Eskom Holdings (SOC) Ltd – Gauteng Operations Unit

FINAL BASIC ASSESSMENT REPORT FOR THE PROPOSED CONSTRUCTION OF A 132KV POWER LINE FOR THE WESTGATE - TARLTON CONNECTION WITHIN MOGALE CITY AND RAND WEST CITY LOCAL MUNICIPALITIES, GAUTENG PROVINCE

J26219

ORIGINAL

June 2017

DEA Reference: 14/12/16/3/3/1/1772

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environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

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, 2014 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 **08 December 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 must 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.
13. Must 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.

SECTION A: ACTIVITY INFORMATION

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

1. Introduction

GIBB (Pty) Ltd, hereunder referred to as GIBB, has been appointed by ESKOM Holdings SOC Limited (the Applicant/Eskom) as an Environmental Assessment Practitioner (EAP) to undertake an Environmental Authorisation (EA) process in terms of the Environmental Impact Assessment (EIA) Regulations of 2014 promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA) for the proposed construction of a ±20 kilometre (km), 132 kilovolt (kV) power line for the Westgate and Tarlton connection. See **Appendix A** for maps indicating project locality and sensitive areas.

In terms of the EIA Regulations of 2014, as amended, Government Notice R. (GNR) No. 983 / GNR 327 or Listing Notice 1, Activity 11, 12 and 19 as well as GNR No. 985 / GNR 324 or Listing Notice 3, Activity 12 and 14 are triggered by the proposed power line development and therefore a Basic Assessment (BA) is required as part of the impact assessment to obtain an EA (refer to Table 1 for the activity triggered). GIBB as the independent environmental consultant will undertake the Basic Assessment, EMPr and associated stakeholder engagement processes for the proposed project. The main objective of the Basic Assessment process is to identify and assess potential environmental impacts associated with the proposed project, and to compile appropriate mitigation measures.

Eskom had previously applied for EA to the national Department of Environmental Affairs (DEA), under Reference number: 14/12/16/3/3/1/1675, however since a lapse in regulated timeframes a new application has been lodged and a new reference number was assigned to the project. Therefore the **new** project reference number issued by DEA is **14/12/16/3/3/1/1772**.

Table 1: List of Activities Triggered in GN.R 983 (Listing Notice 1) and GN.R 985 (Listing Notice 3)

Detailed description of listed activities associated with the project	
GNR No. 983 / GNR 327, Activity 11: The development of facilities or infrastructure for the transmission and distribution of electricity (i) Outside urban areas or on industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	The applicant, Eskom, is proposing to erect a 132kV power line connection for the transmission and/or distribution of electricity.
GN No. R. 983 / GNR 327, Activity 12: The development of - (ii) infrastructure or structures with a physical footprint of 100 square metres or more where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Several watercourses may be crossed along the powerline route, and as such pylons may be constructed within 32 metres of the watercourse.
GN No. R. 983 / GNR 327, Activity 19: The infilling or depositing of any	Several watercourses may be crossed along the powerline route, and as such pylons may need to be constructed within a watercourse, however this is considered unlikely and every

material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	effort will be made to avoid this.
GN No. R. 985 / GNR 324 Activity 12: The clearance of an area 300 square metres or more of indigenous vegetation c. Gauteng ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation plan or bioregional plans	Since the project alternatives transect irreplaceable and ecological support areas, while unlikely the removal of 300 square metres or more may be required during pylon placement.
GN No. R. 985 / GNR 324 Activity 14: The development of - (ii) infrastructure or structures with a physical footprint of 10 square metres or more where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; c. Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or bioregional plans	Several watercourses may be crossed along the powerline route, and as such pylons may be constructed within 32 metres of the watercourse. All project alternatives transect irreplaceable and ecological support areas, some to a lesser extent than others.

1.1. Details of Project Role Players

- **Details of Applicant**

Eskom is the applicant for the proposed construction of a 20km, 132kV power line connecting the Westgate and Tarlton substations and providing adequate and reliable power supply to meet current and future demands in the area. The details of the project applicant can be found in Table 2 below.

Table 2: Details of the Applicant

Project Applicant:	**Eskom Holdings SOC Limited**		
Contact Person:	Lutendo Moabi		
Physical Address:	Eskom Centre, 204 Smit Street, Braamfontein		
Postal Address:	Eskom Centre, 204 Smit Street, Braamfontein		
Postal code:	2001	Fax:	086 668 6182
Telephone:	011 711 2527	Cell:	072 278 2465
E-mail:	MoabiLM@eskom.co.za		

- **Details of Independent Environmental Assessment Practitioner**

GIBB is an integrated group of scientists, project managers, engineers and architects providing cost-effective solutions and specialist services in a wide range of disciplines. The multi-disciplinary consulting, management and design approach allows for the execution of projects in a holistic way, as this is believed to be the best approach to fully meet the needs of Clients.

The GIBB Environmental Services Division has a formidable track record and comprises highly qualified and experienced technical staff viz, environmental scientists and specialists, environmental engineers and geologists that collectively form the national environmental team. The team members have broad experience in terms of working on a range of environmental projects within the public and private sector. Refer to Table 3 for the EAP details. Refer to **Appendix H** for a full CV and more details for the EAP.

Table 3: Details of the independent Environmental Assessment Practitioner

Project EAP:	**GIBB (Pty) Ltd**		
Contact Person:	Chevonne Stevens		
Physical Address:	Woodmead North Office Park, 54 Maxwell Drive, Woodmead, 2191		
Postal Address:	P.O. Box 2700, Rivonia		
Postal code:	2128	Fax:	
Telephone:	011 519 4712	Cell:	072 383 0382
Email:	cstevens@gibb.co.za		
Expertise:	Chevonne Stevens is an Environmental scientist with five years of experience in the environmental management field. Her key experience includes Project Management, Scoping & Environmental Impact Reporting, Basic Assessments, Client Liason, etc. She also has experience as an Environmental Control Officer (ECO). She has worked extensively in South Africa within the renewable energy sector.		

- **Details of Specialists**

The following specialist studies will be undertaken as part of the BA process. See Table 4 for the specialist contact details.

Table 4: Details of the Specialists

Name	**Organisation**	**Specialist study conducted**	**Contact details**
Deon de Wit	GIBB	Visual Impact Assessment	012 348 5880
Johannes Mare	Sativa Travel And Environmental Consultants	Ecological Impact Assessment Wetland Impact Assessment	071 685 9247
Trust Mlilo	Sativa Travel And Environmental Consultants	Heritage Impact Assessment	071 685 9247
Robyn Phillips	GIBB	Avi-faunal Impact Assessment	031 267 8560
Chanel Turner	Turnscapes	Social Impact Assessment	072 204 6094

- **Details of Competent/Relevant Authority**

DEA is the identified Competent Authority (CA) to lodge the application of the proposed power line development, and also report to during the impact assessment process. The case officer assigned to this project is Portia Makitla from the DEA.

2. Project Description

2.1. Project Location (Study Area)

At a regional level, the proposed study area falls within the Gauteng province and is situated within Mogale City Local Municipality (MCLM) and Randfontein Local Municipality (RLM) which both form part of the West Rand District Municipality (WRDM). It should be noted that recently the RLM and the Westonaria Local Municipality (WLM) were combined to form the Rand West City Local Municipality (RWCLM). Three (3) route alternatives exist for the proposed 132 kV power line with the preferred route having an approximate distance of ±20 km. Refer to map below indicating the project location in Figure 1. The locality map is also attached on **Appendix A** of this document.

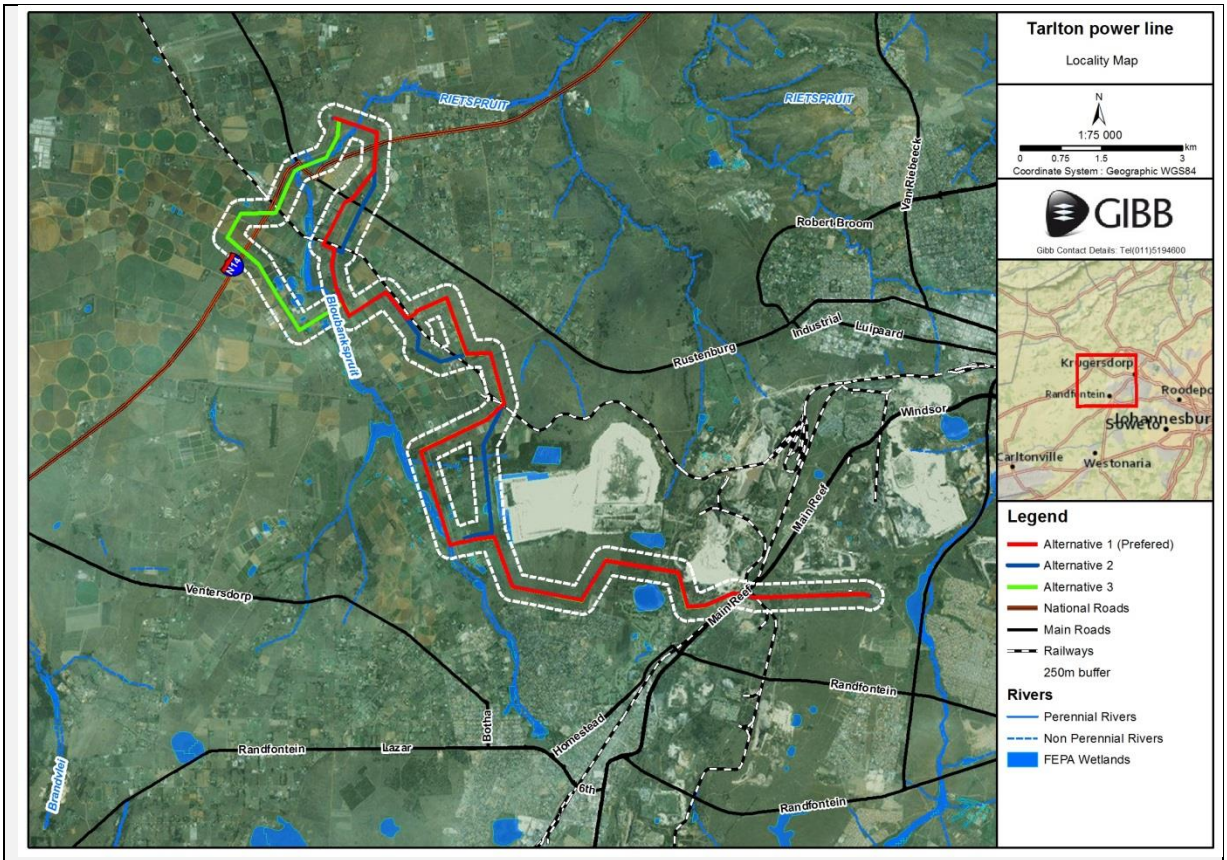

Figure 1: Locality Map (Larger image can be found in Appendix A)

As can be seen in **Error! Reference source not found.** above three route alternatives exist for the proposed 132kV power line development for the Westgate and Tarlton connection, these alternatives are outlined in Section 3 below.

2.2. Project Description

As mentioned above Eskom is proposing to construct a 132kV power line in order to strengthen the existing electricity supply in the area, and as such provide the area with adequate and reliable power supply to meet current and future demands. Therefore, three route alternatives exist for the proposed 132kV Westgate - Tarlton power line alignment connecting from the existing Westgate substation to the existing Tarlton substation site with a total distance of approximately 22 km.

A 500 metre (m) corridor was assessed along each of the proposed routes (250m on either side of the routes) to determine the potential environmental impacts and significance of these impacts associated with the proposed power line development. The main purpose of the proposed power line is to strengthen the existing electricity supply in the area, and as such provide the area with adequate and reliable power supply to meet current and future demands.

The aim of the project is to provide an additional 132kV line to the greater Randfontein area, thus providing needed capacity and improving back-feed capabilities to provide power to the surrounding communities and companies.

(a) Pole Structures/pylons

It is envisaged that steel lattice and/or mono-pole structures will be utilised for the proposed distribution power line and will be located within servitude of 500 m (250 m on either of the proposed power line route). These structures vary in specifications.

Lattice structures can weigh approximately 2 100 kilograms (kg) each and vary in height from approximately 20.7 to 32.1 m. The estimated footprint size of these structures is about 25 square metres (m^2). The average span between two lattice towers is approximately 200 m, but can vary between 250 and 375 m depending on the ground profile (topography) and the terrain to be spanned.

Steel mono-poles weigh approximately 1 200 kg each and vary in height from approximately 17.4 to 21 m. The size of the footprint depends on the type of pole, i.e. whether it is a self-supporting, guyed suspension or an angle strain pole structure. The size of the footprint ranges from 0.6 m x 0.6 m to 1.5 m x 1.5 m, with the larger footprint associated with the guyed suspension and angle strain pole used as bend or strain structures. The average span between two towers is 200 m, but can vary between 250 and 375 m depending on the ground profile (topography) and the terrain to be spanned.

