

Draft Basic Assessment Report and Environmental Management Programme for Prospecting Right Application for Diamonds, Diamonds (Alluvial, General and in Kimberlite) on Portion RE of Biesieput 311; RE of Blydschap 289; RE of Bokkop 311; RE of Concordia 369; RE of Danielsrust 335; RE of Danielsrust A 376; RE of Draaihoek 332; Portion 2 of Driekop 564; RE of Emden 291; RE of Emmaus 514 Portion 1 & RE of Highlands 1101; RE of Kalkfontein 298; RE of Kalkpan 987; Portion 1 & RE of Kalkvley 898; RE of Leeuwkop 543; RE of Mooigenoeg 318; RE of Ruth 310; RE of Spitskop 303; and RE of Zwartleegte 551 Situated in Letsemeng Local Municipality of the Fauresmith Magisterial District, Free State Province.

DMR REF: FS 30/5/1/1/2/10622 PR

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mineral resources & energy

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Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA



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Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 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).

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FILE REFERENCE NUMBER SAMRAD: FS 30/5/1/1/2/ 10622 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 furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives;
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided or mitigated;

- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
- (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to manage, avoid or mitigate identified impacts;
and
 - (iii) identify residual risks that need to be managed and monitored.
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PART A

SCOPE OF ASSESSMENT AND REPORT

1 Contact Person and correspondence address

1.1 Details of the EAP

Names of Practitioners:	Phathu Mugagadeli	Khuliso V Ramulondi (Pr.Sci.Nat; REG. EAP)
Qualifications	BSc in Environmental Sciences Bachelor of Science Honours in Geography	Bachelor of Earth Sciences in Mining and Environmental Geology
Tel	012 012 5580	
Cell No.:	073 796 6769	081 312 3951
Fax No. :	086 560 5316	
e-mail address:	phathu@mielelani.co.za/ mugagadelip@gmail.com	khuliso@mielelani.co.za/ ramufhi@outlook.com
	info@mielelani.co.za/	

1.2 Expertise of the EAP.

The EAP (Phathutshedzo) has a Bachelor of Environmental Sciences from University of Venda and Bachelor of Science Honours in Geography (UNISA).

Summary of the EAP's past experience

Mr Mugagadeli Phathutshedzo has a solid 05 years' experience in Conducting EIAs. He has conducted EIAs for various projects including but not limited to Construction, Agricultural, Prospecting and Mining as well as Waste Management. His exposure to different working environment has greatly advanced his technical ability in identifying and assessing impacts as well as providing mitigation thereof, from this role he has learnt the best

practical strategies to manage and mitigate impacts. The EAPs' CVs are attached as Appendix O2.

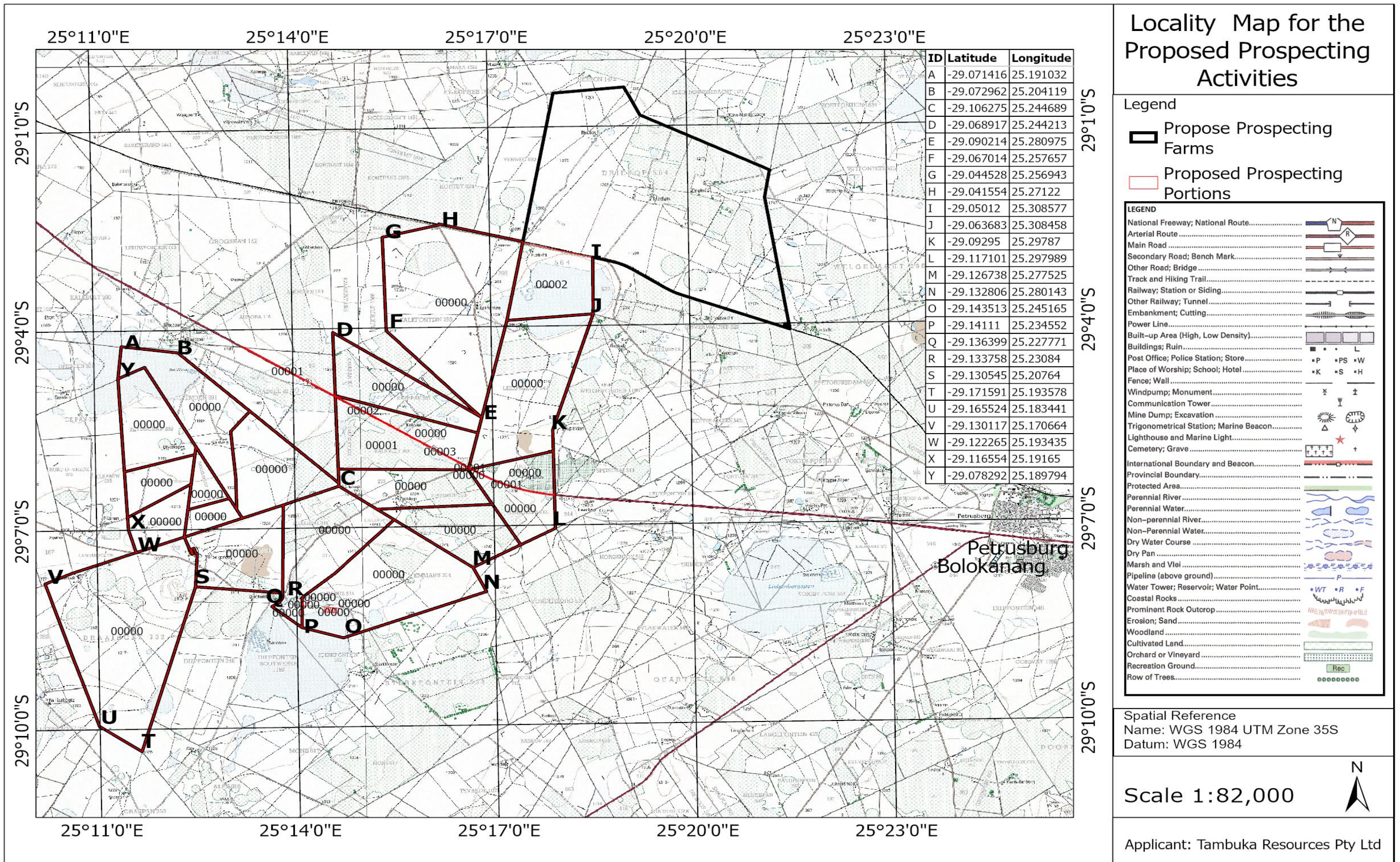
2 Project Locality

2.1 Location of the overall activity

Farm Name:	Portion Re of Biesieput 311; RE of Blydschap 289; RE of Bokkop 311; RE of Concordia 369; RE of Danielsrust 335; RE of Danielsrust A 376; RE of Draaihoek 332; Portion 2 of Driekop 564; RE of Emden 291; RE of Emmaus 514 Portion 1 & RE of Highlands 1101; RE of Kalkfontein 298; RE of Kalkpan 987; Portion 1 & RE of Kalkvley 898; RE of Leeuwkop 543; RE of Mooigenoeg 318; RE of Ruth 310; RE of Spitskop 303; and RE of Zwartleegte 551			
Application area (Ha)	Approximately 14491 Hectare			
Magisterial district:	Fauresmith District, Free State Province.			
Distance and direction from nearest town	The proposed prospecting area is located approximately about 10 km West of Petrusburg town and 10 Km north of Koffiefontein town.			
21 digit Surveyor General Code for each farm portion	Farmname	Farm_No	Portion	SG_Code
	Biesieput	311	00000	F01100000000031100000
	Blijdschap	289	00000	F01800000000028900000
	Bokkop	311	00000	F01800000000031100000
	Concordia	369	00000	F01800000000036900000
	Danielsrust	335	00000	F01800000000033500000
	Danielsrust a	376	00000	F01800000000037600000
	Draaihoek	332	00000	F01100000000033200000
	Driekop	564	00002	F01100000000056400002
	Emden	291	00000	F01800000000029100000
	Emmaus	514	00000	F01100000000051400000
	Highlands	1101	00001	F011000000000110100001
	Highlands	1101	00000	F011000000000110100000
	Highlands	1101	00000	F011000000000110100000
	Kalkfontein	298	00000	F01100000000029800000
	Kalkpan	987	00000	F01100000000098700000
	Kalkvley	828	00001	F01100000000082800001
	Kalkvley	828	00002	F01100000000082800002
	Kalkvley	828	00000	F01100000000082800000
	Kalkvley	828	00003	F01100000000082800003

<i>Leeuwkop</i>	<i>543</i>	<i>00000</i>	<i>F01100000000054300000</i>
<i>Leeuwkop</i>	<i>543</i>	<i>00000</i>	<i>F01100000000054300000</i>
<i>Leeuwkop</i>	<i>543</i>	<i>00001</i>	<i>F01100000000054300001</i>
<i>Mooigenoeg</i>	<i>318</i>	<i>00000</i>	<i>F01100000000031800000</i>
<i>Ruth</i>	<i>310</i>	<i>00000</i>	<i>F01800000000031000000</i>
<i>Spitskop</i>	<i>303</i>	<i>00000</i>	<i>F01100000000030300000</i>
<i>Zwartleegte</i>	<i>551</i>	<i>00000</i>	<i>F01100000000055100000</i>

2.2 Locality map



ID	Latitude	Longitude
A	-29.071416	25.191032
B	-29.072962	25.204119
C	-29.106275	25.244689
D	-29.068917	25.244213
E	-29.090214	25.280975
F	-29.067014	25.257657
G	-29.044528	25.256943
H	-29.041554	25.27122
I	-29.05012	25.308577
J	-29.063683	25.308458
K	-29.09295	25.29787
L	-29.117101	25.297989
M	-29.126738	25.277525
N	-29.132806	25.280143
O	-29.143513	25.245165
P	-29.14111	25.234552
Q	-29.136399	25.227771
R	-29.133758	25.23084
S	-29.130545	25.20764
T	-29.171591	25.193578
U	-29.165524	25.183441
V	-29.130117	25.170664
W	-29.122265	25.193435
X	-29.116554	25.19165
Y	-29.078292	25.189794

Locality Map for the Proposed Prospecting Activities

- Legend**
- Propose Prospecting Farms
 - Proposed Prospecting Portions

LEGEND

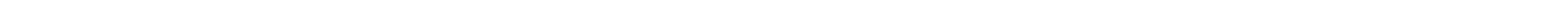
- National Freeway; National Route.....
- Arterial Route.....
- Main Road.....
- Secondary Road; Bench Mark.....
- Other Road; Bridge.....
- Track and Hiking Trail.....
- Railway; Station or Siding.....
- Other Railway; Tunnel.....
- Embankment; Cutting.....
- Power Line.....
- Built-up Area (High, Low Density).....
- Buildings; Ruin.....
- Post Office; Police Station; Store.....
- Place of Worship; School; Hotel.....
- Fence; Wall.....
- Windpump; Monument.....
- Communication Tower.....
- Mine Dump; Excavation.....
- Trigonometrical Station; Marine Beacon.....
- Lighthouse and Marine Light.....
- Cemetery; Grave.....
- International Boundary and Beacon.....
- Provincial Boundary.....
- Protected Area.....
- Perennial River.....
- Non-perennial River.....
- Non-Perennial Water.....
- Dry Water Course.....
- Dry Pan.....
- Marsh and Vlei.....
- Pipeline (above ground).....
- Water Tower; Reservoir; Water Point.....
- Coastal Rocks.....
- Prominent Rock Outcrop.....
- Erosion; Sand.....
- Woodland.....
- Cultivated Land.....
- Orchard or Vineyard.....
- Recreation Ground.....
- Row of Trees.....

Spatial Reference
 Name: WGS 1984 UTM Zone 35S
 Datum: WGS 1984

Scale 1:82,000

Applicant: Tambuka Resources Pty Ltd

Figure 2-1: Locality Map



3 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

3.1 Listed and specified activities

Table 3-1: Listed Activities

Name of Activity	Aerial Extent of the Activity Ha Or M ²	Listed Activity (Mark With An X)	Applicable Listing Notice	Waste Management Authorisation (Mark With An X)
Any 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).	Extent of application area: 9,080.48 Ha	X	GNR 983 - Listing 1: Activity 20	N/A
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation. The clearance will be to make way for: <u>Drill pad areas and temporary storage area</u>	≤ 1 ha	X	GNR 983 - Listing 1: Activity 27	N/A
Drill sites (All 13 Drill Sites)	1.44 ha			
Ablution facility (mobile hired toilets closer to each drill site)	100 m ²			

Name of Activity	Aerial Extent of the Activity Ha Or M ²	Listed Activity (Mark With An X)	Applicable Listing Notice	Waste Management Authorisation (Mark With An X)
Access route (Pre-existing access routes will be used)	<1 ha			

3.2 Description of the activities to be undertaken

Tambuka (Pty) Ltd proposes to undertake prospecting activities for Diamonds, Diamonds (Alluvial, General and in Kimberlite) on Portion RE of Biesieput 311; RE of Blydschap 289; RE of Bokkop 311; RE of Concordia 369; RE of Danielsrust 335; RE of Danielsrust A 376; RE of Draaihoek 332; Portion 2 of Driekop 564; RE of Emden 291; RE of Emmaus 514 Portion 1 & RE of Highlands 1101; RE of Kalkfontein 298; RE of Kalkpan 987; Portion 1 & RE of Kalkvley 898; RE of Leeuwkop 543; RE of Mooigenoeg 318; RE of Ruth 310; RE of Spitskop 303; and RE of Zwartleegte 551 Situated in Letsemeng Local Municipality of the Fauresmith Magisterial District, Free State Province.

What is mineral prospecting?

Prospecting is the search of clues that indicates that there are kimberlite pipes contain diamond deposit beneath the surface. It is generally the search of diamond rich kimberlite pipes, locally known as the Koffiefontein pipe to determine if they are mineable at a profit. The confidence of mineral deposit is gained through using maps and historical data, geophysics, ground truthing, geochemistry which are considered non-invasive activities.

When the local geology is understood, siting for drilling can then be undertaken. Drilling is done with fairly large machinery that use diamond-tipped, hollow drill 'bits' which produce varying amounts of 'core' depending on the extensiveness of the drill program. Diamond-tipped bits are used because they can go through the hardest of rock, and the core produced is cylindrical and not typically more than a couple inches in diameter. The details of each drill hole (including direction and depth) are recorded in much detail, each meter of core is marked with the depth that it came from and which hole, if there's been multiple drilled.

Once core has been obtained, samples are then sent to a laboratory facility to be 'assayed', which is essentially assessing the kimberlite ore body physical and chemical properties in the rock. Using this data from the assaying, along with the

records of where the assayed drill core came from, the data is re-interpreted to determine subsequent phases of follow-up drilling. If drilling continues, different drilling techniques are used to build confidence in the deposit by determining the size and grade of the 'strike' and 'dip'.

The objective will be to produce a 3D resource model of where and how the Kimberlite ore body is located underground. All this information is used to complete an 'official resource estimate', which is a non-biased report that is required to have been developed by a 'Qualified Person' (QP). The 'Official Resource Estimate' will outline the categories of mineral resources (inferred, indicated, and measured) as well as the quantity and grade of each resource category

Prospecting activities will be undertaken in five different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

3.2.1 The description of the proposed prospecting activities

Prospecting activities will be undertaken in five different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

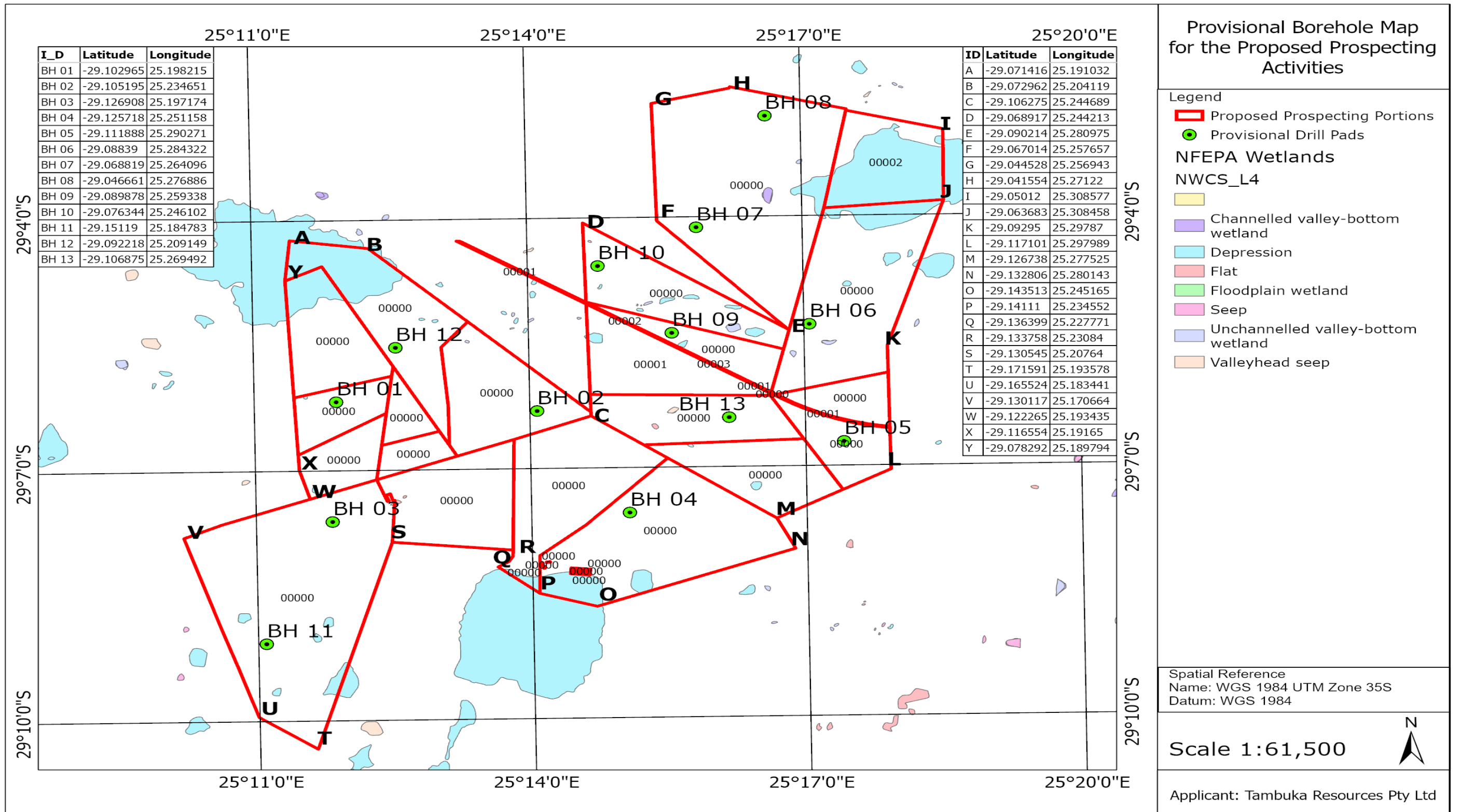


Figure 3-1: Provisional Site Layout Plan

3.2.1.1 Phase 1: Literature review and Field Mapping

(a) Literature Review

Phase 1 will include the collection and interpretation of all available data and the compilation of a Geographic Information Systems (GIS) database. The information to be collected will include aerial photos, Orthophoto, aeromagnetic data, Topo-cadastral maps, and geological maps, results of historic exploration programmes and any other published literature and maps. The desktop study will aid in compiling a preliminary geological model of the area to be utilized in the planning geological mapping and sighting of drill holes. It also includes accruing results from the companies that has already worked on the area. This provides information such as geological setting, biodiversity as well as water management.

(b) Mapping

Generally mapping involves the geologist walking the area and making observations which are then recorded on a map. To enhance the quality and reliability of geological maps data obtained during geophysical surveys will be used. Mapping is completed that meaningful structural and geological data may be derived from it and to confirm that the desktop study is accurate.

3.2.2 Phase 2: Geophysical Survey

The applicant will undertake aeromagnetic surveys to map the subsurface lithology without undertaking invasive prospecting activities. The aeromagnetic survey is critical for locating kimberlite pipes. Once the position of the kimberlite is known the drilling sites can then be sited. A

provisional drill sites have been positioned based on available literature. The provisional plan will be updated based on the outcome of the geophysical surveys.

3.2.3 Phase 3: Discovery Drilling and Sampling

The results of the Phase 1 and 2 will be used to assist in the ideal location diamond drill holes at maximum depth of 250 m. Cores will be sampled and prepared for laboratory analysis. This phase is aimed at establishing if there are diamond deposits within the proposed site.

3.2.4 Phase 4: Sample analysis/ Assaying

The assaying will be conducted to determine the mineral content for each core at a South African National Accreditation System (SANAS) accredited laboratory. Sample analysis will inform if there are diamond deposits within the proposed site. Should there be diamond deposits on site, preliminary economic assessment will be conducted.

3.2.5 Phase 5: Preliminary economic assessment

A preliminary economic assessment is a study conducted to determine whether a project has the potential to be viable. At this stage, the mineralization, regardless of its quantity and quality, is always considered to be a mineral resource. This study is generally based on industry standards rather than derived from detailed site-specific data.

Phase 3: Resource drilling and sampling

Subsequent to Phase 3 drilling, the results will be used to design a systematic drill holes to define the site resource. This drilling programme will be more

focussed on parts on which the diamond deposits were intersected. At this point the position of the systematic drill holes is provisional and subjected to change based on outcomes of various phases. A maximum of 13 boreholes will be drilled.

Phase 5: Pre-feasibility study

The pre-feasibility and feasibility studies are more detailed. By the time a decision is made to proceed with a pre-feasibility study, a preliminary mineral resource report has been finalized and an orebody model demonstrating its shape, tonnes, and grade is available. A resource cannot be converted to a reserve unless it backed up by at least a pre-feasibility study. Their results will show with more certainty whether the project is viable. At this point, the mineral resource, or a portion thereof, becomes a mineral reserve. The activities associated with the Prospecting Work Programme will be scheduled over a period of five years

3.3 Activities associated with the proposed prospecting

3.3.1 Site Access

The undertaking of prospecting activities will require access into privately owned properties. Access into these properties must be through access agreements contracts signed between each property owner and Tambuka (Pty) Ltd. The access agreements will be a legal document effective from the date of signing until the exit contract is signed off. The access agreement contracts will detail specific conditions relevant to each property owner.

3.3.2 Access roads

There are internal farm access roads from the main local routes to the proposed drill stations, however to access some of the drill stations new roads

will be created. The creation of access roads are not mapped at this time as drilling positions are provisional. The impact assessment and management details how the roads must be created and managed. Key aspects for creation of access roads are the following:

- ✓ Where access roads are created through ploughing fields, the loss of crops and/or arable land will be compensated for the duration of disturbance, calculated at the most recent selling price for each specific crop;
- ✓ Streams and wetlands crossing will be prohibited;
- ✓ Sensitive areas will be marked a “no-go” area, e.g. wetlands, etc.

3.3.3 Drill station establishment

The establishment of the drill stations will chiefly be dictated to by the underlying geology, however sensitive features must be protected at all times. The provided drill stations layout map is provisional and subjected to change based on outcomes of other preceding phases.

3.3.4 Core Drilling

The primary objective is to obtain drill cores for assaying. The affected parties must be consulted and informed of the drilling programme which details the duration of the proposed activities and their input be incorporated into the programme.

3.4 Project scheduling

The department of Mineral Resources and Energy allows for a maximum of five (5) years to conduct prospecting activities. The five years' period will include project planning and sourcing of the required materials and equipment. At least 5 working days will be required at each drill station

and a maximum of twenty boreholes are proposed and as such an uninterrupted drilling programme can be completed in five months.

It is recommended to undertake the proposed prospecting activities during the dry periods after harvest to reduce impact on crops and water resource.

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3.5 Equipment and/or Technology to be used

- ✓ 1 drill rig mounted on a 10-tonne truck or trailer;
- ✓ 1 X 2 200 Litres water tanker; and
- ✓ 2X (4X2) Bakkie.



