

Scoping Report :

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Prepared

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Table of contents

1.	EXECUTIVE SUMMARY	6
2.	DISCRIPTION OF THE PROPOSED PROJECT	6
2.1	PROJECT OVERVIEW.....	6
2.2	CONSIDERATION OF PROJECT ALTERNATIVES	9
2.3	NEED AND DESIRABILITY OF THE PROJECT	12
2.4	PROJECT LOCALITY AND LAND OWNERSHIP	13
2.5	PROJECT SCHEDULE	14
2.6	OPERATION PHASE	14
2.7	SERVICES	15
3.	ENVIRONMENTAL INFORMATION	18
3.1	BIOPHYSICAL DESCRIPTION.....	18
3.2	SOCIO ECONOMIC DESCRIPTION	21
4.	LEGAL AND POLICY FRAMEWORK	22
5.	POTENTIAL ENVIRONMENTAL IMPACTS.....	23
6.	PUBLIC PARTICIPATION.....	24
6.1	APPROACH AND METHODOLOGY	25
6.2	PRINCIPLES OF THE PUBLIC CONSULTATION PROCESS	25
6.3	MEETINGS.....	26
6.4	PUBLIC OPEN DAYS	26
6.5	INTERACTIONS WITH INDIVIDUALS AND I&AP REPRESENTATIVES.....	26
6.6	PUBLIC INFORMATION DOCUMENTS.....	27
6.7	NOTIFICATIONS.....	27
7.	PLAN OF STUDY FOR EIA	27
7.1	EIA MANAGEMENT AND INTEGRATIVE REPORT WRITING.....	29
7.2	PUBLIC CONSULTATION.....	29
7.3	EIA TEAM AND DESKTOP STUDY	29
7.4	SPECIALIST STUDIES	29
7.5	TERMS OF REFERENCE FOR SPECIALIST STUDIES	30
8.	IMPACT ASSESSMENT METHODOLOGY	34
9.	CONCLUSION	34
10.	APPENDICES.....	35
11.	APPENDIX A: LOCALITY MAP.....	36
12.	APPENDIX B: TITTLE DEEDS	37
13.	APPENDIX C: PUBLIC PARTICIPATION REPORT	38

14.	APPENDIX C1: PROOF OF ONSITE NOTICE	39
15.	APPENDIX C2: NEWSPAPER ADVERT	40
16.	APPENDIX C3: COPIES OF REGISTER.....	41
17.	APPENDIX C4: COMMENTS FROM I&AP'S ON THE SCOPING REPORT .	42
18.	APPENDIX C5: CORRESPONDENCE WITH STAKEHOLDERS	43
19.	APPENDIX D: BID	44
20.	APPENDIX E: CVS OF THE PROJECT TEAM.....	45
21.	APPENDIX F: IMPACT ASSESSMENT METHODOLOGY	46
22.	APPENDIX G: PROJECT SCHEDULE	47

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LIST OF TABLES

Table 1: list of 5 EIA branching from the original EIA application

Table 2: project alternatives considered

Table 3: Activities triggered by NEMA

Table 4: Direct and indirect impacts associated with the PV project

LIST OF ABBREVIATIONS

Abbreviation	Description
DEA	Department Environment Affairs
DWA	Department of Water Affairs
EIR	Environmental Impact Report
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
CSP	Concentrating Solar Power
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
MAT	Mean Annual Temperature
MBGL	Meter Below Ground Level
MBGL	Meter Below Ground Level (i.e. depth)
NEMA	National Environmental Management Act
NWA	National Water Act
DSR	Draft Scoping Report
FSR	Final Scoping Report
PV	Photovoltaic

1. EXECUTIVE SUMMARY

JIS Environmental Engineers, as independent Environmental Assessment Practitioners (EAP), was appointed by Molifin to facilitate the Environmental Impact Assessment in terms of National Environmental Management (NEMA), Act no 107 of 1998 as amended in 2010 for the construction and operation of a photovoltaic (PV) plant near Lephalale, Limpopo Province. The Department of Environmental Affairs (DEA) is a competent authority and the Limpopo Department of Economic Development, Environment and Tourism is the commenting authority for the project. The application for the project was accepted by the DEA and was allocated NEAS reference numbers. The format of the development is as follows: 5 x 75 MW units together they comprise the original 375MW project. The approach for the Molifin PV, environmental impact assessment process will be through the production of a consolidated final scoping report and environmental impact assessment report (EIR) which includes all five of the five of the PV projects, but will also allow individual authorisation to be provided for each of the projects. The consolidated final report covers the reference numbers for the five EIAs as follows.

- ❖ 14/12/16/3/3/2/301
- ❖ 14/12/16/3/3/2/302
- ❖ 14/12/16/3/3/2/303
- ❖ 14/12/16/3/3/2/304
- ❖ 14/12/16/3/3/2/300

2. DISCRPTION OF THE PROPOSED PROJECT

2.1 Project overview

Molifin proposes to develop a solar energy facility using PV panel near Lephalale in Limpopo Province. Contributing factors to the location of the project include the relatively high number of daylight hours and the low number of rainy days experienced in this region, situated in one of the most favourable regions of the South Africa.



Figure 1: Overview of the Proposed Site



Table 1 below provides a list of the five EIA's arising out of the original 375MW applications.

DEA REF NO.	UNIT NO.	COORDINATES FOR CENTRAL POINT OF UNIT.
14/12/16/3/3/2/300	1	23°23'53.4" S 27°38'28.8 E
14/12/16/3/3/2/301	2	23°23'6.51 S 27°38'17.2 E
14/12/16/3/3/2/302	3	23°23'54.5 S 27°38'28.8 E
14/12/16/3/3/2/303	4	23°24'00.6 S 27°37'28.2 E
14/12/16/3/3/2/304	5	23°24'02.5 S 27°37'28.4 E

2.2 Consideration of Project Alternatives

The IEM procedures stipulate that the environmental investigations need to consider feasible alternatives for any proposed development. Therefore, a number of possible alternatives for accomplishing the same objectives should be investigated. A large proportion of the proposed site encompasses previously overgrazed areas. It is in such areas that the development components are proposed to be located (see Figure 1)

Below present an overview of the alternatives that were considered for the proposed photovoltaic facility.

