VARUNO MINING (PTY) LTD

FINAL SCOPING REPORT

FOR

DEVELOPMENT OF MINE ON REMAINDER AND PORTION 1 OF FARM ETTRICK 182

DMR Reference Number: NC 30/5/1/2/2/10081 MR

APRIL 2015

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APPROVAL

TITLE:	Final Scoping Report for the proposed Development of Mine on Remainder and Portion 1 of Farm Ettrick 182.
COMPILED BY:	Mawenje Consulting Africa (Pty) Ltd
PROJECT NAME:	Mining Right Application on Remainder and Portion 1 of Farm Ettrick 182 in terms of Section 22 of Mineral and Petroleum Resources Development Act (Act 28 of 2002).
REPORT NO:	01
REPORT STATUS:	Final
CLIENT:	Varuno Mining (Pty) Ltd
DATE:	April 2015

Approved for Mawenje Consulting Africa (Pty) Ltd

Gabriel Ngorima
Environmental Practitioner

Approved for Varuno Mining (Pty) Ltd

Masingita Makamu
Project Manager

EXECUTIVE SUMMARY

Varuno Mining (Pty) Ltd has applied for Mining Right in terms of Section 22 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002) (MPRDA) on Portion 1 and the remainder of the farm Ettrick 182, Herbert, Northern Cape province comprising 3783.0276 hectares. Department of Mineral Resources (DMR) notified Varuno Mining (Pty) Ltd to conduct Environmental Impact Assessment (EIA) and compile Environmental Management Plan (EMP) after acceptance of the mining right application for the decision making and approval of application.

The Open cast mining will be used for this alluvial diamond-mining project. All infrastructures are already in place due to the bulk sample which was taken. The production capacity installed for the bulk sampling will be used for the mining phase. The top soil of all excavations will be stockpiled on a demarcated area. The excavated material from the pits will be screened inside or close to the excavation area. Only +6mm -40mm material will be transported to the pan plants and all tailings will be taken back to the pit. Due to the ultralow grade of the deposit, material will be treated through the 16 feet rotary washing pans. Topsoil will be replaced once the ground has been leveled during rehabilitation phases.

The following procedure will be followed in terms of backfilling and rehabilitation: The gravel is screened into the open pit. The coarse gravel sifted at the grizzly screen, tailings from the pan and fine concentrate after the minerals have been recovered will be put back into open excavations. All slimes are pumped into existing slimes dams or mined block area or as allocated on the site according to specifications. During this process of backfilling, variation in the dumping sequence of materials will be followed to obtain better compaction and stability of the reclaimed gravel. This will ensure that the voids surrounding the coarse gravel will be filled up with finer sediments. Compaction will be achieved through heavy vehicles during the backfilling stage.

Varuno Mining (Pty) Ltd has appointed Mawenje Consulting Africa (Pty) Ltd (MCA), Independent Consultants, to undertake an Environmental Impact Assessment and Environmental Management Programme for the proposed project in order to investigate the potential environmental impacts of the proposed mining.

The EIA is being conducted in terms of the EIA Regulations made under the National Environmental Management Act (NEMA) (Act 107 of 1998) and published in Government Notices 984, promulgated on the 08th of December 2014. The relevant environmental authority for the proposed project is the Department of Mineral Resources, (DMR). The application was submitted in January 2015 and the DMR Reference Number for this authorisation process is **NC 30/5/1/2/2/10081 MR.** A water use license application has been lodged on the 23rd of April 2015 with Free State Department of Water Affairs.

The purpose of the Final Scoping Report (FSR) is to outline the Project, identify key environmental and social issues associated with the project, as well as to describe how the identified potential environmental and social benefits and impacts will be addressed during the Environmental Impact Assessment (EIA) Phase of the project as per NEMA EIA Regulation

in GN 982 of 2014. The DSR is intended to facilitate consultation and wider stakeholder engagement in the EIA phase.

Draft Scoping Report Distribution

All neighbours and people residing within the proposed development boundaries, and local government departments that have jurisdiction on the proposed development have been notified about the migration of prospecting right to mining right (mine development on Remainder and Portion 1 of farm Ettrick 182) by letters, site notice and local newspaper advertisement. The advert was placed in the Independent Advertisers Local Newspaper on the April 2015 wherein persons with interest or affected by the project were requested to register their names for further engagements.

Site notices were erected on the proposed site of development, DMR Regional, Siyancuma Local Municipality Offices and Public Domain. The hard copies of letters of invitation; Background Information Document (BID) and comment & registration letters were made available at the Local Municipality Offices for interested and affected parties. In terms of NEMA, Draft Scoping Report will be submitted to public and Interested and Affected Parties (I&APs) for review, comment & distribution to key stakeholders and authorization. The table below indicates the key stakeholders that have registered their interest on the proposed project:

Contact Person	Organization	Contact details
Mr Sunday Mabaso	Kimberley Department of Mineral Resources (Regional Manager)	P.O. Box 6098, Kimberley, 8300 (053) 807 1700 Sunday.mabaso@dmr.gov.za
Ms Lorraine Olifant	Siyancuma Local Municipality (Mayor)	P.O. Box 27, Douglas, 8730 (053) 298 1810 084 294 8352 Lorraine.olifant3879@gmail.com
Ryan Oliver	Department of Rural Development and Land Reform – Regional Land Claim Commission (Senior Registry Clerk)	(053) 807 5700 Ryan.oliver@drdlr.gov.za
Ms Makungo Esther	Department of water and Sanitation	053 830 8803 makungoe@dwa.gov.za

Dineo	Department of Environment and Nature Conservation – Impact Management	(053) 807 7467
Mr Nel Wynand Lodewikus	Landowner	P.O. Box 672, Douglas, 8730 073 704 7324
Johann Van de Westhuiszenr	Eskom	P.O. Box 606, Kimberley, 8301 053 830 5911
Phillip	SAHRA	P.O.Box 463, Capetown, 8000 021 462 4502
Sindisile Madyo	Pixley ka Seme District Municipality – LED Manager	053 631 0891 084 673 0997 Sindisile.madyo@yahoo.com
Pius Lerotholi	Department of Water and Sanitation	051 405 9000 083 236 4856

Key Findings on the Proposed Project Area

The proposed area of study where the project is to be undertaken was used for prospecting by Varuno Mining (Pty) Ltd. The prospecting right on the farm Ettrick 182 was granted and approved on the 21 September 2007. The right was valid for a two year period. The renewal application has been submitted while the applicant continues with further exploration. An amendment to the PWP was submitted in December 2007 as per instructions from the DMR at the time, but was not processed. The company continued prospecting according to the amended PWP submitted in 2007 as agreed to by the DMR at the time. The renewed prospecting right elapsed on the 19th of March 2015. A section 102 amendment was granted on 16 Febraury 2012 and subsequently issued on 01 August 2012

The proposed project area comprises of container offices, treatment plant, fuel storage and other support infrastructure. There are no permanent structures that have been developed and the site has been transformed due to prospecting. There are other physical infrastructures on site such as Eskom overhead 66kV electrical line and gravel roads within the study area.

Furthermore, there are existing homestead, garden of the land owner residing at the property. There is also existing homestead 60m from Orange River and grave at the entrance of the

proposed area. The geological studies indicate the potential of diamond along the Orange River and the area is suitable for mining activities. The specialist studies identified by the EAP and the competent authority to be conducted on the proposed development in order to assess and evaluate potential biophysical and socio-economic impacts include the following:

- Heritage Assessment;
- Hydrology;
- Geo-hydrological studies
- Ecological Study; and
- Water Use Licences.

Legislation and Guideline Documents

This project entails development of mine on remainder and portion 1 of farm Ettrick 182 which requires a review of applicable legislation, policy guidelines and administrative procedures. Environmental planning, consultation and assessment processes have to comply with all applicable state, provincial and local regulations. Such legislation largely embraces pollution prevention, resource use and conservation, and socio-cultural (heritage) protection. This section reviews legislation pertaining to the proposed activity.

The key legislation that provides the regulatory framework for environmental management in South Africa is:

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996);
- Mineral and Petroleum Resources Development Act (Act 28 of 2002);
- The National Environmental Management Act, 1998 (Act No. 107 of 1998); and
- The Environmental Impact Assessment Regulations of 2014.

Other relevant environmental legislation applicable to the proposed project are summarised below:

Name of the Act	Applicability	Administrative Authority
National Environmental Management: Protected Areas Act (Act No 57 of 2003)	To provide for the management, conservation of protected areas of ecologically viable (natural landscapes and seascapes) areas in South Africa.	Department of Environmental Affairs

National Environmental Management: Biodiversity Act (Act No 10 of 2004)	This Act allows for the protection of species and ecosystems that administration and management of protected areas in warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute The Act also covers alien and invasive species and genetically modified organisms that pose a threat to biodiversity.	Department of Environmental Affairs
Conservation of Agricultural Resources Act (Act No 43 of 1983)	To provide for the conservation of the natural agricultural resources of the Republic of South Africa by the preservation of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.	Department of Agriculture, Forestry and Fisheries
National Water Act (Act No 36 of 1998	Provides for the protection of water resources, the use of water resources, waste disposal or alteration of characteristics of watercourses (e.g. rivers, streams, wetlands, etc.) and pollution prevention. The Act also deals with the regulation of the use of water and the requirements for controlled activities, general authorisations, as well as licensing.	Department of Water Affairs
National Heritage Resources Act (Act No. 25 of 1999)	The Act aims to promote an integrated system for the identification, assessment and management of the heritage Resources in South Africa.	South African Heritage Resource Agency.

National Forests Act (Act No. 84 of 1998)	The Act aims to promote the control of veld, forest and mountain fires, as well as the protection of biota and ecosystems. It also controls the removal and/or damaging of indigenous forest species.	Department of Water Affairs
Environment Conservation Act (Act 73 of 1989)	Matters relating to conservation, waste management, as well as noise regulation.	Department of Environmental Affairs
National Environmental Management: Air Quality Act (Act 39 of 2004)	This Act aims to provide for the management of air quality in South Africa.	Department of Environmental Affairs
Fencing Act (Act No. 13 of 1963) (as amended by Act 108 of 1991)	The purpose of this Act is to consolidate the laws relating to fences and the fencing of farms and other holdings and matters incidental thereto.	South African National Roads Agency Limited
Hazardous Substance Act (Act 15 of 1993)	The purpose of this Act is to control and prohibit the disposal or dumping of substances (hazardous substance) that may cause the ill health in human	Department of Health
Occupational Health and Safety (Act 85 of 1993)	Provide the protection of person at work against hazards to healthy and safety arising from activities at work Places employers' responsibility on ensuring that the working conditions are favourable and employee to follow its employers' health and safety procedures and instructions.	Department of Labour
National Building Regulations and Building Standards Act (Act 103 of 1997)	To promote uniformity in the law relating to the erection of buildings in the areas of the jurisdiction of local authorities for the prescribing building standards and for the matters connected therewith	
National Veld and Forest fire (Act 101 of 1998)	The purpose of the Act is to prevent and combat veld, forest and mountain fire throughout the republic. A duty is placed on land owners and developers to predict, prevent, manage, extinguish and maintain fire breaks	Department of Rural development and Land Reform

The Project Team

The key members of the project team, as well as a team of specialists involved in the project are listed below:

Name	Role	Company
Gabriel Ngorima	Environmental Practitioner	Mawenje Consulting Africa (Pty) Ltd
Masingita Makamu	Project Manager	Varuno Mining (Pty) Ltd
Anold Ruzvidzo	Project Director and Technical Reviewer	Mawenje Consulting Africa (Pty) Ltd

Overview of the Proposed Project

Diamond industry is an international trade that involves a number of processes between mining and the extraction of the rough product through the polished diamond jewelry of the retail sector.

Varuno Mining (Pty) Ltd has applied for the mining right of diamond in terms of Section 22 of MPRDA. The Open cast mining will be used for this alluvial diamond-mining project. All infrastructures are already in place due to the bulk sample which was taken. The production capacity installed for the bulk sampling will be used for the mining phase.

The area under permit currently will be further mined in blocks of 50 m x 50 m blocks, one at a time. These blocks will take approximately 4 – 5 weeks to be mined.

All available topsoil from the position of the first excavation area will be removed and stored separately in a demarcated area. Topsoil will be stored in a manner that causes minimum run-off and erosion. The topsoil will be used for final rehabilitation. Once topsoil has been removed, the exposed overburden and diamondiferous gravel will be excavated. The gravel is screened in the pit and only the -32 mm material is transported to the pan plants. From there it will be fed to the 16 feet washing pans. The initial prospecting and bulk sampling/trial mining phase utilized 3 pans. However, 6 pans were installed initially and the additional 3 pans will be used as well during the mining phase. The concentrate is fed under closed pipe-conveyor to a waiting concentrate transporter where it is then taken to a central sorting facility.

The following procedure will be followed in terms of backfilling and rehabilitation: The gravel is screened into the open pit. The coarse gravel sifted at the grizzly screen, tailings from the pan and fine concentrate after the minerals have been recovered will be put back into open excavations. All slimes are pumped into existing slimes dams or mined block area or as allocated on the site according to specifications. During this process of backfilling, variation in the dumping sequence of materials will be followed to obtain better compaction and stability of the reclaimed gravel. This will ensure that the voids surrounding the coarse gravel will be filled up with finer sediments. Compaction will be achieved through heavy vehicles during the backfilling stage.

South Africa's rough diamonds are sold at tender houses in different provinces. Diamonds recovered from this operation will be on tender at CS Diamonds in Kimberley, the Capital of the Northern Cape estimated to be 12% of world production in 2007. The resource has been calculated at 25 million tonnes of gravels. At an average monthly production is 180,000tpm the LOM is 6 years. Please note that if more gravel is found the life of mine will extend beyond 6 years but if gravel proves uneconomical the life of mine will be reduced.

Basic Overview of the Mining Method

The top soil of all excavations will be stockpiled on a demarcated area. The excavated material from the pits will be screened inside or close to the excavation area. Only +6mm -40mm material will be transported to the pan plants and all tailings will be taken back to the pit. Due to the ultralow grade of the deposit, material will be treated through the 16 feet rotary washing pans. Topsoil will be replaced once the ground has been leveled during rehabilitation phases.

