



## mineral resources

Department:

Mineral Resources

**REPUBLIC OF SOUTH AFRICA**

### **SCOPING REPORT**

#### **FOR LISTED ACTIVITIES ASSOCIATED WITH PROSPECTING RIGHT AND/OR BULK SAMPLING ACTIVITIES INCLUDING TRENCHING IN CASES OF ALLUVIAL DIAMOND MINING**

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED)

**NAME OF APPLICANT:** NORTHERN SPARK TRADING 428 (PTY) LTD  
**TEL NO:** 082 567 7940 (BRAAM)  
**FAX NO:** 086 510 7120  
**POSTAL ADDRESS:** PO Box 583; Schweizer Reneke, 2780  
braam@hartzhoogte.co.za  
**PHYSICAL ADDRESS:** Botha Street 2, Schweizer Reneke, 2780  
**FILE REFERENCE NUMBER SAMRAD:** (NC) 30/5/1/1/2/13215 PR

**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 taken into account 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 therefore 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.

**OBJECTIVE OF THE SCOPING PROCESS**

The objective of the scoping report is to, through a consultative process—

- (a) identify the relevant policies and legislation relevant to the activity;
- (b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- (c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- (d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- (e) identify the key issues to be addressed in the assessment phase;
- (f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- (g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

**PART A**

**SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

**2) Contact Person and Correspondence Address**

**a) Details of:-**

**i) Details of the EAP who prepared the report:**

Name of the Practitioner:	<b>ROELIEN OOSTHUIZEN</b>
Tel No.:	<b>084 208 9088</b>
Fax No.:	<b>086 510 7120</b>
E-mail address:	<a href="mailto:roosthuizen950@gmail.com">roosthuizen950@gmail.com</a>
Physical Address:	<b>FARM OBERON, KIMBERLEY</b>
Postal Address:	<b>P.O. Box 110823, Hadisonpark; 8306</b>

**ii) Appointed by:**

Northern Spark Trading 428 (Pty) Ltd

**iii) Expertise of the EAP**

**(b) The qualifications of the EAP**

Registered Environmental Assessment Practitioner Number 2019/1467 at the Environmental Assessment Practitioners Association of South Africa (EAPASA).  
Masters in Environmental Management (UFS)  
B-Comm in Human and Industrial- Psychology (NWU)  
(with evidence attached as **Appendix 1**)

**(2) Summary of the EAP's past experience**

(In carrying out the Environmental Impact Assessment Procedure)

Relevant past experiences in carrying out the Environmental Impact Assessment Procedures include Environmental Impact Assessments, Environmental Management Plans/Programmes/ Reports, Performance assessments, Rehabilitation progress assessments, Environmental Liability assessments, Environmental compliance monitoring, Scoping Reports, etc.  
See attached CV. (with evidence attached as **Appendix 2**)

**b) Description of the property**

<b>Farm Name:</b>	REMAINING EXTENT OF THE FARM BRAKFORTEIN 276, Hopetown  IN EXTENT: 2 145.8123 HA
<b>Application area (Ha)</b>	2 145.8123 ha (Two thousand one hundred and forty-five comma eight one two three hectares.)
<b>Magisterial district:</b>	HOPETOWN, Northern Cape Province
<b>Distance and direction from nearest town</b>	Brakfontein is situated approximately 66km southwest of Douglas which, in turn, lies 110km southwest of Kimberley, the administrative capital of the Northern Cape Province and the historic centre of the South African diamond mining industry.  The Brakfontein property is located on near the south bank of the Orange River in the Hopetown district of the Northern Cape Province.
<b>21 digit Surveyor General Code for each farm portion</b>	C03300000000027600000

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## c) Locality map (show nearest town, scale not smaller than 1:250000)

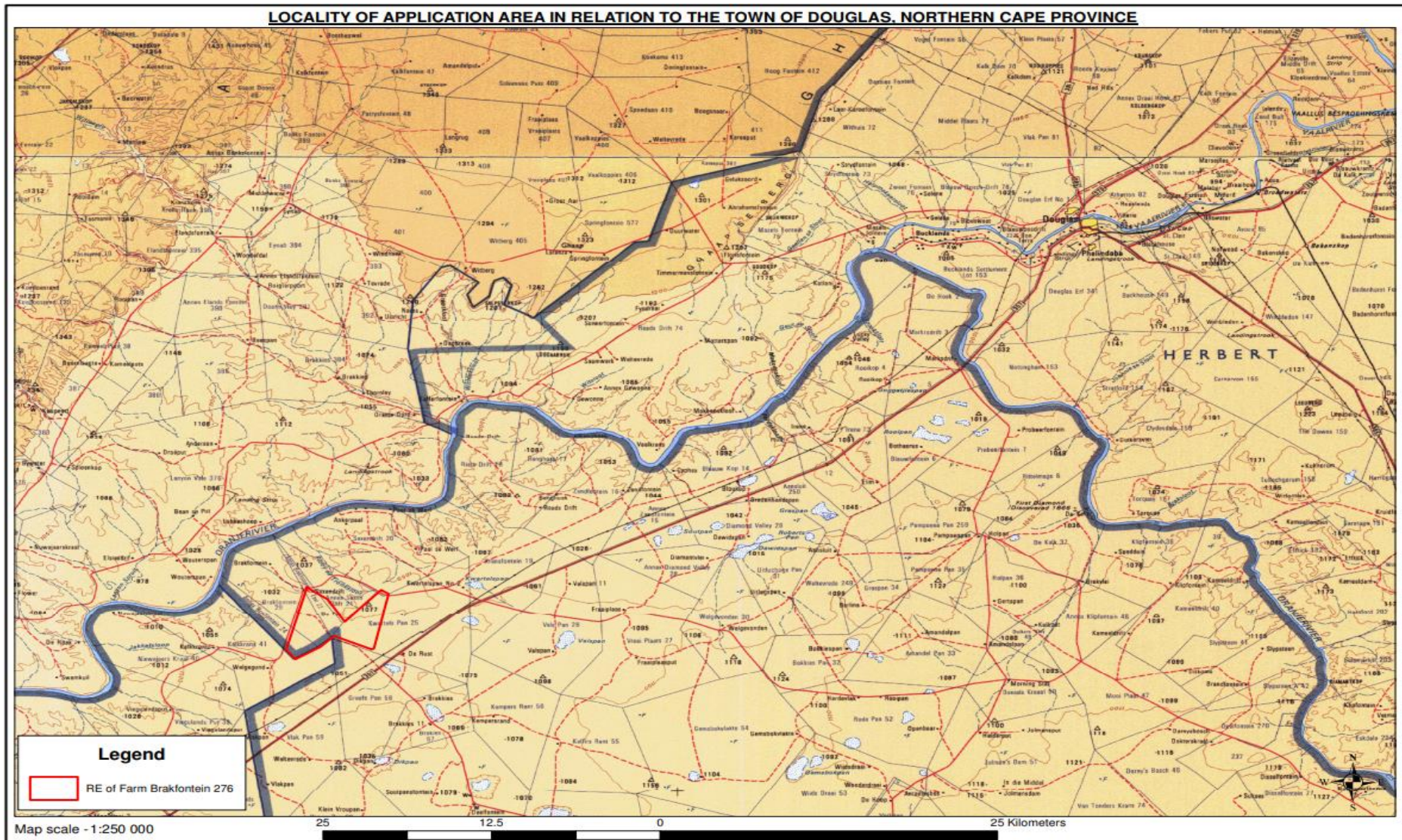


Figure 1. 1:250 000 topocadastral map indicating the application area in RED.

d) Description of the scope of the proposed overall activity

i) Listed and specified activities

(provide 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)

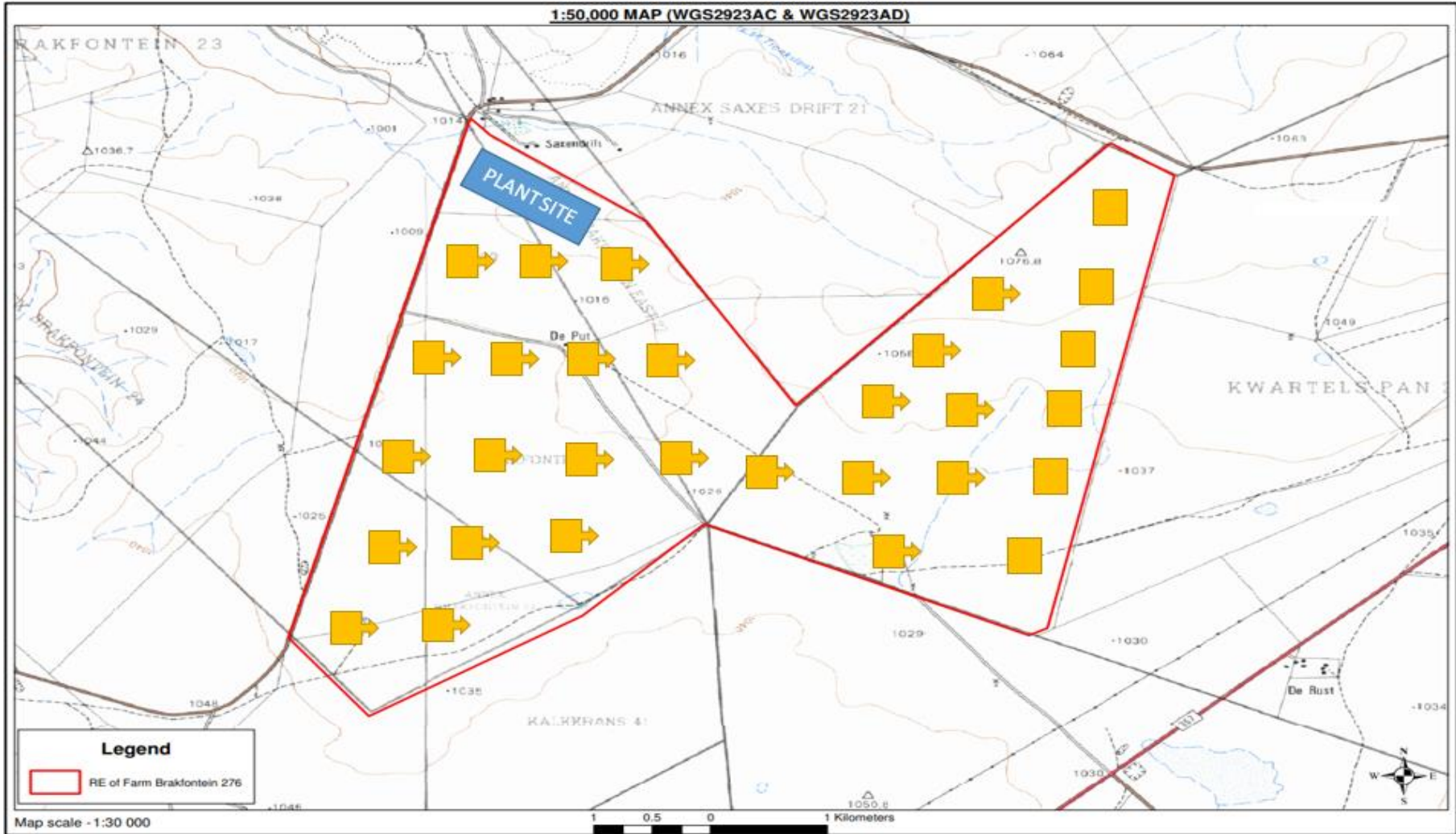


Figure 2. Location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site).

Table 1. Listed and Specified Activities

<p><b>NAME OF ACTIVITY</b></p> <p>e.g. for prospecting – drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route, etc...etc...etc.</p> <p>e.g. for mining – excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.</p>	<p><b>Aerial extent of the Activity</b> Ha or m<sup>2</sup></p>	<p><b>LISTED ACTIVITY</b> Mark with an X where applicable or affected</p>	<p><b>APPLICABLE LISTING NOTICE</b> (GNR 544, GNR 545 or GNR 546)/NOT LISTED</p>
<p><b>Activity 20 of Listing Notice 1</b></p> <p>Any activity including the operations of that activity which requires a prospecting right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including</p> <p>(a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource,</p> <p>(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reductio, refining, calcining or gasification of a mineral resource in which case activity 6 in listing notice 2 applies.</p>	<p>2 145.8123 ha application lodged for the farm</p>	<p>X</p>	<p>GNR 327 Listing Notice 1</p>
<p><b>Activity 19 of Listing Notice 2</b></p> <p>The removal and disposal of minerals contemplated in terms of Section 20 of the Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including</p> <p>(a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral resource or</p> <p>(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;</p> <p>but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or</p>	<p>2 145.8123 ha application lodged for the farm</p>	<p>X</p>	<p>GNR 325 Listing Notice 2</p>



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gasification of a mineral resource in which case activity 6 in listing notice 2 applies.			
<b>Activity 24(ii) of NEMA Listing Notice 1</b>  The development of a road- (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	±2 500 m <sup>2</sup> on the Area.	X	GNR327 Listing Notice 1
<b>Activity 56(ii) of NEMA Listing Notice 1</b>  The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre- (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres; excluding where widening or lengthening occur	±2 500m <sup>2</sup> on the Area.	X	GNR327 Listing Notice 1
<b>Activity 15 of NEMA Listing Notice 2</b>  The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of vegetation is required for – (i) The undertaking of a linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan.	Pits+Trenches COMBINED is ±20 ha	X	GNR 325 Listing Notice 2
<b>Activity 10 of NEMA Listing Notice 3</b>  The development of infrastructure for the storage and handling of dangerous goods (fuel), in containers with a combined capacity of between 30 and 80 m <sup>3</sup> .	± 80 m <sup>3</sup>	X	GNR 324 Listing Notice 3
<b>Activity 15 of Category A under the National Environmental Management: Waste Act 59 of 2008</b>  The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a Prospecting Right.	Residue stockpiles or residue deposits The continuous prospecting and stockpiling of topsoil, overburden and gravel 0.05 ha		GNR 633

<b>OTHER ACTIVITIES (Associated infrastructure not considered to be listed activities)</b>			
Temporary Workshop Facilities Ablution Facilities	±0.04 ha ±9m <sup>2</sup>		Not Listed
A water pipeline of unknown length but less than 1000m	1000m		Not Listed
Pipelines for the bulk transportation of water with a diameter of < 0.36 m and a peak throughput of < 120 L /s.	To be confirmed		Not Listed
Pipelines for the bulk transportation of slimes with a diameter of < 0.36 m and a peak throughput of < 120 L/s.	To be confirmed		Not Listed
Pipelines for the bulk transportation of return water with a diameter of < 0.36 m and a peak throughput of < 120 L/s.	To be confirmed		Not Listed

**ii) Description of the activities to be undertaken**

(Describe methodology or technology to be employed, including the type of commodity to be mined and for a linear activity, a description of the route of the activity)

The prospecting activities will be a combination of both non-invasive and invasive methods. A suitable level of feasibility study (technical and economic evaluation) will also be undertaken.

The initial prospecting activities will be non-invasive and restricted to a desktop study which include a literature survey, plus aerial photograph and satellite image interpretation, and ground validation of targets in the first year. Subsequent phases will be of the invasive-type, typically pitting, or trenching aimed at recovering suitably representative samples to determine grade and quality.

Bulk sample test work will be undertaken to test the grade and quality and ultimately the economic viability of the potential deposit.

**PHASE 1**

**Review of Past Exploration Results**

In order to direct the exploration programme in an efficient manner, there will be a review of all information and data gathered during previous exploration. A site investigation of the target areas will be undertaken to identify infrastructure and determine any potential problems that may need to be addressed.

**Imagery Analysis & Geological Mapping**

High-resolution satellite images will be studied and used to geologically map the application area. Contacts between various lithologies will be mapped and specific attention will be given to delineate and define areas underlain by alluvial gravels.

**PHASE 2**

**Invasive Prospecting Pits**

Invasive Prospecting Pits will be positioned on a grid of 200m X 200m or 100m X 50 m on positive areas.

**PHASE 3**

**Bulk Sampling 150 pits/ 30 trenches**

	<b>Length</b>	<b>Breadth</b>	<b>Depth</b>
<b>100 pits</b>	<b>2m</b>	<b>3m</b>	<b>0.5 - 5m</b>
<b>30 trenches</b>	<b>100m</b>	<b>50m</b>	<b>0.5 – 5m</b>

The vegetated soil overlying the planned trenches is stripped prior to excavation of the gravel and stockpiled on a dedicated dump to be used for rehabilitation purposes at a

later stage. Where the gravels are covered by hard calcrete possible drilling and blasting will be needed. Drill patterns can be staggered or square pattern, with burden and spacing of 4m x 4m. Blast holes are charged with emulsion explosive and different down-hole charge configurations are used depending on the different rock types to be blasted. This together with the necessary blasting accessories will achieve optimal fragmentation.

The gravel is loaded with a 60-t excavator into ADT's. Ore is hauled to the screening plant.

As an integral part of the bulk sampling processes, backfilling will take place continuously.

Gravels are loaded onto a vibrating grizzly and the +85 mm oversize material is discarded back into the open pit (about 25% reduction). The remaining –85 mm fraction is loaded into a 16-foot rotary pan with a treatment capacity of 50 tph. A magnetic separator is used to extract some of the heavy banded iron stones. Tracer tests are done regularly to ensure that the pans are operating at the correct density. Approximately 2.5 tonne of concentrate is tapped from the pan every hour and transported in locked containers to the final recovery unit.

The final recovery unit consists of a holding bin, sizing screen, sizing bins and one state of the art Flowsort X-ray recovery unit which recover diamonds from the +2 mm to – 32 mm size fraction. Final sorting of the Xray concentrate will be done manually or through a DMS.

Rehabilitation will take place continuously and at any stage only one trench will be open.

#### **PHASE 4**

##### **Analytical Desktop Study**

The project geologist monitors the programme, consolidates and processes the data and amends the programme depending on the results. This is a continuous process throughout the programme and continues even when no prospecting is done on the ground.

Each physical phase of prospecting is followed by desktop studies involving interpretation and modelling of all data gathered. These studies will determine the manner in which the work programme is to proceed in terms of activity, quantity, resources, expenditure and duration.

A GIS based database will be constructed capturing all exploration data.

e) Policy and Legislative Context

Table 2. Applicable legislation and guidelines used to compile the report

Applicable Legislation and Guidelines used to compile the report (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.)	Reference where applied	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT (E.g In terms of the National Water Act: -Water Use License has/has not been applied for).
Conservation of Agricultural Resources Act (Act 43 of 1983) and Regulations (CARA)	<ul style="list-style-type: none"> <li>- Section 5: Implementation of control measures for alien and invasive plant species;</li> <li>- Section 6: Control measures.</li> <li>- Regulation GN R1048, published on 25 May 1984, in terms of CARA</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
Constitution of South Africa (Act 108 of 1996)	<ul style="list-style-type: none"> <li>- Section 24: Environmental right</li> <li>- Section 25: Rights in Property</li> <li>- Section 27: Water and sanitation right</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon the approval of the EMPR.</li> </ul>
Environment Conservation Act (Act 73 of 1989) and Regulations (ECA)	<ul style="list-style-type: none"> <li>- Sections 21, 22, 25, 26 and 28: EIA Regulations, including listed activities that still relate to the existing section of ECA.</li> <li>- Section 28A: Exemptions.</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon the approval of the EMPR.</li> </ul>
Fencing Act (Act 31 of 1963)	<ul style="list-style-type: none"> <li>- Section 17: States that any person erecting a boundary fence may clean any bush along the line of the fence up to 1.5m on each side thereof and remove any tree standing in the immediate line of the fence. However, this provision must be read in conjunction with the environmental legal provisions relevant to protection of flora.</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

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Hazardous Substances Act (Act 15 of 1973) and Regulations read together with NEMA and NEMWA	- Definition, classification, use, operation, modification, disposal or dumping of hazardous substances.	- Noted and Considered measures are to be implemented upon the approval of the EMPR.
Intergovernmental Relations Act (Act 13 of 2005)	- This Act establishes a framework for the National, Provincial and Local Governments to promote and facilitate intergovernmental relations.	
Mine, Health and Safety Act (Act 29 of 1996) and Regulations	- Entire Act.	- Control measures are to be implemented upon the approval of the EMPR.
Mineral and Petroleum Resources Development Act (Act 28 of 2002) and Regulations as amended	- Entire Act. - Regulations GN R527	- A Prospecting Right has been applied for (NC) 30/5/1/1/2/ 13215 PR. - Rights and obligations to be adhered to.
National Environmental Management Act (Act 107 of 1998) and Regulations as amended	- Section 2: Strategic environmental management principles, goals and objectives. - Section 24: Foundation for Environmental Management frameworks. - Section 24N: - Section 24O: - Section 28: The developer has a general duty to care for the environment and to institute such measures to demonstrate such care. - Regulations GN R547, more specifically Chapters 5 and 7, where applicable (the remainder was repealed) published on 18 June 2010 in terms of NEMA (Environmental Management Framework Regulations) - Regulations GN R982 to R985, published on 4 December 2014 in terms of NEMA (Listed Activities) - Regulations GN R993, published on 8 December 2014 in terms of NEMA (Appeal) - Regulations GN R994, published on 8 December 2014 in terms of NEMA (exemption)	- Control measures are to be implemented upon the approval of the EMPR.

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	<ul style="list-style-type: none"> <li>- Regulations GN R205, published on 12 March 2015 in terms of NEMA (National appeal Amendment Regulations)</li> <li>- Regulations GN R1147, published on 20 November 2015 in terms of NEMA (Financial Provision)</li> </ul>	
National Environmental Management: Air Quality Act (Act 39 of 2004)	<ul style="list-style-type: none"> <li>- Section 32: Control of dust</li> <li>- Section 34: Control of noise</li> <li>- Section 35: Control of offensive odours</li> <li>- Regulation GN R551, published on 12 June 2015 (amended Categories 1 to 5 of GN 983) in terms of NEM: AQA (Atmospheric emission which have a significant detrimental effect on the environment)</li> <li>- Regulation GN R283, published on 2 April 2015 in terms of NEM: AQA (National Atmospheric Emissions Reporting Regulations) (Group C-Mines)</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> <li>- This is also legislated by Mine Health and Safety from DMR and is to be adhered to.</li> </ul>
National Environmental Management: Biodiversity Act (Act 10 of 2004)	<ul style="list-style-type: none"> <li>- Section 52 of The National Environmental Management Act: Biodiversity Act (NEMBA) (Act 10 of 2004) states that the MEC/Minister is to list ecosystems that are threatened and in need of protection.</li> <li>- Section 53 states that the Minister may identify any process or activity in such a listed ecosystem as a threatening process.</li> <li>- A list of threatened and protected species has been published in terms of Section 56(1) GG 29657 GNR 151 and GNR 152, Threatened or Protected Species Regulations.</li> </ul> <p>Commencement of Threatened or Protected Species Regulations 2007 : 1 June 2007 GNR 150/GG 29657/23-02-2007</p>	<ul style="list-style-type: none"> <li>- A permit application regarding protected plant species need to be lodged with DENC if any protected species is encountered. Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

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	<p>Publication of lists of critically endangered, vulnerable and protected species GNR 151/GG 29657/23-02-2007 *</p> <p>Threatened or Protected Species Regulations GNR 152/GG 296547/23-02-2007 *</p> <ul style="list-style-type: none"> <li>- Sections 65 – 69: These sections deal with restricted activities involving alien species; restricted activities involving certain alien species totally prohibited; and duty of care relating to alien species.</li> <li>- Sections 71 and 73: These sections deal with restricted activities involving listed invasive species and duty of care relating to listed invasive species.</li> <li>- Regulation GN R151, published on 23 February 2007 (List for Critically Endangered, Vulnerable and Protected Species, 2007) in terms of NEM: BA</li> <li>- Regulation GN R152, published on 23 February 2007 (TOPS) in terms of NEM:BA</li> <li>- Regulations GN R507 to 509 of 2013 and GN 599 of 2014 in terms of NEM:BA (Alien Species)</li> </ul>	
<p>The National Environmental Management Act: Protected Areas Act (NEMPAA) (Act 57 of 2003) provides for the protection of ecologically viable areas that are representative of South Africa’s natural biodiversity and its landscapes and seascapes.</p>	<ul style="list-style-type: none"> <li>- Chapter 2 lists all protected areas.</li> </ul>	<ul style="list-style-type: none"> <li>- This will be established with a specialist study. It is not anticipated that the prospecting operation fall within any protected area which is known.</li> </ul>
<p>National Environmental Management: Waste Management Act (Act 59 of 2008)</p>	<ul style="list-style-type: none"> <li>- Chapter 4: Waste management activities</li> <li>- Regulations GN R634 published on 23 August 2013 in terms of NEM: WA (Waste Classification and Management Regulations)</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon the approval of the EMPR.</li> </ul>



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	<ul style="list-style-type: none"> <li>- Regulations GN R921 published on 29 November 2013 in terms of NEM: WA (Categories A to C – Listed activities)</li> <li>- National Norms and Standards for the Remediation of contaminated Land and Soil Quality published on 2 May 2014 in terms of NEM: WA (Contaminated land regulations)</li> <li>- Regulations GN R634 published on 23 August 2013 in terms of NEM: WA (Waste Classification and Management Regulations)</li> <li>- Regulations GN R632 published on 24 July 2015 in terms of NEM: WA (Planning and Management of Mineral Residue Deposits and Mineral Residue Stockpiles)</li> <li>- Regulations GN R633 published on 24 July 2015 in terms of NEM: WA (Amendments to the waste management activities list published under GN921)</li> </ul>	
<p>National Forest Act (Act 84 of 1998) and Regulations</p>	<ul style="list-style-type: none"> <li>- Section 15: No person may cut, disturb, damage, destroy or remove any protected tree; or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister.</li> </ul>	<ul style="list-style-type: none"> <li>- A permit application regarding protected tree species need to be lodged with DAFF if necessary.</li> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
<p>National Heritage Resources Act (Act 25 of 1999) and Regulations</p>	<ul style="list-style-type: none"> <li>- Section 34: 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.</li> <li>- Section 35: 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.</li> <li>- Section 36: No person may, without a permit issued by SAHRA or a provincial heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR. Fossil finds procedure will be attached to the PIA.</li> </ul>

	<p>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 a forma cemetery administered by a local authority.</p> <ul style="list-style-type: none"> <li>- Section 38: This section provides for HIA which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during HIA process.</li> <li>- Regulation GN R548 published on 2 June 2000 in terms of NHRA</li> </ul>	
<p>National Water Act (Act 36 of 1998) and regulations as amended, <i>inter alia</i> Government Notice No. 704 of 1999</p>	<ul style="list-style-type: none"> <li>- Section 4: Use of water and licensing.</li> <li>- Section 19: Prevention and remedying the effects of pollution.</li> <li>- Section 20: Control of emergency incidents.</li> <li>- Section 21: Water uses In terms of Section 21 a licence is required for: <ul style="list-style-type: none"> <li>(a) taking water from a water resource;</li> <li>(b) storing water;</li> <li>(c) impeding or diverting the flow of water in a watercourse;</li> <li>(f) Waste discharge related water use;</li> <li>(g) disposing of waste in a manner which may detrimentally impact on a water resource;</li> <li>(i) altering the bed, banks, course or characteristics of a watercourse;</li> <li>(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;</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- A water use application must be submitted and will be submitted as soon as the EIA EMP had been finalized.</li> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

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	<ul style="list-style-type: none"> <li>- Regulation GN R704, published on 4 June 1999 in terms of the National Water Act (Use of water for mining and related activities)</li> <li>- Regulation GN R1352, published on 12 November 1999 in terms of the National Water Act (Water use to be registered)</li> <li>- Regulation GN R139, published on 24 February 2012 in terms of the National Water Act (Safety of Dams)</li> <li>- Regulation GN R398, published on 26 March 2004 in terms of the National Water Act (Section 21 (j))</li> <li>- Regulation GN R399, published on 26 March 2004 in terms of the National Water Act (Section 21 (a) and (b))</li> <li>- Regulation GN R1198, published on 18 December 2009 in terms of the National Water Act (Section 21 (c) and (i) – rehabilitation of wetlands)</li> <li>- Regulations GN R1199, published on 18 December 2009 in terms of the National Water Act (Section 21 (c) and (i))</li> <li>- Regulations GN R665, published on 6 September 2013 in terms of the National Water Act (Amended GN 398 and 399 – Section 21 (e), (f), (h), (g), (j))</li> </ul>	
Nature Conservation Ordinance (Ord 19 of 1974)	<ul style="list-style-type: none"> <li>- Chapters 2, 3, 4 and 6: Nature reserves, miscellaneous conservation measures, protection of wild animals other than fish, protection of Flora.</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
Occupational Health and Safety Act (Act 85 of 1993) and Regulations	<ul style="list-style-type: none"> <li>- Section 8: General duties of employers to their employees.</li> <li>- Section 9: General duties of employers and self-employed persons to persons other than their employees.</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
Road Traffic Act (Act 93 of 1997) and Regulations	<ul style="list-style-type: none"> <li>- Entire Act.</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

**SCOPING REPORT – NORTHERN SPARK TRADING 428 (Pty) Ltd  
BRAKFRONTEIN 276, HOPETOWN**

Water Services Amendment Act (Act 30 of 2007)	- It serves to provide the right to basic water and sanitation to the citizens of South Africa (giving effect to section 27 of the Constitution).	- Control measures are to be implemented upon the approval of the EMPR.
National Land Transport Act, (Act 5 of 1998)		- To take note.
Spatial Planning and Land Use Management (Act 16 of 2013 (SPLUMA) and regulations	- To provide a framework for spatial planning and land use management in the Republic; - To specify the relationship between the spatial planning and the land use management, amongst others - Regulations GN R239 published on 23 March 2015 in terms of SPLUMA	- To be implemented upon the approval of the EMPR.
Subdivision of Agricultural Land Act, 70 of 1970 and regulations	- Regulations GN R373 published on 9 March 1979 in terms of Subdivision of Agricultural Land	- To take note.
Basic Conditions of Employment Act (Act 3 of 1997) ) as amended	- To regulate employment aspects	- To be implemented upon the approval of the EMPR
Community Development (Act 3 of 1966)	- To promote community development	- To be implemented upon the approval of the EMPR
Development Facilitation (Act 67 of 1995) and regulations	- To provide for planning and development	- To take note.
Development Facilitation (GNR1, GG20775, 07/01/2000)	- Regulations re application rules S26, S46, S59	- To take note.
Development Facilitation (GN732, GG14765, 30/04/2004)	- Determines amount, see S7(b)(ii)	- To take note.
Land Survey Act (Act 8 of 1997) ) and regulations, more specifically GN R1130	- To control land surveying, beacons etc. and the like; - Agriculture, land survey S10	- To take note.
National Veld and Forest Fire Act (Act 101 of 1998) ) and regulations, more specifically GN R1775	- To regulate law on veld and forest fires - (Draft regulations s21)	- To be implemented upon approval of the EMPR

**f) 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 Northern Spark Trading 428 Project is in line with the ‘Beneficiation Strategy for the Minerals Industry of South Africa’ (DMR, 2011) in terms of aiming to beneficiate diamonds for sale/export. The benefits of this will fall directly to the Northern Cape Province and, specifically, the Tembelihle District.