Figure 3-2: Typical LY44 Geological core drill unit

4 POLICY AND LEGISLATIVE CONTEXT

Table 4-1: Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Constitution of South Africa, specifically section 24(a), (b)(i) – (iii).	Impact assessment and management, and Public Participation Process.	The prospecting activities will only proceed after effective consultation to protect the Rights of interested and affected parties.
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) section 16(1)(a)-(c).	This EIA is undertaken as a requirement for the granting of the Right.	The application for prospecting right was lodged and all required documents submitted.
National Environmental Management Act (107; 1998) section 23(1) & (2), 24(1); & 24(4)(b)(i) – (vii).	Impact Assessment, Financial Provision, Mitigation Measures and Public Participation.	<ul style="list-style-type: none"> ✓ The receiving environment was thoroughly assessed; ✓ Probable impacts were identified and their mitigation measures and monitoring mechanisms developed; ✓ Financial Provision for rehabilitation was determined and the applicant will pay the amount before the right is issued; ✓ Affected and Interested Parties will be engaged and given

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context:
		opportunities to get involved in the proposed project.
NEMA Environmental Impact Assessment (EIA) Regulations, 2014 as amended; GNR 326 and GNR 327.	Entire document	<ul style="list-style-type: none"> ✓ All triggered listed activities have been identified and applied for; ✓ The Basic Assessment Report and the Environmental Management Programme were compiled in terms of Appendix 1 and 4 of GNR 326. ✓ The public participation was done as per the said Regulations.
National Environmental Management: Waste Act	Used as guidance for mitigation measures as no listed activities were triggered.	The project activities do not trigger a waste management license but proper waste management measures will be addressed in the EMP.
Section 38 of the National Heritage Resources Act (Act No. 25 of 1999).	Part A Section 8.7	There are no identified heritage significance site and artefacts on site. However, this does not absolve the client from exercising caution when conducting invasive activities.
The National Environmental Management Biodiversity Act (NEM:BA), 2004 (Act	Impact Assessment and Baseline Description	There are no protected species on site that would require permits to remove and/ or manage;

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context:
No. 10 of 2004), provides for:		<p>Alien invasive species will be controlled and monitored;</p> <p>Impacts on the biodiversity have been identified and mitigation has been provided.</p>
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004);	Impact assessment & Management	As part of the EMPr dust suppression methods will be used.
The National Water Act (NWA) (Act No. 36 of 1998)	Impact Assessment	<ul style="list-style-type: none"> ✓ No water use license is required for this application; ✓ Impacts on water resource will be prevented; and ✓ Any water required for drilling activities will be obtained from a legal source within the area and brought to site by a tanker.
National Water Act, 1998 (Act No. 36 Of 1998). Regulation 704 (GN 704) Regulations on use of water for mining and related activities	Impact Assessment & Management	All water sources have been identified and water usage for prospecting activities will be controlled in line with the NWA and its regulations.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Mine Health and Safety Act, 1996 (Act No. 29 of 1996);	Impact assessment and management	Activity based risk assessment will be conducted prior undertaking the site prospecting activities.
Guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine; 2005.	Financial Provision &	The rehabilitation costs were calculated based on this guideline.
Broad-based black socio-economic empowerment charter for the South African mining and minerals industry, 2017; specifically 1(a) & (b) and 2.1.1.1.	Details of the Applicant	Tambuka (Pty) Ltd is a black owned Company.
National Freshwater Ecosystems Priority Areas (NFEPAs, Nel et al., 2011);	Impact Assessment & Description of receiving environment	There were NFEPAs and other Wetlands identified within the proposed site. These wetlands were sparsely distributed allowing for invasive prospecting activities in dry lands.
Mining and Biodiversity Guidelines 2013	Impact Assessment & Description of receiving environment	The proposed site lies within an unmapped area in term of the MBG of 2013.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context:
National Development Plan 2030	Baseline environment description	<p>The plan is aimed at reducing poverty and inequality. Should prospecting be successful a mine will be developed that will contribute to the local socio-economy.</p> <p>The mining sector is one of the greatest contributor to the South African GDP and labour force.</p>
White Paper on Environmental Management Policy, 1997	Impact management, sustainable development, consultation.	Impact management is provided for all identified impacts
Terrestrial critical biodiversity areas for the Free State.	Baseline environment description and impact assessment	The proposed site is largely located on "other" areas. Sections of ESA and CBA are located just outside the site to the north.
National Climate Change Response White Paper; 2011: Climate change will compound the pressures on already stressed ecosystems	Baseline environment description and impact assessment	The water resources will be protected to ensure supply to local users is not interrupted due to the proposed prospecting which is already under stress due to various factors including Climate Change and over extraction

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context:
that have resulted from the unsustainable use and inadequate management of many of South Africa's ecosystems and so potentially reduce the quantity and quality of the services that ecosystems currently provide.	Biodiversity and ecosystems	<p>The proposed site is largely located on "other" areas. Sections of ESA and CBA are located just outside the site to the north.</p> <p>The site ecology will be rehabilitated on completion of the proposed prospecting activities.</p>
White Paper On Integrated Pollution waste Management for South Africa; 2000	Impact Assessment and Management	The prospecting activities will minimise generation of wastes on site and waste disposal will be at a registered facility.
White Paper on Environmental Management Policy for South Africa; 1998	Impact Assessment and Management	<p>Sustainable resource usage will be promoted throughout the prospecting duration.</p> <p>Ecologically sensitive areas have been identified and mapped and considered a "no-go" areas. This is to ensure Biodiversity is conserved.</p> <p>No activity will take place within 100 metres buffer of water sources (rivers and wetlands) to ensure water is</p>

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context:
		available to other users at an acceptable quality.
White Paper on the Conservation and Sustainable Use of South Africa's Biological Diversity, 1997	Impact Assessment and Management	Ecologically sensitive areas have been identified and mapped and considered a "no-go" areas. This is to ensure Biodiversity is conserved.
World Heritage Convention Act, 1999	Description of Heritage Resources on site	There are no identified heritage significance sites within the proposed site.
National Forests Act 84 of 1998	Baseline environment description and impact assessment	There are no protected plant species identified within the site.
National Environmental Health Policy, 2013 Ensure the right to an "environment that is not harmful to the health and wellbeing of South Africans".	Impact assessment and Management	The prospecting activities will be undertaken taking into cognisance the health and safety of the general public which also include its crew, farm workers and farmers.
Free State Provincial Growth and Development Strategy:2012	The need and desirability of the project;	The agricultural lands will be preserved as disturbance will be reserved on completion of prospecting

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context:
<p>The Free State PSDF is a policy document that promotes a 'developmental state' in accordance with national and provincial legislation and directives. It aligns with the Free State Provincial Growth and Development Strategy which has committed the Free State to 'building a prosperous, sustainable and growing provincial economy which reduces poverty and improves social development'.</p>	<p>Baseline environment description and impact assessment</p>	<p>activities and disturbance will be limited to drill sites and access roads; and</p> <p>The ecological disturbance will be restored on project completion</p>
<p>Letsemeng Local Municipality Integrated Development Plan 2021 – 2022</p>		<p>The plan note the contribution made by the mining sector to the Municipality GDP. The proposed prospecting activities are a decision making tool for mining industries and have little significance in terms of socioeconomic returns.</p>

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context:
Xhariep District Municipality Integrated Development Plan 2020 – 2021	The need and desirability of the project;	The IDP note the prospect for mining in the District. The prospecting activities will determine whether mining is viable in the area.
Guideline on Need and Desirability, Department of Environmental Affairs; 2017	The Need and Desirability for the proposed project	The Need and Desirability for the proposed project was investigated, assessed and reported in terms of the guideline.
Stakeholder Engagement, Integrated Environmental Management, Information Series 3; 2002	Public Participation Report (Appendix 05)	The public Participation Process was undertaken in terms of this guideline and the 2017 EIA Regulations.
Scoping, Integrated Environmental Management, Information Series 2, Department of Environmental Affairs and Tourism (DEAT), Pretoria; 2002		The project environmental scoping was undertaken in terms of the guidelines. The scoping process was undertaken to ensure that all key aspects of the proposed activities were understood and investigated.
Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact	Alternative assessment	The impact assessment was undertaken as informed by the guidelines and other relevant materials

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Assessment Regulations, 2006		

5 Need and desirability of the proposed prospecting activities

The need and desirability of the proposed prospecting activities were investigated and assessed based on the DEA (2017), Guideline on Need and Desirability. According to this guideline the concept of “need and desirability” can be explained in terms of the general meaning of its two components in which need primarily refers to time and desirability to place (i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed?), “need and desirability” are interrelated and the two components collectively can be considered in an integrated and holistic manner. The “need” relates to the interests and needs of the broader public.

Addressing the need and desirability of a development is a way of ensuring sustainable development – in other words, that a development is ecologically sustainable and socially and economically justifiable – and ensuring the simultaneous achievement of the triple bottom-line. The 2017 Need and Desirability Guideline sets out a list of questions which should be addressed when considering need and desirability of a proposed development. These are divided into questions that relate to ecological sustainability and justifiable economic and social development.

The questions that relate to ecological sustainability include how the development may impact ecosystems and biological diversity; pollution; and renewable and non-renewable resources. When considering how the development may affect or promote justifiable economic and social development, the relevant spatial plans must be considered, including Municipal Integrated Development Plans (IDP), Spatial Development Frameworks (SDF) and Environmental Management Frameworks (EMF). The

assessment reports will need to provide information as to how the development will address the socio-economic impacts of the development, and whether any socio-economic impact resulting from the development impact on people's environmental rights. Considering the need and desirability of a development entails the balancing of these factors.

In the National Spatial Development Perspective (NSDP) (2003 and updated in 2006) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas ("spatial targeting") with potential for economic development, with development to serve the broader societies' needs equitably.

The New Growth Path (NGP) (2010) in turn highlights the need to focus on facilitating growth in sectors ("sectorial targeting") able to create employment on a large scale, while not neglecting more advanced industries that are crucial for sustained long-run growth, and encouraging stronger investment by the private and public sectors to grow employment-creating activities rapidly while maintaining and incrementally improving South Africa's core strengths in sectors such as capital equipment for construction and mining, metallurgy, heavy chemicals, pharmaceuticals, software, green technologies and biotechnology.

The National Development Plan 2030 (NDP) (2012) stresses that the threat to the "environment and the challenge of poverty alleviation are closely intertwined" and as such environmental policies should not be framed as a choice between the environment and economic growth. The NDP states that: South Africa faces urgent developmental challenges in terms of poverty, unemployment and inequality, and will need to find ways to "decouple"

the economy from the environment, to break the links between economic activity, environmental degradation and carbon-intensive energy consumption.

The aspects of need and desirability of the proposed prospecting project are discussed below in subsection (5.1) and (5.2)

5.1 Securing ecological sustainable development and use of natural resources

5.1.1 How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?

The site assessment conducted to date has established that there are no protected or threatened ecosystems within the proposed site. According to the Free State Systematic Conservation Plan, there are section of Critical Biodiversity Areas and Ecological Support Areas (ESA) within the proposed site covering approximately 65% of the proposed site. According to the South African National Vegetation Map (Mucina & Rutherford 2006), the proposed site is located within the Northern Upper Karoo Biome. The Modder River is situated to the north (16 km in distance) and is considered a FEPA system with a Class E-F: Not a n Acceptable CL Status. There is also the presence of wetlands with FEPA status within the proposed site which in the absence of sound environmental management strategies can be greatly affected. These wetlands were identified mapped and 100 metres buffers were created for each hydrogeomorphic unit.

Prospecting activities are of short duration and conducted over a small area and impacts are highly manageable and reversible. The principle of Prevent, Avoid, Manage and Reverse will be applied to the proposed project. The disturbances will be limited to active areas and sensitive areas will all be

marked as a "No-Go". The identified ecological sensitive areas are the wetlands. Although the drilling positions as indicated in this report are provisional, should they be relocated they will not be established within 100 metres buffers of wetlands areas. The Access roads in cases where they should be created will also be outside sensitive features buffers. Pre-site-clearing for establishment of drill pads tree species will be identified and recorded to avoid removal of species of conservation concern, the EIA did not identify any species of concern, however their presence is not ruled out.

5.1.2 How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?

The proposed prospecting project will have negative impact on the ecosystem as the natural environment will be disturbed to make way for the establishment of drill stations and access roads. Prospecting activities are chiefly dictated to by the location of mineralised zones and can only be undertaken where a potential for mineral deposits exists. Although the ecosystems will be disturbed, the impact can be greatly reversed as the disturbed area will be limited to creation of access roads and establishment of drill stations (20m X 20m). Full impact assessment is provided in Part A, Section 9 & 11 and Part B, Section 4 of this report.

5.1.3 How will this development pollute and/or degrade the biophysical environment?

There is a potential to pollute underground water resource during drilling, soil contamination, wetlands destruction and loss of flora and fauna. The prospecting activities will be undertaken on a relatively small area affecting minimal biophysical environment. Impact management strategies have been

provided in this report to prevent, mitigate and manage probable impacts from the proposed prospecting activities.

5.1.4 What waste will be generated by this development?

The prospecting activities are expected to generate general wastes, and small quantities of hazardous and sewage waste. All the waste to be generated will be disposed of at registered waste facilities and disposal certificates will be kept on site. Hazardous waste will result from spills and leakages of hydrocarbons from operating equipment and vehicles.

5.1.5 How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?

According to the consultation, site assessment and GIS reviews conducted there are no Heritage significance sites and objects within the proposed site. However, this does not absolve the contractor from excusing due diligence before undertaking any of the site invasive activities.

5.1.6 How will this development use and/or impact on non-renewable natural resources?

The project is aimed at prospecting for non-renewable mineral resources. The operating machineries and equipment will also make use of non-renewable in the form of hydrocarbons. The project is not expected to excessively use non-renewable in such a way that it can affect other users. The proposed prospecting activities do not promote dependency on non-renewable energy.

5.1.7 How will the ecological impacts resulting from this development impact on people's environmental right?

The ecological impacts will not largely impact on people's right, there are no natural resource harvesting in the area. The impacts on water resources are highly avoidable and will therefore have little significance.

5.2 Promoting justifiable economic and social development

Prospecting is the research, planning and development phase of a mining project. The evaluation of a project aims to determine whether mineralization occurs and if so, does it occur in economically extractable quantities. Initially these are measured in tonnage and grade. While geological studies are integral to prospecting, prospecting also includes, amongst others, infrastructural, environmental, socio-economic, financial evaluation and metallurgical studies thereby encouraging the national research and educational sectors.

The main activities in the area are agriculture, both the cultivation and livestock farming and farm houses. The proposed prospecting is not expected to bring halt to current site activities as they can be undertaken concurrently.

A successful prospecting project will result in an establishment of mine depending on the feasibility study conducted. Mining operations on their own are a sustainable development that contribute largely to the South African GDP and creates a large number of employment opportunities. It would be premature to compare the already sustainable agricultural activities and a possible mine. Should the prospecting activities established a mineable deposit on site, relevant studies which will include socioeconomic study will be commissioned.

5.2.1 What is the socio-economic context of the area

The proposed site is located outside the Koffiefontein town with sparse farm houses within the proposed site. The IDPs of both the local and the District Municipalities acknowledges the presence of Diamond (Kimberlite ore body) deposits in the area.

The site is mainly used for agricultural purposes for both the crop and livestock farming. There are game farms within the proposed area.

There are existing and closed mining operations within the region. The local economy input is mainly agriculture and mining. There are no high density communities located within the proposed properties and their surroundings.

5.2.2 What will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?

Prospecting activities are of short duration and are not considered an economic activity. The socio-economic input is very limited, the number of employment opportunities to be created for locals is usually less than five and very little support is required from local businesses. It should however be noted that prospecting is a predecessor of mining which on its own have significant social and economic impacts.

5.2.3 How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?

The proposed activities will not have significant impacts on the local natural and built/human environment. The current site activities can be

undertaken concurrently with prospecting activities. There will be a small loss of agricultural land when establishing access roads and drill stations. The impacts from the two invasive activities can be reversed through rehabilitation, and the loss of crops can be avoided by scheduling prospecting activities after harvesting period.

5.2.4 Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?

The proposed prospecting activities are of short term and it is unknown at this stage if mineable diamond deposit are present on site. Prospecting activity on its own will not have any benefit for the local communities, benefits will only be realised if the prospecting activities are successful and a mine is established. In such a case, a social and economic impact study will be commissioned and a social labour plan will be drafted which will benefit the local communities.

5.2.5 In terms of location, describe how the placement of the proposed development will result in the creation of residential and employment opportunities in close proximity to or integrated with each other and reduce the need for transport of people and goods

Prospecting activities are not labour intensive and will also not attract any other secondary activities. The prospecting activities are aimed only at determining if there are feasibly mineable kimberlite ore body on site.

5.2.6 *How were a risk-averse and cautious approach applied in terms of socio-economic impacts?*

5.2.6.1 *What are the limits of current knowledge?*

It has not been physically proven if there are diamond deposit on site as no drilling has been conducted previously. The resource modelling software were used to correlate the Kimberlite ore body from the nearby explored properties. It is therefore possible that diamond deposit may be absent on site, and/or be of poor quality.

5.2.6.2 *What is the level of risk associated with the limits of current knowledge?*

Since the prospecting activities are not an economic activity, targeted on less sensitive areas and affect relatively smaller areas, the risk associated with undertaking the prospecting activities have low – medium significance and highly reversible. The prospecting activities raise expectations of the vulnerable and poor communities and should the prospecting activities be unsuccessful the local communities will be at distraught as the prospect of a mine establishment will be lost.

5.2.6.3 *Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?*

The probable impacts were identified, assessed and mitigation measures provided.

5.2.7 How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:

Health – The proposed project will generate dust during driving on gravel access roads and during drilling. Dust particles will be scattered within the immediate area and although to a less significant scale affect the air quality and to people with respiratory diseases. The dust generation must be monitored during operation and controlled through watering and use of biodegradable dust control chemical agents;

Noise – The proposed site is a quiet agricultural area; the drilling machinery will generate noise nuisance. The farm dwellers must be informed of the drilling schedule as the noisy cannot be completely be prevented. The drilling must only be undertaken during the day i.e. 07h00 to 17h00;

Loss of arable land: the drill stations and their access roads will be created on agricultural field resulting in temporary loss of agricultural land. The prospecting activities must be scheduled after harvesting period, and the disturbed areas must be fully rehabilitated on completion of prospecting activities at each drill station;

Water contamination: The prospecting activities have the potential to contaminate both the underground and the surface water, through spillage of hydrocarbons, interception of aquifers and driving through streams and/or wetlands. The surface water must be clearly delineated on the project layout plan and marked as “no-go” areas and buffers created around each surface water area. Should the groundwater be intercepted the during drilling, a borehole report will be drafted for submission to the Department

of Water and Sanitation which will include the depth at which the water was intercepted and the water quality as tested in a controlled laboratory;

Safety: Site access by the prospecting crew may attract opportunist criminals into the private properties. The prospecting crew must at all times carry with them identification cards.

5.2.8 What are the positive impacts & what measures were taken to enhance positive impacts?

The prospecting process is not an economic activity and does not generate any income. It is however necessary to establish whether there is a mineable deposit on site which could then result in a mine development.

The obtained geological knowledge will contribute to South African geological data pool and mapping of the South African kimberlite ore body.

South Africa faces illegal mining challenge where local knowledge exists about buried economic deposits. The illegal activities does not only result in loss of revenue but the reckless mining methods have higher significant environmental impact and have no commitments to improving the societal living standards. Should prospecting be successful, a legally operating mine will be developed operating within all mining related regulations including the requirements of a social labour plan.

5.2.9 *Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?*

- ✓ *The proposed prospecting will not create competition for natural resources with the locals,*
- ✓ *The proposed activities will not result in net loss of naturally resources such that other land users and members of the public are affected.*

5.2.10 *What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?*

The current activities undertaken on site are agricultural activities with impact on ecological diversity as larger areas must be cleared to make way for cultivation and increased suspended loads in the riverine system due to nutrients from the fields. The proposed prospecting activities as compared to the agricultural activities will have less significant impact on the environment and will not create social challenges or use-up available natural resources.

The proposed site is also largely used for game farming practice which promotes ecological conservation. Invasive Prospecting activities will be undertaken over a smaller extent area disturbing as little area as possible. The functioning of local ecology will be least impacted by the proposed prospecting activities.

The assessment conducted will be provided to the registered interested and affected parties including land owners.

5.2.11 What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)

The prospecting site is chiefly dictated to by the geological setting of the area, the impacts will not discriminate against anyone on site. The local farmers are the directly impacted group as they will temporarily lose their agricultural land.

The development is located appropriately as there are no high density communities nearby that may be affected by the proposed activities. The proposed activities can be undertaken without impacting the sparse residential areas within the proposed properties. However, current land uses which are agriculture and game farming will be moderately impacted. The impacts will not discriminate against anyone and will be mainly on the directly affected areas as dictated to by the local geology

5.2.12 What measures were taken ensure transparent and effective participation of all interested and affected parties

- ✓ This is discussed in Public Participation Process Section of this report and Appendix 05: Public Participation Report,*
- ✓ In summary a newspaper advert will be placed in Bloem local Newspaper on the 22nd of October 2021, and site notices will be placed on the affected properties, major access roads and Koffiefontein Town (18 – 19 October 2021). The landowners were identified through deed search, and will also be invited through site notices, their comments will be incorporated into this report. All registered IAPs will be*

provided with the draft report for review and a public meeting has been requested.

5.2.13 What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage

- ✓ The IAPs will be informed of the application outcome by the DMRE,
- ✓ Should prospecting establish a mineable resource, the IAPs will be fully engaged through EIA process and Social Labour Plans through which the public interest will be protected.

5.2.14 Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?

The proposed mitigation measures are realistic and practical and will ensure that the land will be restored to its original state. The remaining will be the borehole capping made of cement. This disturbance will be less than 0.5 m at each drill station.

5.2.15 Measures taken to ensure that impact management costs are paid for by those responsible for harming the environment?

The cost of managing the impacts was calculated using the Department of Mineral Resources (DMR)' Guidelines document for the evaluation of the quantum of closure-related financial provision provided by a mine. The calculated rehabilitation fee will be paid to the DMRE before the Environmental Authorization is issued.

5.2.16 How the alternatives identified resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?

- ✓ The proposed site for invasive activities (drilling and access roads) will be located such that sensitive areas are avoided to ensure access to natural resources is not affected.
- ✓ The water resources were avoided to prevent contamination and disruption of water supply to other users.
- ✓ The proposed activities will not result in net loss of ecological diversity ensuring equitable access by others, rehabilitation will be undertaken to restore pre-prospecting conditions.
- ✓ The proposed prospecting activities will not prohibit the use of land in future for other unrelated activities as the site will be rehabilitated

6 Motivation for the overall preferred site, activities and technology alternative

6.1 Preferred Site

The choice for the preferred site was based on the following aspects about the site:

Site geology: the site is underlain by sedimentary rocks belonging to the Beaufort and Ecca Groups of the Karoo Supergroup. According to desktop studies there is high potential for Diamond bearing Kimberlite pipes.

Site Sensitivity: the site does not contain any protected areas, according to Free State Critical Biodiversity Plan there are no Critical Biodiversity area and Ecological Support Areas.

6.2 Preferred Activities

There are various methods of Diamond prospecting which can be either intrusive or non-intrusive in nature. For this project both the non-invasive and invasive method will be used. Invasive methods, that is drilling and core sampling provides highly reliable data which would be a true reflection of what is to expect on site. Non-invasive methods (desktop study, site walk & geological mapping) rely only outcrops to model site geology whereas in drilling the cores of the substrata are obtained and analysed. The analysis provide data on the grade of Kimberlite pipes and its economic viability. Using the drilling technique, the prospecting will successfully determine how viable the mining for Kimberlite pipes is and how long, at what rate the can be mined.

6.3 Full description of the process followed to reach the proposed preferred alternatives within the site.

Alternatives were chosen based on the consideration of environmental and geological attributes as well as the current land uses within the proposed site. Geological attributes were determined with the use of geological maps. The local geology determines the type of technology to be used depending on the rock strength and burial depth. A comparison of cost-benefit of alternatives chosen was done to choose the most cost-effective methods that are environmentally sound. Existing infrastructure was also considered. Areas that need protection would be excluded from the targeted sites in the demarcation process. Existing infrastructure that could be of use was also considered such as farm roads to ensure minimal impact on the environment.

6.3.1 The property on which or location where it is proposed to undertake the activity;

The proposed site was preferred based on the historical geological data which from the desktop standpoint acknowledges the potential presence of Kimberlite pipes underneath the proposed properties.

NO OTHER SITES WERE ASSESSED.

6.3.2 The type of activity to be undertaken;

There were three alternatives assessed for this project, geophysical survey, diamond drilling, soil sampling through trenches and a combination of geophysical and any of the other two.

6.3.2.1 Geophysical Survey/ aeromagnetic survey

A geophysical survey is a method of collecting information about the physical properties of underground rocks and sediments without tunnelling or digging. The method uses equipment that detects anomalies between buried rock formations. The Kimberlite pipes would have different conductivity or electromagnetic properties from the surrounding rocks and will be detected through the anomaly. The short coming of this method is its unreliability on the grade and quantity of the ore body. A mining decision cannot be taken solely based on geophysical method. The method has been used for detection of Kimberlite pipes and siting of boreholes.

6.3.2.2 Core Drilling

Core drilling a solid core is extracted from depth, for examination on the surface. The drill uses a diamond encrusted drill bit to drill through the rock. The bit is mounted onto a core barrel which is attached to the drill stem, which is connected to a rotary drill. Water is injected into the drill

pipe, so as to wash out the rock cuttings produced by the bit and also to reduce the heat produced due to friction which causes less wear and tear of the bits. The core is brought to the surface in a tube with diameter ranging between 27 – 85 mm, the thicker the core the more expensive it is.

The obtained core is a true representative of the underground lithology. From the core burial depth and grade can be determined. Multiple cores will establish the thickness of the kimberlite ore body, the dip and strike directions. A full resource estimate and mine feasibility study can be determined through core sampling and laboratory assessments. Core drilling is highly informative and can reach the depth of 300 metres.

6.3.2.3 Trenching and soil sampling

Trenches are dug using electric shovels for sampling and/or exposing ore containing deposit. This method is preferred for near surface deposits and alluvial sampling for minerals such as diamonds. Trench digging have higher significance environmental impact as compared to core drilling as the disturbance area is much extensive.

All three of the above discussed methods will be used for this project. Geophysical will be used to site drill stations, and trenching will be used for alluvial diamond prospecting, lastly Core Drilling will be used for site geological modelling.