2.1.1 Location alternative

Table 2-1

Alternative	Explanation	Details
Location	<ol style="list-style-type: none"> 1. Where is the best place for PV? 2. Where is the best place for transmission substation infrastructure? 	Alternative sites within farm Sterkstroom 126 LQ boundary were considered during the site selection process, and were excluded based on environmental sensitivity including biodiversity, hydrogen and grazing potential.(see Figure 2)

2.1.2 Activity or Operation alternative

Table 2-2

Alternative	Explanation	Details
Activity or Operation	Are there other ways of meeting the same objective than the proposed development?	(CPS) has been considered as an alternative to PV panels but has been excluded for the current projects based on the feasibility study. The following elements were considered, water demands per unit, size and the height of the panels.

2.1.3 Scheduling alternative

Table 2-3

Alternative	Explanation	Details
Scheduling	This can cover aspects including phasing of the development, time of the day for routine, and the schedule for undertaking ongoing activities.	Various scheduling alternatives are being considered based on the different scenarios for the development of the PV units. It is anticipated that the development will take place consecutively for the five units. The solar energy facility using PV panels will be constructed once environmental authorisation has been received.

2.1.4 Inputs alternative

Table 2-4

Alternative	Explanation	Details
Inputs	Relating to the different possible inputs into the system e.g. different types of chemicals, building materials, strategies and designs;	The consideration of different inputs for the solar energy facility using the PV panels with the EIA phase. This will include construction material, equipment etc.

2.1.5 Demand alternative

Table 2-5

Alternative	Explanation	Details
Demand	Relates to efficiencies and supply e.g. is there anyway of reducing the need for the proposed development.	Management of energy demand is beyond the control of the project and thus cannot be addressed as part of the project scope.

2.1.6 No-go alternative

Table 2-6

Alternative	Explanation	Details
No-go option	The option for the proposed development not to take place at all.	The no-go option would mean that the proposed development to install the PV facility would not get implemented. This is not the recommended option since the benefits including improved energy, availability and stability of supply, and the positive impacts arising from the use of a sustainable energy source would therefore not transpire.

Figure 2 below provides an illustration of a typical PV array. A PV plant usually comprises of the following:

- ❖ PV panel array
- ❖ Wiring to central inverters
- ❖ Connection to the grid
- ❖ Balance of plant



Figure 2: An Example of a photovoltaic array

Photovoltaic

The PV is proposed to cover approximately 500ha, divided into five areas and it is anticipated to produce 350WM when developed in it's entirety. The strip foundation will be 0.50 which is equivalent to 8.5m. The PV plant comprising of five units is anticipated to have an array of photovoltaic panels just covering 500ha, with 350WM power generating capacity. The panel rows will be 8.5m away from each other to prevent shading and they are not expected to exceed 2.5m in height. The panels which will be about 1.9m x 0.9m will be mounted on the aluminium structures that will be fixed into the ground on a strip foundation.

Connection to grid

The grid connection requires transformation of the voltage from the 288vac inverter output. The inverter output will be stepped up to 20kV/66kV via transformers housed in the inverter houses. Underground cables will be routed to a central AC bus bar in a small substation located within the confines of the PV plant. A 132kv substation will route electricity to the grid. The site is within the short radius of the Eskom power lines.

Centralised control facility and security

A building anticipated to be less than 300m² in area will be constructed to accommodate control facility for the PV plant. Monitoring and security equipment for the PV plant will also be housed in this facility. In order to ensure the security of the facility, the entire plant will be surrounded by perimeter fencing which will be supplied with sensors and alarms to detect any irregular activity. Amongst the technologies available, optic fibre may be used in which case trenching of the cable will be required. In order to maximise security and to assist with the detection of any breaches, CCTV cameras and flood lights will also be installed.

2.3 NEED AND DESIRABILITY OF THE PROJECT

The 2003 White Paper on the Renewable of the Energy of South Africa published by the Department of Mineral and Energy set out the vision, policy, goals and objectives for promoting and implementing renewable energy. The government set a 10 year renewable energy target of 10 000GWh renewable energy contribution by 2013, to be produced by energy sources including

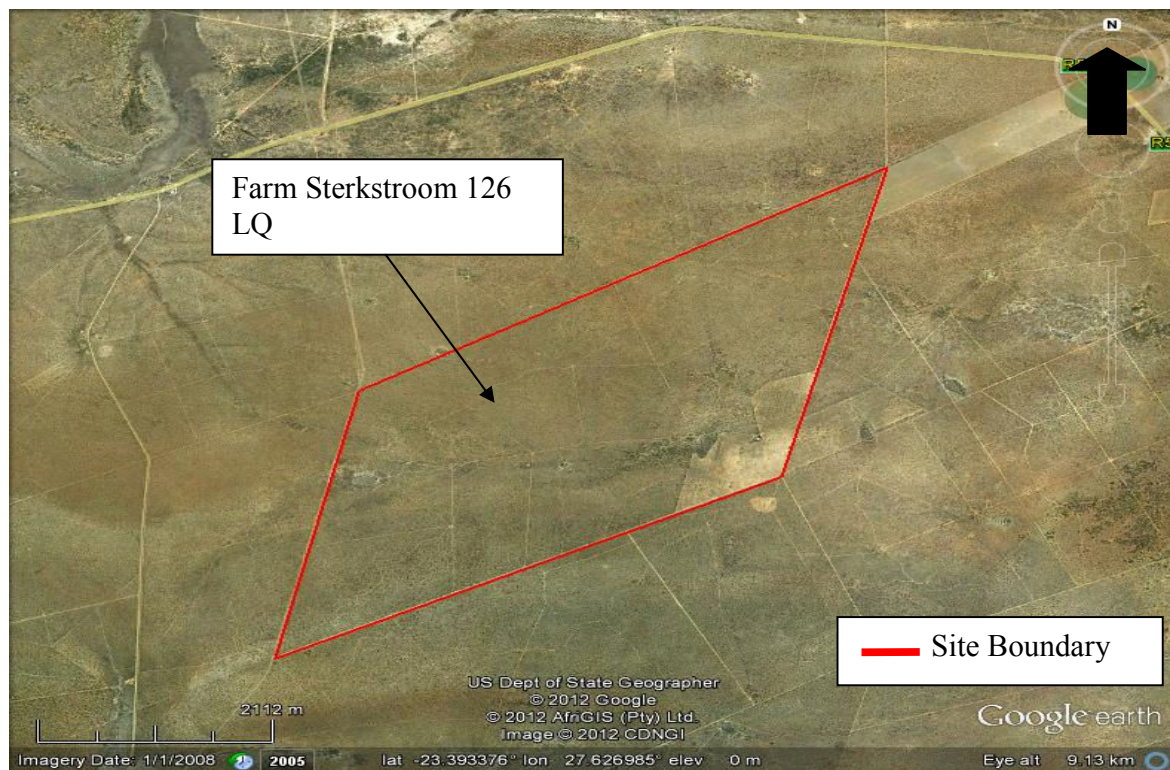
solar power. This constitutes approximately 4% (1167 MW) of the estimated demand. The Department of Energy has, through the IRP2010 (Integrated Resources Plan for Electricity), allocated 8400MW of new generation capacity to solar PV until 2030. 600MW of this is to be commissioned by 2013. This will contribute approximately 1200Gh to the 10 000GWh target set in the 2003 White Paper on Renewable Energy.

