PHULA PHOTOVOLTAIC FACILITY NEAR STEELPOORT, LIMPOPO PROVINCE

SOCIAL IMPACT ASSESSMENT: FINAL

Submitted to:

Jones and Wagener Engineering and Environmental Consultants

Submitted by:

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Social and Environmental Consultants

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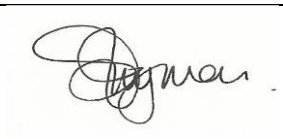
GLOSSARY OF ABBREVIATIONS

BESS:	Battery Energy Storage System
CV's:	Curriculum Vitae
EAP:	Environmental Assessment Practitioner
EIA:	Environmental Impact Assessment
EMPr:	Environmental Management Programme
FTLM:	Fetakgomo Tubatse Local Municipality
Ha:	Hectares
IDP:	Integrated Development Plan
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002)
NEMA:	National Environmental Management Act, 1998 (NEMA) (Act 107 of 1998)
NWA:	National Water Act, 1998 (NWA) (Act 36 of 1998)
PV:	Photovoltaic
SDM:	Sekhukhune District Municipality
SIA:	Social Impact Assessment
StatsSA:	Statistics South Africa

DOCUMENT STATUS

SOCIAL IMPACT ASSESSMENT: Final	
Date:	27 September 2023
Author:	Ms. Ingrid Snyman: Batho Earth
Signature:	

EXECUTIVE SUMMARY

Introduction

K2022578590 (SOUTH AFRICA) (Pty) Ltd is considering the development of a Solar Photovoltaic (PV) facility near Steelpoort, Limpopo Province. The Phula PV Facility is being developed with the aim of generating renewable energy to supply to surrounding mines, private off-takers and the national grid.

Jones and Wagener (Pty) Ltd Engineering and Environmental Consultants (Jones and Wagener) was appointed as Environmental Assessment Practitioner (EAP) to undertake the necessary Environmental Authorisations for the proposed 130 MW Phula PV Facility.

In terms of sections 24(5)(a), (h) and 44 of the National Environmental Management Act (NEMA) (Act. No. 107 of 1998) and the protocol stipulated in GN 320 GG 43110 dated 20 March 2020, a site sensitivity verification is required as part of the Environmental Authorisation Processes.

A Social Assessment was conducted as part of the Environmental Authorisation Process in order to verify the socio-economic characteristics of the site and the receiving environment, the sensitivity thereof and thus the social risks associated with the proposed project.

The receiving social environment

The proposed project site falls within Wards 27 of the Fetakgomo Tubatse Local Municipality (FTLM) within the Steelpoort Valley. The area and land-uses surrounding the proposed site is characterised by mining related activities and infrastructure such as roads, shafts, pipelines, conveyors and transmission lines. The site is approximately 20 km south of the Steelpoort Central Business District, and 13km south-east of the Ga-Mampuru settlement. Nokaneng Masha Gosebo is situated along the R577 and is approximately 10 km to the north-west of the site and Maartenshoop is situated approximately 11 km along the same road but to the south-east of the site. The town of Lydenburg is 33km south-east of the site. The R577 traverses the farm De Grooteboom. Infrastructure is planned to the north and south of the R577.

The FTLM economy is driven by mining and agriculture followed by trade, tourism, manufacturing, general government, community, social and personal services, catering and accommodation. Mining still presents the largest opportunity in the area and together with the available natural resources in the area can create a potential to develop tourism and thereby diversify the economic base of the municipality.

The population figures indicate a study area (Ward 27) which is not as densely populated compared to the rest of the FTLM. This can change in the future as Steelpoort and the surrounding area has been identified as a District Growth Point (FTLM: IDP: 2022). There is statistical evidence that the population within the FTLM is growing at an exponential rate (12% growth since 2011), but that the growth is mainly concentrated around larger towns and settlements. Areas such as Madibeng and Nokaneng would also have experienced population growth since 2011.

The percentage of youth under the age of 20 years comprises approximately half of the population sector within the affected ward which makes job creation a critical need. In Ward 27, however, there are lower levels of individuals that completed Grade 12 and significantly lower levels of

individuals that have a higher education compared to the district and province. Although overall skills levels have increased over the years, a lack of relevant skills among locals can result in employers still recruiting outside the local municipal areas.

Ward 27 of the FTLM further indicated a lower level of annual household income compared to the Sekhukhune District and the FTLM, even though there are different mining activities and associated employment opportunities within this area for select individuals. The number of households without any form of income or very low levels of income remain of concern.

The infrastructure in the larger study area and within the FTLM is fairly poor, with major service backlogs that cannot meet the needs of the dispersed human settlements and high poverty levels.

Key Findings and Conclusions

Based on the assessment of the anticipated socio-economic impacts, the following key findings and conclusions must be noted:

- The proposed project site falls within Wards 27 of the FTLM within the larger Steelpoort Valley. The proposed site can be accessed via the R577. Various mining activities with related infrastructure are taking place within the immediate area and adjacent the proposed site.
- The area and land-uses surrounding the proposed site is characterised by mining related activities and infrastructure, as well as mining associated activities. Areas with natural veld occur to the south and southeast of the development. In view of the fact that large scale mining activities are already undertaken in the area, the proposed land-use associated with the PV facility is seen to be acceptable with the surrounding land-uses in the area.
- The majority of negative impacts associated with the development are of a low to very low impact class once mitigation measures have been implemented (Also refer to Table 16 as part of Section 11.1). The social impacts can thus respond to mitigation. Based on the assessment of the social environment it is concluded that the social impacts associated with the proposed PV Facility are not viewed as a risk to the nearby mining activities and/or the quality of life of the residents of the larger study area.
- During the construction phase positive impacts with regards to job opportunities, and subsequent local, as well as regional economic benefits of a moderate positive significance are anticipated.
- Due to the level of skills found amongst the local population in the study area, as well as the main local employment sector being the mining sector, it is likely that the number of lower to medium skilled opportunities could be filled by locals. The possible lack of available local specialised skills during the construction of the facility will result in the continued outsourcing of skills during the construction phase.
- The proposed PV Facility project is expected to have a long-term positive impact on job opportunities in the area, even though the permanent jobs would be limited. It would still generate additional income among some households that previously had to do without these resources. It is therefore critical that the project proponent focus on sustainable skills training and capacity building programmes among the local communities to ensure that the number of local employees can be maximised, and to ensure transferable skills.

- The project can contribute to economic activities in the local economy through ensuring a stable electricity supply into the grid which could materialise in limiting the mining industries' dependency on the national electricity grid, while lowering operational costs, which could again result in continued mining.
- The PV Facility could assist in addressing various social ills and needs in the area through their social responsibility programmes to ensure additional long-term sustainable benefits to community members with a further reach than the direct project benefits. The success of these initiatives would be based on a collaborative and inclusive approach.

Negative impacts to be noted are the following:

- The inflow of construction workers to the area would have temporary impacts on the local socio-economic environment, which could also result in the influx of jobseekers. Poor control over the employment process could, amongst others, result in social dissatisfaction, unrests, protests and even conflict, environmental pollution and possible increase in criminal activities due to more people movement in the area.
- The negative intrusion impacts during the construction phase on residents are expected to be limited due to the distance of the settlements, towns and homesteads to the proposed PV facility.
- Other construction related intrusions refer to the movement of heavy vehicles transporting people, goods and materials. Increased risks of accidents, and damage to the road surfaces are of concern.
- Noise impacts would be intermittent but can be mitigated through proper environmental management of the construction site which adheres to all environmental regulations while striving towards international best practice.
- The visual intrusions associated with the PV Facility would be difficult to mitigate, but the land-use, as indicated above, have a goodness of fit with the mining related land-uses in the larger area.
- Decommissioning would result in job losses and subsequent high negative impacts on households, as well as negative impacts on the local economy. The significant loss in electricity supply will have further negative economic implications and decrease the quality of life of the surrounding communities as mining activities would again put strain on the electricity grid.

Recommendations

The following recommendations must be considered:

- The objectives and measures as part of the Social Management Plan (SMP) must be included as part of the Environmental Management Plan (EMP).
- Skills development and on-site training would be imperative to enhance capacity building and equipping employees with transferable skills.
- The project proponent, should, through their social responsibility programmes focus on the key intervention areas required to stimulate the local economy, and also ensure that their interventions are based on the key priority areas already determined by the Integrated Development Plan of the local municipality.

- Social responsibility programmes and socio-economic development initiatives must based on a collaborative and inclusive approach to ensure community buy-in and localised inputs to ensure that the benefits of these types of programmes, to local communities, are enhanced.
- To address safety and security concerns and the possible impacts in this regard, it is recommended that security control measures and fire prevention measures should be implemented.
- Local labourers with the required skills should be employed as far as possible.
- The development of a Health and Safety Plan according to SHEQ best practices, as well as an Emergency Response Action Plan is critical.
- If any legitimate land claim with regards to the property is legally settled in future, it must be dealt with accordingly.
- The layout of the PV facility on the farm must be positioned to avoid any negative impacts on existing mining activities.
- Representatives of the FTLM, mining company representatives, as well as neighbouring landowners should be kept informed of the progress, decisions taken with regards to the development and construction schedules.
- The mitigation measures noted as per the Traffic, Noise and Visual Impact Assessments should be implemented.

Acceptability of the proposed development

Based on the findings, significance ratings and recommendations of this Social Impact Assessment, there are not fatal flaws prohibiting the Phula PV Facility project from proceeding. From a socio-economic perspective it is recommended that the environmental authorisation be approved, provided that mitigation measures recommended in this report are strictly implemented and monitored based on relevant standards.

1. INTRODUCTION

1.1 Background

Jones and Wagener (Pty) Ltd Engineering and Environmental Consultants (Jones and Wagener) was appointed as Environmental Assessment Practitioner (EAP) to undertake the necessary Environmental Impact Assessment (EIA) for the proposed 130 MW Phula Photovoltaic (PV) Facility, near Steelpoort, Limpopo Province.

A Social Assessment of the site sensitivity will be conducted as part of the Environmental Authorisation Process to verify the socio-economic characteristics of the site and the receiving environment, the sensitivity thereof and thus the social risks associated with the proposed project.

1.2 Social Impact Assessment

Burdge (1995) describes a Social Impact Assessment (SIA) as the "…systematic analysis in advance of the likely impacts a development event (or project) will have on the day-to-day life (environmental) of persons and communities." Burdge and Vanclay (1995) consider that social impacts are "all social and cultural consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally cope as members of society", including "changes to the norms, values, and beliefs of individuals that guide and rationalize their cognition of themselves and their society."

SIA, therefore, attempts to analyse, monitor and manage the anticipated social aspects and future consequences of a proposed development. It is focused on the human dimensions of the environment, as it aims to balance social, economic, and environmental objectives and seeks to predict, anticipate and understand the potential impacts of development. It aims to engage communities or to achieving the best outcomes for society in terms of sustainable development, or even good project design.

The SIA can assist the project proponent to conceptualise and implement a project in a manner which would see the identified negative social impacts addressed through avoidance or mitigation and the positive impacts realised and optimised. It would also allow the community to anticipate, plan for and deal with the social changes once they come into effect. In this sense then, the SIA is an indispensable part of the EIA, the Environmental Management Plan (EMP) and any participative activity (e.g. community involvement in mitigation and monitoring during planning and implementation).

1.3 Purpose of the Report

In terms of sections 24(5)(a), (h) and 44 of the National Environmental Management Act (NEMA) (Act. No. 107 of 1998) and the protocol stipulated in GN 320 GG 43110 dated 20 March 2020, a site sensitivity verification is required as part of the Environmental Authorisation Processes.

The current use of the land was determined and the socio-economic sensitivity of the site under consideration must thus be confirmed by undertaking a social assessment (screening) and site sensitivity verification.

The socio-economic site sensitivity verification was undertaken through the following:

- a desk top analysis, using satellite imagery (e.g. Google Earth);
- an inspection of the site and the surrounding environment; and
- studying other available and relevant information.

Thus, as part of the EIA, the baseline social assessment and site sensitivity screening aim to determine and provide information with regards to the following:

- Status quo social setting including the current socio-economic status of the area and the social characteristics of the receiving environment;
- Site sensitivity;
- Social risks involved with the proposed development;
- Social sensitive receptors and/or areas; and
- Possible anticipated social impacts associated with proposed development.

1.4 The Proposed Project

1.4.1 Project Location

The proposed project is located on Portion 2 and the Remaining Extent of the farm De Grooteboom 373 KT, in close proximity to the local chrome and platinum mines within the Steelpoort area, Limpopo Province. The proposed project site is approximately 20 kilometres (km) south of the Steelpoort Central Business District, and 13km south-east of the Ga-Mampuru settlement. Nokaneng Masha Gosebo is situated along the R577 and is approximately 10 km to the north-west of the site. The town of Lydenburg is 33km south-east of the site. The R577 traverses the farm De Grooteboom. Infrastructure is planned to the north and south of the R577.

Refer to Figure 1 for the project location.

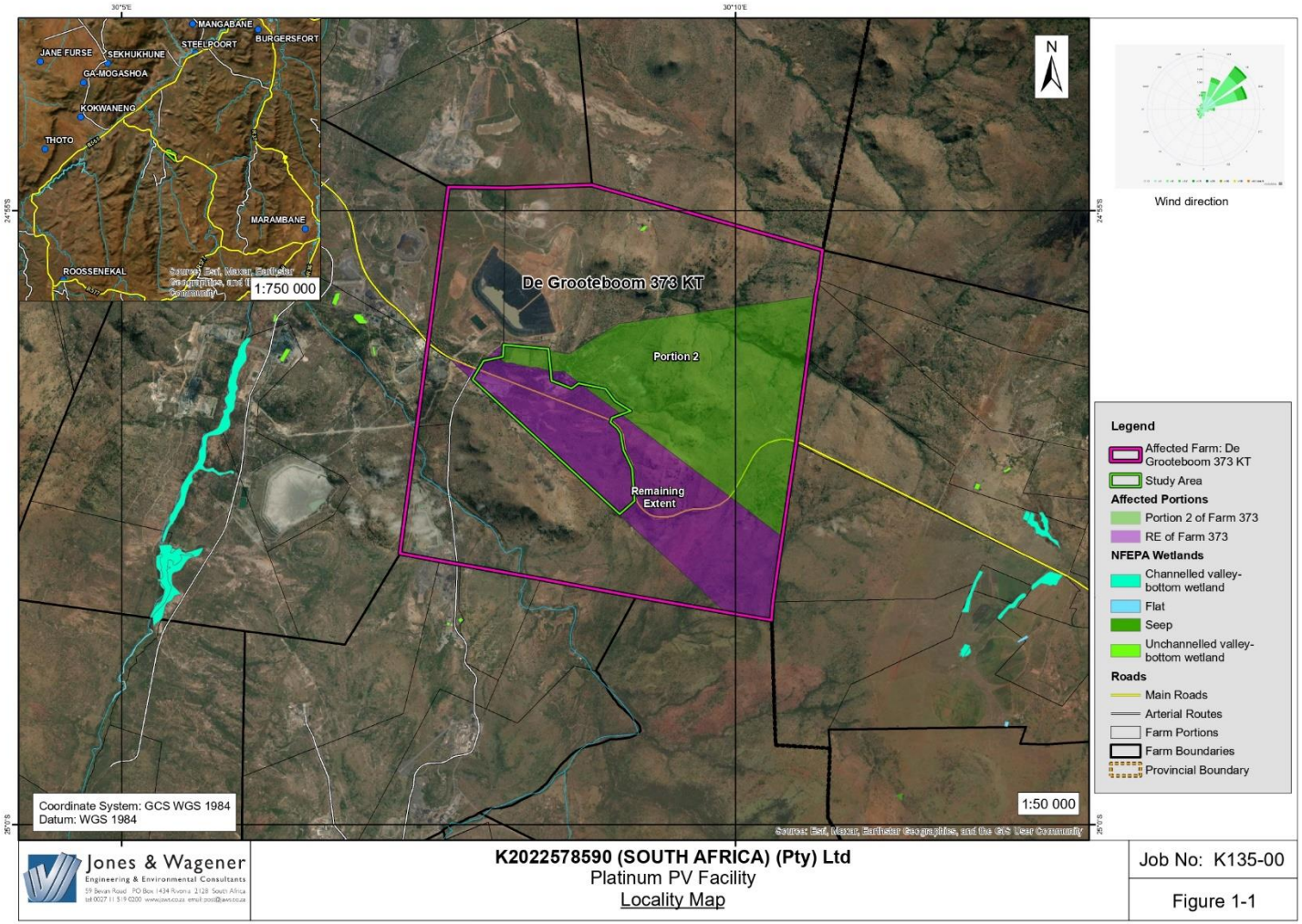


Figure 1: Project Location

1.4.2 Technical Background

K2022578590 (South Africa) Proprietary Limited proposes to develop a solar PV facility on the Remainder and Portion 2 of the Farm De Grooteboom 373 KT in the Limpopo Province. The planned installed capacity output of the Solar PV will be 130MW (DC power) and the development area for the facility is approximately 249 hectares (ha).