The activities associated with mining are listed activities in terms of NEMA EIA Regulation of 2014. In order for the Varuno to be compliant with the relevant environmental legal requirements of the country, development of mine will require appropriate environmental studies to be conducted before the development could be undertaken. EIA is being undertaken for the development of the activities as part of EIA process.

Purpose of Final Scoping Report

Purpose of this Report This report addresses the requirements for Scoping Phase and the Plan of Study (PoS) for the Environmental Authorisation Process as outlined in the NEMA regulations and the MPRDA regulations. The aim of this Final Scoping Report (DSR) is to:

- Provide information to the authorities as well as interested and affected parties (I&APs) on the proposed project;
- Provide information regarding alternatives that are being considered;
- Indicate how I&APs have been and are still being afforded the opportunity to contribute to the project, verify that the issues they raised to date have been listed in the DSR for consideration in the impact assessment phase of the environmental authorisation process;
- Describe the baseline receiving environment;
- Define the Terms of Reference (ToR) for specialist studies to be undertaken in the Impact Assessment Phase of the EIA; and
- Present the findings of Scoping Phase in a manner that facilitate input by the I&APs and decision making by relevant authority.

Project Location

The prospecting area is situated approximately 30 km upstream from Douglas on the right bank of the Orange River. It is situated on remainder and portion 1 of the Ettrick farm, Pixley ka Seme District Municipality and within Siyancuma Local Municipality in Northern Cape

Province. The area extent of the proposed project area is 3783.0276 Ha. The 21 digit Surveyor General code of each cadastral land parcel is attached below:

PARCEL_TYP	LSTATUS	WSTATUS	GEOM_AREA	TAG_X	TAG_Y	TAG
FP	S	C	19139782,500000	23,910259	-29,297310	1/182
FP	R	C	18614279,118244	23,922624	-29,322505	RE/182

Need of a Project

Pixley ka Seme District Municipality is facing local economic development challenge. Identified issues in the district include:

- Lack of diversification of the district economy
- Lack of investment in the region
- Lack of employment opportunities
- Lack of skills
- Lack of entrepreneurship
- Small number of SMME's active in the region
- Underutilization of the regions natural resources and economic opportunities
- Lack of water for irrigation farming

The developmental challenges in the district include a rising level of poverty, economic stagnation, unemployment and geographically imbalanced settlement structure. The district and local municipalities performed a detailed economic development

All communities are affected in terms of poverty (43.5%) and development deficit (with unemployment reaching approximately 32%). Upliftment of the local economy has therefore been a key area of focus for the district municipality along with its local municipalities.

Given the magnititude of poverty (43.5%) and development deficit in the district, the Pixley ka Seme District municipality has vowed to do everything in its power to create jobs. Sustainable mining activities will be conducted in the proposed area to assist in contributing to South Africa's sustainable development objectives through Poverty alleviation through income and employment generation; skills transfer and investment in the region.

The positive impact of the mining activities include:

- Employment through the life of mine;
- Skills transfer of employees through training which will be used after the end of life span of the mine; and
- Poverty Eradication through income.

A Summary of Key Environmental Issues and Potential Impacts

Environmental issue	Potential Impact	Recommendations for Specialist Studies
Socio-Economic Issues	The proposed development in financial gain especially to local people through job opportunities. Transmission of diseases especially sexually transmitted diseases (STD), HIV/AIDS among construction workers and local communities as a consequence of influx of construction workers in the study area. Noise generated from mining activities can create problems for communities residing in the site and closer to the site e.g community members might be unable to sleep properly, due to noise.	None
Land use	It is anticipated that the proposed project will result in loss of agricultural land and thereby reducing agricultural and food security in the area.	None
Terrestrial fauna and flora	The impacts of mining include: • Loss of specialized fauna and flora. • Loss of faunal habitat • Loss of ecological function and connectivity. • Loss of species of special conservation concern. Impact on the Present Ecological State (PES) and Ecological Importance & Sensitivity (EIS) of the wetland / riparian and aquatic systems; - Change in the conservation importance of the affected areas	Ecological Study recommended

Topography and soils	It is anticipated that some impacts on topography and soils could occur during mining operations. It is anticipated that the excavation will disrupt or modify physical landforms or topography. Vegetation clearing and disruption of soil surface is likely to increase soil erosion potential, as a result, mobilization of loose soils during rainy periods to the nearest water body will be increased by soil erosion, resulting in siltation and decreased water detention capacity and increased negative impact on the water quality as a result of poor water management practices Top Soil will be lost through excavation and during rainy seasons	None
Surface Water	It is anticipated that if not curbed, soil erosion may result in increased mobilization of loose soils during rainy periods to the nearest water body (Orange river), resulting in siltation and decreased water detention capacity.	Hydrological Study recommended
Heritage Resources	The proposed project could result in the loss of cultural heritage and archaeological sites/material as they are present in the study area.	Heritage Impact Assessment Recommended
Visual and aesthetic character of the area	The proposed project is anticipated to have negative visual impacts due to waste dumps and infrastructure installed in an area.	None

Conclusion

The Environmental Scoping Study has outlined the proposed project; identified key environmental and social issues associated with the proposed project, and described how the identified potential environmental and social benefits and impacts will be addressed during the Environmental Impact Assessment (EIA) Phase of the project.

The EIA Team is of the opinion that a thorough and due environmental process was followed in undertaking the Scoping study and associated Public Participation process. The analysis of key environmental issues identified during Scoping has shown that there are no fatal flaws impacts. The significant impacts identified have been highlighted and will be further investigated in the EIA Phase to determine their significance and mitigation measures to address those impacts will be recommended.

All comments received from I&APs are recorded and incorporated into the final Scoping Report prior submission to DMR. The Specialist studies and the compilation of the draft Environmental Impact Report will be initiated once feedback has been obtained from DMR

ABBREVIATIONS AND ACRONYMS

BID	Background Information Document
DMR	Department Mineral Resources
DEIAR	Draft Environmental Impact Assessment Report
DEMP	Draft Environmental Management Plan
DSR	Draft Scoping Report
DWS	Department of Water & Sanitation
EA	Environmental Authorisation
ECO	Environmental Control Officer (ECO)
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
GIS	Geographic Information Systems
IAIA	International Association for Impact Assessment
IDP	Integrated Development Plan
I&APS	Interested and Affected Parties
IEM	Integrated Environmental Management
IRR	Issues and Response Report
kV	kilovolts
MCA	Mawenje Consulting Africa
NEMA	National Environmental Management Act
NER	National Energy Regulators
NHRA	National Heritage Resources Act
SDF	Spatial Development Framework
PoS	Plan of Study
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency
S&EIR	Scoping and Environmental Impact Reporting (S&EIR)

SO_2	Sulfur Dioxide
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002)
STD	Sexual transmitted diseases
ToR	Terms of Reference
VAC	Visual Absorption Capacity

GLOSSARY OF TERMS

Access Road:	A road built exclusively for construction use.
Affected Environment:	The affected environment refers to those parts of the socio-economic and biophysical environment impacted on by the development.
Environment:	The surroundings within which humans exist and that are made up of (i) the land, water and atmosphere of the earth; (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being. This includes the economic, cultural, historical, and political circumstances, conditions and objects that affect the existence and development of an individual, organism or group.
Environmental Impact Assessment:	A planning and management tool for sustainable development, aimed at providing decision-makers with information on the likely consequences of their actions.
Environmental Impact:	The positive or negative effects on human well-being and/or on the environment.
Interested and affected parties:	Individuals, communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. These may include local communities, investors, business associations, trade unions, customers, consumers and environmental interest groups. The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Public Participation Process:	A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to the proposed development.
Social Impact Assessment:	Social Impact Assessment includes the process of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programmes, plans, projects) and any social change processes invoked by these interventions. Its primary purpose is to bring a more sustainable and equitable biophysical and human environment.
Stakeholders:	A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.
Stakeholder Engagement:	The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision making process.
Study Area:	The area that will be covered by the EIA process within which possible study corridors will be investigated.
Tracking:	Repeated vehicular movement on the same tracks to create access roads along the servitude.

PROPONENT

Varuno Mining (Pty) Ltd is the proposed project proponent who has commissioned the Environmental Impact Assessment Study for the proposed mining development. The contact details of the proponent are:

Proponent:	Varuno Mining (Pty) Ltd
Contact Person:	Masingita Makamu (Environmental and Permit Manager)
Physical Address:	Brakpan North, Brakpan
Postal Address:	P.O. Box 750, BENONI, 1500
Telephone:	(011) 748 8800

ENVIRONMENTAL ASSESSMENT PRACTITIONER

Consultant:	Mawenje Consulting Africa
Contact Person:	Gabriel Ngorima
Qualifications:	MSc Environmental Science (Wits)
Physical Address:	570 Fehrsen Street Brooklyn, Pretoria, 0181
Postal Address:	P.O.Box 1454, Lonehill, 2062
Telephone:	(012) 433 6472 or 076 901 4006
Email:	gabriel@mawenje.com

RELEVENT AUTHORITY

The above activity is a listed activity in terms of Regulation 984 of the EIA Regulations of December 2015, promulgated in terms of Chapter 5 of the National Environmental Management Act (NEMA), Act 107 of 1998, as amended, and therefore requires environmental authorisation before commencement of the activity. The relevant authority's contact details are:

Competent Authority:	Department of Mineral Resources (DMR)
Contact Person:	Mr Raisibe (Environmental Impact Officer)
Physical Address:	First Floor, 65 Phakamile Mabija Street, Permanent Building, Kimberley

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1 INTRODUCTION

1.1 Background

Diamond industry is an international trade that involves a number of processes between mining and the extraction of the rough product through the polished diamond jewelry of the retail sector. The Diamond business consists of mining, wholesale, dealing, manufacturing, polished wholesale, jewelry manufacturing and retail sector.

Varuno Mining (Pty) Ltd has applied for the mining right of diamond in terms of Section 22 of MPRDA. Open cast mining will be used for this alluvial diamond-mining project. All infrastructures are already in place due to the bulk sample which was taken. The production capacity installed for the bulk sampling will be used for the mining phase. The top soil of all excavations will be stockpiled on a demarcated area. The excavated material from the pits will be screened inside or close to the excavation area. Only +6mm -40mm material will be transported to the pan plants and all tailings will be taken back to the pit. Due to the ultralow grade of the deposit, material will be treated through the 16 feet rotary washing pans. Topsoil will be replaced once the ground has been leveled during rehabilitation phases.

The recovered diamonds will be sold at tender houses in different provinces. Diamonds recovered from this operation will be on tender at CS Diamonds in Kimberley, the Capital of the Northern Cape estimated to be 12% of world production in 2007.

The resource has been calculated at 25 million tonnes of gravels. At an average monthly production of 180,000tpm the LOM is 6 years. NB: If more gravel is found the life of mine will extend beyond 6 years but if gravel proves uneconomical the life of mine will be reduced.

Varuno Mining (Pty) Ltd has appointed Mawenje Consulting Africa (Pty) Ltd, as independent Consultants, to undertake an Environmental Impact Assessment and Environmental Management Programme for the proposed project in order to investigate the potential environmental impacts of the proposed mining. The activities associated with mining are listed activities in terms of NEMA EIA Regulation of 2014. In order for the Varuno to be compliant with the relevant environmental legal requirements of the country, development of mine will require appropriate environmental studies to be conducted before the development could be undertaken. EIA is being undertaken for the development of the activities as part of EIA process.

The EIA is being conducted in terms of the EIA Regulations made under the National Environmental Management Act (NEMA) (Act 107 of 1998) and published in Government Notices 984, promulgated on the 08th of December 2014. The Competent authority for the proposed project is the Department of Mineral Resources, (DMR) in Kimberly, Nothern Cape Province. The application was submitted in January 2015 and the DMR Reference Number for this authorisation process is **NC 30/5/1/2/2/10081 MR.** A water use license application has been lodged on the 23rd of April 2015 with Free State Department of Water Affairs.

The purpose of the Final Scoping Report (FSR) (this report) is to outline the Project, identify key environmental and social issues associated with the project, as well as to describe how the identified potential environmental and social benefits and impacts will be addressed during the Environmental Impact Assessment (EIA) Phase of the project as per NEMA EIA Regulation in GN 982 of 2014.

1.2 Purpose of the Environmental Impact Assessment (EIA) Study

An Environmental Impact Assessment (EIA) is a planning and management tool for sustainable development, aimed at providing decision-makers with enough information on the likely consequences of their actions. The EIA defines and assesses the potential physical, biological, socio-economic and health effects of the proposed project in a manner that allows for a logical and rational decision to be made about the proposed project. The main aim is to prevent or minimise potentially adverse impacts and enhance quality of the project. Furthermore, it will also assist the environmental authorities (DMR) as well as the proponent (Varuno Mining) in making decisions regarding the proposed development.

The work for the proposed project will be undertaken in terms of the EIA Regulations promulgated on the 18th June 2010 in terms of Chapter 5 of the National Environmental Management Act (NEMA), Act 107 of 1998, as amended, and therefore requires environmental authorisation before commencement of the activity. It is further understood that the environmental authorisation to be obtained need to follow a Scoping and Environmental Impact Reporting (S&EIR) process which involves the following:

- Submission of an Application for authorisation in terms of NEMA (Act 107 of 1998) and MPRDA which has been done in January 2015
- Compilation and submission of a Scoping Report and Plan of Study for EIA (to be submitted);
- More detailed EIA Report and Draft Environmental Management Plan (EMP).

The EIA will be conducted in three phases, namely:

- The Scoping Phase;
- The Impact Assessment Phase; and
- The Decision-Making Phase.

Scoping phase of this EIA process aims to identify and narrow down all the potential environmental impacts, so that the key issues are assessed during the EIA phase. This document will be submitted to DMR and public or other relevant stakeholders for 30 days review, comment & authorisation (as per Section 59a) of EIA Regulation of 2014.

1.3 Purpose of the Draft Scoping Report (DSR)

The purpose of the Draft Scoping Report (DSR) is to outline the project, identify key environmental and social issues associated with the project, as well as to describe how the identified potential environmental and social benefits and impacts will be addressed during the Environmental Impact Assessment (EIA) Phase of the project. This can be achieved through evaluation of the proposed project, involving the project proponent, specialists with experience and public participation with key stakeholders that includes both government authorities and interested and affected parties. The DSR is intended to facilitate consultation and wider stakeholder engagement in the EIA phase.

