



SOCIAL IMPACT REPORT

**HIGHVELD SOLAR PV FACILITY
BASIC ASSESSMENT
SEPTEMBER 2022**

SOCIAL IMPACT REPORT

Highveld Solar PV Facility, North West

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ACRONYMS, ABBREVIATIONS AND GLOSSARY

Acronyms & Abbreviations	
DoE	Department of Energy
DM	District Municipality
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GDP	Gross Domestic Product
GNR	Government Notice
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
IEP	Integrated Energy Plan
IRP	Integrated Resource Plan
km	Kilometre
LM	Local Municipality
NEMA	National Environmental Management Act (No. 107 of 1998)
NDP	National Development Plan
O&M	Operation and Maintenance
PGDS	Provincial Growth and Development Strategy
PICC	Presidential Infrastructure Coordinating Committee
PSDF	Provincial Spatial Development Framework
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SIP	Strategic Infrastructure Project
DoE	Department of Energy
DM	District Municipality
EA	Environmental Authorisation
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GDP	Gross Domestic Product
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I&AP	Interested and Affected Party

EXECUTIVE SUMMARY

APPROACH TO THE STUDY

The development of renewable energy is strongly supported at a national, provincial, and local level. The development of and investment in renewable energy is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all refer to and support renewable energy. The development of the proposed PV Facility is therefore supported by key policy and planning documents

The approach to the SIA study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (February 2007). These guidelines are based on international best practice. The key activities in the SIA process embodied in the guidelines include:

- Describing and obtaining an understanding of the proposed intervention (type, scale, location), the settlements and communities likely to be affected by the proposed project
- Collecting baseline data on the current social and economic environment;
- Identifying the key potential social issues associated with the proposed project.
- Assessing and documenting the significance of social impacts associated with the proposed intervention
- Identifying alternatives and mitigation measures
- The study therefore involved:
 - Review of demographic data from Census Survey and other available sources;
 - Review of relevant planning and policy framework for the area;
 - Review of information from similar studies;
 - Review of documented government experience and expectations associated with solar energy projects.
 - Community survey involving 94 local community members as respondents.

KEY FINDINGS

On aggregate, the project will have a positive social impact. Based on an assessment of needs as expressed through policies, plans and community survey, it is clear that the local economy requires a catalyst for growth and development. Similarly, the national economy requires new power generation facilities that can increase electricity supply for economic growth without damaging the environment. A solar power plant addresses all these needs.

More specifically, this power plant will contribute to the following positive outcomes:

- Job creation
- Enterprise growth
- Socio-economic development
- Local economic growth through enterprise development

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1. INTRODUCTION

Eco-Thunder Consulting was commissioned by Savannah Environmental (Pty) Ltd as the lead consultant to manage the Social Impact Assessment (SIA) process for the establishment of the proposed Highveld Solar PV Facility near Stilfontein in the North West Province.

This report contains the findings of the SIA undertaken as part of the broader Environmental Impact Assessment (EIA) process.

1.1. Terms of Reference

Objective of the Basic Assessment Process

This SIA Report has been prepared as part of the Basic Assessment (BA) process being undertaken for Highveld Solar PV Facility and associated infrastructure. The purpose of this SIA Report is to provide details on the nature and extent of development of Highveld Solar PV Facility and associated infrastructure, and the potential social impacts associated with the construction, operation, and decommissioning of the project. The inputs contained within this SIA Report are intended to provide a high-level overview of the social environment within which the project is proposed and identify potential social issues which will be addressed in detail as part of the BA process specialist investigations.

The objective of this SIA Report is therefore to:

- Identify and review policies and legislation which may have relevance to the activity from a social perspective.
- Provide comment on the need and desirability of the proposed activity from a social perspective.
- Identify potential impacts and risks associated with the preferred activity and technology alternatives.
- Identify key social issues to be addressed in the BA phase.
- Agree on the level of assessment to be undertaken, including the methodology to be applied to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site.
- Identify suitable measures to avoid, manage or mitigate identified social impacts and determine the extent of residual risks that need to be managed and monitored.

1.2. Specialist Details

Eco-Thunder Consulting (ETC) is a 100% woman-owned, private company that specializes in a range of specialist studies, such as socio-economic research, economic development planning, development program design and implementation as well as community trust management. Based in Johannesburg, South Africa, Eco-Thunder has established itself as an expert on the conditions, needs and assets of communities that are linked to independent power generation facilities.

ETC has conducted research on behalf of and advised IPPs since 2017. Its client base is thus comprised of IPPs that have been successful across all the REIPPPP bidding rounds. ETC also implements development programs in energy communities, which ensures a comprehensive understanding of the how to drive positive social impact.

1.3. Report Structure

The report is organised into six sections:

- Section 1: Introduction.
- Section 2: Methodology & Approach.
- Section 3: Policy and Planning Review.
- Section 3: Overview of the Study Area.
- Section 5: Assessment of Key Social Issues and Impact.
- Section 6: Conclusions and Impact Statement.

1.4. Project Description

The development of a solar photovoltaic (PV) facility with a generating capacity of up to 240MW is proposed by WKN Windcurrent SA (Pty) Ltd on a site located near Stilfontein in the North West Province. The solar PV development will be known as the Highveld Solar PV Facility. The Highveld Solar PV Facility is located within the Klerksdorp Renewable Energy Development Zone (REDZ).

The infrastructure associated with the 240MW solar PV facility will include:

- Solar PV arrays, modules and mounting structures.
- Inverters and transformers.
- A Battery Energy Storage System (BESS)
- On-site facility substation
- Cabling between the project components
- Site and internal access roads and fencing around the development area
- Temporary and permanent laydown areas and O&M buildings.

Table 1.1 below provides the details of the project, including the main infrastructure components and services that will be required during the project life cycle.

Table 1.1: Details of the Highveld Solar PV Facility and associated infrastructure

Component	Description / Dimensions
District Municipality	Dr Kenneth Kaunda District Municipality
Local Municipality	JB Marks Local Municipality
Ward Number (s)	Ward 27
Nearest town(s)	Stilfontein (15km south west)
Farm name(s) and number(s) of properties affected by the PV Facility	<ul style="list-style-type: none"> • Remainder of Portion 10 of Farm Rietfontein 388 (TOIP00000000038800010)
Portion number(s) of properties affected by the Solar Facility	<ul style="list-style-type: none"> • Portion 79 of Farm Rietfontein 388 (TOIP00000000038800079) • Portion 56 of Farm Rietfontein 388 (TOIP00000000038800056) • Remainder of Farm Rietfontein 3 (TOIP0000000000300000)
SG 21 Digit Code (s)	
Current zoning	Agriculture
Site Coordinates (centre of development area)	26°43'39.92"S, 26°52'36.12"E
Total extent of the Affected Properties, also referred to as the project site	~1400ha
Total extent of the Development area	Up to ~1300ha
Total extent of the Development footprint	Up to ~433ha
Contracted capacity of the PV facility	Up to 240MW
PV panels	Height: up to 5.5m from ground level (installed)
On-site Facility Substation	<ul style="list-style-type: none"> • Located within the development footprint. • Approximately 1ha in extent.
Coordinates of the On-site Facility Substation	<ul style="list-style-type: none"> • 26°44'3.95"S, 26°52'34.65"E
Access gravel roads and internal roads	<ul style="list-style-type: none"> • Existing roads will be used, wherever possible, to access the project site and development area.

- Access to the PV development area is provided via the N12 which is located to the south of the development area and the R30 which is located to the west of the Highveld Solar PV Facility.
- Internal roads up to 5m in width will be required to access the PV panels and on-site substation.

1.5. Project Location

The proposed up to 240MW Highveld Solar PV Facility is located on Farm Rietfontein 388, portion 79 and 56; and the Remainder of Portion 10, as well as Farm Rietfontein 3, portion 0. The development is located approximately 15km north-east of Stilfontein within the JB Marks Local Municipality, and within the Dr Kenneth Kaunda District Municipality, North West Province. Located north of the N12 national road approximately 20km west of Potchefstroom. The region has a strong mining character, interspersed with agricultural activities (dryland and livestock production) and human settlements. The southwestern and to a lesser extent northern portion of the larger study area are home to a number of operational and old gold mines and other industrial activities. These activities, especially the expansive mining and quarrying are rapidly changing the once rural and agricultural character to that of a predominantly industrial nature. Mining activities in close proximity to the proposed Highveld PV Solar Facility include the Stilfontein Gold Mine to the southwest.

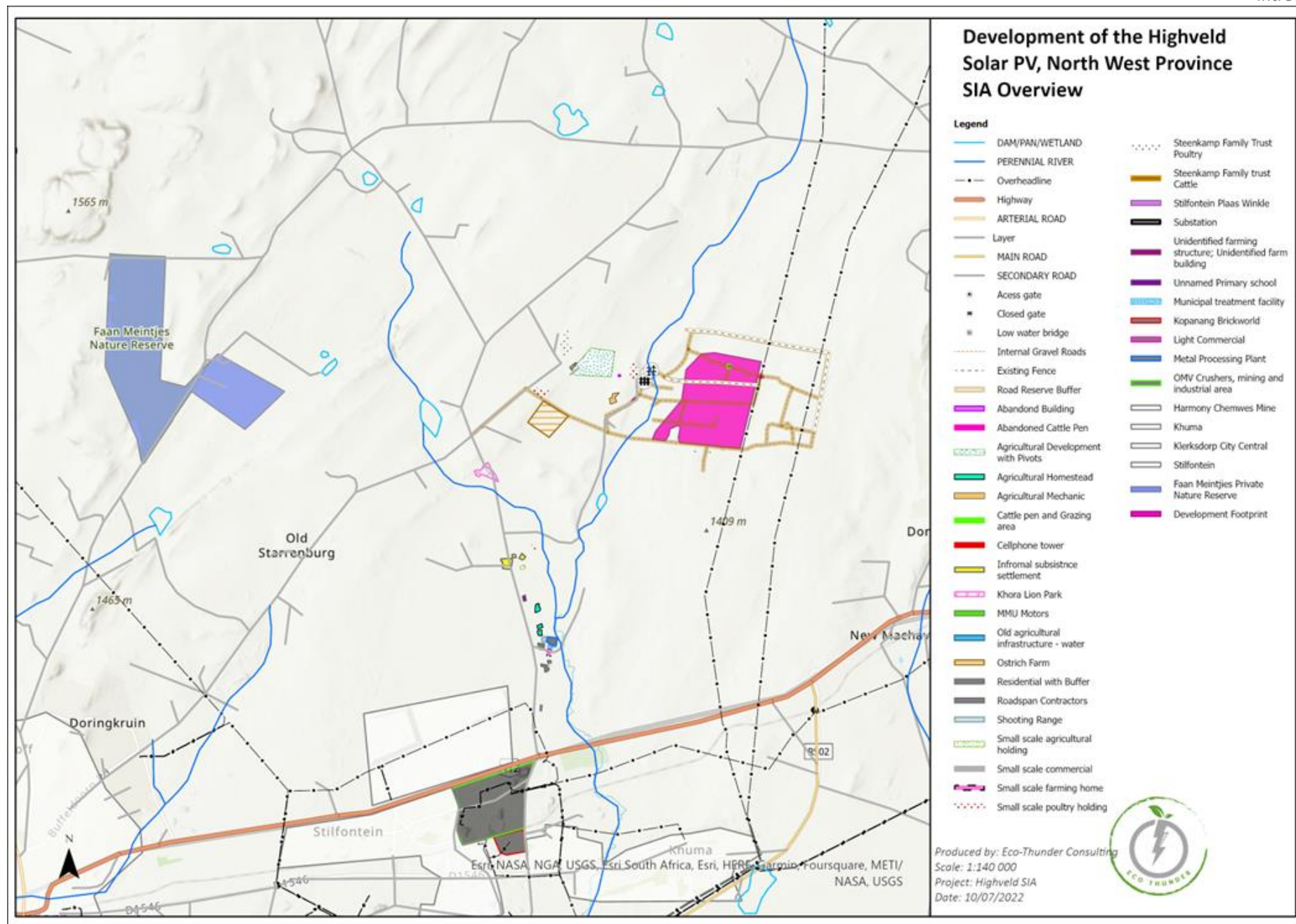


Figure 1.1. Overview of the Highveld Sensitivities

The JB Marks municipal area has a slightly irregular undulating topography dictated by the Vredefort event, which brought about the Vredefort Dome near Parys. The height above sea level ranges between 1 300m and 1 600m, increasing in a general northwesterly direction. The interaction between climate and topography has led to the evolution of a rich biodiversity. The ridges and hills of Klerksdorp have a characteristic range of different aspects, slopes, altitudes, soils and hydrological conditions conducive to heterogeneous abiotic conditions that provide a greater diversity of potential niches for plants and animals than homogeneous landscapes.

From a social perspective some key aspects in terms of the landscape have been identified which may have a positive impact on the development of the Solar PV development which can be seen on **figure 1.1**.

Attribute Identified	Description	Impact associated	Score
Rivers and streams	Prominent rivers or streams include the Kromdraaispruit and Koekemoerspruit to the west, as well as the Droëspruit to the east.	Development which impacts rivers or stream are not advised, the area houses subsistence farmers which make use of these hydrological features and therefore may carry a negative social rating if impacted.	Negative if developed
Eskom Overhead lines	A host of power lines criss-cross the study area, these include, but are not limited to: <ul style="list-style-type: none"> • Pluto – Hermes 1 400kV • Pluto – Hermes 2 400kV • Potchefstroom DS – Machavie 1 88kV • Potchefstroom DS – Buffels East 1 132kV • Hermes DS – Potchefstroom DS 1 132kV 	Powerlines do not pose a social risk, and the development area has been exposed to similar activities previously, this must however be taken into consideration in terms of avifauna. To put it simply; additional powerlines mean additional power is being fed into the national grid, which, in terms of the national energy crisis is considered a social gain, the construction and maintenance of these lines will also create employment opportunity.	Positive social
Cell phone mast	Unknown	Enhances communication abilities in the area, however, has no direct impact on the Solar PV facility	Positive social
Main access roads	The main access roads are: <ul style="list-style-type: none"> • N12 • Vermaansdrif road • Unnamed road towards Rietfontein 	These will provide access for the components of the solar PV to be transported along, as well as for the workers to gain access, it is therefore important that public transport exists along these routes, which was confirmed during the site visit.	Positive social
Internal farm gravel roads	Gravel roads along which farm vehicles or livestock use to travel	These areas are already disturbed and provided for valuable access to the site for evaluation. Additionally, these disturbed areas can be utilized for laydown areas or for the development of permanent internal access roads, therefore reducing the loss of vegetation on site	Positive social
Existing fencing			
Abandoned buildings	The area has abandoned infrastructure including abandoned or heavily degraded buildings which appear to have been used for housing of farming staff	These buildings are in close proximity to the development footprint and could be utilized by the developer to provide temporary residence for developers or security. These buildings could also pose a security risk during construction for individuals	Positive or Negative

		using the access road or for locals in close proximity and special attention must therefore be given to utilizing or securing these.	
Cattle pens	Both in use and abandoned with active cattle grazing	These areas are somewhat over grazed and the restricted movement of cattle may promote the free movement of smaller more indigenous insects or reptiles to return to the area. Having cattle pens around the site may also pose as a security risk as livestock is often stolen during large scale construction projects, especially from subsistence farmers.	The removal of cattle from the area will therefore have a net positive social impact
Agricultural development	Pivots and small holdings around the PV development area	The development is primarily in mixed agricultural region. Development of the PV may pose a security risk and increase the rate for small petty crimes in the surrounding communities, this includes theft of items, livestock, produce, etc.	Negative Social
Poultry Development			
Cattle development			
Informal settlements	Small clustered residential developments located in close proximity to the development which does not form part of a town or suburb	These areas house mainly unemployed unskilled or semi-skilled labour which may be able to be provided with employment and skills development training during the construction and operation of the solar PV facility	Positive Social
Khora Lion Park	Tourism facility within proximity to the PV facility, on the main access road.	No direct anticipated social impact, perhaps some residual visual impact from the increase traffic traveling along the Vermaansdrift Road. This park serves as a wildlife sanctuary and rehabilitation facility for the lions, and the local community can learn and engage on these animals behaviours here. <u>It must be noted that the owner was only concerned regarding increased fire risk for the surrounding area</u>	Negative social
MMU Motors	No Impacts anticipated or comments received.		
Ostrich farm	Privately owned Farm, unsure if the farm is for private or commercial use	The farm is approximately 2.4 km west of the boundary of the proposed PV development, accessed along one of the smaller gravel roads, there may be a visual impact on the farm from the PV development, however this is to be confirmed by the findings of the visual assessment	Negative visual
Mixed residential	Along the main access road in amongst the sub substance farming houses are some mixed residential homes	These areas house mainly unemployed unskilled or semi-skilled labour which may be able to be provided with employment and skills development training	Positive Social

		during the construction and operation of the solar PV facility	
Mixed Industrial	Small scale economic activities which take place within the local community such as small shops, processing plants, industrial activities, towing companies, etc.	Activities which could provide goods and services on a local scale to the developers during the construction and operational phases of development which will stimulate the local economy	Positive social
Mixed Consumer			
Shooting range	No Impacts anticipated or comments received.		
School	A primary school along the main access road	A well-maintained primary school who has no direct anticipated impacts from the solar PV development, it must however be noted that the development of the PV structure within close proximity serves as a good opportunity for learning and knowledge share and if possible it is recommended that the developers engage the local communities, on school levels to educate students about the important of renewable energy.	Positive Social
Mixed Mining	Some mines are noted within the broader study area	<p>No mining dumps or tailings are visible which could degrade the local landscape setting.</p> <p>Matlwang to the east and Kuma to the south of the Highveld PV Solar Facility are generally associated with the mining activities, where employees of these mines are housed.</p> <p>A temporary minor fluctuation in employment may occur (from mining to construction) however the risk of this is perceived to be low</p>	Low Social
Protected areas	No Impacts anticipated or comments received.		
Towns and settlements	<p>Farm settlements or residences found within the study area include:</p> <ul style="list-style-type: none"> • Eleasar • Matlwang • Rietfontein • Stilfontein • Saamstaan • Tamarisk • Pelonomi 	Alternative employment opportunities will be provided to the local community members, although the employment opportunities are anticipated to be limited.	Positive social

The overview of the surrounding community for the Highveld Solar PV development indicates a mix of agriculture and mining activities with room for socio economic diversity and growth, overall the anticipated impacts for the developments are shown to be positive, with mitigation measures reducing the effects of the negative impacts.