6.3.3 The design or layout of the activity;

The design of the activity in this project refers to the locations of drilling stations. The drilling areas are located away from sensitive features, and also determined by the distribution and extent of the kimberlite pipes. The drilling points will be located such that site wetlands and streams as well as the settlement areas are protected and marked as “No-Go” Areas. For the

application the drilling areas will be based on geology, topography and environmental sensitivity.

6.3.4 The technology to be used in the activity;

Technology was assessed to determine that which would bring reliable and desirable results. The following factors were evaluated when considering technology:

6.3.4.1 Local geological strata

The geological settings (rock types) and depth of burial determines the type of geophysical methods that are most likely to be successful therefore the technology that goes with such methods.

6.3.4.2 Rock Strength

The drilling equipment must be able to cut through site geological strata to reach buried Kimberlite pipes, therefore for instance a diamond drilling will be preferred where rock strength is very high.

The diamond drilling is the preferred technology because of its ability to cut through hard rock materials.

6.3.5 The operational aspects of the activity

The prospecting activities are carried out in phases with each subsequent phase dependant on the success predecessor. Therefore, a strict operational scheduling must be adhered to.

6.3.6 Other operational aspects:

Water requirement. The prospecting activities (excluding human usage) will require six (6) litres of water per 40 metres drilled, thus 37 litres per proposed 250 metres. The water requirement can be met through sourcing

water from the local municipality connection or from the local registered boreholes. No new boreholes will be drilled on site for water sourcing. A consent will be obtained from the municipality for water usage. The water usage onsite is not expected to trigger the NWA Listed activities which would require water use application.

Waste Management: The principle of Reduce, Re-use and Recycle must be implemented at all times. The waste must be separated at source and disposed at an appropriate waste management facility.

Access Roads: The existing access tracks on site will be used to access drilling points. No new roads will be developed without prior communication with the landowner.

6.4 The option of not implementing the activity

The option of not implementing the activity also referred to as a “No-Go” option ensures that the current status quo remains i.e. the site activities continue as they are. There will be no disturbances as a result of prospecting activities.

However, it should be noted that prospecting activities are of short term duration with a maximum of five years. The impacts created by diamond prospecting can be managed and mitigated, and current site activities can be undertaken simultaneously with the prospecting programme. The prospecting activities will disturb less than 05 ha of the total area under this application.

The aim of the proposed prospecting is to establish the presence, extent and grade of diamond deposit on site and should the activity be not implemented this information will remain unknown.

The literature review indicates that there is potential for diamond bearings kimberlite pipes, this information is readily available to the public and future applications for diamond mineral in the area will always be expected. This proposed application will establish if there are diamond deposit on site and establish if the diamond is mineable without economic loss. The geological data obtained through full prospecting process will then be submitted to the council of geoscience for safe keeping and evidence based mapping of South Africa.

7 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

This section of the report provides an overview of the tasks undertaken for the PPP to date. All PPP undertaken is in accordance with the requirements of the EIA Regulations (2014). It further provides an outline of the next steps in the PPP and makes recommendations for tasks to be undertaken during the environmental assessment phase of the environmental authorisation process. A full Public Participation Process (PPP) report will be attached as **Appendix 05**.

Land owners were identified through a search conducted via online search engines accessing the Title Deed office database. In addition to land owner's other relevant organisations were identified and notified of the application. This includes municipal and State departments with jurisdiction in the area and Non-Governmental Organisations (NGOs) with an interest.

The PPP tasks conducted for the proposed project to date include:

- 1) Identification of Interested and Affected Parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties);
- 2) Formal notification of the application to Interested and Affected Parties (all adjacent landowners) and other stakeholders;
- 3) Consultation and correspondence with I&AP's and Stakeholders and the addressing of their comments; and
- 4) Newspaper advert and site notices.

7.1 IAP and Stakeholder identification, registration and the creation of an electronic database

Public Participation is the involvement of all parties who are either potentially interested and or affected by the proposed development. The

principle objective of public participation is to inform and enrich decision-making. This is also its key role in this process.

Interested and Affected parties (IAPs) representing the following sectors of society has been identified:

- ✓ National, provincial and local government;
- ✓ Water bodies;
- ✓ Agriculture, including local landowners;
- ✓ Tourism;
- ✓ Community Based Organisations;
- ✓ Industry and mining;
- ✓ Non-Governmental Organisations;
- ✓ Commerce; and
- ✓ Other stakeholders.

7.2 Formal notification of the application to key Interested and Affected Parties (adjacent landowners) and other stakeholders

The project was announced as follows:

7.2.1 Newspaper advertisement

Newspaper Advert will be published in Bloem nuus on the 22nd October 2021.

7.2.2 Site notice placement

In order to inform surrounding communities and adjacent landowners of the proposed development, site notices was placed on site and at visible locations close to the site (01 – 05 June 2021).

7.2.3 Written notification

IAPs and other key stakeholders were notified of the project. A background information document and landowner notification letter were also sent out to the identified I&AP's. Letters indicating the announcement of the Basic Assessment Process, a Background Information Document (BID) and a

comment and registration form will be sent to all identified IAPs. This communication will be sent electronically via email as well as via hand to public places. Copies of the documents mentioned above can be seen as Appendix. The IAPs database will be attached as Appendix O5.

7.2.4 Meetings

No meetings were held to date.

7.2.5 Review of draft reports

This report will be released to the public for review and comment from the 22nd of October 2021. All registered IAPs were notified of the report's availability for comment for 30 days. Additionally, electronic and or hard copies were made available to interested and affected parties who request for them. Hardcopies of the report will also be submitted to affected organs of state and relevant authorities. Hard copies were also made available at Koffiefontein and Petrusburg public libraries.

7.2.6 Telephonic conversations

Where necessary telephonic conversations were held prior to sending out information. This also included WhatsApp and Text Messages.

7.3 Summary of issues raised by Interested and Affected Parties

Interested and Affected Parties	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.

8 *The Environmental attributes associated with the alternatives.*

Key aspects of the baseline environment that are likely to impact on the scope of the impact assessment and management measures that are implemented as well as project decisions regarding alternatives are listed below.

8.1 *Topography*

The topography of the region is a gently undulating to moderately undulating landscape of the Highveld plateau, some small scattered marshes and pans occur in the area, rocky outcrops and ridges also form part of significant landscape features in the area. The altitude ranges between 1050 to 1475 metres above mean sea level (mamsl).

8.2 *Climate*

Mean daily maximum and minimum temperatures in the larger region for January and July, are approximately 37°C and -4°C, respectively. Overall mean annual temperature is approximately 16.5°C. Frost is frequent in winter (37 frost days per annum on average).

The monthly amount of rainfall measured at Kimberley between March 2014 and 2015 (data obtained from AccuWeather, 2015) is shown in Figure 6-1. During the 12-month period preceding March 2015 a total of 331mm rain was measured at Kimberley. This approximate rainfall data suggest that the Koffiefontein Study Region received an average amount of rainfall during the 12 months preceding our first visit. The approximate temperature data in shown in Figure below indicates that conditions were typically mild to warm during March 2015.

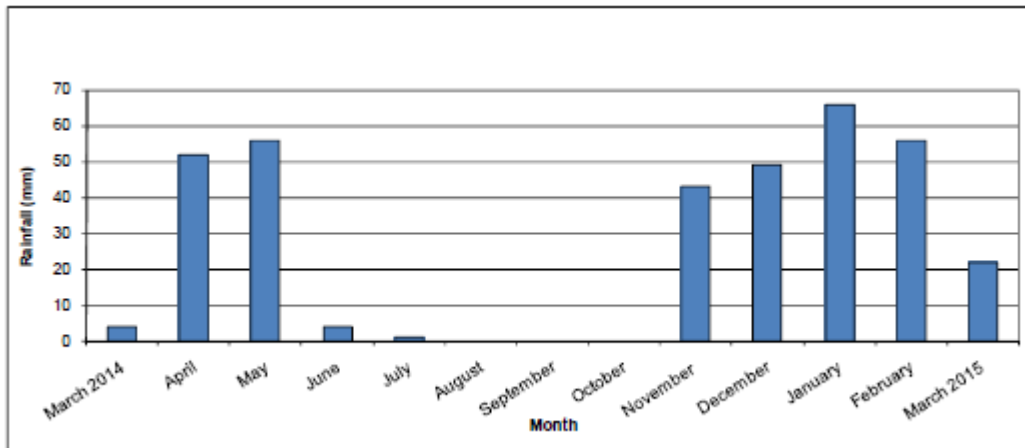


Figure 8-1: Site Climate Overview

8.3 Air Quality

The main objective of the Air Quality Impact Assessment is to determine the potential impact of emissions from the operational activities associated with the proposed prospecting project on ambient air quality. The proposed project area and surrounding where mainly utilised for Livestock farming and cultivation. Sources identified as possibly impacting the air quality in the region include, but are not limited to:

- ✓ **Fugitive dust:** This includes fugitive dust from paved and unpaved roads, agricultural activities (land preparation and harvesting) and wind erosion from open areas, which generates fugitive dust and PM10;
- ✓ **Stack emissions:** stack emission include the release of Sulphur dioxide (SO₂) and heavy metals from surrounding nearby mining operation;
- ✓ **Biomass burning biomass:** burning emissions include with carbon monoxide (CO), methane (CH₄) and nitrogen dioxide (NO₂) gases;

- ✓ *Household fuel combustion:* It is likely that households within the local utilize wood for cooking and space heating (during winter) purposes. Emissions from domestic burning include PM10, carbon dioxide (CO₂), Sulphur dioxide SO₂ and carbon monoxide (CO).
- ✓ *Vehicle tailpipe emissions:* Significant primary pollutants include carbon dioxide (CO₂), carbon (C), Sulphur dioxide (SO₂), oxides of nitrogen (mainly NO), particulates and lead. Secondary pollutants include NO₂, photochemical oxidants such as ozone, Sulphur acid, sulphates, nitric acid, and nitrate aerosols (particulate matter).

The proposed prospecting project that we are proposing will also contribute to the above mentioned sources. Below are some of the impact prevention, mitigation and control to address air quality concerns:

- ✓ *Household fuel combustion*—regarding this, we can advise people to wear warm clothes during winter than burning of woods to warm the space or using electric heaters.
- ✓ *Fugitive dust* – On this issue we will make sure that the dust is being suppressed all the time –Reduced unnecessary trips, and
 - Vehicles low speed will be implemented
- ✓ *Vehicle tailpipe emissions*—all vehicles should be serviced and always be in a good condition to avoid producing unnecessary smoke.
- ✓ *Biomass burning*—the drilling team will be advised not to start any fire on site to avoid burning of the bush but then if this happens the EAP will be informed and call fire fighters to end the fire.

8.4 Geology

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

8.4.1 Regional Geology

8.4.1.1 Beaufort and Ecca Groups of the Karoo Supergroup

The geology of the Free State Province is underlain by sedimentary rocks belonging to the Beaufort and Ecca Groups of the Karoo Supergroup. The sedimentary rocks conformably overlie the Volkrust formation (Viljoen, 2005). Viljoen (2005) further mentioned that the lithology is composed of sandstone, blueish grey and dark grey to black shale and dark grey mudstone with interbedded siltstone, which have been intruded by dolerite sills and dykes.

They are part of the vast Karoo basin that covers almost two-thirds of South Africa, and were deposited between 200 and 300 million years ago (CGS, 2014). These rocks are known to host major coal and clay deposits. The former generally occur as fairly thick, flat, shallowly lying coal seams. Of the country's 18 principal coalfields, two occur in the Free State Province, these being the Vereeniging-Sasolburg and Free State fields.

The early Quaternary sediments most likely cover the Karoo Supergroup particularly the Dwyka Group and the Ecca Group. The Dwyka Group is situated on the on glaciated Precambrian bedrock surfaces along the northern basin margin but overlies the Cape Supergroup in the south. This

group consists of a selection of lithofacies types. The lithofacies types consist mainly of massive diamictite, stratified diamictite, massive carbonate-rich diamictite, mudrock with stones and mudrock facies.

The Eccca Group consists of up to 16 formations. These formations mirror the lateral facies changes that characterize the Eccca Group Formation. The individual formations can be grouped into three geographical areas for descriptive purposes except for the Prince Albert and Whitehill Formation.

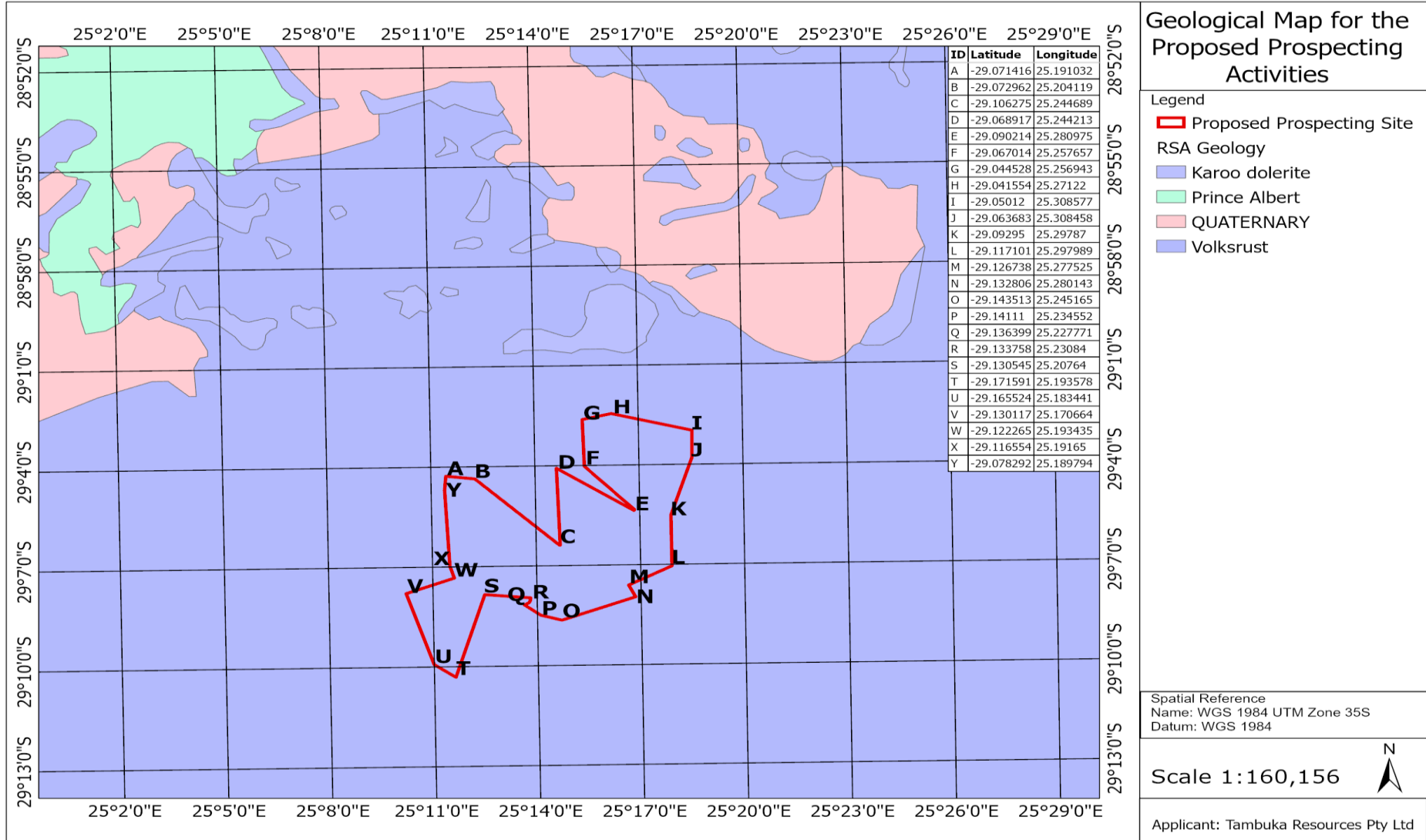


Figure 8-2: Site Geology

8.4.2 Local Geology

8.4.2.1 kimberlite Formation

The complex internal geology of the kimberlite pipes, locally known as the Koffiefontein pipe, has contributed to the marginal nature of the mine at Koffiefontein. The key to this is the presence of a large zone dominated by down-rafted country rock Karoo-age shale, carbonaceous shale and dolerites. The deposit is hosted as kimberlite ore body within the Koffiefontein pipe. The pipe, together with several other kimberlite pipes and dykes, forms a cluster that intrudes Dwyka Shale's and Karoo Dolerites. It is characterised by carbonaceous and Karoo age shale's besides intercalated dolerite that overlies the granite gneiss basement (AGES, 2013).

Before the major kimberlite deposits in southern Africa are described, it is necessary to summarize the current state of knowledge regarding kimberlite geology. In this section four main topics will be summarized, the definition of kimberlite, Group 1 and 2 kimberlites, kimberlite nomenclature and kimberlite pipe formation models. Whilst it is recognized that work was and is still being conducted on kimberlites (*sensu stricto* and *sensu lato*) elsewhere, this section will focus on the characteristics of southern African kimberlites only.

8.5 Underground and Surface Water

8.5.1 Groundwater

Groundwater resources in the area can be divided into two distinct aquifers, namely a shallow perched aquifer in the weathered zone followed by a deeper fractured hard rock aquifer. The fractured rock aquifer occurs as transmissive fractures in consolidated bedrock of either the Karoo sediments

or the basement granite that underlies the Karoo sediments. A third, deeper aquifer in the underlying basement granite can also occur. Little information is however available for this aquifer, though it will also be a secondary fractured rock type.

It is further estimated that the long term recharge of the aquifers in the Koffiefontein area is estimated at between 3 and 5 % of the mean annual precipitation. Surface water features like dams (tailings, slurry, process water, storm water, return water etc.) will also usually increase the recharge to the aquifer but compacted or concrete surfaces and roads will decrease the recharge.

The proposed site is located within region 31: Central Pan Belt of the Vegter's Groundwater Region. The site is underlain by the compact, dominantly argillaceous strata of Eccca Gp, with borehole yield ranging between 0.5 – 2.0 l/s. The local transmissivity as determined by Vegter ranges between 70 – 300 mS/m.

According to the aquifer classification map (2013), the proposed site is within the major aquifer region. The site aquifers are moderately vulnerable according to the Aquifer Vulnerability Map of South Africa which indicates the likelihood for contamination to reach a specified position in the groundwater system after introduction at some location above the uppermost aquifer.

The site aquifer susceptibility is considered medium according to the SA Aquifer Susceptibility Map of South Africa which indicates the qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both

aquifer vulnerability and the relative importance of the aquifer in terms of its classification

8.6 Surface Water

The site falls within quaternary catchment C51K, and is within the Upper Orange water management area in which the main rivers draining the area are Modder, Riet, Caledon and Orange.

8.6.1 Site Rivers/ streams

The main stream in the area is the Modder River which is located about 16 km to the north of the proposed site. The Modder River is a Freshwater Ecosystem Priority Area as mapped in 2011. The site is largely dry with no running streams throughout the year.

The Riet River is situated to the south (5km in distance) and is considered a FEPA system with a Class C: Moderately Modified Status. The Kalkfontein Dam on the Riet River provides water for the towns of Jacobsdal and Koffiefontein. There is also the presence of numerous ephemeral pans with a FEPA wetland cluster.

River Name	PES	River Condition
Modder River	Class E - F: Not an Acceptable CL	EF

8.6.2 Site Wetlands

There were several wetlands of various sizes identified on site, they also have varying PES values. There are three major pans located on the borders of the proposed site. All wetlands are freshwater ecosystem priority areas.

HGM unit	PES
Depression	AB: Lagerly natural / One with EF
Seepage	AB: Lagerly natural
Unchannelled valley-bottom wetland	AB: Lagerly natural

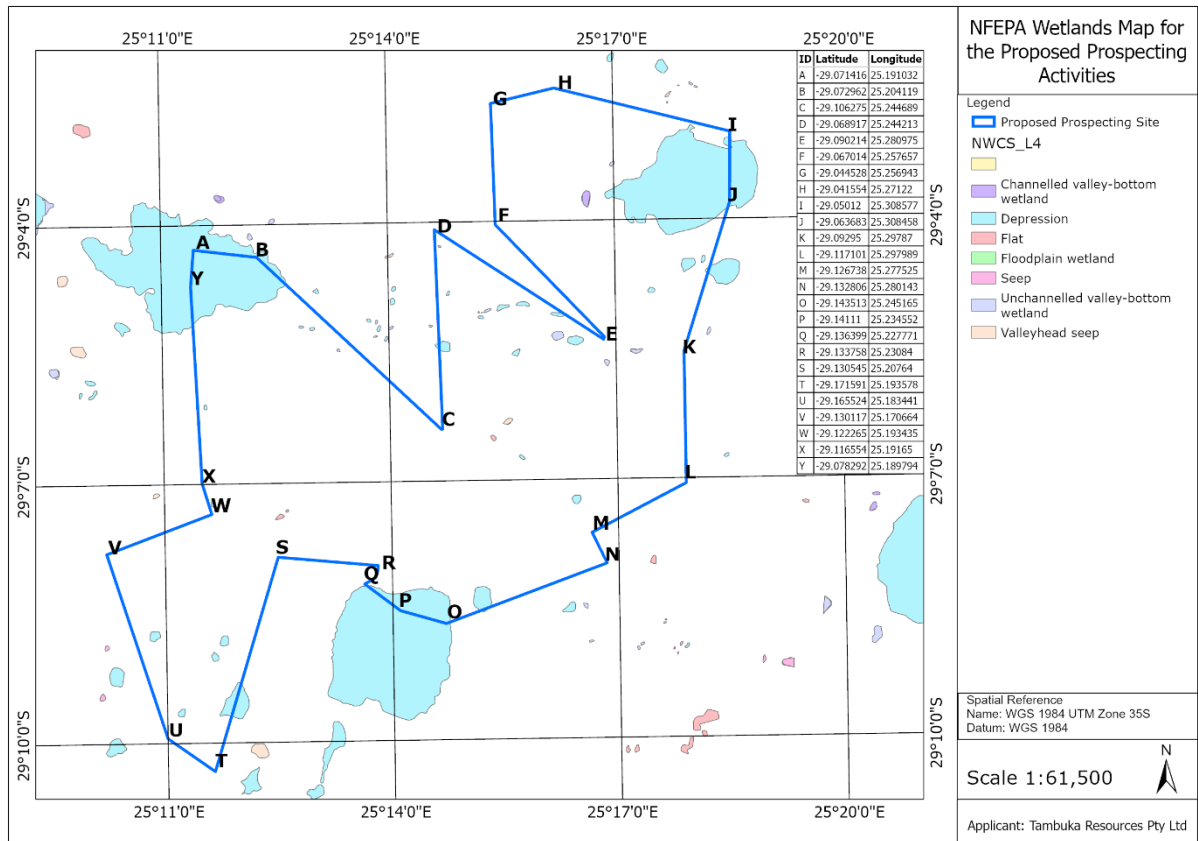


Figure 8-3: NFEPA Wetlands Map

8.6.3 Water Resource Management

- ✓ The drilling positions have been predetermined to avoid sensitive areas i.e. wetlands and streams and their buffers;
- ✓ A 100 metres buffer zone must be applied to all water features on site;
- ✓ Water extraction from site sources will not be permitted, this includes rivers and boreholes without consent from the owners in case of private water sources and consent from the Municipality where water will be sourced from municipal connections;

- ✓ *Stream crossings must be through existing crossings;*
- ✓ *The applicant will appoint an independent environmental officer to preside over the prospecting activities protecting the integrity of the natural environment which includes biodiversity and water resource;*
- ✓ *The applicant must make available site notices during operation communicating the boundaries of the buffer zones of the water sources;*
- ✓ *The management and control of probable impacts is further discussed in section 9 and 11 of this report.*

8.7 Biodiversity

8.7.1 Regional Vegetation and Habitats

The study area is located within the Nama Karoo Biome (Hoffman 1996), and more specifically, Northern Upper Karoo Vegetation (Mucina & Rutherford 2006). The Nama Karoo biome covers much of the central and western regions of the country. The dominant vegetation is a grassy, dwarf shrubland. Grasses tend to be more common in depressions and on sandy soils, and less abundant on clayey soils. Grazing rapidly increases the relative abundance of shrubs. Most of the grasses are of the C4 type¹ and, like the shrubs, are deciduous in response to rainfall events. The biome is dominated by a steppe-type vegetation, comprising a mixture of shrubs, dwarf shrubs and annual and perennial grasses. The vegetation type of Koffiefontein is that of Besemkaree Koppies Shrubland.

