



ESKOM HOLDINGS (SOC) LIMITED, LIMPOPO OPERATING UNIT (LOU)

DRAFT BASIC ASSESSMENT REPORT: APPLICATION PROCESS FOR THE PROPOSED DEVELOPMENT OF APPROXIMATELY 14.5KM BERSFORT OF 132KV POWER LINE FROM AN EXISTING GROBLERSDAL SUBSTATION TO THE APPROVED SILIMELA SUBSTATION IN THE ELIAS MOTSOLEDI LOCAL MUNICIPALITY OF SEKHUKHUNE DISTRICT IN THE LIMPOPO PROVINCE.

# FINAL DRAFT BASIC ASSESSMENT REPORT TO DEA

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19 September 2015



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## REPORT DETAILS

**Project name:** APPLICATION PROCESS FOR THE PROPOSED DEVELOPMENT OF APPROXIMATELY 14.5KM BERSFORT OF 132KV POWER LINE FROM AN EXISTING GROBLERSDAL SUBSTATION TO THE APPROVED SILIMELA SUBSTATION IN THE ELIAS MOTSOLEDI LOCAL MUNICIPALITY OF SEKHUKHUNE DISTRICT IN THE LIMPOPO PROVINCE.

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**EIA Consultant:** Mbofho Consulting and Project Managers

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## TITLE AND APPROVAL PAGE

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### REVISION AND AMENDMENTS

DATE	No.	DESCRIPTION OF REVISION OR AMENDMENT
2015/09/02	1	Draft version revision 001
2015/09/15	2	Draft version revision 002 to I&AP
2015/11/19	1	Final Draft version 003 to DEA

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# BASIC ASSESSMENT REPORT

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## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

**File Reference Number:**

**Application Number:**

**Date Received:**


Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2010, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

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### Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 August 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

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13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

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## Section A: Activity information

Has a specialist been consulted to assist with the completion of this section?

NO

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

### 1. Project Description

#### a) Describe the project associated with the listed activities applied for

Eskom Holdings (SOC) Limited, Limpopo Operating Unit (LOU) is mandated by the South African Government to ensure the provision of reliable and affordable power to South Africa. Eskom currently generates approximately 95% of the electricity used in South Africa. Therefore, electricity must be generated in accordance with supply demand requirements. Eskom's core business is in the generation, transmission (transport), trading and retail of electricity.

The reliable provision of electricity by Eskom is critical for industrial development and related employment and sustainable development in South Africa. As electricity cannot be stored, power is generated and delivered over long distances at the very instant that it is required. In South Africa, thousands of kilometres of high voltage Transmission lines (i.e. 765 kV, 400 kV and 275 kV Transmission lines) transmit this power to Eskom's major substations. At these major substations, the voltage is down-rated and distributed to smaller substations all over the country via Distribution lines (e.g. 132 kV, 88 kV and 66 kV powerlines). Here the voltage is down-rated further for distribution to industry, businesses, farms and homes. In order to maintain a reliable power supply within the entire network, the voltages at all substations are required to be within certain desired limits.

If the network is operated at voltages which are below these limits, voltage collapse problems and power outages may be experienced. Reliable delivery of electricity concerns consumers and industries which require a high quality of power supply for sensitive electronic equipment, and which incur high expenses as a result of even a short electricity supply interruption. To be reliable, the transmission network must have the capacity to supply the electricity required by the customers at all times. That is, the network must be designed with reserve transmission capacity in order to ensure an uninterrupted supply to customers if and when faults occur. As a transmission network reaches capacity, the operation of the Transmission lines becomes more critical.

In the event of a network being increasingly operated above its design capacity during peak periods, and two particular concerns arise:

- energy losses increase significantly along the Transmission lines; and
- the voltage drop along the lines increases to a point where supply becomes unstable and the line "goes down", and supply on that Transmission line is lost.

When a Transmission line "goes down" it is usually possible to re-route the electricity via other lines in the network. However, when the network is already close to capacity, there is a greater risk that the entire network will "go down", cutting supply to the region for an

indefinite period of time. In addition, routine maintenance on the transmission network becomes restricted, resulting in the heightened deterioration of the network over time. This deterioration, ultimately, also affects the performance of the transmission network.

There is huge load growth in the Groblersdal area contributed by the electrification load, new mining loads as well as the new residential developments in the area.

The current Simpron 132/88kV network is currently experiencing low voltages on the 132kV side, the 88kV network thermal limits will be reached soon and therefore the network is unable to cater for the future load due to these constraints

In view of the above, Eskom Holdings (SOC) Limited Limpopo Operating Unit (LOU) intend to submit an application for environmental authorisation to the National Department of Environmental Affairs for the proposed development of approximately 14.5km Bersfort of 132kV power line from the existing Groblersdal substation to the approved Silimela Substation in the Sekhukhune District of Limpopo Province.

### Description of Activity

This Basic Assessment is being undertaken for the following main activities:

Application process for the proposed development of approximately 14.5km Bersfort of 132kv power line from an existing Groblersdal substation to the approved Silimela substation in the Elias Motsoaledi Local Municipality of Sekhukhune District in the Limpopo Province.

### Project Location

Eskom Holdings (SOC) Limited Limpopo Operating Unit (LOU) proposes to establish a new 132kV power line to link between an existing Groblersdal Substation to the already approved Silimela Substation. Alternative route 1 is approximately 14.5 km Bersfort of 132kV and is described in pink colour on the map. The proposed power line starts from an existing Groblersdal Substation at GPS coordinates S25°10'04.57"E29°22'52.59" and connect with already approved 132kV power line at GPS coordinates S25°06'06.54" E29°20'07.00" that will join the already approved transmission Silimela substation at GPS coordinates S25°05'13.40" E29°17'44.51"

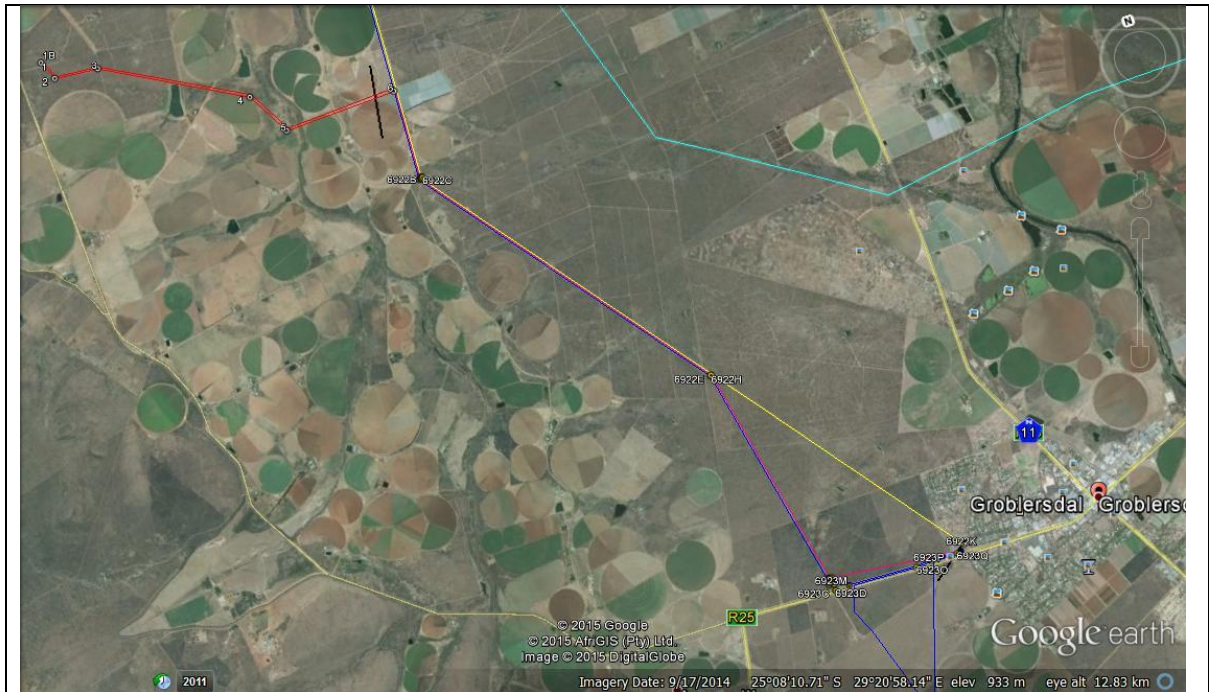


Fig 1: Map showing location of project site

#### **MOTIVATION FOR THE PROJECT**

- The development is motivated by the need to provide adequate and reliable electricity around the area.
- The project is needed to establish a strong 132kV source of supply that will assist Eskom to upgrade the current 88kV network to 132kV. The existing 88kV will be decommissioned and dismantled thereafter
- The project is needed to address the poor voltages on the Simplon and Mapoch networks
- The project is required to deload Groblersdal s/s and Wolwekraal substation
- The project is needed to strengthen the Dx network.

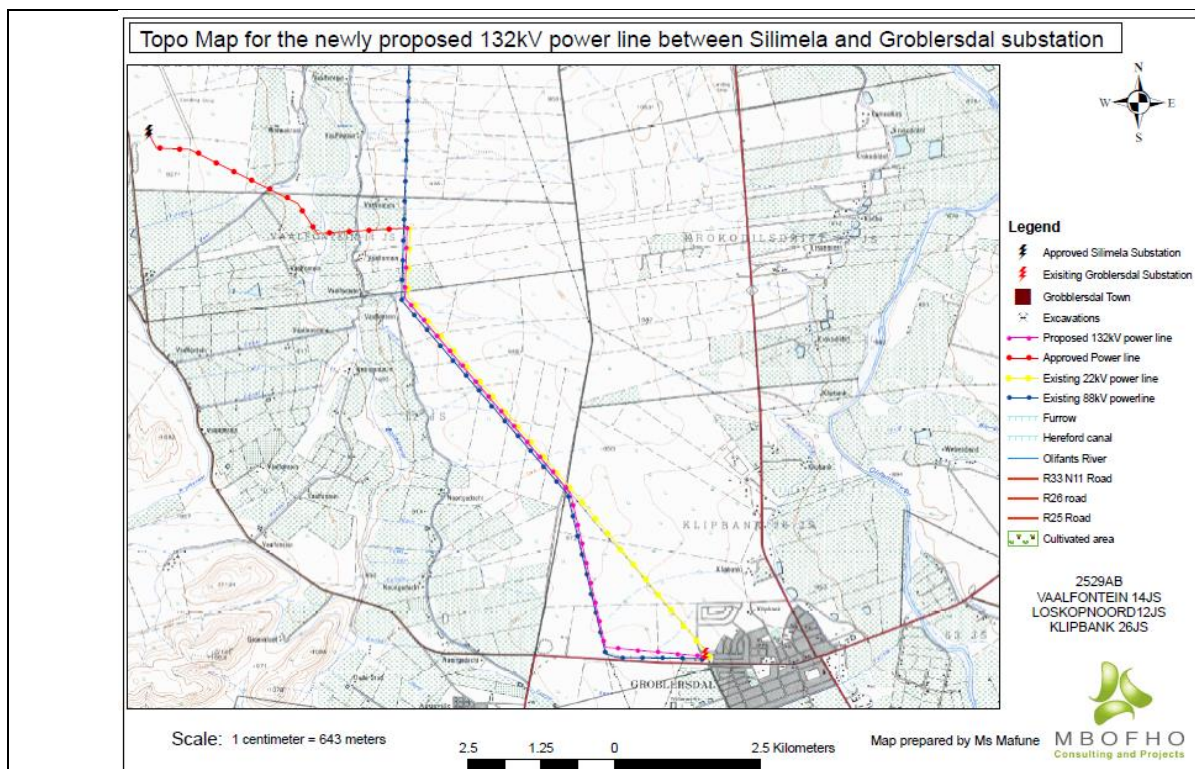


Fig 2: Locality Map

**LEGAL REQUIREMENTS**

The Government Notice R.982 and Sections 24 (2) (a) and (d) of the National Environmental Management Act (NEMA) (Act No. 107 of 1998) as amended identifies activities which may not commence without an authorisation from the competent authority, the Department of Environmental Affairs, (DEA National). In order to apply for authorisation for the investigation, assessment and communication of potential impacts of the activities must follow the procedure as described in regulations 16 to 25 of the Environmental Impact Assessment Regulations, (2014), promulgated in terms of section 24(5) of the Act.

The proposed project is subject to a Basic Assessment process in terms of the following listed activities:

Activity No (s)	Listed activity
GN R.983 Item 11	<i>The development of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts</i>

1. Technical Details regarding the proposed 132kV Bersfort power line

1.1 Towers

The 132kV steel monopole structure will be used with a staggered vertical configuration. This structure has been chosen so as to cater for any future upgrades of the existing network i.e. should there be a necessity to increase the voltage in future. This configuration is designed to be highly flexible during broken conductor conditions, resulting in a very light structure.

Bersfort conductor will be used to construct the 132kV lines with a burn off time of 1.22s for a fault level of 26.1 kA

The lines will be earthed as per Eskom D-DT-7300 series.

### 1.2.Length

The proposed distribution power lines would commence from the existing Groblersdal substation and connect to the new already approved powerline to the new Silimela substation. The proposed total length is therefore approximately 14.5km.

## 2. Servitude Requirements and Clearances

Generally, 132 kV power lines require a servitude width of between 30m and 52m.

The proposed 132 kV power line will require a servitude width of 36m (18m either side of the centre line of the power line).

On receipt of an approval of the final corridor by the environmental authorities and after negotiations with landowners, the final definition of the centre line for the power line and coordinates of each bend in the power line will be determined. Optimal tower sizes and positions will be identified and verified using a ground survey (in terms of the Environmental Management Plan (EMP) requirements).

Any extra area required outside the servitude shall be negotiated with the relevant land occupiers and approved by Eskom. All areas marked as no-go areas, identified by means of the EIA process, located inside the servitude shall be treated with the utmost care and responsibility.

### Line clearances

High voltage power lines require a large clearance area for safety precautions. The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) provides for statutory clearances.

The table below summarizes some of the key clearances relevant to the proposed 132 kV power line.

Clearances	Minimum Clearance Distance (m)
Ground clearance	6.7
Building structures not part of power line	3.8
Above roads in townships, proclaimed roads	7.5
Telkom telephone lines	2.0
Spoornet tracks	10.9

Table 1: Clearance specifications (Eskom, 2007a).

If any tree or shrub in other areas would interfere with the operation and/or reliability of the distribution line it will be trimmed or completely cleared. The clearing of vegetation will take place, with the aid of a surveyor, along approved profiles and in accordance with the approved EMP, and in accordance with the minimum standards to be used for vegetation clearing for the construction of the proposed new distribution lines as listed in Table 2 (Eskom, 2000).

Item	Standard	Follow up
Centre line of the proposed Sub-distribution	Vegetation to be cut within 50mm of the ground. Treat stumps with herbicides.	Re-growth shall be cut within 50mm of the ground and treated with

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line		herbicides, as necessary.
Inaccessible valleys (trace line)	Clear a 1m strip for access by foot only, for the pulling of a pilot wire by hand.	Vegetation not to be disturbed after initial clearing – vegetation to be allowed to re-grow.
Access/service roads	Clear a maximum (depending on tower type) 4m wide strip for vehicle access within the maximum 8 m width, including de-stumping/cutting stumps to ground level, treating with a herbicide and re-compaction of soil.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Proposed tower position and proposed support/stay wire position	Clear all vegetation within proposed tower position and within a maximum (depending on tower type) radius of 4m around the position, including de-stumping/cutting stumps to ground level, treating with a herbicide and re-compaction of soil. Allow controlled agricultural practices, where feasible.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Indigenous vegetation within servitude area (outside of maximum 8m strip)	Area outside of the maximum 8 m strip and within the servitude area, selective trimming or cutting down of those identified plants posing a threat to the integrity of the proposed distribution line.	Selective trimming
Alien species within servitude area (outside of maximum 8m strip)	Area outside of the maximum 8 m strip and within the servitude area, remove all alien vegetation within servitude area and treat with appropriate herbicide.	Cut and treat with appropriate herbicide.

Table 2: Minimum standards to be used for vegetation clearing for the construction of a new line.

Once the tower positions have been marked, the vegetation clearing team will return to every tower position and clear vegetation (in accordance with the EMP) for assembling and erection purposes.

### 3. Foundations

Foundations will be done as per Eskom D-DT 7800 series as follows:

The type of terrain encountered, as well as the underlying geotechnical conditions determine the choice of foundation. The actual size and type of foundation to be installed would depend on the soil bearing capacity (actual sub-soil conditions). Strain structures require more extensive foundations for support than in-line suspension structures, which contribute to the cost of the construction of the line.

Foundations would be mechanically excavated where access to the pole position is readily available. The same applies to the pouring of concrete required for the setting of the foundations. Prior to erecting the poles and filling of the foundations, the excavated foundations will be covered in order to safeguard unsuspecting animals and people from injury. All foundations are back-filled, stabilised through compaction, and capped with

concrete at ground level.

4. Access

The proposed power line is situated along the farms with existing routes that already consist of access roads. There are farms along the proposed power line with enough access that will be used to access the power line corridor.