The proposed Phula PV Facility will consist of the following infrastructure:

- PV modules mounted on either a single axis tracking or fixed structure;
- Inverters and transformers;
- Low voltage cabling between the PV modules to the inverters;
- Fence around the project development area with security and access control;
- Camera surveillance;
- Internet connection;
- 33kV cabling between the project components and the facility substation;
- 33/132kV onsite facility substation;
- Battery Energy Storage System (BESS) with a footprint of 2.5 ha;
- Site offices and maintenance buildings, including workshop areas for maintenance and storage, as well as parking for staff and visitors;
- Laydown/staging area on-site in front of mounting structures during installation;
- Temporary store area close to site entrance (Less than 2ha);
- Access roads (up to 6m wide) and internal distribution roads (up to 5m wide);
- Temporary concrete batching facility; and
- Stormwater management infrastructure.

The Phula PV project is being developed with the aim of generating renewable energy to supply the national grid. The developer will submit a bid in terms of a regulated power purchase procurement process (e.g., REIPPPP) to evacuate the generated power into the national grid.

In terms of the Environmental Impact Assessment (EIA) Regulations promulgated under National Environmental Management Act (Act 107 of 1998) (NEMA), an environmental authorisation (EA) is required for the proposed 130MW solar PV facility.

Grid connection infrastructure for the proposed facility will be subject to a separate environmental authorisation process (Jones and Wagener, 2023).

Refer to Figure 2 for the layout of the PV facility.

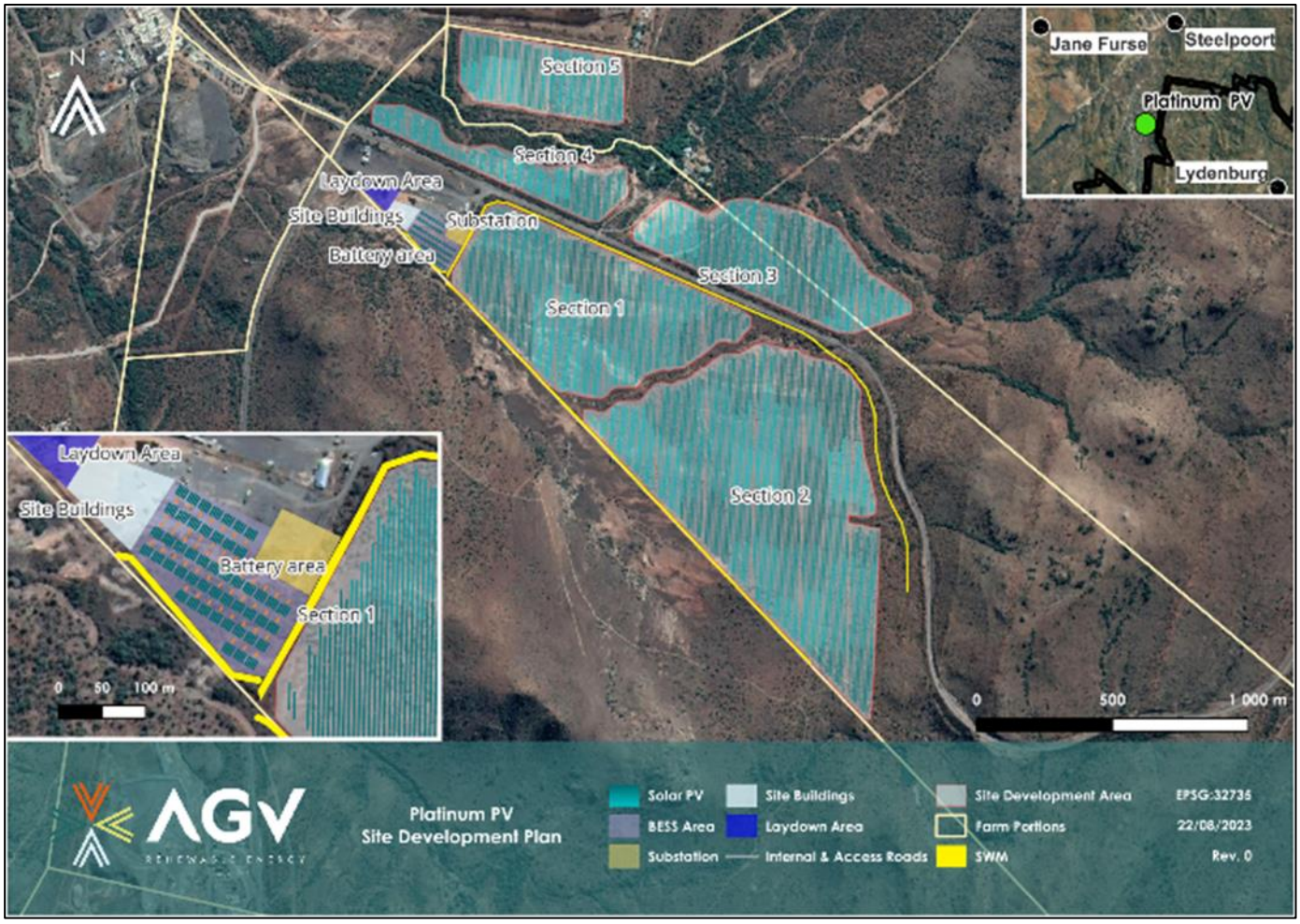


Figure 2: Proposed Project Layout

2. LEGAL REQUIREMENTS AND GUIDELINES

2.1 General

In South Africa, the National Environmental Management Act, 1998 (NEMA), provides the legal framework for the correct use and management of the environment. Many developments undertaken by both public and private sector organisations require, by legislation, an Environmental Impact Assessment (EIA).

A Scoping and Environmental Impact Assessment (S&EIA) and Basic Assessment is dependent on the type, scale and size of the specific development. The National Environmental Management Act, Environmental Impact Assessment Regulations, GN R543 ("NEMA EIA Regulations") were published on 18 June 2010 and came into operation on 2 August 2010. These Regulations has been superseded with the 2014 EIA Regulations, GNR 982 published on 4 December 2014 and came into operation on 8 December 2014.

In terms of sections 24(5)(a), (h) and 44 of the National Environmental Management Act (NEMA) (Act. No. 107 of 1998) and the protocol stipulated in GN 320 GG 43110 dated 20 March 2020, a site sensitivity verification is required as part of the Environmental Authorisation Processes.

Other applicable legislation (Acts and Guidelines) include:

- Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA);
- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and associated Environmental Impact Assessment Regulations, 2014, as amended in 2017 (EIA Regulations);
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008 / Regulation 921 of 2013 (as amended) (NEM:WA);
- National Water Act, 1998 (Act No. 36 of 1998) (NWA);
- The Social and Labour Plan required by MPRDA and MPRDA Regulations GN R527 (Part II Regulations 40 to 46); and
- Guidelines and Principles for Social Impact Assessment published by the International Association of Impact Assessment (2003).

2.2 Checklist: Requirements for Specialist Reports, as Contained in the 2014 EIA Regulations, as amended

Table 1: Requirements for specialist reports: EIA Regulations (2014)

EIA REGULATIONS 2014 GNR 982 Appendix 6 CONTENT OF THE SPECIALIST REPORTS	Status / Cross-reference in this Report
a) details of the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a curriculum vitae;	Section 14
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Section 14.3
c) an indication of the scope of, and the purpose for which, the report was prepared	Sections 0 and 3
cA) an indication of the quality and age of base data used for the specialist report	Statistics from StatsSA Census 2011 were used. Where available statistics from Household Survey of 2016 (StatsSA) were used.
cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Sections 6, 7, 8 and 9
d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Sections 3 and 6
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 3
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Sections 6, 7, 8 and 9
g) an identification of any areas to be avoided, including buffers;	Sections 6, 7, 8 and 9
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 1.4.1 and 1.4.2
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 5
j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Sections 7, 8 and 9
k) any mitigation measures for inclusion in the EMPr	Section 10

EIA REGULATIONS 2014 GNR 982 Appendix 6 CONTENT OF THE SPECIALIST REPORTS	Status / Cross-reference in this Report
l) any conditions for inclusion in the environmental authorisation;	Section 10 and 11
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 10 and 11
n) a reasoned opinion • whether the proposed activity, activities or portions thereof should be authorised; • regarding the acceptability of the proposed activity or activities; and • if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 11
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	Inputs received from Stakeholder Engagement Process
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Refer to Stakeholder Engagement Process
q) any other information requested by the competent authority	Not applicable
2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Not applicable

3. SCOPE OF WORK AND METHODOLOGY

3.1 Site Visit

The study area was visited on 23 February 2023 with the aim of obtaining more information on the site characteristics and site sensitivity, local land-use, settlements and communities, and to acquire an overview of the socio-economic features of the study area and infrastructure proposed as part of the activities.

3.2 Scope of the Assessment

This involves an investigation to identify the framework of the project through the identification and demarcation of the study area. Once the study area has been determined, an evaluation framework was developed which assisted in identifying the main anticipated social impacts.

3.3 Literature Review, Analysis and Desktop Studies

The literature review assisted the consultants to establish the social setting and characteristics of the local municipal area, as well as the key economic activities. Secondary data, which was not originally generated for the specific purpose of the study, were gathered and analysed for the purposes of the study. Such data included maps, census data, internet searches, and the Integrated Development Plan (IDP) of the FTLM.

3.4 Profiling

Profiling involved a description of the social characteristics and history of the area being assessed, an analysis of demographic data, changes in the local population, and the land-use pattern in the study area, as well as any other significant developments in the area and thus social character over time. The profiling process was a combination of secondary and primary research and the site visit.

The broad profiling included descriptions regarding the following:

- The social trends and current conditions;
- The land-use in the area;
- The demographical profile and social characteristics of the host community;
- Other potential developments in the area;
- The local and regional economy; and
- Potential economic links between the proposed project and its environs.

3.5 Social Screening

On completion of the baseline assessment, social screening was undertaken to assess and analyse the data about the socio-economic environment to determine possible sources of impact and risks.

3.6 Projecting Anticipated Impacts

A baseline assessment indicated the current reality in the social and related aspects of the affected environment. The baseline assessment was necessary to enable a logical and theoretically sound analysis of the social impacts. It forms part of the process of identifying important cause-and-effect relationships and a comparative framework for anticipated changes and impacts.

4. Impact Assessment Framework

The evaluation of impacts is conducted in terms of the criteria detailed in Table 2 to Table 7. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology will be used to describe the impacts for each of the aforementioned assessment criteria.

In order to adequately assess and evaluate the impacts and benefits associated with the project, it was necessary to develop a methodology that would scientifically achieve this and to reduce the subjectivity involved in making such evaluations. To enable informed decision-making, it is necessary to assess all legal requirements and clearly defined criteria in order to accurately determine the significance of the predicted impact or benefit on the surrounding natural and social environment.

4.1 Significance

Significance rating (importance) of the associated impacts embraces the notion of extent and magnitude.

Table 2: Significance of Impact

RATING		DESCRIPTION
5	**Very High**	Of the highest order possible within the bounds of impacts which could occur. In the case of adverse impacts: there is no possible mitigation and/or remedial activity which could offset the impact. In the case of beneficial impacts, there is no real alternative to achieving this benefit.
4	**High**	Impact is of substantial order within the bounds of impacts, which could occur. In the case of adverse impacts: mitigation and/or remedial activity is feasible but difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, other means of achieving this benefit are feasible but they are more difficult, expensive, time-consuming or some combination of these.
3	**Moderate**	Impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur. In the case of adverse impacts: mitigation and/or remedial activity are both feasible and fairly easily possible. In the case of beneficial impacts: other means of achieving this benefit are about equal in time, cost, effort, etc.
2	**Low**	Impact is of a low order and therefore likely to have little real effect. In the case of adverse impacts: mitigation and/or remedial activity is either easily achieved or little will be required, or both. In the case of beneficial impacts, alternative means for achieving this benefit are likely to be easier, cheaper, more effective, less time consuming, or some combination of these.

RATING		DESCRIPTION
1	**Very Low**	Impact is negligible within the bounds of impacts which could occur. In the case of adverse impacts, almost no mitigation and/or remedial activity is needed, and any minor steps which might be needed are easy, cheap, and simple. In the case of beneficial impacts, alternative means are almost all likely to be better, in one or a number of ways, than this means of achieving the benefit. Three additional categories must also be used where relevant. They are in addition to the category represented on the scale, and if used, will replace the scale.
0	**No Impact**	There is no impact at all - not even a very low impact on a party or system.

4.2 Spatial Scale

The spatial scale refers to the extent of the impact i.e. will the impact be felt at the local, regional, or global scale. The spatial assessment scale is described in more detail in the table below.

Table 3: Spatial Scale

RATING		DESCRIPTION
5	**Global / National**	The maximum extent of any impact.
4	**Regional / Provincial**	The spatial scale is moderate within the bounds of impacts possible, and will be felt at a regional scale (District Municipality to Provincial Level). The impact will affect an area up to 50km from the proposed site / corridor.
3	**Local**	The impact will affect an area up to 5km from the proposed route corridor / site.
2	**Study Area**	The impact will affect a route corridor not exceeding the boundary of the corridor / site.
1	**Isolated Sites / proposed site**	The impact will affect an area no bigger than the corridor / site.

4.3 Duration Scale

In order to accurately describe the impact it is necessary to understand the duration and persistence of an impact in the environment. The temporal scale is rated according to criteria set out in the table below.

Table 4: Duration of Impact

RATING		DESCRIPTION
1	**Incidental**	The impact will be limited to isolated incidences that are expected to occur very sporadically.
2	**Short-term**	The environmental impact identified will operate for the duration of the construction phase or a period of less than 5 years, whichever is the greater.
3	**Medium term**	The environmental impact identified will operate for the duration of life of the project.

4	**Long term**	The environmental impact identified will operate beyond the life of operation.
5	**Permanent**	The environmental impact will be permanent.

4.4 Degree of Probability

The probability of the impact describes the likelihood of the impact actually occurring. The probability or likelihood of an impact occurring will be described, as indicated in the table below.

Table 5: Probability of Impact

RATING	DESCRIPTION
1	Practically impossible
2	Unlikely
3	Could happen
4	Very Likely
5	It's going to happen / has occurred

4.5 Degree of Certainty

A standard "degree of certainty" scale is used as discussed in **Table 6**. The level of detail for specialist studies is determined according to the degree of certainty required for decision-making. The impacts are discussed in terms of affected parties or environmental components.

Table 6: Degree of Certainty

RATING	DESCRIPTION
Definite	More than 90% sure of a particular fact.
Probable	Between 70 and 90% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Between 40 and 70% sure of a particular fact, or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact or the likelihood of an impact occurring.
Can't know	The consultant believes an assessment is not possible even with additional research.

4.6 Quantitative Description of Impacts

To allow for impacts to be described in a quantitative manner in addition to the qualitative description given above, a rating scale of between 1 and 5 was used for each of the assessment criteria. Thus the total value of the impact is described as the function of significance, spatial and temporal scale as described below

$$\textit{Impact Risk} = \frac{(\text{SIGNIFICANCE} + \textit{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

4.7 Impact Risk Scale

The impact risk is classified according to 5 classes as described in **Table 7**.