For the proposed line it is highly likely that double circuit twin tern and/or single tern will be used. **Appendix C** represents a range of structures that are feasible for the proposed 132kv powerline.

The power lines will be constructed in the following simplified sequence

Step 1: Determination of technically feasible alternatives.

Step 2: Basic Assessment input into route selection and obtaining of relevant environmental permits and Authorisations.

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 distribution 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 required).

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.

Stringing of conductors

Tension stringing gear is used to string the conductors between the proposed power line towers; the line is strung in sections (from bend to bend). Cable drums are placed at the beginning of the sections of the line during this stringing process. In order to minimise any potential negative impacts on the surrounding area, these cable drums should be placed within the servitude.

(b) Servitude Clearance

The width of the servitude of the proposed 132 kV distribution power line is about 31 m (15.5 m on either side of the centre line). The minimum vertical clearance to buildings, poles and structures not forming part of the power line will be approximately 3.8 m, while the minimum vertical ground clearance will be about 7.5 m (in urban areas) and 10.5 m in the proximity of national road crossings. The minimum distance of the proposed 132 kV distribution power line running parallel to proclaimed public roads will be approximately 95 m from the centreline of the distribution power line servitude to the centreline of the public road servitude. The minimum distance between any part of a tree or shrub and any bare phase conductor of the proposed 132 kV distribution power line will be about 3.8 m so as to allow for the possible lateral movement of the vegetation or tree that could be a potential hazard to the distribution power line when operational and/or energised. The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) provides for statutory clearances, **Table 5** summarizes some of the key clearances relevant to the proposed 132 kV distribution power line.

Table 5: Clearance Specifications

Item	Standard	Follow up
Centreline of the proposed distribution line	Clear to a maximum (depending on tower type and voltage) of an 8 m wide strip of all vegetation along the centreline. Vegetation to be cut within 100 mm	Re-growth shall be cut within 100 mm of the ground and treated with herbicide, as necessary

	of the ground. Treat stumps with herbicide	
Inaccessible valleys (trace line)	Clear a 1 m 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) 5 m wide strip for vehicle access within the maximum 8 m width, including de-stumping or 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 5 m around the position, including de-stumping or cutting stumps to ground level, treating with 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 8 m 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 8 m strip)	Area outside of the maximum 8m strip and within the servitude area, remove all alien vegetation within servitude area and treat with appropriate herbicide.	Cut and treat with appropriate herbicide.

For the centreline of proposed power line an 8 m-wide strip (4 m either side of the centreline) is generally required to be cleared of all trees and shrubs down to within 100 mm of the ground within the servitude for stringing purposes only. Any tree or shrub in other areas that will interfere with the operation and/or reliability of the distribution power line must be trimmed or completely cleared.

Vegetation clearance for the proposed power line is expected to be minimal as a result of the area already being highly transformed due to vegetation clearance for agricultural activities. Since the area has a high infestation of alien species it is expected that the servitude will be treated with an appropriate herbicide. The clearing of vegetation will take place, with the aid of a surveyor, along approved profiles and in accordance with the approved Environmental Management Programme report (EMPr), as well as with the minimum standards to be used for vegetation clearing for the construction of the proposed new distribution line as listed in Table 1 (Eskom, 2000).

Once the centre line has been cleared, the surveyor pegs every tower position and marks the crossing point with existing fences for new gate installation. Once the tower positions have been marked, the vegetation clearing team will return to every tower position and clear vegetation (in accordance with the EMPr) for assembling and erection purposes.

Should the preferred distribution line corridor receive positive EA from the DEA and there be successful negotiations between Eskom and the landowners, the final delineation of the centreline for the proposed 132 kV distribution power line and co-ordinates of each bend in the line will be determined. Optimal tower sizes and positions will be identified and verified through comprehensive ground survey of the preferred route and these positions will be reflected in, and appropriate management actions incorporated into the periodically updated EMPr.

Trees and large shrubs causing clearance issues and interfering with the operation and/or reliability of the proposed distribution power line will be trimmed or cleared, the clearance of trees and/or shrubs will be a last resort. In areas where the proposed distribution power line crosses existing orchards or agricultural lands in use, the footprint of the structures will be minimised as practically as possible and full scale clearing of the servitude avoided to allow continued use of the arable land, unless impractical and negotiated with the affected farmer/s. Clearing of vegetation will take place along approved profiles and in accordance with the approved EMPr and the Eskom Vegetation Management Standard 240-52456757.

(c) Access

As far as possible, existing access roads and tracks will be used. It is anticipated that no additional roads will be required for the proposed project as ready access to the site exists. Access roads are required for the transportation of construction material as well as construction teams to the site and will also facilitate maintenance activities once the power line has been constructed. Construction camps will be established at strategic positions to provide optimum access to the construction areas. Eskom will make use of existing access roads for construction, operation and maintenance. The construction of additional access roads will not be necessary.

(d) Foundations

The type of terrain encountered in the affected environment, as well as the underlying geotechnical conditions determines the choice of foundation. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions). Guided strain structures require smaller foundations for support than in-line suspension structures, which contribute to the cost of the construction of the power line. Foundations, for the proposed distribution power line, will be mechanically excavated then a layer of concrete will be cast at the bottom of the foundation. The foundation will then be back filled with soil or cement mixture and then compacted in layers for the setting of the foundations. In areas where access to the structure position prohibits the use of concrete mixing trucks, uphill pumping or gravity feeding of concrete up to distances of 200 m will be implemented. Prior to erecting the structures and infilling of the pole foundations, the excavated foundations will be covered or fenced-off in order to safeguard unsuspecting animals and people from injury. All foundations will be back-filled, stabilised through compaction, and capped with concrete to a level of 200 millimetres (mm) above ground level.

The type of terrain encountered, as well as the underlying geotechnical conditions, determines the choice of foundation. The actual size and type of foundation to be installed will 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 will 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. The minimum working area required around a structure position is 20m × 20m.

(e) Insulators

Composite insulators have a glass-fibre core with silicon sheds for insulation and will be used to insulate the conductors from the proposed power line towers. Glass and porcelain have been used to insulate the conductors for many years, and is the most common. These products are, however, heavy and susceptible to damage by vandals, as well as contamination by pollution. Composite insulators are lightweight and resistant to both vandalism and pollution. Composite (long rod type) insulators with silicone based weather shed material will be used for the proposed distribution power line.

Long rod composite insulators are used to connect the conductors to the towers. Glass and porcelain have used to connect the conductors for many years, and are the most common. They are, however, heavy and susceptible to breakage by vandals, as well as contamination by pollution. Composite insulators have a glass-fibre core with silicon sheds for insulation. Composite insulators are lightweight and resistant to both vandalism and pollution.

Composite (Long rod type) insulators with silicone based weather-shed material will be used for strain assemblies. Composite horizontal line post insulators will be used for the intermediate structures and on the jumper supports.

(f) Construction Period

An estimated construction period of 12-18 months is envisaged. The construction period will however depend on the season and environmental conditions in which construction is undertaken and may be fast tracked.

(g) Project Timing

Construction of the power line will be approximately twelve (12) months.

(h) On-going Maintenance

During the life span of the proposed distribution power line, which is approximately 25 years, on-going maintenance will be performed from time to time. Eskom maintenance staff and contractors employed by Eskom will undertake the maintenance works as required.

(i) Technology Alternatives

Alternative technologies have not been considered as the technology to be used is already considered as the most appropriate technology and in some cases has been specifically designed for the existing environmental conditions and terrain, as specified by Standard Eskom Specifications and International Best Practice. The pylons under consideration for this proposed project are the most appropriate based on the terrain and design integrity as well as for the purpose for which the power line is proposed to be constructed.

2.3. Receiving Environment

(a) Climate

The climate information utilised for this report is that of the nearest town, Krugersdorp. The average day temperature of the area is about 26.4 degrees Celsius (˚ C) in January and approximately 16.6˚ C during the month of June; the area is the coldest around the months of June – July when the atmospheric temperature or pressure declines to an average of about 0.6˚ C at night. The area receives about 614 millimetres (mm) of annual rainfall; the rainfall season takes place during midsummer with the maximum rainfall in January and the least rainfall in June.

(b) Topography and Geography

According to the MCLM Spatial Development Framework (SDF), the municipality has quite a number of strong topographical characteristics with the ridges in the western part of the municipality strongly articulated. The drainage lines are perspicuous and are bordered by steep slopes; the relative mountainous areas of the eastern and western parts of the municipality are separated by a band of relative flat land dividing the municipal area. This area is underlain with dolomites and also represents some of the best agricultural potential in the municipal area (MCLM SDF, 2011).

(c) Geology and Soils

The notable geological attribute, according to the MCLM SDF of 2011, is the band of dolomite that traverses through the land of the MCLM. Most of the urban development is situated on land underlain by quartzite with the Muldersdrift located on land mostly underlain by granite (MCLM SDF, 2011).

The soil potential within the MCLM is categorised as low on the higher parts of the ridges, with some substantial potential in low lying areas, Tarlton is considered to have the highest soil potential within the municipality (MCLM SDF, 2011). According to the Agricultural Research Council's Land Capability as reported on the MCLM SDF of 2011, the Tarlton area falls under Class III (arable land) in terms of land capability.

(d) Flora and Fauna (including Avi-fuana)

The prevailing fauna and flora of the affected area is discussed on the Ecological Impact Assessment summary below, for more information on this refer to the Ecological Impact Assessment Report which forms part of the Specialist Studies attached to this report.

(e) Water Sources

The affected environment is characterised by perennial and non-perennial rivers, as well as permanent and artificial wetlands. Refer to **Figure 2** below.

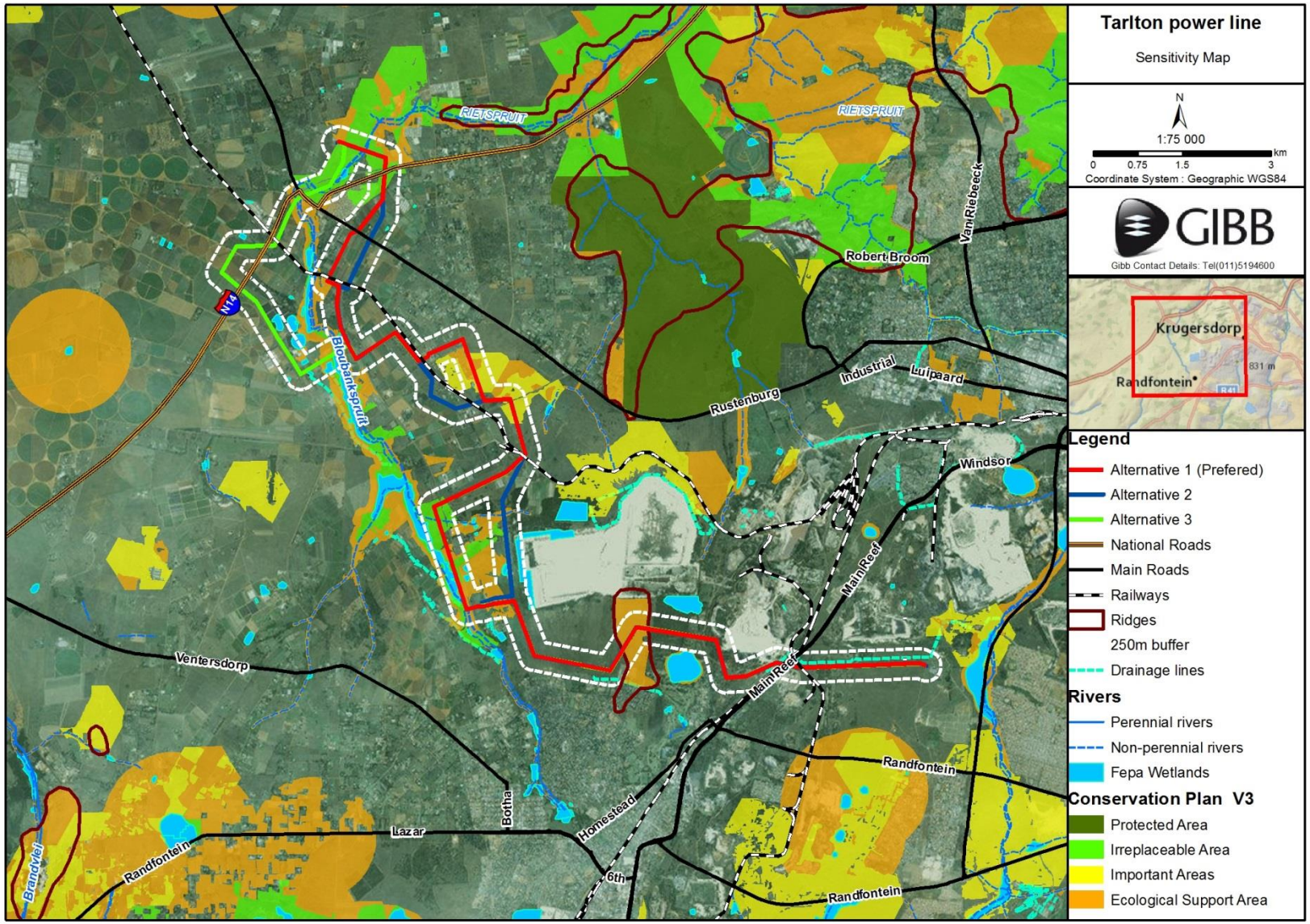

Figure 2: Sensitivity Map

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

Listed activity as described in GN 983, 984 and 985	Description of project activity
Example: ***GN 734 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.***	***A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river***
GNR No. 983 / GNR 327, Activity 11: The development of facilities or infrastructure for the transmission and distribution of electricity (j) Outside urban areas or on industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	The applicant, Eskom, is proposing to erect a 132kV power line connection for the transmission and/or distribution of electricity.
GN No. R. 983 / GNR 327, Activity 12: The development of - (ii) infrastructure or structures with a physical footprint of 100 square metres or more where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Several watercourses may be crossed along the powerline route, and as such pylons may be constructed within 32 metres of the watercourse.
GN No. R. 983 / GNR 327, Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	Several watercourses may be crossed along the powerline route, and as such pylons may need to be constructed within a watercourse, however this is considered unlikely and every effort will be made to avoid this.
GN No. R. 985 / GNR 324 Activity 12: The clearance of an area 300 square metres or more of indigenous vegetation c. Gauteng ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation plan or bioregional plans	Since the project alternatives transect irreplaceable and ecological support areas, while unlikely the removal of 300 square metres or more may be required during pylon placement.
GN No. R. 985 / GNR 324 Activity 14: The development of - (ii) infrastructure or structures with a physical footprint of 10 square metres or more where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	Several watercourses may be crossed along the powerline route, and as such pylons may be constructed within 32 metres of the watercourse. All project alternatives transect irreplaceable and ecological support areas, some to a lesser extent than others.

c. Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or bioregional plans	

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 Appendix 1(3)(h), Regulations of 2014. Alternatives must 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 must be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Must the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates must 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.

