PART 4

GREATER SOUTPANSBERG PROJECT

PROPOSED MOPANE PROJECT

DMR Reference:

Regulus Investment Holdings (Pty) Ltd - LP30/5/1/2/2/10035MR
Coal of Africa Limited - LP30/5/1/2/2/10034MR; LP30/5/1/2/2/10033MR
Kwezi Mining Exploration (Pty) Ltd - LP30/5/1/2/2/10029MR; LP30/5/1/2/2/10036MR; LP30/5/1/2/2/10030MR; LP30/5/1/2/2/10031MR
Chapudi Coal (Pty) Ltd - LP30/5/1/2/2/10032MR

SOCIO-ECONOMIC IMPACT ASSESSMENT

11 November 2013

NALEDI DEVELOPMENT (Pty) Ltd

GREATER SOUTPANSBERG PROPOSED MOPANE PROJECT

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DECLARATION OF INDEPENDENCE

Lizinda Dickson and Carien Joubert, authors of the Social Impact specialist report, hereby declare that we are employed at Naledi Development (Naledi) an independent environmental consultancy company. With a combined 50 years of practice in the environmental and social consulting industry, Naledi have extensive experience in conducting Social Impact Assessments and Public Participation Processes. Please refer to Lizinda Dickson's and Carien Joubert's CV's attached as Annexure A.

Naledi compiled the Socio-economic Baseline and Impact Assessment based on independent research and analysis of the proposed Mopane Colliery Project. We hereby confirm that we have no business, financial, personal or other interest in the activity proceeding other than remuneration for work performed as defined under "independent" in Chapter 1 of the Environmental Impact Assessment Regulations, 2010.

Lizinda Dickson — **11 Nov 2013**

Date

For Naledi Development

Carien Joubert — **11 Nov 2013**

Date

For Naledi Development

EXECUTIVE SUMMARY

This document presents the results of a Social Impact Assessment (SIA) for the Mopane Colliery Project that MbeuYashu plans to construct in the Vhembe District, close to the Mopane town.

The objectives of the SIA were to identify:

- **The socio-economic characteristics of communities that may potentially be affected by the project;**
- **The anticipated positive and negative impacts of the proposed project during its construction, and operational phases;**
- **Practical, cost-effective and auditable management measures to avoid or ameliorate negative social impacts and enhance positive ones;**
- **Assess the no-go option as project alternative in terms of the anticipated socioeconomic impacts; and**
- **Identify any additional studies which may be required to determine the full impact of the project throughout and after its lifetime.**

Methodology

The study was designed so as to comply with the relevant national legislative requirements, such as those stipulated in the Mineral and Petroleum Resources Development Act (Act XX of 1998) and the Integrated Environmental Assessment Guidelines. Relevant international best-practice standards, such as the Equator Principles, and the International Finance Cooperation's (IFC) Principles and Performance Standards also informed the investigation's approach. The following activities were undertaken as part of the study:

- ***Data collection***, **which included:**
  - **A desktop review (including the most recent Census data (2011) and other National surveys done of the area; Local Government Planning Documentation, other Social Impact Assessment (SIA) for similar projects; as well as maps and available satellite imagery of the proposed project sites and surrounding environment);**
  - **Site visits and Observations to the project area in order to verify information obtained from secondary sources on potential project impacts and the socio-economic characteristics of the receiving environment;**
  - **Participant Observation and Individual interviews with key informants, stakeholder and public participation meetings including key members of local communities, municipal officials, land users and landowners in the area;**

- A sample survey of landowners in the Mopane area was conducted to appraise the nature and extent of land use and other livelihood related activities in the vicinity of the project area; and
- Information from other specialist studies conducted as part of the Environmental Impact Assessment (EIA) for the proposed project.

- Compilation of a ***socio-economic baseline profile*** on the basis of the information collected through the desktop review, site visits, participant observations and the sample survey and interviews with key informants;

- ***Assessment of positive and negative impacts*** on the basis of issues identified through the public participation process, interviews with key stakeholders and specialist opinion. Identified impacts were categorised in terms of the phase of the proposed project that is expected to give rise to these impacts;

- ***Rating of impacts*** in terms of their anticipated duration, extent, intensity and probability. Duration, extent and intensity ratings were combined into a measure of an impact's expected consequence. Consequence ratings, in turn, were combined with probability ratings to give a measure of an impact's overall significance;

- Identification of appropriate ***mitigation measures*** to avoid or ameliorate negative socio-economic impacts and to enhance positive ones. The rating procedure described above was then repeated to assess the expected consequence, probability and significance of each impact after mitigation. This post-mitigation rating gives an indication of the significance of residual impacts, while the difference between an impact's pre-and post-mitigation ratings therefore represents the degree to which the recommended mitigation measures are expected to be effective in reducing or ameliorating that impact;

- Assessment of ***cumulative impacts***, which are defined as impacts arising from the combined effects of existing activities, the project and foreseeable future projects or actions.

Baseline socio-economic profile

The proposed project is to be situated approximately 40km north of Makhado, 30km south of Musina, and 7km west of Mopane, which are all located within the Vhembe District of Limpopo Province, South Africa. The proposed Mopane Mine straddles the Musina and Makhado local municipalities in the Vhembe District. The relevant wards are Ward 2 (of 6) in Musina and Ward 21 (of 38) in Makhado. The wards are both considerably larger than the footprint of the proposed mine. A large part of the proposed Mopane Coal Mine is located Ward 2 in Musina LM.

Musina LM has a relatively small population of less than 69,000 people, and of the affected ward 16,750 people. Makhado LM, by contrast, is one of the most populous municipalities in Limpopo Province. The municipality have a total population of 516,031 people of which 21,000 people live in Ward 21, presumably all live on farms due to a lack of formal or informal settlement.

Musina LM has a relatively small local economy, with a total value of production of R4.72 billion at current prices for 2011. It contributes 2.5% to the provincial economy. The main driver in the Musina municipal economy is mining, which contributed almost 40% to the total value of production in 2011 (at current prices). The primary commodity is diamonds, although coal is also beginning to make a significant contribution. The Makhado local economy, with a value of production of close to R13 billion, is almost three times larger than that of Musina. Government is the driver of this local economy, mostly because of the public sector needs of the very large population, which includes education, public health, safety and security, as well as local government services.

In terms of Education, less than 22% of adults in the two wards have completed school successfully or obtained a post-school qualification. More than 48% of adults only have some secondary school education. Almost 8% of adults have never been to school.

The strict unemployment rate (SUR) in Musina LM at 18.7% is considerably lower than the provincial average and it is even lower in Ward 2 at 9.8%. The expanded unemployment rate (EUR) includes discouraged work seekers (DWS) as unemployed and is therefore always higher than the strict unemployment rate. Discouraged work seekers have given up on trying to find work and are therefore technically not included in the internationally used definition of unemployment. Unemployment of more than 36% in Makhado LM is significantly higher than in Musina, although Ward 21 in Makhado is an exception. Most of the residents of this ward work on farms, resulting in a strict unemployment rate of only 7.2%, which is a quarter of the municipal average.

Household incomes are generally low, with 84% of households in Musina Ward 2 earning less than R38,200 per year or approximately R3,180 per month. Household income is slightly higher in Makhado Ward 21 where 64% of households earn less than R38,200 per year.

A unique feature of the project area is that the small village of Mopane[1] is the only human settlement in the vicinity of the proposed mine. Musina Local Municipality is in the process of preparing a master plan for the development of 1,000 new residential sites at the small

1 Population estimated to be 206 in 2011, comprising 49 households. Source: Limpopo Dept of Water Affairs

settlement of Mopane. Makhado Municipality has no settlements within 20 km of the proposed Mopani Mine project area.

The project area have been divided into the following focus areas, those properties and communities in the surrounding area, the properties on Mining Right Application farms, and the properties on the Mining Right Application area physically affected by the mine footprint.

The area's primary land use is game farming for the game breeding and hunting industry. Part of this focus includes hunting lodges that are in some instances also utilised for tourism. Along the Sandriver and on some of the Vera Agricultural Plots, a livelihood is made from arable crop production. There are landowners that are from the area and live on the properties full time, other landowners have a foreman on the property and only visit from time to time.

The properties physically affected by the mine footprint contributes to the agricultural sector GDP and also provides employment to people from the local communities as well as from across the borders of South Africa.

The community has organised themselves into a Landowner Association to ensure consistency in the participation process as well as the approach to mitigation of impacts.

Predicted impacts and recommended mitigation measures

The anticipated socio-economic impacts of the proposed project, their consequence, probability and significance ratings, as well as recommended mitigation measures are summarised in the table below.

Table 1-1: Executive summary - Socio-economic Impact Table

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance
DP1	Demographic and Population Impacts	Influx of work seekers into the area	Negative	Moderate Risk	Moderate Significance
DP2	Demographic and Population Impacts	Influx of construction labour with pressure on services and social structures	Negative	Moderate Risk	Moderate Significance
DP3	Demographic and Population Impacts	Influx of operational workforce with pressure on services and social structures	Negative	Moderate Risk	Moderate Significance
DP4	Demographic and Population Impacts	Influx of people and the development of spontaneous settlements near project facilities, in the Mopane Town and surrounding areas	Negative	High Risk	Moderate Significance
DP5	Demographic and Population Impacts	Conflicts arising at the end of construction due to the termination of job opportunities for contractors	Negative	High Risk	Moderate Significance
HSW1	Health and Social Wellbeing	Increased chances of the spread of communicable diseases such as HIV/AIDS and STDs linked to	Negative	High Risk	Moderate Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance
		influx of predominantly male job-seekers and workers			
HSW2	Health and Social Wellbeing	Safety and Risk Exposure through an increase in crime	Negative	Moderate Risk	Low Significance
HSW3	Health and Social Wellbeing	Safety and Risk Exposure due to an increase in poaching on neighbouring game farming properties	Negative	Moderate Risk	Low Significance
QL1	Quality of Living Environment	Change in "sense of place"	Negative	High Risk	Moderate Significance
QL2	Quality of Living Environment	Disruption of Social Networks and decrease in Social Capital	Negative	Moderate Risk	Low Significance
QL3	Quality of Living Environment	Perceptions of and Feelings in relation to the project	Negative	High Risk	Moderate Significance
FC1	Family and Community Impacts	Impacts on land owner and labourers	Negative	Very High Risk	Moderate Significance
FC2	Family and Community Impacts	Change processes and impacts related to daily movement patterns	Negative	Moderate Risk	Moderate Significance
FC3	Family and Community Impacts	Conversion of land use	Negative	High Risk	Moderate Significance
I1	Institutional/Legal/Political/Equity Impacts	Challenge to local government capacity	Negative	Moderate Risk	Low Significance
I2	Institutional/Legal/Political/Equity Impacts	Participation and Consultation in process	Negative	Moderate Risk	Low Significance
I3	Institutional/Legal/Political/Equity Impacts	Impact equity	Negative	High Risk	Moderate Significance
E1	Socio-economic Wellbeing	Increase in South African GDP and Trade Balance	Positive	High Positive	Moderate Significance
E2	Socio-economic Wellbeing	Increase in provincial and local GDP	Positive	High Positive	Moderate Significance
E3	Socio-economic Wellbeing	Increase in government revenue	Positive	High Positive	Moderate Significance
E4	Socio-economic Wellbeing	Increase in employment, income and skills development	Positive	High Positive	Moderate Significance
E5	Socio-economic Wellbeing	Impact on existing businesses in surrounding areas	Negative	High Risk	Moderate Significance
E6	Socio-economic Wellbeing	Change in property values	Negative	High Risk	Moderate Significance
E7	Socio-economic Wellbeing	Decrease of visitors, tourists and hunting parties	Negative	High Risk	Moderate Significance
E8	Socio-economic Wellbeing	Equity Participation of the Local Communities	Positive	Moderate Risk	Moderate Significance
E9	Socio-economic Wellbeing	Participation of local business in procurement opportunities	Positive	High Positive	Moderate Significance
E10	Socio-economic Wellbeing	Decline in South African GDP and Trade Balance at Decommissioning	Negative	Moderate Risk	Moderate Significance
E11	Socio-economic Wellbeing	Decline in provincial and local GDP at decommissioning	Negative	High Risk	Moderate Significance
E12	Socio-economic Wellbeing	Decline in government revenue at Decommissioning	Negative	High Risk	Moderate Significance
E13	Socio-economic Wellbeing	Decline in employment, income and skills development at decommissioning	Negative	High Risk	Moderate Significance
VG1	Vulnerable Group Impacts	Gendered Division of labour	Negative	Moderate Risk	Low Significance
VG2	Vulnerable Group Impacts	Potential Infringements on Historically Disadvantaged People's Human Rights	Negative	Moderate Risk	Low Significance

Conclusions and recommendations

The results of the study indicate that the recommended mitigation measures are expected to reduce the significance of negative impacts to acceptable levels, while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities.

The main conclusion arising from the assessment of *cumulative impacts* is that the planned Mopane Colliery and its ancillary infrastructure will add to the socio-economic impact of the mining operations in the area in a negative sense. Firstly the proposed development might stimulate an additional influx of people into the area, thereby adding to congestion and pressure on local infrastructure and services. Secondly the project may add to the mining operations' existing and future impact on the area's sense of place, this in turn may cause a decline in tourism and hunting related activities in the surrounding area. However, the project will also add to the *positive* impacts associated with these other developments (in terms of job creation, stimulating the local economy, etc.).

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1 INTRODUCTION

Naledi Development was appointed by MbeuYashu to conduct the Social Impact Assessment (SIA) for their proposed Mopane Colliery Project.

The proposed Mopane Colliery project is a proposed mining development that will impact the social environment of the project area, local town and the region, from the time the project is announced until long after it has been decommissioned.

Social impacts start to emerge, with the first mention of the project, when affected parties use the information to change their way of making decisions about their social world, and the perception they form about the future of their milieu. Residents and potential residents evaluate the information they receive regarding the project against their own lives and that of their neighbours and adjust their actions accordingly. A social impact assessment is a means to explain the social changes that will take place due to the decisions and perceptions formed by affected individuals and groups, as well as the changes that will occur due to the actual project activities.

This document presents the results of a Social Impact Assessment (SIA) for the Mopane Colliery Project that MbeuYashu plans to construct in the Vhembe District, close to the Mopane town.

The objectives of the SIA were to identify:

- The socio-economic characteristics of communities that may potentially be affected by the project;
- The anticipated positive and negative impacts of the proposed project during its construction, and operational phases;
- Practical, cost-effective and auditable management measures to avoid or ameliorate negative social impacts and enhance positive ones;
- Assess the no-go option as project alternative in terms of the anticipated socioeconomic impacts; and
- Identify any additional studies which may be required to determine the full impact of the project throughout and after its lifetime.

2 METHODOLOGY

2.1 Defining Social Impact Assessments

The International Association for Impact Assessment (2003) states that Social Impact Assessment includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by these interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment. The Inter- organisational Committee on Principles and Guidelines for Social Impact Assessment (2003:231) defines Social Impact Assessment in terms of "efforts to assess, appraise or estimate, in advance, the social consequences that are likely to follow from proposed actions". More specifically, the guidelines can be summarised as follows:

- **To understand the local and regional settings to be affected by the mine**
- **To identify methods of inquiry that take into account assumptions and significance of the project**
- **To provide quality information that can be used to take decisions**
- **To ensure inclusiveness, making sure all social groups are considered**
- **To undertake evaluation / monitoring and mitigation**

Social change processes are set in motion by project activities or policies. Change has a way of creating other changes. Social change processes can lead to several other, second-order social change processes. Depending on the characteristics of the local social setting and mitigation processes that are put in place, social change processes can lead to social impacts (Vanclay, 2002:192). Social change processes relevant to the project will be discussed before the potential social impacts will be investigated and mitigation measures proposed.

''Social Impact Assessment is concerned with analysing, monitoring and managing the social consequences of development''. SIA is a methodology used by SIA practitioners to assess the social impacts of planned interventions or events, and to develop strategies for the ongoing monitoring and management of those impacts'' (IAIA, 2003).

A social impact is something that is experienced or felt. It can be positive or negative.
In Social Sciences one can distinguish between two types of social impacts:

- **Objective social impacts** – i.e. impacts that can be quantified and verified by independent observers, such as changes in population size or composition, in employment patterns, in standard of living or in health and safety. This can typically be quantified
- **Subjective social impacts** – i.e. impacts that occur "in the imaginations" or emotions of people, such as negative public attitudes, psychological stress or reduced quality of life. This kind of impact is much more difficult to identify and describe, as one cannot readily quantify perceptions or emotions. Social Scientist should not refrain from including subjective social impacts, as these can have far-reaching consequences in the form of opposition to, and social mobilization against the project (Du Preez & Perold, 2005: v).

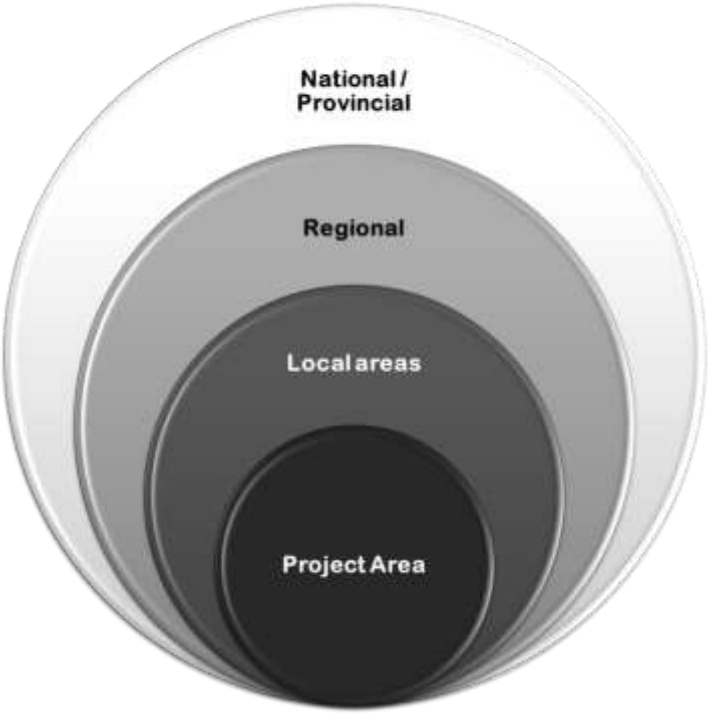
For the purpose of this SIA, the following categories were investigated:

- Demographic processes
- Economic processes
- Geographic processes
- Institutional and legal processes
- Emancipatory and empowerment processes
- Socio-cultural processes
- Biophysical processes

2.2 Potential Zone of Influence

The study area includes various different receiving environments that are relevant to the socio-economic assessment. The figure below indicates:

- The National Environment: South Africa
- The Provincial Environment: Limpopo Province
- The Regional Environment: The Vhembe District, Makhado and Musina Local Municipal areas
- The Local Environment: Properties bordering the mining areas and infrastructure
- The Project Area Environment: Properties included in the Mining Right Application area those physically affected by the mine footprint



2.3 Data Collection

2.3.1 Desktop Review

A desktop review has been conducted reviewing the following documentation:

- Census 2011 data
- Community survey 2007
- Quarterly Labour Force Survey 2012 & 2013
- General household survey, 2011
- Income and Expenditure survey 2010/2011
- Mortality and causes of death survey, 2010
- School survey, 2009
- Makhado Local Municipality IDP, 2012/2013 - 2017
- Musina Local Municipality IDP, 2012/2013 - 2017
- Makhado Spatial Development Framework, 2011
- Musina Spatial Development Framework, 2011
- Other Social Impact Assessment (SIA) for similar projects
- Maps and available satellite imagery of the proposed project sites and surrounding environment

2.3.2 Site visits to study area

Site visits and observations were conducted to the project area in order to verify information obtained from secondary sources on potential project impacts and the socio-economic characteristics of the receiving environment.

2.3.3 Participant Observation

Traditionally there are two approaches to conducting a Social Impact Assessment, i.e. a technical approach or a participatory approach. A technical approach entails that a scientist remains a neutral observer of social phenomena. The role of the scientist is to identify indicators, obtain objective measures relevant to the situation and provide an expert assessment and prediction on how the system will change (Becker, Harris, Nielsen & McLaughlin, 2004:178). A participatory approach uses the knowledge and experiences of individuals most affected by the proposed changes as the basis for projecting impacts. In this case the role of the scientist is a facilitator of knowledge sharing, interpretation and reporting of impacts (Becker et al, 2004:178).

It must be emphasised, however, that the research conducted for this report was mainly of a qualitative nature. Qualitative research can be described as an inquiry process of understanding a social or human problem, based on building a complex, holistic picture,

formed with words, reporting detailed views of informants and which is conducted in a natural setting (Sogunro, 2001:3). The qualitative approach is concerned with understanding social life and the meaning that people attach to everyday life (Fouché & Delport, 2002:79). Using a qualitative approach, social scientists are able to address issues such as human perception and behaviour, regardless of how realistic it may be.

In contrast, the quantitative approach aims to measure the social world objectively, to test hypothesis and to predict and control human behaviour (Hoyle, Harris & Judd, 2002:394). Quantitative research can be described as an inquiry into a social or human problem, based on a theory composed of variables, measured with numbers, and analysed with statistical procedures, in order to determine whether the predictive generalisations of the theory hold true (Sogunro, 2001).

For the purpose of this study, a participatory approach was followed. The impact assessment was therefore conducted based on qualitative information and a participatory approach, and then converted into quantitative ratings of impacts.

As part of the participatory approach the following actions were conducted:

- Individual interviews with key informants, stakeholder and public participation meetings including key members of local communities, municipal officials, land users and landowners in the area;
- A sample survey of landowners in the Mopane area was conducted to appraise the nature and extent of land use and other livelihood related activities in the vicinity of the project area; and
- The project zone of influence, in terms of spatial and temporal scales, included both affected and interested populations as well as a range of other interested parties. Accordingly, the study was undertaken in conjunction with a structured Public Participation Process. Comments raised as part of this process was considered in the impact assessment.

2.3.4 Information from other specialist studies and stakeholder consultation process

The review of information from other specialist studies conducted as part of the Environmental Impact Assessment (EIA) for the proposed project to provide inputs into the secondary social impacts caused by primary environmental impacts.

2.4 Compilation of a Socio-Economic Baseline Profile

A socio-economic baseline profile was compiled on the basis of the information collected through the desktop review, site visits, participant observation, and the sample survey and interviews with key informants. The socio-economic baseline is provided on the various zones of influence, i.e. National/Provincial, Regional, Local area and Project Area.

2.5 Assessment of Impacts

The positive and negative impacts were assessed on the basis of issues identified through the public participation process, interviews with key stakeholders and specialist opinion. Identified impacts were categorised in terms of the phase of the proposed project that is expected to give rise to the impacts.

Although the impact assessment was conducted based on qualitative information and a participatory approach, it is then converted into quantitative ratings of impacts. The impact tables are supplied for impacts which need mitigation or optimisation in order to clarify the impacts to the reader. Impact tables are not innate to social science, and it must be clearly understood that some meaning may be lost by trying to compartmentalize the social environment. It is understood that the social scientist must translate their findings in order for the reader to understand it correctly, and one way of doing so is by utilising impact tables.

2.6 Rating of Impacts

Risk is a combination of the probability, or frequency of occurrence of a hazard and the magnitude of the consequence of the occurrence (Nel 2002). Risk estimation (RE) is concerned with the outcome, or consequences of an intention, taking account of the probability of occurrence and can be expressed as P (probability) x S (severity) = RE. Risk evaluation is concerned with determining significance of the estimated risks and also includes the element of risk perception. Risk assessment combines risk estimation and risk evaluation (Nel 2002).

The following steps will be followed in the risk assessments of potential impacts:

- Issues that may arise as a result of the proposed development, through planning, construction, operation and decommissioning phases
- Potential impacts will be identified for each issue and assessed by considering criteria as outlined in the table below.

- Where the potential impacts are perceived as having a high risk or significance, alternatives, preventative and mitigation measures will be recommended.
- The significance of each impact will be determined "without mitigation" and "with mitigation", taking into consideration alternatives, preventative and mitigation measures.

Table 2-1: Impact Rating methodology

DURATION		
Short term	6 months	1
Construction	36 months	2
Life of project	50 years	3
Post Closure	Post closure or during decommissioning and downscaling	4
Residual	Beyond the project life	5
EXTENT		
Site specific	Site of the proposed development	1
Local	Farm and surrounding farms	2
District	Musina Local Municipality	3
Regional	Vhembe District Municipality	4
Provincial	Limpopo Province	5
National	Republic of South Africa	6
International	Beyond RSA borders	7
PROBABILITY		
Almost Certain	100% probability of occurrence – is expected to occur	5
Likely	99% - 60% probability of occurrence – will probably occur in most circumstances	4
Possible	59% - 16% chance of occurrence – might occur at some time	3
Unlikely	15% - 6% probability of occurrence – could occur at some time	2
Rare	<5% probability of occurrence – may occur in exceptional circumstances	1
SEVERITY		
Critical	Total change in area of direct impact, avoidance or replacement not an option, detrimental effects, huge financial loss	5
Major (High)	> 50% change in area of direct impact, relocation required and possible, extensive injuries, long term loss in capabilities, off-site release with no detrimental effects, major financial implications	4
Moderate (medium)	20 – 49% change, medium term loss in capabilities, rehabilitation / restoration / treatment required, on-site release with outside assistance, high financial impact	3
Minor	10 – 19% change, short term impact that can be absorbed, on-site release, immediate contained, medium financial implications	2
Insignificant (low)	< 10 % change in the area of impact, low financial implications, localised impact, a small percentage of population	1

RISK ESTIMATION (Nel 2002)

RE (Risk Estimation) = P (Probability) X S (Severity)

	SEVERITY				
PROBABILITY	**Insignificant (1)**	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Critical (5)**
Almost certain (5)	L 5	M 10	H 15	VH 20	VH 25
Likely (4)	L 4	M 8	H 12	H 16	VH 20
Possible (3)	L 3	M 6	M 9	H 12	H 15
Unlikely (2)	VL 2	L 4	M 6	M 8	M 10
Rare (1)	VL 1	VL 2	L 3	L 4	L 5

VH	Very High – immediate action required, Countermeasures and management actions to mitigate risk must be implemented immediately, alternatives to be considered	20 – 25
H	High risk – specific management plans required, determine if risk can be reduced by design and management in planning process, if cannot, alternatives to be considered, senior management responsibility	12 – 16
M	Moderate risk – management and monitoring plans required with responsibilities outlined for implementation, middle management responsibility	6 – 10
L	Low risk – management as part of routine requirements	3 – 5
VL	Very Low risk – no management required	1 - 2

Mitigation - The impacts that are generated by the development can be minimised if measures are put in place to reduce them. These measures are mitigation measures to ensure that the development takes into consideration the environment and the impacts that are predicted so that development can co-exist with the environment as a basis for planning.

Determination of Significance; without mitigation - Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact "without mitigation" is the prime determinant of the nature and degree of mitigation required.

IMPACT SIGNIFICANCE	
IS (Impact Significance) = D (Duration) + E (Extent) + S (Severity) X P (Probability)	
Insignificant	The impact is non-existent or insubstantial, is of no or little importance to any stakeholder and can be ignored.
Low	The impact is limited in extent, even if the intensity is major; whatever its probability of occurrence, the impact will not have a significant impact considered in relation to the bigger picture; no major material effect on decisions and is unlikely to require management intervention bearing significant costs.
Moderate	The impact is significant to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
High	The impact could render development options controversial or the entire project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in project decision-making.
Very high	Usually applies to potential benefits arising from projects.

Determination of Significance; with mitigation - Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures.

2.7 Mitigation Measures and Recommendations

As part of this report appropriate mitigation measures to avoid or ameliorate negative socio-economic impacts and to enhance positive impacts were identified where possible. The rating procedure described above was then repeated to assess the expected consequence, probability and significance of each impact after mitigation. This post-mitigation rating gives an indication of the significance of residual impacts, while the difference between an impact's pre-and post-mitigation ratings therefore represents the degree to which the recommended mitigation measures are expected to be effective in reducing or ameliorating that impact.

2.8 Assessment of Cumulative Impacts

Cumulative impacts are defined as impacts arising from the combined effects of existing activities, the project and foreseeable future projects or actions. The cumulative impacts were assessed on a qualitative basis due to limited information on the scheduling and extent of future projects.

2.9 Assumptions and Limitations

It is essential that the socio-economic assessment should be based on current and accurate project information. Similarly the geographic extent of the assessment is influenced by project design and overall planning processes. As this process is on-going, the Socio-economic Impact Assessment report is based on information received during the Environmental Process. This report takes into consideration project information relating to planning and design, implementation and infrastructure placement available to the team during the compilation of this report. The following assumptions are pertinent:

- **The project description is assumed to be a true reflection of the project aspects**
- **It is assumed that the planning documents supplied by Musina and Makhado Local Municipality is reasonably accurate**
- **It is assumed that the 2011 Census data is not entirely accurate, but it provides a broad reflection of the social environment, and**
- **It is assumed that the information obtained during the Public Participation Process was accurate and also informed the study.**

The following knowledge gaps have been identified:

- **Interviews and assessment of the impact on existing landowners and workers on some of the properties was not possible due to denied access by the landowner.**
- **Information provided in the questionnaire was inconsistent with what was observed on site and from mapping**
- **The project is still in design phase and it is possible that project design and approaches to social impact triggers (for example construction workforce accommodation) may change, if this is the case the socio-economic assessment will need be updated at a later stage**

3 DESCRIPTION OF THE PROPOSED PROJECT

3.1 Project Locality

The Mopane Project is situated in the magisterial district of Vhembe, in the Limpopo Province, approximately 40 km (direct) and 63 km (via road) north of the town Makhado and 7 km west of Mopane in the Musina and Makhado Local Municipal areas. The nearest town is Musina, situated approximately 30 km to the north – refer to figure 1. Musina and Makhado are connected by well-developed road infrastructure.

The Mopane Project, consisting of the Voorburg and Jutland Sections, is well situated with respect to major infrastructure, including rail, road and power. The Mopane Railway Station is situated between the Voorburg and Jutland Sections to the east and is linked to the N1 with a surfaced road of 7 km length. The Jutland Section is traversed by the R525 road between Mopane and Alldays. Private roads to connect mine infrastructure will need to be established.

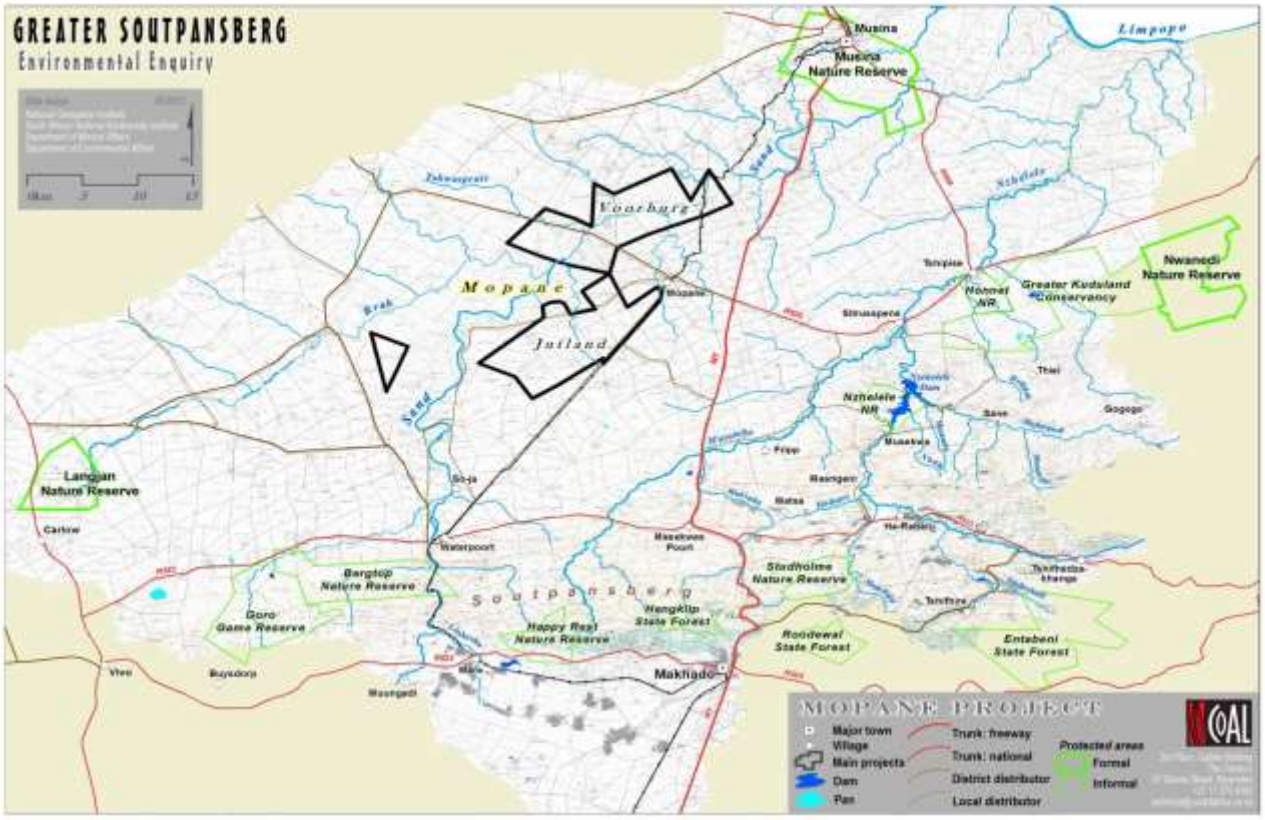


Figure 3-1: Project Locality

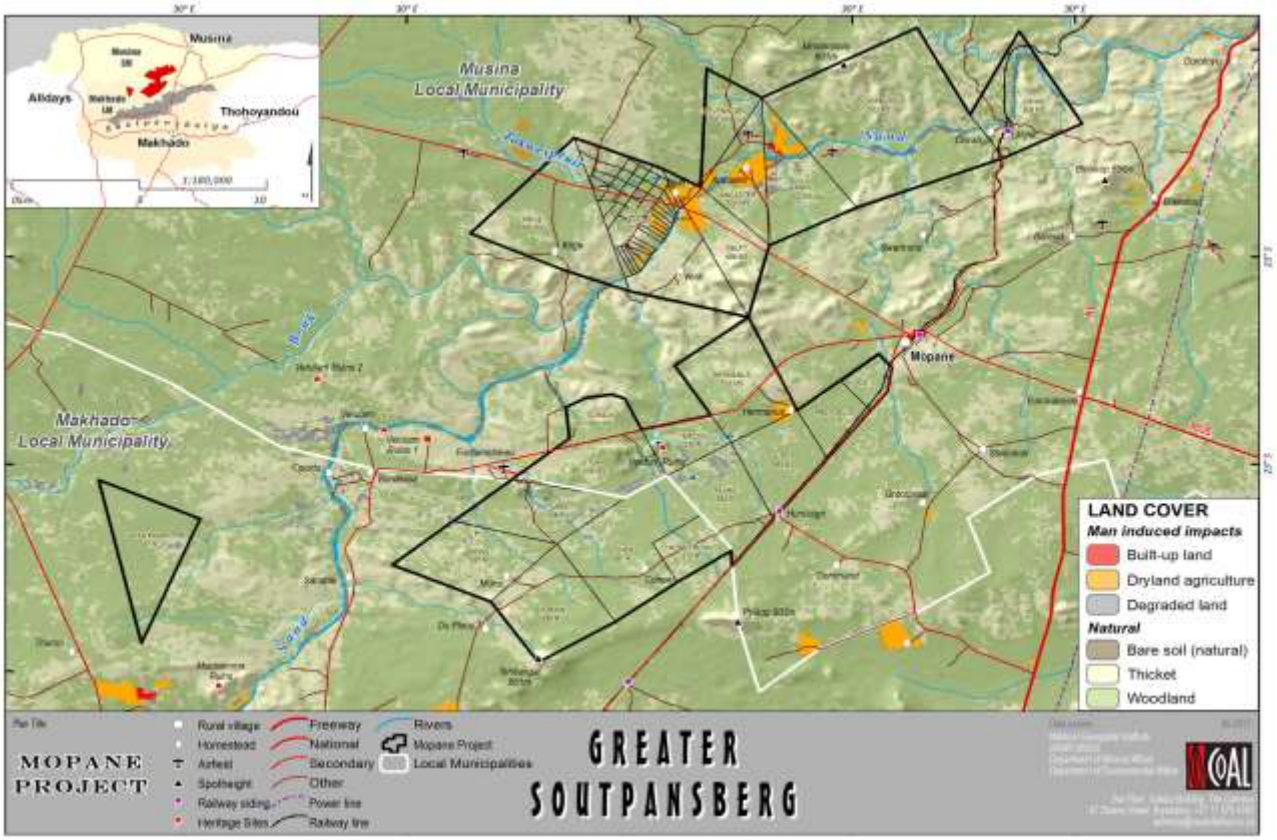


Figure 3-2: Project Extent

The Mopane Project footprint covers an area of 1 572 ha for mining and a further 1 964 ha for infrastructure development. The Voorburg mining pits cover approximately 905 ha and the Jutland mining pits a further 667 ha. The elongated mine footprint of the Voorburg mining pit is restricted by the Sand River running along the northern side of the mining pit.