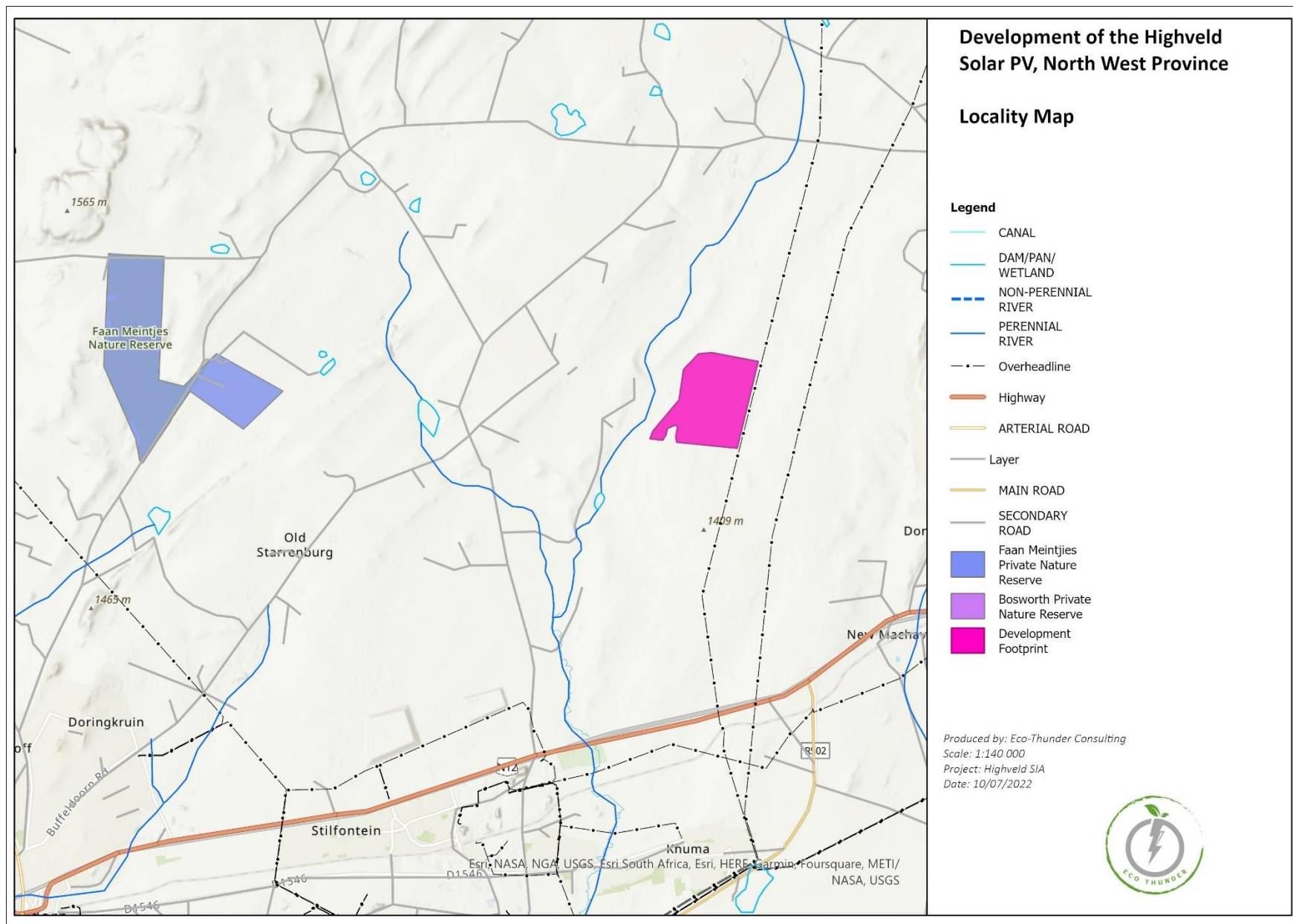


Figure 1.2. Highveld Locality Map

Highveld SIA

Legend



Figure 1.3. Ground view of N12 into access road

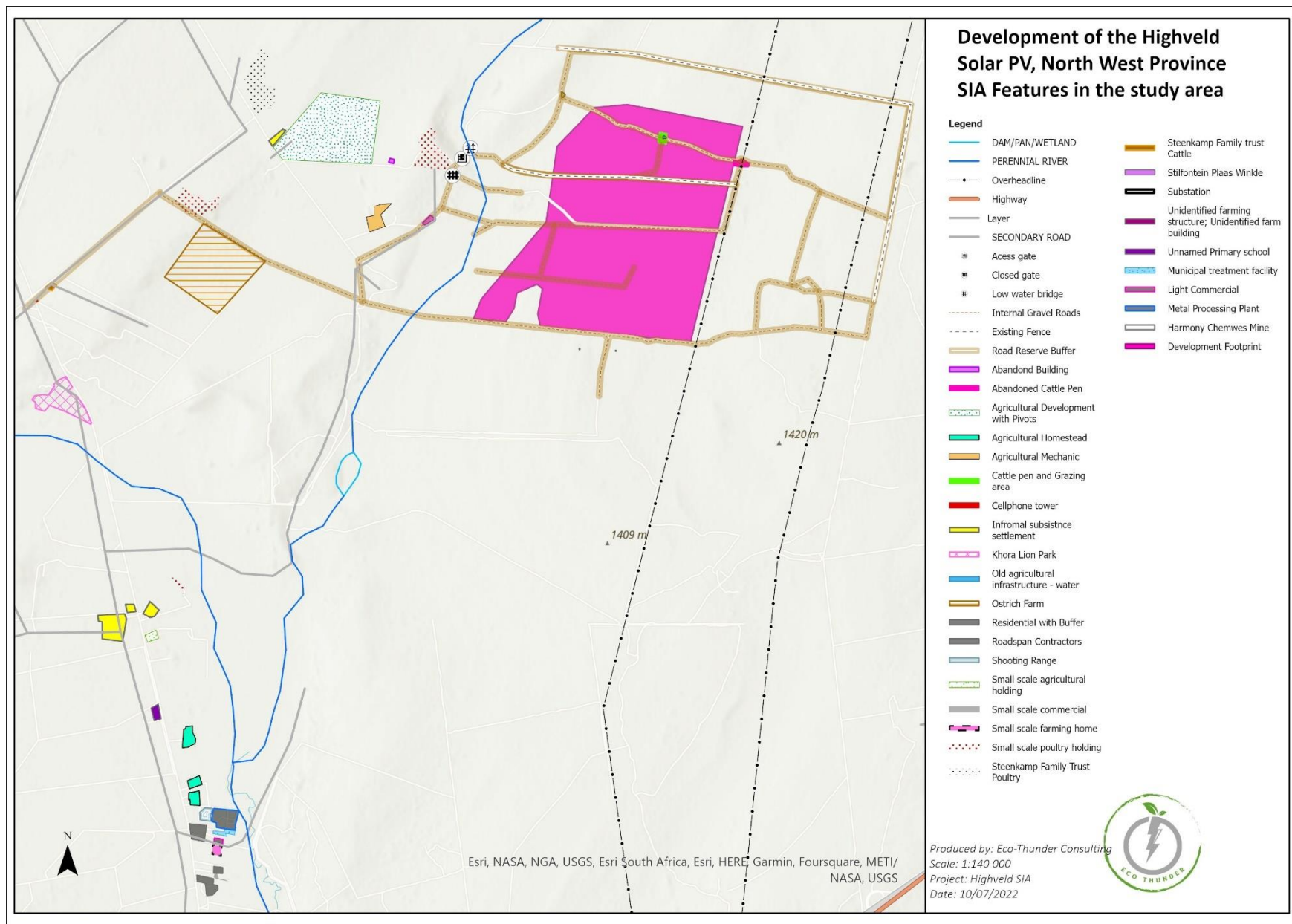


Figure 1.4. Close up of the SIA identified



Figure 1.5. Remanence of Agricultural and cattle grazing around the development



Figure 1.6. Poultry Development in proximity to the development



Figure 1.7. Ostrich Farm



Figure 1.8. View of the farms in the surrounding area

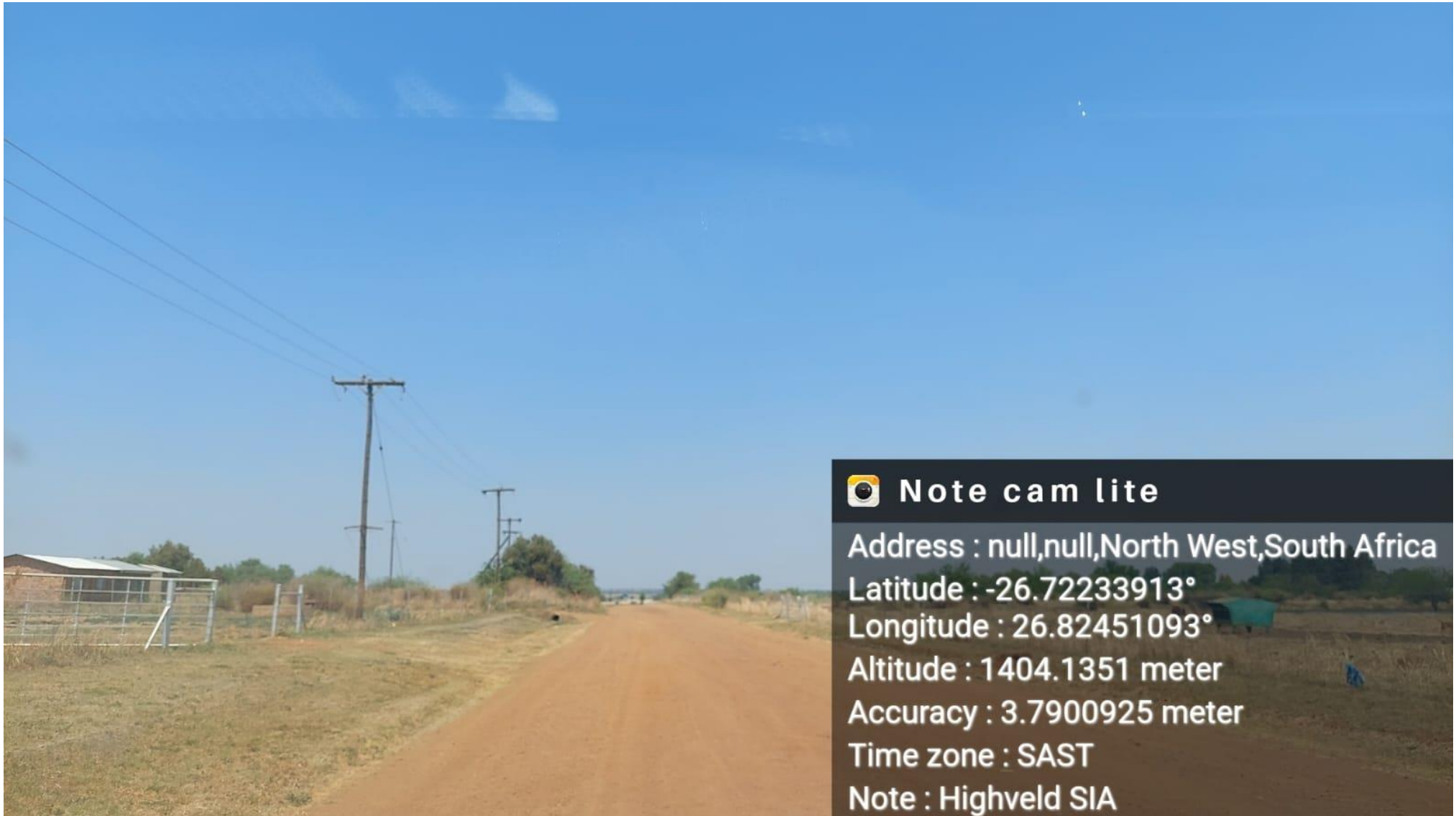


Figure 1.9. View of the dirt road access route and some of the abandoned houses to the left



Figure 1.10. Abandoned farm houses 2.2 km west of development

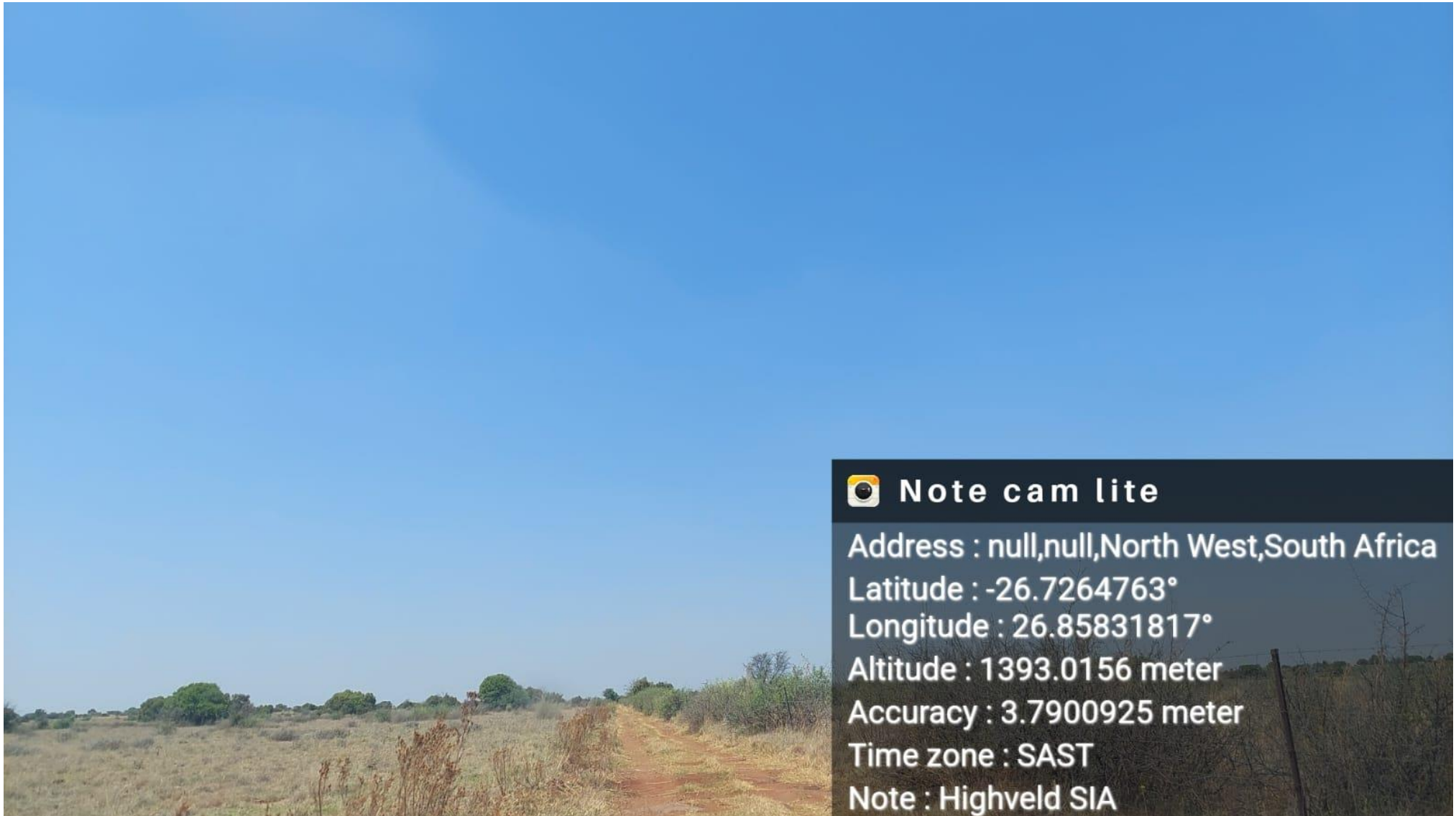


Figure 1.11. Internal Access routes and farm fencing

2. METHODOLOGY AND APPROACH

2.1. Purpose of the Study

The International Principles for Social Impact Assessment define SIA as:

“The processes of analyzing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions”.

The International Principles for Social Impact Assessment define social impacts as changes to one or more of the following:

- People’s way of life – that is, how they live, work, play and interact with one another on a day-to-day basis.
- Their culture – that is, their shared beliefs, customs, values and language or dialect.
- Their community – its cohesion, stability, character, services and facilities.
- Their political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose.
- Their environment – the quality of the air and water people use, the availability and quality of the food they eat, the level of hazard or risk, dust and noise they are exposed to, the adequacy of sanitation, their physical safety, and their access to and control over resources.
- Their health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity.
- Their personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties.
- Their fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

The purpose of this SIA Process is therefore to:

- Provide baseline information describing the social environment within which the project is proposed, and which may be impacted (both positively and negatively) as a result of the proposed development.
- Identify, describe and assess possible social risks/fatal flaws and social impacts that may arise as a result of the proposed development (in terms of the detailed design and construction, operation, and decommissioning phases of the project).
- Recommend ways in which negative impacts can be avoided, minimised, or their significance reduced, and positive impacts maximised or enhanced.

2.2. Approach to Study

The approach to the Basic Assessment Level SIA study is based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (*February 2007*). These guidelines are based on international best practice. The key activities in the SIA process embodied in the guidelines include:

- Describing and obtaining an understanding of the proposed intervention (type, scale, and location), the settlements, and communities likely to be affected by the proposed project.
- Collecting baseline data on the current social and economic environment.
- Identifying the key potential social issues associated with the proposed project. This requires a site visit to the area and consultation with affected individuals and communities. As part of the process a basic information document was prepared and made available to key interested and affected parties. The aim of the document was to inform the affected parties of the nature and activities associated with the construction and operation of the proposed development to enable them to better understand and comment on the potential social issues and impacts.
- Assessing and documenting the significance of social impacts associated with the proposed intervention.
- Identifying alternatives and mitigation measures.
- A site visit will be undertaken during the Assessment Phase of the SIA. The site visit will include interviews with interested and affected parties. Annexure A contains a list of the secondary information reviewed. Annexure B summarizes the assessment methodology used to assign significance ratings to the assessment

process.

- Preparation of a SIA Report for inclusion in the Basic Assessment Report to be prepared for the project.

Collection and Review of Existing Information

Existing desktop information that has relevance to the proposed project, project area and/or surroundings was collected and reviewed. The following information was examined as part of this process:

- Project maps and layouts.
- Google Earth imagery.
- A description of the project (as provided by the project proponent).
- Responses to questions posed to the project proponent regarding employment and social upliftment and local economic development opportunities (as provided by the project proponent).
- Census Data (2011), and the Local Government Handbook (2019).
- Planning documentation such as Provincial Growth and Development Strategies (PGDSs), Local and District Municipality Integrated Development Plans (IDPs), Spatial Development Frameworks (SDFs), and development goals and objectives.
- Relevant legislation, guidelines, policies, plans, and frameworks.
- Available literature pertaining to social issues associated with the development and operation of solar PV power plant and associated infrastructure.

The identification of potential social issues associated with the proposed Solar PV Facility is based on primary and secondary information about the area and visits to the relevant communities and town by field workers/members of the SIA study team. Annexure A contains a list of the secondary information reviewed and interviews conducted. Annexure B summarises the assessment methodology used to assign significance ratings to the assessment process.

2.2.1. Definition of Social Impacts

"The consequences to human populations of any public or private actions (including policies, programs, plans, and/or projects) that alter the ways in which people live, work, play, relate to one another, organize to meet their needs, and generally live and cope as members of society." These effects are felt at various levels, including the individual, family or household, community, organization, or society. Some social impacts are physically felt by the body, whereas others are perceptual or emotional" (Vanclay, 2002).

When considering social impacts, keep in mind that social change is a natural and ongoing process (Burdge, 1995). However, it is also critical to recognize and comprehend the fact that policies, plans, programs, and/or projects implemented by government agencies and/or private institutions have the potential to influence and alter both the rate and direction of social change. Many social impacts are not "impacts" in and of themselves, but rather change processes that may result in social impacts (Vanclay, 2002). The influx of temporary construction workers, for example, has no social impact in and of itself. However, their presence can have a variety of social consequences, such as an increase in antisocial behavior. Vanclay's approach emphasizes the importance of understanding the processes that can have social consequences. As a result, social assessment specialists must think through the complex causal mechanisms that produce social impacts. The full range of impacts can be identified by following impact pathways, or causal chains, and specifically by considering interactions that are likely to occur (Vanclay, 2002).

An SIA should thus enable authorities, project proponents, individuals, communities, and organizations to understand and anticipate the potential social consequences of implementing a proposed policy, program, plan, or project. The SIA process should inform communities and individuals about the proposed project and its potential social consequences, while also allowing them to assess the implications and identify potential alternatives. The assessment process should also alert proponents and planners to the likelihood and nature of social impacts, allowing them to anticipate and predict these impacts ahead of time, so that the assessment's findings and recommendations are incorporated into and inform the planning and decision-making process.

However, the issue of social impacts is complicated by the way in which different people from different cultural, ethnic, religious, gender, and educational backgrounds, etc. view the world. This is referred to as the "social construct of reality". The social construct of reality informs people's worldview and the way in which they react to changes.

2.2.2. Timing of Social Impact

Social impacts vary in both time and space. In terms of timing, all projects and policies go through a series of phases, usually starting with initial planning, followed by implementation (construction), operation, and finally closure (decommissioning). The activities, and hence the type and duration of the social impacts associated with each of these phases are likely to differ.