The propose project will assist with the fulfilling the objective. One of the identified potential sources of renewable energy considered was solar energy.

2.4 PROJECT LOCALITY AND LAND OWNERSHIP

The proposed projects are to be situated on the farm Sterkstroem126 LQ within the area of jurisdiction of Lephalale Local Municipality under the Waterberg Local Municipality (see Figure 2). The current landowners, in accordance with the option contract, have life usufruct rights and therefore will continue to reside and farm on the land. Furthermore it is to be noted that the property will be returned to their ownership after 35 years at no cost.

Figure 2: Topographical map



2.5 PROJECT SCHEDULE

The anticipated project schedule for the EIA process is contained in application forms. Scheduling of the EIA process is planned as follows:

- ❖ Acceptance of scoping report and plan of study for EIA completed in early May 2012
- ❖ Conclusion of draft EIA phase (including public participation) early May
- ❖ Acceptance of EIR early September 2012
- ❖ Authorisation early November 2012

2.6 CONSTRUCTION PHASE

The construction is anticipated to be undertaken using a phased approach, initially with 75MW being constructed following the construction.

2.6.1 Activities

The activities involved with construction will include levelling, access by the construction vehicles, development of trenches for the placement of cables underground and the development of concrete foundation for the placement of panels. Levelling of the site is anticipated to be minimal since the propose development site is primarily flat. Use of existing farm road will be made, and where necessary construction of new access roads for use during the construction and operation will be undertaken. Where possible, the existing farm roads will be used rather than developing new roads. During the operation phase, it is anticipated that very limited vehicular access will be required for maintenance and washing of panels. The plan is to upgrade existing farm roads and as such no new roads is anticipated at this stage. The roads will remain gravel, but chemical treatment of the surface is planned in order to minimise dust. No borrow pits will be developed on site as all sand and gravel required will be sourced from the existing authorised sites. Water and waste options are being examined and will be dealt with in more detail in the EIR.

2.6 OPERATION PHASE

It is anticipated that the plant will run for a minimum of 25 years. During the operation phase there will be about 26 people employed on site. The permanent staff, including security officers, engineers, electricians, office staff, cleaners of houses and panels and other semi-skilled staff will be housed in the pavilions developed for the construction phase. As with the construction phase,

some employment of local community members is anticipated during the operation phase but this will be on a more limited scale.

2.7 SERVICES

2.7.1 Water

Of critical importance to the project is the identification of a water supply for the project in this extremely arid of South Africa. The EMPr will set out requirements to ensure that sufficient water is provided to meet the full requirements of the maximum number of persons that may be present on the plant at any stage during the construction and operation. No WULA will be applied for at this stage regarding obtaining water for industrial use. Instead Molifin is planning to source groundwater by obtaining authorisation from Department Water Affairs (DWA).

The development will not take place on the banks of the water resources or disturb the flow of water in a water resource in terms of listed water uses, Section 21(c) and (i). There are no perennial streams and rivers in the vicinity of proposed development.

Water demand for the project is estimated to be approximately 3000m² for the 100 workers to be employed on site. Water will be used for meeting the domestic requirements of the workers. The sustainability of the yield of the water will be the compromised option of water purchase from water right holders will be studied. Lastly the option of laying a pipeline for the transmission of water from the Mokolo River will also be undertaken.

2.7.2 Waste

It is planned that waste disposal will take place at an existing licensed facility and communications with the local authorities by Molifin (Pty) Ltd is taking place in this regard. Any hazardous waste components generated during the construction, operation and decommissioning phase, such as some categories of electric waste, will be require disposal in suitable registered waste site. Only small volume of hazardous waste is anticipated.

2.7.3 Decommissioning

The project is expected to have a lifespan of 25 years, after which all infrastructures will be disposed of in line with the relevant legislation. Glass, aluminium, copper and silicon components, forming the bulk of material, will be recycled. Cement will be crushed and reused or will be

disposed of at any registered waste facility. Limited hazardous waste including e-waste is expected to be generated, which will be disposed of at a suitably registered site.

2.7.4 Listed Activities

This project will trigger a number of listed activities in the EIA regulation of the National Environmental Management Act (NEMA) in terms of regulation R543, R544, R545 and R546 as promulgated on 2 August 2010, and as corrected by the “Correction Notice 1” (GN No. R660 of 30 July 2010) and “Correctional Notice 2” (GN No. R1159 of December 2010). Not all of the activities listed below will necessarily trigger, but have been included as precautionary measures inclusively in the current process, to minimise the risk of amendments required to the initial application.