A vehicle access road is usually required to be established to allow access along the entire length of the servitude. Access is required during both the construction and operation/maintenance phases of the line life cycle. Areas without access points and roads will be negotiated with landowners, and are to be established during the construction phase. Access roads will be considered for the various alternative routes being evaluated for the proposed project.

5. Timing

Construction for the project is likely to commence during 2016/17 financial year and the commissioning of the power line is likely to take place in 2018 (depending on the EIA process, land acquisition and appointment of construction contractors).

6. Continuous Maintenance

During the life span of the proposed distribution line, on-going maintenance is required to be performed from time to time. This maintenance work is undertaken by certified contractors employed by Eskom, and in compliance with the approved Environmental Management Programme (EMPr).

7. Construction Process for the proposed line

The proposed power line will be constructed in the following simplified sequence:

- Step 1: Determination of technically feasible alternatives.
- Step 2: EIA input into route selection and obtaining of relevant environmental permits.
- Step 3: Negotiation of final route with affected landowners.
- Step 4: Survey of the route.
- Step 5: Selection of best-suited structures and foundations.
- Step 6: Final design of line and placement of towers.
- Step 7: Issuing of tenders and award of contract to construction companies.
- Step 8: Vegetation clearance and construction of access roads (where necessary).
- Step 9: Pegging of structures.
- Step 10: Construction of foundations.
- Step 11: Assembly and erection of structures.
- Step 12: Stringing of conductors.
- Step 13: Rehabilitation of disturbed area and protection of erosion sensitive areas.
- Step 14: Testing and commissioning.
- Step 15: Continued maintenance.

**b) Provide a detailed description of the listed activities associated with the project as applied for**

Listed activity as described in <i>GN R.983 Item 11</i>	Description of project activity
<i>GN R.983 Item 11</i> <i>The development of facilities or</i>	Establishment of approximately 14.5km

<i>infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts</i>	bersfort 132kV power line to link between an existing Groblersdal Substation to the already approved Silimela Substation
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## 2. Feasible and Reasonable Alternatives

**“alternatives”**, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.



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**a) Site alternatives**

**The project does not have Site Alternative for the following reasons:**

- The proposed power line is within the approved servitude as such looking for the alternative site will not be feasible as the current site has already being zoned for the powerline
- The proposed 132kV powerlines follows the existing servitude and is ensconced between the two existing power lines i.e 88kV and 22kV. The proposed new powerline will follow the footprint of the two other power line, as a result, looking for the alternative site would not be feasible as the areas is already disturbed.
- The 132kV power line will replace the 88kV power line, which will be discontinued and dismantled. In this case, the new project will act more like a replacement of the activity.

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

**Alternative:**

**Latitude (S):**

**Longitude (E):**

Alternative S1 (preferred)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

S25°10'03.78"	E29°22'52.56"
S25°08'33.12"	E29°21'38.10"
S25°06'06.50"	E29°20'07.58"

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity


Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity


For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A.

**b) Lay-out alternatives**

No lay out alternatives have been considered at this stage as the alignment of the pylons would have to adhere to the approved route as chosen by the Department of Environmental Affairs as well as the specific technical requirements and site specific conditions. However, a typical corridor width of 500metres is usually assessed during the Environmental Impact Assessment Study, but in this case the assessment study will be limited to the already approved servitude. The proposed power line runs in between the 88kV and 22kV power lines..

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)

**c) Technology alternatives**

**No technology alternatives were assessed**

<b>Alternative 1 (preferred alternative)</b>
<b>Alternative 2</b>
<b>Alternative 3</b>

**d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)**

<b>Alternative 1 (preferred alternative)</b>		
Not considered in this application		
<b>Alternative 2</b>		
Not considered in this application		
<b>Alternative 3</b>		
Not considered in this application		

**e) No-go alternative**

The no-go alternative is also referred as the do-nothing alternative and looks at the situation where the proposed infrastructure will not be constructed. In this scenario the potential positive and negative environmental and social impacts as described will not occur. The status quo will be maintained.

Electricity is generated, supplied and distributed by Eskom via a network called a “Grid”. The amount of electricity being fed into the grid must always match what the customers are taking out. The amount of electricity required by the customers varies not just from day to day, but from minute to minute. As electricity demand increases, and loads are connected, more power stations and associated substations and lines need to be built to meet the electricity demands.

Eskom Grid Planning is responsible for establishing future electricity demands as a result of growth and development. Once an area has been identified where future growth will result in electricity constraints, methods for strengthening the grid to sustain future growth patterns is considered. The current 88kV is not sufficient to carry the requisite load and as such it will have to be de-established and then replaced by a 132kV power line to ensure a stable and efficient electricity supply for the future. After Eskom Grid Planning has identified the selected method to strengthen the grid, the power line between Groblersdal and Silimela substations which will be required for this project was identified. This project is required to strengthen the grid in order to ensure stable electricity supply. Without the proposed power line, the power outages will continue, the Strengthening Scheme project cannot take place and the grid can therefore not be strengthened.

If this project is not implemented, it will negatively impact the future electricity supply of the area That will subsequently affect the economic growth of the country at large.

**Paragraphs 3 – 13 below should be completed for each alternative.**

**3. Physical Size Of The Activity**

**a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):**

**Alternative:**

- Alternative A1<sup>1</sup> (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

**Size of the activity:**

	m <sup>2</sup>
	m <sup>2</sup>
	m <sup>2</sup>

or, for linear activities:

**Alternative:**

- Alternative A1 (preferred activity alternative)
- Alternative A2 (if any)
- Alternative A3 (if any)

**Length of the activity:**

	14.5km
	m
	m

---

<sup>1</sup> “Alternative A..” refer to activity, process, technology or other alternatives.

BASIC ASSESSMENT REPORT

b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Size of the site/servitude:

Alternative A1 (preferred activity alternative)  
 Alternative A2 (if any)  
 Alternative A3 (if any)

	36m
	m <sup>2</sup>
	m <sup>2</sup>

**4. Site Access**

Does ready access to the site exist?

YES	
	m

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

There is an existing access route to the project area. All 14 affected properties have access. The main access is found in approximately 3.4km from Groblersdal substation along road R25 between Groblersdal and Marble Hall. This road is the major road to access all the properties. It runs for about approximately 15km and has number of side junctions to access all the farms



Fig 3. A map showing the access roads, one mail access to all the farms in red

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

Access roads have been established linking to the proposed power line, which are those accessing farms and are enough, where access roads are not in good condition, there will be maintained using the same material as existing roads.

### 5. Locality Map

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

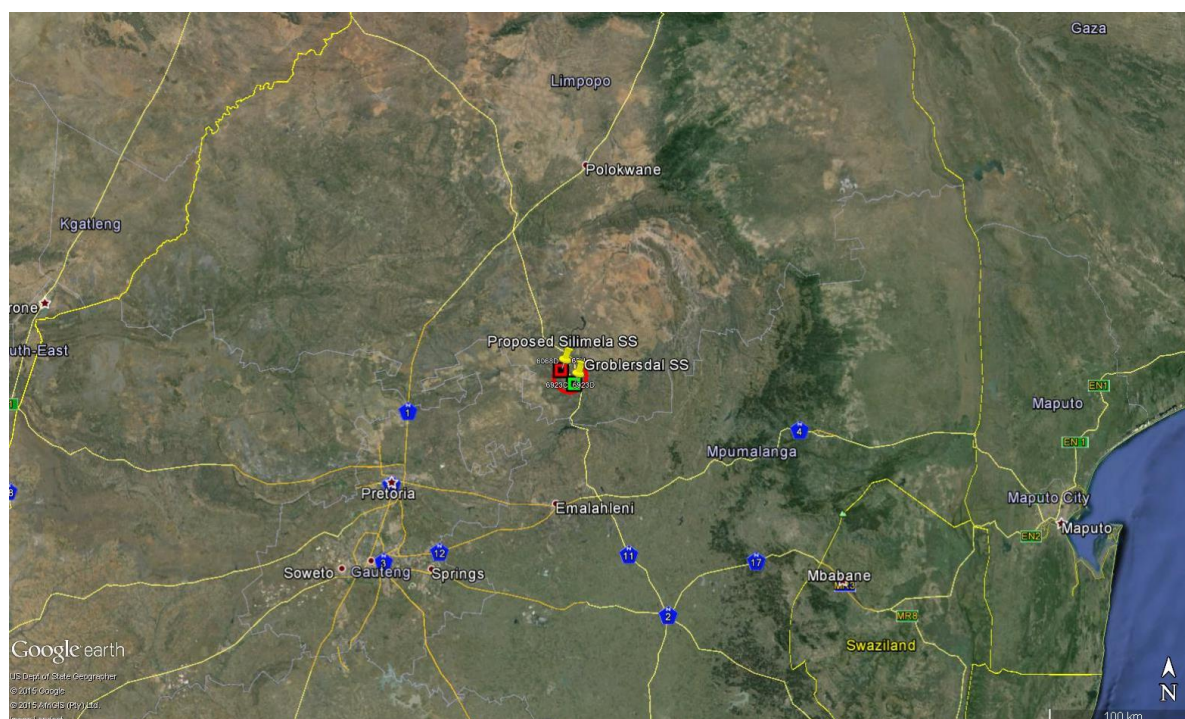


Figure 4: A Regional map showing the approximate location of the study area (red circle).



Figure 5: A locality map showing the project area in blue-pink colours and two towns i.e Groblersdal and Marble Hall. The map also show the two major access roads i.e R25 and N11 between Groblersdal and Marble Hall

Eskom Holdings (SOC) Limited Limpopo Operating Unit (LOU) proposes to establish a new 132kV power line to link between an existing Groblersdal Substation to the already approved Silimela Substation. The new power line is approximately 14.5 km Bersfort of 132kV and is described in pink colour on the map. The proposed power line starts from an existing Groblersdal Substation at GPS coordinates S25°10'04.57"E29°22'52.59" and connect with already approved 132kV power line at GPS coordinates S25°06'06.54" E29°20'07.00" that will join the already approved transmission Silimela substation at GPS coordinates S25°05'13.40" E29°17'44.51"

## 6. Layout/Route Plan

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and

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- a north arrow.

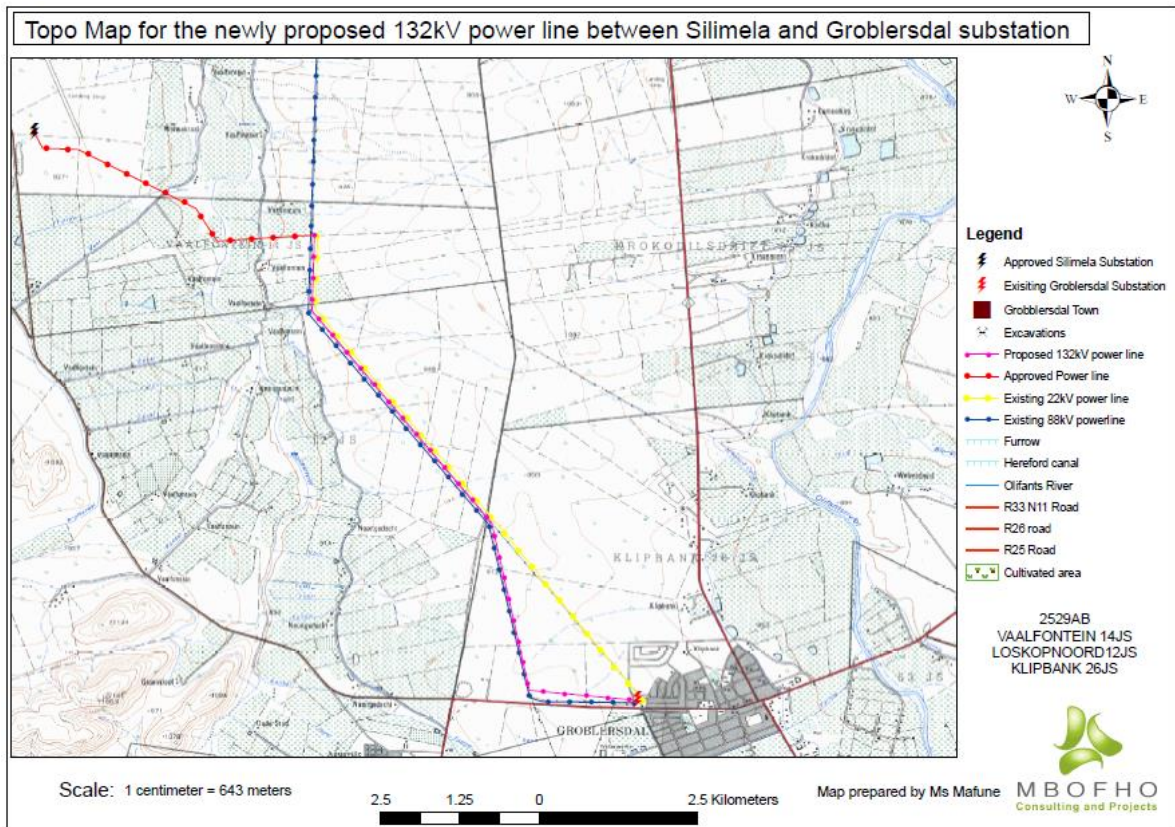


Fig 6: A Map shows the layout/ route plan of the proposed power line. It is also included as part of this report as Appendix C

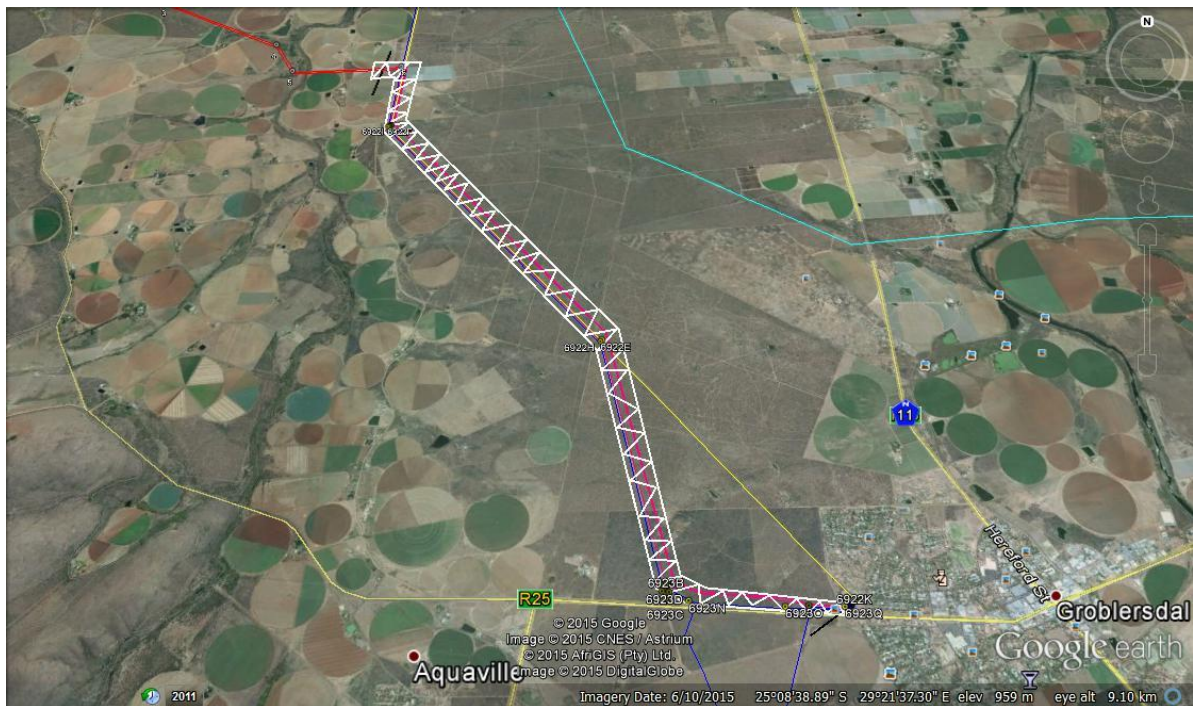


Fig 7: a map shows the layout/ route plan of the proposed power line in Google earth. It is also included as part of this report as Appendix C

### 7. Sensitivity Map

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

#### **Watercourses and 1:100 Year Flood Line**

The proposed power line is approximately 850m measured from the closest distance from the Moses River. The power line servitude is about 36m which is very far from the nearest point of the river, refer to the sensitive map below.

#### **Critical Biodiversity areas and areas with Indigenous vegetation**

According to the Botanical survey report, the study area investigated had a vegetation cover in a “poor state to fair state” with impacts related to grazing, cultivation, wood collection, settlement development, poor infra-structure maintenance and erosion. According to Mucina and Rutherford (2006) the study area consists of one vegetation type and the vegetation units fall within the Savanna Biome (SV) and the units form part of the Central Bushveld (cb) vegetation units. The vegetation unit known as the Central Sandy Bushveld (SVcb 12) (Mucina and Rutherford, 2006) (Figure 3). Earlier the Central Sandy Bushveld was known as the Mixed Bushveld and the Sourish Mixed Bushveld (Acocks, 1953) or Mixed Bushveld (Low and Rebelo, 1996).