3.2 Institutional Locality

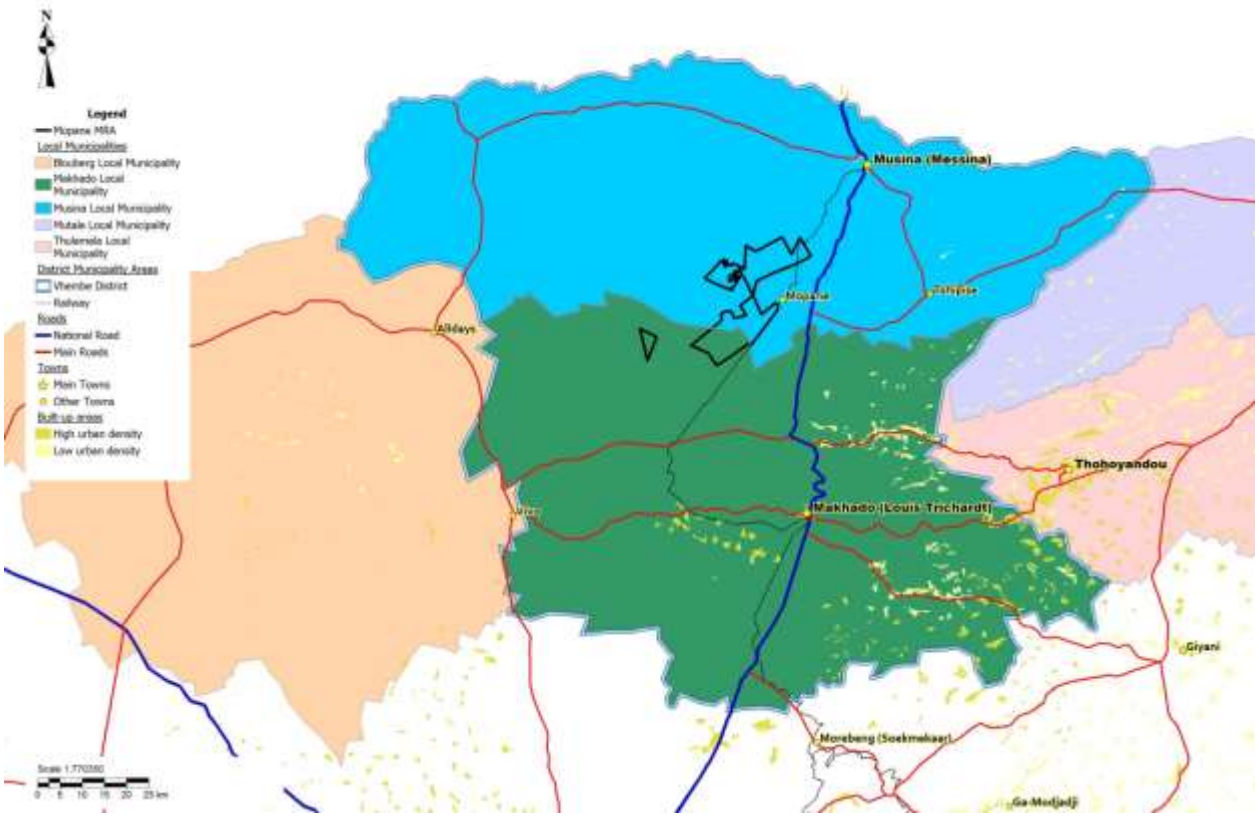


Figure 3-3: Local Municipal areas

The proposed Mopane Mine straddles the Musina and Makhado local municipalities in the Vhembe District. Socio-economic profiles for both these municipalities will be provided for the benefit of general context. However, specific local conditions are more accurately reflected in the ward analysis that is also provided and that is based on the results of 2011 census by Statistics South Africa. The relevant wards are Ward 2 (of 6) in Musina and Ward 21 (of 38) in Makhado. The wards are both considerably larger than the footprint of the proposed mine, but results of the 2011 census are not yet available below the ward level.

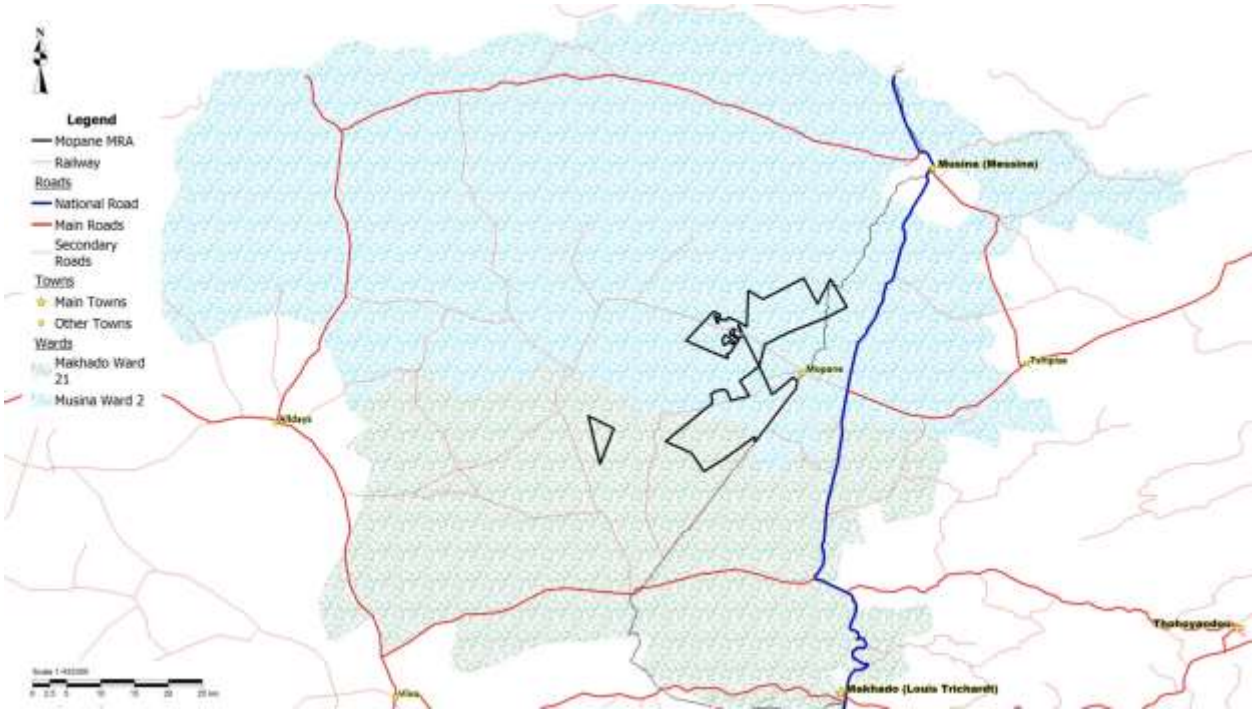


Figure 3-4: Mining Right Application area and Municipal Wards Involved

3.3 Mining Operations

The Mopane Project has the potential to produce good quality semi soft coking coal and a domestic thermal coal product. Measured and indicated resources are approximately 633.48 million tonnes mineable in situ. The resource outcrops and dips predominantly to the north. It is estimated that in most instances it is mineable to a depth of 200 m through opencast methods. Due to the flat dipping nature of the coal resource a normal strip opencast mining method is likely to prove the most cost effective.

The current planning is that construction and mining will commence at the Voorburg Section first, followed by the Jutland Section as capacity in infrastructure is developed. The Voorburg Section will be mined at 2.5 million tonnes per annum (Mtpa) product for a period of 33 years followed by the Jutland Section mined at 2.5 Mtpa product for a period of 28 years.

From the date of granting of the mining right (anticipated to be in 2015) further exploration, feasibility studies and final design studies will be undertaken. Construction is anticipated only to commence in 2018. Production at the Voorburg Section will commence in late 2019 and build up to 4 Mtpa Run-of-Mine (RoM) (2.5 Mtpa product) by 2020. Due to rail logistics constraints, mining at the Voorburg Section continues for ± 33 years to exhaustion of the resource. It is expected that additional rail capacity will become available after 2030, allowing for an increase in coal production. Mine development at the Jutland Section will therefore commence in 2030 with first production in 2032. The total life of the Mopane Project is in excess of 50 years.

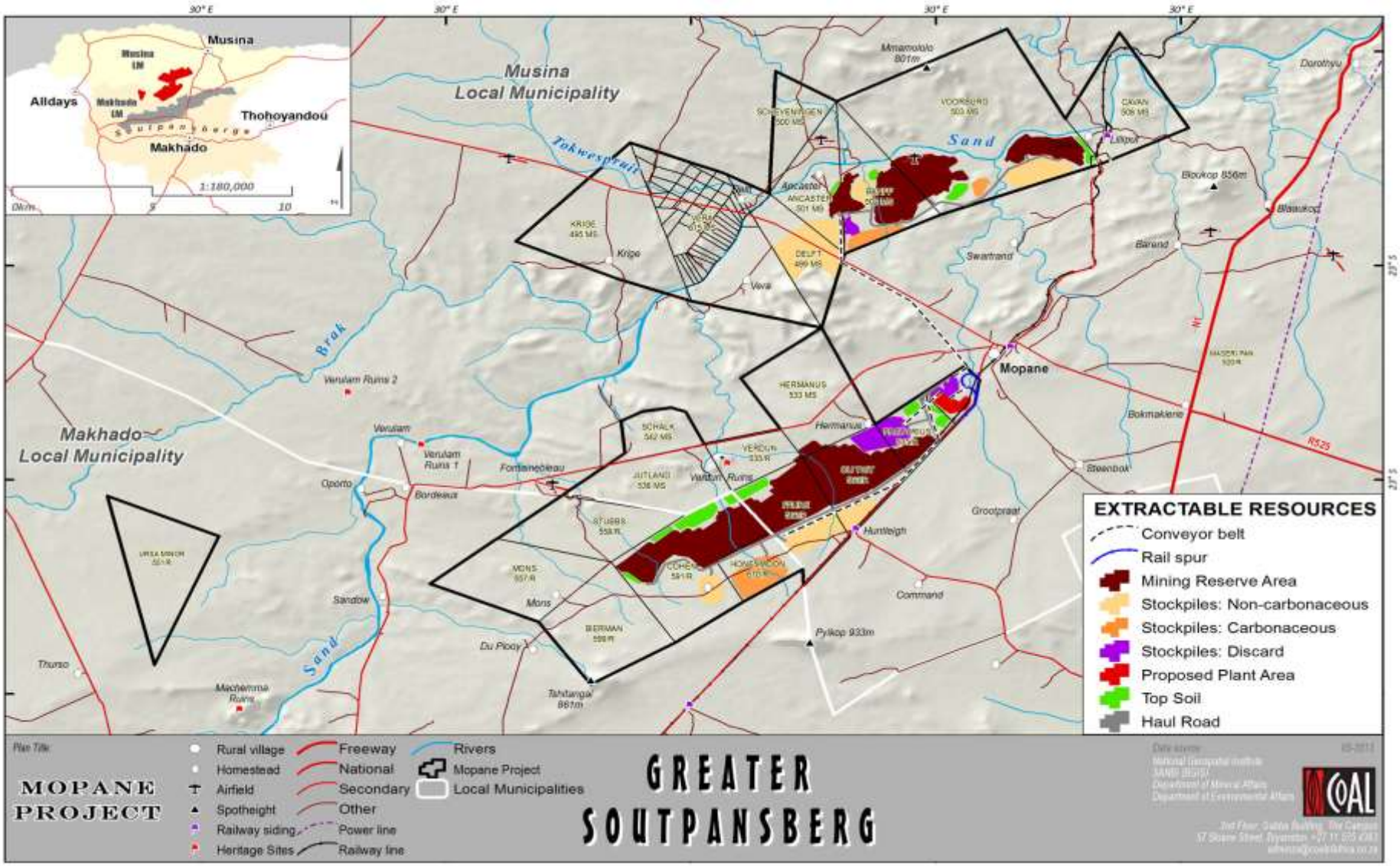


Figure 3-5: Mining and infrastructure layout for Mopane Project

3.4 Coal Processing

The first phase of development is to establish a coal beneficiation plant will process RoM coal from the Voorburg Section at a rate of 4 Mtpa and to establish a new facility (of the same capacity) to process RoM coal from the Jutland Section coming on-line a few years later. The mine schedules for the Voorburg and Jutland resources are similar in capacity but differ in yields of coking coal and middlings coal. It is therefore planned to install a plant of the same design to treat the Jutland resource next to the current proposed facility for the Voorburg resource.

3.5 Infrastructure

Infrastructure to support the mining activities has been laid out and engineered to best suit the topography and mining pit layouts, but can be influenced by the environmental impact assessments and stakeholder engagement process.

Although the mining operation will start at the Voorburg Section, the centre of gravity for the infrastructure layouts will be on the farm Pretorius 531 MS next to Mopane Railway Station. The Voorburg Section will however be provided with a workshop and other necessary infrastructure required for the mining operation.

The centrally located Infrastructure Hub (at the Mopane Railway Station) will comprise the coal beneficiation plant, personnel support structures, vehicle support structures, water management structures and management and monitoring systems. A conveyor will be utilised to transport the ROM from the Voorburg Section to the coal beneficiation at the Infrastructure Hub.

Other mine infrastructure includes:

- **Access and on-site haul roads**
- **Topsoil stockpiles and berms**
- **Overburden (carbonaceous and non-carbonaceous) stockpiles for initial placement, thereafter disposed in-pit**
- **ROM coal storage area**
- **ROM coal processing plant (primary, secondary and tertiary crusher)**
- **Associated conveyors from the processing plant to the product storage areas**
- **Product stockpile areas**
- **Carbonaceous discards stockpile**
- **Storm water management infrastructure (i.e. clean & dirty water run-off)**
- **On-site water management and reticulation systems**
- **Change houses and offices**
- **Wastewater (sewage) treatment plant**
- **Bulk electricity supply infrastructure**
- **Bulk water supply infrastructure**
- **Railway Siding and rail loop**
- **Rapid Load-out Terminal (RLT)**

Once mining commences in the Jutland Section, further expansion of mine support infrastructure as well as an expansion to the coal beneficiation plant will be required.

3.6 Implementation Plan

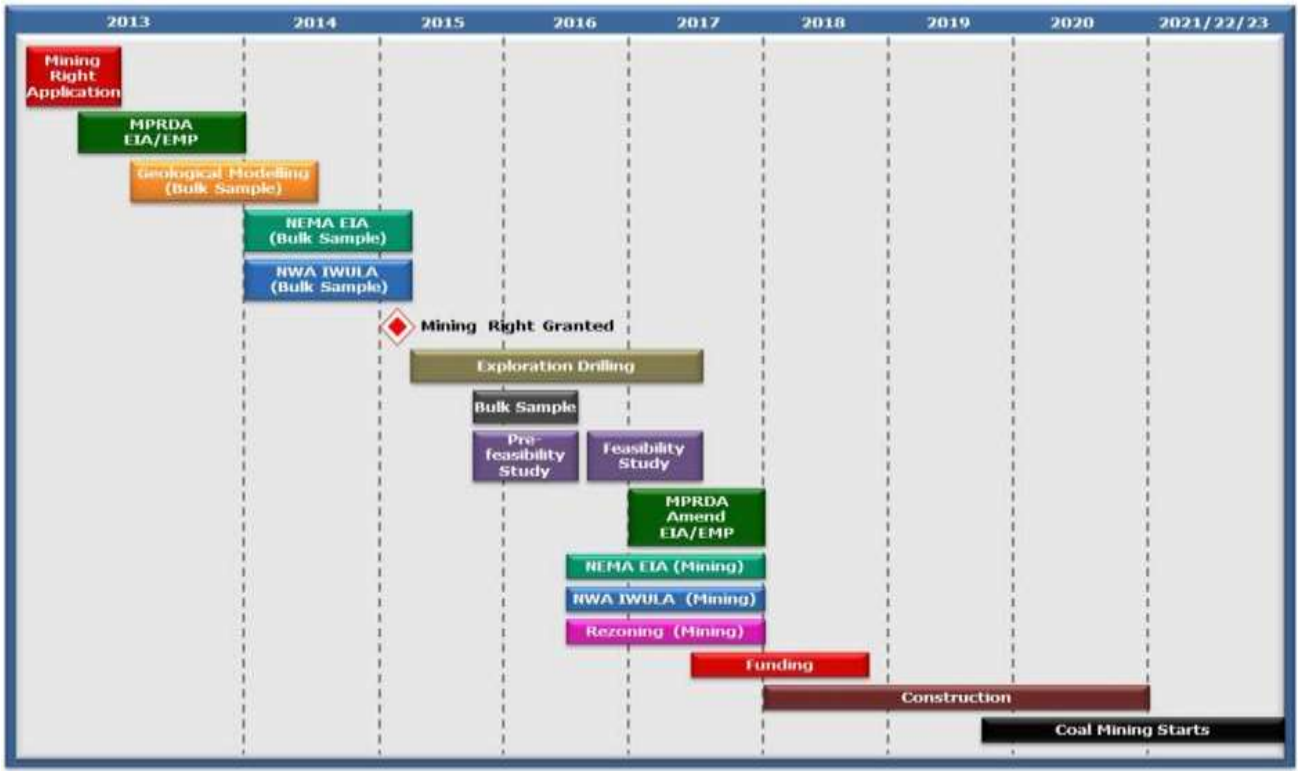


Figure 3-6: Project schedule for Mopane Project over the next 10 years

3.7 Coal Transport Infrastructure

3.7.1 Access Roads

Access to the Mopane Project Infrastructure Hub is by way of the N1 towards Musina, turning west onto the D525 approximately 7 km to Mopane Railway Station. The main entrance to the Jutland Section is approximately 3 km south from Mopane Railway Station adjacent to the gravel road along the railway line. The D525 Provincial Road is a surfaced road which will be upgraded should it be necessary to carry the required future traffic loads. The existing access road to the mine infrastructure from Mopane Railway Station is gravel but will be surfaced during the mining development. The access to Voorburg Section is along the R525 approximately 7 km north west of Mopane Railway Station.

3.7.2 Mining Roads

Haul roads link the west, central and the east sides of the Jutland and Voorburg Sections, the stockpile areas and the infrastructure areas on the east and west sides of the mining pits respectively. Haul roads have been planned to be 30m wide with gravel surfaces to meet the requirements of the hauling fleet. Service roads will be constructed gravel roads and provide ease

of access to remote areas for light mining vehicles. These roads are separate from the haul roads in order to separate light mine traffic from the heavy traffic (haul trucks) as a site safety measure.

3.7.3 Logistics

The primary domestic destination for coking coal is located at ArcelorMittal, Vanderbijlpark. The intent is to export 0.5 Mtpa of coking coal, and transport 1.1 Mtpa to ArcelorMittal. Up to 3.1 Mtpa of middlings will be railed to either the domestic customer or to the Port of Maputo for export. The primary domestic location for middlings coal is Eskom's Tutuka, Majuba, Camden and Grootvlei Power Stations in Mpumalanga Province.

Mopane Project is close to the railway line running southwards from Beitbridge / Musina and is an important link to the main hub of the Transnet Freight Rail (TFR) network connecting at Pyramid South, near Pretoria. An important junction occurs at Groenbult, where a connecting line joins the Hoedspruit – Kaapmuiden – Komatipoort export channel avoiding the Pretoria complex.

From Pyramid South links are available to Richards Bay Coal Terminal (RBCT), Maputo or Durban. The export route through Mozambique to the Port of Maputo is in the process of being upgraded for the planned increase in volumes. Through agreements reached to expand the port facility as well as on-going negotiations with Transnet Freight Rail, the Port of Maputo is the export port of destination.

Following detailed evaluation, it was determined that the preferred option for coal despatch is a RLT on the farm Pretorius 531 MS connected by a balloon railway siding to a point between Huntleigh and Mopane – refer to the figure below for the proposed position of the rail loop and siding. Factors influencing this conclusion include the low long term operational cost for coal transport from plant to port, lower environmental impact and the lessening of community impact (lower road traffic, congestion and pollution). The elimination of a loading site at Huntleigh or Mopane by placing the loading site at farm Pretorius 531 MS removes a single-point impact of considerable significance. A rail link provides a seamless transition from the loading siding to a direct link to TFR mainline network at a point between Mopane and Huntleigh.

The Mopane RLT facility has been designed to allow flexibility for future increases in train lengths up to a maximum of 100 CCL wagons, with added flexibility to handle CCL Jumbo type wagons which are planned to be the standard wagon deployed on the TFR network for coal (although limited to a 60 ton payload to match the 20 ton axle load provisions). This wagon type is compatible for Eskom tipplers.

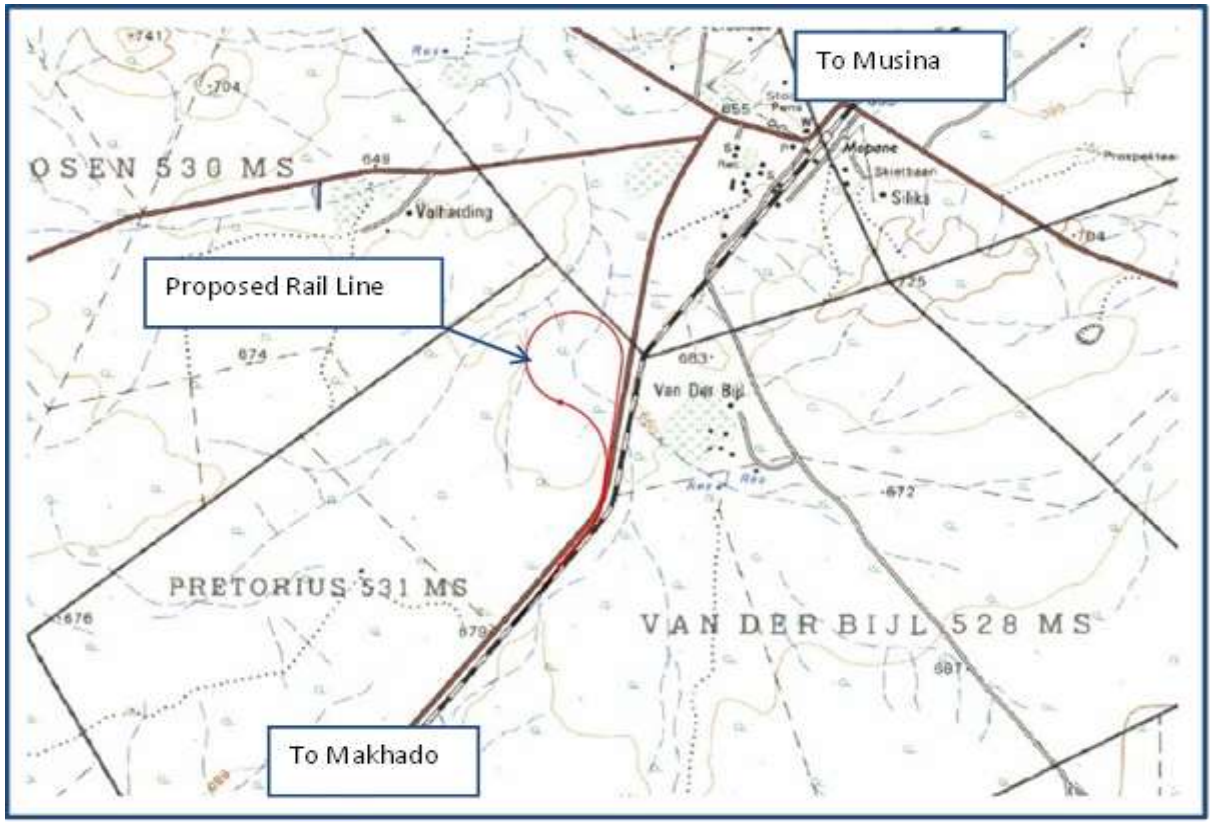


Figure 3-7: Position of the proposed rail loop and siding on the farm Pretorius 531 MS

3.8 Services

3.8.1 Bulk Power Supply

The lengthy Eskom Tabor and Spencer 132 kV Distribution networks stretching 200 km from Polokwane to 50 km away from the Musina border-post result in low voltages and thermal constraints during transformation and line contingencies. The expected Tabor and Spencer 132 kV load growth is located 100 km north of Tabor and 70 km from Spencer - generally the area in which the Mopane Project resides - therefore, the Transmission outreach constraint will cap load growth.

The Polokwane Customer Load Network (CLN), including the Tabor and Spencer power corridor, remains susceptible to voltage instability and is the weakest part of the Northern Grid network due to being operated beyond its reliability power transfer limit. Eskom Transmission Division plan to strengthen the Northern Grid in the areas north of the Soutpansberg with a new 400 kV power line between the Tabor Main Transmission Substation and the newly approved Bokmakirie (Nzhelele) Substation.

Eskom is accordingly establishing additional Distribution and Transmission assets to cater for load north of the Soutpansberg, including the Bokmakirie Distribution station and the 4x250 MVA 400/132 kV Nzhelele Main Transmission Station (MTS).

The proposed network solution meets the 10 year Distribution load requirements in the Tabor and Spencer network area and it is also informed by the 20 year Transmission and Distribution load forecast in meeting the Transmission 20 year plan.

For the Mopane Project, electrical supply will be taken from the 132kV network and transformed to 11kV. The exact supply configuration is yet to be determined and the least environmental impact solution will be followed. The direct supply from Nzhelele / Bokmakirie 400/132kV MTS to both Voorburg (20MVA/132/11kV) and Jutland (10MVA/132/11kV) Sections has been identified as the preferred option.

132/11kV substations will be established for the both Voorburg and Jutland Sections in 2017 consisting of 132kV overhead lines, 132/11kV yard, 2x5MVA/132/11kV transformers, associated switchgear and equipment, control room, distributed mini-substations and MCC's.

3.8.2 Bulk Water

The water requirement estimate for the Mopane Project indicates that a maximum of 7 600 m³/day of water is required at the mining peak in 2032. The water supply to the mine will come from the following sources:

- Groundwater (boreholes and seepage into the mining pits;
- Storm water run-off impounded on site; and
- An external water source piped to site.

3.9 Social Capital Support

3.9.1 Workforce

The workforce for the construction phase is estimated at approximately 1 500 opportunities.
The workforce for the operational phase is estimated at approximately 917 opportunities.

3.9.2 Accommodation and Housing

It is anticipated that the appointed contractors will bring specific skilled labour within them and other skilled, semi-skilled and unskilled labour will be sourced from the local area. Staff will be bussed to the mine site as indicated above. The following accommodation arrangements are assumed for this study:

- The total non-local temporary workforce indicated above will be accommodated in a contractor's workforce camp on site as part of the infrastructure development.
- The total local temporary workforce indicated above will be sourced from local communities and other local areas where existing accommodation exist and will be brought to site daily as per shift roster.
- The total non-local permanent workforce indicated above will be housed in Musina and Makhado, where CoAL will work closely with the Local Municipalities to facilitate investment in strengthening / expanding existing infrastructure. It is not MbeuYashu's policy to develop new towns to accommodate housing needs.
- The total local permanent workforce indicated above will be sourced from Musina, Makhado, local communities and other local areas where existing accommodation exist and will be brought to site daily as per shift roster.

3.9.3 Human Resource Development Programmes

MbeuYashu is committed to work with industry stakeholders in creating an enabling environment for the empowerment of HDSAs by providing a comprehensive skills development plan that addresses the HDSA mining skills deficits within the industry. The following aspects are included in this commitment:

- Interfacing with statutory bodies such as the Mining Qualifications Authority (MQA), through the standing consultative arrangements, in the formulation of comprehensive skills development strategies;
- Interfacing with the education authorities and providing scholarships to promote mining-related educational advancement, especially in the fields of mathematics and science at school level;
- Ensuring the provision of scholarships and that the number of registered learnerships in the mining industry will rise from the current level;
- Undertaking to provide skills training opportunities, through the MQA, to employees during their employment to improve their earning capacity after mine closure;
- Providing access to training courses in mining entrepreneurial skills through the MQA and in collaboration with academic institutions, Department of Minerals Resources associated institutions, NGOs, and the Gender Commission;
- Offering every employee the opportunity of becoming functionally literate and numerate;
- Implementing career paths to provide opportunities to employees to progress in their chosen careers; and
- Developing systems through which empowerment groups can be mentored as a means of capacity-building.

3.9.4 Local Economic Development Programme

The Mopane Project LED programme will focus on the local area from which the operation will draw its labour and especially on communities where there will be a high concentration of resident employees.

Projects will be evaluated by Department of Mineral Resources on criteria such as viability, sustainability, accrued benefits, institutional arrangements and job creation and approved before implementation. Local Economic Development will focus on contributing to the following aspects:

- Informal Sector Support
- Labour Intensive Road Construction
- Adopt-a-school Programme
- Water Conservation and Water Demand Management Strategy with the District Municipality
- Mining School of Excellence

3.9.5 Procurement

Procurement at the Mopane Project will fall into two categories:

- Capital expenditure
- Working cost expenditure

The objective of the procurement programme will be to promote and enhance the constructive participation of HDSA vendors in the mine's upstream value chain, and to ensure that HDSA suppliers have access to the project's supply chain.

A Procurement Procedure and Local Vendor database will ensure the involvement where possible of Local Suppliers.

3.9.6 Health Services and Facilities

On mine health facilities will be provided. Regional health facility requirements will be assessed during the feasibility studies.

3.9.7 Education Services and Facilities

MbeuYashu will work closely with Provincial and Local Government to to address any pressures or shortages within the Educational facilities or services to accommodate the influx of human resources into the area.

4 SOCIO-ECONOMIC BASELINE

4.1 National Overview

A description of South Africa's economy is provided in this section. The section has been populated using secondary information sources such as websites and publications by state and private organisations.

4.1.1 Socio-economic overview

South Africa is a middle-income developing country with an abundance of natural resources. It is one of the most industrialised countries in Africa, leading the continent in industrial output and mineral production, with well-developed financial, legal, communication, energy and transport sectors (Ziramba, 2010, and DTI, no date). South Africa also has a smaller, but well developed, informal economy which interacts with the formal economy.

South Africa is not only an important emerging economy, but it also provides trade linkages to other African markets. The country plays a significant role in supplying relief aid, transport, communications and investment on the continent (SAinfo, no date). Its well-developed road and rail links provide the platform and infrastructure for land based trade throughout Southern Africa.
One of the biggest challenges facing the growth in the South African economy is poverty and unemployment. Current estimates place unemployment figures in South Africa at approximately 24.9% (Statistics South Africa). The South African government aims to alleviate unemployment and poverty with policies aimed at raising economic growth in a stable economic environment and initiatives to reduce unemployment and improve social conditions.

4.1.2 Recent socio-economic developments and the status quo

Between 1999 and 2008 South Africa experienced sustained economic growth with GDP growing at an average of 5.4%. During the period from 2004 to 2007, employment levels rose (1.4 million jobs were created in the formal and informal economies), but (endemic) unemployment remained high at 25.5% (Camco and TIPS, 2010).

Despite meaningful gains in the South African economy (32 consecutive quarters of positive economic growth ending in 2009) the recent global financial crisis has had negative impacts on the country's economy, resulting in a reduction in local and international demand for goods and services with South African GDP growth slowing to 2.8% between January 2011 and January 2013, from about 5.5% between January 2005 and January 2007. These changes broadly mirror the recent developments in global economic activity. Employment numbers however, have increased by 0.6% between the fourth quarter (Q4) of 2011 and Q4 2013 (Trading Economics).

The majority of job losses were in the less skilled sectors of the employment market. Because of the demographic profile of South Africa the vast majority of less skilled workers are young males from previously disadvantaged backgrounds (Camco and TIPS, 2010). This placed further challenges on the redistribution goals that the South African government strives to achieve, and extenuated an already severe problem of inequality among the population, with large portions still affected by poor service delivery and limited access to basic services.

During the recession and subsequent recovery economic activity in developing markets was more robust than developed markets, with China and India specifically maintaining strong economic momentum (SARB, 2010). This provided strong support for commodity and resource exporting nations such as South Africa; and consequently GDP growth recovered in the third quarter of 2009. Growth was then strong in the first quarter of 2010 before cooling off to a certain degree thereafter (SARB, 2010). The resumption in growth was led by a recovery in the manufacturing sector which had the largest comparative decline as a percentage of GDP compared to all other sectors (SARB, 2010). The service sector also gained momentum in early 2010.

The increase in domestic demand for goods and services in the secondary and tertiary sectors of the economy was driven by an increase in household expenditure. This was bolstered by a reduction in interest rates, higher than inflation salary increases and an increase in business confidence – all spurred by an increase in demand associated with the 2010 FIFA Soccer World Cup (SARB, 2010). Foreign demand for domestic goods and services by some of South Africa's major trading partners such as India and China was also maintained in 2010. The deficit on the balance of payments has therefore been contained over the past year.

4.1.3 South African economic sectors

An explanation of the South African economy is presented here as a context for the project, rather than for the purposes of determining the base scenario for the purposes of impact assessment.
During the period 1970 - 2010 the South African economy has undergone a process of restructuring, with pronounced shifts in the contributions of various sectors. In terms of relative

contribution to GDP the tertiary sector has grown by ~ 10%, an expansion which coincides with a contraction in the primary and, to a lesser extent, secondary sectors. In 2008 the tertiary sector contributed 55% to GDP, while the secondary and primary sectors contributed 38% and 7% respectively (Camco and TIPS, 2010). This trend has continued with the tertiary sector experiencing proportionate growth throughout the recession to 60.2% of GDP in 2010, while the primary and secondary sectors have contracted to 7.8% and 21.3% of GDP respectively (refer to the table below).

The most important industries in South Africa, from a contribution to GDP perspective, are (in order of importance) financial and other services, manufacturing, commerce, transport and communication and mining and quarrying. The manufacturing and mining and quarrying industries were most vulnerable to the economic recession, with declines in their relative contribution to GDP by 10.7% and 7.2% respectively. The increase in the contribution of the construction industry to GDP during this period is a result of expenditure in projects that commenced prior to the onset of the recession and the impact of government spending on the FIFA Soccer World Cup infrastructure projects. Indications are that demand for construction has decreased significantly following the World Cup in 2010, and it is likely that the relative contribution of this sector to GDP has decreased in Q3 and Q4 of 2010.

Table 4-1: South African GDP Indicators 2008 - 2010

Sectors	% change 2007 - 2008	% change in 2008 – 2009	% change in 2009 - 2010	Relative size in Q3 2010
Primary Sector	**-1.2**	**-6.0**	**2.5**	**7.8**
Agriculture, forestry and fishing	10.9	-3.2	2.3	2.3
Mining and Quarrying	-5.4	-7.2	2.6	5.5
Secondary Sector	**3.4**	**-7.2**	**6.9**	**21.3**
Manufacturing	2.7	-10.7	8.4	16.4
Electricity, gas and water	1.0	-0.5	2.6	1.9
Construction	9.3	7.8	2.3	3.0
Tertiary Sector	**4.7**	**1.1**	**2.9**	**60.2**
Commerce (Wholesale, retail trade & accommodation)	1.1	-2.9	2.9	12.1
Transport and communication	3.9	0.5	2.8	8.9
Financial and other services	7.9	1.3	2.5	39.2
Total value added				**89.3**
Net taxes on production and imports				10.7
GDP at market prices	3.6	-1.7	3.9	100.0

Source: Adapted from SARB, 2010 and StatsSA 2010

The table below indicates that in 2007, just fewer than 10 million people (out of a population of roughly 45 million) were formally employed in the South African economy. The table demonstrates that the tertiary sector is the largest employer, although employment is proportionately lower than the percentage contribution to GDP. Correspondingly, both the primary and secondary sectors

have a more than proportionate contribution to employment when compared to their contribution to GDP. The more labour intensive nature of these sectors accounts for their disproportionate contribution to employment.

Table 4-2: South African formal employment and GDP Contribution by sector (2007)

Sectors	% of total jobs – 2007 (thousands)	2007 GDP as a % of total GDP
Primary Sector	**9.0**	**8.4 (excl taxes)**
Agriculture, forestry and fishing	5.8 (580)	2.2
Mining and Quarrying	3.2 (321)	5.5
Secondary Sector	**24.9**	**23.6 (excl taxes)**
Manufacturing	17.1 (1 697)	15.9
Electricity, gas and water	0.8 (79)	2.1
Construction	7.0 (697)	3.5
Tertiary Sector	**66.1**	**68.0 (excl taxes)**
Commerce (Wholesale, retail trade & accommodation)	23.2 (2 301)	14.1
Transport and communication	6.0 (593)	9.8
Financial and other services	36.9 (3665)	38.1
Net taxes on production and imports	N/A	8.9
Total	**100 (9 933)**	**100**

Source: StatsSA 2009 and StatsSA 2008

The table examines the relationship between GDP and employment and shows that the 1.7% decrease in GDP corresponds with a 2% decrease in employment, but that the impact on employment within sectors is varied, and does not necessarily correspond with the decrease in the contribution to GDP. It is likely that this is a result of the complexities in the South African labour market (e.g. trade unions) and the nature of the various economic sectors.