Table 3: Activities triggered be NEMA

Indicate the number and date of relevant notice	Activity No.(s) in terms of relevant notice	Describe each listed activity as per project description
Regulation R544 of 18 June 2010, Listing No.1	22	The construction of a road outside urban areas. <i>It is possible that additional roads could be required for the construction phase, although this is unlikely given the extent of existing gravel roads networks on the farm.</i>
Regulation R545 of 18 June 2010, Listing No.2	8	The construction of a facility or infrastructure for the transmission and distribution of electricity with capacity of 275 kV or more, outside an urban or industrial complex. <i>Molifin proposes establishing a PV plant with an electrical capacity of greater than 275 kV</i>
Regulation R545 of 18 June 2010, Listing No.2	1	The construction of a facility or infrastructure for the generation of electricity where the electricity output is 20 MW or more. <i>The PV plants of all the units 1-5 are anticipated to generate 375MW</i>
Regulation R545 of 18 June	15	Physical alteration of undeveloped, vacant or

2010, Listing No.2		<p>derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more.</p> <p><i>The PV facility is anticipated to take up an area of over 500 hectares.</i></p>
Regulation R546 of 18 June 2010, Listing No.3	4	<p>The construction of a road wider than 4 metres with a reserve less than 13.5 metres in areas as identified in the Limpopo</p> <p><i>The PV plant could require the construction of a road. Although this is unlikely given the extent of farm road, and the low likelihood of needing such a wide road.</i></p>
Regulation R545 of 18 June 2010, Listing No.3	14	<p>The clearance of an area of 5 hectares of more vegetation where 75% or more of the vegetation cover institutes indigenous vegetation in specified areas 14a(i)</p> <p><i>The establishment of the proposed PV will require the clearance of vegetation from the site. It is possible that the indigenous vegetation may need to be cleared for the establishment of concrete based for the PV panels. It is planned that the area to be disturbed will be minimised to retain natural vegetation and grazing around the panels.</i></p>

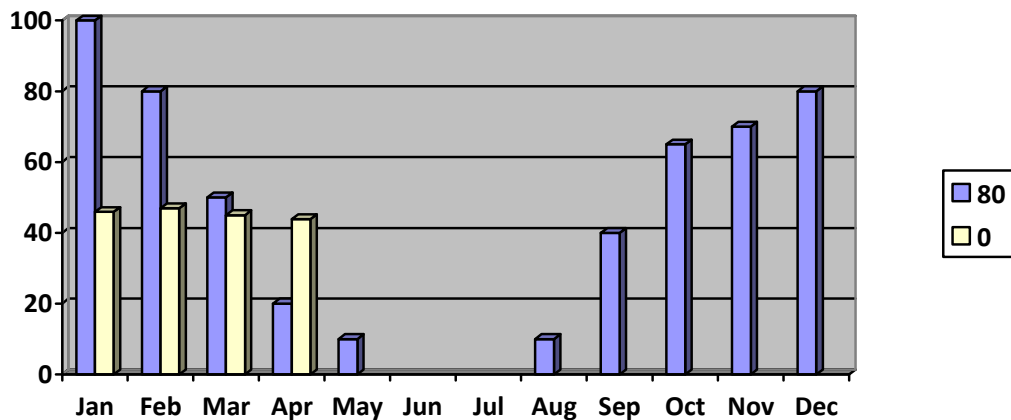
3. ENVIRONMENTAL INFORMATION

3.1 Biophysical description

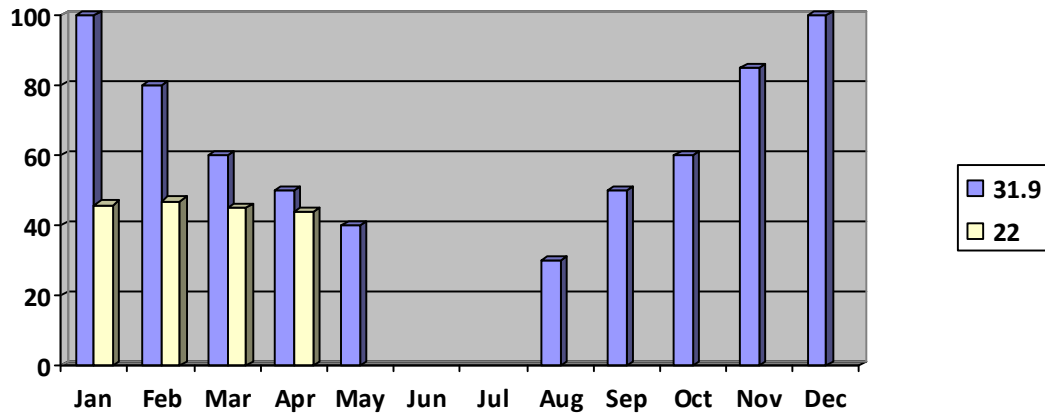
3.1.1 Climate

Lephalale normally receives about 400mm of rain per year, with most rainfall occurring mainly during midsummer. The chart below (lower left) shows the average rainfall values for Lephalale per month. It receives the lowest rainfall (0mm) in June and the highest (81mm) in January. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Lephalale range from 22.3°C in June to 31.9°C in January. The region is the coldest during July when the mercury drops to 3.7°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures.

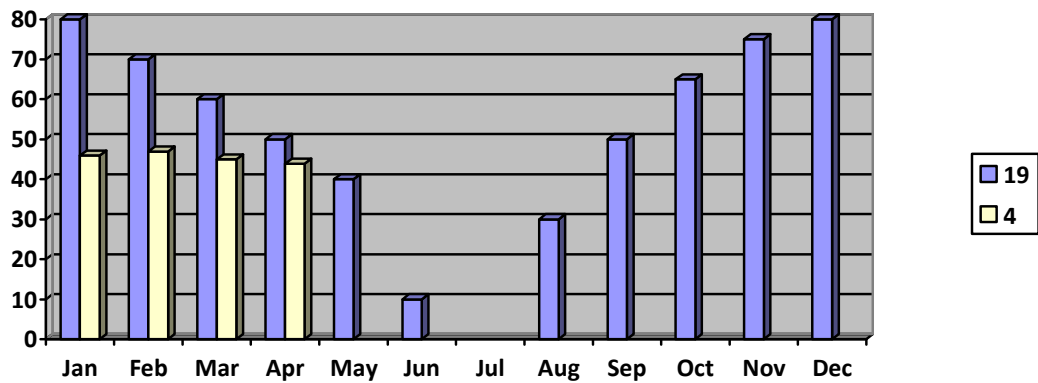
Average rainfall (mm)



Average midday temperature (°C)



Average night-time temperature (°C)



3.1.2 Geology and soil

The proposed site is not subjected to dolomite related stabilities and undermining, it is located on sediments of Kanoo Super group. Sediments consist of light yellow, gritty sand stone of the Clarens Formation and a surface horizon of Aeolian sand is between 800m and 1000mm thick covers the entire site.