The vegetation is dominated by: *Dichrostachys cinerea*, *Combretum apiculatum*, *C. zeyheri*, *Senegalia burkei*, *Vachellia robusta*, *V. tortilis*, *V. sieberiana*, *Peltophorum africanum*, *Sclerocarya birrea*, *Grewia monticola*, *Terminalia sericea*, *Searsia pyroides*, *S. leptodictya* and some *Strychnos pungens* with the grasses dominated



by *Eragrostis nindensis*, *Panicum maximum*, *Themeda triandra* and *Schmidtia pappophoroides*

According to the National Environmental Management Biodiversity Act (Act 10 of 2004) (NEMBA) the vegetation type is not listed as vulnerable (NEMBA, 2004). Permits for cutting, trimming and removal of *Sclerocarya birrea* must be acquired before clearing of the servitude can commence.

### Cultural and historical features

The Phase I HIA study for the proposed Eskom Similela Project did not reveal the presence of any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area.

There is consequently no reason from a heritage point of view why Eskom's proposed Silimela Project should not continue.

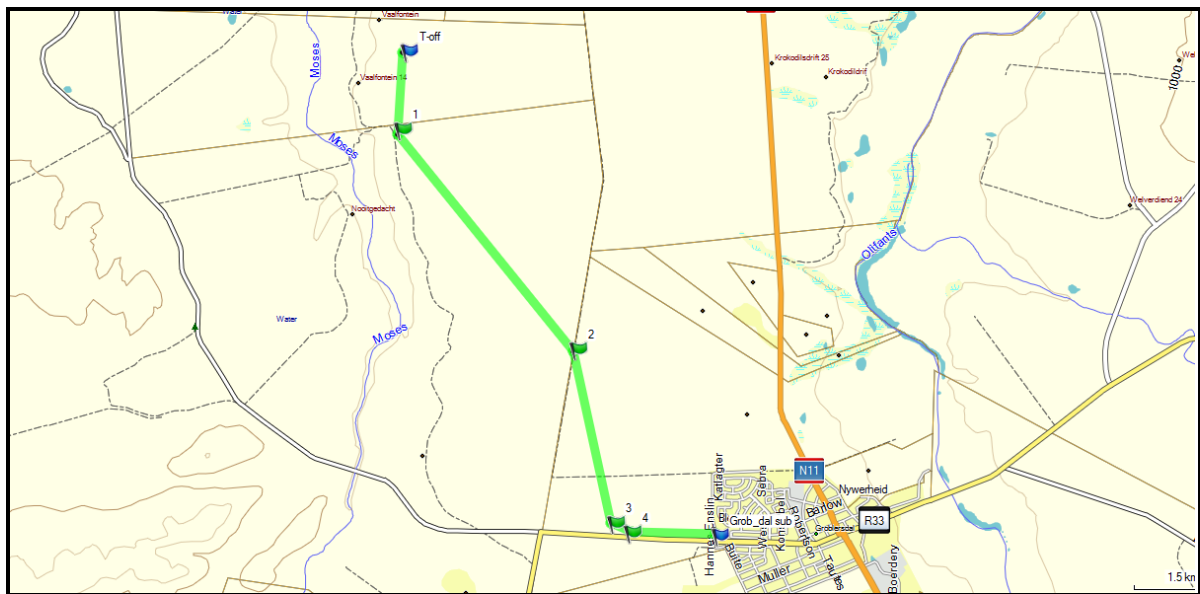


Fig 8: A sensitivity map of the proposed project area

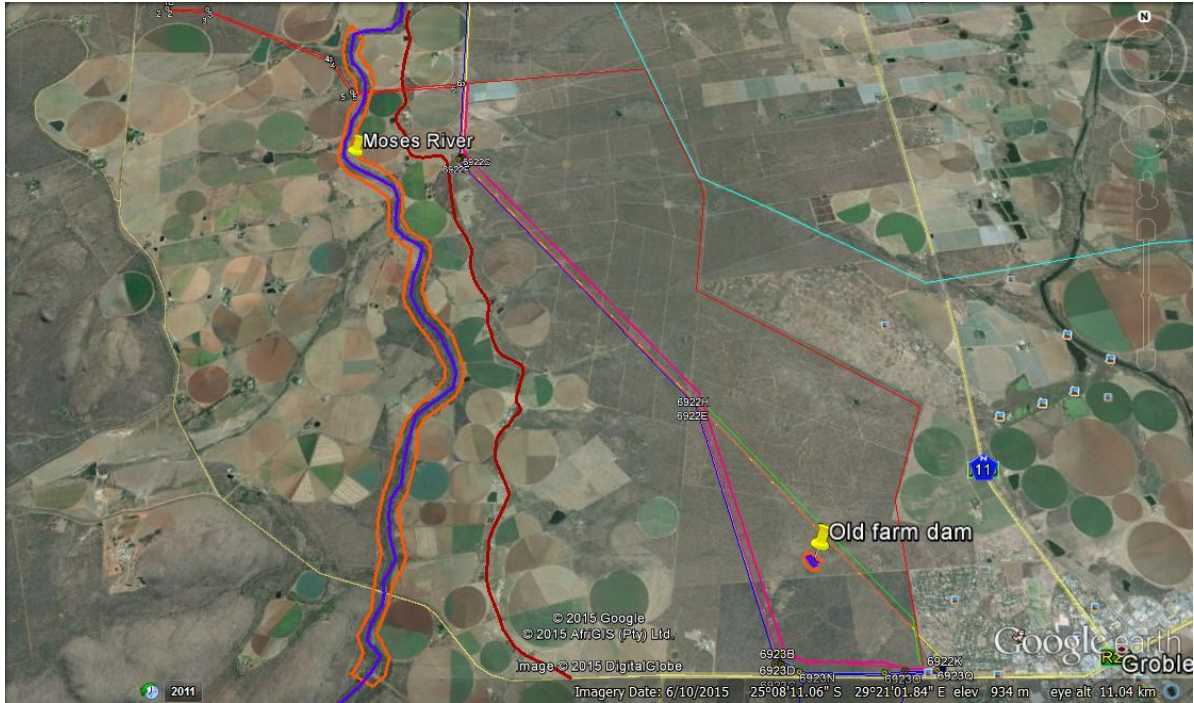


Fig 9: A sensitivity map of the proposed project area

## 8. Site Photographs

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.



Photo i: the photo showing the Groblersdal Substation



Photo ii: the photo showing the crossing of the road from Groblersdal Substation



Photo iii: Showing the position of the proposed 132kV power line, which will run in parallel with an existing 88kV power line and a the vacant servitude



Fig iv: Showing the vacant servitude and two existing power lines i.e 22kV



Fig v: The proposed 132kV will run on the left hand side of the existing power line



Fig vi: A view of dense woodland at the game farm



Fig vii: A view of current agricultural activities on the farm Vaalfontein, which will not be affected



Figure viii: showing the near tear off position

## 9. Facility Illustration

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.



Figure 10: Example of steel monopole structure to be used. The full illustrative details has been included under Appendix c

**10. Activity Motivation**

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES		Please explain
<p>The proposed power line will occupy the vacant servitude which is the current existing land use. The power line will be constructed between the existing 88kV and 22kV power line. The 88kV will then be discontinued and dismantled to give effect to the new 132kV power line</p>			

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<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	<b>YES</b>		Please explain
<p>The provincial Spatial Development Framework aims at building a prosperous, sustainable growing provincial economy to reduce poverty and improve social development. The proposed project will create job opportunities and enhance the current electrical supply in the Groblersdal area.</p> <p>There is huge load growth in the Groblersdal area contributed by the electrification load, new mining loads as well as the new residential developments in the area.</p> <p>The current Simplon 132/88kV network is currently experiencing low voltages on the 132kV side, the 88kV network thermal limits will be reached soon and therefore the network is unable to cater for the future load due to these constraints. Further the proposed upgrade will augment electrical supply and there reduce outages which will attract more economic activities such as mining</p>			
<b>(b) Urban edge / Edge of Built environment for the area</b>		<b>NO</b>	Please explain
<p>The project will not be at the urban edge. The activity is mostly traversing farms to connect with the Groblersdal substation and Silimela substations which are outside the urban edge</p>			
<b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b>		<b>NO</b>	Please explain
<p>The proposed project will not compromise the objectives of the Integrated Development Plan and the Spatial Development Framework but it will assist in making sure that the electrical infrastructure or facilities as outlined in the National Development Plan 2030 of the Republic of South Africa, is immensely enhanced.</p>			
<b>(d) Approved Structure Plan of the Municipality</b>		<b>NO</b>	Please explain
<p>Eskom is a State Own Company (SOC) and all electrical planning is done at the behest of Eskom. The development is necessitated by the need to increase more power to the area in order to support future developments such as mining, housing etc. But however, Elias Motsoaledi Local Municipality are aware of the project. Also as noted in the project description above, the proposed development falls within the existing vacant servitude</p>			
<b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b>		<b>NO</b>	Please explain
<p>The proposed project is limited to existing servitude. The development is about 850m away from Moses River and shall not affect any other protected and sensitive areas..</p>			
<b>(f) Any other Plans (e.g. Guide Plan)</b>		<b>NO</b>	Please explain
<p>During our Public Participation process, both Elias Motsoaledi Local Municipality and Sekhukhune District Municipality were consulted and the proposed power line does not impact on their plans.</p>			



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<p><b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b></p>		<p><b>NO</b></p>	<p>Please explain</p>
<p>The proposed development directly address the service delivery featuring prominently on the Local Municipality IDP and SDF</p>			
<p><b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b></p>	<p><b>YES</b></p>		<p>Please explain</p>
<p>During the stakeholder engagement, there was no objection to the proposed project raised except farming concerns by the affected farmers. The project will receive the positive support by the community as it addresses the electrical challenges. The proposed power line has the potential to create short term employment opportunities for the local community. Local people could be employed during the construction phase of the project manual labour. Further, the proposed project has potential to indirectly create both temporary and permanent jobs in future through mining and other developmental activities</p>			
<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	<p><b>YES</b></p>		<p>Please explain</p>
<p>Not applicable to this project</p>			
<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>		<p><b>NO</b></p>	<p>Please explain</p>
<p>The project takes place within the approved servitude of Eskom with no additional land required beyond the current footprint.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p><b>YES</b></p>		<p>Please explain</p>
<p>Eskom is the State Own Company (SOC) at the National level and all electrical planning is done at the behest of Eskom. The development is necessitated by the need to increase more power to the area in order to support future developments such as mining, housing etc. The project indeed addresses the issues of National concern as it aimed to supply electricity to the area, which in turn addresses the electrical/ power supply to the area/ Local Municipality which is one of the National Concern featuring in the Constitution, i.e the project addresses Basic Human needs.</p>			

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<b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b>	<b>YES</b>		Please explain
The proposed power line is within the approved servitude, which favours the project. The Impact Assessment and specialist studies indicated that the area is not environmental sensitive and recommended that the development may proceed			
<b>9. Is the development the best practicable environmental option for this land/site?</b>	<b>YES</b>		Please explain
The project involves the establishment of a new power line in order to address the current and future problems. The project area is within the approved servitude. There are no sensitive areas. The area is characterised by extensive agricultural activities such as irrigation and game breeding. Though there are some protected tree species such as <i>Sclerocarya birrea</i> , the developer will need Permits for cutting, trimming and removal. The EMPr will thus provide mitigation for any potential negative environmental impacts			
<b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b>	<b>YES</b>		Please explain
Electricity has become a fundamental need and precursor of development and improvement of people's quality of life. The establishment of power line will ensure that the continuous distribution of electricity to the area is fundamental. The proposed development aimed to augment the supply of electricity for the future mining, new residential areas and other activities and the entire area around Elias Motsoaledi local municipality. This establishment will boost the electrical supply of Elias Motsoaledi in general and will ensure that the local communities including Farming areas receive uninterrupted supply of electricity. This is considered to be the most feasible solution proposed by Eskom Holding (SOC) Limited Limpopo Operating Unit (LOU), to supply electricity to the area			
<b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b>		<b>NO</b>	Please explain
Local Municipality only deals with household supply of electricity, so the transmission and distribution is the ESKOM's responsibilities and as a result there will not be a precedent set if this proposed power line can be approved.			
<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>		<b>NO</b>	Please explain
No adverse impacts are anticipated from the proposed establishment of 132kV power line. The local farmers raised their concerns regarding irrigation areas and game breeding areas. Eskom Land and Rights will start the negotiations with the farmers subsequent to the issuing of an Environmental Authorisation			

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<b>13. Will the proposed activity/ies compromise the “urban edge” as defined by the local municipality?</b>		<b>NO</b>	Please explain
<p>Though the proposed power line does not affect the urban edge, but the proposed line would create a visual intrusion, however, the study area has various existing distribution lines traversing it. Furthermore, the proposed line will help ensure that there is continuous power supply in the surrounding areas. The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to an increase in the local GDP. The power line would ensure continuous and stable power supply in the area which would in turn stimulate growth, development and improve quality of life.</p> <p>However, it was envisaged that the proposed line would impact people (particularly farmers), slight environment and the local economy. To understand the potential impacts, specialists were appointed to conduct in-depth evaluations. The specialists appointed were:</p> <ul style="list-style-type: none"> <li>• Heritage Impact Specialist</li> <li>• Avifauna Specialist</li> <li>• Ecological Specialist</li> </ul>			
<b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b>		<b>YES</b>	Please explain
<p>The proposed establishment of new power lines would greatly contribute to the future electrical supply to the area. The establishment of Power supply integrate well with other major service deliveries such as water supply that would need electricity to pump. The motivation of this project looks into future mining operation in the area around Groblersdal in the Sekhukhune District, so this project appreciates the intentions of the Strategic Integrated Projects. When the project is finished, it would further help ensure that there is continuous power supply to the new mines, Groblersdal town, its surrounding rural communities and the entire Municipal area. The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to an increase in the local GDP. The power line would ensure continuous and stable power supply in the area which would in turn stimulate growth, development and improve quality of life. This project will also benefit the Rural Appraisal Development plans as all plans are depended on electricity supply.</p>			

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<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain
<p>The efficacy of the planned future mining and other business wholly depended on the reliable power supply network. The existing and potential new business opportunities to the local society will immensely increase due to the continuous power supply</p> <p>With the new project, Electricity shortages would decrease and the area would have a more stable and sustainable supply of electricity. The continuous power supply would encourage investors to contribute to local economic development and thus increase job creation. People would be able to use the stable electricity supply to development their own local enterprises and improve their exposure to the outside world through educational programs on television and radios.</p> <p>At local level, the construction phase will generate temporary employment and skills development as part of the project proponent's supplier development policies that guarantee local content in the execution of its infrastructure development programme. Local people could be employed during the construction of the power line for manual labour (e.g. for bush clearing and the digging of foundations).</p>	
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain
<p>No other need and desirability for the proposed project apart from supporting the infrastructure development programme in line with the Government's New Growth Path (NGP) and the National Development Plan to contribute to economic growth of the country. The proposed development is</p> <p>Electricity has become a fundamental need and precursor of development and improvement of people's quality of life. The proposed establishment of new power lines would greatly contribute to the future mining in the area. The establishment of Power supply integrate well with the other Government initiative programs such as mining development, service delivery, water supply, etc as without reliable electricity supply, these other services may not be realised. So this project appreciates the intentions of the Strategic Integrated Projects. When the project is finished, it would further help ensure that there is continuous power supply to the mining areas, agricultural fields, surrounding rural communities and the entire Municipal area. The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to the increase of the local GDP</p>	

17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The national development plan 2030 aims at:</p> <ul style="list-style-type: none"> <li>• Creating jobs. Create 11 million more jobs by 2030.</li> <li>• Expand infrastructure</li> <li>• Transform urban and rural spaces</li> <li>• Promote education and training.</li> </ul> <p>The proposed power line is an integral part of infrastructure development programme in line with the Government's New Growth Path (NGP) and the National Development Plan to contribute to economic growth of the country.</p> <p>Electricity has become a fundamental need and precursor of development and improvement of people's quality of life. The proposed establishment of new power lines would greatly contribute to the future mining in the area. The establishment of Power supply integrate well with the other Government initiative programs such as mining development, service delivery, water supply, etc as without reliable electricity supply, these other services may not be realised. So this project appreciates the intentions of the Strategic Integrated Projects. When the project is finished, it would further help ensure that there is continuous power supply to the mining areas, agricultural fields, surrounding rural communities and the entire Municipal area. The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to the increase of the local GDP</p>	

**18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**

Below are various elements of the EIA process discussed in relation to the relevant sub-sections complied with in Section 23 of NEMA:

<b>Compliance</b>	<b>Relevant sub-section in Section 23 of NEMA</b>
The EIA process is the selected environmental management tool.	<b>1</b>
Refer to 19 below	<b>2(c)</b>
The assessment performed identifies, predicts and evaluates actual and potential impacts, and provides for mitigation of such negative impacts.	<b>2(b)</b>
An EIA is performed before environmental authorisation is granted.	<b>2(c)</b>
A comprehensive public participation process has been followed in accordance with EIA Regulation GN R982 of 2014	<b>2(d)</b>
Impacts with significant effects have been brought to the attention of the competent authority in this report.	<b>2(e)</b>

The general objectives of Integrated Environmental Management have been taken into account in the development of the project by means of identifying, predicting and evaluating the actual and potential impacts on the environment (the basic assessment process). The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits and promote compliance with the principles of environmental management.