The following observations are drawn from the table:

- Employment, which the South African government aims to protect, could not escape the consequences of the global recession and fell by 2%, a significantly greater reduction than the 1.7% decline in GDP;
- In both the manufacturing and mining industries, job losses were less than proportionate to their decline in relative contribution to GDP. It is likely that strong labour unions in the primary and secondary sectors of the economy contribute to this dynamic; and
- Although the tertiary sector grew in contribution to GDP relative to the other sectors, it too experienced a decline in employment. Not only is human capital a major factor of production in the tertiary sector, it is also the most flexible, and is therefore an obvious arena in which to cut costs in a highly competitive economic environment. Therefore, job losses are anticipated during economic downturns. Furthermore, in South Africa, employees in the tertiary sector are generally less protected by labour unions and easier to retrench.

Table 4-3: Change in employment relative to changes in GDP by sector (2009)

Sectors	% change in GDP 2008 -2009	% change in jobs Q1 2009 – Q1 2010
Primary Sector		
Agriculture, forestry and fishing	-3.2	Unknown
Mining and Quarrying	-7.2	-1.8
Secondary Sector		
Manufacturing	-10.7	-4.2
Electricity, gas and water	-0.5	-5.4
Construction	7.8	-11.0
Tertiary Sector		
Commerce (Wholesale, retail trade & accommodation)	-2.9	-3.3
Transport and communication	0.5	-0.4
Financial and other services	1.3	-4.6
Total	**-1.7**	**100**

Source: StatsSA 2009 and SARB, 2010

Employment has not recovered at the same pace as the economic recovery. Although some growth in employment numbers has been recorded this has been offset by job losses in the private sector and a reduction in employment prospects as a result of high wage settlements agreed to by the South African government for public employees (SARB, 2010). Employment creation remains a major social and political challenge for the South African government and a period of sustained economic growth is required before significant gains in the job market will be achieved (SARB, 2010).

4.2 Provincial and District Socio-economic overview: Limpopo Province and Vhembe District

Limpopo Province is situated in north-west South Africa and shares a border with Botswana, Mozambique and Zimbabwe. The Province covers an area of ~126 000 km2, which represents 10.2% of the area of South Africa (Limpopo Provincial Government, 2009). The geographic location of the Province is seen as an opportunity to promote trade in manufactured goods within the Southern Africa Development Community (SADC) and the rest of Africa. Census 2001 reflects a total population for Limpopo of 5.2 million, which represents 11.8% of the entire population of South Africa. The total population comprises 54.6% female and 45.4% male. 48% of the total population are children under the age of 15. This latter figure presents an enormous challenge in terms of education and future employment (Limpopo Provincial Government, 2009). The capital city of the Province, Polokwane, has a potential to develop into the logistical centre for the region.

The province is predominantly rural, and the primary economic activity is agriculture (Melico and Oni, 2010). Limpopo Province has five district municipalities, namely Capricorn, Mopani, Sekhukhune, Vhembe and Waterberg District Municipalities. The proposed Mopane Project is located in the Vhembe District Municipality.

The contribution of Limpopo's economy to national GDP increased from 5.7% in 1995, to 6.6% in 2005 and 7% in 2009 (StatsSA, 2010a). This limited incremental improvement is because the provincial growth rate was the fourth highest nationally behind Gauteng, the Western Cape and Kwazulu-Natal accounting for the increase in contribution of the province to national GDP over the period. However, the provincial economic growth rate was below the national average for the period 2002 to 2009 when the provincial economic growth rate was 2.8% compared to the national average of 3.7%.

The impact of the economic recession in Limpopo Province mirrored that of the national economy, and in 2009 the Limpopo economy shrunk by 1.8% (compared to the national average of 1.7%). In 2007 ~930 000 formal and informal sector jobs were available in the province (6.8% of both formal and informal national employment); while ~300 000 economically active persons seeking employment in the province were jobless (8.4% of national unemployment) (StatsSA, 2009). In 2007 the unemployment rate in the province was 24.7% - the second highest unemployment rate in the country (StatsSA, 2009). A lack of skills in the province contributes to the high unemployment rate (Limpopo Provincial Government, 2009).

The province is the second poorest in the country, and close to half of the people living in South Africa in 'outright poverty' or who are 'vulnerable to becoming poor' are located in Limpopo Province, making social programmes and economic development initiatives imperative to the region (Melico and Oni, 2010; and Tshitangoni, Okorie and Francis, 2010).

The Vhembe District is located in the northern portion of the Limpopo Province, and is the second largest of the 5 districts at ~25 597km^2 (Vhembe IDP, 2011/12). The district consists of 4 local municipalities, namely Musina, Makhado, Thulamela and Mutale. The district is rural in nature with urban areas dispersed and fragmented (Vhembe IDP, 2011/12). The Vhembe district unemployment is very high (38.7% in 2011), and the creation of job opportunities in the district is therefore important.

Coal, diamonds, copper and aggregate reserves make the Vhembe District an emerging mining sector player in the country. The district is also home to a ~30 701 km^2 biosphere reserve (across Vhembe and Mopane Districts) with significant tourism potential. Fertile soil in the district has led to a competitive advantage in the agricultural sector (Vhembe IDP, 2011/12). Like so many other parts of South Africa, agricultural production in Vhembe is undertaken by a small number of relatively large, highly productive commercial producers and a multitude of fragmented, small-scale farmers.

Limpopo Province and Vhembe District have excellent agricultural potential, mineral reserves and tourism resources (Limpopo Provincial Government, 2009; and IDP, 2011). These sectors represent

the biggest potential for economic growth and development in the region and are described in greater detail in the remainder of this chapter. The challenge in the district is to enable sustainable co-existence of these sectors.

4.2.1 Regional economic sectors

In contrast to the structure of the national economy, the agricultural, mining and government services in Limpopo Province contribute a relatively larger portion to the regional economy than manufacturing and tertiary industries (Limpopo Provincial Government, 2009). The growing importance of primary industries to the provincial economy is mainly attributed to growth in the mining sector. It is anticipated that with increased mining activity and the promotion of local mineral beneficiation and other secondary industries that support the mining sector, the secondary sector will grow in terms of its contribution to provincial GDP in the medium to long term. Growth in the secondary sector represents the largest potential for employment generation in the province.

4.2.1.1 Mining

Limpopo Province's mineral deposits include platinum, iron ore, chromium, coal, diamonds, antimony, phosphate, copper and other minerals (Limpopo Provincial Government, 2009).
The mining sector in the province has grown from 18% of provincial GDP in 1995 to 25% in 2006 (Limpopo Provincial Government, 2009), 22.8% in 2009 and 31% in 2011 of the mining sector's contribution to national GDP, second only to the North West Province (StatsSA, 2010a). Even though the contribution of the mining sector to provincial GDP is high its contribution to employment is not as high (~6.5% of provincial employment) (Limpopo Provincial Government, 2009).

The mining sector is regarded as one of the three pillars of the Limpopo Province, hence its strategic importance to the development of the economy of the district (Vhembe IDP, 2011/12). The district is also the largest diamond producer in South Africa. The mineral occurrences and zones within the district include:

- Copper in the Messina fault
- Tshipise Magnesite field
- Mudimeli coal fields
- Tshipise, Pafuri and Mopane coal fields
- Beitbridge Complex (Limpopo Belt) which hosts mineral; ranging from Iron, Diamonds, Graphite, marble
- Talc deposits
- Gemstone deposits
- Clay dominant minerals used in brick making.

One of the principal challenges in Limpopo's mining sector is to ensure that the residents benefit extensively from the province's mineral wealth in order to achieve the social and economic development potential that the sector represents to the province (Limpopo Provincial Government,

2009). According to the Limpopo Provincial Development Strategy the development of this sector is of provincial, regional and national socio-economic importance (IDP, 2011/12).

4.2.1.2 Agriculture

The Limpopo province has a large variety of agricultural resources including (but not limited to) cattle, game, cotton, maize, sorghum, mangos, papaya, tea, citrus, bananas, litchis, tomatoes and potatoes (Limpopo Provincial Government, 2009).

The agricultural sector in Limpopo Province has shrunk in terms of its contribution to provincial GDP from 4% in 1995 to 3% in 2006 (Limpopo Provincial Government, 2009), and in 2009 accounted for 7.8% by value of South Africa's agricultural output (StatsSA, 2010a). The declining contribution to provincial GDP is attributed to land claims, poor support for land claim beneficiaries and the conversion arable land to game farming (and therefore eco-tourism) (Limpopo Provincial Government, 2009).

Although the agricultural sector only contributes 3% to provincial GDP it employs a significantly higher proportion of the local population (11.47% of provincial employment) (Limpopo Provincial Government, 2009). However, the majority of employment opportunities in this sector are low wage and low skill positions.

The Vhembe District contributes nearly 3% to Limpopo Province's total agricultural activity (Global Insight 2011). Agricultural activity contributes ~11.2% to the district economy (Vhembe IDP, 2011).

The district has got a total area of 2,140,708 ha of which 11.66% are suitable arable land, 57% marginal land and 31% non-arable land. The agricultural system is divided into two type's i.e. Large scale commercial farming and small scale farming. 70% of arable land is owned by commercial farmers while 30% of arable land is owned by small scale farmers (Vhembe IDP, 2011/12).

Low international prices for agricultural goods, the strong value of the Rand and water scarcity place pressure on the districts agricultural sector; and productive crop land is being converted for extensive livestock operations, game farming and eco-tourism. This trend has been encouraged by the establishment of the Vhembe Biosphere Reserve and is expected to continue.

In order to promote the agricultural sector, the Limpopo government has initiated a number of programmes aimed at training and providing support to small scale farmers, and has embarked on a rehabilitation programme for 114 irrigation schemes (Limpopo Provincial Government, 2009). Although investment in and promotion of the agricultural sector is of strategic importance in terms of local food security and because of the province's rural economic structure, using an input-output model to analyse the contribution of the agricultural sector to the economy of the Limpopo Province, Meliko and Oni (2010) indicate that investment in the manufacturing sector would lead to higher returns in terms of provincial income, output, and employment.

4.2.1.3 *Tourism*

Limpopo Province offers a variety of indigenous cultures, game farms, nature reserves, national parks, a biosphere reserve and trans-frontier conservation areas (Limpopo Provincial Government, 2009). As a result the province has high tourist potential. Similarly, the Vhembe District has a number of cultural, historical and natural resources with tourism potential (Vhembe IDP, 2011/12). Major tourist attractions in the Vhembe District include the Vhembe Biosphere Reserve, Lake Fundudzi, Mapungubwe National Park & World Heritage Site and other Cultural / Heritage sites.

The number of tourists visiting Limpopo Province has increased from ~370 000 people in 2002 to ~750 000 in 2007, and the province increased its ranking in terms of its contribution to the national tourism industry from eighth to fifth during the same period (Limpopo Provincial Government, 2009).

Tourism results in an influx of financial resources into a region (or country) thereby stimulating demand for local goods and services. The contribution of tourism to GDP is expressed as a component of demand for goods and services in the secondary (and to a lesser extent tertiary) sector of the economy; and are comparatively small when compared to the mining and agricultural sectors in Limpopo Province. Nevertheless tourism is labour intensive and is therefore already a highly strategic and important sector given the socio-economic challenges which face the province. Because of the dominance of the primary sector in the provincial economy and high rates of return on investment in the manufacturing sector in terms of employment creation, promotion of the tourism industry by encouraging the participation of local inhabitants represents an opportunity to diversify the economy and stimulate provincial employment and therefore social development.

4.2.2 Regional Development needs

In terms of the Vhembe District IDP 2011/2012 the following issues and areas in need of attention was identified in the various clusters:

- **Infrastructure Cluster**
  - **Water resource development and demand management**
  - **Energy supply and demand management**
  - **Infrastructure Investment programme (Social Infrastructure): Housing, Schools, Police Station, Hospitals, Clinics, Stadia, Libraries and sewerage plants.**
  - **Transport and Logistics Management**
- **Economic Cluster**
  - **Municipal Public works /EPWP**
  - **Integrated Industrial development**
  - **Enterprises development**
  - **Green economy**
  - **Agriculture, Forestry and Rural development**
  - **ICT & Knowledge enabled economy**
  - **Regional economic development and Integration**

- Spatial planning

- Social Cluster
  - Environmental & natural resource management
  - Health surveillance of premises
  - Fire and rescue services
  - Disaster risk management
  - Provision of health and Social services
  - Provision of education services
  - Social cohesion (unity)
- G&A Cluster
  - Municipal transformation and organizational development
  - Financial management and viability
  - Good governance and Community
  - Participation

- Justice Cluster
  - The provision of safety and security services

4.3 Regional Context: Musina and Makhado Local Municipalities

4.3.1 Demography and Population Structure

Musina LM has a relatively small population of less than 69,000 people. The male majority is evident, because females are more than males for Limpopo Province as a whole. This situation is indicative that the municipal area is a destination for male migrant labour. Population growth in this Municipality has been abnormally high during the past decade. Census 2001 recorded a total population of 39,310 people for Musina LM. Compounded population growth was therefore 5.7% per year for the past ten years, compared to 0.25% per year for the entire Province. Population growth in Musina LM was concentrated in the urban wards comprising Musina town and Nancefield.

A large part of the proposed Mopane Coal Mine is located Ward 2 in Musina LM. The total population of the ward is 16,750 people, who are living on farms. The rest of the municipal population live in the five wards comprising the urban complex of Musina town and Nancefield. It is not possible to extract 2011 census information at any level lower than the ward yet. For indicative purposes it can be estimated that farms in Musina LM each have an average of 37 residents.

Table 4-4: Population in the Project Area, 2011

Area	Male	Female	Total
Musina LM	34,506	33,853	**68,359**
Makhado LM	236,795	279,236	**516,031**
Musina Ward 2	8,707	8,041	**16,747**
Makhado Ward 21	11,079	9,959	**21,038**

Source: Statistics South Africa, Census 2011

Makhado LM, by contrast, is one of the most populous municipalities in Limpopo Province. Females are more than males, which is normal for the Province and for the country. Ward 21 is where part of the proposed Mopane Coal Mine is located. This ward is also considerably larger than the project footprint, but a more detailed level of analysis of the 2011 Census is not possible yet. Ward 21 has a population of slightly more than 21,000 people, who all live on farms. It is significant that there a substantially more men than women in this ward.

Ward 2 in Musina has approximately 1,940 children aged 4 and below, which is 11.6% of the ward population. There are approximately 1,600 learners of primary school age and approximately 1,200 learners of secondary school age. This ward has one farm school, one intermediate school and one combined school according to the Municipal Demarcation Board.
Ward 21 in Makhado has 1,965 children aged 4 or younger (9.3%) and 2,600 children of primary school age (12.4%). The number of children in the secondary school age cohort is approximately 1,540 or 7.3% of the ward population. This ward has one primary and one combined secondary school according to the Municipal Demarcation Board.

In both Ward 2 of Musina LM and Ward 21 of Makhado LM the proportion of the population aged 19 years and younger is considerably smaller than for the respective municipalities. This proportion is also smaller than the equivalent for Limpopo Province. The peculiar age distribution, as well as the dispersed nature of the population settlement pattern in the project area, has important implications for the planning of education support.

4.3.2 Literacy rates and education

Less than 22% of the population who have passed school-going age in the two wards under consideration have completed secondary school or obtained a post-school qualification. Almost half of this population have only partially completed secondary school.

Table 4-5: Education Profile in the Project Area for People Above School-going Age, 2011

Education Level	Musina Ward 2	Makhado Ward 21	Total
No Schooling	1 558	1 341	**2 899**
Some Primary	4227	4167	**8394**
Some Secondary	7 535	10 445	**17980**
Senior Certificate	1 361	3 923	**5284**
Post School Qualification	407	2450	**2857**
Total	**15,088**	**22,326**	**37,414**

Source: Statistics South Africa, Census 2011

This relatively low education level will have a negative implication for employability, as indicated below.

4.3.3 General health and welfare

In both the Musina and Makhado Local Municipalities', the urban areas are well serviced with health care facilities, in the rural areas access to health care facilities is a major problem, which is further exacerbated due to limited public transport.

The prevalence of HIV/AIDS is also on the increase in the Vhembe district and both municipalities. HIV/AIDS prevalence has increased from 14% in 2009 to 17% in 2010. Government has embarked on a HIV/AIDS awareness campaign and other strategies in the municipal areas.

Malaria is one of the other main causes of death in the district with a recorded 2890 cases and 23 deaths in 2010-2011. Other main causes of death include Tuberculosis, Respiratory infections, homicide/violence, heart disease, road traffic accidents and diarrhoeal diseases

4.3.4 Basic Services and Housing

Musina LM has indicated that its biggest infrastructure priority is roads.
Profiles on water and sanitation, as well as on electricity, are provided below for the two wards under consideration.

4.3.4.1 Housing

A unique feature of the project area is that the small village of Mopane[1] is the only human settlement in the vicinity of the proposed mine. Brick houses comprise almost 70% of all current dwelling. The profile for traditional and informal dwellings is for the two wards, which cover a considerably larger area than the project footprint. There are currently no informal dwellings in the project footprint area at all.

Table 4-6: Dwelling Types in the Project Area

Dwelling Types	Musina	Makhado
Type of main dwelling	Ward 2	Ward 21
House or brick/concrete block structure on a separate stand or yard or on a farm	3,590	5,359
Traditional dwelling/hut/structure made of traditional materials	768	350
Flat or apartment in a block of flats	65	216
Cluster house in complex	10	39
Townhouse (semi-detached house in a complex)	1	66
Semi-detached house	4	19
House/flat/room in backyard	103	230
Informal dwelling (shack; in backyard)	417	386

[1] Population estimated to be 206 in 2011, comprising 49 households. Source: Limpopo Department of Water Affairs

Dwelling Types	Musina	Makhado
Informal dwelling (shack; not in backyard; e.g. in an informal/squatter settlement or on a farm)	286	284
Room/flatlet on a property or larger dwelling/servants quarters/granny flat	138	89
Caravan/tent	28	22
Other	70	252
Unspecified	-	-
Not applicable	-	-
Total	**5,481**	**7,312**

Source: Statistics South Africa, Census 2011

This profile can change completely once project construction gets underway. Historical evidence from other construction and mine development sites indicate that an influx of work seekers should be expected and that their numbers could significantly exceed the number of jobs that may be available.

Historical evidence also indicates that work seekers tend to form a squatter camp as close as possible to the construction or mine site. These squatter camps are often the focal point for xenophobic attacks and violent social unrest.

Musina Local Municipality is in the process of preparing a master plan for the development of 1,000 new residential sites at the small settlement of Mopane. Makhado Municipality has no settlements within 20 km of the proposed Mopani Mine project area.

4.3.4.2 Water and Sanitation

Households are generally well serviced as far as water is concerned, with less than 4% that do not have access to piped water. This is a conventional profile for a predominantly farming community with no settlements.

Table 4-7: Household Water Service Levels, 2011

Household Water Levels	Musina	Makhado
Piped water	Ward 2	Ward 21
Piped (tap) water inside dwelling/institution	1,249	3,282
Piped (tap) water inside yard	2,447	3,032
Piped (tap) water on community stand less than 200m from dwelling	1,177	664
Piped water on community stand between 200m and 500m from dwelling	288	51
Piped water on community stand between 500m and 1000m from dwelling	53	19
Piped water on community stand: distance greater than 1000m from dwelling	52	2
No access to piped (tap) water	216	262
Total	**5,481**	**7,312**

Source: Statistics South Africa, Census 2011

The number of households with not toilet facilities in the two wards under consideration is strangely high. This information from the 2011 does not fit the profile of the area. It will require investigation and verification.

Table 4-8: Household Toilet Facilities, 2011

Household Toilet Facilities	Musina	Makhado
Toilet facilities	**Ward 2**	**Ward 21**
None	961	639
Flush toilet (connected to sewerage system)	2 134	4 889
Flush toilet (with septic tank)	505	427
Chemical toilet	18	4
Pit toilet with ventilation (VIP)	426	105
Pit toilet without ventilation	1 179	911
Bucket toilet	119	38
Other	138	298
Total	**5 481**	**7 312**

Source: Statistics South Africa, Census 2011

4.3.4.3 Electricity

The use of electricity for lighting is not as prevalent in the project area as in urban areas. A significant proportion of households (almost 26% in Musina ward 2 and 14 in Makhado ward 21) still use candles for lighting purposes. The use of wood for cooking is even more prevalent than the use of candles for lighting.

Table 4-9: Household Energy Source for Lighting, 2011

Household Energy Source for Lighting	Musina	Makhado
Energy or fuel for lighting	**Ward 2**	**Ward 21**
Electricity	3 833	6 013
Gas	15	29
Paraffin	129	178
Candles (not a valid option)	1 402	987
Solar	28	66
None	75	39
Total	**5 481**	**7 312**

Source: Statistics South Africa, Census 2011

4.3.5 Local Economic Profile

4.3.5.1 Economic Sectors

Musina LM has a relatively small local economy, with a total value of production of R4.72 billion at current prices for 2011. It contributes 2.5% to the provincial economy, which had a comparative

size of R190 billion at current prices in 2011 and 13% to the Vhembe District economy (R36.4 billion at current prices in 2011). There are 25 local municipalities in Limpopo and 4 in Vhembe District.

Table 4-10: Gross Value Added for Musina LM at Current Prices

Sector	2009	2010	2011	2011%
Agriculture, forestry and fishing	297	248	248	5.2
Mining and quarrying	1571	1649	1871	39.6
Manufacturing	102	114	122	2.6
Electricity, gas and water	48	56	68	1.4
Construction	76	95	116	2.4
Wholesale and retail trade, catering and accommodation	429	535	636	13.5
Transport, storage and communication	403	419	492	10.4
Finance, insurance, real estate and business services	476	542	587	12.4
Community, social and personal services	75	92	106	2.2
General government	345	404	478	10.1
Total	**3822**	**4155**	**4724**	**100.0**

Source: Quantec, 2013

The main driver in the municipal economy is clearly mining, which contributed almost 40% to the total value of production in 2011 (at current prices). The primary commodity is diamonds, although coal is also beginning to make a significant contribution. By comparison, the mining sector contributes 9.3% to the production value of the Vhembe District economy, 30% to the provincial economy and 9.8% to the national economy.

The trade sector, transport and government activities are growing rapidly. This growth is being driven by the local mining sector and by trading activities, including consumption expenditure from residents of neighbouring countries. The construction sector is also growing, but off a low base. Growth in the finance sector is more a reflection of the imputed value of land, rather than an increase in actual financial transactions. The agriculture sector, which has a long tradition of considerable significance, is shrinking in relative and in absolute terms.

Table 4-11: Gross Value Added for Makhado LM at Current Prices

Sector	2009	2010	2011	2011%
Agriculture, forestry and fishing	470	457	467	3.6
Mining and quarrying	232	243	274	2.1
Manufacturing	434	442	459	3.5
Electricity, gas and water	306	342	380	2.9
Construction	430	519	616	4.7
Wholesale and retail trade, catering and accommodation	1921	2150	2406	18.6
Transport, storage and communication	1295	1340	1459	11.2
Finance, insurance, real estate and business services	2189	2422	2574	19.9

Sector	2009	2010	2011	2011%
Community, social and personal services	596	747	823	6.3
General government	2782	3138	3507	27.0
Total	10656	11798	12966	100.0

Source: Quantec, 2013

The Makhado local economy, with a value of production of close to R13 billion, is almost three times larger than that of Musina. Government is the driver of this local economy, mostly because of the public sector needs of the very large population, which includes education, public health, safety and security, as well as local government services.

The finance sector is significant, largely due to the imputed rent estimates of extensive tracts of land that command very high prices.

The third largest sector is trade and catering. Makhado town provides a service function for a large hinterland that stretches beyond its borders. Attractive landscapes have also provided opportunities to create accommodation and catering product offerings.

Agriculture is stagnant at best, but with a tendency to shrink. Important commodities include fruit, timber and meat.

Mining has never been an important sector in the Makhado local economy, but this could change in the foreseeable future due to the interest that the Soutpansberg Coalfield is receiving with its attractive metallurgical properties.

4.3.5.2 Employment Status

The strict unemployment rate (SUR) in Musina LM at 18.7% is considerably lower than the provincial average and it is even lower in Ward 2 at 9.8%. The expanded unemployment rate (EUR) includes discouraged work seekers (DWS) as unemployed and is therefore always higher than the strict unemployment rate. Discouraged work seekers have given up on trying to find work and are therefore technically not included in the internationally used definition of unemployment.

The total number of people in Musina Ward 2 who could theoretically be employed is 1,218 (967 unemployed plus 251 discouraged work seekers). However, it is likely that only 58% of these people will have completed primary school and only 13% have completed secondary school. More than 11% of residents of appropriate age have never been to school. The potential labour pool with senior certificates is therefore estimated at 158 people.

The strict unemployment rate (SUR) in Musina LM at 18.7% is considerably lower than the provincial average and it is even lower in Ward 2 at 9.8%. The expanded unemployment rate (EUR) includes discouraged work seekers (DWS) as unemployed and is therefore always higher than the strict

unemployment rate. Discouraged work seekers have given up on trying to find work and are therefore technically not included in the internationally used definition of unemployment.

Unemployment of more than 36% in Makhado LM is significantly higher than in Musina, although Ward 21 in Makhado is an exception. Most of the residents of this ward work on farms, resulting in a strict unemployment rate of only 7.2%, which is a quarter of the municipal average.

Table 4-12: Employment Profile in the Project Area

Area	Employed	Unemployed	DWS[1]	SUR[2] %	EUR[3] %
Musina LM	25,588	5,893	1,869	18.7	23.3
Makhado LM	78,768	45,705	24,383	36.7	47.1
Musina Ward 2	8,887	967	251	9.8	12.1
Makhado Ward 21	10,636	821	269	7.2	9.3

Source: Statistics South Africa, Census 2011

Unemployment in Makhado LM is significantly higher than in Musina, although Ward 21 in Makhado is an exception. Only 35% of the theoretically employable people in Ward 21 are likely to have completed secondary school, which numbers approximately 382 people.

The total number of unemployed people (strictly unemployed as well as discouraged work seekers) in the two wards who have completed secondary school is therefore approximately 540. This suggests that the proposed Mopane Coal Mine will have to recruit from outside the project area unless this skills gap can be bridge through skills development programmes.

The census does not indicate employment per sector, but useful information in this regard can be obtained from commercial providers of statistical information such as Quantec. The information below has been procured from them. It indicates that more than 16% of the workforce in Musina LM is already employed in the mining sector and the number is growing. Only 1.2% of the workforce in Makhado LM is employed in the mining sector, but this could change in the foreseeable future considering the pipeline of potential coal mining projects. Increased employment in the mining sector will have a positive impact on employment in other sectors through the indirect employment effect, particularly on construction, trade and transport.

The Trade, Accommodation and Catering sector is the biggest employer in both municipalities. Agriculture is also a major employer, especially in Musina LM.

Table 4-13: Employment by Sector in Makhado and Musina Municipalities, 2011

Sector	Makhado	Makhado %	Musina	Musina %
Agriculture, forestry and fishing	5578	7.8	3774	18.3

[1] DWS: Discouraged Work Seeker

[2] SUR: Strict Unemployment Rate

[3] EUR: Expanded Unemployment Rate

Sector	Makhado	Makhado %	Musina	Musina %
Mining and quarrying	832	1.2	3424	16.6
Manufacturing	4735	6.6	976	4.7
Electricity, gas and water	264	0.4	29	0.1
Construction	6062	8.5	1155	5.6
Wholesale & retail trade, catering and accommodation	21193	29.7	5072	24.6
Transport, storage and communication	2943	4.1	765	3.7
Finance, insurance, real estate and business services	5622	7.9	1326	6.4
Community, social and personal services	10320	14.5	1814	8.8
General government	13801	19.3	2242	10.9
Total	**71350**	**100.0**	**20578**	**100.0**

Source: Quantec 2013

4.3.5.3 Income profile

Compared to the provincial and national averages, there are very few households in the project area with no income at all. This is presumably because there are no settlements and almost all households live on a farm, which implies that at least one member of the household is likely to earn an income. However, household incomes are generally low, with 84% of households in Musina Ward 2 earning less than R38,200 per year or approximately R3,180 per month. Household income is slightly higher in Makhado Ward 21 where 64% of households earn less than R38,200 per month.

Table 4-14: Annual Household Income in the Project Area, 2011

Annual Household Income	Musina	Ward 2 %	Makhado	Ward 21 %
Income Category	Ward 2		Ward 21	
No income	374	6.8	546	7.5
R 1 - R 4800	99	1.8	207	2.8
R 4801 - R 9600	600	10.9	453	6.2
R 9601 - R 19 600	2154	39.3	1935	26.5
R 19 601 - R 38 200	1371	25.0	1540	21.1
R 38 201 - R 76 400	489	8.9	792	10.8
R 76 401 - R 153 800	171	3.1	691	9.5
R 153 801 - R 307 600	136	2.5	595	8.1
R 307 601 - R 614 400	51	0.9	390	5.3
R 614 001 - R 1 228 800	20	0.4	118	1.6
R 1 228 801 - R 2 457 600	11	0.2	26	0.4
R 2 457 601 or more	6	0.1	19	0.3
Total	**5481**	**100**	**7312**	**100**

Source: Statistics South Africa, Census 2011

4.3.5.4 *Potential development partners in the area*

The primary development partner for the Greater Soutpansberg Projects is the municipalities, and MbeuYashu is aligning its development projects such as in its Social and Labour Plan with local governments' integrated development plans. MbeuYashu is also investigating potential linkages with provincial and national imperatives, for example, with building of a school for mining excellence.

Partners with significant capacity such as the Development Bank of South Africa's Siyenze Manje programme could be mobilised to assist with some challenges such as the provision of water and sanitation services. Non Government Organisations (NGOs) or Community Based Organisations (CBOs) who are active in area and who work in specific fields of development can be brought on board as service providers or partners.

4.4 The Surrounding Environment

4.4.1 Study area

The study areas are defined in the figure below. The Mining Right Application area is included in the baseline socio-economic assessment on a broader level, where the mining footprint area and surrounding area is done in more detail.

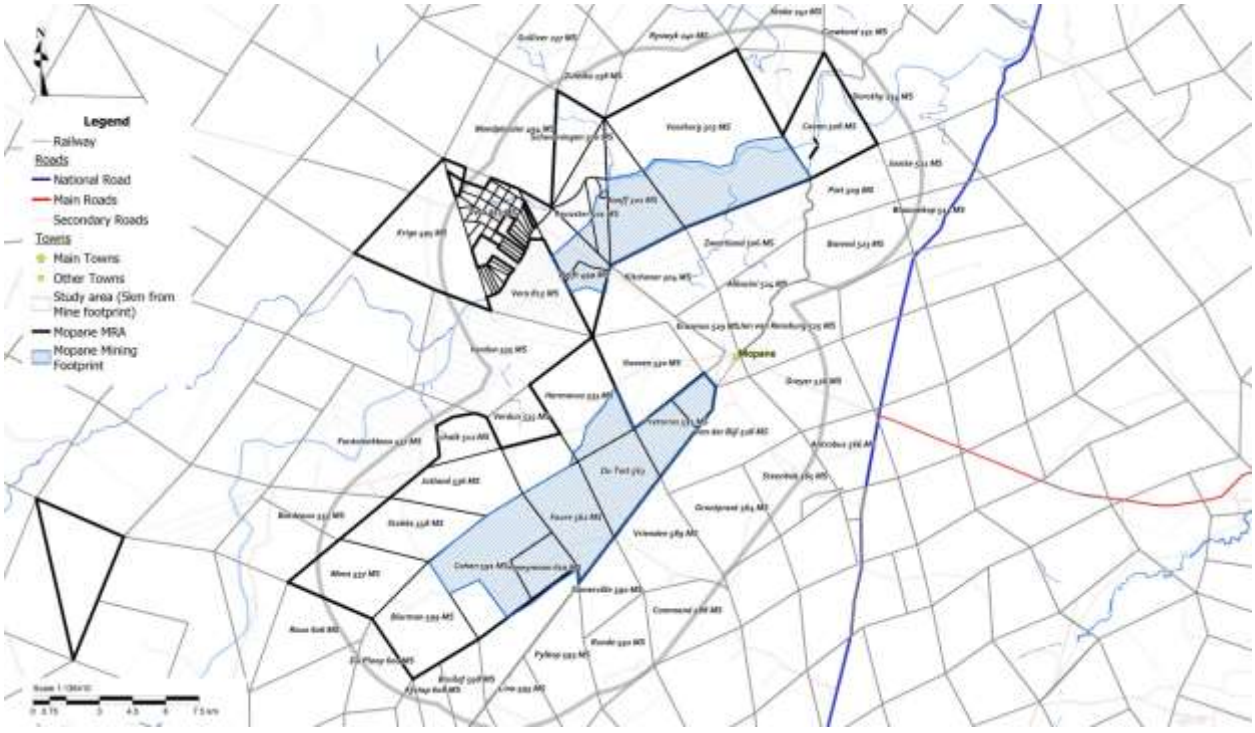


Figure 4-1: Study Area

The socio-economic activities in the area are mixed between agriculture, hunting and tourism. With the Vera agricultural holdings mostly used for dry land or irrigated arable land or grazing areas for livestock.

Facilities, structures and activities have been identified as being sensitive from a socio-economic point of view. These may be influenced by other environmental factors, with a secondary socio-economic impact. The facilities, structures and activities have been identified utilising aerial photography, satellite imagery and where possible confirmed during site visits and observations.

4.4.2 Voorburg Section Surrounding Area

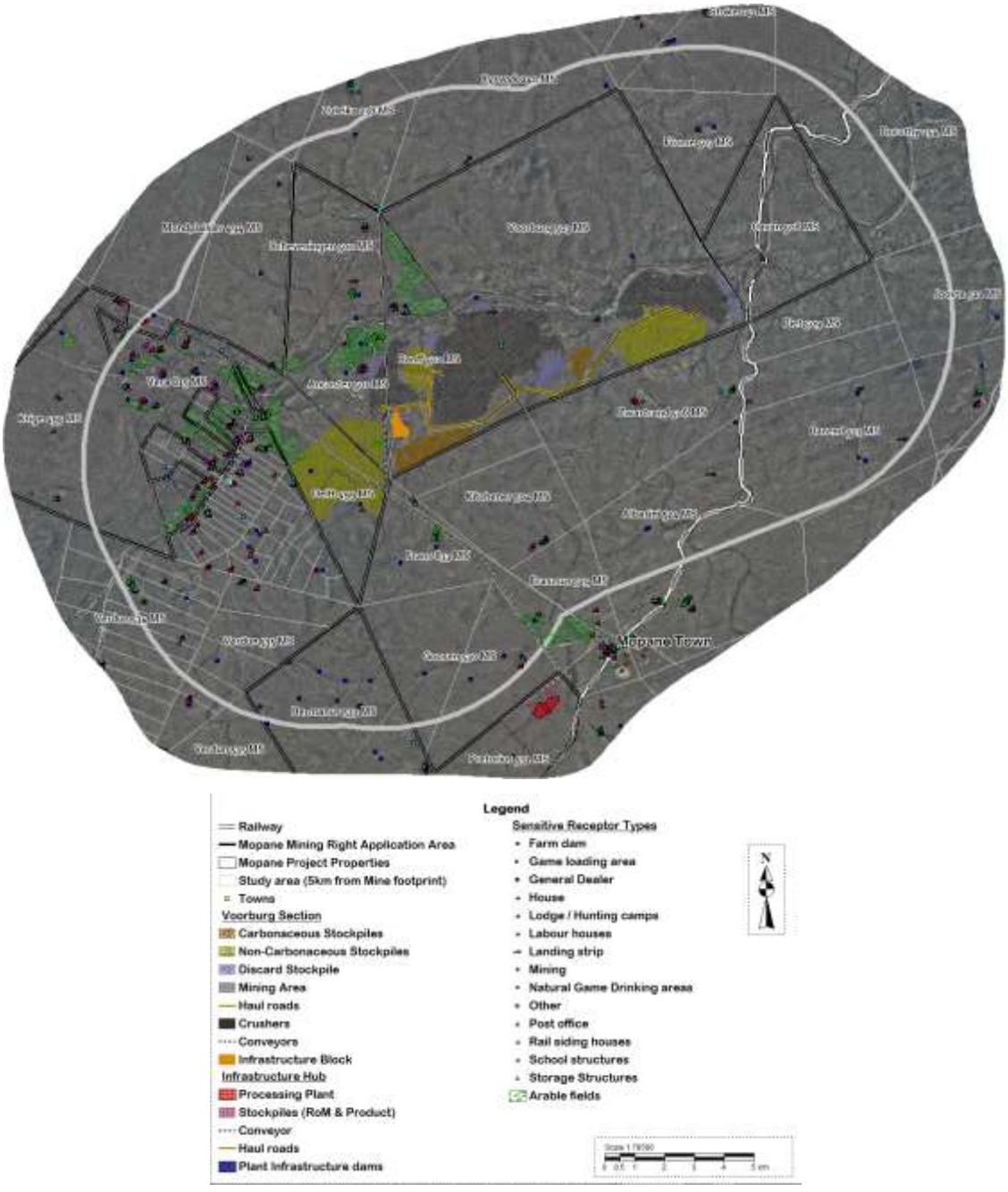


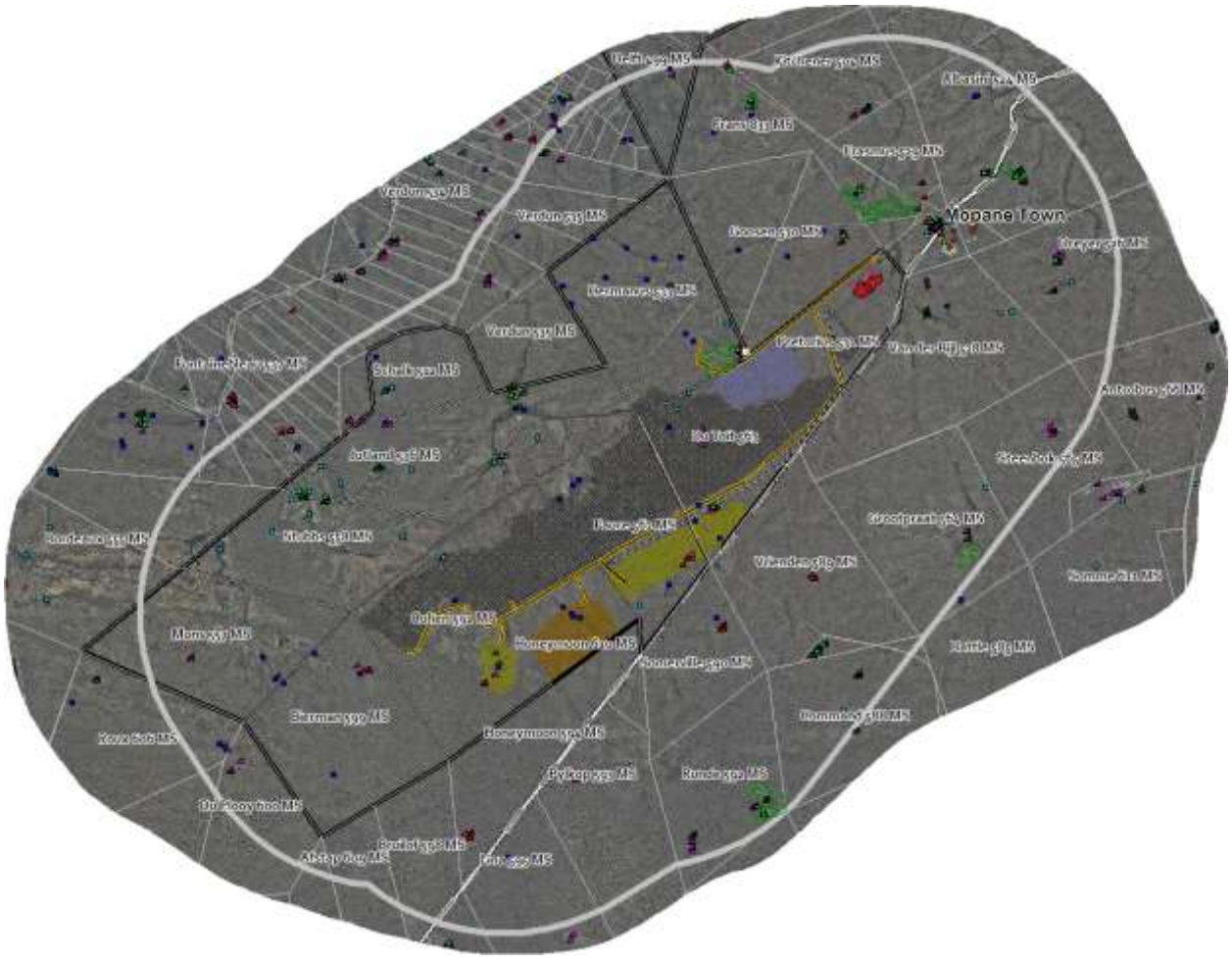
Figure 4-2: Voorburg Section surrounding properties and Sensitive Receptors

Agricultural activities are focused on the Vera Agricultural holdings, and neighbouring areas. In the areas along the Sandriver there are some arable areas developed, but in the general area conditions are not conducive to intensive crop production.