1.4 Structure of the DSR

The Draft Scoping Report (this report), contains the information as outlined in accordance with Section 28 of Government Notice R543. To meet these requirements, the Draft Scoping Report has included the following:

- the details and expertise of the EAP who prepared the report, as well as the project team members who are part of the project;
- a detailed description of the proposed project;
- a description of the location and the proposed route of the project;
- a description of the affected environment;
- all legislation and guidelines that have been considered in the preparation of the scoping report;
- a description of the feasible and reasonable alternatives that have been identified;
- a description of the public participation process;
- a summary of the findings of the specialist studies undertaken;
- a description of environmental issues and potential impacts;
- the scope of the specialists studies to be commissioned during the Impact Assessment phase of the project;
- A plan of study for EIA and a description of the assessment process that will be used in the Impact Assessment phase;
- Recommendation and Conclusion; and
- References.

2 LEGISLATION AND GUIDELINE DOCUMENTS

This project entails development of mine on remainder and portion 1 of farm Ettrick 182 which requires a review of applicable legislation, policy guidelines and administrative procedures. Environmental planning, consultation and assessment processes have to comply with all applicable state, provincial and local regulations. Such legislation largely embraces pollution prevention, resource use and conservation, and socio-cultural (heritage) protection. This section reviews legislation pertaining to the proposed activity.

The key legislation that provides the regulatory framework for environmental management in South Africa is:

- The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996);
- Mineral and Petroleum Resources Development Act (Act 28 of 2002);
- The National Environmental Management Act, 1998 (Act No. 107 of 1998); and
- The Environmental Impact Assessment Regulations of 2014.

Other relevant environmental legislation applicable to the proposed project are summarised below:

2.1 The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996)

The Constitution is the most important piece of legislation that provides a framework for environmental management in South Africa. There are various sections that have implications for environmental management, hence for sustainable development.

Section 24 of the Constitution states that:

"Everyone has the right-

- to an environment that is not harmful to their health or well-being; and
- to have the environment protected, for the benefit of present and future generations, thorough reasonable legislative and other measures that-
    - prevent pollution and ecological degradation;
    - promote conservation; and
    - secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development."

This section of the Constitution provides the framework for the formulation and interpretation of other legislation which control environmental management. Other

sections in the Constitution that are of importance are section 32 which deals with the right of access to information; section 33 which provides for just administrative action; section 38 which deals with the extended *locus standi* provisions.

2.2 National Environmental Management Act, 1998 (Act No. 107 of 1998) (as amended)

The National Environmental Management Act (Act 107 of 1998) generally known as "NEMA" is South Africa's overarching framework for environmental legislation. The NEMA Act sets out the principles of Integrated Environmental Management (IEM). NEMA aims to promote sustainable development, with wide-ranging implications for national, provincial, and local government. The following are the principles of the Act:

- All developments must be environmentally, economically and socially sustainable;
- Environmental management must place people and their needs at the forefront, and equitably serve their physical, developmental, psychological, cultural and social interest;
- Promote the participation of the interested and affected parties (I&APs) and that I&APs must be involved in decision making regarding environment governance; and
- Promote community well-being and empowerment through education and environmental awareness.

Section 2 of NEMA sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that may significantly affect the environment. Section 24 as amended, states that the activities that may significantly affect the environment and require authorisation or permission by law must be investigated and assessed prior to granting approval of such activities to be undertaken. Section 28 of the Act place a duty of care on all persons not to degrade and pollute the environment, and should any such pollution or degradation occur, remedial steps must be taken

2.3 The Environmental Impact Assessment Regulations of 2014

This study is being undertaken in compliance with the EIA Regulations published in Government Notice R982, R983, R984 promulgated under the National Environmental Management Act (NEMA), Act 107 of 1998, which were published on the 8th December 2015. In terms of the NEMA EIA Regulations, the purpose of these regulations is to identify activities that would require an Environmental Authorisation (EA) before commencement of that activity and identify competent authority that will make a decision on those activities. The proposed activity is listed as an activity 17, under R984, which may have an impact on the environment:

"*Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)".*

The activities that make up the proposed development are listed in **Table 2-1** below.

Table 2-1: The listed activities that are part of Mine Development

Number and Date of the relevant notice	Activity Number (in terms of the relevant notice)	Description of each listed activity
R983 of 08 December 2014 (Basic Assessment)	**9**	The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water- (i) with an internal diameter of 0,36 metres or more;
R983 of 08 December 2014 (Basic Assessment)	**14**	The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.
R983 of 08 December 2014 (Basic Assessment)	**21**	Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).
R984 of 08 December 2014 (EIA)	**15**	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

R984 of 08 December 2014 (EIA)	**17**	Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).
R984 of 08 December 2014 (EIA)	**19**	The removal and disposal of minerals contemplated in terms of section 20 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated 19. infrastructure, structures and earthworks, directly related to prospecting of a mineral resource, including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).
R984 of 08 December 2014 (EIA)	**21**	Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.

2.4 Other Applicable Environmental Legislation

Other relevant environmental legislation, which must be considered or which is applicable to the proposed project, are summarised in **Table 2-2** below.

Table 2-2: Other relevant Legislation applicable to the proposed project

Name of the Act	Applicability	Administrative Authority
National Environmental Management: Protected Areas Act (Act No 57 of 2003)	To provide for the management, conservation of protected areas of ecologically viable (natural landscapes and seascapes) areas in South Africa.	Department of Environmental Affairs
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	This Act allows for the protection of species and ecosystems that administration and management of protected areas in warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute The Act also covers alien and invasive species and genetically modified organisms that pose a threat to biodiversity.	Department of Environmental Affairs
Conservation of Agricultural Resources Act (Act No 43 of 1983)	To provide for the conservation of the natural agricultural resources of the Republic of South Africa by the preservation of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.	Department of Agriculture, Forestry and Fisheries

National Water Act (Act No 36 of 1998)	Provides for the protection of water resources, the use of water resources, waste disposal or alteration of characteristics of watercourses (e.g. rivers, streams, wetlands, etc.) and pollution prevention. The Act also deals with the regulation of the use of water and the requirements for controlled activities, general authorisations, as well as licensing.	Department of Water Affairs
National Heritage Resources Act (Act No. 25 of 1999)	The Act aims to promote an integrated system for the identification, assessment and management of the heritage Resources in South Africa.	South African Heritage Resource Agency.
National Forests Act (Act No. 84 of 1998)	The Act aims to promote the control of veld, forest and mountain fires, as well as the protection of biota and ecosystems. It also controls the removal and/or damaging of indigenous forest species.	Department of Water Affairs
Environment Conservation Act (Act 73 of 1989)	Matters relating to conservation, waste management, as well as noise regulation.	Department of Environmental Affairs
National Environmental Management: Air Quality Act (Act 39 of 2004)	This Act aims to provide for the management of air quality in South Africa.	Department of Environmental Affairs
Fencing Act (Act No. 13 of 1963) (as amended by Act 108 of 1991)	The purpose of this Act is to consolidate the laws relating to fences and the fencing of farms and other holdings and matters incidental thereto.	South African National Roads Agency Limited
Hazardous Substance Act (Act 15 of 1993)	The purpose of this Act is to control and prohibit the disposal or dumping of substances (hazardous substance) that may cause the ill health in human.	Department of Health

Occupational Health and Safety (Act 85 of 1993)	Provide the protection of person at work against hazards to healthy and safety arising from activities at work Places employers responsibility on ensuring that the working conditions are favourable and employee to follow its employers health and safety procedures and instructions.	Department of labour
National Building Regulations and Building Standards Act (Act 103 of 1997)	To promote uniformity in the law relating to the erection of buildings in the areas of the jurisdiction of local authorities for the prescribing building standards and for the matters connected therewith.	
National Veld and Forest fire (Act 101 of 1998)	The purpose of the Act is to prevent and combat veld, forest and mountain fire throughout the republic. A duty is placed on land owners and developers to predict, prevent, manage, extinguish and maintain fire breaks.	Department of Rural development and Land Reform
Local Government Management Act (Act 32 of 2000)	Ensure that the municipal officials must exercise its power and use the resources in the best interest of local municipality. And that the municipal services are provided to local community in an environmental sustainable manner. Act calls for EIA to be done.	
National Building Regulations and Building Standards Act (Act 103 of 1997)	Local Authority approve plans to erect buildings and set standards for earthwork or construction being done.	

It is important to note that some of the acts may have changed or are in the process of change. However, once construction starts, current legislation and all amendments will apply.

2.5 Guideline Documents

The following guideline documents have been considered during the process:

- DMR guideline for Consultation with Communities and Interested and Affected Parties;

- Guideline for The Compilation of a Scoping Report with due Regard to Consultation with Communities and Interested and Affected Parties;
- Companion to the NEMA EIA Regulation of 2010, Integrated Environmental Management Guideline Series 5,2010, Department of Environmental Affairs (DEA), Pretoria;
- Public Participation in the EIA Process, Integrated Environmental Management Guideline Series 7, 2010, Department of Environmental Affairs (DEA), Pretoria;
- Guideline 5: Assessment of alternatives and Impacts in support of EIA Regulations Integrated Environmental Management Guideline Series, 2006, Integrated Environmental Management Guideline Series, DEA, Pretoria;

The general approach to this study has been guided by principle of Integrated Environmental Management (IEM). This principle encourages the decision-making and environmental considerations are fully integrated.

3 PROJECT TEAM

The key members of the project team, as well as a team of specialists involved in the project are listed below:

Name	Role	Company
Gabriel Ngorima	Environmental Practitioner	Mawenje Consulting (Pty) Ltd
Masingita Makamu	Project Manager	Varuno Mining (Pty) Ltd
Anold Ruzvidzo	Project Director and Technical Reviewer	Mawenje Consulting Africa (Pty) Ltd

4 DESCRIPTION OF THE PROPOSED PROJECT

4.1 Need Desirability of the Proposed Project

Pixley ka Seme District Municipality is facing local economic development challenge. Identified issues in the district include:

- Lack of diversification of the district economy
- Lack of investment in the region
- Lack of employment opportunities
- Lack of skills
- Lack of entrepreneurship
- Small number of SMME's active in the region
- Underutilization of the regions natural resources and economic opportunities
- Lack of water for irrigation farming.

The developmental challenges in the district include a rising level of poverty, economic stagnation, unemployment and geographically imbalanced settlement structure. The district and local municipalities performed a detailed economic development

All communities are affected in terms of poverty (43.5%) and development deficit (with unemployment reaching approximately 32%. Upliftment of the local economy has therefore been a key area of focus for the district municipality along with its local municipalities.

Given the magnititude of poverty (43.5%) and development deficit in the district, the Pixley ka Seme District municipality has vowed to do everything in its power to create jobs. Sustainable mining activities will be conducted in the proposed area to assist in contributing to South Africa's sustainable development objectives through Poverty alleviation through income and employment generation; skills transfer and investment in the region.

The positive impact of the mining activities include

- Employment through the life of mine;
- Skills transfer of employees through training which will be used after the end of life span of the mine; and
- Poverty Eradication through income.

According to the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) Guideline on Need and Desirability (2010)1, the essential aim of investigating the need and desirability of a proposed project revolves around determining: (a) suitability, i.e. is the activity proposed in the right location for the suggested land-use/activity; and, (b) timing, i.e. is it the right time to develop a given activity? DEA&DP2 describes need and desirability as components of the "wise use of land", where need refers to 'time', and desirability to 'place'. In other words, need and desirability answer the question as to whether the activity is being proposed at the right time and in the right place. DEA&DP's Guideline on Need and Desirability (2010) provides guidance with a series in questions, listed in Box 2.1. The need and desirability of the proposed solar energy facility is determined in the table below through responses provided to each of the 14 questions (Table 2.2). In each instance the question is stated first, followed by an answer and a justification for the answer.

Box 2.1: Need and desirability of the proposed project (Source: DEA&DP, 2010)

- Is the proposed activity needed?
- Is the proposed development in line with the projects and programmes identified as priorities within the IDP?
- Should there be development here at this time?
- Is the proposed activity and its associated land use a local priority?
- Are the necessary services with adequate capacity currently available, or must additional capacity be created to cater for the development?
- Is this development provided for in the infrastructure planning of the municipality and, if not, what are the implications in respect of priority and placement of services and opportunity costs?
- Is the proposed activity part of a national programme that addresses an issue of national concern or importance?

Is the proposed activity desirable?

- Is the proposed activity the best practicable environmental option for this site?
- Would authorisation of this activity compromise the integrity of the existing municipal IDP and SDF as agreed to by the relevant authorities?
- Would authorisation of this activity compromise the integrity of the existing environmental management priorities for the area? If so, is its justification that it promotes sustainability?
- Are there factors at this place that favour the land use associated with the proposed activity?
- How will the activity or its associated land use impact on sensitive natural and cultural areas?
- How will the proposed activity impact on people's health and wellbeing, e.g., noise, odours, visual character and sense of place, etc?
- Will the proposed activity or its associated land use result in unacceptable opportunity costs?
- Will the proposed land use result in unacceptable cumulative impacts?

Table 2.2: DEA&DP list of 14 questions to determine need and desirability including answers relevant to the proposed mining project.

1. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority? (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)

   Answer: Yes Justification: The Pixley Ka Seme District Municipality Integrated Development Plan (2011/16) identifies local economic development challenge which include lack of skills, lack of investment, underutilization of natural resources and unemployment which need to be addressed. The IDP (2011/16) emphasizes need to mitigate the "high levels of poverty and unemployment". To respond on these specific issues, it can be noted that the proposed mining would help to address above mentioned issues while also creating temporary in the area.

2. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?

   Answer: Yes Justification: Development of the proposed activity would not result in an expansion of the closest town (Douglas). Development of a mining source appears to address the need for greater poverty reduction, unemployment and underutilization of natural resources stated in the Pixley Ka Seme District IDP (2011/16, page 13) as well as addressing skills development and upliftment of economy in the province.

3. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate)

   Answer: Yes Justification: as stated in IDP the area need utilization of natural resources to uplift the economy and the project falls within the priority in the district municipality.

4. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?

6. Is this project part of a national programme to address an issue of national concern or importance?

   Answer: Yes Justification: The National Development Plan.

7. Is the development the best practicable environmental option for this land/site?

   Answer: Yes, to be confirmed Justification: It would be premature to decide on the environmental practicability of the proposed development prior to the completion of the impact assessment phase of this EIA process. The proposed project would, however, be more robust in terms of economic viability and profitability

8. Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities?

   Answer: No Justification: The proposed activity appears to support the Pixley Ka Seme District IDP (2011/16, page 10) through improving of economy through income, poverty eradication and underutilisation of resources. The IDP also identifies the creation of employment and economic opportunities as a major need (Pixley Ka Seme District IDP 201/16, page 10). The proposed solar project will assist in local job creation during life of a mine approved by the Department of Mineral Resources (DMR). It should however be noted that employment during mining temporary and limited employment will be offered. This slight improvement in economic activity /job creation accordingly also addresses an expressed need in the IDP.

9. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?

   Answer: No Justification: The proposed development will be implemented as per Mine Work Plan and Approved Environmental management Programme (EMP) that will be approved by DMR. Requirement and condition of protecting the environment will be taken into consideration for preservation of future generation. Performance Assessment will be conducted to ensure that all activities in the mine comply with EMP.

12. How will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc)?

    Answer: Potentially Positive Justification: During mining noise and dust emissions might occur due to the transport of material and workers to/from the site, and excavations, however this issue will be not have a potential impact since it is located far away from area of residential (e.g. Douglas town). In addition, the location of the proposed activity wil cause noise and dust emissions impacts to land owner residing at the farm. The positive impact include creation of jobs, regional economic development, that would outweigh the issues previously mentioned.

13. Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?

    Answer: No Justification: Mining involve massive process to obtain the mineral searching for. It will not be possible to get a mineral and sell it to consumers without a license.

14. Will the proposed land use result in unacceptable cumulative impacts?

    Answer: No Justification: The potential cumulative impact connected to the proposed activity can only be objectively determined at the end of the EIA process. At present, it is prudent to view the potential cumulative impact as uncertain.

4.2 Project Location

The mining area is situated approximately 30 km upstream from Douglas on the right bank of the Orange River. It is situated on remainder and portion 1 of the Ettrick farm, Pixley ka Seme District Municipality. Siyancuma Local Municipality, Northern Cape Province. The area extent

of the proposed project is 3783.0276 Ha. The 21 digit Surveyor General code of each cadastral land parcel is attached below:

PARCEL_TYP	LSTATUS	WSTATUS	GEOM_AREA	TAG_X	TAG_Y	TAG
FP	S	C	19139782,500000	23,910259	-29,297310	1/182
FP	R	C	18614279,118244	23,922624	-29,322505	RE/182

The figure 4.1 below shows images of certain portions of the proposed project area. **Figure 4.1** below depicts the locality of the area earmarked for development.

Figure 4-1: The proposed development site in relation to developed land

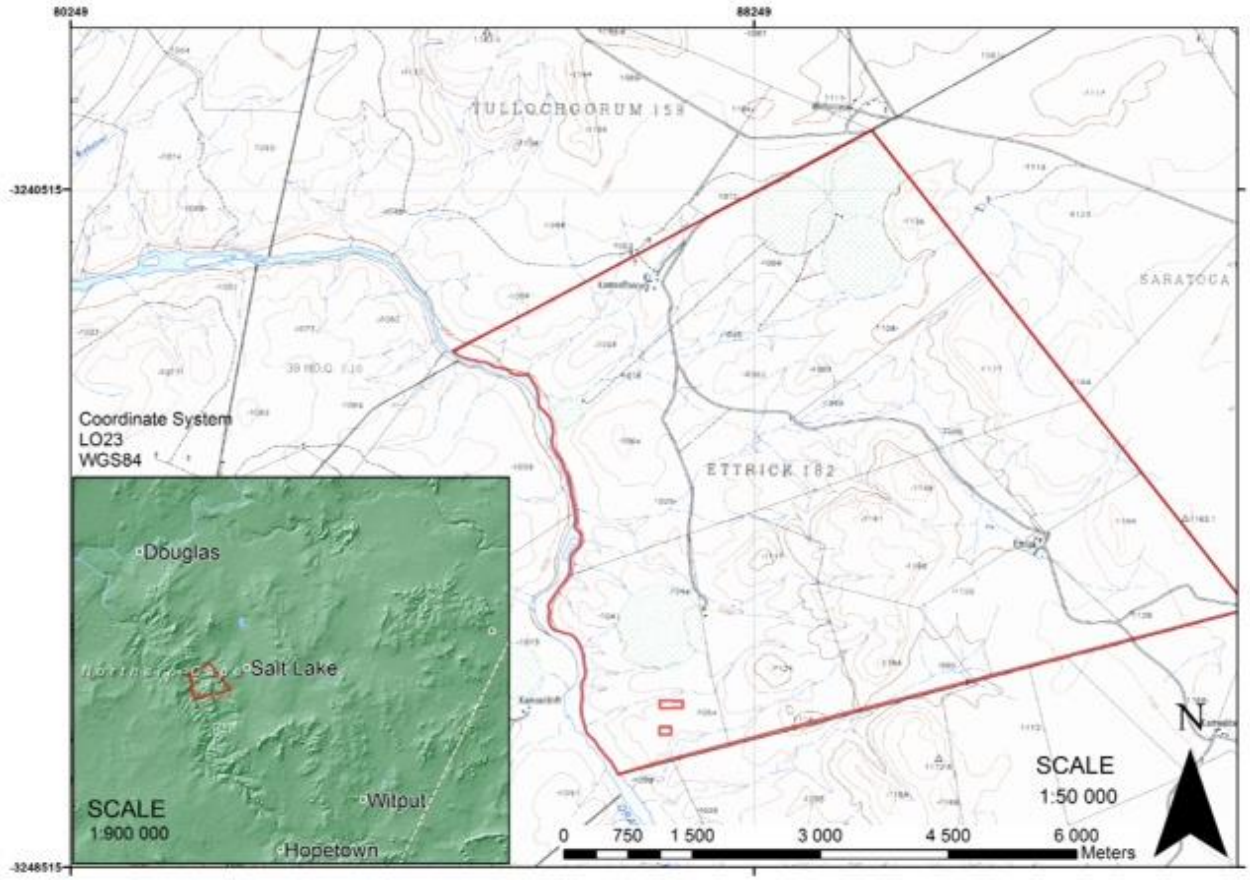

Figure 4-2: Locality Map illustrating the Proposed Project Area

4.3 Basic description of the proposed project

The Open cast mining will be used for this alluvial diamond-mining project. All infrastructures are already in place due to the bulk sample which was taken. The production capacity installed for the bulk sampling will be used for the mining phase. The top soil of all excavations will be stockpiled on a demarcated area. The excavated material from the pits will be screened inside or close to the excavation area. Only +6mm -40mm material will be transported to the pan plants and all tailings will be taken back to the pit. Due to the ultralow grade of the deposit, material will be treated through the 16 feet rotary washing pans. Topsoil will be replaced once the ground has been leveled during rehabilitation phases.

The recovered diamonds will be sold at tender houses in different provinces. Diamonds recovered from this operation will be on tender at CS Diamonds in Kimberley, the Capital of the Northern Cape estimated to be 12% of world production in 2007.

The resource has been calculated at 25 million tonnes of gravels. At an average monthly production is 180,000tpm the LOM is 6 years. Please note that if more gravel is found the life of mine will extend beyond 6 years but if gravel proves uneconomical the life of mine will be reduced.

4.4 Environmental Management Plan

The EMP will outline all activities that have to be undertaken, where they will take place, the responsible persons, all possible environmental or social impacts, mitigation measures, rehabilitation plans, monitoring methods, the frequency of monitoring and performance indicators. This is a legally binding document, which is used to ensure that Varuno adheres to all conditions of the Environmental Authorisation.

4.5 Project Timeframes

Mining activities is anticipated to take approximately 6 monthly depending on mineral reserve and economic viability of the minerals. This EIA is being managed with a target date for the issuing of an Environmental Authorisation by DMR. The time frames and the process will be determined by DMR as per the NEMA 2014 regulations.

5 DESCRIPTION OF THE RECEIVING ENVIRONMENT

5.1 Introduction

This section of the Final Scoping Report provides a description of the environment that may be affected by the proposed mining project near Douglas in the Northern Cape Province. This information is provided in order to assist the reader in identifying potential issues and impacts of the proposed project on the environment. Aspects of the biophysical, social and economic environment that could be directly or indirectly affected by, or could have an effect on, the proposed development are described in this chapter. The information presented here has been sourced primarily from inputs from the specialist team for this Environmental Impact Assessment (EIA) as well as from existing information available literature reviewed

Please note: This chapter intends to provide an overview of the affected environment and does not represent a detailed environmental study. Detailed studies focussed on significant environmental aspects of this project will be provided during the impact assessment phase.

5.2 Regional Setting

The remainder and portion 1 of Farm Ettrick 182 covers 3783.0276 Ha of an area. The prospecting area is situated approximately 30 km upstream from Douglas on the right bank of the Orange River in Siyancuma local municipality in the Northern Cape Province.

The R 357 is the only major road in the area. It connects Douglas with Prieska and passes in close proximity to the proposed development site. There are no recognised scenic viewpoints in the area; however, there are game farms in close proximity to the proposed site.

The farm is situated less than 1 km of the Orange River. The main economic sectors of the region of Douglas are based on farming, particularly wheat, lucerne, potatoes and cotton. Because of the Orange River and the Vaal River flowing through the area there is a lot of intensive crop farming activities on the banks of these rivers. Regional groundwater resources are scarce, limiting agricultural and general development potential. Hence, the irrigation-fed agriculture along the Orange River to the south of the site is a critical element of this arid, low productivity region. There are no formal national protected ecosystem areas (NPEAs) within 20 km of the proposed site.

5.3 Climatic Conditions

The climate of the Northern Cape is semi-arid with a late summer-autumn rainfall regime. The average rainfall of the area, varies between 150 and 200 millimetres (mm) per year. Climatic conditions are extreme: very cold in winter and extremely hot in summer. The average summer temperatures range between 18 and 36 Celsius degrees (°C), with extremes of up to 43^0C. Winter temperatures are moderate and range between 3 and 20 °C.

Douglas normally receives about 211 mm of rain per year, with most rainfall occurring mainly during autumn. The lowest rainfall (3 mm) occurs in July and the highest (75 mm) in February. The monthly distribution of maximum and minimum temperatures shows that the hottest period occurs in December-January with maximum temperatures reaching 33-34 °C. The coldest period occurs in June and July with minimum temperature reaching 1 °C.

The average solar-radiation levels in South Africa range between 4.5 and 6.5 kilowatts / square metres (m2) (kWh/ m2) in one day and about 220 watts/ square metres (W/ m2) of annual 24-hour global average solar radiation. In the country, measured solar irradiation is the highest in the Northern Cape, North West Province and the Free State.

5.4 Landscape Character

The terrain morphology of the portion of the farm proposed for mining activities is characterised by plains and low relief features. However, there are sono valleys and high terraces in the surrounding area which were evidently caused erosion over years mostly toward the river. The town of Douglas is located on a relief line transition from 980 to 1000 metres (m) above sea level. The altitude range across the study area is 1000 m to 1010 m amsl. (Schultze, 2007)

The slope form is straight1 and the relief varies within a range of 0 to 30 m. The drainage density is low (range of 0-2 km/km2) and a stream frequency of 0-6 streams/km2. The site of the proposed solar energy facility is located in fairly flat-lying, semi-arid terrain at approx. 1000 m above mean sea level (amsl). Approximately 80 % of the area of interest comprises slopes that are less than 5 %. The terrain morphology is characterised by closed hills with moderate relief and concave/straight slope form.

The confluence of the Vaal and Orange rivers lies about 400 km to the northwest. The town of Douglas is located on the banks of the Vaal River, 12 km east of the confluence of the Orange and the Vaal River at Bucklands, and about 15 km west from the confluence of the Vaal and Riet Rivers at Broadwaters. The banks of the Vaal and Orange rivers in this area are intensively cultivated for crops using irrigation from the rivers. However, the predominant land use is stock or game farming (WRC, 2006)

5.5 Geology

The oldest and predominant rock type occurring on all farms concerned are the Archaean (2.7 Ga) lithologies of the Ventersdorp Supergroup. The oldest of the Ventersdorp lithologies, a small exposure of which outcrops on the farm Hereford 202, includes the silicified volcaniclastic rocks of the Hereford Formation, which is believed to be the local equivalent of the Makwassie Formation. Unconformably overlying this unit are the conglomerates, sandstones and subordinate dark shales of the Bothaville Formation. The Allanridge Formation, the youngest of the Ventersdorp Supergroup rocks, outcrops over a large portion of the review area, particularly along the Orange River, and comprises largely dark-green, amygdaloidal andesite.

Intrusive into this suite of largely andesitic lavas and subordinate, interbedded sedimentary rocks are granite intrusives of the Keimoes suite. This acidic, intrusive phase is related to the Namaqualand Metamorphic province.

Group glacial deposits of the Karoo Supergroup. These comprise largely tillites, diamictites and varved shales. Outcrops of these lower Karoo lithologies are very limited in extent and are largely preserved along the western margin of the Orange River, with small outcrops exposed in adjacent pre-Karoo valleys to the east of the Orange River . These glacial lithologies are conformably overlain by the shales of the Prince Albert and Whitehill Formations of the Ecca Group. Similarly to the Dwyka Group, these exposures are very limited in extent, with the only exposure in this area occurring on the farm Eskdale 204 .

Overlying most of the farms are Quaternary deposits of alluvium, windblown sand and calcrete (Figure 1). Deposits of calcrete are characteristic of this comparatively flat region, which has a low rainfall pattern. It is present as nodules in the superficial cover of soil and sand, or as a more or less continuous layer just below, which may crop out here and there. Much of the sand cover is dominated by windblown Recent red Hutton Sands.