2.3. Assumptions and Limitations

2.3.1. Assumptions

The identification of the proposed site was informed by technical information relating to local climatic conditions in the area, specifically annual rates of solar radiation, local topography and land availability. It is therefore assumed that the project site identified fulfils the requirements for a suitable site to install a photovoltaic project with the outlined specifications.

Legislation and policies reflect societal norms and values. The legislative and policy context therefore plays an important role in identifying and assessing the potential social impacts associated with a proposed development. In this regard a key component of the SIA process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, if the findings of the study indicate that the proposed development in its current format does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported.

It is assumed that the motivation for as well as the planning and feasibility study of the project was undertaken with integrity, and that information provided by the project proponent was accurate and true at the time of preparing this SIA Report.

2.3.2. Limitations

This SIA Report was prepared based on information that was available to the specialist at the time of preparing the report. The sources consulted are not exhaustive, and the possibility exists that additional information which might strengthen arguments, contradict information in this report, and/or identify additional information might exist. Additional information available from the public participation undertaken during the BA process will be included and considered within the final report, where relevant. The socio-economic data presented in this study is largely based on Census information and data and research conducted or contracted by other levels of government. The quality of this data is compromised by the limitations associated with the Census data collection process.

The census data is supported through additional data. The study draws primary data collected from towns/villages located in close proximity to the proposed project site. This additional information was collected through a survey of the communities within a 50km radius of the site. Limitation associated with this data include:

- A small sample size.
- Lack of qualitative data to support quantitative findings.

2.4. Assessment Criteria

Direct, indirect, and cumulative impacts associated with the projects must be assessed in terms of the following criteria:

The nature, which shall include a description of what causes the effect, what will be affected and how it will be affected.

The extent, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):

The duration, wherein it will be indicated whether:

- the lifetime of the impact will be of a very short duration (0 – 1 years) – assigned a score of 1;
- the lifetime of the impact will be of a short duration (2 – 5 years) – assigned a score of 2;
- medium-term (5 – 15 years) – assigned a score of 3;
- long term (> 15 years) – assigned a score of 4; or
- permanent – assigned a score of 5;

The magnitude, quantified on a scale from 0 – 10, where 0 is small and will have no effect on the

environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

The probability of occurrence, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1 – 5, where 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).

The significance, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and

The status, which will be described as either positive, negative or neutral.

The degree to which the impact can be reversed.

The degree to which the impact may cause irreplaceable loss of resources.

The degree to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula: $S=(E+D+M)P$

S = Significance weighting

E = Extent

D = Duration

M=Magnitude

P=Probability

The **significance weightings** for each potential impact are as follows:

< 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),

30 – 60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),

> 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

The summarizing of assessment impacts in a prescribed table format including the rating values as per above criteria. Measures for inclusion in the Environmental Management Programme.

3. POLICY AND PLANNING

This section introduces the relevant policies on various levels of government and their content. Relevant policy content is contained in the National White Paper on Renewable Energy, National Energy Act, Integrated Resources Plan for Electricity and the National Development Plan (NDP).

The National Energy Regulator of South Africa (NERSA) and the Department of Energy (DOE) govern the energy sector's regulatory framework. Critical stakeholders further include the national utility Eskom, National Treasury, Department of Trade and Industry, and the Department of Economic Development

The legislative and policy context applicable to a project plays an important role in identifying and assessing the potential social impacts associated with the development. In this regard a key component of the SIA process is to assess a proposed development in terms of its suitability with regards to key planning and policy documents.

The following key pieces of documentation were reviewed as part of this legislation and policy review process:

National Policy and Planning Context:

- Constitution of the Republic of South Africa, 1996
- National Environmental Management Act (No. 107 of 1998) (NEMA)
- White Paper on the Energy Policy of the Republic of South Africa (1998)
- National Energy Act (No. 34 of 2008)
- Integrated Energy Plan (IEP) (2015)
- National Development Plan (NDP) 2030 (2012)
- Strategic Infrastructure Projects (SIPs)

Provincial Policy and Planning Context:

- North West Provincial Development Plan (PDP) 2030 (2013)
- North West Provincial Growth and Development Strategy (PGDS) 2004 – 2014
- Renewable Energy Strategy for the North West Province (2012)
- North West Provincial Spatial Development Framework (PSDF) (2017)

Local Policy and Planning Context:

- Dr Kenneth Kaunda District Municipality Integrated Development Plan (IDP) 2022 – 2027
- JB Marks Local Municipality Draft Integrated Development Plan (IDP) 2022 – 2023
- Strategic Environmental Assessment (SEA) for Wind and Solar energy in South Africa (CSIR)
- Independent Power Producers Procurement Programme (IPPPP)

3.1. National Planning and Policies

3.1.1. Constitution of South Africa

Section 24 of the Constitution pertains specifically to the environment. It states that everyone has the right to an environment that is not harmful to their health or well-being, and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The Constitution outlines the need to promote social and economic development. Section 24 of the Constitution therefore requires that development be conducted in such a manner that it does not infringe on an individual's environmental rights, health, or well-being. This is especially significant for previously disadvantaged individuals who are most at risk to environmental impacts.

3.1.2. The National White Paper on Renewable Energy

In 1998, the White Paper on Energy Policy for South Africa (December 1998) identifies renewable energy as a future commercial opportunity for the country. "Government policy is based on an understanding that renewables are energy

sources in their own right, are not limited to small-scale and remote applications, and have significant medium and long-term commercial potential”.

The document argues that the abundant renewable energy resources have an important role to play in promoting sustainable energy security going forward. “Renewable resources generally operate from an unlimited resource base and, as such, can increasingly contribute towards a long-term sustainable energy future”.

3.1.3. National Energy Act

Government promulgated the National Energy Act in 2008 (Act No 34 of 2008). Next to other objectives, the Act sets out to promote diversity of supply of energy and energy sources. The preamble makes direct reference to this objective, emphasizing the importance of renewable resources, including solar:

“To ensure that diverse energy resources are available, in sustainable quantities, and at affordable prices, to the South African economy, in support of economic growth and poverty alleviation, taking into account environmental management requirements to provide for increased generation and consumption of renewable energies...”.

3.1.4. Integrated Resource Plan for Electricity

The latest, promulgated Integrated Resource Plan was written in 2010. An updated version was released in 2013 for public comment. Both versions support the procurement of renewable energy. The 2010 version allocates 17.8 GW to renewables by 2030. The 2013 version stipulates that 2.2 GW shall be integrated into the grid, on an annual basis.

3.1.5. National Development Plan

The National Development Plan, which was adopted by government, makes various suggestions for the enhancement of energy and electricity infrastructure. The NDP, published in 2013, specifically supports the procurement of renewable energy. It stipulates a goal of a minimum of 20 GW to be procured by 2030.

3.2. Provincial Planning and Policy

The study site is located in the North West Province. Relevant policy and planning documents on provincial level include:

3.2.1. North West Provincial Development Plan (PDP) 2030 (2013)

The North West Provincial Development Plan (PDP) 2030 is largely based on and intends to implement the objectives of the National Development Plan (NDP) 2030. The following are the overall objectives of the PDP:

By 2030:

- Eliminate income poverty: By 2030, the percentage of the population living in poverty will have fallen from 46% to 0%.
- Reduce inequality by lowering the Gini coefficient from 0.61 to 0.53.
- The targets for poverty reduction and the GINI coefficient supplement the national targets for poverty eradication and inequality reduction.
- The unemployment rate is expected to fall from 24% in 2010 to 14% in 2020 and 6% in 2030. This necessitates the creation of an additional 815 000 jobs. Total employment is expected to increase from 748 000 to 1,563 000.
- According to the NDP, total employment in South Africa will increase from 13 million to 24 million. The North West Province will be home to 7% of the new jobs that must be created. By 2030, the North West will account for 6.5% of all employment in South Africa.
- In real terms, the provincial Gross Value Added (GVA) should increase by 2.9 times. Such expansion will necessitate annual GVA growth of 5.4% on average.

The development of Highveld PV has the potential to contribute to a number of PDP targets, including: job creation and increased income, which would have a positive impact on the Province's current unemployment rate, standard of living, levels of inequality, and poverty levels; contribution to per capita income and labour force participation rates; and production of clean energy.

3.2.2. North West Provincial Growth and Development Strategy (PGDS) 2004 – 2014

The North West Provincial Growth and Development Strategy (PGDS) establishes a framework for the province's and its people's integrated and sustainable growth and economic development. The Province's challenges are summarized as follows: The Province is mostly rural in nature; it has a low population density and relatively inadequate infrastructure, particularly in remote rural areas; it inherited an enormous backlog in basic service delivery and maintenance that will take time to eliminate; the population is predominantly poor, with high levels of illiteracy and dependency affecting their productivity and ability to compete for jobs; and it is marked by great inequalities between the rich and the poor. From the foregoing, job creation and poverty eradication, as well as a lack of expertise and skills, stand out as the most pressing issues to be addressed in the Province.

The PGDS's goals and objectives are to combat poverty and unemployment, improve low levels of expertise and skills, which are classified as both immediate and long-term goals, and to require primary goals for sustained growth and economic development. The proposed solar farm will help to create jobs and develop skills, which is in line with the North West PGDS's goals and objectives.

The North West PGDS seeks to create a sustainable economy in order to eliminate poverty and improve social development. The proposed solar farm will contribute to the local area's growth and development by broadening the economic base and creating job opportunities.

3.2.3. Renewable Energy Strategy for the North West Province (2012)

The Renewable Energy Strategy for the North West Province was developed in 2012 by the North West Province's then Department of Economic Development, Environment, Conservation, and Tourism (DEDECT). The strategy was created in response to the North West Province's need to participate meaningfully in South Africa's RE sector. The North West Province's RE strategy aims to improve the environment, reduce its contribution to climate change, and alleviate energy poverty, all while promoting economic development and job creation and developing its green economy.

The North West Province, according to the strategy, consumes approximately 12% of South Africa's available electricity and is ranked as the country's fourth largest electricity consuming province. This is primarily due to the high demand for electrical energy-intensive mining and related industrial sectors, which consume approximately 63% of the province's electricity supply.

While the strategy acknowledges that South Africa has an abundance of RE resources, it is also aware that the applicability of these RE resources is dependent on a number of factors and, as a result, are not equally viable for the North West Province. Solar Energy (photovoltaic as well as solar water heaters), Municipal Solid Waste, hydrogen and fuel cell technologies, bio-mass, and energy efficiency were identified as the RE sources with the greatest potential and competitiveness for the North West Province.

The advantages and benefits associated with the implementation and use of RE technologies for the North West Province include:

- Energy supply for rural communities, schools, and clinics that are not connected to the national power grid.
- The creation of an environment in which access to electricity allows rural communities to build an economic base through agricultural and home-based industries, as well as Small, Medium, and Micro Enterprises (SMMEs) in order to increase their income-generating potential.
- It would result in less time spent collecting wood and water, improving the quality of life in communities and, in particular, for women.
- Reduced use of fuelwood as an energy source for cooking and heating, which causes respiratory and other hazards. Solar water heating for urban and rural households, reducing the need for either electricity (in urban settings) or fuelwood (in rural settings) to heat water, lowering our national peak demand and preserving woodlands in a sustainable manner.
- Large-scale use of renewable energy will also reduce carbon dioxide emissions, contributing to a cleaner environment. Because RE and energy efficiency go hand in hand, there will be additional financial benefits and a need for smaller RE systems.
- The development of a strong localised RE industry within the NWP holds significant potential for Black

Economic Empowerment (BEE) and job creation within the Province.

- The development of a strong renewable energy base in the North West Province, particularly in the manufacture of fuel cells, could stimulate the market for Platinum Group Metals (PGM), benefiting the local mining sector.

This is because renewable energy sources have a significant potential for increasing supply security by diversifying the energy supply portfolio and are increasingly contributing to a long-term sustainable energy future. Regarding environmental impacts, RE emits fewer GHGs than fossil fuels, as well as fewer airborne particulates and other pollutants. Furthermore, when compared to coal-fired power plants, RE generation technologies use less water.

3.2.4. North West Provincial Spatial Development Framework (PSDF) (2017)

According to the North West Provincial Spatial Development Framework (PSDF) (2017), Eskom provides electricity to re-distributors primarily municipalities (10%), commercial (5%), agriculture (5%), mining (30%), industrial (30%), and residential (20%). The majority of the electricity supplied to the North West Province is generated by Eskom's Matimba coal-fired Power Station in Limpopo, which will be supplemented in the future by Eskom's Medupi coal-fired Power Station.

The proposed project site, according to the North West PSDF, is located within the Mahikeng Distribution Area, which is characterized by minor developments such as Commercial, Industrial, and Major Electrification, and has a projected growth of 125MW (Eskom, 2015).

The Transmission Development Plan 2015-2024 of Eskom represents the transmission network infrastructure investment requirements over a ten-year period from 2015 to 2024. Projects proposed for the North West Province over the next ten years include the installation of 400kV power lines and the transformation of existing networks to support or relieve them. Five transmission power corridors have been identified as critical to providing a flexible and robust network capable of meeting future IPP and IRP requirements.

3.3. District Level Planning and Policies

3.3.1. Dr Kenneth Kaunda District Municipality Draft Integrated Development Plan (IDP) 2022 – 2027

The following are the objectives of Dr Kenneth Kaunda DM's Spatial Development Framework (SDF):

- Diversification of the economic base
- Accelerating growth in agriculture, tourism, industries, and export sectors (metals, clothing, textiles, agro-processing, mineral beneficiation, and manufacturing)
- Manufacturing sector innovation and competitiveness is a critical component in the strategy to significantly increase the manufacturing sector's potential to contribute to the overall development of the district
- Ensure sustainability by identifying potential conflict zones between proposed development and environmentally sensitive areas
- Bringing marginalized communities into the economic mainstream
- Strengthening and concentration of developments along N12
- Identification of available land and infrastructure to accommodate development along the corridor

Dr Kenneth Kaunda District Municipality's (DKKDM) vision is to be a catalyst for economic development in the North West Province region, benefiting all communities within its jurisdiction. The goal is to help municipalities implement key local economic development projects by championing investment in or supporting business development for selected high-impact projects that will stimulate economic growth, job creation, and economic diversification in the district region.

The proposed solar PV facility is consistent with the SDF in the IDP. Through the field of renewable energy, the development will help the District Municipality achieve economic growth and build a sustainable economy.

3.3.2. JB Marks Local Municipality Draft Integrated Development Plan (IDP) 2022 – 2023

The JB Marks Local Municipality Strategic Agenda should be implemented in pursuance of the following six Key Performance Areas for Local Government as contained in the Municipal Planning and Performance Management Regulations (2006) as promulgated by National Government:

- KPA 1: Municipal Transformation and Organizational Development - To improve organization stability and sustainability
- KPA 2: Basic Service Delivery and Infrastructure Development - To eradicate backlog in order to improve access and ensure proper operation and maintenance to services and infrastructure development
- KPA 3: Local Economic Development - To create an environment that promotes developments of local economy and facilitate job creation
- KPA 4: Municipal Financial Viability and Management - To improve overall financial management in the municipality by developing and implementing appropriate financial management policies, procedure and system
- KPA 5: Good Governance and Public Participation - To promote a culture of participatory and good governance
- KPA 6: Spatial Rationale - Improve the quantity and quality of basic services for all people in terms of water, sanitation, electricity, waste management, roads and disaster management (infrastructure investment & development)

3.3.3. Renewable Energy Strategy for the North West Province (2012)

The South African Strategic Environmental Assessment (SEA) for wind and solar PV energy (CSIR, 2013) identified eight (8) Renewable Development Zones (REDZs). The REDZs identified areas where large-scale renewable energy facilities can be developed while minimizing significant negative environmental impacts and yielding the greatest possible socioeconomic benefits to the country. The Highveld PV facility is in the Klerksdorp REDZ (REDZ10), which was formally gazetted in 2018. As a result, the area has been identified as suitable for the construction of renewable energy facilities, specifically large-scale solar farms.

3.3.4. Independent Power Producers Procurement Programme (IPIPPP)

In terms of renewable energy, 6 422 MW of electricity had been purchased in seven bid rounds from 112 RE Independent Power Producers (IPPs). The national grid has been connected to 3 162 MW of electricity generation capacity from 57 IPP projects. Since the first project went live, renewable energy sources procured through the REIPIPPP have generated 16 991 GWh of energy (a 15% contribution to morning and evening system peak periods).

According to the document, the REIPIPPP has attracted significant investment in the development of REIPPs in the country. The total investment (total project costs) of projects under construction and in the process of closure is R201.8 billion (this includes total debt and equity of R200.4 billion, as well as early revenue and VAT facility of R1.4 billion). In the six bid windows, the REIPIPPP attracted R48.8 billion in foreign investment and financing (BW1 – BW4, 1S2 and 1S2). This is more than double the amount of FDI brought into South Africa in 2015. (R22.6 billion).

South Africans held 48% (R31.5 billion) of the total equity shareholding (R66.7 billion) across BW1 to BW4, BW1S2 and 1S2. This is significantly more than the required 40%. Foreign equity amounts to R35.8 billion, accounting for 52% of total equity.

The REIPIPPP also contributes to broad-based black economic empowerment and the development of black industrialists. In this regard, Black South Africans own 31% of projects that have reached financial close, which is slightly higher than the 30% target.

The REIPIPPP has also ensured that black people in local communities have ownership in IPP projects that operate in or near their communities. On average, black local communities own 11% of projects that have reached financial close. This is far above the 5% target. Furthermore, an average of 18% shareholding by black people in engineering, procurement, and construction (EPC) contractors has been achieved in projects that have reached financial close under the REIPIPPP. This is slightly less than the 20% target. For the 57 projects currently in operation, black people's shareholding in operating companies of IPPs has averaged 20% (versus a target of 20%). (i.e. in BW 1, 2 and 3). The

target for black people in top management shareholding has been set at 40%, with an average of 61% achieved to date. As a result, the target has been significantly exceeded.

3.4. Conclusion

The review of relevant legislation, policies and documentation pertaining to the proposed development indicates that the establishment of the solar development and associated infrastructure is supported at a national, provincial, and local level, and that the proposed project will contribute positively towards a number of targets and policy aims.

4. OVERVIEW OF THE STUDY AREA

4.1. Overview of Study Area

This section outlines the relevant administrative context as well as the provincial socio-economic and municipal contexts. It closes with a description of the local context of the immediate surroundings of the proposed PV Facility site.

The Highveld Solar PV Facility will be located on Farm Rietfontein 388, portion 79 and 56; and the Remainder of Portion 10, as well as Farm Rietfontein 3, portion 0. The development is located approximately 15km north-east of Stilfontein within the JB Marks Local Municipality, and within the Dr Kenneth Kaunda District Municipality, North West Province.

This chapter provides an overview of the socio-economic environment of the province, DM, and LM within which the Highveld Solar PV Facility is proposed and provides the socio-economic basis against which potential issues can be identified.

The North West Province was part of the old Transvaal, and includes most of the parts of the old homeland, Bophuthatswana. There is a lot of platinum in the province, so that it is often called the Platinum Province. During the Anglo-Boer War, a Boer force besieged the town of Mafikeng. The British soldiers in the town were trapped for 7 months before they were rescued. In this time, Sol Plaatje worked for the British as an interpreter in Mafikeng. After the war he was one of the founders of the SANNC, a political party that later became the ANC.

The world's largest platinum mines are near Rustenburg in the North West Province. Most of the world's platinum comes from the Merensky Reef in the North West Province. Platinum is more valuable than gold, and is very popular in jewellery.

History was made in 1979 when Sun City was opened in the North West to become the best holiday resort in South Africa, and for good reason. Home to the Valley of Waves and sprawled along the border of the Pilanesberg National Park, Sun City Resort enjoys the fine distinction of being the only surf-and-safari destination within a two-hour drive of landlocked Johannesburg. Among Southern Africa's fascinating game reserves, Pilanesberg National Park is possibly the most accessible. Situated in the ecologically rich transition zone between the Kalahari and the Lowveld, this vast area promises thrilling big game viewing in a malaria free environment. A wide variety of accommodation is available to suit your needs.