Soil materials are considered as soft excavations to depth of 2m and In-situ soil must be regarded as corrosive towards metallic surface.

3.1.3 Ground water

There are four operational boreholes in the area and ground water is not used extensively. The proposed project is not expected to impact on ground water.

3.1.4 Surface water

There are no rivers or streams located at or near the proposed site.

3.1.4 Landform and topography

The proposed area is located 820 – 840 above the sea level and the land slope from west to east is less than 1%. Topographically the landform can be described as plain and in addition the site is not situated in or near a sensitive landscape

3.1.5 Flora and veldt type

The veldt type can be described as savannah type bushveldt, specific Arid Sweet Bushveldt and the description of the natural grazing can be described as Arid Acacia-Combretum veldt, with average potential, fairly vulnerable, good winter grazing. Dominant woody vegetation on the site includes the following species:

❖ Acacia nigrescens	Knob thorn	3.6%
❖ Terminalia prunoides	Thorny clustyer	3.6%
❖ Cobrentum paniculatum	Red-bush willow	10.7%
❖ Grewaia monticola		3.6%
❖ Grewia occidentalis	Cross berry	10.7%
❖ Dishrostachys cineria	Sickle bush	3.5%
❖ Grewia flava	Velvet raisin	17.8%
❖ Boscia albetrunca	Shepherd tree	3.5%
❖ Rhigozum brevispinosum		3.6%
❖ Commiphora paracantroides		39.2%

Dominant grass species includes the following:

❖ Urochoa mosambicensis	Bushveldt signal grass
❖ Aristda species	Three-awn species
❖ Eragrostis rigidor	Curry leaved grass

- ❖ *Schmidtia pappophoroides* Sand quick
- ❖ *Eragrostis lehmaniana* Lebman's love grass
- ❖ *Tricholeane monachre* Blue seed grass
- ❖ *Penicum maximum* Guinea grass

The long term grazing capacity of the area is 12 hectares per large stock unit and the characteristics of the veldt indicates no Red data, endangered or rare flora species. The natural grazing on the rest of the veldt is represented by an Acacia dip with several plans and a Weeping wattle sand hill. The Acacia dip is sensitive due to brackish spot and overgrazing.

3.1.6 Fauna

The game species on site which originate from game faring that takes place on the rest of the farm are Elan, Kudu, Gemsbok, Blue Wildebeest, Waterbuck, and Impala. Wathorg, Bushpig, Steebok, Common Duiker. The range of amphibian species that can be found is low due to the nature of the habitant of the study area. Reptiles that occurs dominant in the surrounding area are as follows:

- ❖ Snakes (Mamba, Puff adder, African Rock Python, Mole snake, Egg eater, Twig snake, Mozambique spitting Cobra and Rinkhals).
- ❖ Tortoise (Leopard tortoise)
- ❖ Yellow-throated plated lizard
- ❖ Rock of white throated plated monitor and Flap neck chameleon
- ❖ Identified birds species are extensive, diverse and count up to 110.

3.1.7 Unique or high potential land

The proposed development does not fall in unique or high potential land, the property is approximately 5Km from the nearest river (Mokolo River).

3.2 SOCIO ECONOMIC DESCRIPTION

3.2.1 Archaeological and cultural heritage

No indication of physical and cultural resources could be found on the proposed residential development site.

3.2.2 Land use and ownership

The property is registered in the name of Van Rensburg Family Trust with Title Deed T29713/1997. The property is in rural area and the farm is developed in a game farm and will be used as such.

3.2.3 Demographic characteristics

In a radius of 10km around the property 15 out of 35 properties are permanently inhabitant and 15 households presents plus, minus 50 individuals that implicate 1 individual per 707 hectares.

3.2.4 Tourism sport and recreation

The Bushveldt macro area where the property is situated is popular for its moderate winter temperature game farming and hunting and malaria free area.

3.2.5 Economy

The macro economy of the area consist of mining, generation of electricity (Kumba and Eskom) and agriculture and the activities of the agricultural sector in the area are cattle, game and irrigation farming.

4. LEGAL AND POLICY FRAMEWORK

The EIA for the proposed PV project will be conducted in terms of the EIA regulation R543, R544, R545 and R546 as promulgated in terms of Section 24 (5) of National Environmental Management Act (Act No. 107 of 1998). These new regulation apply from 1 August 2010, and as corrected by the "Correction Notice 1" (GN No. R660 of 30 July 2010) and "Correctional Notice 2" (GN No. R1159 of December 2010). And relate to various procedural, reporting and personal related aspects of EIA. Depending on various other options (water supply, waste/sewer treatment) and whether these trigger further listed activities, further WULA and waste application will be submitted with their relevant acts. A number of other pieces of legislation (e.g. Environmental Conservation Act 73 of 1989) may also have a bearing on the project and are being reviewed in terms of relevant investigation.

5. POTENTIAL ENVIRONMENTAL IMPACTS

A summary of potential direct and indirect environment impacts association with this project is given in Table 4 below.

Table 4: Potential direct and indirect impacts associated with the PV project

Environmental Aspects	PV construction, operation and closure
Increased dust	Decreased air quality due to dust – negative impacts from construction activities including movement of vehicles.
Increased noise	Noise during the construction – negative impact on adjacent farms.
Loss of soil	Contamination of soil by oil and petroleum from the leaking vehicles. Possible impacts also on soil sterilisation, increased potential for erosion and loss of soil.
Loss of plants and animals	Negative impact on key biodiversity from over aggressive site clearing.
Archaeological	Negative impacts on archaeological resources.
Increased storm water run-off resulting in erosion	Negative impacts on surface run off increased from storm water run off.
Economic development opportunities	Positive impacts, enhanced through use of labour-intensive construction techniques and technologies.
Continued improvements to infrastructure	Positive impacts, the availability of a reliable energy supply during operation can help to improve the future and the existing infrastructure in the area.
Power security leading to development of the area	Positive impacts, the existence of reliable energy supply during operation can attract business developers in the area.
Effects of increased population due to potential or perceived work opportunities	Negative impact, possibility of increased chances of contracting disease, increased conflict, increased demands, on services as well as crime.
Visual impacts	Negative impacts on landscape and sense of place from the PV

	construction activities.
Increased traffic and road safety hazard	Negative impacts from the construction vehicles on traffic congestion on the R510.