Surface drainage in the area is affected by the Orange River, which occurs on the western margin of all farms concerned. This has resulted in the formation of alluvium and sheetwash deposits, which are largely restricted to areas immediately adjacent to the river. Although no gravel deposits are visible at surface, the Orange River is often associated with alluvial gravel deposits that occur either immediately adjacent to the river or as higher level terrace deposits. These gravels, if present, may be covered by alluvium and windblown sand.

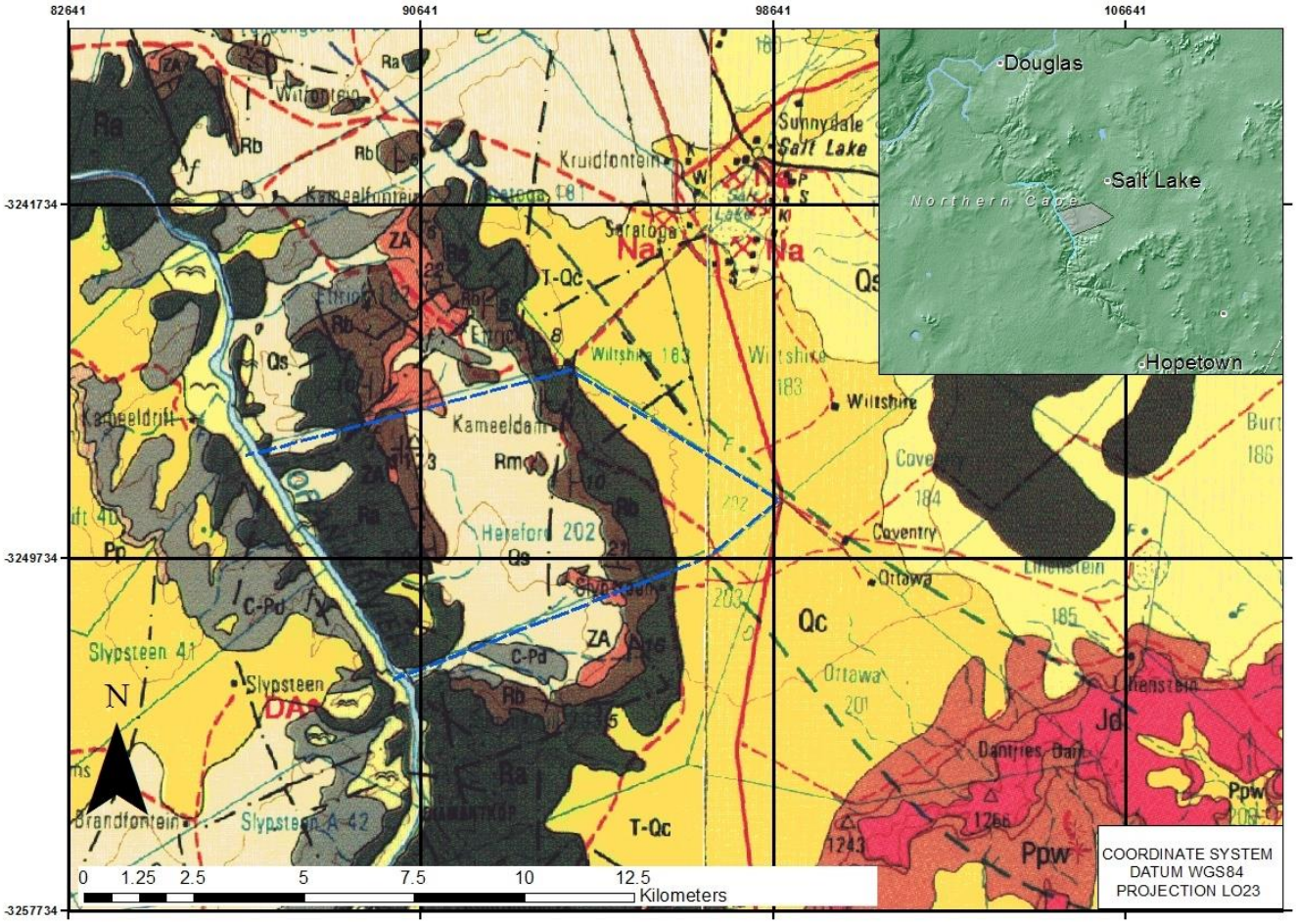

Figure 5-1: Geology Map for the Proposed Area

5.5.1 Soil Conditions

The top of the rocky and hills areas are caved sandstone with a shallow covering of loose sandy soil. The flatter slopes and undulating territory have a deeper layer of loose sandy top soil underlain either by decomposed shales and mudstones or by sandstones. The shales decompose to clays. In many instances, especially where underground drainage is bad, the clay is decomposed to montmorillirite clay mineral. These clay are notoriously known for their expansive properties which cause cracking in buildings. The sandstones usually decompose to a dense clayey sand. In low laying areas transported soils (usually clay) are found. Because of bad drainage the clays are expansive. Many cracked buildings are noted in all the urban areas. The erosion gullies are probably caused, to a certain extent, by overgrazing. The so-called escort soils which are clays with an excess of sodium cations have dispersive properties. The dispersive properties usually lead to rapid erosion in rain water (i.e. water with a low dissolved solids content). The latter clay also require special engineering treatment when they are to be used in down walls or roads embankments. The study area composes of variable composition of soil due to variation in rock types. Soil type available at the proposed study area include calcrete and aeolin sands. The depth of top soil is 600 mm.

5.6 Vegetation

5.6.1 Flora

South African environmentalists identify six biomes on land in South Africa. A biome can, in general terms, be described as a broad ecological unit, representing a large natural area with a relatively uniform plant and animal life, closely determined by environmental conditions and, especially, climate.

The six biomes of South Africa are:

- Grassveld Biome;
- Succulent Karoo Biome;
- Forest Biome;
- Savannah Biome; and
- Fynbos Biome.

The proposed project area falls within Nama-Karoo biome where plant growth consist of thorn trees, shrubs with occasional sheppard trees. Grassland are sparsely distributed.

Shrubs present include Black thorn (*Acacia mellifera subs, detines*) and Rhino thorn (*Ziziphus micrionates*)

Trees include Umbrella Trees (*Acacia tortrills subs, heteracactha);* Sweethorn *(Acacia Karoo)*

Grasses include weather grass *(eragrostis nindensis);* Long awned Grass *((aristida stipata);* Bottlebrush *(Enneapogon scoparium);* Nine-Awed Grass *(Enneapogon Cenchroides) and* Annual Tree Awn Grass *(Aristida Adscensionis)*

5.6.2 Fauna

No mammal species were identified on site and no evidence of any mammals were observed during the site visit. However, that is not to say that none are present on site. No reptile species were observed during the site visit, however, there are game animals that are being seen time to time. Animals that are observed from time to time include Kudus; springboks; Jackal; watgatboom.

5.6.3 Rivers

The Orange River rises as two main river systems, the Orange River and its associated tributaries, and the Vaal River and its associated tributaries. The Orange River originates in the Lesotho Highlands at elevations of about 3 300m above sea level. In Lesotho the Orange River is known as the Senqu River and only when it enters the RSA is it referred to as the Orange River. The river flows west for approximately 2 200km to the Atlantic Ocean and for the last 600km forms the border between the RSA and Namibia. The Vaal River

catchment varies in elevation from about 3 200m above sea level at the South Eastern boundary in the Drakensberg to approximately 970m above sea level at its confluence with the Orange River close to Douglas. Downstream of Douglas the Orange River is joined by the Ongers/Brak River and the Hartbees River from the south and the Molopo and Fish Rivers from the North. The Molopo and its tributary the Nossob form the boundary between the RSA and Botswana while the Fish River drains a large portion of the Orange River catchment within Namibia (H Mare, August 2007). The proposed study area falls within the Upper Orange area (upstream of Douglas in the Northern Cape) lies predominantly within the Free State, but also occupies portions of the Eastern and Northern Cape provinces. The Caledon River, which forms the border between South Africa and Lesotho over most of its length, is the largest tributary to the Orange River within the Upper.

The Orange River catchment (excluding the Vaal River catchment) is divided into seven main sub-catchments are Senqu, Upper Orange, Caledon, Lower Orange RSA, Lower Orange Namibia, Lower Orange Botswana and Fish river Namibia .

Figure 5-2: Map showing Rivers in Northern Cape

5.7 Topography

The topography of Pixley Ka Seme region is related to the geology and relief with an altitude that ranges between 1000 to 1800m above sea level. Landforms associated with plains, hills and lowlands cover approximately 80% of the region. Plains have slopes of less

than 5° (8%) and result in a gradual change of climatic conditions. Ridges have slopes of more than 5° and more variable climatic conditions.

The ridges and escarpment have significant potential in terms of aesthetic appeal as well as habitat for rare and endangered plants and animals. These features occur mainly in the north, and on the borders of the region.

The general drainage pattern of the region is from the southeast to the north and northwest. The Orange and Vaal rivers are the primary drainage channels in the area to which many other streams and rivers link to. (IDP 2011-2016). From the foothills of the Maluti Mountains at the border with Lesotho, the topography opens into wide plains in the west, with characteristic flat opened hills (ewisa 2007)

5.8 Hydrology

Nearly 70% of the total surface runoff, which would flow through the area under natural conditions, originates from Lesotho territory, and just more than 30% from within the South African portion of the area. There are no natural lakes or wetlands of note in the area, a consequence of both topography and climate. Water is transferred through the Orange/Fish tunnel from the Gariep Dam to the Fish River.

5.8.1 Water Quality:

The Environmental Health Officers of the District Municipality conduct water sampling on a monthly basis at the raw water supply intake and at the discharge from the waste stabilization ponds. From the monthly samples and DWS reports, the following sources have been identified as the most likely contributors to poor water quality:

- Sewerage pollution;
- Intensive agricultural use of fertilizers and pesticides;
- Industrial wastes;
- Mining and soil erosion;
- Lack of education;
- Waste disposal sites in urban areas and
- Littering.

Typical pollutants from the agricultural sector include high salt loads, pesticides and nitrates and phosphates from fertilizers. All these contribute to algal growth and lead to eutrophication of water courses and heightened risk of human health of ingested. There was abundant evidence of eutrophication in the two main rivers. The two main rivers (Orange and Vaal rivers) are degraded and polluted.

5.9 Geohydrology

Groundwater is widely used in the area to supply small towns (approximately 35 towns) either as the sole source of supply or in combination with surface water resources.

Unfortunately the development and management of groundwater is seldom done properly. Municipalities tend to restrict their search for water to municipal boundaries. Un-scientific borehole siting often results in dry holes being drilled. Borehole siting needs to be based on proper geo-technical work to limit the drilling of unsuccessful boreholes and to improve the yield from the boreholes. Boreholes and abstraction from boreholes are seldom managed properly and therefore the failure of boreholes in the Southern Free State is a common experience. Proper management and monitoring of groundwater sources by municipalities and other users are of vital importance.

5.10 Landuse

The area is used both for agriculture and mining

5.10.1 Agriculture

Wheat, maize and lucerne are very important crops but the possibility exists that there can be a shift to alternative high value crops. Peanuts, Grapes, Dry Beans, Soya Beans, Potatoes, Olives, Pop Corn, Pecan Nuts, Pistachio Nuts, and Cotton form a large part of the agricultural activities in the region and numerous products are cultivated along the rivers.

Livestock farming (sheep, cattle and some game) is the main economic activity, much of which is still naturally vegetated.Small stock farming is one of the attributes of the region and therefore the region has a strong history of wool farming and this can benefit farm diversification into the more lucrative ventures, like cashmere production. The sheep farming produces mutton and wool. (Pixley ka Seme IDP)

Large areas under irrigation for the growing of grain and fodder crops have been developed along the main rivers, mostly downstream of irrigation dams. There is no afforestation in the water management area.

5.10.2 Mining

Pixley ka Seme district has a few modest mineral wealth. The most important mines which made a significant contribution to the economy were copper, asbestos and diamond (Glen Ellen and Koegas for asbestos, copperton for copper and Franshek for diamond). Recent information indicates that uranium and gas deposits are also found in the region.

The copper mine was closed down because of its uneconomical use, asbestos mine closed because of its harmful disease to human kind and the diamond mine is about to close because of the small deposits it produces as required by the Department of Mineral Resources.

There are some other semi precious stones found in some municipal areas like the tiger's eye and chalcedonies for jewellery production. In addition there are also a few scale low yielding diamonds site at Schmidsdrift in Siyancuma municipal area which could make marginal contribution to the economy and export earnings. (Pixley ka Seme IDP, 2011-2016). Mining activities have significantly declined and currently mainly relate to salt works and small diamond mining operations (DWAF, 2003a).

5.10.3 Tourism

Tourism in the district is strengthened by several government owned projects, such as the Rolfontein outdoor Wilderness school, and the re-development of several resorts and facilities (the Wildebeeest Kuilrock Art centre, the Douglas holiday resort and Die bos resort in Prieska. The Orange and Vaal rivers are major tourist attraction and the district also boosts two game reserves.

5.11 Socio-Economic Factors

5.11.1 Demographic Profile

Pixley Ka Seme District lies in the south-east of the Northern Cape Province and shares its borders with three other provinces, namely, the Free State province to the east, the Eastern Cape to the south-east and Western Cape to the south –west. It is one of the five Districts in the Northern Cape Province and it is the second largest covering a total surface of 96,340 square kilometres(Pixley ka Seme District Profile). It is comprised of eight local municipalities: Ubuntu, Umsobomvu, Emthanjeni, Kareeberg, Renosterberg, Thembelihle, Siyathemba and Siyancuma. Its main town is De Aar.

The District has a total population of 192, 157. The population density is 2/Km2 which is less than the provincial density of 2.27 per square kilometre. According to the 2010/11 District Health Barometer the population breakdown is as follows:

- 0-4 years: 19 005 (9.9% of total population)
- 5-14 years: 42 392 (22.1% of total population)
- 15-39 years: 74 965 (39.08% of total population)
- 40-80+ years: 55 421(28.89% of total population).

5.11.2 Economy

Of the 21 885 economically active (employed or unemployed but looking for work) people in the municipality, 36,1% are unemployed. Of the 11 354 economically active youth (15–34 years) in the area, 45,1% are unemployed (Census 2011).