Most of the Mining Right Application area is utilised for game or livestock grazing. Hunting, game trading and Ecotourism is an established socio-economic driver in the area. Hunting activities are focused on local and international markets and are for trophy and biltong hunting.

The location of all structures, houses, institutional buildings such as schools, post offices, etc is important in the evaluation of their susceptibility to nuisance, noise, visual and air quality impacts. Changes to the sense of place and ambiance of the area have an impact on the socio-economic environment. Housing, labour houses and other structures are scattered throughout the area, as can be seen in the figure above.

4.4.3 Jutland Section



Most of the Mining Right Application area is utilised for game or livestock grazing. Hunting, game trading and Ecotourism is an established socio-economic driver in the area. Hunting activities are focused on local and international markets and are for trophy and biltong hunting.

The location of all structures, houses, institutional buildings such as schools, post offices, etc is important in the evaluation of their susceptibility to nuisance, noise, visual and air quality impacts. Changes to the sense of place and ambiance of the area have an impact on the socio-economic environment. Housing, labour houses and other structures are scattered throughout the area, as can be seen in the figure above.

4.4.4 Communities in the surrounding area

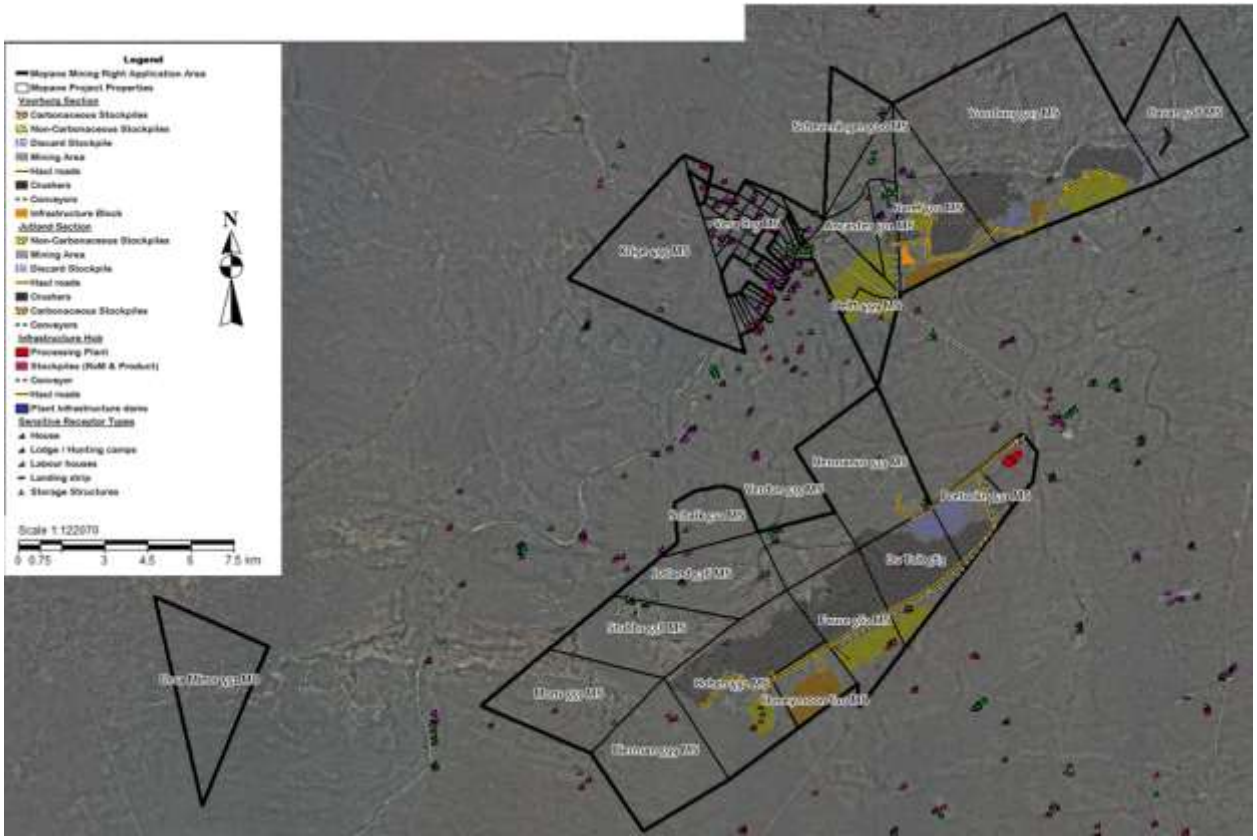
There are no rural communities in the vicinity of the Mopane Project. The only settlement is that of the Mopane Town. There is a proposed development next to the Mopane town for the development of 1 000 erven proposed by the Municipality. This development has recently obtained Environmental Authorisation.

The motivation for the development was done prior to the Mopane Project Planning was made public, and what has been gathered from the application documentation the need for the development was based on the current housing need of the Syferfontein Dolomite Mine.

It is not MbeuYashu or Coal of Africa Limited's policy to develop new towns nor hostels to accommodate housing needs, but to rather support existing towns in the region such as Musina and Makhado.

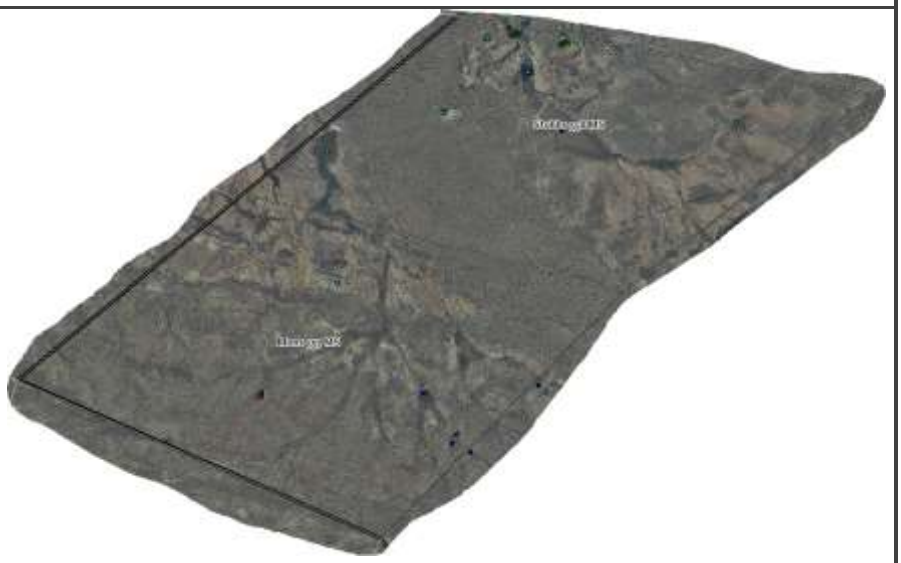
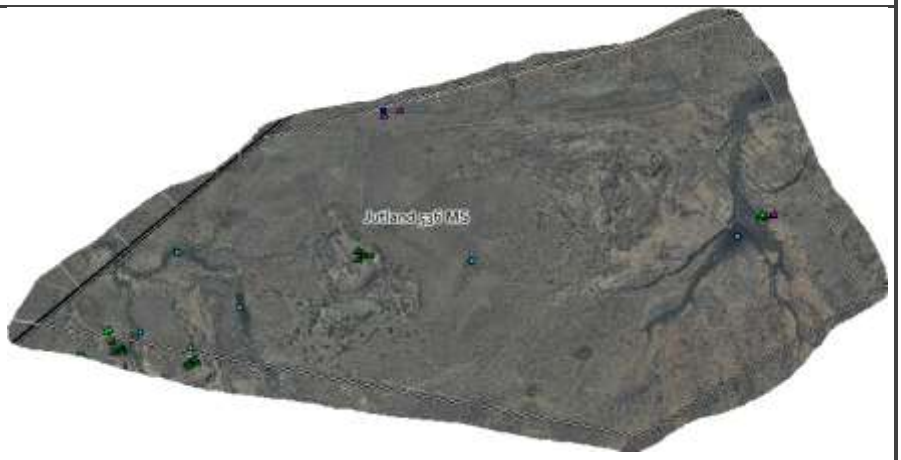
4.5 Mining Right Application Area

Project infrastructure will be located on a number of farms in the Musina and Makhado municipal areas.



4.5.1 Properties included in the Mining Right area but not physically affected by the Mine Footprint

Property & Discussion	Social Map
Property Bierman 559 MS The property is owned by an international party (Spanish origin) under South African registered company Phindaba Prop (Pty) Ltd. The extent of the property is 1293.11 ha. Primary land use could not be determined, but is expected to be livestock farming. Property of this size and use it is anticipated that not more than 10 people are employed.	
Property Hermanus 533 MS The property is mainly utilised for tourism, game and livestock farming. The total extent is 1384.504 ha.	

Property & Discussion	Social Map
Property Mons 557 MS and Stubbs 558 MS The property is utilised for game farming and has a hunting lodge. There is also a large dam on the property utilised for fishing and fishing competitions. The property is 2 232.47ha in extent	
Jultand 536 MS The property is 1051.326 ha in extent and is utilised for Ecotourism and hunting. Bird Watching and International Nature Photography and film production is also practiced on the property.	
Property Schalk 542 MS The property Schalk 542 MS is included in the Mine Right Application area, and is 482.4793 ha in extent. This property is managed as a business unit with a number of portions of the property Fountainebleau 537 MS. There are lodges and other structures on the property adjacent to the river.	

Property & Discussion	Social Map
Property Verdun 535 MS The property extent for Portion 1 and the Remaining extent are 1034.76 ha of which 510.6131ha is included in the Mining Right Area. The property is primarily utilised for hunting and tourism. There is a lodge on the river side	
Property Hermanus 533MS The property is utilised for livestock and game farming. The total extent of the property is 1384 .504 ha. There is also some arable land, a main house and associated infrastructure on the property.	

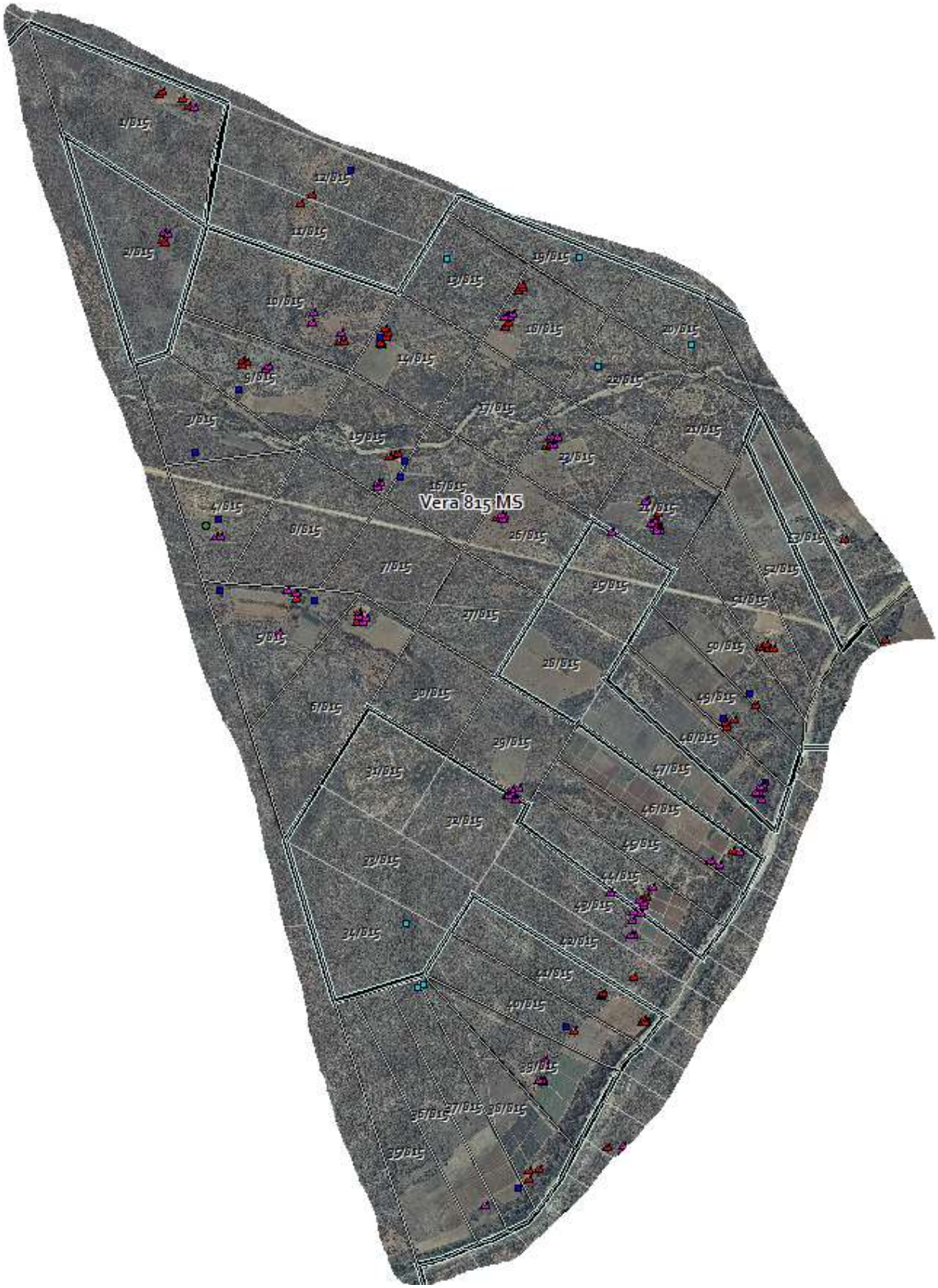
Property & Discussion	Social Map
Property Krige 495 MS The property is 1855.1812 ha in extent and primarily utilised for game farming and tourism. There is a main house and associated infrastructure on the property.	
Property Scheveningen 500 MS and Ancaster 501 MS Remaining Extent The properties are 898.1843 ha in extent and is utilised for game farming, primarily servicing international trophy hunting and tourism. There is a lodge on the properties that can accommodate 32 people. There are some arable areas. Water supply on the property is dependent on groundwater. There are 12 permanent workers employed. **Property Vera 815 MS Ptn 51 & 52** The two portions of Vera forms part of the total business unit, with an extent of 54.52 ha. There are arable	 Scheveningen 500 MS Ancaster 501 MS Vera 815 MS Ptn 51 & 52

Property & Discussion	Social Map
land on the agricultural plots. **<u>Mondplaisier 494 MS & Zuleika 238 MS</u>** Although these properties do not form part of the Mining Right application area, they are managed as part of the business unit with the properties indicated above. The extent of the two additional properties are 2814.83 ha Total extent: 3758.54 ha	
<u>Property Delft 499 MS Portion 1</u> The property is 92.6471 ha in extent, and is primarily utilised for arable / crop production with some grazing.	

Property & Discussion	Social Map
Property Cavan 508 MS The property is owned by Government and not currently actively utilised for commercial gain. The total extent of the property is 1218.57 ha	
Property Ursa Minor 551 MS This property is 1277.89 ha in extent. The property is utilised with neighbouring property and is adjacent to an area currently under prospecting by Universal Coal.	

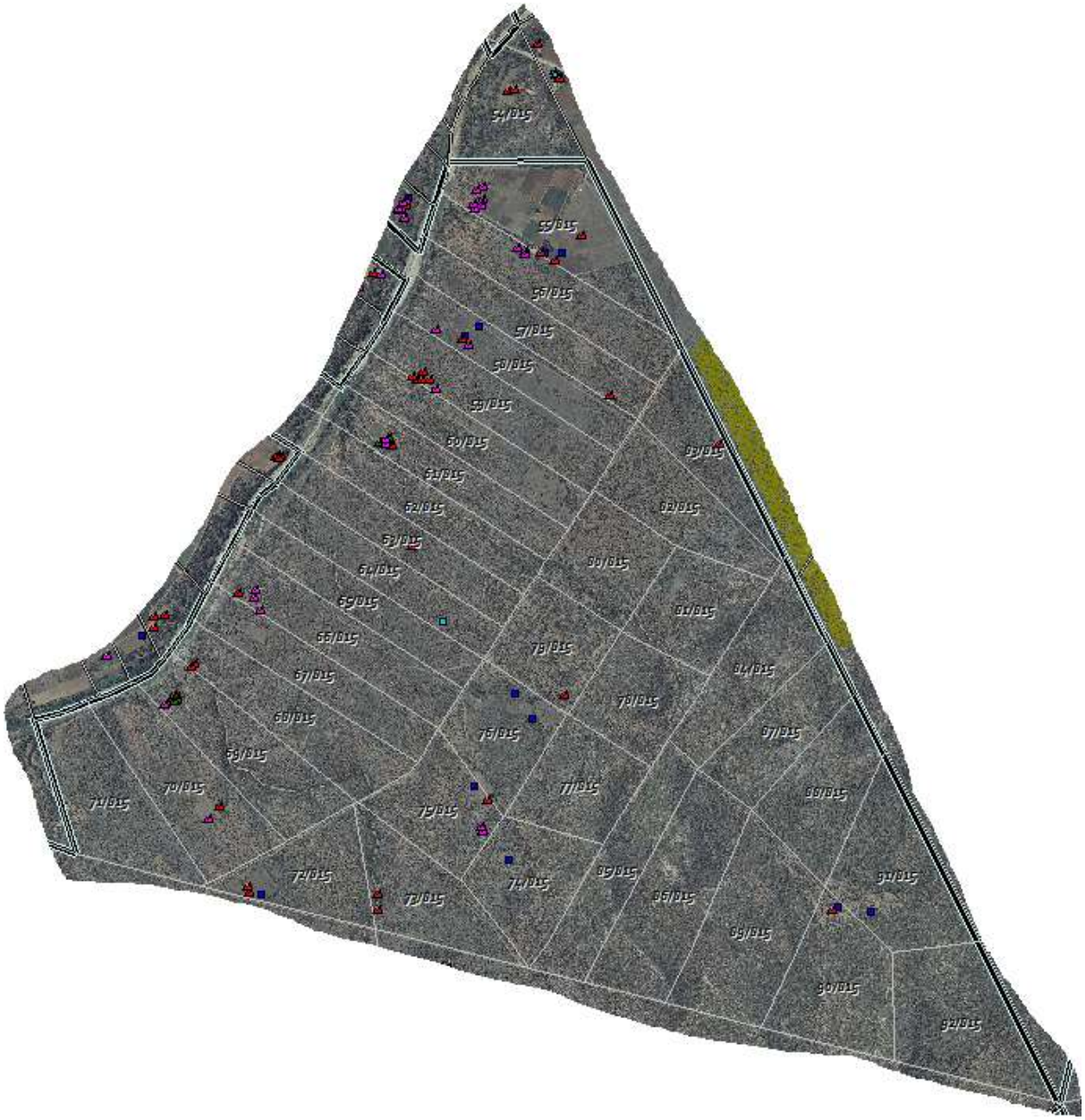
Vera 815 MS Agricultural Properties North of the Sand River

The majority of the agricultural plots are managed as single units with the exception of a few where 4 – 6 plots are combined to form an economic unit. The agriculture practiced on the agricultural plots range from successful tourism lodges, hunting activities, livestock farming, irrigation to subsistence agriculture on some of the properties.



Vera 815 MS Agricultural Properties South of the Sand River

The majority of the agricultural plots are managed as single units with the exception of a few where 4 – 6 plots are combined to form an economic unit. Some irrigation is practiced to the north-east of this section, but most of the other properties are utilised for game and livestock farming.



4.5.2 Mine Footprint Area

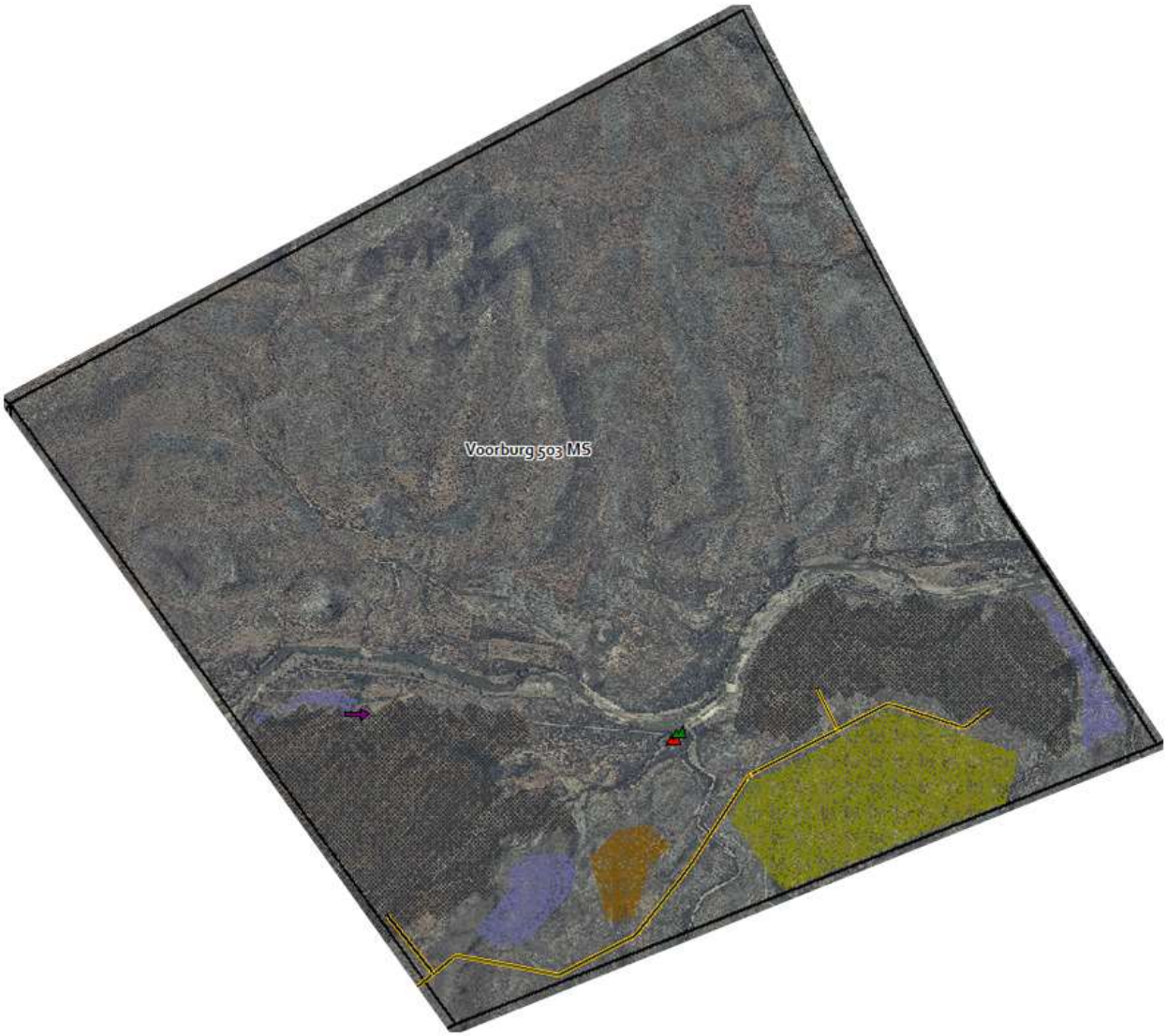
4.5.2.1 Property Voorburg 503 MS

The Voorburg Farm is 3978 ha in size and is owned by the Koos Minnaar Trust. The property forms part of a larger Game and Hunting business that have made application to register as a Protected area called Baobab Nature Reserve Initiative, which includes this property and 5 others (i.e. Shedrake 239 MS, Zwartrand 506 MS, Ryswyk 240 MS, Lucerne 198 MS and Fontainebleau 212 MS.

The property is utilised for hunting all year round and cater for domestic as well as international hunters.

The property has a lodge located in the vicinity of the mine development. There is also a residence located on the property.

No questionnaire was completed by the landowner for this property, but it is estimated that on the property there are approximately 15 – 20 people employed. Approximately 5 families reside on the larger property but not on the affected Voorburg property.

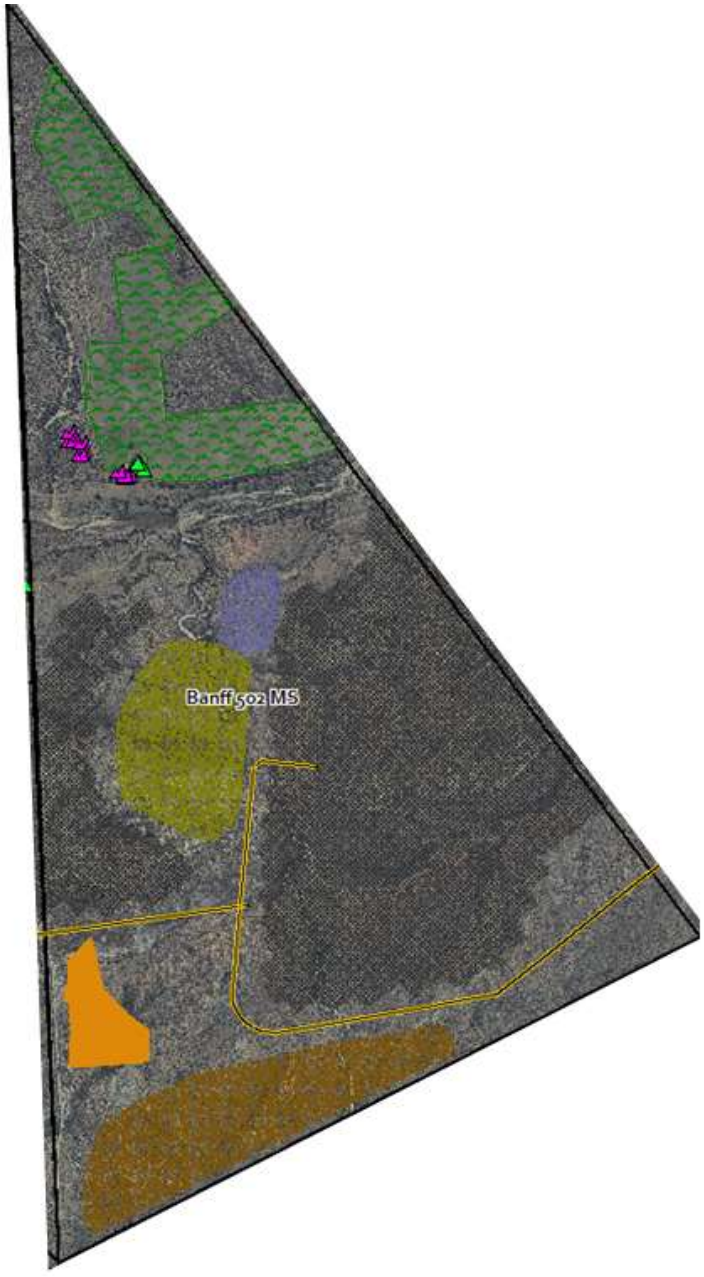


4.5.2.2 Property Banff 502 MS

The property Banff belongs to Manzicom cc, is 1133.33ha in size and is utilised for a combination of economic activities including livestock farming, game farming and arable crop (Lucerne) irrigation. Livestock farming are focussed on cattle (Bonsmara & Brahman). In terms of the game farming activities, a quarter is focused on breeding programmes, a quarter on live sales, another quarter on Biltong Hunting and the final quarter on Trophy Hunting. The property is fenced with game fencing and has access control.

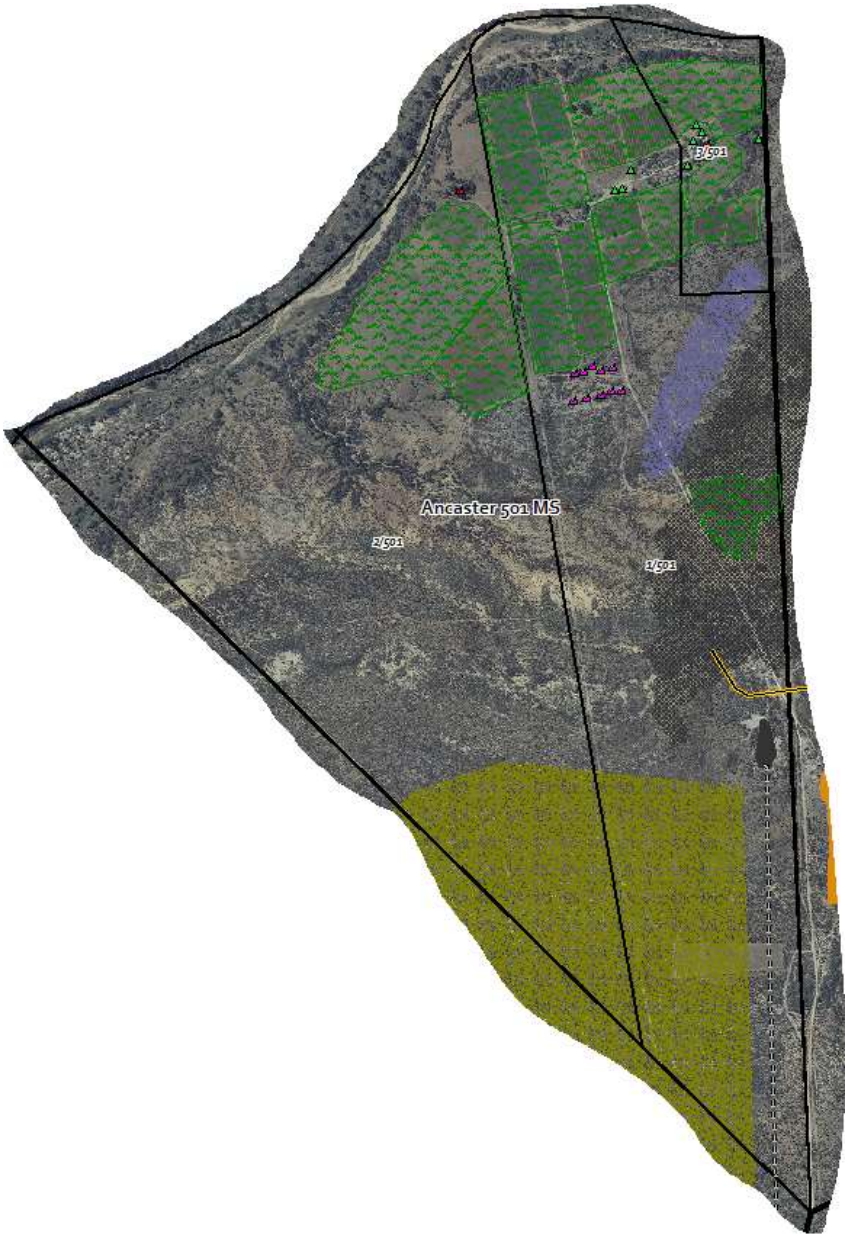
The property is further also utilised in the tourism industry with accommodation used for both hunting and tourism. The lodge is mostly occupied by local visitors and can sleep 16 people in chalets and another 6 in the tent area. Water supply for the business as well as personal use is obtained from boreholes on the property.

Currently the property employs 9 people that reside on the property.



4.5.2.3 *Property Ancaster 501 MS*

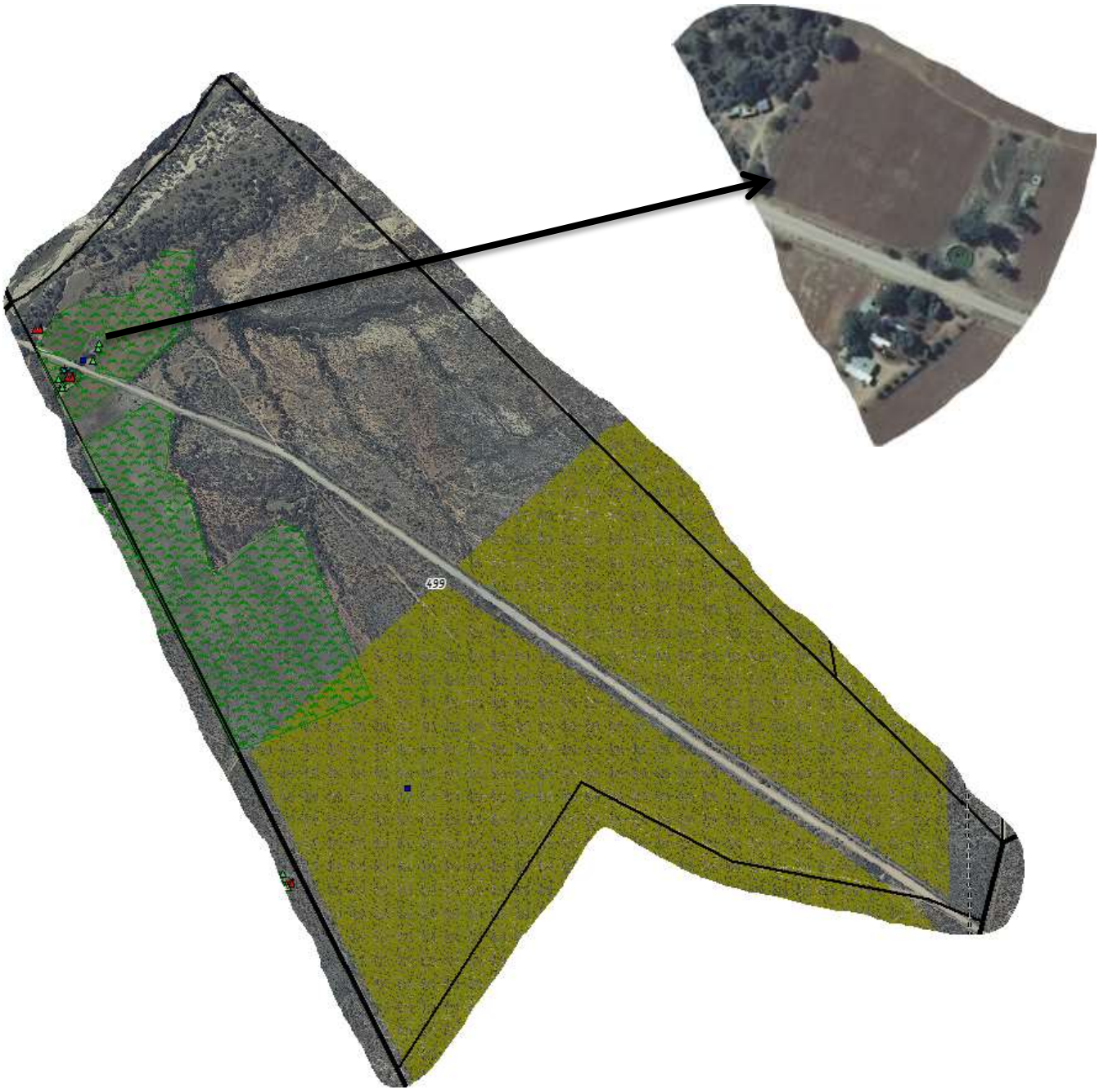
Portions 1, 2 and 3 of the property Ancaster 501 MS is registered to LTT General Dealers cc and are 510.8 ha in extent. The property is primarily utilised for game farming but also have irrigation areas. The Game farming business focusses on the Nyala & Sable breeding programmes (50%), sales of live game (30%) and Hunting (20%). The property also has a hunting lodge with 10 beds, primarily for the local market but also utilised for international guests. Water supply for the property is dependent on boreholes. The property employs 5 workers that reside on the property.



