section 36 of the NHRA. It was also noted that the study triggers Section 34 of the NHRA as old buildings and farm structures exist within the study area.

Given this potential, the developer should remain vigilant for the possibility of encountering archaeological remains. It is imperative that both the applicant and contractors are instructed to be observant for such chance finds during prospecting.

The procedure for reporting chance finds has been clearly outlined. If this report is endorsed by the South African Heritage Resources Agency (SAHRA), there are no archaeological impediments to the approval of the Proposed Prospecting Right Application. Provided that the recommendations in this report are followed, and the proposed mitigation measures are implemented, there are no significant cultural heritage resource barriers to the proposed development project.

#### **16. Other matters required in terms of sections 24(4) (a) and (b) of the Act.**

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as an **Appendix**).

The proposed prospecting activities (including the trenching) requested as part of this authorisation is the viable manner in which a mineral resource can be identified and used to generate a SAMREC compliant resource which is a minimum requirement to determine whether it is viable to invest in a future mine. Therefore, the proposed prospecting activities to be undertaken will be part of the feasibility studies to determine whether the minerals of interest will be economically viable to mine.

**PART B**

**ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT**

**17. Environmental Management Programme Introduction.**

**17.1. Details of the EAP,** (Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

- This has already been covered. Refer to Part A, Section 1(a) of this document.

**17.2. Description of the Aspects of the Activity** (Confirm that the requirement to describe the aspects of the activity that are covered by the environmental management programme is already included in PART A, section (1)(h) herein as required).

- This has already been covered. Refer to Part A, Section 1(h) of this document.

**17.3. Composite Map**

(Provide a map **(Attached as an Appendix)** at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

The composite map of the proposed area is shown on the map below.

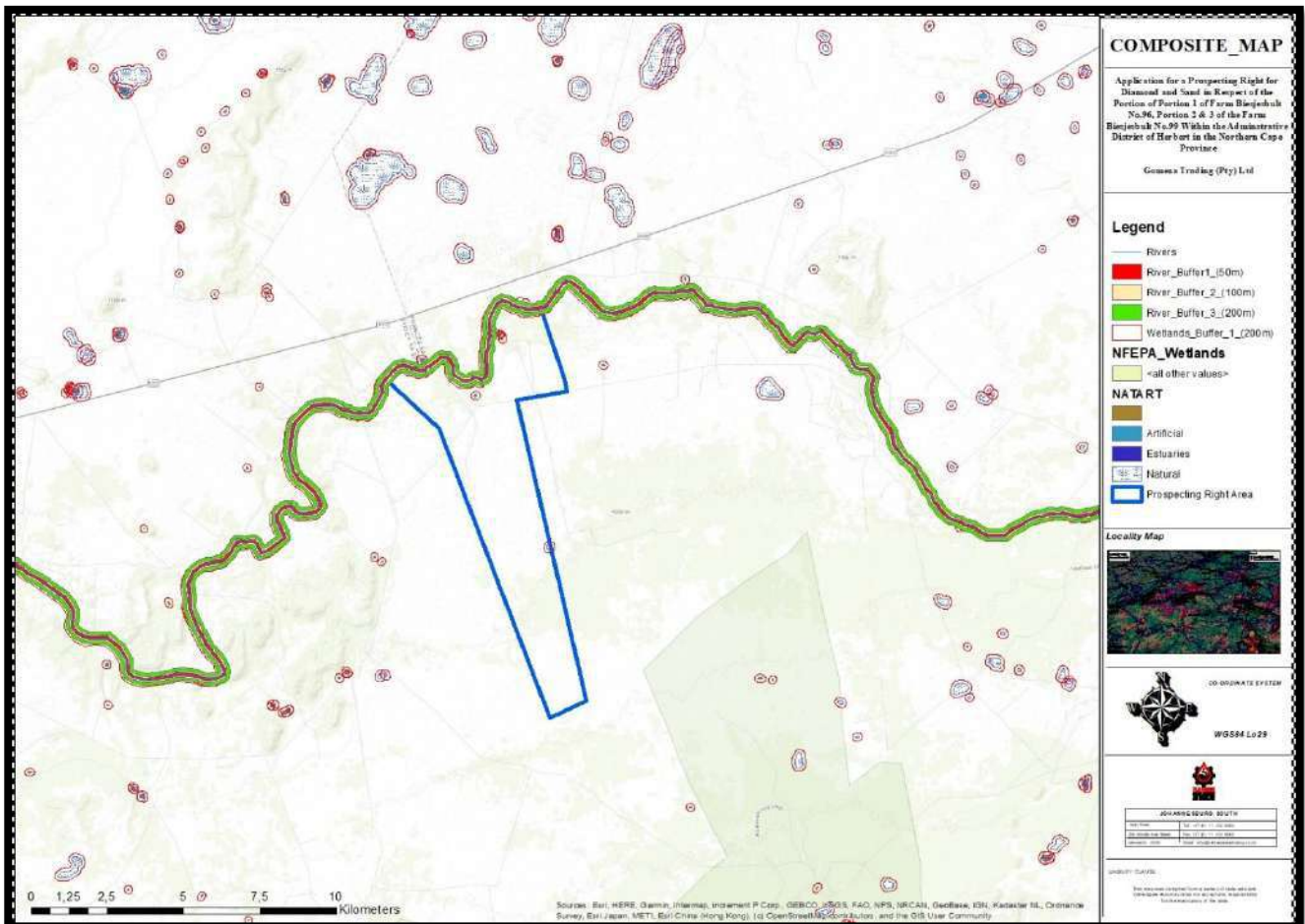


Figure 25: Composite map.

## **18. Description of Impact Management Objectives Including Management Statements**

### **18.1. Determination of closure objectives**

The vision, and consequent objectives and targets for rehabilitation, decommissioning, and closure, are intended to reflect the local environmental and socio-economic context of the project, as well as to reflect both the corporate requirements, as well as stakeholder expectations.

The receiving environment within which the prospecting activities will be undertaken include the following key land-uses:

- Agriculture
- Human Settlements
- Livestock grazing
- Conservation and Tourism
- Mokala National Park

In practice, the post-closure land-use has been determined by the pre-prospecting land use applicable to the precise area of the invasive prospecting activities. Given that the exact locations of the intended prospecting activities have been identified and assessed, it can be said that the closure plan will sufficiently address the objectives for the preferred alternative. This EMPr, on the other hand, aims to address the key closure objectives, which are likely to remain consistent over most prospecting activities.

The Rehabilitation plan shall outline the closure objectives, which are focused at restoring the landform, land use, and vegetation units to their pre-prospecting state, unless the landowner requests a specified, justifiable replacement land use. As a result, the disturbed prospecting areas' planned end land use and closure objectives will be specified in consultation with the relevant landowner. Evidence of such consultation will be given with an application for Closure Certificate. The overall goal of the rehabilitation plan is to rehabilitate the area to as close as its pre-prospecting condition as possible. This will be accomplished through a series of established objectives:

- Ensuring that the area is safe for people and animals. This entails closing the trenches and rehabilitating any areas that may pose a safety hazard;
- Recreating a free draining landform which entails earthworks infilling, reshaping, and levelling of all the disturbed landscapes to recreate as close as possible the original topography and to ensure a free draining landscape;
- Re-vegetation which involves either reseeded or allowing natural succession depending on the type of vegetation in the area, climate, and the landscape class; and

- Verification of rehabilitation success, which involves monitoring of rehabilitation and ensuring that area is eligible for closure.

## 18.2. The process of managing environmental impacts

An Environmental Response Plan (ERP) is a comprehensive document that outlines the procedures and strategies to be implemented in the event of an environmental incident or emergency situations that may arise at Gomezza's prospecting operation. The primary goal of an ERP is to minimize the impact of such incidents on the environment, human health, and safety. Environmental Response Plan has the following objectives:

- To categorize emergency situations by identifying hazards and establishing procedures for responding to these situations;
- Assign responsibilities for responding to emergency situations;
- Establishing an effective system for receiving, recording, and forwarding reports of environmental incidents and emergencies; and
- Ensure that all environmental incidents or emergencies are investigated and that the necessary procedures are put in place to implement corrective and preventive actions to prevent recurrence.

Gomezza's emergency preparedness and response code of practice must be compiled in accordance with the following:

- ISO 9001:2000;
- ISO 14001;
- Occupational Health and Safety (OHSAS) 18001;
- The Mine Health and Safety Act, 1996 (Act No. 29 of 1996); and
- The Mineral Act, 1991 (Act No. 50 of 1991).

In the event of an emergency, the ERP and relevant procedures will be reviewed, and the necessary action taken. Copies of the Emergency Response Plan will be placed in accessible and visible locations on the site, such as the site office, to assist in the effective implementation of procedures.

Gomezza must ensure that employees and contractors are adequately trained regarding the implementation of the EMPr, environmental legal requirements and obligations, and the ERP.

Environmental awareness applies to all project personnel who must be trained so that they are aware of their environmental responsibilities before entering the site. An Environmental Control Officer (ECO) will be appointed to conduct training during the operational phase of the project as well during the decommissioning and rehabilitation phase. This will be to ensure that the site has been returned to its



original or acceptable form, and that the ERP is being employed adequately in the event of an emergency. As a result, training programmes and periodic emergency simulations are recommended to ensure that all people understand safety and emergency procedures.

Personnel who fail to comply or disregard training and instruction should be penalised based on their offence. Depending on the gravity of the offence, first-time offenders may just receive a written warning. Second-time offenders may face suspension or fines, based on the discretion of the site manager, who may consult with the ECO.

### **18.3. Potential risk of Acid Mine Drainage**

The potential risk of acid mine drainage was not assessed because the proposed prospecting activities are not expected to generate acidic waste. As a result, the proposed actions pose no risk of acid mine drainage.

### **18.4. Steps taken to investigate, assess and evaluate the impact of Acid Mine Drainage**

Not applicable.

### **18.5. Measures to be put in place to remedy any residual or cumulative impacts from acid mine drainage**

Not applicable.

### **18.6. Volumes and rate of water use required for the operation.**

It is projected that approximately 10,000 litres of water will be necessary for the process. The water will be either sourced from the municipality and transported to the site or extracted from groundwater.

The feasibility of groundwater extraction will be verified in consultation with the Department of Water and Sanitation (DWS). Should groundwater extraction be required, a Section 21(a) water use license will be necessary.

### **18.7. Has a water use licence been applied for?**

The proposed prospecting project requires a WULA in terms of Section 21 of the National Water Act (Act 36 of 1998). All water management infrastructure will be designed to withstand a 24-hour rainfall event that occurs once every 1,000 years. A WULA will be compiled and submitted to the DWS as the decision-making authority in accordance with Section 21 of the NWA. The EIA process has assessed the potential impacts of prospecting activities on groundwater resources.

**18.8. Impacts to be mitigated in their respective phases**

Table 21: Measures to rehabilitate the environment affected by the undertaking of any listed activity

Activities	Phase	Size and Scale of Disturbance	Mitigation Measures	Compliance with Standards	Time Period for Implementation
Site Clearance	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	0.09 ha, short term and localized	<ul style="list-style-type: none"> <li>Minimize clearance of vegetation as much as possible. In instances where it is possible, cut vegetation instead of clearing to minimize soil disturbance.</li> <li>Use of hand cutting techniques wherever possible and minimise the usage of heavy machines when clearance of vegetation is undertaken to prevent soil disturbance.</li> <li>Any larger fauna species discovered prior to and during vegetation clearance should be given the opportunity to relocate away from the machinery that will be used for construction and prospecting activities.</li> <li>Sensitive areas should be demarcated and treated as No-Go areas.</li> <li>Methods for minimizing potential harm to fauna species should be used during vegetation clearance. To maximize the potential for mobile species to move to adjacent areas, clearing must be gradual and slow, beginning from the interior of the site and continuing outwards towards the boundary.</li> <li>Indigenous vegetation, even secondary communities should not be fragmented under any circumstances or further disturbed.</li> <li>To avoid the spread of exotic or invasive species or the unlawful collection of plants, no plant species, whether indigenous or exotic, shall be brought into or taken from the proposed project area.</li> <li>Utilize local labour if possible.</li> <li>Vehicle movement should be restricted to provided access roads.</li> <li>Implement alien vegetation management.</li> <li>Implementing mitigation measure to prevent and manage hydrocarbon spills.</li> <li>Conducting water quality and quantity monitoring.</li> <li>No prospecting activities to be conducted at or near sensitive water resource areas.</li> </ul>	NEMA MPRDA NEMBA NEMAQA Dust regulations NWA	Throughout prospecting
Site Access	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	Short term and localized	<ul style="list-style-type: none"> <li>When on site, the Applicant and/or contractors must take into consideration not to interfere with current land uses and practices.</li> <li>All site employees and visitors must be taken through a site induction, which includes basic environmental awareness as well as site-specific environmental requirements such as site sensitivities and appropriate protocols/procedures. Wherever possible, the Contractor's Environmental Officer should present or facilitate this induction.</li> </ul>	NEMA OHS and MHSA	Throughout prospecting

Establishment of site infrastructure	<ul style="list-style-type: none"> <li>• Operation</li> </ul>	0.09 ha, short term and localized	<ul style="list-style-type: none"> <li>• Vehicles and machinery must use existing access routes as far as possible to prevent unnecessary construction of new routes.</li> <li>• Ensure proper and adequate drainage.</li> <li>• Dust suppression should be undertaken when required to reduce the usage of water. Dust suppression strategies should be in accordance with applicable standards for PM<sub>10</sub> and PM<sub>2.5</sub>.</li> <li>• Ensure that prospecting is in accordance with occupational health and safety regulations.</li> <li>• All the trenches must be protected, with security access control and warning signs to ensure no person or animal can access these sites.</li> <li>• All laydown, chemical toilets should be restricted to least sensitive areas.</li> <li>• Noise must be kept to an absolute minimum during all the prospecting phases to minimize the impact of the development on the fauna that lives on the site.</li> <li>• Permanent structures should not be permitted on site. Buildings should preferably be prefabricated or constructed from reusable/recyclable materials.</li> <li>• Contractors working on the project should have spill kits available to ensure that any fuel or oil spills are cleaned up and disposed of properly.</li> </ul>	NEMA MPRDA NEMBA NEMAQA Dust regulations NWA	Throughout prospecting process
Storage of hazardous substances	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Operational</li> </ul>	Short term and localized	<ul style="list-style-type: none"> <li>• To prevent pollution of the environment or harm to humans or animals, all hazardous substances such as fuel, grease, oil, brake fluid, hydraulic fluid must be handled, stored, and disposed of in a safe and responsible manner. Appropriate spillage prevention measures must be implemented.</li> <li>• If there are any major spills of hazardous materials, they must be reported in accordance with Section 30 of the NEMA.</li> <li>• All chemicals and toxicants used in the construction must be stored away from sensitive areas and in a bunded area.</li> <li>• The applicant must ensure that fluids are stored and handled properly in a concrete or cement lined surface with berm walls to avoid any seepage into the groundwater resources and ensure that the design of the storage area is such that any leakages or spillages can be contained.</li> </ul>	NWA NEMWA NEMA	Throughout prospecting process
Waste management	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Operation</li> </ul>	Short term and localised	<ul style="list-style-type: none"> <li>• Waste generated on-site must be classified and separated using the color-coding method.</li> <li>• Waste management must be prioritized, and all waste must be properly collected and disposed of.</li> <li>• Recyclable waste must not be stored on site for extended periods to prevent risk of environmental pollution.</li> </ul>	NEMWA	Throughout prospecting activities

			<ul style="list-style-type: none"> <li>To prevent rodents and pests from entering the site, it is recommended that all waste be removed on a weekly basis.</li> <li>A Waste Management System must be put in place, with adequate waste storage in a form of covered containers, waste separation for recycling, and frequent removal of non-recyclable waste for permanent disposal at an appropriately licensed waste disposal facility. On-site waste disposal will be prohibited.</li> </ul>		
Storage of construction vehicle	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	Short term and localised	<ul style="list-style-type: none"> <li>Any equipment that may leak and is not required to be transported on a regular basis must be placed on watertight drip trays to catch any possible pollutant spills. The drip trays must be large enough to accommodate the equipment.</li> <li>Drip trays must be cleaned on a regular basis and must not overflow. All spilled hazardous substances must be collected and disposed of properly at a properly licensed facility.</li> <li>Soil compacting must be avoided as much as possible, and the use of heavy machinery must be restricted in areas of the intended prospecting sites.</li> <li>Storage spaces must be located outside of the buffer zones.</li> </ul>	NWA	Throughout prospecting activities
Transportation/ access to and from the trenching sites	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	short term and localized	<ul style="list-style-type: none"> <li>All prospecting/operational and access must make use of the existing roads as far as possible.</li> <li>Under no circumstances may the contractor damage any existing structures on the where the prospecting activities are to be undertaken</li> <li>On-site vehicles must be restricted to approved access routes and locations on the site in order to reduce excessive environmental disturbance to the soil and vegetation on site.</li> <li>Damage to public roads caused by prospecting activities must be repaired in consultation with the appropriate municipal authorities.</li> </ul>	NEMA NEMBA CARA NEMAQA NWA Dust Regulations	Throughout prospecting
Excavations of Prospecting trenches	Operation	2.5 ha, Short term and localized	<ul style="list-style-type: none"> <li>To minimize the period of disturbance on fauna and flora, the duration of prospecting activities should be kept as short as possible.</li> <li>To minimize the disturbance footprint, vegetation clearance for prospecting sites should be kept to a minimum.</li> <li>Always adhere to approved plans to avoid encroachment on the sensitive areas.</li> <li>The recommended buffer zones must be strictly adhered to. Buffer zones must be clearly demarcated and monitored as No-Go areas.</li> <li>Adequate sanitary ablution facilities on the servitude must be provided for all personnel throughout the project area.</li> <li>Prepare action plans and train contractors and staff in the case of spills, leaks, or other impacts to aquatic systems.</li> </ul>	SANS 10103 Noise Regulations NEMAQA Dust Regulations NWA	Throughout prospecting and decommissioning

			<ul style="list-style-type: none"> <li>• To prevent soil compaction, soil compacting must be avoided as much as possible, and the use of heavy machinery must be restricted in areas outside of the intended prospecting sites.</li> <li>• Dust-reducing mitigation measures must be implemented and strictly enforced, particularly for all roads and spoils. This includes watering exposed soft soil surfaces and not conducting activities on windy days, which increase the risk of dust generation.</li> <li>• Any potentially noisy activities or work should be undertaken at suitable times of the day. These works should not be carried out at night or on weekends.</li> <li>• Noise must be kept to an absolute minimum during the evenings and at night to minimize all possible disturbances to amphibian species and nocturnal mammals.</li> <li>• Outside lights should be directed away from sensitive environments such as wetlands. Fluorescent and mercury vapor lighting should be avoided, and instead use sodium vapor (yellow) illumination whenever possible.</li> <li>• To avoid migrating, nesting, and breeding seasons, prospecting activities and operations should be scheduled during the least sensitive periods.</li> <li>• The holes need to be sealed to ensure that no fauna species can fall in the drill hole.</li> <li>• On-site vehicles must be restricted to approved access routes and areas on the site in order to reduce excessive environmental disturbance to the soil and vegetation on the site.</li> <li>• Workforce should be kept within defined boundaries and to agreed access routes.</li> <li>• Water use licences should be obtained from the Department of Water and Sanitation since the watercourse might be affected by the prospecting activities</li> <li>• No ablution or site laydown areas are to be located within 150m of a watercourse.</li> </ul>		
Closure of Prospecting Trenches	<ul style="list-style-type: none"> <li>• Decommissioning</li> <li>• Closure</li> </ul>	Short term and localised	<ul style="list-style-type: none"> <li>• When trenches are being excavated and groundwater is encountered with, all affected excavations that will not be required for any useful purposes should be closed and rehabilitated to minimize possible cross flow and contamination between aquifers.</li> </ul>	NWA NEMWA NEMA	Throughout Decommissioning and Closure
Waste removal	Decommissioning	Short term and localised	<ul style="list-style-type: none"> <li>• Excess or waste material or chemicals must be removed from the site and, if possible, recycled (for example, oil and other hydrocarbon waste products). Any waste materials or chemicals that cannot be recycled must be disposed of at a waste facility that is properly licensed.</li> </ul>	NEMWA	Decommissioning

Surface infrastructure removal	Decommissioning	Short term and localised	<ul style="list-style-type: none"> <li>All infrastructure, equipment, and other items erected during prospecting activities shall be removed from the site.</li> <li>Soil compaction should be avoided as much as possible. Heavy machinery use must be prohibited in areas outside of proposed prospecting sites to reduce soil compaction.</li> </ul>	MPRDA Rehab Plan	Decommissioning
Rehabilitation	Rehabilitation	All disturbed areas	<ul style="list-style-type: none"> <li>Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should under no circumstances be fragmented or disturbed further.</li> <li>Clearing of vegetation should be minimized and avoided where possible.</li> <li>Maintain small patches of natural vegetation within the prospecting site to accelerate restoration and succession of cleared patches.</li> <li>Areas that are denuded during prospecting need to be re-vegetated with indigenous vegetation to prevent erosion during flood events. This will also reduce the likelihood of encroachment by alien invasive plant species.</li> <li>All structure footprints to be rehabilitated and landscaped concurrently as the prospecting activities progress is complete.</li> <li>Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type.</li> <li>Progressive rehabilitation will enable topsoil to be returned more rapidly, thus ensuring more recruitment from the existing seedbank.</li> <li>Any woody material removed can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent further erosion</li> </ul>	NEMA OHS and MHSA MPRDA Rehab Plan	Decommissioning
Consultation	<ul style="list-style-type: none"> <li>Planning</li> <li>Construction</li> <li>Operation</li> </ul>	Medium term, localised	<ul style="list-style-type: none"> <li>Stakeholder engagement will continue throughout the prospecting process to ensure that the community and landowners are kept informed and could address their concerns.</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> </ul>	Throughout Planning, construction and operation

### 18.9. Impact management actions and outcomes

Table 22: Impact management actions and outcomes.

Activity	Potential impact	Aspects affected	Phase	Mitigation type	Standard to be achieved
Site Clearance	<ul style="list-style-type: none"> <li>Deterioration and damage to existing access roads and tracks</li> <li>Dust generation</li> <li>Clearance of vegetation</li> <li>Invasion by alien species</li> <li>Soil erosion and compaction</li> <li>Impact on Flora and Fauna</li> <li>Impact on heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Topography</li> <li>Soil</li> <li>Air Quality</li> <li>Surface Water</li> <li>Groundwater</li> <li>Transportation</li> <li>Visual receptor</li> <li>Heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	<ul style="list-style-type: none"> <li>Avoid and control through implementation of EMPr mitigation measures such as speed limit enforcement and vehicle maintenance</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> <li>NEMBA</li> <li>CARA</li> <li>Threatened or Protected Species (TOPS) regulations</li> <li>NEMAQA</li> <li>Dust regulations</li> <li>NWA</li> <li>NHRA</li> </ul>
Storage of construction vehicles	<ul style="list-style-type: none"> <li>Soil compaction</li> <li>Contamination of surface and ground water</li> <li>Spillage of oils, fuels, and chemicals</li> <li>Soil contamination or pollution</li> </ul>	<ul style="list-style-type: none"> <li>Surface water</li> <li>Groundwater</li> <li>Soils</li> </ul>	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	<ul style="list-style-type: none"> <li>Avoid through implementation of EMPr mitigation measures such as communication with landowners.</li> <li>Control through implementation of ESMS</li> </ul>	<ul style="list-style-type: none"> <li>NWA</li> <li>DWAF best Practice Guidelines</li> <li>NEMA</li> </ul>
Storage of hazardous substances	<ul style="list-style-type: none"> <li>Spillage of oils, fuels, and chemicals</li> </ul>	<ul style="list-style-type: none"> <li>Surface water</li> <li>Groundwater</li> <li>Soil</li> <li>Pollution</li> </ul>	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	<ul style="list-style-type: none"> <li>Avoid through implementation of EMP mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> <li>NEMBA</li> <li>NWA</li> </ul>
Waste management	<ul style="list-style-type: none"> <li>Generation and disposal of waste</li> </ul>	<ul style="list-style-type: none"> <li>Pollution</li> </ul>	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> </ul>	<ul style="list-style-type: none"> <li>Avoid through implementation of EMPr mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> <li>NEMWA</li> </ul>
Transportation to and from trenches sites	<ul style="list-style-type: none"> <li>Disturbance and Loss of fauna and flora</li> <li>Wear and tear of existing roads</li> <li>Dust generation from increased traffic.</li> </ul>	<ul style="list-style-type: none"> <li>Fauna and Flora</li> <li>Air quality</li> </ul>	<ul style="list-style-type: none"> <li>Construction</li> <li>Operation</li> <li>Decommissioning</li> </ul>	<ul style="list-style-type: none"> <li>Avoid and control through implementation of EMPr mitigation measures such as speed</li> </ul>	<ul style="list-style-type: none"> <li>NEMA</li> <li>NEMBA</li> <li>CARA</li> </ul>

				limit enforcement, vehicle maintenance.	<ul style="list-style-type: none"> <li>• Threatened or Protected Species (TOPS) regulations</li> <li>• NEMAQA</li> <li>• Dust regulations</li> <li>• NWA</li> </ul>
Excavation of Prospecting trenches	<ul style="list-style-type: none"> <li>• Vegetation clearance</li> <li>• Removal of topsoil</li> <li>• Land use conflict</li> <li>• Dust generation</li> <li>• Disturbance of wildlife and communities in close vicinity</li> <li>• Damage to local roads</li> <li>• Disturbance or damage of terrestrial biodiversity resources</li> <li>• Influx of people who are seeking jobs.</li> <li>• Wastewater discharge</li> <li>• Spillage and leaks of hydrocarbons and Waste disposal.</li> <li>• Disruption of the heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>• Ecology</li> <li>• Topography</li> <li>• Access/footprint</li> <li>• Soil disturbance</li> <li>• Noise</li> <li>• Air Quality</li> <li>• Socioeconomics</li> <li>• Groundwater</li> <li>• Heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Operation</li> <li>• Decommissioning</li> </ul>	<ul style="list-style-type: none"> <li>• Control through implementation of EMPR mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>• SANS10103</li> <li>• Noise Regulations</li> <li>• NEMAQA</li> <li>• Dust regulations</li> <li>• NWA</li> <li>• NHRA</li> </ul>
Closing of prospecting trenches	<ul style="list-style-type: none"> <li>• Erosion due to removal of vegetation and topsoil. .</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Rehabilitation and Closure</li> </ul>	<ul style="list-style-type: none"> <li>• Control through implementation of EMPR mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>• NEMA</li> <li>• NEMBA</li> <li>• NWA</li> </ul>
Rehabilitation	<ul style="list-style-type: none"> <li>• Erosion</li> <li>• Loss of habitat</li> <li>• Disturbance to wildlife and communities in close vicinity</li> </ul>	<ul style="list-style-type: none"> <li>• Topography</li> <li>• Land use</li> <li>• Soil disturbance</li> <li>• Ecology</li> </ul>	<ul style="list-style-type: none"> <li>• Rehabilitation</li> </ul>	<ul style="list-style-type: none"> <li>• Control through implementation of EMPR mitigation measures</li> </ul>	<ul style="list-style-type: none"> <li>• MPRDA in accordance with Rehabilitation plan</li> </ul>
Monitoring of rehabilitated sites	<ul style="list-style-type: none"> <li>• Erosion</li> <li>• Disturbance to flora and fauna.</li> </ul>	<ul style="list-style-type: none"> <li>• Topography</li> <li>• Land use</li> <li>• Soil</li> <li>• Disturbance of Ecology</li> </ul>	<ul style="list-style-type: none"> <li>• Post-closure</li> </ul>	<ul style="list-style-type: none"> <li>• Control through adhering to monitoring requirements</li> </ul>	<ul style="list-style-type: none"> <li>• MPRDA regulations and</li> </ul>





## **19. Financial Provision**

### **19.1. Determination of the amount of Financial Provision**

#### **19.1.1. Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.**

The general goals of the mining closure include securing beneficial and widely agreed-upon post-prospecting land uses. Removal of all generated wastes constructed infrastructure, and materials, re-vegetation of disturbed and cleared areas, rehabilitation of access roads to ensure the growth of existing grasses and plant species, and clean-up of hydrocarbon spillages should all form part of the closure plan. The following are the primary closure objectives:

- All existing structures and facilities are physically stable, capable of withstanding foreseeable environmental conditions and events, pose no threat to health and safety, and perform their intended long-term functions.
- Contaminants must not be released or transported from the site at levels that are hazardous to human health or biota, or that are otherwise unacceptable.
- The biological environment is restored to a natural, balanced, self-sustaining ecosystem that compatible with the planned post-prospecting land use. Other closure measures must create physical, chemical, and hydrological conditions that allow for such long-term ecosystems.
- Ensure that the site has been made visually appealing.
- Closure of the prospecting activities must ensure the quantity and quality of the site's natural resources.
- Maximize the desired post-prospecting land use.
- Mechanisms for post-closure monitoring are in place for the outstanding liability and risks.

#### **19.1.2. Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.**

A draft EIR/EMPr report was subjected to a public consultation process and all documents were made available to the landowners and the I&APs.

#### **19.1.3. Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.**

Because of the nature of the activities, the impacts will be confined and temporary. The management programme is created in such a manner that concurrent rehabilitation is attainable. Following the completion of planned invasive activities, Gomeza will ensure that the site is returned to its former state by carrying out the following measures:

- Decommissioning of all infrastructures that were used on site during the prospecting activities.

- The trenching sites will be inspected for any signs of hydrocarbon spillages. Any identified soil which has been polluted as a result of the prospecting activities will be remedied and waste disposed of in a registered landfill site.
- Ensure that no waste material (plastics, papers, pipes) is left behind on the prospecting site.
- Any area compacted as a result of the machinery used trenching will be ripped and any furrows created by accessing or leaving the site for the prospecting activity will be filled in to ensure that no future erosion shall occur on site.

**19.1.4. Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.**

The rehabilitation Plan is compatible with the closure objectives in that it will ensure that all disturbed sites are rehabilitated to restore the pre-prospecting environment to prevent risk to public and animal health and safety, contain and manage pollution, and ensure stability (environmental and geophysical); ensuring that the physical and chemical stability of the rehabilitated sites is such that the risk to the environment is not increased by naturally occurring forces to the extent that such increased risk cannot be managed by the measures taken to control these risks; ensuring that the prospecting operations are not abandoned but closed in accordance with the relevant regulations.

**19.1.5. Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.**

A financial provision of approximately **R467 836.00** has been budgeted for the prospecting programme over 8 years, for rehabilitation activities.

The financial provision calculations were undertaken in terms of the guidelines provided within the “DMR Guideline Document for The Evaluation of The Quantum of Closure-Related Financial Provision Provided by a Mine” (DMR, 2005).

**19.1.6. Confirm that the financial provision will be provided as determined.**

Should Prospecting Right be granted, Gomez Trading (Pty) Ltd will make provision for the estimated closure cost by means of a Bank Guarantee or any other means available and accepted by the Competent Authority.

**20. Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including**

**20.1. Monitoring of Impact Management Actions**

**20.2. Monitoring and reporting frequency**

**20.3. Responsible persons**

**20.4. Time period for implementing impact management actions.**

**20.5. Mechanism for monitoring compliance**

Table 23: Compliance Monitoring and Frequency.

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements for Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementation
Desktop studies and acquisition of historic data	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
Geological field mapping	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
Remote sensing and Geophysical Surveys	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>
Site establishment -Vegetation clearance -Alien vegetation removal -Vehicle and equipment movement -Placing of infrastructure	<ul style="list-style-type: none"> <li>Flora and Fauna</li> <li>Impacts on soils and land capability.</li> <li>Groundwater quality degradation</li> <li>Noise and dust generation</li> <li>Visual and topography disturbance</li> </ul>	<ul style="list-style-type: none"> <li>Document Control</li> <li>Site Inspections and checklists</li> <li>Report review and Development of actions plans</li> </ul>	<ul style="list-style-type: none"> <li>Contractors Environmental Representative</li> <li>Environmental specialist, ECO</li> <li>Senior Environmental Management Officer</li> </ul>	<ul style="list-style-type: none"> <li>Once-off control of documents, site visit and reporting</li> <li>Monthly site visits</li> <li>Monthly Reports</li> <li>Annual Performance Assessment</li> </ul>
Target Prospecting Trenches	<ul style="list-style-type: none"> <li>Alien vegetation management</li> <li>Noise nuisance</li> <li>Air quality due to dust generation</li> <li>Surface and groundwater management</li> </ul>	<ul style="list-style-type: none"> <li>Site Inspections and checklists</li> <li>Report review and development of corrective action plans</li> <li>Inspection of surface water features</li> <li>Survey of groundwater users and use within</li> </ul>	<ul style="list-style-type: none"> <li>Contractors Environmental Representative</li> <li>Environmental specialist</li> <li>ECO</li> <li>Senior Environmental Management</li> <li>Geohydrologist (if</li> </ul>	<ul style="list-style-type: none"> <li>Once-off control of documents site visit and reporting</li> <li>Monthly site visits</li> <li>Monthly Reports</li> <li>Annual Performance</li> <li>Prior to invasive prospecting activities and monitoring post-</li> </ul>

		5km of the invasive prospecting sites.	required)	prospecting.
	<ul style="list-style-type: none"> <li>Heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Heritage resources identification</li> <li>Emergency response</li> </ul>	<ul style="list-style-type: none"> <li>Contractor CECO</li> </ul>	<ul style="list-style-type: none"> <li>Throughout the project period.</li> </ul>
Ablutions - Chemical Toilets	Groundwater contamination Health impacts on workers	Site Inspections and checklists	<ul style="list-style-type: none"> <li>Contractors</li> <li>Environmental Representative</li> </ul>	Daily inspections and checklists
Access Route (Existing roads to be utilised)	Dust generation	Site Inspections and checklists	<ul style="list-style-type: none"> <li>Contractors</li> <li>Environmental Representative</li> </ul>	Monthly inspections and checklists
	Heritage resources	<ul style="list-style-type: none"> <li>Heritage resources identification</li> <li>Emergency response</li> </ul>	<ul style="list-style-type: none"> <li>Contractor CECO</li> </ul>	Throughout the project period.
Temporary general waste storage (General/domestic waste)	Visual disturbances Soils contamination Groundwater contamination	Site Inspections and checklists	<ul style="list-style-type: none"> <li>Contractors</li> <li>Environmental Representative</li> </ul>	Monthly inspections and checklists
Temporary hazardous waste storage (Hazardous waste – Sealed Container)	Groundwater contamination Soils contamination	Site Inspections and checklists	<ul style="list-style-type: none"> <li>Contractors</li> <li>Environmental Representative</li> </ul>	Weekly inspections and checklists
Undertake decommissioning and rehabilitation as per the rehabilitation plan	<ul style="list-style-type: none"> <li>Alien vegetation management</li> <li>Fire management plan</li> <li>Noise</li> <li>Air quality</li> </ul>	<ul style="list-style-type: none"> <li>Site Inspections and checklists</li> <li>Report review and development of corrective action plans</li> </ul>	<ul style="list-style-type: none"> <li>Contractors</li> <li>Environmental Representative</li> <li>Environmental specialist, ECO</li> <li>Senior Environmental Management Officer</li> <li>Surface water specialist</li> </ul>	<ul style="list-style-type: none"> <li>Monthly site visits</li> <li>Monthly Reports and Annual Performance Assessments</li> </ul>
	<ul style="list-style-type: none"> <li>Heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Heritage resources identification</li> <li>Emergency response</li> </ul>	<ul style="list-style-type: none"> <li>Contractor CECO</li> </ul>	<ul style="list-style-type: none"> <li>Throughout the project period.</li> </ul>
Monitoring of rehabilitation efforts	<ul style="list-style-type: none"> <li>All Impacts Identified in the EMPr</li> </ul>	<ul style="list-style-type: none"> <li>Site Inspections and checklists</li> </ul>	<ul style="list-style-type: none"> <li>ECO</li> <li>Independent Environmental Auditor</li> </ul>	<ul style="list-style-type: none"> <li>Monthly reports</li> </ul>

**21. Indicate the frequency of the submission of the performance assessment/ environmental audit report.**

After the authorization is granted, an annual environmental performance audit report will be completed by alternating between internal and independent Environmental Assessment Practitioners (EAP). The holder of the authorization must ensure compliance with all the conditions of the EA and/or the EMPr, and the proposed activities must be audited against these conditions. It is also recommended that an independent EAP conduct an annual environmental performance assessment/audit, which will then be submitted to the competent authority. This audit report must meet the following requirements:

- Be prepared by an **independent** person with the relevant environmental auditing expertise;
- Provide verifiable findings, in a structured and systematic manner, on-
  - (i) the level of performance against and compliance of an organization or project with the provisions of the requisite environmental authorisation or EMPr and, where applicable, the closure plan; and
  - (ii) the ability of the measures contained in the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity;
- Contain the information set out in Appendix 7 of GN R. 326; and
- Be conducted and submitted to the competent authority at intervals as indicated in the environmental authorisation.

The purpose of this audit report is defined in the NEMA Regulations and is as follows:

- Determine the ability of the EMPr, and where applicable the closure plan, to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an ongoing basis and to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and
- Determine the level of compliance with the provisions of environmental authorisation, EMPr and where applicable the closure plan.

## **22.Environmental Awareness Plan**

### **22.1. Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work.**

General environmental awareness must be promoted among the working personnel on the proposed project to encourage the implementation of environmentally sound practices throughout the duration of the project. This is to ensure that environmental, health and safety incidents are minimized, and environmental compliance is maximized. The purpose of an Environmental Awareness Plan used to inform the employees and outline the measures to be used to address any environmental risks related to their work and the way these risks must be dealt with in order to avoid contamination or the degradation of the environment.

The environmental awareness plan should at least communicate the following:

- Importance of compliance with the environmental policy, procedures, and other regulatory requirements;
- The significant environmental impacts and risks of an individual's work activities and the environmental benefits of improved performance;
- Individual's roles and responsibilities in achieving the aims and objectives of the environmental policy; and
- The potential consequences of not complying with environmental procedures.

### **Workshops**

A workshop will be conducted to inform all management of the risks associated with the project. The risks for all aspects will be explained and the appropriate management options discussed. The workshop will also elaborate on the monitoring programmes that will be implemented to identify and monitor the level of impact on the environment and discuss various remediation actions. The evaluation process is integral in the assurance that the site reduces any possible environmental risks associated with the project. The workshop will be conducted prior to the commencement of each project phase to ensure that all risks are discussed before there is any chance of the impacts occurring. The workshop may be repeated at certain stages during the operation phase, in the case of new employees.

This workshop will seek to explain the following;

- How each action of the project phase may impact on the environment;
- Ensure that the working personnel understand the management strategies and keeping the environment risks to a minimum;
- Data collection reporting regarding each aspect will also be explained to ensure that each aspect is monitored; and
- This workshop will take place before the commencement of each phase of the project, thus ensuring a full understanding of the project and its associated environmental risks before any project activity is undertaken.

### **Communication Plan**

- **Internal Communication**

Communication strategies need to be established for the internal communication between the various levels and functions of the organisation, and receiving, documenting, and responding to environmental risks for each phase of the project will take place for the management, administrative and worker sectors of the site, as well as contractors.

- **External Communication Strategies**

The organisation shall conduct processes for external communication on its significant environmental aspects. Communication from external interested and affected parties may be received by email, fax, telephonically or by mail. Where required, a written response will be sent, on receiving such communication, by the appropriately appointed individual under signature of the Site Manager, to the respective interested and / or affected party. All telephonic or facsimile correspondence received on the site must be forwarded to the relevant department for action. All events or concerns will be captured and actioned on an existing and / or future database. The following communication channels can be used to communicate environmental issues to the external parties:

- E-mail: E-mail communication received must be stored, with replies, in an appropriate folder on a server. E-mail messages, relevant to environmental management, should be kept for a minimum of two years before deletion.
- Mail: Correspondence received by mail must be filed, along with the response
- Impact Assessments will be available on request from an external party by the Site Manager.
- Queries from Interested and Affected Parties: Response to queries about environmental impacts and aspects will be addressed by the relevant department and approved by the Site Manager.



## **Evaluation of the Environmental Awareness Plan**

The evaluation will entail the auditing of the project activities in both the operation and rehabilitation. This will be to assess the effectivity of the environmental awareness and training plan and if it is sufficient to make all those involved in the project aware of those risks that may occur as well as the necessary mitigation required to minimize these risks.

- **Emergency Incident Reporting**

Environmental incident reporting is an essential component of communication on the Project. Employees are obligated to report any environmental problems, incidents, or pollution so that the appropriate litigator action can be taken as soon as possible. If an Environmental Incident occurs, it must be reported in accordance with the Incident Reporting Procedure. A plan for emergency preparedness and response must be developed.

- **Induction**

All employees and contractors must attend an induction program. Employees are inducted. Any contractor working on the project must complete Environmental Health and Safety induction training. Environmental concerns and project-related issues will be addressed during the induction sessions. Employees will be informed about all environmental implications and aspects, as well as mitigation actions. The induction workshops will be tailored to the level of employees attending, ensuring that all staff have a thorough understanding of environmental issues and pollution.

- **On the Job Training**

On-the-job education is an important aspect of environmental awareness. Employees will be educated about the expected environmental problems and concerns specific to their occupation. Employees will be trained on how to respond in the event of an environmental problem or source of pollution. The training should be an ongoing process.

- **Hazardous Substances**

Individuals dealing with potentially hazardous situations and risks that could result in hazardous spills, pollution incidents, excessive dust, or other forms of environmental damage should receive job-specific training on the risks and potential consequences of their appointment and work situation, as well as how to avoid environmental impacts and respond during an environmental incident or emergency.

- **Dust mitigation**

Individuals dealing with potential situations and risks that could result in excessive dust should receive appropriate job-specific training on the risks and potential consequences of their appointment and work situation, as well as how to avoid environmental impacts and respond during an environmental incident or emergency.

- **Fire Incidents**

Individuals dealing with potentially hazardous situations and risks that could result in fire incidents or emergencies should receive adequate job-specific training on the risks and potential consequences of their appointment and work situation, as well as how to avoid environmental impacts and respond during an environmental incident or emergency.

- **Pollution Incidents or Forms of Environmental Damage**

Any incident or form of environmental degradation must be managed according to the Incident management procedure. Individuals dealing with potential situations and risks that could result in pollution incidents or other forms of environmental damage should receive job-specific training on the risks and potential consequences of their position and work situation, how to avoid environmental impacts, and how to respond during an environmental incident or emergency.

- **Waste Management**

Site personnel and contractors responsible for the operation and safe handling of the various waste streams will receive appropriate job-specific training on the risks and potential consequences of their appointment and work situation, how to avoid environmental impacts and how to respond during an environmental incident or emergency. Gomeza must ensure that training and awareness programmes cover the safe transportation, handling, storage, transfer, use and disposal of all waste streams, and the location of waste receptacles for each waste stream. All waste management activities must be done in accordance with the Gomeza procedures and in terms of registers dealing with storage of waste in specific areas. Staff awareness training programme will accommodate training, on which bin to use for organic waste and on sealing the lid on the bin once organic waste has been discarded.

- **Water Management**

All individuals responsible for activities which water management will receive job-specific training on the risks and potential repercussions of their appointment and work situation, as well as how to avoid environmental impacts and respond during an environmental incident or emergency.

## **Emergency Response Plan**

An Environmental Emergency Response Plan defines the process to follow to respond rapidly and effectively to and manage emergency situations that may arise because of the Project. This plan must be initiated when an emergency:

- Cannot be immediately brought under control;
- Has the potential to extend beyond site boundaries;
- Has the potential to significantly impact on the environment and/or community; and
- Requires assistance from External Emergency Services.

This plan outlines response actions for potential incidents of any size. It details response procedures that will minimize potential health and safety hazards, environmental damage, and clean-up efforts. The plan has been prepared to ensure quick access to all the information required in responding to an emergency event. The plan will ensure that Contractors comply with all procedures described in this document.

- **Intent**

A Work Method Statement should be prepared prior to the commencement of any activities, detailing how this plan is to be implemented as well as details of relevant responsible parties for the implementation. The method statement must also reflect conditions of the IFC Performance Standard 1 and include the following:

- Areas where accidents and emergency situations may occur;
- Communities and individuals that may be impacted, as read in the specialist studies;
- Response procedure;
- Provisions of equipment and resources;
- Designation of responsibilities; and
- Communication, both internally and externally.

The purpose of this plan is to define the emergency response structure and process of the Project. The objectives of the plan are:

- To ensure communication of all vital information as soon as possible;
- To provide clear guidance in the management of emergencies that have the potential to impact on life, property, environment, and community;
- Clearly define roles and responsibilities;
- To facilitate the reorganization and reconstruction activities so that normal operations can be resumed;
- For employees to be able to take prompt effective action to reduce the risk of injury, minimize environmental impact and property damage likely to result from emergencies;

- To specify the emergency communication process necessary to establish links with key site personnel.

## **22.2. Manner in which risks will be dealt with to avoid pollution or degradation.**

The following are broad measures to control or remedy any causes of pollution or environmental degradation that will be caused by the proposed activities:

- Contain potential pollutants and contaminants (where possible) at the source;
- Handle potential pollutants and contaminants (where possible) in bunded areas and on impermeable substrates;
- Ensure prompt clean-up of any spills;
- Implement a waste management system for all waste streams on site; and
- Investigate any I&AP claims of pollution or contamination caused by prospecting activities.

During onsite prospecting activities, it is critical that broad measures to control or remedy any sources of pollution or environmental degradation are implemented.

## **23. Specific information required by the Competent Authority**

(Among others, confirm that the financial provision will be reviewed annually).

In accordance with the provisions of Regulation 23(3) of the EIA 2014 Regulations (as amended) the EIA should include all information required as set out in Appendix 3 and in terms of Regulation 23(4) of the Environmental Management Plan (EMP) should contain all information required as set out in Appendix 4. The EIA report must include the following:

- Details of the EAP who prepared the report and the expertise of the EAP, including a curriculum vitae;
- A plan, which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale;
- A description of the scope of the proposed activity;
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;
- A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;
- A public participation process in the Scoping and EIA ;
- Impact Assessment, including methodology, of the necessary environmental aspects, including the nature, significance, extent, duration, and probability of the impacts occurring, positive and negative impacts, including mitigation and monitoring measures;

- An assessment of the proposed alternatives;
- A complete EMPr;
- The financial provision for the environmental liability which will be reviewed annually;
- An impact statement from the EAP, specific information the Competent Authority may require, and conditions for approval; and
- An EAP oath regarding the correctness of information provided in the report.

## 24. Undertaking

The EAP herewith confirms

- the correctness of the information provided in the reports;
- the inclusion of comments and inputs from stakeholders and I&APs;
- the inclusion of inputs and recommendations from the specialist reports where relevant; and
- that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein .

*V. Maphane*

---

Signature of the environmental assessment practitioner:

Vahlegwe Mining Advisory and Consulting

---

Name of company:

July 2024

---

Date:

Appendix 1:

CVs of the EAP

# NONHLANHLA VERONICA MOGAKANE

## ENVIRONMENTAL SPECIALIST

### CONTACT



+2784 649 3096



nonhlanhla@novero.co.za



www.novero.co.za



7 Edison Crescent, Sunninghill, 2157

### SKILLS

Sustainability, Environmental Science and Engineering

Regulatory Compliance

Data Collection, Analysis and Modelling

Risk Assessment and Management

Project Management

Communication and Collaboration

### EDUCATION

#### BSc Hons Environmental Management

University of South Africa

2020

#### BSc Life and Environmental Science

University of Johannesburg

2016

#### BCom Law

University of South Africa

Current - Expected to complete end of 2023

### LANGUAGES

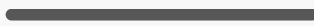
English



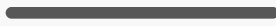
Tsonga



Sepedi



isiZulu



### PROFILE

I am an environmental specialist with over 6 years experience. I work in a variety of industries, including Government, Mining, Foundry, Agribusiness and Research Facilities.

My main role is to analyse and assess the impact of human activities (construction, industrial processes, and land use changes etc) on the environment and develop strategies to minimize the negative effects. Some of my key responsibilities include conducting environmental impact assessments, auditing, collecting and analyzing environmental data, developing and implementing environmental policies and procedures, and ensuring compliance with the legal framework.

I have a bachelor's degree in Environmental Science as well as a BSc Hons in Environmental Management. In addition to technical knowledge and expertise, I possess strong communication skills and the ability to work collaboratively with others. I am also detail-oriented, analytical, and able to think critically to solve complex environmental problems. I have a deep commitment to protecting the environment and promoting sustainable practices.

### WORK EXPERIENCE

#### Environmental Specialist

Novero (Pty) Ltd

2019-Current

- Project Management
- Environmental Specialist Studies
- Client Liaison
- Business Development
- Environmental Impact Assessments (EIA)
- Development of compliance tools for clients.
- Environmental Social Governance (ESG) Due Diligence reporting.
- Supervising and overseeing of consultants and interns

#### PROJECT EXPERIENCE

##### **AFGRI, Daybreak Farms, Sundra • Mpumalanga**

Integrated Water and Waste Management Plan || Geohydrology || Surface Water Assessments

##### **Gert Sibande District Municipality**

Air Quality Baseline Assessment

##### **Madibeng Local Municipality**

Socio-economic Impact Assessment on behalf of Mang GeoEnviro Services, Oukasie Township Establishment

##### **Govan Mbeki Local Municipality**

Socio-economic Impact Assessment on behalf of Mahlari Development Consultants, Emzinoni Township Establishment

##### **India Steel, Alrode, Gauteng**

Environmental Compliance Audits || Water Use License Application || AEL Variation|| Basic Assessment || Socio-economic study || Noise Impact Assessment & Monitoring || Stack Emissions testing || Air Quality Modeling

##### **Pioneer Metals, Alrode Gauteng**

Continuous Casting Machine Investigation and Stack Emissions

##### **Ahuja Investments, Alrode Gauteng**

Waste Registration (DEA) || Veer Steel Mills, Alrode Gauteng || Basic Assessment for expansion || Greenhouse Gas Emission Assessment || Carbon Tax Assessment

##### **Pilanesberg Platinum Mines, Northwest Province**

Quarterly Noise Monitoring on behalf of KECES (2020 – current) || Annual Environmental Noise Reporting

# NONHLANHLA VERONICA MOGAKANE

## ENVIRONMENTAL SPECIALIST

### REGISTRATIONS & AFFILIATIONS

SACNASP - 124022

EAPASA - 2022/6057

NACA Member

### EXPERTISE

- Environmental Impact Assessments and Management
- Licensing
- Environmental Compliance Monitoring
- Data Management and Analysis
- Annual Auditing and Reporting
- ESG Advisory
- Environmental Compliance Advisory
- Water Management
- Air Quality Management

### SHORT COURSES

- Esri South Africa - *ArcGIS Standard*
- ESS - *GHG Emissions Reporting, Carbon Tax and Carbon Footprinting (ISO 14064-1)*
- Terra Firma Academy - *Carbon Analyst Course (IEMA International Certification)*

### REFERENCES

**Sedibelo Platinum Mines** || Peter Lentsoane

📞 014 555 1800 || +27 82 319 0247

✉️ plentsoane@sedibeloplatinum.com

**GDARD Air Quality** || Dr Shonisani Singo

📞 +2767 029 0291

✉️ Shoni.Singo@gauteng.gov.za

**Eskom (Duduza North Electrification)**  
Rehabilitation Plan

**Royal Bafokeng Administration, North West Province**  
Baseline Ambient Noise Impact Assessment for proposed mining operations ||  
Noise Modelling

**Power Metals Recyclers, Wadeville, Gauteng**  
Internal auditing (Waste Management Licence)

**ATNM, Benoni, Gauteng**  
Vlakfontein Dump Reclamation : Basic Assessment

**Gauteng Department of Agriculture and Rural Development (Air Quality Directorate)**  
Environmental Noise Monitoring

**Pioneer Metals, Alrode, Gauteng**  
Application for Authorisation (Nuclear)

**Msukwalinga Local Municipality on behalf of EnviroSheq Consulting – Nooitgedacht veterinary lab incinerator project**  
Air Quality Modelling

**GZ Industries, Wadeville, Gauteng**  
Occupational Health and Safety Surveys

**Senkosi Environmental (Rehab and decommissioning of Boichoko Landfill), Postmasburg, Northern Cape**  
Noise Impact Assessment

**Mtabalasi Transport Logistics – Transnet – Infrastructure project on Port of Richards Bay**  
ECO Services (May 2021 – August 2022)

**Genet Manganese on behalf of Nyamoki Consulting, Northern Cape**  
Specialist Air Quality Baseline Assessment || Environmental Noise Impact Assessment and Baseline Monitoring

**Agriculture House Inc, Red Meat Hub Project, Vryheid, KZN**  
Specialist Air Quality Baseline Assessment

**Agriculture House Inc, White Meat Hub Project, Cato Ridge, KZN**  
Specialist Air Quality Baseline Assessment

**Johannesburg Zoo & City Parks, Johannesburg, Gauteng**  
Incinerator Stack Emission Testing on behalf of Ecocare

**AFGRI, Daybreak Farms, Delmas Site, Mpumalanga**  
Water Use License Application and associated specialist Studies

**Mintek Research Laboratory, Randburg, Gauteng**  
Stack Emissions Testing on behalf of MCA

**Analiza Boedery Sand and Stone, Heidelberg, Gauteng**  
Dust fallout monitoring (12 Months) || Noise Impact Assessment on behalf of Vahlengwe Mining Advisory

**Isabella Jewellers & Refiners, Wadeville, Gauteng**  
AEL Variation



# NONHLANHLA VERONICA MOGAKANE

## ENVIRONMENTAL SPECIALIST

### ADDITIONAL INFORMATION

ID Number : 9410140503089

Gender : Female

Drivers Licence : Code 8/ Code B

Criminal Record : None

### WORK EXPERIENCE

#### Environmental Specialist

4 Degrees Consulting (Pty) Ltd

2017-2019

- Air Quality Management
- Waste Management
- Water Management
- Environmental Specialist Studies
- Client Liaison
- Public Participation Process
- Environmental Impact Assessments (EIA) and Basic Assessments (BA)
- Development of compliance tools for clients.

#### PROJECT EXPERIENCE

##### **Yellow Star Manufacturing, Vereeniging, Gauteng**

Environmental Impact Assessment and Section 24G Application || AEL Audit Report  
Stack Emissions Reporting || Public Participation Process || Health and Safety  
Compliance Audit || ISO 9001 QMS Audit (2018 & 2019)

##### **Johannesburg Water, Johannesburg, Gauteng**

Ambient Air Quality Monitoring || Indoor Air Quality Monitoring || Monthly Dust  
Fallout Monitoring (2017 - 2019) || GIS Mapping

##### **Gilgamesh Beneficiation Plant in Pretoria West, Gauteng**

EIA Application || Public participation || EMP Compilation || Waste Management Plan  
|| Atmospheric Emission Licence application

##### **Pilanesberg Platinum Mine in Pilanesberg, North West**

Annual Water Use Licence Audits || Quarterly Environmental Noise Audits (2018-  
2019)

##### **Prodeliver Group, Monametsi, Limpopo**

GIS Mapping || Basic Assessment || Environmental Management Plan || Water Use  
Licence for mining permit

##### **Thokoza Narrative Centre in Ekurhuleni Metropolitan Municipality, Gauteng**

General Authorisation application in terms of the National Water Act || Public  
participation

##### **Tecino Architecture and Design in Heidelberg, Gauteng**

Biodiversity and Soil Assessment Studies and Report compilation

##### **Cargo Carriers, Gauteng and North West**

Integrated SHEQ Audit and Report compilation (ISO 9001, ISO 14001 and ISO 45001)  
Waste management (Used oil and Sludge SDS for Sasolburg and Lichtenburg sites)

##### **Tharisa Mine in Marikana, North West**

Alien and Invasive Plant Assessment and Eradication || GIS Mapping and analysis

##### **Esri South Africa, Gauteng**

REMIS Software Environmental Consultant || Provide advise with regards to  
functionality and dashboard layout || Analysis and advice regarding of Editor and  
Viewer capabilities || Development of Environmental GIS material

**Environmental Assessment  
Practitioners Association  
of South Africa**



Registration No. 2022/6057

***Herewith certifies that***

**Nonhlanhla Veronica  
Mogakane**

***is registered as an***

**Environmental Assessment Practitioner**

***Registered in accordance with the prescribed criteria of Regulation 15. (1)  
of the Section 24H Registration Authority Regulations  
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the  
National Environmental Management Act (NEMA), Act No. 107 of 1998, as  
amended).***

Effective: 01 March 2024

Expires: 28 February 2025

Chairperson

Registrar



# CECIL DAU

## **PROFESSIONAL SUMMARY**

---

Cecil Dau is an **Aspiring Professional Senior Environmental Consultant and an Environmental Officer** holding his **Bachelor of Earth Sciences (Honours) in Mining and Environmental Geology** from the University of Venda and **Bachelor of Science (Honours) in Environmental Management** from the University of South Africa. Cecil further **has more than Four (4) years' experience** working as an **Environmental Consultant, Research Assistant Graduate, and an Environmental Officer Intern**. Cecil always believes that his hands-on experience coupled with the growing knowledge he gained during his studies and during field work prepared him to make a solid contribution in any **Environmental Management related field. With a solid foundation in Environmental Management**, Cecil is always prepared to put his knowledge and abilities to deliver the best results in everything that he does, while gaining immeasurable experience and skills to advance in his career pursuit. Cecil is a self-motivated, goal orientated, driven and an individual who believes in lifting and empowering others through the knowledge he has acquired, and experiences gained overtime.

## **PERSONAL DETAILS**

---

Contact	:	076 267 0743
E-mail address	:	cecil.dau@gmail.com
Location	:	Johannesburg, Gauteng
Nationality	:	South African
EE	:	Black Male
Licence	:	Code 10-C1

## **CORECOMPETENCIES**

---

- **Competent in Microsoft Word, PowerPoint, Excel, Outlook, and SAP.**
- Good understanding of applicable laws, standards, and specifications.
- **Excellent report writing and presentation skills.**
- **Excellent Verbal and Visual hazards communication.**
- **High levels of accuracy by keeping attention to detail and correctness.**
- **Excellent Knowledge of ArcGIS.**
- **Excellent knowledge of regulatory organizations.**
- **Always maintain a proactive approach in the working environment for ease in taking ownership and accountability.**
- **Excellent knowledge of how to pass inspections.**
- Ability to accurately track inventory and compile reports.
- **Good demonstration of the genuine concern for people.**
- Highly motivated, energetic, Sound judgement and good reasoning abilities.
- Good managerial and interpersonal skills and ability to work under pressure.
- Time management, Organizational and planning skills.
- **Great team player and can work well independently.**

## **EXPERIENCE**

---

**[Environmental Consultant]**

**[Vahlegwe Mining Advisory and Consulting]**

**[August 2022– Present]**

### **Duties Include:**

- Conduct the Environmental Impact Assessment (BAR and S&EIR) and Environmental Management Plan/Programme for prospecting, mining rights and mining permits.
- Coordinate the project Public Participation Process
- GIS functions
- Conduct mining and environmental compliance audits and write reports thereon.
- Write the annual reports for the projects.
- To maintain a proper filing system
- To give regular updates to clients on the progress of the work being carried out on the projects.

## **EXPERIENCE**

---

**[Research Assistant Graduate]**

**[Water Research Commission]**

**[December 2021– July 2022]**

### **Duties Include:**

- Performed Geographic Information System analysis for Bathymetric Survey research.
- Literature reviews and data mining from websites or documents from different sources.
- Contributed as an assistant in laboratorial analyses in the lab.
- Organised and processed results, report to senior researcher and any other ad-hoc duties as assigned by senior researcher.
- Participated in professional development activities i.e. attended courses such as GIS.

**[Environmental Officer Intern]**

**[GDARD/ Enforcement S24G]**

**[April 2018– March 2020]**

### **Duties Include:**

- Processing of applications received in terms of Section 24G NEMA.
- Issued S24G decisions in terms of S24G (2) (whether to authorise for the continuation of the listed activity, or direct to cease and rehabilitate).
- Issued Compliance Notices where there is non-compliance to the directive issued in terms of S24G (2) of NEMA.
- Reviewed and approve Environmental Rehabilitation Plans.
- Conducted Compliance Monitoring of issued Directives (S24G (1) and S24G (2))/Compliance Notices/Rehabilitation Plans.
- Referred matter to Prosecutions where there is failure to comply with any stage of the S24G process.
- Provided appeal responses to appeals lodged against Compliance Notices/Directives/Admin Fines issued by the sub-directorate.
- Responded to queries from the Public regarding the S24G process/applications.

## **EDUCATION**

---

**Institution** : University of South Africa

**Qualification** : **Bachelor of Science Honours in Environmental Management**

**Status** : **Completed**

**Institution** : University of Venda  
**Qualification** : **Bachelor of Earth Sciences Honours in Mining and Environmental Geology**  
**Status** : **Completed**

### Short Courses

**Institution** : (CEM)\_North-West University  
**Course** : **Environmental Impact Assessment for Reviews**

**Institution** : Institute of Waste Management of Southern Africa  
**Course** : **Hazardous Waste Training Programme**

**Institution** : Zambezi Pride  
**Course** : **Solid Waste Management Hybrid Conference**

**Institution** : Com Consulting  
**Course** : **Social & Labour Plans (SLPs) and (IDPs)**

### PROFESSIONAL AFFILIATIONS

- EAPASA Candidate (Reg. No. 2021/4434)
- SACNASP Candidate (154069)

### ACHIEVEMENTS

- Ensure compliance monitoring and Enforcement of South African Environmental Legislations.
- Good understanding of Mineral and Petroleum Resources Development Act, National Environmental Management Act and Strategic Environmental Management Acts, i.e. Environmental Conservation Act, Biodiversity Act, Protected Areas Act, Waste Management Act, Air Quality Act, and Water Act
- Good understanding of Environmental Impact Assessment, Waste Management and Air Quality Regulations.
- The implementation of Section 24G read with S24F and 7 of NEMA (Amendment) (Act No 8 of 2004) and Section 24G read with S24F and 12(3) of NEMA (Amendments) (Act 62 of 2008)

### GOALS

- **To achieving my set goals and keeping myself dynamic in the changing scenario to become a Senior Environmental Quality Consultant.**
- To become an excellent **Environmental Consultant** taking up challenging works in the Industrial structure with creative and diversified Projects and to be part of a Constructive and fast-Growing World.
- To make a position for myself in the competitive corporate world and contribute to achieving the goals on both professional and personal level.
- **To work in an environment that challenges me to improve and constantly thrive for perfection in all the tasks allotted to me so that I can be able to showcase my Environmental Management Skills.**

## **REFERENCES**

---

Name and Surname: Ms. Nonhlanhla Mogakane  
Position: Senior Environmental Consultant, Vahlengwe Mining  
Contact details: 084 649 3096/ Nonhlanhla@vahlengweadvisory.co.za  
Availability: Monday-Friday, 9:00-15:00

Name and Surname: Dr Lindani Ncube  
Position: Lecture: Department of Environmental Science, UNISA  
Contact details: 082 612 1249/ Ncubel@unisa.ac.za  
Availability: Monday-Friday, 9:00-15:00

Name and Surname: Mrs. Omolayo Ilemobade  
Position: Assistant Director: Enforcement/ S24G, GDARD  
Contact details: 011 240 3022/ Omolayo.Ilemobade@gauteng.gov.za  
Availability: Monday-Friday, 9:00-15:00

**Environmental Assessment  
Practitioners Association  
of South Africa**



Registration No. 2021/4434

***Herewith certifies that***

Cecil Dau

***is registered as an***

**Candidate Environmental Assessment  
Practitioner**

***Registered in accordance with the prescribed criteria of Regulation 15. (1)  
of the Section 24H Registration Authority Regulations  
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the  
National Environmental Management Act (NEMA), Act No. 107 of 1998, as  
amended).***

Effective: 01 March 2024

Expires: 28 February 2025

Chairperson

Registrar



# DIMAKATSO ELIZABETH LEHOLI – ENVIRONMENTAL SCIENCES GRADUATE

**Residential Address:**

3371 Tshitwe Street

Sebokeng Unit 13

Vereeniging

1983

**Contact Details:**

068 581 8581

**Email address:**

[dimakatso0205@gmail.com](mailto:dimakatso0205@gmail.com)

**OBJECTIVE**

Opportunity to protect and conserve the ecosystem, seeking an organization that is going to grow my broad understanding of major environmental issues, as well as theoretical ideas underpinning sustainable development. The ability to effectively analyse and manage environmental and developmental issues.

**SKILLS**

- Time Management
- Microsoft skills
- Critical thinking skills
- Laboratory skills
- Teamwork

**EDUCATION**

Qualification Name: Diploma in Environmental Sciences

NQF Level:6

University: Tshwane University of Technology

Graduation Date:15 May 2023

Course Modules: Applied Environmental Practice, Computer Literacy, General Chemistry, General Mathematics, General Physics, Information Literacy, Life Skills, Environmental Biology, Environmental Earth Studies, Environmental Management & Environmental Legal Practice

Qualification Name: Matric



# DIMAKATSO ELIZABETH LEHOLI – ENVIRONMENTAL SCIENCES GRADUATE

Name of school: Mohaladitoe Secondary School

Date achieved: December 2019

Subjects: English First Additional Language, Sesotho Home Language, Life Orientation, Mathematics, Physical Sciences, Life Sciences and Economics.

## **WORK EXPERIENCE:**

Job Title: Safety Officer Intern

Company: Supergrid Manufacturing

Employment Date: 03 July 2023- 29 March 2024

Key Achievements:

- Incident Investigation
- Risk Assessment.
- Safety Inspections.
- Assisting with Toolbox talk meetings.
- Assisting the health and safety officer.

Job Title: Environmental Education Facilitator

Company: Johannesburg City Parks and Zoo

Employment Date: 15 August 2022- 13 February 2023

Key Achievements:

- Conduct environmental awareness activities in municipalities, advocacy groups and schools.
- Promote conservation of natural resources, air quality, waste management, sustainability and climate change education.
- Deliver presentations in schools or host groups at sites such as nature reserves.
- Participate in clean up campaigns partnering with different municipalities within Gauteng.
- Host exhibitions on environmental issues.
- Assist schools with implementing environmental projects.

## **ACHIEVEMENTS:**

Organisation: TUT Green Arcadia

Title: Participating Member

Year: 2020-2021

# DIMAKATSO ELIZABETH LEHOLI – ENVIRONMENTAL SCIENCES GRADUATE

## Key Achievements:

-TUT Campus Cleanup

-Nursery Construction

-iNaturalist City Challenge

-Spekboom Planting

-Exhibitions: Energy efficiency day, World water week, World Environmental day International Day for Climate Action

## **REFERENCES:**

Mentor: Shadrack Mulaudzi

Company: Supergrid Manufacturing

Position: Safety Health and Environmental Officer

Contact Details:064 926 8227

Mentor: Mosa Rametse

Company: Johannesburg City Parks and Zoo

Position: Environmental Education Specialist

Contact Details:072 152 7003

## Appendix 2: Maps

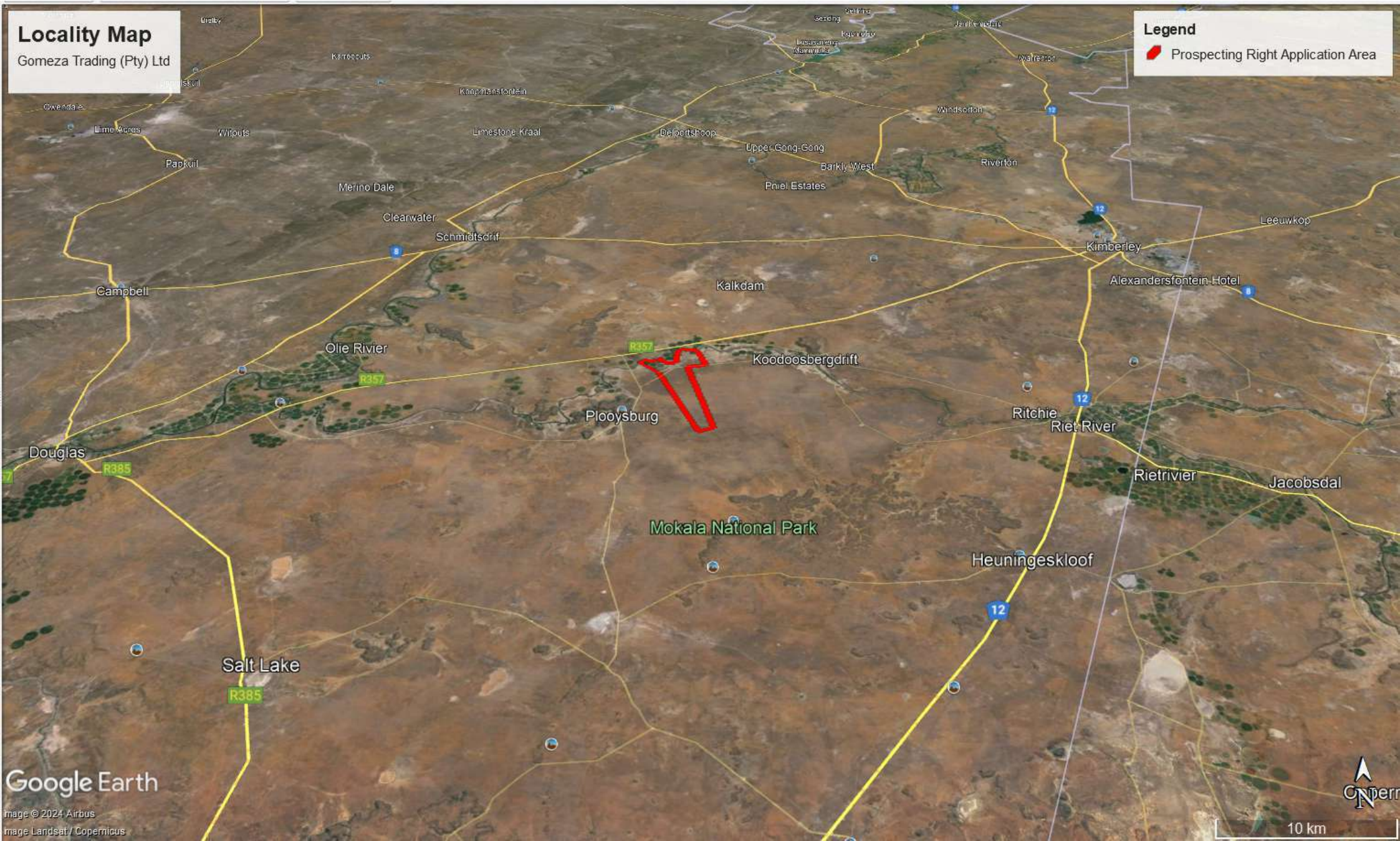
### Appendix 2A: Locality map and Regulation 2 (2)

# Locality Map

Gomeza Trading (Pty) Ltd

## Legend

 Prospecting Right Application Area



Google Earth

Image © 2024 Airbus  
Image Landsat / Copernicus

10 km

# GOMEZA TRADING (PTY) LTD

REGULATION 2(2)

FOR THE APPLICATION OF THE PROSPECTING RIGHTS IN TERMS OF SECTION 16 OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (ACT 28 OF 2002)

Portion 1 of farm Biesjesbult No.96 and Portion 2 and 3 of farm Biesjesbult No. 99, District of Herbert Northern Cape

Area Extent: 3098.58 ha

### Legend

- Points location
- ▭ Biesjesbult\_Farm No.96 and No.99

### Plan Approval

Applicant Date:.....