In addition, the South African National Development Plan aims to eliminate poverty and reduce inequality by 2030. South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society. The Northern Spark Trading 428 Project will contribute to achieving this plan in terms of direct and indirect employment of people from the local and district municipalities as well as investment in the region and on a national scale.

**Need**

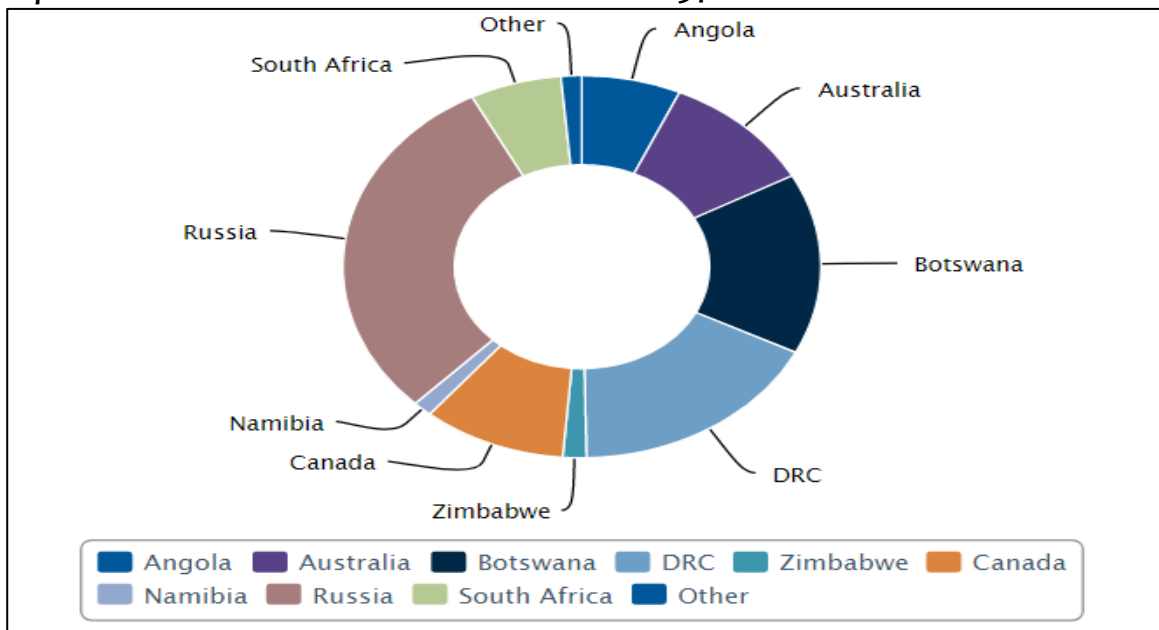
**Analysis of the Diamond Industry – ALROSA(website)**

The Information on the analysis of the diamond industry was obtained from the ALROSA website which is one of the biggest diamond producers in the world.

The world diamond market is represented by diamond mining and trade in rough diamonds. The bulk of the world diamond mining is concentrated in nine countries, with their share in the global production in physical terms as high as 99%.

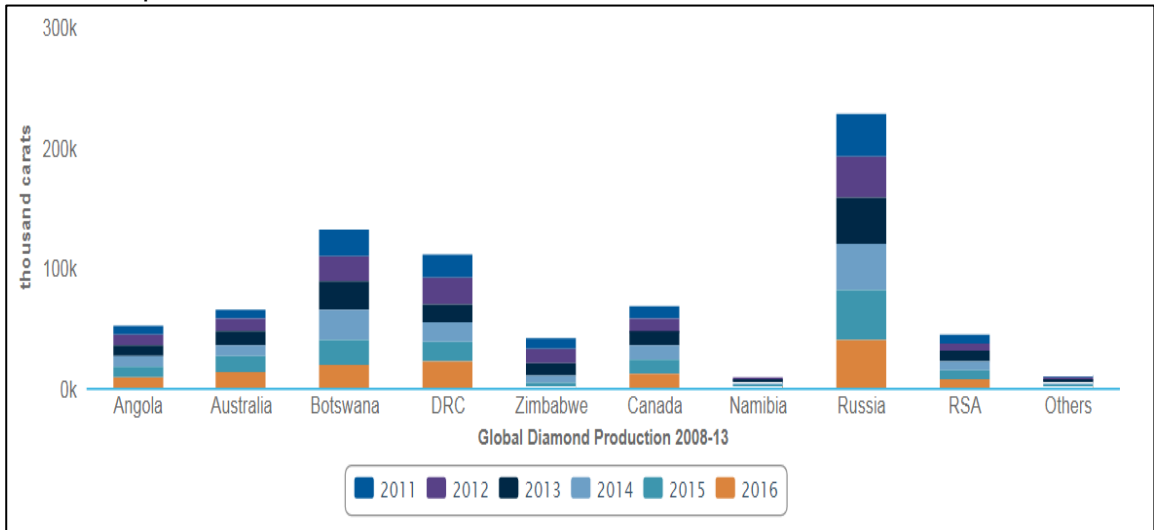
The world’s largest producers of natural diamonds are Russia, the Democratic Republic of Congo (DRC) and Botswana, all together accounting over 60% of the global diamond production.

**Top Countries in the Global Diamond Production 2016: 134.1 mln. Carats**



**Figure 3.** Kimberley Process companies' data Global Diamond Production 2011-16 (thousands of carats)

World diamond production based on the costs of produced rough diamonds are dominated by Russia, Botswana and Canada with a combined production of more than 60% of the total worldwide production

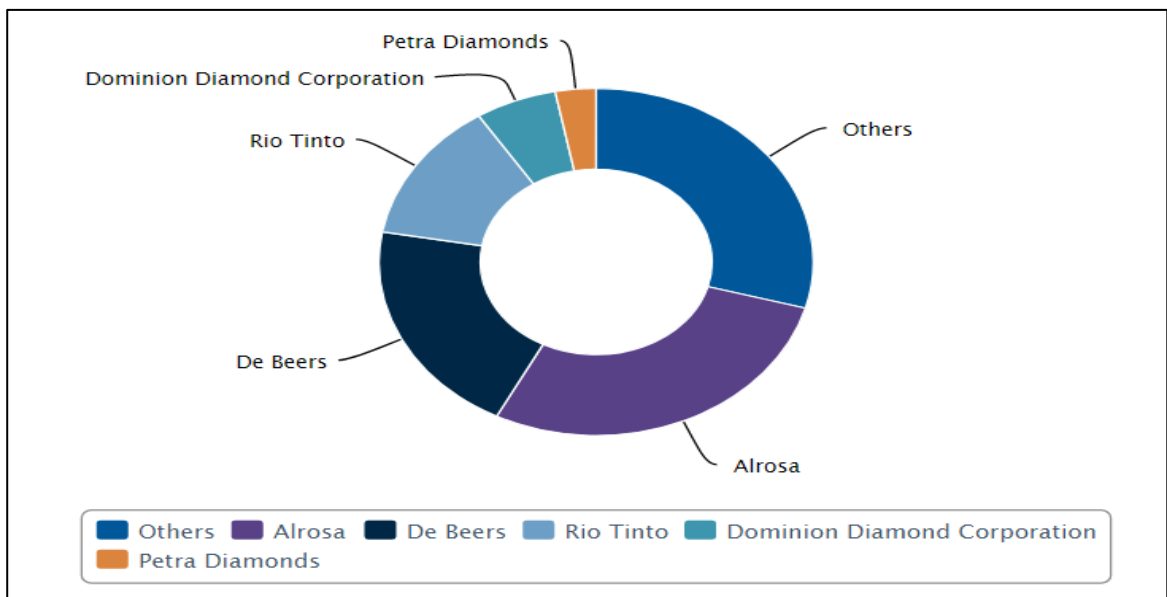


**Figure 4.** Global Diamond Production 2011-16 (thousands of carats) Kimberley Process companies' data

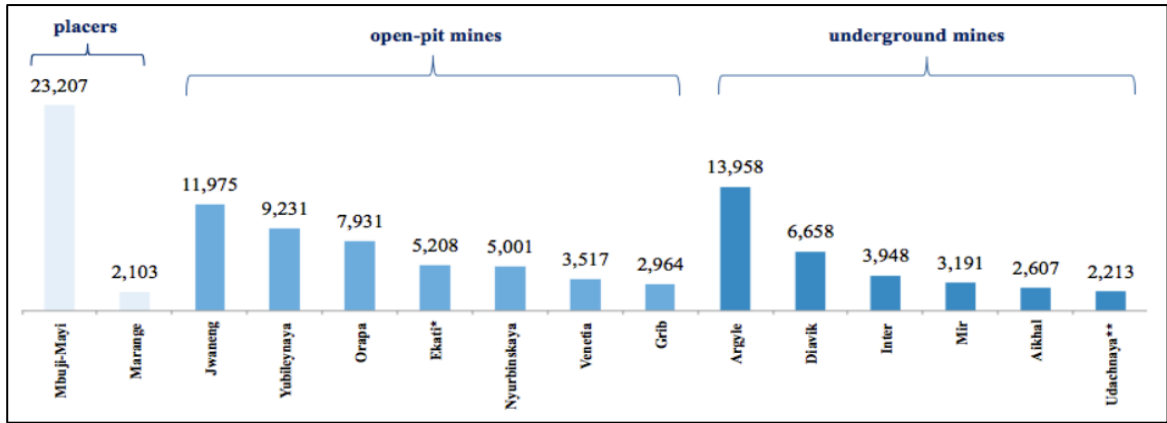
Russia ranks first in the world’s diamond production. ALROSA Group accounts for 93% of the total diamond production in the Russian Federation in physical terms, and it is the leader of the global diamond mining industry. Major mining companies are engaged in mining in the main diamond-producing countries, the exception being Zimbabwe and the DRC, where diamond deposits are developed by small companies and prospectors. The graph below represents the geography of the companies’ activities including exploration.

**Diamond Production by Leading Companies, 2016(\* - including Ekati; Companies’ data)**

The world’s diamond mining is concentrated in the major primary deposits accounting for about 60% of the global diamond production. The remaining production is concentrated in placer deposits, the principal of them located in the DRC (Mbiji-Mayii) and Zimbabwe (Marange).



**Figure 5.** Diamond Production by Leading Companies, 2016(\* - including Ekati; Companies’ data)



**Figure 6.** Production Output of the World's Major Diamond Deposits, 2016 (thousand carats) Kimberley Process and companies' data; \* - Ekati includes open-pit and underground mining; \*\* - output, including further development of the open-pit

By their attributes diamonds from deposits fall into two categories: gem quality and industrial grade diamonds. The former is used in diamond jewellery production, while the latter is used for industrial purposes (manufacture of drills, saws, and abrasive powders). Gem quality rough diamonds are sorted by size, colour, quality and shape, and then are sold to buyers in conformity with the sales policy adopted in a rough diamond production company. Depending on the quality of the mined rough diamonds, the current state of the market, the adopted marketing policy, companies use different approaches to diamond sales: sights, tenders, auctions, spot transactions and long-term contracts.

The world’s largest trading centers, which concentrate the bulk of trade in natural rough diamonds, are India, Belgium, the UAE, the USA, Hong Kong and Israel. Being sold from mines, natural rough diamonds arrive at cutting and polishing plants to become polished diamonds that will be used in jewellery making.

*(The information above was sourced from the ALROSA website. ALROSA is a world leader in the world diamond mining industry, a Russian partially state-owned diamond mining company)*

**The Diamond Pipeline**

The Diamond Pipeline can be defined as the route the diamond takes from mine to end consumer. The diamond pipeline, typically, comprises (Fig. 4).



**Figure 7.** The Diamond Pipeline

**Exploration/Prospecting;** involves geologists finding diamond deposits in different areas. Prospecting is vital to the future survival of any diamond business as there is a predicted supply-demand gap.

**Mining and Recovery;** once diamonds have been discovered and surveys shown that it is financially viable to mine them; they are now recovered from the ground. The manner in which they are mined and recovered depends on their source, thus, where they are found.

**Sorting and valuing;** process of sorting and valuing of diamonds, categorizing them according to size, quality, model and colour.

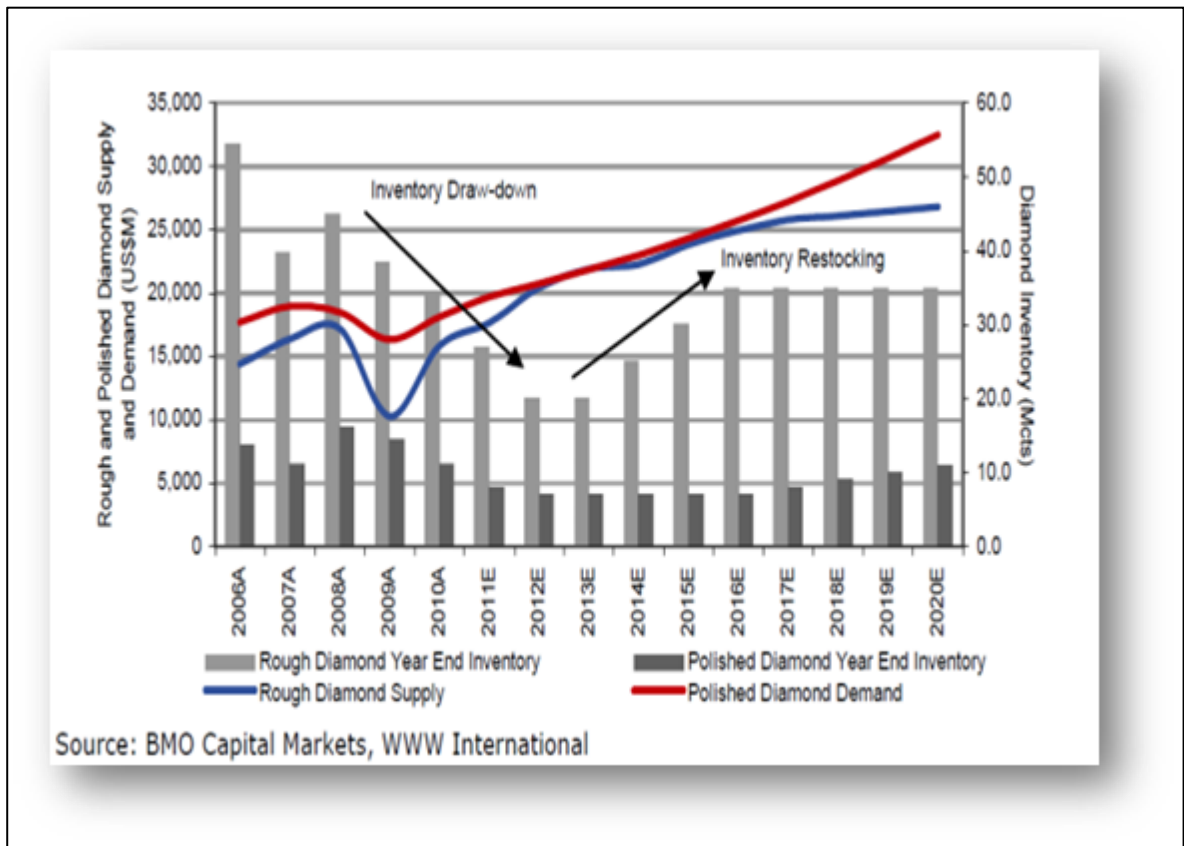
**Cutting and polishing;** refers to manufacturing of diamonds; the process of turning rough diamonds into polished.

**Polished Market;** this is referred to as the ‘diamond exchange bourse’, a place where diamonds are traded. These are located in some of the world’s major diamond manufacturing centres, e.g. Belgium.

**Retailing;** polished diamonds find their way to Jewellers and Consumers through Wholesalers and Retailers.

**International Diamond Market Trends**

Although global financial stability has proven quite volatile over the past 4-5 years, the diamond industry appears to have stabilised somewhat, with moderate increases in diamond prices forecast for the immediate future.



**Figure 8.** Inventory movements support diamond prices (USDM, Mct)

BMO Capital Markets (Sterck, 2011) estimated at the time that Chinese demand for polished diamonds accounted for 5% or USD1 billion of the market in 2010. While this represents a relatively small proportion of the market currently, growth is extremely strong.

De Beers reported that Chinese demand for polished diamonds grew at 25% in 2010, significantly ahead of GDP growth of 13%. Looking ahead, momentum into 2011 suggests that growth of 15% may be possible. From 2012 onwards, growth in household disposable income is forecast to



average 11% to 12% per annum. This translates into minimum growth in diamond demand of 13% per annum.

From 2012 onwards diamond demand is likely to grow in line with economic growth at around 10% per annum. Combining steady demand growth from the established diamond consuming nations and strong growth in demand from emerging consumer’s results in a forecast of polished diamond demand almost doubling by 2020, resulting in a total market value of over USD30 billion in nominal terms.

**Desirability:**

No	Description	Yes/No
1	Does the proposed land use / development fit the surrounding area?	Yes
2	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	Yes
3	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	Yes
4	Will the proposed land use / development impact on the sense of place?	Yes
5	Will the proposed land use / development set a precedent?	No
6	Will any person’s rights be affected by the proposed land use / development?	Yes
7	Will the proposed land use / development compromise the “urban edge”?	No

**Benefits:**

No	Description	Yes/No
1	Will the land use / development have any benefits for society in general?	Yes
2	Will the land use / development have any benefits for the local communities where it will be located?	Yes

**g) Period for which the environmental authorisation is required**

5 years with an option to renew for a further 3 years.

**h) Description of the process followed to reach the proposed preferred site**

NB!! – This section is not about the impact assessment itself; It is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

In order to ensure that the proposed development enables sustainable development, a number of feasible options must be explored. Motivation for the footprint of the actual prospecting operation (i.e. excavations) will not be provided here, as the location of the prospecting is determined by the possible geological location of the mineral resource (as discussed in section f).

A Prospecting Right application was lodged to identify the preferred areas on the property. The prospecting will be done with pitting, trenches and bulk sampling which will indicate if there are areas on the property that can be viably mined with grade and quality determined with the bulk samples taken off the property.

#### **Prospecting Site Location**

A Prospecting Right application was lodged to identify the preferred areas on the property. The prospecting will be done with pitting, trenches and bulk sampling which will indicate if there are areas on the property that can be viably mined with grade and quality determined with the bulk samples taken off the property.

Prospecting infrastructure will be placed strategically by incorporating prospecting project demands, environmental sensitivities and IAP concerns, as identified during EIA process. Thus, the prospecting site location is primarily based on proximity to the access roads, proximity to the areas earmarked for prospecting and limited additional impact on the environment and heritage resource. This renders the consideration of further alternative location in terms of the prospecting site location other than the prospecting residue deposits unnecessary.

The prospecting method of pitting and open trenches with continued backfilling is the only economic viable method currently being used by the alluvial diamond fraternity; it is also the only cost-effective method. There is no alternative prospecting method.

**i) Details of the development footprint alternatives considered**

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

**(a) The registered description of the land to which the prospecting right application relates:**

REMAINING EXTENT OF THE FARM BRAKFRONTEIN 276, HOPETOWN  
IN EXTENT: 2 145.8123 HA

**Alternatives considered: -**

No planned alternative to proposed prospecting is envisaged. Should prospecting not proceed the current agricultural land use will continue. Proposed site layout and opencast bulk sampling with concurrent rehabilitation where possible will minimise footprint and impact. Any alternative methodology may have greater impact.

The only other alternative would be not to continue with the operation.

**(b) The type of activity to be undertaken:**

The consideration of alternatives is a critical component of the EIA process, where an appropriate range of alternatives require consideration whilst achieving the desired objective of the proposed project. In order to ensure that the proposed development enables sustainable development, a number of feasible options must be explored. The various alternatives were assessed in terms of logistical practicality, environmental acceptability and economic feasibility. Alternatives for the locality the prospecting operation do not form part of the discussion as the location of the prospecting operation is determined by the geological location of the mineral resource (as discussed in section f).

**Land Use**

No specialist comparative land use assessments were conducted, but the prospecting areas is used for grazing by the property owners.

It would however be feasible to determine if there are any economically viable minerals to mine as prospecting can also generate income for the property owner that can be used for further development of the property.

The prospectors will have to promote rehabilitation strategies to ensure that open pits and trenches are backfilled. There will be infield screening to ensure that all oversize material is deposited back into the pits and trenches. This material should be covered with the overburden (where available), and topsoil that has been previously put aside for this purpose. The post-mining land use

should be determined so that the developments strategies of the farm can still continue beyond the prospecting and mining of the area should the area be viable for mining.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

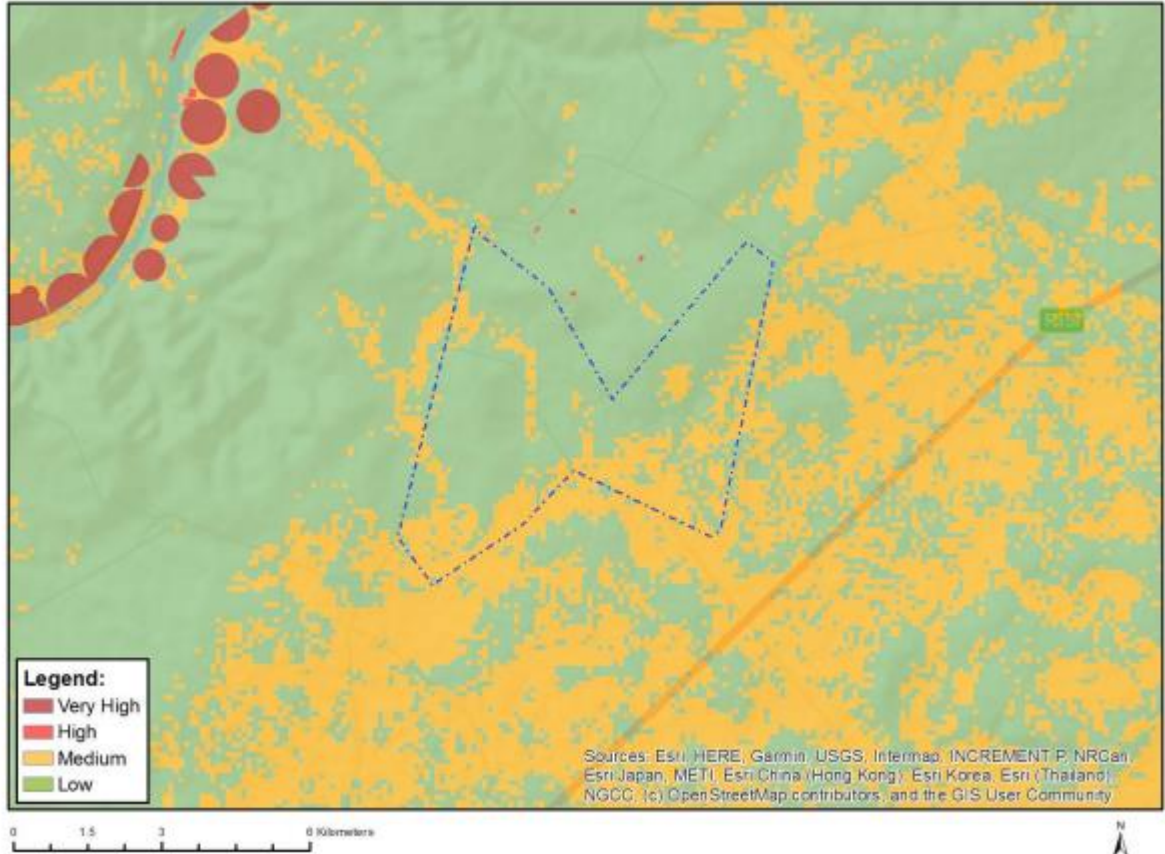


Figure 9. Map of Relative Agriculture Theme Sensitivity for Brakfontein 276

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
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

Project Infrastructure

Alternatives and considerations pertaining to the project infrastructure were discussed in section g.

Prospecting Method

The Prospecting method of drilling and open pits and trenches with continued backfilling is the only economic viable method currently being used by the

diamond fraternity. There is no other alternative prospecting method for the prospecting of diamonds.

Proceed without the Mine (no go)

### **Land Use**

The current land use is grazing. If the prospecting operation does not continue, the grazing capacity will continue. Water will be sourced from the Orange river. The prospecting operation will not abstract any underground water.

### **Socio-Economy**

The operation will make provision for 15 - 25 job opportunities. This will be lost if the project does not proceed. Substantial tax benefits to the state and local government will also be lost.

### **Biodiversity**

The implementation of the prospecting operation will have a potential impact on the biodiversity through removal of indigenous vegetation and destruction of habitats. If no prospecting activities were to continue, the status quo would apply and no damage would accrue to the environment.

### **Heritage and Cultural Resources**

In the event that the prospecting operation does not proceed, the heritage resources will remain as is. The protection and preservation of these resources are therefore not guaranteed. However, if the prospecting operation is approved, the heritage resources will be protected through the demarcation of no-go zones and fencing off if any of these resources are encountered.

#### **(d) The design or layout of the activity:**

The site infrastructure will need to be strategically placed by incorporating prospecting project demands and environmental sensitivities identified during the Environmental Impact Assessment process. Thus, the site layout will primarily be based on proximity to the nearby access roads, proximity to the areas earmarked for bulk sampling as well as limited additional impact on the environmental (non-perennial drainage lines and wind direction), heritage resources and discussions with the relevant Departments.