DESCRIPTION OF ALTERNATIVES:

Three (3) route alternatives exist for the proposed 132kV power line for the Westgate and Tarlton connection, these alternatives are outlined below:

- Preferred alternative (alternative 1)
- Alternative 2
- Alternative 3

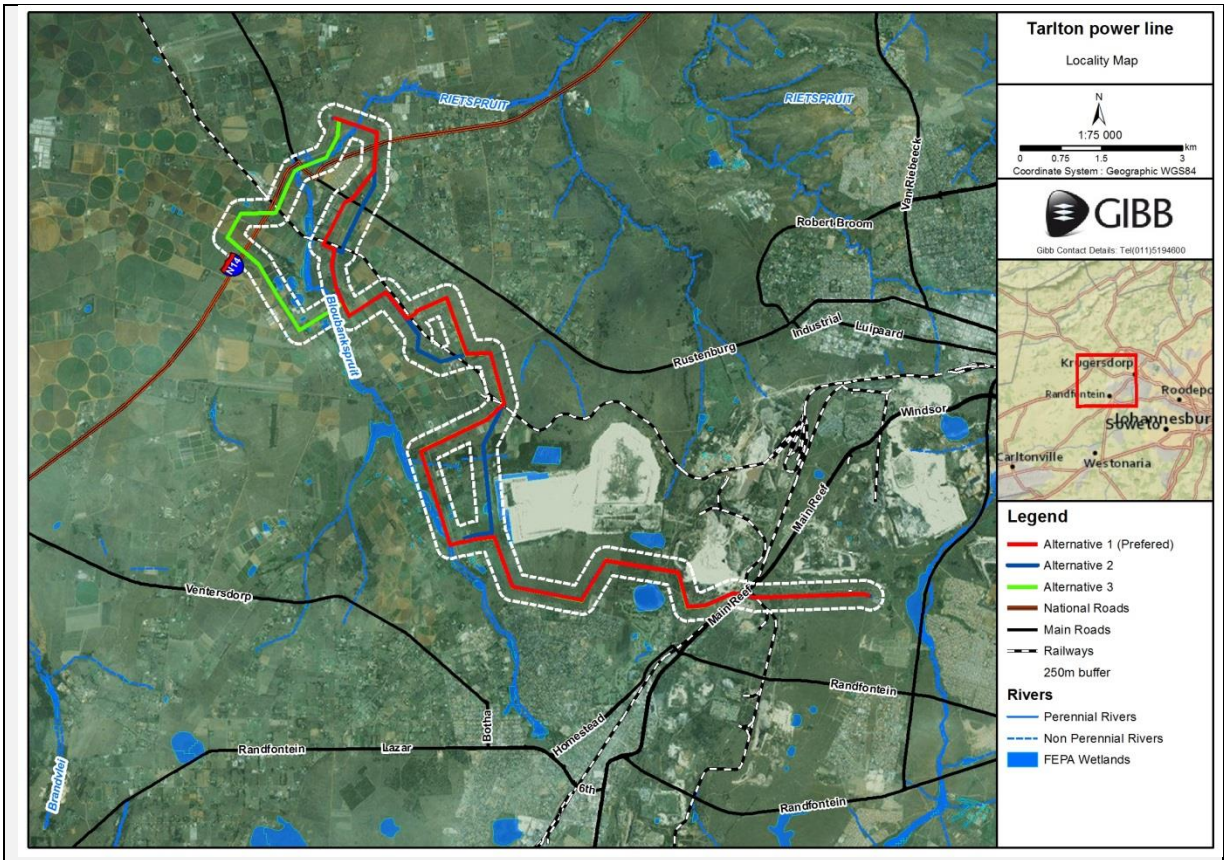

Figure 3: Map showing route alternatives (Larger image can be found in Appendix A)

Alternative 1, 2 and 3 power lines commence at the existing Westgate substation below a mine dump situated on the farm Luipaardsvlei 246 IQ, the power lines continue to the west crossing the R28 and traversing through the farm Randfontein 247 IQ. At the end of the mine dump the power lines change route to assume a northerly direction. At the southwest corner of the mine dump the power lines split with alternative 1 and 3 following the same route and alternative 2 deviating slightly but running in parallel to alternatives 1 and 3. All 3 routes are following a northerly direction. The power lines meet again near Battery Train Station and continue together until after the road connecting R24 near Fariaville to N14 next to Avalonia Agricultural Holding (AH) where the alternative 2 power line and alternative 1 and 3 power lines split and take a direction north of north-west. The power lines meet again after approximately a kilometre and a half and continue together to split after the road connecting R24 to Greenhills, at this point alternative 3 continues in the same direction in parallel to alternative 1 and 2 until an open area beyond Wolfelea AH and N14 of which the power lines end. The powerline connects to the existing Tarlton substation located on Portion 265 of Vlakplaats.

It must be noted that the main purpose of the proposed power line connection is to strengthen the existing electricity supply in the area, and as such provide the area with adequate and reliable power supply to meet current and future demands.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)	Please also see the coordinates attached in **Appendix J**	
• Starting point of the activity	26° 4'5.31"S	27°39'13.40"E
• Middle/Additional point of the activity	26° 7'27.97"S	27°40'13.46"E
• End point of the activity	26° 8'51.32"S	27°45'10.63"E

Alternative S2 (if any)		
	Please also see the coordinates attached in **Appendix J**	
• Starting point of the activity	26° 4'5.32"S	27°39'13.31"E
• Middle/Additional point of the activity	26° 7'43.48"S	27°40'57.14"E
• End point of the activity	26° 8'50.21"S	27°45'12.03"E

Alternative S3 (if any)		
	Please also see the coordinates attached in **Appendix J**	
• Starting point of the activity	26° 4'5.12"S	27°39'13.38"E
• Middle/Additional point of the activity	26° 7'24.81"S	27°40'13.16"E
• End point of the activity	26° 8'50.25"S	27°45'11.95"E

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 of this form.

b) Lay-out alternatives

Layout alternatives are not applicable to the construction of the proposed Westgate-Tarlton 132kV power line.

c) Technology alternatives

Alternative technologies have not been considered as the technology to be used is already considered as the most appropriate technology and in some cases has been specifically designed for the existing environmental conditions and terrain, as specified by standard Eskom specifications and international best practice. The pylons under consideration for this project are the most appropriate based on the terrain and design integrity as well as for the purpose for which the power line is to be constructed.

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

No other alternatives have been considered

e) No-go alternative

The No-go alternative in the context of this project implies that the power line is not to be constructed. If the project does not proceed, the potential negative impacts related to the risk of collisions of birds, clearing of vegetation and soil erosion would be avoided. The surrounding area will however, be negatively affected due to the lack of a constant and reliable electricity supply. This will directly inhibit future developments and economic growth in the area. The need for stable and reliable power supply to meet current and future demand will outweigh the potential impacts to the surrounding environment. The impacts to the surrounding environment can be proactively mitigated to acceptable levels.

The No-Go Alternative is therefore not recommended.

Paragraphs 3 – 13 below must 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:	Size of the activity:
Alternative A1[1] (preferred activity alternative)	m²
Alternative A2 (if any)	m²
Alternative A3 (if any)	m²

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	22.6 km
Alternative A2 (if any)	21.3 km
Alternative A3 (if any)	24.7 km

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)	723 200 m²
Alternative A2 (if any)	681 600 m²
Alternative A3 (if any)	790 400 m²

4. SITE ACCESS

Does ready access to the site exist?	**YES ✓**	NO
If NO, what is the distance over which a new access road will be built		m

Describe the type of access road planned:

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.

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 must be in degrees and decimal minutes. The minutes must 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).

[1] "Alternative A.." refer to activity, process, technology or other alternatives.

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
- a north arrow.

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 DWS);
- 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.

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.

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.

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~~	~~NO~~	**Please explain**
The proposed project is linear and affects quite a number of properties, if one or more do not permit the proposed activity this will be discussed during the stakeholder engagement. This part will be updated if there are any changes.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES**	~~NO~~	**Please explain**
As described in smaller context on the MCLM and RLM IDPs as well as on a larger context on the Gauteng SDF, there is a high rate of development within the Gauteng Province (both formal and informal human settlements). These developments require services which include electricity of which some of these developments, particularly the informal development do not have access to electricity or energy and so the government has to make provisions for these communities. Thus, the proposed power line development may be seen as an opportunity to alleviate the high demand for electricity or energy within the province.			

(b) Urban edge / Edge of Built environment for the area	**YES**	~~NO~~	**Please explain**
Urban edge, as define by the Gauteng SDF, is the regional boundary set in an attempt to control urban sprawl by mandating that the area inside the boundary be used for higher density urban development and the area outside to be used for lower density rural development. It is not anticipated that the proposed development will affect the urban edge negatively.			
(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?).	**YES**	~~NO~~	**Please explain**
According to the MCLM IDP of 2015/16, the municipality still requires some electricity substations as well as upgrade to the existing substations as there are still houses without access to the electricity. The IDP of 2014/15 for the RLM further highlights the lack of access to electricity in informal areas.			
(d) Approved Structure Plan of Municipality	~~YES~~	~~NO~~	**Please explain**
The bulk of the proposed power line, if approved, will run parallel to the existing power lines and will mimic the structures as well as the wiring utilised in the existing power lines. Eskom will ensure that the structures and or materials used will not contravene the Approved Structure Plan of the MCLM and RLM municipalities.			
(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?)	**YES**	~~NO~~	**Please explain**
According to the Gauteng Provincial Environmental Management Framework (GPEMF) produced by the Gauteng Department of Agriculture and Rural Development (GDARD), there is no environmental management zone (EMZ) within the Gauteng Province that is "undesirable for the (electric network) development or land use". EMZs 1, 4 and 5 are "compatible with the (electric network) development or land use" with EMZs 2 and 3 "conditionally compatible". The special control zone b (Cradle of Human Kind World Heritage Site) is not affected by the proposed power line development.			
(f) Any other Plans (e.g. Guide Plan)	**YES**	~~NO~~	**Please explain**
The applicant will ascertain that every activity undertaken as part of this proposed power line development is in line with any applicable plans prepared for the affected area.			
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)?	**YES**	~~NO~~	**Please explain**
As per the MCLM IDP, some of the municipality communities do not have access to electricity and as result the municipality is endeavouring to distribute electricity in these communities. This proposed project may help the municipality to alleviate this problem.			
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.)	**YES**	~~NO~~	**Please explain**
According to both the IDPs for the MCLM and RLM, there is a need for this activity in both the municipalities as there are existing informal settlements without access to electricity.			
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.)	~~YES~~	~~NO~~	**Please explain**
Not applicable as the project involves the construction of electricity power lines.			