Table 7: Impact Risk Classes

RATING	IMPACT CLASS	DESCRIPTION - NEGATIVE	DESCRIPTION - POSITIVE
0.1 – 1.0	1	Very Low	Very Low
1.1 – 2.0	2	Low	Low
2.1 – 3.0	3	Moderate	Moderate
3.1 – 4.0	4	High	High
4.1 – 5.0	5	Very High	Very High

5. GAPS, LIMITATIONS AND ASSUMPTIONS

With regards to the Social Assessment, the following should be noted:

- The assessment did not include consultations with stakeholders and potentially affected parties. Information and inputs were received from the Stakeholder Engagement Process undertaken as part of the Environmental Authorisation Process.
- The social assessment aims to identify possible socio-economic impacts that could occur in future. These impacts are based on existing baseline information. There is thus always an uncertainty with regards to the anticipated impact occurring, as well as the intensity thereof. Impact predictions have been made as accurately as possible based on the information available at the time of the study.
- Sources consulted are not exhaustive and additional information can still come to the fore to influence the contents, findings, ratings and conclusions made.
- Socio-economic baseline information was mainly based on official statistics from StatsSA, as well as municipal documentation. Sub-municipal data was only available for 2011. The lack of more recent official socio-economic data is therefore seen as a limiting factor, although it is not anticipated to influence the outcome of the report.
- In certain instances, statistics from the StatsSA Census of 2011 on sub-municipal level (ward based) were compared with information from the Community Survey of 2016 on municipal, district and provincial level. This was undertaken to determine a trend comparison and will not influence the outcome of the report's findings with regards to the possible socio-economic impacts associated with the proposed project.
- Technical and other information provided by the EAP is assumed to be correct.

6. DESCRIPTION OF THE BASELINE ENVIRONMENT

6.1 Sekhukhune District

The Sekhukhune District Municipality (SDM) was established in December 2000. It consists of the following local municipalities: Elias Motsoaledi, Ephraim Mogale, Fetakgomo Tubatse, and Makhuduthamaga local municipalities. The district is situated in the southern section of the Limpopo Province, with Mpumalanga to the east. The SDM covers an area of approximately 13 264 m^2. The largest section of the district consists of scattered rural settlements. Also refer to Figure 3.

The main urban centres are Groblersdal, Marble Hall, Burgersfort, Jane Furse, Ohrigstad, Steelpoort and Driekop. Outside these major towns, one finds almost 605 villages which are generally sparsely populated and dispersed throughout the district (www.sekhukhunedistrict.gov.za).

Mining is a key contributor to the GGP of the district and the sector is seen as having tremendous potential for the immediate future.

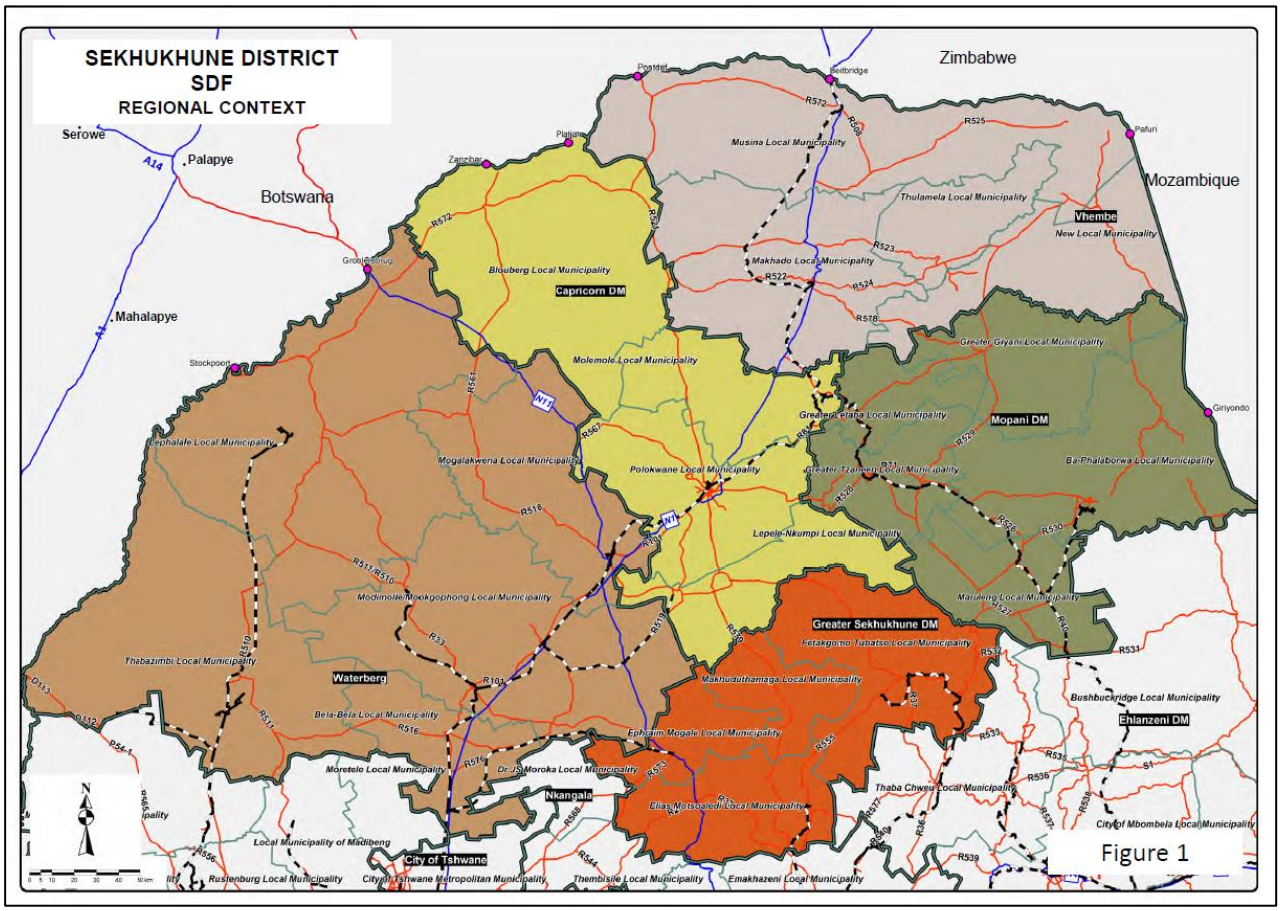


Figure 3: Sekhukhune District Municipality

(Source: SDM (2018) Draft Spatial Development Framework)

6.2 Fetakgomo Tubatse Local Municipality (FTLM)

The FTLM falls under the jurisdiction of the Sekhukhune District as indicated above. The municipality comprises approximately 342 villages and is largely dominated by a rural landscape with only 6 proclaimed townships. Like most rural municipalities in South Africa, the FTLM is characterised by dispersed human settlements which makes the provision of bulk infrastructure expensive. This results in rural areas lacking proper access to basic services. The inadequate infrastructure and service backlogs remains a challenge to be dealt with and increase the poor quality of life of the poor and vulnerable members of these communities (FTLM: IDP: 2022).

The main economic sectors within FTLM include agriculture, mining and quarrying, trade, tourism, manufacturing, general government, community, social and personal services, catering and accommodation (FTLM: IDP: 2022).

6.3 General Description of the Study Area

The study area falls within the Sekhukhune District Municipality and the FTLM in the Limpopo Province of South Africa, approximately 20 km south of the Steelpoort Central Business District, and 13km south-east of the Ga-Mampuru settlement. Nokaneng Masha Gosebo is situated along the R577 and is approximately 10 km to the north-west of the site and Maartenshoop, a smaller settlement, is situated approximately 11 km along the same road but to the south-east of the site. The town of Lydenburg is 33km south-east of the site (in a straight line). The R577 (also referred to as the Sekhukhune Road) traverses the farm De Grooteboom. Infrastructure is planned to the north and south of the R577.

The proposed project site falls within Ward 27 of the FTLM. Ward 27 comprises 663.7 km^2 and has the following main settlements across the ward: Moshate, Tsakane, Kalkontein, Mabelane, Makakatela, Kutullo A and B, Shushumela and Matepe, Kutullo C and D, Dithamaga and Madibeng. **Figure 4** indicates Ward 27.

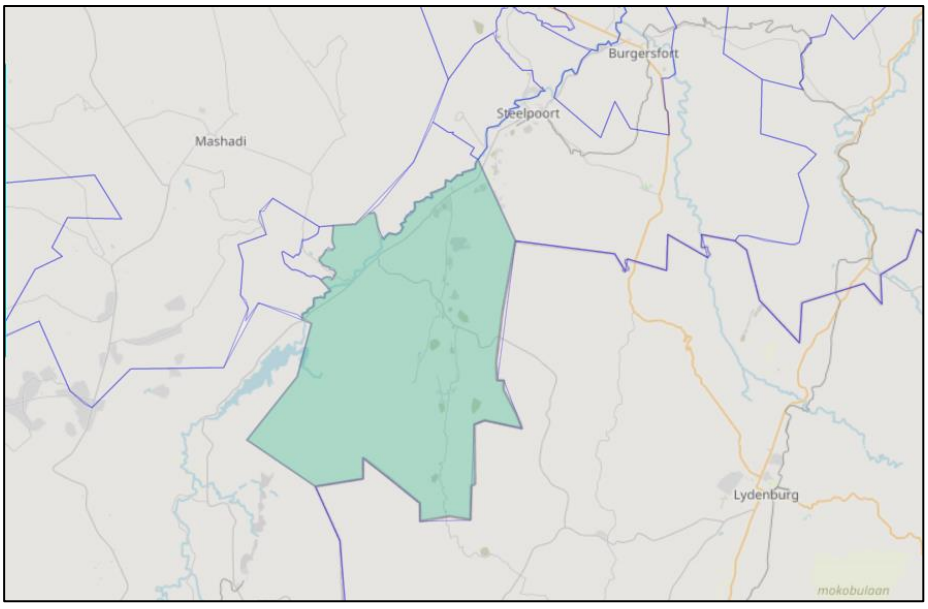


Figure 4: Ward 27 of the Fetakgomo Tubatse Local Municipality

Madibeng, which is one of the main settlements within Ward 27 is located along the R555 and includes sub-settlements. Steelpoort town is approximately 20 km from the proposed site to the north along the R555. Steelpoort town is characterised by mixed-use development, including engineering enterprises; suppliers to the mines; transport facilities; building material suppliers; distributors/ wholesale, medium density housing and a small retail component (FTLM: IDP: 2022).

The nearest local settlements to the project site are outlined in the table below:

Table 8: Local Settlements within the study area

FETAKGOMO TUBATSE LOCAL MUNICIPALITY	
SETTLEMENT / TOWNS	**DIRECTION RELATED TO PROJECT SITE**
Nokaneng Masha Gosebo	8 – 10 km northwest of the site
Madidimola (sub section of Madibeng)	14 km west of the site
Ga-Malekana (sub-section of Madibeng)	16 km west of the site
Ga-Masha	18 km northwest of the site
Ga-Mampuru	15 km to the north of the site
Steelpoort	20 km to the north of the site
Maartenshoop	11 km to the south east of the site

The proposed site outlined in yellow and nearest settlements of Nokaneng Masha Gosebo and Madidimola are indicated in Figure 5.

Figure 5: Localised social environment and nearest settlements

6.4 Social Profile

6.4.1 Population Figures

The following table provides an outline of the population figures in the local study area compared to those of the affected municipality, district and province.

Table 9: Population figures

POPULATION FIGURES					
Area	**Population**	**People per km²**	**Number of Households**	**% Under 20 Years Age Group**	**Gender**
Limpopo	5 799 990	46.1 km²	1 601 083	44%	53% Female
Sekhukhune District	1 169 762	85.7 km²	290 526	45%	53% Female
FTLM	489 902	85.9 km²	125 363	42%	51% Female
Ward 27	12 527	18.9 km²	2 727	48%	48% Female

Source: StatsSA: Community Survey 2016 and Census 2011 for ward based information

The population figures indicate a study area (Ward 27) which is not as densely populated compared to the rest of the FTLM. This can change in the future as Steelpoort and the surrounding area has been identified as a District Growth Point (FTLM: IDP: 2022). There is statistical evidence that the population within the FTLM is growing at an exponential rate (12% growth since 2011), but that the growth is mainly concentrated around larger towns and settlements. Areas such as Madibeng and Nokaneng would also have experienced population growth since 2011.

The percentage of youth under the age of 20 years comprises approximately half of the population sector within the affected ward. The provision of education, health and social services as well as employment creation within the municipality and especially within Ward 27, is thus critical over the long term.

The gender ratio in the province and local municipality indicates a situation where there is a large sector of migrant workers moving out of the area in search of employment. In Ward 27 this is slightly lower compared to the municipal and district statistics.

6.4.2 Population Stability

From Table 10 it is clear that the study area has a relative stable population with the majority of residents born in South Africa and having citizenship, even though the figures are a bit lower compared to the FTLM and District.

In-migration from the rural areas to the urban nodes can change the population stability due to the heightened population growth experienced within the FTLM and specifically within the urban areas.

Table 10: Population Stability

POPULATION STABILITY		
Area	**Born in South Africa**	**Citizenship**
Limpopo	97.6%	98%
Sekhukhune District	99%	99%
FTLM	98.8%	99%
Ward 27	91.1%	93%

Source: StatsSA: Community Survey 2016 and Census 2011 for ward-based information

6.4.3 Education and Skills Levels

Table 11 provides an outline of the education levels within the study area.

Table 11: Education Levels

EDUCATION LEVELS				
Area	**No Schooling**	**Some Primary**	**Grade 12**	**Higher Education**
Limpopo	14%	9%	28%	6%
Sekhukhune District	16%	8%	26%	4%
FTLM	16%	7%	26%	4%
Ward 27	16%	7%	19%	1%

Source: StatsSA: Community Survey 2016 and Census 2011 for ward-based information

Based on information above, the percentages of those achieving matric within the district and municipal areas are more or less similar. In Ward 27, however, there are lower levels of individuals that completed Grade 12 and significantly lower levels of individuals that have a higher education. Overall, the high levels of people with no schooling remain a concern, as well as the limited number of learners that completed their school education.

The high teacher/student ratios of 1:40 for primary schools and 1:35 for secondary schools are in line with the guidelines of the Department of Education, but does not necessarily ensure a conducive learning environment and does not assist with avoiding school drop-outs. A lack of sufficient higher education institutions within the local municipality can also be a contributing factor to the low number of graduates in the FTLM.

Although overall skills levels have increased over the years, a lack of relevant skills among locals can result in employers still recruiting outside the local municipal areas. This hampers the municipality's job creation efforts. Skills shortages are thus a challenge that needs to be overcome (FTLM: IDP: 2022).

6.5 Employment and Income

Table 12 indicates the employment and income levels within the area.

Table 12: Employment Profile

EMPLOYMENT AND INCOME LEVELS					
Area	**Employed**	**Unemployed**	**Discouraged work-seeker**	**Other non-economically active**	**Annual Household Income below R40k**
Limpopo	27.4%	17%	6%	49%	70%
Sekhukhune District	20.9%	22%	7%	50%	70%
FTLM	23%	25%	5%	47%	71%
Ward 27	22.1%	32%	3%	43%	65%

Source: StatsSA: Community Survey 2016 and Census 2011 for ward based information

Tabel 12 shows the average income levels in the province, district, municipal area and affected ward. It must be noted that Ward 27 of the FTLM indicated a lower level of annual household income compared to the Sekhukhune District and the FTLM, even though there are different mining activities and associated employment opportunities within this area for select individuals.

The number of households without any form of income or very low levels of income remain of concern. The poverty levels within the province, municipal areas and study area therefore remain a significant socio-economic challenge.

Unemployment is high, especially if the categories of “discouraged work-seekers” and “other non-economically active” are considered. Those falling within the “other” category can include individuals that are being supported by breadwinners working elsewhere or some relying on social grants, or some could be subsistence farmers or include women managing the households and looking after dependants. These sectors of the population will still rely on the small section of employed people within the population.

The table below indicates the projections made by the FTLM regarding the future labour force. The population projections for the year 2030 is lower than the figures obtained during the 2016 Community Survey. The working age population and possibly also the projected unemployment rates could thus even be higher than the figures provided in Table 13.