The following infrastructure will be established and will be associated with the prospecting operation:

- Processing Plant: 2 X 16 feet
- Ablution Facilities: In terms of sewage the decision was made to use chemical toilets which can be serviced regularly by the service provider.
- Clean & Dirty water system: Berms

It is anticipated that the operation will establish stormwater control berms and trenches to separate clean and dirty water on the prospecting site.

- Fuel Storage facility (Concrete Bund walls and Diesel tanks):  
It is anticipated that the operation will utilize 2 x 23 000 litre diesel tank. This tank must be placed in bund walls, with a capacity of 1.5 times the volume of the diesel tank. A concrete floor must be established where the re-fuelling will take place.
- Prospecting Area: Area applied for to pit and trench for diamonds (bulk sampling).
- Processing plant:
- Roads (both access and haulage road on the mine site):  
Although it is recommended that the operation utilize existing roads as far as possible, it is anticipated that the prospecting operation will create an additional 1.5 km of roads, with a width of 8 meters where no reserve exists and where the reserve exists 15 meters. The current access road is deemed adequate for a service road into the prospecting site.
- Salvage yard (Storage and laydown area).
- Product Stockpile area.
- Waste disposal site  
The operation will establish a dedicated, fenced waste disposal site with a concrete floor and bund wall. The following types of waste will be disposed of in this area:
  - Small amounts of low-level hazardous waste in suitable receptacles;
  - Domestic waste;
  - Industrial waste.
- Temporary Workshop Facilities and Wash bay.
- Water distribution Pipeline.
- Water tank: It is anticipated that the operation will establish 1 x 10 000 litre water tanks with purifiers for potable water.

**Alternatives considered: -**

Alternatives for fuel storage include surface storage, underground storage and the storage of fuel in mobile tanks with a metal bund wall. Underground storage has an adverse negative pollution potential, because it is not easy to monitor leakages. Remediation measures are also not as effective as compared to surface storage tanks. Mobile tanks are a viable option for infield screening activities, but the best viable long terms option is the instalment of fuel tanks

within a concrete bund wall. The final location of the fuel storage tanks will be determined based on proximity to prospecting operations.

In terms of water use alternatives; the operation is located near to the Orange River which are a perennial river as the best water source for the operation. Plastic pipelines are considered to be the best long-term option for transferring water, due to their temporary nature which causes minimum environmental disturbances.

If prospecting proves positive a diamond rotary plant will be established which uses (2 X 16 feet rotary pan). Water use for a 16 feet rotary pan is in the order of 18000 litres per hour. The operation will only work in daytime hours which will constitute about 8 hours per day which will bring water consumption to 144000 litres per day and 720 000 litres per week 2880000 litres per month per pan. Total cubic metres tested will be 81206.25 m<sup>3</sup> a 16 feet pan can on capacity work about 65 tons per hour which constitutes about 117m<sup>3</sup> per hour.

Therefore, a pipeline route will be designed based on the principle of minimum impacts to the environment.

The locality of the mine residue dam will be selected based on the following considerations, this dam will be very small due to the limited material being processed and the limited water needed:

- The locality is already disturbed or mined out.
- It is within reach of (1 000m) of the treatment plant.
- It is situated near the access road to the prospecting activities.
- No underlying ore bodies or geological discontinuities.
- No geomorphological impacts.
- No structures, dwellings or other points of risk on down-stream side.
- Convenient material nearby for construction of dam.
- Top soil from the treatment process will be available for final rehabilitation.

A standard slimes dam design will be established in order to maximise the capacity of the slimes dam and to minimise the risks in terms of general safety and the DWS regulation.

In terms of power generation, the options available was for Generators or ESKOM power. All of the electricity needs for the operations will be generated by a diesel generator and there would therefore be no additional pressure on the Eskom Electricity Grid.

In terms of sewage the decision was made to use chemical toilets which can be serviced regularly by the service provider.

**(e) The technology to be used in the activity:**

- Technique

The area will be excavated (opencast method) with an excavator up to bedrock, stockpiled next to an open area and loaded onto the trucks by a frond end loader. The trucks will transport the gravel via a newly constructed road, which will be constructed to the required safety standard. No provincial roads will be used.

At the processing plant the run of mine tailings will be fed onto a grizzly for the screening out oversize material. The gravel will be processed through a screening process and transported for delivery to a recovery plant and associated equipment.

- Technology

At the processing plant the run of mine tailings will be fed onto a grizzly for the screening out oversize material. The gravel will be processed through a screening process and transported for delivery to a recovery plant and associated equipment.

**Alternatives considered: -**

The planned prospecting activities include (bulk sampling) with an excavator up to bedrock. The operation is also associated with processing techniques that make use of modern technologies. These are the most economic viable method currently being used by the diamond fraternity. There is no other feasible, alternative prospecting method for the bulk sampling of possible alluvial diamonds.

**(f) The operational aspects of the activity:**

The gravels will be loaded with an excavator on to dump trucks for conveyance to the Processing Plant. At the Processing Plant the bulk sample gravels will be fed onto a grizzly for screening out oversize material. The tailings will be processed through a screening section and transported for delivery to a recovery plant. Concentrate from the recovery plant will be processed through an X-Ray/Sortex plant to extract possible diamonds.

Prospecting activities will primarily make use of existing roads, but additional roads will most likely be created.

**Alternatives considered: -**

The conventional opencast load-haul-bulk sampling method has been proven to be the most economic viable method currently being used by the diamond fraternity. There is no other feasible, alternative bulk sampling method for the prospecting and extraction of possible general and alluvial diamonds.

**(g) The option of not implementing the activity:**

Potential land use includes grazing and prospecting. The majority of the area is classified to have potential for grazing. Therefore, prospecting activities are believed



to be one of the most economically beneficial option for the area to establish any potential for mineral resources.

**Socio-Economy**

The operation will make provision for 10 - 25 job opportunities. This will be lost if the project does not proceed. Substantial tax benefits to the State and Local Government will also be lost.

**Biodiversity**

In terms of the Screening tool a small part of Brakfontein in the west falls into an Ecological Support Area. A Ecological study will be conducted and included into the EIA EMP document.

**MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY**

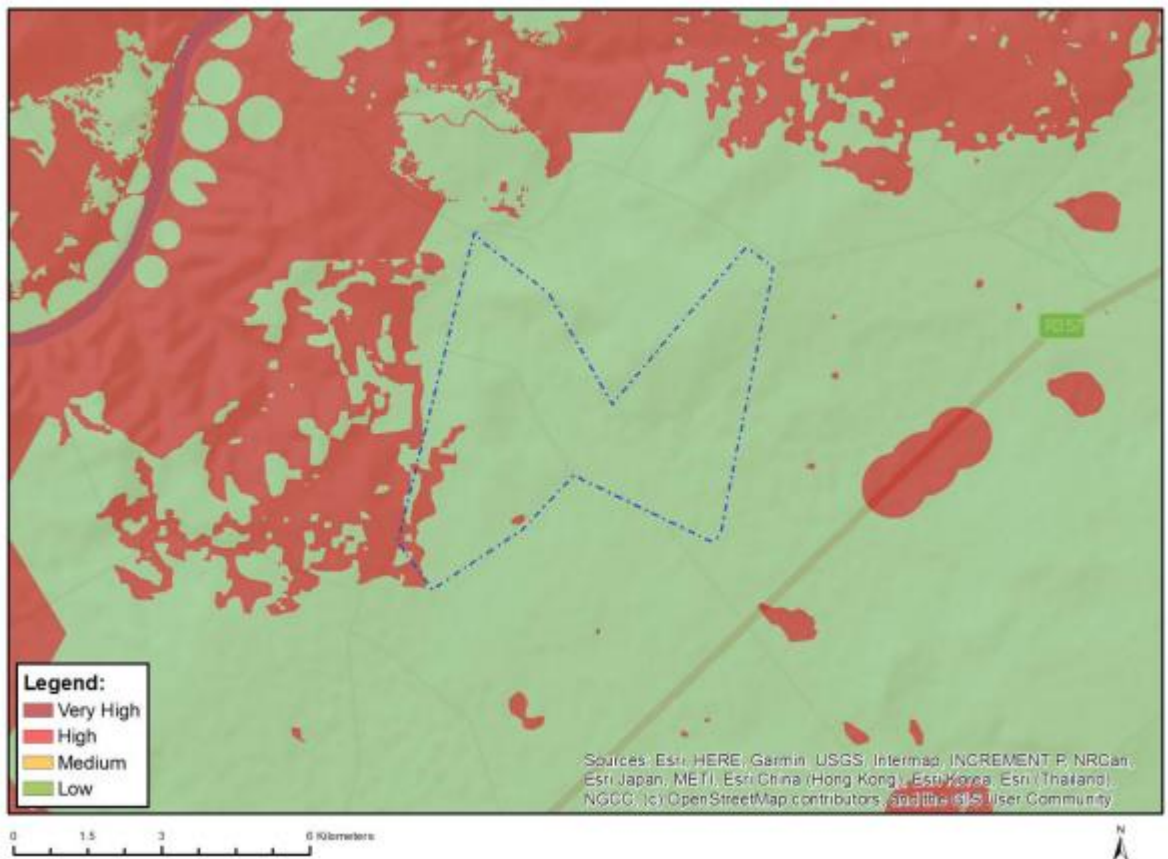


Figure 10. Map of relative terrestrial biodiversity theme sensitivity for BRakfontein taken of the Scening Tool.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

**Sensitivity Features:**

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	Ecological support area

**Heritage and Cultural Resources**

No information is available on any heritage features on the area of application and the necessary specialist studies will be done to be included into the EIA/EMP documents.

In terms of the Screening Tool the area has a low sensitivity for heritage but a high sensitivity for palaeontology.

**MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY**

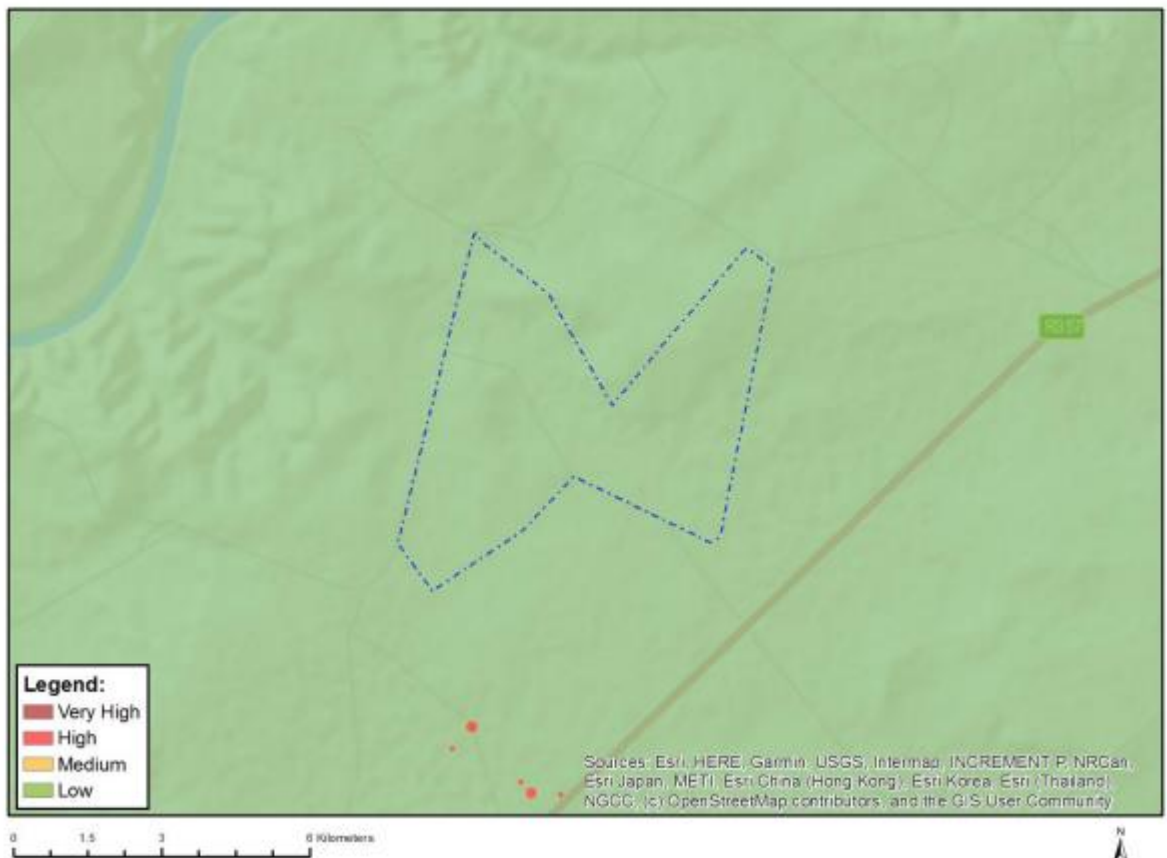


Figure 11. Map of relative archaeological and cultural heritage theme sensitivity in terms of the screening tool.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

**Sensitivity Features:**

Sensitivity	Feature(s)
Low	Low sensitivity

In terms of Palaeontology Brakfontein falls into high and medium sensitivity in terms of palaeontology, the necessary palaeontology study will be conducted and included into the EIA EMP document.

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

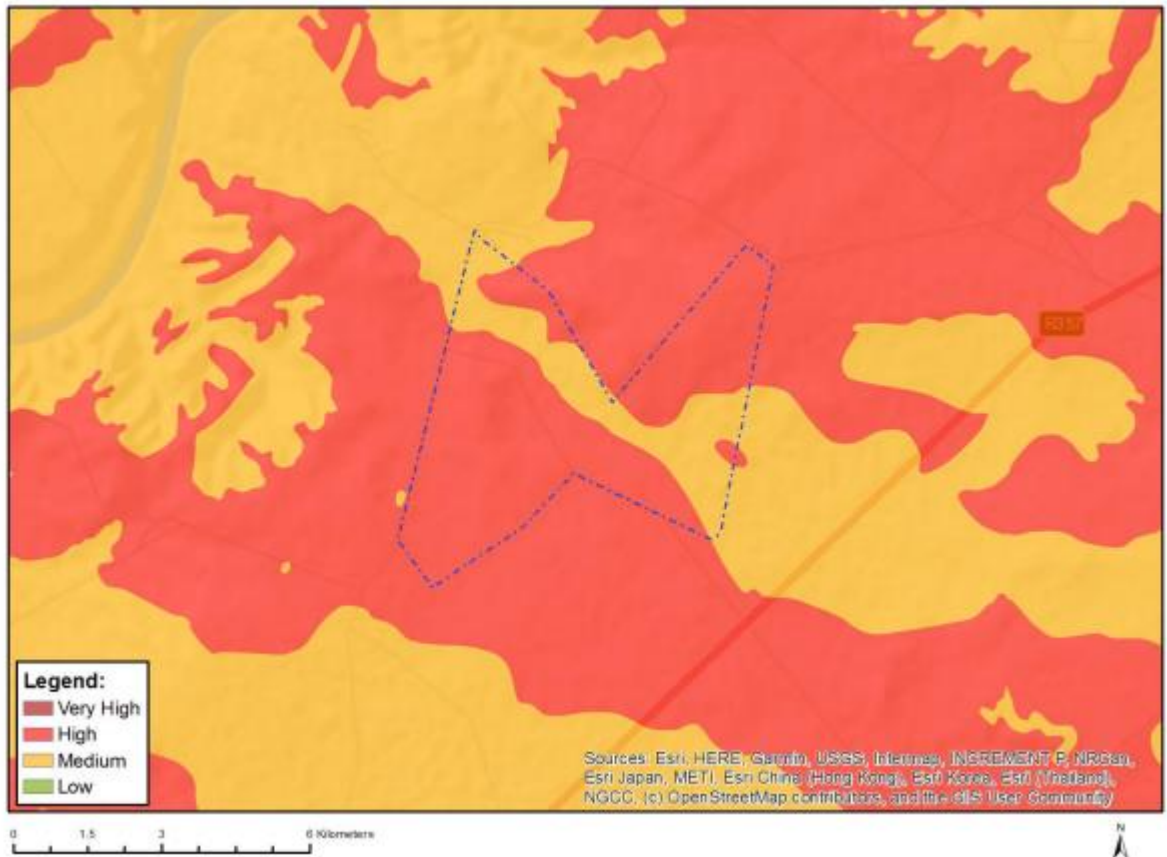


Figure 12. Map of relative palaeontology sensitivity taken out of the Screening tool.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

**Sensitivity Features:**

Sensitivity	Feature(s)
High	Features with a High paleontological sensitivity
Medium	Features with a Medium paleontological sensitivity

Should any other heritage features and/or objects be located or observed, a heritage specialist will be contacted immediately. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. If the prospecting operation is approved, the heritage resources if any other had been encountered will be protected through the demarcation of no-go zones and fencing off.

**ii) 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 or not 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.

The process as described by NEMA for Environmental Authorisation was followed. See table 3 for the identification of Interested and Affected Parties to be consulted with. The landowner, and or occupants and direct neighbours were consulted. The landowners and neighbours were consulted with a registered letter informing them that the application had been accepted and a Scoping Report were attached in which all activities were explained.

An Advert (Notice) will be placed in the DFA on 9 September 2022 to notify all other interested and affected parties that should wish to register for the project.

Registered consultation letters will be sent on 7 September 2022 to all identified parties and government departments with a Scoping Report document attached.

The document will also be made available at the public library in Douglas.

The document will also be placed on the website of Wadala.

The document can also be viewed at the EAP address with prior arrangement to view the document.

Proof of notification and consultation is attached as Appendix 3. The consultation process is still in process.

**iii) Summary of issues raised by I&APs**

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

Please see appendix 3

**iv) The Environmental attributes associated with the development**

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

**(1) Baseline Environment****(a) Type of environment affected by the proposed activity**

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

**(1) GEOLOGY:**

The bedrock of the Orange River valley between the confluence of the Vaal River and the Orange and Prieska, referred to as the Middle Orange, is dominated by flat-lying Dwyka tillite and siltstone of the Karoo Supergroup. These sediments were deposited by the Dwyka icesheet, with a flow direction from the north-east, in a broad valley roughly corresponding with the present Vaal-Orange system.

The Dwyka comprises matrix supported diamictite with pebbles and boulders of both local and transported lithologies, set in a rock-flour matrix, together with dropstone-bearing mudstones, shales and silts. Underlying the Dwyka, and exposed where the Orange has incised through that sequence, are lavas and pyroclastics of the Ventersdorp Supergroup, overlain in places by sediments of the Transvaal Supergroup, comprising shales, quartzites and dolomites. The bedrock is cut in places by faults and dolerite sheets, which are rarely exposed and can only, be mapped using geophysics. The surface on which the Dwyka was deposited was irregular with several topographic highs (presumed to be roches moutonnes) and glacially striated surfaces.

The present surface of the Dwyka comprises a gently undulating terrain lying at an elevation of between 1,050m and 1,100m amsl. The river has incised into this surface to a depth of between 90m and 150m. Owing to the irregularity of the pre-Dwyka surface, several reaches of the river are superimposed on pre-Dwyka topographic highs, which, due to their relative resistance to erosion, give rise to more rugged topography. Here the Orange River is confined to gorges with increased river gradients. In contrast, the easily-eroded Dwyka has been dissected by minor tributaries of the Orange River, giving rise to a trellis-type drainage pattern. To the north of the Orange River, the Ghaap Plateau represents an ancient surface of Transvaal Supergroup rocks.

### **Local Geology**

The present drainage of the region consists of the Vaal-Harts River from the northeast, and the Orange River from the southeast. There is, however, strong evidence that a major drainage, flowing along the eastern face of the Ghaap Plateau, entered the system in the vicinity of Oranjeoord, approximately 20km downstream from the Vaal-Orange confluence, during the Miocene-Pliocene.

It is suggested that this substantial river may have had as much as four times the discharge of the Orange River. Given that the area was already relatively arid, the river must have had a large catchment area, McCarthy (1983) suggesting that it had the upper Zambezi, Okavango and Kwando rivers as tributaries. The upper Limpopo may also have flowed into the system during the Miocene-Pliocene. The alluvial diamonds of the Middle Orange have several probable primary source areas: - the diamondiferous kimberlites of Lesotho, eroded by the present Orange River; diamonds from the same source as the Lichtenburg - Western Transvaal diamondfields, eroded by the Vaal-Harts system; diamonds derived from the kimberlites of the Kimberley area; and diamonds from Botswana and the Postmasburg fields, including the Finsch kimberlite, eroded by the palaeo-drainage note above.

A terrace deposit is defined as an alluvial package of sediments in a braided river environment. Subsequent incision by the river at times of less energetic flow cuts into the braided deposits, leaving them perched above current river level. If this incision takes place in the centre of the valley-fill, terraces will be developed on both banks of the river. If incision is accompanied by lateral migration, as is often the case, the terrace is restricted to one bank only. Therefore, “terrace” is a morphological term, and the terrace can display any or all of the typical braided stream features, such as splays, chute bars, point bars, channels, sand banks. The terrace initially preserves the morphology of the braided river deposits, but later erosion can dissect or totally remove the terrace. On a regional scale, the terraces tend to have an elongated sheet-like shape, with an overall gentle gradient downstream, but this gradient can be stepped at barriers across the river valley, such as lithological changes in bedrock, cross dykes, etc. Consequently, contemporaneous terraces can be deposited at differing elevations, and, conversely, terraces at the same elevation were not necessarily deposited during the same cycle, at the same time.

Several attempts have been made to correlate named terraces along the Vaal and middle Orange Rivers using the base elevations, both above sea level and above the present river level, of the various deposits. These attempts at correlation have met with limited success. In addition to the problem of stepping, no allowance can be made for post-depositional regional warping. Subsequent differential incision of the river into the terrace platform can also render the latter approach doubtful. The descriptions of the gravels given here are a composite of information taken from McCarthy (1998).

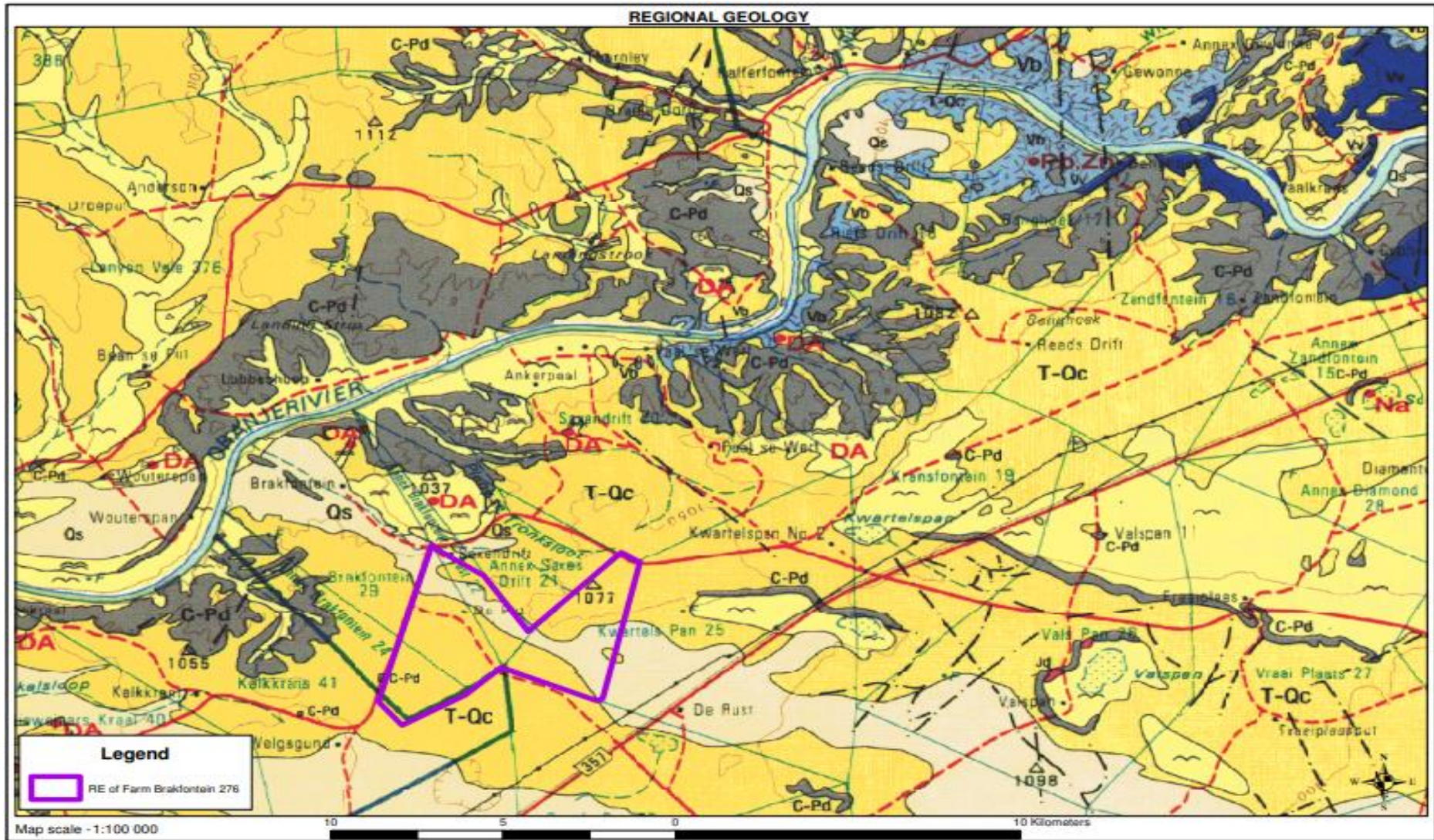


Figure 13. - Extract from 1:250 000 geological map (Council for Geoscience, Pretoria) showing location of the farms  
Blue (Vgd) = Campbellrand Subgroup comprises of coarse to fine grained dolomite and limestone, Grey (C-Pd) = Dwyka Group, Yellow (T-Qc) = Neogene calcrete, Pale yellow (Qs) = Quaternary to Recent sands and sandy soil of the Gordonia Formation (Kalahari Group). DK marks Diamond in Kimberlite.



(2) CLIMATE:

**Regional Climate**

The mine is located in a semi-arid region, receiving on average about 250 mm of rain in the west to 500 mm on its eastern boundary. The rainfall is largely due to showers and thunderstorms falling in the summer months October to March. The peak of the rainy season is normally March or February. The summers are very hot with cool winters. The nearest weather station to the mine is at Douglas but due to the limited range of information available from this station and the number of periods with broken records, the data from the weather stations at Kimberley will also be used.

**Rainfall**

Average monthly and annual rainfall for the site and number of days per month with measurable precipitation is presented in the table below:

MONTH	60 MINUTES	24 HOURS	24 HOURS IN 50 YEARS	24 HOURS IN 100 YEARS
January	35.8	57	65.1	73.8
February	70.1	82	58.9	66.5
March	63.7	67.8	72.1	81.4
April	25.7	51.6	65.9	75.2
May	14.6	54.6	36.8	42.4
June	19.1	67.5	26	30.4
July	12	26.7	26.6	31
August	17	58.2	23.4	27.3
September	16.3	26.7	24.1	28
October	37.6	59.2	53.8	61.8
November	25.2	60.1	41.2	46.7
December	59.9	64.5	70.7	80.9

Source: Directorate: Climatology South African Weather Bureau – Station 0290468: - Kimberley 1970 – 2003

**Temperature**

The average monthly maximum and minimum temperatures are presented in the table below:

MONTH	DAILY MAXIMUM °C	DAILY MINIMUM °C
January	32.8	17.9
February	31	17.3
March	28.8	15.2
April	24.8	10.9
May	21.4	6.5
June	18.2	3.2
July	18.8	2.8
August	21.3	4.9
September	25.5	8.9
October	27.8	11.9
November	30.2	14.6
December	32.1	16.6
<b>YEAR</b>	<b>26.1</b>	<b>10.9</b>

Source: Directorate: Climatology South African Weather Bureau © 2000 – Station 0290468: - Kimberley 1960 – 2000

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**Wind**

The prevailing wind direction for the area is north to north-north-west for the months of January to September and changing from north to sometimes westerly winds during October to December averaging 3.5 m/s (Kimberley 01/01/1990 – 31/08/2000, Station 0290468).