The principal town, Vryburg, is the centre of a large agricultural district which has all the modern conveniences. However moving out of the town and into the real Bophirima will provide a uniquely relaxing break from modern life. The larger part of the region is still commonly known as Stellaland. Taung is the site of the discovery of the Taung skull, one of the world's most important archaeological discoveries. The region is also affectionately known as "The Texas of South Africa" given its strong mining and agricultural economy.

The region is situated 1,200m above sea level and has an annual average rainfall of 430mm. The climate is dry and healthy, particularly in winter when days are sunny and bracing. Summers are hot with temperatures ranging from 16 – 38 degrees C.

The vast expanses of this African savannah bushland is home to a great variety of game species, including lion, buffalos and rhino to be encountered at number of privately owned game reserves.

Stilfontein is a former mining Town which is located on the N12 with 17,942 inhabitants, situated between Klerksdorp and Potchefstroom in North West Province of South Africa. Khuma is situated 11,3 Kilometres from the Town Stilfontein was established in 1949 as a residential centre for three large gold mines, the Hartebeesfontein, Buffelsfontein and Stilfontein mines.

In May 1949 two shafts (Charles and Margaret) were sunk and it was this success at Stilfontein that inspired the opening up of the Hartebeesfontein and Buffelsfontein mines.

The Margaret shaft at the Stilfontein mine was the first concrete headgear ever to be erected in South Africa and was designed locally and completely constructed from local materials. Tower mounted on this headgear was the first ever multi rope Koepoe hoist in South Africa.

4.2. Administrative Context of Study Area

The Highveld Solar PV Facility is located within the JB Marks Local Municipality (JBMLM), which is one of four local municipalities that make up the Dr Kenneth Kaunda District Municipality (DKKDM) in the North West Province. The town of Klerksdorp is the administrative seat for the DKKDM and Potchefstroom is the administrative seat for JBMLM.

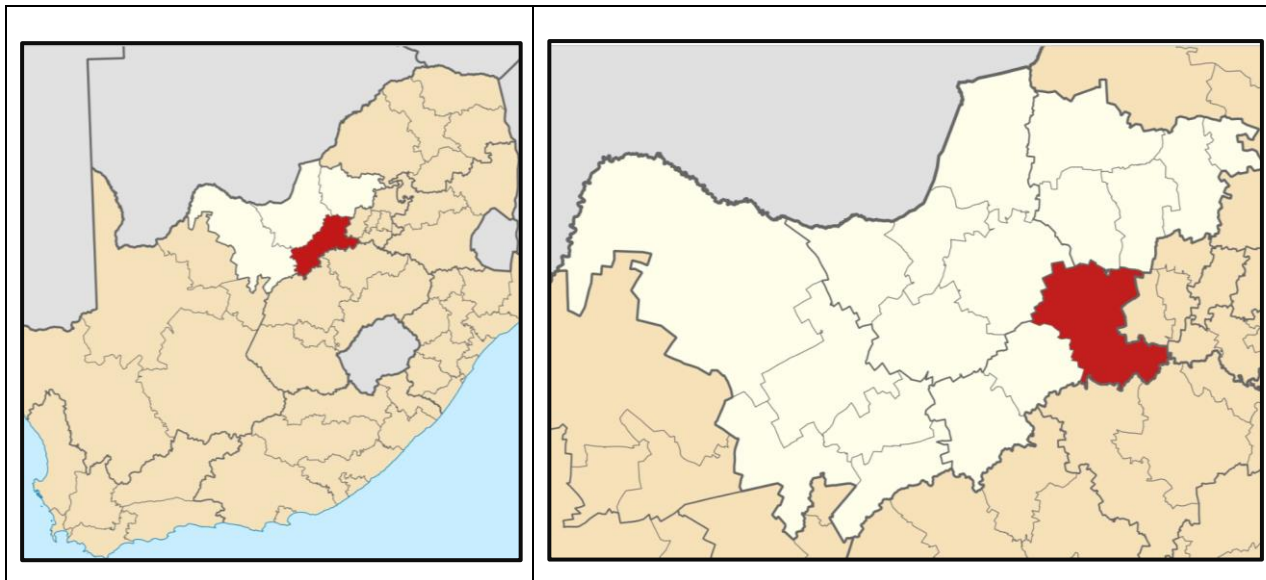


Figure 4.1: Location of Dr Kenneth Kaunda District Municipality (left) and JB Marks Local Municipality (right) within the North West Province

Table 4.1: Spatial Context of the study area for the development of the Highveld Solar PV

Province	North West Province
District Municipality	Dr Kenneth Kaunda District Municipality
Local Municipality	JB Marks Local Municipality
Ward number(s)	34
Nearest town(s)	~15km north-east of Stilfontein
Current Zoning	Agriculture
Current land use	The properties both currently lie fallow, having been used historically for agriculture
Access	The site can be readily accessed via an existing gravel access road (Unnamed Rd Stilfontein, North West)

4.3. Provincial Socio-Economic Context

The North West Province is located in South Africa's central-northern region. Northern Cape Province to the west and south-west; Free State Province to the south; Gauteng Province to the east; Limpopo Province to the north-east; and Botswana to the north border the province. It has a population of 3 509 953 (2011) and a population density of 33/km² (2011), making it South Africa's 7th most densely populated Province. It occupies an area of land of approximately 104 882km², making it South Africa's 6th largest in terms of area.

The North West Province has altitudes ranging from 920 to 1782 meters above sea level, making it one of the provinces with the most uniform terrain. The province's central and western boundaries are defined by gently undulating plains, while the province's eastern boundary is mountainous and includes the Magaliesberg mountain range. The north-eastern and north-central extents of the Province are dominated by ancient igneous rock formations, and the Gatsrand between Potchefstroom and Carletonville is considered one of the world's most ancient preserved landscapes. The Province's geology is significant because of its mineral resources, which include platinum, gold, uranium, iron, chrome,

manganese, and diamonds.

In terms of land use patterns, approximately 69% of the North West Province is in a natural or near-natural state, while 31% is irreversibly altered as a result of croplands (25.6%), urban (3.5%), and mining (0.7%) activities. The province is mostly rural, with mining and agriculture being the main economic activities.

The North West Province comprises of four (4) Districts, namely: Bojanala Platinum, Ngaka Modiri Molema, Dr Ruth Segomotsi Mompoti, and Dr Kenneth Kaunda (refer to Figure 4.2).

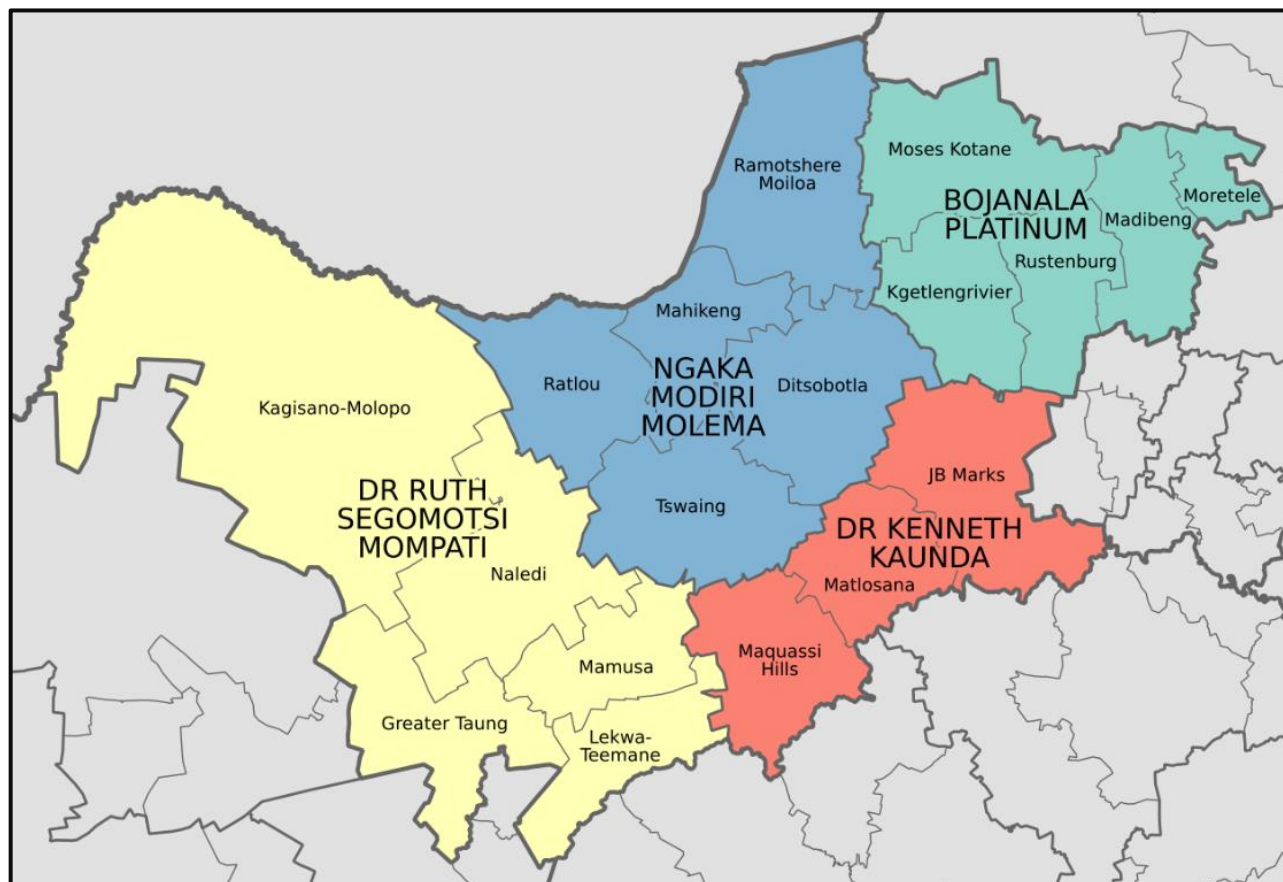


Figure 4.2: Map showing the districts of the North West Province

(Source: https://en.wikipedia.org/wiki/List_of_municipalities_in_the_North_West).

4.2.1. Population

The population of the North West province amounts to approximately 3.51 million people, of which nearly 50 per cent is located in the Bojanala Platinum District Municipality (BPDM) (43%). The Ngaka Modiri Molema District Municipality (NMMDM) constitutes 24 per cent of the total population while the Dr Ruth Segomotsi Mompoti District Municipality (DRSMDM) and the Dr Kenneth Kaunda District Municipality (DKKDM) representing 13 per cent and 20 per cent of the population respectively.

The population growth rate for the North West Province (similar to South-Africa) has decreased slightly over the past ten years. The district municipality growth rates show an increase in the BPDM and the DKKDM between 2004 and 2008. The DRSMDM shows an exceptional decrease between 2003 and 2009 from 0.3 per cent to -2.2 per cent. The decline in the population growth rate is a result of two main factors. The first factor is the demarcation changes to the Kagisano LM in 2006. The changes removed approximately 7,000 individuals from the DRSMDM.

The second factor affecting the population rate decline is the out-migration from the DRSMDM to the rest of South-Africa, especially the metropolitan areas. Out-migration of people is generally associated with a lack of economic growth and the concomitant loss of job opportunities in a region. As a result, provinces with increased populations, like Gauteng, receive additional resources, while those with decreasing populations, like the Free State, receive reduced allocations.

Table 4.2: Population Structure of the North West

LEVEL	Geographical Location	Population (End 2011)	Historical Growth rates			
			1995-2000	2000-2005	2005-2010	1995-2010
NATIONAL	South-Africa	51,769,798	1.7%	1.3%	1.2%	1.4%
PROVINCIAL	North West	3,509,875	1.5%	1.0%	0.9%	1.1%
DISTRICT	BPDM	1,507,492	1.9%	1.3%	1.4%	1.5%
	NMMDM	842,677	1.6%	1.1%	1.2%	1.3%
	DRSMDM	463,774	0.5%	-0.2%	-1.9%	-0.5%
	DKKDM	695,932	1.7%	1.1%	1.4%	1.4%

The figure below shows the population structure of the North West in 2012 by means of a population pyramid. According to the South-African Health Review (SAHR) for 2011 the life expectancy for females are higher than for males in the North West province. The average life expectancy for females is 67.7 years while the average male lives 61.5 years. The female and male life expectancy in the province is higher than the national average of 61.7 years and 55.2 years respectively. The higher life expectancy among females can clearly be observed in the population pyramid for the province.

From the age of 40 years upwards a bigger portion of each age group consists of females than males. There are a higher percentage of males aged between 15 to 34 years as a result of male workers migrating to the province to work on the mines. The North West province further has a large number of inhabitants in the younger age groups, suggesting an expansive profile.

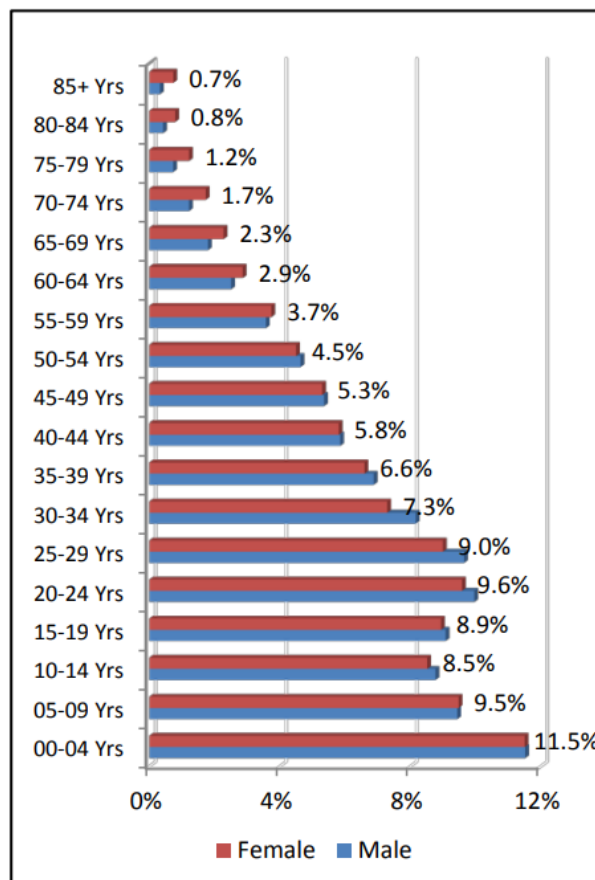


Figure 4.3: Population pyramid of the North West

4.2.2. Economy

The NWP is a large and significant local economy in the South African economic context. North West mining GVA-R contributes approximately (R91,7bn) 33,8% to the total industries GVA (Current prices) in the province and 24,4% to national mining GDP and 14,0% to North West formal employment (122 000 jobs) and 32,7% to national mining employment. (Sources: IHS Markit: Regional eXplorer 1923 (2.6i) October 2020) and Statssa Q2 2020).

Table 4.3: % GDP per Province 2019 compared to South Africa

	South Africa	Western Cape	Eastern Cape	Northern Cape	Free State	KwaZulu-Natal	North West	Gauteng	Mpumalanga	Limpopo
Agriculture	2,1%	3,4%	1,5%	6,0%	5,0%	3,3%	2,3%	0,4%	2,5%	2,5%
Mining	8,3%	0,3%	0,1%	23,3%	10,7%	1,5%	33,8%	3,0%	23,7%	29,0%
Manufacturing	13,2%	15,5%	13,3%	3,7%	10,8%	17,4%	5,3%	14,9%	13,5%	2,5%
Electricity	3,8%	2,9%	2,7%	4,4%	4,2%	4,0%	3,8%	3,4%	7,5%	4,4%
Construction	3,8%	5,2%	3,9%	3,0%	2,7%	4,0%	2,5%	3,9%	3,1%	2,9%
Trade	15,1%	17,5%	19,8%	10,2%	14,6%	15,7%	11,7%	14,0%	14,9%	15,1%
Transport	9,8%	10,8%	8,8%	11,2%	10,5%	13,2%	6,0%	10,1%	6,9%	5,0%
Finance	19,7%	25,6%	18,1%	13,9%	16,2%	17,3%	12,3%	23,7%	11,0%	14,9%
Community services	24,1%	18,8%	31,7%	24,1%	25,4%	23,6%	22,2%	26,5%	17,0%	23,7%
Total Industries	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

The table above shows that the Mining sector is the biggest GDP contributor in the North West Province at 33.8% in 2019. This is followed by the Community Services sector at 22.2%, Finance sector at 12.3%, Trade sector at 11.7%, Transport sector at 6%, Manufacturing sector at 5.3%, Electricity sector at 3.8%, Construction sector 2.5% and Agriculture sector at 2.3%.

4.2.3. Employment

The International Labour Organization (ILO) (2017) highlighted that the global economy grew by 3.1 percent in 2016, which is the lowest economic growth rate in the past six years. Although the global economy is projected to recover and grow by 3.4 percent in 2017, global uncertainties such as increased trade protectionism pose downside risks to the global economic outlook. In the context of a subdued global economy, the ILO raises concerns in the labour market, such as will a sufficient number of jobs be created; will the quality of the jobs in existence be improved; and lastly will the gains from growth be inclusively distributed? The ILO expects unemployment to remain high in the medium term, which will be worsened if labour force growth outstrips job creation.

Table 4.4: Employment per Province

Province	Oct-Dec 2019	Jul-Sep 2020	Oct-Dec 2020	Qtr-to-qtr change	Year-on-year change	Qtr-to-qtr change	Year-on-year change
	Thousand				Per cent		
South Africa	16 420	14 691	15 024	333	-1 397	2,3	-8,5
Western Cape	2 518	2 216	2 338	121	-180	5,5	-7,1
Eastern Cape	1 384	1 212	1 236	23	-148	1,9	-10,7
Northern Cape	335	287	308	21	-27	7,3	-8,2
Free State	785	723	745	22	-40	3,0	5,1
KwaZulu-Natal	2 664	2 389	2 454	66	-210	2,7	-7,9
North West	992	930	944	14	-48	1,5	-4,8
Gauteng	5 096	4 506	4 570	64	-528	1,4	-10,4
Mpumalanga	1 244	1 161	1 148	-13	-96	-1,1	-7,7
Limpopo	1 400	1 266	1 281	14	-119	1,1	-8,5

The table above shows the number of employed persons increased in eight provinces between Q3: 2020 and Q4: 2020. The largest employment increases were recorded in Western Cape (up by 121 000), KwaZulu-Natal (up by 66 000) and Gauteng (up by 64 000). Employment losses were recorded only in Mpumalanga during the same period. Northern Cape had the biggest change in employment with an increase of 7,3%, followed by Western Cape with an increase of 5,5%.

Compared to Q4: 2019, the largest decreases in employment were recorded in Gauteng (down by 528 000), KwaZulu-Natal (down by 210 000), Western Cape (down by 180 000), Eastern Cape (down by 148 000) and Limpopo (down by 119 000). Northern Cape recorded the least decrease in the number of employed persons at 27 000. Eastern Cape had the biggest change in employment with a decline of 10,7%, followed by Gauteng with a decline of 10,4%.