**19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.**

Sections 2(2) of the NEMA states:

“Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably”.

By constructing the power line (providing electricity), Eskom is giving effect to the above stated principle in NEMA.

Section 2(4) (f) states:

“The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured”.

The EIA process that has been undertaken for the proposed development has included a significant public participation component.

Further, the Project Proponent has a well-defined sustainability framework which takes into account all three dimensions of sustainable development, namely – economic, social and environment. With respect to environmental dimension, Eskom, a State Owned Company (SOC), is responsible for the planning and execution of electricity infrastructure projects and has a well-defined environmental governance framework which entails integration of environmental and sustainability issues from the early phases of planning development to final execution or construction phase. All these documents have been taken into account in the mitigation of environmental impacts both in the planning and execution phase.

**11. Applicable legislation, policies and/or guidelines**

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

The management and mitigation of the environmental impacts experienced during construction and operation is governed by environmental legislation. It is of utmost importance that this project is constructed and operated in compliance with all relevant environmental legislation whether National, Provincial and / or Local.

The environmental legislative framework and components for South Africa can best be unpacked and summarised as follows.

**11.1 The Constitution**

Section 24 of the Constitution of the Republic of South Africa Act, 108 of 1996 provides the basic right to an environment which is not harmful to a person’s health

or well-being, as well as to have the environment protected through legislation and any measures which:-

- • Prevent pollution and / ecological degradation;
- • Promote conservation;
- • Secures ecological sustainable development; and
- • The sustainable use of resources.

At the same time, Section 25 of the Constitution guarantees everyone the right of access to information which is essential for them to exercise their Constitutional right including any information pertinent to the environmental assessment (EA) or EIA process. For this reason, Public Participation is considered an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.

### 11.2. The National Environmental Management Act, 107 of 1998 (NEMA)

The National Environmental Management Act (NEMA) creates the fundamental legal framework that gives effect to the environmental right guaranteed in Section 24 of the Constitution and sets out the fundamental principles that apply to environmental decision making.

#### 11.2.1 The Principles of NEMA

The Principles of NEMA (Chapter 1) not only serve as a framework upon which Environmental Management is based (Section 2(1)(b)), but ensures that people and their needs are always considered (Section 2(2)). This is achieved through avoiding and minimising:

- Disturbance on ecosystems or loss of biological diversity (Section 2(4)(a)(i));
- Pollution and degradation of the environment (Section 2(4)(a)(ii)); and
- Negative impacts on the environment and people's environmental rights (Section 2(4)(a)(viii));

The principles of NEMA further require that a cautious, methodological approach be applied which takes into account knowledge or information gaps (Section 2(4)(a)(vii)) so that, as far as possible, all positive or negative impacts on the environment are considered and assessed in order to facilitate the decision-making process in mitigating these adverse impacts (Section 2(4)(a)(i)).

#### 11.2.2 Integrated Environmental Management (Chapter 5)

Section 24(1) of NEMA requires that the potential impacts of projects or activities must be considered, investigated, assessed and reported to the Competent Authority, while Section 24(2) empowers the Minister (or MEC) to identify such projects or activities which require authorisation. These activities are listed in Government Notice Regulation (GNR) 982 Gazette No 38282 of 04 December 2014 (Environmental Impact Assessment Regulations), R 983 Gazette No 38282 of 04 December 2014 Listing Notice 1 (activities requiring Basic Assessment); GNR 984 Gazette No 38282 of 04 December 2014 Listing Notice 2 (activities requiring



Scoping and Environmental Impact Assessment) and GNR 985 Gazette No 38282 of 04 December 2014 (activities requiring Basic Assessment dependent on provincial requirements) published in terms of Section 24D of NEMA. Section 24 (5) of NEMA empowers the Minister (or MEC) to draft regulations which provide a framework for the authorisation process, and which is provided in GNR 983 Gazette No 38282 of 04 December 2014.

In terms of Section 24F, failure to obtain environmental authorisation for listed activities constitutes an offence and, either jointly or severally, convicted persons can be fined up to R5 000 000 as well as face imprisonment for up to ten years.

### 11.3. Additional Acts and Frameworks

In addition to NEMA, the following Acts have some bearing on the proposed activities:

- Hazardous Substances Act, 15 of 1973;
- The Conservation of Agricultural Resources Act, 43 of 1983;
- Occupational Health and Safety Act, 85 of 1993;
- Development Facilitation Act, 67 of 1995;
- National Road Transport Act, 93 of 1996;
- Extension of Security Tenure Act, 62 of 1997;
- Basic Conditions of Employment Act, 75 of 1997;
- Prevention of Illegal Eviction from and Unlawful Occupation of Land Act, 19 of 1998;
- The National Water Act, 36 of 1998;
- South Africa National Road Agency and National Roads Act, 7 of 1998;
- The National Heritage Resources Act, 25 of 1999;
- Promotion for Administrative Justice Act, 3 of 2000;
- Mineral Petroleum Resources Development Act, 28 of 2002;
- The National Environmental Management: Protected Areas Act, 57 of 2003;
- The National Environmental Management: Biodiversity Act, 10 of 2004;
- The National Environmental Management: Waste Act, 59 of 2008;
- Traditional Leadership and Governance Framework Amendment Act, 23 of 2009;

Application to the DEA for Environmental Authorisation in terms of NEMA does however not absolve the applicant from complying with other statutory requirements, and in addition the following national and provincial legislation will apply inter alia to the project.

### 11.4. GN R 983 – The Environmental Authorisation process

Based on NEMA and GNR 983 Eskom requires Environmental Authorisation from the competent authority, the Department of Environmental Affairs. The provincial environmental authority, the Limpopo Department of Economic Development, Environment and Tourism (DEDET) will act as a commenting authority.

Application to the DEA for Environmental Authorisation in terms of NEMA does however not absolve the applicant from complying with the above mentioned



agriculture (11.4%) covering 15% of the province. Formal protected areas cover just over 11% of Limpopo.

There are 56 vegetation types in Limpopo. Of these, 24 (42%) are endemic to the province. According to NEMBA 2009, 7 of the 56 vegetation types found in Limpopo are threatened; 1 of these is considered critically endangered (Woodbush Granite Grassland) and 6 are considered vulnerable (Springbokvlakte Thornveld, Rand Highveld Grassland,

Northern Escarpment Dolomite Grassland, Lowveld Riverine Forest, Tzaneen sour Bushveld and Legogote Sour Bushveld). This represents 8.7% of the Limpopo Province. On the basis of the provincial focus of this assessment we motivate for Tzaneen Sour Bushveld to be considered endangered (from Vulnerable), and for Sekhukhune Plains Bushveld to be considered vulnerable (from least threatened).

There are also 5 listed threatened, non-vegetation type ecosystems in Limpopo, namely: Malmani Karstlands, Sekhukune Mountainlands, Sekhukune Norite Bushveld, Blouberg Forest and Mapungubwe Forest.

Together these ecosystems make up just over 1% of the province

Gorblesdal ares falls within the combination of Critical Biodiversity Area 2 and Ecological Support Area 2

12. **Waste, effluent, emission and noise management**

**a) Solid waste management**

Will the activity produce solid construction waste during the construction/initiation phase?

YES	
Unknown m <sup>3</sup>	

If YES, what estimated quantity will be produced per month?

How will the construction solid waste be disposed of (describe)?

The activity entails the establishment of a power line which would produce trivial quantity of waste, mainly solid waste. The excavation and use of rubbish pits during construction should be strictly prohibited. A waste disposal area will be designated within the active construction area and this should be equipped with suitable containers i.e. skips or bins of sufficient capacity and designed to contain and prevent refuse from being blown by wind, thereby preventing the potential pollution of surface water and surrounding areas by litter

Where will the construction solid waste be disposed of (describe)?

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Once the bins/skips are full they should (under normal circumstances) be taken to a registered landfill site for disposal. The closest registered landfill site will be at Groblersdal town under Elias Motsoaledi Local municipal landfill site which is about approximately 20km from the furthest point of the proposed project area.

The challenge will be the disposal of hazardous solid waste as currently there is no registered landfill site exists for hazardous waste in Limpopo Province.

As such, the following protocol will need to be followed with regard to the disposal of hazardous solid waste generated during the construction phase:

- Contractors are advised to use the existing Groblersdal municipal landfill site for general waste, upon agreement with the relevant structures and the correct procedures must be followed. Disposal waybills must be kept on file for inspection.
- Any recyclable waste should be dropped off at the Recycling Centre; Landfill (registered facility),
- As no facility exists in the Province for the disposal of hazardous waste, it is recommended by the EAP that proper storage be erected on site in which waste can be accumulated before transported to the nearest registered hazardous landfill facility;
- The waste storage area for both the storage of general and hazardous waste must be clearly indicated and demarcated to prevent unauthorised access. These containers should have a cover or a closing mechanism to avoid wind-blown waste and rain water filling the skips/containers; and

Upon disposal of waste by the Contractor or his agent, a disposal certificate must be issued and kept on site for the duration of construction and until a close-out audit has been undertaken. The hazardous waste which can be expected from the construction phase, include disposables such as oil cans or containers, lubricants and cement bags.

The disposal of waste is also addressed in the Environmental Management Programme (EMPr) for the proposed power line and substation development.

Will the activity produce solid waste during its operational phase?

If YES, what estimated quantity will be produced per month?

	NO
	m <sup>3</sup>

Solid waste is produced infrequently as the quantity of waste produced is primarily linked to equipment failures where parts need to be replaced. Due to the fact that the frequency of equipment failures cannot be predicted it is difficult for Eskom to determine monthly quantities of solid waste to be produced

How will the solid waste be disposed of (describe)?

The solid waste to be generated will be infrequent and comprise mainly blown transformers and equipment/components requiring replacement during the operation/maintenance of the power line and substation. Eskom has a procedure in place for waste collection and disposal.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

**BASIC ASSESSMENT REPORT**

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Elias Motsoaledi Local Municipal waste sites may be used for the disposal of small quantities of solid waste.  
Blown transformers and equipment will be transported to the Eskom Depot in Polokwane and disposed of by a waste contractor, which will be appointed upon commissioning of the substation.

Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?

Some of the components such as the substation transformer contains transformer oil or is treated with oil. These components will have to be discarded at hazardous waste disposal facilities. The oil will be drained from the blown transformer(s) and sealed in drums. The drums and blown equipment will be transported to the Eskom depot in Polokwane for disposal by an appointed waste contractor. The oil will only be disposed of should it be contaminated. Should the oil be free of contamination, the oil will be re-used.

*If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA? 

	<b>NO</b>
--	-----------

  
If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility? 

	<b>NO</b>
--	-----------

  
If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

**b) Liquid effluent**

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? 

	<b>NO</b>
--	-----------

  
If YES, what estimated quantity will be produced per month? 

	m <sup>3</sup>
--	----------------

  
Will the activity produce any effluent that will be treated and/or disposed of on site? 

	<b>NO</b>
--	-----------

  
*If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Will the activity produce effluent that will be treated and/or disposed of at another facility? 

	<b>NO</b>
--	-----------

If YES, provide the particulars of the facility:

<b>Facility name:</b>			
<b>Contact person:</b>			
<b>Postal address:</b>			
<b>Postal code:</b>			
<b>Telephone:</b>	<b>Cell:</b>		
<b>E-mail:</b>	<b>Fax:</b>		

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Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The Contractor will be educated on the Waste Disposal Options, i.e Any recyclable waste should be dropped off at the Recycling Centre; Landfill (registered facility),

### c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

	NO
--	----

If YES, is it controlled by any legislation of any sphere of government?

YES	NO
-----	----

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If NO, describe the emissions in terms of type and concentration:

N/A –.The activity does not release emissions into the atmosphere.

### d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

	NO
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

### e) Generation of noise

Will the activity generate noise?

YES	
-----	--

If YES, is it controlled by any legislation of any sphere of government?

YES	NO
-----	----

Describe the noise in terms of type and level:

Noise will be generated during vegetation clearing activities, by vehicles transporting equipment and construction activities around the power line. These impacts are not considered to be significant enough to warrant a formal assessment.

During operation the power line may produce a corona (low 'buzzing' or 'crackling' noise). A corona can be caused by water droplets forming on a conductor resulting in the breakdown of air molecules perceived as the crackling noise (Eskom GFS 0009 Revision 2 Document, May 2004). However, corona rings are used by Eskom on conductors to prevent / reduce the noise. In addition, the transformer within the substation will also produce a low level humming noise.

**13. Water Use**

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

<del>Municipal</del>				
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

N/A litres	
	NO

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

**14. Energy Efficiency**

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

Not applicable
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Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Not applicable
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## Section B: Site/Area/Property Description

**Important notes:**

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

The report makes use of maps to illustrate or describe the different aspects of the proposed power line corridor and associated access roads

- Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?  **NO**

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

**Property description/physical address:**

<b>Province</b>	Limpopo
<b>District Municipality</b>	Sekhukhune District Municipality
<b>Local Municipality</b>	Elias Motsoaledi Local Municipality
<b>Ward Number(s)</b>	32
<b>Farm name and number</b>	Vaalfontein 14 JS portion 4,6,18 Loskop Noord 12 JS portion 992, 993, 994, 995, 996, 997, 998, 999 Klipbank 26 JS portion 39, 47, 54
<b>Portion number</b>	Please refer to Appendix A
<b>SG Code</b>	Please refer to Appendix A

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

**Current land-use zoning as per local municipality IDP/records:**

The powerline transverse through Agriculture (crop and game breeding) but the proposed powerline is within the registered Servitude

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?  **NO**

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## 1. Gradient of the Site

Indicate the general gradient of the site.

### Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	-------------	-------------	--------------	-------------	------------------

## 2. Location In Landscape

Indicate the landform(s) that best describes the site:

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input checked="" type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

## 3. Groundwater, Soil and Geological stability of the site

Is the site(s) located on any of the following?

	Alternative S1:	Alternative S2 (if any):	Alternative S3 (if any):
Shallow water table (less than 1.5m deep)	NO	YES NO	YES NO
Dolomite, sinkhole or doline areas	NO	YES NO	YES NO
Seasonally wet soils (often close to water bodies)	NO	YES NO	YES NO
Unstable rocky slopes or steep slopes with loose soil	NO	YES NO	YES NO
Dispersive soils (soils that dissolve in water)	NO	YES NO	YES NO
Soils with high clay content (clay fraction more than 40%)	NO	YES NO	YES NO
Any other unstable soil or geological feature	NO	YES NO	YES NO
An area sensitive to erosion	YES	YES NO	YES NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the

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project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

The land type data for the sites was obtained from the Institute for Soil Climate and Water (ISCW) of the Agricultural Research Council (ARC). The land type data is presented at a scale of 1:250 000 and entails the division of land into land types, typical terrain cross sections for the land type and the presentation of dominant soil types for each of the identified terrain units (in the cross section). The soil data is classified according to the Binomial System (MacVicar et al., 1977). Well-drained, deep Hutton or Clovelly soils often with a catenary sequence from Hutton at the top to Clovelly on the lower slopes; shallow, skeletal Glenrosa soils also occur. Land types are mainly Bb, Fa, Ba, Bd and Ac (Mucina & Rutherford, 2006). The soil data was interpreted and re-classified according to the Taxonomic System (MacVicar, C.N. et al. 1991). Land capability is a function of the soil forms, topography and climate of an area. The land capability is limited to four categories namely: Arable, Wetland, Grazing and Wilderness.

For the Central Sandy Bushveld, the larger part of the southern and eastern part of the region is underlain by granite of the Lebowa Granite Suite and some granophyte of the Rashoop Granophyte Suite. In the north, sedimentary rock of the Waterberg Group dominates. (Mucina and Rutherford, 2006).

### Topography:

The undulating terrain occurs mainly in a broad arc south of the Springbokvlakte from the Pilaesberg in the west through hammanskraal and Grobersdal to GaMasemola in the west. A generally narrow irregular band along the north-western edge of the Springbokvlakte (including Modimolle) extending into a series of valleys and lower-altitude areas within the Waterberg (Mucina & Rutherford 2006).

The altitude of Sites One, Two and Three ranges between 300 – 900 meters above sea level

## 4. Groundcover

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition <sup>E</sup>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	Gardens
Sport field	<b>Cultivated land</b>	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “<sup>E</sup>” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

According to Mucina and Rutherford (2006) the study area consists of one vegetation type. The vegetation units fall within the Savanna Biome (SV) and the units form part of the Central Bushveld (cb) vegetation units. The vegetation unit

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known as the Central Sandy Bushveld (SVcb 12) (Mucina and Rutherford, 2006). Earlier the Central Sandy Bushveld was known as the Mixed Bushveld and the Sourish Mixed Bushveld (Acocks, 1953) or Mixed Bushveld (Low and Rebelo, 1996). The Central Sandy Bushveld is distributed in the Gauteng, Limpopo, North West and Mpumalanga provinces. The habitat varies from flat open areas (Springbokvlakte) through undulating areas to Mountains (Pilansberg and Waterberg) and the altitude varies between 850 and 1 450m (Mucina and Rutherford, 2006).