Signature:.....

Surveyor Date:.....

Signature:.....

Regional Manager Northern Cape Date:.....

Signature:.....

SCALE: 1 : 50 000  
 CO-ORDINATE SYSTEM: WGS84 Lo29

CAPTURED : KM MMMOLOTSI

CHECKED : S MABASO



JOHANNESBURG SOUTH	
Help Desk	Tel +27 (0) 11 432 0062
238 Vorster Ave Street	Fax +27 (0) 11 432 0062
Glenvista 2058	Email info@vahlengweadvisory.co.za

LIABILITY CLAUSE : This map was compiled from a variety of data sets and Vahlengwe Advisory does not accept any responsibility for the accuracy of the data.

FIGURE No : **FIGURE 1**

VERSION : **1** DATE : **October 2023**

Name	POINT X	POINT Y
A	24,298314	-29,051332
B	24,265127	-28,965216
C	24,248308	-28,949658
D	24,252889	-28,946606
E	24,260004	-28,948378
F	24,268304	-28,944724
G	24,27396	-28,951996
H	24,280711	-28,951188
I	24,283536	-28,933118
J	24,288854	-28,928871
K	24,296253	-28,931547
L	24,300543	-28,931357
M	24,308371	-28,955716
N	24,291447	-28,957808
O	24,310865	-29,046805







Appendix 2B:

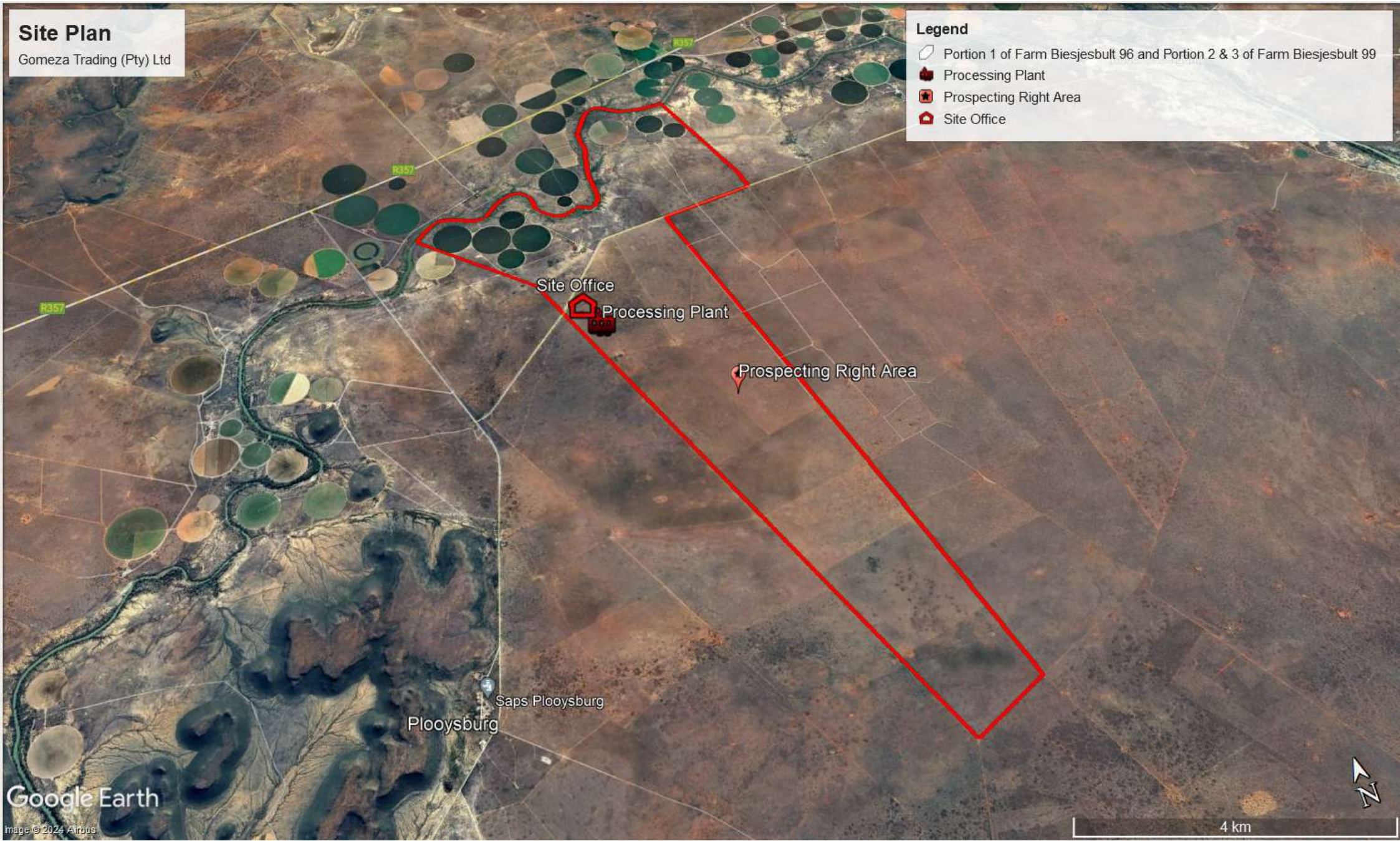
Site Plan Map

# Site Plan

Gomeza Trading (Pty) Ltd

## Legend

-  Portion 1 of Farm Biesjesbult 96 and Portion 2 & 3 of Farm Biesjesbult 99
-  Processing Plant
-  Prospecting Right Area
-  Site Office



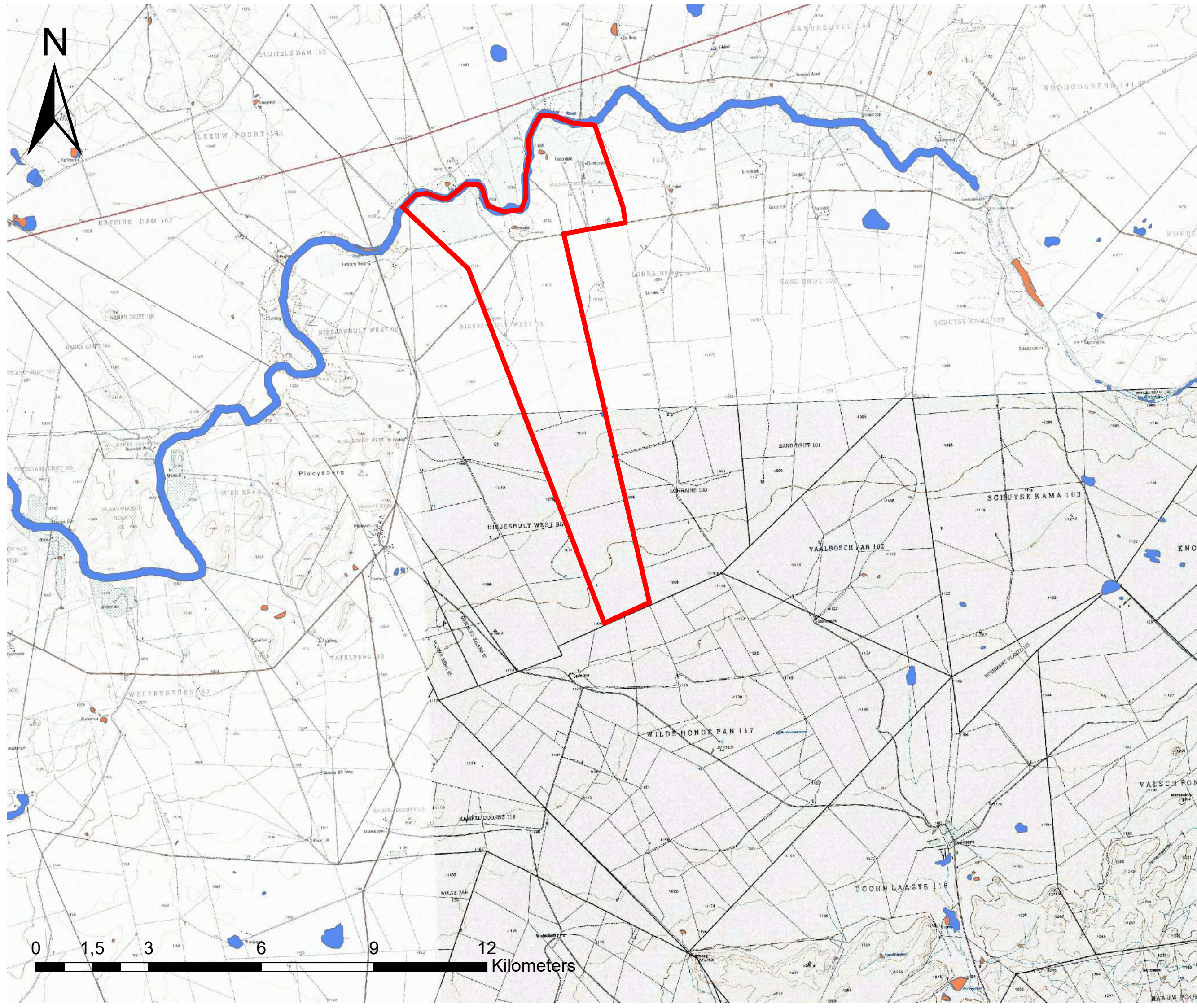
Google Earth

Image © 2024 Airbus

Appendix 2C:

Environmental and Land Use Map





# LAND USE MAP

APPLICATION FOR PROSPECTING RIGHT FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF BIESJESBULT NO.96 AND PORTIONS 2 AND 3 OF BIESJESBULT NO.99

- Legend**
- GOMEZA TRADING\_PROSPECTING RIGHT AREA
  - RAILWAY
  - ROAD
  - Cultivation
  - NFEPA\_Wetlands**
  - <all other values>
  - NATART**
  - Artificial
  - Estuaries
  - Natural

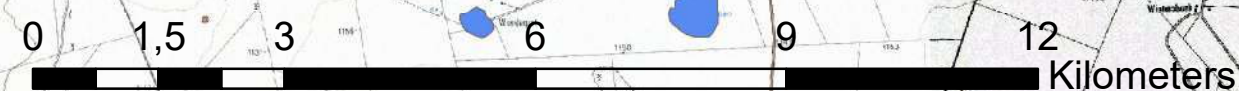
## LOCALITY MAI



PREPARED BY



Coordinate System: WGS 84



Appendix 2D:

Composite Map

# COMPOSITE\_MAP

Application for a Prospecting Right for Diamond and Sand in Respect of the Portion of Portion 1 of Farm Biesjesbult No.96, Portion 2 & 3 of the Farm Biesjesbult No.99 Within the Administrative District of Herbert in the Northern Cape Province

Gomez Trading (Pty) Ltd

## Legend

- Rivers
- River\_Buffer1\_(50m)
- River\_Buffer\_2\_(100m)
- River\_Buffer\_3\_(200m)
- Wetlands\_Buffer\_1\_(200m)
- NFEPA\_Wetlands**
  - <all other values>
- NATART**
  - Artificial
  - Estuaries
  - Natural
  - Prospecting Right Area

## Locality Map



CO-ORDINATE SYSTEM

WGS84 Lo29

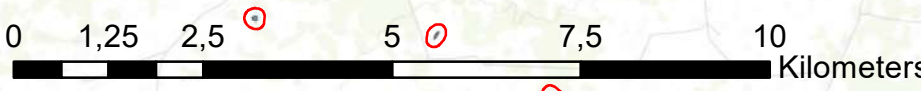
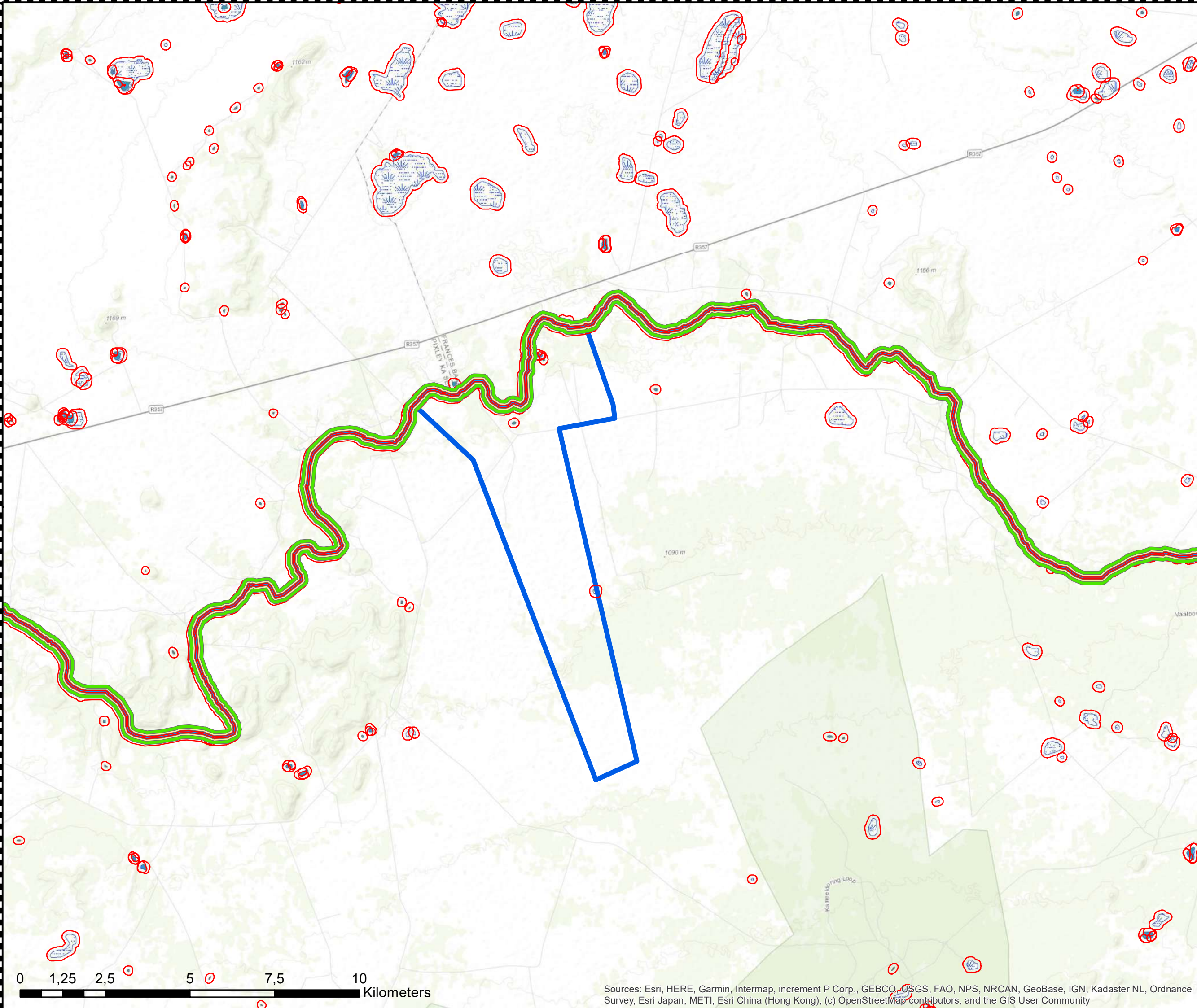


### JOHANNESBURG SOUTH

Help Desk	Tel +27 (0) 11 432 0062
238 Vorster Ave Street	Fax +27 (0) 11 432 0062
Glenvista 2058	Email info@vahlgweadvisory.co.za

### LIABILITY CLAUSE :

This map was compiled from a variety of data sets and Vahlgwe Advisory does not accept any responsibility for the accuracy of the data.



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

## Appendix 3:

### Public Participation Process

## Appendix 3A:

### Background Information Document

## **BACKGROUND INFORMATION DOCUMENT FOR THE ENVIRONMENTAL AUTHORIZATION: PROSPECTING RIGHT APPLICATION**

### **ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROSPECTING RIGHT APPLICATION OF DIAMOND AND SAND IN RESPECT OF PORTION 1 OF FARM BIESJESBULT NO.96 AND PORTION 2 & 3 OF FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE**

**DMRE REFERENCE NO.: NC 30/5/1/1/2/ 13823 PR**

#### **PURPOSE OF THIS DOCUMENT**

This Background Information Document (BID) has been prepared as part of the notification and consultation process required in terms of the National Environmental Management Act (NEMA) (Act 107 of 1998). It describes the following:

- Background information regarding the proposed project;
- Information about the site and the proposal being considered;
- Public participation process; and
- Suggestions on how the stakeholders including the I&APs can participate on the process.

#### **APPOINTED ENVIRONMENTAL ASSESSMENT PRACTITIONERS**

VahleNgwe Mining Advisory and Consulting as an Environmental Assessment Practitioner (EAP) will conduct Environmental Authorization process for the Prospecting Right Application for Diamond and Sand as well as the rehabilitation of the disturbed area.

#### **PROJECTION LOCATION**

Proposed project is located in respect of Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province.



Figure 1: Locality Map of the proposed area

## PROJECT DESCRIPTION

The area for the Prospecting Right applied for is situated in respect of Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. Vahleingwe Mining Advisory and Consulting (Pty) Ltd will compile the Environmental Impact Assessment Report and Environmental Management Programme for the Prospecting Right and facilitate the PPP. The application includes prospecting activities for Diamond and Sand.

## PUBLIC PARTICIPATION PROCESS.

The purpose of public consultation process is to enable landowners, lawful occupiers, directly affected individuals, and/or other Interested and Affected Parties (I&APs) to raise any issues, concerns and or comments regarding the waste management activities. A proof of consultation report will be developed and submitted to the Department of Mineral Resources and Energy (DMRE). The proposed project requires Environmental Impact Assessment process in terms of the National Environmental Management Act 107 of 1998 (as amended).

**Following step will be followed while conducting public participation.**

- **Issuing of notification of this project to:**
  - Owners and occupiers of the properties as well as those adjacent to the site
  - Municipal Councillor
  - The municipality which has jurisdiction, and any organ of state having jurisdiction
- Placing an advert in a newspaper
- Placing a site notice
- Meetings with landowners and key I&APs, as required

- Public review of Basic Assessment Report and Environmental Management Programme

## **PUBLIC INVOLVEMENT**

Public involvement is an essential component of the process. It addresses the right of Interested and affected Parties (I&APs) to be informed of the proposed activities. All Interested and Affected parties (I&APs) are invited to submit their issues, concerns, and comments regarding the proposed prospecting activities to Gomez Trading (Pty) Ltd via email, registered post or telephonically. The Interested and Affected parties (I&APS) Form is made available below for you to fill in your personal details and comments, kindly do so and submit it back to us.

## **HOW TO OBTAIN FURTHER INFORMATION.**

Registering as I&APs will ensure that you are placed on a database to be informed of any progress regarding the project. You can do so by filling in the form below and return it to the relevant person listed below. We encourage the I&APs to review the information presented to you in this Background Information Document (BID) and to register as an I&AP for the attached respondent sheet and return it to us.

## **PUBLIC CONSULTATION CONTACTS:**

Name : Nonhlanhla V Mogakane  
Postal address : 238 Voster Ave, Glenvista Ext 3, Glenvista, 2058  
Contact : +27 11 432 0062  
E-mail : [info@vahlengweadvisory.co.za](mailto:info@vahlengweadvisory.co.za)

## **APPLICANT CONTACTS**

Name : Siwela Vutomi  
Postal Address : No. 35 Lantana Street, Meyersdale Nature Estate, 1448  
Tel : +27 83 995 0172  
E-mail : [vutomi@gomez.co.za](mailto:vutomi@gomez.co.za)



Appendix 3B:

I&APs Registration Forms

**GOMEZA TRADING (PTY) LTD**  
***Interested & Affected Party Registration Form***  
Project Reference No.: NC 30/5/1/1/2/13823 PR

<b>Name and Surname</b>	
<b>Physical Address</b>	
<b>Contact Details</b>	<b>Telephone No.:</b> <b>Fax No.:</b> <b>Cell No. :</b> <b>E-mail Address:</b>
<b><i>Please indicate any issues, comments and concerns with regard to the proposed project</i></b>	
<b><i>Please indicate in which aspects you would require more information</i></b>	
<b><i>Please indicate any I&amp;APs whom you think should be contacted</i></b>	
<b>To be registered as an I&amp;AP for this project mail, or e-mail the completed registration form to:</b> <b>Nonhlanhla Mogakane</b> <b>Postal address: 238 Voster Ave, Glenvista Ext 3, Glenvista, 2058</b> <b>Contact : +27 11 432 0062</b> <b>E-mail : info@vahlengweadvisory.co.za</b>	

Appendix 3C:

Newspaper Advertisement



Appendix 3D:

Site Notice Report

# GOMEZA TRADING (PTY) LTD

## INVITATION TO REGISTER AS AN INTERESTED AND AFFECTED PARTY AND COMMENT ON THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT.

NOTICE OF ENVIRONMENTAL AUTHORISATION FOR THE PROSPECTING RIGHT APPLICATION OF DIAMOND AND SAND IN RESPECT OF PORTION 1 OF FARM BIESJESBULT NO.96 AND PORTION 2 & 3 OF FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.

DMR REFERENCE NO.: NC 30/5/1/1/2/ 13823 PR

Notice is hereby given in the intent to conduct Environmental Authorization process for an application of a prospecting right of Diamond and Sand, for Gomeza Trading (Pty) Ltd in terms of National Environmental Management Act - NEMA (Act 107 of 1998) as amended, and the Environmental Impact Assessment (EIA) Regulations, 2014. Notification is hereby given to all Interested and Affected Parties (I&APs) in terms of Section 39 to 44 of GNR 982 (as amended). The EIA process would be undertaken in terms of these guidelines and to be submitted to the Competent Authority Department of Mineral Resources and Energy (DMRE).

### THE ABOVE ACTIVITIES TRIGGERS:

**Activity 19 of GN R 984 (as amended):** The removal and disposal of a mineral, which requires a permission in terms of section 20 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the permission.

### PROPOSED SITE LOCATION.

Proposed project is located in respect of Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province.

### APPLICANT DETAILS:

Name : Siwela Vutomi  
Postal Address : No. 35 Lantana Street, Meyersdale Nature Estate, 1448  
Tel : +27 83 995 0172  
E-mail : vutomi@gomeza.co.za

### SITE CO-ORDINATES

Midpoint Coordinates: -28.986550°, 24.284966°



Figure 1: Locality map of the proposed prospecting right area

### PUBLIC MEETING:

Public meeting will be held to facilitate discussions on the Draft Environmental Impact Assessment to obtain comments and inputs from the Interested and Affected Parties (I&APs), therefore you are requested to register your names as I&APs within 15 days, thus, on/before the **22 June 2024**. You are further requested to submit your comments within 30 days from the date this notice was published. Take note that your comments must be submitted on or before the **07<sup>th</sup> of July 2024** to the details below:

Consultant : **Vahlengwe Mining Advisory and Consulting**  
Contact person : Nonhlanhla Veronica Mogakane  
Postal address : 238 Voster Ave, Glenvista Extension 3, Johannesburg South, 2058  
Contact : +27 11 432 0062  
E-mail : [info@vahlengweadvisory.co.za](mailto:info@vahlengweadvisory.co.za)



Address: 238 Voster Avenue, Glenvista, 2058

Tel: +27 11 432 0062

E-mail: [info@vahlengweadvisory.co.za](mailto:info@vahlengweadvisory.co.za)



# **Gomeza Trading (PTY) LTD**

**FILE REFERENCE NUMBER SAMRAD: NC 30/5/1/1/2/ 13823 PR**

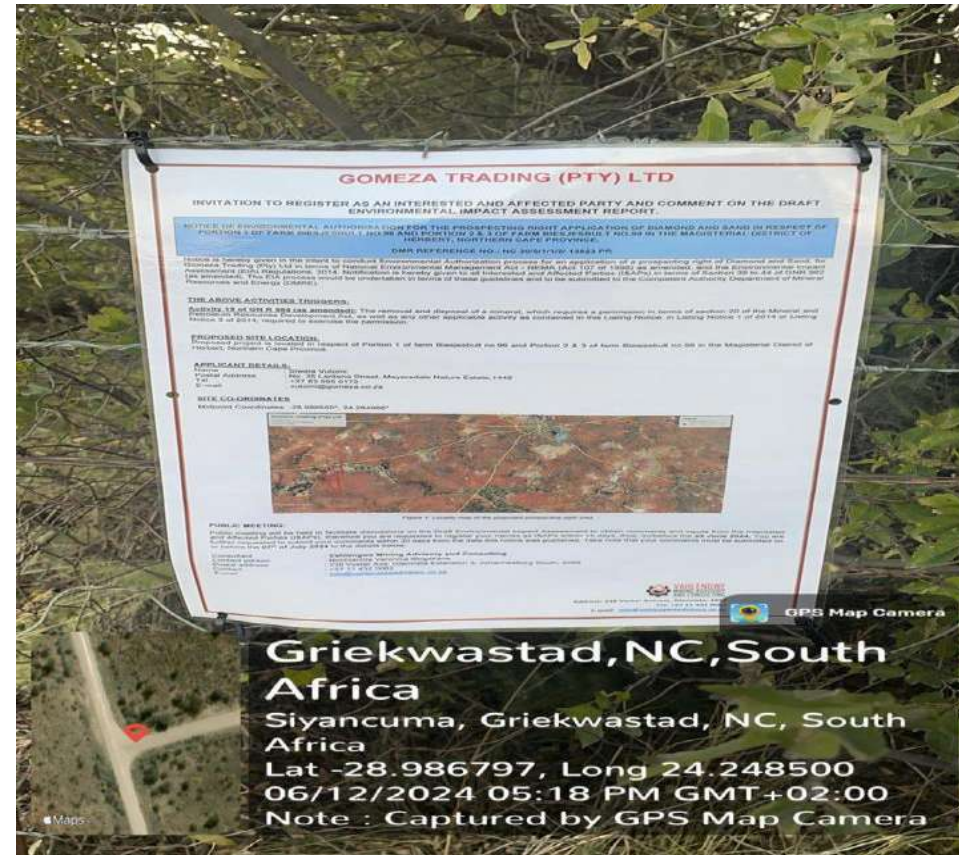
## **SITE NOTICE REPORT**

Draft EIA/EMPR Report for the application of a Prospecting Right for Diamond and Sand in respect of Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province.

Site notices were distributed at various areas around the project site to notify the public about the project and how they can take part as the Interested and Affected Parties.

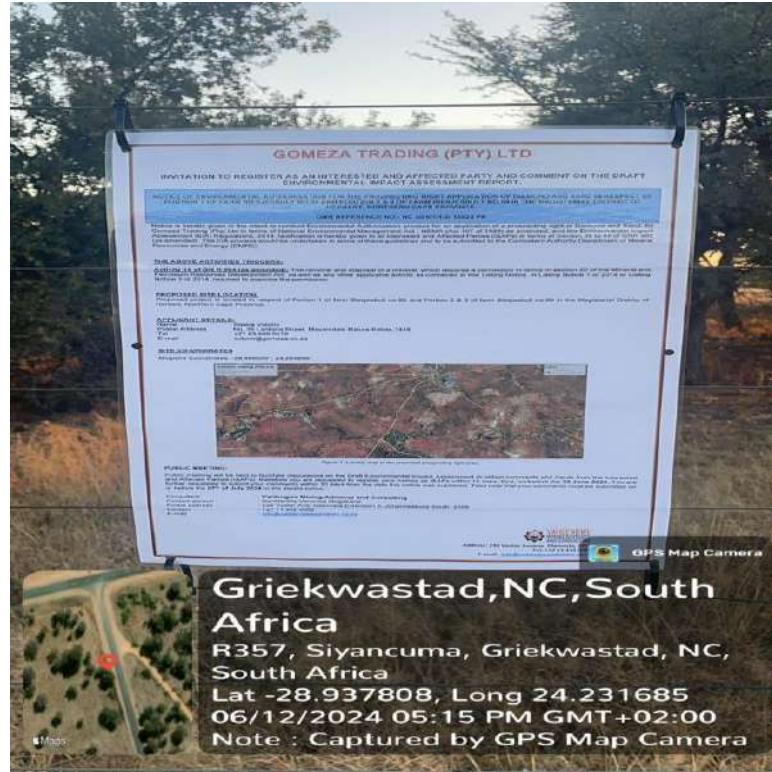


Site notice A was placed at the western boundary of Portion 1 of the proposed prospecting area (farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99).

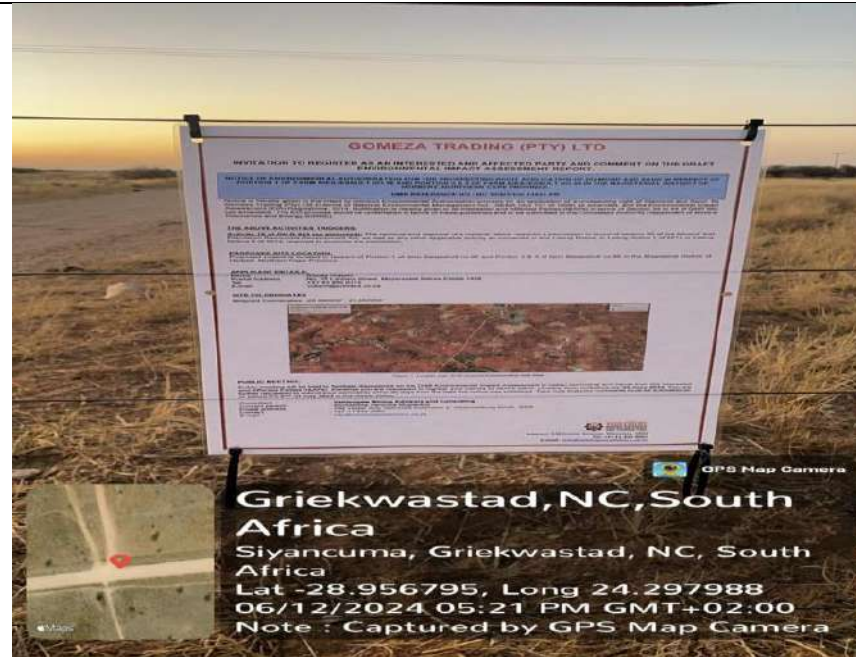




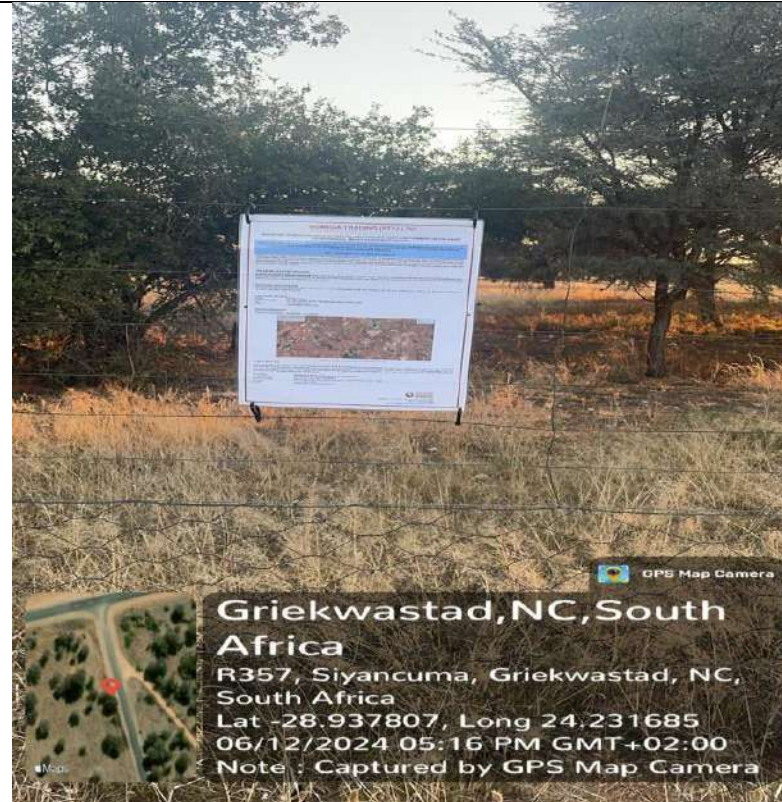
**Site notice B** was placed along the R357 Road at about 1.70 Km north of the proposed project area.



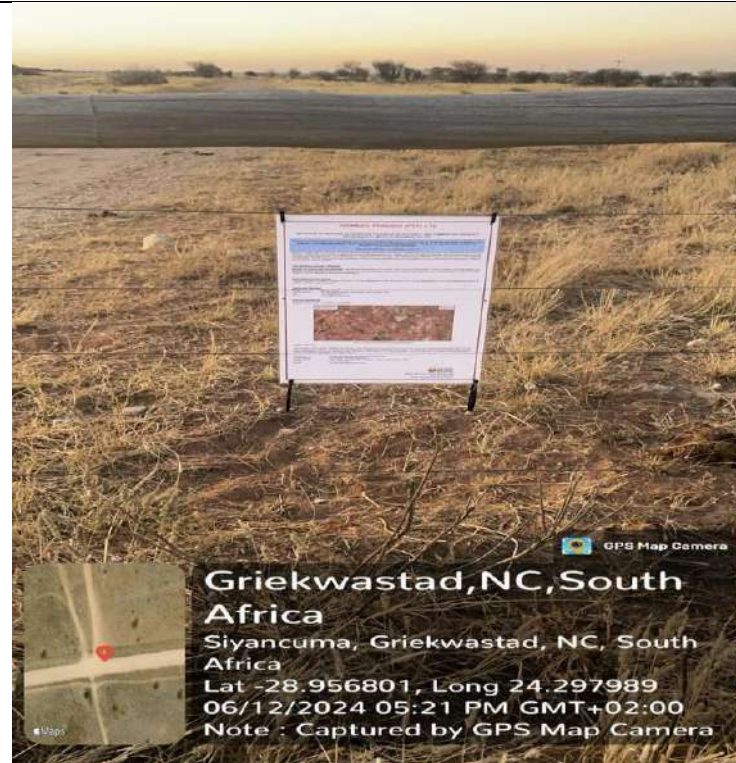
**Site notice C** was placed outside of the Plooyburg Intermediate Skool in Plooyburg.



**Site notice D** was placed on the eastern boundary of the project area.



Site notice E was placed along R357 Road at about 10 Km west of the proposed project area.



Appendix 3E:

I &APs Database

NAME AND SURNAME	ORGANIZATION/ COMMUNITY	ADDRESS	CONTACT DETAILS	EMAIL ADDRESS
<b>STATE ORGANS</b>				
Thivhulawi Nethononda	Departme of forestry, fisheries, and the environment			
Portia Makitla	Departme of forestry, fisheries, and the environment			
Lindiwe Victoria Dlamini	Departme of forestry, fisheries, and the environment			
Tebego Kgaphola	Department of forestry, fisheries, and the environment			
Mashudu Mudau	Departme of forestry, fisheries, and the environment			
Janse Melinda	Department of Water and Sanitation			
Hlengani Alexia	Department of Water and Sanitation			
Kelebogile moalosi	Department of Water and Sanitation			
Mashudu Mudau	Department of Water and Sanitation			
<b>INTERESTED AND AFFECTED PARTY</b>				
Roscoe Lawrence	Idstone			
K Mille	Mike Agri			
L du Plessis	Driekop seiland, National Heritage Site			

DL Human	Idstone		
BP Frans	Plooyburg School		
Vaaltein Jullius	NRS		
Mara Moss	Plooyburg		
J Cloete	Plooyburg		
Matthew	Plooyburg		
David Makane	Plooyburg		
Esegid Moss	Plooyburg		
Elia V/d Linde	Plooyburg		
Thomas Mokae	Plooyburg		
Fikile Shartz	Plooyburg		
Swartz Padius	Plooyburg		
Solomon Cetoka	Mokala National Parks		
Sarah Mokae	Plooyburg		
<b>FARM OWNER</b>			
Desiree Lawrence			
Francis John Lawrence			
<b>SANPARKS</b>			
Jeffrey Manuel	Sanparks		
Johan De Klerk			
Kristal Maze			
Wandile Noxolo Ngubo			
<b>LANDOWNER'S REPRESENTATIVES</b>			
Charmaine Jordaan	Japie Van Zyl Attorneys/ Prokureurs Inc		





Appendix 3F:

Comments and Response Report (CRR)

**GOMEZA TRADING (PTY) LTD**  
**COMMENTS AND RESPONSE REPORT:**  
**DRAFT EIA/EMPr**

Names	Consultation Method	Date Comments received	Issues and/or comments raised	EAP Responses
Siyancuma Local Municipality	Email	16 July 2024	No response to email	<p>Good day,</p> <p>I'm following up on the consultation of the draft Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for an application of Environmental Authorisation dated June 21,2024, for your comments in terms of section 24 k of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) for Prospecting right in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the administrative district of Kimberley, Northern Cape Province.</p> <p>Should you require any further information, please do not hesitate to contact me. looking forward to your comments.</p>

				Kind regards, Mulalo Mafunisa
Pixley Ka Seme District Municipality	Email	21-June-24	No response to email	EAP sent email to consult Pixley Ka Seme District Municipality, Northern Cape (tshekela@pkdsm.gov.za & pixley@telkomsa.net ), on the draft Scoping Report
Dpt. Land Affairs	Email	21 June 2024	No response to email	EAP sent email to consult Department of Agriculture, Land reform & Rural Development (kgotso.moeketsi@dalrrd.gov.za & katshaba.mathibe@dalrrd.gov.za ) on the draft EIA/EMPr Report
Roscoe Lawrence	Public participation meeting	24 June 2024	Is the EIA completed?	EIA is not completed until we receive comments from I&AP and incorporate them into the report.
			Where will trenches be located?	They must first undertake non-invasive desktop to determine where the mineral is located.
			There are also potatoes on site.	Potatoes will also be added to crops on site.
			The buildings on site that appear to be sixty (60) years old, can crumble at any time.	If they look like they are sixty (60) years old, they cannot simply destroy them but must apply to SAHRA.

			We have until when to submit the comments/inputs because the EIA document is too big and requires time.	Today we are introducing the draft EIR, however you may still submit comments/inputs via phone call preferably email. However, if you have a comment today, it would be appreciated, and if you have a different concern after reading, please feel free to comment.
Solomon Cefoka	Public participation meeting	24 June 2024	According to the specialist results, there is just one species on site, however there are additional species on site.	Today's goal is to present the findings, and because you know the site better, you will advise that the specialist studies report was not detailed enough. You will then list species that require protection, and these measures will then be incorporated into the report, and the DMRE may impose conditions if they are not addressed efficiently.
			I see that the proposed project area is on the footprint (2 km) of Mokala national parks	one option is to add a buffer zone to protect sensitive area.
Kelebogile Moalosi	Email	24 June 2024	Good day,  This office acknowledges the receipt of your report.	Good day,  I'm following up on the consultation of the draft Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for an application of Environmental Authorisation dated June 21,2024, for your comments in terms of section 24 k of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) for Prospecting right in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the

				<p>administrative district of Kimberley, Northern Cape Province.</p> <p>Should you require any further information, please do not hesitate to contact me. looking forward to your comments.</p> <p>Kind regards, Mulalo Mafunisa</p>
Siyancuma Local Municipality	Email	21 June 2024	No response to email	<p>Good day,</p> <p>CONSULTATION OF THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) OF THE APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) READ WITH REGULATION 23 OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) FOR PROSPECTING RIGHT IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT N0.96 AND PORTION 2 and 3 OF THE FARM BIESJESBULT No.99, SITUATED IN THE ADMINISTRATIVE DISTRICT OF HEBERT, NORTHERN CAPE PROVINCE. NC 30/5/1/1/2/13823 PR.</p> <p>I am writing to consult the EIA and EMPr for your comments in accordance with section</p>

				<p>24k of the National Environmental Management Act (Act 107 of 1998)(as amended) for an application of Environmental authorisation for the proposed prospecting right in terms of section 24 of the National Environmental Management Act,1998 read in conjunction with regulation 23 of the Environmental Impact Assessment regulations, 2014 as amended, for diamond and sand for Gomeza Trading (Pty) Ltd “the applicant” in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the administrative district of Kimberley, Northern Cape Province.</p> <p>Should you require any further information, please do not hesitate to contact me. looking forward to your response.</p> <p>Kind regards, Mulalo Mafunisa</p>
South African National Parks (Mokala National Park)	Email	19 July 2024 Refer to the attached Letter (Appendix 3F)	<p>SANParks’ opinion is that the DEIR contains insufficient details to enable adequate public participation or informed decision-making. We recommend that the DEIR be amended to consider various shortcomings in the report:</p> <ul style="list-style-type: none"> <li>•to include an assessment of the potential impacts on Mokala National Park.</li> </ul>	<ul style="list-style-type: none"> <li>•The potential impacts on Mokala National National Park will be incorporated into the Final Environmental Impact Report (EIR) for submission to the Department of Mineral Resources and Energy (DMRE) for their review and decision-making process.</li> <li>•The proposed prospecting activities are anticipated to disturb an area of 2,605 hectares in size, this includes the site camp,</li> </ul>

			<ul style="list-style-type: none"> <li>•to specify the size and locations of all of prospecting activities and infrastructure, along with mapped footprints.</li> <li>•to indicate the locations of high-value biodiversity features that need to be avoided, along with a site map illustrating how prospecting activities are to be located to avoid and minimise impacts.</li> <li>•to include a biodiversity offset study.</li> </ul>	<p>processing plant, trenching site, and access road. The precise placement of structures and the trenching site will be determined following the completion of non-invasive activities.</p> <ul style="list-style-type: none"> <li>•A composite map (Section17.3) illustrates that adequate 100m buffer should be provided between prospecting activities and surface water resources (i.e identified wetlands and Riet River).</li> <li>•Given the localized and temporary nature of biodiversity impacts anticipated, it is anticipated that specialist studies may not be necessary. Should any protected trees be affected by the project, Gomeza Trading (Pty) Ltd will apply for the necessary permits to either relocate or remove them.</li> </ul>
(Department of Water and Sanitation)	Email	12 July 2024 Refer to the attached Letter (Appendix 3H)	<ul style="list-style-type: none"> <li>•It is noted from the report that water will be transported to the designated trenching sites and delivered onto the property. As necessary, water bowsers will be dispatched to these locations. The Department of Water and Sanitation will require the provision of an agreement letter.</li> <li>•The applicant shall ensure that domestic waste and hazardous waste generated on site is removed from site and disposed at a registered disposal facility. Therefore, a service level agreement shall have to be signed for the removal and disposal of waste into approved landfill site. A signed copy of service agreement shall be submitted to the</li> </ul>	<ul style="list-style-type: none"> <li>•The feasibility of groundwater extraction will be verified in consultation with the Department of Water and Sanitation (DWS). Should groundwater extraction be required, a Section 21(a) water use license will be necessary.</li> <li>•Waste should be properly classified, separated, stored, and disposed at relevant disposal sites.</li> <li>•Water is anticipated to be trucked to the designated trenching sites and taken onto the property. As needed, water bowsers will be sent to the locations.</li> <li>•All laydown, chemical toilets should be restricted to least sensitive areas.</li> </ul>

			<p>DWS to demonstrate that provision will be made to render such service.</p> <ul style="list-style-type: none"> <li>•From the report, it is stated that chemical toilet facilities will be utilized for the employees. The Department supports the use of chemical toilets considering the lifetime of the project. Furthermore, the chemical toilets shall be used and be managed accordingly to applicable legislation.</li> <li>•Storage facilities: the applicant must ensure that fluids are stored and handled properly in a concrete or cement lined surface with berm walls to avoid any seepage into the groundwater resources and ensure that the design of the storage area is such that any leakages or spillages can be contained.</li> <li>•To ascertain if authorisation is required, you may contact Mr Sekwaila Khutjo (Water Use Manager: Water use</li> </ul>	<ul style="list-style-type: none"> <li>• The area where the vehicles and equipment will be stored and/or serviced should be bunded to avoid spillages into the soils;</li> <li>•Fuel storage tanks should be placed in bunded areas to minimise fuel seeping into the ground as far as possible</li> </ul>
Dept. Environmental Affairs	Email	19 July 2024 Refer to the attached Letter (Appendix 3H)	<ul style="list-style-type: none"> <li>•The Draft Environmental Impact Assessment Report (“DEIR”) must be revised to include all relevant environmental legislation with permit and license requirements.</li> <li>•Mining and Prospecting activities cannot be supported in Critical Biodiversity Areas (CBA’s) and the whole site is in CBA’s.</li> <li>•No fine-scale site sensitivity map is provided, clearly delineating the sensitive no-go areas and their buffers.</li> <li>•The prospecting application area is known for its critically endangered Gyps africanus</li> </ul>	<ul style="list-style-type: none"> <li>•All the relevant environmental legislations referenced in the letter dated 19 July will be incorporated into the Final Environmental Impact Report (EIR) for submission to the Department of Mineral Resources and Energy (DMRE) for their review and decision-making process.</li> <li>•According to the Northern Cape Conservation plan, the entire site falls with a critical biodiversity area. The section along the Riet River is classified as CBA 1 due to the river being a NFEPA and also acts a corridor for</li> </ul>



			<p>vultures breeding in protected Vachellia erioloba trees. The avifauna impacts were inadequately assessed.</p> <ul style="list-style-type: none"> <li>•Nationally protected tree species may not be damaged, disturbed, cut or destroyed without a valid Forest Act License from the Department of Forestry, Fisheries and the Environment (DFFE).</li> <li>•Provincially protected and specially protected plant and animal species may not be disturbed without valid Fauna and Flora Permits from the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL) under the NCNCA.</li> <li>•Having a Prospecting Right does not exempt the holder of such right from complying with other applicable environmental legislation and permit and license requirements.</li> </ul>	<p>animals whereas the remainder of the site is classified as CBA 2 due to the occurrence of the national protected trees. Acquisition of Flora and Fauna Permits from the Northern Cape Department of Agriculture, Rural Development and Land Reform (DAERL) will be necessary in cases where provincially protected or specially protected plant and animal species might be disturbed.</p> <ul style="list-style-type: none"> <li>•Given the localized and temporary nature of biodiversity impacts anticipated, it is anticipated that specialist studies may not be necessary. Should any protected trees be affected by the project, Gomez Trading (Pty) Ltd will apply for the necessary permits to either relocate or remove them.</li> <li>•The anticipated impacts of the proposed project are expected to be localized and kept at a moderate level through the implementation of mitigation and management measures. Acquisition of Flora and Fauna Permits from the Northern Cape Department of Agriculture, Rural Development and Land Reform (DAERL) will be necessary in cases where provincially protected or specially protected plant and animal species might be disturbed.</li> </ul>
--	--	--	--	--

## Appendix 3G:

### Public Consultation Meeting Documentation

# **GOMEZA TRADING (PTY) LTD**

## **PUBLIC PARTICIPATION MEETING**

**DRAFT EIA/EMPr REPORT FOR THE PROSPECTING RIGHT APPLICATION**

**DMRE Ref Number: NC 30/5/1/1/2/ 13823 PR**

**24 June 2024**



**VAHLENGWE**  
MINING ADVISORY  
AND CONSULTING

## **AGENDA**

1. Opening and Introduction
2. Purpose of the Meeting
3. Presentation: Draft EIA/EMPr Report
4. Discussions
5. Closure

## **PROJECT TEAM**

- Cecil Dau
- Nonhlanhla Mokgakane
- Andrew Podisane
- Mulalo Mafunisa
- Keabetswe Mmolotsi
- Dimakatso Leholi



# INTRODUCTION

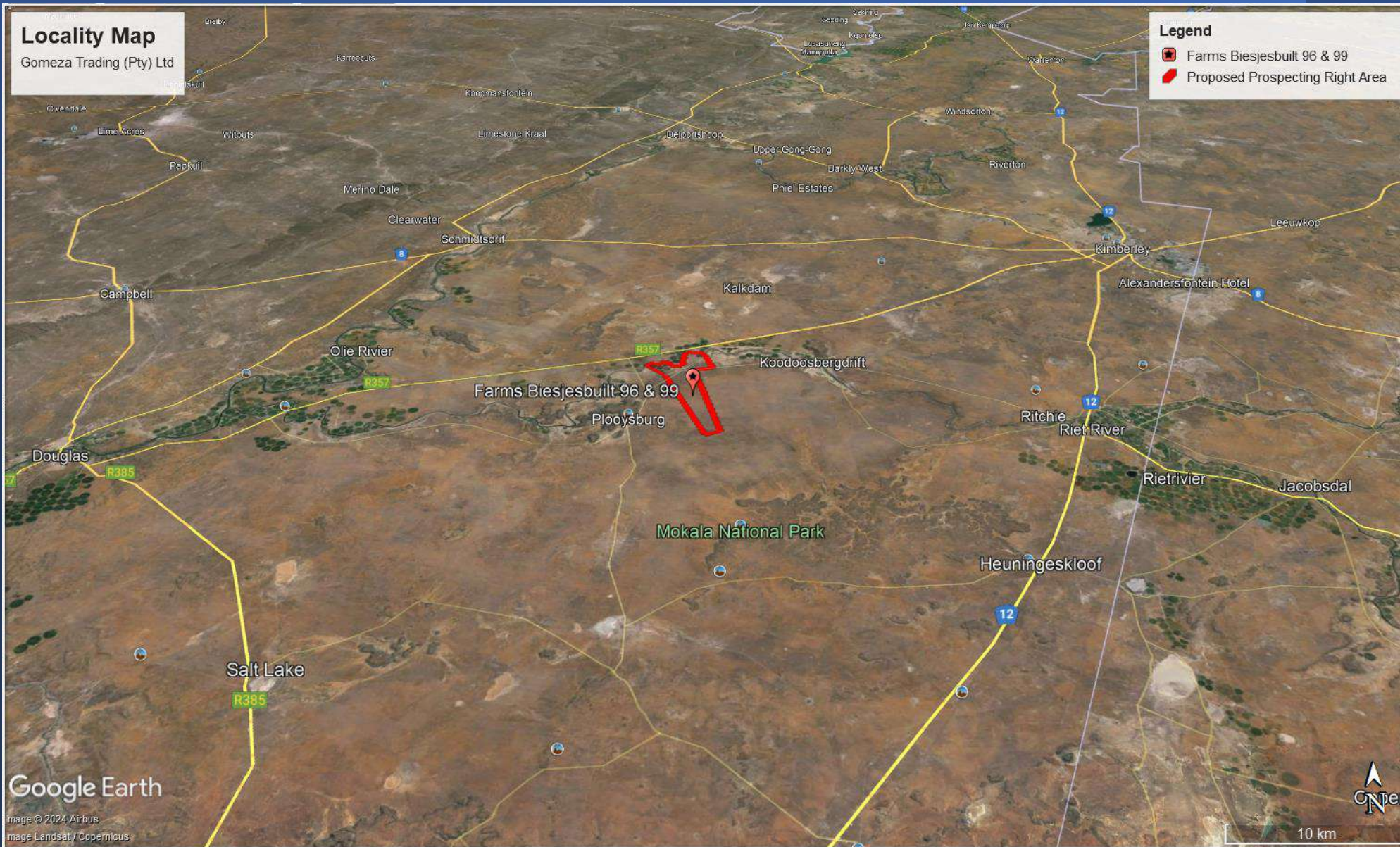
- Gomeza Trading (Pty) Ltd has applied for a **Prospecting Right** in terms of Section 16 and permission to remove and dispose of mineral in terms of Section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (as amended) (MPRDA).
- Application has been accepted by DMRE(Northern Cape) Regional Office under the reference number **NC 30/5/1/1/2/ 13823 PR**
- Scoping report was accepted by DMRE on the **10<sup>th</sup> of April 2024**
- **Mineral applied for: Diamond and Sand .**
- **Locality:** Portion 1 of the Farm Biesjesbult no.96 and Portions 2 and 3 of the Farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape
- The area covers an area extent of **3109.69 ha.**
- **Current Land uses:** Agriculture, Conservation and tourism such as Mokala National Game Reserve (2km South of application area), and Residential such as Plooyburg town (5,41 km SW of application area) and Ritchie town (29,61km W of the application area)

# Locality Map

Gomeza Trading (Pty) Ltd

## Legend

-  Farms Biesjesbuilt 96 & 99
-  Proposed Prospecting Right Area



Google Earth

Image © 2024 Airbus  
Image Landsat/Copernicus



# REGULATORY FRAMEWORK

**Application:** Prospecting Right in terms of Section 16 and permission to remove and dispose of mineral in terms of Section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (as amended) (MPRDA).

**Environmental Authorization** in terms of Sec. 24 of NEMA, 1998 (Act 107 of 1998)(as amended).

**Activity 19 of GN R 984 (as amended):** The removal and disposal of a mineral, which requires a permission in terms of section 20 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in this Listing Notice, in Listing Notice 1 of 2014 or Listing Notice 3 of 2014, required to exercise the permission.

**Water Use license** in terms of Section 21 of National Water Act, 1998 (Act 36 of 1998) and its promulgated WULA Regulations of 2017.

# PROJECT DESCRIPTION: ACTIVITIES

- Prospecting activities will be divided into non-invasive activities and invasive activities.
- **Non-invasive activities:** desktop studies, aeromagnetic survey, geological mapping, geophysical survey, environmental and rehabilitation studies and banking and feasibility studies
- **Invasive activities:**
  - Site establishment – vegetation clearance of an extent area of 30m x 30m
  - Installation of ablution facilities
  - Construction of temporal access roads
  - **Trenching:** Trenching Provision has been made to construct 5 trenches with dimensions of 50m x 20m x 4m.
  - **Processing operations:** Processing of diamondiferous gravel.
  - **Rehabilitation**



# PUBLIC PARTICIPATION PROCESS (PPP)

- Draft EIA/EMPr Report : Subjected to a 30-day Public Participation Process.
- The purpose of public consultation process is to enable landowners or lawful occupiers of the land and stakeholders including the Interested and Affected Parties (I&APS) to raise any issues, concerns and or comments regarding the prospecting activities.
- A Comments and Response Report (CRR) will be developed and incorporated into the final Report to be submitted to the Department of Mineral Resources and Energy (DMRE) for decision making.

## **Announcement of the Draft Scoping And PPP To Be Followed**

- Availability of the Draft EIA/EMPr Report from the 06<sup>th</sup> of June 2024.
- A Background Information Document (BID) including a registration form handed and distributed to the identified I&AP.
- Site notices placed at the project site and at strategic locations visible to the public.
- Newspaper advertisement on The Noordkap Bulletins Newspaper on the 06<sup>th</sup> of June 2024;
- A public participation meeting with the community on the 24<sup>th</sup> of June 2024 (today).
- A draft EIA/ EMPr electronic copy is available on the website([www.vahlengweadvisory.co.za](http://www.vahlengweadvisory.co.za)).

# BASELINE ENVIRONMENT

- The project area's climate is classified as subtropical semi-arid, with mild, dry winters and hot, sunny summers
- The proposed prospecting area is underlain by the Kalahari group formation
- According to the new vegetation classification on BGIS (2012), the proposed site is located at the Upper Gariep Alluvial vegetation (more along the Riet River), Kimberley Thornveld and the Vaalbos Rocky Shrubland of the Savanna Biome.
- The project area lies within the Middle Vaal Water Management Areas (WMA) and Quaternary Catchment C21L.
- Currently the site is used for cultivation (Lucerne and maize) as well as cattle farming. Few farm holdings exist

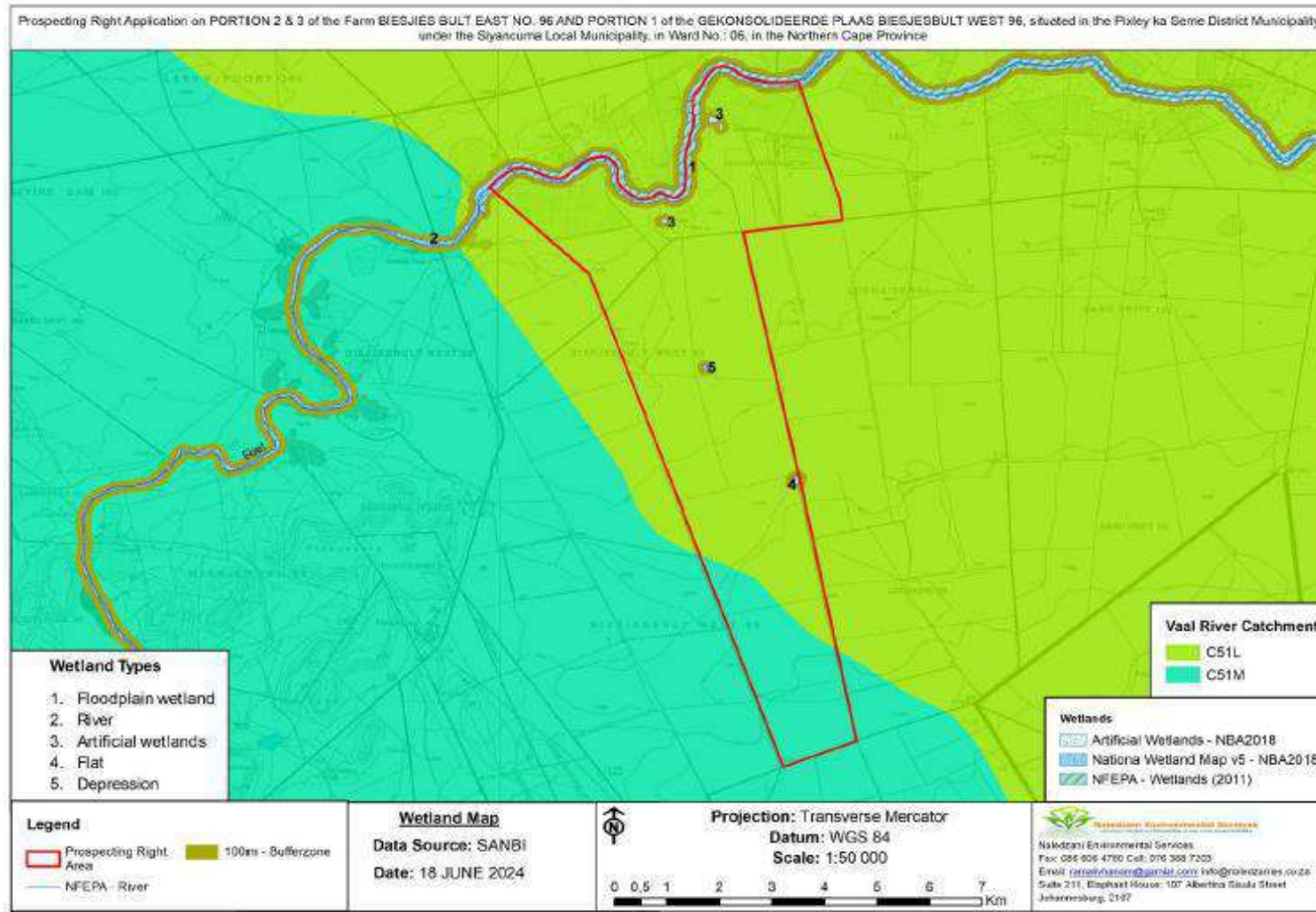
# EIA FINDINGS

## Ecological and Wetland Impact Assessment

- From the survey only one species of concern was recorded on site, and this is the *Vachellia erioloba*
- Few alien plant species were recorded in the study area at the time of the survey
- According to the Northern Cape Conservation plan, the entire site falls with a critical biodiversity area.
- Two types of natural wetlands were recorded on site, within the boundaries of the study areas. These are Depression or pans as well as Flood-plain wetlands.

# EIA FINDINGS

## Ecological and Wetland Impact Assessment (Continued)



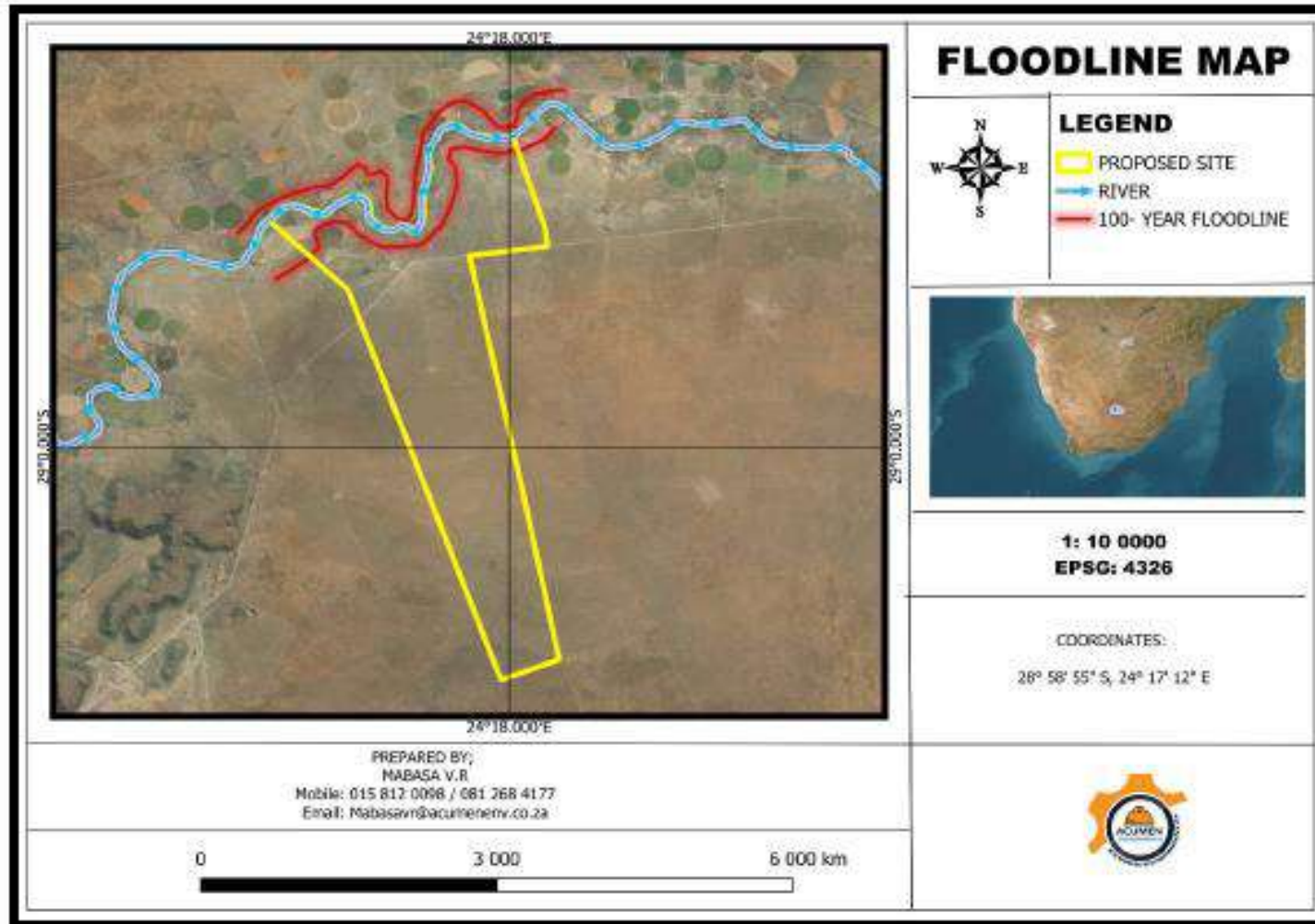
# EIA FINDINGS

## Hydrological Impact Assessment

- The Riet River is a vital water source for agricultural activities, including irrigation for crops such as maize and wheat. It also supports livestock farming in the region.
- The general use of groundwater in the area is human consumption and irrigation.
- The nearest river systems that could cause a potential 1: 100-Year flood do not encroach on the floodline on the majority of the site except where “Red lines” are indicated, and development should be avoided in such areas..

# EIA FINDINGS

## Hydrological Impact Assessment (Continued)



# EIA FINDINGS

## Archaeological and Cultural Heritage Impact Assessment

- The Impact Assessment identified two burial sites within the study area which triggers Section 36 of the NHRA Act 25 of 1999.
- The study also noted that the area is littered with farm structures and buildings which appear to be over sixty years of age.
- Subject to the adoption of the heritage report and the implementation of the mitigation measures, there are no significant cultural heritage resources barriers to the proposed development project.

# Potential Impacts Summary (Negative)

Environmental Aspects	Potential Impacts	Management and Mitigation Measures
<b>Soils and Land Capability</b>	Soil Compaction and contamination	Concurrent rehabilitation; and A clean-up of hydrocarbon spills
<b>Flora &amp; Fauna</b>	Alteration of ecological life cycle	Minimising disturbance on the indigenous vegetation; An alien and invasive management plan must be always adhered to; and Environmental awareness and training for workers
<b>Surface and Groundwater resources</b>	Contamination of water resources and deterioration of water quality	Adequate stormwater management must be incorporated into the design of the project; and Where possible, any prospecting close to water bodies should proceed during the dry winter months.
<b>Air Quality/Dust; and Noise</b>	Dust generation and ambient air pollution; and Ambient noise levels increase	Conduct dust fall-out monitoring and Vehicle maintenance ; and Operation must be restricted to the specific hours
<b>Visual</b>	Visual disturbance	Rehabilitation of trenching sites and access tracks
<b>Cultural and Heritage Resources</b>	Heritage Impact Assessment identified two burial sites and farm buildings which appear to be over 60 years of age.	No prospecting activities must take place within the vicinity of the burial sites and farm structures; and If any heritage resources, including fossils, graves, or human remains, are encountered these must be reported to the relevant authorities.
<b>Traffic</b>	Increase in traffic volumes on existing traffic network	Local speed limits and traffic laws shall always apply



# Potential Impacts Summary (Positive)

Environmental Aspects	Potential Impacts	Management and Mitigation Measures
<b>Socio-economic</b>	Creation of temporary employment; and Opportunities to local people	Skills development and transfer; and Maximise procurement of goods and services from local providers  Community development as part of the Social and Labour Plan (SLP), should the prospecting project transition to mining.

# CONCLUSION

- The project is anticipated to yield multiple positive impacts on the surrounding community. These include the creation of employment opportunities for local residents, contributions to the local economy, and the transfer of skills, training, and opportunities, particularly if the prospecting phase advances to mining operations.
- The environmental impacts identified in the EIA phase can be substantially mitigated through the implementation of appropriate management and mitigation measures recommended by the specialists.
- Therefore, project activities have to be monitored to achieve intended rehabilitation goals.



*Thank you!  
Discussion*



**VAHLENGWE**  
MINING ADVISORY  
AND CONSULTING



011 432 0062



[info@vahlengweadvisory.co.za](mailto:info@vahlengweadvisory.co.za)



[www.vahlengweadvisory.co.za](http://www.vahlengweadvisory.co.za)



238 Vorster Avenue, Glenvista Ext 5, Johannesburg South. 2091

## **PUBLIC PARTICIPATION MEETING MINUTES**

**PUBLIC PARTICIPATION PROCESS OF AN APPLICATION FOR A PROSPECTING RIGHT ENVIRONMENTAL AUTHORISATION FOR DIAMOND AND SAND TO CONSULT ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PROGRAMME IN TERMS OF REGULATION 41- 44 OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATION,2014 (AS AMENDED) READ WITH THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT,1998 (ACT 107 OF 1998)(AS AMENDED) IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99: WITHIN THE ADMINISTRATIVE DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.**

Date: 24 June 2024

Company: Gomeza Trading (Pty) Ltd, DMRE Ref No: NC 30/5/1/1/2/ 13823 PR

Venue: Plooyburg Intermediate Skool

Time: 17:00 pm

### **MEETING AGENDA**

- 1.Opening and Introduction
- 2.purpose of the meeting
- 3.Presentation: Draft EIAr/EMPr
- 4.Discussions
- 5.Closure

### **1.OPENING AND INTRODUCTION**

Mr. Sunday Mabaso introduced the project team and provided the background information, indicating that VahleNgwe Mining Advisory and Consulting is an Independent Environmental Assessment Practitioner (EAP) appointed by Gomeza Trading (Pty) Ltd, the “applicant” in terms of regulation 12 of the Environmental Impact Assessment Regulation, 2014, to facilitate an application of the Environmental Authorisation (EA) for a Prospecting Right. He further stated that in February 2024, we met with I&APs to consult on a draft scoping report and are currently consulting on an Environmental Impact Assessment.

### **2. PURPOSE OF THE MEETING**

Mr. Sunday Mabaso indicated that the purpose of the public participation meeting was to consult the draft Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for an application of Environmental Authorisation for a prospecting right in respect of portion 1 of the farm Biesjesbult no.96 and portion 2 and 3 of the farm Biesjesbult no.99, to provide them with sufficient information about the proposed prospecting project, and to give them an opportunity to comment, raise concerns, and to contribute towards the assessment.

### 3. PRESENTATION

Mr. Cecil Dau presented the Draft Environmental Impact Assessment report as follows:

1. Introduction: Application of the prospecting right in terms of section 16 and 20 of the MPRDA, 2002;
2. Locality map;
3. Regulatory framework: section 16 and 20 of the MPRDA, 2002, Section 24 of NEMA, Activity 19 of GN R 984, and section 21 of National Water Act, 1998;
4. Project description (activities): Non-invasive activities, invasive activities, trenching, processing operations and rehabilitation;
5. Public Participation Process (PPP): 30 days and announcement of draft EIA and PPP followed;
6. Specialist studies: Baseline Environment, Ecological and wetland impact assessment, Archaeological and cultural heritage impact assessment;
7. Potential impacts summary (negative): Management and mitigation measures;
8. Potential impacts summary (positive): Management and mitigation measures;
9. Conclusion.

### 4. DISCUSSIONS (Q &A)

NAME	QUESTIONS	ANSWERS
Roscoe Lawrence	Is the EIA completed?	<b>Cecil Dau</b> EIA is not completed until we receive comments from I&AP

		and incorporate them into the report.
	Where will trenches be located?	<b>Cecil Dau</b> They must first undertake non-invasive activities to determine where the minerals might be located.
	There are also potatoes on site.	Potatoes will also be added to crops on site.
	The buildings on site that appear to be sixty (60) years old, can crumble at any time.	<b>Sunday Mabaso</b> If they look like they are sixty (60) years old, they cannot simply destroy them but must apply to SAHRA.
	We have until when to submit the comments/inputs because the EIA document is too big and requires time.	<b>Sunday Mabaso</b> Today we are introducing the draft EIAR, however you may still submit comments/inputs via phone call preferably email. However, if you have a comment today, it would be appreciated, and if you have a different concern after reading, please feel free to comment.
Solomon Cefoka	According to the specialist results, there is just one species on site, however there are additional species on site.	<b>Sunday Mabaso</b> Today's goal is to present the findings, and because you know the site better, you will advise that the specialist studies report was not detailed enough. You will then list species that require protection, and these measures will then be incorporated into the report, and the DMRE may

		impose conditions if they are not addressed efficiently.
	I see that the proposed project area is on the footprint (2 km) of Mokala national parks	<b>Sunday Mabaso</b> one option is to add a buffer zone to protect sensitive area.