Table 4.5: Unemployment rate per Province

	Official unemployment rate					Expanded unemployment rate				
	Oct-Dec 2019	Jul-Sep 2020	Oct-Dec 2020	Qtr-to-qtr change	Year-on-year change	Oct-Dec 2019	Jul-Sep 2020	Oct-Dec 2020	Qtr-to-qtr change	Year-on-year change
	Per cent			Percentage points		Per cent			Percentage points	
South Africa	29,1	30,8	32,5	1,7	3,4	38,7	43,1	42,6	-0,5	3,9
Western Cape	20,9	21,6	22,5	0,9	1,6	24,1	29,1	26,8	-2,3	2,7
Eastern Cape	39,5	45,8	47,9	2,1	8,4	47,7	51,2	52,4	1,2	4,7
Northern Cape	26,9	23,1	28,7	5,6	1,8	39,2	44,0	41,8	-2,2	2,6
Free State	35,0	35,5	33,4	-2,1	-1,6	42,3	42,6	39,9	-2,7	-2,4
KwaZulu-Natal	25,0	26,4	29,6	3,2	4,6	41,9	47,5	46,0	-1,5	4,1
North West	28,8	28,3	33,3	5,0	4,5	43,0	46,5	46,0	-0,5	3,0
Gauteng	30,8	33,7	34,1	0,4	3,3	35,3	41,0	41,0	0,0	5,7
Mpumalanga	33,6	27,8	33,0	5,2	-0,6	43,8	45,6	46,4	0,8	2,6
Limpopo	23,1	26,3	27,3	1,0	4,2	44,0	46,9	47,5	0,6	3,5

The official unemployment rate increased by 1,7 percentage points to 32,5% in Q4: 2020 compared to Q3: 2020. The official unemployment rate increased in eight of the nine provinces, with the largest increase recorded in Northern Cape (up by 5,6 percentage points), followed by Mpumalanga (up by 5,2 percentage points) and North West (up by 5,0 percentage points). Gauteng recorded the least increase of 0,4 percentage points, while Free State recorded a decrease of 2,1 percentage points.

4.2.4. Human Development

HDI for both the North West and South Africa has been steadily increasing for the period of 2005 to 2019. Historically, the HDI for the province has always been lower than that of the country. Despite this, HDI has been on an increasing trend moving from 0.51 in 2005 to 0.67 in 2019. This increase in the HDI might be due to the increasing trend in life expectancy and education in the same period despite the low prosperity of the economy. This increase shows that the social and economic development in the province is moderate. Overall, the different variables indicate that the province is still on the right track to deliver improved services to its residents.

4.2.5. Education

The percentage of youth aged 15 to 34 that attended an educational institution during 2011 is presented in Figure 4.4. Although more than 80 per cent of individuals aged between 15 and 17 attended an educational institution, educational attendance decreased rapidly beyond this age. After the age of 17, the percentage of youth that attended an educational institution declined to approximately 12 per cent by age 23, and even lower beyond that. Between the ages of 15 and 21, it was evident that female attendance was somewhat lower than that of males attending educational institutions. However, from the age of 21 upwards, it can be noted that female school attendance was higher than that of the males. The change in gender parity at high school may indicate that fewer male than female learners are progressing to the FET phase or that male learners are more likely to drop out of high school for other reasons.

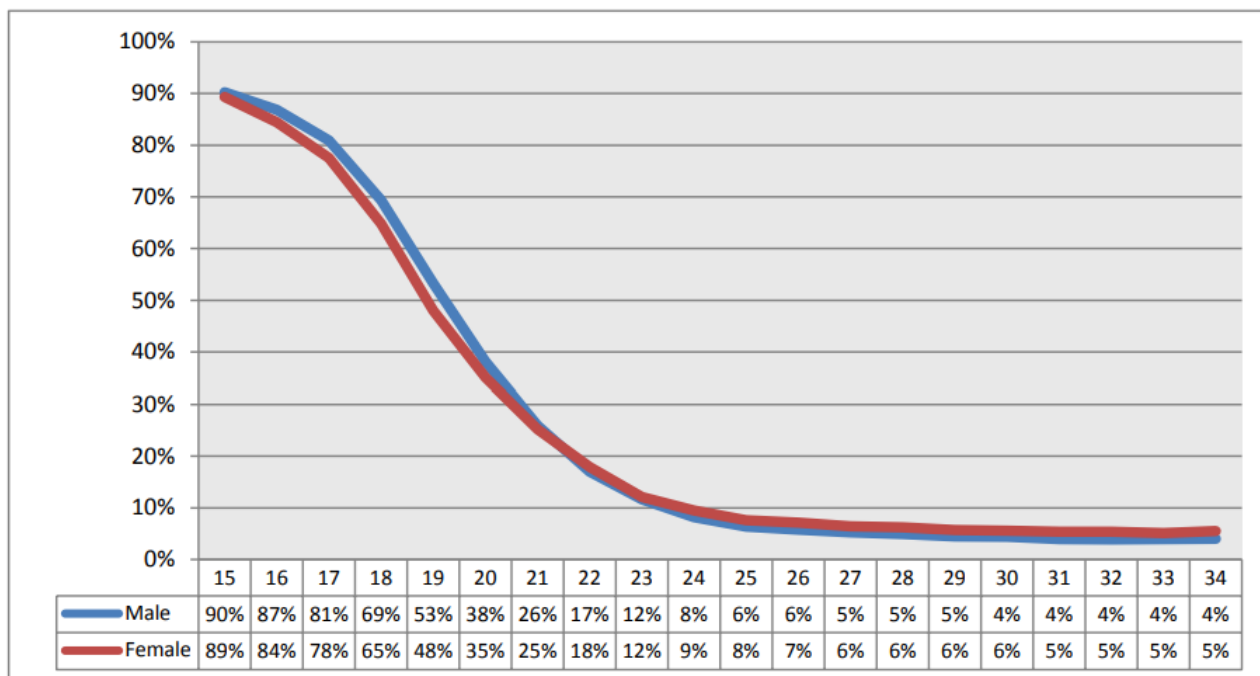


Figure 4.4: Percentage of youth who attended an educational institution by age and gender, in the North West Province, 2011

4.2.6. Income and poverty

The Index of Buying Power has also increased for the NW province. IHS Global Insight’s Index of Buying Power (IBP) indicates that 6% of the country’s spending power is located in the NW. Income levels in the NWP are below the national average (which is to be expected for the more rural areas in South Africa). The unemployment rate is slightly higher than that of the national average, while the percentage of people living in poverty is marginally lower than the national average. The NWP has a share of approximately 5.4% of national employment.

	SA	North-West	Bojanala DM	Ngaka Modiri Molema DM	Dr Ruth Segomotsi Mompoti DM	Dr Kenneth Kaunda DM
Poverty indicators						
% People below the food poverty line (StatsSA defined)	29,4%	29,4%	23,3%	35,6%	38,3%	30,2%
Poverty gap rate (from upper poverty line)	31,1%	31,4%	31,4%	31,4%	31,3%	31,2%
Highest level of education matric only: age 20+	11 309 518	744 513	395 471	136 480	62 398	150 164
Literate age 15+, completed grade 7 or higher	85,4%	79,7%	84,1%	74,1%	69,0%	81,9%
Population density (number of people per km ²)	48,30	39,49	100,81	34,22	11,94	55,17
Urban Population Rate (%)	65,0%	46,8%	39,1%	28,9%	39,3%	90,3%

Figure 4.5: Poverty within South Africa and the North West Province

4.3. Dr Kenneth Kaunda District Municipality

The Dr Kenneth Kaunda District Municipality (DKKDM) is located in the southern part of the North West Province, bordering both Gauteng (65 kilometres south of Johannesburg) and the Free State Province. The DKKDM is the smallest of the four districts, consisting of three local municipalities: JB Marks, Matlosana City, and Maquassi Hills.

Mining is the district's dominant economic activity. Other employment sectors include social services, trade, and farming. Potchefstroom is home to several tertiary institutions and training centres, whereas agriculture is the economic backbone of Ventersdorp. Mining, trade, finance, business services, manufacturing, construction,

government services, and agriculture are the DKKDM's main economic sectors.

The district is served by several major roads, with the N12 Treasure Corridor serving as the district's main development axis and a potential concentration point for future industrial, commercial, and tourism development. DKKDM is a region with a diverse natural and cultural heritage, as well as the potential for long-term economic growth. Hartbeesfontein, Klerksdorp, Leeudoringstad, Makwassie, Orkney, Potchefstroom, Stilfontein, Ventersdorp, Witpoort, and Wolmaransstad are among the major cities/towns in the district municipality.

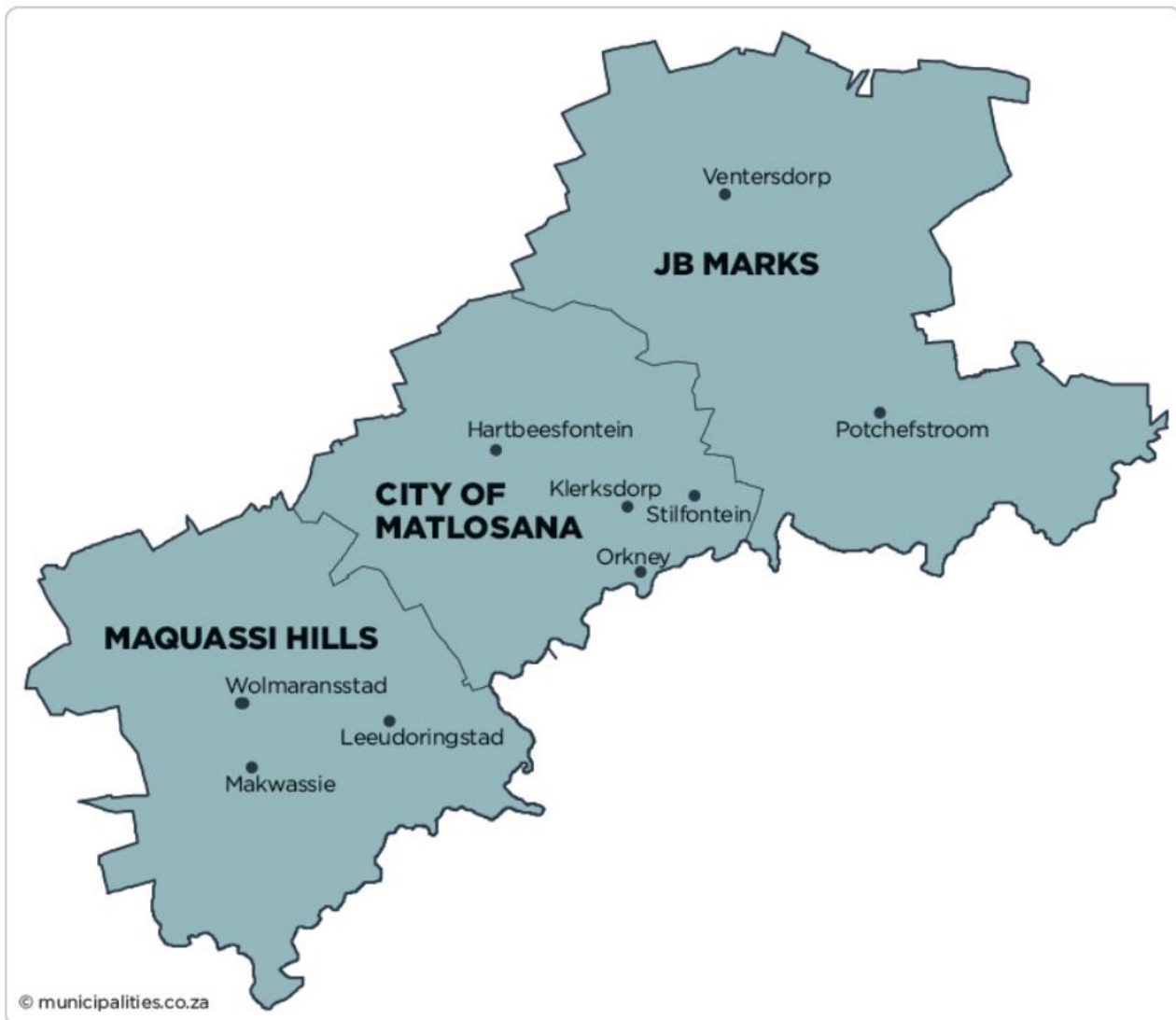


Figure 4.6: Local Municipalities of Dr Kenneth Kaunda District Municipality Source: (Local Government Handbook, 2016)

4.3.1. Population

According to Statistics South Africa (Community Survey 2016), the population of the Dr. Kenneth Kaunda District (based on 2016 municipal boundaries) is 742 822, increased from 695 934 in 2011 (Consider Table 4.6). The population is unevenly distributed among the three (3) Local Municipalities and the average annual growth rate of the district is 1.07% which dropped from 1.16% between 2001 and 2011.

Table 4.6: Unemployment rate per Province

Municipality	Total Population			Population (%)			Annual Growth (%)	
	2001	2011	2016	2001	2011	2016	2001-11	2011-16
JB Marks (NW405)	171431	219464	243528	28.59	31.54	32.78	1.28	1.11
City of Matlosana (NW 403)	359202	398676	417281	59.90	57.29	56.18	1.11	1.05
Maquassi Hills (NW 404)	69037	77794	82013	11.51	11.18	11.04	1.13	1.05
Dr Kenneth Kaunda (DC40)	599670	695934	742822	100	100	100	1.16	1.07

The population pyramid (Figure 4.7) indicates that there were more people in younger ages, particularly in age groups 0–4 and 5–9, and less people in older ages, particularly from the ages 65 and older. A new cycle of the pyramid is being

developed from the lower ages, barring some significant changes in the mortality rates. The graph explicitly indicate that between about ten (10) to twenty (20) years ago, infant mortality was high, hence the indentation in the pyramid. This is attributed to the high death rate experienced in the early 2000s due to the prevalence of HIV/AIDS. The death rate affected the mainly young children and teens. The ages of 20 and upwards followed a normal pyramid and is still following the same trend.

The population distribution has, however, followed a normal distribution for the past ten years. This may be attributed to the increasing quality of health care which contained the epidemic successfully. The specific interventions in to mitigate the HIV/AIDS epidemic has borne positive spinoffs.

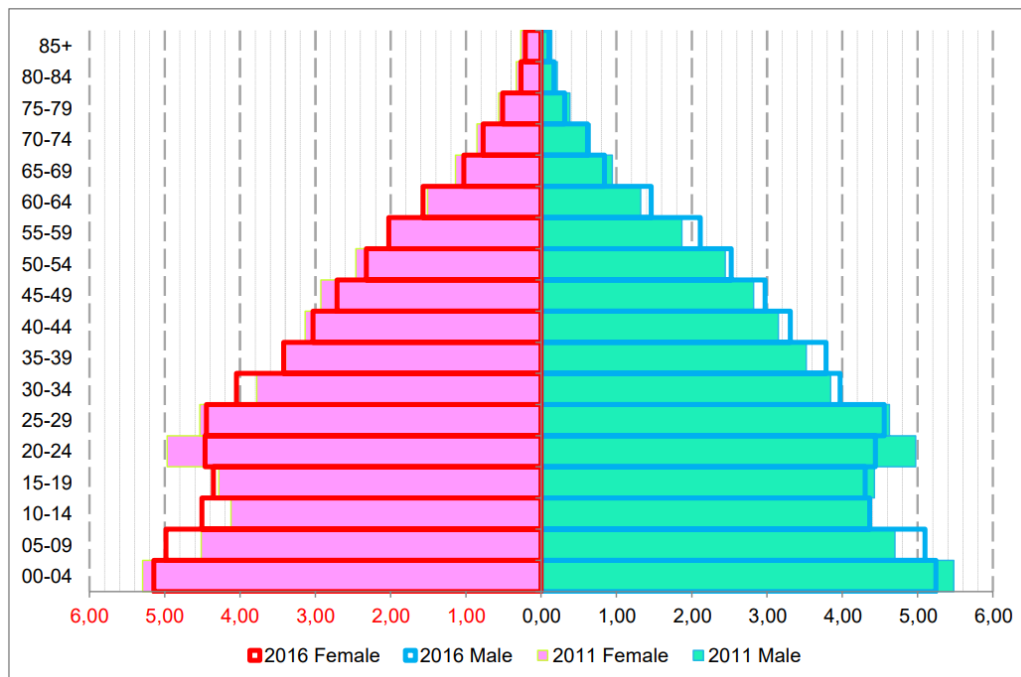


Figure 4.7: Population Pyramids in Percentage: 2011 and 2016

4.3.2. Economy

The average growth rate of the entire DM declined by 0,8% between 2006 and 2011. The decline continued to increase to 1.2% in the following five years. The main contributor to the decline in the economic growth was City of Matlosana, going down by 2.5 and 2.4 percentage points in the respective periods. The JB Marks Municipality grew by 2.1 and 0.7 percent in the same timeframes, indicating a steady decline across the board. Between 1997 and 2016 (Table 4.7), the growth increased mostly in the years 1999-2001 and in 2006 at almost 6% to 8%. The DM economy declined mainly in 2009 (above 6%), followed by figures of between 2 and 3% in 2012 and 2014. The decline has been seemingly arrested because of smaller declines in 2015 and 2016, with the prospects of complete turnaround, albeit marginal, in 2017 and going forward.

Table 4.7: Unemployment rate per Province

	2016 (Current prices)	Share of district municipality	2006 (Constant prices)	2016 (Constant prices)	Average Annual growth
City of Matlosana	35.40	58.88%	26.15	20.40	-2.45%
Maquassi Hills	3.25	5.40%	1.78	2.02	1.29%
JB Marks	21.48	35.72%	12.08	13.84	1.37%
Dr Kenneth Kaunda	60.13		40.01	36.26	

The greatest contributor to the Dr Kenneth Kaunda District Municipality economy is the City of Matlosana local municipality with a share of 58.88% or R 35.4 billion, increasing from R 17.1 billion in 2006. The economy with the lowest contribution is the Maquassi Hills local municipality with R 3.25 billion growing from R 1.3 billion in 2006.

With a GDP of R 60.1 billion in 2016 (up from R 27.1 billion in 2006), the Dr Kenneth Kaunda District Municipality contributed 22.79% to the North-West Province GDP of R 264 billion in 2016: decreasing in the share of the North-West

from 25.79% in 2006. The Dr Kenneth Kaunda DM contributes 1.39% to the GDP of South Africa which had a total GDP of R 4.34 trillion in 2016 (as measured in nominal or current prices). It's contribution to the national economy stayed similar in importance from 2006 when it contributed 1.47% to South Africa, but it is lower than the peak of 1.47% in 2016.

The comparative advantage of an area indicates a relatively more competitive production function for a product or service in that specific economy, than in the aggregate economy. The economy therefore produces the product or renders the service more efficiently. The location quotient is an indication of the comparative advantage of an economy. A location quotient of larger than one (1) indicates a relative (favourable) comparative advantage in that sector.

Table 4.8: Location Quotients for Dr Kenneth Kaunda Municipalities, 2016

No	Economic Sector	Dr Kenneth Kaunda	City of Matlosana	Maquassi Hills	JB Marks
1.	Agriculture	1.3	0.5	5.5	2.0
2.	Mining	2.6	3.4	1.5	1.2
3.	Manufacturing	0.4	0.3	0.4	0.5
4.	Electricity	1.0	0.8	0.5	1.3
5.	Construction	0.9	0.8	1.3	0.9
6.	Trade	1.0	1.0	1.0	1.0
7.	Transport	0.8	0.8	0.8	0.7
8.	Finance	0.8	0.8	0.7	0.8
9.	Community Services	1.1	1.0	1.1	1.4

4.3.3. Employment

In 2016, the unemployment rate in Dr Kenneth Kaunda District Municipality (based on the official definition of unemployment) was 31.5%, which is an increase of 8.01 percentage points from 2006. The unemployment rate in Dr Kenneth Kaunda District Municipality is higher than that of North-West and the national governments. The unemployment rate for South Africa was 26.43% in 2016, which is an increase of -0.668 percentage points from 25.8% in 2006.