### Conservation

The Central Sandy Bushveld is vulnerable and only 3% of the targeted 19% is conserved. Approximately 24% is transformed, mostly cultivation (19%) and some urban areas. Alien Plants include: *Cereus jamacaru*, *Eucalyptus spp.*, *Lantana camara*, *Melia azedarach*, *Opuntia ficus-indica* and *Sesbania punicea* (Mucina and Rutherford, 2006). The following protected trees are listed in the veld type: *Sclerocarya birrea* and *Vachellia erioloba*. In the case of *Vachellia erioloba*, the habitat for it (deep, red sand) was not present in the corridor

### 5. Surface Water

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO	UNSURE
Non-Perennial River	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE
Estuarine / Lagoonal wetland	YES	NO	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The proposed power line is approximately 850m measured from the closest distance from the **Moses River**. The power line servitude is about 36m which is very far from the nearest point of the river, refer to the sensitive map below.

### 6. Land Use Character Of Surrounding Area

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site

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High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	Mountain, koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
Power station	Major road (4 lanes or more) <sup>N</sup>	Historical building
Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)		NO
Core area of a protected area?		NO
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO
Buffer area of the SKA?		NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

### 7. Cultural/Historical Features

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

		NO
	Uncertain	

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

The Phase I HIA study for the proposed Eskom Similela Project did not reveal the presence of any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area.

Will any building or structure older than 60 years be affected in any way?

	NO
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Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

	NO
--	----

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

## 8. Socio-Economic Character

### a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

Based on the 2011 definition of Economically Active Population (EAP) the unemployment rate is reflected at 42,9 which although high and cause for concern Is lower than both the District and Province levels.

42,9% of the population is unemployed and the 57,1% of the population is employed

Economic profile of local municipality:

The Groblersdal area plays an important role in the local economy of Elias Motsoaledi Local Municipality, in terms of agriculture and manufacturing sectors. The total Gross Value Added (GVA) of these two sectors in the Groblersdal Area is significantly higher than the other parts of the municipality. The municipality developed an LED strategy to obtain a better understanding of its economic features and develop strategies geared towards stimulating sustained economic growth in the municipal area. The results of this study are used to outline the economic situation as part of the IDP review however; the strategy needs to be reviewed to capture the current economic situation of the municipality The economic analysis provides an overview of the economic structure and performance of the EMLM area within the context of both the District and Provincial economy. It starts off by providing a comparative overview of the economic performance and the importance and contribution of various economic sectors and a detailed analysis of each individual sector of the local economy

Currently there are intensive agricultural activities under five irrigation schemes in and around Groblersdal which covers a total surface area of 28 800 ha. Groblersdal is the centre of a partly progressive farming community. The total economic production in the agricultural sector within Elias Motsoaledi is mostly concentrated within the town of Groblersdal. The following products are cultivated here:

- Grapes
- Wheat
- Tobacco
- Maize
- Soya Beans
- Citrus Fruits
- Cotton
- Vegetables

There appears to be agricultural activity that often goes unnoticed as a significant contributor to the local GVA, especially at the community level. There is undeniable growing economy which is not part of the main stream agricultural economy. The municipality supported four agricultural cooperatives in 2011/12 financial year with the procurement of production inputs and thus creating 141 jobs

The percentage growth in total employment in the three magisterial districts, which forms part of the EMLM, is depicted in figure above. This information indicates that the number of employment opportunities in the wholesale and retail trade sector has increased by as much as 127% over the period 1996 to 2005.

Other strongly growing sectors have been the construction sector (83%) and the community, social and personal services sector (42%).

An aspect of concern is that the total number of employment opportunities in the agricultural sector has decreased by 17.8% over the same period.

### Level of education:

IDP indicated that 45.7% of the adult population has not received any form of schooling and that a further 10.7% has only completed some form of primary education. Moreover, only 11.9% of the adult population completed Grade 12 and only 4.5% have some form of higher education.

The functional literacy rates within the study area are lower than the comparative provincial literacy rate of 64.8% in 2005. The functional literacy rate within the Elias Motsoaledi Local Municipality ranges between 57.7% in the Moutse Magisterial District to 59.9% in the Nebo District. There was also a significant increase in the overall functional literacy rates in all three magisterial districts between 1996 and 2005.

### **Educational challenges**

- Inadequate provision of learning materials

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- Renovation of old schools including the construction of administration blocks
- Additional classrooms in some of the schools
- Provision of water and sanitation services to schools

**b) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	R 120 Million
What is the expected yearly income that will be generated by or as a result of the activity?	R (Unknown)
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unknown
What is the expected value of the employment opportunities during the development and construction phase?	R(Unknown)
What percentage of this will accrue to previously disadvantaged individuals?	%(Unknown)
How many permanent new employment opportunities will be created during the operational phase of the activity?	(Unknown)
What is the expected current value of the employment opportunities during the first 10 years?	R(Unknown)
What percentage of this will accrue to previously disadvantaged individuals?	% (Unknown)

**9. Biodiversity**

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

**a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area	Other Natural Area	No Natural Area Remaining	The Groblersdal area in general falls within the Critical Biodiversity Area 2 and Ecological Support Area 2



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	(ESA)X	(ONA)	(NNR)	

Dr Wynand Vlok (Pr. Sci. Nat. – 400109/95) Biodiversity specialist was engaged and he corroborated the assertion that the biodiversity has been transformed due to the agricultural activities. Part of his report (which is attached under annexure) indicated that the approximately 24% of the natural vegetation is transformed, mostly cultivation (19%) and some urban areas.

Three red data species supplied by SANBI (2015) occur in the ¼ degree for the study site. The following protected trees are listed in the veld type: *Sclerocarya birrea* and *Vachellia erioloba*. In the case of *Vachellia erioloba*, the habitat for it (deep, red sand) was not present in the corridor

According to in the National Environmental Management Biodiversity Act (Act 10 of 2004) (NEMBA) the vegetation type is not listed as vulnerable (NEMBA, 2004).

### b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	40%	There is still large portion of the area in good Natural habitat. Part of the reason is the Municipality area that has been fenced and the game breeding areas
Near Natural (includes areas with low to moderate level of alien invasive plants)	20%	Over grazing, cultivation, bush tracks and wood harvesting have compromised most part of the habitat condition
Degraded (includes areas heavily invaded by alien plants)	10%	Due to overgrazing
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	30%	Cultivation

**c) Complete the table to indicate:**

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
<b>Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</b>	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	NO	NO	UNSURE	YES	NO	YES	NO

**d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)**

According to Mucina and Rutherford (2006) the study area consists of one vegetation type. The vegetation units fall within the Savanna Biome (SV) and the units form part of the Central Bushveld (cb) vegetation units. The vegetation unit known as the Central Sandy Bushveld (SVcb 12) (Mucina and Rutherford, 2006). Earlier the Central Sandy Bushveld was known as the Mixed Bushveld and the Sourish Mixed Bushveld (Acocks, 1953) or Mixed Bushveld (Low and Rebelo, 1996). The Central Sandy Bushveld is distributed in the Gauteng, Limpopo, North West and Mpumalanga provinces. The habitat varies from flat open areas (Springbokvlakte) through undulating areas to Mountains (Pilansberg and Waterberg) and the altitude varies between 850 and 1 450m (Mucina and Rutherford, 2006).

**Conservation**

The Central Sandy Bushveld is vulnerable and only 3% of the targeted 19% is conserved. Approximately 24% is transformed, mostly cultivation (19%) and some urban areas. Alien Plants include: *Cereus jamacaru*, *Eucalyptus spp.*, *Lantana camara*, *Melia azedarach*, *Opuntia ficus-indica* and *Sesbania punicea* (Mucina and Rutherford, 2006). The following protected trees are listed in the veld type: *Sclerocarya birrea* and *Vachellia erioloba*. In the case of *Vachellia erioloba*, the habitat for it (deep, red sand) was not present in the corridor

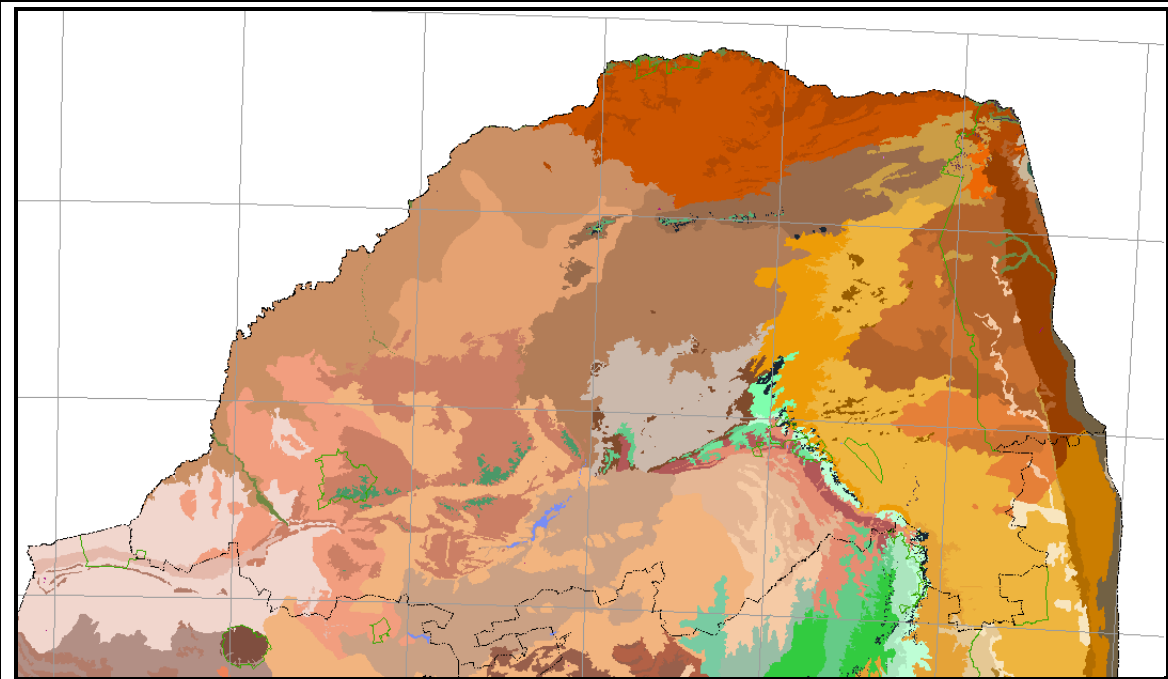


Fig 11: Regional vegetation map: vegetation map in the Limpopo Province according to Mucina and Rutherford (2006).

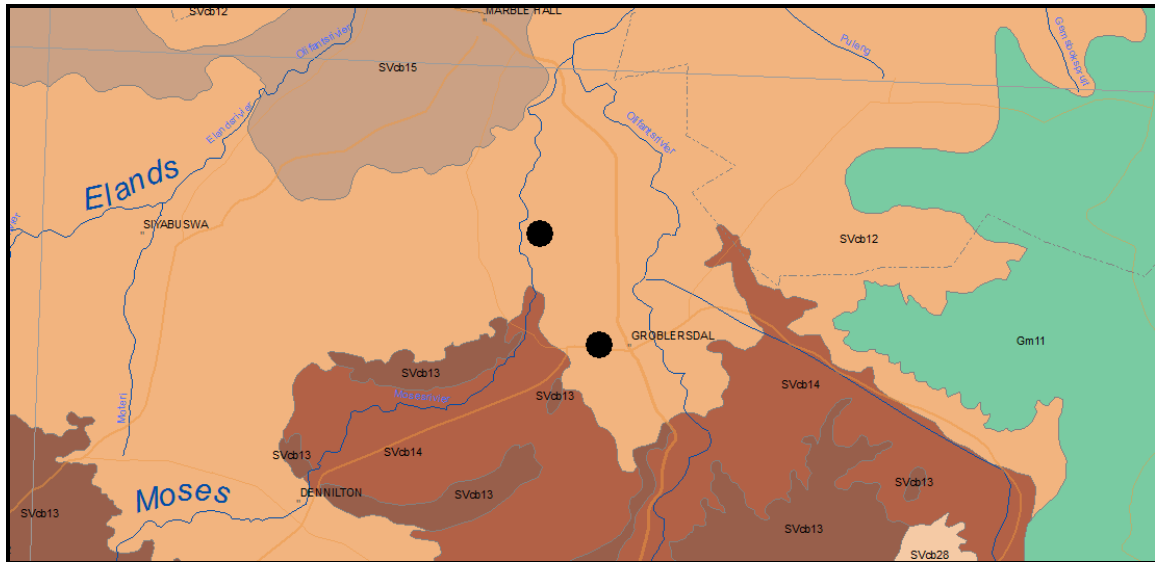


Fig 12: Vegetation type found in area of the proposed project

## Section C: Public Participation

Public participation is a continuous two way communication process aimed at promoting full public understanding of the processes and mechanisms through which environmental problems and needs are investigated and solved by the responsible agents. It is aimed at keeping the public informed about the status and progress of the studies conducted and the implications of the project thereof as well as document all issues, comments and concerns voiced by the public and their preferences regarding resource use and alternative development or management strategies and any other information and assistance relative to the decision.

The Stakeholder Engagement Process as it is referred to by the Department of Environment and Tourism (formerly DEAT) is a "...process leading to a joint effort by stakeholders, technical specialists, the authorities and the proponent who work together to produce better decisions than if they had acted independently". The process aims at improving "...communication between stakeholders – including the proponent – in the interest of facilitating better decision-making and or sustainable development".

Sustainable development requires some level of trade-off between economic growth, social equity and ecological integrity. The stakeholder engagement process provides an opportunity for Interested and Affected Parties (I&APs) to participate in an informed bases and ensure their needs and requirements are considered and allows the decision-making authority to understand to what degree stakeholders are willing to accept and live with the tradeoffs involved.

The objectives of the stakeholder engagement process for the proposed project can thus be summarized as follows:

- ✓ to inform and provide the public with information and an understanding of the project, issues and solutions;
- ✓ identify relevant individuals, organisations and communities who may be interested in or affected by the proposed development;
- ✓ identify key issues and concerns, raised by I&APs, that should be addressed in the subsequent specialist investigations which are part of the BA;
- ✓ identify shortcomings and gaps in existing information;
- ✓ identify viable project alternatives that will assist the relevant authorities in making an informed decision;
- ✓ clearly outline the scope of the project, including the scale and nature of the proposed activity; and
- ✓ highlight the potential for environmental impacts, whether positive or negative.

### 1. Advertisement and Notice

The newspaper adverts was placed on the following newspapers informing and inviting members of the public and any other interested and affected parties (I&APs) to comment on the proposed project:

- a) Daller Newspaper advertised on the 26 June 2015 in both English and Afrikaans (**See Appendix E1**)

In addition, pamphlet notices and background information documents (BID) were distributed to the identified land owners, potential stakeholders and I&APs. (**See Appendix E2**). Distribution was done on the 24 June 2015. The site notices were placed on the fences of the affected farms and also at the Groblersdal substation

The purpose of the BID was to provide stakeholders with introductory information on the proposed project, the BA and the stakeholder engagement process. The BID also provided stakeholders who are interested in the project with the opportunity to register as stakeholders by way of requesting and completing the registration sheet distributed with the BID. Information on the registration sheet has been used to register stakeholders on a database to receive all project-related information and invitations to meetings. The registration sheet included a section for comments and issues, which allows stakeholders an opportunity to provide the consultants with written comments and feedback.