4.5.2.4 *Property Delft 499 MS Remaining Extent*

The Remaining Extent of the property Delft 499 MS is owned by Theo Pienaar, with an extent of 445.215ha. The property is utilised for irrigation (vegetable & tobacco), game farming and livestock. The game farming are primarily for breeding programmes. There is no lodge on the property. The property is dependent on groundwater for supply. The property employs 20 people that reside on the property, and an additional 5 during peak season for approximately 24 weeks.

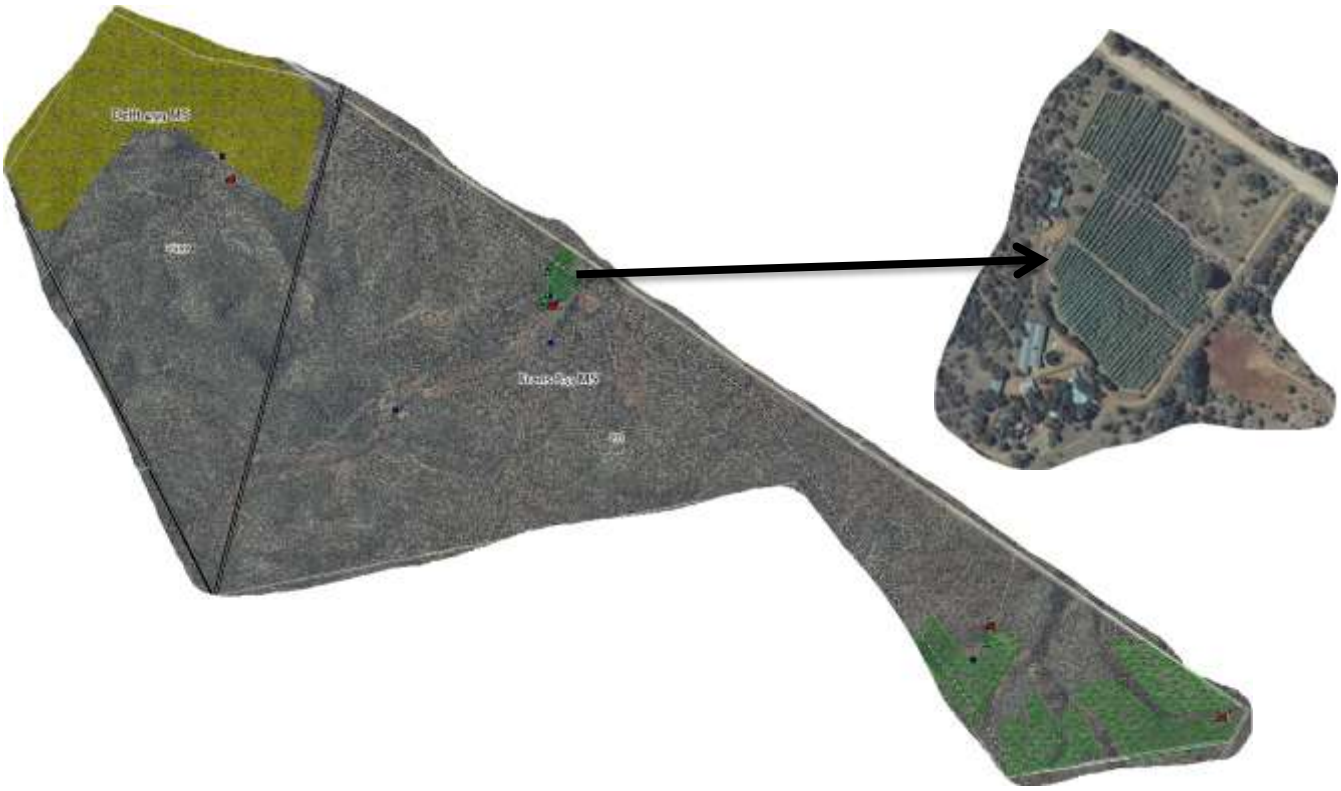
The southern part of the property is affected by the non-Carbonaceous stockpile that forms part of the Voorburg Section.



4.5.2.5 *Property Delft 499 MS Portion 2 and Property Frans 833 MS (known as Sonskyn)*

The properties are made up of Portion 2 of the Property Delft 499 MS and the Property Frans 833, which has been established from the consolidation of Portion 1 of the property Kitchener 504 Portion 1 and a portion of the Property Erasmus 529 MS. The total extent of the property is approximately 1128.88 ha of which 342.6 ha forms part of the Mining Right Application area. Seeing as the property is utilised as a business unit, all the properties are included here.

The properties are utilised for game farming and also have a prickly pear orchard of approximately 65.5ha with supporting infrastructure, stores and water supply from boreholes.
The Delft property is affected by a non-Carbonaceous stockpile that forms part of the Voorburg Section and a conveyor line on the property Frans 833 MS. The property employs approximately 20 – 30 workers permanently and additional 50 workers in peak harvesting season.

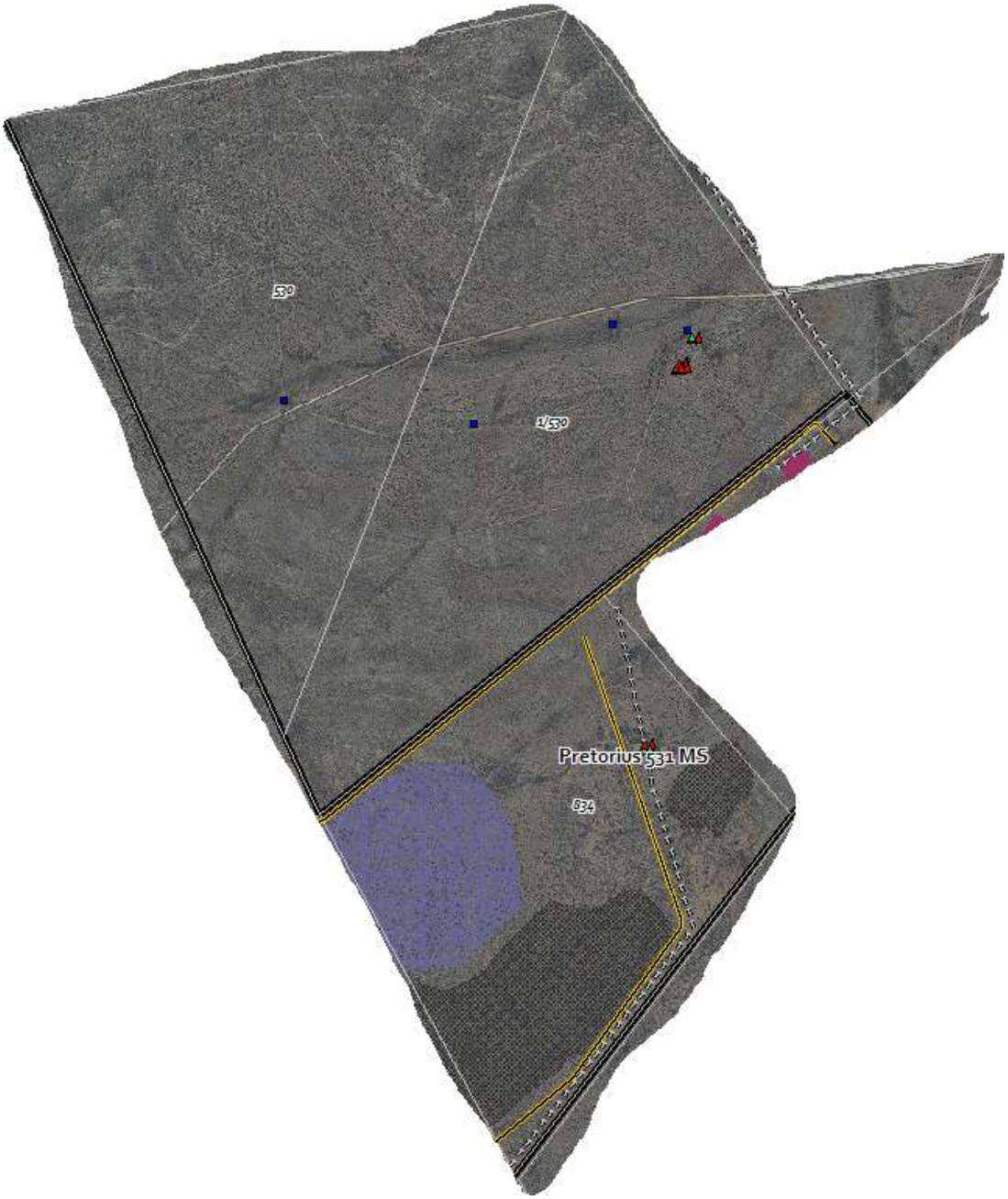


4.5.2.6 *Property Du Preez 834 MS and Property Goosen 530 MS*

The property Pretorius 531 MS Portion 1 is now known as Property Du Preez 834 MS. The extent of the properties is 1884.92 ha of which 260.133 ha form part of the Mining Right Application.

The property is utilised equally for livestock and game farming, primarily for the hunting (throphy and biltong) markets. There is a lodge on the property Goosen that is utilised for hunting and tourism visitors and can accommodate 11 people. Local as well as International hunting parties frequent the property. There are 3 permanent workers on the property. Water supply the property is from boreholes, of which the majority is located on the property Du Preez 834 MS (Pretorius 531 MS).

The property Du Preez 834 MS (previously Pretorius 531 MS portion 1) will be affected by the Jutland Section in terms of Mining pits, Carbonaceous stockpiles and a conveyor line.



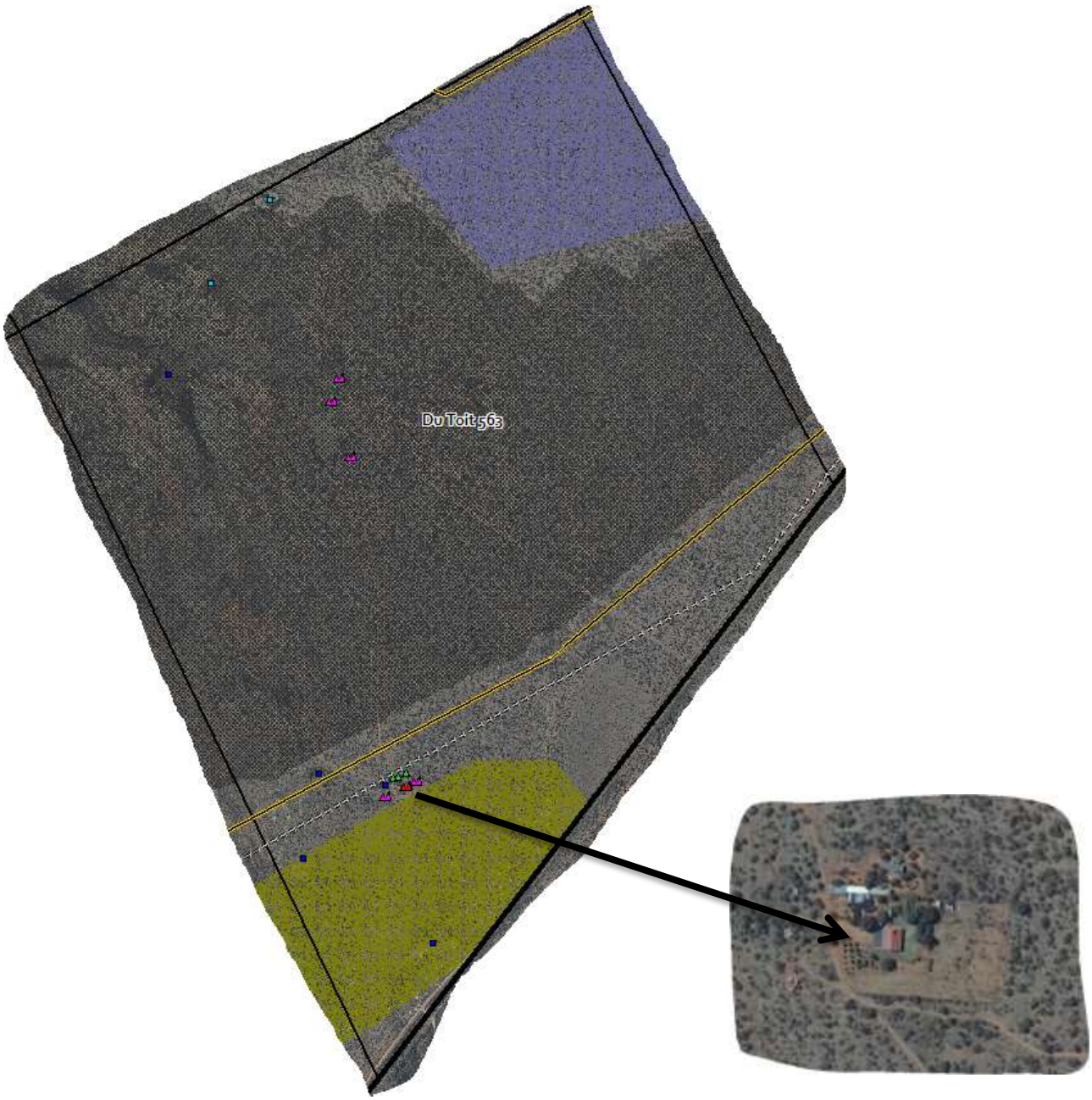
4.5.2.7 Property Pretorius 531 MS Remaining Extent

The property Pretorius 531 MS Remaining Extent is owned by Government under the auspices of the Limpopo Provincial Government, it currently not being utilised. The extent of the property is 258 ha.

The property may be affected by the Processing Plants for both the Voorburg and Jutland Sections, alternatives have been proposed and are being considered.

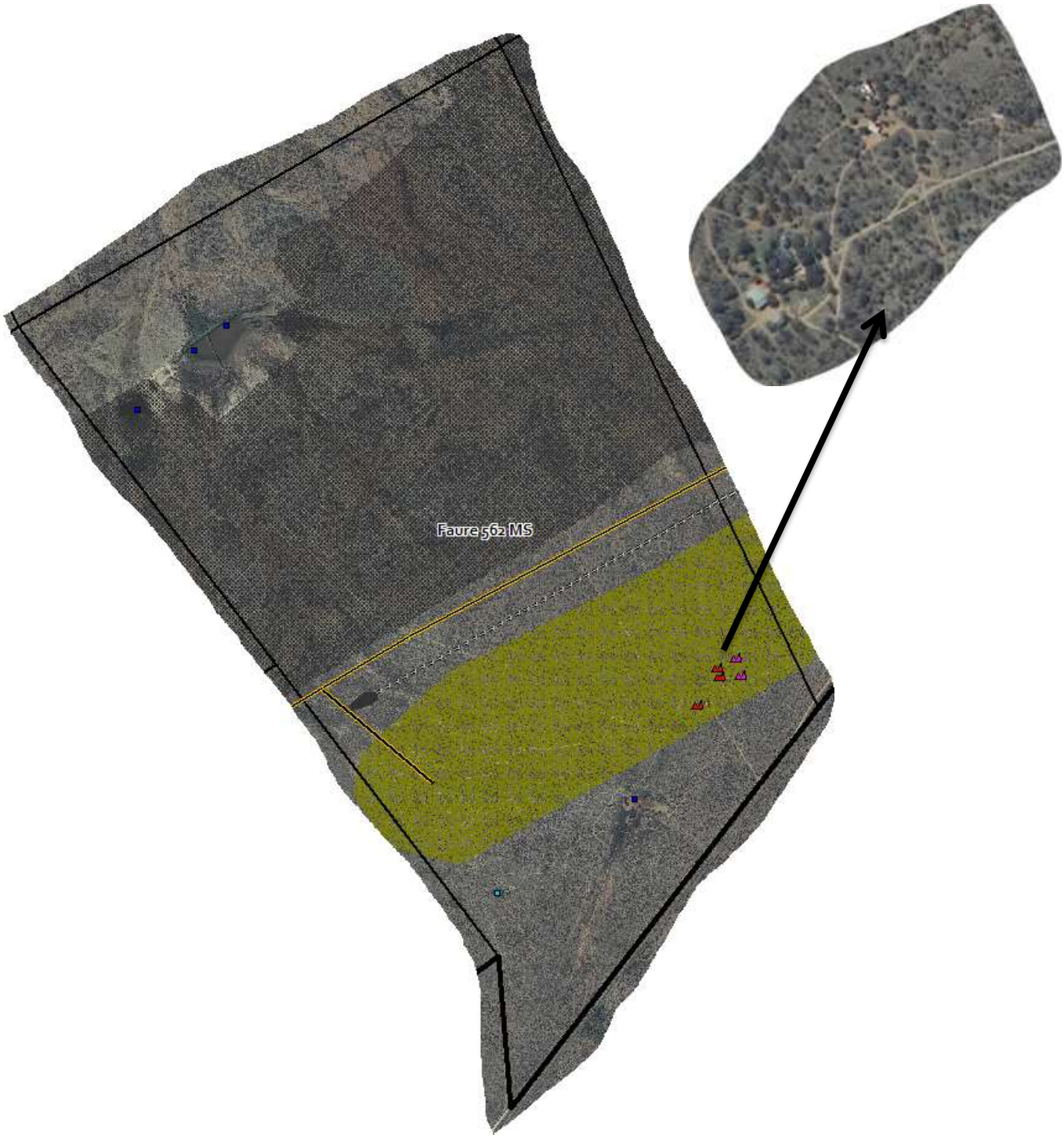
4.5.2.8 Property Du Toit 563 MS

The property Du Toit 563 MS is 927.14 ha in extent. The property owner has not completed a landowner questionnaire but from the information available it seems the property is utilised for a combination of game and livestock farming. The house has a main farm house, and approximately 5 worker houses on the property, from this it is estimated that approximately 5 – 10 people work on the property. The property use groundwater for water supply to the livestock and domestic purposes.



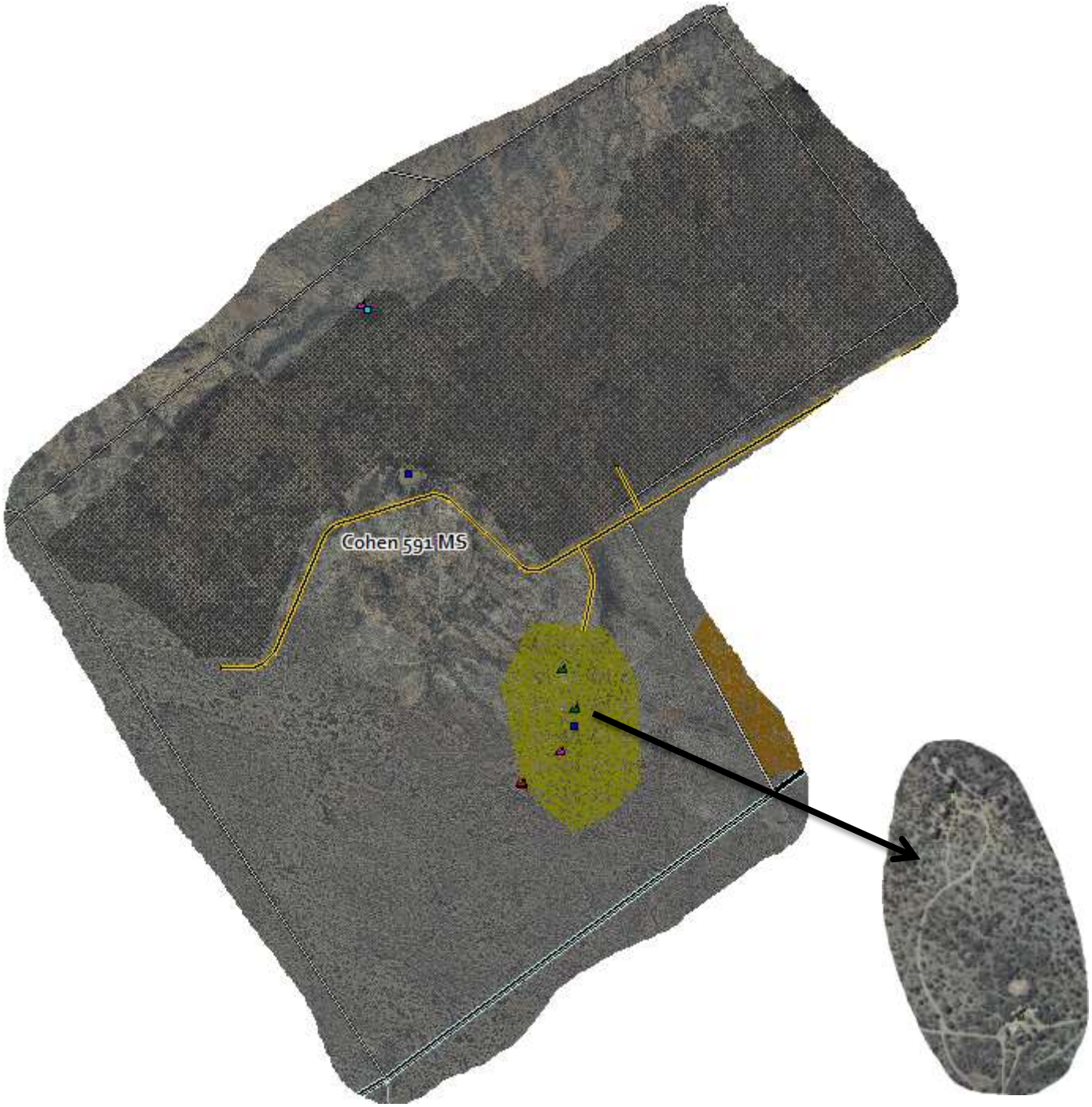
4.5.2.9 ***Property Faure 562 MS***

The property Faure 562 MS has recently been sold to the existing owners. The property is 1032.54 ha in extent and is primarily utilised for livestock farming. The property has a main house and associated infrastructure as well as approximately 2 worker houses. From this it is estimated that 2 – 4 people are employed on the property. Water use on the property is from boreholes.



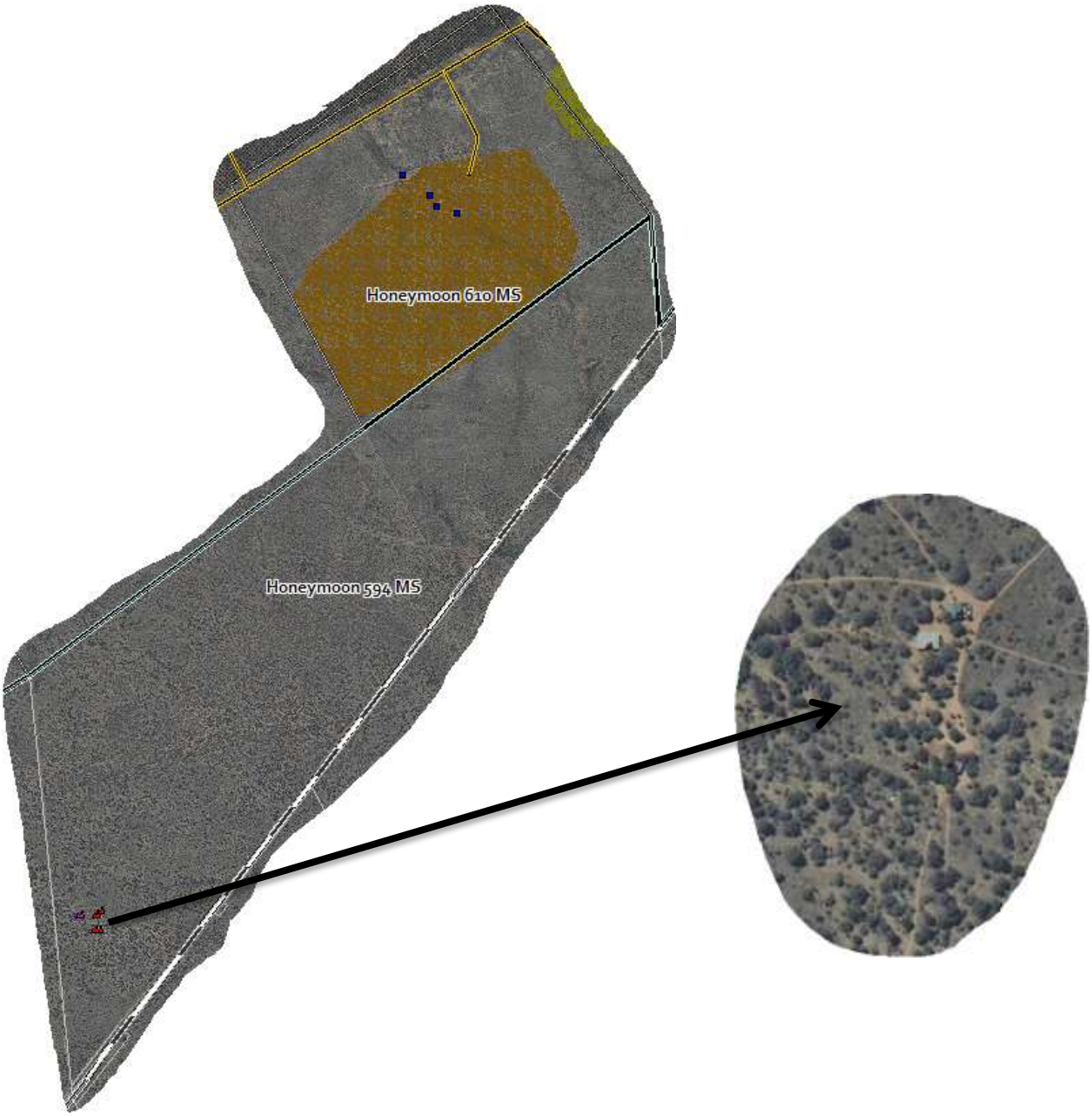
4.5.2.10 Property Cohen 591 MS

The total property extent is 2238.46 ha. The property owner has not completed a landowner questionnaire, but from site observation it is evident that the property is utilised for exotic game farming and associated tourism and hunting activities, the game farming activities are focussed on hunting for the local and international markets. The property has a lodge utilised for both hunting and tourism and can accommodate approximately 25 people. It is estimated that approximately 20 – 30 people work on the property, although only 2 worker houses could be identified.



4.5.3 Property Honeymoon 610 MS (previously Otto 560 MS)

The property Honeymoon 610 and Honeymoon 594 MS is managed as an economic unit. The property is primarily utilised for game farming. There is accommodation developed on the property. The landowner did not complete a landowner questionnaire but is estimated that the property employs between 15 – 20 people full time with a potential increase during the hunting season.



5 IMPACTS AND RECOMMENDED MITIGATION MEASURES

5.1 Demographic and Population Related Aspects

5.1.1 Impact DP1: Influx of work seekers into the area

- Aspect: Demographic and Population Related Aspects
- Impact: S1: Influx of work seekers
- Nature: Negative
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation
  - Mining developments are usually associated with a potential for attracting people from outside the area, thus leading to an influx of non-local people into the area to look for employment opportunities especially during the construction phase of the mine.
  - Even if it is the intent of MbeuYashu to source workers locally, it is unlikely to discourage people from elsewhere entering the area. It is this perceived prospect of employment opportunities, fuelled by potential rumours about the number of jobs to be created that would attract outsiders. Furthermore, introducing job opportunities into a resource-starved environment (see unemployment figures) is a potential source of competition between unemployed locals - a situation that would be exacerbated by outsiders, potentially resulting in conflict – the felt impact of the change process.
  - The impact could include secondary influences on:
    - *Impact on social dynamics of informal areas and its infrastructure and services*
    - *Conflict between job seekers and local communities*
    - *Secondary impacts on infrastructure, services, housing, crime, safety and risk to the local area*
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Construction	*District*	*Likely*	*Moderate*	*Moderate Risk*	*Moderate Significance*	*Low Risk*	*Low Significance*

- Mitigation / Optimization Measures
  - Optimise the use of local labour as far as possible. Establishing early on skills development programmes in the local area will support to possibility of finding skilled people locally
  - Development and Implementation of an Influx and Land use Management Plan
  - Develop a code of conduct with which contractors and their employees must comply. The code should deal with the interaction with local communities and substance abuse among other things.
  - Develop a Stakeholder Engagement Plan (SEP) which clarifies the principles of engagement with community and other stakeholders, sets in place appropriate liaison forums (a community forum is recommended), and describes the grievance management procedure to be adopted by the Mopane Project. Establishment of a local labour

recruitment committee to monitor recruitment procedures and results
  - Communicate through media the recruitment procedures and priorities to discourage work seekers from outside the area
- Description of Impact Assessment post-mitigation
  - If the mitigation measures are implemented effectively it is envisaged that influx could be minimized
- Cumulative Impact
  - Broader development in the region is likely to compound problems around influx and the Municipality's ability to provide housing in the area. The implementation of joint influx management between MbeuYashu and the Local Municipalities in the area is recommended. The timing for the construction and operational phases of the other mines is not finalised at this point, it is difficult to assess what the cumulative impact could be.

5.1.2 Impact DP2: Influx of construction labour with pressure on services and social structures

- Aspect: Demographic and Population Related Aspects
- Impact: S2: Influx of construction labour with pressure on services and social structures
- Nature: Negative
- Activity generating this impact: Mine Construction
- Description of Impact Assessment pre-mitigation
  - It is anticipated that some construction labour would be brought in from outside the area for specific skilled areas. Contract workers moving into the area will require housing and access to services and amenities. Depending on where the construction workforce will be housed this will lead to an increased demand for municipal (e.g. water and sanitation) and provincial (e.g. health and education) services. Water, sanitation and electricity are still lacking in a large proportion of the area.
  - The impact could include secondary influences on:
    - *Informal settlement in Open Areas*
    - *Impact on social dynamics in the area and its infrastructure and services*
    - *Conflict between job seekers and local communities*
    - *Secondary impacts on infrastructure, services, housing, crime, safety and risk to the local area*
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Construction	*District*	*Likely*	*Moderate*	*Moderate Risk*	*Moderate Significance*	*Low Risk*	*Low Significance*

- Mitigation / Optimization Measures
  - Facilitate the provision of housing and associated infrastructure. Establishment of a construction accommodation camp to house those employees that cannot be sourced from the local community due to a lack of skills
  - Optimise the use of local labour as far as possible. Establishing early on skills development programmes in the local area will support to possibility of finding skilled people locally

- Development and Implementation of an Influx and Land use Management Plan
- Develop a code of conduct with which contractors and their employees must comply. The code should deal with the interaction with local communities and substance abuse among other things.
- Develop a Stakeholder Engagement Plan (SEP) which clarifies the principles of engagement with community and other stakeholders, sets in place appropriate liaison forums (a community forum is recommended), and describes the grievance management procedure to be adopted by the Mopane Project. Establishment of a local labour recruitment committee to monitor recruitment procedures and results
- Develop and communicate a clear and concise employment and recruitment policy to prevent opportunistic job seekers from settling in the area.
- Implementation of a programme of STD and HIV/AIDS screening, counselling and (where possible) treatment.

- Description of Impact Assessment post-mitigation
  - The negative impact resulting from an influx of construction labour may be mitigated by facilitating the provision of housing and associated services in consultation and partnership with the local and provincial authorities. The use of local labour, who already reside in the area and are currently catered for in terms of services and infrastructure, should be considered for employment opportunities. In instances where local labour does not meet the requirements and non-local labour will be hired, social relations among construction workers and between construction groups and the wider residential communities will have to be managed closely.
- Cumulative Impact
  - Project-related traffic and population influx (caused both by the presence of non-local construction workers and migrant job-seekers) will add to the existing pressure on services and infrastructure (roads, water, sanitation, housing, health and educational facilities etc.) caused by various developments and planned developments in the area.

5.1.3 Impact DP3: Influx of operational workforce with pressure on services and social structures

- Aspect: Demographic and Population Related Aspects
- Impact: S3: Influx of operational workforce with pressure on services and social structures
- Activity generating this impact: Mine Operation
- Description of Impact Assessment pre-mitigation
  - At the end of the construction period and build-up of operations, operational staff will also be recruited and will take up residence in the area. Operational staff for the Mopane Project, currently estimated at 917 people at steady state, will need housing, infrastructure and services (including health and education facilities). Their presence will, as with construction staff before them, introduce new social dynamics in the local communities. If not properly mitigated, the influx will potentially place pressure on current infrastructure and services.

- **Impact Rating:**

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	*District*	*Likely*	*Moderate*	*Moderate Risk*	*Moderate Significance*	*Low Risk*	*Low Significance*

- **Mitigation / Optimization Measures:**
  - Contribution towards the provision of housing, infrastructure and services for operational staff.
  - The establishment of partnerships with other private sector stakeholders, government authorities and civil society organisations to integrate planning around the provision of services and infrastructure, and to ensure that Mine inputs in this context compliment initiatives led by other players, especially the local and district municipality.
  - Development and Implementation of an Influx and Land use Management Plan
  - Optimise the use of local labour as far as possible. Establishing early on skills development programmes in the local area will support to possibility of finding skilled people locally
  - Induction of contractors and workforce with regard to their code of conduct in the local communities
  - Develop and communicate a clear and concise employment and recruitment policy to prevent opportunistic job seekers from settling in the area.
  - Implementation of a programme of STD and HIV/AIDS screening, counselling and (where possible) treatment.
  - Continuous assessment and monitoring of infrastructure and services capacity in focal points (assessment every 5 years)
  - Determine scale of assistance required at focal points and enter into an agreement with the municipality
  - Establish a development, infrastructure and service monitoring forum with the municipality to continuously assess and monitor capacity, determine assistance required and oversee implementation
- **Description of Impact Assessment post-mitigation**
  - The negative impact resulting from an influx of operational labour is believed to only be relevant to the initiation of the operational activities, and even out once employment is complete. It may however in the beginning years be mitigated by facilitating the provision of housing and associated services in consultation and partnership with the local and provincial authorities. The use of local labour, who already reside in the area and are currently catered for in terms of services and infrastructure, should be considered for employment opportunities. In instances where local labour does not meet the requirements and non-local labour will be hired, social relations among construction workers and between construction groups and the wider residential communities will have to be managed closely.
- **Cumulative Impact**
  - Mining development opportunities in the regional area influencing especially the Makhado and Musina focal points are considered to be present and foreseeable. Project-related traffic and population influx (caused both by the presence of non-local workers and

migrant job-seekers) will add to the existing pressure on services and infrastructure (roads, water, sanitation, housing, health and educational facilities etc.) caused by various developments and planned developments in the area. This impact can be increased to a level that cannot be sustained by the local area without mitigation and external intervention. The recommended mitigation measures include:

- *Detailed assessment of current services and infrastructure capacity and sensitivity to development*
- *Continuous assessment as new development is identified and implemented (assessment every 5 years)*
- *Incorporate new development players in the region into the development, infrastructure and service monitoring forum with the municipality to continuously assess and monitor capacity, determine assistance required and oversee implementation*
- *Identification of critical intervention projects to mitigate specific capacity problems within the current services and infrastructure (dependent on the findings of the continuous assessment)*

5.1.4 Impact DP4: Influx of people and the development of spontaneous settlements near project facilities, in the Mopane Town and surrounding areas

- Aspect: Demographic and Population Related Aspects
- Impact: S4: Influx of people and the development of spontaneous settlements near project facilities, in the Mopane town and surrounding areas
- Nature: Negative
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation
  - Apart from workers themselves and their families or dependents, a large number of job-seekers and other people may come to the project area in search of work and other related opportunities (petty trade, commercial sex, etc.), as unemployment is high in the Municipal areas as a whole, and mining jobs are usually expected to be better paid than others. While this influx has been noted to increase pressure on social services such as water supply, sanitation, existing housing, and the limited infrastructure that is already present in the area, the development of spontaneous unplanned settlements, which create tensions between in-migrants and existing communities (as a result of competition for existing resources and opportunities), and brings about increased health problems and sexually transmitted diseases cannot be underestimated. All properties not secured or actively operated in the area may be easy targets, thus opening a door for the construction of informal houses due to the development of the Mopane Project and other surrounding mines in the area. It is anticipated that influx and opportunistic settlement will occur during the construction and the early operational phases of the mine when demand for unskilled local labour is at its highest.