Table 13: Labour force projections

LABOUR FORCE PROJECTIONS FOR THE FTLM					
Indicator	**2011**	**2015**	**2020**	**2025**	**2030**
Population	385 000	430 800	487 400	538 100	579 700
Working age population	236 390	271 400	316 800	360 500	405 800
LF participation rate%	38.4	40	44	48	50
Labour force	90 770	108 560	139 400	173 000	202 900
New jobs	0	10 000	10 000	10 000	5 000
Employment	53 220	63 220	83 220	83 220	88 220
Unemployment rates	41%	42%	47%	52%	56%

Source: FTLM: IDP (2022)

The negative impact of Covid-19 on poorer households must also be considered. In addition, the state of the economy in South Africa could have contributed to an increase in the unemployment figures provided and could have significantly increased the poverty profile within the study area since the statistical surveys were conducted.

6.6 Land Claims

There are approximately twenty-four (24) traditional leaderships within the Sekhukhune District. These are mostly concentrated in the FTLM, Makhuduthamaga, the eastern extents of Ephraim Mogale and the south-western extents of Elias Motsoaledi municipality (the former Moutse area in KwaNdebele). In total, an estimated 658 887 ha of land in Sekhukhune District is under tribal authority. This represents about 48% of the total district area. In the FTLM, it covers about 329 850 ha of land which represents 58% of the municipal area (SDM: Draft SDF (2018). Large portions of land within the Sekhukhune District and the FTLM are thus subject to land claims which influences the land-uses. In some cases, different claims have been lodged for the same property, which complicates the outcome of the claim process even further. Most of these claims are not likely to be easily resolved and need tenure reform rather than restitution. The nature of land claims in the district hampers development and result in shortages of land but can also cause instability amongst communities.

Information obtained from the Commission on Restitution of Land Rights: Office of the Regional Land Claims Commissioner, Limpopo Province indicates that a land claim has been lodged on the farm De Grooteboom 373 KT. This claim has not been settled.

The following map from the Sekhukhune District Municipality Spatial Development Framework (2018) indicates the extent of the land-claims within the Sekhukhune District.

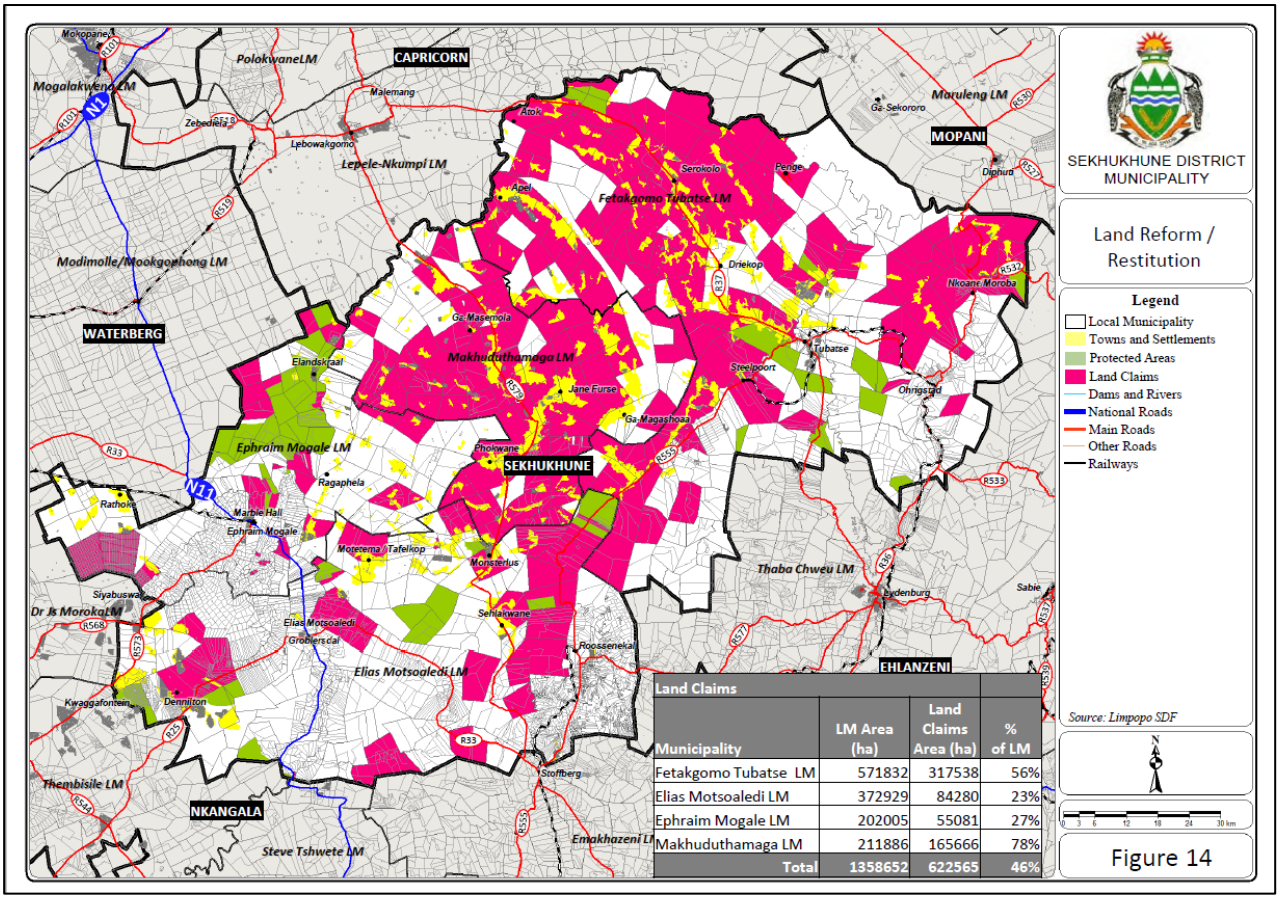


Figure 6: Land Claims within the Sekhukhune District

6.7 Land-Use

The Sekhukhune District Municipality Integrated Development Strategy (SGDS) for 2015 until 2025 identified growth sectors to drive economic growth and social development in the District. As part of the strategy, the potential of mining, agriculture and tourism as key contributors to its economy up to the year 2025 were emphasised. Mining activities and associated land-uses in the FTLM form a key part of the strategy. Mining opportunities include the beneficiation of minerals, building of a smelter, and the development of new platinum and chrome mines. Mining constraints include the variation in the price of minerals, and pressure on environmentally sensitive areas (SDM: Draft SDF: 2018).

Economic activities in the Sekhukhune District are linked to the predominant land-uses and these are mainly concentrated in two functional areas, namely the south-western economic activity area which is primarily centred on intensive commercial agricultural; and the north-eastern economic activity area which is primarily centred on platinum mining activities associated with the Merensky Reef along the R37 (SDM: Draft SDF: 2018).

The dispersed settlement structure of the FTLM also influences the land-uses in the municipality. A number of secondary/ gravel roads serve these settlements, with Atok and Apel representing the most prominent settlement areas in the western extents of the municipality. Driekop, Burgersfort, Steelpoort and Orichstad are the main settlements in the eastern parts (SDM: Draft SDF: 2018).

The figure below indicates the scattered settlements found throughout the FTLM area, the existing and proposed growth points, as well as areas of environmental importance.

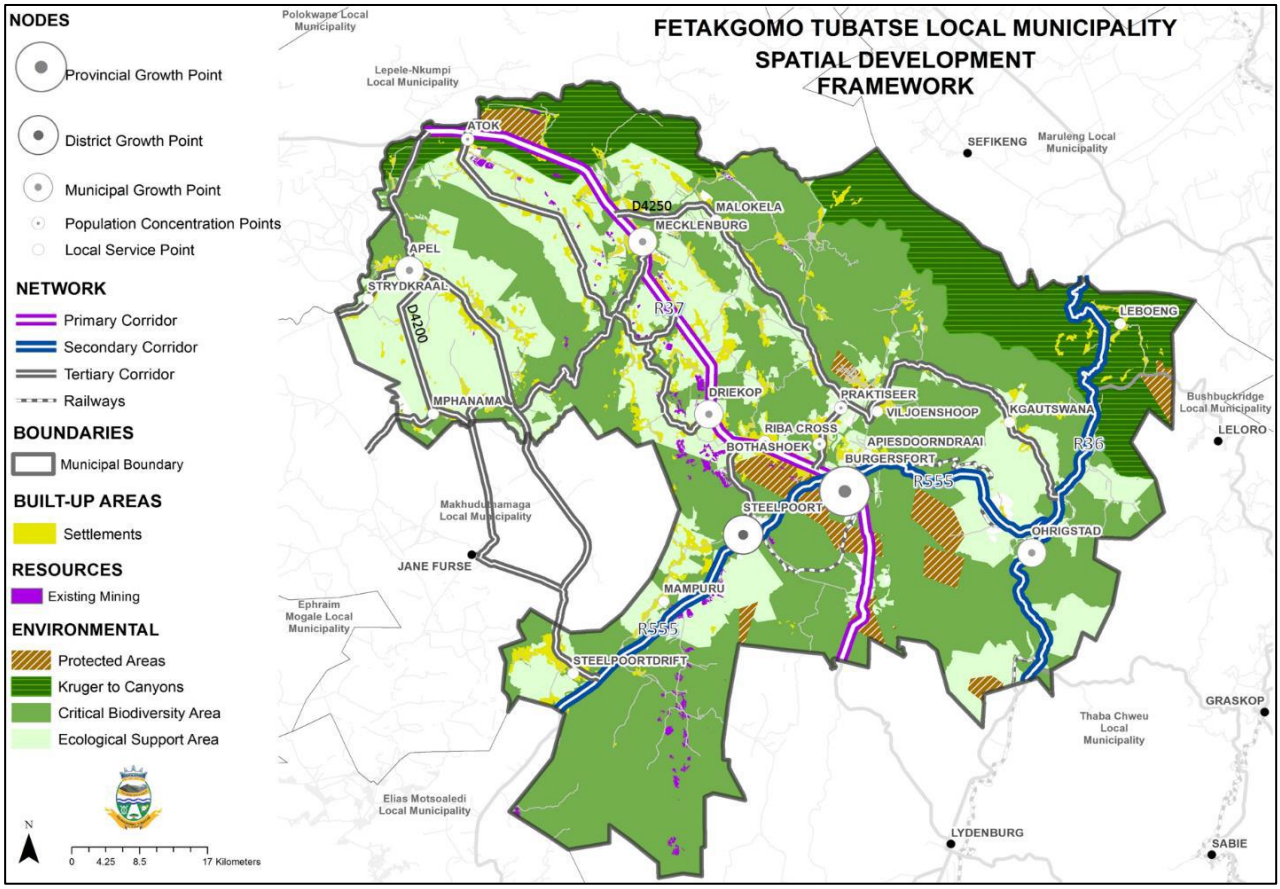


Figure 7: FTLM Spatial Development Framework

Due to the concentration of mining activities along the R37 and R555 (Dilokong Corridor), the FTLM functions as a strong economic centre within the Sekhukhune District. The mining activities in the western quadrant of the municipality within the Steelpoort and Burgersfort areas stimulate retail and service businesses, as well as the development of housing close to these areas. In time, this can alter the current fragmented spatial pattern and land-use by creating few large urban settlements.

Steelpoort town is characterised by mixed used developments that include heavy engineering enterprises; suppliers to the mines; transport facilities; building material suppliers; distributors/ wholesale, medium density housing and a small retail component.

Mining thus places pressure on the natural environment, and can result in land-use conflicts with other uses such as agriculture. Commercial farming in FTLM mainly includes maize, wheat, cotton, tobacco, grapes, citrus, vegetables, game, sheep and goats. Subsistence farming found throughout the FTLM is focused on maize, wheat, vegetables cattle, and goats (SDM: Draft SDF: 2018).

Development Principle 1 of the SDF is to "actively protect, manage and rehabilitate the natural environmental resources in the district in order to ensure a sustainable equilibrium between the competing mining, tourism and agricultural industries." Development Principle 10 is to "optimally

utilise the mining potential in the district with due consideration to the continuous rehabilitation of mining land" (SDM: Draft SDF: 2018). The development of the Dilokong Corridor and mining belt is not only consistent with the Limpopo SDF which seeks to enhance the Province's competitive advantage in mining, but also with SDM's focus on prioritising mining as the sector most likely to deliver jobs and value-added opportunities. Mining, and associated activities, as a land-use can thus be accommodated and integrated in a sustainable manner with other land-uses in the area, while preserving the natural resources and agricultural land. As mining is a temporary land use which contributes to the economy for a limited period of time, measures need to be put in place to ensure rehabilitation to allow the agricultural and tourism potential of mining areas to be restored once the mining activities have ceased (SDM: Draft SDF: 2018).

The land-uses surrounding the site include mining and related activities, as well as accommodation facilities. Mining activities in close proximity to the proposed PV Facility site are undertaken by the following:

- Assore: Dwarsrivier Chrome Mine;
- African Rainbow Minerals: Two River's Platinum Mine
- Boulders Group: De Grooteboom Mine;
- Glencore XStrata: Thorncliffe Chrome Mine;
- Anglo American: Mototolo Mining Complex;
- Glencore XStrata: Magareng Mine;
- Crush Aggregate Solutions.

These listed above are indicated in the figure below, with the proposed site outline in yellow. Samancor's Tweefontein Mine. BCR Mine's Spitsvale Mine and Glencore's Lion Smelter are situated to the north of the proposed site towards Steelpoort, but not indicated below:

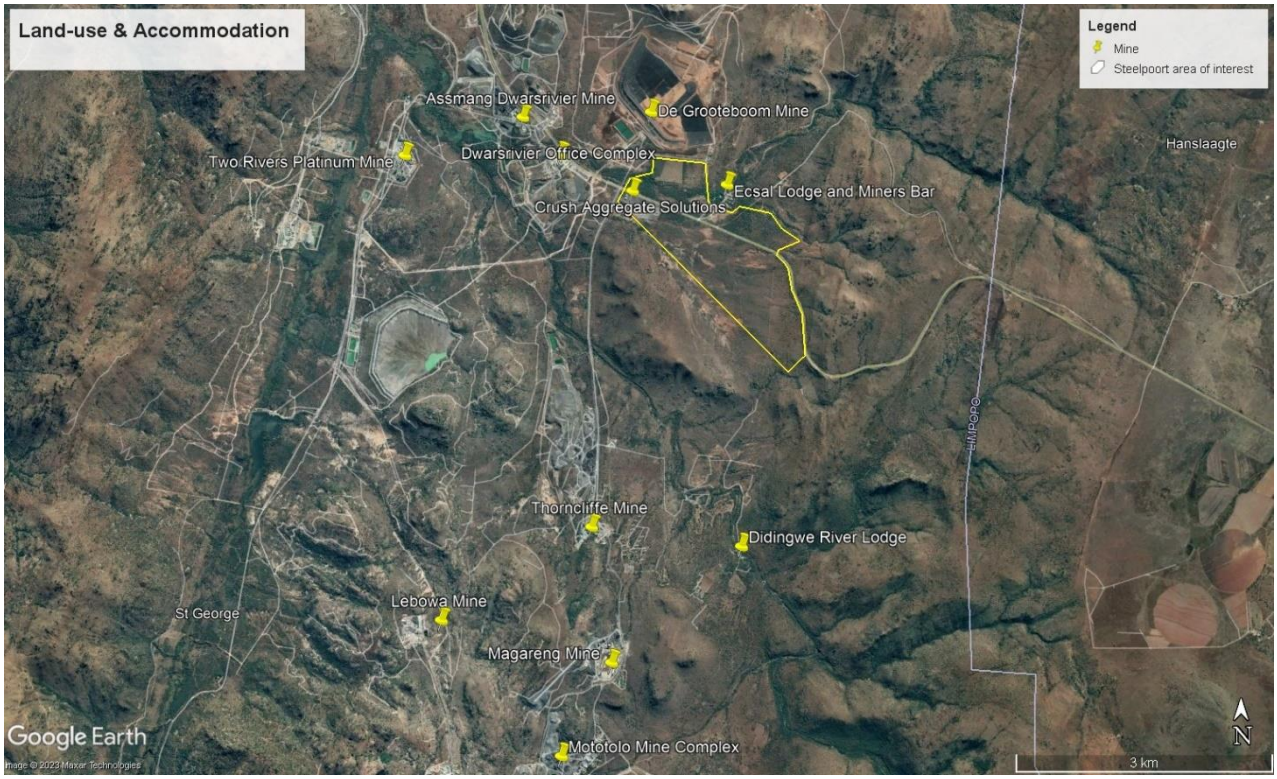


Figure 8: Land-use and accommodation

The area and land-uses surrounding the proposed site is thus characterised by mining related activities and mining infrastructure together with roads, and transmission and distribution line servitudes. The following pictures indicates the site characteristics and land-uses:

- Figure 9: View of southern section of the proposed site with mining activities in the background. This photograph was taken of the southern section of the site from the R577 in a south-westerly direction;
- Figure 10: View of northern section of the proposed site with mining activities in the background to the north. This photograph was taken of the northern section of the site from the R577 in a northerly direction;
- Figure 11: Crushing activities within the north-western section of the farm De Grooteboom. The photograph was taken from the opposite side of the R577 towards the south-west.
- Figure 12: Informal vending opposite the R577 and the north-western section of the site, near the corner of the R577 (Sekhukhune Road) and the Thorncliffe Road.