**Humidity and evaporation**

The average monthly humidity is presented in the table below:

MONTH	AVERAGE (%)	MAXIMUM (%)	MINIMUM (%)
January	47	91	8
February	54	94	12
March	57	96	15
April	60	96	16
May	56	96	16
June	54	97	15
July	49	97	13
August	42	94	10
September	36	91	8
October	39	89	8
November	42	92	8
December	43	90	7
<b>YEAR</b>	<b>48</b>	<b>94</b>	<b>11</b>

Source: Directorate: Climatology South African Weather Bureau © – Station 0290468: - Kimberley 1960 – 2000

The average monthly evaporation is presented in the table below:

MONTH	EVAPORATION IN mm
SYMONSPAN	
January	365.6
February	279.1
March	235.8
April	169.1
May	135.1
June	108.6
July	130.1
August	181.2
September	252.6
October	314.8
November	345.5
December	378.6
<b>YEAR</b>	<b>2896</b>

Source: South African Weather Bureau – Station 0290468: - Kimberley 1957 – 1987

**Incidents of Extreme Weather Conditions**

- **Hail**

Hail is sometimes associated with thunderstorms and mainly occurs in early to late summer (November to February). It occurs on average three times a year and although these storms may sometimes be severe and cause much damage, they usually impact on a relatively small area.

- **Frost**  
The period during which frost can be expected lasts for about 120 days (May to August). With extreme minimum temperatures to below -8°C at night in the winter, frost development can be severe.
- **Droughts**  
Droughts are common and may vary from mild to severe. During these periods dust storms sometimes occur, depending mainly on denudation of the surface.
- **Wind**  
High winds are unusual but when they do occur can uproot trees and take off roofs.

(3) TOPOGRAPHY:

The mining area is situated in a region of gently undulating hills on the edge of the Karoo, an area of sparse, arid semi desert that occupies much of central South Africa. The area comprises elevated palaeo- river terraces at elevations of between 1,100m and 1081.5 m above mean sea level, some 60-70m above the present Orange River. The terraces are cut by a number of small ephemeral streams dry for most of the year they flow through the application area before they confluence and enter the Orange River. The surrounding terrain is a flat semi-desert environment with sparse grass and occasional shrubs, thorn bushes and succulents in a sandy soil. Bigger trees often line the banks of the Orange River.

The site is situated on an altitude of 1040m above sea level. The Orange River is about 6 km from the farm west of the application area and the topography slopes down toward the Orange River.

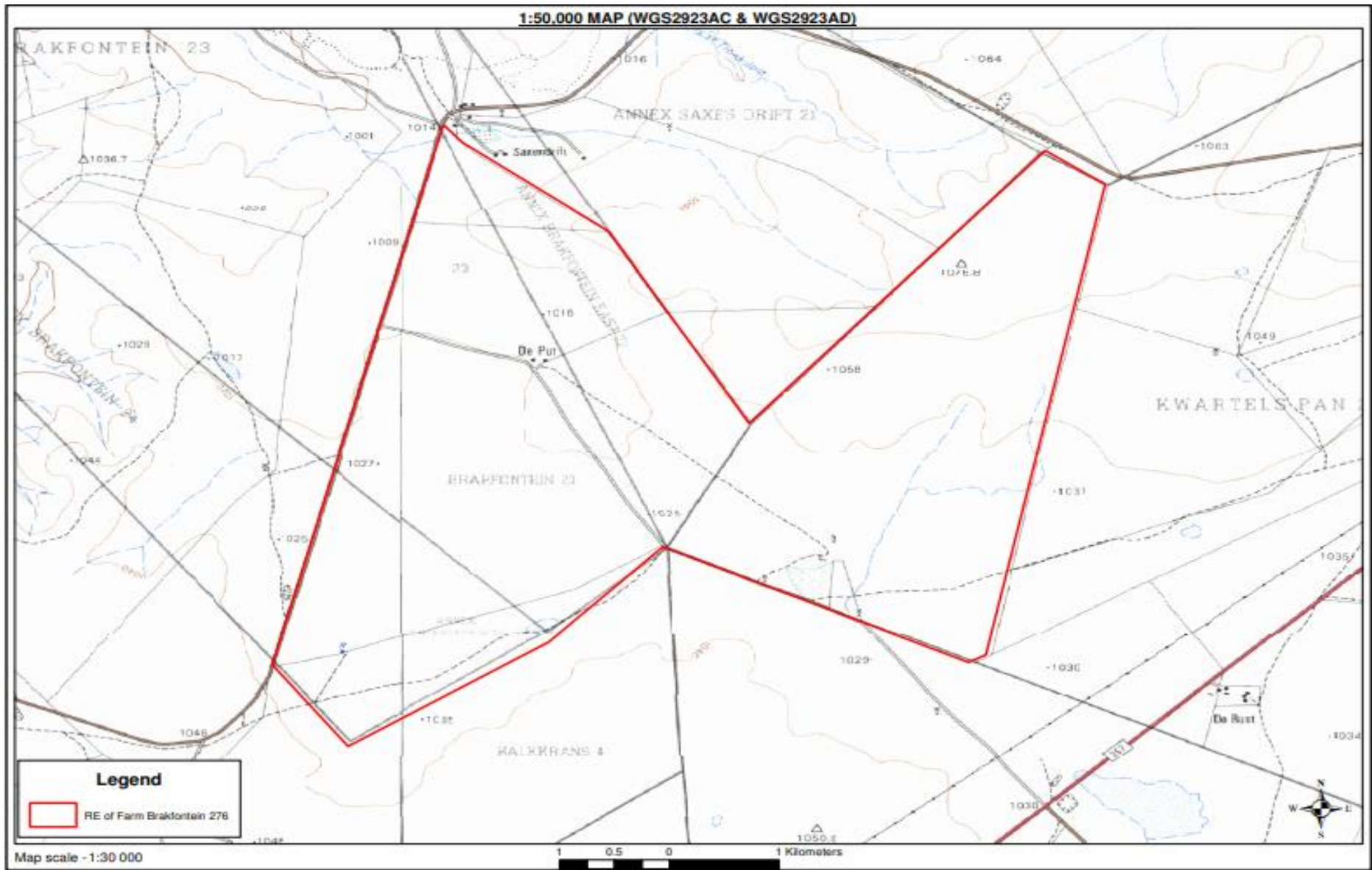


Figure 14. Topographical map of farm Brakfontein, Hopetown

(4) SOILS:

The surrounding terrain is a flat semi-desert environment with sparse grass and occasional shrubs, thorn bushes and succulents in a sandy soil.

The prospecting area in general exhibits almost no soil horizons that have developed by pedogenetic processes. The dominant soil types are the result of alluvial deposits and are even found on the high laying areas.

Soils range from shallow to deep, red-yellow, apedal, freely drained soils to very shallow Glenrosa and Mispah forms. The most dominant landtypes are Ae, Ag and Fc.

(5) LAND CAPABILITY AND LAND USE:

It may be assumed that the entire farm was historically suited to grazing prior to mining activities.

Future prospecting areas as well as areas earmarked for prospecting on the application are defined by current grazing paddocks.

**Land Use before Prospecting**

Prior to any prospecting activity the land capability correlated directly with the different soil forms. Before any historical mining activity, the area would have been suitable for stock grazing. The carrying capacity for the area is low. (20 ha / Large Animal Unit (LAU). 1 LAU = 7 Small Animal Units (SAU) i.e. 20 ha for 7 sheep) (Agric. Dept. 1990).

**Evidence of Disturbance**

Old timers mining activities have caused a degree of disturbance in the area.

**Existing Structures**

The prospecting area has a series of access roads and a farm house.

(6) NATURAL FAUNA:

The fauna listed below is already found in the proposed prospecting area or may be found there as rehabilitation proceeds.

**Birds**

An extensive bird life can be found on the mine and specifically on the hills and small valleys with dense vegetation growth. A list of birds that have

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been spotted or are known to occur in the prospecting area, are listed in the table below.

BIRD LIST	
English Name	Scientific Name
Feral Pigeon	<i>Columba livia</i>
Rock Pigeon	<i>Columba guinea</i>
Redeyed Dove	<i>Streptopelia semitorquata</i>
Cape Turtledove	<i>Streptopelia capicola</i>
Laughing Dove	<i>Streptopelia senegalenses</i>
Namaqua Dove	<i>Oena capensis</i>
Diederik Cuckoo	<i>Chrysococcyx caprius</i>
Redchested Cuckoo	<i>Cuculus solitaries</i>
Barn Owl	<i>Tyto alba</i>
Pearlspotted Owl	<i>Glaucidiumperiatum</i>
Spotted Eagle Owl	<i>Bubo africanus</i>
Whiterumped Swift	<i>Apus caffer</i>
Little Switft	<i>Apus affinis</i>
Whitebacked Mousebird	<i>Colius colius</i>
Redfaced Mousebird	<i>Urocolius indicus</i>
Brownhooded Kingfisher	<i>Halcyon albiventris</i>
Lilacbreasted Roller	<i>Coracias coudata</i>
Purple Roller	<i>Coracias naevia</i>
Hoopoo	<i>Upupa epops</i>
Scimitar billed Woodhoopoo	<i>Rhino omastus cyanomelas</i>
Grey Hornbill	<i>Tockus nasutus</i>
Pied Barbet	<i>Tricholaema leucomelas</i>
Crested Barbet	<i>Trachypouns vaillantii</i>
Rufousnaped Lark	<i>Mirafta Africana</i>
Clapper Lark	<i>Mirafta apiata</i>
Fawn coloured Lark	<i>Mirafta africanoides</i>
Chestnutbacked Finchlark	<i>Eremopterix verticalis</i>
European Swallow	<i>Hirundo rustica</i>
Greater Striped Swallow	<i>Hirundo cucullata</i>
Forktailed Drongo	<i>Dicrurus adsimilis</i>
Black Crow	<i>Corvus capensis</i>
Pied Crow	<i>Corvus album</i>
Ashy Tit	<i>Parus cinerascens</i>
Pied Babbler	<i>Turdoides bicolor</i>
Redeyed Bulbul	<i>Pycnonotus nigricans</i>
Groundscraper Thrush	<i>Turdus litsirsirupa</i>
Familiar Chat	<i>Cercomelafamiliaris</i>
Anteating Chat	<i>Myrmecocichlaformicivora</i>
Stonechat	<i>Saxicolaporquata</i>
Cape Robin	<i>Cossypha caffta</i>
Kalahari Robin	<i>Erythropygia paeon</i>
Titbabbler	<i>Parisoma subcaeruleum</i>
Fantailed Cisticola	<i>Cisticolajuncididis</i>
Desert Cisticola	<i>Cisticola aridula</i>
Spotted Flycatcher	<i>Muscicapa striata</i>
Chat Flycatcher	<i>Melaenornis infuscatus</i>
Fiscal Flycatcher	<i>Sigelus silens</i>
Cape Wagtail	<i>Motacilla capensis</i>
Orange Striated Langclaw	<i>Macronyx capensis</i>
Lesser Grey Shrike	<i>Lanius minor</i>

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Grassveld Pip	<i>Anthus cinnamomeus</i>
Fiscal Shrike	<i>Lanius collaris</i>
Glossy Starling	<i>Lamprotornis nitens</i>
Cape White Eye	<i>Zosterospallidus</i>
Whitebrowed Sparrowweaver	<i>Plocepasser mahali</i>
House Sparrow	<i>Passer</i>
Great Sparrow	<i>Passer motitensis</i>
Masked Weaver	<i>Ploceus velatus</i>
Redbilled Quelea	<i>Quelea quelea</i>
Red Bishop	<i>Euplectes orix</i>
Longtailed Widow	<i>Euplectesprogne</i>
Melba Finch	<i>Amdina erythrocephala</i>
Quail Finch	<i>Ortygospiza atricollis</i>
Pintailed Whydah	<i>Vidua macroura</i>
Shafttailed Whydah	<i>Vidua regia</i>
Blackthroated Canary	<i>Serinus atrogularis</i>
Swallowtailed Bee-Eater	<i>Merops hirundineus</i>
Yellow Canary	<i>Serinusflaviventris</i>
Kalahari Robins	<i>Erythropygia paeon</i>
Dusky Sunbird	<i>Nectarinia fusca</i>
Common Quail	<i>Coturnix coturnix</i>
Cardinal Woodpecker	<i>Dendropicos fuscescens</i>
White-breasted Cormorant	<i>Phalacrocorax cardo</i>
Grey Heron	<i>Ardea cinerea</i>
Black Headed Heron	<i>Ardea melanocephala</i>
Cattle Egret	<i>Bululcus ibis</i>
Hammerkop	<i>Scopus umretta</i>
Hadedda ibis	<i>Bostrychia hagedash</i>
Whitefaced Duck	<i>Dendrocygna viduata</i>
Egyptian Goose	<i>Alopochen aegyptiacus</i>
Yellowbilled Duck	<i>Anas undulate</i>
Redbilled Teal	<i>Anas erythrorhyncha</i>
Spurwinged Goose	<i>Plectropterus gambensis</i>
Secretary Bird	<i>Sagittarius serpentarius</i>
Black-breasted Snake Eagle	<i>Circaetus pectoralis</i>
Steppe Buzzard	<i>Buteo buteo</i>
Lanner falcon	<i>Falco biarmicus</i>
Greater Kestrel	<i>Falco rupicoloides</i>
Lesser Kestrel	<i>Falco naumanni</i>
Orange River Francolin	<i>Francolinus levaillantoides</i>
Helmeted Guinea fowl	<i>Numida meleagris</i>
Redknobbed Coot	<i>Fulica cristata</i>
Whitewinged Black Korhaan	<i>Eupodotis aftaoides</i>
Crowned Plover	<i>Vanellus armatus</i>
Blacksmith Plover	<i>Vanellus coronatus</i>
Common Sandpiper	<i>Actitis hypoleucos</i>
Blackwinged Stilt	<i>Himantopus himantopus</i>
Spotted Dikkop	<i>Birhinus capensis</i>
Doublebanded Courser	<i>Smutsornus africanus</i>
Temminck's Courser	<i>Cursorius temminckii</i>
Whitewinged Tem	<i>Childonias leucopterus</i>
Burhell's Sandgro	<i>Ptercoles burchilli</i>

**Mammals**

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A list of all the fauna likely to be found at the site is presented in the table below:

<b>MAMMAL LIST</b>	
<b>Scientific Name</b>	<b>Common Name</b>
<i>Suncus infinitesimus</i>	Least Dwarf Shrew
<i>Crocidura cyanea</i>	Reddish-grey Musk Shrew
<i>Chlorotoxapha sclater</i>	Golden Mole
<i>Tadarida aegyptiaca</i>	Egyptian Free-tailed Bat
<i>Eptesicus capensis</i>	Cape Serotine Bat
<i>Nucleris thebaica</i>	Common Slit-faced Bat
<i>Rhinolophus clivosus</i>	Geoffroy's Horseshoe Bat
<i>Papio ursinus</i>	Chacma Baboon
<i>Tatera lencogaster</i>	Bushveld Gerbil
<i>Tatera brantsii</i>	Highveld Gerbil
<i>Gerbillurus paeba</i>	Hairy-footed Gerbil
<i>Desmodillus aricularis</i>	Short-tailed Gerbil
<i>Mus musculus</i>	Domestic Mouse
<i>Rhabilomys pumilio</i>	Striped Field-Mouse
<i>Saccostomus capestris</i>	Pouched Mouse
<i>Malacothrix typical</i>	Large-eared Mouse (on calcrete)
<i>Graphiurus ocellatus</i>	Spectacled Dormouse
<i>Mus minutoides</i>	Pygmy Mouse
<i>Aethomys namaquaensis</i>	Namaqua Rock Mouse
<i>Parotomys brantsii</i>	Bronts' Whistling Rat
<i>Otomys unisulcatus</i>	Karoo Bushrat
<i>Thallomys nigricauda</i>	Black-tailed Tree Rat (camel-thorn)
<i>Cryptomys hottentotus</i>	Common Mole Rat
<i>Rattus rattus</i>	Domestic Rat
<i>Lepus capensis</i>	Cape Hare
<i>Lepus saxatilis</i>	Shrub Hare
<i>Pedetes capensis</i>	Springhare
<i>Pronolagus rupestris</i>	Smith's Red Rock Rabbit
<i>Helogale parvula</i>	Dwarf Mongoose
<i>Cynictis penicillata</i>	Yellow Mongoose
<i>Atilax paludinosus</i>	Water Mongoose
<i>Galerella sanguinea</i>	Slender Mongoose
<i>Ictonyx striatus</i>	Striped Polecat
<i>Genetta genetta</i>	Small Spotted Genet
<i>Xerus inauris</i>	Ground Squirrel
<i>Funisciurus congicus</i>	Striped Ground Squirrel
<i>Atelerix frontalis</i>	Cape Hedgehog
<i>Felis caracal</i>	Caracal
<i>Felis lybica</i>	African Wild Cat
<i>Felis nigripes</i>	Small Spotted Cat
<i>Otocyan megalotis</i>	Bat-eared Fox
<i>Vulpes chama</i>	Cape Fox
<i>Canis mesomelas</i>	Black-backed jackal
<i>Hystrix africaeaustralis</i>	Porcupine
<i>Orycteropus afer</i>	Aardvark
<i>Phacochoerus aethiopicus</i>	Warthog
<i>Manis temminckii</i>	Cape Pangolin
<i>Suricata suricatta</i>	Meerkat
<i>Sylvicapra grimmia</i>	Common Duiker
<i>Raphicerus campestris</i>	Steenbok



<i>Tragelaphus strepsiceros</i>	Kudu
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**Endangered Species**

The fauna listed below are endangered species that are most likely to occur in the area according to the Red Data Book – Birds (Barnes, Keith N, 2000) and the Red Data Book – Mammals (Smithers 1989 & Branch 1988). The following definitions apply:

**Vulnerable**

Taxa of which all or most populations are decreasing because of: over exploitation, extensive destruction or degradation of their habitat, or other environmental disturbances. This means that the species is considered to facing a high risk of extinction in the wild.

**Rare**

Taxa with small population sizes, which are not permanently endangered or vulnerable; but are potentially at risk.

- Endangered mammals

Scientific Name	Common Name	Status
<i>Aonyx capensis</i>	Cape Clawless Otter	Unknown
<i>Felis lybica cafra</i>	African Wild Cat	Vulnerable
<i>Manis temminckii</i>	Cape Pangolin	Vulnerable
<i>Orycteropus afer</i>	Antbear	Vulnerable
<i>Atelerix frontalis</i>	Cape Hedgehog	Rare
<i>Naja nigricollis woodi</i>	Black Spitting Cobra	Rare
<i>Proteles cristatus cristatus</i>	Aardwolf	Rare
<i>Felis nigripes nigripes</i>	Small Spotted Cat	Rare

- Endangered birds

Scientific Name	Common Name	State
<i>Gyps coprotheres</i>	Cape Vulture	Vulnerable
<i>Gyps africanus</i>	African Whitebacked Vulture	Vulnerable
<i>Torgos tracheliotos</i>	Lappetfaced Vultures	Vulnerable
<i>Aquila rapax</i>	Tawny Eagle	Vulnerable
<i>Polemactus bellicosus</i>	Martial Eagle	Vulnerable
<i>Anthropoides paradiseus</i>	Blue Crane	Vulnerable
<i>Ardeotis kori</i>	Kori Bustard	Vulnerable
<i>Neotis ludwigii</i>	Ludwig’s Bustard	Vulnerable

No species is limited to this site only, with most of them being generalist and having a wide distribution range. However, reasonable measure must be put in place to protect endangered and protected species if they are encountered on this site.

The mobility and in many case the adaptability of many bird species has meant that they more than any other vertebrate group have taken advantage of many of the changes we have brought about in the environment.

7) Flora:

The majority of the study area falls within the Nama Karoo Biome, (Mucina and Rutherford 2006). According to the vegetation map of Mucina and Rutherford (2012), the site is represented by one broad-scale vegetation unit, i.e. Northern Upper Karoo.

Northern Upper Karoo is found in the Northern Cape and Free State at altitudes between 1 000 and 1 500 m. It is mostly restricted to the Northern regions of the Upper Karoo plateau from Prieska, Vosburg and Carnarvon in the west to Phillipstown, Petrusville and Petrusburg in the east. The topography is typically flat to gently sloping, but isolated hills of the Upper Karoo Hardeveld (in the south) and Vaalbos Rocky Shrubland (in the northeast) and numerous pans are interspersed in this unit. The vegetation occurs mainly as shrubland dominated by dwarf karoo shrubs, grasses and *Senegalia mellifera*. The geology and soil of this unit varies greatly. Geology includes Shales of the Volksrust Formation, Dwyka Group Diamictite, Jurassic Karoo Dolerite sills and sheets, and calcretes of the Kalahari Group. Soils range from shallow to deep, red-yellow, apedal, freely drained soils to very shallow Glenrosa and Mispah forms. The most dominant landtypes are Ae, Ag and Fc.

It is estimated that about 4 % of the unit has been cleared for cultivation or transformed by building of dams; and human settlements are increasing in the north-eastern parts. Erosion is moderate, very low and low, while *Prosopis glandulosa*, considered among the top 12 agriculturally significant invasive alien plants in South Africa, are widely distributed in this unit. The unit is classified as being least threatened and it is not currently conserved within any formal conservation areas. Endemic plant species known from this unit include *Lithops hookeri*, *Stomatium pluridens*, *Atriplex spongiosa*, *Galenia exigua* and *Manulea deserticola*.

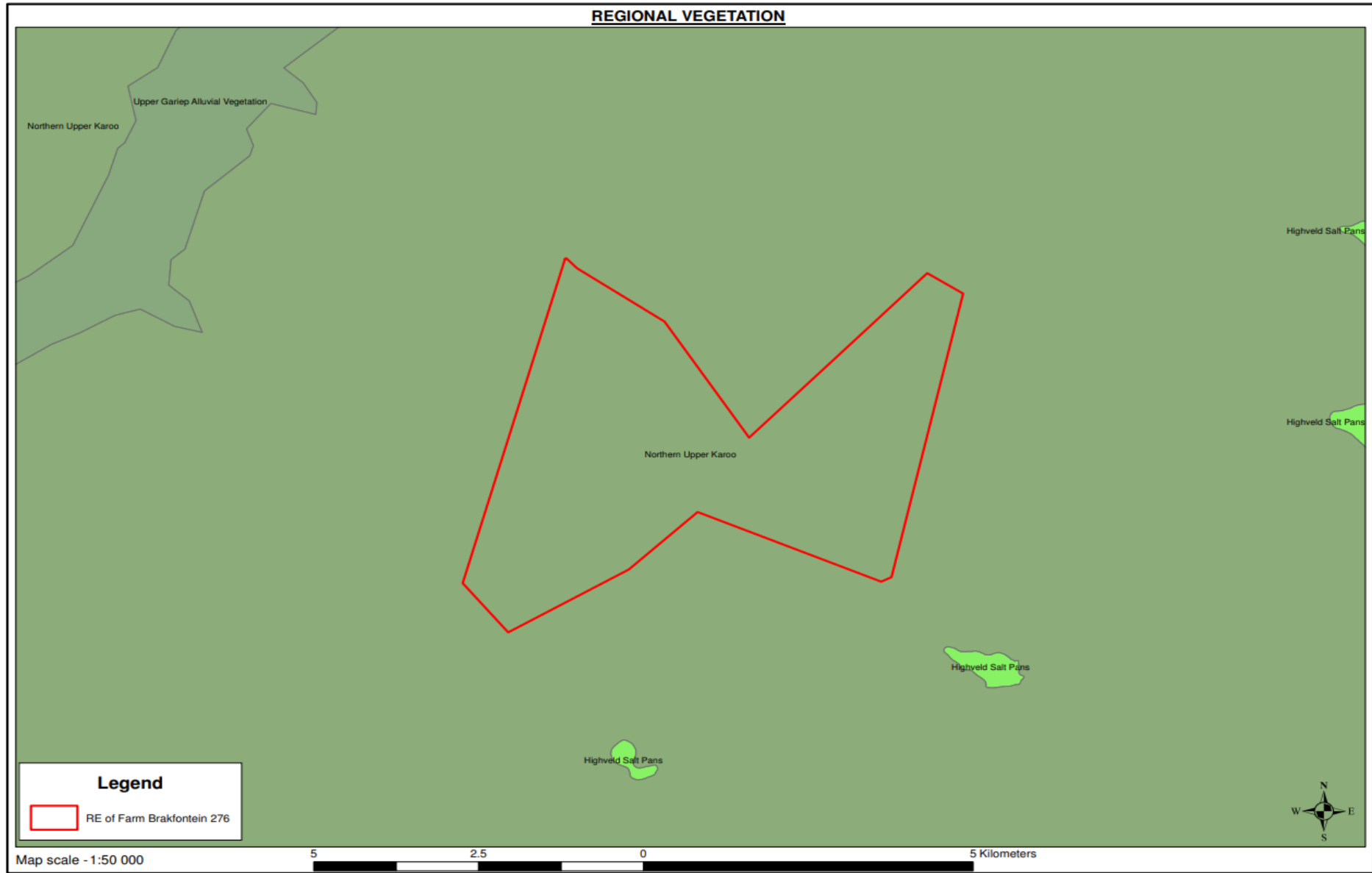


Figure 15. Regional Vegetation Map, the application area is indicated in red.

(8) SURFACE WATER

The site is situated within the Lower Orange River Catchment and drains to the west, towards the Orange River.

The Orange River is situated about 6 km to the west of the site.

A number of drainage lines are present on the site, all of which are non-perennial.

The small drainage lines in the area will only carry water during exceptional rainfall events such as a big cloudburst, experience a flash run-off and be dry again after the run-off except for possible hollows in the drainage lines. Evaporation is high and surface water is hardly encountered in this area.

There is no normal flow in dry weather conditions – it is devoid of any water.

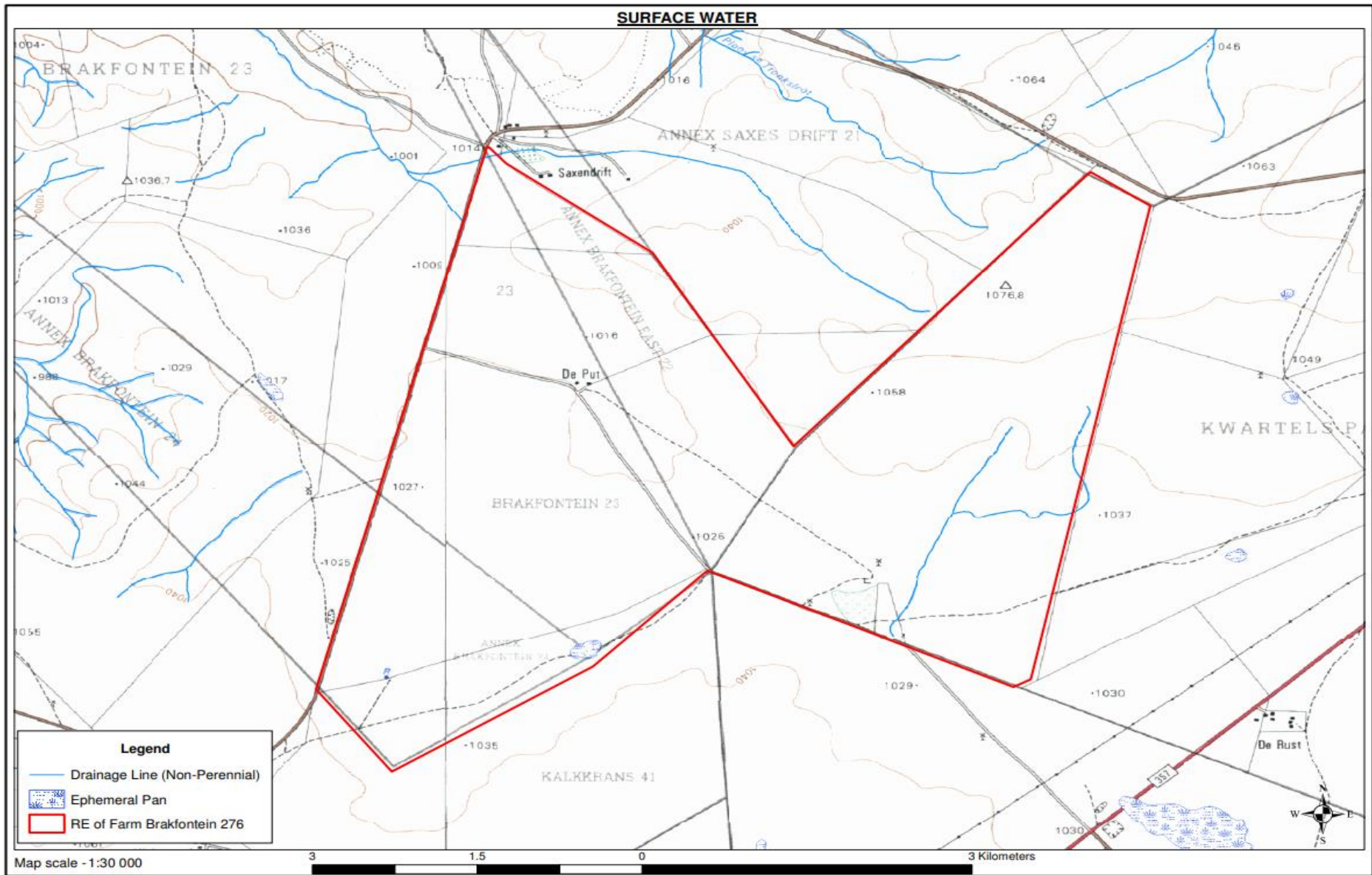


Figure 16. See dry Non- Perennial Drainage channels indicated in blue on the proposed Prospecting area.