### 2. CONTENT OF ADVERTISEMENTS AND NOTICES

Advertisements and notices must indicate that an application will be submitted to the competent authority in terms of the BA regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made:

See the following appendices for the contents of adverts and site notices:

- . a) Appendix E1 – Site Notices and Newspaper advert
- . b) Appendix E2 – BID
- . c) Appendix E3 – Comments and Response
- . d) Appendix E4 – Notification letters
- . e) Appendix E5 – List of Registered Interested & Affected Parties
- . f). Appendix E6 – Attendant register and Minutes

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### 3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

To inform surrounding the public, I&APs, communities and immediately adjacent landowners of the proposed project, site notices were placed at various sites and locations which are visible and accessible along the route towards the proposed site on the 24 June 2015. Site notices were placed at the following points (See Appendix E1):

#### Advertisement and Notice

<b>Publication name</b>	Daller News	
<b>Date published</b>	26 June 2015	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	S25° 07' 34.22"	E29° 20' 47.63"
<b>Date placed</b>	24 June 2015	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

### 2. Determination of Appropriate Measures

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2)(b) of GN R.543:

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
GEORGE BARNARD	Land owner: Vaalfontein 14 JS Portion 4 and 6 MORGAN TRADING PTY LTD	Cel: 082-322 7471 Tel:0716039306 Email: <a href="mailto:morgantrading@ctecg.co.za">morgantrading@ctecg.co.za</a>
WILLEM JACOBUS VAN DER MERWE	Land owner: Vaalfontein 14 JS portion 18	Tel: 0132622751 /2045 Cel: 0829294206 / Email: <a href="mailto:wdv.vandermerwe@gmail.com">wdv.vandermerwe@gmail.com</a>
DANIEL NEL PRETORIUS	Land owner: Loskop Noord 12 JS portion 999	Phone (Home) 0113262304 Phone (Work) 0116717800 Cel: 0823162000
MR HENRI FERREIRA.	Land owner: New Owner is Loskop Noord 12 JS portion 992	Cel: 082 898 2181
JOHANNES JACOBUS WENTZEL	Land owner: Loskop Noord 12 JS portion 993 and 998	013 262 4387 082 788 3377
LOUIS JOHANNES BEYERS ROSSOUW	Land owner: Loskop Noord 12 JS portion 997	'0132624013 / 082 783 1355
JACO KOTZE	Land owner: Loskop Noord 12 JS portion 994, 995 and 996	Cel: 0827899168 Email: <a href="mailto:admin@jwvervoer.co.za">admin@jwvervoer.co.za</a>
CAREL WILLEM MEYER	Land owner: Klipbank 26 JS portion 54	Tel: 0132454252 / 0132454252 Cel: 0823880583 Email: <a href="mailto:calimari@vodamail.co.za">calimari@vodamail.co.za</a>
JOHAN VAN DYK FAMILIE TRUST KARIN	Land owner: Klipbank 26 JS portion 47	Tel: (013) 262 4061 Cel: 082 952 7089 Email:

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		<a href="mailto:karin@tmnissan.co.za">karin@tmnissan.co.za</a> <a href="mailto:cindy@tmnissan.co.za">cindy@tmnissan.co.za</a>
ELIAS MOTSOLEDI LOCAL MUNICIPALITY	Land owner: Klipbank 26 JS 39	Tel. 013-2623056x1100 / 0716054547
NIEL TERBLANCHE	I&AP: Niel Terblanche:	Cel: 076 332 6831

Include proof that the key stakeholder received written notification of the proposed activities as **Appendix E3**. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

### 3. *Issues raised by interested and affected parties*

#### **Issues Raised by I&AP**

C.W Meyer raised the following issues:

Most of my questions and concerns are answered in this report. My main concern is the effect it will have on the game as well as the security of the animals.

The access control of the farm is extremely important.

As I am farmer near Middelburg Mpumalanga, I will not be able to stay on the farm during the work process.

I would also prefer not to locate a campsite on my property.

If the project is going according to this report, together with all the precautions that is mentioned to be taken to ensure that the environmental impacts are minimal, I do not foresee any problems.

#### **M Wentzel Attorneys on behalf of Mr LJB Rossouw:**

Construction of a further powerline will adversely affect his cattle farming, which is greatly influenced by the location of the proposed power line

He reserves the rights to claim any impact of the power line on his farming enterprise. The impact will be determined by the width and exact location of the power line.

Also to note that the construction process should take place in strict consultation and according to the rules set by the owner, who reserves the rights to claim damages if caused by Eskom's workers or agents

**M Wentzel Attorneys on behalf of Mr J.J Wentzel:**

He intends to expand the new planted table grape Vineyard to the proposed project area. The table grape vines (planting material) have been already been ordered.

The proposed powerline will affect the quantity of grape vines to be planted which will affect the income from the vineyard.

It is important that the area to be affected by the proposed powerline be surveyed and indicated before the construction of the vineyard commences. Failure to do will result in cost wasted by the owner which will in turn be recovered from Eskom

During the construction, the landowner will only allow access for construction under his supervision and with prior consultation about the process, access etc.

**M Wentzel Attorneys on behalf of Mr H Ferreira:**

The game farm with scarce species:

The game like Kudu and Nyala feed, shelter and breed in dense bush areas. Any removal of the bush will adversely affect our client's farming enterprise.

Due to the sensitive nature of his farming enterprise and the high value of the game, it is extremely important that all construction activities will take place in strict consultation and in accordance with the instructions of Mr Ferreira.

**M Wentzel Attorneys on behalf of Mr Willem J van der Merwe:**

The farm has scarce game species which include high value colour variants.

The farmer sold one of the Saddleback Impala for R2 100 000.00 and Black Impala ewe for R420 000.00 each.

The farmer indicated that the colour variant Impala may fail to breed and even die as a result of stress caused by changed circumstances. The circumstances that may cause stress includes for instance louse noise, people moving around in the camps where the game is kept. The game may not be moved to another camp as the mortality thereof of very high.

It is there important that any construction process on the farm must be in strict consultation with the owner and strictly according to the rules he set. The farmer reserves the rights to claim any damage as a result of mortality or failure to breed due to Eskom's construction of the power line.

It is further important to note that the game species kept by the farmer prefers dense bush and therefore any clearing of bush will result in the remaining area to affect the



quantity of game to be kept.

**M Wentzel Attorneys on behalf of Mr D.N Pretorius:**

The game farm with scarce species which are high in value:

The game kept prefers dense bush areas and any clearing of bush will result in the moving of the game to other areas on the farm, which will result in overpopulation on the other parts of the farm. This can result in the minimizing the number of the game on the farm which will affect the farmer's income from his farming activities.

A further power line will also restrict game capture by the farmer which adversely affects his income. . It is extremely important that the construction process takes place in strict consultation with the owner and strictly according to the rules he set. The farmer reserves the rights to claim any damage if caused by Eskom's workers or agents

**4. Comments and Response Report**

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

Summary of main issues raised by I&APs	Summary of response from EAP
Land owners with game breeding wanted to know the structure type, height and specific design of the power line as they have animals on the farm	The EAP and Eskom representative presented the type and height of the monopoles to be used and they were satisfied
Access control to the farms (General) Game breeding farmers are concerned about the security of their stock. The farmers suggested to use their own security.	It was said that the issue of the security will be included in the EMPr. The EAP further said that the program that will indicate the time at which they will be working on their farms will be communicated with the Farmers.
Exotic game breeding and its sensitivity (specific to the Exotic Saddle and other game)(Security issue)	It was said that the issue of the security will be included in the EMPr. The EAP further said that the program that will indicate the time at which they will be working on their farms will be communicated with the Farmers.
The issue was around the Irrigation system already installed and chances are that the new power line maybe impacted on the new system	The issue will be communicated with Eskom Land and Rights
Bush clearing which will have impact on	The extent of the bush clearing will be

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the grazing of the game breeding	discussed with Eskom, who will later negotiate with the land owner through their Land and Rights Representatives

### 1. Authority Participation

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address

Name	Authority/ Organ of State	Cell/tel number	e-mail address
Mr Dumisani Hlongwane	Department of Water and Sanitation (Mpumalanga)	Tel: 013 932 2061 Fax: 013 932 2071	<a href="mailto:hlongwane@dwa.gov.za">hlongwane@dwa.gov.za</a>
Ms Ndina Mudau / Mr Thapelo Machate	Department of Agriculture, Forestry and Fisheries (DAFF)	Tel: 015 291 1200/ 015 5193300 Fax: 0155161062/ 0865715711 Cel: 083 610 7122	<a href="mailto:ThapeloMAC@daff.gov.za">ThapeloMAC@daff.gov.za</a>
Mr S.W Mothapo	Limpopo Department of Economic Development Environment and Tourism	Tel: 015 290 7000 / 015 290 7156 Fax: 015 295 5015	<a href="mailto:MothapoSW@ledet.gov.za">MothapoSW@ledet.gov.za</a>
Ms Susan Molele/ Mokgadi Miyen	Department of Rural Development and Reform	015 297 3539	<a href="mailto:tsmolele@ruraldevelopment.gov.za">tsmolele@ruraldevelopment.gov.za</a>
Maria Galimberti	SAHRA	Tel: 0214624502 Fax: 0214624509	<a href="mailto:info@sahra.org.za">info@sahra.org.za</a>
Ntsoane S.E	Department of Agriculture	Tel: 0152943443 Fax: 0156326303	<a href="mailto:Ntsoanee@agric.limpopo.gov.za">Ntsoanee@agric.limpopo.gov.za</a>
Mr D Lithole/ Mrs Vhonani Portia Ramalamula	Limpopo Heritage Resources Authority (LIHRA)	Tel: 015 284 4039 Cell: 076 621 1113	<a href="mailto:ramalamulap@sac.limpopo.gov.za">ramalamulap@sac.limpopo.gov.za</a>

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

Organ of State	Comments raised	How comments were addressed
Limpopo Heritage Resources Authority (LIHRA)	LIHRA did not issue comments	The EMPr took note of Phase I HIA which did not find any sites of cultural significance. The

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		EMPr also cautioned that should heritage resources of any nature including archaeological sites be uncovered during development, LIHRA/SAHRA and a professional heritage specialist must be contacted immediately
Department of Economic Development, Environment and Tourism (DEDET)	<ul style="list-style-type: none"> <li>The study should take into account the Limpopo Conservation Plan (LCP)</li> <li>The comments and response section which details out the concerns raised by the interested and Affected Parties and how they have been addressed be compiled and appended to the report</li> <li>Should address requirements as per Appendix 1: Basic Assessment Process of the 2014 EIA Reg. The EAP should develop a checklist in a tabular form outlining the requirements of Appendix 1 and provide reference for where such information has been provided</li> </ul>	<p>The LCP document was utilised during the impact assessment phase</p> <p>The comments and response have been included</p> <p>The checklist addressing Appendix 1 has been compiled and attached to this report</p>
Department of Rural Development and Land Reform	No Comments received	
Department of Agriculture, Forestry and Fisheries (DAFF)	<p>Protected tree species should not be removed without a permit.</p> <p>The project area has <i>Sclerocarya birrea</i> subsp. <i>Caffra</i>, which is protected in terms of National Forest Act, 84 of 1998</p> <p>The Department do not foresee more trees to be removed as the proposed development is a linear</p>	Noted and will be included in the EMPr
Elias Motsoaledi Local Municipality	No comments received	
Department of Water and Sanitation	<ul style="list-style-type: none"> <li>The Applicant shall conduct a preliminary legal assessment to identify all the water use activities associated with the proposed project that will require authorization by the DWS and the applicant is</li> </ul>	Noted

	<p>hereby referred to section 22(1) of the National Water Act, 1998 (Act 36 of 1998).</p> <ul style="list-style-type: none"><li>• Therefore any other water use related activities associated with this project that are not permissible as indicated on section 22(1) of the National Water Act, 1998 (Act 36 of 1998) shall have to be authorized by the DWS prior to such water use activities taking place and the applicant is requested to liaise with the DWS for guidance on the requirements for such an authorization.</li><li>• Wetlands: An indication shall be provided on the availability of any wetlands and rivers within the area surrounding the proposed project. Any activity that will fall within 500 m radius from the boundary of a wetland and/or within the 1:100 year floodline or delineated riparian habitat, whichever is the greatest, from any watercourse will require a water use authorization in terms of the National Water Act, 1998 (Act No. 36 of 1998). The applicant must therefore conduct a wetland delineation study.</li><li>• Storm water Management: the applicant is required to prepare and implement an adequate storm water management plan to prevent pollution on run-off.</li><li>• Sanitation: The DWS requires information regarding sewage management during construction and operational phase of the proposed development before any</li></ul>	
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	<p>construction can take place.</p> <ul style="list-style-type: none"><li>• Storage of oil, diesel, hydraulic fluids and grease: It is recommended that the storage areas for these fluids be bunded in such a manner that any spillages can be contained and reclaimed without causing any pollution to the ground and surface water resources.</li><li>• Pollution incidents: The applicant is referred to section 19 (1) of the National Water Act, 1998 (Act No. 36 of 1998), and to report any pollution incidents originating from the proposed project to the Regional Office of DWS within 24 hours.</li></ul>	
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In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

## 2. Consultation with Other Stakeholders

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

## Section D: Impact Assessment

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

### 1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A (2) of this report.

#### METHODOLOGY APPLIED FOR THE ASSESSMENT OF POTENTIAL IMPACTS

All impacts identified during draft Basic Assessment stage of the study will be classified in terms of their significance. The broad significance categories are as follows:

The **Nature** of the impact: This will describe the cause and the effect, what would be affected and how it would be affected.

**Mitigation level:** The degree to which the impact can be mitigated.

The **Extent** of the impact: This will be categorised as either local or regional

The **Magnitude** of the impact: This will be quantified as either:

- Low: Will cause a low impact on the environment;
- Moderate: Will result in the process continuing but in a controllable manner;
- High: Will alter processes to the extent that they temporarily cease; and
- Very High: Will result in complete destruction and permanent cessation of processes.

The **Probability:** which shall describe the likelihood of impact occurring and will be rated as follows:

- Extremely remote: Which indicates that the impact will probably not happen;
- Unusual but Possible: Distinct possibility of occurrence;
- Can Occur: there is a possibility of occurrence;
- Almost Certain: Most likely to occur; and

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- Certain/ Inevitable: Impact will occur despite any preventative measures put in place.

**The duration (Exposure):** wherein it will be indicated whether:

- The impact will be of an immediate (very short period of time);
- The impact will be of a short term (between 0-5 years);
- The impact will be of medium term (between 5-15 years);
- The impact will be long term (15 and more years); and
- The impact will be permanent.

**Reversibility/ Replaceability:** The degree to which the impact can be reversed or the lost resource can be replaced.

To determine the significance ranking, the following ranking (or similar) was applied to each impact identified:

Table 9: Significance ranking (Savahanna Environmental, 2008)

RANKING	MAGNITUDE	REVERSIBILITY	EXTENT	DURATION	PROBABILITY
5	Very high/ don't know	Irreversible	International	Permanent	Certain/inevitable
4	High		National	Long term (impact ceases after operational life of asset)	Almost certain
3	Moderate	Reversible with human intervention	Provincial	Medium term	Can occur
2	Low		Local	Short term	Unusual but possible
1	Minor	Completely reversible	Site bound	Immediate	Extremely remote
0	None		None		None

Significance= Consequence (Magnitude+ Duration+ Extent + Reversibility) X Probability

**Alternative 1 (132kV power line from Groblersdal substation to the Silimela new substation – Planning and Design Phase**

In the context of the planning and design of the 132kV powerline the following main activities apply:

- Eskom conducts soil nominations to determine the underlying soil types and strata, which in turn, informs the pylon type and foundations required for the pylons – this is done as part of the feasibility stage during the planning phase. Soil nominations entails digging into 4m of substrate/soil that is not rock or until rock is struck. This is done with a hand auger or hole borer/auger mounted on a truck. The auger mounted on a truck makes a hole 300mm in diameter. If a TLB (tipper, loader, back hoe) is used then they can only reach 2.5m down. Once the hole has been dug and the underlying substrate has been ascertained, the hole is backfilled. Eskom however indicated that soil nominations does not have to be taken where the pylons will be positioned, as they only need to determine the underlying conditions on a broad scale, and as such they could take samples in areas which is accessible.
- The proposed powerline route will be determined within the proposed corridor by the surveyor, in consultation with the EAP and botanical specialist to ensure that it causes the least amount of impacts by avoiding sensitive areas within the corridor.
- Once the route has been determined, the surveyor places pegs at sections along the proposed power line route and demarcate the proposed powerline pylon sites. In order to peg the location of the powerline, vegetation clearing will be required for access and line of sight.
- Once the route and pylon positions have been pegged, a geotechnical study will be undertaken at each exact pylon position to determine founding conditions and to inform the design of the pylon base. This requires the use of a TLB or backhoe to excavate soil up to 20m deep. Access needs to be cut for the excavation equipment which will lead to vegetation loss. Topsoil may also be lost if not managed properly.
- The ECO/EAP then undertakes a site visit/line walk to ensure and verify that no wetlands or watercourses are located within 30m of the proposed pylon positions. Furthermore, the botanical specialist will be required to mark protected trees which may be cut or removed.