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.)	~~YES~~	~~NO~~	**Please explain**
Not applicable as the project involves the construction of electricity power lines.			
7. Is this project part of a national programme to address an issue of national concern or importance?	~~YES~~	**NO**	**Please explain**
The proposed project is Eskom's initiative, nevertheless and as mentioned within the IDPs of both the municipalities that there are existing informal settlements without electricity, this proposed project will address the issue of lack of electricity in some or all of the informal settlements without electricity.			
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.)	**YES**	~~NO~~	Please explain
The proposed project is linear, and the bulk of the proposed power line will run parallel to existing power lines in the affected area. Thus, the proposed power line will blend in with the existing power lines.			
9. Is the development the best practicable environmental option for this land/site?	**YES**	~~NO~~	**Please explain**
Most of the power line route cuts through areas that are not developed or less developed, cultivated areas and areas that have been affected by mining, this means that there are less objects (high-rise buildings, etc.) affected by the power line and the environment in this area is not pristine.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES**	~~NO~~	**Please explain**
As mentioned above, there are existing informal settlements in both the affected municipalities who do not have access to electricity. This project will benefit these communities profoundly.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	**YES**	~~NO~~	**Please explain**
The introduction of the power lines may lead to erection of substations and introduction of more power lines which will benefit both the affected municipalities in terms of economic growth as investors look at aspects such as reliable energy source.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	~~YES~~	**NO**	**Please explain**
It is not anticipated that the proposed project will negatively affect any person's rights.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	~~YES~~	**NO**	**Please explain**
The proposed power line development will not encompass the "urban edge".			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES**	~~NO~~	**Please explain**
The applicable SIP is SIP 10: Electricity transmission and distribution for all which asserts the following – **Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development.** Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity. The part in bold being more applicable to this project.			
15. What will the benefits be to society in general and to the local communities?			**Please explain**
More households, especially the informal settlements mentioned above and which are characterised by historically disadvantaged individuals, will be benefited by this project and this is seen as an improvement to their livelihoods.			
16. Any other need and desirability considerations related to the proposed activity?			**Please explain**
This project will not only benefit the communities of the affected municipalities but also the economic growth of these municipalities.			

17. How does the project fit into the National Development Plan for 2030?	Please explain
The NDP for 2030 has a vision that by 2030 South Africa will have an energy sector that promotes economic growth and development through adequate investments in energy infrastructure and the provision of quality energy services (National Development Plan, 2011). It further emphasises the need to create 11 million more employment opportunities. Based on the abovementioned statement and requirements associated with achieving this goal, the proposed development is aligned with the NDP in that it will assist with the promotion of economic growth by means of producing electricity, strengthening the local electrical feed supply and additional employment opportunities.	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
The proposed development has been adequately considered by the Environmental Assessment Practitioner (EAP) and identified specialists, and all potential impacts that may have a significant impact on the receiving environment have been considered and mitigated to acceptable levels as required by the EIA Regulations of 2014 published under NEMA. The findings of the specialist reports have been integrated into this assessment thus giving effect to holistic environmental management. The conclusions of the impact assessment have been concisely summarised to adequately inform decision-making by the competent authority. A comprehensive Public Participation (PP) process will be undertaken, which will conform to requirements in Chapter 6 of the EIA Regulations of 2014. Furthermore, all Interested and Affected Parties (I&APs) will be given an opportunity to review and comment on all documents and reports related to this project.	
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.	
The primary objective of the proposed project is to provide stable electricity supply to the affected municipalities and surrounding areas. Provision of stable electricity supply with spare capacity will encourage future development in the area and will potentially improve the economic situation through additional employment opportunities. The social, economic and environmental impacts have been identified and rated by the EAP. The Basic Assessment (BA) process was advertised and members of the public will be given the opportunity to register as an I&APs as described in Section C: Public Participation and a Comment and Response Report (CRR) will be attached to the Final BAR.	

Most of the negative impacts associated with the proposed project will occur during the construction phase. Where negative impacts are unavoidable, they will be mitigated accordingly as stipulated in the Environmental Management Programme (EMPr). Recommendations and mitigations presented in the EMPr will reduce the disturbance to ecosystems and the loss of biodiversity. Where negative impacts are unavoidable, strict management and rehabilitation is recommended to minimise these potential impacts. The use of potentially polluting substances will be managed according to requirements stipulated in the EMPr. The Developer is bound to the stipulations of the EMPr and will be held accountable should there be diversion from the EMPr.

The workers will be given environmental health and safety training prior to commencing any work. Daily 'tool box talks' will be used to inform workers of any specific environmental issues or health and safety concerns relating to the activities or location. The cost of rehabilitation required due to pollution or unnecessary environment degradation resulting from the activity will be the responsibility of the developer

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:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Constitution of the Republic of South Africa	The constitution paved the way for the protection of the natural environment and heritage resources through the recognition of the rights to a safe and healthy environment.	South African Government	1996
National Environmental Management Act, 1998 (Act No. 107 of 1998)	NEMA is the key environmental management legislation and states in section 2(4)(k) that "the environment is held in public trust for the people, the beneficial use of resources must serve the public interest and the environment must be protected as the people's common heritage" thereby paving the way for EIA process to assess developments that may have a harmful impact on the environment	Department of Environmental Affairs	1998
Environmental Impact Assessment (EIA) Regulations, 2014	The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed.	Department of Environmental Affairs	2010
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	Under section 38(1) of the NHRA any person who intends to construct a power line or other linear development exceeding 300m in length must notify the responsible heritage resources agency of its intention.	South African Heritage Resources Agency	1999
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	In terms of section 6 of the Act, the Minister may prescribe control measures with which all land users have to comply. The control measure may relate to the regulating of the flow pattern of run-off water, the control of weeds and invader plants, and the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the receiving environment.	Department of Environmental Affairs	1983
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting. Some Critical Biodiversity Areas and vulnerable and endangered ecosystems have been identified by the vegetation specialist in the study site.	Department of Environmental Affairs	2004
National Forests Act, 1998 (Act No. 84 of 1998)	The proposed project may result in the disturbance or damage to a tree protected under the NFA.	Department of Agriculture, Forestry and Fisheries	1998
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	The Protected Areas Act provides for the protection and conservation of ecologically viable areas representative of the country's biological diversity, its natural landscapes and seascapes. The proposed routes both preferred and alternative routes runs through a non-statutory protected area.	Department of Environmental Affairs	2003
Electricity Regulations Act, 2006 (Act No. 4 of 2006)	This act establishes a nationally regulatory framework for the electricity supply industry, and provides for licenses and registrations as the manner in which generation, transmission, distribution, reticulation, trading and the import and export of electricity are regulated. The erection of new electricity distribution infrastructure is thus regulated in terms of this act.	National Energy Regulator of South Africa	2006
National Energy Act, 2008 (Act No. 34 of 2008)	The Act allows for the regulation, construction and maintenance of security of energy supply in South Africa. The act empowers the energy regulator to invest in the construction and maintenance of	South African National Energy Development Institute.	2008

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	energy infrastructure, which includes the installation of electrical infrastructure in areas where the grids are operating at near maximum capacity as well as where electricity is needed for the successful operation of various economically empowering procedures.		
National Road Traffic Act, 1996 (Act No. 93 of 1996)	All the requirements stipulated in the NRTA regarding traffic matters will need to be complied with during the construction, operation and decommissioning phases of the proposed power line.	South African National Roads Agency Limited (SANRAL)	1996
Gauteng Spatial Development Framework	This GSDF was used to determine whether the proposed development is aligned to the outcomes and goals set in the Provincial Spatial Development Framework drawn up for the Gauteng.	Office of the Premier of the Gauteng	2012
Gauteng Biodiversity Conservation Plan	This Conservation plan provides the boundaries and areas where critical biodiversity zones and important support areas have been identified and accepted by the provincial authority. The location of the CBAs in the CTMM have been taken acknowledged and mitigation measures to minimise impacts on these CBAs have been proposed by the competent vegetation specialist	Gauteng Department of Agriculture and Rural Development	2011
Gauteng EMF	The Gauteng EMF is a decision making tool that must be used to facilitate the consideration of applications for environmental authorisation in order to protect the natural resources within the district.	Gauteng Province	2014
Mogale City Local Municipality Integrated Development Plan	The IDP identifies the need to install, upgrade and increase the electricity grid in the local municipality, thus supports the proposed installation of distribution line.	Mogale City Local Municipality	2015/16

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	**YES** ~~NO~~
If YES, what estimated quantity will be produced per month?	**Minimal**

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

All solid waste which is not reusable will be collected at a central location and will be stored temporarily until removed to a recognised landfill site. Waste will under no circumstances be allowed to be burned or buried on site. It must be noted that due to the nature of the project the amount of construction waste that will be generated will be minimal.

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

The construction solid waste will be disposed of at an approved municipal landfill site.

Will the activity produce solid waste during its operational phase?	~~YES~~ **NO**
~~If YES, what estimated quantity will be produced per month?~~	~~m^3~~

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

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

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

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 must 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?	~~YES~~ **NO**

~~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?	~~YES~~ **NO**

~~If YES, then the applicant must 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?	~~YES~~ **NO**
~~If YES, what estimated quantity will be produced per month?~~	~~m^3~~
Will the activity produce any effluent that will be treated and/or disposed of on site?	~~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.*~~

Will the activity produce effluent that will be treated and/or disposed of at another facility?	~~YES~~ **NO**

~~If YES, provide the particulars of the facility:~~

~~**Facility name:**~~			
~~**Contact person:**~~			
~~**Postal address:**~~			
~~**Postal code:**~~			
~~**Telephone:**~~		~~**Cell:**~~	
~~**E-mail:**~~		~~**Fax:**~~	

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

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	~~YES~~	**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:~~

During the construction phase, it is expected that there will be short-term dust generation and emissions from vehicles and machinery. However, the dust and emissions will have a medium- to short-term duration and have a limited impact on the very immediate surrounding rural areas. Where appropriate, dust suppression measures will be implemented to reduce the impacts. It is recommended that construction vehicles be serviced and kept in good mechanical condition to minimise possible exhaust emission.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	~~YES~~	**NO**

~~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**	~~NO~~
~~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 control regulations and SANS 10103: Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised and contained within the construction site. The applicant must adhere to the relevant provincial noise control legislation (if any) as well as SANS 10103. Working hours should be restricted to 07h00 to 18h00 Monday to Friday excluding public holidays unless otherwise agreed with adjacent landowners.

13. WATER USE

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

Municipal	~~Water board~~	~~Groundwater~~	~~River, stream, dam or lake~~	~~Other~~	~~The activity will not use water~~

~~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:~~		~~litres~~
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	**YES**	~~NO~~

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

This power line crosses drainage lines and watercourse features along various sections of the proposed alignment. The main impact of the power line is due to construction of the pylon structures (which has a very small local footprint). The pylon structures will be positioned to avoid the actual drainage lines and watercourses, where applicable, but may occur within the buffer area of the watercourses.

A water use license application (WULA) will be applied for from the Department of Water Affairs in a separate process. Please note that Section 21 (c) and (i) activities likely to be triggered

14. ENERGY EFFICIENCY

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

No measures were taken to ensure the energy efficiency of the activity.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

No alternative energy sources have been taken into account or built into the design of the activity.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. 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): [ ]

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

3. Has a specialist been consulted to assist with the completion of this section? ~~YES~~ **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:

Province	Gauteng
District Municipality	West Rand
Local Municipality	Mogale City Local Municipality (MCLM) and Randfontein Local Municipality (RLM)
Ward Number(s)	MCM – Ward 3 and 30 RLM – Ward 9
Farm name and number	Please see the list of farm names and numbers attached in **Appendix J**
Portion number	Please see the list of portion numbers attached in **Appendix J**
SG Code	Please see the list of SG Codes attached in **Appendix J**

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:

Agriculture/Residential

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? ~~YES~~ **NO**

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~~

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~~

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~~		~~2.4 Closed valley~~		2.7 Undulating plain / low hills	**X**		
~~2.2 Plateau~~		~~2.5 Open valley~~		~~2.8 Dune~~			

2.3 Side slope of hill/mountain	X	2.6 Plain	X	~~2.9 Seafront~~	
~~2.10 At sea~~					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1 (Preferred):		**Alternative S2:**		**Alternative S3:**	
Shallow water table (less than 1.5m deep)	~~YES~~	**NO✓**	~~YES~~	**NO✓**	~~YES~~	**NO✓**
Dolomite, sinkhole or doline areas	**YES✓**	~~NO~~	**YES✓**	~~NO~~	**YES✓**	~~NO~~
Seasonally wet soils (often close to water bodies)	**YES✓**	~~NO~~	**YES✓**	~~NO~~	**YES✓**	~~NO~~
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	**NO✓**	~~YES~~	**NO✓**	~~YES~~	**NO✓**
Dispersive soils (soils that dissolve in water)	~~YES~~	**NO✓**	~~YES~~	**NO✓**	~~YES~~	**NO✓**
Soils with high clay content (clay fraction more than 40%)	~~YES~~	**NO✓**	~~YES~~	**NO✓**	~~YES~~	**NO✓**
Any other unstable soil or geological feature	~~YES~~	**NO✓**	~~YES~~	**NO✓**	~~YES~~	**NO✓**
An area sensitive to erosion	~~YES~~	**NO✓**	~~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 must be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the 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.

4. GROUNDCOVER

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

Natural veld - good condition[E]	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	**Cultivated land**	~~Paved surface~~	**Building or other structure**	**Bare soil**

If any of the boxes marked with an "[E] "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.