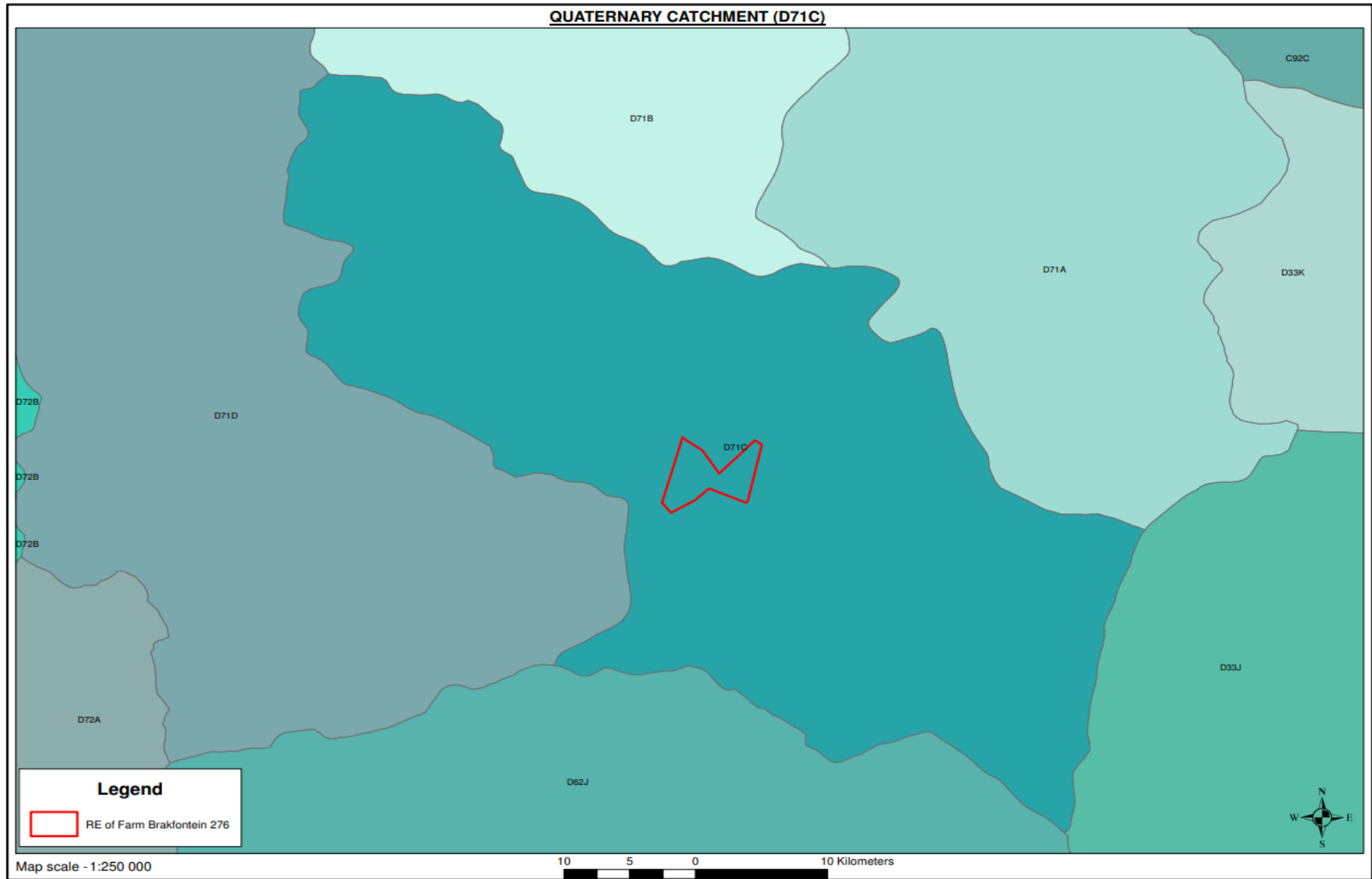


Figure 17. Catchment area

**Classification of the Watercourse**

The study area straddles quaternary drainage catchments D71C of the Lower Orange Water Management Area. The topography is characterized by very flat terrain with ground elevation lying between 1000 and 1040 metres above mean sea level. Surface drainage is predominantly to the north and west into the Orange River through the natural drainage channels.

**Wetlands**

*There are two wetlands indicated on the maps this will be confirmed with the ecological and wetland study to be done.*

*Surface water quality:*

*According to DWA (ISP, 2004) surface water quality within the LOWMA is affected by many things including sediment and erosion, the diffuse discharges from irrigated farmland (both fertilisers and salinity through leaching), domestic and urban runoff, industrial waste, and sewage discharges.*

*In its natural state the quality of the Orange River is considered to be good, although high turbidity conditions have been recorded during flood flows. Water from the tributary streams tends to be of high salinity. Both the flow regime and water quality in the Orange River has been impacted upon by extensive upstream developments. Salinity in the Orange River has increased due to the transfer of high-quality water away from the orange river (in Lesotho and the Upper Orange water management Area) and as a result of high salinity return flows as well as treated urban effluent, may also periodically enter the Orange River.*

*With the alluvial gravels not having any harmful or toxic substance, water emanating from the application property will not contaminate any surface water source. The drainage lines on the farm only have water when it rains, these watercourses do not hold any water, and thus a sample of the water in this source could not be obtained. The runoff water is also very rapid, with virtually no seepage or drainage taking place.*

(9) GROUND WATER:

THE MEAN DEPTH OF THE WATER TABLE DURING SUMMER IS APPROXIMATELY 120 M AND DURING WINTERS 140 M.

**Ground –Water Zone**

It is not anticipated that ground water plays a significant role in the study area. The river is the primary source of water for most activities.

The area between Douglas and Prieska is criss-crossed by dolerite dykes which could act as barriers to water seepage from prospecting / mine sites. These thin impersistent dykes in the proposed prospecting area will not affect ground-water movement significantly. The depth of the boreholes as indicated precludes ground water being an important factor in the area.

**Ground-water quality:**

As a result of the low rainfall over the water management area, recharge of groundwater is limited and only small quantities can be abstracted on a sustainable basis (ISP, 2004). Aquifer characteristics (borehole yields and storage of groundwater) are also typically unfavourable because of the hard geological formation underlying most of the water management area. Current utilization of groundwater in the water management area is approximately in balance with the sustainable yield from this source.

DWA considers the interaction between groundwater and surface water to be of concern. It should be noted that the extent of prospecting excavations seldom exceeds 20 m in depth therefore given the mean depth of the water table of approximately 120 m during summer and 140 m during winter operations does not reach the water table. Equally the identified depth implies that groundwater presently does not play a primary role in operations.

**Ground-water zone:**

The diamond bulk sampling does not affect the quality of the ground water in any manner. There are no harmful or toxic properties in the gravels being mined. The recycling of the water only requires sediment settling, thus no aquifers and aquicludes are on the property.

(10) AIR QUALITY AND NOISE:

With reference to the Scheduled Processes under the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), no scheduled process relates to any proposed prospecting activity

**Existing Sources**

The current source of air pollution in the area stems from numerous mining operations along the Orange River and from vehicles travelling on the gravel roads of the area. Farming activity, especially ploughing of the irrigation fields, may generate dust during certain periods of the year. The general air quality on the area is expected to be good.



**New source**

The source of air pollution on the farm will be nuisance dust generated by the opencast Prospecting process, the loading of gravels onto the transport trucks, the dumping of gravels over each sites primary screen or feeder bins as well as from the movement of trucks and vehicles on the prospecting roads. Gas emissions from machinery will be within legal limits

**Areas of impact**

As the prevailing wind direction for the area is north to north-west for the months January to September and changing from north to sometimes westerly winds during October to December, there is a potential for fall-out dust to impact on the surrounding farm properties, which can be described as the nearest potential area of impact. The dust management programme recommended should include daily dosing of access roads and stockpile areas

The dust is controlled by watering down the roadway used by these trucks while bulk sampling. The mineral processing is a wet process; thus, no dust is generated.

A complain register for surrounding owners and the community will be kept on site and the management of dust would be guided by these additionally comments of public.

**Noise****Existing sources:**

Noise on site will come from the large vehicles (tip trucks, front-end loader, back actor), from the working pan.

There are farming operations on both sides of the proposed prospecting operation. Although these operations do generate noise the overall impact can be described as negligible.

The impact would be of more importance regarding the direct worker environment that should adhere to the requirements in terms of the Mine Health and Safety Act. These noise levels will be continuous and the operators will be issued with earplugs.

Noise is normally encountered during the normal operation hours at the processing plant. Processing plant noise and mine vehicles are limited between 7am and 5pm every day during the week. Noise levels will be monitored on the prospecting area and where necessary, protective equipment is used in certain areas where machinery is used.

**(11) VISUAL ASPECTS:**

The prospecting site would possibly be visible from the secondary gravel roads on the farms. The negative visual impacts associated with open pits for the bulk sampling and the washing pan will however have a low negative impact since it will be visible to the landowners and can be visible from the secondary gravel road. There is however no method of reducing the impact during bulk sampling operations (operational phase), it can only be mitigation by doing concurrent rehabilitation of open pits as prospecting progress.

**(12) AREAS OF CULTURAL-HISTORICAL OR ARCHAEOLOGICAL INTEREST**

It is not certain if any areas of cultural-historical value are present on the prospecting right area. No heritage resources such as built structures or sites of cultural significance associated with oral histories, burial grounds and graves of victims of conflict, and cultural landscapes or views are known to be present on the proposed prospecting operation. An archaeologist will be contacted to do a heritage survey and this will be submitted as soon as it has been received with the EIA EMP documents as well as a desktop palaeontological study.

**(13) TOPOGRAPHY, SOIL EROSION AND ASSOCIATED DEGRADATION OF ECOSYSTEMS:**

The only potential sensitive feature is the natural drainage channels and two pans within the proposed Prospecting area. The bulk sampling activities will not go into any drainage channel it is thus not foreseen that prospecting can have a possible influence on this water features.

The prospecting area in general exhibits almost no soil horizons that have developed by paedogenetic processes. The dominant soil types are the result of alluvial deposits and are even found on the high lying areas.

The soils are predominantly rocky and shallow on the higher lying areas and moderately deep to deep in the lower lying areas (mainly derived from wind transported sands). Therefore, the risk of erosion in natural areas is expected to be very low. The areas around the bulk sampling sites are more likely to generate significant amounts of runoff during rainfall events.

**(14) BROAD-SCALE ECOLOGICAL PROCESSES:**

Transformation of intact habitat on a cumulative basis could contribute to the fragmentation of the landscape and could potentially disrupt the connectivity of the landscape for fauna and flora and impair their ability to respond to environmental fluctuations.

**(15) SOCIO-ECONOMIC STRUCTURE OF THE REGION:**

Thembelihle Local Municipality (formerly known as Oranje-Karoo Local Municipality) is a local municipality in the Pixley ka Seme District Municipality district of the Northern Cape province of South Africa. Thembelihle is a Xhosa name meaning "good hope", the new emblem depicts the diversity of Thembelihle inhabitants and its surroundings.

**Geography, History and Economy**

The municipality covers a total square area of 8 023km<sup>2</sup>. Thembelihle Local Municipality is a Category B municipality situated in the heart of the Karoo in the Pixley Ka Seme District of the Northern Cape Province. It is one of the smaller municipalities of the eight that make up the district, accounting for only 8% of its geographical area.

This mostly agricultural landscape is rich in natural resources. The first diamond was discovered in Hopetown and a great part of the Anglo-Boer War was fought in these parts. It is primarily made up of Hopetown and Strydenburg.

**Hopetown**

Hopetown was founded in 1850 when Sir Harry Smith extended the northern frontier of the Cape Colony to the Orange River. A handful of settlers claimed ground where there was a natural ford over the Orange River, and by 1854 a frontier town had developed. Hopetown was named after William Hope, Auditor-General and Secretary of the Cape Colony Government at the time, and is often mistaken for a town in the Freestate, South Africa, called Hoopstad. Hoopstad is a different town and should not be confused with Hopetown in the Northern Cape, South Africa.

Hopetown was a quiet farming area until several large diamonds, most notable the Eureka Diamond and the Star of South Africa, were discovered there between 1867 and 1869. The Cape Government Railways were founded in 1872, and the Cape government decided to run the main western line, between the Kimberley diamond fields and Cape Town on the coast, directly through Hopetown. The ford was upgraded to a railway bridge in 1884.

**Strydenburg**

**SCOPING REPORT – NORTHERN SPARK TRADING 428 (Pty) Ltd  
BRAKFRONTEIN 276, HOPETOWN**

Strydenburg is seventy-seven km north of Britstown, it was laid out by the Dutch Reformed Church on the farm Roodepan in 1892. It also lies on the N12, which separates the actual town from its township. Strydenburg is 55km south-west of Hopetown and 75km north-north-west of Britstown. It was laid out in 1892 on the farm Roodepan and attained municipal status in 1914. Dutch for ‘town of argument’, the name refers to disagreement as to on which farm it should be situated.

Strydenburg is a typical semi-desert suburb which is quiet, peaceful and full of character. It is the ideal stop over for travelers as it is halfway between Cape Town and Johannesburg. Strydenburg offers tourists a complete relaxation time away from the city life. There are hiking trails nearby and the visitors enjoy canoeing and river rafting on the Orange River not far from Strydenburg.

Strydenburg is in the Northern Cape and enjoys a semi-desert climate with hot to very hot and dry summer months and warm winter days with cool winter evenings. Most rainfall is during the winter months.

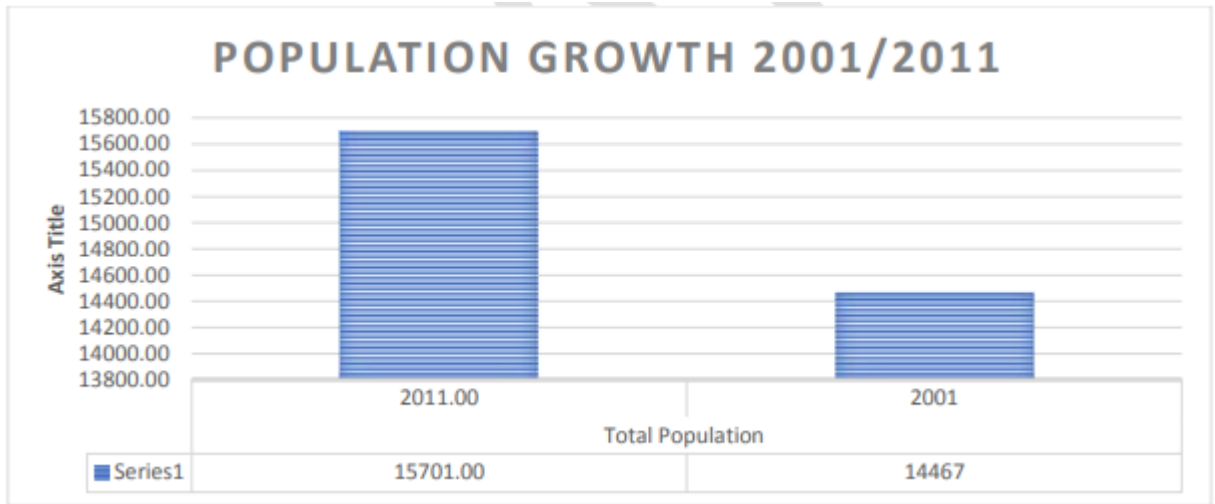


The demographics in Thembelihle

	2016	2011
<b>Population</b>	16 230	15 701
<b>Age Structure</b>		
Population under 15	25.0%	30.9%
Population 15 to 64	68.5%	62.8%
Population over 65	6.5%	6.4%
<b>Dependency Ratio</b>		
Per 100 (15-64)	46.0	59.3
<b>Sex Ratio</b>		
Males per 100 females	104.6	103.3
<b>Population Growth</b>		
Per annum	0.75%	n/a
<b>Labour Market</b>		
Unemployment rate (official)	n/a	28.4%
Youth unemployment rate (official) 15-34	n/a	35.2%
<b>Education (aged 20 +)</b>		
No schooling	10.8%	15.1%
Matric	22.2%	19.9%
Higher education	5.0%	6.6%
<b>Household Dynamics</b>		
Households	4 736	4 140
Average household size	3.4	3.7
Female headed households	32.4%	32.3%
Formal dwellings	77.4%	77.5%
Housing owned	51.0%	51.4%
<b>Household Services</b>		
Flush toilet connected to sewerage	66.4%	60.0%
Weekly refuse removal	59.4%	68.4%
Piped water inside dwelling	39.9%	33.5%
Electricity for lighting	84.2%	75.2%

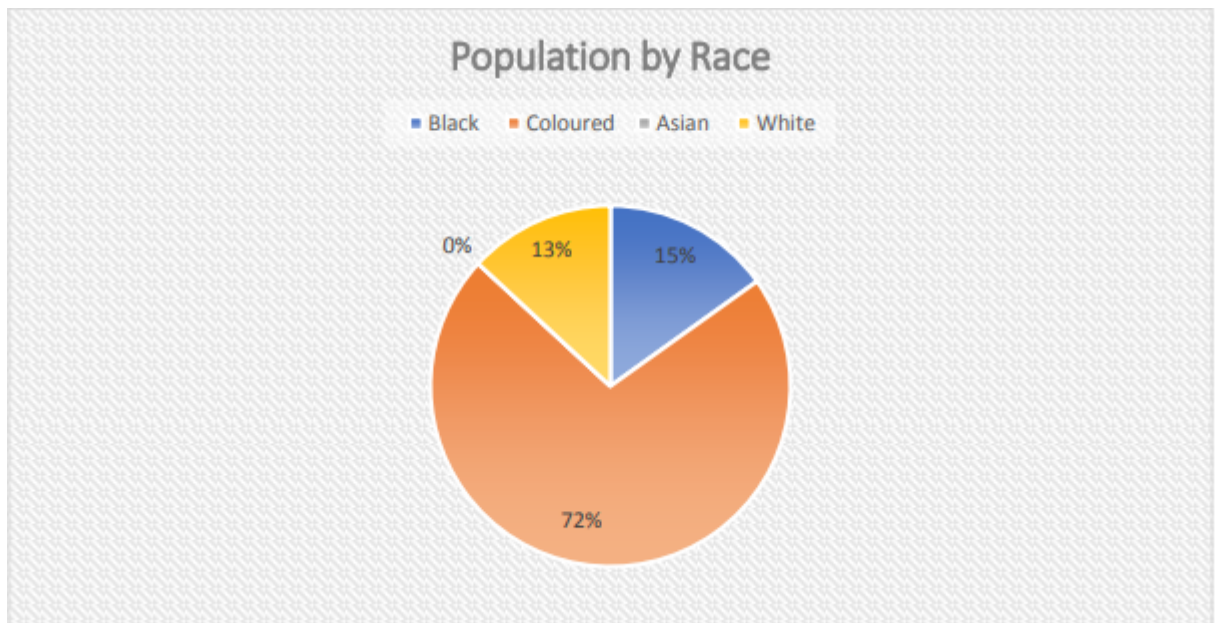
Demographics in context

Demographics and key statistics



Graph 1: Population Growth 2001-2011

The population in Thembelihle has been on the rise. From the graph above, the population of Thembelihle has increased from 14467 in 2001, 15701 in 2011 and 16230 in 2016. There is an ever-increasing trend in the population growth and therefore this means there is pressure on the infrastructure- the water, electricity and sewerage networks of the municipality. The municipality will be further, burdened if no proper planning is done . There is a possibility for the increase in the equitable share of the municipality and with proper planning even the grading for the Municipality.

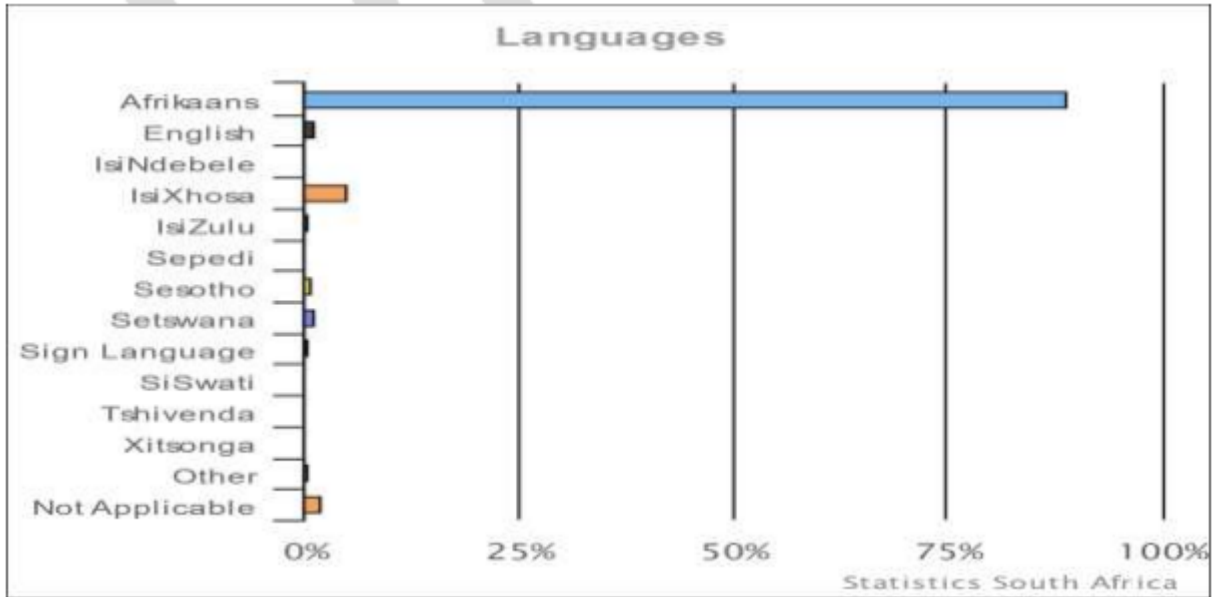


Graph 2: The Thembelihle Municipality by race

From the graph above, it is evident that the largest section of the population is coloured population, with the white and black sections of the population being 2% apart from each other and with Hopetown

being the most densely populated community and having the largest section of the White and African populations.

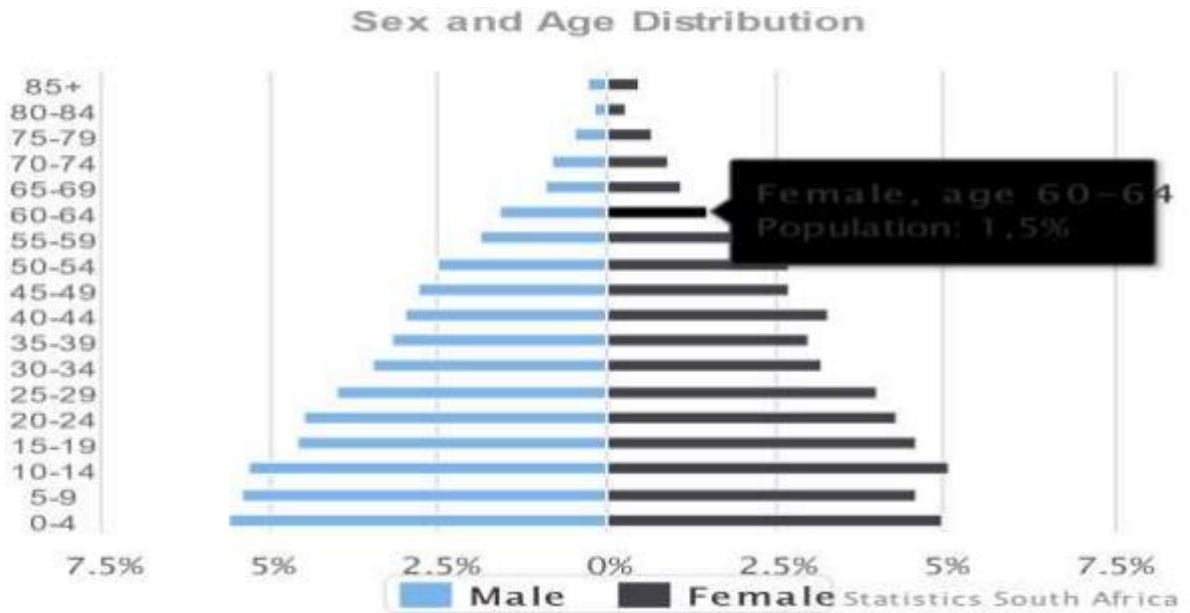
It is also important to appreciate that there is a need to understand the population dynamics from the perspective of the coloured population being the majority and as such programmes aimed at social cohesion should move from that appreciation. There is a slowly rising Asian population which is undocumented and needs to be included in the proper channels for registering populations.



Graph 3: Languages spoken in the municipal area

Graph 3, represents the languages spoken in the area. This is key in understanding the community and assist in planning any community engagement. From the graph above, it can be noted that the most commonly spoken language in the area is Afrikaans and Xhosa a distant second and then English.

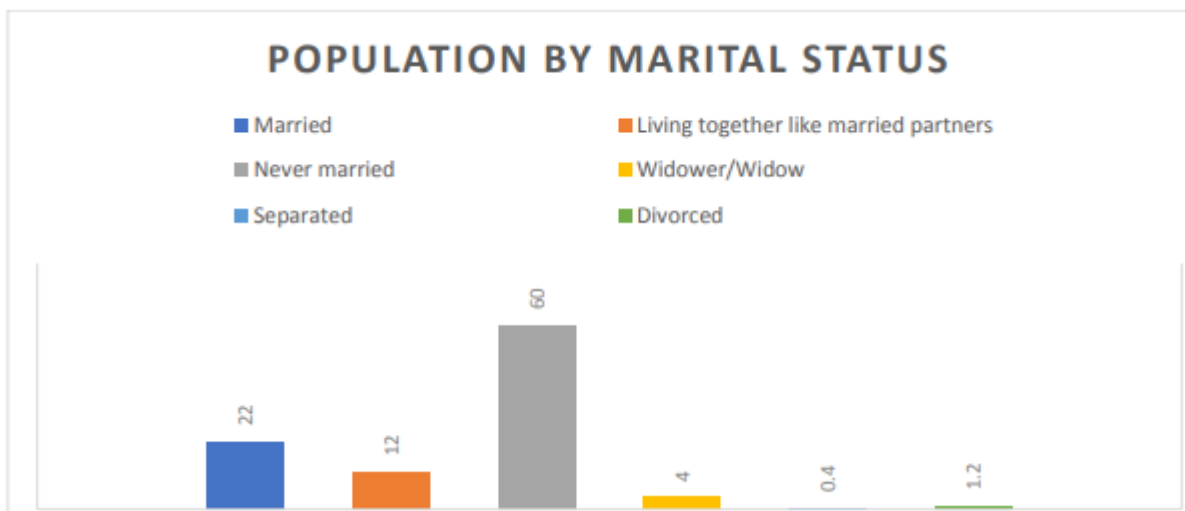
Further research that sought to contextualise the findings above, has revealed that the majority of people who speak IsiXhosa do not speak English as a second language but rather, Afrikaans as a second language. English is spoken by 0,5 percentage of the total population in the municipal area.



