



Desktop Overview of the Baseline Socio Economic and Environmental Conditions

Stakeholder Communication as part of the compilation of the Environmental Management Plan in the application for a Prospecting Right

Farms 87 and 88, Barkly West

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Desktop Baseline Socio-Economic and Environmental Conditions - Barkly West Prospecting Right Application

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The purpose of this report is to provide stakeholders with a brief overview of the baseline socio-economic and environmental conditions of the proposed prospecting site and the surrounding areas. The information contained in this report has been derived from various sources and these sources have been references throughout the document. The document outline is as follows:

- Section 1: Prospecting Site Locality
- Section 2: Proposed prospecting activities
- Section 3: The Socio-Economic Environment
- Section 4: The Physical and Biophysical Environment

Stakeholders are herewith invited to review this report and provide comments regarding the information contained therein.

Section 1

1. Prospecting Site Locality

Province	Northern Cape
District Municipality	Frances Baard
Local Municipality	Dikgatlong
Affect Ward	Ward 6
Land portions where prospecting will take place	Farms 87 and 88, Barkly West

The farms where prospecting will take place is located towards the north-west of the Spitskop Dam, north of the Harts River (refer to Figure 1 and Figure 2). The planned prospecting area (Farms 87 and 88) is approximately 7,366ha in extent, and is situated approximately 70Kkm south-east of Reivilo and approximately 80km north-west of Kimberley.