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
1. <b>Flora:</b> Placement of footprints near areas of	<b>Magnitude: 3</b> <b>Extent: 2</b>	• Avoidance of any physical damage to natural vegetation on the periphery of the	<b>Magnitude: 2</b> <b>Reversibility: 2</b>



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Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
high sensitivity (natural vegetation, protected tree species, riparian areas (i.e. Rivers, areas of high slopes, rocky outcrops, etc.) may impact these sensitive areas.	<b>Reversibility: 2</b> <b>Duration (Exposure): 3</b> <b>Probability: 2</b>  <b>Significance Rating: 20</b>	proposed servitude <ul style="list-style-type: none"> <li>No construction must take place within the 1:100 year flood line of the Moses River and at least 50m from the drainage lines.</li> <li>A pre-construction walk down of the approved corridor must be done in order to mark and geo-reference all protected tree species within the servitudes and development areas.</li> </ul>	<b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 8</b>
<b>2. Heritage:</b> the possibility of graves occurring along the proposed routes cannot be ruled out although the HIA study did not find any, however the proponent must be cautious.	<b>Magnitude: 2</b> <b>Reversibility: 5</b> <b>Extent: 2</b> <b>Duration: 5</b> <b>Probability: 2</b>  <b>Significance Rating: 28</b>	No graves were found to occur along this route. However, prior to the commencement of construction, all staff needs to know what possible archaeological or historical objects of value may look like, and to notify the Engineer / Contractor should such an item be uncovered.  If any artefacts or graves are uncovered during construction, all work on site is to cease and SAHRA as well as the ECO is to be notified for comment. Construction may only commence once approval by SAHRA is granted.	<b>Magnitude: 1</b> <b>Reversibility: 5</b> <b>Extent: 1</b> <b>Duration: 5</b> <b>Probability: 1</b>  <b>Significance Rating: 12</b>
<b>3. Access Roads:</b> New access roads and haulage routes could impact on areas of high sensitivity. The project has adequate road access (protected tree	<b>Magnitude: 2</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 4</b> <b>Probability: 2</b>  <b>Significance Rating: 18</b>	<ul style="list-style-type: none"> <li>Use should be made of existing roads as far as possible, ensuring proper maintenance/upgrade. Alternative methods of construction / access to sensitive areas are recommended.</li> <li>Vehicular traffic shall not be allowed in permanently wet areas, no damage shall be caused to wet areas. Where necessary,</li> </ul>	<b>Magnitude: 2</b> <b>Reversibility: 1</b> <b>Extent: 1</b> <b>Duration: 2</b> <b>Probability: 1</b>  <b>Significance Rating: 6</b>

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Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
species, natural vegetation, areas of high slopes, riparian areas, rocky outcrops, etc.).		alternative methods of construction shall be used to avoid damage to wet areas.	
4. <b>Visual:</b> the proposed line would run mainly in between the two existing power lines (88kV and 22kV).	<b>Magnitude: 2</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b> <b>Significance Rating: 7</b>	<ul style="list-style-type: none"> <li>The proposed line must be located closer to the existing lines as far as possible to minimise visual impacts.</li> </ul>	<b>Magnitude: 2</b> <b>Reversibility: 1</b> <b>Extent: 1</b> <b>Duration: 1</b> <b>Probability: 1</b> <b>Significance Rating: 5</b>
5. <b>Avi- Fauna:</b> The proposed towers could impact on rare and endangered species.	<b>Magnitude: 3</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 4</b> <b>Probability: 3</b> <b>Significance Rating: 30</b>	<ul style="list-style-type: none"> <li>A “walk-through” should be done and it should coincide with the breeding season of some of the local species (especially endangered ones).</li> <li>A “walk-through” of the chosen route should be conducted prior to the construction phase to identify areas where marking of lines by means of “deterrent devices” is considered to be beneficial;</li> <li>A natural buffer zone should be allowed between the line any drainage and line servitude.</li> </ul>	<b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 2</b> <b>Significance Rating: 14</b>

## BASIC ASSESSMENT REPORT

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### Summary of Impacts and Average Points allocated to each Distribution Line Alternative during the Planning and Design Phase

IMPACTS	Alternative 1 : Without Mitigation	Alternative 1: With Mitigation
Flora	20	8
Heritage	28	12
Access Roads	18	6
Avi - Fauna	30	14
Visual	7	5

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**Construction Phase**

**Alternative 1 (132kV power line from Groblersdal substation to the new Silimela substation – Construction Phase**

Potential impacts:	Significance rating of impacts without mitigation:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<p><b>1. Topography and Soils:</b> The direct impact on landforms with the establishment of distribution lines and additional substation components is mainly one of disruption of surface soils. Potential erosion impacts are anticipated to be limited to the construction phase during site clearing activities.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• Dry periods must be used for construction-, maintenance- and inspection activities in order to curb occurrence/ augmentation of erosion in areas of existing erosion.</li> <li>• Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion.</li> <li>• Motor vehicles must not be allowed to cross rivers or streams in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat.</li> <li>• Removed topsoil must be stored separately in areas where excavation/degradation takes place, and it must also be used for rehabilitation purposes in order to facilitate re-growth of species that occur naturally in the area.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>2. Water Resources:</b> Pollution of groundwater and surface water resources.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• Adequate sanitary facilities and ablutions must be provided for construction workers.</li> <li>• Waste water should be directed into the proper systems.</li> <li>• Sewage water should not be channelled through surface water bodies or be allowed to flow freely or stagnate on the soil surface.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p>

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		<ul style="list-style-type: none"> <li>• Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.</li> <li>• Further detailed mitigation measures are included in the EMPr (Appendix F).</li> </ul>	<p style="text-align: right;"><b>Significance Rating: 6</b></p>
<p><b>3. Flora:</b> Impacts include:</p> <p>a) Destruction of threatened and protected flora species – physical damage or destruction of Red Data or Protected species or areas that are suitable for these species, representing a significant impact on the biodiversity of a region.</p> <p>b) Destruction of sensitive pristine habitat types – The loss of pristine habitat types or habitat that are regarded sensitive as a result of restricted presence in the larger region (a typical habitat) represents a potential loss of habitat and biodiversity on a regional scale.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p style="text-align: right;"><b>Significance Rating: 9</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p style="text-align: right;"><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• A walk-through of the approved servitude be conducted prior to construction activities commencing. All individuals / stands of protected trees must be clearly and visibly marked prior to the start of construction or maintenance procedures.</li> <li>• Marking shall be done by steel stakes with tags, if required to demarcate construction areas by semi-permanent means in order to control movement of personnel, vehicles, providing boundaries for construction sites in order to prevent spread of impacts. No painting or marking of rocks or vegetation to identify locality or other information shall be allowed as it will disfigure the natural setting.</li> <li>• Construction sites/camps need a detailed ecological assessment prior to construction;</li> <li>• Disturbance of vegetation must be limited to areas of construction.</li> <li>• Removal of vegetation / plants shall be avoided until such time as soil stripping is required and similarly exposed surfaces must be re-vegetated or stabilised as soon as is practically possible.</li> <li>• The establishment and re-growth of alien vegetation must be controlled after the removal of grass. All declared aliens must</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p style="text-align: right;"><b>Significance Rating: 7</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p style="text-align: right;"><b>Significance Rating: 7</b></p>

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		<p>be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983).</p> <ul style="list-style-type: none"> <li>• Further detailed mitigation measures are included in the EMPr (Appendix F).</li> </ul>	
<p><b>4. Avifauna:</b> impact on birds breeding, foraging and roosting in or in close proximity of the site, through the modification of habitat.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 8</b></p>	<ul style="list-style-type: none"> <li>• The extent of the construction site should be demarcated on site layout plans (preferably on disturbed areas or those identified with low conservation importance), and no construction personnel or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the construction site that are not part of the demarcated development area should be considered as “no-go” areas for employees, machinery or even visitors;</li> <li>• Bird guards should be fitted to all the tower structures;</li> <li>• Spans that cross drainage lines should be marked with bird flight diverters on the earth wire of the line, five metres apart, alternating black and white;</li> <li>• Pylons must be placed outside of the drainage line perimeter;</li> <li>• Poles should be fitted with bird perches on top of the poles to draw birds from insulators; and</li> <li>• The removal of large trees should be avoided.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<p><b>5. Heritage:</b> No Graves were identified along this route</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 3</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 4</b></p>	<ul style="list-style-type: none"> <li>• If anything is noticed, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p>

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	<b>Significance Rating: 36</b>	<p>archaeologist should then investigate and evaluate the find.</p> <ul style="list-style-type: none"> <li>Any discovered artefacts shall not be removed under any circumstances. Any destruction of a site can only be allowed once a permit is obtained and the site has been mapped and noted. Permits must be obtained from the South African Heritage Resources Agency.</li> </ul>	<b>Significance Rating: 7</b>
<p><b>6. Waste:</b> Waste generation during the construction phase would have a negative impact on the environment, if not controlled adequately. Waste includes: general construction rubble, hazardous waste (used oil, cement and concrete etc.).</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p style="text-align: center;"><b>Significance Rating: 14</b></p>	<ul style="list-style-type: none"> <li>Efforts must be made to ensure waste on site must be recycled and reused.</li> <li>Disposal of waste must be in accordance with relevant local and provincial legislative requirements.</li> <li>The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation.</li> <li>Burning of waste material would not be permitted.</li> <li>Further detailed mitigation measures are included in the EMP (Appendix F).</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p style="text-align: center;"><b>Significance Rating: 7</b></p>
<p><b>7. Dust:</b> Dust emissions would vary from day to day depending on the phase of construction, the level of activity, and the prevailing meteorological conditions. The following possible sources of fugitive dust have been identified as activities which could</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p style="text-align: center;"><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>Frequent and effective dust-suppression is advised, particularly along dirt roads, especially during dry periods by the regular application of water. Water used for this purpose must be used in quantities that will not result in the generation of run-off.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p style="text-align: center;"><b>Significance Rating: 6</b></p>

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<p>potentially generate dust during construction operations at the site: vehicle activities associated with the transport of equipment to the site; preparation of the surface areas which may be required prior to the set up of new infrastructure; and the removal of construction equipment from site after the set up of new equipment.</p>			
<p><b>8. Noise:</b> During the construction phase there is likely to be an increase in noise pollution. The following possible sources of noise could potentially generate noise pollution during construction: construction activities (excavating and site clearing); construction vehicles; and construction staff.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 10</b></p>	<ul style="list-style-type: none"> <li>• Notification of adjacent landowners must be done on any envisaged noisy construction activities.</li> <li>• Provide all equipment and vehicles with standard silencers that are continuously maintained.</li> <li>• It must be noted that when the noise exceeds 85 dBA employees should wear ear protection equipment</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>
<p><b>9. Land-use:</b> The construction of the distribution line is within the approved vacant servitude and could not potentially have a very</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p>	<p>No mitigation proposed as the power line runs within the approved vacant servitude - However, the footprint of the proposed pole structure to be used is small (i.e. approximately 1 m x 1 m) and would thus have a localised impact. As agricultural activities can still</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p>



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<p>any impact on agricultural activities in the area.</p>	<p><b>Significance Rating: 4</b></p>	<p>continue to a large degree below the power line, the impact on the use of land for agricultural purposes is anticipated to be low.</p>	<p><b>Significance Rating: 4</b></p>
<p><b>10. Social:</b> Loss of grazing land and impact on landowners sense of place.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>	<ul style="list-style-type: none"> <li>• The negotiation process with landowners must include compensation for the temporary loss of grazing land where necessary.</li> <li>• After completion of the construction activities rehabilitation activities must be done to ensure that the land is returned in the same condition as prior to the construction activities.</li> <li>• Mitigation measures should be implemented to avoid any negative impact on animals (e.g. fencing off the construction area).</li> <li>• Eskom or its appointed contractor(s) should assist with the temporary relocation of livestock during construction, as well as relocating cattle back to their original grazing area once construction in an area is completed.</li> <li>• Rehabilitation of the grazing area to their original grazing conditions should be done to ensure that cattle can continue to graze in the area once they are returned to that area.</li> <li>• Where the area cannot be rehabilitated to its original condition within a reasonable period of time, Eskom or its appointed contractor(s) should provide funding to obtain alternative food sources to the farmer for the time period required for natural rehabilitation to occur within the grazing area.</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility:1</b>  <b>Extent: 2</b>  <b>Duration: 1</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>

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<b>Indirect Impacts</b>			
<p><b>1. Flora:</b></p> <p>a) Floristic species changes subsequent to development.</p> <p>b) Impacts on surrounding habitat/ species.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 14</b></p>	<ul style="list-style-type: none"> <li>• Invaders and exotic weeds and that might establish on the re-vegetated areas should be controlled to allow the grasses to properly establish.</li> <li>• Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act, No. 43 of 1983 and should be addressed on a continual basis.</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p> <p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<p>a) Alien vegetation encroachment associated with the abovementioned disturbances.</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 14</b></p>	<ul style="list-style-type: none"> <li>• Provision of adequate stormwater measures and controls during construction.</li> <li>• The establishment and re-growth of alien vegetation must be controlled after the removal of grass. All declared aliens must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983).</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>
<p><b>2. Social:</b> Limited opportunities do, however, exist for manual labour for unskilled tasks, where the appointed contractor would be required to make use of local workers (e.g. for</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 1</b>  <b>Probability: 2</b></p> <p><b>Significance Rating: 10</b></p>	<ul style="list-style-type: none"> <li>• It is recommended that local labour should be utilised as far as possible to avoid conflicts with local communities who also need employment opportunities.</li> </ul>	<p><b>Magnitude: 3</b>  <b>Reversibility: 1</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 7</b></p>

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bush clearing and the digging of foundations).			<b>Significance Rating: 49</b>
<b>Cumulative Impacts</b>			
<p><b>1. Flora:</b> Increase in local and regional fragmentation/ isolation of habitat -</p>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p style="text-align: right;"><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>Cumulative impacts associated with this type of development would lead to initial, incremental or augmentation of existing types of environmental degradation, including impacts on the air, soil and water present within available habitat. Pollution of these elements might not always be immediately visible or readily quantifiable, but incremental or fractional increases might rise to levels where biological attributes could be affected adversely on a local or regional scale. In most cases are these effects are not bound and is dispersed, or diluted over an area that is much larger than the actual footprint of the causal factor.</li> </ul>	<p><b>Magnitude: 2</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 2</b></p> <p style="text-align: right;"><b>Significance Rating: 14</b></p>

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**Summary of Impacts and Average Points allocated to each Proposed Distribution Line during the Construction Phase**

IMPACTS	Alternative 1: Without Mitigation	Alternative 1: With Mitigation
<b>DIRECT</b>		
Topography and Soils	7	6
Water Resources	12	6
Flora: Destruction of threatened and protected flora species	12	6
Flora: Destruction of sensitive pristine habitat types	12	6
Avifauna	8	7
Heritage	36	7
Waste	8	7
Dust	14	5
Noise	16	7
Land-use	10	0
<b>INDIRECT</b>		
Flora: Species change	7	6
Flora: Surrounding habitat/species	8	7
Social	7	6
<b>CUMULATIVE</b>		
Flora	8	5

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**Operational Phase**

**Alternative 1 (132kV power line from Groblersdal existing substation to the new Silimela substation – Operational Phase**

Potential impacts:	Significance rating of impacts:	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>Direct Impacts</b>			
<p><b>1. Access Roads:</b> Access roads used for maintenance might impact on vegetation and water bodies.</p>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>• Use should be made of existing roads as far as possible, ensuring proper maintenance/upgrade. Alternative methods of construction / access to sensitive areas are recommended.</li> <li>• No vehicles should be allowed to cross rivers or streams in any area other than an approved crossing, taking care to prevent any impact (particularly erosion) in surrounding habitat.</li> <li>• Vehicular traffic shall not be allowed in permanently wet areas, no damage shall be caused to wet areas. Where necessary, alternative methods of construction shall be used to avoid damage to wet areas.</li> <li>• Any work or access near or in a permanent drainage system may have implications in terms of the National Water Act, 1998 (Act No. 36 of 1998), and therefore may well require the application of a Water Use License. Therefore, the contractor must in consultation with the ECO, assess all areas along the alignment well in advance in order to ensure the relevant Water Use License is applied for where required.</li> </ul>	<p><b>Magnitude: 1</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<p><b>2. Avifauna:</b> a) Line would impact on vegetation and habitat types, water resources</p>	<p><b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b></p>	<ul style="list-style-type: none"> <li>• Please refer to Appendix for a visual representation to aid the marking of the distribution line with bird deterrent devises.</li> </ul>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b></p>

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<p>and impact on threatened species.</p>	<p><b>Probability: 1</b> <b>Significance Rating: 8</b></p>		<p><b>Probability: 1</b> <b>Significance Rating: 7</b></p>
<p><b>3. Waste:</b> Waste generation during the operation phase would have a negative impact on the environment, if not controlled adequately. Waste includes: general waste or hazardous waste (used oil etc.).</p>	<p><b>Magnitude: 2</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 2</b></p> <p><b>Significance Rating: 16</b></p>	<ul style="list-style-type: none"> <li>• Where possible, construction waste on site must be reused or recycled.</li> <li>• Disposal of waste must be in accordance with relevant legislative requirements.</li> <li>• The Contractor must familiarise themselves with the definitions of waste and the handling, storage and transport of it as prescribed in the applicable environmental legislation.</li> <li>• Burning of waste material would not be permitted.</li> <li>• Further detailed mitigation measures are included in the EMP (Appendix F).</li> </ul>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>
<b>Indirect Impacts</b>			
<p><b>1. Flora:</b> Surrounding areas and species present in the direct vicinity of the study area could be affected by indirect impacts resulting from operation activities.</p>	<p><b>Magnitude: 1</b> <b>Reversibility: 1</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>	<ul style="list-style-type: none"> <li>• No mitigation proposed.</li> </ul>	
<p><b>2. Socio-economic:</b> The proposed new 66 kV distribution line would decrease the existing power shortages experienced in the area. The reliable power source would also open the door to</p>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>• No mitigation proposed.</li> </ul>	