Figure 9: View of southern section of the proposed site

Figure 10: View of northern section of proposed site

Figure 11: Crushing activities within north-western section of the farm De Grooteboom

Figure 12: Informal vendors

The land-uses in the larger area impact on the visual character which ranges from natural rural areas, and rural settlements to mining related activities and infrastructure. The proposed site for the PV Facility is thus surrounded by areas of mining activity as well as natural veld with some hills to the south and southeast.

6.8 Safety, Security and Health

The nearest police stations within the larger study area include the following: Sekhukhune, Maartenshoop, Burgersfort, Driekop and Tubatse. Types of crime that must be dealt with include burglaries, thefts, car hijackings, sexual crimes, assaults and murder. As part of the public participation process for the IDP, car hijackings and robberies were listed as a major concern in Ward 27 (FTLM: IDP: 2022).

The FTLM has hospitals in Burgersfort, namely Dilokong and Mecklenberg hospitals. Various primary health care clinics are located throughout the municipality. In Ward 27, the Malekane and Kutullo areas receive a weekly mobile clinic, but all the villages required this service. During the IDP public participation processes, however, there were numerous requests for additional clinics that also operate at longer hours, as well as mobile clinics throughout the FTLM area (FTLM: IDP: 2022).

The health of local residents is further impacted on by air quality impacts associated with various mining activities, the illegal burning of waste, irregular waste removal, as well as illegal dumping.

6.9 Housing and Related Infrastructure

The infrastructure in the larger study area and within the FTLM is fairly poor, with major service backlogs that cannot meet the needs of the dispersed human settlements and high poverty levels. Large sections of the population, however, lives in formal dwellings, with limited land invasions and informal settlements. The latter are mainly concentrated around larger towns and settlements.

Although most wards in FTLM have previously benefited from the RDP housing implementation, the overall housing backlog are approximately 16 755 units. Urbanisation, mainly in search of employment opportunities, as well as mining activities continue to put pressure on the need for housing within the Municipality (FTLM: IDP: 2022). The area where the proposed development is situated, have higher levels of households living within informal dwellings compared to the municipality and district. This need is increasing at an alarming rate due to the influx of people into the Burgersfort and Steelpoort areas. It can thus be assumed that there is a need for housing infrastructure in the study area. The IDP also noted that there are various incomplete RDP Housing projects, one of which is located in Ward 27 (FTLM: IDP: 2022).

The following table provides an outline of the percentage of households living in formal dwellings.

Table 14: Households and housing infrastructure

HOUSEHOLDS				
Area	**No of Households**	**Households in formal dwellings**	**Households in informal dwellings**	**Other**
Limpopo	1 601 083	80%	4.8%	15.2%
Sekhukhune District	290 526	77%	6.1%	16.9%
FTLM	125 363	76%	6.3%	17.7%
Ward 27	2 727	67%	22%	11%

Source: StatsSA: Community Survey 2016 and Census 2011 for ward based information

6.10 Basic Service Delivery

6.10.1 Water

FTLM can be seen as a water stressed municipality. According to the community survey of 2016, 62.7% of households received their water from a regional or local service provider and thus had access to safe drinking water supply services. Only 22% of households have access to piped water in their yard and 23% used piped water on community stands.

Almost all the rural villages in the FTLM still source water from boreholes, rivers, dams and tanks. The main reason for this situation is illegal water connections, limited communal and ageing infrastructure, drought, lack of financial resources, the topography of the area, as well as the number of informal and scattered settlements through the municipal area (FTLM: IDP: 2022).

It should be noted that progress has been made in terms of water provision in FTLM, but that 35,4% of households in FTLM still did not have access to safe drinking water supply service in 2016. The IDP further indicated that there are still severe challenges and water shortages within Ward 27 as 62% of the residents still received their water for household use from rivers (FTLM: IDP: 2022).

6.10.2 Sanitation

Sanitation services is a function of the Sekhukhune District Municipality. In the FTLM, 84% of households still rely on the pit toilet system (Community Survey 2016). Within Ward 27, 78% of the households still make use of pit latrines, with only 4% of these being Ventilated Improved Pit (VIP) latrines. Those without access to any sanitation type facility totals 11% which are almost double the rate compared to the Sekhukhune District. Even though the FTLM has a huge backlog in sanitation provision, improvements since the survey results of 2011 and 2016 were published could have been made.

Challenges with regards to sanitation provision include, inter alia, the following:

- There is an insufficient basic level of sanitation services creating health and environmental challenges;
- There is a need for the upgrading of the existing sewage plants in the municipality;
- No adequate monitoring of sanitation projects is undertaken; and
- Water borne ablution facilities in all municipal and community facilities need to be attended to (FTLM: IDP: 2022).

The Steelpoort sewerage plant is being refurbished to cater for the development taking place in the area and to eliminate overcapacity to the facility. There is a clear overloading of the plant due to chemical toilet and septic tank discharged at the treatment works (FTLM: IDP: 2022)

6.10.3 Electricity

ESKOM is the electricity service provider to the FTLM. According to the Community Survey of 2016, 82% of households in the FTLM had access to in-house prepaid meters with 10% that had no access to any type of formal electricity provision. These households still rely on candles and paraffin (FTLM: IDP 2022).

A large section of the rural population thus has no, to very limited access, to electricity which impacts negatively on local economic development and community projects (FTLM: IDP: 2022).

6.10.4 Refuse Removal

In FTLM only 10% of the population received a service from the municipality or private company. The majority of households rely on their own dumps. The widespread inadequacy of formal refuse removal services in the municipal area poses a health hazard to the rural communities and is particularly problematic to businesses (FTLM: IDP: 2022).

Illegal dumping in the area is specifically problematic along the R555 road.

Mines within the municipality have subcontracted private companies to collect their general waste. Waste that is disposed at the landfill site is only general waste and is estimated at 484 tonnes per month (FTLM: IDP: 2022).

6.10.5 Roads

Main roads within the area are the R555 and R577. Sections of these roads are in a poor condition, with limited storm water infrastructure and rapidly deteriorating road surfaces. The volume of heavy vehicles making use of these roads exacerbates the poor road surfaces and creates dangerous driving conditions.

Throughout the area unpaved roads are particularly found in the various scattered settlements. Most of these roads are poorly maintained and transport options to these areas are limited. During rainy seasons, the situation is worsened by the lack of stormwater drainage and low-lying bridges that are flooded.

Eight mining companies, in partnership with the Roads Agency Limpopo (RAL), launched the start of the construction of the new steel bridge on the D2219 and the R555 and rehabilitation of the old single-lane bridge at Ga-Malekana (Madibeng area) in the FTLM in February 2023. Construction was expected to start in March 2023 (Lowvelder, 2023).

6.11 Electricity and mining

The erratic power supply in Limpopo Province due to loadshedding significantly contributed to the mining output decrease by 9% year-on-year in November 2022 (Mail & Guardian, 2023). As the mining industry is the main contributor to South Africa's Gross Domestic Product (GDP) load-shedding and power shortages can cause production to decline and lead to retrenchments. Mines therefore has to put plans in place to ensure that mining activities are not interrupted by these power outages.

Energy intensive mining operations thus find themselves in a situation where the energy grid cannot meet the demand. There is thus an increasing need for mining companies to investigate private production of electricity, in which renewable power generation can play a vital role.

6.12 Local Economic Profile

The FTLM economy is driven by mining and agriculture followed by trade, tourism, manufacturing, general government, community, social and personal services, catering and accommodation. Mining still presents the largest opportunity in the area and together with the available natural resources in the area can create a potential to develop tourism and thereby diversify the economic base of the municipality (FTLM: IDP: 2022).

The mining industry is furthermore the municipality's leading job creator and key economic growth driver. This sector includes the extracting and beneficiating of minerals such as platinum, lead, chrome, black chrome and other precious minerals. With all major mining houses fully represented in the municipality, locals pin their hopes for jobs and income security in this sector. The mining sector accounts for 34% of the Municipality's total Gross Value Added (GVA) and 54% of the total labour force in the formal sector. The job absorption patterns during a 12-year review period in the sector shows that year 2012 witnessed the highest number of jobs (1833) created.

In 2020, the Quarterly Labour Force Survey by Statistics SA revealed that Limpopo lost 236 000 jobs due to the Covid-19 pandemic and that all sectors of the economy suffered job losses with the exception of the agriculture sector, in which 16 000 jobs were created (Mail and Guardian, 2021). In 2022, the Limpopo Economic Development, Environment and Tourism department indicated that the job losses in the Limpopo Province, due to Covid-19, amounted to 242 000 people that lost their jobs since 2020 (SA Government, 2022).

The provincial government has set aside R3.5-billion to mitigate against the impact of Covid-19 on the economy and the population. The focus would be on mining, the manufacturing and construction sectors as well as tourism. High impact catalytic projects will be focusing on the Broadband Network Infrastructure Initiative, the Science and Technology Park, Digital Hubs and Special Economic Zones, namely, Musina-Makhado SEZ, as well as the Fetakgomo-Tubatse SEZ. Various other projects are aimed at attracting investment into the agricultural sector. A project within the larger study area is the implementation of the Lebowakgomo Chicken Abattoir, which will, among other things, result in revitalisation of several broiler production projects. This will create 500 direct jobs within the value chain (Mail and Guardian, 2022 and SA Government, 2022).

The Limpopo Provincial Government identified the Fetakgomo-Tubatse area in Steelpoort for a Special Economic Zone (SEZ) development, which is proposed to the established at Dithamaga Trust, near Steelpoort in Ward 27. The Fetakgomo-Tubatse SEZ will be a multi-sectoral establishment that will focus on platinum, chrome, iron ore and vanadium beneficiation, general manufacturing, manufacturing and assembly of mining inputs, energy generation and manufacturing and assembly of components into the different energy generating plants (biodiesel, lithium-ion batteries, vanadium redox batteries, solar energy), agro-processing and logistics. Such a zone can change the socio-economic characteristics in the region by accelerating the manufacturing base, promoting industrialisation and attracting investments. According to the Limpopo Economic Development Agency (LEDA), the Tubatse SEZ will impact positively on more than a million people in the province due to improved economic activities within the Dilokong Spatial Economic Initiative as well as improving economic progress within other districts and municipalities (FTLM: IDP: 2022). In February 2023 it was indicated that a budget has been allocated for the development of the Tubatse SEZ (City Press, 2023).

The agriculture sector in the FTLM is still emerging and heavily under-invested. Lack of mechanisation makes smallholder farming one of the smallest contributors to the municipality's economic growth.

The manufacturing sector covers the manufacturing of goods, products and beverages. It also comprises the production, processing and preservation of meat, fish, fruit, vegetables, oils and dairy

products; grain mill, starches and tobacco products; textile products; spinning, weaving; and petroleum products and nuclear fuel. This sector has a vast potential as job creator but is still in its infancy.

With regards to the tourism sector, it was noted that the unique selling benefits of local heritage sites and other tourism facilities in the municipality are not effectively profiled and marketed. The tourism sector is further being overshadowed by mining to the extent that more strategic focus is unevenly invested in the latter at its expense.

Investment opportunities in the FTLM include:

- mining investment;
- land availability;
- tourism;
- funding source from private sector; and
- job creation from infrastructure investment.

7. POTENTIAL IMPACTS DURING THE CONSTRUCTION PHASE

7.1 Description of Construction Related Activities

Construction of a PV Facility would typically entail site surveying, site preparation (e.g. clearing of vegetation at the footprint of the components for the solar field, levelling of the site), construction and establishment of internal access roads, fencing of the site and construction of the entrance gate, transportation of components and equipment to the site, construction of foundations, supports and platforms, assembly, erection and construction of the solar fields and ancillary infrastructure, and implementation of the connections points, followed by the commissioning of the facility.

The construction period for the Phula PV Facility is expected to be approximately eighteen (18) months.

Impacts associated with the construction phase of PV facility are usually of a short duration, temporary in nature, but could have long term effects on the surrounding environment.

The following section provides a description of the impacts anticipated to occur during the construction phase of the proposed PV facility.

7.2 Employment and Income

In terms of employment opportunities as part of the PV solar facility it is necessary to focus on:

- The number of jobs (direct and indirect) that would be created by the proposed project;
- The degree to which employment opportunities of the proposed project match the job skills of the unemployed in the area (economic equity); and
- Whether the project would have a significant impact on the occupational opportunities in the area.

Different construction teams will be utilised for the duration of the construction period. During the peak of the construction phase it is estimated that two-hundred and fifty (250) workers would be on site. The construction related opportunities would require unskilled, semi-skilled and highly skilled individuals. The low skilled positions would make up the bulk of the staff component (220 individuals), with twenty (20) medium skilled and ten (10) highly skilled individuals.

Job opportunities for unskilled labour would include the use of manual labour during the installation of gates and fences, land stabilisation, restoration of top soil, creation of fire breaks, cable laying and other general construction activities. Even though the temporary type of employment opportunities for unskilled workers would be intermittent and of very short durations, it would still have positive impacts for those families dependent on the income.

Medium skilled positions would possibly be involved with the assembly and erection of the panels. These positions would be managed by more skilled individuals and even specialists. Specialists such as electricians and engineers would be required for supervision, management and implementation purposes of the overall construction process.

The majority of the economic active population in the larger Limpopo area have mainly been engaged in informal trading, mining, construction, agriculture, manufacturing as well as community service and ancillary jobs. Due to the level of skills found amongst the local population in the study area, as well as the main local employment sector being the mining sector, it is likely that the

number of lower to medium skilled opportunities could be filled by locals. The specialists would probably be sourced from all over South Africa or even abroad. The possible lack of available local specialised skills during the construction of the facility will result in the continued outsourcing of skills during the construction phase.

The proposed PV facility project could also lead to some indirect job creation within the informal sector, even if this is not necessarily authorised. This refers to the temporary expansion of existing food stalls by informal vendors adjacent to the site to cater for the needs of the construction team members.

It is thus concluded that some local skills could correspond with at least a number of elements of the project and therefore constitutes a positive impact. Although positive, the impact of additional employment creation will have a medium overall significance if the number of employment opportunities is measured against the unemployment rate within the municipality and the short duration of the construction period (± 18 months). Even limited and temporary, these employment opportunities remain as a positive impact with some trickle-down impacts on the households benefiting from the increased income, and the benefits to the local economy as a result of increased expenditure.

With regards to employment creation and skills equity, positive impacts are thus foreseen. Should employment be linked to training and capacity building to ensure transferable skills it would further the positives in this regard.

7.3 Inflow of Temporary Workers and Jobseekers

With regards to the construction of the PV facility, the inflow of temporary workers during the construction phase refers to the movement and presence of the contractors, sub-contractors and those employed by these contractors, whether locals from the area, or an outside workforce. As indicated above, approximately 250 individuals would form part of the construction team during the peak construction period.