- **Impact Rating:**

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Construction	Local	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- **Mitigation / Optimisation Measures:**
  - Develop a Community Development Plan with the existing stakeholder structures which addresses issues relating to provision of housing for the workforce through on-going communication and engagement between the mine and local authorities for implementation of this plan.
  - Develop and adoption of an Influx Management Plan in consultation with the local government that outlines proactive management measures to discourage and manage influx, outlines and refines relevant stakeholders and their roles and responsibilities and the way in which each role-player intends to manage influx and spontaneous settlements.
  - Support the compilation of a development master plan, in cooperation with relevant local and regional authorities for the Musina and Makhado areas, whereby new development areas for workers' and new arrivals' accommodation will be catered for and duly planned
  - Support local government capacity for integrated development planning.
  - Develop and communicate a clear and concise employment and recruitment policy to prevent opportunistic job seekers from settling in the area.
  - Continuous assessment and monitoring of infrastructure and services capacity in focal points (assessment every 5 years)
  - Determine scale of assistance required at focal points and enter into an agreement with the municipality
  - Establish a development, infrastructure and service monitoring forum with local stakeholder structures and the municipality to continuously assess and monitor capacity, determine assistance required and oversee implementation
- **Description of Impact Assessment post-mitigation**
  - This impact can be mitigated by ensuring that an agreement is reached among the company, local stakeholder structures and the Local Municipality to develop an influx management programme that would seek to address the following:
    - *Develop a framework and reference document to ensure harmonious development of urban areas.*
    - *To assist local government with developing management plans required to address the impacts of influx on existing social services;*
    - *To develop an infrastructure and facilities investment program to upgrade and equip the town in response to population growth.*
- **Cumulative Impact**
  - Broader development in the region is likely to compound problems around influx and the Municipality's ability to provide housing in the area. The implementation of joint influx management between MbeuYashu and the Local Municipalities in the area is recommended. The timing for the construction and operational phases of the other mines

is not finalised at this point, it is difficult to assess what the cumulative impact could be.

5.1.5 Impact DP5: Conflicts arising at the end of construction due to the termination of job opportunities for contractors

- Aspect: Demographic and Population Related Aspects
- Impact: S5: Conflicts arising at the end of construction due to the termination of job opportunities for contractors
- Nature: Negative
- Activity generating this impact: Mine Construction
- Description of Impact Assessment pre-mitigation
  - Even if pro-actively managed during the construction phase, experience elsewhere indicates that labour conflicts are difficult to avoid at the end of a construction period, when numerous work contracts are terminated. The main reasons for these labour conflicts usually include the following:
    - *Poor understanding by the workers of the terms and conditions of their work contracts, and/or of the provisions of the Labour Code;*
    - *Poor human resources policies and implementation thereof, with failure of the employer to pro-actively explain termination provisions;*
    - *Non-compliance with Labour Code or work contract provisions by employers (including contractors and the whole chain of subcontractors), and failure to provide legally agreed packages or to provide sufficient notice of termination;*
    - *Poor workers' organization, coupled with failure or inability of unions to fulfil their negotiation and conflict resolution missions; and*
    - *Manipulation of workers by dishonest individuals seeking to cause conflict in the anticipation that they may benefit from the situation and its eventual resolution.*
  - Work conflict may not only result in legal action against the companies forming part of the project, but also in strikes and other undesirable consequences, including local civil unrest. It has the potential to be most damaging to community relations, notwithstanding efforts made in other areas to engage and establish a proper long-term relationship with neighbouring and land claimant communities. No community relations program can be successful if labour relations are not appropriately managed.
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Construction	Local	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimisation Measures:
  - Investigate the possibility of transferring labour from one operation to another – depending on the phasing of the projects
  - Develop the MbeuYashu grievance procedure to capture and address grievances arising due to retrenchments and downscaling.
  - Ensure compliance with all applicable Labour Regulations of South Africa
  - Consider compliance with Best Practice , i.e. IFC's Performance Standard 2 "Labour and

Working Conditions"

- Monitoring of all contractors and sub-contractors for compliance with the above standards, with contractually-established financial sanctions for observed non-compliances
- Communicate the termination conditions to the communication structure established
- Communicate the termination conditions to all employees – including contractors and sub-contractors

- Description of Impact Assessment post-mitigation
  - This impact can be better managed if the labour from one construction phase can be transferred to another, if at all possible. While there might not be many new job opportunities for new people, continued employment of those who were supposed to be retrenched would reduce the negative impacts associated with retrenchments.
- Cumulative impacts
  - Having noted that there are other mines which could potentially follow or run concurrently with the Mopane Project, it is possible that the end of construction periods might coincide with the Mopane Project construction end, thus compounding the impact. The timing for the construction and operational phases of the other mines is not finalised at this point, it is difficult to assess what the cumulative impact could be.

5.2 Health and Social Wellbeing Aspects

5.2.1 Impact HSW1: Increased chances of the spread of communicable diseases[1] such as HIV/AIDS and STDs linked to influx of predominantly male job-seekers and workers

Aspect: Health and Social Wellbeing Aspects

- Impact: S7: Increased chances of the spread of communicable diseases such as HIV/AIDS and STDs linked to influx of predominantly male job-seekers and workers
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation
  - With a development of this nature and magnitude, there are always concerns that HIV/AIDS might become a greater problem in the future particularly due to the influx of single males and construction workers into the area that already has high HIV/AIDS prevalence rates. This would be further increased by the significant disposable income among construction workers which could encourage transactional and commercial sex work in the area.
  - Increase of the following potential diseases: HIV/AIDS, STDs, Tuberculosis
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Regional	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Moderate Significance

1 Health aspects are included from a social perspective and will be expressed in nonmedical terminology.

- **Mitigation / Optimisation Measures:**
  - **Develop a comprehensive HIV/AIDS and STD program to employees through employee wellness programmes which should include prevention, voluntary counselling for HIV testing, as well as anti-retroviral treatment for employees.**
  - **Develop a Community Health Action Plan which focuses on HIV/AIDS, tuberculosis. Provision of preventative measures (including condoms)**
  - **Repeated awareness campaigns targeting project workers, senior management, contractors, sub-contractors and their spouses, communities near project facilities, risk groups (commercial sex workers, truck drivers – not only those working for MbeuYashu, elements of the police, young adults)**
  - **Map high risk area where sexual transactions occur and support intensive education and disease prevention programmes.**
  - **Support the health system with Voluntary, Counselling and Testing (VCT) centres and improving care and treatment programs.**
- **Description of Impact Assessment post-mitigation**
  - **If an integrated HIV/AIDS programme instituted in the municipal areas it will bring together different role players employing a series of measures to both prevent and deal with the spread of the disease and its consequences. The programme should focus on the co-ordination of local organisations providing health care and welfare services, and emphasises the implementation of education campaigns.**
- **Cumulative impacts**
  - **Broader development in the region is likely to compound problems around influx and the potential increases in communicable diseases. The implementation of joint influx management between MbeuYashu and the municipalities is recommended in order to jointly address this impact. The timing for the construction and operational phases of the other mines is not finalised at this point, it is difficult to assess what the cumulative impact could be.**

5.2.2 Impact HSW2: Safety and Risk Exposure through an increase in crime

- **Aspect: Health and Social Wellbeing Aspects**
- **Impact HSW2: Safety and Risk Exposure through an increase in crime**
- **Nature: Negative**
- **Activity generating this impact: Mine Construction and Operation**
- **Description of Impact Assessment pre-mitigation**
  - **A central change processes associated with the construction and development process of a development such as the Mopane Project is the presence of contracting firms and construction workers, usually accommodated in workforce accommodation camps. This may include workers as well as opportunists and burglars/robbers posing as construction workers. The bigger the project, the more opportunity, the more people involved, could result in a crime increase.**
  - **It is anticipated that the area would be exposed to safety and risk aspects due to the influx of strangers entering the local communities. Stakeholders noted their concern about the potential increase in crime in the area if construction workers accessing private property.**

Concerns regarding access to properties and the regulation thereof have also been noted.

- Crimes linked with large and/or mining development include:
  - *Local sex workers and prostitution*
  - *Substance (drugs, alcohol) abuse*
  - *Opportunistic theft*
  - *Vandalism*
  - *Burglary and/or armed robbery*

- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	District	Possible	Major	Moderate Risk	Low Significance	Low Risk	Low Significance

- Mitigation / Optimization Measures
  - Increased security on mine premises
  - Construction and permanent workers are identified and marked with clear identifiable clothing
  - Code of Conduct to form part of induction of new workers with a clear statement and procedure regarding access, conduct and identification. All construction workers should wear clothing marked (and reflective vests) with the logo of the construction firm/contractor or sub-contractor as well as identification cards that cannot be easily forged, so that they can be easily recognized as being legitimate.
  - Workers to be screened including criminal background checks.
  - Properly constructed and secured fences can control access to construction sites. Implementing strict access control of the project site and specifically the contractors workforce camp.
  - Workers should be urged to recognize and report suspicious activity and signs of burglary and be informed of crime prevention measures that they themselves can take.
  - Employment of local people on the mine to improve the poverty levels in the host and neighbouring communities
  - CoAL to liaise with existing community policing forums and project security to properly secure the project area and surrounding area
  - Investigate the implementation of an anti-poaching unit in collaboration with local stakeholders, policing forums and police
- Description of Impact Assessment post-mitigation
  - If the implementation measures are implemented, and especially if collaboration can be established with local landowners, these impacts can be mitigated to a low risk.
- Cumulative Impact
  - If further developments take place in the vicinity of Mopane Project, the anticipated impacts will be intensified, should construction of these developments and the construction of the Mopane Project occur concurrently.

5.2.3 Impact HSW 3: Safety and Risk Exposure due to an increase in poaching on neighbouring game farming properties

- Aspect: Health and Social Wellbeing Aspects
- Impact HSW3: Safety and Risk Exposure due to an increase in poaching on neighbouring game farming properties
- Nature: Negative
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation
  - The construction and development process of the Mopane Project may create an increase in poaching activities in the adjacent areas due to an influx of job seekers, contracting firms and construction workers.
  - Poaching is the illegal taking of wild plants or animals contrary to local and international conservation and wildlife management laws. Violations of hunting laws and regulations are normally punishable by law and, collectively, such violations are known as poaching. Poaching is in effect the illegal "hunting" of fauna and flora. Poaching can generally be divided into three different classes: Subsistence, Commercial and Syndicated. All poaching levels are as equally critical, as they are often interlinked and intelligence passes through all three levels.
  - Poaching is already present in the development area, and is further worsened by the lack of police capacity and Provincial Nature Conservation to assist in managing and/or mitigating the situation. A mine development may increase the occurrence and spatial spread of poaching and theft of game/livestock.
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Local	Possible	Major	Moderate Risk	Low Significance	Low Risk	Low Significance

- Mitigation / Optimization Measures
  - Establishment of an anti-poaching unit available to adjacent land owners, and establishing a security forum in collaboration with these land owners. Land owners are to be actively involved in the selection of the contracting company employed to conduct anti-poaching in the area.
  - Increased security measures (fencing, access control and monitoring) on mine premises. Properly constructed and secured fences can control access to construction sites. Implementing strict access control of the project site and the contractors workforce camp. Curfew times to be established in accommodation areas. Construction workers accommodated on mine are identified and marked with clear identifiable clothing
  - Code of Conduct to form part of induction of new workers with a clear statement and procedure regarding access, conduct and identification. All construction workers should wear clothing marked (and reflective vests) with the logo of the construction firm/contractor or sub-contractor as well as identification cards that cannot be easily forged, so that they can be easily recognized as being legitimate.
  - Workers to be screened including criminal background checks.

- Employment of local people on the mine to improve the poverty levels in the local communities

- Description of Impact Assessment post-mitigation
  - If the implementation measures are implemented, and especially if collaboration can be established with local landowners, these impacts can be mitigated to a low risk.
- Cumulative Impact
  - If further developments take place in the vicinity of Mopane Project, the anticipated impacts will be intensified, should construction of these developments and the construction of the Mopane Project occur concurrently.

5.3 Quality of Life Aspects

5.3.1 Impact QL1: Change in "sense of place"

- Aspect: Quality of Life Aspects
- Impact: QL1: Change in "sense of place"
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation
  - Sense of place is an important consideration before any development, since sprawl development tends to eliminate unique features of the landscape. The notion that places are more than just locations is at the core of ideas about place and sense of place. In its simplest form, sense of place encompasses the idea that each person forms close relationships with the spaces and settings in which he or she interacts. As they work, play, spend time with their families and friends, travel in their neighbourhoods and immediate environments individuals have positive and negative experiences in, and of, places and as a result ascribe meaning to them (Buttimer, 1980; Damer, 1974; Lewis, 1979; Meinig, 1979; Perkins, 1988a, 1988b, 1989; Perkins, Thorns and Newton, 2008; Relph, 1976).
  - Social impacts experienced in the physical environment relates to exposure to dust, noise, risk, odour, vibration, artificial light etc. Community members are concerned about the aesthetic impact of the development on the area. During the construction phase, it is anticipated that there will be a decrease in the quality of the physical environment. Noise levels and traffic in and around the affected communities will increase as result of the construction activities. The extent, magnitude and impact on the physical environment and the nuisances this will create are addressed in various other specialist studies. The impact is mentioned in the social impact assessment report as a linkage to the other specialist reports and mainly caused by:
    - *Noise levels as a result of construction and operation*
    - *Increase in traffic with a disruptive effect and noise*
  - The development will introduce rapid changes in a previously rural municipality. The aggregate impact of these changes might be expressed as a "change in the sense of place". This sense is of course subjective. The impact described here is a change in sense of place that might leave receptors uncertain about the future (at best) and / or compromised by collective pessimism about that future. Sense of place has a number of characteristics, namely (James, 2001):

- *It is difficult to quantify and it is abstract.*
- *It is comprised of natural features, patterns of human settlement and social relationships.*
- *It is determined by local knowledge.*
- *It is embodied in folklore, personal narrative and amateur history.*

- Putting up unnatural structures in a natural area will impact on the sense of place. Vistas will be broken and the rural feeling will get lost. The tourism potential of the area must also be taken in consideration, as it strongly relates to the sense of place. Most tourism initiatives are based on the remoteness and uniqueness of the area. An influx of new comers and loss of local culture as result will add to the loss of sense of place, as the cultural uniqueness is another attraction to the area.

- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Local	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimization Measures
  - Regular and effective engagement with stakeholders through the SEP.
  - An effective grievance management procedure managed within the framework of the SEP. Grievance mechanisms must be in place throughout the life of the mine, including for a determined period post-closure, to address any impact for affected communities.
  - Implementation of traffic management measures
  - Implementation of insulation and mitigation measures for noise
  - Implementation of visual barriers and other mitigation measures as recommended in the visual study
  - Colour schemes must complement the local environment.
  - Minimising disturbance to vegetated areas outside the critical development areas where possible
  - Revegetation/rehabilitation of disturbed sites in parallel with development
  - Successful mitigation interventions can reduce the intensity of the impact to at least moderate and ultimately moderate-low levels. If grievances are addressed adequately, and communication and engagement is effective affected communities may be able to adjust more easily to the changes.
- Description of Impact Assessment post-mitigation
  - The mitigation of physical impacts relating to noise, visual and air quality is extremely important in this area, firm commitment is required to address these impacts and implementation of the mitigation measures are of high importance. Even if these mitigation measures are effective, it is envisaged that there will still be a moderate impact on the sense of place.
- Cumulative Impact
  - In the event of increased development in the region, the aesthetic environment and sense of place will be further impacted which may render other land use activities that rely on the aesthetic environment such as hunting and tourism non-viable.

5.3.2 Impact QL2: Disruption of Social Networks and decrease in Social Capital

- **Aspect: Quality of Life Aspects**
- **Impact QL2: Disruption of Social Networks and decrease in Social Capital**
- **Nature: Negative**
- **Activity generating this impact: Mine Construction and Operation**
- **Description of Impact Assessment pre-mitigation**
  - **This impact relates to the social interaction of household members with other people in the community. A huge portion of the local community is poor and there is a high unemployment rate. An influx of people with disposable income might lead to an increase in prostitution, which can impact on the HIV and unwanted pregnancy rate in the area. There can be a number of social pathologies like alcohol abuse and disintegration of families.**
  - **Interference by construction workers/job seekers from elsewhere in local social networks can be considered a change process associated with the proposed Mopane Project development and operational process. Impacts will result if:**
    - ***locals perceive this interference as adversely affecting the manner which they go about servicing their social networks, including how they relate to each other socially or in pursuit of religious and cultural practices / seek to fulfil their instrumental and/or emotional social support related needs; and***
    - ***such interference and perceived impacts result in frustration or anger as well as potential conflict with newcomers.***
  - **If present, the above impacts would adversely affect the creation of social capital (a crucial ingredient in producing safe, happy, and productive communities), bearing in mind that social capital derives from a person's membership of groups and institutions and social networks, including religious participation with others. The interference and resulting impacts manifesting would depend on a number of factors, including whether newcomers:**
    - ***are foreigners or S.A. nationals from elsewhere. As noted previously, research shows that foreigners exist as discrete networks and don't readily assimilate into local communities. If this research is correct, interference and impacts on social networks would therefore be more readily attributable to foreigners / other SA nationals (newcomers) than locals.***
    - ***will be able to secure employment or are already employed by the Mopane Project or contractor(s), thus being able to meet their primary needs, e.g. shelter and food, thus not needing to interfere in existing social networks with the objective to secure instrumental support;***
    - ***will be in the area only to secure employment at the proposed Mopane Project (in the case of job-seekers) and leave if they are unsuccessful in doing so. (Construction workers who are part of a stable, permanent contractor workforce are expected to vacate the area following completion of the construction process).***

- Impact Rating - *Bearing in mind the above uncertainties, but given the importance of social capital for community safety and stability and the role of social networks in this regard, this variable has been rated as follows:*

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Local	Possible	Moderate	Moderate Risk	Low Significance	Low Risk	Low Significance

- Mitigation / Optimization Measures
  - Employment of local people already part of the community.
  - Code of conduct to form part of induction for all new workers
  - Grievance Procedure within the local communities
- Description of Impact Assessment post-mitigation
  - In the case of the variable 'disruption of social networks', mitigation is anticipated to be difficult, but probably more achievable in terms of a stable workforce already employed by, or yet to be employed by the MbeuYashu's appointed contractor(s). The contractor would be able to put in place certain rules and regulations with the objective to prevent interference in local social networks.
  - Sourcing employees locally and housing those sourced from outside the area in main urban centres will most probably reduce the risk of disrupting social networks
- Cumulative Impact
  - If other developments in proximity to the Mopane Project (i.e. Generaal Project) are implemented at the same time, it will be very difficult for the mitigation measures to be effective. A holistic approach to the sourcing and management of the workforce will be required to mitigate the overall risk.

5.3.3 Impact QL3: Perceptions of and Feelings in relation to the project

- Aspect: Quality of Life Aspects
- Impact QL3: Perceptions of and Feelings in relation to the project
- Nature: Negative
- Activity generating this impact: Short term, Mine Construction
- Description of Impact Assessment pre-mitigation
  - Feelings in relation to the project may result in the formation of interest groups. Proposed projects often generate uncertainty or fear and sometimes the impacts perceived in anticipation of the planned intervention can be greater than the impacts that ultimately result from the intervention. These impacts include uncertainty, annoyance, dissatisfaction due to a failure of the project to deliver promised benefits, and an experience of outrage, for example where a project leads to violation of deeply belief systems or planned development programmes. The concerns raised on this project have been focussed on visual impacts to neighbouring tourism facilities and activities and the disruption of future development of conservation programmes.

- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Short term	District	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimization Measures
  - Establish on-going Consultative Forums with concerned groups to air concerns, find possible mitigation measures for their perceived impacts, solutions to co-existence and monitor implementation and effectiveness of mitigation measures
  - Continuous communication with all stakeholders providing information on anticipated impacts and planned mitigation measures
- Description of Impact Assessment post-mitigation
  - The perceptions and feelings towards coal mining in South Africa and internationally are very difficult to change. Current examples from the Mpumalanga coal field influence anticipation of the project development, and gains in terms of environmental management and technology since the start of coal mining in the country is not taken into consideration. The perceived inability of government to regulate damages to the environment further exacerbates this situation. Where stakeholders are convinced that coal mining only have negative impacts, these perceptions will not be easily changed.
- Cumulative Impact
  - The Soutpansberg area do not having large industrial development, therefore the idea and plan to develop the coal fields in this area creates uncertainty about other land uses. The perception of the effect more than one project will have on the area is a major concern for stakeholders, and a number of requests has been made to Government and MbeuYashu to evaluate the plans on a regional and strategic basis.

5.4 Family and Community Aspects

5.4.1 Impact FC1: Impacts on land owner and labourers

- Aspect: Family and Community Aspects
- Impact FC1: Impacts on land owner and labourers
- Nature: Negative
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation:
  - Proposed projects often generate uncertainty or fear and sometimes the impacts perceived in anticipation of the planned intervention can be greater than the impacts that ultimately result from the intervention.
  - The construction process of the Mopane Project will bring about tangible social impacts on the project farm land owners and labourers. Impacts will be located on the properties of the Voorburg Section first followed by those properties affected by the Jutland Section.
  - Landowners will be displaced as well the workers currently residing on the property and/or working on the property.

- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Construction	Site specific	Almost Certain	Major	Very High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimization Measures
  - Development of a land acquisition policy defining the negotiation process to minimize the feelings of uncertainty
  - Financial compensation of affected property owners/tenants, employees and their families in terms of the relevant legislation.
  - Displacement of workers and their dependents requires an equitable policy, principles, financial guidelines and clarification of operational approaches.
  - Land Acquisition and compensation agreements reached with affected landowners that include arrangements and measures for labour tenants
- Description of Impact Assessment post-mitigation:
  - Once agreements have been reached that encompass all related risks such as the labour tenants, this risk will reduce substantially
- Cumulative Impact
  - If future developments are implemented at the same time, available alternative land will decrease. Although land can still be acquired and compensation paid, landowners that prefer to remain in the area will have difficulty to obtain land to purchase that is available and not affected by mine development.

5.4.2 Impact FC2: Change processes and impacts related to daily movement patterns

- Aspect: Family and Community Aspects
- Impact FC2: Change processes and impacts related to daily movement patterns
- Nature: Negative
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation:
  - In terms of impacts on daily movement patterns (construction phase), a number of roads are of particular importance as change process focal points relating to daily population movement, i.e. the National Road N1, the Mopane road R525, the Nueuwelust road (R525) and the link road between Mopane and Waterpoort
  - Change processes would result from construction vehicles accessing, crossing and using roads during construction of the proposed Mopane project. The disruption of daily movement patterns (the impact) on the roads mentioned, as a result of change processes associated with construction, would obtain in the case of: (1) the general population, e.g. individuals on their way to work; parents taking children to school; or people on their way to local towns and beyond; (2) tourists visiting/traversing the area; and (3) businesses taking their products to market or farmers going about their farming activities (intra-farm movement). Impacts would present differentially for these groups, ranging potentially from a mere nuisance factor giving rise to frustration, to more serious ramifications where

farming activities are impeded, deadlines play a role or goods are being transported.

- The impacts anticipated include: a) Increase in traffic numbers caused by supplying of goods during construction and operational phases; and b) Increase traffic numbers caused by transport and/or traffic of employees from their place of residence to their place of work.

- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Local	Likely	Moderate	Moderate Risk	Moderate Significance	Low Risk	Low Significance

- Mitigation / Optimization Measures
  - Traffic minimized through bus and combi services to transport workers to the project site
  - Low speed limits on access roads with public drop-off / pick-up areas as to not disrupt the flow of traffic
  - Road crossings should be managed by signing and traffic management measures
  - Issues and Grievance Procedure available to local people to report bad driving or rules traversing
- Description of Impact Assessment post-mitigation:
  - The project description defines that no hauling will take place along existing farm roads or regional / national roads. It is planned that the run-of-mine (ROM) coal will be transported for short distances by truck, on the in-pit haul roads to the crushing and screening facilities. The crushed and screened ROM product will be transported to the coal beneficiation plant at the Infrastructure Hub via conveyor. It is further planned that the product will be loaded directly onto trains at the Rail Load-out Terminal situated at the Infrastructure Hub which links up with the existing Musina-Makhado railway line.
  - Therefore only supplier light-vehicles and employee busses will disrupt movement patterns, these will stabilize once the mine is fully operational
- Cumulative Impact
  - The existing land use activities are mostly high income tourism and game farm developments considered change processes that can manifest as cumulative impacts when added to the Mopane Project. They are anticipated to intensify daily movement related impacts, should construction of the Mopane Project and other future developments occur concurrently.

5.4.3 Impact FC3: Conversion of land use

- Aspect: Family and Community Aspects
- Impact FC3: Conversion of land use
- Nature: Negative
- Activity generating this impact: Mine Construction, Operation and Post Closure
- Description of Impact Assessment pre-mitigation:
  - The surrounding study area has a variety of land uses, which vary from agricultural to conservation and tourism related industries such as game farms, irrigation, commercial activities. The construction of the proposed project is perceived by adjacent landowners

to impact on the economic viability of the current land uses in the study area.

- Landowners owning land with high tourism potential, or those with existing hunting activities, will be affected in terms of the aesthetic value of their properties and have potentially negative impacts on the economic viability thereof.
- Change in land use is likely to lead to subsequent social change processes as well as indirect social impacts on adjacent landowners.

- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Post Closure	Local	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimization Measures
  - Acquisition of directly impacted land
  - Fair compensation negotiated and agreed with land owners that will lose agricultural land
  - Continuous consultation with landowners discussing co-existence and feasibility
  - Educate landowners in terms of their rights and responsibilities prior to the construction phase
  - Assist landowners in identifying ways to adapt their land uses, to the benefit of both the landowner and MbeuYashu
  - Implement a consultation programme with regional stakeholders in the development of a closure plan and rehabilitation programme
  - Determine the regional needs and characteristics to ensure post mining use of land enhances the regional characteristics
- Description of Impact Assessment post-mitigation:
  - Once agreements have been reached that encompass all related aspects this risk will reduce substantially
- Cumulative Impact
  - If future developments are implemented at the same time, available alternative land will decrease. Although land can still be acquired and compensation paid, landowners that prefer to remain in the area will have difficulty to obtain land to purchase that is available and not affected by mine development.

5.5 Institutional Aspects

5.5.1 Impact I1: Challenge to local government capacity

- Aspect: Institutional Aspects
- Impact I1: Challenge to local government capacity
- Nature: Negative
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation:
  - In order for the Mopane Project to contribute meaningfully towards the development of infrastructure in the area and the region, it will depend on the contributions by local and provincial government initiatives, as well as other businesses in the area. The Musina and Makhado municipality has expressed concerns about its institutional capacity for planning

and providing additional services and facilities in an area experiencing rapid growth.

- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Construction	District	Possible	Major	Moderate Risk	Low Significance	Low Risk	Low Significance

- Mitigation / Optimization Measures
  - Intensive engagement between MbeuYashu / CoAL and the municipality well in advance of construction. In this context the responsibilities of local government should be well understood, and potential problems defined and addressed as early as possible.
  - Establishment of a limited and time-bound municipal support function. MbeuYashu / CoAL should contribute funding and appropriate technical resources. The participation of other major mines and industries in the area should be promoted by both MbeuYashu / CoAL and the local municipality.
- Description of Impact Assessment post-mitigation
  - It is noted that although the tax base for the municipality will increase, the resources to develop the capacity will lag behind the pressure on existing resources.
- Cumulative Impact
  - While similar infrastructure development initiatives by other major developments in the region will enhance the social benefits, the Local Municipalities will experience more pressure to perform and facilitate infrastructure development in the area. Joint planning has the potential to optimise the benefits.

5.5.2 Impact I2: Participation and Consultation in process

- Aspect: Institutional Aspects
- Impact I2: Participation and Consultation in Process
- Nature: Negative
- Activity generating this impact: Life of Project
- Description of Impact Assessment pre-mitigation:
  - Interested and affected parties have already experienced an impact due to the Mining Right Application process, Environmental Impact Assessment and Management Plan. The I&APs need to give up their time to attend meetings and in some cases travel long distances on own cost to participate in meetings.
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Short term	Regional	Possible	Moderate	Moderate Risk	Low Significance	Low Risk	Low Significance

- Mitigation / Optimization Measures
  - Provide transport reimbursement to the Historical Disadvantaged Communities
  - During the Operational phase, the structures established for participation should have a proper constitution that addresses reimbursement of costs
  - Arrangement of meetings in proximity to the mine or in affected communities to minimize the distance of directly affected parties to travel

- Cluster meetings together on the same day or over 2 days to minimize disruption of personal schedules

- Description of Impact Assessment post-mitigation
  - If the mitigation measures are implemented, this risk especially evident during the planning phases could be reduced to a low risk
- Cumulative Impact
  - An increase in new applications for further developments places a higher demand on stakeholder's time and effort to attend to all aspects. Developments and applications should as far as possible be combined to decrease the number of required sessions to be held

5.5.3 Impact I3: Impact equity

- Aspect: Institutional Aspects
- Impact I3: Impact Equity
- Nature: Negative
- Activity generating this impact: Life of Project
- Description of Impact Assessment pre-mitigation:
  - Impact equity is related to the fairness of the distribution of impacts across the community. It must be ensured that the people who will benefit from the development must also share in carrying the costs.
  - The project will lead to gain on a regional level, whereas, the local people who will be impacted on, will not necessarily benefit in terms of employment opportunities.
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	District	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimization Measures
  - Tax and Profit benefits must be ploughed back into the Local Municipal areas and immediate communities
  - Employment should be prioritized to local communities
  - Local beneficiation programmes to be investigated and implemented
- Description of Impact Assessment post-mitigation
  - The project will have a regional negative impact and local positive impact. Negative impacts will be mitigated by specific programmes minimizing the effects locally.
- Cumulative Impact
  - The larger the overall development the larger the local impact, but at the same time the national / provincial / regional benefit.
  - Special care must be given to an holistic strategy of project scheduling and staggering development programmes to ensure the local impact is minimize but still attaining the national/provincial/regional benefit

5.6 Socio-economic Aspects

5.6.1 Impact E1: Increase in South African GDP and Trade Balance

- Aspect: Economic
- Impact: Increase in South African GDP and Trade Balance
- Nature: Positive
- Activity generating this impact: Mine construction and operation
- Description of Impact Assessment pre-mitigation / optimisation:
  - Mining requires high capital investment and creates significant downstream business opportunities, resulting in an increase in general economic activity and GDP. By procuring goods and services from other businesses and increasing the purchasing power of the workforce in an area, investment creates an amplified downstream effect through indirect and induced spending, which increases overall economic value by a factor of the original investment.
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	National	Likely	Major	Positive High	Moderate Significance	Positive Very High	High Significance

- Mitigation / Optimisation Measures:
  - Procure goods and services from South African suppliers as far as possible.
  - Procure ancillary services for goods procured abroad, such as installation, customisation and maintenance, from South African companies as far as possible.
- Description of Impact Assessment post-mitigation / optimisation
  - The benefit resulting from an increase in GDP may be enhanced further by procuring as much labour and equipment as possible within South Africa. However, as technical requirements and local capacity limit procurement options, MbeuYashu's scope to expand the project's contribution to GDP is considered limited. The benefit thus remains of high (positive) significance post mitigation.
- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in a significant contribution to GDP. The overall impact on GDP will depend on the precise capital expenditure and revenue streams of the mines and the phasing of mine construction and operations. A cumulative long term impact and rating can be determined during the regional assessment in the Feasibility Phase of the project.

5.6.2 Impact E2: Increase in provincial and local GDP

- Aspect: Economic
- Impact: Increase in provincial and local GGP
- Nature: Positive
- Activity generating this impact: Mine construction and operation

- Description of Impact Assessment pre-mitigation / optimisation:
  - The predominant land uses in the region is agriculture, game farming and eco-tourism, although mining do contribute to the regional GGP.
  - Industries in Limpopo likely to benefit most from spending associated with the mine are:
    - *Construction, retail and wholesale trade, transport and communications, business services and community and personal services during the construction phase; and*
    - *Retail and wholesale trade, transport and communications and food products during the operation phase.*
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Provincial	Likely	Major	Positive High	Moderate Significance	Positive Very High	High Significance

- Mitigation / Optimisation Measures:
  - Procure goods and services from local or provincial suppliers as far as possible.
  - Procure ancillary services for goods purchased from outside of the Limpopo Province, such as installation, customisation and maintenance, from local or provincial companies as far as possible.
- Description of Impact Assessment post-mitigation / optimisation
  - These contributions to provincial GDP must be offset against potential losses in local GDP due to the impact of mining on existing businesses. However, contribution by the mine to provincial GDP is expected to remain significant.
- Cumulative Impact
  - Several new coal mines are proposed in the area, which will also include improvements of infrastructure, such as roads, and water supply to the area, some of which might be available to other non-mining businesses. If executed, the development of mines across the region will result in a significant contribution to GDP and stimulus of general economic activity. The overall impact on GDP will depend on the precise capital expenditure and revenue structures of the mines and the timing of mine construction and operations. A cumulative long term impact and rating can be determined during the regional assessment in the Feasibility Phase of the project.

5.6.3 Impact E3: Increase in government revenue

- Aspect: Economic
- Impact: Increase in government revenue
- Nature: Positive
- Activity generating this impact: Payment of taxes on profits, wages, exports, imports
- Description of Impact Assessment pre-mitigation / optimisation
  - The South African state receives revenue from taxation of mining profits, royalties, import and export duties and taxes on wages. Locally taxes are paid for property tax and service charges.

- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	National	Likely	Major	Positive High	Moderate Significance		

- Mitigation / Optimisation Measures:
  - None
- Description of Impact Assessment post-mitigation / optimisation:
  - No effective optimisation of this benefit is possible
- Cumulative Impact
  - The commissioning of other planned mines in the area is likely to create an overall significant increase in government revenue from taxation of mining profits, royalties, import and export duties and taxes on wages. A cumulative long term impact and rating can be determined during the regional assessment in the Feasibility Phase of the project.

5.6.4 Impact E4: Increase in employment, income and skills development

- Aspect: Economic
- Impact: Increase in employment, income and skills development \
- Nature: Positive
- Activity generating this impact: Employment for mining construction and operation
- Description of Impact Assessment pre-mitigation / optimisation
  - Employment provides many socio-economic benefits to employees and their dependants, including improved material wealth and standard of living, enhanced potential to invest and improved access to social services such as education, health services, etc.
  - During the construction phase, the mine will create or sustain direct employment for the construction workforce and indirect employment at the companies contracted to supply equipment and services. Much of the equipment is likely to be sourced outside of Limpopo or abroad, and most benefits related to procurement are likely to accrue outside of the local area. Local employees and companies are likely to be tasked with direct construction and ancillary services such as security. The number of construction workers required for the construction of the project is approximately 1 500.
  - Approximately 917 workers will be directly employed by the mining operation at steady state, the majority of them semi-skilled. The total number of direct jobs created by the mine during operations at steady state is estimated at 917 (refer to the Macro-Economic Impact Assessment). The proportion of jobs that will accrue to the local and national workforce is not clear at present. It is likely that more workers from outside the region will be employed initially, especially for more skilled positions due to the low skills level of the local population and a potential local deficit of workers if several mining projects start up at the same time. The proportion of local workers is likely to increase over time as more people employed by the project move into the area and/or more local people acquire the necessary skills to obtain employment at the mine.
  - Direct salaries and wages for mine employees will not only benefit direct recipients, but also; a) Contribute to household income, thereby directly benefitting a larger number of

people; and b) Create downstream income if the money is used to buy goods and services in the community.

- The project presents an opportunity to develop skills in the workforce and wider community. Skills development improves the future employment prospects of people and the economic development potential of a community in general. MbeuYashu has stated that employment, training and bursaries will be targeted at residents from the local community as far as possible, to improve skills levels. Skills development will be more intense during this stage when a new workforce is employed. In addition, MbeuYashu will pay an annual national skills levy of 2% of labour cost.
- Employment created by the project must be offset against employment lost due to the impact of mining on existing businesses. During the Voorburg Section, losses are expected to be limited as mining is only proposed in a small area, although even the prospect of mining can affect existing businesses and employment in the area (see impact E5). The contribution by the mine to employment in the area is expected to exceed the number of jobs lost and to remain significant.
- Competition for jobs between agriculture and mining could be a counter action in this positive impact.

- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Regional	Likely	Major	Positive High	Moderate Significance	Positive Very High	Moderate Significance

- Mitigation / Optimisation Measures:
  - Aim to use local workers as far as possible and formalise this policy in contracts.
  - Consider implementing labour-intensive rather than capital-intensive work methods wherever possible.
  - Procure resources from local sources wherever possible.
  - Establish a database of local people with information on qualifications and skills, utilize this database to develop skills plans and recruit local people.
  - Implement early on skills development programmes in the areas where most job opportunities will be created, i.e. operators and drivers
  - Include training for general life skills such as financial management and health.
  - Implement portable skills development programmes
  - Design and implement economic development programmes that will assist people being retrenched in sustaining their livelihoods
  - Establish a future forum with representation from the workforce to discuss potential difficulties and solutions
  - Implementation of programmes to minimize and mitigate the impact of downscaling and retrenchment
  - Implement measures that ensure only agricultural labour that is lost due to mining is taken up in the employment drive and existing workers on neighbouring properties are not poached.
- Description of Impact Assessment post-mitigation / optimisation:

- The benefit resulting from increased employment, income and skills development may be enhanced further by procuring as much labour as possible within South Africa and providing training to local workers. However, MbeuYashu has already committed to a skills development plan that forms part of the Social and Labour Plan.

- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in a significant increase in employment, income and skills development in the local area, albeit in the context of increasing in-migration to the area. The net effect of the mining developments on local (un)employment, given that there may be a larger worker pool, cannot be predicted at this stage. Depending on the approval and timing of new mine establishments, operations may compete for better skilled or more experienced workers in the area. The development of numerous coal mines in the area will also affect more of the existing businesses and hence existing employment in the area, which must be offset against newly created employment. A cumulative long term impact and rating can be determined during the regional assessment in the Feasibility Phase of the project.

5.6.5 Impact E5: Impact on existing businesses in surrounding areas

- Aspect: Economic
- Impact: Impact on existing businesses in surrounding areas
- Nature: Negative
- Activity generating this impact: Conversion of land and sense of place
- Description of Impact Assessment pre-mitigation / optimisation
  - Land use in the vicinity of the proposed Mopane Project is dominated by game farming, with some livestock farming and very limited agriculture. Many animals are killed for biltong, though some farms are stocked with trophy and other game species and cater for local and overseas trophy hunters and ecotourism. Even farms not engaging directly in tourism activities are often integrated into the industry as they breed game or allow hunting by guests of other farms.
  - The game industry is in a very robust growth phase and generates considerable value and (often part-time) employment opportunities (Conningarth Economists, 2013). The game industry aims to provide guests with an African Bushveld experience and hence depends on a general sense of wilderness, which is profoundly altered by visual, noise or air quality impacts of mining in the vicinity. Visual impacts from lighting at night are of particular concern in this regard and will be widely experienced in the surrounding area. Guest numbers on game farms may drop as a result.
  - There are also current business ventures in harvesting Mopane worms that may be affected.
  - Even the prospect of mining will already affect businesses in the area, by making owners hesitant to invest in businesses in the face of considerable uncertainty regarding the future of the area. Workers might choose to leave the industry at this stage in anticipation of future changes.
  - Cattle farming generally employ far fewer people and generate less income than game

farming. Cattle farming are not considered sensitive to mining activities in adjacent areas, provided pollution does not affect production. Demand for beef due to a larger and wealthier population might increase.

- The adjacent properties might be particularly affected by visual, noise or air quality impacts as they are surrounded by or share several borders with the proposed mine.
- Due to the proposed phasing of the Mopane Project, those properties affected by the Voorburg Section and Infrastructure hub as well as their adjacent properties are most likely to be affected first. The Jutland Section and properties affected with this phasing of the development as well as neighbouring properties will be affected much later in the life of mine
- The impact of mining on surrounding activities, particularly on the game farming industry, is assessed to be of high (negative) risk.

- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of mine	Local	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimisation Measures:
  - Devise a compensation plan and policy for direct impacts of mining on adjacent farms, such as loss or pollution of land.
  - Screen mining activities from the adjacent farms and the main access road to minimize the impact on the general sense of place and tourists.
  - Identification of employees that may lose their employment and enrol in skills programme
  - Protect avoid specific pockets of Mopane veldt to preserve Mopane worm harvesting
- Description of Impact Assessment post-mitigation / optimisation:
  - The impact of mining on existing activities in surrounding areas may be reduced by effectively screening mining activities from farms that accommodate tourism operations and compensating affected landowners for direct impacts on their land. If mitigation measures are effectively implemented, the impact of mining on surrounding activities, particularly in the game farming industry, is assessed to be of medium risk.
- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in large-scale conversion of land use and transformation of sense of place in the area. These will likely result in the closure of businesses in the vicinity, especially those based on tourism. The establishment of several new mines also increases the perimeter of the total mining area and therefore the number of properties that are affected. Furthermore, development of surrounding areas for mining is likely to render mitigation from one mine ineffective in mitigating impacts of that mine on adjacent businesses, as the business will be exposed to additional impacts from other mines. The cumulative impact will largely depend on the approval, timing and final layout of new mines. In some cases it may be economically beneficial to affected, adjacent farm owners if their farms are included in other mining projects, if owners cannot continue with their existing businesses but have also not been bought out. In these instances, cumulative impacts may present a benefit to individual

owners.

5.6.6 Impact E6: Change in property values

- Aspect: Economic
- Impact: Change in property values
- Nature: Negative
- Activity generating this impact: Conversion of land and sense of place
- Description of Impact Assessment pre-mitigation / optimisation
  - Property value reflects the desirability of and demand for a certain property. These aspects in turn are influenced by the potential activities that can be undertaken on the property and its location. To date, properties in the area are likely to be valued in relation to their potential for game farming and other forms of agriculture, as there is little scope to undertake other types of activities (e.g. residential development).
  - Mining, particularly large-scale surface mining, restricts the type of activities that can be undertaken in adjacent areas due to visual, noise and air pollution impacts. Mining is not particularly compatible with the currently predominant land use of game farming without specific interventions being implemented. Other forms of agriculture that are not reliant on tourism are more compatible with mining in adjacent areas, but also tend to be less profitable than game farming. As such, the value of properties adjacent to and directly impacted by operations at the proposed mine is likely to decrease.
  - Although mining will commence on a small area at the Voorburg Section, properties adjacent to the whole mine area are likely to be affected. The impact is likely to be most pronounced at the beginning of the project, when the possibility of future mining is priced into the value of surrounding properties.
  - Notwithstanding the above, mine employment will result in increased demand for accommodation and increased disposable income in the region. These may present new opportunities for the establishment of guesthouses and other amenities and facilities in the vicinity of the mine to serve the mining workforce and increase the price of properties strategically located for such purposes.
  - The impact of mining on surrounding property values is thus potentially ambivalent. As the appreciation of property prices due to the establishment of new businesses serving the mine workforce is highly uncertain at present, the overall impact on property values in the surrounding area is assessed to be of high-moderate risk.
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of mine	Local	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimisation Measures:
  - Attempt to minimize impacts through implementation of mitigation strategies focusing on aspects that may affect tourism characteristics including traffic, noise, and visual aspects such as screening mining activities from the adjacent farms and the main access road to minimize the impact on the general sense of place.

- Establish a baseline of property values by conducting baseline valuations on representative properties and providing such to landowners, thereafter conducting monitoring valuations in periods of 5 years or as may be agreed with landowners
- Establish a communication channel with direct adjacent land owners to address impacts and grievances
- Adopting principles of good corporate citizenship focused on conservation of natural resources such as water, biodiversity, etc. Inclusion of these principles and actions into information disseminated in the local area ("how mining can be done differently")

- Description of Impact Assessment post-mitigation / optimisation
  - The impact of mining on property values in surrounding areas may be partially reduced by effectively screening mining activities from surrounding areas. However, residual impacts and a general change in the sense of place will remain. The impact of mining on surrounding activities post-mitigation is assessed to remain of moderate risk.
- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in an increase in the size and wealth of the local population, as well as better access to the area. With higher total disposable income in the area, demand for properties may increase and the value of properties not directly affected by the mines may increase over time, presenting a potential benefit for those property owners.
  - The establishment of several new mines will impact the property values of a larger number of farms, as the periphery of the total mining area increases and the number of farms located between but not in mining areas increases. Values of those farms are expected to be most affected. Development of surrounding areas for mining is likely to render mitigation from one mine ineffective in mitigating impacts on adjacent properties.
  - The cumulative impact will largely depend on the approval, timing and final layout of new mines. A cumulative long term impact and rating can be determined during the regional assessment in the Feasibility Phase of the project.

5.6.7 Impact E7: Decrease of visitors, tourists and hunting parties

- Aspect: Economic
- Impact: Decrease of visitors, tourists and hunting parties
- Nature: Negative
- Activity generating this impact: Conversion of land and sense of place
- Description of Impact Assessment pre-mitigation / optimisation
  - The development in a different economic sector (mining) than the current prevalent activities and land uses in the area may have an impact on the residents, tourists and hunting parties coming to the area. This impact could be caused as a secondary impact to the loss of sense of place (dealt with under Quality of Living Environment).
  - During the construction phase, the disruption of daily movement patterns and the nuisances this causes will impact on the sense of place and therefore have an impact on visitors, tourists and hunting parties to the area.
  - During the operational phase, it is expected that there may be a decrease in tourists,

visitors, hunting parties as well as those wishing to settle in the area permanently. The proposed project is expected to play an important in the economic growth of the area. This growth however will most probably not build on the existing tourism orientated characteristics of the area. Whilst potentially being a negative impact, it is anticipated that there would be more demographic diversity among visitors or those planning to settle in the area.

- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of mine	Local	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimisation Measures:
  - Attempt to minimize impacts through implementation of mitigation strategies focusing on aspects that may affect tourism characteristics including traffic, noise, and visual aspects such as screening mining activities from the adjacent farms and the main access road to minimize the impact on the general sense of place.
  - Collaborate with local stakeholders in terms of regional planning to ensure certain areas are protected for tourism and hunting activities.
  - Adopting principles of good corporate citizenship focused on conservation of natural resources such as water, biodiversity, etc. Inclusion of these principles and actions into information disseminated in the local area ("how mining can be done differently")
- Description of Impact Assessment post-mitigation / optimisation
  - The impact of mining on tourism and hunting visitors in the project and surrounding areas may be partially reduced by effectively screening mining activities from surrounding areas. However, residual impacts and a general change in the sense of place will remain. The impact of mining on surrounding activities post-mitigation is assessed to remain of moderate risk.
- Cumulative Impact
  - Additional development initiatives in the area in the mining sector, may have a cumulative impact that will adversely affect the tourism and hunting industry as whole in the area. Regional development planning with a focus on determining sensitivities and priority areas for development versus no development should be developed in partnership with government and local stakeholders.

5.6.8 Impact E8: Equity Participation of the Local Communities

- Aspect: Economic
- Impact: Equity Participation of the Local Communities
- Nature: Positive
- Activity generating this impact: Mine Operation
- Description of Impact Assessment pre-mitigation / optimisation
  - Equity – a share of ownership in the project, and subsequent share of dividends paid to

shareholders, in return for financial payments, or in recognition of the value of support from the local communities or the rights which the group has over the local resources. The principal benefits of an equity share are that the shareholder will have a direct share of the profits from the project and hold some degree of ownership in the company or project.

- MbeuYashu has made a commitment to ensure participation of the local communities in equity / shareholding in the project.

- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of mine	Local	Likely	Moderate	Moderate Positive	Moderate Significance	High Positive	Moderate Significance

- Mitigation / Optimisation Measures:
  - Ensure communities are fully involved and properly represented in the structures
  - Ensure capacity is built at an early stage for communities to understand how equity and dividends work
  - Place protective measures in place that will shield the communities from any business risk or liabilities
- Description of Impact Assessment post-mitigation / optimisation
  - The implementation of local community equity is not seen in many mining developments and are a positive step towards closing the gap between the super-rich and the poor
- Cumulative Impact
  - If the same approach is followed for all mining development in the region, it will optimise the positive impact in the region

5.6.9 Impact E9: Participation of local business in procurement opportunities

- Aspect: Economic
- Impact: Participation of Local business in Procurement opportunities
- Nature: Positive
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation / optimisation
  - CoAL has committed that local communities will be provided with opportunities and capacity to participate in contracts that would become available during construction and operational phase of the proposed Mopane project.
  - Enterprise development and local procurement need to be implemented in line with a good practical policy with set targets to increase local involvement with time.
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of mine	Local	Likely	Moderate	High Positive	Moderate Significance		

- Mitigation / Optimisation Measures:
  - Ensure communities are fully involved and understand the local procurement policy and

procedure
  - Ensure capacity is built at an early stage through enterprise development to enable local business to participate in opportunities
  - Identify local only opportunities that is reserved for local business
- Description of Impact Assessment post-mitigation / optimisation
  - The implementation of local procurement opportunities and enterprise development programmes will stimulate local economic growth

- Cumulative Impact
  - If the same approach is followed for all mining development in the region, it will optimise the positive impact in the region

5.6.10 Impact E10: Decline in South African GDP and Trade Balance at Decommissioning

- Aspect: Economic
- Impact: Decline in South African GDP and Trade Balance
- Nature: Negative
- Activity generating this impact: Mine closure
- Description of Impact Assessment pre-mitigation / optimisation
  - Limited and short-term economic activity will be generated during the decommissioning phase, related to decommissioning of mine structures and rehabilitation. Production will have ceased and the workforce reduced significantly to a skeleton decommissioning workforce. Economic activity is thus expected to decline significantly during decommissioning relative to the previous production phases, and cease entirely during closure.
  - The negative economic consequence of decommissioning and closure is expected to be limited on the South African economy, as other projects are likely to mitigate the impact in the national context. The impact of project decommissioning and closure on national GDP at the time is thus expected to be of moderate (negative) risk and significance. It must be noted, however, that the confidence in the impact assessment is relatively low as conditions prevailing at the time cannot be predicted with any certainty.
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Mine Closure	National	Likely	Moderate	Moderate Risk	Moderate Significance	Low Risk	Moderate Significance

- Mitigation / Optimisation Measures:
  - None
- Description of Impact Assessment post-mitigation / optimisation
  - The impact on the national economy cannot be meaningfully mitigated.
- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in a significant contribution to GDP. The overall impact on GDP and of decommissioning will

depend on the timing of other mine operations. The impact will be cumulative and more pronounced if other mines decommission at the same time. Should mines close at different times, this could mitigate the impact of individual mine closures.

5.6.11 Impact E11: Decline in provincial and local GDP at decommissioning

- Aspect: Economic
- Impact: Decline in provincial and local GDP
- Nature: Negative
- Activity generating this impact: Mine closure
- Description of Impact Assessment pre-mitigation / optimisation
  - Limited and short-term economic activity will be generated during the decommissioning phase. Production will have ceased and the workforce reduced significantly. Economic activity is thus expected to decline significantly during decommissioning relative to the previous production phases and cease entirely during closure.
  - Local towns and businesses are likely to have become highly dependent on mine activities by this time and decommissioning and closure can thus have devastating effects on the local and regional economy. Due to long life-of-mine, the impacts of decommissioning are highly uncertain and will be affected by the:
    - *Actual life of mine, which could be influenced by the: a) Actual mining rate; and b) Future demand for coal, which could change; and*
    - *The interim economic, social and infrastructural development of the region, which will determine the region's resilience to a change in the economic base and ability to take up alternative economic opportunities.*
  - Any negative economic consequence of decommissioning and closure is expected to be higher for the regional and local economy compared to the South African economy, as there are fewer other projects that could mitigate the impact. The impact of project decommissioning and closure on the provincial and local GDP at the time could be of high risk (negative) and moderate significance in the absence of effective mitigation. It must be noted, however, that the confidence in the impact assessment is relatively low as conditions prevailing at the time cannot be predicted with any certainty.
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Mine Closure	Provincial	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Moderate Significance

- Mitigation / Optimisation Measures:
  - Actively promote the development of different economic sectors from an early stage, e.g. through incentivising other industries to locate in the area, providing adequate infrastructure and promoting an increase and diversity of skills in the local population.
  - Actively engage with a range of stakeholders throughout the life-of-mine to discuss potential consequences of mine closure and possible mitigation.
  - Incorporate measures to retrain workers in the Social and Labour Plan.
- Description of Impact Assessment post-mitigation / optimisation

- To effectively mitigate the impact of decommissioning and closure, diversification of the local and regional economic base must be maintained and promoted throughout the life of mine to allow other sectors to compensate for the loss of economic activity from mining. The establishment of a local Development Forum as a potential vehicle for the creation and implementation of such policies and projects. Measures to retrain the workforce should also be incorporated in the Social and Labour Plan.
- With effective mitigation the impact from decommissioning and closure will be less significant. The impact is assessed to be of moderate risk (negative) and moderate significance post mitigation.

- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in a significant contribution to GDP and stimulus of general economic activity. The overall impact on GDP and of decommissioning will depend on the timing of other mine operations. The impact will be intensified if other mines decommission at the same time. Should mines close at different times, this could mitigate the impact of individual mine closures to some extent.

5.6.12 Impact E12: Decline in government revenue at Decommissioning

- Aspect: Economic
- Impact: Decline in government revenue
- Activity generating this impact: Mine closure
- Description of Impact Assessment pre-mitigation / optimisation
  - Limited and short-term activity will take place during the decommissioning phase. However, production will have ceased and the workforce reduced significantly. Government income from the operation is thus expected to decline significantly and cease altogether in the decommissioning and closure stages.
  - The negative economic consequence of decommissioning and closure is expected to be limited with regards to national government revenue, as other projects are likely to make up the loss. The reduction in revenue is likely to be more pronounced for local government, which might depend to a larger degree on this income. The impact of project decommissioning is thus expected to be of low-medium (negative) significance. It must be noted, however, that the confidence in the impact assessment is relatively low as conditions prevailing at the time cannot be predicted with any certainty.
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Mine Closure	National	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Moderate Significance

- Mitigation / Optimisation Measures:
  - None
- Description of Impact Assessment post-mitigation / optimisation
  - No effective optimisation of this benefit is possible, although economic diversification will reduce the government's dependence on income from the mine

- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in a significant contribution to GDP and stimulus of general economic activity. The overall impact on GDP and of decommissioning will depend on the timing of other mine operations. The impact will be intensified if other mines decommission at the same time. Should mines close at different times, this could mitigate the impact of individual mine closures to some extent.

5.6.13 Impact E13: Decline in employment, income and skills development at decommissioning

- Aspect: Economic
- Impact: Decline in employment, income and skills development
- Nature: Negative
- Activity generating this impact: Mine Closure
- Description of Impact Assessment pre-mitigation / optimisation
  - The workforce will be reduced and eventually fully laid off during decommissioning and closure of the mine. Due to the size of the workforce and significant number of other people who depend on the mining income, decommissioning and closure will have a significant and negative effect on employment and income in the area. Due to the long life-time of the mine, which may employ generations of workers, many people in the area are likely to have focused on a career in mining and the acquisition of mining skills which may not be adequate for employment in other sectors. Depending on the social support network in place at the time, individual workers and their families could be highly vulnerable to the loss of employment at the end of the mine life.
  - The impact of project decommissioning and closure could thus be of high risk (negative) and significance in the absence of effective mitigation. It must be noted, however, that the confidence in the impact assessment is relatively low as conditions prevailing at the time cannot be predicted with any certainty.
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Mine Closure / Residual	Regional	Likely	Major	High Risk	Moderate Significance	Moderate Risk	Moderate Significance

- Mitigation / Optimisation Measures:
  - Aim to use local workers as far as possible and formalise this policy in contracts.
  - Consider implementing labour-intensive rather than capital-intensive work methods wherever possible.
  - Purchase resources from local sources wherever possible.
  - Institute training programmes for local workers to raise skills levels.
  - Include training for general life skills such as financial management and health.
- Description of Impact Assessment post-mitigation / optimisation
  - Diversification of the local and regional economic base and local skill level, as discussed,

would reduce this impact by providing workers with opportunities for alternative employment.

- Cumulative Impact
  - Several new coal mines are proposed in the area, which, if executed, will result in a significant combined contribution to national and local government revenue. The overall impact on government revenue from mine decommissioning and closure will depend on the timing of other mine operations. The impact will be cumulative and more pronounced if other mines decommission at the same time. Should mines close at different times, this could mitigate the impact of individual mine closures.

5.7 Vulnerable Groups

There is a strong body of evidence demonstrating that women, children and the elderly are more likely to be adversely affected by mining development.

5.7.1 Impact VG1: Gendered Division of labour

- Aspect: Vulnerable Groups
- Impact: Gendered Division of Labour
- Nature: Negative
- Activity generating this impact: Mine Construction & Operation
- Description of Impact Assessment pre-mitigation / optimisation
  - Inequitable gender relations due to traditional beliefs and practises are widespread in the region. Females often struggle to obtain access to and control over resources, in economic opportunities, in power and in political voice. Women tend to bear the largest and most direct social impacts, and therefore as a core social impact issue it should be assessed (Vanclay, 2003:88).
- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Local	Possible	Moderate	Moderate Risk	Low Significance	Low Risk	Low Significance

- Mitigation / Optimisation Measures:
  - Women must have equal employment opportunities,
  - Training and skills development for women, and
  - Salaries of women must be equal to that of men
  - Establish opportunities that are suitable for women employment
  - Implement measures to enable working environment for women
  - Establishing gender-sensitive policy positions, such as for cultural heritage, employment and business development
  - Mainstreaming gender into project planning, particularly for community development
  - Using gender-sensitive indicators, such as employment data disaggregated by gender
  - Consultation with national women's organizations
- Description of Impact Assessment post-mitigation / optimisation

- With the implementation of the mitigation measures and regular monitoring this risk can be satisfactorily reduced

- Cumulative Impact
  - None

5.7.2 Impact VG2: Loss of employment of Farm workers creating a new Vulnerable Group

- Aspect: Vulnerable Group
- Impact VG2: Loss of employment of Farm workers creating a new Vulnerable Group
- Nature: Negative
- Activity generating this impact: Mine Construction and Operation
- Description of Impact Assessment pre-mitigation:
  - The mine will impact on existing operations currently employing people, if these people are retrenched due the mine and do not have the required mining skills to take up mining employment they will become a vulnerable group in the area.
- Impact Rating

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Construction	Site specific	Almost Certain	Moderate	High Risk	Moderate Significance	Moderate Risk	Low Significance

- Mitigation / Optimization Measures
  - Displacement of workers and their dependents requires an equitable policy, principles, financial guidelines and clarification of operational approaches.
  - Portable skills development of those people being retrenched to ensure sustaining of families
- Description of Impact Assessment post-mitigation:
  - If a policy to protect these groups are compiled and implemented this risk may be mitigated to an extent, but will remain a moderate risk
- Cumulative Impact
  - If future developments are implemented at the same time, the number of workers in this group will increase and the impact will become a very high risk.

5.7.3 Impact VG3: Potential Infringements on Historically Disadvantaged People's Human Rights

- Aspect: Vulnerable Groups
- Impact: Potential Infringements on Historically Disadvantaged People's Human Rights
- Nature: Negative
- Activity generating this impact: Mine Construction & Operation
- Description of Impact Assessment pre-mitigation / optimisation
  - Equality and non-discrimination: Although South Africa is building a democratic country, some communities especially rural communities are still in a state of poverty.

- Recognition of their identity, language and culture
- Rights to land and resources
- Access to and enjoyment of economic social and cultural rights

- Impact Rating:

Duration	Extent	Probability	Impact Severity	Pre-mitigation Risk Map	Pre-mitigation Impact Significance	Post-mitigation Risk Map	Post mitigation Impact Significance
Life of Project	Local	Possible	Moderate	Moderate Risk	Low Significance	Low Risk	Low Significance

- Mitigation / Optimisation Measures:
  - Focusing local benefits on those communities previously disadvantaged to ensure upliftment
  - Enter into agreements with local communities to address post closure land use and sustainability
  - Optimization of local employment to minimize impacts of external or migrant workers on the local communities
- Description of Impact Assessment post-mitigation / optimisation
  - With the implementation of the mitigation measures and regular monitoring this risk can be satisfactorily reduced
- Cumulative Impact
  - None

6 SUMMARY OF IMPACTS AND MITIGATIONS

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
DP1	Demographic and Population Impacts	Influx of work seekers into the area	Negative	Moderate Risk	Moderate Significance	❖ Optimise the use of local labour as far as possible. Establishing early on skills development programmes in the local area will support to possibility of finding skilled people locally ❖ Development and Implementation of an Influx and Land use Management Plan ❖ Develop a code of conduct with which contractors and their employees must comply. The code should deal with the interaction with local communities and substance abuse among other things. ❖ Develop a Stakeholder Engagement Plan (SEP) which clarifies the principles of engagement with community and other stakeholders, sets in place appropriate liaison forums (a community forum is recommended), and describes the grievance management procedure to be adopted by the Mopane Project. Establishment of a local labour recruitment committee to monitor recruitment procedures and results ❖ Communicate through media the recruitment procedures and priorities to discourage work seekers from outside the area	Low Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
DP2	Demographic and Population Impacts	Influx of construction labour with pressure on services and social structures	Negative	Moderate Risk	Moderate Significance	❖ Facilitate the provision of housing and associated infrastructure. Establishment of a construction accommodation camp to house those employees that cannot be sourced from the local community due to a lack of skills ❖ Optimise the use of local labour as far as possible. Establishing early on skills development programmes in the local area will support to possibility of finding skilled people locally ❖ Development and Implementation of an Influx and Land use Management Plan ❖ Develop a code of conduct with which contractors and their employees must comply. The code should deal with the interaction with local communities and substance abuse among other things. ❖ Develop a Stakeholder Engagement Plan (SEP) which clarifies the principles of engagement with community and other stakeholders, sets in place appropriate liaison forums (a community forum is recommended), and describes the grievance management procedure to be adopted by the Mopane Project. Establishment of a local labour recruitment committee to monitor recruitment procedures and results ❖ Develop and communicate a clear and concise employment and recruitment policy to prevent opportunistic job seekers from settling in the area. ❖ Implementation of a programme of STD and HIV/AIDS screening, counselling and (where possible) treatment.	Low Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
DP3	Demographic and Population Impacts	Influx of operational workforce with pressure on services and social structures	Negative	Moderate Risk	Moderate Significance	❖ Contribution towards the provision of housing, infrastructure and services for operational staff. The establishment of partnerships with other private sector stakeholders, government authorities and civil society organisations to integrate planning around the provision of services and infrastructure, and to ensure that Mine inputs in this context compliment initiatives led by other players, especially the local and district municipality. ❖ Development and Implementation of an Influx and Land use Management Plan ❖ Optimise the use of local labour as far as possible. Establishing early on skills development programmes in the local area will support to possibility of finding skilled people locally ❖ Induction of contractors and workforce with regard to their code of conduct in the local communities ❖ Develop and communicate a clear and concise employment and recruitment policy to prevent opportunistic job seekers from settling in the area. ❖ Implementation of a programme of STD and HIV/AIDS screening, counselling and (where possible) treatment. ❖ Continuous assessment and monitoring of infrastructure and services capacity in focal points (assessment every 5 years) ❖ Determine scale of assistance required at focal points and enter into an agreement with the municipality ❖ Establish a development, infrastructure and service monitoring forum with the municipality to continuously assess and monitor capacity, determine assistance required and oversee implementation	Low Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
DP4	Demographic and Population Impacts	Influx of people and the development of spontaneous settlements near project facilities, in the Mopane Town and surrounding areas	Negative	High Risk	Moderate Significance	❖ Develop a Community Development Plan which addresses issues relating to provision of housing for the workforce through on-going communication and engagement between the mine and local authorities for implementation of this plan. ❖ Develop and adoption of an Influx Management Plan in consultation with the local government that outlines proactive management measures to discourage and manage influx, outlines and refines relevant stakeholders and their roles and responsibilities and the way in which each role-player intends to manage influx and spontaneous settlements. ❖ Support the compilation of a development master plan, in cooperation with relevant local and regional authorities for the Musina and Makhado areas, whereby new development areas for workers' and new arrivals' accommodation will be catered for and duly planned ❖ Support local government capacity for integrated development planning. ❖ Develop and communicate a clear and concise employment and recruitment policy to prevent opportunistic job seekers from settling in the area. ❖ Continuous assessment and monitoring of infrastructure and services capacity in focal points (assessment every 5 years) ❖ Determine scale of assistance required at focal points and enter into an agreement with the municipality ❖ Establish a development, infrastructure and service monitoring forum with the municipality to continuously assess and monitor capacity, determine assistance required and oversee implementation	Moderate Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
DP5	Demographic and Population Impacts	Conflicts arising at the end of construction due to the termination of job opportunities for contractors	Negative	High Risk	Moderate Significance	❖ Investigate the possibility of transferring labour from one operation to another – depending on the phasing of the projects ❖ Develop the MbeuYashu grievance procedure to capture and address grievances arising due to retrenchments and downscaling. ❖ Ensure compliance with all applicable Labour Regulations of South Africa ❖ Consider compliance with Best Practice , i.e. IFC's Performance Standard 2 "Labour and Working Conditions" ❖ Monitoring of all contractors and sub-contractors for compliance with the above standards, with contractually-established financial sanctions for observed non-compliances ❖ Communicate the termination conditions to the communication structure established ❖ Communicate the termination conditions to all employees – including contractors and sub-contractors	Moderate Risk	Low Significance
HSW1	Health and Social Wellbeing	Increased chances of the spread of communicable diseases such as HIV/AIDS and STDs linked to influx of predominantly male job-seekers and workers	Negative	High Risk	Moderate Significance	❖ Develop a comprehensive HIV/AIDS and STD program to employees through employee wellness programmes which should include prevention, voluntary counselling for HIV testing, as well as anti-retroviral treatment for employees. Develop a Community Health Action Plan which focuses on HIV/AIDS, tuberculosis. Provision of preventative measures (including condoms) Repeated awareness campaigns targeting project workers, senior management, contractors, sub-contractors and their spouses, communities near project facilities, risk groups (commercial sex workers, truck drivers – not only those working for MbeuYashu, elements of the police, young adults) Map high risk area where sexual transactions occur and support intensive education and disease prevention programmes. Support the health system with Voluntary, Counselling and Testing (VCT) centres and improving care and treatment programs.	Moderate Risk	Moderate Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
HSW2	Health and Social Wellbeing	Safety and Risk Exposure through an increase in crime	Negative	Moderate Risk	Low Significance	❖ Increased security on mine premises ❖ Construction and permanent workers are identified and marked with clear identifiable clothing ❖ Code of Conduct to form part of induction of new workers with a clear statement and procedure regarding access, conduct and identification. All construction workers should wear clothing marked (and reflective vests) with the logo of the construction firm/contractor or sub-contractor as well as identification cards that cannot be easily forged, so that they can be easily recognized as being legitimate. ❖ Workers to be screened including criminal background checks. ❖ Properly constructed and secured fences can control access to construction sites. Implementing strict access control of the project site and specifically the contractors workforce camp. ❖ Workers should be urged to recognize and report suspicious activity and signs of burglary and be informed of crime prevention measures that they themselves can take. ❖ Employment of local people on the mine to improve the poverty levels in the host and neighbouring communities ❖ MbeuYashu to liaise with existing community policing forums and project security to properly secure the project area and surrounding area ❖ Investigate the implementation of an anti-poaching unit in collaboration with local stakeholders, policing forums and police	Low Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
HSW3	Health and Social Wellbeing	Safety and Risk Exposure due to an increase in poaching on neighbouring game farming properties	Negative	Moderate Risk	Low Significance	❖ Establishment of an anti-poaching unit available to adjacent land owners, and establishing a security forum in collaboration with these land owners. Land owners are to be actively involved in the selection of the contracting company employed to conduct anti-poaching in the area. ❖ Increased security measures (fencing, access control and monitoring) on mine premises. Properly constructed and secured fences can control access to construction sites. Implementing strict access control of the project site and the contractors workforce camp. Curfew times to be established in accommodation areas. Construction workers accommodated on mine are identified and marked with clear identifiable clothing ❖ Code of Conduct to form part of induction of new workers with a clear statement and procedure regarding access, conduct and identification. All construction workers should wear clothing marked (and reflective vests) with the logo of the construction firm/contractor or sub-contractor as well as identification cards that cannot be easily forged, so that they can be easily recognized as being legitimate. ❖ Workers to be screened including criminal background checks. ❖ Employment of local people on the mine to improve the poverty levels in the local communities	Low Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
QL1	Quality of Living Environment	Change in "sense of place"	Negative	High Risk	Moderate Significance	❖ Regular and effective engagement with stakeholders through the SEP. ❖ An effective grievance management procedure managed within the framework of the SEP. Grievance mechanisms must be in place throughout the life of the mine, including for a determined period post-closure, to address any impact for affected communities. ❖ Implementation of traffic management measures Implementation of insulation and mitigation measures for noise ❖ Implementation of visual barriers and other mitigation measures as recommended in the visual study ❖ Colour schemes must complement the local environment. ❖ Minimising disturbance to vegetated areas outside the critical development areas where possible ❖ Revegetation/rehabilitation of disturbed sites in parallel with development ❖ Successful mitigation interventions can reduce the intensity of the impact to at least moderate and ultimately moderate-low levels. If grievances are addressed adequately, and communication and engagement is effective affected communities may be able to adjust more easily to the changes.	Moderate Risk	Low Significance
QL2	Quality of Living Environment	Disruption of Social Networks and decrease in Social Capital	Negative	Moderate Risk	Low Significance	❖ Employment of local people already part of the community. ❖ Code of conduct to form part of induction for all new workers ❖ Grievance Procedure within the local communities	Low Risk	Low Significance
QL3	Quality of Living Environment	Perceptions of and Feelings in relation to the project	Negative	High Risk	Moderate Significance	❖ Establish on-going Consultative Forums with concerned groups to air concerns, find possible mitigation measures for their perceived impacts, solutions to co-existence and monitor implementation and effectiveness of mitigation measures ❖ Continuous communication with all stakeholders providing information on anticipated impacts and planned mitigation measures	Moderate Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
FC1	Family and Community Impacts	Impacts on land owner and labourers	Negative	Very High Risk	Moderate Significance	❖ Development of a land acquisition policy defining the negotiation process to minimize the feelings of uncertainty ❖ Financial compensation of affected property owners/tenants, employees and their families in terms of the relevant legislation. ❖ Displacement of workers and their dependents requires an equitable policy, principles, financial guidelines and clarification of operational approaches. ❖ Land Acquisition and compensation agreements reached with affected landowners that include arrangements and measures for labour tenants	Moderate Risk	Low Significance
FC2	Family and Community Impacts	Change processes and impacts related to daily movement patterns	Negative	Moderate Risk	Moderate Significance	❖ The project description defines that no hauling will take place along existing farm roads or regional / national roads. It is planned that the run-of-mine (ROM) coal will be transported for short distances by truck, on the in-pit haul roads to the crushing and screening facilities. The crushed and screened ROM product will be transported to the coal beneficiation plant at the Infrastructure Hub via conveyor. It is further planned that the product will be loaded directly onto trains at the Rail Load-out Terminal situated at the Infrastructure Hub which links up with the existing Musina-Makhado railway line. ❖ Therefore only supplier light-vehicles and employee busses will disrupt movement patterns, these will stabilize once the mine is fully operational	Low Risk	Low Significance
FC3	Family and Community Impacts	Conversion of land use	Negative	High Risk	Moderate Significance	❖ Acquisition of directly impacted land ❖ Fair compensation negotiated and agreed with land owners that will lose agricultural land ❖ Continuous consultation with landowners discussing co-existence and feasibility ❖ Educate landowners in terms of their rights and responsibilities prior to the construction phase ❖ Assist landowners in identifying ways to adapt their land uses, to the benefit of both the landowner and MbeuYashu ❖ Implement a consultation programme with regional stakeholders in the development of a closure plan and rehabilitation programme	Moderate Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
						❖ Determine the regional needs and characteristics to ensure post mining use of land enhances the regional characteristics		
I1	Institutional/Legal/Political/Equity Impacts	Challenge to local government capacity	Negative	Moderate Risk	Low Significance	❖ Intensive engagement between MbeuYashu / CoAL and the municipality well in advance of construction. In this context the responsibilities of local government should be well understood, and potential problems defined and addressed as early as possible. ❖ Establishment of a limited and time-bound municipal support function. MbeuYashu / CoAL should contribute funding and appropriate technical resources. The participation of other major mines and industries in the area should be promoted by both MbeuYashu / CoAL and the local municipality.	Low Risk	Low Significance
I2	Institutional/Legal/Political/Equity Impacts	Participation and Consultation in process	Negative	Moderate Risk	Low Significance	❖ Provide transport reimbursement to the Historical Disadvantaged Communities ❖ During the Operational phase, the structures established for participation should have a proper constitution that addresses reimbursement of costs ❖ Arrangement of meetings in proximity to the mine or in affected communities to minimize the distance of directly affected parties to travel Cluster meetings together on the same day or over 2 days to minimize disruption of personal schedules	Low Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
I3	Institutional/Legal/Political/Equity Impacts	Impact equity	Negative	High Risk	Moderate Significance	❖ Tax and Profit benefits must be ploughed back into the Local Municipal areas and immediate communities ❖ Employment should be prioritized to local communities ❖ Local beneficiation programmes to be investigated and implemented	Moderate Risk	Low Significance
E1	Socio-economic Wellbeing	Increase in South African GDP and Trade Balance	Positive	High Positive	Moderate Significance	❖ Procure goods and services from South African suppliers as far as possible. ❖ Procure ancillary services for goods procured abroad, such as installation, customisation and maintenance, from South African companies as far as possible.	Very High Positive	High Significance
E2	Socio-economic Wellbeing	Increase in provincial and local GDP	Positive	High Positive	Moderate Significance	❖ Procure goods and services from local or provincial suppliers as far as possible. ❖ Procure ancillary services for goods purchased from outside of the Limpopo Province, such as installation, customisation and maintenance, from local or provincial companies as far as possible.	Very High Positve	High Significance
E3	Socio-economic Wellbeing	Increase in government revenue	Positive	High Positive	Moderate Significance	❖ None	High Positive	Moderate Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
E4	Socio-economic Wellbeing	Increase in employment, income and skills development	Positive	High Positive	Moderate Significance	❖ Aim to use local workers as far as possible and formalise this policy in contracts. ❖ Consider implementing labour-intensive rather than capital-intensive work methods wherever possible. ❖ Procure resources from local sources wherever possible. ❖ Establish a database of local people with information on qualifications and skills, utilize this database to develop skills plans and recruit local people. ❖ Implement early on skills development programmes in the areas where most job opportunities will be created, i.e. operators and drivers ❖ Include training for general life skills such as financial management and health. ❖ Implement portable skills development programmes ❖ Design and implement economic development programmes that will assist people being retrenched in sustaining their livelihoods ❖ Establish a future forum with representation from the workforce to discuss potential difficulties and solutions ❖ Implementation of programmes to minimize and mitigate the impact of downscaling and retrenchment	Very High Risk	Moderate Significance
E5	Socio-economic Wellbeing	Impact on existing businesses in surrounding areas	Negative	High Risk	Moderate Significance	❖ Devise a compensation plan for direct impacts of mining on adjacent farms, such as loss or pollution of land. ❖ Screen mining activities from the adjacent farms and the main access road to minimize the impact on the general sense of place and tourists. ❖ Identification of employees that may lose their employment and enrol in skills programme	Moderate Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
E6	Socio-economic Wellbeing	Change in property values	Negative	High Risk	Moderate Significance	❖ Attempt to minimize impacts through implementation of mitigation strategies focusing on aspects that may affect tourism characteristics including traffic, noise, and visual aspects such as screening mining activities from the adjacent farms and the main access road to minimize the impact on the general sense of place. Establish a baseline of property values by conducting baseline valuations on representative properties and providing such to landowners, thereafter conducting monitoring valuations in periods of 5 years or as may be agreed with landowners ❖ Establish a communication channel with direct adjacent land owners to address impacts and grievances ❖ Adopting principles of good corporate citizenship focused on conservation of natural resources such as water, biodiversity, etc. Inclusion of these principles and actions into information disseminated in the local area (“how mining can be done differently”)	Moderate Risk	Low Significance
E7	Socio-economic Wellbeing	Decrease of visitors, tourists and hunting parties	Negative	High Risk	Moderate Significance	❖ Attempt to minimize impacts through implementation of mitigation strategies focusing on aspects that may affect tourism characteristics including traffic, noise, and visual aspects such as screening mining activities from the adjacent farms and the main access road to minimize the impact on the general sense of place. ❖ Collaborate with local stakeholders in terms of regional planning to ensure certain areas are protected for tourism and hunting activities. ❖ Adopting principles of good corporate citizenship focused on conservation of natural resources such as water, biodiversity, etc. Inclusion of these principles and actions into information disseminated in the local area (“how mining can be done differently”)	Moderate Risk	Low Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
E8	Socio-economic Wellbeing	Equity Participation of the Local Communities	Positive	Moderate Risk	Moderate Significance	❖ Ensure communities are fully involved and properly represented in the structures ❖ Ensure capacity is built at an early stage for communities to understand how equity and dividends work ❖ Place protective measures in place that will shield the communities from any business risk or liabilities	High Positive	Moderate Significance
E9	Socio-economic Wellbeing	Participation of local business in procurement opportunities	Positive	High Positive	Moderate Significance	❖ Ensure communities are fully involved and understand the local procurement policy and procedure ❖ Ensure capacity is built at an early stage through enterprise development to enable local business to participate in opportunities ❖ Identify local only opportunities that is reserved for local business	High Positive	Moderate Significance
E10	Socio-economic Wellbeing	Decline in South African GDP and Trade Balance at Decommissioning	Negative	Moderate Risk	Moderate Significance	❖ None	Low Risk	Moderate Significance
E11	Socio-economic Wellbeing	Decline in provincial and local GDP at decommissioning	Negative	High Risk	Moderate Significance	❖ Actively promote the development of different economic sectors from an early stage, e.g. through incentivising other industries to locate in the area, providing adequate infrastructure and promoting an increase and diversity of skills in the local population. ❖ Actively engage with a range of stakeholders throughout the life-of-mine to discuss potential consequences of mine closure and possible mitigation. ❖ Incorporate measures to retrain workers in the Social and Labour Plan.	Moderate Risk	Moderate Significance
E12	Socio-economic Wellbeing	Decline in government revenue at Decommissioning	Negative	High Risk	Moderate Significance	❖ None	Moderate Risk	Moderate Significance