**5. CLOSURE.**

Mr. Sunday Mabaso ended the meeting at 18:48, thanking everyone for their attendance and encouraging them to continue sending their comments/ inputs even after the meeting.

## **GOMEZA TRADING (PTY) LTD**

DMRE REFERENCE: NC 30/5/1/1/2/ 13823 PR  
DRAFT ENVIRONMENTAL IMPACT ASSESSMENT  
PUBLIC PARTICIPATION PROCESS



Address: 238 Voster Ave,  
Glenvista, 2058

Tel: +27 11 432 0062

E-mail: [info@vahlengweadvisory.co.za](mailto:info@vahlengweadvisory.co.za)

## **ATTENDANCE REGISTER**

**PUBLIC PARTICIPATION PROCESS OF AN APPLICATION FOR AN ENVIRONMENTAL AUTHORISATION (EA) IN TERMS OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) READ WITH NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (AS AMENDED) FOR A PROSPECTING RIGHT AND RELATED INFRASTRUCTURAL ACTIVITIES FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESTBULT NO. 96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO. 99: WITHIN THE ADMINISTRATIVE DISTRICT OF HERBERT.**

### **Public Participation Meeting:**

**Company: Gomeza Trading (Pty) Ltd**

**DMRE Reference: NC 30/5/1/1/2/ 13823 PR**

**Venue: Plooyburg Intermediate School**

**Date: 24/06/2024**

**Time: 18:00 pm**

Gomeza Trading (Pty) Ltd  
DMRE Reference: NC 30/5/1/1/2/13823  
Draft Environmental Impact Assessment  
Public Participation Process

24 January 2024



**GOMEZA TRADING (PTY) LTD**

PUBLIC PARTICIPATION PROCESS  
 DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT  
 DMIRE REFERENCE: GP 30/5/1/1/2/ 13823 PR



Address : 238 Voster Ave,  
 Glenvista, 2058  
 Tel: +27 11 432 0062

NAME AND SURNAME	ORGANIZATION/ COMMUNITY	ADDRESS	CONTACT DETAILS	EMAIL ADDRESS	SIGNATURE
Dimakatso Lehali	Vahlengwe				
Solomon Cefoka	SAPLAKS-Motake N.P				
CECIL DAY	Vahlengwe				
Matthew's Siphakabi					
Roscoe Lawrence	Idstone Farming				
Sunday Mabaso	Vahlengwe				
Kentsoel Mmbatsi	Vahlengwe				
Mutalo Mafunisa	Vahlengwe				



**Verwysing / Reference:**

***Ons/Our:*** Japie van Zyl / Charmaine / MAN010/MAT16849

***U/Yours:***

21 February 2024

By e-mail: [vutomi@gomeza.co.za](mailto:vutomi@gomeza.co.za)

[info@vahlengweadvisory.co.za](mailto:info@vahlengweadvisory.co.za)

The Directors

Gomeza Trading (Pty) Ltd

And Vahlengwe Mining Advisory and Consulting

Dear Gentlemen / Ladies

**OBJECTION AGAINST AN APPLICATION FOR A PROSPECTING RIGHT AND THE GRANTING OF AN ENVIRONMENTAL AUTHORIZATION : KALAROO FARMS (PTY) LTD / GOMEZA TRADING (PTY) LTD, ON THE FARMS BIESJESBULT 96 AND BIESJESBULT 99, REGISTRATION DIVISION: HERBERT, NORTHERN CAPE PROVINCE, TO PROSPECT FOR DIAMONDS AND SAND**

**DMR REFERENCE NR.: NC30/5/1/1/2/13823PR**

1. We refer to an application for a prospecting right and an environmental authorization by Gomeza Trading (Pty) Ltd to prospect for Diamonds and Sand on Portion 1 of the farm Biesjesbult 96 and Portion 2 and Portion 3 of the farm Biesjesbult 99, Registration Division: Herbert, Northern Cape Province, reference number: NC30/5/1/1/2/13823PR.

2. We confirm that we act on behalf of Kalaroo Farms (Pty) Ltd, (Reg. nr: 1995/010977/07), (previously known as Larandre Game Ranch (Pty) Ltd), who is the owner of the following properties:
    - 2.1 Portion 1 (Riverside) of the farm Consolidated farm Biesjesbult West 96, Registration Division: Herbert, Northern Cape Province, Extent: 2564.3141 hectares, held under Title Deed: T4422/1996;
    - 2.2 Portion 2 (Aucamps Hope) of the farm Consolidated farm Biesjesbult West 96, Registration Division: Herbert, Northern Cape Province, Extent: 2547.7545 hectares, held under Title Deed: T236/2013;
    - 2.3 Portion 2 (a portion of Portion 1) (Langvlakte) of the farm Biesjes Bult East 99, Registration Division: Herbert, Northern Cape Province, Extent: 292.1762 hectares, held under Title Deed: T2718/2000;
    - 2.4 Portion 3 (a portion of Portion 1) (Langvlakte) of the farm Biesjes Bult East 99, Registration Division: Herbert, Northern Cape Province, Extent: 256.8492 hectares, held under Title Deed: T380/2003.
  - 3 We hereby register our client as an interested and affected party in its capacity as surface owner and neighbor.
  - 4 We attach hereto an objection against the application for the prospecting right sent to the Department of Mineral Resources.
  - 5 The Constitutional Court has held in the Bengwenyama Minerals (Pty) Ltd case that consultation regarding a prospecting right, means:
-

*“The consultation process required by section 16(4)(b) of the Act thus requires that the applicant must:*

- (a) inform the landowner in writing that his application for prospecting rights on the owner’s land has been accepted for consideration by the Regional Manager concerned;*
- (b) inform the landowner in sufficient detail of what the prospecting operation will entail on the land, in order for the landowner to assess what impact the prospecting will have on the landowner’s use of the land;*
- (c) consult with the landowner with a view to reach an agreement to the satisfaction of both parties in regard to the impact of the proposed prospecting operations;”*

6 The Applicant did not notify the landowner, occupier and other interested and affected parties in writing of the application for the Prospecting Right nor did the Applicant consulted with these parties. There was thus non-compliance with the obligation to notify in writing and to consult with interested and affected parties as stipulated in the MPRDA and interpreted in the above-mentioned court case.

7 In terms of the environmental impact assessment regulations published in GNR982 of 4 December 2014 in the Government Gazette nr: 38282 (“the Gazette”), all interested and affected parties must be provided an opportunity to submit comments on each of the scoping report, Environmental Management Programme, etc. The public participation process contemplated in Regulation 40 must provide

---

interested and affected parties access to all information that reasonably has or may have the potential to influence any decision with regard to an application for a prospecting right. The applicant has to comply with Regulation 40 and the obligation to follow a process of public participation. This was not done by the Applicant.

- 8 In terms of Regulation 41 of the Gazette a person conducting a public participation process must give notice to all potential interested and affected parties of an application which is subject to a public participation process. Regulation 41(2)(b) of the Gazette specifically provides that written notice must be given to interested and affected parties. It is our instructions that there was non-compliance with Regulation 41(2)(b).
  - 9 In an application for an environmental authorization, the applicant and its environmental assessment practitioner must comply with appendix 1 of the regulations as published in the Gazette and more particularly should have given a full description of the process undertaken to identify, assess and rank the impact the activity will impose on the environment, the interested and affected parties and indicate the life of the activity. The Applicant must also assess and identify potential and significant impacts or risks of the project.
  - 10 Our client has not been provided with the information in relation to the application and the processes followed. Our client wants to appoint its own third-party consultants to assess the impacts or determine if the aspects as referred to in regulation 3 of appendix 1 of the Gazette have been addressed and if the impact of the activities will result in unacceptable pollution, ecological degradation or damage to the environment. Our client cannot do this because our
-

client was not provided with the necessary information. Our client could also not assess how the impacts may be avoided, managed or mitigated. In all likelihood, the envisaged activities will have a negative impact as our client is likely to suffer losses and damages as a result of the prospecting operations.

- 11 In the Fuel Retailers Association of SA court case (CCT 67/06/judgement date 7 June 2007) the Constitutional Court handed down judgement about the nature and scope of the obligations of environmental authorities when they take decisions that may affect the environment and particularly the interaction between socio-economic development and the protection of the environment. In that case the court ruled that consideration must be given to the socially, environmentally, and economically sustainability of the proposed project. The court held that the constitution recognizes the interrelationship between the protection of the environment and socio-economic development. No information was provided by the Applicant to our client as interested and affected party and specifically information to determine if the proposed development would be socially, environmentally, and economically sustainable.
  - 12 In considering the application for the prospecting right right the Regional Manager must determine if the prospecting will not result in unacceptable pollution, ecological degradation or damage to the environment. This contemplates the integration of environmental protection and socio-economic development and envisages that the two will be balanced through the ideal of sustainable development. The obligation to consult is wider than to assess need and desirability. It also comprehends the obligation to assess the cumulative impact on the environment of the proposed
-

project. An unsustainable project is detrimental to the environment. This was not done.

- 13 In the matter of Earthlife Africa (Cape Town) vs Director-General: Department of Environmental Affairs and Tourism the court reviewed and set aside the issuance of an Environmental Authorisation where there has been lack of or insufficient public participation. It was held that failure to afford interested and affected parties an opportunity to comment on the Environmental Impact Assessment Report is procedurally unfair.
  - 14 The High Court of South Africa (Gauteng Division, Pretoria) has also in the case of PE Convenience Centre (Pty) Ltd held that a decision should be set aside where the concept of procedural fairness (the obligation to consult with) has not been complied with.
  - 15 It is the Applicant's responsibility to consult with our client as interested and affected party. This obligation includes that you must provide us with all information and documents in relation to the application for the Prospecting right. We then kindly request that you provide us with the following documents as and when they become available:
    - 15.1 a copy of the application document for the prospecting right;
    - 15.2 a copy of proof of the date of submission of the application for the prospecting right;
    - 15.3 a copy of the regulation 2(2) map;
    - 15.4 a copy of the prospecting work programme;
    - 15.5 a copy of proof of notification and consultation with the surface owner in terms of section 16(4)(b) of the MPRDA;
-

- 15.6 a copy of the environmental management plan or programme;
- 15.7 a copy of the water use authorization / water licence;
- 15.8 a copy of the financing plan as submitted or proof of financial capability of the applicant;
- 15.9 a copy of proof of technical capability of the applicant;
- 15.10 copy of the scoping report;
- 15.11 a copy of the environmental impact study;
- 15.12 a copy of the acceptance letter of the application;
- 15.13 a list of the properties over which the right was applied for;
- 15.14 a copy of the prospecting right right, if executed;
- 15.14 a copy of the environmental authorization;
- 15.15 a copy of the water license.

16. According to the High Court of South Africa, Gauteng Division, Pretoria, ruling in the matter of Duduzule Baleni that interested and affected parties are intitled in terms of the Mineral and Petroleum Resource Development Act ("MPRDA") to be furnished copies of an application. The Court ruled as follows:

*[117.1] It is declared that interested and affected parties as contemplated by the Mineral and Petroleum Resources Development Act 28 of 2002 ("the MPRDA") are entitled by sections 10(1) and 22(4) of the MPRDA, on request to the relevant Regional Manager of the Department of Mineral Resources ("the Department"), to be furnished with a copy of an application for a mining right as contemplated by section 22 of the MPRDA, subject to the right of the applicant and/or the Department to redact financially sensitive aspects of the application.*

17. The above also applies to a prospecting right.

---



18. It shall be highly appreciated if you can provide us with this information as requested.
19. It is in any event part of your obligation to consult with interested and affected parties to provide the information.
20. Please note that this objection is a preliminary document and that it shall be amplified once we receive all the information as requested from you and the Department of Mineral Resources.

Kind regards

**JAPIE VAN ZYL ATTORNEYS**

**Per:** Charmaine Jordaan



**Verwysing / Reference:**

**Ons/Our:** Japie van Zyl / Charmaine / MAN010/MAT16849

**U/Yours:** NC30/5/1/1/2/13823PR

21 February 2024

By e-mail: [Ndlelehle.Zindele@dmre.gov.za](mailto:Ndlelehle.Zindele@dmre.gov.za)

[phumudzo.nethwadzi@dmre.gov.za](mailto:phumudzo.nethwadzi@dmre.gov.za)

[tlou.manakana@dmre.gov.za](mailto:tlou.manakana@dmre.gov.za)

The Regional Manager  
Department of Mineral Resources and Energy  
Northern Cape Region  
Kimberley

Good day

**OBJECTION AGAINST AN APPLICATION FOR A PROSPECTING RIGHT AND THE GRANTING OF AN ENVIRONMENTAL AUTHORIZATION: KALAROO FARMS (PTY) LTD / GOMEZA TRADING (PTY) LTD, ON THE FARMS BIESJESBULT 96 AND BIESJESBULT 99, REGISTRATION DIVISION: HERBERT, NORTHERN CAPE PROVINCE, TO PROSPECT FOR DIAMONDS AND SAND**

**DMR REFERENCE NR.: NC30/5/1/1/2/13823PR**

1. We refer to an application for a prospecting right and an environmental authorization by Gomeza Trading (Pty) Ltd to prospect for Diamonds and Sand on Portion 1 of the farm Biesjesbult 96 and Portion 2 and Portion 3 of the farm Biesjesbult 99, Registration

Division: Herbert, Northern Cape Province, reference number: NC30/5/1/1/2/13823PR.

2. We confirm that we act on behalf of Kalaroo Farms (Pty) Ltd, (Reg. nr: 1995/010977/07), (previously known as Larandre Game Ranch (Pty) Ltd), who is the owner of the following properties:
    - 2.1 Portion 1 (Riverside) of the farm Consolidated farm Biesjesbult West 96, Registration Division: Herbert, Northern Cape Province, Extent: 2564.3141 hectares, held under Title Deed: T4422/1996;
    - 2.2 Portion 2 (Aucamps Hope) of the farm Consolidated farm Biesjesbult West 96, Registration Division: Herbert, Northern Cape Province, Extent: 2547.7545 hectares, held under Title Deed: T236/2013;
    - 2.3 Portion 2 (a portion of Portion 1) (Langvlakte) of the farm Biesjes Bult East 99, Registration Division: Herbert, Northern Cape Province, Extent: 292.1762 hectares, held under Title Deed: T2718/2000;
    - 2.4 Portion 3 (a portion of Portion 1) (Langvlakte) of the farm Biesjes Bult East 99, Registration Division: Herbert, Northern Cape Province, Extent: 256.8492 hectares, held under Title Deed: T380/2003.
  - 3 We hereby register our client as an interested and affected party in its capacity as surface owner and neighbor.
  - 4 We have requested certain information from the Applicant and have submitted an application for access to information.
-

5 The information requested is the following:

- 5.1 a copy of the application document for the prospecting right;
- 5.2 a copy of proof of the date of submission of the application for the prospecting right;
- 5.3 a copy of the regulation 2(2) map;
- 5.4 a copy of the acceptance letter of the application;
- 5.5 a copy of the prospecting work programme;
- 5.6 a copy of the application for the environmental authorization;
- 5.7 a copy of proof of notification and consultation with the surface owners in terms of section 22(4)(b) of the MPRDA;
- 5.8 a copy of the financing plan as submitted or proof of financial capability of the Applicant;
- 5.9 a copy of proof of technical capability of the Applicant;
- 5.10 a copy of the scoping report;
- 5.11 a copy of the basic assessment report;
- 5.12 a copy of the environmental impact assessment; and
- 5.13 a copy of the environmental management plan;
- 5.14 a copy of the prospecting right;

as and when it becomes available.

6 As we act on behalf of a surface owner, the Department must provide the documents even if we did not formally apply in terms of the Promotion of Access to Information Act. It was confirmed by the High Court of South Africa, Gauteng Division, Pretoria in case no: 96628/2015 when where the Court held that:

*“It is declared that interested and affected parties as contemplated by the Mineral and Petroleum Resources Development Act, 28 of*

---

*2002 (“the MPRDA”) are entitled by Section 10(1) and 22(4) of the MPRDA, on request to the relevant Regional Manager of the Department of Mineral Resources, (the Department), to be furnished with a copy of an application for a mining right as contemplated by Section 22 of the MPRDA, subject to the right off the applicant and/or the Department to redact financially sensitive aspects of the application.”*

7 The above also has reference to prospecting rights.

8 We then kindly request the information as a matter of urgency.

9 In terms of Regulation 41(2)(b)(ii) of the National Environmental Management Act (“NEMA”) an applicant for a prospecting right must consult with interested and affected parties. Our client was not consulted with as interested and affected party.

10 The Court has recently ruled in the case of Normandien Farms (Pty) Ltd (Case no: 24294/2016) as heard in the High Court of South Africa (Western Cape Division, Cape Town) that matters falling under the MPRDA must be treated with the sensitivity it deserves. During the case the Court has made it clear that the consultation process and the results thereof is an integral part of the fairness process of an application because the decision cannot be fair if the administrator did not have full regard to what happen in the consultation process in order to determine whether that consultation was sufficient to render the grant of the application procedurally fair. The rational for consultation is described in the sections of the guideline document for consultation with communities and interested and affected

parties. In this guideline the rationale for consultation is described as follows:

*“The purpose of consultation with the landowner, affected parties and communities is to provide them with the necessary information about the proposed prospecting or mining project so that they can make informed decisions, as to see whether some accommodation with them is possible in so far as the interference with the rights to use the affected properties are concerned. Consultation under the Act’s provisions require engaging in good faith to deem to reach such accommodation.”*

- 11 In the matter of Earthlife Africa (Cape Town) vs Director-General: Department of Environmental Affairs and Tourism the court reviewed and set aside the issuance of an Environmental Authorisation where there has been lack of or insufficient public participation. It was held that failure to afford interested and affected parties an opportunity to comment on the Environmental Impact Assessment Report is procedurally unfair.
- 12 The High Court of South Africa (Gauteng Division, Pretoria) has also in the case of PE Convenience Centre (Pty) Ltd held that a decision should be set aside where the concept of procedural fairness (the obligation to consult with) has not been complied with.
- 13 The granting of the prospecting right must benefit the needs of the nation without compromising the ability of future generations to meet their needs. Where a mineral right is granted, effect must be given to Section 24 of the Constitution by ensuring that the nation’s mineral and petroleum resources are developed in an orderly and

ecological sustainable manner while promoting justifiable social and economic development. It is our submission that by granting the mineral right the minister will not give effect to section 24 of the MPRDA. One of the reasons is because the properties under consideration have been developed as farming units. Millions of rands have been invested to establish and develop these farm units together with infrastructures. Farming activities are conducted in a sustainable manner to ensure future cultivation on the properties.

- 14 Statistics show that 12% of South Africa's land can be used for crop production and that only 22% of this is high potential arable land. The greatest limitation on sustainable crop production is the availability of water and the uneven and unreliable rain fall. Farming is of vital importance to the economy with 638 000 people formally employed although it is estimated that around 8.5 million people are directly or indirectly dependent on the agriculture sector for employment and income. The sector's significance is largely because of its potential to create jobs. Worldwide food and water security has become a growing concern and population dynamics a reality.
  - 15 The envisaged activity must thus be taken into consideration and the impact it will have on food security. Pilot studies advise the dire consequences that will follow because of the impact of prospecting and mining on agriculture. These studies assessed the impacts of the prospecting or mining on transformation, ranging from the loss of production, resulting in price increases to the loss of employment, soil degradation and air pollution and health impacts. The studies concluded that the effects of prospecting or mining on agriculture are immense, and some effects are irreversible. Given that a large portion of South Africa's high potential arable soils have already been
-

destroyed by mining and prospecting activities, special care must be taken of the limited available high potential arable land.

- 16 In general we hereby lodge the following additional objection:
- 16.1 the Applicant did not consult with interested and affected parties and as such the application for the prospecting right must be refused;
- 16.2 the proposed activities will give rise to health and safety management complications, including but not limited to risk in subsidence, cracking and lack of structural integrity;
- 16.3 the Applicant will not be able to comply with the Mine Health and Safety Regulations;
- 16.3.1 the operations will impact severely on our client's ability to meet the mine health and safety obligations in ensuring the health and safety of all employees and other persons who may traverse the properties are protected;
- 16.3.2 the prospecting activities will result in unacceptable pollution, ecological degradation or damage to the environment;
- 16.3.3 the applicant didn't proof he has access to financial resources and he has the technical ability to conduct the proposed prospecting operation optimally in accordance with the prospecting work programme;
- 16.3.4 no proof is being provided that the estimated expenditure is compatible with the proposed operations and duration of the work programme;
-



- 16.3.5 no proof is being provided that the applicant has the ability to comply with the relevant provisions of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996); and
- 16.3.6 no proof is being provided that the applicant is not in contravention of any relevant provision of this Act.
- 17 Please note that the above-mentioned obligations in paragraph 16 are only primarily objections and that we will lodge a detailed objection once we have received the information as requested.
- 18 In the meantime, we request that you note our objection against the application for the prospecting right.
- 19 We reiterate that our client did not receive sufficient information about the application for the prospecting right. All our client's rights are and remain reserved **to amplify this objection.**
- 20 We shall amend our objection once we have received the information as requested.

Yours faithfully

**JAPIE VAN ZYL ATTORNEYS**

**Per:** Charmaine Jordaan

## Appendix 3H:

### Proof of Consultations with the Departments



## forestry, fisheries & the environment

Department:  
Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA

26 Olien Street, Louisvaleroad, Upington, 8801 Contact Number: 060 973 1660  
Enquiries: Ms. J. Mans, Cell 060 973 1660, E-mail

---

### EIA COMMENTS NC-PX-0014-2024-25

RE: COMMENTS ON DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED PROSPECTING RIGHT APPLICATION BY GOMEZA TRADING (PTY) LTD FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO. 96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO. 99 IN THE MAGISTERIAL DISTRICT OF HERBERT, SIYANCUMA LOCAL MUNICIPALITY, PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE (DMRE REF: NC 30/5/1/1/2/13823 PR)

---

DATE: 19 July 2024

Vahlengwe Mining Advisory and Consulting  
238 Vorster Avenue  
Glenvista Ext 5  
Johannesburg  
2091

E-MAIL: Vutomi Sight Siweya ([vutomi@gomezaco.za](mailto:vutomi@gomezaco.za); cc info@vahlengweadvisory.co.za)

Dear Ms./Mr. Vutomi Sight Siweya

I refer to the availability of the draft EIR from 6 June 2024. The Department only became aware of the application today, 19 July 2024.

Please receive comments from the Branch: Forestry Management, Directorate: Forest Resource Protection in the Department of Forestry, Fisheries and the Environment (DFFE) on the above-mentioned proposed development. The presumed due date for comments is 7 July 2024, but since we were not consulted, please find and accept our comments.

**The mandate of the Forestry Branch in the Department of Forestry, Fisheries and the Environment (DFFE), as an EIA commenting authority, is to ensure control over developments that affect State forests, natural forests, forest nature reserves and protected trees.**

1. The applicant must assess and quantify the anticipated impacts on protected trees. See Section 12(1)(d) of the National Forests Act, (Act No. 84 of 1998) ("NFA") and Government Notice (GN) 4496, Government Gazette No. 50291 of 13 March 2024 for the list of protected tree species. Protected trees such as *Boscia albitrunca*, *Vachellia erioloba* and *Vachellia haematoxylon* are known to occur in the vicinity of the study site.
2. Section 15(1) of the NFA states that no person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree, except under a license granted by the Minister; or in terms of an exemption published by the Minister.



**Batho pele** - putting people first



The processing of personal information by the Department of Forestry, Fisheries and the Environment is done lawfully and not excessive to the purpose of processing in compliance with the POPI Act, any codes of conduct issued by the Information Regulator in terms of the POPI Act and / or relevant legislation providing appropriate security safeguards for the processing of personal information of others.

3. The prohibition on protected trees applies to all trees, alive and dead. It also applies to all size classes of the species listed as protected.
4. Cutting or disturbing a protected tree without a valid Forest Act Licence is a **criminal offence** and a transgression of the National Forests Act, 1998 (Act No. 84 of 1998) and carries a fine or imprisonment or both.
5. Protected trees with active bird nests or other significant biodiversity features may not be destroyed without a valid Fauna Permit from the provincial conservation authority, the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform ("DAERL"), if these would be affected.

#### **Draft Environmental Impact Assessment Report (Comments):**

6. The report states that the prospecting area of 3109.69 ha is located 2 km south of Mokala National Park on Portion 1 of the Farm Biesjesbult No.96 and Portion 2 and 3 of the Farm Biesjesbult No.9. Invasive activities will include using a bulldozer to clear vegetation for site establishment (30 x 30 m) and 5 trenches of 50 x 20 x 4 m. The site is in the Upper Gariep Alluvial Vegetation (adjacent to Riet River), Kimberley Thornveld and Vaalbos Rocky Shrubland. The entire site is in a Critical Biodiversity Area.
7. The report omitted to refer to critical legislation such as the NFA and Northern Cape Nature Conservation Act, 2009 (Act No. 9 of 2009) ("NCNCA") under point 6 (Policy and Legislative Context). Both Acts are applicable to this development. The report must be revised and amended to ensure that all applicable environmental legislation is consulted and complied with.
8. The report confirmed that protected *Vachellia erioloba* is present on site. The species provide a habitat for the **critically endangered Gyps africanus confirmed present on site by the Endangered Wildlife Trust**. Page 39 omitted to mention the presence of this critically endangered vulture species on site. In fact, only 3 bird species are mentioned in the draft EIR, whilst it is known that this site contains numerous protected, specially protected, vulnerable, endangered and critically endangered avifauna. **A specialist ornithologist (with proof of registration e.g. official from EWT, etc.) must be consulted to supply a supplementary report to confirm that no vulture nests of the critically endangered White-backed vulture (*Gyps africanus*) are present within the areas to be disturbed. The specialist must be accompanied by an official from the Endangered Wildlife Trust or an official from the DAERL responsible for Fauna Permits. Critically endangered, endangered, protected, etc. fauna may not be disturbed without a Fauna Permit, and a suitable buffer (of at least 2 km) should be maintained around any active vulture nests.**
9. The DFFE disagrees with the impact ratings on fauna and flora (low pre- and post-mitigation). Impacts on Critical Biodiversity Areas (CBA's) are highly significant (high negative). The proposed mitigation measures are inadequate to reduce the residual negative impacts to low.
10. The DFFE is of the opinion that the Ecological and Wetland Assessment Report attached as a specialist report, is inadequate in identifying impacts on biodiversity (terrestrial biodiversity theme which came out as a very high sensitivity in the DFFE Screening Tool Results). Likewise, the suggested mitigation measures are also inadequate. No fine-scale site sensitivity maps were provided to clearly identify areas which must be avoided due to their sensitivity.

#### **Recommendations:**

11. The Draft Environmental Impact Assessment Report ("DEIR") must be revised to include all relevant environmental legislation with permit and license requirements.

12. Mining and Prospecting activities cannot be supported in Critical Biodiversity Areas (CBA's) and the whole site is in CBA's.
13. No fine-scale site sensitivity map is provided, clearly delineating the sensitive no-go areas and their buffers.
14. The prospecting application area is known for its critically endangered *Gyps africanus* vultures breeding in protected *Vachellia erioloba* trees. The avifauna impacts were inadequately assessed.
15. Nationally protected tree species may not be damaged, disturbed, cut or destroyed without a valid Forest Act License from the Department of Forestry, Fisheries and the Environment (DFFE).
16. Provincially protected and specially protected plant and animal species may not be disturbed without valid Fauna and Flora Permits from the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL) under the NCNCA.
17. Having a Prospecting Right does not exempt the holder of such right from complying with other applicable environmental legislation and permit and license requirements.

**NOTE:** The Department may request to do a site inspection to confirm and verify the findings in the report(s). The DFFE may also request a virtual meeting to discuss impacts on protected trees and/or biodiversity offsets, should it be deemed necessary.

Should you wish to correspond further on this matter, please quote Reference: EIA NC-PX-0014-2024-25. Enquiries may be directed to Ms. Jacoline Mans at [Jmans@dffe.gov.za](mailto:Jmans@dffe.gov.za), Cell 060 973 1660.

Yours sincerely



**Director-General**  
**Department of Forestry, Fisheries and the Environment**  
**Letter signed by:**  
**Designation: Deputy Director: Forest Resource Protection NC (Acting)**  
**Branch: Forestry Management**  
**Date: 19 July 2024**



## water & sanitation

Department:  
Water and Sanitation  
**REPUBLIC OF SOUTH AFRICA**

Northern Cape Region  
Lower Orange Water Management Area  
Private Bag X5912, Upington, 8800  
Tel: (054) 338-5800, Fax: (054) 334-0205, [www.dwa.gov.za](http://www.dwa.gov.za)

**By e-mail: [vutomi@gomeza.co.za](mailto:vutomi@gomeza.co.za)**

Gomeza Trading (Pty) Ltd  
No 35 Lantana Str  
Meyersdale Nature Estate  
1448.

**Attention: Vutomi Sight Siweya**

**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE PROPOSED PROSPECTING RIGHT APPLICATION FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.**

Reference is made to the above-mentioned report with the email received March 2024, with Reference number **NC 30/5/1/1/2 (13823) PR.**

The Department of Water and Sanitation (DWS) has assessed the above-mentioned application and wish to comment as follows:

1. It is noted from the report that water will be transported to the designated trenching sites and delivered onto the property. As necessary, water bowsers will be dispatched to these locations. The Department of Water and Sanitation will require the provision of an agreement letter.
2. The applicant shall ensure that domestic waste and hazardous waste generated on site is removed from site and disposed at a registered disposal facility. Therefore, a service level agreement shall have to be signed for the removal and disposal of waste into approved landfill site. A signed copy of service agreement shall be submitted to the DWS to demonstrate that provision will be made to render such service.
3. From the report, it is stated that chemical toilet facilities will be utilized for the employees. The Department supports the use of chemical toilets considering the lifetime of the project. Furthermore, the chemical toilets shall be used and be managed accordingly to applicable legislation.



**NATIONAL DEVELOPMENT PLAN**  
*Our Future - make it work*

**DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE PROPOSED PROSPECTING RIGHT APPLICATION FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.**

4. **Storage facilities:** the applicant must ensure that fluids are stored and handled properly in a concrete or cement lined surface with berm walls to avoid any seepage into the groundwater resources and ensure that the design of the storage area is such that any leakages or spillages can be contained.
5. To ascertain if authorisation is required, you may contact Mr Sekwaila Khutjo (Water Use Manager: Water use authorisations
6. Please note that the respective landowners must contact this Department should there be any development on the land or if they are engaging or propose to engage in any water uses as per Section 21 of the National Water Act, 1998 (Act No. 36 of 1998). These water uses are listed in Table 1 below.

**Table 1: Water uses requiring authorization**

S21(a)	taking water from a water resource;
S21(b)	storing water;
S21(c)	impeding or diverting the flow of water in a watercourse;
S21(d)	engaging in a stream flow reduction activity (currently only commercial afforestation);
S21(e)	engaging in a controlled activity – activities which impact detrimentally on a water resource (activities identified in s37(1) or declared as such under s38(1)) namely: <ul style="list-style-type: none"> <li>➤ irrigation of any land with waste or water containing waste which is generated through an industrial activity or a waterwork;</li> <li>➤ an activity aimed at the modification of atmospheric precipitation;</li> <li>➤ a power generation activity which alters the flow regime of a water resource; or</li> <li>➤ intentional recharge of an aquifer with any waste or water containing waste</li> </ul>
S21(f)	discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
S21(g)	disposing of waste or water containing waste in a manner which may detrimentally impact on a water resource;
S21(h)	disposing in any manner of water which contains waste from, or has been heated in, any industrial or power generation process;
S21(i)	altering the bed, banks, course or characteristics of a watercourse;
S21(j)	removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
S21(k)	using water for recreational purposes

7. Notwithstanding the above, the responsibility rests with the landowner(s) to identify any source or potential sources of pollution from his undertaking and to take appropriate measures to prevent any pollution of the environment. Failure to comply with the requirements of the National Water Act, 1998 (Act No. 36 of 1998) could lead to legal action being instituted against the landowner(s).

Please feel free to contact this department, should there be any enquiries.

Yours sincerely,



.....  
**PROVINCIAL HEAD: NORTHERN CAPE OPERATIONS**  
**DATE: 12/07/2024**

**Re: CONSULTATION OF EIA WITH DEPARTMENT OF WATER AND SANITATION**

Mulalo Mafunisa <Mulalo@vahleingweadvisory.co.za>

Tue 16 Jul 2024 13:17

Cc: Sunday Mabaso <sunday@vahleingweadvisory.co.za>; Cecil Dau <cecil@vahleingweadvisory.co.za>; Dimakatso Leholi <dimakatso@vahleingweadvisory.co.za>

Good day,

I'm following up on the consultation of the draft Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for an application of Environmental Authorisation dated June 21, 2024, for your comments in terms of section 24 k of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended) for Prospecting right in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the administrative district of Kimberley, Northern Cape Province.

Should you require any further information, please do not hesitate to contact me. Looking forward to your comments.

Kind regards,



**VAHLEINGWE MINING ADVISORY AND CONSULTING**

**MULALO MAFUNISA**  
Stakeholder Engagements  
and Social Labour Plans-SLP

✉ mulalo@vahleingweadvisory.co.za  
☎ 011 432 0062 | 079 293 8585  
🌐 www.vahleingweadvisory.co.za  
📍 238 Vorster Ave, Glenvista, Johannesburg

ISO 9001:2015 CERTIFICATE  
ISO 9001:2015 CERTIFICATE  
ISO 9001:2015 CERTIFICATE

>

**Sent:** Monday, 24 June 2024 13:51

**To:** Mulalo Mafunisa <Mulalo@vahleingweadvisory.co.za>;

**Cc:** Sunday Mabaso <sunday@vahleingweadvisory.co.za>; Cecil Dau <cecil@vahleingweadvisory.co.za>; Dimakatso Leholi <dimakatso@vahleingweadvisory.co.za>

**Subject:** RE: CONSULTATION OF EIA WITH DEPARTMENT OF WATER AND SANITATION

Good day,

This office acknowledges the receipt of your report.



Kind regards



Institutional Establishment  
28 Central Road  
Beaconsfield  
**Kimberley**  
8301

**“For in Him we live, and move and have our being”**  
Acts 17:28

---

**From:** Mulalo Mafunisa <Mulalo@vahlengweadvisory.co.za>  
**Sent:** Friday, June 21, 2024 2:45 PM

**Cc:** sunday@vahlengweadvisory.co.za; Cecil Dau <cecil@vahlengweadvisory.co.za>; Dimakatso Leholi <dimakatso@vahlengweadvisory.co.za>  
**Subject:** CONSULTATION OF EIA WITH DEPARTMENT OF WATER AND SANITATION

Some people who received this message don't often get email from [mulalo@vahlengweadvisory.co.za](mailto:mulalo@vahlengweadvisory.co.za). [Learn why this is important](#)

Good day,

**CONSULTATION OF THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) OF THE APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) READ WITH REGULATION 23 OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) FOR PROSPECTING RIGHT IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT N0.96 AND PORTION 2 and 3 OF THE FARM BIESJESBULT No.99, SITUATED IN THE ADMINISTRATIVE DISTRICT OF HEBERT, NORTHERN CAPE PROVINCE. NC 30/5/1/1/2/13823 PR.**

I am writing to consult the EIA and EMPr for your comments in accordance with section 24k of the National Environmental Management Act (Act 107 of 1998)(as amended) for an application of Environmental authorisation for the proposed prospecting right in terms of section 24 of the National Environmental Management Act,1998 read in conjunction with regulation 23 of the Environmental Impact Assessment regulations, 2014 as amended, for diamond and sand for Gomeza Trading (Pty) Ltd “the applicant” in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the administrative district of Kimberley, Northern Cape Province.

Should you require any further information, please do not hesitate to contact me. looking forward to your response.

Kind regards,

**VAHLENGWE MINING ADVISORY  
AND CONSULTING**

## MULALO MAFUNISA

Stakeholder Engagements  
and Social Labour Plans-SLP

✉ [mulalo@vahlegweadvisory.co.za](mailto:mulalo@vahlegweadvisory.co.za)  
 ☎ 011 432 0062 | 079 293 8585  
 🌐 [www.vahlegweadvisory.co.za](http://www.vahlegweadvisory.co.za)  
 📍 238 Vorster Ave, Glenvista,  
 Johannesburg

*Email Disclaimer:*

*This transmission (including any attachments) may contain confidential information, privileged material (including material protected by the solicitor-client or other applicable privileges), or constitute non-public information. Any use of this information by anyone other than the intended recipient is prohibited. If you have received this transmission in error, please immediately reply to the sender and delete this information from your system. Use, dissemination, distribution, or reproduction of this transmission by unintended recipients is not authorized and may be unlawful.*

**From:** [mulalo@vahlegweadvisory.co.za](mailto:mulalo@vahlegweadvisory.co.za) <[mulalo@vahlegweadvisory.co.za](mailto:mulalo@vahlegweadvisory.co.za)>

**Sent:** Wednesday, 06 March 2024 15:53

**Cc:** Sunday Mabaso <[sunday@vahlegweadvisory.co.za](mailto:sunday@vahlegweadvisory.co.za)>; Cecil <[cecil@vahlegweadvisory.co.za](mailto:cecil@vahlegweadvisory.co.za)>; Nolwazi <[nolwazi@vahlegweadvisory.co.za](mailto:nolwazi@vahlegweadvisory.co.za)>

**Subject:** RE: CONSULTATION OF THE STATE ORGANS

Good day,

I'm following up on the consultation dated January 31, 2024, in accordance with section 24 K of the National Environmental Management Act, 1998 (Act No.107 of 1998) (as amended) for draft **Scoping Report for sand and Diamond** in respect of farm **Portion 1 of the farm Biesjesbult N0.96 and Portion 2 and 3 of the farm Biesjesbult No.99**, situated in the Magisterial District of **Herbert** and **Draft Scoping Report for Sand and Diamond** in respect of **Farm Hartland No.203, Farm Rietpan No.39, Farm Kopje Enkelt Annexe No.42 and Portion 1 of the Farm Parcel No.40**, situated in the Magisterial District of **Kimberley** for an **Environmental Authorisations for a prospecting rights for Gomeza Trading (Pty) Ltd.**

Looking forward to your prompt response.

Kind regards,

**Mulalo Mafunisa**

Social & Labour Plan and Stakeholder Engagement

☎ 079 293 8585  
 ☎ 011 432 0062  
 ✉ [mulalo@vahlegweadvisory.co.za](mailto:mulalo@vahlegweadvisory.co.za)  
 🌐 [www.vahlegweadvisory.co.za](http://www.vahlegweadvisory.co.za)  
 📍 238 Vorster Ave., Glenvista,  
 Johannesburg South. 2058

From: [mulalo@vahleingweadvisory.co.za](mailto:mulalo@vahleingweadvisory.co.za) <[mulalo@vahleingweadvisory.co.za](mailto:mulalo@vahleingweadvisory.co.za)>

Sent: Wednesday, 31 January 2024 15:49

Cc: 'sunday@vahleingweadvisory.co.za' <[sunday@vahleingweadvisory.co.za](mailto:sunday@vahleingweadvisory.co.za)>; 'cecil@vahleingweadvisory.co.za' <[cecil@vahleingweadvisory.co.za](mailto:cecil@vahleingweadvisory.co.za)>; 'nolwazi@vahleingweadvisory.co.za' <[nolwazi@vahleingweadvisory.co.za](mailto:nolwazi@vahleingweadvisory.co.za)>

Subject: CONSULTATION OF THE STATE ORGANS

Good day,

**CONSULTATION OF THE SCOPING REPORT OF AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) READ WITH REGULATION 21 OF THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, 2014 AS AMENDED FOR PROSPECTING RIGHT IN RESPECT OFVARIOUS FARMS, SITUATED IN THE MAGISTERIAL DISTRICT OF KIMBERLEY, NORTHERN CAPE PROVINCE. NC 30/5/1/1/2/13823 PR NC 30/5/1/1/2/13864 PR**

My name is Mulalo Mafunisa, I'm a stakeholder engagement consultant from Vahleingwe Mining Advisory and Consulting. We are independent Environmental Assessment Practitioners appointed by Gomeza Trading (Pty) Ltd "the applicant" to facilitate the Environmental Authorisation process for the proposed prospecting right application for Diamond and Sand in respect of various farms, situated in the Magisterial District of Kimberley, Northern Cape Province.

We would like to consult the Scoping Report (SR) of an application for Environmental Authorisation in terms of section 24 of the National Environmental Management Act,1998 read in conjunction with regulation 21 of the Environmental Impact Assessment regulations, 2014 as amended, for your comments in accordance with section 24k of the National Environmental Management Act (Act 107 of 1998)(as amended).

Should you require any further information, please do not hesitate to contact me. looking forward to your response.

Kind regards,



**Mulalo Mafunisa**  
Social & Labour Plan and Stakeholder Engagement

079 293 8585  
011 432 0062  
[mulalo@vahleingweadvisory.co.za](mailto:mulalo@vahleingweadvisory.co.za)  
[www.vahleingweadvisory.co.za](http://www.vahleingweadvisory.co.za)  
238 Vorster Ave , Glenvista,  
Johannesburg South. 2058

**VAHLEINGWE**  
MINING ADVISORY  
AND CONSULTING

## Mulalo Mafunisa

---

**From:** Mulalo Mafunisa  
**Sent:** Friday, 19 July 2024 09:28  
**To:** vutomi@gomeza.co.za  
**Cc:** Cecil Dau  
**Subject:** Re: Comments for Gomeza Trading (Pty) Ltd

Good day,

Comments received, thank you.

Kind regards,



The image shows a business card for Mulalo Mafunisa. On the left is a portrait of a woman with braided hair, wearing a white blazer over a white top. The background of the card features a large gear icon and the company logo, which consists of a gear with a flame inside, next to the text 'VAHLENGWE AND CONSULTANCY'. The name 'MULALO MAFUNISA' is written in large, bold, red letters. Below the name, the text 'Stakeholder Engagement and Social Labour Plan' is written in black. Contact information is listed in a red box: an email icon followed by 'mulalo@vahlengweadvisory.co.za', a phone icon followed by '011 432 0062 | 079 293 8585', a globe icon followed by 'www.vahlengweadvisory.co.za', and a location pin icon followed by '238 Vorster Ave, Glenvista, Johannesburg'. In the bottom right corner, there is a small blue and white logo for 'ISIRI' with the text 'CERTIFIED' and 'ISO 9001:2015'.

---

**From:** |  
**Sent:** Friday, 12 July 2024 14:57  
**To:** vutomi@gomeza.co.za <vutomi@gomeza.co.za>  
**Cc:** Mulalo Mafunisa <Mulalo@vahlengweadvisory.co.za>  
**Subject:** Comments for Gomeza Trading (Pty) Ltd

Good day

Receive the attached documents

Regards  
Alexia

## Mulalo Mafunisa

---

**From:** Mulalo Mafunisa  
**Sent:** Friday, 19 July 2024 12:33  
**To:**  
**Cc:** Sunday Mabaso; Cecil Dau; Dimakatso Lehlo; info  
**Subject:** Re: Prospecting application within buffer zone of Mokala NP  
**Attachments:** Biesjesbult Map.kmz; Regulation 2(2).pdf

Good day,

Please find the kmz and regulation 2.2 attached for your further handling.

Should you require any further information, please do not hesitate to contact me.

Kind regards,



The image shows a business card for Mulalo Mafunisa. On the left is a portrait of a woman with short dark hair, wearing a white blazer over a white top. To the right of the portrait, the text reads: "VAHLENGWE AND CONSI" (partially visible), "MULALO MAF" (partially visible), "Stakeholder Engagement and Social Labour Plan". Below this, contact information is listed: "mulalo@vahlengweadvisory.co.za", "011 432 0062 | 079 293 8585", "www.vahlengweadvisory.co.za", and "238 Vorster Ave, Glenvista, Johannesburg". There is also a small logo for "CERTIFIED ISO 9001" in the bottom right corner of the card.

---

**From:** BC Admin <bcadmin@dffe.gov.za>  
**Sent:** Friday, 19 July 2024 11:17  
**To:** Mulalo Mafunisa <Mulalo@vahlengweadvisory.co.za>  
**Cc:**  
<l  
**Subject:** RE: Prospecting application within buffer zone of Mokala NP

Dear Sir/Madam

DFFE Directorate: Biodiversity Conservation hereby acknowledge receipt of the invitation to review and comment on the project mentioned on the subject line. Kindly note that the project has been allocated to

(Copied on this email). In addition, kindly share the shapefiles of the development footprints/application site with the Case Officers.

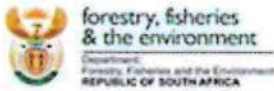
Please note: All Public Participation Process documents related to Biodiversity EIA review and any other Biodiversity EIA queries must be submitted to the Directorate: Biodiversity Conservation at Email: \_\_\_\_\_ for attention of



Regards

**Directorate: Biodiversity Mainstreaming and EIA**  
Branch: Biodiversity and Conservation  
473 Steve Biko Road | Private Bag X477 | Pretoria | 001

Website: [www.environment.gov.za](http://www.environment.gov.za)



---

**From:** Mulalo Mafunisa <Mulalo@vahlengweadvisory.co.za>

**Sent:** Thursday, 18 July 2024 13:08

T  
<

**Cc:** Sunday Mabaso <sunday@vahlengweadvisory.co.za>; Cecil Dau <cecil@vahlengweadvisory.co.za>; Dimakatso Lehli <dimakatso@vahlengweadvisory.co.za>; info <info@vahlengweadvisory.co.za>

**Subject:** RE: Prospecting application within buffer zone of Mokala NP

Good day Mr. Seoka Lekota.

My name is Mulalo Mafunisa, I am a stakeholder engagement consultant at Vahlengwe Mining Advisory and Consulting.

Thank you for registering as an Interested and Affected Party (I&AP). Gomeza Trading (Pty) Ltd the "applicant" applied for an Environmental Authorisation in terms of section 24 of the National Environmental Management Act, 1998 (Act 107 of 1998) read with regulation 23 of the Environmental Impact Assessment (EIA) regulations, 2014 (as amended) and appointed Vahlengwe Mining Advisory (EAP) to facilitate the proposed prospecting right application for diamond and sand in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the administrative district of Kimberley, Northern Cape Province.

We would like to consult the attached draft EIA/EMPr in accordance with section 24k of the National Environmental Management Act (Act 107 of 1998)(as amended), for your comments, for the aforementioned application.

Should you require any further information, please do not hesitate to contact me. Looking forward to your comments.

Kind regards,

**MULALO MAFUNISA**  
Stakeholder Engagements  
and Social Labour Plans-SLP

mulalo@vahlengweadvisory.co.za  
011 432 0062 | 079 293 8585  
www.vahlengweadvisory.co.za  
238 Vorster Ave, Glenvista,  
Johannesburg

ISO 9001

**Email Disclaimer:**

This transmission (including any attachments) may contain confidential information, privileged material (including material protected by the solicitor-client or other applicable privileges), or constitute non-public information. Any use of this information by anyone other than the intended recipient is prohibited. If you have received this transmission in error, please immediately reply to the sender and delete this information from your system. Use, dissemination, distribution, or reproduction of this transmission by unintended recipients is not authorized and may be unlawful.

---

**From:**  
**Sent:** Tuesday, 16 July 2024 13:29  
**To:** info <[info@vahlengweadvisory.co.za](mailto:info@vahlengweadvisory.co.za)>  
**Cc:**  
**Subject:** RE: Prospecting application within buffer zone of Mokala NP

Good day

It has come to our attention through SANParks that Gomeza Trading applied for a prospecting adjacent to Mokala National Park.

As per NEMA EIA regulations it is the responsibility of the EAP to identify relevant stakeholders, Interested and Affected Parties that will be impacted by the proposed activity. Compliance to these regulations seems to be ignored.

The DFFE Directorate: Protected Areas Planning and Management Effectiveness was not consulted despite the application being located directly adjacent to the Park, this raises concern on the public participation process conducted by your company.

Our Directorate hereby register as a stakeholder for the above project.

Kindly send us the report for the proposed project and further obtain comments from the Department: Biodiversity and Conservation Directorate which can be contacted at \_\_\_\_\_ for the attention of Mr. Seoka Lekota.

*Regards,*  
*Mashudu Mudau*

Protected Areas Planning and Management Effectiveness  
Department of Forestry, Fisheries and the Environment  
Environment House



forestry, fisheries  
and the environment  
Department:  
Forestry, Fisheries and the Environment  
REPUBLIC OF SOUTH AFRICA

---

**From:** Jeffrey Manuel  
**Sent:** Monday, July 15, 2024 1:11 PM  
**To:**  
**Subject:** Prospecting application within buffer zone of Mokala NP

<

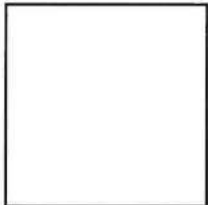
Hi Peter, Mashudu

Just checking if you are aware of this diamond prospecting application on the Riet river, within the Park buffer?

Comment closes on Friday.

Regards,

Jeff



---

Disclaimer: 1) Confidentiality: This email communication and any attachments sent from \_\_\_\_\_ to \_\_\_\_\_ on 2024-07-15 13:15:40 are confidential and may contain privileged or copyright information. You may not present this message to another party without consent from the sender. If you are not \_\_\_\_\_ please notify \_\_\_\_\_ and delete this email and you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited. 2) Liability: This email is not a binding agreement and does not conclude an agreement without the express confirmation by the sender's superior or relevant authorisation of SANParks. 3) Viruses: SANParks does not certify that this email is free of viruses or defects. 4) Requested: SANParks does not consent to its employees sending un-asked for emails which contravene the law. In the event that you feel this email is such, please notify SANParks in order for the appropriate corrective action to be taken. 5) Advice: Any views or opinions presented in this email are solely those of the author and do not necessarily represent those of SANParks. Any actions taken on the basis of this email are at the reader's own risk. 6) Other: The sender of this email is expressly required not make any defamatory



statements. Any such communication is contrary to SANParks policy and outside the scope of the employment of the individual concerned. SANParks will not accept any liability in respect of such communication, and the employee responsible will be personally liable for any damages or other liability arising. Thank you. South African National Parks 643 Leyds Street, Muckleneuk, Pretoria, South Africa

## Mulalo Mafunisa

---

**From:** Mulalo Mafunisa  
**Sent:** Friday, 21 June 2024 14:45  
**To:**  
**Cc:** sunday@vahlengweadvisory.co.za; cecil@vahlengweadvisory.co.za; Dimakatso Leholi  
**Subject:** CONSULTATION OF EIA WITH DEPARTMENT OF AGRICULTURE, LAND REFORM AND RURAL DEVELOPMENT  
**Attachments:** Draft EIR\_Gomezza Trading (13823) PR\_Compressed.pdf

<b>Tracking:</b>	<b>Recipient</b>	<b>Read</b>
	sunday@vahlengweadvisory.co.za	
	cecil@vahlengweadvisory.co.za	
	Dimakatso Leholi	Read: 2024/06/21 15:31
	Sunday Mabaso	Read: 2024/06/21 15:17
	Cecil Dau	Read: 2024/06/21 15:42

Good day,

**CONSULTATION OF THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) OF THE APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) READ WITH REGULATION 23 OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) FOR PROSPECTING RIGHT IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT N0.96 AND PORTION 2 and 3 OF THE FARM BIESJESBULT No.99, SITUATED IN THE ADMINISTRATIVE DISTRICT OF HEBERT, NORTHERN CAPE PROVINCE. NC 30/5/1/1/2/13823 PR.**

I am writing to consult the EIA and EMPr for your comments in accordance with section 24k of the National Environmental Management Act (Act 107 of 1998)(as amended) for an application of Environmental authorisation for the proposed prospecting right in terms of section 24 of the National Environmental Management Act,1998 read in conjunction with regulation 23 of the Environmental Impact Assessment regulations, 2014 as amended, for diamond and sand for Gomezza Trading (Pty) Ltd "the applicant" in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the administrative district of Kimberley, Northern Cape Province.

Should you require any further information, please do not hesitate to contact me. looking forward to your response.

Kind regards,

**MULALO MAFUNISA**  
 Stakeholder Engagements  
 and Social Labour Plans-SLP

mulalo@vahlengweadvisory.co.za  
 011 432 0062 | 079 293 8585  
 www.vahlengweadvisory.co.za  
 238 Vorster Ave, Glenvista,  
 Johannesburg

ISO 9001  
 ISO 14001  
 ISO 45001

**Email Disclaimer:**

*This transmission (including any attachments) may contain confidential information, privileged material (including material protected by the solicitor-client or other applicable privileges), or constitute non-public information. Any use of this information by anyone other than the intended recipient is prohibited. If you have received this transmission in error, please immediately reply to the sender and delete this information from your system. Use, dissemination, distribution, or reproduction of this transmission by unintended recipients is not authorized and may be unlawful.*

**From:**

**Sent:** Thursday, 07 March 2024 09:24

**To:** mulalo@vahlengweadvisory.co.za;

**Cc:** sunday@vahlengweadvisory.co.za; cecil@vahlengweadvisory.co.za; nolwazi@vahlengweadvisory.co.za; khanyile@vahlengweadvisory.co.za

**Subject:** RE: CONSULTATION OF LAND REFORM

Good Day

Please find attached

**From:** [mulalo@vahlengweadvisory.co.za](mailto:mulalo@vahlengweadvisory.co.za) <[mulalo@vahlengweadvisory.co.za](mailto:mulalo@vahlengweadvisory.co.za)>

**Sent:** Wednesday, 06 March 2024 15:08

**To:**

**Cc:** [sunday@vahlengweadvisory.co.za](mailto:sunday@vahlengweadvisory.co.za); [cecil@vahlengweadvisory.co.za](mailto:cecil@vahlengweadvisory.co.za); [nolwazi@vahlengweadvisory.co.za](mailto:nolwazi@vahlengweadvisory.co.za); [khanyile@vahlengweadvisory.co.za](mailto:khanyile@vahlengweadvisory.co.za)

**Subject:** RE: CONSULTATION OF LAND REFORM

**EXTERNAL EMAIL: This email originated outside of "DALRRD Environment". CAUTION: Do not click on links or open attachments unless you recognize the sender and know the content is safe.**

Good day,

I'm following up on the consultation dated February 7, 2024, in accordance with section 24 K of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended) for draft **Basic Assessment report for Tin ore, Nickel Ore, Zinc Ore, Lithium Ore, Cobalt Ore and Lead** in respect of farm **Severn No.36**, situated in the Magisterial District of **Kuruman** and **Draft Scoping Report for Sand and Diamond** in respect of **Portion 1 of the farm Biesjesbult N0.96 and Portion 2 and 3 of the farm Biesjesbult No.99**, situated in the Magisterial District of **Herbert** for an **Environmental Authorisations** for a **prospecting rights** for **Gomez Trading (Pty) Ltd.**

Looking forward to your prompt response.

Kind regards,



## Mulalo Mafunisa

Social & Labour Plan and Stakeholder Engagement

079 293 8585  
011 432 0062  
mulalo@vahlengweadvisory.co.za  
www.vahlengweadvisory.co.za  
238 Vorster Ave , Glenvista,  
Johannesburg South. 2058



**From:** [mulalo@vahlengweadvisory.co.za](mailto:mulalo@vahlengweadvisory.co.za) <[mulalo@vahlengweadvisory.co.za](mailto:mulalo@vahlengweadvisory.co.za)>

**Sent:** Wednesday, 07 February 2024 15:25

**To**

<[k](mailto:k@vahlengweadvisory.co.za)>  
**Cc:** 'sunday@vahlengweadvisory.co.za' <[sunday@vahlengweadvisory.co.za](mailto:sunday@vahlengweadvisory.co.za)>; 'cecil@vahlengweadvisory.co.za' <[cecil@vahlengweadvisory.co.za](mailto:cecil@vahlengweadvisory.co.za)>; 'nolwazi@vahlengweadvisory.co.za' <[nolwazi@vahlengweadvisory.co.za](mailto:nolwazi@vahlengweadvisory.co.za)>; 'khanyile@vahlengweadvisory.co.za' <[khanyile@vahlengweadvisory.co.za](mailto:khanyile@vahlengweadvisory.co.za)>

**Subject:** CONSULTATION OF LAND REFORM

Good day,

**CONSULTATION OF THE BASIC ASSESSMENT REPORT AND SCOPING REPORTS OF THE APPLICATIONS FOR ENVIRONMENTAL AUTHORISATIONS IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) READ WITH REGULATION 19 AND 21 OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) FOR PROSPECTING RIGHTS IN RESPECT OF FARM SEVERN NO.36, PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99, FARM HARTLAND NO.203, FARM RIETPAN NO.39, FARM KOPJE ENKELT ANNEXE NO.42 AND PORTION 1 OF FARM PARCEL NO.40 SITUATED IN THE ADMINISTRATIVE DISTRICT OF KURUMAN, KIMBERLEY AND HERBERT, NORTHERN CAPE PROVINCE. NC 30/5/1/1/2/13760 PR NC 30/5/1/1/2/13823 PR NC 30/5/1/1/2/13864 PR.**

My name is Mulalo Mafunisa, I'm a stakeholder engagement consultant from Vahlengwe Mining Advisory and Consulting. We are independent Environmental Assessment Practitioners appointed by Gomeza Trading (Pty) Ltd "the applicant" to facilitate the Environmental Authorisation process for the proposed prospecting right application for Diamond and Sand in respect of Farm Severn No 36, portion 1 of the Farm Biesjesbult No 96 and portion 2 and 3 of the Farm Biesjesbult No.99, Farm Hartland no 203, Farm Rietpan No 39, Farm Kopje Enkelt Annexe No 42 and portion 1 of the Farm Parcel No 40, in the Administrative District of Kimberley, Northern Cape Province.

We would like to consult the Basic Assessment Report and Scoping Reports of an application for Environmental Authorisation in terms of section 24 of the National Environmental Management Act, 1998 read in conjunction with regulation 19 and 21 of the Environmental Impact Assessment regulations, 2014 as amended, for your comments in accordance with section 24k of the National Environmental Management Act (Act 107 of 1998) (as amended).

Should you require any further information, please do not hesitate to contact me. Looking forward to your response.

Kind regards,



x

## Mulalo Mafunisa

Social & Labour Plan and Stakeholder Engagement



079 293 8585  
011 432 0062



mulalo@vahlengweadvisory.co.za  
www.vahlengweadvisory.co.za



238 Vorster Ave , Glenvista,  
Johannesburg South. 2058



## Mulalo Mafunisa

---

**From:** Mulalo Mafunisa  
**Sent:** Friday, 21 June 2024 15:16  
**To:**  
**Cc:** Sunday Mabaso; Cecil Dau; Dimakatso Leholi  
**Subject:** CONSULTATION OF EIA WITH SIYANCUMA LOCAL MUNICIPALITY  
**Attachments:** Draft EIR\_Gomezza Trading (13823) PR\_Compressed.pdf

Tracking:	Recipient	Read
	Sunday Mabaso	
	Cecil Dau	Read: 2024/06/21 15:42
	Dimakatso Leholi	Read: 2024/06/21 15:46

Good day,

**CONSULTATION OF THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) OF THE APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) READ WITH REGULATION 23 OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) FOR PROSPECTING RIGHT IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT N0.96 AND PORTION 2 and 3 OF THE FARM BIESJESBULT No.99, SITUATED IN THE ADMINISTRATIVE DISTRICT OF HEBERT, NORTHERN CAPE PROVINCE. NC 30/5/1/1/2/13823 PR.**

I am writing to consult the EIA and EMPr for your comments in accordance with section 24k of the National Environmental Management Act (Act 107 of 1998)(as amended) for an application of Environmental authorisation for the proposed prospecting right in terms of section 24 of the National Environmental Management Act,1998 read in conjunction with regulation 23 of the Environmental Impact Assessment regulations, 2014 as amended, for diamond and sand for Gomezza Trading (Pty) Ltd "the applicant" in respect of portion 1 of the farm Biesjesbult No. 96, and portion 2 and 3 of the farm Biesjesbult no. 99, situated in the administrative district of Kimberley, Northern Cape Province.

Should you require any further information, please do not hesitate to contact me. looking forward to your response.

Kind regards,



**MULALO MAFUNISA**  
Stakeholder Engagements  
and Social Labour Plans-SLP

**VAHLENGWE MINING ADVISORY  
AND CONSULTING**

✉ [mulalo@vahlengweadvisory.co.za](mailto:mulalo@vahlengweadvisory.co.za)  
☎ 011 432 0062 | 079 293 8585  
🌐 [www.vahlengweadvisory.co.za](http://www.vahlengweadvisory.co.za)  
📍 238 Vorster Ave, Glenvista,  
Johannesburg

ISO 9001:2015  
ISO 14001:2015  
ISO 45001:2018

Email Disclaimer:

*This transmission (including any attachments) may contain confidential information, privileged material (including material protected by the solicitor-client or other applicable privileges), or constitute non-public information. Any use of this information by anyone other than the intended recipient is prohibited. If you have received this transmission in error, please immediately reply to the sender and delete this information from your system. Use, dissemination, distribution, or reproduction of this transmission by unintended recipients is not authorized and may be unlawful.*

**From:** mulalo@vahleingweadvisory.co.za <mulalo@vahleingweadvisory.co.za>  
**Sent:** Wednesday, 14 February 2024 11:27  
**To:**  
**Cc:** Nolwazi <nolwazi@vahleingweadvisory.co.za>; Sunday Mabaso <sunday@vahleingweadvisory.co.za>  
**Subject:** CONSULTATION OF SIYANCUMA LOCAL MUNICIPALITY

Good day,

**CONSULTATION OF THE SCOPING REPORT OF AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF SECTION 24 OF NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) READ WITH REGULATION 21 OF THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, 2014 AS AMENDED FOR PROSPECTING RIGHT IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO. 99, SITUATED IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE. NC 30/5/1/1/2/13823 PR**

My name is Mulalo Mafunisa, I'm a stakeholder engagement consultant from Vahleingwe Mining Advisory and Consulting. We are independent Environmental Assessment Practitioners appointed by Gomeza Trading (Pty) Ltd "the applicant" to facilitate the Environmental Authorisation process for the proposed prospecting right application for Diamond and Sand in respect of portion 1 of the farm Biesjesbult No.96 and portion 2 and portion 3 of the farm Biesjesbult No.99, situated in the Magisterial District of Herbert, Northern Cape Province.

We would like to consult the Scoping Report (SR) of an application for Environmental Authorisation in terms of section 24 of the National Environmental Management Act, 1998 read in conjunction with regulation 21 of the Environmental Impact Assessment regulations, 2014 as amended, for your comments in accordance with section 24k of the National Environmental Management Act (Act 107 of 1998)(as amended).

Should you require any further information, please do not hesitate to contact me. looking forward to your response.

Kind regards,



**Mulalo Mafunisa**  
Social & Labour Plan and Stakeholder Engagement

079 293 8585  
011 432 0062  
mulalo@vahleingweadvisory.co.za  
www.vahleingweadvisory.co.za  
238 Vorster Ave , Glenvista,  
Johannesburg South. 2058

**VAHLEINGWE**  
MINING ADVISORY  
AND CONSULTING

## Re: Comment on 13823 PR: Diamond and Sand prospecting application on Farm Biesjesbult, Northern Cape

Fri 19 Jul 2024 14:54

To: info <info@vahlengweadvisory.co.za>

 1 attachments (1 MB)

Gomez trading comment NC 305112 (13823) PR.pdf;

<

For attention: Nonhlanhla Mogakane,

Please see attached comment from SANParks on the abovementioned application.

Kind Regards,

Jeff

---

Disclaimer: 1) Confidentiality: This email communication and any attachments sent from j... info@vahlengweadvisory.co.za on 2024-07-19 14:53:57 are confidential and may contain privileged or copyright information. You may not present this message to another party without consent from the sender. If you are not info@vahlengweadvisory.co.za please notify ...g and delete this email and you are notified that disclosing, copying, distributing or taking any action in reliance on the contents of this information is strictly prohibited. 2) Liability: This email is not a binding agreement and does not conclude an agreement without the express confirmation by the sender's superior or relevant authorisation of SANParks. 3) Viruses: SANParks does not certify that this email is free of viruses or defects. 4) Requested: SANParks does not consent to its employees sending un-asked for emails which contravene the law. In the event that you feel this email is such, please notify SANParks in order for the appropriate corrective action to be taken. 5) Advice: Any views or opinions presented in this email are solely those of the author and do not necessarily represent those of SANParks. Any actions taken on the basis of this email are at the reader's own risk. 6) Other: The sender of this email is expressly required not make any defamatory statements. Any such communication is contrary to SANParks policy and outside the scope of the employment of the individual concerned. SANParks will not accept any liability in respect of such communication, and the employee responsible will be personally liable for any damages or other liability arising. Thank you. South African National Parks 643 Leyds Street, Muckleneuk, Pretoria, South Africa



To develop, expand, manage and promote a system of sustainable national parks that represent biodiversity and heritage assets, through innovation and best practice for the just and equitable benefit of current and future generations.



18 July 2024

**Vahlegwe Mining Advisory and Consulting**

238 Voster Ave,  
Glenvista Extension 3,  
Johannesburg South, 2058  
Tel: (011) 432 0062;  
Email: info@vahlegweadvisory.co.za

Attention: Nonhlanhla N. Mogakane

**RE: DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT FOR THE PROPOSED PROSPECTING RIGHT APPLICATION FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.**

SANParks is hereby registering as Interested and Affected Party (I&AP) for the above project. SANParks takes note of the proposed project - NC 30/5/1/1/2 (13823) PR, as described below.

At the outset SANParks would like to point out that Mokala National Park, as a neighbor to the proposed application, was not notified of the availability of the scoping report in January 2024, nor we were directly informed of- or consulted about this application. This is confirmed by SANParks not being listed in table of I&APs consulted in section 9.3 of the DEIR.

**1. Introduction**

Gomez Trading (Pty) Ltd, hereafter referred as 'the applicant' has applied for an Environmental Authorisation in support of the prospecting right for Diamond and Sand in respect of Portion 1 of the farm Biesjesbult West 96 and Portions 2 and 3 of the farm Biesjesbult East no.99 in the Northern Cape Province. The proposed project is located 58km Southwest of Kimberley and 58km Northeast of Douglas, covering an area extent of 3109.69 ha.

**2. Impacts on the Mokala National Park expansion footprint**

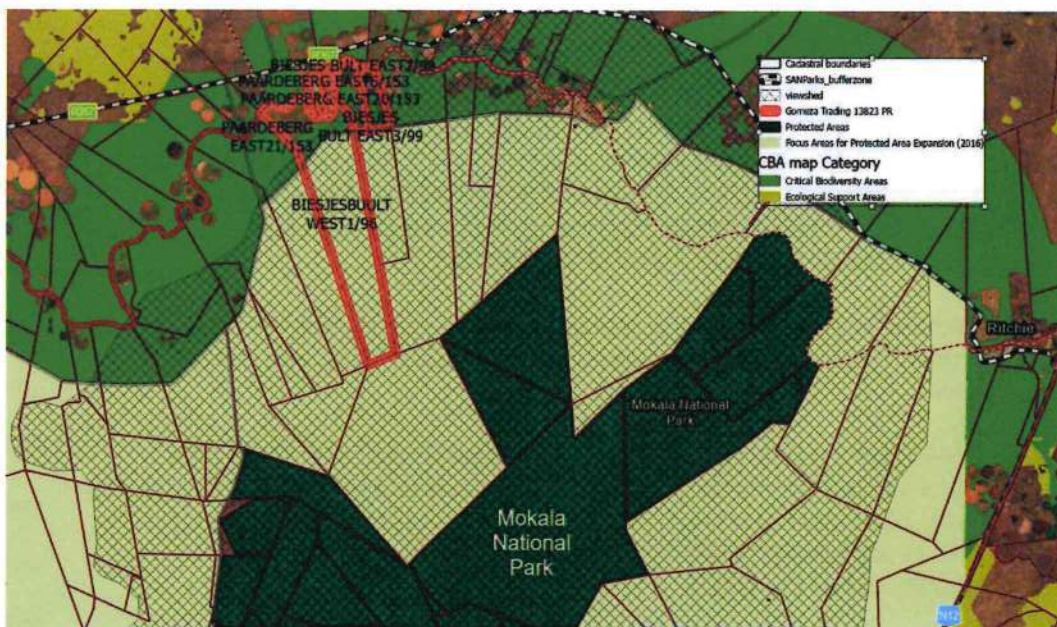
The proposed prospecting properties are located within the park buffer of the Mokala National Park, impacting on the park viewshed as well as priority natural areas in the park buffer, as outlined in the published [Mokala National Park Management Plan](#). Priority natural areas play a crucial role in supporting the biodiversity and ecological

addo elephant  
agulhas  
IAI-IAis / richtersveld  
augrabies  
bontebok  
camdeboo  
garden route  
golden gate highlands  
groenkloof  
karoo  
kgalakgadi transfrontier  
kruger  
mapungubwe  
marakele  
mokala  
mountain zebra  
namaqua  
table mountain  
tankwa karoo  
west coast

functioning within the park. It is important to maintain the park's buffer, in order to support the core.

These impacts have not been accounted for in the DEIR, in fact there is only one erroneous mention of 'Mokala National Game Reserve (17.37km South of application area)'. Mokala National Park is a mere 2km away from the closest part of the application area, and the whole of the application area is within 13km of the park.

Mokala National Park is also actively expanding, to increase protection of under protected ecosystems, as well as to protect the cultural landscape. Expansion also plays a key part in South Africa's contribution to meeting the "30x30" Target 3 of the of the United Nations Convention on Biological Diversity Kunming-Montreal Global Biodiversity Framework adopted in December 2022. Prospecting so close to the park will limit the park's capacity to expand.