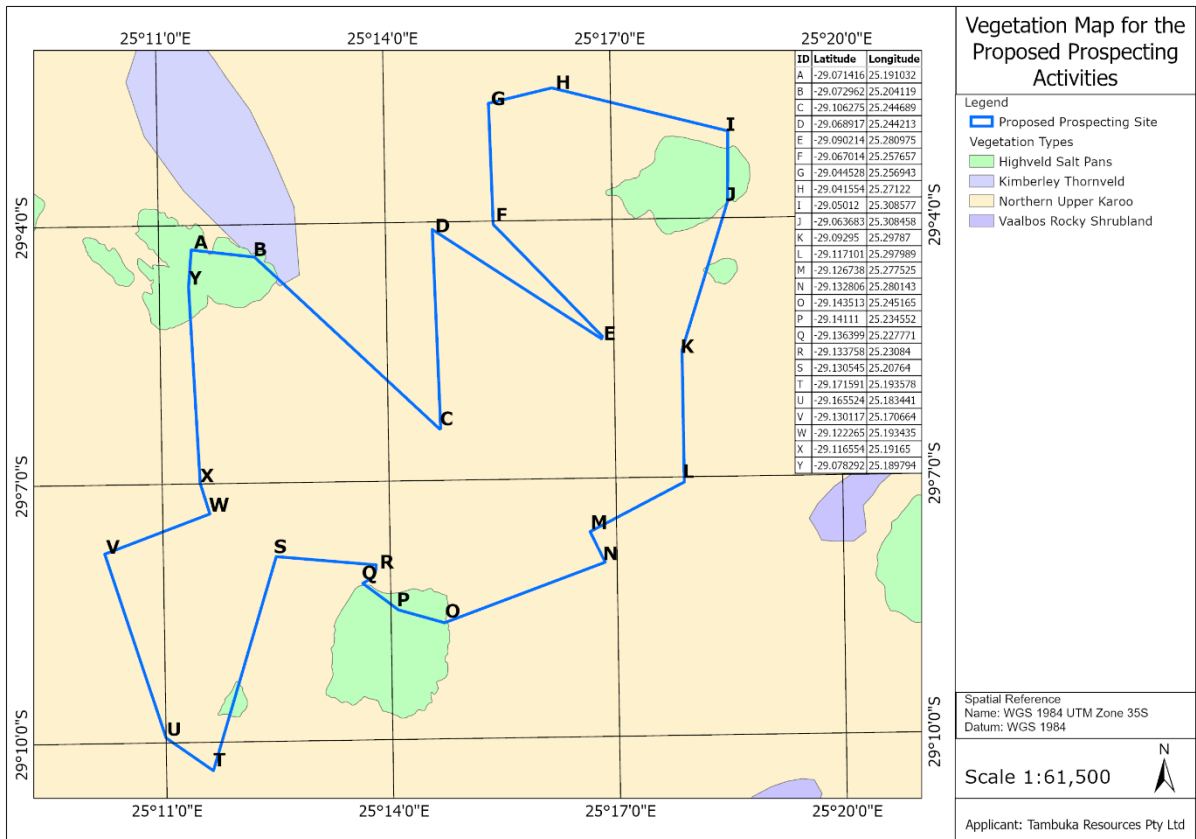


Figure 8 -4: Site Vegetation Map

The biome is associated with the moderate rainfall regions (250-450 mm per annum) and is suited to commercial sheep and goat production. The summer seasonality of the rainfall in the eastern parts of the biome means that there is often abundant grass production during the growing season. Graziers attempt to optimize production by sparing or resting grassy dwarf shrubland in the wet season. Herbivory by domestic livestock during the growing season has been shown to reduce grass cover and promote the growth of larger shrubs (species of *Rhus*, *Acacia* and *Euclea*) and dwarf shrubs. In the winter months, the dwarf shrubs maintain their crude protein at around 8 %, providing excellent forage. The nutrient rich substrata provided by the mudstones, sandstones and dolerites mean that this production can be considered sustainable.

Other trees in this area include *Rhus lancea*, *Rhus leptodictya*, *Ziziphus mucronata*, and the exotic *Schinus molle*. Termite mounds are plentiful throughout the whole area, and are used as perches by some birds. Karoo scrub and grasses, indigenous trees such as *Rhus lancea*, *Acacia tortilis*, *Ziziphus mucronata*, *Rhus*

pyroides, while exotics includes *Melia azedarach*, *Schinus molle*, *Pyracantha angustifolia*, *Opuntia* sp and Pampas grass, *Cortaderia selloana*.

Fauna

The Karoo is home to a relatively rich avifaunal component with about 300 regularly recorded species and another hundred that occasionally or rarely occur (Harrison et al. 1997). It has been documented that land use changes in this area have not only altered avian species richness, but also mutualisms and plant-bird interactions. During the first Southern African Bird Atlas Project a total of 156 bird species were recorded in the quarter degree grid cell, 2925AC Koffiefontein (Harrison et al. 1997).

8.7.2 Site Ecological Sensitivity

8.7.2.1 Free State Critical Biodiversity Plan

According to the Free State Critical Biodiversity Plan 2017, there are no protected areas within the proposed site and 5 km radius. CBAs and ESAs covers approximately 65% of the proposed site, with the remaining largely “degraded area”. There are active agricultural practices mapped as degraded areas.

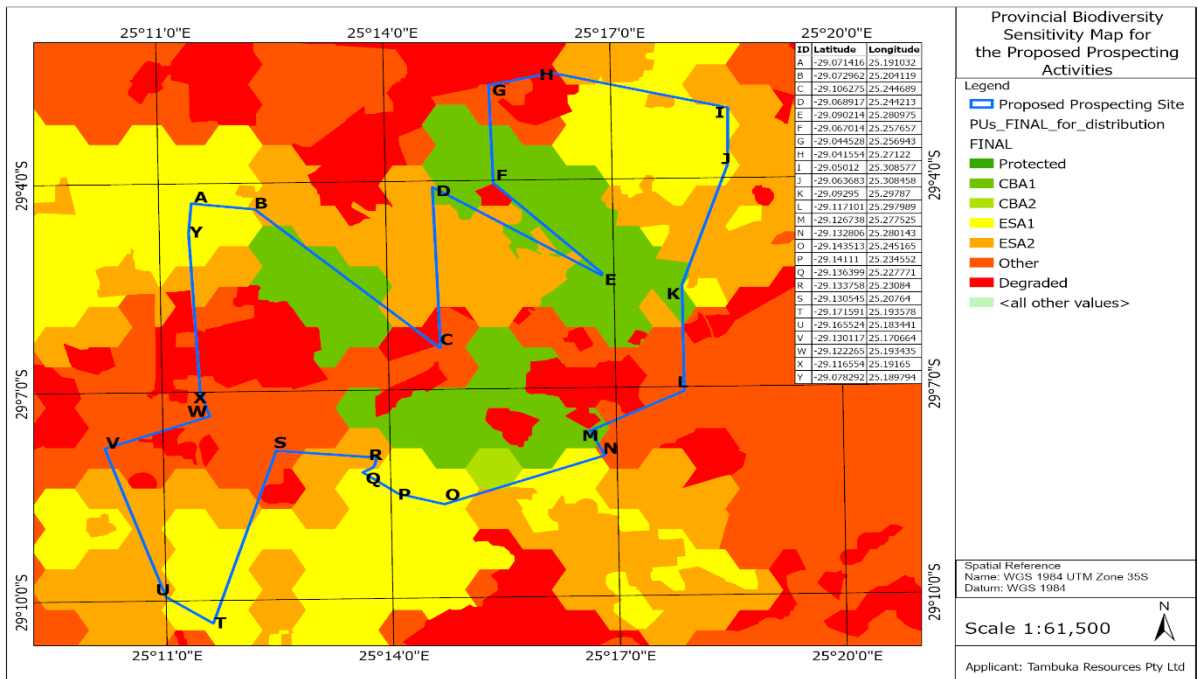


Figure 8 -5: Site CBA Map in terms of Free State Provincial Map

8.7.2.2 Mining and Biodiversity Guideline (MBG) 2013

According to MBG there are sections of Highest sensitivity within the proposed area.

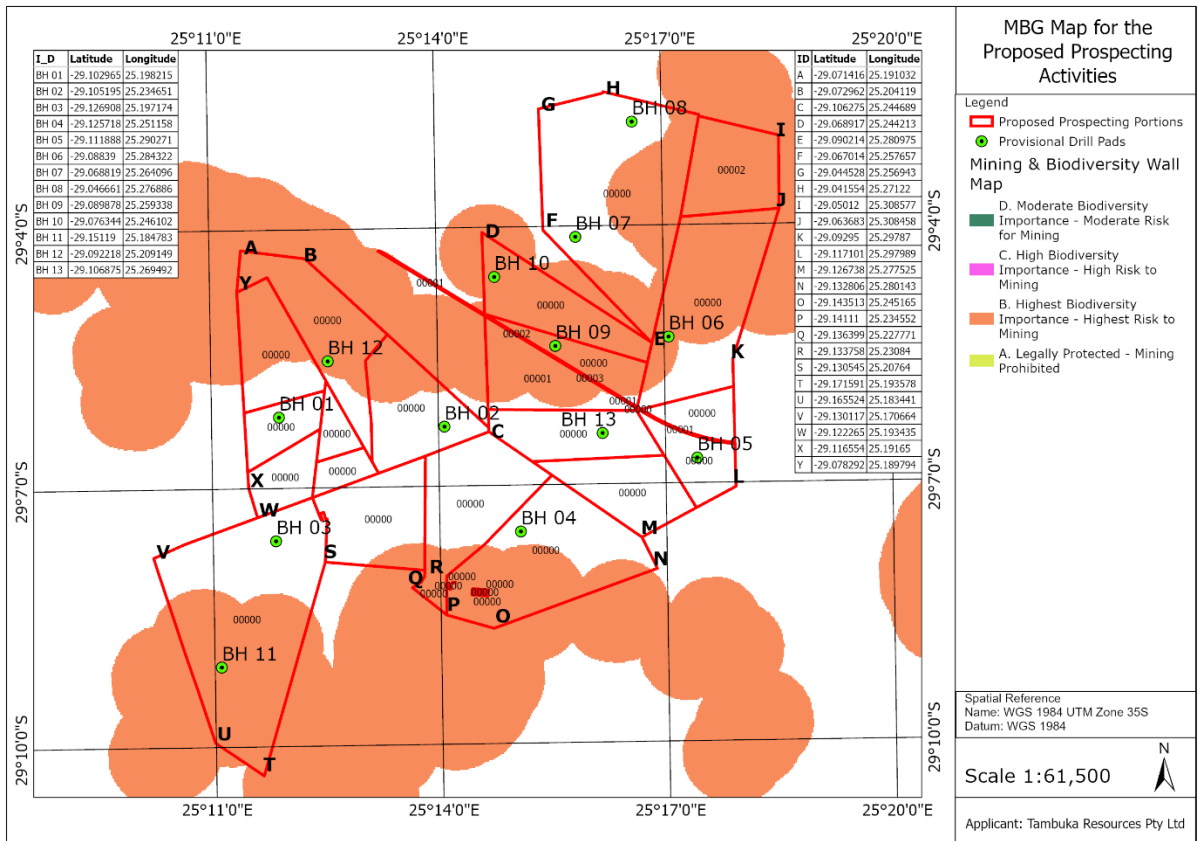


Figure 8-6: Site Mining and Biodiversity Map

8.7.2.3 National Freshwater Ecosystem Priority Areas.

According to NFEPA there are several FEPA wetlands identified on site, these will be marked as No Go area. The Modder River is located approximately 16 km to the north of the proposed study area, the river is also a FEPA.

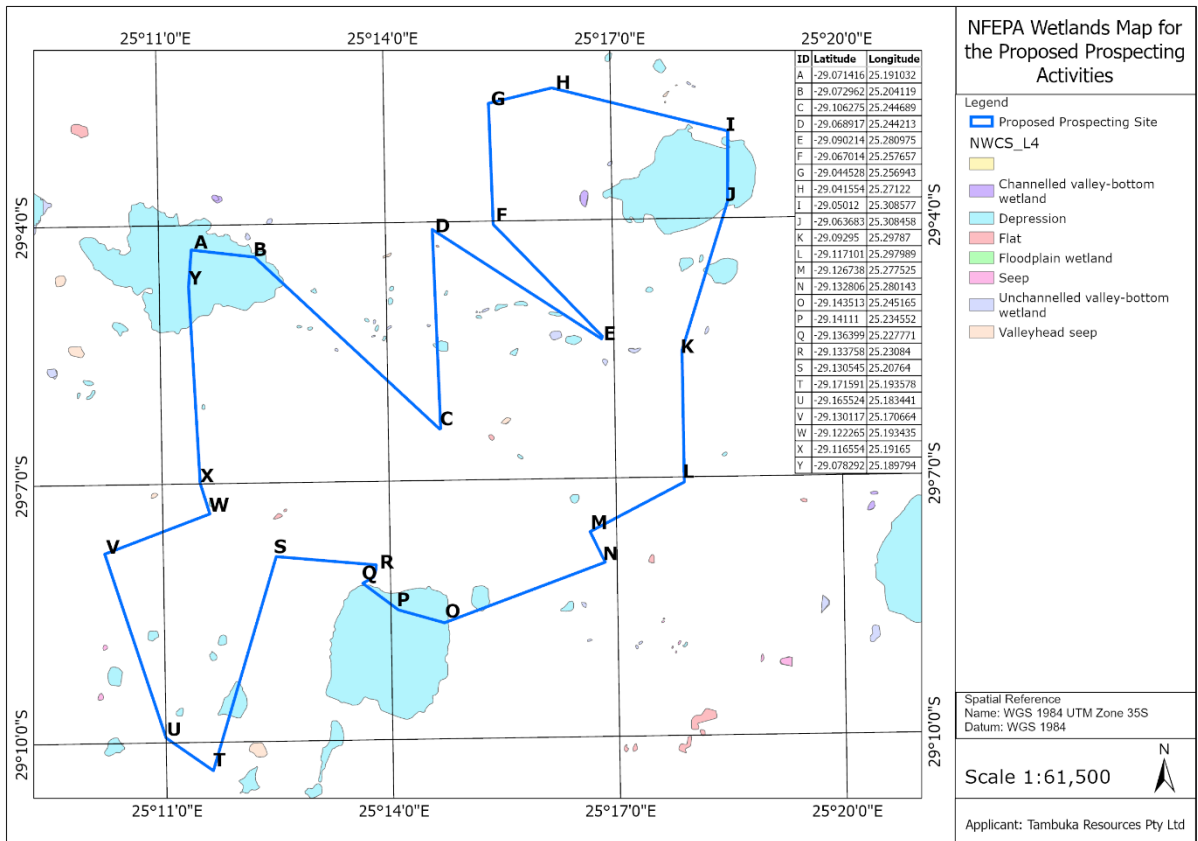


Figure 8-7: Site Sensitivity Map

8.8 Social Characteristics of the Study Area and Surrounds

The proposed site is within Letsemeng Local Municipality of the Xhariep District Municipality in the Free State Province. Letsemeng Local Municipality is situated in the south-west of the Free State province within the Xhariep District Municipality, a rather agriculturally rich area with limited natural economic resources. The area of the Local Municipality measures approximately 10 192 km².

The Local Municipality consists of the towns Koffiefontein (municipal head office), Jacobsdal, Petrusburg, Luckhoff and Oppermansgronde. There are no major centres within the municipal area and the closest cities are Bloemfontein and Kimberley. The socio-economic development of the municipality is centred on agriculture. The municipal area also has mining activities, with diamonds being the major natural resource that helps with employment creation.

It is bordered by Tokologo Local Municipality in Lejweleputswa District to the north, Mangaung Metro Municipality to the east and Kopanong Local Municipality in the southeast.

8.8.1 Demographic Conditions

8.8.1.1 Population Distribution

This municipality has shown a population growth from 38 628 residents in 2011 to 40044 in 2016. Herewith a detailed breakdown of the population STATS per age groups and gender for our municipality:-

Population density measures the concentration of people in a region. To calculate this, the population of a region is divided by the area size of that region. The output is presented as the number of people per square kilometre.

According to Census 2011, LetsemengLocal Municipality has a total population of 38 628, of whom 67,8% are black African, 23,4% are coloured and 8,1% are white, with the other population groups making up the remaining 0,7%.

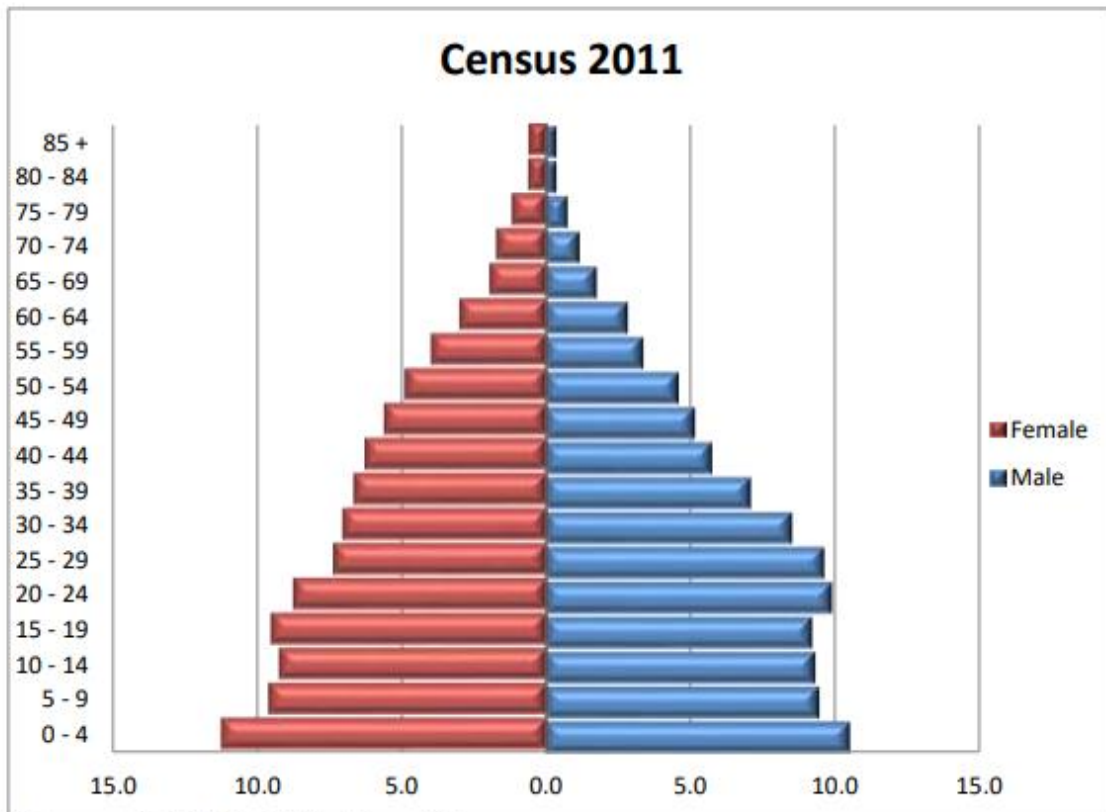
Table 2: Total population and area size by population density			
	Total Population	Area Size	Population density
CS 2016	40044	10 192	3.928963889

Data source: Statistics South Africa, Community Survey 2016

8.8.1.2 Population Pyramids

A population pyramid is a graphic representation of the population categorized by gender and age for a specific year and region. The horizontal axis depicts the share of people where male's population are charted on the right-hand side and female population on the left hand-side of the vertical axis.

The vertical axis is divided in 5- year age categories. The figures below show Letsemeng's population pyramid/structure of Census 2011 and CS 2016.

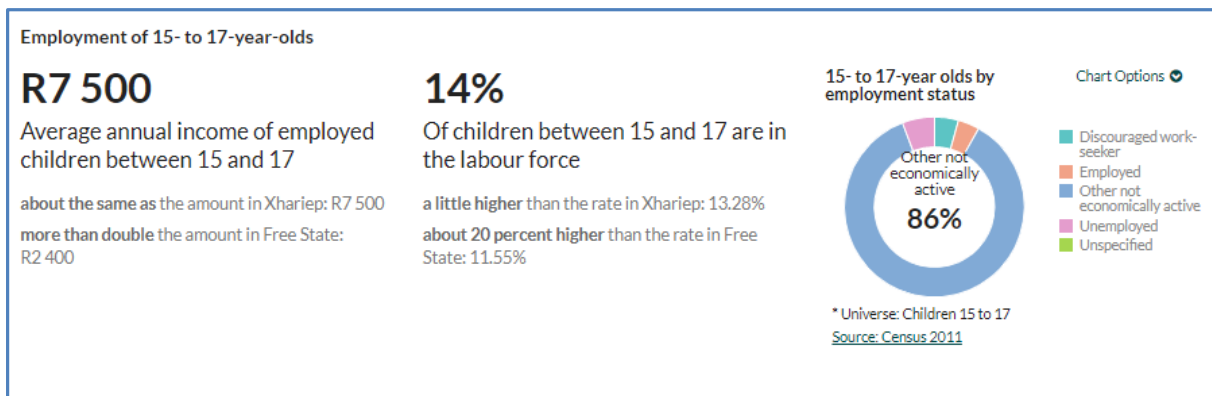


8.8.1.3 Unemployment

According to the Letsemeng Local Municipality IDP, 2012-2013, 9 510 of the people are in formal employment in the Letsemeng Local Municipality, the remaining 27 563 need to be brought into the mainstream of the development and economy of the area. The balance of the population which is 27 563 derives their livelihoods from the informal sector including pensions, disability grants as well as seasonal work. The number of unemployment has most absolutely decreased during the past 11 years according to census statistics. The

unemployment figures pose a mammoth challenge to Letsemeng Local Municipality which enforces upon us the need to develop more social support programmes and job creation initiatives that will reduce the unemployment rate significantly. The other endeavour will be to create a

business enabling environment in the area to attract more private investors to the area to bring more sustainable economic growth to the municipal area. Self-employment initiatives and SMME development programmes will increase through the Local Economic Development Unit of Letsemeng Municipality, which has put a budget aside for Local Economic Development projects.



8.8.1.4 Education

The total number of educational facilities in Letsemeng is 25, with 10 primary schools, 3 secondary schools and 12 combined primary and secondary schools. The actual number and number needed per town is indicated below. The number needed was calculated in terms of the CSIR's *Social Facility Provision Toolkit, the population thresholds and access guidelines for each facility are determined by settlement type.

Education (aged 20 +)		
No schooling	12.0%	17.7%
Matric	27.5%	18.7%
Higher education	4.5%	4.8%

8.8.1.5 Income

The Letsemeng low employment levels are also coupled with low income levels. Approximately 10447 people in the municipality earn between R1 and R400, accounting for 30.33% of the total population. The number of people earning between R801 and R1 600 is approximately 4166, accounting for 12.10% of the population.

Furthermore, the majority of the population fall within the income categories that includes grant recipients. This could indicate that the majority of the municipality's population is state dependant.

8.9 Heritage Resources

A Heritage Impact Assessment was not undertaken for the project, based on desktop review, consultation and available Geographic Information System data, there were no identifiable heritage and cultural sites and features within the prospecting area. However, this does not absolve the contractor from excusing due diligence before undertaking any of the site invasive activities.

The site is primarily used for agricultural activities which are invasive in nature and would have during their undertakings exposed and identify heritage resources if any were present on site. The screening tool also identifies the site to have a low heritage and planetology sensitivity.

8.10 Description of the current land uses.

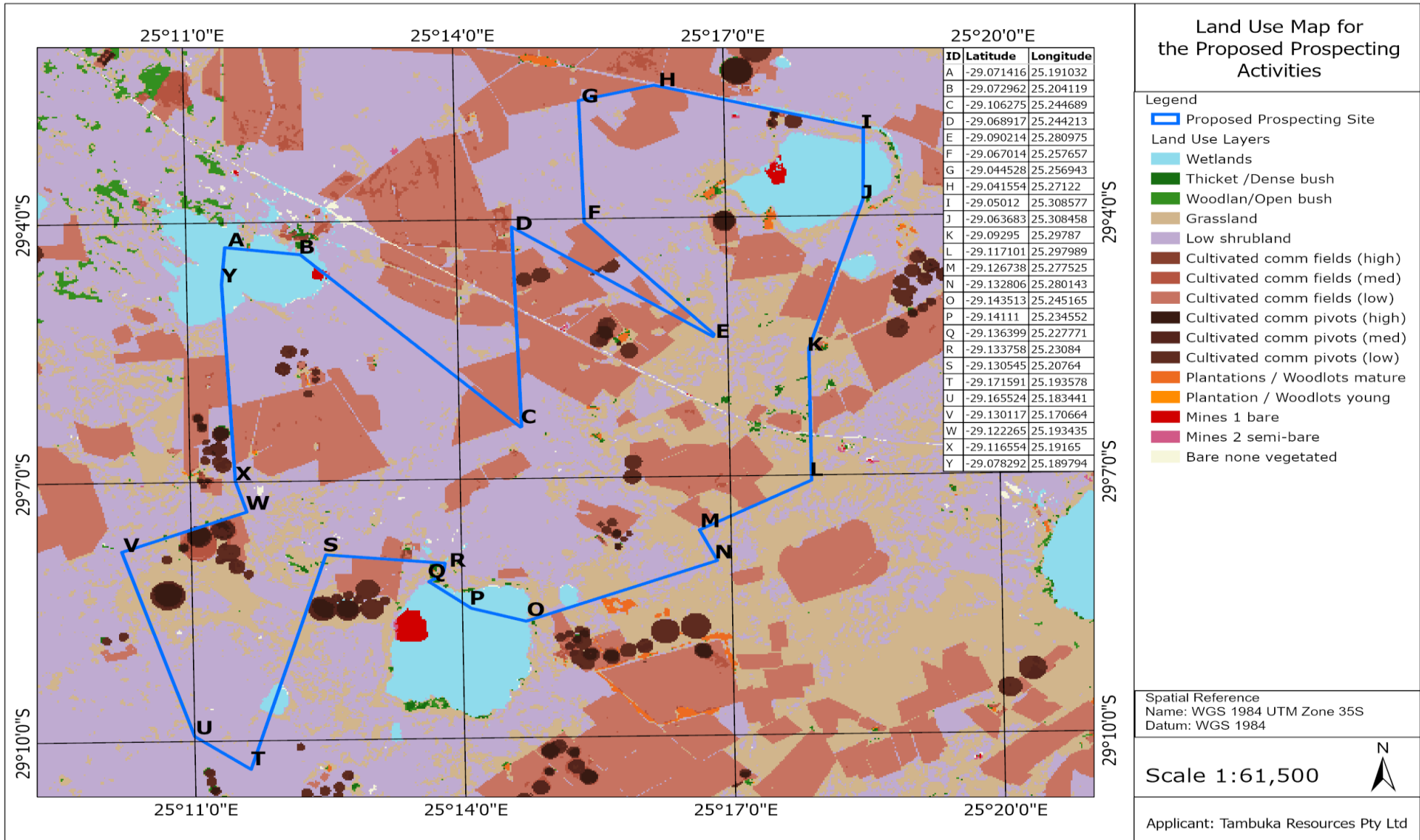
- ❖ The main economic land use in the proposed site is agriculture both the cultivation and the livestock farming;
- ❖ Some of the affected properties are used as game farms;
- ❖ Farm houses areas: there are few scattered houses within the proposed site;
- ❖ Water ponds, collecting water from seasonal and/or after rain streams for agricultural purpose;
- ❖ The N8 road through the proposed site from Petrusburg to Kimberly; and
- ❖ A network of gravel access roads exists within the proposed site, the roads are used for access between farm portions and also to access the

farm houses; the same roads will be used to access drill points avoiding creation of new stream crossings.