Cumulative impacts to be assessed in the EIR will include:

- ❖ Pollution from the construction and domestic waste generation
- ❖ Positive opportunities generated through regional economic development
- ❖ Visual impacts on the landscape and sense of place from combined presence of the existing game farm and PV facilities, as well as other new developments planned in the vicinity
- ❖ Biodiversity loss from the combined destruction of habitat from developments in the vicinity

6. PUBLIC PARTICIPATION

The public participation process is being undertaken in accordance with requirements as set out in regulation 54 of the EIA regulation in terms of chapter 5 of the National Environmental Management ACT, 1998 (Act No. 107 of 1998 ("NEMA")).

To assist the relevant role-players in understanding what is required of them and what their role may be, the Department of Environmental Affairs has produced a set of guidelines. These guidelines are intended to be guides only and should be read in conjunction with NEMA and the regulations. They are not intended to be a substitute for the provisions of NEMA or the regulations in any way.

The guidelines form part of the department's Integrated Environmental Management Guidelines Series and consist of four parts, namely:

- ❖ Guideline 3: General guide to the EIA Regulations
- ❖ Guideline 4: Public participation
- ❖ Guideline 5: Assessment of alternatives and impacts and alternatives
- ❖ Guideline 6: Environmental management frameworks

Guideline 4 provides information and guidelines for applicants, authorities and interested and affected parties (I&APs) on the public participation requirements of the regulations as described in Chapter 7 of the EIA regulations.

6.1 Approach and methodology

The broader framework in which the environmental investigations are conducted is Integrated Environmental Management IEM. A definition provided by the South African Department of Environmental Affairs, (DEA) for IEM reads as follows:

“IEM is a combination of proactive and preventative processes and procedures that maintain the environment in good condition for a variety of short and long range sustainable uses.”

In order to ensure that the IEM is incorporated into a development process, it is necessary to identify issues and understand associated impacts. Thus, it is important that the Scoping phase, a process designed to identify issues, is conducted in the public domain, allowing I &AP's the opportunity of participating in this process.

6.2 Principles of the Public consultation process.

As the public participation programme is an integral part of the Integrated Environmental Management (IEM), the same IEM Principles should be applied. IEM principles, as listed by the DEA and which are most relevant to the Public Participation Programme include:

- ❖ Meaningful and timorous participation of I&APs
- ❖ Focus on important issues
- ❖ Due consideration of alternatives
- ❖ Accountability for information used for decision making
- ❖ Encouragement of co-regulation, shared responsibility and sense of ownership
- ❖ Dispute resolution
- ❖ Application of due process particularly with regard to public participation in environmental governance as provided for the Constitution
- ❖ Inclusively: the needs, interests and values of I&APs must be considered in the decision-making process

The external communication function performed by Public Participation is both proactive and reactive in nature, and can best be described in terms of three categories:

- ❖ Meetings
- ❖ Services
- ❖ Products

6.3 Meetings

The main type of stakeholder meetings that were conducted, were as follows:

- ❖ Public open days
- ❖ Interactions with individuals and I&AP representatives

6.4 Public Open Days

The Public Open Day was conducted on the 22 March 2012. The purpose of the public open day was to provide a platform to I &AP's to raise issues and as well to inform I &AP's more thoroughly of the development through the use of diagrams & maps with a one on one interaction with the members of the study team. A full attendance register was taken at the Public Open day of the attendants who enquired about the project & can be seen in the attached. There were no negative issues raised at the open day. The farmers are looking forward to the proposed development and recommended that the process be fast tracked.

6.5 Interactions with individuals and I&AP representatives

In addition to the Public Open Day, members of the study team interacted personally and communicated by telephone with individuals and representatives of I &AP's about the project. JIS Environmental Engineers provided the following services:

- ❖ Registration of I&APs though attendance registers at the Public Open Day and invitations to register extended in the Background Information Document individual letters and faxes and media advertisements. I&APs were also identified from existing data bases. A copy of the attendance register taken at the Public Open Day is available in Appendix section.
- ❖ A complete list of all registered I&APs is available in Appendix section.
- ❖ Feedback to I&APs, individually and collectively.

- ❖ The Draft Scoping Report was distributed to key stakeholders and placed in public libraries and local government offices in the study area.
- ❖ Assistance, where requested will be provided to I&APs in order to facilitate the understanding of the Scoping Report so that I&APs have the opportunity to provide meaningful comment.

6.6 Public Information Documents

- ❖ A Background Information Document (BID) was produced and distributed during the Public Open Day. The BID provided a brief and concise description of the project as well as a map of the proposed study area. Copies of the BID were:
 - ❖ Disseminated to identified I &AP's
 - ❖ Provided at the Public Open Day
 - ❖ Placed at public venues in the respective study areas

A set of posters was produced to form part of the Public Open Day display, these posters provided information on the EIA process, further information on the project and a large scale map of the proposed project, making the routing of the project more visible to I & AP's.

6.7 Notifications

- ❖ As per the EIA regulation 2010, press advertisements were placed in the newspapers that are distributed in areas where the project is to take place, informing the public of the location, the time and the whereabouts of the Public Open Day. The Newspapers in which we used for publication is Beeld which was believed to be the most bought news paper in the local community the copy of the news paper is in the appendix section.
- ❖ Posters informing the public of the project were placed along the route of the proposed project and at strategic public places.

7. PLAN OF STUDY FOR EIA

The plan of study for the consolidated EIA is set out below for review by the authorities and IAP's. The rationale for the different levels of study for the various environmental components is in line with issues raised by IAPs, the expected severity of impacts in the understanding of the EAP, and

the level of confidence required in the prediction of impacts. The level of information required to develop adequate, practical management and mitigation measures was also consideration in determining the terms of reference of studies. The key components to the approach to development of the consolidated EIA as outlined below are as follows:

- ❖ EIA management and integrative report writing
- ❖ Public consultation
- ❖ EIA team and desktop study
- ❖ Terms of reference for the specialist study

It should be noted that the scope of studies for the EIA was determined by a risk-based approach, which considers the sensitivity of the particular environmental aspects in the study area and the level of confidence required for decision making. The higher the level of sensitivity or potential impacts on the project or vice versa and the higher the level of confidence required for decision making, the greater the level of study required. This relationship is best explained in the diagram below. Such professional risk-based judgements on the scope of the EIA were guided by the local knowledge and issues highlighted by IAPs during the public consultation process.