*Fig 1: A map indicating the prospecting area in red, in relation to the Mokala NP buffer, as per the Park Management Plan. The prospecting area can clearly be seen inside the park buffer, within the Park's viewshed and overlapping with priority natural areas that have been prioritised for park expansion.*

**SANParks recommends that the DEIR be amended to include an assessment of the potential impacts on the park. This must include a Visual impact assessment, as well as a revised biodiversity assessment accounting for the impacts on priority natural vegetation intended to buffer the park from development impacts.**

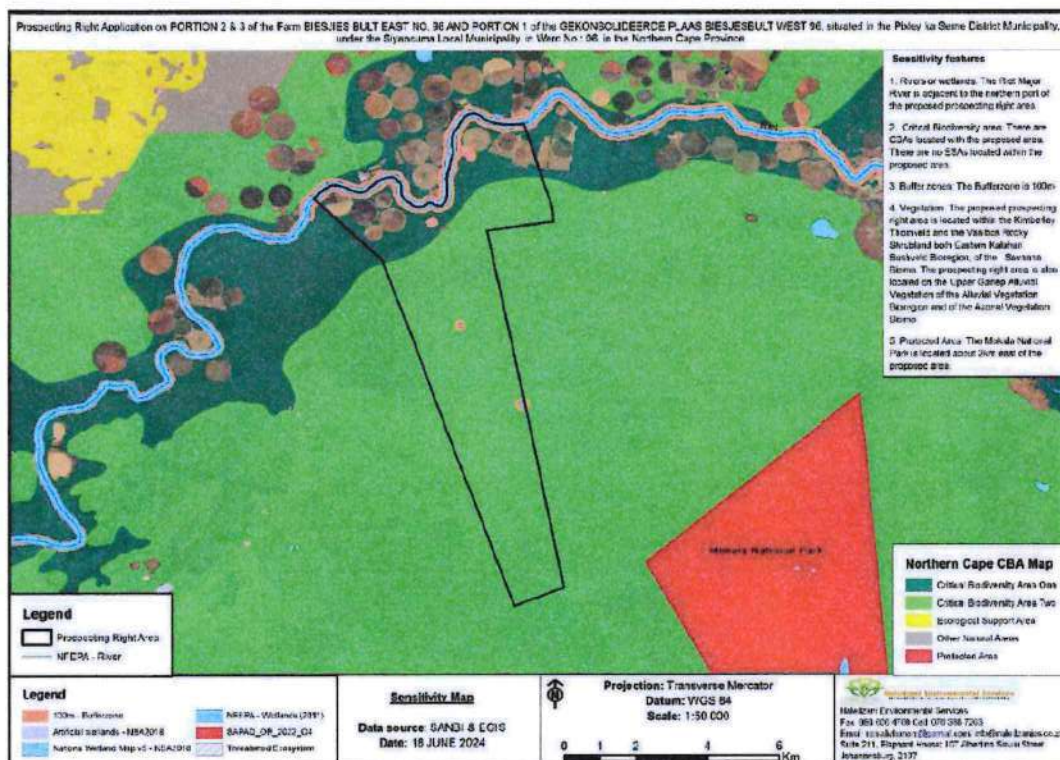
### **3. Impacts on Biodiversity**

The DEIR indicates that prospecting will involve land clearing and preparation for a site office, an undetermined amount of drilling locations, five 50mx20mx4m trenches, a tailings dam and road infrastructure, but there is no location indicated for any of these aspects. There are also no sizes indicated for these aspects, apart from the trenches.

**SANParks recommends that the DEIR be amended to specify the size and locations of all of these features, along with mapped footprints.**

Despite the lack of specificity on locations, it is understood that all prospecting will be located in natural vegetation. The draft BAR specifies that vegetation clearing will occur, meaning that prospecting will not be taking place on the existing disturbed land on the property. The DEIR further recognizes that the remaining natural area on the proposed prospecting area is designated as a Critical Biodiversity Area; further that it is largely intact, and that it has multiple threatened and/or protected species associated with the ecosystems within those CBAs.

In terms of the Technical Guidelines for CBA Maps (SANBI, 2017), Critical Biodiversity Areas are areas that must remain in good ecological condition to meet biodiversity targets for the ecosystem types, species and ecological processes. The desired state and management objective for CBAs is therefore to maintain it in a natural/near natural condition.



*Fig 2: Excerpt from the draft BAR depicting the CBA in relation to the proposed prospecting area*

The specialist report indicates that the protected tree species *Vachellia erioloba* (Camel thorn) is present on site, however no spatial information is presented re: its locations and densities.

The DEIR further has conflicting information regarding the impact of removal of vegetation. In table 11, the impact is assessed as 'High', mitigated to 'Medium', and in table 14, the impact is assessed as 'Medium', mitigated to 'Low'.

There is no clear rationale presented for either of these post mitigation scores. In tables 14 and 15, the mitigation measures presented amount to minimising the

footprint and avoiding species of conservation concern – without specific locations and outlining how the footprints have been reduced, this assumption is baseless.

**SANParks recommends that the DEIR is amended to indicate the locations of high-value biodiversity features that need to be avoided, along with a site map illustrating how prospecting activities are to be located to avoid and minimise impacts.**

It is understood, however, that the prospecting will occur in Critical Biodiversity Areas, which would constitute at least a 'Medium' impact, even with mitigation, given that the DEIR acknowledges the presence of threatened species, as well as that the vegetation types on site are Poorly Protected, despite its conservation status of Least Concern, and furthermore given that that the scores presented in the report do not even yet consider the potential impact on the Park and park expansion.

In light of this, we would also point out that a biodiversity offset study should have been undertaken as part of this application, given the post-mitigation rating of 'Medium', assigned to biodiversity impacts, as per table 11. (see figure 3, below).

Table 11: Positive and negative impacts of the proposed activity.

Impact	Rating Pre-Mitigation	Construction	Operation	Decommission	Rating Post-mitigation
Positive (+)	Medium	<ul style="list-style-type: none"> <li>Employment opportunities</li> <li>Support to local businesses and SMME's</li> <li>Income generation for accommodation business sector</li> <li>Contributing to the national's economy</li> </ul>	<ul style="list-style-type: none"> <li>Employment opportunities</li> <li>Support to local businesses and SMME's</li> <li>Income generation for accommodation business sector</li> <li>Contributing to the national's economy</li> </ul>	<ul style="list-style-type: none"> <li>Employment opportunities</li> <li>Land and soils capability restoration</li> <li>Re-vegetation and regeneration of the indigenous vegetation</li> </ul>	Low
Negative (-)	Moderate	<ul style="list-style-type: none"> <li>Visual nuisance</li> <li>Health and Safety impacts</li> <li>Surface and groundwater contamination</li> <li>Impacts on traffic</li> <li>Unsustainable job security</li> <li>Disturbance on the landscape</li> <li>Waste generation</li> <li>Alien vegetation species invasion</li> <li>Noise disturbances</li> </ul>	<ul style="list-style-type: none"> <li>Visual nuisance</li> <li>Health and Safety impacts</li> <li>Surface and groundwater contamination</li> <li>Impacts on traffic</li> <li>Unsustainable job security</li> <li>Disturbance on the landscape</li> <li>Waste generation</li> <li>Alien vegetation species invasion</li> <li>Noise disturbances</li> </ul>	<ul style="list-style-type: none"> <li>Visual nuisance</li> <li>Health and Safety impacts</li> <li>Surface and groundwater contamination</li> <li>Impacts on traffic</li> <li>Job losses</li> </ul>	Low
Negative (-)	High	<ul style="list-style-type: none"> <li>Habitat disturbance</li> <li>Vegetation disturbances</li> <li>Loss of biodiversity</li> <li>Soil erosion</li> <li>Impacts on groundwater quality</li> </ul>	<ul style="list-style-type: none"> <li>Habitat disturbance</li> <li>Vegetation disturbances</li> <li>Loss of biodiversity</li> <li>Soil erosion</li> <li>Impacts on groundwater quality</li> </ul>	<ul style="list-style-type: none"> <li>Habitat disturbance</li> <li>Vegetation disturbances due to vegetation clearance</li> <li>Alien vegetation species invasion</li> </ul>	Medium

June 2024

57

Draft EIA/EMPr Report  
Gomezzi Trading (Pty) Ltd  
NC 30/5/11/12(13823) PR



	<ul style="list-style-type: none"> <li>Soils contamination</li> <li>Visual nuisance to moving equipment and vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Soils contamination</li> <li>Visual nuisance to moving equipment and vehicles</li> </ul>	<ul style="list-style-type: none"> <li>Soil erosion</li> <li>Impacts on groundwater quality</li> <li>Waste generation</li> <li>Visual nuisance to moving equipment and vehicles</li> </ul>	
--	---	---	--	--

*Fig 3: An excerpt from the draft EMPr report indicating the ratings of impacts prior and post mitigation. In terms of the NEMA S24J National Biodiversity Offset Guideline, this would indicate that these impacts would need to be offset.*

In terms of the National Biodiversity Offset Guideline (2022), a biodiversity offset must be included as mitigation where a residual negative impact of medium (or higher) significance remains, as is the case with this application:

- *Offsets are the final option in the mitigation hierarchy* - Biodiversity offsets must only be considered once all the foregoing steps in the mitigation hierarchy have been considered to their full and feasible extent. The mitigation hierarchy dictates that the degradation and loss of biodiversity must be avoided, or where impacts cannot altogether be avoided, they should be minimised, and the area adversely impacted by relevant activity should be rehabilitated. **When, after taking the aforementioned mitigation measures, there are likely to be residual negative impacts on biodiversity of medium to high significance, they must be offset.**

**SANParks recommends that the DEIR be amended to include a biodiversity offset study.** We further wish to point out that the potential impact on the development on protected area expansion is a specific requirement for consideration in the guideline and must be included in such an offset study.

#### **4. Summary and Recommendations**

SANParks' opinion is that the DEIR contains insufficient details to enable adequate public participation or informed decision-making. **We recommend that the DEIR be amended to consider various shortcomings in the report:**

- 1. to include an assessment of the potential impacts on Mokala National Park.**
- 2. to specify the size and locations of all of prospecting activities and infrastructure, along with mapped footprints.**
- 3. to indicate the locations of high-value biodiversity features that need to be avoided, along with a site map illustrating how prospecting activities are to be located to avoid and minimise impacts.**
- 4. to include a biodiversity offset study.**

**Following these revisions, another round of public participation should be undertaken.**

Sincerely,



Johan De Klerk  
Park Manager: Mokala National Park

cc: Lucius Moolman, Regional General Manager: Arid region  
Jeffrey Manuel, Manager: Park Planning and Development  
Kristal Maze, General Manager: Park Planning and Development  
Wandile Ngubo, EIA Commenting Coordinator: Arid and Northern Regions

Appendix 4:

Environmental Sensitivity Screening Tool

**SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS  
REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE  
ENVIRONMENTAL SENSITIVITY**

**EIA Reference number:** NC 30/5/1/1/2/ 13828 PR

**Project name:** Scoping Report

**Project title:** Prospecting Right for Diamond and Sand

**Date screening report generated:** 17/01/2024 10:21:47

**Applicant:** Gomeza Trading (PTY) Ltd

**Compiler:** Nolwazi Dlamini

**Compiler signature:**  
.....

**Application Category:** Mining|Prospecting rights

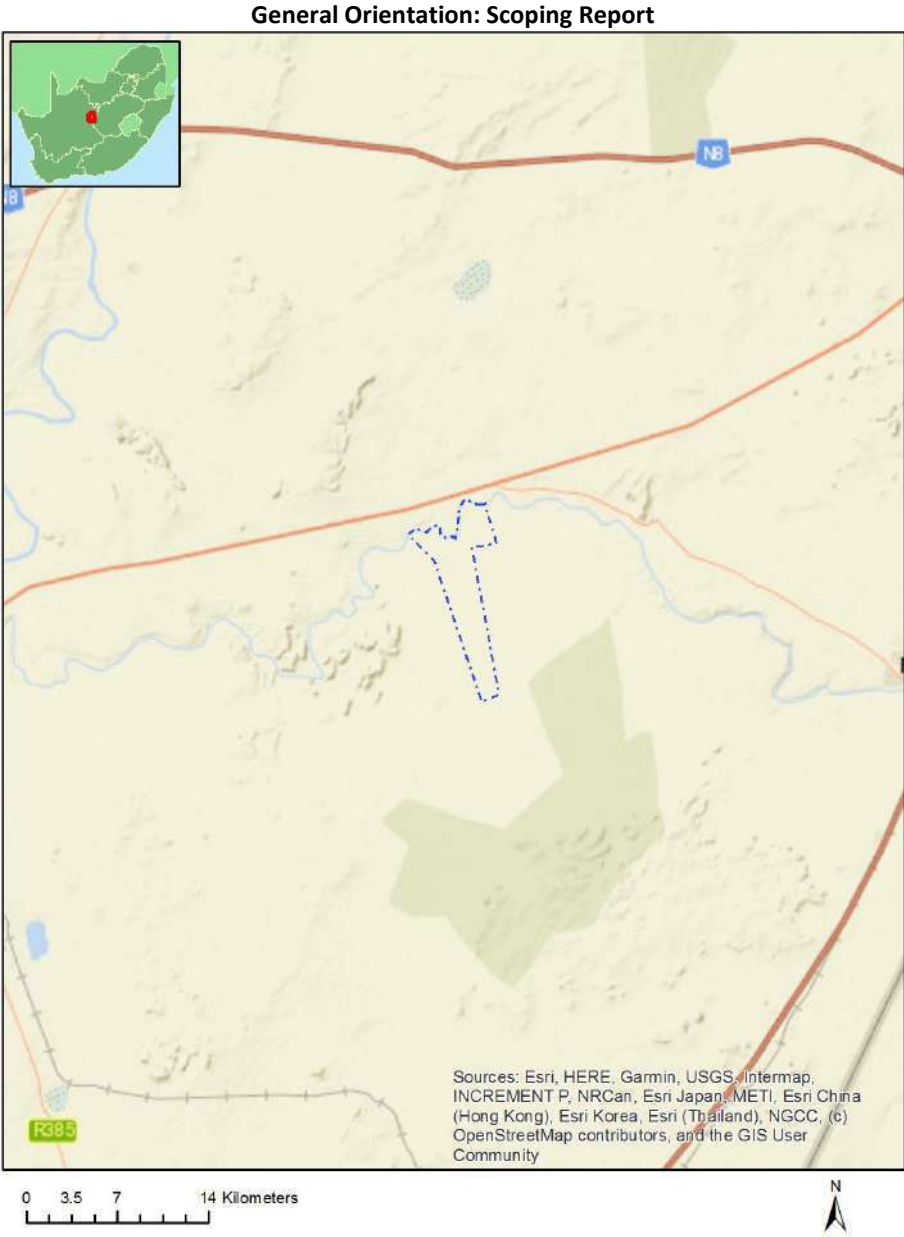
# Table of Contents

- Proposed Project Location ..... 3
  - Orientation map 1: General location ..... 3
- Map of proposed site and relevant area(s) ..... 4
  - Cadastral details of the proposed site ..... 4
  - Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area ..... 4
  - Environmental Management Frameworks relevant to the application ..... 5
- Environmental screening results and assessment outcomes ..... 5
  - Relevant development incentives, restrictions, exclusions or prohibitions ..... 5
  - Proposed Development Area Environmental Sensitivity ..... 5
  - Specialist assessments identified ..... 6
- Results of the environmental sensitivity of the proposed area ..... 7
  - MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY ..... 7
  - MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY ..... 8
  - MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY ..... 9
  - MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY ..... 10
  - MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY ..... 11
  - MAP OF RELATIVE DEFENCE THEME SENSITIVITY ..... 12
  - MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY ..... 13
  - MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY ..... 14
  - MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY ..... 15

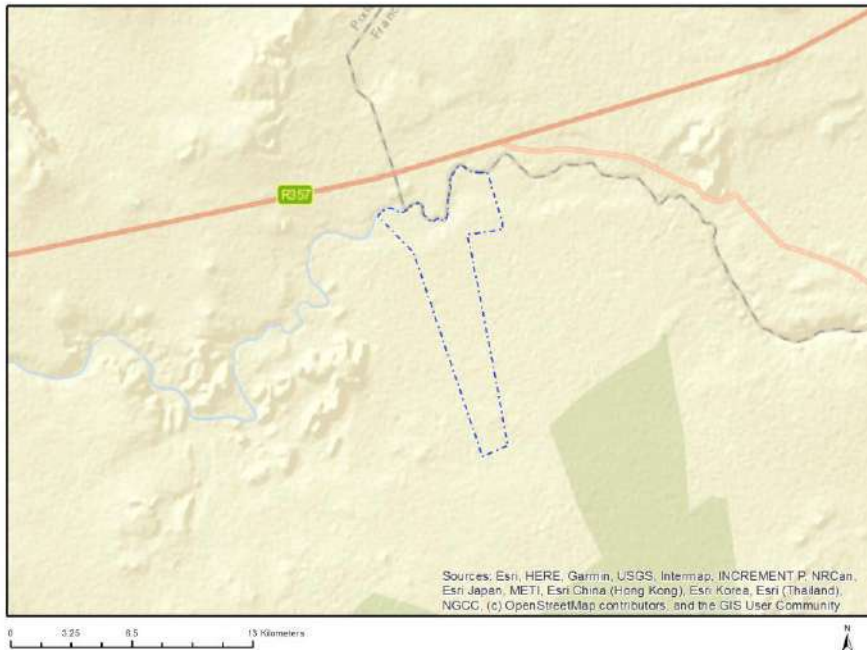


# Proposed Project Location

Orientation map 1: General location



## Map of proposed site and relevant area(s)



## Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	BIESJES BULT EAST	99	0	28°56'36.79S	24°17'41.7E	Farm
2	BIESJESBUULT WEST	96	0	28°59'56.19S	24°15'54.29E	Farm
3	BIESJESBUULT WEST	96	1	28°59'25.92S	24°17'8.89E	Farm Portion
4	BIESJES BULT EAST	99	2	28°56'33.63S	24°17'24.37E	Farm Portion
5	BIESJES BULT EAST	99	3	28°56'40.36S	24°18'1.27E	Farm Portion

Development footprint<sup>1</sup> vertices:  
No development footprint(s) specified.

## Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No	EIA Reference No	Classification	Status of application	Distance from proposed area (km)
----	------------------	----------------	-----------------------	----------------------------------

<sup>1</sup> “development footprint”, means the area within the site on which the development will take place and includes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

1	12/12/20/2051/2	Solar PV	Approved	29.3
2	12/12/20/2622	Solar PV	Approved	27.3
3	12/12/20/2051/2/AM2	Solar PV	Approved	29.3
4	12/12/20/2616	Solar PV	Approved	8.8
5	14/12/16/3/3/2/2124	Solar PV	Approved	27.3
6	12/12/20/2051/1	Solar PV	Approved	29.3
7	14/12/16/3/3/2/748	Solar PV	Approved	19.5

## Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

## Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Mining | Prospecting rights.**

### Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Transmission Corridor-Central corridor	<a href="https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_EGI.pdf">https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_EGI.pdf</a>

### Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme	X			
Animal Species Theme			X	
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme				X
Defence Theme				X
Paleontology Theme		X		
Plant Species Theme				X
Terrestrial Biodiversity Theme	X			

## Specialist assessments identified

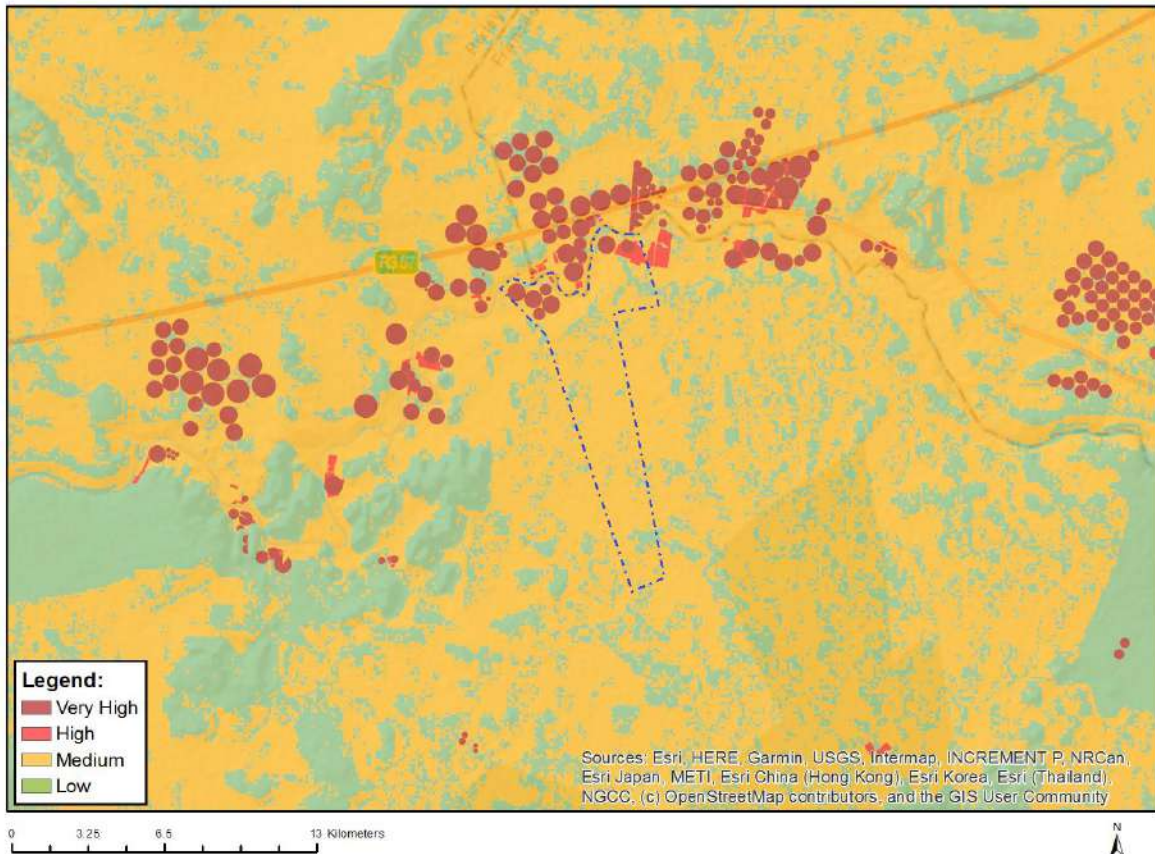
Based on the selected classification, and the known impacts associated with the proposed development, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf</a>
2	Archaeological and Cultural Heritage Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
3	Palaeontology Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
4	Terrestrial Biodiversity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf</a>
5	Aquatic Biodiversity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf</a>
6	Noise Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Noise_Impacts_Assessment_Protocol.pdf</a>
7	Radioactivity Impact Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf</a>
8	Plant Species Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf</a>
9	Animal Species Assessment	<a href="https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf">https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf</a>

## Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

### MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

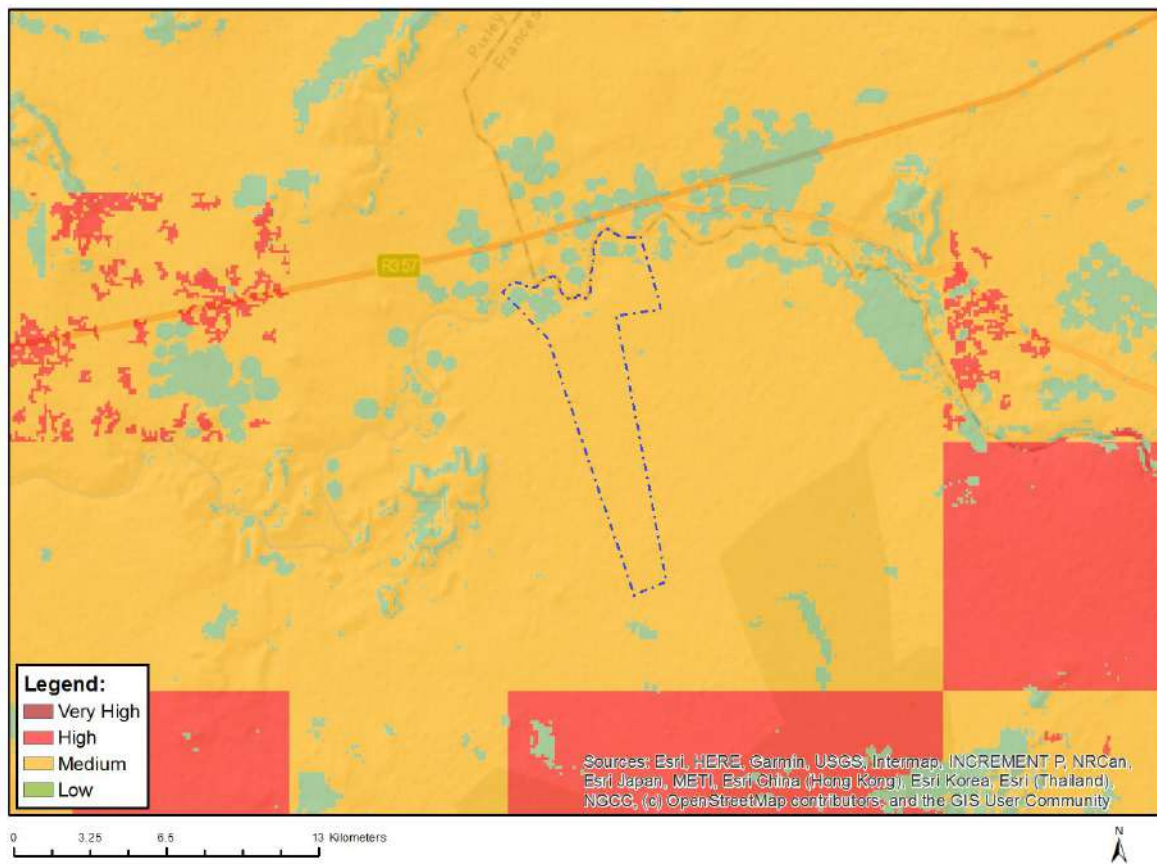


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

#### Sensitivity Features:

Sensitivity	Feature(s)
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Very High	Pivot Irrigation;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Very High	Pivot Irrigation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

## MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



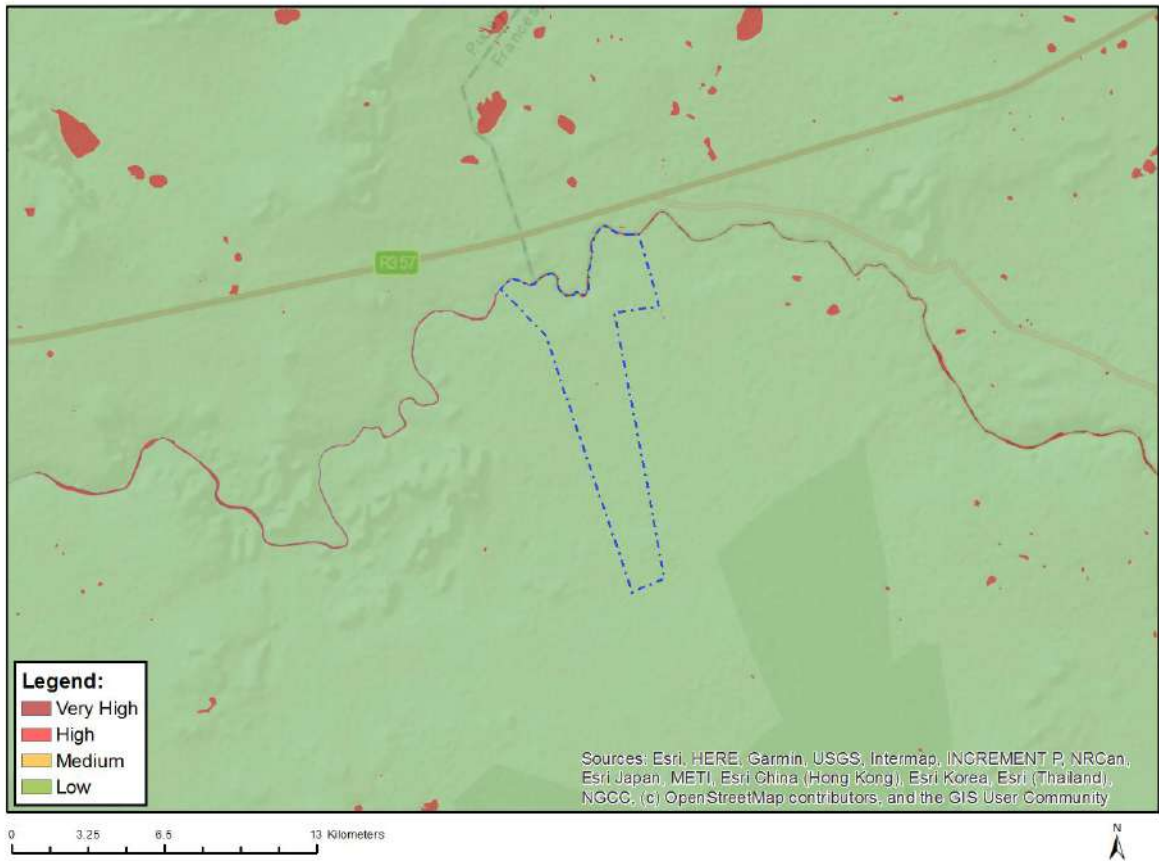
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at [eiadatarequests@sanbi.org.za](mailto:eiadatarequests@sanbi.org.za) listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

### Sensitivity Features:

Sensitivity	Feature(s)
Low	Subject to confirmation
Medium	Aves-Hydroprogne caspia
Medium	Aves-Aquila rapax
Medium	Aves-Neotis ludwigii

## MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

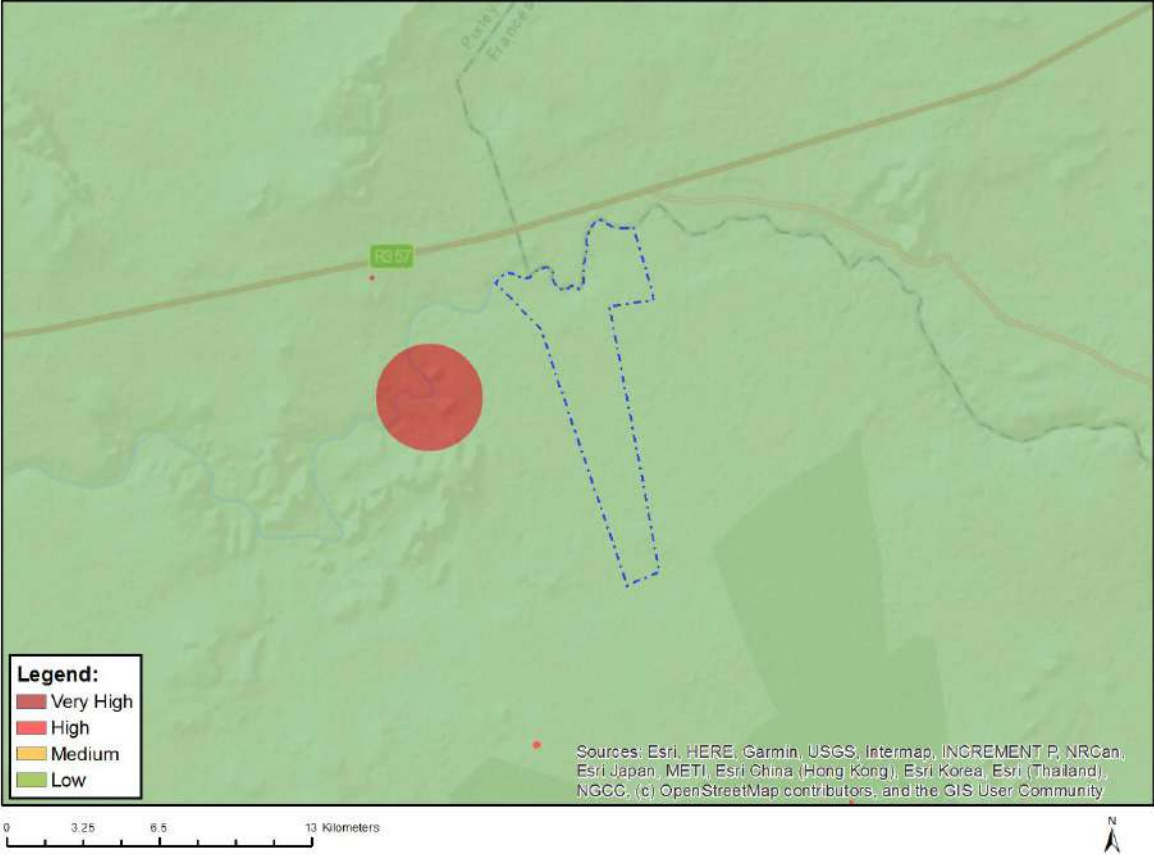


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

### Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Rivers_C
Very High	Wetlands_(River)
Very High	Wetlands_Eastern Kalahari Bushveld Bioregion (Depression)

# MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY



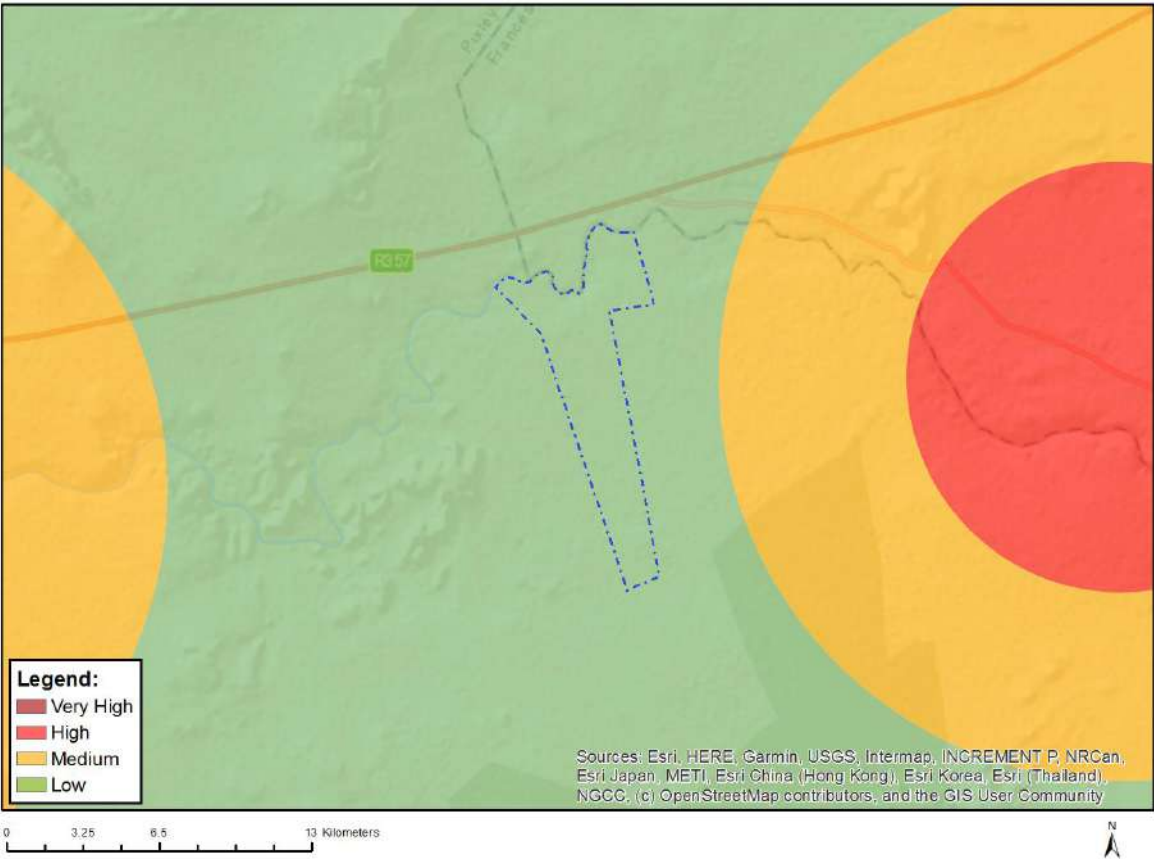
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

**Sensitivity Features:**

Sensitivity	Feature(s)
Low	Low sensitivity



MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

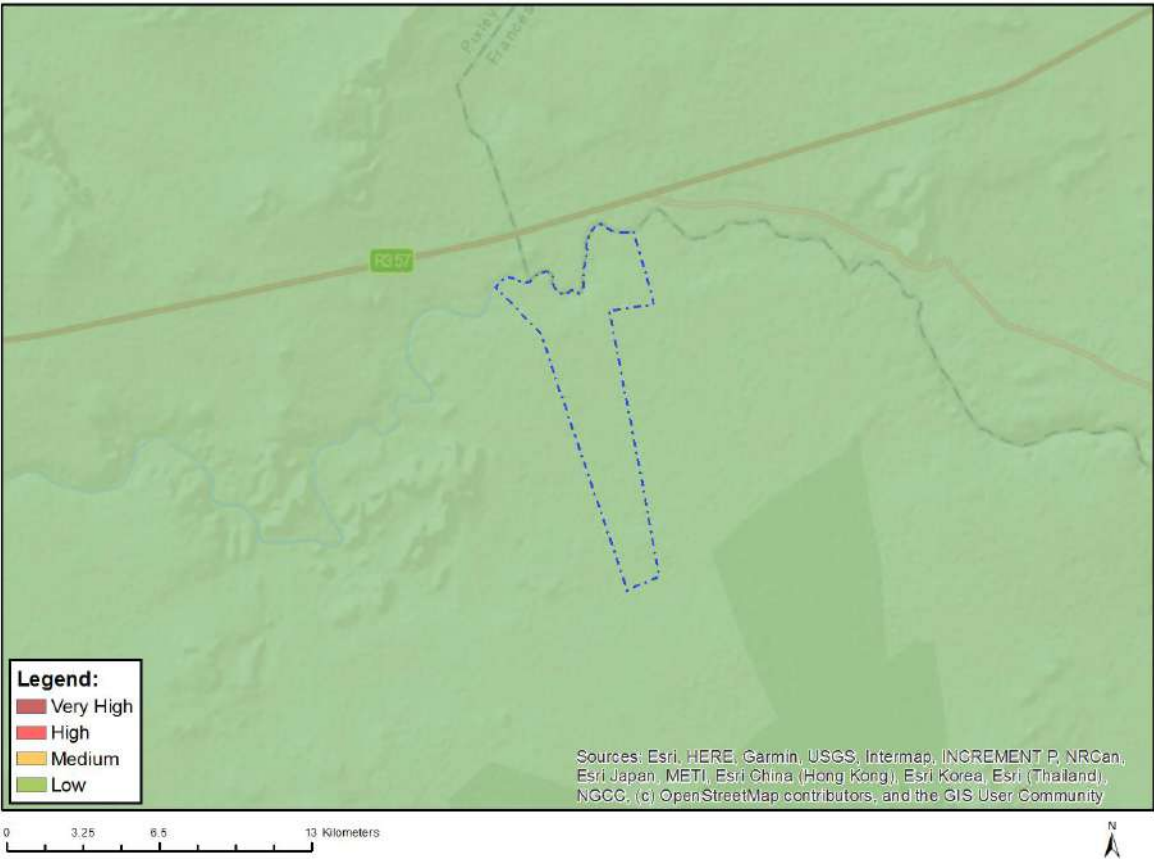


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

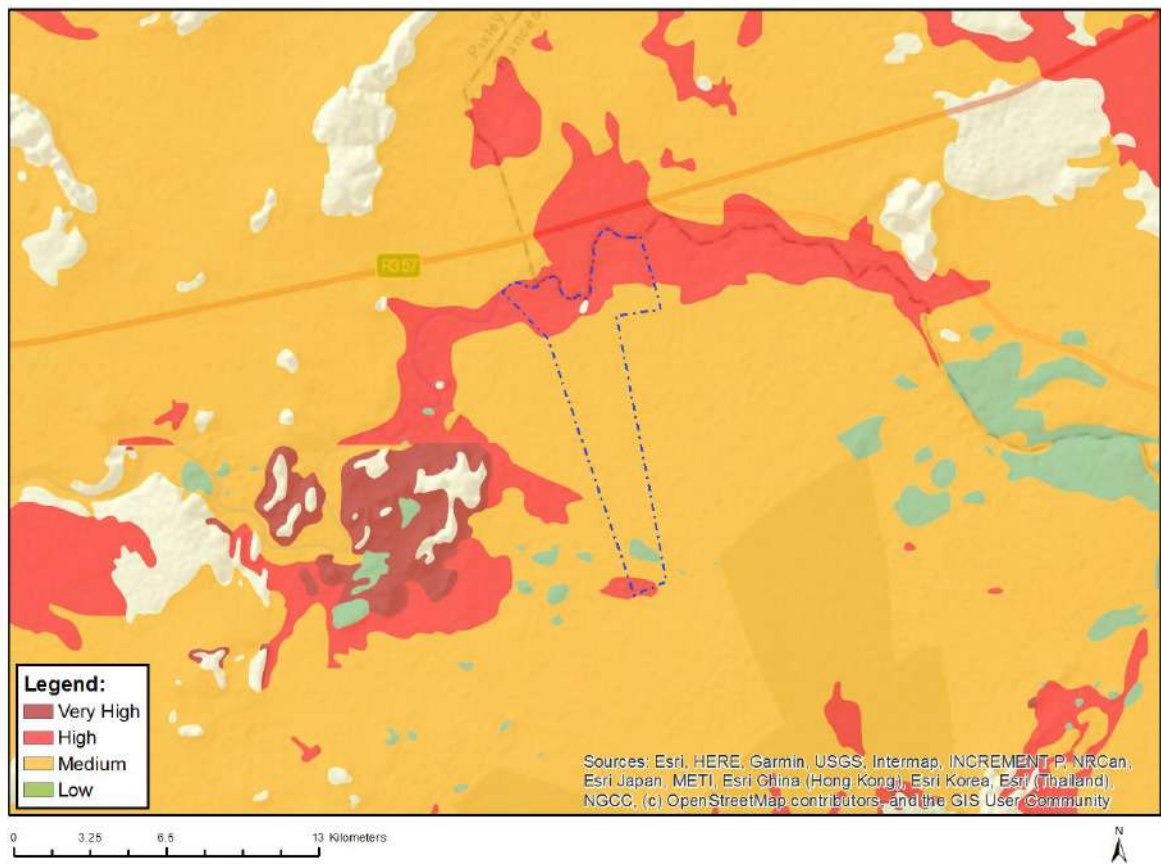


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

## MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

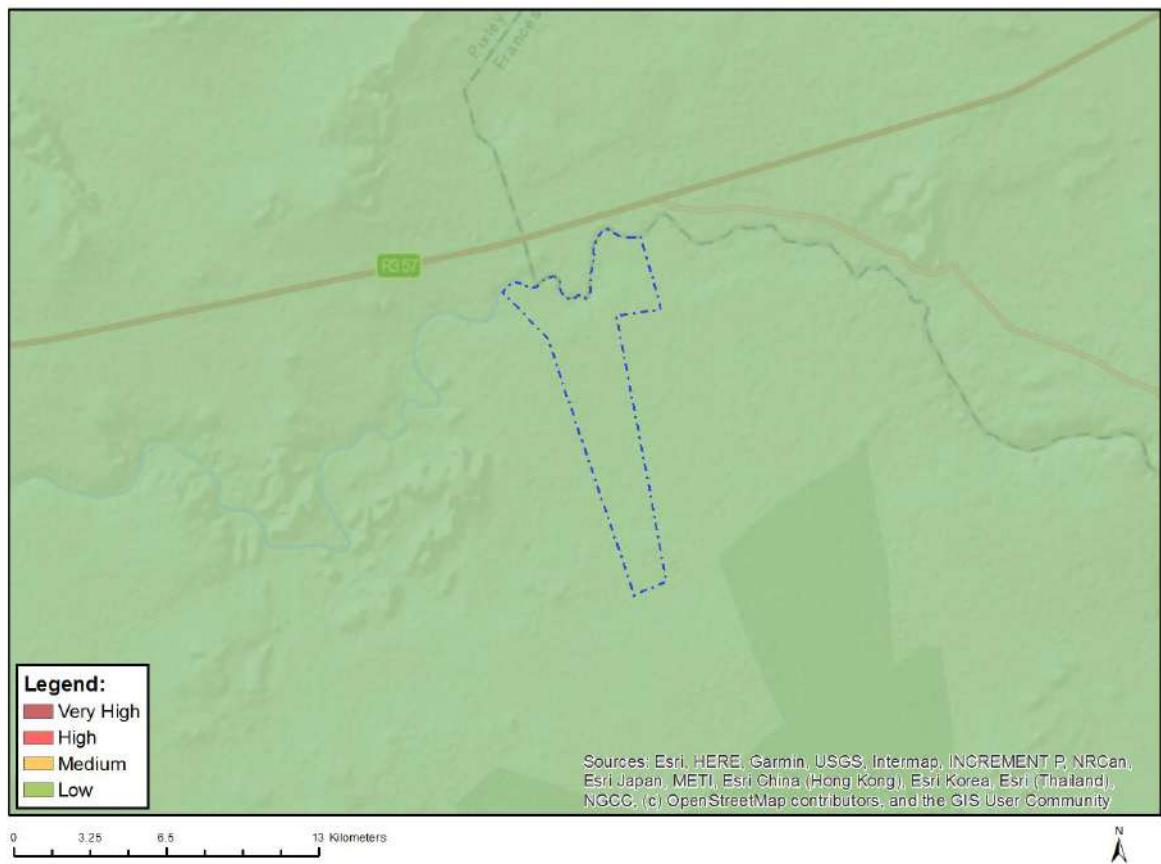


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

### Sensitivity Features:

Sensitivity	Feature(s)
High	Features with a High paleontological sensitivity
Low	Features with a Low paleontological sensitivity
Medium	Features with a Medium paleontological sensitivity

## MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



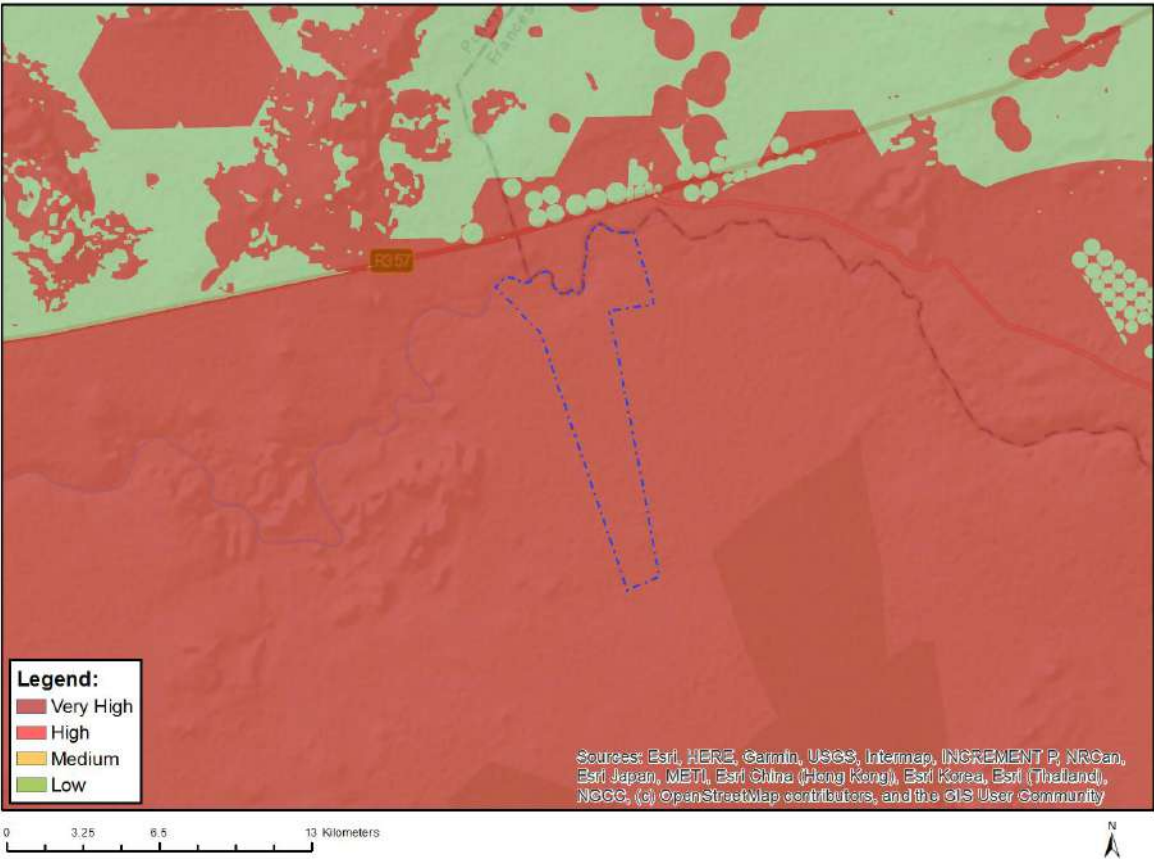
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at [eiadatarequests@sanbi.org.za](mailto:eiadatarequests@sanbi.org.za) listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

### Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	CBA 1
Very High	CBA 2
Very High	National Protected Area Expansion Strategy (NPAES)
Very High	SANParks (Buffer)_Mokala National Park

## Appendix 5:

### Specialist Studies Reports

## Appendix 5:

### Specialist Studies Reports

**PHASE I ARCHAEOLOGICAL AND CULTURAL HERITAGE  
IMPACT ASSESSMENT SPECIALIST REPORT FOR THE  
PROPOSED DIAMOND AND SAND PROSPECTING RIGHT  
APPLICATION ON PORTION 1 OF FARM BIESJESBULT NO.96 AND  
PORTION 2 & 3 OF FARM BIESJESBULT NO.99 WITHIN THE  
ADMINISTRATIVE DISTRICT OF HERBERT, NORTHERN CAPE  
PROVINCE**



**PREPARED BY  
RUINS ARCHAEO HERITAGE  
CONSULTING (PTY) LTD**

Report Author: Alvord Nhundu  
Cell: 078 344 2671  
Email: nalvord@yahoo.com

**PREPARED FOR  
VAHLENGWE MINING ADVISORY  
AND CONSULTING (PTY) LTD**

Contact Person: Nonhlanhla V Mogakane  
Cell: +27 11 432 0062  
Email: info@vahlengweadvisory.co.za

**MAY 2024**



## **ABILITY TO CONDUCT THE PROJECT**

Alvord Nhundu is a professional archaeologist. He completed his Bachelor of Science with honours degree in archaeology with the University of the Witwatersrand (Wits) and Masters in Archaeology with the University of Pretoria (UP). His research interest lies in old and new world archaeology, palaeoenvironmental and climatology, archaeological theory, Later Stone Age, rock art, hunter-gatherers, hunter-gatherer interactions, several aspects of Southern African Iron Age and Indigenous archaeologies. Alvord is an accredited Cultural Resource Management (CRM) member of the Association of Southern African Professional Archaeologists (ASAPA No.338) with Field Director status in Iron Age and Stone Age, and Field Supervisor status in Grave Relocation and Rock Art. He is also affiliated to Society of South Africanist Archaeologists (SAfA) and the International Council of Archaeozoology (ICAZ). He has been practising CRM for more than 10 years and has completed over 100 Archaeological Impact Assessments (AIA) for developmental projects in the Limpopo, Mpumalanga, North-West, Eastern Cape, Free State, Northern Cape and KwaZulu Natal provinces of South Africa. The projects include establishment and upgrade of power substations, road construction, development of malls, housing developments, establishment and expansion of mines. He has also conducted the relocation of graves. His detailed CV is available on request.

---

## **INDEPENDENCE**

I, Alvord Nhundu, declare that:

- I act as an independent specialist;
- I am conducting work relating to the proposed prospecting right application in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required experience in conducting the specialist report and I will comply with legislation, regulations and any guidelines that have relevance to the proposed activity;
- I have not, 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 details and particulars furnished by me in this declaration are true and correct;
- I will perform all other obligations as expected from a heritage practitioner in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realise that a false declaration is an offence in terms of regulation 71 of the regulations and is punishable in terms of section 24F of the NEMA.



Cell: 078 344 2671

E-mail: [nalvord@yahoo.com](mailto:nalvord@yahoo.com)

## **CLIENT CONTACT DETAILS:**

<b>Items</b>	<b>Details</b>
Company Name	Vahlengwe Mining Advisory and Consulting (Pty) Ltd
Contact Person	Nonhlanhla V Mogakane
Physical address	238 Voster Ave, Glenvista Ext 3, Glenvista, 2058
Telephone/ Cell	+27 11 432 0062
Email	<a href="mailto:info@vahlengweadvisory.co.za">info@vahlengweadvisory.co.za</a>

## **ACKNOWLEDGMENTS**

The author would like to acknowledge Vahlengwe Mining Advisory and Consulting staff for their assistance in conducting the project. Google Earth and Wikipedia are also acknowledged.

## EXECUTIVE SUMMARY

### Introduction

Ruins Archaeo-Heritage Consulting (Pty) Ltd was appointed by Vahleingwe Mining Advisory and Consulting (Pty) Ltd on behalf of Gomeza Trading (Pty) Ltd to conduct an Archaeological and Cultural Heritage Impact Assessment study for the proposed Diamond and Sand Prospecting Right Application on Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert in the Northern Cape Province. As prescribed by SAHRA and stipulated by the legislation, an HIA is a pre-requisite for such a development. The main purpose of the study was to identify and document the archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed development. To reach a defensible recommendation, both a desktop study and a field survey were conducted. The desktop study was undertaken through the South African Heritage Resources Information System (SAHRIS) for previous Archaeological Impact Assessments conducted in the region of the proposed development, and also for research that has been carried out in the wider area over recent years. The field survey was conducted to validate any assumptions made during the desktop study. This Heritage Impact Assessment was undertaken in terms of Sections 38 (8) of the National Heritage Resources Act (Act No. 25 of 1999).

### Methods

To understand the archaeology of the area, a background study was undertaken, and relevant institutions were consulted. These studies entail the view of archaeological and heritage impact assessment studies that have been conducted in and around the proposed area through SAHRIS. The author conducted the field survey on the **21<sup>st</sup> of May 2024**. The area of land for the proposed development was investigated on foot for any traces of cultural material.

### Restrictions and constraints

The site is disturbed by previous and current land use activities. The farm portions are being used for cattle and crop farming. As with any survey, archaeological materials may be under the surface and therefore unidentifiable to the surveyor until they are exposed once prospecting begins. As a result, should any archaeological/ or grave site be observed during prospecting stage, a heritage specialist monitoring the development must immediately be notified.

### Results

The Phase I Cultural-Heritage Impact Assessment study for the prospecting noted that the proposed prospecting right area is within a heavily disturbed landscape. The area has been heavily disturbed by pipeline and electrical infrastructure, farming and cattle ranching activities. The field survey identified a scatter of stone tools within the study area, the stone tools were found in different sites within the study area. The study also noted that two burial sites (**DBS01** and **DBS02**) exist within the study area and

therefore are protected by Section 36 of the NHRA. It was also noted that the study triggers Section 34 of the NHRA as old buildings and farm structures exist within the study area.

## **Recommendations**

Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of this heritage report, there are no significant cultural heritage resources barriers to the proposed development project. SAHRA/ NCPHRA may approve the project as planned with special commendations to implement the recommendations here in made:

1. It is recommended that SAHRA/NCPHRA endorse the report as having satisfied the requirements of Section 38 (8) of the NHRA requirements;
2. It is recommended that SAHRA/NCPHRA make a decision in terms of Section 38 (4) of the NHRA to approve the proposed prospecting right application;
3. The identified burial sites trigger Section 36 of the NHRA and should be protected from proposed Prospecting activities;
4. The study area is littered with historical structures and buildings which are protected by Section 34 of the NHRA and no prospecting activities are to be conducted within the proximity of the structures;
5. Adequate 100m buffer should be provided between prospecting activities and identified burial sites, building and structures; and
6. From a heritage perspective supported by the findings of this study, the project is supported. However, mining activities should be approved under observation that the dimensions do not extend beyond the area considered in this report

## **Conclusions**

A thorough background study and survey of the proposed development was conducted in line with SAHRA guidelines. As per the recommendations above, the project may proceed subject to adherence of the above recommendations.

# TABLE OF CONTENTS

<b>ACKNOWLEDGMENTS</b> .....	<b>iv</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>v</b>
<b>ACRONYMS AND ABBREVIATIONS</b> .....	<b>10</b>
<b>GLOSSARY OF TERMS</b> .....	<b>11</b>
<b>1 INTRODUCTION</b> .....	<b>15</b>
<b>2 SITES LOCATION AND DESCRIPTION</b> .....	<b>16</b>
<b>3 PURPOSE OF THE CULTURAL HERITAGE STUDY</b> .....	<b>27</b>
<b>4 METHODOLOGY AND APPROACH</b> .....	<b>28</b>
<b>5 APPLICABLE HERITAGE LEGISLATION</b> .....	<b>30</b>
<b>6 ARCHAEOLOGY AND HISTORY OF THE AREA</b> .....	<b>33</b>
6.1 The Stone Age .....	33
6.2 The Iron Age.....	33
6.3 Historical Period .....	34
6.4 Brief History of Douglas.....	34
<b>7 PREVIOUS HERITAGE IMPACT STUDIES</b> .....	<b>36</b>
<b>8 DEGREE OF SIGNIFICANCE</b> .....	<b>38</b>
<b>9 SURVEY FINDINGS</b> .....	<b>39</b>
<b>10 RECOMMENDATIONS AND CONCLUSIONS</b> .....	<b>47</b>
<b>11 REFERENCES</b> .....	<b>49</b>
<b>APPENDIX 1: SITE SIGNIFICANCE</b> .....	<b>52</b>

## LIST OF FIGURES

Figure 1: Locality map of the study area (Author 2024). .....	17
Figure 2: Google Earth view of the site proposed for the development. (Author 2024). .....	18
Figure 3: Showing identified heritage sites within the study area (Author 2024). .....	19
Figure 4: Survey tracks within the study area (Author 2024).....	20
Figure 5: General view of the site proposed for the development. ....	21
Figure 6: Another view of the site proposed for the development. ....	21
Figure 7: View of the area proposed for the development.....	22
Figure 8: Showing access roads and active farming within the proposed development site. ...	22
Figure 9: View of the proposed development site: note the bare ground. ....	23
Figure 10: View of dense grass cover within the site proposed for the development. ....	23
Figure 11: View of access roads and electrical powerline servitude within the study area....	24
Figure 12: View of grazing pastures within the site proposed for the development. ....	24
Figure 13: Showing a wind vane within the proposed prospecting right area.....	25
Figure 14: View of another section of the site proposed for the development.....	25
Figure 15: Showing access roads that exist within the proposed prospecting right application site. ....	26
Figure 16: Showing active cornfields within the proposed prospecting right. ....	26
Figure 17: Showing stone tools identified on site DST01. ....	39
Figure 18: View of the burial site at DBS01.....	40
Figure 19: Showing the burial site at DBS01. ....	41
Figure 20: View of the two tombstones on site DBS01.....	41
Figure 21: View of the graves identified on site DBS02.....	42
Figure 22: Another view of the graves identified on site DBS02.....	42
Figure 23: Showing graves with regular visitation at the site DBS02.....	43
Figure 24: Showing graves that have been eroded and only marked by headstones. ....	43
Figure 25: View of some of the farm structures within the study area.....	44
Figure 26: Showing the farm structures in the background. ....	44

## LIST OF TABLES

Table 1: Summary of project location details.....	16
Table 2: A summary table of previous heritage studies conducted in the locality and vicinity of the project area: .....	37
Table 3: Grading systems for the identified heritage resources in terms of the NHRA (Act 25 of 1999).....	38
Table 4: Summary of Archaeological finds .....	39
Table 5: Anticipated Impact Rating .....	45
Table 6: Key and guidance to impact rating .....	46



## ACRONYMS AND ABBREVIATIONS

AIA	Archaeological Impact Assessment
EMP	Environmental Management Plan
HIA	Heritage Impact Assessment
LIA	Late Iron Age
MIA	Middle Iron Age
EIA	Early Iron Age
HMP	Heritage Management Plan
LSA	Late Stone Age
MSA	Middle Stone Age
ESA	Early Stone Age
NASA	National Archives of South Africa
NCPHRA	Northern Cape Provincial Heritage Resources Authority
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency

## GLOSSARY OF TERMS

The following terms used in this Archaeology are defined in the National Heritage Resources Act [NHRA], Act Nr. 25 of 1999, South African Heritage Resources Agency [SAHRA] Policies as well as the Australia ICOMOS Charter (*Burra Charter*):

**Archaeological Material:** remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artifacts, human and hominid remains, and artificial features and structures.

**Artefact:** Any movable object that has been used, modified or manufactured by humans.

**Conservation:** All the processes of looking after a site/heritage place or landscape including maintenance, preservation, restoration, reconstruction and adaptation.

**Cultural Heritage Resources:** refers to physical cultural properties such as archaeological sites, palaeontological sites, historic and prehistorical places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. This include intangible resources such religion practices, ritual ceremonies, oral histories, memories indigenous knowledge.

**Cultural landscape:** “the combined works of nature and man” and demonstrate “the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external”.

**Cultural Resources Management (CRM):** the conservation of cultural heritage resources, management, and sustainable utilization and present for present and for the future generations

**Cultural Significance:** is the aesthetic, historical, scientific and social value for past, present and future generations.

**Chance Finds:** means Archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities such as water pipeline trench excavations.

**Compatible use:** means a use, which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

**Conservation** means all the processes of looking after a place so as to retain its cultural significance.

**Expansion:** means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

**Grave:** A place of interment (variably referred to as burial), including the contents, headstone or other marker of such a place, and any other structure on or associated with such place.

**Heritage impact assessment (HIA):** Refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law, and which may significantly affect the cultural and natural heritage resources. The HIA includes recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

**Historic Material:** remains resulting from human activities, which are younger than 100 years, but no longer in use, including artifacts, human remains and artificial features and structures.

**Impact:** the positive or negative effects on human well-being and / or on the environment.

**In situ material:** means material culture and surrounding deposits in their original location and context, for instance archaeological remains that have not been disturbed.

**Interested and affected parties Individuals:** communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a proposal or activity and its consequences.

**Interpretation:** means all the ways of presenting the cultural significance of a place.

**Late Iron Age:** this period is associated with the development of complex societies and state systems in southern Africa.

**Material culture** means buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

**Mitigate:** The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

**Place:** means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

**Protected area:** means those protected areas contemplated in section 9 of the NEMPAA and the core area of a biosphere reserve and shall include their buffers.

**Public participation process:** A process of involving the public in order to identify issues and concerns and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters.

**Setting:** means the area around a place, which may include the visual catchment.

**Significance:** can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of

significance and acceptability). It is an anthropocentric concept, which makes use of value judgments and science-based criteria (i.e. biophysical, physical cultural, social and economic).

**Site:** a spatial cluster of artifacts, structures, organic and environmental remains, as residues of past human activity.

## 1 INTRODUCTION

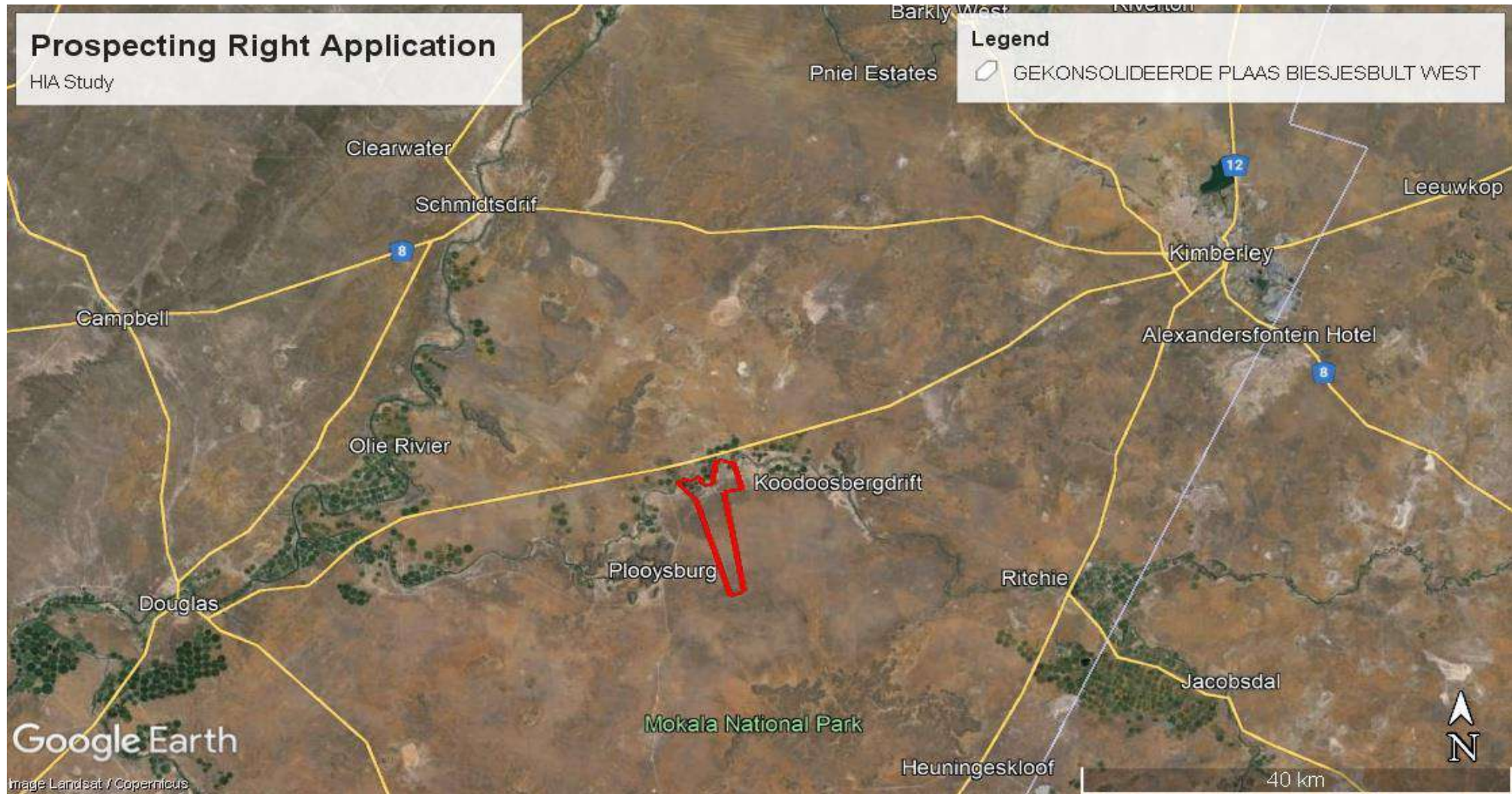
At the request of Vahlengwe Mining Advisory and Consulting (Pty) Ltd, Ruins Archaeo-Heritage Consulting (Pty) Ltd conducted a Phase I Archaeological and Heritage Impact Assessment Study for the proposed Diamond and Sand Prospecting Right Application on Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. The survey was conducted in accordance with the SAHRA Minimum Standards for the Archaeology and Paleontology Study. The minimum standards clearly specify the required contents of the report of this nature. The study aims to identify and document archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed development, these will in turn assist the developer in ensuring proper conservation measures in line with the National Heritage Resource Act, 1999 (Act 25 of 1999).

## 2 SITES LOCATION AND DESCRIPTION

The proposed Prospecting Right Application is situated within Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. The site is 52km Southwest of Kimberely 42 km Northeast of Douglas and can be accessed via the R357.

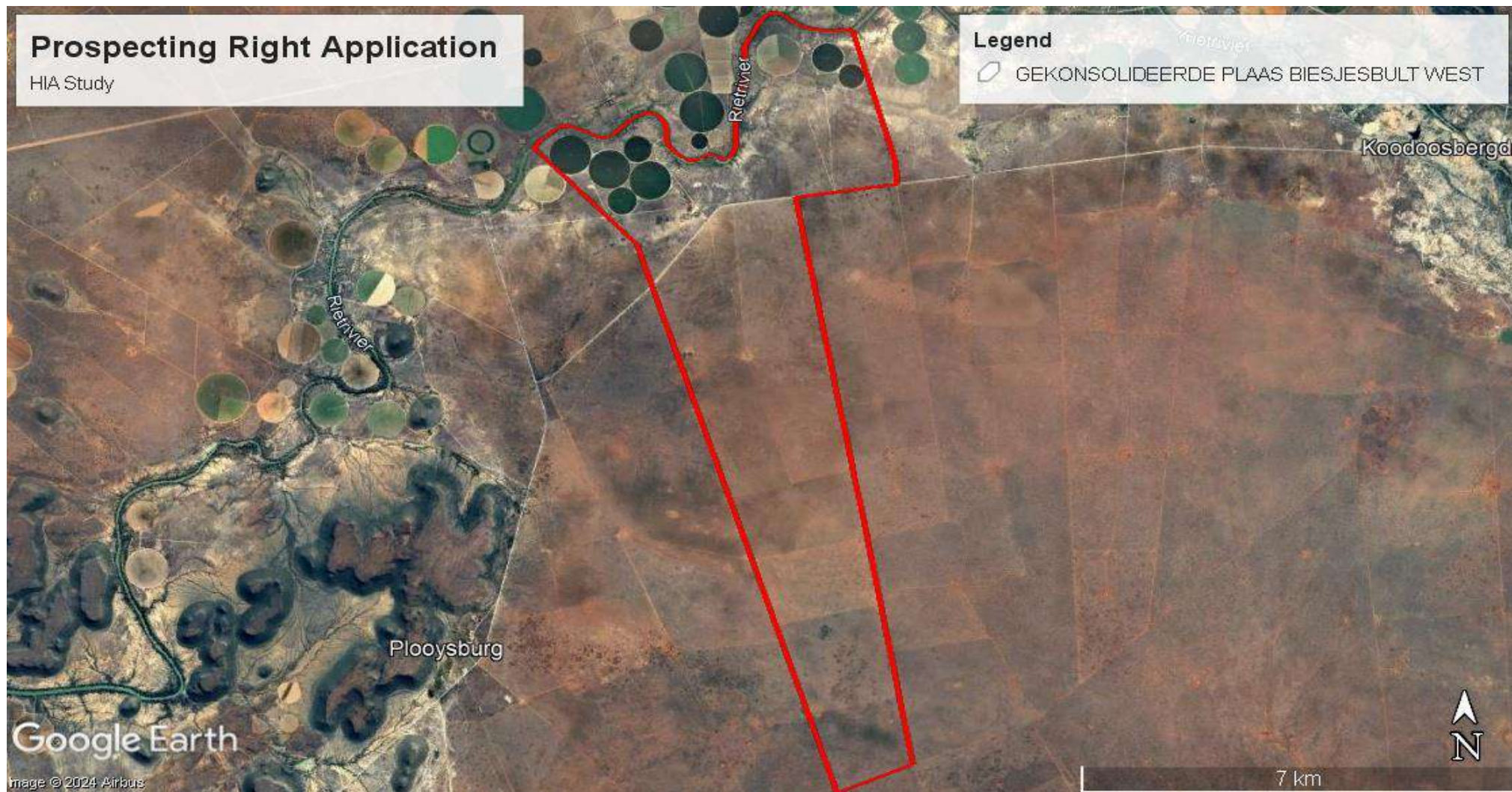
**Table 1:** Summary of project location details.