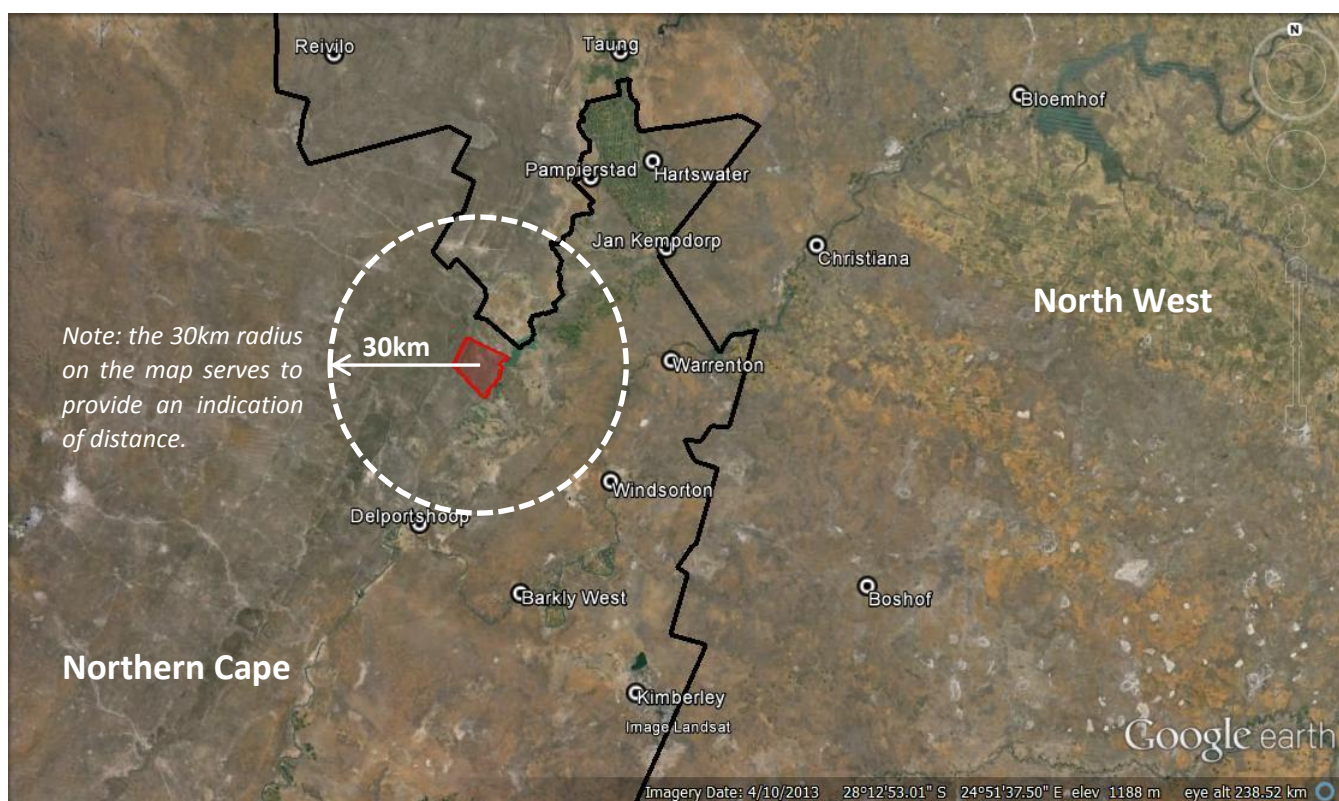
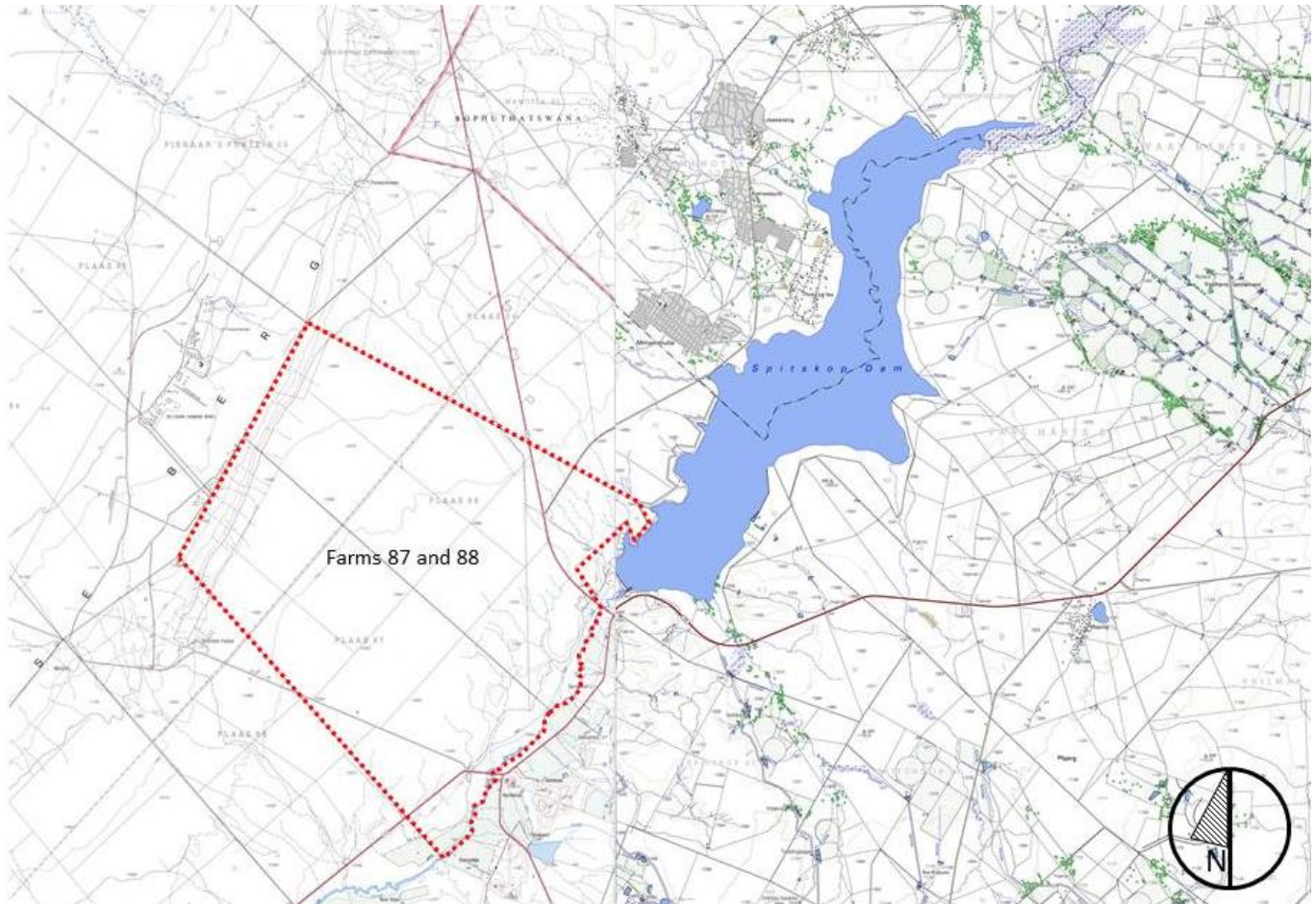