5.11.3 Economic Profile

The Northern Cape Province has the third highest per capita income of all nine Provinces; however, income distribution is extremely skewed, with a high percentage of the population living in extreme poverty. The 2001 census indicates that 55.5 % of the economically active population in the Northern Cape were employed while 26.1 % could not find employment. Approximately 45 % of the potential labour force of the province is younger than 30 years. Unemployment is the highest among the youth, with unemployment rates of 54 % and 47% in the 15-19 and 20-24 year-old age groups respectively.

Due to the high percentage of people living below the minimum living level (approximately 60 %) and the unemployment rate of 24.53 %, a priority in the Pixley ka Seme DM would be to create income generating employment opportunities for the unemployed. Approximately 60% of the Pixley ka Seme DM inhabitants have a monthly household income of between R 0 – R 800. According to the Environomics (2008) the high incomes (above R 50 000 per month) were then also limited to less than 200 people.

The Human Development Index (HDI) represents the life expectancy, adult literacy, GDP per capita (adjusted for real income) and education attainment of a specific area. The HDI of the Northern Cape as a whole is 0.58 which is substantially below the South African figure of 0.72. The areas of lowest Human Development Index include the South Eastern region (Noupoort and Richmond) and the hinterland of Kimberley (Griekwastad, Campbell and Douglas) – for these areas the HDI varies between 0.47 to 0.51. Over the past 8 years there has been little to no variance in the HDI figures, indicating no increase or decrease in the overall standard of living. In contrast, the Kimberley and Springbok areas have the highest HDI of 0.63 to 0.62 respectively, primarily due to the broader economic opportunities and access to services such as infrastructure, schools, and health facilities.

The key strengths of Pixley ka Seme's economy are community services, agriculture, transport and tourism. The small towns functions primarily as agricultural service centres, and the main economic activities are located in the main urban areas of De Aar, Colesberg, Victoria-West and Carnarvon. According to the DGDS, opportunities identified for growth and development include manufacturing, agro-processing, mining and semi-precious stones, etc. The key economic activity of the Pixley ka Seme DM is agriculture. Mining is also an important economic activity but its contribution to GDPR is less than agriculture. There is a decline in the contribution made by manufacturing to the GDPR of the district and it contributes 7.6 % to GVA of the district.

The Pixley ka Seme DM Growth and Development Strategy (2006-2016) set up a list of priorities of the district in order to develop the opportunities existing within the various sectors. For the mining and mineral beneficiation sectors, the district shows evidence of the availability diamonds, semi-precious stones (Tigers eye and jasper) and uranium. The various meat farming possibilities can also give rise to manufacturing opportunities in wool factories, tannery and canned meat and other meat processing. The manufacturing of trailers and tankers require lots of open land for the storage of inputs as well as the manufactured products. Pixley ka Seme DM has abundance of open land and underutilized rail infrastructure. This will support the revitalisation of the rail infrastructure and create jobs.

5.11.4 Socio Economic

Levels of unemployment (20.4%) as recorded in the Community survey (Census) 2007 seem unrealistically low compared to current conditions. However, it is also clear that the Census and many other references do not use the same definition of unemployment and it is difficult to compile trends.

According to the figure the district has a higher unemployment (20.4%) and a lower employment rate (36.1%) than the province. A larger portion (37.8%) of the population is not economically active, although they are of a PEA age (between 15 – 65 years). These persons are either not able to work or chose not to work.

Figure 5-3: Employment Profile, absolute totals 2007

Employment Status	Northen Cape Province	Pixley ka Seme
Employed	225031	37353
Unemployed	121745	21467
Economically Active	277398	43036
Total	624194	101865

Source: PKS DM IDP 2010/11

5.12 Cultural and Heritage Resources

According to Cultural Resources Management Impact Assessment Report conducted by McGregory Museum CRM, 4.2 ha of an area assessed comprises of Early Middle Stone Age. Identified interfacts were predominately produced on flakes and blades. Cores, formal tools (such as scraps, points, convegent flakes, denticulates & notched scrapers) and debitage were identified. It was also identified that only small portion of the 4,2 ha of an area assessed will be destroyed.

South African Heritage Resources agency (SAHRA) confirm existence of Middle Stone Age resources on 4.2 ha of portion of farm Ettrick 182 of the previous Mining Right Application with Reference No: **NC 30/5/1/3/2/1963 MP** and SAHRA comments with REF No: 9/2/038/0001.

See Attached Cultural Resource Management Impact Assessment Report and SAHRA comment.

6 DESCRIPTION OF KEY ENVIRONMENTAL ISSUES AND POTENTIAL IMPACTS

NEME EIA Regulation R982 describes the content of Scoping Report states that the Scoping Report must, amongst other things contain a description of environmental issues and potential impacts, including cumulative impacts that have been identified. The proposed project and associated infrastructure would result in number of potential impacts on physical, biophysical and socio-economic environment associated with proposed development site, as well as any possible alternatives considered.

Diamond mine strives to strike a balance between its economic, social and environmental responsibilities, while making a positive and lasting contribution to the environment and communities in which it operates. Using modern mining methods and a more clinical approach to sustainability of mining to recover diamond and therefore minimise the impact on the environment. It must be recognised that mineral extraction by its very nature of mining does have the potential to impact the environment unless carefully managed

The anticipated impacts will be both positive and negative and can be addressed as direct or indirect impacts. Positive impacts are those impacts anticipated to bring improvement in the environment and standard of living on the receiving environment, negative impacts are those impacts anticipated to harm the environment and reduce the living standards of the human population on the receiving environment. Direct impacts are changes that can be directly attributed to the proposed action, such as changes in employment and expenditure patterns from the construction of the proposed action, while indirect impacts may occur based on the direct impacts from the proposed action (IAIA Conference, 2003).

The Key Environmental issues specific to the proposed development:

- Potential social impacts;
- Potential impacts on current land-uses;
- Potential impacts on topography and soils;
- Potential impacts on surface water;
- Potential impacts on the visual and aesthetic character of the area;
- Potential impacts on heritage and cultural resources; and
- Potential impacts on terrestrial flora and fauna.

The potential impacts (both negative and positive) related to the above-mentioned key environmental issues are discussed below. The potential impacts are however not assessed in terms of their significance. The assessment of the significance of the identified impacts will be done during the Impact Assessment Phase, once the specific specialist studies have been conducted and completed.

Furthermore, potential cumulative impacts will need to be investigated (i.e. identified, considered and assessed in greater detail) for each of the above-mentioned key environmental issues, albeit during the detailed Impact Assessment Phase.

6.1 Description of Potential Social Impacts

The proposed mining development will result in potential changes in social dynamics resulting from the presence of temporary workers; financial gain especially to land owners through compensation; and also as a result of short term jobs opportunities to be provided by the project.

Noise generated by construction activities can create problems for landowner residing on the site and other landowners residing closer proximity.

6.1.1 Impact on the population

6.1.1.1 Changes in Social Dynamics

With the high levels of unemployment within the study area, it is thus anticipated that people from the surrounding areas will move into the area in hope of finding employment during the construction of the proposed project. New residential area will attract people to the area to live together as community and new business opportunities will attract people to come to the area to engage in business activities.

The influx of temporary workers and job seekers could also lead to negative economic and socio-cultural impacts within the study area. The presence of temporary workers into the area might lead to an increased demand on local services that have been reported to be under strain already for the municipal area.

Immigration of temporary workers and job seekers is anticipated to raise additional issues, including the following:

- Changes in social dynamics;
- Conflicts with existing community members;
- Safety and security issues (crime);
- Put pressure on existing infrastructure (water supply, sanitation) and result in competition of resources;
- Sanitation related activities lead to impacts on the rivers due to shortage, lack of toilets and may lead into community & workers relieving themselves in the bushes which could in turn result in pollution of water in rivers, smell (odour);
- Potential change in value of land properties in the neighbourhood; and

- Transmission of diseases more especially Sexual Transmitted Diseases (STDs), and HIV/AIDS among construction workers and local communities and other social problem resulting from influx of workers on the study area.

6.1.2 Economic impacts

Construction workers require specific knowledge and skill which the local residents may not have. As a consequence, local people are likely only going to secure employment that does not require those specific knowledge and skills. It is important to note that these informal jobs will be temporary and that fewer jobs can be created than anticipated. However, it is also possible that certain community members could benefit from the project.

6.2 Impact on the physical environment

It is anticipated that the proposed development could cause permanent damage to the receiving biophysical environment. There will be need to clear the vegetation, the removal of vegetation will result in loss of habitat for small mammals and reptiles that potentially live in the study area.

The digging of trenches and excavation of topsoil can also potentially lead to erosion of soil from the excavations. The eroded soil may end up in the stream due to water or wind erosion quality of water in the receiving stream (Orange River).

6.3 Impact on land use

The proposed project is anticipated to have negative impacts on the existing agricultural land or agricultural activities within the study area. The land will be permanently changed from agricultural land, and thereby changing the potential of land for potential agricultural opportunities. It is anticipated that the tourism point of view die to game animals will be negatively affected, the effect will be due to dumps. Furthermore, the visual and aesthetic value will be impacted.

6.4 Impact on topography and soils

Excavation of topsoil during mining will have a potential impacts on topography and soils alteration of topography may be due to stockpiling of soil, building materials, debris, cutting of platforms and waste materials on the development site. The soil can be contaminated due to spillage or leakages of oil or other contaminants associated with vehicles and could result in fire or explosion which may have a significant impact on both physical and biophysical environment. It is anticipated that mining will result in loss of soil by wind, water especially on areas with steep slopes.

The significant impacts for the proposed project would however be mainly related to the disruption of surface soils and vegetation. Vegetation clearing and disruption of soil surface is likely to increase soil erosion potential, and as a result mobilization of loose soils during rainy

periods to the nearest water body will be increased by soil erosion, resulting in siltation and decreased water detention capacity. This impact can be reduced by minimising clearance of vegetative cover and only clear smaller areas as they get developed, and also to re-establish vegetation on disturbed areas immediately after mining.

6.5 Impact on Surface Water

Potential impacts on surface water resulting from the proposed project are anticipated, if not curbed, soil erosion may result in increased mobilization of loose soils during rainy periods to the nearest water body, resulting in siltation and decreased water detention capacity. The anticipated impacts would be of low significance since significant alteration of catchment hydrology and river hydrology is expected. Furthermore, impacts of the project are anticipated to be localized and restricted at close proximity (100 m) from the Orange River.

6.6 Impact on Air Quality

Diamond mining will use hydrocarbons (petrol and diesel) as source of energy. A by-product of both electricity and hydrocarbon energy is the release of carbon emissions1 into the air, such as CO2 (a naturally occurring gas). Carbon emissions are considered to be a major factor in global warming and climate change. These are released into the air and cause a range of environmental problems, from climate change to smog, which threaten our health and our environment. Reducing energy consumption helps to protect the planet.

6.7 Impacts on Heritage Resources

In terms of the potential impact on heritage resources, the concept of sense of place has to be considered. Sense of place can be explained as a component of cultural identity, the way one connects to an area or feel toward a certain place (e.g. ritual places, religious or cultural places). Past experiences heavily influence relationship between people and place, as places were sensed as a combination of setting, landscape, ritual, and routine and in the context of other places (Xu, 1995). Sense of place helps to protect the region's cultural heritage and promote cultural awareness and strong kinship ties.

In Certain area in proposed mining area, Early Middle Age site has been established. It is anticipated that the identified area will be affected by mining activities. The servitude of Impacts will be determined by specialist.

7 PROJECT ALTRNATIVES

7.1 Introduction

Alternatives are different means of meeting the general purpose and need of a proposed activity. The identification, description, evaluation and comparison of alternatives are important for ensuring that the objective and the need of the projects are met (DEAT Guideline 4, 2006). In terms of the NEMA EIA Regulations, feasible alternatives should be

considered during the Environmental Scoping Study and should be evaluated in terms of biophysical, social, technical and economic factors. Identified and considered various alternatives can include the following:

- No-go option;
- Location alternative;
- Land use alternative; and
- Design alternative.

7.2 The 'No Project' Option

The 'No Project' Option The historic land use is one of agriculture, where land use is for grazing and cultivation in the form of wheat maize production. The no-mining option will result in the continuation of such land use. Although it could probably remain economically viable, the continuation of agriculture will not provide the level of economic growth to the area that mining would offer, such as increased employment of residents in the area, greater economic input into the area allowing better development of the towns and surrounding areas, and greater socio-economic stability. After mine closure and rehabilitation of mined areas, the land capability may return to grazing, allowing the continuance of certain agricultural practices. The mine will also promote sustainable local economic development, to give communities the skills required to remain economically viable and successful after mine closure. If the project were not to proceed, the additional economic activity, skills development and available jobs would not be created, the mineral (diamond) will remain unutilised, the current land uses and economic activities would continue as at present, with little or no economic growth developing in the region. There are currently no foreseeable significant environmental impacts that will outweigh the economic benefits that would be generated by the project, however this will be further assessed during the environmental impact assessment.

7.3 Other Alternatives

Design alternatives will be assessed during the EIA phase of the project and in particular on energy and resource use requirements of the mining and processing operations.

8 ENVIRONMENTAL AUTHORISATION PROCESSS

8.1 Study Approach

The Environmental Impact Assessment (EIA) for the proposed project is being conducted in terms of the EIA Regulations promulgated on the 8th December 2015 in terms of Chapter 5 of the National Environmental Management Act (NEMA), Act 107 of 1998. The EIA is a planning and management tool for sustainable development, aimed at providing decision-makers with information on the likely consequences of their actions. The EIA will define and assess the potential physical, biological, socio-economic and health effects of the proposed project in a manner that allows for a logical and rational decision to be made about the proposed project.

It will therefore assist the environmental authorities as well as the proponent in making decisions regarding the proposed project.

The methodology or approach adopted by the project team, for the proposed project in addressing its objectives while complying with applicable environmental laws is outlined below. The Environmental Authorisation process followed for the project comprises the following main activities:

- Authority Consultation;
- Submission of Application to the Authorities;
- Scoping Study;
- Compilation of the Draft Scoping Report and Plan of the Study for the EIA;
- Submission of the Draft Scoping Report and Plan of Study for EIA to the Authorities;
- Conducting Specialist Studies;
- Compilation of the Draft Environmental Impact Assessment Report (DEIAR) and Draft Environmental Management Plan (DEMP);
- Submission of the DEIAR and DEMP to the Authorities;
- Environmental Authorisation from the Authorities (i.e. approval or declining the proposed project);
- Public Participation Process (Project Announcement, Consultation with Stakeholders at a Draft Scoping Phase, Draft EIAR Phase and informing Stakeholders about the Environmental Authorisation issued by the relevant Authority).