<b>Province</b>	Northern Cape
<b>District Municipality</b>	Pixley ka Seme
<b>Local Municipality</b>	Siyancuma
<b>Affected farms</b>	Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99
<b>Proposed development</b>	Prospecting Right Application
<b>DMRE Reference</b>	NC 30/5/1/1/2/13823 PR

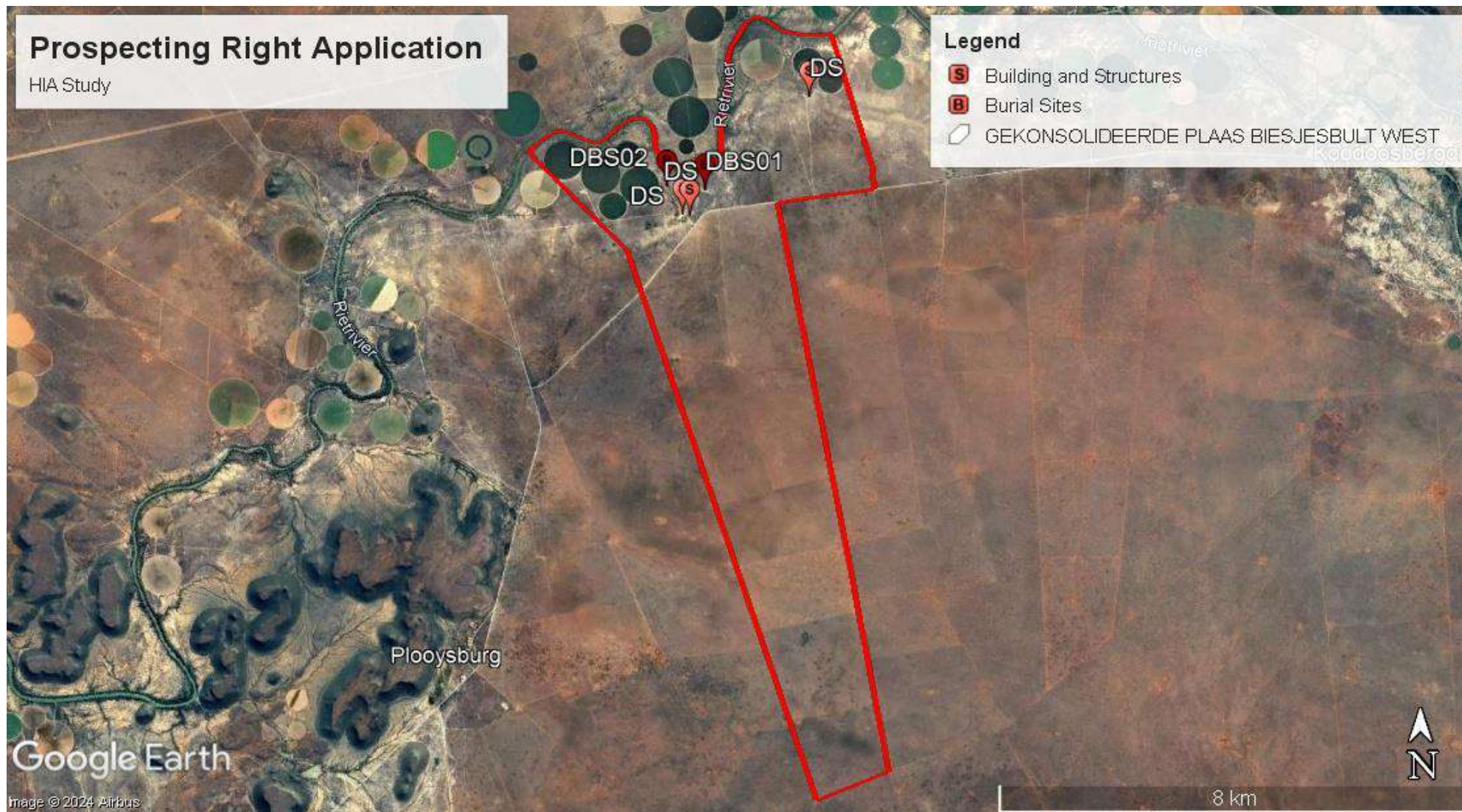


**Figure 1:** Locality map of the study area (Author 2024).

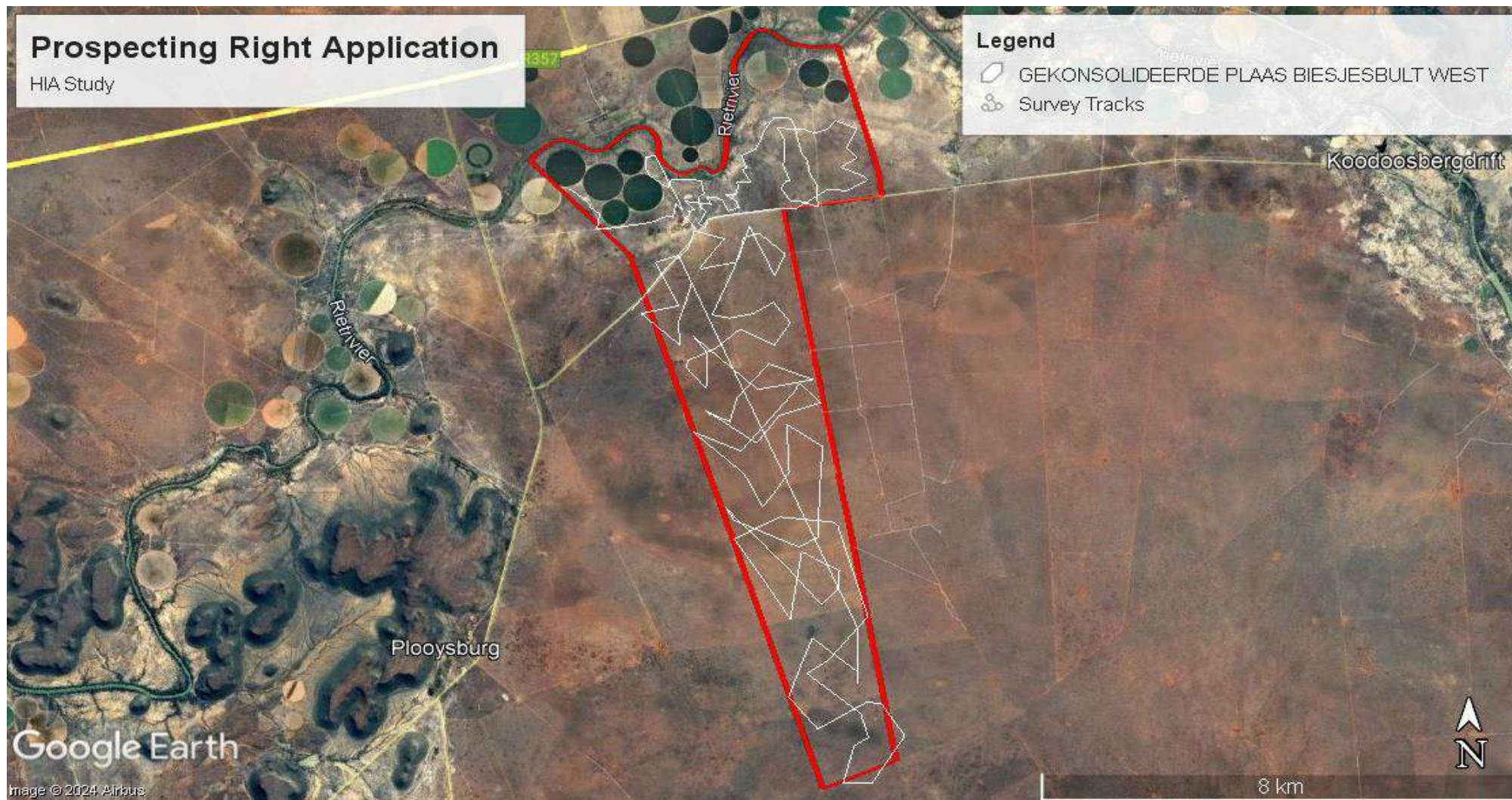




**Figure 2:** Google Earth view of the site proposed for the development (Author 2024).



**Figure 3:** Showing identified heritage sites within the study area (Author 2024).



**Figure 4:** Survey tracks within the study area (Author 2024).

## PHOTOGRAPHS OF THE STUDY AREA



**Figure 5:** General view of the site proposed for the development.



**Figure 6:** Another view of the site proposed for the development.



Figure 7: View of the area proposed for the development.



**Figure 8:** Showing access roads and active farming within the proposed development site.



**Figure 9:** View of the proposed development site: note the bare ground.



**Figure 10:** View of dense grass cover within the site proposed for the development.



**Figure 11:** View of access roads and electrical powerline servitude within the study area.



**Figure 12:** View of grazing pastures within the site proposed for the development.



**Figure 13:** Showing a wind vane within the proposed prospecting right area.



**Figure 14:** View of another section of the site proposed for the development.





**Figure 15:** Showing access roads that exist within the proposed prospecting right application site.



**Figure 16:** Showing active cornfields within the proposed prospecting right.

### **3 PURPOSE OF THE CULTURAL HERITAGE STUDY**

The purpose of this Archaeological and Cultural Heritage study was to entirely identify and document archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed mining development, these will in turn assist the developer in ensuring proper conservation measures in line with the National Heritage Resource Act, 1999 (Act 25 of 1999). Impact assessments highlight many issues facing sites in terms of their management, conservation, monitoring and maintenance, and the environment in and around the site. Therefore, this study involves the following:

- Identification and recording of heritage resources that may be affected by the proposed prospecting right application.
- Providing recommendations on how best to appropriately safeguard the identified heritage sites. Mitigation is an important aspect of any development on areas where heritage sites can be identified.

## **4 METHODOLOGY AND APPROACH**

The methods utilised in this study are informed by the 2012 SAHRA Policy Guidelines for impact assessment. To achieve the purpose and objectives, different sources were used, this includes;

### **I. Literature review**

Relevant literature was consulted through the SAHRIS website, with an intention to review previous Cultural Heritage Impact Assessments conducted in and around the area of the proposed development. Various archaeological, historical sources and recently published and unpublished books were used to aid this study.

### **II. Field survey**

The field survey was undertaken by the author on the **21<sup>st</sup> of May 2024**. The survey made use of the vehicle to get to the site, and the site was surveyed on foot. The survey covered the entire servitude of the proposed development.

### **III. Public Participation**

A public participation process will be undertaken by the project EAP to gather the issues and concerns of interested and affected parties (IAPs) and Authorities, including community leaders. The process consists of contacting the IAPs, having a public meeting with the stakeholders and informing and engaging with them on the project proposal. The issues raised will be incorporated into the EIA/EMP where relevant and outcome of heritage issues will be forwarded to the Author.

### **IV. Documentation**

In line with the appropriate legislation, the site was documented by taking photographs using a camera 10.1 mega pixel Sony Cybershort Digital Camera and plotting of finds using a Garmin etrex Venture HC.

### **V. Restriction and assumption**

Underground heritage may not be represented on the surface making the identification difficult. This serves as considerable limitation. Should any cultural material be identified when the development begins, a specialist must be consulted to examine the finds.



## 5 APPLICABLE HERITAGE LEGISLATION

Several legislations provide the legal basis for the protection and preservation of both cultural and natural resources. These include the National Environment Management Act (No. 107 of 1998); Tourism Act (No. 72 of 1993); Cultural Institution Act (No. 119 of 1998), and the National Heritage Resources Act (Act 25 of 1999). Section 38 (1) of the National Heritage Resources Act requires that where relevant, an Impact Assessment is undertaken in case where a listed activity is triggered. Such activities include:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- (b) the construction of a bridge or similar structure exceeding 50 m in length; and*
- (c) any development or other activity which will change the character of an area of land, or water -*
  - (i) exceeding 5 000 m<sup>2</sup> in extent;*
  - (ii) involving three or more existing erven or subdivisions thereof; or*
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a Provincial Heritage Resources Authority;*
- (d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or*
- (e) any other category of development provided for in regulations by SAHRA or a Provincial Heritage Resources Authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.*

Section 3 of the National Heritage Resources Act (25 of 1999) lists a wide range of national resources protected under the act as they are deemed to be national estate. When conducting Heritage Impact Assessment (HIA) the following heritage resources have to be identified:

- (a) Places, buildings structures and equipment of cultural significance*
- (b) Places to which oral traditions are attached or which are associated with living heritage*
- (c) Historical settlements and townscapes*
- (d) Landscapes and natural features of cultural significance*
- (e) Geological sites of scientific or cultural importance*
- (f) Archaeological and paleontological sites*
- (g) Graves and burial grounds including-*
  - (i) ancestral graves*
  - (ii) royal graves and graves of traditional leaders*
  - (iii) graves of victims of conflict*
  - (iv) graves of individuals designated by the Minister by notice in the Gazette*
  - (v) historical graves and cemeteries; and*

*(vi) other human remains which are not covered by in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983)*

*(h) Sites of significance relating to the history of slavery in South Africa*

*(i) moveable objects, including -*

*(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens*

*(ii) objects to which oral traditions are attached or which are associated with living heritage*

*(iii) ethnographic art and objects*

*(iv) military objects*

*(v) objects of decorative or fine art*

*(vi) objects of scientific or technological interest; and*

*(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).*

Section 3 of the National Heritage Resources Act (No. 25 of 1999) also distinguishes nine criteria for places and objects to qualify as ‘part of the national estate if they have cultural significance or other special value ...’ These criteria are the following:

*(a) Its importance in the community, or pattern of South Africa’s history*

*(b) Its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage*

*(c) Its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage*

*(d) Its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects*

*(e) Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group*

*(f) Its importance in demonstrating a high degree of creative or technical achievement at particular period*

*(g) Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons*

*(h) Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and*

*(i) Sites of significance relating to the history of slavery in South Africa.*

***Other sections of the Act with a direct relevance to the AIA are the following:***

***Section 34(1) No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.***

**Section 35(4)** *No person may, without a permit issued by the responsible heritage resources authority:*

- *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite*

**Section 36 (3)** *No person may, without a permit issued by SAHRA or a provincial heritage resources authority:*

- *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside formal cemetery administered by a local authority; or*
- *bring onto or use at a burial ground or grave any excavation equipment, or any equipment which assists in detection or recovery of metals.*

## **6 ARCHAEOLOGY AND HISTORY OF THE AREA**

The archaeology of southern Africa is broadly divided into Stone Age, Iron Age and the Historical Age, and South Africa fits well into this periodisation.

### **6.1 The Stone Age**

The Stone Age is the period in history of human evolution when lithic material was mainly used to make tools (Robins et al. 1998). In South Africa, in line with the picture in southern Africa, the period is divided into three phases namely the Earlier Stone Age, Middle Stone and Later Stone Age. It is important to note that these dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Lombard et al 2012: 125 is as follows

- Earlier Stone Age (ESA) 2 million-150 000 years ago
- Middle Stone Age (MSA) 150 000-30 000 years ago.
- Later Stone Age (LSA) 40 000-1840 A.D

The project area has a wealth of archaeological sites. The Stone Age of the project area spans the Earlier, Middle and Later Stone Ages through the Pleistocene and Holocene times. Late Holocene material with pottery is known to exist on riverbanks (Morris 2009). The clearest evidence of the three Stone Age periods is evident and extensively documented at the National Heritage Site of Wonderwerk Cave near Kuruman, which has a uniquely long sequence stretching from the turn of the twentieth century at the surface to more than 1 million (and possibly nearly 2 million) years in its basal layer (where stone tools, occurring in very low density, Oldowan were discovered) (Chazan 2015). Many sites across the province occur mostly in open air locales or in sediments alongside rivers or pans, document Earlier, Middle and Later Stone Age habitation. From Later Stone Age times, mainly, there is a wealth of rock art sites – most of which are in the form of rock engravings such as at Wildebeest Kuil and many sites in the area known as !Xam -ka !kau, in the Karoo. They occur on hilltops, slopes, rock outcrops and occasionally (as in the case of Driekops Eiland near the town of Kimberley) in a river bed. Other rock engravings have been reported in the vicinity of Lime Acres and Danielskuil including recent art ascribed to the Griquas and Khoikhoi (Collins 1973).

### **6.2 The Iron Age**

The Iron Age is the period in human history when metal was mainly used to produce tools. The primary technology used by the Bantu people was the ‘Iron hoe’, hence the advent of the Iron Age designate the period which these groups expanded throughout southern Africa (Huffman

33 |



2000; 2007). In South Africa, the period is divided into two separate phases namely Early Iron Age (EIA) 200-1000A.D and Late Iron Age (LIA) 1000-1850A.D. Huffman (2007:361), however, indicates that a Middle Iron Age must be included although some feel that Middle Iron Age should be restricted to the Limpopo. His dates which now seem to be widely accepted in South Africa are:

- Early Iron Age (EIA) 250-900 A.D
- Middle Iron Age (MIA) 900-1300 A.D
- Late Iron Age (LIA) 1300-1840 A.D

There are few if any sites belonging to the EIA in the western parts of the country where Herbert is located. Iron Age preferred relatively wetter woodlands to the east as compared to the dry west regions where Douglas is located. There is strong possibility that transhumant pastoralism, seasonal hunting groups existed in the western regions of the country from Stone Age through to the Iron Age, and there would be little physical evidence of such activities. The LIA in the wider geographical area is marked by the presence of extensive stone-walled settlements such as the Tlhaping capital at Diltlakong near Kuruman (De Jong 2010).

### **6.3 Historical Period**

Native speakers of Afrikaans comprise a higher percentage of the population in the Northern Cape than in any other province in South Africa. The Northern Cape's four official languages are Afrikaans, Tswana, Xhosa, and English. Minorities speak the other official languages of South Africa, and a few people speak Khoisan languages such as Nama and Khwe. The study area is historically home to various groups of the Tswana stock; the Tlokwa, Fokeng, Hlakwaana and Phuting. The Tlaping and Tlaro descended from the Iron Age, and probably some with Stone Age roots (De Jong 2010). The early 19th Century was a political turning point characterised by uncertainty and turmoil resulting in internal displacements (Wright & Hamilton 1989). During the 18th and 19th centuries, groups of Griqua herders settled in the area establishing a town called Griqualand. A little later, the Afrikaners also arrived in the area as part of a mass exodus from the Cape called the Great Trek. The area subsequently became known as Griqualand West and was incorporated into the Cape Colony in the 1880s.

### **6.4 Brief History of Douglas**

Douglas is situated southwest of the confluence of the Orange River and Vaal rivers. It is located 117 km west-south-west of Kimberley and 162 km from Prieska. The town was

founded in 1848 as a mission station on the farm Backhouse by the Reverend Isaac Hughes ([https://en.wikipedia.org>wiki.Douglas-South](https://en.wikipedia.org/wiki/Douglas-South) Africa). In 1867, it was renamed Douglas after Sir Percy Douglas, Lieutenant Governor of the Cape colony (Raper 2014). A Village Management Board was put in place in 1867, and municipal status was attained in 1914 (Raper 2014). The mining of diamond occurred there and a pleasure resort was laid out on the banks of the Vaal River (Raper 2014).

## **7 PREVIOUS HERITAGE IMPACT STUDIES**

A number of archaeological and heritage studies were conducted within the broader project area and in the vicinity, but very few studies have been conducted in the project area. These studies present the nature and heritage character of the project area.

The Department of Archaeology at McGregor Museum in Kimberley conducted a study on the farm Erf 143 near Douglas, the study did not record any heritage of significance (Morris 2010). Another study was done by the Department of Archaeology at the MacGregor Museum at Erven 95-97 and 106-107 near Douglas. The study yielded large Acheulian flakes (Morris 2009). Archaeo-Maps did a study on portions of Erf 1 in Douglas. The study yielded low density stone tools (Van Ryneveld 2007).

Below is a table of summary for the studies as well as findings for the studies in the study area and its immediate surroundings;

**Table 2:** A summary table of previous heritage studies conducted in the locality and vicinity of the project area:

<b>Author/Year</b>	<b>Local Municipality</b>	<b>Farm name (s)</b>	<b>Findings</b>
<b>Morris (2010)</b>	Siyancuma	Erf 143	No any heritage of significance
<b>Morris (2009)</b>	Siyancuma	Erven 95-97and 106-107	Large Acheulian tools
<b>Van Ryneveld (2007)</b>	Siyancuma	Portions of Erf 1	Low density of stone tools

## 8 DEGREE OF SIGNIFICANCE

Assessment of significance is important in this study as it provides rating of the impact prompted by the proposed development on heritage resources. The assessment of significance gives mitigation measures to limit the effects of the impact that could result as the cause of the development on heritage resources.

**Table 3:** Grading systems for the identified heritage resources in terms of the NHRA (Act 25 of 1999).

Level	Significance	Possible action
National (Grade I)	Site of National Value	Nominated to be declared by SAHRA
Provincial (Grade II)	Site of Provincial Value	Nominated to be declared by PHRA
Local Grade (IIIA)	Site of High Value Locally	Retained as heritage
Local Grade (IIIB)	Site of High Value Locally	Mitigated and part retained as heritage
General Protected Area A	Site of High to Medium	Mitigation necessary before destruction
General Protected Area B	Medium Value	Recording before destruction
General Protected Area C	Low Value	No action required before destruction

## 9 SURVEY FINDINGS

The Phase I Cultural-Heritage Impact Assessment study for the proposed Diamond and Sand Prospecting Right Application within Portion 1 of farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province identified a scatter of stone tools within the study area. The stone tools are of low significance as they were found out of context on a tract of land used for cattle grazing.

**Table 4: Summary of Archaeological finds**

SITE ID	GPS COORDINATES	DESCRIPTION
DST 01	29°01'7.60"S 24°17'26.02"E	Stone tools and are illustrated on Figure 17 below; two MSA tools were found on a disturbed loose area of the site.



**Figure 17:** Showing stone tools identified on site DST01.

The study identified two burial sites within the study area. The identified burial sites trigger Section 36 of the NHRA Act 25 of 1999. The first burial site **DBS01** was identified on the GPS coordinates **28°57'20.92"S 24°16'43.55"E**. The site is fenced off but is overrun by vegetation. It has two inscribed tombstones of the two tombstones one is white, grey in color while the other has a dark grey granite colour. The graves are companion crypts and were noted to be over 60 years in age. The second burial site **DBS02** was identified on the GPS coordinates **28°57'18.72"S 24°16'19.56"E**. The site has more than 50 graves. The graves are marked by mounds of earth, meanwhile other graves are marked by oval shaped stones. The other graves have been eroded and are now flat and can only be identified by a headstone. The graves belong to farmworkers that have been employed at the farm. Some of the graves were noted to be cleared and grave visitation by custodians is evident.



**Figure 18:** View of the burial site at DBS01.



**Figure 19:** Showing the burial site at DBS01.



**Figure 20:** View of the two tombstones on site DBS01.





**Figure 21:** View of the graves identified on site DBS02.



**Figure 22:** Another view of the graves identified on site DBS02.



**Figure 23:** Showing graves with regular visitation at the site DBS02.



**Figure 24:** Showing graves that have been eroded and only marked by headstones.

The study also noted that the area is littered with farm structures and buildings, the age of some of the structures could not be verified during the study, but most of them appear to be over sixty years of age, it is important to note that no prospecting activities will take place within the vicinity of the farm structures.



**Figure 25:** View of some of the farm structures within the study area.



**Figure 26:** Showing the farm structures in the background.

**Table 5: Anticipated Impact Rating**

The status of the impact		
Status	Description	
Positive:	a benefit to the holistic environment	
Negative:	a cost to the holistic environment	
Neutral:	no cost or benefit	
The duration of the impact		
Score	Duration	Description
1	Short term	Immediate/ short term (less than 3 months)
2	Medium term	Construction or decommissioning period
3	Long term	For the life of the operation
5	Permanent	Permanent
The extent of the impact		
Score	Extent	Description
1	Footprint	Within the site boundary
2	Site	Affects immediate surrounding areas
3	Local	Local area / district (neighbouring properties, transport routes and adjacent towns) is affected
4	Regional	Extends to almost entire province or larger region
5	National	Affects the country.
The reversibility of the impact		
Score	Reversibility	Description
1	Completely reversible	Reverses with minimal rehabilitation & negligible residual affects
3	Reversible	Requires mitigation and rehabilitation to ensure reversibility
5	Irreversible	Cannot be rehabilitated completely/rehabilitation not viable
The magnitude (severe or beneficial) of the impact		
Score	Severe/beneficial effect	Description
1	Zero	Natural and/or social functions and/or processes remain unaltered.
2	Very Low	Natural and/or social functions and/or processes are negligibly altered.
3	Low	Natural and/or social functions and/or processes are slightly altered and are reversible with time.
4	Moderate	Natural and/or social functions and/or processes are notably altered and are reversible with rehabilitation.
5	High	Natural and/or social functions and/or processes are permanently altered.
The probability of the impact		
Score	Rating	Description
1	Unlikely	The chance of this impact occurring is zero (0%).
2	Possible	May occur. The chances of this impact occurring is defined as 25%.
3	Probable	Likely to occur. The chances of this impact occurring is defined as 50%.
4	Highly Probable	The chances of this impact occurring is defined as 75%.
5	Definite	Will certainly occur. The chance of this impact occurring is defined as 100%.
The Consequence		= Magnitude (5) + Extent (3) + Duration (4) + Reversibility (4).
The Significance		= Consequence x Probability. 16×4=64

**Table 6:** Key and guidance to impact rating

<b>Score</b>	<b>Significance</b>
1 to 20	Low
21 to 40	Moderate to Low
41 to 60	Moderate
61 to 80	Moderate to high
81 to 100	High

## **10 RECOMMENDATIONS AND CONCLUSIONS**

Ruins Archaeo-Heritage Consulting was requested by Vahlangwe Mining Advisory and Consulting on behalf of Gomeza Trading (Pty) Ltd to conduct a Phase 1 HIA/AIA for the proposed Diamond and Sand Prospecting Right Application within Portion 1 of the farm Biesjesbult no.96 and Portion 2 & 3 of farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. Desktop research revealed that the project area would have been rich in Stone Age artefacts and the field survey noted that this is not the case within the proposed development site, as only a handful of isolated stone tools were found. This however can be attributed to the fact that the study area is not on pristine ground having undergone various land use practices, also archaeological material may exist on the subsurface and can only be identified as chance finds during prospecting. The developer should therefore be aware of the potential for chance find remains and the applicant and contractors are urged to lookout for chance finds during prospecting.

The procedure for reporting chance finds has clearly been laid out and if this report is adopted by SAHRA, then there are no archaeological reasons why the Proposed Prospecting Right Application cannot be approved. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of this heritage report, there are no significant cultural heritage resources barriers to the proposed development project. SAHRA may approve the project as planned with special commendations to implement the recommendations here in made:

1. It is recommended that SAHRA/NCPHRA endorse the report as having satisfied the requirements of Section 38 (8) of the NHRA requirements;
2. It is recommended that SAHRA/NCPHRA make a decision in terms of Section 38 (4) of the NHRA to approve the proposed prospecting right application;
3. The identified burial sites trigger Section 36 of the NHRA and should be protected from proposed Prospecting activities;
4. The study area is littered with historical structures and buildings which are protected by Section 34 of the NHRA and no prospecting activities are to be conducted within the proximity of the structures;

5. Adequate 100m buffer should be provided between prospecting activities and identified burial sites, building and structures; and
6. From a heritage perspective supported by the findings of this study, the project is supported. However, mining activities should be approved under observation that the dimensions do not extend beyond the area considered in this report.

## 11 REFERENCES

- Bergh, J.S. 1999. Geskiedenis atlas van Suid Afrika. Die vier Noordelike Provinsies. J.L. van Schaik.
- Beaumont, P. 2012. Phase 1 Archaeological Impact Assessment on the farm Droogte Veldt 292, 30 km west of Barkly West, Francis Baard District Municipality, Northern Cape Province.
- Beaumont, P and McNabb, J. 2000. Canteen Kopje: the recent excavations. *The Digging Stick* 7 (3): 3-7.
- Beaumont, P.B and Vogel, J.C. 2006. On a time scale for the past million years of human history in central South Africa, *South African Journal of Science*, 102, 217-228.
- Chazan, M. 2015. Technological Trends in the Acheulian of Wonderwerk Cave, South Africa. *African Archaeological Review* 32 (4).
- Collins, S. 1973. Rock engravings of the Danielskuil Townlands. *South African Archaeological Bulletin* 109-110: 49-57.
- Coetzee, F.P. 2017. Cultural Heritage Impact Assessment: Phase 1 Investigation for a prospecting right application of Diamonds alluvial and Diamonds general, near Barkly West on the remaining extent and portion 6 of the farm Nooitgedacht 66, Sol Platjie Local Municipality, Francis Baard District Municipality, Northern Cape. Unpublished report prepared for Milnex 189 CC.
- Deacon, H. J. and Deacon, J.1999. *Human beginnings in South Africa: Uncovering the secrets of the Stone Age*. Cape Town: David Philip.
- Deacon, J.1984.Later Stone Age people and their descendants in southern Africa. In: Klein, R. (ed.) *Southern African prehistory and palaeoenvironments*: 221-328. Rotterdam: Balkema.



De Jong, R.C. 2010. Heritage Impact Assessment for the proposed manganese and iron ore mining right application in respect of the remainder of the farm Paling 434, Hay Registration Division, Northern Cape Province. Unpublished report prepared for Kai Batla Minerals Industry Consultants.

Forssman, T.M., Kuman, K., Leader, G.M and Gibbon, R.J. 2010. A Later Stone Age assemblage from Canteen Kopje, Northern Cape. *South African Archaeological Bulletin* 65 (192), 204-214.

Huffman, T.N. 2007 *Handbook to the Iron Age: The archaeology of pre-colonial farming societies in southern Africa*. Scottville: University of KwaZulu Natal Press

Morris, D and Henderson, A. 2021. Heritage Impact Assessment of the mining right on portion of erf 1, Windsorton, Northern Cape. Unpublished report prepared for Moya Uthule General Trading.

Morris, D. 2009. Archaeological Impact Assessment at Erven 95-97 and 106-107 near Douglas, Northern Cape Province. Unpublished report prepared for Avoca Farm.

Morris, D. 2010. Phase 1 Archaeological Impact Assessment at Erf 143 near Douglas, Northern Cape. Unpublished report prepared for Mr. J. Smit.

Raper, P.E. 2014. *Dictionary of Southern African Place Names*. Johannesburg: Jonathan Ball Publishers.

Rossouw, L. 2016. Phase I Heritage Impact Assessment of the farm Rooidam 101 near Windsorton, Northern Cape Province. Thaya Trading Enterprise.

Smith, P., Nshimirimana, R., De Beer, F.C and Morris, D. 2012. Canteen Kopje: a new look at an old skull. *South African Journal of Science*, 108 (2): 2-9.

Van Ryneveld, K. 2007. Portions of Erf 1, Douglas, Herbert District, Northern Cape Province, South Africa. Unpublished report prepared for Dansil H. Jants.

Villa, P., Sonano, S., Tsanova, T., Dengano, I., Higham, T. F. G., d'Erico, F., Blackwell, L., Lucejko, J. J., Colombini, M. P & Beaumont, P. B. 2012. *National Academy of Sciences* 109 (33): 13208-13213.

Wright, J and Hamilton, C. 1989. Traditions and Transformations. The Phongolo-Mzimukulu Region in the late 18th and 19th centuries. In: Duminy, A & Guest, B (eds.) *Natal and Zululand from earliest times to 1910. A New History*. Pietermaritzburg: University of KwaZulu-Natal Press and Shutter & Shooter (Pty) Ltd, pp 49-82.

#### **Legislation, Policy and Official documents**

SAHRA, 2005. Minimum Standards for the Archaeological and Paleontological components of Impact Assessment Reports, Draft Version 1.4.

The National Heritage Resources Act 25 of 1999. South Africa: Government Gazette.

#### **Internet**

<https://en.wikipedia.org/wiki/Douglas-South>

## 12 APPENDIX 1: SITE SIGNIFICANCE

The following guidelines for determining site *significance* were developed by SAHRA in 2003. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

**(a) Historic value**

- Is it important in the community, or pattern of history?
- Does it have strong or special association with the life or work of a person, group or organization of importance in history?
- Does it have significance relating to the history of slavery?

**(b) Aesthetic value**

- Is it important in exhibiting particular aesthetic characteristics valued by a community or cultural group?

**(c) Scientific value**

- Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage?
- Is it important in demonstrating a high degree of creative or technical achievement at a particular period?

**(d) Social value**

- Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons?

**(e) Rarity**

- Does it possess uncommon, rare or endangered aspects of natural or cultural heritage?

**(f) Representivity**

- Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects?
- What is the importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class?
- Is it important in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality?





**NALEDZANI ENVIRONMENTAL SERVICES**  
Promoting sustainable use of our natural resources



# **ECOLOGICAL AND WETLAND IMPACT ASSESSMENT**

## **REPORT**

**THE PROPOSED PROSPECTING RIGHT APPLICATION FOR  
DIAMOND AND SAND ON PORTION 1 OF THE FARM  
BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM  
BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF  
HERBERT, NORTHERN CAPE PROVINCE**

**PREPARED FOR:**


**VAHLENGWE MINING ADVISORY AND CONSULTING (PTY) LTD**

**PREPARED BY:**

**NALEDZANI ENVIRONMENTAL SERVICES**

**DATE:**

**JUNE 2024**

 078 901 4833  
076 388 7203

 ramalivhanam@gmail.com  
ramalivhanam@naledzanies.co.za

 [www.naledzanies.co.za](http://www.naledzanies.co.za)

**PROPRIETARY INFORMATION**

Copyright in the drawings, information and data recorded in this document (the information) is the property of Naledzani Environmental Services and Vahlegwe Mining Advisory and Consulting (Pty) Ltd. This document and the information are solely for the use of the authorized recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Naledzani Environmental Services. Naledzani Environmental Services makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or the information.

PROJECT DETAILS	
<b>Project Title</b>	Biesjeesbult PR Application
<b>Client</b>	Vahlegwe Mining Advisory and Consulting (Pty) Ltd
<b>Description</b>	Terrestrial ecological and wetland impact assessment for the prospecting right application for Diamond and Sand on portion 1 of the farm Biesjesbult no.96 and portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province
<b>Document Status</b>	Final
<b>Prepared by</b>	Mpho Ramalivhana Pri Sci. Nat (Hons. Bot.; SAAB; SACNASP)
<b>Date</b>	17 June 2024

## DECLARATION OF INDEPENDENCE

I, Mpho Ramalivhana, declare that I:

- I act as the independent specialist in this application;
- I have performed 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 have complied 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 report 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.
- Based on information provided to me by the project proponent and in addition to information obtained during the course of this study, have presented the results and conclusion within the associated document to the best of my professional ability;
- As a registered member of the South African Council for Natural Scientific Professions, will undertake my profession in accordance with the Code of Conduct of the Council, as well as any other societies to which I am a member.



**Mpho Ramalivhana Pri Sci. Nat** (Hons. Bot.; SAAB; SACNASP)

## SPECIALIST INFORMATION

Mpho Ramalivhana of Naledzani Environmental Consultant holds an Honours Degree in Botany from the University of Limpopo (Turffloop Campus) and has 13 years' professional experience in biodiversity assessment & management, and aquatic ecological research. He is a registered member for South African Council for Natural Scientist Professions (400395/14).

## INDEMNITY

This report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken. The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information at the time of study. Therefore, the author reserves the right to modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

Although the author exercises due care and diligence in rendering services and preparing documents, he accepts no liability, and the client, by receiving this document, indemnifies the author against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the author and by the use of this document.

## DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

<b>Name of organization</b>	Vahlengwe Mining Advisory and Consulting
<b>Contact Person</b>	Cecil Dau
<b>Contact Details</b>	Physical Address: 238 Voster Ave, Glenvista Ext 3  Johannesburg South,  2058  Tel: +2711 432 0062  Email: <a href="mailto:info@vahlengweadvisory.co.za">info@vahlengweadvisory.co.za</a>



**Contents**

DECLARATION OF INDEPENDENCE ..... 3

SPECIALIST INFORMATION ..... 4

INDEMNITY ..... 4

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER..... 4

ABBREVIATIONS ..... 11

DEFINITIONS ..... 13

1. INTRODUCTION..... 17

    1.1. Terms of reference..... 17

    1.2. Assumptions and limitations ..... 18

2. LEGISLATIVE REQUIREMENTS..... 18

3. DESCRIPTION OF THE RECEIVING ENVIRONMENT..... 25

    3.1. Location ..... 25

    3.2. Climate..... 28

    3.3. Vegetation classification ..... 28

        3.3.1. Overview of the Biome type ..... 28

        3.3.2. Broad vegetation of the site ..... 29

    3.4. Terrestrial threatened ecosystem ..... 33

    3.5. Important Bird and Biodiversity Areas..... 34

    3.6. Land Use and Land Cover ..... 34

4. METHODOLOGY AND REPORTING ..... 37

4.1. General ..... 37

4.2. Vegetation..... 37

4.3. Fauna survey ..... 37

4.4. Mammals ..... 37

4.5. Wetland assessment..... 38

4.6. Wetland classification and delineation ..... 38

4.7. Hydrological assessment..... 40

4.8. PES methodology ..... 42

4.9. EIS methodology..... 45

4.10. ES methodology..... 48

4.11. Aerial assessment..... 49

4.12. Soil assessment..... 50

4.13. Vegetation assessment..... 50

4.14. Sensitivity Map..... 52

4.15. Methodology Adapted in Assessing the Impacts..... 52

5. RESULTS FOR Terrestrial ASSESSMENT..... 56

5.1. Plant species of concern..... 56

5.1.1. Riverine vegetation ..... 57

5.1.2. Cultivated area/land ..... 59

5.1.3.	Open shrubland .....	60
5.1.4.	Alien invasive plants.....	61
5.2.	Description of the CBAs.....	63
5.3.	Avi-fauna.....	67
5.4.	Mammals .....	68
6.	RESULTS FOR THE WETLAND FEATURES .....	68
6.1.	Delineated Wetlands.....	68
6.2.	PES of wetlands in the study area .....	70
6.3.	EIS of wetlands in the study area .....	70
6.3.1.	Vegetation.....	71
6.3.2.	Buffer allocation .....	72
7.	ASSESSMENT OF IMPACTS.....	72
7.1.	Introduction .....	72
8.	CONCLUSION AND RECOMMENDATIONS.....	76
9.	REFERENCES .....	77
	APPENDIX A: PLANT SPECIES RECORDED WITHIN THE PROPOSED AREA .....	78
	APPENDIX B: LIST OF BIRDS LIKELY TO INHABIT THE AFFECTED QDGC'S.....	81
	APPENDIX C: SENSITIVITY MAP TO BE ADHERED TO DURING PROSPECTING .....	90

**List of figures**

Figure 1: Locality map for the project area.....	26
Figure 2: Google-earth view of the project area.....	27
Figure 3: Broad vegetation map for the site.....	32
Figure 4: Pivots along close to the Riet River.....	35
Figure 5: Cattle farming on site.....	35
Figure 6: Land use of the site.....	36
Figure 7: <i>Vachellia erioloba</i> (Camel thorn on site).....	57
Figure 8: View of the riverine vegetation.....	58
Figure 9: Eucalyptus and <i>Phragmites australis</i> along the Riet River.....	59
Figure 10: Cultivated (Lucerne) areas on site.....	60
Figure 11: Maize plantation.....	60
Figure 12: Overview of the open grassland.....	61
Figure 13: <i>Opuntia ficus-indica</i> .....	63
Figure 14: CBA map of the site.....	66
Figure 15: Bird nests.....	67
Figure 16: Wetland map of the site.....	69
Figure 17: View of the flood plain wetland on site.....	70
Figure 18: : Permanent wetland plants along the Flood-plain.....	71

## List of tables

Table 1: Acts and regulations relating to the project .....	19
Table 2: Wetland hydrogeomorphic (HGM) types typically supporting inland wetlands in South Africa (Adapted from Kotze et al, 2005).....	39
Table 3: Hydrological assessment criteria (Adapted from WET-Health, 2008:50) .....	40
Table 4: Guideline for assessing the intensity of impact of modifications to an existing channel (Adapted from WET-Health, 2008:66) .....	41
Table 5: Habitat integrity assessment criteria for palustrine wetlands.....	42
Table 6: Scoring guidelines and relative confidence scores for the habitat integrity assessment for palustrine wetlands (DWAF, 1999). .....	44
Table 7: Category's assigned to the scores achieved in the wetland habitat assessment (Kleynhans, 1999; DWAF, 1999).....	45
Table 8: Score sheet for determining EIS. ....	46
Table 9: Scoring guidelines and relative confidence scores for the habitat integrity assessment for palustrine wetlands (DWAF, 1999). .....	46
Table 10: Ecological importance and sensitivity categories. Interpretation of median scores for biotic and habitat determinants into an EMC.....	47
Table 11: Levels of ecosystem service ratings.....	49
Table 12: Relationship between wetness zones and vegetation types (Adapted from DWAF, 2005:14).....	51
Table 13: Classification of plants according to occurrence in wetland (Adapted from Reed, 1998 cf DWAF, 2005:14) .....	51
Table 14: Impact assessment table .....	53
Table 15: Definition of significance rating .....	56

Table 2: Alien species recorded in the study area ..... 62

Table 4: A framework for linking spatial planning categories (CBAs) to land-use planning and decision-making guidelines based on a set of high-level land biodiversity management objectives..... 64

Table 18: Broad PES values and categories of the wetland in the study area..... 70

Table 19: EIS and EMC values of wetlands in the study area. .... 71

Table 20: Environmental Impacts for the proposed project assessed by combining the consequences (extent, duration, intensity) with the probability of occurrence before and after mitigation for the proposed project..... 73

## ABBREVIATIONS

a.m.s.l.	above mean sea level
BGIS	Biodiversity Geographic Information System (from SANBI)
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
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMF	Environmental Management Framework
EN	Endangered
ESA	Ecosystem Support Area
GIS	Geographic Information System
HGM	Hydro-geomorphic Approach
MM	Millimetres
NC	Northern Cape Province
NEMA	National Environmental Management Act (No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
NFA	National Forest Act 1998 (Act No. 84 of 1998)

NSBA	National Spatial Biodiversity Assessment
NT	Near Threatened
NWA	National Water Act (Act 36 of 1998)
NWCS	National Wetland Classification System
ONA	Other Natural Area
PA	Protected Area
PES	Present Ecological State
PRECIS	Pretoria Computerised Information System
QDGC	Quarter Degree Grid Cell
SABIF	South African Biodiversity Information Facility
SANBI	South African National Biodiversity Institute
SARCA	Southern African Reptile Conservation Assessment
SFSD	Strategic Framework for Sustainable Development
VM	Virtual Museum
VU	Vulnerable
WULA	Water Use License Application



## DEFINITIONS

**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

**Aquatic ecosystem:** ecosystem which provides a medium for habitat by aquatic organisms and sustains aquatic ecological process.

**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

**Buffer zone** - The strip of vegetation or land maintained to limit impacts to natural ecosystems from adjoining land use activities.

**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.

**Catchment** - A catchment is an area where water is collected by the natural landscape. In a catchment, all rain and run-off water eventually flows to a river, wetland, lake or ocean, or into the groundwater system.

**Community** – an assemblage of populations living in a prescribed area or physical habitat, inhabiting some common 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 concern** - plants of conservation concern are those plants that are important for South Africa's conservation decision making processes and include all plants that are Threatened (see Threatened), Extinct in the wild, Data deficient, near threatened, Critically rare, Rare and Declining. These plants are nationally protected by the National Environmental Management: Biodiversity Act. Within the context of these reports, plants that are provincially protected are also discussed under this heading.

**Conservation status** - an indicator of the likelihood of that species remaining extant either in the present 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.

**Critically Endangered** - a taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future.

**Data Deficient** - there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and/or population status. However, "data deficient" is therefore not a category of threat. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate.

**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).

**Delineation** - Refers to the technique of establishing the boundary of a resource such as a wetland or riparian area.

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

**Ecosystem** - An ecosystem is essentially a working natural system, maintained by internal ecological processes, relationships and interactions between the biotic (plants & animals) and the non-living or abiotic environment (e.g. soil, atmosphere). Ecosystems can operate at different scales, from very small (e.g. a small wetland pan) to large landscapes (e.g. an entire water catchment area).

**Ecosystem Goods and Services** - The goods and benefits people obtain from natural ecosystems. Various different types of ecosystems provide a range of ecosystem goods and services. Aquatic ecosystems such as rivers and wetlands provide goods such as forage for livestock grazing or sedges for craft production and services such as pollutant trapping and flood attenuation. They also provide habitat for a range of aquatic biota.

**Endangered** - taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future

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

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

**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.

**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).

**Primary Vegetation:** this refers to vegetation that has been subject to no or only limited human disturbance, with the retention of the natural topsoil, subsoil and vegetation structure, characteristic species composition (regardless of the level of infestation of alien invasive species), functions and dynamics of that vegetation type, which would not exceed the natural elastic capacity of the ecosystem. Primary vegetation is also referred to as 'indigenous' vegetation, but the term 'primary' is preferred as it distinguishes between historically occurring vegetation and secondary or modified vegetation, which could also consist of indigenous plant species, but not resembling the original vegetation composition, structure or functionality.

**Protected Plant** - according to Provincial Nature Conservation Ordinances or Acts, no one is allowed to sell, buy, transport, or remove this plant without a permit from the responsible authority. These plants are protected by provincial legislation.

**Red Data** - a list of species, fauna and flora that require environmental protection - based on the IUCN definitions. Now termed Plants of Conservation Concern

**Riparian (area)** - Includes the physical structure and associated vegetation within a zone or area adjacent to and affected by surface and subsurface hydrologic features such as rivers, streams, lakes or drainage ways and are commonly associated with alluvial soils.

**Species diversity** - a measure of the number and relative abundance of species

**Species of Conservation Concern:** in the context of this report, this refers to species that are currently classified as Threatened (according to the IUCN definitions) as well as species protected under Provincial or National Legislation

**Species richness** - the number of species in an area or habitat

**Threatened** - threatened Species are those that are facing a high risk of extinction, indicated by placing in the categories Critically Endangered (CR), Endangered (E) and Vulnerable (VU) (Raimondo et al, 2009)

**Transformation** - the removal or radical disturbance of natural vegetation, for example by crop agriculture, plantation forestry, mining or urban development.

**Vegetation Unit** - a complex of plant communities ecologically and historically (both in spatial and temporal terms) occupying habitat complexes at the landscape scale.

**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

**Water course** - Means a river or spring; a natural channel in which water flows regularly or intermittently: a wetland, lake or dam into which, or from which, water flows: and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks (National Water Act, 1998).

**Wetland** - Refers to land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil (National Water Act, 1998).

## **1. INTRODUCTION**

Naledzani Environmental Services was appointed to conduct a terrestrial and wetland ecology impact assessment for the prospecting right application for Diamond and Sand on Portion 1 of the farm Biesjesbult no.96 and Portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province, as part of the requirements of the Environmental Impact Assessment (EIA) processes. The study aimed at identifying the negative environmental impacts that the proposed prospecting activities may have on the flora, fauna and wetlands found on the site, and subsequently produce a report that entails actions to mitigate such impacts.

An early dry wetland and terrestrial biodiversity surveys were conducted on foot to confirm sensitive receptors that were identified through desktop. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Environmental Assessment Practitioner (EAP), as well as the competent authority to enable to provide an informed decision.

### **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 project 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:

- A broad-scale map of the vegetation of the proposed site;
- A description of the dominant and characteristic species within the broad-scale plant communities;
- A list of Red Data plant and animal species previously recorded within the site which the study area is situated, obtained from the relevant authorities and literature reviews;
- Identification of sensitive habitats and plant communities;
- Identification and delineation of wetlands within the study site;
- Preliminary investigation of the impacts of the project and the provision of recommended mitigation measures; and
- Identify and assess any cumulative impacts arising from the project where there is major uncertainty, low levels of confidence in predictions and poor data or information. Recommend practicable mitigation measures to minimize or eliminate negative impacts and or enhance potential project benefits.

## 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
<p><b>National Environmental Management: Biodiversity Act No 10 of 2004</b></p>	<p>The objectives of this act are (within the framework of NEMA) to provide for:</p> <ul style="list-style-type: none"> <li>• The management and conservation of biological diversity within the Republic of South Africa and of the components of such diversity;</li> <li>• The use of indigenous biological resources in a sustainable manner;</li> <li>• The fair and equitable sharing among stakeholders of the benefits arising from bio prospecting involving indigenous biological resources;</li> <li>• To give effect to ratify international agreements relating to biodiversity which are binding to the Republic;</li> <li>• To provide for cooperative governance in biodiversity management and conservation; and</li> <li>• To provide for a South African National Biodiversity Institute to assist in achieving the objectives of this Act.</li> </ul> <p>This act alludes to the fact that management of biodiversity must take place to ensure that the biodiversity of the surrounding areas is not negatively impacted upon, by any activity being undertaken, in order to ensure the fair and equitable sharing among stakeholders of the benefits arising from indigenous biological resources.</p> <p>Furthermore, a person may not carry out a restricted activity involving either:</p> <p>a) A specimen of a listed threatened or protected species;</p> <p>b) Specimens of an alien species; or</p> <p>c) A specimen of a listed invasive species without a permit.</p>
<p><b>South African Constitution 108 of 1996</b></p>	<p>The environment and the health and well-being of people are safeguarded under the Constitution of the Republic of South Africa, 1996 by way of section 24. Section 24(a) guarantees a right to an environment that is not harmful to human health or</p>

	<p>well-being and to environmental protection for the benefit of present and future generations. Section 24(b) directs the state to take reasonable legislative and other measures to prevent pollution, promote conservation, and secure the ecologically sustainable development and use of natural resources (including water and mineral resources) while promoting justifiable economic and social development. Section 27 guarantees every person the right of access to sufficient water, and the state is obliged to take reasonable legislative and other measures within its available resources to achieve the progressive realisation of this right. Section 27 is defined as a socioeconomic right and not an environmental right. However, read with section 24 it requires of the state to ensure that water is conserved and protected and that sufficient access to the resource is provided.</p>
<p><b>The Convention of Biological Diversity (Rio de Janeiro, 1992).</b></p>	<p>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.</p>
<p><b>National Environmental Management Act 107 of 1998 and the associated Environmental Impact Assessment (EIA) Regulations</b></p>	<p>The National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) and the associated Environmental Impact Assessment (EIA) Regulations (GN R326 as amended in 2017 and well as listing notices 1, 2 and 3 (GN R327, R325 and R324 of 2017), state that prior to any development taking place which triggers any activity as listed within the abovementioned regulations, an environmental authorisation process needs to be followed. This could follow either the Basic Assessment process or the Environmental Impact Assessment process depending on the nature of the activity and scale of the impact</p>
<p><b>Strategic Framework for Sustainable Development in South Africa</b></p>	<p>The development of a broad framework for sustainable development was initiated to provide an overarching and guiding National Sustainable Development Strategy. The Draft Strategic 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</p>



	<p>natural resources, climate change effects, loss of habitat and poor land management practices were raised as the main threats to biodiversity.</p>
<p><b>Government Notice 864 Alien and Invasive Species Regulations as published in the Government Gazette 40166 of 2016 as it relates to the National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004)</b></p>	<p>NEMBA is administered by the Department of Environmental Affairs and aims to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA. In terms of alien and invasive species. This act in terms of alien and invasive species aims to:</p> <ul style="list-style-type: none"> <li>• Prevent the unauthorized introduction and spread of alien and invasive species to ecosystems and habitats where they do not naturally occur,</li> <li>• Manage and control alien and invasive species, to prevent or minimize harm to the environment and biodiversity; and</li> <li>• Eradicate alien species and invasive species from ecosystems and habitats where they may harm such ecosystems or habitats.</li> </ul> <p>Alien species are defined, in terms of the National Environmental Management: Biodiversity Act, 2004 (Act no 10 of 2004) as:</p> <p>(a) A species that is not an indigenous species; or</p> <p>(b) An indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention.</p> <p>Categories according to NEMBA (Alien and Invasive Species Regulations, 2017):</p> <ul style="list-style-type: none"> <li>• Category 1a: Invasive species that require compulsory control;</li> <li>• Category 1b: Invasive species that require control by means of an invasive species management programme;</li> <li>• Category 2: Commercially used plants that may be grown in demarcated areas, provided that there is a permit and that steps are taken to prevent their spread; and</li> </ul> <p>Category 3: Ornementally used plants that may no longer be planted.</p>

<p><b>Conservation of Agricultural Resources Act 43 of 1967</b></p>	<p>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.</p>
<p><b>National Forest Act 84 of 1998 (as amended in September 2011)</b></p>	<p>Principles to guide decisions affecting forestry resources applicable to land development management are contained in the following principle:</p> <p><b><u>Principle 3</u></b></p> <p>(3) The principles are that:</p> <p>(a) natural forests must not be destroyed save in exceptional circumstances where, in the opinion of the Minister, a proposed new land use is preferable in terms of its economic, social or environmental benefits;</p> <p>(b) a minimum area of each woodland type should be conserved, and forests must be developed and managed to</p> <p>i. conserve biological diversity, ecosystems and habitats;</p> <p>ii. sustain the potential yield of their economic, social and environmental benefits.</p> <p>This section of the Act alludes to the fact that the conservation status of all vegetation types needs to be considered when any development is taking place to ensure that the adequate conservation of all vegetation types is ensured.</p> <p><b><u>Principle 6</u></b></p> <p>(6) Criteria and indicators may include but are not limited to, those for determining the level of maintenance and development of:</p> <p>i. forest resources,</p>

	<ul style="list-style-type: none"> <li>ii. biological diversity in forests,</li> <li>iii. the health and vitality of forests,</li> <li>iv. the productive functions of forests,</li> <li>v. the protective and environmental functions of forests; and</li> <li>vi. the social functions of forests.</li> </ul>
<b>National Environmental Management: Protected Areas Act 57 of 2003</b>	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.
<b>Mining and Biodiversity Guideline</b>	<p>The Mining and Biodiversity Guideline, 2013 (the Guideline) was developed by the Department of Mineral Resources, Department of Mineral Resources, Chamber of Mines, South African National Biodiversity Institute and the South African Mining and Biodiversity Forum, with the intention to find a balance between economic growth and environmental sustainability (i.e. in the name of sustainable development). The Guideline is envisioned as a tool to "foster a strong relationship between biodiversity and mining which will eventually translate into best practice within the mining sector." In identifying biodiversity priority areas which have different levels of risk against mining, the Guideline categorises biodiversity priority areas into 4 classes with the following levels of risk for mining attached to them:</p> <ol style="list-style-type: none"> <li>1. Legally protected areas, where mining is prohibited</li> <li>2. Areas of highest biodiversity importance, which are at the highest risk for mining</li> <li>3. Areas of high biodiversity importance, which are at a high risk for mining</li> </ol> <p>Areas of moderate biodiversity importance, which are at a moderate risk for mining</p>
<b>The protected Areas Act 57 of 2003</b>	The Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and

	local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; and for matters in connection therewith.
<b>The RAMSAR Convention</b>	Emphasis is placed on protecting wetlands and implementing initiatives to maintain or improve the state of wetland resources.
<b>New Partnership for Africa's Development (NEPAD)</b>	Wetland conservation and sustainable use is one of the eight themes under the environment initiative.
<b>The World Summit on Sustainable Development (WSSD)</b>	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.
<b>The National Water Act 36 of 1998</b>	<p>The National Water Act, 1998 (Act No. 36 of 1998) (NWA) is the primary legislation regulating both the use of water and the pollution of water resources. It is applied and enforced by the Department of Water and Sanitation (DWS).</p> <p>Section 19 of the National Water Act regulates pollution, which is defined as “the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it:</p> <ul style="list-style-type: none"> <li>• less fit for any beneficial purpose for which it may reasonably be expected to be used; or</li> </ul> <p>Harmful or potentially harmful to the welfare, health or safety of human beings; any aquatic or non-aquatic organisms; the resource quality; or property.”</p> <p>This Act imposes ‘duty of care’ on all landowners, to ensure that water resources are not polluted. The following Clause in terms of the National Water Act is applicable in this case:</p> <p><b>19 (1)</b> “An owner of land, a person in control of land or a person who occupies or uses the land on which (a) any activity or process is or was performed or</p>

	<p><i>undertaken; which causes, has caused or likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring”</i></p> <p>Chapter 4 of the National Water Act is of particular relevance to wetlands and addresses the use of water and stipulates the various types of licensed and unlicensed entitlements to the use water. Water use is defined very broadly in the Act and effectively requires that any activities with a potential impact on wetlands (within a distance of 500m upstream or downstream of a wetland) be authorized.</p>
<p><b>Northern Cape Nature Conservation Act No. 9 of 2009</b></p>	<p>This Act provides sustainable utilization of wild animals, aquatic biota and plants to provide for them implementation of convention on international trade in endangered species of wild fauna and flora. The Act provide for offenses and penalties of contravention Act, further provide for the appointment nature conservator to implement the provision of the Act. It also provides the issuing of the permits and other authorisations, and provide matters connect therewith.</p>

### 3. DESCRIPTION OF THE RECEIVING ENVIRONMENT

#### 3.1. Location

The proposed project is located on Portion 1 of the farm Biesjesbult no.96 and Portion 2 and 3 of the farm Biesjesbult no.99 in the Magisterial District of Herbert, Northern Cape Province. The site is located approximately 5.47 km North East of Plooyburg , 29km North West of Ritchie town and 50km Southwest of Kimberly town. See figures 1 and 2 below

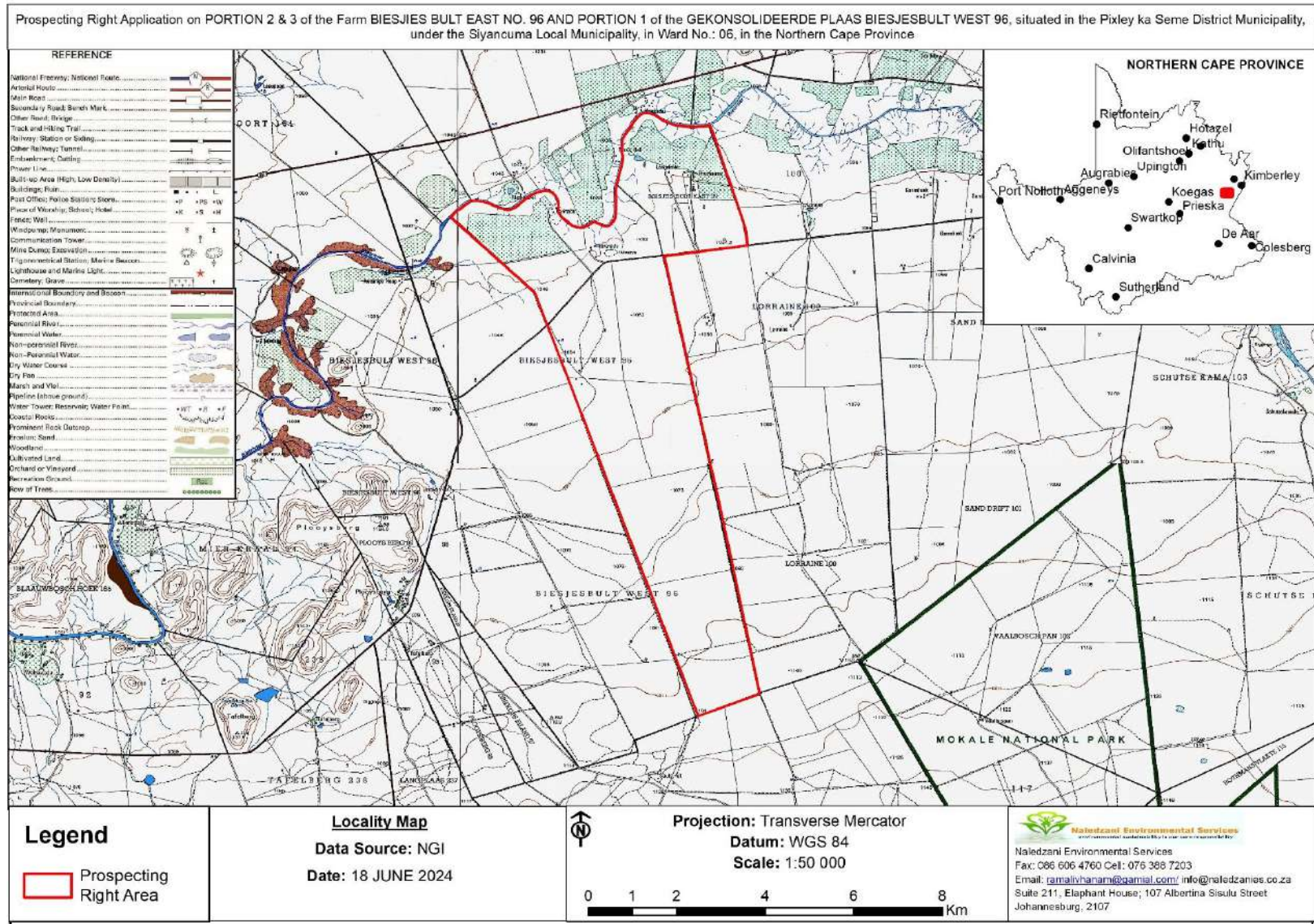


Figure 1: Locality map for the project area

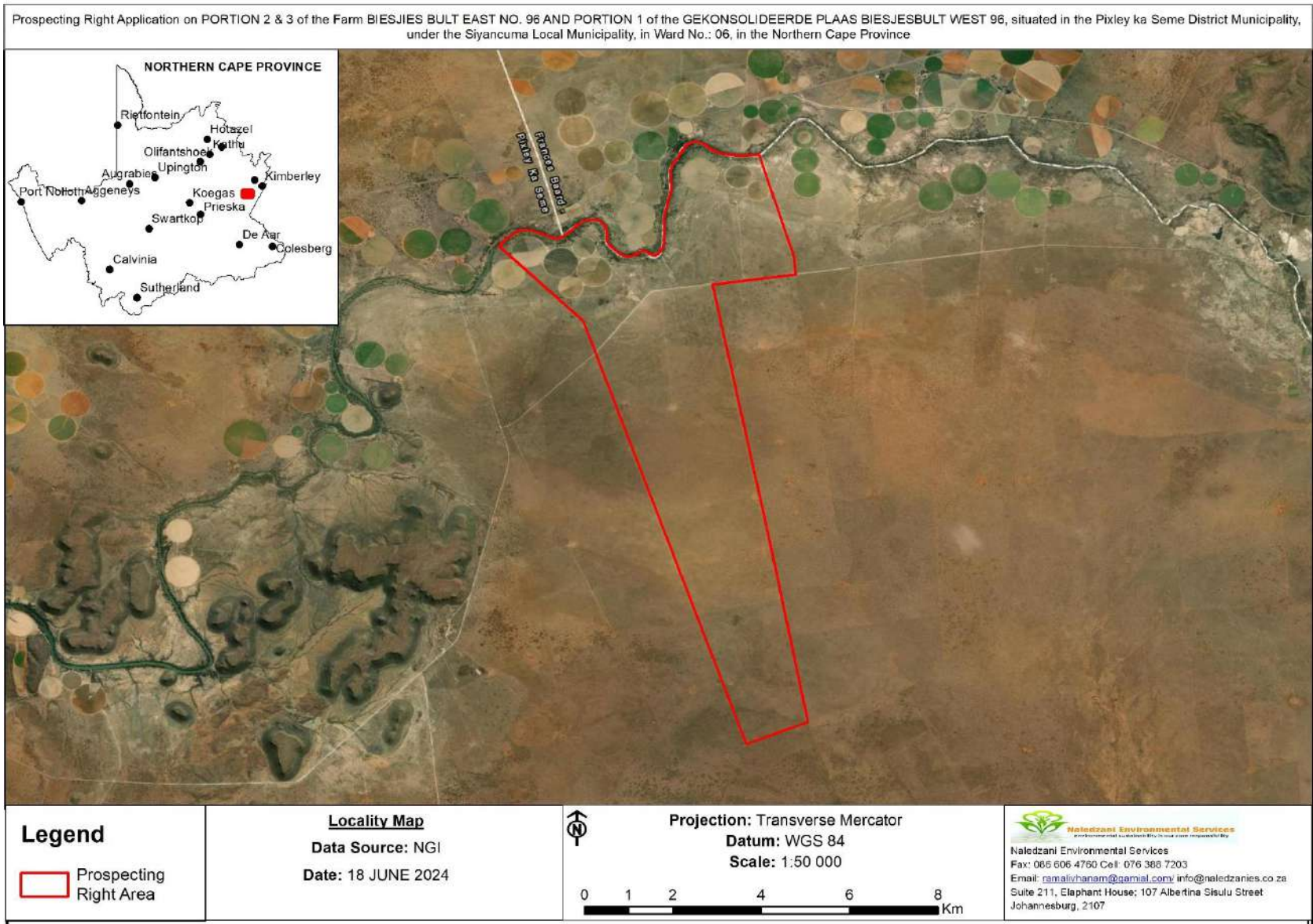


Figure 2: Google-earth view of the project area

## 3.2. Climate

The project area falls within the range of the Kimberly weather station, which is located in the southern hemisphere. The climate in application area is subtropical semi-arid, with mild, dry winters (during which it can get cold at night) and hot, sunny summers (during which thunderstorms can break out). The average annual temperature is 32°C whereas the annual precipitation is about 350 mm. Siyancuma Local Municipality is located in the southern hemisphere, where January is the warmest month, with an average high of 32°C and low of 18°C whereas July is the coldest month with an average low of 2°C and high of 18°C. The month with the highest relative humidity is January while the month with the lowest relative humidity is September. The month with the rainiest days is February, with an average of 7.8 days and least rain in Kimberley is July, with an average rainfall of 3 millimeters.

The average hourly wind speed in Kimberley experiences mild seasonal variation over the course of the year. The windier part of the year lasts for 5.6 months, from July 19 to January 6, with average wind speeds of more than 3.7 meters per second. The windiest month of the year in Kimberley is October, with an average hourly wind speed of 4.3 meters per second. The calmer time of year lasts for 6.4 months, from January 6 to July 19. The calmest month of the year in Kimberley is March, with an average hourly wind speed of 3.2 meters per second.

## 3.3. Vegetation classification

According to the new vegetation classification on National Vegetation Types Map on BGIS (2012), the proposed site is located at the Upper Gariep Alluvial vegetation (more along the Riet River), Kimberley Thornveld and the Vaalbos Rocky Shrubland of the Savanna Biome.

### 3.3.1. Overview of the Biome type

Mucina and Rutherford (2018) described the project area as falling within the Savanna biome. The Savanna Biome is the largest Biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the Lowveld and Kalahari region of South Africa and is also the dominant vegetation in neighbouring Botswana, Namibia and Zimbabwe. It is characterized by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground vegetation may be referred to as Shrubveld, where it is dense as Woodland, and the intermediate stages are locally known as Bushveld.

The environmental factors delimiting the biome are complex: altitude ranges from sea level to 2000 m; rainfall varies from 235 to 1000 mm per year; frost may occur from 0 to 120 days per year; and almost every major geological and soil type occurs within the biome. A major factor delimiting the biome is the lack of sufficient rainfall which prevents the



upper tree layer from dominating, coupled with fires and grazing, which keep the grass layer dominant. Summer rainfall is essential for grass dominance, which, with its fine material, fuels near-annual fires. In fact, almost all species are adapted to survive fires, usually with less than 10% of plants, both in the grass and tree layer, killed by fire. Even with severe burning, most species can re-sprout from the stem bases (Mucina and Rutherford, 2018).

The grass layer is dominated by C 4-type grasses (C4 plants are more adapted to warm or hot seasonal conditions under moist or dry environments), which are at an advantage where the growing season is hot. But where rainfall has a stronger winter component, C 3-type grasses dominate. The shrub-tree layer may vary from 1 to 20 m in height, but in Bushveld typically varies from 3 to 7 m. The shrub-tree element may come to dominate the vegetation in areas which are being overgrazed.

Most of the Savanna vegetation types are used for grazing, mainly by cattle or game. In the southernmost Savanna types, goats are a major stock. In some areas crops and subtropical fruit are cultivated. These mainly include the Clay Thorn Bushveld, parts of Mixed Bushveld, and Sweet Lowveld Bushveld.

Conservation status of Savanna is comparatively good, mainly due to the presence of the Kruger and Kalahari Gemsbok National Parks within the biome. However, the high area conserved in South Africa, belies the fact that half of Savanna vegetation types are inadequately conserved, in having less than 5% of their area in reserves and, much of the area is used for game-farming and can thus be considered effectively preserved, provided that sustainable stocking levels are maintained. The importance of tourism and big game hunting in the conservation of the area must not be underestimated (Mucina and Rutherford, 2018).

### **3.3.2. Broad vegetation of the site**

to the new vegetation classification on National Vegetation Types Map on BGIS (2012), the proposed site is located at the Upper Gariiep Alluvial vegetation (more along the Riet River), Kimberley Thornveld and the Vaalbos Rocky Shrubland.

#### **- Kimberley Thornveld (SVk 4)**

The Kimberley Thornveld (SVk 4) vegetation unit is distributed in 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 Barkly West Districts. Also includes pediment areas in the Herbert and Jacobsdal Districts. Altitude on this vegetation normally ranges from 1 050 to 1 400 m. It occurs on the plains often slightly irregular with well-developed tree layer with *Acacia erioloba*, *A. tortilis*, *A. karoo* and *Boscia*

*albitrunca* and well-developed shrub layer with occasional dense stands of *Tarchonanthus camphoratus* and *A. mellifera*. Grass layer open with much uncovered soil.

The Kimberley Thornveld is regarded as Least threatened with a conservation target of 16%. Only 2% statutorily conserved in Vaalbos National Park as well as in Sandveld, Bloemhof Dam and S.A. Lombard Nature Reserves. Some 18% already transformed, mostly by cultivation. Erosion is very low. Area is mostly used for cattle farming or game ranching. Overgrazing leads to encroachment of *Acacia mellifera subsp. detinens*.

- **Upper Gariep Alluvial Vegetation**

Upper Gariep Alluvial Vegetation is found in the Northern Cape and Free State and includes the broad alluvia of the Orange River, lower Caledon as well as the lower stretches of the Vaal, Riet and Modder Rivers as far as Groblershoop. The topography is typically flat alluvial terraces that host riparian thicket vegetation (dominated by *Vachellia karroo* and *Diospyros lycioides*), flooded grasslands, reed beds and ephemeral herblands found mainly on sand banks within the river and on the river banks. The geology of this unit is presented as recent alluvial deposits underlain by Karoo Supergroup sediments and tillites. The soils are typically of the la group land types. This unit is subject to flooding during summer.

It is estimated that more than 20 % of the unit has been transformed for cultivation and the building of dams. Exotic woody species like *Salix babylonica*, *Eucalyptus camaldulensis*, *E. Sideroxylon*, *Prosopis* and *Populus spp.*, dominate heavily disturbed alluvial vegetation. The unit is classified as being vulnerable and only 3 % is conserved within formal conservation areas. These include Tussen Die Riviere, Gariep Dam and Oviston Nature Reserves. No endemic plant species are known from this unit. This vegetation is listed as **Vulnerable** (Mucina & Rutherford 2006).

- **Vaalbos Rocky Shrubland**

Vaalbos Rocky Shrubland is found in the Northern Cape and Free State Provinces along solitary hills and scattered ridges east of the confluence of the Orange and the Vaal Rivers, mainly in the Kimberley and Herbert District and west of a line bounded by the western Free State towns of Luckhoff, Petrusburg, Dealesville, Bultfontein and Hertzogville at altitudes varying from 1 000 -1 400 m. Vaalbos Rocky Shrubland is described as occurring on slopes and elevated hills and ridges within plains of mainly Kimberley Thornveld, but also in the vicinity of Northern Upper Karoo (Mucina & Rutherford, 2006). It is described as evergreen shrub communities dominated by *Tarchonanthus camphoratus*, *Olea europaea subsp. africana*, *Euclea crispa*, *Diospyros lycioides*, *Rhus burchelli* and *Buddleja saligna*. On the foot slopes of dolerite hills, where calcium rich soils occur, shrub and small trees of *Acacia tortilis* and *Ziziphus mucronata* can be dominant.

Vaalbos Rocky Shrubland was classified as “Least Threatened” during the 2004 National Spatial Biodiversity Assessment (NSBA). More than 98% of this vegetation still remains in its natural state, but only 1.7% of this vegetation type is formally protected throughout South Africa. Recently the National list of ecosystems that are threatened and in need of protection (GN 1002, December 2011), was promulgated in terms of the National Environmental Management Biodiversity Act (NEM: BA), Act 10 of 2004. According to this National list, Vaalbos Rocky Shrubland, remains classified as Least Threatened.