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<p>new industries, within the area, in turn contributing to an increase in GDP.</p>			
<p><b>3. Electromagnetic Fields:</b> Magnetic fields that naturally emanate from sources such as distribution lines are directly proportionate to the amount of current flowing through the distribution lines at any given time. A higher loading condition such as may be present in hot summer months would result in increased magnetic field levels. According to the World Health Organisation (WHO) it has become increasingly unlikely (based on the existing body of research) that exposure to Electromagnetic Fields (EMFs) constitutes a serious health hazard, although some uncertainty remains. .</p>	<p><b>Temporal:</b> Long-term (-3)  <b>Magnitude: 1</b>  <b>Reversibility:2</b>  <b>Extent: 2</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>In general, it is not recommended that humans should live under power lines due to the effects of EMF. However, the radiation decreases with an increase in distance from the source. The EMFs are insignificant on the servitude border.</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 2</b>  <b>Extent: 1</b>  <b>Duration: 2</b>  <b>Probability: 1</b></p> <p><b>Significance Rating: 6</b></p>
<p><b>4. Safety:</b> There is the potential risk of electrocution (people</p>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 2</b></p>	<ul style="list-style-type: none"> <li>It is recommended that the landowners and affected community members be contacted in advance to ensure that they are</li> </ul>	<p><b>Magnitude: 1</b>  <b>Reversibility: 1</b>  <b>Extent: 2</b></p>

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<p>and livestock) if access to the site is not controlled.</p>	<p><b>Duration: 1</b> <b>Probability: 3</b></p> <p><b>Significance Rating: 15</b></p>	<p>forewarned of the construction and maintenance activities planned in the area. In addition, the local community must be educated about the dangers of high voltage electricity. Safety and security issues should be addressed as a priority by Eskom.</p>	<p><b>Duration: 1</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 5</b></p>
<p><b>5. Visual:</b> The visual impact of the proposed 66 kV distribution line would depend on the structures used and visual qualities of the structures, and on the nature of the receiving environment.</p>	<p><b>Magnitude: 1</b> <b>Reversibility: 2</b> <b>Extent: 2</b> <b>Duration: 2</b> <b>Probability: 1</b></p> <p><b>Significance Rating: 7</b></p>	<ul style="list-style-type: none"> <li>No mitigation is proposed as this line is the preferred route.</li> </ul>	
<b>Cumulative Impacts</b>			
<b>None.</b>			



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**Summary of Impacts and Average Points allocated to each Distribution Alternative during the Operational Phase**

IMPACTS	Alternative 1 : Without Mitigation	Alternative 1: With Mitigation
<b>DIRECT</b>		
Access Roads	12	6
Avifauna	8	7
Waste	10	5
<b>INDIRECT</b>		
Flora	8	-0
Socio-economic	8	0
Electromagnetic Fields	12	6
Safety	12	7
Visual	14	8
<b>CUMULATIVE</b>		
	<b>None</b>	

## 2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

### Alternative 1 Power line from Groblersdal substation to Silimela substation Preferred)

Only one alternative route was assessed during the environmental impact assessment. The main reason has been that the proposed powerline runs within the approved vacant servitude and also the fact that the proposed powerline will be ensconced between the two existing power lines i.e 88kV and a 22kV. Upon the operation of the new line, the existing 88kV will be decommissioned. The new powerline starts from an existing Groblersdal substation to join through the already loop in loop out of the line that will connect to the approved new Silimela substation. The environmental impact assessment has shown that the power line traverses through game farms and an abandoned conservation under Elias Motsoaledi Local Municipality.

#### Ecology

The natural vegetation in parts of the study site (Alternative 1) is severely modified as a result of infrastructure development, grazing and wood harvesting. The developments include roads, pipe lines, cultivation, wood harvesting, grazing and urban development. Although the vegetation unit is not listed as vulnerable by NEMBA (2004), the proposed development will have a low impact on the biodiversity of the area.

In addition, some of the farms are game breeding and hunting, though other wildlife in the form of droppings and tracks were observed on and around the study site and include *Sylvicapra grimmia*, *Hystrix africaeaustralis* and a variety of rodent dens.

#### Alternative 1

Alternative route 1 is approximately 14.5 km Bersfort of 132kV and is described in pink colour on the map. The proposed power line starts from an existing Groblersdal Substation at GPS coordinates S25°10'04.57"E29°22'52.59" and connect with already approved 132kV power line at GPS coordinates S25°06'06.54" E29°20'07.00" that will join the already approved Silimela substation.

This power line is ensconced between the two existing power lines i.e 88kV from Wolwekraal to Groblersdal and another 22kV line. The project follows the existing vacant servitude.

#### Summary from the Botanical report

- The study area investigated had a vegetation cover in a "poor state to fair state" with impacts related to grazing, cultivation, wood collection, settlement development, poor infra-structure maintenance and erosion.
- From an ecological perspective the proposed corridor for the power line is viable. Minimum clearing for this servitude is needed.
- Before any clearing or trimming commences, this specialist must accompany Eskom and the contractors to verify trees to be trimmed or cut.
- *Sclerocarya birrea* is present and the numbers must be counted and mapped once the final route is pegged (walk down study).
- Three red book data plant species is recorded for the area (Addendum 2) but the habitats they prefer is not present along the corridor.

- With regard to biodiversity patterns, little if any impacts will occur.
  - The vegetation type occurs over a very large area and the narrow corridor for the power line will have no large-scale negative impact on it.
  - No red data plant species were noted, as their preferred habitat is not present.
  - Some alien plant infestations were observed on the site or in the near vicinity. Clearing of soil can always lead to some infestations.
  - The activity will have no real impact on biodiversity processes. The only possible impact can be oil or fuel spillages that can occur during construction or the installation and maintenance of the transformers. It is always suggested that fuel and oil must not be stored on site during the construction phase and that containment dams or berms are constructed around transformers. In addition, a clear plan how to manage accidental spills must be included in the EMP for the site.

### Recommendations from a Botanical report

- From an ecological perspective the proposed route for the new Silimela/Groblersdal power line is viable. The corridor uses the existing servitude and cut through an area with large current impacts, resulting in lowering the need for the clearing of natural vegetation. Permits for cutting, trimming and removal of *Sclerocarya birrea* must be acquired before clearing of the servitude can commence. A walk down study must be carried out to count and map the protected trees.
- Soils are highly **erodible** and care must be taken during construction to lower the risk of accelerated erosion.
- With careful planning of the construction activity impacts to the sensitive areas (slopes and exposed areas) can be reduced.
- Ensure no oil or fuel spills occur during construction or installation of transformers.
- Prevent and rehabilitate erosion.
- Make sure no wood collection takes place by contractors.

### Avi-fauna

#### DESCRIPTION OF EXPECTED IMPACTS

Because of their size and prominence, electrical infrastructures constitute an important interface between wildlife and man. Negative interactions between wildlife and electricity structures take many forms, but two common problems in southern Africa are electrocution of birds (and other animals) and birds colliding with power lines. (Ledger and Annegarn 1981; Ledger 1983; Ledger 1984; Hobbs and Ledger 1986a; Hobbs and Ledger 1986b; Ledger, Hobbs and Smith, 1992; Verdoorn 1996; Kruger and Van Rooyen 1998; Van Rooyen 1998; Kruger 1999; Van Rooyen 1999; Van Rooyen 2000; Anderson 2001; Shaw 2013).

#### **Electrocutions**

Electrocution refers to the scenario where a bird is perched or attempts to perch on the electrical structure and causes an electrical short circuit by physically bridging the air gap between live components and/or live and earthed components (van Rooyen 2004). The electrocution risk is largely determined by the pole/tower design. The tower design that has been proposed for this project is the steel monopole.

### **Steel monopole**

Clearance between phases on the same side of the 132kV pole structure is approximately 2.2m for this type of design, and the clearance on strain structures is 1.8m. This clearance should be sufficient to reduce the risk of phase – phase electrocutions of birds on the towers to negligible. The length of the stand-off insulators is approximately 1.6m. If very large species attempts to perch on the stand-off insulators, they are potentially able to touch both the conductor and the earthed pole simultaneously potentially resulting in a phase – earth electrocution. This is particularly likely when more than one bird attempts to sit on the same pole, which is an unlikely occurrence, except occasionally with vultures. Vultures have not been recorded and are unlikely to occur regularly within the study area, but sporadic occurrence cannot be ruled out. The only envisaged high risk scenario would be when a carcass becomes available within a few hundred metres of the line, attracting White-backed Vultures which may cluster on a few poles. This is likely to be an irregular event in the study area.

In summary it is concluded that the risk of electrocution posed to avifauna by the steel monopole design is likely to be of **LOW** significance and restricted to vultures. It should be mentioned that the pole design holds no inherent electrocution risk for other large solitary raptors such as eagles, as they almost never perch together in large numbers on the same structure.

### **Collisions**

Collisions are probably the biggest single threat posed by transmission lines to birds in southern Africa (van Rooyen 2004; Shaw 2013). Most heavily impacted upon are bustards, storks, cranes and various species of Waterbirds. These species are mostly heavy-bodied birds with limited manoeuvrability, which makes it difficult for them to take the necessary evasive action to avoid colliding with power lines (van Rooyen 2004; Anderson 2001; Shaw 2013).

In a recent PhD study, Shaw (2013) provides a concise summary of the phenomenon of avian collisions with power lines:

“The collision risk posed by power lines is complex and problems are often localised. While any bird flying near a power line is at risk of collision, this risk varies greatly between different groups of birds, and depends on the interplay of a wide range of factors (APLIC 1994). Bevanger (1994) described these factors in four main groups – biological, topographical, meteorological and technical. Birds at highest risk are those that are both susceptible to collisions and frequently exposed to power lines, with Waterbirds, Gamebirds, rails, cranes and bustards usually the most numerous reported victims (Bevanger 1998, Rubolini *et al.* 2005, Jenkins *et al.* 2010).

In the present instance, the most likely potential candidates for collision mortality on the proposed power line are Secretarybird, Lanner Falcon and Abdim’s Stork. None of the Red List Waterbird species are likely to be at risk of collisions because the alignment does not cross any major Waterbodies or rivers. A large proportion of the proposed power line occurs in Savanna habitat where the risk of collisions are likely to be few and far between, as there are no specific areas where one would expect a concentration of birds. Vultures would be most at risk if they descend to a carcass near the line, which is not likely to be a regular event, given the fact that the occurrence of vultures are likely to be the exception rather than the rule. Abdim’s Stork will be most at risk in agricultural clearings, where they can occur in large flocks, especially on freshly ploughed fields and irrigated crops. In summary, the risk of collision posed to avifauna by proposed power line is likely to be of **LOW** significance

### **Displacement due to habitat destruction and disturbance**

During the construction phase and maintenance of power lines and substations, some habitat destruction and transformation inevitably takes place. This happens with the construction of access roads, the clearing of servitudes and the levelling of substation yards. Servitudes have to be cleared of excess vegetation at regular intervals in order to allow access to the line for maintenance, to prevent vegetation from intruding into the legally prescribed clearance gap between the ground and the conductors and to minimize the risk of fire under the line, which can result in electrical flashovers. These activities have an impact on birds breeding, foraging and roosting in or in close proximity of the servitude through transformation of habitat, which could result in temporary or permanent displacement. In the present instance, the risk of displacement of Red List species due to **habitat destruction** is likely to be fairly limited given the low reporting rate for Red List species in the study area, the small footprint of the proposed project and the presence of existing power line infrastructure routed on either side of the proposed 132kV power line.

Apart from direct habitat destruction, the above mentioned construction and maintenance activities also impact on birds through **disturbance**; this could lead to breeding failure if the disturbance happens during a critical part of the breeding cycle. Construction activities in close proximity could be a source of disturbance and could lead to temporary breeding failure or even permanent abandonment of nests. The very low reporting rates for Red List species in the study area are an indication that they are not regularly utilising the area for breeding. The impact of disturbance is therefore likely to be **LOW** and temporary as far as Red List species are concerned. However, if the alignment is authorised, a detailed inspection would be required to establish if there are any breeding Red List species that could be disturbed. In such an event, appropriate mitigation measures would need to be implemented (such as postponing the construction of the line to avoid peak breeding season).

The findings from the Avi-faunal studies indicated that the proposed power line will pose a limited threat to the birds occurring in the vicinity of the new infrastructure. The risk of electrocution posed to avifauna by the steel monopole design is likely to be of **LOW** significance and restricted to vultures. It should be mentioned that the pole design holds no inherent electrocution risk for other large solitary raptors such as eagles, as they almost never perch together in large numbers on the same structure.

The very low reporting rates for Red List species in the study area are an indication that they are not regularly utilising the area for breeding. The impact of disturbance is therefore likely to be **LOW** and temporary as far as Red List species are concerned.

Recommendations from Avi-fauna Specialist report:

Given the presence of existing habitat degradation and disturbance, it is anticipated that the Groblersdal-Silimela 132kV power line can be constructed along the proposed route alignment with acceptable levels of impact on the resident avifauna.

The project can proceed subject to the recommendations made below.

- An avifaunal walk through of the final power line route should be conducted prior to construction, to identify any species that may be breeding on the site or within the immediate surrounds and to ensure that any impacts likely to affect breeding species (if any) are adequately managed.
- The correct pole structure must be utilized to avoid electrocution
- In addition to this, the normal suite of environmental best practices should be applied,

such as ensuring strict control of staff, vehicles and machinery on site and limiting the creation of new roads as far as possible.

### **Heritage**

Phase 1 Heritage Impact Assessment did not identify any graves along the proposed project area. Although there are no graves identified along the proposed route, the graves may be found during construction phase underground.

The Archaeologist did not identify any archaeological or heritage resources such as graves, material and artifacts of cultural significance, but however, the specialist highly recommended that should any material or artifacts of cultural significance be unearthed during excavation, all activities must cease and SAHRA and/or Archaeologist or LIHRA be informed of the accidental discoveries.

From Heritage point of view, the proposed route is viable as it will not impact on any graves, graveyards and/or heritage resources. Therefore the significance is regarded as **very low**.

### **Visual**

Visual impacts are generally anticipated to be of **low** significance due to the fact that the proposed power line would be ensconced between the two existing power lines. So the two existing power lines will blend well with the new proposed power line. However, the proposed route is considered as viable options. It is strongly recommended that the mitigation measures mentioned in the EMP be implemented to minimise the potential negative visual impacts.

### **Current and Existing Land Use**

The area traversed by the proposed power line is generally being utilised for agricultural purposes, though the route alignment is within the vacant servitude. The land use is for electrical power line

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### **No-go alternative (compulsory)**

The *no-go option* entails the non construction of the power line. Although this option would result in fewer impacts on the biophysical environment. It should be noted that most of the study area has already been impacted upon by practices such as over grazing, wood collection and urbanisation.

Electricity has become a fundamental need and precursor of development and improvement of people's quality of life. If the proposed establishment of new power lines cannot go on, the option would greatly affect the future electricity supply to the area and the future mines. When the project is finished, it would further help ensure that there is continuous power supply to the mines, Groblersdal town, its surrounding rural communities and the entire Municipal area. The reliable electricity source would open the door to new economic opportunities, within the general area, in turn contributing to an increase in the local GDP. Otherwise the loss of electricity, power outages and associated negative ripple effects on the communities, local businesses and the environment e.g. increased wood harvesting and air pollution caused by the usage of fossil fuels. The significance of negative impacts posed by utilising the no-go option can therefore be considered as high.

Direct impacts:

- No additional electricity to the local community;
- No new mines
- Frequent power outages; and
- No employment opportunities will be created.

Indirect impacts:

- Negative impact on local enterprises and educational facilities;
- Negative impact on the environment as people would rely on fuelwood and other natural sources for heat and energy;
- Pollution from the burning of fossil fuels to create energy;
- Time wasted on looking for alternative energy sources; and
- Limited development would take place in the area without reliable supply of electricity.

Cumulative impact

- Diminishing productivity and quality of life in the local community.

## SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A
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If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

Potential impacts of the proposed development have been identified and where necessary mitigation measures have also been proposed for ensuring that adverse impacts are strategically taken care of. The identification of mitigation measures is just one step of the process for addressing adverse impacts, commitment and putting in place systems during the construction and operational phase of the proposed development also remain key. Therefore Eskom will have to ensure that appropriate measures have been taken to ensure that precautionary steps are taken to avoid adverse impacts on people, economy and environment. Where challenges have been encountered during construction or operation, relevant mitigation measures must be implemented under the supervision of trained and competent personnel.

During the EIA process, an extensive public participation process was conducted to ensure that all Interested and Affected Parties were consulted and given time to raise their concerns or provide comments. All issues identified during the public participation have been sufficiently addressed to the satisfaction of the relevant stakeholders.

The following general recommendations will be taken care of during implementation of the proposed development:

- It is recommended that the poles that will be used be fitted with bird perches on top of poles to draw birds, particularly vultures, larks and eagles away from the potentially risky insulators.
- It is recommended that an Archaeologist conduct monitoring during the excavation to ascertain any possible occurrence of heritage resources that are found underground.
- It is recommended that should any material or artefacts of cultural significance found during exaction, all activities should cease and SAHRA and/ or an Archaeologist be informed immediately
- It is also recommended that mitigation measures for the proposed activity throughout the project life-cycle are included in the Environmental Management



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Programme (EMPr) attached to this document.

- It is further recommended that Eskom should appoint an independent ECO to monitor the compliance to the EMPr and the EA conditions
- A copy of the EMPr must always be available on site.

Is an EMPr attached?

YES	
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

\_\_\_\_\_  
NAME OF EAP

\_\_\_\_\_  
SIGNATURE OF EAP

\_\_\_\_\_  
DATE

**SECTION F: APPENDIXES**

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information