Figure 1: Farms 87 and 88 in Relation to Major Towns (Google Earth Image. Imagery Date – 04.10.2013)



1.	-28.1070	24.5080	5.	-28.1109	24.5030	9.	-28.1180	24.3943
2.	-28.1064	24.5052	6.	-28.1195	24.4898	10.	-28.1052	24.4028
3.	-28.1110	24.5081	7.	-28.1271	24.4968	11.	-28.0920	24.4107
4.	-28.1151	24.5047	8.	-28.1817	24.4567	12.	-28.0687	24.4248

Figure 2: Farms 87 and 88 in relation other townships, Spitskop Dam and the Harts River (1:50 000 Topographical Survey Sheets: 2824AB and 2824BA) and Site Coordinates

Section 2

2. Description of the Planned Prospecting Activities

The detailed geology and diamond potential of the area is relatively unknown, and exploration work will commence at a very basic level. The prospecting will be undertaken in three (3) phases, each phase will be conditional on the success of the previous.

2.1. Phase 1: Data Acquisition and Desktop Survey

A desktop study of all available data for the area will be undertaken to collect as much regional and historical data around the area as possible. This includes published geological reports, infrastructure mapping, satellite imagery and existing geophysical information (if available), both primary (kimberlite or lamproite) and secondary (alluvial) diamond deposits will be targeted.

2.2. Phase 2: Target Generation, ground truthing and delineation

If the initial results of the desktop study are encouraging, further data will be generated through wide spaced grid loam sampling and ground work (or possibly an airborne geophysical survey) in order to determine if there are positive indications of the existence of either a primary or secondary diamondiferous deposit on the exploration area.

If any of the exploration targets give a positive result, a drilling program will be undertaken in order to delineate and give a preliminary assessment of the diamond potential of the deposit identified.

2.3. Phase 3: Bulk Sampling and Feasibility Assessment

Should delineation and initial evaluation of the deposit indicate a sufficient size and grade to warrant further evaluation, an appropriate bulk sampling program will be undertaken in order to establish grade and confirm the viability of mining.

Table 1: Prospecting Timeframes and Activities

Phase	Anticipated Timeframe	Activities
Phase 1: Desktop	1 Year	During this phase, no on-site activities will be undertaken and analysis of the site will be done through the sourcing and analysis of existing information.
Phase 2: Airborne geophysics, sampling and drilling	3 Years	<p>Depending on the outcome of the Phase 1 assessment, an airborne geophysics survey and/or loam sampling programme will be initiated.</p> <p>Targets that have been prioritized through detailed anomaly-specific loam sampling and ground geophysics will be tested by initial diamond drilling.</p> <p>If kimberlite is intersected, one or more 10kg samples will be taken for Heavy Mineral Abundance (HMA) sampling to extract Kimberlite Indicator Minerals (KIM) such as garnet, chromite, ilmenite and chrome diopside in representative quantities. These will be analysed by electron microprobe for major and selected minor elements, and the results will be interpreted to assess diamond potential.</p> <p>Dependant on HMA results, further delineation drilling and micro-diamond (MiDA) sampling would be carried out to further define the deposit and give a better indication of grade.</p>