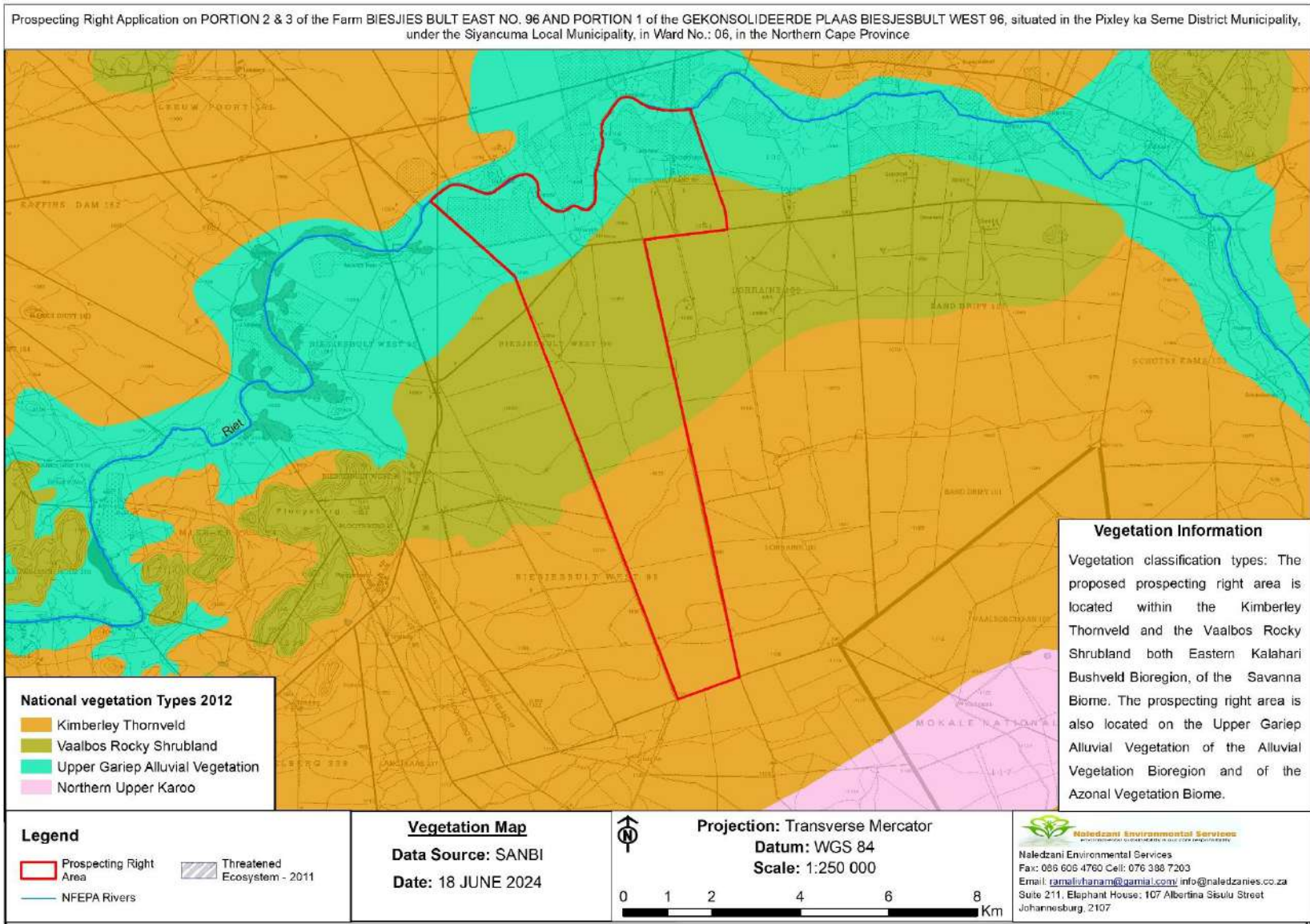


Figure 3: Broad vegetation map for the site

### 3.4. 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** (Upper Gariiep Alluvial Vegetation) and the **Least ecosystem** (Vaalbos Rocky Shrubland and the Kimberley Thornveld)

However, it is acknowledged that it is important to ground-truth the presence of indigenous vegetation of the ecosystem in question, as spatial data on the location of ecosystems and on land cover is always subject to errors of scale, and land cover data generated should never be regarded as 100% accurate. It is further stated within Government Notice

1002 of 2011 that “if any development that requires environmental authorisation impacts on a Threatened ecosystem, that impact should be avoided, minimized, mitigated and/or offset as appropriate.

### **3.5. 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 BirdLife 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. The area along the Riet river provide good habitat for birds closest IBA is the Benfontein Nature Reserve which is located approximately 35 km south of the site.

### **3.6. Land Use and Land Cover**

Currently the entire site is used for cultivation (Lucerne and maize) as well as cattle farming. Few farm holdings exist



Figure 4: Pivots along close to the Riet River



Figure 5: Cattle farming on site

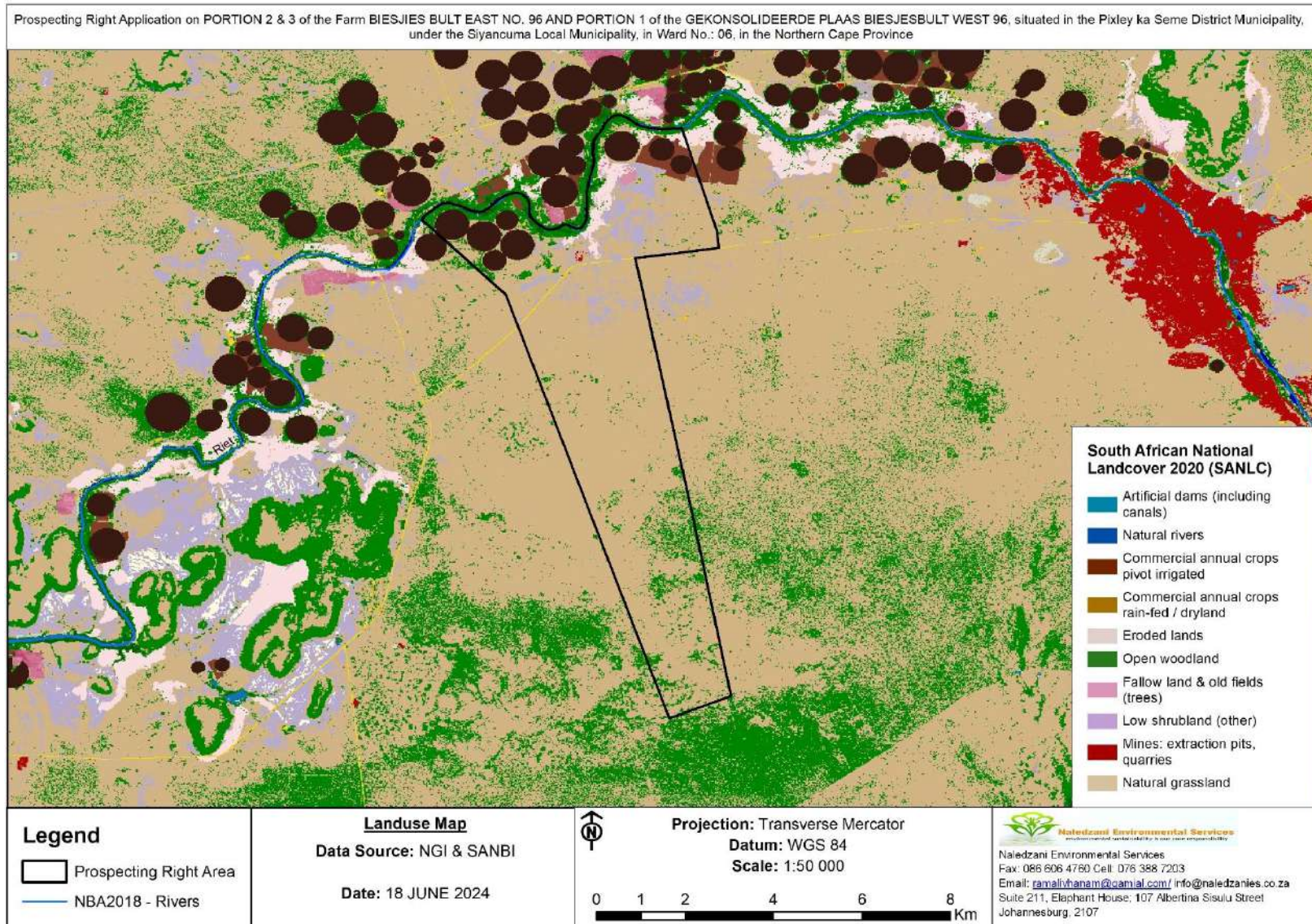


Figure 6: Land use of the site



## 4. METHODOLOGY AND REPORTING

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 wetland information regarding the study area. A wide range of spatial data sets were interrogated and relevant information was extracted for the study area. 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:

### 4.1. 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 sites were then assessed on the 04<sup>th</sup> June 2024 in order to record the true floristic reflection of the sites as well as wetlands in the study area.

### 4.2. Vegetation

The PRECIS list of plants recorded in the quarter degree grid square (*i.e.* 2824CD) were obtained from SANBI. This list was consulted to verify the record of occurrence of the plant species seen on the site. 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. The vegetation types of Mucina & Rutherford (2012) 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, stratification of vegetation communities was possible.

### 4.3. 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.

### 4.4. Mammals

Records of all mammal species recorded in the quarter degree grid squares were 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.

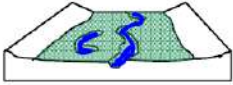
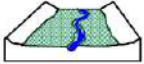
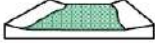
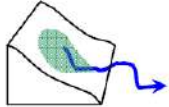


#### **4.5. Wetland assessment**

The classification of the wetland in the study area was based on the WET-EcoServices technique (Kotze et al, 2005). The WET-EcoServices technique identifies seven main types of wetlands based on the hydro-geomorphic characteristics. The field procedure for the wetland delineation was conducted according to the Guidelines for delineating the boundaries of a wetland (South African Water Act, DWAF, 1999). Due to the transitional nature of wetland boundaries, these are often not clearly apparent and the delineations should therefore be regarded as a human construct. The delineations are based on scientifically defensible criteria and are aimed at providing a tool to facilitate the decision making process regarding the assessment of the significance of impacts that may be associated with the proposed project.

#### **4.6. Wetland classification and delineation**

The classification of the wetland in the study area was based on the WET-EcoServices technique (Kotze *et al*, 2005). The WET-EcoServices technique identifies seven main types of wetlands based on the hydro-geomorphic characteristics (*See table 2 below*).


Table 2: Wetland hydrogeomorphic (HGM) types typically supporting inland wetlands in South Africa (Adapted from Kotze et al, 2005)

HYDRO-GEOMORPHIC TYPES	DESCRIPTION	SOURCE OF WATER MAINTAINING THE WETLAND <sup>1</sup>	
		SURFACE	SUB-SURFACE
<p><b>Floodplain</b></p> 	<p>Valley bottom areas with a well defined stream channel, gently sloped and characterized by floodplain features such as oxbow depressions and natural levees and the alluvial (by water) transport and deposition of sediment, usually leading to a net accumulation of sediment. Water inputs from main channel (when channel banks overspill) and from adjacent slopes.</p>	***	*
<p><b>Valley bottom with a channel</b></p> 	<p>Valley bottom areas with a well defined stream channel but lacking characteristic floodplain features. May be gently sloped and characterized by the net accumulation of alluvial deposits or may have steeper slopes and be characterized by the net loss of sediment. Water inputs from main channel (when channel banks overspill) and from adjacent slopes.</p>	***	* / ***
<p><b>Valley bottom without a channel</b></p> 	<p>Valley bottom areas with no clearly defined stream channel, usually gently sloped and characterized by alluvial sediment deposition, generally leading to a net accumulation of sediment. Water inputs mainly from channel entering the wetland and also from adjacent slopes.</p>	***	* / ***
<p><b>Hillslope seepage linked to a stream channel</b></p> 	<p>Slopes on hillsides, which are characterized by the colluvial (transported by gravity) movement of materials. Water inputs are mainly from sub-surface flow and outflow is usually via a well defined stream channel connecting the area directly to a stream channel.</p>	*	***
<p><b>Isolated Hillslope seepage</b></p> 	<p>Slopes on hillsides, which are characterized by the colluvial (transported by gravity) movement of materials. Water inputs mainly from sub-surface flow and outflow either very limited or through diffuse sub-surface and/or surface flow but with no direct surface water connection to a stream channel.</p>	*	***
<p><b>Depression (includes Pans)</b></p> 	<p>A basin shaped area with a closed elevation contour that allows for the accumulation of surface water (i.e. it is inward draining). It may also receive sub-surface water. An outlet is usually absent, and therefore this type is usually isolated from the stream channel network.</p>	* / ***	* / ***

<sup>1</sup> Precipitation is an important water source and evapotranspiration an important output in all of the above settings

Water source:

- \* Contribution usually small
- \*\*\* Contribution usually large
- \* / \*\*\* Contribution may be small or important depending on the local circumstances



Wetland

The field procedure for the wetland delineation was conducted according to the Guidelines for delineating the boundaries of a wetland (South African Water Act, DWAF, 1999). Due to the transitional nature of wetland boundaries, these are often not clearly apparent and the delineations should therefore be regarded as a human construct. The delineations are based on scientifically defensible criteria and are aimed at providing a tool to facilitate the decision making process regarding the assessment of the significance of impacts that may be associated with the proposed developments.

#### 4.7. Hydrological assessment

The hydrological health of the stream and the wetlands was determined using the WET-Health (2008) techniques. The following changes were considered:

- Changes to water input volumes and pattern (effects of alteration in the upstream catchment).
- Changes to the water distribution and retention patterns of water passing through the wetland (effects of on-site alterations).

Table 3: Hydrological assessment criteria (Adapted from WET-Health, 2008:50)

Reduced flows	
Alteration classes	Description
Negligible (0 to 0.9)	None or negligible reduction in flow
Small (-1 to -1.9)	Identifiable but small reduction in flow (e.g. 5% of the catchment under plantation forestry or 2% of the catchment irrigated with good conservation measures being applied)
Moderately small (-2.0 to -3.9)	Moderately small reduction in flows (e.g. 20% of the catchment under plantation forestry or 10% of the catchment irrigated with good conservation measures being applied)
Intermediate (-4 or -5.9)	Intermediate reduction in flows (e.g. Approximately 40% of the HGM's catchment under plantation forestry, with trees outside of the riparian areas)
Moderately large (-6 to -7.9)	Moderately large reduction in flows (e.g. approximately 55% of the catchment with eucalyptus trees)
Large (-8 to -9)	Large reduction in flows (e.g. approximately 7% of the catchment planted with Eucalyptus trees)

Very large (>-9)	Very large reduction in flows, usually >75% reduction (e.g. entire catchment completely planted with eucalyptus trees or a very high level of abstraction of water from the catchment for irrigation)
------------------	---

Table 4: Guideline for assessing the intensity of impact of modifications to an existing channel (Adapted from WET-Health, 2008:66)

Intensity of impact	Impact category description
None (0.5)	No discernible modifications to the natural stream channel
Small (1.5)	Although identifiable, the impacts of any modifications to the natural stream channel are small (e.g. as a result of slight increase in cross sectional area, decrease in stream length or reduction in surface roughness of the channel)
Moderate (3)	Modifications to the natural stream channel have a moderate impact (e.g. As a result of an intermediate increase in cross sectional area, decrease in stream length or intermediate reduction in surface roughness of the channel; usually with a low to intermediate dependency of the HGM unit on the bank overspill)
Large (5)	Modifications to the natural stream channel have a large impact (e.g. As a result of a moderately high increase in cross sectional area or decrease in stream length or an intermediate to high dependency of the HGM unit on bank overspill)
Serious (7)	Modifications to the stream channel have a serious impact (usually a result of a combination of high modifications to 2 or 3 of the factors or a considerable increase in cross sectional area) but some overtopping probably still occurs, although much less frequently than was the case naturally. There should be a high dependency of the HGM unit on the bank overspill.
Critical (9)	Modifications to the natural stream have a critical impact (i.e. modifications are so great that no over-topping of the channel ever takes place; and with a high dependency of the HGM unit on the bank overspill).

#### 4.8. PES methodology

The Present Ecological Status (PES) Method (DWAF 1999) was used to attempt to establish the integrity of the wetlands in the study area and was based on the modified Habitat Integrity approach developed by Kleynhans (1999, in DWAF 1999). The delineated wetland units were assessed as a whole due to the inability to access all areas. A broad assessment of the PES of all wetlands in the study area is therefore presented. Table 5 shows the criteria for assessing the habitat integrity of palustrine wetlands along with Table 6 describing the allocation of scores to attributes and the rating of confidence levels associated with each score. These criteria were selected based on the assumption that anthropogenic modification of the criteria and attributes listed under each selected criterion can generally be regarded as the primary causes of the ecological integrity of a wetland.

Table 5: Habitat integrity assessment criteria for palustrine wetlands

Criteria and attributes	Relevance
<b>Flow Modification</b>	Consequence of abstraction or regulation by impoundments. Changes in the temporal and spatial characteristics of flow can have an impact on habitat attributes such as an increase in duration of low flow season, resulting in low availability of certain habitat types or water at the start of the breeding, flowering or growing season.
<b>Permanent Inundation</b>	Consequence of impoundment resulting in destruction of natural wetland habitat and cues for wetland biota.
<b>Water Quality Modification</b>	Originates from point or diffuse sources. Measure directly by laboratory analysis or assessed indirectly from upstream agricultural activities, human settlements and industrial activities. Aggravated by volumetric decrease in volume of water during low or no flow condition
<b>Sediment Load Modification</b>	Consequence of reduction due to entrapment by impoundments or increase due to land use practices such as overgrazing. Cause of unnatural rates of erosion, accretion or infilling of wetlands and change in habitats.

Criteria and attributes	Relevance
<b>Canalization</b>	Results in desiccation or changes to inundation patterns of wetland and thus changes in habitats. River diversions or drainage.
<b>Topographic Alteration</b>	Consequence of infilling, ploughing, dykes, trampling, bridges, roads, railway lines and other substrate disruptive activity which reduces or changes wetland habitat directly or through changes in inundation patterns.
<b>Alien/Exotic macrophytes</b>	Alteration of habitat by obstruction of flow and may influence water quality. Dependent upon the species involved and scale of infestation.
<b>Alien/Exotic aquatic fauna</b>	The disturbance of the stream bottom during feeding may influence the water quality and increase turbidity. Dependent upon the species involved and their abundance
<b>Solid waste disposal</b>	A direct anthropogenic impact which may alter habitat structurally. Also, a general indication of the misuse and mismanagement of the river
<b>Vegetation removal</b>	Impairment of the buffer the vegetation forms to the movement of sediment and other catchment runoff products into the river. Refers to physical removal for farming, firewood and overgrazing.
<b>Exotic vegetation encroachment</b>	Excludes natural vegetation due to vigorous growth, causing bank instability and decreasing the buffering function of the riparian zone. Allochthonous organic matter input will also be changed. Riparian zone habitat diversity is also reduced
<b>Over utilisation of biota</b>	Overgrazing, Over-fishing, etc.

Table 6: Scoring guidelines and relative confidence scores for the habitat integrity assessment for palustrine wetlands (DWAF, 1999).

Scoring guideline per attribute	Score
Natural, unmodified	5
Largely natural	4
Moderately modified	3
Largely modified	2
Seriously modified	1
Critically modified	0
Relative confidence of score	Score
Very high confidence	4
High confidence	3
Moderate confidence	2
Marginal/ low confidence	1

Table 7 provides guidelines for the determination of the Present Ecological Status Category (PESC), based on the mean score determined for Table 5. This approach is based on the assumption that extensive degradation of any of the wetland attributes may determine the PESC (DWAF, 1999).



Table 7: Category's assigned to the scores achieved in the wetland habitat assessment (Kleynhans, 1999; DWAF, 1999).

Category	Mean	Score category description
<b>A</b>	>4	Unmodified or approximated natural condition.
<b>B</b>	>3 and $\leq 4$	Largely natural with few modifications, but with some loss of natural habitats.
<b>C</b>	>2 and $\leq 3$	Moderately modified, but with some loss of natural habitats.
<b>D</b>	2	Largely modified. A large loss of natural habitats and basic ecosystem functions has occurred.
<b>E</b>	> 0 and < 2	Seriously modified. The losses of natural habitats and basic ecosystem functions are extensive.
<b>F</b>	0	Critically modified. Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat.

#### 4.9. EIS methodology

The following method is outlined in Appendix W5 of DWAF (1999). A series of determinants for EIS (Table 8) are assessed on a scale of 0 to 4, where 0 indicates no importance and 4 indicates very high importance. The method is used as a guideline for the professional judgement of individuals familiar with an area and its wetlands. The relative confidence of each rating is estimated based on a scale of four categories as indicated in Table 9.

Table 8: Score sheet for determining EIS.

Determinant	Score	Confidence
Rare and Endangered Species.		
Populations of Unique Species.		
Species/taxon Richness.		
Diversity of Habitat Types or Features.		
Migration route/breeding and feeding site for wetland species.		
Sensitivity to Changes in the Natural Hydrological Regime.		
Sensitivity to Water Quality Changes.		
Flood Storage, Energy Dissipation and Particulate or Element Removal.		
Protected Status.		
Ecological Integrity.		
<b>Total</b>		
<b>Median</b>		
<b>Overall ESI</b>		

Table 9: Scoring guidelines and relative confidence scores for the habitat integrity assessment for palustrine wetlands (DWAF, 1999).

Scoring guideline per attribute	Score
Very high	4

High	3
Moderate	2
Marginal/low	1
None	0
<b>Relative confidence of score</b>	<b>Score</b>
Very high confidence	4
High confidence	3
Moderate confidence	2
Marginal/ low confidence	1

The median score for the biotic and habitat determinants is interpreted and translated into an Ecological Management Class (EMC) as indicated in Table 10. If the EIS Class indicates a higher EMC value than the Present Ecological Status Category (PESC) then a well-motivated decision may be taken to peg the Reserve on the higher EMC. The EMC can be set equivalent to, but not below the PES Class.

Table 10: Ecological importance and sensitivity categories. Interpretation of median scores for biotic and habitat determinants into an EMC.

Ecological Importance and Sensitivity Category (EIS)	Range of Median	Recommended Ecological Management Class (EMC)
Very high  Wetlands/Floodplains that are considered ecologically important and sensitive on a national or even international level. The biodiversity of these floodplains is usually very sensitive to flow	>3 and ≤4	A

and habitat modifications. They play a major role in moderating the quantity and quality of water of major rivers.		
High  Wetlands/Floodplains that are considered to be ecologically important and sensitive. The biodiversity of these floodplains may be sensitive to flow and habitat modifications. They play a role in moderating the quantity and quality of water of major rivers.	>2 and ≤3	B
Moderate  Wetlands/Floodplains that are considered to be ecologically important and sensitive on a provincial or local scale. The biodiversity of these floodplains is not usually sensitive to flow and habitat modifications. They play a small role in moderating the quantity and quality of water of major rivers.	>1 and ≤2	C
Low/marginal  Wetlands/Floodplains that is not ecologically important and sensitive at any scale. The biodiversity of these floodplains is ubiquitous and not sensitive to flow and habitat modifications. They play an insignificant role in moderating the quantity and quality of water of major rivers.	>0 and ≤1	D

#### 4.10. ES methodology

The assessment of the ecosystem services supplied by the identified wetlands was conducted according to the guidelines as described by Kotze et al (2009). A Level 2 assessment was undertaken which examines and rates the following services:

- Flood attenuation.
- Stream flow regulation.
- Sediment trapping.

- Phosphate trapping.
- Nitrate removal.
- Toxicant removal.
- Erosion control.
- Carbon storage.
- Maintenance of biodiversity.
- Water supply for human use.
- Natural resources.
- Cultivated foods.
- Cultural significance.
- Tourism and recreation.
- Education and research.

These characteristics were scored according to the following general levels of services provided in Table 11:

Table 11: Levels of ecosystem service ratings.

Service rating score	Service rating category
0	Low
1	Moderately low
2	Intermediate
3	Moderately high
4	High

#### 4.11. Aerial assessment

The aerial assessment was conducted using Google earth images and BGIS software. The purpose of this desktop assessment was to see whether any physical features that would be associated with a stream channel or wetland area was present on the site.

#### **4.12. Soil assessment**

The colours of soil components are often the most diagnostic indicator of hydromorphic soils DWAF (2005). Colours of these components are strongly influenced by the frequency and duration of soil saturation. Generally, the higher the duration and frequency of saturation in a soil profile, the more prominent grey colours become in the soil matrix DWAF (2005).

Coloured mottles/ redoximorphic features (soils with variegated colour patterns are described as being mottled, with the "background colour" referred to as the matrix and the spots or blotches of colour) are a prominent feature of hydromorphic soils. These features are usually absent in permanently saturated soils, and are at their most prominent in seasonally saturated soils, becoming less abundant in temporarily saturated soils until they disappear in dry soils DWAF (2005).

Hydromorphic soils must display signs of wetness within 50cm of the soil surface (DWAF, 2005). This depth has been chosen due to international experience showing that frequent saturation of the soil within 50cm of the surface is necessary to support hydrophilic vegetation (DWAF, 2005).

According to Collins (2005), the presence or absence of redoximorphic features [features formed by the process of reduction, translocation and oxidation of Iron (Fe) and manganese (Mn) oxides] within the upper 50cm of the soil profile is sufficient enough to identify a hydric soil (soil that has been depleted of oxygen through the chemical process of reduction).

The soil assessment was conducted during a visit to the site. The soil profile was inspected to a depth of approximately 50cm in order to assess for hydric signs such as grey matrix's and mottles/redoximorphic features.

#### **4.13. Vegetation assessment**

Vegetation is another useful indicator of wetland presence, hydrology, type and condition. For this reason, it is useful to use vegetation as one of the tools for delineating the wetlands on the study site as it identifies hydrophilic vegetation associated with frequently saturated soils. According to DWAF (2005), when using vegetation indicators for delineation, emphasis should be placed on the group of species that dominate the plant community, rather than on the individual indicator species. Table 12 and 13 present the wetland vegetation indicator and classification tools used to aid the delineation and assessment of the wetland.

The baseline characterization of the wetland and riparian flora was conducted by means of visual assessment surveys. The main focus of these investigations was to classify vegetation communities as a main surrogate for biodiversity patterns and to assist with the wetland delineation.

Table 12: Relationship between wetness zones and vegetation types (Adapted from DWAF, 2005:14)

Vegetation	Temporary	Seasonal	Permanent/ semi-permanent
If herbaceous	Predominantly grass species; mixture of species which occurs extensively in non-wetland areas, and hydrophilic plant species which are restricted largely to wetland areas	Hydrophilic sedge and grass species which as restricted to wetland areas	Dominated by <ol style="list-style-type: none"> <li>Emergent plants including reeds (<i>Phragmite australis</i>), mixture of sedges and bulrushes (<i>Typha capensis</i>), usually</li> <li>Floating or submerged aquatic plants.</li> </ol>
If woody	Mixture of woody species which occur extensively in non-wetland area, and hydrophilic plant species which are restricted largely to wetland areas	Hydrophilic woody species, which are restricted to wetland areas	Hydrophilic woody species, which are restricted to wetland areas. Morphological adaptations to prolonged wetness (e.g. prop roots)

Table 13: Classification of plants according to occurrence in wetland (Adapted from Reed, 1998 cf DWAF, 2005:14)

Obligate wetland (ow) species	Almost always grow in wetlands (> 99% of occurrences)
Facultative wetland (fw) species	Usually grow in wetlands (67-99%) but occasionally are found in non-wetland areas
Facultative (f) species	Are equally likely to grow in wetlands and non-wetlands areas (34-66% of occurrences)
Facultative dry-land (ld) species	Usually grow in non-wetland areas but sometimes grow in wetlands (1-34 % of occurrences)

Kotze and Marneweck (1999) have developed a method for utilising vegetation as an indicator of wetland conditions. They note that more than 50% cover by fw<sup>1</sup>/ow<sup>2</sup> plants in either the wood or herbaceous layers is a clear sign of hydric (wet soil) conditions. That if there are some fw/ow plants present but by less than 50% cover is a possible sign of hydric conditions and, that if no fw/ow plants are present then one can assume that there are no hydric conditions present.

#### 4.14. Sensitivity Map

Following the site visit, an ecological sensitivity map of the site has been generated by integrating the information collected on-site with the available biodiversity information available in the literature and various spatial databases as described above. The ecological sensitivity of the different units identified in the mapping procedure was rated according to the following scale:

- **Low** - Units with a low sensitivity where there is likely to be a negligible impact on ecological processes and terrestrial biodiversity. This category is reserved specifically for areas where the natural vegetation has already been transformed, usually for intensive agricultural purposes such as cropping. Most types of development can proceed within these areas with little ecological impact.
- **Medium** - Areas of natural or previously transformed land where the impacts are likely to be largely local and the risk of secondary impact such as erosion low. Development within these areas can proceed with relatively little ecological impact provided that appropriate mitigation measures are taken.
- **High** - Areas of natural or transformed land where a high impact is anticipated due to the high biodiversity value, sensitivity or important ecological role of the area. Development within these areas is highly undesirable and should only proceed with caution as it may not be possible to mitigate all impacts appropriately.
- **Very High** - Critical and unique habitats that serve as habitat for rare/endangered species or perform critical ecological roles. These areas are essentially no-go areas from a developmental perspective and should be avoided at all costs.

#### 4.15. Methodology Adapted in Assessing the Impacts

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

---



Table 14: 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*).
<b>Extent</b>		
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.
<b>Duration</b>		
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.
<b>Probability of occurrence</b>		
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:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Extent}) \times \text{Probability}$$

The significance of the ecological 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≥60), Medium (SP = 31-60) and Low (SP<30) significance as shown in the Table 15 below.

Table 15: Definition of significance rating

Significance of predicted <b>NEGATIVE</b> impacts		
Low	0-30	Where the impact will have a relatively small effect on the environment and will require minimum or no mitigation and as such have a limited influence on the decision
Medium	31-60	Where the impact can have an influence on the environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.
High	61-100	Where the impact will definitely have an influence on the environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.
Significance of predicted <b>POSITIVE</b> impacts		
Low	0-30	Where the impact will have a relatively small positive effect on the environment.
Medium	31-60	Where the positive impact will counteract an existing negative impact and result in an overall neutral effect on the environment.
High	61-100	Where the positive impact will improve the environment relative to baseline conditions.

## 5. RESULTS FOR TERRESTRIAL ASSESSMENT

### 5.1. Plant species of concern

From the survey only one species of concern was recorded on site and this is the *Vachellia erioloba*. Under the Act, "No person may (a) cut, disturb, damage, destroy or remove any protected tree; or (b) collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted

by the Minister.” The Act does not distinguish between dead and live trees, and so removal of dead wood is also against the law.



Figure 7: *Vachellia erioloba* (Camel thorn on site)

Three vegetation communities were identified during the site assessment. These were recognised based on physiognomy, moisture regime, and species composition and disturbance characteristics. Vegetation communities' area:

- Riverine vegetation,
- Cultivated land,
- Open shrubland

#### 5.1.1. Riverine vegetation

This vegetation unit occurs along the Riet River which covers the Northern boundary of the site. This unit consist of tall trees such as *Eucalyptus spp.*, *Salix mucronata*, *Acacia mellifera*, *Acacia karroo*, *Sericea lancea* and *Vachellia tortilis*. Other species include *Ziziphus mucronata*, *Gymnosporia polyacantha*, *Asparagus larycinus*, *Phragmites australis* *Senecio inornatus* as well as grass species including *Andropogon eucomus*, *Eragrostis plana*, *Urochloa mosambicens*,

*Phragmites australis*, *Panicum coloratum*, *Sporobolus africanus*, *Cyperus rupestris*, *Andropogon appendiculatus* and *Setaria incrassata* were all recorded in seasonal and temporary saturation zones.

No red-listed species was recorded in this vegetation unit but it is an important natural habitat for fauna within the study area renders the conservation importance of this area of the community medium to medium-high.

#### Sensitivity aspects

- Although disturbed by current mining as well as previous mining, the riverine vegetation unit in the study area has an ecological functioning of medium;
- The suitability of this community for Red Data/protected species is considered medium although no red data floral species was recorded;
- The conservation importance of this community is considered medium to high.



Figure 8: View of the riverine vegetation



Figure 9: Eucalyptus and Phragmites australis along the Riet River

### 5.1.2. Cultivated area/land

Large portion of the southern extent of the study area is currently under cultivation as well as mining. Currently this area has no natural vegetation remaining and is largely planted with Lucerne (*Medicago sativa*) crop as well as Maize (*Zea mays*). At the boundaries of this community, areas which have previously been cultivated or mined but are currently left fallow are heavily disturbed and are colonised by a mixture of invasive, exotic plants, as well as pioneer and sub-climax indigenous species. Amongst these, common grasses noted include, *Eragrostis curvula*, *Hyparrhenia hirta*, *Melinis repens* and *Panicum repens*. Forb and herbs species include *Bidens pilosa*, *Datura stramonium*, *Tagetes minuta*, *Argemone mexicana*, *Conyza bonariensis*, *Conyza canadensis*, and *Cosmos bipinnatus*.

#### Sensitivity aspects

- Due to the complete transformation of currently cultivated fields and the highly disturbed nature of cultivated areas have negligible to low ecological functioning.
- No endemic, Red Data or protected species were recorded in the cultivated lands and the probability of such species occurring in this vegetation community is considered low.
- Accordingly, the conservation importance of cultivated land is considered low.



Figure 10: Cultivated (Lucerne) areas on site



Figure 11: Maize plantation

### 5.1.3. Open shrubland

The assessment was done during what is supposed to be a dry season, the grass layer was found to be dry and some of the species could not be identified to the species level. Dominant floral species in this community include *Eragrostis*



*lehmanniana*, *Aristida congesta*, *Aristida canescens*, *Digitaria eriantha*, *Urochloa mosambicens*, *Setaria sphacelata*, *Themenda triandra*, *Cynodon dactylon* and *Heteropogon contortus*. *Sericea lancea*, *Ziziphus mucronata*, *Senegalia nigrescence*, *Vachellia mellifera*, *Vachellia karroo*, *Vachellia erioloba*, *Grewia occidentalis*, *Rhigozum trichotomum*, *Tarchonanthus camphoratus* *Gymnosporia polyacantha* and *Prosopis glandulosa* were recorded scattered in the grassland. Shrubs such as *Aptosimum spinescens*, *Eberlanzia ferox*, *Felicia hirsuta*, *Galenia sarcophylla*, *Geigeria filifolia*, *Ifloga glomerata*, *Lycium hirsutum*, *Lycium prunus-spinosa*, *Monechma incanum*, *Pentzia spinescens*, *Polygala asbestina*, and *Zygophyllum lichtensteinianum* were recorded

#### Sensitivity aspects

- The mixed-grassland patch has an ecological functioning of Medium;
- The suitability of this community for Red Data/protected species is considered medium to high as a few camel thorns were found to be scattered in the vegetation unit.



Figure 12: Overview of the open grassland

#### 5.1.4. Alien invasive plants

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.

Few alien plant species were recorded in the study area at the time of the survey. Table 2 lists the alien species as well as the various NEMBA categories for the alien species recorded during the survey.

Table 16: Alien species recorded in the study area

Scientific name	Common name	Category
<i>Prosopis glandulosa</i>	Honey mesquite	2
<i>Phragmites australis</i>	Bird's brandy; cherry pie; tick-berry	1b
<i>Melia azedarach</i>	Syringa	1b
<i>Opuntia ficus-indica</i>	Prickly pear	1b
<i>Argemone Mexicana</i>	Mexican prickly poppy	1b



Figure 13: *Opuntia ficus-indica*

## 5.2. Description of the CBAs

Critical Biodiversity Areas (CBA's) are terrestrial and aquatic features in the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services (SANBI, 2007). These form the key output of a systematic conservation assessment and are the biodiversity sectors inputs into multi-sectoral planning and decision making tools.

The primary purpose of CBA's is to inform land-use planning and the land-use guidelines attached to CBA's aim 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. The use of CBA's here follows the definition laid out in the guideline for publishing bioregional plans (Anon, 2008):

- “**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. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses”.

- **“Ecological support areas (ESA’s)** are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas.”

The guideline for bioregional plans defines three basic CBA categories based on three high-level land management objectives.

Table 17: A framework for linking spatial planning categories (CBAs) to land-use planning and decision-making guidelines based on a set of high-level land biodiversity management objectives.

CBA category	Land Management Objective
PA & CBA 1	<p><b>Natural landscapes:</b></p> <ul style="list-style-type: none"> <li>• Ecosystems and species fully intact and undisturbed</li> <li>• 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.</li> <li>• These are landscapes that are at or past their limits of acceptable change.</li> </ul>
CBA 2	<p><b>Near-natural landscapes:</b></p> <ul style="list-style-type: none"> <li>• Ecosystems and species largely intact and undisturbed.</li> <li>• 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.</li> <li>• These are landscapes that are approaching but have not passed their limits of acceptable change.</li> </ul>
Ecological Support Areas (ESA)	<p><b>Functional landscapes:</b></p>

CBA category	Land Management Objective
	<ul style="list-style-type: none"> <li>• Ecosystems moderately to significantly disturbed but still able to maintain basic functionality.</li> <li>• Individual species or other biodiversity indicators may be severely disturbed or reduced.</li> <li>• These are areas with low irreplaceability with respect to biodiversity pattern targets only.</li> </ul>
Other Natural Areas (ONA) and Transformed	<b>Production landscapes:</b> manage land to optimize sustainable utilization of natural resources.

According to the Northern Cape Conservation plan, the entire site falls with a critical biodiversity area. The section along the Riet River is classified as CBA 1 due to the river being a NFEPA and also acts a corridor for animals whereas the remainder of the site is classified as CBA 2 due to the occurrence of the national protected trees.

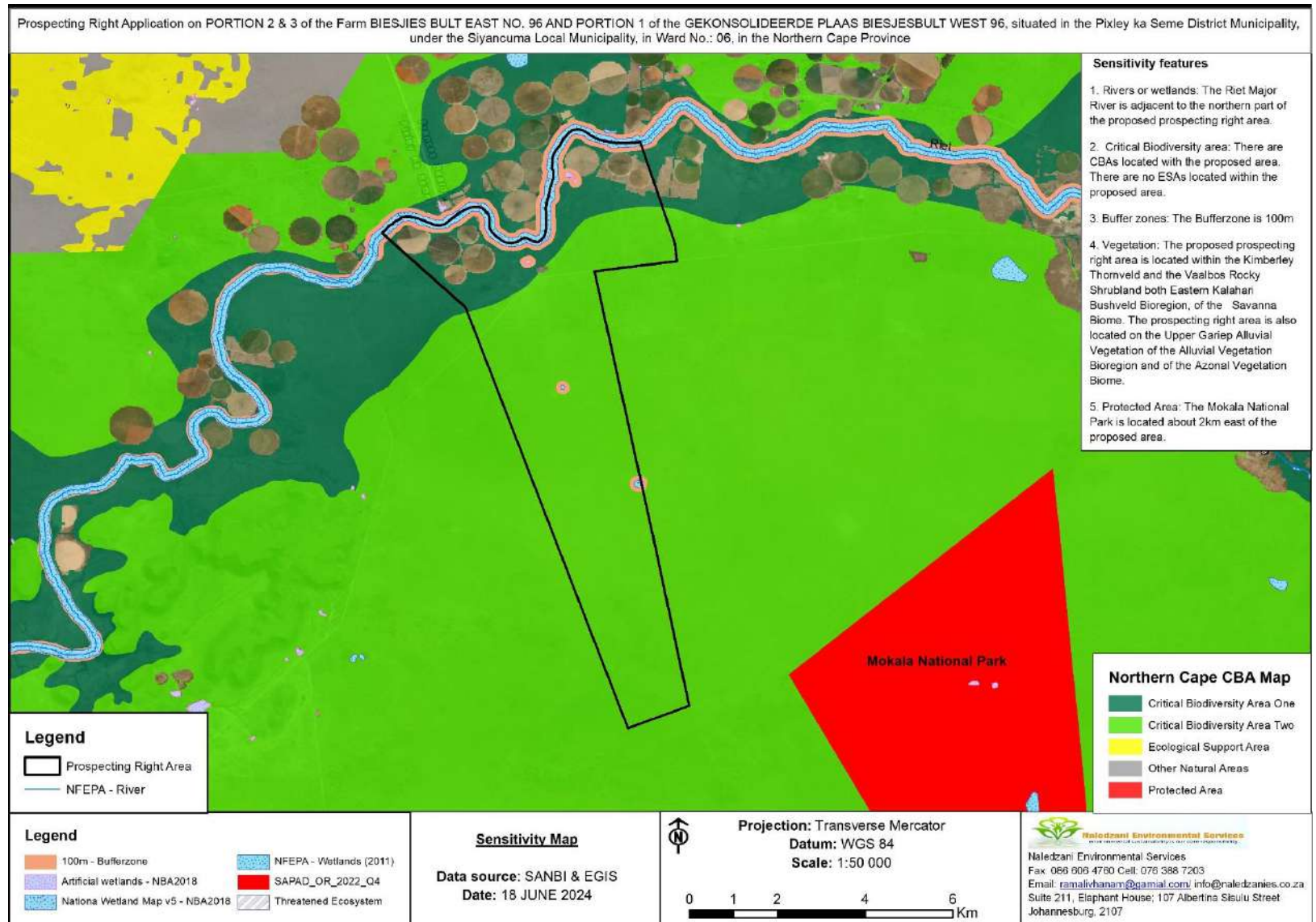


Figure 14: CBA map of the site

### 5.3. Avi-fauna

The Southern African Bird Atlas Project 2 categorises the region in which the study area is located as having low-medium bird diversity. Data presented on SABAP2 indicates that a total of 104 bird species have been recorded in the quarter degree grid square.

During assessment few birds were noted on site and this may be due to:

- The time of year at which the survey was undertaken – during the dry season many summer residents migrate north and only common residents would be observed; and
- Egg collecting by adjacent land users may reduce the abundance and diversity of resident bird species.

It is widely accepted that vegetation structure, rather than the actual plant species, influences bird species' distribution and abundance (Harrison *et al.*, 1997). Therefore, the vegetation description used in the Bird Atlas does not focus on lists of plant species, but rather on factors which are relevant to bird distribution. A list of birds on the QDGC is attached as appendix B.



Figure 15: Bird nests

## 5.4. Mammals

According to the Sanparks website ([www.sanparks.org.za/parks/mokala](http://www.sanparks.org.za/parks/mokala)), the nearby Mokala National Park, which is 2 km away, is host to a varied spectrum of birds which adapted to the transition zone between Kalahari and Karoo biomes. Birds that can be spotted are the Kalahari species, black-chested prinia and its Karoo equivalent rufous-eared warbler as well as melodious lark. Animal species such as Black Rhino, White Rhino, Buffalo, Tsessebe, Roan Antelope, Mountain Reedbuck, Giraffe, Gemsbok, Eland, Zebra, Red Hartebeest, Blue Wildebeest, Black Wildebeest, Kudu, Ostrich, Steenbok, Duiker and Springbok are also present in the Mokala National Park. The trees associated with the riverbeds provide locally rare nesting and roosting habitat to birds.

## 6. RESULTS FOR THE WETLAND FEATURES

### 6.1. Delineated Wetlands

The South African classification system categorises wetland systems based on the characteristics of different Hydrogeomorphic (HGM) Units. An HGM unit is a recognisable physiographic wetland-unit based on the geomorphic setting, water source of the wetland and the water flow patterns (Macfarlane et al., 2008). There are five broad recognised wetland systems based on the abovementioned system and these are depicted in Figure 22. The classification of these wetlands is then further refined as per the 'Classification System for Wetlands and other Aquatic Ecosystems in South Africa' (Ollis et al., 2013).

Two types of natural wetlands were recorded on site, within the boundaries of the study areas. These are **Depression or pans** as well as **Flood-plain** wetlands.

- The **Depression or pan** wetlands are defined as “a landform with closed elevation contours that increases in depth from the perimeter to a central area of greatest depth, and within which water typically accumulates.”
- The second wetland type on site is the **floodplain** wetland. This wetland occurs along the Orange River and borders the site. Floodplain wetland—a wetland area on the mostly flat or gently-sloping land adjacent and formed by an alluvial river channel, under its present climate and sediment load, which is subject to periodic inundation by overtopping of the channel bank.



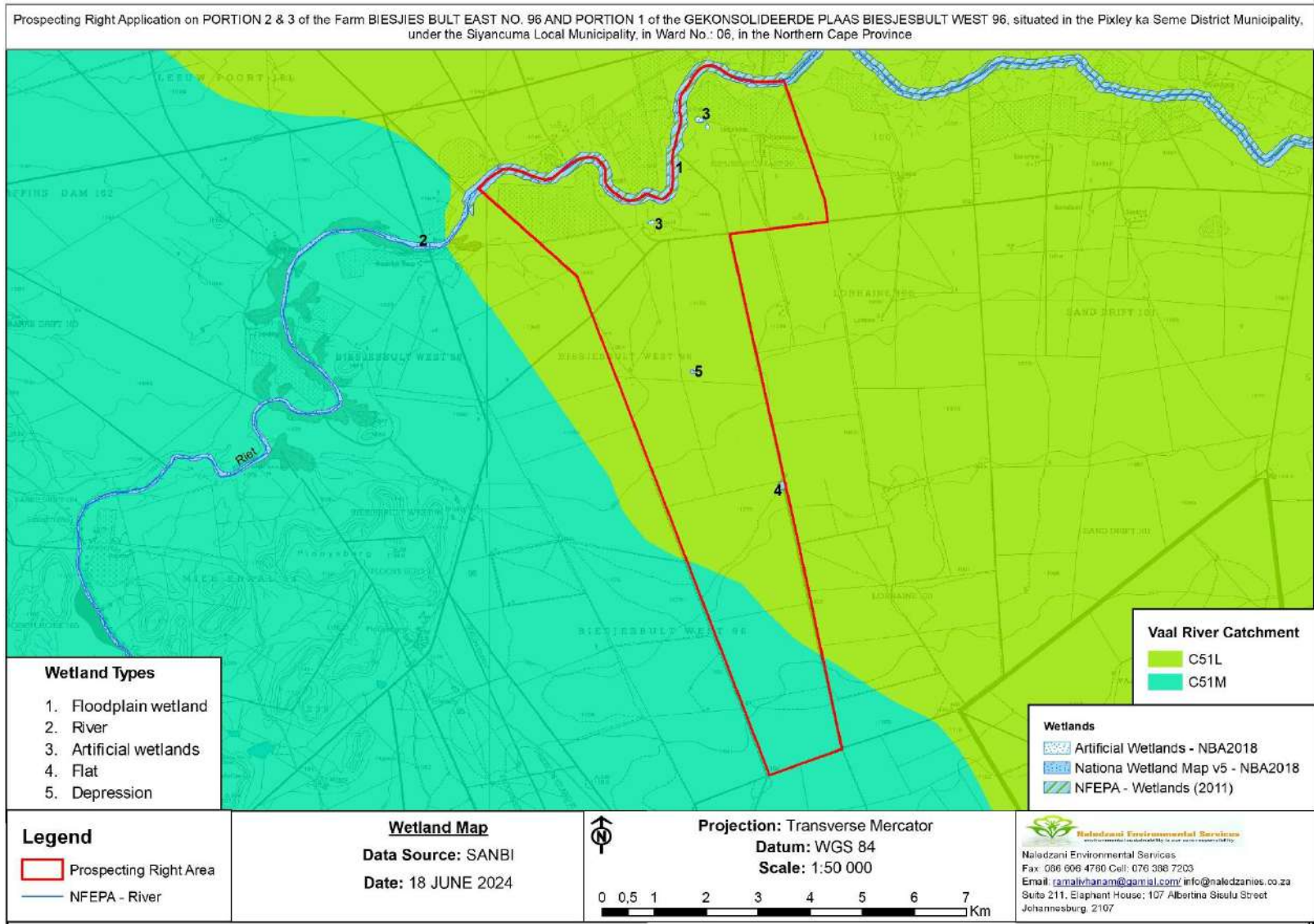


Figure 16: Wetland map of the site



Figure 17: View of the flood plain wetland on site

## 6.2. PES of wetlands in the study area

The wetland on site was assessed and it was allocated the PESC of B and D - being largely natural with some habitat modification. The Present ecological state (PES) of the wetland on site is calculated as per the table below

Table 18: Broad PES values and categories of the wetland in the study area

Wetland type	Mean PES value	PESC
Flood plain	3.6	B
Pans/Depressions/ flat	0.5	E

## 6.3. EIS of wetlands in the study area

The wetland in the study area has EIS categories and EMC values as indicated in Table 19

Table 19: EIS and EMC values of wetlands in the study area.

Wetland	EIS Category (Median value)	EMC
Flood-plain	Moderate (Median value 1.2)	C
Pans/Depressions/ flat	Low (Median value 0.9)	D

### 6.3.1. Vegetation

The vegetation of the flood-plain wetland along the river was found to be characterised by both permanent wetland plants as well as non-wetland plants (more along the edges of the river). There was no wetland plants/either seasonal or permanent on the pans. This might have been due to the fact that these pans have not had water for year (See figure 18).



Figure 18: : Permanent wetland plants along the Flood-plain

### 6.3.2. Buffer allocation

The National Environmental Management Act (Act 107 of 1998) stipulates that no activity can take place within 32m of a wetland without the relevant authorisation. In addition, the National Water Act (Act 36 of 1998) states that no diversion, alteration of bed and banks or impeding of flow in watercourses (which includes wetlands) may occur without obtaining a Water Use Licence authorising the proponent to do so. This prescribed 32m buffer zone is deemed sufficient to maintain and improve the PES and limit any further impact of the proposed development on the local wetland resources.

The riparian zone/wetland areas and their associated buffer areas are presented in the figures to follow. Any activities occurring within the riparian zone/wetland areas or within a 32m buffer of the riparian zone/wetland areas must be authorised by the DWS in terms of Section 21 (c) & (i) of the NWA (Act 36 of 1998).

In this assessment the buffer allocation is as follows:

- Pan/depression has been allocated 50 meters' buffer zone;
- And 100 meters' buffer for the flood-plain

The allocation of buffers was in accordance with the wetlands PES as well as EIS. The allocated buffers can be reviewed subject to recommendations from the Department of Water & Sanitation (Map attached as **Appendix C**).

## 7. ASSESSMENT OF IMPACTS

### 7.1. Introduction

The Regulations in terms of Chapter 5 of the National Environmental Management, Act No. 107 of 1998 requires that a description must be given of the potential impacts the proposed development will have on the environment. Table 7 below presents details of the identified impacts for the different proposed project activities and their proposed mitigation measures.

Table 20: Environmental Impacts for the proposed project assessed by combining the consequences (extent, duration, intensity) with the probability of occurrence before and after mitigation for the proposed project

Impacts and Mitigation measures relating to the proposed project										
Activity/Aspect	Impact /	Stage	Nature	Magnitude	Extent	Duration	Probability	Significance before mitigation	Mitigation measures	Significance after mitigation
Vegetation Clearing for the prospecting purpose	Destruction of protected plant species	Prospecting	Negative	Low (4)	Site only (1)	Long term (4)	Definite (5)	Medium (45)	<ul style="list-style-type: none"> <li>Supervision by an ecologist to ensure success of the rescue operation</li> <li>Place drilling holes and trenching pits away from any red listed and/or protected plant species</li> <li>Use already available farm roads to avoid trampling red listed plant species</li> </ul>	Low
	Removal of the natural vegetation	Prospecting	Negative	Moderate (6)	Site only (1)	Long term (4)	Definite (5)	Medium (55)	<ul style="list-style-type: none"> <li>Due to the sensitivity of the areas it is advised that areas designated for vegetation clearing should be identified and visibly marked off and also approved as part of final drilling map</li> <li>Vegetation clearing areas should be kept to a minimum and restricted to the proposed drilling sites.</li> <li>Exposed areas should be rehabilitated with indigenous plants to the project area as soon as construction is finished.</li> </ul>	Low
	Disturbance to animals on site	Prospecting	Negative	Moderate (6)	Local (2)	Short term (3)	High (4)	Medium (44)	<ul style="list-style-type: none"> <li>Do not disturb nests, breeding sites or young ones. Do not attempt to kill or capture snakes unless directly threatening the safety of employees.</li> <li>Dogs or other pets are not allowed to the worksite as they are threats to the natural wild animal</li> <li>A low speed limit should be enforced on site to reduce wild animal-vehicle collisions</li> <li>No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.</li> <li>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.</li> <li>Hunting weapons are prohibited on site.</li> <li>Contract employees must be educated about the value of wild animals and the importance of their conservation.</li> </ul>	Low

									<ul style="list-style-type: none"> <li>The ECO must conduct regular site inspections of removing any snares or traps that have been erected.</li> <li>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.</li> <li>Ensure that the colours used to paint the buildings including the roof are blending to the environment</li> </ul>	
	Increased soil erosion, increase in silt loads and sedimentation	Prospecting	Negative	Low (4)	Local (2)	Long term (4)	Definite (5)	Medium (50)	<ul style="list-style-type: none"> <li>Following prospecting, rehabilitation of disturbed areas is required</li> <li>Avoid areas with sensitive soils, steep slopes during rain or windy season.</li> <li>Ensure that roads are not paved but well maintained (as gravel) to reduce the speed of water by promoting infiltration.</li> </ul>	Low
	Establishment and spread of declared weeds	Prospecting	Negative	Moderate (6)	Site (1)	Long term (4)	Definite (5)	Medium (55)	<ul style="list-style-type: none"> <li>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.</li> <li>An alien invasive management programme should be developed and implemented in order to control alien invasive species</li> </ul>	Low
Waste generation	Pollution due to oil and fuel spills, erosion, and ablution facilities.	Prospecting	Negative	Moderate (6)	Local (2)	Long term (4)	Definite (5)	High (60)	<ul style="list-style-type: none"> <li>Proper ablution facilities on site must be provided.</li> <li>Constant rehabilitation of erosion problems.</li> <li>Proper storage facilities of construction materials.</li> <li>Waste management is very important. Proper storage and removal strategy must be in place.</li> <li>Proper Standard Operating Procedures in place regulating refuelling and other potential polluting activities.</li> <li>Must have rehabilitation strategy as part of EMP such as a clean-up plan/strategy if spills occur and proper facilities (ablution) to ensure no sewerage spills into drainage lines and streams.</li> </ul>	Low

Wetland destruction	Prospecting on wetlands/along wetlands	Prospecting	Negative	High (8)	Local (2)	Long term (4)	Definite (5)	High (70)	<ul style="list-style-type: none"> <li>• Prospecting across wetlands/rivers should not take place unless authorised by WUL.</li> <li>• Ensure that prospecting activities are carefully monitored to limit unnecessary impacts to wetlands/riparian areas (particularly in-stream habitat) and should be approved by WUL.</li> <li>• Do not lower the original stream bed / profile of the wetland/river as this may result in scouring in an upstream direction and further alteration of bed conditions.</li> <li>• Ensure that coarse immovable material including boulders and other rock in river channels is not removed to ensure continued stability and functioning of the river systems. River sediments should not be permanently removed from the system in any case.</li> </ul>	Low
---------------------	--	-------------	----------	----------	-----------	---------------	--------------	-----------	--	-----

## 8. CONCLUSION AND RECOMMENDATIONS

During site assessment, three vegetation units were noticed on site and these are cultivated area, open shrubland (covering more of the site) and the riverine vegetation (occurring along the Riet River). The open shrubland was found to have a conservation status of medium to high due to the presence of protected plant species (*Vachellia erioloba* – Camel thorn) and also being able to provide habitat for the identified faunal species. This is similar to the riverine vegetation which is of high conservation value due to it being the local corridor for faunal species as well as the NFEPA state of the Riet river.

Therefore, when choosing areas to be prospected, the applicant should take into account to avoid these species. A permit application regarding protected flora as well as the harvesting of indigenous vegetation need to be lodged with the Northern Cape Department of Environment and Nature Conservation prior to any clearance of vegetation.

The area along the Riet River is also of medium to high conservation due to the presence of a floodplain wetland as well as the NFEPA state (Riet River). Prospecting along this river will lead to sedimentation as well as destruction of the wetland. Should DWS authorise the prospecting on the water bodies such prospecting should rather take place during the low flow or low rain fall season to limit sedimentation.

It is recommended that the management measures stipulated in this report be included into the proposed projects official EMP and that these are assessed for efficacy during all phases of the project and adapted accordingly to ensure minimal disturbance of the study areas' ecology.

Other specific conclusions and recommendations are listed below.

- All licences must be obtained prior to prospecting;
- All ablution facilities must be placed far away from the water bodies including their buffer zone;
- Where possible, construction along water bodies should proceed during the dry winter months (low or zero flow periods) in order to limit the potential for erosion linked to high runoff rates;
- An alien and invasive management plan must be adhered to at all times; and
- Ensure active re-vegetation of cleared/mined areas as being important in-order to limit erosion potential.
- Where possible, mining along water bodies should proceed during the dry winter months (low or zero flow periods) in order to limit the potential for erosion linked to high runoff rates, as to prevent sedimentation on the Orange River



it is clear that the destruction of the natural habitat within the mining area is inevitable. The significance of the impacts will be affected by the success of the mitigation measures implemented and the rehabilitation programme for the mining area.

## 9. REFERENCES

Brown, L.R., Du Preez, P.J., Bezuidenhout, H., Bredenkamp, G.J., Mostert, T.H.C., and Collins, N.B. 2013. Guidelines for phytosociological classifications and descriptions of vegetation in southern Africa. *Koedoe* 55(1), Art. #1103, 10pp

Department of Environmental Affairs and Tourism, 2007. National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): Publication of lists of Critically Endangered, Endangered, Vulnerable and Protected Species. Government Gazette, Republic of South Africa.

Henderson, L. (2001). Alien Weeds and Invasive plants: A complete guide to declared weeds and invaders in South Africa. Agricultural Research Council, Pretoria.

Hilton-Taylor, C. (1996). Red Data List of Southern African Plants. Conservation Biology Research unit, National Botanical Institute, Pretoria.

<http://invasives.org.za/>

<http://posa.sanbi.org/searchspp.php>

<http://sabap2.adu.org.za/>

<http://vmus.adu.org.za/>

<http://www.dwaf.gov.za/wfw/Control>

Mucina L. & Rutherford M.C. (eds) 2012. The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.

Rutherford, M. C. and Westfall, R. H. (1994). Biomes of Southern Africa: an objective categorisation, Pretoria: National Botanical Institute.

## **APPENDIX A: PLANT SPECIES RECORDED WITHIN THE PROPOSED AREA**

*Andropogon appendiculatus*

*Andropogon eucomus*

*Andropogon eucomus*

*Aptosimum spinescens*

*Argemone mexicana*

*Aristida canescens*

*Aristida congesta*

*Asparagus larycinus*

*Bidens pilosa*

*Conyza bonariensis*

*Conyza canadensis*

*Cosmos bipinnatus*

*Cynodon dactylon*

*Cyperus rupestris*

*Datura stramonium*

*Digitaria eriantha*

*Eberlanzia ferox*

*Eragrostis curvula*

*Eragrostis lehmanniana*

*Eragrostis plana*

*Eucalyptus spp.*

*Felicia hirsute*

*Galenia sarcophylla*

*Geigeria filifolia*

*Grewia occidentalis*

*Gymnosporia polyacantha*

*Heteropogon contortus*

*Hyparrhenia hirta*

*Ifloga glomerata*

*Lycium hirsutum*

*Lycium prunus-spinosa*

*Medicago sativa*

*Melinis repens*

*Monechma incanum*

*Panicum coloratum*

*Panicum repens*

*Pentzia spinescens*

*Phragmites australis*

*Polygala asbestina*

*Prosopis glandulosa*

*Rhigozum trichotomum*

*Salix mucronata*

*Senecio inornatus*

*Senegalia nigrescens*

*Sericea lancea*

*Setaria incrassata*

*Setaria sphacelata*

*Sporobolus africanus*

*Tagetes minuta*

*Tarchonanthus camphoratus*

*Themenda triandra*

*Urochloa mosambicens*

*Vachellia erioloba*

*Vachellia karroo*

*Vachellia mellifera*

*Vachellia tortilis*

*Zea mays*

*Ziziphus mucronata*

*Ziziphus zeyheri*

*Zygophyllum lichtensteinianum*

**APPENDIX B: LIST OF BIRDS LIKELY TO INHABIT THE AFFECTED QDGC'S**

Ref	Genus	Species
722	<i>Telophorus</i>	<i>zeylonus</i>
731	<i>Nilaus</i>	<i>afer</i>
637	<i>Cisticola</i>	<i>fulvicapilla</i>
105	<i>Sagittarius</i>	<i>serpentarius</i>
432	<i>Tricholaema</i>	<i>leucomelas</i>
674	<i>Batis</i>	<i>pririt</i>
404	<i>Merops</i>	<i>apiaster</i>
411	<i>Merops</i>	<i>hirundineus</i>
808	<i>Euplectes</i>	<i>orix</i>
544	<i>Pycnonotus</i>	<i>nigricans</i>
154	<i>Buteo</i>	<i>buteo</i>
860	<i>Crithagra</i>	<i>atroglaris</i>

Ref	Genus	Species
865	<i>Crithagra</i>	<i>albogularis</i>
866	<i>Crithagra</i>	<i>flaviventris</i>
575	<i>Myrmecocichla</i>	<i>formicivora</i>
570	<i>Oenanthe</i>	<i>familiaris</i>
630	<i>Cisticola</i>	<i>aridulus</i>
646	<i>Cisticola</i>	<i>tinniens</i>
629	<i>Cisticola</i>	<i>juncidis</i>
621	<i>Sylvietta</i>	<i>rufescens</i>
522	<i>Corvus</i>	<i>albus</i>
352	<i>Chrysococcyx</i>	<i>caprius</i>
316	<i>Streptopelia</i>	<i>capicola</i>
317	<i>Spilopelia</i>	<i>senegalensis</i>

Ref	Genus	Species
318	<i>Oena</i>	<i>capensis</i>
314	<i>Streptopelia</i>	<i>semitorquata</i>
940	<i>Columba</i>	<i>livia</i>
517	<i>Dicrurus</i>	<i>adsimilis</i>
96	<i>Anas</i>	<i>undulata</i>
149	<i>Haliaeetus</i>	<i>vocifer</i>
820	<i>Amadina</i>	<i>erythrocephala</i>
707	<i>Lanius</i>	<i>collaris</i>
663	<i>Melaenornis</i>	<i>infuscatus</i>
665	<i>Melaenornis</i>	<i>silens</i>
661	<i>Melaenornis</i>	<i>mariquensis</i>
89	<i>Alopochen</i>	<i>aegyptiaca</i>

Ref	Genus	Species
88	<i>Plectropterus</i>	<i>gambensis</i>
165	<i>Melierax</i>	<i>canorus</i>
192	<i>Numida</i>	<i>meleagris</i>
55	<i>Ardea</i>	<i>melanocephala</i>
418	<i>Upupa</i>	<i>africana</i>
81	<i>Threskiornis</i>	<i>aethiopicus</i>
84	<i>Bostrychia</i>	<i>hagedash</i>
122	<i>Falco</i>	<i>rupicoloides</i>
125	<i>Falco</i>	<i>naumanni</i>
130	<i>Elanus</i>	<i>caeruleus</i>
1035	<i>Afrotis</i>	<i>afraoides</i>
224	<i>Lophotis</i>	<i>ruficrista</i>



Ref	Genus	Species
245	<i>Vanellus</i>	<i>armatus</i>
242	<i>Vanellus</i>	<i>coronatus</i>
1183	<i>Mirafra</i>	<i>fasciolata</i>
459	<i>Calendulauda</i>	<i>africanoides</i>
460	<i>Calendulauda</i>	<i>sabota</i>
474	<i>Chersomanes</i>	<i>albofasciata</i>
509	<i>Riparia</i>	<i>paludicola</i>
392	<i>Urocolius</i>	<i>indicus</i>
391	<i>Colius</i>	<i>colius</i>
1	<i>Struthio</i>	<i>camelus</i>
311	<i>Columba</i>	<i>guinea</i>
692	<i>Anthus</i>	<i>cinnamomeus</i>

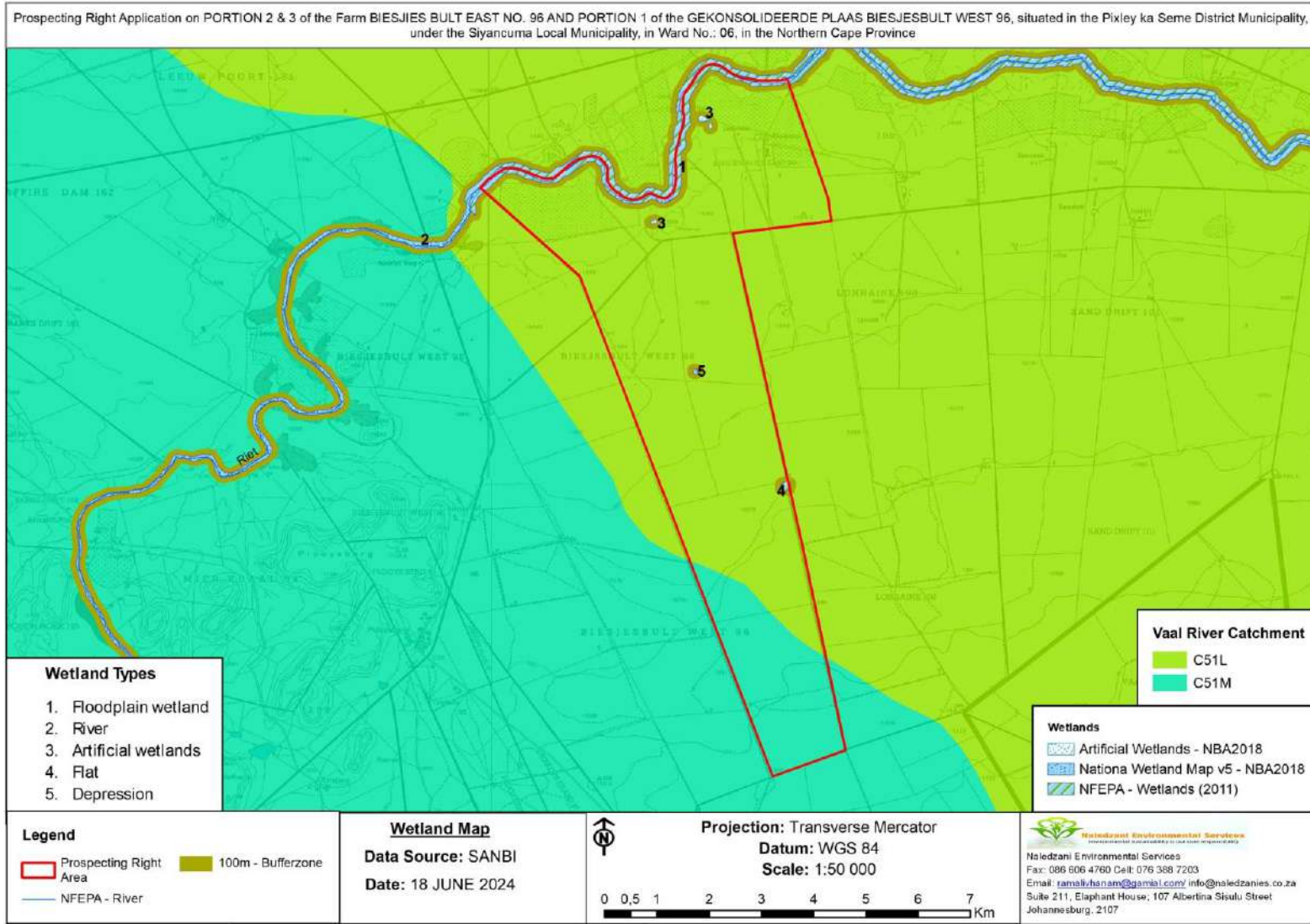
Ref	Genus	Species
238	<i>Charadrius</i>	<i>tricoloris</i>
650	<i>Prinia</i>	<i>flavicans</i>
805	<i>Quelea</i>	<i>quelea</i>
581	<i>Cossypha</i>	<i>caffra</i>
421	<i>Rhinopomastus</i>	<i>cyanomelas</i>
586	<i>Cercotrichas</i>	<i>paena</i>
583	<i>Cercotrichas</i>	<i>coryphoeus</i>
706	<i>Lanius</i>	<i>minor</i>
708	<i>Lanius</i>	<i>collurio</i>
786	<i>Passer</i>	<i>melanurus</i>
784	<i>Passer</i>	<i>domesticus</i>
4142	<i>Passer</i>	<i>diffusus</i>

Ref	Genus	Species
485	<i>Eremopterix</i>	<i>verticalis</i>
780	<i>Plocepasser</i>	<i>mahali</i>
185	<i>Pternistis</i>	<i>swainsonii</i>
737	<i>Lamprotornis</i>	<i>nitens</i>
746	<i>Lamprotornis</i>	<i>bicolor</i>
735	<i>Creatophora</i>	<i>cinerea</i>
576	<i>Saxicola</i>	<i>torquatus</i>
78	<i>Ciconia</i>	<i>abdimii</i>
763	<i>Cinnyris</i>	<i>talatala</i>
493	<i>Hirundo</i>	<i>rustica</i>
502	<i>Cecropis</i>	<i>cucullata</i>
498	<i>Hirundo</i>	<i>dimidiata</i>

Ref	Genus	Species
501	<i>Cecropis</i>	<i>semirufa</i>
504	<i>Petrochelidon</i>	<i>spilodera</i>
387	<i>Cypsiurus</i>	<i>parvus</i>
385	<i>Apus</i>	<i>affinis</i>
383	<i>Apus</i>	<i>caffer</i>
714	<i>Tchagra</i>	<i>australis</i>
107	<i>Gyps</i>	<i>africanus</i>
686	<i>Motacilla</i>	<i>capensis</i>
658	<i>Curruca</i>	<i>subcoerulea</i>
619	<i>Malcorus</i>	<i>pectoralis</i>
789	<i>Sporopipes</i>	<i>squamifrons</i>
783	<i>Philetairus</i>	<i>socius</i>

Ref	Genus	Species
803	<i>Ploceus</i>	<i>velatus</i>
568	<i>Oenanthe</i>	<i>pileata</i>
1171	<i>Zosterops</i>	<i>pallidus</i>

## APPENDIX C: SENSITIVITY MAP TO BE ADHERED TO DURING PROSPECTING







**HYDROLOGICAL INVESTIGATION FOR PROSPECTING RIGHT APPLICATION WITH BULK SAMPLING FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.**







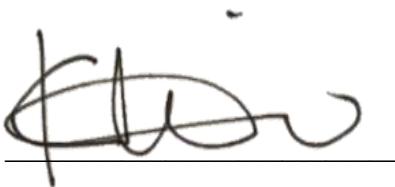


## Vahlengwe Advisory

PREPARED BY:	PREPARED FOR:
Acumen Environmental (Pty) Ltd Suit 106A8 Lougardia Building Cnr. Embarkment Rd & Henrik Verwoed Dr. Centurion 0157 Admin@Acumenenv.co.za <a href="http://www.Acumenenv.co.za">www.Acumenenv.co.za</a>	<b>Vahlengwe Advisory</b> Dlamini N <a href="mailto:Nolwazi@vahlengweadvisory.co.za">Nolwazi@vahlengweadvisory.co.za</a> 238 Voster Ave, Glenvista, Johannesburg south 2058

Document Control	Acumen Environmental (Pty) Ltd		Report No.:	23-H-212
Report Title	HYDROLOGICAL INVESTIGATION FOR PROSPECTING RIGHT APPLICATION WITH BULK SAMPLING FOR DIAMOND AND SAND IN RESPECT OF PORTION 1 OF THE FARM BIESJESBULT NO.96 AND PORTION 2 AND 3 OF THE FARM BIESJESBULT NO.99 IN THE MAGISTERIAL DISTRICT OF HERBERT, NORTHERN CAPE PROVINCE.			
Authors	Name	Title	Signature	Date:
Compiled by	Mabasa, V. R	Hydrogeologist		5 June 2024
Compiled by	Mushiana, K. B	Hydrogeologist		5 June 2024

Reviewed and approved by:



**Mushiana, Khano Ralph.**

BSc. Hons. Mining and Environmental Geology. (*Pr.Sci Nat*).