8.11 Description of specific environmental features and infrastructure on the site

- ❖ Water Ponds/dams – Numerous ponds/dams for retention of water for longer periods. The water is used within the proposed sites and;*
- ❖ Wetland areas distributed sparsely within the proposed site. These wetlands have been marked as “Sensitive area” (Surface Water Map) and no prospecting activities will be undertaken within wetlands.*

8.12 *Environmental and current land use map*



9 Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed.

Here a list of possible impacts will be provided, a full impact analysis which includes the significance of the impacts, their nature, extent, duration and probability of the impacts, the degree impacts reversibility and irreplaceable loss of resources has been provided in section 11 of Part A on page 102 as per the assessment criteria provided in section 9.1 of Part A on page 85.

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	
			E	D	I	R	L		P
<i>Legal requirements</i>									
Delayed and/or disrupted prospecting operations	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Disregarding Environmental Authorisation conditions; ✓ Disregarding access agreement conditions; ✓ Disregarding mining & prospecting legislative requirements; Partial compliance to EMPr. 	2	3	4	4	4	4	-68
Legal liabilities	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Property owners suing for damages and /or unapproved access into their properties; ✓ Legal penalties for failing to comply with site operational licenses/authorisations/permit. 	1	3	2	3	3	3	-36

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	
			E	D	I	R	L		P
Soil									
Leakages and spillage of hazardous chemicals from storage areas.	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Leakages of hydrocarbons from site vehicles and operating equipment; ✓ Leakages and spillage of hazardous chemicals from storage areas. 	1	3	1	1	1	2	-14
Soil Compaction	Site Establishment & Construction	Compaction of soil by site moving vehicles reducing vegetation growing capabilities;	1	2	1	1	1	4	-24
Loss and degradation of topsoil	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Removal of topsoil to establish drill pads area; ✓ Loss of topsoil through erosion and contamination resulting in reduced vegetation rehabilitation potential 	1	2	1	2	2	4	-32
Soil Erosion	Site Establishment, Construction and Post Closure	Erosion of loose soils and stockpiled soils	1	4	1	1	1	3	-24
Biodiversity									

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence

Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation
			E	D	I	R	L	P	
Loss of vegetation	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Clearing of vegetation for establishment of drill area; ✓ Clearing of vegetation to create access roads; ✓ Clearing of Vegetation to establish stockpiling area; ✓ Invasion by alien invasive plants ✓ Possible fire breaks from operations. 	1	3	1	2	2	4	-36
Loss of fauna	Site Establishment, Construction and Post Closure	<ul style="list-style-type: none"> ✓ Loss of habitat when vegetation is cleared and wild environment invaded by prospecting activities; ✓ Restricted fauna movement and increased health and safety risks to wildlife due to deep excavations and barricades; ✓ Noise nuisance affecting the wild life; ✓ Driving over micro and small wild animals; ✓ Wild life hunting by the prospecting crews. 	2	2	1	2	2	4	-36
Invasion by invasive alien plants	Site Establishment, Operational & Post Closure	Introduction of invasive alien plants	2	3	2	2	2	4	-44
<i>Surface and Ground water</i>									

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	
			E	D	I	R	L		P
High usage of water	Construction	Demand for water for machinery and dust suppression during prospecting activities	1	3	2	1	1	3	-24
Destruction of site wetlands	Site Establishment, Construction & Post- prospecting	✓ Undertaking invasive activities within wetlands areas and their buffers	2	3	2	2	3	3	36
Surface and ground water contamination	Site Establishment, Construction & Post- prospecting	<ul style="list-style-type: none"> ✓ surface water getting into contact with contaminated soils; ✓ Contaminated materials going down drill holes into subsurface water; ✓ Flow of storm water from contaminated areas into surface water drainages 	1	3	1	1	2	3	-24
Enviro-Socioeconomic									
Job creation	Site Establishment & construction	The machinery and vehicle operators will be required.	2	3	1	0	0	4	24
Land owner conflicts	Site Establishment, Construction & Post- prospecting	<ul style="list-style-type: none"> ✓ Property owner reluctant to grant access into their properties; ✓ Highly degraded properties after prospecting activities cease. 	1	4	2	0	0	4	-28

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	
			E	D	I	R	L		P
Visual alterations	Site Establishment & construction	The presence of machineries in an open area	1	3	1	1	1	3	-21
Noise Pollution	Site Establishment & construction	Introduction of noisy heavy machinery and vehicles on site to a relatively quiet neighbourhood.	1	3	2	1	1	2	-16
Loss of game tamed animals	Site Establishment & construction	Loss of Game tame animals due to theft and disturbances creating panic of wildlife and livestock;	1	2	2	3	1	3	-27
Loss of agricultural land	Site Establishment & construction	Loss of arable agricultural land and Loss of crops during establishment of access roads and drilling stations	1	2	3	1	1	3	-24
Land Pollution	Site Establishment & Construction	General waste littering by site team	1	3	2	1	1	3	-24
Compromised safety and security	Site Establishment & Construction	The site activities will result in influx of people to site creating security risks for workers and property owners'.	1	3	2	3	3	4	-48
Heritage Resources									
Destruction of Heritage Resources	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Unearthing of heritage significance artefacts during drilling activities; ✓ Destruction of site graves. 	1	1	1	1	1	2	-10

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	
			E	D	I	R	L		P
Health and Safety									
Bodily injuries	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles; ✓ Fall into excavations either by personnel or general public; ✓ Chipping of outcrops to obtain outcrop samples; ✓ Encounter with dangerous wild animals during site survey; 	1	3	1	2	2	3	-27

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

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;

Duration (D): Indicates what the lifetime of the impact will be;

Intensity (I): Describes whether an impact is destructive or benign;

Impact Reversal (R): The probability and the degree of reversing the activity impact;

Irreplaceable Loss (L): Loss of resources that cannot be replaced; and

Probability (P): Describes the likelihood of an impact actually occurring;

Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

The significance of each risk/impact will be identified as follows:

Impact Significance = Probability (P) X Consequence (C), where

$$C = E + I + D + R + L$$

Table 9-1: Criteria Used for Rating of Impacts

CRITERIA	DESCRIPTION			
Extent	<p>National (4) The whole of South Africa</p>	<p>Regional (3) Provincial and parts of neighbouring provinces</p>	<p>Local (2) Within a radius of 2 km of the construction site</p>	<p>Site (1) Within the construction site</p>
Duration	<p>Permanent (4) 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</p>	<p>Long-term (3) The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory</p>	<p>Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated</p>	<p>Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase</p>

CRITERIA	DESCRIPTION			
Intensity	<p>Very High (4)</p> <p>Natural, cultural and social functions and processes are altered to extent that they permanently cease</p>	<p>High (3)</p> <p>Natural, cultural and social functions and processes are altered to extent that they temporarily cease</p>	<p>Moderate (2)</p> <p>Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way</p>	<p>Low (1)</p> <p>Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected</p>
Impact Reversal	<p>Highly Impossible (4)</p> <p>Impact reversal will certainly be impossible</p>	<p>Moderate (3)</p> <p>Impact can be reversed to some extent with loss of natural resources</p>	<p>Possible (2)</p> <p>High possibility of impact reversal</p>	<p>Definite (1)</p> <p>Impact can be totally reversed</p>
Loss of irreplaceable resources	<p>Definite (4)</p> <p>Resources definitely be lost</p>	<p>Highly Probable (3)</p> <p>Most likely that resources will be lost</p>	<p>Possible (2)</p> <p>Resources may be lost</p>	<p>Improbable (1)</p> <p>Loss of resources is highly unlikely</p>

CRITERIA	DESCRIPTION			
Probability Of Occurrence	Definite (4) Impact will certainly occur	Highly Probable (3) Most likely that the impact will occur	Possible (2) The impact may occur	Improbable (1) Likelihood of the impact materialising is very low

Significance is determined through a synthesis of impact characteristics. Significance is also 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 total number of points scored for each impact indicates the level of significance of the impact.

Table 9-2: Criteria for Rating of Classified Impacts

		Impact Significance (Consequence * Probability)															
Probability ↑	4	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
	3	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
	2	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
	1	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		Consequence (Extent + Intensity + Duration + Reversibility + Irreplaceable Loss) →															

Table 9-3: Impact consequence class description

Score	Description	Colour Code
Negligible (0 -10 points)	A negligible impact that can be easily managed and avoided.	Light Green
Low impact/ Minor (11 -20 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.	Green
Medium impact/ Moderate (21 - 30 points)	Mitigation is possible with additional design and construction inputs.	Yellow
Critical (31 - 50 Points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.	Red
Catastrophic (51 - 80 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.	Dark Red

<i>Status</i>	<i>Denotes the perceived effect of the impact on the affected area.</i>
<i>Positive (+)</i>	<i>Beneficial impact.</i>
<i>Negative (-)</i>	<i>Deleterious or adverse impact.</i>

The suitability and feasibility of all proposed mitigation measures is included in the assessment of significant impacts. This was achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

9.2 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

9.2.1 Positive Impacts

Prospecting activities are precursor activities to mining, they evaluate the possibilities of mine establishment. There are very limited returns from prospecting activities. The returns from prospecting activities can only be realised after a successful prospecting project. It has not been proven that Kimberlite ore body are presence on site and if presence whether they can be sustainable be mined. The very limited benefits from the proposed activities are:

Ore Reserve quantification: The presence of Kimberlite pipe on site will be verified and thereafter the economic value of the ore will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

Contribution to South African geological data: The practical geological results obtained through this prospecting will be submitted to the South African Council of Geoscience for comprehensive mapping of South Africa based on proven data.

SMME and Street Vendor Support: The prospecting team will require basic services from the local community which would mainly be provided by the Small businesses and street vendors.

9.2.2 Negative Impacts

Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation: A potential always exist that unauthorised undertaking of listed activities may take place on site in the form of project scope expansion and disregard of Authorisations' conditions. This could for example be increasing the number of authorised boreholes and impacting watercourses without water use license;

Loss of agricultural land and alternative land use conflicts: The site is not zoned for mining/industrial activities. This will create a parallel demand for land as successful prospecting activities will results in the establishment of a mine. There are active agricultural practices (Crop and livestock) on site that will be directly affected by the proposed prospecting activities. Establishment of access roads and drill stations in agricultural areas will result in temporary loss of agricultural land for the duration of prospecting;

Loss, contamination and compaction of fertile soil: Access roads and drill station establishment will result in removal/compaction of topsoil resulting in reduced fertility. The driving and parking of vehicles also create potential for hydrocarbon contaminations;

Soil erosion: Establishment of access roads and drill station disturbs soil cohesion increasing the potential for soil erosion;

Loss of biodiversity, natural corridors and habitats: There are Critical Biodiversity Areas (CBAs) just outside the proposed site and a potential exists

for disturbances of this areas, with the loss of vegetation, habitats are also lost;

Loss of species of concern: The EIA process did not identify any red listed species within the proposed site. It should be noted that the proposed site is within the vulnerable grassland, and there are sections of CBAs and areas with high sensitivity to mining in terms of the Mining and Biodiversity Guidelines of 2013. The presence of species of concern cannot be ruled out;

Introduction of alien invasive plants: Invasive plants flourish where there is disturbances and ecological imbalances. The clearing of vegetation to establish drill stations and access roads has the potential to introduce and facilitate spread of invasive alien plants;

Degradation of Wetlands, streams and other water sources: There are numerous wetlands and water pods within the proposed site, there is high potential for impacting on the wetlands when crossing to access drilling points, should management measures be ignored;

Contamination of underground water resource: The drill activity has the potential to contaminate the underground water resource, introducing contaminates through the drill hole;

Contamination of surface water: Flow of stormwater from contaminated areas into the local watercourses;

Generation of waste: The prospecting activities will generate both the general and hazardous wastes. The waste will be managed using the "triple R" principle, Reduce, Reuse and Recycle;

Dust Generation: The vehicles and machinery movement on gravel roads will generate dust. The dust generation potential is considered low, the

housing units on site to be affected by the dust are sparsely distributed hence the dust will have lower significance;

Fire breakout: There are potentials for fire breakout from the activities sites, smoking is a significant contributor to fire breakouts. A fire breakout will have huge implications in the area burning the CBAs and crops;

Health and safety risks: The operating machinery, equipment and vehicles, and excavations and undertaking activities in the wild create health and safety risks to the prospecting crew and the local community;

Criminal activities: Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment;

Poor housekeeping: The site activities will generate wastes and proper waste management and site cleaning will be required to prevent the “dirty” site visuals;

Disturbance and/or destruction of cultural and heritage resources: The EIA Process did not identify any cultural and heritage significance sites and resources, however the possibility of unearthing heritage and cultural resources is not ruled out;

Noise Generation: The site is largely natural and there are no residential units within the proposed properties, the operation of drilling machinery will create noise that will easily reach the farm houses.

9.3 The possible mitigation measures that could be applied and the level of risk

The mitigation measures have been thoroughly discussed in Part A section 11 and Part B section 4. Below a summative impact/risk management is provided.

Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation: It must be ensured that all activities undertaken are authorised in terms of the relevant legislations and the conditions of the authorisations must be upheld at all times;

Loss of agricultural land and alternative land use conflicts: The activities must be scheduled after harvesting period, topsoil be preserved and site rehabilitated after the prospecting activities;

Loss, contamination and compaction of fertile soil: The topsoil must be preserved, and no multiple roads must be created to access the same station. The access roads must be ripped to loosen the soil;

Soil erosion: Prospecting activities must be scheduled during the dry season, and storm water must be controlled;

Loss of biodiversity, natural corridors and habitats: The disturbance must be limited to active areas and the site be rehabilitated as soon as the prospecting activities are completed at each station;

Loss of species of concern: The appointed ECO and EO must record all cleared/removed species and indigenous species must be reintroduced to the disturbed sites;

Introduction of alien invasive plants: An alien invasive plants control and management programme must be developed and adhered to;

Degradation of Wetlands, streams and other water sources: All surface water areas are no-go areas and no activity must take place within these areas and their buffers;

Contamination of underground water resource: Drill holes must be rehabilitated and plugged as soon as they are out of use, and a record of ground water monitoring before, during and after prospecting activities must be kept and any deviation from the pre-activities water condition must be attended to;

Contamination of surface water: Any flow from contaminated areas must be controlled and contained. The wet areas (wetlands and watercourses) are no-go areas;

Generation of waste: The waste will be managed using the "triple R" principle, Reduce, Reuse and Recycle. Waste bins must be provided for storage of wastes separately.

Dust Generation: A minimum speed limit of 40 km/h must be maintained on all internal gravel roads, dust generation must be monitored and controlled;

Fire breakout: Designated smoking areas must be provided, and firefighting equipment must be provided at all drill stations;

Health and safety risks: All operators must have operating competence certificates, handling of wild life must be done by trained personnel, and all openings must be barricaded;

Criminal activities: Access into the properties must be controlled, no hiring must be done on site and the farmers must be informed of the prospecting schedule and the crew;

Poor housekeeping: The site must be kept clean at all times;

Disturbance and/or destruction of cultural and heritage resources: Should any cultural and heritage resources be discovered, the work must be stopped, the SAPS and the Heritage Agency be notified; and

Noise Generation: The operating machinery and vehicles must be kept in good working conditions and the affected communities must be kept abreast of any activity with high noise generation potential.

9.4 Motivation where no alternative sites were considered

- ❖ The proposed prospecting area is targeted as the desktop studies as conducted by Tambuka (Pty) Ltd, suggest that there is high possibility of diamond deposit.
- ❖ There is sufficient open area with no human settlements that could possibly create conflicts with the land owners;
- ❖ Although there are several wetlands identified, these can be avoided and prospecting be undertaken on dry areas with 100 metres buffer zones to all surface water areas applied.
- ❖ The site agricultural activities can be undertaken concurrently with the proposed prospecting activities; and
- ❖ There were no historical sites identified within the proposed site.

9.5 Statement motivating the alternative development location within the overall site

The site layout is mainly influenced by the distribution of the targeted geological stratum, however the drilling site is also influenced by the accessibility and environmental sensitivity. Thus, the drilling sites are located away from all watercourses and wetlands area.

The drill pads layout out will largely be dependent on the outcome of the aeromagnetic survey which will determine the possible locations of the diamond bearing kimberlite.

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

In order to identify the potential impacts associated with the proposed prospecting activities the following steps were undertaken:

10.1 Stakeholder consultation

The stakeholder consultation process will be undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input into the project. This was a key focus, as the locals are aware of their environment and can provide site specific information, which may not be available in desktop research material. Stakeholders were requested to provide their views on the project and any potential concerns which they had. All comments and concerns were captured and formulated into the impact assessment.

10.2 Desktop study

A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of:

- ❖ South African National Biodiversity Institute (SANBI) Biodiversity Geographic Database LUDS system; SANBI Plants of South Africa; and SANBI Important Birds Area;*
- ❖ Geographic Information System base maps and Google Earth;*
- ❖ Department of Water Affairs and Sanitation's information documents such as the ground water vulnerability report;*

- ❖ *Department of Environmental Affairs (DEA) land use maps;*
- ❖ *Mining and Biodiversity Guidelines;*
- ❖ *Review of Journals, Books and unpublished papers;*
- ❖ *Free State Critical Biodiversity Plan;*
- ❖ *Local and District Municipality Integrated Development Plans;*
- ❖ *Local and District Municipality Strategic Development Framework;*
- ❖ *Relevant Provincial, National and International Policies, Regulations & Acts.*

10.3 Site Visit

A site visit was conducted to ensure that the information gathered as part of the Desktop investigation reflects the current status of the land. The site visit was conducted on 19 – 21 October 2021.

10.4 Impacts assessment, rating and management

The ratings of the identified impacts were undertaken in a quantitative manner as provided in Impact Assessment Section. The ratings were undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses and rate the outcomes of the calculation to determine whether the outcome reflects the perceived and the actual views; The identification of management measures is done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

11 Assessment of each identified potentially significant impact and risk

11.1 Assessment of all identified impacts and risks

Table 11-1: Impact Assessment

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence								Where (E + D + I + R + L) X P = Significance			
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	Mitigation Measures	Significance After Mitigation	
			E	D	I	R	L				P
Legal requirements											
Delayed and/or disrupted prospecting operations	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Disregarding Environmental Authorisation conditions; ✓ Disregarding access agreement conditions; ✓ Disregarding mining & prospecting legislative requirements; Partial compliance to EMPr. 	2	3	4	4	4	4	-68	<ul style="list-style-type: none"> ✓ A copy of each operational license/permit must be kept on site; ✓ All site personnel must be inducted on all legislative requirements pertaining to site activities; ✓ The site personnel must be informed and provided with copies of access agreements between Yugaset and land owners; and ✓ In cases where amendments are required the existing conditions are binding until legally amended. 	0
Legal liabilities	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Property owners suing for damages and /or unapproved access into their properties; ✓ Legal penalties for failing to comply with site operational licenses/authorisations/permit. 	1	3	2	3	3	3	-36	<ul style="list-style-type: none"> ✓ All permits/ authorisations /licenses must be fully reviewed before work can be undertaken to ensure that required resources are made available; ✓ The site personnel must be informed and provided with copies of access agreements between Yugaset and land owners; ✓ A complaint register must be established to record all complaints from land owners and other affected parties also reflected measures taken to address the complaints and dates. 	-6
Soil											
Leakages and spillage of hazardous chemicals from storage areas.	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Leakages of hydrocarbons from site vehicles and operating equipment; ✓ Leakages and spillage of hazardous chemicals from storage areas. 	1	3	1	1	1	2	-14	<ul style="list-style-type: none"> ✓ All site vehicles and equipment must be properly maintained regularly and daily inspection sheet be kept with each trucks; ✓ There must be no storage of fuel on site, ✓ A drip tray must be placed under stationery machineries; ✓ Servicing of vehicles and machinery must be done off site; 	-6

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence								Where (E + D + I + R + L) X P = Significance			
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	Mitigation Measures	Significance After Mitigation	
			E	D	I	R	L				P
Soil Compaction	Site Establishment & Construction	Compaction of soil by site moving vehicles reducing vegetation growing capabilities;	1	2	1	1	1	4	-24	<ul style="list-style-type: none"> ✓ Leakages and Spillages must be attended to as soon as they are noticed and the contaminated soil must be placed in designated plastic bags/bins to be cleaned or disposed of at registered appropriate waste site. ✓ Vehicle and machinery movements must be restricted to approved corridors; ✓ No new access roads must be developed without the approval of site ECO and the consent of land owners; ✓ Access plan must be provided to all affected land owners; ✓ Created access roads no longer in use must be ripped for vegetation regrowth. 	-10
Loss and degradation of topsoil	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Removal of topsoil to establish drill pads area; ✓ Loss of topsoil through erosion and contamination resulting in reduced vegetation rehabilitation potential 	1	2	1	2	2	4	-32	<ul style="list-style-type: none"> ✓ Topsoil must be stockpiled separately from any other site materials; ✓ The topsoil must be stockpiled away from the drainage lines and outside the 1:100 year floodline but within the approved prospecting area; ✓ Contaminated topsoil must be treated as soon as possible and where treatment is not possible, the soil must be separated and stored in contaminated materials bin; ✓ Storm water diversion channels must be developed around topsoil stockpiles; ✓ Topsoil must not be used for any other activity besides rehabilitation unless there is justifiable excess. 	-10
Soil Erosion	Site Establishment, Construction and Post Closure	Erosion of loose soils and stockpiled soils	1	4	1	1	1	3	-24	<ul style="list-style-type: none"> ✓ storm water diversion channels must be developed around stockpiling area; ✓ the site have steep slopes and the roads to be created must not be against the slope to reduce stormwater runoff flow speeds; & ✓ Soil disturbance must be limited to working area. 	-12

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence							Where (E + D + I + R + L) X P = Significance				
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Biodiversity											
Loss of vegetation	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Clearing of vegetation for establishment of drill area; ✓ Clearing of vegetation to create access roads; ✓ Clearing of Vegetation to establish stockpiling area; ✓ Invasion by alien invasive plants ✓ Possible fire breaks from operations. 	1	3	1	2	2	4	-36	<ul style="list-style-type: none"> ✓ Although no protected or endangered plant species were identified during the EIA Site Assessment process, the absence of such must be confirmed before clearing takes place; ✓ Vegetation clearing must be limited to working area; ✓ The identified drill areas must not be cleared all at once but progressively with prospecting activity; ✓ The spread of alien invasive plant species must be controlled and monitored; ✓ Plant harvesting for any other purpose is prohibited; ✓ Seedbank for indigenous vegetation may be established to aid during site rehabilitation; and ✓ No fires must be allowed on site. 	-8
Loss of fauna	Site Establishment, Construction and Post Closure	<ul style="list-style-type: none"> ✓ Loss of habitat when vegetation is cleared and wild environment invaded by prospecting activities; ✓ Restricted fauna movement and increased health and safety risks to wildlife due to deep excavations and barricades; ✓ Noise nuisance affecting the wild life; ✓ Driving over micro and small wild animals; ✓ Wild life hunting by the prospecting crews. 	2	2	1	2	2	4	-36	<ul style="list-style-type: none"> ✓ No hunting must be allowed on site; ✓ The site must be kept neat at all times to avoid attraction of scavengers; ✓ Where animals are spotted within working areas they must be rescued and moved to adjacent undisturbed areas; ✓ Excavations must be barricaded to prevent animal fall-ins; ✓ All excavations must be re-filled once the prospecting at that specific area ceases; ✓ No pets must be brought to site; ✓ Site activities must be restricted to day time. 	-12
Invasion by invasive alien plants	Site Establishment, Operational & Post Closure	Introduction of invasive alien plants	2	3	2	2	2	4	-44	<ul style="list-style-type: none"> ✓ A poster of all common invasive plants for the area must be developed and employees be inducted on the subject; ✓ All invasive plants must be removed as soon as they are spotted; 	-16