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:

A perennial river associated with the Bloubankspruit is within the buffer of the power lines at least three (3) times and touches the power line route in various areas; alternative 3 touches the perennial river at least five (5) times, whereas alternative 2 touches the perennial river two (2) times.

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 [H]
Medium density residential	**School**	Landfill or waste treatment site
High density residential	~~Tertiary education facility~~	**Plantation**
Informal residential[A]	Church	**Agriculture**
Retail commercial & warehousing	Old age home	**River, stream or wetland**
Light industrial	**Sewage treatment plant[A]**	Nature conservation area
~~Medium industrial [AN]~~	**Train station or shunting yard [N]**	**Mountain, koppie or ridge**
~~Heavy industrial [AN]~~	**Railway line [N]**	~~Museum~~
Power station	**Major road (4 lanes or more) [N]**	Historical building
Office/consulting room	~~Airport [N]~~	Protected Area
Military or police base/station/compound	~~Harbour~~	**Graveyard**
Spoil heap or slimes dam[A]	**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:

The train station and railway line, if operational, as well as N4 will not be impacted upon drastically; Eskom will make provisions and adjustments so that the power line does not affect the normal operation of these infrastructures.

~~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)	**YES**	~~NO~~
Core area of a protected area?	~~YES~~	**NO**
Buffer area of a protected area?	~~YES~~	**NO**
Planned expansion area of an existing protected area?	~~YES~~	**NO**
Existing offset area associated with a previous Environmental Authorisation?	~~YES~~	**NO**
Buffer area of the SKA?	~~YES~~	**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:~~	**YES**	~~NO~~
	~~Uncertain~~	

According to the National Heritage Resources Act, 1999 (Act No. 25 of 1999) as amended (NHRA), Section 38, Subsection (1), an Heritage Impact Assessment is required as part of the proposed project impact assessment if one or more of the following are applicable to the proposed project.

Section 38 (1) of NHRA:

Subject to the provisions of Subsections (7), (8) and (9) of the same section, any person who intends to undertake a development categorised as:

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development, or barrier exceeding 300m in length;
- The construction of a bridge or similar structure exceeding 50m in length;
- Any development or other activity which will change the character of a site:

- Exceeding 5 000 m^2 in extent; or
- Involving three or more existing erven or subdivisions thereof; or
- Involving three or more erven or divisions thereof which have been consolidated within the past five years; or
- The costs of which will exceed a sum set in terms of Regulations by the South African Heritage Resources Agency (SAHRA) or a Provincial Heritage Resources Authority (PHRA);
- The re-zoning of a site exceeding 10 000 m2 in extent; or

- Any other category of development provided for in Regulations by SAHRA or PHRA;

Must at the very earliest stages of initiating such a development, notify the responsible Heritage Resources Authority (HRA) and furnish it with details regarding the location, nature and extent of the proposed development.

Therefore a Heritage Impact Assessment was undertaken By Sativa Travel and Environmental Consultants for the proposed project and the results of which are summarised below. Further details pertaining to the study have been included as **Appendix D** to this report.

Route Alternative 1:

The preferred route alternative runs parallel to route alternative 3 almost entirely, except for some few kilometres towards the end of the route. As in route alternative 3, no heritage finds were discovered during the assessment of route alternative 3; the Heritage Impact Assessment (HIA) report which forms part of the impact assessment of this BAR attributed this to degradation due to land uses that characterise the proposed project site. These land uses include agricultural activities, mining activities and building developments as well as infrastructure and facilities related to these, i.e. roads, electric power lines, water and sewage pipelines, etc. The report further asserts that the potential of finding heritage and/or archaeological materials or sites during the construction phase of the proposed project is limited. No historic materials or sites were uncovered during the assessment, except for the "abandoned historic remains of a homestead" which are on the portion of route alternative 1; the dense vegetation cover on this portion made it impossible for the Heritage Specialist to survey and catalogue these remains.

Two informal burial sites (TWBS1 and TWBS2) were discovered during the assessment of impacts that may be posed by the proposed project to the immediate heritage; according to the HIA report these burial sites are no longer active but evidence was found on TWBS1 that indicates that the curators of some graves still visited the site. Route alternative 1 has an effect on TWBS1; the HIA report suggests that the route be shifted further west to avoid the burial site. TWBS2 is not affected by route alternative 1.

Route Alternative 2:

The HIA found no significant archaeological and/or heritage material in the proximity of route alternative; this as is asserted above, is attributed to the land-use activities that characterise the proposed project route. Additionally, the route alternative does not lie on any historic site. Burial grounds, TWGBS3, were discovered during the impact assessment. The graves lie a distance of 40m from the N14 servitude of which route alternative 2 crosses the road around this point. No historical monuments were uncovered during the undertaking of this impact assessment.

Route Alternative 3:

No heritage finds were discovered during the assessment of route alternative 3; the HIA report which forms part of the impact assessment of this BAR attributed this to degradation due to land uses that characterise the proposed project site. These land uses include agricultural activities, mining activities and building developments as well as infrastructure and facilities related to these, i.e. roads, electric power lines, water and sewage pipelines, etc. The report further asserts that the potential of finding heritage and/or archaeological materials or sites during the construction phase of the proposed project is low to medium. No historic materials or sites were uncovered during the assessment, except for the "abandoned historic remains of a homestead" which are on the portion of route alternative 3; the dense vegetation cover on this portion made it impossible for the Heritage Specialist to survey and catalogue these remains.

Two informal burial sites (TWBS1 and TWBS2) were discovered during the assessment of impacts that may be posed by the proposed project to the immediate heritage; according to the HIA report these burial sites are no longer active but evidence was found on TWBS1 that indicates that the curators of some graves still visited the site. Route alternative 3 has an effect on TWBS1; the HIA report suggests that the route be shifted further west to avoid the burial site. TWBS2 is not affected by route alternative 3. According to the HIA report, derelict farm structures were recorded along route alternative 3; the ruined structures are however of low historical significance because of their derelict nature.

Comparison of the Route Alternative:

The HIA reports asserts that none of the 3 alternative routes has an advantage over the other, from an archaeological perspective, however the route alternative 3 has a slight advantage over the others because of its relatively shorter length. Additionally, the route alternative 3 avoids direct impact to active agriculture and mining areas.

For comprehensive mitigation measures and recommendations, please see the HIA Report in **Appendix D**.

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:

A Heritage Impact Assessment has been undertaken and forms part of this report, please see **Appendix D**.

Will any building or structure older than 60 years be affected in any way?	~~YES~~	**NO**
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	~~YES~~	**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:

According to the Mogale City Local Municipality (MCLM) IDP 2015/16 the households earn an income of between R96 000 - R153 800 annually. The household's income has increased across the board, with an average 2.34% increase from 2001 to 2011. In addition, households with no income have increased by 3 191 in the past ten years from 15 028 in 2001 to 18 219 in 2011. MCLM has 37.15% employed people compared to Gauteng's 36.40%, whereas the unemployed makes up 13.02% for MCLM and 12.10% for the overall province. The employment level has dropped by 13% from 50.16% in 2007 to 37.16% in 2011. Unemployed people and discouraged work seekers make up 10.29% of the total population. The unemployment maybe much higher, since 28% of the population over 15 year did not indicate employment status.

The Randfontein Local Municiplaity (RLM), as per the LRM IDP 2014/15 has about 104 848 of working age population with 70 652 characterised as economically active and 34 196 not economically active. The employed are about 51 480 and unemployed approximately 19 172. The unemployment rate is at 27.1%.

Economic profile of local municipality:

The economic growth of the local municipality area, otherwise known as Gross Geographic Value (GGV), refers to value of all goods produced and services rendered in a geographic space, such as MCLM (Mogale City Local Municipality IDP, 2015/16). The GGV dropped from 5% to negative growth of -3% in 2008/2009, from mid-2009 to the end of 2010 the growth had been hovering between 2% and 3%.

The economic activities of the RLM, according to the RLM IDP 2014/15 are characterised by agriculture, forestry & fishing, mining & quarrying, manufacturing, electricity, gas & water, construction, and wholesale & retail trade. In 2002, mining & quarrying and manufacturing made a yield of more than 20% of which this was less than 20% for both in 2011. Wholesale & retail trade was a little more than 10% in 2002, the yield increased in 2011. The rest of the activities had a yield far less than 10% in 2002, these saw an increase in 2011 but were still less than 10%.

Level of education:

As per the MCLM IDP 2015/16 in 2009 a total number of 13 231 persons had no schooling compared to the figure of 16 743 registered in 2006. This indicates that illiteracy level has declined with a figure of 3 512. By 2009, the total number of persons who received schooling from grade 0 – 11 was at 149 687 compared to figure of 142 461 registered in 2006. These figures indicate that additional 7 226 persons received education in this category. In 2009 a total number of 74 632 persons had a matriculation certificate compared to the figure of 68 207 registered in 2006.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Approximately R 120 million	
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown	
Will the activity contribute to service infrastructure?	**YES**	~~NO~~
Is the activity a public amenity?	~~YES~~	**NO**

How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Eskom undertakes an open tendering process to employ suitable contractors to carry out the construction phase of the development. Contractors are required to employ local unskilled labourers for non-specialized work.
What is the expected value of the employment opportunities during the development and construction phase?	This can only be established once the contractor is appointed
What percentage of this will accrue to previously disadvantaged individuals?	Approximately 40 %
How many permanent new employment opportunities will be created during the operational phase of the activity?	None. Eskom will maintain the power line once constructed
What is the expected current value of the employment opportunities during the first 10 years?	N/A
What percentage of this will accrue to previously disadvantaged individuals?	N/A

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. 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 (ESA)**	**Other Natural Area (ONA)**	~~No Natural Area Remaining (NNR)~~	

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 etcetera).
Natural	10%	Parts of the site are categorised as grassland with patches of thicket or dense bush.
Near Natural (includes areas with low to moderate level of alien invasive plants)	10%	There is evidence of infestation with alien invasive plants within the proposed project site as reported in the Ecological Impact Assessment report prepared as part of the impact assessment of this Basic Assessment Process
Degraded (includes areas heavily invaded by alien plants)	30%	According to the Ecological Impact Assessment report, some areas of the proposed project site are highly degraded due to the land-uses that characterise the site.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	50%	Most of the area is cultivated with urban built-up, medium and high residential development as well as informal residential, plantation or woodlands, mining, etc.

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**						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	~~Critical~~	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	~~Least Threatened~~	**YES**	~~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)

An ecological impact assessment was undertaken by Sativa Travel and Environmental Consultants for the proposed project, which has been summarised below. Further details pertaining to the assessment can be seen in **Appendix D** of this report.

Ecological Surveys:

Desktop and field surveys were undertaken to assess the ecological impact that may be posed by the proposed project within the proposed project site, during these investigations cognisance was taken of environmental features and/or attributes. These environmental features and/or attributes include the biophysical environment, the regional and site specific vegetation, the habitats ideal for potential red data fauna species, the sensitive floral habitats, the red data fauna and flora species, the protected fauna and flora species, and watercourses and water bodies.

Ecological Sensitivity:

As stated in the Ecological Impact Assessment Report, the ecological sensitivity of a study area is determined by combining the sensitivity analysis of both the floral and faunal components. The highest calculated sensitivity unit of the two categories is taken to represent the sensitivity of that ecological unit, whether it is floristic or faunal in nature. The grassland habitat within the proposed study site was rated overall as having a sensitivity rating of medium, however, the grassland areas within the study area and along the three power line route alternatives that are highly degraded or transformed were rated as of low sensitivity rating. The floral ecological sensitivity of the watercourses and the cultivated lands was rated medium/high and low, respectively; with the faunal ecological sensitivity of the same two components rated as medium/high and low, in that order.

Land-cover:

The land-cover of the proposed project site is characterised by cultivated land, urban areas, mining areas as well as open grassland areas; natural areas (**Figure 3 of the Ecological Impact Assessment Report**) dominate the proposed project site of which the report presumes are open grassland areas. According to the report, these natural or open grassland areas are degraded and are not in pristine state.

According to the Ecological Impact Assessment Report, no large perennial rivers occur within the study area however, a semi-perennial river (Bloubankspruit) occurs within the proposed project site. This river flows approximately in a south to north direction and then turn northeast in the vicinity of the N14/ R24 intersection. The stream eventually flows into the Crocodile River (**see Figure 4 of the Ecological Impact Assessment Report**). The Bloubankspruit falls under the National Freshwater Ecosystem Priority Areas (NFEPA) and is also listed under the Gauteng Department of Agriculture and Rural Development's (GDARDs) Critical Biodiversity Areas (CBAs) CPlan V.3.3 as it in an Irreplaceable Area.

The report further states that, a few wetlands exist along the Bloubankspruit and a few others are found throughout the study area, but most of these wetlands are not naturally occurring and have resulted due to changes in topography, cultivation practices, mining activities, storm-water runoff from urban areas, impoundments from roads, etc.