Graph 4: Population Age Sex Distribution

Graph 4, represents the population distribution of the municipality in terms of age and in terms of sex. From the graph above, there is evidence that there are more males than females in the Thembelihle Municipality. This is slightly different from the provincial and national norm in terms of male: female distribution. Very specifically, the male: female ratio increased from 103,3 males per 100 females in 2011 to 104,6 per 100 females.

The Thembelihle Municipality has a largely youth population with the greatest age ranges in the population being ages 0-34. This is further differentiated by the majority age being in the ages 0-14. It is also worth noting that there is a great pensioner age, 65 and greater.



Graph 5: Population by Marital Status

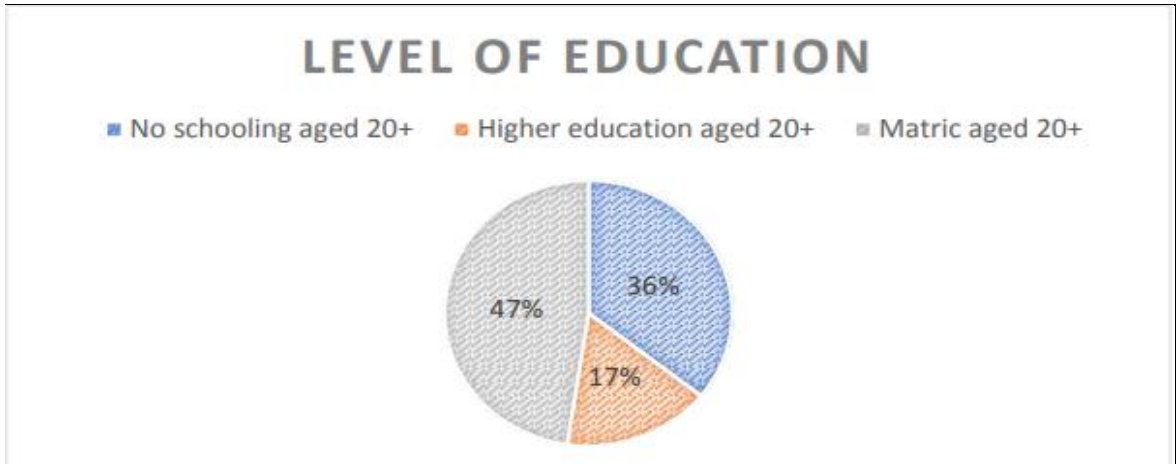
The largest section of the population is the population that has never been married



or leaving like married partners, this implies:

- There is a need to understand the population dynamics in the area, will tend to be like those of broken families
- There will be common problems like drug abuse, women abuse and crime and in particular unorganized (petty) crimes
- There is a likelihood of domestic violence too

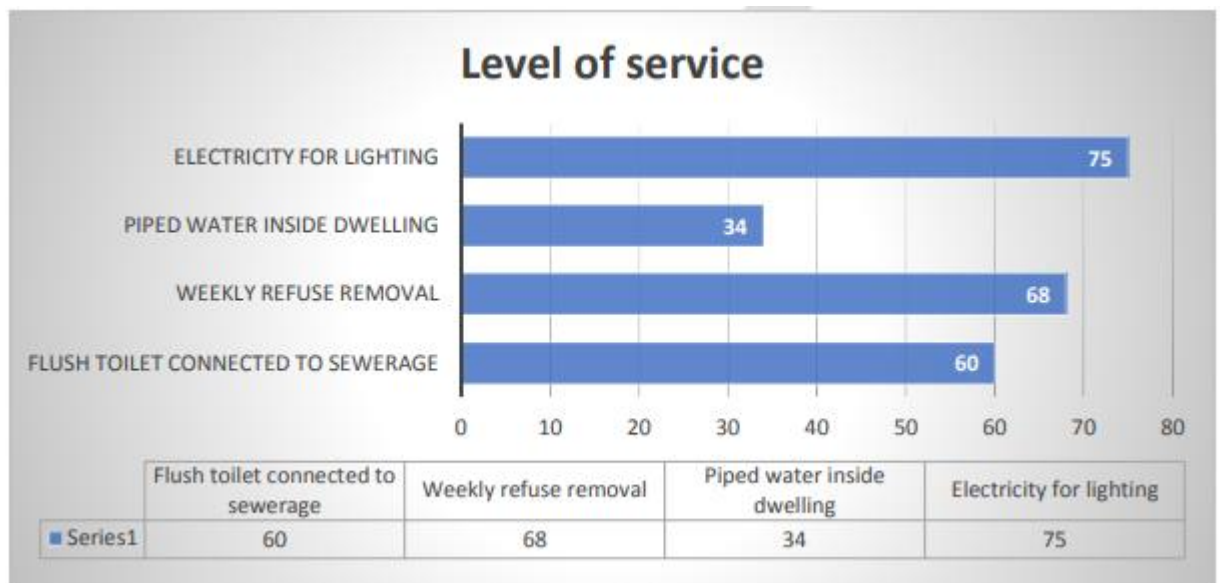
Development and Service Delivery Statistics



Graph 6: Education Levels in the Population over 20

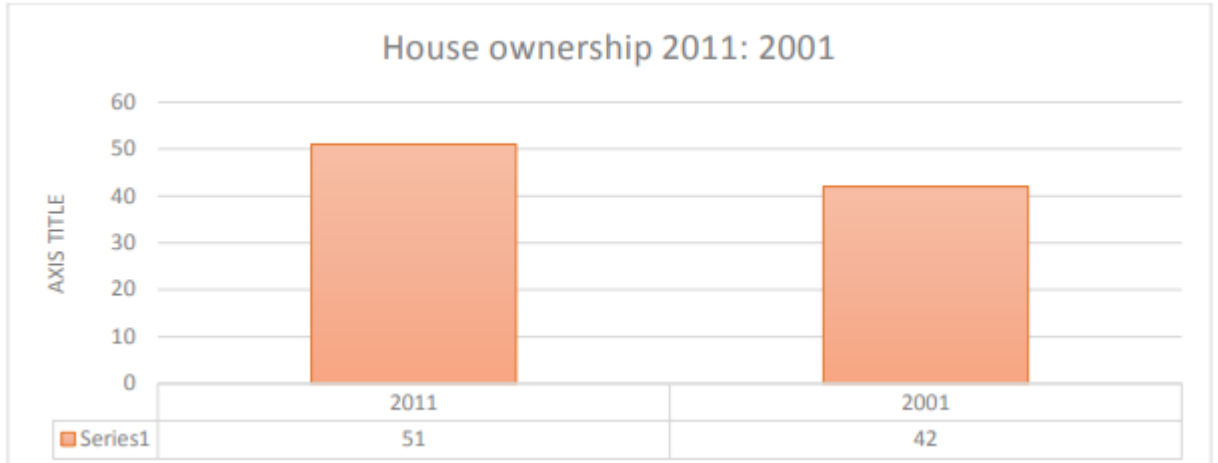
From the graph above, about 83% of the population aged 20 and above have no more than matric. Furthermore, 36% of this 83% never attended school. This means that:

- There is currently interventions in place to upskilling these sections of the population
- There is also a need to design low to semi-skilled jobs in order to accommodate these sections of the population.

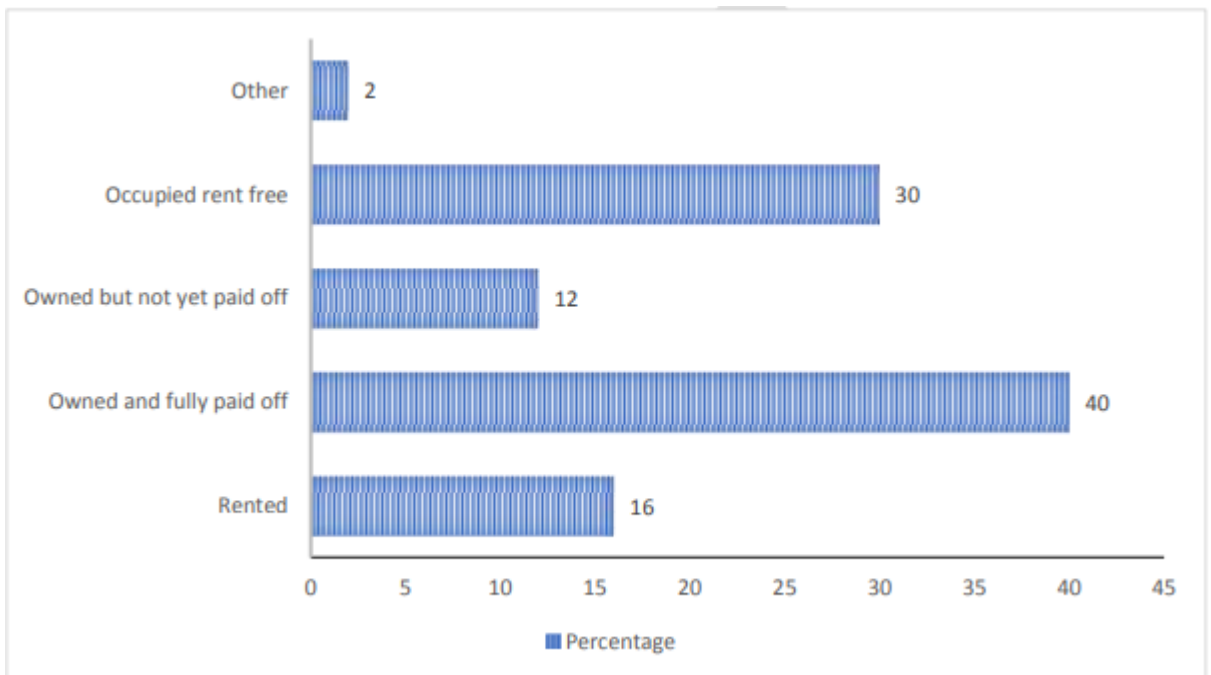


Graph 7: Level of service in the Thembelihle Municipality

Graph 7 above depicts the level of service in the municipality. From the graph above, the key basic service delivery commodities are accounted for. Electricity is supplied in the most effective manner in the municipality and water in the yard the least. Some encouragement is provided by the fact that there is weekly servicing of households related to refuse removal.



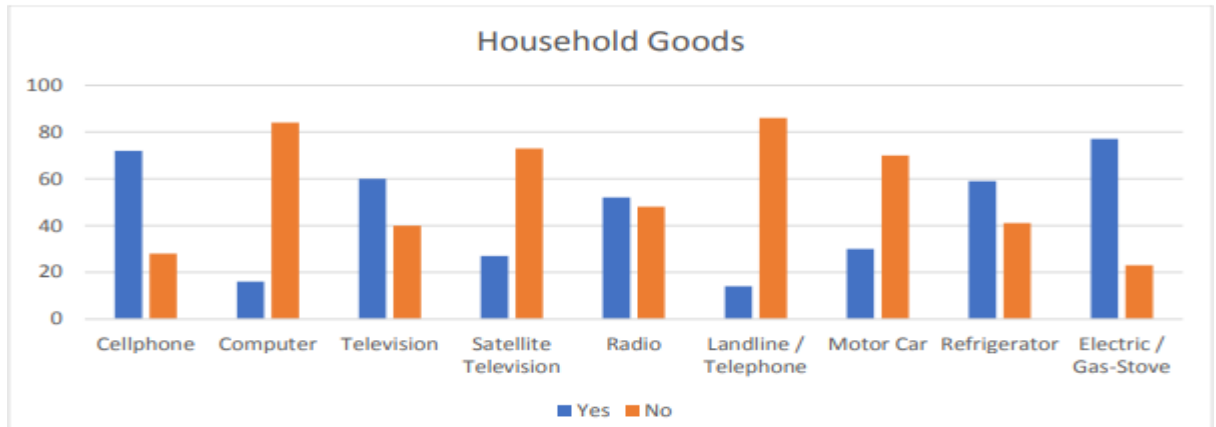
Graph 8: House ownership in Thembelihle



Graph 9: Household Tenure Status

From the two graphs above, it can be understood that the number of people owning houses in the municipality is on the increase. This points to a level of success in the government’s housing programme. Linked to this is the level of and or the household tenure status.

The largest section of the houses owned in the Thembelihle Municipality owns the property and it is fully paid. This in particular bodes well for the programme that is aimed at ensuring that the community’s human dignity is restored. There is a sizeable number of tenants that are occupying property rent free, this speaks to outstanding process of transferring the title deed to the rightful owners of the properties.

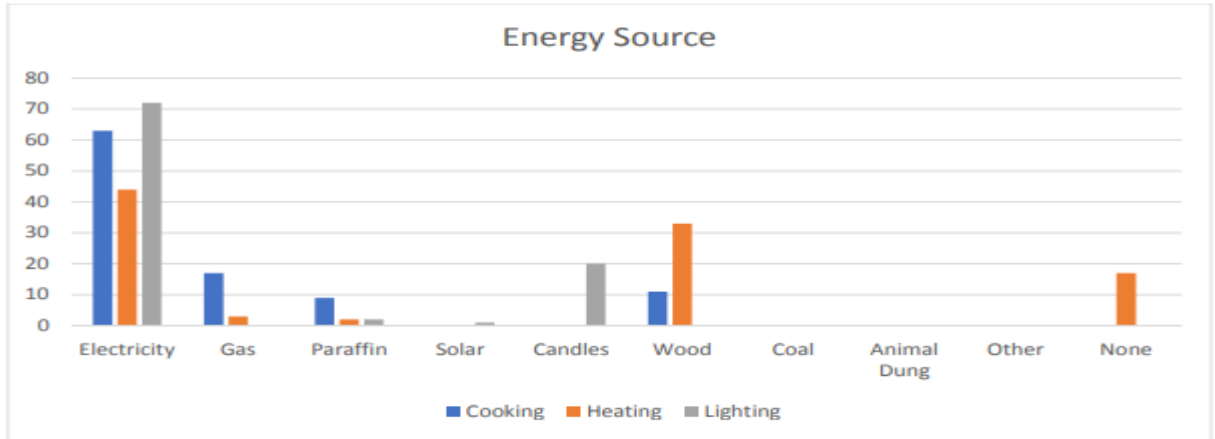


Graph 10: Household goods utilized

The goods utilized index seeks to get a sense of the day to day life of the ordinary residents in an area. To this extent, the household goods index in the municipality is as follows in order of the greatest utility and descending order.

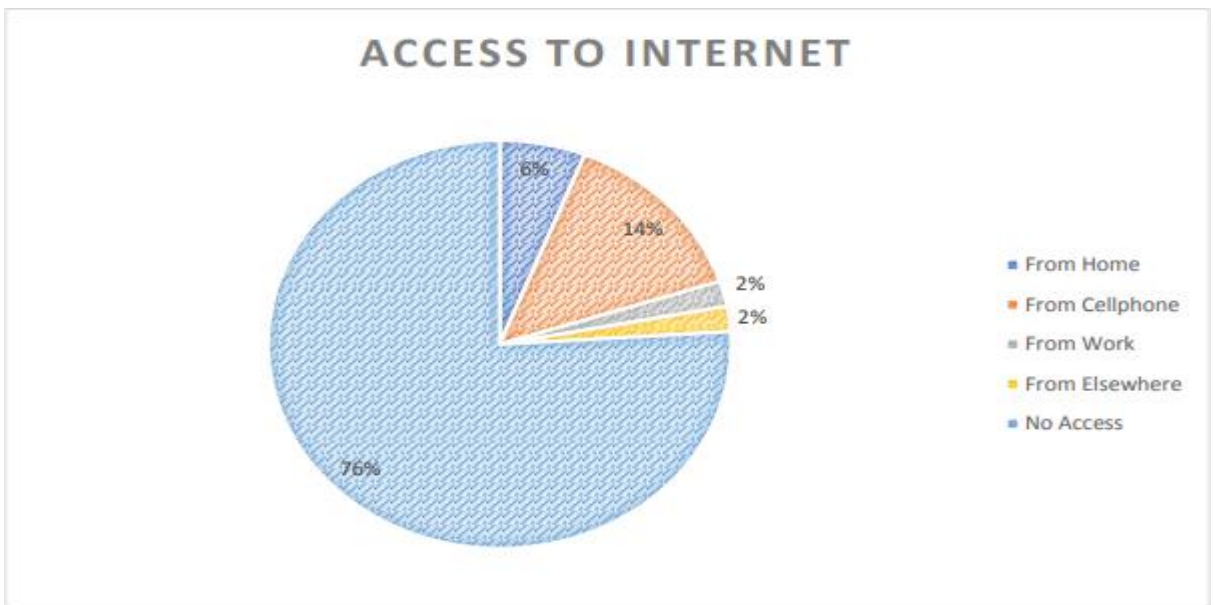
1. Electric/ gas stove
2. Cellphones
3. TV
4. Fridge
5. Radio
6. Car/Motor vehicle
7. Satellite Television
8. Landline telephone

The analysis above, is a clear indication that the electric stove is popularly used for cooking and sustenance purpose by the community at large. The use of cellphones in the South African market in general and in Thembelihle in particular, is telling of the impact of technology in our lives and the communities at large. It is worth noting that the landline has lost its significance in terms of the goods used in the municipality.



Graph 11: Energy Sources in the municipality

A great number of households in the area are using electricity to cook, light and heat up their houses. It is also important to note that there are some houses that don't have means of heating during winter. The second most of popular means of cooking, heating and lighting is paraffin second to electricity.

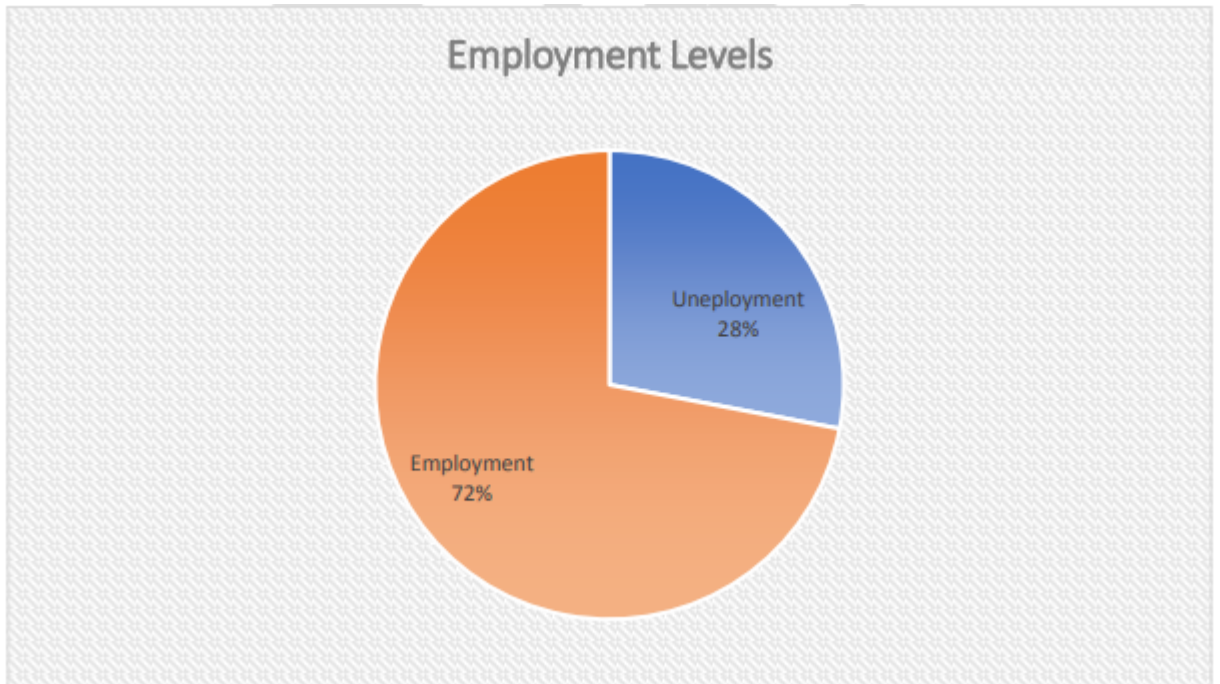


Graph 12: Access to internet in the municipality

The emergence of the digital of the digital platform has seen the increase in the demand for internet services. This not as a “nice to have” but an absolute necessity. According to this graph above, the Thembelihle Municipality has the great majority of its population without access to the internet. This majority is 76% of the population and next to that is 14% that accesses the internet from their cellphones. Next in line is that section of the population that accesses the internet from home. This accounts for 6% of the total Thembelihle population.

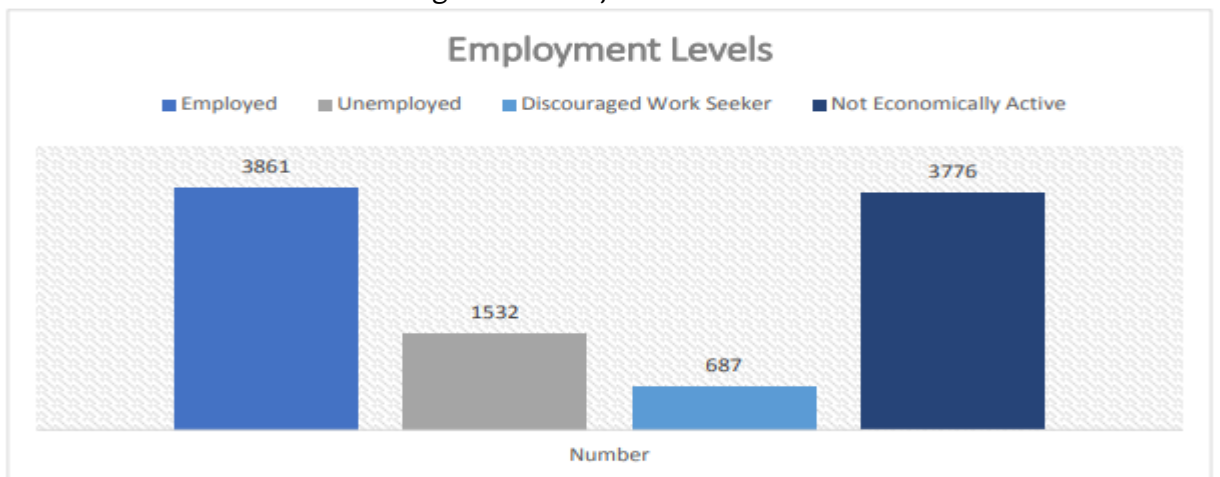
Employment and Economic Statistics

It is important to start this section, by defining employment. Employment can be defined as an economic situation where there is no cyclical or deficient-demand unemployment.



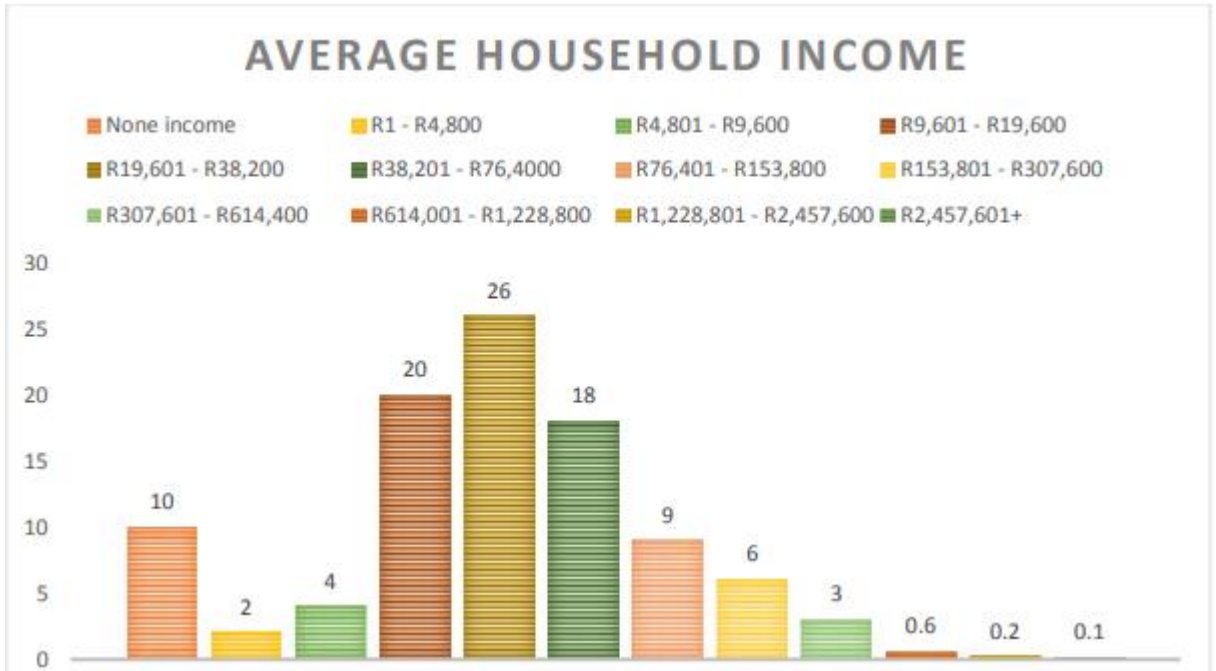
Graph 13: Employment situation in Thembelihle

Graph 13 depicts that of the economically active population, 72% of that section is employed and 28% unemployed. This is a very good variable in light of a 43% provincial unemployment figure. Whilst this is a good reflection, more can be done and the efforts can be directed towards the ensuring sustainable jobs.



Graph 14: Employment levels

Graph 14, further supplements the employment situation above and further qualifies the definition of employment. From this graph, the total number of employed people is 3861 and the total number of unemployed people is 1532. The number of discouraged work seekers is 687. The combination of discouraged work seekers and the unemployed population is close to 2 200 workers.



Graph 15: Average household income in Thembelihle

From graph 15 above, the highest number of households are in the middle to higher income strata. In this regard, they earn in the ranges of R307 614 400 to R 2 452 601. This means that there is a thriving middle class in the Thembelihle Municipal area. There is a 0,6% of earners in the above R 2 452 601 bracket.