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence								Where (E + D + I + R + L) X P = Significance			
Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	Mitigation Measures	Significance After Mitigation	
			E	D	I	R	L				P
									✓ An invasive plants monitoring programme must be developed for both operational and post operational phases.		
Surface and Ground water											
High usage of water	Construction	Demand for water for machinery and dust suppression during prospecting activities	1	3	2	1	1	3	-24	<ul style="list-style-type: none"> ✓ No new water boreholes must be drilled onsite for meeting operational water requirements; ✓ Water must be obtained from existing sources and a usage consent must be obtained from the municipality/ owner; ✓ The water usage bylaws for the Elias Motswaledi Municipality must be adhered to; ✓ Water usage must be recorded by the site Environmental officer on a daily basis. 	-8
Destruction of site wetlands	Site Establishment, Construction & Post-prospecting	✓ Undertaking invasive activities within wetlands areas and their buffers	2	3	2	2	3	3	36	<ul style="list-style-type: none"> ✓ All wetlands must be marked as a No-go areas; ✓ Driving through wetlands is prohibited; ✓ Wetlands must be buffered with at least 100 metres from the edge; 	-18
Surface and ground water contamination	Site Establishment, Construction & Post-prospecting	<ul style="list-style-type: none"> ✓ surface water getting into contact with contaminated soils; ✓ Contaminated materials going down drill holes into subsurface water; ✓ Flow of storm water from contaminated areas into surface water drainages 	1	3	1	1	2	3	-24	<ul style="list-style-type: none"> ✓ All drill holes must be capped once the prospecting is done at such drill area; ✓ Storm water must be diverted away from the drill areas; ✓ Contaminated water must be contained, treated and/or disposed of appropriately; ✓ All contaminated surfaces must be cleaned as soon as they are noticed; ✓ Temporary chemical toilets must be provided, these toilets must be made available for all site staff. The construction of "long drop toilets is forbidden; ✓ The water sources such as rivers, dams and ponds must be buffered as per this report and marked as a no-go area; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility; ✓ Aquifer detection methods should be applied before drilling can be undertaken. 	-10
Enviro-Socioeconomic											

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Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Job creation	Site Establishment & construction	The machinery and vehicle operators will be required.	2	3	1	0	0	4	24	<ul style="list-style-type: none"> ✓ The employees should be sourced from the local human resource pool; ✓ No hiring must be done at the proposed site to avoid influx of jobseekers into private properties; ✓ The number of employees required and the employment methods should be communicated. 	24
Land owner conflicts	Site Establishment, Construction & Post-prospecting	<ul style="list-style-type: none"> ✓ Property owner reluctant to grant access into their properties; ✓ Highly degraded properties after prospecting activities cease. 	1	4	2	0	0	4	-28	<ul style="list-style-type: none"> ✓ The land owners must be able to claim for compensation against loss of crops and other private properties ✓ Land access agreement must be reached between the applicant and the property owners; ✓ Operational times must be communicated with the property owners; ✓ All prospecting activities must be limited to approved areas; ✓ No hunting must be allowed on site; ✓ No camping areas must be established on site; ✓ Access roads establishment must be done in consultation with property owners. 	-3
Visual alterations	Site Establishment & construction	The presence of machineries in an open area	1	3	1	1	1	3	-21	<ul style="list-style-type: none"> ✓ All site activities must be limited to approved area; ✓ The property owners must be made aware of prospecting scheduling; ✓ All site personnel must be fully aware of property owners' access conditions. 	-10
Noise Pollution	Site Establishment & construction	Introduction of noisy heavy machinery and vehicles on site to a relatively quiet neighbourhood.	1	3	2	1	1	2	-16	<ul style="list-style-type: none"> ✓ The property owners and other affected parties must be made aware of activity scheduling; ✓ The activities must be conducted during the day i.e. from 07:00 to 18:00. 	-12
Loss of game tamed animals	Site Establishment & construction	<ul style="list-style-type: none"> ✓ Loss of Game tame animals due to theft and disturbances creating panic of wildlife and livestock; 	1	2	2	3	1	3	-27	<ul style="list-style-type: none"> ✓ No drilling station must be established within the game farm; ✓ The affected land owner must be informed of prospecting schedule; 	-15

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence								Where (E + D + I + R + L) X P = Significance			
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
										<ul style="list-style-type: none"> ✓ The prospecting crew must have largely visible identification to prevent criminal opportunists; ✓ Hunting is prohibited; 	
Loss of agricultural land	Site Establishment & construction	✓ Loss of arable agricultural land and Loss of crops during establishment of access roads and drilling stations	1	2	3	1	1	3	-24	<ul style="list-style-type: none"> ✓ Crops lost must be compensated calculated using current market practice; ✓ The prospecting scheduling must be just after harvesting period; ✓ The disturbed areas must be rehabilitated, access roads must be ripped; 	14
Land Pollution	Site Establishment & Construction	General waste littering by site team	1	3	2	1	1	3	-24	<ul style="list-style-type: none"> ✓ All site personnel will be inducted on reduce, reuse and recycle concept; ✓ Temporary chemical toilets must be provided. These toilets must be made available for all site staff. The construction of "long drop" toilets is forbidden; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility. ✓ Waste must be separated and stored in marked bins; ✓ Waste disposal certificates must be kept on-site; ✓ A clean-up campaign must be undertaken every second Friday; 	-7
Compromised safety and security	Site Establishment & Construction	The site activities will result in influx of people to site creating security risks for workers and property owners'.	1	3	2	3	3	4	-48	<ul style="list-style-type: none"> ✓ Land owners must be provided with prospecting schedule; ✓ No hiring must be done on site; ✓ All site personnel must have identification card; ✓ Criminal activities must be reported to SAPS immediately; ✓ Access gates must remain locked and access be authorised; and ✓ All activities must remain within the approved site. 	-24
Heritage Resources											
Destruction of Heritage Resources	Site Establishment & Construction	Unearthing of heritage significance artefacts during drilling activities; Destruction of site graves.	1	1	1	1	1	2	-10	<ul style="list-style-type: none"> ✓ There are no historically or heritage resources known to be on site; ✓ All site graves must be clearly marked on the final layout plan to be provided to the Land owners; ✓ No graves must be disturbed and a 10m buffer must be demarcated around each grave; 	-10

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Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
										<ul style="list-style-type: none"> ✓ Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA. 	
Health and Safety											
Bodily injuries	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles; ✓ Fall into excavations either by personnel or general public; ✓ Chipping of outcrops to obtain outcrop samples; ✓ Encounter with dangerous wild animals during site survey; 	1	3	1	2	2	3	-27	<ul style="list-style-type: none"> ✓ The site machinery must be kept in good working conditions; ✓ All machinery operators must have permit/license to operate; ✓ Excavations must be demarcated and marked with visible tape; ✓ First aid kits must be made available on site and a trained Safety, Health and Environment Representatives be assigned for each team; ✓ Each chemical on site must have material storage and handling sheet (MSDS); ✓ During prospecting activities all employees must be provided with Protective clothing; ✓ All site personnel must have a working cell phone to communicate in case of emergency during survey phase. 	-12

11.2 Summary of specialist reports

List of Studies Undertaken	Recommendations of Specialist Reports	Specialist Recommendations that have been included in the EIA Report	Reference to Applicable Section of Report where Specialist Recommendations have been Included.
<p>No specialist studies was undertaken. Several studies were identified by the Screening Tool which have not been undertaken. The motivation for not undertaking the studies as identified by the Screening Tool is provided below.</p>			

11.2.1 Studies identified by the Screening Tool

Specialist Study	Theme Sensitivity	Exclusion Motivation
1. Agriculture Theme	Very High	<p>The site is primarily used for agriculture, the EIA process has established. The proposed prospecting activities can be undertaken concurrently with the agricultural activities. The proposed prospecting activities will also employ non-invasive techniques including aeromagnetic survey which will identify targeted areas and reduce areas of disturbance by invasive drilling activities.</p>

Specialist Study	Theme Sensitivity	Exclusion Motivation
		<p>The invasive activities (drilling and establishment of drill station) will disturb only targeted areas and each drill station will be approximately 25 m², of the proposed extensive development footprint less than a hectare will be disturbed for establishment of drill pads.</p> <p>The existing internal access roads will be used as far as practicably, this will largely restrict disturbances to already disturbed areas conserving the agricultural areas.</p> <p>On cessation of the prospecting activities the drill holes will be backfilled and rehabilitated according to an approved method statement, re-establishing pre-existing agricultural conditions.</p>
2. Animal Species Theme	Medium	<p>The proposed prospecting activities will be undertaken in privately owned properties used for both game farming and crop farming. The site animal species are known to the land owners, the animal species will therefore be protected from harm during the prospecting activities.</p>
3. Aquatic Biodiversity Theme	Very High	<p>The proposed activities will be undertaken away from water resources and will therefore have insignificant impact on the aquatic ecosystem. A 100 m buffer will be implemented on all water all surface water resources. The EIA process have identified the site water</p>

<i>Specialist Study</i>	<i>Theme Sensitivity</i>	<i>Exclusion Motivation</i>
		<i>resources, and created a 100 m buffer around them which will be implemented during the prospecting phase.</i>
<i>4. Archaeological, Paleontology and Cultural Heritage Theme</i>	<i>Low</i>	<i>The theme is low: The site is used for agricultural practices which are also invasive in nature. Should there be resources on site, they were more likely to be unearthed. However, the proponent will exercise care during undertaking of invasive activities and should any heritage resource be unearthed, the activities will be stopped and relevant authorities notified.</i>
<i>5. Civil Aviation Theme</i>	<i>Medium</i>	<i>The proposed activities will not impact civil aviation.</i>
<i>6. Defence Theme</i>	<i>Low</i>	<i>There are no base for the Department of Defence or any of their resources to be disturbed by the proposed activities.</i>
<i>7. Plant Species Theme</i>	<i>Low</i>	<i>The theme has low sensitivity. There were no species of conservation concern identified through desktop resources (literature, GIS and SANBI Plants of South Africa Website) and the field surveys.</i>

Specialist Study	Theme Sensitivity	Exclusion Motivation
8. Terrestrial Biodiversity Theme	Very High	<p>The site in terms of the Provincial Spatial Plan has high sensitivity mainly because there are some areas with pristine vegetation cover especially farms used for game farming. However, it must be noted that the plan (also taking its completion date into consideration) has been somewhat outdated due to expansion of cultivated fields.</p> <p>The areas considered ecological sensitive are private game farms with controlled ecological activities there is an open season for hunting. Furthermore, the invasive activities (drilling and establishment of drill station) will disturb only targeted areas and each drill station will be approximately 25 m², of the proposed extensive development footprint less than a hectare will be disturbed for establishment of drill pads.</p> <p>The existing internal access roads will be used as far as practicably, this will largely restrict disturbances to already disturbed areas conserving the agricultural areas.</p> <p>On cessation of the prospecting activities the drill holes will be backfilled and rehabilitated according to an approved method statement, re-establishing pre-existing agricultural conditions.</p>

11.3 Environmental impact statement

- ✓ The site lies within the Nama Karoo Biome (Hoffman 1996), and more specifically, Northern Upper Karoo Vegetation;
- ✓ There are sections of CBA just outside the proposed, that can be easily avoided during prospecting;
- ✓ There are no protected areas within the proposed site and no red listed species were identified;
- ✓ According to the Mining and Biodiversity Guidelines (MBG) of 2013, the site is unmapped;
- ✓ Several wetlands and artificial dams identified within the proposed site;
- ✓ There are no known cultural and heritage significance sites within the proposed site, however their presence cannot be completely ruled out;
- ✓ The main land use on site is agriculture with few scattered farm houses within the proposed site;
- ✓ The proposed prospecting activities are of short duration and can be completed in a period of a year to a maximum of 5 years;
- ✓ The prospecting activities are non-complex and mostly mechanised requiring skilled professionals, as such less than four people will be hired to provide support to the project team, the proposed project will not have significant impact on the local socioeconomic conditions;
- ✓ The driving and drilling activities are expected to generate noise nuisance affecting the few farm residents and fauna. The Noise

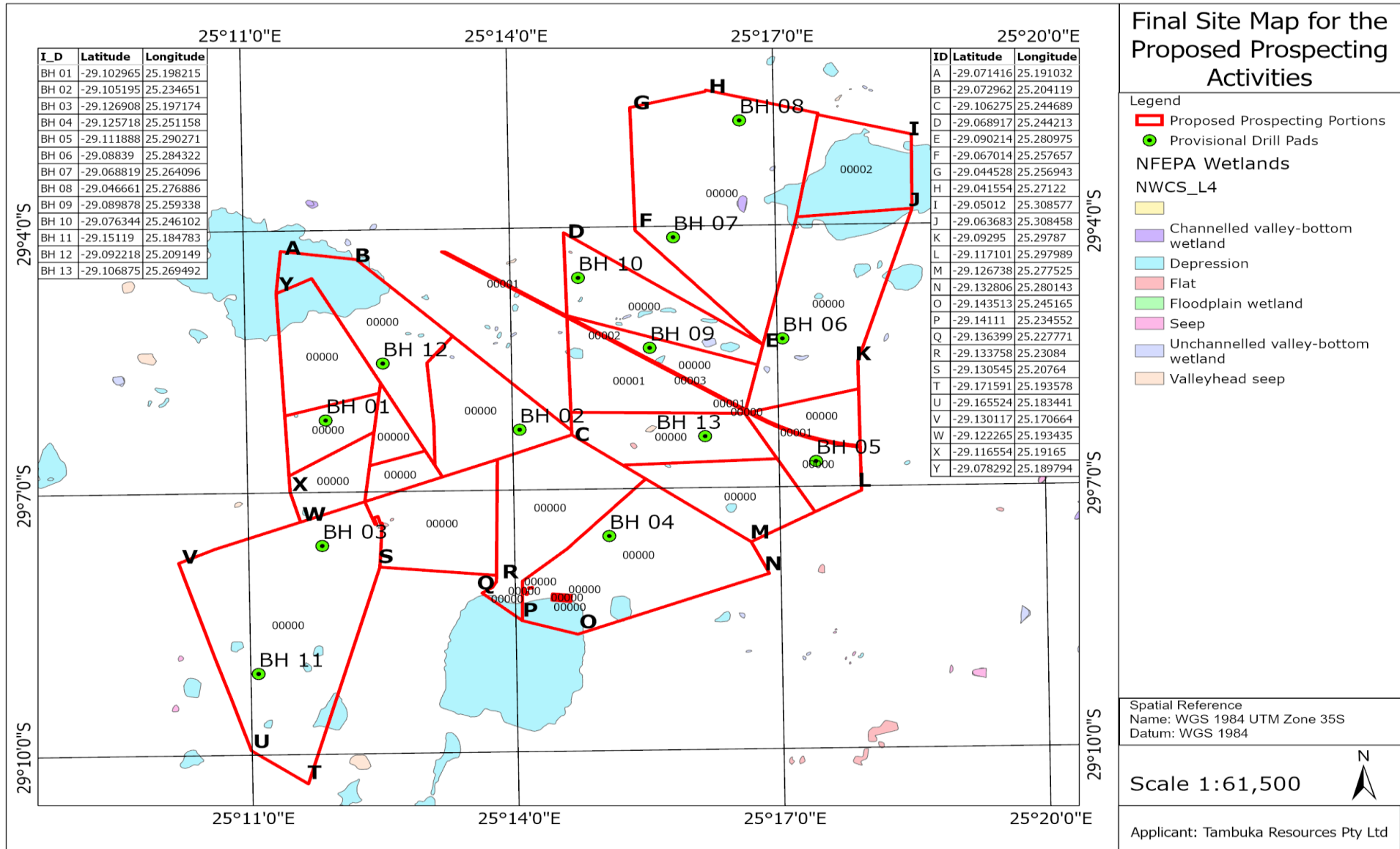
nuisance cannot be prevented and will only be managed through limiting the activities to day time;

- ✓ Driving gravel roads and drilling activities will generate dust pollution which can be managed by controlling limiting vehicle speed on gravel road and applying dust suppression methods (watering and/or biodegradable dust suppression agent);
- ✓ Accidents may happen between site vehicles and wild life resulting in loss of life and/or mobility of the fauna, the noise generated will also create stress for the local fauna;
- ✓ The proposed activities will have minimal impact on water resource as they will be located on dry lands and water usage is expected to be low at a rate of 6 litres per 40 m drill hole;
- ✓ The agricultural activities will be temporarily affected where drill stations and access roads will be established, however this will be done immediately after harvesting season to reduce the significance of the impact and the affected land users will be consulted throughout;
- ✓ Prospecting activities are not labour intensive and will therefore not have any significant impact on the socioeconomic status of the local community;

Prospecting activities will affect relatively small area in relation to the application area, approximately less than 3 ha of the application area will be disturbed. The disturbances will be of short duration as the project will not exceed 5 years. The sensitive ecological areas will be avoided and drill stations and access roads will be located on less sensitive areas. The wet areas (Wetlands and streams) are considered a no-go area and no activity will

take place within their 100 metres buffer. Overall the proposed project will not have major significant impacts should the EMPr be implemented.

11.4 Final Site Map



11.5 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

11.5.1 Positive Impacts

Prospecting activities are precursor activities to mining, they evaluate the possibilities of mine establishment. There are very limited returns from prospecting activities. The returns from prospecting activities can only be realised after a successful prospecting project. It has not been proven that kimberlite ore body are presence on site and if presence whether they can be sustainable be mined. The very limited benefits from the proposed activities are:

Diamond deposit quantification: The presence of kimberlite ore body on site will be verified and thereafter the economic value of the seams will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

Contribution to South African geological data: The practical geological results obtained through this prospecting will be submitted to the South African Council of Geoscience for comprehensive mapping of South Africa based on proven data.

SMME and Street Vendor Support: The prospecting team will require basic services from the local community which would mainly be provided by the Small businesses and street vendors.

11.5.2 Negative Impacts

Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation: A potential always exist that unauthorised undertaking of listed activities may take place on site in the form of project scope expansion and disregard of Authorisations' conditions. This could for example be increasing the number of authorised boreholes and impacting watercourses without water use license;

Loss of agricultural land and alternative land use conflicts: The site is not zoned for mining/industrial activities. This will create a parallel demand for land as successful prospecting activities will results in the establishment of a mine. There are active agricultural practices (Crop and livestock) on site that will be directly affected by the proposed prospecting activities. Establishment of access roads and drill stations in agricultural areas will result in temporary loss of agricultural land for the duration of prospecting;

Loss, contamination and compaction of fertile soil: Access roads and drill station establishment will result in removal/compaction of topsoil resulting in reduced fertility. The driving and parking of vehicles also create potential for hydrocarbon contaminations;

Soil erosion: Establishment of access roads and drill station disturbs soil cohesion increasing the potential for soil erosion;

Loss of biodiversity, natural corridors and habitats: There are Critical Biodiversity Areas (CBAs) within the proposed site and a potential exists for disturbances of this areas, with the loss of vegetation, habitats are also lost;

Loss of species of concern: The EIA process did not identify any red listed species within the proposed site. It should be noted that the proposed site is

within the vulnerable grassland, and there are sections of CBAs and areas with high sensitivity to mining in terms of the Mining and Biodiversity Guidelines of 2013. The presence of species of concern cannot be ruled out;

Introduction of alien invasive plants: Invasive plants flourish where there is disturbances and ecological imbalances. The clearing of vegetation to establish drill stations and access roads has the potential to introduce and facilitate spread of invasive alien plants;

Degradation of Wetlands, streams and other water sources: There are numerous wetlands and artificial dams within the proposed site, there is high potential for impacting on the wetlands when crossing to access drilling points, should management measures be ignored;

Contamination of underground water resource: The drill activity has the potential to contaminate the underground water resource, introducing contaminates through the drill hole;

Contamination of surface water: Flow of stormwater from contaminated areas into the local watercourses;

Generation of waste: The prospecting activities will generate both the general and hazardous wastes. The waste will be managed using the “triple R” principle, Reduce, Reuse and Recycle;

Dust Generation: The vehicles and machinery movement on gravel roads will generate dust. The dust generation potential is considered low, the housing units on site to be affected by the dust are sparsely distributed hence the dust will have lower significance;

Fire breakout: There are potentials for fire breakout from the activities sites, smoking is a significant contributor to fire breakouts. A fire breakout will have huge implications in the area burning the CBAs and crops;

Health and safety risks: The operating machinery, equipment and vehicles, and excavations and undertaking activities in the wild create health and safety risks to the prospecting crew and the local community;

Criminal activities: Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment;

Poor housekeeping: The site activities will generate wastes and proper waste management and site cleaning will be required to prevent the “dirty” site visuals;

Disturbance and/or destruction of cultural and heritage resources: The EIA Process did not identify any cultural and heritage significance sites and resources, however the possibility of unearthing heritage and cultural resources is not ruled out, and

Noise Generation: The site is largely natural and there are also residential units within the proposed properties, the operation of drilling machinery will create noise that will easily reach the local residents.

11.6 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Impact management objectives are described in terms of the Mitigation Hierarchy of the ERM Impact Assessment Standard. The mitigation hierarchy is as follows:

Avoid at Source: Reduce at Source: avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).

Abate on Site: add something to the design to abate the impact (e.g., pollution control equipment, traffic controls, perimeter screening and landscaping).

Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).

Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g. agricultural land and forestry due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.

Compensate in Kind; Compensate Through Other Means: where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

11.6.1 Impact management objectives:

- ❖ Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts
- ❖ Provide sufficient information and guidance to plan the prospecting activities in a manner that would reduce impacts (both social and Environmental) as far as practicable.
- ❖ Ensure an approach that will provide the necessary confidence in terms of environmental compliance.
- ❖ Provide a management plan that is effective and practical for implementation

11.6.2 Impact management Outcome

- ✓ Risk assessment must be conducted before any site activity is undertaken and management measures are available and understood by everyone involved;
- ✓ Site access agreements between the affected parties and Tambuka (Pty) Ltd must be signed before any work is conducted;
- ✓ No invasive activity must be undertaken within 100 metres buffer of surface water (Streams and water bodies);
- ✓ The activities are restricted to approved area;
- ✓ Soil erosion must be prevented and monitored;
- ✓ Vegetation clearance must be restricted to active areas;
- ✓ Invasion by alien invasive plants must controlled and monitored;

- ✓ Wastes must be disposed at registered facilities and disposal certificates be kept on site;
- ✓ The site activities must be restricted to day time;
- ✓ No new stream crossing must be created and water contamination must be prevented

11.7 Aspects for inclusion as conditions of Authorisation

- ✓ EA final site layout map detailing the drilling locations should be submitted to the relevant landowners to prior to the commencement of these activities;
- ✓ The land owners must be notified about the project scheduling;
- ✓ Environmental Control Officer appointment;
- ✓ Storm water management;
- ✓ Provision of PPE;
- ✓ Total number of boreholes to be drilled;
- ✓ Opening and maintenance of complaints register;
- ✓ Access control into the prospecting property;
- ✓ Activity based environmental risk assessment;
- ✓ Daily toolbox talks;
- ✓ Emergency preparedness plan
- ✓ Impact monitoring programme;
- ✓ Project environmental auditing.
- ✓ Closure certificate

11.8 Description of any assumptions, uncertainties and gaps in knowledge

- ✓ *The confidence for presence of kimberlite ore body is based on desktop studies;*
- ✓ *The entire site was not traversed for protected species identification, the identification was aided by desktop studies and as such care should be exercised when removing vegetation;*
- ✓ *The absence of Heritage significance areas and artefacts was based on desktop studies using pre-existing literature and GIS Software Programs.*

11.9 Reasoned opinion as to whether the proposed activity should or should not be authorised

It is the opinion of the EAP that the activity be authorised.

- ✓ *Based on the desktop studies the site lies within the Beaufort and Ecca Groups of the Karoo Supergroup and therefore diamond deposits are more likely; prospecting activities must be undertaken to confirm the kimberlite ore body;*
- ✓ *The disturbance on water resources will be very minimal as prospecting activities will be undertaken on dry lands;*
- ✓ *The disturbance on biodiversity can be full reversed once the prospecting activities ceases;*
- ✓ *The site agricultural activities can be undertaken simultaneously with the proposed prospecting activities (Can also be scheduled after*

harvesting season) and the disturbance will only be limited to active area which will be less than 3 ha.

- ✓ The available literature in the absence of proven data (through prospecting) will always attract mining interest companies, should this prospecting be approved, the evidence based geological data will become available in support or against mining establishment in the area; and
- ✓ The acquired geological knowledge will contribute significantly to the academic world towards mapping of South African geology based on drilling results.

11.10 Conditions that must be included in the authorisation

- ❖ The applicant (Tambuka) must engage with the affected parties upon issuing of the Prospecting Right, the two parties must develop a legally binding resolute and exhaustive access agreement contracts which will detail the following (inter alia):
 - The duration of the prospecting crew on site and operation times;
 - The number of personnel to access the site at any given time;
 - Compensation for losses resulting from prospecting activities (e.g. loss of crops and arable land);
 - Activity scheduling in respect to site activities such as game hunting and schooling; and
 - Any matter deemed necessary during the access consultation process.