Flora:

The study area and the surrounding region fall within the Grassland Biome, also known as the Grassveld Biome, according to the Ecological Impact Assessment Report which forms part of the impact assessment of this BA process. This Biome is one of nine (9) biomes that occur in South Africa. The Grassveld Biome vegetation types are dominated by a single layer of grasses, with middle layers of shrub or upper layers of trees rare to absent, except in a few localised habitats such as koppies and ridges.

According to the Ecological Impact Assessment Report undertaken as part of the impact assessment for this project, the study area falls predominantly in the Meisic Highveld Grassland Bioregion, with a small section in the north within the Dry Highveld Grassland Bioregion. The report further asserts that the vegetation of the study area is predominantly the Soweto Highveld Grassland, with a small part of the study area in the north in the Carletonville Dolomite Grassland. It is also stated in the Ecological Impact Assessment Report that the conservation status of the Soweto Highveld Grassland is endangered with the Carletonville Dolomite Grassland vulnerable. According to **Figure 8 of the Ecological Impact Assessment Report** the proposed project site is within a "Threatened Ecosystem".

The report recorded no Red Data Species during the field investigations, except for some provincially important species (Priority Species) identified. This was the Aloe zebrina (A. transvaalensis). No protected trees were recorded within the study area. A number of alien plants were discovered during the undertaking of the Ecological Impact Assessment, these included herbaceous plants that are especially prevalent in disturbed areas, tree species such as black wattle, gumtrees and syringe, other species, some of which are invasive, that occur scatterely throughout the proposed project area, especially in disturbed areas, old mining areas and along roadsides. A comprehensive list of the alien species discovered during the ecological assessment is provided in **Table 7 of the Ecological Impact Assessment Report**.

Fauna:

No priority species, including red data species, were observed during the field investigations (according to the Ecological Impact Assessment Report). There were no mammals or wild faunal species, except for some birds and butterflies, observed within the proposed development site. The Ecological Impact Assessment Report asserts that some parts of the proposed development site are in close proximity to habitats of reptiles (snakes and lizards), however none of the proposed route alternatives directly traverses these habitats.

Fatal Flaws:

The Ecological Impact Assessment Report found no fatal flaws for the proposed project site as a whole, except for a localised flaw which was recognised in terms of the route corridor and which runs within, or very close to a priority and sensitive area, the Bloubankspruit and associated wetland areas. The report recommended that the proposed project may proceed in terms of the natural environment component, with caution and recommended mitigating measures put in place.

Alternative Route Recommendation:

Alternative route 2 for the proposed project is recommended by the Ecological Impact Assessment Report, after taking all issues into account.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication Name	Randfontein Herald and Krugersdorp News	
Date Published	13 December 2016 and 11 January 2017	
Site Notice Position:	**Latitude**	**Longitude**
Randfontein Library	26°10'54.20"S	27°42'0.87"E
West Rand District Municipality	26°10'52.69"S	27°42'6.24"E
Kerk, Tarlton	26° 5'9.89"S	27°39'48.74"E
Randfontein Golf Club	26° 9'22.52"S	27°42'49.90"E
Cemetery Fence	26° 8'57.20"S	27°41'48.35"E
Intersection R24 and North way Road	26° 4'58.11"S	27°39'31.09"E
Along North way Road	26° 6'58.25"S	27°40'7.10"E
Date Placed	9 January 2017	

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 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733:

Title, Name and Surname	**Affiliation/ Key Stakeholder Status**	**Contact Details (telephone number or e-mail address)**
Refer to Appendix E.5 for a list of key stakeholders		

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of Main Issues Raised by I&APs	**Summary of Response from EAP**
Comments from the Draft BAR review period have been included in the comment and response report (CRR) attached in Appendix E.3. This Draft Basic Assessment Report (BAR) has been on public review for the following periods: First Public Review period took place from 6 January – 6 February 2017, after which additional studies had to be undertaken and the Draft BAR Revision 2 was made available to the public for a second time during 12 April to 17 May 2017. As a result of lapsing regulated timeframes the proposed project was re-applied for through submission of new application form and the Draft BAR was placed on public review for a third time from 22 May – 22 June 2017. All comments received during these public review periods have been collated and included in the Comments and Response Report (Appendix E.3)	

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Final 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.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

NAME	ORGANISATION	TEL/MOBILE	FAX	PHYSICAL ADDRESS	EMAIL ADDRESS
Samu Mdlalose	Mogale City Local Municipality	011 951 2112		P. O. Box 94, Krugersdorp, 1740	
Gladys Mahlangu	Westonaria Local Municipality	011 411 0447	0114110196	P. O. Box 218, Randfontein, 1760	gladys.ngwana@randfontein.org.za
Hettie Buys	Department of Agriculture, Forestry and Fisheries: Directorate - Land Use and Soil Management	012 319 7556	012 329 5938	Conner Annie Botha and Union Street, Riveria, Pretoria	hettieb@daff.gov.za
Vongani Mhinga	Department of Water and Sanitation	012 392 1503		Bothongo Plaza East, 15th Floor, 285 Schoeman Street, Pretoria, 0002	mhingav@dws.gov.za
M. E. Tau	Department of Agriculture, Forestry and Fisheries (DDG: Forestry and Natural Resources Management)	012 309 5713		Hamilton Building, 110 Hamilton Street, Arcadia, Pretoria, 0002	MmaphakaT@daff.gov.za
Maurice Mogane	Department of Public Transport, Roads and Works	011 355 7173	011 355 7243	Suige Life Building, 41 Simmons Street, Johannesburg	mauricem@gpg.gov.za
Thomas Ndou	Department of Economic Development	012 394 1001 082 416 7207		Block A, Floor 3, The DTI, 77 Meintjies Street, Sunnyside, 0002	odgcorrespondency@economic.gov.za
Annelize Roesch	Rural Development and Land Reform	012 312 8503	012 323 6072	184 Jeff Masemola Street, Pretoria, 0002	aroesch@ruraldevelopment.gov.za
Maggie Mapula Modipa	Gauteng Department of Infrastructure Development	011 355 5500	011 355 7457	Local Government Building, 17th Floor, Cnr Sauer and Commissioner Street, Johannesburg	mapula.modipa@gauteng.gov.za
Nhlanhla Ntjatje	Gauteng Department of Roads and Transport	011 355 7188	086 554 7265	8th Floor, South Tower, 41 Simmonds Street (Conner Pritchard), Johannesburg	nhlanhla.ntjatje@gauteng.gov.za
Tebogo Molokomme	South African Heritage Resources Agency - Gauteng	011 355 2500	011 355 2878	Surrey House, 35 Rissik Street, Johannesburg, 2000	tebogo.molokomme@gauteng.gov.za

NAME	ORGANISATION	TEL/MOBILE	FAX	PHYSICAL ADDRESS	EMAIL ADDRESS
Cindy Benyane	Commission on Restitution of Land Rights - Gauteng Regional Office	012 310 6620	012 324 5812	9 Bailey Street, Arcadia, Pretoria, 0002	cindy.benyane@drdlr.gov.za
Lizel Stroh	South African Civil Aviation Authority: Obstacle Specialist	011 545 1232		Building 16, Waterfall Park, Bekker Street & Treur Close, Midrand, Johannesburg, 1682	strohl@caa.co.za
Bonolo Tau	Telkom	012 311 3411 081 354 8335		152 Proes Street, Pretoria, 0002	tau.bm@telkom.co.za
Schalk du Plessis	Transnet SOC Ltd.	011 308 2771		Carlton Centre 150 Commissioner Street Johannesburg 200	Schalk.du_Plessis@transnet.net
Nono Gomez	SANRAL	012 426 6201	012 348 1512	48 Tambotie Avenue, Val de Grace, Pretoria	gomes@nra.co.za
Mosidi Makgae	Council for Geoscience	012 841 1911	012 841 1203	280 Pretorious Street, Silverton	mmakgae@geoscience.org.za
Cllr Thembi Matuwane	West Rand District Municipality - Environment	011 411 5204	086 613 9476	Cnr Sixth and Park Streets Randfontein	tmatuwane@wrdm.gov.za
Samu Mdlalose	Mogale City – Environmental Management	011 951 2112		Cnr commissioner and market streets Randfontein, krugersdorp	Samukelisiwe.mdlalose@mogalecity.gov.za
T Ndlovu	Municipal Manager Westonaria Local Municipality	011 278 3000		Neptune and Saturn Streets, Westonaria	mm@westonaria.gov.za
Lana Olivier	Randfontein Local Municipality	011 411 0051		Cnr Sutherland and Pollock streets, randfontein	lana.olivier@randfontein.gov.za

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

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. 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, 2014 and must take applicable official guidelines into account. The issues raised by interested and affected parties must 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.

Activity	**Impact summary**	**Significance**		**Proposed mitigation**
		Pre – mitigation	**Post mitigation**	
Alternative 1 (preferred)				
Construction Phase				
Increased soil erosion due to the removal of vegetation	***Direct Impact*** *Soil erosion and degradation*	Low	Very Low	• Undertake vegetation clearing during the dry season; • Only clear vegetation where absolutely necessary; and • Stockpile areas will be decided and approved by the Project Manager and appointed ECO before construction commences on site and must not be located within drainage lines.
Surface water contamination and degradation due to oil and fuel leaks from construction vehicles	***Direct Impact*** *Surface water contamination and degradation*	Moderate	Very Low	• All construction vehicles must be kept in good working condition; • All construction vehicles must be parked in demarcated areas when not in use, and the soil in this area must be rehabilitated (if required); • Drip trays must be placed under construction vehicles when not in use; to collect any spillages/leaks if necessary; • Construction activities associated with the establishment of access roads drainage lines (if unavoidable) must be restricted to a working area 10m in width either side of the road, and these working areas must be clearly demarcated. No vehicles, machinery, personnel, construction material, cement, fuel, oil or waste must be allowed outside of the demarcated working areas; • No fuel storage, refuelling, vehicle maintenance or vehicle depots must be

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
				allowed within 30m of the edge of any drainage lines; • Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and must have bunds around them. Bunds must be sufficiently high to ensure that all the fuel kept in the area is captured in the event of a major spillage; • Vehicles and machinery must not be washed within 30m of the edge of any drainage line; • No effluents or polluted water must be allowed to discharge into any drainage lines; • If construction areas are to be pumped of water (e.g. after rains), this water must be pumped into an appropriate settlement area, and not allowed to flow straight into any drainage lines; • Freshwater ecosystems located in close proximity to construction areas (i.e. ~30m) must be inspected on a regular basis by the ECO for signs of disturbance from construction activities, and for signs of sedimentation or pollution. If signs of disturbance, sedimentation or pollution are noted, immediate action must be taken to remedy the situation and, if necessary, a freshwater ecologist must be consulted for advice on the most suitable remediation measures; • The construction footprint along the watercourse (perennial river associate with Bloubankspruit) must be limited as far as possible; and • If a hydrocarbon spillage occurs, clean it up immediately and dispose of at an appropriate registered landfill site.
Degradation of watercourses due to the construction of the proposed power line and associated infrastructure	***Direct Impact*** *Degradation of the watercourse due to the erection of the pylons and 132kV cable*	Moderate	Very Low	• Ensure that pylon structures are kept at a minimum of 50m outside of the outer edge of any watercourse or drainage lines; • Use existing access roads as far as possible; • Construction impacts must be contained within the servitude of the power line; • No mixing of cement/concrete must take place within 50m of aquatic features or on bare soil; • All drainage lines must generally be treated as “no-go” areas and appropriately

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
				demarcated as such. No vehicles, machinery, personnel, construction materials, cement, fuel, oil or waste must be allowed into these areas without the express permission of and supervision by the ECO; • Construction activities associated with the establishment of access roads through drainage lines (if unavoidable) must be restricted to a working area of 10m in width either side of the road, and these working areas must be clearly demarcated. No vehicles, machinery, personnel, construction material, cement, fuel, oil or waste must be allowed outside of the demarcated working areas; • Construction camps, toilets and temporary laydown areas must be located at least 100m from the edge of any wetlands and drainage lines; • No temporary accommodation or temporary storage sites to be erected within 100m of the any river, stream, drainage line, pan, wetland or farm dam. • Positioning of the foundation slabs for the pylons must be a minimum of 50m away from the edge of all watercourses. • Positioning of the foundation slabs for the pylons must be a minimum of 50m away from the edge of riverbanks and riparian zones, if present. • No fuel storage, refuelling, vehicle maintenance or vehicle depots must be allowed within 50m of the edge of any drainage lines; • Vehicles and machinery must not be washed within 50m of the edge of any drainage line; • No effluents or polluted water must be allowed to discharge into any drainage lines; • If construction areas are to be pumped of water (e.g. after rains), this water must be pumped into an appropriate settlement area, and not allowed to flow straight into any drainage lines or wetland areas; • Freshwater ecosystems located in close proximity to construction areas (i.e. ~30 m) must be inspected on a regular basis by the ECO for signs of disturbance from construction activities, and for signs of sedimentation or pollution. If signs of disturbance, sedimentation or pollution are noted, immediate action must be