Construction projects have the potential to attract jobseekers. The larger municipal area is already experiencing a significant influx of outsiders to the area as the population within the FTLM is growing at an exponential rate, with growth especially concentrated around developing areas such as nearby Steelpoort. It is highly likely that this situation would continue, even if the scope of the proposed project is considered. The proximity of Steelpoort and other smaller residential areas such as Madidimola and Ga-Malekana (sub sections of Madibeng), Ga-Mampuru, Nokaneng Masha Gosebo and Maartenshoop to the proposed site, could further exacerbate the situation. The proposed site for the PV facility is also situated in an area with high levels of movement (people, heavy vehicles and other mining related machinery) and the R577 road accommodates this movement.

Even though a relatively small workforce would be required, the influx of jobseekers is thus highly likely. Due to the above, as well as socio-economic conditions in the area and low income levels, the influx of potential jobseekers would not necessarily be flowing from outside the study area but could include unemployed locals within the municipal area.

If these jobseekers gather at the site entrance or remain in the area it would place pressure on the social and bio-physical environments of the study area. Poor control over the employment process could, amongst others, result in:

- Localised pollution at the area where the jobseekers gather;
- Possible social dissatisfaction with regards to allocation of job opportunities and local procurement;
- Unfulfilled community expectations in terms of employment creation that could result in social unrest, protests and conflict; and
- Impacts on the local municipality in terms of infrastructure and service delivery and a potential increase in the unemployment base if newcomers remain in the area post construction.

Jobseekers could lessen once construction has started and once the individuals have realised that additional jobs would not necessarily become available.

Contractors must ensure that workers have sufficient accommodation. Outside contractors are likely to be housed in Steelpoort, Mashishing, Burgersfort and other urban areas where there is availability. The workers are expected to be transported to site on a daily basis. Ecsal Lodge on the farm De Grooteboom can also be utilised which will limit transportation requirements. The facility is, however, not suited to accommodate all those that require accommodation.

Employment of unskilled individuals, that will form the bulk of the construction workforce, from the local communities will limit the need for additional temporary accommodation.

7.4 Local and Regional Economic Benefits

The short term and part-time employment during construction can result in direct or indirect spin-offs on the local economy albeit of a relatively small scale. Some typical building supplies for example bricks, cement and general gear can be procured from within the local municipal area, as the business component of the larger Steelpoort area is well developed.

It is likely that specialised material and structures for the PV facility will be obtained, manufactured and assembled elsewhere before being transported to the site. Other specialised equipment would also probably be procured from outside the municipal area.

7.5 Community Safety

Safety concerns during the construction phase relate to the actual construction activities, unauthorised entry to the construction site, and the movement of heavy vehicles or machinery through the area. The area is already characterised by an existing high level of movement of heavy vehicles and people due to the mining activities in close proximity to the site, which could result in an increased risk of traffic accidents (vehicles and pedestrians) especially during peak construction periods.

Furthermore, community safety can be affected during the construction phase in the event of unfulfilled community expectations in terms of the employment creation. In worst case scenarios it can lead to protests that can result in violence, social conflict and unrest in the area.

The inflow of individuals unfamiliar to the resident population is usually perceived to increase the criminal activities in the area. The construction phase of the proposed project could thus result in

negative impacts on the community safety due to some outsiders being part of the construction team, the presence of the construction team in itself and the storage of materials on site. Concerns in this regard relate to the theft of materials and equipment, misconduct of workers, trespassing of workers on privately owned properties and/or mining areas, the possible increase in general criminal activities, littering, increase in traffic, increase in noise, unwanted social behaviour and the development of informal vending stations. Vulnerable sectors of the community who could be affected by any increase in criminal activities would include the poor, women, children and the elderly.

7.6 Health Risks

Large volumes of informal influx of people are not expected, resulting in very limited potential increase in health-related risks. However, the presence of an outside workforce is associated with an increased risk in Sexually Transmitted Diseases (STDs). Even if the manifestation and significance of this impact cannot be known (as it impossible to determine which persons intend to move into the area and what their STIs and HIV/AIDS status is), the risk of increase in the spread and prevalence of STIs and HIV/Aids would always be a source of concern.

7.7 Visual Impact and Sense of Place

Land-uses in the area include mining and mining related activities and infrastructure (e.g. offices, crushers, conveyors, stockpiles, waste rock dumps, access and haul roads, mine plants and offices etc.), natural veld and farming activities. The R577 runs through the farm De Grooteboom 373 KT. The area is not pristine and various disturbances to the natural area characterise the study area.

The main visual impact associated with the construction phase would be the construction site for the PV facility, possible storage of equipment, PV cells and construction vehicles (laydown area), storage area, as well as the disruption of the soil and vegetation at this site. The removal of vegetation is expected to be clearly visible to the east of the site due to the topography and to the road users making use of the section of the R577 to the east of the site.

Temporary visual disturbances are thus highly likely and changes in the landscape characteristics will already occur during the construction phase.

7.8 Intrusion Impacts

7.8.1 People movement

Considering that the area adjacent to the proposed site for the PV facility is largely characterised by mining activities, the concentrated impact of the worker movements on site is expected to be of a moderate significance. The movement of workers further afield (e.g. between larger urban areas such as Steelpoort and the site) and the need for accommodation (e.g. within larger urban centres such as Steelpoort, Burgersfort and even Lydenburg/Mashishing) could have negative impacts on the local communities and private landowners if not properly managed and/or catered for by the contractor.

The utilisation of Ecsal Lodge for accommodation purposes can limit negative impacts in this regard. This facility is located on the eastern section of the farm De Grooteboom and would further minimise the risks associated with daily transportation of workers over long distances, due to the state of the road surfaces (potholes) between the project site and the larger urban centres.

7.8.2 Traffic Movement

The heavy and abnormal vehicles transporting the solar panels and transformers will have temporary once-off impacts, with the other general type vehicles resulting in a localised continuous impact for the duration of the construction period.

Movement of construction related machinery and vehicles are anticipated to mainly take place within the boundaries of the PV facility site and on the access road with less frequent movement intervals on the provincial road (R577). It must be noted that the road surfaces of the main roads between the site and the larger urban centres are in a poor condition. The impact of the heavy vehicles associated with the proposed PV facility could thus add to some of the pressure on the road capacity and road surface, although of a limited extent. Additional traffic at the site entrance and roads adjacent to the site could further impact on the traffic movement and flow of vehicles from the various mining activities. Congestions and increased accidents risks can occur.

One can conclude that the increased noise and dust created by these vehicles will be intermittent and of a short duration. The total number of the vehicle fleet on the construction site however is not known at this stage.

7.8.3 Dust

The construction activities, such as vegetation clearance, and site establishment will also result in emissions and dust pollution. Due to mining activities already creating dust impacts, the cumulative impacts could be significant, although for a relative short duration. Dust mitigation would be required to minimise the impacts.

7.8.4 Noise

The study area can, from a social perspective, be classified as an area with noise levels associated with mining activities concentrated within the mining areas. Traffic along the R577 add to the ambient noise levels.

Noise from the construction phase would mainly include noise from the construction activities of the PV facility, operation of heavy machinery and the movement of construction related vehicles. Noise levels on-site will increase, with lower increases at off-site locations. These increased levels will be intermittent and of a short duration. It is not anticipated that any residents would be negatively affected by any increase in noise due to the distance of these residential areas to the proposed PV facility.

In an area with various mining activities, the noise as a result of the construction phase of the project could be viewed as minor. To limit noise pollution and to prevent possible exceedances above any stipulated thresholds, mitigation measures must be implemented.

8. POTENTIAL IMPACTS DURING THE OPERATIONAL PHASE

8.1 Description of Operational Phase

The life of a PV facility could be between twenty (20) to thirty-five (35) years. Once operational, maintenance would be undertaken on a regular basis with the associated general management of the facility on a continuous basis.

The impacts usually associated with the operational phase are therefore perceived by affected parties to be more severe. The duration of these impacts, however, should not only be the critical issue, but aspects such as the extent, the intensity and significance would have to be considered. Aspects rated high would thus warrant intense mitigation measures.

The following sections discuss the anticipated social impacts during the operational phase.

8.2 Employment and Income

The PV facility will employ approximately sixty (60) individuals as part of the permanent employees during the operational phase. High skilled workers would constitute less than 10% (± 4 individuals), with the medium skilled workers comprising approximately 20% of the workforce (± 12 individuals) and the low or unskilled workers 76% (± 46 individuals). The skills required to fill the lower to medium skilled positions can be filled by individuals from the local municipal area, as it is anticipated that individuals with the relevant skills in the electricity sector would be available due to the existing mining activities undertaken in the region and solar facilities already constructed in the Limpopo Province. Highly skilled workers are likely to still be imported from outside the area.

These employees would work shifts (usually eight-hour shifts) and all would not necessarily be on site at the same time. Workers would typically comprise of specialists, managers, security, as well as maintenance and control room staff. Their duties could entail cleaning of the panels, site and infrastructure maintenance, undertaking preventive inspections, and executing remote indications.

Employment creation is a positive result of the facility and its infrastructure, irrespective of the number of employment opportunities created. Local procurement would enhance the benefits of the proposed project and could result in indirect economic spin-offs and job creation.

Through training and skills development, the proposed project could further provide employees from the local community with applicable and transferable skills which would thus result in the overall improvement of the quality of life of those involved.

The project applicant and any contractors involved could focus on SMMEs and local entrepreneurs with regards to local procurement and the establishment of supply-links with local suppliers. It would be beneficial to the local communities and could further stimulate the local economy through sustaining job opportunities for individuals employed by these small businesses. Failure to involve the local population, emerging contractors and SMME's could result in the loss of various opportunities for locals to benefit from the proposed project.

8.3 Population Influx

Population change refers to the change in the size and density, as well as demographic profile of the local community.

During the operational phase a limited number of permanent employees (60) would be employed. Some additional pressure on existing services, health facilities and infrastructure (e.g. clinics, water, electricity, roads) are foreseen. Even though the presence of the employees would not necessarily disturb any residents' daily living and movement patterns, the employees and their families would still require permanent accommodation. The capacity of the municipality to deliver suitable infrastructure and services to the area, and especially with regards to land available for residential infrastructure is already challenged. Housing backlogs remain due to the existing inflow of outsiders to the area. The possible additional demand placed on the area by the proposed PV facility could be incorporated into the municipality's overall planning strategy, as the other large developments in the area are already requiring land for houses to be constructed.

Should locals be employed, this would limit any possible negative impacts on services provided and on accommodation requirements. Thus, no significant changes, are foreseen in terms of the social fabric of the community as a result of the proposed project.

During the operational phase of the PV facility an inflow of jobseekers is improbable due to the limited and visible management and maintenance activities associated with such a facility and the fact that all employees would not be on site simultaneously.

8.4 Local and Regional Economic Benefits

The project proponent has had discussions with potential off-takers, amongst others the mines that are operating in the larger area. This process and agreements, however, have not yet been finalised. The PV facility would result in the following local and regional economic benefits:

- An increased local spending pattern by temporary workers (short-term contract opportunities during the operational phase) and permanent workforce;
- Some poverty alleviation through employment and possible job creation for low-income groups throughout the life of the facility;
- The limited number of direct employment opportunities during the operational phase of the PV facility indicates that no visible economic spin-offs for the local economy would result due to the restricted wage bill and limited direct flow of revenue within the surrounding communities. Although this is the case, the local procurement of goods and services, at the PV facility could result in some secondary economic spin-offs;
- The project can contribute to economic activities in the local economy through ensuring a stable electricity supply into the grid which could materialise in limiting the mining industries' dependency on the national electricity grid while lowering operational costs which could again result in continued mining;
- Implementation of the project and strict environmental management could have positive long-term impacts for users in terms of emissions footprint;
- The PV facility's contribution to the electricity grid can assist in lessening the overall dependency on fossil fuels and thereby lessening the impacts of emissions of coal power plants on community health and the use of water as scarce resource.

- Should the local mines and/or businesses in the area receive power from the PV facility through the grid, it would avoid restructuring or closing of operations due to loadshedding impacts on production with subsequent negative impacts on employees, mine workers and people who rely on services provided by the businesses and mining industry.
- Positive long-term impacts on the local and regional economy as a result of continuation of mining operations with subsequent indirect employment opportunities and downstream economic opportunities;
- Spin-offs from continued mining activities as a result on sustained production based on a stable electricity supply;
- The PV facility project would inject capital investment in the area. The electricity output from the facility would assist in the electricity needs by putting additional power into the grid which could provide a more stable electricity supply. Should the mines in the area be some of the off-takers (through the grid), the facility will also assist to reduce the diesel usage requirements of these mines which would have significant local and regional economic and environmental benefits (lessening carbon emissions in the area);
- As part of the applicant's/proponent's socio-economic responsibility, various social ills and needs can be addressed through cooperation with nearby community representatives to ensure additional long-term sustainable benefits to community members with a further reach than the direct project benefits. The success of these initiatives (e.g. poverty alleviation through community projects, sanitation related, education related etc.) would be based on a collaborative and inclusive approach.

8.5 Land-use Impacts

The farm De Grooteboom 373 KT: Portion 2 and the Remaining Extent of the farm, is in close proximity to the local chrome and platinum mines within the Steelpoort area. The land is privately owned. This land will thus not shift from present ownership and no financial losses to the communities are foreseen with regards to any land acquisition. It should be noted that if any legitimate land claim with regards to the property is legally settled in future, that it must be dealt with accordingly.

The proposed new land-use are seen to be acceptable with the surrounding land-uses in the area, as per the Sekhukhune District Municipality Integrated Development Strategy (SGDS). At this stage, no negative impacts with regards to the change of zoning status are anticipated as a result of the restricted future uses.

De Groote Boom Minerals and Boulder Capital (Pty) Ltd (De Groote Boom Mine) has a mining right that includes Portion 2 and the Remaining Extent of the farm De Grooteboom 373 KT. At present, the mining right is not acted upon, and it is unknown whether future mining activities will be pursued, and the extent thereof. At this stage it can thus only be noted that the current proposed layout of the PV facility will not have an impact on existing mining activities.

8.6 Community Safety

It is not expected that the operational phase of the project would have any significant impacts on the community safety due to the limited activities that would be undertaken on the site, the restricted movement of workers, as well as the number of workers employed at the facility.

Unauthorised entry to the facility during the operation with subsequent risks such as e.g. sabotage, damage to infrastructure and accidents, as well as the risks of fires would remain. Implementation of general safety and security measures e.g. security fencing, security patrols and services, as well as access control could limit the risks.

Emergencies could be handled by the local health and emergency services, although pro-active planning by developing and implementing a Health and Safety Plan would assist in this regard.

8.7 Health Risks

The operational phase of the project is not expected to pose potential risks, or adverse impacts to the health of its workforce or to community health. As the operations at the proposed PV facility would not result in any air pollution, the subsequent health impacts on communities and property owners in close proximity or sensitive receptors are deemed insignificant. An Occupational Health and Safety, Community Security and Emergency Preparedness and Response Plan must be compiled to address the possible risks to the health and safety of the workforce.

Additional waste would however be generated by the employees on site. This impact is expected to be mitigated through the proper design of the facilities on site and could thus be accommodated by the waste management services and infrastructure present in the area.

8.8 Visual Impact and Sense of Place

The social impact associated with the impact on the sense of place relates to the change in the landscape character and visual impact of the proposed PV facility. The permanent visual impact on adjacent landowners in the area was assessed as part of the Visual Impact Assessment. The following discussion should thus be read from a social perspective as the impact on the sense of place, but also in conjunction with the Visual Impact Assessment.

The PV modules (panels) would be 3m at its highest points above ground level when the PV modules are pointing due east or west. The battery array will be 3.5 metres in height. The 33kV/132kV onsite facility substation and the Battery Energy Storage System (BESS) will be located within the north-western section of the development that would be to the west of the R577.

The proposed PV facility would permanently change the landscape character of the site and would thus alter the sense of place on site. The facility will be highly visible (close up view) from the R577 which is used by the residents, visitors to the area and mining related traffic. Lighting at night at the PV facility will create additional impacts in this regard.

The new infrastructure associated with the PV facility will bring additional visual impacts to the landscape and aesthetic quality of the site, but will not bring completely different visual impacts compared to the characteristics of the larger area. Such facilities are associated with other industrial and mining developments as found in the area to the north, west and south of the proposed PV facility site.