8.2 Scoping Phase

The EIA for the proposed project is currently in the Scoping Phase. This is the phase during which biophysical and socio-economic issues related to the project are identified so that they can be considered in greater details in the Specialist Studies that will be done during the Environmental Impact Phase. The Scoping phase is guided by the legislative requirements described in terms of the NEMA EIA regulations, with an emphasis on consultation with I&APs.

The Scoping Phase aims to achieve the following objectives:

- To identify all the potential key environmental issues and impacts that would result from the proposed activity;
- To identify any significant issues and impacts that require further consideration during the EIA;
- Identify and select feasible alternatives for further assessment;

- To provide for a reasonable opportunity for I&APs to be involved in the study;
- To outline the Terms of Reference for specialist studies identified to address key issues and impacts;
- To provide the basis for determining terms of reference for the assessment procedure.

8.2.1 Completion of the Application Form for Environmental Authorisation

Application for Mining Right in terms of Section 22 of MPRDA together with an application for environmental authorisation in terms of the regulations 982 of 8th December 2014 promulgated in terms of National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended was lodged in January 2015. The application was lodged in an appropriately completed form that was submitted to the Kimberley Department of Mineral Resources. The project reference number that was created by DMR to be used for any communication with respect to the proposed project is: **NC 30/5/1/2/2/ 10081 MR**

8.2.2 Site Visit

Two (2) one-day site visits were conducted shortly after the LODGING OF APPLICATIONS. The site visits were attended by Mawenje Consulting and Varuno Mining Technical Services. The site visits were important so as to provide supplementary information on the description of the project. The site visits also assisted in providing information leading to the general and site-specific environmental description of the proposed project area. During these site visits preliminary investigation of the environment was done. This involved both the biophysical and the socio-economic environments.

The site visit did not only provide information leading to the general and site-specific environmental description of the proposed project area but also assisted the project team with the identification of additional key stakeholders, and also the determination of the levels of involvement required for the project within the project area, the determination of reasonable advertising for the project, etc. To that effect, the meeting also saw erection of the site adverts that were posted at different strategic locations of the proposed project site.

8.2.3 Draft Scoping Report and Plan of Study for EIA

8.2.3.1 Draft Scoping Report

The Draft Scoping Report (DSR), is the major deliverable for the Scoping Phase. The purpose for the DSR is to outline the Project, identify key environmental and social issues associated with the project, identify all applicable legislation and guidelines, as well as to describe how the identified potential environmental and social benefits and impacts will be addressed during the Environmental Impact Assessment (EIA) Phase of the project. The DSR is intended to facilitate consultation and wider stakeholder engagement in the EIA phase. During this point the need and justification of the proposed project will be outlined, input from specialists will be sought to assist with the above mentioned assignment.

The draft Scoping Report was compiled and distributed to all relevant stakeholders which involves government departments, competent authority, registered interested and affected parties.

8.2.3.2 Plan of Study for EIA

Information contained in the plan of study for EIA will include description of the tasks to be performed as part of the EIA process, i.e. the Plan of Study for EIA will form part of the DSR. The Scoping report and plan of study for EIA project will be prepared NEMA EIA Regulations. The Plan of Study for EIA sets out the proposed approach to the EIA phase of the project. The purpose of the Plan of Study for EIA is to describe the tasks that will be undertaken as part of the EIA phase, i.e. Terms of Reference (ToR) for the Specialist Studies, a description of the methodology to be used in determining and assessing alternatives, environmental issues and their significance, as well as the public participation process to be conducted in the EIA Phase.

All the comments and inputs received from the technical team, specialists, project proponent, stakeholders and I&APs were considered and incorporated into the Scoping Report to be submitted for authorisation.

The scoping report and plan of study for EIA will be made easily accessible to all the identified Stakeholders so that they have an opportunity to review and provide comments on the document. The scoping report together with the plan of study for EIA will be submitted to DMR for review and approval, as well as to the other identified stakeholders for review and comment.

8.2.4 Public Participation during Scoping and EIA Phase

Public Participation Process is regarded as an integral part of an EIA process, and ensures that potential I&APS are given an opportunity to comment on and raise issues of concern relevant to the project. The Public Participation Process for this project will satisfy the requirements stipulated in Chapter 6, Sections 41 R982 of the new NEMA EIA Regulations in terms of the National Environmental Management Act, Act 107 of 1998.

The guiding principles and key success factors that have been considered and implemented to ensure an appropriate and effective public participation for the proposed project are:

- Flexibility in the process;
- Ample announcement of opportunity for involvement;
- Inclusivity;
- Sufficient and accessible information;
- Ample opportunity for comment;
- Ongoing feedback and acknowledgement;
- Respect for cultural diversity and language preference;
- Consultation according to ability and interest level;

- Special efforts for previously disadvantaged people;
- Making stakeholders' roles and responsibilities clear at the start;
- Demonstrable TCLM commitment to the process;
- Representativity;
- Transparency, openness and honesty;
- Efficiency;
- Independent facilitation;
- Integration of public issues, technical assessment and decision-making.

The Methodology that has been adopted to ensure a highly consultative and interactive public participation process is outlined below.

8.2.5 Stakeholder Identification

The interested and affected parties (I&APs) in and around the study area have been identified during site visits and a dedicated stakeholder database for the project has been developed. The database includes stakeholder representatives from a broad range of sectors of society, i.e. Provincial Government, Local government (municipalities within in the study area), Politicians (those key to power issues e.g. Portfolio Committees etc), Eskom, SAHRA, Surrounding and effected Land owners, Environmental bodies both as NGOs, CBOs and; Business and commerce, Developmental bodies including NGOs and CBOs, Research, engineering and other professional bodies. See attached **Appendix C-I**

8.2.6 Announcing the project and its EIA process

The proposed project and its EIA process were announced in the study area in the following ways:

Media Announcements

Newspaper Advertisements (in English) informing stakeholders about the proposed project and inviting them to participate and register as interested and affected parties (I&APs) were compiled and posted on the Independent (Diamond Field Advertisers) local newspaper. (see **Table 8-1** below) and **see APPENDIX E for details**).

Table 8-1: Project Announcement products

EIA Announcement			
Products	**Newspaper**	**Language**	**Dates**

Adverts	Diamond Fields Advertisers	English	20 April 2015
Notices	Public Places such as Library, proposed mining area, municipality offices	English	20 April 2015
Background Information Documents (BIDs)	English, BID will be posted, emailed and faxed to some stakeholders and I&APS on the database. BIDs will also be made available: • at the municipality offices covered by the study area, • as part of this Scoping Report. It will be made available during the public meetings.		
Site Notices	Site Notices will be placed within proposed mining area a.		

Site notices and notice boards

Site notices were fixed at a place conspicuous to the public within the study area (**see APPENDIX F for details**).

Background Information Document (BID)

Background Information Document (BID) was prepared as a basis for discussion with stakeholders about the project. The BID introduced the project to the stakeholders, provided the rationale for the project, the EIA and public participation processes to be followed in the project, proposed project timeframes, etc. The BID included a registration/comment sheet which was available in English. A letter of invitation addressed to the I&APs captured on the database, accompanied the BID and a registration/comment sheet was compiled. The BID was forwarded electronically to those stakeholders that have electronic mail and some of the BIDs were left with the municipality officials to distribute to all I&APs who may request copies, and also to circulate within public places frequently visited by local people, e.g. Local Municipality Offices, in the project area. S**ee APPENDIX G for details**).

8.2.7 Consultation with surrounding land owners

Property land owner was identified and was consulted regarding the proposed project. Mr Nel (owner of property) will be consulted throughout the duration of the project to ensure their full participation in the process. The project area was screened prior to the start of public consultation. S**ee APPENDIX D for details**).

8.2.8 Facilitation and recording of proceedings

The public participation practitioner will facilitate and record the proceedings of each and every meeting. Thorough minutes will be compiled and sent to stakeholders to verify that contributions made at meetings and workshops were accurately captured. After comments are received, a final set of minutes of each workshop or meeting will be distributed to all the registered stakeholders. Each proceedings document will have a section entitled issues, comments and suggestions. This section will list all the issues, comments and suggestions raised at the various meetings and workshops in a tabular format giving rise to the Issues and Responses Report (IRR).

8.2.9 Stakeholder feedback

I&APs will be informed of the progress made at every milestone. This will be done in the form of a feedback letter. These will be distributed to the registered I&APs to report on progress to date, to thank those who have commented, and to confirm the way forward in the EIA process.

8.2.10 Notification of DMR Decision

Once a decision has been issued by the DMR, all I&APs on the project database will be informed of the decision by written notification and through the placement of a newspaper advertisement and personalised letters to stakeholders will be mailed also informing them (stakeholders) of the opportunity to appeal the decision and the timeframes thereof, as required by law.

9 PLAN OF STUDY FOR EIA

9.1 Introduction of the EIA Phase

The plan for EIA for this project will be is prepared in accordance to NEMA EIA Regulations. After acceptance of Final Scoping Report by competent authority, Plan of Study will be implemented. The Environmental Impact Assessment (EIA) will aim to address the significant issues highlighted in the Scoping Phase through specialist investigation and detailed assessment of the biophysical and social (including heritage) environments affected by the proposed project. Furthermore, the study area will be assessed in terms of environmental criteria, in order to identify and recommend appropriate mitigation measures for potentially significant environmental impacts. In addition, a fully inclusive public participation process will be conducted to ensure that I&AP issues and concerns are recorded and considered.

The EIA Process and its phases is indicated in the diagram below

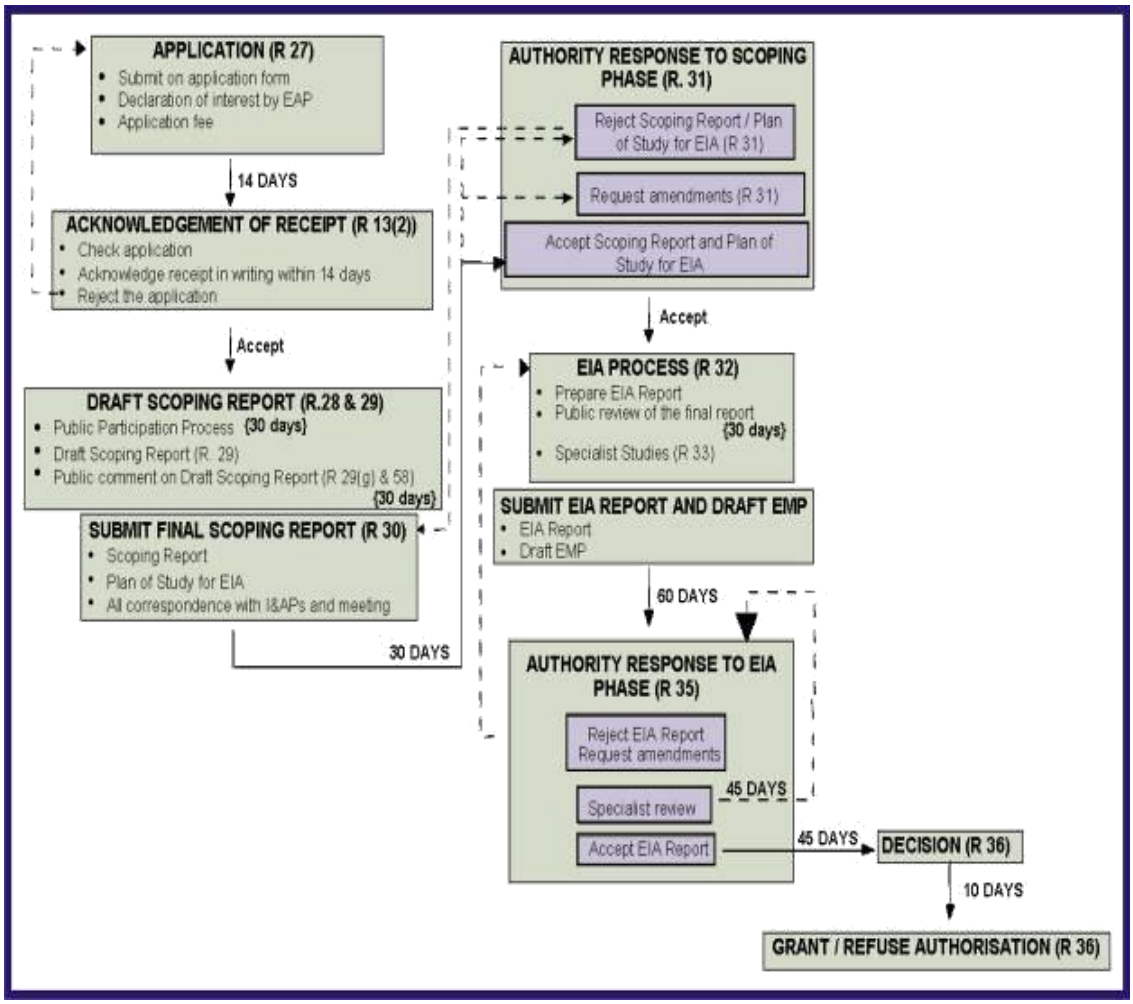

Figure 9-1; Flow Diagram indicating the Environmental Impact Assessment process and the Appeal process as promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

9.2 Specialist Studies

During this phase specialists will be appointed to address key issues and impacts that require further investigation, as identified during the Scoping study. Specialists will gather data that is relevant to identifying and assessing environmental impacts that may occur as a result of the proposed project. These impacts would further be assessed according to the assessment criteria (see section 9.4). Specialists would also enhance potential benefits or recommend appropriate mitigation or control measures to minimize potential negative impacts. Specialist information which would address the key issues and impacts identified during the EIA process, and other relevant information will be integrated into a Draft Environmental Report (DEIR). The specialist studies will be included as appendices to the DEIR. All specialists will provide input into the selection of the least environmental costly route of undertaking the proposed project and the required mitigation measures proposed will be included in the Draft EMP.