Phase	Anticipated Timeframe	Activities
		Positive results from MiDA would be followed by detailed delineation drilling and geological modelling (geological facies and densities).
Phase 3: Bulk Sampling	1 Year	<p>Should the deposit indicate a sufficient size and diamond potential from KIM and MiDA sampling to make it potentially economically viable, an appropriate bulk sampling program will be undertaken in order to confirm grade, diamond quality and size frequency distribution.</p> <p>The exact position of a bulk sample is currently unknown and will be determined by the preceding phases. The typical bulk sample pit may have an 80 x 50m surface dimension, a 20 x 50 floor dimension and will be approximately 15m deep. The sample will be treated at the existing reduction and treatment facilities at Sedibeng Diamond Mine.</p>

Section 3

3. State of the Socio-Economic and Natural Environment

The information contained in this section of the report is based on the available desktop information from the sources as referenced.

3.1. Socio-Economic Environment

The following information relating to the socio-economic environment has been obtained from the Frances Baard District Municipality Integrated Development Plan (IDP) 2012/13 – 2016/17.

1. The Dikgatlong Municipal area is reported to have an unemployment rate of 39.7%. Unemployment is attributed to low levels of education.
2. Due to the low level of transformation within the district municipality, economic development opportunities, including wildlife-related activities, tourism or livestock farming have been identified. Nature-related tourism opportunities have been identified for the Dikgatlong municipal area.
3. Limited water availability has been identified as a threat to the future socio-economic development of the district.

Municipal information published by Statistic South Africa confirms that the municipality's economy is driven by livestock, irrigation farming and commercial mining.

3.2. Physical and Biophysical Environment

3.2.1. Climate

The climate information (meteorological data) was obtained from the South African Weather Service (SAWS), Taung weather station. It should be noted available meteorological data for 2012 has been requested from SAWS and will be included at a later stage.

A. Wind Speed and Direction

Table 2: Wind Speed and Direction

Wind Direction and Speed	
Period of data	2007-2011
Dominant wind direction	North-north-west and north
Dominant day time wind direction	North-north-west
Dominant night time wind direction	North and north-east
Maximum wind speed	8.8 m/s Stronger winds are more commonly during the spring and summer seasons, wind speeds between 5.7 and 8.8 m/s occur around 2% and 1% respectively.
Wind calms	18.82% Calm conditions are more abundant during autumn and winter months, 14.9% and 14.13% respectively.
Day time calms	10.08%

Wind Direction and Speed

Night time calms	21.91%
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B. Rainfall and Temperature

Maximum rainfall for the 2011 was recorded at 190mm in January with a minimum of 0mm in July and August. Based on the information contained in the Overview of Water Resources Availability and Utilisation Report for the Lower Vaal Management Areas published by the DWA (Report No: P WMA 10/000/00/0203 dated September 2003), the average annual rainfall is reported to be 300-400mm per annum.

The maximum, minimum and average monthly temperatures for Taung for the year 2011 are reflected in the table below:

Table 3: Maximum, Minimum and Average Monthly Temperature: Taung 2011 (°C)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	27.8	28.9	28.9	23.6	22.1	18.8	19.1	23.8	28.5	29.4	31	30
Min	19.2	18.1	17.3	12.7	7.6	1.8	1.2	5.2	9.4	11.9	13.1	17.2
Ave	23.5	22.9	22.6	17.4	13.9	9.2	9.1	14.1	18.7	20.6	22.4	23.5

3.2.2. Geology

The area lies on the Kaapvaal craton, on the Eastern edge of the Griqualand West basin, and consists of dolomite, limestone and chert of the Reivilo formation (2,567Ma). These shallow water carbonate deposits form the lower section of the Campbellrand Subgroup of the Ghaap Group, and are overlain by recent cover of calcrete and sand. Ghaap Group sediments are known to be underlain by lithologies of the Ventersdorp Supergroup. These are known to occur at a depth of approximately 400m.

The detailed geology and economic potential of the area under application is currently unknown, though the area is perceived to have good potential for hosting economically viable kimberlites due to the proximity of current, or historically producing, hard-rock diamond mines. The regional geology is also conducive to the possibility of alluvial diamonds in palaeochannels.