Registration No: 122820.



**LIST OF ABBREVIATIONS**

ABBREVIATION	DESCRIPTION
EA	Environmental Authorisation
EC	Electrical Conductivity (mS/m)
EIA	Environmental Impact Assessment
GIS	Geographic Information Systems
HA	Hectares
MAMSL	Meters Above Mean Sea Level
MBGL	Meters Below Ground Level
NEMA	National Environmental Management Act
NGA	National Groundwater Archive
NWA	National Water Act (Act 36 of 1998)
SANAS	South African National Accreditation System
SANS	South African National Standards
TDS	Total Dissolved Solids
WM	With Mitigation
WMA	Water Management Area
WOM	Without Mitigation

## GLOSSARY

**A confined aquifer** - a formation in which the groundwater is isolated from the atmosphere at the point of discharge by impermeable geologic formations; confined groundwater is generally subject to pressure greater than atmospheric pressure.

**An unconfined, water table or phreatic aquifer** - are different terms used for the same aquifer type which is bounded from below by an impermeable layer.

**Aquifer** – A body of rock, consolidated or unconsolidated, that is sufficiently permeable to conduct groundwater and to yield significant quantities of water to wells and springs.

**Bedrock** – A general term for the rock that underlies soil or other unconsolidated superficial material.

**Cone of depression** – A depression in the potentiometric surface of a body of groundwater that has the shape of an inverted cone and develops around a well/mine shaft/open pit mine from which water is being withdrawn.

**Drawdown** – The decline of the water table or potentiometric surface as a result of withdrawals from wells or excavations.

**Effective porosity** - is the percentage of the bulk volume of a rock or soil that is occupied by interstices that are connected.

**Fault** – A fracture or fracture zone along which there has been displacement of the sides relative to one another parallel to the fracture.

**Fracture** – A crack, joint, fault or other break in rocks caused by mechanical failure.

**Groundwater table** - is the surface between the zone of saturation and the zone of aeration; the surface of an unconfined aquifer.

**Heterogeneous** -indicates non-uniformity in a structure.

**Hydraulic conductivity (K)** - Measure of the ease with which water will pass through the earth's material; defined as the rate of flow through a cross-section of one square metre under a unit hydraulic gradient at right angles to the direction of flow.

**Hydraulic gradient** - is the rate of change in the total head per unit distance of flow in a given direction.

**Joint** – A fracture in rock along which there has been no visible movement.



## Vahlegwe Advisory

**Observation borehole** - is a borehole drilled in a selected location for the purpose of observing parameters such as water levels.

**Perched Water Table** – The upper surface of a body of unconfined groundwater separated from the main body of groundwater by unsaturated material.

**Permeability** - the ease with which a fluid can pass through a porous medium and is defined as the volume of fluid discharged from a unit area of an aquifer under unit hydraulic gradient in unit time.

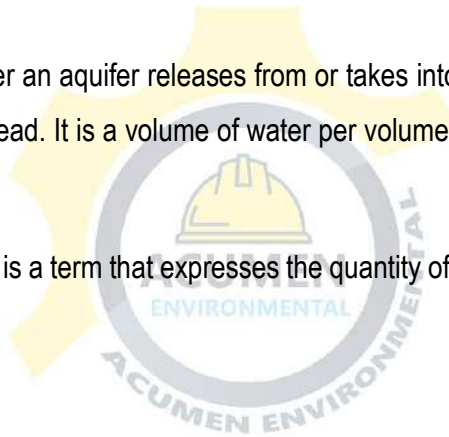
**pH** - is a measure of the acidity or alkalinity of a solution, numerically equal to 7 for neutral solutions, increasing with increasing alkalinity and decreasing with increasing acidity.

**Recharge** - is the addition of water to the zone of saturation; also, the amount of water added.

**Static water level** - is the level of water in a borehole that is not being affected by withdrawal of groundwater.

**Storativity** - the volume of water an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in head. It is a volume of water per volume of aquifer released as a result of a change in head.

**Total dissolved solids (TDS)** - is a term that expresses the quantity of dissolved material in a sample of water.





**TABLE OF CONTENTS**

**CONTENTS**

LIST OF ABBREVIATIONS ..... 2

GLOSSARY ..... 3

TABLE OF CONTENTS ..... 5

1. INTRODUCTION AND TERMS OF REFERENCE ..... 7

2. PURPOSE AND OBJECTIVES ..... 7

3. LEGAL REQUIREMENTS ..... 7

4. SITE DESCRIPTION ..... 8

5. METHODOLOGY ..... 11

    5.1. DESKTOP ASSESSMENT ..... 11

6. BASELINE ASSESSMENT ..... 11

    6.1. Climate ..... 11

    6.2. Effects of climate on hydrology ..... 12

    6.3. REGIONAL GEOLOGY ..... 14

    6.4. Regional Geohydrology ..... 16

    6.5. Wetlands ..... 19

    6.6. Soil Map ..... 20

    6.7. CATCHMENT ANALYSIS ..... 23

        6.7.1. Water Management Area No: 05 ..... 23

        6.7.2. WATER MANAGEMENT AREA NO: 05 ..... 23

        6.7.3. QUATERNARY CATCHMENT ..... 27

        6.7.4. SIGNIFICANT SURFACE WATER RESOURCES ..... 29

7. HYDROCENSUS AND BOREHOLE INFORMATION ..... 32

8. IMPACT IDENTIFICATION ..... 33

    8.1. ASSESSMENT METHODOLOGY ..... 33

    8.2. IMPACT IDENTIFICATION ..... 36

        8.2.1. CONSTRUCTION PHASE ..... 36

        8.2.2. OPERATIONAL PHASE ..... 36

        8.2.3. POST-OPERATIONAL PHASE ..... 37

9. MANAGEMENT AND MITIGATION ..... 39

    9.1. CONSTRUCTION PHASE ..... 39

    9.2. OPERATIONAL PHASE ..... 40

    9.3. POST-OPERATIONAL PHASE ..... 41

10. FLOODLINE DELINEATION ..... 44



10.1.	METHODOLOGY.....	44
10.2.	Rational Method.....	44
10.3.	CONTRIBUTING CATCHMENT DETAILS .....	46
10.4.	RESULTS .....	49
11.	CONCLUSIONS AND RECOMMENDATIONS .....	58
12.	REFERENCES.....	59
<b>Figure 1:</b>	Satellite map.....	9
<b>Figure 2:</b>	Locality Map.....	10
<b>Figure 3:</b>	Geological Map.....	15
<b>Figure 4:</b>	Geohydrological Map.....	18
<b>Figure 5:</b>	Wetland Map .....	19
<b>Figure 6:</b>	Soil Map.....	22
<b>Figure 7:</b>	Water Management Area Map.....	26
<b>Figure 8:</b>	Quaternary Catchment .....	28
<b>Figure 9:</b>	Surface water map.....	31
<b>Figure 10:</b>	Catchment Delineation.....	48
<b>Figure 11:</b>	River Geometry .....	50
<b>Figure 12:</b>	River Cross section.....	51
<b>Figure 13:</b>	River Cross Section .....	52
<b>Figure 14:</b>	Output Table .....	53
<b>Figure 15:</b>	Results Table.....	54
<b>Figure 16:</b>	Floodline.....	55
<b>Figure 17:</b>	Floodline Map.....	57
<b>Table 1:</b>	Hydrological Impact.....	21
<b>Table 2:</b>	Hydrocensus Data.....	32
<b>Table 3:</b>	Probability Ratings .....	33
<b>Table 4:</b>	Duration Ratings .....	33
<b>Table 5:</b>	Scale Ratings.....	34
<b>Table 6:</b>	Magnitude/Severity Ratings.....	34
<b>Table 7::</b>	Significance Ratings .....	34
<b>Table 8:</b>	Rating Matrix Legend for Groundwater Impacts.....	35
<b>Table 9:</b>	Hydrological Impacts .....	38
<b>Table 10:</b>	Impact Assessment Summary.....	42
<b>Table 11:</b>	Weather Station .....	47
<b>Table 12:</b>	Catchment Characteristics. ....	47



## 1. INTRODUCTION AND TERMS OF REFERENCE

By May 2024 Acumen Environmental (Pty) Ltd was appointed by Vahlegwe Advisory to conduct a hydrological investigation for prospecting right application with bulk sampling for diamond and sand in respect of Portion 1 of the Farm Biesjesbult No.96 and Portion 2 and 3 of the Farm Biesjesbult No.99 in the Magisterial District of Herbert, Northern Cape Province.

The purpose of this report is to describe the catchment and project area in respect of surface water resources and hydrological data that will inform the impact assessment, and stormwater management components. These will support the application for Environmental Authorisation (EA) and Environmental Impact Assessment (EIA).

This report is not intended to be an exhaustive description of all the tasks performed, but rather a summary of the most important findings.

## 2. PURPOSE AND OBJECTIVES

The Scope of work for the Hydrological Impact Assessment allows for the following:

- Identify Water Management Areas and Quaternary Catchment Areas in the Project area;
- Flood line delineation;
- Identify potential Hydrological Impacts Associated with the proposed Activity;
- Compile an impact assessment; rating the identified potential impacts based on significance scoring before and after mitigation methods are implemented;
- Recommend management measures to minimise impacts; and
- Develop a storm water management plan.

## 3. LEGAL REQUIREMENTS

This section outlines the national requirements related only to hydrological specialist field. For this Hydrological Assessment, the principal act of relevance is The National Water Act, 1998 (Act 36 of 1998) which provides for the protection, usage, development, conservation, management, and control of the country's water resources in an integrated manner. The Act provides the legal basis, upon which to develop tools and means to give effect to the protection of water resources.

The study was undertaken to comply with the requirements of relevant legislation and guidelines which include: The National Water Act, Act 36 of 1998 (NWA);



## Vahlangwe Advisory

- The National Water Act, Act 36 of 1998 (NWA);
- Government Notice “Regulations 704” as published in Government Gazette, Volume 408, No 20119 of June 1999 (Also known as General Notice 704, 04 June 1999).
- Best Practice Guidelines for the Protection of Water Resources (prescribed by the DWS, previously known as the Department of Water Affairs and Forestry (DWAF)): and
- National Environmental Management Act, Act 107 of 1998 (NEMA).

### 4. SITE DESCRIPTION

The proposed development site (here after referred to as “the site”) in respect of Portion 1 of the Farm Biesjesbult No.96 and Portion 2 and 3 of the Farm Biesjesbult No.99 in the Magisterial District of Herbert, Northern Cape Province. The site covers an area of approximately 3573.70 hectares, it is located approximately 55 kilometres south of Kimberley town, the R 357 Main Road can be used to access the site. **Figure 1** shows the topographic map of the site and **Figure 2** shows the site satellite map.

The central co-ordinates that can be used to locate the site are:

**28° 57' 47" S, 24° 16' 40" E**







# Vahlegwe Advisory

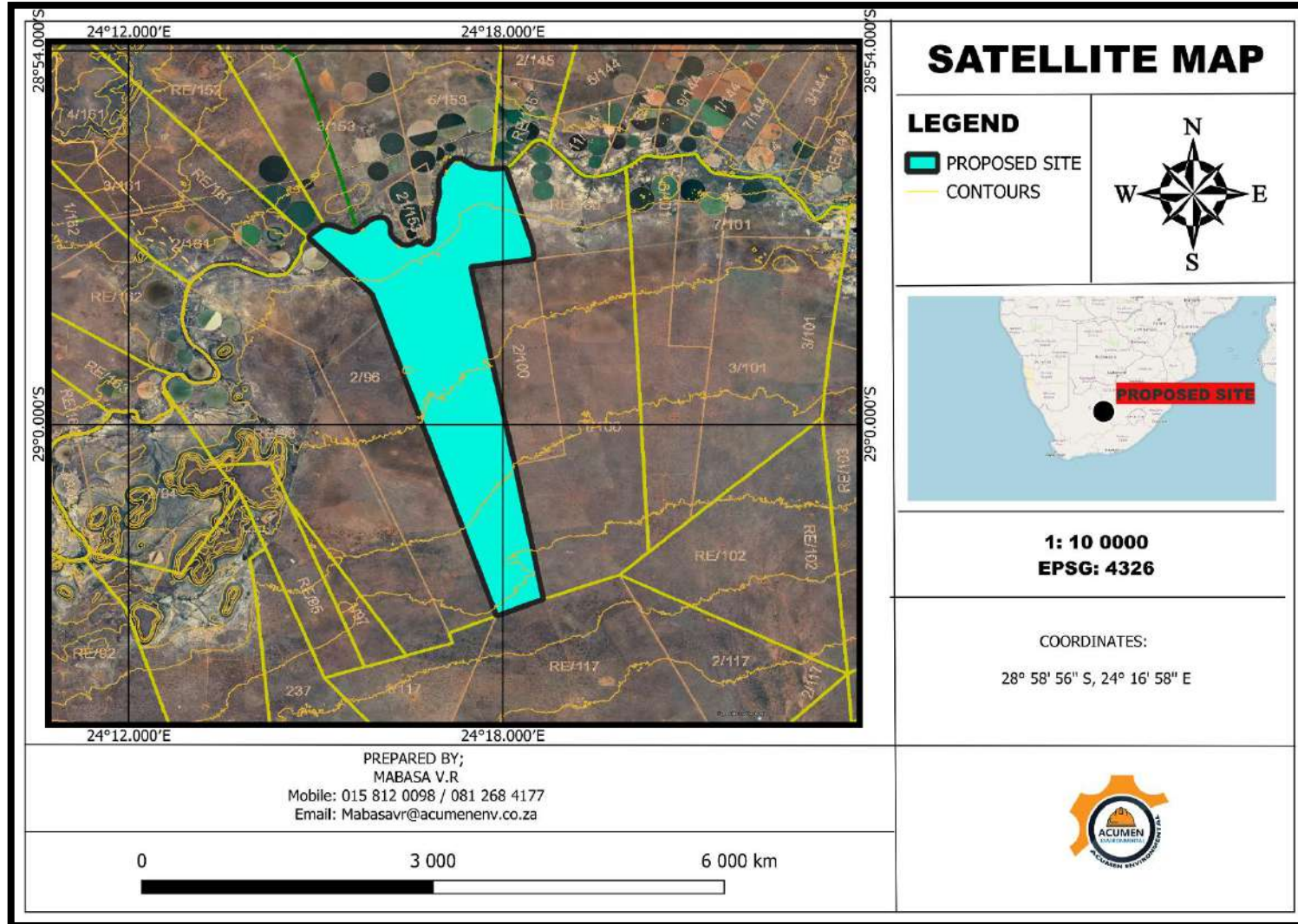


Figure 1: Satellite map.



# Vahlangwe Advisory

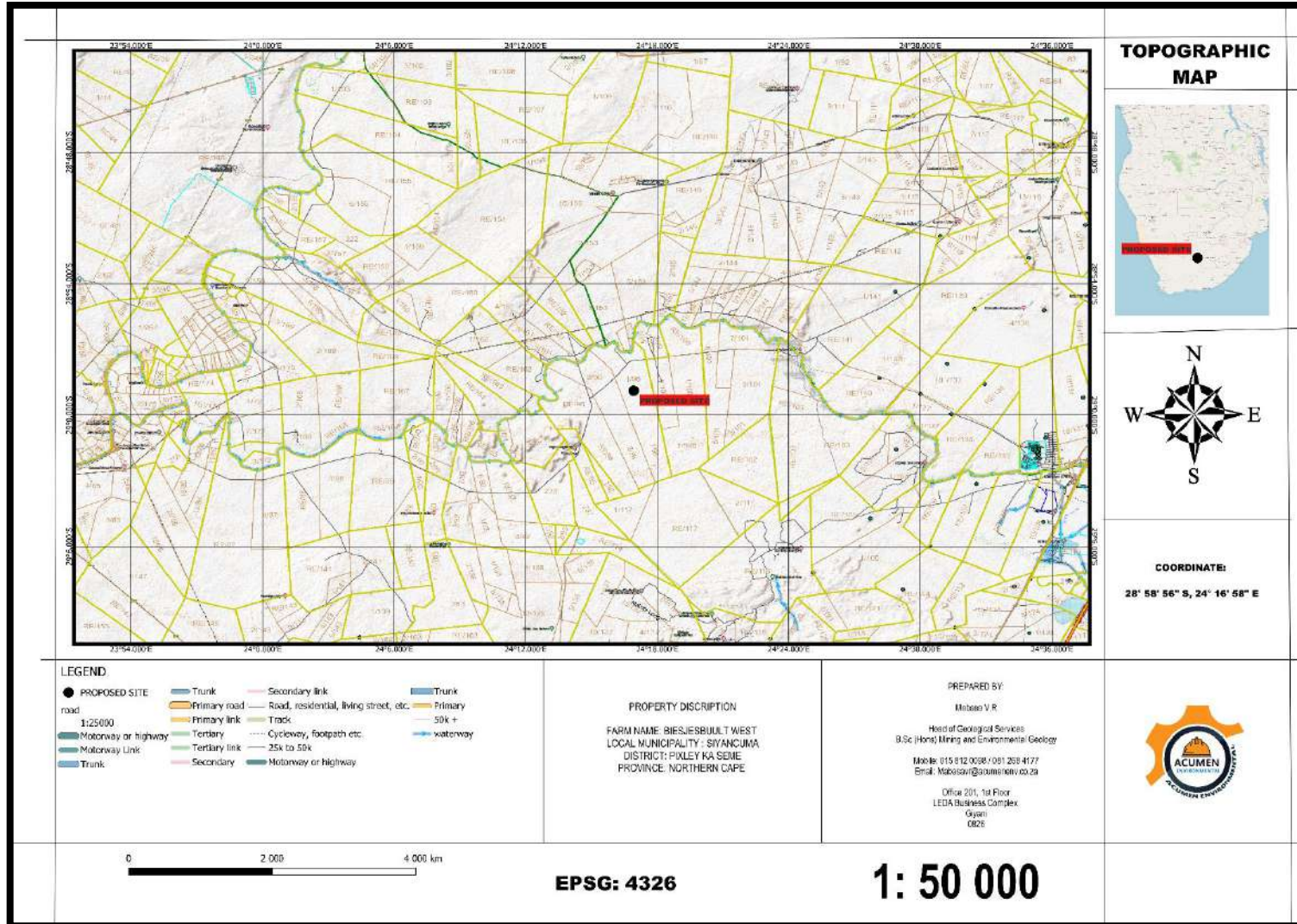


Figure 2: Locality Map

## 5. METHODOLOGY

### 5.1. DESKTOP ASSESSMENT

The assessment was initiated with a desktop study to gather hydrological, catchment description reviews and analysis of various sources of rainfall and evaporation data. The section also presents the baseline hydrology of the site and surroundings including topography, watercourse network and catchment delineation. The catchment attributes namely Mean Annual Runoff, Mean Annual Precipitation and Mean Annual Evaporation were obtained from the Water Research Commission (WRC, 2012). In addition, the hydrological data was reviewed and assessed for relevance, to characterise the site, identify water features, and for hydrological characterisation.

## 6. BASELINE ASSESSMENT

The baseline describes the catchment and project area in respect of surface water resources and hydrological data for the current situation. It informs the impact assessment, and stormwater management components that support the various legislative requirements.

- Climate
- Regional Geology
- Geohydrology
- Wetlands
- Catchment analysis.
- Floodline analysis

### 6.1. Climate

The study area is located in the Northern Cape province of South Africa, has a semi-arid climate with distinct seasonal variations.

#### Summer (December to February)

- **Temperature:** Hot, with average daytime highs ranging from 30°C to 35°C. Nighttime temperatures can drop to around 15°C to 20°C.
- **Rainfall:** This is the wettest season, with occasional thunderstorms. However, rainfall is generally low, averaging about 100 to 150 mm for the season.



### Autumn (March to May)

- **Temperature:** Warm during the day, with temperatures ranging from 25°C to 30°C. Nights become cooler, with temperatures dropping to between 10°C and 15°C.
- **Rainfall:** Decreases significantly compared to summer, with occasional showers. Total rainfall for the season is around 50 to 100 mm.

### Winter (June to August)

- **Temperature:** Mild to cold. Daytime highs range from 15°C to 20°C, while nighttime temperatures can drop close to freezing, around 0°C to 5°C.
- **Rainfall:** This is the driest season, with very little rainfall, often less than 20 mm for the entire season.
- **Frost:** Frost is common during winter nights, especially in late winter.

### Spring (September to November)

- **Temperature:** Warming up again, with daytime highs ranging from 25°C to 30°C. Nighttime temperatures range from 10°C to 15°C.
- **Rainfall:** Rainfall starts to increase again, especially in late spring. Total rainfall for the season is around 50 to 100 mm.

## 6.2. Effects of climate on hydrology

The climate plays a significant role in shaping the hydrology of the study area influencing both surface water and groundwater systems. Key climatic factors affecting the region's hydrology include temperature, precipitation patterns, evaporation rates, and seasonal variations.

### Precipitation Patterns

- **Rainfall Variability:** Kimberley experiences seasonal rainfall, with most precipitation occurring during the summer months (October to March). The amount and distribution of rainfall directly impact river flows, surface runoff, and groundwater recharge.
- **Drought and Flood Cycles:** Periods of drought reduce surface water availability, increase groundwater extraction, and lower the water table. Conversely, heavy rains can cause flooding, enhancing surface water flow and groundwater recharge but also causing erosion and sediment transport.



## Vahlengwe Advisory

### Temperature

- **Evaporation Rates:** High temperatures in Kimberley lead to high evaporation rates, reducing the amount of surface water in rivers, lakes, and reservoirs. This can also decrease the amount of water available for groundwater recharge.
- **Temperature Extremes:** Extreme temperatures can stress water resources, with prolonged heatwaves exacerbating drought conditions and impacting water availability for agriculture, domestic use, and ecosystems.

### Evapotranspiration

- **Plant Water Use:** Evapotranspiration, the process by which water is transferred from the land to the atmosphere by evaporation from soil and transpiration from plants, affects soil moisture and groundwater recharge. High rates of evapotranspiration reduce the amount of water infiltrating into the groundwater system.
- **Vegetation Cover:** Changes in vegetation cover due to climatic variations can alter evapotranspiration rates and influence the hydrological cycle.

### Seasonal Variations

- **Wet and Dry Seasons:** The distinct wet and dry seasons in Kimberley lead to fluctuating river flows and groundwater levels. During the wet season, increased rainfall leads to higher river flows and enhanced groundwater recharge. In the dry season, reduced rainfall and higher evaporation rates lower surface water levels and deplete groundwater reserves.
- **Storm Events:** Intense, short-duration storm events during the wet season can cause rapid surface runoff and flash flooding, contributing to soil erosion and sediment transport, and affecting water quality.

### Groundwater Recharge

- **Infiltration Rates:** The rate at which precipitation infiltrates the ground to recharge aquifers is influenced by soil type, vegetation cover, and land use. During periods of high rainfall, recharge rates increase, replenishing groundwater supplies. Conversely, during droughts, recharge rates are minimal, leading to declining groundwater levels.
- **Aquifer Characteristics:** The ability of the region's aquifers to store and transmit water is influenced by their geological characteristics, such as the porosity and permeability of alluvial, aeolian, and calcrete deposits.



### Human Activities and Climate Interaction

- **Water Demand:** Climatic conditions influence water demand for agricultural irrigation, domestic use, and industrial activities. During hot, dry periods, water demand increases, putting additional stress on water resources.
- **Land Use Changes:** Human activities, such as agriculture, urbanization, and mining, interact with climatic factors to alter natural hydrological processes. Land use changes can affect infiltration rates, surface runoff, and groundwater recharge.

## 6.3. REGIONAL GEOLOGY

The study area is underlain by lithologies of the Quaternary formation. The Quaternary period, spanning the last 2.6 million years, includes the most recent geological history of Earth. In Kimberley, South Africa, this period has left a distinct geological imprint, marked by various formations and deposits primarily influenced by climatic changes, sedimentation processes, and human activities. The Quaternary formation within the study area mainly consists of Alluvial deposits and aeolian deposits.

### Alluvial Deposits

- **River Terraces and Floodplains:** These are found along the Vaal River and its tributaries. The river terraces represent former riverbeds and floodplains, elevated above the current river level, formed during periods of high-water flow.
- **Sediment Composition:** Consists of gravel, sand, silt, and clay. These sediments are typically unconsolidated and show evidence of sorting due to water transport.

### Aeolian (Wind-Blown) Deposits

- **Kalahari Sands:** A significant feature of the Quaternary deposits in the Kimberley area. These sands are part of the extensive Kalahari Desert and are characterized by fine, well-sorted, reddish-brown sand dunes and sheets.
- **Loess Deposits:** Fine, silt-sized particles transported by wind and deposited over large areas. These deposits contribute to the fertile soils in some regions.

The Quaternary geology is a complex interplay of fluvial, aeolian, and lacustrine processes, heavily influenced by climatic changes and human activities. The lithologies present in the study area are illustrated in **Figure 3**.



## Vahleingwe Advisory

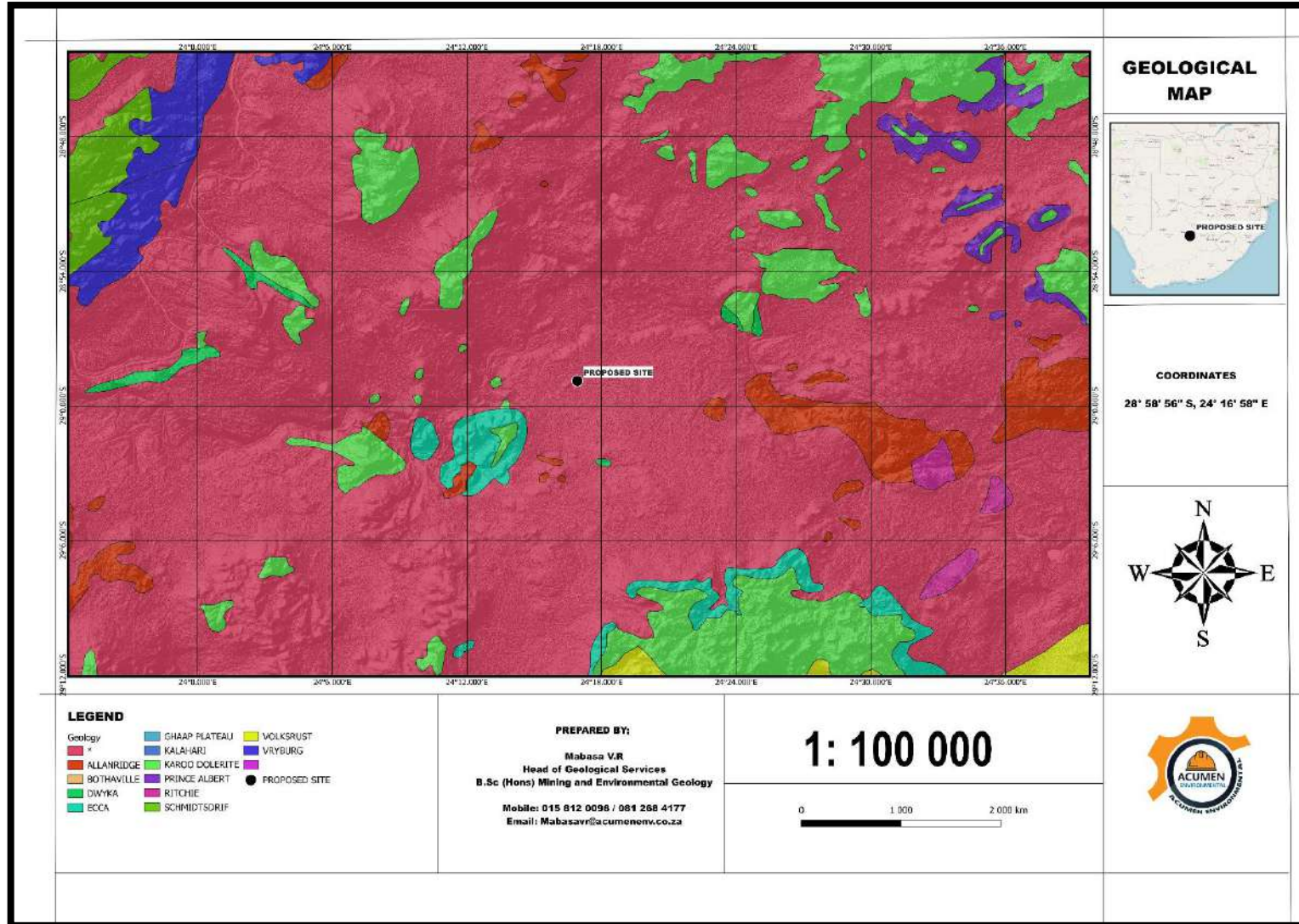


Figure 3: Geological Map

## 6.4. Regional Geohydrology

Aquifers associated with the lithologies of the Quaternary formation vary based on the sedimentary environments and materials deposited during this period. Here are the primary types of aquifers and their associated lithologies:

### Alluvial Aquifers

- **Lithology:** Composed mainly of unconsolidated gravel, sand, silt, and clay.
- **Characteristics:** These aquifers are typically unconfined or semi-confined. The high porosity and permeability of the gravel and sand layers allow for significant groundwater storage and movement. Silt and clay layers may act as confining or semi-confining units, influencing the flow and storage of groundwater.
- **Occurrence:** Found along river valleys, terraces, and floodplains, particularly associated with the Vaal River and its tributaries.

### Aeolian (Kalahari) Aquifers

- **Lithology:** Dominated by well-sorted, fine to medium-grained sand.
- **Characteristics:** These aquifers are usually unconfined, with high infiltration rates due to the sand's permeability. However, the water-holding capacity can be variable depending on the degree of sorting and compaction of the sands.
- **Occurrence:** Extensive in areas covered by Kalahari sands, forming part of the larger Kalahari aquifer system.

### Calcrete Aquifers

- **Lithology:** Consist of calcium carbonate cemented sediments, forming hard, consolidated layers.
- **Characteristics:** Calcrete layers can create perched aquifers, where groundwater is trapped above the calcrete due to its low permeability. These aquifers can be semi-confined, with limited lateral water movement.
- **Occurrence:** Found in semi-arid regions where calcrete formation is prevalent, often forming in the upper layers of the soil profile.





## Vahlengwe Advisory

### Paleosol-Associated Aquifers

- **Lithology:** Comprising ancient soil horizons that may include clay-rich or sandy layers.
- **Characteristics:** The water retention and permeability of paleosol aquifers depend on their composition. Clay-rich paleosols may act as confining layers, while sandy paleosols can enhance groundwater recharge and storage.
- **Occurrence:** Buried under more recent sediments, these paleosols indicate previous land surfaces and can contribute to complex aquifer systems.

### Playa and Lacustrine Aquifers

- **Lithology:** Comprised of fine-grained sediments like clay, silt, and evaporite minerals (e.g., gypsum, halite).
- **Characteristics:** These aquifers are often unconfined or semi-confined, with variable permeability. The fine-grained nature of the sediments can restrict water movement, while evaporite minerals can affect water quality by increasing salinity.
- **Occurrence:** Found in closed basins and former lake beds where water has evaporated, leaving behind fine sediments and salts.

### Anthropogenic Aquifers

- **Lithology:** Composed of mixed materials, including mining debris, tailings, and other anthropogenic deposits.
- **Characteristics:** These aquifers are typically unconfined and have variable permeability and water quality, influenced by the nature of the materials deposited and potential contamination from mining activities.
- **Occurrence:** Located in and around mining areas, such as the Kimberley diamond mines, where human activity has significantly altered the natural geological landscape.



# Vahlegwe Advisory

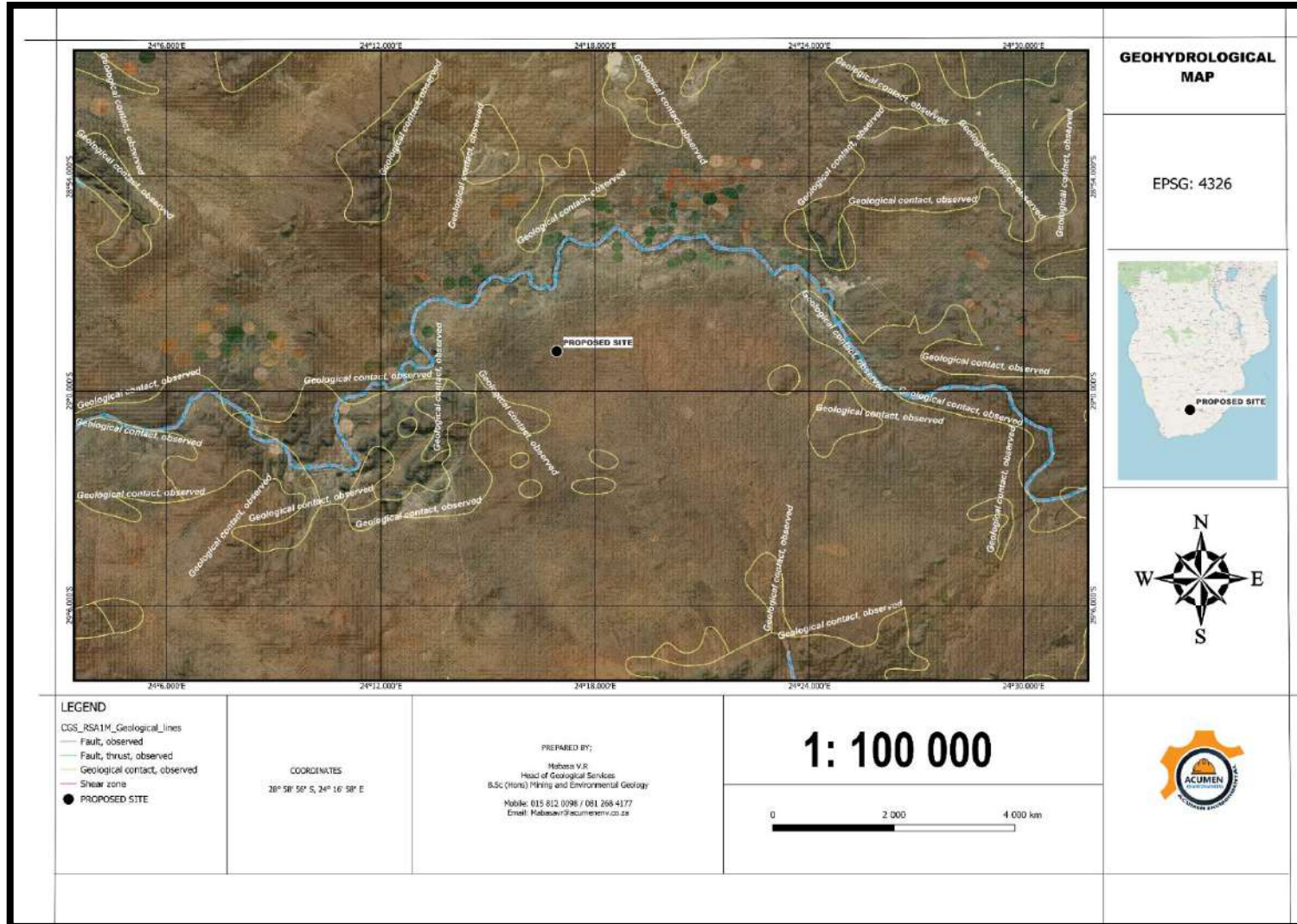
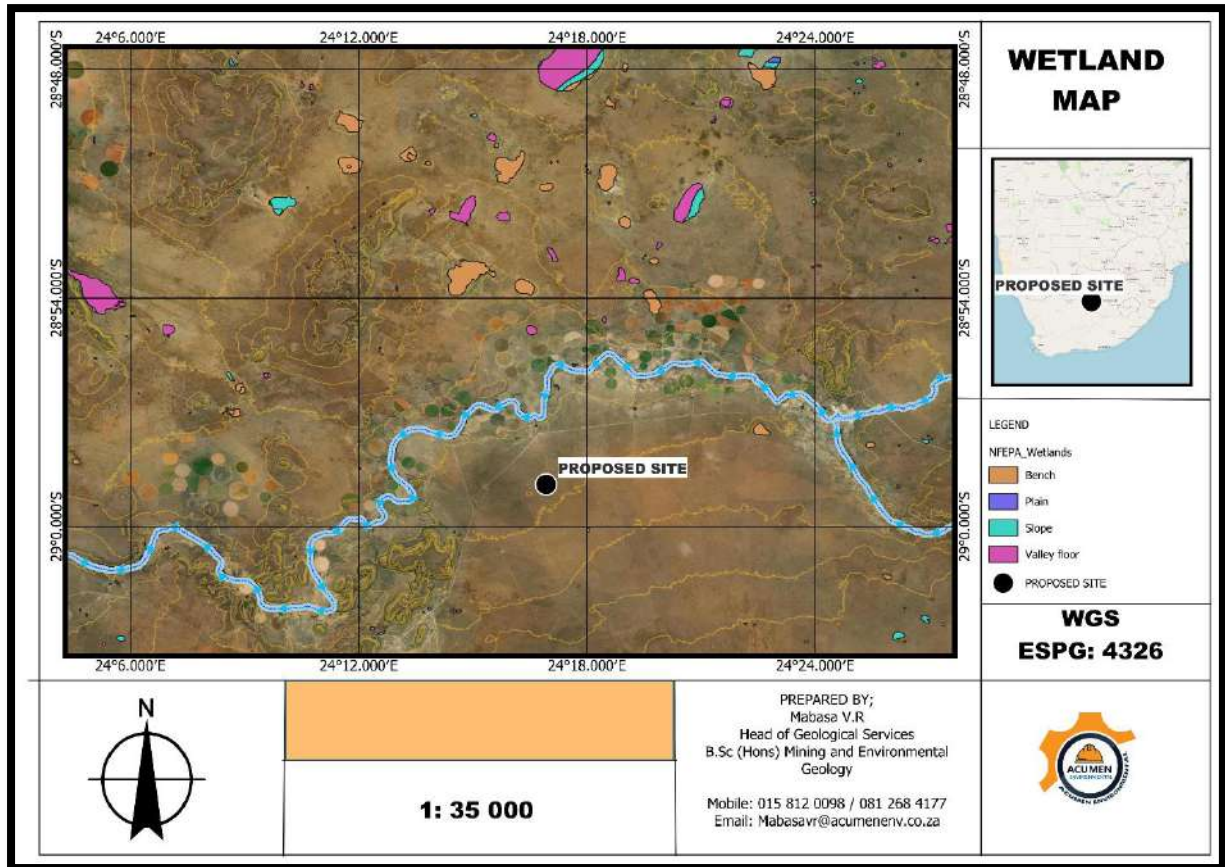


Figure 4: Geohydrological Map

## 6.5. Wetlands

A wetland is a distinct ecosystem characterized by its saturated soil conditions, which support a variety of plant and animal species adapted to living in wet environments. Wetlands are transitional areas between terrestrial and aquatic systems and can be found in diverse geographic locations, from coastal regions to inland areas. **Figure 7** represents a Map of the wetlands found near the site.



**Figure 5: Wetland Map**

### 6.6. Soil Map

The Quaternary formations encompass a variety of depositional environments, resulting in diverse soil types. In the context of the Kimberley region of South Africa, the Quaternary lithologies include alluvial deposits, aeolian deposits, calcretes, and lacustrine deposits. Here are the soil types typically associated with these lithologies:

#### Alluvial Deposits

Alluvial deposits are sediments deposited by rivers and streams. In the Kimberley region, these deposits primarily include gravel, sand, silt, and clay.

#### Soil Types:

- **Fluvisols:** Found in river valleys and floodplains, these soils are typically fertile and stratified, with layers of silt, sand, and clay.
- **Gleysols:** These are hydromorphic soils found in areas with high water tables. They are characterized by poor drainage and features like mottling due to periodic saturation.
- **Vertisols:** Heavy clay soils that swell when wet and shrink and crack when dry. These soils are often found in alluvial plains with significant clay deposits.

#### Aeolian Deposits

Aeolian deposits are wind-blown sands, primarily forming the Kalahari sands in the Kimberley area.

#### Soil Types:

- **Arenosols:** Sandy soils with low nutrient content and water-holding capacity. They are well-drained and typically found in dune areas.
- **Regosols:** These are weakly developed soils found in aeolian deposits, characterized by loose, sandy textures and minimal horizon development.

#### Calcretes

Calcretes are soils that have undergone significant calcium carbonate accumulation, often found in semi-arid environments.

#### Soil Types:

- **Calcisols:** Soils with substantial calcium carbonate accumulation in their profiles. They are well-drained and typically found in areas with periodic waterlogging and evaporation.



- **Durisols:** Soils with a hardpan layer formed by silica and calcium carbonate cementation. These are typically found in arid and semi-arid regions.

Lacustrine Deposits

Lacustrine deposits are sediments deposited in lake environments, which can include fine-grained clays, silts, and organic materials.

**Soil Types:**

- **Vertisols:** These soils can also form in lacustrine environments where there is significant clay content.
- **Histosols:** Organic-rich soils that develop in wetland areas or former lake beds. They are characterized by high organic matter content and poor drainage.
- **Gleysols:** Hydromorphic soils that are found in areas with high water tables and periodic flooding, similar to those found in alluvial deposits.

**Table 1: Hydrological Impact**

Soil Type	Hydrological Impact
<b>Fluvisols</b>	- Enhance water retention and fertility, therefore Contribute to seasonal flooding and water storage in floodplains.
<b>Gleysols</b>	- Poor drainage and high-water table, therefore Influence soil moisture and create anaerobic conditions.
<b>Vertisols</b>	- High water-holding capacity, therefore Swelling and shrinking affect permeability and surface water dynamics.
<b>Arenosols</b>	- High permeability and low water retention, therefore Rapid infiltration with potential for groundwater recharge, therefore Prone to erosion.
<b>Regosols</b>	- High infiltration rates and minimal water retention, therefore Poor fertility and susceptible to erosion.
<b>Calcisols</b>	- Moderate to low permeability with well-drained conditions, therefore Calcium carbonate layers may restrict deep infiltration.
<b>Durisols</b>	- Hardpan layers limit infiltration, therefore Potential for increased surface runoff., therefore Moderate to low permeability.
<b>Histosols</b>	- Excellent water retention., therefore High organic content with poor drainage, therefore Significant influence on wetland hydrology.



# Vahlangwe Advisory

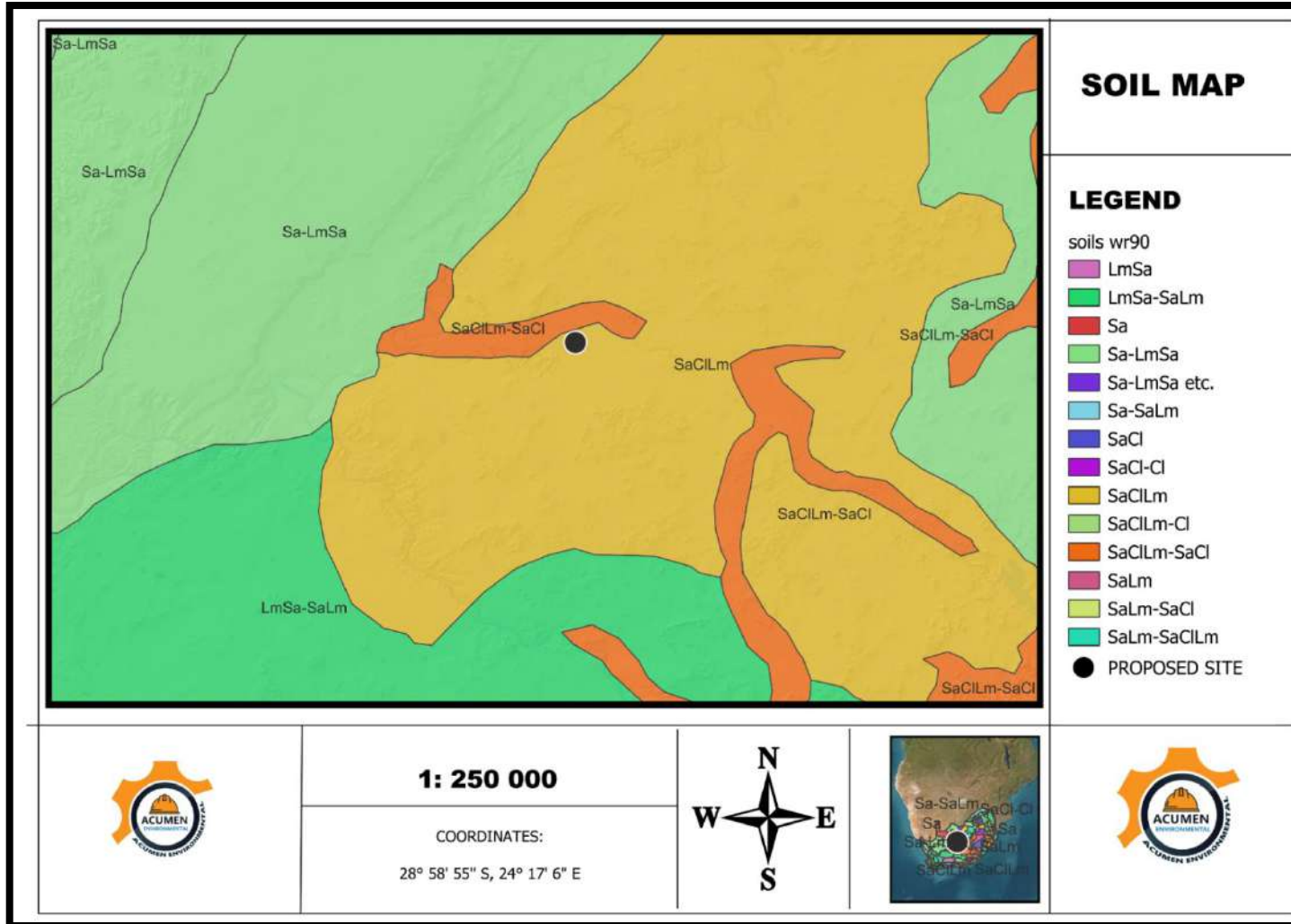


Figure 6: Soil Map

## 6.7. CATCHMENT ANALYSIS

### 6.7.1. Water Management Area No: 05

The existing river systems in relation to the proposed site are categorized in 3 Tiers as follows:

- Tier 1- Water Management Area No: 05.
- Tier 2- Quaternary Catchment: **C51L**.
- Tier 3- Site specific Catchment Areas.

The WMA and catchment areas are discussed in detail below.

### 6.7.2. WATER MANAGEMENT AREA NO: 05

Water Management Area (WMA) number 5 in South Africa, also known as the Middle Vaal Water Management Area, is a crucial region for water resources management. It encompasses parts of the Vaal River catchment and is characterized by significant water usage for agriculture, industry, and domestic purposes. Here is a detailed description of WMA 5:

#### Geography

- **Location:** The Middle Vaal WMA is situated in the central part of South Africa, primarily within the Free State and Northwest provinces. It covers the middle section of the Vaal River catchment.
- **Boundaries:** The WMA is bounded by the Upper Vaal WMA to the north and the Lower Vaal WMA to the south. It includes the areas around major towns such as Klerksdorp, Potchefstroom, and Welkom.

#### Hydrology

- **Major Rivers:** The Vaal River is the primary river flowing through this WMA. Significant tributaries in the area include the Vet River, Rietspruit, and Schoonspruit.
- **Dams and Reservoirs:** Several important dams are located within the Middle Vaal WMA, including the Bloemhof Dam, which is a key storage reservoir that helps regulate the flow of the Vaal River.
- **Water Availability:** The availability of water in the Middle Vaal WMA is highly variable, influenced by rainfall patterns and upstream water usage. The area experiences moderate to low annual rainfall, typical of a semi-arid climate.
-



## Vahlengwe Advisory

### Water Usage

- **Agriculture:** Irrigation is a major water use in this WMA, supporting crops such as maize, wheat, and sunflowers. Livestock farming also relies heavily on water resources.
- **Industry:** The Middle Vaal WMA is home to significant industrial activities, particularly mining and manufacturing, which are substantial water consumers.
- **Domestic Use:** Urban areas within the WMA, such as Klerksdorp and Potchefstroom, require reliable water supply for domestic and municipal purposes.

### Water Quality

- **Pollution Sources:** Water quality in the Middle Vaal WMA is affected by various pollution sources, including agricultural runoff, industrial discharges, and urban wastewater. Nutrient loading and salinity are common water quality issues.
- **Monitoring and Management:** Water quality is monitored by local authorities, and efforts are made to mitigate pollution through regulatory measures and treatment facilities.

### Challenges

- **Water Scarcity:** The semi-arid climate, coupled with high water demand, often leads to water scarcity, particularly during dry seasons and drought periods.
- **Pollution Control:** Managing pollution from agricultural and industrial activities remains a significant challenge, requiring continuous monitoring and enforcement of regulations.
- **Infrastructure Maintenance:** Ensuring that water infrastructure such as dams, pipelines, and treatment plants are well-maintained and upgraded as necessary is crucial for reliable water supply.

### Management Strategies

- **Integrated Water Resource Management (IWRM):** The approach emphasizes the coordinated development and management of water, land, and related resources to maximize economic and social welfare without compromising the sustainability of vital ecosystems.
- **Water Allocation:** Efficient allocation of water resources among agricultural, industrial, and domestic users is critical to balance competing demands.





## Vahlegwe Advisory

- **Pollution Prevention:** Implementing best practices for pollution prevention, such as reducing agricultural runoff through sustainable farming practices and treating industrial effluents before discharge.
- **Water Conservation:** Promoting water conservation measures, including the use of water-saving technologies in agriculture and industry, and encouraging water-efficient practices among domestic users.
- **Stakeholder Engagement:** Engaging stakeholders, including local communities, industries, farmers, and governmental agencies, in the decision-making process to ensure inclusive and effective water management. **Figure 7** shows water management area No. 1.



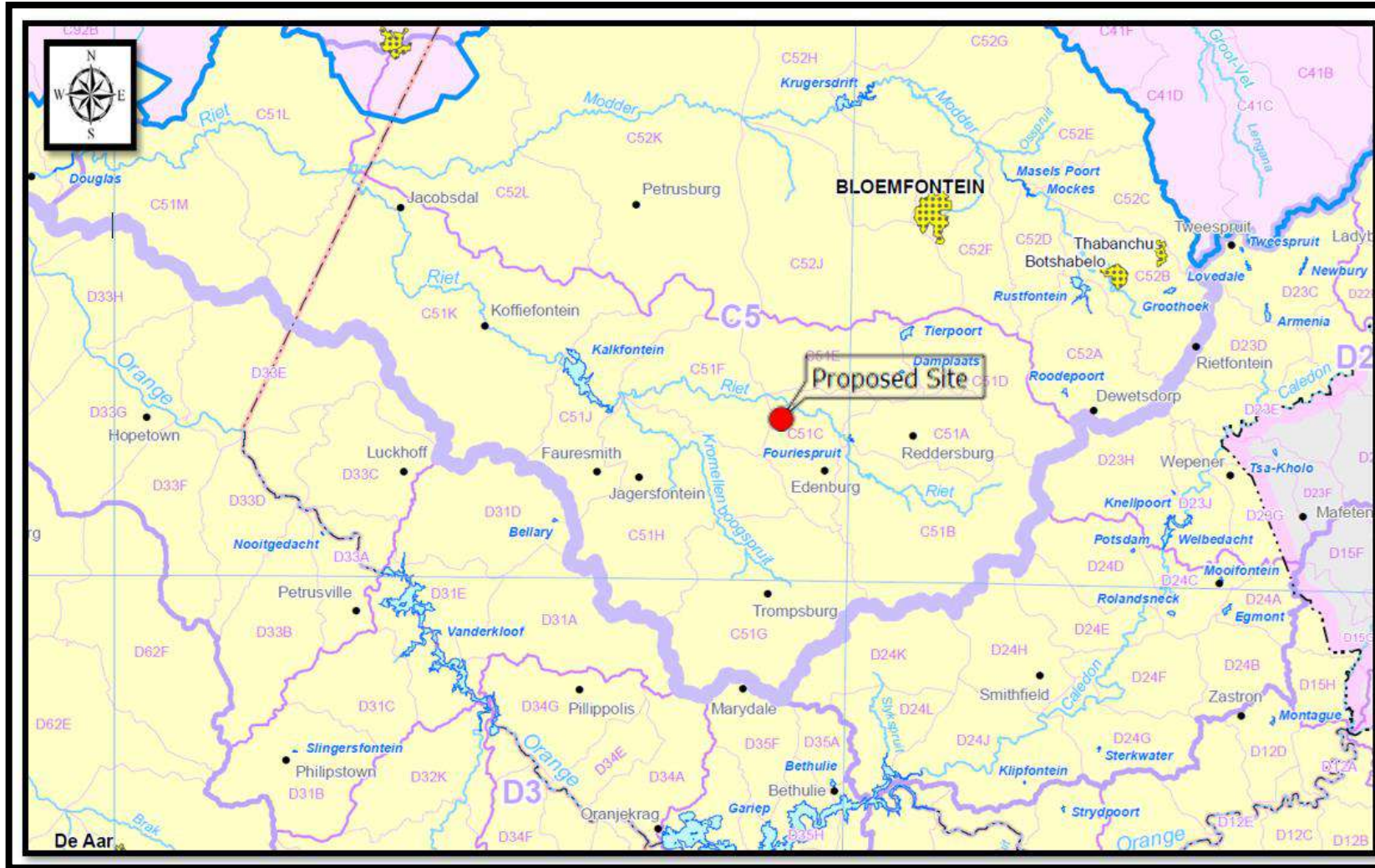


Figure 7: Water Management Area Map



### 6.7.3. QUATERNARY CATCHMENT

A catchment, in relation to a watercourse means the area from which any rainfall will drain into the watercourse or part of the water course through surface flow to a common point, or points (National Water Act, 1998, Act 36 of 1998). The study area is in Quaternary Catchment **C21L. (Figure 8)** which covers an area of approximately **2326.40 km<sup>2</sup>**.



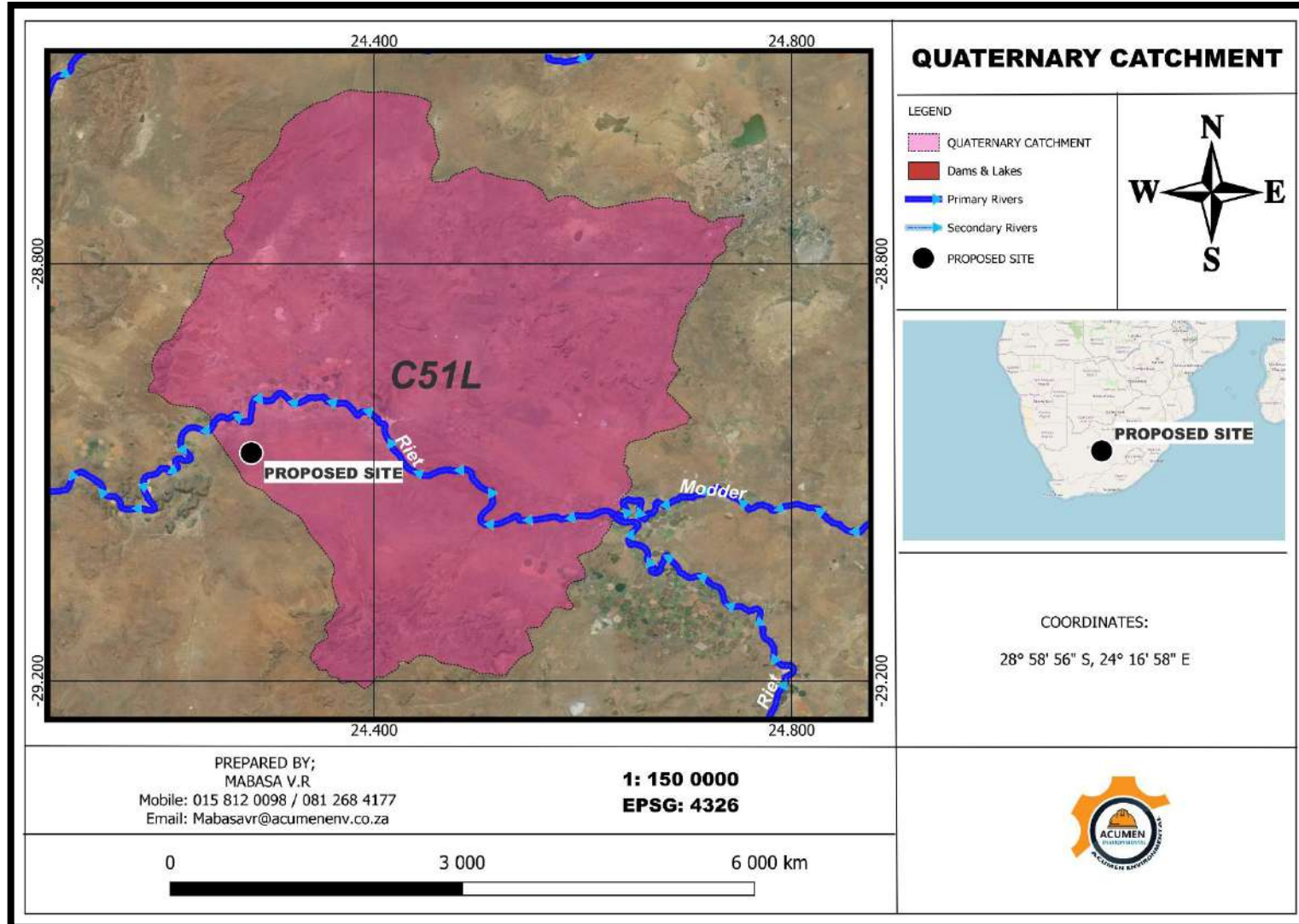


Figure 8: Quaternary Catchment

#### 6.7.4. SIGNIFICANT SURFACE WATER RESOURCES

The Riet River is a significant watercourse in the Gauteng and Northwest provinces of South Africa.

The Riet River is an important watercourse in the Northern Cape province of South Africa, running through the Kimberley region. Here's a detailed description of the Riet River, focusing on its geography, hydrology, ecology, and significance to the Kimberley area:

##### Geography

- **Location:** The Riet River originates in the eastern part of the Northern Cape province and flows westward through the arid and semi-arid regions, including Kimberley, before joining the Vaal River.
- **Length:** The river spans approximately 300 kilometers.
- **Confluence:** It merges with the Modder River near the town of Ritchie, south of Kimberley, and eventually flows into the Vaal River, which is a major tributary of the Orange River.

##### Hydrology

- **Flow Regime:** The Riet River's flow is highly variable, influenced by seasonal rainfall patterns. It experiences higher flows during the summer months (October to March) when rainfall is more abundant.
- **Water Use:** The river is a vital water source for agricultural activities, including irrigation for crops such as maize and wheat. It also supports livestock farming in the region.
- **Groundwater Interaction:** The Riet River interacts with the local groundwater systems, contributing to groundwater recharge in certain areas. This interaction is crucial for maintaining the water balance in the semi-arid environment.

##### Ecology

- **Biodiversity:** The river supports a range of aquatic and riparian habitats, providing a home for various plant and animal species. Riparian vegetation includes reeds, grasses, and shrubs that stabilize the riverbanks and provide habitat for wildlife.
- **Fish Species:** The river is home to several fish species, some of which are important for local subsistence fishing.
- **Wildlife:** The Riet River corridor supports diverse wildlife, including birds, mammals, and reptiles, which rely on the water and vegetation along the river for survival.

### Significance

- **Agriculture:** The river is crucial for irrigation, supporting local agriculture, which is a significant part of the region's economy.
- **Water Supply:** It provides water for domestic and industrial use in the Kimberley area, playing a key role in the region's water supply infrastructure.
- **Environmental Health:** The health of the Riet River is vital for maintaining the ecological balance in the region. Efforts to manage and protect the river contribute to biodiversity conservation and sustainable water use.

### Challenges and Management

- **Water Quality:** The river faces challenges related to water quality, including pollution from agricultural runoff, industrial discharges, and urban wastewater. Ensuring clean water requires effective management practices and pollution control measures.
- **Flow Regulation:** The flow of the Riet River is regulated by various weirs and dams, which are used to manage water supply for irrigation and domestic use. These structures need to be managed carefully to balance human needs and environmental health.
- **Climate Impact:** The semi-arid climate of the region, characterized by variable rainfall and high evaporation rates, affects the river's flow and water availability. Climate change poses additional risks, potentially altering precipitation patterns and exacerbating water scarcity issues.

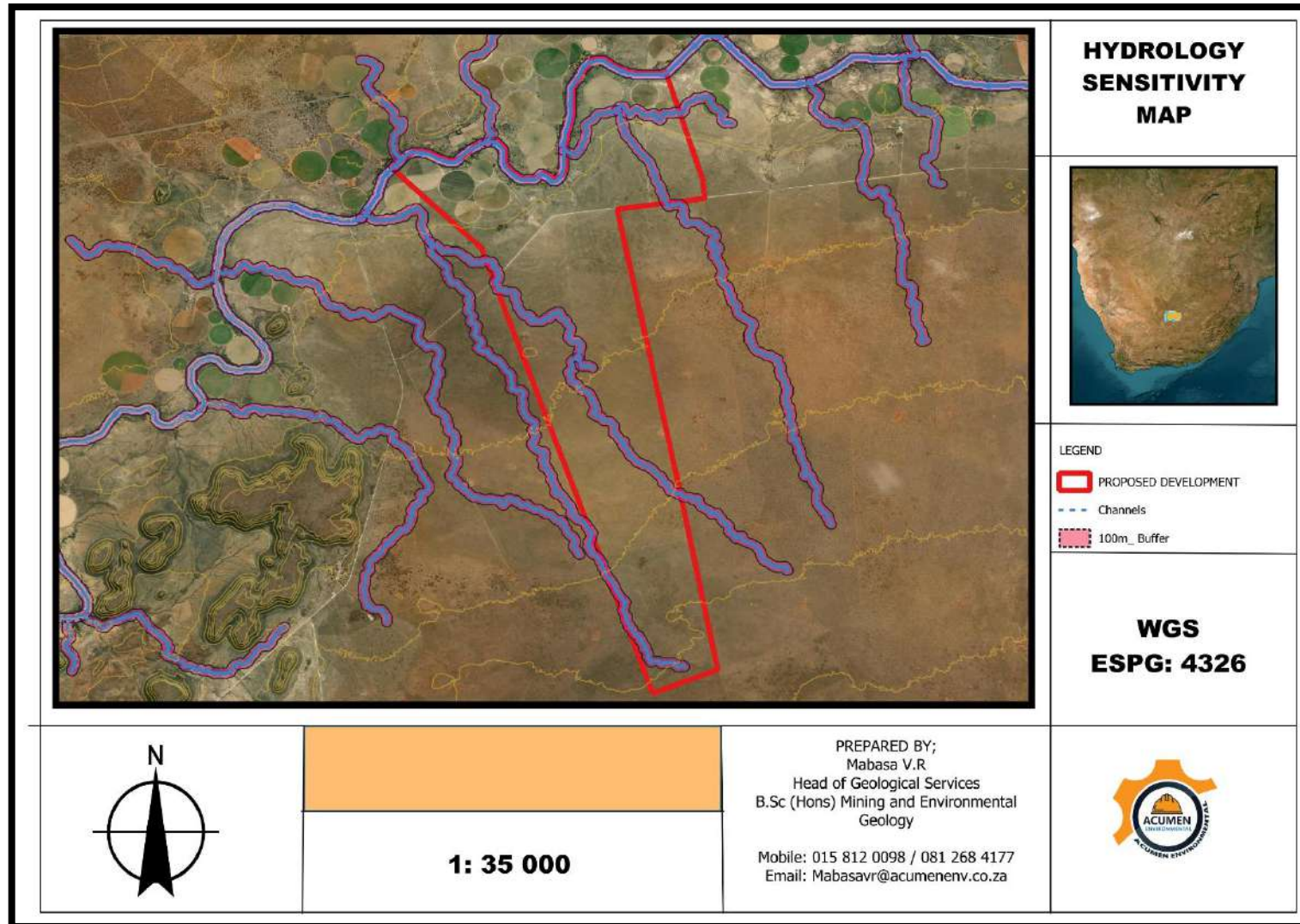


Figure 9: Surface water map.

## 7. HYDROCENSUS AND BOREHOLE INFORMATION

Boreholes provide valuable information on the groundwater regime. A hydrocensus survey was conducted to verify existing surface and groundwater uses and users, neighbouring borehole locations and depths, spring localities, seepage zones, water levels, abstraction volumes, as well as potential receptors in the vicinity of the site. The hydrocensus extended to approximately 3 Km around the site, except where a river or a surface water body exists.

The hydrocensus did not extend past surface water bodies, such features are usually hydraulically connected to an aquifer and act as a constant-head boundary; and a groundwater pollution plume would theoretically not extend past a constant head boundary. The hydrocensus information is summarised in **Table 1** below, with the corresponding locations in **Figure 9**. No shallow subsoil seepage on the site was evident at the time of the site walk over. No surface water features were observed in the immediate area of the site. The general use of groundwater in the area is human consumption and irrigation.

**Table 2:** Hydrocensus Data.

ID	LONGITUDE	LATITUDE	BH DEPTH (M)	WATER LEVEL [MBGL]	DISCHARGE [L/S]	WATER USE	DISPLACEMENT(M)	DATE
<b>GROUNDWATER</b>								
2924AB00012	24.31618	-29.00589	77.00	25.00	0.15	Domestic	2231.32	25-05-2024
2924AB00015	24.31618	-29.00591	96.00	25.00	0.33	Domestic	2546.00	25-05-2024
2924AB00016	24.3162	-29.00589	75.00	18.00	0.07	Domestic	2322.61	25-05-2024
2924AB00017	24.31618	-29.00592	60.00	12.00	2.50	Domestic	2124.12	25-05-2024
2924AA00041	24.24118	-29.02533	49.38	22.86	0.01	Domestic	2315.10	25-05-2024
2924AA00046	24.24117	-29.02536	46.84	28.96	0.25	Domestic	2123.96	25-05-2024
2924AA00051	24.24123	-29.02533	76.20	30.48	0.56	Domestic	1888.11	25-05-2024
2924AA00049	24.24122	-29.02533	106.68	15.24	0.01	Domestic	1211.23	25-05-2024



## 8. IMPACT IDENTIFICATION

### 8.1. ASSESSMENT METHODOLOGY

Assessment of impacts was based on the Department of Environmental Affairs (DEA) (1998) Guideline Document: EIA Regulations. The significance of the aspects/impacts of the process is rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process.

This matrix uses the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts. The criteria through which the significance of the impacts was determined is given below (**Table 6 to Table 11**). The significance rating score is calculated as follows:

**Significance Rating (SR) = (extent + Intensity + Duration) x probability**

**Table 3:** Probability Ratings

PROBABILITY -THIS DESCRIBES THE LIKELIHOOD OF THE IMPACT ACTUALLY OCCURRING	
Improbable	The possibility of the impact occurring is very low, due to the circumstances, design or experience.
Probable	There is a probability that the impact will occur to the extent that provision must be made, therefore.
Highly Probable	It is most likely that the impact will occur at some stage of the development.
Definite	The impact will take place regardless of any prevention plans, and there can only be relied on mitigatory actions or contingency plans to contain the effect.

**Table 4:** Duration Ratings

DURATION-THE LIFETIME OF THE IMPACT	
Short Term	The impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases of the project.
Medium Term	The impact will last up to the end of the phases of the project, where after it will be negated.
Long Term	The impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
Permanent	Impact that will be non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

**Table 5: Scale Ratings**

<b>SCALE-THE PHYSICAL AND SPATIAL SIZE OF THE IMPACT</b>	
<b>Local</b>	The impacted area extends only as far as the activity, e.g. footprint of the project.
<b>Site</b>	The impact could influence the whole, or a measurable portion of the affected properties.
<b>Regional</b>	The impact could affect the area including the neighboring areas.

**Table 6: Magnitude/Severity Ratings**

<b>MAGNITUDE/ SEVERITY-DOES THE IMPACT DESTROY THE ENVIRONMENT, OR ALTER ITS FUNCTION</b>	
<b>Low</b>	The impact alters the affected environment in such a way that natural processes are not affected.
<b>Medium</b>	The affected environment is altered, but functions and processes continue in a modified way.
<b>High</b>	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

**Table 7:: Significance Ratings**

<b>SIGNIFICANCE-THIS IS AN INDICATION OF THE IMPORTANCE OF THE IMPACT IN TERMS OF BOTH PHYSICAL EXTENT AND TIME SCALE, AND THEREFORE INDICATES THE LEVEL OF MITIGATION REQUIRED.</b>	
<b>Negligible</b>	The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

<b>Low</b>	The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
<b>Moderate</b>	The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
<b>High</b>	The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The matrix that was used for rating and assigning impacts weights is given in Table 15.

**Table 8:** Rating Matrix Legend for Groundwater Impacts

ASPECT	DESCRIPTION	WEIGHT
<b>Probability</b>	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
<b>Duration</b>	Short Term	1
	Medium Term	3
	Long Term	4
	Permanent	5
<b>Scale</b>	Local	1
	Site	2
	Regional	3
<b>Magnitude/Severity</b>	Low	2
	Medium	6
	High	8
<b>Significance</b>	<b>Sum (Duration, Scale, Magnitude) x Probability</b>	
	Negligible	<20
	Low	<40
	Moderate	<60
	High	>60

## 8.2. IMPACT IDENTIFICATION

It is important that interactions that could lead to potential impacts which may result from the project aspects, or interactions that could lead to potential impacts which may be intensified as a result of the project aspects, be identified (including potential areas of impact). Impact identification is discussed as per project phase (construction, operational and post-operational phase).

### 8.2.1. CONSTRUCTION PHASE

Impacts envisaged during the construction phase include:

During the inception phase, activities primarily involve exploration, site preparation, and initial construction.