9.2.1 Terms of Reference for Ecology Specialist Study

Due to the limited level of detail that is normally implemented during a scoping exercise, it will be is imperative to conduct detailed ecological (flora and fauna) investigations in order to gain

detailed understanding of the potential impacts of the proposed project. This would include, but not necessarily be limited to:

- Provide a description of the natural habitats present and demarcate them clearly;
- An assessment of the quality of the natural habitats present in the study area, as well as a detailed look at the habitat requirements of the more sensitive floral species for the area, would need to be undertaken in the EIA phase in order to establish the risk of losing sensitive floral species with the proposed development;
- Provide a description of the general faunal species diversity (including mammals, small mammals, birds, epigaeic invertebrates and herpetofauna) based on accepted scientific methods;
- Evaluating the probability of occurrence of Red Data faunal and flora species pertaining to the various habitat types;
- Provide a description of faunal assemblages, based on species composition and habitat characteristics; and
- Identify and recommend mitigation measures for the significant impacts for inclusion on the DEMP.

9.2.2 Terms of Reference for the Heritage Resources Specialist study

- Description of affected Natural and Cultural Heritage environment and determination of the status quo: The existing Natural and Cultural Heritage Landscapes and environment will be described and the tangible and intangible heritage resources most likely to be impacted will be identified. These will be documented in different categories of significance.
- Indication of how physical cultural properties or living heritage resources will be affected: Typical impacts on physical cultural properties protected under the NHRA Act 25 of 1999 that could be expected from the project will be listed as well as the expected impact on contemporary living heritage on the proposed project area. Impacts will be quantified based on duration, frequency and mitigation levels and a full description of predicted impacts (direct and indirect) will be provided.
- Gaps in baseline data: Gaps in baseline data will be highlighted and discussed. An indication of the confidence levels will be given. The best available data sources will be used to predict the impacts, and extensive use will be made of local knowledge. Note, all archaeological, palaeontological and historical data will be dis-aggregated and accessible primary data source will be through SAHRA and LIHRA.
- Assessment of impacts: Management measures will be Identified and described. The potential impact on the physical and intangible cultural properties will be assessed and

evaluated according to the magnitude, spatial scale, timing, duration, reversibility, probability and significance taking into consideration the resources' significance threshold as defined in the NHRA and SAHRA/LIHRA regulations.

Impacts to archaeological and cultural resources that may be on proposed project site will be identified and described.

- Propose and explain mitigation measures: Practical mitigation measures will be recommended and discussed. These will evolve around total protection of Grade 1 to 3 Heritage Resources; Salvage/rescue; relocation; or preserve by record before destruction permit is issued by SAHRA. The importance or significance of these sites and whether these sites need to be conserved, protected or relocated will be described. The procedures for mitigation or relocation of sites will be described and an indication of time required for these management measures to be implemented will be provided.
- Summarize residual impacts after mitigation: An impact summary table will be provided, discussing expected impacts before and after mitigation.
- Indicate a monitoring programme: If a need for a monitoring programme is evident, it will be highlighted and a programme proposed. Monitoring may be a critical element of mitigating for archaeological and palaeontological resources that may be encountered during development.

9.2.3 Hydrology

There is Orange River at the close proximity of the river. A hydrological study needs to be undertaken as part of the EIA phase. The scope of Hydrological assessment is as follows:

- Provision catchment characteristics such as runoff co-efficient, rainfall intensity, evaporation, topography, catchment area (km^2), MAP, Areal Reduction Factor, and Time to Concentration.
- Catchment yield at the development site.
- Determination and mapping of the 1:50 year and 1:100 year floodlines of the Vaal River reach in the vicinity of the development site.
- Assessment of pre-development water quality on the site.
- Compilation of a surface hydrology report with findings and recommendations.

This study should be guidance in designing a proper Storm Water Management Plan for the proposed mining.

9.2.4 Hydrogeology

The contact zone should be correctly and accurately delineated by means of a hydro-geological investigation at a higher level of resolution to include an aquifer classification and vulnerability mapping;

The following should be included in the next phase of Hydro-geology:

- A hydrocensus with a radius of at least 1 km around the investigation area;
- EC profiling to identify zones of higher permeability/fractures in existing boreholes in the area;
- Slug tests, falling head or soak-away tests and aquifer tests in selected boreholes that can be identified during the hydrocensus; and
- A geophysical investigation across the site to delineate the contact zone and site possible locations for monitoring boreholes.

9.3 Environmental Impact Report

The Environmental Impact Report for the proposed project will outline the Specialists findings and recommendations. Draft Environmental Impact Report will be compiled and placed in public domains for 30 days reviews where interested and Affected Parties will raise issues and comments on the report. The final Environmental Impact Assessment Report will be submitted to competent authority for consideration and approval.

9.4 Impact Assessment Methodology

The following criteria will be used to evaluate significance:

Nature

The nature of the impact should be classified as positive or negative, and direct or indirect.

Extent and location

Magnitude of the impact and is classified as:

Local: the impacted area is only at the site – the actual extent of the activity

Regional: the impacted area extends to the surrounding, the immediate and the neighbouring properties.

National: the impact can be considered to be of national importance.

Duration

This measures the lifetime of the impact, and is classified as:

Short term: the impact will be for 0 – 3 years, or only last for the period of construction.

Medium term: three to ten years.

Long term: longer than 10 years or the impact will continue for the entire operational lifetime of the project.

Permanent: this applies to the impact that will remain after the operational lifetime of the project.

Intensity

This is the degree to which the project affects or changes the environment, and is classified as:

Low: the change is slight and often not noticeable, and the natural functioning of the environment is not affected.

Medium: The environment is remarkably altered, but still functions in a modified way.

High: Functioning of the affected environment is disturbed and can cease.

Probability

This is the likelihood or the chances that the impact will occur, and is classified as:

Low: during the normal operation of the project, no impacts are expected.

Medium: the impact is likely to occur if extra care is not taken to mitigate them.

High: the environment will be affected irrespectively; in some cases such impact can be reduced.

Confidence

This is the level knowledge/information, the environmental impact practitioner or a specialist had in his/her judgement, and is rated as:

Low: the judgement is based on intuition and not on knowledge or information.

Medium: common sense and general knowledge informs the decision.

High: Scientific and or proven information has been used to give such a judgement.

Significance

Based on the above criteria the significance of issues will be determined. This is the importance of the impact in terms of physical extent and time scale, and is rated as:

Low: the impacts are less important, but may require some mitigation action.

Medium: the impacts are important and require attention; mitigation is required to reduce the negative impacts

High: the impacts are of great importance. Mitigation is therefore crucial.

Cumulative Impacts

The possible cumulative impacts will also be considered.

Mitigation

Mitigation for significant issues will be incorporated into the EMP for construction.

9.5 Selection of Preferred Methodology

The Scoring System

The scoring for each project alternative will be done by appointing a value between 0 and 5 for each criteria. These values signify the impact in terms of that criteria on that corridor or substation site, from being a very high impact or "no go" to being of no significance or relevance. The ratings are given in terms of the Specialists findings.

The weighting system will be determined as follows:

0 - not significant/not relevant impact

1 - low impact

2 - medium impact

3 - high impact

4 - very high impact

5 - "no-go"/fatal flaw

Table 9-1 below illustrates the Impact Assessment Methodology to be adopted in assessing the significance of the identified impacts in the EIA phase.

Table 9-1: Impact Assessment Table

Description of potential impact			
Nature of impact			
Legal requirements			
Stage			
	Alternative 1	**Alternative 2**	**Alternative 3**
Preferred Alternative (1=most preferred,3=least preferred) ito Significance			
Nature of Impact			
Extent of Impact			

Duration of Impact			
Intensity			
Probability of occurrence			
Confidence of assessment			
Level of significance before mitigation			
Mitigation measures (EMP requirements)			
Level of significance after mitigation			
Cumulative Impacts			
Comments or Discussion			

9.6 Draft Environmental Management Plan

A draft Environmental Management Plan (EMP) will be compiled and submitted with the DEIAR to DMR for review and approval. The draft EMP will be updated to develop a site specific EMP to guide activities of mining. The EMP will outline how negative impacts should be managed and minimized, how positive impacts will be maximised, and how the construction of the proposed township will be managed in the course of the project implementation phase. The EMP will provide guidelines for the planning, design, construction, operation, maintenance and monitoring of the proposed development, as well as a holistic management for the entire project.

Recommendations will be given with regard to the responsible parties for the implementation of the EMP.

The EMP will deal with the full life-cycle of the proposed development, including:

- Planning: Ensure that environmental concerns are taken into account at the planning stages.
- Design: The design and layout of the proposed development should be thoroughly assessed and modified to incorporate the mitigation of identified negative environmental impacts.
- Commissioning: Generic and site specific environmental specifications for contractors and consultants will be drafted.

- Operation and Maintenance: Generic environmental guidelines will be compiled to ensure environmental compliance during mining

9.7 Public Participation in the EIA Phase

The draft EIAR and EMP will be made available to all stakeholders so that they can be given an opportunity to review and provide input on the findings of the EIA phase. all stakeholders will be given 30 day review period prior to submission to competent authority. Key Stakeholder workshops and Focus Group meetings will be held to present and discuss the findings.

Registered Stakeholders will be informed about the availability of the draft reports through newspaper adverts and via email.

9.7.1 Notification of DMR Decision

All issues raised and comments received and recorded in Stakeholder workshops, as well as Focus Group meetings will be recorded in an Issues and Response Report (IRR) and will be incorporated into the revised DEIAR prior to submission to DMR.

Once a decision has been issued by DMR, all I&APs on the project database will be informed of the decision by written notification and through the placement of a newspaper advertisement and personalised letters to stakeholders will be mailed also informing them (stakeholders) of the opportunity to appeal the decision and the timeframes thereof, as required by law.

9.8 EIA Phase Programme

According to Regulation 23 of the NEMA EIA Regulation 982, an environmental impact report inclusive of any specialist reports, and an EMPr, which must have been subjected to a public participation process of at least 30 days and which reflects the incorporation of comments received, including any comments of the competent authority will be submitted to DMR after 106 days of the acceptance of the scoping report submitted. The dates fro submission will be 106 days after receiving the acceptance for EIA.

10 CONCLUSION

The Final Scoping Report (FSR) and the Plan of Study for EIA have been prepared in accordance with the NEMA EIA Regulations. The Environmental Scoping Study has outlined the proposed project; identified key environmental and social issues associated with the proposed project, and described how the identified potential environmental and social benefits and impacts will be addressed during the Environmental Impact Assessment (EIA) Phase of the project.

The EIA Team is of the opinion that a thorough and due environmental process was followed in undertaking the Scoping study and associated Public Participation process. The analysis of key environmental issues identified during Scoping has shown that are fatal flaws negative impacts. The significant impacts identified have been highlighted and will be further investigated in the EIA Phase to determine their significance and mitigation measures to address those impacts will be recommended.

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12 APPENDICES

APPENDIX A: DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

APPENDIX B: WATER USE LICENSE APPLICATION CORRESPONDENCE

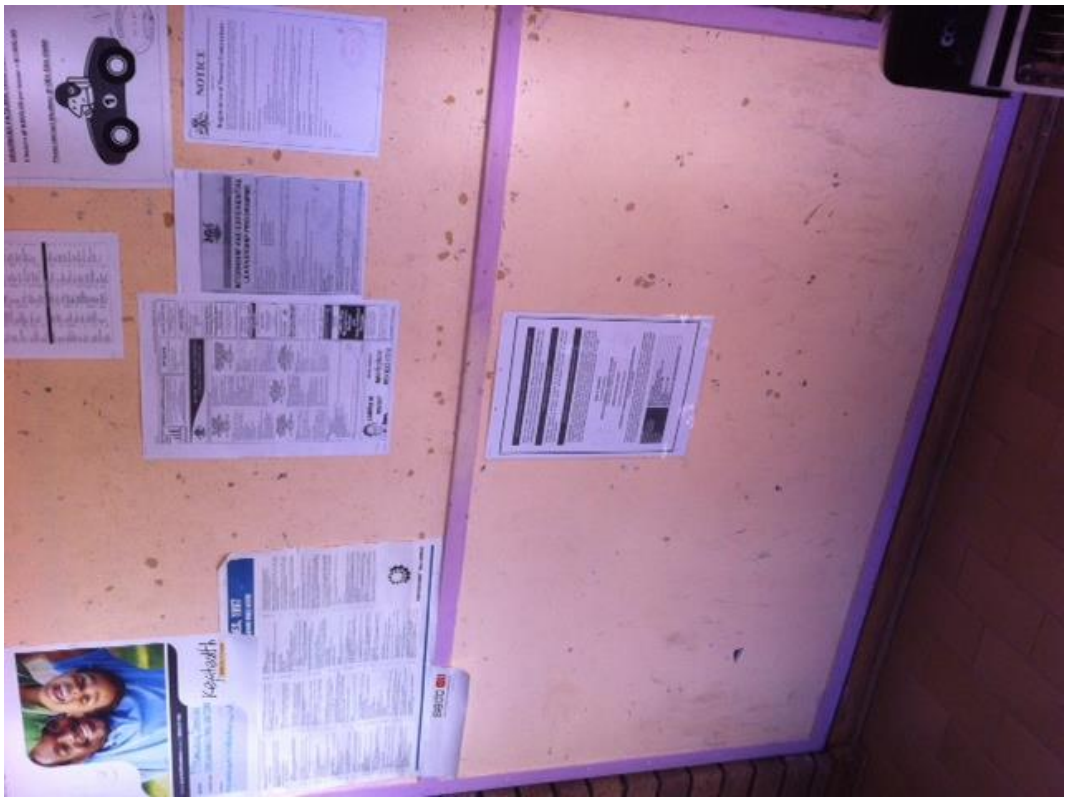
APPENDIX C: HERITAGE STUDY

APPENDIX D: AUTHORITY CORRESPONDENCE

APPENDIX E: LANDOWNER CORRESPONDENCE

APPENDIX F: NEWSPAPER ADVERTISEMENT

APPENDIX G: SITE NOTICES



APPENDIX H: BACKGROUND INFORMATION DOCUMENT

APPENDIX I: LETTER TO PUBLIC (I&APS)

APPENDIX J: COMMENT SHEET