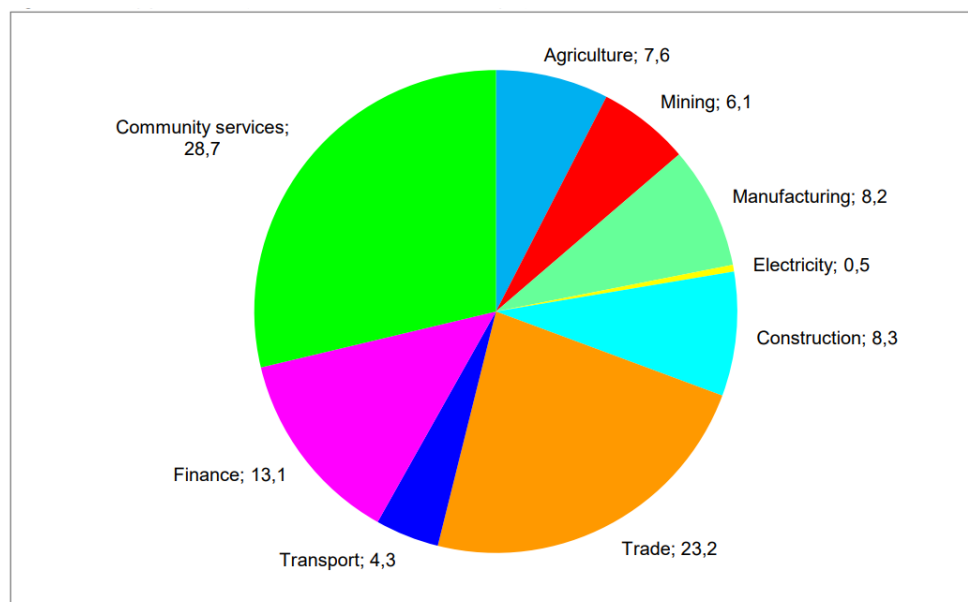


Figure 4.8: Percentage Sectoral Contribution to Employment, DKKDM, 2016

As outlined in Figure 4.8 the largest in the sectoral contribution to total employment in 2016 was in the Community Services (28.7%) and Trade (23.2%) sectors. The largest proportional gains in employment was achieved in the Community Services (5.3%), Finance (3.1%) and Construction (2.6%), during the period 2011 to 2016.

The biggest and only decline in total employment was experienced in mining between 2011 and 2016, with a decline of 15.9% (i.e., from 30 528 to 9174 employees), while the Electricity Services employee percentage stayed stagnant (and still contributing the lowest in 2016 at 0.5%)

4.3.4. Education

The status and changes in the education profile of the district population between 2001 and 2016 is given in Table 4.9. There has been a significant improvement in overall skills levels, most notably the decrease of adult illiteracy by 0.67

as a percentage of the population. In addition, the percentage of people without matric have decreased by 0.91%, with a corresponding increase in the proportion of population with matric (0.05%), matric and bachelor's degrees (or equivalent qualification (0.52%)) and matric plus postgraduate degrees (or equivalent qualification (0.08%)).

Matlosana has the highest proportion of the population with matric (51%), with the lowest proportion in Maquassi Hills (32%). Maquassi Hills has also a corresponding higher percentage of the population with a qualification of less than matric at 48% (district average is 30%) and slightly higher percentage of the population without any schooling at 17% (just higher than the district average of 16%). The newly established (through a merger of Ventersdorp and Tlokwe) municipality has a higher percentage of the population with qualifications higher than matric at 9% to the district average of 7%.

Table 4.9: Education Profile of Population older than 20 Years (2001-2016)

	<i>Dr Kenneth Kaunda</i>			<i>City of Matlosana</i>			<i>Maquassi Hills</i>			<i>JB Marks</i>		
	2001	2011	2016	2001	2011	2016	2001	2011	2016	2001	2011	2016
No schooling	59968	41333	39545	30996	18836	18177	13084	10026	8143	15888	12471	13225
Certificate / Diploma without Matric	219753	237853	249438	138467	139604	142587	19814	24596	27906	61472	73653	78945
Matric only	74003	116527	125902	46846	70972	75369	4842	8566	9631	22315	36989	40902
Matric & Bachelors Degree	22563	34301	40855	12780	19731	22812	1268	1903	2182	8515	12667	15861
Matric & Postgrad Degree	3279	8259	9477	1147	3344	4044	94	290	332	2038	4625	5101

4.4. JB Marks Local Municipality

JB Marks Local Municipality is situated within the Dr Kenneth Kaunda District in the North West Province. It is the largest municipality of three in the district, making up almost half its geographical area.

It was established by the amalgamation of the former Ventersdorp and Tlokwe City Council Local Municipalities in August 2016. It combines the following areas from the Tlokwe Region: Ikageng and its extensions, Potchefstroom town, Mohadin, Promosa, Matlwang, Leliespan/Baitshoki, Haaskraal, Turfvlei, Vyfhoek, Mooibank, Machavie, Buffeldoorn, Miederpark, Kopjeskraal, Wilgeboom, Lindequesdrift. (Agricultural Holdings) Rooipoortjie, Venterskroon, Buffelshoek. (Rural) Vredefort Dome. (World Heritage Site) Vaal River. (Tourism attraction) and the rural hinterland.

Ventersdorp Region consists of a vast rural / commercial farming area as well as the urban area of Ventersdorp, Tshing and Toevlug and has six (6) villages namely Goedgevonden, Welgevonden, Tsetse, Ga-Magopa, Boikhutso and Boikhutsong.

The N12 route that connects Johannesburg and Cape Town via the city of Kimberley runs through the municipality. The main railway route from Gauteng to the Northern and Western Cape also runs through one of the municipality's main cities, Potchefstroom. The City is 145km south-east of OR Tambo International Airport but has its own airfield, which can accommodate bigger aircraft and was formerly a military air base.

Gold mining is the dominant economic activity in the district, with Potchefstroom and Ventersdorp being the only exceptions. While Ventersdorp to the north-west of Potchefstroom focuses on agricultural activity, Potchefstroom's economic activity is driven by services and manufacturing.

A big role-player in the provision of services in Potchefstroom is the world-class North-West University, which has its main campus in Potchefstroom. Potchefstroom's industrial zone has many companies, focusing mainly on the industries of steel, food and chemicals, with big entities such as King Korn, Kynoch, Naschem and the Nestle Company.

Within the city centre, the infrastructure of Potchefstroom supports roughly 600 businesses. Ventersdorp's main economic Sectors includes: Agriculture, community services, manufacturing, trade, finance, transport and mining.

4.4.1. Population

The population of JB Marks Municipality has increased from 219 463 to 243 527 between 2011 and 2016. The vast majority of the population is made up of black Africans followed by whites as reflected below.

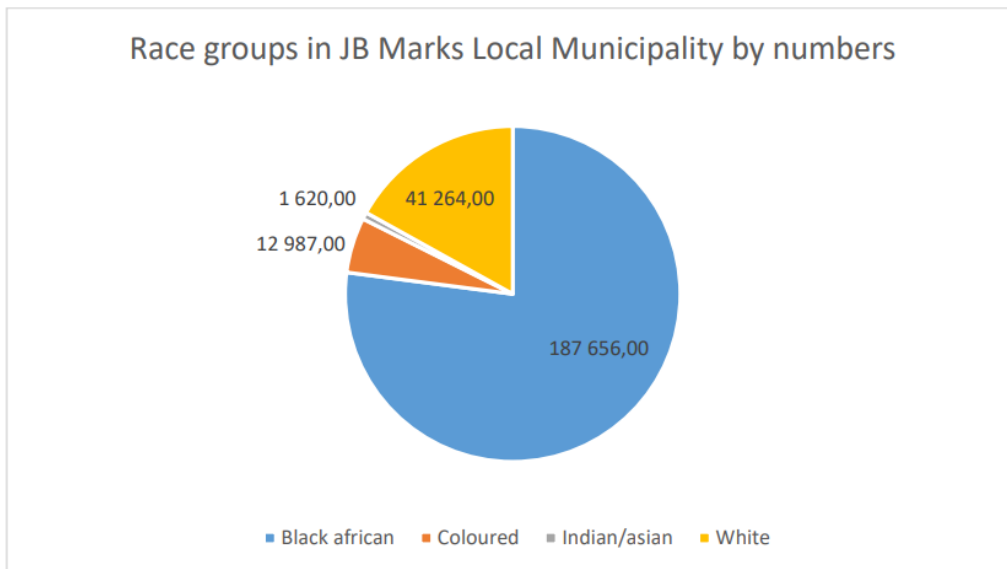


Figure 4.9: Race Groups in JB Marks Local Municipality

Figure 4.10 below indicate the breakdown of the population of JB Marks Municipality into a number of age groups. The data also confirms that the economically active group forms the majority of members in the population.

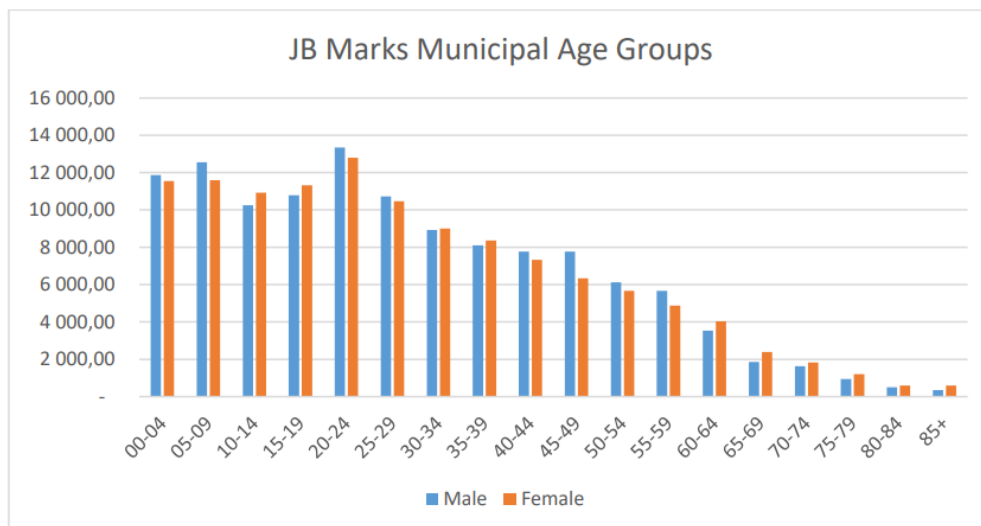


Figure 4.10: JB Marks Municipal Age Groups

4.4.2. Economy

The economic state of JB Marks Local Municipality is put in perspective by comparing it on a spatial level with its neighbouring locals, Dr Kenneth Kaunda District Municipality, North-West Province and South Africa.

The JB Marks Local Municipality does not function in isolation from Dr Kenneth Kaunda, North-West Province, South Africa and the world and now, more than ever, it is crucial to have reliable information on its economy for effective planning. Information is needed that will empower the municipality to plan and implement policies that will encourage the social development and economic growth of the people and industries in the municipality respectively.

In 2017, the community services sector is the largest within JB Marks Local Municipality accounting for R 6.41 billion or 33.3% of the total GVA in the local municipality's economy. The sector that contributes the second most to the GVA of the JB Marks Local Municipality.

Gross Value Added (GVA) by broad economic sector JB Marks Local Municipality, 2017

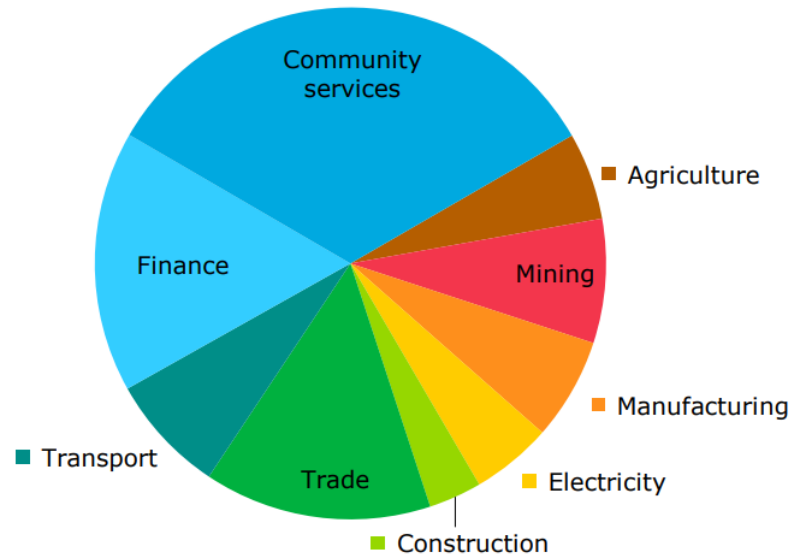


Figure 4.11: GVA by Broad Economic Sector

4.4.3. Employment

In 2007, 39.5% of the total population in JB Marks Local Municipality were classified as economically active which decreased to 35.7% in 2017. Compared to the other regions in Dr Kenneth Kaunda District Municipality, JB Marks Local Municipality had the highest Economically Active Population (EAP) as a percentage of the total population within its own region relative to the other regions. On the other hand, Maquassi Hills Local Municipality had the lowest EAP with 27.8% people classified as economically active population in 2017.

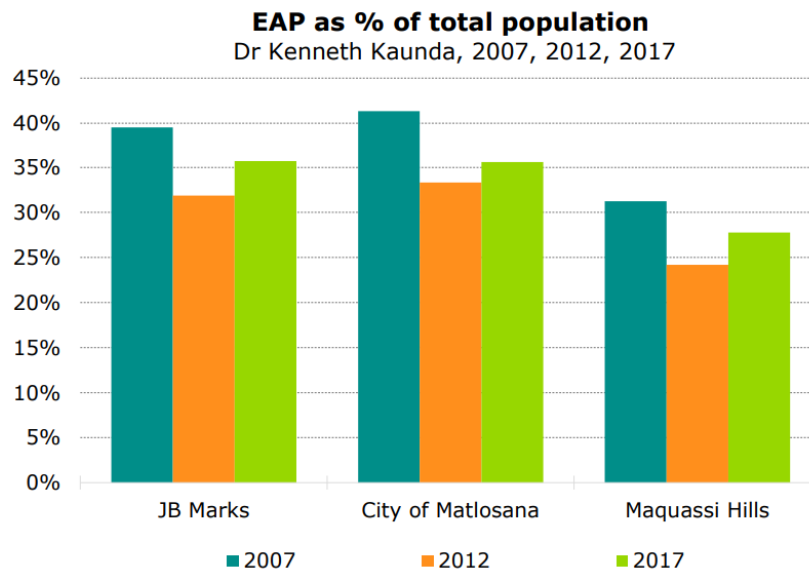


Figure 4.12: EAP as % of Total Population

During 2017 the Trade sector recorded the highest number of informally employed, with a total of 3 540 employees or 39.48% of the total informal employment. This can be expected as the barriers to enter the Trade sector in terms of capital and skills required is less than with most of the other sectors. The Manufacturing sector has the lowest informal employment with 619 and only contributes 6.91% to total informal employment.

4.4.4. Education

Figure 4.13 below depicts the level of education in the municipality for the period 2011 and 2016. The figure shows that there was a drop of less than one per cent in the number of people without any schooling and a positive increase in those with matric from 27 per cent to 30 percent. There was a one percent drop in the number of people with higher

education during the same period.

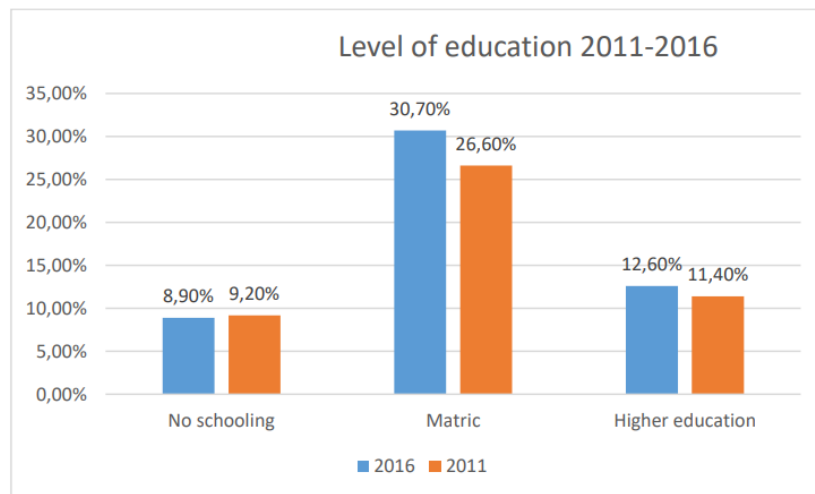


Figure 4.13: JB Marks Local Municipality Level of Education (2011 – 2016)

Within JB Marks Local Municipality, the number of people without any schooling decreased from 2007 to 2017 with an average annual rate of -0.17%, while the number of people within the 'matric only' category, increased from 28,800 to 44,000. The number of people with 'matric and a certificate/diploma' increased with an average annual rate of 2.85%, with the number of people with a 'matric and a Bachelor's' degree increasing with an average annual rate of 4.03%. Overall improvement in the level of education increased in the number of people with 'matric' or higher education.

4.4.5. Income and poverty

It was estimated that in 2017 14.27% of all the households in the JB Marks Local Municipality, were living on R30,000 or less per annum. In comparison with 2007's 32.36%, the number is about half. The 192000-360000 income category has the highest number of households with a total number of 9 560, followed by the 54000-72000 income category with 8 170 households. Only 4.9 households fall within the 0-2400 income category.

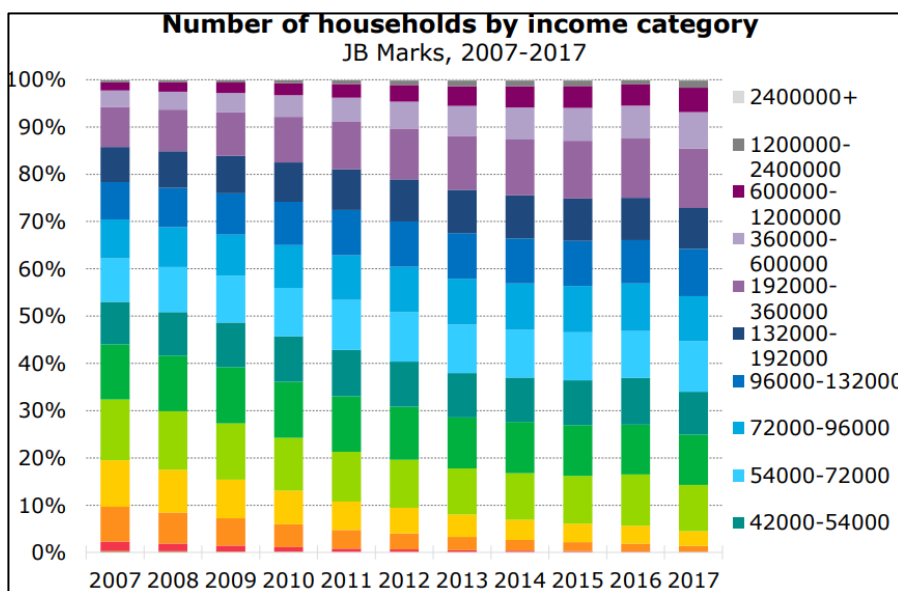


Figure 4.14: Number of Households by Income Category

For the period 2007 to 2017 the number of households earning more than R30,000 per annum has increased from 67.64% to 85.73%. It can be seen that the number of households with income equal to or lower than R6,000 per year has decreased by a significant amount.

5. ASSESSMENT OF KEY SOCIAL ISSUES AND IMPACT

5.1. Introduction

Section 5 highlights the key social issues identified during the SIA study. The identification of social issues was based on:

- Review of project related information, including other specialist studies;
- Application of relevant legislation from a local to national level;
- Experience of the authors of the area and the local conditions; and
- Experience with similar projects.

In identifying the key issues, the following assumption is made:

- The area identified for the proposed Solar PV Facility meets the technical criteria required for such facilities.

This Chapter provides a thorough description and evaluation of the potential social impacts that have been identified for the detailed design and construction, operation, and decommissioning phases, of the proposed Highveld Solar PV.

This assessment considered the following points:

- The nature, extent and significance of the features within the social landscape being considered.
- The existing disturbance already present within the social landscape

Social impacts are expected to occur during both the construction, operational and decommissioning phases of the Highveld Solar PV. The status of the impacts will either be positive or negative and either mitigation or enhancement measures are recommended for the management of the impacts, depending on the status of the impacts.

5.2. Identification of Key Social Issues

The identified key social issues are discussed below. They are divided into policy and planning related, as well as local and site-specific issues. Local and site-specific issues are further divided into construction and operational related issues.