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
				taken to remedy the situation and, if necessary, a freshwater ecologist must be consulted for advice on the most suitable remediation measures; • Workers must be made aware of the importance of not destroying or damaging the vegetation along drainage lines, of not undertaking activities that could result in the pollution of drainage lines, and of not killing or harming any animals that they encounter. This awareness must be promoted throughout the construction phase (and decommissioning phase, if applicable); • Ensure that unnecessary impacts on watercourse do not occur; and • Proper erosion control structures must be constructed.
Floral destruction and faunal displacement due to vegetation clearance activities taking place along the proposed power line alignments and servitude routes	***Direct impact*** *Loss of flora and fauna due to construction activities*	Moderate	Very Low	• Construction impacts must be contained within the footprint of the pylon structures and/or the servitude routes of the power line; • Use existing access roads as far as possible; • Vegetation clearance must be conducted systematically from the start to the end of the route to allow fauna to move away; • Avoid strip clearing; • Vegetation must be removed only where construction is to take place; • Sequential construction must occur in order to allow faunal species to move away from the area of disturbance; • Construction activities must be restricted to daylight hours when the majority of faunal species are inactive; • No animals may be snared, captured or wilfully damaged or killed; • Species such as tortoises and porcupines must be moved to surrounding areas if encountered on site and not collected as this is illegal; • During construction phase, existing access roads must be used where possible especially in the wooded habitats where a lot of vegetation will have to be removed if there is no access road; • Clearing of the servitude must be as narrow as possible to prevent major destruction of habitats;

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
				• No trees may be affected in the grassland habitats where sufficient space is available for the tweaking of pylon positions; • A road management plan must be compiled, showing allocated access points and roads, to prevent tracks all over the landscape; and • The removal of large sections of woodland in densely wooded areas must be avoided.
Increased noise generation due to construction activities and the movement of construction vehicles	***Direct impact*** *The construction activities will cause an increase in the ambient noise levels*	Very Low	Very Low	• Construction time must be restricted to working hours (07:00-18:00) Monday to Friday excluding public holidays (unless prior permission is obtained from the landowners); • All noise and sounds generated during the proposed activity must comply with the relevant SANS codes and standards; • All construction equipment or machinery must be switched off when not in use; • Construction equipment must be kept in good working condition; • Plant and vehicles must be in good working order and inspected daily; and • Use silencers on all equipment, where appropriate.
Increased dust generation due to the clearing of vegetation, construction activities and earthworks	***Direct impact*** *Construction activities will cause an increase in ambient dust levels for a short period of time*	Very Low	Very Low	• No potable water may be used for dust suppression (as far as is practically possible). Alternative dust suppression methods (such as shade cloths or dusticide) must be used instead; • Water to be used sparingly and only where no water restrictions are in effect; • Water to be sourced from an approved supplier; • The option to use grey water must be investigated prior to construction; • The soil must be dampened with water during/ after vegetation removal (where practical); • The clearing of vegetation must be kept to the minimal; and • Avoid unnecessary movement of construction vehicles on site.
Increased occurrence of fires due to unmanaged fires and its increased severity due to human interference	***Direct impact*** *Increased risk of damage due to unmanaged fires*	Low	Very Low	• The safety officer must control on-site fires; • Firefighting equipment to be kept on site and serviced regularly; and • No fires to be lit on site and smoking to occur in designated areas only.

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
Increased damage to roads due to the continued travelling of vehicles on minor and gravel roads during the construction phase	***Direct impact*** *Increased damage to local roads due to increased traffic volumes*	Very Low	Very Low	• Limit construction vehicles to 20km/h on access roads and keep to the speed limit on public roads; and • Regular monitoring of roads for damage must be undertaken, followed by immediate repair of any damage resulting from use of heavy machinery.
Increase in traffic volumes and associated congestion due to the transportation and construction vehicles travelling to and from the construction site	***Direct impact*** *Increase in traffic congestion due to the construction vehicles*	Very Low	Very Low	• Limit construction vehicle movement during peak periods.
Change in visual aesthetics due to construction activities, placement of construction equipment and disposal of construction waste material	***Direct impact*** *Adjacent residents may be visually impacted on by the unsightliness of the construction camp (depending on the location of the camp).*	Low	Very Low	• Construction vehicles must be kept in demarcated areas only so as to reduce the visual intrusion of the construction activities; • During construction, all materials and stockpiles must be covered with tarps to prevent erosion, as well as dust, and to mitigate the visibility thereof (where required and as directed by the ECO); • Construction workers must ensure and implement good housekeeping practises to minimise the visual impact of waste and discarded materials; and • Construction activities to be kept to normal daytime working hours as far as possible to prevent the impact of floodlights and other sights during resting hours.
Soil contamination due to spillage of hazardous substances, oil and fuel leaks at the construction site from the transportation and construction vehicles as well as accidental spillages	***Direct impact*** *Degradation of the soil due to spillages*	Moderate	Very Low	• Store fuels and chemicals in an impermeable bunded area; • Provide staff with hazardous materials training; • Chemical toilets to be used on site, grey water must be disposed of off-site at a licensed waste treatment works; • No storage of fuel on site, vehicles to be fuelled off-site; • No mixing of cement/concrete must take place within 30m of aquatic features or in natural vegetation; • No servicing or repair of vehicles on site (unless absolutely necessary); • No concrete mixing on site unless on a mortar board; • Water used to clean concrete off of machinery must be treated as grey water and disposed of at a licensed water treatment works;

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
				• Construction vehicles must be maintained on a regular basis so as to prevent oil spills/leaks; • Drip trays must be placed under vehicles when not in use; and • If a hydrocarbon spillage occurs, it must be cleaned up immediately and disposed of at an appropriate registered landfill site.
Increased domestic waste generation (solid waste) and insufficient management on site	***Direct impact*** *Unsightly litter on site*	Low	Very Low	• Keep waste in vermin proof bins with lids (as needed); and • Waste to be removed from site on a regular basis.
Loss of Riparian vegetation along watercourse crossings and drainage lines due to the construction of the power line	***Direct impact*** *Loss of riparian vegetation due to construction vehicles*	Low	Very Low	• No access roads must be constructed within 32m of a watercourse and/or drainage lines, unless no alternative is possible; • No temporary accommodation or temporary storage sites to be erected within 100m of the any river, stream, drainage line, pan, wetland or farm dam; • Positioning of the foundation slabs for the pylons must be a minimum of 50m away from the edge of riverbanks and riparian zones, if present; and • If access roads/ tracks must pass through drainage lines, the footprint must be a small as possible.
Increased risk of alien invasion by vegetation species due to unmanaged vegetation clearing activities taking place on site	***Direct impact*** *Increase in alien invasive species due to vegetation clearing activities*	Low	Very Low	• An alien vegetation management plan must be implemented as directed by the ECO. The plan must limit vegetation clearing to the servitude of the powerline. This plan must be developed prior to construction.
Loss of avifauna and roosting sites due to the clearance of vegetation for the power line servitude	***Direct impact*** *Loss of avifaunal species and roosting sites*	Moderate	Very Low	• Powerline routes should be routed alongside existing infrastructure such as existing powerlines, roads, buildings, and railway lines where possible; • To avoid electrocution by large species such as vultures, the vertical phase-earth clearance should be greater than 1.8m; • All jumpers at transformers, T-offs and strain structures should be insulated; • Only pole structures that are approved as "bird friendly" by Eskom's ENVIROTECH Forum should be used; • Diverters on the earth wires must be installed as per specifications devised by the Endangered Wildlife Trust; • Once the final route has been decided, a detailed walk-through must be

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
				undertaken by a qualified avifaunal specialist to identify the sections of line that require diverters; • Construction should commence in the early winter months in order to minimise the impacts on the breeding activities of avifaunal species especially grassland and wetland species; • The construction corridor of the selected alignment must be closely inspected before the start of construction in order to locate any active nests; • Reduce the construction time where possible and schedule construction activities around avian breeding schedules where practical; • Lower the levels of associated noise; and • Restrict the construction activities to the footprint area. Do not allow any access to the remainder of the properties. Make maximum use of existing roads.
Destruction of heritage sites (grave sites) identified along various sections of the proposed power line alignment due to construction of the servitude routes	***Direct impact*** *Loss of heritage resources constituting a high local significance*	Low	Very Low	• If any palaeontological materials (such as dense bone accumulations) are uncovered during the course of development then work in the immediate area must be halted. The find will need to be reported to the heritage authorities and may require inspection by an appropriate specialist. Such heritage is the property of the state and may require excavation and curation in an approved institution.
Increase in crime due to the creation of additional access roads and or thoroughfares to surrounding areas during the construction phase	***Direct impact*** *Increase in crime due to increase in workers within the town*	Low	Very Low	• Workers will not be allowed to stay overnight at the crew camps unless authorised by the ECO (as applicable).
Temporary job creation during the construction of the proposed power line and associated infrastructure	***Direct impact*** *Unskilled labour force may be required for construction activities*	Very Low Positive	Low Positive	• The development must proceed and must employ local labour as far as possible; and • The employment of people from disadvantaged backgrounds must be motivated.
Impacts on Ecological Support Areas, Important Areas, Irreplaceable and associated sensitive areas and species during the construction of the proposed power line and associated infrastructure	***Direct Impact*** *Loss of sensitive fauna and flora species*	Low	Very Low	• Limit construction activities to the footprint of the power line servitude; and • Ensure that pylon structures are located outside of the immediate reaches of the Ecological Support Areas, Important Areas, Irreplaceable Areas and associated sensitive areas and species.
Potential increase in HIV/ AIDS in the	***Indirect impact***	Moderate	Very Low	• HIV & AIDS awareness discussions must be given to the workers on a regular

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
area due to construction workers (migrant labour) associated with the proposed development	*Due to the increase in workforce within the town, there may potentially be an increase in sexually transmitted diseases*			basis by the relevant personnel.
Impacts on agricultural potential and expansion due to the placement of the pylon structures in existing potential farm lands resulting in the minor loss of arable land or potential expansion of farming activities	***Indirect impact*** *Due to the location of pylon structures and the servitude restrictions, farming activities may be compromised*	Very Low	Very Low	• Locate pylon structures within natural fire breaks within the currently farmed areas (where possible); and • Compensate farmers for the loss of arable land / servitude restrictions.
Operational Phase				
Economic growth and development in the surrounding area due to the strengthening of the existing electricity network to a point where it is stable and reliable and allowing future development and expansion of operations in the area	***Direct impact*** *Due to the power line stabling the electricity grid and allowing for future development- economic benefits will be realised*	Low Positive	Medium Positive	• Continue with the proposed development and ensure that the line is maintained.
Increased theft and vandalism of the distribution line and associated infrastructure resulting in the occurrence of potential deaths, interruption in electricity supply and the increased maintenance intervals	***Direct impact*** *Increase in theft of electrical cables*	Low	Very low	• Install anti-climb pylons; and • Access control at the substation needs to be implemented.

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
Increased risk of alien invasion by vegetation species due to the disturbance in the landscape during operational and maintenance activities	***Direct impact*** *Increase in alien invasive species*	Moderate	Very low	• Areas disturbed due to maintenance activities must be rehabilitated as quickly as possible; • Soil stockpiles must not be trans-located from areas with alien plants into the site; • Within the site, alien plants on stockpiles must be controlled so as to avoid the development of a solid seed bank of alien plants within the stock-piled soil; • Any alien plants must be immediately controlled to avoid establishment of a soil seed bank; and • Create an integrated alien invasive management programme to be implemented during maintenance activities.
Increased collision and electrocution of avifauna and resulting mortality of these large terrestrial bird species due to building nests on pylon structures	***Direct impact*** *Loss of avifauna due to electrocution and collisions*	High	Low	• Informed selection of low impact alignments for new power lines relative to movements and concentrations of high risk species; • Use of either static or dynamic marking devices to make the lines and the earthwires more conspicuous; • Ensure that all new lines are marked with bird flight diverters along the entire length using industry standard markers and marker fitting protocols; • Identified high risk sections of the power line need to be installed with a suitable anti-bird collision marking device approved by Eskom, and as per the Eskom standards; • Fit bird perching bracket to the top of the pole; • Due to the potential for nocturnal collisions, it is recommended that the experimental LED bird flapper is used.
Increased alteration of hydrology of drainage lines and other watercourses due to the establishment of distribution line pylons within or immediately adjacent to freshwater ecosystems	***Direct impact*** *Alteration of watercourses due to the establishment of the pylons within the watercourse due to maintenance activities*	High	Low	• Use existing access roads where possible; • Do not establish new access roads within drainage lines; and • Limit maintenance footprint within drainage lines.
Floral destruction and faunal displacement due to clearing or trimming of natural vegetation located	***Direct impact*** *Maintenance activities resulting in the loss of*	Low	Very low	• Maintenance impacts must be contained within the footprint of the pylon structures and / or the servitude routes of the power line;