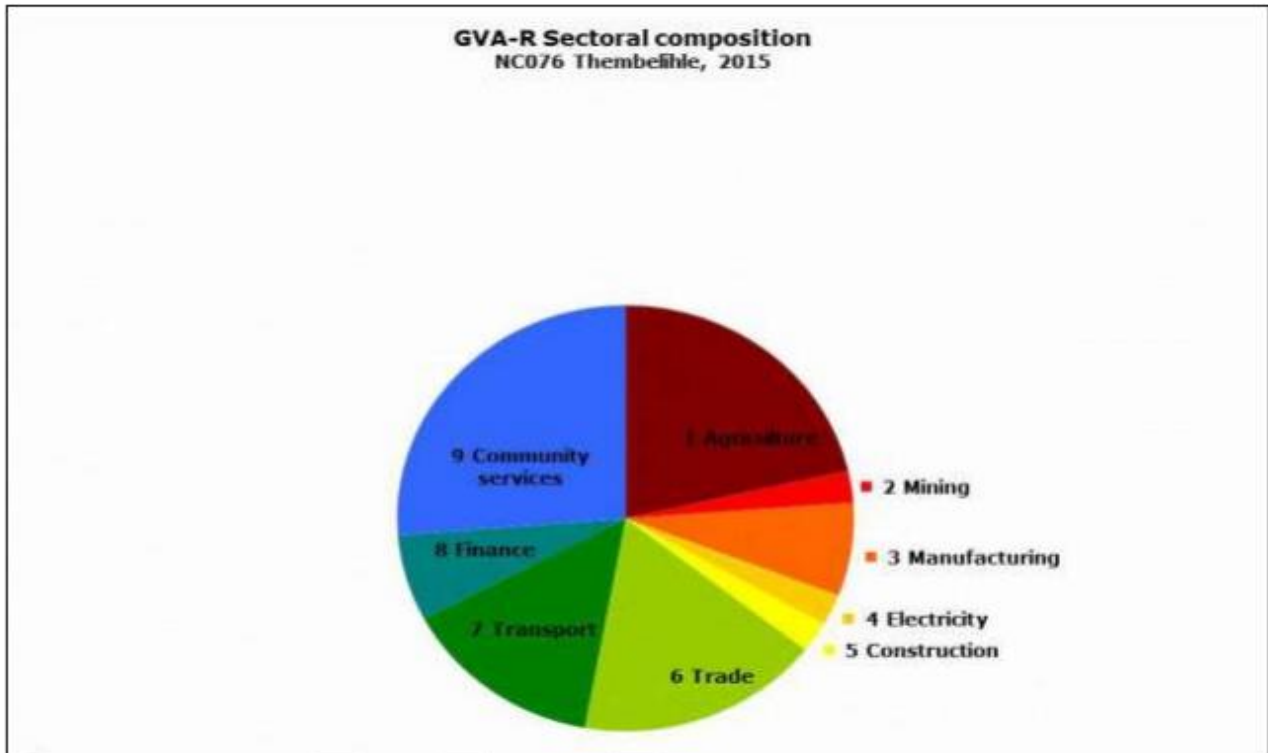
### ECONOMIC STATUS QUO

With a GDP of R 1.17 billion in 2015 (up from R 529 million in 2005), the Thembelihle Municipality contributed 10.74% to the Pixley ka Seme District Municipality GDP of R 10.9 billion in 2015. Although most of the arid towns have grown in size since 2000, due to immigration, and because of the South African social grant system (which encourages people to stay where they are). But the urban economy of the arid areas is very fragile.

Typically, the business sector is small, and there is virtually no industrial base. This is true for Thembelihle because the business sector consists mainly of the Cooperative, which is also the biggest employer, with branches in all the towns and general dealers such as food outlets, butcheries, hotels, guest houses and garages.

The Thembelihle Local Municipality's economy is made up of various industries. The GVA-R variable provides a sector breakdown, where each sector is measured in terms of its value added produced in the local economy. The summary table below puts the Gross Value Added (GVA) of all the regions in perspective to that of the Thembelihle Municipality.

Thembelihle Municipality’s economy is however less diversified in terms of its economic activity spread, than the province's economy as a whole.



Graph 16: GVA Sectoral Composition

In 2015, the community services sector is the largest within Thembelihle Municipality accounting for R 269 million or 26.3% of the total GVA in the local municipality's economy. The sector that contributes the second most to the GVA of the Thembelihle Local Municipality is the agriculture sector at 21.4%, followed by the trade sector with 17.3%. The sector that contributes the least to the economy of Thembelihle Municipality is the electricity sector with a contribution of R 24 million or 2.34% of the total GVA.

The comparative advantage (CA) of a region indicates a relative competitive production function for a product or service in that specific economy compared to the aggregate economy. An indication of the CA of an economy is its location quotient.

The location quotient is a calculated ratio between two economies. In the case of the Thembelihle Municipality, the location quotient was determined between the LM and the Pixley Ka Seme DM.

For 2015 Thembelihle Local Municipality has a very large comparative advantage in the agriculture sector. The transport sector also has a comparative advantage. The trade also has a comparative advantage when comparing it to the South Africa economy as a whole, although less prominent.

The Thembelihle Local Municipality has a comparative disadvantage when it comes to the mining and finance sector which has a large comparative disadvantage. In general mining is a very concentrated economic sector. The Thembelihle Local Municipality area does have some mining, but this is very limited and fairly unimportant.

Most of the agricultural economy consists of extensive farming (sheep and goats), as well as a growing number of game farming operations. However, there is intensive agriculture along the Orange Riet Canal System, along the upper Orange River (Colesberg-Hopetown area), and along the middle Orange River area. Hopetown is a centre of irrigation farming.

(16) SENSITIVE LANDSCAPES:

“Sensitive Environments” that have statutory protection are the following:-

1. Limited development areas (Section 23 of the Environmental Conservation Act, 1989 (Act 73 of 1989).
2. Protected natural environments and national heritage sites.
3. National, provincial, municipal and private nature reserves.
4. Conservation areas and sites of conservation significance.
5. National monuments and gardens of remembrance.
6. Archaeological and palaeontological sites.
7. Graves and burial sites.
8. Lake areas, offshore islands and the admiralty reserve.
9. Estuaries, lagoons, wetlands and lakes.
10. Streams and river channels and their banks.
11. Dunes and beaches.
12. Caves and sites of geological significance.
13. Battle and burial sites.
14. Habitat and/or breeding sites of Red Data Book species.
15. Areas or sites of outstanding natural beauty.
16. Areas or sites of special scientific interest.
17. Areas or sites of special social, cultural or historical interest.
18. Declared national heritage sites.
19. Mountain catchment areas.
20. Areas with eco-tourism potential.

The relevant specialists will be appointed to assess whether there are any sensitive landscapes within the application area.



**(b) Description of the Current Land Use****(1) Land Use before Prospecting / Mining:**

The current land use on this property is for grazing, the soil on the property does not provide for any other land use on the property or alternative uses.

If the prospecting operation proves positive the only other use in this area will be for prospecting / mining.

**(2) Evidence of Disturbance: -**

On the application area there are existing roads and a house.

**(7) Existing Structures: -**

The only structures on the application area are the existing roads, a house.

All 100m safety borders from infrastructure will be kept.

**(c) Description of Specific Environmental Features and Infrastructure on Site**

The infrastructure on site comprehensively discussed in section d(ii) as part of the Prospecting / Mining methodology discussion, as well as in section g as part of the mine footprint description. Furthermore, a comprehensive description of the environment was presented in section (i) as part of the baseline report.

(d) Environmental and current land use map (Show all environmental, and current land use features)

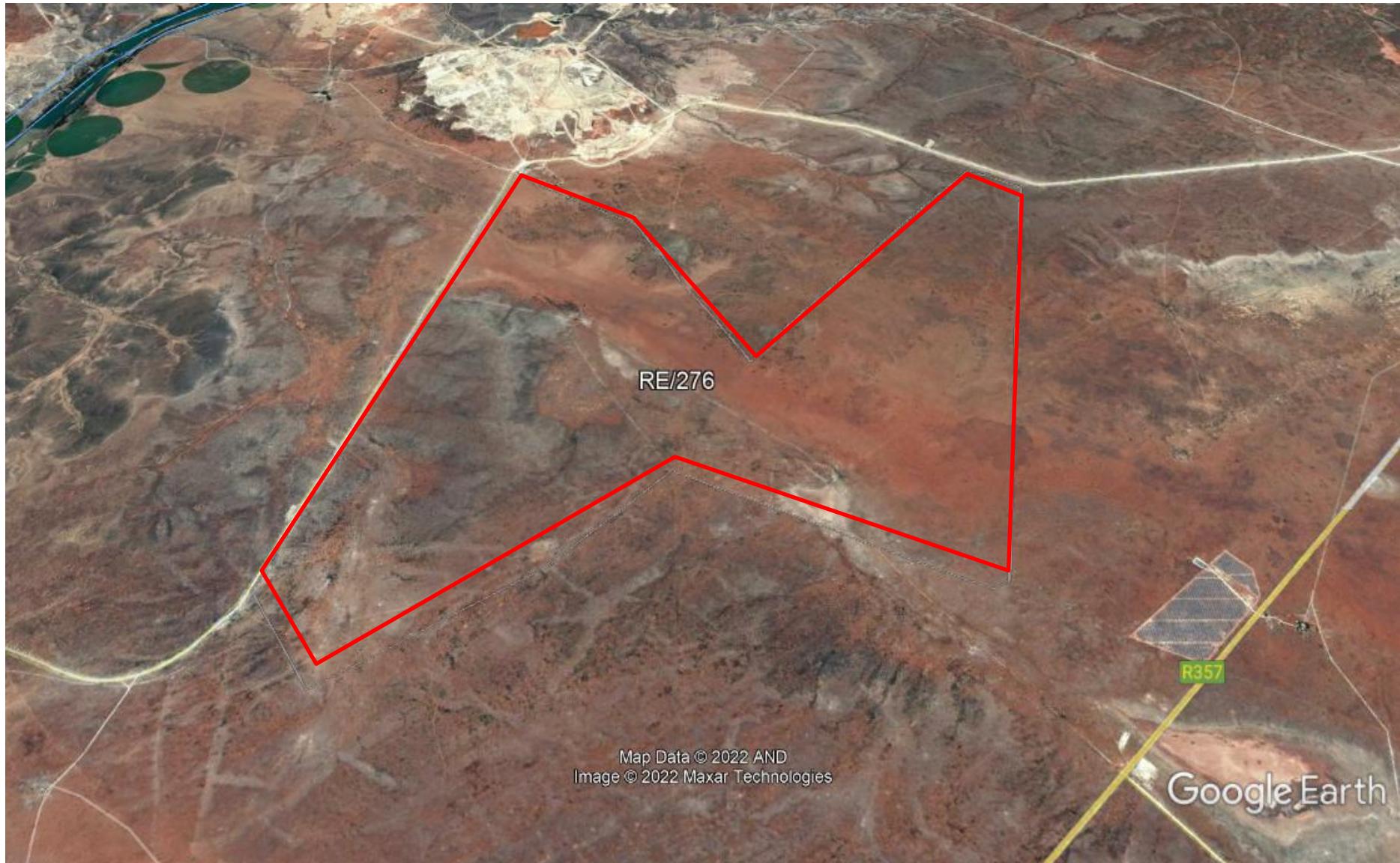


Figure 18. Environmental and current land use map on 1:50 000 topographical map

**v) Impacts identified**

(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.)

Nature of Impact	Significance	Probability	Duration
Sterilisation of mineral resources.	Low	Highly unlikely	Decommissioning
Changes to surface topography due to topsoil removal, prospecting pits (bulk sampling), placement of infrastructure and development of residue deposits.	Low to medium	Certain	Permanent Post-closure
Soil erosion by water and wind on disturbed and exposed soils; potential for dust production and soil microbial degradation; potential contamination of soils due to spillages.	Low	Possible	Long Term Life of prospecting operation
Loss of land capability through topsoil removal, disturbances and loss of soil fertility.	Low	Possible	Short term
Loss of land use due to poor placement of surface infrastructure and ineffective rehabilitation of prospecting pits.	Low	Possible	Short term
Pollution of underground water sources.	Low	Possible	Long Term Life of operation
Deterioration of water resources through prospecting.	Low	Possible	Long Term Life of operation
Deterioration in water quality through spillages and runoff from site.	Low	Possible	Long Term Life of operation
The clearance of vegetation; potential loss of floral species with conservation value; potential loss of ecosystem function when bulk sampling.	Low to medium	Certain	Long Term Life of operation
Proliferation of alien invasive plants species.	Low	Possible	Long Term Residual
Displacement of faunal species.	Low	Possible	Long Term Life of operation
The loss, damage and fragmentation of floral and faunal habitats; potential loss of ecosystem function.	Low	Possible	Long Term life of prospecting operation
Sources of atmospheric emission associated with the prospecting operation are likely to include fugitive dust from materials handling operations, wind erosion of stockpiles and vehicle entrainment of road dust.	Low	Certain	Life of Operation Decommissioning
Increase in continuous noise levels; the disruption of current ambient noise levels; and the disruption of sensitive receptors by means of increased noise and vibration.	Low to medium	Certain	Long Term Life of Operation
Visual impact of the mine infrastructure, slimes dams and stockpile; visibility of dust.	Low to Medium	Certain	Life of Operation Decommissioning
Potential negative impacts on traffic safety and deterioration of the existing road networks.	Low to Medium	Possible	Life of Operation Decommissioning

The deterioration of sites of cultural and heritage importance.	Low	Possible	Life of Operation
Loss of agricultural potential; influx of workers to the area increases health risks and loitering (resulting in lack of security and safety); negative impact of employment loss during site closure.	Low to medium	Certain	Short-term and Closure
Loss of trust and a good standing relationship with the IAPs.	Low to medium	Possible	Life of Operation Decommissioning
Positive socio-economic impacts during operation, upliftment of previously disadvantaged communities.	Low to Medium	Certain	Life of Operation Decommissioning to residual

**vi) Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks**

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision)

The limits were defined in relation to the Prospecting Characteristics. Those for probability, significance and duration are subjective, based on rule of thumb and experience. The significance of the impacts is defined as follows:

The assessment of the impacts has been conducted according to a synthesis of criteria required by the integrated environmental management procedure.

**Nature of impact**

This is an appraisal of the type of effect the activity would have on the affected environmental component. Its description should include what is being affected, and how.

**Extent**

The physical and spatial size of the impact. This is classified as follows:

- **Local**  
The impacted area extends only as far as the activity, e.g. a footprint.
- **Site**  
The impact could affect the whole, or a measurable portion of the property.
- **Regional**  
The impact could affect the area including the neighboring farms, transport routes and the adjoining towns.

**Duration**

The lifetime of the impact which is measured in the context of the lifetime of the proposed phase (i.e. construction or operation).

- **Short term**  
The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.
- **Medium term**  
The impact will last up to the end of the prospecting period, where after it will be entirely negated.
- **Long term (Residual)**

The impact will continue or last for the entire operational life of the mine, but will be mitigated by direct human action or by natural processes thereafter.

- **Permanent**

The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

### **Intensity**

This describes how destructive, or benign, the impact is. Does it destroy the impacted environment, alter its functioning, or slightly alter it. These are rated as:

- **Low**

This alters the affected environment in such a way that the natural processes or functions are not affected.

- **Medium**

The affected environment is altered, but function and process continue, albeit in a modified way.

- **High**

Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

### **Probability**

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

- **Improbable**

The possibility of the impact occurring is very low, due either to the circumstances, design or experience.

- **Probable**

There is a possibility that the impact will occur to the extent that provisions must be made therefore.

- **Highly probable**

It is most likely that the impacts will occur at some or other stage of the development.

- **Definite**

The impact will take place regardless of any preventative plans, and mitigation measures or contingency plans will have to be implemented to contain the impact.

### **Determination of significance**

Significance is determined through a synthesis of impact characteristics. Significance 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. The classes are rated as follows:

- **No significance**

The impact is not likely to be substantial and does not require any mitigatory action.

- **Low**

The impact is of little importance, but may require limited mitigation.

- **Medium**

The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.

- **High**

The impact is of great importance. Failure to mitigate, with the objective to reduce the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

**vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected**

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

During construction and operation of the prospecting, there is a possibility of sterilisation of the mineral reserves and resources due to improper placement of infrastructure. The infrastructure and slimes dam will alter the topography by adding features to the landscape. Topsoil removal and prospecting will unearth the natural topography. The construction of infrastructure and various facilities in the prospecting area can also result in loss of soil due to erosion. Vegetation where present will be stripped in preparation for placement of temporary prospecting infrastructure, and therefore the areas will be bare and susceptible to erosion. The topsoil that is stripped and piled on surrounding areas can be eroded by wind and rain. The soil will be carried away during runoff. The declared areas will be rehabilitated, but full restoration of soil might only occur over some time, subsequent to the re-establishment of vegetation. Furthermore, improper stockpiling and soil compaction can result in soil sterilisation. Leaching can also occur, resulting in the loss of nutrients.

During the construction and prospecting operation, there is a possibility that equipment might leak oil, thus causing surface spillages. The hydrocarbon soil contamination will render the soil unusable unless they are decontaminated. The storage of fuels on site might have an impact on soil if the tanks that are available on site are not properly monitored and maintained to avoid leakages. Then there is the potential that contaminated soil can be carried through runoff to contaminate water resources and soil stockpiled for rehabilitation. Soil pollution is therefore possible, but through mitigation it can be minimised.

The loss of land capability and land use can occur in two ways. Firstly, through topsoil removal, disturbances and loss of soil fertility; and secondly through the improper placement of infrastructure. The site has a land capability for grazing, but grazing activities can still be performed in areas not earmarked for prospecting, and with proper rehabilitation the land capabilities and land use potential can be restored.

If oil and fuel spillages occur, then it will seep into the underlying aquifers and contaminate ground water. Improper handling of hazardous material will cause contamination of nearby surface water resources during runoff episodes. Lack of storm

control structures will lead to erosion of stockpiles during heavy rains and runoff will carry suspended solids into the downstream environment. This might cause high silt load and affect stream flow.

Construction and prospecting activities on site will reduce the natural habitat for ecological systems to continue their operation. Vehicle traffic generates lots of dust which can reduce the growth success and seed dispersal of many small plant species. It is expected that protected species if present can be destroyed during the bulk sampling operation.

While general clearing of the area and prospecting activities destroy natural vegetation, invasive plants can increase due to their opportunistic nature in disturbed areas. If invasive plant establishes in disturbed areas, it may cause an impact beyond the boundaries of the prospecting site. These alien invasive species are thus a threat to surrounding natural vegetation and can result in the decrease of biodiversity and ecological value of the area. Therefore, if alien invasive species are not controlled and managed, their propagation into new areas could have a high impact on the surrounding natural vegetation in the long term. With proper mitigation, the impacts can be substantially reduced.

The transformation of natural habitats to prospecting and associated infrastructure will result in the loss of habitat affected individual species, and ecological processes. In turn this will result in the displacement of faunal species dependent upon such habitat. Increased noise and vibration due to prospecting activities will disturb and possibly displace birds and other wildlife. Fast moving vehicles take a heavy toll in the form of road kills of small mammals, birds, reptiles, amphibians and a large number of invertebrates. The construction of the temporary prospecting and associated infrastructure will result in the loss of connectivity and fragmentation of natural habitat. Fragmentation of habitat will lead to the loss of migration corridors, in turn resulting in degeneration of the affected population's genetic make-up. This results in a subsequent loss of genetic variability between meta-populations occurring within the site. Pockets of fragmental natural habitats hinder the growth and development of populations.

During the prospecting operation the abovementioned activities have potential for dust generation. It is anticipated that the extent of dust emissions would vary substantially from day to day depending on the level of activity and the specific operations. The mine will add a certain amount of noise to the existing noise in the area. However, levels of noise generated by prospecting activities are low.

The impact of site generated trips on the traffic of the existing roads is experienced to be low. Nevertheless, if road safety is not administered it can have a high impact on the safety of fellow road users.

The prospecting operation, especially during construction, will create a number of new employment opportunities. The magnitude of this impact will depend on the number of

people that will be employed and the number of contractors sourced. An influx of people into the area will possibly impact on safety and security of local residents. During the decommissioning and at closure of the mine, staff will most likely be retrenched. This can potentially flood the job market, resulting in people being unable to find new employment for a long period of time. It is normally more difficult for people with highly specialised skills to find employment immediately. Those with fewer skills have more flexibility in the job market.

Economic slump of the local towns after mine closure is an associated potential impact, although small due to the small scale of the operation. Income streams from wage bills as well as goods and services contracts (at all geographical levels) will come to an end, reducing the monetary income of individuals and mine-related businesses. People who have derived income directly or indirectly from the project may be inclined to leave the region in search of employment or business opportunities. This could result in further decline of the economy of the region as well as the abandonment of infrastructure. The loss of the prospecting workforce income will also impact upon non-mine related industries within the local and regional areas, particularly the rental property market and retail and service industries who would have received income during the life of mine from the salaried workforce.

It is likely, however that there will be residual positive economic impacts that are not fully reversed with the closure of the prospecting operation, and that the economy will not decline to its original level prior to the development of this project. This is because the prospecting operation will generate substantial income for the regional and local economy, both directly and indirectly, during its life.

It is difficult to predict the actual impact of the prospecting closure in advance, but it is acceptable to assume that the prospecting closure will have a negative impact on the local and regional economy with a high probability of occurrence, a medium severity due to small scale and a medium significance.

Positive impacts include employment and training opportunities for people in the local community and local contractors; social upliftment and community development programmes; economic benefits.

**viii) The possible mitigation measures that could be applied and the level of risk**

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered)

**Geology and Mineral Resource**

**Level of risk:** Low

**Mitigation measures**



- ❖ Ensure that optimal use is made of the available prospecting opportunity to gain access to a mineral resource through proper planning.
- ❖ The prospecting area should be delineated first and all infrastructure positions should be selected with the main aim of avoiding sterilization of future resources.
- ❖ No dumping of materials prior to approval by the mine manager.

### **Topography**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ Prospecting with bulk sampling and rehabilitate material back up to natural ground level.
- ❖ Do controlled dumping.
- ❖ Employ effective rehabilitation strategies to restore surface topography of the area and plant site.
- ❖ Stabilise the pits and mine residue deposits.
- ❖ All temporary infrastructures will be demolished during closure.

### **Soil Erosion**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ At no point may plant cover be removed within no-development zones.
- ❖ All attempts must be made to avoid exposure of dispersive soils.
- ❖ Re-establishment of plant cover on disturbed areas must take place as soon as possible, once activities in the area have ceased.
- ❖ Ground exposure should be minimised in terms of the surface area and duration, wherever possible.
- ❖ The prospecting operation must co-ordinate different prospecting activities in order to optimise the utilisation of the invasive prospecting and thereby prevent repeated and unnecessary activities.
- ❖ The run-off from the exposed ground should be controlled with the careful placement of flow retarding barriers.
- ❖ The soil that is excavated during construction should be stock-piled in layers and protected by berms to prevent erosion.
- ❖ All stockpiles must be kept as small as possible, with gentle slopes (18 degrees) in order to avoid excessive erosional induced losses.
- ❖ Excavated and stockpiled soil material are to be stored and bermed on the higher laying areas of the footprint area and not in any storm water run-off channels or any other areas where it is likely to cause erosion, or where water would naturally accumulate.
- ❖ Stockpiles susceptible to wind erosion are to be covered during windy periods.
- ❖ Audits must be carried out at regular intervals to identify areas where erosion is occurring.

- ❖ Appropriate remedial action, including the rehabilitation of the eroded areas, must occur.
- ❖ Rehabilitation of the erosion channels and gullies.
- ❖ Dust suppression must take place, without compromising the water balance of the area.
- ❖ Linear infrastructure such as roads and pipelines will be inspected at least monthly to check that the associated water management infrastructure is effective in controlling erosion.

**Soil Pollution**

**Level of risk:** Low

**Mitigation measures**

- ❖ Refuelling must take place in well demarcated areas and over suitable drip trays to prevent soil pollution.
- ❖ Spill kits to clean up accidental spills from earthmoving machinery must be well-marked and available on site.
- ❖ Workers must undergo induction to ensure that they are prepared for rapid clean-up procedures.
- ❖ All facilities where dangerous materials are stored must be contained in a bund wall.
- ❖ Vehicles and machinery should be regularly serviced and maintained.

**Land Capability and Land Use**

**Level of risk:** Low

**Mitigation measures**

- ❖ Ensure that optimal use is made of the available land through consultation with land owner and proper planning of prospecting activities.
- ❖ Surface agreement to be signed with land owners.
- ❖ Employ effective rehabilitation strategies to restore land capability and land use potential of the area.
- ❖ All activities to be restricted within the demarcated areas.
- ❖ Ensure that land which is not used during construction is made available for grazing if possible.

**Groundwater**

**Level of risk:** Low

**Mitigation measures**

- ❖ Refuelling must take place in well demarcated areas and over suitable drip trays to prevent soil pollution.
- ❖ Spill kits to clean up accidental spills from earthmoving machinery must be well-marked and available on site.

- ❖ Workers must undergo induction to ensure that they are prepared for rapid clean-up procedures.
- ❖ All facilities where dangerous materials are stored must be contained in a bund wall.
- ❖ Vehicles and machinery should be regularly serviced and maintained.

### **Surface Water**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ Sufficient care must be taken when handling hazardous materials to prevent pollution.
- ❖ Under no circumstances may ablutions occur outside the provided facilities.
- ❖ If servicing and washing of the vehicles occur on site, there must be specific areas constructed for these activities, which must have concrete foundations, bunding as well as oil traps to contain any spillages.
- ❖ A walled concrete platform, dedicated store with adequate flooring or bermed area and ventilation must be used to accommodate chemicals such as fuels, oils, paints, herbicide and insecticides.
- ❖ Oil residue shall be treated with oil absorbent and this material removed to an approved waste site.
- ❖ Spill kits must be easily accessible and workers must undergo induction regarding the use thereof.
- ❖ At all times care should be taken not to contaminate surface water resources.
- ❖ Store all litter carefully to prevent it from washing away or blown into any of the drainage channels.
- ❖ Provide bins for staff at appropriate locations, particularly where food is consumed.
- ❖ The prospecting area should be cleared daily and litter removed.
- ❖ Conduct ongoing staff awareness programmes in order to reinforce the need to avoid littering, which contributes to surface water pollution.

### **Indigenous Flora**

**Level of risk:** Low to medium

#### **Mitigation measures**

- ❖ Minimise the footprint of transformation.
- ❖ Encourage proper rehabilitation of mined areas.
- ❖ Encourage the growth of natural plant species.
- ❖ Ensure measures for the adherence to the speed limit.
- ❖ Footprint areas of the prospecting activities must be scanned for Red Listed and protected plant species prior to prospecting.
- ❖ It is recommended that these plants are identified and marked prior to bulk sampling.

- ❖ These plants should, where possible, be incorporated into the design layout of bulk samples and left in situ.
- ❖ However, if threatened of destruction by prospecting, these plants should be removed (with the relevant permits from DAFF and DENC) and relocated if possible.
- ❖ A management plan should be implemented to ensure proper establishment of ex situ individuals, and should include a monitoring programme for at least two years after re-establishment in order to ensure successful translocation.
- ❖ All those working on site must be educated about the conservation importance of the fauna and flora occurring on site.

**All Invasive Plants**

**Level of risk:** Low

**Mitigation measures**

- ❖ Minimise the footprint of transformation.
- ❖ Encourage proper rehabilitation of prospected areas.
- ❖ Encourage the growth of natural plant species.
- ❖ Mechanical methods (hand-pulling) of control to be implemented extensively.
- ❖ Annual follow-up operations to be implemented.

**Fauna**

**Level of risk:** Low

**Mitigation measures**

- ❖ Careful consideration is required when planning the placement for stockpiling topsoil and the creation of access routes in order to avoid the destruction of habitats and minimise the overall prospecting footprint.
- ❖ The appointment of a full-time ECO must render guidance to the staff and contractors with respect to suitable areas for all related disturbance.
- ❖ The extent of the prospecting areas (bulk sampling sites) should be demarcated on site layout plans, and no construction personnel or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the prospecting site that are not part of the demarcated development area should be considered as a no go zone for employees, machinery or even visitors.
- ❖ All those working on site must be educated about the conservation importance of the fauna and flora occurring on site.
- ❖ The ECO must ensure that all contractors and workers undergo Environmental induction prior to commencing with work on site.
- ❖ The environmental induction should occur in the appropriate languages for the workers who may require translation.
- ❖ Reptiles and amphibians that are exposed during the clearing operations should be captured for later release or translocation by a qualified expert.
- ❖ Employ measures that ensure adherence to the speed limit.

**Habitat**

**Level of risk:** Low

**Mitigation measures**

- ❖ Prospecting activities must be planned, where possible in order to encourage faunal dispersal and should minimise dissection or fragmentation of any important faunal habitat type.
- ❖ The extent of the prospecting area should be demarcated on site layout plans (preferably on disturbed areas or those identified with low conservation importance). No construction personnel or vehicles may leave the demarcated area except those authorised to do so.

**Air Quality**

**Level of risk:** Low

**Mitigation measures**

- ❖ Vegetation must be removed when soil stripping is required only. These areas should be limited to include those areas required for bulk sampling only, hereby reducing the surface area exposed to wind erosion. Adequate demarcation of these areas should be undertaken.
- ❖ Control options pertaining to topsoil removal, loading and dumping are generally limited to wet suppression.
- ❖ Where it is logistically possible, control methods for gravel roads should be utilised to reduce the re-suspension of particulates. Feasible methods include wet suppression, avoidance of unnecessary traffic, speed control and avoidance of track-on of material onto paved and treated roads.
- ❖ The length of time where prospecting areas are exposed should be restricted. Prospecting should not be delayed after vegetation has been cleared and topsoil removed where possible.
- ❖ Dust suppression methods should, where logistically possible, must be implemented at all areas that may/are exposed for long periods of time.
- ❖ For all prospecting activities management should undertake to implement health measures in terms of personal dust exposure, for all its employees.