A Social Impact Assessment (SIA) has been prepared to provide a description of the environment that may be impacted by the activity as well as the manner in which the environment may be impacted. This section also includes a description and assessment of the potential social issues associated with the proposed facility, as well as the identification of enhancement and mitigation measures aimed at maximizing opportunities and avoiding or mitigating negative impacts.

The main question which needs to be addressed is:

“How will the proposed development impact on the socio-economic environment?”

The development of the Highveld Solar Facility and its associated infrastructure may have an impact on some vulnerable communities within the project area. Traditionally, the majority of social impacts are associated with the construction phase of a PV solar development. Many of the social consequences are unavoidable and will occur to some extent, but they can be managed through careful planning and implementation of appropriate mitigation measures. Several potential positive and negative social impacts for the project have been identified; however, an assessment of the potential social impacts revealed that there are no perceived negative impacts that are significant enough to be classified as "fatal flaws." Based on the social impact assessment, the following general conclusions and findings can be made:

- The potential negative social impacts associated with the construction phase are typical of construction-related projects and are not limited to the construction of solar PV projects (these relate to an influx of non-local workforce and jobseekers, intrusion and disturbance impacts (i.e., noise and dust, road wear and tear), and safety and security risks), and could be mitigated by implementing the mitigation measures proposed. As a result, the significance of such impacts on local communities can be reduced
- The development will introduce employment opportunities during the construction phase (temporary employment) and a limited number of permanent employment opportunities during operation phase

- The proposed project could help the local economy by fostering entrepreneurial growth and opportunities, particularly if local businesses are involved in the provision of general materials, goods, and services during the construction and operational phases. This positive impact is likely to be exacerbated by the cumulative impact associated with the development of several other solar facilities in the surrounding area, as well as by the project's location within an area characterized by high levels of solar irradiation and thus well suited to the development of commercial solar energy facilities
- The proposed development also represents an investment in infrastructure for the generation of non-polluting, renewable energy, which represents a positive social benefit for society when compared to energy generated by the combustion of polluting fossil fuels
- It is also important to take into account the cumulative social impacts of other proposed solar PV projects in the area when considering Highveld Solar
- It should be noted that the project's perceived benefits, which include RE generation and local economic and social development, outweigh the project's perceived negative impacts

The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts associated with the project.

The proposed project and associated infrastructure are unlikely to have long-term negative social consequences. From a social standpoint, it is concluded that the project could be developed subject to the implementation of recommended mitigation measures and project management actions.

5.3. Social Impacts Associated with the Construction and Operational Phase

Most of the social impacts associated with the project are expected to occur during the development's construction phase and are typical of the types of social impacts typically associated with construction activities. These effects will be temporary and short-term (12 months), but they may have long-term consequences on the surrounding social environment if not properly planned and managed. As a result, the detailed design phase must be carried out in such a way that it does not result in long-term social impacts due to improper placement of project components or associated infrastructure, or mismanagement of construction phase activities.

The positive and negative social impacts identified and assessed for the construction phase includes:

Potential positive impacts

- Creation of employment and business opportunities
- Contributions to the local economy
- Skills Development
- Growth of the local communities

Potential negative impacts

- Impacts associated with the presence of construction workers on site
- Threat to safety and security of farmers associated with the presence of construction workers on site
- Fire Risks
- Pressure on local services
- Visual Impact
- Impact of heavy vehicles, including damage to roads, safety, noise and dust

Construction Phase

Nature:

Employment opportunities and skills development

Impact description: The area is primarily dominated by agricultural and mining activities with small scale industrial and commercial activities taking place within the surrounding communities.

The directly affected communities are unskilled subsistence farmers which are migrating for more permanent work or taking work within these primary sectors. Areas such as Stilfontein, Potchefstroom and Klerksdorp may attract more semi-skilled workers, a need for employment and direct skill-based work is required aimed at providing either long term employment or generating new skills within the existing work force.

A PV Facility of this size will create an average of 300 employment opportunities comprising a mixture of skilled, semi-skilled and unskilled positions during the construction phase.

It is vital that all employment be sourced locally where possible, and where not possible (highly skilled provisions) the opportunity for skills transfer is made available.

It must also be taken into consideration that the PV facility be utilized as an opportunity to create awareness on the importance of renewable energy for the local community by utilizing platforms such as schools.

Several indirect employment opportunities will also be created. Indirect employment opportunities will predominantly be created in the service industry, through the opportunity for the provision of secondary services to the construction team. Services may include, but are not limited to, accommodation, catering, and laundry services.

	Rating	Motivation	Significance
<i>Prior to Enhancement</i>			
Duration	Short-term (2)	The construction period will be approximately 2 years	Medium Positive (33)
Extent	Local – Regional (5)	The impact will occur at a local, regional and national level	
Magnitude	Low (4)	The creation of employment opportunities will assist to an extent in alleviating unemployment levels within the area	
Probability	Probable (3)	Construction of the project will result in the creation of a number of direct and indirect employment opportunities, which will assist in addressing unemployment levels within the area and aid in skills development of communities in the area	

Enhancement measures:

To enhance the local employment, skills development and business opportunities associated with the construction phase, the following measures should be implemented:

- The developers be committed to involving and benefiting the communities surrounding the development, contributing to their development and growth
- It is recommended to conduct structured and proactive engagement sessions within the municipal district, to expose local small, micro and medium enterprises which will benefit from the proposed development
- Training and skills development programmes should be initiated prior to the commencement of the construction phase
- Utilize platforms such as schools to create awareness regarding the importance of renewable energy

- The communities which are most in need of employment on a local level should be considered for employment before outsourcing

Post Enhancement

Duration	Short-term (1)	The construction period will last for less than two years	Medium Positive (55)
Extent	Regional (4)	The impact will occur at a local, regional and national level	
Magnitude	Moderate (6)	The creation of employment opportunities will assist to an extent in alleviating unemployment levels within the area	
Probability	Definite (5)	Construction of the project will result in the creation of a number of direct and indirect employment opportunities, which will assist in addressing unemployment levels within the area and aid in the skills development of communities in the area	

Residual opportunities

- Initiatives to eliminate unfair discrimination in employment
- Recruit and select suitably qualified individuals from the designated groups
- Employees from designated groups who have been identified in the talent pool should be advanced and accelerated through targeted training and development programs
- Assist individuals in obtaining an initial vocational education and pre-qualification, as well as additional education and training that refreshes knowledge, skills, work and life competencies that are critical for overall development
- Provide portable skills training to employees who express an interest in obtaining such training, with a special emphasis on employees who have been incapacitated or retrenched, in order for them to remain economically active, employable, or self-sustaining in their communities
- Growth of talent is facilitated, thereby providing opportunities for all employees to contribute to their full potential

Nature:

Contributions to the local economy

Impact description: The developer should be committed to the long-term socioeconomic development and well-being of the communities in which they operate by contributing to community development that will last long after the PV development has been decommissioned.

It is therefore important that the developer use and source from local suppliers as much as possible to stimulate the local economy, this includes but is not limited to things such as the purchasing of construction materials, provision of services, transportation, and acquisition of other goods, from the SIA overview it was noted that some light commercial and industrial activities exist within the direct surrounding area which could be utilized for these purposes.

	Rating	Motivation	Significance
<i>Prior to Enhancement</i>			
Duration	Long-term (4)	Will continue for the duration of the project due to legal obligation to pay taxes	Medium Positive (36)

Extent	Local – Regional (4)	Will include mostly local and some regional impacts	
Magnitude	Low (4)	Will derive from increased cash flow from wages, local procurement, economic growth, taxes and procurement initiatives	
Probability	Probable (3)	Will depend on; proportion of local spending by employees, capacity of local enterprises to supply; effectiveness of initiatives, contributions to local government	

Enhancement measures:

- Preference is given to suppliers that are local to the operation where the service will be consumed
- Establishing liaison and communication structures with the district and local government structures
- Liaises with the local governmental structures and municipal authorities in the labour- sending communities to ensure that group development initiatives are integrated into the economic and development plans of those areas
- The continuous review of the economic development of the project during the implementation process will ensure that the project does not become static but is revised in terms of changing needs and also to ensure sustainability
- It is recommended that a local procurement policy be adopted by the developer to maximise the benefit to the local economy, where feasible
- Create job opportunities, boost local economies by supporting business activities, and contribute to government tax revenues through the development of the Solar Facility
- Prior to the start of the construction contractor procurement, the Developer of the Solar Facility should create a database of local companies, specifically Historically Disadvantaged (HD) companies, that qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies, etc.). These businesses should be informed about the tender process and invited to bid on project-related work, if applicable
- Engage with local authorities and business organisations to investigate the feasibility of obtaining construction materials, goods, and products from local suppliers, where possible

Post Enhancement

Duration	Long-term (4)	As for pre-enhancement	Medium Positive (60)
Extent	Local – Regional (4)	SMME capacity building will limit procurement from outside the local municipality	
Magnitude	Low (4)	Mitigation will likely increase intensity of multiplier effects as it will concentrate impact to local area, sustainability of initiatives will also be increased if aligned with other those of other institutions	
Probability	Definite (5)	Increased local employment and procurement as well as skilled SMME’s skill enhance likelihood of benefits to local economy	

Residual opportunity

- Improved local service sector, growth in local business
- Community development and stimulation of the local economy
- Growth in the local markets

Nature:

Safety and security

Impact description: Temporary increase in safety and security concerns associated with the influx of people during the construction phase.

The development of the solar PV facility will result in an increase of foot traffic in an area which is relatively quiet, as experienced during the site visit, a lot of the neighbouring properties may not be aware of the risks associated with the influx of individuals and may be subjected to safety and security risks.

Existing roads will be used, wherever possible, to access the project site and development area. Access to the PV development area is provided via: the N12, located to the south of the development area; the Hartebeesfontein Road; and Rietfontein Road which are located to the west of the development area. The existing access road turning off from the Rietfontein Road towards the PV facility will be upgraded for safe access to the facility during the construction and operation phases. The upgrades will include widening to 6m and reinforcement of the low-level crossing to improve road safety.

Additionally, although the intention is to employ locally, some job seekers may migrate from the surrounding communities seeking employment opportunities which may place the local communities, subsistence farms or residential settlements at risk and temporarily increase the level of crime, in the area, cause social disruption and put pressure on basic services.

	Rating	Motivation	Significance
<i>Prior to Mitigation</i>			
Duration	Short-term (2)	Will be limited to the construction phase which is less than two years	Low Negative (27)
Extent	Local – Regional (3)	Safety concerns will affect nearby communities	
Magnitude	Low (4)	Could place the lives of neighbouring community members at risk	
Probability	Probable (3)	Traffic would need to be considered in the area	

Mitigation:

- Upgrade to the unnamed access road to the site.
- Stopping significant unwanted events by focusing on critical control management
- Safety awareness and training as well as positive behaviour reinforcement
- Improving system monitoring and analysis to improve risk management
- Employment of a local security company
- Making the surrounding landowners aware of the dangers associated with the influx of workers during the construction period
- Identifying abandoned buildings and utilizing them or ensuring they cannot be used for malicious activities
- Ensuring that access cannot be gained to surrounding properties
- Encourage employees to stop working when a workplace is considered unsafe and/or to prevent unsafe actions
- Education, Training and Development Services must be implemented
- Access in and out of the construction area should be strictly controlled by a security company
- The contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff
- Have clear rules and regulations for access to the proposed site to control loitering

- A comprehensive employee induction programme would cover land access protocols, fire management and road safety must be prepared
- A Community Liaison Officer should be appointed
- A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process

Post Mitigation

Duration	Short-term (2)	As for pre-mitigation	Low Negative (16)
Extent	Local (2)	Safety measures will likely restrict impacts on nearby communities	
Magnitude	Low (4)	Appropriate mitigation will reduce the risk of this project	
Probability	Improbable (2)	As for pre-mitigation	

Residual Risks:

- Theft of livestock, equipment and stock
- Trespassing onto private property

Nature:

Disruption of daily living and movement patterns

Impact description: The transportation of components of the solar PV facility via the access roads, which will result in an increase traffic conditions, utilization of the roads, road safety concerns, congestion and disruption to local commuters

As indicated previously a lot of the social aspects identified sit along the access roads and therefore increased traffic may slightly inconvenience these businesses. It must be noted that the majority of the road is gravel and therefore the correct safety may not be in place (such as road signs and speed limits) to ensure the general public’s safety, this must be given attention to when developing the preferred access routes.

	Rating	Motivation	Significance
<i>Prior to Mitigation</i>			
Duration	Short-term (2)	Will be limited to the construction phase which is less than two years	Medium Negative (40)
Extent	Local (2)	Will affect road users from nearby communities	
Magnitude	Moderate (6)	Will affect the quality of life of neighbouring communities	
Probability	Highly probable (4)	Traffic would need to be considered in the area	

Mitigation:

- Implement standard dust control measures on gravel roads, including periodic spraying (frequency will depend on many factors including weather conditions, soil composition and traffic intensity and must thus be adapted on an on-going basis) of construction areas and access roads, and ensure that these are continuously monitored to ensure effective implementation
- Stagger component delivery to site
- Reduce the construction period
- Make use of mobile batch plants and quarries in close proximity to the site
- All vehicles must be roadworthy, and drivers must be qualified, obey traffic rules, follow speed limits and be made aware of the potential road safety issues
- Heavy vehicles should be inspected regularly to ensure their road worthiness

- Provision of adequate and strategically placed traffic warning signs, which must be maintained throughout the construction phase, as well as control measures along the gravel roads to warn road users of construction activities taking place throughout the construction phase. Warning signs must be always visible, especially at night.
- Implement penalties for reckless driving to enforce compliance to traffic rules
- Avoid heavy vehicle activity during “peak” hours (when children are taken to school, or people are driving to work)
- Ensure that all fencing along access roads is maintained in the present condition or repaired if disturbed due to construction activities
- The Contractor must ensure that damage/wear and tear caused by construction related traffic to the access roads is repaired before the completion of the construction phase
- Method of communication must be implemented whereby procedures to lodge complaints are set out for the local community to express any complaints or grievances with the construction process

Post Mitigation

Duration	Short-term (2)	As for pre-mitigation	Low Negative (16)
Extent	Local (2)	Safety measures will likely restrict impacts on road users	
Magnitude	Low (4)	Appropriate mitigation will reduce the risk of this project	
Probability	Improbable (2)	As for pre-mitigation	

Residual Risks:

- None anticipated

Nature:

Increased pressure on local services/resources

Impact description: Added pressure on economic and social infrastructure during construction as a result of immigration of people.

	Rating	Motivation	Significance
<i>Prior to Mitigation</i>			
Duration	Short-term (2)	Influx related pressure on services will start during construction and continue during the operational phase	Medium Negative (30)
Extent	Local (2)	May affect resource management on local district municipal level	
Magnitude	Moderate (6)	Intensify existing service delivery and resource problems and backlogs, especially sewerage and road networks	
Probability	Probable (3)	Population influx will affect the ability of the local municipality to meet increased demand	

Mitigation:

- It is necessary to appoint a Community Liaison Officer. A method of communication should be implemented, with procedures for filing complaints outlined, so that the local community can express any complaints or grievances about the construction process
- Current procurement channels set up by the mine should be utilized to reduce any complications which may arise from the development

Post Mitigation

Duration	Short-term (2)	As for pre-mitigation	Low Negative (16)
Extent	Local (2)	Safety measures will likely restrict impacts on road users	
Magnitude	Low (4)	Appropriate mitigation will reduce the risk of this project	
Probability	Improbable (2)	As for pre-mitigation	
Residual Risks:			
<ul style="list-style-type: none"> • Possibility of outside workers remaining in the area after construction is completed and subsequent pressures on local infrastructure 			

Nature:

Increased probability of fire risk

Impact description: Risk from accidental or intentional fire being set to the surrounding area which then spreads to the adjacent properties

	Rating	Motivation	Significance
<i>Prior to Mitigation</i>			
Duration	Short-term (2)	Although the fire itself is short term, the affects may be more long term	Medium Negative (30)
Extent	Local (2)	Will be the directly affected landowners on whose property the fire was	
Magnitude	Moderate (6)	Depending on the intensity and the severity of the fire, highly dependent on the climate and time of the year as well as rain fall conditions, this is a moderate estimate.	
Probability	Probable (3)	If a fire is set, it's probable there will be impacts and people affected.	

Mitigation:

- Ensure training is given to employees on the risks of fires
- Ensure that firefighting equipment is present and working
- No fires are to be made on site for any reason
- No hunting or cooking of any animals or plants in or around the development footprint

Post Mitigation

Duration	Short-term (2)	As for pre-mitigation	Low Negative (16)
Extent	Local (2)	Safety measures will likely restrict impacts on road users	
Magnitude	Low (4)	Appropriate mitigation will reduce the risk of this project	
Probability	Improbable (2)	As for pre-mitigation	
Residual Risks:			
<ul style="list-style-type: none"> • None identified 			

Nature:			
Nuisance impacts (noise & dust)			
Impact description: Construction activities will result in the generation of noise and dust, the area is situated in a relatively agricultural area which is not frequently subjected to dust and noise disturbances therefore all possible measures must be made to mitigate these impacts			
	Rating	Motivation	Significance
<i>Prior to Mitigation</i>			
Duration	Short-term (2)	Nuisance impacts will only be limited to the construction phase	Medium Negative (44)
Extent	Local (1)	This will remain within the project extent from construction activities	
Magnitude	High (8)	Dust impacts and noise nuisance from construction activities	
Probability	Highly Probable (4)	Movement of heavy construction vehicles during the construction phase has a potential to create noise, damage to roads and dust	
<i>Mitigation:</i>			
<ul style="list-style-type: none"> • During construction, care should be taken to ensure that noise from construction vehicles and plant equipment does not intrude on the residential areas nearby. Plant equipment such as generators, compressors, concrete mixers, and vehicles should be kept in good working order and, where possible, equipped with effective exhaust mufflers • The movement of construction vehicles on the site should be confined to agreed access road/s • Heavy vehicle movement during the construction phase should be timed (where possible) to avoid times of the week, such as weekends, when the volume of traffic on the access roads may be higher • Dust suppression measures should be implemented on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers 			
<i>Post Mitigation</i>			
Duration	Short-term (2)	As per pre-mitigation	Low Negative (18)
Extent	Local (1)	Mitigation measures will assist with increasing the impact	
Magnitude	Moderate (6)	Appropriate mitigation will reduce the risk of this project	
Probability	Improbable (2)	As per pre-mitigation	
<i>Residual Risks:</i>			
<ul style="list-style-type: none"> • Noise and Dust generation will remain an issue irrespective of the Solar PV development 			

5.4. Social Issues Associated with the Decommissioning Phase

The social impact of decommissioning the Highveld Solar PV project is likely to be significant. While the relatively small number of people employed during the operational phase, the associated funding available for community projects and benefits are significant and expected to end with decommissioning of the plant. With mitigation however, the impacts are assessed to be low.

The proponent should inform and discuss the stakeholder and wider community involved and affected in the governance, management, and implementation of community funds about the decommissioning of the energy project. This communication needs to be timed well in advance of the decommissioning, allowing all relevant parties to prepare. Further consideration is required to develop strategies for rehabilitation of the land.

5.5. Social Issues Associated with the No-Development Option

The “no-go” alternative is the option of not constructing the Highveld Solar PV. The implementation of the proposed project is expected to result in several positive and negative social impacts. Most negative impacts identified for the project are associated with the construction phase of the project, while the positive impacts are associated with both the construction and operation phases of the project.