The area to the east and southeast of the facility, however, are still undisturbed by development. Landowners to the east and south of the facility could perceive the development as an intrusion on the existing environment and land use, thereby influencing the sense of place. The latter could furthermore be affected by intrusion impacts (noise and dust), safety and security issues and, an increase in movement or traffic associated with the operation of the PV facility. Due to the topography of the area to the south and southeast, it is anticipated that the hilly areas would serve as visual barrier to properties further south and southeast.

The exact impact on the different properties adjacent to the proposed new PV facility, however, could only be undertaken as part of a detailed property evaluation and/or economic study. From a social perspective it is however fair to state that the actual impact would also be determined by social aspects such as:

- the location of the property in relation to the proposed facility (distance, in the view shed or outside the view shed);
- the activities undertaken on adjacent properties and the location of dwellings and other infrastructure;
- the perception of specific property owners with regards to the impact of the facility on the social and bio-physical environment;
- the uncertainty associated with the development of such a facility due to it being a new, although not unfamiliar type of development;
- the role which the facility would play with regards to the advancement of the local economy;
- the perception of property owners and the larger community with regards to the operation of the facility and maintenance of the equipment;
- the possible impact of the facility on surrounding land-uses; and
- the local economic climate and need for properties in the area.

From a socio-economic perspective, however, the overall impacts on the sense of place are likely, but are not considered to be significant due to the low population density to the south and east of the site, the location of homesteads to the facilities thereby limiting the number of permanent observers, the number or road users, as well as the overall positive association made with regards to PV facilities in general as cleaner and greener resources with its limited negative impact on the bio-physical environment.

8.9 Intrusion Impacts

8.9.1 Traffic Movement

During the operational phase it is anticipated that there would be some light vehicles used on a daily basis on site at the PV facility. The internal roads will provide access to the PV Solar Plant and associated infrastructure for maintenance, inspections and panel cleaning.

The traffic flow on the access road and at the entrances to the site is expected to be of a relative low intensity and would only take place occasionally. It should however be noted that the area experiences large volumes of mining related traffic. Traffic calming measures at the site entrances can limit the risk of traffic accidents.

8.9.2 Dust

Dust will mainly be created by the movement of vehicles on the internal gravel roads located between the panel arrays. Dust pollution due to the movement on these roads must be mitigated to limit any negative impacts on adjacent landowners and on mining activities.

8.9.3 Noise

Activities and vehicle movement at the PV facility will create heightened operational noise levels during the operations (daytime hours), but the increase is anticipated to be negligible so that no to little community responses are expected. From a social perspective, it is thus anticipated that noise annoyance levels will be relatively low and that the ambient noise levels off-site would not change significantly.

9. POTENTIAL IMPACTS DURING DECOMMISSIONING

9.1 Description of Decommissioning

If economically feasible, the decommissioning activities of the PV facility would comprise the disassembly and replacement of the individual components with more appropriate technology available at that time. However, if not deemed feasible, the facility would be completely decommissioned and the components would be disassembled, removed and recycled (where possible) or disposed of in accordance with regulatory requirements. Disturbed soil will be restored and re-vegetation of the site to its pre-construction condition would be undertaken. Roads will be rehabilitated.

9.2 Impact on employment and income

The permanent job opportunities created during the operational phase will be lost once the facilities are decommissioned. Such job losses can result in reduced economic activity in the local economy and loss of household income. This can impact on all households that benefited from the employment. These individuals will have to find alternative sources of employment and income, with possibly having to relocate elsewhere.

Decommissioning and its associated closure programmes must ensure that employees are not left stranded without alternative forms of livelihoods, with subsequent degradation of the communities' socio-economic quality of life. The cessation of activities will also lead to the termination of socio-economic programmes funded by the operation. The project proponents must develop mechanisms to assist employees, prior to the retrenchment date, and in the transition phase after closure of the facility. This can include offering portable skills development programmes during the operational phase, and by providing assistance in accessing available and suitable jobs.

Should the PV facility be replaced with newer technology, it can continue in creating long-term job opportunities, and some short-term construction related work. This would have a positive impact on the continued local economic growth patterns.

9.1 Community Safety

During the decommissioning, the activities would be similar to the construction phase. The movement of heavy vehicles can impact on community safety and operational risks on the safety of workers.

It is also important that safety controls and measures are put in place to avoid unauthorised entry to the site, as well as possible damage to or removing of any remaining infrastructure. Ongoing security patrols and monitoring would be required at the facility.

It would furthermore be imperative to ensure public health and safety through compliance to environmental standards and regulations when decommissioning the facility.

9.1 Community Health

Health concerns and risks in terms of discarding of materials (e.g. panels), recycling or refurbishment will remain. As decommissioning will only occur after the life of the facility which is estimated to be between 20 to 35 years, it is believed that discarding of materials at that time will be sufficiently dealt with in a feasible and environmentally sound way.

It would thus be imperative to ensure public health and safety through compliance to environmental standards and regulations.

9.2 Intrusion Impacts

Decommissioning will result in similar impacts as the construction phase in terms of dust and noise pollution, as well as the movement of heavy vehicles and workers. These intrusions will be intermittent and of a short duration and can be mitigated.

9.2.1 Traffic Movement

Overall traffic movement will become less over time but can increase during peak decommissioning phases. The impact on the daily living and movement patterns due to traffic movement during the decommissioning phase would thus be similar to the construction phase. These impacts are anticipated to be experienced by the neighbouring landowners.

9.2.2 Noise

Noise impacts associated with the decommissioning phase could be similar or even less compared to the construction phase. No decommissioning activities should be undertaken during night-time. The noise impacts would occur intermittently and would be of a short duration. From a social perspective, this impact can be mitigated.

9.2.3 Dust

Decommissioning could entail the removal of infrastructure and re-vegetation of the site.

Decommissioning will result in similar impacts as the construction phase in terms of dust pollution, as well as the movement of heavy vehicles and workers. These intrusions will be intermittent and of a short duration and can be mitigated.

9.3 Loss of infrastructure and electricity supply

The project plans to deliver approximately 130 MW of electricity. If decommissioning occurs, it will result in a significant loss in electricity supply. The number of megawatts lost can even be more if expansions and/or upgrading of the technology used took place during the life of the facility. This will have negative economic implications and decrease the quality of life of the surrounding communities as mining activities would again put strain on the electricity grid.

The loss of infrastructure and electricity supply cannot respond to mitigation. The only management and monitoring measures that can be recommended, is to replace the technology of the facility.

9.4 Visual Impact and End land-use

The 249 hectares used as part of the PV facility could relatively easily be restored to its former land-use, as vegetation would still be present on site during the operation and after the infrastructure has been removed. Once this has been undertaken and access roads have successfully been re-vegetated, no visual impact will remain.

No monitoring or mitigation is proposed once rehabilitation of the PV facility has been completed.

10. SOCIAL MANAGEMENT AND MONITORING PLAN

From a social perspective the following objectives and measures, as summarised in Table 15, should be included as part of the Social Management Plan (SMP) as part of the Environmental Management Plan (EMP). These measures would mitigate the anticipated negative impacts, but also enhance the positive impacts as discussed under Sections 7, 8 and 9.

Table 15: Social Management and Monitoring Plan

SOCIAL MANAGEMENT AND MONITORING PLAN		
OBJECTIVE 1:	**MAXIMISE LOCAL EMPLOYMENT OPPORTUNITIES AND LOCAL PROCUREMENT DURING CONSTRUCTION AND OPERATION AND MINIMISE JOB LOSSES DURING DECOMMISSIONING AND CLOSURE; IMPACT ON POVERTY**	
Mitigation: Action/control	**Responsibility**	**Timeframe**
Encourage any possible new local labour in the recruitment process as part of the company's own recruitment policy or as part of the contractor management plan, if allowable, and encourage the procurement of new employees, especially in the unskilled category, from the local communities.	Contractor	Construction
Procurement is encouraged within the municipal areas and district if such materials, services and equipment are available and suitable for the proposed development. These materials, services and equipment must adhere to the required standards.	Contractor	Construction and Operation
Make use of any existing databases of available workers (as allowed through the Protection of Personal Information Act, 2013 (POPI Act)) and include the legal local representatives, local municipalities and other legally established community structures in the process.	Contractor	Construction
Maximise the employment of locals where the required skills are available.	Contractor	Construction and Operation
If possible, a percentage of the workforce at the PV construction should be considered for women and the disabled.	Contractor	Construction
Involvement of entrepreneurs, small businesses, and SMME's during the construction process of the PV facility is encouraged where possible	Contractor	Construction
Communication efforts concerning job creation opportunities at the PV facility should refrain from creating unrealistic expectations and it should be clearly communicated.	Contractor	Construction
Skills development and on-site training would be imperative to enhance capacity building and equipping employees with transferable skills. Continue to provide skills development and capacity building opportunities for employees as part of the operational phase.	Contractor	Operations
Develop a database of goods and services that could potentially be outsourced to the local community as part of the PV facility operation	Contractor	Operations
Establish supply links with localised suppliers, where feasible.	Contractor	Operations
Replace technology and infrastructure with newer technology and infrastructure to extend the life of the facility, if feasible.	Contractor	Operations and Decommissioning

SOCIAL MANAGEMENT AND MONITORING PLAN		
The project proponents must develop mechanisms to assist employees, prior to the retrenchment date, and in the transition phase after closure of the facility. This can include offering portable skills development programmes during the operational phase, and by providing assistance in accessing available and suitable jobs.	Contractor	Operations and Decommissioning
Focus on non-core related local supply links during the operational phase to facilitate easier transitioning of local suppliers to other industries.	Contractor	Operations and Decommissioning
Monitoring	Annually as per the agreed commitments and procurement strategies Complaints Register	

OBJECTIVE 2:	**MINIMISE ANY POTENTIAL NEGATIVE IMPACTS ASSOCIATED WITH THE INFLOW OF WORKERS AND JOBSEEKERS**	
Mitigation: Action/control	**Responsibility**	**Timeframe**
Communication efforts concerning job creation opportunities at the PV facility should refrain from creating unrealistic expectations. Job opportunities must be clearly communicated	Contractor	Construction
Encourage employment of local labourers where the required skills are present as this will limit the need for accommodation for outside contract workers. Outside contractors are likely to be housed in Steelpoort, Mashishing, Burgersfort and other urban areas where there is availability. Existing accommodation facilities on the farm De Grooteboom can possibly also be utilised.	Contractor	Construction
The workers are expected to be transported to site on a daily basis.	Contractor	Construction
Employment of unskilled individuals, that will form the bulk of the construction workforce, from the local communities will limit the need for additional temporary accommodation	Contractor	Construction
Incorporate the additional need for housing as part of the municipality's overall planning strategy to avoid the development of informal accommodation and/or unauthorised sub-letting.	Contractor in liaison with FTLM and private sector involved in rental accommodation	Operations
Maximise the employment of locals where the required skills are available.	Contractor	Construction and Operations
Monitoring	Annually as per the agreed commitments and procurement strategies Complaints Register	

OBJECTIVE 3:	**ENHANCE LOCAL AND REGIONAL ECONOMIC BENEFITS**	
Mitigation: Action/control	**Responsibility**	**Timeframe**
Direct and indirect spin-offs from employment to be enhanced through local procurement.	Contractor	Construction and Operation
Procurement is encouraged within the municipal areas and district if such materials, services and equipment are available and suitable for the proposed development. These materials, services and equipment must adhere to the required standards.	Contractor	Construction and Operation
The involvement of entrepreneurs, small businesses, and SMME's during the construction process of the PV facility is encouraged.	Contractor	Construction
Project proponent to commit to enterprise and socio-economic development by committing a percentage of their revenue to these types of developments.	Authorisation Holder	Operation

SOCIAL MANAGEMENT AND MONITORING PLAN			
Socio-economic development programmes to be based on a collaborative and inclusive approach.		Contractor and Authorisation Holder	Operation
Develop a local procurement plan.		Contractor	Operation
Environmental management of the project site must adhere to environmental regulations.		Contractor and Authorisation Holder	Operation
Monitoring	Annually as per the agreed commitments and procurement strategies		

OBJECTIVE 4:	**MINIMISE RISKS TO COMMUNITY SAFETY**	
Mitigation: Action/control	**Responsibility**	**Timeframe**
Fencing of the property, lighting, cameras, and 24-hour security to be installed and implemented to improve security at and around the site.	Contractor and Authorisation Holder	Construction and Operation
No accommodation facility / construction camp to be erected on site. Temporary workers to be transported to and from the site on a daily basis	Contractor	Construction and Operation
Temporary traffic calming measures to be implemented at construction site entrance. Mitigation measures of the Traffic Impact Assessment to be implemented.	Contractor	Construction
Develop and implement a Health and Safety Plan according to SHEQ best practices for the construction phase. Limit safety risks through design considerations, location of infrastructure and precautionary construction management principles	Contractor	Construction
Develop an Emergency Response Action Plan	Contractor	Construction and Operation
Environmental management of the project site must adhere to environmental regulations	Contractor	Construction and Operation
Develop and implement a Health and Safety Plan according to SHEQ best practices for the operational phase.	Contractor	Operation
Limit safety risks through implementing safety and security measures.	Contractor	Construction
Develop a Fire Management Strategy and Plan	Contractor	Construction and Operation
Safety controls and measures must be put in place to avoid unauthorised entry to the site.	Contractor	All phases
Develop and implement a Health and Safety Plan according to SHEQ best practices for the decommissioning phase.	Contractor	Decommissioning
Monitoring	Annual environmental performance audits Annual SHEQ performance audits Environmental Incident Log Complaints Register	

OBJECTIVE 5:	**MINIMISE HEALTH RISKS**	
Mitigation: Action/control	**Responsibility**	**Timeframe**
Develop and implement a Health and Safety Plan according to SHEQ best practices for the construction and operational phases.	Contractor	Construction and Operation

Maximise the employment of locals.	Contractor	Construction and Operation
Contractors, sub-contractors and construction workers must be trained in health and safety policies, environmental awareness and emergency preparedness.	Contractor	Construction and Operation
Environmental management of the project site must adhere to environmental regulations	Contractor	Construction and Operation
An Occupational Health and Safety, Community Security and Emergency Preparedness and Response Plan must be compiled	Contractor	Operation
Recycling or refurbishment of materials and panels	Contractor	Construction and Operation
Discarding of materials must be sufficiently dealt with in a feasible and environmentally sound way. Safe disposal of all types of material (wires, invertors, racking systems, fencing)	Contractor	Decommissioning
Develop and implement a Health and Safety Plan according to SHEQ best practices for the decommissioning phase.	Contractor	Decommissioning
Toxic Characteristic Leaching Procedure (TCLP) tests can be undertaken on panels to determine how and where panels can be disposed of at a landfill	Contractor and Authorisation Holder	Decommissioning
Monitoring	Annual environmental performance audits Annual SHEQ performance audits Environmental Incident Log Complaints Register	

OBJECTIVE 6:	**MINIMISE INTRUSIONS AND IMPACTS ON DAILY LIVING AND MOVEMENT PATTERNS**	
Mitigation: Action/control	**Responsibility**	**Timeframe**
The availability of existing accommodation facilities on the farm De Grooteboom can be pro-actively negotiated and might then be utilised for some workers. This will minimise the need for transportation	Project proponent and Contractor	Construction
Mitigation measures of the Traffic Impact Assessment to be implemented. Traffic calming measures can be implemented at the construction site entrance. Vehicles must be in good working order and drivers have to keep to speed limits to limit safety risks and minimise noise and dust pollution created by heavy vehicle movement. Upgrading of road surfaces at site entrance. Construction of entrance that adheres to all road safety regulations and standards.	Contractor	Construction
Environmental management of the construction site must adhere to environmental regulations.	Contractor	Construction and Operation
Site entrances to adhere to all road and safety regulations. Traffic calming measures can be implemented at site entrances	Contractor	Operation
Dust pollution mitigation to be implemented on site for vehicles travelling on local gravel roads	Contractor	Construction and Operation
Vehicles must be in good working order and drivers have to keep to speed limits to limit safety risks and minimise noise and dust pollution created by heavy vehicle movement.	Contractor	Construction and Operation
Monitoring	Annual environmental performance audits Annual SHEQ performance audits Environmental Incident Log Complaints Register	

OBJECTIVE 8:	MITIGATE VISUAL IMPACT AND SENSE OF PLACE		
Mitigation: Action/control		**Responsibility**	**Timeframe**
The mitigation measures of the Visual Impact Assessment must be implemented		Contractor and Authorisation Holder	Construction and Operation
The design and specific positioning of the PV facility should aim to minimise the possible negative visual impact of the facility on the surrounding property owners e.g. panel mounts should have the lowest height practically possible, reflections from the panels must be minimised, design of administrative buildings should blend in with surrounding environment, lighting pollution at night must be avoided		Authorisation Holder	Construction and Operation
Concurrent rehabilitation to be undertaken that could include re-vegetation of construction and/or rehabilitated areas underneath or adjacent to panels, and the removal of alien vegetation species.		Contractor and Authorisation Holder	Construction and Operation
Environmental management of the construction site must adhere to environmental regulations		Contractor	All phases
Lighting fixtures to be installed to have the minimum disturbances off-site		Contractor and Authorisation Holder	Construction and Operation
Panel heights to be as low as possible to still be economically feasible to provide maximum output. Revegetation under the panels, however, must still be possible.		Project proponent and Contractor	Construction and Operation
Site rehabilitation to be undertaken.		Contractor and Authorisation Holder	Decommissioning
Ensure a feasible and publicly acceptable end-use or restore land to its natural state.		Contractor and Authorisation Holder	Decommissioning
Monitoring	No monitoring recommended.		