- ❖ *No activities can take place within the 100 metre buffers of any water source;*
- ❖ *All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site; the site temporary storage skips and bins must be closed at all times to prevent scavenging and smell nuisance;*
- ❖ *An annual performance must be undertaken throughout the duration of the prospecting activities;*
- ❖ *The financial provision must be reviewed annually to determine if it's still appropriate to site activities;*
- ❖ *Ground water monitoring must be conducted using existing boreholes on site;*
- ❖ *A complaints register must be kept on site, recording each complaint and how it was addressed;*
- ❖ *The EA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to undertaking of the prospecting activities;*
- ❖ *The EA does not grant authorisation to National Water Act Section 21, any water listed water use in terms of this Act must be applied for with the Department of Water Affairs and Sanitation (DWS);*
- ❖ *The EA will only be effective in the event that the corresponding prospecting right is issued in terms of the MPRDA and none of the listed activities commence without the corresponding prospecting right;*

- ❖ *The impact management and mitigation measures as described in this report are mandatory.*
- ❖ *A person is guilty if that person fails to comply or contravene a condition of the EA;*
- ❖ *A copy of the EA must be kept on site where the activity will be undertaken;*
- ❖ *The conditions of the EA and the EMPr must be made known to all personnel to be directly involved in the prospecting activities;*
- ❖ *The applicant must provide site personnel with personal protective equipment (PPE);*
- ❖ *The applicant must appoint an independent Environmental Control Officer who will also conduct annual environmental audits for submission to the department;*
- ❖ *Activity based environmental risks must be conducted before any site activity is undertaken;*
- ❖ *A monitoring programme must be budget for and implemented for the duration of the impact as directed by the EMPr;*
- ❖ *Storm water must be effectively managed to prevent contamination and erosion;*
- ❖ *A closure certificate must be applied for in terms of the MPRDA within 180 days of the occurrence of lapsing, cancellation, cessation, relinquishment and completion of prospecting activities; and*
- ❖ *Only indigenous plants can be used for rehabilitation.*

11.11 Period for which the Environmental Authorisation is required

The Prospecting Right has been applied for a period of five years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

12 Undertaking

An undertaking by the EAP and the client is provided for in Section 2 of the EMPr.

13 Financial Provision

A rehabilitation fee will be calculated to be R 85,772.93;

13.1 Explain how the aforesaid amount was derived.

The rehabilitation fee was calculated using the Department of Mineral Resource and Energy guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine.

13.2 Confirm that this amount can be provided for from operating expenditure

It is hereby undertaken that the calculated amount will be provided to DMRE in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMR upon granting of the requested prospecting right.

14 Specific Information required by the competent Authority

14.1 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:-

14.1.1 Impact on the socio-economic conditions of any directly affected person.

The directly impacted person are the land owners and/or occupiers within the proposed site. These will include the sparse households on site and agricultural area. All the affected parties were identified and consulted before the report is finalised.

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

The site has been disturbed previously by other activities i.e. agriculture and no heritage significance objects were found on site during the undertaking of such activities. It is presumed that there are no artefacts or sites of heritage importance on site.

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

The requirements of the Act in terms of section 24(4) (b) (i) – (vii) as guided by section 24(4A) are provided below with sections in which they have been addressed:

(i) Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity:

- ✓ *Part A section 9: impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts;*
 - ✓ *Part A section 9.2: 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;*
 - ✓ *Part A section 11: Assessment of each identified potentially significant impact and risks;*
 - ✓ *Part B section 4: Impacts to be mitigated in their respective phases.*
- (ii) Investigation of mitigation measures to keep adverse consequences or impacts to a minimum:
- ✓ *Part A section 11: Assessment of each identified potentially significant impact and risk;*
 - ✓ *Part A section 11.5: Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;*
 - ✓ *Part B section 4: Impacts to be mitigated in their respective phases.*
- (iii) Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act:
- ✓ *Part A section 8.9: Heritage Resources.*
- (iv) Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information:
- ✓ *Part A section 11.8: Description of any assumptions, uncertainties and gaps in knowledge*

- (v) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;
- ✓ *Part B section 5.2: Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including, Monitoring of Impact Management Actions, Monitoring and reporting frequency, Responsible persons, Time period for implementing impact management actions, Mechanism for monitoring compliance.*
- (vi) Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3);
- ✓ *Part A section 8: The Environmental attributes associated with the alternatives.*

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

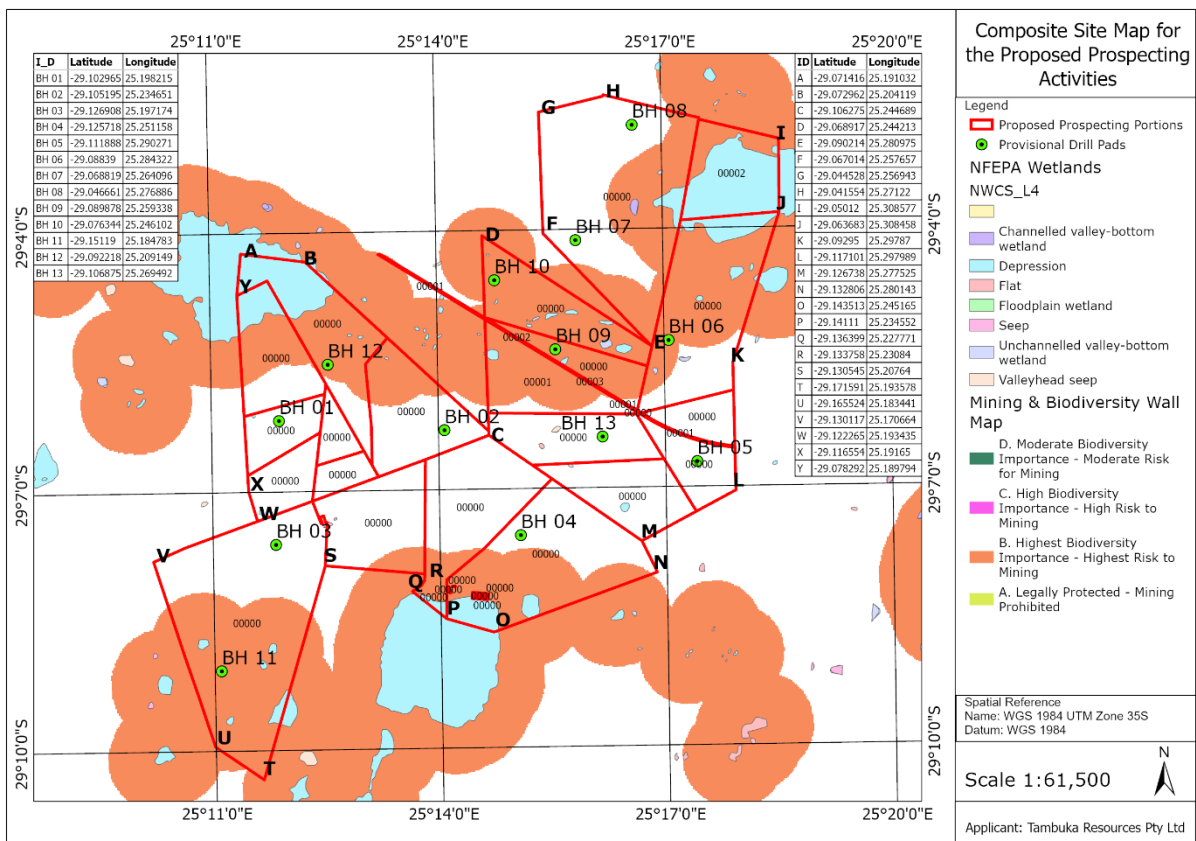
1 Details of the EAP

The requirement for the provision of the details and expertise of the EAP are included in PART A, section 1(a).

2 Description of the Aspects of the Activity

The requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1) (h).

2.1 Composite Map



Composite Map will be updated after consultation with all affected parties.

3 Description of Impact management objectives including management statements

3.1 Determination of closure objectives

The closure objectives thus are as follows:

- ❖ Eliminate any safety risk associated with drill holes and sumps through adequate drill hole capping and backfilling.*
- ❖ Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;*
- ❖ To loosen the hardened surfaces which were used temporary site camp or access roads and re-vegetate with indigenous species.*
- ❖ Establish rehabilitated area which is not subjected to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources;*
- ❖ Restore disturbed area and re-vegetate these areas with indigenous vegetation to restore the ecological function of such areas as far as is practicable.*

3.2 Volumes and rate of water use required for the operation.

The operational machinery and equipment is expected to use less than 60 litres of water per day for cooling and dust suppression. The water usage will not trigger the National Water Act (36;1998) listed water uses.

3.2.1 Has a water use licence has been applied for?

A water use licence is not required for this project but should any NWA water uses be triggered a water use license will be applied for.

4 Impacts to be mitigated in their respective phases, the Impact Management Outcomes and Management Actions

Measures to rehabilitate the environment affected by the undertaking of any listed activity and the description of impact management outcomes, identifying the standard of impact management required for the aspects, and description of impact management actions, identifying the manner in which the impact management objectives and outcomes will be achieved.

Table 4-1: Impacts Assessment & Mitigation

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
Desktop Study								
No Impact	Planning	None	None	None	None	Protect sensitive site	Locate sensitive and protected areas such as rivers)	N/A
Creation of access roads (Access to drill points)								
Creation of access roads within streams/rivers and alteration of river beds	Construction	1 ha	Water Supply	Control through planning and design; Control through avoidance	<ul style="list-style-type: none"> ✓ Stream crossings must be through existing tracks; ✓ The altered river beds must be rehabilitated and alien invasive plants be monitored and all foreign materials be removed from the stream courses. 	Protect water resources;	Access roads created in dry lands;	Through the project
Introduction of Alien invasive species	Construction	1 ha	Biodiversity	Control through rehabilitation; Control through monitoring;	<ul style="list-style-type: none"> ✓ All possible alien invasive plants must be identified and be communicated with site management team for control; ✓ Alien invasive plants must be removed as soon as they are identified; ✓ A post closure monitoring programme must be established. 	Control listed invasive plants	Alien invasive plants will be identified, removed and regrowth monitored.	Through the project
Loss of agricultural land	Construction	1 ha	Socioeconomic	Control through consultation with property owners.	The disturbance area must be limited to drill pads and access roads only;	Preserve economic agricultural area	Land owners will be consulted and compensated for loss of developed agricultural land.	Through the project

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
					All affected property owners must be fully consulted and access agreement be established and signed by both parties.			
<i>Establishment and preparation of drill pads/area</i>								
Unauthorised access into private property	Construction	14490.9 ha	Private Property	Control through consultation with property owners.	<ul style="list-style-type: none"> ✓ Access agreements must be signed by the land owners; and ✓ All site personnel must have identification cards. 	Protection of private properties.	Consult all land owners	Before and after accessing site.
Clearing of vegetation to establish survey stations and access roads.	Construction Phase	500 m ²	<ul style="list-style-type: none"> ✓ Biodiversity; ✓ Soil; ✓ Humans; and ✓ Water. 	<ul style="list-style-type: none"> ✓ Remedy through rehabilitation; ✓ Conduct site walks; ✓ Limiting disturbance areas; and ✓ Control through implementing activity methods statement. 	<ul style="list-style-type: none"> ✓ Site walk must be done before vegetation clearing is undertaken and should there be protected species, they must be marked and must not be removed without permit; ✓ Clearing of vegetation must be limited to drill areas only; ✓ New access roads must be created in consultation with the land owners and must not disturb drainage lines; ✓ Multiple tracks must not be created to access a single point; ✓ No fires are allowed on site; and ✓ All disturbed areas must be rehabilitated as soon as they are out of use; ✓ The site must be monitored for invasion by invasive alien plants and they must be removed as soon as they are identified. 	Biodiversity conservation	<ul style="list-style-type: none"> ✓ Species will be identified before clearing; ✓ Disturbance will be limited 	Throughput the Prospecting Period
Destruction of habitats when clearing vegetation	Construction	1 ha	Fauna	<ul style="list-style-type: none"> ✓ Control through search and rescue; and 	<ul style="list-style-type: none"> ✓ Before vegetation is cleared in each drill station, search and rescue must be ensured that there is no fauna; 	Biodiversity conservation	Search and rescue	Throughput the Prospecting Period

IMPACT ASSESSMENT AND MANAGEMENT

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
				✓ Limiting disturbance area.	✓ Where fauna are present they must be moved to undisturbed adjacent areas;			
Contamination and erosion of topsoil and stockpiles before, during removal and stockpiling	Construction	500 m ²	Soil	<ul style="list-style-type: none"> ✓ Control through storm water diversion beams; ✓ Control through implementing activity methods statement; 	<ul style="list-style-type: none"> ✓ Contamination of soil from any leaks, spillages of hydrocarbons and any other hazardous substances must be cleaned as soon as they occur; ✓ Topsoil stockpiles must be located away from any chemical substance storage; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ No vehicles and equipment maintenance must be done on site and faulty equipment must be taken off site. ✓ Topsoil stockpiles must be located away from drainage lines to prevent erosion; 	Rehabilitation standard	Topsoil will be preserved and protected from contamination and erosion for later use during rehabilitation	Throughout the Prospecting Period
Core drilling								
Disturbance of local sewage and water pipes connections	Construction	500m ²	Services supply	<ul style="list-style-type: none"> ✓ Control through consultation with local municipality; ✓ Control through implementing activity methods statement. 	<ul style="list-style-type: none"> ✓ Obtain a layout plan for local connections to determine if there are any in the proposed site; and ✓ Should any pipe damage occur, the relevant authority must be notified immediately. 	Preservation of private properties	Local connections layout plan will be reviewed to determine best possible area for drilling	Throughout the Prospecting Period
Water contamination emanating from site soil contaminations, and drainage lines crossings.	Construction	150 m ²	Water; and soil	<ul style="list-style-type: none"> ✓ Control through environmental awareness training; 	<ul style="list-style-type: none"> ✓ Littering must be controlled on site; ✓ Soil contamination from hazardous substances must be attended to as soon as they occur; 	Protection of water sources and water quality	✓ Contaminations will be prevented and when they occur they	Throughout the Prospecting Period

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
				<ul style="list-style-type: none"> ✓ Control through implementing activity methods statement; ✓ Control through daily inspection of site machinery and equipment; 	<ul style="list-style-type: none"> ✓ All major water contamination must be reported to the Department of Water Affairs; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ No vehicles and equipment maintenance must be done on site and faulty equipment must be taken off site. 		<ul style="list-style-type: none"> will be reported to DWS; ✓ Daily inspections will be conducted. 	
Disturbance, contamination of aquifers' in both quality and quantity	Construction	2 ha	Water	<ul style="list-style-type: none"> ✓ Control through implementing activity methods statement; ✓ Control through daily inspection of site machinery 	<ul style="list-style-type: none"> ✓ Before drilling is undertaken ground water detection must be done to avoid water bearing lithologies; and ✓ Drilling holes must be capped overnight to prevent dirt and any impurities to get underground; ✓ The drilling machineries must be kept in good working conditions to prevent leakages of hydrocarbons; 	Protection of water sources and water quality	Presence of aquifers will be tested before drilling.	Before drilling at each drilling station.
Unearthing of heritage significance artefacts	Construction	500 m ²	Heritage Artefacts	Conduct site walks	<ul style="list-style-type: none"> ✓ The site walk conducted during the EIA and the history of site land uses ruled out the possibility of heritage artefacts on site; ✓ However, should any heritage significance artefacts be unearthed work at that area must be stopped immediately and the Police as well as SAHRAS be notified immediately. 	Preservation of heritage sites and objects	Site assessment was done	The site team must remain alert throughout the prospecting period
Generation of dust	Construction	1 ha	Air Quality	Control through dust suppression	<ul style="list-style-type: none"> ✓ Should the activities create significant, the working areas must be watered to prevent generation of dust 	<ul style="list-style-type: none"> ✓ Air Quality standards; ✓ Health and Safety 	Dust suppression	During prospecting activities

IMPACT ASSESSMENT AND MANAGEMENT

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
Generation of noise as the site is located at less than 6 km from the town.	Construction	1 Ha	Noise	<ul style="list-style-type: none"> ✓ Maintain through servicing of site equipment, and ✓ Consultation with affected parties. 	<ul style="list-style-type: none"> ✓ All site machineries must be kept in good working conditions; ✓ Faulty machineries must be taken off site for service 	Noise standards	Consult affected parties	During prospecting activities
Health and safety risks arising from machinery operations and human errors.	Construction	50 m ²	Health and safety	Control through implementation of activity based methods statements;	<ul style="list-style-type: none"> ✓ Each machine operator must have a certificate of competence for that specific machinery; ✓ All site machineries must be kept in good working conditions; ✓ All excavations must be clearly marked with a reflective tape and barricaded overnight; 	Health and safety standards	Machinery kept in good working conditions;	Throughout the Prospecting Period
Site Rehabilitation								
Soil Erosion	Post Closure	500 m ²	Soil; Water; and Biodiversity	Control through storm water control beams;	<ul style="list-style-type: none"> ✓ Where necessary storm water control beams must be used to control erosion along rehabilitated access roads; ✓ Rehabilitation materials including topsoil must be free of contaminants such as hydrocarbons; ✓ Topsoil must not be compacted but care should be given to prevent erosion; 	Erosion prevention	Control erosion	During and after prospecting period
Invasion by Alien invasive plants	Post Closure	1 ha	Biodiversity	Control through monitoring and removal.	<ul style="list-style-type: none"> ✓ Invasive alien plants must be monitored during and after prospecting activities; ✓ All invasive plants must be removed once identified and a follow-up be developed. 	Preserving biodiversity	Invasive species will be monitored and cleared.	During and after prospecting period
Other Impacts								

IMPACT ASSESSMENT AND MANAGEMENT

Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
Failing to meet local community expectations especially job creation	Construction	-	Social	Control through consultation	<ul style="list-style-type: none"> ✓ Consultations must be done with local leaders and the number of people to be employed and how they will be employed be communicated; ✓ No unauthorised personnel must be allowed into prospecting site 	Engage local community	Community will be engaged through its elected leaders	Before undertaking prospecting activities
Property theft for both the land owners/users and applicant	Planning and Construction	-	Social and Security	Implement a working security system to control site access and personnel identification.	<ul style="list-style-type: none"> ✓ All authorised personnel must have identification card; ✓ No unauthorised personnel must be allowed on site. 	Safety and Security	Ensure safety of site personnel	During prospecting activities.

5 Financial Provision

5.1 Determination of the amount of Financial Provision

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

The baseline environment as described in Section 8 of Part A of this report is mainly an agricultural area with sections of Critical Biodiversity Areas and Wetlands. The closure objectives will ensure that the disturbed natural environment (which was established to be sensitive) is restored. The objectives will also ensure that the soil erosion is prevented and soil fertility in disturbed agricultural areas is restored. The closure objectives are as follows:

- a) The facilitation of the re-establishment of agricultural activities and soil capability in disturbed areas;
- b) Removal of all infrastructure and material introduced to site;
- c) Removal of all wastes and their disposal;
- d) Promotion of the rapid re-establishment of the natural vegetation and the restoration of the site ecology. The disturbed areas shall be rehabilitated to ensure that:
 - ❖ The biodiversity habitat restored after prospecting;
 - ❖ Eliminate any safety risk associated with drill holes and sumps through adequate drill hole plugging and backfilling;

- ❖ Environment and resources are not subjected to physical and chemical deterioration;
 - ❖ The site is reversed to almost its original state;
 - ❖ The after-use of the site is beneficial and sustainable in a long term;
- e) Removal, control and monitoring of alien invasive plants; and
- f) Monitoring of rehabilitation progress

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

This Basic Assessment Report and Environmental Management Programme was made available to each registered stakeholder for review and comment for a period of 30 days. This included the closure objectives as outlined in this report.

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

Due to the nature of the activities, the impacts will be very limited and of short duration. The management plan is provided in such a manner as to ensure concurrent rehabilitation. The drill stations areas and access roads will be the main area experiencing impacts. In this event the activities will be temporary in nature, and a detailed management plan has been provided to address potential impacts associated with these activities. The main only rehabilitation activities will be required is borehole capping, rehabilitation

of access roads and drill stations, and restoration of soil fertility in disturbed agricultural areas.

5.1.3.1 Borehole capping

Drill holes must be permanently capped as soon as is prospecting activities are completed at that particular borehole. Figure below provides the prepared procedure for the secure plugging of exploration drill holes.

It will be crucial to ensure that the boreholes are free from all obstructions that may interfere with the sealing of the hole. All foreign materials must be removed, together with any other infrastructure (dip tubes etc). The condition of any borehole casing and grout must be examined to ascertain whether its retention in the hole would prejudice any of the objectives of the abandonment.

The ground will be restored as closely as possible to its pre-drilled condition. The borehole will be backfilled with clean (washed), uncontaminated, or excavated materials so that the permeability of the selected materials are similar to the properties of the geological strata against which they are placed. The backfilled borehole will then mimic the surrounding natural strata and groundwater flow and quality will be protected.

The materials used to backfill must be clean, inert and non-polluting. Suitable materials include pea gravel, sand, shingle, concrete, bentonite, cement grout and uncontaminated rock.

N.B. UNDER NO CIRCUMSTANCES SHOULD MATERIALS WHICH ARE LIKELY TO CAUSE POLLUTION BE USED AS INFILL.

For artesian boreholes, the rehabilitation process will aim to confine the groundwater to the aquifer from which it came – in order to prevent loss of

confining pressure and the loss of water resources to the surface or other formations. The first step is to control the artesian flow through

- ❖ Extending the casing above ground level beyond the elevation to which water will rise in the borehole (the potentiometric surface).
- ❖ Introducing a pre-cast plug at an appropriate level within the hole.

In order to prevent potentially contaminated surface run-off or other liquids entering the backfilled borehole, it is necessary to complete the backfilling of all boreholes with an impermeable plug and cap. The top two metres (or two meters below plough depth in agricultural areas) should be filled with cement, concrete or bentonite grout. A concrete cap of suitable strength, with a diameter at least one metre greater than the width of the backfilled borehole (see Fig. 1), should then be installed.

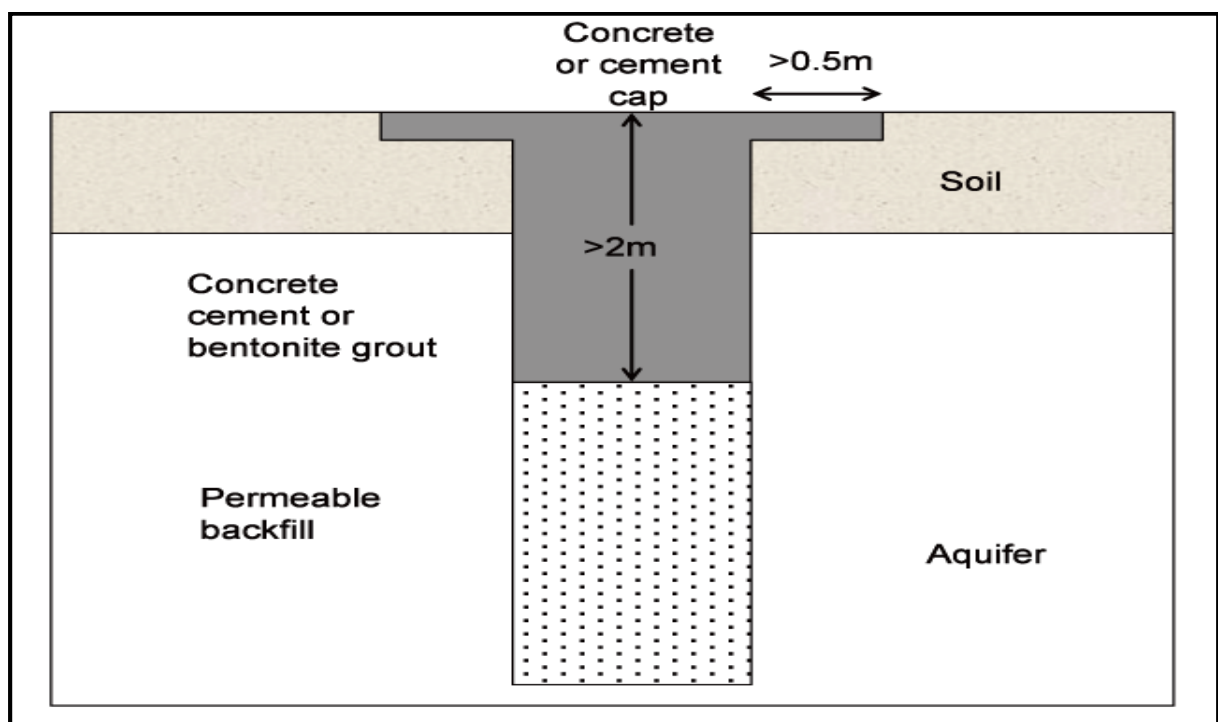


Figure 5-1: Capping of Boreholes

5.1.3.2 Rehabilitation of created internal access roads

The internal access roads that were created solely for prospecting activities will be ripped to facilitate vegetation regrowth. The rehabilitation of access roads will be done in consultation with the land owners and the roads will not be ripped should they want to continue using the access roads. This will be done within the limitations of all the relevant Legislations.

5.1.3.3 Re-vegetation

It is recommended that a standard commercial fertilizer high in the standard elements is added to the soil before re-vegetation, at a rate of 10 - 20 kg/ha (application rate to be confirmed based on input from a suitably qualified specialist). The fertilizer should be added to the soil in a slow release granular form. A suitably qualified ecologist will be appointed to determine the appropriate veld grass mix for hand seeding.

Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months.