3.2.3. Land Capability and Land Use

According to the Agricultural Geo-Referenced Information System (AGIS), the prospecting site is indicated to be non-arable with a moderate to low grazing capacity. Cattle and game farming is predominant land use in the general area. The Vaalharts Agricultural Valley is located in relative close proximity to the proposed prospecting site and has been developed through the establishment of the Vaalharts Irrigation Scheme. The Vaalharts Agricultural Valley is regarded as important exporting agricultural region. The Vaalharts agricultural union, through their website, reports that the Vaalharts agricultural area amounts to approximately 164,000 hectares, consisting of 1,260 irrigation farms and approximately 45 stock-farms (www.vaalharts.com).

3.2.4. Water Resources

The proposed prospecting site falls within the Lower Vaal Water Management Area, within Quaternary Catchment C33C, the Harts sub-area. Based on the information contained in the Overview of Water Resources Availability and Utilisation Report for the Lower Vaal Management Areas (DWA Report No: P WMA 10/000/00/0203, September 2003), the main water requirement in Harts sub-area is for irrigation and is in excess of 85%.

C. Surface Water

The Hart River forms the south eastern boundary of the planned prospecting site. The Klein Boetsap River traverses the site toward the eastern corner of the proposed prospecting area. A number of non-perennial drainage channels, which originates on the planned prospecting site, flows towards the Harts River. The Spitskop Dam is located towards the south east of the proposed prospecting site.

DWA (2003) reported that the water in the Harts River downstream of the Vaalharts irrigation scheme is of exceptional high salinity resulting from saline leachate from irrigation fields.

D. Groundwater

The DWA (2003) reports groundwater utilisation to be of major importance in the Lower Vaal Water Management Area. Dolomitic aquifers occur in the uppermost reaches of the Harts River and Molopo River and extend north and eastwards into the Crocodile (West) and Marico, Upper Vaal and Middle Vaal Water Management Areas. Significant quantities of groundwater are abstracted in the Harts sub-areas. The total yield from groundwater in the overall water management area well exceeds water available from surface water sources.

3.2.5. Biodiversity

According to the South African National Biodiversity Institute's (SANBI) Biodiversity Geographical Information System (BGIS), the proposed prospecting site is located within the Savanna Biome, Schmidtsdrif Thornveld Vegetation Type (SVk6). The description for the vegetation type was also obtained from the above-mentioned source.

The Schmidtsdrif Thornveld Vegetation Type represents 38.31% of Dikgatlong municipal area and the conservation status of the Schmidtsdrif Thornveld is recorded as "Least Threatened". The vegetation type is described as mostly a closed shrubby thornveld dominated by *Acacia Mellifera* and *Acacia Tortillis*. Grasses, bulbous and annual herbaceous plant species are also prominent. A large percentage of the municipal area remains natural (approximately 90%) though a very small percentage of the areas is statutorily conserved.

As part of the stakeholder consultation process, Birdlife South Africa confirmed that the Spitskop Dam has been identified as an Important Bird Area (IBA) as part of the Important Bird Area Programme. Based on the publically available information obtained from the Birdlife website (<http://www.birdlife.org/datazone/site>), the Spitskop Dam supports a significant number of bird species (over 10,000 and occasionally up to 18,000 species). The dam is regarded as an important bird area as a permanent waterbody in a low rainfall region. Reportedly the dam supports a number of important bird species including Pinkbacked Pelican (*Pelecanus rufescens*), Caspian Tern (*Hydroprogne caspia*), Greater Phoenicopter Ruber and Lesser Phoeniconaias minor flamingos. The Spitskop Dam has no protection status and a poaching as well as water pollution has been identified as habitat threats.

3.2.6. Heritage Resources

To date, no desktop heritage resource information could be sourced for the affected farm portions.

References

Agricultural Geo-Referenced Information System. <http://www.agis.agric.za/agisweb/agis.html>. Accessed 19 August 2013

Birdlife South Africa. <http://www.birdlife.org/datazone/site>, <http://www.birdlife.org.za/conservation/iba/iba-directory/217-spitskopdam>. Accessed 19 August 2013.

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