OBJECTIVE 9:	MITIGATION AND MANAGEMENT OF LAND-USE IMPACTS		
Mitigation: Action/control		**Responsibility**	**Timeframe**
If any legitimate land claim with regards to the property is legally settled in future, it must be dealt with accordingly.		Authorisation Holder	Construction and Operation
Monitoring	No monitoring recommended.		

11. CONCLUSION AND RECOMMENDATIONS

11.1 Risk Classification of Anticipated Impacts

Refer to the detailed rating scale and mitigation measures as per the separate Excel sheet. Herewith a summarised table indicating the impact risk classification associated with the construction, operational and decommissioning phases of the proposed project.

Table 16: Risk Classification of Impacts

CONSTRUCTION					
Impact	**Rating Prior To Mitigation**	**Impact Class Prior To Mitigation**	**Rating Post Mitigation**	**Impact Class Post Mitigation**	**Description After Mitigation**
Employment and Income	2.40	3	3.00	3	Moderate (+)
Inflow of temporary workers and jobseekers	2.67	3	1.87	2	Low (-)
Local and regional economic benefits	1.60	2	2.40	3	Moderate (+)
Community Safety	1.87	2	1.00	1	Very Low (-)
Health Risks	1.40	2	0.80	1	Very Low (-)
Visual Impact and Sense of place	2.13	3	1.40	2	Low (-)
Intrusion Impacts	2.40	3	1.40	2	Low (-)
OPERATIONS					
Impact	**Rating Prior To Mitigation**	**Impact Class Prior To Mitigation**	**Rating Post Mitigation**	**Impact Class Post Mitigation**	**Description After Mitigation**
Employment and Income	2.67	3	3.67	4	High (+)
Population Influx	2.00	3	1.40	2	Low (-)
Local and regional economic benefits	1.80	2	2.93	3	Moderate (+)
Land-Use Impacts	1.20	2	1.00	1	Very Low (-)
Community Safety	1.60	2	0.80	1	Very Low (-)
Health Risks	1.60	2	0.80	1	Very Low (-)
Visual Impact and Sense of place	2.40	3	1.80	2	Low (-)
Intrusion Impacts	1.40	2	1.00	2	Low (-)

DECOMMISSIONING					
Impact	**Rating Prior To Mitigation**	**Impact Class Prior To Mitigation**	**Rating Post Mitigation**	**Impact Class Post Mitigation**	**Description After Mitigation**
Job Losses	3.20	4	2.2	3	Moderate (-)
Community Safety	1.87	2	1.00	1	Very Low (-)
Health Risks	1.40	2	0.80	1	Very Low (-)
Intrusion Impacts	2.40	3	1.40	2	Low (-)
Loss of infrastructure and electricity supply	3.20	4	3.20	4	High (-)
Visual Impact and End Land-Use	2.00	2	1.80	2	Low (-)

11.2 Key Findings and Conclusions

The following key findings and conclusions must be noted:

- The proposed project site falls within Wards 27 of the FTLM within the larger Steelpoort Valley. The proposed site can be accessed via the R577. Various mining activities with related infrastructure are taking place within the immediate area and adjacent the proposed site.
- The area and land-uses surrounding the proposed site is characterised by mining related activities and infrastructure, as well as mining associated activities. Areas with natural veld occur to the south and southeast of the development. In view of the fact that large scale mining activities are already undertaken in the area, the proposed land-use associated with the PV facility is seen to be acceptable with the surrounding land-uses in the area.
- The majority of negative impacts associated with the development are of a low to very low impact class once mitigation measures have been implemented (Also refer to Table 16 above). The social impacts can thus respond to mitigation. Based on the assessment of the social environment it is concluded that the social impacts associated with the proposed PV Facility are not viewed as a risk to the nearby mining activities and/or the quality of life of the residents of the larger study area.
- During the construction phase positive impacts with regards to job opportunities, and subsequent local, as well as regional economic benefits of a moderate positive significance are anticipated.
- Due to the level of skills found amongst the local population in the study area, as well as the main local employment sector being the mining sector, it is likely that the number of lower to medium skilled opportunities could be filled by locals. The possible lack of available local specialised skills during the construction of the facility will result in the continued outsourcing of skills during the construction phase.

- The proposed PV Facility project is expected to have a long-term positive impact on job opportunities in the area, even though the permanent jobs would be limited. It would still generate additional income among some households that previously had to do without these resources. It is therefore critical that the project proponent focus on sustainable skills training and capacity building programmes among the local communities to ensure that the number of local employees can be maximised, and to ensure transferable skills.
- The project can contribute to economic activities in the local economy through ensuring a stable electricity supply into the grid which could materialise in limiting the mining industries' dependency on the national electricity grid, while lowering operational costs, which could again result in continued mining.
- The PV Facility could assist in addressing various social ills and needs in the area through their social responsibility programmes to ensure additional long-term sustainable benefits to community members with a further reach than the direct project benefits. The success of these initiatives would be based on a collaborative and inclusive approach.

Negative impacts to be noted are the following:

- The inflow of construction workers to the area would have temporary impacts on the local socio-economic environment, which could also result in the influx of jobseekers. Poor control over the employment process could, amongst others, result in social dissatisfaction, unrests, protests and even conflict, environmental pollution and possible increase in criminal activities due to more people movement in the area.
- The negative intrusion impacts during the construction phase on residents are expected to be limited due to the distance of the settlements, towns and homesteads to the proposed PV facility.
- Other construction related intrusions refer to the movement of heavy vehicles transporting people, goods and materials. Increased risks of accidents, and damage to the road surfaces are of concern.
- Noise impacts would be intermittent but can be mitigated through proper environmental management of the construction site which adheres to all environmental regulations while striving towards international best practice.
- The visual intrusions associated with the PV Facility would be difficult to mitigate, but the land-use, as indicated above, have a goodness of fit with the mining related land-uses in the larger area.
- Decommissioning would result in job losses and subsequent high negative impacts on households, as well as negative impacts on the local economy. The significant loss in electricity supply will have further negative economic implications and decrease the quality of life of the surrounding communities as mining activities would again put strain on the electricity grid.

11.3 Recommendations

The following recommendations must be considered:

- The objectives and measures as part of the Social Management Plan (SMP) must be included as part of the Environmental Management Plan (EMP).
- Skills development and on-site training would be imperative to enhance capacity building and equipping employees with transferable skills.
- The project proponent, should, through their social responsibility programmes focus on the key intervention areas required to stimulate the local economy, and also ensure that their interventions are based on the key priority areas already determined by the Integrated Development Plan of the local municipality.
- Social responsibility programmes and socio-economic development initiatives must based on a collaborative and inclusive approach to ensure community buy-in and localised inputs to ensure that the benefits of these types of programmes, to local communities, are enhanced.
- To address safety and security concerns and the possible impacts in this regard, it is recommended that security control measures and fire prevention measures should be implemented.
- Local labourers with the required skills should be employed as far as possible.
- The development of a Health and Safety Plan according to SHEQ best practices, as well as an Emergency Response Action Plan is critical.
- If any legitimate land claim with regards to the property is legally settled in future, it must be dealt with accordingly.
- The layout of the PV facility on the farm must be positioned to avoid any negative impacts on existing mining activities.
- Representatives of the FTLM, mining company representatives, as well as neighbouring landowners should be kept informed of the progress, decisions taken with regards to the development and construction schedules.
- The mitigation measures noted as per the Traffic and Visual Impact Assessments should be implemented.

11.4 Acceptability of the proposed development

Based on the findings, significance ratings and recommendations of this Social Impact Assessment, there are not fatal flaws prohibiting the Phula PV Facility project from proceeding. From a socio-economic perspective it is recommended that the environmental authorisation be approved, provided that mitigation measures recommended in this report are strictly implemented and monitored based on relevant standards.

12. SOURCES CONSULTED

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13. ANNEXURE A: IMPACT RATING AND MITIGATION MEASURES

Refer to Excel sheet.

14. ANNEXURE B

14.1 Specialist Details

The report was prepared by Ms. Ingrid Snyman of Batho Earth. She holds a BA Honours degree in Anthropology. She has 20+ years' experience in the social field. Ms. Snyman has been involved in various Social Impact Assessments during her career as social scientist. These project themes consist of infrastructure development, waste management, road development, water and sanitation programmes, township and other residential type developments. She has also been involved in the design and management of numerous public participation programmes and communication strategies, particularly on complex development projects that require various levels and approaches.

14.2 Curriculum Vitae of Specialist

CURRICULUM VITAE: INGRID SNYMAN

Name: **Ingrid Helene Snyman**
Profession: **Social Development Consultant**
Years of Experience: **20 + years**

KEY QUALIFICATIONS

- Social Impact Assessment (SIA)
- Socio-Economic Impact Assessment (SEIA)
- Public Participation programmes
- Communication, development of community structures and community facilitation
- Community-based training and
- Workshop reports

EDUCATION

1992:	B A (Political Science) University of Pretoria
1995:	B A (Hons) Anthropology University of Pretoria
1996 - 1997:	Train the Trainers Centre for Development Administration – UNISA

EXPERIENCE RECORD

2000 to date	Independent Social Consultant: Batho Earth
1996 to 2000	Social Consultant: Afrosearch (Pty) Ltd.

SECTOR	PROJECT EXPERIENCE
Photovoltaic and Wind Energy Facilities	Prieska Renewable Energy Hub Modderfontein Wind Energy Facility Christiana PV facility on the farm Hartebeestpan Hertzogville PV facility on the farms Albert and Wigt Morgenzon PV facility on the farm Morgenzon Exxaro Photovoltaic Facility Upington Solar Energy Facility Kleinbegin Solar Energy Facility Ilanga solar thermal power plant Facility Karoo Renewable Energy Facility Wag'nbiekiespan Solar Energy Facility Kathu and Sishen Solar Energy Facilities Thupela Waterberg Photovoltaic Plant Kannikwa Vlakte Wind Farm Project
Mining Industry	Driekuil Wonderstone Project, North West Province Etoile Mine: Phase 2, Lubumbashi, DRC Implats Strategic Framework and Guideline for SIA's for TSFs and TSF failure events

SECTOR	PROJECT EXPERIENCE
	Lion Energy Conversion Facility (A Glencore Merafe Venture) Springfield Mine (co-author of SIA) Beeshoek Optimisation Project Lesego Platinum Mine Dispatch Rider Project Pilgrim's Rest Underground Mining for TGME Gloucester development Blesboklaagte Colliery Kareerand Tailings Storage Facility (TSF) Expansion Project Khumani Mine, Mokaning Expansion Theta Hill Gold Mining Project near Pilgrim's Rest Khulu TSF at Dwarsrivier Mine Vandyksdrift Central (VDDC) Mining Dwarsrivier Chrome Mine Project 10161 and Project 10167 (Gold Mining) by Stonewall (Pty) Ltd Manganese Mine North West of Hotazel (Mukulu) South32 SA Coal Holdings Middelburg Colliery Paling Manganese Mine Western Bushveld Joint Venture Project (Maseve Platinum Mine Komati coal stockyard Dorstfontein Mine Western Expansion Project
Mixed Use Land/Housing Developments	Ennerdale Extension 2 Gauteng Rapid Land Release Programme: Four Sites: Hekpoort / Bryanston / Lenasia / Rietfontein (Ennerdale) Wildealskloof Mixed Use Development Salvokop, Tshwane CBD Rabie Ridge Ext 7 Vosloorus Extension 9 High Density Housing Project Mapochsgronde Residential Development Cullinan Estate Development Vlakfontein Residential Development Township development/eco-estate on the farm Grants Valley
Bulk Infrastructure and Supply	Cato Ridge Ferrous Smelter Integrated Public Transport Network for the Mangaung Metropolitan Municipality Olifantsfontein Landfill K43 Road Construction Mangaung Bus Depot for the Integrated Public Transport Network (IPTN) Greenwich Landfill Site Mangaung Gariep Water Augmentation Project Tshwane Regional General Waste Disposal Facility (Multisand Landfill) K97 Road northbound of the N4 Wemmershoek Wastewater Treatment Works (WWTW) Lefaragathle, Mogono, Rasimone, Chaneng outfall sewer and Chaneng sewer treatment plant Upgrading of railway stations and railway line for Metrorail in Mamelodi ACSA Remote Aprons Project

SECTOR	PROJECT EXPERIENCE
Electricity generation, transmission and distribution	Crowthorne-Lulamisa power line Crowthorne Underground Cable Diepsloot East Servitude and substation Mitchells Plain-Firgrove-Stikland Transmission Line 400 kV Transmission Power Line, Marathon Substation Ferrum to Garona Substation 400 kV transmission line Eskom Rhombus-Lethabong Powerline and Substation Aberdeen-Droerivier 400 kV Transmission Power Line Houhoek Substation Upgrade and Bacchus-Palmiet Loop-In and Loop-Out Arnot-Gumeni 400 kV Transmission Power Line Aggeneis-Oranjemond Transmission Line project Ariadne-Venus Transmission Line Dominion Reefs Power Line project Kyalami Strengthening Project Apollo Lepini 400 kV Transmission Line Project Medupi (then referred to as Matimba B) coal-fired power station Poseidon-Grassridge No. 3 400 kV Transmission line and the extension of the Grassridge Substation Grassridge Substation (near Port Elizabeth) and the Coega Industrial Development Zone Matimba-Witkop No. 2 400 kV Transmission line
Stakeholder Engagement	Beeshoek Optimisation Project Mogale Ext 42, 43 And 44, Muldersdrift, Mogale Khumani Mine, Mokaning Expansion, Theta Hill Gold Mining Project Dwarsrivier Chrome Mine (Pty) Ltd. Project 10161 and Project 10167 (Gold Mining) by Stonewall (Pty) Ltd Upgrading of the Menlyn Road Network Gautrain Project, Gauteng Platinum Highway Project from the N1 (Gauteng) to the Botswana Border Heineken Brewery and associated industrial activities
Ecosystem Services Review	Ngonye Falls Hydro-Electric Power Plant Project, Zambia

14.3 Declaration of Independence

In terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA), as amended in respect of the EIA Regulations of December 2014, and GNR 982 published on 4 December 2014, an independent consultant must be appointed to act on behalf of the client. In this regard Batho Earth submit that they have:

- The necessary required expertise to conduct a Social Impact Assessment, including the required knowledge and understanding of any guidelines or policies that are relevant to the proposed process;

- Undertaken all the work and associated studies in an objective and independent manner, even if the findings of these studies are not favourable to the project proponent;
- No vested financial interest in the proposed project or the outcome thereof, apart from remuneration for the work undertaken under the auspices of the above-mentioned regulations;
- No vested interest, including any conflicts of interest, in either the proposed project or the studies conducted in respect of the proposed project, other than complying with the required regulations; and
- Disclosed any material factors that may have the potential to influence the competent authority's decision and/or objectivity in terms of any reports, plans or documents related to the proposed project as required by the regulations.