ID	Environmental (Social) Aspect	Potential Impact	Nature of Impact	Risk Map	Impact Significance	Proposed Mitigation measures	Risk Map	Impact Significance
E13	Socio-economic Wellbeing	Decline in employment, income and skills development at decommissioning	Negative	High Risk	Moderate Significance	❖ Aim to use local workers as far as possible and formalise this policy in contracts. ❖ Consider implementing labour-intensive rather than capital-intensive work methods wherever possible. ❖ Purchase resources from local sources wherever possible. ❖ Institute training programmes for local workers to raise skills levels. ❖ Include training for general life skills such as financial management and health.	Moderate Risk	Moderate Significance
VG1	Vulnerable Group Impacts	Gendered Division of labour	Negative	Moderate Risk	Low Significance	❖ Women must have equal employment opportunities, ❖ Training and skills development for women, and ❖ Salaries of women must be equal to that of men ❖ Establish opportunities that are suitable for women employment ❖ Implement measures to enable working environment for women ❖ Establishing gender-sensitive policy positions, such as for cultural heritage, employment and business development ❖ Mainstreaming gender into project planning, particularly for community development ❖ Using gender-sensitive indicators, such as employment data disaggregated by gender ❖ Consultation with national women's organizations	Low Risk	Low Significance
VG2	Vulnerable Group Impacts	Potential Infringements on Historically Disadvantaged People's Human Rights	Negative	Moderate Risk	Low Significance	❖ Focusing local benefits on those communities previously disadvantaged to ensure upliftment ❖ Enter into agreements with local communities to address post closure land use and sustainability ❖ Optimization of local employment to minimize impacts of external or migrant workers on the local communities	Low Risk	Low Significance

7 SOCIAL MANAGEMENT PLANS

7.1 Influx Management Plan

A common impact of major mining and infrastructural projects in developing countries is the influx of opportunity seekers. The influx may be motivated by expectations around the project itself, or it might be the result of a more general perception of opportunity in the region. Influx is not negative by definition, but its impacts can be damaging where the migrants are not readily assimilated, placing stress on services, disrupting existing communities, and in some cases living in unhealthy and crowded conditions.

This Influx Management Plan outlines the proposed Mopane Project's contribution to the mitigation of negative impacts associated with uncontrolled influx. The plan recognizes that a single mining company has limited influence to stem or manage the effects of influx, but it is believed that the measures proposed will make a contribution. If done in with a holistic approach the mitigation on the cumulative effects of influx management should be significant.

The Land use and Influx management plan can only be successfully implemented if there is buy-in and partnership with Local Municipalities and Landowners.

The following actions are included in the Influx Management Plan:

- **Management of expectations. This will be done via regular briefings on labour, recruitment and procurement to the Mopane Project Stakeholder Committees to be established**
- **Recruitment and supply chain transparency. Recruitment / procurement rules and opportunities must be transparent and accessible. Communication in this context should be the joint responsibility of the Human Resource Manager and the Community Engagement Manager. The Mopane Project Recruitment Office must follow transparent rules and procedures, and must be the point of entry for employment. This will remove the incentive for people to gather 'at the gate' or to squat adjacent to the mine area. Mopane Project must express commitment to:**
  - **The use of local labour wherever possible and**
  - **The use a local skills database to source employees**
  - **Collaborate with Department of Labour and the Local Municipalities to source local skills.**
- **Mine area security arrangements. Mine access roads will have boom gates and access control, and major facilities will be fenced. All security arrangements will be in line with international best practice.**
- **Land allocation and usage. Landowners of open land in the project-impacted area will be informed of the risks of opportunistic influx, and will be provided with tools to address problems if these arise. The tools will include:**

The following Implementation Plan is proposed:

Action	How	Target	When	Who
Communicate policy on procurement & recruitment	Special Newsletter Municipal Notice Board Public Places	Local area Municipal area	Upfront & thereafter Yearly	Community Engagement Manager
	Meetings with Stakeholder Committees	Local area	Upfront & thereafter Yearly	Community Engagement Manager
Notice of opportunities	Placement of Community Notice Boards Municipal Notice Board	Local area Municipal area	Monthly	Human Resource & Procurement manager
Briefing on labour and procurement statistics	Section in Newsletter Municipal Notice Board	Local area Municipal area	Quarterly	Human Resource Manager
	Meetings with Stakeholder Committees	Local area	Quarterly	Community Engagement Manager
Recruitment procedure	Compile and workshop of recruitment procedure	Local Municipalities Department of Labour Ward Councillor & Committee Stakeholder Committees	Prior construction in take Prior to operational intake	Human Resource Manager Outsourced
Improve local labour recruitment	Skills development programme a) identification of talent pool b) identification of programmes, scheduling and enrolment	Identified talent pool from local area Stakeholder Committees	Prior construction in take Prior to operational intake	Human Resource Manager Outsourced
Define mine areas and fencing requirements	As per the safety procedure	Mine management	Prior to construction – all areas	Mine management
Monitor the fence-lines for breakages	All fence lines to be patrolled.	Safety and Security on mine	Weekly	Safety and security

Action	How	Target	When	Who
	Procedure and line of communication to be established for reporting of any fence breaks			
Security measures of open land	Notification boards Security access if possible	Local area	Prior to constructio n	Safety and security
Agreement with Landowners for security monitoring of open land	Agreements reached	Local area Open land owners	Prior to constructio n	Legal Safety and Security
On-going monitoring of open land for activity	Monitoring schedule Monitoring reports	Local area Open land owners	Upfront & thereafter Monthly At steady state Quarterly	Legal Safety and Security

The following resources from MbeuYashu will be required for the implementation of this strategy:

No	Resource	Frequency
1	Human Resource Manager	Upfront, thereafter Monthly
2	Community Engagement Management	Continuously
3	Social Specialists to conduct reviews	Quarterly for first year, thereafter annually
4	Safety and Security Personnel	Continuously
5	Legal representative	Upfront to compile agreements with landowners to monitor open land

7.2 Crime and Anti-poaching Management Plan

A central change processes associated with the construction and development process of a development such as the Mopane Project is the presence of contracting firms and construction workers, usually accommodated in workforce accommodation camps. This may include workers as well as opportunists and burglars/robbers posing as construction workers. The bigger the project, the more opportunity, the more people involved, could result in a crime increase.

A further secondary impact due to the influx of job seekers and creation of access to a previously remote area is the increase in poaching activities in the adjacent areas.

The increase in the safety and security risk in the surrounding area requires a mitigation measure that is implemented in partnership with various stakeholders including:

- Development companies (including MbeuYashu) in the project area
- The Local Municipalities
- The Local Police Services
- The landowners
- Community leaders
- Outsourced specialists

7.2.1 Crime management through Community Policing

Crime management on the mine and adjacent area can only be successful if the current stakeholders operating in this environment collaborates in implementing the mitigation measures. It is therefore recommended that a Community Policing Forum be established to develop and implement the crime management plan. The actions that must form part of the action plan include the following:

- Increased security on mine premises: Properly constructed and secured fences can control access to construction sites. Implementing strict access control of the project site and specifically the contractor's workforce camp.
- Construction and Permanent Mine workers:
  - Identified and marked with clear identifiable clothing
  - Include a code of conduct in project induction of new workers
  - Employees screened
- Awareness creation
  - Employees and Landowners to be urged to recognize and report suspicious activity and signs of burglary and be informed of crime prevention measures that they themselves can take.
- Mapping of Target Areas
  - Identify area to be included in the Community Policing area
  - Map routes and access to mine areas and surrounding properties
  - Identify hot spot areas
- Registrations as a Community Policing Forum
  - Partnership with local municipalities and police service
- Community Policing Patrols
  - Schedules and involvement
- Community Policing Reporting and Evaluation of effectiveness

7.2.2 Anti-poaching through Collaboration

Poaching is the illegal taking of wild plants or animals contrary to local and international conservation and wildlife management laws. Violations of hunting laws and regulations are normally punishable by law and, collectively, such violations are known as poaching. Poaching is in effect the illegal "hunting" of fauna and flora. Poaching can generally be divided into three different classes: Subsistence, Commercial and Syndicated. All poaching levels are as equally critical, as they are often interlinked and intelligence passes through all three levels.

Poaching is already present in the development area, and is further worsened by the lack of police capacity and Provincial Nature Conservation to assist in managing and/or mitigating the situation. A mine development may increase the occurrence and spatial spread of poaching and theft of game/livestock.

Anti-poaching in the adjacent area can only be successful if the current landowners and property managers collaborate in implementing the mitigation measures. The actions that must form part of the implementation plan include the following:

- Finalisation of the Anti-poaching Approach and Policy
- Selection of a contracting company / selected parties to implement the anti-poaching unit and measures. Land owners are to be actively involved in the selection of the contracting company employed to conduct anti-poaching in the area.
- Awareness creation. Creation of awareness amongst local communities regarding the situation to ensure understanding of why anti-poaching is being done
- Registrations of Anti-poaching unit with local police service and Nature Conservation
- Anti-poaching patrols
- Anti-poaching reports and evaluation of effectiveness

7.2.3 Implementation Plan

The following Implementation Plan is proposed:

Action	How	Target	When	Who
Complete Community Policing Plan and Anti-poaching plan	Participation amongst all stakeholders	Communities Landowners Mine Local Municipalities Local Police Service	Upfront	Mine management Community Engagement Manager

Action	How	Target	When	Who
		Outsourced specialists		
Increased security on mine premises	Fencing Access control	Mine premises	Upfront	Safety and Security
Construction and Permanent Mine workers identified	Clearly marked code of conduct Screening of employees	Mine premises	Upfront and continuously	Human Resource Department
Awareness creation	Newsletter Meetings	Employees Communities Landowners	Upfront and continuously	Community Engagement Manager
Mapping of Target Areas – Policing & Anti-poaching	GIS mapping	Communities Landowners Mine	Upfront thereafter yearly	Community Engagement Manager
Registrations as a Community Policing Forum & Anti-poaching unit	Registration with local municipalities and police service	Local Municipalities Local Police Service	Upfront	Community Engagement Manager
Community Policing Patrols Anti-poaching Patrols	Volunteers Schedule Costs	Communities Landowners Mine	Continuously	Safety and Security
Community Policing & Anti-poaching Reporting and Evaluation of effectiveness	Report Evaluation Meetings	Communities Landowners Mine	Quarterly for first year thereafter yearly	Community Engagement Manager Safety and Security
Anti-poaching contractor	Interview, evaluate and appoint in collaboration with stakeholders	Communities Landowners Mine Local Municipalities Local Police Service Outsourced specialists	Upfront thereafter Yearly re-evaluate	Community Engagement Manager Safety and Security

The following resources from MbeuYashu will be required for the implementation of this strategy:

No	Resource	Frequency
1	Human Resource Manager	Upfront, thereafter Quarterly
2	Community Engagement Management	Continuously
3	Safety and Security Personnel	Continuously

8 CONCLUSIONS AND RECOMMENDATIONS

The results of the study indicate that the recommended mitigation measures are expected to reduce the significance of negative impacts to acceptable levels, while positive impacts will on average be significantly enhanced to maximise benefits to surrounding communities.

The main conclusion arising from the assessment of cumulative impacts is that the planned Mopane Colliery and its ancillary infrastructure will add to the socio-economic impact of the mining operations in the area in a negative sense. Firstly the proposed development might stimulate an additional influx of people into the area, thereby adding to congestion and pressure on local infrastructure and services. Secondly the project may add to the mining operations' existing and future impact on the area's sense of place, this in turn may cause a decline in tourism and hunting related activities in the surrounding area. However, the project will also add to the *positive* impacts associated with these other developments (in terms of job creation, stimulating the local economy, etc.).

9 APPENDIX

Curiculum Vitae – Lizinda Dickson

Curiculum Vitae – Carien Joubert

Reg. No: 2002/022883/07

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CURRICULUM VITAE

Surname:	Dickson
First Name:	Lizinda
Birth date:	1975 – 11 - 11
Nationality:	South African
Gender:	Female

1 PROFESSION

Director Project Management

2 EDUCATION

Degrees	Main course of study
Masters in Environmental Management	Environmental Management
Honours in Environmental Management	Environmental Management & Analysis
Degree Geography	Environment and Geography

3 OTHER FORMAL TRAINING OR EDUCATION

Course	Main course of study
Microsoft Accredited Certificate	Microsoft Accredited Diploma: MS Access database management
ESRI accredited Certificate	ArcGIS
PlanetGIS Accredited Certificate	PlanetGIS
SETA Accredited Certificate	HIV/AIDS Peer educator

4 PROFESSIONAL SOCIETIES

Member of the International Association of Impact Assessments
Member of the International Resettlement Specialist Association

5 SIGNIFICANT PUBLICATIONS

van Koppen, B., Joubert, C. & Grobbelaar, L (2000). Gender and Irrigation in Mathabatha Land. South Africa Working Paper. Colombo, Sri Lanka: International Water Management Institute (IWMI)

6 EMPLOYMENT RECORD

Timeframe	Position	Company
August 1997 to date	Project Director	Naledi Development (Pty) Ltd
1996 to July 1997	Research Assistant	University of Pretoria

7 KEY PROJECTS

7.1 International Projects

Project Name	Country / Province	Role / Duties
Driekoppies Dam Development	Swaziland	Health Impact Assessment
Pemba Bay Protected Area Development	Mozambique	Set-up an action plan for the acquiring of investment funding

7.2 National Projects

Project Name	Client	Role / Duties
Greater Soutpansberg Project	Coal of Africa Limited	Public Participation and Socio-economic Impact Assessment
Makhado Colliery	Coal of Africa Limited	Stakeholder and Community Engagement Public Participation for NOMRA Socio-economic Impact Assessment Social and Labour Plan
Vele Colliery	Coal of Africa Limited	Public Participation for NOMRA Socio-economic Impact Assessment Social and Labour Plan
Goedgevonden Colliery	Xstrata / Glencore	Public Participation for NOMRA Socio-economic Impact Assessment
Sefateng Chrome mine	Metmar	Public Participation for NOMRA Socio-economic Impact Assessment
Ergosat Prospecting	Ergosat (Pty) Ltd	Negotiate access for prospecting drilling
Tivani Mine	Tivani (Pty) Ltd	Public Participation for NOMRA Socio-economic Impact Assessment
Mooiplaats Colliery	Coal of Africa Limited	Social and Labour Plan
OR Tambo Essential Oils	Impala Platinum	Implementing SLP community based essential oil project including training, project management and stakeholder management.
Vuna Colliery	Coal of Africa Limited	Social and Labour Plan Annual Report
Mohlabas Localtion	Tivani (Pty) Ltd	EIA/EMP Public Participation Social and Labour Plan
Vlakfontein Colliery	Optimum Coal	Public Participation for NOMRA Social and Labour Plan
Bengwenyama Minerals	Eerstegeluk	Social Development and Benefit plan for

Project Name	Client	Role / Duties
		Prospecting
Twickenham Community Hall	Anglo Platinum	Community interaction, Training
Twickenham Platinum Mine Development	Anglo Platinum (Pty) Ltd	Involuntary Resettlement Management, Environmental Impact Assessment, Social Development, Public Participation, Conflict Resolution Social and Labour Plan
Boitumelo Diamonds	Boitumelo Diamonds	Social and Labour Plan
SA Gemstones	SA Gemstones	Social and Labour Plan
Temporary Water Supply for the Sedibelo project	Barrick Gold	Environmental Impact Assessment and Public Involvement Programme
Drought Relief	Magalies Water Board	Environmental Impact Assessment and Public Involvement Programme
Mooihoek Burgersfort Bulk Pipeline development	Sekhukhune District Municipality	Environmental Impact Assessment, Public Involvement Programme and Traditional Authority land acquisition
Lebalelo Community Water Supply	BKS	Environmental Impact Assessment, Public Involvement Programme and Traditional Authority land acquisition
Taung Commercial Development	VILDEV (Pty) Ltd	Environmental Impact Assessment, Public Involvement Programme and Traditional Authority land acquisition
7 Sand mines in Western Cape	Tip Trans Resources (Pty) Ltd	Social and Labour Plans
Power supply, Mafikeng	ESKOM (Pty) Ltd	Environmental Impact Assessment and Public Involvement Programme
Limpopo Casino Development	Peermont Global Resort	Environmental Impact Assessment and Public Involvement Programme
Mbombela Sport Stadium	Mbombela Local Municipality	Socio-economic Impact Assessment and Public Involvement Programme
Taung Dam Protected Area development	NWPTB	Strategic Environmental Assessment, Environmental Impact assessment and Public Involvement Programme
Giyani Mining Development	Desert Charm Trading	Traditional Authority project consent, Environmental Impact Assessment and Management Plan
Burnstone Mine Development	Great Basin Gold	Environmental Impact Assessment, Management Plan and Public Involvement Programme Social and Labour Plan
Lothlokwane Power line	Wandma Consulting	Environmental Impact Assessment, Management Plan and Public Involvement

Project Name	Client	Role / Duties
		Programme
Lebowa Platinum Mine Expansion	Anglo Platinum (Pty) Ltd	Involuntary Resettlement Management, Environmental Impact Assessment, Social Development, Public Participation, Conflict Resolution
Annesley Andulusite Mine Development	SAMREC (Pty) Ltd	Public Involvement, Social & Environmental Assessment, Involuntary Resettlement Management
Rooipoort Dam Development	Department of Water Affairs and Forestry	Involuntary Resettlement Management, Environmental Impact Assessment, Social Development, Public Participation, Conflict Resolution, Feasibility Study
Flag Boshielo Dam Development	Department of Water Affairs and Forestry	Feasibility Study, Social Impact Assessment, Social Cost-benefit analysis, Public Participation Programme
Bengwenyama EMP	Bengwenyama Minerals	Environmental Impact Assessment
Harmony Gold	Matakoma Heritage Consultants	Environmental Impact Assessment: Public Participation
Mbombela Sport Stadium	Mbombela Local Municipality	Socio Economic Impact Assessment, Public Participation
Polokwane Stadium	Grant Thornton	Socio Economic Impact Assessment
Rural Water Supply Programme	Magalies Water Board	Management of the implementation of 20 water supply projects Establishment of cost recovery systems for service delivery
Crocodile-West/Marico Catchment Management Agency	Department of Water Affairs and Forestry	Establishment of the Catchment Management Agency (CMA) Establish the Governing Board Capacity Building, Public Participation Programmes
Letaba / Luvhuvhu Catchment Management Agency	Department of Water Affairs and Forestry	Initiation and Public Participation Programmes
Lebalelo Multi-sectoral Water User Association	Lebalelo WUA	Establishment, Public Involvement between 5 mining groups and 86 rural villages, operation of the WUA
Rapitsi Upgrading of Water Supply	Mvula Trust	Planning and implementation water supply systems to ensure sustainability
Seroka Upgrading of Water Supply	Mvula Trust	Planning and implementation water supply systems to ensure sustainability
School Awareness and Education towards Sanitation Project	Mvula Trust	Launching awareness campaigns in schools where Household Sanitation Project are currently running
Capricorn Toll Plaza	National Road Agency	Public participation, communication and negotiation for the implementation of the

Project Name	Client	Role / Duties
		project
Margate Landfil Site Rehabilitation	Margate Local Municipality	Part of the team that worked on the rehabilitation of Social and Environmental analysis
Mooiplaats Landfill Site	Mini-Waste	Social Impact Assessment for possible Landfill site
Olifants River In stream Flow Requirements	Department of Water Affairs and Forestry	Participatory information gathering to identify important uses of the Olifants River to be able to calculate the In stream Flow Requirements
Nondweni Weir Development	Department of Water Affairs and Forestry	Communication and Capacity Building with the communities in the vicinity of the Weir
Nondweni Pedestrian Bridge Development	Department of Water Affairs and Forestry	Environmental Impact Assessment and Public Involvement Programme
Lebowakgomo Water "Turnaround" Projects -	Department of Water Affairs and Forestry	The facilitation and implementation of a system that will prove successful in management a system
Affordable Rental Accommodation	Department of Housing	Data capturing, Report Writing, Administrative Support
Baobab Toll Plaza	National Road Agency	Public participation, communication and negotiation for the implementation of the project
Coronation Park Development	Lefika	Socio-economic Impact Assessment
Hostel regeneration	DGSD Consulting	Social Impact Assessment
Diamond Hill Toll Plaza	National Road Agency	Public participation, communication and negotiation for the implementation of the project

8 LANGUAGES

Language	Speak	Read	Write
Afrikaans	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

9 COMPUTER SKILLS

Software	Good working knowledge	Average working knowledge	Poor Working knowledge
Windows 8	Yes		
Microsoft Office 2003, 2007, 2010	Yes		
Microsoft Project 2003, 2007, 2010	Yes		
Corel Office		Yes	
Corel Draw		Yes	
ESRI ArcGIS (mapping)	Yes		
Planet GIS (mapping)	Yes		
Global Mapper (view shed analysis)	Yes		
Microsoft Access 2003, 2007, 2010	Yes		
SAS Statistical analysis (database)		Yes	
Adobe Acrobat Reader / Writer 6	Yes		
Visual Mind 9	Yes		

10 CONTACT DETAILS

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CURRICULUM VITAE

Surname:	Joubert
First Name:	Carien
Birth date:	02 June 1956
Nationality:	South African
Gender:	Female

1 PROFESSION

Chief Executive Officer of various businesses in the social development sciences and other fields

2 EDUCATION

Degrees	Main course of study
Doctor of Philosophy	Business Management: Qualitative & Quantitative Research Social and Behavioural Sciences
Master of Philosophy	Social and Behavioural Sciences
Degree in Philosophy	Social and Behavioural Sciences
Certificate	Participatory Community Development
Certificate	Food Microbiology
Diploma	Environmental & Public Health
Diploma (Cum Laude)	Occupational Safety

3 OTHER FORMAL TRAINING OR EDUCATION

Course	Main course of Study
ESRI accredited Certificate	ArcGIS
PlanetGIS Accredited Certificate	PlanetGIS 2.3

4 PROFESSIONAL SOCIETIES

- Award of Excellence, Social and Behavioural Science Project , 2001
- Award of Excellence, Business Management Project, 2011
- Certificate of Distinction, Preparatory Theses V, 2001
- Certificate of Distinction, Qualitative and Quantitative Research, 2011
- Membership in the Students' Council, 2001
- Member of the International Association of Impact Assessments
- Member, Institute of Waste Management
- Member, South African Health Association
- Member, Chamber of Commerce, Gauteng

5 SIGNIFICANT PUBLICATIONS / ACHIEVEMENTS

- Van Koppen, B., Joubert, C. & Grobbelaar, L (2000). Gender and Irrigation in Mathabatha Land. South Africa Working Paper. Colombo, Sri Lanka: International Water Management Institute (IWMI)
- Sub Task Team of Department of Health (1995) – Development of the National Environmental Service Policy
- SAAICE award (1997): Excellence for Community-based Engineering projects: Zoetvelden Water Supply project
- Task Team for Department of Water Affairs (1994) – National Sanitation Policy

6 EMPLOYMENT RECORD

Timeframe	Position	Company
October 1996 to date	Managing Director	Naledi Development (Pty) Ltd
1995 to Sept 1996	Associate, Institutional & Social Development	Consultburo Civil Engineers
1991 - 1995	Environmental Health Practitioner	Africon Civil Engineers
1985 to 1991	Senior Environmental Health Practitioner	Nelspruit Municipality
1983 - 1985	Environmental Health Practitioner	Department of National Health and Population Development
1981 - 1982	Product development	Creamline Diaries, Nelspruit
1978 to 1981	Environmental Health Practitioner	Department of National Health and Population Development

7 KEY PROJECTS

7.1 International Projects

Project Name	Country / Province	Role / Duties
Driekoppies Dam Development	Swaziland	Health Impact Assessment
Pemba Bay Protected Area Development	Mozambique	Set-up an action plan for the acquiring of investment funding
World Bank: Community-based Waste Disposal in Tamale, Takoradi & Kumasi	Ghana	Project Management, Community Participation, Government Liaison and Capacity Building
Bobonong capacity building for waste removal	Botswana	Capacity building for waste removal, health, sanitation & water services
Gabarone small contractor development	Botswana	Training and Capacity building of small contractors to partake in the refuse removal system

7.2 National (South Africa) Projects

Project Name	Client	Role / Duties
Municipal Service Delivery	City of Tshwane	Assessment of the technical and social capacity and

Project Name	Client	Role / Duties
Mechanisms		proposing mechanisms of service delivery and management
Land Acquisition to establish mining development	Anglo Platinum	Land Acquisition and negotiations to conform to Department of Land Affairs policies
Greater Soutpansberg Project	Coal of Africa	Formulate a strategy on the stakeholder management procedures, which will include methods statements, tools, and practical action plans
Makhado Colliery	Coal of Africa	Socio-economic Impact Assessment and Public Participation Programme Social Development Plans
Phabeni Agri-Village Development	Dovetail Development	Preparation, Implementation and Management of a Community Social Development Programme for the empowerment of land claimants (previously dispossessed of land in Apartheid South Africa
Vele Colliery	Coal of Africa	Socio-economic Impact Assessment and Public Participation Programme Social Development Plans
OR Tambo Essential Oils	Impala Platinum	Implementing community based essential oil project including training, project management and stakeholder management.
Development of Natural Gas fields in South Africa	Msix	Preparation of social development plans for the Empowerment of Previously Disadvantaged Businesses to enter the Gas production industry in South Africa
Mogale City Sport Academy and inner city refurbishment Mbombela 2010 Soccer Stadium feasibility study	Lefika Emerging Equity	SEIA study for the feasibility of a sport academy and refurbishment of the inner city of Krugersdorp. SEIA study for the feasibility of the Mbombela 2010 soccer stadium
Polokwane 2010 Soccer Stadium feasibility study	Grant Thornton	SEIA study for the feasibility of the Polokwane 2010 soccer stadium
Diamond Hill Toll Plaza	National Road Agency	Public participation, communication and negotiation for the implementation of a socio-economic investment assessment (SEIA) for the project
Lebowa Platinum Mine Expansion	Anglo Platinum (Pty) Ltd	Involuntary Resettlement Management, Environmental Impact Assessment, Social Development, Public Participation, Conflict Resolution
Lebalelo Multi-sectoral Water User Association	Lebalelo WUA	Establishment, Public Involvement between 5 mining groups and 86 rural villages, operation of the WUA
Affordable Rental Accommodation	Department of Housing	Data capturing, Report Writing, Administrative Support
Baobab Toll Plaza	National Road Agency	Public participation, communication and negotiation for the implementation of the project
Flag Boshielo Dam Development	Department of Water Affairs and Forestry	Feasibility Study, Social Impact Assessment, Social Cost-benefit analysis, Public Participation Programme

Project Name	Client	Role / Duties
Letsitele Water User Association	Department of Water Affairs and Forestry	Conversion from Irrigation Board to Water User Association
Letaba / Luvhuvhu Catchment Management Agency	Department of Water Affairs and Forestry	Initiation and Public Participation Programmes
Twickenham Platinum Mine Development	Anglo Platinum (Pty) Ltd	Involuntary Resettlement Management, Environmental Impact Assessment, Social Development, Public Participation, Conflict Resolution
Crocodile-West/Marico Catchment Management Agency	Department of Water Affairs and Forestry	Establishment of the Catchment Management Agency (CMA) Establish the Governing Board Capacity Building, Public Participation Programmes
Olifants River In stream Flow Requirements	Department of Water Affairs and Forestry	Participatory information gathering to identify important uses of the Olifants River to be able to calculate the In stream Flow Requirements
Nondweni Pedestrian Bridge Development	Department of Water Affairs and Forestry	Environmental Impact Assessment and Public Involvement Programme
Annesley Andulusite Mine Development	SAMREC (Pty) Ltd	Public Involvement, Social & Environmental Assessment, Involuntary Resettlement Management
Rooipoort Dam Development	Department of Water Affairs and Forestry	Involuntary Resettlement Management, Environmental Impact Assessment, Social Development, Public Participation, Conflict Resolution, Feasibility Study
Rural Water Supply Programme	Magalies Water Board	Management of the implementation of 20 water supply projects Establishment of cost recovery systems for service delivery
Nondweni Weir Development	Department of Water Affairs and Forestry	Communication and Capacity Building with the communities in the vicinity of the Weir
Capricorn Toll Plaza	National Road Agency	Public participation, communication and negotiation for the implementation of the project
Lebowakgomo Water "Turnaround" Projects -	Department of Water Affairs and Forestry	The facilitation and implementation of a system that will prove successful in management a system
Rapitsi Upgrading of Water Supply	Mvula Trust	Planning and implementation water supply systems to ensure sustainability
Seroka Upgrading of Water Supply	Mvula Trust	Planning and implementation water supply systems to ensure sustainability
Mooiplaats Landfill Site	Mini-Waste	Social Impact Assessment for possible Landfill site
School Awareness and Education towards Sanitation Project	Mvula Trust	Launching awareness campaigns in schools where Household Sanitation Project are currently running

Project Name	Client	Role / Duties
Margate Landfil Site Rehabilitation	Margate Local Municipality	Part of the team that worked on the rehabilitation of Social and Environmental analysis
Integrated Development Plans for Water Management	Mvula Trust	Development of the Institutional and Social Development requirements in Water Management for various Municipalities, previously known as Transitional Local Councils
Hlogotlou, Zoetvelden & Bethani Water Supply Projects	Department of Water Affairs & Forestry	Community-based training for water supply and cost recovery
Spitskop, Dindela & Vlakfontein Water Supply	Department of Water Affairs & Forestry	Community-based training for water supply and cost recovery
Letaba Water Resource Development	Department of Water Affairs & Forestry	Social Impact Assessment for 4 alternative dam sites R400 mil project Preparation for resettlement of affected parties and public participation throughout the project
Water Resource Management, Caledon River, Wepener	Department of Water Affairs & Forestry	Social Impact Assessment on the Wepener Town and the preparation for resettlement and public participation
Jericho, Kopela, Bethanie, Berseba, Modikwe Water Supply Projects	Department of Water Affairs & Forestry	Training for water systems - informal rural settlements
Gundjani water project	Department of Water Affairs & Forestry	Training & facilitation for water systems
Modderfontein -upgrading environmental health services, solid waste management, waste water purification	Local Municipality	Projects included coordination of informal traders' occupational health, upgrading of hostels and taxi-ranks, pollution monitoring and representing Modderfontein on Waste, Sewerage and Health Forums of East Rand Regional Services Council, NORKOK and other organisations.
Coordination of health & community development projects, implementation of refuse removal schemes, and community liaison for various informal settlements	Department of Health	Doornkop, Ivory Park, Lenasia Homeless Camp, Swaneville, Finetown 300 000 people: Coordination of health & community development projects, implementation of refuse removal schemes, community liaison etc. It included establishment of creches, food garden projects and training of traditional healers.
Waterval/Elim waste management system	Local Municipality	Community-based waste management system
Hartbeespoort, Bon Accord, Brakpan and Garstkloof Landfills- pollution monitoring	Kosmos City Council	Community-based waste management system
Botshabelo & Doornkop Food for Refuse	Local Municipality	Community-based waste management system, re food for refuse to alleviate poverty
Training of Transitional Local	Local Municipality	Institutional development, capacity building of

Project Name	Client	Role / Duties
Councils in Ndebele, Waterfall and Siyabuswa, Limpopo		infrastructure and water projects
Atteridgeville Clean-up campaign	Local Municipality	Community liaison, training, capacity building - Atteridgeville cleanup campaign and services
37 Mafefe Tribe communities - labour intensive electrical project	Department of Public Works	Community liaison, training, capacity building

8 LANGUAGES

Language	Speak	Read	Write
Afrikaans	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent
Swazi	Excellent	Good	Average Good
Zulu	Excellent	Good	Average
Pedi	Average	Poor	Poor
Tswana	Average	Poor	Poor
Xhosa	Average	Poor	Poor

9 COMPUTER SKILLS

Software	Good working knowledge	Average working knowledge	Working knowledge
Windows 8	Yes		
Microsoft Office 2010	Yes		
Microsoft Access 2010		Yes	
Microsoft Project 2010		Yes	
Corel Office		Yes	
Corel Draw			Yes
ESRI ArcGIS		Yes	
Planet GIS		Yes	
SAS Statistical analysis			Yes
Adobe Acrobat Reader / Writer 10	Yes		

10 CONTACT DETAILS

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