**Noise and Vibration**

**Level of risk:** Low

**Mitigation measures**

- ❖ Restrict prospecting activities to daytime unless agreements obtained to do 24hr operations.
- ❖ Systematic maintenance of all forms of equipment, training of personnel to adhere to operational procedures that reduce the occurrence and magnitude of individual noisy events.

- ❖ Where possible material stockpiles should be placed so as to protect the boundaries from noise to individual operations.
- ❖ Standardised noise measurements should be carried out on individual equipment at the delivery to site to construct a reference data-base and regular checks carried out to ensure that equipment is not deteriorating and to detect increases which could lead to increase in the noise impact over time and increased complaints.
- ❖ Environmental noise monitoring should be carried out at regularly to detect deviations from predicted noise levels and enable corrective measures to be taken where warranted.

### **Visual Impacts**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ Infrastructure should be placed to optimise the natural screening capacity of the vegetation.
- ❖ Where practical, protect existing vegetation clumps during in order to facilitate screening during the prospecting operations.
- ❖ Remove rubble and other building rubbish off site as soon as possible or place it in a container in order to keep the prospecting site free from additional unsightly elements.
- ❖ Dust suppression procedures should be implemented especially on windy days during earth works.
- ❖ Rehabilitation should aim to establish a diverse and self-sustaining surface cover that is visually and ecologically representative of naturally occurring vegetation species.
- ❖ Implement a management plan for the post-prospecting site in order to control the invasion of alien vegetation and to manage erosion, until the site is fully rehabilitated.

### **Traffic and Road Safety**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ Implement measures that ensure the adherence to traffic rules.

### **Heritage Resources**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ The heritage if any is encountered and cultural resources (e.g. graveyards, ruins, historic structures, etc.) must be protected and preserved by the delination of no go zones.

- ❖ Stone tools should be avoided where possible and fresh exposure should be recorded before destruction. All stone tool artefacts should be recorded, mapped and collected before destruction.
- ❖ Should development necessitate impact on any building structures, the developer should apply for a SAHRA Site Destruction Permit prior to commencement of construction.

**Socio-Economic**

**Level of risk:** Low

**Mitigation measures**

- ❖ The mine must ensure that false expectations are not created regarding job creation.
- ❖ Jobs must be allocated as advertised and in so far as is possible to local inhabitants.
- ❖ Contractors and employees should not be permitted to wander outside the prospecting area.
- ❖ Uncontrolled settlement of contractors and workers outside of the site will be prevented.
- ❖ The expectations of what benefits can accrue to the community must be managed from the initiation of the project.

**Interested and Affected Parties**

**Level of risk:** Low

**Mitigation measures**

- ❖ Maintain active communications with IAPs.
- ❖ Ensure transparent communication with IAPs at all times.
- ❖ IAPs must be kept up to date on any changes in the prospecting operations.
- ❖ A complaints management system should be maintained by the Applicant to ensure that all issues raised by community members are followed up and addressed appropriately.

ix) The outcome of the site selection Matrix. Final Site Layout Plan

(Provide a final site layout plan as informed by the process of consultation with interested and affected parties)

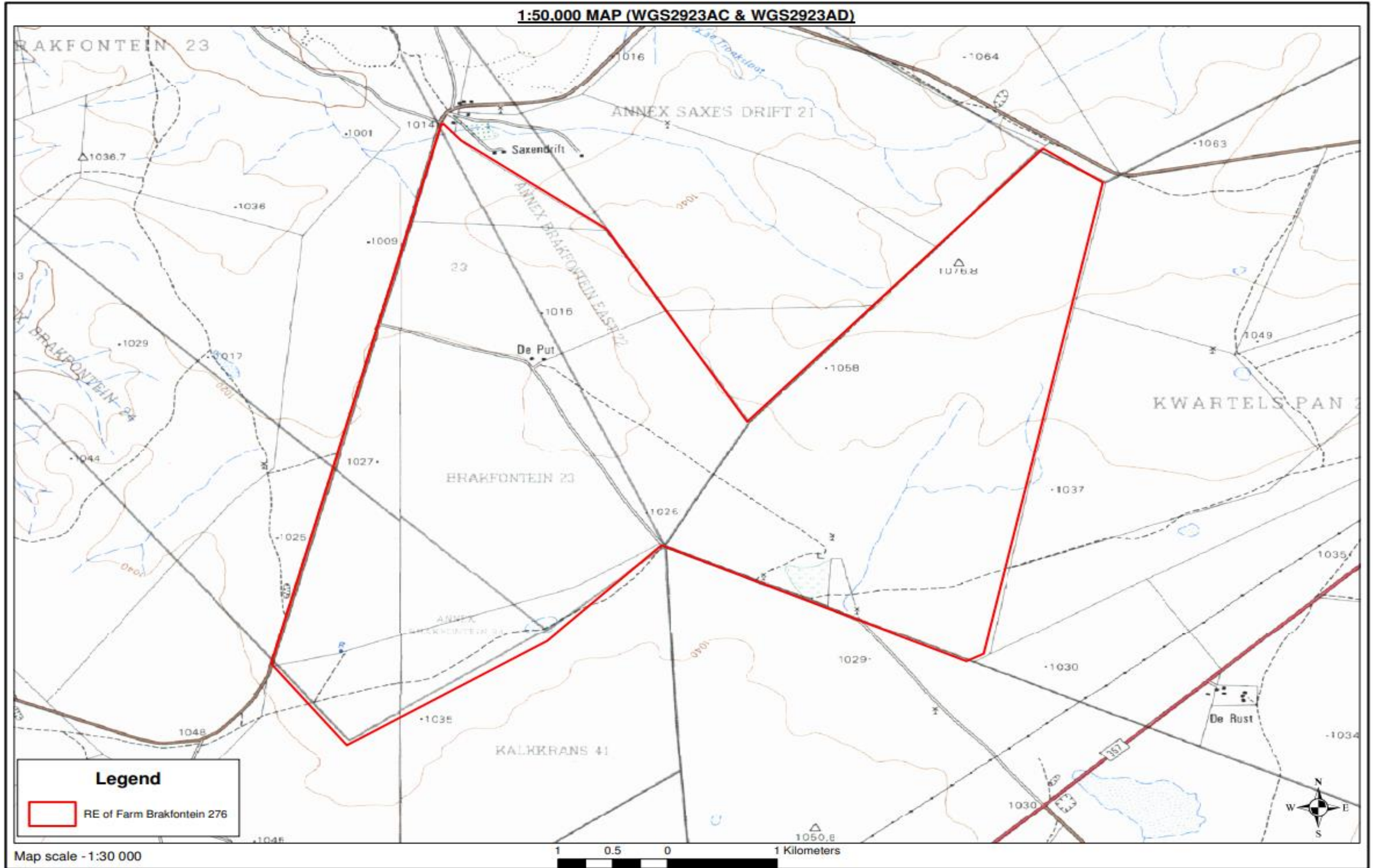


Figure 19. Final site layout plan



**x) Motivation where no alternative sites were considered**

No alternative location for the proposed prospecting operation was considered, as the proposed diamond deposits occur in this area. There is therefore no other alternative with regard to the overall operation footprint.

**xi) Statement motivating the preferred site.**

(Provide a statement motivating the final site layout that is proposed)

Not applicable. There is no alternative development location for the site as this is the area with the possible mineral resource.

**i) Plan of study for the Environmental Impact Assessment Process**

**i) Description of alternatives to be considered including the option of not going ahead with the activity**

- Land use development alternatives:  
The site layout may vary, depending on the operational requirements. However the final design and layout of the infrastructure have been planned and decided upon by the developer on the grounds of reserves, and placement of infrastructure based on hauling distance, environmental features such as wind direction, heritage findings, protected species, and stormwater management on the mine.
- No-go option:  
The following positive impacts will be lost if the proposed prospecting project is not developed:
  - o TAX and VAT obligations to SARS as well as Royalties;
  - o CAPEX spent locally and regionally;
  - o Employment opportunities;
  - o Payroll income;
  - o Operating expenditure and maintenance (OPEX);
  - o Revenue.

Prospecting activities are believed to be the most economically beneficial option for the area as the prospecting activities indicated to be positive.

If the operation does not continue it would hold back any potential employment for Douglas / Prieska and the families who are likely to benefit from the positive employment opportunities. Substantial tax benefits to the State and Local Government will also be inhibited.

Prospecting and Mining forms an integrated part of the social and economic growth of South Africa and more specifically the Northern Cape Province.

**ii) Description of the aspects to be assessed as part of the environmental impact assessment process**

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control berms, roads, pipelines, powerlines, conveyers, etc..etc...)

1. The clearing of vegetation for:
  - Access roads and haul roads
  - Surface infrastructure
  - Product Stockpile area
  - Waste disposal site (domestic and industrial waste)
2. The stripping and stockpiling of topsoil.
3. Load and Haul Operation for the prospecting operation (bulk sampling).
4. Altering the characteristics of surface water features.
5. The development of temporary stockpiles:
  - Topsoil storage area;
  - Mine Residue Stockpile for slime.
6. The rehabilitation of footprint areas where the bulk sampling pits have been excavated.
7. The construction of Processing plant.
8. Water holding facilities, pipeline and stormwater control:
  - Clean & Dirty water system: Stormwater dam / Water storage facility;
  - Water distribution Pipeline;
  - Water tank.
9. Fuel storage and refuelling bays;
  - Fuel Storage facility (Diesel tanks);
  - Concrete bund walls and diesel depots.
10. Supporting infrastructure:
  - Temporary Offices;
  - Office Parking Bay;
  - Temporary Workshop and Wash bay;
  - Salvage yard (Storage and laydown area);
  - Ablution facilities/ Sewage facilities;
  - Generators;
  - Pipelines transporting water;

**(i) Description of aspects to be assessed by specialists:**

An Archaeologist and Palaeontologist have been contacted to do a survey on the farm for archaeologically and palaeontology sensitive areas on the farm. Also, an Ecological study will be done and a wetland delineation. All information will be used to identify areas that can be sensitive and to make the necessary provision to avoid these areas. Any other Specific specialist reports will be done when specifically requested by any Department or in interested and affected party consultation referred to.

**(ii) Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives:**

The receiving environment will be determined using a combination of on-site observations, spatial information, project description, site layout and previous studies currently available to the EAP. Based on the EAPs knowledge and experience, the receiving environment will include geological features, topography, land use, archaeological and historical sites, surface water, groundwater, terrestrial ecology, air quality, noise, etc.

The identification of potential impacts of the prospecting activity will be based on the legal requirements; the nature of the proposed activity; the nature of the receiving environment; and issues raised during the public participation process. Considering the factors listed above and based on the EAPs knowledge and experience, environmental impacts that could potentially result from the prospecting activities include impacts on air quality, noise, fauna, flora, terrestrial ecology, heritage resources, socio-economy, visuals, storm water and erosion.

The consideration of alternatives is a critical component of the EIA process, where an appropriate range of alternatives require consideration whilst achieving the desired objective of the proposed project. In order to ensure that the proposed project enables sustainable prospecting, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, method and proceeding without the prospecting operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility. Alternatives for the locality of the prospecting operation will however not form part of this consideration, as the location of the prospecting site is determined by the possible geological location of the mineral resource.

**(iii) The proposed method of assessing duration significance:**

The lifetime of the impact will be measured in the context of the lifetime of the proposed phase or activity.

Weight	Duration of Impact	Explanation of Duration
1	Very Short	Less than 1 year
2	Short	1 to 5 years
3	Medium	6 to 15 years
4	Long term (Life of project)	16 to 50 years
5	Very Long term	Longer than 50 years
6	Permanent	Permanent

- **Short term**

The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.

- **Medium term**  
The impact will last up to the end of the prospecting period, where after it will be entirely negated.
- **Long term**  
The impact will continue or last for the entire operational life of the prospecting, but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent**  
The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

**(iv) The stages at which the Competent Authority will be consulted:**

Consultation with the Competent Authority will take place throughout the application process, however more specifically; consultation will take place before submission of the Scoping Report and again before submission of the EIA/EMPR Report.

**(v) Particulars of the public participation process with regard to the Impact Assessment process that will be conducted:**

**1. Steps to be taken to notify interested and affected parties:**

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h)(ii) herein.)

The process as described by NEMA for Environmental Authorisation was followed. See table 3 for the identification of Interested and Affected Parties to be consulted with. The landowner, and or occupants and direct neighbours were consulted. The landowners and neighbours were consulted with a registered letter informing them that the application had been accepted and a Scoping Report were attached in which all activities were explained.

An Advert (Notice) will be placed in the DFA on 9 September 2022 to notify all other interested and affected parties that should wish to register for the project.

Registered consultation letters will be sent on 7 September 2022 to all identified parties and government departments with a Scoping Report document attached.

The document will also be made available at the public library in Douglas.

The document will also be placed on the website of Wadala.

The document can also be viewed at the EAP address with prior arrangement to view the document.

Proof of notification and consultation is attached as Appendix 3. The consultation process is still in process.

**2. Details of the engagement process to be followed:**

(Describe the process to be 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 or not they attended public meetings and record of such consultation will be required in the EIA at a later stage.)

The required level of Public Participation will be considered based on the:

- scale of anticipated impacts,
- public and environmental sensitivity of the project,
- Potentially affected parties.

The minimum requirement for public participation in accordance to EIA regulations will always be met.

The landowner and the neighbours will be identified and consulted. An advert will be published in the local newspaper for comments and notices will be placed to invite any inidentified parties which might like to register.

Information will be send via Registered post and emails where relevant to all affected government departments and any person who registers during the application process.

Site notices will be placed at the entrance to the site and nearby sites or public places if any is available at the nearest town.

Public meetings will only be conducted where activities will directly impact close communities or when instructed by any competent authority or upon a specific request from interested and affected parties.

**3. Description of the information to be provided to Interested and Affected Parties:**

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land.)

The following information will be provided to IAPs:

- The site plan;
- List of activities to be authorised;
- Scale and extent of activities to be authorised;
- Typical impacts of activities to be authorised;
- The duration of the activity.

The following information will be requested from the IAPs:

- To provide information on how they consider that the proposed activities will impact on them or their socio-economic conditions;
- To provide written responses stating their suggestions to mitigate the anticipated impacts of each activity;
- To provide information on current land uses and their location within the area under consideration;
- To provide information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied. They will be requested to make written proposals;

- To mitigate the potential impacts on their socio-economic conditions to make proposals as to how the potential impacts on their infrastructure can be managed, avoided or remedied).

**(vi) Description of the tasks that will be undertaken during the environmental impact assessment process:**

**Determining environmental attributes**

The receiving environment will be determined using a combination of on-site observations, spatial information, project description, site layout and previous studies currently available to the EAP. Based on the EAPs knowledge and experience, the receiving environment will include geological features, topography, land use, archaeological and historical sites, surface water, groundwater, terrestrial ecology, air quality, noise, etc.

**Identification of impacts and risks**

The identification of potential impacts of the prospecting activity will be based on the legal requirements; the nature of the proposed activity; the nature of the receiving environment; and issues raised during the public participation process.

Considering the factors listed above and based on the EAPs knowledge and experience, environmental impacts that could potentially result from the prospecting activities include impacts on air quality, noise, fauna, flora, ground water, surface water, terrestrial ecology, heritage resources, socio-economy, visuals, stormwater and erosion.

**Consideration of alternatives**

The consideration of alternatives is a critical component of the EIA process, where an appropriate range of alternatives require consideration whilst achieving the desired objective of the prospecting project. In order to ensure that the proposed project enables sustainable prospecting, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, minting method and proceeding without the prospecting operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility.

Alternatives for the locality of the prospecting operation will however not form part of this consideration, as the location of the prospecting site is determined by the geological location of the proposed mineral resource.

**Process to assess and rank impacts**

Before any assessment can made the following evaluation criteria need to be described

**Table 4. Explanation of PROBABILITY of impact occurrence**

Weight	Probability of Impact Occurrence	Explanation of Probability
1	Very Low	<20% sure of particular fact or likelihood of impact occurring
2	Low	20 – 39% sure of particular fact or likelihood of impact occurring
3	Moderate	40 – 59% sure of particular fact or likelihood of impact occurring

4	High	60 – 79% sure of particular fact or likelihood of impact occurring
5	Very High	80 – 99% sure of particular fact or likelihood of impact occurring
6	Definite	100% sure of particular fact or likelihood of impact occurring

**Table 5. Explanation of EXTENT of impact**

Weight	Extent of Impact	Explanation of Extent
1	Site Specific	Direct and Indirect impacts limited to <b>site</b> of impact only
2	Surrounding Area	Direct and Indirect impacts affecting environmental elements within <b>2 km of site</b>
3	Local Municipality	Direct and Indirect impacts affecting environmental elements within the <b>Thembelihle Hopetown area</b>
4	Regional/District	Direct and Indirect impacts affecting environmental elements within Pixley ka Seme <b>District)</b>
5	Provincial	Direct and Indirect impacts affecting environmental elements in the <b>Northern Cape Province</b>

**Table 6. Explanation of DURATION of impact**

Weight	Duration of Impact	Explanation of Duration
1	Very Short	Less than 1 year
2	Short	1 to 5 years
3	Medium	6 to 15 years
4	Long term (Life of project)	16 to 50 years
5	Very Long term	Longer than 50 years
6	Permanent	Permanent

**Table 7. Explanation of SEVERITY of the impact**

Weight	Impact Severity	Explanation of Severity
1	No Impact	There will be no impact at all – not even a very low impact on the system or any of its parts.
2	Very Low	Impact would be negligible. In the cast of negative impacts, almost no mitigation and/or remedial activity would be needed, and any minor steps which might be needed would be easy, cheap and simple. In the case of positive impacts alternative means would almost all likely to be better, if one or a number of ways, then this means of achieving the benefit.
3	Low	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and/or remedial activity would be either easily achieved or little would be required or both. In the case of positive impacts alternative means for achieving this benefit would be easier, cheaper, more effective, less time-consuming, or some combination of these.

4	Moderately Severe	Impact would be real but not substantial within the bounds of those which could occur. In the case of negative impacts, mitigation and/or remedial activity would be both feasible and fairly easily possible. In the case of positive impacts other means of covering these benefits would be about equal in cost and effort.
5	High Severance	Impacts of substantial order. In the case of negative impacts, mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these. In the case of positive impacts other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
6	Very High Severity	Of the highest order possible within the bounds of impacts which could occur, in the case of negative impacts, there would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which was predicted. In the case of positive impacts there is no real alternative to achieving the benefit.

**Methodology used in determining and ranking the nature, severity, consequences, extent, duration and probability of potential environmental impacts and risks**

The criteria used to assess the significance of the impacts are shown in the table below. The limits were defined in relation to prospecting characteristics. Those for probability, intensity/severity and significance are subjective, based on rule-of-thumb and experience. Natural and existing mitigation measures were considered. These natural mitigation measures were defined as natural conditions, conditions inherent in the project design and existing management measures, which alleviate impacts. The significance of the impacts was calculated by using the following formula:

$(\text{Severity} + \text{Extent} + \text{Duration}) \times \text{Probability weighting}$

For the impact assessment, the different project activities and associated infrastructure were identified and considered in order to identify and analyse the various possible impacts.

**Table 8**

SIGNIFICANCE				
Colour Code	Significance rating	Rating	Negative Impact	Positive Impact
	Very low	3 -16	Acceptable/Not serious	Marginally Positive
	Low	17 - 22	Acceptable/Not serious	Marginally Positive
	Medium-Low	23 -33	Acceptable/Not desirable	Moderately Positive
	Medium	34 - 48	Generally undesirable	Beneficial
	Medium-High	49 - 56	Generally unacceptable	Important
	High	57 - 70	Not Acceptable	Important



	Very High	90 - 102	Totally unacceptable	Critically Important
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**Significance of impacts is defined as follows:**

**Very Low** - Impact would be negligible. Almost no mitigation and/or remedial activity would be needed, and any minor steps which might be needed would be easy, cheap and simple.

**Low** - Impact would have little real effect. Mitigation and/or remedial activity would be either easily achieved or little would be required or both.

**Medium Low**- Impact would be real but not substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be both feasible and fairly easily possible.

**Medium** - Impact would be real but not substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be feasible and possible.

**Medium High**- Impact would be real but could be substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be both feasible and possible but may be difficult and or costly.

**High** - Impacts of substantial order. Mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these.

**Very High** - Of the highest order possible within the bounds of impacts which could occur. There would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which was predicted.

**(vii) Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored:**

<b>ACTIVITY</b> Whether listed or not listed (e.g. excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc...)	<b>POTENTIAL IMPACT</b> (e.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc...etc...)	<b>MITIGATION TYPE</b> modify, remedy, control or stop (e.g. noise control measures, stormwater control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc...etc...) (e.g. modify through alternative method. Control through management and monitoring through rehabilitation.)	<b>POTENTIAL FOR RESIDUAL RISK</b>
Ablution facilities Chemical toilets	<ul style="list-style-type: none"> <li>• Soil contamination</li> <li>• Groundwater contamination</li> <li>• Odours</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of chemical toilets on regular basis.</li> <li>• Removal of containers upon closure.</li> </ul>	Low
Clean & Dirty water system	<ul style="list-style-type: none"> <li>• Surface disturbance</li> <li>• Groundwater contamination</li> <li>• Soil contamination</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of berms and trenches.</li> <li>• Oil traps used in relevant areas.</li> <li>• Drip trays used.</li> <li>• Immediately clean hydrocarbon spill.</li> </ul>	Low
Diesel tanks	<ul style="list-style-type: none"> <li>• Groundwater contamination</li> <li>• Surface water contamination</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of diesel tanks and bund walls.</li> <li>• Oil traps.</li> <li>• Groundwater quality monitoring.</li> <li>• Drip tray at re-fuelling point.</li> <li>• Immediately clean hydrocarbon spill.</li> </ul>	Low- Medium
Bulk sampling	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Possible Groundwater contamination</li> <li>• Noise</li> </ul>	<ul style="list-style-type: none"> <li>• Access control</li> <li>• Dust control and monitoring</li> <li>• Groundwater quality monitoring</li> <li>• Noise control and monitoring</li> <li>• Continuous rehabilitation</li> <li>• Stormwater run-off control</li> </ul>	Low - Medium

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	<ul style="list-style-type: none"> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Immediately clean hydrocarbon spill</li> <li>• Drip trays</li> <li>• Erosion control</li> </ul>	
Generators	<ul style="list-style-type: none"> <li>• Groundwater contamination</li> <li>• Surface water contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Access control</li> <li>• Maintenance of generator and bund walls</li> <li>• Noise control and monitoring</li> <li>• Oil traps</li> <li>• Groundwater quality monitoring</li> <li>• Immediately clean hydrocarbon spill</li> </ul>	Low
Office – Pre-fabricated office blocks on concrete	<ul style="list-style-type: none"> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Immediately clean hydrocarbon spill</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Very low
Parking bay	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Groundwater contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Dust control and monitoring</li> <li>• Noise control and monitoring</li> <li>• Drip trays</li> <li>• Stormwater run-off control.</li> <li>• Immediately clean hydrocarbon spills</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Low
Processing plant	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Noise</li> <li>• Groundwater contamination</li> <li>• Surface Water contamination</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> </ul>	<ul style="list-style-type: none"> <li>• Access control</li> <li>• Maintenance of processing plant</li> <li>• Dust control and monitoring</li> <li>• Groundwater quality and level monitoring</li> <li>• Noise control and monitoring</li> <li>• Drip trays</li> <li>• Stormwater run-off control.</li> </ul>	Medium

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	<ul style="list-style-type: none"> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Immediately clean hydrocarbon spills</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	
Water distribution Pipeline	<ul style="list-style-type: none"> <li>• Surface disturbance</li> <li>• Possible Groundwater contamination</li> <li>• Soil contamination</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of pipes.</li> </ul>	Low
Roads	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Possible Groundwater contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of roads</li> <li>• Dust control and monitoring</li> <li>• Noise control and monitoring</li> <li>• Speed limits</li> <li>• Stormwater run-off control.</li> <li>• Erosion control</li> <li>• Immediately clean hydrocarbon spills</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Low - Medium
Salvage yard	<ul style="list-style-type: none"> <li>• Possible Groundwater contamination</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Access control</li> <li>• Maintenance of fence.</li> <li>• Stormwater run-off control</li> <li>• Immediately clean hydrocarbon spill</li> </ul>	Low
Stockpile area	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Possible Groundwater contamination</li> <li>• Surface water contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> </ul>	<ul style="list-style-type: none"> <li>• Dust control and monitoring</li> <li>• Noise control and monitoring</li> <li>• Drip trays</li> <li>• Stormwater run-off control.</li> <li>• Immediately clean hydrocarbon spills</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Low

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	<ul style="list-style-type: none"> <li>• Surface disturbance</li> </ul>		
Topsoil storage area	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil disturbance</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Dust control and monitoring</li> <li>• Stormwater run-off control.</li> <li>• Continuous rehabilitation</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> <li>• Backfilling of topsoil during rehabilitation</li> </ul>	Low
Waste disposal site	<ul style="list-style-type: none"> <li>• Groundwater contamination</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Storage of waste within receptacles</li> <li>• Storage of hazardous waste on concrete floor with bund wall</li> <li>• Removal of waste on regular intervals.</li> </ul>	Low
Mine Residue Deposit – Slimes	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Possible Groundwater contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Dust control and monitoring</li> <li>• Groundwater quality monitoring</li> <li>• Noise control and monitoring</li> <li>• Stormwater run-off control.</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Low-Medium
Wash bay	<ul style="list-style-type: none"> <li>• Possible Groundwater contamination</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Concrete floor with oil/water separator</li> <li>• Stormwater run-off control</li> <li>• Immediately clean hydrocarbon spills</li> </ul>	Low
Water tank with filter system: It is anticipated that the operation will establish 1 x 10 000 litre water tanks for potable water.	<ul style="list-style-type: none"> <li>• Vaal River water and usage</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor water quality and quantity</li> <li>• Maintenance of tanks (check for leaks).</li> </ul>	Low

**(viii) Other information required by the Competent Authority:**

**1. Compliance with the provisions of Sections 24(4)(a) and (b) read with Section 24(3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998), the EIA report must include the: -**

**a. 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 Appendix '7' and confirm that the applicable mitigation is reflected in 2.5.3, 2.11.6 and 2.12 herein.)

The socio-economic conditions of the local community could be affected in two ways:

- Negative impacts to the welfare of the residents and workers through general nuisance, dust generation, damages to properties and any associated potential safety risks.
- Positive impacts through job creation and local business opportunities.
- The consultation with interested and affected parties is on-going and any issues, concerns or comments will be considered and included in the EIA report and control measures will be presented in the EMP report.

**b. 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 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 '8' and confirm that the applicable mitigation is reflected in 2.5.3, 2.11.6 and 2.12 herein.)

No evidence is known as yet of any such sites and/or objects on the site itself. A heritage and paleontological desktop study will be done for this application.

Should any heritage features and/or objects be located or observed, a heritage specialist will be contacted immediately. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This is true for graves and cemeteries as well.

**(ix) 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 details, 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 Appendix '9'.)

As mentioned before, the specific occurrence of possible diamond resource in the area dictates the selection of the specific prospecting site and there are no alternatives in terms of project location.

The prospecting operation will provide ± 10 - 25 jobs and will also add to the increased economic activity and the area surrounding the farm.

Negative impacts on the area are expected to be temporary and can be mitigated to a large extent if the recommendations of the EMPR area adhered to e.g. rehabilitation.

**(x) Undertaking regarding correctness of information:**

I, RH Oosthuizen, ID number 7004180037082, herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected Parties has been correctly recorded in the report.



Signature of EAP

Date: 7 September 2022

**(xi) Undertaking regarding level of agreement:**

I, RH Oosthuizen, ID number 7004180037082, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



Signature of EAP

Date: 7 September 2022

- END -