#### Exploration Drilling and Excavation

**Groundwater Disruption:** Drilling can penetrate aquifers, potentially altering groundwater flow patterns and causing localized changes in groundwater levels.

**Surface Water Disturbance:** Initial excavation and drilling activities can disturb surface water bodies, leading to sedimentation and changes in water quality.

#### Land Clearing and Site Preparation

**Increased Runoff:** Removal of vegetation and soil can reduce infiltration rates, increasing surface runoff and the potential for erosion and sediment transport into nearby water bodies.

**Soil Compaction:** Heavy machinery can compact the soil, further reducing infiltration and increasing surface runoff.

#### Construction of Infrastructure

**Water Use:** Construction activities require water, potentially drawing from local surface or groundwater sources and affecting water availability for other uses.

**Sedimentation:** Construction can lead to increased sediment loads in nearby rivers and streams, impacting water quality and aquatic habitats.

### 8.2.2. OPERATIONAL PHASE

Impacts envisaged during the operational phase include:

During the operational phase, the mine is fully active, extracting and processing diamonds.

### Groundwater Extraction

**Aquifer Depletion:** Large volumes of groundwater may be pumped for processing, lowering the water table and affecting nearby wells and natural springs.

**Subsidence:** Over-extraction of groundwater can cause ground subsidence, potentially altering surface water flow patterns.

### Surface Water Usage

**Water Diversion:** Rivers or streams may be diverted to supply water for mining operations, reducing downstream flow and affecting ecosystems.

**Water Pollution:** The use of water in processing can lead to contamination with chemicals, sediments, and other pollutants, degrading water quality.

### Tailings and Waste Management

**Leachate Formation:** Tailings, which are the byproducts of ore processing, can generate leachate containing harmful chemicals that can seep into groundwater or surface water.

**Acid Mine Drainage:** Exposure of sulfide minerals in waste rock and tailings to air and water can produce acidic runoff, contaminating nearby water bodies.

### Erosion and Sedimentation

**Land Disturbance:** Continuous excavation and transportation activities can cause significant land disturbance, increasing erosion and sediment loads in nearby water bodies.

**Sediment Control:** Failure to implement effective sediment control measures can lead to siltation of rivers and streams, impacting water quality and aquatic habitats.

## 8.2.3. POST-OPERATIONAL PHASE

Impacts envisaged during the post operational phase include:

During the decommissioning phase, the mine is closed, and activities focus on site rehabilitation and environmental restoration.

### Rehabilitation and Land Reclamation

**Restoration of Hydrology:** Efforts to restore natural drainage patterns and re-establish vegetation can help stabilize the landscape, reduce erosion, and improve infiltration rates.

**Water Quality Improvement:** Remediation of contaminated sites and proper management of tailings can reduce the release of pollutants into water bodies.

Groundwater Recovery

**Water Table Rebound:** After pumping stops, groundwater levels may gradually recover, though this can take years or even decades depending on the extent of depletion and the recharge rate.

**Long-term Monitoring:** Continuous monitoring is required to ensure that groundwater quality and quantity recover to acceptable levels.

Management of Residual Waste

**Tailings Management:** Proper closure and capping of tailings storage facilities are crucial to prevent leachate generation and long-term water contamination.

**Preventing Acid Mine Drainage:** Ongoing management may be necessary to mitigate acid mine drainage, including the use of covers, water treatment systems, and other control measures.

**Table 9:** Hydrological Impacts

Phase	Activity	Hydrological Impacts
Inception Phase	Exploration Drilling and Excavation	- Groundwater disruption: Altered flow patterns, localized changes in groundwater levels. - Surface water disturbance: Increased sedimentation, water quality changes.
	Land Clearing and Site Preparation	- Increased runoff: Reduced infiltration rates, potential erosion and sediment transport. - Soil compaction: Reduced infiltration, increased surface runoff.
	Construction of Infrastructure	- Water use: Potentially reduces local water availability. - Sedimentation: Increased sediment loads in nearby water bodies, affecting water quality.
Operational Phase	Groundwater Extraction	- Aquifer depletion: Lowered water table, affecting wells and springs. - Subsidence: Ground subsidence altering surface water flow patterns.
	Surface Water Usage	- Water diversion: Reduced downstream flow, affecting ecosystems. - Water pollution: Contamination from chemicals and sediments, degrading water quality.

	Tailings and Waste Management	- Leachate formation: Harmful chemicals seeping into groundwater or surface water. - Acid mine drainage: Acidic runoff contaminating nearby water bodies.
	Erosion and Sedimentation	- Land disturbance: Increased erosion and sediment loads in water bodies. - Sediment control: Potential siltation of rivers and streams, impacting water quality and habitats.
<b>Decommissioning Phase</b>	Rehabilitation and Land Reclamation	- Restoration of hydrology: Stabilized landscape, reduced erosion, improved infiltration rates. - Water quality improvement: Reduced pollutant release into water bodies.
	Groundwater Recovery	- Water table rebound: Gradual recovery of groundwater levels. - Long-term monitoring: Ensuring recovery of groundwater quality and quantity.
	Management of Residual Waste	- Tailings management: Prevention of leachate generation, long-term water contamination. - Preventing acid mine drainage: Mitigation measures for controlling acidic runoff.

## 9. MANAGEMENT AND MITIGATION

This sub-section presents mitigation measures and/or enhancement measures for the identified impacts to be implemented either at the construction phase or operational phase.

### 9.1. CONSTRUCTION PHASE

The following mitigation measures are recommended for the construction phase:

During the inception phase, the primary activities include exploration drilling, land clearing, and construction of infrastructure. To mitigate hydrological impacts:

- **Minimize Groundwater Disruption:** Use advanced drilling techniques to minimize penetration into aquifers, reducing alterations in groundwater flow patterns.

- **Control Surface Water Disturbance:** Implement sediment control measures, such as silt fences and sediment ponds, to prevent increased sedimentation and protect water quality in nearby surface water bodies.
- **Reduce Runoff and Soil Compaction:** Employ erosion control measures like terracing and silt barriers to manage increased runoff. Minimize vegetation clearance and restore vegetation promptly to enhance soil stability and infiltration rates.
- **Optimize Water Use During Construction:** Efficiently manage water use to minimize the draw on local water resources. Use sediment traps and construct settling ponds to capture runoff from construction sites, preventing sediment from entering natural water bodies.

## 9.2. OPERATIONAL PHASE

In the operational phase, when the mine is fully active, the focus is on managing groundwater extraction, surface water usage, tailings and waste, and controlling erosion and sedimentation:

- **Monitor and Manage Groundwater Extraction:** Regularly monitor groundwater levels and adjust extraction rates to prevent aquifer depletion. Implement artificial recharge techniques, such as recharge wells and infiltration basins, to replenish groundwater supplies.
- **Implement Water Recycling and Reuse Systems:** To reduce the impact of water diversion, implement systems that recycle and reuse water within the mining process. This helps maintain downstream flow and supports ecosystem health.
- **Prevent Water Pollution:** Adopt best practices for waste management to prevent contamination from chemicals and sediments. Design and construct tailings storage facilities with proper liners and covers to prevent leachate formation and groundwater contamination.
- **Control Acid Mine Drainage:** Implement treatment systems, such as lime neutralization, to manage acidic runoff from exposed sulfide minerals in waste rock and tailings.
- **Reduce Land Disturbance and Sediment Transport:** Employ erosion control measures like vegetation cover and geotextiles to stabilize disturbed land. Regularly maintain and inspect sediment control structures to ensure their effectiveness in preventing siltation of rivers and streams.
-



### 9.3. POST-OPERATIONAL PHASE

The following is recommended for the post-operational phase:

During the decommissioning phase, activities focus on site rehabilitation and environmental restoration to mitigate long-term hydrological impacts:

- **Restore Natural Hydrology:** Re-establish natural drainage patterns and wetlands to stabilize the landscape and improve infiltration rates. Use phytoremediation techniques to enhance soil and water quality.
- **Monitor Groundwater Recovery:** Continuously monitor groundwater levels and quality to ensure gradual recovery post-closure. Implement adaptive management strategies based on monitoring data to address any emerging issues.
- **Manage Residual Waste:** Securely cap tailings storage facilities to prevent leachate generation and long-term water contamination. Continue treatment of any residual acid mine drainage and monitor its effectiveness over the long term.

Table 10: Impact Assessment Summary

INCEPTION PHASE		
Activity	Hydrological Impacts	Remedial Measures
Exploration Drilling and Excavation	- Groundwater disruption - Surface water disturbance	- Use advanced drilling techniques to minimize aquifer penetration - Implement sediment control measures (e.g., silt fences, sediment ponds)
Land Clearing and Site Preparation	- Increased runoff - Soil compaction	- Employ erosion control measures (e.g., terracing, silt barriers) - Minimize vegetation clearance and restore vegetation quickly
Construction of Infrastructure	- Water use - Sedimentation	- Optimize water use efficiency - Use sediment traps and construct settling ponds to capture construction runoff
OPERATIONAL PHASE		
Activity	Hydrological Impacts	Remedial Measures
Groundwater Extraction	- Aquifer depletion - Subsidence	- Monitor groundwater levels and adjust extraction rates - Use artificial recharge techniques (e.g., recharge wells, infiltration basins)
Surface Water Usage	- Water diversion - Water pollution	- Implement water recycling and reuse systems - Use best practices for waste management to prevent contamination
Tailings and Waste Management	- Leachate formation - Acid mine drainage	- Design and construct tailings storage facilities with proper liners and covers - Implement treatment systems for acid mine drainage (e.g., lime neutralization)
Erosion and Sedimentation	- Land disturbance - Sediment control	- Use erosion control measures (e.g., vegetation cover, geotextiles) - Regularly maintain and inspect sediment control structures



## DECOMMISSIONING PHASE

Activity	Hydrological Impacts	Remedial Measures
<b>Rehabilitation and Land Reclamation</b>	- Restoration of hydrology - Water quality improvement	- Re-establish natural drainage patterns and wetlands - Use phytoremediation to improve soil and water quality
<b>Groundwater Recovery</b>	- Water table rebound - Long-term monitoring	- Monitor groundwater levels and quality post-closure - Implement adaptive management strategies based on monitoring data
<b>Management of Residual Waste</b>	- Tailings management - Preventing acid mine drainage	- Securely cap tailings storage facilities - Continue treatment of any residual acid mine drainage and monitor for long-term effectiveness



## 10. FLOODLINE DELINEATION

Flood calculations were conducted for the catchment area to quantify the discharging volumes.

### 10.1. METHODOLOGY

The following section outlines the methodology that was implemented for flood line delineation, specifically:

- A desktop study which was conducted to gather catchment physiographic and the climatic data of the proposed area.
- The deterministic methods to be employed, The Rational Method was the most appropriate for this size of catchment.
- Using the design flood peak flows, the flood lines were modelled in HECRAS.

### 10.2. Rational Method

The Rational Method is a widely used approach for estimating peak stormwater runoff rates and designing drainage systems. QGIS is a Geographic Information System (GIS) software, and HEC-RAS is a hydraulic modeling software used for river and floodplain analysis. Here's a general methodology for using QGIS and HEC-RAS in conjunction with the Rational Method for flood determination:

#### **Data Collection and Preparation:**

- Obtain a Digital Elevation Model (DEM) for the study area, which provides elevation data.
- Acquire land use/land cover data, soil data, and rainfall intensity data for the area.
- Import the DEM and other necessary spatial data into QGIS.

#### **Rainfall Intensity and Time of Concentration:**

- Determine the design rainfall intensity for the desired return period (e.g., 25-year, 50-year, 100-year storm).
- Calculate the time of concentration ( $T_c$ ) for each sub-catchment in the study area.  $T_c$  represents the time it takes for runoff to travel from the farthest point in a drainage area to the outlet.

### **Runoff Coefficient:**

- Assign runoff coefficients to different land use/land cover classes using available literature or local standards. These coefficients represent the portion of rainfall that becomes runoff.
- Calculate the area-weighted average runoff coefficient for each sub-catchment.

### **Calculation of Peak Runoff Rate (Q):**

- Use the Rational Method equation:  $Q = C_i * A$ , where  $C_i$  is the runoff coefficient and  $A$  is the drainage area.
- Calculate the peak runoff rate for each sub-catchment.

### **Sub-catchment Delineation:**

- Use QGIS to delineate the study area into sub-catchments based on natural drainage divides. Divide the area into smaller units with similar characteristics.

### **Hydraulic Modeling with HEC-RAS:**

- Set up a hydraulic model in HEC-RAS to represent the river or channel network within the study area.
- Define cross sections and river reaches in HEC-RAS based on available data or field surveys.

### **Importing Rational Method Results to HEC-RAS:**

- In QGIS, associate each sub-catchment with the corresponding HEC-RAS river reach or node.
- Export the Rational Method results (peak runoff rates) from QGIS and import them into HEC-RAS.

### **Hydraulic Analysis and Flood Modeling:**

Run the HEC-RAS hydraulic model using the Rational Method peak runoff rates.

- Simulate the flow conditions for the selected return period and analyze the resulting flood extent, water depths, velocities, etc.

### **Model Calibration and Validation:**

- Calibrate the HEC-RAS model by comparing the simulated results with observed data (if available) to ensure the model accurately represents the actual flood conditions.

### **Results and Design:**

- Analyze the flood modeling results to assess potential flood risks and impacts.
- Use the hydraulic model to design and evaluate flood mitigation measures, such as channel improvements, levees, or stormwater management practices.

## **10.3. CONTRIBUTING CATCHMENT DETAILS**

The characteristics of a catchment play an important role in the determination of flood peaks. Steep slopes cause water to move faster and to shorten the critical time of the flood causing storm, thus increasing rainfall intensities in the runoff formulae.

The South African Weather Service was consulted to retrieve hydrologic and climatic data of the primary catchment. Historic data for SAWS Station which is in PLOOYSBURG I was used for this assessment. The details of the South African Weather Service station that provided Rainfall and Evaporation information are given below.

Table 11: Weather Station

<b>Station Name SAWS Distance Record</b>	Latitude	Longitude	MAP A	Altitude	Duration	Return	Period (years)							
Number (km) (Years)	(-)	(')	(-)	(')	(mm)	(m)	(m/h/d)	50	50L	50U	100	100L	100U	
PLOOYSBURG 0257391_W	29	1	24	14	332	1049	1	d	104.8	103.9	105.9	118.7	116.8	119.9

Table 12: Catchment Characteristics.

Catchment Area	2199.14 km <sup>2</sup>
Longest Watercourse	75 km
Average Slope	0.000355 mm
SDF Basin	PLOOYSBURG
Time of Concentration	39.23 hours
Q100	619.79 m <sup>3</sup> /s
Mean annual precipitation	332 mm

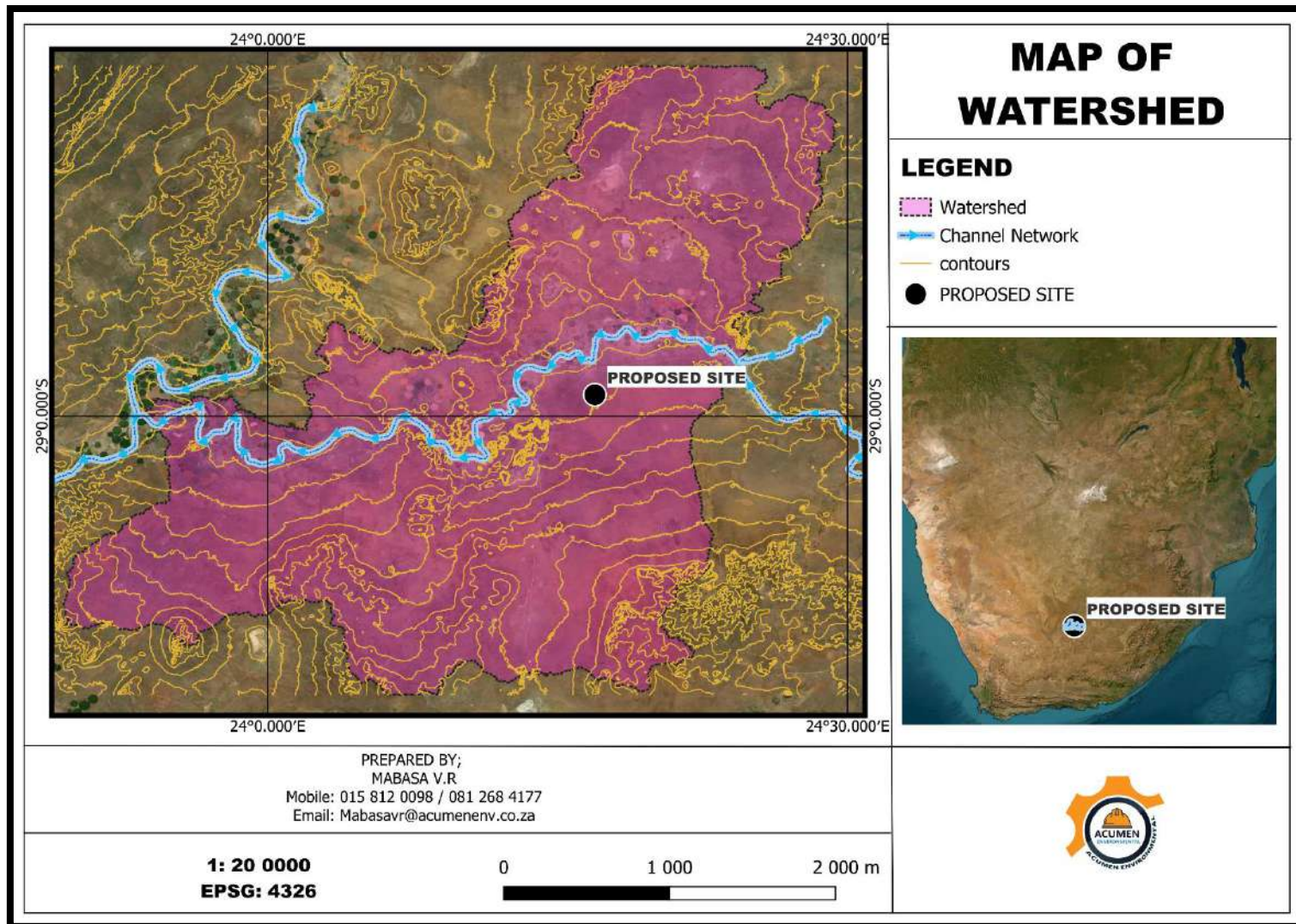


Figure 10: Catchment Delineation





## 10.4. RESULTS



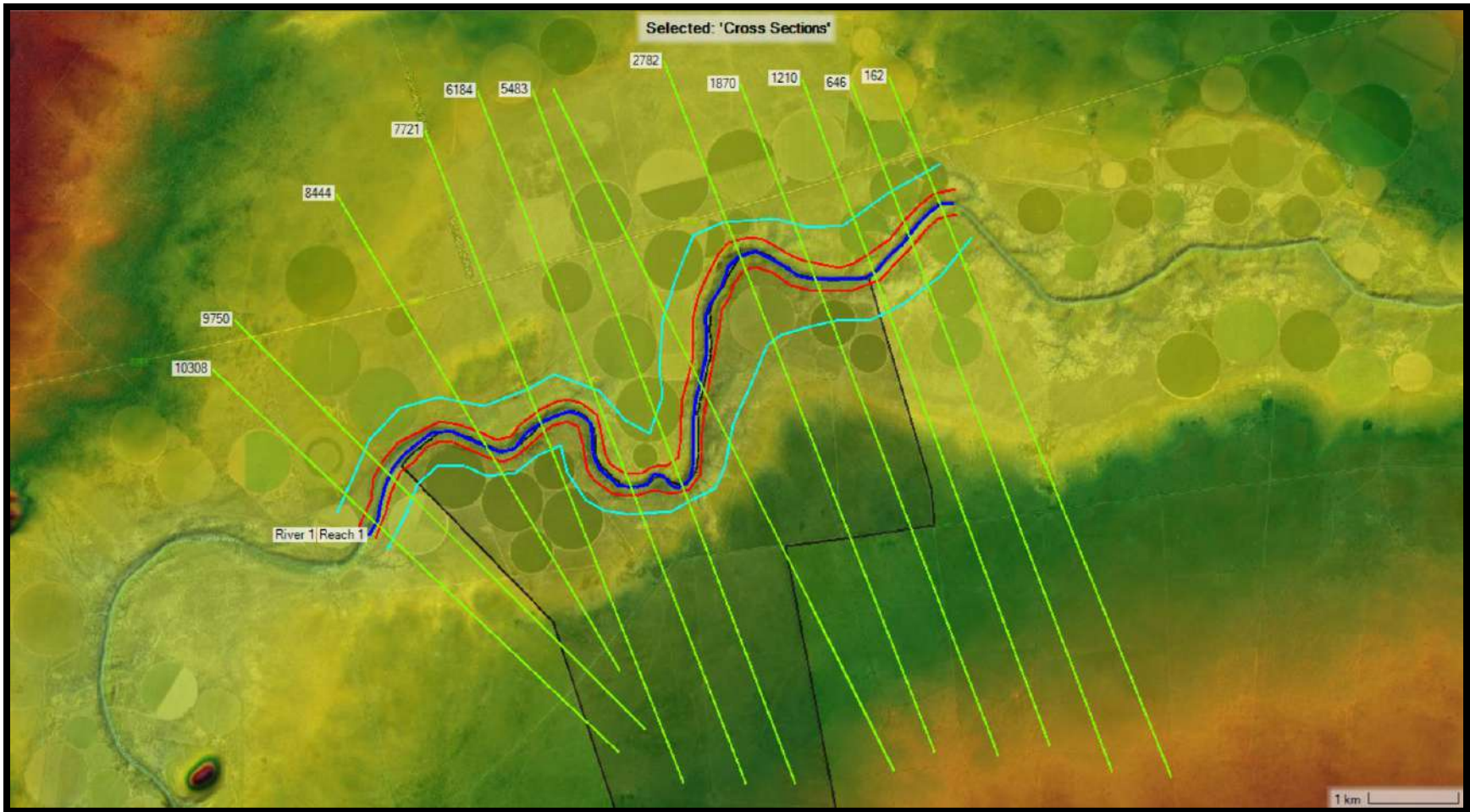


Figure 11: River Geometry

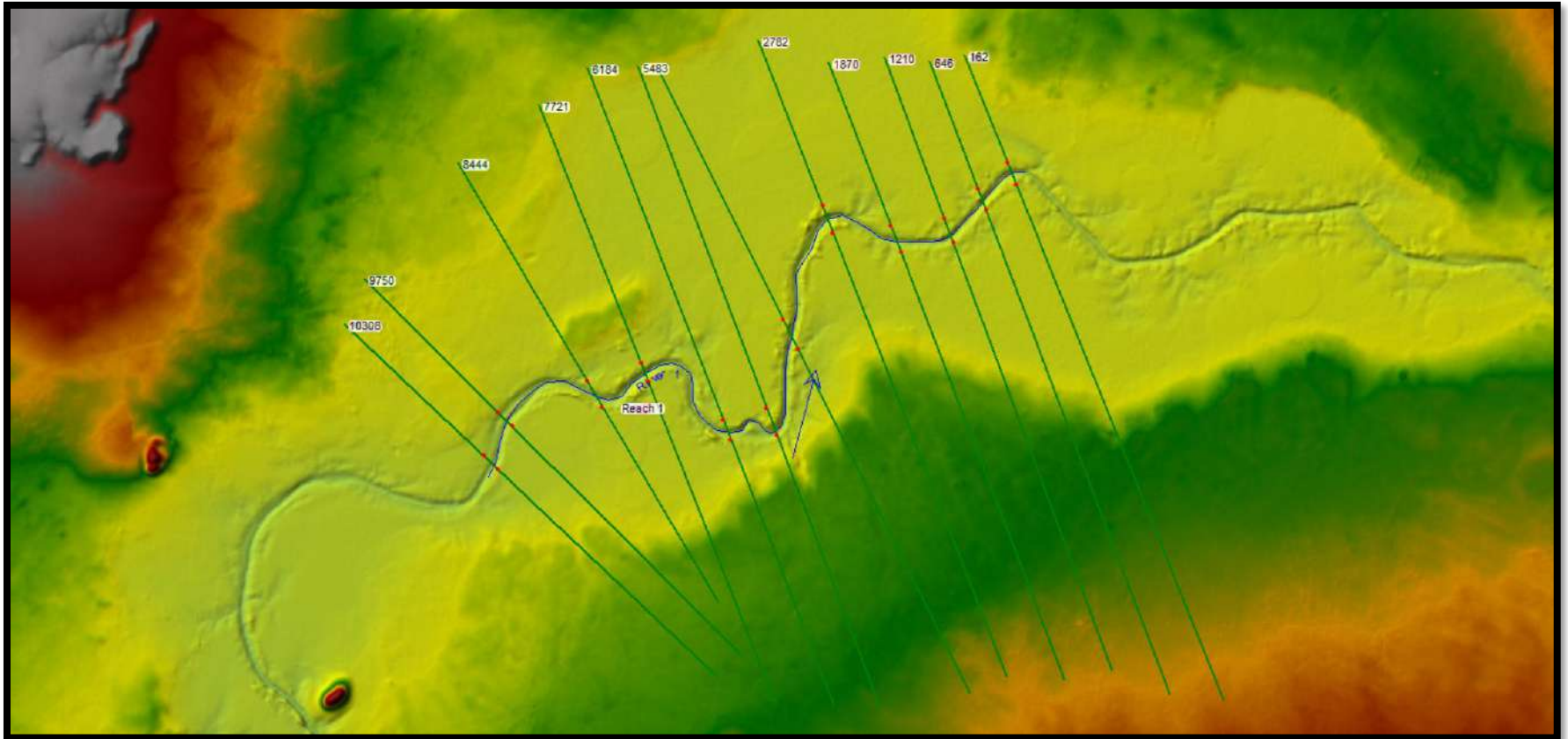


Figure 12: River Cross section.

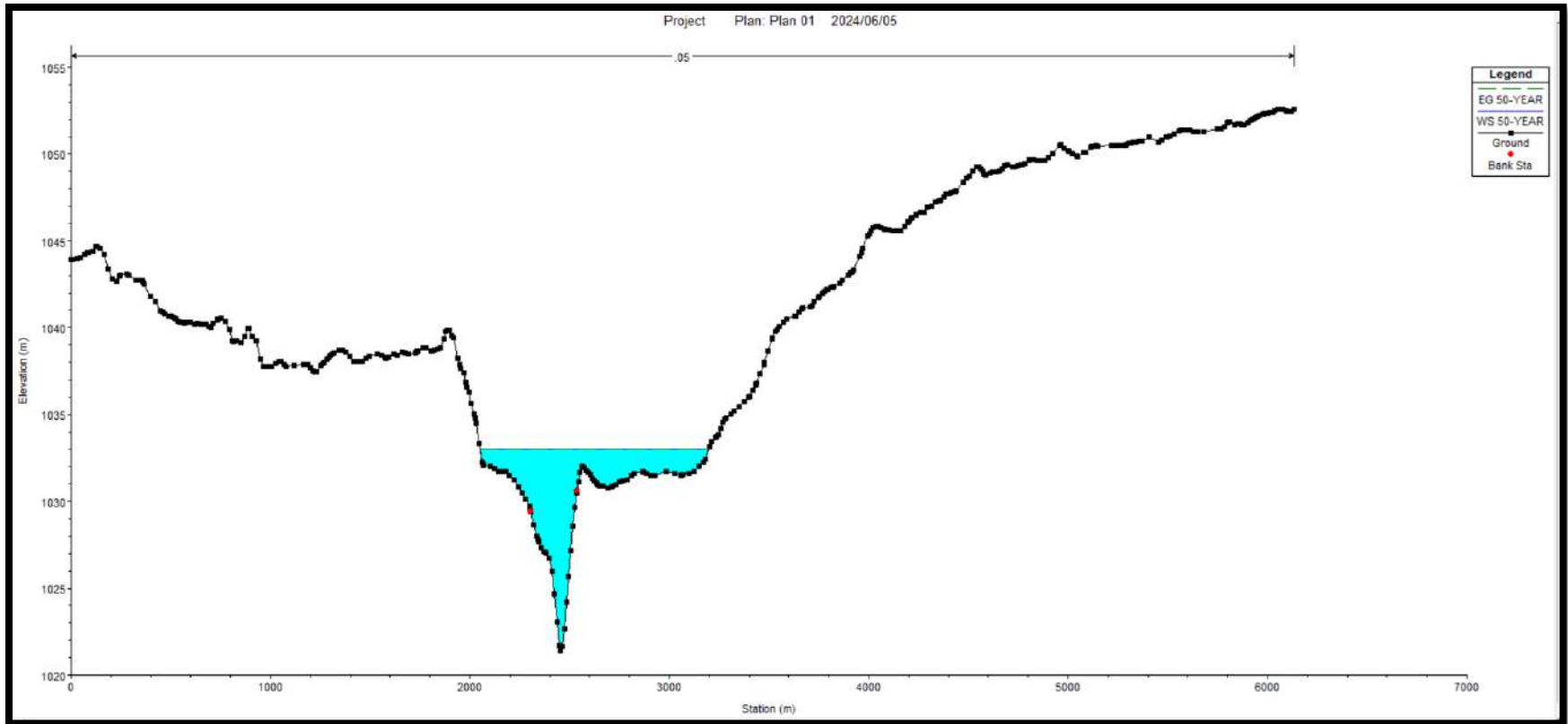


Figure 13: River Cross Section

Cross Section Output

File Type Options Help

River: River 1 Profile: 100-YEAR

Reach: Reach 1 RS: 10308 Plan: FLOW

Plan: FLOW River 1 Reach 1 RS: 10308 Profile: 100-YEAR

E.G. Elev (m)	1033.39	Element	Left OB	Channel	Right OB
Vel Head (m)	0.00	Wt. n-Val.	0.050	0.050	0.050
W.S. Elev (m)	1033.39	Reach Len. (m)	533.10	558.00	506.70
Crit W.S. (m)		Flow Area (m <sup>2</sup> )	504.91	1681.43	1246.65
E.G. Slope (m/m)	0.000015	Area (m <sup>2</sup> )	504.91	1681.43	1246.65
Q Total (m <sup>3</sup> /s)	696.00	Flow (m <sup>3</sup> /s)	61.51	487.70	146.80
Top Width (m)	1163.84	Top Width (m)	258.56	233.50	671.79
Vel Total (m/s)	0.20	Avg. Vel. (m/s)	0.12	0.29	0.12
Max Chl Dpth (m)	11.96	Hydr. Depth (m)	1.95	7.20	1.86
Conv. Total (m <sup>3</sup> /s)	178501.5	Conv. (m <sup>3</sup> /s)	15774.2	125078.8	37648.5
Length Wtd. (m)	546.50	Wetted Per. (m)	258.62	234.41	671.86
Min Ch El (m)	1021.42	Shear (N/m <sup>2</sup> )	0.29	1.07	0.28
Alpha	1.54	Stream Power (N/m s)	0.04	0.31	0.03
Frctn Loss (m)	0.01	Cum Volume (1000 m <sup>3</sup> )	2661.35	10357.74	2909.02
C & E Loss (m)	0.00	Cum SA (1000 m <sup>2</sup> )	1366.29	1713.86	1988.46

Errors, Warnings and Notes

Figure 14: Output Table

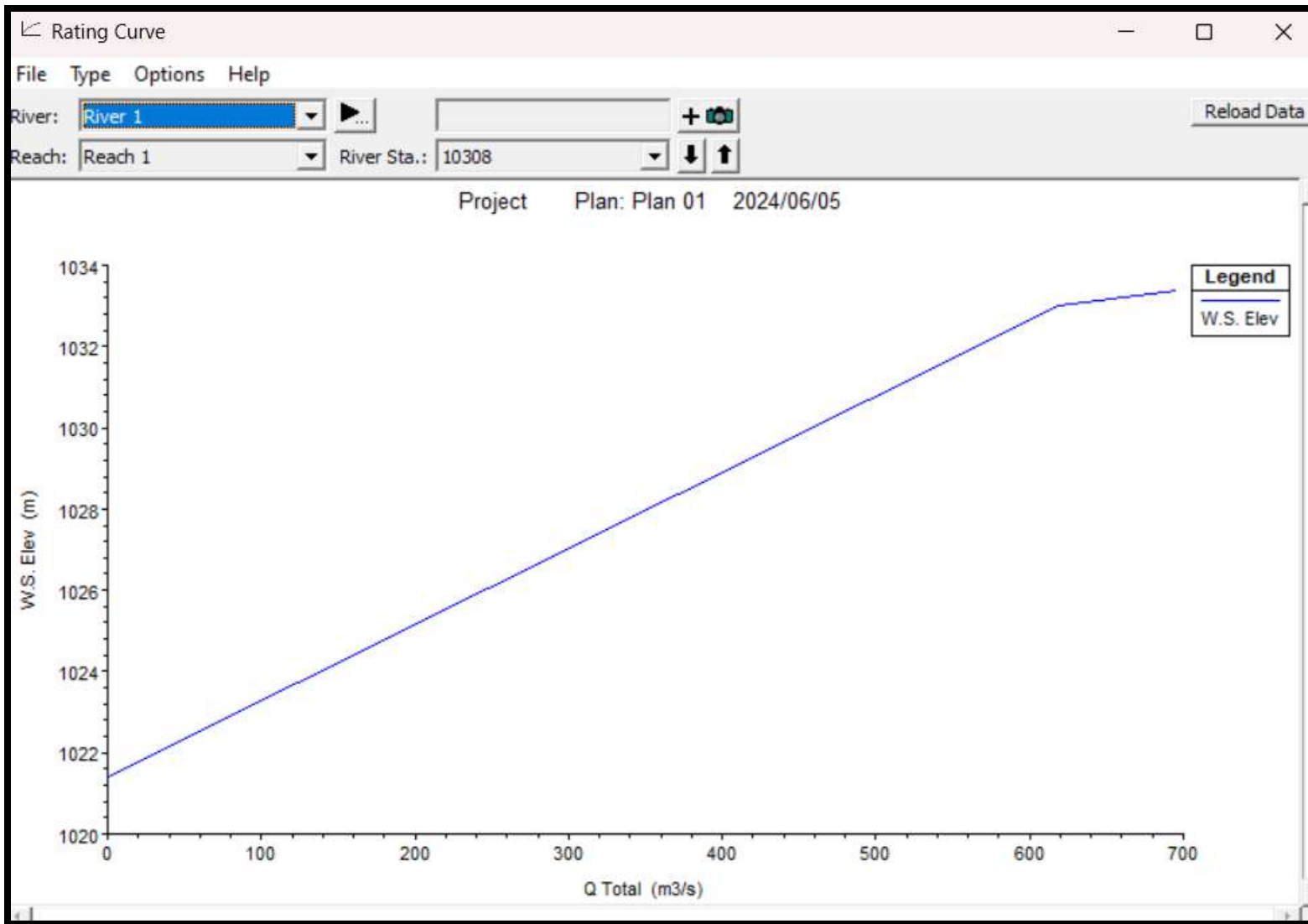


Figure 15: Results Table

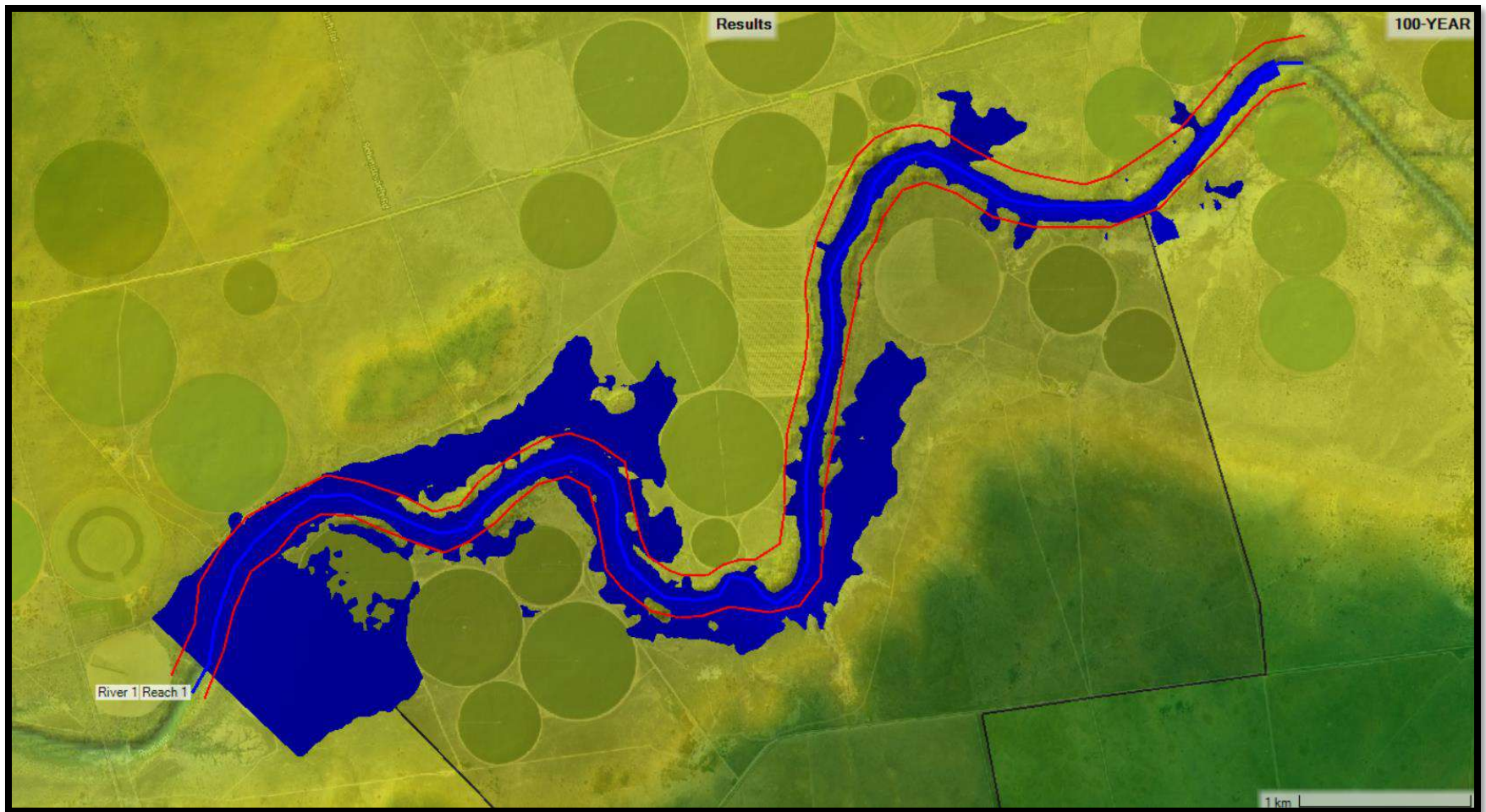
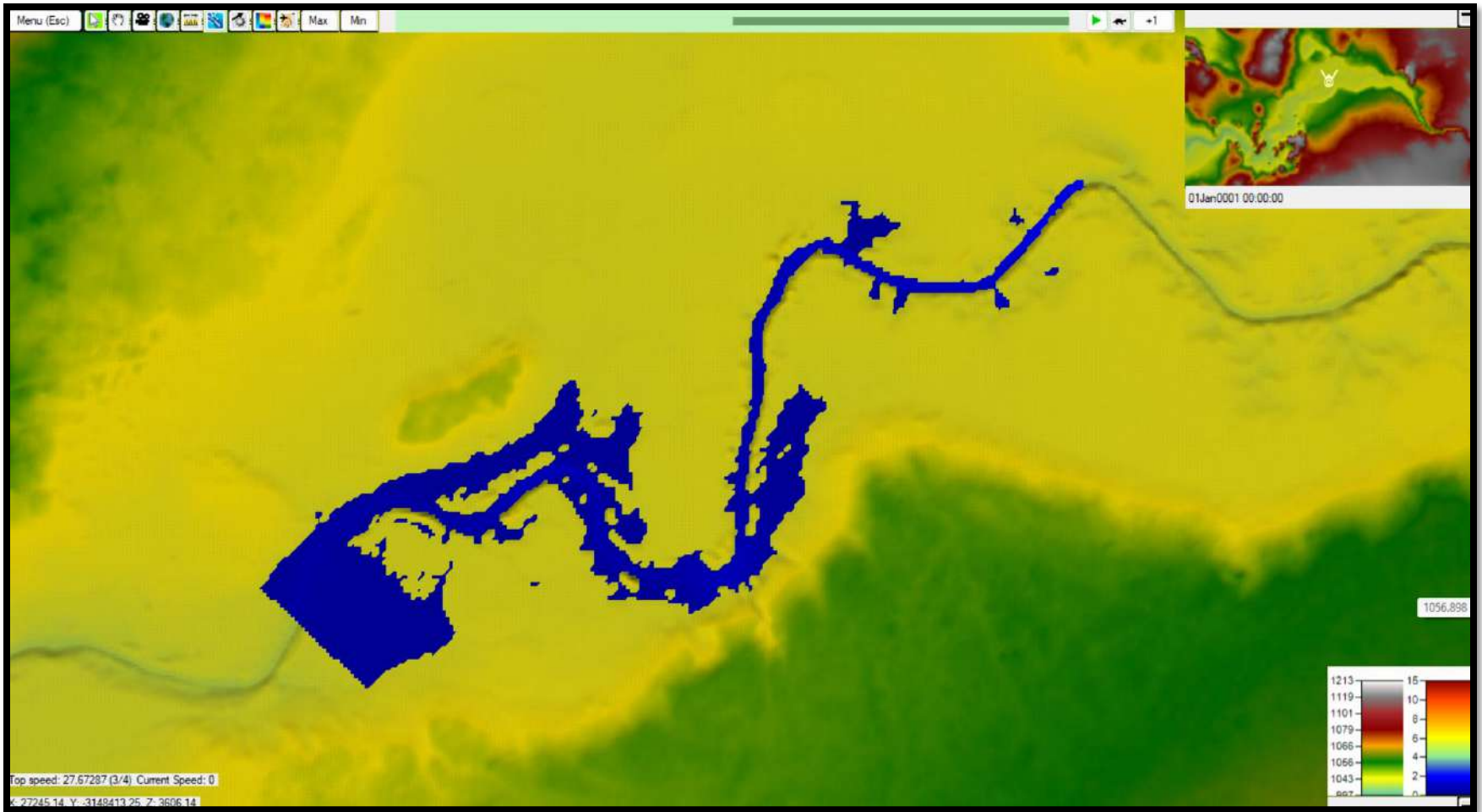


Figure 16: Floodline



# Vahlgewe Advisory





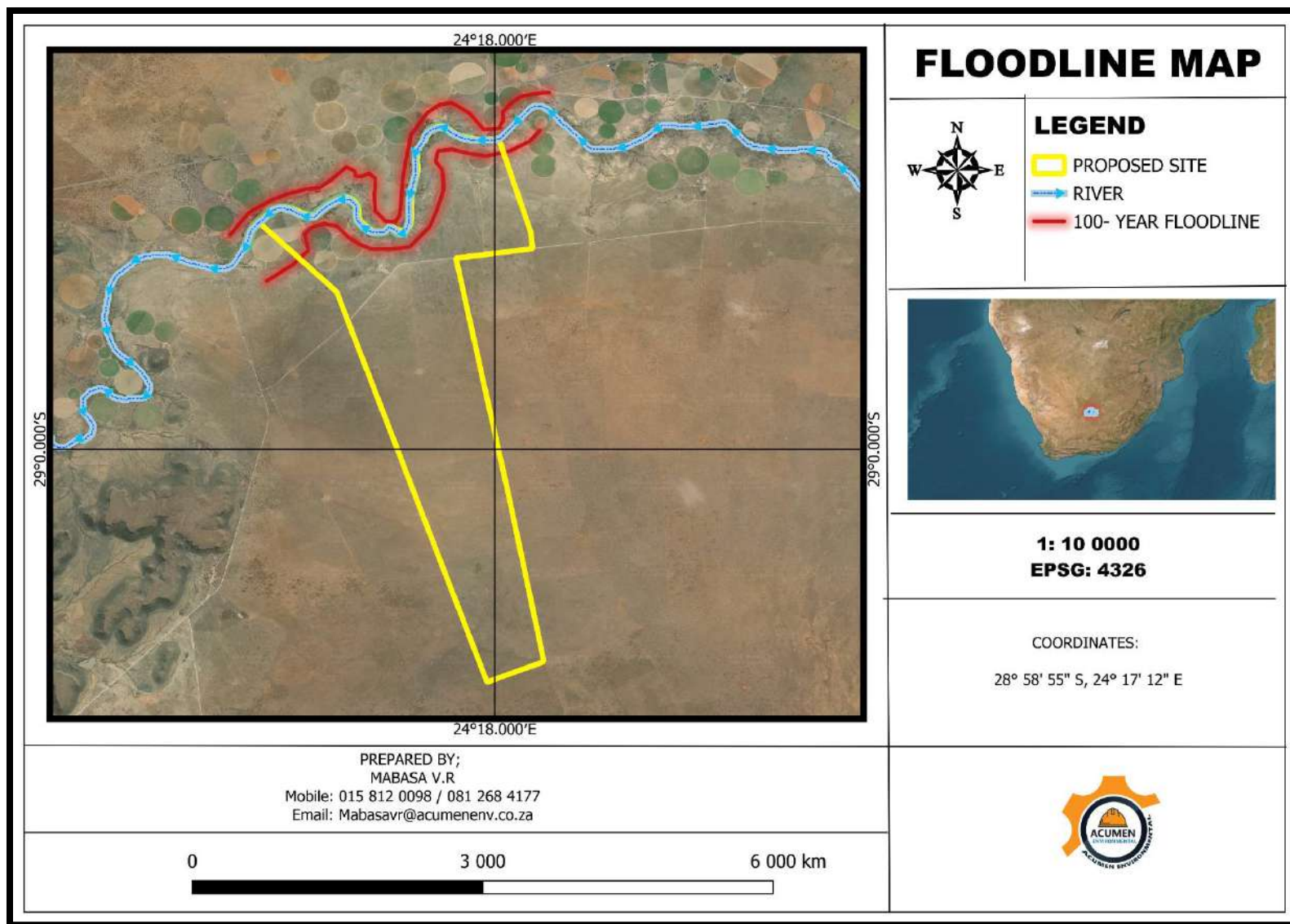


Figure 17: Floodline Map

## 11. CONCLUSIONS AND RECOMMENDATIONS

By May 2024 Acumen Environmental (Pty) Ltd was appointed by Vahlangwe Advisory to conduct a hydrological investigation for prospecting right application with bulk sampling for diamond and sand in respect of Portion 1 of the Farm Biesjesbult No.96 and Portion 2 and 3 of the Farm Biesjesbult No.99 in the Magisterial District of Herbert, Northern Cape Province.

The floodlines represent the calculated conditions possible during the 1:100-year return period floods as it assumed that the storm would occur over the full catchment and the stream will convey a peak flood. The nearest river systems that could cause a potential 1: 100-Year flood **do not encroach on the floodline on the majority of the site except where “solid Red lines” are indicated, and development should be avoided in such areas. Development should proceed as intended.**

## 12. REFERENCES

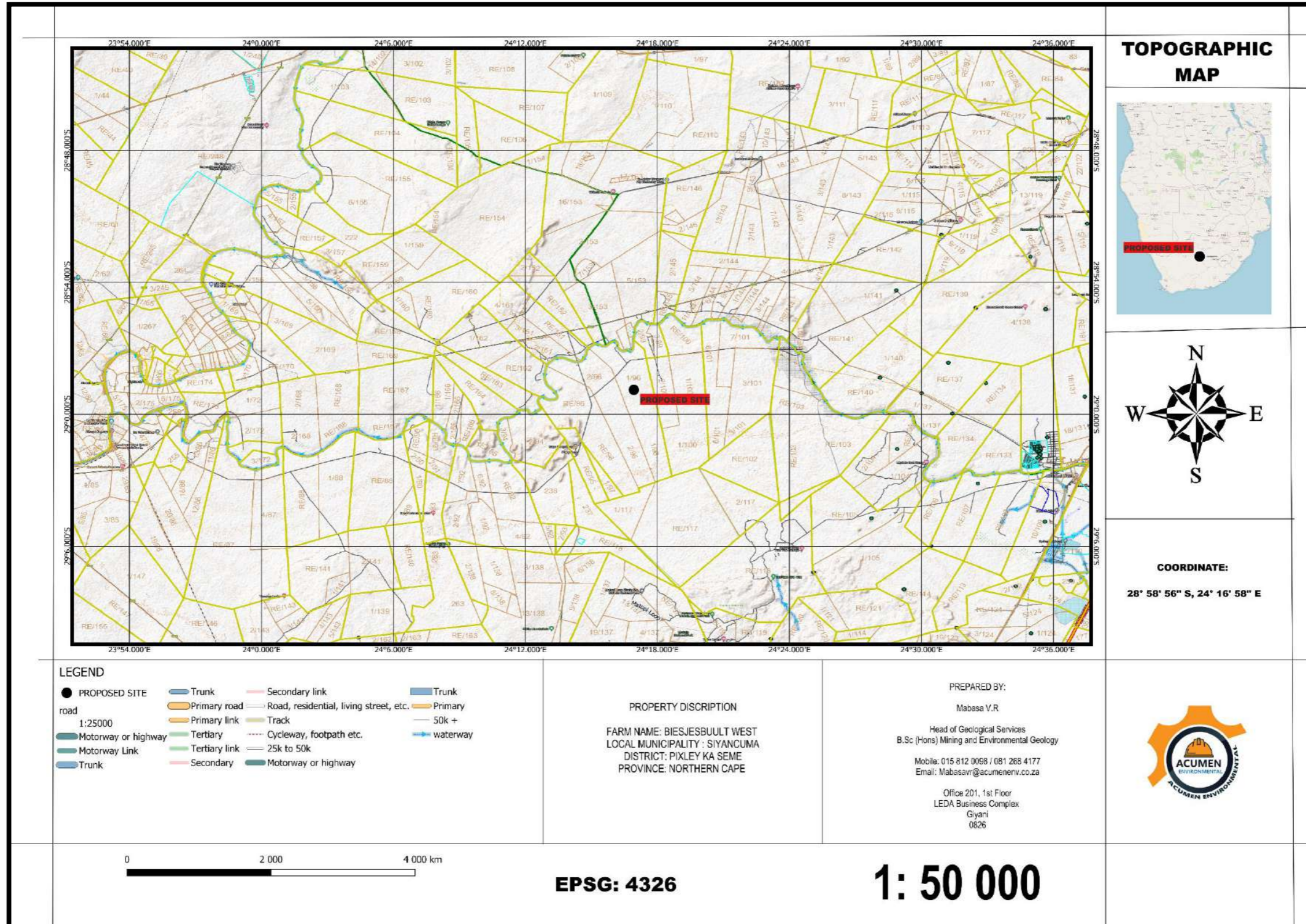
- 1) BUSH RA (1989) A Geohydrological Assessment of the Swartwater and Beauty Areas, Northern Western Transvaal. Report No. GH 3577. Directorate of Geohydrology, Department of Water Affairs and Forestry, Pretoria, South Africa.
- 2) Department of Water Affairs (2012): Aquifer classification map of South Africa.
- 3) Department of Water Affairs (2013): Aquifer Vulnerability of South Africa.
- 4) The South African Bureau of Standards, SABS-089-3 (1999): Part 3: The installation of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations.
- 5) Vegter JR (2000) Groundwater Development in South Africa and an Introduction to the Hydrogeology of Groundwater Regions. WRC Report No. TT 134/00. Water Research Commission, Pretoria, South Africa.
- 6) Water research Commission, Manual on Quantitative Estimation of Groundwater Recharge and Aquifer Storativity, (DB Bredenkamp et al), June 1995.
- 7) Barton, J.M., Du Toit, M.C., Van Reenen, D.D., and Ryan, B. 1983. Geochronologic studies in the southern marginal zone of the Limpopo Mobile Belt, Southern Africa.
- 8) Du Toit, W.H. 1984. Grondwater ondersoek: Letsitele. Report No GH3377, Directorate Geohydrology, Department of Water Affairs and Forestry



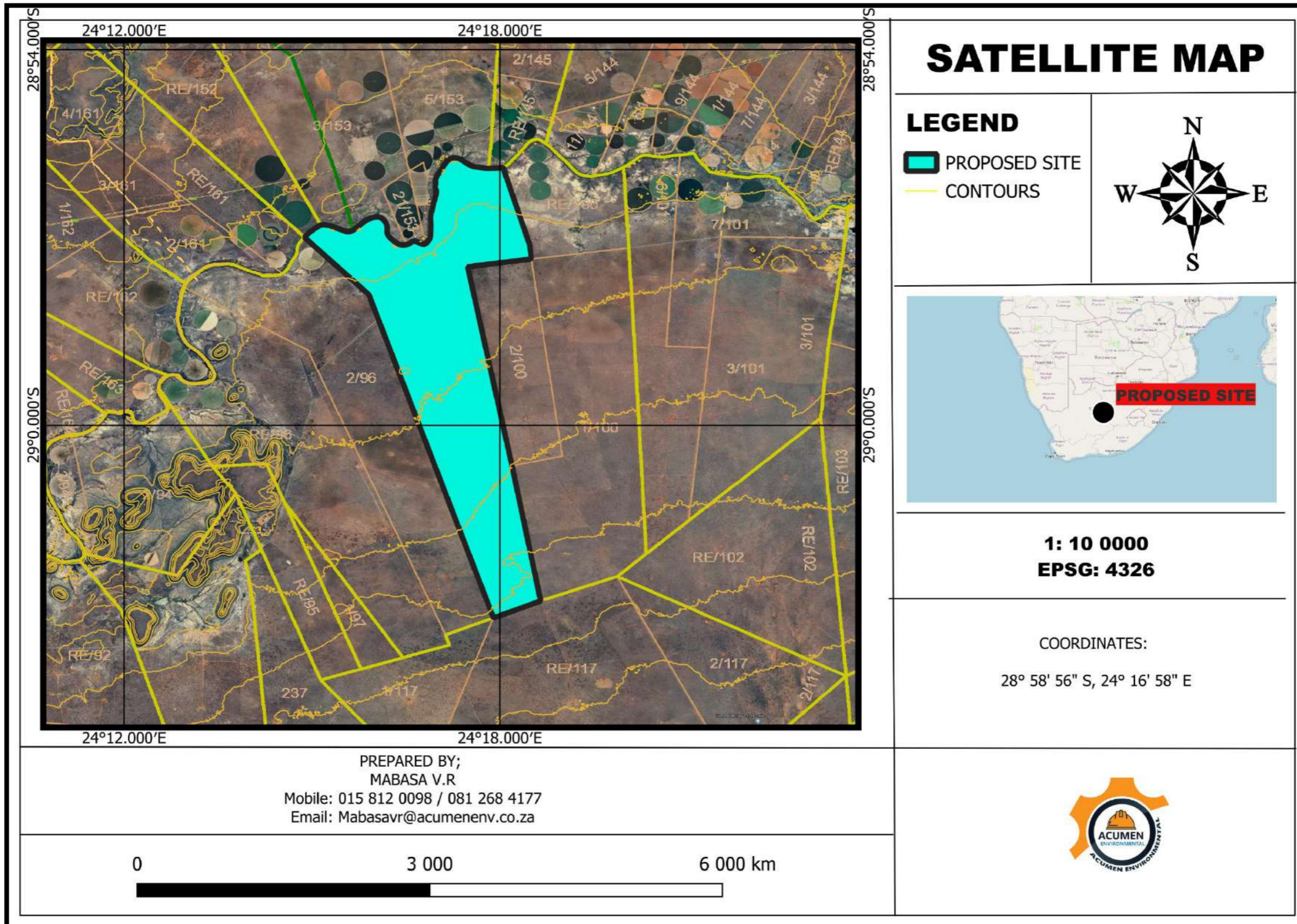
APPENDIX



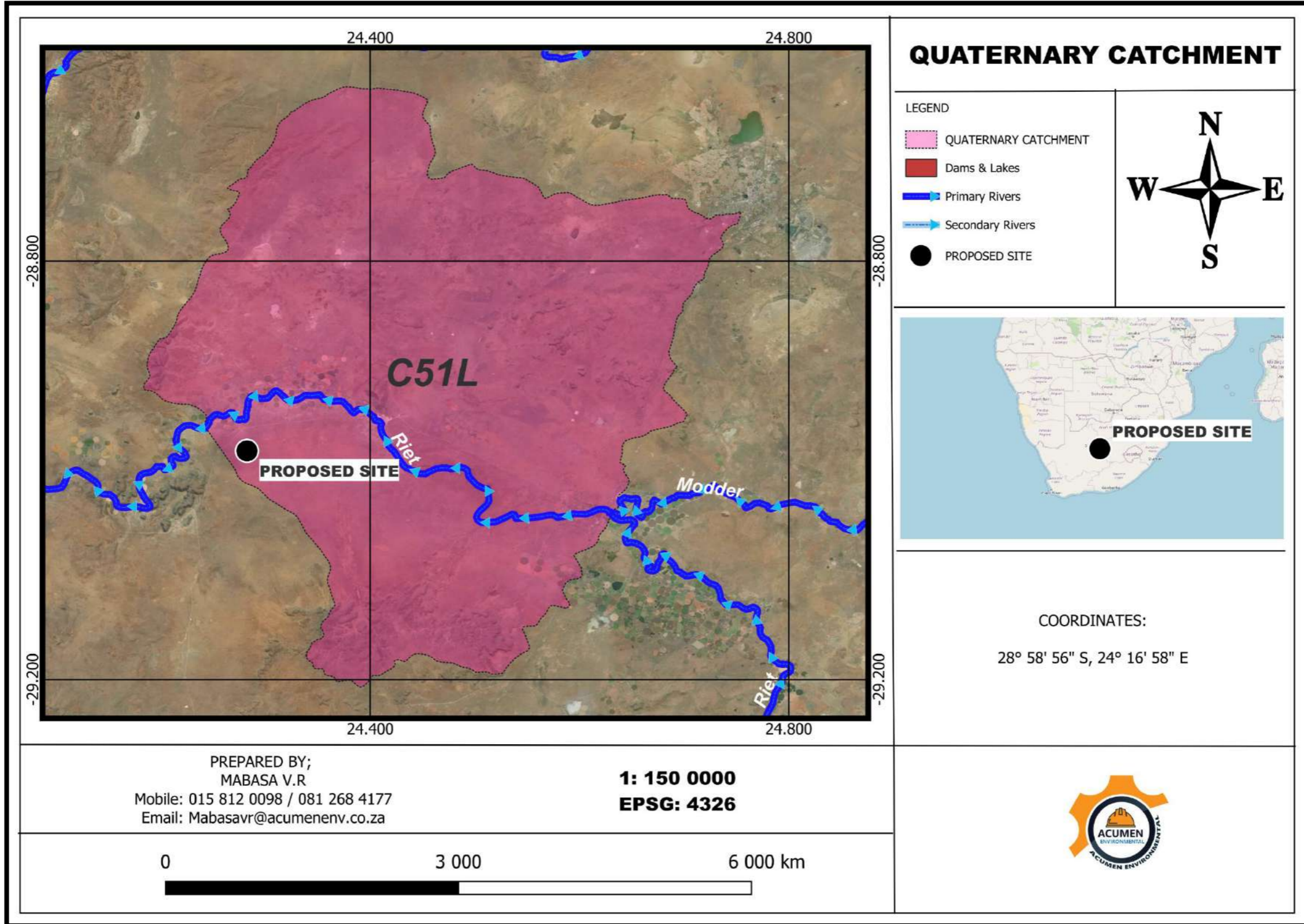
# APPENDIX A: TOPOGRAPHIC MAP



## APPENDIX B: SATELLITE MAP

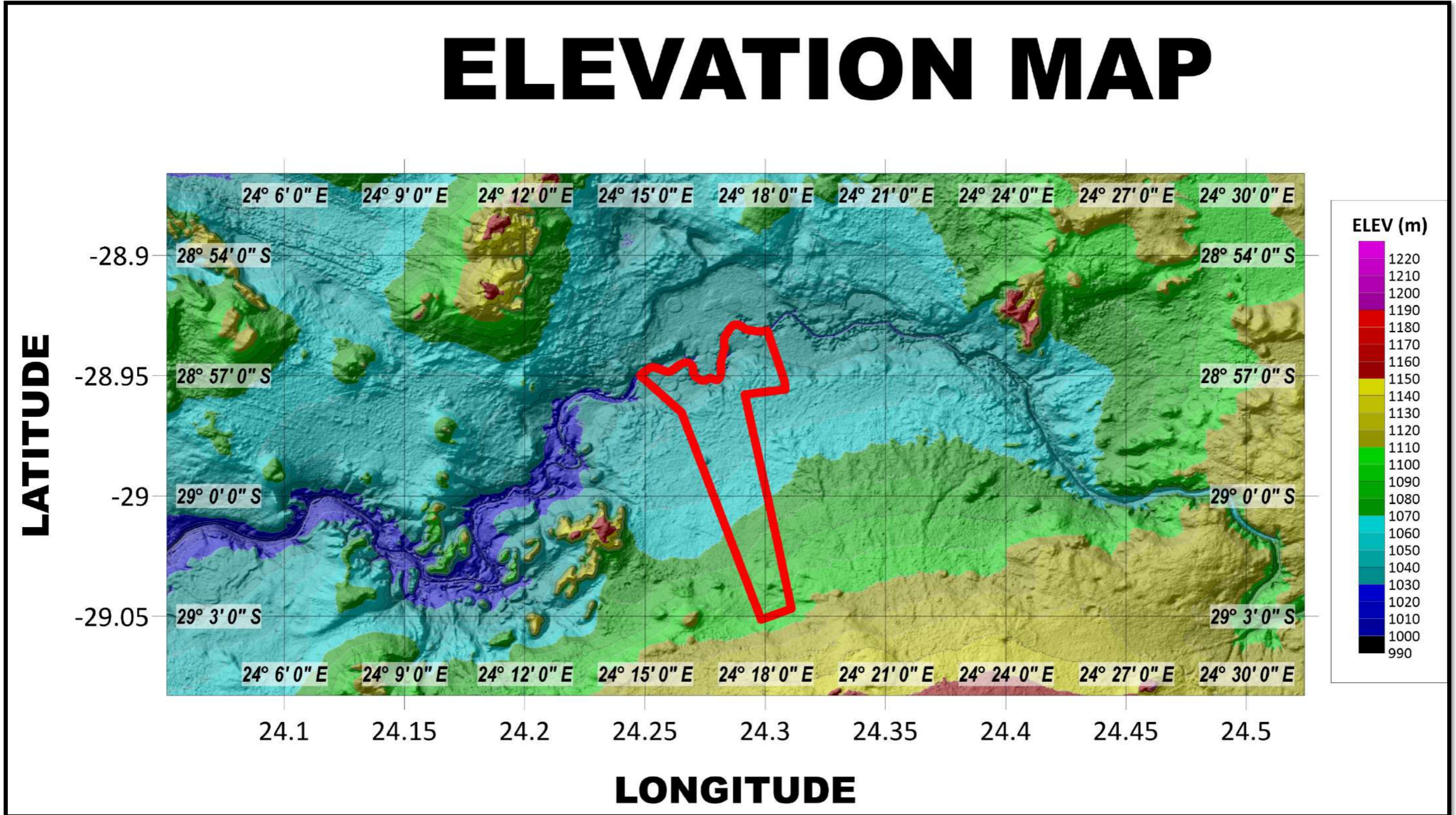


# APPENDIX C: QUATERNARY CATCHMENT



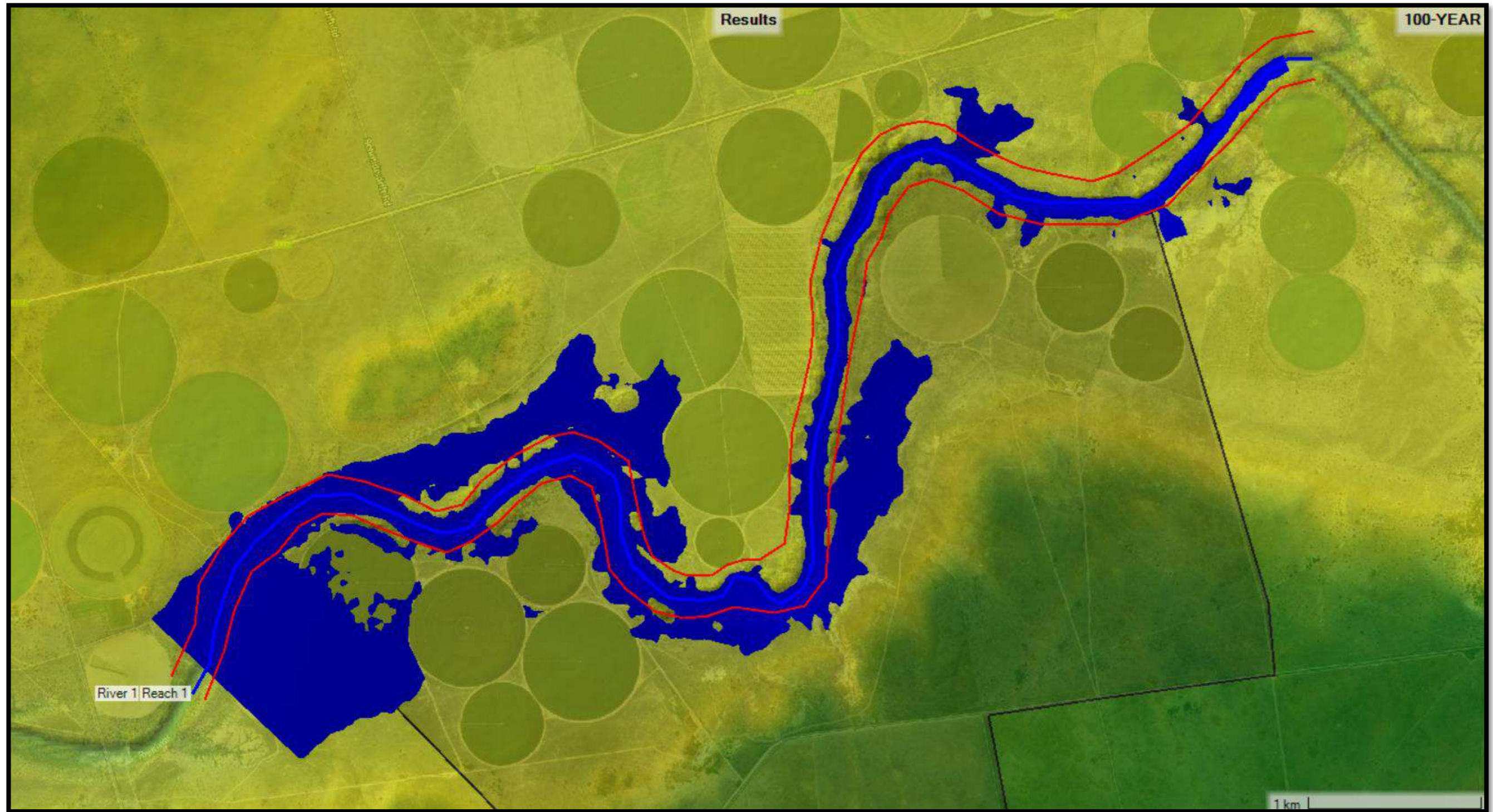
APPENDIX D: 3D MAP

# ELEVATION MAP

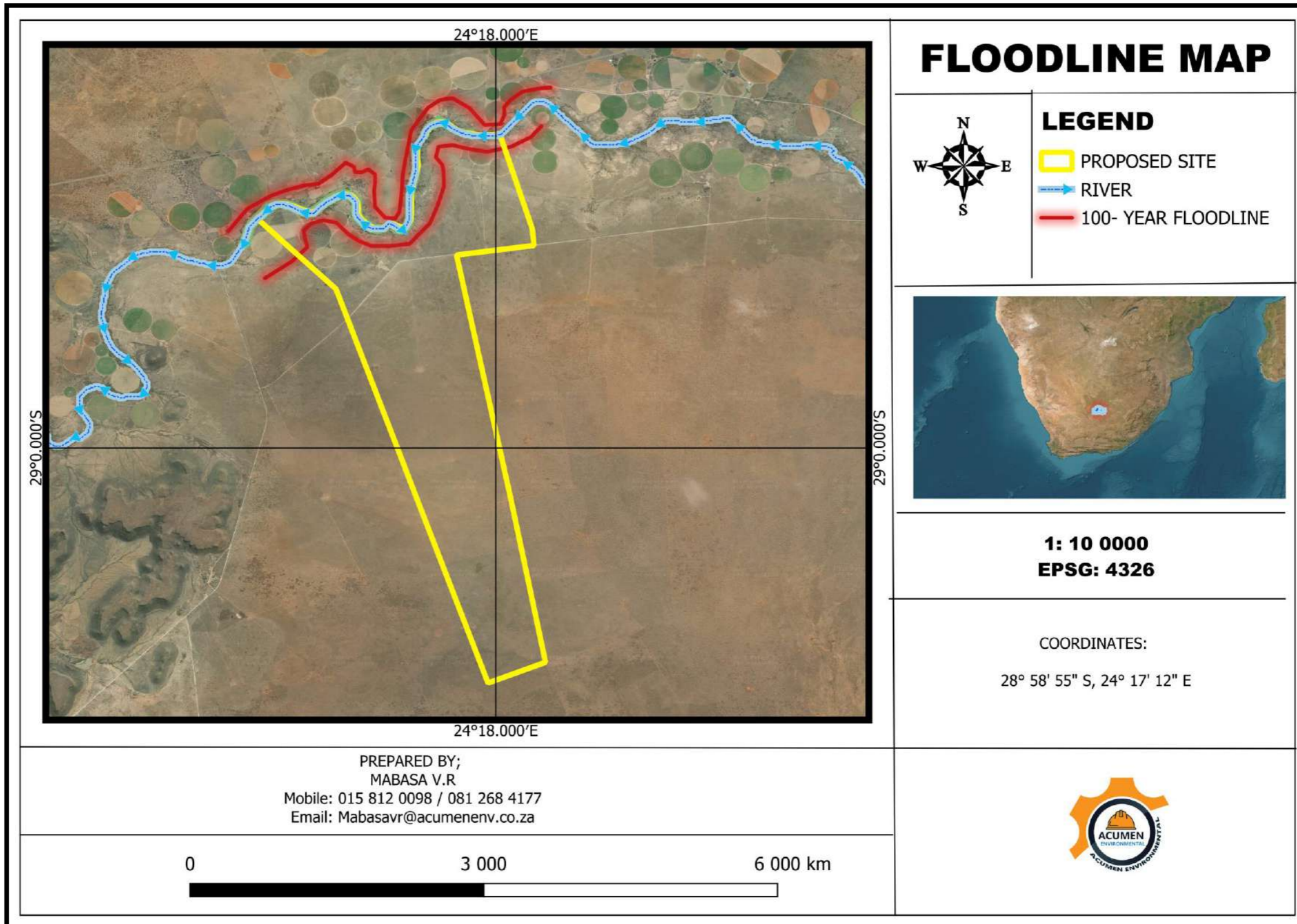




# APPENDIX: FLOODLINE MAP



# APPENDIX E POST PROCESSING FLOODLINE MAP



## APPENDIX F HYDROLOGY SENSITIVITY MAP