5.1.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives

The closure objectives aim at restoring the site to its original state, i.e. conditions that were existing before the prospecting activities were undertaken. The rehabilitation measures will achieve the object, the created access roads will be ripped, boreholes capped and vegetation regrowth will be facilitated where necessary. Once all the rehabilitation activities are

completed the site will be fully restored to its original state thus the closure objectives will be met.

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

License Holder:		Tambuka Resources (Pty) Ltd		Ref No.:	FS 30/5/11/2/10622 PR		
Reviewer:		Khuliso Vincent Ramulondi		Date:	Saturday, 16 October 2021		
No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rand)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	R 14.05	1	1	R 0.00
2 (A)	Demolition of steel buildings and structures	m2	0	R 195.76	1	1	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R 288.49	1	1	R 0.00
3	Rehabilitation of access roads	m2	320.00	R 35.03	1	1	R 11,209.60
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	R 340.01	1	1	R 0.00
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	R 185.46	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m2	0	R 391.53	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	R 205,242.16	1	1	R 0.00
7	Sealing of shafts adits and inclines	m3	0	R 105.09	1	1	R 0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0	R 136,828.10	1	1	R 0.00
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	R 170,416.93	1	1	R 0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	R 494,971.55	1	1	R 0.00
9	Rehabilitation of subsided areas	ha	0	R 114,572.93	1	1	R 0.00
10	General surface rehabilitation	ha	0.43	R 108,390.94	1	1	R 46,608.10
11	River diversions	ha	0	R 108,390.94	1	1	R 0.00
12	Fencing	m	0	R 123.64	1	1	R 0.00
13	Water management	ha	0	R 41,213.28	0.6	1	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	0.23	R 14,424.65	1	1	R 3,317.67
15 (A)	Specialist study	Sum	0			1	R 0.00
15 (B)	Specialist study	Sum				1	R 0.00
					Sub Total 1		R 61,135.37
					weighting factor 2		R 7,336.24
					1		R 6,113.54
1	Preliminary and General		R 7,336.24				R 7,336.24
2	Contingencies						R 6,113.54
					Subtotal 2		R 74,585.16
					VAT (15%)		R 11,187.77
					Grand Total		R 85,772.93

5.1.6 Confirm that the financial provision will be provided as determined.

It is hereby undertaken that the amount of R 85,772.93 will be paid to DMRE in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMRE upon granting of the requested prospecting right.

5.2 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including, Monitoring of Impact Management Actions, Monitoring and reporting frequency, Responsible persons, Time period for implementing impact management actions, Mechanism for monitoring compliance

Table 5-1: Compliance Monitoring and Frequency

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Site establishment	Legal transgression; Accidents and Incidents	<ul style="list-style-type: none"> ✓ Prospecting Right; ✓ Environmental Authorisation ✓ Acts, Regulations and any other site permits; and ✓ Access agreements ✓ Emergency Preparedness and Response Plan 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Creation of access roads	Soil Erosion; Vegetation Clearing;	<ul style="list-style-type: none"> ✓ Existing roads are used as far as practicable; ✓ No multiple tracks are created; 	Applicant/ Site EO/ ECO	After creation of each access road; Monitoring

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
	Introduction of alien invasive plants.	<ul style="list-style-type: none"> ✓ Erosion control beams effectiveness; ✓ Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; ✓ Control of alien invasive plants; 		reports must be submitted quarterly.
Drill pads establishment and Core drilling	Clearing of vegetation; Contamination of ground water;	<ul style="list-style-type: none"> ✓ Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE

<i>Source Activity</i>	<i>Impacts Requiring Monitoring Programmes</i>	<i>Functional Requirements For Monitoring</i>	<i>Roles and Responsibilities</i>	<i>Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions</i>
	<i>House keeping</i>	<ul style="list-style-type: none"> ✓ <i>Control of alien invasive plants;</i> ✓ <i>Monitoring of water table depth;</i> ✓ <i>Reducing and reusing of waste on site;</i> ✓ <i>Waste separation and disposal; and</i> ✓ <i>Openings barricades and drill hole capping.</i> 		
<i>Topsoil stockpiling</i>	<i>Stockpiling erosion; Stockpiling contamination;</i>	<i>Erosion & contamination prevention.</i>	<i>Applicant/ Site EO/ ECO</i>	<i>Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE</i>

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Operation of site machinery	<ul style="list-style-type: none"> ✓ Noise generation; ✓ Soil contamination; ✓ Dust generation 	<ul style="list-style-type: none"> ✓ Dust suppression; ✓ Machinery operational standards; ✓ IAPs consultation. 	Applicant/ Site EO/ ECO	Daily inspection of equipment; Monitoring reports must be submitted quarterly to DMRE
Site Personnel	Security breach	<ul style="list-style-type: none"> ✓ Site employees' identification; ✓ Land owners' complaints; ✓ Access restriction to private properties (beyond prospecting area). 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Ablution facility	Soil and water contamination	<ul style="list-style-type: none"> ✓ Provision of portable chemical toilets; 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
		<ul style="list-style-type: none"> ✓ Disposal of sewage wastes 		<p>be submitted quarterly to DMRE</p>
Water requirements	Over extraction of water	<ul style="list-style-type: none"> ✓ Water usage 	Applicant/ Site EO/ ECO	<p>Water usage must be recorded on a daily basis and monthly reports must be submitted quarterly to DMRE</p>
Rehabilitation	Erosion;	<ul style="list-style-type: none"> ✓ Rehabilitation rate and success ✓ Vegetation regrowth 	Applicant/ Site EO/ ECO	<p>Post closure and findings submitted to DMRE</p>

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

Annual performance assessments must be undertaken on the EMPr. These reports must also include the assessment of the financial provision. The reports should be submitted to the DMRE as per the requirement of section 24P(3) of NEMA (107;1998).

5.3 Environmental Awareness Plan

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

All the employees including visitors will undergo an environmental induction to ensure that all potential impacts, best practice guidelines and policies are communicated. The induction process will be conducted as per the attached Awareness Program (Appendix 03). The induction will cover amongst others the following:

- ❖ Legal requirements for the site i.e. EA and EMPr;*
- ❖ Waste management;*
- ❖ Incident and accident Management; and*
- ❖ Emergency Response Procedure.*

5.3.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment

The following steps will be undertaken to ensure that risks are identified at the earliest and ensure that they are avoided:

5.3.2.1 Delegation of a Project Environmental Officer

An Environmental Officer (EO) must be appointed before any activity can be undertaken on site. The officer must be a qualified environmental Practitioner.

5.3.2.2 Notice of Commencement

Free State Province Department of Mineral Resource and Energy must be notified in writing 2 weeks before the prospecting activities are undertaken.

5.3.2.3 Environmental Documents

Prior to commencement of work on site, the EO is to ensure that the following documents are available on site:

- ❖ The Environmental Authorisation;
- ❖ The final approved Environmental Management Programme (EMPr);
and
- ❖ Method statements for different site activities

5.3.2.4 Environmental Monitoring

The EO is to undertake monthly internal environmental compliance audits and prepare monthly environmental audit reports during the construction period. The internal environmental audit must include the following information:

- (i) An assessment of the Contractor's compliance with:
 - ❖ The relevant conditions of all permits: EA, WUL, etc.;
 - ❖ The approved Environmental Management Programme;
 - ❖ The approved Construction Site Plan.
 - ❖ The approved Construction Method Statements.

(ii) Provide feedback on:

- ❖ Environmental training undertaken;
- ❖ Any environmental incidents or complaints;
- ❖ Waste type quantities recycled and disposed;
- ❖ Any environmental issues identified;
- ❖ The results of any environmental investigations;
- ❖ Actions undertaken from previous audits; and
- ❖ Recommended actions to be undertaken.

5.3.2.5 Environmental Training

Prior to working on site, every person that will be undertaking any retrofit activities must receive training on the relevant environmental management requirements. The EO is to ensure that the environmental training includes the relevant requirements from:

- ❖ All site authorisations; and
- ❖ The final approved Environmental Management Programme.

5.3.2.6 Development of procedures and checklists

The following procedures will be developed and all staff and workers will be adequately trained on the content and implementation thereof.

Emergency Preparedness and Response: The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centers (fire department, hospitals) will be identified and the contact numbers obtained and made available on site. The procedure must be developed in consultation with all potentially affected land owners. In the

event that risks are identified which may affect adjacent landowners (or other persons), the procedure will include the appropriate communication strategy to inform such persons and provide response measures to minimize the impact.

Incident Reporting Procedure: Incident reporting will be undertaken in accordance with an established incident reporting procedure to (including but not limited to):

- ✓ Provide details of the responsible person including any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control when the incident occurred;
- ✓ Provide details of the incident (time, date, location);
- ✓ The details of the cause of the incident;
- ✓ Identify the aspects of the environment impacted;
- ✓ The details corrective action taken, and
- ✓ The identification of any potential residual or secondary risks that must be monitored and corrected or managed.

Environmental and Social Audit Checklist: An environmental audit checklist will be established to include the environmental and social mitigation and management measures as developed and approved as part of the Environmental Management Plan. Non-conformances will be identified and corrective action taken where required.

6 *Specific information required by the Competent Authority*

No specific information was required by the Competent Authority.

7 **UNDERTAKING**

The EAP herewith confirms

- a. The correctness of the information provided in the reports*
- b. The inclusion of comments and inputs from stakeholders and I&APs,*
- c. The inclusion of inputs and recommendations from the specialist reports where relevant, and*
- d. That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.*

Mugagadeli Phathutshedzo

Signature of the environmental assessment practitioner:

Mielelani Consultancy

Name of company:

16 October 2021

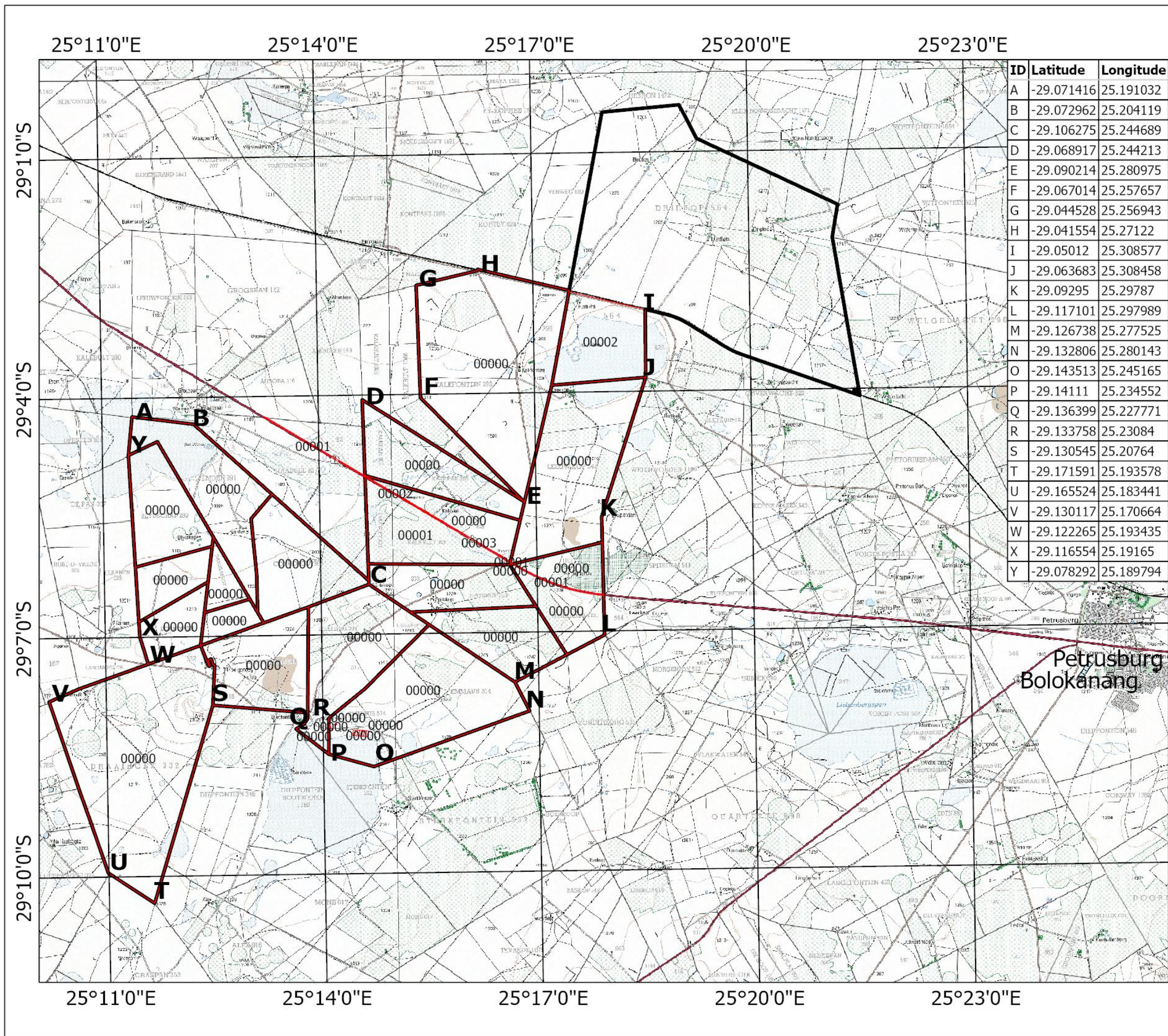
Date:

-END-

APPENDICES

APPENDIX 01: *Locality Map*





ID	Latitude	Longitude
A	-29.071416	25.191032
B	-29.072962	25.204119
C	-29.106275	25.244689
D	-29.068917	25.244213
E	-29.090214	25.280975
F	-29.067014	25.257657
G	-29.044528	25.256943
H	-29.041554	25.27122
I	-29.05012	25.308577
J	-29.063683	25.308458
K	-29.09295	25.29787
L	-29.117101	25.297989
M	-29.126738	25.277525
N	-29.132806	25.280143
O	-29.143513	25.245165
P	-29.14111	25.234552
Q	-29.136399	25.227771
R	-29.133758	25.23084
S	-29.130545	25.20764
T	-29.171591	25.193578
U	-29.165524	25.183441
V	-29.130117	25.170664
W	-29.122265	25.193435
X	-29.116554	25.19165
Y	-29.078292	25.189794

Locality Map for the Proposed Prospecting Activities

- Legend**
- Propose Prospecting Farms
 - Proposed Prospecting Portions

LEGEND

- National Freeway; National Route.....
- Arterial Route.....
- Main Road.....
- Secondary Road; Bench Mark.....
- Other Road; Bridge.....
- Track and Hiking Trail.....
- Railway; Station or Siding.....
- Other Railway; Tunnel.....
- Embankment; Cutting.....
- Power Line.....
- Built-up Area (High, Low Density).....
- Buildings; Ruin.....
- Post Office; Police Station; Store.....
- Place of Worship; School; Hotel.....
- Fence; Wall.....
- Windpump; Monument.....
- Communication Tower.....
- Mine Dump; Excavation.....
- Trigonometrical Station; Marine Beacon.....
- Lighthouse and Marine Light.....
- Cemetery; Grave.....
- International Boundary and Beacon.....
- Provincial Boundary.....
- Protected Area.....
- Perennial River.....
- Perennial Water.....
- Non-perennial River.....
- Non-Perennial Water.....
- Dry Water Course.....
- Dry Pan.....
- Marsh and Vlei.....
- Pipeline (above ground).....
- Water Tower; Reservoir; Water Point.....
- Coastal Rocks.....
- Prominent Rock Outcrop.....
- Erosion; Sand.....
- Woodland.....
- Cultivated Land.....
- Orchard or Vineyard.....
- Recreation Ground.....
- Row of Trees.....

Spatial Reference
 Name: WGS 1984 UTM Zone 35S
 Datum: WGS 1984

Scale 1:82,000

Applicant: Tambuka Resources Pty Ltd

APPENDIX 02: EAP CV

APPENDIX 03: ENVIRONMENTAL AWARENESS PLAN

1. Introduction

Legislation requires that a prospecting company who prepares an environmental management program must develop an environmental awareness plan describing the manner in which the company intends to inform his or her employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation but also as a moral obligation.

1.1. The Environmental Awareness Plan (EAP)

The EAP forms part of the EMPr and is intended to create the required awareness and culture with personnel and contractors/service providers on environmental safety and health issues associated with the prospecting activities.

1.2. The applicant's policy on environmental awareness

This Environmental Awareness Plan (EAP) will serve as the basis for the induction of all new employees (as well as contractors pending the nature of their work on site) on matters as described herein and read in conjunction with the EMPr. The Plan will also be used to hone awareness of all employees on a continuous basis. Specific environmental awareness performance criteria will also form part of the job descriptions of employees, to ensure diligence and full responsibility at all levels of the organisational work force.

1.3. Fostering environmental awareness

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensure that environmental accidents are minimized and environmental compliance maximized.

Environmental awareness will be fostered in the following manner:

- a) Induction course for all workers on site, before commencing work on site.
- b) Refresher courses as and when required
- c) Daily toolbox talks at the start of each day with all workers coming on site, where workers can be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.
- d) Taking part in national and international environmental campaigns like National Marine Week, National harbour day, National Wetlands day exacta.
- e) Displaying of information posters and other environmental awareness material in the general assembly points.

1.4. Training and environmental awareness

The company accepts that environmental awareness training is critical for the workforce to understand how they can play a role in achieving the objectives specified in the EMPr and ensure that the actions specified in the EMPr are implemented effectively and efficiently. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

2. The environmental awareness training course

All employees should attend the course, regardless of position, status or level of responsibility. With a background of basic environmental awareness and an understanding of basic environmental issues and sensitivities, personnel may be motivated and empowered to do their share in helping to maintain the integrity of the environment on the prospecting site through environmental impact management.

The goal of this course is therefore to enable a shared understanding and common vision of the environment, the impact of a prospecting operation on the environment (and why this is important) and the role of prospecting personnel in terms of environmental management and compliance.

The induction course will compose of the following steps:

- The first step will include background discussion of the environment concept: of what it comprises and how we interact with it.
- The second step will be a description of the components and phases of the specific Prospecting operation.
- The third step will be a general account of how the Prospecting operation and its associated activities can affect the environment, giving rise to what we call Environmental Impacts.
- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment. This is known as Environmental Impact Management.

3. Course content

The following can be seen as draft course content as it will be building on as specific needs arises and will be supplemented with the handout of reading material and extracts of the EMPr on which the course will be based.

3.1. The environment

The environment consists essentially of the living environment, the non-living environment and the man-made environment. The living environment consists of our plant and animal resources. The non-living environment includes the soil, water and geological resources. The man-made environment comprises our infrastructure, social, cultural and archaeological resources.

These environments depend on one another, and man depends on them all for his survival. Damage to one will be felt by so we must fry to protect the as well as their interactions with one another as they occur in nature.

When undertaking a Prospecting operation or any other form of development this concept must be kept in mind. Development must be implemented in such a way that we benefit today without compromising the ability of future generations to benefit as well. Employees should understand this concept of sustainability and sustainable development.

3.2. Description of the components and phases of the operation

The project description should be explained as part of induction together with the main components or activities that can affect the environment, giving rise to what we call environmental impacts. The Prospecting operation consists of a number of different components

3.3. Description of Environmental Impacts

A general account of how the Prospecting operation and associated activities can affect the environment must be explained. This is basically a description of concept of environmental impacts.

a) What is an Environmental Impact?

An environmental impact is the result, either good or bad, of man's actions on the natural environment. This results in one or many changes in the environment. This may also affect the availability of resources and the environment's capacity to function.

Impacts can occur either as a result of:

- The use of a resource;
- Or the pollution of a resource.

In addition, impacts can be categorised as the following:

- Foreseen, such as the necessary clearing of the vegetation before Prospecting begins, or Unforeseen, such as the flooding of an area following heavy rains;
- Avoidable, such as the unnecessary spillage of diesel during refuelling- or Unavoidable, such as the disturbance created during drilling; Simple- such as litter untidying the prospecting site, or Cumulative which is a collective impact from different existing activities.

a) Environmental Impacts

Typical environmental impacts anticipated on a Prospecting site include the following:

The loss of plants; The loss of animals; Soil pollution; Dust liberation; Soil compaction and erosion; and Water pollution;

b) Causes of environmental impacts

These environmental are caused primarily by inadequate planning & not adhering to the EMPr Specifications.

- The inadequate planning & preparation of the Prospecting site;*
- The uncontrolled expansion of the Prospecting site footprint;*
- The uncontrolled activity of Prospecting staff;*
- The injudicious removal / disturbance of vegetation and habitat;*
- The unnecessary loss of soil;*
- Uncontrolled vehicular movement & circulation;*
- The haphazard storage of vehicles, equipment and material;*
- The uncontrolled servicing, repair and refuelling of vehicles;*
- Unclear policy on solid waste management;*
- Unclear policy on waste water;*
- The uninformed use, storage and disposal of hazardous material;*
- The erosive power of storm water and runoff;*
- Unintentional fires;*

3.4. Description of Environmental Impacts Mitigation

The fourth and most important step of an induction course will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading their environment. This is known as Environmental Impact Management and is also described in the

Environmental Management Programme. The course discussion should also include general environmental code of conduct practices such as:

Impact management: Prospecting site establishment (general):

- Do not cross any site fences;
- Do not walk, drive or store material in rehabilitating areas;
- Report any access into fenced off areas to the foreman environmental manager;
- Use only areas designated for certain construction activities;
- Do not access any stream or water body without permission;
- Report any headstones, graves or human remains you may find to the foreman environmental manager;

Impact management: Construction phase (general):

- Only eat, cook, sleep and recreate in the areas designated on site;
- Do not bathe anywhere except in the designated areas on site;
- Always use the toilet facilities provided;
- Only use the water provided on site- do not collect water from or dispose water into a natural water course;
- Always make use of the specified Prospecting site safety measures;
- Do not hunt, kill or injure any animals anywhere on site;
- Inform the foreman environmental of any dangerous or problem
- Do not leave any food or rubbish where scavengers can get at it.

Impact management: Health and safety (general):

- Always use the toilet & hand washing facilities provided.
- Only use the water provided on site - do not collect water from or dispose water into a natural water course.

- Make use of the specified protective gear for noisy and dusty conditions.
- Always wear proper protective head and foot gear while on site.
- Know where to find a list of emergency numbers in the event of one.
- Report accidents, injuries and unsafe site conditions to the Safety Officer.

Impact management: Vegetation clearing (general):

- Do not damage, destroy or remove any significant tree that has been marked;
- No firewood may be harvested without permission;
- Newly planted trees may not be disturbed in any way;
- Do not excavate beneath the crown of any tree that has been marked;
- No conserved tree may be used to support or hang anything in;
- Report to the foreman environmental manager any damage to any significant tree that has been marked.

Impact management: Top Soil removal and storage (general):

- Only excavate soil, gravel, rock etc. from designated areas;
- Stockpile soil only as instructed and at the time it is instructed;
- Do not make new stockpiles without permission;
- Do not use soil or remove soil from any stockpile without permission;
- Do not walk, drive or store any equipment, machinery or material on any stockpile.

Impact management: Access and transport (general):

- *Only drive on designated roads and tracks;*
- *Move obstacles out of the way rather than drive around them;*
- *Only cross drainage lines at designated points;*
- *Always drive within the specified speed limit.*

Impact management: Storage of vehicles, equipment and material (general):

- *Do not leave machinery and equipment standing around if not in use;*
- *Only park vehicles in designated areas;*
- *Do not park heavy vehicles or store equipment under or near trees*
- *Do not store machinery, vehicles or materials in undisturbed or rehabilitating areas.*

Impact management Servicing, repair and refuelling of vehicles (general).

- *Only service machinery and vehicles in designated areas;*
- *Regularly check your vehicle for fuel and oil leaks;*
- *Inform the foreman environmental manager of leaking vehicles and machinery so that he can schedule repairs;*
- *Only refuel by means of a pump and on the bund created for that purpose;*
- *Immediately clean any accidental fuel and oil spills - do not hose spills into the natural environment;*
- *Dispose of contaminated soil as hazardous waste in the correct location on site.*

Impact management: Solid waste management (general):

- *Do not litter - make use of refuse bins provided;*

- Concrete may only be mixed in designated areas and not directly on the ground;
- Do not hose spills into the natural environment - inform the foreman environmental manager of spills you are unable to clean yourself;
- Dispose of construction rubble only in specified storage areas - if in doubt, ask;
- Do not bury, hide or burn any waste of any nature;
- Inform the foreman of any illegal litter or dumping site that you encounter.
- Impact management: Waste water management (general):
- Do not use any natural water course to wash machinery, vehicles or equipment;
- Only wash machinery, vehicles or equipment in designated areas;
- Conserve water and report any leaks and overflow to the foreman,

Impact management: Management of hazardous material (General):

- Make sure that you know how to handle all hazardous substances;
- Do not access stores for hazardous substances without permission;
- Immediately clean any minor accidental spills and leaks;
- Do not hose any leaks or spills into the natural environment;
- Dispose of all hazardous waste in specified storage areas - if in doubt, ask;
- Immediately report any major leaks and spills to the foreman environmental manager.

Impact management: Fire management (General)

- *Do not make open fires except in permitted areas and at permitted times;*
- *Do not leave any fires unattended. Extinguish these before you leave the area;*
- *All cooking is to be done on gas / electric stoves and only in the areas provided;*
- *Ensure that you know where firefighting equipment is located.*

APPENDIX 04: SCREENING REPORT