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
within the servitude of the power line as part of routine maintenance operations	*flora and fauna*			• Ensure that unnecessary impacts on natural vegetation do not occur; • Vegetation clearance must be conducted systematically from the start to the end of the route to allow fauna to move away; • Avoid strip clearing; • Maintenance activities must be restricted to daylight hours when the majority of faunal species are inactive; and • No animals must be snared, captured or wilfully damaged or killed.
Degradation of the cultural landscape and scenic qualities of the environment due to the proposed power line extending across such landscape	***Direct impact*** *Visual intrusion of the power line*	Low	Very low	• Align the power line as close as possible to existing power lines so as to keep visual impacts clustered; • Ensure that vegetation is not unnecessarily removed during the construction period • Reduce the construction period through careful logistical planning and productive implementation of resources • Reduce construction activities to daylight hours where possible in order to reduce lighting impacts • Rehabilitate all disturbed areas immediately after construction • Crossings with linear features (roads, rail lines etc.), should be made at a right angle • Structures should be set as far back from the crossing of existing linear features as possible • Introduce trees to the landscape at strategic points next to the line in order to break the full exposure of the powerline. Additional studies will be required in this regard • Efforts must be made to maintain the construction site in a clean and orderly condition during the construction phase • Galvanized steel on structures should be darkened to prevent glare • Select paint finishes with a low level of reflectivity
Increased soil erosion due to the deterioration of access roads to the	***Indirect impact*** *Soil erosion due to*	Very low	Very low	• Apply the appropriate erosion protection measures where erosion is identified;

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
power line servitude for operation and routine maintenance activities	*maintenance activities*			• Regular maintenance of the identified access roads as and when required; • Improve the access of the identified access roads to ensure suitable passage for equipment, erosion control and maintenance of proper drainage; and • Maintenance staff to stay on the designated access roads at all times.
Stimulation and growth of the local economy due to the provision of a stable electricity supply which will lead to the steady growth and economic development of the surrounding regions	***Cumulative impact*** *Taking into consideration the future infrastructural upgrades that will occur, the local economy may increase*	Low Positive	High Positive	• Infrastructure maintenance must be prioritised to ensure that the provision of stable electricity is not interrupted and future upgrades along this corridor must be encouraged.
Increased visual impact of additional powerlines due to the existence of other powerlines in the vicinity of the proposed powerline	***Cumulative impact*** *Taking into consideration the impact additional lines will have on surrounding environment*	Low	Very Low	• Ensure new powerlines are were possible, placed in the same vicinity as existing powerlines therefore minimising the impact of sense of place.
Decommissioning Phase				
Please note that due to the nature of the project and the fact that the project is an infrastructural project, no decommissioning is envisaged. However must decommissioning occur, the following impacts may be applicable:				
Waste generation in the form of generating metal and concrete waste during decommissioning activities	***Direct impact*** *Solid waste generation due to decommissioning activities.*	Low	Very low	• Waste generation must be managed according to Eskom's guidelines and standards; and • All material that can be recycled must be recycled where possible. The rest of the rubble must be disposed of at an appropriate landfill site.
Water and soil contamination due to hydrocarbon spills which may spill from decommissioning vehicles and/or machinery	***Direct impact*** *Soil and water degradation due to decommissioning activities*	Low	Very low	• Contaminated soil must be removed and disposed of at an appropriate registered landfill site; • Heavy vehicles and/or machinery must be serviced and maintained regularly; • No fuel storage, refuelling, vehicle maintenance or vehicle depots must be allowed within 30m of the edge of any watercourse or drainage lines; • No effluents or polluted water must be allowed to discharge into any drainage lines or watercourse areas; and

Activity	Impact summary	Significance		Proposed mitigation
		Pre – mitigation	Post mitigation	
				• The construction footprint along the watercourse must be limited as possible.
Alternative 2				
The proposed impacts will be the same as that for Alternative 1 however, because Alternative 2 doesn't run as closely to the wetland areas the impacts on ecological and wetlands is lower for this alternative. Mitigation measures as stipulated above are applicable to Alternative 2.				
Alternative 3				
The proposed impacts will be the same as those for Alternative 1 however, because Alternative 3 is the longest route and crosses the Bloubankspruit more times this route will have a larger impact on the surrounding watercourses and ecological aspects and is therefore considered the least preferred option.				
No-go option				
No job creation	***Direct impacts:*** No jobs will be created if the construction of the power line does not take place	High negative		• Commence with the proposed power line construction
Inhibition of economic growth and development	***Direct impacts:*** If the power line is not constructed, inhibition of the economic growth and development of the surrounding regions will occur	High negative		• Commence with the proposed power line construction

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

Cumulative Impacts				
Aspect	Impact	Cause	Mitigation	Detailed Description
Climate	Release of greenhouse gas emissions	• Land based vehicle activity • Clearing of vegetation negatively affects carbon sequestration efficiency and increase emissions resulting from decomposition	• Ensure vehicle exhaust systems function correctly. • Ensure energy reduction practices are developed implemented.	The release of greenhouse gasses and other contaminants to the atmosphere is expected as a result of land based vehicle activities. The clearing of vegetation negatively affects carbon sequestration efficiency and increase emissions resulting from decomposition. These impacts are regarded as insignificant in terms of contribution. The risks are recognised as a cumulative

Cumulative Impacts				
Aspect	Impact	Cause	Mitigation	Detailed Description
				impact.
Air Quality	No impact expected	N/A	N/A	N/A
Noise	Increased ambient noise from increased traffic	• More vehicles in the immediate area. • Increased number of people visiting.	• Limit noise after working hours therefore between 18h00 and 6h00.	As a result of increased traffic and movement of people within the recreational facility the ambient noise of the area may be altered. However it is expected that the impact will be insignificant.
Soils	Loss of natural Resource (topsoil)	• Soil erosion • Soil contamination by chemicals and hydrocarbons	• Commence rehabilitation of affected and completed areas • Application of soil emplacement and storage practices • Fertilisation and amendments • Erosion control and treatment • Implementation of good housekeeping practices (vehicle maintenance and waste management) • Correct storage of dangerous goods, waste and other material which may cause contamination • Spill clean up	The loss of topsoil as a natural resource may be regarded as cumulative impact
Hydrology/ Surface water	Surface water pollution	• Soil erosion • Soil contamination by chemicals and hydrocarbons • Microbial contamination from waste streams generated on site	• Implementation of good housekeeping practices (vehicle maintenance and waste management) • Correct storage of dangerous goods, waste and other material which may cause contamination • Spill clean up	Surface water quality impacts will extend beyond the boundary of the site if not managed appropriately.
Biodiversity (Flora and Fauna)	Loss of biodiversity and disruption of existing e functioning	• Land transformed for the recreational facility • Anthropological activities (poaching, pollution)	• Preservation of vegetation • Implementation of conservation practices (including the control of weeds and alien invasive species)	The cumulative impacts relate to land transformation resulting in the loss of habitat. The habitat type is not regarded as threatened and not unique the area and the impacts on a regional scale is not expected to be significant.
Heritage	No impact	N/A	N/A	N/A

Cumulative Impacts				
Aspect	Impact	Cause	Mitigation	Detailed Description
	expected			
Visual	Visual disturbance and change of landscape character.	• The construction and operation of the powerlines	• None	Since the area is fairly built up it is not expected that the cumulative impact will be of high significance.
Traffic	Increased traffic	• Increases in construction vehicles as well as private and public vehicles during operation. • Increased commuter traffic	• Adhere to speed limits and road signage	The increase in traffic flow may have an impact on regional and national roads in the area. The impact is regarded as minor.
Socio-economic	Stimulation and growth of the local economy due to the provision of a stable electricity supply which will lead to the steady growth and economic development of the surrounding regions	• Better access to electricity	• None	Infrastructure maintenance must be prioritised to ensure that the provision of stable electricity is not interrupted and future upgrades along this corridor must be encouraged.

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 A (preferred alternative)

It has been illustrated that with the implementation of the above mitigation measures and Environmental Management Programme, all the identified impacts can be mitigated to acceptable levels, thus allowing the proposed development to proceed. Impacts along all three (3) alternative routes are very similar with only a few differences in significance for some identified impacts. Route Alternative 1 is very similar to that of Alternative 3 except for one section. Both Alternative 1 and 3 are aligned parallel to the Bloubankspruit for almost 2km which therefore has a greater impact on the watercourse and ecological aspects of the area. However, despite this, all impacts associated with Route Alternative 1 are mainly of a short – medium term, with a significance rating of low – very low (with the implementation of mitigation measures).

It should be noted that all environmental impacts associated with **Alternative 1** can be successfully mitigated to **acceptable levels** if the recommended mitigation measures above and in the EMPr are adhered to. Therefore, this alternative can be considered. However, it should be highlighted that the Wetland, Ecological, Visual and Avifaunal specialist studies rated this as the route as **less preferred over Alternative 2** as the impacts on wetlands, ecological and avifauna are greater due to the close proximity of the powerline to the wetland areas. It should also be noted that this route primarily follows Alternative 1 of the Randfontein line/route (14/12/16/3/3/1/1771). As a result if both Alternative 1 routes are selected this will have less of an impact on the surrounding environment during construction.

Alternative B

It has been illustrated that with the implementation of the above mitigation measures and Environmental Management Programme, all the identified impacts can be mitigated to acceptable levels, thus allowing the proposed development to proceed. Impacts along all three (3) alternative routes are very similar with only a few differences in significance for some identified impacts. Route Alternative 2 is the shorter when compared to the other alternatives and as such will have a smaller overall footprint and similarly smaller environmental impact on the receiving environment. This route is also further from the Bloubankspruit and therefore has less of an impact on watercourses and ecological aspects in the area. In terms of Social impacts this is regarded at the most preferred route. All impacts associated with Route Alternative 2 are mainly of a short – medium term, with a significance of low – very low (with the implementation of mitigation measures).

It should be noted that all environmental impacts associated with **Alternative 2** can be successfully mitigated to **acceptable levels** if the recommended mitigation measures above and in the EMPr are adhered to. The Wetland, Ecological, Visual and Avifaunal specialist studies rated this as the route most preferred. Therefore, from an **Environmental Perspective** this route is considered the **most preferred**. It should also be noted that this route primarily follows Alternative 2 of the Randfontein line/route (14/12/16/3/3/1/1771). As a result if both Alternative 2 routes are selected this will have less of an impact on the surrounding environment during construction.

Alternative C

It has been illustrated that with the implementation of the above mitigation measures and Environmental Management Programme, all the identified impacts can be mitigated to acceptable levels, thus allowing the proposed development to proceed. Impacts along all three (3) alternative routes are very similar with only a few differences in significance for some identified impacts. Route Alternative 3 is very similar to that of Alternative 1 except for one section. Both Alternative 1 and 3 are aligned parallel to the Bloubankspruit for almost 2km which therefore has a greater impact on the watercourse and ecological aspects of the area. Furthermore Alternative 3 crosses the Bloubankspruit three times and runs parallel with the drainage channel for a short distance before joining the Tarlton sub-station. However, despite this all impacts associated with Route Alternative 1 are mainly of a short – medium term, with a significance rating of low (with the implementation of mitigation measures).

It should be noted that while all environmental impacts associated with **Alternative 3** can be successfully mitigated to **acceptable levels** if the recommended mitigation measures above and in the EMPr are adhered to. This Alternative is considered **least recommended** by the Visual, Ecological and Avifauna specialists for is close proximity to the Bloubankspruit and being the longest route alternative. **Objections** to this during the **stakeholder engagement** also deter from this alternative being chosen.

No-go alternative (compulsory)

The significance ratings of this alternative are high negative, this is based on the facts that no job creations will occur if the proposed project does not go ahead and the economic growth of the affected municipalities will not benefit if this proposed project is not undertaken. This is not in line with the goals of the NDP for 2030 which endeavours to create jobs as well as enhance the economy.

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**	~~NO~~

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

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

The recommendations that may be included, if the Environmental Authorisation (EA), if granted, may include the following:

- The contractor must abide by the recommendations and mitigation measures provided in this document, the specialist studies undertaken as well as the EMPr that forms part of this report;
- A Specialist walk down assessment, including avifauna, heritage, wetland and ecology, should be undertaken prior to final pylon position placement;
- An ECO must be appointed by the applicant to ensure compliance with the recommendations stipulated within the EMPr as well as the conditions of EA, if granted, and other legislation deemed necessary by DEA;
- The construction must not commence without a Water Use License (WUL) or General Authorisation (GA) issued by the Department of Water and Sanitation (DWS) in terms of the National Water Act, 1998 (Act No. 36 of 1998) as amended (NWA);
- As highlighted in a comment by Sibanye the land is prone to excavations, shallow mining and old mining operations and therefore Eskom must liaise with the Sibanye mine engineers during the planning of final pylon placement; and
- The proposed power line development must be undertaken in accordance with the relevant legislation.

The mitigation measures, if the EA is granted, must include those listed in the above impact assessment, the attached impact assessment as well as the EMPr that forms part of this report, and any other information as required by DEA.

Is an EMPr attached?	**YES**	~~NO~~

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.

Chevonne Stevens

NAME OF EAP

26 June 2017

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