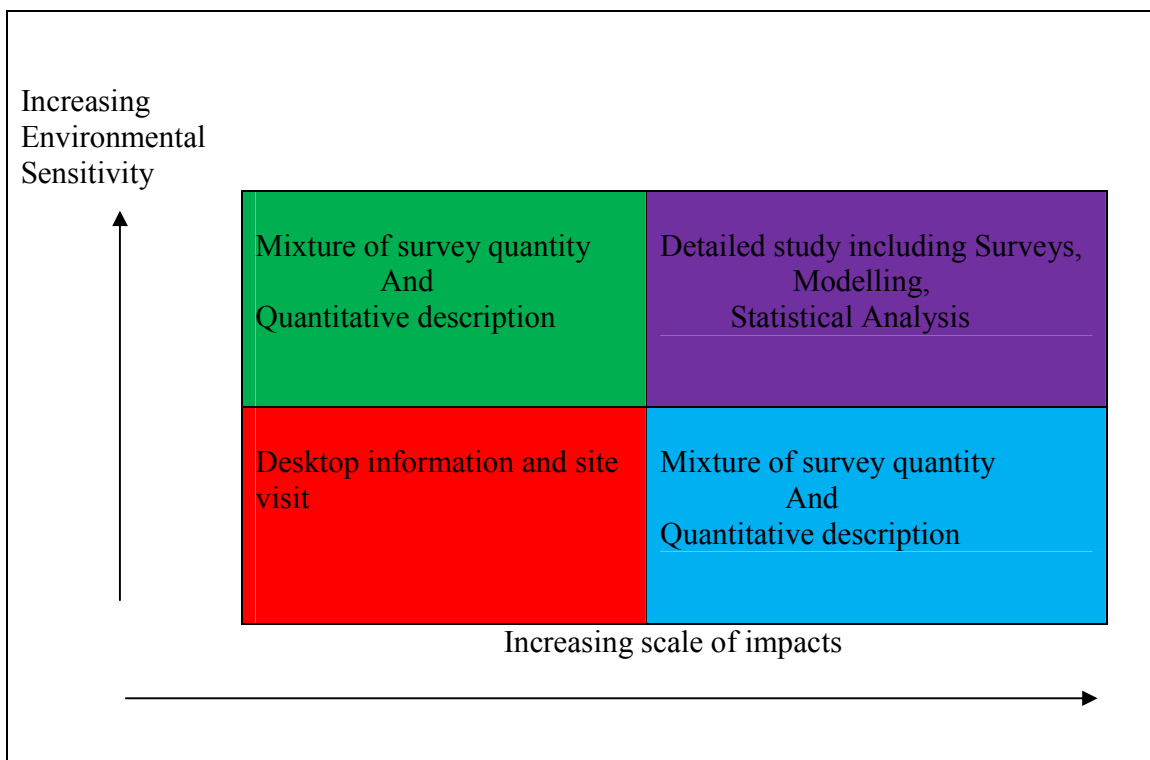


Figure 5: Scoping methodology

7.1 EIA management and integrative report writing

A key component of the consolidated EIA process incorporating the 5 separate constituent units (5 x 75MW) is the direction and quality control of the work undertaken by the specialists. Integration of environmental information in the planning of the project and the harmonising of the various reports into one integrated assessment of the project a key to the success of the EIA.

7.2 Public consultation

The public consultation programme undertaken for scoping phase has raised awareness of the project, developed a strong understanding of the project and the EIA process amongst the affected public. It has further yielded a database of IAPs which will extent and build upon throughout the project process. These parties will be kept informed of progress during EIA development, and were input from IAPs.

7.3 EIA Team and Desktop Study

Based on the above initial description of the environment, as well as issues raised in the public participation, the climate, topography and noise studies performed in house by the core JISE team. Although water use is considered a specialist study, especially in the region where the proposed project is located, as no ground water will be affected, no ground water studies are planned. If at any stage of the process it appears that an environmental aspect will be impacted during the project, a full study and assessment will be commissioned.

7.4 Specialist studies

Due to the sensitivity of certain features, specialists have been subcontracted to examine agricultural land use capabilities, surface water and geotechnical aspects, biodiversity, geotechnical as well as heritage studies. All the studies will be undertaken for their areas of expertise. A desk-top opinion on the palaeontological importance of the area is further being sought. Specialists are required to review existing information including integrated developments plans, strategic plans and other data relevant to the respective base line environments. The

exercise include mapping as appropriate. They are further required to undertake impact assessment for their area of specialisation based on the anticipated project activities for all project phases (construction, operation and decommissioning). They further be required to recommend avoidance and mitigation measures in the case of negative impacts, or were positive impacts are predicted, enhancement measures. Tool to be use include GIS and quantitative forms of impact analysis.

7.5 Terms of reference for specialist studies

The terms of reference (ToR) for the proposed specialist studies are provided below. Further to the ToR, each specialist will be expected to be available for feed back meetings and they will need to address any issues raised through the public participation process applicable to the speciality. Specialist will also be encouraged to propose and implement additional ToR, if they deem this necessary, based on their professional expertise, experience and compliance with relevant specialist study guidelines and best practice. All specialists will produce a final report detailing their findings and possible impacts and mitigation measures.

7.5.1. Biodiversity

Based on existing information:

- ❖ Undertake a desktop study to review relevant available information including legal requirements and regulatory requirements, of local and international guidelines and standards of the biodiversity.
- ❖ Determine and map the projects zone of influence and the proximity of the area under investigation to the surrounding land users.
- ❖ Physical features which may influence biodiversity
- ❖ Identify alternative site

Based on field survey:

- ❖ Undertake a biodiversity field survey with baseline monitoring (using internationally accepted survey method) that will include:
 - Floristic and faunal characteristics (structure, composition, sensitivity and diversity.
 - Dominant and key species
 - Rare, threatened, endemic, specialist, protected or listed species.