Potential negative social impacts associated with the construction and operation of the project include the following:

- Potential influx of job seekers and an associated change in population and increase in pressure on basic services
- Potential safety and security impacts
- Potential impacts on daily living and movement patterns
- Potential nuisance impacts (noise and dust)
- Potential visual impact and impact on the sense of place

Potential positive social impacts associated with the construction and operation of the project include the following:

- Potential direct and indirect employment opportunities
- Skills development and training
- Development of Renewable energy facilities
- Potential economic multiplier effect

The impacts of pursuing the “no-go” alternative can therefore be summarised as follows:

- The benefits would be that there is no disruption from nuisance impacts (noise and dust during construction), visual impacts and safety and security impacts. The impact is therefore neutral
- There would also be an opportunity loss in terms of limited job creation, skills development, community upliftment and associated economic business opportunities for the local economy. This impact is considered to be negative
- The opportunity to strengthen the grid connection within the municipal area would be lost which will have a negative impact on economic growth and development and therefore result in negative social impacts

The No-Development option would mean that the electricity generated through renewable sources, in this case solar energy, is not generated and fed into the national electricity grid. In the given and described policy context, this would represent a negative social and environmental cost.

In addition, the employment opportunities associated with the construction and operational phase, as well as the benefits associated with the additional funding for socio-economic and enterprise development measures and the established local ownership entity representing beneficiary communities would be forgone.

5.6. Social Issues Associated with the Cumulative Impact on Sense of Place

The potential cumulative impacts on the areas sense of place will be largely linked to potential visual impacts. In this regard the Scottish Natural Heritage (2005) describes a range of potential cumulative landscape impacts associated with wind farms on landscapes. These issues are also likely to be relevant to solar facilities and associated infrastructure, and so are described here. The relevant issues identified by Scottish Natural Heritage study include:

- Combined visibility (whether two or more wind farms will be visible from one location)
- Sequential visibility (e.g. the effect of seeing two or more wind farms along a single journey, e.g. road or walking trail)
- The visual compatibility of different wind farms in the same vicinity
- Perceived or actual change in land use across a character type or region
- Loss of a characteristic element (e.g. viewing type or feature) across a character type caused by developments across that character type

The rules require both dynamic and static consideration of cumulative impacts. Driving along a tourist road must be perceived as a dynamic sequence of sights and visual impacts, not as the cumulative impact of multiple developments on one area. If each subsequent length of road is dominated by views of renewable energy installations, there may be a cumulative visual impact (National Wind Farm Development Guidelines, DRAFT - July 2010).

As indicated above, the potential impact of the proposed REF and associated infrastructure on the areas sense of place is likely to be negligible. The cumulative impacts are also likely to be very low.

The establishment of the facility will be a game-changing event for the community and local municipality. It'll result in the following impacts, in varying degrees:

- People
 - Skills development
 - Employment
 - Renewed sense of hope
 - Improved social outcomes owing to SED investments:
 - Health
 - Education
 - Economic participation
 - Social cohesion for the community beneficiaries
 - Increased sense of prestige for the community and town
- Planet
 - Increased power supply for the country, with less damage to the planet as a consequence.
- Profit
 - Increased revenue for local municipality
 - Increased economic activity in local community and broader municipality
 - Investment in social and commercial infrastructure to increase economic activity

This energy plant has cumulative impacts; especially, the installation of several Solar energy facilities in the Local Municipality will offer socio-economic prospects for the area, resulting in a positive social benefit. Job creation, skill development, and downstream business opportunities are good cumulative effects. Local, regional, and national economies could profit from job creation and service procurement if many renewable energy installations are established. This value will be considerably increased if a critical mass is reached that allows local enterprises to develop the capabilities to support building and maintenance activities and to manufacture renewable energy facility components in South Africa. The cumulative impact at the municipal level could be good, encouraging O&M companies to focus on education and training.

Nature:		
An increase in employment opportunities, skills development, and business opportunities with the establishment of a solar PV facility.		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
<i>Extent</i>	Local -regional (3)	Local-regional (3)
<i>Duration</i>	Long-term (4)	Long-term (4)
<i>Magnitude</i>	Low (4)	Moderate (6)
<i>Probability</i>	Probable (3)	Probable (3)
<i>Significance</i>	Medium (33)	Medium (39)
<i>Status (positive or negative)</i>	Positive	Positive
<i>Reversibility</i>	N/A	N/A
<i>Irreplaceable loss of resources?</i>	N/A	N/A

Can impacts be mitigated?	Yes	Yes
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Confidence in findings: High.

Enhancement measures:

The establishment of a number of solar energy facilities in the area does have the potential to have a positive cumulative impact on the area in the form of employment opportunities, skills development and business opportunities. The positive benefits will be enhanced if local employment policies are adopted, and local services providers are utilised by the developers to maximise the project opportunities available to the local community.

Nature:

Negative impacts and change to the local economy with an in-migration of labourers, businesses, and jobseekers to the area.

	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Local (1)	Local-regional (3)
Duration	Long-term (4)	Long-term (4)
Magnitude	Minor (2)	Low (4)
Probability	Very improbable (1)	Improbable (2)
Significance	Low (7)	Low (22)
Status (positive or negative)	Negative	Negative
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impacts be mitigated?	Yes	

Confidence in findings: High.

Mitigation:

- Develop a recruitment policy/process (to be implemented by contractors), which will ensure the sourcing of labour locally, where available
- Work together with government agencies to ensure that service provision is in line with the development needs of the local area
- Form joint ventures with community organisations, through Trusts, which can provide local communities with benefits, such as employment opportunities and services
- Develop and implement a recruitment protocol in consultation with the municipality and local community leaders. Ensure that the procedures for applications for employment are clearly communicated

6. CONCLUSIONS AND IMPACT STATEMENT

6.1. Key findings

Key Findings

From a social perspective it is concluded that the project is supported, but that mitigation measures should be implemented and adhered to. Positive and negative social impacts have been identified. The assessment of the key issues indicated that there are no negative impacts that can be classified as fatal flaws and which are of such significance that it cannot be successfully mitigated. Positive impacts could be enhanced by implementing appropriate enhancement measures and through careful planning. Based on the social assessment, the following general conclusions and findings can be made:

- The potential negative social impacts associated with the construction phase are typical of construction related projects and not just focused on the construction of PV facilities (these relate to influx of non-local workforce and jobseekers, intrusion and disturbance impacts, safety and security) and could be reduced with the implementation of the mitigation measures proposed
- Employment opportunities will be created in the construction and operation phase and the impact is rated as positive even if only a small number of individuals benefit in this regard
- The proposed project could assist the local economy in creating entrepreneurial development, especially if local business could be involved in the provision of general material and services during the construction and operational phases
- Capacity building and skills training among employees are critical and would be highly beneficial to those involved, especially if they receive portable skills to enable them to also find work elsewhere and in other sectors
- The proposed development also represents an investment in infrastructure for the generation of clean, renewable energy, which, given the challenges created by climate change, represents a positive social benefit for society

Recommendations

The following recommendations are made based on the Social Impact Assessment and a thorough review of the concerns and suggestions raised by stakeholders and interested and affected parties during the stakeholder engagement process. The proposed mitigation measures should be implemented to limit the negative impacts and enhance the positive impacts. Based on the social assessment, the following recommendations are made:

- In terms of employment related impacts, it is important to consider that job opportunities for the unskilled and semi-skilled are scarce commodities in the study area and could create competition among the local unemployed. Introducing an outside workforce will therefore most likely worsen local endeavours to obtain jobs and provoke discontent as well as put pressure on the local services available. Local labour should be utilised to enhance the positive impact of employment creation in the area. Local businesses should be involved with the construction activities where possible. It is imperative that local labour be sourced to ensure that benefits accrue to the local communities. Preference should thus be given to the use of local labour during the construction and operational phases of the project as far as possible
- Locals should also be allowed an opportunity to be included in a list of possible local suppliers and service providers, enhancing the multiplier effect. This aspect would serve to mitigate other subsequent negative impacts such as those associated with the inflow of outsiders to the area, the increased pressure on the infrastructure and services in the area, as well as the safety and security concerns
- Impacts associated with the construction period should be carefully mitigated to minimise any dust and noise pollution
- Safety and security concerns should be considered during the planning and construction phases of the proposed project

6.2. Conclusion

A site visit was undertaken during the Assessment Phase of the SIA. The site visit includes primary interviews with key stakeholders and interested and affected parties, interviews are semi-structured. Essentially the approach is to provide information on the proposed development to the stakeholders (including maps and diagrams showing location and what is planned etc) and discuss the key activities that will take place, during the construction and operational phases. The consideration of the social impacts as a result of the project also take cognisance of the feedback received from the site visit/interviews and the perceptions which were raised by stakeholders.

The proposed project is unlikely to result in permanent damaging social impacts. From a social perspective it is concluded that the project is acceptable subject to the implementation of the recommended mitigation and enhancement measures and management actions identified for the project. Considering the findings of the report and the potential for mitigation and management of impacts, it is the reasoned opinion of the specialist that the project can be authorised from a social perspective.

Appendix A: SIA ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

Construction Phase:

Direct employment and skills development

OBJECTIVE: Maximise local employment and skills opportunities associated with the construction phase		
Project component/s	Construction of the proposed Highveld solar PV facility and associated infrastructure	
Potential Impact	The opportunities and benefits associated with the creation of local employment and skills development to be maximised.	
Activity/risksource	<ul style="list-style-type: none"> » Construction procurement practice employed by the Contractor » Developers investment plan 	
Mitigation Target/Objective	The developer should aim to employ as many low-skilled and semi-skilled workers from the local area as possible. This should also be made a requirement for all contractors.	
Enhancement: Action/control	Responsibility	Timeframe
Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria	The Proponent & EPC Contractors	Pre-construction & construction phase
Adopt a local employment policy to maximise the opportunities made available to the local labour force as far as possible (preference to Local Municipality)	The Proponent & EPC Contractors	Pre-construction & construction phase
In the recruitment selection process; consideration must be given to women during recruitment process	EPC Contractors	Pre-construction & construction phase
Set realistic local recruitment targets for the construction phase (preference to Local Municipality)	The Proponent & EPC Contractors	Pre-construction & construction phase
Training and skills development programmes to be initiated prior to the commencement of the construction phase	The Proponent	Pre-construction & construction phase
Performance Indicator	<ul style="list-style-type: none"> » Employment and business policy document that sets out local employment and targets completed before construction phase commences; » Employ as many semi and unskilled labour from the local area or local municipality as possible » Training and skills development programme undertaken prior to the commencement of construction phase. 	
Monitoring	<ul style="list-style-type: none"> » The developer and EPC contractor must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes. 	

Economic multiplier effects

OBJECTIVE: Maximise local economic multiplier effect during construction phase	
Project component/s	Construction of the proposed Highveld solar PV facility and associated infrastructure
Potential Impact	Potential local economic benefits
Activity/risksource	Developers procurement plan

Mitigation Target/Objective	Increase the procurement of goods and services especially within the local economy		
Enhancement: Action/control	Responsibility	Timeframe	
A local procurement policy to be adopted to maximise the benefit to the local economy where feasible (Local Municipality)	The Proponent & EPC Contractors	Pre-construction & construction phase	
Develop a database of local companies, specifically Historically Disadvantaged (HD) which qualify as potential service providers (e.g. construction companies, security companies, catering companies, waste collection companies, transportation companies etc.) prior to the tender process and invite them to bid for project-related work where applicable	The Proponent & EPC Contractors	Pre-construction & construction phase	
Source as much goods and services as possible from the local area (Local Municipality). Engage with local authorities and business organisation to investigate the possibility	The Proponent	Pre-construction & construction phase	
Performance Indicator	<ul style="list-style-type: none"> » Local procurement policy is adopted » Local goods and services are purchased from local suppliers where feasible (Local Municipality) 		
Monitoring	» The developer must monitor indicators listed above to ensure that they have been met for the construction phase.		

Safety and security impacts

OBJECTIVE: To avoid or reduce the possibility of the increase in crime and safety and security issues during the construction phase			
Project component/s	Construction of the proposed Highveld Solar PV Facility and associated infrastructure		
Potential Impact	Increase in crime due to influx of non-local workforce and job seekers into the area		
Activity/risksource	Safety and security risks associated with construction activities		
Mitigation Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods		
Enhancement: Action/control	Responsibility	Timeframe	
Access in and out of the construction camp should be strictly controlled by a security company	EPC Contractor	Construction phase	
The appointed EPC contractor must appoint a security company and appropriate security procedures are to be implemented	EPC Contractor	Construction phase	
Open fires on the site for heating, smoking or cooking are not allowed, except in designated areas.	EPC Contractor	Construction phase	
Contractor must provide adequate firefighting equipment on site and provide firefighting training to selected construction staff.	EPC Contractor	Pre-construction & construction phase	
A comprehensive employee induction programme to be developed and utilised to cover land access protocols, fire management and road safety	EPC Contractor	Pre-construction & construction phase	

Method of communication should be implemented whereby local landowners can express any complaints or grievances with construction process	EPC Contractor	Pre-construction & construction phase
Performance Indicator	<ul style="list-style-type: none"> » Employee induction programme, covering land access protocols, fire management and road safety » The construction site is appropriately secured with a controlled access system » Security company appointed and security procedures implemented 	
Monitoring	» The developer and EPC contractor must monitor the indicators listed above to ensure that they have been met for the construction phase	

Impacts on daily living and movement patterns

OBJECTIVE: To avoid or reduce traffic disruptions and movement patterns of local community during the construction phase		
Project component/s	Construction of the proposed Highveld solar PV facility and associated infrastructure	
Potential Impact	Increase in traffic disruptions, safety hazards, and impacts on movement patterns of local community as well as impact on private property due to the upgrade of the existing road and heavy vehicle traffic in the local area	
Activity/risk source	Construction activities affecting daily living and movement Patterns	
Mitigation Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods	
Enhancement: Action/control	Responsibility	Timeframe
All vehicles must be road worthy and drivers must be qualified, obey traffic rules, follow speed limits and made aware of the potential road safety issues	EPC Contractor	Construction phase
Heavy vehicles should be inspected regularly to ensure their road safety worthiness.	EPC Contractor	Construction phase
Implement penalties for reckless driving for the drivers of heavy vehicles as a way to enforce compliance to traffic rules.	EPC Contractor	Construction phase
Any damage/wear and tear caused by construction related traffic to the roads is repaired	The Proponent & EPC contractor	Construction phase
Provide adequate and strategically placed traffic warning signs and control measures along the R38 and secondary roads to warn road users of the construction activities taking place, displaying road safety messages and speed limits for the duration of the construction phase. Traffic warning signs must also be well illuminated at night.	EPC Contractor	Pre-construction & construction phase
A comprehensive employee induction programme to cover land access protocols and road safety. This must be addressed in the	EPC Contractor	Construction phase
Appoint a Community Liaison Officer and create method of communication whereby local community member can express any complaints or grievances	EPC Contractor	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Vehicles are roadworthy, inspected regularly and speed limits are adhered to » Traffic warning signs along R38 and secondary roads, also illuminated at night appointed and security procedures implemented
Monitoring	<ul style="list-style-type: none"> » The developer and EPC contractor must monitor the indicators listed above to ensure that they have been met for the construction phase

Pressure on economic and social infrastructure impacts from an in migration of people

OBJECTIVE: Reduce the pressure on economic and social infrastructure and social conflicts from an influx of a non-local workforce and jobseekers during the construction phase

Project component/s	Construction of the proposed Highveld Solar PV facility and associated infrastructure
Potential Impact	Increase in traffic disruptions, safety hazards, and impacts on movement patterns of local community as well as impact on private property due to the upgrade of the existing road and heavy vehicle traffic in the local area
Activity/risk source	Construction activities affecting daily living and movement patterns
Mitigation Target/Objective	To avoid or minimise the potential impact on local communities and their livelihoods

Enhancement: Action/control	Responsibility	Timeframe
Where possible, make it a requirement for contractors to implement a 'locals first' policy. Should be advertised for construction employment opportunities, especially for semi and low-skilled job categories (preference to the local Municipality). Enhance employment opportunities for the immediate local area, , if this is not possible, then the broader focus areas should be considered for sourcing workers such as the Local Municipality	The proponent & EPC Contractor	Pre- construction phase & construction phase
Prior to construction commencing representatives from the local community e.g. ward councillor, surrounding landowners should be informed of details of the construction schedule and exact size of the workforce.	EPC Contractor	Construction phase
Recruitment of temporary workers at the gates of the development should not be allowed. A recruitment office located in town with a Community Liaison officer should be established to deal with jobseekers.	EPC Contractor	Construction phase
Have clear rules and regulations for access to the proposed site to control loitering.	The Proponent & EPC contractor	Construction phase
A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process	EPC Contractor	Pre-construction & construction phase

Performance Indicator	<ul style="list-style-type: none"> » Percentage of the workers employed in construction that come from local communities
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Monitoring	» The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes
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Nuisance impacts (Noise & Dust)

OBJECTIVE: To avoid or minimise the potential impacts of noise and dust from construction activities during the construction phase		
Project component/s	Construction of the proposed Highveld solar PV facility and associated infrastructure	
Potential Impact	Heavy vehicles and construction activities can generate noise and dust impacts.	
Activity/risksource	Construction activities	
Mitigation Target/Objective	To avoid and or minimise the potential noise and dust impacts associated with construction activities	
Enhancement: Action/control	Responsibility	Timeframe
Implement dust suppression measures for heavy vehicles such as wetting the roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers	EPC Contractor	Construction phase
Ensure all vehicles are road worthy, drivers are qualified and are made aware of the potential noise and dust issues	EPC Contractor	Construction phase
Ensure that drivers adhere to speed limits	EPC Contractor	Construction phase
A Community Liaison Officer should be appointed. A method of communication should be implemented whereby procedures to lodge complaints are set out in order for the local community to express any complaints or grievances with the construction process	The Proponent & EPC contractor	Pre-construction & construction phase
Performance Indicator	<ul style="list-style-type: none"> » Dust suppression measures implemented for all heavy vehicles that require such measures during the construction phase » Enforcement of strict speeding limits » Road worthy certificates in place for all vehicles » Community liaison officer available for community grievances and communication channel 	
Monitoring	» The EPC contractor must monitor the indicators to ensure that they have been met for the construction phase	

Operational Phase:

Direct employment and skills development during operation phase

OBJECTIVE: Maximise local employment and skills opportunities associated with the construction phase	
Project component/s	Operation and maintenance of the proposed Highveld Solar PV facility and associated infrastructure
Potential Impact	Loss of opportunities to stimulate production and employment of the local economy
Activity/risksource	Labour practices employed during operations

Enhancement: Target/Objective	Maximise local community employment benefits in the local Economy		
Enhancement: Action/control	Responsibility	Timeframe	
Adopt a local employment policy to maximise the opportunities made available to the local labour force. (preference to Local Municipality)	The Proponent & EPC Contractors	Operation phase	
The recruitment selection process should seek to promote gender equality and the employment of women wherever possible	The Proponent & EPC Contractors	Operation phase	
Establish vocational training programs for the local labour force to promote the development of skills	The Proponent & EPC Contractors	Operation phase	
Performance Indicator	<ul style="list-style-type: none"> » Percentage of workers that were employed from local communities (Local Municipality) » Number of people attending vocational training throughout the operation phase 		
Monitoring	<ul style="list-style-type: none"> » The developer must keep a record of local recruitments and information on local labour to be shared with the ECO for reporting purposes 		

Visual and 'sense of place' impacts

OBJECTIVE: Reduce the visual and sense of place impacts associated with the operation phase of the project			
Project component/s	Operation and maintenance of the Proposed Highveld PV Solar solar energy facility and associated infrastructure		
Potential Impact	Change in the sense of place that also leads to the negative impact on the area and visual intrusions		
Activity/risksource	The PV facility and associated infrastructure		
Enhancement: Target/Objective	Reduce the visual disturbances to minimise the losses of the sense of place		
Enhancement: Action/control	Responsibility	Timeframe	
<ul style="list-style-type: none"> » Vegetation screening to be placed between the site and adjacent properties if required. 	The Proponent	Operation phase	
Performance Indicator	<ul style="list-style-type: none"> » Vegetation screening if required/necessary 		
Monitoring	<ul style="list-style-type: none"> » The developer must monitor the indicators if vegetation screening is required by adjacent landowners 		