- Abundance of important species
- Invader or exotic species
- Seasonal patterns and migration (if applicable)
- ❖ Particular attention must be paid to:
 - Ecological processes and the links between the systems value of ecosystem services
- ❖ Maps should be provided wherever is possible. This maps should include:
 - Areas of natural vegetation
 - Critically endangered and endangered vegetation area
 - Indication of locations of bird and bat roosting and foraging sites(DEA requirements)

Based on the methodology supplied by JISE conduct assessment of potential impacts:

- ❖ Identify and describe any biodiversity assets of the study area, and the constrains and the opportunities that these pose for the projects development during all phases.
- ❖ Identify and list the potential direct, indirect and cumulative impacts of the proposed Pv site and plant on biodiversity and their significance that the project will raise.
- ❖ Make recommendations for mitigation measures to managing this issues and constraints.
- ❖ Indicate if the proposed site is environmentally preferable and any alternatives if viable, bearing in mind that the site need not be continuous, but it is preferable to keep it as condensed as possible.

7.5.2. Visual

Based on existing information and site visit:

- ❖ Describe the existing visual characteristics and sense of place of the area.
- ❖ Determine the areas from which the proposed development will be visible.
- ❖ Assess the extent to which the visual landscape will change as a result of a project's activities

Assess the magnitude of the visual impact of the proposed development, explicitly stating the criteria used for this assessment.

Based on the methodology supplied by JISE conduct assessment of potential impacts:

- ❖ Identify and describe any visual assets of the study area, and the constrains and the opportunities that these pose for the projects development during all phases as well as the visual impact on the cultural landscape

- ❖ Identify and list the potential direct, indirect and cumulative impacts and their significance that the project will raise.

Make recommendations for managing this issues and constraints and enhancing any benefits.

7.5.3. Geotechnical

Existing information:

- ❖ Undertake a desktop study to review relevant available information including legal requirements and standards of the study.
- ❖ Search database and previous studies for regional classification.
- ❖ Physical features which may influence the aspects to be examined.

Desktop study:

- ❖ Demarcate/map the catchments areas and identify existing dams, reservoirs, natural springs, in the area.
- ❖ Characterise the hydrology (regional and site specific)
- ❖ Compile a pre-development baseline description of the hydrology
- ❖ Gather sufficient baseline information to adequate assess future impacts the proposed development may pose, and identify appropriate avoidance, mitigation and/ or compensation measures.

Based on the methodology supplied by JISE conduct assessment of potential impacts:

- ❖ Identify and describe any visual assets of the study area, and the constraints and the opportunities that these pose for the projects development during all phases.
- ❖ Identify and list the potential direct, indirect and cumulative impacts and their significance that the project will raise on geotechnical aspect.
- ❖ Make recommendations for managing this issues and constraints and enhancing any benefits.
- ❖ Indicate if the proposed site is environmentally preferable and any alternatives is viable, bearing in mind that the site need to not be continuous, but it is preferable to keep it as condensed as possible.

7.5.4 Archaeological and cultural heritage

In addition to complying with requirements specified by the South African Heritage Resource Agency (SAHRA) provide the following:

Existing information:

- ❖ Undertake a desktop study to review relevant available information including legal requirements and standards of the study.

Desktop study and/ or field survey

- ❖ If necessary, undertake field reconnaissance survey (using internationally accepted field survey methods) to establish whether there are any surface remains and artefacts of cultural (including gravesites) significant on the project's local area of influence (AOI) and to record the geographical location. The sampling intensity will vary across the AOI with high sampling density in potential footprint areas.
- ❖ Analyse any material found to establish the significance of the sites/ material and development of a register of sites and relevant material. All sites must be photographed, referenced with a GPS, and plotted on a map.
- ❖ Identify sites/materials that material that may require excavation or preservation and document these site in the report.
- ❖ Ensure that cultural-heritage issues raised during the public participation process are addressed

Identify sensitive or critical cultural heritage which require protection or management (delineate these on a map);

Based on the methodology supplied by JISE conduct assessment of potential impacts:

- ❖ Identify and describe any visual assets of the study area, and the constraints 1 and the opportunities 2 that these pose for the projects development during all phases.
- ❖ Identify and list the potential direct, indirect and cumulative impacts and their significance that the project will raise on geotechnical aspect.
- ❖ Make recommendations for managing this issues and constraints and enhancing any benefits.
- ❖ Recommend mitigation measures that can be implemented to reduce the significance of the potential impacts

- ❖ Indicate if the proposed site is environmentally preferable and any alternatives is viable, bearing in mind that the site need to not be continuous, but it is preferable to keep it as condensed as possible.

8. IMPACT ASSESSMENT METHODOLOGY

The environmental impact assessment both by the EAP and by the specialist team will be undertaken in accordance with the JIS Environmental Engineers standard criteria for impact assessment. This methodology is compliant with the NEMA regulations.

All specialists working on the EIA have been asked to use common, systematic and defensible method of assessing significance that will enable comparisons to be made between impacts across different disciplines. It will also enable all relevant parties to understand the process and rationale upon which impacts have been assessed.

9. CONCLUSION

The Final Scoping Report sets out the proposed scope of the EIR for the Molifin (Pty) Ltd PV project. This includes the range of alternative that will be evaluated for various aspects of the project, the key environmental impacts and issues that need to be addressed, the studies that will be undertaken, terms of reference of the specialist studies and the qualifications and experience of the study team.

The FSR will be amended based on feedback received during the public participation process (authority and other IAP review), on the basis of comments received. The report is not yet finalized for DEA approval.

10. APPENDICES

11. APPENDIX A: LOCALITY MAP

12. APPENDIX B: TITTLE DEEDS

13. APPENDIX C: PUBLIC PARTICIPATION REPORT

14. APPENDIX C1: PROOF OF ONSITE NOTICE

15. APPENDIX C2: NEWSPAPER ADVERT

16. APPENDIX C3: COPIES OF REGISTER

17. APPENDIX C4: COMMENTS FROM I&AP'S ON THE SCOPING REPORT

18. APPENDIX C5: CORRESPONDENCE WITH STAKEHOLDERS

19. APPENDIX D: BID

20. APPENDIX E: CVS OF THE PROJECT TEAM

21. APPENDIX F: IMPACT ASSESSMENT METHODOLOGY

22. APPENDIX G: PROJECT SCHEDULE